



*Saving Energy for the Next Generation*

**STOCK CATALOG 1050**

Electric Motors, Gearmotors and Drives  Sub-Fractional to 700 HP

Effective December 6, 2010

# New Products From:



*Saving Energy for the Next Generation*

Boat Hoist Duty Motors ..... See page 108

TEFC JP Pump Motors ..... See page 128

Extended line of IEEE-841 Motors.... See page 58

Lincoln Fire Pump Duty Motors .... See page 212

48 Frame Stainless Washdown  
Duty Motors ..... See page 92

IEC Metric Stainless Washdown  
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GE Commercial Motors by Regal-Beloit -  
HVAC Motors ..... See page 112

Cast Iron – Rodent Screen –  
Farm Duty Motors ..... See page 73

Lincoln Ultimate E™ NEMA Premium  
Cast Iron Motors ..... See page 47

SM4 - NEMA 4 Vector Inverters ..... See page 205

## Cover Designer



The LEESON 1050 Cover image was designed by Cindy Perez-Rondeau, in a company-wide cover design contest. Cindy has worked as a Marketing Communications Specialist at LEESON for 10 years. Her recent successes, were being the Project Lead for the re-design of leeson.com, and coordinating her first EASA Trade Show. She enjoys meeting new challenges, and continuously learning. For fun she likes to travel, read and spend time with family and friends.



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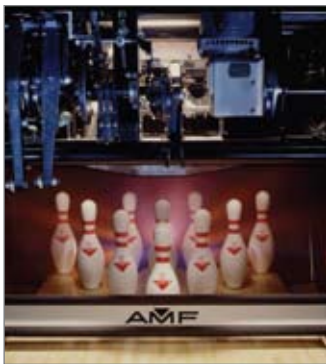
# TOUGH PERFORMING

## FRACTIONAL



### 48-56 Frame

- Totally enclosed, Dripproof & Explosion Proof enclosures
- Rigid base, C-Face with rigid base and C-Face mountings available
- Stocked in both single and three phase
- Designs starting at 1/12 HP up to 3 HP
- Brake motors through 2 HP



### Applications...

- Gear Reducers
- Pumps
- Machine Tools
- Fans and Blowers
- Material Handling
- Machine Tools
- Compressors
- Conveyors

## AGRICULTURAL



### 48-286T Frame

- Designed especially for the farmer or the OEM
- Extra-high starting torque designs: General Purpose, Crop Dryer, Auger Drive, Fan Ventilation, Grain Stirring and more
- Manual and auto reset overload thermal protection
- Fully gasketed design for additional protection
- Sealed Bearings



### Applications...

- Poultry Feeders
- Silo Unloaders
- Crop Drying
- Compressors
- Conveyors
- Pumps
- Barn Cleaners
- Grain Stirrers

## WASHDOWN



### 56-215T Frame

- USDA-approved white epoxy paint
- Cast conduit box with stainless steel cover
- Internal corrosion resistant coatings on frame, base, endshields, rotor & stator
- Single phase motors have electronic encapsulated starting switch
- 100% stainless steel three phase designs available, 1/2 through 10 HP



### Applications...

- Dairies
- Beverage Plants
- Food Processing
- Slaughter Houses
- Bakeries
- Pharmaceutical Plants
- Car Washes

## WASH-THRU/ MULTIGUARD



### 56-445T Frame

- Pressure Encapsulated Technology
- ODP Designs
- Double-sealed bearings
- Premium class F Insulation System
- Steel Frame Construction
- Epoxy Painted – Wash-thru™ motors



### Applications...

- Car Washes
- Food Processing Plants
- Conveyors
- High Dust and Moisture applications

# NG MOTORS FOR GENERAL PURPOSE OR

## DC MOTORS



- 1/4 HP through 3 HP available
- Permanent Magnet Designs
- Removable Bolt-on base
- NEMA C-face designs
- 115 or 230 volt input power ratings – 90 / 180 volt output
- 12, 24, 36 and 48 Volt Low Voltage Designs available
- PWM or SCR type controller rated
- High Starting Torque
- Permanently lubricated sealed bearings



### Applications...

- Pumps
- Conveyors,
- Turntables
- Textile Machinery
- Reeling Equipment
- Medical Equipment
- Treadmills
- Solar Panels

## AC & DC GEARMOTORS



- AC – 115/230V single-phase and 230/460V three-phase designs
- DC – 90, 180 and low voltage designs
- Right-angle and Parallel Shaft designs
- Most common F.L. torque and RPM designs available
- Washdown Designs available
- Bison, Bodine and Dayton Direct Interchange



### Applications...

- Conveyors
- Turn-tables
- Packaging Equipment
- Augers
- Food Processing Equipment

## PUMP MOTORS



- JM/JP close coupled
- UL Listed Fire Pump - Lincoln
- Dripproof, Totally Enclosed, Washdown Duty
- EPAct Efficient designs available
- Jet Pump in single and three phase from 1/2 through 3
- Pool/Square flange available from 1/2 through 2 HP
- Stainless Steel Washdown



### Applications...

- Centrifugal Pumps
- Hydraulic Pumps
- Water System Pumps
- Fire Pumps
- Turbine Pumps
- Vertical End Suction
- Propeller Pumps

## EXPLOSION PROOF MOTORS



### 56-449T Frame

- Single phase fractional to Severe Duty 449T frame
- Class I Group D or Class I Groups C & D, Class II Groups F & G
- 1.15 service factor
- UL Listed for use with Inverters
- Available in EPAct & NEMA Premium™ Efficiency
- Severe Duty Features
- Rigid and C-face mounts available



### Applications...

- Pumps
- Compressors
- Gear Reducers
- Machine Tools
- Conveyors
- PWM Drives
- Petroleum & Gasoline
- Grain Elevators
- Paint Booths

# SPECIFIC DUTY APPLICATIONS

## PREMIUM EFFICIENT MOTORS

**NEMA Premium**



### 143-449T Frame

- Offers high efficiency levels that meet NEMA Premium™
- Built for high cycle or long run-time applications
- Dripproof, Totally Enclosed, Washdown and Explosion Proof enclosures
- Iris Insulation System - WATTSAVEr
- Comes with a full three year warranty



#### Applications...

- Pumps
- Gear Reducers
- Conveyors
- Compressors
- HVAC

## CTAC INVERTER & VECTOR DUTY MOTORS



### 56-445T Frame

- 1/3 HP through 200 HP
- 1024 ppr encoder included designs available
- Class F Thermostat protection
- Precision balanced
- 0 – 60HZ constant and variable torque
- TENV and TEBC designs
- 3-Year Warranty



#### Applications...

- Material Handling
- Extruders
- Conveyors
- Machine Tools
- Transportation

## CRUSHER DUTY MOTORS



### 405T-447T Frame

- 100 HP through 400 HP
- 4140 grade high strength shaft material
- Inverter Rated
- Roller Bearing – Drive end bearing
- Class F thermostat protection
- Steel and Cast Iron Construction



#### Applications...

- Rock Crushers
- Pulverizers
- Mines and Quarries

## ELEVATOR MOTORS



### Submersible

- Intermittent Duty
- 15 HP through 50 HP
- Thermostat Protection
- Three bolt circles for various mounting arrangements
- L32 bracket conversion kit available
- 10 ft long leads
- 6 Floors at speeds up to 200 fpm

### Hydraulic

- Belt Driven Pump type
- NEMA Dimensions
- Dual Rated – 80 & 120 Starts/Hour
- CSA Approved & UL Recognized
- Low Noise and Low Vibration Construction

### VVF (Variable Voltage Variable Frequency)

- 100 fpm to 500 fpm – up to 15 floors
- Encoder Feedback
- Thermostat Protection
- Low Noise Design
- Steel Frame Design

#### Applications...

- Passenger, freight and low-rise elevators
- Dumbwaiters
- Service Elevators
- Geared and Gearless Traction Elevators



Saving Energy for the Next Generation

**E.I.S.A. Facts:**

E.I.S.A. is an acronym for Energy Independence & Securities Act

This law was signed on Dec. 19, 2007 and goes into effect on Dec. 19, 2010. All motor manufactures may not build motors that have a lower nameplate efficiency than the rules allow. Motors can be sold and shipped after Dec. 19, 2010, having the lower efficiency that were built before the deadline.

**General Overview of Levels**

General purpose motors today that meet EPACT, will need to change to NEMA Premium. General purpose motors that were exempt from EPACT, due to voltage, mounting, etc..., will need to change to meet EPACT Motors that are exempt, include motors having special shafts, non-standard Hz, Inverter only motors and TENV motors.

**For more information on EISA, please visit our website at: [leeson.com/energy-efficient/EISAFacts.html](http://leeson.com/energy-efficient/EISAFacts.html)**

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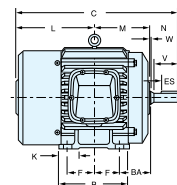
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## GEARING OVERVIEW

(SEE CATALOG 8050 FOR GEARING PRODUCT INFO)

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## GENERAL INFORMATION

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# THOUSANDS OF STOCK POWER TRANSMISSION SOLUTIONS

**LEESON'S off-the-shelf product includes the Lincoln Motors line of Industrial AC motors.**

Together, we now offer over 6,000 stock motors, gearmotors, gear reducers and drives. All are built for industrial use and have numerous features making them easy to install in replacement and new applications.

## MOTORS OF ALL TYPES

Stock motors include both AC and DC designs, from sub-fractional horsepower through hundreds of horsepower for general-purpose use and specific duty applications. All popular enclosures and configurations are available, along with some not-so-easy-to find items. Standard at no extra cost on all stock NEMA three phase motors (1 HP and larger) is LEESON's Inverter-Rated Insulation System (IRIS tm), which provides an extra margin of protection from inverter-induced voltage spikes. Lincoln Motors offers their "ULTIMATE E®" inverter-rated insulation system on their 1HP and larger frame three phase motors.

## GEARING PRODUCTS

The LEESON product array includes both fractional and integral horsepower gear reducers. The popular IRONMAN® worm gear, in both solid and hollow output shaft designs, is a versatile workhorse. Our Stainless Steel line offers single worm, double worm and helical worm designs with ratios ranging from 5:1 through 3600:1 and center distances from 1.33" to 3.250". The NH Series has a narrow profile designed to fit tight space allocations in new or existing equipment. Plus, our heavy duty aluminum Electra-Gear speed reducers withstand the rigors of severe washdown and harsh environments. We also offer our Bravo® line of Aluminum Gear Reducers, a vent-free and oil-free alternative for machine designers.

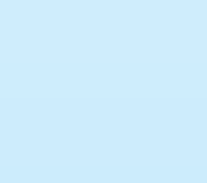
The aluminum LeCENTRIC inline reducers provide bolt-in interchangeability with leading brands and are a lower cost alternative to cast iron. The IRONMAN® High Efficiency line is an industry leader in product offering, which includes Helical-Inline, Helical-Bevel, Helical-Worm and Parallel Shaft reducer and gearmotor designs.

## ADJUSTABLE SPEED DRIVES

Speedmaster drives are a perfect fit with many types of the LEESON and Lincoln three-phase motors. Our Micro Series line of inverters is now available through 60 HP at 230 Volts and through 150 HP at 460 Volts. They also offer easy-to-use- "plain English" programming with built in PID software, making them a closed-loop drive, if needed. For applications through 25 HP, choose the 'SM-Plus Inverter, with its minuscule footprint, "big drive" features and wide range of accessories. If all you require is a "Shaft-turner" for your application needs, choose the SM-Series drive, having the same small footprint and many of the features of our SM-Plus Series, at a great price. We also offer a Sensorless Vector inverter, which offers 200% starting torque and when run with a vector duty motor, full output torque down to 1Hz.

We also offer a competitive line of SCR, PWM, Regenerative and Low Voltage DC Controls.

LEESON Electric and Lincoln Motors are subsidiaries of Regal-Beloit Corporation, a worldwide manufacturer of mechanical and electrical motion control products. LEESON and Lincoln sales offices and warehouses are located throughout North America.







# CUSTOMIZED AND MODIFIED PRODUCTS



## CUSTOM MOTORS, GEARBOXES & GEARMOTORS

LEESON is a leading designer and manufacturer of application-specific AC and DC motors and gearmotors in sub-fractional, fractional and integral horsepower sizes. We offer a database of over 30,000 custom designs, experienced application and design engineering teams, and the unique collaborative environment of the LEESON Design Center to ensure the best, most cost-effective custom motor solution.

## CUSTOM MULTI-SPEED & LOW-SPEED MOTORS

LEESON's PDQ Modular Production Program utilizes specially designed and standard components to make almost any imaginable NEMA frame multi-speed or low-speed motor available when you need it. We pride ourselves on fast turnaround times on highly customized motors.

Custom motors include two, three and four-speed motors and speed ranges of 900, 720, 600, 450 and 300 RPMs. We also specialize in non-standard shaft designs.

**For quotations, availability and application assistance, phone toll-free to our Canadian manufacturing facility at 1-800-463-1797.**

## MOD-SQUAD PROGRAM

**Quick-turnaround stock motor modifications** are available through the LEESON Motor Mod-Squad. Adding cords or switches, changing mountings, extending leads and incorporating various severe-duty features are among the many standard modifications offered.



**Modified stock gear reducers** are offered on a quick-ship basis through the LEESON Gear Mod-Squad. A wide array of mountings, shaft extensions and other changes are available for 600 Series IRONMAN® reducers. In addition, modified stock Gear+Motor™ packages can be created, drawing on LEESON's extensive range of NEMA C face motors.

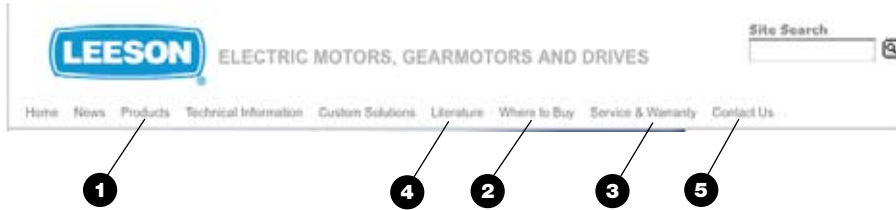


**For complete stock products information, visit our online technical database at [www.leeson.com/findaproduct](http://www.leeson.com/findaproduct).**

# OFFERINGS WITH CUSTOMERS IN MIND

## LEESON.COM WEBSITE

LEESON's website is a user friendly site that offers the features listed below. Our customers also have access to LEeBIZ™, which is our e-business center and provides LEESON Distributor Partners with 24 hour, seven days a week access to stock availability, account status and product features.



### 1 Products

- View our off-the-shelf product offerings of over 6,000 items which include: AC and DC motors, sub-fhp motors and gearmotors, AC and DC adjustable speed drives, NEMA Gear+Motors™, and right-angle gear reducers.

### 2 How To Buy

- This field shows information on how to locate LEESON's nearest sales offices and warehouses as well as our authorized distributors.

### 3 Service & Support

- Locate our authorized service centers by state or country, or use our "search by zip code" field which will locate our nearest authorized service center to your location within a 100-mile radius. This section also lists our product warranty policy as well as outline some simple motor troubleshooting guides.

### 4 Literature

- View product sales bulletins and catalogs or download in Adobe Acrobat PDF format.
- View or download product manuals which include our AC and DC controls, gearboxes and brake kits, as well as technical information, including our motor basic training manual and product troubleshooting guides.
- Request literature field, where you can request our product literature to be mailed to you.

### 5 Contact Us

- Locations of our corporate offices in the USA, Canada, Europe and China.
- Ask LEESON questions on our product offerings and/or services.
- Comment to LEESON on our web page or offer suggestions on how we can improve LEESON.COM.



## STATeam - Strategic Technical Application Team

Application Issues, We've Got Solutions.

Whether you require a motor that withstands temperatures, requires a special mounting, or any other application requirements, LEESON's STATeam has the solution for you.

The LEESON Strategic Technical Application Team is LEESON's group of experienced engineers with design, process, quality, and sales application experience ready to help you find your specific application solution.

More Expertise. More Speed. More Solutions. STATeam.

**To find out more, simply call your local LEESON sales office and turn your idea into reality.**

# Application Information

## AGENCY LISTINGS

### UL and CSA

LEESON Electric and Lincoln Motors Fire Pump and Explosion Proof motors are UL Listed. Other motor types are UL Recognized, including models with inherent overheating protection as noted (i.e. thermally protected models). Leeson and Lincoln motors are also CSA Certified for both explosion proof and non-explosion proof enclosures.

### AC Motors

Non-Explosion Proof	UL File No.	CSA File No.
NEMA 48-449 Frame	E49747	LR2025
NEMA 500 and 5000 Frame	—	LR2025*
IEC 63-90 Frame	E49747	LR2025
IEC 100-280 Frame	E49747	LR2025*
Thermally Protected motors	E6312	LR2025
Insulation Systems	E37900	LR2025
* Does not include coverage for use with VFD		
* Domestic product only		
Explosion Proof	UL File No.	CSA File No.
NEMA 56-326 Frame	E12044	LR47504
NEMA 364-449 Frame	E12044	LR21839
Fire Pump Motors	UL File No.	CSA File No.
NEMA 143-510	EX5190	LR2025
Class I, Division 2/Zone 2	UL File No.	CSA File No.
NEMA 48-449, 5000 Frame	—	LR21839
European ATEX Zone 2	Intertek Certificate No.	
NEMA 143-449, IEC 112-280	ITS06ATEX45370	

### PMDC Motors + Gear Motors

Non-Explosion Proof	UL File No.	CSA File No.
NEMA 56-145	E49747	LR2025
AC Inverters	E161242	#
SpeedMaster SCR Controls	E132235	LR41380
FHP Speed Drives	E132235	—

# - UL Certified for Canada under UL File E 1.67242

### ATEX Directive (ATmospheres EXplosibles)

Mandatory by law, the European Union (EU) Directive 94/9/EC requires that electric motors for use in explosive atmospheres carry the CE mark, notified body identifier, Ex symbol, equipment group and category, plus the date code. See "European Installations" for additional details, located on the next page.

### NEMA (National Electrical Manufacturers Ass'n)

LEESON Electric and Lincoln Motors' are manufactured in accordance with all applicable areas of NEMA standards in MG1-2006. When applied in accordance with the "Guidelines for Application of Three Phase Motors on Variable Frequency Drives", **LEESON Electric and Lincoln Motors' are in full compliance with NEMA MG1-2006, Part 31, Section 4.4.2**, as pertaining to voltage spikes. 460 volt motors must withstand voltage spikes of up to 1426 volts; 575 volt motors must withstand spikes up to 1788 volts. See "Insulation Systems" for additional detail on this subject. **Website: [www.nema.org](http://www.nema.org)**

### Commitment to RoHS and WEEE European Directives

European Directive 2002/95/EC "Restriction of Use of Certain Hazardous Substances" (RoHS) and Directive 2002/96/EC "Directives on Waste Electrical and Electronic Equipment" (WEEE) were enacted to control the amount of certain hazardous substances contained in products shipped into the E.U. Restricted substances include lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers.

The scope of products covered, affecting motors, is:

- Large household appliances
- Small household appliances
- IT and telecommunications equipment
- Consumer equipment
- Electrical and electronic tools (except large scale stationary and industrial tools)
- Toys, leisure and sports equipment
- Automatic dispensers

The Directives do not currently apply to medical devices, monitoring and control instruments, spare parts for the repair or reuse of electrical and electronic equipment placed on the market before July 1, 2006, and most military and state security equipment.

Regal Beloit Corporation worked closely with suppliers to assure that product falling within the scope of these Directives meets the specified levels of these substances. The Directives took affect July 1st, 2006 however many products were converted in May and June. The products converted are motors in NEMA frame size 145 and below, both AC and DC motors with the following exceptions:

- Brake motors in 56-145 frame **will have to be ordered specifically as RoHS compliant.**
- **Some motors with specialty electro-mechanical components.**

### ISO QUALITY CERTIFICATION

Affiliate of The Regal Beloit corporation. We are ISO 9001:2008 and our registrar is NSF-ISR. The certificate number for the corporation is C0026928-IS2.

[leeson.com/Technical Information](http://leeson.com/Technical Information)

Continued on next page.



## Application Information

LEESON Electric and Lincoln Motors employ the use of Exxon POLYREX<sup>®</sup> EM grease, a specially formulated bearing grease designed for electric motors. POLYREX<sup>®</sup> EM provides superior lubricity, durability and resists corrosion, rust and washout. POLYREX<sup>®</sup> EM is a registered trademark of Mobil Corporation.

Maximum safe mechanical speed capability is a function of bearing size, type and grease selection, as well as rotor balance specifications. Consult the “Maximum Safe Mechanical Speed Limits” chart in the “Overspeed Capability” section.

Note that these values do not imply maximum constant horsepower RPM.

### EFFICIENCY

The efficiency of a motor is the ratio of its useful power output to its total power input and is usually expressed in a percentage. LEESON Electric and Lincoln Motors offers standard, high efficient EAct, and **NEMA Premium<sup>®</sup>** efficient ratings. Standard efficiency motors may only be used on applications that are exempt from legislated efficiencies. The high efficient motor line is in compliance with the Energy Policy Act of 1992 (EAct) and/or Canadian efficiencies as set by NRCAN. The Energy Independence and Security Act of 2007 (**EISA07**) will become law on December 19, 2010, requiring current EAct-compliant motors to meet NEMA Premium<sup>®</sup> efficiencies, and most EAct-exempt motors to meet EAct levels. Premium efficient motors in this catalog meet NEMA Premium<sup>®</sup> unless otherwise noted.

The LEESON WattSAVERe<sup>®</sup> and Lincoln Ultimate-e<sup>™</sup> line is a premium efficiency line, which exceeds mandated efficiencies of EAct and /or NRCAN. Unless otherwise noted, premium efficient motors in this catalog meet NEMA Premium<sup>®</sup> the newly promoted efficiency levels by NEMA and the Consortium for Energy Efficiency (CEE).

### ELECTRICAL TYPE/STARTING METHOD

Motors in this catalog are capacitor start, split phase, permanent split capacitor, or three phase. Capacitor Start motors have high starting torque, high breakdown torque, and relatively low starting current. Split phase motors have medium starting torque and medium starting current. Permanent split capacitor motors have low starting torque and low starting current. Three phase motors have high starting, extra breakdown torque, and typically very low starting current. Single phase motors cannot be applied on variable frequency drives with three phase output.

### ENCLOSURE AND METHOD OF COOLING

LEESON Electric and Lincoln Motors are available in various enclosures; Dripproof (DP), Dripproof Force Ventilated (DPFV), Totally Enclosed Fan Cooled (TEFC), Totally Enclosed Non-Ventilated (TENV), Totally Enclosed (TEAO) and Totally Enclosed Blower Cooled (TEBC). Application conditions will determine the type of motor enclosure required.

Dripproof motors have open enclosures and are suitable for indoor use and in relatively clean atmospheres. Dripproof motors have ventilating openings constructed so that drops of liquid or solid particles falling on the machine at an angle of not greater than 15 degrees from the vertical cannot enter the machine.

Totally enclosed motors are suitable for use in humid environments or dusty, contaminated atmospheres. Totally enclosed non-ventilated motors are NOT cooled by external means. Totally enclosed fan cooled motors are cooled by external means that are part of the motor but not in the internal workings of the motor. Totally enclosed air over motors are sufficiently cooled by external means, provided by the customer.

### HAZARDOUS DUTY

Hazardous Duty motors are totally enclosed (fan cooled or non-ventilated) motors designed for applications in hazardous atmospheres containing explosive gases and/or combustible dusts.

### North American installations

North American standards for electric motors generally fall into one of two divisions. Division 1 Explosion Proof motors are UL Listed in accordance with NFPA Class I (Flammable Gases) or Class II (Combustible Dusts) and Groups (gases or dusts), depending upon the atmosphere. Division 2 motors are CSA Certified and are marked similarly to Division 1 equipment. Inverter Duty motors through 449T frames are CSA Certified for use in Division 2 locations.

### European installations

Motors for hazardous locations in Europe must meet a different set of standards and require different markings than those of North America. CENELEC sets the standards for equipment in hazardous locations for Europe. Motors for use in explosive atmospheres in Europe are often referred to as flameproof (Zone 1) or non-sparking (Zone 2) motors. These motors must comply with the ATEX Directive. The ATEX Directive covers all electrical equipment used in explosive atmospheres. To ensure compliance with the Directive, equipment must meet the essential ATEX requirements and carry the CE mark on the nameplate. Other information required on the nameplate includes the Ex symbol, group & category, Ex protection method, gas group, and temperature code, example (Ex) II 3 G Ex nA IIC T3).

**The tables on the next page describe LEESON Electric and Lincoln Motors capabilities by Area Classification and by Temperature Code.**

## LEESON Electric and Lincoln Motors Hazardous Duty Motor Area Classification Chart

Class I Area Classification (Flammable Gases, Vapors or Mists)				Class II Area Classification (Combustible Dusts)			
North America		Europe - ATEX <sup>ⓐ</sup> (Category G - Gases)		North America		Europe - ATEX <sup>ⓐ</sup> (Category D - Dusts)	
Division 1 Explosion Proof	Division 2 TEFC & TENV	Zone1 Flameproof	Zone 2 Non-Sparking	Division 1 Explosion Proof	Division2	Zone 21 Flameproof	Zone 22 Non-Sparking
Group A <sup>ⓑ</sup>	Group A	N/A	N/A	-	-	-	-
Group B <sup>ⓑ</sup>	Group B	N/A	N/A	-	-	-	-
Group C	Group C	N/A	N/A	-	-	-	-
Group D	Group D	N/A	N/A	-	-	-	-
-	-	N/A	-	Group E <sup>ⓑ</sup>	-	N/A	N/A
-	-	N/A	-	Group F	Group F <sup>ⓑ</sup>	N/A	N/A
-	-	N/A	-	Group G	Group G <sup>ⓑ</sup>	N/A	N/A

- Group is not applicable to that Division or Zone, or is not defined.
- ⓑ Group is not available from LEESON Electric and Lincoln Motors.
- ⓑ Contact factory representative for availability.
- ⓐ Currently not available.

## LEESON Electric and Lincoln Motors Hazardous Duty Motor Temperature Code Chart

	TEMPERATURE CODES		Division 1 Explosion Proof / Flameproof		Division 2 / Non-Sparking
			Class I Area Classification (Flammable Gases, Vapors or Mists)	Class II Area Classification* (Combustible Dusts)	Class I Area Classification (Flammable Gases, Vapors or Mists)
Temp.	UL/CSA	ATEX	Division 1/Zone 1	Division 1/Zone 21	Division 2/Zone 2
280°C	T2A	T2(280)	Explosion Proof - Class I, Group D (Group C as noted)		
260°C	T2B	T2(260)			Severe Duty & IEEE-841 @ 1.15 S.F., Class I, Groups A,B,C,D (Sine wave power)
215°C	T2D	T2(215)			
200°C	T3	T3			
165°C	T3B	T3(165)	Explosion Proof - Class I, Group D (Group C as noted), Sine wave or PWM power	Explosion Proof - Class II, Groups F & G, Sine wave or PWM power	
160°C	T3C	T3(160)			
135°C	T4	T4			

\* Class II, Division 2 motors are not available from LEESON Electric and Lincoln Motors.

Division I & II ambient range is -25°C to +40°C

## Variable Speed Operation

**Guidelines for Application of General Purpose, Three Phase, Single Speed Motors on Variable Frequency Drives Meets NEMA MG1-2006 Part 30 and Part 31 Section 4.4.2 Unless stated otherwise, motor nameplates do NOT include listed speed range.**

ENCLOSURE	EFFICIENCY	VARIABLE TORQUE		CONSTANT TORQUE							
		ALL FRAMES	56	143-215		254-286		324-365		404-449	
NEMA Motors		ALL POLES	ALL POLES	2-Pole	4&6 Pole	2-Pole	4&6 Pole	2-Pole	4&6 Pole	2-Pole	4&6 Pole
ODP	Standard (EPAAct exempt)	10:1	2:1	10:1	10:1	2:1	2:1	2:1	2:1	2:1	2:1
	EPAAct compliant	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1
	NEMA Premium	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1
TEFC	Standard (EPAAct exempt)	10:1	2:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1
	EPAAct compliant	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1
	NEMA Premium	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1
TENV	EPAAct compliant	10:1	10:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1
	NEMA Premium	10:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1	1000:1
Washdown TEFC	Standard (EPAAct exempt)	10:1	10:1	10:1	10:1	N/A	N/A	N/A	N/A	N/A	N/A
	Premium & EPAAct compliant	10:1	10:1	10:1	10:1	N/A	N/A	N/A	N/A	N/A	N/A
Washdown TENV	Standard (EPAAct exempt)	10:1	10:1	10:1	10:1	N/A	N/A	N/A	N/A	N/A	N/A
	Premium & EPAAct compliant	10:1	10:1	10:1	10:1	N/A	N/A	N/A	N/A	N/A	N/A
Explosion Proof	All efficiency levels	Explosion Proof motors must be properly nameplated with inverter duty information prior to use on VFD. Motors with automatic overload protectors cannot be used on VFDs.									
IEC Motors		ALL FRAMES	63-90	100-250	Speedmaster® Inverter Duty/Vector Duty Motors						ALL FRAMES
All Enclosures	All efficiency levels	10:1	20:1	Up to 20:1	& Lincoln CTAC® Motors						2000:1

Lincoln Rolled Steel	ODP-280-360 Frame	2:1	Constant Torque
280 Frame and Higher	TEFC-280-360 Frame	2:1	Constant Torque
400 Frame and Higher -	Contact Sales Office		
Stock 90VDC and 180 VDC DC Motors		30:1	Rated Torque

### Application Notes

**Restricted use** DO NOT APPLY THE FOLLOWING MOTORS ON VARIABLE FREQUENCY DRIVES:  
Single Phase motors, Motors with inherent overload protection, Multi-Speed motors, Motors with 1.0 Service Factor on sine wave power.  
Fire Pump motors should not be used with variable frequency power supplies, due to the critical nature of these applications.

**Hazardous Locations** Consult with LEESON Electric when applying motors and drives into Hazardous Locations, either Division/Zone 1 or Division/Zone 2 areas.  
UL and CSA policies prohibit the installation of bearing protection devices, such as shaft grounding brushes, rings or insulated bearings on motors in Hazardous Locations.

### Maximum Cable Lengths from the Motor to Drive

PRODUCT DESCRIPTION	3 kHz CARRIER FREQUENCY (PHASE TO PHASE)*		
	230 VOLT	460 VOLT	575 VOLT
56-326 NEMA, 100-225 IEC Frames	600 ft.	125 ft.	40 ft.
364-5013 NEMA, 250-315 IEC Frames	1000 ft.	225 ft.	60 ft.
Motors with Corona Resistant Magnet Wire	1500 ft.	475 ft.	140 ft.
Motors with IRIS™ Insulation or Ultimate-e™ Spike Defense™	Unlimited	Unlimited	650 ft.
Form-wound low voltage motors	Unlimited	Unlimited	650 ft.

\* Higher carrier frequencies require shorter cable length to obtain normal (50Khrs) insulation life.

### Standard Motor Insulation Systems

IRIS™ INSULATION SYSTEM	ULTIMATE SPIKE DEFENSE™
All LEESON 3-Phase Motors 1HP and above. All Premium Efficient WattSAVERe® Motors	Lincoln Motors Premium Efficient Lincoln Inverter Duty CTAC® Motors



# Variable Speed Operation

## VARIABLE SPEED INFORMATION

LEESON Electric and Lincoln Motors Vector-Duty and Inverter Duty motors, unless otherwise stated, are rated for continuous operation in a 40°C ambient and for altitudes up to 3300 feet (1000 meters) above sea level. Special application considerations, such as high or low ambient, intermittent ratings, high altitude, duty cycle rated, extended constant horsepower range, special base speed, voltage or frequency, or any other special requirements, should be reviewed by a factory representative.

It is the responsibility of the startup personnel during commissioning of the VFD/motor system to properly tune the drive to the motor for the specific application. The correct voltage boost and volts/hertz settings are application dependent and unique to each motor design. Procedures for these adjustments should be in your VFD user manual. Many Vector Duty and Inverter Duty motors in this catalog are equipped with thermostats; warranty coverage may be denied if they are not properly utilized.



**Power factor correction capacitors should never be installed between the drive and the motor.**

## INVERTER DUTY OR INVERTER RATED

“Inverter Duty” (often called “Inverter Rated”) motors are suitable for use with Variable Frequency Drives, as long as operation is within the application guidelines published in this catalog. In general, LEESON Electric and Lincoln Motors’ three phase, general purpose, NEMA Design B motors are considered “Inverter Duty”, and meet or exceed the requirements of NEMA MG1, Part 30. As required under Federal law, these motors comply with EISA2007 efficiencies when operating from utility power.

Inverter Duty (Rated) motors are most often used in 10:1 speed range, variable torque or constant torque applications. A vector control is usually required for operation beyond 10:1 CT.

Refer to “Guidelines for Application of General Purpose, Single Speed Three Phase Motors on Variable Frequency Drives” in this section of this catalog for the allowable speed range and cable length restrictions (from VFD to motor). Additional detail regarding a specific product’s capabilities is available on its catalog page, or by consulting your application engineer.

**VECTOR DUTY** – “Vector Duty” describes a class of motors that are used in conjunction with Open- (without encoder) or Closed-Loop (with encoder) Vector controls, that provide enhanced performance under low speed operating conditions, or in cases where torque (rather than speed) must be controlled. “Vector Duty” motors can be applied to Volts/Hertz (scalar) drives, as well.

LEESON Electric’s Speedmaster® motors and Lincoln Motors’ CTAC Motors, have been specifically designed for optimal operation on vector or volts/hertz controls. These motors feature a wide constant torque (up to 2000:1) and/or constant horsepower (up to 4:1) speed range and are performance-matched to all current technology IGBT drives. Vector Duty motors meet or exceed the requirements of NEMA MG1, Part 31, and are

equipped with an enhanced insulation system (IRIS or Ultimate Spike Defense) to provide many years of trouble-free service. Consult the catalog page for each product’s capabilities and features. As these motors are specifically designed for operation through an inverter, they are exempt from EISA2007.

**VARIABLE TORQUE LOADS** – Applications include fans, blowers and centrifugal pumps. Torque varies as the square of the speed, and horsepower as the cube of the speed. Operation below base speed significantly lightens the load on the motor. While most variable torque applications do not require the motor to operate below half speed, the motor is fully capable of operation to zero speed. Operation above base speed significantly adds to the load on the motor; therefore, a factory representative must review applications requiring variable torque above base speed. Refer to the application chart found on page 14 for use of general purpose three phase motors on variable frequency drives. A bypass circuit is often employed in Variable Torque applications. If this device is intended to be used, selection of a NEMA Design B motor is recommended, to withstand the inrush current during across-the-line starting.

**CONSTANT TORQUE LOADS** – Applications include conveyors, elevators, hoists, extruders, positive displacement pumps, mixers and converting equipment. Torque remains constant throughout the range of operation, and extra care should be taken in the proper application of motors, especially at very low speeds. Most constant torque applications don’t require operation below 10:1 (i.e. 6 Hz operation on a 60 Hz motor), but an increasing number of applications historically reserved for servo and/or stepper systems are being served with motors capable of operation beyond 20:1...even up to 2000:1 (zero speed, constant torque). Refer to the application chart found on page 14 for use of general purpose three phase motors on variable frequency drives.

Applications requiring greater than 20:1 C.T. are ideal for LEESON Speedmaster® Inverter Duty/Vector Duty and Lincoln Vector Duty CTAC® motors. These motors provide full rated torque within their listed speed range, without exceeding a Class F temperature rating while under inverter power (many operate at Class B). Ratings in this catalog have been developed, based on extensive testing on IGBT inverters, set at a minimum 3 KHz (or equivalent) carrier frequency.

Vector Duty and Inverter Duty motors from LEESON Electric and Lincoln Motors are designed for operation at 150% of rated load for one minute, up to the base speed of the motor (overload capability declines to 100% as the motor reaches maximum constant HP speed). These motors accommodate constant horsepower operation to 1-1/2 to 2 times base speed, subject to the motor’s maximum safe mechanical speed limit. Refer to the Maximum Safe Mechanical Speed Chart, as well as the performance section for each motor’s capability.

Motors rated for zero RPM continuous duty (1000:1 or 2000:1) must be powered by vector drives to produce rated torque without overheating. Optimum zero speed and low-speed full torque performance may require a closed loop vector drive (with encoder feedback).

Continued on next page.

## Variable Speed Operation

**CONSTANT HORSEPOWER LOADS** – Applications include coil winders, band saws, grinders, and turret lathes. Operation requires the motor to deliver the same horsepower rating, regardless of shaft speed. Torque increases at low speed and decreases at higher speed. Most general purpose motors can deliver constant horsepower up to 1 1/2 times base speed (consult a factory representative to verify performance). However, many constant HP applications require operation to twice base speed, and some, such as coil winders, up to 4 times base speed.

**MOTOR GROUNDING** - Frames and accessories of all motors must be grounded in accordance with the National Electric Code (NEC) Article 430. Refer to NEC Article 250 for general information on grounding. Proper grounding of inverter-driven motors is essential to protect personnel and livestock from inverter-sourced common mode voltages, which may reach hazardous levels on the frame of ungrounded or poorly grounded motors.

**LOW INPUT VOLTAGE** – If, due to lower utility supply voltage, the input voltage from the VFD to the motor is lower than the motor's rated voltage, de-rating of the motor's base frequency, horsepower, full load RPM, and constant HP RPM is required. The revised values can be calculated by multiplying by the ratio of the voltage change. For example, to operate a 460 volt motor from an inverter fed by 50 or 60 HZ, 400 volt utility power, the multiplier is 400/460 or 0.87.

The VFD can be reprogrammed to match the new base point values, allowing the motor to provide rated torque at rated current from the new base speed down to its original minimum

Constant torque speed. The motor's CHP range will begin at the new base frequency and will be shortened by the same ratio as described above.

**OVERSPEED CAPABILITY** – Maximum safe mechanical speed capability is a function of bearing size and type, lubrication, rotor balancing technique and specifications, air gap, enclosure, frame construction and connection to the driven load. In addition, consideration must be given to ambient noise levels, as operation above base speed will increase motor noise and vibration, and reduce bearing life. Under no circumstances should bearing hub temperature exceed 100° C. Belted loads should not exceed 60 Hz operating RPM by more than 25% (NEMA "TS" shafts are not suitable for belted loads). Due to external cooling fans, TEFC (and Explosion Proof Fan Cooled) motors are limited to 4000 RPM maximum speed.

### Maximum Safe Mechanical Speed Limits (ODP, TENV, DPFV OR TEFC ENCLOSURES) 60 Hz base frequency

Frame Size	2-Pole	4, 6 or 8-Pole
56-184	7200	5400
213-256	5400	4200
284-286	5400	3600
324-326	4000	3600
364-365	4000	2800
404-449	3600	2800
5000 Fr	N/A	CALL
6800 Fr	N/A	CALL



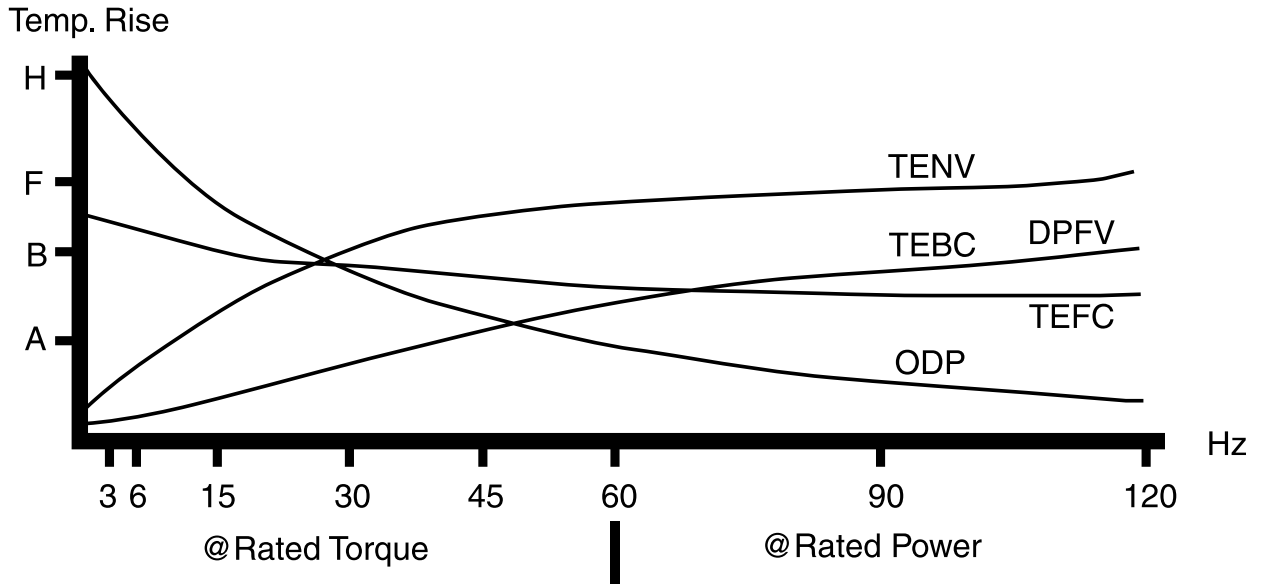
# Variable Speed Operation

## OTHER APPLICATION CONSIDERATIONS –

For proper selection, the following should be considered:

- Horsepower or torque requirements at various speeds.
- Desired speed range of the load and motor.
- Acceleration and deceleration rate requirements of the process being controlled.
- Starting requirements including the frequency of starting and a description of the load (reflected inertia at the motor, load torque during starting).
- Whether the application is a continuous process or duty cycle of starts, stops and speed changes.
- A general description of the type of application including the environment in which the VFD system components must operate (determines motor enclosure and/or explosion proof classification).
- Description of the available electrical power supply and wiring.
- Special performance requirements, if any.
- Whether the drive will be configured with a by-pass circuit. In case of its deployment, the motor will operate like its fixed speed counterpart and may require a NEMA B design which limits in-rush current, or selection of a larger motor starter or other protective circuitry.
- Load sharing
- Mounting and other mechanical considerations

## Typical Temperature Rise Of Various Enclosures



# LEESON<sup>®</sup> CAST IRON • THREE PHASE MOTORS

150 & 170 SERIES • RIGID BASE • GENERAL PURPOSE




For reliable performance in heavy-duty industrial applications, nothing beats the LEESON Heavyweights. With their cast iron construction and 1.15 Service Factor, they are ideal for “tough to handle” applications.

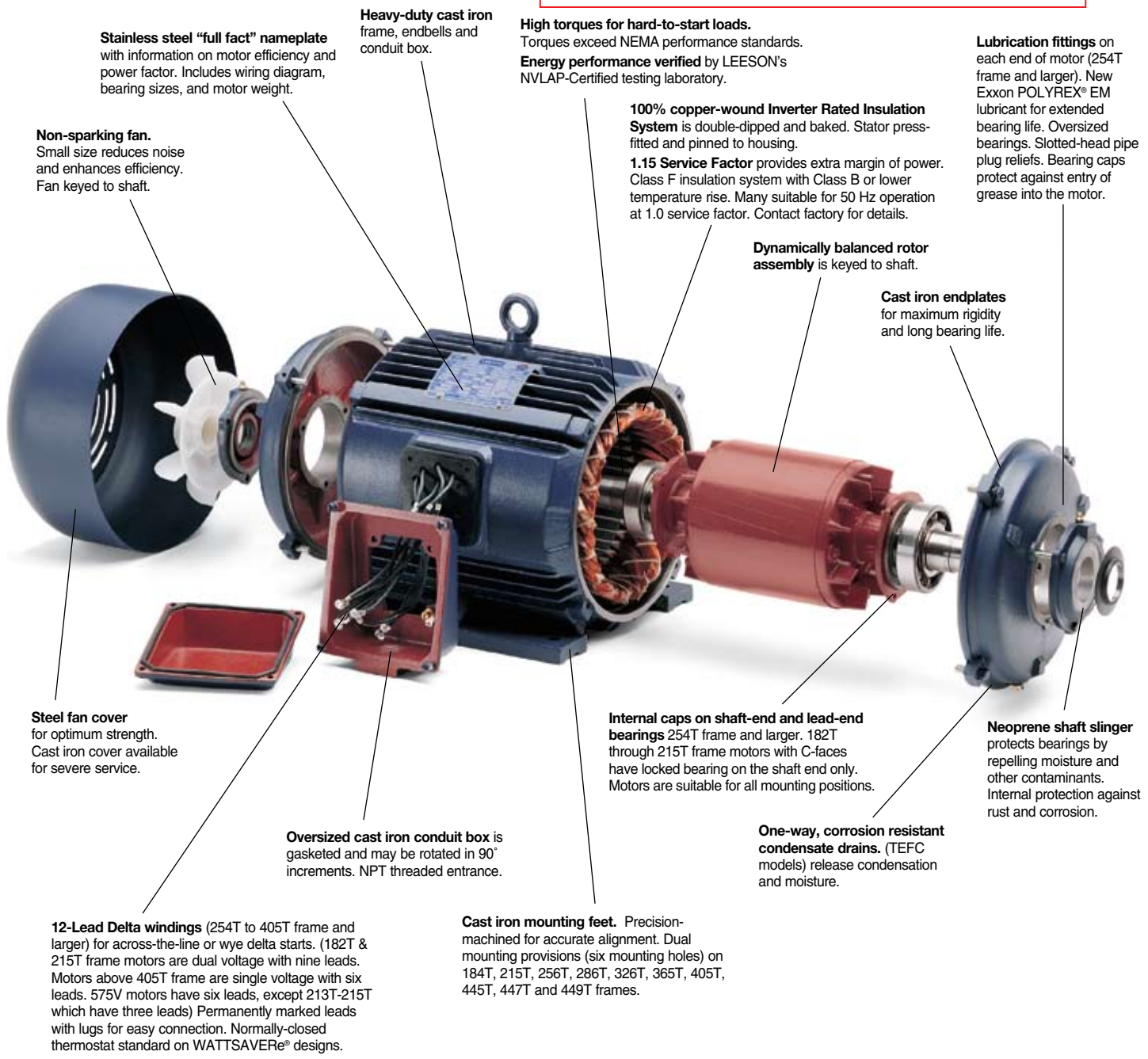
But that’s only part of the story. LEESON 150 and 170-series cast iron motors are extremely versatile and can be field converted in minutes to a number of different configurations, including:

- Severe Duty TEFC (using cast iron fan guard kit)
- F2 mounting 180 frame or larger (by re-assembly)
- C face with rigid base (from stock or using C face kit)
- D flange with base (using D flange kit)

UL recognized and CSA certified.

**LEESON’s Inverter Rated Insulation System (IRIS™)** provides superior motor protection against voltage spikes induced by variable frequency drives. This *total insulation system* protects better than spike-resistant magnet wire alone. Specially formed phase insulation, cushioned and sleeved connections (from the leads all the way into the turns), and deep-penetrating, non-hygroscopic, high temperature varnish are just a few features contributing to the extra protection. All this plus second generation, spike-resistant magnet wire. The IRIS™ *total insulation system* is standard at no extra cost in all LEESON stock NEMA three-phase motors, 1 HP and larger.





**Non-sparking fan.**  
Small size reduces noise and enhances efficiency. Fan keyed to shaft.

**Stainless steel “full fact” nameplate** with information on motor efficiency and power factor. Includes wiring diagram, bearing sizes, and motor weight.

**Heavy-duty cast iron frame, endbells and conduit box.**

**High torques for hard-to-start loads.**  
Torques exceed NEMA performance standards.  
**Energy performance verified** by LEESON’s NVLAP-Certified testing laboratory.

**100% copper-wound Inverter Rated Insulation System** is double-dipped and baked. Stator press-fitted and pinned to housing.  
**1.15 Service Factor** provides extra margin of power. Class F insulation system with Class B or lower temperature rise. Many suitable for 50 Hz operation at 1.0 service factor. Contact factory for details.

**Lubrication fittings** on each end of motor (254T frame and larger). New Exxon POLYREX™ EM lubricant for extended bearing life. Oversized bearings. Slotted-head pipe plug reliefs. Bearing caps protect against entry of grease into the motor.

**Dynamically balanced rotor assembly** is keyed to shaft.

**Cast iron endplates** for maximum rigidity and long bearing life.

**Steel fan cover** for optimum strength. Cast iron cover available for severe service.

**Oversized cast iron conduit box** is gasketed and may be rotated in 90° increments. NPT threaded entrance.

**Internal caps on shaft-end and lead-end bearings** 254T frame and larger. 182T through 215T frame motors with C-faces have locked bearing on the shaft end only. Motors are suitable for all mounting positions.

**Neoprene shaft slinger** protects bearings by repelling moisture and other contaminants. Internal protection against rust and corrosion.

**One-way, corrosion resistant condensate drains.** (TEFC models) release condensation and moisture.

**12-Lead Delta windings** (254T to 405T frame and larger) for across-the-line or wye delta starts. (182T & 215T frame motors are dual voltage with nine leads. Motors above 405T frame are single voltage with six leads. 575V motors have six leads, except 213T-215T which have three leads) Permanently marked leads with lugs for easy connection. Normally-closed thermostat standard on WATTSAVERe<sup>®</sup> designs.

**Cast iron mounting feet.** Precision-machined for accurate alignment. Dual mounting provisions (six mounting holes) on 184T, 215T, 256T, 286T, 326T, 365T, 405T, 445T, 447T and 449T frames.

WATTsaver<sup>e</sup>

NEMA  
Premium

The WATTSAYER<sup>®</sup> line of premium efficiency motors is *inverter capable*. LEESON's unique IRIS™ voltage-spike-resistant insulation system is standard at no extra cost. WATTSAYER<sup>®</sup> motors carry a three-year warranty in general purpose and inverter fed applications. These motors meet or exceed most utility rebate programs and the EPACT federally mandated efficiency levels. The efficiency ratings have

been verified to IEEE 112B test standards by LEESON's NVLAP-Certified lab.

Cast iron 170 series motors can be field modified for forced ventilation service to extend the inverter-fed operating range and an encoder package is stocked for closed-loop vector inverter systems. These motors can be converted to IEEE841 compliant using the Custom PDQ Program. Contact LEESON.

**Rugged cast iron construction** on three phase, 1-350 HP models. These motors share features with normal efficiency 150 Series motors detailed on page 18. Add an optional cast iron fan guard for severe duty applications.

**Efficiencies meet or exceed NEMA Premium** on all WATTSAYER<sup>®</sup> motors.

**Both 3/4 and full load efficiencies** are listed on the stainless steel nameplate for your convenience in calculating realistic energy savings. Unique serial number identifies each motor and is stamped clearly on the metal nameplate.

**Independently verified efficiencies** by the Canadian Standards Association, an internationally recognized testing laboratory. CSA Report Number EEV78720-1.

**Premium efficiency motors** finished with primer and chemical resistant green acrylic matte enamel. IP44 enclosure protection.

**Modification to meet IEEE 841** available through Custom PDQ. (See page 114). Includes addition of watertight Inpro shaft seals, two-part epoxy finish, and plated hardware.

**One-way, corrosion resistant condensate drains.** (TEFC models) release condensation and moisture.

**Second-generation, high temperature, spike-resistant magnet wire** for extended motor life. Stator impregnated with extra-heavy varnish system. 1.15 Service Factor. All WATTSAYER<sup>®</sup> motors have Class F insulation with a Class B rise. Motors rated at 40 degrees C ambient.

**Meets or exceeds the 1997 mandated efficiency standards** of the Energy Policy Act of 1992. Also meets or exceeds efficiency requirements of most electric utility rebate programs.

**WATTSAYER<sup>®</sup> motors comply with EISA 2007**

**Three phase models suitable for inverter duty**, as well as both 50 Hz and 60 Hz operation.



**LEESON's Inverter Rated Insulation System (IRIS™)** provides superior protection against voltage spikes induced by variable frequency drives. This *total insulation system* protects better than spike-resistant magnet wire alone. Specially formed phase insulation, cushioned and sleeved connections (from the leads all the way into the turns), and deep-penetrating, non-

hygroscopic, high temperature varnish are just a few features contributing to extra protection. All this plus second generation spike-resistant magnet wire. The IRIS™ *total insulation system* is standard at no extra cost in all LEESON stock NEMA three-phase motors, 1 HP and larger.

UL and CSA Recognition





**DRIP-PROOF**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)	
2	3600	56	<b>113292.00</b>	33	208-230/460	5.6	82.5	11.34	
	3600	56	<b>116755.00</b> [w] A	43	208-230/460	4.8	85.5	12.18	
	3600	145T	<b>121515.00</b> [w]	43	208-230/460	4.8	85.5	12.62	
	3600	...	...	...	...	...	...	...	
	1800	56H	<b>113025.00</b> □	32	208-230/460	6.2	78.5	11.38	
	1800	56HZ	<b>115826.00</b>	33	208-230/460	6.2	78.5	11.63	
	1800	56H	<b>111310.00</b> □ A	36	208-230/460	6.2	78.7	11.38	
	1800	56H	<b>116756.00</b> [w]	37	208-230/460	5.8	86.5	13.22	
	1800	145T	<b>121005.00</b> [w]	37	208-230/460	5.8	86.5	13.63	
	1800	...	...	...	...	...	...	...	
	1200	184T	<b>131972.00</b> [w]	88	208-230/460	7.2	87.5	15.19	
	900	...	...	...	...	...	...	...	
3	3600	56H	<b>113293.00</b> □	38	208-230/460	7.6	84.0	11.84	
	3600	145T	<b>121516.00</b> [w]	45	208-230/460	7.2	86.5	12.62	
	3600	...	...	...	...	...	...	...	
	1800	56HZ	<b>116595.00</b>	44	208-230/460	8.6	82.5	13.12	
	1800	182T	<b>131519.00</b> [w]	75	208-230/460	7.9	89.5	13.69	
	1800	...	...	...	...	...	...	...	
	1200	213T	<b>171574.60</b> [w]	154	208-230/460	10.0	88.5	16.38	
	900	215T	<b>G151809.22</b>	171	208-230/460	11.4	84.0	19.61	
	5	3600	184T	<b>131986.00</b> [w]	86	208-230/460	12.0	86.5	15.19
		3600	...	...	...	...	...	...	...
		1800	184T	<b>131520.00</b> [w]	86	208-230/460	12.8	89.5	15.19
		1800	...	...	...	...	...	...	...
1200		215T	<b>171575.60</b> [w]	188	208-230/460	15.0	90.2	16.38	
900		...	...	...	...	...	...	...	
7½		3600	...	...	...	...	...	...	...
		3600	184T	<b>131988.00</b> [w]	106	208-230/460	17.6	88.5	16.19
		3600	...	...	...	...	...	...	...
		1800	213T	<b>140470.00</b> [w]	133	208-230/460	20.6	91.0	16.25
		1800	213T	<b>170142.60</b> [w]	160	208-230/460	19.8	91.0	16.38
		1200	254T	<b>170145.60</b> [w]	291	208-230/460	22.4	91.7	20.94
	900	...	...	...	...	...	...	...	

Motors in this column have NEMA Service Factors—see page 274 for details.

- ♦ Automatic reset overload protection. Do not use with variable frequency drives.
- Combination 56H base motors have mounting holes for NEMA 56 and a standard NEMA 56 shaft.
- ⊕ 56HZ motors have mounting holes for NEMA 56 standard shaft.
- [w] Premium efficiency WATTSAYERe Motors. See page 19 for details.
- A Subject to Availability.

**TOTALLY ENCLOSED FAN COOLED (TEFC)**

NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
56	<b>111916.00</b>	33	208-230/460	5.6	82.5	12.31
56	<b>116760.00</b> [w] A	44	208-230/460	4.8	85.5	13.31
145T	<b>121519.00</b> [w]	44	208-230/460	4.8	85.5	13.75
145T	<b>171648.60</b> [w]	56	208-230/460	4.8	85.5	13.46
56H	<b>113026.00</b> □	35	208-230/460	6.2	81.5	12.31
56HZ	<b>115828.00</b> □	37	208-230/460	6.2	81.5	12.75
...	...	...	...	...	...	...
56H	<b>116761.00</b> [w]	45	208-230/460	5.8	86.5	14.32
145T	<b>120923.00</b> [w]	45	208-230/460	5.8	86.5	14.76
145T	<b>171647.60</b> [w]	58	208-230/460	5.8	86.5	13.46
184T	<b>131981.00</b> [w]	89	208-230/460	7.2	88.5	15.96
213T	<b>G140516.00</b>	114	230/460	8.0	82.5	18.22
56H	<b>114614.00</b> □	40	208-230/460	7.6	84.0	13.25
...	...	...	...	...	...	...
182T	<b>131985.00</b> [w]	66	208-230/460	7.6	86.5	13.96
56HZ	<b>116594.00</b>	45	208-230/460	8.6	82.5	14.26
182T	<b>131463.00</b> [w]	80	208-230/460	7.8	89.5	14.96
182T	<b>171320.60</b> [w]	104	208-230/460	7.8	89.5	15.89
213T	<b>171378.60</b> [w]	171	208-230/460	9.4	89.5	18.19
...	...	...	...	...	...	...
184T	<b>131987.00</b> [w]	96	208-230/460	12.0	88.5	16.46
184T	<b>131464.00</b> [w]	94	208-230/460	12.8	89.5	15.96
184T	<b>171322.60</b> [w]	109	208-230/460	12.8	89.5	16.80
215T	<b>171379.60</b> [w]	176	208-230/460	14.4	89.5	19.61
254T	<b>G151355.22</b>	188	208-230/460	14.4	88.3	23.23
213T	<b>170158.60</b> [w]	147	208-230/460	18.0	91.0	18.19
...	...	...	...	...	...	...
213T	<b>140756.00</b> [w]	156	208-230/460	17.8	90.2	19.84
213T	<b>140450.00</b> [w]	144	208-230/460	21.4	91.7	18.70
213T	<b>170157.60</b> [w]	155	208-230/460	18.6	91.7	18.19
254T	<b>170122.60</b> [w]	249	208-230/460	22.2	91.7	23.19
256T	<b>G151356.22</b>	300	208-230/460	20.0	87.7	24.96

Motors in this column have a 1.15 Service Factor, except as noted by ♣, which have a 1.0 Service Factor.

CONTINUED ON NEXT PAGE

Catalog Numbers in Green are EPACT Motors.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

WATTSAYERe Motors Meet NEMA MG1 part 30 & 31.

All three phase motors, 1 HP and above, are inverter rated.



# THREE PHASE MOTORS - GENERAL PURPOSE

EPACT EFFICIENT AND PREMIUM EFFICIENT WATTSAVE<sub>re</sub> MOTORS



### DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
10	3600	213T	<b>140753.00</b>	160	208-230/460	23.4	89.5	17.30
	3600	213T	<b>170143.60</b>	150	208-230/460	23.6	91.0	16.38
	1800	215T	<b>140472.00</b>	144	208-230/460	26.8	91.7	17.25
	1800	215T	<b>170144.60</b>	200	208-230/460	25.6	91.7	17.87
	1200	256T	<b>170146.60</b>	305	208-230/460	29.6	91.7	22.60
	900	...	...	...	...	...	...	...
15	3600	215T	<b>140754.00</b>	170	208-230/460	35.0	91.0	18.55
	3600	215T	<b>170064.60</b>	175	208-230/460	34.6	91.0	17.87
	3600	...	...	...	...	...	...	...
	1800	254T	<b>170065.60</b>	279	208-230/460	37.0	93.0	20.94
	1200	284T	<b>170067.60</b>	414	208-230/460	39.4	92.4	23.54
	900	...	...	...	...	...	...	...
20	3600	254T	<b>170032.60</b>	275	208-230/460	46.0	93.0	20.94
	1800	256T	<b>170006.60</b>	324	208-230/460	51.0	93.0	22.60
	1200	286T	<b>170000.60</b>	467	208-230/460	55.0	92.4	25.00
	900	...	...	...	...	...	...	...
25	3600	256T	<b>170034.60</b>	327	208-230/460	52.4	93.0	22.60
	3600	...	...	...	...	...	...	...
	1800	284T	<b>170009.60</b>	404	208-230/460	59.6	93.6	23.54
	1200	324T	<b>170002.60</b>	705	208-230/460	67.0	93.0	26.02
	900	...	...	...	...	...	...	...
30	3600	284TS	<b>170036.60</b>	396	208-230/460	67.0	94.1	22.17
	1800	286T	<b>170013.60</b>	471	208-230/460	71.0	94.1	25.00
	1200	326T	<b>170004.60</b>	760	208-230/460	78.0	93.6	27.52
40	3600	286TS	<b>170038.60</b>	441	208-230/460	91.2	93.6	23.62
	3600	...	...	...	...	...	...	...
	1800	324T	<b>170017.60</b>	560	208-230/460	96.0	94.1	26.02
	1200	364T	<b>170147.60</b>	892	208-230/460	103.0	94.1	28.01

### TOTALLY ENCLOSED FAN COOLED (TEFC)

NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
215T	<b>140755.00</b>	170	208-230/460	23.6	91.7	21.09
215T	<b>170159.60</b>	181	208-230/460	23.4	91.7	19.61
215T	<b>140451.00</b>	161	208-230/460	26.6	91.7	19.70
215T	<b>170140.60</b>	177	208-230/460	25.0	91.7	19.61
256T	<b>170123.60</b>	300	208-230/460	29.0	91.7	24.92
284T	<b>G150282.22</b>	346	208-230/460	26.0	88.8	26.26
215T	<b>170615.60</b>	200	208-230/460	35.0	92.4	19.61
...	...	...	...	...	...	...
254T	<b>170062.60</b>	282	208-230/460	35.0	92.4	23.19
254T	<b>170066.60</b>	280	208-230/460	36.0	92.4	23.19
284T	<b>170068.60</b>	333	208-230/460	40.6	92.4	26.26
286T	<b>G150261.22</b>	480	208-230/460	40.0	91.0	27.83
256T	<b>170033.60</b>	316	208-230/460	46.0	92.4	24.92
256T	<b>170007.60</b>	322	208-230/460	49.0	93.0	24.92
286T	<b>170001.60</b>	392	208-230/460	54.0	91.7	27.83
324T	<b>G150263.22</b>	640	208-230/460	54.0	91.0	29.53
...	...	...	...	...	...	...
284TS	<b>170035.60</b>	383	208-230/460	56.8	93.0	24.88
284T	<b>170011.60</b>	385	208-230/460	59.0	93.6	26.26
324T	<b>170003.60</b>	545	208-230/460	66.0	93.0	29.53
326T	<b>150265.22</b>	700	208-230/460	63.0	90.2	31.02
286TS	<b>170037.60</b>	385	208-230/460	67.6	93.0	26.46
286T	<b>170015.60</b>	432	208-230/460	70.0	94.1	27.83
326T	<b>170005.60</b>	615	208-230/460	77.2	93.6	31.02
...	...	...	...	...	...	...
324TS	<b>170039.60</b>	504	208-230/460	89.0	93.6	28.03
324T	<b>170019.60</b>	528	208-230/460	92.0	94.1	29.53
364T	<b>170096.60</b>	636	208-230/460	102.0	94.1	32.64

NOTE: 150 and 170 Series Drip-Proof and TEFC motors in NEMA frames 180T thru 447T can be field converted, by reassembly, to F2 conduit box locations.

CONTINUED ON NEXT PAGE

Catalog Numbers in Green are EPACT Motors.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

All LEESON Cast Iron Motors have a 1.15 Service Factor, Class F insulation.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

WATTSAVE<sub>re</sub> Motors Meet NEMA MG1 part 30 & 31.

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice

**DRIP-PROOF**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
50	3600	324TS	170040.60	548	208-230/460	112.0	94.1	24.53
	1800	326T	170021.60	614	208-230/460	118.0	94.5	27.52
	1200	365T	170148.60	918	208-230/460	128.0	94.5	33.62
60	3600	326TS	170042.60	590	208-230/460	136.0	94.1	26.02
	3600	...	...	...	...	...	...	...
	1800	364T	170025.60	716	208-230/460	139.0	94.1	31.54
75	1200	404T	170149.60	1031	208-230/460	159.0	94.5	32.76
	3600	364TS	170044.60	720	208-230/460	176.0	94.1	26.89
	1800	365T	170029.60	766	208-230/460	172.0	94.5	31.18
100	1200	405T	170150.60	1095	208-230/460	196.0	94.5	34.25
	3600	365TS	170151.60	775	208-230/460	226.0	94.5	29.06
	3600	...	...	...	...	...	...	...
125	1800	404T	170152.60	1141	208-230/460	225.0	95.4	32.76
	1200	444T	170255.60	1975	460	118.0+	95.4	40.00
	3600	404TS	170154.60	1015	208-230/460	284.0	94.5	29.76
150	3600	...	...	...	...	...	...	...
	1800	405T	170155.60	1292	230/460	280.0	95.4	34.25
	1800	...	...	...	...	...	...	...
200	1200	445T	170259.60	2022	460	148.0+	95.8	40.00
	3600	405TS	171449.60	1085	460	169.0+	94.5	31.26
	3600	...	...	...	...	...	...	...
250	1800	444T	171522.60	2000	460	164.0+	95.8	40.00
	1800	...	...	...	...	...	...	...
	1200	445T	171576.60	2040	460	206.0+	95.8	40.00
300	3600	444TS	171573.60	1765	460	216.0+	95.4	36.25
	3600	...	...	...	...	...	...	...
	1805	...	...	...	...	...	...	...
350	1800	445T	171523.60	2037	460	229.0+	95.8	40.00
	1800	...	...	...	...	...	...	...
	1200	447T	171577.60	2820	460	239.0+	96.2	43.12
250	1800	...	...	...	...	...	...	...
	1800	445T	G151524.60	1940	460	284.0+	94.5	40.00
300	1800	445T	G151525.60	1962	460	329.0+	95.0	40.00
	1800	445T	G151518.60	2041	460	392.0+	94.1	40.00
350	1800	...	...	...	...	...	...	...
	1800	...	...	...	...	...	...	...

♦ Full Load Amps 460 volt

**TOTALLY ENCLOSED FAN COOLED (TEFC)**

NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
326TS	170041.60	554	208-230/460	111.0	94.5	29.53
326T	170023.60	587	208-230/460	117.0	94.5	31.02
365T	170097.60	672	208-230/460	124.0	94.1	33.62
...	...	...	...	...	...	...
364TS	170043.60	735	208-230/460	136.0	94.1	30.51
364T	170027.60	666	208-230/460	137.0	95.4	32.64
404T	170098.60	870	208-230/460	142.0	94.5	36.42
365TS	170045.60	780	208-230/460	169.0	94.5	31.50
365T	170031.60	733	208-230/460	171.0	95.8	33.62
405T	170099.60	975	208-230/460	176.0	95.0	37.91
...	...	...	...	...	...	...
405TS	170160.60	955	208-230/460	218.0	95.0	34.92
405T	170087.60	1070	208-230/460	225.0	95.4	37.91
444T	170256.60	1457	460	121.0+	95.0	42.87
...	...	...	...	...	...	...
444TS	171580.60	1316	460	132.0	95.0	39.10
...	...	...	...	...	...	...
444T	170369.60	1950	460	137.5+	95.4	42.87
445T	170260.60	1596	460	155.0+	95.4	44.88
...	...	...	...	...	...	...
445TS	171578.60	1445	460	161.0	95.0	44.88
...	...	...	...	...	...	...
445T	170371.60	1627	460	163.0+	95.8	44.88
445T	171315.60	2230	460	185.5+	95.8	48.00
...	...	...	...	...	...	...
447TS	171579.60	1977	460	216.5	95.4	48.00
447T	170352.60	2227	460	216.0+	96.2	48.00
447T	...	...	...	...	...	...
449T	171316.60	2542	460	241.5+	96.2	52.80
449T	G151516.60	2425	460	274.0+	95.0	52.80
...	...	...	...	...	...	...
449T	G151529.60	2558	460	327.0+	95.4	52.80
...	...	...	...	...	...	...
449T	G151530.60	2710	460	402.0+	95.4	52.80

Catalog Numbers in Green are EPACT Motors.

All LEESON Cast Iron Motors have a 1.15 Service Factor, Class F insulation.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

WATSAVERe Motors Meet NEMA MG1 part 30 & 31.

All three phase motors, 1 HP and above, are inverter rated.



C FACE MOTORS • THREE PHASE

LESS BASE • GENERAL PURPOSE • STANDARD, EPACT & NEMA PREMIUM RATINGS



DRIP-PROOF • C FACE LESS BASE • THREE PHASE

Table with columns: HP, SYN RPM, NEMA Frame, Catalog Number, App. Wgt., Voltage, F.L. Amps, % F.L. Eff., "C" Dim. Rows include motor specifications for ratings 1/6, 1/4, 1/3, 1/2, 3/4, 1, and 1 1/2 HP.

TEFC • C FACE LESS BASE • THREE PHASE

Table with columns: NEMA Frame, Catalog Number, App. Wgt., Voltage, F.L. Amps, % F.L. Eff., "C" Dim. Rows include motor specifications for ratings 1/6, 1/4, 1/3, 1/2, 3/4, 1, and 1 1/2 HP.

[w] Premium efficiency WATTSAYERe Motors. See page 19 for details.

A Subject to Availability.

□ Shaft extension has keyway and flat 180° apart for ease of mounting. Useable shaft is 1 1/2" long by 1/2" diameter, 1/8" keyway.

● These motors are totally enclosed, non-ventilated—Others are fan cooled.

Catalog Numbers in Green are EPACT Motors. WATTSAYERe Motors Meet NEMA MG1 part 30 & 31.

CONTINUED ON NEXT PAGE

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice











# WATSAVERe® PREMIUM EFFICIENCY MOTORS

GENERAL PURPOSE • SINGLE PHASE • FHP THREE PHASE

## WATSAVERe® PREMIUM EFFICIENCY HIGH TORQUE

WATSAVERe® Premium Efficiency Motors provide enhanced operating efficiencies, cooler operating temperatures, and reduced running amperage. See page 19 for complete list of features.



## SINGLE PHASE • TEFC • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56	113765.00☆	27	115/208-230	Man.	1.7	76.0	10.81
1/2	1800	56	113766.00☆	30	115/208-230	Man.	2.5	78.0	11.31
3/4	1800	56	113767.00☆	35	115/208-230	Man.	3.2	82.0	11.81
1	1800	56	113768.00☆	37	115/208-230	Man.	4.2	83.0	12.31
1 1/2	1800	56H	113769.00☆□ A	43	115/208-230	Man.	6.5	84.0	13.31
2	1800	56HZ	113770.00☆■ A	49	230	Man.	8.2	85.0	14.25

## WATSAVERe® PREMIUM EFFICIENCY FAN MOTORS

Premium efficiency motors for agricultural and industrial belted-fan applications.

Features include quiet bearings, resilient cradle base, and quiet flow-through ventilation. Class "F" insulated, with spade connectors on terminal board for quick and easy installation.



## SINGLE PHASE • DRIP-PROOF • RESILIENT BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 115V	% F.L. Eff.	"C" Dim. (Inches)
1/4	1800	48	101602.00	19	115	Auto.	2.5	71.0	10.39
1/3	1800	48	101405.00	19	115	Auto.	3.2	75.0	10.39
1/2	1800	48	101585.00	25	115	Auto.	4.6	76.0	11.39

- ② These combination 56H base motors have mounting holes for 56 and 143-5T, and a 1/2" diameter shaft with flat 1 1/2" long.
- ☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.
- Combination 56 H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 shaft.
- Combination 56 HZ base has mounting holes for NEMA 56 and 143-5T and a standard NEMA 145T frame shaft of 7/8" diameter.

## FHP MOTORS FOR AC DRIVES

- Compact 48-frame design with keyed shaft
- Class F insulation
- 20:1 Constant torque rated
- Inverter IRIS™ insulation system
- 1/2" diameter keyed shaft with 48-C Face
- 115/230V 3-phase design optimized for FHP drives



## THREE PHASE • TEFC • C FACE WITH BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/6	1800	48CZ	102792.00 A	25	1.25	56.0	8.94
1/4	1800	48CZ	102793.00 A	26	1.4	58.0	8.94
1/3	1800	48CZ	102794.00 A	28	1.6	64.3	9.19
1/2	1800	48CZ	102795.00 A	30	1.8	77.0	10.19

A Subject to Availability.

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice

**SPEEDMASTER®  
INVERTER-DUTY/  
VECTOR DUTY MOTORS**  
2000:1 CONSTANT TORQUE



**Features:**

- Class H inverter-rated IRIS™ insulation system
- Constant torque operation from 0 to base RPM rating on Vector Drives
- Constant HP operation to twice base RPM rating for 143T-256T frame, 1.5 x base RPM for all other sizes
- Designed for optimum performance with IGBT inverters – not for across-the-line starting
- C-face with rigid base through 100HP
- Normally closed thermostats (one per phase)
- Continuous duty at 40° C ambient
- 1.0 Service Factor (Class “B” rise on TEBC motors)
- Premium quality, cast iron frame and endbells
- 284T and larger are blower-cooled with a separately powered three-phase blower motor to provide added cooling at low speeds
- Ball bearings (Roller bearings available 360-frame and larger)
- Field convertible to F2 mounting
- Encoder provisions included on opposite drive end (See Encoder Kits this page)
- UL Recognized and CSA Certified
- Three-year warranty
- Meets NEMA MG1, parts 30 and 31

**Applications:**

Designed for inverter or vector applications where up to a 2000:1 constant torque speed range is required. Typical uses include: material handling, machine tools, conveyors, crane and hoist, metal processing, test stands, pumps, compressors, textile processing, and other industrial machinery installed in dusty or dirty environments.

**ENCODER KITS\* FOR SPEEDMASTER® 2000:1 MOTORS**

Description	Enclosure	Frame	Brand/Model	PPR	Catalog Number
<b>Encoders</b>					
Modular Mount, 5-15 VDC, with EPIC connector	TENV	143-256T	Northstar SL56	1024	<b>E175927.00</b>
Shaft Mount, 5-26 VDC, with 10 pin connector	TENV	143-256T	Dynapar HS35	1024	<b>E175928.00</b>
Shaft Mount, 5-26 VDC, with 10 pin connector	TENV	143-256T	BEI HS35	1024	<b>E175929.00</b>
Shaft Mount, 5-26 VDC, with 10 pin connector	TENV	143-256T	Dynapar HS35	2048	<b>E175930.00</b>
Shaft Mount, 5-26 VDC, with 10 pin connector	TENV	143-256T	BEI HS35	2048	<b>E175931.00</b>
Modular Mount, 5-15 VDC (Encoder Conduit Box Required)	TEBC	284-449T	Northstar SL56	1024	<b>E175921.00</b>
Shaft Mount, 5-26 VDC (Encoder Conduit Box Required)	TEBC	284-449T	Dynapar HS35	1024	<b>E175922.00</b>
Shaft Mount, 5-26 VDC (Encoder Conduit Box Required)	TEBC	284-449T	BEI HS35	1024	<b>E175923.00</b>
Shaft Mount, 5-26 VDC (Encoder Conduit Box Required)	TEBC	284-449T	Dynapar HS35	2048	<b>E175924.00</b>
Shaft Mount, 5-26 VDC (Encoder Conduit Box Required)	TEBC	284-449T	BEI HS35	2048	<b>E175925.00</b>
Conduit Box Required for all TEBC Units	—	—	—	—	<b>ECB175926.00</b>

\* Shipped separately for field installation.

**THREE PHASE • TOTALLY ENCLOSED • RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	RPM Max.†	“C” Dim. (Inches)
1	1800	143TC	<b>810548.00●</b>	61	230/460	3.0	5400	13.68
1½	1800	145TC	<b>810547.00●</b>	68	230/460	4.6	5400	14.68
2	1800	145TC	<b>810546.00●</b>	70	230/460	6.0	5400	14.68
3	1800	182TC	<b>811320.00●</b>	110	230/460	8.0	5400	16.68
5	1800	184TC	<b>811322.00●</b>	118	230/460	13.4	5400	17.69
7½	1800	213TC	<b>810157.00●</b>	180	230/460	21.0	4200	20.56
10	1800	215TC	<b>810140.00●</b>	290	230/460	26.0	4200	22.74
15	1800	254TC	<b>810066.00●</b>	320	230/460	39.0	4200	25.12
		1200	284TC	<b>810068.00 A</b>	440	230/460	40.0	3600
20	1800	256TC	<b>810007.00●</b>	435	230/460	52.0	4200	27.13
		1200	286TC	<b>810001.00 A</b>	450	230/460	52.4	3600
25	1800	284TC	<b>810011.00 A</b>	438	230/460	65.0	3600	37.48
		1200	324TC	<b>810003.00</b>	620	230/460	67.0	3600
30	1800	286TC	<b>810015.00</b>	520	230/460	74.0	4200	38.98
		1200	326TC	<b>810005.00</b>	700	230/460	82.0	3600
40	1800	324TC	<b>810019.00 A</b>	620	230/460	100.0	3600	40.41
		1200	364TC	<b>810096.00</b>	975	230/460	104.0	2700
50	1800	326TC	<b>810023.00 A</b>	640	230/460	120.0	3600	41.91
		1200	365TC	<b>810097.00</b>	1029	230/460	180.0	2700
60	1800	364TC	<b>810027.00</b>	975	230/460	147.0	2700	42.78
		1200	404TC	<b>810098.00 A</b>	1322	230/460	142.0	2700
75	1800	365TC	<b>810031.00</b>	1050	230/460	180.0	2700	43.78
		1200	405TC	<b>810099.00 A</b>	1350	230/460	180.0	2700
100	1800	405TC	<b>810087.00</b>	1400	230/460	230.0	2700	49.28
		1200	444TC	<b>811367.00+</b>	2050	230/460	250.0	2700
125	1800	444T	<b>811369.00+</b>	2000	460	138.0①	2700	52.72
150	1800	445T	<b>811371.00+A</b>	2321	460	170.0①	2700	54.72
200	1800	445T	<b>810503.00+A</b>	2450	460	230.0①	2700	54.72
250	1800	449T	<b>811516.00+A</b>	3210	460	295.0①	2700	63.21
300	1800	449T	<b>811529.00+A</b>	3410	460	330.0①	2700	63.21
350	1800	449T	<b>811530.00+A</b>	3520	460	385.0①	2700	63.21

- These motors are Totally Enclosed, Non-Ventilated (TENV)—Others are Totally Enclosed Blower-Cooled (TEBC).
- † Contact LEESON for applications requiring higher speeds.
- + Contact LEESON for production leadtime on these items.
- ① Amps at 460 volts
- A Subject to Availability.

**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

Specifications are subject to change without notice



**ODP**

**208, 230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT AND C-FACE  
1/4 TO 500 HP**



*Signature Series* **MOTORS**

**Frames 48 - 256T**

**Features:**

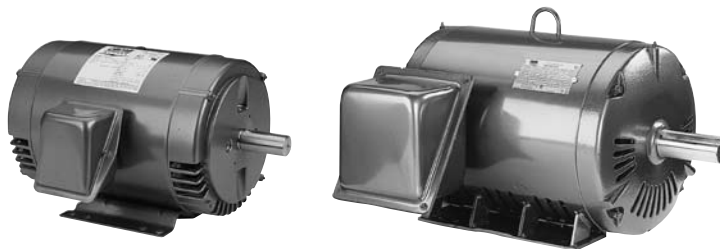
- Industry leading 1.25 service factor\*
- Two levels of premium efficiency - P efficiency codes meet and B efficiency codes exceed the energy efficiency requirements of the United States and Canada.
- Nameplated for 50 Hz and 208 V/60 Hz Operation
- Continuous Duty
- Inverter-Rated
- Premium Insulation Systems –  
48 & 56 frames: Class B  
143T-215T frames: Class F
- UL Recognized Component Listing and CSA

**Applications:**

For use where water and dust exposure is minimal. Ideally suited for use on pumps, compressors, blowers, fans and other standard industrial applications.



\* P and B efficiency codes.



**Frames 284T - 449T**

**Features:**

- Industry leading 1.25 service factor through 200 HP\*
- Superior speed-torque curves - most models\* nameplated Design B & C
- Two levels of premium efficiency - P efficiency codes meet Epack and B efficiency codes meet NEMA Premium energy efficiency requirements of the United States and Canada.
- Nameplated for 50 Hz and 208 V/60 Hz Operation
- Continuous Duty
- Inverter-Rated
- Premium Class F Plus Insulation system
- Y-delta start capability frames 284T-449T
- UL Recognized Component Listing and CSA certified
- Shielded ball bearing for direct coupled applications. Contact your local sales office for belted applications.

**FOOT MOUNT**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	48	62.0	1.35	230/460	SPD4S0.25T61	<b>LM24866</b>	19
1/3	3600	56	66.0	1.35	230/460	SRD2S0.33T61	<b>LM24867</b>	18
	1800	<b>S56</b>	<b>67.0</b>	<b>1.35</b>	<b>230/460</b>	<b>SRD4S0.33T61</b>	<b>LM24152</b>	<b>15</b>
	1200	56	62.0	1.35	230/460	SRD6S0.33T61	<b>LM24868</b>	19
1/2	3600	56	66.0	1.25	230/460	SRD2S0.5T61	<b>LM24869</b>	22
	1800	<b>S56</b>	<b>70.0</b>	<b>1.25</b>	<b>230/460</b>	<b>SRD4S0.5T61</b>	<b>LM24098</b>	<b>17</b>
	1200	56	68.0	1.25	230/460	SRD6S0.5T61	<b>LM24146</b>	22
3/4	3600	56	74.0	1.25	230/460	SRD2S0.75T61	<b>LM24870</b>	21
	1800	<b>S56</b>	<b>75.5</b>	<b>1.25</b>	<b>230/460</b>	<b>SRD4S0.75T61</b>	<b>LM24099</b>	<b>20</b>
	1200	56	76.5	1.15	230/460	SRD6S0.75T61	<b>LM24162</b>	26
1	3600	56	74.0	1.25	230/460	SRD2S1T61	<b>LM24155</b>	24
	1800	<b>S56</b>	<b>76.5</b>	<b>1.15</b>	<b>230/460</b>	<b>SRD4S1T61</b>	<b>LM24111</b>	<b>22</b>
	1800	143T	85.5	1.15	230/460	SSD4B1T61	<b>LM24871</b>	<b>35</b>
	1200	56H	75.5	1.15	230/460	SRD6S1T61	<b>LM24872</b>	29
	1200	145T	82.5	1.25	230/460	SSD6B1T61	<b>LM32726</b>	48
	900	182T	74.0	1.15	230/460	SSD8P1T61	<b>LM33126</b>	55
	1 1/2	3600	56	80.0	1.15	230/460	SRD2S1.5T61	<b>LM24874</b>
3600		143T	84.0	1.25	230/460	SSD2B1.5T61	<b>LM32727</b>	28
1800		<b>56H</b>	<b>80.0</b>	<b>1.15</b>	<b>230/460</b>	<b>SRD4S1.5T61</b>	<b>LM24117</b>	<b>28</b>
1800		<b>145T</b>	<b>85.5</b>	<b>1.15</b>	<b>230/460</b>	<b>SSD4B1.5T61</b>	<b>LM24875</b>	<b>45</b>
900		184T	75.5	1.15	230/460	SSD8P1.5T61	<b>LM32728</b>	88

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Specifications are subject to change without notice

**ODP**  
**208, 230/460 & 460 VOLTS • 3-PHASE**  
**FOOT MOUNT AND C-FACE**  
**1/4 TO 500 HP**



**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
2	3600	56H	80.0	1.15	230/460	SRD2S2T61	LM24877	25
	3600	145T	85.5	1.25	230/460	SSD2B2T61	LM33137	28
	1800	56H	81.5	1.15	230/460	SRD4S2T61	LM24106	36
	1800	145T	86.5	1.25	230/460	SSD4B2T61	LM24169	48
	900	213T	85.5	1.15	230/460	SSD8P2T61	LM32730	115
3	3600	56H	84.0	1.15	230/460	SRD2S3T61	LM24878	33
	3600	145T	85.5	1.25	230/460	SSD2B3T61	LM32731	33
	1800	182T	89.5	1.25	230/460	SSD4B3T61	LM24222	56
	1200	213T	88.5	1.25	230/460	SSD6B3T61	LM32733	104
	900	215T	86.5	1.15	230/460	SSD8P3T61	LM32688	134
5	3600	182T	86.5	1.25	230/460	SSD2B5T61	LM32734	88
	1800	184T	89.5	1.25	230/460	SSD4B5T61	LM24202	91
	1200	215T	87.5	1.25	230/460	SSD6B5T61	LM32735	135
	900	254T	87.5	1.15	230/460	SSD8P5T61	LM32736	175
7 1/2	3600	213T	88.5	1.15	230/460	SSD2B7.5T61	LM32737	88
	1800	213T	91.0	1.25	230/460	SSD4B7.5T61	LM24194	121
	1200	254T	90.2	1.25	230/460	SSD6B7.5T61	LM32738	150
	900	256T	88.5	1.15	230/460	SSD8P7.5T61	LM32739	167
10	3600	213T	89.5	1.25	230/460	SSD2B10T61	LM32740	138
	1800	215T	91.7	1.25	230/460	SSD4B10T61	LM24193	155
	1200	256T	91.7	1.25	230/460	SSD6B10T61	LM32742	221
15	3600	215T	90.2	1.25	230/460	SSD2B15T61	LM32743	135
	1800	254T	93.0	1.25	230/460	CCD4B15T61	LM24190	300
	1800	254T	93.0	1.25	230/460	SSD4B15T61	LM32744	215
	1200	284T	91.7	1.25	230/460	CCD6B15T61Y	LM31244	420
20	3600	254T	91.0	1.25	230/460	SSD2B20T61	LM32745	161
	1800	256T	93.0	1.25	230/460	CCD4B20T61	LM24199	350
	1800	256T	93.0	1.25	230/460	SSD4B20T61	LM32746	233
	1200	286T	92.4	1.25	230/460	CCD6B20T61Y	LM30273	462
25	3600	256T	91.7	1.25	230/460	SSD2B25T61	LM32747	200
	1800	284T	93.6	1.25	230/460	CCD4B25T61Y	LM29576	350
	1800	284TS	93.6	1.25	230/460	CCD4B25TS61Y	LM32748	348
	1200	324T	93.0	1.25	230/460	SD6B25T61Y	LM13809	469
30	3600	284TS	93.0	1.25	230/460	SD2B30TS61Y	LM13966	348
	3600	284T	91.7	1.25	230/460	SD2B30T61Y	LM32687	348
	1800	286T	94.1	1.25	230/460	CCD4B30T61Y	LM29577	400
	1800	286TS	94.1	1.25	230/460	CCD4B30TS61Y	LM32749	400
	1200	326T	93.6	1.25	230/460	SD6B30T61Y	LM13810	522

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**ODP**

**208, 230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT AND C-FACE  
1/4 TO 500 HP**

**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
40	3600	286TS	93.6	1.25	230/460	SD2B40TS61Y	<b>LM13969</b>	389
	3600	286T	92.4	1.25	230/460	SD2B40T61Y	<b>LM32750</b>	389
	1800	324T	94.1	1.25	230/460	SD4B40T61Y	<b>LM13811</b>	469
	1800	324TS	94.1	1.25	230/460	SD4B40TS61Y	<b>LM32751</b>	469
	1200	364T	94.1	1.25	230/460	SD6B40T61Y	<b>LM13924</b>	712
50	3600	324TS	94.1	1.25	230/460	SD2B50TS61Y	<b>LM13812</b>	469
	3600	324T	93.0	1.25	230/460	SD2B50T61Y	<b>LM32752</b>	469
	1800	326T	95.0	1.25	230/460	SD4B50T61Y	<b>LM13813</b>	522
	1800	326TS	94.5	1.25	230/460	SD4B50TS61Y	<b>LM32674</b>	522
60	1200	365T	94.5	1.25	230/460	SD6B50T61Y	<b>LM13927</b>	763
	3600	326TS	94.5	1.25	230/460	SD2B60TS61Y	<b>LM13814</b>	522
	3600	326T	93.6	1.25	230/460	SD2B60T61Y	<b>LM32682</b>	522
	1800	364T	95.0	1.25	230/460	SD4B60T61Y	<b>LM14813</b>	712
75	1800	364TS	95.0	1.25	230/460	SD4B60TS61Y	<b>LM32753</b>	712
	1200	404T	94.5	1.25	230/460	SD6B60T61Y	<b>LM13944</b>	882
	3600	364TS	94.5	1.25	230/460	SD2B75TS61Y	<b>LM14812</b>	712
	3600	364T	93.6	1.25	230/460	SD2B75T61Y	<b>LM32754</b>	712
	1800	365T	95.0	1.25	230/460	SD4B75T61Y	<b>LM14815</b>	763
100	1800	365TS	95.0	1.25	230/460	SD4B75TS61Y	<b>LM32755</b>	763
	1200	405T	94.5	1.25	230/460	SD6B75T61Y	<b>LM13947</b>	958
	3600	365TS	95.0	1.25	230/460	SD2B100TS61Y	<b>LM14814</b>	763
	3600	365T	93.6	1.25	230/460	SD2B100T61Y	<b>LM32756</b>	763
	1800	404T	95.4	1.25	230/460	SD4B100T61Y	<b>LM13943</b>	882
125	1800	404TS	95.4	1.25	230/460	SD4B100TS61Y	<b>LM32757</b>	882
	1200	444T	95.4	1.15	460	SD6B100T64Y	<b>LM13815</b>	1277
	3600	404TS	95.0	1.25	230/460	SD2B125TS61Y	<b>LM13942</b>	882
	3600	404T	94.1	1.25	230/460	SD2B125T61Y	<b>LM32758</b>	882
	1800	405T	95.4	1.25	230/460	SD4B125T61Y	<b>LM13946</b>	958
150	1800	405TS	95.4	1.25	230/460	SD4B125TS61Y	<b>LM32759</b>	958
	1200	445T	95.4	1.15	460	SD6B125T64Y	<b>LM13816</b>	1438
	3600	405TS	95.4	1.25	230/460	SD2B150TS61Y	<b>LM13945</b>	958
	1800	444T	95.8	1.25	460	SD4B150T64Y	<b>LM13817</b>	1277
	1800	444TS	95.8	1.25	460	SD4B150TS64Y	<b>LM32760</b>	1277
1200	445T	95.4	1.15	460	SD6B150T64Y	<b>LM13818</b>	1438	

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**ODP**  
**208, 230/460 & 460 VOLTS • 3-PHASE**  
**FOOT MOUNT AND C-FACE**  
**1/4 TO 500 HP**



**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
<b>200</b>	3600	444TS	95.8	1.25	460	SD2B200TS64Y	<b>LM13819</b>	1277
	1800	445T	96.2	1.25	460	SD4B200T64Y	<b>LM13820</b>	1438
	<b>1800</b>	<b>445TS</b>	<b>95.8</b>	<b>1.25</b>	<b>460</b>	<b>SD4B200TS64Y</b>	<b>LM32761</b>	<b>1449</b>
	1200	449T	95.8	1.15	460	SD6B200T64Y	<b>LM16239</b>	2112
<b>250</b>	3600	445TS	95.8	1.15	460	SD2B250TS64Y	<b>LM13822</b>	1438
	<b>3600</b>	<b>445TS</b>	<b>94.5</b>	<b>1.15</b>	<b>460</b>	<b>SD2P250TS64Y</b>	<b>LM13761</b>	<b>1438</b>
	1800	445T	96.2	1.15	460	SD4B250T64Y	<b>LM13823</b>	1438
	1800	447T	96.2	1.15	460	SD4B250T64Y	<b>LM16235</b>	1745
	<b>1800</b>	<b>445T</b>	<b>95.4</b>	<b>1.25</b>	<b>460</b>	<b>SD4P250T64Y</b>	<b>LM13762</b>	<b>1438</b>
	1800	445TS	95.4	1.15	460	SD4P250TS64Y	<b>LM15466</b>	1438
	1200	447T	95.4	1.00	460	SD6B250T64Y	<b>LM13824</b>	1745
	1200	449T	95.4	1.15	460	SD6B250T64Y	<b>LM17958</b>	2112
<b>300</b>	3600	447TS	95.8	1.15	460	SD2B300TS64Y	<b>LM13825</b>	1745
	3600	447TS	95.0	1.15	460	SD2P300TS64Y	<b>LM13764</b>	1745
	1800	447T	96.2	1.15	460	SD4B300T64Y	<b>LM13826</b>	1745
	1800	449T	96.5	1.15	460	SD4B300T64Y	<b>LM16238</b>	2112
	<b>1800</b>	<b>447T</b>	<b>95.4</b>	<b>1.15</b>	<b>460</b>	<b>SD4P300T64Y</b>	<b>LM13765</b>	<b>1745</b>
	1800	449T	95.4	1.15	460	SD4P300T64Y	<b>LM16227</b>	2112
	1800	447TS	95.4	1.15	460	SD4P300TS64Y	<b>LM22758</b>	1745
	<b>350</b>	3600	447TS	95.8	1.15	460	SD2B350TS64Y	<b>LM13828</b>
3600		449TS	95.8	1.15	460	SD2B350TS64Y	<b>LM16237</b>	2112
3600		447TS	95.0	1.15	460	SD2P350TS64Y	<b>LM13767</b>	1745
3600		449TS	95.0	1.15	460	SD2P350TS64Y	<b>LM16226</b>	2112
1800		447T	96.2	1.15	460	SD4B350T64Y	<b>LM13829</b>	1745
1800		449T	96.2	1.15	460	SD4B350T64Y	<b>LM17957</b>	2112
1800		447T	95.0	1.00	460	SD4P350T64Y	<b>LM13768</b>	1745
1800		449T	95.4	1.15	460	SD4P350T64Y	<b>LM17954</b>	2112
1800		447TS	95.0	1.00	460	SD4P350TS64Y	<b>LM15159</b>	1745
<b>400</b>		3600	449TS	96.2	1.15	460	SD2B400TS64Y	<b>LM13831</b>
	3600	449TS	95.4	1.15	460	SD2P400TS64Y	<b>LM13770</b>	2112
	1800	449T	95.8	1.15	460	SD4B400T64Y	<b>LM13832</b>	2112
	1800	449T	95.4	1.15	460	SD4P400T64Y	<b>LM13771</b>	2112
	1800	449TS	95.4	1.15	460	SD4P400TS64Y	<b>LM22759</b>	2112

**C-FACE WITH FEET**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
<b>1/3</b>	<b>1800</b>	<b>S56</b>	<b>67.0</b>	<b>1.35</b>	<b>230/460</b>	<b>SRD4S0.33TC61</b>	<b>LM24277</b>	<b>15</b>
<b>1/2</b>	3600	56C	66.0	1.25	230/460	SRD2S0.5TC61	<b>LM24879</b>	18
	1800	S56	70.0	1.25	230/460	SRD4S0.5TC61	<b>LM24880</b>	17
	1200	56C	68.0	1.25	230/460	SRD6S0.5TC61	<b>LM24881</b>	33

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**C-FACE WITH FEET (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
3/4	3600	56C	74.0	1.25	230/460	SRD2S0.75TC61	<b>LM24882</b>	21
	1800	<b>S56</b>	<b>75.5</b>	<b>1.25</b>	<b>230/460</b>	<b>SRD4S0.75TC61</b>	<b>LM24267</b>	<b>20</b>
	1200	56C	76.5	1.15	230/460	SRD6S0.75TC61	<b>LM24883</b>	26
1	3600	56C	74.0	1.25	230/460	SRD2S1TC61	<b>LM24884</b>	24
	1800	<b>S56</b>	<b>76.5</b>	<b>1.15</b>	<b>230/460</b>	<b>SRD4S1TC61</b>	<b>LM24346</b>	<b>22</b>
	1800	143TC	85.5	1.25	230/460	SSD4B1TC61	<b>LM32762</b>	34
	1200	56HC	75.5	1.15	230/460	SRD6S1TC61	<b>LM24885</b>	29
	1200	145TC	80.0	1.25	230/460	SSD6B1TC61	<b>LM32763</b>	48
1 1/2	3600	56C	80.0	1.15	230/460	SRD2S1.5TC61	<b>LM24887</b>	23
	3600	143TC	84.0	1.25	230/460	SSD2B1.5TC61	<b>LM32764</b>	28
	1800	56HC	80.0	1.15	230/460	SRD4S1.5TC61	<b>LM24889</b>	28
	1800	145TC	86.5	1.15	230/460	SSD4B1.5TC61	<b>LM32765</b>	40
	1200	182TC	86.5	1.15	230/460	SSD6B1.5TC61	<b>LM32766</b>	80
2	3600	56HC	80.0	1.15	230/460	SRD2S2TC61	<b>LM24891</b>	25
	3600	145TC	85.5	1.25	230/460	SSD2B2TC61	<b>LM32767</b>	28
	1800	56HC	81.5	1.15	230/460	SRD4S2TC61	<b>LM24345</b>	36
	1800	<b>145TC</b>	<b>86.5</b>	<b>1.25</b>	<b>230/460</b>	<b>SSD4B2TC61</b>	<b>LM32768</b>	<b>44</b>
	1200	184TC	87.5	1.25	230/460	SSD6B2TC61	<b>LM32769</b>	74
3	3600	56HC	84.0	1.15	230/460	SRD2S3TC61	<b>LM24894</b>	33
	3600	145TC	85.5	1.25	230/460	SSD2B3TC61	<b>LM32770</b>	33
	1800	182TC	89.5	1.25	230/460	SSD4B3TC61	<b>LM32771</b>	83
	1200	213TC	88.5	1.25	230/460	SSD6B3TC61	<b>LM32772</b>	104
5	3600	182TC	86.5	1.15	230/460	SSD2B5TC61	<b>LM32773</b>	83
	1800	184TC	89.5	1.25	230/460	SSD4B5TC61	<b>LM32774</b>	93
	1200	215TC	89.5	1.25	230/460	SSD6B5TC61	<b>LM32775</b>	135
7 1/2	3600	184TC	88.5	1.15	230/460	SSD2B7.5TC61	<b>LM32776</b>	105
	1800	<b>213TC</b>	<b>91.0</b>	<b>1.25</b>	<b>230/460</b>	<b>SSD4B7.5TC61</b>	<b>LM32666</b>	<b>115</b>
	1200	254TC	90.2	1.25	230/460	SSD6B7.5TC61	<b>LM32777</b>	150
10	3600	213TC	89.5	1.25	230/460	SSD2B10TC61	<b>LM32778</b>	138
	1800	<b>215TC</b>	<b>91.7</b>	<b>1.25</b>	<b>230/460</b>	<b>SSD4B10TC61</b>	<b>LM32649</b>	<b>138</b>
	1200	256TC	91.7	1.25	230/460	SSD6B10TC61	<b>LM32779</b>	221
15	3600	<b>215TC</b>	<b>90.2</b>	<b>1.15</b>	<b>230/460</b>	<b>SSD2B15TC61</b>	<b>LM32780</b>	<b>135</b>
	1800	<b>254TC</b>	<b>96.0</b>	<b>1.25</b>	<b>230/460</b>	<b>SSD4B15TC61</b>	<b>LM32781</b>	<b>215</b>
	1200	284TC	91.7	1.25	230/460	CCD6B15TC61Y	<b>LM31247</b>	420
	1200	284TC	91.7	1.25	230/460	SD6B15TC61Y	<b>LM32806</b>	355
20	3600	254TC	91.0	1.25	230/460	SSD2B20TC61	<b>LM32782</b>	161
	1800	<b>256TC</b>	<b>93.0</b>	<b>1.25</b>	<b>230/460</b>	<b>SSD4B20TC61</b>	<b>LM32783</b>	<b>233</b>
	1200	286TC	92.4	1.25	230/460	CCD6B20TC61Y	<b>LM31248</b>	462
25	3600	256TC	91.7	1.25	230/460	SSD2B25TC61	<b>LM32784</b>	207
	1800	284TC	93.6	1.25	230/460	CCD4B25TC61Y	<b>LM31245</b>	430
	1800	284TSC	91.7	1.25	230/460	CCD4B24TSC61Y	<b>LM32785</b>	350
	1200	324TC	93.0	1.25	230/460	SD6B25TC61Y	<b>LM14535</b>	479
30	3600	284TSC	93.0	1.25	230/460	SD2B30TSC61Y	<b>LM17382</b>	355
	1800	286TC	94.1	1.25	230/460	SD4B30TC61Y	<b>LM31246</b>	489
	1800	<b>286TSC</b>	<b>4.1</b>	<b>1.25</b>	<b>230/460</b>	<b>CCD4B30TSC61Y</b>	<b>LM32786</b>	<b>400</b>
	1200	326TC	93.6	1.25	230/460	SD6B30TC61Y	<b>LM13836</b>	532

**Product numbers in red are STOCK items.**
**Specifications are subject to change without notice**

**ODP**  
**208, 230/460 & 460 VOLTS • 3-PHASE**  
**FOOT MOUNT AND C-FACE**  
**1/4 TO 500 HP**



**C-FACE WITH FEET (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
40	3600	286TSC	93.6	1.25	230/460	SD2B40TSC61Y	<b>LM17384</b>	396
	1800	324TC	94.1	1.25	230/460	SD4B40TC61Y	<b>LM13837</b>	479
	1800	324TSC	94.1	1.25	230/460	SD4B40TSC61Y	<b>LM32684</b>	479
	1200	364TC	94.1	1.25	230/460	SD6B40TC61Y	<b>LM15571</b>	724
50	3600	324TSC	94.1	1.25	230/460	SD2B50TSC61Y	<b>LM13838</b>	479
	<b>3600</b>	<b>324TSC</b>	<b>94.5</b>	<b>1.25</b>	<b>230/460</b>	<b>SD2P50TSC61Y</b>	<b>LM13839</b>	<b>479</b>
	1800	326TC	94.5	1.25	230/460	SD4B50TC61Y	<b>LM13839</b>	532
	<b>1800</b>	<b>326TSC</b>	<b>94.5</b>	<b>1.25</b>	<b>230/460</b>	<b>SD4B50TSC61Y</b>	<b>LM32655</b>	<b>532</b>
1200	365TC	94.5	1.25	230/460	SD6B50TC61Y	<b>LM15574</b>	775	
60	3600	326TSC	94.5	1.25	230/460	SD2B60TSC61Y	<b>LM13840</b>	532
	1800	364TC	95.0	1.25	230/460	SD4B60TC61Y	<b>LM15570</b>	724
	<b>1800</b>	<b>364TSC</b>	<b>94.5</b>	<b>1.25</b>	<b>230/460</b>	<b>SD4B60TSC61Y</b>	<b>LM32787</b>	<b>724</b>
1200	404TC	94.5	1.25	230/460	SD6B60TC61Y	<b>LM17385</b>	898	
75	3600	364TSC	95.0	1.25	230/460	SD2B75TSC61Y	<b>LM15569</b>	724
	1800	365TC	95.0	1.25	230/460	SD4B75TC61Y	<b>LM15573</b>	775
	<b>1800</b>	<b>365TSC</b>	<b>95.0</b>	<b>1.25</b>	<b>230/460</b>	<b>SD4B75TSC61Y</b>	<b>LM32656</b>	<b>775</b>
1200	405TC	95.4	1.25	230/460	SD6B75TC61Y	<b>LM17386</b>	974	
100	3600	365TSC	95.0	1.25	230/460	SD2B100TSC61Y	<b>LM15572</b>	775
	1800	404TC	95.4	1.25	230/460	SD4B100TC61Y	<b>LM17387</b>	898
	<b>1800</b>	<b>404TSC</b>	<b>95.4</b>	<b>1.25</b>	<b>230/460</b>	<b>SD4B100TSC61Y</b>	<b>LM32788</b>	<b>898</b>
1200	444TC	95.4	1.15	460	SD6B100TC64Y	<b>LM13791</b>	1298	
125	3600	404TSC	95.0	1.25	230/460	SD2B125TSC61Y	<b>LM17388</b>	898
	<b>1800</b>	<b>405TSC</b>	<b>95.4</b>	<b>1.25</b>	<b>230/460</b>	<b>SD4B125TSC61Y</b>	<b>LM32657</b>	<b>974</b>
	1200	445TC	95.4	1.15	460	SD6B125TC64Y	<b>LM13792</b>	1459
150	3600	405TSC	95.4	1.25	230/460	SD2B150TSC61Y	<b>LM17390</b>	974
	1800	444TC	95.8	1.25	460	SD4B150TC64Y	<b>LM13793</b>	1298
	1800	444TSC	95.8	1.25	460	SD4B150TSC64Y	<b>LM32789</b>	1298
	1200	445TC	95.4	1.15	460	SD6B150TC64Y	<b>LM13794</b>	1459
200	3600	444TSC	95.8	1.25	460	SD2B200TSC64Y	<b>LM13795</b>	1298
	1800	445TC	96.2	1.25	460	SD4B200TC64Y	<b>LM13796</b>	1459
	<b>1800</b>	<b>445TSC</b>	<b>95.8</b>	<b>1.25</b>	<b>460</b>	<b>SD4B200TSC64Y</b>	<b>LM32677</b>	<b>1470</b>
1200	447TC	95.4	1.15	460	SD6B200TC64Y	<b>LM13797</b>	1766	

**Product numbers in red are STOCK items.**

Specifications are subject to change without notice

**C-FACE WITH FEET (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
250	3600	445TSC	95.8	1.15	460	SD2B250TSC64Y	<b>LM13798</b>	1459
	3600	445TSC	94.5	1.15	460	SD2P250TSC64Y	<b>LM13787</b>	1459
	1800	445TC	96.2	1.15	460	SD4B250TC64Y	<b>LM13799</b>	1459
	1800	445TC	95.4	1.25	460	SD4P250TC64Y	<b>LM13788</b>	1459
	1800	445TSC	95.4	1.15	460	SD4P250TSC64Y	<b>LM20695</b>	1459
	1200	447TC	95.4	1.00	460	SD6B250TC64Y	<b>LM13841</b>	1766
300	3600	447TSC	95.8	1.15	460	SD2B300TSC64Y	<b>LM13842</b>	1766
	3600	447TSC	95.0	1.15	460	SD2P300TSC64Y	<b>LM13790</b>	1766
	1800	447TC	96.2	1.15	460	SD4B300TC64Y	<b>LM13843</b>	1766
	1800	447TC	95.4	1.15	460	SD4P300TC64Y	<b>LM15312</b>	1766
	1200	449TC	95.4	1.00	460	SD6B300TC64Y	<b>LM13844</b>	2133
	1200	449TC	95.4	1.00	460	SD6P300TC64Y	<b>LM13801</b>	2133
350	3600	447TSC	95.8	1.15	460	SD2B350TSC64Y	<b>LM13845</b>	1766
	3600	447TSC	95.0	1.15	460	SD2P350TSC64Y	<b>LM13802</b>	1766
	1800	447TC	96.2	1.15	460	SD4B350TC64Y	<b>LM13846</b>	1766
	1800	447TC	95.4	1.15	460	SD4P350TC64Y	<b>LM13803</b>	1766
400	3600	449TSC	96.2	1.15	460	SD2B400TSC64Y	<b>LM13848</b>	2133
	3600	449TSC	95.4	1.15	460	SD2P400TSC64Y	<b>LM13805</b>	2133
	1800	449TC	95.8	1.15	460	SD4B400TC64Y	<b>LM13849</b>	2133
	1800	449TC	95.4	1.15	460	SD4P400TC64Y	<b>LM13806</b>	2133
450	3600	449TSC	95.8	1.15	460	SD2B450TSC64Y	<b>LM13850</b>	2133
	3600	449TSC	95.8	1.00	460	SD2P450TSC64Y	<b>LM13807</b>	2133
	1800	449TC	96.2	1.15	460	SD4B450TC64Y	<b>LM13718</b>	2133
	1800	449TC	95.8	1.00	460	SD4P450TC64Y	<b>LM13808</b>	2133

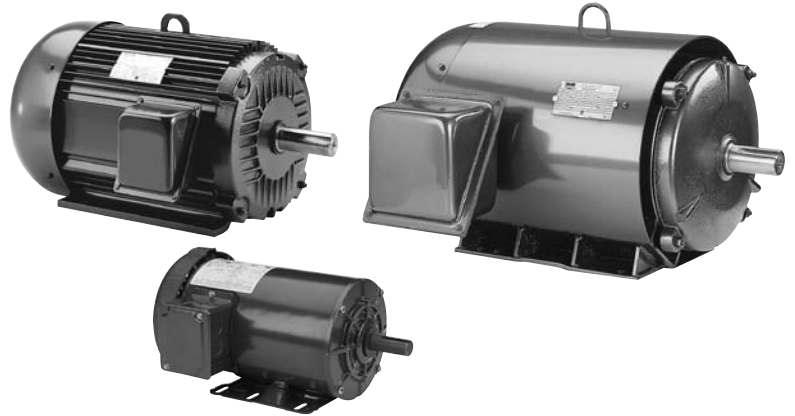
**C-FACE FOOTLESS**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/3	3600	56C	66.0	1.35	230/460	SRD2S0.33TCN61	<b>LM24909</b>	19
	1800	S56	67.0	1.35	230/460	SRD4S0.33TCN61	<b>LM24910</b>	15
1/2	3600	56C	66.0	1.25	230/460	SRD2S0.5TCN61	<b>LM24911</b>	19
	1800	S56	70.0	1.25	230/460	SRD4S0.5TCN61	<b>LM24912</b>	17
	1200	56C	68.0	1.25	230/460	SRD6S0.5TCN61	<b>LM24913</b>	21
3/4	3600	56C	74.0	1.25	230/460	SRD2S0.75TCN61	<b>LM24914</b>	20
	1800	56C	75.5	1.15	230/460	SRD4S0.75TCN61	<b>LM24915</b>	20
1	3600	56C	74.0	1.25	230/460	SRD2S1TCN61	<b>LM24916</b>	22
	1800	<b>S56</b>	<b>76.5</b>	<b>1.15</b>	<b>230/460</b>	<b>SRD4S1TCN61</b>	<b>LM24917</b>	<b>22</b>
	1800	143TC	77.0	1.15	230/460	SSD4P1TCN61	<b>LM32790</b>	27
1 1/2	3600	56C	80.0	1.15	230/460	SRD2S1.5TCN61	<b>LM24919</b>	23
	1800	56HC	80.0	1.15	230/460	SRD4S1.5TCN61	<b>LM24160</b>	27
	1800	145TC	80.0	1.15	230/460	SSD4P1.5TCN61	<b>LM32791</b>	29
2	3600	56HC	80.0	1.15	230/460	SRD2S2TCN61	<b>LM24921</b>	25
	1800	56HC	81.5	1.15	230/460	SRD4S2TCN61	<b>LM24131</b>	33
	1800	145TC	84.0	1.15	230/460	SSD4P2TCN61	<b>LM32792</b>	35
3	3600	<b>56HC</b>	<b>84.0</b>	<b>1.15</b>	<b>230/460</b>	<b>SRD2S3TCN61</b>	<b>LM24923</b>	<b>31</b>
	3600	145TC	86.5	1.15	230/460	SSD2P3TCN61	<b>LM32793</b>	33
	1800	182TC	81.5	1.15	230/460	SSD4P3TCN61	<b>LM32794</b>	63
5	1800	<b>184TC</b>	<b>87.5</b>	<b>1.25</b>	<b>230/460</b>	<b>SSD4P5TCN61</b>	<b>LM24234</b>	<b>93</b>
7 1/2	1800	213TC	88.5	1.15	230/460	SSD4P7.5TCN61	<b>LM32800</b>	95
10	1800	215TC	89.5	1.15	230/460	SSD4P10TCN61	<b>LM32801</b>	128

**Product numbers in red are STOCK items.**
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*Signature Series* **MOTORS****Frames 48 - 215T****Features:**

- Industry leading 1.25 service factor\*
- Nameplated for 50 Hz and 208 V/60 Hz Operation
- Continuous Duty
- Inverter-Rated
- Construction materials (reference Model Number) -  
SPF, SRF & SSF: steel frame/cast aluminum brackets
- Premium Insulation Systems –  
48 & 56 frames: Class B  
143T-215T frames: Class F
- UL Recognized Component Listing and CSA certified

**Frames 182T - 449T****Features:**

- Industry leading 1.25 service factor through 75 HP\*
- Superior speed-torque curves – most models\* nameplated Design B & C
- Two levels of premium efficiency – P efficiency codes meet EPACT and B efficiency codes meet NEMA Premium energy efficiency requirements of the United States and Canada.
- Nameplated for 50 Hz and 208 V/60 Hz Operation
- Continuous Duty
- Inverter-Rated
- Construction Materials (reference Model Number) –  
AF, AAF: extruded aluminum frame and cast iron brackets  
SF: steel frame and cast iron brackets
- Premium Class F Plus Insulation system
- Y-delta start capability frames 284T-449T
- UL Recognized Component Listing and CSA certified
- Shielded ball bearing for direct coupled applications. Contact your local sales office for belted applications.

**Applications:**

For use where exposure to water, dust and corrosives exists. Ideally suited for use on pumps, compressors, fans, blowers, conveyors, machine tools and other industrial applications.

\* P and B efficiency codes.

**FOOT MOUNT**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	48	62.5	1.15	230/460	SPF4S0.25T61	<b>LM24929</b>	17
1/3	1800	48	65.5	1.15	230/460	SPF4S0.33T61	<b>LM24930</b>	20
	1800	S56	65.5	1.15	230/460	SRF4S0.33T61	<b>LM24107</b>	16
	1200	56	62.0	1.15	230/460	SRF6S0.33T61	<b>LM24931</b>	22
1/2	3600	56	69.0	1.15	230/460	SRF2S0.5T61	<b>LM24165</b>	22
	1800	48	70.0	1.15	230/460	SPF4S0.5T61	<b>LM24932</b>	23
	1800	S56	70.0	1.15	230/460	SRF4S0.5T61	<b>LM24073</b>	18
	1200	56	68.0	1.15	230/460	SRF6S0.5T61	<b>LM24105</b>	24
	900	143T	66.0	1.15	230/460	SSF8S0.5T61	<b>LM24291</b>	31
3/4	3600	56	74.0	1.15	230/460	SRF2S0.75T61	<b>LM24133</b>	23
	1800	S56	75.5	1.15	230/460	SRF4S0.75T61	<b>LM24075</b>	30
	1200	56	74.0	1.15	230/460	SRF6S0.75T61	<b>LM24136</b>	28
	1200	143T	74.0	1.15	230/460	SSF6S0.75T61	<b>LM24103</b>	29
	900	145T	70.0	1.15	230/460	SSF8S0.75T61	<b>LM24276</b>	49
	1	3600	56	74.0	1.15	230/460	SRF2S1T61	<b>LM24094</b>
1800		56	77.0	1.15	230/460	SRF4S1T61	<b>LM24078</b>	27
1800		143T	85.5	1.25	230/460	SSF4B1T61	<b>LM32796</b>	41
1200		145T	82.5	1.25	230/460	SSF6B1T61	<b>LM33121</b>	34
1200		56H	78.5	1.15	230/460	SRF6S1T61	<b>LM24159</b>	35
900		182T	74.0	1.15	230/460	AAF8P1T61	<b>LM32662</b>	64
1 1/2		3600	56	80.0	1.15	230/460	SRF2S1.5T61	<b>LM24144</b>
	3600	143T	84.0	1.25	230/460	SSF2B1.5T61	<b>LM33122</b>	32
	1800	56H	80.0	1.15	230/460	SRF4S1.5T61	<b>LM24118</b>	30
	1800	145T	86.5	1.25	230/460	SSF4B1.5T61	<b>LM33123</b>	45
	1200	182T	87.7	1.25	230/460	AAF6B1.5T61	<b>LM15648</b>	83
	900	184T	77.0	1.15	230/460	AAF8P1.5T61	<b>LM32798</b>	71
2	3600	56H	82.5	1.15	230/460	SRF2S2T61	<b>LM24347</b>	39
	3600	145T	85.5	1.25	230/460	SSF2B2T61	<b>LM33124</b>	31
	1800	56H	82.5	1.15	230/460	SRF4S2T61	<b>LM24097</b>	40
	1800	145T	86.5	1.25	230/460	SSF4B2T61	<b>LM33125</b>	41
	1200	184T	88.5	1.25	230/460	AAF6B2T61	<b>LM15651</b>	92
	900	213T	82.5	1.15	230/460	AF8P2T61	<b>LM32799</b>	101
3	3600	56H	84.0	1.15	230/460	SRF2S3T61	<b>LM24935</b>	51
	3600	182T	87.5	1.25	230/460	AAF2B3T61	<b>LM15646</b>	83
	1800	182T	90.2	1.25	230/460	AAF4B3T61	<b>LM15647</b>	83
	1800	182T	89.5	1.15	230/460	SSF4B3T61	<b>LM32741</b>	77
	1800	182T	89.5	1.25	230/460	AAF4B3T61AP23	<b>LM70009</b>	60
	1200	213T	89.5	1.25	230/460	AF6B3T61	<b>LM16030</b>	127
	900	215T	84.0	1.15	230/460	AF8P3T61	<b>LM32664</b>	119

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**TEFC**  
**208, 230/460 AND 460 VOLTS • 3-PHASE**  
**FOOT MOUNT & C-FACE**  
**1/4 TO 400 HP**



**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
5	3600	184T	89.5	1.25	230/460	AAF2B5T61	LM15649	92
	1800	184T	90.2	1.25	230/460	AAF4B5T61	LM15650	92
	1800	184T	87.5	1.15	230/460	SSF4B5T61	LM32295	85
	1800	184T	87.5	1.25	230/460	AAF4B5T61AP23	LM70010	75
	1200	215T	89.5	1.25	230/460	AF6B5T61	LM16033	138
	1200	215T	89.5	1.15	230/460	SSF6B5T61	LM32802	140
	900	254T	85.5	1.15	230/460	AF8P5T61	LM32803	159
7 1/2	3600	213T	91.0	1.25	230/460	AF2B7.5T61	LM28968	127
	3600	213T	89.5	1.15	230/460	SSF2B7.5T61	LM32804	109
	1800	213T	91.0	1.25	230/460	AF4B7.5T61	LM16029	127
	1800	213T	91.0	1.15	230/460	SSF4B7.5T61	LM32805	115
	1800	213T	91.0	1.25	230/460	AAF4B7.5T61AP23	LM70011	110
	1200	254T	91.0	1.25	230/460	AF6B7.5T61	LM15672	209
10	900	256T	85.5	1.15	230/460	AF8P7.5T61	LM32807	195
	3600	215T	91.0	1.25	230/460	AF2B10T61	LM16031	138
	3600	215T	90.2	1.15	230/460	SSF2B10T61	LM32808	126
	1800	215T	91.7	1.25	230/460	AF4B10T61	LM16032	138
	1800	215T	91.7	1.15	230/460	SSF4B10T61	LM32809	135
	1800	215T	91.7	1.25	230/460	AAF4B1061AP23	LM70012	125
15	1200	256T	91.0	1.25	230/460	AF6B10T61	LM15675	236
	3600	254T	91.7	1.25	230/460	AAF2B15T61	LM15670	209
	1800	254T	92.4	1.25	230/460	AAF4B15T61	LM15671	209
20	1200	284T	92.4	1.25	230/460	AF6B15T61Y	LM13962	363
	3600	256T	91.7	1.25	230/460	AF2B20T61	LM15673	236
	1800	256T	93.0	1.25	230/460	AAF4B20T61	LM15674	236
25	1200	286T	93.0	1.25	230/460	AF6B20T61Y	LM13965	408
	3600	284TS	93.0	1.25	230/460	AF2B25TS61Y	LM13960	363
	3600	284T	91.7	1.25	230/460	AF2B25T61Y	LM32811	363
	1800	284T	94.1	1.25	230/460	AF4B25T61Y	LM13961	363
	1800	284TS	93.6	1.25	230/460	AF4B25TS61Y	LM32812	363
1200	324T	93.0	1.25	230/460	SF6B25T61Y	LM13696	504	

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**TEFC**

**208, 230/460 AND 460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
1/4 TO 400 HP**

**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
30	3600	286TS	93.0	1.25	230/460	AF2B30TS61Y	<b>LM13963</b>	408
	3600	286T	93.6	1.25	230/460	AF2B30T61Y	<b>LM32813</b>	408
	1800	286T	94.5	1.25	230/460	AF4B30T61Y	<b>LM13964</b>	408
	1800	286TS	93.6	1.25	230/460	AF4B30TS61Y	<b>LM32814</b>	408
	1200	326T	93.0	1.25	230/460	SF6B30T61Y	<b>LM13697</b>	558
40	3600	324TS	94.1	1.25	230/460	SF2B40TS61Y	<b>LM13698</b>	504
	3600	324T	94.1	1.25	230/460	SF2B40T61Y	<b>LM32671</b>	504
	1800	324T	94.1	1.25	230/460	SF4B40T61Y	<b>LM13699</b>	504
	1800	324TS	94.1	1.25	230/460	SF4B40TS61Y	<b>LM32686</b>	504
	1200	364T	94.5	1.25	230/460	SF6B40T61Y	<b>LM13918</b>	765
50	3600	326TS	94.1	1.25	230/460	SF2B50TS61Y	<b>LM13700</b>	558
	3600	326T	94.1	1.25	230/460	SF2B50T61Y	<b>LM32669</b>	558
	1800	326T	95.0	1.25	230/460	SF4B50T61Y	<b>LM13701</b>	558
	1800	326TS	94.5	1.25	230/460	SF4B50TS61Y	<b>LM32815</b>	558
	1200	365T	94.5	1.25	230/460	SF6B50T61Y	<b>LM13921</b>	822
60	3600	364TS	95.0	1.25	230/460	SF2B60TS61Y	<b>LM14808</b>	765
	3600	364T	94.5	1.25	230/460	SF2B60T61Y	<b>LM32816</b>	765
	1800	364T	95.0	1.25	230/460	SF4B60T61Y	<b>LM14809</b>	765
	1800	364TS	94.5	1.25	230/460	SF4B60TS61Y	<b>LM32676</b>	765
	1200	404T	94.5	1.15	230/460	SF6B60T61Y	<b>LM13938</b>	918
75	3600	365TS	95.0	1.25	230/460	SF2B75TS61Y	<b>LM14810</b>	822
	3600	365T	95.0	1.25	230/460	SF2B75T61Y	<b>LM32729</b>	822
	1800	365T	95.0	1.15	230/460	SF4B75T61Y	<b>LM14811</b>	822
	1800	365TS	95.0	1.25	230/460	SF4B75TS61Y	<b>LM32672</b>	822
	1200	405T	94.5	1.15	230/460	SF6B75T61Y	<b>LM13941</b>	1002
100	3600	405TS	94.5	1.15	230/460	SF2B100TS61Y	<b>LM13939</b>	1002
	3600	405T	95.4	1.15	230/460	SF2B100T61Y	<b>LM32818</b>	1002
	1800	405T	95.4	1.15	230/460	SF4B100T61Y	<b>LM13940</b>	1002
	1800	405TS	95.4	1.15	230/460	SF4B100TS61Y	<b>LM32819</b>	1002
	1200	444T	95.4	1.15	460	SF6B100T64Y	<b>LM13702</b>	1351
125	3600	444TS	95.0	1.15	460	SF2B125TS64Y	<b>LM13703</b>	1351
	1800	444T	96.2	1.15	460	SF4B125T64Y	<b>LM13704</b>	1351
	1800	444TS	96.2	1.15	460	SF4B125TS64Y	<b>LM32820</b>	1351
	1200	445T	95.0	1.15	460	SF6B125T64Y	<b>LM13705</b>	1531

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**208, 230/460 AND 460 VOLTS • 3-PHASE**  
**FOOT MOUNT & C-FACE**  
**1/4 TO 400 HP**



**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
<b>150</b>	3600	445TS	95.8	1.15	460	SF2B150TS64Y	<b>LM13706</b>	1531
	1800	445T	96.2	1.15	460	SF4B150T64Y	<b>LM13707</b>	1531
	1800	445TS	96.2	1.15	460	SF4B150TS64Y	<b>LM32679</b>	1504
	1200	447T	95.8	1.15	460	SF6B150T64Y	<b>LM16231</b>	1812
<b>200</b>	3600	447TS	95.4	1.15	460	SF2B200TS64Y	<b>LM16229</b>	1812
	3600	445TS	95.4	1.15	460	SF2B200TS64Y	<b>LM13709</b>	1531
	1800	447T	96.2	1.15	460	SF4B200T64Y	<b>LM16230</b>	1812
	1800	445T	96.2	1.15	460	SF4B200T64Y	<b>LM13710</b>	1531
	1800	445TS	96.2	1.15	460	SF4B200TS64Y	<b>LM32821</b>	1504
	1200	447T	95.8	1.15	460	SF6B200T64Y	<b>LM13711</b>	1812
<b>250</b>	3600	449TS	96.5	1.15	460	SF2B250TS64Y	<b>LM16232</b>	2185
	3600	447TS	96.2	1.15	460	SF2B250TS64Y	<b>LM13712</b>	1812
	3600	449TS	95.4	1.15	460	SF2P250TS64Y	<b>LM16222</b>	2185
	3600	447TS	95.4	1.00	460	SF2P250TS64Y	<b>LM13556</b>	1812
	1800	449T	96.5	1.15	460	SF4B250T64Y	<b>LM16233</b>	2185
	1800	447T	96.2	1.15	460	SF4B250T64Y	<b>LM13713</b>	1812
	1800	449T	95.0	1.15	460	SF4P250T64Y	<b>LM16223</b>	2185
	1800	447T	95.0	1.15	460	SF4P250T64Y	<b>LM13557</b>	1812
	1800	447TS	95.0	1.15	460	SF4P250TS64Y	<b>LM14751</b>	1812
	1800	447TS	95.0	1.15	460	SF4P250TS64Y	<b>LM14751</b>	1812
<b>300</b>	3600	449TS	96.2	1.15	460	SF2B300TS64Y	<b>LM13715</b>	2185
	3600	449TS	95.4	1.15	460	SF2P300TS64Y	<b>LM13559</b>	2185
	1800	449T	96.5	1.15	460	SF4B300T64Y	<b>LM17956</b>	2185
	1800	447T	96.2	1.15	460	SF4B300T64Y	<b>LM13716</b>	1812
	1800	449T	95.4	1.15	460	SF4P300T64Y	<b>LM17953</b>	2185
	1800	449TS	95.4	1.15	460	SF4P300TS64Y	<b>LM18347</b>	2185
	1800	447T	95.4	1.00	460	SF4P300T64Y	<b>LM13560</b>	1812
	1800	447TS	95.4	1.00	460	SF4P300TS64Y	<b>LM18319</b>	1812
	1800	449TS	95.8	1.15	460	SF2B350TS64Y	<b>LM13719</b>	2185
	1800	449TS	95.4	1.00	460	SF2P350TS64Y	<b>LM13562</b>	2185
<b>350</b>	1800	449T	96.2	1.15	460	SF4B350T64Y	<b>LM13720</b>	2185
	1800	449T	95.4	1.15	460	SF4P350T64Y	<b>LM13563</b>	2185
	1800	449T	95.4	1.15	460	SF4P350T64Y	<b>LM13563</b>	2185
<b>400</b>	3600	449TS	95.8	1.00	460	SF2B400TS64Y	<b>LM13721</b>	2185
	3600	449TS	95.4	1.00	460	SF2P400TS64Y	<b>LM13564</b>	2185
	1800	449T	96.2	1.15	460	SF4B400T64Y	<b>LM13722</b>	2185
	1800	449T	95.4	1.00	460	SF4P400T64Y	<b>LM13565</b>	2185

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**C-FACE WITH FEET**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	S56	62.5	1.15	230/460	SRF4S0.25TC61	<b>LM24946</b>	21
1/3	1800	S56	65.5	1.15	230/460	SRF4S0.33TC61	<b>LM24114</b>	21
	1200	56C	62.0	1.15	230/460	SRF6S0.33TC61	<b>LM24948</b>	22
1/2	3600	56C	69.0	1.15	230/460	SRF2S0.5TC61	<b>LM24129</b>	22
	1800	S56	70.0	1.15	230/460	SRF4S0.5TC61	<b>LM24074</b>	18
	1200	56C	68.0	1.15	230/460	SRF6S0.5TC61	<b>LM24104</b>	24
	900	143TC	66.0	1.15	230/460	SSF8S0.5TC61	<b>LM24949</b>	31
3/4	3600	56C	74.0	1.15	230/460	SRF2S0.75TC61	<b>LM24134</b>	22
	1800	S56	75.5	1.15	230/460	SRF4S0.75TC61	<b>LM24076</b>	20
	1200	56C	74.0	1.15	230/460	SRF6S0.75TC61	<b>LM24140</b>	26
	1200	143TC	74.0	1.15	230/460	SSF6S0.75TC61	<b>LM24273</b>	28
	900	145TC	70.0	1.15	230/460	SSF8S0.75TC61	<b>LM24265</b>	49
1	3600	56C	74.0	1.15	230/460	SRF2S1TC61	<b>LM24126</b>	25
	1800	56C	77.0	1.15	230/460	SRF4S1TC61	<b>LM24079</b>	28
	1800	143TC	85.5	1.25	230/460	SSF4B1TC61	<b>LM32822</b>	41
	1200	56HC	78.5	1.15	230/460	SRF6S1TC61	<b>LM24349</b>	38
	1200	145TC	82.5	1.25	230/460	SSF6B1TC61	<b>LM32823</b>	47
1 1/2	900	182TC	74.0	1.15	230/460	AAF8P1TC61	<b>LM32692</b>	68
	3600	56C	80.0	1.15	230/460	SRF2S1.5TC61	<b>LM24135</b>	41
	3600	143TC	84.0	1.25	230/460	SSF2B1.5TC61	<b>LM32824</b>	41
	1800	56HC	80.0	1.15	230/460	SRF4S1.5TC61	<b>LM24095</b>	31
	1800	145TC	86.5	1.25	230/460	SSF4B1.5TC61	<b>LM32825</b>	44
	1200	182TC	87.5	1.25	230/460	AAF6B1.5TC61	<b>LM16728</b>	95
	1200	182TC	87.5	1.15	230/460	SSF6B1.5TC61	<b>LM32826</b>	54
2	900	184TC	77.0	1.15	230/460	AAF8P1.5TC61	<b>LM32827</b>	75
	3600	56HC	82.5	1.15	230/460	SRF2S2TC61	<b>LM24121</b>	38
	3600	145TC	85.5	1.25	230/460	SSF2B2TC61	<b>LM32828</b>	40
	1800	56HC	82.5	1.15	230/460	SRF4S2TC61	<b>LM24081</b>	50
	1800	145TC	86.5	1.25	230/460	SSF4B2TC61	<b>LM32829</b>	46
	1200	184TC	87.5	1.25	230/460	AAF6B2TC61	<b>LM16739</b>	104
	1200	184TC	88.5	1.15	230/460	SSF6B2TC61	<b>LM32830</b>	56
	900	213TC	82.5	1.15	230/460	AAF8P2TC61	<b>LM32831</b>	107
3	3600	56HC	84.0	1.15	230/460	SRF2S3TC61	<b>LM24953</b>	53
	3600	182TC	87.5	1.25	230/460	AAF2B3TC61	<b>LM16741</b>	95
	1800	182TC	90.2	1.25	230/460	AAF4B3TC61	<b>LM16742</b>	95
	1800	213TC	89.5	1.25	230/460	AAF4B3TC61AP23	<b>LM71009</b>	75
	1200	213TC	89.5	1.25	230/460	AF6B3TC61	<b>LM16744</b>	138
	1200	213TC	89.5	1.15	230/460	SSF6B3TC61	<b>LM32833</b>	90
	900	215TC	84.0	1.15	230/460	AF8P3TC61	<b>LM32834</b>	125
	5	3600	184TC	89.5	1.25	230/460	AAF2B5TC61	<b>LM16745</b>
1800		184TC	90.2	1.25	230/460	AAF4B5TC61	<b>LM16747</b>	104
1800		184TC	90.2	1.25	230/460	AAF4B3TC61AP23	<b>LM71010</b>	85
1200		215TC	89.5	1.25	230/460	AF6B5TC61	<b>LM16748</b>	149
1200		215TC	89.5	1.15	230/460	SSF6B5TC61	<b>LM32835</b>	115
900		254TC	85.5	1.15	230/460	AF8P5TC61	<b>LM32836</b>	167

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**FOOT MOUNT & C-FACE**  
**1/4 TO 400 HP**



**C-FACE WITH FEET (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
<b>7 1/2</b>	3600	213TC	91.0	1.25	230/460	AAF2B7.5TC61	<b>LM16750</b>	138
	3600	213TC	91.0	1.25	230/460	SSF2B7.5TC61	<b>LM32837</b>	110
	1800	213TC	91.0	1.25	230/460	AF4B7.5TC61	<b>LM16752</b>	138
	1800	213TC	91.7	1.25	230/460	AF4B7.5TC61AP23	<b>LM71011</b>	138
	1800	213TC	91.7	1.15	230/460	SSF4B7.5TC61	<b>LM32838</b>	135
	1200	254TC	91.0	1.25	230/460	AAF6B7.5TC61	<b>LM16753</b>	221
	900	256TC	85.5	1.15	230/460	AF8P7.5TC61	<b>LM32839</b>	203
<b>10</b>	3600	215TC	91.0	1.25	230/460	AF2B10TC61	<b>LM16755</b>	149
	3600	215TC	90.0	1.15	230/460	SSF2B10TC61	<b>LM32840</b>	125
	1800	215TC	91.0	1.25	230/460	AF4B10TC61	<b>LM16757</b>	149
	1800	215TC	91.7	1.25	230/460	AAF4B10TC61AP23	<b>LM71012</b>	149
	1800	215TC	91.7	1.15	230/460	SSF4B10TC61	<b>LM32841</b>	135
	1200	256TC	91.0	1.25	230/460	AF6B10TC61	<b>LM16759</b>	248
<b>15</b>	3600	254TC	91.0	1.25	230/460	AF2B15TC61	<b>LM16761</b>	221
	1800	254TC	92.4	1.25	230/460	AF4B15TC61	<b>LM16762</b>	221
	1200	284TC	91.7	1.25	230/460	AF6B15TC61Y	<b>LM16764</b>	370
<b>20</b>	3600	256TC	91.7	1.25	230/460	AF2B20TC61	<b>LM16766</b>	248
	1800	256TC	93.0	1.25	230/460	AF4B20TC61	<b>LM16767</b>	248
	1200	286TC	93.0	1.25	230/460	AF6B20TC61Y	<b>LM16769</b>	415
<b>25</b>	3600	284TSC	91.7	1.25	230/460	AF2B25TSC61Y	<b>LM16770</b>	370
	1800	284TC	94.1	1.25	230/460	AF4B25TC61Y	<b>LM16772</b>	370
	1800	284TSC	92.4	1.25	230/460	AF4B25TSC61Y	<b>LM32654</b>	370
	1200	324TC	93.0	1.25	230/460	SF6B25TC61Y	<b>LM13723</b>	514
<b>30</b>	3600	286TSC	92.4	1.25	230/460	AF2B30TSC61Y	<b>LM16773</b>	415
	1800	286TC	94.5	1.25	230/460	AF4B30TC61Y	<b>LM16774</b>	415
	1800	286TSC	93.6	1.25	230/460	AF4B30TSC61Y	<b>LM32842</b>	415
	1200	326TC	93.0	1.25	230/460	SF6B30TC61Y	<b>LM13724</b>	568
<b>40</b>	3600	324TSC	93.6	1.25	230/460	SF2B40TSC61Y	<b>LM13725</b>	514
	1800	324TC	94.1	1.25	230/460	SF4B40TC61Y	<b>LM13726</b>	514
	1800	324TSC	94.1	1.25	230/460	SF4B40TSC61Y	<b>LM32652</b>	514
	1200	364TC	94.5	1.25	230/460	SF6B40TC61Y	<b>LM15565</b>	777
<b>50</b>	3600	326TSC	94.1	1.25	230/460	SF2B50TSC61Y	<b>LM13727</b>	568
	1800	326TC	95.0	1.25	230/460	SF4B50TC61Y	<b>LM13728</b>	568
	1800	326TSC	94.5	1.25	230/460	SF4B50TSC61Y	<b>LM32843</b>	568
	1200	365TC	94.5	1.25	230/460	SF6B50TC61Y	<b>LM15568</b>	834

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**C-FACE WITH FEET (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
60	3600	364TSC	95.0	1.25	230/460	SF2B60TSC61Y	<b>LM15562</b>	777
	1800	364TC	95.0	1.25	230/460	SF4B60TC61Y	<b>LM15563</b>	777
	1800	364TSC	95.00	1.25	230/460	SF4B60TSC61Y	<b>LM32665</b>	777
	1200	404TC	94.5	1.15	230/460	SF6B60TC61Y	<b>LM16716</b>	934
75	3600	365TSC	95.0	1.25	230/460	SF2B75TSC61Y	<b>LM15566</b>	834
	1800	365TC	95.4	1.15	230/460	SF4B75TC61Y	<b>LM15567</b>	834
	1800	365TSC	95.4	1.25	230/460	SF4B75TSC61Y	<b>LM32653</b>	834
	1200	405TC	94.5	1.15	230/460	SF6B75TC61Y	<b>LM16717</b>	1018
100	3600	405TSC	95.8	1.15	230/460	SF2B100TSC61Y	<b>LM16719</b>	1018
	1800	405TC	95.4	1.15	230/460	SF4B100TC61Y	<b>LM15263</b>	1018
	1800	405TSC	95.4	1.15	230/460	SF4B100TSC61Y	<b>LM32659</b>	1018
	1200	444TC	95.4	1.15	460	SF6B100TC64Y	<b>LM13729</b>	1372
125	3600	444TSC	95.0	1.15	460	SF2B125TSC64Y	<b>LM13730</b>	1372
	1800	444TC	96.2	1.15	460	SF4B125TC64Y	<b>LM13731</b>	1372
	1800	444TSC	95.4	1.15	460	SF4B125TSC64Y	<b>LM32844</b>	1372
	1200	445TC	95.0	1.15	460	SF6B125TC64Y	<b>LM13732</b>	1552
150	3600	445TSC	96.2	1.15	460	SF2B150TSC64Y	<b>LM13733</b>	1552
	1800	445TC	96.2	1.15	460	SF4B150TC64Y	<b>LM13734</b>	1552
	1800	445TSC	95.0	1.15	460	SF4B150TSC64Y	<b>LM32845</b>	1525
	1200	445TC	95.8	1.15	460	SF6B150TC64Y	<b>LM13735</b>	1552
200	3600	445TSC	96.2	1.15	460	SF2B200TSC64Y	<b>LM13736</b>	1552
	1800	445TC	96.2	1.15	460	SF4B200TC64Y	<b>LM13737</b>	1552
	1800	445TSC	96.2	1.15	460	SF4B200TSC64Y	<b>LM32660</b>	1525
	250	447TSC	96.2	1.15	460	SF2B250TSC64Y	<b>LM13739</b>	1833
250	3600	447TSC	95.4	1.00	460	SF2P250TSC64Y	<b>LM13582</b>	1833
	1800	447TC	96.2	1.15	460	SF4B250TC64Y	<b>LM13740</b>	1833
	1800	447TC	95.0	1.15	460	SF4P250TC64Y	<b>LM13583</b>	1833
	300	449TSC	96.2	1.15	460	SF2B300TSC64Y	<b>LM13742</b>	2206
300	3600	449TSC	95.4	1.15	460	SF2P300TSC64Y	<b>LM13585</b>	2206
	1800	447TC	96.2	1.15	460	SF4B300TC64Y	<b>LM13743</b>	1833
	1800	449TC	95.4	1.15	460	SF4P300TC64Y	<b>LM19193</b>	2206
	1800	447TC	95.4	1.00	460	SF4P300TC64Y	<b>LM15308</b>	1833

Product numbers in red are STOCK items.

Specifications are subject to change without notice

**TEFC**  
**208, 230/460 AND 460 VOLTS • 3-PHASE**  
**FOOT MOUNT & C-FACE**  
**1/4 TO 400 HP**



**C-FACE WITH FEET (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
<b>350</b>	3600	449TSC	95.8	1.15	460	SF2B350TSC64Y	<b>LM13745</b>	2206
	3600	449TSC	95.4	1.00	460	SF2P350TSC64Y	<b>LM13588</b>	2206
	1800	449TC	96.2	1.15	460	SF4B350TC64Y	<b>LM13746</b>	2206
	1800	449TC	95.4	1.15	460	SF4P350TC64Y	<b>LM15400</b>	2206
<b>400</b>	3600	449TSC	95.8	1.00	460	SF2B400TSC64Y	<b>LM13747</b>	2206
	3600	449TSC	95.4	1.00	460	SF2P400TSC64Y	<b>LM13590</b>	2206
	1800	449TC	96.2	1.15	460	SF4B400TC64Y	<b>LM13748</b>	2206
	1800	449TC	95.4	1.00	460	SF4P400TC64Y	<b>LM13591</b>	2206

**C-FACE FOOTLESS**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
<b>1/4</b>	1800	56C	62.5	1.15	230/460	SRF4S0.25TCN61	<b>LM24964</b>	14
<b>1/3</b>	1800	S56	65.5	1.15	230/460	SRF4S0.33TCN61	<b>LM24093</b>	15
	1200	56C	62.0	1.15	230/460	SRF6S0.33TCN61	<b>LM24858</b>	21
<b>1/2</b>	3600	56C	69.0	1.15	230/460	SRF2S0.5TCN61	<b>LM24138</b>	22
	1800	S56	70.0	1.15	230/460	SRF4S0.5TCN61	<b>LM24083</b>	17
	1200	56C	68.0	1.15	230/460	SRF6S0.5TCN61	<b>LM24128</b>	23
	900	143TC	66.0	1.15	230/460	SSF8S0.5TCN61	<b>LM24965</b>	31
<b>3/4</b>	3600	56C	74.0	1.15	230/460	SRF2S0.75TCN61	<b>LM24151</b>	22
	1800	S56	75.5	1.15	230/460	SRF4S0.75TCN61	<b>LM24077</b>	21
	1200	56C	74.0	1.15	230/460	SRF6S0.75TCN61	<b>LM24153</b>	26
	1200	143TC	74.0	1.15	230/460	SSF6S0.75TCN61	<b>LM24966</b>	29
<b>1</b>	900	145TC	70.0	1.15	230/460	SSF8S0.75TCN61	<b>LM24967</b>	49
	3600	56C	74.0	1.15	230/460	SRF2S1TCN61	<b>LM24139</b>	24
	1800	56C	77.0	1.15	230/460	SRF4S1TCN61	<b>LM24080</b>	27
	1800	143TC	82.5	1.25	230/460	SSF4P1TCN61	<b>LM24148</b>	28
	1200	56HC	78.5	1.15	230/460	SRF6S1TCN61	<b>LM24130</b>	33
<b>1 1/2</b>	1200	145TC	77.0	1.15	230/460	SSF6P1TCN61	<b>LM32846</b>	33
	3600	56C	80.0	1.15	230/460	SRF2S1.5TCN61	<b>LM24096</b>	26
	3600	143TC	82.5	1.15	230/460	SSF2P1.5TCN61	<b>LM32810</b>	27
	1800	56C	80.0	1.15	230/460	SRF4S1.5TCN61	<b>LM24112</b>	29
	1800	145TC	84.0	1.25	230/460	SSF4P1.5TCN61	<b>LM24149</b>	31
<b>2</b>	1200	182TC	85.5	1.15	230/460	SSF6S1.5TCN61	<b>LM32847</b>	69
	3600	56HC	82.5	1.15	230/460	SRF2S2TCN61	<b>LM24132</b>	29
	3600	145TC	84.0	1.15	230/460	SSF2P2TCN61	<b>LM32678</b>	30
	1800	56HC	82.5	1.15	230/460	SRF4S2TCN61	<b>LM24084</b>	39
<b>3</b>	1800	145TC	85.5	1.25	230/460	SSF4P2TCN61	<b>LM24125</b>	39
	3600	56HC	84.0	1.15	230/460	SRF2S3TCN61	<b>LM24975</b>	40
	3600	145TC	85.5	1.15	230/460	SSF2S3TCN61	<b>LM32848</b>	40
	1800	145TC	87.5	1.15	230/460	SSF4P3TCN61	<b>LM32849</b>	50
<b>4</b>	1800	182TC	90.2	1.25	230/460	AAF4B3TCN61	<b>LM16824</b>	95
	1800	182TC	87.5	1.25	230/460	AAF4P3TCN61	<b>LM16298</b>	95
	1200	213TC	87.5	1.15	230/460	SSF6P3TCN61	<b>LM32850</b>	75

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**TEFC**

**208, 230/460 AND 460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
1/4 TO 400 HP**

**C-FACE FOOTLESS (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
5	1800	184TC	90.2	1.25	230/460	AAF4B5TCN61	<b>LM16825</b>	104
	1800	184TC	87.5	1.25	230/460	AAF4P5TCN61	<b>LM16299</b>	104
	1200	215TC	87.5	1.15	230/460	SSF6P5TCN61	<b>LM32851</b>	80
7 1/2	3600	213TC	88.5	1.15	230/460	SSF2P7.5TCN61	<b>LM32852</b>	80
	1800	213TC	91.0	1.25	230/460	AF4B7.5TCN61	<b>LM16826</b>	138
	1800	213TC	89.5	1.25	230/460	AF4P7.5TCN61	<b>LM16300</b>	138
	1800	213TC	89.5	1.15	230/460	SSF4P7.5TCN61	<b>LM32853</b>	103
10	3600	215TC	89.5	1.15	230/460	SSF2P10TCN61	<b>LM32854</b>	102
	1800	215TC	91.0	1.25	230/460	AF4B10TCN61	<b>LM16827</b>	149
	1800	215TC	89.5	1.25	230/460	AF4P10TCN61	<b>LM16301</b>	149
	1800	215TC	89.5	1.15	230/460	SSF4P10TCN61	<b>LM32855</b>	135
15	3600	215TC	90.2	1.15	230/460	SSF2P15TCN61	<b>LM32832</b>	125
	1800	254TC	91.7	1.25	230/460	AF4B15TCN61	<b>LM16828</b>	221
	1800	254TC	91.0	1.25	230/460	AF4P15TCN61	<b>LM16302</b>	221
20	1800	256TC	91.7	1.25	230/460	AF4B20TCN61	<b>LM16829</b>	248
	1800	256TC	91.0	1.25	230/460	AF4P20TCN61	<b>LM16303</b>	248

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**TEFC CAST IRON**  
 208, 230/460 VOLTS • 3-PHASE  
**FOOT MOUNT**  
 1 TO 400 HP



**Features:**

- Cast iron frame and end brackets, cast iron fan shroud on frames 324T and larger.
- AP21 Models have steel fan guards
- Industry leading 1.25 service factor on some sizes
- NEMA premium efficiency
- 1 to 200 HP
- Inverter-Rated\*
- Continuous Duty
- Premium Class F Insulation system
- Shielded ball bearing for direct coupled applications. Contact your local sales office for belted applications.



**Applications:**

For use where exposure to water, dust and corrosives exists. Ideally suited for use on pumps, compressors, fans, blowers, conveyors, machine tools and other industrial applications.

**ULTIMATE E**



**FOOT MOUNT**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1	1800	143T	85.5	1.25	230/460	CCN4B1T61	<b>LM24102</b>	56
	1200	145T	80.0	1.15	230/460	CCF6B1T61	<b>LM15856</b>	56
1 1/2	3600	143T	84.0	1.15	230/460	CCF2B1.5T61	<b>LM15854</b>	54
	1800	145T	84.0	1.25	230/460	CCN4B1.5T61	<b>LM25637</b>	62
	1200	182T	87.5	1.15	230/460	CCF6B1.5T61	<b>LM15868</b>	112
2	3600	145T	85.5	1.15	230/460	CCN2B2T61	<b>LM15857</b>	71
	1800	145T	86.5	1.15	230/460	CCN4B2T61	<b>LM24127</b>	64
	1200	184T	88.5	1.15	230/460	CCN6B2T61	<b>LM15871</b>	126
3	3600	182T	86.5	1.15	230/460	CCN2B3T61	<b>LM15866</b>	107
	1800	182T	89.5	1.15	230/460	CCF4B3T61	<b>LM25638</b>	82
	<b>1800</b>	<b>182T</b>	<b>89.5</b>	<b>1.25</b>	<b>230/460</b>	<b>CCF4B3T61AP21</b>	<b>LM60026</b>	<b>104</b>
	1200	213T	89.5	1.15	230/460	CCF6B3T61	<b>LM15880</b>	173
	<b>1200</b>	<b>213T</b>	<b>89.5</b>	<b>1.25</b>	<b>230/460</b>	<b>CCF6B3T61AP21</b>	<b>LM60027</b>	<b>170</b>
5	3600	184T	88.5	1.15	230/460	CCF2B5T61	<b>LM15869</b>	108
	1800	184T	90.2	1.15	230/460	CCF4B5T61	<b>LM24195</b>	117
	<b>1800</b>	<b>184T</b>	<b>89.5</b>	<b>1.25</b>	<b>230/460</b>	<b>CCF4B5T61AP21</b>	<b>LM60029</b>	<b>109</b>
	1200	215T	89.5	1.15	230/460	CCF6B5T61	<b>LM15883</b>	203
	<b>1200</b>	<b>215T</b>	<b>89.5</b>	<b>1.25</b>	<b>230/460</b>	<b>CCF6B5T61AP21</b>	<b>LM60030</b>	<b>176</b>
7 1/2	3600	213T	89.5	1.15	230/460	CCF2B7.5T61	<b>LM15878</b>	192
	<b>3600</b>	<b>213T</b>	<b>89.5</b>	<b>1.25</b>	<b>230/460</b>	<b>CCF2B7.5T61AP21</b>	<b>LM60031</b>	<b>147</b>
	1800	213T	91.7	1.15	230/460	CCF4B7.5T61	<b>LM24209</b>	194
	<b>1800</b>	<b>213T</b>	<b>91.7</b>	<b>1.25</b>	<b>230/460</b>	<b>CCF4B7.5T61AP21</b>	<b>LM60032</b>	<b>155</b>
10	1200	254T	91.0	1.15	230/460	CCF6B7.5T61	<b>LM15892</b>	223
	<b>1200</b>	<b>254T</b>	<b>91.0</b>	<b>1.25</b>	<b>230/460</b>	<b>CCF6B7.5T61AP21</b>	<b>LM60033</b>	<b>249</b>
	3600	215T	90.2	1.15	230/460	CCF2B10T61	<b>LM15881</b>	218
	<b>3600</b>	<b>215T</b>	<b>90.2</b>	<b>1.25</b>	<b>230/460</b>	<b>CCF2B10T61AP21</b>	<b>LM60034</b>	<b>181</b>
10	1800	215T	91.7	1.15	230/460	CCF4B10T61	<b>LM24213</b>	213
	<b>1800</b>	<b>215T</b>	<b>91.7</b>	<b>1.25</b>	<b>230/460</b>	<b>CCF4B10T61AP21</b>	<b>LM60035</b>	<b>177</b>
	1200	256T	91.0	1.15	230/460	CCF6B10T61	<b>LM15895</b>	368
	<b>1200</b>	<b>256T</b>	<b>91.0</b>	<b>1.25</b>	<b>230/460</b>	<b>CCF6B10T61AP21</b>	<b>LM60036</b>	<b>300</b>

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**TEFC CAST IRON**  
**208, 230/460 VOLTS • 3-PHASE**  
**FOOT MOUNT**  
**1 TO 400 HP**

**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
15	3600	254T	91.0	1.15	230/460	CCF2B15T61	<b>LM15890</b>	384
	3600	254T	91.0	1.25	230/460	CCF2B15T61AP21	<b>LM60037</b>	282
	1800	254T	92.4	1.15	230/460	CCF4B15T61	<b>LM24208</b>	322
	1800	254T	92.4	1.25	230/460	CCF4B15T61AP21	<b>LM60038</b>	280
	1200	284T	91.7	1.15	230/460	CCF6B15T61Y	<b>LM15793</b>	483
	1200	284T	91.7	1.25	230/460	CCF6B15T61AP21	<b>LM60039</b>	333
20	3600	256T	92.4	1.15	230/460	CCF2B20T61	<b>LM15893</b>	385
	3600	256T	91.0	1.25	230/460	CCF2B20T61AP21	<b>LM60040</b>	316
	1800	256T	93.0	1.15	230/460	CCF4B20T61	<b>LM24207</b>	368
	1800	256T	93.0	1.25	230/460	CCF4B20T61AP21	<b>LM60041</b>	322
	1200	286T	91.7	1.15	230/460	CCF6B20T61Y	<b>LM15796</b>	515
	1200	286T	91.7	1.25	230/460	CCF6B20T61AP21	<b>LM60042</b>	392
25	3600	284TS	91.7	1.15	230/460	CCF2B25T61Y	<b>LM15791</b>	461
	3600	284TS	91.7	1.25	230/460	CCF2B25T61AP21	<b>LM60043</b>	383
	1800	284T	93.6	1.15	230/460	CCF4B25T61Y	<b>LM15792</b>	495
	1800	284T	93.6	1.25	230/460	CCF4B25T61AP21	<b>LM60044</b>	385
	1200	324T	93.0	1.15	230/460	CCF6B25T61Y	<b>LM19747</b>	637
	1200	324T	93.0	1.25	230/460	CCF6B25T61AP21	<b>LM60045</b>	545
30	3600	286TS	91.7	1.15	230/460	CCF2B30T61Y	<b>LM15794</b>	496
	3600	286TS	91.7	1.25	230/460	CCF2B30T61AP21	<b>LM60046</b>	385
	1800	286T	93.6	1.15	230/460	CCF4B30T61Y	<b>LM15795</b>	519
	1800	286T	93.6	1.25	230/460	CCF4B30T61AP21	<b>LM60047</b>	432
	1200	326T	93.0	1.15	230/460	CCF6B30T61Y	<b>LM19748</b>	689
	1200	326T	93.0	1.25	230/460	CCF6B30T61AP21	<b>LM60048</b>	615
40	3600	324TS	94.4	1.15	230/460	CCF2B40T61Y	<b>LM19749</b>	664
	3600	324TS	92.4	1.25	230/460	CCF2B40T61AP21	<b>LM60049</b>	504
	1800	324T	94.1	1.15	230/460	CCF4B40T61Y	<b>LM19750</b>	602
	1800	324T	93.0	1.25	230/460	CCF4B40T61AP21	<b>LM60050</b>	528
	1200	364T	94.1	1.15	230/460	CCF6B40T61Y	<b>LM19751</b>	835
	1200	364T	94.1	1.25	230/460	CCF6B40T61AP21	<b>LM60051</b>	636
50	3600	326TS	93.0	1.15	230/460	CCF2B50T61Y	<b>LM19752</b>	732
	3600	326TS	93.0	1.25	230/460	CCF2B50T61AP21	<b>LM60052</b>	554
	1800	326T	94.5	1.15	230/460	CCF4B50T61Y	<b>LM19753</b>	744
	1800	326T	94.5	1.25	230/460	CCF4B50T61AP21	<b>LM60053</b>	587
	1200	365T	94.1	1.15	230/460	CCF6B50T61Y	<b>LM19754</b>	955
	1200	365T	94.1	1.25	230/460	CCF6B50T61AP21	<b>LM60054</b>	672
60	3600	364TS	93.6	1.15	230/460	CCF2B60T61Y	<b>LM19755</b>	918
	3600	364TS	93.6	1.25	230/460	CCF2B60T61AP21	<b>LM60055</b>	735
	1800	364T	95.0	1.15	230/460	CCF4B60T61Y	<b>LM19756</b>	980
	1800	364T	95.0	1.25	230/460	CCF4B60T61AP21	<b>LM60056</b>	666
	1200	404T	94.5	1.15	230/460	CCF6B60T61Y	<b>LM19757</b>	1156
	1200	404T	94.5	1.25	230/460	CCF6B60T61AP21	<b>LM60057</b>	870
75	3600	365TS	93.6	1.15	230/460	CCF2B75T61Y	<b>LM19758</b>	1001
	3600	365TS	93.6	1.25	230/460	CCF2B75T61AP21	<b>LM60058</b>	780
	1800	365T	95.4	1.15	230/460	CCF4B75T61Y	<b>LM19759</b>	1018
	1800	365T	95.4	1.25	230/460	CCF4B75T61AP21	<b>LM60059</b>	733
	1200	405T	94.5	1.15	230/460	CCF6B75T61Y	<b>LM19760</b>	1280
	1200	405T	94.5	1.25	230/460	CCF6B75T61AP21	<b>LM60060</b>	975
100	3600	405TS	94.1	1.25	230/460	CCF2B100T61AP21	<b>LM60061</b>	955
	1800	405T	95.4	1.15	230/460	CCF4B100T61Y	<b>LM19762</b>	1338
	1800	405T	95.4	1.25	230/460	CCF4B100T61AP21	<b>LM60062</b>	1070
	1200	444T	95.0	1.25	230/460	CCF6B100T64AP21	<b>LM60063</b>	1457

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**TEFC CAST IRON**  
**208, 230/460 VOLTS • 3-PHASE**  
**FOOT MOUNT & C-FACE**  
**1 TO 400 HP**



**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
125	3600	444TS	95.0	1.25	230/460	CCF2B125T64AP21	LM60064	1950
	1800	444T	95.4	1.15	460	CCF4B125T64Y	LM19765	1874
	1800	444T	95.4	1.25	230/460	CCF4B125T64AP21	LM60065	1596
	1200	445T	95.0	1.25	230/460	CCF6B125T64AP21	LM60066	1316
150	3600	445TS	95.0	1.25	230/460	CCF2B150T64AP21	LM60067	1627
	1800	445T	95.8	1.15	460	CCF4B150T64Y	LM19768	2070
	1800	445T	95.8	1.25	230/460	CCF4B150T64AP21	LM60068	2230
	1200	445/447T	95.8	1.25	230/460	CCF6B150T64AP21	LM60069	1445
200	3600	445/447TS	95.4	1.25	230/460	CCF2B200T64AP21	LM60070	2227
	1800	445/7T	96.2	1.25	230/460	CCF4B200T64AP21	LM60071	2542
	1200	447/9T	95.8	1.25	230/460	CCF6B200T64AP21	LM60072	1977
250	3600	449TS	95.4	1.15	460	CCF2P250TS64Y	LM19571	2685
	1800	449T	95.0	1.15	460	CCF4P250T64Y	LM19572	2760
	1200	449T	95.4	1.15	460	CCF6P250T64Y	LM30826	3408
300	3600	449TS	95.4	1.15	460	CCF2P300TS64Y	LM19574	2850
	1800	449T	95.0	1.15	460	CCF4P300T64Y	LM19575	2980
	1200	449T	95.4	1.00	460	CCF6P300T64Y	LM19576	3440
350	3600	449TS	95.4	1.15	460	CCF2P350TS64Y	LM19577	3050
	1800	449T	95.4	1.15	460	CCF4P350T64Y	LM19578	3218
400	1800	449T	95.8	1.00	460	CCF4P400T64Y	LM19580	3263

**C-FACE**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
3	3600	182TC	86.5	1.25	230/460	CCF2B3TC61AP21	LM62016	97
	1800	182TC	89.5	1.25	230/460	CCF4B3TC61AP21	LM62017	104
5	3600	184TC	88.5	1.25	230/460	CCF2B5TC61AP21	LM62019	105
	1800	184TC	89.5	1.25	230/460	CCF4B5TC61AP21	LM62020	109
7 1/2	3600	213TC	89.5	1.25	230/460	CCF2B7.5TC61AP21	LM62085	155
	1800	213TC	91.7	1.25	230/460	CCF4B7.5TC61AP21	LM62024	160
10	3600	213TC	90.2	1.25	230/460	CCF2B10TC61AP21	LM62025	181
	1800	215TC	91.7	1.25	230/460	CCF4B10TC61AP21	LM62026	181
15	3600	215TC	91.0	1.25	230/460	CCF2B15TC61AP21	LM62028	282
	1800	254TC	92.4	1.25	230/460	CCF4B15TC61AP21	LM62029	280
20	3600	256TC	91.0	1.25	230/460	CCF2B20TC61AP21	LM62031	316
	1800	256TC	93.0	1.25	230/460	CCF4B20TC61AP21	LM62032	322
25	3600	284TSC	91.7	1.25	230/460	CCF2B25TC61AP21	LM62034	383
	1800	284TC	93.6	1.25	230/460	CCF4B25TC61AP21	LM62035	385
30	1800	286TC	93.6	1.25	230/460	CCF4B30TC61AP21	LM62038	432
40	1800	324TC	94.1	1.25	230/460	CCF4B40TC61AP21	LM62041	528
50	1800	326TC	94.5	1.25	230/460	CCF4B50TC61AP21	LM62044	587
60	1800	364TC	95.0	1.25	230/460	CCF4B60TC61AP21	LM62047	666
75	1800	365TC	95.4	1.25	230/460	CCF4B75TC61AP21	LM62050	733
100	1800	405TC	95.4	1.25	230/460	CCF4B100TC61AP21	LM62053	1070

Product numbers in red are STOCK items.

Specifications are subject to change without notice

# TEFC 15 TO 60 HZ CONSTANT TORQUE INVERTER DUTY

230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 400 HP

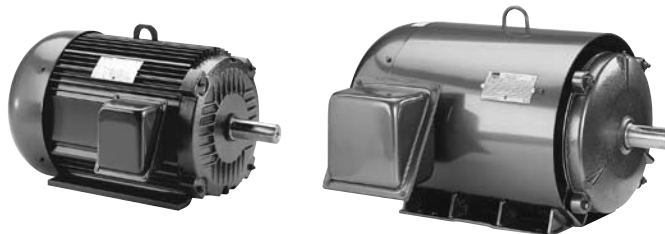
### Features:

- 4:1 Constant torque speed range at continuous duty of 15-60 Hz.
- Variable torque speed range with open loop drive of 0-60 Hz.
- Constant horsepower speed range of 2x base speed (56-256T frames) or 1.5x base speed\* (284T-449T frames).
- Wider speed ranges possible on intermittent duty
- Ultimate Spike Defense™ Insulation System
- 1.00 service factor on PWM waveform, 1.15 service factor or better on sine-wave power.
- Precision dynamic balanced rotor assembly
- Thermal overload protection (Class F thermostats)
- Made in the U.S.A.

### Applications:

For use in constant torque (conveyors, machine tools) or variable torque (pumps, fans) variable speed applications within the stated speed range of the motor.

In a very small percentage of installations, bearing currents can develop in motors operated by PWM-based adjustable-speed drives. Contact your local sales office to review ways of eliminating bearing currents.



\* Actual speed not to exceed "RPM MAX" listed for specific motor.

### FOOT MOUNT

HP	SYN RPM @ 60 Hz	RPM Max	Frame	FL Nom Eff (%)	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/3	1800	4000	56	72.0	230/460	SRF4S0.33T61Q40	LM22644	28
	3600	4000	56	70.0	230/460	SRF2S0.5T61Q40	LM22646	28
1/2	1800	4000	56	74.0	230/460	SRF4S0.5T61Q40	LM22648	28
	1200	4000	56	70.0	230/460	SRF6S0.5T61Q40	LM22650	28
3/4	3600	4000	56	74.0	230/460	SRF2S0.75T61Q40	LM22652	28
	1800	4000	56	77.0	230/460	SRF4S0.75T61Q40	LM22654	28
	1200	4000	56	72.0	230/460	SRF6S0.75T61Q40	LM22656	36
1	3600	4000	56	75.5	230/460	SRF2S1T61Q40	LM22658	28
	1800	4000	56	78.5	230/460	SRF4S1T61Q40	LM22660	28
	1800	4000	143T	82.5	230/460	SSF4P1T61Q40	LM26097	46
	1200	4000	145T	80.0	230/460	SSF6P1T61Q40	LM26383	51
1 1/2	3600	4000	56	78.5	230/460	SRF2S1.5T61Q40	LM22662	28
	3600	4000	143T	82.5	230/460	SSF2P1.5T61Q40	TBD	46
	1800	4000	56H	80.0	230/460	SRF4S1.5T61Q40	LM22664	28
	1800	4000	145T	84.0	230/460	SSF4P1.5T61Q40	LM26098	51
	1200	4000	182T	85.5	230/460	AAF6P1.5T61Q40	LM21188	83
2	3600	4000	56H	78.5	230/460	SRF2S2T61Q40	LM22666	36
	3600	4000	145T	84.0	230/460	SSF2P2T61Q40	TBD	51
	1800	4000	145T	84.0	230/460	SSF4P2T61Q40	LM25991	51
	1200	4000	184T	86.5	230/460	AAF6P2T61Q40	LM21191	92
3	3600	4000	182T	85.5	230/460	AAF2P3T61Q40	LM21189	83
	1800	4000	182T	87.5	230/460	AAF4P3T61Q40	LM21190	83
	1200	4000	213T	87.5	230/460	AF6P3T61Q40	LM21194	127
5	3600	4000	184T	87.5	230/460	AAF2P5T61Q40	LM21192	92
	1800	4000	184T	87.5	230/460	AAF4P5T61Q40	LM21193	92
	1200	4000	215T	87.5	230/460	AAF6P5T61Q40	LM21197	138

Product numbers in red are STOCK items.

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# TEFC 15 TO 60 HZ CONSTANT TORQUE INVERTER DUTY



**230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 400 HP**

AC MOTORS

## FOOT MOUNT (cont'd)

HP	SYN RPM @ 60 Hz	RPM Max	Frame	FL Nom Eff (%)	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
7 1/2	3600	4600	G213T	88.5	230/460	AF2P7.5T61Q40	LM21195	127
	1800	4600	213T	89.5	230/460	AF4P7.5T61Q40	LM21196	127
	1200	4400	254T	89.5	230/460	AAF6P7.5T61Q40	LM21200	209
10	3600	4600	G215T	89.5	230/460	AF2P10T61Q40	LM21198	138
	1800	4600	215T	89.5	230/460	AF4P10T61Q40	LM21199	138
	1200	4400	256T	89.5	230/460	AAF6P10T61Q40	LM21203	236
15	3600	4400	G254T	90.2	230/460	AAF2P15T61Q40	LM21201	209
	1800	4400	254T	91.0	230/460	AF4P15T61Q40	LM21202	209
	1200	4200	284T	90.2	230/460	AF6P15T61YQ40	LM21206	363
20	3600	4400	256T	90.2	230/460	AF2P20T61Q40	LM21204	236
	1800	4400	256T	91.0	230/460	AF4P20T61Q40	LM21205	236
	1200	4200	286T	90.2	230/460	AF6P20T61YQ40	LM21209	408
25	3600	4200	284TS	91.0	230/460	AF2P25TS61YQ40	LM21207	363
	1800	4200	284T	92.4	230/460	AF4P25T61YQ40	LM21208	363
	1200	4000	324T	91.7	230/460	SF6P25T61YQ40	LM21212	504
30	3600	4200	286TS	91.0	230/460	AF2P30TS61YQ40	LM21210	408
	1800	4200	286T	92.4	230/460	AF4P30T61YQ40	LM21211	408
	1200	4000	326T	91.7	230/460	SF6P30T61YQ40	LM21215	570
40	3600	4000	324TS	91.7	230/460	SF2P40TS61YQ40	LM21213	504
	1800	4000	324T	93.0	230/460	SF4P40T61YQ40	LM21214	504
	1200	3800	364T	93.0	230/460	SF6P40T61YQ40	LM21218	765
50	3600	4000	326TS	92.4	230/460	SF2P50TS61YQ40	LM21216	558
	1800	4000	326T	93.0	230/460	SF4P50T61YQ40	LM21217	558
	1200	3800	365T	93.0	230/460	SF6P50T61YQ40	LM21221	822
60	3600	3800	364TS	93.0	230/460	SF2P60TS61YQ40	LM21219	765
	1800	3800	364T	93.6	230/460	SF4P60T61YQ40	LM21220	765
	1200	3600	404T	93.6	230/460	SF6P60T61YQ40	LM21224	918
75	3600	3800	365TS	93.0	230/460	SF2P75TS61YQ40	LM21222	822
	1800	3800	365T	94.1	230/460	SF4P75T61YQ40	LM21223	822
	1200	3600	405T	93.6	230/460	SF6P75T61YQ40	LM21225	1002
100	3600	3600	405TS	93.6	230/460	SF2P100TS61YQ40	LM21226	1002
	1800	3600	405T	94.5	230/460	SF4P100T61YQ40	LM21227	1002
	1200	3000	444T	94.1	460	SF6P100T64YQ40	LM21228	1351
125	3600	3600	444TS	94.5	460	SF2P125TS64YQ40	LM21229	1351
	1800	3000	444T	94.5	460	SF4P125T64YQ40	LM21230	1351
	1200	3000	445T	94.1	460	SF6P125T64YQ40	LM21231	1504
150	3600	3600	445TS	94.5	460	SF2P150TS64YQ40	LM21232	1504
	1800	3000	445T	95.0	460	SF4P150T64YQ40	LM21233	1504
	1200	3000	445T	95.0	460	SF6P150T64YQ40	LM21234	1504
200	3600	3600	445TS	95.0	460	SF2P200TS64YQ40	LM21235	1504
	1800	3000	445T	95.0	460	SF4P200T64YQ40	LM21236	1504
	1200	3000	447T	95.0	460	SF6P200T64YQ40	LM21237	1812
250	3600	3600	449TS	95.4	460	SF2P250TS64YQ40	LM21240	2185
	1800	2800	447T	95.0	460	SF4P250T64YQ40	LM21238	1812

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# TEFC 15 TO 60 HZ CONSTANT TORQUE INVERTER DUTY

230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 400 HP

## FOOT MOUNT (cont'd)

HP	SYN RPM @ 60 Hz	RPM Max	Frame	FL Nom Eff (%)	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
300	3600	3600	449TS	95.4	460	SF2P300TS64YQ40	LM21242	2185
	1800	2800	449T	95.4	460	SF4P300T64YQ40	LM21239	2185
350	3600	3600	449TS	95.8	460	SF2B350TS64YQ40	LM21243	2185
	1800	2800	449T	95.4	460	SF4P350T64YQ40	LM21244	2185

## C-FACE WITH FEET

HP	SYN RPM @ 60 Hz	RPM Max	Frame	FL Nom Eff (%)	Volts	Product Model Number	Approx Shpg Number	Wght (lbs)
1/3	1800	4000	56C	72.0	230/460	SRF4S0.33TC61Q40	LM22645	33
1/2	3600	4000	56C	70.0	230/460	SRF2S0.5TC61Q40	LM22647	33
	1800	4000	56C	74.0	230/460	SRF4S0.5TC61Q40	LM22649	33
	1200	4000	56C	70.0	230/460	SRF6S0.5TC61Q40	LM22651	33
3/4	3600	4000	56C	74.0	230/460	SRF2S0.75TC61Q40	LM22653	33
	1800	4000	56C	77.0	230/460	SRF4S0.75TC61Q40	LM22655	33
	1200	4000	56C	72.0	230/460	SRF6S0.75TC61Q40	LM22657	28
1	3600	4000	56C	75.5	230/460	SRF2S1TC61Q40	LM22659	33
	1800	4000	56C	78.5	230/460	SRF4S1TC61Q40	LM22661	28
	1800	4000	143TC	82.5	230/460	SSF4P1TC61Q40	LM26081	52
	1200	4000	145TC	80.0	230/460	SSF6P1TC61Q40	LM26323	57
1 1/2	3600	4000	56C	78.5	230/460	SRF2S1.5TC61Q40	LM22663	28
	3600	4000	143TC	82.5	230/460	SSF2P1.5TC61Q40	TBD	52
	1800	4000	56HC	80.0	230/460	SRF4S1.5TC61Q40	LM22665	36
	1800	4000	145TC	84.0	230/460	SSF4P1.5TC61Q40	LM26008	57
	1200	4000	182TC	85.5	230/460	AAF6P1.5TC61Q40	LM22822	95
2	3600	4000	56HC	78.5	230/460	SRF2S2TC61Q40	LM22667	36
	3600	4000	145TC	84.0	230/460	SSF2P2TC61Q40	TBD	57
	1800	4000	145TC	84.0	230/460	SSF4P2TC61Q40	LM25962	57
	1200	4000	184TC	86.5	230/460	AAF6P2TC61Q40	LM22825	104
3	3600	4000	182TC	85.5	230/460	AAF2P3TC61Q40	LM22826	95
	1800	4000	182TC	87.5	230/460	AAF4P3TC61Q40	LM22827	95
	1200	4600	213TC	87.5	230/460	AF6P3TC61Q40	LM22828	138
5	3600	4000	184TC	87.5	230/460	AAF2P5TC61Q40	LM22829	104
	1800	4000	184TC	87.5	230/460	AAF4P5TC61Q40	LM22830	104
	1200	4600	215TC	87.5	230/460	AF6P5TC61Q40	LM31434	149
7 1/2	3600	4600	G213TC	88.5	230/460	AF2P7.5TC61Q40	LM22832	138
	1800	4600	213TC	89.5	230/460	AAF4P7.5TC61Q40	LM22833	138
	1200	4400	254TC	89.5	230/460	AF6P7.5TC61Q40	LM22834	221
10	3600	4600	G215TC	89.5	230/460	AF2P10TC61Q40	LM22835	149
	1800	4600	215TC	89.5	230/460	AF4P10TC61Q40	LM22836	149
	1200	4400	256TC	89.5	230/460	AF6P10TC61Q40	LM22837	248
15	3600	4400	G254TC	90.2	230/460	AF2P15TC61Q40	LM22838	221
	1800	4400	254TC	91.0	230/460	AF4P15TC61Q40	LM22839	221
20	3600	4400	256TC	90.2	230/460	AF2P20TC61Q40	LM22840	248
	1800	4400	256TC	91.0	230/460	AF4P20TC61Q40	LM22841	248

Product numbers in red are STOCK items.

Specifications are subject to change without notice

# ODP • 30 TO 60 HZ CONSTANT TORQUE INVERTER DUTY



230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 400 HP

**Features:**

- 10:1 Constant torque speed range at continuous duty of 6-60 Hz.
- Variable torque speed range with open loop drive of 0-60 Hz.
- Constant horsepower speed range of 2x base speed (56-256T frames) or 1.5x base speed\* (284T-449T frames).
- Ultimate Spike Defense™ Insulation System
- 1.00 service factor on PWM waveform, 1.15 service factor or better on sine-wave power.
- Precision dynamic balanced rotor assembly
- Thermal overload protection (Class F thermostats)
- Warranty: 42 months from date of manufacture and 36 months from date of installation which ever period expires first.
- Made in the U.S.A.



**Applications:**

For use in constant torque (conveyors, machine tools) or variable torque (pumps, fans) variable speed applications within the stated speed range of the motor.

\* Actual speed not to exceed "RPM MAX" listed for specific motor.

**FOOT MOUNT**

HP	SYN RPM @ 60 Hz	RPM Max	Frame	FL Nom Eff (%)	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1	1800	5000	143T	82.5	230/460	SSD4P1T61Q40	LM21148	55
1 1/2	1800	5000	145T	84.0	230/460	SSD4P1.5T61Q40	LM21151	68
2	1800	5000	145T	84.0	230/460	SSD4P2T61Q40	LM21153	68
3	1800	4800	182T	86.5	230/460	SSD4P3T61Q40	LM21157	82
5	1800	4800	184T	87.5	230/460	SSD4P5T61Q40	LM21159	71
7 1/2	1800	4600	213T	88.5	230/460	SSD4P7.5T61Q40	LM21162	141
10	1800	4600	215T	89.5	230/460	SSD4P10T61Q40	LM21165	168
	1200	4400	256T	90.2	230/460	SSD6P10T61Q40	LM21170	255
15	1800	4400	254T	91.0	230/460	SSD4P15T61Q40	LM21168	245
20	1800	4400	256T	91.0	230/460	SSD4P20T61Q40	LM21171	255
25	1800	4000	284T	91.7	230/460	SD4P25T61YQ40	LM21174❖	N/A
	1800	4000	284T	91.7	230/460	CCD4P25T61YQ40	LM29579	350
30	1800	4000	286T	92.4	230/460	SD4P30T61YQ40	LM21177❖	N/A
	1800	4000	286T	92.4	230/460	CCD4P30T61YQ40	LM29936	400
40	1800	4000	324T	93.0	230/460	SD4P40T61YQ40	LM21180	469
50	1800	4000	326T	93.0	230/460	SD4P50T61YQ40	LM21118	522
60	1800	3600	364T	94.0	230/460	SD4P60T61YQ40	LM21121	595
75	1800	3800	365T	94.1	230/460	SD4P75T61YQ40	LM21124	763
100	1800	3600	404T	94.1	230/460	SD4P100T61YQ40	LM21127	882
125	1800	3600	405T	94.5	230/460	SD4P125T61YQ40	LM30727	958

❖ Contact your local sales office for availability.

Product numbers in red are STOCK items.

Specifications are subject to change without notice



# TOTALLY ENCLOSED • 0 TO 60 HZ CONSTANT TORQUE INVERTER DUTY CTAC®

230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 200 HP

### Features:

- 2000:1 constant torque speed range of 0-60 Hz at continuous duty (range on RF models is 6-60Hz).
- Variable torque speed range of 0-60 Hz.
- Constant horsepower speed range of 2x base speed (56-256T frames) or 1.5x base speed\* (284T-445T frames).
- Wider speed ranges possible on intermittent duty
- Ultimate Spike Defense™ Insulation System
- Ideally suited for IGBT power
- 1.00 SF, 40°C ambient on PWM waveform
- C-Face standard on frames 56-256T
- Precision dynamic balanced rotor assembly
- Over temperature protection (Class F thermostat)
- Provision for mounting feedback device - Q10 models
- TEBC - 3 phase blower motor standard
- Warranty on CTAC motor, 42 months from date of manufacture and 36 months from date of installation which ever period expires first.

Warranty on TEBC blower motor 30 months from date of manufacture and 24 months from date of installation which ever period expires first.

- Made In U.S.A.

### Applications:

Suitable for use in extruders, conveyors, machine tools and other process industries with constant torque, variable speed loads.

In a very small percentage of installations, bearing currents can develop in motors operated by PWM-based adjustable-speed drives. Contact your local sales office to review ways of eliminating bearing currents.

\* Actual speed not to exceed "RPM MAX" listed for specific motor.



## C-FACE WITH FEET (56-256T)

HP	SYN RPM @ 60 Hz	RPM Max	Frame	Enclosure	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/3	1800	4000	56C	TEFC	230/460	SRF4S0.33TC61Q20	LM10336	26
1/2	1800	4000	56C	TEFC	230/460	SRF4S0.5TC61Q20	LM24264	28
	1200	4000	56HC	TEFC	230/460	SRF6S0.5TC61Q20	LM10338	41
3/4	1800	4000	56HC	TEFC	230/460	SRF4S0.75TC61Q20	LM10339	36
1	1800	4000	56HC	TEFC	230/460	SRF4S1TC61Q20	LM10340	41
	1800	5000	145TC	TENV	230/460	SSN4S1TC61Q10	LM26359	62
	1200	4800	182TC	TENV	230/460	AAN6S1TC61Q10	LM06103	78
	900	4800	184TC	TENV	230/460	AAN8S1TC61Q10	LM06105	90
1 1/2	1800	5000	145TC	TENV	230/460	SSN4S1.5TC61Q10	LM26233	65
	1200	4800	184TC	TENV	230/460	AAN6S1.5TC61Q10	LM06109	90
	900	4600	213TC	TENV	230/460	AN8S1.5TC61Q10	LM06111	121
2	1800	4800	182TC	TENV	230/460	AAN4S2TC61Q10	LM06113	74
	1200	4600	213TC	TENV	230/460	AN6S2TC61Q10	LM06115	121
	900	4600	215TC	TENV	230/460	AN8S2TC61Q10	LM06117	121

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**TOTALLY ENCLOSED • 0 TO 60 HZ CONSTANT TORQUE  
INVERTER DUTY CTAC®**



**230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 200 HP**

AC MOTORS

**C-FACE WITH FEET (56-256T) & FOOT MOUNT (284T-445T)**

HP	SYN RPM @ 60 Hz	RPM Max	Frame	Enclosure	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
3	1800	4800	184TC	TENV	230/460	AAN4S3TC61Q10	LM06119	86
	1200	4600	215TC	TENV	230/460	AN6S3TC61Q10	LM06121	135
	900	4400	254TC	TENV	230/460	AN8S3TC61Q10	LM06123	186
5	1800	4600	213TC	TENV	230/460	AN4S5TC61Q10	LM06125	115
	1200	4400	254TC	TENV	230/460	AN6S5TC61Q10	LM06127	200
	900	4400	256TC	TENV	230/460	AN8S5TC61Q10	LM06129	219
7 1/2	1800	4600	215TC	TENV	230/460	AN4S7.5TC61Q10	LM06131	115
	1200	4400	256TC	TENV	230/460	AN6S7.5TC61Q10	LM06133	219
10	1800	4400	256TC	TENV	230/460	AN4S10TC61Q10	LM06135	211
15	1200	4200	284T	TEBC	230/460	SB6H15T61Q10	LM03140	350
20	1200	4200	286T	TEBC	230/460	SB6H20T61Q10	LM03156	420
25	1800	4200	284T	TEBC	230/460	SB4H25T61Q10	LM03188	350
	1200	4000	324T	TEBC	230/460	SB6H25T61Q10	LM03204	490
30	1800	4200	286T	TEBC	230/460	SB4H30T61Q10	LM03236	420
	1200	4000	326T	TEBC	230/460	SB6H30T61Q10	LM03252	550
40	1800	4000	324T	TEBC	230/460	SB4H40T61Q10	LM03284	420
	1200	3800	364T	TEBC	230/460	SB6H40T61YQ10	LM03300	670
50	1800	4000	326T	TEBC	230/460	SB4H50T61Q10	LM03332	490
	1200	3800	365T	TEBC	230/460	SB6H50T61YQ10	LM03348	740
60	1800	3800	364T	TEBC	230/460	SB4H60T61YQ10	LM03376	670
	1200	3600	404T	TEBC	230/460	SB6H60T61YQ10	LM03396	880
75	1800	3800	365T	TEBC	230/460	SB4H75T61YQ10	LM03424	740
	1200	3600	405T	TEBC	230/460	SB6H75T61YQ10	LM03444	1000
100	1800	3600	405T	TEBC	230/460	SB4H100T61YQ10	LM03472	1000
	1200	3000	444T	TEBC	460	SB6H100T64YQ10	LM03490	1290
125	1800	3000	444T	TEBC	460	SB4H125T64YQ10	LM03516	1290
	1200	3000	445T	TEBC	460	SB6H125T64YQ10	LM03536	1480
150	1800	3000	445T	TEBC	460	SB4H150T64YQ10	LM03564	1480
200	1800	3000	445T	TEBC	460	SB4H200T64YQ10	LM03596	1480

Product numbers in red are STOCK items.

Specifications are subject to change without notice

# TOTALLY ENCLOSED • 0 TO 60 HZ CONSTANT TORQUE VECTOR DUTY CTAC®

FOOT MOUNT & C-FACE  
1/3 TO 200 HP

**Features:**

- 2000:1 constant torque speed range of 0-60 Hz at continuous duty with closed-loop drive.
- Variable torque speed range of 0-60 Hz.
- Constant horsepower speed range of 2x base speed (56-256T frames) or 1.5x base speed\* (284T-445T frames).
- Ultimate Spike Defense™ Insulation System
- Ideally suited for IGBT power
- 1.00 SF, 40°C ambient on PWM waveform
- C-Face standard on frames 56-256T
- Precision dynamic balanced rotor assembly
- Over temperature protection (Class F thermostat)
- 1024 ppr encoder with differential line driver
- Separate terminal box or conduit with terminal block for feedback termination
- TEBC – 3 phase blower motor standard
- Warranty: (CTAC motor) 42 months from date of manufacture and 36 months from date of installation which ever period expires first. Feedback device and blower motor (TEBC) 30 months from date of manufacture and 24 months from date of installation which ever period expires first.
- Made In U.S.A.



**Applications:**

For use in demanding industrial applications where premium construction and performance are required. Suitable for use in extruders, conveyors, machine tools and other process industries with constant torque, variable speed loads.

In a very small percentage of installations, bearing currents can develop in motors operated by PWM-based adjustable-speed drives. Contact your local sales office to review ways of eliminating bearing currents.

\* Actual speed not to exceed "RPM MAX" listed for specific motor.

**C-FACE WITH FEET (56-256T)**

HP	SYN RPM @ 60 Hz	RPM Max	Frame	Enclosure	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/3	1800	5000	56C	TENV	230/460	SRN4S0.33TC61Q15	<b>LM10346</b>	43
1/2	1800	5000	56C	TENV	230/460	SRN4S0.5TC61Q15	<b>LM10347</b>	43
	1200	5000	56HC	TENV	230/460	SRN6S0.5TC61Q15	<b>LM10348</b>	43
3/4	1800	5000	56HC	TENV	230/460	SRN4S0.75TC61Q15	<b>LM10349</b>	54
1	1800	5000	56HC	TENV	230/460	SRN4S1TC61Q15	<b>LM10350</b>	54
	1800	5000	145TC	TENV	230/460	SSN4S1TC61Q15	<b>LM26109</b>	82
	1200	4800	182TC	TENV	230/460	AAN6S1TC61Q15	<b>LM03973</b>	98
	900	4800	184TC	TENV	230/460	AAN8S1TC61Q15	<b>LM03975</b>	110
1 1/2	1800	5000	145TC	TENV	230/460	SSN4S1.5TC61Q15	<b>LM26278</b>	85
	1200	4800	184TC	TENV	230/460	AAN6S1.5TC61Q15	<b>LM03981</b>	110
	900	4600	213TC	TENV	230/460	AN8S1.5TC61Q15	<b>LM03983</b>	141
2	1800	4800	182TC	TENV	230/460	AAN4S2TC61Q15	<b>LM03987</b>	98
	1200	4600	213TC	TENV	230/460	AN6S2TC61Q15	<b>LM03989</b>	141
	900	4600	215TC	TENV	230/460	AAN8S2TC61Q15	<b>LM03991</b>	141

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**TOTALLY ENCLOSED • 0 TO 60 HZ CONSTANT TORQUE  
VECTOR DUTY CTAC®**



**FOOT MOUNT & C-FACE  
1/3 TO 200 HP**

AC MOTORS

**C-FACE WITH FEET (56-256T) & FOOT MOUNT (284T-445T)**

HP	SYN RPM @ 60 Hz	RPM Max	Frame	Enclosure	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
3	1800	4800	184TC	TENV	230/460	AAN4S3TC61Q15	LM03995	110
	1200	4600	215TC	TENV	230/460	AN6S3TC61Q15	LM03997	155
	900	4400	254TC	TENV	230/460	AN8S3TC61Q15	LM03999	206
5	1800	4600	213TC	TENV	230/460	AAN4S5TC61Q15	LM04003	115
	1200	4400	254TC	TENV	230/460	AN6S5TC61Q15	LM04005	220
	900	4400	256TC	TENV	230/460	AN8S5TC61Q15	LM04007	239
7 1/2	1800	4600	215TC	TENV	230/460	AN4S7.5TC61Q15	LM31463	155
	1200	4400	256TC	TENV	230/460	AN6S7.5TC61Q15	LM04013	239
10	1800	4400	256TC	TENV	230/460	AN4S10TC61Q15	LM30572	235
15	1200	4200	284T	TEBC	230/460	CCB6S15T61Q15	LM31961	490
20	1200	4200	286T	TEBC	230/460	SB6H20T61Q15	LM03157	420
25	1800	4200	284T	TEBC	230/460	SB4H25T61Q15	LM03189	350
	1200	4000	324T	TEBC	230/460	SB6H25T61Q15	LM03205	490
30	1800	4200	286T	TEBC	230/460	SB4H30T61Q15	LM03237	420
	1200	4000	326T	TEBC	230/460	SB6H30T61Q15	LM03253	550
40	1800	4000	324T	TEBC	230/460	SB4H40T61Q15	LM03285	550
	1200	3800	364T	TEBC	230/460	SB6H40T61Q15	LM03301	670
50	1800	4000	326T	TEBC	230/460	SB4H50T61Q15	LM03333	550
	1200	3800	365T	TEBC	230/460	SB6H50T61YQ15	LM03349	740
60	1800	3800	364T	TEBC	230/460	SB4H60T61YQ15	LM03377	690
	1200	3600	404T	TEBC	230/460	SB6H60T61YQ15	LM03397	1000
75	1800	3800	365T	TEBC	230/460	SB4P75T61YQ15	LM03425	740
	1200	3600	405T	TEBC	230/460	SB6H75T61YQ15	LM03445	1000
100	1800	3600	405T	TEBC	230/460	SB4H100T61YQ15	LM03473	1000
	1200	3000	444T	TEBC	460	SB6H100T64YQ15	LM03491	1290
125	1800	3000	444T	TEBC	460	SB4H125T64YQ15	LM03517	1290
	1200	3000	445T	TEBC	460	SB6H125T64YQ15	LM03537	1480
150	1800	3000	445T	TEBC	460	SB4H150T64YQ15	LM03565	1490
200	1800	3000	445T	TEBC	460	SB4H200T64YQ15	LM03597	1500

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Specifications are subject to change without notice



# SEVERE DUTY WATSAVER PLUS & IEEE PREMIUM EFFICIENT MOTORS



### General Specifications:

Designed specifically to meet severe duty environments that you may find in applications such as chemical plants, foundries, pulp and paper mills, waste management facilities, refineries, above ground mines or other applications that demand corrosion protection for long motor life and dependability.



### Mechanical Protection Features:

- Full cast iron construction
- Two-part Epoxy paint
- Inpro Shaft Seal on output shaft and Forsheda seal on non-drive end
- Internal corrosion protection
- Regreasable bearings 250 Frame and above
- Three Year warranty
- Stainless Steel nameplate
- Corrosion Resistant hardware

### Electrical Performance and Protection Features:

- 1.15 Service Factor
- Meets IP 55 enclosure protection
- Dual voltage design
- Normally Closed Thermostats

### Standards and Approvals:

- UL and CSA recognized
- Construction is CSA Certified for safety report number LR62104
- UL recognized construction, file number E57948

### General Specifications:

Designed for harsh environments that you may find in refineries, above-ground mines, foundries, paper and pulp mills, cement plants or other severe duty applications requiring a premium efficient motor.



### Mechanical Protection Features:

- Inpro Shaft Seals installed
- Re-greasable bearings by using extended grease tubes.
- Five-year warranty
- Two part epoxy painted
- Brass breather and drain plug

### Electrical Performance and Protection Features:

- Tested to IEEE-841 Standards
  - Actual test and vibration Data supplied with each motor
  - Meets NEMA MG1 – 1.26.6 Waterproof Specification
  - Nameplate stamped to Division 2 CSA certification for hazardous locations, Class 1 Groups A, B, C, D, Temperature code T2B
  - Meets NEMA Premium Efficient standards
  - 1.15 Service Factor
  - Class F Insulation System
- ### Standards and Approvals:
- UL Recognized and CSA Certified
  - Tested to IEEE45 USCG Marine Duty, API RP14F for offshore platforms
  - Meets IP56

## SEVERE DUTY • WATSAVER PLUS

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
3	1800	182T	171623.60	112	208-230/460	7.8	90.2	16.64
	1200	213T	171634.60	180	208-230/460	9.4	89.5	18.69
5	1800	184T	171630.60	120	208-230/460	12.8	89.5	17.30
	1200	215T	171635.60	186	208-230/460	14.4	89.5	20.11
7½	3600	213T	171616.60	155	208-230/460	18	91.0	18.69
	1800	213T	171622.60	165	208-230/460	18.6	91.7	18.69
	1200	254T	171636.60	263	208-230/460	22.2	91.7	23.69
10	3600	215T	171617.60	190	208-230/460	23	91.7	20.11
	1800	215T	171631.60	187	208-230/460	25	91.7	20.11
	1200	256T	171637.60	312	208-230/460	29	91.7	25.42
15	3600	254T	171620.60	294	208-230/460	34.6	92.4	23.69
	1800	254T	171632.60	294	208-230/460	36	92.4	23.69
	1200	284T	171638.60	346	208-230/460	40.6	92.4	26.76
20	3600	256T	171621.60	330	208-230/460	46	92.4	25.42
	1800	256T	171633.60	335	208-230/460	49	93.0	25.42
	1200	286T	171639.60	405	208-230/460	54	92.4	28.33

## IEEE 841 PREMIUM EFFICIENT MOTORS

HP	SYN RPM	NEMA Frame	IEEE 841 Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 460V	% F.L. Eff.	"C" Dim. (Inches)
1	1800	143T	811541.00 A	55	460	1.5	85.5	10.43
1½	3600	143T	811542.00 A	58	460	2.0	86.5	10.43
	1800	145T	811543.00 A	65	460	2.2	84.0	11.43
2	3600	145T	811544.00 A	68	460	2.5	85.5	11.43
	1800	145T	811545.00 A	68	460	3.0	85.5	11.43
3	3600	182T	811546.00	105	460	3.8	87.5	12.71
	1800	182T	811547.00	100	460	4.0	90.2	12.71
5	3600	184T	811548.00 A	142	460	5.9	89.5	16.19
	1800	184T	811549.00	130	460	6.2	90.2	16.19
7½	3600	213T	811550.00 A	200	460	8.9	91.7	17.18
	1800	213T	811551.00	200	460	9.6	91.7	19.73
10	3600	215T	811552.00	218	460	11.2	91.7	20.97
	1800	215T	811553.00	225	460	12.5	91.7	19.73
15	3600	254T	811554.00	345	460	17.5	91.7	23.52
	1800	254T	811555.00	350	460	18.8	92.4	23.52
20	3600	256T	811556.00	375	460	23.4	92.4	25.27
	1800	256T	811557.00 A	425	460	24.1	93.0	25.27
25	3600	284TS	811558.00 A	481	460	28.1	93.6	24.97
	1800	284T	811559.00 A	478	460	31.0	93.6	26.34
30	3600	286TS	811560.00	500	460	33.8	93.6	26.44
	1800	286T	811561.00	525	460	36.5	94.1	27.84
40	3600	324TS	811562.00	656	460	47	93.6	27.37
	1800	324T	811563.00	700	460	47.5	94.1	28.87
50	3600	326TS	811564.00	725	460	58	93.6	28.87
	1800	326T	811565.00	775	460	60	94.5	30.37
60	3600	364TS	811566.00	925	460	67	94.5	29.38
	1800	364T	811567.00	1000	460	69	95	31.50
75	3600	365TS	811568.00	1002	460	84	94.5	30.38
	1800	365T	811569.00	1100	460	86	95.4	32.50
100	3600	405TS	811570.00	1295	460	108	95	34.12
	1800	405T	811571.00	1330	460	113	95.4	37.12

A Subject to Availability.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice

**TEFC SEVERE DUTY**  
**208, 230/460 & 460 VOLTS • 3-PHASE**  
**FOOT MOUNT & C-FACE**  
**1 TO 800 HP**



**Bring On Your Severe Environment; These Motors Can Take It.**

Pulp and paper mills, foundries, chemical plants...you name the severe environment application, these motors will deliver reliable service beyond what you thought possible.

**Meets Ford EM1-1996 Spec.**

The 460 volt (3 lead) design of these motors meets the demanding T frame motor requirements of Ford's EM1-1996 specification (look for "F" in Notes column).

**Vary the Speed, Keep the Motor; Reap the Benefits**

Lincoln Severe Duty motors are inverter-rated for use with any brand drive at any carrier frequency. And to make matters as simple and inexpensive as possible, we don't require installation of filters or any other power conditioning devices.



**Features:**

- Full cast iron construction
- NEMA premium efficiency - 1 to 200 HP
- Nameplated for 50 Hz & 208 V/60 Hz operation – simplifies your motor selection and reduces your inventory requirements – see "Notes" column.
- Continuous Duty
- Premium Class F Insulation System
- Y-delta start capability 284T frames and larger (reference "Y" in Model Number)
- Shielded ball bearing for direct coupled applications. Contact your local sales office for belted applications.

**Applications:**

For use in the severe environments found in the process industries such as pulp and paper mills, chemical plants, foundries, textile mills and automotive manufacturing facilities.



\* 182T - 444T frames.

**FOOT MOUNT**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1	1800	143T	85.5	1.25	230/460	CCS4B1T61	<b>LM32856</b>	59
	1200	145T	82.5	1.25	230/460	CCS6B1T61	<b>LM32857</b>	57
1 1/2	3600	143T	84.0	1.25	230/460	CCS2B1.5T61	<b>LM32858</b>	56
	1800	145T	86.5	1.25	230/460	CCS4B1.5T61	<b>LM32859</b>	62
	1200	182T	87.5	1.25	230/460	CCS6B1.5T61	<b>LM32860</b>	112
2	3600	145T	85.5	1.25	230/460	CCS2B2T61	<b>LM32861</b>	71
	1800	145T	86.5	1.25	230/460	CCS4B2T61	<b>LM32862</b>	64
	1200	184T	88.5	1.25	230/460	CCS6B2T61	<b>LM32863</b>	126

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**TEFC SEVERE DUTY**  
**208, 230/460 & 460 VOLTS • 3-PHASE**  
**FOOT MOUNT & C-FACE**  
**1 TO 800 HP**

**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
3	3600	182T	88.5	1.25	230/460	CCS2B3T61	LM32864	107
	1800	182T	89.5	1.25	230/460	CCS4B3T61T5	LM16644	104
	1200	213T	89.5	1.25	230/460	CCS6B3T61	LM32865	173
5	3600	184T	89.5	1.25	230/460	CCS2B5T61	LM32866	108
	1800	184T	89.5	1.25	230/460	CCS4B5T61T5	LM16650	109
	1200	215T	89.5	1.25	230/460	CCS6B5T61	LM32867	203
7 1/2	3600	213T	89.5	1.25	230/460	CCS2B7.5T61	LM32868	192
	1800	213T	89.5	1.25	230/460	CCS4P7.5T61	LM32869	194
	1200	254T	91.7	1.15	230/460	CCS6B7.5T61YT5	LM16656	249
10	3600	215T	90.2	1.25	230/460	CCS2B10T61	LM32870	218
	1800	215T	91.7	1.25	230/460	CCS4B10T61	LM16919	213
	1200	256T	91.0	1.25	230/460	CCS6B10T61	LM32871	368
15	3600	254T	91.0	1.25	230/460	CCS2B15T61	LM32872	384
	1800	254T	92.4	1.25	230/460	CCS4B15T61	LM32873	322
	1200	284T	91.7	1.25	230/460	CCS6B15T61Y	LM32874	483
20	3600	256T	91.0	1.25	230/460	CCS2B20T61	LM32875	385
	1800	256T	93.0	1.25	230/460	CCS4B20T61	LM32876	368
	1200	286T	91.7	1.25	230/460	CCS6B20T61Y	LM32877	515
25	3600	284TS	91.7	1.25	230/460	CCS2B25TS61Y	LM32878	461
	1800	284T	93.6	1.25	230/460	CCS4B25T61Y	LM32879	495
	1200	324T	93.0	1.25	230/460	CCS6P25T61Y	LM32880	637
30	3600	286TS	91.7	1.25	230/460	CCS2B30TS61Y	LM32881	496
	1800	286T	93.6	1.25	230/460	CCS4B30T61Y	LM32882	519
	1200	326T	93.0	1.25	230/460	CCS6B30T61Y	LM32883	689
40	3600	324TS	92.4	1.25	230/460	CCS2B40TS61Y	LM32884	664
	1800	324T	94.1	1.25	230/460	CCS4B40T61Y	LM32885	602
	1200	364T	94.1	1.25	230/460	CCS6B40T61Y	LM32886	835
50	3600	326TS	93.0	1.25	230/460	CCS2B50TS61Y	LM32685	732
	1800	326T	94.5	1.25	230/460	CCS4B50T61Y	LM32887	744
	1200	365T	94.1	1.25	230/460	CCS6B50T61Y	LM32888	955
60	3600	364TS	93.6	1.25	230/460	CCS2B60TS61Y	LM32889	918
	1800	364T	95.0	1.25	230/460	CCS4B60T61Y	LM32890	980
	1200	404T	94.5	1.15	230/460	CCS6B60T61Y	LM32891	1156
75	3600	365TS	93.6	1.25	230/460	CCS2B75TS61Y	LM32892	1001
	1800	365T	95.4	1.15	230/460	CCS4B75T61Y	LM32893	1018
	1200	405T	94.5	1.25	230/460	CCS6B75T61Y	LM32894	1280
100	3600	405TS	94.1	1.25	230/460	CCS2B100TS61Y	LM32895	1296
	1800	405T	95.4	1.25	230/460	CCS4B100T61Y	LM32896	1338
	1200	444T	95.0	1.25	460	CCS6B100T64Y	LM32897	1874
125	3600	444TS	95.0	1.15	460	CCS2B125TS64Y	LM32898	1874
	1800	444T	95.4	1.15	460	CCS4B125T64Y	LM32899	1874
	1200	445T	95.0	1.15	460	CCS6B125T64	LM32900	2042

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**208, 230/460 & 460 VOLTS • 3-PHASE**  
**FOOT MOUNT & C-FACE**  
**1 TO 800 HP**



**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
<b>150</b>	3600	445TS	95.0	1.15	460	CCS2B150TS64Y	<b>LM32901</b>	2099
	1800	445T	95.8	1.15	460	CCS4B150T64Y	<b>LM32902</b>	2070
	1200	445T	95.8	1.15	460	CCS6B150T64Y	<b>LM32903</b>	2042
<b>200</b>	3600	445TS	95.4	1.15	460	CCS2B200TS64Y	<b>LM32904</b>	2332
	1800	445T	96.2	1.15	460	CCS4B200T64Y	<b>LM32905</b>	2305
	1200	449T	95.8	1.15	460	CCS6B200T64Y	<b>LM32906</b>	3087
<b>250</b>	3600	449TS	95.4	1.15	460	CCS2P250TS64Y	<b>LM15717</b>	2572
	3600	449TS	95.4	1.15	460	CCS2P250TS64	<b>LM22908</b>	2572
	1800	449T	95.4	1.15	460	CCS4P250T64Y	<b>LM14643</b>	2572
	1800	449T	95.4	1.15	460	CCS4P250T64	<b>LM17594</b>	2572
	1200	449T	95.4	1.15	460	CCS6P250T64Y	<b>LM15723</b>	2883
	1200	449T	95.4	1.15	460	CCS6P250T64	<b>LM17597</b>	2883
<b>300</b>	3600	449TS	95.4	1.15	460	CCS2P300TS64Y	<b>LM15721</b>	2883
	3600	449TS	95.4	1.15	460	CCS2P300TS64	<b>LM17601</b>	2883
	1800	449T	95.4	1.15	460	CCS4P300T64Y	<b>LM14642</b>	2572
	1800	449T	95.4	1.15	460	CCS4P300T64	<b>LM22909</b>	2572
	1200	449T	95.4	1.00	460	CCS6P300T64Y	<b>LM15722</b>	2883
	1200	449T	95.4	1.00	460	CCS6P300T64	<b>LM17598</b>	2883
<b>350</b>	3600	449TS	95.4	1.15	460	CCS2P350TS64Y	<b>LM15720</b>	2883
	3600	449TS	95.4	1.15	460	CCS2P350TS64	<b>LM17602</b>	2883
	1800	449T	95.4	1.15	460	CCS4P350T64Y	<b>LM14645</b>	2883
	1800	449T	95.4	1.15	460	CCS4P350T64	<b>LM17599</b>	2883
	1200	5011LS	95.8	1.15	460	CCS6P350LS64Y	<b>LM22210</b>	5500
<b>400</b>	1800	449T	95.8	1.00	460	CCS4P400T64Y	<b>LM14644</b>	2883
	1800	449T	95.8	1.00	460	CCS4P400T64	<b>LM17600</b>	2883
	1200	5011	95.8	1.15	460	CCS6P400L64Y	<b>LM22211</b>	5500
<b>450</b>	1800	5011LS	95.8	1.15	460	CCS4P450LS64Y	<b>LM22212</b>	5500
	1200	5011LS	96.2	1.15	460	CCS6P450LS64Y	<b>LM27292</b>	5500
<b>500</b>	1800	5011LS	96.2	1.15	460	CCS4P500LS64Y	<b>LM22213</b>	5500
	1200	5013LS	96.2	1.15	460	CCS6P500LS64Y	<b>LM27293</b>	7200
<b>600</b>	1800	5011LS	96.5	1.15	460	CCS4P600LS64Y	<b>LM22489</b>	5500
<b>700</b>	1800	5013LS	96.5	1.15	460	CCS4P700LS64Y	<b>LM27295</b>	7200

Product numbers in red are STOCK items.

Specifications are subject to change without notice



### DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)	
1/12	1800	...	...	...	...	...	...	...	
1/8	1800	...	...	...	...	...	...	...	
1/6	1800	...	...	...	...	...	...	...	
	1800	...	...	...	...	...	...	...	
1/4	1200	...	...	...	...	...	...	...	
	3600	...	...	...	...	...	...	...	
	1800	...	...	...	...	...	...	...	
	1800	48	101423.00	16	115/208-230	Man.	2.7	8.87	
	1800	48	100115.00	16	115/208-230	Auto.	2.7	8.87	
	1800	S56	100000.00	17	115/208-230	Auto.	2.7	9.24	
	1200	...	...	...	...	...	...	...	
1/3	3600	...	...	...	...	...	...	...	
	3600	S56	100336.00	26	115/208-230	None	2.8	8.99	
	1800	...	...	...	...	...	...	...	
	1800	...	...	...	...	...	...	...	
	1800	48	100116.00	17	115/208-230	Auto.	3.3	8.87	
	1800	S56	100006.00	18	115/208-230	None	3.3	9.24	
	1800	S56	100588.00	18	115/208-230	Man.	3.3	9.24	
	1800	S56	100001.00	18	115/208-230	Auto.	3.3	9.24	
	1200	...	...	...	...	...	...	...	
	1200	56	110001.00	29	115/208-230	None	3.9	10.88	
	1/2	3600	48	100184.00	19	115/208-230	None	3.4	9.62
3600		S56	100337.00	20	115/208-230	None	3.4	9.99	
3600		S56	100052.00	21	115/208-230	Man.	3.4	9.99	
1800		48	100338.00	20	115/208-230	None	4.4	9.62	
1800		S56	100007.00	21	115/208-230	None	4.4	9.99	
1800		S56	100004.00	21	115/208-230	Man.	4.4	9.99	
1800		S56	100002.00	20	115/208-230	Auto.	4.4	9.99	
1200		56	110002.00	32	115/208-230	None	5.0	11.38	
3/4		3600	S56	100340.00	24	115/208-230	None	4.9	10.49
		3600	S56	100053.00	24	115/208-230	Man.	4.9	10.49
	1800	S56	100008.00	26	115/208-230	None	5.4	10.99	
	1800	S56	100005.00	25	115/208-230	Man.	5.4	10.99	
	1800	S56	101544.00★ A	28	115/208-230	Man.	4.0	11.24	
	1800	S56	100003.00	25	115/208-230	Auto.	5.4	10.99	
	1200	56H	110003.00□	44	115/208-230	None	6.4	12.88	
1	3600	56	110360.00	28	115/208-230	None	6.0	10.84	
	3600	56	110097.00	28	115/208-230	Man.	6.0	10.84	
	1800	56	110004.00	28	115/208-230	None	6.4	10.88	
	1800	56	110167.00	30	115/208-230	Man.	6.4	10.88	
	1800	56	113630.00★	31	115/208-230	Man.	5.3	10.88	
	1800	56	110000.00	28	115/208-230	Auto.	6.4	10.88	
	1800	143T	120044.00	38	115/208-230	None	6.4	11.13	
	1800	143T	120003.00	33	115/208-230	Man.	6.4	11.13	
	1800	143T	120000.00	32	115/208-230	Auto.	6.4	11.13	
	1200	...	...	...	...	...	...	...	

### TOTALLY ENCLOSED FAN COOLED (TEFC)

NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
42	092111.00	14	115/208-230	None	1.1	8.94
42	092114.00	16	115/208-230	None	1.6	9.44
42	092116.00	17	115/208-230	None	2.1	9.44
48	102012.00	17	115/208-230	None	2.0	9.06
48	102013.00	23	115/208-230	None	1.9	10.31
42	092112.00	19	115/208-230	None	2.1	9.94
48	102014.00	20	115/208-230	None	2.7	9.06
48	101446.00✦	18	115/208-230	Man.	2.7	9.06
...	...	...	...	...	...	...
48	102015.00	23	115/208-230	None	3.2	11.31
56	114617.00	30	115/208-230	None	2.8	11.81
48	102016.00	21	115/208-230	None	2.8	9.06
...	...	...	...	...	...	...
48	100955.00	19	115/208-230	None	3.3	9.56
48	102018.00	20	115/208-230	Man.	3.3	9.56
...	...	...	...	...	...	...
S56	102931.00✦	23	115/208-230	None	3.1	10.44
S56	102933.00	23	115/208-230	Man.	3.1	10.44
S56	102932.00	23	115/208-230	Auto.	3.1	10.44
48	102019.00	28	115/208-230	None	3.1	11.56
56	110009.00	34	115/208-230	None	3.6	12.31
48	102020.00	27	115/208-230	None	3.5	9.31
S56	102905.00	22	115/208-230	None	3.5	9.94
S56	102904.00	25	115/208-230	Man.	3.5	9.94
48	100956.00	22	115/208-230	None	4.0	10.31
S56	102906.00✦	22	115/208-230	None	4.0	10.69
S56	102909.00✦	22	115/208-230	Man.	4.0	10.69
S56	102908.00✦	24.5	115/208-230	Auto.	4.0	10.69
56	110011.00	38	115/208-230	None	4.9	12.81
56	110276.00	26	115/208-230	None	5.0	11.31
56	110108.00	26	115/208-230	Man.	5.0	11.31
56	110013.00✦	29	115/208-230	None	5.4	11.31
56	110022.00✦	29	115/208-230	Man.	5.4	11.31
...	...	...	...	...	...	...
56	110017.00✦	26	115/208-230	Auto.	5.4	11.31
56H	110400.00★□	43	115/208-230	None	5.3	13.31
56	110059.00	28	115/208-230	None	6.0	11.81
56	110142.00	28	115/208-230	Man.	6.0	11.81
56	110209.00✦	30	115/208-230	None	7.0	11.81
56	110023.00✦	29	115/208-230	Man.	6.4	11.81
...	...	...	...	...	...	...
56	110018.00✦	29	115/208-230	Auto.	6.4	12.31
143T	120025.00✦	34	115/208-230	None	6.4	12.75
143T	120008.00✦	31	115/208-230	Man.	6.4	12.75
...	...	...	...	...	...	...
145T	120043.00★	49	115/230	None	6.7	14.25

□ Combination 56H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 shaft.  
 ★ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.  
 ✦ These totally enclosed single phase motors have 1.15 Service Factors.  
 A Subject to Availability.

CONTINUED ON NEXT PAGE

**DRIP-PROOF**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over- load Prot.	F.L. Amps 230V	"C" Dim. (Inches)	
1½	3600	56	<b>110361.00</b>	29	115/208-230	None	8.2	10.84	
	3600	56	<b>110110.00</b>	28	115/208-230	Man.	8.2	10.84	
	3600	56	<b>113631.00</b> ☆	36	115/208-230	Man.	6.2	11.34	
	3600	143T	<b>120107.00 A</b>	32	115/208-230	None	8.2	11.28	
	1800	56H	<b>110005.00</b> ☆□	37	115/208-230	None	8.6	11.84	
	1800	56H	<b>110006.00</b> ☆□	38	115/208-230	Man.	8.6	11.84	
	1800	56H	<b>113266.00</b> ☆□	42	115/208-230	Man.	6.7	12.38	
	1800	...	...	...	...	...	...	...	
	1800	145T	<b>120042.00</b> ☆	38	115/208-230	None	8.6	12.28	
	1800	145T	<b>120004.00</b> ☆	40	115/208-230	Man.	8.6	12.28	
	1800	145T	<b>120001.00</b> ☆	40	115/208-230	Auto.	8.6	12.28	
	1200	...	...	...	...	...	...	...	
2	3600	56	<b>110363.00</b>	37	115/208-230	None	10.0	11.84	
	3600	56	<b>110362.00</b>	38	115/208-230	Man.	10.0	12.34	
	3600	56	<b>113632.00</b> ☆ A	38	115/208-230	Man.	8.6	11.34	
	3600	145T	<b>120106.00 A</b>	40	115/208-230	None	10.0	12.28	
	3600	...	...	...	...	...	...	...	
	1800	56H	<b>116704.00</b> ☆□	45	115/208-230	Man.	8.6	12.88	
	1800	145T	<b>120067.00</b> ☆	42	115/230	None	10.5	13.28	
	1800	145T	<b>120879.00</b> ☆	51	115/208-230	Man.	8.6	13.31	
	1800	182T	<b>131515.00</b>	56	115/208-230	None	12.4	13.19	
	1800	182T	<b>131536.00</b>	63	115/208-230	Man.	12.4	13.19	
	1800	182T	<b>131535.00</b>	63	115/208-230	Auto.	12.4	13.19	
	1200	...	...	...	...	...	...	...	
	3	3600	56H	<b>116706.00</b> □	39	230	Man.	15.0	12.38
		3600	...	...	...	...	...	...	...
		3600	182T	<b>131636.00</b>	74	115/208-230	None	14.0	14.18
1800		184T	<b>131534.00</b>	69	115/230	None	16.9	14.19	
1800		184T	<b>131561.00</b>	76	115/230	Man.	16.9	14.19	
1800		184T	<b>131851.00</b> ☆	72	208-230	Man.	13.7	15.22	
1800		184T	<b>131530.00</b>	69	115/230	Auto.	16.9	14.19	
1200		...	...	...	...	...	...	...	
5	3600	56H	<b>116708.00</b> ☆□	45	230	Man.	20.8	13.34	
	3600	184T	<b>131616.00</b>	84	208-230	None	22.0	14.69	
	3600	...	...	...	...	...	...	...	
	1800	184T	<b>131537.00</b> ☆	83	208-230	None	21.0	14.69	
	1800	184T	<b>131560.00</b> ☆	82	208	None	23.2	14.69	
	1800	184T	<b>131622.00</b> ☆	82	208-230	Man.	21.0	14.69	
7½	3600	184T	<b>132044.00</b> ☆	110	208-230	Tstat	31.0	16.69	
	3600	213T	<b>140680.00</b> ☆	112	208-230	None	29.5	16.55	
	1800	215T	<b>140155.00</b> ☆	113	230	None	36.0	17.26	
10	3600	215T	<b>140681.00</b> ☆	135	208-230	None	37.0	18.05	
	1800	215TZ	<b>140311.00</b> ☆✓	140	230	None	43.0	19.76	

**TOTALLY ENCLOSED FAN COOLED (TEFC)**

NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over- load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
56	<b>110094.00</b>	31.5	115/208-230	None	8.5	12.31
56	<b>110109.00</b>	31	115/208-230	Man.	8.5	12.31
...	...	...	...	...	...	...
143T	<b>120130.00</b>	36	115/208-230	None	8.5	13.25
56H	<b>110253.00</b> ☆□	38	115/208-230	None	8.6	12.81
56H	<b>113333.00</b> ☆□	38	115/208-230	Man.	8.6	12.81
...	...	...	...	...	...	...
56H	<b>110019.00</b> ☆□	38	115/208-230	Auto.	8.6	12.81
145T	<b>120026.00</b> ☆	44	115/208-230	None	8.6	13.25
145T	<b>120009.00</b> ☆	42	115/208-230	Man.	8.6	13.25
...	...	...	...	...	...	...
184T	<b>131526.00</b>	69	115/208-230	None	11.0	15.46
56H	<b>110352.00</b> ☆†	41	115/208-230	None	10.0	13.31
56H	<b>110402.00</b> ☆†	41	115/208-230	Man.	10.0	13.31
...	...	...	...	...	...	...
145T	<b>120036.00</b> ☆†	42	115/208-230	None	10.0	13.75
145T	<b>120395.00</b> ☆†	44	115/208-230	Man.	10.0	13.75
...	...	...	...	...	...	...
145T	<b>121507.00</b> ☆†	48	115/208-230	None	9.2	13.75
145T	<b>120867.00</b> ☆	48	115/208-230	Man.	9.2	13.75
182T	<b>131509.00</b>	65	115/208-230	None	12.4	14.46
...	...	...	...	...	...	...
...	...	...	...	...	...	...
215T	<b>140747.00</b> ☆ A	118	115/208-230	None	11.2	18.71
56H	<b>116705.00</b> ☆	53	208-230	Man.	14.0	13.81
145T	<b>120341.00</b> ☆	46	230	None	13.0	14.25
182T	<b>131637.00</b>	78	115/208-230	None	13.4	14.96
184T	<b>131533.00</b>	83	115/230	None	16.8	16.46
184T	<b>131855.00</b> ☆	88	230	Man.	13.6	14.96
...	...	...	...	...	...	...
...	...	...	...	...	...	...
184T	<b>131549.00</b> ☆	93	230	None	19.8	16.96
184T	<b>132042.00</b> ☆	103	230	Man.	19.8	16.97
184T	<b>131538.00</b> ☆	95	230	None	23.0	17.46
...	...	...	...	...	...	...
184T	<b>131856.00</b> ☆	95	230	Man.	21.0	15.96
...	...	...	...	...	...	...
...	...	...	...	...	...	...
213T	<b>140684.00</b> ☆	120	208-230	None	32.0	18.34
215T	<b>140120.00</b> ☆	169	230	None	33.6	20.21
215T	<b>140685.00</b> ☆	138	208-230	None	41.5	19.84
215T	<b>140581.00</b> ☆	202	230	None	40.0	20.71

- Combination 56H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 shaft.
- ☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.
- ✓ Motor with standard diameter shaft, 1.0" longer than standard.
- † Class F insulated.
- ✦ These totally enclosed single phase motors have 1.15 Service Factors.
- A Subject to Availability.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.



# C FACE MOTORS • SINGLE PHASE

LESS BASE • CAPACITOR START • GENERAL PURPOSE

AC MOTORS



## DRIP-PROOF • C FACE LESS BASE • SINGLE PHASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over- load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/6	1800	...	...	...	...	...	...	...
1/4	1800	...	...	...	...	...	...	...
	1800	S56C	100023.00	17	115/208-230	None	2.7	9.24
	1800	S56C	101521.00	17	115/208-230	Auto.	2.7	9.24
1/3	3600	S56C	100354.00	17	115/208-230	None	2.8	8.99
	3600	S56C	100355.00	17	115/208-230	Auto.	2.8	8.99
	1800	...	...	...	...	...	...	...
	1800	S56C	100024.00	17	115/208-230	None	3.3	9.24
	1800	S56C	100018.00	18	115/208-230	Man.	3.3	9.24
1/2	3600	S56C	100356.00	19	115/208-230	None	3.4	9.99
	3600	S56C	100054.00	18	115/208-230	Auto.	3.4	9.99
	1800	...	...	...	...	...	...	...
	1800	S56C	100025.00	19	115/208-230	None	4.4	9.99
	1800	S56C	100019.00	21	115/208-230	Man.	4.4	9.99
3/4	3600	S56C	100357.00	24	115/208-230	None	4.9	10.49
	3600	S56C	100055.00	24	115/208-230	Auto.	4.9	10.49
	1800	S56C	100026.00	24	115/208-230	None	5.4	10.99
	1800	S56C	100021.00	24	115/208-230	Man.	5.4	10.99
	1800	S56C	101523.00	26	115/208-230	Auto.	5.4	10.99
1	3600	56C	110384.00	28	115/208-230	None	6.0	10.88
	3600	56C	113337.00 A	28	115/208-230	Auto.	6.0	10.84
	1800	56C	110220.00	30	115/208-230	None	6.4	10.88
	1800	56C	110036.00	27	115/208-230	Man.	6.4	10.88
	1800	143TC	121002.00 A	31	115/208-230	None	6.4	11.28
1 1/2	3600	56C	110387.00 A	28	115/208-230	None	8.2	10.84
	3600	56C	113336.00	28	115/208-230	Auto.	8.2	10.84
	3600	...	...	...	...	...	...	...
	1800	56C	110388.00☆	38	115/208-230	None	8.6	11.84
	1800	56C	110037.00☆	39	115/208-230	Man.	8.6	11.84
2	3600	56C	110390.00	37	115/208-230	None	10.0	11.84
	3600	56C	113335.00 A	36	115/208-230	Auto.	10.0	11.84
	3600	145TC	121184.00 A	37	115/208-230	None	10.0	12.28
	1800	...	...	...	...	...	...	...
	1800	145TC	120073.00☆	49	115/208-230	None	10.5	13.28
3	3600	56C	113334.00	36	230	Auto.	15.0	11.84
	3600	...	...	...	...	...	...	...
	1800	184TC	131544.00	73	115/208-230	None	16.9	14.19
5	3600	184TC	131777.00☆A	70	208-230	None	22.2	14.69
	1800	184TC	131539.00☆A	81	230	None	21.0	14.69

Motors in this column have NEMA Service Factors - see page 274 for details.

- ☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.
- ✦ These totally enclosed single phase motors have 1.15 Service Factors.
- These motors are totally enclosed, non-ventilated—Others are fan cooled.
- † Class F insulated.
- Shaft extension has keyway and flat 180° apart for ease of mounting.
- Useable shaft is 1 1/2" long by 1/2" diameter, 1/8" keyway.
- A Subject to Availability.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

## TEFC • C FACE LESS BASE • SINGLE PHASE

NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over- load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
48CZ	102661.00	14	115/208-230	None	2.0	9.19
48CZ	101765.00	18	115/208-230	None	2.7	9.19
	102868.00✦	22	115/208-230	None	2.3	9.80
	102866.00	18	115/208-230	None	2.7	9.44
S56C	102870.00	20	115/208-230	None	2.8	9.44
S56C	102873.00●	24	115/208-230	None	1.9	9.30
48CZ	102663.00	19	115/208-230	None	3.3	9.69
S56C	101766.00✦	22	115/208-230	None	3.3	9.94
S56C	102867.00✦	23	115/208-230	None	2.6	10.30
S56C	102869.00✦	25	115/208-230	Man.	2.6	10.30
S56C	102864.00✦	22	115/208-230	None	3.5	9.94
S56C	102872.00✦	25	115/208-230	Man.	3.5	9.94
48CZ	102665.00 A	22	115/208-230	None	4.0	10.44
S56C	102862.00✦	21	115/208-230	None	4.0	10.69
S56C	102865.00✦	22	115/208-230	Man.	4.0	10.69
S56C	102871.00	24	115/208-230	Auto.	4.0	10.69
56C	110411.00	37	115/208-230	None	4.9	12.81
56C	110413.00	26	115/208-230	None	5.0	11.31
56C	110412.00	28	115/208-230	Man.	5.0	11.31
56C	110057.00✦	25	115/208-230	None	5.4	11.31
56C	110040.00✦	26	115/208-230	Man.	5.4	11.31
56C	110308.00✦	28	115/208-230	Auto.	5.4	11.31
56C	110414.00☆	42	115/208-230	None	5.3	13.31
56C	110416.00✦	28	115/208-230	None	6.0	11.81
56C	110415.00	28	115/208-230	Man.	6.0	11.81
56C	110058.00✦	33	115/208-230	None	6.4	11.81
56C	110041.00✦	29	115/208-230	Man.	6.4	11.81
143TC	121001.00 A	32	115/208-230	None	6.4	12.25
6C	110419.00	31	115/208-230	None	8.5	12.31
56C	110418.00	31	115/208-230	Man.	8.5	12.31
143TC	120101.00	36	115/208-230	None	8.5	12.75
56C	110420.00☆	37	115/208-230	None	8.6	12.81
56C	110042.00☆	40	115/208-230	Man.	8.6	12.81
145TC	120017.00☆	40	115/208-230	None	8.6	13.75
56C	110422.00✦	40	115/208-230	None	10.0	13.31
56C	110421.00✦†	41	115/208-230	Man.	10.0	13.31
145TC	120102.00✦†	43	115/208-230	None	10.0	13.75
56C	112136.00☆	41	115/230	None	9.2	13.31
145TC	120060.00☆	45	115/230	Man.	10.0	14.25
182TC	131516.00	64	115/208-230	None	12.4	14.47
...	...	...	...	...	...	...
145TC	120824.00☆	56	230	Man.	13.0	14.25
184TC	131545.00	82	115/208-230	None	16.8	16.47
184TC	131778.00☆	81	208-230	None	19.8	16.97
184TC	131540.00☆	104	230	None	23.0	17.47

Motors in this column have NEMA Service Factors except as noted by ✦, which have 1.15 Service Factors.



# C FACE MOTORS • SINGLE PHASE

WITH BASE • CAPACITOR START • GENERAL PURPOSE



AC MOTORS



## DRIP-PROOF • C FACE WITH BASE • SINGLE PHASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over- load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/4	1800	...	...	...	...	...	...	...
1/3	3600	...	...	...	...	...	...	...
	1800	S56C	103023.00	18	115/208-230	None	3.3	9.24
	1800	S56C	103083.00 A	18	115/208-230	Man.	3.3	9.24
	...	...	...	...	...	...	...	...
1/2	3600	S56C	103024.00	20	115/208-230	None	3.4	9.99
	1800	S56C	101651.00	21	115/208-230	None	4.4	9.99
	1800	S56C	103084.00	21	115/208-230	Man.	4.4	9.99
3/4	3600	S56C	103025.00 A	24	115/208-230	None	4.9	10.49
	1800	S56C	101650.00	27	115/208-230	None	5.4	10.99
	1800	S56C	103086.00	27	115/208-230	Man.	5.4	10.99
1	3600	56C	116769.00 A	28	115/208-230	None	6.0	10.84
	3600	...	...	...	...	...	...	...
	1800	56C	113930.00	34	115/208-230	None	6.4	10.88
	1800	...	...	...	...	...	...	...
	1800	...	...	...	...	...	...	...
1 1/2	3600	56C	116770.00 A	35	115/208-230	None	6.2	11.34
	3600	56C	114214.00 ☆ A	35	115/208-230	Man.	6.2	11.34
	3600	...	...	...	...	...	...	...
	1800	56HC	113932.00 ☆ □	39	115/208-230	None	8.6	11.84
	1800	56HC	113700.00 ☆ □	38	115/208-230	Man.	7.2	11.84
	1800	...	...	...	...	...	...	...
2	3600	56C	116771.00 A	35	115/208-230	None	8.6	11.34
	3600	56C	114215.00 ☆	35	115/208-230	Man.	8.6	11.34
	3600	...	...	...	...	...	...	...
	3600	...	...	...	...	...	...	...
	1800	56HC	113281.00 ☆ □	45	115/208-230	Man.	8.6	12.88
	1800	145TC	120992.00 A	45	115/230	None	10.5	13.28
	1800	...	...	...	...	...	...	...
3	3600	...	...	...	...	...	...	...
	3600	56HC	116707.00 ☆ □	41	230	Man.	15.0	12.38
	3600	...	...	...	...	...	...	...
	3600	182TC	132083.00 ☆ A	74	115/208-230	None	14.0	14.18
	1800	184TC	131629.00	70	115/208-230	Man.	16.9	14.19
	1800	184TC	131853.00 ☆	87	208-230	Man.	15.4	15.96
5	3600	56HC	116709.00 ☆ □	46	230	Man.	20.8	13.34
	3600	184TC	131781.00 ☆	70	208-230	None	22.2	14.19
	1800	184TC	131630.00 ☆	77	208-230	Man.	21.0	14.69
7 1/2	3600	184TC	132043.00 ☆ A	112	208-230	Tstat	31.0	16.69
	1800	215TC	140806.00	120	208-230	None	36	17.26
10	3600	...	...	...	...	...	...	...
	1800	...	...	...	...	...	...	...

Motors in this column have NEMA Service Factors - see page 274 for details.

- ☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.
- These totally enclosed single phase motors have 1.15 Service Factors.
- These motors are totally enclosed, non-ventilated—Others are fan cooled.
- Combination 56H base motors have mounting holes for NEMA 56 and NEMA 143-145T and standard NEMA 56C face and shaft.
- † Class F insulated.
- A Subject to Availability.

## TEFC • C FACE WITH BASE • SINGLE PHASE

NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over- load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
S56C	102916.00	22	115/208-230	None	2.7	9.69
S56C	102929.00	22	115/208-230	None	2.8	9.69
S56C	102930.00	24	115/208-230	None	3.1	10.44
S56C	103082.00	24	115/208-230	Man.	3.1	10.31
S56C	102910.00 ● ☆	25	115/208-230	None	2.6	10.31
S56C	102903.00	25	115/208-230	None	3.5	9.94
S56C	102907.00 †	22	115/208-230	None	4.0	10.69
S56C	103085.00	22	115/208-230	Man.	4.0	10.69
56C	112135.00	26	115/208-230	None	5.0	11.31
56C	110905.00 †	26	115/208-230	None	5.4	11.31
56C	116922.00	26	115/208-230	Man.	5.4	11.31
56C	110180.00	28	115/208-230	None	6.0	11.81
56C	115877.00	28	115/208-230	Man.	6.0	11.81
56C	110908.00 †	30	115/208-230	None	6.4	11.81
56C	115879.00	32	115/208-230	Man.	6.4	11.81
143TC	121680.00	32	115/208-230	None	6.4	12.25
...	...	...	...	...	...	...
56C	110909.00	34	115/208-230	None	8.5	12.31
56C	115024.00 ☆	35	115/208-230	Man.	6.2	12.31
56HC	110910.00 ☆ □	39	115/208-230	None	8.6	12.81
56HC	116703.00 □ ☆	42	115/208-230	Man.	8.6	12.81
145TC	121681.00	40	115/208-230	None	8.6	13.75
56HC	113931.00 †	46	115/208-230	None	10.0	13.31
56HC	114995.00 ☆	42	115/208-230	Man.	9.2	13.31
56HC	115878.00 † □ A	43	115/208-230	Man.	10.0	13.31
145TC	121008.00 †	43	115/208-230	None	10.0	13.75
...	...	...	...	...	...	...
145TC	120274.00 ☆	49	115/230	None	9.2	14.25
145TC	121465.00 ☆	44	115/208-230	Man.	9.2	13.75
145TC	121825.00	47	230	None	13	14.43
56HC	115048.00 ☆	53	208-230	Man.	14.0	13.31
145TC	121060.00 ☆	51	230	Man.	13.0	14.25
...	...	...	...	...	...	...
184TC	131631.00	84	115/208-230	Man.	16.8	16.47
184TC	131857.00 ☆	104	230	Man.	13.7	17.61
...	...	...	...	...	...	...
184TC	131632.00 ☆ †	103	230	Man.	19.8	16.97
184TC	131633.00 ☆	86	230	Man.	23.0	16.97
213TC	140694.00 ☆	120	208-230	None	32.0	19.07
215TC	140807.00	171	208-230	None	33.6	20.21
215TC	140695.00 ☆	138	208-230	None	41.5	20.57
215TC	140678.00 ☆	152	230	None	40.0	20.71

Motors in this column have NEMA Service Factors except as denoted by ☆, which have 1.15 Service Factors.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

**Features:**

- Durable rolled steel frame construction
- NEMA Design B performance
- Meet or exceed NEMA Service Factors
- Maintenance-free double sealed ball bearings
- Continuous Duty
- Premium Class B Insulation system
- Durable, easy-to-read mylar nameplate
- UL Recognized Component Listing and CSA certified

**Applications:**

For use where water and dust exposure is moderate. Ideally suited for use on pumps, compressors, blowers, fans and other standard industrial applications.



See page 68 for ODP Single Phase motors with built-in overload protection.

**FOOT MOUNT**

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	S56	1.35	115/208-230	SPD4S0.25T1C6028	LM24457	17
	1200	56	1.35	115/208-230	SRD6S0.25T1C6028	LM24541	17
1/3	3600	48	1.15	115/208-230	SPD2S0.33T1C6028	LM24467	16
	1800	S56	1.35	115/208-230	SRD4S0.33T1C6028	LM24570	18
1/2	1200	S56	1.15	115/208-230	SRD6S0.33T1C6028	LM24540	24
	3600	48	1.25	115/208-230	SPD2S0.5T1C6028	LM24465	18
3/4	1800	S56	1.25	115/208-230	SRD4S0.5T1C6028	LM24551	22
	1200	56	1.25	115/208-230	SRD6S0.5T1C6028	LM24542	30
1	3600	S56	1.25	115/208-230	SRD2S0.75T1C6028	LM24674	21
	1800	S56	1.25	115/208-230	SRD4S0.75T1B6028	LM24502	26
1 1/2	1200	56	1.15	115/208-230	SRD6S0.75T1C6028	LM24543	38
	3600	S56	1.25	115/208-230	SRD2S1T1B6028	LM24525	23
2	1800	56	1.15	115/208-230	SRD4S1T1C6028	LM24580	30
	1800	143T*	1.15	115/208-230	SSD4S1T1C6028	LM24675	33
3	3600	56	1.15	115/208-230	SRD2S1.5T1B6028	LM24524	25
	3600	143T*	1.15	115/208-230	SSD2S1.5T1C6028	LM24676	30
4	1800	56H*	1.15	115/208-230	SRD4S1.5T1C6028	LM24583	40
	1800	145T*	1.15	115/208-230	SSD4S1.5T1C6028	LM24687	41
5	3600	56H*	1.15	115/208-230	SRD2S2T1B6028	LM24624	35
	3600	145T*	1.15	115/208-230	SSD2S2T1B6028	LM24806	40
6	1800	145T*	1.15	115/208-230	SSD4S2T1B6028	LM24677	49
	1800	182T	1.15	115/208-230	SS182D4S2T1C6028	LM24678	65
7	3600	182T	1.15	115/208-230	SS182D2S3T1C6028	LM24679	57
	1800	184T	1.15	115/208-230	SS184D4S3T1C6028	LM24680	78
8	3600	184T	1.15	208-230	SS184D2S5T1C6008	LM24681	78
	1800	184T	1.15	208-230	SSD4S5T1B6008	LM24682	87
9	1800	215T	1.15	208-230	SS215D4S7.5T1B6008	LM24683	118
10	1800	215T	1.15	208-230	SSD4S10T1B6008	LM24684	140

\* 56H, 143T and 145T Combination Base with 12 mounting holes.

Product numbers in red are STOCK items.

Specifications are subject to change without notice

**C-FACE WITH FEET**

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/2	1800	56C	1.25	115/208-230	SRD4S0.5TLC1C6028	<b>LM24697</b>	22
3/4	1800	56C	1.25	115/208-230	SRD4S0.75TLC1B6028	<b>LM24699</b>	26
1	1800	56C	1.15	115/208-230	SRD4S1TLC1C6028	<b>LM24700</b>	30
1 1/2	1800	56HC	1.15	115/208-230	SRD4S1.5TLC1C6028	<b>LM24701</b>	40
2	1800	145TC	1.15	115/208-230	SSD4S2TLC1B6028	<b>LM24698</b>	50

**C-FACE FOOTLESS**

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	S56	1.35	115/208-230	SRD4S0.25TLCN1C6028	<b>LM24569</b>	17
1/3	3600	S56	1.15	115/208-230	SRD2S0.33TLCN1C6028	<b>LM24688</b>	16
	1800	<b>S56</b>	<b>1.35</b>	<b>115/208-230</b>	<b>SRD4S0.33TLCN1C6028</b>	<b>LM24571</b>	<b>17</b>
1/2	3600	S56	1.25	115/208-230	SRD2S0.5TLCN1C6028	<b>LM24689</b>	17
	1800	S56	1.25	115/208-230	SRD4S0.5TLCN1C6028	<b>LM24555</b>	21
	1200	56C	1.25	115/208-230	SRD6S0.5TLCN1C6028	<b>LM24544</b>	33
3/4	3600	S56	1.25	115/208-230	SRD2S0.75TLCN1C6028	<b>LM24690</b>	19
	1800	S56	1.25	115/208-230	SRD4S0.75TLCN1B6028	<b>LM24505</b>	25
	1200	56C	1.15	115/208-230	SRD6S0.75TLCN1C6028	<b>LM24691</b>	37
1	3600	S56	1.25	115/208-230	SRD2S1TLCN1B6028	<b>LM24526</b>	24
	1800	56C	1.15	115/208-230	SRD4S1TLCN1C6028	<b>LM24586</b>	29
	1800	143TC	1.15	115/208-230	SSD4S1TLCN1C6028	<b>LM24692</b>	32
1 1/2	3600	56C	1.15	115/208-230	SRD2S1.5TLCN1B6028	<b>LM24523</b>	26
	1800	56HC	1.15	115/208-230	SRD4S1.5TLCN1C6028	<b>LM24587</b>	39
2	3600	56HC	1.15	115/208-230	SRD2S2TLCN1B6028	<b>LM24527</b>	35
	3600	145TC	1.15	115/208-230	SSD2S2TLCN1B6028	<b>LM24693</b>	40
	1800	56C	1.15	115/208-230	SRD4S2TLCN1B6028	<b>LM24507</b>	45
	1800	145TC	1.15	115/208-230	SSD4S2TLCN1B6028	<b>LM24694</b>	50
3	1800	184TC	1.15	115/208-230	SS184D4S3TLCN1C6028	<b>LM24695</b>	85
5	1800	184TC	1.15	208-230	SSD4S5TLCN1B6008	<b>LM24696</b>	94

\* 56H, 143T and 145T Combination Base with 12 mounting holes.

**Product numbers in red are STOCK items.**

Specifications are subject to change without notice

**Features:**

- Built-in thermal overload protection
- Durable rolled steel frame construction
- NEMA Design B performance
- Meet or exceed NEMA Service Factors
- Maintenance-free double sealed ball bearings
- Continuous Duty
- Premium Class B Insulation system
- Durable, easy-to-read mylar nameplate
- UL Recognized Component Listing and CSA certified



**Applications:**

For use where water and dust exposure is moderate. Ideally suited for use on pumps, compressors, blowers, fans and other standard industrial applications where thermal overload protection is desired.



**A motor with an auto reset protector (TP2 suffix) must not be used where automatic restarting (after motor cool-down) would endanger personnel or equipment. Such applications should use a manual reset protector (TP1).**

**FOOT MOUNT**

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1/4	1800	48	1.35	115/208-230	SPD4S0.25T1C6028TP1	<b>LM24458</b>	ML	17
1/3	1800	<b>S56</b>	<b>1.35</b>	<b>115/208-230</b>	<b>SRD4S0.33T1C6028TP1</b>	<b>LM24550</b>	<b>ML</b>	<b>18</b>
	1800	S56	1.35	115/208-230	SRD4S0.33T1C6028TP2	<b>LM24549</b>	AT	18
1/2	1800	S56	1.25	115/208-230	SRD4S0.5T1C6028TP1	<b>LM24553</b>	ML	23
	1800	<b>S56</b>	<b>1.25</b>	<b>115/208-230</b>	<b>SRD4S0.5T1C6028TP2</b>	<b>LM24552</b>	<b>AT</b>	<b>22</b>
3/4	1800	S56	1.25	115/208-230	SRD4S0.75T1B6028TP1	<b>LM24504</b>	ML	25
	1800	S56	1.25	115/208-230	SRD4S0.75T1B6028TP2	<b>LM24503</b>	AT	25
1	1800	56	1.15	115/208-230	SRD4S1T1C6028TP1	<b>LM24582</b>	ML	29
	1800	56	1.15	115/208-230	SRD4S1T1C6028TP2	<b>LM24581</b>	AT	29
1 1/2	1800	56H*	1.15	115/208-230	SRD4S1.5T1C6028TP1	<b>LM24585</b>	ML	40
2	1800	145T*	1.15	115/208-230	SSD4S2T1B6028TP1	<b>LM24685</b>	ML	50

\* 56H, 143T and 145T Combination Base with 12 mounting holes.

**NOTES:**

ML = Manual Overload  
AT = Automatic Overload

**Product numbers in red are STOCK items.**

Specifications are subject to change without notice

**Features:**

- Durable rolled steel frame construction
- NEMA Design B performance
- Maintenance-free double sealed ball bearings
- Continuous Duty
- Premium Class B Insulation system
- Durable, easy-to-read mylar nameplate
- UL Recognized Component Listing and CSA certified

**Applications:**

For use where exposure to water, dust and dirt exists. Ideally suited for use on pumps, compressors, fans, conveyors and other industrial equipment.

See page 71 for TEFC Single Phase motors with built-in overload protection.

**FOOT MOUNT**

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	S56	1.15	115/208-230	SRF4S0.25T1C6028	<b>LM24606</b>	18
	1200	56	1.15	115/208-230	SRF6S0.25T1C6028	<b>LM24545</b>	25
1/3	3600	S56	1.15	115/208-230	SRF2S0.33T1C6028	<b>LM24705</b>	19
	1800	56	1.15	115/208-230	SRF4S0.33T1C6028	<b>LM24597</b>	19
	1200	56	1.15	115/208-230	SRF6S0.33T1C6028	<b>LM24546</b>	28
1/2	3600	56	1.15	115/208-230	SRF2S0.5T1C6028	<b>LM24706</b>	23
	1800	S56	1.15	115/208-230	SRF4S0.5T1C6028	<b>LM24627</b>	24
	1200	56	1.15	115/208-230	SRF6S0.5T1B6028	<b>LM24496</b>	36
3/4	3600	56	1.15	115/208-230	SRF2S0.75T1C6028	<b>LM24707</b>	30
	1800	56	1.15	115/208-230	SRF4S0.75T1C6028	<b>LM24607</b>	30
	1200	56	1.15	115/208-230	SRF6S0.75T1B6028	<b>LM24497</b>	41
1	3600	56	1.15	115/208-230	SRF2S1T1C6028	<b>LM24708</b>	31
	1800	56	1.15	115/208-230	SRF4S1T1C6028	<b>LM24610</b>	32
	1800	143T*	1.15	115/208-230	SSF4S1T1C6028	<b>LM24709</b>	34
1 1/2	3600	56H*	1.15	115/208-230	SRF2S1.5T1B6028	<b>LM24531</b>	35
	3600	143T*	1.15	115/208-230	SSF2S1.5T1B6028	<b>LM24710</b>	39
	1800	56H*	1.15	115/208-230	SRF4S1.5T1B6028	<b>LM24513</b>	41
	1800	145T*	1.15	115/208-230	SSF4S1.5T1B6028	<b>LM24711</b>	42
2	3600	56H*	1.15	115/208-230	SRF2S2T1B6028	<b>LM24533</b>	40
	3600	145T*	1.15	115/208-230	SSF2S2T1B6028	<b>LM24712</b>	41
	1800	182T	1.15	115/208-230	SS182F4S2T1B6028	<b>LM24713</b>	54
3	3600	145T*	1.15	208-230	SS145F2S3T1B6008	<b>LM24714</b>	48
	3600	182T	1.00	115/208-230	SSF2S3T1B6028	<b>LM24715</b>	69
	1800	184T	1.00	115/208-230	SS184F4S3T1C6028	<b>LM24716</b>	99
5	3600	184T	1.00	208-230	SSF2S5T1B6008	<b>LM24717</b>	98
	1800	184T	1.00	208-230	SSF4S5T1B6008	<b>LM24718</b>	98
7 1/2	3600	213T	1.00	208-230	SSF2S7.5T1B6008	<b>LM24719</b>	120
	1800	215T	1.00	208-230	SS215F4S7.5T1B6008	<b>LM24720</b>	133
10	3600	215T	1.00	208-230	SSF2S10T1B6008	<b>LM24721</b>	138
	1800	215T	1.00	230	SSF4S10T1B66	<b>LM24722</b>	155

\* 56H, 143T and 145T Combination Base with 12 mounting holes.

**Product numbers in red are STOCK items.**

Specifications are subject to change without notice



*Signature Series* **TEFC GENERAL PURPOSE**  
**115, 208 AND 230 VOLTS • 1-PHASE**  
**FOOT MOUNT AND C-FACE**  
**1/4 TO 10 HP**

**C-FACE WITH FEET**

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	S56	1.15	115/208-230	SRF4S0.25TLC1C6028	<b>LM24723</b>	17
1/3	3600	56C	1.15	115/208-230	SRF2S0.33TLC1C6028	<b>LM24724</b>	21
	1800	S56	1.15	115/208-230	SRF4S0.33TLC1C6028	<b>LM24600</b>	19
1/2	3600	56C	1.15	115/208-230	SRF2S0.5TLC1C6028	<b>LM24725</b>	23
	1800	S56	1.15	115/208-230	SRF4S0.5TLC1C6028	<b>LM24628</b>	24
3/4	3600	56C	1.15	115/208-230	SRF2S0.75TLC1C6028	<b>LM24726</b>	30
	1800	56C	1.15	115/208-230	SRF4S0.75TLC1C6028	<b>LM24615</b>	30
1	3600	56C	1.15	115/208-230	SRF2S1TLC1C6028	<b>LM24727</b>	31
	1800	56C	1.15	115/208-230	SRF4S1TLC1C6028	<b>LM24616</b>	32
1 1/2	3600	56HC	1.15	115/208-230	SRF2S1.5TLC1B6028	<b>LM24539</b>	35
	1800	56HC	1.15	115/208-230	SRF4S1.5TLC1B6028	<b>LM24728</b>	41
2	3600	56HC	1.15	115/208-230	SRF2S2TLC1B6028	<b>LM24729</b>	40
	3600	145TC	1.15	115/208-230	SSF2S2TLC1B6028	<b>LM24730</b>	40
	1800	145TC	1.15	115/230	SSF4S2TLC1B6028	<b>LM24731</b>	52
3	3600	145TC	1.15	208-230	SS145F2S3TLC1B6008TP1	<b>LM29441</b>	48

**C-FACE FOOTLESS**

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	S56	1.15	115/208-230	SRN4S0.25TLCN1C6028	<b>LM24733</b>	18
1/3	3600	S56	1.15	115/208-230	SRN2S0.33TLCN1C6028	<b>LM24734</b>	20
	1800	S56	1.15	115/208-230	SRF4S0.33TLCN1C6028	<b>LM24598</b>	19
	1200	56C	1.15	115/208-230	SRF6S0.33TLCN1C6028	<b>LM24735</b>	28
1/2	3600	56C	1.15	115/208-230	SRF2S0.5TLCN1C6028	<b>LM24736</b>	23
	1800	56C	1.15	115/208-230	SRF4S0.5TLCN1C6028	<b>LM24599</b>	24
	1200	S56	1.15	115/208-230	SRF6S0.5TLCN1B6028	<b>LM24737</b>	36
3/4	3600	56C	1.15	115/208-230	SRF2S0.75TLCN1C6028	<b>LM24738</b>	30
	1800	56C	1.15	115/208-230	SRF4S0.75TLCN1C6028	<b>LM24613</b>	30
	1200	56C	1.15	115/208-230	SRF6S0.75TLCN1B6028	<b>LM24739</b>	41
1	3600	56C	1.15	115/208-230	SRF2S1TLCN1C6028	<b>LM24740</b>	31
	1800	56C	1.15	115/208-230	SRF4S1TLCN1C6028	<b>LM24614</b>	32
	1800	143TC	1.15	115/208-230	SSF4S1TLCN1C6028	<b>LM24741</b>	35
1 1/2	3600	56C	1.15	115/208-230	SRF2S1.5TLCN1B6028	<b>LM24535</b>	35
	1800	56C	1.15	115/208-230	SRF4S1.5TLCN1B6028	<b>LM24622</b>	41
2	3600	56C	1.15	115/208-230	SRF2S2TLCN1B6028	<b>LM24530</b>	40
3	3600	145TC	1.15	208-230	SS145F2S3TLCN1B6008	<b>LM24742</b>	48

\* 56H, 143T and 145T Combination Base with 12 mounting holes.

**Product numbers in red are STOCK items.**

Specifications are subject to change without notice

115, 208 AND 230 VOLTS • 1-PHASE  
FOOT MOUNT  
1/3 TO 3 HP**Features:**

- Built-in thermal overload protection
- Durable rolled steel frame construction
- NEMA Design B performance
- Maintenance-free double sealed ball bearings
- Continuous Duty
- Premium Class B Insulation system
- Durable, easy-to-read mylar nameplate
- UL Recognized Component Listing and CSA certified

**Applications:**

For use where exposure to water, dust and dirt exists. Ideally suited for use on pumps, compressors, fans, conveyors and other industrial equipment where thermal overload protection is desired.



**CAUTION** A motor with an auto reset protector (TP2 suffix) must not be used where automatic restarting (after motor cool-down) would endanger personnel or equipment. Such applications should use a manual reset protector (TP1).

**FOOT MOUNT**

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1/3	1800	S56	1.15	115/208-230	SRF4S0.33T1C6028TP1	<b>LM24602</b>	ML	20
	1800	S56	1.15	115/208-230	SRF4S0.33T1C6028TP2	<b>LM24601</b>	AT	19
1/2	<b>3600</b>	<b>56</b>	<b>1.15</b>	<b>115/208-230</b>	<b>SRF2S0.5T1C6028TP1</b>	<b>LM24743</b>	<b>ML</b>	<b>23</b>
	1800	S56	1.15	115/208-230	SRF4S0.5T1C6028TP1	<b>LM24604</b>	ML	24
	1800	S56	1.15	115/208-230	SRF4S0.5T1C6028TP2	<b>LM24603</b>	AT	24
3/4	<b>3600</b>	<b>56</b>	<b>1.15</b>	<b>115/208-230</b>	<b>SRF2S0.75T1C6028TP1</b>	<b>LM24744</b>	<b>ML</b>	<b>26</b>
	1800	56	1.15	115/208-230	SRF4S0.75T1C6028TP1	<b>LM24609</b>	ML	30
	1800	56	1.15	115/208-230	SRF4S0.75T1C6028TP2	<b>LM24608</b>	AT	30
1	<b>3600</b>	<b>56</b>	<b>1.15</b>	<b>115/208-230</b>	<b>SRF2S1T1C6028TP1</b>	<b>LM24745</b>	<b>ML</b>	<b>31</b>
	1800	56	1.15	115/208-230	SRF4S1T1C6028TP1	<b>LM24612</b>	ML	32
	1800	56	1.15	115/208-230	SRF4S1T1C6028TP2	<b>LM24611</b>	AT	32
1 1/2	<b>3600</b>	<b>56H*</b>	<b>1.15</b>	<b>115/208-230</b>	<b>SRF2S1.5T1B6028TP1</b>	<b>LM24532</b>	<b>ML</b>	<b>35</b>
	1800	56H*	1.15	115/208-230	SRF4S1.5T1B6028TP1	<b>LM24515</b>	ML	41
	1800	56H*	1.15	115/208-230	SRF4S1.5T1B6028TP2	<b>LM24514</b>	AT	41
	1800	145T	1.15	115/208-230	SSF4S1.5T1B6028TP1	<b>LM24746</b>	ML	43
2	<b>3600</b>	<b>56H*</b>	<b>1.15</b>	<b>115/208-230</b>	<b>SRF2S2T1B6028TP1</b>	<b>LM24534</b>	<b>ML</b>	<b>40</b>
	3600	145T	1.15	115/208-230	SSF2S2T1B6028TP1	<b>LM24747</b>	ML	40
3	3600	145T	1.15	208-230	SS145F2S3T1B6028TP1	<b>LM24748</b>	ML	48

## NOTES:

ML = Manual Overload  
AT = Automatic Overload

**Product numbers in red are STOCK items.**

Specifications are subject to change without notice



**AGRICULTURAL MOTORS**  
GENERAL PURPOSE • SINGLE PHASE

**FARM DUTY • GENERAL PURPOSE**

Heavy duty single phase Hi-Torque Motors designed specifically for severe "farm duty" applications.

**Mechanical Features:**

Gasketed capacitor housing and conduit boxes provide protection in all environments. Double sealed ball bearings prelubricated with Exxon POLYREX® EM grease having operating temperature range of -20°F to +350°F and special formulation to provide extra bearing protection. Rubber boot over manual protector reset button provides weather protection.

**Electrical Features:**

Low temperature manual overload protector protects against extreme overload. Class "F" copper windings and varnish. Capacitor start provides high starting torque with normal starting current.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.



**HIGH TORQUE • RIGID BASE  
SINGLE PHASE • TEFC**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/3	1800	56	113256.00	20	115/208-230	Man.	3.2	10.81
1/2	1800	56	110086.00	22	115/208-230	Man.	4.4	10.81
3/4	1800	56	110087.00	26	115/208-230	Man.	5.4	11.31
1	1800	56	110088.00	30	115/208-230	Man.	7.0	11.81
	1800	143T	121569.00	30	115/208-230	Man.	7.0	12.75
1½	1800	56H	110089.00☆□	41	115/208-230	Man.	8.6	12.61
	1800	56HZ/145T	113938.00■	39	115/208-230	Man.	8.6	13.25
2	1800	56HZ/145T	110090.00☆■	43	230	Man.	9.2	13.75
	1800	182T	131541.00	50	115/208-230	Man.	12.4	14.46
3	1800	184T	131542.00	83	230	Man.	19.0	16.46
5	1800	184T	131543.00☆	96	230	Man.	20.5	17.46
7½	1800	215T	140707.00☆	144	230	Man.	32.0	20.21
10	1800	215T	140706.00☆	152	230	Man.	40.0	20.71

**EXTRA HI-TORQUE  
RIGID BASE  
SINGLE PHASE • TEFC**

Extra Hi-Torque rated 5, 7½ and 10 HP Motors deliver starting torque as high as 300-400% of motor's full load torque with all mechanical and electrical features listed above.

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
2	1800	182T	131541.00	50	115/208-230	Man.	12.4	14.46
3	1800	184T	131542.00	83	230	Man.	19.0	16.46
5	1800	215T	140203.00☆	119	230	Man.	24.0	18.71
	1800	215TZ	140223.00☆♦	150	230	Man.	24.0	18.71
7½	1800	215T	140130.00☆	144	230	Man.	33.6	20.21
	1800	215TZ	140209.00☆♦	141	230	Man.	33.6	20.21
10	1800	215T	140414.00☆	156	230	Man.	40.0	20.71



**HIGH TORQUE  
C FACE LESS BASE  
SINGLE PHASE • TEFC**

NEMA C Face Motor designed with overspeed protection on mechanical centrifugal starting switch.

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/3	1800	56C	113290.00	28	115/208-230	Man.	3.2	10.81
1/2	1800	56C	110492.00	22	115/208-230	Man.	4.4	10.81
3/4	1800	56C	110493.00	29	115/208-230	Man.	5.4	11.31
1	1800	56C	110494.00	33	115/208-230	Man.	7.0	11.81
1½	1800	56C	110495.00☆	43	115/208-230	Man.	8.6	12.31
2	1800	145TC	120855.00†☆	45	230	Man.	9.2	13.75
3	1800	184TC	131603.00	104	230	Man.	19.0	16.47
5	1800	184TC	131602.00☆	104	230	Man.	20.5	17.47

**HIGH TORQUE  
C FACE WITH BASE  
SINGLE PHASE • TEFC**

NEMA C Face Motor designed with overspeed protection on mechanical centrifugal starting switch.

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/3	1800	56C	116485.00	29	115/208-230	Man.	3.2	10.81
1/2	1800	56C	116486.00	23	115/208-230	Man.	4.4	10.81
3/4	1800	56C	116487.00	30	115/208-230	Man.	5.4	11.31
1	1800	56C	116488.00	34	115/208-230	Man.	7.0	11.81
1½	1800	56HC	116489.00☆	44	115/208-230	Man.	8.6	12.81
2	1800	145TC	121625.00†☆	46	230	Man.	9.2	13.75
3	1800	184TC	131994.00	105	230	Man.	19.0	16.47
5	1800	184TC	131995.00☆	105	230	Man.	20.5	17.47

■ Combination 56 HZ base has mounting holes for NEMA 56 and 143-5T and a standard NEMA 145T frame shaft of 7/8" diameter.

□ Combination 56H base has mounting holes for NEMA 56 and 143-5T and a standard NEMA 56 frame shaft.

☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.

† Class F insulated.

♦ These motors have a NEMA 215T base mounting pattern and shaft height of 5.25", with usable length of 3¾" and diameter of 1½" with standard key.

Specifications are subject to change without notice



**TWO-WINDING VARIABLE TORQUE PSC TYPE FOR SHAFT MOUNTED FAN APPLICATIONS**

These fan and blower duty motors are designed for dependable, energy saving performance in applications where the fan is mounted on the shaft of the motor. The permanent split capacitor design does not require a centrifugal switch, resulting in higher reliability than on other types of single phase motors. This design is also more energy efficient and less expensive to operate.



These motors may be operated at listed speed or two speed operation may be achieved by using the proper auxiliary switch. They are suitable for variable speed by adjusting the voltage to the motor using a variable voltage control, except as noted by ∇.

Overload protected with an automatic reset protector. Grounding provisions. Totally enclosed, dust tight design, with resilient mounting for quiet operation. Lubricated with quiet running high temperature lubricant. Corrosion resistant finish for tough applications. Because of the inherently low starting torques of this design, these motors are not suitable for belt driven fan applications. They must be mounted within the air stream of the driven fan.



\* The useable shaft of this motor is 3/4" longer than NEMA standard to accommodate fan on shaft mountings. 48Z is 1/2" diameter by 2 1/4". 56Z is 5/8" diameter, 2 5/8" long. All have 1" extended through bolts. Except Catalog Numbers 100805 and 100806 which are extended 1/4".

∇ Suitable for single speed operation only.

□ Combination 56H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 shaft.

① Has provisions for belly band and pedestal fan mount—no rigid base.

② In addition to resilient base, this motor has provisions for belly band and pedestal fan mount.

✓ This split phase start, capacitor run motor is suitable for belt drive within the airflow of the fan.

⊗ Shaft is 5/8" by 2.0"

\*\* Shaft is 5/8" by 2 5/8"

\* Shaft is 3/4" by 3 1/2"

**CAST IRON RODENT SCREEN MOTORS**

Open Drip Proof designs having Rodent screens. Typically used in AG fan and blower applications.

Features include:

- NEMA Premium efficiency
- Rodent Screens
- Re-greasable Bearings
- 1.25 Service Factor
- Class F insulation
- Inverter Duty Insulation System
- UL Recognized and CSA certified



**SINGLE PHASE • PSC • TEAO • RESILIENT BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/4	1800	48Z*	100803.00	19	115/230	Auto.	1.4	10.66
	1200	48Z*	100824.00	20	115/230	Auto.	1.4	10.66
	1200	S56Z*	100805.00	22	115/230	Auto.	1.4	11.06
1/3	1800	48Z*	100804.00	21	115/230	Auto.	1.6	10.66
	1800	S56H	100767.00	22	115/230	Auto.	1.6	10.31
	1800	56HY	111348.00⊗	24	115/230	Auto.	1.7	13.44
	1200	48Z*	100825.00	25	115/230	Auto.	1.8	11.16
1200	S56HZ*	100806.00	27	115/230	Auto.	1.8	11.56	
1/2	1800	56HZ*	111323.00	30	115/230	Auto.	2.6	12.56
	1800	S56H	100768.00	36	115/230	Auto.	2.2	10.81
	1200	48Z*	101645.00	33	115/230	Auto.	2.8	11.16
	1200	56HZ*	111321.00□	37	115/230	Auto.	3.0	13.56
	900	48YZ⊗	M099836.00∇	24	115/230	Auto.	3.0	11.55
900	56HZ*	111919.00□∇	40	115/230	Auto.	3.2	13.56	
3/4	1800	56HZ*	111324.00	34	115/230	Auto.	3.5	13.06
	1800	56H	111266.00	36	115/230	Auto.	3.5	12.31
	1200	56HZ*	111322.00□∇	44	115/230	Auto.	4.0	13.56
1	1800	56HZ	111267.00	39	115/230	Auto.	4.4	12.81

These motors have a 1.0 Service Factor

**SINGLE PHASE • PSC TYPE • RIGID BASE TOTALLY ENCLOSED AIR OVER (TEAO)**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/4	1800	48Y	101252.00∇	19	115/208-230	Auto.	1.5	10.90
	1800	48Y	100699.00	19	115/230	Auto.	1.4	10.65
	1800	48Y	M099799.00	19	115/230	Auto.	1.5	10.79
	1200	48Y	M099260.00	21	115/230	Auto.	1.2	10.83
1/3	1800	48Y	M090253.00∇	22	115/230	Auto.	1.8	10.47
	1800	48Y	101253.00∇	22	115/208-230	Auto.	1.9	10.65
	1800	48Y	100700.00	22	115/230	Auto.	1.6	10.65
	1800	56Y	111202.00①	24	115/230	Auto.	1.7	12.00
	1800	48Y	M099800.00	22	115/230	Auto.	1.8	10.79
	1200	48Y	M099261.00	21	115/230	Auto.	1.5	11.34
1200	S56Y	100604.00	23	115/230	Auto.	1.8	11.40	
1/2	1800	S56Y	101176.00/∇	26	115/230	Auto.	3.5	10.40
	1800	48Y	100701.00	29	115/230	Auto.	2.5	12.15
	1800	48Y	M099801.00	29	115/230	Auto.	2.5	10.79
	1200	48Y	M099946.00	26	115/230	Auto.	2.5	11.81
3/4	1200	56HZ	M099847.00	36	115/230	Auto.	3.6	13.56

**THREE-PHASE - OPEN DRIP PROOF - RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	Eff.	"C" Dim. (Inches)
15	1800	254T	170540.60	279	208-230/460	37.0	93.0	20.9
20	1800	256T	170541.60	324	208-230/460	51.0	93.0	22.6
30	1800	286T	170542.60	471	208-230/460	71.0	93.6	23.5

### AERATION FAN MOTORS BELT-DRIVEN • DUST-TIGHT

Totally enclosed air over motors, dust-tight, suitable for shaft-mounted fans or belt driven fans. Capacitor start designs. Designed to be used within the airflow of the driven fan, these motors offer protection from the environment and are finished in epoxy enamel to resist corrosion in tough atmospheres. Lubricated with high temperature Exxon POLYREX® EM lubricant. Grounding provisions. Fully gasketed. Single phase motors have built-in terminal panel for quick, easy connections.



### CROP DRYER MOTORS

Open air over, fan-on-shaft design motors for crop drying applications. Designed for continuous duty operation. Class F insulation system. Thermostats provide thermal overload protection on all units. Extra nameplate included for remote mounting. Keyed shaft with 1/4-20 UNC tapped hole in end.



Capacitors supplied on single phase models. All models include sealed bearings, rodent screens, gray epoxy paint and 3/4" leads exiting the motor at 12 o'clock.

### GRAIN STIRRING MOTORS DUST-TIGHT

Dust-Tight Motors designed to operate inside agricultural storage bins for stirring grain, corn and other agricultural products.

#### Mechanical Features:

External cast aluminum cooling fan at shaft end keeps grain from obstructing fan operation. Prelubricated double shielded ball bearings packed with Exxon POLYREX® EM grease (temperature range -20°F to +350°F). Totally enclosed construction with gasketed conduit box and capacitor cases. Moisture drain hole in endshield opposite shaft for vertical shaft up mounting. Rugged 205 bearing shaft-end. Shaft is 7/8" diameter, useable length of 15/16". "BA" dimension is 35/8".

#### Electrical Features:

Energy-saving, extra high torque designs.



### SINGLE PHASE • CAPACITOR START • TEAO • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
3/4	3600	56	111332.00 <sup>Ⓣ</sup>	27	115/230	None	5.0	10.90
1	3600	56	111333.00 <sup>Ⓣ</sup>	29	115/230	None	6.0	10.90
1½	3600	56	111949.00 <sup>Ⓣ</sup>	32	115/230	None	8.5	11.40
		143TZ	120374.00 <sup>Ⓢ</sup>	31	115/230	None	8.5	11.84
2	3600	145TZ	120375.00 <sup>Ⓢ</sup>	41	230	None	10.0	13.34
3	3600	145T	120376.00 <sup>☆</sup>	45	230	None	12.8	13.84

### THREE PHASE • TEAO • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
3/4	3600	56Z	111334.00 <sup>Ⓣ</sup>	21	208-230/460	2.4	75.5	9.90
1	3600	56Z	111335.00 <sup>Ⓣ</sup>	22	208-230/460	3.2	77.0	9.90
1½	3600	143TZ	120377.00 <sup>Ⓢ</sup>	31	208-230/460	4.2	82.5	11.34
		145TZ	120378.00 <sup>Ⓢ</sup>	34	208-230/460	5.6	82.5	11.84
3	3600	145T	120379.00 <sup>Ⓢ</sup>	38	230/460	7.6	84.0	12.34

### SINGLE PHASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
5-7	3600	182TZ	131847.00	91	230	T-Stat	27.2-35.0	16.44
7.5-10	3600	182TZ	131848.00	95	230	T-Stat	31.0-42.0	16.44
10-15	3600	215TZ	140640.00	159	230	T-Stat	39.5-61.5	20.42
		215TZ	141084.00 <sup>♣</sup>	159	230	T-stats	40	20.08

♣ = Extra High Starting Torque

### THREE PHASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
5-7.5	3600	184TZ	131849.00	70	208-230/460	T-Stat	19.0	13.94
7.5-10	3600	184TZ	131850.00	85	208-230/460	T-Stat	24.2	15.44
10-15	3600	215TZ	140641.00	95	208-220/440	T-Stat	40.0	17.41

### SINGLE PHASE • RIGID BASE • TEFC

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1½	1800	56HZ	111330.00 <sup>☆</sup>	42	115/208-230	Man.	8.6	12.31

### THREE PHASE • RIGID BASE • TEFC

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1½	1800	56HZ	111329.00	38	208-230/460	5.4	80.0	11.81

These Grain Stirring motors have NEMA Service Factor of 1.0

- Ⓣ Standard 5/8" diameter shaft with keyway plus 3/4" deep hole drilled and tapped to 1/4-20 UNC in end of shaft to facilitate mounting of some fan blades.
- Ⓢ Standard 7/8" diameter shaft with keyway plus 3/4" deep hole drilled and tapped to 1/4-20 UNC in end of shaft to facilitate mounting of some fan blades.
- ☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

**CATFISH POND MOTORS**

Specially designed for aeration systems used on aquaculture ponds, these motors are designed for dependable outdoor applications. Typically C-face connected to a right-angle gearbox and installed on a floating aeration platform.



Hi-torque motors are epoxy-painted with a corrosion-resistant interior coating. Stainless hardware, fan guard, lifting lug, and conduit box cover for maximum protection against corrosion. Drain holes in the conduit box and in four positions on each end of the frame to purge condensate and moisture that may enter the motor. Ball bearings are double-sealed and lubricated with Exxon POLYREX<sup>®</sup> EM high temperature, moisture resistant lubricant.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

**IRRIGATION BOOSTER PUMP MOTOR**

Threaded-shaft jet pump motor for shaft-down mounting. TEFC with rain canopy. Locked bearing on shaft end, for longer motor life. Neoprene shaft flinger repels moisture. Drain holes in C face and conduit box. Epoxy paint and fully gasketed. Stator impregnated with extra-heavy varnish system.



**IRRIGATION DRIVE MOTORS**

Specially designed for pivoting irrigation systems exposed to severe weather environments and operating conditions.

**Mechanical Features:**

Double sealed ball bearings prelubricated with Exxon POLYREX<sup>®</sup> EM grease having an operating temperature range of -20°F to +350°F and special formulation to provide extra long life and moisture resistance. Moisture drain holes at shaft-end of motor. Die cast aluminum conduit box fully gasketed. Epoxy paint for corrosion resistance. Externally fan cooled with rain canopy over cooling fan, for shaft down mounting.



**Electrical Features:**

“Extra high” starting torque, Class “F” copper windings. Specially treated windings for excessive moisture conditions. Capable of multiple starts and stops. Automatic protector for overload and low voltage protection.

**MILK TRANSFER PUMP MOTOR**

**General Specifications:**

Totally enclosed non-ventilated motor. Direct replacement for Surge milk pumps, Babson motor #27732.



**Mechanical Features:**

Special moisture resistant design with double sealed ball bearings. Bearings and bearing cavities packed with high temperature moisture resistant lubricant. Drain holes to expel moisture and water. Epoxy paint.

**Electrical Features:**

Permanent split capacitor design for reliability and improved efficiency. High temperature Class F insulation system. Requires 30 MFD, 370 VAC capacitor, separately mounted – not supplied.

**SINGLE AND THREE PHASE • C FACE WITH BASE • TEFC**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Phase	F.L. Amps 460V	“C” Dim. (Inches)
10	1800	215TC	140705.00*	204	230	1	40.0	20.71
	1800	215TC	140833.00	169	208-230/460	3	23.6	19.7

\* Single phase motor has manual reset overload protection

**THREE PHASE • IRRIGATION BOOSTER • TEFC**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 460V	% F.L. Eff.	“C” Dim. (Inches)
2	3600	56J	112991.00	33	460	2.8	84.0	14.34

**C FACE LESS BASE • THREE PHASE • TEFC**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	“C” Dim. (Inches)
1	1800	56C	111304.00	30	460	2.4	75.0	12.34

These Irrigation Drive motors have a 1.25 Service Factor.

**SINGLE PHASE • RIGID BASE • TENV**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Overload Prot.	F.L. Amps 230V	“C” Dim. (Inches)
1/2	3600	56CZ	113939.00	42	230	None	4.5	13.07

# LEESON® POULTRY MOTORS

## SINGLE AND THREE PHASE

### FEED-AUGER DRIVE MOTORS DUST-TIGHT

**Dust-tight, capacitor start motor** with your choice of field proven electronic or protected mechanical starting switch—both eliminate damage caused when motor is over-speeded by obstructed auger.



Ball bearing, heavy duty industrial quality designs for high overload capacity. Side mounted conduit box. Flange mounts directly to drive assembly. Fully gasketed to keep out feed dust. Has screw driver slot in rear shaft. Continuous duty, with manual thermal overload protection. **Motors of 3/4 HP and less in the two adjacent charts have shaft of 1/2" diameter x 1 1/2" length, with flat; motors 1 HP and larger have 5/8" diameter x 1.97" length, with key.**

### SINGLE PHASE • TEFC • 60 HERTZ

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/3	1800	48YZ	101159.00	21	115/230	Man.	3.1	10.47
	1800	48YZ	101435.00®	21	115/230	Man.	3.1	10.47
1/2	1800	48YZ	101120.00	22	115/208-230	Man.	4.0	10.72
	1800	48YZ	101436.00®	22	115/208-230	Man.	4.0	10.47
3/4	1800	48YZ	101119.00	24	115/208-230	Man.	5.4	11.47
	1800	48YZ	101437.00®	28	115/230	Man.	5.4	11.47
1	1800	56YZ	112615.00	35	115/230	Man.	7.0	12.11
	1800	56YZ	113302.00®	35	115/208-230	Man.	7.0	12.61
1 1/2	1800	56YZ	113280.00☆	47	115/208-230	Man.	6.5	13.62
	1800	56YZ	113301.00☆®	44	115/230	Man.	6.5	13.62

### SINGLE PHASE • TEFC • 50 HERTZ

HP	SYN RPM 50 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 220V	"C" Dim. (Inches)
1/2	1800	48YZ	101643.00®A	26	110/220	Man.	4.0	11.47
3/4	1800	48YZ	101644.00®A	30	110/220	Man.	5.8	12.22
1	1800	56YZ	113906.00®A	39	110/220	Man.	6.4	12.61
1 1/2	1800	56YZ	113907.00®A	48	110/220	Man.	8.6	13.61

### HATCHERY AND INCUBATOR FAN MOTORS



Cat. No. 101341



Cat. No. 114102

#### General Specifications:

Capacitor-type replacement motors for hatchery and incubator fan motors.

**Catalog number 101341** is a permanent split capacitor motor for fan on shaft incubator fans. Band mounted, with 1" long extended through bolts for fan shroud. Shaft diameter 1/2" by 2 1/4", with full length flat. Connections in end of motor through 1/2"-14 NPT tap. UL Listed thermal overload. 15 MFD, 370V run capacitor shipped loose with motor.

### SINGLE PHASE • TEAO

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/4	1800	48Y	101341.00	17	115/230	Auto.	1.4	8.93
1/2-0.22	1800/1200	56H	114102.00	33	115	Auto.	** 9.3-5.6	11.81

**Catalog number 114102** is a split phase two-speed motor, dust-tight and totally enclosed for belt driven hatchery cooling fans. Resilient base. With UL Listed automatic thermal overload. Requires no capacitor.

#### Mechanical Features:

Double shielded ball bearings permanently lubricated with Exxon POLYREX® EM lubricant having a temperature range of -40°F to +320°F and special formulation for extra long life and moisture resistance.

### FEATHER PICKER MOTORS

Motors with the dimensions to replace the MEYN drive motor. Phosphatized or stainless, drilled and tapped metric shaft for easy mounting. Special duty rating with extra high breakdown torques for superior performance on this demanding application. See page 25 for complete listing of WASHGUARD features.



Totally enclosed fan cooled construction, sealed bearings, condensate drains, USDA approved food-safe tough white epoxy finish.

**All 180 and 210 frame Rolled Steel motors have Class F Insulation.**

### THREE PHASE • TEFC

HP/KW	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
2	1800	145T	121934.00	54	208-230/460	7.0	86.5	14.76
2*	1200	184TZ	132246.00	96	230/460	7.2	88.5	15.96
2/1.5*	1200	112M▶	132247.00	96	230/460	7.2	88.5	15.96
3	1800	56HZ	115751.00■	45	208-230/460	8.6	82.5	14.25
	1800	145T	121944.00♣	45	230/460	8.6	82.5	14.25

Note: Catalog Number 115751 has a 303 stainless steel shaft.

- Combination 56HZ base has mounting holes for NEMA 56 and a standard NEMA 145T frame shaft of 7/8" diameter.
- ♣ These motors have a 1.5 continuous duty service factor, 3 HP continuous.
- ▶ IEC frame. See page 310 for dimensions.
- ☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.
- ® Mechanical centrifugal starting switch with overspeed protection, others have electronic switch.
- \*\* F.L. Amps listed are for high speed and low speeds, respectively, at 115 volts.
- A Subject to Availability.
- ♣ Inverter Duty Only Motor



**INDUSTRY-AG • 115-208/230V • TEFC  
1725 RPM • HIGH TORQUE  
RIGID BASE**

Industry-Ag is a new line of heavy duty single phase hi-torque motors built to withstand the tough applications in industry and agriculture.

**Mechanical Features:**  
Gasketed capacitor housing and conduit boxes provide protection in all environments. Double sealed ball bearings provide extra bearing protection.

Rubber boot over manual protector reset button provides weather protection.

**Electrical Features:** Manual thermal protector protects against overload. Capacitor start provides high starting torque with normal starting current.



**RIGID BASE • 115-208/230V • TEFC**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (in.)
1/3	1800	56	M002256.00	24	115-208/230	Man.	2.9	11.00
1/2	1800	56	M009086.00	27	115-208/230	Man.	3.9	11.00
3/4	1800	56	M009087.00	30	115-208/230	Man.	5.0	11.50
1	1800	56	M009088.00	34	115-208/230	Man.	6.8	11.50
1½	1800	56	M009089.00	41	115-208/230	Man.	9.0	12.88
2	1800	56HZ	M009090.00	48	230Man.	9.5	14.00	
C Flange		56	M064076.00	3	—	—	—	—

**C FACE LESS BASE • 115-208/230 • TEFC**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (in.)
1/3	1800	56C	M002290.00	24	115-208/230	Man.	2.9	10.81
1/2	1800	56C	M009492.00	27	115-208/230	Man.	3.9	10.81
3/4	1800	56C	M009493.00	30	115-208/230	Man.	5.0	11.31
1	1800	56C	M009494.00	34	115-208/230	Man.	6.8	11.81

**VARIABLE SPEED  
HIGH-PERFORMANCE  
AG FAN MOTORS**

The all new **PERFORMA+** brings fan motor performance to a new level. These high-efficiency motors feature exceptional variable speed performance.

**Features:**

Water-tight connection end compartment with removable cover, houses the capacitor, thermal protector and wiring—allowing unimpeded airflow over the motor frame.

Locked, double-sealed bearings for all angle mounting, including vertical shaft up.

Oil seal in drive end repels moisture and contaminants.

Class F insulation with Class B rise.

Permanent split capacitor type design eliminates the centrifugal switch for "three phase" type reliability.

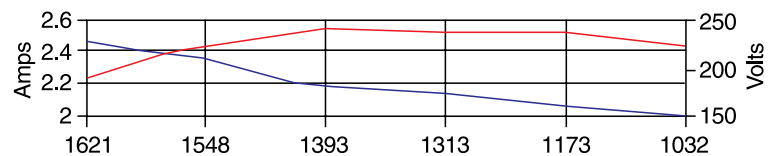
Automatic thermal overload protection.



**TEAO • RIGID BASE • EXTENDED THRU-BOLTS**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	Shaft Length (in.)	"C" Dim. (in.)
1/4	1800	48Y	M099899.00	18	115-208/230	Auto.	1.3	2	11.30
	1200	48Y	M099460.00	21	115/208-230	Auto.	1.3	2	11.80
1/3	1800	48Y	M099900.00	19	115-208/230	Auto.	1.8	2	11.30
	1200	48Y	M099461.00	22	115/208-230	Auto.	1.9	2	11.80
1/2	1800	48Y	M099901.00	22	115-208/230	Auto.	2.6	2	11.70
	1200	48Y	M099462.00	25	115/208-230	Auto.	2.8	2	12.20

PERFORMA+ Fan Motor Performance @ 0.05 Inches S.P.



Variable speed graph for catalog M099901 using a Norsol Vari-Vent control.



**AGRICULTURAL FAN MOTORS  
BELT DRIVE • TEAO**

FHP motors designed for use in agricultural belted fan applications. These motors feature capacitor start/capacitor run configuration for hi-efficiency. They should be mounted in the airstream for proper cooling. They also feature a heavy gauge steel frame with rigid 56/140 combination base.



**HIGH-EFFICIENCY • SINGLE PHASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Eff.	Over-load Prot.	F.L. Amps 230V	"C" Dim. (in.)
1/2	1800	56	M009580.00	27	115/208-230	—	—	—	—
3/4	1800	56H	M009581.00	30	115/208-230	82	Auto.	3.4	10.83
1	1800	56H	M009782.00	37	115/208-230	85	Auto.	4.3	11.80
1½	1800	56H	M009594.00	39	115/208-230	78	Auto.	6.8	12.60
2	1800	145T	M009595.00 <sup>①</sup>	47	230	82	Auto.	9.5	12.80

<sup>①</sup> Motor M009595 has a frame mounted conduit box.

**Features:**

- Two designs to choose from: High Torque (HT) and Extra High Torque (EHT)
- Fully gasketed construction and shaft slingers for operation in dirty environments
- Manual reset thermal protector
- Condensate drains
- Continuous duty

**Applications:**

**High Torque – HT**

Feeders, conveyors, fans, compressors, spray washers, grinders, elevators, pumps and other demanding agricultural applications that require high starting torque.

**Extra High Torque – EHT**

Silo unloaders, barn cleaners, bunk feeders, conveyors, and other machinery requiring extra high starting torque in demanding farm duty environments. Motors have 300% and greater starting torque.



**HIGH TORQUE - HT**

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1/3	1800	56	1.15	115/208-230	SRF4S0.33T1C6028AP7TP1	<b>LM24789</b>	ML	24
1/2	1800	56	1.15	115/208-230	SRF4S0.5T1C6028AP7TP1	<b>LM24790</b>	ML	25
3/4	1800	56	1.15	115/208-230	SRF4S0.75T1C6028AP7TP1	<b>LM24791</b>	ML	30
1	1800	56	1.15	115/208-230	SRF4S1T1C6028AP7TP1	<b>LM24792</b>	ML	32
	1800	143T	1.15	115/208-230	SSF4S1T1C6028AP7TP1	<b>LM24793</b>	ML	35
1 1/2	1800	56H*	1.15	115/208-230	SRF4S1.5T1B6028AP7TP1	<b>LM24794</b>	ML	41
	1800	145T	1.15	115/208-230	SSF4S1.5T1B6028AP7TP1	<b>LM24795</b>	ML	42
2	1800	182T	1.15	115/230	SS182F4S2T1C6027AP7TP1	<b>LM24796</b>	ML	64
3	1800	184T	1.15	230	SS184F4S3T1C66AP7TP1	<b>LM24797</b>	ML	92
5	1800	184T	1.15	230	SSF4S5T1B66AP7TP1	<b>LM24798</b>	ML	90
7 1/2	1800	215T	1.15	230	SS215F4S7.5T1B66AP7TP1	<b>LM24799</b>	ML	130

**EXTRA HIGH TORQUE - EHT**

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
2	1800	182TZ	1.15	115/230	SS182F4S2TZ1C6027AP8TP1-1	<b>LM24800</b>	ML	67
3	1800	184T	1.15	230	SS184F4S3T1C66AP8TP1	<b>LM24801</b>	ML	85
5	1800	184T	1.15	208-230	SSF4S5T1B6008AP8TP1	<b>LM24802</b>	ML	125
	1800	213TZ	1.15	230	SS213F4S5TZ1B66AP8TP1-1	<b>LM24803</b>	ML	126
7 1/2	1800	215TZ	1.15	230	SS215F4S7.5TZ1B66AP8TP1-1	<b>LM24804</b>	ML	125
10	1800	215T	1.00	230	SSF4S10T1B66AP8TP1	<b>LM24805</b>	ML	150

\*56H, 143T and 145T Combination Base with 12 mounting holes.  
ML = Manual Overload Protection

**Product numbers in red are STOCK items.**

Specifications are subject to change without notice

*Signature Series* **AGRICULTURE FAN**  
 115/230 VOLTS • 1-PHASE  
 FOOT MOUNT, BELT DRIVE • OVERLOAD PROTECTION  
 1/2 TO 1 HP



**Features:**

- Capacitor start/capacitor run design for higher efficiency and reduced current draw
- Ball bearings
- Continuous duty
- Fully gasketed

**Applications:**

Designed for demanding agricultural belt drive fan applications such as poultry house fans and barn exhaust fans. The 1 HP model is totally enclosed, air over and must be mounted in the airstream for proper cooling.



HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1/2	1800	56Z	1.00	115/230	SRN4S0.5TZ1B6027TP2-1	LM24776	AT	21
1	1800	56Z	1.00	115/230	SRA4S1TZ1B6027TP2-1	LM24777	AT	32

AT = Automatic Overload Protection

*Signature Series* **AGRICULTURE FAN**  
 115/230 VOLTS • 1-PHASE, PSC VARIABLE SPEED  
 RESILIENT BASE-THRU BOLT • OVERLOAD PROTECTION  
 1/4 TO 1/2 HP



**Features:**

- TEAO, continuous duty
- Extended thru bolts
- 1/2" dia. x 2-1/2" long shaft with two flats, 90° apart
- Fully gasketed

**Applications:**

Designed for demanding agricultural fan applications such as poultry house and barn exhaust fans. Must be mounted in the airstream for proper cooling.



Variable speed capabilities when used with a single-phase speed control unit – NOT supplied by Lincoln. AP11 models are designed for lower temperature rise throughout a greater speed range.

HP	Speed (RPM)	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1/4	1625	48Z	1.00	115/230	SPA4S0.25TZRY1A6027AP11-1	LM24445	AT	20
	1625	48Z	1.00	115/230	SPA4S0.25TZRY1A6027AP10-1	LM24447	AT	17
	1075	48Z	1.00	115/230	SPA6S0.25TZRY1A6027AP10-1	LM24442	AT	14
1/3	1625	48Z	1.00	115/230	SPA4S0.33TZRY1A6027AP11-1	LM24450	AT	23
	1625	48Z	1.00	115/230	SPA4S0.33TZRY1A6027AP10-1	LM24448	AT	17
	1075	48Z	1.00	115/230	SPA6S0.33TZRY1A6027AP10-1	LM24443	AT	15
1/2	1625	48Z	1.00	115/230	SPA4S0.5TZRY1A6027AP11-1	LM24446	AT	23
	1625	48Z	1.00	115/230	SPA4S0.5TZRY1A6027AP10-1	LM24449	AT	21
	1075	48Z	1.00	115/230	SPA6S0.5TZRY1A6027AP10-1	LM24444	AT	19

AT = Automatic Overload Protection

**Product numbers in red are STOCK items.**

Specifications are subject to change without notice



## Signature Series AGRICULTURE FAN

**115 VOLTS • 1-PHASE  
DIRECT DRIVE-THRU BOLT • OVERLOAD PROTECTION  
1/4 TO 1/3 HP**

### Features:

- Totally Enclosed
- 1/2" extended thru-bolts
- Shafts:  
48Y frame – 1/2" dia. x 1-1/2" long shaft with flat  
48YZ frame – 1/2" dia. x 2-1/2" long shaft with two flats, 90° apart
- Continuous duty
- Fully gasketed



### Applications:

Designed for demanding direct drive agricultural fan applications such as poultry house fans and barn exhaust fans.

Two speed designs must be mounted in airstream for proper cooling.

### SINGLE SPEED

HP	Speed (RPM)	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1/4	1725	48Y	1.00	115	SPN4S0.25TZNY1S6001TP1-1	<b>LM24488</b>	ML	10

### TWO SPEED

HP	Speed (RPM)	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1/4	1725/1140	48YZ	1.00	115	SPA4/6/1S0.25/0.25TZNY1S6001TP2-1	<b>LM24492</b>	AT	17
1/3	1725/1140	48YZ	1.00	115	SPA4/6/1S0.33/0.33TZNY1S6001TP2-1	<b>LM24491</b>	AT	18

AT = Automatic Overload Protection  
ML = Manual Overload Protection



## Signature Series AGRICULTURE FAN

**115 & 230 VOLTS • 1-PHASE  
RESILIENT BASE-THRU BOLT • OVERLOAD PROTECTION  
1/4 TO 1/2 HP**

### Features:

- Totally Enclosed, Air Over
- Extended thru-bolts on 48Z frame
- Shafts:  
48Z – 1/2" diameter x 2-1/2" long shaft with two flats  
56Z – 1/2" diameter x 2-1/2" long shaft with key
- Includes 5/8" dia. shaft adapter sleeve with key
- Continuous duty
- Fully gasketed



### Applications:

Designed for demanding agricultural fan applications such as poultry house fans and barn exhaust fans.

Motor must be mounted in airstream for proper cooling.

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1/4	1800	48Z	1.00	115	SPA4S0.25TZRY1S6001TP2-1	<b>LM24487</b>	AT	17
1/3	1800	48Z	1.00	115	SPA4S0.33TZRY1S6001TP2-1	<b>LM24486</b>	AT	21
1/2	1800	56Z	1.00	115/230	SRA4S0.5TZR1S6027TP2-1	<b>LM24809</b>	AT	24

AT = Automatic Overload Protection

**Product numbers in red are STOCK items.**

Specifications are subject to change without notice



**Features:**

- Totally Enclosed, Air Over
- Capacitor start design provides high starting torque
- 18" leads for ease of connection
- Shaft has keyway and 1/4-20 UNC tapped hole
- Double sealed ball bearings for maintenance free operation.
- Warranty: 18 months from date of manufacture and 12 months from date of installation which ever period expires first.

**Applications:**

Direct drive vane axial fans. These TEAO motors must be mounted in airstream for proper cooling.

\*56H, 143T and 145T Combination Base with 12 mounting holes.

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1	3600	56Z	1.15	115/230	SRA2S1TZ1C6027L10MB6TP2-1	LM24786	AT	29
1 1/2	3600	143TZ*	1.15	115/230	SSA2S1.5TZ1C6027L10MB6TP2-1	LM24787	AT	35
3	3600	145TZ*	1.15	230	SS145A2S3TZ1B66L10MB6TP2-1	LM24788	AT	52

AT = Automatic Overload Protection

**Features:**

- Totally Enclosed, Fan Cooled
- NEMA "N", two bolt flange mounting
- Shafts:  
3/4 HP & smaller - 1/2" dia. x 1-1/2" long with flat  
1 HP & larger - 5/8" dia. x 2" long with key
- Continuous duty
- Fully gasketed, side mounted terminal box
- Mechanical start switch protected from overspeeded auger drive
- Extended fan-end shaft with flats for manually jogging auger drive
- Warranty: 18 months from date of manufacture and 12 months from date of installation which ever period expires first.

**Applications:**

Replacement motors for poultry feed auger drive systems. Bolts to existing gearbox for easy installation.

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1/3	1800	48N	1.00	115/230	SPF4S0.33TADN1C6027TP1	LM24462	ML	23
1/2	1800	48N	1.00	115/230	SPF4S0.5TADN1C6027TP1	LM24463	ML	23
3/4	1800	56NZ	1.00	115/208-230	SRF4S0.75TZADN1C6028TP1-1	LM24812	ML	31
1	1800	56NZ	1.00	115/208-230	SRF4S1TZADN1C6028TP1-1	LM24813	ML	32
1 1/2	1800	56NZ	1.00	115/208-230	SRF4S1.5TZADN1C6028TP1-1	LM24814	ML	41

ML = Manual Overload Protection



## Signature Series CROP DRYER

230 VOLTS • 1-PHASE & 208-220/440 VOLTS • 3-PHASE  
FOOT MOUNT • OVERLOAD PROTECTION  
3 TO 15 HP

### Features:

- Dripproof/Air Over, continuous duty
- Maintenance-free double sealed ball bearings
- Keyed shaft with 1/4-20 UNC tapped hole in end
- 40" long leads for ease of installation (1-phase)
- 30" long leads exit elbow connector (3-phase)
- Fully gasketed terminal box
- Special rotor balance for reduced vibration
- Epoxy coated rotor
- Warranty: 18 months from date of manufacture and 12 months from date of installation which ever period expires first.
- Frame mounted capacitors on LM24778-80.  
Capacitors shipped loose on LM24781-82.
- Extra nameplate included for remote mounting

### Applications:

Crop dryers with air over/fan on shaft designs.



### SINGLE PHASE

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
3 - 4 1/2	3600	145TZ	1.00	230	SSD2S3-4.5TZ1B66QS10-1	LM24778	AT	46
5 - 7	3600	184TZ	1.00	230	SS184D2S5-7TZ1C66QS11-1	LM24779	TT	76
7 - 10	3600	184TZ	1.00	230	SSD2S7-10TZ1B66QS11-1	LM24780	TT	102
7 - 9	3600	184TZ	1.00	230	SSD2S7-9TZ1C66QS11-1	LM24781	TT	88
10 - 15	3600	215TZ	1.00	230	SS215D2S10-15TZ1C66QS11-1	LM24782	TT	135

### THREE PHASE

HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
5 - 7	3600	184TZ	1.00	208-220/440	SS184D2S5-7TZ6029QS12-1	LM24783	TT	70
7 - 10	3600	184TZ	1.00	208-220/440	SSD2S7-10TZ6029QS12-1	LM24784	TT	83
10 - 15	3600	215TZ	1.00	208-220/440	SS215D2S10-15TZ6029QS12-1	LM24785	TT	115

AT = Automatic Overload Protection  
TT = Thermostat Overload Protection



## Signature Series GRAIN STIRRING

115/208-230 VOLTS • 1-PHASE  
FOOT MOUNT  
1-1/2 HP

### Features:

- TEFC, continuous duty
- Maintenance-free double sealed ball bearings
- 7/8" diameter shaft
- Fully gasketed construction and fan/fan guard on shaft end keep grain dust out of motor
- Warranty: 18 months from date of manufacture and 12 months from date of installation which ever period expires first.

### Applications:

Grain stirring systems inside grain bins.



HP	SYN RPM	Frame	SF	Volts	Model Number	Product Number	Notes	Approx Shpg Wght (lbs)
1 1/2	1800	56HZ	1.15	115/208-230	SRF4S1.5TZ1B6028AP9-2	LM24521		47

Product numbers in red are STOCK items.

Specifications are subject to change without notice



# WASHGUARD MOTORS AVAILABLE IN FIVE STYLES



**Maximum service in critically clean or corrosive environments**

- All exterior components of stainless steel
  - Endshields o-ring sealed to frame
  - IEEE 841 severe-duty features standard
  - Meets demanding pharmaceutical requirements, also excellent for chemical-processing applications
  - Meets IP56 enclosure protection
  - Incorporates all WASHGUARD mechanical and electrical features, plus IRIS™ insulation system
  - IRIS™ insulation system
  - BISSC certified for baking industry
- AC motor catalog listings on page 92  
DC motor catalog listings on page 161  
**IEC Motors now available**



**Stainless Steel Tough for demanding washdown applications**

- All exterior components of 300 series stainless steel, including motor frame, endshield and conduit box castings
  - Moisture resistant sealant between frame and endbells
  - Full-fact nameplate is laser-etched on the motor frame
  - Built to withstand the demanding washdown environments found in the food processing, chemical processing and beverage industries
  - No paint or coatings of any type are used on the exterior of the motor
  - Four locations for T-drains provided on each endshield
  - IRIS™ insulation system
  - Meets IP55 enclosure protection
  - Three phase motors are suitable for use on VFDs
  - 10:1 ratio for constant or variable torque at 1.0 SF
- Catalog listings on page 90



**Superior, extended life in severe environments**

- Paint-free exterior—stainless frame and conduit box lid, specially processed endshields and conduit box housing
  - Etched stainless steel nameplate
  - Proven WASHGUARD mechanical and electrical features
  - IRIS™ insulation system
  - BISSC certified for baking industry
  - Meets IP55 enclosure protection
  - Three phase motors are suitable for use on VFDs
  - 10:1 ratio for constant or variable torque at 1.0 SF
- Catalog listings on page 88



**Enhanced performance in wet, humid areas**

- Our original moisture-shedding "duck" motor
  - USDA-approved white epoxy finish
  - Stainless steel shaft, conduit box cover, nameplate, fan guard
  - Special gaskets, slingers and seals
  - Four endshield drains
  - Moisture-resistant interior components
  - IRIS™ insulation system
  - Single-phase, three-phase and DC SCR models
  - Meets IP55 enclosure protection
  - Three phase motors are suitable for use on VFDs
  - 10:1 ratio for constant or variable torque at 1.0 SF
- Catalog listings on pages 85-87



**Revolutionary Designed Stainless Steel Motors are built to be the last Stainless Steel Washdown motors you will ever need!**

- Meet EPACT for non-exempt when tested without shaft seals
  - Total winding encapsulation using an Epoxy Resin
  - LEESON's exclusive IRIS™ Inverter-Rated Insulation System
  - Motors are UL component recognized
  - CSA Energy Efficiency Verification
  - Construction is CSA Certified for safety
  - All exterior components are 300-Series stainless steel
  - Protech Bearing isolator used for the output shaft seal
  - Double Lip Viton shaft seal used on non-drive output shaft on TEFC motors
  - Minimal exterior fasteners, no through-bolt design and screw on conduit box covers
  - Pre-lubricated double-sealed bearings
  - Rotor/Cartridge, "Q-CAR," for quick access to bearings
  - Rigid Cast Base for rugged applications
  - Full fact nameplate is laser etched
  - BISSC certified for baking industry
- Catalog listings on page 95

Specifications are subject to change without notice



# WASHGUARD MOTORS ARE BUILT TO HANDLE HIGH-PRESSURE WASHDOWNS!\*

Stainless-steel or white polypropylene fan guard on all WASHGUARD frames.

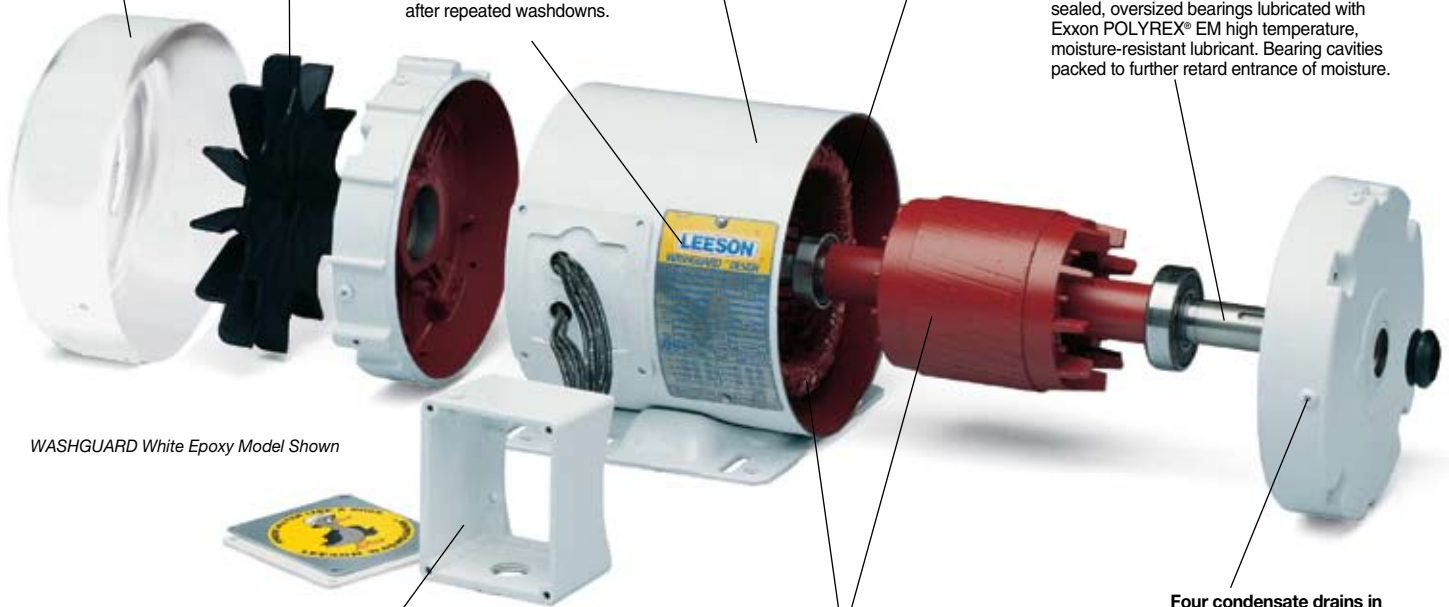
Composite fan is chemically-inert and static-free. Fan is positively positioned on shaft. On TEFC designs only.

Stainless-steel, "full-fact" nameplate includes information on motor efficiency and connections. Readable even after repeated washdowns.

USDA-approved, white epoxy finish for superior protection and resistance to caustic cleaning solutions.

Encapsulated starting switch (single-phase WASHGUARD motors) uses a patented, field-proven design that is immune to moisture, shock and vibration. No moving parts or exposed contacts to become corroded or inoperable.

Moisture-resistant shaft system includes 303 stainless-steel shaft and lubricated, spring-loaded contact seals in each endshield. Patented V-ring Forshedra seal on shaft end to deflect water (see inset). Double-sealed, oversized bearings lubricated with Exxon POLYREX® EM high temperature, moisture-resistant lubricant. Bearing cavities packed to further retard entrance of moisture.



WASHGUARD White Epoxy Model Shown

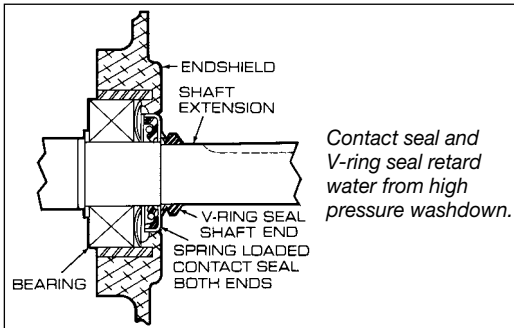
Cast, oversized conduit box with tough, high-temperature nitrile gaskets and stainless-steel cover and hardware. Oversized design with threaded entrance. All machined fits are sealed and nylon gaskets are used under bolt heads.

Interior coatings protect against moisture and corrosion. Frame, base, endshields, rotor, and interior components are protected by enamel and polyester compounds of outstanding adhesion and resistance to moisture, acids, alkalis, and oils. Efficiencies meet EPACT mandates for covered motors when tested without shaft seals. High temperature, moisture resistant IRIS insulation system assures long life on inverter service. Windings are immersed and cured in polyester insulating compound.



Four condensate drains in each endshield (at three, six, nine, and twelve o'clock) purge condensate and water which may enter the motor.

**Meets or exceeds EISA mandates Dec. 2010**



\* Also excellent for applications requiring a motor that is "tropicalized"!

QUICK REFERENCE	
WASHGUARD WHITE EPOXY .....	Page 85
WASHGUARD STAINLESS FRAME .....	88
WASHGUARD ALL-STAINLESS .....	90,92,94



**White Duck**



**SINGLE PHASE • TEFC • RIGID BASE**

Featuring Electronic Solid State Encapsulated Switch

HP	SYM RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/2	1800	56	112431.00	24	115/208-230	None	4.4	10.81
3/4	1800	56	112432.00	31	115/208-230	None	5.4	11.31
1	1800	56	112626.00	33	115/208-230	None	6.4	11.81
	1800	143T	120589.00	34	115/208-230	None	6.4	12.25
1½	1800	145T	120590.00	47	115/208-230	None	9.5	13.75
2	1800	182T	131571.00	60	115/208-230	None	12.6	13.46

**SINGLE PHASE • TEFC • C FACE LESS BASE**

Featuring Electronic Solid State Encapsulated Switch

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/3	3600	56C	114310.00	25	115/208-230	None	2.6	10.69
	1800	56C	114311.00	27	115/208-230	None	3.2	10.69
1/2	3600	56C	114312.00	25	115/208-230	None	3.6	10.69
	1800	56C	114313.00	29	115/208-230	None	4.4	11.19
3/4	3600	56C	114314.00	31	115/208-230	None	5.0	11.69
	1800	56C	114315.00	31	115/208-230	None	5.4	11.69
1	3600	56C	114316.00	29	115/208-230	None	6.0	12.19
	1800	56C	114317.00	34	115/208-230	None	6.4	12.19
1½	3600	56C	114318.00	36	115/208-230	None	8.5	12.69
	1800	56C	114319.00	43	115/208-230	None	9.5	13.69

**DC • SCR RATED 90 & 180 VOLTS  
TENV • C FACE WITH REMOVABLE BASE**

HP	Full Load RPM	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	Control Volts AC	F.L. Amps DC	"C" Dim. (Inches)
1/4	1800	S56C	108423.00	23	90	115	2.7	10.69
	1800	S56C	098375.00 A	21	180	230	1.4	10.22
1/3	1800	S56C	108424.00	26	90	115	3.5	11.69
	1800	S56C	098376.00 A	22	180	230	1.7	10.22
1/2	1800	S56C	108226.00	38	90	115	4.9	13.69
	1800	S56C	108227.00	43	180	230	2.4	13.69
3/4	1800	S56C	108228.00	53	90	115	7.0	15.69
	1800	S56C	108229.00	50	180	230	3.5	15.69
1	1800	S56C	108230.00**	45	90	115	10.0	15.81
	1800	S56C	108231.00**	42	180	230	5.0	14.81
1½	1800	S56C	108232.00**	50	180	230	7.6	15.81

\*\* These motors are totally enclosed fan cooled.

A Subject to Availability.

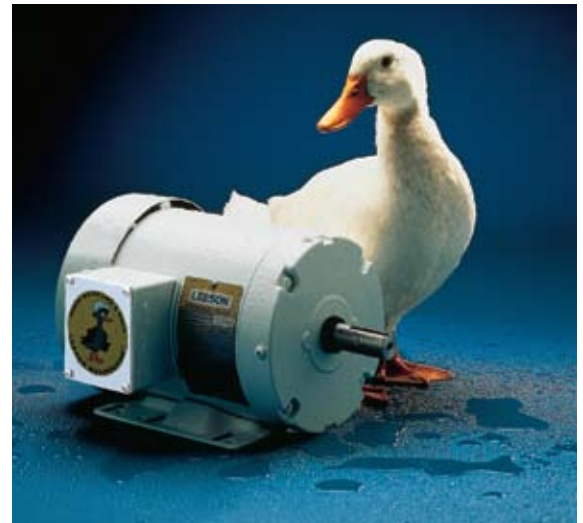
All Washdown Duty motors have Class F Insulation.

**SINGLE PHASE • TEFC • C FACE WITH BASE**

Featuring Electronic Solid State Encapsulated Switch

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/3	3600	56C	113580.00	27	115/208-230	None	2.6	10.69
	1800	56C	112526.00	28	115/208-230	None	3.2	10.69
1/2	3600	56C	113581.00	25	115/208-230	None	3.6	10.69
	1800	56C	112527.00	28	115/208-230	None	4.4	11.19
3/4	3600	56C	113582.00	31	115/208-230	None	5.0	11.69
	1800	56C	112528.00	30	115/208-230	None	5.4	11.69
1	3600	56C	113583.00	31	115/208-230	None	6.0	12.19
	1800	56C	112529.00	33	115/208-230	None	6.4	12.19
1½	3600	56C	113584.00	36	115/208-230	None	8.5	12.69
	1800	56HC	113300.00	45	115/208-230	None	9.5	13.69
2	3600	56HC	114637.00	43	115/208-230	None	10.0	13.69

**WASHGUARD MOTORS SHED WATER LIKE A DUCK!**







### THREE PHASE • TEFC • JM PUMP

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1	1800	143JM	<b>G121579.00 A</b>	41	208-230/460	3.1	82.5	16.25
1½	3600	143JM	<b>G121580.00 A</b>	33	208-230/460	4.0	82.5	16.25
	1800	145JM	<b>G121581.00 A</b>	47	208-230/460	4.4	84.0	16.25
2	3600	145JM	<b>G121582.00</b>	50	208-230/460	5.2	84.0	16.25
	1800	145JM	<b>G121583.00</b>	49	208-230/460	5.6	84.0	16.75
3	3600	145JM	<b>G121584.00</b>	54	208-230/460	7.6	85.5	16.75
	1800	182JM	<b>G131967.00</b>	79	208-230/460	8.2	87.5	16.75
5	3600	184JM	<b>G131968.00</b>	81	208-230/460	12.0	87.5	16.75
	1800	184JM	<b>G131969.00</b>	95	208-230/460	13.0	87.5	17.63
7½	3600	184JM	<b>G131970.00</b>	110	208-230/460	16.8	88.5	18.25
	1800	213JM	<b>G140733.00</b>	135	208-230/460	20.4	89.5	19.50
10	3600	215JM	<b>G140734.00</b>	142	208-230/460	24.0	89.5	22.20
	1800	215JM	<b>G140735.00 A</b>	150	208-230/460	26.0	89.5	21.70
15	3600	215JM	<b>G140736.00</b>	160	208-230/460	36.0	90.2	22.20

### JET PUMP • THREADED SHAFT THREE PHASE • TEFC • C-FACE LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
3/4	3600	56J	<b>116774.00</b>	23	208-230/460	2.4	75.5	10.81
1	3600	56J	<b>116775.00</b>	35	208-230/460	3.2	77.0	10.81
1½	3600	56J	<b>116776.00</b>	42	208-230/460	4.2	81.5	11.81
2	3600	56J	<b>116777.00</b>	47	208-230/460	5.6	82.5	12.31
3	3600	56J	<b>116778.00</b>	49	208-230/460	7.6	84.0	13.25

### JET PUMP • THREADED SHAFT THREE PHASE • TEFC • C-FACE WITH BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
3/4	3600	56J	<b>116779.00</b>	24	208-230/460	2.4	75.5	10.81
1	3600	56J	<b>116780.00</b>	36	208-230/460	3.2	77.0	10.81
1½	3600	56J	<b>116781.00</b>	43	208-230/460	4.2	81.5	11.81
2	3600	56J	<b>116782.00</b>	48	208-230/460	5.6	82.5	12.31
3	3600	56J	<b>116783.00</b>	50	208-230/460	7.6	84.0	13.25



### WASHGUARD • TENV/TEFC • C FACE WITH BASE

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56C	3	<b>116466.00 ● A</b>	40	208-230/460	1.3	72.0	14.00
1/2	1800	56C	3	<b>116467.00 ●</b>	42	208-230/460	1.8	78.5	14.50
3/4	1800	56C	6	<b>116468.00 ● A</b>	44	208-230/460	2.5	80.0	15.00
1	1800	56C	6	<b>116469.00 ●</b>	48	208-230/460	3.2	80.0	15.50
	1800	143TC	6	<b>121616.00 ● A</b>	49	208-230/460	3.2	80.0	16.06
1½	1800	145TC	10	<b>G121617.00</b>	50	208-230/460	4.4	84.0	19.01
2	1800	145TC	10	<b>G121618.00 A</b>	62	208-230/460	5.6	84.0	19.01



### WASHGUARD COUPLER BRAKES

Solid die-cast aluminum Stearns NEMA 4X coupler brake converts any TEFC or TENV 56C thru 145TC motor to a fail-safe brakemotor by mounting between the C-face motor and driven equipment. Food safe white epoxy finish. BISSC Certified. Adds 5" to the overall length of 56C thru 145TC WASHGUARD TEFC or TENV motors. Includes all mounting components.

#### For Both Single and Three Phase Motors

Cat. No. 115/208-230V Single Phase	Cat. No. 208-230/460V Three Phase	Cat. No. 575V Three Phase	Brake Rating (ft-lbs)	Max. HP @ 1725 rpm	Mounts to NEMA Frame	Coupler Brake Output Shaft and Face	App. Wt. (lbs.)
<b>175566.00</b>	<b>175567.00</b>	<b>175568.00</b>	3	1	56C	5/8", 56C	13
<b>175572.00</b>	<b>175573.00</b>	<b>175574.00</b>	6	2	56C/143-5TC	5/8", 56C	14

Larger coupler brakes on page 119.

### WASHGUARD BRAKEKITS™

Kit of components including a Stearns NEMA 4X brake to convert 56 thru 145T frame stock TEFC only motors to fail-safe brakemotors. Food safe white epoxy finish. BISSC Certified. Adds 5 1/8" to the overall length of 56 thru 145T WASHGUARD TEFC motors.



WASHGUARD Brakekits™ have the same convenient assembly method as general purpose models.

### WASHGUARD • TENV/TEFC • C FACE LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56C	3	<b>116462.00 ● A</b>	39	208-230/460	1.3	72.0	14.00
1/2	1800	56C	3	<b>116463.00 ●</b>	41	208-230/460	1.8	78.5	14.50
3/4	1800	56C	6	<b>116464.00 ● A</b>	43	208-230/460	2.5	80.0	15.00
1	1800	56C	6	<b>116465.00 ●</b>	45	208-230/460	3.2	80.0	15.50
	1800	143TC	6	<b>121613.00 ● A</b>	46	208-230/460	3.2	80.0	15.56
1½	1800	145TC	10	<b>121614.00</b>	49	208-230/460	5.0	78.5	18.01
2	1800	145TC	10	<b>121615.00 A</b>	61	208-230/460	6.2	81.5	18.51

A Subject to Availability.

All Washdown Duty motors have Class F Insulation.

WATTSaver Motors Meet NEMA MG1 part 30 & 31.

Catalog Numbers in Green are EPACT Motors.

#### For 230/460V Three Phase and 230V Single Phase Motors

Brake Rating (ft-lbs)	Mounts to NEMA Frame	Max. HP @ 1725rpm	Cat. No. 208-230/460 V Brake Coil Voltage	App. Wt. (lbs.)
3	56/143-5T	1	<b>175616.00</b> <b>175771.00②</b>	24
6	56/143-5T	2	<b>175617.00</b> <b>175772.00②</b>	36
10	56/143-5T	3	<b>175618.00</b> <b>175773.00②</b>	43

② For 56/145 frame motors having a "B" for the suffix letter for the date code and having a face mount fan guard.

# Super Duck



**LEESON Severe Duty, stainless frame, WASHGUARD II** motors are designed for superior extended service in severe environments. Typical applications include food processing areas requiring frequent sanitation procedures using high pressure cleaning with concentrated caustic solutions, areas of high humidity and in chemical environments.

**Mechanical Protection Features**

These motors have an *entirely paint free exterior* with 300 series stainless steel motor body, conduit box lid, shaft extension, hardware, fasteners and an etched motor data plate.

To enhance chemical and corrosion resistance, all surfaces of the endbells and conduit box are processed using a U.S. Department of Agriculture approved technique. This proprietary process has been tested and qualified for more than 2,500 hours of salt spray endurance for external surfaces, and 1,000 hours for

internal surfaces. This process has proven successful in food washdown applications and has shown excellent corrosion resistance. Shaft seals, slingers and one-way stainless steel drains retard entrance of contaminants and water into the motor. Multiple, repositional drains provided for all angle mounting, release any water that does enter the motor from hose downs or condensation. Chemically resistant, tough nitrile gaskets and a threaded entrance for power connection also restrict entrance to the motor's interior. Nylon gaskets are used to seal bolt heads.

Bearings used are double sealed and prelubricated with moisture resistant Exxon POLYREX® EM high temperature lubricant.

**Electrical Performance and Protection Features**

Efficiencies meet EPACT mandates for *covered* motors when tested without shaft seals. High temperature, moisture resistant IRIS insulation system assures long life on inverter service. Windings are immersed and cured in polyester insulating compound. **All Washdown Duty motors have Class F Insulation.**

**Standards and Approvals**

UL component recognized, file number E57948, guide number PRGY2. Energy efficiency ratings are verified by an independent testing laboratory.

CSA Energy Efficiency Verification Program, report number EEV 78720-1.

Construction is CSA Certified for safety report number LR33543.

**WASHGUARD II** motors are certified to the Baking Industry Sanitation Standard #29 and listed under BISSC authorization number 769.



**STAINLESS FRAME • TENV • C FACE LESS BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	1800	56C	114394.00	30	208-230/460	1.6	78.5	11.06
3/4	1800	56C	114395.00	34	208-230/460	2.3	80.0	11.56
1	1800	56C	114437.00	44	208-230/460	3.0	81.5	12.06
	1800	143TC	121109.00	40	208-230/460	3.0	81.5	12.13
1 1/2	1800	56C	114581.00▶	45	208-230/460	4.4	84.0	12.69
	1800	145TC	G121350.00▶	45	208-230/460	4.4	82.5	13.25
2	1800	56C	114582.00▶	51	208-230/460	5.6	84.0	13.69
	1800	145TC	G121351.00▶	52	208-230/460	5.6	84.0	13.75

▶ All ratings TENV except 1/2 & 2 HP, which is TEFC with stainless steel fan cover and chemically inert fan.



**STAINLESS FRAME • TENV • C FACE WITH BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	1800	56HC	114560.00□	34	208-230/460	1.6	78.5	11.56
3/4	1800	56HC	114561.00□	38	208-230/460	2.3	80.0	12.06
1	1800	56HC	114562.00□	45	208-230/460	2.3	81.5	12.06
	1800	143TC	121165.00	45	208-230/460	2.3	81.5	12.13
1 1/2	1800	145TC	121912.00▶	47	208-230/460	4.4	86.5	13.25
	1800	145TC	121913.00▶	54	208-230/460	5.6	86.5	13.75

▶ All ratings TENV except 1/2 & 2 HP, which is TEFC with stainless steel fan cover and chemically inert fan.  
 □ Combination 56H base motors have mounting holes for NEMA 56 and NEMA 143-145T and standard NEMA 56C face and shaft.

**CHEMICAL RESISTANCE RATING CHART**

CHEMICAL	CONCENTRATION	COMPONENT-RESISTANCE	
		STAINLESS STEEL PARTS	ENDBELLS & CONDUIT BOX
<b>WATER:</b>			
De-Ionized Boiling	100%	Excellent	Excellent
Salt (Immersed)	30%	Excellent	Excellent
Salt (Spray)	5%	Excellent	Excellent
Tap - 250°F/120°C @ 10,000 PSI	100%	Excellent	Excellent
<b>ACIDS:</b>			
Hydrochloric	35%	Poor	Very Good
Sulfuric	25%	Poor	Excellent
Nitric	35%	Excellent	Good
Picric	Saturated Solution	Excellent	Very Good
<b>BASE:</b>			
Caustic	100%	Excellent	Excellent
Caustic	12.5 pH	Excellent	Excellent
Caustic - 125°F/50°C	9.5 pH	Excellent	Excellent
<b>SOLVENTS:</b>			
	--	Excellent	Excellent



WATTSAVERe Motors Meet NEMA MG1 part 30 & 31.

Specifications are subject to change without notice



# WASHGUARD SST



*This member of LEESON's family of tough ducks is designed for long life in demanding washdown applications. LEESON's FHP WASHGUARD SST All-Stainless motors are Stainless Steel Tough!*

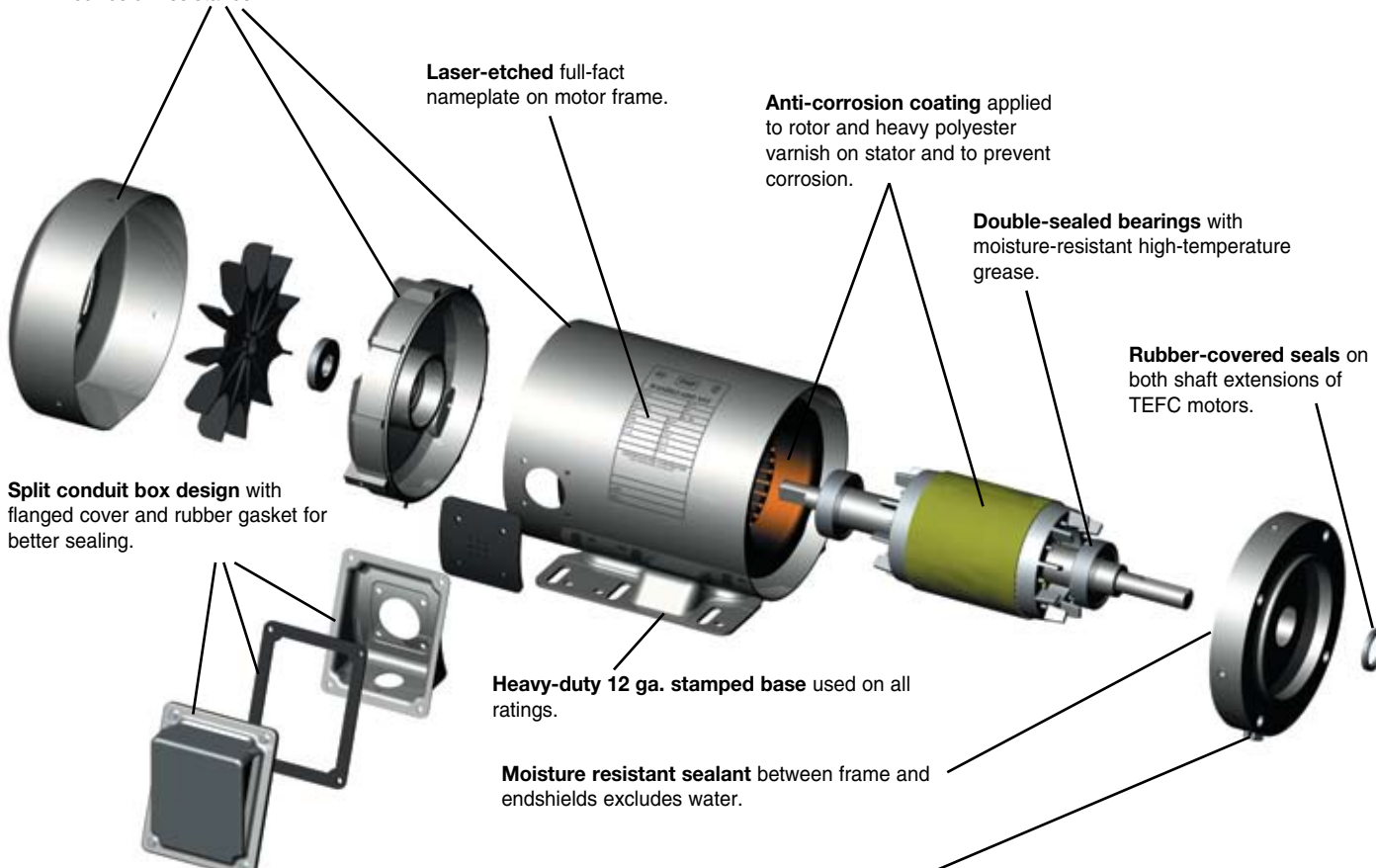
Built with all stainless steel external components to prevent corrosion and well sealed against moisture and condensation to protect internal components, the Washguard SST all-stainless motors are able to withstand the severe wash-down environments found in the food processing, chemical processing, and beverage industries.



### CHEMICAL RESISTANCE RATING CHART

CHEMICAL	CONCENTRATION	ALL STAINLESS COMPONENTS
<b>WATER:</b>		
De-Ionized Boiling	100%	Excellent
Salt (Immersed)	30%	Excellent
Salt (Spray)	5%	Excellent
Tap - 250°F/120°C @ 10,000 PSI	100%	Excellent
<b>ACIDS:</b>		
Hydrochloric	35%	Poor
Sulfuric	25%	Poor
Nitric	35%	Excellent
Picric	Saturated Solution	Excellent
<b>BASE:</b>		
Caustic	100%	Excellent
Caustic	12.5 pH	Excellent
Caustic - 125°F/50°C	9.5 pH	Excellent
<b>SOLVENTS:</b>		
	-	Excellent

**300-Series stainless steel** exterior components – frame, base, endshields, shaft extension, fan guard, hardware, conduit box and cover – for maximum corrosion resistance.



**Four condensate drains** in each endshield (at three, six, nine and twelve o'clock) provide locations to purge condensate and water, which may enter the motor.

**T-drains provided for effective drainage** without allowing water to splash inside the motor. T-drain for opposite shaft end is installed at six o'clock position (and can be relocated easily). T-drain for shaft end is shipped loose for customer installation at low point of motor.



# WASHGUARD ALL-STAINLESS MOTORS

ALL-STAINLESS • SINGLE-PHASE & THREE-PHASE • STANDARD, EPACT & NEMA PREMIUM RATINGS



## WASHGUARD SST

### Mechanical Protection Features:

All exterior components – frame, base, endshields, fan guard, shaft, hardware, conduit box and cover – are made from 300 series stainless steel for maximum corrosion resistance. Nameplate data is permanently laser-etched into the motor frame – no Mylar nameplate that can wash off or riveted metal nameplate to trap dirt. No paint or any type of coating is used on the exterior of the motor.

Sealant is applied to endshield and frame fits before assembly to prevent water entry. Shaft seals on both ends of TEFC motors – shaft end only on TENV. Double-sealed bearings have high performance Exxon Polyrex EM grease. Conduit box is fully gasketed half-split design with flanged cover and body gasket with lead separator. Anti-corrosion coating on rotor prevents corrosion. Four quadrant drain locations on each endbell allow drainage of condensation in any mounting position. Stainless steel T-drains are provided to prevent liquids from splashing into the drain locations. Motors are shipped with a T-drain assembled in the six o'clock position on the opposite endshield. Another T-drain is shipped loose in the conduit box for installation at the lowest point of the shaft-end endshield. For a totally sealed motor, a spare pipe plug is included to replace the pre-installed T-drain.

Mechanical performance is further enhanced by over-sized bearings, heavy 12 gauge base, shaft-end bearing is locked internally to limit axial endplay, and specially designed shaft extension resists breakage at bearing journal.

### Electrical Performance and Protection Features:

FHP Washguard SST full load efficiencies meet EPACT standards for non-exempt motors when tested without shaft seals. For extra moisture resistance, windings are immersed and cured in polyester insulating varnish. LEESON's exclusive IRIS™ Inverter-Rated Insulation System provides extra protection and long life, especially in inverter driven applications.

10:1 Constant Torque Operation

### Standards and Approvals:

UL component recognized, file number E57948, guide number PRGY2. Energy efficiency ratings are verified by an independent testing laboratory.

CSA Energy Efficiency Verification Program, report number EEV 78720-1.

Construction is CSA Certified for safety report number LR33543. Motor is CE marked for European acceptance.



### SINGLE-PHASE • TENV/TEFC • C FACE W/BASE

HP	SYN RPM	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	"C" Dim. (Inches)
1/2	3600	56C	<b>191474.00</b>	29.5	115/208-230	3.1	11.1
	1800	56C	<b>191475.00</b>	31.5	115/208-230	4.1	11.1
3/4	3600	56C	<b>191476.00</b>	31.5	115/208-230	4.5	11.8
	1800	56C	<b>191477.00</b>	39.0	115/208-230	4.9	11.8
1	3600	56C	<b>191478.00</b>	39.0	115/208-230	6.2	12.3
	1800	56C	<b>191479.00</b>	42.5	115/208-230	6.8	12.3
1 1/2	3600	56C	<b>191480.00</b>	42.5	115/208-230	8.8	13.2
	1800	56C	<b>191481.00</b>	52.5	115/208-230	9.5	13.2
2	3600	145TC	<b>191482.00</b>	64.5	115/208-230	10.8	14.2
	1800	145TC	<b>191483.00</b>	64.5	115/208-230	9.0	14.2

**WATTSAVERe Motors Meet NEMA MG1 part 30 & 31.**  
Catalog numbers in Green are EPACT Motors.



### THREE-PHASE • TENV/TEFC • C FACE WITH BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	3600	56C	<b>191200.00●</b>	29	208-230/460	1.0	74.0	9.78
	1800	56C	<b>191201.00●</b>	30	208-230/460	1.3	78.5	9.78
1/2	3600	56C	<b>191203.00●</b>	32	208-230/460	1.5	77.0	9.78
	1800	56C	<b>191204.00●</b>	33	208-230/460	1.6	81.5	9.78
	1200	56C	<b>191414.00●</b>	36	208-230/460	2.0	78.5	9.76
3/4	3600	56C	<b>191206.00●</b>	33	208-230/460	2.0	78.5	9.78
	1800	56C	<b>191207.00●</b>	38	208-230/460	2.3	82.5	9.78
	1200	56C	<b>191415.00●</b>	49	208-230/460	3.0	80.0	11.30
1	3600	56HC	<b>191209.00□</b>	41	208-230/460	2.6	80.0	13.77
	3600	143TC	<b>191486.00</b>	42	208-230/460	2.6	80.0	13.62
	1800	56C	<b>191291.00●①</b>	46	208-230/460	3.0	81.5	11.00
	1800	56HC	<b>191211.00□</b>	47	208-230/460	3.0	82.5	13.77
	1800	143TC	<b>191487.00</b>	48	208-230/460	3.0	85.5	13.62
	1200	56HC	<b>191417.00</b>	49	208-230/460	3.8	82.5	13.10
1200	145TC	<b>191493.00</b>	49	208-230/460	3.8	82.5	13.20	
1 1/2	3600	56HC	<b>191215.00□</b>	48	208-230/460	3.8	82.5	13.77
	3600	143TC	<b>191488.00</b>	49	208-230/460	3.8	84.0	13.62
	1800	56HC	<b>191217.00□</b>	48	208-230/460	4.8	84.0	13.77
	1800	145TC	<b>191489.00</b>	49	208-230/460	4.8	86.5	13.62
2	3600	56HC	<b>191221.00□</b>	49	208-230/460	5.0	84.0	13.77
	3600	145TC	<b>191490.00</b>	50	208-230/460	5.0	85.5	13.62
	1800	56HC	<b>191223.00□</b>	52	208-230/460	5.8	84.0	13.77
	1800	145TC	<b>191491.00</b>	53	208-230/460	5.8	86.5	13.62
3	3600	145TC	<b>191492.00</b>	62	208-230/460	7.4	86.5	14.12

- These motors are totally enclosed, non-ventilated—Others are fan cooled.
- Combination 56H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 shaft.
- ① 10:1 Constant Torque Operation



### THREE-PHASE • TENV/TEFC • C FACE LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56C	<b>191202.00●</b>	30	208-230/460	1.3	78.5	9.78
1/2	1800	56C	<b>191205.00●</b>	33	208-230/460	1.6	81.5	9.78
	1200	56C	<b>191419.00●</b>	35	208-230/460	2.0	78.5	9.76
3/4	1800	56C	<b>191208.00●</b>	38	208-230/460	2.3	82.5	9.78
	1200	56C	<b>191420.00●</b>	47	208-230/460	3.0	80.0	11.30
1	1800	56C	<b>191290.00●</b>	45	208-230/460	3.0	81.5	11.00
	1800	56C	<b>191213.00</b>	47	208-230/460	3.0	82.5	13.77
	1800	143TC	<b>G191214.00</b>	47	208-230/460	3.0	82.5	13.62
1200	56C	<b>191421.00</b>	47	208-230/460	3.8	82.5	13.10	
1 1/2	1800	56C	<b>191219.00</b>	48	208-230/460	4.8	84.0	13.77
	1800	145TC	<b>G191220.00</b>	48	208-230/460	4.8	84.0	13.62
2	1800	56C	<b>191225.00</b>	52	208-230/460	5.8	84.0	13.77
	1800	145TC	<b>G191226.00</b>	52	208-230/460	5.8	84.0	13.62

- These motors are totally enclosed, non-ventilated—Others are fan cooled.

*PREMIUM*  
**STAINLESS STEEL DUCK**



**General Specifications:**

Designed specifically to meet the demanding sanitation requirements of the pharmaceutical, food processing and beverage industries. These motors are also ideal in clean room and severe chemical-processing applications involving frequent washdown with nitric acid and caustic lye. In fact, WASHGUARD All-Stainless Motors include IEEE 841 severe-duty features right out of the box! Motors have been tested to and passed the IEC IP-56 test requirements.

**Mechanical Protection Features:**

- All exterior components are 300-series stainless steel.
- Nothing on the motor's exterior is painted or coated in any way.
- All sealing components are Viton® for superior chemical resistance.
- Full fact nameplate is laser etched on the motor frame – no separately attached nameplate to trap dirt or contaminants.
- Endshields are O-ring sealed to the frame.
- Double lip shaft seals on both ends of TEFC motors (shaft end only on TENV motors).
- Removable hydrophobic breathers in opposite shaft endbell and conduit box equalize pressure without allowing moisture to enter.
- Exterior fastener use minimized reducing the number of entry points for moisture. There are no holes in the frame for attaching a nameplate. Bearing lock screws are located inside the motor and the conduit box mounted screws have been eliminated.
- Double-sealed bearings are pre-lubricated with moisture-resistant high-temperature grease for long life.
- Interior coatings applied to rotor and stator protect against corrosion.
- New conduit box mounting system provides optimum sealing.
- Ease to clean construction is BISSC Certified for bakery applications..

**Electrical Performance and Protection Features**

- WASHGUARD efficiencies meet EPACT mandates for non-exempt motors when tested without shaft seals.
- Windings are immersed and cured in polyester insulating varnish for extra moisture-resistance.
- LEESON's exclusive IRIS™ Inverter-Rated Insulation System provides extra protection and long life, especially in inverter-driven applications.
- Single-phase motors use Solid State Sinpac® switch – no mechanical switch contacts to corrode and fail.
- All Washdown Duty motors have Class F Insulation.

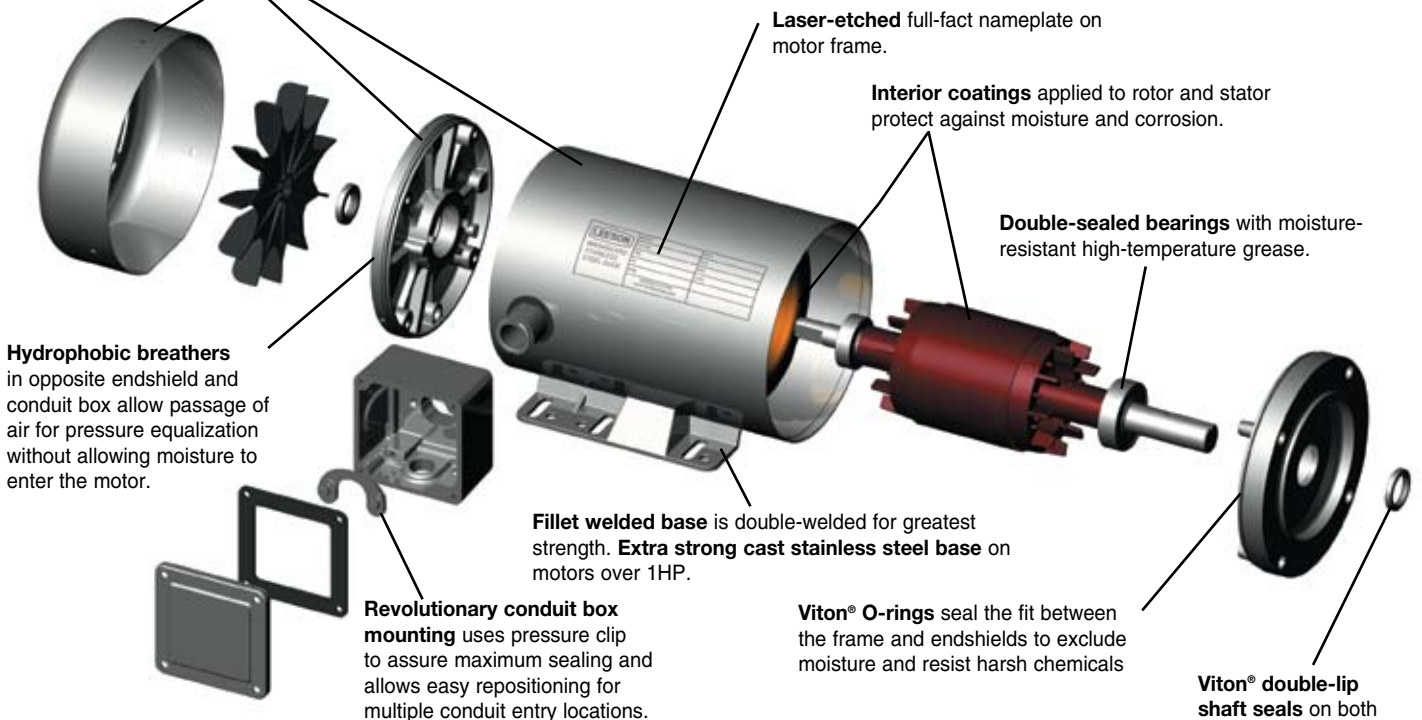
**Standards and Approvals**

- Single and three phase motors are UL component recognized – file number E57948, guide number PRGY2.
- CSA Energy Efficiency Verification Program, report number EEV 78720-1.
- Construction is CSA Certified for safety report number LR33543 and listed under BISSC authorization number 769.

**300-Series stainless steel** exterior components – frame, base, endshields, shaft extension, fan guard, hardware, conduit box and cover – for maximum corrosion resistance.

**CHEMICAL RESISTANCE RATING CHART**

CHEMICAL	CONCENTRATION	ALL STAINLESS COMPONENTS
<b>WATER:</b>		
De-Ionized Boiling	100%	Excellent
Salt (Immersed)	30%	Excellent
Salt (Spray)	5%	Excellent
Tap - 250°F/120°C @ 10,000 PSI	100%	Excellent
<b>ACIDS:</b>		
Hydrochloric	35%	Poor
Sulfuric	25%	Poor
Nitric	35%	Excellent
Picric	Saturated Solution	Excellent
<b>BASE:</b>		
Caustic	100%	Excellent
Caustic	12.5 pH	Excellent
Caustic - 125°F/50°C	9.5 pH	Excellent
<b>SOLVENTS:</b>		
	-	Excellent



Specifications are subject to change without notice





# PREMIUM STAINLESS STEEL DUCK



## IEC ALL-STAINLESS PREMIUM MOTORS

### IEC B5 FLANGE - ROUND BODY

HP/ KW	SYN RPM	Frame	Catalog Number	App. Wgt. (lbs.)	Volts DC	F.L. Amps DC	% FL Eff.	"C" Dim. (Inches)
1/3-0.25	1800	71	103403.00●	30	208-230/460	1.3	70.5	9.87
	1800	80	103405.00●	30	208-230/460	1.3	70.5	9.87
1/2-0.37	1800	71	103404.00●	32	208-230/460	1.6	76.0	11.62
	1800	80	103406.00●	32	208-230/460	1.6	76.0	11.62
3/4-0.55	1800	80	103407.00	38	208-230/460	2.3	77.0	12.26
1- 0.75	1800	90	117516.00	45	208-230/460	3.1	82.5	13.13
1.5 - 1.1	1800	90	117517.00	49	208-230/460	4.4	84.0	13.63
2 - 1.5	1800	90	117518.00	49	208-230/460	5.6	84.0	13.63

### IEC B5 FLANGE - RIGID BASE

HP/ KW	SYN RPM	Frame	Catalog Number	App. Wgt. (lbs.)	Volts DC	F.L. Amps DC	% FL Eff.	"C" Dim. (Inches)
1/3-0.25	1800	80	103408.00●	30	208-230/460	1.3	70.5	9.50
1/2-0.37	1800	80	103409.00●	32	208-230/460	1.6	76	12.75
3/4-0.55	1800	80	103410.00	38	208-230/460	2.3	77	12.26

### IEC B14 FLANGE - ROUND BODY

HP/ KW	SYN RPM	Frame	Catalog Number	App. Wgt. (lbs.)	Volts DC	F.L. Amps DC	% FL Eff.	"C" Dim. (Inches)
1/3-0.25	1800	71	103395.00●	30	208-230/460	1.3	70.5	9.83
	1800	80	103397.00●	30	208-230/460	1.3	70.5	9.72
1/2-0.37	1800	71	103396.00●	32	208-230/460	1.6	76	11.58
	1800	80	103398.00●	32	208-230/460	1.6	76	11.582
3/4-0.55	1800	80	103399.00	38	208-230/460	2.3	77	12.48

### IEC B14 FLANGE - RIGID BASE

HP/ KW	SYN RPM	Frame	Catalog Number	App. Wgt. (lbs.)	Volts DC	F.L. Amps DC	% FL Eff.	"C" Dim. (Inches)
1/3-0.25	1800	80	103400.00●	31	208-230/460	1.3	70.5	9.72
1/2-0.37	1800	80	103401.00●	33	208-230/460	1.6	76	11.58
3/4-0.55	1800	80	103402.00	39	208-230/460	2.3	77	12.48



## EXTREME DUCK



**General Specifications:**

These Revolutionary Designed Stainless Steel Motors are built using our “Voice of the customer” design criteria to withstand extreme washdown and sanitation requirements of the food processing, pharmaceutical, packaging and beverage industries. Our Innovative Hydro Sealed System “HS™” protects from the “outside-in” by reducing entrance points of contaminants and eliminates the need for drain plugs and breathers. This proven process also minimizes exterior hardware, which may trap application elements. Our unique Rotor/Cartridge Seal System, “Q-CAR™” gives quick access to the interior of the motor should the need arise. 300-Series Stainless Steel used on all exterior surfaces gives ideal protection against severe chemical-processing applications and frequent washdown processes using Salt water, Nitric Acids and Solvents.

**Mechanical Protection Features:**

- All exterior components are 300-Series stainless steel
- Protech Bearing isolator used for the output shaft seal
- Double Lip Viton shaft seal used on non-drive output shaft on TEFC motors
- Minimal exterior fasteners due to no through-bolt design and screw on conduit box covers reduces surface areas that may trap contaminants
- Double-sealed bearings are pre-lubricated with moisture resistant, high temperature grease for long life
- Rotor/Cartridge, “Q-CAR™,” design for quick access to motor interior (patent pending).
- O-ring sealed openings on conduit box covers and Rotor/Cartridge cover
- Rigid Cast Base for rugged applications
- Conduit box lead hole location rotatable on TEFC designs
- Full fact nameplate is laser etched to the motor frame making frame surface smooth, which eliminates areas that trap contaminants
- Ease of clean construction is BISSC certified for bakery applications and motors meet Pharmaceutical Duty specifications
- IP 56 Enclosure protection

**Electrical Performance and Protection Features**

- Motors meet EPACT mandates for non-exempt motors when tested without shaft seals
- Total winding encapsulation using an Epoxy Resin.
- LEESON’s exclusive IRIS™ Inverter-Rated Insulation System provides extra protection and long life, especially when used in applications driven by an Inverter.
- 3 year warranty
- 10:1 constant torque operation

**Standards and Approvals**

- Motors are UL component recognized – file number E57948, guide number PRGY2
- CSA Energy Efficiency Verification Program, report number EEV 78720-1
- Construction is CSA Certified for safety, report number LR33543 and listed under BISSC authorization number 769
- 3 year warranty



**CHEMICAL RESISTANCE RATING CHART**

CHEMICAL	CONCENTRATION	ALL STAINLESS COMPONENTS
<b>WATER:</b>		
De-Ionized Boiling	100%	Excellent
Salt (Immersed)	30%	Excellent
Salt (Spray)	5%	Excellent
Tap - 250°F/120°C @ 10,000 PSI	100%	Excellent
<b>ACIDS:</b>		
Hydrochloric	35%	Poor
Sulfuric	25%	Poor
Nitric	35%	Excellent
Picric	Saturated Solution	Excellent
<b>BASE:</b>		
Caustic	100%	Excellent
Caustic	12.5 pH	Excellent
Caustic - 125°F/50°C	9.5 pH	Excellent
<b>SOLVENTS:</b>		
	-	Excellent

# WASHGUARD ALL-STAINLESS MOTORS



ALL-STAINLESS • THREE PHASE • STANDARD & NEMA PREMIUM RATINGS



**EXTREME DUCK**



AC MOTORS

## THREE PHASE • TENV/TEFC • C FACE WITH BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	"C" Dim. (Inches)
1/3	...	...	...	...	...	...	...
1/2	3600	56C	117118.00●	39	208-230/460	1.6	10.47
	...	...	...	...	...	...	...
	1800	S56C	103411.00●	33	208-230/460	1.6	11.49
	1800	56C	117119.00●	40	208-230/460	1.6	10.72
3/4	3600	56C	117120.00●	46	208-230/460	2.4	10.47
	1800	S56C	103412.00	39	208-230/460	2.3	12.50
	1800	56C	117121.00●	47	208-230/460	2.3	11.22
1	3600	56C	117122.00●	48	208-230/460	2.6	10.97
	1800	56C	117123.00●	50	208-230/460	3.0	11.97
1½	3600	143TC	121879.00[w]	54	208-230/460	4.0	11.75
	3600	143TC	G121748.00	54	208-230/460	4.0	11.00
	1800	56C	117296.00	56	208-230/460	4.4	11.69
	1800	145TC	121880.00[w]	56	208-230/460	4.4	12.75
	1800	145TC	G121749.00	56	208-230/460	4.4	11.25
2	3600	145TC	121881.00[w]	56	208-230/460	5.2	12.75
	3600	145TC	G121739.00	56	208-230/460	5.2	12.50
	1800	56C	117299.00[w]	57	208-230/460	5.6	12.69
	1800	145TC	121882.00	57	208-230/460	5.6	13.25
	1800	145TC	G121740.00	57	208-230/460	5.6	12.50

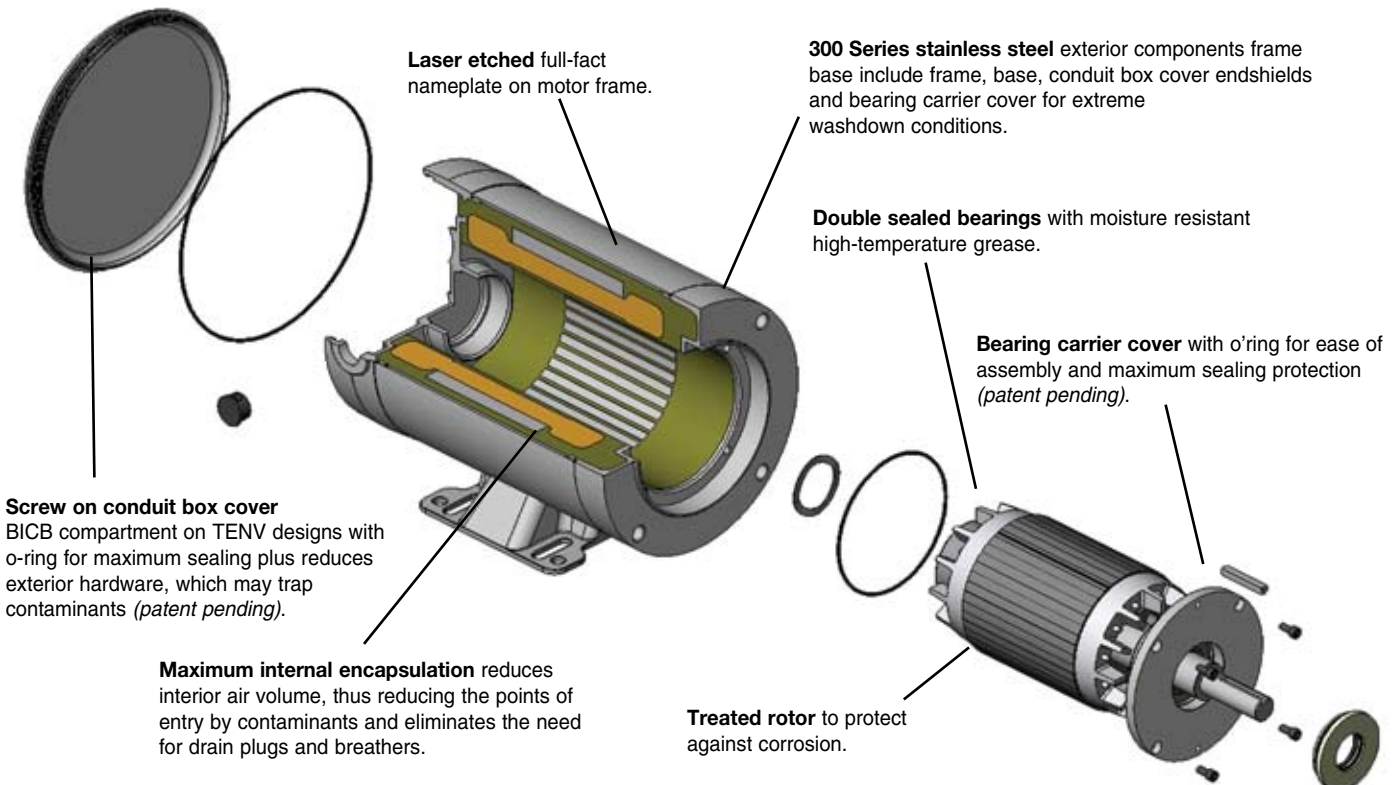
## THREE PHASE • TENV/TEFC • C FACE LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	"C" Dim. (Inches)
1/3	1800	48C	103417.00●	30	208-230/460	1.3	9.58
1/2	3600	56C	117126.00●	38	208-230/460	1.6	10.47
	1800	48C	103418.00●	32	208-230/460	1.6	11.33
	1800	S56C	103413.00●	32	208-230/460	1.6	11.49
	1800	56C	117127.00●	39	208-230/460	1.6	10.72
3/4	3600	56C	117128.00●	45	208-230/460	2.4	10.47
	1800	S56C	103414.00	38	208-230/460	2.3	12.50
	1800	56C	117129.00●	46	208-230/460	2.3	11.22
1	3600	56C	117130.00●	47	208-230/460	2.6	10.97
	1800	56C	117131.00●	50	208-230/460	3.0	11.69
1½	3600	143TC	121908.00[w]	53	208-230/460	4.0	11.75
	3600	143TC	121750.00	53	208-230/460	4.0	11.00
	1800	56C	117297.00	55	208-230/460	4.4	11.69
	1800	145TC	121909.00[w]	55	208-230/460	4.4	12.75
	1800	145TC	121751.00	55	208-230/460	4.4	11.25
2	3600	145TC	121910.00[w]	55	208-230/460	5.2	12.75
	3600	145TC	121742.00	55	208-230/460	5.2	12.50
	1800	145TC	121743.00	56	208-230/460	5.6	12.50
	1800	145TC	121911.00[w]	56	208-230/460	5.6	13.25
	1800	56C	117298.00	56	208-230/460	5.6	12.69

● These motors are totally enclosed, non-ventilated—Others are fan cooled.  
 [w] Premium efficiency WATSAVER<sup>®</sup> Motors. See page 19 for details.

● These motors are totally enclosed, non-ventilated—Others are fan cooled.  
 [w] Premium efficiency WATSAVER<sup>®</sup> Motors. See page 19 for details.

Catalog numbers in green are EPACT motors.





## HARSH ENVIRONMENTS WASH-THRU™ MOTORS

230/460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE

Lincoln's revolutionary Wash-Thru™ design utilizes **Pressure Encapsulation Technology** for unbeatable winding protection and unsurpassed motor life in many harsh environments. Wash-Thru™ motors can provide an improvement in plant efficiency and a reduction in maintenance costs due to an increase in process up-time.

### Features:

- Pressure Encapsulation Technology – thermosetting polyester-based resin is forced into and around the motor windings impregnating and encapsulating coil noses and filling stator slots. A silicone-based coating on stator bore surfaces completes the process. The result is unbeatable protection from excessive moisture, chemical action and vibration.
- Full length 303 stainless steel shaft.
- Double-sealed bearings and v-ring shaft slinger.
- Laser etched, stainless steel nameplate for permanent motor identification.
- Premium Class F Insulation system
- FDA approved white finish coat
- Warranty (sine-wave and inverter power) – 18 months from date of manufacture and 12 months from date of installation which ever period expires first.
- Made in U.S.A.

### Applications:

Exceptional choice for demanding uses in poultry, seafood, meat and other food processing plants. Other applications include areas where a high degree of dust, moisture, and vibration exist.

Speed ranges (continuous duty) on variable-frequency electronic speed controls (inverters):

Constant Torque: 45 to 60 Hz

Variable Torque: 6 to 60 Hz



Cutaway model shows encapsulated windings.

## FOOT MOUNT

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/2	3600	56	70.0	1.00	230/460	SREW2S0.5T61	<b>LM21031</b>	30
	1800	56	68.0	1.00	230/460	SREW4S0.5T61	<b>LM20655</b>	26
	1200	56	70.0	1.00	230/460	SREW6S0.5T61	<b>LM25419</b>	28
3/4	3600	56	74.0	1.00	230/460	SREW2S0.75T61	<b>LM21034</b>	30
	1800	56	75.5	1.00	230/460	SREW4S0.75T61	<b>LM20658</b>	24
	1200	56	77.5	1.00	230/460	SREW6S0.75T61	<b>LM22163</b>	33
1	3600	56	78.5	1.00	230/460	SREW2S1T61	<b>LM21037</b>	30
	1800	56	77.0	1.00	230/460	SREW4S1T61	<b>LM21061</b>	30
	1800	143T	77.0	1.00	230/460	SSEW4S1T61	<b>LM20667</b>	35
	1200	56H	72.0	1.00	230/460	SREW6S1T61	<b>LM25420</b>	34
	1200	145T	75.5	1.00	230/460	SSEW6S1T61	<b>LM24280</b>	34
1 1/2	3600	K56	78.5	1.00	230/460	SREW2S1.5T61	<b>LM21040</b>	30
	3600	143T	78.5	1.00	230/460	SSEW2S1.5T61	<b>LM21046</b>	35
	1800	56H	80.0	1.00	230/460	SREW4S1.5T61	<b>LM21062</b>	30
	1800	145T	80.0	1.00	230/460	SSEW4S1.5T61	<b>LM20670</b>	35
	1200	182T	81.5	1.00	230/460	SSEW6S1.5T61	<b>LM25421</b>	35
2	3600	56H	78.5	1.00	230/460	SREW2S2T61	<b>LM21043</b>	34
	3600	145T	82.5	1.00	230/460	SSEW2S2T61	<b>LM21049</b>	35
	1800	56H	81.5	1.00	230/460	SREW4S2T61	<b>LM21063</b>	34
	1800	145T	81.5	1.00	230/460	SSEW4S2T61	<b>LM20673</b>	35
	1200	184T	80.0	1.00	230/460	SSEW6S2T61	<b>LM25422</b>	70

Product numbers in red are STOCK items.

Specifications are subject to change without notice



# HARSH ENVIRONMENTS WASH-THRU™ MOTORS



230/460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE

AC MOTORS

## FOOT MOUNT (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
3	3600	182T	81.5	1.00	230/460	SSEW2S3T61	LM21052	64
	1800	182T	89.5	1.00	230/460	SSEW4S3T61	LM20676	64
	1200	213T	78.5	1.00	230/460	SSEW6S3T61	LM25423	109
5	3600	184T	81.5	1.00	230/460	SSEW2S5T61	LM21055	70
	1800	184T	87.5	1.00	230/460	SSEW4S5T61	LM20679	70
	1200	215T	82.5	1.00	230/460	SSEW6S5T61	LM25424	125
7 1/2	3600	213T	81.5	1.00	230/460	SSEW2S7.5T61	LM22423	109
	1800	213T	81.5	1.00	230/460	SSEW4S7.5T61	LM22435	109
	1200	254T	86.5	1.00	230/460	SSEW6S7.5T61	LM23931	208
10	3600	215T	84.0	1.00	230/460	SSEW2S10T61	LM22426	125
	1800	215T	84.0	1.00	230/460	SSEW4S10T61	LM22438	125

## C-FACE WITH FEET

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/2	3600	56C	70.0	1.00	230/460	SREW2S0.5TC61	LM21032	35
	1800	56C	68.0	1.00	230/460	SREW4S0.5TC61	LM20656	35
3/4	3600	56C	74.0	1.00	230/460	SREW2S0.75TC61	LM21035	35
	1800	56C	75.5	1.00	230/460	SREW4S0.75TC61	LM20659	35
1	3600	56C	78.5	1.00	230/460	SREW2S1TC61	LM21038	35
	1800	56C	77.0	1.00	230/460	SREW4S1TC61	LM20661	35
	1800	143TC	77.0	1.00	230/460	SSEW4S1TC61	LM20668	40
1 1/2	3600	56C	81.5	1.00	230/460	SREW2S1.5TC61	LM21041	35
	3600	143TC	78.5	1.00	230/460	SSEW2S1.5TC61	LM21047	40
	1800	56HC	80.0	1.00	230/460	SREW4S1.5TC61	LM20663	35
2	1800	145TC	80.0	1.00	230/460	SSEW4S1.5TC61	LM20671	40
	3600	56HC	82.5	1.00	230/460	SREW2S2TC61	LM21044	40
	3600	145TC	78.5	1.00	230/460	SSEW2S2TC61	LM21050	40
3	1800	56HC	81.5	1.00	230/460	SREW4S2TC61	LM20665	40
	1800	145TC	81.5	1.00	230/460	SSEW4S2TC61	LM20674	40
	3600	182TC	81.5	1.00	230/460	SSEW2S3TC61	LM21053	73
5	1800	182TC	81.5	1.00	230/460	SSEW4S3TC61	LM20677	73
	3600	184TC	81.5	1.00	230/460	SSEW2S5TC61	LM21056	79
7 1/2	1800	184TC	81.5	1.00	230/460	SSEW4S5TC61	LM20680	79
	3600	213TC	81.5	1.00	230/460	SSEW2S7.5TC61	LM22424	121
10	1800	213TC	81.5	1.00	230/460	SSEW4S7.5TC61	LM22436	121
	3600	215TC	84.0	1.00	230/460	SSEW2S10TC61	LM22427	139
	1800	215TC	84.0	1.00	230/460	SSEW4S10TC61	LM22439	139

Product numbers in red are STOCK items.

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# HARSH ENVIRONMENTS WASH-THRU™ MOTORS

230/460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE

## C-FACE FOOTLESS

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/2	3600	56C	70.0	1.00	230/460	SREW2S0.5TCN61	<b>LM21033</b>	35
	1800	56C	74.0	1.00	230/460	SREW4S0.5TCN61	<b>LM20657</b>	35
3/4	3600	56C	74.0	1.00	230/460	SREW2S0.75TCN61	<b>LM21036</b>	35
	1800	56C	77.0	1.00	230/460	SREW4S0.75TCN61	<b>LM20660</b>	35
1	3600	56C	75.5	1.00	230/460	SREW2S1TCN61	<b>LM21039</b>	35
	1800	56C	78.5	1.00	230/460	SREW4S1TCN61	<b>LM20662</b>	35
	1800	143TC	78.5	1.00	230/460	SSEW4S1TCN61	<b>LM20669</b>	40
1 1/2	3600	56C	78.5	1.00	230/460	SREW2S1.5TCN61	<b>LM21042</b>	35
	3600	143TC	78.5	1.00	230/460	SSEW2S1.5TCN61	<b>LM21048</b>	40
	1800	56HC	80.0	1.00	230/460	SREW4S1.5TCN61	<b>LM20664</b>	35
	1800	145TC	80.0	1.00	230/460	SSSEW4S1.5TCN61	<b>LM20672</b>	40
2	3600	56HC	78.5	1.00	230/460	SREW2S2TCN61	<b>LM21045</b>	40
	3600	145TC	78.5	1.00	230/460	SSEW2S2TCN61	<b>LM21051</b>	40
	1800	56HC	81.5	1.00	230/460	SREW4S2TCN61	<b>LM20666</b>	40
1800	145TC	81.5	1.00	230/460	SSEW4S2TCN61	<b>LM20675</b>	40	
3	3600	182TC	81.5	1.00	230/460	SSEW2S3TCN61	<b>LM21054</b>	73
	1800	182TC	81.5	1.00	230/460	SSEW4S3TCN61	<b>LM20678</b>	73
5	3600	184TC	81.5	1.00	230/460	SSEW2S5TCN61	<b>LM21057</b>	79
	1800	184TC	81.5	1.00	230/460	SSEW4S5TCN61	<b>LM20681</b>	79
7 1/2	3600	213TC	81.5	1.00	230/460	SSEW2S7.5TCN61	<b>LM22425</b>	121
	1800	213TC	81.5	1.00	230/460	SSEW4S7.5TCN61	<b>LM22437</b>	121
10	3600	215TC	84.0	1.00	230/460	SSEW2S10TCN61	<b>LM22428</b>	139
	1800	215TC	84.0	1.00	230/460	SSEW4S10TCN61	<b>LM22440</b>	139

Product numbers in red are STOCK items.

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# ODP – ENCAPSULATED MULTIGUARD®



230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT, C-FACE & DOUBLE C-FACE/DOUBLE SHAFT  
15 TO 250 HP

AC MOTORS

### Features:

- Encapsulated Windings
- NEMA Design B performance
- Durable steel frame, cast iron end brackets
- Premium Class F Plus Insulation System
- Continuous Duty, 40°C ambient
- Reduced voltage start capability –  
284T-405T: Y-delta start on either voltage  
444T-445T: Y-delta start and part-winding start
- Warranty: 42 months from date of manufacture or 36 months from date of installation, whichever period expires first.
- Made in U.S.A.



Stator/frame assembly pictured – end brackets removed to show encapsulation.

### Applications:

Multiguard motors utilize an ODP enclosure with a winding protection system unique to the motor industry. The windings are impregnated and encapsulated in a thermosetting, specially formulated polyester based resin using a high pressure injection-molding process. When compared to a standard ODP and in some cases TEFC, it performs better in applications involving moisture, vibration, dust and some chemical action.

## FOOT MOUNT

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
15	1200	284T	86.5	1.00	230/460	MD6S15T61	<b>LM03614</b>	280
	1200	284TS	86.5	1.00	230/460	MD6S15TS61	<b>LM10636</b>	280
20	1200	286T	84.0	1.00	230/460	MD6S20T61	<b>LM03631</b>	328
	1200	286TS	84.0	1.00	230/460	MD6S20TS61	<b>LM10637</b>	328
25	1800	284T	87.5	1.00	230/460	MD4S25T61	<b>LM03618</b>	296
	1800	284TS	87.5	1.00	230/460	MD4S25TS61	<b>LM10638</b>	296
	1200	324T	89.5	1.00	230/460	MD6S25T61	<b>LM03665</b>	422
	1200	324TS	89.5	1.00	230/460	MD6S25TS61	<b>LM10639</b>	422
30	3600	284T	82.5	1.00	230/460	MD2S30T61	<b>LM03628</b>	306
	3600	284TS	82.5	1.00	230/460	MD2S30TS61	<b>LM03627</b>	306
	1800	286T	87.5	1.00	230/460	MD4S30T61	<b>LM03636</b>	334
	1800	286TS	87.5	1.00	230/460	MD4S30TS61	<b>LM03637</b>	334
	1200	326T	89.5	1.00	230/460	MD6S30T61	<b>LM03865</b>	482
	1200	326TS	89.5	1.00	230/460	MD6S30TS61	<b>LM10640</b>	482
40	3600	286T	84.0	1.00	230/460	MD2S40T61	<b>LM03651</b>	350
	3600	286TS	84.0	1.00	230/460	MD2S40TS61	<b>LM03650</b>	350
	1800	324T	90.2	1.00	230/460	MD4S40T61	<b>LM03669</b>	420
	1800	324TS	90.2	1.00	230/460	MD4S40TS61	<b>LM03670</b>	420
	1200	364T	91.7	1.00	230/460	MD6S40T61	<b>LM03703</b>	655
	1200	364TS	91.7	1.00	230/460	MD6S40TS61	<b>LM10641</b>	655
50	3600	324T	86.5	1.00	230/460	MD2S50T61	<b>LM03682</b>	425
	3600	324TS	86.5	1.00	230/460	MD2S50TS61	<b>LM03681</b>	425
	1800	326T	91.7	1.00	230/460	MD4S50T61	<b>LM03683</b>	476
	1800	326TS	91.7	1.00	230/460	MD4S50TS61	<b>LM03684</b>	476
	1200	365T	91.7	1.00	230/460	MD6S50T61	<b>LM03720</b>	690
	1200	365TS	91.7	1.00	230/460	MD6S50TS61	<b>LM10642</b>	690
60	3600	326T	87.5	1.00	230/460	MD2S60T61	<b>LM03692</b>	484
	3600	326TS	87.5	1.00	230/460	MD2S60TS61	<b>LM03691</b>	484
	1800	364T	92.4	1.00	230/460	MD4S60T61	<b>LM03709</b>	627
	1800	364TS	92.4	1.00	230/460	MD4S60TS61	<b>LM03708</b>	627
	1200	404T	92.4	1.00	230/460	MD6S60T61	<b>LM03785</b>	855
	1200	404TS	92.4	1.00	230/460	MD6S60TS61	<b>LM10643</b>	855

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# ODP - ENCAPSULATED MULTIGUARD®

230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT, C-FACE & DOUBLE C-FACE/DOUBLE SHAFT  
15 TO 250 HP

## FOOT MOUNT (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
75	3600	364T	88.5	1.00	230/460	MD2S75T61	LM03719	644
	3600	364TS	88.5	1.00	230/460	MD2S75TS61	LM03718	644
	1800	365T	91.7	1.00	230/460	MD4S75T61	LM03729	697
	1800	365TS	91.7	1.00	230/460	MD4S75TS61	LM03728	697
	1200	405T	92.4	1.00	230/460	MD6S75T61	LM03799	948
	1200	405TS	92.4	1.00	230/460	MD6S75TS61	LM03800	948
100	3600	365T	88.5	1.00	230/460	MD2S100T61	LM03740	712
	3600	365TS	88.5	1.00	230/460	MD2S100TS61	LM03739	712
	1800	404T	93.0	1.00	230/460	MD4S100T61	LM03791	865
	1800	404TS	93.0	1.00	230/460	MD4S100TS61	LM03790	865
	1200	444T	94.1	1.00	460	MD6S100T64PY	LM03752	1,213
	1200	444TS	94.1	1.00	460	MD6S100TS64PY	LM03753	1,213
125	3600	404T	89.5	1.00	230/460	MD2S125T61	LM10644	875
	3600	404TS	89.5	1.00	230/460	MD2S125TS61	LM03797	875
	1800	405T	93.0	1.00	230/460	MD4S125T61	LM03809	972
	1800	405TS	93.0	1.00	230/460	MD4S125TS61	LM03808	972
	1200	445T	94.1	1.00	460	MD6S125T64PY	LM03768	1,377
	1200	445TS	94.1	1.00	460	MD6S125TS64PY	LM10645	1,377
150	3600	405T	89.5	1.00	230/460	MD2S150T61	LM03816	978
	3600	405TS	89.5	1.00	230/460	MD2S150TS61	LM03815	978
	1800	444T	93.6	1.00	460	MD4S150T64PY	LM03761	1,230
	1800	444TS	93.6	1.00	460	MD4S150TS64PY	LM03760	1,230
	200	445T	94.5	1.00	460	MD4S200T64PY	LM03773	1,440
	1800	445TS	94.5	1.00	460	MD4S200TS64PY	LM03772	1,440
250	1800	445T	93.6	1.00	460	MD4S250T64PY	LM03780	1,500
	1800	445TS	93.6	1.00	460	MD4S250TS64PY	LM03779	1,500

## C-FACE WITH FEET

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
15	1200	284TC	86.5	1.00	230/460	MD6S15TC61	LM03616	287
	1200	284TSC	86.5	1.00	230/460	MD6S15TSC61	LM03615	287
20	1200	286TC	84.0	1.00	230/460	MD6S20TC61	LM03633	335
	1200	286TSC	84.0	1.00	230/460	MD6S20TSC61	LM03632	335
25	1800	284TC	87.5	1.00	230/460	MD4S25TC61	LM03623	303
	1800	284TSC	87.5	1.00	230/460	MD4S25TSC61	LM03619	303
	1200	324TC	89.5	1.00	230/460	MD6S25TC61	LM03666	432
30	1800	286TC	87.5	1.00	230/460	MD4S30TC61	LM03643	343
	1800	286TSC	87.5	1.00	230/460	MD4S30TSC61	LM03639	343
	1200	326TC	89.5	1.00	230/460	SE6S30TC61	LM20488	482
40	1800	324TC	90.2	1.00	230/460	MD4S40TC61	LM03673	439
	1800	324TSC	90.2	1.00	230/460	MD4S40TSC61	LM03671	439
	1200	364TC	91.7	1.00	230/460	MD6S40TC61	LM03705	667
50	1800	326TC	91.7	1.00	230/460	MD4S50TC61	LM03686	486
	1800	326TSC	91.7	1.00	230/460	MD4S50TSC61	LM03685	486
	1200	365TC	91.7	1.00	230/460	MD6S50TC61	LM03724	702
60	1800	364TC	92.4	1.00	230/460	MD4S60TC61	LM03711	639
	1800	364TSC	92.4	1.00	230/460	MD4S60TSC61	LM03713	639
75	1800	365TC	91.7	1.00	230/460	MD4S75TC61	LM03730	709
	1800	365TSC	91.7	1.00	230/460	MD4S75TSC61	LM03733	709
	1200	405TC	92.4	1.00	230/460	MD6S75TC61	LM03804	964
100	1800	404TC	93.0	1.00	230/460	MD4S100TC61	LM03792	881
	1800	404TSC	93.0	1.00	230/460	MD4S100TSC61	LM03794	881
	1200	444TSC	94.1	1.00	460	MD6S100TSC64PY	LM03755	1234

Product numbers in red are STOCK items.

Specifications are subject to change without notice

# ODP - ENCAPSULATED MULTIGUARD®



AC MOTORS

230/460 & 460 VOLTS • 3-PHASE  
FOOT MOUNT, C-FACE & DOUBLE C-FACE/DOUBLE SHAFT  
15 TO 250 HP

## C-FACE WITH FEET (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
125	1800	405TC	93.0	1.00	230/460	MD4S125TC61	LM03810	988
	1800	405TSC	93.0	1.00	230/460	MD4S125TSC61	LM03812	988
	1200	445TSC	94.1	1.00	460	MD6S125TSC64PY	LM03770	1398
150	1800	444TSC	93.6	1.00	460	MD4S150TSC64PY	LM03763	1251
200	1800	445TSC	94.5	1.00	460	MD4S200TSC64PY	LM03776	1435
250	1800	445TSC	93.6	1.00	460	SE4S250TSC64PY	LM16564	1600

## DOUBLE C-FACE/DOUBLE SHAFT

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
15	1200	284TC	86.5	1.00	230/460	MD6S15TCTMC61	LM10725	295
	1200	284TSC	86.5	1.00	230/460	MD6S15TSTSC61	LM10726	295
20	1200	286TC	84.0	1.00	230/460	MD6S20TCTMC61	LM10727	342
	1200	286TSC	84.0	1.00	230/460	MD6S20TSTSC61	LM03634	342
25	1800	284TC	87.5	1.00	230/460	MD4S25TCTMC61	LM03624	310
	1800	284TSC	87.5	1.00	230/460	MD4S25TSTSC61	LM03625	310
	1200	324TC	89.5	1.00	230/460	MD6S25TCTMC61	LM03667	442
	1200	324TSC	89.5	1.00	230/460	MD6S25TSTSC61	LM03668	442
30	1800	286TC	87.5	1.00	230/460	MD4S30TCTMC61	LM03644	348
	1800	286TSC	87.5	1.00	230/460	MD4S30TSTSC61	LM03645	348
	1200	326TC	89.5	1.00	230/460	MD6S30TCTMC61	LM10730	502
	1200	326TSC	89.5	1.00	230/460	MD6S30TSTSC61	LM03866	502
40	1800	324TC	90.2	1.00	230/460	MD4S40TCTMC61	LM03674	440
	1800	324TSC	90.2	1.00	230/460	MD4S40TSTSC61	LM03675	440
	1200	364TC	91.7	1.00	230/460	MD6S40TCTMC61	LM03706	679
	1200	364TSC	91.7	1.00	230/460	MD6S40TSTSC61	LM03707	679
50	1800	326TC	91.7	1.00	230/460	MD4S50TCTMC61	LM03687	496
	1800	326TSC	91.7	1.00	230/460	MD4S50TST61Y	LM27884	496
	1200	365TC	91.7	1.00	230/460	MD6S50TCTMC61	LM03725	714
	1200	365TSC	91.7	1.00	230/460	MD6S50TSTSC61	LM03726	714
60	1800	364TC	92.4	1.00	230/460	MD4S60TCTMC61	LM03714	651
	1800	364TSC	92.4	1.00	230/460	MD4S60TSTSC61	LM03715	651
	1200	404TC	92.4	1.00	230/460	MD6S60TCTMC61	LM03787	887
	1200	404TSC	92.4	1.00	230/460	MD6S60TSTSC61	LM03788	887
75	1800	365TC	91.7	1.00	230/460	MD4S75TCTMC61	LM03735	721
	1800	365TSC	91.7	1.00	230/460	MD4S75TSTSC61	LM03736	721
	1200	405TC	92.4	1.00	230/460	MD6S75TCTMC61	LM03805	980
	1200	405TSC	92.4	1.00	230/460	MD6S75TSTSC61	LM03806	980
100	1800	404TC	93.0	1.00	230/460	MD4S100TCTMC61	LM10741	897
	1800	404TSC	93.0	1.00	230/460	MD4S100TSTSC61	LM03795	897
	1200	444TC	94.1	1.00	460	MD6S100TCTMC64PY	LM03757	1234
	1200	444TSC	94.1	1.00	460	MD6S100TSTSC64PY	LM03758	1234
125	1800	405TC	93.0	1.00	230/460	SE4S125TCTMC61	LM10744	1004
	1800	405TSC	93.0	1.00	230/460	MD4S125TSTSC61	LM03813	1004
	1200	445TC	94.1	1.00	460	MD6S125TCTMC64PY	LM10745	1419
	1200	445TSC	94.1	1.00	460	MD6S125TSTSC64PY	LM03771	1419
150	1800	444TC	93.6	1.00	460	MD4S150TCTMC64PY	LM10748	1272
	1800	444TSC	93.6	1.00	460	MD4S150TSTSC64PY	LM03764	1272
200	1800	445TC	94.5	1.00	460	MD4S200TCTMC64PY	LM10749	1482
	1800	445TSC	94.5	1.00	460	MD4S200TSTSC64PY	LM03777	1482
250	1800	445TC	93.6	1.00	460	MD4S250TCTMC64PY	LM10750	1600
	1800	445TSC	93.6	1.00	460	MD4S250TSTSC64PY	LM10751	1600

Product numbers in red are STOCK items.

Specifications are subject to change without notice



# OTHER GENERAL PURPOSE MOTORS

RIGID BASE • SINGLE AND THREE PHASE

AC MOTORS



## TENV MOTORS

General purpose, totally enclosed non-vent motors with rigid base.

### SINGLE PHASE • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/6	3600	42	092011.00 A	16	115/208-230	None	1.0	9.56
	1800	42	092012.00 A	21	115/208-230	None	1.8	10.56
1/4	3600	42	092013.00 A	21	115/208-230	None	1.7	10.56
	1800	48	100361.00	17	115/208-230	None	2.2	9.43
	1800	S56	102914.00✚	24	115/208-230	None	2.3	9.81
1/3	3600	48	100362.00	24	115/208-230	None	2.0	9.93
	1800	S56	102912.00✚	25	115/208-230	None	2.6	10.81
	1800	S56	102913.00✚A	25	115/208-230	Man.	2.6	10.31
1/2	3600	48	100366.00	27	115/208-230	None	2.9	10.43
	1800	S56	102915.00✚	23	115/208-230	Auto.	2.3	9.81

### THREE PHASE • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/6	3600	42	092014.00	13	208-230/460	0.7	65.0	7.56
	1800	42	092015.00	14	208-230/460	0.9	61.0	7.81
1/4	3600	42	092016.00 A	15	208-230/460	0.9	62.0	8.06
	1800	48	100123.00	16	208-230/460	1.0	78.0	9.18
	1800	S56	101649.00	16	208-230/460	1.0	78.0	9.56
1/3	3600	48	101013.00	17	208-230/460	1.2	72.0	9.06
	1800	48	100443.00	19	208-230/460	1.4	78.0	9.56
	1800	S56	102920.00	20	208-230/460	1.3	77.0	9.56
1/2	3600	56	110143.00	25	208-230/460	1.5	67.0	10.38
	1800	S56	102918.00†	21	208-230/460	1.8	77.0	10.06
3/4	1800	56	114309.00	30	208-230/460	2.5	80.0	10.89
1	1800	143T	121098.00	35	208-230/460	3.2	80.0	11.83
1 1/2	1800	145T	121099.00	47	208-230/460	4.2	80.0	13.33

Motors in this column have a 1.15 Service Factor.

## F2 MOUNT MOTORS

General purpose, three-phase motors with NEMA F2 conduit box location.



### DRIP-PROOF • THREE PHASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
3	1800	182T	132232.00 A	75	208-230/460	7.2	89.5	13.69
5	1800	184T	132233.00 A	86	208-230/460	12.8	89.5	14.69
7 1/2	1800	213T	140831.00 A	133	208-230/460	20.6	91.0	16.25

Motors in this column have NEMA Service Factors—see page 274 for details.

### TEFC • THREE PHASE

NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
182T	132237.00 A	80	208-230/460	7.8	89.5	14.96
184T	132236.00 A	94	208-230/460	12.8	89.5	15.96
213T	140832.00 A	154	208-230/460	21.4	91.7	18.7

Motors in this column have a 1.15 Service Factor.

Note: For larger F2 mount motors, 150 & 170 Series cast iron motors may be converted to F2 by reassembly.

## AUTOMATIC OVERLOAD MOTORS

General purpose, drip-proof motors with automatic reset thermal overload protection. Not for use with variable frequency drives.



### THREE PHASE • DRIP-PROOF • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
3	1800	182T	132234.00 A	58	208-230/460	8.4	86.5	12.69
5	1800	184T	132235.00 A	78	208-230/460	13.2	87.5	13.69

† Class F insulated.  
✚ These totally enclosed single phase motors have 1.15 Service Factors. Subject to Availability.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

All three phase motors, 1 HP and above, are inverter rated.

# RESILIENT BASE MOTORS • SINGLE PHASE



## GENERAL PURPOSE OR FAN & BLOWER SERVICE • MODERATE STARTING TORQUE

### General Specifications:

Industrial quality, resilient (cradle) mounted, capacitor start-type, ball bearing motors for fan and blower service. Moderate starting torque electrical design to reduce stress on fan blades during start-up. Capacitor-type design has higher energy efficiency rating than split phase, single phase fan and blower motors. Suitable for belt-driven fans or fan-on-shaft applications. Self-ventilated design, may be mounted outside of the fan's airflow.

### DRIP-PROOF • SINGLE PHASE RESILIENT BASE

Drip-proof design and resilient mount. Moderate starting torque. Suitable for general purpose applications.



### TEFC • SINGLE PHASE RESILIENT BASE

Totally enclosed, fan cooled design makes these motors ideal for replacement in tough agricultural and industrial applications where contaminants cause failure of open drip-proof motors.



HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)	
1/4	3600	48	101434.00#A	16	115/208-230	Auto.	2.0	9.39	
	1800	48	100109.00	17	115/208-230	Auto.	2.7	9.89	
	1800	48	100111.00#	17	115/208-230	Auto.	2.7	9.89	
	1800	48	102963.00A	17	277	Auto.	2.2*	9.89	
1/3	3600	48	101431.00#	17	115/208-230	Auto.	2.3	9.39	
	1800	48	100110.00	18	115/208-230	Auto.	3.3	9.89	
	1800	48	101015.00#	18	115/208-230	Auto.	3.3	9.89	
	1800	S56	100014.00	19	115/208-230	None	3.3	10.31	
	1800	S56	100010.00	18	115/208-230	Auto.	3.3	10.31	
	1800	S56	100063.00#	19	115/208-230	Auto.	3.3	10.31	
	1800	S56	102964.00A	18	277	Auto.	2.8*	10.31	
	1800	S56	102965.00	22	277	Auto.	3.7*	10.81	
1/2	3600	48	101432.00#	20	115/208-230	Auto.	3.4	9.89	
	1800	S56	100015.00	21	115/208-230	None	4.4	10.81	
	1800	S56	100045.00#	20	115/208-230	Man.	4.4	10.81	
	1800	S56	101611.00]	22	115/208-230	Auto.	4.4	10.81	
	1800	S56	100011.00	22	115/208-230	Auto.	4.4	10.81	
	1800	S56	100064.00#	20	115/208-230	Auto.	4.4	10.81	
	1800	S56	102965.00	22	277	Auto.	3.7*	10.81	
	3/4	48	101433.00#	22	115/208-230	Auto.	4.8	10.39	
	3600	S56H	100603.00	26	115/208-230	Auto.	4.9	11.31	
	1800	S56H	100016.00	26	115/208-230	None	5.4	11.81	
3/4	1800	S56H	100046.00	26	115/208-230	Man.	5.4	11.81	
	1800	S56H	100047.00#	25	115/208-230	Man.	5.5	11.81	
	1800	S56H	101839.00]	28	115/208-230	Auto.	5.4	11.81	
	1800	S56H	100012.00	26	115/208-230	Auto.	5.4	11.81	
	1800	S56H	100065.00#	25	115/208-230	Auto.	5.5	11.81	
	1800	S56H	102966.00	26	277	Auto.	4.5*	11.81	
	1	3600	56H	110478.00	28	115/208-230	Auto.	6.0	11.85
	1800	56H	113027.00	30	115/208-230	None	6.4	11.81	
	1800	56H	110007.00	29	115/208-230	Auto.	6.4	11.81	
	1800	56H	110054.00#	32	115/208-230	Auto.	6.4	11.81	
1 1/2	3600	56H	110479.00	30	115/230	Auto.	8.2	11.82	
	1800	56H	110579.00*□	38	115/208-230	Auto	7.2	12.82	
	1800	56H	116600.00A	38	277	Auto	6.0*	12.82	
2	3600	56H	113633.00A	38	115/208-230	Auto.	10.0	13.82	
	1800	56H	113608.00*☆	45	115/208-230	Auto.	10.0	13.81	
	1800	56H	116601.00	45	277	Auto.	8.7*	13.82	

\* F.L. Amps at 277V

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/2	1800	56	110025.00	26	115/208-230	Auto.	4.4	11.96
3/4	1800	56	110026.00□	28	115/208-230	Auto.	5.4	12.46
1	1800	56H	111915.00□	31	115/208-230	Auto.	6.4	12.96

These motors have NEMA Service Factors except as noted by # which have a 1.0 Service Factor and TEFC motors, which have a 1.15 Service Factor.

### WATTSAVER® PREMIUM EFFICIENCY FAN MOTORS DRIP-PROOF • SINGLE PHASE RESILIENT BASE

Premium efficiency motors for residential, agricultural and industrial belted-fan applications, when continuous or near-continuous operation is common.

Features include quiet bearings, resilient cradle base, and quiet flow-through ventilation. Class F insulated, with spade connectors on terminal board for quick and easy installation.



HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 115V	% F.L. Eff.	"C" Dim. (Inches)
1/4	1800	48	101602.00	19	115	Auto.	2.5	71.0	10.39
1/3	1800	48	101405.00	19	115	Auto.	3.2	75.0	10.39
1/2	1800	48	101585.00	25	115	Auto.	4.6	76.0	11.39

② These combination 56H base motors have mounting holes for 56 and 143-5T, and a 1/2" diameter shaft with flat 1 1/2" long.

# These motors have a NEMA 1.00 Service Factor, suitable for blower and fan duty.

☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.

□ Combination 56 H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 shaft.

] With terminal board.  
A Subject to Availability.



# RESILIENT BASE MOTORS • THREE PHASE

GENERAL PURPOSE OR FAN & BLOWER SERVICE • MODERATE STARTING TORQUE

AC MOTORS

## General Specifications:

Industrial quality, resilient (cradle) mounted, three phase, ball bearing motors for fan and blower service. Moderate starting torque electrical design to reduce stress on fan blades during start-up. Suitable for belt-driven fans or fan-on-shaft applications. Self-ventilated design, may be mounted outside of the fan's airflow.

### TEFC • THREE PHASE RESILIENT BASE

Totally enclosed, fan cooled design makes these motors ideal for replacement in tough industrial applications where contaminants cause failure of open drip-proof designs.



### DRIP-PROOF • THREE PHASE RESILIENT BASE

Drip-proof design and resilient mount. Moderate starting torque. Suitable for general purpose applications.



HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-Load Prot.	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	1800	56	111917.00●□	25	208-230/460	None	1.8	78.5	11.31
1	1800	56	111918.00□	29	208-230/460	None	3.8	77.0	12.46

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-Load Prot.	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	3600	S56	101639.00+A	17	208-230/460	Auto.	1.7	61.0	10.31
	1800	S56	100210.00	18	208-230/460	None	1.6	64.3	10.31
1/2	1800	S56	101520.00+	19	208-230/460	Auto.	1.6	64.3	10.81
	3600	S56	101640.00+A	18	208-230/460	Auto.	2.4	69.0	10.31
1/2	1800	S56	100145.00	22	208-230/460	None	2.0	68.0	10.81
	1800	S56	100796.00+	22	208-230/460	Auto.	2.0	68.0	11.31
3/4	3600	S56	101773.00	20	208-230/460	None	2.4	79.0	10.81
	3600	S56	101641.00+A	20	208-230/460	Auto.	2.4	79.0	11.31
1	1800	S56	100146.00	25	208-230/460	None	2.8	75.0	11.31
	1800	S56	100908.00+	26	208-230/460	Auto.	2.8	75.0	11.81
1	3600	56	114192.00	24	208-230/460	None	3.2	77.0	10.82
	3600	56	113895.00+A	25	208-230/460	Auto.	3.2	77.0	10.82
1	1800	56	110052.00	23	208-230/460	None	4.2	78.5	11.31
	1800	56H	111311.00+	27	208-230/460	Auto.	4.2	78.5	11.31
1 1/2	3600	56H	114194.00 A	31	208-230/460	None	4.2	81.5	11.82
	3600	56H	113896.00+	29	208-230/460	Auto.	4.2	81.5	11.82
1 1/2	1800	56H	110433.00	32	208-230/460	None	5.6	78.5	11.81
	1800	56H	113846.00+	29	208-230/460	Auto.	5.6	78.5	11.81
2	3600	56H	114196.00 A	36	208-230/460	None	5.6	82.9	12.32
	3600	56H	113897.00+	39	208-230/460	Auto.	5.6	82.9	12.32
2	1800	56H	114197.00	37	208-230/460	None	6.2	78.5	12.31
	1800	56H	113847.00+	34	208-230/460	Auto.	6.2	78.5	12.31
3	3600	56HZ	113926.00+A	40	208-230/460	Auto.	7.6	84.0	13.19
	1800	56HZ	116593.00+	47	230/460	Auto.	8.6	82.5	14.19

- These motors are totally enclosed, non-ventilated.
- Combination 56 H base motors have mounting holes for NEMA 56 and a standard NEMA 56 shaft.
- ✦ Automatic reset overload protection. Do not use with variable frequency drives.
- A Subject to Availability.

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice



**PRESSURE WASHER PUMP MOTORS  
LOW AMPERAGE DESIGN**

Motors specially suited for hot or cold pressure washer applications and other single phase installations requiring minimum starting and running amperages. Capacitor start, capacitor run construction for reduced amperage.



**Mechanical Features:**

Double shield ball bearings prelubricated with Exxon POLYREX® EM lubricant, having operating temperature range of -20°F to +350°F and special formulation to provide extra long life and moisture resistance. Dynamically balanced rotor and shaft assembly.

**Electrical Features:**

High efficiency reduced amperage energy saving designs. Stator impregnated with extra heavy varnish system. High temperature copper magnet wire for high overload capacity. Capacitor start/ capacitor run design for reduced amperage. Grounding provision in conduit box. Manual reset overload protector protects against automatic resets. High overload capacities provided by service factor. **All 180 and 210 frame Rolled Steel motors have Class F Insulation.**



**C FACE WITH BASE • SINGLE PHASE • TEFC**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/3	1800	56C	116485.00 <sub>§</sub>	29	115/208-230	Man.	3.2	10.81
	1800	56C	116486.00 <sub>§</sub>	23	115/208-230	Man.	4.4	10.81
3/4	1800	56C	116487.00 <sub>§</sub>	30	115/208-230	Man.	5.4	11.31
1	3600	56C	115877.00	28	115/208-230	Man.	6.0	11.81
	1800	56C	115879.00	32	115/208-230	Man.	6.4	11.81
1½	3600	56C	115024.00 <sup>☆</sup>	35	115/208-230	Man.	6.2	12.31
	1800	56HC	116703.00 <sup>Ⓢ</sup>	39	115/208-230	Man.	8.6	12.81
2	3600	56HC	114995.00 <sup>☆</sup>	42	115/208-230	Man.	9.2	13.31
	1800	145TC	121465.00 <sup>Ⓢ</sup>	44	115/208-230	Man.	9.2	13.75
3	3600	56HC	115048.00 <sup>☆</sup> †	53	208-230	Man.	14.0	13.81
	1800	184TC	131857.00 <sup>☆</sup>	104	230	Man.	13.7	17.61
5	3600	184TC	131632.00†	103	230	Man.	19.8	16.97
	1800	184TC	131633.00 <sup>Ⓢ</sup> †	989	230	Man.	23.0	16.97

**RIGID BASE • SINGLE PHASE • DRIP-PROOF**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
3/4	3600	S56	100053.00	24	115/208-230	Man.	4.9	10.49
	1800	S56	101544.00 <sup>☆</sup>	28	115/208-230	Man.	4.0	11.24
1	3600	56	110097.00	27	115/208-230	Man.	6.0	10.84
	1800	56	113630.00 <sup>☆</sup>	31	115/208-230	Man.	5.3	10.84
1½	3600	56	113631.00 <sup>☆</sup>	36	115/208-230	Man.	6.2	11.34
	1800	56H	113266.00 <sup>☆</sup> □	42	115/208-230	Man.	6.7	12.38
	1800	145T	120004.00 <sup>☆</sup>	40	115/208-230	Man.	8.6	12.28
2	3600	56	113632.00 <sup>☆</sup>	36	115/208-230	Man.	8.6	11.34
	1800	56H	116704.00□	45	115/208-230	Man.	8.6	12.88
	1800	145T	120879.00	53	115/208-230	Man.	8.6	13.31
3	3600	56H	116706.00□ <sup>☆</sup> †	39	230	Man.	15.0	12.38
	1800	184T	131851.00 <sup>☆</sup>	72	208-230	Man.	13.7	15.22
5	3600	56H	116708.00□ <sup>☆</sup> †	45	230	Man.	20.8	13.34
	1800	184T	131622.00	82	208-230	Man.	21.0	14.69

**RIGID BASE • SINGLE PHASE • TEFC**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
3/4	3600	56	110108.00	26	115/208-230	Man.	5.0	11.31
	1800	56	110022.00	29	115/208-230	Man.	5.4	11.31
1	3600	56	110142.00	28	115/208-230	Man.	6.0	11.81
	1800	56	110023.00	29	115/208-230	Man.	6.4	11.81
	1800	143T	120008.00	31	115/208-230	Man.	6.4	12.75
1½	3600	56	110109.00♣	31	115/208-230	Man.	8.5	12.31
	1800	56H	113333.00♣□	38	115/208-230	Man.	8.6	12.81
	1800	145T	120009.00♣	42	115/208-230	Man.	8.6	13.25
2	3600	56H	110402.00□♣†	41	115/208-230	Man.	10.0	13.31
	3600	145T	120395.00♣†	44	115/208-230	Man.	10.0	13.75
	1800	145T	120867.00♣	48	115/208-230	Man.	9.2	13.75
3	3600	56H	116705.00□♣†	53	230	Man.	14.0	13.81
	1800	184T	131855.00 <sup>☆</sup>	88	230	Man.	13.7	16.86
5	3600	184T	132042.00	103	230	Man.	19.8	16.97
	1800	184T	131856.00 <sup>☆</sup>	95	230	Man.	21.0	17.86

**C FACE WITH BASE • SINGLE PHASE • DRIP-PROOF**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1½	3600	56C	114214.00	35	115/208-230	Man.	6.2	11.34
	1800	56HC	113700.00 <sup>☆</sup> □	38	115/208-230	Man.	7.2	11.84
2	3600	56C	114215.00	45	115/208-230	Man.	8.6	11.34
	1800	56HC	113281.00 <sup>☆</sup> □	45	115/208-230	Man.	8.6	12.88
3	3600	56HC	116707.00 <sup>☆</sup> □†	41	230	Man.	15.0	12.38
	1800	184TC	131853.00 <sup>☆</sup>	87	208-230	Man.	15.4	15.96
5	3600	56HC	116709.00□†♣	46	230	Man.	20.8	13.54
	1800	184TC	131630.00 <sup>☆</sup>	77	208-230	Man.	21.0	14.69

☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.  
 □ Combination 56H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 face and 5/8" shaft.  
 ♣ 1.0 Service Factor  
 † Class F insulation  
 § Farm Duty motor

### COMPRESSOR DUTY



#### General Specifications:

Motors designed for air compressor, pump, and fan and blower duty applications which require high breakdown torque and rugged mechanical construction.

#### Mechanical Features:

Prelubricated double shielded, amply sized, ball bearing construction to accommodate varying belt loads and tension.

#### Electrical Features:

High efficiency energy saving designs. Class "F" copper windings. Class "F" varnish. High starting and breakdown torque. Single phase motors are wired for CW rotation facing lead end. They may be reconnected for CCW rotation. The compressor motors shown here are the ratings most common to this application. All 180 and 210 frame Rolled Steel motors have Class F Insulation.

### SINGLE PHASE • DRIP-PROOF • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1	3600	56	110160.00	27	115/230	Man.	6.7	11.38
	1800	143T	120044.00	38	115/208-230	None	6.4	11.28
	1800	143T	120003.00	33	115/208-230	Man.	6.4	11.13
1½	3600	56	110161.00	33	115/230	Man.	10.0	11.88
	1800	145T	120042.00☆	38	115/208-230	None	8.6	12.28
	1800	145T	120004.00☆	40	115/208-230	Man.	8.6	12.28
2	3600	56	110232.00	33	115/230	Man.	11.0	11.88
	1800	182T	131515.00	56	115/208-230	None	12.4	13.19
	1800	182T	131536.00	63	115/208-230	Man.	8.8	10.66
3	3600	56Y	110222.00⊗†	38	230	Man.	15.0	12.38
	1800	184T	131534.00	69	115/230	None	16.9	14.19
5SPL	3600	56	116523.00☆	35	208-230	Man.	15.0	11.44
5	3600	56Y	111275.00☆⊗†	44	230	Man.	20.8	13.34
	3600	56Y	116789.00☆†	45	230	Man.	20.8	12.38
	3600	145T	120554.00☆†	46	230	Man.	20.8	13.12
	1800	184T	131537.00☆	83	230	None	21.0	14.69
	1800	184T	131622.00☆	82	230	Man.	21.0	14.69
7½	3600	184T	132044.00☆	110	208-230	Tstat	31.0	16.69
	3600	213T	140680.00☆	112	208-230	None	29.5	16.55
	1800	215T	140155.00☆	113	230	None	36.0	17.26
10	3600	215T	140681.00☆	135	208-230	None	37.0	18.05
	1800	215TZ	140311.00☆✓	140	230	None	43.0	19.76

### THREE PHASE • DRIP-PROOF • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1	1800	143T	121003.00	36	208-230/460	3.2	85.5	12.12
1½	1800	145T	121004.00	35	208-230/460	4.8	86.5	12.62
2	1800	145T	121005.00	37	208-230/460	5.8	86.5	13.62
3	1800	182T	131519.00	75	208-230/460	7.8	89.5	13.69
5	1800	184T	131520.00	86	208-230/460	12.8	89.5	14.69
7½	1800	213T	140470.00	133	208-230/460	20.6	91.0	16.25
10	1800	215T	140472.00	144	208-230/460	26.8	91.7	17.25
20	1800	256T	170006.60†	324	208-230/460	51.0	93.0	22.60

### THREE PHASE • TEFC • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
3	1800	182T	131463.00	80	208-230/460	7.8	89.5	14.96
5	1800	182T	131464.00	94	208-230/460	12.8	89.5	15.96
7½	1800	213T	140450.00	144	208-230/460	21.4	91.7	18.70
10	1800	215T	140451.00	161	208-230/460	26.6	91.7	19.70
15	1800	254T	170066.60†	280	208-230/460	36.0	92.4	23.19
20	1800	256T	170007.60†	322	208-230/460	49.0	93.0	24.92

☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.

† Class F insulated.

✓ Motor with standard diameter shaft, 1.0" longer than standard.

⊗ Special BA dimension 2.31" for belt guard clearance.

‡ Motor has mounting base with 182T mounting holes, shaft height is 4.5". Shaft is std. NEMA 56 - 5/8" dia. x 1 7/8" long.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

WATTSAVERe Motors Meet NEMA MG1 part 30 & 31.

**WOODWORKING MOTORS**

**General Specifications:**

Motors designed for woodworking equipment such as table saws, planers, etc.

Totally enclosed designs prevent motor problems caused by wood dust and shavings.



**SINGLE PHASE • TEFC • RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
3/4	3600	56	110108.00	26	115/208-230	Man.	5.0	11.31
1	3600	56	110142.00	28	115/208-230	Man.	6.0	11.81
1½	3600	56	110109.00	34	115/208-230	Man.	8.5	12.31
2	3600	56H	110402.00*†	41	115/208-230	Man.	10.0	13.31
		145T	120395.00*†	44	115/208-230	Man.	10.0	13.75
3	3600	145T	120341.00*†	46	230	None	13.0	14.25

**SINGLE PHASE • TEFC • C FACE LESS BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
3	3600	145TC	120824.00☆	56	230	Man.	13.0	14.25

**TABLE SAW MOTOR**

**General Specifications:**

Totally enclosed fan cooled motor produces extra high breakdown torques for maximum cutting power.

Supplied with 8-foot cord and 115V plug, on/off toggle switch. CW rotation, facing lead end. Replaces Delta motor number 62-042.



**SINGLE PHASE • TEFC • RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1½	3600	56	113627.00	39	115/230	Man.	7.5	12.31

**CONTRACTORS' SAW MOTORS**

**Special Mounting:**

Motor pivots on rod for belt tensioning. Totally enclosed fan cooled motor produces extra high breakdown torques for maximum cutting power. Has 1¼" long shaft, ¾" diameter with keyway. Added 54" cord to all motors 1½-4 HP. Catalog numbers 120925 and 120997 replace Delta UNISAW® motor 83-621 (1½ HP); 120728 and 120998 replace Delta UNISAW® motor 83-651 (3 HP).



**SINGLE PHASE • TEFC • DELTA UNISAW® MOUNTING**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1½	3600	143Y	120925.00	44	115/230	None	10.0	12.68
2	3600	143Y	120997.00	44	115/230	None	11.0	12.68
3	3600	145Y	120728.00☆	52	230	None	13.0	13.68
4	3600	145Y	120998.00☆	48	230	None	17.6	13.68

UNISAW® is a registered trademark of Delta International.

**CONTRACTORS' POWER TOOL MOTORS**

**General Specifications:**

Open, drip-proof double shaft motors for woodworking applications. With encapsulated, electronic starting switch and double shielded ball bearings to prevent failures caused by sawdust accumulation.

Capacitor start design for high torques and reduced amperage, improved efficiency.

Shaft extension each end, with keyway and flat 90° apart for ease of mounting.

Useable shaft, each end is 1½" long by ½" diameter on 48 frames and 17/8" long by 5/8" diameter on 56 frame motors.



**DOUBLE-SHAFT • SINGLE PHASE DRIP-PROOF • RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/2	1800	S56Z	101781.00	17	115/208-230	None	4.4	12.43
3/4	3600	48Z	101782.00A	24	115/208-230	None	4.9	12.18
1	3600	56Z	114216.00	27	115/208-230	None	6.0	12.81

- ☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.
- † Class F insulated.
- Combination 56 H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 shaft.
- ✦ These totally enclosed single phase motors have 1.15 Service Factors.
- A Subject to Availability.

## INSTANT REVERSING MOTORS

### PARKING GATES, DOOR OPERATORS & SLIDE GATES

#### General Specifications:

Specially designed motors for use on "instant-reversing" parking gates, doors, slide gates, or other moderate starting torque instant reversing applications. Capable of frequent reversing service.

#### Features (Resilient Base and C Face):

Instant "plug-reversing" with simple three-wire connection. Permanent split capacitor design offering low inrush and full load amps. Manual reset overload protector. Starting torque approximately 150% of full load, not suitable for hard to start loads.

#### Features (Rigid Base):

Capacitor start, induction run motors with solid state, instant reversing switch. Manual reset overload protector.



### RESILIENT BASE • SINGLE PHASE • DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 115V	"C" Dim. (Inches)
1/3	1800	S56	191742.00	18	115	Man.	4.0	10.31
1/2	1800	S56	100802.00 D	24	115	Man.	6.1	11.31
		S56	103460.00	22	115	Man.	5.0	9.94
		S56	191743.00	24	115	Man.	4.6	10.31
3/4	1800	56H	113642.00	33	115	Man.	8.2	11.31

Notes:  
D = Item will be Discontinued once inventory is depleted

### C FACE LESS BASE • SINGLE PHASE • DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 115V	"C" Dim. (Inches)
1/3	1800	S56C	102017.00	18	115	Man.	4.2	9.99
1/2	1800	S56C	102021.00	22	115	Man.	6.1	10.49
		S56C	100704.00*	16	115	Man.	5.1	10.24

\* Motor has same electrical design as 102017, but is rated for intermittent duty.

### RIGID BASE • SINGLE PHASE • TEFC

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
3/4	1800	56	114932.00	30	115/208-230	Man.	5.4	11.31
1	1800	56	114933.00	30	115/208-230	Man.	6.4	11.81

## Electra Boat Hoist Motors - Stainless Steel Frame - Aluminum Endbells - 15 minute Duty

### BOAT HOIST MOTORS

Our Electra Gear line of Boat Hoist Duty motors provide customized features that are needed to support the Boat Hoist Industry.

#### Features Include:

- Stainless Steel frame, base, capacitor case and conduit box cover
- 15 Minute Duty Cycle
- Drain Holes located at 6:00 position
- TENV enclosure
- Die Cast Aluminum endbells
- Capacitor case located at 12:00
- 115/230 Volt – 1.15 S.F.
- UL and CSA listed



### 56 FRAME • C-FACE WITH BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	"C" Dim. (Inches)
1/2	1800	56C	6439191250	23	115/208-230	4.1	10.5
3/4	1800	56C	6439191251	25.5	115/208-230	4.9	11.1
1	1800	56C	6439191252	33	115/208-230	6.8	11.7
1-1/2	1800	56C	6439191253	47	115/208-230	8.4	12.6

### 56 FRAME • C-FACE MOTRS LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	"C" Dim. (Inches)
1/2	1800	56C	6439191260	22	115/208-230	4.1	10.5
3/4	1800	56C	6439191261	23.5	115/208-230	4.9	11.1
1	1800	56C	6439191262	32	115/208-230	6.8	11.7
1-1/2	1800	56C	6439191263	46	115/208-230	8.4	12.6
2	1800	56C	6439191264	47.5	115/208-230	9	13.4

### TWO-WINDING VARIABLE TORQUE PSC TYPE FOR SHAFT MOUNTED FAN APPLICATIONS

These fan and blower duty motors are designed for dependable, *energy saving* performance in applications where the fan is mounted on the shaft of the motor. The permanent split capacitor design does not require a centrifugal switch, resulting in higher reliability than on other types of single phase motors. This design is also more energy efficient and less expensive to operate.



These motors may be operated at listed speed or two speed operation may be achieved by using the proper auxiliary switch. They are suitable for variable speed by adjusting the voltage to the motor using a variable voltage control.

Overload protected with a UL and CSA recognized automatic reset protector. Grounding provisions. Totally enclosed, dust tight design, with resilient mounting for quiet operation. Lubricated with Exxon POLYREX<sup>®</sup> EM high temperature lubricant. Exterior coating on 56-frame motors is two-stage epoxy and on 48-frame motors a baked-on powder coat is applied for extra corrosion resistance in tough applications. Because of the inherently low starting torques of this design, these motors are not suitable for belt driven fan applications. They must be mounted within the air stream of the driven fan.



### TWO-SPEED, TWO-WINDING VARIABLE TORQUE FOR BELT DRIVEN OR SHAFT MOUNTED FAN APPLICATIONS

Variable torque, two-speed motors are suited for belted or fan on shaft applications. They are self ventilated, and may be mounted within or outside of the driven fan's air stream.



Resilient mounted for quiet operation, and lubricated with high temperature Exxon POLYREX<sup>®</sup> EM lubricant.

3/4 HP and larger single phase are capacitor start motors; smaller single phase are split phase start.

- Suitable for single speed operation only.
- ① Has provisions for Bellyband and pedestal fan mounting – no rigid base.
- ② In addition to resilient base, this motor has provisions for Bellyband and pedestal mounting.
- Combination 56H base motors have mounting holes for NEMA 56 and NEMA 143-ST and a standard NEMA 56 shaft.
- ④ These 825 and 1075 RPM motors suitable for single speed operation only.
- \* The shaft of this motor is 3/4" longer to accommodate fan on shaft mountings. 48Z is 1/2" diameter by 2 1/4". 56Z is 5/8" diameter, 2 5/8" long. All have 1" extended through bolts, except Catalog Numbers 100805 and 100806 which are extended 1/4".
- ☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.
- ✓ This split phase start, capacitor run motor is suitable for belt drive within the airflow of the fan.
- A Subject to Availability.

### SINGLE PHASE • PSC TYPE • RESILIENT BASE TOTALLY ENCLOSED AIR OVER (TEAO)

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/4	1800	48Z*	100803.00	19	115/230	Auto.	1.4	10.66
	1200	48Z*	100824.00	20	115/230	Auto.	1.4	10.66
	1200	S56Z*	10080500	22	115/230	Auto.	1.4	11.06
1/3	1800	48Z*	100804.00	21	115/230	Auto.	1.6	10.66
	1800	S56H	100767.00	22	115/230	Auto.	1.6	10.31
	1800	56HY	111348.00②	29	115/230	Auto.	1.7	12.94
	1200	48Z*	100825.00	25	115/230	Auto.	1.8	11.16
	1200	S56HZ*	100806.00	27	115/230	Auto.	1.8	11.56
	1200	48Z*	101645.00	27	115/230	Auto.	2.8	11.16
1/2	1800	56HZ*	111323.00	30	115/230	Auto.	2.6	12.56
	1800	S56H	100768.00	36	115/230	Auto.	2.2	10.81
	1200	56HZ*	111321.00□	37	115/230	Auto.	3.0	13.56
3/4	1800	56HZ*	111322.00□④	44	115/230	Auto.	4.0	13.56
	1800	56H	111266.00	36	115/230	Auto.	3.5	12.31
	1200	56HZ*	111322.00□④	44	115/230	Auto.	4.0	13.56
1	1800	56HZ*	111267.00	39	115/230	Auto.	4.4	12.81

These motors have a 1.0 Service Factor.

### SINGLE PHASE • PSC TYPE • RIGID BASE TOTALLY ENCLOSED AIR OVER (TEAO)

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/4	1800	48Y	100699.00	19	115/230	Auto.	1.4	10.65
	1800	48Y	101252.00*	19	115/208-230	Auto.	1.5	10.40
1/3	1800	48Y	100700.00	21	115/230	Auto.	1.6	10.65
	1800	56Y	111202.00① A	27	115/230	Auto.	1.7	12.00
	1800	48Y	101253.00* A	22	115/208-230	Auto.	1.9	10.65
	1200	S56Z	100604.00	23	115/230	Auto.	1.8	11.40
1/2	1800	48Y	100701.00	25	115/230	Auto.	2.5	12.15
	1800	S56Y	101176.00*✓	24	115/230	Auto.	3.5	10.40

### SINGLE PHASE • DRIP-PROOF • RESILIENT BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps High/Low	"C" Dim. (Inches)
1/4-1/12	1800/1200	48Z*	101020.00	20	115	None	4.2-3.2	11.64
1/3-0.15	1800/1200	S56H	101021.00	26	115	None	5.0-4.6	12.27
1/2-1/4	1800/1200	56H	111953.00	33	115	None	7.8-4.6	12.31
	1800/1200	56H	113643.00	33	230	None	3.9-2.3	12.31
3/4-1/3	1800/1200	56H	111954.00□	38	115	None	11.6-7.4	12.81
	1800/1200	56H	113672.00□	39	230	None	5.8-3.7	12.81
1-0.44	1800/1200	56H	111955.00□☆	41	115	None	13.2-9.5	12.81
	1800/1200	56H	113373.00□☆	39	230	None	6.5-4.6	12.81

### THREE PHASE • DRIP-PROOF • RESILIENT BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps High/Low	"C" Dim. (Inches)
1/2-.22	1800/1200	56H	111956.00 A	32	208-230	None	1.8-1.1	12.31
	1800/1200	56H	111957.00	32	460	None	0.9-0.5	12.31
3/4-1/3	1800/1200	56H	111958.00□ A	36	208-230	None	2.8-1.6	12.81
	1800/1200	56H	111959.00□	36	460	None	1.4-0.8	12.81
1-0.44	1800/1200	56H	111960.00□	40	208-230	None	4.0-2.4	12.81
	1800/1200	56H	111961.00□	40	460	None	1.8-1.0	12.81
1 1/2-.67	1800/1200	56H	111962.00□	40	208-230	None	5.0-2.6	12.81
	1800/1200	56H	111963.00□	40	460	None	2.5-1.3	12.81

These motors have a 1.0 Service Factor.

### AERATION FAN MOTORS

**Totally Enclosed Air Over Motors**, dust tight, suitable for shaft mounted fans. Capacitor start designs.

Designed to be used within the airflow of the driven fan, these motors offer protection from the environment and are finished in epoxy enamel to resist corrosion in tough atmospheres.

Lubricated with high temperature Exxon POLYREX® EM lubricant. Grounding provisions. Fully gasketed.



### VENTILATION FAN MOTOR SHAFT-MOUNTED • DUST-TIGHT

Totally enclosed, high efficiency, permanent split capacitor motor for direct drive exhaust ventilation fans in poultry and livestock houses. Fully gasketed, dust-tight construction with sealed bearings and shaft slinger. Automatic thermal overload protector. Extended through-bolts for mounting, no base. Built-in terminal panel for quick, easy connection. Grounding provision.

Because of the inherently low starting torque of this design, this motor is not suitable for belt-driven fan applications. It must be mounted in the air stream of the fan for cooling.



### CONDENSER FAN MOTORS

**For Shaft Mounted Fan Applications**

**Belly Band Mount Fan Motors** designed for operating vertical shaft-up on condenser fan, air over applications.

Enclosed endshield on shaft-end prevents contaminants from entering motor when mounted vertical shaft-up. Designed for belly band mount with three support screws located at 120° increments in motor frame. Shaft flingers located both internally and externally.

Double sealed ball bearings with Exxon POLYREX® EM grease having operating temperature range of -20°F to +350°F and special formulation to provide extra long life and moisture resistance. Phosphatized shaft for corrosion resistance. Gasketed conduit box. Ground screw accommodations.

1.15 Service Factor. Automatic overload protector also guards against primary single phasing—UL component recognized (File E57955).



### SINGLE PHASE • CAPACITOR START • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
3/4	3600	56Z	111332.00 <sup>⑦</sup>	27	115/230	None	5.0	10.90
1	3600	56Z	111333.00 <sup>⑦</sup>	29	115/230	None	6.0	10.90
1½	3600	56Z	111949.00 <sup>⑦</sup>	32	115/230	None	8.5	11.40
	3600	143TZ	120374.00 <sup>⑧</sup>	32	115/230	None	8.5	11.84
2	3600	145TZ	120375.00 <sup>⑧</sup>	41	230	None	10.0	13.34
3	3600	145T	120376.00 <sup>☆</sup>	45	230	None	12.8	13.84

These TEAO motors have a 1.0 Service Factor. Built-in terminal panel for quick easy connections.

### THREE PHASE • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
3/4	3600	56Z	111334.00 <sup>⑦</sup>	21	208-230/460	2.4	75.5	9.88
1	3600	56Z	111335.00 <sup>⑦</sup>	22	208-230/460	3.2	77.0	9.90
1½	3600	143TZ	120377.00 <sup>⑧</sup>	31	208-230/460	4.2	82.5	11.34
2	3600	145TZ	120378.00 <sup>⑧</sup>	34	208-230/460	5.6	82.5	11.84
3	3600	145T	120379.00 <sup>⑧</sup>	38	208-230/460	7.6	84.0	12.34

These TEAO motors have a 1.0 Service Factor.

### SINGLE PHASE • TEAO • THRU BOLT MOUNT

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/3	1800	48Y	M090085.00	20	115/230	Auto	1.8	10.79
1/2	1800	48Y	M090086.00	22	115/230	Auto	2.5	10.79
	900	56Z	114620.00 <sup>∇</sup>	35	115/230	Auto	3.2	12.63
	900	48Y	M099250.00 <sup>☆☆∇</sup>	24	115/230	Auto	3.0	11.00

### SINGLE & THREE PHASE • TEAO • C FACE LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	Phase	F.L. Amps 230V	"C" Dim. (Inches)
1/2	900	S56C	M099251.00 <sup>∇</sup>	24	115/230	Auto	1	3.0	10.40
1	900	S56CZ	M009644.00 <sup>∇*</sup>	45	230	Auto	1	4.6	15.60
1/2	900	56C	116201.00	35	208-230/460	...	3	3.0	10.90
1	900	56C	116202.00	45	208-230/460	...	3	5.0	12.90

### THREE PHASE • DRIP-PROOF★ AUTOMATIC OVERLOAD • BELLY BAND & RIGID MOUNT

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	1200	56Y	116772.00 <sup>Δ</sup>	25	208-230/460	2.8	66.0	12.56
3/4	1200	56Y	116773.00 <sup>Δ A</sup>	31	208-230/460	3.4	75.5	13.06
	1200	56Y	111147.00 <sup>Δ</sup>	37	208-230/460	3.6	77.0	14.06
1	1200	56Y	115778.00 <sup>+</sup>	37	208-230/460	4.0	77.0	14.05
	1200	56Y	111148.00 <sup>Δ</sup>	42	208-230/460	5.2	78.0	15.06
1½	1200	56HY	115779.00 <sup>+</sup>	39	208-230/460	5.6	79.0	15.55

<sup>⑦</sup> Standard 5/8" diameter shaft with keyway plus 3/4" deep hole drilled and tapped to 1/4-20 UNC in end of shaft to facilitate mounting of some fan blades.

<sup>⑧</sup> Standard 7/8" diameter shaft with keyway plus 3/4" deep hole drilled and tapped to 1/4-20 UNC in end of shaft to facilitate mounting of some fan blades.

<sup>☆</sup> Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.

<sup>+</sup> Rigid base.

<sup>Δ</sup> Belly band mount.

<sup>★</sup> Do Not use with AC Inverters.

<sup>A</sup> Subject to Availability.

# FAN & BLOWER MOTORS

## SINGLE PHASE • COMMERCIAL DUTY



### INDUSTRIAL SPLIT PHASE MOTORS

**LEESON FHP Commercial Duty**, split phase motors with moderate starting torque, designed for continuous duty on ventilation fans, blowers and other belt driven or fan on shaft applications.



Resilient base for quiet operation. Pre-lubricated ball bearings for long life in commercial and industrial environments. Has automatic thermal overload and built-in terminal panel style connection provisions.

### DRIP-PROOF • RESILIENT BASE • AUTOMATIC OVERLOAD

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 115V	Service Factor	"L" Dim. (Inches)	"C" Dim. (Inches)
1/4	1800	48	191868.00①	15	115/230	Auto.	4.6	1.35	4.00	9.37
1/3	1800	48	191869.00①	17	115/230	Auto.	5.8	1.35	4.51	9.88
1/2	1800	48	191870.00①	19	115/230	Auto.	8.4	1.25	5.02	10.39

Dimensions on Page 282

① Motors built after December 01, 2005 have terminal boards.

### RESIDENTIAL/INDUSTRIAL BELTED FAN MOTORS SPLIT PHASE

Designed for use in residential and commercial fans and blowers where low starting torque is required. (Air conditioners, roof ventilators and exhaust fans.)



Ball bearings. NEMA Service factors. Resilient "cradle" style base.

### OPEN DRIP-PROOF • RESILIENT BASE • AUTOMATIC OVERLOAD

HP	SYN RPM 60 Hz	NEMA Frame	Bearing Type	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 115V	"C" Dim. (Inches)
1/4	1800	48YZ☆	Ball	M900195.00	13	115	Auto.	5.0	9.72
1/3	1800/1200	56	Ball	M900277.00	20	115	Auto.	5.3/2.9	10.78
	1800	48YZ☆	Ball	M900196.00	15	115	Auto.	6.1	9.72
1/2	1800/1200	56	Ball	M900599.00	30	115	Auto.	8.4/4.5	11.85
	1800	48YZ☆	Ball	M900197.00	20	115	Auto.	7.2	10.72

☆ 48YZ motors have std. 48-frame base with 1/2" dia. x 1 7/8" long shaft ext. with flat. Also includes sleeve to convert shaft to 5/8" dia. with 3/16" square key.

### PREMIUM EFFICIENCY INDUSTRIAL/RESIDENTIAL BELTED FAN MOTORS

High-efficiency motors for residential or industrial belted fan application.

Features include quiet ball bearings, resilient cradle base and "Super-Hush" flow-through ventilation.

Rotors are specially balanced for smooth and quiet operation.

Spade connectors on terminal board in standard wiring format along with industry standard mounting allow for quick and easy interchange with other makes.



### OPEN DRIP-PROOF • 115V • SINGLE PHASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 115V	% F.L. Eff.	"C" Dim. (Inches)
1/4	1800	48	M090602.00*	15	115	Auto.	2.5	71.0	9.88
1/3	1800	48	M090405.00*	19	115	Auto.	3.2	75.0	9.88
1/2	1800	48	M090585.00**	22	115	Auto.	4.6	76.0	10.50

\* Split-phase start, capacitor run  
\*\* Capacitor start, capacitor run



#### Features:

- Drop-in replacement for most standard belted-fan motors
- Extremely quiet running compared to standard fan motors
- Consumes approximately half of the power of a standard fan motor

### PEDESTAL FAN MOTORS

**LEESON FHP Commercial Duty totally enclosed**, air over fan motors for air circulators where motor is mounted directly to fan column.

Energy efficient, permanent split capacitor type design eliminates the centrifugal switch for "three phase" reliability. Totally enclosed ball bearing design for commercial and industrial environments. Automatic thermal overload protection, reversible.

Heavy-gauge steel yoke is welded to the motor frame. Four 10-32 mounting studs are extended 1.0" on 5.14" bolt circle for mounting of fan shroud.

Motors are UL and CSA Recognized for both the U.S. and Canadian markets.



### SINGLE PHASE • PSC TYPE • TEAO • YOKE MOUNTED AUTOMATIC OVERLOAD • 1.0 S.F.

HP	SYN RPM 60 Hz*	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 115V	"C" "U" Dim.	Dim. (Inches)
1/4	1800	48Y	191872.00	14	115/230	Auto.	2.6	0.500	10.95
	1800	48Y	191908.00	14	115/230	Auto.	2.6	0.625	10.95
	1200	48Y	191891.00	22	115/230	Auto.	2.4	0.500	10.95
	1200	48Y	191909.00	25	115/230	Auto.	2.4	0.625	10.95
1/3	1800	48Y	191871.00	15	115/230	Auto.	3.4	0.500	10.95
	1800	48Y	191910.00	15	115/230	Auto.	3.4	0.625	10.95
	1200	48Y	191892.00	23	115/230	Auto.	3.0	0.500	11.46
	1200	48Y	191911.00	26	115/230	Auto.	3.0	0.625	11.46
1/2	1800	48Y	191873.00	24	115/230	Auto.	4.6	0.500	10.95
	1800	48Y	191875.00	24	115/230	Auto.	4.6	0.625	10.95
	1200	48Y	191893.00	26	115/230	Auto.	5.0	0.500	11.93
	1200	48Y	191912.00	26	115/230	Auto.	5.0	0.625	11.93

\*Two speed operation possible by connecting 115V power to 230V connections. Actual speed (approx. 67% of rated speed) will depend on fan blade design.

Dimensions on page 282



GE COMMERCIAL MOTORS BY REGAL BELOIT DIRECT DRIVE FURNACE & CENTRAL AIR CONDITIONING MOTORS PERMANENT SPLIT CAPACITOR • 5 1/2" DIAMETER • TWO & THREE SPEED

Features:

- Reversible Rotation
• Mounting holes in shell for capacitor bracket
• Designed for 370 Volt capacitor (not furnished)
• 4" shaft extension
• Extended clamp screws on shaft end with a ring kit provided
• Ring kit allows both 2 1/4 and 2 1/2 resilient ring mounting
• Automatic thermal overload protection
• Sleeve Bearings



Applications:

Designed for continuous air over applications, such as furnace blowers or central air handling units with single shaft requirements

Table with columns: HP, SYN RPM 60 Hz, Catalog Number, Model Number, App. Wgt. (lbs.), Voltage, F.L. Amps 230V, "C" Dim. (Inches), Rotation, Speed. Rows include motor specifications for 1/4, 1/3, 1/2, and 3/4 HP.

GE COMMERCIAL MOTORS BY REGAL BELOIT CONDENSER FAN & HEAT PUMP MOTORS PERMANENT SPLIT CAPACITOR • SHAFT UP OR DOWN APPLICATION

Features:

- Sleeve or Ball Bearings
• 26" Motor Leads
• Shaft Slinger
• 6" shaft extension with 2 flats 90 degrees apart
• Designed for a 370 Volt capacitor



Applications:

Designed for condenser fan and heat pump units requiring vertical shaft up or vertical shaft down positioning with "belly band" or extended clamp screw mounting

Table with columns: HP, SYN RPM 60 Hz, Catalog Number, Model Number, App. Wgt. (lbs.), Voltage, F.L. Amps 230V, "C" Dim. (Inches), Rotation, Notes. Rows include motor specifications for 1/6, 1/4, 1/3, 1/2, and 3/4 HP.

Notes:

4 = Sleeve Bearing; 5 = Designed for 60 degree C ambient; 13 = TENV Construction; 14 = Ball Bearing





**GE COMMERCIAL MOTORS BY REGAL BELOIT HVAC HEATSHIELD™ MOTORS • OUTDOOR CONDENSER FAN**

**Features:**

- Motors designed for 70 degree Ambient
- Low Motor operating temperatures
- 48" lead length
- Shaft Flinger
- NEMA BDT designs
- All-angle mounting position
- Rheem mounting holes and hardware included
- Quick connects for capacitor leads
- Seal bushing on lead exit hole
- Extended thru bolts on both ends
- Reversible Rotation
- Drain holes in both endshields with plugs
- Single-speed Operation



HP	SYN RPM 60 Hz	Catalog Number	Model Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	"C" Dim. (Inches)	Rotation	Notes	Capacitor Rating
1/6	1200	3726HS	5KCP39DGU716S	9	208-230	1.0	10.96	CCW/CW	14	5/370V
	1200	3727HS	5KCP39DGY797S	9	208-230	1.0	10.96	CCW/CW	4	5/370V
1/4	1200	3728HS	5KCP39GGY796S	11	208-230	1.7	11.46	CCW/CW	4	5/370V
	1200	3732HS	5KCP39GGU714S	11	208-230	1.7	11.46	CCW/CW	14	5/370V
	1200	3736HS	5KCP39HGU722S	12	460	0.7	11.46	CCW/CW	14	7.5/370V
1/3	1200	3729HS	5KCP39LGY801S	14	208-230	2.6	12.21	CCW/CW	4	7.5/370V
	1200	3733HS	5KCP39LGU715S	14	208-230	2.6	12.21	CCW/CW	14	7.5/370V
	1200	3737HS	5KCP39NGU724S	16	460	1.2	12.46	CCW/CW	14	7.5/370V
1/2	1200	3730HS	5KCP39RGY799S	19	208-230	3.0	12.96	CCW/CW	4	10/370V
	1200	3734HS	5KCP39RGU718S	19	208-230	3.0	12.96	CCW/CW	14	10/370V
	1200	3738HS	5KCP39RGU723S	19	460	1.7	12.96	CCW/CW	14	10/370V
3/4	1200	3731HS	5KCP39SGY805S	20	208-230	4.1	13.21	CCW/CW	4	15/370V
	1200	3735HS	5KCP39SGU717S	20	208-230	4.1	13.21	CCW/CW	14	15/370V
	1200	3739HS	5KCP39SGU725S	20	460	2.0	13.21	CCW/CW	14	10/370V

Notes: 4 = Sleeve Bearing; 14 = Ball Bearing

**Applications:**

Designed for continuous air over applications, such as direct drive residential, commercial and industrial air conditioners, fan and blowers

**GE COMMERCIAL MOTORS BY REGAL BELOIT CONDENSER FAN & HEAT PUMP MOTORS PERMANENT SPLIT CAPACITOR • SHAFT UP OR HORIZONTAL APPLICATION**

**Features:**

- Extended clamp screws
- Automatic Thermal Overload protection
- Designed for 50Hz or 60Hz operation
- Single-speed operation



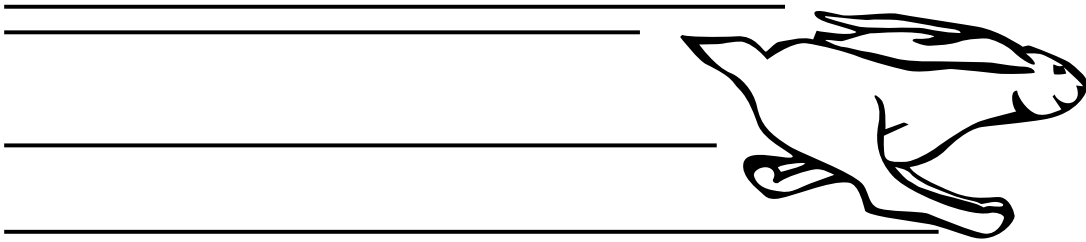
HP	SYN RPM 60 Hz	Catalog Number	Model Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	"C" Dim. (Inches)	Rotation	Notes
1/6	1200	3327	5KCP39DGP081S	9	208-230	0.9	10.63	CCW/CW	2, 4, 5, 9
1/4	1200	3328	5KCP39EGP697S	10	208-230	1.8	11.13	CCW/CW	4, 5, 9
1/3	1200	3329	5KCP39HGP698S	12	208-230	2.4	11.38	CCW/CW	2, 4, 5, 9
1/2	1200	3330	5KCP39MGK209S	14	208-230	3.6	11.88	CCW/CW	2, 4, 5, 9
3/4	1200	3331	5KCP39PFM210S	17	208-230	5.1	12.63	CCW/CW	2, 4, 9

Notes:  
 2 = 6" shaft extension with two flats 90 degrees apart;  
 4 = Sleeve Bearing;  
 5 = Designed for 60 degrees C ambient;  
 9 = Opposite shaft-end endshield is open.

**Applications:**

Designed for condenser fan and heat pump units requiring vertical shaft up or vertical shaft down positioning with "belly band" or extended clamp screw mounting

# Custom **PDQ**



## PDQ MODULAR PRODUCTION PROGRAM

**CUSTOM MULTI-SPEED, LOW SPEED AND MODIFIED MOTORS, ONE OR SEVERAL AT A TIME, ON A QUICK TURNAROUND BASIS.**

LEESON's "Modular Production" utilizes specially designed and standard components to make almost any imaginable NEMA frame multi-speed or low-speed motor available when you need it.

**Quick Turnaround-LEESON's Custom PDQ** can provide quick answers to inquiries and fast turnaround for orders of highly customized motors.

**Comprehensive Catalog** - Features the Industry's most extensive two-speed and low speed motor selection as well as a listing of commonly requested modifications. **Call for your copy of LEESON Catalog 1057 - Multi-Speed, Low-Speed and Modified Motors.**

**Full Fact Acknowledgement** - With **Custom PDQ** all custom motors are promptly and fully acknowledged upon receipt of order. The acknowledgement includes the complete motor specification pricing and shipping date.

Motors of 254T frame and larger are of cast iron construction with all the rugged features of LEESON's stock single-speed motors described on pages 18 & 19 of this catalog. All two-speed designs are class F insulated and have a 1.15 S.F.



**Whether for the everyday or not-so-everyday needs, Custom PDQ gives you the ability to say "Yes" to requests for customized motors.**

**Multi-speed**

Two, three and four-speed motors

**Low Speed**

900, 720, 600, 450 and 300 rpm

**Modified as per Catalog 1057 - Some examples are:**

- Anti-condensation heaters
- Brakemotors, custom
- Cooling tower specifications
- Downsized frames
- Epoxy and fungus proofing
- 50 Hz
- Premium-efficiency, North American manufacture
- Insulation, special
- Marine duty (below deck)
- Part winding (low and high voltages)
- Shafts, modified
- Thermostats
- Thermistors
- Washdown service
- IEEE841 conversion of WATTSaver® motors
- Voltages (non-standard)

**...and many more**

**For quotations, availability, and application assistance phone toll-free to our Canadian manufacturing facility.**

**CUSTOM PDQ  
1-800-463-1797**

# TWO-SPEED MOTORS

## THREE PHASE • VARIABLE AND CONSTANT TORQUE



### TWO-SPEED • VARIABLE AND CONSTANT TORQUE

Two-speed, single winding design motors. Typical applications and characteristic speed torque curves are noted below.

These totally enclosed fan cooled designs are priced competitive to other manufacturers' drip-proof two-speed, single winding motors.



#### VARIABLE TORQUE • 460 V

1725/850 RPM • ONE WINDING • RIGID BASE • TEFC

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps **	"C" Dim. (Inches)
1/25	1800/900	143T	120945.00 A	36	460	1.6–0.7	12.75
1.5/.37	1800/900	145T	120941.00†	36	460	2.4–1.0	12.75
2/5	1800/900	145T	120940.00 A	36	460	3.2–1.3	12.75
3/.75	1800/900	184T	131474.00 A	77	460	4.0–1.8	14.46
5/1.2	1800/900	184T	131475.00	107	460	6.5–2.5	15.96
7.5/1.9	1800/900	215T	140447.00	155	460	9.7–3.3	17.71
10/2.5	1800/900	215T	140448.00	168	460	12.7–4.2	18.71

These TEFC motors have a 1.0 Service Factor.

#### VARIABLE TORQUE • 208-230 V

1725/850 RPM • ONE WINDING • RIGID BASE • TEFC

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps **	"C" Dim. (Inches)
1/25	1800/900	143T	120944.00 A	36	208-230	3.2–1.4	12.75
1.5/.37	1800/900	145T	120947.00†A	36	208-230	4.8–2.0	12.75
2/5	1800/900	145T	120946.00	35	208-230	6.3–2.6	12.75
3/.75	1800/900	184T	131468.00	78	208-230	8.0–3.6	14.46
5/1.2	1800/900	184T	131469.00	94	208-230	13.0–5.0	15.96
7.5/1.9	1800/900	215T	140443.00	154	208-230	19.4–6.6	17.71
10/2.5	1800/900	215T	140444.00	166	208-230	25.4–8.4	18.71

These TEFC motors have a 1.0 Service Factor.

#### CONSTANT TORQUE • 460 V

1725/850 RPM • ONE WINDING • RIGID BASE • TEFC

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps **	"C" Dim. (Inches)
1/5	1800/900	143T	120943.00†A	36	460	1.4–1.6	13.25
2/1	1800/900	184T	131471.00	68	460	2.9–2.9	13.96
3/1.5	1800/900	184T	131470.00	80	460	3.8–3.5	14.96
5/2.5	1800/900	215T	140445.00 A	145	460	6.7–7.0	17.71

These TEFC motors have a 1.0 Service Factor.

#### CONSTANT TORQUE • 208-230 V

1725/850 RPM • ONE WINDING • RIGID BASE • TEFC

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps **	"C" Dim. (Inches)
1/5	1800/900	143T	120942.00 A	37	208-230	3.2–4.2	12.75
2/1	1800/900	184T	131473.00 A	69	208-230	5.8–5.7	13.96
3/1.5	1800/900	184T	131472.00	80	208-230	7.6–6.9	14.96
5/2.5	1800/900	215T	140446.00 A	137	208-230	13.4–14.0	17.71

These TEFC motors have a 1.0 Service Factor.

\*\* F.L. Amps listed are for high and low speeds, respectively.

† Class F insulated.

A Subject to Availability.

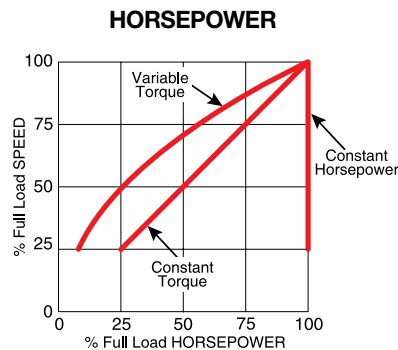
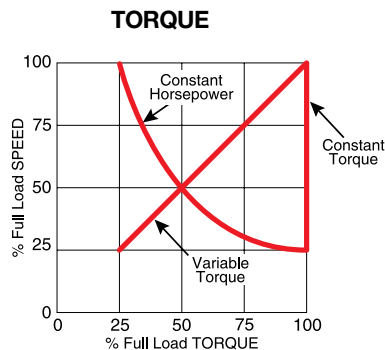
All 180 and 210 frame Rolled Steel motors have Class F Insulation.

### MULTI-SPEED MOTORS • APPLICATION DATA

**Variable torque** motors have horsepower ratings that vary as the the square of the speed, while torque varies directly with the speed. These motors are typically used on applications such as fans, blowers and centrifugal pumps.

**Constant torque** motors are capable of developing the same torque for all speeds. Their horsepower ratings vary directly with the speed. Constant torque motors are used on mixers, compressors, conveyors, printing presses, extractors, feeders and laundry machinery.

**Constant horsepower** motors develop the same horsepower at all operating speeds, and the torque varies inversely with the speed. These motors are often used on machine tools, such as drills, lathes, punch presses and milling machines. **Please contact LEESON with details for constant HP applications.**





**BRAKEMOTORS**

Fail-safe positive, stop and hold brakemotors. Brakes are spring set. Load is stopped automatically when power is turned off. LEESON brakemotors feature a power off manual release for convenience, and for use in case of a power failure. The manual release resets automatically. The standard brake is manufactured by Stearns. The brake

coil leads are brought into the conduit box of the motor for easy connection and may be connected to operate when power to the motor is shut off, or to be actuated independent of power to the motor. Three phase motors have brake coils rated 230/460 VAC, 60 Hz. Single phase brake coils are 115/230 VAC, 60 Hz.



**SINGLE PHASE • TENV/TEFC • C FACE WITH BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/3	1800	56C	3	114165.00●	28	115/208-230	None	2.9	14.06
1/2	1800	56C	3	111950.00	32	115/208-230	None	4.4	15.06
3/4	1800	56C	6	114167.00	38	115/208-230	None	5.4	15.56
1	1800	56C	6	111951.00☆	38	115/208-230	None	5.3	16.07
1½	1800	145TC	10	121815.00☆	40	115/208-230	None	8.8	18.23
2	1800	145TC	10	121816.00☆	40	115/208-230	None	9.2	19.23

**THREE PHASE • DRIP-PROOF • RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	1800	56	3	114162.00 A	28	208-230/460	2.0	74.0	13.56
3/4	1800	56	6	114163.00 A	29	208-230/460	2.8	77.0	14.06
1	1800	56	6	114164.00 A	32	208-230/460	4.2	78.5	14.06
1½	1800	145T	10	G120370.00 A	44	208-230/460	4.4	84.0	16.00
2	1800	145T	10	G120371.00 A	45	208-230/460	6.0	84.0	16.00
3	1800	182T	15	G131626.00 A	65	208-230/460	8.4	86.5	16.89
5	1800	184T	25	G131627.00 A	95	208-230/460	13.2	87.5	17.89
7½	1800	213T	35	G140611.00 A	130	208-230/460	20.0	88.5	23.01
10	1800	215T	50	G140635.00 A	138	208-230/460	28.0	89.5	25.01

- These motors are totally enclosed, non-ventilated – Others are fan cooled.
- ☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.



**THREE PHASE • DRIP-PROOF • C FACE LESS BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	1800	56C	3	114156.00	28	208-230/460	2.0	74.0	13.56
3/4	1800	56C	6	114157.00	38	208-230/460	2.8	77.0	14.06
1	1800	56C	6	114166.00	40	208-230/460	3.4	78.5	14.06
1	1800	143TC	6	121678.00 A	42	208-230/460	3.4	78.5	14.50
1½	1800	145TC	10	120372.00 A	43	208-230/460	5.6	78.5	15.50
1½	1800	56C	10	116766.00 A	43	208-230/460	5.6	78.5	15.50
2	1800	145TC	10	120373.00	47	208-230/460	6.2	78.5	16.00
3	1800	182TC	15	131624.00	56	208-230/460	10.0	80.0	16.40
5	1800	184TC	25	131625.00	76	208-230/460	14.2	84.0	17.35

**THREE PHASE • DRIP-PROOF • C FACE WITH BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	1800	56C	3	111326.00 A	31	208-230/460	2.0	74.0	13.56
3/4	1800	56C	6	111327.00 A	34	208-230/460	2.8	77.0	14.06
1	1800	56C	6	111328.00	42	208-230/460	4.2	78.5	14.06
1½	1800	145TC	10	G121053.00 A	42	208-230/460	4.4	84.0	16.00
2	1800	145TC	10	G121054.00	51	208-230/460	6.0	84.0	16.50
3	1800	182TC	15	G131558.00	84	208-230/460	8.4	86.5	16.90
5	1800	184TC	25	G131559.00	97	208-230/460	13.2	87.5	18.35
7½	1800	213TC	35	G140610.00	115	208-230/460	20.0	88.5	23.51
10	1800	215TC	50	G140638.00 A	125	208-230/460	28.0	89.5	25.01

A Subject to Availability.

Catalog numbers in green are EPACT motors.



**THREE PHASE • TEFC • RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56	3	114151.00● A	28	208-230/460	1.3	72.0	13.56
1/2	1800	56	3	114150.00● A	33	208-230/460	1.8	78.5	14.06
	1200	56	6	114149.00 A	33	208-230/460	2.4	70.0	15.56
3/4	1800	56	6	114147.00	34	208-230/460	2.8	77.0	15.56
	1200	56	6	114148.00 A	43	208-230/460	3.0	75.5	16.06
1	1800	56	6	114146.00	37	208-230/460	3.8	77.0	16.06
	1800	143T	6	G121679.00	40	208-230/460	3.1	82.5	17.50
	1200	145T	10	G121050.00	45	208-230/460	3.6	80.0	17.52
1½	1800	56	10	116767.00 A	44	208-230/460	4.4	84.0	17.08
	1800	145T	10	G120329.00	44	208-230/460	4.4	84.0	17.52
2	1800	145T	10	G120330.00	53	208-230/460	5.6	84.0	18.00
	1200	184T	15	G131620.00	80	208-230/460	7.2	86.5	20.33
3	1800	182T	15	G131613.00	78	230/460	8.2	87.5	18.83
	1200	213T	35	G140601.00	147	208-230/460	12.0	87.5	26.49
5	1800	184T	25	G131614.00	102	230/460	13.0	87.5	20.78
7½	1800	213T	35	G140603.00	162	208-230/460	20.4	89.5	26.49
10	1800	215T	50	G140636.00	174	208-230/460	26.0	89.5	27.99

**THREE PHASE • TEFC • C FACE WITH BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56C	3	110669.00●	30	208-230/460	1.3	72.0	13.56
1/2	1800	56C	3	110670.00●†	34	208-230/460	1.8	78.5	14.06
	1800	56C	3	114154.00	34	208-230/460	2.4	74.0	15.06
	1200	56C	3	114152.00	34	208-230/460	2.4	70.0	15.56
3/4	1800	56C	6	110671.00●†	34	208-230/460	2.5	80.0	14.56
	1800	56C	6	114155.00	46	208-230/460	2.8	77.0	15.56
1	1800	56C	6	110679.00	32	208-230/460	3.6	77.0	15.56
1800	143TC	6	G121557.00	43	208-230/460	3.1	82.5	17.50	
1½	1800	145TC	10	G121051.00	45	230/460	4.4	84.0	17.50
2	1800	145TC	10	G121052.00	59	208-230/460	5.6	84.0	18.00
3	1800	182TC	15	G131617.00	79	230/460	8.2	87.5	18.83
5	1800	184TC	25	G131618.00	117	230/460	13.0	87.5	20.78
7½	1800	213TC	35	G140605.00	163	208-230/460	20.4	89.5	26.49
10	1800	215TC	50	G140639.00	175	208-230/460	26.0	89.5	27.99



**THREE PHASE • TEFC • C FACE LESS BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56C	3	114158.00●	26	208-230/460	1.3	72.0	13.56
1/2	1800	56C	3	114159.00	26	208-230/460	2.0	74.0	15.06
3/4	1800	56C	6	114160.00	34	208-230/460	2.8	77.0	15.06
1	1800	56C	6	114161.00	31	208-230/460	3.6	77.0	15.56
	1800	143TC	6	121556.00	37	208-230/460	3.8	77.0	17.00
1½	1800	56C	10	116768.00	40	208-230/460	5.0	78.5	16.56
	1800	145TC	10	120331.00	40	208-230/460	5.0	78.5	17.00
2	1800	145TC	10	120332.00	51	208-230/460	6.0	84.0	18.00
3	1800	182TC	15	131610.00	69	230/460	9.0	84.0	18.73
5	1800	184TC	25	131611.00	92	230/460	13.2	86.0	19.18
7½	1800	S213TC	35	131612.00	149	230/460	19.6	87.0	25.29
10	1800	215TC	50	140637.00 A	136	208-230/460	26.0	89.5	27.99

● These motors are totally enclosed, non-ventilated.  
† Class F insulated.  
A Subject to Availability.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

Catalog numbers in green are EPACT motors.

**WASHGUARD • TENV/TEFC • C FACE WITH BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56C	3	116466.00●	40	208-230/460	1.3	72.0	14.00
1/2	1800	56C	3	116467.00●	42	208-230/460	1.8	78.5	14.50
3/4	1800	56C	6	116468.00●	44	208-230/460	2.5	80.0	15.00
1	1800	56C	6	116469.00●	48	208-230/460	3.2	80.0	15.50
	1800	143TC	6	121616.00●	49	208-230/460	3.2	80.0	16.06
1½	1800	145TC	10	G121617.00	50	208-230/460	4.4	84.0	19.01
2	1800	145TC	10	G121618.00	62	208-230/460	5.6	84.0	19.01

**WASHGUARD • TENV/TEFC • C FACE LESS BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56C	3	116462.00●	39	208-230/460	1.3	72.0	14.00
1/2	1800	56C	3	116463.00●	41	208-230/460	1.8	78.5	14.50
3/4	1800	56C	6	116464.00●	43	208-230/460	2.5	80.0	15.00
1	1800	56C	6	116465.00●	45	208-230/460	3.2	80.0	15.50
	1800	143TC	6	121613.00●	46	208-230/460	3.2	80.0	15.56
1½	1800	145TC	10	121614.00	49	208-230/460	5.0	78.5	18.01
2	1800	145TC	10	121615.00	61	208-230/460	6.2	81.5	18.51

**ALL-STAINLESS • TENV • C FACE WITH BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Brake Rating (ft-lbs)	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	1800	56C	3	116483.00●	59	208-230/460	1.6	78.5	15.85
1	1800	56C	6	116484.00●	69	208-230/460	3.0	81.5	15.85

● These motors are totally enclosed, non-ventilated.



## LEESON BRAKEKITS

Kit of components to convert 56 through 256T frame stock TEFC motors to fail-safe brakemotors.

Kit mounts on fan end of motor. Kits for 56-184T steel frame motors include totally enclosed Stearns AC brake, replacement cast fan cover, shaft extension, fan and hardware. Kits for 213T-256T cast iron frame motors **do not include brake**, but are designed for Stearns 87,000 series brake.

Two 1/2" NPT holes with 18" leads are provided for connections. The BRAKEKIT adds 5/8" to the overall length of 56 and 143-5T frame, and 5/8" to the overall length of 182-184T frame.

## BRAKEKITS

Brake Rating (ft-lbs)	Mounts to NEMA Frame	Max. HP @ 1725rpm	Cat. No.	Cat. No.	Cat. No.	App. Wt. (lbs.)
			115-208/230 V Brake Coil Voltage	208-230/460 V Brake Coil Voltage	575 V Brake Coil Voltage	
3	48/S56	1	—	<b>175615.00</b> ①	—	10
3	56/143-5T	1	<b>175659.00</b> <b>175762.00</b> ②	<b>175139.00</b> <b>175765.00</b> ②	<b>175177.00</b> <b>175768.00</b> ②	10
6	56/143-5T	2	<b>175660.00</b> <b>175763.00</b> ②	<b>175140.00</b> <b>175766.00</b> ②	<b>175178.00</b> <b>175769.00</b> ②	10
10	56/143-5T	3	<b>175662.00</b> <b>175764.00</b> ②	<b>175141.00</b> <b>175767.00</b> ②	<b>175179.00</b> <b>175770.00</b> ②	10
15	182-4T	3	—	<b>175696.00</b>	<b>175698.00</b>	12
25	182-4T	5	—	<b>175697.00</b>	<b>175699.00</b>	12

- 56/143-5T frame Brakekits cannot be used on S56 frame motors.
- Use the 182-4T frame Brakekits on motors having catalog numbers with a "G" prefix or that are 131454 or higher.
- 182-4T frame Brakekits can also be used on single-phase 4-pole (1725RPM) motors, but can only be connected for 208-230V. All brake coils are single phase.
- ① For motors having a "P" for the suffix letter on the date code and having a face mount fan guard.
- ② For 56/145 frame motors having a "B" for the suffix letter for the date code and having a **face mount fan guard**.

## BRAKE ADAPTER KITS

Brake Rating (ft-lbs)	Mounts to NEMA Frame	Max. HP @ 1725rpm	Catalog Number	App. Wt. (lbs.)
6-105	213-5T	10	<b>175710.00</b>	30
6-105	254-6T	20	<b>175711.00</b>	40

- Brake Adapter Kits include adapter casting/fan guard, brake fan, adapter shaft and hardware needed to mount a Stearns® 87,000 series brake (sold separately by Stearns®).
- Shaded frame sizes are for use with cast iron motors.



WASHGUARD Brakekits have the same convenient assembly method as general purpose models.

## BRAKEKITS FOR WASHGUARD MOTORS

Kit of components including a Stearns NEMA 4X brake to convert 56 thru 145T frame stock TEFC only motors to fail-safe brakemotors. Food safe white epoxy finish. BISSC Certified. Adds 5 1/8" to the overall length of 56 thru 145T WASHGUARD TEFC motors.

## WASHGUARD BRAKEKITS

For 230/460V Three Phase and 230V Single Phase Motors

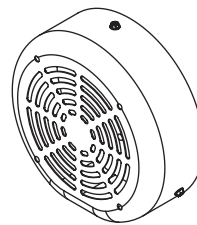
Brake Rating (ft-lbs)	Mounts to NEMA Frame	Max. HP @ 1725rpm	Cat. No.	App. Wt. (lbs.)
			208-230/460 V Brake Coil Voltage	
3	56/143-5T	1	<b>175616.00</b> <b>175771.00</b> ②	24
6	56/143-5T	2	<b>175617.00</b> <b>175772.00</b> ②	36
10	56/143-5T	3	<b>175618.00</b> <b>175773.00</b> ②	43

② For 56/145 frame motors having a "B" for the suffix letter for the date code and having a face mount fan guard.

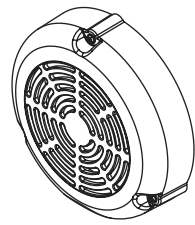
## BRAKE SELECTION

In this table, brake torque ratings are no less than 140% of the motor full load torque. Match HP & frame size of motor with appropriately rated BRAKEKIT.

Motor HP	Brakemotor RPM Torque Rating of Brake (Lb-Ft)		
	3450	1725	1140
1/3	3	3	3
1/2	3	3	3
3/4	3	6	6
1	3	6	6
1 1/2	6	10	10
2	6	10	15
3	10	15	25
5	15	25	35
7.5	25	35	50
10	25	50	75
15	35	75	105
20	50	105	—



Old Design



New Design - Face Mount



## DOUBLE C-FACE COUPLER BRAKES

A new and expanded line of Coupler Brakes designed for applications where mounting the brake between the motor and driven load is the preferred, or most convenient, location. They are an excellent problem solver for applications where a brake needs to be added to existing equipment – without replacing the motor.

Rugged cast aluminum or cast iron construction Stearns brakes are well suited to most industrial applications. Coupler brakes are designed to be C-face connected on both ends – these brakes are not suited for overhung loads to be applied to the output shaft.

A wide range of voltages and brake torque ratings in both NEMA 2 and NEMA 4X enclosures are available from stock. NEMA 2 brakes are best suited for use with standard ODP and TEFC motors. NEMA 4X brakes are designed for use with LEESON WASHGUARD motors.

## GENERAL PURPOSE COUPLER BRAKES

Mounts directly to the face and shaft of NEMA 56 through 215T-frame C-face motors to create a fail-safe brakemotor.

The 6 ft.lb. brake mounts to NEMA 56C or 143-5TC motors using an optional adaptor sleeve, which is included with the brake. Output shaft can be either 56C or 143-5TC depending on the location of the provided adaptor sleeve. A 1/2 NPT threaded lead exit hole is provided for power connections.



**Stearns**<sup>®</sup>

## GENERAL PURPOSE (NEMA 2) COUPLER BRAKES

For Both Single and Three Phase Motors

Motor Voltage 115/208-230V	Motor Voltage 208-230/460V	Motor Voltage 575V	Brake Rating (ft.-lbs)	Max. HP @ 1725 rpm	Mounts to NEMA Frame	Coupler Brake Output Shaft and Face	Add to Motor "C" Dim.	App. Wt. (lbs.)
<b>175563.00</b>	<b>175564.00</b>	<b>175565.00</b>	3	1	56C	5/8", 56C	4.91	13
<b>175569.00</b>	<b>175570.00</b>	<b>175571.00</b>	6	2	56C/143-5TC	5/8" or 7/8", 56C	4.91	14
<b>17557500</b>	<b>175576.00</b>	<b>175577.00</b>	10	3	143-5TC	7/8", 143-5TC	4.91	15
—	<b>175581.00</b>	—	15	3	143-5TC	7/8", 143-5TC	4.91	16
—	<b>175583.00</b>	—	15	3	182-4TC	1 1/8", 182-4TC	8.38	58
—	<b>175585.00</b>	—	25	5	182-4TC	1 1/8", 182-4TC	8.38	58
—	<b>175587.00</b>	—	35	7 1/2	213-5TC	1 3/8", 213-5TC	8.88	60
—	<b>175589.00</b>	—	50	10	213-5TC	1 3/8", 213-5TC	8.88	62

## WASHGUARD COUPLER BRAKES

Solid die-cast aluminum Stearns NEMA 4X coupler brake converts any TEFC or TENV 56C thru 215TC motor to a fail-safe brakemotor by mounting between the C-face motor and driven equipment. Food safe white epoxy finish. BISSC Certified. Adds 5" to the overall length of 56C thru 145TC WASHGUARD TEFC or TENV motors. Includes all mounting components.



## WASHGUARD (NEMA 4X) COUPLER BRAKES

For Both Single and Three Phase Motors

Motor Voltage 115/208-230V	Motor Voltage 208-230/460V	Motor Voltage 575V	Brake Rating (ft.-lbs)	Max. HP @ 1725 rpm	Mounts to NEMA Frame	Coupler Brake Output Shaft and Face	Add to Motor "C" Dim.	App. Wt. (lbs.)
<b>175566.00</b>	<b>175567.00</b>	<b>175568.00</b>	3	1	56C	5/8", 56C	4.94	13
<b>175572.00</b>	<b>175573.00</b>	<b>175574.00</b>	6	2	56C/143-5TC	5/8" or 7/8", 56C	4.94	14
<b>175578.00</b>	<b>175579.00</b>	<b>175580.00</b>	10	3	143-5TC	7/8", 143-5TC	4.94	15
—	<b>175582.00</b>	—	15	3	143-5TC	7/8", 143-5TC	4.94	16
—	<b>175584.00</b>	—	15	3	182-4TC	1 1/8", 182-4TC	8.38	58
—	<b>175586.00</b>	—	25	5	182-4TC	1 1/8", 182-4TC	8.38	58
—	<b>175588.00</b>	—	35	7 1/2	213-5TC	1 3/8", 213-5TC	8.88	60
—	<b>175590.00</b>	—	50	10	213-5TC	1 3/8", 213-5TC	8.88	62

### EXPLOSION-PROOF FOR HAZARDOUS LOCATIONS

Underwriters Laboratories and Canadian Standards Association Listed

#### General Specifications:

These explosion-proof motors are designed and approved for application in hazardous environments having certain explosive gases or materials present.

#### Features:

Rugged mechanical construction meeting all requirements for safety. UL and CSA listed.

Double shielded, pre-lubricated ball bearings are standard. All motors have inherent automatic overload protection. NEMA 1.0 Service Factor except as noted.

Explosion-proof conduit box included at no extra cost.

Capacitors on single phase designs are mounted inside the motor frame.

Division I areas are environments where a hazard is present continuously or would be subject to fire or explosion if the hazard was present as a result of an accident or uncommon occurrence.

Division II areas are environments where the threat of fire or explosion is not normally present and not likely to result in the event of an abnormal occurrence.

#### Application Notes:

These motors must be applied in accordance with the National Electrical Code, Article #500. A partial listing of explosive agents is noted below. Consult NFPA Publication 497M for a complete listing. Please note subheads above each column for qualifications of LEESON motors.

**NOTE: No LEESON motors are listed for Class I, Group A or B.**

#### Class I

**Group A:** Acetylene

**Group B:** Butadiene, ethylene oxide, hydrogen, propylene oxide, manufactured gases containing more than 30% hydrogen by volume.

**Group C:** Acetaldehyde, cyclopropane, diethyl ether, ethylene.

**Group D:** Acetone, acrylonitrile, ammonia, benzene, butane, ethanol, ethylene dichloride, gasoline, hexane, isoprene, methane (natural gas), methanol, naphtha, propane, propylene, styrene, toluene, vinyl acetate, vinyl chloride, xylene.

#### Class II

**Group E:** Aluminum, magnesium and other metal dusts with similar characteristics.

**Group F:** Carbon black, coke or coal dust.

**Group G:** Flour, starch or grain dust.



### SINGLE PHASE • RIGID BASE

DIVISION I, DIVISION II, CLASS I, GROUPS C & D—  
CLASS II, GROUPS F & G • W/CONDUIT BOX

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56	111074.00●	35	115/208-230	Auto.	2.9	63.0	12.97
1/2	1800	56H	111084.00□	41	115/208-230	Auto.	4.4	65.0	13.58
3/4	1800	56H	110934.00□	46	115/208-230	Auto.	5.5	70.0	14.08
1	1800	56H	110961.00□	47	115/208-230	Auto.	6.7	75.0	14.08

### SINGLE PHASE • C FACE LESS BASE

DIVISION I, DIVISION II, CLASS I, GROUPS C & D—  
CLASS II, GROUPS F & G • W/CONDUIT BOX

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	3600	56C	111095.00	38	115/208-230	Auto.	2.2	65.0	13.44
	1800	56C	111075.00●	41	115/208-230	Auto.	2.9	70.0	12.97
1/2	3600	56C	111098.00	35	115/208-230	Auto.	4.2	63.0	13.44
	3600	56J	116188.00 A	35	115/208-230	Auto.	3.8	63.0	13.96
	1800	56C	111085.00	45	115/208-230	Auto.	4.4	65.0	13.94
3/4	3600	56C	111097.00	40	115/208-230	Auto.	5.0	64.0	13.96
	3600	56J	116186.00 A	40	115/208-230	Auto.	5.0	64.0	14.46
	1800	56C	111086.00	50	115/208-230	Auto.	5.5	70.0	14.44
1	3600	56C	111096.00	49	115/208-230	Auto.	6.2	70.0	14.44
	3600	56J	116185.00	49	115/208-230	Auto.	6.0	70.0	14.96
	1800	56C	110852.00	53	115/208-230	Auto.	6.7	75.0	14.44
1 1/2	3600	56C	114424.00	44	115/208-230	Auto.	8.5	72.0	14.96
	3600	56J	116183.00 A	54	115/208-230	Auto.	8.5	72.0	14.95
2	3600	56C	114425.00	54	115/208-230	Auto.	10.5	74.0	14.94
	3600	56J	116181.00	54	115/208-230	Auto.	10.5	74.0	15.45

### SINGLE PHASE • C FACE WITH BASE

DIVISION I, DIVISION II, CLASS I, GROUPS C & D—  
CLASS II, GROUPS F & G • W/CONDUIT BOX

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	3600	56C	116605.00	39	115/208-230	Auto.	2.6	65.0	13.44
	1800	56C	116606.00	42	115/208-230	Auto.	3.3	62.0	13.44
	1200	56C	116607.00□	45	115/208-230	Auto.	3.9	58.0	13.94
1/2	3600	56C	116608.00□	36	115/208-230	Auto.	3.8	63.0	13.44
	1800	56C	116609.00□	46	115/208-230	Auto.	4.4	66.0	13.94
	1200	56HC	116610.00□	56	115/208-230	Auto.	4.7	64.0	14.94
3/4	3600	56C	116611.00□	41	115/208-230	Auto.	5.3	65.0	13.94
	1800	56C	116612.00□	51	115/208-230	Auto.	5.5	70.0	14.44
1	3600	56C	116613.00□	50	115/208-230	Auto.	6.3	70.0	14.44
	1800	56C	116614.00□	54	115/208-230	Auto.	6.7	75.0	14.44
1 1/2	3600	56C	116615.00□	45	115/208-230	Auto.	8.5	72.0	14.44
2	3600	56C	116616.00□	58	115/208-230	Auto.	10.5	74.0	14.94

● These motors are totally enclosed, non-ventilated—others are fan cooled.  
□ 56H & 56HC motors have bases with mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56C face and 5/8" shaft.  
A Subject to Availability.



**EXPLOSION-PROOF FOR HAZARDOUS LOCATIONS**

**Underwriters Laboratories and Canadian Standards Association Listed**



**General Specifications:**

These explosion-proof motors are designed and approved for application in hazardous environments having certain explosive gases or materials present.

**Features:**

Rugged mechanical construction meeting all requirements for safety. UL and CSA listed.

Double shielded, pre-lubricated ball bearings are standard. All motors have inherent automatic overload protection. NEMA 1.0 Service Factor except as noted.

Explosion-proof conduit box included at no extra cost.

Normally-closed thermostats are standard on cast iron motors.

Division I areas are environments where a hazard is present continuously or would be subject to fire or explosion if the hazard was present as a result of an accident or uncommon occurrence.

Division II areas are environments where the threat of fire or explosion is not normally present and not likely to result in the event of an abnormal occurrence.

**Application Notes:**

These motors must be applied in accordance with the National Electrical Code, Article #500. A partial listing of explosive agents is noted below. Consult NFPA Publication 497M for a complete listing. Please note subheads above each column for qualifications of LEESON motors.



**NOTE: No LEESON motors are listed for Class I, Group A or B.**

**Class I**

**Group A:** Acetylene

**Group B:** Butadiene, ethylene oxide, hydrogen, propylene oxide, manufactured gases containing more than 30% hydrogen by volume.

**Group C:** Acetaldehyde, cyclopropane, diethyl ether, ethylene.

**Group D:** Acetone, acrylonitrile, ammonia, benzene, butane, ethanol, ethylene dichloride, gasoline, hexane, isoprene, methane (natural gas), methanol, naphtha, propane, propylene, styrene, toluene, vinyl acetate, vinyl chloride, xylene.

**Class II**

**Group E:** Aluminum, magnesium and other metal dusts with similar characteristics.

**Group F:** Carbon black, coke or coal dust.

**Group G:** Flour, starch or grain dust.

**EXCEPT AS NOTED, STEEL FRAME EXPLOSION-PROOF MOTORS ARE *NOT* INVERTER-RATED AND MUST *NOT* BE USED WITH AN INVERTER**

**THREE PHASE • RIGID BASE**

**DIVISION I, DIVISION II, CLASS I, GROUPS C & D— CLASS II, GROUPS F & G • W/CONDUIT BOX**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	1800	56	111932.00●	33	208-230/460	Auto.	1.3	76.0	10.97
	1200	56H	111940.00●	39	208-230/460	Auto.	1.5	70.0	13.97
1/2	3600	56	111934.00●A	39	208-230/460	Auto.	1.6	82.5	12.47
	1800	56	111929.00▲●	32	208-230/460	Auto.	1.7	75.0	12.47
	1200	56H	111938.00●□	44	208-230/460	Auto.	2.0	71.0	13.47
3/4	3600	56	111937.00	37	208-230/460	Auto.	3.2	75.5	13.44
	1800	56	111923.00	38	208-230/460	Auto.	3.0	75.0	13.94
1	3600	56	111942.00 A	34	208-230/460	Auto.	3.6	77.0	13.44
	1800	56H	111922.00□	45	208-230/460	Auto.	3.6	78.0	13.94
1½	3600	143T	121914.00 A	49	208-230/460	Auto.	4.0	77.0	14.41
	1800	145T	121915.00	59	208-230/460	Auto.	4.8	85.5	14.41
2	3600	145T	121916.00 A	55	208-230/460	Auto.	4.8	84.0	15.41
	1800	145T	121917.00	60	208-230/460	Auto.	5.8	86.5	15.41
3	3600	145T	121918.00	56	208-230/460	Auto.	4.8	86.5	15.91

- ▲ These motors are satisfactory for operation on 50 Hz power supply at full rated horsepower.
- These motors are totally enclosed, non-ventilated—Others are fan cooled.
- Combination 56H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 shaft.

**THREE PHASE • C FACE LESS BASE**

**DIVISION I, DIVISION II, CLASS I, GROUPS C & D— CLASS II, GROUPS F & G • W/CONDUIT BOX**

HP	SYN RPM 60Hz▲	NEMA Frame	Catalog. Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	3600	56C	111944.00●+	36	208-230/460	Auto.	1.2	77.0	11.97
	1800	56C	111931.00▲●	29	208-230/460	Auto.	1.2	76.0	11.97
1/2	3600	56C	111933.00+●+●	33	208-230/460	Auto.	1.6	82.5	12.47
	3600	56J	116187.00●+A	33	208-230/460	Auto.	1.6	82.5	12.98
	1800	56C	111930.00▲●	34	208-230/460	Auto.	1.7	75.0	12.47
3/4	3600	56C	111936.00+	27	208-230/460	Auto.	2.4	75.5	13.44
	1800	56C	111935.00	36	208-230/460	Auto.	3.0	75.0	13.94
1	3600	56C	111943.00+	30	208-230/460	Auto.	3.2	77.0	13.44
	3600	56J	116184.00+	33	208-230/460	Auto.	3.2	77.0	13.95
	1800	56C	111926.00	46	208-230/460	Auto.	3.6	78.0	13.94
1½	3600	56C	111939.00+	48	208-230/460	Auto.	4.2	81.5	13.94
	3600	56J	116182.00+	48	208-230/460	Auto.	4.2	81.5	14.46
	1800	56C	111941.00	46	208-230/460	Auto.	4.4	80.0	15.94
2	3600	56C	113971.00+	50	208-230/460	Auto.	5.6	82.5	13.94
	3600	56J	116180.00+	50	208-230/460	Auto.	5.6	82.5	14.45
3	1800	145TC	G121178.00	55	208-230/460	Auto.	5.6	84.0	15.03
	3600	56C	114419.00ⓐ	54	208-230/460	Auto.	7.6	84.0	15.44
	1800	182TC	G825116.00ⓑ	96	230/460	T-Stat	8.5	87.5	17.87
5	1800	184TC	G825128.00ⓑ	116	230/460	T-Stat	13.8	87.5	17.87

ⓐ Catalog #114419 is approved for Class I, Group C & D – Class II, Group F service only.

ⓑ Explosion-proof motors are Class I, Group D—Class II, Groups F & G.

- ▲ These motors are satisfactory for operation on 50 Hz power supply at full rated horsepower.
- These motors are totally enclosed, non-ventilated—Others are fan cooled.
- + These motors have 1.15 Service Factors.
- ⓐ Consult factory for 50 Hz derate.
- A Subject to Availability.

Catalog numbers in green are EPACK motors.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

SEE PAGE 42 FOR INVERTER-RATED STEEL FRAME EXPLOSION-PROOF MOTORS

WATTSAVERe Motors Meet NEMA MG1 part 30 & 31.

Specifications are subject to change without notice

### EXPLOSION-PROOF FOR HAZARDOUS LOCATIONS

Underwriters Laboratories and Canadian Standards Association Listed

#### General Specifications:

These explosion-proof motors are designed and approved for application in hazardous environments having certain explosive gases or materials present.

#### Features:

Rugged mechanical construction meeting all requirements for safety. UL and CSA listed.

Double shielded, pre-lubricated ball bearings are standard. All motors have inherent automatic overload protection. NEMA 1.0 Service Factor except as noted.

Explosion-proof conduit box included at no extra cost.

Division I areas are environments where a hazard is present continuously or would be subject to fire or explosion if the hazard was present as a result of an accident or uncommon occurrence.

Division II areas are environments where the threat of fire or explosion is not normally present and not likely to result in the event of an abnormal occurrence.

#### Application Notes:

These motors must be applied in accordance with the National Electrical Code, Article #500. A partial listing of explosive agents is noted below. Consult NFPA Publication 497M for a complete listing. Please note subheads above each column for qualifications of LEESON motors.

**NOTE: No LEESON motors are listed for Class I, Group A or B.**

#### Class I

**Group A:** Acetylene

**Group B:** Butadiene, ethylene oxide, hydrogen, propylene oxide, manufactured gases containing more than 30% hydrogen by volume.

**Group C:** Acetaldehyde, cyclopropane, diethyl ether, ethylene.

**Group D:** Acetone, acrylonitrile, ammonia, benzene, butane, ethanol, ethylene dichloride, gasoline, hexane, isoprene, methane (natural gas), methanol, naphtha, propane, propylene, styrene, toluene, vinyl acetate, vinyl chloride, xylene.

#### Class II

**Group E:** Aluminum, magnesium and other metal dusts with similar characteristics.

**Group F:** Carbon black, coke or coal dust.

**Group G:** Flour, starch or grain dust.

**EXCEPT AS NOTED, STEEL FRAME EXPLOSION-PROOF MOTORS ARE NOT INVERTER-RATED AND MUST NOT BE USED WITH AN INVERTER**



### THREE PHASE • C FACE WITH BASE

DIVISION I, DIVISION II, CLASS I, GROUPS C & D— CLASS II, GROUPS F & G • W/CONDUIT BOX

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	3600	56C	114625.00▲●	33	208-230/460	Auto.	1.2	77.0	11.97
	1800	56C	114626.00▲●	38	208-230/460	Auto.	1.3	76.0	11.97
1/2	3600	56C	114627.00●★	35	208-230/460	Auto.	1.6	82.5	12.47
	1800	56C	114628.00▲●	35	208-230/460	Auto.	1.7	75.0	12.47
1800	1800	56C	116190.00❖	34	208-230/460	T-Stat	2.4	68.0	13.44
	1800	56C	114629.00	33	208-230/460	Auto.	2.4	75.5	13.44
1800	1800	56C	114630.00	42	208-230/460	Auto.	2.6	75.0	13.94
	1800	56C	116191.00❖	38	208-230/460	T-Stat	3.0	75.5	13.44
1	3600	56C	114631.00	34	208-230/460	Auto.	3.2	77.0	13.44
	1800	56C	114632.00	48	208-230/460	Auto.	3.2	85.5	14.50
1800	143TC	121919.00❖	44	208-230/460	T-Stat	3.0	82.5	14.50	
1 1/2	3600	56C	114633.00	42	208-230/460	Auto.	4.2	81.5	13.94
	1800	56C	114634.00	45	208-230/460	Auto.	4.4	80.0	15.94
1800	145TC	121920.00❖	58	208-230/460	T-Stat	4.8	86.5	16.00	
2	3600	56C	114635.00	51	208-230/460	Auto.	5.6	78.8	13.94
	1800	145TC	121921.00[W]	62	208-230/460	Auto.	5.8	86.5	15.02
1800	145TC	121922.00❖[W]	66	208-230/460	T-Stat	5.8	86.5	16.50	
3	3600	56C	114636.00③	62	208-230/460	Auto.	7.6	84.0	15.44

③ Catalog #114636 is approved for Class I, Group C & D – Class II, Group F service only.

▲ These motors are satisfactory for operation on 50 Hz power supply at full rated horsepower.

● These motors are totally enclosed, non-ventilated—Others are fan cooled.

★ These motors have 1.15 Service Factors.

❖ These motors are inverter-rated and suitable for use with an inverter. Others are not!

[W] Premium efficiency WATTSAVERe Motors. See page 19 for details.

### NEMA Premium

### C FACE WITH RIGID BASE • THREE PHASE ALL CAST IRON CONSTRUCTION

DIVISION I, DIVISION II, CLASS I, GROUP D—CLASS II, GROUPS F & G WITH CONDUIT BOX AND NORMALLY-CLOSED THERMOSTATS

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 460 V.	% F.L. Eff.	"C" Dim. (Inches)
3	3600	182TC	825125.00★	95	230/460	7.6	86.5	17.62
	1800	182TC	825126.00★	96	230/460	7.8	89.5	17.60
5	3600	184TC	825127.00★	130	230/460	12.0	88.5	17.62
	1800	184TC	825071.00★	130	230/460	12.8	89.5	17.60
7 1/2	3600	213TC	825072.00★	143	230/460	18.0	89.5	20.68
	1800	213TC	825073.00★	143	230/460	18.6	91.7	20.68
10	3600	215TC	825074.00★	160	230/460	23.0	90.2	20.68
	1800	215TC	825075.00★	160	230/460	25.0	91.7	20.68
15	3600	254TC	825076.00★	245	230/460	34.6	91.0	24.02
	1800	254TC	825077.00★[H]	246	230/460	36.0	92.4	24.02
20	3600	256TC	825078.00★[H]	271	230/460	46.0	91.0	25.77
	1800	256TC	825079.00★[H]	273	230/460	49.0	93.0	25.77
25	3600	284TSC	825080.00★[H]	373	230/460	56.8	91.7	24.44
	1800	284TC	825081.00★[H]A	375	230/460	59.0	93.6	26.80
30	1800	286TC	825082.00★[H]A	395	230/460	70.0	93.6	28.30
40	1800	324TC	825083.00★[H]A	563	230/460	92.0	94.1	29.37
50	1800	326TC	825084.00[H]A	585	230/460	117.0	94.5	30.87

★ These motors have 1.15 Service Factors.

[H] Explosion-proof motors are Class I, Groups C & D—Class II, Groups F & G.

A Subject to Availability.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

WATTSAVERe Motors Meet NEMA MG1 part 30 & 31.

Specifications are subject to change without notice



**EXPLOSION-PROOF FOR HAZARDOUS LOCATIONS**

Underwriters Laboratories and Canadian Standards Association Listed

**General Specifications:**

These explosion-proof motors are designed and approved for application in hazardous environments having certain explosive gases or materials present.



**Features:**

**ALL CAST IRON CONSTRUCTION**

Rugged mechanical construction meeting all requirements for safety. UL and CSA listed.

Double shielded, pre-lubricated ball bearings are standard. All motors have inherent automatic overload protection. NEMA 1.15 service factor except as noted.

Explosion-proof conduit box included at no extra cost.

Normally-closed thermostats are standard on cast iron motors.

Division I areas are environments where a hazard is present continuously or would be subject to fire or explosion if the hazard was present as a result of an accident or uncommon occurrence.

Division II areas are environments where the threat of fire or explosion is not normally present and not likely to result in the event of an abnormal occurrence.

**Application Notes:**

These motors must be applied in accordance with the National Electrical Code, Article #500. A partial listing of explosive agents is noted below. Consult NFPA Publication 497M for a complete listing. Please note headings and footnotes for qualifications of specific LEESON motors.

**NOTE: No LEESON motors are listed for Class I, Group A or B.**

**Class I**

**Group A:** Acetylene

**Group B:** Butadiene, ethylene oxide, hydrogen, propylene oxide, manufactured gases containing more than 30% hydrogen by volume.

**Group C:** Acetaldehyde, cyclopropane, diethyl ether, ethylene.

**Group D:** Acetone, acrylonitrile, ammonia, benzene, butane, ethanol, ethylene dichloride, gasoline, hexane, isoprene, methane (natural gas), methanol, naphtha, propane, propylene, styrene, toluene, vinyl acetate, vinyl chloride, xylene.

**Class II**

**Group E:** Aluminum, magnesium and other metal dusts with similar characteristics.

**Group F:** Carbon black, coke or coal dust.

**Group G:** Flour, starch or grain dust.

**THREE PHASE • CAST IRON FRAME • RIGID BASE**

DIVISION I, DIVISION II, WITH CONDUIT BOX AND NORMALLY CLOSED THERMOSTATS

EXPLOSION-PROOF MOTORS ARE CLASS I, GROUPS C & D—CLASS II, GROUPS F & G • ALL RATINGS ARE INVERTER RATED

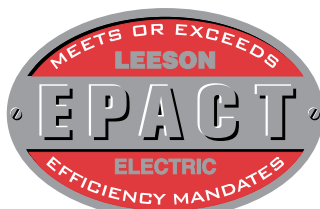
HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 460V	% F.L. Eff.	"C" Dim. (Inches)
3	1800	182T	825085.00	107	230/460	7.8	89.5	17.62
5	3600	184T	825086.00	117	230/460	12.0	88.5	17.62
	1800	184T	825087.00	128	230/460	12.8	89.5	17.62
7½	3600	213T	825088.00	183	230/460	18.0	89.5	21.41
	1800	213T	825089.00	228	230/460	18.6	91.7	20.16
10	3600	215T	825090.00	200	230/460	23.6	90.2	21.41
	1800	215T	825091.00	273	230/460	25.0	91.7	21.41
15	3600	254T	825092.00	333	230/460	34.6	91.0	24.12
	1800	254T	825093.00	383	230/460	36.0	92.4	24.12
20	3600	256T	825094.00	383	230/460	46.8	91.0	25.77
	1800	256T	825095.00	285	230/460	48.2	93.0	25.77
25	3600	284TS	825096.00	413	230/460	56.2	91.7	25.44
	1800	284T	825097.00	374	230/460	62.0	93.6	26.80
30	3600	286TS	825098.00	464	230/460	67.6	91.7	26.94
	1800	286T	825099.00	464	230/460	73.0	93.6	28.30
40	3600	324TS	825100.00 A	515	230/460	94.0	92.4	27.87
	1800	324T	825101.00♣ A	535	230/460	95.0	94.1	29.37
50	3600	326TS	825102.00	585	230/460	116.0	93.0	29.37
	1800	326T	825103.00♣ A	585	230/460	120.0	94.5	30.57
60	3600	364TS	825104.00♣	890	230/460	134.0	93.6	29.88
	1800	364T	825105.00♣	992	230/460	138.0	95.0	32.00
75	3600	365TS	825106.00	1025	230/460	168.0	93.6	30.88
	1800	365T	825107.00	1053	230/460	172.0	95.4	33.00
100	3600	405TS	825108.00	1168	230/460	216.0	94.1	34.62
	1800	405T	825109.00	1322	230/460	226.0	95.4	37.62
125	3600	444TS	825110.00 A	1768	230/460	136.0	95.0	38.00
	1800	444T	825111.00 A	1822	460	141.0	95.4	41.75
150	3600	445TS	825112.00 A	2072	460	165.0	95.0	38.00
	1800	445T	825113.00 A	2072	460	172.0	95.8	43.69
200	3600	445TS	825114.00♣ A	2332	460	222.0	95.4	38.00
	1800	445T	825115.00 A	2275	460	226.0	96.2	43.69
250	3600	449TS	825071.00ⓐ♣ A	2480	460	274.0	95.4	48.14
	1800	449T	825072.00ⓐ♣ A	2630	460	285.0	95.0	51.85

These explosion-proof motors are not designed for vertical mounting.

ⓐ Explosion-proof motors are Class I, Group D—Class II, Groups F & G.

♣ 1.0 Service Factor

A Subject to Availability.



**QUICK REFERENCE**

EXPLOSION-PROOF DC MOTORS	Page 154
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SHADED FRAME INDICATES CAST IRON CONSTRUCTION

Catalog numbers in green are EPACT motors.

Specifications are subject to change without notice

### JET PUMP MOTORS

#### General Specifications:

Stator impregnated with extra heavy varnish system. High temperature copper magnet wire provides extended motor life. "Super Hush" flow-through ventilation system (exhaust shaft-end) standard. Vertical or horizontal mounting (drip-cover available). Ground provision. Die cast aluminum NEMA 56 C face mounting flange, with cast iron bearing seat insert. Mechanical bearing lock—shaft-end, for longer life. Reliable, field proven, corrosion resistant rotating switch. High overload capacities provided by service factor. Neoprene shaft flinger on J frame motors protects bearings by repelling moisture and other contaminants.



#### Shaft Material:

Keyed shafts are made of carbon steel. Threaded shafts are 416 stainless steel. Shafts are CW rotation, facing lead end.

#### Bearings:

203 Double-sealed ball bearing, shaft-end; 203 Double-shielded ball bearing, switch-end. Shaft-end bearing is locked to limit axial movement of the shaft.

#### Terminal Board:

¼" Quick connects (keyed shaft motors are reversible).

#### U.L. Recognized and C.S.A. Certified

#### SERVICE FACTORS FOR LEESON SINGLE PHASE JET PUMP MOTORS\*

HP	Drip-Proof Service Factor	TEFC Service Factor
1/2	1.60	1.60
3/4	1.50	1.50
1	1.40	1.25
1½	1.30	1.00
2	1.25	1.00
3	1.15	—

\* Applies to general purpose motors only, not explosion-proof.

#### DRIP-COVER KITS

Each kit includes one drip-cover. Designed to protect motors from rain, snow and ice when mounted outdoors in a vertical position.



#### FOR DRIP-PROOF MOTORS

Frame	Catalog Number	App. Wgt. (lbs.)
48-S56	175003.00	2
48-S56	175298.00 ♦	2
56 143T-145T	175004.00	2

♦ For use with motors having "P" suffix on date code.

#### KEYED SHAFT • DRIP-PROOF SINGLE PHASE • LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/2	3600	S56C	100204.00	19	115/208-230	Auto.	3.4	9.49
3/4	3600	S56C	100205.00+	21	115/208-230	Auto.	5.1	9.99
1	3600	S56C	100722.00+	24	115/208-230	Auto.	5.7	10.49
1½	3600	56C	110288.00	31	115/208-230	Auto.	9.0	11.34
2	3600	56C	110289.00	37	115/208-230	Auto.	10.5	12.34
3	3600	56C	110280.00☆	49	230	Auto.	12.8	13.55

#### THREADED SHAFT • DRIP-PROOF SINGLE PHASE • LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/2	3600	S56J	100207.00+	19	115/208-230	Auto.	3.4	10.00
3/4	3600	S56J	100208.00+	21	115/208-230	Auto.	5.1	10.50
1	3600	S56J	100723.00+	23	115/208-230	Auto.	5.7	11.00
1½	3600	56J	110292.00+	31	115/208-230	Auto.	9.0	11.34
2	3600	56J	110293.00+	37	115/208-230	Auto.	10.5	12.34
3	3600	56J	110286.00☆+	51	230	Auto.	12.8	14.15

#### THREADED SHAFT • TEFC SINGLE PHASE • LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/2	3600	56J	113955.00+	22	115/208-230	Auto.	3.8	11.31
3/4	3600	56J	113956.00+	26	115/208-230	Auto.	5.0	11.81
1	3600	56J	113639.00+	30	115/208-230	Auto.	6.0	12.31
1½	3600	56J	113640.00+	34	115/208-230	Auto.	8.5	12.81
2	3600	56J	113641.00+	41	115/208-230	Auto.	10.0	13.81

#### THREADED SHAFT • TEFC SINGLE PHASE • WITH BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/2	3600	56J	113637.00+	23	115/208-230	Auto.	3.8	11.31
3/4	3600	56J	113638.00+	26	115/208-230	Auto.	5.0	11.81
1	3600	56J	113957.00+	28	115/208-230	Auto.	6.0	12.31
1½	3600	56J	113958.00+	34	115/208-230	Auto.	8.5	12.81
2	3600	56J	113959.00+	43	115/208-230	Auto.	10.0	13.81

#### THREADED SHAFT • EXPLOSION PROOF • TEFC SINGLE PHASE • C-FACE LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)
1/2	3600	56J	116188.00 A	35	115/208-230	Auto.	3.8	13.96
3/4	3600	56J	116186.00 A	40	115/208-230	Auto.	5.0	14.46
1	3600	56J	116185.00	49	115/208-230	Auto.	6.0	14.96
1½	3600	56J	116183.00 A	52	115/208-230	Auto.	8.5	15.46
2	3600	56J	116181.00	54	115/208-230	Auto.	10.5	16.46

+ These motors are fixed rotation—CW from lead end.

☆ Capacitor start/capacitor run designed for reduced amperage, others are capacitor start/induction run.

A Subject to Availability.

SEE FHP SINGLE PHASE JET PUMP MOTORS ON PAGE 127

Specifications are subject to change without notice

**JET PUMP MOTORS**

**General Specifications:**

Rugged, three phase jet pump motors for industrial service. NEMA 56 C face. Stator impregnated with heavy varnish system. High temperature copper magnet wire for high overload capacity. Grounding provision inside oversized gasketed conduit box. 380 alloy aluminum endplate with cast bearing seat insert. Neoprene shaft flinger to repel moisture and other contaminants. Mechanical bearing lock, shaft end, controls axial movement. UL and CSA recognized.



**Shaft Material:**

303 stainless steel, threaded.

**Bearings:**

203 Double-sealed ball bearing, shaft-end; 203 Double-shielded ball bearing, switch-end. Shaft-end bearing is locked to limit axial movement of the shaft.

**Electrical Specifications:**

Explosion-proof motors have automatic overload protection. Others have no thermal overload protection.

**THREADED SHAFT • DRIP-PROOF  
THREE PHASE • LESS BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/3	3600	S56J	102197.00	15	208-230/460	1.4	68.0	9.94
1/2	3600	S56J	102198.00	17	208-230/460	1.8	69.0	9.94
3/4	3600	S56J	101637.00	18	208-230/460	2.4	79.0	10.44
1	3600	S56J	101638.00	25	208-230/460	3.0	78.0	11.44
1½	3600	56J	113891.00	28	208-230/460	4.2	81.5	11.34
2	3600	56J	113892.00	33	208-230/460	5.6	82.5	11.84
3	3600	56J	113893.00	36	208-230/460	7.6	84.0	12.34
5	3600	56J	116698.00	45	208-230/460	12.4	85.5	13.88

**THREADED SHAFT • DRIP-PROOF  
THREE PHASE • WITH BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	3600	S56J	102199.00	17	208-230/460	1.8	69.0	9.94
3/4	3600	S56J	101776.00	18	208-230/460	2.4	79.0	10.44
1	3600	S56J	101775.00	26	208-230/460	3.0	78.0	11.44
1½	3600	56J	114203.00	33	208-230/460	4.2	81.5	11.34
2	3600	56J	114202.00	35	208-230/460	5.6	82.5	11.84
3	3600	56HJ	114201.00	35	208-230/460	8.0	84.0	11.84
5	3600	56HJ	116699.00	47	208-230/460	12.4	85.5	13.88

**THREADED SHAFT • TEFC  
THREE PHASE • LESS BASE**

HP	RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	3600	56J	114931.00	21	208-230/460	2.0	67.0	10.81
3/4	3600	56J	114208.00	22	208-230/460	2.4	75.5	11.31
1	3600	56J	114207.00	25	208-230/460	3.2	77.0	11.31
1½	3600	56J	114206.00	31	208-230/460	4.2	81.5	12.31
2	3600	56J	114205.00	40	208-230/460	5.6	82.5	12.81
3	3600	56J	114204.00	52	208-230/460	7.6	84.0	13.31

**THREADED SHAFT • TEFC  
THREE PHASE • WITH BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
3/4	3600	56J	113028.00	23	208-230/460	2.4	75.5	11.31
1	3600	56J	113029.00	24	208-230/460	3.2	77.0	11.31
1½	3600	56J	113030.00	31	208-230/460	4.2	81.5	12.31
2	3600	56J	113031.00	36	208-230/460	5.6	82.5	12.81
3	3600	56HJ	113032.00	39	208-230/460	7.6	84.0	13.31

**THREADED SHAFT • EXPLOSION PROOF • TEFC/  
TENV THREE PHASE • C-FACE LESS BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/2	3600	56J	116187.00▲●	33	208-230/460	1.6	82.5	12.87
1	3600	56J	116184.00▲	33	208-230/460	3.2	77.0	13.46
1½	3600	56J	116182.00▲	48	208-230/460	4.2	81.5	14.46
2	3600	56J	11618000▲	50	208-230/460	5.6	82.5	14.96

▲ These motors are satisfactory for operation on 50 Hz power supply at full rated horsepower.  
● These motors are totally enclosed, non-ventilated—Others are fan cooled.

**WASHGUARD JET PUMP MOTORS**

Washdown duty three phase jet pump motors for industrial service. These motors include all of the features of LEESON's White Duck WASHGUARD motors with the addition of a 56J threaded shaft for use on jet pumps. For demanding pump applications in wet, humid, or washdown environments.



**WASHGUARD • JET PUMP • THREADED SHAFT  
THREE PHASE • TEFC • C-FACE LESS BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
3/4	3600	56J	116774.00	23	208-230/460	2.4	75.5	10.81
1	3600	56J	116775.00	35	208-230/460	3.2	77.0	10.81
1½	3600	56J	116776.00	42	208-230/460	4.2	81.5	11.81
2	3600	56J	116777.00	47	208-230/460	5.6	82.5	12.31
3	3600	56J	116778.00	49	208-230/460	7.6	84.0	13.25

**WASHGUARD • JET PUMP • THREADED SHAFT  
THREE PHASE • TEFC • C-FACE WITH BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
3/4	3600	56J	116779.00	24	208-230/460	2.4	75.5	10.81
1	3600	56J	116780.00	36	208-230/460	3.2	77.0	10.81
1½	3600	56J	116781.00	43	208-230/460	4.2	81.5	11.81
2	3600	56J	116782.00	48	208-230/460	5.6	82.5	12.31
3	3600	56J	116783.00	50	208-230/460	7.6	84.0	13.25

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice

### COMMERCIAL DUTY SWIMMING POOL MOTORS



#### General Specifications:

Cast iron NEMA 56 C face mounting face or aluminum as noted. Mechanical bearing lock—shaft-end. Fully enclosed endbell at switch-end. Protected “double contact” starting switch with dual contact switch circuit providing maximum starting dependability. Reliable, field proven, corrosion resistant rotating switch. Stator impregnated with extra heavy varnish system. High temperature copper magnet wire providing extended motor life. “Low voltage” run capabilities. “Super Hush” flow-through ventilation system (exhaust shaft-end). Gaskets supplied under conduit cover and capacitor case giving added environmental protection. 1/2” NPT pipe tap supplied in “built-in” conduit box. Grounding provisions inside terminal panel plus external provision. High overload capacities provided by service factor.

#### Shaft Material:

Keyed shafts are made of carbon steel. Threaded shafts are 303 stainless steel. Shafts are CW rotation, facing lead end.

#### Bearings:

304 Double-sealed ball bearing, shaft-end; 203 Double-shielded ball bearing, switch-end.

#### Terminal Boards:

¼” quick connects (keyed shaft motors are reversible).

#### U.L. and C.S.A. Recognized

#### SERVICE FACTORS FOR SWIMMING POOL MOTORS

HP	Service Factor
1/2	1.60
3/4	1.50
1	1.40
1½	1.30
2	1.25
3	1.15

### KEYED SHAFT • ALUMINUM C FACE LESS BASE SINGLE PHASE • DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	“C” Dim. (Inches)
1/2	3600	S56C	<b>101524.00 A</b>	19	115/208-230	Auto.	3.4	10.05
3/4	3600	S56C	<b>101525.00 A</b>	22	115/208-230	Auto.	5.1	10.55
1	3600	S56C	<b>101526.00</b>	25	115/208-230	Auto.	5.7	11.05
1½	3600	56C	<b>113686.00 A</b>	30	115/208-230	Auto.	9.0	11.88

### KEYED SHAFT • CAST IRON C FACE LESS BASE SINGLE PHASE • DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	“C” Dim. (Inches)
1/2	3600	56C	<b>110278.00 A</b>	24	115/208-230	Auto.	4.2	10.56
3/4	3600	56C	<b>110241.00 A</b>	29	115/208-230	Auto.	5.2	11.15
1	3600	56C	<b>110242.00 A</b>	31	115/208-230	Auto.	6.8	11.15
1½	3600	56C	<b>110243.00 A</b>	36	115/208-230	Auto.	9.0	11.55
2	3600	56C	<b>110279.00 A</b>	40	115/208-230	Auto.	10.5	12.55
3	3600	56C	<b>110280.00☆</b>	49	230	Auto.	12.8	13.55

### THREADED SHAFT • ALUMINUM C FACE LESS BASE SINGLE PHASE • DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	“C” Dim. (Inches)
1/2	3600	S56J	<b>101527.00+ A</b>	20	115/208-230	Auto.	3.4	10.56
3/4	3600	S56J	<b>101528.00+</b>	23	115/208-230	Auto.	5.1	11.06
1	3600	S56J	<b>101529.00+</b>	24	115/208-230	Auto.	5.7	11.56
1½	3600	56J	<b>113687.00+ A</b>	30	115/208-230	Auto.	9.0	12.40

### THREADED SHAFT • CAST IRON C FACE LESS BASE SINGLE PHASE • DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	“C” Dim. (Inches)
1/2	3600	56J	<b>110281.00+ A</b>	25	115/208-230	Auto.	4.2	10.55
3/4	3600	56J	<b>110282.00+ A</b>	30	115/208-230	Auto.	5.2	11.65
1	3600	56J	<b>110283.00+</b>	31	115/208-230	Auto.	6.8	11.65
1½	3600	56J	<b>110284.00+ A</b>	36	115/208-230	Auto.	9.0	12.15
2	3600	56J	<b>110285.00+</b>	41	115/208-230	Auto.	10.5	13.15
3	3600	56J	<b>110286.00☆+</b>	51	230	Auto.	12.8	14.15

+ Threaded shaft are fixed rotation—CW from lead end.

☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.

A Subject to Availability.

# POOL AND JET PUMP MOTORS C-FACE, JET PUMP AND SQUARE FLANGE



## PERFORMA+ FHP POOL AND JET PUMP MOTORS

### General Specifications:

Energy-saving single-phase Permanent Split Capacitor *PERFORMA+* Pool and Jet Pump motors have separate compartment design required for many pool and spa applications. PSC design gives energy-efficient operation with no switches to wear or seize. Special balancing of FHP motors gives super quiet operation. Motors are connected for CW rotation, viewed from the lead end of the motor, and are not reversible. All designs – keyed and threaded – have 304 stainless steel shafts. Double-sealed bearings on both ends of the motor have high temperature grease for long life. Motors have external grounding lug and Class F insulation with Class B rise.

### Standards and Approvals:

UL Recognized and CSA Certified.

Design complies with requirements for motor/pump/cord assemblies that must pass the UL 1081 water spray test.



### KEYED SHAFT • C FACE LESS BASE SINGLE PHASE • PSC • DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	Service Factor	F.L. Amps 230V	"C" Dim. (Inches)
1/2	3600	56C	<b>MK1052.00</b>	26	115/230	Auto.	1.95	4.9	11.75
3/4	3600	56C	<b>MK1072.00</b>	27	115/230	Auto.	1.65	5.2	11.75
1	3600	56C	<b>MK1102.00</b>	29	115/230	Auto.	1.5	5.1	12.73
1½	3600	56C	<b>MK1152.00</b>	37	230	Auto.	1.4	6.7	13.71
2	3600	56C	<b>MK1202.00</b>	37	230	Auto.	1.15	8.5	13.71



### THREADED SHAFT • C FACE LESS BASE SINGLE PHASE • PSC • DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	Service Factor	F.L. Amps 230V	"C" Dim. (Inches)
1/2	3600	56J	<b>MT1052.00</b>	26	115/230	Auto.	1.95	4.9	12.09
3/4	3600	56J	<b>MT1072.00</b>	27	115/230	Auto.	1.65	5.2	12.09
1	3600	56J	<b>MT1102.00</b>	29	115/230	Auto.	1.5	5.1	13.07
1½	3600	56J	<b>MT1152.00</b>	37	230	Auto.	1.4	6.7	14.05
2	3600	56J	<b>MT1202.00</b>	37	230	Auto.	1.15	8.5	14.05



### THREADED SHAFT • SQUARE FLANGE LESS BASE SINGLE PHASE • PSC • DRIP-PROOF

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	Service Factor	F.L. Amps 230V	"C" Dim. (Inches)
1/2	3600	56Y	<b>MST1052.00</b>	26	115/230	Auto.	1.95	4.9	11.92
3/4	3600	56Y	<b>MST1072.00</b>	27	115/230	Auto.	1.65	5.2	11.92
1	3600	56Y	<b>MST1102.00</b>	29	115/230	Auto.	1.5	5.1	12.90
1½	3600	56Y	<b>MST1152.00</b>	37	230	Auto.	1.4	6.7	13.89
2	3600	56Y	<b>MST1202.00</b>	37	230	Auto.	1.15	8.5	13.89

### Separate Compartment Design

Locates the motor run capacitor, protector and terminal board in a separate compartment on the end of the motor. Protective cover protects these items from water spray as defined by the UL1081 specification and provides for convenient servicing. Complies with requirements of UL1081 standard for motor/pump/cord assemblies used on swimming pool pumps; pump filter combinations, and chlorinators. Stub shaft with flats in accessible for wrenching when attaching pump impeller.



**JP PUMP MOTORS**



**General Specifications:**

For use with close-coupled pumps having NEMA JP mounting and shaft dimensions. In such applications, the pump impeller is mounted directly on the motor shaft. Designed for continuous duty service. All motors listed are 1.15 Service Factor.

**Mechanical Features:**

Open drip-proof construction with rigid base mounting. Locked bearing on shaft end limits axial shaft movement. For use where the environment is relatively clean and dry. For outdoor use, an enclosure or drip cover may be preferred. See the Drip Cover Kit table. Some 182-4JP frame motors have enclosed endshields as standard with frame meeting the 12° drip-proof requirement. No drip cover is needed, or shown in the table, for these motors.

**Electrical Features:**

UL Recognized and CSA Certified. Single phase designs are capacitor start, induction run.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

**SINGLE PHASE • DRIP-PROOF • RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over load Prot.	F.L. Amps 230V	"C" Dim. (Inches)	Drip Cover Kit Ref.
5	3600	184JP	131881.00	95	230	None	22.0	19.38	...
7½	3600	213JP	140646.00	121	230	None	37.0	14.17	C
10	3600	215JP	140647.00	138	230	None	47.0	15.67	C

**THREE PHASE • DRIP-PROOF • RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	% F.L. Eff.	F.L. Amps 230V	"C" Dim. (Inches)	Drip Cover Kit Ref.
1½	1800	145JP	G121846.00 A	38	208-230/460	84.0	4.4	17.68	A
2	1800	145JP	G121847.00 A	46	208-230/460	84.0	5.8	18.48	A
3	3600	145JP	G121849.00 A	46	208-230/460	84.0	8.4	16.68	A
	1800	182JP	G131882.00*	58	208-230/460	86.5	9.2	19.91	E
5	3600	182JP	G131884.00	65	208-230/460	85.5	12.0	19.65	E
	1800	182JP	G131883.00	70	208-230/460	87.5	13.2	20.41	E
7½	3600	184JP	G131885.00 A	80	208-230/460	87.5	17.6	20.41	E
	1800	213JP	G140667.00	146	208-230/460	88.5	19.2	23.03	D
10	3600	213JP	G140655.00	140	208-230/460	88.5	23.4	23.03	C
	1800	215JP	G140668.00 A	134	208-230/460	89.5	25.0	25.00	D
15	3600	215JP	G140656.00	147	208-230/460	89.5	34.0	34.00	C
	1800	254JP	G801051.00	170	208-230/460	91.0	38.5	38.50	...
20	3600	254JP	G801056.00	175	208-230/460	90.2	46.0	25.29	...
	1800	256JP	G801052.00	222	208-230/460	91.0	52.0	52.00	...
25	3600	256JP	G801057.00	181	208-230/460	91.0	58.0	27.04	...
	1800	284JP	G801053.00 A	332	230/460	91.7	61.0	27.18	...
30	3600	284JP	G801058.00	336	230/460	91.0	73.0	27.18	...
	1800	286JP	G801054.00	342	230/460	92.4	72.0	28.68	...
40	3600	286JP	G801059.00	385	230/460	91.7	94.0	28.68	...
	1800	324JP	G801055.00	515	230/460	93.0	97.0	29.12	...
50	3600	324JP	G801060.00	472	230/460	92.4	117.0	29.12	...

\* F1 mounting only.  
A Subject to Availability.

**DRIP COVER KITS FOR JP PUMP MOTORS**

Kit Ref.	Frame	Catalog Number	Enclosure
A	56-145JP	175932.00	ODP or TEFC
B	182JP-184JP	175933.00	ODP
C	213JP-215JP	175305.00	ODP
D	213JP-215JP	175846.00	ODP
E	182JP-184JP	175614.00	ODP

Catalog Numbers in Green are EPACT Motors.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice



**JM PUMP MOTORS**

**General Specifications:**

Designed for continuous duty service on close-coupled pumps using NEMA JM mounting provisions. All motors have a rigid mounting base and NEMA JM pump shaft.



**Mechanical Features:**

Open drip-proof construction, cooling air exhausts at the shaft end for maximum cooling. Oversized locked bearing on shaft end limits axial shaft movement. Drip covers are available as accessory kits for 143-5JM and 182-4JM motors—see letter designations in the table on page 48 for the correct kit.

Some 182-4JM frame motors have enclosed endshields as standard with frame vents meeting the 12° drip-proof requirement. No drip cover is needed, or shown in the table, for these motors.



**Electrical Features:**

High efficiency copper windings with NEMA 1.15 service factors. UL and CSA recognized designs.

Single phase designs are capacitor start/induction run unless indicated otherwise.

**All 180 and 210 frame Rolled Steel motors have Class F Insulation.**

**SINGLE PHASE • DRIP-PROOF • RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 230V	"C" Dim. (Inches)	Drip Cover Kit Ref.
1	1800	143JM	120996.00☆	42	115/208-230	None	6.4	13.91	A
1½	1800	145JM	120994.00☆	45	115/208-230	None	8.6	14.91	A
2	3600	145JM	121190.00☆	47	115/208-230	None	10.5	14.91	A
	1800	145JM	120995.00☆	45	115/208-230	None	10.5	15.41	A
	1800	182JM	132073.00	70	115/208-230	None	12.4	13.19	C
3	3600	182JM	131640.00☆	80	115/208-230	None	15.2	16.32	C
	1800	182JM	131604.00	73	230	None	16.8	15.82	C
5	3600	184JM	131641.00☆	95	115/208-230	None	24.0	17.32	C
	1800	184JM	131605.00☆	82	230	None	21.0	16.32	C
7½	3600	213JM	140642.00☆	109	230	None	37.0	14.17	E
	1800	215JM	140665.00☆	141	230	None	40.5	18.38	E
10	3600	215JM	140644.00☆	135	230	None	47.0	18.38	E
	1800	215JM	140666.00☆	144	230	None	43.0	19.88	E

☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.

**THREE PHASE • DRIP-PROOF • RIGID BASE**

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)	Drip Cover Kit Ref.
1	1800	143JM	G121850.00	44	208-230/460	3.1	82.5	14.62	B
1½	1800	145JM	G121851.00	44	208-230/460	4.8	84.0	14.62	B
2	3600	145JM	G121853.00	44	208-230/460	5.4	84.0	13.42	B
	1800	145JM	G121852.00	48	208-230/460	5.8	84.0	15.12	B
3	3600	145JM	G121854.00	45	208-230/460	8.4	84.0	13.62	B
	1800	182JM	G131562.00	64	208-230/460	9.2	86.5	16.09	J
5	3600	182JM	G131574.00	66	208-230/460	12.0	85.5	16.35	J
	1800	184JM	G131563.00	71	208-230/460	13.2	87.5	17.09	J
7½	3600	184JM	G131576.00	108	208-230/460	17.6	87.5	17.09	J
	1800	213JM	G140618.00	147	208-230/460	19.2	88.5	19.16	F
10	3600	213JM	G141121.00	130	208-230/460	23.4	88.5	19.16	C
	1800	215JM	G140619.00	135	208-230/460	25.0	89.5	19.16	F
15	3600	215JM	G151380.60	175	208-230/460	34.0	89.5	20.41	H
	1800	254JM	G151361.60	268	208-230/460	38.5	91.0	25.45	I
20	3600	254JM	G151381.60	261	208-230/460	46.0	90.2	22.42	I
	1800	256JM	G151362.60	310	208-230/460	52.0	91.0	24.17	I
25	3600	256JM	G151382.60	295	208-230/460	58.0	91.0	24.17	I
	1800	284JM	G801028.00	391	230/460	66.0	91.7	24.31	...
30	3600	284JM	G801040.00	376	230/460	73.0	91.0	24.31	...
	1800	286JM	G801029.00	437	230/460	72.0	92.4	25.81	...
40	3600	286JM	G801041.00	429	230/460	94.0	91.7	25.81	...
	1800	324JM	G801030.00	531	230/460	97.0	93.0	26.25	...
50	3600	324JM	G801042.00	514	230/460	117.0	92.4	26.25	...

**DRIP COVER KITS FOR JM PUMP MOTORS**

Kit Ref.	Frame	Catalog Number	Enclosure
A	143-145JM	175004.00	ODP
B	143-145JM	175932.00	ODP or TEFC
C	182-184JM	175933.00	ODP
D	182-184JM	175695.00	TEFC
E	213-215JM	175305.00	ODP
F	213-215JM	175846.00	ODP
G	213-215JM	175849.00	TEFC
H	213-215JM	175962.00	ODP
I	254-256JM	175963.00	ODP
J	182-184JM	175614.00	ODP

Catalog Numbers in Green are EPACK Motors.

All three phase motors, 1 HP and above, are inverter rated.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

### JM PUMP MOTORS

#### General Specifications:

Designed for continuous duty service on close-coupled pumps using NEMA JM mounting provisions. All motors have a rigid mounting base and NEMA JM pump shaft.



#### Mechanical Features:

Totally enclosed fan cooled construction for maximum life in dirty or severe environments. Oversized locked bearing on shaft end limits axial shaft movement. Drip covers are available as accessory kits for 143-5JM and 182-4JM motors—see letter designations in the table for the correct kit. Some 182-4JM frame motors have enclosed endshields as standard with frame vents meeting the 12° drip-proof requirement. No drip cover is needed, or shown in the table, for these motors.

#### Electrical Features:

High efficiency copper windings with NEMA 1.15 service factors. UL and CSA recognized designs. **All 180 and 210 frame Rolled Steel motors have Class F Insulation.**

See page 216 for Drip Cover Kits.

### THREE PHASE • TEFC • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)	Drip Cover Kit Ref.
1	1800	143JM	<b>G121855.00</b>	35	208-230/460	3.0	82.5	15.00	B
1½	3600	143JM	<b>G121858.00</b>	37	208-230/460	4.0	82.5	15.00	B
	1800	145JM	<b>G121856.00</b>	46	208-230/460	4.4	84.0	16.50	B
2	3600	145JM	<b>G121859.00</b>	38	208-230/460	5.2	84.0	15.50	B
	1800	145JM	<b>G121857.00</b>	50	208-230/460	5.6	84.0	16.00	B
3	3600	145JM	<b>G121860.00</b>	49	208-230/460	7.4	85.5	17.35	B
	1800	182JM	<b>G131579.00</b>	75	230/460	8.4	87.5	17.85	D
5	3600	184JM	<b>G131580.00</b>	82	208-230/460	12.4	87.5	18.35	D
	1800	184JM	<b>G131581.00</b>	97	230/460	12.6	87.5	18.85	D
7½	3600	184JM	<b>G131582.00</b>	104	208-230/460	18.4	88.5	22.09	D
	3600	S213JM	<b>G132027.00</b>	121	208-230/460	18.4	88.5	22.09	D
	1800	215JM	<b>G140622.00</b>	127	208-230/460	20.0	89.5	20.59	G
10	3600	213JM	<b>G141122.00</b>	130	208-230/460	24.0	89.5	22.09	D
	1800	215JM	<b>G140623.00</b>	145	208-230/460	25.6	90.2	22.09	G
15	3600	215JM	<b>G140764.00</b>	139	208-230/460	35.0	90.2	24.74	...
	3600	254JM	<b>G151567.60</b>	171	208-230/460	35.0	90.2	24.80	...
	1800	254JM	<b>G151568.60</b>	287	208-230/460	37.0	91.0	24.80	...
20	3600	254JM	<b>G151569.60</b>	299	208-230/460	46.2	90.2	24.80	...
	1800	254JM	<b>G151570.60</b>	324	208-230/460	48.2	91.0	26.50	...
25	3600	256JM	<b>G151417.60</b>	311	208-230/460	56.4	91.0	28.00	I
	1800	284JM	<b>G151418.60</b>	373	208-230/460	58.8	92.4	28.17	...
30	3600	284JM	<b>G151420.60</b>	378	208-230/460	69.2	91.0	28.17	...
	1800	286JM	<b>G151422.60</b>	431	208-230/460	69.8	92.4	29.74	...
40	3600	286JM	<b>G151424.60</b>	499	208-230/460	93.0	91.7	29.74	...
	1800	324JM	<b>G151426.60</b>	531	208-230/460	90.0	93.0	32.33	...

### TEFC JP PUMP MOTORS • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 115V	% F.L. Eff.	"C" Dim. (Inches)
1 1/2	1800	145JP	<b>G151736.60</b>	54	208-230/460	4.5	85.5	18.66
2	1800	145JP	<b>G151737.60</b>	57	208-230/460	5.8	85.5	18.66
3	3600	182JP	<b>G151738.60</b>	91	208-230/460	7.4	85.5	20.71
	1800	182JP	<b>G151739.60</b>	95	208-230/460	8.5	87.5	20.71
5	3600	184JP	<b>G151740.60</b>	103	208-230/460	12.0	87.5	20.71
	1800	184JP	<b>G151741.60</b>	103	208-230/460	13.8	87.5	20.71
7 1/2	3600	213JP	<b>G151742.60</b>	156	208-230/460	17.8	88.5	20.71
	1800	213JP	<b>G151743.60</b>	158	208-230/460	19.2	89.5	24.02
10	3600	215JP	<b>G151744.60</b>	166	208-230/460	23.6	89.5	24.02
	1800	215JP	<b>G151745.60</b>	179	208-230/460	25.2	89.5	25.74
15	3600	215JP	<b>G151746.60</b>	249	208-230/460	35.0	90.2	25.74
	1800	254JP	<b>G151747.60</b>	281	208-230/460	37.0	92.4	28.03
20	3600	254JP	<b>G151748.60</b>	260	208-230/460	46.2	90.2	28.03
	1800	256JP	<b>G151749.60</b>	324	208-230/460	48.2	91.0	29.76
25	3600	256JP	<b>G151750.60</b>	366	208-230/460	58.2	91.0	29.76
	1800	284JP	<b>G151751.60</b>	391	208-230/460	58.8	92.4	30.04
30	3600	286JP	<b>G151752.60</b>	380	208-230/460	69.2	91.0	30.04
	1800	286JP	<b>G151753.60</b>	438	208-230/460	69.8	92.4	31.61
40	3600	324JP	<b>G151754.60</b>	580	208-230/460	93.0	91.7	31.61
	1800	324JP	<b>G151755.60</b>	583	208-230/460	90.0	93.0	32.80
50	3600	326JP	<b>G151756.60</b>	610	208-230/460	112.0	92.4	34.17

### TEFC JP PUMP MOTORS

#### General Specifications:

For use with close-coupled pumps having NEMA JP mounting and shaft dimensions. Used in applications where the pump impeller is mounted directly on the motor shaft. Designed for continuous duty service.

#### Features include:

- 1.25 Service Factor
- All cast iron construction
- E pact Efficient
- Re-greasable bearings
- UL Recognized and CSA certified
- Class F Insulation



Washdown JM Pump motors page 87  
Stainless JM pump motors on page 92.

Catalog Numbers in Green are EPACT Motors.

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice

**50 HZ • SINGLE PHASE**

**General Specifications:**

50 Hz single phase designs produce full rated HP on 50 Hz power supply. Designed for general purpose application.

**Electrical Features:**

High efficiency energy saving designs. Centrifugal switch specifically designed for 50 Hz service. Conduit box with leads. Torque at rated HP on 50 Hz power supply is 20% greater than the running torque of a 60 Hz motor. All 180 and 210 frame Rolled Steel motors have Class F Insulation.



**SINGLE PHASE • DRIP-PROOF • RIGID BASE • IP22**

HP	SYN RPM 50 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 220V	"C" Dim. (Inches)
1/3	3600	...	...	...	...	...	...	...
	1800	56	110394.00	22	110/220	None	3.2	9.88
	1800	...	...	...	...	...	...	...
1/2	3600	56	113901.00	25	110/220	None	3.8	10.34
	1800	56	110395.00	25	110/220	None	4.1	10.38
	1800	...	...	...	...	...	...	...
3/4	3600	56	113902.00 A	27	110/220	None	5.6	10.34
	1800	56	110396.00	30	110/220	None	5.9	10.88
	1800	...	...	...	...	...	...	...
1	3600	56	113903.00	31	110/220	None	6.6	10.84
	1800	56H	110397.00 □	35	110/220	None	6.4	11.88
	1800	...	...	...	...	...	...	...
1½	3600	56H	113904.00 A	37	110/220	None	8.6	11.84
	1800	56H	110398.00 ☆ □	43	110/220	None	8.4	12.35
	1800	...	...	...	...	...	...	...
2	3600	56H	113905.00	42	110/220	None	10.7	12.34
	1800	182T	131553.00 A	70	220	None	11.8	13.69
	1800	...	...	...	...	...	...	...
3	3600	56H	113937.00 †	47	220	None	12.4	12.84
	3600	...	...	...	...	...	...	...
	1800	184T	131554.00	80	220	None	16.8	14.69
5	3600	...	...	...	...	...	...	...
	1800	184T	131555.00 ☆	95	220	None	23.2	15.69
	1800	...	...	...	...	...	...	...

**SINGLE PHASE • TEFC • RIGID BASE • IP54**

NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 220V	"C" Dim. (Inches)
56	113916.00 A	25	110/220	None	3.2	10.81
56	110423.00	24	110/220	None	3.2	10.81
56	113908.00	26	110/220	Man.	3.2	10.81
56	113917.00	27	110/220	None	3.8	11.31
56	110064.00	25	110/220	None	4.1	11.31
56	113909.00	29	110/220	Man.	4.1	11.31
56	113918.00	29	110/220	None	5.6	11.31
56	110065.00 †	32	110/220	None	5.9	11.81
56	113910.00	32	110/220	Man.	5.9	11.81
56	113919.00	32	110/220	None	6.6	11.81
56H	110066.00 □	38	110/220	None	6.4	12.81
56	113911.00 †	34	110/220	Man.	6.4	12.31
56H	113920.00	44	110/220	None	8.0	13.31
56H	110424.00 † ☆ □	47	110/220	None	8.6	13.31
56H	113929.00 † ☆	49	110/220	Man.	8.6	13.31
56HZ	113928.00 † ■	44	110/220	None	10.7	13.76
182T	131556.00	95	220	None	11.2	15.96
182T	131600.00 A	71	220	Man.	12.0	14.96
145T	121070.00 † ☆	50	220	None	12.4	12.84
56H	113936.00 † ☆	48	220	None	12.4	13.81
184T	131557.00	98	220	None	15.9	16.96
184T	131601.00 A	98	220	Man.	15.9	16.96
184T	131638.00 ☆	98	220	None	20.5	17.46
184T	131578.00 ☆	103	220	None	21.0	17.46
213TZ	140475.00 ☆ A	163	220	Man.	24.5	18.71

**SINGLE PHASE • DRIP-PROOF • RESILIENT BASE • IP22**

HP	SYN RPM 50 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 220V	"C" Dim. (Inches)
1/3	3600	56	114222.00 A	24	110/220	None	3.2	10.82
	1800	56	114223.00 A	24	110/220	None	3.2	10.81
	1800	...	...	...	...	...	...	...
1/2	3600	56	114224.00 A	26	110/220	None	3.8	11.32
	1800	56	114225.00	27	110/220	None	4.1	11.31
	1800	...	...	...	...	...	...	...
3/4	3600	56	114226.00 A	28	110/220	None	5.6	11.32
	1800	56	114227.00 A	31	110/220	None	5.9	11.81
	1800	...	...	...	...	...	...	...
1	3600	56	114228.00 A	31	110/220	None	6.6	11.82
	1800	56	114229.00 A	35	110/220	None	6.4	12.31
	1800	...	...	...	...	...	...	...
1½	3600	...	...	...	...	...	...	...
	1800	56H	114231.00 ☆	42	110/220	None	8.4	13.32
	1800	...	...	...	...	...	...	...
2	3600	...	...	...	...	...	...	...
	1800	56H	114233.00 †	49	220	None	9.6	13.82
	1800	...	...	...	...	...	...	...

**SINGLE PHASE • TEFC • C FACE LESS BASE • IP54**

NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	Over-load Prot.	F.L. Amps 220V	"C" Dim. (Inches)
...	...	...	...	...	...	...
56C	113921.00	22	110/220	Man.	3.2	10.81
56C	113912.00	25	110/220	None	3.8	11.31
...	...	...	...	...	...	...
56C	113922.00	29	110/220	Man.	4.1	11.31
56C	113913.00	28	110/220	None	5.6	11.31
...	...	...	...	...	...	...
56C	113923.00	31	110/220	Man.	5.9	11.81
56C	113914.00	32	110/220	None	6.6	11.81
...	...	...	...	...	...	...
56C	113924.00 †	34	110/220	Man.	6.4	12.31
56C	113915.00	43	110/220	None	8.0	13.31
...	...	...	...	...	...	...
56C	113925.00 † ☆	42	110/220	Man.	8.6	13.31
145TC	120990.00 † ☆	47	110/220	None	8.6	13.75
...	...	...	...	...	...	...
182TC	131599.00 A	70	220	Man.	12.0	14.97

■ Combination 56HZ base has mounting holes for NEMA 56 and 143-5T and a standard NEMA 145T frame shaft of 7/8" diameter.  
 □ Combination 56H base motors have mounting holes for NEMA 56 and NEMA 143-5T and a standard NEMA 56 shaft.  
 ☆ Capacitor start/capacitor run design for reduced amperage, others are capacitor start/induction run.  
 † Class F insulated.  
 A Subject to Availability.



# 50 HERTZ MOTORS THREE PHASE

## 50 HZ • THREE PHASE

### General Specifications:

Totally enclosed fan cooled, 12-lead motors designed specifically for 50 Hz service. These motors are intended for equipment built in North America and destined for use in 50 Hz service areas of the world.



### Features:

These NEMA frame motors are designed to North American performance standards, but for 50 Hz service. Suitable for 220/380 volt, 50 Hz, or 440 volt, 50 Hz, three phase power. Torques exceed NEMA performance standards for Design B motors and produce the full rated horsepower at 50 Hz speeds.

Construction meets IEC, IP54 degree of protection standards and utilizes external fan cooling (IEC cooling method IC41). Gasketed conduit box is in the North American standardized F1 location, with leads.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.



## THREE PHASE • TEFC • RIGID BASE • IP54

KW/HP	SYN RPM 50 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 380 V.	% F.L. Eff.	"C" Dim. (Inches)	
0.18/1/4	1800	48	102685.00 A	19	220/380/440	1.00	56.0	9.06	
	0.25/1/3	3600	48	102686.00 A	19	220/380/440	0.80	60.0	9.93
		1800	48	102688.00	19	220/380/440	1.10	65.0	9.31
0.37/1/2	1800	S56	102183.00	19	220/380/440	1.10	65.0	9.69	
	3600	48	102690.00 A	20	220/380/440	1.00	69.0	10.43	
	1800	48	102692.00 A	20	220/380/440	1.40	72.0	9.81	
0.55/3/4	1800	S56	102693.00	20	220/380/440	1.40	72.0	10.19	
	1800	56	114304.00●	25	220/380/440	1.02	78.0	10.38	
	3600	56	114306.00	24	220/380/440	1.75	72.0	10.81	
0.75/1	1800	56	114307.00	27	220/380/440	1.85	74.0	11.31	
	3600	56	114308.00	26	220/380/440	2.40	71.0	11.31	
	1800	56	114888.00	28	220/380/440	2.00	77.0	11.31	
1.1/1 1/2	1800	143T	121096.00	35	220/380/440	2.00	77.0	12.75	
	3600	145T	121097.00 A	34	220/380/440	2.90	80.0	12.76	
	1800	145T	121093.00	40	220/380/440	3.30	75.5	12.75	
1.5/2	3600	145T	121094.00 A	42	220/380/440	3.60	80.0	12.76	
	1800	145T	121095.00 A	40	220/380/440	3.65	81.5	13.25	
2.2/3	3600	182T	131480.00	58	220/380/440	4.80	82.5	13.46	
	1800	182T	131459.00	64	220/380/440	4.70	84.0	13.46	
3.7/5	3600	184T	131481.00	76	220/380/440	7.40	84.0	14.46	
	1800	184T	131454.00	82	220/380/440	8.10	85.0	15.46	

● These motors are totally enclosed, non-ventilated, IEC cooling method IC40.



## THREE PHASE • TEFC • C FACE LESS BASE • IP54

KW/HP	SYN RPM 50 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 380 V.	% F.L. Eff.	"C" Dim. (Inches)
0.18/1/4	1800	S56C	102184.00	18	220/380/440	1.00	56.0	9.44
0.25/1/3	3600	S56C	102687.00 A	19	220/380/440	0.80	60.0	10.31
	1800	S56C	102689.00	19	220/380/440	1.10	65.0	9.69
		56C	114889.00	18	220/380/440	1.10	68.0	10.31
0.37/1/2	3600	S56C	102691.00	20	220/380/440	1.00	69.0	10.81
	1800	S56C	102694.00	20	220/380/440	1.40	72.0	10.19
		56C	114891.00	20	220/380/440	1.15	73.0	10.81
	1200	56C	114892.00	28	220/380/440	1.50	68.0	11.31
0.55/3/4	3600	56C	114893.00 A	24	220/380/440	1.75	72.0	10.81
	1800	56C	114894.00	27	220/380/440	1.85	74.0	11.31
0.75/1	3600	56C	114895.00	26	220/380/440	2.40	71.0	11.31
	1800	56C	114896.00	28	220/380/440	2.00	77.0	11.31
		143TC	121272.00	31	220/380/440	2.00	77.0	11.75
	1200	145TC	121273.00 A	39	220/380/440	2.65	73.0	13.25
1.1/1 1/2	3600	143TC	121274.00 A	33	220/380/440	2.90	80.0	12.25
	1800	145TC	121275.00	37	220/380/440	3.30	75.5	12.75
1.5/2	3600	145TC	121276.00	41	220/380/440	3.60	80.0	12.75
	1800	145TC	121277.00	40	220/380/440	3.65	81.5	13.75
2.2/3	3600	182TC	131505.00	59	220/380/440	4.80	82.5	13.97
	1800	182TC	131506.00	63	220/380/440	4.70	84.0	13.97
3.7/5	3600	184TC	131507.00	75	220/380/440	7.40	84.0	14.47
	1800	184TC	131508.00	82	220/380/440	8.10	85.0	15.47

A Subject to Availability.

Specifications are subject to change without notice



### 575 VOLT • THREE PHASE • TEFC • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 575 V.	% F.L. Eff.	"C" Dim. (Inches)
1/2	3600	56	110714.00●	25	575	0.6	82.5	10.40
	1800	56	110199.00●†	25	575	0.8	78.5	9.88
	1800	S56	101051.00	24	575	0.8	68.0	9.94
3/4	3600	56	110354.00	22	575	0.9	75.5	10.81
	1800	56	110178.00	22	575	1.1	77.0	10.81
	1200	56	111394.00	30	575	1.2	75.5	11.81
1	3600	56	110715.00	24	575	1.3	77.0	10.81
	1800	56	110206.00	24	575	1.5	77.0	11.31
	1800	143T	121937.00	32	575	1.1	85.5	13.25
	1200	145T	121938.00	47	575	1.4	82.5	13.75
1 1/2	3600	145T	121939.00	33	575	1.6	84.0	13.25
	1800	56	110893.00	30	575	2.0	78.5	11.81
	1800	145T	121940.00	34	575	1.8	86.5	13.75
	1200	182T	132251.00	89	575	2.5	87.5	15.96
2	3600	145T	121941.00	44	575	2.1	85.5	13.75
	1800	145T	121942.00	45	575	2.2	86.5	14.76
	1200	184T	132252.00	92	575	2.9	88.5	15.96
3	3600	145T	171624.60	66	575	3.0	86.5	13.96
	1800	182T	132253.00	80	575	3.3	89.5	14.96
5	3600	184T	132254.00	88	575	4.8	88.5	16.46
	1800	184T	132255.00	94	575	5.2	89.5	15.96
7 1/2	3600	213T	170196.60	156	575	7.4	90.2	19.84
	1800	213T	141116.00	144	575	8.2	91.7	18.7
10	3600	215T	170197.60	181	575	9.5	91.7	19.61
	1800	215T	170212.60	177	575	10.1	91.7	19.61
15	3600	254T	170198.60	282	575	13.8	92.4	23.19
	1800	254T	170116.60	280	575	14.8	92.4	23.19
20	3600	256T	170199.60	316	575	18.4	92.4	24.92
	1800	256T	170117.60	322	575	19.2	93.0	24.92
25	3600	284TS	170224.60	383	575	22.0	93.0	24.88
	1800	284T	170118.60	385	575	23.7	93.6	26.26
30	3600	286TS	170228.60	385	575	26.2	93.0	26.46
	1800	286T	170119.60	432	575	29.0	94.1	27.83
40	3600	324TS	170232.60	504	575	36.0	93.6	28.03
	1800	324TS	170120.60	528	575	38.1	94.1	29.53
50	1800	326T	170121.60	587	575	46.7	94.5	31.02
60	1800	364T	170239.60	666	575	54.4	95.4	32.64
75	1800	365T	170244.60	733	575	68.7	95.8	33.62
100	1800	405T	170253.60	1070	575	89.6	95.4	37.91

Other stock 575V motors are available from LEESON through our Canadian facility. Contact LEESON for availability.

- These motors are totally enclosed, non-ventilated, all others totally enclosed fan cooled.
- † Class F insulated.
- ♣ 1.0 Service Factor, Class F insulation.
- ~ Open fan cooled design.
- A Subject to Availability.

All 180 and 210 frame Rolled Steel motors have Class F Insulation.

### 575 VOLT • TEFC • C FACE LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 575 V.	% F.L. Eff.	"C" Dim. (Inches)
1/2	1800	56C	110176.00●†	20	575	0.8	79.0	9.94
3/4	1800	56C	110177.00	21	575	1.1	77.0	10.81
	1800	56C	110204.00	30	575	1.5	77.0	11.31
1	1800	143TC	G120176.00	32	575	1.2	82.5	12.25
	1800	56C	111444.00	33	575	2.0	78.5	11.81
1 1/2	1800	145TC	G120177.00	31	575	1.8	84.0	12.75
	3600	56C	111611.00	34	575	2.2	82.5	12.31
2	1800	145TC	G120178.00	45	575	2.25	84.0	13.75
	3600	182TC	G131498.00	68	575	3.3	87.5	13.97
5	1800	184TC	G131499.00	76	575	5.2	87.5	14.97



### 200-208 VOLT/400-416 VOLT • THREE PHASE DRIP-PROOF • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 200 V.	% F.L. Eff.	"C" Dim. (Inches)
5	1800	184T	G131500.00	62	200-208/400-416	15.4	86.0	13.19
7 1/2	1800	213T	G141124.00~	133	200-208/400-416	22.0	84.0	17.09
10	1800	215T	G140004.00	138	200-208/400-416	32.0	86.5	15.76

### 200-208 VOLT/400-416 VOLT • THREE PHASE TEFC • RIGID BASE

HP	SYN RPM 60 Hz	NEMA Frame	App. Catalog Number	Wgt. (lbs.)	F.L. Voltage	Amps 200 V.	% F.L. Eff.	"C" Dim. (Inches)
1	1800	56	110255.00	30	200-208	4.4	77.0	11.31
	1800	143T	G120047.00 A	32	200-208	4.4	77.0	12.75
1 1/2	1800	145T	G120032.00 A	35	200-208	5.6	80.0	12.75
2	1800	145T	G120034.00†A	38	200-208	7.2	81.5	12.75
3	3600	182T	G131465.00	82	200-208/400-416	10.0	84.0	12.96
5	1800	184T	G131466.00	63	200-208/400-416	15.4	86.0	13.96
7 1/2	1800	213T	G141123.00♣A	144	200-208/400-416	23.0	87.0	17.58
10	1800	215T	G140013.00	168	200-208/400-416	29.6	87.5	18.21

All 200-208 motors have a 1.15 Service Factor, Class F insulation

Catalog Numbers in Green are EPACT Motors.

SHADED FRAME INDICATES CAST IRON CONSTRUCTION

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice

# ODP & TEFC 200/400 VOLT MOTORS

**3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 125 HP**

**Features:**

- Perfect choice for 208 V systems
- Premium Insulation Systems  
56 frames: Class B  
143T-445T frames: Class F
- Continuous Duty
- Y-delta start capability frames 284T and larger



**Applications:**

ODP: Ideally suited for use where water and dust exposure is minimal.

TEFC: Ideally suited for use where exposure to water, dust and corrosives exists.

Both for use on pumps, compressors, fans, blowers, conveyors, direct-coupled or belt driven applications.

**Supporting Information:**

Dimensions and Performance: contact your local sales office.

**ODP • FOOT MOUNT**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/2	1800	56	70.0	1.25	200/400	SRD4S0.5T62	LM24156	17
	1200	56	74.0	1.25	200/400	SRD6S0.5T62	LM25599	-
3/4	3600	56	72.0	1.25	200/400	RD2S0.75T62	LM05332	26
	1800	56	75.5	1.25	200/400	SRD4S0.75T62	LM24163	23
	1200	56	72.0	1.15	200/400	RD6S0.75T62	LM05345	26
1	3600	56	75.5	1.25	200/400	RD2S1T62	LM05342	26
	1800	143T	82.5	1.15	200/400	SD4P1T62	LM33053	32
	1200	145T	80.0	1.15	200/400	SD6P1T62	LM33054	36
1 1/2	3600	143T	82.5	1.15	200/400	SD2P1.5T62	LM33055	32
	1800	145T	84.0	1.15	200/400	SD4P1.5T62	LM33056	35
2	1800	145T	84.0	1.15	200/400	SSD4P2T62	LM33057	48
3	3600	145T	84.0	1.15	200/400	SD2P3T62	LM33058	38
	1800	182T	86.5	1.15	200/400	SSD4P3T62	LM33059	75
	1200	213T	86.5	1.15	200/400	SD6P3T62	LM33060	99
5	3600	182T	85.5	1.15	200/400	SD2P5T62	LM33061	58
	1800	184T	87.5	1.15	200/400	SSD4P5T62	LM33062	82
	1200	215T	87.5	1.15	200/400	SD6P5T62	LM33063	115
7 1/2	3600	184T	87.5	1.15	200/400	SSD2P7.5T62	LM33064	85
	1800	213T	88.5	1.15	200/400	SSD4P7.5T62	LM24229	103
10	1800	215T	89.5	1.15	200/400	SSD4P10T62	LM32681	120

Product numbers in red are STOCK items.

Specifications are subject to change without notice

# ODP & TEFC 200/400 VOLT MOTORS



3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 125 HP

AC MOTORS

## ODP • FOOT MOUNT (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
15	1800	254T	91.0	1.15	200/400	SSD4P15T62	LM26334	164
20	3600	254T	90.2	1.15	200/400	SSD2P20T62	LM33065	200
	1800	256T	91.0	1.15	200/400	SSD4P20T62	LM32675	200
25	3600	256T	91.0	1.15	200/400	SSD2P25T62	LM33066	250
	1800	284T	91.7	1.15	200/400	SD4P25T62	LM33067	278
30	3600	284TS	91.0	1.15	200/400	SD2P30TS62	LM32683	285
	1800	286T	92.4	1.15	200/400	SD4P30T62	LM32670	325
40	3600	286TS	91.7	1.15	200/400	SD2S40TS62	LM33068	325
	1800	324T	93.0	1.15	200/400	SD4S40T62	LM32680	378
50	3600	324TS	92.4	1.15	200/400	SD2S50TS62	LM33069	410
	1800	326T	93.0	1.15	200/400	SD4S50T62	LM33070	444
60	3600	326TS	93.0	1.15	200/400	SD2S60TS62	LM33071	462
	1800	364T	93.6	1.15	200/400	SD4S60T62	LM33072	575
75	3600	364TS	93.0	1.15	200/400	SD2S75TS62	LM33073	618
	1800	365T	94.1	1.15	200/400	SD4S75T62	LM33074	660
100	3600	365TS	93.0	1.15	200/400	SD2S100TS62	LM33075	680
	1800	404T	94.1	1.15	200/400	SD4S100T62	LM33076	767
125	1800	405T	94.5	1.15	200/400	SD4S125T62	LM33077	910

Product numbers in red are STOCK items.

Specifications are subject to change without notice



# ODP & TEFC 200/400 VOLT MOTORS

3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 125 HP

## TEFC • FOOT MOUNT

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
0.33	1800	56	72.0	1.15	200/400	SRF4S0.33T62	LM02676	28
0.5	1800	56	74.0	1.15	200/400	SRF4S0.5T62	LM02682	28
	1200	56	70.0	1.15	200/400	SRF6S0.5T62	LM02679	28
0.75	3600	56	74.0	1.15	200/400	SRF2S0.75T62	LM02694	28
	1800	56	74.0	1.15	200/400	SRF4S0.75T62	LM02691	TBD
	1200	56	74.0	1.15	200/400	SRF6S0.75T62	LM02688	28
1	3600	56	75.5	1.15	200/400	SRF2S1T62	LM02703	28
	1800	56	78.5	1.15	200/400	SRF4S1T62	LM02700	28
	1800	143T	82.5	1.15	200/400	SS4P1T62	LM33078	32
	1200	56H	72.0	1.15	200/400	SRF6S1T62	LM02697	36
	1200	145T	80.0	1.15	200/400	SSF6P1T62	LM33079	38
	900	182T	74.0	1.15	200/400	AF8S1T62	LM33080	68
1.5	3600	143T	82.5	1.15	200/400	SSF2P1.5T62	LM33081	42
	1800	56H	80.0	1.15	200/400	SRF4S1.5T62	LM02706	36
	1800	145T	84.0	1.15	200/400	SF4P1.5T62	LM33083	72
	1200	182T	85.5	1.15	200/400	AF6P1.5T62	LM33082	76
2	3600	56H	78.5	1.15	200/400	SRF2S2T62	LM02715	36
	1800	56H	80.0	1.15	200/400	SRF4S2T62	LM02712	36
	1800	145T	84.0	1.15	200/400	SSF4P2T62	LM33084	42
	1200	184T	86.5	1.15	200/400	AF6P2T62	LM33085	76
	900	213T	82.5	1.15	200/400	AF8P2T62	LM33086	107
3	3600	182T	85.5	1.15	200/400	AF2P3T62	LM33087	73
	1800	182T	87.5	1.15	200/400	AF4P3T62	LM33088	78
	1200	213T	87.5	1.15	200/400	AF6P3T62	LM33089	100
	900	215T	84.0	1.15	200/400	AF8P3T62	LM33090	125
5	3600	184T	87.5	1.15	200/400	AF2P5T62	LM33091	80
	1800	184T	87.5	1.15	200/400	AF4P5T62	LM33092	80
	1200	215T	87.5	1.15	200/400	AF6P5T62	LM33093	122
	900	254T	85.5	1.15	200/400	AF8P5T62	LM33094	125
7.5	3600	213T	88.5	1.15	200/400	AF2P7.5T62	LM33095	110
	1800	213T	89.5	1.15	200/400	AF4P7.5T62	LM33096	108
	1200	254T	89.5	1.15	200/400	AF6P7.5T62	LM33097	165
	900	256T	85.5	1.15	200/400	AF8P7.5T62	LM33098	202
10	3600	215T	89.5	1.15	200/400	AF2P10T62	LM33099	124
	1800	215T	89.5	1.15	200/400	AF4P10T62	LM32690	126
	1200	256T	89.5	1.15	200/400	AF6P10T62	LM33100	205
15	3600	254T	90.2	1.15	200/400	AF2P15T62	LM33101	172
	1800	254T	91.0	1.15	200/400	AF4P15T62	LM32691	152
20	3600	256T	90.2	1.15	200/400	AF2P20T62	LM33102	205
	1800	256T	91.0	1.15	200/400	AF4P20T62	LM33103	202
25	1200	324T	91.7	1.15	200/400	SF6P25T62	LM33104	479

Product numbers in red are STOCK items.

Specifications are subject to change without notice



# ODP & TEFC 200/400 VOLT MOTORS



3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 125 HP

AC MOTORS

## TEFC • FOOT MOUNT (cont'd)

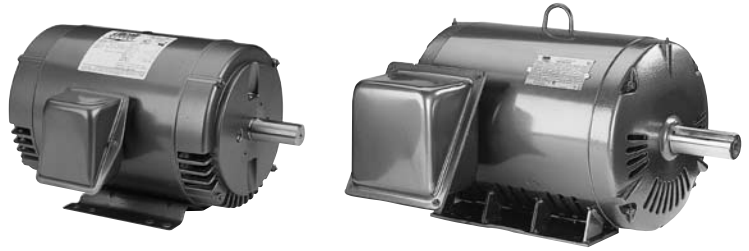
HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
30	1200	326T	91.7	1.15	200/400	SF6P30T62	LM33105	355
40	3600	324TS	91.7	1.15	200/400	SF2P40TS62	LM02323	396
	1800	324T	93.0	1.15	200/400	SF4P40T62	LM02005	479
	1200	364T	91.7	1.15	200/400	SF6P40T62	LM02578	724
50	3600	326TS	92.4	1.15	200/400	SF2P50TS62	LM02159	479
	1800	326T	93.0	1.15	200/400	SF4P50T62	LM02010	532
	1200	365T	93.0	1.15	200/400	SF6P50T62	LM02460	775
60	3600	364TS	93.0	1.15	200/400	SF2P60TS62	LM02579	532
	1800	364T	93.6	1.15	200/400	SF4P60T62	LM02386	724
75	3600	365TS	93.0	1.15	200/400	SF2P75TS62	LM02921	724
	1800	365T	94.1	1.15	200/400	SF4P75T62	LM02394	775
100	1800	405T	94.5	1.15	200/400	SF4P100T62	LM02444	898

Product numbers in red are STOCK items.

Specifications are subject to change without notice

### Features:

- Meets energy efficiency requirements of the United States and Canada.
- Industry leading 1.25 service factor through 200 HP\*
- Superior speed-torque curves – some models\* are nameplated Design B & C - see “Notes” column.
- Continuous Duty
- Construction materials –  
56-256T: steel frame / cast aluminum brackets  
284T-449T: steel frame / cast iron brackets
- Premium Insulation Systems –  
56 frames: Class B  
143T-449T frames: Class F
- Y-delta start capability frames 284T-449T (reference “Y” in Model Number).
- Shielded ball bearing for direct coupled applications. Contact your local sales office for belted applications.



### Applications:

For use where water and dust exposure is moderate. Ideally suited for use on pumps, compressors, blowers, fans and other standard industrial applications.

\* P efficiency codes.

### FOOT MOUNT

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/3	1800	56	65.5	1.15	575	SRD4S0.33T65	<b>LM25054</b>	15
1/2	3600	56	66.0	1.25	575	SRD2S0.5T65	<b>LM25055</b>	22
	1800	56	70.0	1.25	575	SRD4S0.5T65	<b>LM24161</b>	17
3/4	3600	56	74.0	1.25	575	SRD2S0.75T65	<b>LM25056</b>	21
	1800	56	75.5	1.15	575	SRD4S0.75T65	<b>LM25057</b>	20
1	3600	56	74.0	1.25	575	SRD2S1T65	<b>LM25058</b>	24
	1800	56	77.0	1.15	575	SRD4S1T65	<b>LM25059</b>	22
	1800	143T	82.5	1.25	575	SSD4P1T65	<b>LM24170</b>	34
1 1/2	3600	56	80.0	1.15	575	SRD2S1.5T65	<b>LM25060</b>	23
	3600	143T	82.5	1.25	575	SSD2P1.5T65	<b>LM25065</b>	28
	1800	56H	80.0	1.15	575	SRD4S1.5T65	<b>LM25061</b>	28
	1800	145T	84.0	1.25	575	SSD4P1.5T65	<b>LM25066</b>	40
2	3600	56H	80.0	1.15	575	SRD2S2T65	<b>LM25062</b>	25
	3600	145T	84.0	1.25	575	SSD2P2T65	<b>LM25067</b>	28
	1800	56H	81.5	1.15	575	SRD4S2T65	<b>LM25063</b>	36
	1800	145T	84.0	1.25	575	SSD4P2T65	<b>LM24124</b>	44
3	3600	56H	84.0	1.15	575	SRD2S3T65	<b>LM25064</b>	33
	3600	145T	84.0	1.25	575	SSD2P3T65	<b>LM25068</b>	33
	1800	182T	86.5	1.25	575	SSD4P3T65	<b>LM24227</b>	83
5	3600	182T	86.5	1.25	575	SSD2P5T65	<b>LM25069</b>	88
	1800	184T	87.5	1.25	575	SSD4P5T65	<b>LM25070</b>	87
7 1/2	3600	184T	87.5	1.15	575	SSD2P7.5T65	<b>LM25071</b>	88
	1800	213T	88.5	1.25	575	SSD4P7.5T65	<b>LM24229</b>	121
10	3600	213T	88.5	1.25	575	SSD2P10T65	<b>TBD</b>	-
	1800	215T	89.5	1.25	575	SSD4P10T65	<b>LM24231</b>	138

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**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
15	3600	215T	89.5	1.25	575	SSD2P15T65	TBD	-
	1800	254T	91.0	1.25	575	SSD4P15T65	LM24219	215
20	3600	254T	90.2	1.25	575	SSD2P20T65	TBD	245
	1800	256T	91.0	1.25	575	SSD4P20T65	LM24232	233
25	3600	256T	91.0	1.25	575	SSD2P25T65	TBD	-
	1800	284T	91.7	1.25	575	CCD4P25T65Y	LM29581	350
30	3600	284TS	91.0	1.25	575	SD2P30TS65Y	LM20081	348
	1800	286T	92.4	1.25	575	CCD4P30T65Y	LM29865	400
40	3600	286TS	91.7	1.25	575	SD2P40TS65Y	LM15599	389
	1800	324T	93.0	1.25	575	SD4P40T65Y	LM14402	469
50	3600	324TS	92.4	1.25	575	SD2P50TS65Y	LM14401	469
	1800	326T	93.0	1.25	575	SD4P50T65Y	LM14405	522
60	3600	326TS	93.0	1.25	575	SD2P60TS65Y	LM14404	522
	1800	364T	93.6	1.25	575	SD4P60T65Y	LM18378	712
75	3600	364TS	93.0	1.25	575	SD2P75TS65Y	LM18379	712
	1800	365T	94.1	1.25	575	SD4P75T65Y	LM18384	763
100	3600	365TS	93.0	1.25	575	SD2P100TS65Y	LM18385	763
	1800	404T	94.1	1.25	575	SD4P100T65Y	LM18298	882
125	3600	404TS	93.6	1.25	575	SD2P125TS65Y	LM18296	882
	1800	405T	95.4	1.25	575	SD4P125T65Y	LM18306	958
150	3600	405TS	93.6	1.25	575	SD2P150TS65Y	LM18302	958
	1800	444T	95.0	1.15	575	SD4P150T65Y	LM15101	1277
200	3600	444TS	94.5	1.25	575	SD2P200TS65Y	LM15100	1277
	1800	445T	95.0	1.15	575	SD4P200T65Y	LM15106	1449
250	3600	445TS	94.5	1.15	575	SD2P250TS65Y	LM15103	1438
	1800	445T	95.4	1.15	575	SD4P250T65Y	LM15104	1438
300	3600	447TS	95.0	1.15	575	SD2P300TS65Y	LM15111	1745
	1800	447T	95.4	1.15	575	SD4P300T65Y	LM15061	1745
350	3600	447TS	95.0	1.15	575	SD2P350TS65Y	LM15108	1745
	1800	447T	95.4	1.15	575	SD4P350T65Y	LM15109	1745
400	3600	449TS	95.4	1.15	575	SD2P400TS65Y	LM15116	2112
	1800	449T	95.4	1.15	575	SD4P400T65Y	LM15117	2112
450	3600	449TS	95.8	1.00	575	SD2P450TS65Y	TBD	TBD
	1800	449T	95.8	1.00	575	SD4P450T65Y	TBD	TBD

◆ Cast iron design contact Lincoln Motors.

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# ODP • 575 VOLT MOTORS

**3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 450 HP**

## C-FACE WITH FEET

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/3	1800	56C	67.0	1.35	575	SRD4S0.33TC65	<b>LM25072</b>	15
1/2	3600	56C	66.0	1.25	575	SRD2S0.5TC65	<b>LM25073</b>	18
	1800	56C	68.0	1.15	575	SRD4S0.5TC65	<b>LM25074</b>	17
3/4	3600	56C	74.0	1.25	575	SRD2S0.75TC65	<b>LM25075</b>	21
	1800	56C	75.5	1.25	575	SRD4S0.75TC65	<b>LM25076</b>	20
1	3600	56C	74.0	1.25	575	SRD2S1TC65	<b>LM25077</b>	24
	1800	56C	77.0	1.15	575	SRD4S1TC65	<b>LM25078</b>	22
	1800	143TC	82.5	1.25	575	SSD4P1TC65	<b>LM25084</b>	34
1 1/2	3600	56C	80.0	1.15	575	SRD2S1.5TC65	<b>LM25079</b>	23
	1800	56HC	80.0	1.15	575	SRD4S1.5TC65	<b>LM25080</b>	28
	1800	145TC	84.0	1.25	575	SSD4P1.5TC65	<b>LM25085</b>	40
2	3600	56HC	80.0	1.15	575	SRD2S2TC65	<b>LM25081</b>	25
	1800	56C	81.5	1.15	575	SRD4S2TC65	<b>LM25082</b>	36
	1800	145TC	84.0	1.25	575	SSD4P2TC65	<b>LM25086</b>	44
3	3600	56HC	84.0	1.15	575	SRD2S3TC65	<b>LM25083</b>	33
	1800	182TC	86.5	1.25	575	SSD4P3TC65	<b>LM25087</b>	83
5	1800	184TC	87.5	1.25	575	SSD4P5TC65	<b>LM25088</b>	93
7 1/2	1800	213TC	88.5	1.25	575	SSD4P7.5TC65	<b>LM25089</b>	115
10	1800	215TC	89.5	1.25	575	SSD4P10TC65	<b>LM25090</b>	138
15	1800	254TC	91.0	1.25	575	SSD4P15TC65	<b>LM25091</b>	215
20	1800	256TC	91.0	1.25	575	SSD4P20TC65	<b>LM25092</b>	233
25	1800	284TC	91.7	1.25	575	CCD4P25TC65	<b>LM30138</b>	350
30	1800	286TC	92.4	1.25	575	CCD4P30TC65	<b>LM30139</b>	396
40	1800	324TC	93.0	1.25	575	SD4P40TC65Y	<b>LM14556</b>	479
50	1800	326TC	93.0	1.25	575	SD4P50TC65Y	<b>LM14559</b>	535
60	1800	364TC	93.6	1.25	575	SD4P60TC65Y	<b>LM19713</b>	724
75	1800	365TC	94.1	1.25	575	SD4P75TC65Y	<b>LM19716</b>	771
100	1800	404TC	94.1	1.25	575	SD4P100TC65Y	<b>LM19719</b>	898
125	1800	405TC	94.5	1.25	575	SD4P125TC65Y	<b>LM19722</b>	974
150	1800	444TC	95.0	1.15	575	SD4P150TC65Y	<b>LM19725</b>	1292
200	1800	445TC	95.0	1.25	575	SD4P200TC65Y	<b>LM19728</b>	1470
250	1800	445TC	95.4	1.15	575	SD4P250TC65Y	<b>LM19731</b>	1459
300	1800	447TC	95.4	1.15	575	SD4P300TC65Y	<b>LM19734</b>	1766

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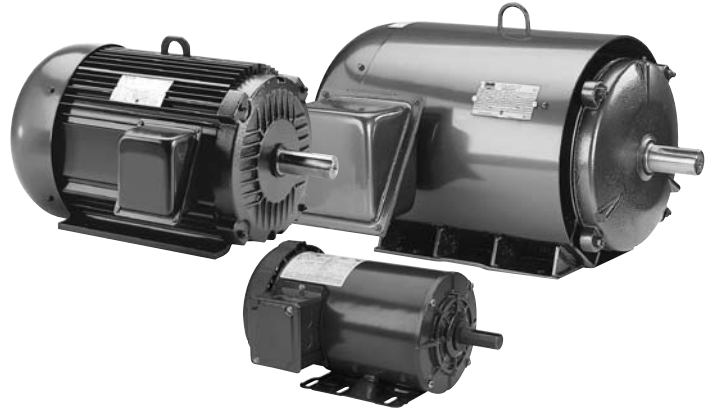
# TEFC • 575 VOLT MOTORS

3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 400 HP



**Features:**

- Industry leading 1.25 service factor\* through 75 HP
- Superior speed-torque curves – most models\* are nameplated Design B & C
- Two levels of premium efficiency\* – P efficiency codes meet and B efficiency codes exceed the energy efficiency requirements of the United States and Canada.
- Continuous Duty
- Construction materials (reference first letters of Model Number):  
AF, AAF – extruded aluminum frame and cast iron brackets  
SF – steel frame / cast iron end brackets  
SR, SS – steel frame / cast aluminum brackets
- Premium Insulation Systems –  
56 frames: Class B  
143T-449T frames: Class F
- Y-delta start capability 30 HP and larger
- Shielded ball bearing for direct coupled applications. Contact your local sales office for belted applications.



**Applications:**

For use where exposure to water, dust and corrosives exists. Ideally suited for use on pumps, compressors, fans, blowers, conveyors, machine tools and other industrial applications.

\*P & B efficiency codes.

**FOOT MOUNT**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)	
1/3	1800	56	71.0	1.15	575	SRF4S0.33T65	LM25093	16	
	1/2	3600	56	66.0	1.15	575	SRF2S0.5T65	LM25094	22
		1800	56	74.0	1.15	575	SRF4S0.5T65	LM24154	22
3/4	1200	56	68.0	1.15	575	SRF6S0.5T65	LM24295	24	
	3600	56	74.0	1.15	575	SRF2S0.75T65	LM24110	23	
	1800	56	75.5	1.15	575	SRF4S0.75T65	LM25095	30	
1	1200	56	74.0	1.15	575	SRF6S0.75T65	TBD	28	
	3600	56	74.0	1.15	575	SRF2S1T65	LM25096	24	
	1800	56	77.0	1.15	575	SRF4S1T65	LM25097	27	
	1800	143T	82.5	1.25	575	SSF4P1T65	LM24109	36	
1 1/2	1200	145T	80.0	1.25	575	SSF6P1T65	TBD	37	
	3600	56	80.0	1.15	575	SRF2S1.5T65	LM25098	25	
	3600	143T	82.5	1.25	575	SSF2P1.5T65	LM25102	34	
	1800	56H	80.0	1.15	575	SRF4S1.5T65	LM25099	30	
	1800	145T	84.0	1.15	575	SSF4P1.5T65	LM24142	48	
	1200	182T	86.5	1.25	575	AF6B1.5T65	LM17059	83	
	1200	182T	85.5	1.25	575	AF6P1.5T65	LM16379	83	

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# TEFC • 575 VOLT MOTORS

**3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 400 HP**

## FOOT MOUNT (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
2	3600	56H	80.0	1.15	575	SRF2S2T65	LM25100	39
	3600	145T	84.0	1.25	575	SSF2P2T65	LM25103	39
	1800	56H	82.5	1.15	575	SRF4S2T65	LM25101	40
	1800	145T	84.0	1.25	575	SSF4P2T65	LM24108	45
	1200	184T	87.5	1.25	575	AF6B2T65	LM17062	92
	1200	184T	86.5	1.25	575	AF6P2T65	LM16382	102
3	3600	182T	87.5	1.25	575	AF2B3T65	LM17063	83
	3600	182T	85.5	1.25	575	AF2P3T65	LM16383	72
	1800	182T	89.5	1.25	575	AF4B3T65	LM17064	83
	1800	182T	87.5	1.25	575	AF4P3T65	LM16384	77
	1200	213T	89.5	1.25	575	AF6B3T65	LM17065	127
	1200	213T	87.5	1.25	575	AF6P3T65	LM16385	127
5	3600	184T	88.5	1.25	575	AF2B5T65	LM17066	92
	3600	184T	87.5	1.25	575	AF2P5T65	LM16386	174
	1800	184T	90.2	1.25	575	AF4B5T65	LM17067	87
	1800	184T	87.5	1.25	575	AF4P5T65	LM16387	92
	1200	215T	89.5	1.25	575	AF6B5T65	LM17068	138
	1200	215T	87.5	1.25	575	AF6P5T65	LM16388	155
	900	254T	85.5	1.15	575	AF8P5T65	LM33171	165
7 1/2	3600	213T	91.0	1.25	575	AF2B7.5T65	LM17069	127
	3600	213T	88.5	1.25	575	AF2P7.5T65	LM16389	143
	1800	213T	91.0	1.25	575	AF4B7.5T65	LM17070	127
	1800	213T	89.5	1.25	575	AF4P7.5T65	LM16391	160
	1200	254T	91.0	1.25	575	AF6B7.5T65	LM17071	209
	1200	254T	89.5	1.25	575	AF6P7.5T65	LM16392	209
10	3600	215T	91.0	1.25	575	AF2B10T65	LM17072	138
	3600	215T	89.5	1.25	575	AF2P10T65	LM16394	138
	1800	215T	91.0	1.25	575	AF4B10T65	LM17073	138
	1800	215T	89.5	1.25	575	AF4P10T65	LM16395	138
	1200	256T	91.0	1.25	575	AF6B10T65	LM17074	236
	1200	256T	89.5	1.25	575	AF6P10T65	LM16397	386
15	3600	254T	91.7	1.25	575	AF2B15T65	LM17075	209
	3600	254T	90.2	1.25	575	AF2P15T65	LM16398	209
	1800	254T	92.4	1.25	575	AF4B15T65	LM17076	209
	1800	254T	91.0	1.25	575	AF4P15T65	LM16400	240
	1200	284T	92.4	1.25	575	AF6B15T65	LM17077	363
	1200	284T	90.2	1.25	575	AF6P15T65	LM16401	369
20	3600	256T	91.7	1.25	575	AF2B20T65	LM17078	236
	3600	256T	90.2	1.25	575	AF2P20T65	LM16403	290
	1800	256T	93.0	1.25	575	AF4B20T65	LM17079	275
	1800	256T	91.0	1.25	575	AF4P20T65	LM15919	236
	1200	286T	93.0	1.25	575	AF6B20T65	LM17080	408
	1200	286T	90.2	1.25	575	AF6P20T65	LM16404	408
25	3600	284TS	93.0	1.25	575	AF2B25TS65	LM17081	363
	3600	284TS	91.7	1.25	575	AF2P25TS65	LM16406	410
	1800	284T	94.1	1.25	575	AF4B25T65	LM17082	363
	1800	284T	92.4	1.25	575	AF4P25T65	LM16407	320
	1200	324T	93.0	1.25	575	SF6B25T65Y	LM14409	504
	1200	324T	91.7	1.25	575	SF6P25T65Y	LM14397	504

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**FOOT MOUNT (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
30	3600	286TS	93.6	1.25	575	AF2B30TS65Y	LM20085	485
	3600	286TS	91.0	1.25	575	AF2P30TS65Y	LM19594	408
	1800	286T	94.5	1.25	575	AF4B30T65Y	LM20086	408
	1800	286T	92.4	1.25	575	AF4P30T65Y	LM19595	585
	1200	326T	92.4	1.25	575	SF6B30T65Y	LM14412	558
	1200	326T	91.7	1.25	575	SF6P30T65Y	LM14400	570
40	3600	324TS	94.1	1.25	575	SF2B40TS65Y	LM14407	504
	3600	324TS	91.7	1.25	575	SF2P40TS65Y	LM14395	504
	1800	324T	94.1	1.25	575	SF4B40T65Y	LM14408	504
	1800	324T	93.0	1.15	575	SF4P40T65Y	LM14396	504
	1200	364T	94.5	1.25	575	SF6B40T65Y	LM18368	765
	1200	364T	93.0	1.15	575	SF6P40T65Y	LM18365	765
50	3600	326TS	94.1	1.25	575	SF2B50TS65Y	LM14410	558
	3600	326TS	92.4	1.25	575	SF2P50TS65Y	LM14398	558
	1800	326T	95.0	1.25	575	SF4B50T65Y	LM14411	558
	1800	326T	93.0	1.25	575	SF4P50T65Y	LM14399	558
	1200	365T	94.5	1.25	575	SF6B50T65Y	LM18374	822
	1200	365T	93.0	1.25	575	SF6P50T65Y	LM18371	822
60	3600	364TS	95.0	1.25	575	SF2B60TS65Y	LM18370	765
	3600	364TS	93.0	1.25	575	SF2P60TS65Y	LM18367	765
	1800	364T	95.0	1.25	575	SF4B60T65Y	LM18369	765
	1800	364T	93.6	1.25	575	SF4P60T65Y	LM18366	765
	1200	404T	94.5	1.15	575	SF6B60T65Y	LM18289	918
	1200	404T	93.6	1.15	575	SF6P60T65Y	LM18288	918
75	3600	365TS	95.0	1.25	575	SF2B75TS65Y	LM18376	822
	3600	365TS	93.0	1.25	575	SF2P75TS65Y	LM18373	822
	1800	365T	95.0	1.15	575	SF4B75T65Y	LM18375	822
	1800	365T	94.1	1.25	575	SF4P75T65Y	LM18372	822
	1200	405T	94.5	1.15	575	SF6B75T65Y	LM18293	1002
	1200	405T	93.6	1.15	575	SF6P75T65Y	LM18294	1002
100	3600	405TS	95.8	1.15	575	SF2B100TS65Y	LM18291	1002
	3600	405TS	94.1	1.15	575	SF2P100TS65Y	LM18290	1002
	1800	405T	95.4	1.15	575	SF4B100T65Y	LM18307	1002
	1800	405T	94.5	1.15	575	SF4P100T65Y	LM18292	1002
	1200	444T	95.4	1.15	575	SF6B100T65Y	LM15121	1351
	1200	444T	94.1	1.15	575	SF6P100T65Y	LM15080	1351
125	3600	444TS	95.8	1.15	575	SF2B125TS65Y	LM15119	1351
	3600	444TS	94.5	1.15	575	SF2P125TS65Y	LM15078	1351
	1800	444T	96.2	1.15	575	SF4B125T65Y	LM15120	1351
	1800	444T	94.5	1.15	575	SF4P125T65Y	LM15079	1351
	1200	445T	95.8	1.15	575	SF6B125T65Y	LM15127	1531
	1200	445T	94.1	1.15	575	SF6P125T65Y	LM15086	1504
150	3600	445TS	96.2	1.15	575	SF2B150TS65Y	LM15125	1531
	3600	445TS	94.5	1.15	575	SF2P150TS65Y	LM15084	1504
	1800	445T	96.2	1.15	575	SF4B150T65Y	LM15126	1531
	1800	445T	95.0	1.15	575	SF4P150T65Y	LM15085	1531
	1200	445T	95.8	1.15	575	SF6B150T65Y	LM15124	1531
	1200	445T	95.0	1.15	575	SF6P150T65Y	LM15083	1504
200	3600	445TS	96.2	1.15	575	SF2B200TS65Y	LM15122	1531
	3600	445TS	95.0	1.15	575	SF2P200TS65Y	LM15081	1504
	1800	445T	96.2	1.15	575	SF4B200T65Y	LM15123	1531
	1800	445T	95.0	1.15	575	SF4P200T65Y	LM15082	1531
	1200	447T	95.8	1.15	575	SF6B200T65Y	LM15131	1812
	1200	447T	95.0	1.15	575	SF6P200T65Y	LM15091	1812

Product numbers in red are STOCK items.

Specifications are subject to change without notice



# TEFC • 575 VOLT MOTORS

**3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 400 HP**

## FOOT MOUNT (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
250	3600	447TS	96.2	1.15	575	SF2B250TS65Y	<b>LM15128</b>	1812
	3600	447TS	95.4	1.00	575	SF2P250TS65Y	<b>LM15087</b>	1812
	1800	447T	96.2	1.15	575	SF4B250T65Y	<b>LM15130</b>	1812
	1800	447T	95.0	1.15	575	SF4P250T65Y	<b>LM15092</b>	1812
	1200	449T	95.4	1.00	575	SF6B250T65Y	<b>LM15137</b>	2185
	1200	449T	95.0	1.15	575	SF6P250T65Y	<b>LM15099</b>	2185
300	3600	449TS	96.2	1.15	575	S449F2B300TS65Y	<b>LM15138</b>	2185
	3600	449TS	95.4	1.15	575	S449F2P300TS65Y	<b>LM15098</b>	2185
	1800	447T	96.2	1.15	575	SF4B300T65Y	<b>LM15129</b>	1812
	1800	447T	95.4	1.00	575	SF4P300T65Y	<b>LM15089</b>	1812
350	3600	449TS	95.8	1.15	575	SF2B350TS65Y	<b>LM15135</b>	2185
	3600	449TS	95.4	1.00	575	SF2P350TS65Y	<b>LM15096</b>	2185
	1800	449T	96.2	1.15	575	SF4B350T65Y	<b>LM15136</b>	2185
	1800	449T	95.4	1.15	575	SF4P350T65Y	<b>LM15097</b>	2185
400	3600	449TS	95.8	1.00	575	SF2B400TS65Y	<b>LM15132</b>	2185
	3600	449TS	95.4	1.00	575	SF2P400TS65Y	<b>LM15093</b>	2185
	1800	449T	96.2	1.15	575	SF4B400T65Y	<b>LM15133</b>	2185
	1800	449T	95.4	1.00	575	SF4P400T65Y	<b>LM15094</b>	2185

## C-FACE WITH FEET

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/3	1800	56C	65.5	1.15	575	SRF4S0.33TC65	<b>LM25042</b>	21
1/2	3600	56C	66.5	1.15	575	SRF2S0.5TC65	<b>LM25043</b>	22
	1800	56C	70.0	1.15	575	SRF4S0.5TC65	<b>LM24355</b>	18
3/4	3600	56C	74.0	1.15	575	SRF2S0.75TC65	<b>LM25044</b>	24
	1800	56C	75.5	1.15	575	SRF4S0.75TC65	<b>LM24354</b>	21
1	3600	56C	74.0	1.15	575	SRF2S1TC65	<b>LM25045</b>	25
	1800	56C	77.0	1.15	575	SRF4S1TC65	<b>LM25046</b>	26
	1800	143TC	82.5	1.25	575	SSF4P1TC65	<b>LM25051</b>	41
1 1/2	3600	143TC	82.5	1.25	575	SSF2P1.5TC65	<b>LM25052</b>	41
	3600	56C	80.0	1.15	575	SRF2S1.5TC65	<b>LM25047</b>	41
	1800	56HC	80.0	1.15	575	SRF4S1.5TC65	<b>LM25048</b>	31
	1800	145TC	84.0	1.15	575	SSF4P1.5TC65	<b>LM24158</b>	49
	1200	182TC	86.5	1.25	575	AF6B1.5TC65	<b>LM17175</b>	95
1200	182TC	85.5	1.25	575	AF6P1.5TC65	<b>LM16582</b>	95	
2	3600	56HC	80.0	1.15	575	SRF2S2TC65	<b>LM25049</b>	31
	3600	145TC	84.0	1.25	575	SSF2P2TC65	<b>LM25053</b>	40
	1800	56HC	82.5	1.15	575	SRF4S2TC65	<b>LM25050</b>	50
	1800	145TC	84.0	1.15	575	SSF4P2TC65	<b>LM24137</b>	47
	1200	184TC	87.5	1.25	575	AF6B2TC65	<b>LM17179</b>	104
	1200	184TC	86.5	1.25	575	AF6P2TC65	<b>LM16587</b>	104
3	3600	182TC	87.5	1.25	575	AF2B3TC65	<b>LM17180</b>	95
	3600	182TC	85.5	1.25	575	AF2P3TC65	<b>LM16589</b>	95
	1800	182TC	89.5	1.25	575	AF4B3TC65	<b>LM17181</b>	95
	1800	182TC	87.5	1.25	575	AF4P3TC65	<b>LM16590</b>	95
	1200	213TC	89.5	1.25	575	AF6B3TC65	<b>LM17182</b>	138
	1200	213TC	87.5	1.25	575	AF6P3TC65	<b>LM16591</b>	138B

Product numbers in red are STOCK items.

Specifications are subject to change without notice



# TEFC • 575 VOLT MOTORS

3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 400 HP



AC MOTORS

## C-FACE WITH FEET (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
5	3600	184TC	88.5	1.25	575	AF2B5TC65	LM17183	104
	3600	184TC	87.5	1.25	575	AF2P5TC65	LM16592	104
	1800	184TC	89.5	1.25	575	AF4B5TC65	LM17184	104
	1800	184TC	87.5	1.25	575	AF4P5TC65	LM16593	104
	1200	215TC	89.5	1.25	575	AF6B5TC65	LM17185	149
	1200	215TC	87.5	1.25	575	AF6P5TC65	LM16594	149
7 1/2	3600	213TC	91.0	1.25	575	AF2B7.5TC65	LM17186	138
	3600	213TC	88.5	1.25	575	AF2P7.5TC65	LM16595	175
	1800	213TC	91.0	1.25	575	AF4B7.5TC65	LM17187	138
	1800	213TC	89.5	1.25	575	AF4P7.5TC65	LM16596	127
	1200	254TC	91.0	1.25	575	AF6B7.5TC65	LM17188	221
	1200	254TC	89.5	1.25	575	AF6P7.5TC65	LM16597	221
10	3600	215TC	91.0	1.25	575	AF2B10TC65	LM17189	149
	3600	215TC	89.5	1.25	575	AF2P10TC65	LM16598	210
	1800	215TC	91.0	1.25	575	AF4B10TC65	LM17190	149
	1800	215TC	89.5	1.25	575	AF4P10TC65	LM16599	200
	1200	256TC	91.0	1.25	575	AF6B10TC65	LM17191	248
	1200	256TC	89.5	1.25	575	AF6P10TC65	LM16600	200
15	3600	254TC	91.7	1.25	575	AF2B15TC65	LM17192	221
	3600	254TC	90.2	1.25	575	AF2P15TC65	LM16601	185
	1800	254TC	92.4	1.25	575	AF4B15TC65	LM17193	221
	1800	254TC	91.0	1.25	575	AF4P15TC65	LM16602	260
	1200	284TC	92.4	1.25	575	AF6B15TC65	LM17194	370
	1200	284TC	90.2	1.25	575	AF6P15TC65	LM16603	500
20	3600	256TC	91.7	1.25	575	AF2B20TC65	LM17195	248
	3600	256TC	90.2	1.25	575	AF2P20TC65	LM16604	248
	1800	256TC	93.0	1.25	575	AF4B20TC65	LM17196	248
	1800	256TC	91.0	1.25	575	AF4P20TC65	LM16605	300
	1200	286TC	93.0	1.25	575	AF6B20TC65	LM17197	415
	1200	286TC	90.2	1.25	575	AF6P20TC65	LM16606	415
25	3600	284TSC	93.0	1.25	575	AF2B25TSC65	LM17198	370
	3600	284TSC	91.0	1.25	575	AF2P25TSC65	LM16607	370
	1800	284TC	94.1	1.25	575	AF4B25TC65	LM17199	370
	1800	284TC	92.4	1.25	575	AF4P25TC65	LM16608	370
	1200	324TC	93.0	1.25	575	SF6B25TC65Y	LM14563	514
	1200	324TC	91.7	1.25	575	SF6P25TC65Y	LM14551	500
30	3600	286TSC	93.0	1.25	575	AF2B30TSC65Y	LM20087	415
	3600	286TSC	91.0	1.25	575	AF2P30TSC65Y	LM19596	415
	1800	286TC	94.5	1.25	575	AF4B30TC65Y	LM20088	415
	1800	286TC	92.4	1.25	575	AF4P30TC65Y	LM19597	415
	1200	326TC	92.4	1.25	575	SF6B30TC65Y	LM14566	568
	1200	326TC	91.7	1.25	575	SF6P30TC65Y	LM14554	580
40	3600	324TSC	94.1	1.25	575	SF2B40TSC65Y	LM14561	514
	3600	324TSC	91.7	1.25	575	SF2P40TSC65Y	LM14549	514
	1800	324TC	94.1	1.25	575	SF4B40TC65Y	LM14562	514
	1800	324TC	93.0	1.25	575	SF4P40TC65Y	LM14550	518
	1200	364TC	94.5	1.25	575	SF6B40TC65Y	LM20035	777
	1200	364TC	93.0	1.15	575	SF6P40TC65Y	LM19598	777
50	3600	326TSC	94.1	1.25	575	SF2B50TSC65Y	LM14564	568
	3600	326TSC	92.4	1.25	575	SF2P50TSC65Y	LM14552	568
	1800	326TC	95.0	1.25	575	SF4B50TC65Y	LM14565	568
	1800	326TC	93.0	1.25	575	SF4P50TC65Y	LM14553	568
	1200	365TC	94.5	1.25	575	SF6B50TC65Y	LM20036	834
	1200	365TC	93.0	1.25	575	SF6P50TC65Y	LM19599	834

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# TEFC • 575 VOLT MOTORS

**3-PHASE  
FOOT MOUNT & C-FACE  
1/3 TO 400 HP**

## C-FACE WITH FEET (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
60	3600	364TSC	95.0	1.25	575	SF2B60TSC65Y	<b>LM20037</b>	777
	3600	364TSC	93.0	1.25	575	SF2P60TSC65Y	<b>LM19600</b>	777
	1800	364TC	95.0	1.25	575	SF4B60TC65Y	<b>LM20038</b>	778
	1800	364TC	93.6	1.25	575	SF4P60TC65Y	<b>LM19603</b>	778
	1200	404TC	94.5	1.15	575	SF6B60TC65Y	<b>LM20039</b>	934
	1200	404TC	93.6	1.15	575	SF6P60TC65Y	<b>LM19601</b>	934
75	3600	365TSC	95.0	1.25	575	SF2B75TSC65Y	<b>LM20040</b>	834
	3600	365TSC	93.0	1.25	575	SF2P75TSC65Y	<b>LM19602</b>	834
	1800	365TC	95.0	1.15	575	SF4B75TC65Y	<b>LM20041</b>	834
	1800	365TC	94.1	1.25	575	SF4P75TC65Y	<b>LM15921</b>	835
	1200	405TC	94.5	1.15	575	SF6B75TC65Y	<b>LM20042</b>	1018
	1200	405TC	93.6	1.15	575	SF6P75TC65Y	<b>LM19604</b>	1018
100	3600	405TSC	95.8	1.15	575	SF2B100TSC65Y	<b>LM20043</b>	1018
	3600	405TSC	93.6	1.15	575	SF2P100TSC65Y	<b>LM19605</b>	1018
	1800	405TC	95.4	1.15	575	SF4B100TC65Y	<b>LM20044</b>	1001
	1800	405TC	94.5	1.15	575	SF4P100TC65Y	<b>LM19606</b>	1018
	1200	444TC	95.4	1.15	575	SF6B100TC65Y	<b>LM20045</b>	1372
	1200	444TC	94.1	1.15	575	SF6P100TC65Y	<b>LM19607</b>	1372
125	3600	444TSC	95.8	1.15	575	SF2B125TSC65Y	<b>LM20046</b>	1372
	3600	444TSC	94.5	1.15	575	SF2P125TSC65Y	<b>LM19608</b>	1372
	1800	444TC	96.2	1.15	575	SF4B125TC65Y	<b>LM20047</b>	1372
	1800	444TC	94.5	1.15	575	SF4P125TC65Y	<b>LM19609</b>	1372
	1200	445TC	95.8	1.15	575	SF6B125TC65Y	<b>LM20048</b>	1552
	1200	445TC	94.1	1.15	575	SF6P125TC65Y	<b>LM19610</b>	1525
150	3600	445TSC	96.2	1.15	575	SF2B150TSC65Y	<b>LM20049</b>	1552
	3600	445TSC	94.5	1.15	575	SF2P150TSC65Y	<b>LM19611</b>	1525
	1800	445TC	96.2	1.15	575	SF4B150TC65Y	<b>LM20050</b>	1552
	1800	445TC	95.0	1.15	575	SF4P150TC65Y	<b>LM19612</b>	1525
	1200	445TC	95.8	1.15	575	SF6B150TC65Y	<b>LM20051</b>	1552
	1200	445TC	95.0	1.15	575	SF6P150TC65Y	<b>LM19613</b>	1525
200	3600	445TSC	96.2	1.15	575	SF2B200TSC65Y	<b>LM20052</b>	1552
	3600	445TSC	95.0	1.15	575	SF2P200TSC65Y	<b>LM19614</b>	1525
	1800	445TC	96.2	1.15	575	SF4B200TC65Y	<b>LM20053</b>	1552
	1800	445TC	95.0	1.15	575	SF4P200TC65Y	<b>LM17685</b>	1537
	1200	447TC	95.8	1.15	575	SF6B200TC65Y	<b>LM20054</b>	1833
	1200	447TC	95.0	1.15	575	SF6P200TC65Y	<b>LM19615</b>	1833
250	3600	447TSC	96.2	1.15	575	SF2B250TSC65Y	<b>LM20055</b>	1833
	3600	447TSC	95.4	1.00	575	SF2P250TSC65Y	<b>LM19616</b>	1833
	1800	447TC	96.2	1.15	575	SF4B250TC65Y	<b>LM20056</b>	1833
	1800	447TC	95.0	1.15	575	SF4P250TC65Y	<b>LM19617</b>	1833
300	3600	449TSC	96.2	1.15	575	S449F2B300TSC65Y	<b>LM20058</b>	2206
	3600	449TSC	95.4	1.15	575	S449F2P300TSC65Y	<b>LM19619</b>	2206
	1800	447TC	96.2	1.15	575	SF4B300TC65Y	<b>LM20059</b>	1833
	1800	447TC	95.4	1.00	575	SF4P300TC65Y	<b>LM19620</b>	1833
350	3600	449TSC	95.8	1.15	575	SF2B350TSC65Y	<b>LM20061</b>	2206
	3600	449TSC	95.4	1.00	575	SF2P350TSC65Y	<b>LM19623</b>	2206
	1800	449TC	96.2	1.15	575	SF4B350TC65Y	<b>LM20062</b>	2206
	1800	449TC	95.4	1.15	575	SF4P350TC65Y	<b>LM19624</b>	2206
400	3600	449TSC	95.8	1.00	575	SF2B400TSC65Y	<b>LM20063</b>	2206
	3600	449TSC	95.4	1.00	575	SF2P400TSC65Y	<b>LM19625</b>	2206
	1800	449TC	96.2	1.15	575	SF4B400TC65Y	<b>LM20064</b>	2206
	1800	449TC	95.4	1.00	575	SF4P400TC65Y	<b>LM19626</b>	2206

Product numbers in red are STOCK items.

Specifications are subject to change without notice



CONFORMITE  
EUROPEENE

### AC METRIC MOTORS

These high efficiency motors meet North American performance standards and Premium energy efficiency mandates, and have 1.15 service factors.

Typically used for replacement on machine tools, textile machinery and other equipment with metric dimensions but requiring the heavy-duty torque and performance of motors designed for use in North America.

Two frame constructions are offered:

**Aluminum frame** models are designated with a 192000 series catalog number, while **cast iron frame** models are 193000 series.

Both types are built to meet international standards and feature IP55 weatherproof enclosures, 60/50 Hz interchangeability (60Hz 230/460 V & 50Hz 200/400V), dual stamped nameplates, CE mark, and F3 conduit box location. Kits are available for field conversion from B3 to B3/B5 or B3/B14.

**LEESON's Inverter Rated Insulation System, (IRIS™)** provides superior protection against voltage spikes induced by variable frequency drives.



### ALUMINUM FRAME

CSA: File number LR33543

UL: File number E57948 for motors produced January 2004 and later

**IP55 weatherproof enclosure** allows for use in a wide range of applications.

**Drain Hole** locations in four quadrants can be drilled-out for multi-position condensate drainage.

**D flange (B5) and C face (B14)** models available. Field conversion kits also offered.

**"Captive Shaft"** keyway.

**Drilled and tapped shaft.**

**Oil seals** on both the drive end and non drive end.

**High efficiency design** utilizes low-loss steel laminations for optimum power and performance.

**Terminal Boards** included.

- 230/460V motors have 9 leads.
- 575V motors have 3 leads.
- All terminal boards have 6 posts.

**Conduit box** with neoprene gaskets. Reposition metric "PG" tapped lead exit hole by rotating box in 90 degree increments. Move box to F1 or F2 position by relocating motor feet.

**Special design steel fan cover** and low-noise fan maximize airflow efficiency.

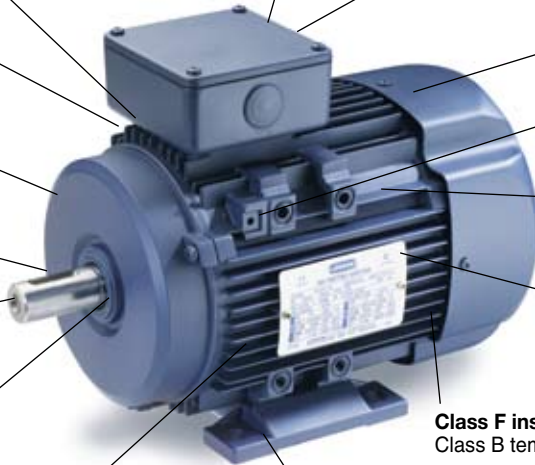
**External grounding** provision.

**Multi-mount repositionable feet** allow for three conduit box positions (F2, F1, F3).

**Aluminum "full fact" nameplate** with information on motor efficiency and power factor. Stamped with 60 Hz and 50 Hz data.

**Class F insulation system** with Class B temperature rise or lower.

**Removable feet.**



### CAST IRON FRAME

CSA: File number LR62104

UL: File number E57948 for motors produced June 2003 and later

**Terminal Boards** included.

- 230/460V motors, 132-frame and larger have 12 leads and 9 post terminal boards.
- 230/460V motors, smaller than 132-frame have 9 leads and 6 post terminal boards.
- 575V motors have 3 leads and 6 post terminal boards.

**IP55 weatherproof enclosure** allows for use in a wide range of applications.

**D flange (B5) and C face (B14)** models available. Field conversion kits also offered.

**Drilled and tapped shaft.**

**Oil seals** on both the drive end and non drive end.

**Cast iron mounting feet** are precision machined for accurate alignment.

**Conduit box** with neoprene gaskets. Reposition metric "PG" threaded lead exit by rotating box in 90 degree increments. Motors 132 frame and larger have second lead exit hole for auxiliary box. Box is fixed at F3 location.

**Heavy-duty cast iron** construction includes frame, endbells and conduit box.

**High efficiency design** utilizes low-loss steel laminations for optimum power and performance.

**Non-sparking fan.** Small size reduces noise and enhances efficiency.

**Steel fan cover.**

**Stainless steel "full fact" nameplate** with information on motor efficiency and power factor. Stamped with 60 Hz and 50 Hz data

**Class F insulation system** with Class B temperature rise or lower.

Specifications are subject to change without notice



**B3 FOOT-MOUNTED METRIC MOTORS • 230/460V**

Metric-dimensioned, AC motors meeting North American performance standards, including 1.15 service factor and Premium efficiencies. For replacement use on machine tools, textile machinery and other equipment with metric dimensions but requiring the heavy-duty torque and performance characteristics of motors designed for use in North America.

IP55 weatherproof enclosures, 60/50 Hz interchangeability (60Hz 230/460V & 50Hz 200/400V), dual stamped nameplates, CE mark, and F3 conduit box location. Kits are available for field conversion from B3 to B3/B5 or B3/B14. See pages 131 and 132 for details.

Motors are available in one of two frame constructions: aluminum or cast iron. Aluminum frame models are designated with a 192000 series catalog number; cast iron models are 193000 series.



**THREE PHASE • IP55 • 1.15 S.F.**

HP-KW	SYN RPM 60 Hz	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/4-0.18	3600	D63	192010.00	10	230/460	0.8	72.0	8.55
	1800	D63	192011.00	11	230/460	1.1	68.0	8.55
	1200	D71	192012.00	12	230/460	1.2	64.0	9.16
1/3-0.25	3600	D63	192020.00	11	230/460	1.1	72.0	8.55
	1800	D71	192021.00	13	230/460	1.4	68.0	9.46
	1200	D80	192022.00	17	230/460	1.3	70.0	11.11
1/2-0.37	3600	D71	192030.00	13	230/460	1.6	74.0	9.46
	1800	D71	192031.00	14	230/460	1.8	74.0	9.46
	1200	D80	192032.00	19	230/460	1.9	72.0	11.11
3/4-0.55	3600	D71	192040.00	15	230/460	2.4	74.0	9.46
	1800	D80	192041.00	18	230/460	2.5	74.0	11.11
	1200	D80	192042.00	22	230/460	2.7	72.0	11.11
1-0.75	3600	D80	192050.00	21	230/460	2.8	75.5	11.11
	1800	D80	192051.00	26	230/460	3.2	80.0	11.11
	1200	D90S	192200.00	33	230/460	3.3	80.0	12.61
1 1/2-1.1	3600	D80	192060.00	27	230/460	4.0	84.0	11.11
	1800	D90S	192202.00	37	230/460	4.6	85.5	12.61
2-1.5	3600	D90S	192208.00	33	230/460	5.2	85.5	12.61
	1800	D90L	192205.00	38	230/460	5.8	84.0	12.61
	1200	DF100L	193300.60	82	230/460	6.4	84.0	14.97
3-2.2	3600	D90L	192209.00	39	230/460	7.2	86.5	12.61
	1800	DF100L	193301.60	84	230/460	8.2	87.5	14.97
	1200	DF112M	193302.60	100	230/460	9.6	87.5	15.76
4-3	3600	DF100L	193303.60	71	230/460	10.0	87.5	14.97
	1800	DF100L	193304.60	84	230/460	10.4	85.5	14.97
	1200	DF132S	193305.60	154	230/460	13.4	87.5	18.72
5 1/2-4	3600	DF112M	193306.60	104	230/460	13.6	87.5	15.76
	1800	DF112M	193307.60	104	230/460	15.0	87.5	15.76
	1200	DF132M	193308.60	176	230/460	17.6	87.5	20.29
7 1/2-5.5	3600	DF132S	193309.60	152	230/460	18.4	88.5	18.72
	1800	DF132S	193310.60	150	230/460	19.8	89.5	18.72
	1200	DF132M	193311.60	180	230/460	22.0	89.5	20.29
10-7.5	3600	DF132S	193312.60	163	230/460	24.0	89.5	18.72
	1800	DF132M	193313.60	174	230/460	26.2	89.5	20.29
	1200	DF160M	193314.60	251	230/460	27.2	89.5	23.64
15-11	3600	DF160M	193315.60	260	230/460	34.4	91.0	23.64
	1800	DF160M	193316.60	264	230/460	36.6	91.0	23.64
	1200	DF160L	193317.60	330	230/460	38.8	90.2	25.39

**THREE PHASE • IP55 • 1.15 S.F.**

HP-KW	SYN RPM 60 Hz	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
20-15	3600	DF160M	193318.60	269	230/460	47.0	91.0	23.64
	1800	DF160L	193319.60	311	230/460	47.6	91.7	25.41
	1200	DF180L	193320.60	385	230/460	51.4	90.2	27.97
25-18.5	3600	DF160L	193321.60	319	230/460	57.2	91.0	25.41
	1800	DF180M	193322.60	381	230/460	59.4	92.4	26.40
	1200	DF200L	193323.60	517	230/460	64.0	91.7	30.54
30-22	3600	DF180M	193324.60	355	230/460	68.8	91.0	26.40
	1800	DF180L	193325.60	427	230/460	71.0	93.0	27.97
	1200	DF200L	193326.60	467	230/460	76.0	91.7	30.54
40-30	3600	DF200L	193327.60	522	230/460	94.0	91.7	30.54
	1800	DF200L	193328.60	531	230/460	94.0	93.0	30.54
	1200	DF225M	193329.60	633	230/460	100.0	93.0	33.29
50-37	3600	DF200L	193330.60	546	230/460	117.0	92.4	30.54
	1800	DF225S	193331.60	632	230/460	118.0	93.0	32.31
	1200	DF250M	193332.60	655	230/460	120.0	93.0	36.61

**METRIC (IEC) B5 FLANGE KITS**

Includes parts to convert these B3 rigid mount motors to a B5 flange mounting. See kits on page 149.



**METRIC (IEC) B14 FACE KITS**

Includes parts to convert these B3 rigid mount motors to a B14 face mounting. See kits on page 150.



Imported OEM equipment can often have a flange face that is different from it's motor's frame size. LEESON now stocks metric (IEC) reduced diameter B14 flanges so you can put a 71 frame flange on an 80 frame motor for example. Flanges come pre-fitted with oil seals and have all the necessary hardware for easy field mounting.

Motor Frame	B14 Flange Frame	Catalogue Number
63	56	175900.00
71	63	175901.00
80	71	175902.00
90	80	175903.00



12-lead Delta windings (132MD frame and larger)  
for across-the-line or wye-delta starts.

**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

See Page 276 for metric IEC Motor Dimensions

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice

**B3/B5 FLANGE-MOUNTED METRIC MOTORS • 230/460V**

Metric-dimensioned, AC motors meeting North American performance standards, including 1.15 service factor and Premium efficiencies. Motors have both B5 flange mounting and B3 base.

Typically used for replacement on machine tools, textile machinery and other equipment with metric dimensions but requiring the heavy-duty torque and performance characteristics of motors designed for use in North America.

IP55 weatherproof enclosures, 60/50 Hz interchangeability (60Hz 230/460V & 50Hz 200/400V), dual stamped nameplates, CE mark, and F3 conduit box location.

Motors are available in one of two frame constructions: aluminum or cast iron. Aluminum frame models are designated with a 192000 series catalog number; cast iron models are 193000 series.



**THREE PHASE • IP55 • 1.15 S.F.**

HP-KW	SYN RPM 60 Hz	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/4-0.18	3600	D63D	192014.00	10	230/460	0.8	72.0	8.54
	1800	D63D	192015.00	11	230/460	1.0	68.0	8.54
	1200	D71D	192016.00	12	230/460	1.2	64.0	9.45
1/3-0.25	3600	D63D	192024.00	11	230/460	1.1	72.0	8.54
	1800	D71D	192025.00	13	230/460	1.4	68.0	9.45
	1200	D80D	192026.00	17	230/460	1.3	70.0	11.10
1/2-0.37	3600	D71D	192034.00	13	230/460	1.6	74.0	9.45
	1800	D71D	192035.00	14	230/460	1.8	74.0	9.45
	1200	D80D	192036.00	19	230/460	1.9	72.0	11.10
3/4-0.55	3600	D71D	192044.00	15	230/460	2.4	74.0	9.45
	1800	D80D	192045.00	18	230/460	2.5	74.0	11.10
	1200	D80D	192046.00	22	230/460	2.7	72.0	11.10
1-0.75	3600	D80D	192054.00	21	230/460	2.8	75.5	11.10
	1800	D80D	192055.00	26	230/460	3.2	80.0	11.10
	1200	D90SD	192201.00	35	230/460	3.3	80.0	12.60
1 1/2-1.1	3600	D80D	192064.00	30	230/460	4.0	84.0	11.10
	1800	D90SD	192203.00	37	230/460	4.6	85.5	12.60
2-1.5	3600	D90SD	192210.00	33	230/460	5.2	85.5	12.60
	1800	D90LD	192206.00	38	230/460	5.8	84.0	12.60
	1200	DF100LD	193333.60	82	230/460	6.4	84.0	14.96
3-2.2	3600	D90LD	192211.00	39	230/460	7.2	86.5	12.60
	1800	DF100LD	193334.60	84	230/460	8.2	87.5	14.96
	1200	DF112MD	193335.60	100	230/460	9.6	87.5	15.75
4-3	3600	DF100LD	193336.60	71	230/460	10.0	87.5	14.96
	1800	DF100LD	193337.60	84	230/460	10.4	85.5	14.96
	1200	DF132SD	193338.60	154	230/460	13.4	87.5	18.70
5 1/2-4	3600	DF112MD	193339.60	104	230/460	13.6	87.5	15.75
	1800	DF112MD	193340.60	104	230/460	15.0	87.5	15.75
	1200	DF132MD	193341.60	176	230/460	17.6	87.5	20.28
7 1/2-5.5	3600	DF132SD	193342.60	152	230/460	18.4	88.5	18.70
	1800	DF132SD	193343.60	150	230/460	19.8	89.5	18.70
	1200	DF132MD	193344.60	180	230/460	22.0	89.5	20.28
10-7.5	3600	DF132SD	193345.60	163	230/460	24.0	89.5	18.70
	1800	DF132MD	193346.60	174	230/460	26.2	89.5	20.28
	1200	DF160MD	193347.60	251	230/460	27.2	89.5	23.62
15-11	3600	DF160MD	193348.60	260	230/460	34.4	91.0	23.62
	1800	DF160MD	193349.60	264	230/460	36.6	91.0	23.62
	1200	DF160LD	193350.60	330	230/460	38.8	90.2	25.39

Note: Aluminum motors have removable feet for round-body applications.

**12-lead Delta windings (132MD frame and larger)  
for across-the-line or wye-delta starts.**

**THREE PHASE • IP55 • 1.15 S.F.**

HP-KW	SYN RPM 60 Hz	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
20-15	3600	DF160MD	193351.60	269	230/460	47.0	91.0	23.62
	1800	DF160LD	193352.60	311	230/460	47.6	91.7	25.39
	1200	DF180LD	193353.60	385	230/460	51.4	90.2	27.95
25-18.5	3600	DF160LD	193354.60	319	230/460	57.2	91.0	25.39
	1800	DF180MD	193355.60	381	230/460	59.4	92.4	26.38
30-22	3600	DF180MD	193356.60	355	230/460	68.0	91.0	26.38
	1800	DF180LD	193357.60	427	230/460	71.0	93.0	27.95

Larger HP B3 Foot-Mounted metric motors on page 148 can be converted to B3/B5 Flange-Mount by installing B5 Flange Kits.



**METRIC (IEC) B5 FLANGE KITS**

Includes parts to convert a B3 rigid mount motor (page 73) to B5 flange mounting.

**For Aluminum Frame Motors Only (192000 Series)**

	63 Frame		71 Frame		80 Frame		90 Frame	
	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)
(B5) Flange	175850.00	1	175852.00	1	175854.00	2	175856.00	2

**For Cast Iron Frame Motors Only (193000 Series)**

These kits are for use only on IEC cast iron motors - Premium Efficient.

	100 Frame		112 Frame		132 Frame		160 Frame		180 Frame	
	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)
(B5) Flange	175810.60	13	175811.60	16	175812.60	20	175990.60	36	175890.60	43

	200 Frame		225 Frame	
	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)
(B5) Flange	175994.60	58	175995.60	73

**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

All three phase motors, 1 HP and above, are inverter rated.

Specifications are subject to change without notice

**B3/B14 FACE-MOUNTED METRIC MOTORS • 230/460V**

Metric-dimensioned, AC motors meeting North American performance standards, including 1.15 service factor and EPACT efficiencies. These motors have both B14 face mounting and B3 base.

Typically used for replacement on machine tools, textile machinery and other equipment with metric dimensions but requiring the heavy-duty torque and performance characteristics of motors designed for use in North America.

IP55 weatherproof enclosures, 60/50 Hz interchangeability (60Hz 230/460V & 50Hz 200/400V), dual stamped nameplates, CE mark, and F3 conduit box location.

Motors are available in one of two frame constructions: aluminum or cast iron. Aluminum frame models are designated with a 192000 series catalog number; cast iron models are 193000 series.



**THREE PHASE • IP55 • 1.15 S.F.**

HP-KW	SYN RPM 60 Hz	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
1/4-0.18	3600	D63C	192017.00	10	230/460	0.8	72.0	8.55
	1800	D63C	192018.00	11	230/460	1.0	68.0	8.55
	1200	D71C	192019.00	12	230/460	1.2	64.0	9.46
1/3-0.25	3600	D63C	192027.00	11	230/460	1.1	72.0	8.55
	1800	D71C	192028.00	13	230/460	1.4	68.0	9.46
	1200	D80C	192029.00	17	230/460	1.3	70.0	11.11
1/2-0.37	3600	D71C	192037.00	13	230/460	1.6	74.0	9.46
	1800	D71C	192038.00	14	230/460	1.8	74.0	9.46
	1200	D80C	192039.00	19	230/460	1.9	72.0	11.11
3/4-0.55	3600	D71C	192047.00	15	230/460	2.4	74.0	9.46
	1800	D80C	192048.00	18	230/460	2.5	74.0	11.11
	1200	D80C	192049.00	22	230/460	2.7	72.0	11.11
1-0.75	3600	D80C	192057.00	21	230/460	2.8	75.5	11.11
	1800	D80C	192058.00	26	230/460	3.2	80.0	11.11
	1200	D90SC	192212.00	35	230/460	3.3	80.0	12.60
1 1/2-1.1	3600	D80C	192067.00	27	230/460	4.0	84.0	11.11
	1800	D90SC	192204.00	37	230/460	4.6	85.5	12.61
2-1.5	3600	D90SC	192213.00	33	230/460	5.2	85.5	12.61
	1800	D90LC	192207.00	38	230/460	5.8	84.0	12.61
	1200	DF100LC	193358.60	82	230/460	6.4	84.0	14.97
3-2.2	3600	D90LC	192214.00	39	230/460	7.2	86.5	12.61
	1800	DF100LC	193359.60	84	230/460	8.2	87.5	14.97
	1200	DF112MC	193360.60	84	230/460	9.6	87.5	15.76
4-3	3600	DF100LC	193361.60	71	230/460	10.0	87.5	14.97
	1800	DF100LC	193362.60	84	230/460	10.4	85.5	14.97
	1200	DF132SC	193363.60	154	230/460	13.4	87.5	18.72
5 1/2-4	3600	DF112MC	193364.60	104	230/460	13.6	87.5	15.76
	1800	DF112MC	193365.60	104	230/460	15.0	87.5	15.76
	1200	DF132MC	193366.60	176	230/460	17.6	87.5	20.29
7 1/2-5.5	3600	DF132SC	193367.60	152	230/460	18.4	88.5	18.72
	1800	DF132SC	193368.60	150	230/460	19.8	89.5	18.72
	1200	DF132MC	193369.60	180	230/460	22.0	89.5	20.29
10-7.5	3600	DF132SC	193370.60	163	230/460	24.0	89.5	18.72
	1800	DF132MC	193371.60	174	230/460	26.2	89.5	20.29
	1200	DF160MC	193372.60	251	230/460	27.2	89.5	23.64
15-11	3600	DF160MC	193373.60	260	230/460	34.4	91.0	23.64
	1800	DF160MC	193374.60	264	230/460	36.6	91.0	23.64
	1200	DF160LC	193375.60	330	230/460	38.8	90.2	25.41

Note: Aluminum motors have removable feet for round-body applications.

**12-lead Delta windings (132MD frame and larger)  
for across-the-line or wye-delta starts.**

**THREE PHASE • IP55 • 1.15 S.F.**

HP-KW	SYN RPM 60 Hz	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 230V	% F.L. Eff.	"C" Dim. (Inches)
20-15	3600	DF160MC	193376.60	269	230/460	47.0	91.0	23.64
	1800	DF160LC	193377.60	311	230/460	47.6	91.7	25.41
25-18.5	3600	DF160LC	193378.60	319	230/460	57.2	91.0	25.41

**Larger HP B3 Foot-Mounted metric motors on page 148 can be converted to B3/B14 Flange-Mount by installing B14 Face Kits**



Includes parts to convert a B3 rigid mount motor (page 148) to B14 face mounting.

**For Aluminum Frame Motors Only (192000 Series)**

	63 Frame		71 Frame		80 Frame		90 Frame	
	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)
(B14) Face	175851.00	1	175853.00	1	175855.00	1	175857.00	1

**For Cast Iron Frame Motors Only (193000 Series)**

These kits are for use only on IEC cast iron motors - Premium Efficient.

	100 Frame		112 Frame		132 Frame		160 Frame	
	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)	Cat. No.	App. Wgt. (lbs.)
(B14) Face <sup>2</sup>	175817.60	8	175818.60	8	175819.60	12	175991.60	25

**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

**All three phase motors, 1 HP and above, are inverter rated.**

Specifications are subject to change without notice

**B3 FOOT-MOUNTED METRIC MOTORS • 575 VOLT**

Metric-dimensioned, AC motors meeting North American performance standards, including 1.15 service factor and Premium efficiencies. For replacement use on machine tools, textile machinery and other equipment with metric dimensions but requiring the heavy-duty torque and performance characteristics of motors designed for use in North America.

IP55 weatherproof enclosures, stamped nameplates, CE mark, and F3 conduit box location. Kits are available for field conversion from B3 to B3/B5 or B3/B14. See pages 149 & 150 for details.

Motors are available in one of two frame constructions: aluminum or cast iron. Aluminum frame models are designated with a 192000 series catalog number; cast iron models are 193000 series.



**THREE PHASE • IP55 • 1.15 S.F.**

HP-KW	SYN RPM 60 Hz	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 575V	% F.L. Eff.	"C" Dim. (in.)
1/4-0.18	3600	D63	192088.00	10	575	0.3	72.0	8.54
	1800	D63	192089.00	11	575	0.4	68.0	8.54
1/3-0.25	3600	D63	192097.00	11	575	0.4	74.0	8.54
	1800	D71	192098.00	13	575	0.6	67.0	9.45
1/2-0.37	3600	D71	192106.00	13	575	0.7	74.0	9.45
	1800	D71	192107.00	14	575	0.7	74.0	9.45
3/4-0.56	3600	D71	192115.00	15	575	0.9	74.0	9.45
	1800	D80	192116.00	18	575	1.0	73.0	11.10
1-0.75	3600	D80	192124.00	21	575	1.1	75.5	11.10
	1800	D80	192125.00	26	575	1.4	82.5	11.10
1 1/2-1.1	3600	D80	192133.00	27	575	1.6	82.5	11.10
	1800	D90S	192230.00	37	575	1.8	86.5	13.10
2-1.5	3600	D90S	192231.00	33	575	2.1	86.5	13.10
	1800	D90L	192232.00	38	575	2.4	85.5	13.10
3-2.2	3600	D90L	192233.00	39	575	2.9	86.5	13.10
	1800	DF100L	193379.60	84	575	3.5	87.5	14.96
4-3	3600	DF100L	193380.60	71	575	4.0	87.5	14.96
	1800	DF100L	193381.60	84	575	4.2	87.5	14.96
5 1/2-4	3600	DF112M	193382.60	104	575	5.0	87.5	15.75
	1800	DF112M	193383.60	104	575	5.4	87.5	15.75
7 1/2-5.5	3600	DF132S	193384.60	152	575	7.2	88.5	18.70
	1800	DF132S	193385.60	150	575	7.9	89.5	18.70
10-7.5	3600	DF132S	193386.60	163	575	9.6	89.5	18.70
	1800	DF132M	193387.60	174	575	10.5	89.5	20.28
15-11	3600	DF160M	193388.60	260	575	13.8	90.2	23.62
	1800	DF160M	193389.60	264	575	14.6	91.0	23.62

**THREE PHASE • IP55 • 1.15 S.F.**

HP-KW	SYN RPM 60 Hz	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Voltage	F.L. Amps 575V	% F.L. Eff.	"C" Dim. (in.)
20-15	3600	DF160M	193390.60	269	575	18.8	90.2	23.62
	1800	DF160L	193391.60	311	575	19.0	91.0	25.39
25-18.5	3600	DF160L	193392.60	319	575	22.9	91.0	25.39
	1800	DF180M	193393.60	381	575	23.8	92.4	26.38
30-22	3600	DF180M	193394.60	355	575	27.5	91.0	26.38
	1800	DF180L	193395.60	427	575	28.4	92.4	27.95
40-30	3600	DF200L	193396.60	522	575	38.4	91.7	30.51
	1800	DF200L	193397.60	531	575	37.6	93.0	30.51
50-37	3600	DF200L	193398.60	546	575	46.8	92.4	30.51
	1800	DF225S	193399.60	632	575	47.2	93.0	33.26

**METRIC (IEC) B5 FLANGE KITS**

Includes parts to convert these B3 rigid mount motors to a B5 flange mounting. See kits on page 149.



**METRIC (IEC) B14 FACE KITS**

Includes parts to convert these B3 rigid mount motors to a B14 face mounting. See kits on page 150.



**REDUCED DIAMETER METRIC FLANGES**

Imported OEM equipment can often have a flange face that is different from it's motor's frame size. LEESON now stocks metric (IEC) reduced diameter B14 flanges so you can put a 71 frame flange on an 80 frame motor for example. Flanges come pre-fitted with oil seals and have all the necessary hardware for easy field mounting.

Motor Frame	B14 Flange Frame	Catalog Number
63	56	175900.00
71	63	175901.00
80	71	175902.00
90	80	175903.00



12-lead Delta windings (132MD frame and larger)  
for across-the-line or wye-delta starts.

**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

See page 276 for metric IEC Motor Dimensions

All three phase motors, 1 HP and above, are inverter rated.

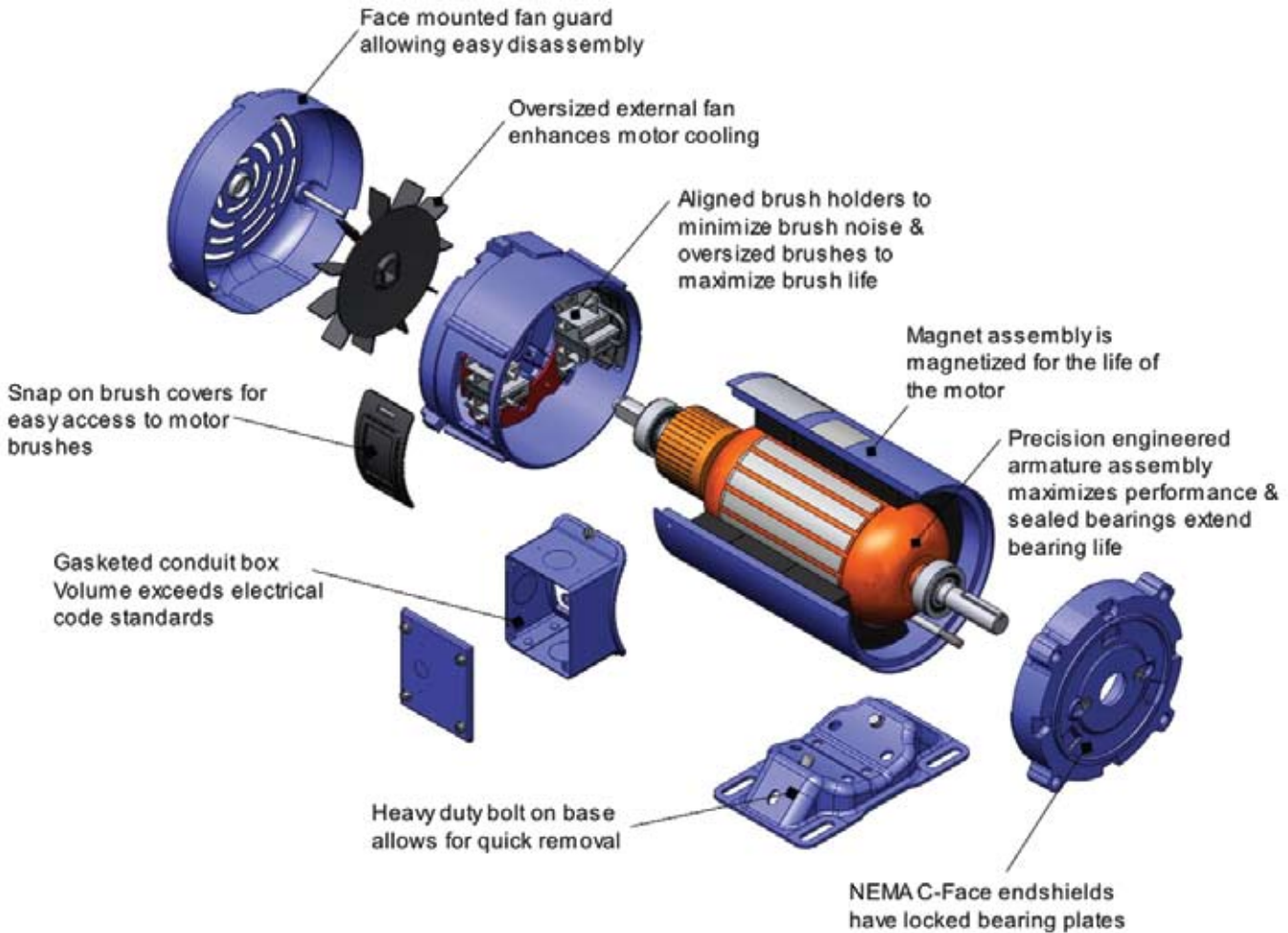
**NEMA DC MOTORS**

**General Specifications:**

High Voltage permanent magnet DC motors are typically used with an SCR controller in applications requiring adjustable speed and constant torque throughout the speed range. They are widely used in applications requiring dynamic braking or adjustable speed/reversing capabilities, which include: Pumps, Conveyors, Turntables, Textile Machinery, Reeling Equipment, Medical Equipment, Treadmills, etc...

**Mechanical/ Electrical Features:**

- Brush holder design provides easy access to brushes
- Large oversized brushes assure long brush life
- Removable Bolt-on base
- NEMA C-face designs
- 115 or 230 volt input power ratings – 90 / 180 volt output
- Capable of Dynamic braking
- PWM or SCR type controller rated
- High Starting Torque
- Permanently lubricated sealed bearings
- LEESON SCR Controls available to power motors
- High starting torque
- Higher HP and Speed achievable using PWM type DC Controls
- UL and CSA Listed
- Meets NEMA MG1 Standards
- Dynamically Balanced Armatures
- 30:1 Constant Torque Operation







### TACHOMETER MOUNTING KITS FOR DC MOTORS

All necessary parts to mount listed tachometers to stock TEFC SCR motors. Consists of machined cast fan cover, coupling and hardware. Does not include tachometer. Tach adapter kit is not suitable for catalog number 108502.



Tachometer Type	NEMA Frame	IEC Frame	Catalog Number	App. Wt. (lbs.)
GE 5PY Series	SS56	71	<b>175156.00</b>	5
	56/145	—	<b>175158.00</b>	5
Servo-tek	SS56	71	<b>175157.00</b>	8
SA740 Series	56/145	—	<b>175159.00</b>	8

### MODIFICATION KITS

Motors with S56C or SS56C frame sizes may be converted to 42/48 C face using the following:

Frame	Catalog No.
SS56C	<b>175182.00</b>
S56C	<b>175082.00</b> ◇
	<b>175802.00</b> ◇✕

DC motors in NEMA S56C frame may be converted to 48 base using the following:

Frame	Catalog No.
S56C	<b>175080.00</b> ◇

### TEFC • SCR RATED 90 & 180 VOLTS NEMA 56C • C FACE WITH REMOVABLE BASE<sup>∞</sup>

HP	Full Load RPM	NEMA Frame□	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	Control Volts AC Input	F.L. Amps DC	"C" Dim. (Inches)	
1/4	1800	SS56C	<b>098002.00</b>	19	90	115	2.5	10.81	
	1800	SS56C	<b>098003.00</b>	22	180	230	1.4	11.31	
1/3	1800	SS56C	<b>098004.00</b>	23	90	115	3.5	11.31	
	1800	SS56C	<b>098005.00</b>	23	180	230	1.7	11.31	
	1200	S56C	<b>109098.00</b>	32	90	115	3.5	12.81	
1/2	3600	SS56C	<b>098006.00</b>	22	90	115	5.0	10.81	
	3600	SS56C	<b>098007.00</b>	22	180	230	2.5	10.81	
	1800	SS56C	<b>098000.00</b>	26	90	115	5.0	11.81	
	1800	S56C	<b>108014.00</b>	29	90	115	5.0	12.82	
	1800	SS56C	<b>098008.00</b>	25	180	230	2.5	11.81	
	1800	S56C	<b>108015.00</b>	30	180	230	2.5	12.82	
	1200	S56C	<b>109099.00</b>	40	90	115	5.0	14.32	
	3/4	3600	SS56C	<b>098009.00</b>	26	90	115	7.6	11.81
	3600	S56C	<b>108016.00</b>	29	90	115	7.6	12.82	
	3600	SS56C	<b>098010.00</b>	25	180	230	3.8	11.81	
3600	S56C	<b>108017.00</b>	29	180	230	3.8	12.82		
1	1800	SS56C	<b>098032.00</b>	36	90	115	7.6	13.81	
	1800	S56C	<b>108018.00</b>	38	90	115	7.6	13.82	
	1800	SS56C	<b>098069.00</b>	36	180	230	3.8	13.81	
	1800	S56C	<b>108019.00</b>	35	180	230	3.8	13.82	
	1200	S56C	<b>109100.00</b>	49	90	115	7.5	15.82	
	3600	S56C	<b>108020.00</b>	34	90	115	10.0	13.32	
	3600	S56C	<b>108021.00</b>	38	180	230	5.0	13.82	
	1800	S56C	<b>108022.00</b>	47	90	115	10.0	14.82	
1 1/2	1800	S56C	<b>108023.00</b>	39	180	230	5.0	14.81	
	1200	145TC	<b>128023.00</b>	82	90	115	11.0	18.84	
	3600	S56C	<b>108265.00</b>	43	180	230	7.5	15.32	
	1800	S56C	<b>108092.00</b>	53	180	230	7.6	16.82	
	1800	S56/145TC	<b>108262.00</b> ■	54	180	230	7.6	17.39	
	1800	145TC	<b>128000.00</b>	70	180	230	7.5	18.34	
	2	3600	S56/145TC	<b>108266.00</b> ■	51	180	230	8.6	17.89
	1800	145TC	<b>128010.00</b>	83	180	230	9.5	19.34	
	1800	182/145TC	<b>128001.00</b> ◀	84	180	230	9.5	19.34	
	3	1800	182/145TC	<b>108502.00</b> ◀	88	180	230	14.0	21.75

∞ If base is removed, do not reinstall bolts without using washers to compensate for thickness of base.

◀ NEMA 145TC face mounting with removable NEMA 182T rigid base.

■ NEMA 145TC frame shaft 7/8" x 2 1/4" and NEMA 56 removable base.

□ SS56C motors have a 4.88 inch diameter frame.

S56C motors have a 5.61 inch diameter frame.



### TEFC • SCR RATED 90 & 180 VOLTS NEMA 56C • C FACE LESS BASE\*

HP	Full Load RPM	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	Control Volts AC Input	F.L. Amps DC	"C" Dim. (Inches)
1/4	1800	SS56C	<b>098377.00</b>	19	90	115	2.5	10.81
1/3	1800	SS56C	<b>098378.00</b>	23	90	115	3.5	11.31
1/2	1800	SS56C	<b>098379.00</b>	29	90	115	5.0	11.81
3/4	1800	SS56C	<b>098380.00</b>	38	90	115	7.6	13.81
1	1800	S56C	<b>109096.00</b>	47	90	115	10.0	14.82
	1800	S56C	<b>109097.00</b>	39	180	230	5.0	14.82

\* No tapped holes provided for attaching a bolt-on base.

◇ Addition of base kit will result in non-NEMA BA dimension of 2 3/4". Addition of C face kit will result in conduit box located at 1 o'clock facing lead end.

✕ For endshield mounted brush cover motors



# DC MOTORS

EXPLOSION-PROOF AND WASHGUARD • SCR RATED

## NEMA FRAME • EXPLOSION-PROOF FOR HAZARDOUS LOCATIONS

### General Specifications:

These explosion-proof motors are designed and approved for application in hazardous environments having certain explosive gases or materials present.

### Features:

Rugged mechanical construction meeting all requirements for safety. UL and CSA listed. NEMA 56C face with removable 56 frame base. Leads exit through 3/4"-14NPT pipe-nipple in the top of the motor frame, opposite the shaft end. **Conduit box is not provided.** See optional conduit box below. These motors have pilot-duty thermostats as standard that must be connected to the SCR control. They are rated for continuous duty with full wave SCR (thyristor) controls. Double-shielded, pre-lubricated ball bearings are standard. Easy brush access for field service. These motors are UL and CSA listed.

### Application Notes:

These motors must be applied in accordance with the National Electrical Code, Article #500. For a listing of explosive agents, consult NFPA Publication 497M.



## EXPLOSION-PROOF • CLASS I, GROUPS C & D – CLASS II, GROUPS F & G • SCR RATED 90 & 180V C FACE WITH REMOVABLE BASE

HP	Full Load RPM	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	Control Volts AC Input	F.L. Amps DC	"C" Dim. (Inches)
1/3	1800	S56C	118015.00	27	90	115	3.5	13.41
	1800	S56C	118016.00	30	90	115	4.7	14.41
1/2	1800	S56C	118017.00	32	180	230	2.5	14.41
	1800	S56C	118018.00	40	90	115	7.1	16.41
3/4	1800	S56C	118019.00	36	180	230	3.3	16.41

## EXPLOSION-PROOF CONDUIT BOX

UL and CSA listed for Class I, Group C & D, and Class II, Groups F & G locations. Has grounding screw and all hardware provided. Mounts to motor by 3/4"-14NPT opening at rear of box. For NEMA 56 frame motors only.



Catalog Number	App. Wgt. (lbs.)
175026.00	2

## NEMA FRAME • WASHGUARD LEESON WASHGUARD

motors are designed for extended life in applications requiring regular washdown as in food processing, or otherwise wet, high humidity environments. WASHGUARD motors retard the entrance of water during cleaning operations and release any water that does enter the motor. Extra protection for the motor's interior prevents rust and corrosion build-up and drains release trapped moisture to insure a longer life than possible with a standard motor.

### Mechanical Protection Features:

High quality, corrosion resistant 303 stainless steel shaft plus lubricated spring-loaded contact seals and patented "V" ring Forsheda seal deflect water, protect bearings and the motor's interior. Double sealed, oversized bearings with high temperature moisture resistant lubricant are used.

Frame, base, endshields, armature and interior components protected by enamel and polyester compounds of outstanding adhesion and resistance to moisture, acids, alkalis and oil.

Cast conduit box with threaded entrance, drain holes and tough, high temperature Nitrile gaskets keep water out and resist deflection under high pressure washdowns. Conduit box cover and fan cover, when used, are type 304 stainless steel.

Four drains in each endshield at 3,6,9, and 12 o'clock purge water, and can be repositioned for maximum effectiveness regardless of the motor's mounting. Machined fits are sealed, and nylon gaskets are used to seal bolt heads. Stainless steel data plate.

Chemically inert static free fan is positively positioned on the shaft by opposing flats, shoulder and snap ring arrangement and protected by heavy gauge, stainless steel fan guards. Finished in USDA approved tough white epoxy for superior corrosion resistance and protection against harsh caustic cleaning solutions.



## WASHGUARD • NEMA C FACE • REMOVABLE BASE TENV • SCR RATED 90 & 180 VOLTS

HP	Full Load RPM	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	Control Volts AC Input	F.L. Amps DC	"C" Dim. (Inches)
1/4	1800	S56C	108423.00	23	90	115	2.7	10.67
	1800	SS56C	098375.00	21	180	230	1.4	10.22
1/3	1800	S56C	108424.00	26	90	115	3.5	11.67
	1800	SS56C	098376.00	22	180	230	1.7	10.22
1/2	1800	S56C	108226.00	38	90	115	4.9	13.17
	1800	S56C	108227.00	43	180	230	2.4	13.67
3/4	1800	S56C	108228.00	53	90	115	7.0	14.67
	1800	S56C	108229.00	50	180	230	3.5	14.17
1	1800	S56C	108230.00**	45	90	115	10.0	14.82
	1800	S56C	108231.00**	42	180	230	5.0	14.82
1 1/2	1800	S56C	108232.00**	50	180	230	7.6	16.82

## WASHGUARD • IEC FRAME • TENV IP55 B5 FLANGE WITH REMOVABLE B3 BASE ▲ SCR RATED 180 VOLTS

Rated HP	Output kW	Full Load RPM	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	F.L. Amps DC	"C" Dim. (Inches)
1/2	.37	1800	71	098040.00 A	22	180	2.5	10.69
3/4	.55	1800	80	108407.00 A	52	180	3.5	16.02

\*\* These motors are totally enclosed fan cooled.

⊗ If base is removed, do not reinstall bolts without using washers to compensate for the thickness of base.

▲ These WASHGUARD motors are modular design but stocked with B5 flange and B3 foot. The foot is removable. The B5 flange can be replaced with a B14 face or other diameter B5 flanges noted on page 157.

A Subject to Availability.

## SUB-FHP MOTORS

### General Specifications:

Precision subfractional horsepower DC permanent magnet motors designed for use with full wave non-filtered SCR controls for adjustable speed applications requiring dynamic braking and constant torque throughout the speed range.



31/34 Frame

### Mechanical Features:

Compact space saving designs. Ball bearings. Long-life brushes for demanding applications. Brushes easily replaced without disassembly of the motor. Standard mounted conduit box on 31 and 34 frame models simplifies connections.



25 Frame

### Electrical Features:

Continuous duty with full wave un-filtered rectified SCR (thyristor) controls. Linear speed torque characteristics throughout the speed range. High starting torques. Reversible rotation from a simple two lead connection.

## SUB-FHP IP55 WASHGUARD MOTORS

### General

#### Specifications:

Precision subfractional horsepower DC permanent magnet motors. Designed for use with fullwave non-filtered SCR controls or battery supplied low voltage for adjustable speed applications requiring constant torque throughout the speed range.



#### Mechanical Features:

Corrosion resistant 303 stainless steel. Shaft with spring-loaded contact shaft seal protect the double sealed ball bearings and motor interior.

Frame, endshields, armature and interior components protected by enamel and polyester compounds for resistance to moisture, acids, alkalies and oil.

Cast conduit box with threaded conduit holes and Nitrile gaskets keep water out. The conduit box cover is made from 304 stainless steel.

For any condensation that may accumulate inside the motor a one-way stainless steel vapor vent is provided. All hardware is stainless steel. Motor painted with white epoxy for superior corrosion resistance and protection. Gaskets seal conduit box to motor frame and conduit box cover. Thru-bolt heads and nuts sealed with fiber washers. O-rings under each threaded brush cover.

#### Application Notes:

LEESON WASHGUARD motors are designed for extended life in applications requiring regular washdown or otherwise wet environments. Washguard motors retard the entrance of water. Extra protection for the motor's interior prevents rust and corrosion build-up and releases trapped moisture to insure a longer life than possible with a standard motor.

#### Dimensions:

Found on page 283.

## SCR RATED (90 & 180 V) • TENV • SQUARE FLANGE OR C FACE

HP	Full Load RPM	Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	Control Volts AC Input	F.L. Amps DC
1/25	3600	25AS	M1110014.00 <sup>ⓔ</sup>	3	90	115	0.5
	1800	25CS	M1110003.00 <sup>ⓔ</sup>	3	90	115	0.5
1/15	3600	25CS	M1110015.00 <sup>ⓔ</sup>	5	90	115	0.7
	1800	31BS	M1120013.00	5	90	115	0.8
	1800	31BS	M1120039.00	7	180	230	0.4
1/10	3600	31BS	M1120060.00	5	90	115	1.3
	1800	31CS	M1120014.00	7	90	115	1.1
	1800	31CS	M1120041.00	7	180	230	0.6
1/8	3600	31CS	M1120059.00	6	90	115	1.5
	1800	31ES	M1120027.00	7	90	115	1.3
	1800	31ES	M1120045.00	7	180	230	0.7
	1800	34D42CZ	M1130053.00	8	90	115	1.4
	1800	34D42CZ	M1130118.00	7	180	230	0.7
1/6	3600	31ES	M1120058.00	9	90	115	1.9
	1800	31GS	M1120042.00	9	90	115	1.8
	1800	31GS	M1120043.00	11	180	230	0.9
	1800	34E56C	M1130054.00	11	90	115	1.7
	1800	34E56C	M1130119.00	11	180	230	0.9
1/4	3600	31GS	M1120062.00	9	90	115	2.6
	1800	34G56C	M1130055.00**	13	90	115	2.7
	1800	34G56C	M1130120.00**	13	180	230	1.3

<sup>ⓔ</sup> 25 frame motors have provisions for an optional conduit box catalog number M1760000, see page 179.  
\*\* These motors are totally enclosed fan cooled.

## SCR RATED (90 V) • TENV • SQUARE FLANGE OR C FACE

HP	Full Load RPM	Frame	Catalog Number	Arm. Volts DC	Control Volts AC Input	F.L. Amps DC
1/8	1800	31S	M1120181.00	90	115	1.5
1/6	1800	31S	M1120183.00	90	115	1.9
1/4	3600	32F42CZ	M1120185.00	90	115	1.9

## LOW VOLTAGE (12 V) • TENV • SQUARE FLANGE OR C FACE

HP	Full Load RPM	Frame	Catalog Number	Arm. Volts DC	F.L. Amps DC
1/8	1800	31S	M1120182.00	12	10.5
1/6	1800	31S	M1120184.00	12	14.5
1/4	3600	32F42CZ	M1120186.00	12	20

**DC METRIC (IEC) FRAME MOTORS IP54**

**General Specifications:**

These metric dimensioned motors are built to IEC 34-1 electrical and mechanical standards.

The IEC 63 and smaller frames are stocked with an integral B5 flange or B14 face less base. An optional B3 rigid base kit is available.

A unique modular approach for IEC 71 frame and larger allows the motor to be field modified to B3 rigid base mounted construction, B5 flange mounted or B14 face mounted construction using conversion kits. Please note that one or more of the mounting kits must be used with IEC motors of these frame sizes. See listing on next page for B5 flange and B14 face kits. B3 rigid base kits are listed below.

**Electrical & Mechanical Features:**

A terminal board is provided for connections. All fasteners are metric. Electrical and mechanical features are the same as listed for the NEMA frame motors on the opposite page. Tachometer mounting kits are available for 71 and 80 frames only.



B5 IEC 56 & 63



B14 IEC 56 & 63



**B3 FOOT MOUNTING KITS**

**(For DC Metric Motors Only)**

All motors are stocked with provisions to accommodate B3 foot mountings with the packages noted below.

IEC Frame	Catalog Number
56	175142.00
63	175143.00
71	175144.00
80	175145.00
80	175784.00 ①
90	175146.00

① Use with 108 series motors having brush covers in endshield.

**TOTALLY ENCLOSED • SCR RATED 180 VOLTS\* WITH B5 FLANGE**

KW/HP	Full Load RPM	IEC Frame	Catalog Number	App. Wgt. (lbs.)	F.L. Amps DC	"C" Dim. Inches (mm)
0.06/1/12	1800	56	M1130146.00● A	8	0.5	6.24 (158.6)
0.09/1/8	3000	56	M1130150.00● A	9	0.7	6.74 (171.3)
	1800	56	M1130147.00● A	10	0.7	7.55 (191.7)
0.12/1/6	3000	56	M1130151.00● A	9	0.9	7.55 (191.7)
	1800	63	M1130148.00 A	7	0.9	8.30 (210.8)
0.18/1/4	3000	63	M1130152.00● A	11	1.3	8.78 (223.1)
	1800	63	M1130149.00	13	1.3	9.50 (241.3)
0.25/1/3	3000	63	M1130153.00	11	1.7	9.50 (241.3)

These motors have accommodations for B3 base mountings with the kits below.

**TOTALLY ENCLOSED • SCR RATED 180 VOLTS\* WITH B14 FACE**

KW/HP	Full Load RPM	IEC Frame	Catalog Number	App. Wgt. (lbs.)	F.L. Amps DC	"C" Dim. Inches (mm)
0.06/1/12	3000	56	M1110024.00● A	6	0.4	6.34 (177.0)
	1800	56	M1130136.00●	8	0.5	6.24 (158.6)
0.09/1/8	3000	56	M1130140.00●	9	0.7	6.74 (171.3)
	1800	56	M1130137.00●	14	0.7	7.55 (191.7)
0.12/1/6	3000	56	M1130141.00●	10	0.9	7.55 (191.7)
	1800	63	M1130138.00	8	0.9	8.30 (210.8)
0.18/1/4	3000	63	M1130142.00●	10	1.3	8.78 (223.1)
	1800	63	M1130139.00	10	1.3	9.50 (241.3)
0.25/1/3	3000	63	M1130143.00	10	1.7	9.50 (241.3)

Except for M1110024, these motors have accommodations for B3 base mountings with the kits below.

**TEFC • SCR RATED 180 VOLTS\* • ROUND BODY**

KW/HP	Full Load RPM	IEC Frame	Catalog Number	App. Wgt. (lbs.)	F.L. Amps DC	"C" Dim. Inches (mm)
0.25/1/3	1800	71	098014.00	23	1.7	11.28 (286.5)
0.37/1/2	3000	71	098016.00	21	2.5	10.78 (273.8)
	1800	71	098015.00	26	2.5	11.78 (299.2)
0.55/3/4	3000	71	098017.00	24	3.6	11.78 (299.2)
	1800	80	108369.00	34	3.5	14.64 (371.9)
0.75/1	3000	80	108372.00	45	4.9	14.64 (371.9)
	1800	80	108370.00	48	4.6	17.14 (435.4)
1.1/1 1/2	3000	80	108373.00	47	7.1	16.14 (410.0)
	1800	80	108371.00	52	7.0	17.14 (435.4)
	1800	90L	118007.00 A	64	7.5	18.97 (481.8)
1.5/2	3000	90L	118009.00 A	72	10.0	18.47 (469.1)
	1800	90L	118008.00	84	9.5	20.47 (519.9)
2.2/3	3000	90L	118010.00	82	16.0	19.47 (494.5)
	1800	112M	118014.00	90	14.0	21.79 (553.5)

**IMPORTANT:** These round body motors require either a B3 rigid base, B14 face or B5 flange kit. Catalog number 118014 comes complete with IEC 112 B14 face and B3 foot; shaft diameter is 24mm.

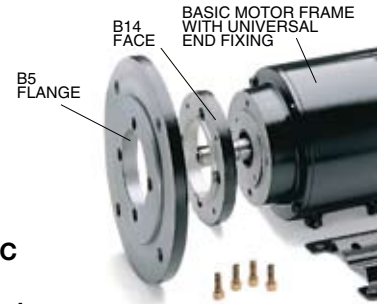
\* For 230 VAC input controls.  
● These motors are totally enclosed, non-ventilated. Other ratings utilize IC41 cooling—external cooling fan on motor shaft.  
A Subject to Availability.

### FLANGE AND FACE KITS FOR DC METRIC (IEC) FRAME MOTORS

An advantage of LEESON'S modular design concept is the possible use of a different diameter B5 flange or B14 face than is normally assigned to a motor by IEC dimensional standards. This flexibility makes it possible to accommodate a wide variety of gear reducers, pumps and similar close coupled motor mounted loads.



**Round body DC Metric IEC motors will accept any of the flange or face kits listed.**



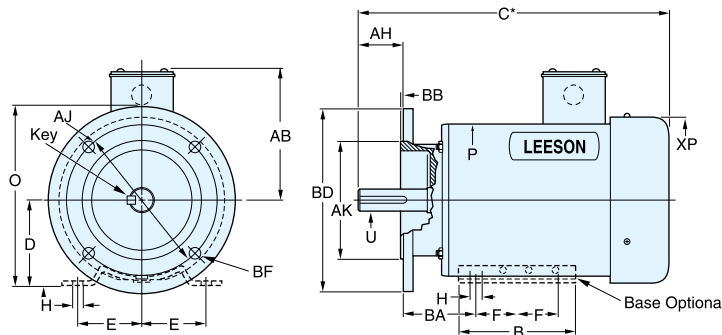
#### B5 FLANGE KITS (For DC Metric Motors Only)

IEC Frame	Catalog Number	App. Wgt. (lbs.)	BD Flange Dia. (mm)	AK Register (mm)	BF Hole (mm)	AJ Bolt Circle (mm)
71	<b>175106.00</b>	2	160	110	9	130
80	<b>175108.00</b>	3	200	130	12	165
90S/90L	<b>175108.00</b>	3	200	130	12	165
100L/112M	<b>175137.00</b>	5	250	180	15	215

#### B14 FACE KITS (For DC Metric Motors Only)

IEC Frame	Catalog Number	App. Wgt. (lbs.)	BD Flange Dia. (mm)	AK Register (mm)	BF Tap (mm)	AJ Bolt Circle (mm)
71	<b>175107.00</b>	1	105	70	6	85
80	<b>175109.00</b>	1	120	80	6	100
90S/90L	<b>175129.00</b>	1	140	95	6	115
100L/112M	<b>175130.00</b>	2	160	110	6	130

### CONDENSED DIMENSIONS • DC METRIC (IEC) FRAME MOTORS



\*For overall length, see motor listing.

#### IEC FRAME DIMENSIONS (Millimeters)

IEC Frame	Mounting					Shaft						B14 Face/B5 Flange					General							
	2E	2F	BA	D	H	U	AH $\diamond$	KEY	S	R	TAP	AJ	AK	BD	BF	BB	AB	XP	B	O				
56	90	71	36	56	6	9	20	15	3	7.0	M3	65	100	50	80	120	M5	7	2.5	2.5	83	96	90	99
63	100	80	40	63	7	11	23	19	4	9.0	M4	75	115	60	95	140	M5	9	2.5	3.0	116	96	96	108
71	112	90	45	71	7	14	30	26	5	11.5	M5	85	130	70	110	160	M6	9	2.5	3.5	114	130	105	132
80	125	100	50	80	10	19	40	33	6	16.0	M6	100	165	80	130	200	M6	12	3.0	3.5	124	149	127	151
90S	140	100	56	90	10	24	50	36	8	20.5	M8	115	165	95	130	200	M8	12	3.0	3.5	135	182	152	173
90L	140	125	56	90	10	24	50	36	8	20.5	M8	115	165	95	130	200	M8	12	3.0	3.5	135	182	152	173
100L	160	140	63	100	12	28	60	41	8	24.5	M10	130	215	110	180	250	M8	15	3.5	4.0	135	182	176	173
112M	190	140	70	112	12	28	60	41	8	24.5	M10	130	215	110	180	250	M8	15	3.5	4.0	162	231	176	225

$\diamond$  Without face or flange AH shaft dimension is 12mm longer.

All dimensions in millimeters (1 inch = 25.4mm)

Specifications are subject to change without notice



# DC MOTORS

NEMA FRAME • LOW VOLTAGE 12, 24, 36 & 48 VOLTS

## NEMA FRAME LOW VOLTAGE MOTORS

### General Specifications:

Low voltage permanent magnet DC motors are suitable for installations having battery or solar powered operations, or generator supplied low voltage DC.

### Mechanical Features:

Unique brush holder design provides easy access to brushes and integral, constant pressure brush/spring assembly for servicing. Larger over-sized brushes assure longer brush life. Heavy-duty, stamped steel, bolt-on base (removable). NEMA C face mounting flange at no additional cost. High strength rolled steel frame. Rugged die cast aluminum endshields with steel bearing inserts. Permanently lubricated sealed ball bearings. May be converted to NEMA 48 frame base dimensions or NEMA 42/48 frame C face dimensions using modification kits noted on page 153.

### Electrical Features:

High starting torques for heavy load applications. Linear speed/torque characteristics over entire speed range. Capable of dynamic braking for faster stops. Reversible rotation and simple two-lead connection. Convenient wiring access.



## DC METRIC (IEC) FRAME MOTORS IP54

### General Specifications:

These metric dimensioned motors are built to IEC 34-1 electrical and mechanical standards.

The IEC 63 and smaller frames are stocked with an integral B5 flange or B14 face less base. An optional B3 rigid base kit is available.

A unique modular approach for IEC 71 frame and larger allows the motor to be field modified to B3 rigid base mounted construction, B5 flange mounted or B14 face mounted construction using conversion kits. Please note that one or more of the mounting kits must be used with IEC motors of these frame sizes. See listing on page 85 for B5 flange and B14 face kits. B3 rigid base kits are listed below.



B5 IEC 56 & 63



B14 IEC 56 & 63

### Electrical & Mechanical Features:

A terminal board is provided for connections. All fasteners are metric. Electrical and mechanical features are the same as listed for the NEMA frame motors on the opposite page. Tachometer mounting kits are available for 71 and 80 frames only.



71 & 80 IEC with Modular Flange & Base Kits

## LOW VOLTAGE (12, 24, 36 & 48V) • TENV/TEFC NEMA C FACE WITH REMOVABLE BASE $\Sigma$

HP	Full Load RPM	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	F.L. Amps DC	"C" Dim. (Inches)
1/4	1800	S56C	108045.00 $\clubsuit$	21	12	21.0	10.27
1/3	1800	S56C	108046.00 $\clubsuit$	24	12	27.0	10.77
	1800	S56C	108050.00 $\clubsuit$	22	24	13.5	10.77
1/2	1800	S56C	108047.00 $\clubsuit$	29	12	39.0	11.77
	1800	S56C	108051.00 $\clubsuit$	29	24	20.0	11.77
	1800	SS56C	098381.00	29	36	13.5	10.81
	1800	SS56C	098382.00	29	48	11.0	10.81
3/4	1800	S56C	108048.00 $\clubsuit$	30	12	58.0	13.82
	1800	S56C	108052.00	30	24	29.0	12.82
1	1800	S56C	108322.00 $\clubsuit$	39	12	80.0	13.81
	1800	S56C	108053.00 $\clubsuit$	37	24	39.0	13.82
	1800	S56C	109101.00	37	36	25.5	13.81
	1800	S56C	109102.00	37	48	18.5	13.81
1 1/2	1800	S56CZ	109103.00 $\clubsuit$ $\square$	39	24	60.0	15.25
	1800	S56CZ	109104.00 $\clubsuit$ $\square$	37	36	36.0	17.38
	1800	S56CZ	109105.00 $\clubsuit$ $\square$	37	48	27.0	17.38
2	1800	S56CZ	109106.00 $\clubsuit$ $\square$	42	24	70.0	16.74
	1800	S56CZ	109107.00 $\clubsuit$ $\square$	42	36	49.0	16.74
	1800	S56CZ	109108.00 $\clubsuit$ $\square$	42	48	38.0	16.74

$\clubsuit$  Built-in conduit box located at 12:00.

$\blacklozenge$  Studs at 12:00.

$\Sigma$  If base is removed, do not reinstall bolts without using washers to compensate for thickness of base.

$\square$  S56CZ motors have mounting bases with NEMA 56 mounting holes, NEMA 56/143-5T C-face and a NEMA 143-5T shaft extension (7/8" dia. x 2 1/4" long).

$\bullet$  These motors are totally enclosed, non-ventilated.

$\blacksquare$  SS56C motors have a 4.88 inch diameter frame. S56C motors have a 5.61 inch diameter frame.

## METRIC (IEC) FRAME • LOW VOLTAGE (24V) • TEFC/TENV • MODULAR DESIGN

kW/HP	Full Load RPM	IEC Frame	Catalog Number	App. Wgt. (lbs.)	F.L. Amps DC	C Dim. (inches)
0.06/1/12	3000	56	M1110025.00 $\clubsuit$	5	3.3	5.34
	1800	56	M1110026.00 $\clubsuit$	6	3.4	6.34
0.18/1/4	3000	63	M1130206.00*	13	11.0	7.75
	3000	63	M1130296.00^	9	11.0	7.75
	1800	63	M1130207.00*	13	10.0	8.75
	1800	63	M1130297.00^	9	10.0	8.75
0.37/1/2	3000	71	098065.00	19	11.0	10.77
	1800	71	098066.00	23	20.0	11.27
		71	098067.00	23	20.0	12.27
0.75/1	3000	80	108456.00 $\clubsuit$	33	40.0	14.14
	1800	80	108455.00 $\clubsuit$	52	39.0	14.64
1.1/1 1/2	3000	80	108457.00 $\clubsuit$	33	65.0	15.64
1.5/2	3000	80	108458.00 $\clubsuit$	43	78.0	17.14

**IMPORTANT:** IEC 71 and 80 frame motors in this chart are round body and require either B14 face, B5 flange or B3 foot from kits shown on pages 156-157.

\* Dedicated B5 Flange

^ Dedicated B14 Face

$\bullet$  These motors are totally enclosed, non-ventilated. Others are TEFC/IC41 cooling – external cooling fan on motor shaft.

## SUB-FHP LOW VOLTAGE MOTORS

### General Specifications:

Precision sub-fractional horsepower low voltage direct current permanent magnet motors designed for battery or solar powered operations, or generator supplied low voltage DC.

### Mechanical Features:

Compact space saving designs. Standard conduit box simplifies connections. Ball bearings. Long-life brushes for demanding applications. Brushes easily replaced without disassembly of motor.

### Electrical Features:

High starting torques for heavy load applications. Linear speed/torque characteristics over entire speed range. Capable of dynamic braking for faster stops. Reversible rotation from a simple two lead connection. Class F insulated with high temperature welded commutators.



## LOW VOLTAGE (12 & 24V) • TENV • SQUARE FLANGE

HP▲	Full Load RPM	Frame	Catalog Number	App. Wgt. (lbs.)	Input Volts DC	F.L. Amps DC
1/20	1750	25CS	M1110006.00*	3	12	4.4
1/10	4200				24	4.4
1/14	1750	31AS	M1120040.00	4	12	7.7
1/7	4200				24	7.7
1/7	1750	31ES	M1120044.00	9	12	13.0
1/4	3500				24	13.0
1/6	1800	31GS	M1120046.00	8	12	14.0
1/3	3900				24	14.0

\* 25 frame motors have provision for an optional conduit box catalog number M1760000, see page 107.

▲ These motors may be operated at 12, 24V, or at intermediate voltages between 12 and 24V, within horsepower ranges noted.

## COMMERCIAL DUTY METRIC (IEC) FRAME MOTORS

Specially designed low voltage DC motors for use in OEM applications. Combination of features and low cost makes these motors excellent for many uses. All feature IP44 (TENV) enclosure and dedicated B14 face mount. Rated S1 for continuous duty, and zinc plated steel frame construction.



## 12, 24V & 90 VOLT • TENV B14 FACE MOUNT

HP	Full Load RPM	IEC Frame▲	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	F.L. Amps DC
1/15	3000	56	980.159	2.3	12	6.4
	3000	56	980.143	2.3	24	3.2
	3000	56	980.549	2.3	90	.75
1/8	3000	56	970.600	3.0	12	12.0
	3000	56	970.601	3.0	24	5.3
	3000	56	970.576	3.0	90	1.2
1/6	3000	56	970.620	3.5	12	13.1
	3000	56	970.621	3.5	24	6.8
	3000	56	970.577	3.5	90	1.6

▲ Use "S" Discount Symbol.

For dimensions, see drawings on page 283.

## LOW VOLTAGE ADJUSTABLE SPEED CONTROLLERS

LEESON's DC to DC controllers are a chassis type design, that accept a DC input voltage and output a DC power voltage to control the motor speed. The speed may be varied with the potentiometer that is shipped loose with the control or an external voltage signal.

Higher design efficiency results in longer running time between battery charges than is possible with traditional methods of speed control using resistance in series with the battery.

**Typical Operating Features:** Provides smooth 40 to 1 speed range capability for mobile equipment. Maintains variable speed control as batteries discharge. Adjustable min/max speed, IR compensation, and 200% current limit overload protection. Inhibit pin terminals provide customer optional start-stop without breaking battery lines. Green LED power on indicator is provided.

Catalog number 175290 does not require a heat sink, and measures 6.9L x 4.44W x 2.19D. Catalog numbers 175291 & 175292 do require heat sink, which is included and measures 7.78L x 6.9W x 3.25D.



Input Voltage	Max. Amp Ratings	Catalog Number	App. Wgt.(lbs.)
12/24	16	175290.00	2
12/24	60	175291.00	4
36/48	60	175292.00	4

## LOW VOLTAGE ADJUSTABLE SPEED CONTROLS FOUR QUADRANT CONTROL

**General Specifications:** This series of drives is a chassis type design that accepts DC input to output up to 100% of the input voltage. The 12/24-volt drive is rated at 120 amps continuous and the 36/48-volt drive is rated at 100 amps continuous. The speed is adjustable with a speed potentiometer that is shipped loose with the controls. This control also offers extended battery life through a sleep mode feature and has an inhibit circuit for convenient remote starting and stopping.

**Additional Features Include:** Simple reversing and braking using a switch closure to the drive. Controls have a built-in short circuit to protect itself from a shorted motor. They offer a 1.01 Form Factor, which offers clean DC output for quiet motor operation and efficiency. They also have a temperature sensor, which automatically reduces the current limit if the controller heats up. On Board trim pots for calibration, speed and forward and reverse settings.

Units include heat sink and measure 6.9L x 5.0W (including terminals) x 2.5D and have mounting slots.



Input Voltage	Max. Amp Ratings	Catalog Number	App. Wgt.(lbs.)
12/24	120	174298.00	3
36/48	100	174299.00	3

# PREMIUM STAINLESS STEEL DUCK


**General Specifications:**

Designed specifically to meet the demanding sanitation requirements of the pharmaceutical, food processing, and beverage industries. These motors are also ideal in clean room and severe chemical-processing applications involving frequent washdown with nitric acid and caustic lye. In fact, WASHGUARD All-Stainless Motors include IEEE 841 severe-duty features right out of the box!

**Mechanical Protection Features:**

- All exterior components are 300-series stainless steel
- Nothing on the exterior of the motor is painted or coated in any way
- All sealing components are Viton® for superior chemical resistance.
- Full fact nameplate is laser etched on the motor frame – no separately attached nameplate to trap dirt or contaminants
- Endshields are O-ring sealed to the frame
- Double lip shaft seals on both ends of TEFC motors (shaft end only on TENV motors)
- Removable hydrophobic breathers in opposite shaft endbell and conduit box equalize pressure without allowing moisture to enter
- Exterior fastener use minimized reducing the number of entry points for moisture. There are no holes in the frame for attaching a nameplate. Bearing lock screws are located inside the motor and the conduit box mounted screws have been eliminated.
- Double-sealed bearings are pre-lubricated with moisture-resistant high-temperature grease for long life.
- Interior coatings applied to armature and frame/magnet assemble protect against corrosion
- Brush tubes are sealed with Viton® O-rings to keep moisture out
- New conduit box mounting system provides optimum sealing
- Easy to clean construction is BISSC Certified for bakery applications.

**Electrical Performance and Protection Features:**

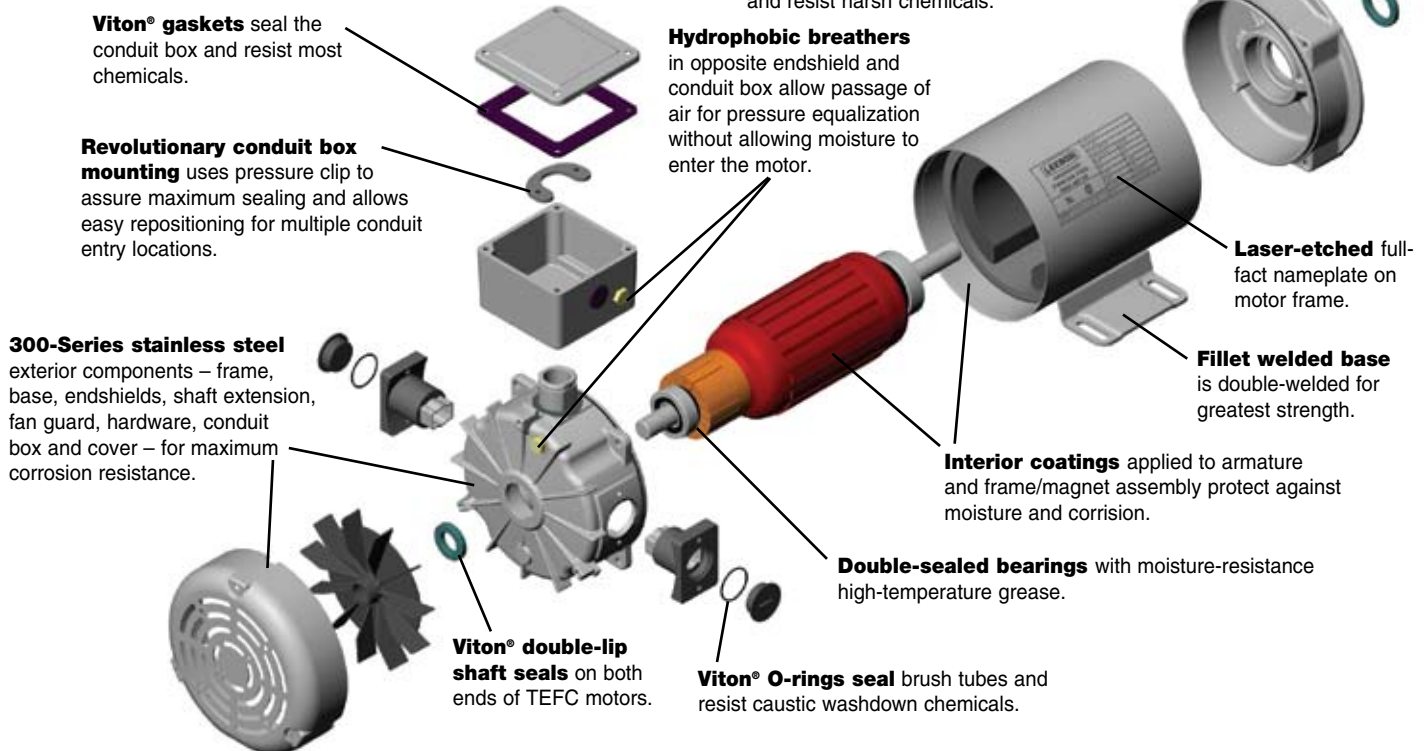
- Linear speed/torque characteristics over entire speed range.
- Armature windings are immersed and cured in a polyester insulating varnish for extra moisture-resistance
- High starting torque for hard to start loads.
- Use with LEESON SPEEDMASTER DC motor controllers for optimum performance.

**Standards and Approvals:**

- UL Recognized and CSA Certified.
- Listed under BISSC authorization number 769

**CHEMICAL RESISTANCE RATING CHART**

CHEMICAL	CONCENTRATION	ALL STAINLESS COMPONENTS
<b>WATER:</b>		
De-Ionized Boiling	100%	Excellent
Salt (Immersed)	30%	Excellent
Salt (Spray)	5%	Excellent
Tap - 250°F/120°C @ 10,000 PSI	100%	Excellent
<b>ACIDS:</b>		
Hydrochloric	35%	Poor
Sulfuric	25%	Poor
Nitric	35%	Excellent
Picric	Saturated Solution	Excellent
<b>BASE:</b>		
Caustic	100%	Excellent
Caustic	12.5 pH	Excellent
Caustic - 125°F/50°C	9.5 pH	Excellent
<b>SOLVENTS:</b>		
	-	Excellent







# PREMIUM STAINLESS STEEL DUCK

## NEMA FRAME ALL-STAINLESS PMDC MOTORS



### TEFC • SCR RATED 90 & 180V • NEMA ALL-STAINLESS STEEL • C-FACE WITH BASE\*

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	Control Volts AC Input	F.L. Amps DC	"C" Dim. (Inches)
1/4	1800	S56C	109065.00●	38	90	115	3.1	11.81
1/3	1800	S56C	109066.00●	44	90	115	3.8	12.81
		S56C	109067.00● A	44	180	230	1.9	12.81
1/2	1800	S56C	109069.00	46	90	115	5.2	13.87
		S56C	109070.00	46	180	230	2.7	13.87
3/4	1800	S56C	109072.00	47	90	115	7.5	15.37
		S56C	109073.00 A	48	180	230	3.7	15.37
1	1800	S56C	109075.00 A	51	90	115	9.5	16.37
		S56C	109076.00	50	180	230	5.0	16.37

● These motors are totally enclosed non-ventilated, others are TEFC.  
\* Base is welded to frame and not removable.

### TEFC • SCR RATED 90 & 180V • NEMA ALL-STAINLESS STEEL • C-FACE LESS BASE

HP	SYN RPM 60 Hz	NEMA Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	Control Volts AC Input	F.L. Amps DC	"C" Dim. (Inches)
1/4	1800	S56C	109078.00●	38	90	115	3.1	11.81
1/3	1800	S56C	109079.00●	44	90	115	3.8	12.81
		S56C	109080.00● A	44	180	230	1.9	12.81
1/2	1800	S56C	109082.00	46	90	115	5.2	13.87
		S56C	109083.00	46	180	230	2.7	13.87
3/4	1800	S56C	109085.00	47	90	115	7.5	15.37
		S56C	109086.00	48	180	230	3.7	15.37
1	1800	S56C	109088.00	51	90	115	9.5	16.37
		S56C	109089.00	50	180	230	5.0	16.37

● These motors are totally enclosed non-ventilated, others are TEFC.

## METRIC (IEC) FRAME PMDC MOTORS

### TEFC • SCR RATED 90 & 180V • METRIC (IEC) ALL-STAINLESS STEEL • C-FACE WITH BASE\*

HP	Kw	SYN RPM 60 Hz	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	Control Volts AC Input	F.L. Amps DC	"C" Dim. (Inches)
1/3	0.25	1800	80D	109068.00●A	44	180	230	1.9	12.81
1/2	0.37	1800	80D	109071.00 A	46	180	230	2.7	13.87
3/4	0.55	1800	80D	109074.00 A	48	180	230	3.7	15.37
1	0.75	1800	80D	109077.00	50	180	230	5.0	16.37

● These motors are totally enclosed non-ventilated, others are TEFC.  
\* Base is welded to frame and not removable.

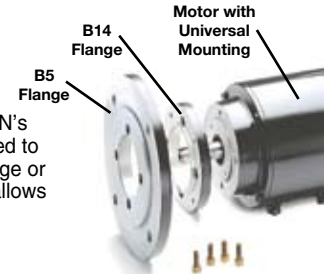
### TEFC • SCR RATED 90 & 180V • METRIC (IEC) ALL-STAINLESS STEEL • C-FACE LESS BASE

HP	Kw	SYN RPM 60 Hz	IEC Frame	Catalog Number	App. Wgt. (lbs.)	Arm. Volts DC	Control Volts AC Input	F.L. Amps DC	"C" Dim. (Inches)
1/3	0.25	1800	80D	109081.00●A	44	180	230	1.9	12.81
1/2	0.37	1800	80D	109084.00 A	46	180	230	2.7	13.87
3/4	0.55	1800	80D	109087.00 A	48	180	230	3.7	15.37
1	0.75	1800	80D	109090.00	50	180	230	5.0	16.37

● These motors are totally enclosed non-ventilated, others are TEFC.  
A Subject to Availability.

### FLANGE AND FACE KITS FOR DC METRIC (IEC) FRAME MOTORS

The modular design concept of LEESON's other metric DC motors has been applied to the all-stainless metric motors. Any flange or face kit can mount on any motor. This allows the greatest flexibility from the smallest inventory of motors.



### B5 FLANGE KITS (For Stainless DC Metric Motors)

IEC Frame	Catalog Number	App. Wgt. (lbs.)	BD Flange Dia. (mm)	AK Register (mm)	BF Hole (mm)	AJ Bolt Circle (mm)
71	175593.00	2	160	110	9	130
80	175594.00	3	200	130	12	165
90S/90L	175594.00	3	200	130	12	165
100L/112M	175595.00	5	250	180	15	215

### B14 FLANGE KITS (For Stainless DC Metric Motors)

IEC Frame	Catalog Number	App. Wgt. (lbs.)	BD Flange Dia. (mm)	AK Register (mm)	BF Tap (mm)	AJ Bolt Circle (mm)
71	175596.00	1	105	70	6	85
80	175597.00	1	120	80	6	100
90S/90L	175598.00	1	140	95	6	115
100L/112M	175599.00	2	160	110	6	130

# QUICK REFERENCE

## Stock Sub-FHP Gearmotors

GEARMOTORS

### AC Single & Three Phase

### DC SCR & Low Voltage



**Parallel Shaft  
PZ Series  
Gearmotors**

Single Phase 115V  
12-100 In-Lbs  
Output Torque  
**Page 174**

**BODINE/BISON/DAYTON**  
DIRECT INTERCHANGE

DC SCR 90 & 180V  
10-100 In-Lbs  
Output Torque  
Low Voltage (12V)  
36-100 In-Lbs torque  
**Page 164**



**P240 & P300 Series  
Gearmotors**

Single Phase 115/230V  
43-391 In-Lbs  
Output Torque  
**Page 175**

**BISON/DAYTON**  
DIRECT INTERCHANGE

DC SCR 90 & 180V  
27-353 In-Lbs  
Output Torque  
Low Voltage (12V)  
113-353 In-Lbs torque  
**Page 165**



**OS300 Series  
Gearmotors**

DC SCR 90V  
and  
Low Voltage (12V)  
Output Torque  
130-268 In-Lbs  
**Page 166**



**PE350 Series  
Gearmotors**

Single Phase 115/230V  
25-341 In-Lbs  
Output Torque  
Three Phase 230/460V  
55-320 In-Lbs  
Output Torque  
**Page 176**

**BODINE  
DIRECT  
INTERCHANGE**

DC SCR 90 & 180V  
25-371 In-Lbs  
Output Torque  
Low Voltage (12V)  
155-341 In-Lbs torque  
**Page 167**



**P1100 Series  
Gearmotors**

Single Phase 115/230V  
70-1105 In-Lbs  
Output Torque  
Three Phase 230/460V  
70-1105 In-Lbs  
Output Torque  
**Page 177**

**BISON/DAYTON**  
DIRECT INTERCHANGE

DC SCR 90V  
105-1112 In-Lbs  
Output Torque  
Low Voltage (12V)  
320-1087 In-Lbs torque  
**Page 168**



**Right-Angle  
Worm Type  
10 & 13 Series  
Gearmotors**

Single Phase 115/230V  
14-113 In-Lbs  
Output Torque  
**Page 178**

**BODINE/DAYTON**  
DIRECT INTERCHANGE

DC SCR 90 & 180V  
5-135 In-Lbs  
Output Torque  
Low Voltage (12V)  
25-135 In-Lbs torque  
**Page 169**



**Bravo Right  
Angle  
Worm Type  
12 Series  
Gearmotors**

DC SCR 90V  
and  
Low Voltage (12V)  
Output Torque  
46-134 In-Lbs  
**Page 170**

## QUICK REFERENCE

### Stock Sub-FHP IP55 WASHGUARD Gearmotors



**P300 Series Gearmotors**

DC SCR 90V  
and  
Low Voltage (12V)  
Output Torque  
44-353 In-Lbs  
**Page 171**



**PE350 Series Gearmotors**

DC SCR 90V  
and  
Low Voltage (12V)  
Output Torque  
25-341 In-Lbs  
**Page 172**



**Right-Angle 13 Series Gearmotors**

DC SCR 90V  
and  
Low Voltage (12V)  
Output Torque  
50-135 In-Lbs  
**Page 173**



**P240 Series Gearmotors**

Washdown Duty  
60-391 In-Lbs  
Output Torque  
**Page 175**

**BISON/DAYTON**  
DIRECT INTERCHANGE



**Right-Angle Worm Type 10 & 13 Series Gearmotors**

Washdown Duty  
23-220 In-Lbs  
Output Torque  
**Page 178**

**BODINE/DAYTON**  
DIRECT INTERCHANGE

### Stock Sub-FHP Three Phase Inverter Rated Gearmotors



Includes gearmotor series PZ, P240, PE350 and 13 series right-angle

Three phase 230V  
12-391 In-Lbs  
Output Torque  
**Page 180**



# SUB-FHP DC GEARMOTORS

## PARALLEL SHAFT GEARMOTORS

**SCR RATED:  
10-100 In-Lbs Torque**

**LOW VOLTAGE:  
36-100 In-Lbs Torque**

**Electrical Specifications:**

**SCR Rated Gearmotors**

Totally enclosed, permanent magnet DC gearmotors, performance matched for continuous duty service over a 60:1 speed range. All have constant torque throughout the range when powered by a full-wave unfiltered SCR-type adjustable speed control having a typical form factor of 1.3 to 1.4.



**Low Voltage Gearmotors**

Totally enclosed, permanent magnet DC gearmotors, performance matched for continuous duty. Motors are designed for battery power or can be used with a low voltage controller with form factor up to 1.05.

**Mechanical Specifications:**

Precision machined in-line steel gears, with a first stage steel helical gear followed by spur-type gears. Lubrication is permanent semi-fluid grease, reducing possibility of leakage. Output shafts have needle bearings for high load capacities. Shafts are hardened steel.

Conduit box *not* included with motor. Optional conduit box and PZ gearmotor mounting bracket shown on page 179.

**Application Notes:**

These gearmotors are designed for mounting at any angle, but motor below the reducer should be avoided to prevent leakage of lubricant into the motor should the motor shaft seal fail.

The motor's stall torque could exceed recommended full load torques. If this service is anticipated, a current limiting device should be used. This issue is even more critical for low voltage motors, typically no controller is used since motor connected directly to battery, so some type of current limit or fusing should be considered.

Overhung load capacities shown are at center of output shaft.

Model PZ gearmotors have the same mounting dimensions as Bodine model D and Z, Baldor/Boehm, Bison 100 gearmotors, and a number of Dayton gearmotors.

For additional information, see Bulletin 1830.

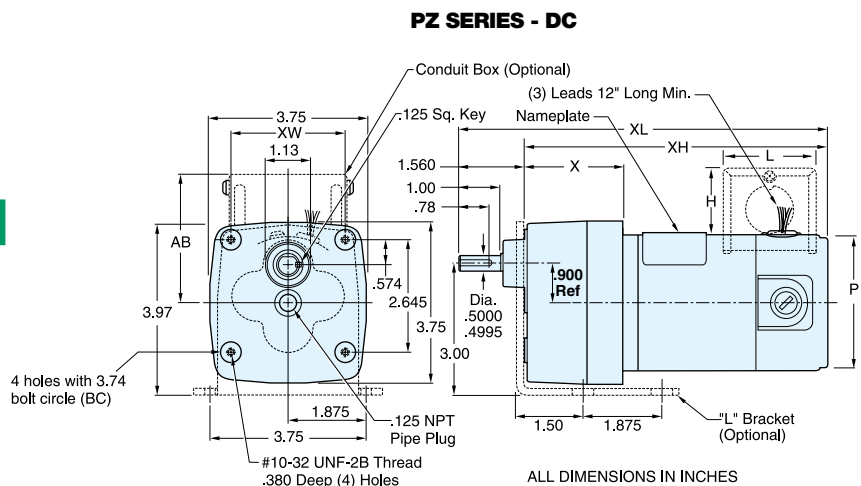
**BODINE/BISON/DAYTON  
DIRECT INTERCHANGE**

### PZ SERIES DC • SCR RATED PARALLEL SHAFT • TENV • 1.0 SERVICE FACTOR

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm. Volts DC	F.L. Amps DC	Over-hung Load (Lb.)	DIMENSIONS			
									P	X	XL	XH
4	40	1/40	M1115002.00	PZ5-30A	450	90	0.46	155	3.00	3.25	9.28	7.72
4	40	1/40	M1125046.00	PZ5-30A	450	180	0.19	155	3.00	3.25	9.30	7.74
10	100	1/20	M1115001.00	PZ4-30E	180	90	0.54	155	3.00	3.25	9.28	7.72
10	100	1/20	M1125047.00	PZ4-30A	180	180	0.31	155	3.00	3.25	9.30	7.74
20	100	1/20	M1115000.00	PZ4-30E	90	90	0.54	155	3.00	3.25	9.28	7.72
20	100	1/20	M1125048.00	PZ4-30A	90	180	0.31	155	3.00	3.25	9.30	7.74
30	100	1/17	M1125002.00	PZ3-30B	60	90	0.80	155	3.00	2.68	8.74	7.18
30	100	1/17	M1125037.00	PZ3-30B	60	180	0.36	155	3.00	2.68	8.74	7.18
60	56	1/17	M1125003.00	PZ3-30B	30	90	0.80	171	3.00	2.68	8.74	7.18
60	56	1/17	M1125036.00	PZ3-30B	30	180	0.36	171	3.00	2.68	8.74	7.18
100	36	1/17	M1125004.00	PZ3-30B	18	90	0.80	171	3.00	2.68	8.74	7.18
100	36	1/17	M1125035.00	PZ3-30B	18	180	0.36	171	3.00	2.68	8.74	7.18
150	24	1/17	M1125005.00	PZ2-30B	12	90	0.80	180	3.00	2.40	8.46	6.90
150	24	1/17	M1125034.00	PZ2-30B	12	180	0.36	180	3.00	2.40	8.46	6.90
300	10	1/17	M1125006.00	PZ2-30B	6	90	0.80	180	3.00	2.40	8.46	6.90
300	10	1/17	M1125033.00	PZ2-30B	6	180	0.36	180	3.00	2.40	8.46	6.90

### PZ SERIES DC • LOW VOLTAGE (12V) PARALLEL SHAFT • TENV • 1.0 SERVICE FACTOR

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm. Volts DC	F.L. Amps DC	Over-hung Load (Lb.)	DIMENSIONS			
									P	X	XL	XH
10	100	1/20	M1125213.00	PZ4-30	180	12	2.7	155	3.00	3.25	9.28	7.72
30	100	1/17	M1125214.00	PZ3-30	60	12	5.2	155	3.00	2.68	8.74	7.18
55	56	1/17	M1125215.00	PZ3-30	30	12	5.6	171	3.00	2.68	8.74	7.18



**QUICK REFERENCE**

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SPEEDMASTER® CONTROLS . . . . .	210

**CONDUIT BOX DIMENSIONS (IN.)**

FRAME	XW	AB	H	L
30/31	2.63	3.47	1.90	3.13

GEARMOTORS

**SCR RATED:**  
**27-353 In-Lbs Torque**  
**LOW VOLTAGE:**  
**113-353 In-Lbs Torque**

**Electrical Specifications:**

**SCR Rated Gearmotors**

Totally enclosed, permanent magnet DC gearmotors, performance matched for continuous duty service over a 60:1 speed range. All have constant torque throughout the range when powered by a full-wave unfiltered SCR-type adjustable speed control having a typical form factor of 1.3 to 1.4.



**Low Voltage Gearmotors**

Totally enclosed, permanent magnet DC gearmotors, performance matched for continuous duty. Motors are designed for battery power or can be used with a low voltage controller with form factor up to 1.05.

**Mechanical Specifications:**

Precision machined in-line steel gears, with a first stage steel helical gear followed by spur-type gears. Lubrication is permanent semi-fluid grease, reducing possibility of leakage. Output shafts have needle bearings for high load capacities. Shafts are hardened steel.

**Conduit box not included with motor.** Optional conduit box shown on page 179.

**Application Notes:**

These gearmotors are designed for mounting at any angle, but shaft up with motor below should be avoided to prevent leakage of lubricant into the motor should the motor's shaft seal fail.

Overhung load capacities shown are at center of output shaft.

The motor's stall torque exceeds recommended full load torques. A current limiting device such as an SCR control should be used to prevent damage. Model 300 gearmotors have the same mounting dimensions as Bison's 300 and many Dayton gearmotors.

For additional information, see Bulletin 1830.

**P300 SERIES DC • SCR RATED**  
**PARALLEL SHAFT • TENV • 1.0 SERVICE FACTOR**

Output RPM	F.L. Torque (Lb.in.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm. Volts DC	F.L. Amps. DC	Overhung Load (Lb.)	DIMENSIONS			
									P	X	XL	XH
5	353	1/20	M1115024.00	P303-30E	336	90	0.54	565	3.00	3.54	10.07	8.57
9	268	1/20	M1115025.00	P303-30E	216	90	0.54	474	3.00	3.54	10.07	8.57
18	150	1/20	M1115026.00	P303-30E	103	90	0.54	385	3.00	3.54	10.07	8.57
20	140	1/20	M1125092.00 A	P303-31E	90	180	0.31	370	3.11	3.54	10.07	8.57
24	280	1/8	M1125069.00	P303-30E	76	90	1.30	353	3.00	3.54	11.54	10.04
31	220	1/8	M1125070.00	P303-30E	58	90	1.30	327	3.00	3.54	11.54	10.04
31	220	1/8	M1125038.00	P303-30E	58	180	0.66	327	3.00	3.54	11.54	10.04
34	82	1/20	M1115027.00	P303-30E	52	90	0.54	318	3.00	3.54	10.07	8.57
51	130	1/8	M1125071.00	P302-30E	35	90	1.30	277	3.00	3.54	11.54	10.04
51	130	1/8	M1125039.00	P302-30E	35	180	0.66	277	3.00	3.54	11.54	10.04
51	55	1/20	M1115028.00	P302-30E	35	90	0.54	281	3.00	3.54	10.07	8.57
61	113	1/8	M1125072.00	P302-30E	29	90	1.30	267	3.00	3.54	11.54	10.04
60	45	1/20	M1125093.00 A	P302-31E	29	180	0.31	267	3.11	3.54	10.07	8.57
94	77	1/8	M1125073.00	P302-30E	19	90	1.30	236	3.00	3.54	11.54	10.04
94	77	1/8	M1125040.00	P302-30E	19	180	0.66	236	3.00	3.54	11.54	10.04
109	27	1/20	M1115029.00	P302-30E	16	90	0.54	224	3.00	3.54	10.07	8.57
106	26	1/20	M1125094.00 A	P302-31E	16	180	0.31	222	3.11	3.54	10.07	8.57
167	43	1/8	M1125074.00	P302-30E	11	90	1.30	197	3.00	3.54	11.54	10.04
170	43	1/8	M1125041.00	P302-30E	11	180	0.66	196	3.00	3.54	11.54	10.04

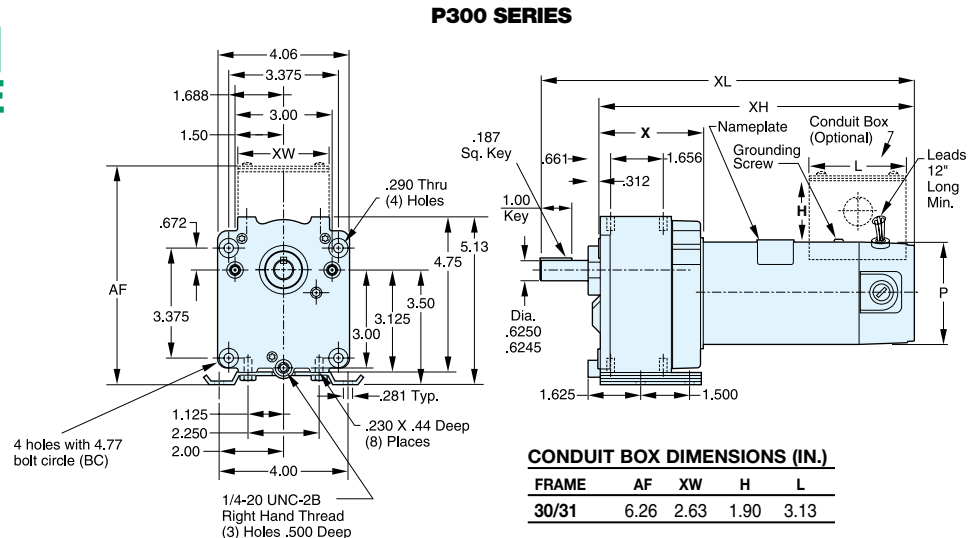
GEARMOTORS

**P300 SERIES DC • LOW VOLTAGE (12V)**  
**PARALLEL SHAFT • TENV • 1.0 SERVICE FACTOR**

Output RPM	F.L. Torque (Lb.in.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm. Volts DC	F.L. Amps. DC	Overhung Load (Lb.)	DIMENSIONS			
									P	X	XL	XH
5	353	1/20	M1125217.00	P303-30	336	12	5.6	565	3.00	3.85	10.07	8.57
31	220	1/8	M1125218.00	P303-30	58	12	10.6	327	3.00	3.54	11.54	10.04
51	130	1/8	M1125219.00 A	P302-30	35	12	10.3	277	3.00	3.23	11.54	10.04
61	113	1/8	M1125220.00	P302-30	29	12	10.4	267	3.00	3.23	11.54	10.04

A Subject to Availability.

**BISON/DAYTON**  
**DIRECT INTERCHANGE**





# SUB-FHP DC GEARMOTORS

## OFF-SET SHAFT GEARMOTORS

**SCR RATED:**  
**130-268 In-Lbs Torque**

**LOW VOLTAGE:**  
**130-268 In-Lbs Torque**

**Electrical Specifications:**

**SCR Rated Gearmotors**

Totally enclosed, permanent magnet DC gearmotors, performance matched for continuous duty service over a 60:1 speed range. All have constant torque throughout the range when powered by a full-wave unfiltered SCR-type adjustable speed control having a typical form factor of 1.3 to 1.4.

**Low Voltage Gearmotors**

Totally enclosed, permanent magnet DC gearmotors, performance matched for continuous duty. Motors are designed for battery power or can be used with a low voltage controller with form factor up to 1.05.

**Mechanical Specifications:**

Precision machined steel gears, with a first stage steel helical gear followed by spur-type gears. Lubrication is permanent semi-fluid grease, reducing possibility of leakage. Output shafts have needle bearings for high load capacities. Shafts are hardened steel.

**Conduit box *not* included with motor.** Optional conduit box shown on page 179.

**Application Notes:**

These gearmotors are designed for mounting at any angle, but shaft up with motor below should be avoided to prevent leakage of lubricant into the motor should the motor's shaft seal fail.

Overhung load capacities shown are at center of output shaft.

The motor's stall torque exceeds recommended full load torques. A current limiting device such as an SCR control should be used to prevent damage.



### OS300 SERIES DC • SCR RATED OFF-SET SHAFT • TENV • 1.0 SERVICE FACTOR

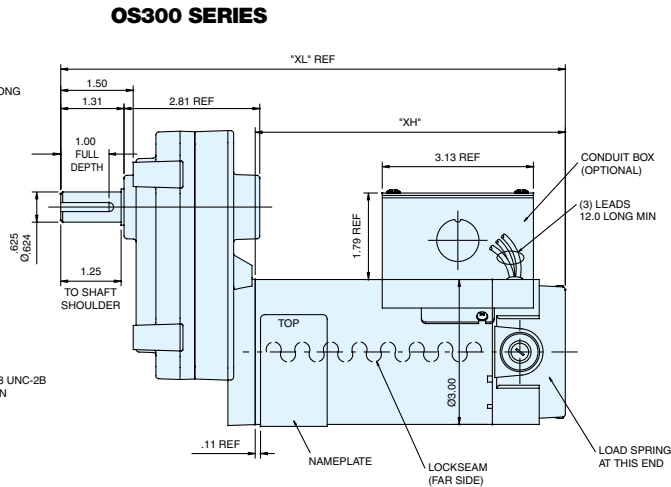
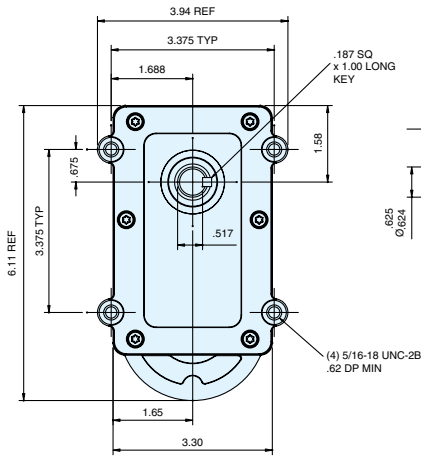
Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio	Arm Volts DC	F.L. Amps DC	Overhung Load Lbs.	P	DIMENSIONS Inches		
										X	XL	XH
9	268	1/20	<b>M1125251.00 A</b>	OS303-30	210	90	.54	474	3.00	2.81	4.50	8.52
19	150	1/20	<b>M1125250.00 A</b>	OS303-30	103	90	.56	385	3.00	2.81	4.50	8.52
24	280	1/8	<b>M1125249.00 A</b>	OS303-30	76	90	1.3	353	3.00	2.81	6.42	10.45
31	220	1/8	<b>M1125248.00 A</b>	OS303-30	58	90	1.4	327	3.00	2.81	6.42	10.45
51	130	1/8	<b>M1125247.00</b>	OS303-30	35	90	1.4	277	3.00	2.81	6.42	10.45

### OS300 SERIES DC • LOW VOLTAGE (12V) OFF-SET SHAFT • TENV • 1.0 SERVICE FACTOR

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio	Arm Volts DC	F.L. Amps DC	Overhung Load Lbs.	P	DIMENSIONS Inches		
										X	XL	XH
9	268	1/20	<b>M1125256.00 A</b>	OS303-30	210	12	4.5	474	3.00	2.81	4.50	8.52
18	150	1/20	<b>M1125255.00 A</b>	OS303-30	103	12	5.0	385	3.00	2.081	4.50	8.52
24	280	1/8	<b>M1125254.00 A</b>	OS303-30	76	12	10.6	353	3.00	2.81	6.42	10.45
31	220	1/8	<b>M1125253.00 A</b>	OS303-30	58	12	10.6	327	3.00	2.81	6.42	10.45
51	130	1/8	<b>M1125252.00</b>	OS303-30	35	12	10.3	277	3.00	2.81	6.42	10.45

**A** Subject to Availability.

GEARMOTORS



ALL DIMENSIONS IN INCHES

**SCR RATED:**  
**25-371 In-Lbs Torque**

**LOW VOLTAGE:**  
**155-341 In-Lbs Torque**

**Electrical Specifications:**

**SCR Rated Gearmotors**

Totally enclosed, permanent magnet DC gearmotors, performance matched for continuous duty service over a 60:1 speed range. All have constant torque throughout the range when powered by a full-wave unfiltered SCR-type adjustable speed control having a typical form factor of 1.3 to 1.4.



**Low Voltage Gearmotors**

Totally enclosed, permanent magnet DC gearmotors, performance matched for continuous duty. Motors are designed for battery power or can be used with a low voltage controller with form factor up to 1.05.

**Mechanical Specifications:**

Gearbox has rugged aluminum die cast housing, for maximum gear and bearing support. Precision machined gearing, hardened for maximum load capability. All gearing designed and rated to AGMA Class 9 standards and to withstand momentary shock overload of 200%. Oversized output bearings for greater overhung load capacity and longer life. High-carbon alloy output shaft provides maximum strength and rigidity. All needle bearing journals are precision-ground after heat treating, to provide maximum finish and fit. Heavy-duty industrial oil seals help keep lubricant in and dirt out. Gears and bearings are splash lubricated with permanent, heavy-duty gear oil.

**Conduit box not included with motor.** Optional conduit box shown on page 179.

**Application Notes:**

These gearmotors are designed for mounting at any angle, but shaft up with motor below should be avoided to prevent leakage of lubricant into the motor should the motor's shaft seal fail.

Overhung load capacities shown are at center of output shaft.

The motor's stall torque exceeds recommended full load torques. A current limiting device such as an SCR control should be used to prevent damage.

Model PE350 gearmotors have the same mounting dimensions as Bodine's "E" box and many Baldor gearmotors.

**PE350 SERIES DC • SCR RATED**  
**PARALLEL SHAFT • TENV • 1.0 SERVICE FACTOR**

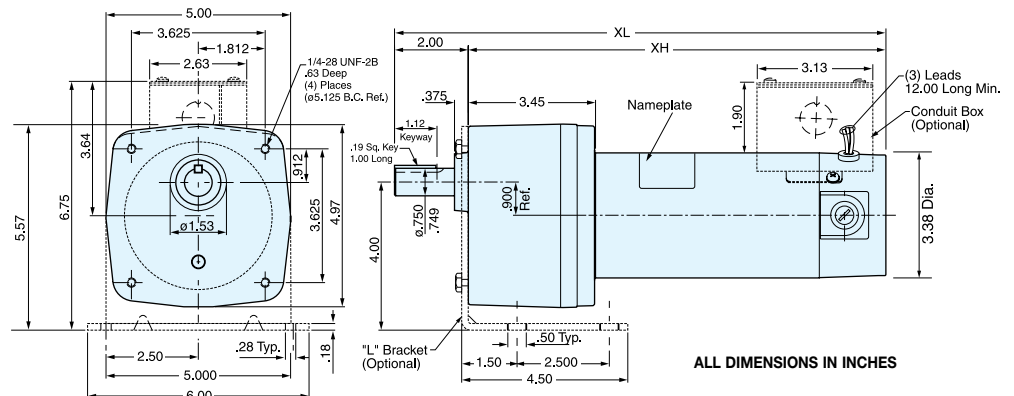
Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Type & Frame	Ratio to 1	Arm Volts DC	F.L. Amps DC	Overhung Load Lbs.	DIMENSIONS XL Inches	XH Inches
7	330	1/8	M1135106.00	P353-34	336	90	0.70	565	11.31	9.31
7	330	1/8	M1135139.00	P353-34	336	180	0.35	565	11.31	9.31
14	341	1/8	M1135107.00	P353-34	180	90	1.00	465	11.31	9.31
14	341	1/8	M1135140.00	P353-34	180	180	0.50	465	11.31	9.31
21	371	1/4	M1135117.00	P353-34	124	90	1.10	413	13.31	11.31
21	371	1/4	M1135141.00	P353-34	124	180	0.55	413	13.31	11.31
27	305	1/4	M1135115.00	P353-34	91	90	1.50	374	13.31	11.31
27	305	1/4	M1135142.00	P353-34	91	180	0.75	374	13.31	11.31
42	280	1/4	M1135108.00	P353-34	58	90	2.30	327	13.31	11.31
42	280	1/4	M1135143.00	P353-34	58	180	1.20	327	13.31	11.31
50	250	1/4	M1135109.00	P353-34	50	90	2.30	315	13.31	11.31
50	250	1/4	M1135144.00	P353-34	50	180	1.20	315	13.31	11.31
62	220	1/4	M1135110.00	P353-34	43	90	2.30	303	13.31	11.31
62	220	1/4	M1135145.00	P353-34	43	180	1.20	303	13.31	11.31
83	155	1/4	M1135114.00	P352-34	29	90	2.30	267	13.31	11.31
83	155	1/4	M1135146.00	P352-34	29	180	1.20	267	13.31	11.31
125	100	1/4	M1135111.00	P352-34	23	90	2.00	256	13.31	11.31
125	100	1/4	M1135147.00	P352-34	23	180	1.00	256	13.31	11.31
165	70	1/4	M1135112.00	P352-34	15	90	2.00	232	13.31	11.31
165	70	1/4	M1135148.00	P352-34	15	180	1.00	232	13.31	11.31
250	45	1/4	M1135116.00	P352-34	10	90	2.00	201	13.31	11.31
250	45	1/4	M1135149.00	P352-34	10	180	1.00	201	13.31	11.31
500	25	1/4	M1135113.00	P352-34	5	90	2.00	194	13.31	11.31
500	25	1/4	M1135150.00	P352-34	5	180	1.00	194	13.31	11.31

GEARMOTORS

**PE350 SERIES DC • LOW VOLTAGE (12V)**  
**PARALLEL SHAFT • TENV • 1.0 SERVICE FACTOR**

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Type & Frame	Ratio to 1	Arm Volts DC	F.L. Amps DC	Overhung Load Lbs.	DIMENSIONS XL Inches	XH Inches
14	341	1/8	M1135243.00	P353-34	180	12	8.7	465	11.05	9.05
42	325	1/4	M1135244.00	P353-34	58	12	21.0	327	13.31	11.31
62	220	1/4	M1135245.00	P353-34	43	12	21.0	303	13.31	11.31
83	155	1/4	M1135246.00	P352-34	29	12	21.0	267	13.31	11.31

**BODINE  
DIRECT  
INTERCHANGE**



ALL DIMENSIONS IN INCHES



# SUB-FHP DC GEARMOTORS

## PARALLEL SHAFT GEARMOTORS

**SCR RATED:**  
105-1112 In-Lbs Torque

**LOW VOLTAGE:**  
320-1087 In-Lbs Torque

**Electrical Specifications:**

**SCR Rated Gearmotors**

SCR rated, permanent magnet DC gearmotors. Totally enclosed for continuous duty, general purpose applications. All have constant torque throughout the 60:1 speed range, when powered by a full-wave, unfiltered SCR-type adjustable speed control having a typical form factor of 1.3 to 1.4.



**Low Voltage Gearmotors**

Totally enclosed, permanent magnet DC gearmotors, performance matched for continuous duty. Motors are designed for battery power or can be used with a low voltage controller with form factor up to 1.05.

**Mechanical Specifications:**

Gearbox has rugged aluminum die cast housing, for maximum gear and bearing support. Precision machined gearing, hardened for maximum load capability. All gearing designed and rated to AGMA Class 9 standards and to withstand momentary shock overload of 200%. Oversized output bearings for greater overhung load capacity and longer life. High-carbon alloy output shaft provides maximum strength and rigidity. All needle bearing journals are precision-ground after heat treating, to provide maximum finish and fit. Heavy-duty industrial oil seals help keep lubricant in and dirt out. Gears and bearings are splash lubricated with permanent, heavy-duty gear oil. **Conduit box is included as standard.**

**Application Notes:**

These gearmotors are designed for mounting at any angle, but shaft-up with motor below gearhead is not recommended. Overhung load capacities shown are at center of output shaft. P1100 DC gearmotors have the same mounting dimensions as Bison 483 gearmotors and many Dayton gearmotors. The motor's stall torque exceeds recommended full load torques. A current limiting device such as an SCR control should be used to prevent damage. For additional information, see Bulletin 1830.

### P1100 SERIES DC • SCR RATED FRACTIONAL HP • PARALLEL SHAFT • TOTALLY ENCLOSED 1.0 SERVICE FACTOR

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Type & Frame	Ratio to 1	Arm Volts DC	F.L. Amps DC	Overhung Load (Lbs.)	DIMENSIONS XL XH Inches	
8	1087	¼	<b>108700.00</b>	P1103-48	212	90	2.7	700	14.24	12.74
12	1030	¼	<b>108701.00</b>	P1103-48	143	90	2.7	700	14.24	12.74
18	750	¼	<b>108702.00</b>	P1103-48	95	90	2.7	700	14.24	12.74
42	353	¼	<b>108703.00</b>	P1102-48	42	90	2.7	650	14.24	12.74
60	238	¼	<b>108704.00</b>	P1102-48	29	90	2.7	625	14.24	12.74
92	160	¼	<b>108705.00</b>	P1102-48	19	90	2.7	575	14.24	12.74
135	105	¼	<b>108706.00</b>	P1102-48	13	90	2.7	525	14.24	12.74
18	1112	½	<b>108707.00**</b>	P1103-48	95	90	5.0	700	16.49	14.99
33	822	½	<b>108708.00**</b>	P1103-48	53	90	5.0	650	16.49	14.99
42	705	½	<b>108709.00**</b>	P1102-48	42	90	5.0	650	16.49	14.99
60	476	½	<b>108710.00**</b>	P1102-48	29	90	5.0	625	16.49	14.99
92	320	½	<b>108711.00**</b>	P1102-48	19	90	5.0	575	16.49	14.99
135	210	½	<b>108712.00**</b>	P1102-48	13	90	5.0	525	16.49	14.99

\*\* TEFC enclosure.

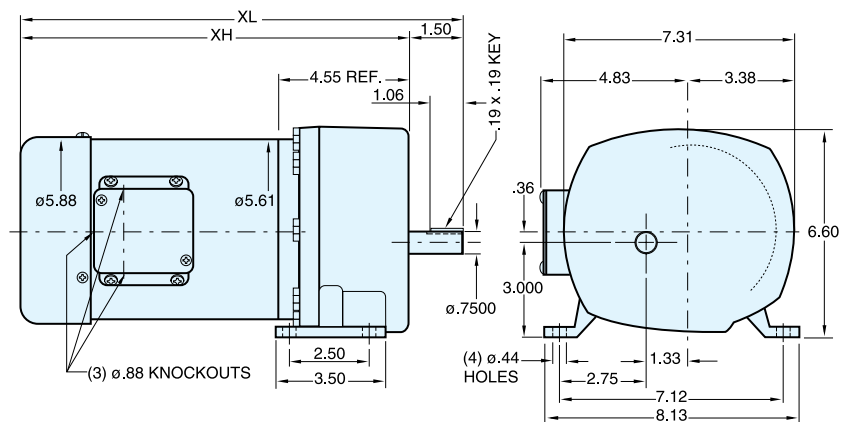
### P1100 SERIES DC • LOW VOLTAGE (12V) FRACTIONAL HP • PARALLEL SHAFT • TOTALLY ENCLOSED 1.0 SERVICE FACTOR

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Type & Frame	Ratio to 1	Arm Volts DC	F.L. Amps DC	Overhung Load (Lbs.)	DIMENSIONS XL XH Inches	
8	1087	¼	<b>108729.00</b>	P1103-48	212	12	21.0	700	13.74	12.24
60	238	¼	<b>108730.00</b>	P1102-48	29	12	21.0	625	13.74	12.24
42	705	½	<b>108731.00**</b>	P1102-48	42	12	40.0	650	15.99	14.49
92	320	½	<b>108732.00**</b>	P1102-48	19	12	40.0	575	15.99	14.49

\*\* TEFC enclosure.

**BISON/DAYTON  
DIRECT INTERCHANGE**

**P1100 SERIES - DC**



ALL DIMENSIONS IN INCHES

Specifications are subject to change without notice

GEARMOTORS



**SCR RATED:  
5-135 In-Lbs Torque**  
**LOW VOLTAGE:  
25-135 In-Lbs Torque**

**Electrical Specifications:**

**SCR Rated Gearmotors**

Totally enclosed right-angle gearmotors, performance matched for continuous service over a 60:1 speed range. All have constant torque throughout the range when powered by a full-wave, unfiltered SCR-type 115 volt input adjustable speed control having a typical form factor of 1.3 to 1.4. Also available as factory options are motors for low voltage input and with double output shafts.



**Low Voltage Gearmotors**

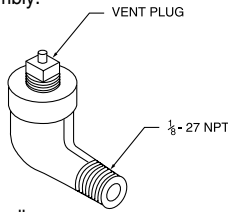
Totally enclosed, permanent magnet DC gearmotors, performance matched for continuous duty. Motors are designed for battery power or can be used with a low voltage controller with form factor up to 1.05.

**Mechanical Specifications:**

This worm-type right-angle gearing features hardened, steel worm with bronze worm wheel for long life and quiet operation. Precision machined aluminum housings are used. Gearbox has all ball bearings. The housing is sealed and lubrication is permanent with an oil bath. The output shaft is field interchangeable from left hand style to right hand style by reassembly.

**Application Notes:**

For optimum seal life, these right-angle gearmotors have a lubrication breather positioned for horizontal mounting. For other mountings, the breather-plug must be reoriented by using a 90/8" NPT taper pipe elbow (see drawing). Elbow not available from LEESON. Vent plug is available (Part #M1900177\_01). However, the motor portion of the gearmotor should never be mounted below the gearhead.



Overhung load capacities shown are at center of output shaft. **Conduit box not supplied with motor.** See page 179 for optional conduit box and optional base kit.

See page 254 for cross reference data between LEESON and other gearmotors.

For additional information on LEESON gearmotors, see Bulletin 1830.

BODINE/DAYTON  
DIRECT INTERCHANGE

RIGHT-ANGLE DC • SCR RATED  
TENV • 1.0 SERVICE FACTOR

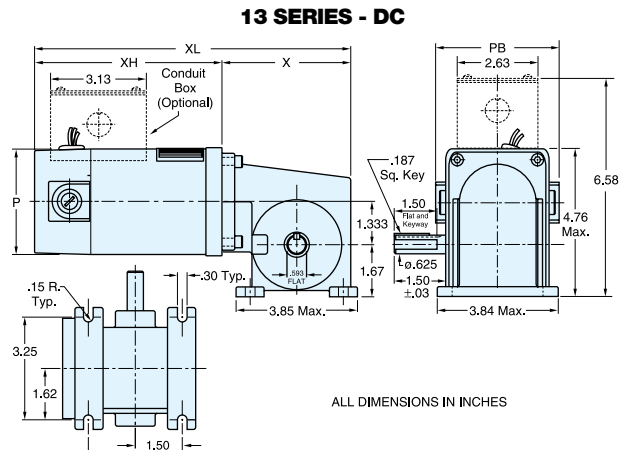
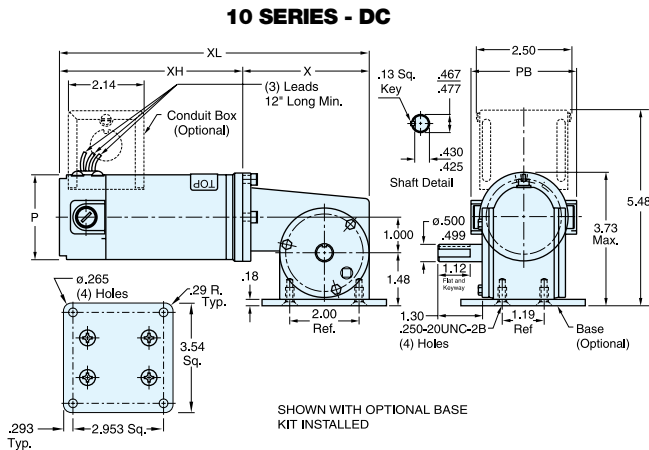
Output RPM	F.L. Torque (In.-Lbs.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm Volts DC	Full Load Amps. DC	Over-hung Load (Lbs.)	DIMENSIONS				
									P	PB	X Inches	XL	XH
42	22	1/17	M1115018.00	10F60-25D	60	90	1.00	185	2.50	3.00	3.60	8.79	5.19
62	19	1/17	M1115019.00	10F40-25D	40	90	1.00	185	2.50	3.00	3.60	8.79	5.19
125	16	1/17	M1115020.00	10F20-25D	20	90	1.00	185	2.50	3.00	3.60	8.79	5.19
250	10	1/17	M1115021.00	10F10-25D	10	90	1.00	185	2.50	3.00	3.60	8.79	5.19
500	5	1/17	M1115022.00	10F05-25D	5	90	1.00	185	2.50	3.00	3.60	8.79	5.19
42	30	1/12	M1135053.00	13F60-34A	60	180	0.53	235	3.38	4.00	4.50	9.64	5.14
62	35	1/12	M1135054.00 A	13F40-34A	40	180	0.53	235	3.38	4.00	4.50	9.64	5.14
125	18	1/12	M1135055.00	13F20-34A	20	180	0.53	235	3.38	4.00	4.50	9.64	5.14
250	10	1/12	M1135056.00 A	13F10-34A	10	180	0.53	235	3.38	4.00	4.50	9.64	5.14
500	5	1/12	M1135057.00 A	13F05-34A	5	180	0.53	235	3.38	4.00	4.50	9.64	5.14
42	80	1/8	M1135069.00	13F60-34C	60	90	1.40	235	3.38	4.00	4.50	10.64	6.14
62	70	1/8	M1135038.00	13F40-34C	40	90	1.40	235	3.38	4.00	4.50	10.64	6.14
62	70	1/8	M1135058.00	13F40-34C	40	180	0.70	235	3.38	4.00	4.50	10.64	6.14
125	45	1/8	M1135039.00	13F20-34C	20	90	1.40	235	3.38	4.00	4.50	10.64	6.14
125	45	1/8	M1135059.00	13F20-34C	20	180	0.70	235	3.38	4.00	4.50	10.64	6.14
250	25	1/8	M1135040.00	13F10-34C	10	90	1.40	235	3.38	4.00	4.50	10.64	6.14
250	25	1/8	M1135060.00	13F10-34C	10	180	0.70	235	3.38	4.00	4.50	10.64	6.14
500	13	1/8	M1135041.00	13F05-34C	5	90	1.40	235	3.38	4.00	4.50	10.64	6.14
500	13	1/8	M1135061.00 A	13F05-34C	5	180	0.70	235	3.38	4.00	4.50	10.64	6.14
62	135	1/4	M1135042.00	13F40-34G	40	90	2.30	235	3.38	4.00	4.50	12.64	8.14
62	135	1/4	M1135062.00	13F40-34G	40	180	1.30	235	3.38	4.00	4.50	12.64	8.14
83	125	1/4	M1135043.00	13F30-34G	30	90	2.30	235	3.38	4.00	4.50	12.64	8.14
83	125	1/4	M1135063.00	13F30-34G	30	180	1.30	235	3.38	4.00	4.50	12.64	8.14
125	90	1/4	M1135044.00	13F20-34G	20	90	2.30	235	3.38	4.00	4.50	12.64	8.14
125	90	1/4	M1135064.00	13F20-34G	20	180	1.30	235	3.38	4.00	4.50	12.64	8.14
250	50	1/4	M1135045.00	13F10-34G	10	90	2.30	235	3.38	4.00	4.50	12.64	8.14
250	50	1/4	M1135065.00	13F10-34G	10	180	1.30	235	3.38	4.00	4.50	12.64	8.14
500	30	1/4	M1135046.00	13F05-34G	5	90	2.30	235	3.38	4.00	4.50	12.64	8.14
500	30	1/4	M1135066.00	13F05-34G	5	180	1.30	235	3.38	4.00	4.50	12.64	8.14

GEARMOTORS

RIGHT-ANGLE DC • LOW VOLTAGE (12V)  
TENV • 1.0 SERVICE FACTOR

Output RPM	F.L. Torque (In.-Lbs.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm Volts DC	Full Load Amps. DC	Over-hung Load (Lbs.)	DIMENSIONS				
									P	PB	X Inches	XL	XH
42	80	1/8	M1135249.00 A	13F60-34	60	12	11.0	235	3.38	4.21	4.50	10.39	5.89
250	25	1/8	M1135250.00	13F10-34	10	12	11.0	235	3.38	4.21	4.50	10.39	5.89
62	135	1/4	M1135251.00	13F40-34	40	12	21.0	235	3.38	4.21	4.50	12.64	8.14
125	90	1/4	M1135252.00	13F20-34	20	12	21.0	235	3.38	4.21	4.50	12.64	8.14

A Subject to Availability.



Specifications are subject to change without notice

## SERIES 12 SUB-FHP

### Electrical Specifications:

Both SCR (90 volt) and Low Voltage (12 volt) right angle gearmotors. The 90 volt motors are performance matched for continuous service over a 60:1 speed range. All have

constant torque throughout the speed range when powered by a full-wave, unfiltered SCR-type 115 volt input adjustable speed control having a typical form factor of 1.3 to 1.4. The low voltage motors are also performance matched for continuous duty. Motors are designed for battery power or can be used with a low voltage controller with form factor up to 1.05.

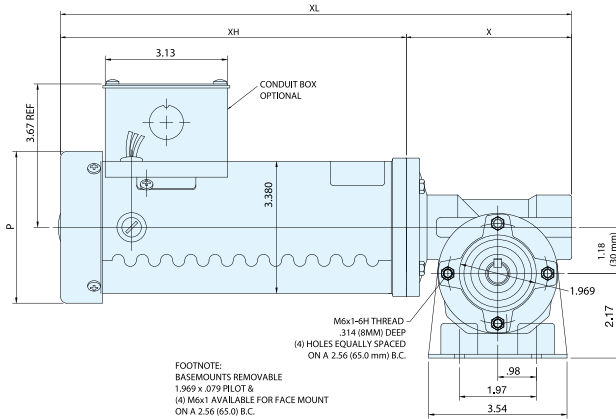


### Mechanical Specifications:

This worm-type right-angle gearing features hardened, steel worm with bronze worm wheel for long life and quiet operation. Single-piece die cast aluminum alloy housing is vacuum impregnated with Resinol RT for protection and sealing. This gearbox combines light weight

with high tensile strength along with being precision machined for alignment of bearings and gearing. For optimum seal life, we use high-temperature Nitrile seals. Gearbox provided with solid output shaft, but can be converted to a hollow output shaft mounting by using snap-ring pliers and remove the snap ring and solid output shaft. Also the T-base feet are bolted to the gearbox, but can easily be removed and converted to face mounting.

Conduit box not supplied with motor. See page 179.



### SCR 90 VOLT RATED DIMENSIONS (INCHES)

P	X	XL	XH	PB
3.38	4.32	11.07	6.75	4.00
3.38	4.32	11.07	6.75	4.00
3.88	4.32	13.16	8.84	3.76
3.88	4.32	13.16	8.84	3.76
3.88	4.32	13.16	8.84	3.76
3.88	4.32	13.16	8.84	3.76
3.88	4.32	13.16	8.84	3.76
3.88	4.32	13.16	8.84	3.76

### LOW VOLTAGE (12V) DIMENSIONS (INCHES)

P	X	XL	XH	PB
3.38	4.32	10.57	6.25	4.21
3.38	4.32	10.57	6.25	4.21
3.38	4.32	11.82	7.5	4.21
3.38	4.32	11.82	7.5	4.21
3.38	4.32	11.82	7.5	4.21
3.38	4.32	11.82	7.5	4.21
3.38	4.32	11.82	7.5	4.21
3.38	4.32	11.82	7.5	4.21

## RIGHT-ANGLE DC • SCR 90 VOLT RATED TEFC • 1.0 SERVICE FACTOR

Input HP	F.L. Torque (In.-Lbs.)	Output RPM	Catalog Number	Enclosure	Gearmotor Type & Frame	Ratio to 1	Full Arm Volts DC	Load Amps. DC
1/8*	125	28	M1135292.00	TENV	12B60-34D	61	90	1.6
1/8*	87	45	M1135291.00 A	TENV	12B39-34D	39	90	1.6
1/4	158	58	M1135290.00	TEFC	12B30-34G	30	90	2.8
1/4	100	90	M1135289.00	TEFC	12B19-34G	19	90	2.6
1/4	85	115	M1135288.00 A	TEFC	12B15-34G	15	90	2.6
1/4	61	167	M1135287.00	TEFC	12B11-34G	10.6	90	2.6
1/4	46	250	M1135286.00	TEFC	12B7-34G	7	90	2.6

\* Supplied with TENV motor enclosure

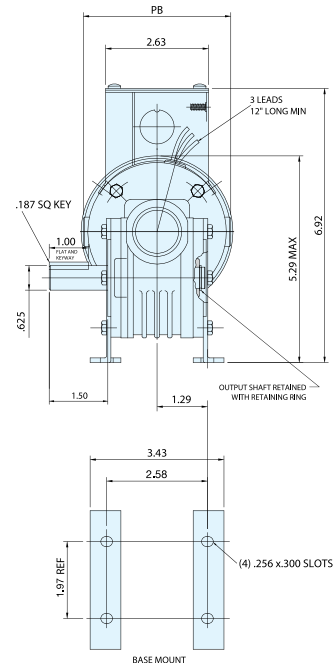
## RIGHT-ANGLE DC • LOW VOLTAGE (12V) TENV • 1.0 SERVICE FACTOR

Input HP	F.L. Torque (In.-Lbs.)	Output RPM	Catalog Number	Enclosure	Gearmotor Type & Frame	Ratio to 1	Arm Volts DC	Full Load Amps. DC
1/8	134	27	M1135285.00 A	TENV	12B60-34C	61	12	14
1/8	94	45	M1135284.00 A	TENV	12B39-34C	39	12	15
1/4	158	58	M1135297.00	TENV	12B30-34F	30	12	24
1/4	100	90	M1135296.00 A	TENV	12B19-34F	19	12	24
1/4	85	115	M1135295.00 A	TENV	12B15-34F	15	12	23
1/4	61	167	M1135294.00 A	TENV	12B11-34F	10.6	12	21
1/4	46	250	M1135293.00 A	TENV	12B7-34F	7	12	23

A Subject to Availability.

### NOTES:

- Conduit box not supplied with the gearmotor. Mounting provisions are provided and can use conduit box kit catalog number M1760007 found on page 179.
- For solid double output shaft, consult factory.



### General Specifications:

DC permanent magnet gearmotors rated for continuous duty. Designed for use with fullwave non-filtered SCR controls or battery supplied low voltage for adjustable speed applications requiring constant torque throughout the speed range.



### Mechanical Specifications:

Gearbox output shafts are coated with Mirolon 3300 fortified Teflon for superior corrosion resistance.

Frame, endshields, armature and interior components protected by enamel and polyester compounds for resistance to moisture, acids, alkalies and oil.

Cast conduit box with threaded conduit holes and Nitrile gaskets keep water out. The conduit box cover is made from 304 stainless steel.

For any condensation that may accumulate inside the motor, a one-way stainless steel vapor vent is provided. All hardware is stainless steel. Motor painted with white epoxy for superior corrosion resistance and protection. Machined fits between the endbells and motor frame are sealed with gaskets. Thru-bolt heads and nuts sealed with fiber washers. O-rings under each threaded brush cover.

Precision machined in-line steel gears, with a first stage steel helical gear followed by spur-type gears. Lubrication is permanent semi-fluid grease, reducing possibility of leakage. Output shafts have needle bearings for high load capacities.

### Application Notes:

LEESON WASHGUARD motors are designed for extended life in applications requiring regular washdown or otherwise wet environments. Washguard motors retard the entrance of water. Extra protection for the motor's interior prevents rust and corrosion build-up and releases trapped moisture to insure a longer life than possible with a standard motor.

These gearmotors are designed for mounting at any angle, but shaft up with motor below should be avoided to prevent leakage of lubricant into the motor should the shaft seal fail.

Overhung load capacities shown are at center of the output shaft.

The motor's stall torque exceeds recommended full load torques for the gearboxes. A current limiting device should be used to prevent damage to the gear sets.

## P300 SERIES • SCR RATED • 90V PARALLEL SHAFT • TENV • 1.0 SERVICE FACTOR

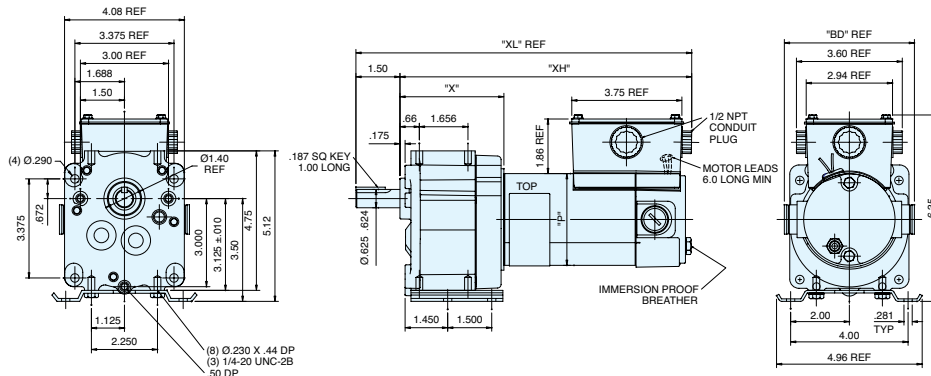
Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm. Volts DC	Full Load Amps DC	Overhung Load (Lbs.)	DIMENSIONS				
									P	PB	X Inches	XL	XH
5	353	1/20	M1125261.00	P303-31	336	90	.81	565	3.13	3.80	3.54	10.44	8.94
31	220	1/6	M1125262.00	P303-31	58	90	1.6	327	3.13	3.80	3.54	11.94	10.44
51	130	1/6	M1125263.00	P302-31	35	90	1.6	277	3.13	3.80	3.54	11.94	10.44
94	77	1/6	M1125264.00	P302-31	19	90	1.6	236	3.13	3.80	3.54	11.94	10.44
167	43	1/6	M1125265.00	P302-31	11	90	1.6	197	3.13	3.80	3.54	11.94	10.44

## P300 SERIES • LOW VOLTAGE (12V) PARALLEL SHAFT • TENV • 1.0 SERVICE FACTOR

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm. Volts DC	Full Load Amps DC	Overhung Load (Lbs.)	DIMENSIONS				
									P	PB	X Inches	XL	XH
5	353	1/20	M1125266.00	P303-31	336	12	6.4	565	3.13	3.80	3.54	10.44	8.94
31	220	1/6	M1125267.00	P303-31	58	12	11.0	327	3.13	4.43	3.54	11.44	9.94



White Duck





# IP55 WASHGUARD GEARMOTORS

## PARALLEL SHAFT

### General Specifications:

DC permanent magnet gearmotors rated for continuous duty. Designed for use with fullwave non-filtered SCR controls or battery supplied low voltage for adjustable speed applications requiring constant torque throughout the speed range.



### Mechanical Specifications:

Gearbox output shafts are coated with Miroton 3300 fortified Teflon for superior corrosion resistance.

Frame, endshields, armature and interior components protected by enamel and polyester compounds for resistance to moisture, acids, alkalis and oil.

Cast conduit box with threaded conduit holes and Nitrile gaskets keep water out. The conduit box cover is made from 304 stainless steel.

For any condensation that may accumulate inside the motor, a one-way stainless steel vapor vent is provided. All hardware is stainless steel. Motor painted with white epoxy for superior corrosion resistance and protection. Machined fits between the endbells and motor frame are sealed with gaskets. Thru-bolt heads and nuts sealed with fiber washers. O-rings under each threaded brush cover.

Precision machined in-line steel gears, with a first stage steel helical gear followed by spur-type gears. Lubrication is permanent semi-fluid grease, reducing possibility of leakage. Output shafts have needle bearings for high load capacities.

### Application Notes:

LEESON WASHGUARD motors are designed for extended life in applications requiring regular washdown or otherwise wet environments. WASHGUARD motors retard the entrance of water.

Extra protection for the motor's interior prevents rust and corrosion build-up and releases trapped moisture to insure a longer life than possible with a standard motor.

These gearmotors are designed for mounting at any angle, but shaft up with motor below should be avoided to prevent leakage of lubricant into the motor should the shaft seal fail.

Overhung load capacities shown are at center of the output shaft.

The motor's stall torque exceeds recommended full load torques for the gearboxes. A current limiting device should be used to prevent damage to the gear sets.

### PE350 SERIES PARALLEL SHAFT

#### TENV • 1.0 SERVICE FACTOR • SCR RATED 90V

Output RPM	F.L. Torque (Lb.in.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm Volts DC	Full Load Amps DC	Overhung Load (Lbs.)	DIMENSIONS				
									P	PB	X Inches	XL	XH
14	341	1/8	<b>M1125268.00</b>	P353-31	180	90	1.5	465	3.13	3.80	3.45	11.84	9.84
42	280	1/4	<b>M1125269.00</b>	P353-32	58	90	2.6	327	3.25	3.80	3.45	13.84	11.84
83	155	1/4	<b>M1125270.00</b>	P353-32	29	90	2.6	267	3.25	3.80	3.45	13.84	11.84
250	45	1/4	<b>M1125271.00</b>	P352-32	10	90	2.6	201	3.25	3.80	3.45	13.84	11.84
500	25	1/4	<b>M1125272.00</b>	P352-32	5	90	2.6	194	3.25	3.80	3.45	13.84	11.84

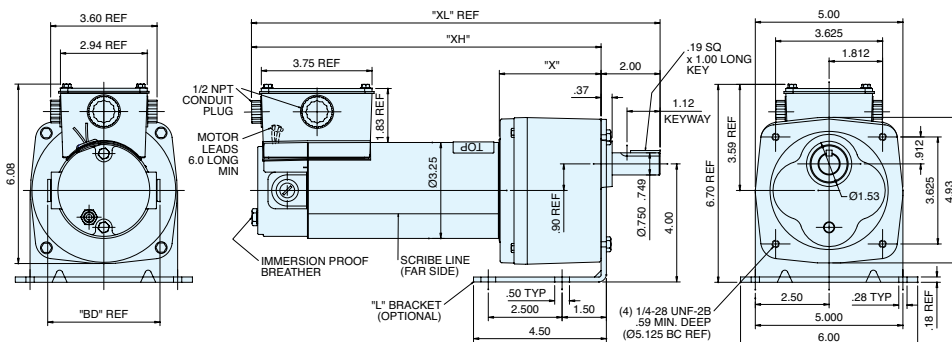
### PE350 SERIES PARALLEL SHAFT

#### TENV • 1.0 SERVICE FACTOR • LOW VOLTAGE 12V

Output RPM	F.L. Torque (Lb.in.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm Volts DC	Full Load Amps DC	Overhung Load (Lbs.)	DIMENSIONS				
									P	PB	X Inches	XL	XH
14	341	1/8	<b>M1125273.00</b>	P353-31	180	12	12	465	3.13	4.43	3.45	11.58	9.58
42	325	1/4	<b>M1125274.00</b>	P353-32	58	12	20	327	3.25	4.43	3.45	13.84	11.84



**White Duck**



# IP55 WASHGUARD GEARMOTORS

## RIGHT ANGLE



### General Specifications:

DC permanent magnet gearmotors rated for continuous duty. Designed for use with fullwave non-filtered SCR controls or battery supplied low voltage for adjustable speed applications requiring constant torque throughout the speed range.



### Mechanical Specifications:

Gearbox output shafts are 303 stainless steel.

Frame, endshields, armature and interior components protected by enamel and polyester compounds for resistance to moisture, acids, alkalis and oil.

Cast conduit box with threaded conduit holes and Nitrile gaskets keep water out. The conduit box cover is made from 304 stainless steel.

For any condensation that may accumulate inside the motor, a one-way stainless steel vapor vent is provided. All hardware is stainless steel. Motor painted with white epoxy for superior corrosion resistance and protection.

Machined fits between the endbells and motor frame are sealed with gaskets. Thru-bolt heads and nuts sealed with fiber washers. O-rings under each threaded brush cover.

This worm-type right-angle gearing features hardened, steel worm with bronze worm wheel for long life and quiet operation. Precision machined aluminum housings are used. Gearbox has all ball bearings. The housing is sealed and lubrication is permanent with an oil bath.

### Application Notes:

LEESON WASHGUARD motors are designed for extended life in applications requiring regular washdown or otherwise wet environments. WASHGUARD motors retard the entrance of water.

Extra protection for the motor's interior prevents rust and corrosion build-up and releases trapped moisture to insure a longer life than possible with a standard motor.

For optimum seal life, these right-angle gearmotors have a lubrication breather positioned for horizontal mounting. For other mountings, the breather plug must be reoriented by using a 90 1/8 NPT taper pipe elbow. See page 169 or 178 for diagram.

Overhung load capacities shown are at center of the output shaft.

The motor's stall torque exceeds recommended full load torques for the gearboxes. A current limiting device should be used to prevent damage to the gear sets.

### RIGHT ANGLE • SCR RATED 90V TENV • 1.0 SERVICE FACTOR

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm Volts DC	Full Load Amps DC	Over-hung Load (Lbs.)	DIMENSIONS				
									P	PB	X Inches	XL	XH
42	80	1/8	M1125275.00	13F60-31	60	90	2.2	235	3.13	3.80	4.50	10.86	6.36
250	25	1/8	M1125276.00	13F10-31	10	90	2.2	235	3.13	3.80	4.50	10.86	6.36
62	135	1/4	M1125277.00	13F40-32	40	90	3.7	235	3.25	3.80	4.50	12.86	8.36
125	90	1/4	M1125278.00	13F20-32	20	90	3.7	235	3.25	3.80	4.50	12.86	8.36
250	50	1/4	M1125279.00	13F10-32	10	90	3.7	235	3.25	3.80	4.50	12.86	8.36

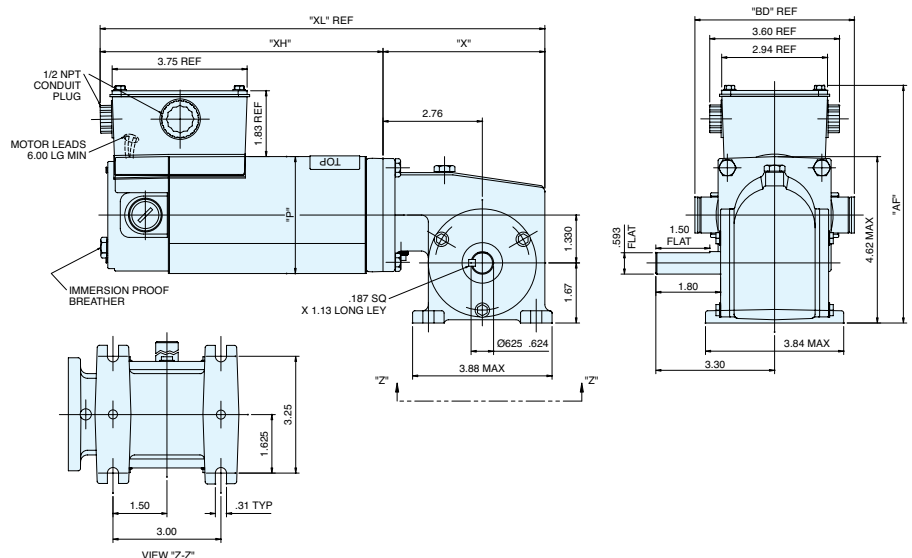
### RIGHT ANGLE • LOW VOLTAGE 12V TENV • 1.0 SERVICE FACTOR

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	Arm Volts DC	Full Load Amps DC	Over-hung Load (Lbs.)	DIMENSIONS				
									P	PB	X Inches	XL	XH
62	135	1/4	M1125280.00	13F40-32	40	12	28	235	3.25	4.43	4.50	12.36	7.86
125	90	1/4	M1125281.00	13F20-32	20	12	28	235	3.25	4.43	4.50	12.36	7.86



White Duck

### 13 SERIES - DC





# SUB-FHP AC GEARMOTORS

## PARALLEL SHAFT GEARMOTORS

### 12-100 In-Lbs Output Torque



#### Design Specifications:

Single phase gearmotors, totally enclosed for continuous duty, general purpose applications.

Permanent split capacitor designs are rated for 115 VAC 60 hertz input, and have starting torques equal to the running torques. The inline gearing is of precision machined steel, with first stage steel helical gear followed by spur type gears. Lubrication is by semi-fluid grease, reducing possibility of leakage and providing permanent lubrication. Output shafts have needle bearings for high load capacities. Shafts are hardened steel.

#### Application Notes:

These gearmotors are designed for mounting at any angle, but shaft up with motor below should be avoided to prevent leakage of lubricant into the motor should the motor's shaft seal fail. If these gearmotors are stalled, gearhead damage may result, especially in the ratios of 60:1 and higher. Provisions to limit the torque are recommended. The torque values listed are the recommended full load torque values for reasonable gear life.

Overhung load capacities shown are at center of output shaft. All PZ Series gearmotors are supplied with continuous duty "run" capacitor. **Conduit box not supplied with motor.** See page 179 for optional conduit box.

Model PZ gearmotors have the same mounting dimensions as Bodine model D and Z gearmotors, Bison 100 gearmotors, and Baldor/Boehm PSS, plus many of the Dayton gearmotors.

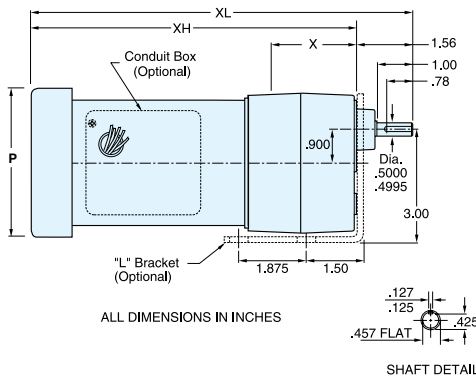
For additional information, see Bulletin 1830.

### PZ SERIES AC GEARMOTORS PARALLEL SHAFT • TEFC • 115V • SINGLE PHASE 40°C AMBIENT • 1.0 SERVICE FACTOR

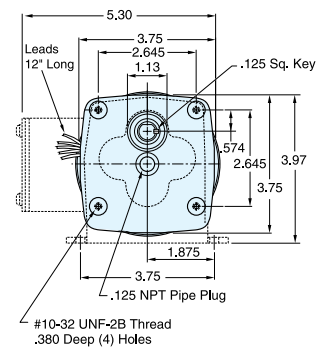
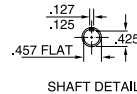
Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	F.L. Amps 115 VAC	Overhung Load (Lb.)	DIMENSIONS				Capacitor Mfd. 240 VAC
								P	X	XL	XH	
2	100	1/150	<b>M1125050.00'</b>	PZ5-31	900	0.4	155	3.07	3.23	8.71	7.15	3.0
9	100	1/15	<b>M1125127.00</b>	PZ4-31	180	0.9	155	3.88	3.23	10.42	8.86	10.0
19	100	1/15	<b>M1125128.00</b>	PZ4-31	90	0.9	155	3.88	3.23	10.42	8.86	10.0
28	100	1/15	<b>M1125129.00</b>	PZ3-31	60	0.9	155	3.88	2.43	9.62	8.06	10.0
57	56	1/15	<b>M1125130.00</b>	PZ3-31	30	0.9	171	3.88	2.43	9.62	8.06	10.0
94	36	1/15	<b>M1125131.00</b>	PZ3-31	18	0.9	171	3.88	2.43	9.62	8.06	10.0
142	24	1/15	<b>M1125132.00</b>	PZ2-31	12	0.9	180	3.88	2.13	9.32	7.76	10.0
283	12	1/15	<b>M1125133.00</b>	PZ2-31	6	0.9	180	3.88	2.13	9.32	7.76	10.0

# TENV enclosure

#### PZ SERIES - AC



ALL DIMENSIONS IN INCHES



## BODINE/BISON/DAYTON DIRECT INTERCHANGE

#### QUICK REFERENCE

GEARMOTOR CROSS REFERENCE	Page 254
"L" BRACKET AND CONDUIT BOX	179

**43-391 In-Lbs Output Torque**



**Design Specifications:**

Single phase gearmotors, totally enclosed for continuous duty, general purpose applications. Permanent split capacitor designs are rated for 115/230VAC, 60/50 Hertz input, and have starting torques equal to the running torques. The in-line gearing is of precision machined steel, with first stage steel helical gear followed by spur type gears. Lubrication is by semi-fluid grease, reducing possibility of leakage and providing permanent lubrication. Output shafts have needle bearings for high load capacities. Shafts are hardened steel.

**Application Notes:**

These gearmotors are designed for mounting at any angle, but shaft up with motor below should be avoided to prevent leakage of lubricant into the motor should the motor's shaft seal fail. If these gearmotors are stalled, gearhead damage may result, especially in the ratios of 60:1 and higher. Provisions to limit the torque are recommended. The torque values listed are the recommended full load torque values for reasonable gear life. Overhung load capacities shown are at center of output shaft. All P240 gearmotors are supplied with continuous duty "run" capacitor. **Conduit box not supplied with motor.** See page 179 for optional conduit box.

Model P240 gearmotors have the same mounting dimensions as Bison's 224 and 242 gearmotors and many Dayton gearmotors.

For additional information, see Bulletin 1830.

Please contact LEESON for output speeds not listed.

**BISON/DAYTON  
DIRECT INTERCHANGE**

**IP55 AC Washguard Gearmotors Parallel Shaft**



**Design Specifications:**

Single and Three-phase washdown duty gearmotors rated for continuous duty applications. Permanent split designed single-phase motors include capacitor in conduit box. Motors are designed for extended life in applications requiring regular washdown or otherwise wet environments. Avoid shaft up applications, with motor below, should shaft seal fail.

**Features include:**

- 304 Stainless steel external shafts
- White epoxy painted motors
- O-rings and gaskets used for sealing
- Hardened Worm-type gearing used
- Interior components protected against corrosion
- Ball bearings used in gear housing
- Sealed output shafts
- Output shafts have needle bearings for high load capacities
- UL listed and CSA certified

**P240 SERIES AC GEARMOTORS**  
PARALLEL SHAFT • TOTALLY ENCLOSED • 115/230V  
SINGLE PHASE • 40°C AMBIENT • 1.0 SERVICE FACTOR

60 Hz Output RPM	F.L. Torque (Lb.in.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	F.L. Amps 115V AC	Overhung Load (Lb.)	DIMENSIONS				Capacitor Mfd. 240 VAC
								P	X	XL	XH	
8	345	1/15	M1145029.00	P243-38D	216	1.0	491	3.85	3.50	10.46	8.96	7.5
15	250	1/15	M1145023.00	P243-38D	114	1.0	407	3.85	3.50	10.46	8.96	7.5
16	391	1/6	M1145030.00**	P243-38F	103	2.1	399	4.43	3.50	12.13	10.63	15.0
30	135	1/15	M1145024.00	P242-38D	52	1.0	330	3.85	3.50	10.46	8.96	7.5
30	295	1/6	M1145031.00**	P243-38F	58	2.1	330	4.43	3.50	12.13	10.63	15.0
40	219	1/6	M1145032.00**	P243-38F	43	2.1	303	4.43	3.50	12.13	10.63	15.0
45	92	1/15	M1145025.00	P242-38D	35	1.0	292	3.85	3.50	10.46	8.96	7.5
60	157	1/6	M1145033.00**	P242-38D	29	2.1	268	4.43	3.50	12.13	10.63	15.0
70	61	1/15	M1145026.00	P242-38D	23	1.0	256	3.85	3.50	10.46	8.96	7.5
90	103	1/6	M1145034.00**	P242-38D	19	2.1	237	4.43	3.50	12.13	10.63	15.0
97	43	1/15	M1145027.00	P242-38D	16.5	1.0	232	3.85	3.50	10.46	8.96	7.5
139	30	1/15	M1145028.00	P242-38D	11.5	1.0	208	3.85	3.50	10.46	8.96	7.5
156	60	1/6	M1145035.00**	P242-38D	10.6	2.1	201	4.43	3.50	12.13	10.63	15.0

\*\* TEFC enclosure.

GEARMOTORS

**P240 SERIES AC WASHDOWN DUTY GEARMOTORS**

RPM	F.L. TORQUE (Lb.in.)	INPUT HP	CATALOG NUMBER	GEARMOTOR TYPE & FRAME	RATIO TO 1	VOLTAGE	PHASE
16	391	5/32	M1145138.00	P240	103	115/230	1
40	219	5/32	M1145139.00	P240	43	115/230	1
156	60	5/32	M1145140.00	P240	10.6	115/230	1
16	391	1/6	M1145144.00	P240	103	230	3
30	295	1/6	M1145145.00	P240	58	230	3



**White Duck**



# SUB-FHP AC GEARMOTORS

## PARALLEL SHAFT GEARMOTORS

### 25-341 In-Lbs Output Torque

#### Design Specifications:

Sub-FHP AC gearmotors. Totally enclosed for continuous duty, general purpose applications. All rated for 60/50 Hz operation except hi-torque single-phase which are 60 Hz only.

Gearbox has rugged aluminum die cast housing, for maximum gear and bearing support. Precision machined gearing, hardened for maximum load capability. All gearing designed and rated to AGMA Class 9 standards and to withstand momentary shock overload of 200%. Oversized output bearings for greater overhung load capacity and longer life. High-carbon alloy output shaft provides maximum strength and rigidity. All needle bearing journals are precision-ground after heat treating, to provide maximum finish and fit. Single lip, spring loaded, heavy-duty industrial oil seals help keep lubricant in and dirt out. Gears and bearings are splash lubricated with permanent, heavy-duty gear oil.

#### Application Notes:

These gearmotors are designed for mounting at any angle, but shaft-up with motor below gearhead is not recommended.

Run capacitor supplied with gearmotor at no additional cost. **Three phase and hi-torque single-phase models include conduit box, other single-phase models do not.** See page 179 for optional conduit box.

Overhung load capacities shown are at center of output shaft.

Model PE350 gearmotors have the same mounting dimensions as Bodine's "E" box and many Baldor/Boehm gearmotors.



### PE350 SERIES AC GEARMOTORS SINGLE PHASE • PARALLEL SHAFT • TEFC • 115/230V

60 Hz Output RPM	F.L.F.L. Torque (Lb.In.)	Input HP	Catalog Number	Type & Frame	Ratio to 1	Amps 115V AC	Overhung Load Lbs.	DIMENSIONS XL XH Inches		Capacitor Mfd. 240VAC
5	310	1/12	096000.00'	PE353-42	336	1.3	565	11.36	9.36	10.0
9	341	1/12	096001.00'	PE353-42	180	1.3	491	11.36	9.36	10.0
14	330	1/12	096002.00'	PE353-42	124	1.3	459	11.36	9.36	10.0
19	250	1/12	096003.00'	PE353-42	91	1.3	374	11.36	9.36	10.0
29	270	1/6	096004.00	PE353-42	58	3.2	327	13.32	11.32	15.0
34	250	1/6	096005.00	PE353-42	50	3.2	330	13.32	11.32	15.0
40	180	1/6	096006.00 A	PE353-42	43	3.2	303	13.32	11.32	15.0
59	135	1/6	096007.00 A	PE352-42	29	3.2	267	13.32	11.32	15.0
75	90	1/6	096008.00	PE352-42	23	3.2	256	13.32	11.32	15.0
113	68	1/6	096009.00	PE352-42	15	3.2	222	13.32	11.32	15.0
160	45	1/6	096010.00 A	PE352-42	10	3.2	196	13.32	11.32	15.0
340	25	1/6	096011.00	PE352-42	5	3.2	190	13.32	11.32	15.0

#### Hi-Torque Single Phase PE350 Gearmotors With Capacitor Start Motors

58	320	1/3	096049.00	PE353-42	30	7.2	300	14.56	12.56	...
85	218	1/3	096050.00	PE353-42	20	7.2	300	14.56	12.56	...
173	109	1/3	096051.00	PE353-42	10	7.2	300	14.56	12.56	...
345	55	1/3	096052.00 A	PE353-42	5	7.2	300	14.56	12.56	...

# TENV enclosure

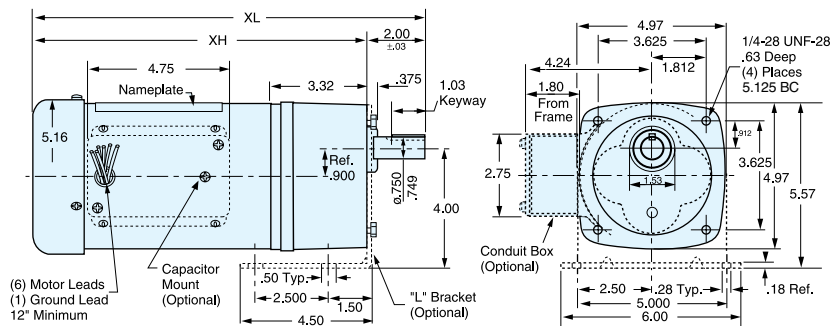
### PE350 SERIES AC GEARMOTORS THREE PHASE • PARALLEL SHAFT • TEFC • 230/460V

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Type & Frame	Ratio to 1	F.L. Amps 230V AC	Overhung Load Lbs.	DIMENSIONS XL XH Inches	
58	320	1/3	096013.00	PE353-42	30	1.6	300	13.81	11.81
85	218	1/3	096014.00	PE352-42	20	1.6	300	13.81	11.81
173	109	1/3	096015.00	PE352-42	10	1.6	300	13.81	11.81
345	55	1/3	096016.00	PE352-42	5	1.6	300	13.81	11.81

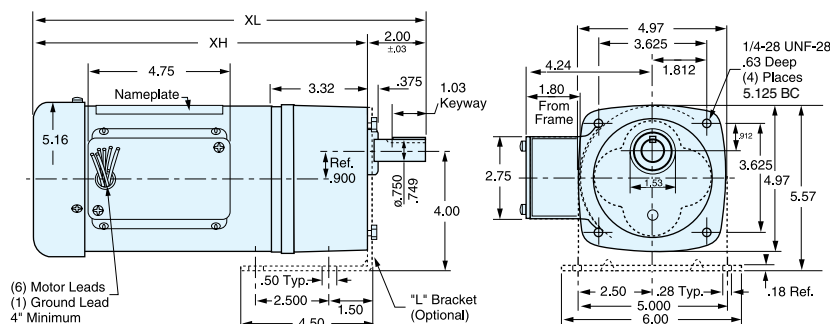
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**BODINE  
DIRECT  
INTERCHANGE**

#### PE350 SINGLE PHASE



#### PE350 THREE PHASE



ALL DIMENSIONS IN INCHES

Specifications are subject to change without notice



**70-1105 In-Lbs  
Output Torque**

**Design Specifications:**

Fractional horsepower AC gearmotors. Totally enclosed for continuous duty, general purpose applications. Rated for 60 Hz input.



Gearbox has rugged aluminum die cast housing, for maximum gear and bearing support. Precision machined gearing, hardened for maximum load capability. All gearing designed and rated to AGMA Class 9 standards and to withstand momentary shock overload of 200%. Oversized output bearings for greater overhung load capacity and longer life. High-carbon alloy output shaft provides maximum strength and rigidity. All needle bearing journals are precision-ground after heat treating, to provide maximum finish and fit. Heavy-duty industrial oil seals help keep lubricant in and dirt out. Gears and bearings are splash lubricated with permanent, heavy-duty gear oil.

**Application Notes:**

These gearmotors are designed for mounting at any angle, but shaft-up with motor below gearhead is not recommended. P1100 AC gearmotors have the same mounting dimensions as Bison 482 gearmotors and many Dayton gearmotors.

Three phase units suitable for inverter duty.

**Both single and three phase models include conduit box.**

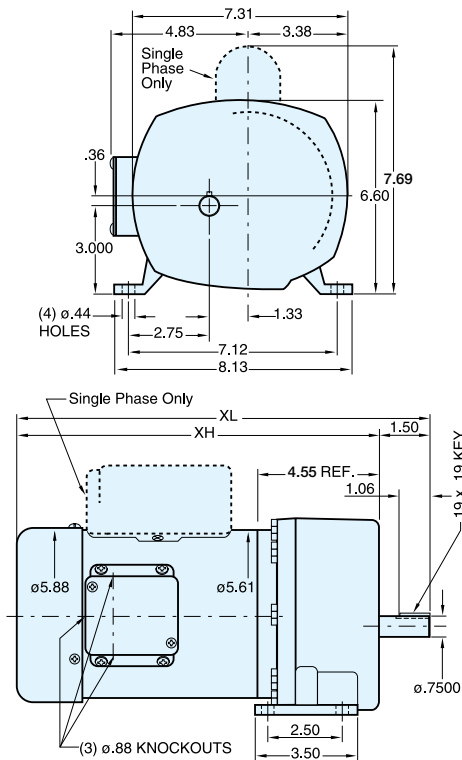
For additional information, see Bulletin 1830.

**P1100 SERIES AC GEARMOTORS**  
SINGLE PHASE • FRACTIONAL HP • TEFC • 115/230V

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Type & Frame	Ratio to 1	F.L. Amps 115V AC	Overhung Load Lbs.	DIMENSIONS Inches	
								XL	XH
8	975	¼	107000.00	P1103-48	212	5.4	700	13.42	11.92
12	1030	¼	107004.00	P1103-48	143	5.4	700	13.42	11.92
18	800	¼	107003.00	P1103-48	95	5.4	700	13.42	11.92
26	569	¼	107002.00	P1103-48	66	5.4	650	13.42	11.92
59	248	¼	107005.00	P1102-48	29	5.4	625	13.42	11.92
133	114	¼	107001.00	P1102-48	13	5.4	525	13.42	11.92
18	1089	⅓	107006.00	P1103-48	95	6.2	700	13.67	13.17
26	752	⅓	107012.00	P1103-48	66	6.2	650	13.67	13.17
41	461	⅓	107011.00	P1102-48	42	6.2	650	13.67	13.17
59	330	⅓	107010.00	P1102-48	29	6.2	625	13.67	13.17
91	224	⅓	107009.00	P1102-48	19	6.2	575	13.67	13.17
157	125	⅓	107008.00	P1102-48	11	6.2	500	13.67	13.17
288	70	⅓	107007.00	P1102-48	6	6.2	400	13.67	13.17
22	1105	½	107013.00	P1103-48	79	8.8	700	14.17	12.67
41	700	½	107017.00	P1102-48	42	8.8	650	14.17	12.67
59	496	½	107016.00	P1102-48	29	8.8	625	14.17	12.67
91	336	½	107015.00	P1102-48	19	8.8	575	14.17	12.67
133	229	½	107014.00	P1102-48	13	8.8	525	14.17	12.67

GEARMOTORS

**BISON/DAYTON  
DIRECT INTERCHANGE**



ALL DIMENSIONS IN INCHES

**P1100 SERIES AC GEARMOTORS**  
THREE PHASE • FRACTIONAL HP • TEFC • 230/460V

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Type & Frame	Ratio to 1	F.L. Amps 230V AC	Overhung Load Lbs.	DIMENSIONS Inches	
								XL	XH
18	1089	⅓	107025.00	P1103-48	95	1.6	700	12.92	11.42
26	752	⅓	107026.00	P1103-48	66	1.6	650	12.92	11.42
41	461	⅓	107027.00	P1102-48	42	1.6	650	12.92	11.42
59	330	⅓	107028.00	P1102-48	29	1.6	625	12.92	11.42
91	224	⅓	107029.00	P1102-48	19	1.6	575	12.92	11.42
157	125	⅓	107030.00	P1102-48	11	1.6	500	12.92	11.42
288	70	⅓	107031.00	P1102-48	6	1.6	400	12.92	11.42
22	1105	½	107032.00	P1103-48	79	2.0	700	13.42	11.92
41	700	½	107033.00	P1102-48	42	2.0	650	13.42	11.92
59	496	½	107034.00	P1102-48	29	2.0	625	13.42	11.92
91	336	½	107035.00	P1102-48	19	2.0	575	13.42	11.92
133	229	½	107036.00	P1102-48	13	2.0	500	13.42	11.92
288	100	½	107037.00	P1102-48	6	2.0	400	13.42	11.92



## SUB-FHP AC GEARMOTORS RIGHT-ANGLE SHAFT GEARMOTORS

### 14-113 In-Lbs Output Torque



#### Design Specifications:

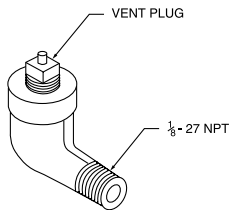
Single phase gearmotors, totally enclosed for continuous duty, general purpose applications. Permanent split capacitor motors rated 115/230 VAC 60/50 hertz input, and have starting torque equal to the running torque.

This worm-type right-angle gearing features hardened, steel worm with bronze worm wheel for long life and quiet operation. Precision machined aluminum housings are used. Gearbox has all ball bearings. The housing is sealed and lubrication is permanent with an oil bath. The output shaft is field interchangeable from left hand style to right hand style.

#### Application Notes:

For optimum seal life, these right angle gearmotors have a lubrication breather positioned for horizontal mounting. For other mountings, the breather-plug must be reoriented by using a 90/8" NPT taper pipe elbow (see drawing). However, the motor portion of the gearmotor should never be mounted below the gearhead.

Overhung load capacities shown are at center of output shaft. These motors are supplied with continuous duty "run" capacity. **Conduit box not supplied with motor.** See page 179 for optional conduit box and base kit.



Please contact LEESON for output speeds not listed.  
For additional information, see Bulletin 1830.

## BODINE/DAYTON DIRECT INTERCHANGE

### IP55 AC Washguard Gearmotors Right Angle

#### Design Specifications:

Single and Three-phase washdown duty gearmotors rated for continuous duty applications. Permanent split designed single-phase motors include capacitor in conduit box. Motors are designed for extended life in applications requiring regular washdown or otherwise wet environments. Avoid shaft up applications, with motor below, should shaft seal fail.



#### Features include:

- 304 Stainless steel external shafts
- White epoxy painted motors
- O-rings and gaskets used for sealing
- Hardened Worm-type gearing used
- Interior components protected against corrosion
- Ball bearings used in gear housing
- Sealed output shafts
- Output shafts have needle bearings for high load capacities
- UL listed and CSA certified

## RIGHT-ANGLE AC GEARMOTORS TOTALLY ENCLOSED • 115/230 V • SINGLE PHASE

60 Hz Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	F.L. Amps 115V AC	Over-hung Load (Lb.)	DIMENSIONS				Capacitor Mfd.
								P Dia.	X Inches	XL Inches	XH	
28	37	1/15	M1125080.00	10F60-31C	60	0.9	185	3.07	3.63	8.94	5.31	10.0+
43	34	1/15	M1125081.00	10F40-31C	40	0.9	185	3.07	3.63	8.94	5.31	10.0+
58	40	1/15	M1125082.00	10F30-31C	30	0.9	185	3.07	3.63	8.94	5.31	10.0+
85	24	1/15	M1125083.00	10F20-31C	20	0.9	185	3.07	3.63	8.94	5.31	10.0+
173	14	1/15	M1125084.00	10F10-31C	10	0.9	185	3.07	3.63	8.94	5.31	10.0+
29	110	1/6	M1145037.00**	13F60-38F	60	2.0	235	3.85	4.50	12.31	7.81	15.0*
43	113	1/6	M1145038.00**	13F40-38F	40	2.0	235	3.85	4.50	12.31	7.81	15.0*
57	95	1/6	M1145082.00**	13F30-38F	30	2.0	235	3.85	4.50	12.31	7.81	15.0*
83	75	1/6	M1145039.00**	13F20-38F	20	2.0	235	3.85	4.50	12.31	7.81	15.0*
170	43	1/6	M1145040.00**	13F10-38F	10	2.0	235	3.85	4.50	12.31	7.81	15.0*
340	23	1/6	M1145041.00**	13F05-38F	5	2.0	235	3.85	4.50	12.31	7.81	15.0*

\*\* TEFC enclosure.

+ 250 VAC

\* 300 VAC

## RIGHT ANGLE SERIES AC WASHDOWN DUTY GEARMOTORS

RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type	Ratio to 1	Voltage	Phase
43	113	3/8	M1145141.00	RIGHT-ANGLE	40	115/230	1
83	75	3/8	M1145142.00	RIGHT-ANGLE	20	115/230	1
340	23	3/8	M1145143.00	RIGHT-ANGLE	5	115/230	1
29	220	3/8	M1145146.00	RIGHT-ANGLE	60	230	3
172	105	3/8	M1145147.00	RIGHT-ANGLE	10	230	3



White Duck

Specifications are subject to change without notice

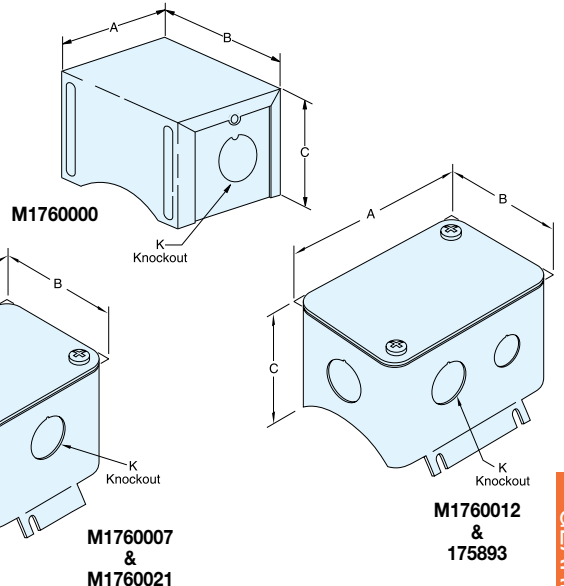


**SUB-FHP GEARMOTOR CONDUIT BOXES**

Optional steel conduit or junction boxes are available. The boxes are painted and mount in holes using screws provided with all stock gearmotors.

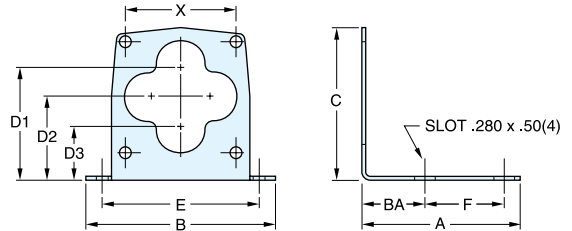
Catalog Number	For Motor Frames	DIMENSIONS (Inches)			
		A	B	C	K
<b>M1760000.00*</b>	25	2.09	2.45	2.23	0.875
<b>M1760021.00*</b>	30/31	3.13	2.63	2.28	0.875
<b>M1760007.00</b>	34	3.13	2.63	2.28	0.875
<b>M1760012.00</b>	38	4.75	2.75	2.00	1.125
<b>175893.00</b>	42	4.75	2.75	2.00	1.125

**Note:** \* For any gearmotor catalog number beginning with M1115XXX, must clarify from gearmotor type and frame columns as listed on catalog pages 164, 165 and 169. For example, if gearmotor type and frame lists P303-30E, then use 30 frame conduit box kit M1760021. If gearmotor type and frame lists 10F60-25, then use conduit box kit M1760000.



**SUB-FHP GEARMOTOR "L" MOUNTING BRACKET**

Optional "L" brackets can be used to mount parallel shaft type PZ or PE350 gearmotors. Of steel construction, they are painted and include screws for mounting to the motor, but not the application.



Catalog Number	For Motors	A	B	C	DIMENSIONS (Inches)						
					D <sup>1</sup>	D <sup>2</sup>	D <sup>3</sup>	X	BA	F	E
<b>M1760003.00*</b>	PZ Gearmotors	3.75	4.50	3.935	3.00	2.25	1.50	2.645	1.50	1.875	3.75
<b>M1760011.00**</b>	PE350 Gearmotors	4.50	6.00	5.520	4.00	3.10	2.20	3.625	1.50	2.500	5.00
<b>M1760029.00Δ</b>	PE350 Gearmotors	4.50	6.00	5.520	4.00	3.10	2.20	3.625	1.50	2.500	5.00

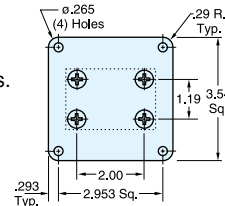
\* Maximum radial load no greater than 50 lbs. This bracket can also be used on DC motors in the 34 frame having the style C mounting.  
 \*\* Maximum radial load no greater than 200 lbs.  
 Δ Washguard PE350 L-Bracket



**SUB-FHP GEARMOTOR RIGHT-ANGLE BASE KIT**

This Optional Base Kit can be used with the 10 Series right-angle gearmotors. (Includes screws for mounting to gearbox, but not the application.)

Catalog Number
<b>M1760006</b>



**CAPACITORS FOR SUB-FHP RIGHT-ANGLE AC GEARMOTORS**

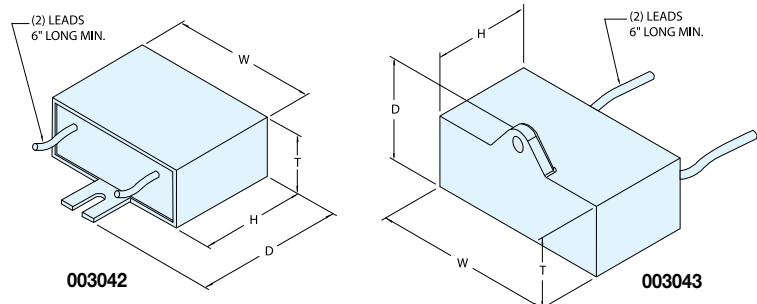
MFD Rating	Voltage Rating	Catalog Number	W	DIMENSIONS (Inches)		
				H	T	D
10.0	250	<b>003043.05</b>	1.89	1.14	0.75	1.14
15.0	300	<b>003042.05</b>	2.28	1.61	1.14	2.48

**CAPACITORS FOR SUB-FHP AC PZ SERIES GEARMOTORS**

MFD Rating	Voltage Rating	Catalog Number	W	DIMENSIONS (Inches)		
				H	T	D
3.0	250	<b>003043.01</b>	1.22	0.93	0.57	0.97
10.0	250	<b>003043.05</b>	1.89	1.14	0.75	1.14

**CAPACITORS FOR SUB-FHP P240 & PE350 AC GEARMOTORS**

Gearmotor Type	MFD Rating	Voltage Rating	Catalog Number	W	DIMENSIONS (Inches)			
					H	T	D	
P240	7.5	250	<b>003042.02</b>	1.89	1.14	0.75	2.01	
PE350	10.0	250	<b>003042.06</b>	1.89	1.24	0.89	2.11	
P240	15.0	300	<b>003042.05</b>	2.28	1.61	1.14	2.48	
PE350	15.0	250	<b>003042.04</b>	2.28	1.46	0.93	2.33	



### Design Specifications:

Three phase motors totally enclosed for continuous duty, general purpose applications.



Standard on all these ratings is the exclusive Inverter

Rated Insulation System (IRIS). This provides superior protection against voltage spikes induced by variable frequency drives.

Many superior mechanical features for both the motor and gearbox. Double shielded ball bearings in the motor. Needle bearings in the parallel shaft gearboxes and ball bearings in the Right angle (worm) gearboxes. Steel conduit box provided as Standard. Complete gearmotor furnished with high gloss hardened black enamel paint.

### Application Notes:

These motors are designed with high temp insulation (Class F) to avoid over heating when operated with a PWM inverter down to a 10:1 speed range from the printed gearmotor output RPM.

Refer to pages 176 to 178 detailing non-horizontal mounting.

The torque values listed are the recommended full load torque values for reasonable gear life.

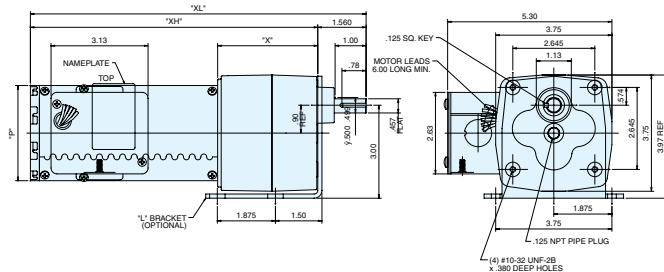
Overhung load capacities shown are at the center of the output shaft. See page 179 for optional "L" bracket kits for PZ and PE350 units. Please contact LEESON for output speeds not listed.

## PZ SERIES AC GEARMOTORS

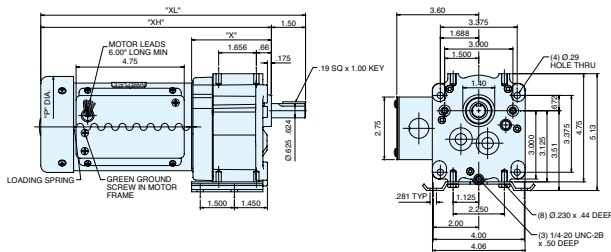
### THREE PHASE • 230V • TENV

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	F.L. Amps 230V AC	Over-hung Load (Lb.)	DIMENSIONS			
								P	X	XL	XH
19	100	1/15	<b>M1125282.00</b>	PZ4-31	90	0.4	155	3.07	3.23	10.83	9.27
57	56	1/15	<b>M1125283.00</b>	PZ3-31	30	0.4	171	3.07	2.43	10.03	8.47
142	24	1/15	<b>M1125284.00</b>	PZ2-31	12	0.4	180	3.07	2.13	9.73	8.17
283	12	1/15	<b>M1125285.00</b>	PZ2-31	6	0.4	180	3.07	2.13	9.73	8.17

### PZ SERIES - AZ



### P240 SERIES - AC

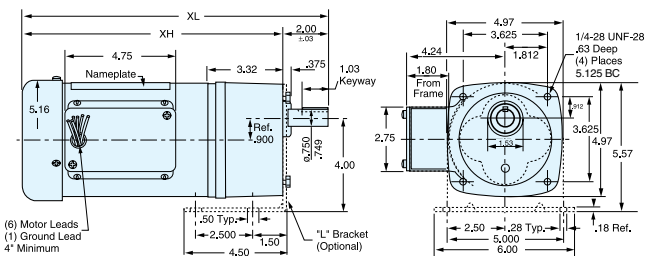


## P240 SERIES AC GEARMOTORS

### THREE PHASE • 230V • TEFC

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	F.L. Amps 230V AC	Over-hung Load (Lb.)	DIMENSIONS			
								P	X	XL	XH
16	391	1/6	<b>M1145122.00</b>	P243-38	103	0.72	399	4.43	3.50	11.63	10.13
30	295	1/6	<b>M1145123.00</b>	P243-38	58	0.72	330	4.43	3.50	11.63	10.13
60	157	1/6	<b>M1145124.00</b>	P242-38	29	0.72	268	4.43	3.50	11.63	10.13
90	103	1/6	<b>M1145125.00</b>	P242-38	19	0.72	330	4.43	3.50	11.63	10.13
156	60	1/6	<b>M1145126.00</b>	P242-38	10.6	0.72	330	4.43	3.50	11.63	10.13

### PE350 THREE PHASE

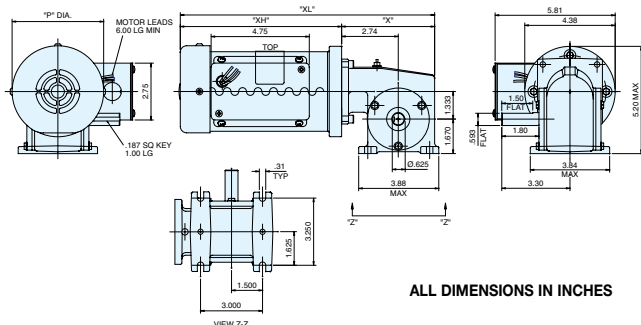


## PE350 SERIES AC GEARMOTORS

### THREE PHASE • 230/460V • TEFC

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	F.L. Amps 230V AC	Over-hung Load (Lb.)	DIMENSIONS			
								P	X	XL	XH
9	341	1/6	<b>096065.00</b>	PE353-42	180	1.0	491	5.16	3.32	12.57	10.57
29	300	1/4	<b>096066.00</b>	PE353-42	58	1.2	327	5.16	3.32	13.07	11.07
58	244	1/4	<b>096067.00</b>	PE353-42	30	1.2	300	5.16	3.32	13.07	11.07
85	165	1/4	<b>096068.00</b>	PE352-42	20	1.2	300	5.16	3.32	13.07	11.07
173	92	1/4	<b>096069.00</b>	PE352-42	10	1.2	300	5.16	3.32	13.07	11.07
325	50	1/4	<b>096070.00</b>	PE352-42	5	1.2	300	5.16	3.32	13.07	11.07

### 13 SERIES - AC



ALL DIMENSIONS IN INCHES

## RIGHT ANGLE SERIES AC GEARMOTORS

### THREE PHASE • 230V • TEFC

Output RPM	F.L. Torque (Lb.In.)	Input HP	Catalog Number	Gearmotor Type & Frame	Ratio to 1	F.L. Amps 230V AC	Over-hung Load (Lb.)	DIMENSIONS			
								P	X	XL	XH
29	238	3/8	<b>M1145127.00</b>	13F60-38	60	1.3	235	4.43	4.50	12.31	7.81
43	228	3/8	<b>M1145128.00</b>	13F40-38	40	1.3	235	4.43	4.50	12.31	7.81
86	138	3/8	<b>M1145129.00</b>	13F20-38	20	1.3	235	4.43	4.50	12.31	7.81
172	105	3/8	<b>M1145130.00</b>	13F10-38	10	1.3	235	4.43	4.50	12.31	7.81
345	54	3/8	<b>M1145131.00</b>	13F05-38	5	1.3	235	4.43	4.50	12.31	7.81

**Design Specifications:**

Three phase motors totally enclosed for continuous duty, general purpose applications.

Standard on all these ratings is the exclusive Inverter Rated Insulation System (IRIS). This provides superior protection against voltage spikes induced by variable frequency drives.

Many superior mechanical features double shielded ball bearings, welded-on base, steel conduit box provided as standard, furnished with high gloss hardened black enamel paint.

**Application Notes:**

These motors are designed with high temp insulation (Class F) to avoid overheating when operated with a PWM inverter down to a 10:1 speed range from the motor's base speed.

**230 VOLT • THREE PHASE**  
**1.0 SERVICE FACTOR • TOTALLY ENCLOSED**

HP	RPM 60 Hz	Frame	Catalog Number	Voltage	F.L. Amps 230V
1/45	1725	38	<b>M1140171.00*</b>	230	.4
1/6	1725	38	<b>M1140173.00*</b>	230	.72
1/4	1725	38	<b>M1140172.00</b>	230	1.1

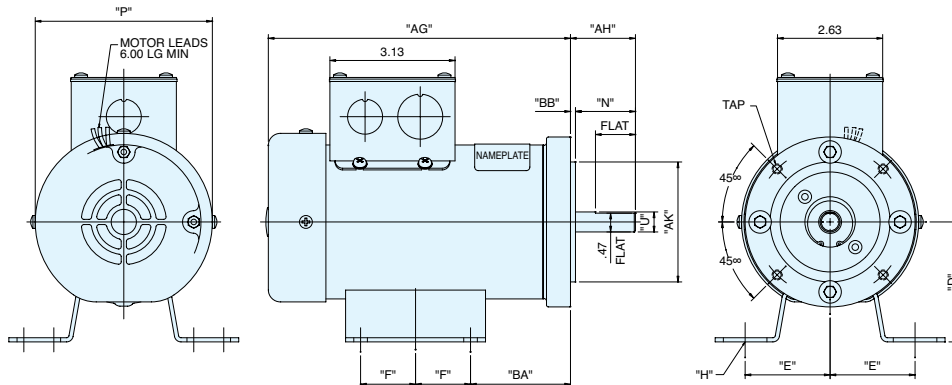
\* TENV enclosure

**38 FRAME NEMA C-FACE WITH BASE DIMENSIONS**

Catalog Number	AG	P	U	AH	BB	AJ	TAP	R	AK	BB	D	BA	E	F	H
<b>M1140171.00</b>	5.14	3.85	.5000	1.63	1.00	3.75	1/4-20	4.25	3.00	.13	3.0	2.50	2.125	1.375	11/32 Slot
<b>M1140173.00</b>	6.14	3.85	.5000	1.63	1.00	3.75	1/4-20	4.25	3.00	.13	3.0	2.50	2.125	1.375	11/32 Slot
<b>M1140172.00</b>	7.56	4.43	.5000	1.63	1.00	3.75	1/4-20	4.25	3.00	.13	3.0	2.50	2.125	1.375	11/32 Slot

GEARMOTORS

**AC 38 48C**



ALL DIMENSIONS IN INCHES

**Both motors only and gearmotors will have inverter rated printed on the nameplate.**  
**UL and CSA recognition for both motors only and gearmotors**



**LEESON'S Inverter Rated Insulation System (IRIS™)** provides superior protection against voltage spikes induced by variable frequency drives. This *total insulation system* protects better than spike-resistant magnet wire alone. Sleeved connections (from the leads all the way

into the turns), and deep-penetrating, non-hygroscopic, high temperature varnish are just a few features contributing to extra protection. All this plus second generation spike-resistant magnet wire. The IRIS™ *total insulation system* is standard at no extra cost.

**TOTALLY ENCLOSED  
AUTOMOTIVE DUTY • 56 FRAME**

**230/460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
1/4 TO 3 HP**

**Features:**

- NEMA Design B Performance
- Steel frame/cast aluminum end brackets
- Premium Class F Insulation system
- Continuous Duty
- Nameplated 1.15 service factor, 40°C ambient and 1.00 service factor, 65°C ambient.
- Warranty – 48 & 56 frames 12 months from date of first use or 18 months from date of manufacture or 12 months from date of installation, whichever period expires first.
- Made In U.S.A.



**Applications:**

Ideally suited for use on pumps, fans, conveyors, gear boxes and other equipment located in automotive manufacturing facilities.

**FOOT MOUNT**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	56	68.0	1.15	230/460	SRN4H0.25T61	LM25123	22
	1200	56	73.4	1.15	230/460	SRN6H0.25T61	LM25127	28
1/3	3600	56	64.0	1.15	230/460	SRN2H0.33T61	LM25124	20
	1800	56	68.0	1.15	230/460	SRN4H0.33T61	LM25115	22
	1200	56	75.5	1.15	230/460	SRN6H0.33T61	LM25116	29
1/2	3600	56	74.0	1.15	230/460	SRN2H0.5T61	LM25126	23
	1800	56	77.0	1.15	230/460	SRN4H0.5T61	LM24258	26
	1200	56	78.5	1.15	230/460	SRN6H0.5T61	LM24268	42
3/4	3600	56	80.0	1.15	230/460	SRN2H0.75T61	LM25133	34
	1800	56	81.5	1.15	230/460	SRN4H0.75T61	LM24266	30
	1800	56	75.5	1.15	230/460	SRF4H0.75T61	LM25142	25
	1200	56	74.0	1.15	230/460	SRF6H0.75T61	LM25148	29
1	3600	56	82.5	1.15	230/460	SRN2H1T61	LM25129	41
	1800	56	77.0	1.15	230/460	SRF4H1T61	LM25113	28
	1200	56	78.5	1.15	230/460	SRF6H1T61	LM25130	37
1 1/2	3600	56	80.0	1.15	230/460	SRF2H1.5T61	LM25160	27
	1800	56	80.0	1.15	230/460	SRF4H1.5T61	LM25147	32
2	3600	56	80.0	1.15	230/460	SRF2H2T61	LM25161	31
	1800	56	82.5	1.15	230/460	SRF4H2T61	LM25159	46
3	3600	56	84.0	1.15	230/460	SRF2H3T61	LM25152	44

**C-FACE WITH FEET**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	56C	68.0	1.15	230/460	SRN4H0.25TC61	LM25131	22
	1200	56C	73.4	1.15	230/460	SRN6H0.25TC61	LM25135	28
1/3	3600	56C	64.0	1.15	230/460	SRN2H0.33TC61	LM25153	20
	1800	56C	68.0	1.15	230/460	SRN4H0.33TC61	LM25149	22
	1200	56C	75.5	1.15	230/460	SRN6H0.33TC61	LM25164	29

Product numbers in red are STOCK items.

Specifications are subject to change without notice

# TOTALLY ENCLOSED AUTOMOTIVE DUTY • 56 FRAME

230/460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
1/4 TO 3 HP



## C-FACE WITH FEET (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/2	3600	56C	74.0	1.15	230/460	SRN2H0.5TC61	LM25151	23
	1800	56C	77.0	1.15	230/460	SRN4H0.5TC61	LM25114	26
	1200	56C	78.5	1.15	230/460	SRN6H0.5TC61	LM25134	42
3/4	3600	56C	80.0	1.15	230/460	SRN2H0.75TC61	LM25119	34
	1800	56C	81.5	1.15	230/460	SRN4H0.75TC61	LM25121	30
	1200	56C	74.0	1.15	230/460	SRF6H0.75TC61	LM25141	30
1	3600	56C	82.5	1.15	230/460	SRN2H1TC61	LM25125	41
	1800	56C	77.0	1.15	230/460	SRF4H1TC61	LM25117	29
	1200	56C	78.5	1.15	230/460	SRF6H1TC61	LM25150	37
1 1/2	3600	56C	80.0	1.15	230/460	SRF2H1.5TC61	LM25163	27
	1800	56C	80.0	1.15	230/460	SRF4H1.5TC61	LM25143	33
2	3600	56C	80.0	1.15	230/460	SRF2H2TC61	LM25145	32
	1800	56C	82.5	1.15	230/460	SRF4H2TC61	LM25156	46
3	3600	56C	84.0	1.15	230/460	SRF2H3TC61	LM25146	45

## C-FACE FOOTLESS

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
1/4	1800	56C	68.0	1.15	230/460	SRN4H0.25TCN61	LM25136	21
	1200	56C	73.4	1.15	230/460	SRN6H0.25TCN61	LM25138	28
1/3	3600	56C	64.0	1.15	230/460	SRN2H0.33TCN61	LM25158	20
	1800	56C	68.0	1.15	230/460	SRN4H0.33TCN61	LM25128	21
	1200	56C	75.5	1.15	230/460	SRN6H0.33TCN61	LM25155	29
1/2	3600	56C	74.0	1.15	230/460	SRN2H0.5TCN61	LM25154	22
	1800	56C	77.0	1.15	230/460	SRN4H0.5TCN61	LM24259	26
	1200	56C	78.5	1.15	230/460	SRN6H0.5TCN61	LM25122	42
3/4	3600	56C	80.0	1.15	230/460	SRN2H0.75TCN61	LM25139	34
	1800	56C	81.5	1.15	230/460	SRN4H0.75TCN61	LM24262	30
	1200	56C	74.0	1.15	230/460	SRF6H0.75TCN61	LM25137	29
1	3600	56C	82.5	1.15	230/460	SRN2H1TCN61	LM25112	41
	1800	56C	77.0	1.15	230/460	SRF4H1TCN61	LM24271	28
	1200	56C	78.5	1.15	230/460	SRF6H1TCN61	LM25118	37
1 1/2	3600	56C	80.0	1.15	230/460	SRF2H1.5TCN61	LM25120	27
	1800	56C	80.0	1.15	230/460	SRF4H1.5TCN61	LM25140	32
2	3600	56C	80.0	1.15	230/460	SRF2H2TCN61	LM25165	31
	1800	56C	82.5	1.15	230/460	SRF4H2TCN61	LM25132	46
3	3600	56C	84.0	1.15	230/460	SRF2H3TCN61	LM25157	44

Product numbers in red are STOCK items.

Specifications are subject to change without notice



## TOTALLY ENCLOSED AUTOMOTIVE DUTY • U-FRAME

460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
3/4 TO 100 HP

### Features:

- Meets NEMA U-Frame dimensional and performance standards.
- Meets or exceeds General Motors GM-7EH and -7EQ, Ford EM1, and Chrysler NPEM-100 specifications.
- Full cast iron construction – all frame sizes.
- Oversized, cast iron terminal box complete with gaskets provides excellent protection from the environment. Also includes threaded conduit entry hole for easy power connection.
- NEMA Design B Performance.
- Nameplated 1.15 service factor, 40°C ambient and 1.00 service factor, 65°C ambient.
- Continuous Duty
- Inverter-Rated
- Premium Class F Insulation System.
- P efficiency codes comply with the United States' and Canadian efficiency requirements for general-purpose T-Frame industrial motors.
- Variety of configurations available – C-Face, D-Flange, double-shaft and brake.
- Lower noise designs improve plant sound quality.
- UL Recognized Component Listing and CSA Approval.
- Warranty –  
(sine-wave power) 42 months from date of manufacture and 36 months from date of installation which ever period expires first.  
(inverter power) 30 months from date of manufacture and 24 months from date of installation which ever period expires first.
- Shielded ball bearing for direct coupled applications. Contact your local sales office for belted applications.
- Made in U.S.A.



### Applications:

Ideally suited for a wide variety of tough applications found in automotive manufacturing facilities and other industries utilizing U-Frame motors.

Speed ranges (continuous duty) on variable-frequency electronic speed controls (inverters):

P efficiency codes: Constant torque, 6 to 60 Hz  
Variable torque, 3 to 60 Hz

G efficiency codes: Constant torque, 15 to 60 Hz  
Variable torque, 6 to 60 Hz

Ask about wider speed ranges at intermittent duty.

Lincoln U-Frame motors exceed NEMA MG-1, Section IV, Part 31 spike resistance requirements.

### FOOT MOUNT

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
3/4	1200	182	82.5	1.15	460	CCN6P0.75U64	<b>LM21379</b>	108
1	1800	182	87.5	1.15	460	CCN4P1U64	<b>LM21378</b>	108
	1200	184	86.5	1.15	460	CCN6P1U64	<b>LM21381</b>	108
1 1/2	3600	182	85.5	1.15	460	CCN2P1.5U64	<b>LM21084</b>	108
	1800	184	88.8	1.15	460	CCN4P1.5U64	<b>LM21380</b>	108
	1200	184	87.5	1.15	460	CCN6P1.5U64	<b>LM20709</b>	108
2	3600	184	85.5	1.15	460	CCF2P2U64	<b>LM21085</b>	120
	1800	184	89.5	1.15	460	CCF4P2U64	<b>LM20708</b>	120
	1200	213	87.5	1.15	460	CCF6P2U64	<b>LM21383</b>	170
3	3600	184	87.5	1.15	460	CCF2P3U64	<b>LM20707</b>	120
	1800	213	88.5	1.15	460	CCF4P3U64	<b>LM21382</b>	170
	1200	215	89.5	1.15	460	CCF6P3U64	<b>LM20391</b>	170

Product numbers in red are STOCK items.

Specifications are subject to change without notice



# TOTALLY ENCLOSED AUTOMOTIVE DUTY • U-FRAME



460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
3/4 TO 100 HP

AC MOTORS

## FOOT MOUNT (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
5	3600	213	87.5	1.15	460	CCF2P5U64	LM21086	170
	1800	215	89.5	1.15	460	CCF4P5U64	LM20392	170
	1200	254U	90.2	1.15	460	CCF6P5U64	LM21385	260
7 1/2	3600	215	88.5	1.15	460	CCF2P7.5U64	LM20393	170
	1800	254U	91.7	1.15	460	CCF4P7.5U64	LM21384	260
	1200	256U	91.0	1.15	460	CCF6P7.5U64	LM20389	332
10	3600	254U	89.5	1.15	460	CCF2P10U64	LM21087	260
	1800	256U	91.7	1.15	460	CCF4P10U64	LM20390	260
	1200	284U	91.0	1.15	460	CCF6P10U64	LM20028	525
15	3600	256U	91.7	1.15	460	CCF2P15U64	LM20394	260
	1800	284U	92.4	1.00	460	CCF4P15U64	LM21665	525
	1200	324U	92.4	1.15	460	CCF6P15U64	LM21387	750
	1200	324US	92.4	1.15	460	CCF6P15US64	LM21809	750
20	3600	286U	90.2	1.15	460	CCF2P20U64	LM21088	525
	1800	286U	93.0	1.15	460	CCF4P20U64	LM20029	525
	1200	326U	92.4	1.15	460	CCF6P20U64	LM20031	750
	1200	326US	92.4	1.15	460	CCF6P20US64	LM21812	750
25	3600	324U	93.6	1.15	460	CCF2P25U64	LM21089	748
	3600	324US	93.6	1.15	460	CCF2P25US64	LM21807	748
	1800	324U	92.1	1.15	460	CCF4P25U64	LM21386	748
	1800	324US	92.1	1.15	460	CCF4P25US64	LM21808	748
	1200	364U	93.0	1.15	460	CCF6P25U64	LM21389	1160
	1200	364US	93.0	1.15	460	CCF6P25US64	LM21814	1160
30	3600	326US	91.0	1.15	460	CCF2P30US64	LM21810	748
	3600	326U	91.0	1.15	460	CCF2P30U64	LM21090	748
	1800	326U	94.1	1.15	460	CCF4P30U64	LM20030	748
	1800	326US	94.1	1.15	460	CCF4P30US64	LM21811	748
	1200	365U	93.0	1.15	460	CCF6P30U64	LM19531	1160
	1200	365US	93.0	1.15	460	CCF6P30US64	LM21816	1160
40	3600	364US	93.6	1.15	460	CCF2P40US64	LM21091	908
	3600	364U	93.6	1.15	460	CCF2P40U64	LM21798	908
	1800	364U	94.1	1.15	460	CCF4P40U64	LM21388	977
	1800	364US	94.1	1.15	460	CCF4P40US64	LM21813	977
	1200	404U	93.6	1.15	460	CCF6P40U64	LM21390	1110
	1200	404US	93.6	1.15	460	CCF6P40US64	LM21817	1110

Product numbers in red are STOCK items.

Specifications are subject to change without notice



# TOTALLY ENCLOSED AUTOMOTIVE DUTY • U-FRAME

460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
3/4 TO 100 HP

## FOOT MOUNT (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
50	3600	365US	94.1	1.15	460	CCF2P50US64	<b>LM21092</b>	980
	3600	365U	94.1	1.15	460	CCF2P50U64	<b>LM21799</b>	980
	1800	365U	94.5	1.15	460	CCF4P50U64	<b>LM19530</b>	1063
	1800	365US	94.5	1.15	460	CCF4P50US64	<b>LM21815</b>	1063
	1200	405U	94.1	1.15	460	CCF6P50U64	<b>LM19533</b>	1110
	1200	405US	94.1	1.15	460	CCF6P50US64	<b>LM21819</b>	1110
60	3600	405US	94.1	1.15	460	CCF2P60US64	<b>LM19532</b>	1130
	3600	405U	94.1	1.15	460	CCF2P60U64	<b>LM21800</b>	1130
	1800	405U	95.0	1.15	460	CCF4P60U64	<b>LM21391</b>	1110
	1800	405US	95.0	1.15	460	CCF4P60US64	<b>LM21818</b>	1110
	1200	444U	94.1	1.15	460	CCF6P60U64	<b>LM21393</b>	1787
	1200	444US	94.1	1.15	460	CCF6P60US64	<b>LM21822</b>	1787
75	3600	444US	94.1	1.15	460	CCF2P75US64	<b>LM21093</b>	1685
	3600	444U	94.1	1.15	460	CCF2P75U64	<b>LM21801</b>	1685
	1800	444U	95.0	1.15	460	CCF4P75U64	<b>LM21392</b>	1787
	1800	444US	95.0	1.15	460	CCF4P75US64	<b>LM21821</b>	1787
	1200	445U	95.0	1.15	460	CCF6P75U64	<b>LM19535</b>	1787
	1200	445US	95.0	1.15	460	CCF6P75US64	<b>LM21824</b>	1787
100	3600	445US	95.4	1.15	460	CCF2P100US64	<b>LM21094</b>	1685
	3600	445U	95.4	1.15	460	CCF2P100U64	<b>LM21802</b>	1685
	1800	445U	95.4	1.15	460	CCF4P100U64	<b>LM19534</b>	1787
	1800	445US	95.4	1.15	460	CCF4P100US64	<b>LM21823</b>	1787

## C-FACE WITH FEET

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
3/4	1200	182C	82.5	1.15	460	CCN6P0.75UC64	<b>LM21828</b>	120
	1200	182C	81.0	1.00	460	CCN6G0.75UC64	<b>LM23769</b>	108
1	1800	182C	87.5	1.15	460	CCN4P1UC64	<b>LM21827</b>	120
	1200	184C	86.5	1.15	460	CCN6P1UC64	<b>LM21835</b>	120
1 1/2	3600	182C	85.5	1.15	460	CCN2P1.5UC64	<b>LM21826</b>	120
	1800	184C	88.5	1.15	460	CCN4P1.5UC64	<b>LM21833</b>	120
	1200	184C	87.5	1.15	460	CCN6P1.5UC64	<b>LM21834</b>	120
2	3600	184C	85.5	1.15	460	CCF2P2UC64	<b>LM21831</b>	132
	1800	184C	89.5	1.15	460	CCF4P2UC64	<b>LM21832</b>	132
	1200	213C	87.5	1.15	460	CCF6P2UC64	<b>LM21838</b>	181
3	3600	184C	87.5	1.15	460	CCF2P3UC64	<b>LM21829</b>	132
	1800	213C	88.5	1.15	460	CCF4P3UC64	<b>LM21837</b>	181
	1200	215C	89.5	1.15	460	CCF6P3UC64	<b>LM21841</b>	181

Product numbers in red are STOCK items.

Specifications are subject to change without notice

# TOTALLY ENCLOSED AUTOMOTIVE DUTY • U-FRAME



460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
3/4 TO 100 HP

AC MOTORS

## C-FACE WITH FEET (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
5	3600	213C	87.5	1.15	460	CCF2P5UC64	LM21836	181
	1800	215C	89.5	1.15	460	CCF4P5UC64	LM21840	181
	1200	254UC	90.2	1.15	460	CCF6P5UC64	LM21844	272
7 1/2	3600	215C	88.5	1.15	460	CCF2P7.5UC64	LM21839	181
	1800	254UC	91.7	1.15	460	CCF4P7.5UC64	LM21843	272
	1200	256UC	91.0	1.15	460	CCF6P7.5UC64	LM21847	344
10	3600	254UC	89.5	1.15	460	CCF2P10UC64	LM21842	272
	1800	256UC	91.7	1.15	460	CCF4P10UC64	LM21846	272
	1200	284UC	91.0	1.15	460	CCF6P10UC64	LM21849	531
15	3600	256UC	91.7	1.15	460	CCF2P15UC64	LM21845	272
	1800	284UC	92.4	1.15	460	CCF4P15UC64	LM21848	531
	1200	324UC	92.4	1.15	460	CCF6P15UC64	LM21854	757
	1200	324USC	92.4	1.15	460	CCF6P15USC64	LM21879	757
20	3600	286UC	90.2	1.15	460	CCF2P20UC64	LM21850	531
	1800	286UC	93.0	1.15	460	CCF4P20UC64	LM21851	531
	1200	326UC	92.4	1.15	460	CCF6P20UC64	LM21857	757
	1200	326USC	92.4	1.15	460	CCF6P20USC64	LM21882	757
25	3600	324USC	93.6	1.15	460	CCF2P25USC64	LM21893	755
	3600	324UC	93.6	1.15	460	CCF2P25UC64	LM21852	755
	1800	324UC	94.1	1.15	460	CCF4P25UC64	LM21853	755
	1800	324USC	94.1	1.15	460	CCF4P25USC64	LM21878	755
	1200	364UC	93.0	1.15	460	CCF6P25UC64	LM21860	1169
	1200	364USC	93.0	1.15	460	CCF6P25USC64	LM21885	1169
30	3600	326USC	91.0	1.15	460	CCF2P30USC64	LM21880	755
	3600	326UC	91.0	1.15	460	CCF2P30UC64	LM21855	755
	1800	326UC	94.1	1.15	460	CCF4P30UC64	LM21856	755
	1800	326USC	94.1	1.15	460	CCF4P30USC64	LM21881	755
	1200	365UC	93.0	1.15	460	CCF6P30UC64	LM21863	1169
	1200	365USC	93.0	1.15	460	CCF6P30USC64	LM21888	1169
40	3600	364USC	93.6	1.15	460	CCF2P40USC64	LM21883	917
	3600	364UC	93.6	1.15	460	CCF2P40UC64	LM21858	917
	1800	364UC	94.1	1.15	460	CCF4P40UC64	LM21859	986
	1800	364USC	94.1	1.15	460	CCF4P40USC64	LM21884	986
	1200	404UC	93.6	1.15	460	CCF6P40UC64	LM21864	1123
	1200	404USC	93.6	1.15	460	CCF6P40USC64	LM21889	1123

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# TOTALLY ENCLOSED AUTOMOTIVE DUTY • U-FRAME

460 VOLTS • 3-PHASE  
FOOT MOUNT & C-FACE  
3/4 TO 100 HP

## C-FACE WITH FEET (cont'd)

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
50	3600	365USC	94.1	1.15	460	CCF2P50USC64	LM21886	989
	3600	365UC	94.1	1.15	460	CCF2P50UC64	LM21861	989
	1800	365UC	94.5	1.15	460	CCF4P50UC64	LM21862	1072
	1800	365USC	94.5	1.15	460	CCF4P50USC64	LM21887	1072
	1200	405UC	94.1	1.15	460	CCF6P50UC64	LM21867	1123
	1200	405USC	94.1	1.15	460	CCF6P50USC64	LM21892	1123
60	3600	405USC	94.1	1.15	460	CCF2P60USC64	LM21890	1143
	3600	405UC	94.1	1.15	460	CCF2P60UC64	LM21865	1143
	1800	405UC	95.0	1.15	460	CCF4P60UC64	LM21866	1123
	1800	405USC	95.0	1.15	460	CCF4P60USC64	LM21891	1123
	1200	444UC	94.1	1.15	460	CCF6P60UC64	LM21870	1810
	1200	444USC	94.1	1.15	460	CCF6P60USC64	LM21895	1810
75	3600	444USC	94.1	1.15	460	CCF2P75USC64	LM21877	1708
	3600	444UC	94.1	1.15	460	CCF2P75UC64	LM21868	1708
	1800	444UC	95.0	1.15	460	CCF4P75UC64	LM21869	1810
	1800	444USC	95.0	1.15	460	CCF4P75USC64	LM21894	1810
	1200	445UC	95.0	1.15	460	CCF6P75UC64	LM21873	1810
	1200	445USC	95.0	1.15	460	CCF6P75USC64	LM21898	1810
100	3600	445USC	95.4	1.15	460	CCF2P100USC64	LM21896	1708
	3600	445UC	95.4	1.15	460	CCF2P100UC64	LM21871	1708
	1800	445UC	95.4	1.15	460	CCF4P100UC64	LM21872	1810
	1800	445USC	95.4	1.15	460	CCF4P100USC64	LM21897	1810

## C-FACE FOOTLESS

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
3/4	1200	182C	82.5	1.15	460	CCN6P0.75UCN64	TBD	120
1	1800	182C	87.5	1.15	460	CCN4P1UCN64	LM23781	120
	1200	184C	86.5	1.15	460	CCN6P1UCN64	LM24037	120
1 1/2	3600	182C	85.5	1.15	460	CCN2P1.5UCN64	TBD	120
	1800	184C	88.5	1.15	460	CCN4P1.5UCN64	LM23783	120
	1200	184C	87.5	1.15	460	CCN6P1.5UCN64	TBD	120
2	3600	184C	85.5	1.15	460	CCF2P2UCN64	LM25496	132
	1800	184C	89.5	1.15	460	CCF4P2UCN64	LM23782	132
	1200	213C	87.5	1.15	460	CCF6P2UCN64	TBD	181
3	3600	184C	87.5	1.15	460	CCF2P3UCN64	TBD	132
	1800	213C	88.5	1.15	460	CCF4P3UCN64	LM23854	181
	1200	215C	89.5	1.15	460	CCF6P3UCN64	LM25667	181
5	3600	213C	87.5	1.15	460	CCF2P5UCN64	LM25203	181
	1800	215C	89.5	1.15	460	CCF4P5UCN64	LM24072	181
	1200	254UC	90.2	1.15	460	CCF6P5UCN64	TBD	272
7 1/2	3600	215C	88.5	1.15	460	CCF2P7.5UCN64	TBD	181
	1800	254UC	91.7	1.15	460	CCF4P7.5UCN64	LM23784	272
	1200	256UC	91.0	1.15	460	CCF6P7.5UCN64	TBD	344

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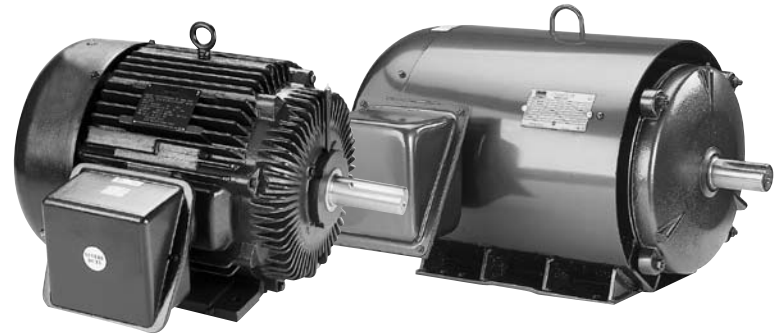
## TEFC • CRUSHER DUTY

460 VOLTS • 3-PHASE  
FOOT MOUNT  
100 TO 400 HP



### Features:

- Drive end roller bearing/Hi-strength steel shaft
- Superior speed-torque curves - most SF models nameplated Design B & C. All CCS models labeled Design C.
- Lower your operating costs - choose from two levels of premium efficiency
- Inverter-Rated\*
- Continuous Duty
- Construction materials (first letter of Model Nbr):  
C – full cast iron construction  
S – steel frame and cast iron end brackets
- Substantial weight savings with steel frame designs
- Premium Class F Insulation System
- Across-the-line, Y-Delta (YDS) and Part Winding (PWS) Start capability
- Installation versatility - mount Lincoln Crusher Duty motors horizontal or vertical shaft down
- Over temperature protection – Class F thermostats
- Warranty – (sine-wave power and inverter power\*) 18 months from date of manufacture and 12 months from date of installation which ever period expires first.
- Drive-end roller bearing for belted load applications
- 4140 grade high strength shaft material
- Made in U.S.A.



### Applications:

Ideally suited for size reduction equipment including rock crushers and pulverizers and other uses in the aggregate and construction industries. Crusher Duty motors are designed for belted (radial) loads only.

**Ask Us About Crusher Duty Motors in 5000 Series frames - up to 600 HP!**  
Some HP sizes also available in 900 RPM.

### FOOT MOUNT

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
100	1800	405T	95.4	1.15	460	SF4B100T64PYRBT1	<b>LM18759</b>	1002
	1800	405T	92.4	1.15	460	CCS4B100T64PYRBT1	<b>LM33029</b>	1338
	1200	444T	95.4	1.15	460	SF6B100T64PYRBT1	<b>LM17733</b>	1351
	1200	444T	95.0	1.15	460	CCS6B100T64PYRBT1	<b>LM33030</b>	1690
125	1800	444T	96.2	1.15	460	SF4B125T64PYRBT1	<b>LM17734</b>	1351
	1800	444T	95.4	1.15	460	CCS4B125T64PYRBT1	<b>LM33031</b>	1727
	1200	445T	95.8	1.15	460	SF6B125T64PYRBT1	<b>LM17735</b>	1531
	1200	445T	95.0	1.15	460	CCS6B125T64PYRBT1	<b>LM33032</b>	1960
150	1800	445T	96.2	1.15	460	SF4B150T64PYRBT1	<b>LM17736</b>	1531
	1800	445T	95.8	1.15	460	CCS4B150T64PYRBT1	<b>LM33033</b>	2090
	1200	445T	95.8	1.15	460	SF6B150T64PYRBT1	<b>LM17737</b>	1531
	1200	445T	95.8	1.15	460	CCS6B150T64PYRBT1	<b>LM33034</b>	2458
200	1800	445T	96.2	1.15	460	SF4B200T64PYRBT1	<b>LM17738</b>	1531
	1800	449T	96.2	1.15	460	CC449B4P200T64PYCR1	<b>LM33035</b>	2345
	1200	447T	95.8	1.15	460	SF6B200T64PYRBT1	<b>LM17740</b>	1812
	1200	447T	95.8	1.15	460	CCS6B200T64PYRBT1	<b>LM33036</b>	3087
250	1800	447T	96.2	1.15	460	SF4B250T64PYRBT1	<b>LM17741</b>	1812
	1800	449T	95.4	1.15	460	CC449S4P250T64PYRBT1	<b>LM17701</b>	2760
	1800	447T	95.0	1.15	460	SF4P250T64PYRBT1	<b>LM17714</b>	1812
	1200	449T	95.4	1.00	460	SF6B250T64PYRBT1	<b>LM17742</b>	2185
	1200	449T	95.4	1.15	460	CCS6P250T64PYRBT1	<b>LM17702</b>	3408
	1200	449T	95.4	1.00	460	SF6P250T64PYRBT1	<b>LM17715</b>	2185
300	1800	447T	96.2	1.15	460	SF4B300T64PYRBT1	<b>LM17743</b>	1812
	1800	449T	95.4	1.15	460	CC449S4P300T64PYCR1	<b>LM31049</b>	TBD
	1800	449T	95.4	1.15	460	S449F4P300T64PYRBT1	<b>LM18757</b>	2185
	1800	447T	95.4	1.00	460	SF4P300T64PYRBT1	<b>LM17716</b>	1812
	1200	449T	95.8	1.00	460	SF6B300T64PYRBT1	<b>LM17744</b>	2185
	1200	449T	95.8	1.15	460	CCS6P300T64PYRBT1	<b>LM17704</b>	3500
350	1800	449T	96.2	1.15	460	SF4B350T64PYRBT1	<b>LM17745</b>	2185
	1800	449T	95.0	1.15	460	CCS4P350T64PYRBT1	<b>LM17705</b>	3218
	1800	449T	95.4	1.15	460	SF4P350T64PYRBT1	<b>LM17718</b>	2185
400	1800	449T	95.4	1.15	460	SF4B400T64PYRBT1	<b>LM17746</b>	2185
	1800	449T	95.8	1.15	460	CCS4P400T64PYRBT1	<b>LM17706</b>	3400
	1800	449T	95.4	1.00	460	SF4P400T64PYRBT1	<b>LM17719</b>	2185

Product numbers in red are STOCK items.

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# HYDRAULIC ELEVATOR PUMP MOTORS

**OPEN DRIP-PROOF CONSTRUCTION • 3-PHASE  
FOOT MOUNTED  
10 TO 100 HP**

**Features:**

- Dual Rated Nameplates for 80 & 120 Starts/Hour
- Designed for Belt Driven Pumps
- Wye Start/Delta Run
- Class F Insulated
- 40° C Ambient
- F-1 Mounting
- Ball Bearings with Grease Fittings and Automatic Relief
- NEMA Dimensions
- CSA Approved, UL Recognized
- Constructed for low noise and low vibration.
- Made in USA
- Warranty - 18 months from date of manufacture and 12 months from date of installation which ever period expires first



**Applications:**

Hydraulic pump passenger, service, freight, and dumbwaiter low rise elevators. Typically hydraulic elevators travel up to 6 floors at speeds up to 200 fpm.

**80 STARTS PER HOUR**

HP	SYN RPM	Frame	FL Norm Eff. (%)	Volts	80 Starts FL Amps	Locked Rotor Amps	Model Number	Product Number	Approx Shpg Wght (lbs)
15	3600	213T	88.5	200	41	187	SSD2P10/15T6006YEH2	<b>LM30091</b>	114
	3600	213T	90.2	230/460	35.5/18	162/81	SSD2B10/15T61YEH2	<b>LM33041</b>	149
	1800	215T	93.0	230/460	39.2/19.6	148/74	SSD4B10/15T61YEH2	<b>LM32658</b>	128
	1800	215T		575	15.7	59.2	SSD4P10/15T65YEH2	<b>LM28869</b>	128
20	3600	215T		200	53	267	SSD2P15/20T6006YEH2	<b>LM30093</b>	135
	3600	215T	91.0	230/460	46/23	232/116	SSD2B15/20T61YEH2	<b>LM33042</b>	138
	1800	254T	93.0	230/460	51.4/25.7	232/116	SSD4B15/20T61YEH2	<b>LM32661</b>	205
	1800	254T		575	20.6	93	SSD4P15/20T65YEH2	<b>LM28875</b>	203
25	3600	254T		200	66.5	334	SSD2P20/25T6006YEH2	<b>LM30095</b>	128
	3600	254T	91.7	230/460	58/29	290/145	SSD2B20/25T61YEH2	<b>LM33043</b>	134
	1800	256T	93.6	230/460	64/32	320/160	SSD4B20/25T61YEH2	<b>LM33044</b>	233
	1800	256T		575	25.6	128	SSD4P20/25T65YEH2	<b>LM28881</b>	233
30	3600	256T		200	80	419	SSD2P25/30T6006YEH2	<b>LM30097</b>	235
	3600	256T	91.7	230/460	69/34.5	364/182	SSD2B25/30T61YEH2	<b>LM33045</b>	235
	1800	284T	94.1	230/460	73/36.5	340/170	CCD4B25/30T61YEH2	<b>LM33046</b>	300
40	3600	284T		200	112	460	CCD2P30/40T6006YEH2	<b>LM30099</b>	320
	3600	284T	92.4	230/460	97/48.5	400/200	CCD2B30/40T61YEH2	<b>LM33047</b>	320
	1800	286T	94.1	230/460	97/48.5	430/215	CCD4B30/40T61YEH2	<b>LM33048</b>	411
50	3600	286T		200	135	667	CCD2P40/50T6006YEH2	<b>LM30101</b>	460
	3600	286T	93.0	230/460	117/58.5	580/290	CCD2P40/50T61YEH2	<b>LM33049</b>	460
	1800	324T	94.5	230/460	126/63	548/274	SD4B40/50T61YEH2	<b>LM32651</b>	466
60	1800	326T	93.6	230/460	153/76.5	690/345	SF4B50/60T61YEH2	<b>LM32663</b>	530
75	1800	364T	95.0	230/460	179/89.5	870/435	SD4P60/75T61YEH2	<b>LM32673</b>	709
100	1800	365T	93.6	230/460	250/125	1084/542	SD4B75/100T61YEH2	<b>LM32689</b>	754
	1800	365T		575	100	435	SD4P75/100T65YEH2	<b>LM28915</b>	754

**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

**Product numbers in red are STOCK items.**

Specifications are subject to change without notice

# HYDRAULIC ELEVATOR PUMP MOTORS

**OPEN DRIP-PROOF CONSTRUCTION • 3-PHASE  
FOOT MOUNTED  
10 TO 100 HP**



AC MOTORS

**WYE WOUND FOR ELECTRONIC START OR ACROSS THE LINE STARTING • 80 STARTS PER HOUR**

HP	SYN RPM	Frame	FL Norm Eff. (%)	Volts	80 Starts FL Amps	Locked Rotor Amps	Model Number	Product Number	Approx Shpg Wght (lbs)
5	1800	182T	89.5	200	15	73.6	SSD4P5T6006YEH1	<b>LM28918</b>	68
	1800	182T		230/460	13/6.5	64/32	SSD4B5T61YEH1	<b>LM33050</b>	89
	1800	182T		575	5.2	25.6	SSD4P5T65YEH1	<b>LM28920</b>	79
7 1/2	1800	184T	91.0	230/460	19.8/9.9	92/46	SSD4B7.5T61EH1	<b>LM33051</b>	98
	1800	182T		575	7.9	36.8	SSD4P7.5T65YEH1	<b>LM28923</b>	118
10	1800	213T	91.7	230/460	25.8/12.9	127/63.5	SSD4B10T61EH1	<b>LM33052</b>	112
	1800	182T		575	10.3	50.8	SSD4P10T65YEH1	<b>LM28926</b>	123

**120 STARTS PER HOUR**

HP	SYN RPM	Frame	FL Norm Eff. (%)	Volts	80 Starts FL Amps	Locked Rotor Amps	Model Number	Product Number	Approx Shpg Wght (lbs)
15	3600	213T	88.5	200	41	187	SSD2P10/15T6006YEH2	<b>LM30091</b>	114
	3600	213T	90.2	230/460	35.5/18	162/81	SSD2B10/15T61YEH2	<b>LM33041</b>	149
	1800	215T	93.0	230/460	39.2/19.6	148/74	SSD4B10/15T61YEH2	<b>LM32658</b>	128
	1800	215T	575	15.7	59.2	SSD4P10/15T65YEH2	<b>LM28869</b>	128	
20	3600	215T	91.0	200	53	267	SSD2P15/20T6006YEH2	<b>LM30093</b>	135
	3600	215T		230/460	46/23	232/116	SSD2B15/20T61YEH2	<b>LM33042</b>	138
	1800	254T	93.0	230/460	51.4/25.7	232/116	SSD4B15/20T61YEH2	<b>LM32661</b>	205
	1800	254T	575	20.6	93	SSD4P15/20T65YEH2	<b>LM28875</b>	203	
25	3600	254T	91.7	200	66.5	334	SSD2P20/25T6006YEH2	<b>LM30095</b>	128
	3600	254T		230/460	58/29	290/145	SSD2B20/25T61YEH2	<b>LM33043</b>	134
	1800	256T	93.6	230/460	64/32	320/160	SSD4B20/25T61YEH2	<b>LM33044</b>	233
	1800	256T	575	25.6	128	SSD4P20/25T65YEH2	<b>LM28881</b>	233	
30	3600	256T	91.7	200	80	419	SSD2P25/30T6006YEH2	<b>LM30097</b>	235
	3600	256T		230/460	69/34.5	364/182	SSD2B25/30T61YEH2	<b>LM33045</b>	235
	1800	284T	94.1	230/460	73/36.5	340/170	CCD4B25/30T61YEH2	<b>LM33046</b>	300
40	3600	284T	92.4	200	112	460	CCD2P30/40T6006YEH2	<b>LM30099</b>	320
	3600	284T		230/460	97/48.5	400/200	CCD2B30/40T61YEH2	<b>LM33047</b>	320
	1800	286T	94.1	230/460	97/48.5	430/215	CCD4B30/40T61YEH2	<b>LM33048</b>	411
50	3600	286T	93.0	200	135	667	CCD2P40/50T6006YEH2	<b>LM30101</b>	460
	3600	286T		230/460	117/58.5	580/290	CCD2P40/50T61YEH2	<b>LM33049</b>	460
	1800	324T	94.5	230/460	126/63	548/274	SD4B40/50T61YEH2	<b>LM32651</b>	466
60	1800	326T	93.6	230/460	153/76.5	690/345	SF4B50/60T61YEH2	<b>LM32663</b>	530
75	1800	364T	95.0	230/460	179/89.5	870/435	SD4P60/75T61YEH2	<b>LM32673</b>	709
100	1800	365T	93.6	230/460	250/125	1084/542	SD4B75/100T61YEH2	<b>LM32689</b>	754
	1800	365T		575	100	435	SD4P75/100T65YEH2	<b>LM28915</b>	754

**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

**Product numbers in red are STOCK items.**  
Specifications are subject to change without notice

# VVF (VARIABLE VOLTAGE VARIABLE FREQUENCY) TRACTION ELEVATOR HOIST MOTORS

3-PHASE • OPEN DRIP-PROOF CONSTRUCTION • FOOT MOUNTED • 7.5 TO 75 HP  
1200 RPM & 900 RPM • HIGH ACCELERATION • 60 HZ, 40HZ & 30HZ DESIGNS

### Features:

- Dynamic balanced for low vibration operation
- Normally closed thermostats, one per phase
- Low noise design
- Steel frame construction with cast iron endbells
- Class F Insulated, 40° C ambient
- E pact efficiency or better
- 1.0 Service Factor
- 1024 PPR encoder, with 1-inch shaft bore standard
- F-1 Mounting
- 1000:1 Inverter Duty capability
- Made in USA
- Warranty - 18 months from date of manufacture and 12 months from date of installation which ever period expires first



### Applications:

Designed for Geared and Gearless Traction Elevators, 100 fpm to 500 fpm operation and up to 12 or 15 floors.

### FOOT MOUNTING WITH ENCODER F-1

HP	SYN RPM	No. of Poles	Frame	HZ	Volts	FL Amps	Rated Accel. Torque	Model Number	Product Number	Approx Shpg Wght (lbs)	
7 1/2	1200	6	254T	60	230/460	24/12	225%	SD6P7.5T61ET1	LM28114	221	
	1200	6	254T	60	200	28	225%	SD6P7.5T6006ET1	LM28115	221	
	1200	4	254T	40	230/460	19/9.5	275%	SD4P7.5T41ET1	LM28116	200	
	1200	4	254T	40	200	22	275%	SD4P7.5T4006ET1	LM28117	200	
	900	4	256T	30	230/460	19.6/9.8	275%	SD4P7.5T31ET1	LM28118	278	
	900	4	256T	30	200	23	275%	SD4P7.5T3006ET1	LM28119	278	
10	1200	6	256T	60	230/460	24/12	250%	SSD6P10T61ET1	LM28120	214	
	1200	6	256T	60	200	28	250%	SD6P10T6006ET1	LM28121	214	
	1200	4	256T	40	230/460	19/9.5	275%	SD4P10T41ET1	LM28122	232	
	1200	4	256T	40	200	22	275%	SSD4P10T4006ET1	LM28123	232	
	900	4	284T	30	230/460	19.6/9.8	330%	SD4P10T31ET1	LM28124	280	
	900	4	284T	30	200	23	330%	SD4P10T3006ET1	LM28125	280	
12 1/2	1200	6	284T	60	230/460	42/21	300%	SD6P12.5T61ET1	LM31393	338	
	1200	6	284T	60	200	48.5	300%	SD6P12.5T6006YET1	LM30676	338	
	900	4	284T	30	230/460	34/17	300%	SD4P12.5T31ET1	LM30677	365	
	900	4	284T	30	200	38.5	300%	SD4P12.5T3006ET1	LM30678	365	
15	1800	4	256T	60	230/460			SD4P15T61ET1	LM30679	233	
	1800	4	256T	60	200			SD4P15T6006ET1	LM30680	233	
	1200	6	284T	60	230/460	49/24.5	300%	SD6S15T61YET1	LM28126	341	
	1200	6	284T	60	200	56.5	300%	SD6G15T6006YET1	LM28127	338	
	1200	4	284T	40	230/460	40/20	330%	SD4P15T41ET1	LM28128	344	
	1200	4	284T	40	200	46	330%	SD4P15T4006ET1	LM28129	344	
	900	4	286T	30	230/460	40/20	300%	SD4S15T31YET1	LM30535	392	
	900	4	286T	30	200	46	300%	SD4P15T3006ET1	LM28131	392	
20	1800	4	256T	60	230/460			SD4P20T61ET1	LM30681	240	
	1800	4	256T	60	200			SD4P20T6006ET1	LM30682	240	
	1200	6	286T	60	230/460	61/30.5	275%	SD6S20T61YET1	LM28132	390	
	1200	6	286T	60	200	68	275%	SD6S20T6006YET1	LM28133	400	
	1200	4	286T	40	230/460	52/26	330%	SD4P20T41ET1	LM28134	385	
	1200	4	286T	40	200	60	330%	SD4P20T4006ET1	LM28135	385	
	900	4	324T	30	230/460	54/27	275%	SD4P20T31ET1	LM28136	480	
	900	4	324T	30	200	62.1	275%	SD4P20T3006ET1	LM28137	471	
	25	1800	4	284T	60	230/460	64/32	250%	SD4P25T61ET1	LM30720	350
		1800	4	284T	60	200	73.5	250%	SD4P25T62ET1	LM30721	350
1200		6	324T	60	230/460	64/32	250%	SD6S25T61YET1	LM28138	505	
1200		6	324T	60	200	73.6	250%	SD6P25T6006ET1	LM28139	505	
1200		4	324T	40	230/460	65/32.5	275%	SD4P25T41ET1	LM28140	472	
1200		4	324T	40	200	74.8	275%	SD4P25T4006ET1	LM28141	472	
900		4	326T	30	230/460	64/32	275%	SD4P25T31ET1	LM28142	538	
900		4	326T	30	200	73.6	275%	SD4P25T3006YET1	LM28143	525	

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# VVF (VARIABLE VOLTAGE VARIABLE FREQUENCY) TRACTION ELEVATOR HOIST MOTORS



AC MOTORS

**3-PHASE • OPEN DRIP-PROOF CONSTRUCTION • FOOT MOUNTED • 7.5 TO 75 HP  
1200 RPM & 900 RPM • HIGH ACCELERATION • 60 HZ, 40HZ & 30HZ DESIGNS**

## FOOT MOUNTING WITH ENCODER F-1 (cont'd)

HP	SYN RPM	No. of Poles	Frame	HZ	Volts	FL Amps	Rated Accel. Torque	Model Number	Product Number	Approx Shpg Wght (lbs)	
30	1800	4	286T	60	230/460	72/36	250%	SD4P30T61ET1	LM30722	400	
		4	286T	60	200	83	250%	SD4P30T62ET1	LM30723	400	
	1200	6	326T	60	230/460	76/38	225%	SD6S30T61YET1	LM27976	535	
		6	326T	60	200	87.4	225%	SD6S30T6006YET1	LM28144	552	
		4	326T	40	230/460	74/37	275%	SD4P30T41ET1	LM28145	516	
		4	326T	40	200	85	275%	SD4P30T4006ET1	LM28146	516	
	900	4	364T	30	230/460	74/37	275%	SD4P30T31ET1	LM28147	575	
		4	364T	30	200	85	275%	SD4P30T3006ET1	LM28148	575	
	40	1800	4	324T	60	230/460	98/49	250%	SD4P40T61ET1	LM30724	470
			4	324T	60	200	113	250%	SD4P40T62ET1	LM30725	470
1200		6	364T	60	230/460	98/49	250%	SD6S40T61YET1	LM28149	755	
		6	364T	60	200	113	250%	SD6S40T6006YET1	LM28150	755	
		4	364T	40	230/460	96/48	275%	SD4P40T41ET1	LM28151	715	
		4	364T	40	200	111	275%	SD4P40T4006ET1	LM28152	715	
900		4	365T	30	230/460	97/48.5	275%	SD4P40T31ET1	LM28153	783	
		4	365T	30	200	112	275%	SD4P40T3006ET1	LM28154	783	
50		1800	4	326T	60	230/460	121/60.5	250%	SD4P50T61ET1	LM30647	522
			4	326T	60	200	139	250%	SD4P50T6006ET1	LM30648	522
	1200	6	365T	60	230/460	129/64.5	275%	SD6S50T61YET1	LM28155	800	
		6	365T	60	200	148	275%	SD6S50T6006YET1	LM28156	800	
		4	365T	40	230/460	120/60	275%	SD4P50T41ET1	LM28157	765	
		4	365T	40	200	138	275%	SD4P50T4006ET1	LM28158	765	
	900	4	405T	30	230/460	118/59	275%	SD4P50T31ET1	LM28159	964	
		4	405T	30	200	136	275%	SD4S50T3006YET1	LM28160	964	
	60	1800	4	364T	60	230/460	140/70		SD4P60T61ET1	LM30649	715
			4	364T	60	200	161		SD4P60T6006ET1	LM30650	715
1200		6	404T	60	230/460	167/83.5	250%	SD6P60T61YET1	LM28161	888	
		6	404T	60	200	192	250%	SD6P60T6006YET1	LM28162	888	
		4	404T	40	230/460	136/68		SD4P60T41ET1	LM28163	870	
		4	404T	40	200	157		SD4P60T4006ET1	LM28164	870	
900		4	444T	30	230/460	140/70	275%	SD4P60T31ET1	LM28165	1277	
		4	444T	30	200	161	275%	SD4P60T3006ET1	LM28166	1277	
75		1800	4	365T	60	230/460	45.5/91		SD4P75T61ET1	LM30651	765
			4	365T	60	200	209		SD4P75T6006ET1	LM30652	765
	1200	6	405T	60	230/460	178/89	250%	SD6P75T61YET1	LM28167	943	
		6	405T	60	200	205	250%	SD6P75T6006YET1	LM28168	943	
		4	405T	40	230/460	170/85		SD4P75T41ET1	LM28169	960	
		4	405T	40	200	196		SD4P75T4006ET1	LM28170	960	

## WITH ENCODER • F-1 CONDUIT BOX • C-FACE • NO FEET

HP	SYN RPM	No. of Poles	Frame	HZ	Volts	FL Amps	Rated Accel. Torque	Model Number	Product Number	Approx Shpg Wght (lbs)
7 1/2	1200	6	254T	60	230/460	24/12	225%	SD6P7.5TCN61ET1	LM28200	150
		6	254T	60	200	28	225%	SD6P7.5TCN6006ET1	LM28201	150
		4	254T	40	230/460	19/9.5	275%	SD4P7.5TCN41ET1	LM30655	145
		4	254T	40	200	22	275%	SD4P7.5TCN4006ET1	LM30663	145
	900	4	256T	30	230/460	19.6/9.8	275%	SD4P7.5TCN31ET1	LM28202	225
		4	256T	30	200	23	275%	SD4P7.5TCN3006ET1	LM28203	225
10	1200	6	256T	60	230/460	24/12	250%	SSD6P10TCN61ET1	LM28204	202
		6	256T	60	200	28	250%	SD6P10TCN6006ET1	LM28205	202
		4	256T	40	230/460	19/9.5	275%	SD4P10TCN41ET1	LM30732	230
		4	256T	40	200	22	275%	SD4P10TCN4006ET1	LM30733	230
	900	4	284T	30	230/460	19.6/9.8	330%	SD4P10TCN31ET1	LM28206	355
		4	284T	30	200	23	330%	SD4P10TCN3006ET1	LM28207	355

Product numbers in red are STOCK items.

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# VVF (VARIABLE VOLTAGE VARIABLE FREQUENCY) TRACTION ELEVATOR HOIST MOTORS

3-PHASE • OPEN DRIP-PROOF CONSTRUCTION • FOOT MOUNTED • 7.5 TO 75 HP  
1200 RPM & 900 RPM • HIGH ACCELERATION • 60 HZ, 40HZ & 30HZ DESIGNS

## WITH ENCODER • F-1 CONDUIT BOX • C-FACE • NO FEET (cont'd)

HP	SYN RPM	No. of Poles	Frame	HZ	Volts	FL Amps	Rated Accel. Torque	Model Number	Product Number	Approx Shpg Wght (lbs)
12 1/2	1200	6	284T	60	230/460	42/21	300%	SD4P12.5TCN61ET1	LM30734	305
	1200	6	284T	60	200	48.5	300%	SD4P12.5TCN6006ET1	LM30735	305
	900	4	284T	30	230/460	34/17	300%	SD4P12.5TCN3006ET1	LM30736	355
	900	4	284T	30	200	38.5	300%	SD4P12.5TCN3006ET1	LM30737	355
15	1800	4	256T	60	230/460			SD4P15TCN61ET1	LM30748	220
	1800	4	256T	60	200			SD4P15TCN6006ET1	LM30749	220
	1200	6	284T	60	230/460	49/24.5	300%	SD6P15TCN61ET1	LM28208	330
	1200	6	284T	60	200	56.5	300%	SD6S15TCN6006YET1	LM28209	330
	1200	4	284T	40	230/460	40/20	330%	SD4P15TCN41ET1	LM30750	355
	1200	4	284T	40	200	46	330%	SD4P15TCN4006ET1	LM30751	355
	900	4	286T	30	230/460	40/20	300%	SD4P15TCN31ET1	LM28210	388
	900	4	286T	30	200	46	300%	SD4S15TCN3006ET1	LM28211	388
20	1800	4	256T	60	230/460			SD4P20TCN61ET1	LM30752	249
	1800	4	256T	60	200			SD4P20TCN6006ET1	LM30753	249
	1200	6	286T	60	230/460	61/30.5	275%	SD6S20TCN61YET1	LM28212	379
	1200	6	286T	60	200	68	275%	SD6S20TCN6006YET1	LM28213	379
	1200	4	286T	40	230/460	52/26	330%	SD4P20TCN41ET1	LM30739	396
	1200	4	286T	40	200	60	330%	SD4P20TCN6006ET1	LM30740	396
	900	4	324T	30	230/460	54/27	275%	SD4P20TCN31ET1	LM28214	480
	900	4	324T	30	200	62.1	275%	SD4S20TCN3006YET1	LM28215	480
25	1800	4	284T	60	230/460	64/32	250%	SD4P25TCN61ET1	LM31607	355
	1800	4	284T	60	200	73.5	250%	SD4P25TCN6006ET1	LM30760	355
	1200	6	324T	60	230/460	64/32	250%	SD6S25TC61YET1	LM28216	499
	1200	6	324T	60	200	73.6	250%	SD6P25TCN6006ET1	LM28217	499
	1200	4	324T	40	230/460	65/32.5	275%	SD4P25TCN41ET1	LM30754	480
	1200	4	324T	40	200	74.8	275%	SD4P25TCN4006ET1	LM30755	480
	900	4	326T	30	230/460	64/32	275%	SD4P25TCN31ET1	LM28218	533
	900	4	326T	30	200	73.6	275%	SD4P25TCN3006ET1	LM28219	533
30	1800	4	286T	60	230/460	72/36	250%	SD4S30TCN61YET1	LM30702	397
	1800	4	286T	60	200	83	250%	SD4P30TCN6006ET1	LM30762	397
	1200	6	326T	60	230/460	76/38	225%	SD6S30TCN61YET1	LM27971	537
	1200	6	326T	60	200	87.4	225%	SD6S30TCN6006YET1	LM28220	557
	1200	4	326T	40	230/460	74/37	275%	SD4P30TCN41ET1	LM30756	532
	1200	4	326T	40	200	85	275%	SD4P30TCN4006ET1	LM30757	532
	900	4	364T	30	230/460	74/37	275%	SD4P30TCN31ET1	LM28221	720
	900	4	364T	30	200	85	275%	SD4P30TCN3006ET1	LM28222	720
40	1800	4	324T	60	230/460	98/49	250%	SD4P40TCN61ET1	LM30763	480
	1800	4	324T	60	200	113	250%	SD4P40TCN6006ET1	LM30764	480
	1200	6	364T	60	230/460	98/49	250%	SD6P40TCN61ET1	LM28223	724
	1200	6	364T	60	200	113	250%	SD6P40TCN6006ET1	LM28224	724
	1200	4	364T	40	230/460	96/48	275%	SD4P40TCN41ET1	LM30758	715
	1200	4	364T	40	200	111	275%	SD4P40TCN4006ET1	LM30765	715
	900	4	365T	30	230/460	97/48.5	275%	SD4P40TCN31ET1	LM28225	775
	900	4	365T	30	200	112	275%	SD4P40TCN3006ET1	LM28226	775
50	1800	4	326T	60	230/460	121/60.5	250%	SD4P50TCN61ET1	LM30746	532
	1800	4	326T	60	200	139	250%	SD4P50TCN6006ET1	LM30747	532
	1200	6	365T	60	230/460	129/64.5	275%	SD6P50TCN61ET1	LM28227	775
	1200	6	365T	60	200	148	275%	SD6P50TCN6006ET1	LM28228	775

## ENCODER PIGTAIL KITS - VVF ELEVATOR MOTORS

### Applications:

Encoder Pigtail Kits are used to extend the length of the existing encoder leads.

Kit Number	Description
LM30561	30 ft. encoder cable kit
LM31752	40 ft. encoder cable kit
LM30881	50 ft. encoder cable kit

Product numbers in red are STOCK items.

Specifications are subject to change without notice

# SUBMERSIBLE HYDRAULIC ELEVATOR PUMP MOTORS

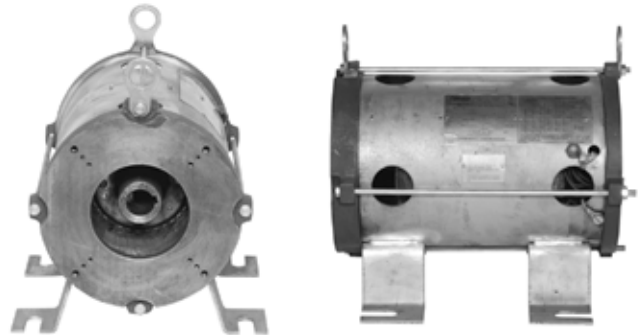


AC MOTORS

**3-PHASE • TOTALLY OPEN FRAME CONSTRUCTION  
FOOT MOUNTED IN 160ZBS FRAME SIZE**

**Features:**

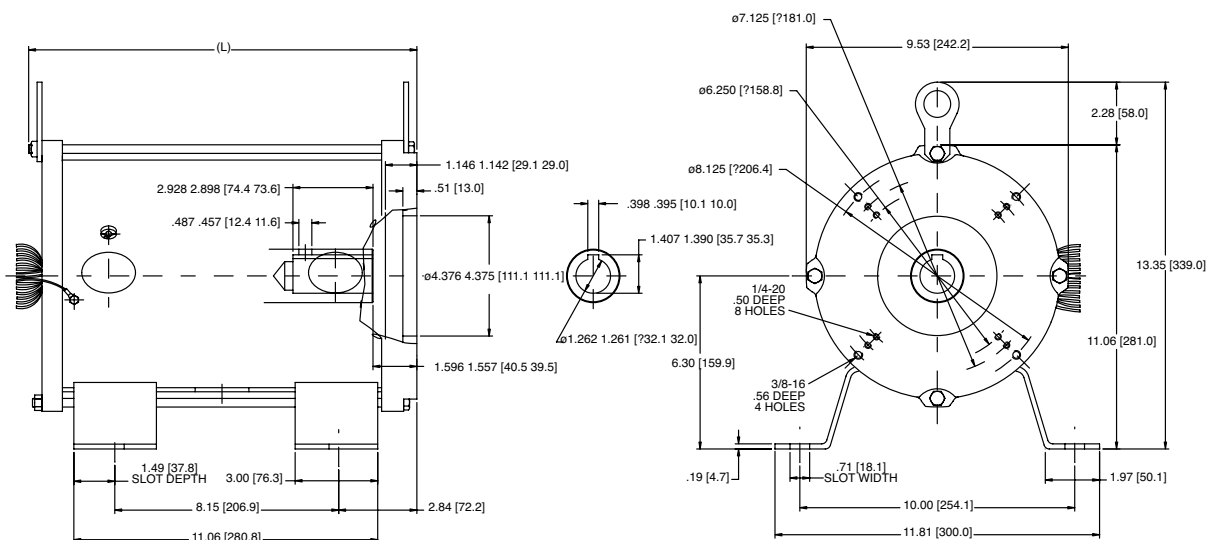
- Intermittent Duty
- Suitable for Wye-Delta Starters
- 1.0 service factor and 70°C Ambient rated
- Three bolt circles, 12 mounting holes, and face mounting to accept both the IMO and Allweiler pumps
- 10 foot long leads, spliced 40 inches from motor to prevent wicking of hydraulic fluid
- Thermostat leads are marked P1 and P2
- Class F insulation
- Two Stainless Steel nameplates, one shipped separate for remote mount
- UL Recognized Component Listing and CSA Approved
- Warranty - 18 months from date of manufacture and 12 months from date of installation which ever period expires first



**Applications:**

These motors are designed to meet the demands in the Hydraulic Elevator Pump Industry. Our Submersible Hydraulic pump elevator motors are ready to be placed in elevator systems for applications in hydraulic pump passenger, service, freight and low-rise elevators. Rated up to 6 floors at speeds up to 200 fpm.

HP	SYN RPM	Frame	Volts	BTU/HR Motor Losses	KVA Code	FL Amps	Locked Rotor Amps	Model Number	Product Number	FL Eff.	Approx Shpg Wght (lbs)
15	3600	160Z	200	14736	H	53	268	SD2S15Z6006YEH3	LM29656	72.2	110
	3600	160Z	230/460	14736	H	46/23	250/125	SD2S15Z61YEH3	LM29657	72.2	110
	3600	160Z	575	14736	H	18.4	100	SD2S15Z65YEH3	LM29658	72.2	110
20	3600	160Z	200	11792	G	64.4	363	SD2S20Z6006YEH3	LM29659	76.4	112
	3600	160Z	230/460	11792	G	56/28	316/158	SD2S20Z61YEH3	LM29660	76.4	112
	3600	160Z	575	11792	G	22.4	126	SD2S20Z65YEH3	LM29661	76.4	112
25	3600	160Z	200	10148	G	77.1	268	SD2S25Z6006YEH3	LM29662	79.0	115
	3600	160Z	230/460	10148	G	67/33.5	250/125	SD2S25Z61YEH3	LM29663	79.0	115
	3600	160Z	575	10148	G	26.8	100	SD2S25Z65YEH3	LM29664	79.0	115
30	3600	160Z	200	9603	G	92	268	SD2S30Z6006YEH3	LM29665	79.9	119
	3600	160Z	230/460	9603	G	80/40	250/125	SD2S30Z61YEH3	LM29666	79.9	119
	3600	160Z	575	9603	G	32	100	SD2S30Z65YEH3	LM29667	79.9	119
40	3600	160Z	200	7271	G	115	268	SD2S40Z6006YEH3	LM29668	84.0	132
	3600	160Z	230/460	7271	G	100/50	250/125	SD2S40Z61YEH3	LM29669	84.0	132
	3600	160Z	575	7271	G	40	100	SD2S40Z65YEH3	LM29670	84.0	132
50	3600	160Z	200	7271	H	140	268	SD2S50Z6006YEH3	LM29671	84.0	143
	3600	160Z	230/460	7271	H	122/61	250/125	SD2S50Z61YEH3	LM29672	84.0	143
	3600	160Z	575	7271	H	48.8	100	SD2S50Z65YEH3	LM29673	84.0	143



## L32 BRACKET CONVERSION KIT

**Applications:**

Used to adapt the Lincoln Submersible Elevator motors to some IMO and Alweiler Pumps. Kit includes needed through bolts to mount this kit to a Lincoln Submersible Elevator Motor.

Catalog Number	Disc. Sym	App. Wgt (lbs)
LM31777	A	12

Product numbers in red are STOCK items.

Specifications are subject to change without notice



## TEFC • MEDIUM VOLTAGE

2300/4000 VOLTS • 3-PHASE  
FOOT MOUNT  
150 TO 700 HP

### Frames 447T - 449T

#### Features:

- Full cast iron construction.
- Double shielded radial ball bearings rated at 100,000 hour B-10 life on direct coupled loads (contact your local Sales office about belted loads).
- Grease fittings with extended grease tubes.
- Internal and external epoxy finish.
- Premium Class H insulation system.
- Front and rear cast iron bearing caps.
- Warranty: 18 months from date of manufacture and 12 months from date of installation which ever period expires first.
- Made in U.S.A.



### Frames 5011 - 5013

#### Features:

- Full cast iron construction.
- Open Conrad-type ball bearings rated at 100,000 hour B-10 life on direct coupled loads (contact your local Sales office about belted loads).
- Grease fittings with extended grease tubes.
- Corrosion resistant breather/drains.
- Oversized cast iron terminal box.
- Internal and external epoxy finish.
- Premium Class H insulation system.
- Inpro/Seal™ bearing isolators on each end.
- Front and rear cast iron bearing caps.
- Provision for jacking bolts in all four feet.
- Provision for dowel pins in drive end feet.
- Grounding points located in terminal box and feet.
- 100 ohm platinum winding RTDs as standard on sizes 400 HP and larger.
- Frame 5011 has mounting holes for 5010, 5011 and 5012 as standard. Frame 5013 has mounting holes for 5012 and 5013 as standard.
- Warranty: 18 months from date of manufacture and 12 months from date of installation which ever period expires first.
- Made in U.S.A.

#### Applications:

Ideally suited for applications requiring heavy duty, large horsepower electric motors. Typical uses include pulp and paper mills, mineral processing, waste management facilities, lumber and wood processing mills, automobile manufacturing plants and other severe duty environments where medium voltage power is available.

NOTE: Lincoln is continuously improving and expanding its line of **MEDIUM VOLTAGE** motors. Contact your local sales office if you don't find the motor you need listed here – there's a good chance we can build it for you.

Product numbers in red are **STOCK** items.

Specifications are subject to change without notice

**TEFC • MEDIUM VOLTAGE**  
**2300/4000 VOLTS • 3-PHASE**  
**FOOT MOUNT**  
**150 TO 700 HP**



**FOOT MOUNT**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
150	1800	447T	93.6	1.15	2300/4000	CC447F4P150T6024	LM22218	2850
	1200	449T	95.0	1.15	2300/4000	CC449F6P150T6024	LM22216	2850
	900	5011LS	94.5	1.15	2300/4000	CC5011S8P150LS6024	LM22214	5500
200	1800	447T	93.6	1.15	2300/4000	CC447F4P200T6024	LM22219	2875
	1200	449T	95.4	1.15	2300/4000	CC449F6P200T6024	LM22217	2875
	900	5011LS	95.0	1.15	2300/4000	CC5011S8P200LS6024	LM22215	5500
250	1800	449T	94.1	1.15	2300/4000	CC449F4P250T6024	LM22207	2920
	1200	5011LS	95.4	1.15	2300/4000	CC5011S6P250LS6025	LM22221	5500
	900	5011LS	95.4	1.15	2300/4000	CC5011S8P250LS6024	LM27283	5500
300	1800	449T	95.0	1.15	2300/4000	CC449F4P300T6024	LM22220	2970
	1200	5011LS	95.8	1.15	2300/4000	CC5011S6P300LS6024	LM22222	5500
	900	5013LS	95.4	1.15	2300/4000	CC5013S8P300LS6024	LM27284	5500
350	1800	5011LS	95.4	1.15	2300/4000	CC5011S4P350LS6024	LM22225	5500
	1200	5011LX	96.2	1.15	2300/4000	CC5011S6P350LX6024	LM22223	5500
	900	5013LS	95.4	1.15	2300/4000	CC5013S8P350LS6024	LM27285	5500
400	1800	5011LX	95.8	1.15	2300/4000	CC5011S4P400LX6024TD2	LM22226	5500
	1200	5011LS	96.2	1.15	2300/4000	CC5011S6P400LS6024TD2	LM22224	5500
450	1800	5011LX	95.8	1.15	2300/4000	CC5011S4P450LX6024TD2	LM22227	5500
	1200	5013LS	96.2	1.15	2300/4000	CC5013S6P450LS6024TD2	LM27286	7200
500	1800	5011LX	96.5	1.15	2300/4000	CC5011S4P500LX6024TD2	LM22488	5500
	1200	5013LS	96.2	1.15	2300/4000	CC5013S6P500LS6024TD2	LM27287	7200
600	1800	5011LX	96.5	1.15	2300/4000	CC5011S4P600LX6024TD2	LM27288	5500
700	1800	5013LS	96.5	1.15	2300/4000	CC5013S4P700LS6024TD2	LM27289	7200

Product numbers in red are STOCK items.

Specifications are subject to change without notice

### MICRO SERIES INVERTER DRIVES

Full feature, ultra-friendly operation. Programs and reads-out in plain English.

- Intelligent Power Module-IGBT's with a 16 bit Intel microprocessor.
- User choice programming with:
  - ✓ Choice of "Quick Start" factory presets.
  - ✓ Built-In English programmable options via the key touch-pad.
- Output Frequency: 0-120 Hz.
- Overload Current Capacity: 150% for one minute, based on nominal output of the control.
- Speed reference signal. Choice of potentiometer, 0-10VDC or 4-20mA inputs.
- Analog output signal, 0-10VDC, speed or load.
- Two auxiliary contacts: One form C relay and two open collector output.
- Preset speeds: Four.
- Slip compensation.
- Adjustable carrier frequency.
- Adjustable acceleration and deceleration times.
- Forward/Reverse.
- DC braking—time and voltage adjustable.
- Password protected.
- Constant torque—with adjustable current limit.
- Rugged, heavy-gauge steel enclosures with barrier type terminal strips.
- Underwriters Laboratories Listed.
- Dynamic Braking is available as a kit for installation in the field (see page 200), or as a Modification (see page 234).
- Remote keypad is available as a kit for installation in the field (see page 200), or as a Modification (see page 234).

Effective July 1, 2006, the Micro Series inverters have PID software built in making them a closed-loop inverter if needed.

PDF file of Manual available at [www.leeson.com/Technical Information](http://www.leeson.com/Technical Information)



Dimension Table see page 201



NEMA 1

**Speedmaster® Micro Series compact inverters** offer "big drive" features for adapting standard or premium efficiency three phase motors to adjustable speed operation. Utilizing the latest microprocessor and advanced IGBT power conversion devices, these high performance controls program and read-out in plain English, eliminating the frustration and time involved in looking-up confusing coded symbols. Complete, rugged steel enclosures for NEMA 1 (IP31) or NEMA 4/12 (IP65) service do not require additional enclosure protection as with many plastic-housed compact drives. Built-in thermal overload protection reduces additional costs. Heavy duty wiring terminals accessible via three conduit openings on the bottom of the housing for power in/out and input/output signals speeds installation and reduces installation costs.

### NEMA 1 (IP31) • THREE PHASE INPUT/OUTPUT

	HP	Output Amps	Input Voltage*‡	Catalog Number	App. Wgt. (lbs.)	Dimension Key
200-240 Volts	1/2	2.2	200-240	174914.00	6	B
	1	4.0	200-240	174915.00	6	C
	1 1/2	5.2	200-240	174916.00	6	C
	2	6.8	200-240	174917.00	9	E
	3	9.6	200-240	174918.00	9	E
	5	15.2	200-240	174919.00	11	F
	7 1/2	25.0	200-240	174545.00	13	M
	10	28.0	200-240	174551.00	15	L
	15	42.0	200-240	174557.00	19	N
	20	54.0	200-240	174560.00	21	P
	25	68.0	200-240	174569.00	38	T
	30	80.0	200-240	174571.00	44	T
400-480 Volts	40	104.0	200-240	174576.00	130	AE
	60	154.0	200-240	174578.00	185	AF
	1	2.0	400-480	174920.00	6	B
	2	3.4	400-480	174921.00	7	D
	3	4.8	400-480	174922.00	9	E
	5	7.6	400-480	174923.00	9	E
	7 1/2	11.0	400-480	174924.00	11	I
	10	14.0	400-480	174552.00	13	M
	15	21.0	400-480	174558.00	15	L
	20	27.0	400-480	174561.00	17	N
	25	34.0	400-480	174563.00	21	P
	30	40.0	400-480	174565.00	21	P
480-590 Volts	40	52.0	400-480	174567.00	35	T
	50	65.0	400-480	174593.00	44	W
	60	77.0	400-480	174572.00	67	W
	75	96.0	400-480	174580.00	185	AG
	100	124.0	400-480	174582.00	250	AH
	125	156.0	400-480	174584.00	260	AH
	150	180.0	400-480	174586.00	360	AL
	1	1.6	480-590	174925.00	6	B
	2	2.7	480-590	174926.00	7	D
	3	3.9	480-590	174927.00	9	E
	5	6.1	480-590	174928.00	9	F
	7 1/2	9.0	480-590	174929.00	11	I
10	11.0	480-590	174553.00	13	R	
15	17.0	480-590	174559.00	17	N	
20	22.0	480-590	174562.00	19	O	
25	27.0	480-590	174564.00	21	P	
30	32.0	480-590	174598.00	22	S	
40	41.0	480-590	174599.00	38	T	
50	52.0	480-590	174594.00	45	W	
60	62.0	480-590	174573.00	51	W	

\*‡ User programmable for 50Hz and other voltage inputs

### NEMA 1 (IP31) • SINGLE PHASE INPUT 230V THREE PHASE OUTPUT

(Use with three phase 230V motor)

	HP	Output Amps 230 VAC	Input Voltage	Catalog Number	App. Wgt. (lbs.)	Dimension Key
	1/4	1.4	115/230	174930.00	5	A
	1/2	2.2	115/230	174997.00	7	AC
	1	4.0	115/230	174931.00	7	D
	1 1/2	5.2	115/230	174932.00	7	D
	2	6.8	200-230	174933.00	9	E
	3	9.6	200-230	174934.00	9	E

FOR INFORMATION ON REMOTE KEYPAD OPTION, SEE PAGE 200.

# AC ADJUSTABLE SPEED DRIVES

## MICRO SERIES INVERTERS



### WASHGUARD NEMA 4/12 (IP65/IP54) EPOXY COATED

**FOOD-SAFE** epoxy finish. No external cooling fan required on NEMA 4 (IP65) drives. NEMA 12 drives have external cooling fan. Fully gasketed, water, oil and dust-tight enclosure. These Speedmaster® Micro Series drives have the same features as units shown on the previous page.



WASHGUARD NEMA 4/12

### WASHGUARD NEMA 4X (IP65) STAINLESS STEEL

**300-SERIES STAINLESS STEEL** NEMA 4X enclosures are fully gasketed to withstand frequent washdown but must be protected from caustic agents. Paint-free stainless steel, no external fans, and anodized aluminum heat sinks provide superior heat transfer and greater structural integrity compared to plastic or fiberglass enclosures. These Speedmaster™ Micro Series drives have the same features as the NEMA 1 drives on the previous page.



WASHGUARD NEMA 4X

### WASHGUARD NEMA 4/12 (IP65/IP54) THREE PHASE INPUT/OUTPUT

	HP	Output Amps	Input Voltage <sup>☆</sup>	Catalog Number	App. Wgt. (lbs.)	Dimension Key
200-240 Volts	1/2	2.2	200-240	174935.00	8	G
	1	4	200-240	174936.00	8	G
	1 1/2	5.2	200-240	174482.00	8	Y
	2	6.8	200-240	174937.00	10	H
	3	9.6	200-240	174938.00	11	J
	5	15.2	200-240	174730.00	11	K
	7 1/2	22	200-240	174734.00	27	Q
	10	28	200-240	174737.00	32	U
	15	43	200-240	174740.00	40	V
	20	54	200-240	174743.00*	42	AA
	25	68	200-240	174595.00*	53	Z
	30	80	200-240	174596.00*	53	Z
400-480 Volts	1	2	400-480	174939.00	8	G
	2	3.4	400-480	174940.00	10	H
	3	4.8	400-480	174941.00	10	H
	5	7.6	400-480	174942.00	11	J
	7 1/2	11	400-480	174548.00	11	K
	10	14	400-480	174554.00	11	Q
	15	21	400-480	174749.00	32	U
	20	27	400-480	174752.00	36	V
	25	34	400-480	174755.00*	42	AA
	30	40	400-480	174757.00*	53	AA
	40	52	400-480	174513.00*	54	Z
	50	65	400-480	174511.00*	75	AB
480-590 Volts	1	1.6	480-590	174943.00	8	G
	2	2.7	480-590	174944.00	10	H
	3	3.9	480-590	174945.00	10	H
	5	6.1	480-590	174946.00	11	J
	7 1/2	9	480-590	174549.00	13	K
	10	11	480-590	174556.00	17	Q
	15	17	480-590	174763.00	38	U
	20	22	480-590	174766.00	40	V
	25	27	480-590	174769.00*	42	AA
	30	32	480-590	174597.00*	53	AA
	40	41	480-590	174512.00*	54	Z
	50	52	480-590	174510.00*	75	AB
60	62	480-590	174575.00*	98	AB	

<sup>☆</sup> User programmable for 50Hz and other voltage inputs  
\* Enclosures are NEMA 12 only – others are NEMA 4/12

### WASHGUARD NEMA 4X (IP65) THREE PHASE INPUT/OUTPUT

	HP	Output Amps	Input Voltage <sup>☆</sup>	Catalog Number	App. Wgt. (lbs.)	Dimension Key	
200-240 Volts	1/2	2.2	200-240	174527.00	8	G	
	1	4	200-240	174528.00	8	G	
	1 1/2	5.2	200-240	174529.00	8	Y	
	2	6.8	200-240	174530.00	10	H	
	3	9.6	200-240	174531.00	11	J	
	5	15.2	200-240	174732.00	11	K	
	7 1/2	22	200-240	174735.00	27	Q	
	10	28	200-240	174738.00	32	U	
	15	43	200-240	174741.00	40	V	
	400-480 Volts	1	2	400-480	174532.00	8	G
		2	3.4	400-480	174533.00	10	H
		3	4.8	400-480	174534.00	10	H
5		7.6	400-480	174535.00	11	J	
7 1/2		11	400-480	174745.00	11	K	
10		14	400-480	174747.00	11	Q	
15		21	400-480	174750.00	32	U	
20		27	400-480	174753.00	36	V	
480-590 Volts	1	1.6	480-590	174536.00	8	G	
	2	2.7	480-590	174537.00	10	H	
	3	3.9	480-590	174538.00	10	H	
	5	6.1	480-590	174539.00	11	J	
	7 1/2	9	480-590	174759.00	13	K	
	10	11	480-590	174761.00	17	Q	
	15	17	480-590	174764.00	38	U	
	20	22	480-590	174767.00	40	V	

<sup>☆</sup> User programmable for 50Hz and other voltage inputs

### WASHGUARD NEMA 4X (IP65) STAINLESS STEEL • SINGLE PHASE INPUT • 230V THREE PHASE OUTPUT

(Use with three phase 230V motor)

HP	Output Amps	Input Voltage <sup>☆</sup>	Catalog Number	App. Wgt. (lbs.)	Dimension Key
1/4	1.4	115/230	174519.00	8	AD
1/2	2.2	115/230	174520.00	8	X
1	4	115/230	174521.00	11	H
1 1/2	5.2	115/230	174517.00	11	H
2	6.8	208-230	174525.00	11	H
3	9.6	208-230	174526.00	12	J

### WASHGUARD NEMA 4 (IP65) EPOXY COATED • SINGLE PHASE INPUT • 230V THREE PHASE OUTPUT

(Use with three phase 230V motor)

HP	Output Amps	Input Voltage <sup>☆</sup>	Catalog Number	App. Wgt. (lbs.)	Dimension Key
1/4	1.4	115/230	174996.00	8	AD
1/2	2.2	115/230	174998.00	8	X
1	4	115/230	174999.00	11	H
1 1/2	5.2	115/230	174515.00	11	H
2	6.8	208-230	174475.00	11	H
3	9.6	208-230	174729.00	12	J

PDF file of Manual available at [www.leeson.com/Technical Information](http://www.leeson.com/Technical Information)

Dimension table – see page 201.

Specifications are subject to change without notice

DRIVES



# AC ADJUSTABLE SPEED DRIVES

## MICRO SERIES INVERTERS

### DYNAMIC BRAKING COMPONENTS FOR THE MICRO SERIES DRIVES

**Micro Series Drives** can be modified to include dynamic braking. The modifications involve replacing board(s) inside of the drive as well as adding a Dynamic Braking Resistor in a separate enclosure. Larger drives require a combination of Dynamic Braking Board and an additional Form C Relay Board. Instructions are included with the boards. Also available as a modification, see Mod Squad section, see page 234.

#### DYNAMIC BRAKING BOARDS\*

Drive HP	Drive Voltage Rating	Catalog Number	App. Wgt.(lbs.)
1/2-3	All	174184.00	2
5	200-230V	174185.00	2
5	460-480V	174185.00	2
5	550-575V	174184.00	2

\* Dynamic braking Resistors are required with the Dynamic Braking Boards.

#### DYNAMIC BRAKING BOARDS WITH FORM C RELAY BOARD\*

Drive HP	Drive Voltage Rating	Catalog Number	App. Wgt.(lbs.)
7 1/2	200-230V	174192.00	2
7 1/2	460-480V	174193.00	2
7 1/2	550-575V	174193.00	2
10 - 60	All	174192.00	2

\* Dynamic braking Resistors are required with the Dynamic Braking Boards.

#### DYNAMIC BRAKING RESISTORS\*\*

Drive HP	Drive Voltage Rating	Catalog Number	App. Wgt.(lbs.)	
1/2	200-230V	174178.00	1	
1	200-230V	174179.00	1	
	460-480V	174179.00	1	
	550-575V	174178.00	1	
1 1/2	200-230V	174179.00	1	
	2	200-230V	174180.00	1
	460-480V	174180.00	1	
3	550-575V	174179.00	1	
	200-230V	174182.00	1	
	460-480V	174182.00	1	
5	550-575V	174181.00	1	
	200-230V	174183.00	1	
	460-480V	174183.00	1	
7 1/2	550-575V	174182.00	1	
	200-230V	174143.00	1	
	460-480V	174143.00	1	
10	550-575V	174148.00	1	
	200-230V	174143.00	1	
	460-480V	174143.00	1	
15-20	550-575V	174148.00	1	
	200-230V	174144.00	1	
	460-480V	174144.00	1	
25-30	550-575V	174149.00	1	
	200-230V	174145.00	1	
	460-480V	174145.00	1	
40	550-575V	174140.00	1	
	200-230V	174145.00	1	
	460-480V	174146.00	1	
50-60	550-575V	174141.00	1	
	460-480V	174147.00	1	
	550-575V	174142.00	1	

\*\* Dynamic braking Resistors are provided with mounting brackets.

### REMOTE KEYPADS & CABLES FOR MICRO SERIES DRIVES\*

**Cable and Keypad** are purchased separately. Installing the Remote keypad and Cable involves partially dis-assembling the drive. Instructions are included with the keypad. Also available as a Modification, see Mod Squad section.



Item	Catalog Number	App. Wgt.(lbs.)
Keypad	174177.00	2
2.5 ft. Cable	174174.00	2
5 ft. Cable	174175.00	2
10 ft. Cable	174176.00	2

\* Compatible with any Micro Series drive.

NOTE: Using the remote keypad on a WASHGUARD Duty Inverter is not recommended, for the control will no longer meet NEMA 4/12 sealing requirements.

### TECHLINK PROGRAMMING AND MONITORING SOFTWARE

TechLink Software is a powerful Drive Configuration tool that works in a Microsoft Windows environment. TechLink supports the following drives sold by LEESON: Micro Series, SM Plus Series and SM Vector Series.

TechLink allows a drive program to be created off line and to access the drive directly while connected over RS232 or RS485 (depending on the drive). RS485 supports several drives on one drive network but will require an RS232 to RS485 converter for most personal computers.

First time users visit LEESON's website, under "Links and Downloads" to download TechLink Software.

LEESON frequently updates Techlink software and the Models files to keep current with our expanding product offering and upgrades to our existing lines. If you have Techlink software installed on your computer and would like to check to see if you have the most current version of the TechLink program or the Models data, check the versions on the opening TechLink screen to the versions below. You will only need to download the program that has been updated. Each program below is a self extracting zip file; after expanding, run setup.exe to install.

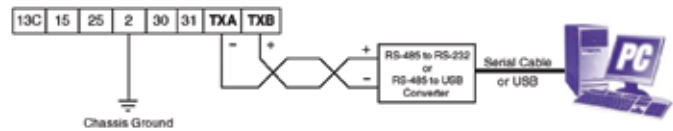
The diagrams below illustrate how to connect the LEESON Micro Series, SM Plus and SM Vector Series drives to a computer in order to use the TechLink software.

Note 1: When using serial communications, terminal 2 on the drive MUST be connected to chassis ground.

#### SM Plus & SM Vector Series

The SM Plus and SM Vector Series drives are RS-485, so a RS-232 to RS-485 or USB to RS-485 converter is required. The converter connects to the computer using a standard serial connection. A twisted pair connects the converter to the drive.

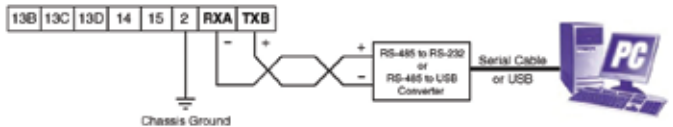
#### SM Plus & SM Vector Series Control Strip



Note 2: Refer to the converter manufacturer's instructions for proper converter configuration. The converter is not supplied by LEESON.

#### Micro Series

The Micro Series is RS-485, so a RS-232 to RS-485 or USB to RS-485 converter is required. The converter connects to the computer using a standard serial or USB connection. A twisted pair connects the converter to the drive.

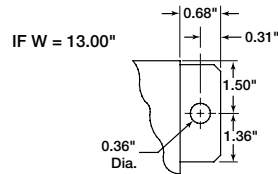
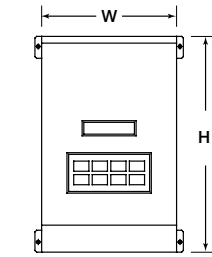


#### Micro Series Control Strip

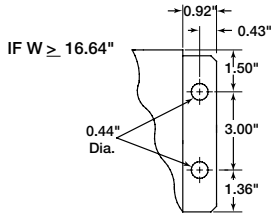
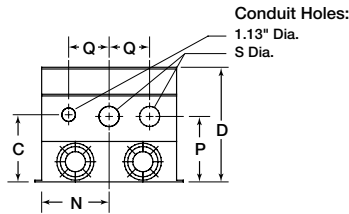
Note: 3 Refer to the converter manufacturer's instructions for proper converter configuration. The converter is not supplied by LEESON.



### TYPE 1 DIMENSIONS FOR MODELS RATED ABOVE 30 HP AT 240/200 VAC & 60 HP AT 590/480/400 VAC



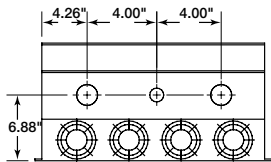
Mounting Tab Detail



### MICRO SERIES INVERTER DIMS. (Inches) • NEMA 1, NEMA 4/12 & NEMA 4X

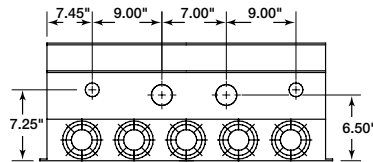
Dimension Key	H	W	D	N	P	Q	R	S	
A	7.50	4.70	3.33	2.35	1.60	1.37	5.50	0.88	
B	7.50	4.70	3.63	2.35	1.90	1.37	5.50	0.88	
C	7.50	4.70	4.33	2.35	2.60	1.37	5.50	0.88	
D	7.50	6.12	4.22	3.77	2.40	1.37	5.50	0.88	
E	7.50	6.12	5.12	3.77	3.30	1.37	5.50	0.88	
F	7.88	7.86	5.94	5.13	3.95	1.50	5.88	1.13	
G	7.88	6.12	4.35	3.06	2.70	1.37	5.88	0.88	
H	7.88	7.86	4.90	4.80	3.25	1.37	5.88	0.88	
I	9.38	7.86	6.25	5.13	3.95	1.50	7.38	1.13	
J	7.88	7.86	5.90	4.80	4.25	1.37	5.88	0.88	
K	9.75	10.26	7.20	5.13	5.25	2.00	7.75	1.13	
L	11.25	7.86	6.84	3.93	4.19	2.00	7.75	1.38	
M	9.38	7.86	6.84	3.93	4.19	2.00	5.88	1.13	
N	12.75	7.86	6.84	3.93	4.19	2.00	9.25	1.38	
O	12.75	7.86	7.40	3.93	4.19	2.00	9.25	1.38	
P	12.75	10.26	7.74	5.13	5.00	2.50	9.25	1.38	
Q	11.75	10.26	8.35	5.13	5.75	2.00	9.75	1.13	
R	9.38	7.86	7.40	3.93	4.19	2.00	5.88	1.13	
S	12.75	10.26	8.25	5.13	5.00	2.50	9.25	1.38	
T	15.75	10.26	8.35	5.13	5.75	2.50	12.25	1.38	
U	13.75	10.26	8.35	5.13	5.75	2.00	11.75	1.38	
V	15.75	10.26	8.35	5.13	5.75	2.00	13.75	1.38	
W	19.75	10.26	8.55	5.13	5.75	2.50	16.25	1.75	
X	7.88	7.86	3.75	4.80	2.10	1.37	5.88	0.88	
Y	7.88	6.12	5.25	3.06	3.60	1.37	5.88	0.88	
Z	20.25	10.26	8.35	5.13	5.75	2.00	16.25	1.38	
AA	15.75	10.26	8.35	5.13	5.75	2.00	11.75	1.38	
AB	21.00	13.72	8.35	5.13	6.10	2.00	16.25	1.38	
AC	7.50	6.12	3.63	3.77	1.80	1.37	5.50	0.88	
AD	7.88	6.12	3.63	3.06	2.00	1.37	5.88	0.88	
AE	25.00	13.00	10.50	5.56	6.50	2.62	-	1.38	
AF	47.00	16.64	11.85	SEE CHART					-
AG	29.00	16.64	11.85	7.14	6.88	3.12	-	1.75	
AH	29.00	24.42	11.85	11.12	6.50	4.50	-	2.50	
AI	29.00	36.66	11.85	11.50	9.00	4.50	-	2.50	
AJ	37.00	18.00	13.30	7.50	8.00	3.13	7.14	1.75	
AK	39.00	26.00	13.30	11.50	9.00	4.50	9.14	2.50	
AL	29.00	36.66	11.85	SEE CHART					-
AM	31.00	14.00	11.86	6.00	7.50	2.62	5.64	1.38	
AN	49.00	18.00	13.30	7.50	8.00	3.13	7.14	1.75	
AO	39.00	26.00	13.30	11.50	9.00	4.50	9.14	2.50	

#### CONDUIT HOLES FOR 174578.00



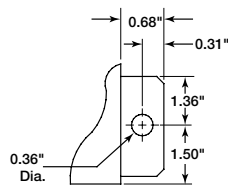
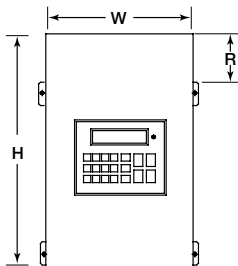
Conduit Holes: Large holes = 1.75"  
Small hole = 1.13"

#### CONDUIT HOLES FOR 174586.00

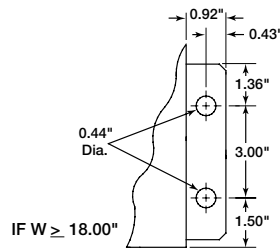
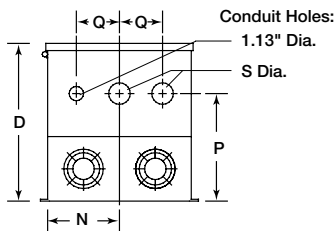


Conduit Holes: Large holes = 3.00"  
Small holes = 1.13"

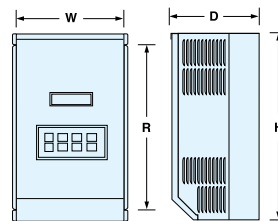
### TYPE 12 DIMENSIONS FOR MODELS RATED ABOVE 30 HP AT 240/200 VAC AND 60 HP AT 400/480 VAC



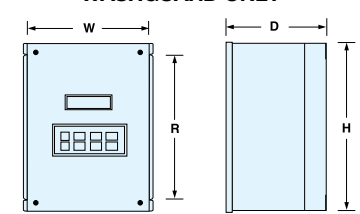
Mounting Tab Detail



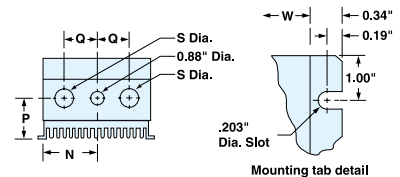
#### NEMA 1 ONLY



#### NEMA 4/12 WASHGUARD ONLY



#### NEMA 1 & NEMA 4/12



### SM PLUS SUB-MICRO INVERTER DRIVES

**BIG performance from an ultra-compact design. Provides 18 isolated I/O terminals plus RS485 Modbus® serial communication. Other features include:**

- Removable electronic programming module allows off-line set-up and program replication.
- Input line voltage calibration—optimizes over and under voltage trip levels
- Current limit to 180% with frequency foldback
- Adjustable carrier frequency (4 to 10 kHz)
- Adjustable V/Hz
- Output frequency to 240 Hz
- Seven preset speeds
- Automatic restart after fault
- Control via drive face, terminal strip or optional remote keypad
- Coast or ramp to stop
- Independent Accel and Decel adjustment
- Forward only or forward and reverse direction
- Adjustable DC injection braking
- Speed reference: Keypad, 0-10 VDC, or 4-20 mA
- Speed reference calibration
- Speed and load indicating output signal selection: 0-10 VDC or 4-20mA
- Output signal calibration
- I<sup>2</sup>t motor thermal overload protection; meets UL requirements for motor protection in single motor applications
- Fixed boost for high starting torque
- Accel boost for high torque accelerating at any speed
- Slip compensation
- Three-digit LED display
- Password protection
- Fault history: Stores eight previous trips
- Terminal status indication
- Default parameter reset
- IP20 enclosure with finger safe terminals
- Dynamic braking and remote keypad kits available on pages 207 and 208

☆ User programmable for 50Hz and other voltage inputs



DIMENSIONS ON PAGE 115

PDF file of Manual available at [www.leeson.com/Technical Information](http://www.leeson.com/Technical Information)



SM PLUS

### SINGLE PHASE INPUT/THREE PHASE OUTPUT

(Use with three phase 230V motor)

Volts	HP	Output Amps	Input Voltage ☆	Catalog Number	App. Wgt.(lbs.)	Dimension Key
115/230	1	4.2	115/230	174492.00	4	B1
	1 1/2	6.0	115/230	174445.00	5	B1

### SINGLE OR THREE PHASE INPUT/THREE PHASE OUTPUT

(Use with three phase 230V motor)

Volts	HP	Output Amps	Input Voltage ☆	Catalog Number	App. Wgt.(lbs.)	Dimension Key
200-240	1/4	1.4	200-240	174452.00	2	A1
	1/2	2.2	200-240	174453.00	2	A1
	1	4.2	200-240	174454.00	3	A2
	1 1/2	6.0	200-240	174493.00	4	B1
	2	6.8	200-240	174494.00	5	B2
	3	9.6	200-240	174495.00	5	B2
	5	15.2	200-240	174444.00	8	C1

### THREE PHASE INPUT/OUTPUT

Volts	HP	Output Amps	Input Voltage ☆	Catalog Number	App. Wgt.(lbs.)	Dimension Key
200-240	1	4.2	200-240	174455.00	3	A2
	1 1/2	6.0	200-240	174456.00	3	A3
	2	6.8	200-240	174457.00	4	A3
	3	9.6	200-240	174458.00	4	A3
	5	15.2	200-240	174446.00	4	B2
	7 1/2	22.0	200-240	174438.00	8	C1
	10	28.0	200-240	174439.00	8	C1
	15	42.0	200-240	174429.00	13	D1
	20	54.0	200-240	174430.00	14	D1
	400-480	1/2	1.1	400-480	174459.00	2
1		2.1	400-480	174460.00	3	A2
1 1/2		3.0	400-480	174461.00	3	A3
2		3.4	400-480	174462.00	4	A3
3		4.8	400-480	174463.00	4	A3
5		7.6	400-480	174447.00	5	B2
7 1/2		11.0	400-480	174440.00	8	C1
10		14.0	400-480	174441.00	8	C1
15		21.0	400-480	174431.00	13	D1
20		27.0	400-480	174432.00	14	D1
480-590	25	34.0	400-480	174433.00	14	D1
	30	40.0	400-480	174500.00	14	D1
	1	1.7	480-590	174464.00	3	A2
	2	3.0	480-590	174491.00	4	A3
	3	4.2	480-590	174497.00	5	B2
	5	6.6	480-590	174448.00	5	B2
	7 1/2	9.9	480-590	174442.00	8	C1
480-590	10	12.2	480-590	174443.00	8	C1
	15	19.0	480-590	174434.00	8	D1
	20	24.0	480-590	174435.00	14	D1
	25	27.0	480-590	174436.00	14	D1

### SPECIFICATIONS:

Storage Temperature	-20° to 70° C
Ambient Operating Temperature	0° to 50° C
Ambient Humidity	<95% (non-condensing)
Maximum Altitude	3300 ft (1000m) above sea level
Input Line Voltages	115/230 VAC, 200-230 VAC, 460-480 VAC, and 550-575 VAC
Input Voltage Tolerance	+10%, -15%
Input Frequency Tolerance	48 to 62 Hz
Output Wave Form	Sine Coded PWM
Output Frequency	0-240 Hz
Carrier Frequency	4 kHz to 10 kHz

Enclosure	IP20
Service Factor	1.0
Efficiency	up to 98%
Power Factor (displacement)	>0.96
Overload Current Capacity	150% for 60 seconds 180% for 20 seconds
Speed Reference Follower	0-10 VDC, 4-20 mA
Control Voltage	15 VDC
Analog Outputs	0-10 VDC or 2-10 VDC: Proportional to frequency or load
Digital Outputs	Open-collector: 40 mA at 30 VDC
Power Supply for Aux. Relays	40 mA at 12 VDC

Specifications are subject to change without notice

## SM SERIES SUB-MICRO INVERTER DRIVES

For applications requiring a simpler drive without the advanced features of the SM-Plus drive. Provides 11 isolated I/O terminals with one Form A relay output. Other features include:

- Removable electronic programming module allows off-line set-up and program replication.
- Input line voltage calibration—optimizes over and under voltage trip levels
- Current limit to 180% with frequency foldback
- Adjustable carrier frequency (4 to 10 kHz)
- Adjustable V/Hz
- Output frequency to 240 Hz
- Seven preset speeds
- Automatic restart after fault
- Control via drive face, terminal strip or optional remote keypad
- Coast or ramp to stop
- Independent Accel and Decel adjustment
- Forward only or forward and reverse direction
- Adjustable DC injection braking
- Speed reference: Keypad, 0-10 VDC, or 4-20 mA
- Speed reference calibration
- I<sup>2</sup>t motor thermal overload protection; meets UL requirements for motor protection in single motor applications
- Fixed boost for high starting torque
- Accel boost for high torque accelerating at any speed
- Slip compensation
- Three-digit LED display
- Password protection
- Fault history: Stores eight previous trips
- Terminal status indication
- Default parameter reset
- IP20 enclosure with finger safe terminals
- Dynamic braking and remote keypad kits available on pages 207 and 208.

☆ User programmable for 50Hz and other voltage inputs



SM SERIES



## SM SERIES SUB-MICRO INVERTERS

### SINGLE PHASE INPUT/THREE PHASE OUTPUT

(Use with three phase 230V motor)

	HP	Output Amps 230 VAC	Input Voltage	Catalog Number	App. Wgt.(lbs.)	Dimension Key
110-120 Volts	1/3	1.7	110-120	174263.00	2	A5
	1/2	2.4	110-120	174264.00	2	A5
	1	4.2	110-120	174265.00	3	B5
	1 1/2	6.0	110-120	174266.00	3	B5

### SINGLE PHASE INPUT/THREE PHASE OUTPUT

(Use with three phase 230V motor)

	HP	Output Amps	Input Voltage	Catalog Number	App. Wgt.(lbs.)	Dimension Key
200-240 Volts	1/3	1.7	200-240	174267.00	2	A5
	1/2	2.4	200-240	174268.00	2	A5
	1	4.2	200-240	174270.00	3	A6
	1 1/2	6.0	200-240	174271.00	4	B5
	2	7.0	200-240	174272.00	5	B5
	3	9.6	200-240	174273.00	5	B6

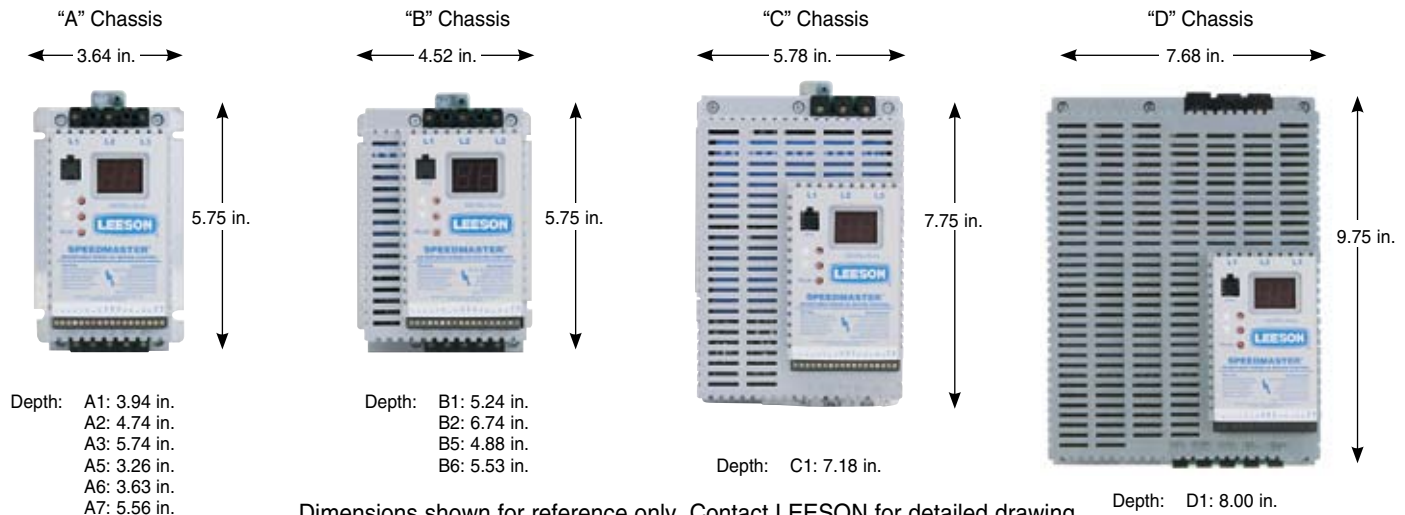
### THREE PHASE INPUT/THREE PHASE OUTPUT

	HP	Output Amps	Input Voltage	Catalog Number	App. Wgt.(lbs.)	Dimension Key
200-240 Volts	1/2	2.4	200-240	174274.00	2	A5
	1	4.2	200-240	174276.00	2	A6
	1 1/2	6.0	200-240	174277.00	3	A7
	2	7.0	200-240	174278.00	3	A7
	3	9.6	200-240	174279.00	3	B6
	5	15.2	200-240	174288.00	5	B2
	7 1/2	22	200-240	174280.00	8	C1
	10	28	200-240	174290.00	8	C1
	15	42	200-240	174292.00	14	D1

### THREE PHASE INPUT/THREE PHASE OUTPUT

	HP	Output Amps	Input Voltage	Catalog Number	App. Wgt.(lbs.)	Dimension Key
400-480 Volts	1/2	1.1	400-480	174281.00	2	A1
	1	2.1	400-480	174282.00	3	A2
	1 1/2	3.0	400-480	174283.00	3	A3
	2	3.4	400-480	174284.00	4	A3
	3	4.8	400-480	174286.00	4	B1
	5	7.8	400-480	174287.00	5	B2
	7 1/2	11	400-480	174285.00	5	B2
	10	14	400-480	174291.00	8	C1
	15	21	400-480	174293.00	8	C1

## DIMENSIONS: SM, SM PLUS AND SM VECTOR INVERTERS



Dimensions shown for reference only. Contact LEESON for detailed drawing.

PDF file of Manual available at [www.leeson.com/Technical Information](http://www.leeson.com/Technical Information)

Specifications are subject to change without notice

# LEESON AC ADJUSTABLE SPEED DRIVES

## SM2 SERIES SUB-MICRO INVERTERS

### SM2 SERIES FLUX VECTOR DRIVE

With its price, its flexibility and a power range of up to 25 Hp, the SM2 SERIES FLUX VECTOR drive excels in environments where inverter technology was once considered too costly, including packaging machinery, food processing machinery, material handling/conveying systems and HVAC systems.



The SM2 SERIES FLUX VECTOR carries all the features required by demanding applications including four modes of operation (V/Hz, Enhanced V/Hz, Vector Speed, and Torque), high starting torque, auto-tuning, advanced low-speed control, and dynamic speed regulation.

#### General Specifications:

- **Horsepower:** 1 to 25HP (0.75 to 18.5kW)
- **Supply Power:**
  - Single Phase: 120, 208, 220 or 240VAC
  - Three Phase: 208, 240, 400, 480 or 600VAC
  - 50 / 60 Hz

**Motors:** Designed for operation with vector duty rated induction motors rated for 120, 200, 230, 400, 460 or 575VAC from 0 to 240Hz.

**Enclosure:** NEMA1, IP21, -10 to 55°C, 2.5% derate per °C above 40°C

**Standard Features:** Easy Set-up and Operation: Program the Vector control in one of four convenient ways:

- From the front of the drive
- The optional remote keypad
- A PC Using TechLink Software (Available free from [www.leeson.com](http://www.leeson.com))
- The innovative EPM Programmer.

#### Modes of operation:

- Open Loop Flux Vector (Speed or Torque)
- V/Hz (constant or variable)
- Enhanced V/Hz with Auto-tuning

#### Easy to Use Keypad & Display 6-Button Interface:

- Start
- Stop
- Forward/Reverse
- Scroll Up
- Scroll Down
- Enter/Mode

#### Vivid Illumination:

- 4 digit LED display
- Easy to read from a distance
- Movable Decimal Point

#### Acceleration/Deceleration Profiles:

- Two Independent Accel Ramps
- Two Independent Decel Ramps
- Linear or S-Type
- Auxiliary Ramp-to-Stop

#### Output Frequency:

- 500 Hz Std., 1000 Hz Optional

#### Selectable Logic Assertion:

- Positive Logic Input (PNP current sourcing)
- Negative Logic Input (NPN current sinking)

#### Multiple Braking Functions

#### Loss of Follower Management

**Speed Commands:** Keypad, Jog, Floating Point Control

**Voltage:** Scalable 0-10 VDC,  
**Current:** Scalable 4-20 mA, Potentiometer,  
8 Preset Speeds

**Process Control:** PID Modes: Direct or Reverse Acting,  
PID Sleep Mode

### SINGLE PHASE INPUT/THREE PHASE OUTPUT

115-230 Volts	Output Amps	Input	Catalog	App.	Dimension
	HP	230 VAC	Voltage	Number	Wgt.(lbs.)
1/3	1.7	115/230	<b>174603.00</b>	2.9	7.5 x 3.9 x 4.35
1/2	2.4	115/230	<b>174604.00</b>	3.0	7.5 x 3.9 x 4.35
1	4.2	115/230	<b>174605.00</b>	3.2	7.5 x 3.9 x 4.35
1.5	6.0	115/230	<b>174651.00</b>	5.0	7.5 x 3.9 x 5.45

### SINGLE OR THREE PHASE INPUT/THREE PHASE OUTPUT

208-240 Volts	Output Amps	Input	Catalog	App.	Dimension
	HP	230 VAC	Voltage	Number	Wgt.(lbs.)
1/3	1.7	208/240	<b>174606.00</b>	2.5	7.5 x 3.9 x 4.35
1/2	2.4	208/240	<b>174607.00</b>	2.9	7.5 x 3.9 x 4.35
1	4.2	208/240	<b>174608.00</b>	3.2	7.5 x 3.9 x 4.35
1 1/2	6.0	208/240	<b>174609.00</b>	3.7	7.5 x 3.9 x 5.45
2	7.0	208/240	<b>174610.00</b>	3.7	7.5 x 3.9 x 5.45
3	9.6	208/240	<b>174611.00</b>	3.9	7.5 x 3.9 x 5.45

∂ LEESON model 174606 is single-phase input only

### THREE PHASE INPUT/OUTPUT

200-240 Volts	Output Amps	Input	Catalog	App.	Dimension	
	HP	230 VAC	Voltage	Number	Wgt.(lbs.)	H x W x D (in.)
1 1/2	6.0	200/240	<b>174612.00</b>	3.7	7.5 x 3.9 x 5.45	
2	7.0	200/240	<b>174613.00</b>	3.7	7.5 x 3.9 x 5.45	
3	9.6	200/240	<b>174614.00</b>	3.8	7.5 x 3.9 x 5.45	
5	16.5	200/240	<b>174615.00</b>	4.2	7.5 x 3.9 x 5.8	
7 1/2	23.0	200/240	<b>174616.00</b>	7.3	9.83 x 5.12 x 6.3	
10	29.0	200/240	<b>174617.00</b>	7.3	9.83 x 5.12 x 6.3	
15	42.0	200/240	<b>174618.00</b>	20	12.33 x 6.88 x 8.08	
20	54.0	200/240	<b>174619.00</b>	20	12.33 x 6.88 x 8.08	
400-480 Volts	1/2	1.1	400/480	<b>174620.00</b>	3.0	7.5 x 3.9 x 4.35
	1	2.1	400/480	<b>174621.00</b>	3.2	7.5 x 3.9 x 4.35
	1 1/2	3.0	400/480	<b>174622.00</b>	3.6	7.5 x 3.9 x 5.45
	2	3.5	400/480	<b>174623.00</b>	3.7	7.5 x 3.9 x 5.45
	3	4.8	400/480	<b>174624.00</b>	3.7	7.5 x 3.9 x 5.45
	5	8.2	400/480	<b>174625.00</b>	4.3	7.5 x 3.9 x 5.8
	7 1/2	11.0	400/480	<b>174626.00</b>	7.3	9.83 x 5.12 x 6.3
	10	14.0	400/480	<b>174627.00</b>	7.3	9.83 x 5.12 x 6.3
	15	21.0	400/480	<b>174628.00</b>	20	12.33 x 6.88 x 8.08
	20	27.0	400/480	<b>174629.00</b>	20	12.33 x 6.88 x 8.08
480-590 Volts	25	35.0	400/480	<b>174630.00</b>	20	12.33 x 6.88 x 8.08
	1	1.7	480/590	<b>174631.00</b>	3.2	7.5 x 3.9 x 4.35
	2	2.7	480/590	<b>174632.00</b>	3.7	7.5 x 3.9 x 5.45
	3	3.9	480/590	<b>174633.00</b>	3.8	7.5 x 3.9 x 5.45
	5	6.1	480/590	<b>174634.00</b>	4.2	7.5 x 3.9 x 5.8
	7 1/2	9.0	480/590	<b>174635.00</b>	7.3	9.83 x 5.12 x 6.3
	10	11.0	480/590	<b>174636.00</b>	7.3	9.83 x 5.12 x 6.3
	15	17.0	480/590	<b>174637.00</b>	20	12.33 x 6.88 x 8.08
	20	22.0	480/590	<b>174638.00</b>	20	12.33 x 6.88 x 8.08
	25	27.0	480/590	<b>174639.00</b>	20	12.33 x 6.88 x 8.08

#### Voltage Monitoring

#### Current Monitoring

**Real Time Monitoring:** 8 register fault history, Software Version Drive Network ID, DC Bus Voltage (V), Motor Voltage (V), Output Current (%), Motor Current (A), Motor Torque (%), Power (kW) Energy Consumption (kWh), Heatsink Temperature (°C), 0-10 VDC Input (User Defined), 4-20 mA Input (User Defined) PID

Feedback (User Defined), Analog Output (% Load, % Torque, kW), Network Speed (baud rate), Terminal Continuity, Keypad Status,

Elapsed Run Time (hours), Elapsed Power on Time (hours)

**Standards:** UL (USA), cUL (Canada), CE (Europe), GOST (Russia/Ukraine) C-Tick (Australia/New Zealand)

PDF file of Manual available at [www.leeson.com/Technical Information](http://www.leeson.com/Technical Information)

Specifications are subject to change without notice

# AC ADJUSTABLE SPEED DRIVES

## SM4 SERIES NEMA 4 FLUX VECTOR INVERTERS



### SM4 SERIES NEMA 4 FLUX VECTOR DRIVE

#### Indoor Use

With its price, its flexibility and a power range of up to 25 Hp, the SM2 SERIES FLUX VECTOR drive excels in environments where inverter technology was once considered too costly, including packaging machinery, food processing machinery, material handling/conveying systems and HVAC systems.

The SM4 SERIES FLUX VECTOR carries all the features required by demanding applications including four modes of operation (V/Hz, Enhanced V/Hz, Vector Speed, and Torque), high starting torque, auto-tuning, advanced low-speed control, and dynamic speed regulation.

#### General Specifications:

- **Horsepower:** 1 to 25HP (0.75 to 18.5kW)
- **Supply Power:**
  - Single Phase: 120, 208, 220 or 240VAC
  - Three Phase: 208, 240, 400, 480 or 600VAC
  - 50 / 60 Hz

**Motors:** Designed for operation with vector duty rated induction motors rated for 120, 200, 230, 400, 460 or 575VAC from 0 to 240Hz.

**Enclosure:** NEMA4, IP65, -10 to 55°C, derate per °C above 40°C, indoor use

**Standard Features:** Easy Set-up and Operation: Program the Vector control in one of four convenient ways:

- From the front of the drive
- The optional remote keypad
- A PC Using TechLink Software (Available free from [www.leeson.com](http://www.leeson.com))
- The innovative EPM Programmer.

#### Modes of operation:

- Open Loop Flux Vector (Speed or Torque)
- V/Hz (constant or variable)
- Enhanced V/Hz with Auto-tuning

#### Easy to Use Keypad & Display 6-Button Interface:

- Start
- Stop
- Forward/Reverse
- Scroll Up
- Scroll Down
- Enter/Mode

#### Vivid Illumination:

- 4 digit LED display
- Easy to read from a distance
- Movable Decimal Point

#### Acceleration/Deceleration Profiles:

- Two Independent Accel Ramps
- Two Independent Decel Ramps
- Linear or S-Type
- Auxiliary Ramp-to-Stop

#### Output Frequency:

- 500 Hz Std., 1000 Hz Optional

#### Selectable Logic Assertion:

- Positive Logic Input (PNP current sourcing)
- Negative Logic Input (NPN current sinking)

#### Multiple Braking Functions

#### Loss of Follower Management

**Speed Commands:** Keypad, Jog, Floating Point Control

**Voltage:** Scalable 0-10 VDC,

**Current:** Scalable 4-20 mA, Potentiometer, 8 Preset Speeds

**Process Control:** PID Modes: Direct or Reverse Acting, PID Sleep Mode

PDF file of Manual available at [www.leeson.com/Technical Information](http://www.leeson.com/Technical Information)



### SINGLE PHASE INPUT/THREE PHASE OUTPUT

(Use with three phase 230V motor)

115/230 Volts	HP	Output Amps 230 VAC	Input Voltage	Catalog Number	App. Wgt.(lbs.)	Dimension H x W x D (in.)
	1/2	2.4	115/230 Volts	<b>174652.00</b>	3.6	8.0 x 6.28 x 4.47
	1	4.2		<b>174653.00</b>	3.6	8.0 x 6.28 x 4.47
	1 1/2	6.0		<b>174654.00</b>	3.6	8.0 x 6.28 x 4.47

### SINGLE OR THREE PHASE INPUT/THREE PHASE OUTPUT

(Use with three phase 230V motor)

208-240 Volts	HP	Output Amps 230 VAC	Input Voltage	Catalog Number	App. Wgt.(lbs.)	Dimension H x W x D (in.)
	1/2	1.7	208-240 Volts	<b>174655.00</b>	3.6	8.0 x 6.28 x 4.47
	1	2.4		<b>174656.00</b>	3.6	8.0 x 6.28 x 4.47
	1 1/2	4.2		<b>174657.00</b>	5.9	8.0 x 6.28 x 6.31
	2	6.0		<b>174658.00</b>	5.9	8.0 x 6.28 x 6.31
	3	7.0		<b>174659.00</b>	7.1	8.0 x 7.12 x 6.77

### THREE PHASE INPUT/THREE PHASE OUTPUT

208-240 Volts	HP	Output Amps 230 VAC	Input Voltage	Catalog Number	App. Wgt.(lbs.)	Dimension H x W x D (in.)
	5	6.0	208-240 Volts	<b>174660.00</b>	11.58	10.0 x 8.96 x 8.0
	7 1/2	7.0		<b>174661.00*</b>	10.98	10.0 x 8.04 x 8.0
	10	9.6	3-Phase	<b>174662.00*</b>	10.98	10.0 x 8.04 x 8.0

### THREE PHASE INPUT/THREE PHASE OUTPUT

400-480 Volts	HP	Output Amps 230 VAC	Input Voltage	Catalog Number	App. Wgt.(lbs.)	Dimension H x W x D (in.)
	1/2	0.5	400-480 Volts	<b>174671.00</b>	3.6	8.0 x 6.28 x 4.47
	1	2.1		<b>174672.00</b>	3.6	8.0 x 6.28 x 4.47
	1 1/2	3.0		<b>174673.00</b>	5.9	8.0 x 6.28 x 6.31
	2	3.5		<b>174674.00</b>	5.9	8.0 x 6.28 x 6.31
	3	4.8		<b>174675.00</b>	5.9	8.0 x 6.28 x 6.31
	5	8.2		<b>174676.00</b>	11.58	10.0 x 8.96 x 8.0
	7 1/2	11.0		<b>174677.00</b>	11.58	10.0 x 8.96 x 8.0
	10	14.0		<b>174678.00*</b>	10.98	10.0 x 8.04 x 8.0

### THREE PHASE INPUT/THREE PHASE OUTPUT

480-590 Volts	HP	Output Amps 230 VAC	Input Voltage	Catalog Number	App. Wgt.(lbs.)	Dimension H x W x D (in.)
	1	1.7	480-590 Volts	<b>174663.00</b>	3.61	8.0 x 6.28 x 4.47
	2	2.7		<b>174664.00</b>	5.9	8.0 x 6.28 x 6.31
	3	3.9		<b>174665.00</b>	5.9	8.0 x 6.28 x 6.31
	5	6.1		<b>174666.00</b>	11.58	10.0 x 8.96 x 8.0
	7 1/2	9.0		<b>174667.00</b>	11.58	10.0 x 8.96 x 8.0
	10	11.0	<b>174668.00*</b>	10.98	10.0 x 8.04 x 8.0	

\* = fan cooled - other controls are convection cooled

Available 1st Qtr 2011

#### Voltage Monitoring

#### Current Monitoring

**Real Time Monitoring:** 8 register fault history, Software Version Drive Network ID, DC Bus Voltage (V), Motor Voltage (V), Output Current (%) Motor Current (A), Motor Torque (%), Power (kW) Energy Consumption (kWh), Heatsink Temperature (°C), 0-10 VDC Input (User Defined), 4-20 mA Input (User Defined) PID

Feedback (User Defined), Analog Output (% Load, % Torque, kW), Network Speed (baud rate), Terminal Continuity, Keypad Status,

Elapsed Run Time (hours), Elapsed Power on Time (hours)

**Standards:** UL (USA), cUL (Canada), CE (Europe), GOST (Russia/Ukraine) C-Tick (Australia/New Zealand)

### SM VECTOR SUB-MICRO INVERTER DRIVES

Sensorless Vector AC Drive delivers up to 200% starting torque and can control a vector duty motor down to 1Hz at full output torque!

- The SM-Vector drive is designed for operation with vector duty rated induction motors rated for 200, 230, 400, 460, or 590VAC from 0 to 240Hz.
- IP20 enclosure with finger safe terminals
- Easy setup and operation – Program the SM-Vector drive one of four different ways:
  - From the front of the drive
  - The optional remote keypad
  - A PC using the TechLink Software
  - The EPM Programmer
- Modes of operation:
  - Constant Torque V/Hz
  - Variable Torque V/Hz
  - Sensorless Vector – speed mode
  - Sensorless Vector – torque mode
- Auto Tuning determines key performance values based on the motor and installation variables. Required for operation in vector modes, but can be used to enhance performance in V/Hz mode.
- The SM-Vector drive is an approved thermal overload protection device for single motor applications.
- 18 isolated terminals provide 5 logic inputs and 2 logic outputs.
- Two reference inputs allow for 4-20mA and either 0-10V or bipolar -10 to +10V
- Two analog outputs indicate speed and load.
- Two wire RS485 serial communication.
- Dynamic braking and remote keypad kits available on pages 207 and 208.



SM VECTOR

### SINGLE OR THREE PHASE INPUT/THREE PHASE OUTPUT

(Use with three phase 230V motor)

	HP	Output Amps 230VAC	Input Voltage:☆	Catalog Number	Wgt. (lbs.)	Dimension Key
200-240 Volts	1/2	2.2	200-240	174000.00	2	A1
	1	4.2	200-240	174001.00	3	A2
	1 1/2	6.0	200-240	174002.00	4	B1
	2	6.8	200-240	174003.00	5	B2
	3	9.6	200-240	174004.00	5	B2

### THREE PHASE INPUT/THREE PHASE OUTPUT

	HP	Output Amps 230VAC	Input Voltage:☆	Catalog Number	Wgt. (lbs.)	Dimension Key
200-240 Volts	1	4.2	200-240	174006.00	3	A2
	1 1/2	6.0	200-240	174007.00	3	A3
	2	6.8	200-240	174008.00	4	B2
	3	9.6	200-240	174009.00	4	B2
	5	15.2	200-240	174010.00	4	B2
	7 1/2	22	200-240	174011.00	8	C1
	10	28	200-240	174012.00	8	C1

### THREE PHASE INPUT/THREE PHASE OUTPUT

	HP	Output Amps	Input Voltage:☆	Catalog Number	Wgt. (lbs.)	Dimension Key
400-480 Volts	1/2	1.1	400-480	174015.00	2	B1
	1	2.1	400-480	174016.00	3	B1
	1 1/2	3.0	400-480	174017.00	3	B1
	2	3.4	400-480	174018.00	4	B2
	3	4.8	400-480	174019.00	4	B2
	5	7.8	400-480	174020.00	5	B2
	7 1/2	11	400-480	174021.00	8	C1
	10	14	400-480	174022.00	8	C1

### THREE PHASE INPUT/THREE PHASE OUTPUT

	HP	Output Amps	Input Voltage:☆	Catalog Number	Wgt. (lbs.)	Dimension Key
480-590 Volts	1	1.7	480-590	174027.00	3	B1
	2	3.0	480-590	174028.00	4	B2
	3	4.2	480-590	174029.00	5	B2
	5	6.6	480-590	174030.00	5	B2
	7 1/2	9.9	480-590	174031.00	8	C1
	10	12.2	480-590	174032.00	8	C1

☆ User programmable for 50Hz and other voltage inputs



DIMENSIONS ON PAGE 115

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#### SPECIFICATIONS:

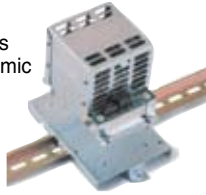
Storage Temperature	-20° to 70° C
Ambient Operating Temperature	0° to 50° C
Ambient Humidity	<95% (non-condensing)
Maximum Altitude	3300 ft (1000m) above sea level
Input Line Voltages	208-240 VAC, 400-480 VAC, 480-590 VAC
Input Voltage Tolerance	+10%, -15%
Input Frequency Tolerance	48 to 62 Hz
Output Wave Form	Sine Coded PWM
Output Frequency	0-240 Hz
Carrier Frequency	2 kHz, 4 kHz, 8 kHz

Enclosure	IP20
Service Factor	1.0
Efficiency	up to 98%
Power Factor (displacement)	0.96 or better
Overload Current Capacity	150% for 60 seconds 200% for 25 seconds
Speed Reference Follower	0-10 VDC, 4-20 mA
Control Voltage	15 VDC
Analog Outputs	0-10 VDC or 2-10 VDC: Proportional to speed, load, or torque
Digital Outputs	Open-collector: 50 mA at 30 VDC
Power Supply for Aux. Relays	50 mA at 12 VDC

### ACCESSORIES FOR THE SM, SM-PLUS & SM VECTOR SERIES DRIVES

#### Dynamic Braking Components for the SM, SM-Plus & SM Vector Series Drives

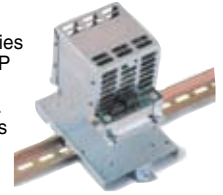
Dynamic braking is available for the SM, SM-Plus and SM Vector series drives as a separate Dynamic Braking Module. Lower HP modules have the control electronics and the dynamic braking resistor in one convenient package. Larger units require a separate resistor. The modules can be panel or DIN rail mounted.



### ACCESSORIES FOR THE SM2 FLUX VECTOR SERIES DRIVES

#### Dynamic Braking Components for the SM2 Vector Series Drives

Dynamic braking is available for the SM2 Vector Series drives as a separate Dynamic Braking Module. 10 HP and lower modules have control electronics and the dynamic braking resistor in one convenient package. Larger units require a separate resistor. The modules can be panel or DIN rail mounted.



#### DYNAMIC BRAKING MODULES WITH BUILT-IN DYNAMIC BRAKING RESISTORS\*

Drive HP	Motor Voltage Rating	Catalog Number	App. Wgt. (lbs.)
1/4-1/2	208-230V	174400.00	2
1/4-1/2	400-480V	174406.00	2
1 - 1 1/2	208-230V	174401.00	3
1 - 1 1/2	400-480V	174407.00	3
1 - 1 1/2	480-590V	174412.00	3
2 - 3	208-230V	174402.00	4
2 - 3	400-480V	174408.00	4
2 - 3	480-590V	174413.00	4
5	208-230V	174403.00	5
5	400-480V	174409.00	5
5	480-590V	174414.00	5
7 1/2	208-230V	174404.00	6
7 1/2	400-480V	174410.00	6
7 1/2	480-590V	174415.00	6
10	208-230V	174405.00	8
10	400-480V	174411.00	8
10	480-590V	174416.00	8

\* Braking Resistors are included with the module and not purchased separately.

#### DYNAMIC BRAKING MODULES WITH BUILT-IN DYNAMIC BRAKING RESISTORS\*

Drive HP	Motor Voltage Rating	Catalog Number	App. Wgt. (lbs.)
1/3-1/2	208 - 230V	174157.00	2
1/3-1/2	400 - 480V	174158.00	2
1 - 1 1/2	208 - 230V	174151.00	3
1 - 1 1/2	400 - 480V	174152.00	3
1 - 1 1/2	480 - 590V	174153.00	3
2 - 3	208 - 230V	174154.00	4
2 - 3	400 - 480V	174155.00	4
2 - 3	480 - 590V	174156.00	4
5	208 - 230v	174159.00	5
5	400 - 480V	174160.00	5
5	480 - 590V	174161.00	5
7 1/2	208 - 230V	174162.00	6
7 1/2	400 - 480V	174163.00	6
7 1/2	480 - 590V	174164.00	6
10	208 - 230V	174165.00	8
10	400 - 480V	174166.00	8
10	480 - 590V	174167.00	8

\* Braking Resistors are included with the module and not purchased separately.

### ELECTRONIC PROGRAMMING UNIT

Electronic Programming Unit allows off-line set-up and replication of the drive's plug-in electronic programming module (shown at right). Excellent for multi-drive applications. Keypad input and alphanumeric display simplify programming. RS-232 serial port allows downloading of configuration files from personal computer.



Catalog Number	App. Wgt. (lbs.)
174189.00	2

### DIN RAIL MOUNTING KITS

Steel plates and fasteners for mounting drives on standard 35mm DIN rails for panel building. **Set of six.**



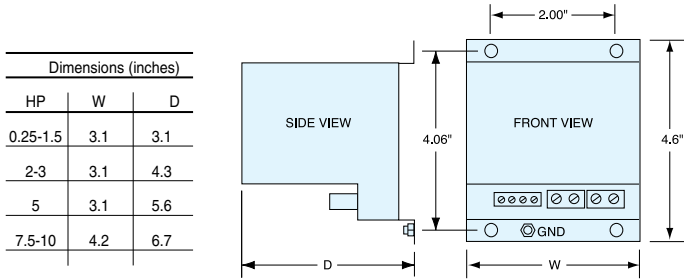
- 174186 for "A" chassis drives.
- 174187 for "B" chassis drives.
- 174188 for "C" chassis drives.

Catalog Number	App. Wgt. (lbs.)
174186.00	3
174187.00	3
174188.00	3



# AC ADJUSTABLE SPEED DRIVES

## SUB-MICRO INVERTER ACCESSORIES



### DYNAMIC BRAKING MODULES WITHOUT RESISTORS\*

Drive HP	Motor Voltage Rating	Catalog Number	App. Wgt. (lbs.)
15-20	208-230V	174417.00	10
15-30	400-480V	174418.00	10
15-25	480-590V	174419.00	10

\* Dynamic Braking Resistors are purchased and mounted separately.

### DYNAMIC BRAKING RESISTORS\*\*

Drive HP	Motor Voltage Rating	Catalog Number	App. Wgt. (lbs.)
15-20	208-230V	174144.00	1
15-20	400-480V	174144.00	1
15-20	480-590V	174149.00	1
15-30	400-480V	174145.00	1
25	480-590V	174140.00	1

\*\* Dynamic Braking Resistors are provided with mounting brackets.

### SM4 REMOTE KEYPAD

- Potentiometer Kit takes the place of the up/down buttons on the drive's keypad
- Gives operators hands-on speed control over the Inverter's speed range

Catalog Number	App. Wgt. (lbs.)
174693.00	2
174697.00	2
174698.00	2



### EPM BULK PACK

Plug-in electronic programming modules (EPM). Allow off-line set-up and replication of program using Electronic Programming Unit (at left). **Set of 10.**



Catalog Number	App. Wgt. (lbs.)
174190.00	1

### REMOTE KEYPAD

Remote keypad kit for includes eight-foot connecting cable and gasket. Mounted in proper enclosure, the keypad kit will provide up to NEMA 4 protection. **These keypads can only be used with Sub-Micro drives manufactured May, 1999 or later (date code of 9922 or higher).**

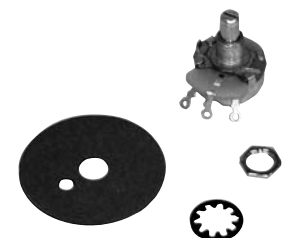
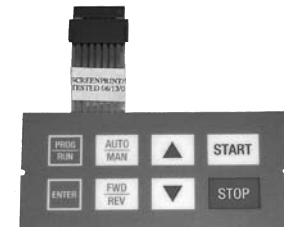


Drive Type	Catalog Number	App. Wgt. (lbs.)
SM Plus	174191.00	2
SM	174194.00	2
SM Vector	174306.00	2
SM2 Vector	174150.00	2

Depth: .625"

### INVERTER ACCESSORY PARTS

Catalog Number	Description
006707.01	Micro Series Keypad
006708.01	Speed Pot (10k/5w pot, washers & nut)





### FHP SERIES AC DRIVES

#### General Specifications:

The FHP Series volts/hertz-type AC drives are as simple to set-up and calibrate as an SCR-type DC drive. Rated from 1/4 to 1HP with 115V, 230V, or 115/230V “doubler” input power ratings.

The cost-conscious and compact chassis design of the FHP Series maintains the industry standard for mounting hole location.

The NEMA 4X enclosed drive has additional features in a compact package size.

With its compact size, standard features and application flexibility, the FHP Series is an excellent choice for most 1 hp and under AC applications.

#### Common features for chassis and enclosed units:

- Compact size – (4.30" x 3.70")
- Industry standard mounting
- Output voltage on dual voltage models is jumper selectable and can double the output voltage – allowing the use of a 230V motor when only 115V power is available.
- Quickly and easily change trimmer pot ranges for 1/15 to 1 hp motors.
- Easy calibration and setup with on board trim pot adjustments for boost, max speed, acceleration, deceleration, to overcome intermittent peak loads, then reduces the torque and torque limit.
- Torque ‘foldback’ feature – Allows up to 200% torque for short periods (output current) to a safe level that is set with the TQ LIMIT trim pot.
- 16kHz switching frequency, with option to change between 4 and 16kHz in the field.
- Adjustable torque boost for startup – Up to 200% additional torque for loads with high inertia or friction.
- Color-coded on-board LEDs for Power, Fault and Torque Limit enable easy visual determination of drive status.
- Easy start/stop and direction control with enable and Direction terminal connections.
- Accepts speed reference from 0-5VDC isolated signal or wired in speed potentiometer.
- Plug-in Process Control Module (PCM) kit available to accept 0-5VDC, 0-10VDC or 4-20mA input.
- UL listed

#### Special features of the NEMA 4X drive:

- NEMA 4X enclosure
- Jumper selectable DC injection braking or coast to stop
- Brake time and current are adjustable
- Built-in isolation card to accept a speed reference signal
- Min speed adjustment
- Auto or manual restart after power loss

PARAMETER	SPECIFICATIONS FOR ALL FHP MODELS
Max load	150% for 5 minutes
Output frequency	0-120Hz
Output type	6 step PWM
Switching frequency	4-16kHz range* with 16kHz as factory default
Speed regulation and range	±3% of base speed; up to 50:1
On-board adjustable trim pots	Max speed, accel, decel, boost & torque limit
Adjustable maximum frequency range	32-120Hz
Adjustable accel and decel time range	1-12 seconds
Torque boost range	0-200%
LED indicators	Power (green), Fault‡ (red), Torque Limit (yellow)
Instantaneous over-current trip time	3 µsec
Analog reference input and impedance	0-5VDC isolated, ~100Kohm
Plug-in PCM isolator card input	0-5 VDC, 0-10VDC, 4-20mA
Ambient temperature range	0-40°C
Weight (Chassis Models)	1.2 lbs.
Vibration	0.5G max (20-50Hz); 0.1G max (>50Hz)
Approvals	UL, cUL

\* Plug-in capacitor kit (175325) for field adjustments to less than 16kHz; ‡ Faults are Over-voltage, Under-voltage and Instantaneous Over Current trip.

Specifications are subject to change without notice



### FHP SERIES AC DRIVES • CHASSIS MOUNT SINGLE PHASE INPUT/SINGLE OR THREE PHASE OUTPUT

HP	Input Voltage	Output Amps	Output Voltage	Catalog Number	App. Wgt. (lbs.)
1/4	230	1.2	230	175318.00	2
	115/230	1.2	230	175319.00	2
	115	2.4	115	175320.00	3
1/2	230	2.4	230	175321.00	3
	115/230	2.4	230	175310.00	3
	115	4.0	115	175322.00	4
1	230	4.0	230	175323.00	4
	115/230	4.0	230	175311.00	4

### FHP SERIES AC DRIVES • ACCESSORIES

Item Description	Catalog Number	App. Wgt. (lbs.)
Process Control Module (PCM) Kit*	175324.00	2
Carrier Frequency Capacitor Kit	175325.00	1

\* PCM Kit is for use with chassis drives only.

### FHP SERIES AC DRIVES • NEMA 4X (IP65) SINGLE PHASE INPUT/THREE PHASE OUTPUT

- NEMA 4X enclosure
- Min speed adjustment
- Jumper selectable features:
  - DC injection braking or coast to stop
  - Brake time and current are adjustable
  - Auto or manual restart after power loss
- Built-in isolation card to accept a speed reference signal



HP	Input Voltage	Output Amps	Output Voltage	Catalog Number	App. Wgt. (lbs.)
1/6-1	115/230	4.0	230	175326.00	7

### DUAL MODE • DUAL SPEED CONTROL

- Dual Motor, Dual Voltage Control
- SCR Control designed to run two DC motors at the same time in either Independent mode or Slave/Master mode
- Open Chassis Design
- Dual voltage, 115-230 VAC input with jumper selectable 90/180 VDC output
- Jumper selectable speed and torque mode
- Two trim pots each for the minimum speed, maximum speed, IR compensation, current limit and acceleration/deceleration
- Comes standard with two potentiometers



HP	Input Voltage	Output Amps	Output Voltage	Catalog Number	App. Wgt. (lbs.)
1 HP @ 90 VDC 2 HP @ 180 VDC	115/230	10*⊕	0-90/0-180	174422.00	3

⊕ Heat sink 174314 is required if one side provides more than 5A or the output of both sides is more than 6.5A.

DRIVES



# DC ADJUSTABLE SPEED DRIVES

## SCR THYRISTOR CONTROLS



### FOR NEMA FRAME MOTORS & GEARMOTORS SCR CONTROLS • ENCLOSED • SINGLE PHASE 50/60 HZ

Description	Catalog Number	Output Current Amps	HP Range		App. Wgt. (lbs.)
			115V	230V	
NEMA 1 General Purpose					
—Non-Reversing	<b>174307.00</b>	10	1/8 to 1 <sup>Ⓜ</sup>	1/4 to 2 <sup>Ⓜ</sup>	5
—Reversing with dynamic braking	<b>174308.00</b>	10	1/8 to 1 <sup>Ⓜ</sup>	1/4 to 2 <sup>Ⓜ</sup>	5
—Heat Sink	<b>174316.00</b>	—	—	—	1
NEMA 4X Washdown—Dust-Tight					
—Non-Reversing, Plastic Enclosure	<b>174102.00</b>	10	1/8 to 1	1/4 to 2	6
—Non-Reversing, Plastic Enclosure with Signal Follower	<b>174103.00</b>	10	1/8 to 1	1/4 to 2	7
—Reversing, Plastic Enclosure *	<b>174107.00</b>	10	1/8 to 1	1/4 to 2	7
NEMA 4					
—Non-Reversing 3HP	<b>174709.00</b>	15	—	3	8

### SCR CONTROLS • OPEN CHASSIS

Description	Catalog Number	Output Current Amps	HP Range		App. Wgt. (lbs.)
			115V	230V	
Chassis with Speed Pot-Non Reversing	<b>174311.00</b>	10	1/8 to 1 <sup>Ⓜ</sup>	1/4 to 2 <sup>Ⓜ</sup>	1
Chassis Heat Sink <sup>Ⓜ</sup>	<b>174314.00</b>	—	—	—	1

### REGENERATIVE SCR DRIVES • FOUR QUADRANT • FULL WAVE

Description	Catalog Number	Output Current Amps	HP Range		App. Wgt. (lbs.)
			115V	230V	
NEMA 4X Washdown ✓	<b>175720.00</b>	10	1/4 to 1 <sup>Ⓜ</sup>	1/2 to 2 <sup>Ⓜ</sup>	8
Open Chassis with Speed Pot ✓	<b>175721.00</b>	10	1/4 to 1 <sup>Ⓜ</sup>	1/2 to 2 <sup>Ⓜ</sup>	2
Chassis Heat Sink <sup>Ⓜ</sup>	<b>175722.00</b>	—	—	—	2

### FOR SUBFRACTIONAL HP MOTORS & GEARMOTORS PWM & SCR CONTROLS • ENCLOSED • SINGLE PHASE 50/60 HZ

Description	Catalog Number	Output Current Amps	HP Range		App. Wgt. (lbs.)
			115V	230V	
NEMA 1 General Purpose					
—SCR Non-Reversing	<b>M1740005.00</b>	3	1/40 to 1/8	1/40 to 1/4	5
—SCR Reversing With Dynamic Braking	<b>M1740006.00</b>	3	1/40 to 1/8	1/40 to 1/4	5
—PWM Non-Reversing	<b>M1740008.00</b>	3	1/40 to 1/8	1/40 to 1/4	2

### PWM & SCR CONTROLS • OPEN CHASSIS

Description	Catalog Number	Output Current Amps	HP Range		App. Wgt. (lbs.)
			115V	230V	
Open Chassis SCR Type					
—Chassis with Speed Pot-Non Reversing	<b>M1740007.00</b>	1.5	1/40 to 1/8	1/40 to 1/4	1
Open Chassis PWM Type					
—Chassis with Speed Pot-Non Reversing	<b>M1740009.00</b>	2.0	1/40 to 1/8	—	1

- \* Drive does not have dynamic braking. Motor shaft must be at zero speed before reversing.
- Ⓜ Heat sink #174316 is required for NEMA 1 type 3/4 and 1HP 115V and 1 1/2 and 2HP 230V when the amp draw of the motor exceeds 5 amps.
- Ⓜ Chassis Heat Sink #174314 required for 3/4 and 1HP 115V and 1 1/2 and 2HP 230V when the amp draw of the motor exceeds 5 amps.
- Ⓜ Chassis Heat sink #175722 required for 1HP and above when the amp draw of the motor exceeds 5 amps.
- ✓ Regenerative drives are reversible and have regenerative braking.

#### LEESON Speedmaster DC Control information

#### PWM and SCR Controls

##### General Specifications:

- General purpose for Permanent Magnet or Shunt wound DC motors
- NEMA 4X and 4/12 suitable for Washdown applications
- Dual Voltage capable on most designs – see HP range
- 115 / 230 volt single-phase input voltage – DC 90 volt or 180 volt output
- Adjustable Minimum and Maximum speed
- Speed Pot included on Chassis controls
- Adjustable IR Compensation
- Heat Sinks required as noted
- PWM Controls provide quieter operation, lower motor temperature and greater motor overload capacity.

#### Regenerative Controls

##### General Specifications:

- Four Quadrant controls for Precise Motion Control
- NEMA 4X or Chassis Style
- Motoring and Braking torque regulation 1/4 HP through 2 HP.

#### 15 Series

##### General Specifications:

- Dual Voltage – 12/24 VAC or 120/240 VAC Input
- Adjustable Minimum and Maximum speed
- Adjustable IR compensation
- Fixed Acceleration – (0.5 seconds)
- 5K ohm Speed Pot included
- 25:1 speed range and 1% speed regulation

PDF file of Manual available at [www.leeson.com](http://www.leeson.com)

Specifications are subject to change without notice



### LEESON Speedmaster DC Control information

#### 15 Series

##### General Specifications:

- Dual Voltage – 12/24 VAC or 120/240 VAC Input
- Adjustable Minimum and Maximum speed
- Adjustable IR compensation
- Fixed Acceleration – (0.5 seconds)
- 5K ohm Speed Pot included
- 25:1 speed range and 1% speed regulation



NEMA 4/12  
Non-Reversing



Figure 1



Figure 2

### 15 SERIES

Description	Catalog Number	Output Current Amps	HP Range		App. Wgt. (lbs.)
			115V	230V	
NEMA 4/12 Non-Reversing	<b>174696.00</b>	3.0	1/3	2/3	1
Chasis - Figure 1	<b>174695.00</b>	2.0	1/6	1/6	1
Chasis - Figure 2	<b>174694.00</b>	2.0	1/6	1/6	1

Available 1st Quarter 2011

## LOW VOLTAGE ADJUSTABLE SPEED CONTROLLERS

LEESON's DC to DC controllers are a chassis type design, that accept a DC input voltage and output a DC power voltage to control the motor speed. The speed maybe varied with the potentiometer that is shipped loose with the control or an external voltage signal.



Higher design efficiency results in longer running time between battery charges than is possible with traditional methods of speed control using resistance in series with the battery.

**Typical Operating Features:** Provides smooth 40 to 1 speed range capability for mobile equipment. Maintains variable speed control as batteries discharge. Adjustable min/max speed, IR compensation, and 200% current limit overload protection. Inhibit pin terminals provide customer optional start-stop without breaking battery lines. Green LED power on indicator is provided.

Catalog number 175290 does not require a heat sink, and measures 6.9L x 4.44W x 2.19D. Catalog numbers 175291 & 175292 do require heat sink, which is included and measures 7.78L x 6.9W x 3.25D.

Input Voltage	Max. Amp Ratings	Catalog Number	App. Wgt. (lbs.)
12/24	16	<b>175290.00</b>	2
12/24	60	<b>175291.00</b>	4
36/48	60	<b>175292.00</b>	4

## LOW VOLTAGE ADJUSTABLE SPEED CONTROLS FOUR QUADRANT CONTROL

**General Specifications:** This series of drives is a chassis type design that accepts DC input to output up to 100% of the input voltage. The 12/24-volt drive is rated at 120 amps continuous and the 36/48-volt drive is rated at 100 amps continuous. The speed is adjustable with a speed potentiometer that is shipped loose with the controls. This control also offers extended battery life through a sleep mode feature and has an inhibit circuit for convenient remote starting and stopping.



**Additional Features Include:** Simple reversing and braking using a switch closure to the drive. Controls have a built-in short circuit to protect itself from a shorted motor. They offer a 1.01 Form Factor, which offers clean DC output for quiet motor operation and efficiency. They also have a temperature sensor, which automatically reduces the current limit if the controller heats up. On Board trim pots for calibration, speed and forward and reverse settings.

Units include heat sink and measure 6.9L x 5.0W (including terminals) x 2.5D and have mounting slots.

Input Voltage	Max. Amp Ratings	Catalog Number	App. Wgt. (lbs.)
12/24	120	<b>174298.00</b>	3
36/48	100	<b>174299.00</b>	3

### CONTROL PARTS

Catalog Number	Description
<b>900282.01</b>	Inhibit Plug
<b>006708.01</b>	Speed Pot (10k/5w pot, washers & nut)





### Features:

- 25 to 500 Horsepower
- 3600 & 1800 RPM's
- 250 frame Rolled Steel Construction
- 280 frame and Larger - Cast Iron Construction
- EPAct Efficiency
- Ball Bearings
- NEMA Design B, Code G
- 230/460 and 460 volt motors rated for 50hz at next lower HP, with 1.15SF on nameplate
- Dual Voltage Motors – 12 leads suitable for Y-Delta, Low Voltage PWS, and Across The Line Start
- Single Voltage Motors – 12 leads suitable for Y-Delta, PWS, and Across The Line Start

- 40° C Max Ambient
- 1.15SF
- C-Face Kits Available Through 250HP
- For Special Designs Contact District Sales Office Near You
- Exterior Red Paint
- UL Listed and CSA Certified (UL1004A) and CE Marked

### ODP

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
25	3600	256T	91.0%	1.15	200/400	SSD2P25T62AP5	<b>LM80103</b>	164
	3600	256T	91.0%	1.15	230/460	SSD2P25T61AP5	<b>LM80104</b>	164
	1800	284T	91.7%	1.15	200/400	CCD4P25T62YAP5	<b>LM80105</b>	420
	1800	284T	91.7%	1.15	230/460	CCD4P25T61YAP5	<b>LM80106</b>	420
30	3600	284TS	91.0%	1.15	200/400	CCD2P30TS62YAP5	<b>LM80107</b>	318
	3600	284TS	91.0%	1.15	230/460	CCD2P30TS61YAP5	<b>LM80108</b>	318
	1800	286T	92.4%	1.15	200/400	CCD4P30T62YAP5	<b>LM80109</b>	364
	1800	286T	92.4%	1.15	230/460	CCD4P30T61YAP5	<b>LM80110</b>	364
40	3600	286TS	91.7%	1.15	200/400	CCD2P40TS62YAP5	<b>LM80111</b>	360
	3600	286TS	91.7%	1.15	230/460	CCD2P40TS61YAP5	<b>LM80112</b> ♦	360
	1800	324TS	93.0%	1.15	200/400	CCD4P40TS62YAP5	<b>LM80113</b>	465
	1800	324TS	93.0%	1.15	230/460	CCD4P40TS61YAP5	<b>LM80114</b>	465
	1800	324T	93.0%	1.15	200/400	CCD4P40T62YAP5	<b>LM80115</b>	465
	1800	324T	93.0%	1.15	230/460	CCD4P40T61YAP5	<b>LM80116</b> ♦	465
50	3600	324TS	92.4%	1.15	200/400	CCD2P50TS62YAP5	<b>LM80117</b>	415
	3600	324TS	92.4%	1.15	230/460	CCD2P50TS61YAP5	<b>LM80118</b> ♦	415
	1800	326TS	93.0%	1.15	200/400	CCD4P50TS62YAP5	<b>LM80119</b>	515
	1800	326TS	93.0%	1.15	230/460	CCD4P50TS61YAP5	<b>LM80120</b>	515
	1800	326T	93.0%	1.15	200/400	CCD4P50T62YAP5	<b>LM80121</b>	515
	1800	326T	93.0%	1.15	230/460	CCD4P50T61YAP5	<b>LM80122</b> ♦	515
60	3600	326TS	93.0%	1.15	200/400	CCD2P60TS62YAP5	<b>LM80123</b>	340
	3600	326TS	93.0%	1.15	230/460	CCD2P60TS61YAP5	<b>LM80124</b> ♦	340
	1800	364TS	93.6%	1.15	200/400	CCD4P60TS62YAP5	<b>LM80125</b>	805
	1800	364TS	93.6%	1.15	230/460	CCD4P60TS61YAP5	<b>LM80126</b>	805
	1800	364T	93.6%	1.15	200/400	CCD4P60T62YAP5	<b>LM80127</b>	805
	1800	364T	93.6%	1.15	230/460	CCD4P60T61YAP5	<b>LM80128</b>	805
75	3600	364TS	93.0%	1.15	200/400	CCD2P75TS62YAP5	<b>LM80129</b>	950
	3600	364TS	93.0%	1.15	230/460	CCD2P75TS61YAP5	<b>LM80130</b> ♦	950
	1800	365TS	94.1%	1.15	200/400	CCD4P75TS62YAP5	<b>LM80131</b>	766
	1800	365TS	94.1%	1.15	230/460	CCD4P75TS61YAP5	<b>LM80132</b>	766
	1800	365T	94.1%	1.15	200/400	CCD4P75T62YAP5	<b>LM80133</b>	766
	1800	365T	94.1%	1.15	230/460	CCD4P75T61YAP5	<b>LM80134</b> ♦	766
100	3600	365TS	93.0%	1.15	200/400	CCD2P100TS62YAP5	<b>LM80135</b>	730
	3600	365TS	93.0%	1.15	230/460	CCD2P100TS61YAP5	<b>LM80136</b> ♦	730
	1800	404TS	94.1%	1.15	200/400	CCD4P100TS62YAP5	<b>LM80137</b>	1065
	1800	404TS	94.1%	1.15	230/460	CCD4P100TS61YAP5	<b>LM80138</b>	1065
	1800	404T	94.1%	1.15	200/400	CCD4P100T62YAP5	<b>LM80139</b>	1065
	1800	404T	94.1%	1.15	230/460	CCD4P100T61YAP5	<b>LM80140</b> ♦	1065
125	3600	404TS	93.6%	1.15	200/400	CCD2P125TS62YAP5	<b>LM80141</b>	949
	3600	404TS	93.6%	1.15	230/460	CCD2P125TS61YAP5	<b>LM80142</b> ♦	949
	1800	405TS	94.5%	1.15	200/400	CCD4P125TS62YAP5	<b>LM80143</b>	1070
	1800	405TS	94.5%	1.15	230/460	CCD4P125TS61YAP5	<b>LM80144</b>	1070
	1800	405T	94.5%	1.15	200/400	CCD4P125T62YAP5	<b>LM80145</b>	1070
	1800	405T	94.5%	1.15	230/460	CCD4P125T61YAP5	<b>LM80146</b> ♦	1070
150	3600	405TS	93.6%	1.15	400	CCD2P150TS6011PYAP5	<b>LM80147</b>	983
	3600	405TS	93.6%	1.15	460	CCD2P150TS64PYAP5	<b>LM80148</b> ♦	983
	1800	444TS	95.0%	1.15	400	CCD4P150TS6011PYAP5	<b>LM80149</b>	1265
	1800	444TS	95.0%	1.15	460	CCD4P150TS64PYAP5	<b>LM80150</b>	1265
	1800	444T	95.0%	1.15	400	CCD4P150T6011PYAP5	<b>LM80151</b>	1265
	1800	444T	95.0%	1.15	460	CCD4P150T64PYAP5	<b>LM80152</b> ♦	1265

♦ = 190/380V, 50Hz at next lower HP @ 1.15SF

Product numbers in red are STOCK items.

Specifications are subject to change without notice

**ODP (cont'd)**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
200	3600	444TS	94.5%	1.15	400	CCD2P200TS6011PYAP5	LM80153	1315
	3600	444TS	94.5%	1.15	460	CCD2P200TS64PYAP5	LM80154♦	1315
	1800	444TS	95.0%	1.15	400	CCD4P200TS6011PYAP5	LM80155	1412
	1800	444TS	95.0%	1.15	460	CCD4P200TS64PYAP5	LM80156	1412
	1800	444T	95.0%	1.15	400	CCD4P200T6011PYAP5	LM80157	1412
	1800	445T	95.0%	1.15	460	CCD4P200T64PYAP5	LM80158♦	1412
250	3600	445TS	94.5%	1.15	400	CCD2P250TS6011PYAP5	LM80159	1387
	3600	445TS	94.5%	1.15	460	CCD2P250TS64PYAP5	LM80160♦	1387
	1800	445TS	95.4%	1.15	400	CCD4P250TS6011PYAP5	LM80161	1428
	1800	445TS	95.4%	1.15	460	CCD4P250TS64PYAP5	LM80162	1428
	1800	445T	95.4%	1.15	400	CCD4P250T6011PYAP5	LM80163	1428
	1800	445T	95.4%	1.15	460	CCD4P250T64PYAP5	LM80164♦	1428
300	3600	447TS	95.0%	1.15	400	CCD2P300TS6011PYAP5	LM80165	2255
	3600	447TS	95.0%	1.15	460	CCD2P300TS64PYAP5	LM80166♦	2255
	1800	447TS	95.4%	1.15	400	CCD4P300TS6011PYAP5	LM80167	1952
	1800	447TS	95.4%	1.15	460	CCD4P300TS64PYAP5	LM80168	1952
	1800	447T	95.4%	1.15	400	CCD4P300T6011PYAP5	LM80169	1952
	1800	447T	95.4%	1.15	460	CCD4P300T64PYAP5	LM80170♦	1952
350	3600	447TS	95.0%	1.15	400	CCD2P350TS6011PYAP5	LM80171	2068
	3600	447TS	95.0%	1.15	460	CCD2P350TS64PYAP5	LM80172♦	2068
	1800	447TS	95.4%	1.15	400	CCD4P350TS6011PYAP5	LM80173	1950
	1800	447TS	95.4%	1.15	460	CCD4P350TS64PYAP5	LM80174	1950
	1800	447T	95.4%	1.15	400	CCD4P350T6011PYAP5	LM80175	1950
	1800	447T	95.4%	1.15	460	CCD4P350T64PYAP5	LM80176♦	1950
400	3600	447TS	95.4%	1.15	460	CCD2P400TS64PYAP5	LM80177♦	2150
	1800	447TS	95.4%	1.15	460	CCD4P400TS64PYAP5	LM80178♦	2214
450	3600	449TS	95.8%	1.15	460	CCD2P450TS64PYAP5	LM80179♦	2544
	1800	449TS	95.8%	1.15	460	CCD4P450TS64PYAP5	LM80180♦	2675
500	3600	449TS	95.8%	1.15	460	CCD2P500TS64PYAP5	LM80181♦	2544
	1800	449TS	95.8%	1.15	460	CCD4P500TS64PYAP5	LM80182♦	2695

♦ = 190/380V, 50Hz at next lower HP @ 1.15SF



**Features:**

- 3 to 450 Horsepower
- 3600 & 1800 RPM's
- 250 frame Rolled Steel Construction
- 280 frame and Larger - Cast Iron Construction
- EPA Efficiency
- Ball Bearings
- NEMA Design B, Code G
- 230/460 and 460 volt motors rated for 50hz at next lower HP, with 1.15SF on nameplate
- Dual Voltage Motors – 12 leads suitable for Y-Delta, Low Voltage PWS, and Across The Line Start
- Single Voltage Motors – 12 leads suitable for Y-Delta, PWS, and Across The Line Start

- 40° C Max Ambient
- 1.15SF
- C-Face Kits Available Through 250HP
- For Special Designs Contact District Sales Office Near You
- Exterior Red Paint
- UL Listed and CSA Certified (UL1004A) and CE Marked

**TEFC - FOOT MOUNT**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
3	3600	182T	86.5	1.15	200/400	CCF2P3T62AP5	LM80050	84
	3600	182T	86.5	1.15	230/460	CCF2P3T61AP5	LM80051	84
	1800	182T	87.5	1.15	200/400	CCF4P3T62AP5	LM80052	90
	1800	182T	87.5	1.15	230/460	CCF4P3T61AP5	LM80053	90
5	3600	184T	87.5	1.15	200/400	CCF2P5T62AP5	LM80054	108
	3600	184T	87.5	1.15	230/460	CCF2P5T61AP5	LM80055	108
	1800	184T	87.5	1.15	200/400	CCF4P5T62AP5	LM80056	123
	1800	184T	87.5	1.15	230/460	CCF4P5T61AP5	LM80057	123
7.5	3600	213T	88.5	1.15	200/400	CCF2P7.5T62AP5	LM80058	188
	3600	213T	88.5	1.15	230/460	CCF2P7.5T61AP5	LM80059	188
	1800	213T	89.5	1.15	200/400	CCF4P7.5T62AP5	LM80060	194
	1800	213T	89.5	1.15	230/460	CCF4P7.5T61AP5	LM80061	194
10	3600	215T	89.5	1.15	200/400	CCF2P10T62AP5	LM80062	217
	3600	215T	89.5	1.15	230/460	CCF2P10T61AP5	LM80063	217
	1800	215T	89.5	1.15	200/400	CCF4P10T62AP5	LM80064	227
	1800	215T	89.5	1.15	230/460	CCF4P10T61AP5	LM80065	227
15	3600	254T	90.2	1.15	200/400	CCF2P15T62AP5	LM80066	370
	3600	254T	90.2	1.15	230/460	CCF2P15T61AP5	LM80067	370
	1800	254T	91.0	1.15	200/400	CCF4P15T62AP5	LM80068	365
	1800	254T	91.0	1.15	230/460	CCF4P15T61AP5	LM80069	365
20	3600	256T	90.2	1.15	200/400	CCF2P20T62AP5	LM80070	334
	3600	256T	90.2	1.15	230/460	CCF2P20T61AP5	LM80071	334
	1800	256T	91.0	1.15	200/400	CCF4P20T62AP5	LM80072	420
	1800	256T	91.0	1.15	230/460	CCF4P20T61AP5	LM80073	420
25	3600	284TS	91.0	1.15	200/400	CCF2P25TS62YAP5	LM80074	384
	3600	284TS	91.0	1.15	230/460	CCF2P25TS61YAP5	LM80075	384
	1800	284T	92.4	1.15	200/400	CCF4P25T62YAP5	LM80076	440
	1800	284T	92.4	1.15	230/460	CCF4P25T61YAP5	LM80077	440
30	3600	286TS	91.0	1.15	200/400	CCF2P30TS62YAP5	LM80078	428
	3600	286TS	91.0	1.15	230/460	CCF2P30TS61YAP5	LM80079	428
	1800	286T	92.4	1.15	200/400	CCF4P30T62YAP5	LM80080	494
	1800	286T	92.4	1.15	230/460	CCF4P30T61YAP5	LM80081	494
40	3600	324TS	91.7	1.15	200/400	CCF2P40TS62YAP5	LM80084	520
	3600	324TS	91.7	1.15	230/460	CCF2P40TS61YAP5	LM80085	520
	1800	324TS	93.0	1.15	200/400	CCF4P40TS62YAP5	LM80183	575
	1800	324TS	93.0	1.15	230/460	CCF4P40TS61YAP5	LM80184	575
	1800	324T	93.0	1.15	200/400	CCF4P40T62YAP5	LM80027	575
	1800	324T	93.0	1.15	230/460	CCF4P40T61YAP5	LM80086	575
	50	326TS	93.0	1.15	200/400	CCF2P50TS62YAP5	LM80028	540
	50	326TS	93.0	1.15	230/460	CCF2P50TS61YAP5	LM80087	540
60	1800	326TS	93.6	1.15	200/400	CCF4P50TS62YAP5	LM80186	675
	1800	326TS	93.6	1.15	230/460	CCF4P50TS61YAP5	LM80187	675
	1800	326T	93.6	1.15	200/400	CCF4P50T62YAP5	LM80029	675
	1800	326T	93.6	1.15	230/460	CCF4P50T61YAP5	LM80088	675
	3600	364TS	93.0	1.15	200/400	CCF2P60TS62YAP5	LM80030	875
	3600	364TS	93.0	1.15	230/460	CCF2P60TS61YAP5	LM80089	875
	1800	364TS	93.6	1.15	200/400	CCF4P60TS62YAP5	LM80188	975
	1800	364TS	93.6	1.15	230/460	CCF4P60TS61YAP5	LM80185	975
1800	364T	93.6	1.15	200/400	CCF4P60T62YAP5	LM80031	975	
	364T	93.6	1.15	230/460	CCF4P60T61YAP5	LM80090	975	

♦ = 190/380V, 50Hz at next lower HP @ 1.15SF

Product numbers in red are STOCK items.

Specifications are subject to change without notice

**TEFC - FOOT MOUNT**

HP	SYN RPM	Frame	FL Nom Eff (%)	SF	Volts	Model Number	Product Number	Approx Shpg Wght (lbs)
75	3600	365TS	93.6	1.15	200/400	CCF2P75TS62YAP5	LM80032	1000
	3600	365TS	93.6	1.15	230/460	CCF2P75TS61YAP5	LM80091♦	1000
	1800	365TS	94.1	1.15	200/400	CCF4P75TS62YAP5	LM80189	1025
	1800	365TS	94.1	1.15	230/460	CCF475TS61YAP5	LM80190	1025
	1800	365T	94.1	1.15	200/400	CCF4P75T62YAP5	LM80033	1025
	1800	365T	94.1	1.15	230/460	CCF4P75T61YAP5	LM80092♦	1025
100	3600	405TS	94.1	1.15	200/400	CCF2P100TS62YAP5	LM80034	1239
	3600	405TS	94.1	1.15	230/460	CCF2P100TS61YAP5	LM80093♦	1239
	1800	405TS	94.5	1.15	200/400	CCF4P100TS62YAP5	LM80191	1267
	1800	405TS	94.5	1.15	230/460	CCF4100TS61YAP5	LM80192	1267
	1800	405T	94.5	1.15	200/400	CCF4P100T62YAP5	LM80035	1267
	1800	405T	94.5	1.15	230/460	CCF4P100T61YAP5	LM80094♦	1267
125	3600	444TS	94.5	1.15	400	CCF2P125TS6011PYAP5	LM80036	1750
	3600	444TS	94.5	1.15	460	CCF2P125TS64PYAP5	LM80095♦	1750
	1800	444TS	94.5	1.15	200/400	CCF4P125TS62YAP5	LM80193	1805
	1800	444TS	94.5	1.15	230/460	CCF4125TS61YAP5	LM80194	1805
	1800	444T	94.5	1.15	400	CCF4P125T6011PYAP5	LM80037	1805
	1800	444T	94.5	1.15	460	CCF4P125T64PYAP5	LM80096♦	1805
150	3600	445TS	95.0	1.15	400	CCF2P150TS6011PYAP5	LM80038	2191
	3600	445TS	95.0	1.15	460	CCF2P150TS64PYAP5	LM80097♦	2191
	1800	444TS	95.0	1.15	200/400	CCF4P150TS62YAP5	LM80195	2116
	1800	444TS	95.0	1.15	230/460	CCF4150TS61YAP5	LM80196	2116
	1800	445T	95.0	1.15	400	CCF4P150T6011PYAP5	LM80039	2116
	1800	445T	95.0	1.15	460	CCF4P150T64PYAP5	LM80098♦	2116
200	3600	445TS	95.0	1.15	400	CCF2P200TS6011PYAP5	LM80040	2262
	3600	445TS	95.0	1.15	460	CCF2P200TS64PYAP5	LM80099♦	2262
	1800	444TS	95.4	1.15	200/400	CCF4P200TS62YAP5	LM80197	2311
	1800	444TS	95.4	1.15	230/460	CCF4200TS61YAP5	LM80198	2311
	1800	445T	95.4	1.15	400	CCF4P200T6011PYAP5	LM80041	2311
	1800	445T	95.4	1.15	460	CCF4P200T64PYAP5	LM80100♦	2311
250	3600	449TS	95.4	1.15	400	CC449F2P250TS6011PYAP5	LM80042	2450
	3600	449TS	95.4	1.15	460	CC449F2P250TS64PYAP5	LM80101♦	2450
	1800	449TS	93.0	1.15	200/400	CC449F4P250TS62YAP5	LM80199	2600
	1800	449TS	93.0	1.15	230/460	CC449F4250TS61YAP5	LM80200	2600
	1800	449T	95.4	1.15	400	CC449F4P250T6011PYAP5	LM80043	2600
	1800	449T	95.4	1.15	460	CC449F4P250T64PYAP5	LM80102♦	2600
300	3600	449TS	95.4	1.15	400	CCF2P300TS6011PYAP5	LM80044	2702
	3600	449TS	95.4	1.15	460	CCF2P300TS64PYAP5	LM80019♦	2702
	1800	449TS	93.0	1.15	200/400	CCF4P300TS62YAP5	LM80201	3041
	1800	449TS	93.0	1.15	230/460	CCF4300TS61YAP5	LM80202	3041
	1800	449T	95.4	1.15	400	CCF4P300T6011PYAP5	LM80045	3041
	1800	449T	95.4	1.15	460	CCF4P300T64PYAP5	LM80018♦	3041
350	3600	449TS	95.4	1.15	400	CCF2P350TS6011PYAP5	LM80046	2898
	3600	449TS	95.4	1.15	460	CCF2P350TS64PYAP5	LM80021♦	2898
	1800	449TS	93.0	1.15	200/400	CCF4P350TS62YAP5	LM80203	3202
	1800	449TS	93.0	1.15	230/460	CCF4350TS61YAP5	LM80204	3202
	1800	449T	95.4	1.15	400	CCF4P350T6011PYAP5	LM80047	3202
	1800	449T	95.4	1.15	460	CCF4P350T64PYAP5	LM80020♦	3202
400	3600	5011LS	95.4	1.15	400	CC5011F2P400LS6011PYAP5	LM80048	5500
	3600	5011LS	95.4	1.15	460	CC5011F2P400LS64PYAP5	LM80023♦	5500
	1800	5011L	95.8	1.15	400	CC5011F4P400L6011PYAP5	LM80049	5500
	1800	5011L	95.8	1.15	460	CC5011F4P400L64PYAP5	LM80022♦	5500
450	1800	5011L	95.8	1.15	400	CC5011F4P450L6011PYAP5	LM80082	5500
	1800	5011L	95.8	1.15	460	CC5011F4P450L64PYAP5	LM80083♦	5500

♦ = 190/380V, 50Hz at next lower HP @ 1.15SF

# LEESON MOTOR ACCESSORIES

## FIELD INSTALLED

### NEMA D FLANGE KITS STEEL AND CAST IRON FRAME MOTORS

Includes parts to convert a rigid base mounted motor to NEMA D face with base.

Shaded frame indicates cast iron motor kits for 150 and 170 series motors.

NOTE: The D Flange Kits can *only* be used on rigid base motors. They will not fit NEMA C face motors.



Frame	Enclosure	D Flange Kit Catalog Number	App. Wgt. (lbs.)
143T-145T	Enclosed	163115.60	6
182T-184T*	Open / Enclosed	175694.00 $\Delta$	12
182T-184T	Open	175101.00 $\clubsuit$	13
182T-184T	Enclosed	175658.60 $\clubsuit$	12
213T-215T	Open	175114.60	14
	Enclosed	175115.60 $\clubsuit$	14
254T-256T	Open	175116.60	25
	Enclosed	175192.00	25
284T-286T	Open	175118.60	42
	Enclosed	175119.60	
324T-326T	Open	175120.60 $\clubsuit$	57
	Enclosed	175121.60	57
364T-365T	Open	175955.60	72
	Enclosed	175657.60	72
404T-405T	Open	175956.60	90
	Enclosed	175957.60	90
444T-445T	Open	175607.60	106
	Enclosed	175608.60 $\diamond$	106

\*Rolled steel frame only.

### NEMA D FLANGE KIT WATTSAYER<sup>®</sup> MOTORS

Only the frame sizes listed below require a different D Flange kit for the WATTSAYER<sup>®</sup> motors from the Kits listed above.

Frame	Enclosure	D Flange Kit Catalog Number	App. Wgt. (lbs.)
182T-184T	Enclosed	175843.60* $\textcircled{1}$	14
182T-184T	Enclosed	175396.60 $\textcircled{2}$	14
213T-215T	Enclosed	175959.60	14
324T-326T	Open	175455.60	57
364T-365T	Open	175602.60 $\textcircled{3}$	72
	Enclosed	175604.60 $\textcircled{3}$	72

\*Locked bearing

### RODENT SCREEN KITS

Frame	Enclosure	Catalog Number	App. Wgt. (lbs.)
182T-184T*	Open	175872.00	1
213T-215T*	Open	175871.00	1
254T-256T	Open	175873.60	2
284T-286T	Open	175874.60	3
324T	Open	175894.60	5
326T	Open	175875.60	4

\*Rolled steel frame only.

$\Delta$  Use this kit for 182-4T and S213T motors with catalog numbers 131454 and higher, or with a G prefix.

Both open and enclosed motors in this series use the same kits as ventilation is in the frame of the motor.

\* For use with 213T-215T 3450 RPM motors only.

$\clubsuit$  For use with motors having "K" or "P" suffix on date code.

$\blacktriangledown$  For use with motors having catalog numbers 15XXXX, G15XXXX, or 17XXXX.

$\clubsuit$  Not for use with WATTSAYER<sup>®</sup> motors.

$\textcircled{1}$  For use with motors having date codes earlier than May 2003.

$\textcircled{2}$  For use with motors having date codes May 2003 and later.

$\diamond$  For use with 1140 and 1750 RPM motors only.

$\textcircled{3}$  WATTSAYER<sup>®</sup> II design, having oversized frame body.

$\clubsuit$  For motors having Face mounted fan guards.

### CHEMICAL SERVICE/ SEVERE DUTY CONVERSION KITS

Cast iron fan covers for cast iron motors. Designed to easily convert TEFC motors to all cast iron construction. All these motors have inert, corrosion resistant fiber filled thermoplastic fan as standard. Kit includes one cast iron fan cover.



NEMA Frame	IEC Frame	Catalog Number	App. Wt. (lbs.)
182T-184T	---	175663.60	10
213T-215T	---	175050.60	12
254T-256T	160	175051.60	18
284T-286T	180	175052.60	22
324T-326T	200	175053.60	29
364T-365T	225	175054.60	39
404T-405T	250	175055.60	49
444T-445T	280	175056.60	59
447T-449T	---	175891.60	112

### DRIP-COVER KITS FOR DRIP-PROOF MOTORS

Each kit includes one drip-cover. Designed to protect drip-proof motors from rain, snow and ice when mounted outdoors in a vertical position.



Frame	Catalog Number	App. Wgt. (lbs.)
48-S56	175003.00	2
48-S56	175298.00 $\blacklozenge$	2
56	175004.00	2
143T-145T	175792.00 $\blacklozenge$	2
182T-184T*	175614.00	3
182T-184T	175961.00 $\blacktriangledown$	3
213T-215T*	175846.00	12
213T-215T*	175305.00*\ast	12
213T-215T	175962.00 $\blacktriangledown$	4
254T-256T	175963.00 $\blacktriangledown$	7

\*Rolled steel frame only.

### DRIP-COVER KIT FOR TEFC MOTORS

For use with 1750 RPM steel frame motors only.

Frame	Catalog Number	App. Wgt. (lbs.)
213T-215T	175849.00	12

### TEXTILE "LINT-PROOF" KITS

Needed parts to convert one TEFC motor to lint-proof construction.

Frame	Catalog Number	App. Wgt. (lbs.)
56-143T-145T	175024.00	2
56-143T-145T	175778.00 $\blacklozenge$	2
182T-184T	175695.00 $\Delta$	3

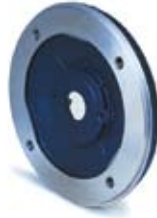
**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**



**NEMA C FACE KITS  
STEEL FRAME MOTORS**

Includes parts to convert a rigid base mounted motor to NEMA C face with base.

The C Face Kits *cannot* be used as replacements on a factory-produced C face motor.



**For motors with Catalog Numbers 092000-140999**

Frame	Enclosure	C Face Kit Catalog Number	App. Wgt. (lbs.)
42	Open / Enclosed	<b>175661.00</b>	2
48	Open / Enclosed	<b>175969.00</b> ○	2
		<b>175646.00</b> ④	
S56	Open	<b>175000.00</b>	2
	Enclosed	<b>175180.00</b>	2
	Open / Enclosed	<b>175297.00</b> ●	2
	Open / Enclosed	<b>175647.00</b> ④	2
56	Open	<b>175075.00</b>	2
	Enclosed	<b>175076.00</b>	2
(see note 2)	Enclosed	<b>M064076.00</b> ▲	2
143T-145T	Open	<b>175181.00</b>	2
	Enclosed	<b>175077.00</b>	2
182T-184T	Open / Enclosed	<b>175691.00</b> Δ	2
182T-184T Special+	Open / Enclosed	<b>175294.00</b>	5
S213T	Open / Enclosed	<b>175693.00</b> Δ	2
213T-215T (1750, 1140, & 850 RPM)	Open	<b>175845.00</b> □	19
	Enclosed	<b>175844.00</b> □	15
213T-215T (3450 RPM)	ODP	<b>175303.00</b> ★	15
	Enclosed	<b>175304.00</b> ★	15

**NOTE:** 1) When changing a rigid mount motor to C Face for 140T-256T frames, a non-NEMA BA dimension results.  
2) Some larger HP 56-frame motors have larger shaft-end bearings and require a 143T-145T C Face kit. Contact LEESON.

**JP PUMP DRIP COVER KITS**

Frame	Catalog Number	Enclosure
56-145JP	<b>175932.00</b>	ODP or TEFC
182JP-184JP	<b>175933.00</b>	ODP
213JP-215JP	<b>175305.00</b> ★	ODP

- Use these kits for new-design 213T and 215T motors that have external thru-bolts.
- Δ Use this kit for 182-4T and S213T motors with catalog numbers 131454 and higher, or with a G prefix.  
Both open and enclosed motors in this series use the same kits as ventilation is in the frame of the motor.
- Not TS Frame.
- ✓✓ For older cast iron motors with date code C93 or earlier.
- For use with motors having "K" or "P" suffix on date code.
- ✘ When ordering, specify if motor has .00 or .60 suffix for correct kit.
- + Converts a 182T-184T frame motor to the C-face dimensions of a 143T-145T or 182U184U frame motor –  
AJ = 5 7/8", AK = 4 1/2". Does not change the shaft extension or BA dimension to match the other frame sizes.
- ★ For use with 3450 RPM, 213T-215T (213JP-215JP) motors only.
- ▲ For use with Industry-Ag motors only, see page 69.
- For use with AC motors having "P" suffix on date code. Results in non-NEMA shaft and BA dim.
- ☆ Not for use with WATTSAYERe® motors.
- ① For use with motors having date codes earlier than May 2003.
- ② For use with motors having date codes May 2003 and later.
- ③ WATTSAYERe® II design, having oversized frame body.
- ④ For motors manufactured after January 1, 2007, having a "B" suffix letter after the motor's date code.

**NEMA C FACE KITS  
CAST IRON MOTORS**

Includes parts to convert a rigid base mounted motor to NEMA C face with base.

The C Face Kits *cannot* be used as replacements on a factory-produced C face motor.



**For 150 Series and 170 Series Cast Iron Motors Only**

Frame	Enclosure	C Face Kit Catalog Number	App. Wgt. (lbs.)
143T-145T	Enclosed	<b>163116.60</b>	6
182T-184T	Enclosed	<b>175655.00</b> ☆	12
213T-215T	Open	<b>175066.60</b>	15
	Enclosed	<b>175068.60</b> ☆	15
254T-256T	Open	<b>175067.60</b>	25
	Enclosed	<b>175069.60</b> ✓/√	25
	Enclosed	<b>175191.60</b>	25
284T-286T	Open	<b>175058.60</b>	42
	Enclosed	<b>175061.60</b>	42
324T-326T	Open	<b>175059.60</b> ☆	57
	Enclosed	<b>175062.60</b>	57
364T-365T	Open	<b>175060.60</b>	75
	Enclosed	<b>175063.60</b>	49
404T-405T	Open	<b>175605.60</b>	60
	Enclosed	<b>175199.60</b>	60
444T-445T□	Open	<b>175606.60</b>	115
	Enclosed	<b>175664.60</b>	115
447T-449T	Enclosed	<b>175958.60</b>	112

**NOTE:** When changing a rigid mount motor to C Face for 140T-256T frames, a non-NEMA BA dimension results.

**NEMA C FACE KITS WATTSAYERe® MOTORS**

The frame sizes below require a different C Face kit for the WATTSAYERe® motors from the Kits listed above.

Frame	Enclosure	C Face Kit Catalog Number	App. Wgt. (lbs.)
182T-184T	Enclosed	<b>175842.00</b> ✘①	12
182T-184T	Enclosed	<b>175394.60</b> ②	12
213T-215T	Enclosed	<b>175869.60</b> *	14
324T-326T	Open	<b>175454.60</b>	57
364T-365T	Open	<b>175601.60</b> ③	75
	Enclosed	<b>175603.60</b> ③	75

\*Locked bearing

**IEEE-841 MOTORS C-FACE KITS**

Used with IEEE 841 motors as listed on page 58.

Frame	Catalog Number	App. Wgt. (lbs)
145T	<b>175787.00</b>	7
180T	<b>175788.00</b>	10
210T	<b>175789.00</b>	16
250T	<b>175790.00</b>	35
280T	<b>175791.00</b>	47
320T	<b>175794.00</b>	89
360T	<b>175795.00</b>	95
360TS	<b>175796.00</b>	91
400T	<b>175797.00</b>	129

**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

**BLOWER FAN KITS**

These kits are used for converting 150 and 170 Series Cast Iron TEFC motors to Totally Enclosed Blower Cooled motors. Cooling per MG1.6 (IC46) The kits are designed for inverter and vector drive applications where continuous cooling is required regardless of motor shaft speed. The kit is mounted on the back of the motor after removing the fan guard and fan. Modifying the shaft is not required.



For use with Rolled Steel TEFC Motors only.

Blower Motor Voltage	Phase	NEMA Frame	Catalog Number	CFM	App. Wgt. (lbs.)
115	1	56-145T	<b>175876.00</b>	115	4
115	1	56-145T	<b>175775.00</b> Ⓜ	115	4
115	1	182-4T	<b>175895.00</b>	115	4
115	1	213-5T	<b>175896.00</b>	235	5

Ⓜ For 56/145T motors having face mounted (plastic) fan guards.

**ENCODER KITS**

These kits include the parts and encoder for field assembly of slim-line, through-shaft encoder designed to slip over the motor's fan end shaft. Blower kit sold separately.



Output is 1024 pulses per revolution, quadrature, 5 to 28 VDC line driver output. Short-circuit protection is standard. Inputs are over voltage and reverse voltage protected. Electrical noise immunity exceeds international standards. Encoders are isolated from shaft currents using hard anodized sleeves and non metallic anti-rotation hardware. Designed for long-life in industrial environments using an all-metal, shock resistant code disk. The encoder is protected by the motor's fan cover after mounting. Using a blower fan kit is suggested for proper motor cooling.

For use with Rolled Steel/TEFC Motors only.

For NEMA Frame	Encoder Kit Catalog Number
56-145T	<b>175960.00</b>
182-4T	<b>175897.00</b>
213-5T	<b>175898.00</b>

**TERMINAL BLOCK KITS**

Terminal block kits for 150 and 170 Series NEMA Frame Cast Iron motors. Can also be used for replacement on 193 Series Cast Iron and 192 Series aluminum IEC metric motors.



**DIE CAST ALUMINUM CONDUIT BOX CONVERSION KIT**

56/140-frame kit (pictured) includes die cast aluminum conduit box, cover, gaskets, grounding screw, mounting hardware and adapter plate for mounting box on existing holes in motor. 180 and 210-frame kits include all parts required to replace the conduit box including the die cast conduit box, plug, cover, gaskets and mounting hardware. No adapter plate is required because these kits mount on existing holes. All conduit boxes have 1/2-NPT tapped lead exit holes on two adjacent sides with one hole plugged. Note: the kit will not work with larger HP single-phase 210-frame motors.



**EXPLOSION-PROOF CONDUIT BOX**

UL and CSA listed for Class I, Group C & D, and Class II, Groups E, F & G locations. Has grounding screw and all hardware provided. Mounts to motor by 3/4"-14NPT opening at rear of box. For NEMA 56 & 143-5T frame motors only. Box number 175755 has a 1" NPT thread.



For use with 150 & 170 Series Cast Iron TEFC Motors only.

Blower Motor Voltage	Phase	NEMA Frame	Catalog Number	CFM	App. Wgt. (lbs.)
115	1	182-4T	<b>175674.00</b>	260	10
115	1	213-5T	<b>175675.00</b>	260	11
115	1	254-6T	<b>175676.00</b>	260	17
115	1	284-6T	<b>175677.00</b>	500	24
115	1	324-6T	<b>175678.00</b>	500	28
230/460	3	360T	<b>175879.00</b>	500	35
230/460	3	400T	<b>175880.00</b>	500	45
230/460	3	440T	<b>175558.00</b> Ⓜ	500	55

Ⓜ For 444T/445T motors

For use with 150 & 170 Series Cast Iron TEFC Motors only.

For NEMA Frame	Encoder Kit Catalog Number
182-4T	<b>175684.00</b>
213-5T	<b>175685.00</b>
254-6T	<b>175686.00</b>
284-6T	<b>175687.00</b>
320T	<b>175641.00</b>
360T	<b>175642.00</b>
400T	<b>175643.00</b>
440T (2 pole)	<b>175644.00</b>
440T (4/6 pole)	<b>175645.00</b>

NEMA Frame	IEC Frame	Catalog Number	App. Wgt. (lbs.)
—	63-90L	<b>175881.00</b> *	1
180/210T	100/112/132	<b>175668.60</b>	2
250/280T	160/180	<b>175667.60</b>	3
320/360T	200/225	<b>175666.60</b>	4
400/440T	250/280	<b>175665.60</b>	5

\* Replacement terminal board for aluminum frame IEC motors.

NEMA Frame	Catalog Number	App. Wgt. (lbs.)
56-140T	<b>175892.00</b>	2
182-4T	<b>175649.00</b>	2
213-5T	<b>175847.00</b>	11

Catalog Number	App. Wgt. (lbs.)
<b>175026.00</b>	2
<b>175755.00(1)</b>	2

(1) For motors having a letter P after the date code.

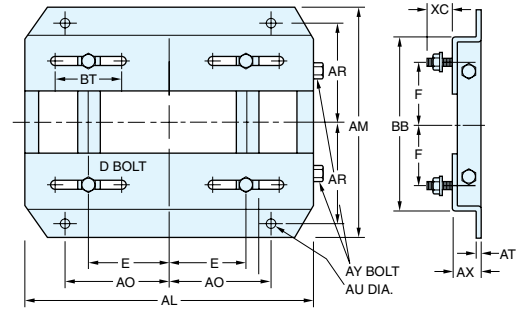
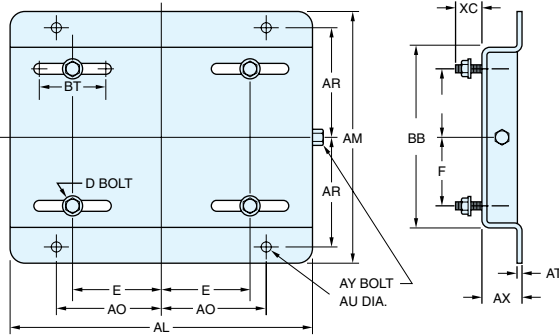
**SHADED FRAME INDICATES CAST IRON CONSTRUCTION**

Specifications are subject to change without notice

**ADJUSTABLE MOTOR BASES—NEMA 48-447T FRAMES**

Heavy gauge steel mounting bases simplify the installation of motors and make the tensioning, maintenance and replacement of belts a simple efficient task. Fabricated from sheet or steel plate, then primed and finished in a gray rust and corrosion resistant oven-baked finish. Gussets and

reinforcing channels on larger units and continuous seam welding on all units give these bases strength and durability for a long life. A single (215T frame and smaller) or double (NEMA 254T frame and larger) zinc plated adjusting screw is provided. Motor mounting bolts are included.



**NEMA 48 thru 215T**

**NEMA 254T thru 447T**

Frame	Catalog Number	AL	AM	AX	BB	E	F	AO	AR	AU**	BT	AT	XC	D* Bolt	AY Bolt	App. Wgt. (lbs.)
48	175032.00	10	6 1/4	1 1/8	4 1/4	2 1/8	1 3/8	3 1/2	2 3/4	3/8	3	.078	7/8	5/16 x 1	3/8 x 4	2
56	175033.00	10 5/8	6 1/2	1 1/8	4 1/2	2 7/16	1 1/2	3 13/16	2 7/8	3/8	3	.078	7/8	5/16 x 1	3/8 x 4	3
143T	175034.00	10 1/2	7 1/2	1 1/8	5 1/2	2 3/4	2	3 3/4	3 3/8	3/8	3	.119	1 3/16	5/15 x 1	3/8 x 4	5
145T	175035.00	10 1/2	8 1/2	1 1/8	6 1/2	2 3/4	2 1/2	3 3/4	3 7/8	3/8	3	.119	1 3/16	5/15 x 1	3/8 x 4	6
182T	175036.00	12 3/4	9 1/2	1 1/2	6 1/2	3 3/4	2 1/4	4 1/2	4 1/4	1/2	3	.134	1 1/2	3/8 x 1 3/4	1/2 x 5	9
184T	175037.00	12 3/4	10 1/2	1 1/2	7 1/2	3 3/4	2 3/4	4 1/2	4 3/4	1/2	3	.134	1 1/2	3/8 x 1 3/4	1/2 x 5	9
213T	175038.00	15	11	1 3/4	7 1/2	4 1/4	2 3/4	5 1/4	4 3/4	1/2	3 1/2	.164	1 1/2	3/8 x 1 3/4	1/2 x 5	13
215T	175039.00	15	12 1/2	1 3/4	9	4 1/4	3 1/2	5 1/4	5 1/2	1/2	3 1/2	.164	1 1/2	3/8 x 1 3/4	1/2 x 5	15
254T	175040.00	17 3/4	15 1/8	2	10 3/4	5	4 1/8	6 1/4	6 5/8	5/8	4	3/16	1 7/16	1/2 x 1 3/4	5/8 x 6	17
256T	175041.00	17 3/4	16 7/8	2	12 1/2	5	5	6 1/4	7 1/2	5/8	4	3/16	1 7/16	1/2 x 1 3/4	5/8 x 6	18
284T	175042.00	19 3/4	16 7/8	2	12 1/2	5 1/2	4 3/4	7	7 1/2	5/8	4 1/2	3/16	1 11/16	1/2 x 2	5/8 x 6	21
286T	175043.00	19 3/4	18 3/8	2	14	5 1/2	5 1/2	7	8 1/4	5/8	4 1/2	3/16	1 11/16	1/2 x 2	5/8 x 6	22
324T	175044.00	22 3/4	19 1/4	2 1/2	14	6 1/4	5 1/4	8	8 1/2	3/4	5 1/4	3/16	2 3/16	5/8 x 2 1/2	3/4 x 9	31
326T	175045.00	22 3/4	20 3/4	2 1/2	15 1/2	6 1/4	6	8	9 1/4	3/4	5 1/4	3/16	2 3/16	5/8 x 2 1/2	3/4 x 9	32
364T	175046.00	25 1/2	20 1/2	2 1/2	15 1/2	7	5 5/8	9	9 1/8	3/4	6	1/4	2 1/16	5/8 x 2 1/2	3/4 x 9	44
365T	175047.00	25 1/2	21 1/2	2 1/2	16 1/2	7	6 1/8	9	9 5/8	3/4	6	1/4	2 1/16	5/8 x 2 1/2	3/4 x 9	45
404T	175048.00	28 3/4	22 3/8	3	16 1/2	8	6 1/8	10	9 7/8	7/8	7	1/4	2 1/2	3/4 x 3	3/4 x 11	60
405T	175049.00	28 3/4	23 7/8	3	18	8	6 7/8	10	10 5/8	7/8	7	1/4	2 1/2	3/4 x 3	3/4 x 11	61
444T	175088.00	31 1/4	24 5/8	3	19 1/4	9	7 1/4	11	11	7/8	7 1/2	1/4	2 1/2	3/4 x 3	3/4 x 11	68
445T	175089.00	31 1/4	26 5/8	3	21 1/4	9	8 1/4	11	12	7/8	7 1/2	1/4	2 1/2	3/4 x 3	3/4 x 11	73
447T	175090.00	31 1/4	30 1/8	3	24 3/4	9	10	11	13 3/4	7/8	7 1/2	5/16	3	3/4 x 3 1/2	3/4 x 11	92
449T	175302.00	31 1/4	35 1/8	3	29 3/4	9	12 1/2	11	16 1/4	7/8	7 1/2	5/16	3	3/4 x 3 1/2	3/4 x 11	95

\* Motor mounting bolt diameter and length, four supplied with each base.  
\*\* Base mounting bolts, four required—not supplied with base.

**NOTE: These bases are not suitable for vertical mounting. All dimensions in inches.**

**TRANSITION BASES**

Transition bases compensate for the difference in mounting dimensions and shaft height of a rigid base NEMA T frame to the next higher NEMA U frame. This makes it possible, for example, to replace a 10 HP NEMA 254U frame motor with a 10 HP NEMA 215T frame motor without modifying the basic installation. Made of the same high-quality materials and

construction as the adjustable motor bases above. They are for horizontal mountings, shimming may be needed for direct coupled loads. Thread size listed is for mounting transition base to the "T" frame motor. Dimensions listed are for one piece—two are supplied, one for each side of the motor's foot.



Converts T Frame	To U Frame	Catalog Number	App. Wgt. (lbs.)	Height (Inches)	Width (Inches)	Length (Inches)	Thread
143T/145T	182/184	175091.00	2	1	2 1/4	7 1/2	5/16-18
182T/184T	213/215	175092.00	3	3/4	1 3/4	9 1/2	3/8-16
213T/215T	254U/256U	175093.00	5	1	2 7/16	12 3/4	3/8-16
254T/256T	284U/286U	175094.00	8	3/4	2 3/4	14 1/4	1/2-13
284T/286T	324U/326U	175095.00	10	1	3 1/4	15 3/4	1/2-13
324T/326T	364U/365U	175097.00	13	1	3 11/16	16 1/2	5/8-11
364T/365T	404U/405U	175098.00	22	1	4 1/4	18 5/8	5/8-11
404T/405T	444U/445U	175127.00	24	1	4 1/4	21 5/8	3/4-10



# C-FACE FIELD CONVERSION KITS FOR ULTIMATE E, ODP & WASHTHRU™ MOTORS

SRD, SSD, SD, SREW, SSEW, MD & SM MODEL NUMBERS  
S, P & B EFFICIENCY CODES

## Mount On Drive End Only

Frame Size(s)	SYN RPM	Model Number Prefix							Product Number	Notes	Approx Shpg Wght (lbs)
		SREW	SSEW	SRD	SSD	SD (cast Iron Brkt)	MD & SE	CCD			
56	All	*		*					LM24631	2	2
56	All	*		*					LM24807	3	2
143T-145T	All		*		*				LM24807	1, 3	2
182T-184T	All		*	*					175691.00	5	2
213T-215T	All		*		*				LM25737	1	15
254T-256T	All				*				LM25740	1	15
254T-256T	All							*	LM31014	1	15
284T/TS-286T/TS	All							*	LM31019		15
284T/TS-286T/TS	All					*			LM24062	4	25
324T/TS-326T/TS	All					*			LM24063		47
364T/TS-365T/TS	All					*			LM24064		53
404T/TS-405T/TS	All					*			LM24065		56
444T/TS-445T/TS	3600					*			LM24066		88
444T/TS-445T/TS	1200 & 1800					*			LM24067		88
447T/TS-449T/TS	3600					*			LM24068		98
447T/TS-449T/TS	1200 & 1800					*			LM24069		98

Frame	NEMA C-Face BA	C-Face Kit BA	D.E. Brg	* M/N Prefix
143T-145T	2.75"	2.40"	6203	SSF
143T-145T	2.75"	2.38"	6205	CCF, CCN
182T-184T	3.50"	2.75"	STD.	N/A
213T-215T	4.25"	3.50"	STD.	N/A
254T-256T	4.75"	4.25"	STD.	N/A

\*All except ODP

Notes: P=Epact, B=Preimum, S=Standard Eff.

1. These kits create a T-Frame C-Face motor having a non NEMA BA dimension. See chart for further explanation
  2. 56 frames with 203 drive end bearing
  3. 56 frames with 205 drive end bearing
  4. For 2-Pole and 6-Pole motors
- For motors with steel end brackets – no C-Face Kits are available  
180 frame motors – no C-Face Kits are available
5. Motors built having the letter "M" after the date code

# C-FACE FIELD CONVERSION KITS FOR ULTIMATE E TEFC MOTORS



**SRF, SSF, SREW, SSEW, AF, AAF, CCN, CCF, CCS & SF MODEL NUMBERS  
G, P & B EFFICIENCY CODES**

**Mount On Drive End Only**

Frame Size(s)	SYN RPM	Model Number Prefix						Product Number	Notes	Approx Shpg Wght (lbs)
		SRF	SSF	SF AF/AAF (cast Iron Brkt)	CCN	CCF	CCS			
56	All	*						LM24808	1,2	2
56	All	*						LM24810	1,3	1
143T	All				*	*	*	LM24811	1	18
143T	All		*					LM24810	1	1
145T	All		*					LM24810	1	1
145	All				*	*	*	LM24815	1	7
182T-184T	All		*			*	*	LM25736	1	12
182T-184T	All		*					175691.00	1, 6	2
182T-184T	All			AAF				LM26679	1	10
182T-184T	1800			AAF				LM32095	8	10
182T-184T	ALL							175394.60	1, 9	12
213T-215T	All		*					LM25738	1	10
213T-215T	All					*	*	LM25739	1	10
213T215T, 213-215	All			*				LM20121	1	10
213T-215T	All			*				LM30146	7	10
213T-215T	1800			AAF				LM32096	8	10
213T-215T	All							175068.60	1, 9	15
254T-256T	All					*	*	175191.60 =AP21	1	25
254T-256T	All					*	*	LM27681	1	25
254U-256U	All			*				LM30147	1	26
254T-256T	All							175191.60	1, 9	25
284T-286T	All					*	*	LM27576		20
284T/TS-286T/TS	All			*				LM20116		20
284T/TS-286T/TS	All							175061.60	1, 9	42
324T/TS-326T/TS, 324U/US-326U/US	All					*	*	LM28624		33
324T/TS-326T/TS, 324U/US-326U/US	All			*				LM24057		33
364T/TS-365T/TS	All			*				LM24058		30
364T/TS-365T/TS	All							175603.60	1, 9	75
364T-365T						*	*	LM32284		35
364TS-365TS						*	*	LM32285		35
364U-365U						*	*	LM32286		37
404T-405T, 404U-405U	All					*	*	LM28501		53
404T-405T						*	*	LM32287		54
404TS-405TS						*	*	LM32288		53
404T/TS-405T/TS	All			*				LM24059		53
404T/TS-405T/TS	All							175199.60	1, 9	60
444T/TS-449T/TS	3600			*				LM24060		98
444T-445T						*	*	LM32290		96
444T/TS-445T/TS	All					*	*	175664.60	1, 9	115
444TS-445TS						*	*	LM32291		96
444T/TS-449T/TS	1800			*				LM24061		98
447T-449T						*	*	LM32292		98
444T/TS-449T/TS	All							175958.60	1, 9	112
447TS-449TS	1800 & 1200			*		*	*	LM32293		98

- Notes: P=Epact, B=Preimum, S=Standard Eff., G=U-Frame Standard
- These kits create a T-Frame C-Face motor having a non NEMA BA dimension. See chart for further explanation
  - 56 frames with 203 drive end bearing
  - 56 frames with 205 drive end bearing
  - For AK dimension of 4.5"
  - For AK dimension of 8.5"
- For motors with steel end brackets - no C-Face Kits are available
- Motors built having the letter "M" after the date code
  - Aluminum Frame motors built after 2007
  - Aluminum Frame motors ending with AP23 in the Model Number
  - Cast Iron Motors having Catalog numbers starting with LM6 and model numbers ending with AP21

Frame	NEMA C-Face BA	C-Face Kit BA	D.E. Brg	* M/N Prefix
143T-145T	2.75"	2.40"	6203	SSF
143T-145T	2.75"	2.38"	6205	CCF, CCN
182T-184T	3.50"	2.75"	STD.	N/A
213T-215T	4.25"	3.50"	STD.	N/A
254T-256T	4.75"	4.25"	STD.	N/A

\*All except ODP

**Specifications are subject to change without notice**

ACCESSORIES



# CE FIELD CONVERSION KITS 3-PHASE MOTORS ONLY

Model Number Beginning with	Efficiency Code(s)	Frame Size	Product Number	Notes	Approx Shpg Wght (lbs)
SD & SSD	P,B	143T-184T	LM22093		2
		213T-215T	LM22188		2
		254T-256T	LM25632		TBD
		284T-326T	LM12429	2	
		364T-365T	LM12430	1	2
		404T-405T	LM12454	1	35
		444T-445T	LM12463	1	40
AF & SF (also includes AB, AN & SB)	S, H	143T-145T	LM08476		2
		182T-184T	LM08478		2
		213T-215T	LM08582		2
		254T-256T	LM08664		5
		284T-286T	LM08665	9	2
		324T-326T	LM08709	3	2
		364T-365T	LM08720	3	2
		404T-405T	LM08738	3	2
AF, AAF & SSF	S,P,B	143T-145T	LM18872		2
		182T-184T	LM18873		2
AF & SF	P, B	213T-215T	LM18874		1
		254T-256T	LM19985		TBD
		284T-286T	LM18876		1
		324T-326T	LM18866		3
		364T-365T	LM18868	1	35
		404T-405T	LM18869		3
		444T-445T	LM18870		4
CS, CCF & CCS (excludes those motors with NN in NOTES column)	P, B	447T-449T	LM18871	1	40
		143T-184T	LM18864		2
		213T-256T	LM18865		2
		284T-326T	LM18866		3
		364T-405T	LM18867		3
		444T-445T	LM18870		4
MD & SE	S	447T-449T	LM18871	1.2	40
		284T-286T	LM12429		2
		324T-365T	LM16572		2
		404T-405T	LM16574	1	40
		404T-405T	LM12454	1	35
		444T-445T	LM16577	1	40

Notes: P=Epact, B=Preimum, S=Standard Eff., G=U-Frame Standard

1. Kit includes larger than standard terminal box.
2. Terminal box is heavy gauge steel CS models normally have cast iron box
3. Blower motor on TEBC CTAC models, 284T frames and larger, is not CE compliant

\* Multiguard mtrs

Useable on 380 to 575V (for others, contact Lincoln). Price includes terminal strip suitable for six connections and grounding lug. Contact Customer Service regarding nameplate with CE Mark. Copies of Lincoln's Declaration of Conformity for the Low Voltage Declaration of Conformity for the Low Voltage Directive and Manufacturer's Declaration for the Machinery Directive are available on request

ACCESSORIES

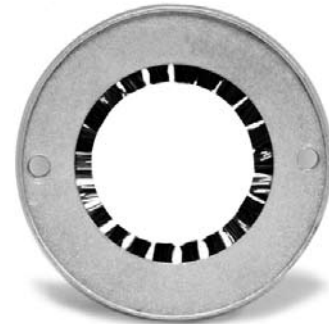
## SHAFT GROUNDING RINGS

Shaft grounding is recommended (NEMA MG1 31.4.4.3) as an effective means of bearing protection for motors operated from inverter power. One grounding device is adequate to bleed down inverter-sourced shaft voltages, thereby protecting both bearings for motors as large as 6085 frame. Kits includes grounding ring, mounting hardware and instructions.

Shaft ground rings fit these Lincoln NEMA shaft extension frames listed below, they are designed to mount on the shaft end.

### Shaft Grounding Ring (SGR)

Frame	Product No.	STOCK	List Price
48	LM32396	*	\$151
56	LM32397	*	\$151
143-145T	LM32398	*	\$151
182-184T	LM32399	*	\$176
213-215T	LM32401	*	\$200
254-256T	LM32402	*	\$250
284-286T	LM32403	*	\$302
284-286TS	LM32404	*	\$302
324-326T	LM32405	*	\$352
324-326TS	LM32406	*	\$352
364-365T	LM32407	*	\$401
364-365TS	LM32408	*	\$401
404-405	LM32409	*	\$598
404-405TS	LM32410	*	\$598
444-445T	LM32411	*	\$1,050
444-445TS	LM32412	*	\$1,050
447/449T	LM32413	*	\$1,050
447/449TS	LM32414	*	\$1,050



Grounding devices may not be installed on motors used in Division 1 or Division 2 hazardous locations.

These Kits cannot be used on Lincoln Motors having AP21 or AP23 in the Model Number or LEESON Cast Iron Motors



## Your motor, your way...now

The Mod-Squad stands on alert ready to tailor a LEESON or Lincoln stock motor to meet your modified motor needs in a few days or less. From one modified motor up to a few—there is no faster, more versatile source for mechanically or electrically “customerized” motors.

Starting with an off-the-shelf LEESON or Lincoln motor selected from the nearly 6,000 LEESON or Lincoln stock motors, the modifications listed here can be completed in the time frame noted for each item.

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Brakemotor Modifications - LEESON Only	L3	226
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## ORDERING INFORMATION

To order please specify the catalog number of the LEESON or Lincoln stock motor to be modified and the Mod-Squad modification catalog number or numbers desired.

An inventory of popular motors is maintained by the Modification Center for fast delivery. **However, delivery of the modified motor is governed by availability of the stock motor.** If a stock motor is shipped from a District Warehouse to the Modification Center in Indianapolis, IN, the cost of the inbound freight is added to the price of the modified motor and delivery of the modified motor will be extended by the inbound transit time.

**Modification list prices are subject to the same discounts as apply to the motor. (Some motors, such as explosion-proof, may not be modified.)** Days noted are working days excluding holidays and weekends—larger quantities may require additional leadtime.

### MOD-SQUAD CANCELLATION POLICY

Modified motors may not be returned for credit or re-stocking. If a modification order is cancelled before shipment, a cancellation charge of double the modification charge will be invoiced to the customer. Any Mod-Squad order cancelled before modification is completed is subject to cancellation charges of 10% of total charges for that item.

Terms are net 30 days, FOB Indianapolis, IN, with freight prepaid on single shipments of 1,500 pounds or more to the first destination within the continental United States, excluding Alaska.



## L1 Balancing

**Two Days\***

The LEESON balancing modification has been discontinued due to high costs of re-balancing by an outside firm. Contact your sales office for a quote on special or precision balanced production motors, requiring a minimum order of 10 pieces or contact a LEESON Authorized Service Center for a quote on a Special balance modification.

## L2 Bearing Modifications

**Two Days**

**#L2a** Available on all motors except the Lincoln motors with NN in the NOTES column. 48, 56 and 143T-145T, Agricultural motors as well as all Washguard duty and Wash-Thru motors have sealed bearings as standard. Note! Adding sealed bearings to Motors having grease fittings may not make the bearings regreasable. Grease fittings will be removed and plugged.

NEMA Frame	Catalog Number
42	<b>L2A42</b>
48	<b>L2A48</b>
56	<b>L2A56</b>
143T-145T	<b>L2A140</b>
182T-184T	<b>L2A180</b>
213T-215T	<b>L2A210</b>
254T-256T	<b>L2A250</b>
284T-286T	<b>L2A280</b>
324T-326T	<b>L2A320</b>
364T-365T	<b>L2A360</b>
404T-405T	<b>L2A400</b>
444T-449T	<b>L2A440</b>

**#L2b** Stock motors with shielded or sealed bearings – Replace standard bearings with ones having low-temperature lubricant (Beacon #325 or equivalent), with a temperature range of -75°F to +250°F. Standard lubricant has a temperature range of -20°F to +300°F and is considered a high temp lubricant for these motors. **Explosion proof motors can only be rated to a -13°F temperature.**

NEMA Frame	Catalog Number
42	<b>L2B42</b>
48	<b>L2B48</b>
56	<b>L2B56</b>
143T-145T	<b>L2B140</b>
182T-184T*	<b>L2B180</b>
213T-215T*	<b>L2B210</b>

\*Rolled steel, cast iron or aluminum motors

**#L2c** Change bearing grease on cast iron motors with open-type regreaseable bearings. Endbells and bearings are purged and repacked with low-temperature grease (Beacon #325 or equivalent) with a temperature range of -75°F to +250°F or high-temperature grease (Dow Corning DC44M or equivalent) with a temperature range of -40°F to +400°F. **Specify grease to be used.** Check with LEESON to verify the motor can operate in the temperature range required!

**LEESON Only**

NEMA Frame	IEC Frame	Catalog Number
254T-256T	–	<b>L2C250</b>
284T-286T	160	<b>L2C280</b>
324T-326T	180	<b>L2C320</b>
364T-365T	200	<b>L2C360</b>
404T-405T	225	<b>L2C400</b>
444T-449T	250	<b>L2C440</b>

**#L2d** Install insulated bearings to protect inverter-driven motors from inverter-sourced shaft voltages. **May not be installed on Division 1 or Division 2 hazardous locations.** Contact factory for lead time on installing insulated bearings

NEMA Frame	Catalog Number
143T-145T	<b>L2D140</b>
182T-184T	<b>L2D180</b>
213T-215T	<b>L2D215</b>
254T-256T	<b>L2D250</b>
284T-286T	<b>L2D280</b>
324T-326T	<b>L2D320</b>
364T-365T	<b>L2D360</b>
404T-405T	<b>L2D400</b>
444T-449T	<b>L2D440</b>

**L3 Brakemotor Modifications - LEESON Only**

**Three Days**

**"Motors and BrakeKits sold separately"**

**#L3a** Convert brakemotors (TENV only) with standard enclosure brakes to weatherproof brakes by changing the disc brake. Weatherproof brakes have additional sealing and protection. Price includes cost of weatherproof brake.

Brake Rating	Catalog Number
3 lb-ft	<b>L3A3</b>
6 lb-ft	<b>L3A6</b>
10 lb-ft	<b>L3A10</b>
15 lb-ft	<b>L3A15</b>
25 lb-ft	<b>L3A25</b>

**#L3b** Change the standard brake to one with a different torque rating. **Specify torque rating.** Standard enclosure brakes only—not weatherproof. Some torque limitations apply, specify torque rating. **Catalog Number L3B.**

**#L3c** Change Brake Coil Voltage. Change from standard coil voltage to 115 volts (for Stearns brand brakes only). **Catalog Number L3C.**

**#L3d** Install a LEESON BrakeKit. See page 46 for BrakeKits available and motors that can be converted. **Specify the catalog number of both the stock motor and the BrakeKit.**



BrakeKit Installation

**#L3e** Remove brake from stock brakemotor for customers supplying their own brake. **Specify Catalog Number L3E.**

**#L3f** Assemble double C-face coupler brake on C-face motor. MOD charge is for assembly only. Brake and motor are purchased separately. **Specify the catalog number of the stock motor and coupler brake.**  
**Catalog Number L3F56140 - 56C, 143TC, or 145TC motors.**  
**Catalog Number L3F180210 - 182TC, 184TC, 213TC, or 215TC motors.**

**#L3g** Change Brake Coil Voltage. Change from standard coil voltage to 200 volts (for Stearns brand brakes only).  
**Catalog Number L3G1.5-3 - 1.5 & 3 lb-ft brakes**  
**Catalog Number L3G6-10 - 6 & 10 lb-ft brakes**

**L5 Cords, Plugs and Grounding Provisions**

**Three Days**

**#L5a** For single phase motors, install grounded line cord of type S.O., three-conductor oil resistant cord, connected in the conduit box or terminal panel, with strain relief. No plug. **Specify cord length, voltage and shaft rotation (clockwise or counterclockwise) viewed from the drive shaft end of the motor.**

Wire Gauge	Max Amp Rating Single Phase	Catalog Number 6 ft. or Less	X Catalog Number Each Add'l. Foot
16	13	<b>L5A16</b>	<b>L5A16ADD</b>
14	18	<b>L5A14</b>	<b>L5A14ADD</b>
12	25	<b>L5A12</b>	<b>L5A12ADD</b>

**#L5b** Install 6-foot grounded type S.O. cord with plug, 115VAC single phase only. **Specify cord length, shaft rotation (clockwise or counterclockwise) viewed from the drive shaft end of the motor.**

HP	Catalog Number 6 ft. or Less	X Catalog Number Each Add'l. Foot
1 and smaller	<b>L5B</b>	<b>L5BADD</b>

**#L5c** Add an additional grounding screw to the endbell of drip-proof or totally enclosed non-ventilated NEMA 48 or 56 frame motors. Meets UL 1081 swimming pool motor grounding provisions (includes slinger). **Catalog Number L5C.**



Grounded Cord w/Plug

## L6 Switches – Power or Electronic Starting

**Three Days**

#L6a On-off switch for 2 HP and smaller single phase motors only. Install double-pole, single-throw switch in the conduit box, with switch guard and a 6-foot type S.O. cord with grounded plug, **115 VAC or 230 VAC—please specify. Also specify shaft rotation (clockwise or counterclockwise) viewed from the drive shaft end of the motor.**

HP	Rating	Catalog Number
Thru 2	16-20A/115V or 230V	<b>L6A</b>



On-Off Switch w/Guard

#L6b Replace mechanical centrifugal switch on single phase motors 2HP and smaller with solid-state, encapsulated, electronic starting switch. Capacitor-start, induction-run motors only. **Subject to engineering approval. Catalog Number L6B.**

## L7 Severe Duty - Cast Iron Fan Covers - LEESON Only

**Three Days**

#L7a Remove steel fan guard and install a cast iron fan guard on LEESON 150 and 170 series NEMA and 193 series IEC TEFC cast iron motors to meet severe duty, mill and chemical duty specifications. Note: These motors have cast iron endbells, frame, and conduit box as standard. **Lincoln Motors has a line of Severe Duty motors that include a cast iron fan guard. See page 59.**

NEMA Frame	IEC Frame	Catalog Number
182T-184T	–	<b>L7A180</b>
213T-215T	–	<b>L7A210</b>
254T-256T	–	<b>L7A250</b>
284T-286T	160	<b>L7A280</b>
324T-326T	180	<b>L7A320</b>
364T-365T	200	<b>L7A360</b>
404T-405T	225	<b>L7A400</b>
444T-445T	250	<b>L7A445</b>
447T-449T	280	<b>L7A449</b>



Cast Iron Fan Cover

## L8 Condensate Drains - Totally Enclosed Motors

**Two Days**

#L8a 215T and smaller *steel frame* motors. Drill one or two condensation drain holes on the **periphery or in the face** of each endbell of steel frame 215T frame and smaller totally enclosed motors. **Specify location in both the shaft end and opposite endbell using a drawing or clockface analogy.** When specified, a drain can be added to the face of one endbell for shaft up or down mounting.

NEMA Frame	Catalog Number
215T and smaller	<b>L8A40210</b>
254T-365T	<b>L8A250360</b>
404T-449T	<b>L8A400440</b>



Condensate Drain

#L8b 182T and larger *cast iron frame* motors. Provides an additional one-way, cross-drilled stainless steel condensation drain on the periphery or in the face of each endbell. **Provide a drawing or clockface analogy for position in each endbell.**

NEMA Frame	Catalog Number
215T and smaller	<b>L8B40210</b>
254T-365T	<b>L8B250360</b>
404T-449T	<b>L8B400440</b>

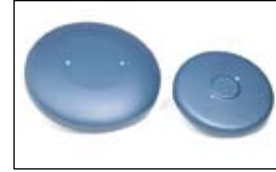
**L9 Drip Cover – Open, Drip-Proof Motors**

**Two Days**

#L9a Install a drip cover on steel frame motors. Price includes drip cover.

LEESON Only

NEMA Frame	Catalog Number
48-145T	L9A40140
182T-184T	L9A180
213T-215T	L9A210



Drip Cover

#L9b Install a drip cover on cast iron motors. Price includes drip cover.

LEESON Only

NEMA Frame	Catalog Number
182T-184T	L9B180
213T-215T	L9B210
254T-256T	L9B250

#L9c Install a drip cover on SPD, SRD and SSD Model Numbers. Not suitable for use on motors having NN in Notes column.

Lincoln Only

NEMA Frame	Catalog Number
48-56*	L9C4856
56-145T	L9C56145
182T-184T	L9C182184
213T-215T	L9C213215

\* Motors having a 2.18 inch bolt circle for the mounting holes

**L10 Leads – Reconnect, Remark or Extend**

**Two Days**

#L10a Re-Connect leads in the conduit box to a single voltage and/or for wye or delta connection. Most motors 444T frame and above are single voltage. **Specify voltage and connection.**

NEMA Frame	Catalog Number
48-145T	L10A40140
182T-184T	L10A180
213T-215T	L10A210
254T-256T	L10A250
284T-286T	L10A280
324T-326T	L10A320
364T-365T	L10A360
404T-405T	L10A400
444T-449T	L10A440

#L10c Extend leads up to 42 inches longer than standard by splicing. **Specify additional length required.**

NEMA Frame	Catalog Number
48-145T	L10C40140
182T-184T	L10C180
213T-215T	L10C210
254T-256T	L10C250
284T-286T	L10C280
324T-326T	L10C320
364T-365T	L10C360
404T-405T	L10C400
444T-449T	L10C440

#L10b Remark leads using metal markers. Any size motor. **Specify markings, letters or numbers. Specify Catalog Number L10B.**

#L10d Add crimp-type terminal lugs – steel frame motors. Lugs standard on LEESON cast iron motors. **Specify Catalog Number L10D.**

**L11 Shaft Seals**

**Three Days**

#L11a Install an oil seal on the shaft end of 215T and smaller steel frame LEESON motors. May be installed on single, three phase or direct current motors, but not explosion-proof motors.

Catalog Number
L11A

## L12 Mountings

## Two Days

- #L12a** Add a stamped steel rigid base to steel frame motors. For 182-4T frame motors, minimum 8.50" (TEFC, rigid, C face) or 8" (ODP, rigid, C face) frame length is required. **LEESON Only**

NEMA Frame	Catalog Number
42-48	<b>L12A4248</b>
56	<b>L12A56</b>
143T-145T	<b>L12A140</b>
182T-184T	<b>L12A180</b>
213T-215T	<b>L12A210</b>

**Note:** It is not possible to add a base to some three phase motors as the resulting rigid base motor will be subject to EISA mandated efficiency values. Contact the factory.

**This Mod. cannot be done on an explosion proof motor for an F1 conduit box location.**

- #L12b** Remove stamped steel rigid base from steel frame motors.

NEMA Frame	Catalog Number
42-56	<b>L12B4256</b>
143T-145T	<b>L12B140</b>

- #L12c** Install a NEMA C face on steel frame motors 215T and smaller. **Specify if the rigid base is to be removed. If so, add for modification #L12b listed above. LEESON Only**

NEMA Frame	Catalog Number
42-56*	<b>L12C4256</b>
143T-145T	<b>L12C140</b>
182T-184T	<b>L12C180</b>
182T-184T**	<b>L12C180U</b>
213T-215T	<b>L12C210</b>

\* Adding a 48 C-Face results in a non-NEMA BA dimension.

\*\* Convert a 182T-184T frame motor to have a C-face dimensions of a 143T-145T or 182U-184U frame motor (AJ = 5 7/8", AK = 4 1/2"). The shaft dimensions and base location will not change.

- #L12d** Install a NEMA C face to 150 or 170 series cast iron motors. **The rigid base cannot be removed from these cast iron frame motors (non-800 Series). LEESON Only**

NEMA Frame	Catalog Number
182T-184T	<b>L12D180</b>
213T-215T	<b>L12D210</b>
254T-256T	<b>L12D250</b>
284T-286T	<b>L12D280</b>
324T-326T	<b>L12D320</b>
364T-365T	<b>L12D360</b>
404T-405T	<b>L12D400</b>
444T-445T	<b>L12D440</b>
447T-449T	<b>L12D4479</b>

- #L12e** Install a NEMA D flange to open or totally enclosed motors of steel frame construction in 182-4T frame and cast iron 150 and 170 series motors in 213T frames through 445T frame. Steel rigid base can be removed from steel frame 182-4T frame motors. **Specify and add for modification L12b. Rigid base cannot be removed from cast iron frame motors. LEESON Only**

NEMA Frame	Catalog Number
182T-184T	<b>L12E180</b>
213T-215T	<b>L12E210</b>
254T-256T	<b>L12E250</b>
284T-286T	<b>L12E280</b>
324T-326T	<b>L12E320</b>
364T-365T	<b>L12E360</b>
404T-405T	<b>L12E400</b>
444T-445T	<b>L12E440</b>

- #L12f** Convert standard F1 motors to F2, sidewall or ceiling mounting. Consists of repositioning the endbell vents and condensation drains where applicable and the conduit box lead hole. Note: If brakemotor, brake knob will be located at 6 o'clock. Note: Only the 56/140 frame motors can have the motor bases removed where needed.

NEMA Frame*	Catalog Number
56-184T	<b>L12F56180</b>
213T-215T	<b>L12F210</b>
254T-326T	<b>L12F250320</b>
364T-449T	<b>L12F360449</b>

\* Three phase only; single phase motors cannot be converted. Please contact factory for Explosion proof motor approval for this modification.

- #L12g** Rotate standard conduit box position by 90° increments. **Specify by clock face, i.e. 9 o'clock, 12 o'clock, etc. for position (viewed from shaft end).** Consists of repositioning the endbell vents and condensation drains where applicable and the conduit box lead hole. Note: If brakemotor, brake knob will be rotated 90° from conduit box. **This mod. can no longer be offered on the 180 and 210 frame motors for the bases of these motors can no longer be removed without damaging the motor.**

NEMA Frame*	Catalog Number
56-145T	<b>L12G56140</b>

\* Three phase rolled steel only; single phase motors cannot be converted.

**More L12 mountings on next page.**

**L12 Mountings**

**Two Days**

**#L12h** Install a metric (IEC) B5 flange to 190 series cast aluminum or cast iron AC motors and DC steel frame motors. **LEESON Only**

IEC Frame	Catalog Number
63	<b>L12H63</b>
71	<b>L12H71</b>
71 (DC)	<b>L12HD71</b>
80	<b>L12H80</b>
80 (DC)	<b>L12HD80</b>
90	<b>L12H90</b>
90 (DC)	<b>L12HD90</b>
100	<b>L12H100</b>
112	<b>L12H112</b>
100/112 (DC)	<b>L12HD100112</b>
132	<b>L12H132</b>
160	<b>L12H160</b>
180	<b>L12H180</b>
200	<b>L12H200</b>
225	<b>L12H225</b>

**#L12j** Install a metric (IEC) B14 face to 190 series cast aluminum or cast iron AC motors and DC steel frame motors. **LEESON Only**

\*Note: C-face kit (B14) not available in NEMA frame 180.

IEC Frame	Catalog Number
63	<b>L12J63</b>
71	<b>L12J71</b>
71 (DC)	<b>L12JD71</b>
80	<b>L12J80</b>
80 (DC)	<b>L12JD80</b>
90	<b>L12J90</b>
90 (DC)	<b>L12JD90</b>
100	<b>L12J100</b>
112	<b>L12J112</b>
100/112 (DC)	<b>L12JD100112</b>
132	<b>L12J132</b>
160	<b>L12J160</b>

**#L12k** Reposition feet and nameplate (to relocate conduit box) on AC aluminum-frame IEC motors (63 thru 90L frame). **LEESON Only**

IEC Frame	Catalog Number
63	<b>L12K63</b>
71	<b>L12K71</b>
80	<b>L12K80</b>
90	<b>L12K90</b>

**#L12l** Install C-Face. For motors having AF/AAF in the model number.  
**Lincoln Only**

NEMA Frame	Catalog Number
182T-184T	<b>L12L182184</b>
213T-215T	<b>L12L213215</b>
254T-256T	<b>L12L354256</b>
284T-286T	<b>L12L284286</b>

**#L12m** Install C-Face. For motors having SRF in the model number.  
**Lincoln Only**

NEMA Frame	Catalog Number
56 (203 brg)	<b>L12M56203</b>
56 (205 brg)	<b>L12M56205</b>

**#L12n** Install C-Face. For motors having SSF in the model number.  
**Lincoln Only**

NEMA Frame	Catalog Number
143-145T	<b>L12N143145</b>
182-184T	<b>L12N182184</b>
213-215T	<b>L12N213215</b>

**#L12o** Install C-Face. For motors having SF in the model number, having a cast iron endbell.  
**Lincoln Only**

NEMA Frame	Catalog Number
324T/TS-326T/TS	<b>L12O324326</b>
364T/TX-365T/TS	<b>L12O364365</b>
404T/TS-405T/TS	<b>L12O404405</b>
444T/TS-445T/TS	<b>L12O444445</b>
447T/TS-449T/TS	<b>L12O447449</b>

**#L12p** Install C-Face. For motors having CCN in the model number.  
**Lincoln Only**

NEMA Frame	Catalog Number
143-145T	<b>L12P143145</b>

**#L12q** Install C-Face. For motors having CCF in the model number.  
**Lincoln Only**

NEMA Frame	Catalog Number
143T-145T	<b>L12Q143145</b>
182T-184T	<b>L12Q182184</b>
213T-215T	<b>L12Q213215</b>
254T-256T	<b>L12Q254256</b>
284T-286T	<b>L12Q284286</b>
342T-326T	<b>L12Q324326</b>

**#L12r** Install C-Face. For motors having CCS in the model number.  
**Lincoln Only**

NEMA Frame	Catalog Number
143T-145T	<b>L12R143145</b>
182T-184T	<b>L12R182184</b>
213T-215T	<b>L12R213215</b>
254T-256T	<b>L12R254256</b>
284T/TS-286T/TS	<b>L12R284286</b>
342T/TS-326T/TS	<b>L12R324326</b>
364T/TS-365T/TS	<b>L12R364365</b>
404T/TS-405T/TS	<b>L12R404405</b>
444T/TS-445T/TS	<b>L12R444445</b>

## L13 Nameplates

**Three Days**

**#L13a** Provide an extra motor nameplate-unmounted. Add customer part number or change to other voltage or frequency service. **Unmounted nameplates are not available for explosion-proof motors.**

**Note: Markings for UL and CSA cannot be included on unmounted nameplates that are shipped loose and not installed on a motor.**① Add \$1 (net) for each additional Aluminum or Mylar nameplate.② Add \$2 (net) for each additional stainless steel nameplate.② Catalog Number L13A.

**#L13b** Replace, existing nameplate. Add customer part number or change to other voltage or frequency service and mount to motor.①

**Note: Not available for motors that are all stainless steel construction.**

**#L13c** Replace standard aluminum nameplate with stainless steel nameplate. LEESON cast iron, WASHGUARD and severe duty motors have stainless steel nameplates as standard.① Add \$2 (net) for each additional stainless steel nameplate.②

① Must specify catalog number and date code of motor's existing nameplate. Nameplates changed to a single voltage connection does not mean motors would be re-connected to this connection unless the L10 Mod is also requested.

② Additional nameplates must be identical.

## L14 Paint

**Two Days\***

**#L14a** Repaint motor to another LEESON or Lincoln stock paint color. A sample of choices include LEESON blue, white epoxy, farm duty red, light gray epoxy, black, or black epoxy.

For Lincoln motors, your choices include: Lincoln gray, severe duty blue, black or gloss white. Not available on Lincoln Wash-thru motors. **Specify color.**

**\*Note:** Epoxy paint requires extra curing time. Please allow one additional day.

	Frame	Catalog Number
NEMA	42-215T	<b>L14A40210</b>
NEMA	254T-365T	<b>L14A250360</b>
NEMA	404T-449T	<b>L14A400440</b>
IEC	63-90	<b>L14A6390</b>
IEC	100-225	<b>L14A100225</b>

## L15 Rodent Screens - LEESON Only

**Two Days**

**#L15a** Add rodent screens to open drip-proof motors, cast iron and steel frame, 326T and smaller.

NEMA Frame	Catalog Number
182T-S213T	<b>L15A40210</b>
254T-286T	<b>L15A250280</b>
324T-326T	<b>L15A320</b>

## L16 Space Heaters, Anti-Condensation

**Five Days**

**#L16a** Add anti-condensation space heaters to totally enclosed or open motors. Standard space heater voltage is 115 VAC. **Heaters for 230 or 460 VAC are available. Specify circuit voltage.** May be installed in single, three phase or direct current motors. **Explosion proof motors are not included. Washdown duty motors are not included.**

NEMA Frame	Catalog Number
145T and smaller	<b>L16A40140</b>
182T-215T	<b>L16A180210</b>
254T-365T	<b>L16A250360</b>
404T-449T	<b>L16A400440</b>

## L17 Lint-Proof Textile Service Motors - LEESON Only

**Two Days**

**#L17a** Convert a standard totally enclosed-fan cooled motor to textile service by modifying the fan cover to reduce "snagging" of lint and reduction in cooling air for the motor. Price includes kit cost.

NEMA Frame	Catalog Number
56-145T	<b>L17A40140</b>
182T-184T	<b>L17A180</b>



Lint-Proof Kit



L18 Motor Protection

Two Days

#L18a Thermostats on the winding. Install one or more thermostats in the windings of NEMA frame AC motors on the brush plate of DC motors or on the inside of frame on Sub-FHP DC motors. These are pilot or signal devices only, to be used in series with a motor controller or starter to remove power from the motor. Red color leads are brought into the conduit box. Specify normally open or closed contacts. Normally closed thermostats connected in series. Thermostats cannot be installed in explosion-proof motors.

Table with 4 columns: Type, NEMA Frame, Catalog Number, No. of Devices. Rows include Single Phase, Three Phase (42-215T, 254T-365T, 404T-449T), and Direct Current.

#L18b For a motor equipped with a thermal overload, exchange a manual or automatic reset thermal overload to the opposite style. Delivery is dependent upon availability of the thermal overload. LEESON Only

Table with 2 columns: NEMA Frame, Catalog Number. Rows include 48-56, 143T-145T, 182T-184T, 213T-215T.

Note: Automatic thermal overloads return power to the motor automatically after cooling-off. Automatic thermal overloads should not be used in installations where a sudden restart could cause injury.

#L18c Thermistors on the winding. As standard, three (3) thermistors are furnished, one per phase. As the critical temperature of the motor's winding is reached, the resistance of the thermistor changes radically, causing operation of a control relay. Not available on washdown duty motors or medium voltage motors.

Table with 4 columns: Type, NEMA Frame, Catalog Number, No. of Devices. Rows include Three Phase (42-215T, 254T-365T, 404T-449T).

Note: Thermostat and Thermistor Descriptions:

Thermostats are made of two or three different metal strips that each expand at different rates when heated. They are sandwiched together to make a laminated strip, with a set of electrical contacts at one end securely mounted to a platform. When the strip is heated it warps and the contacts open as a threshold temperature is exceeded. Thermostats are reliable, noise immune and easily configured into control schemes. Typically, inverter-duty motors have thermostats as standard equipment.

Thermistors are conductive ceramic materials, whose resistance remains relatively constant over a broad temperature range, then changes abruptly at a design threshold point, creating essentially a solid-state thermal switch. Attached control modules register this abrupt resistance change and produce an amplified output signal, usually a contact closure or fault trip annunciation. Thermistors are more accurate and faster responding than thermostats.

L19 Fungus Proofing and Tropicalization

Two Days

#L19a Special treatment of the motor's windings and mechanical parts to resist tropical environments. Not available on brakemotors, washguard duty motors and explosion proof motors.

\*\* AC or DC Motors

Table with 2 columns: NEMA Frame, Catalog Number. Rows include 42-215T\*\*, 254T-365T, 404T-449T.

L20 Weatherproofing - Three Phase, Totally Enclosed Motors\*

Five Days

#L20a Treatment of mechanical and electrical components of LEESON steel frame totally enclosed motors to resist weather in application outside or in high-moisture conditions. NOTE: LEESON 150 and 170 series cast iron motors are weatherproofed as standard. LEESON WASHGUARD motors are also well-suited for outside and high-moisture applications. Not available on brakemotors or explosion proof motors. \*\* AC or DC Motors

Table with 2 columns: NEMA Frame, Catalog Number. Row includes 42-215T\*\*.

\* For single phase weatherproofed motors, see WASHGUARD motors on pages 28 and 35.

L21 Marine Service (IEEE 45) Motors - Three Phase, Totally Enclosed - LEESON Only

Five Days

#L21a Treatment of mechanical and electrical components for application below deck aboard ships. Meets IEEE 45 marine specifications. Includes die cast conduit box with tapped lead hole and nameplate stamped 50°C ambient and marked IEEE 45. Standard LEESON blue epoxy paint will be applied unless otherwise specified. Not available on brakemotors and subject to engineering approval. Not available in 42 and 48 frame sizes for no kit is available to change conduit box to have a tapped hole. \*\* AC or DC Motors

Table with 2 columns: NEMA Frame, Catalog Number. Rows include 56-215T\*\*, 254T-365T, 404T-405T, 444T-449T.

Specifications are subject to change without notice



## L22 Shaft Modifications

**Five Days**

- #L22a** Drill and tap one hole in either end of motor's shaft or mill a flat on the drive end shaft extension. **Provide details of hole or flat with the order.** List price is per modification. For example, a motor modified by adding a tapped hole and flat would be priced by adding the list price twice.  
**3 inches maximum depth hole**

NEMA Frame	Catalog Number
42-145T	<b>L22A40140</b>
182T-184T	<b>L22A180</b>
213T-215T	<b>L22A210</b>
250T-280T	<b>L22A250280</b>

- #L22b** TEFC to air-over service. Convert a motor from totally enclosed, fan cooled construction to totally enclosed, air-over service by removing fan cover and fan and cutting off the fan end shaft. The modified motor must be mounted in the air stream of the driven fan for cooling purposes.

NEMA Frame	Catalog Number
42-145T	<b>L22B40140</b>
182T-184T	<b>L22B180</b>
213T-215T	<b>L22B210</b>

## L23 Tachometer Mounting Provisions – DC Motors - LEESON Only

**Five Days**

- #L23a** Add a tachometer mounting kit to NEMA frame size Direct Current motors. See page 81 for availability of tachometer mounting kits. Does not include tachometer. For TEFC motors only.

NEMA Frame	Catalog Number
S56	<b>L23AS56</b>
SS56	<b>L23ASS56</b>
56/145T	<b>L23A56140</b>



Tach Kit Adaptor

## L24 CE Marking\*

**Five Days**

- #L24** Modify motor to comply with the nameplate designation, lead markings and connection diagrams required by the IEC34 motor specification. Modification includes a nameplate with the CE logo or a separate CE decal and a CE Declaration of Conformity document. Not available on DC motors below 75 V.D.C. **LEESON Only**

Catalog Number
<b>L24</b>



- #L24b** CE Marking Kit - Includes new nameplate with data in IEC34 format, lead markers for IEC lead designations, a connection diagram, and a CE Declaration of Conformity document. The nameplate will have the CE logo, or a CE decal will be provided. **LEESON Only**

Catalog Number
<b>L24B</b>

\*CE Marking is typically required for motors being shipped to Europe where 50Hz power is standard. For this reason, CE Marking includes adding 50Hz data to the motor nameplate. Not all motors can be used with 50Hz power – especially single-phase motors with centrifugal switches. Contact LEESON to verify acceptability for CE Marking.

- #L24c** Modification includes larger than standard Steel terminal box. CS models normally have a cast iron box. Blower motor on TEBC CTAC models, 284T frame and larger, is not CE compliant. Useable on 380 to 575V motors. Price includes terminal strip suitable for six connections and grounding lug. CE decal to be provided. CE Declaration of Conformity are available upon request. **Lincoln Only**

NEMA Frame	Catalog Number
143T-145T	<b>L24C140</b>
182T-184T	<b>L24C180</b>
213T-215T	<b>L24C210</b>
254T-256T	<b>L24C250</b>
284T-286T	<b>L24C280</b>
324T-326T	<b>L24C320</b>
364T-365T	<b>L24C360</b>
404T-405T	<b>L24C400</b>
444T-445T	<b>L24C440</b>
447T-449T	<b>L24C447449</b>

Contact your local sales office for Lincoln CE kits.

**Explosion proof motors cannot be modified to meet CE.**

**L25 Micro Series Inverter - Remote Keypad Option - LEESON Only**

**Two Days**

#L25 A remote keypad for Micro Series inverters is available only as a factory installed option. The keypad is mounted in a gasketed steel faceplate that must be mounted in an enclosure for protection. An inverter modified for remote operation can only be operated from the remote keypad. Price includes remote keypad, faceplate, cable and factory modification charges. **Not available on Washguard Duty Inverters.** See page 208 for Remote Keypad kits for the Sub-Micro Series Inverters.



Catalog Number	Description
L25A25	Keypad with 2.5 foot cable
L25A50	Keypad with 5 foot cable
L25A100	Keypad with 10 foot cable

**L27 Terminal Blocks – NEMA Motors - LEESON Only**

**Five Days**

#L27a Add a terminal block in the conduit box of rolled steel motor from 56 to 215T-frame. Install ring terminals on the motor leads.

- Conduit box on 56-frame motors will be changed to a longer version to accommodate the terminal board.
- Use with single-phase or three-phase motors with no protector.
- Specify connection voltage and direction of rotation for single-phase.
- Not intended for 56, 143T & 145T-frame TENV or ODP motors that have a built-in conduit box. Contact LEESON for the suitability of adding a terminal board to one of these motors.
- Cannot be added to WASHGUARD Duty motors.

NEMA Frame	Catalog Number
56/143T/145T	L27A56140
182T/184T/S213T	L27A180
213T-215T	L27A210

#L27b Install a terminal block kit in the conduit box of a cast iron NEMA frame motor. Price includes kit. (IEC motors have a terminal block installed as standard.)

NEMA Frame	Catalog Number
180/210T	L27B180210
250/280T	L27B250280
320/360T	L27B320360
400/440T	L27B400440

**L28 Dynamic Braking Board – Micro Series Drives - LEESON Only**

**Two Days**

#L28 Install Dynamic Braking board in Micro Series drive. Note: Does not include Dynamic Braking resistor, which is ordered as a separate line item. See Micro Series accessory section of catalog for resistor selection. See page 207 for Dynamic Brake kits for the Sub-Micro Series inverters.

HP Rating	Voltage	Catalog Number
1/2 - 3HP	All	L28A174184
5HP	200-230V	L28A174185
5HP	460-480V	L28A174185
5HP	550-575V	L28A174184
7 1/2HP	200-230V	L28A174192
7 1/2HP	460-480V	L28A174193
7 1/2HP	550-575V	L28A174193
10-60HP	All	L28A174192



L29 Encoder Kits – WATTS AVER® & SPEEDMASTER® Motors

Two Days

#L29a Assemble a stock Encoder Kit on a WATTS AVER® motor. Price is for assembly only. Motor and kit are purchased separately. Specify motor and kit numbers. Note: The assembly of an encoder kit on a WATTS AVER® motor requires the removal of the external fan. The use of a Blower Fan Kit is strongly encouraged for proper cooling! For TENV applications, contact LEESON with application details. (Kit Number: L29A360400) LEESON Only

Table with 2 columns: NEMA Frame, Catalog Number. Rows: 56-215T (L29A56215), 254T-324T (L29A250320), 360T-405T (L29A360400)

#L29b Assemble a stock Encoder Kit on a SPEEDMASTER® motor. Includes assembly of conduit box kit ECB175926 on 215T-449T frame motors. Price is for assembly only. Motor and kits are purchased separately. Specify motor and kit numbers. LEESON Only

Table with 2 columns: NEMA Frame, Catalog Number. Rows: 143T-215T (L29B140210), 254T-365T (L29B250360), 404T-449T (L29B400440)

#L29c Available on Inverter Duty CTAC Motors that have Model Number ending with Q10. Price is for assembly only. Encoder kit, Mounting kit and Motor sold separately. Lincoln Only

Table with 2 columns: NEMA Frame, Catalog Number. Rows: 56-215T (L29C56210), 254T-365T (L29C250360), 404T-445T (L29C400440)

L30 Blower Fan Kits – WATTS AVER® Motors

Two Days

#L30b Install a blower fan kit on a WATTS AVER® motor. Price is for assembly only. Motor and kit are purchased separately. Specify motor and kit numbers. LEESON Only

Table with 2 columns: NEMA Frame, Catalog Number. Rows: 56-215T (L30B56210), 254T-326T (L30B250320), 360T-440T (L30B360440)

L31 Conduit Box Kits – Larger Size - Lincoln Only

#L31a Install larger size conduit box. AF, MD, SD and SF Model Numbers, S and H Efficiency Codes

Table with 2 columns: NEMA Frame, Catalog Number. Rows: 213T-215T (L31A213215), 254T-256T (L31A254256), 284T-286T (L31A284286), 324T-326T (L31A324326), 364T-365T (L31A363365), 404T-405T (L31A404405)

#L31b Install larger size conduit box. AF, AAF, CF, CS, CP, SD and SF Model Numbers, P and B Efficiency Codes

Table with 2 columns: NEMA Frame, Catalog Number. Rows: 143T-184T (L31B143184), 213T-215T (L31B213215), 254T-256T (L31B254256), 284T-286T (L31B284286), 324T-326T (L31B324326), 364T-365T (L31B364365), 404T-405T (L31B404405), 444T-445T (L31B444449)

# CROSS REFERENCE EXCEPTION CODES

## LEESON Product Base Exceptions

- B01 Install base kit 175032 (Extra cost)
- B02 Install base kit 175033 (Extra cost)
- B03 Install base kit 175034 (Extra cost)
- B04 Install base kit 175035 (Extra cost)
- B05 Install base kit 175036 (Extra cost)
- B06 Install base kit 175037 (Extra cost)
- B07 Install base kit 175038 (Extra cost)
- B08 Install base kit 175039 (Extra cost)
- B09 Install base kit 175040 (Extra cost)
- B10 Install base kit 175041 (Extra cost)
- B11 Install base kit 175042 (Extra cost)
- B12 Install base kit 175043 (Extra cost)
- B13 Install base kit 175044 (Extra cost)
- B14 Install base kit 175045 (Extra cost)
- B15 Install base kit 175046 (Extra cost)
- B16 Install base kit 175047 (Extra cost)
- B17 Install base kit 175048 (Extra cost)
- B18 Install base kit 175049 (Extra cost)
- B19 Install base kit 175088 (Extra cost)
- B20 Install base kit 175089 (Extra cost)
- B21 Install base kit 175090 (Extra cost)
- B22 Install base kit 175091 (Extra cost)
- B23 Install base kit 175092 (Extra cost)
- B24 Install base kit 175093 (Extra cost)
- B25 Install base kit 175094 (Extra cost)
- B26 Install base kit 175095 (Extra cost)
- B27 Install base kit 175097 (Extra cost)
- B28 Install base kit 175098 (Extra cost)
- B29 Install base kit 175127 (Extra cost)
- B30 LEESON motor has a 56 frame base
- B31 LEESON motor has rigid base
- B32 LEESON motor has resilient base
- B33 LEESON motor has no base
- B34 LEESON's motor base is not removable
- B35 LEESON motor has base with mounting holes for 56 & 143-5T
- B36 LEESON base mounting holes not 'Drop-in' replacement
- B37 Install base kit M1760006 (Extra cost)
- B38 LEESON motor has 184JM base and shaft

## LEESON Product Construction Exceptions

- C01 LEESON motor has steel frame
- C02 LEESON motor has cast iron frame
- C03 LEESON motor has mechanical switch
- C04 Reassemble LEESON motor to F2 mounting
- C05 LEESON motor has base with mounting holes for 56, 143-5T and 5/8" Nema 56 shaft
- C06 LEESON motor is not BISSC certified
- C07 LEESON motor is capacitor start/capacitor run design
- C08 LEESON motor is normal efficiency
- C09 LEESON motor has double shielded ball bearings
- C10 LEESON motor is capacitor start/induction run design
- C11 LEESON motor has 1.0 service factor
- C12 LEESON motor is ball bearing design
- C13 LEESON motor is 208-230 volts
- C14 LEESON motor has steel fan-guard
- C15 LEESON motor is premium efficiency design
- C16 LEESON motor has ball bearing instead of roller bearing drive end
- C17 LEESON motor does not have extended thru-bolts
- C18 LEESON motor has 145TC face with 182T base
- C19 LEESON motor requires C face adapter
- C20 LEESON motor is 1650 RPM
- C21 LEESON motor has no cord or plug
- C22 LEESON motor is IP54
- C23 LEESON motor is 1625 RPM
- C24 LEESON motor is 1075 RPM
- C25 LEESON motor is class B insulated
- C26 LEESON motor is Class I Group D, Class II Groups F & G
- C27 LEESON motor is 60/50HZ
- C28 LEESON motor has external capacitor
- C29 LEESON motor is PSC design
- C30 LEESON does not have tapped-hole (as standard) for pulse generator
- C31 LEESON gearbox mounting face includes 3-point mounting
- C32 LEESON motor is dual voltage rated - 115/230
- C33 LEESON armature voltage is 90V DC
- C34 LEESON motor is 230V only
- C35 LEESON motor is non-reversible
- C36 LEESON motor is reversible
- C37 LEESON motor shaft endshield is totally enclosed
- C38 Install explosion proof conduit box 175026 (Extra cost)
- C39 LEESON motor has 1.15 service factor
- C40 LEESON motor has 1.25 service factor

- C41 LEESON motor has 1.35 service factor
- C42 LEESON motor has a 145T "C" face and shaft with welded on base
- C43 LEESON motor may not be used on 190-208/380-416V 50HZ at full rated HP
- C44 IEEE 841 modification required - reference mod squad motor modifications L26
- C45 LEESON motor has cast iron C face
- C46 LEESON motor is 60HZ Only
- C47 LEESON motor is 208-230/460V
- C48 LEESON motor is class F insulated
- C49 LEESON motor is EPACT efficiency
- C50 LEESON motor is design B
- C51 LEESON motor is all stainless steel
- C52 LEESON motor has 12 leads
- C53 LEESON motor has standard paint
- C54 LEESON motor is 460 Volt only
- C55 LEESON motor has a solid-state switch

## LEESON Product Enclosure Exceptions

- E01 LEESON motor is totally enclosed non-ventilated
- E02 LEESON motor is totally enclosed fan-cooled
- E03 LEESON motor is drip proof

## LEESON Product Frame Size Exceptions

- F01 LEESON frame size is 48
- F02 LEESON frame size is S56
- F03 LEESON frame size is 56
- F04 LEESON frame size is 56C
- F05 LEESON frame size is 56H
- F06 LEESON frame size is 145T
- F07 LEESON frame size is 145TC
- F08 LEESON frame size is 182T
- F09 LEESON frame size is 184T
- F10 LEESON frame size is 184TC
- F11 LEESON frame size is 184JM
- F12 LEESON frame size is 215T
- F13 LEESON frame size is 286T
- F14 LEESON frame size is 326T
- F15 LEESON frame size is 364T
- F16 LEESON frame size is 365T
- F17 LEESON frame size is 405T
- F18 LEESON frame size is 444T
- F19 LEESON frame size is 445T
- F20 LEESON frame size is 447T
- F21 LEESON frame size is D63D
- F22 LEESON frame size is 143T
- F23 LEESON frame size is 404T
- F24 LEESON frame size is 213TC
- F25 LEESON frame size is 449T
- F26 LEESON frame size is 256JM
- F27 LEESON frame size is 284JM
- F28 LEESON frame size is 286JM
- F29 LEESON frame size is 56HC

## LEESON Product Horsepower Exceptions

- H01 LEESON motor is rated 1/2 HP
- H02 LEESON motor is rated 1 HP
- H03 LEESON motor is rated 1/3 HP
- H04 LEESON motor is rated 1/4 HP
- H05 LEESON motor is rated 4.0 KW/5.5 HP
- H06 LEESON motor is rated 1/6 HP
- H07 LEESON motor is rated 3/4 HP

## LEESON Product Kit Exceptions

- K01 Install AC metric (63 frame) B5 flange kit 175850 (Extra cost)
- K02 Install AC metric (71 frame) B5 flange kit 175852 (Extra cost)
- K03 Install AC metric (80 frame) B5 flange kit 175854 (Extra cost)
- K04 Install AC metric (90 frame) B5 flange kit 175856 (Extra cost)
- K05 Install AC metric (100 frame) B5 flange kit 175984 (Extra cost)
- K06 Install AC metric (112 frame) B5 flange kit 175986 (Extra cost)
- K07 Install AC metric (132 frame) B5 flange kit 175988 (Extra cost)
- K08 Install AC metric (160 frame) B5 flange kit 175890 (Extra cost)
- K09 Install AC metric (180 frame) B5 flange kit 175890 (Extra cost)
- K10 Install AC metric (63 frame) B14 flange kit 175851 (Extra cost)
- K11 Install AC metric (71 frame) B14 flange kit 175863 (Extra cost)
- K12 Install AC metric (80 frame) B14 flange kit 175855 (Extra cost)
- K13 Install AC metric (90 frame) B14 flange kit 175857 (Extra cost)
- K14 Install AC metric (100 frame) B14 flange kit 175985 (Extra cost)
- K15 Install AC metric (112 frame) B14 flange kit 175987 (Extra cost)

- K16 Install AC metric (132 frame) B14 flange kit 175989 (Extra cost)
- K17 Install AC metric (160 frame) B14 flange kit 175991 (Extra cost)
- K18 Install DC metric (71 frame) B5 flange kit 175106 (Extra cost)
- K19 Install DC metric (80 frame) B5 flange kit 175108 (Extra cost)
- K20 Install DC metric (90 frame) B5 flange kit 175108 (Extra cost)
- K21 Install DC metric (100 frame) B5 flange kit 175137 (Extra cost)
- K22 Install DC metric (71 frame) B14 flange kit 175107 (Extra cost)
- K23 Install DC metric (80 frame) B14 flange kit 175109 (Extra cost)
- K24 Install DC metric (90 frame) B14 flange kit 175129 (Extra cost)
- K25 Install DC metric (100 frame) B14 flange kit 175130 (Extra cost)
- K26 Install NEMA steel frame C Face kit 175661 (Extra cost)
- K27 Install NEMA steel frame C Face kit 175294 (Extra cost)
- K28 Install NEMA steel frame C Face kit 175297 (Extra cost)
- K29 Install NEMA steel frame C Face kit 175075 (Extra cost)
- K30 Install NEMA steel frame C Face kit 175076 (Extra cost)
- K31 Install NEMA steel frame C Face kit 175078 (Extra cost)
- K32 Install NEMA steel frame C Face kit 175181 (Extra cost)
- K33 Install NEMA steel frame C Face kit 175077 (Extra cost)
- K34 Install NEMA steel frame C Face kit 175969 (Extra cost)
- K35 Install NEMA steel frame C Face kit 175691 (Extra cost)
- K36 Install NEMA steel frame C Face kit 175303 (Extra cost)
- K37 Install NEMA steel frame C Face kit 175007 (Extra cost)
- K38 Install NEMA steel frame C Face kit 175693 (Extra cost)
- K39 Install NEMA steel frame C Face kit 175008 (Extra cost)
- K40 Install NEMA steel frame C Face kit 175845 (Extra cost)
- K41 Install NEMA steel frame C Face kit 175844 (Extra cost)
- K42 Install NEMA steel frame C Face kit 175304 (Extra cost)
- K43 Install NEMA cast iron C Face kit 175655 (Extra cost)
- K44 Install NEMA cast iron C Face kit 175066 (Extra cost)
- K45 Install NEMA cast iron C Face kit 175068 (Extra cost)
- K46 Install NEMA cast iron C Face kit 175067 (Extra cost)
- K47 Install NEMA cast iron C Face kit 175069 (Extra cost)
- K48 Install NEMA cast iron C Face kit 175191 (Extra cost)
- K49 Install NEMA cast iron C Face kit 175058 (Extra cost)
- K50 Install NEMA cast iron C Face kit 175061 (Extra cost)
- K51 Install NEMA cast iron C Face kit 175059 (Extra cost)
- K52 Install NEMA cast iron C Face kit 175062 (Extra cost)
- K53 Install NEMA cast iron C Face kit 175060 (Extra cost)
- K54 Install NEMA cast iron C Face kit 175063 (Extra cost)
- K55 Install NEMA cast iron C Face kit 175199 (Extra cost)
- K56 Install NEMA cast iron C Face kit 175664 (Extra cost)
- K57 Install Chemical Service/Severe Duty (182/184T) kit 175663 (Extra cost)
- K58 Install Chemical Service/Severe Duty (213/215T) kit 175050 (Extra cost)
- K59 Install Chemical Service/Severe Duty (254/256T) kit 175051 (Extra cost)
- K60 Install Chemical Service/Severe Duty (284/286T) kit 175052 (Extra cost)
- K61 Install Chemical Service/Severe Duty (324/326T) kit 175053 (Extra cost)
- K62 Install Chemical Service/Severe Duty (364/365T) kit 175054 (Extra cost)
- K63 Install Chemical Service/Severe Duty (404/405T) kit 175055 (Extra cost)
- K64 Install Chemical Service/Severe Duty (444/445T) kit 175056 (Extra cost)
- K65 Install NEMA D Flange (182/184T) kit 175694 (Extra cost)
- K66 Install NEMA D Flange (182/184T) kit 175658 (Extra cost)

- (Extra cost)
- K67 Install NEMA D Flange (213/215T) kit 175114 (Extra cost)
- K68 Install NEMA D Flange (213/215T) kit 175115 (Extra cost)
- K69 Install NEMA D Flange (254/256T) kit 175116 (Extra cost)
- K70 Install NEMA D Flange (364/365T) kit 175995 (Extra cost)
- K71 Install NEMA D Flange (254/256T) kit 175192 (Extra cost)
- K72 Install NEMA D Flange (284/286T) kit 175118 (Extra cost)
- K73 Install NEMA D Flange (284/286T) kit 175119 (Extra cost)
- K74 Install NEMA D Flange (324/326T) kit 175120 (Extra cost)
- K75 Install NEMA D Flange (324/326T) kit 175121 (Extra cost)
- K76 Install NEMA D Flange (364/365T) kit 175657 (Extra cost)
- K77 Install Textile "Lint-Proof" kit 175024 (Extra cost)
- K78 Install Textile "Lint-Proof" kit 175025 (Extra cost)
- K79 Install Textile "Lint-Proof" kit 175695 (Extra cost)
- K80 Install Drip-Cover (213/215JP) kit 175305 (Extra cost)
- K82 Install Drip-Cover (56) kit 175004 (Extra cost)
- K83 Install Drip-Cover (143/145T) kit 175004 (Extra cost)
- K84 Install Drip-Cover (182/184T) kit 175614 (Extra cost)
- K85 Install Drip-Cover (213/215T) kit 175849 (Extra cost)
- K86 Install conduit box kit M1760007 (Extra cost)
- K87 Install conduit box kit M1760021 (Extra cost)
- K88 Install NEMA Wattsaver cast iron C face kit 175869 (Extra cost)
- K89 Install Drip-Cover (56) kit 175298 (Extra cost)
- K90 Install NEMA Wattsaver cast iron C face kit 175842 (Extra cost)
- K91 Install Brake kit 175178 (Extra cost)
- K92 Install AC Metric (200 frame) B5 flange 175994 (Extra cost)
- K93 Install AC Metric (200 frame) B5 flange 175995 (Extra cost)
- K94 Install NEMA Cast Iron C-Face kit 175842 (Extra cost)
- K95 Install NEMA Cast Iron C-Face kit 175958 (Extra cost)
- K96 Install NEMA Cast Iron C-Face kit 175454 (Extra cost)
- K97 Install NEMA Cast Iron C-Face kit 175394 (Extra cost)
- K98 Install NEMA D Flange (324/326T) kit 175455 (Extra cost)
- K99 Install NEMA D Flange (404/405T) kit 175956 (Extra cost)
- K100 Install NEMA D Flange (404/405T) kit 175957 (Extra cost)
- K101 Install NEMA D Flange (213/215T) Wattsaver kit 175959 (Extra cost)
- K102 Install NEMA D Flange (182/184T) Wattsaver kit 175396 (Extra cost)
- K103 Install Drip-Cover (182/184T) Cast Iron kit 175961 (Extra cost)
- K104 Install Drip-Cover (213/215T) Cast Iron kit 175962 (Extra cost)
- K105 Install Drip-Cover (254/256T) Cast Iron kit 175963 (Extra cost)
- K106 Install Chemical Service/Severe Duty (447/449T) kit 175891 (Extra cost)

## LEESON Product Protector Exceptions

- P01 LEESON motor has automatic reset protector
- P02 LEESON motor has manual reset protector
- P03 LEESON motor has no thermal overload protector

## LEESON Product Shaft Exceptions

- S01 LEESON motor has a 182-4T shaft extension
- S02 LEESON motor has a 213-5T shaft extension
- S03 LEESON motor has a 254-6T shaft extension
- S04 LEESON motor shaft is 1 inch longer
- S05 LEESON motor has shaft that is a TS not T
- S06 LEESON motor has phosphalized shaft
- S07 LEESON has .625 inch diameter shaft
- S08 LEESON has single output shaft
- S09 LEESON shaft center-line height from base is 1.48 inches
- S10 LEESON shaft on left side facing the gearbox
- S11 LEESON shaft center-line height from the base is 1.67 inches
- S12 LEESON motor has 1 1/8" shaft
- S13 LEESON motor has 416 stainless shaft
- S14 LEESON shaft dimensions not "drop in" replacement

## LEESON Product Thermostat Exceptions

- T01 LEESON motor has no thermostats
- T02 LEESON motor has normally closed thermostats

# BALDOR TO LEESON CROSS REFERENCE

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
AFL3520A	111332.00		CDP3306	098003.00	E02	CEWDBM3546	116469.00	C08	CM2334T	G150080.60		CM3708T	G140482.00		CSSWDM3711T	G140699.00	
AFL3521A	111333.00		CDP3310	098002.00	E02	CEWDBM3546T	121616.00	C08	CM2334T-5	150117.60	K48	CM3709T	G131774.00		CSSWDM3714T	G140676.00	
AFL3522A	120374.00		CDP3316	098005.00	E02	CEWDBM3554T	G121617.00	C08,E02	CM2513T	G150175.60	C02	CM3710T	G140183.00		CSWDM3538	191204.00	
AFL3523A	120375.00		CDP3320	098004.00	E02	CEWDBM3558T	G121618.00	C08	CM2514T	G150070.60	C02	CM3710T-5	140593.00	K41	CSWDM3542	191207.00	
AFL3524A	120376.00		CDP3326	098008.00	E02	CFDL3501M	116485.00		CM2515T	G150071.60	C02	CM3711T	G140696.00		CSWDM3546	191291.00	
AFL3525A	111949.00		CDP3330	098000.00	E02	CFDL3504M	116486.00		CM2516T	G151688.60	C02	CM3711T-5	150197.60	C02,K45	CSWDM3546T	G191212.00	E01
AFM3528	111334.00		CDP3335	098006.00	E02	CFDL3507M	116487.00		CM2531T	G150073.60	C02	CM3713T	G140697.00		CSWDM3554	191217.00	E01,F29
AFM3529	111335.00		CDP3410-V12	108045.00		CFDL3510M	116488.00	F04	CM2535T	G151377.60	C02	CM3713T-5	150198.60	C02,K45	CSWDM3554T	G191218.00	E01
AFM3530	120377.00		CDP3420-V12	108046.00		CFDL3514M	116489.00	C39	CM2539T	G151378.60	C02	CM3714T	G140147.00		CSWDM3558	191223.00	F29
AFM3532	120379.00		CDP3420-V24	108050.00		CFDL3516TM	121625.00		CM2543T	G151379.60	C02	CM3714T-5	150212.60	C02,K45	CSWDM3558T	G191224.00	
ANFL3501M	101435.00		CDP3430-V12	108047.00		CFM3136A	116772.00	S14	CM2547T	G151689.60	C02	CM3769T	G150166.60		CWDL3504	112527.00	C55
ANFL3504M	101436.00		CDP3430-V24	108051.00		CFM3146A	116773.00	S14	CM2551T	G151690.60	C02	CM3770T	G150165.60		CWDL3507	112528.00	C55
ANFL3507M	101437.00		CDP3436	098069.00		CFM3156A	111147.00		CM2555T	G151691.60	C02	CM3771T	G150168.60		CWDL3509	113583.00	C55
ANFL3510M	113302.00		CDP3440	098032.00		CFM3166A	111148.00		CM3104	100599.00		CM3773T	G150103.60		CWDL3510	112529.00	C55
ANFL3514M	113301.00		CDP3440-V12	108048.00		CHC144A	100803.00		CM3107	100600.00		CM3774T	G150167.60		CWDL3513	113584.00	C55
B143T	175034.00		CDP3440-V24	108052.00		CHC164A	100824.00		CM3108	100601.00		CM4103T	G150081.60		CWDL3514	113300.00	C55,F29
B145T	175035.00		CDP3443	098009.00		CHC244A	100804.00		CM3112	100602.00		CM4104T	G150082.60		CWDM3537	113588.00	
B182T	175036.00		CDP3445	108022.00		CHC264A	100825.00		CM3116T	G121650.00		CM4106T	G150079.60		CWDM3538	113586.00	
B184T	175037.00		CDP3445-V12	108322.00		CHC3413A	100803.00		CM3154T	G121651.00		CM4107T	G150106.60		CWDM3538-5	112483.00	E02
B213T	175038.00		CDP3445-V24	108053.00		CHC3414A	100824.00		CM3155	114218.00		CM4108T	G150108.60		CWDM3539	115743.00	
B215T	175039.00		CDP3450	108020.00		CHC3416A	100804.00		CM3157T	G120275.00		CM4109T	G150110.60		CWDM3541	113589.00	
B254T	175040.00		CDP3455	108023.00		CHC3417A	100825.00		CM3158T	G121072.00	C25	CM4110T	G150083.60		CWDM3542	113587.00	
B256T	175041.00		CDP3460	108021.00		CHC345A	111323.00		CM3211T	G130325.00		CM4114T	G150112.60		CWDM3542-5	112484.00	E02
B284T	175042.00		CDP3575	128000.00		CHC3524A	111323.00		CM3212T	G131249.00		CM4115T	G150084.60		CWDM3543	115744.00	F29
B286T	175043.00		CDP3580	108265.00	F04	CHC3525A	111321.00		CM3218T	G130327.00		CM4310T	G150114.60		CWDM3545	113590.00	
B324T	175044.00		CDP3585	128010.00		CHC3526A	111919.00		CM3219T	G131250.00		CM4313T	G150115.60		CWDM3546	112524.00	E02
B326T	175045.00		CDP3590	108266.00		CHC3528A	111322.00		CM3311T	G140589.00		CM4314T	G150085.60		CWDM3546-5	112522.00	E02
B364T	175046.00		CDP3604	108502.00		CHC364A	101645.00		CM3312T	G140692.00		CM4316T	G150086.60		CWDM3546T	G120587.00	E02
B365T	175047.00		CDPSWD3410	109065.00		CHC365A	111321.00		CM3313T	G140146.00		CM4400T	G151680.60		CWDM3550	113591.00	E01
B404T	175048.00		CDPSWD3426	109070.00		CHC445A	111324.00		CM3314T	G140693.00		CM7005A	114627.00		CWDM3554	112643.00	E02
B405T	175049.00		CDPSWD3430	109069.00		CHC465A	111266.00		CM3534	102922.00		CM7006A	114628.00		CWDM3554T	G121540.00	E02
B444T	175088.00		CDPSWD3545	109075.00		CHC545A	111267.00		CM3534-5	101051.00	H01,K28	CM7009A	114629.00		CWDM3555	113592.00	E01
B445T	175089.00		CDPSWD3555	109076.00		CHL3523A	101176.00	B31	CM3537	114142.00		CM7010A	114630.00		CWDM3555T	121039.00	E01
B447T	175090.00		CDPWD3306	098375.00		CJM3107	102199.00		CM3538	1020917.00		CM7013	114631.00		CWDM3556	115745.00	F29
B449T	175032.00		CDPWD3310	108423.00		CJM3111	101776.00		CM3538-5	101051.00	K28	CM7014	114632.00		CWDM3557	115746.00	F29
B48T	175032.00		CDPWD3316	098376.00		CJM3115	101775.00		CM3539	110914.00		CM7014T	G121541.00		CWDM3558	112644.00	
B56T	175033.00		CDPWD3320	108424.00		CJM3120	114203.00		CM3541	110915.00		CM7018T	114633.00	F04	CWDM3558T	G120588.00	
BL3507	114167.00	F04	CDPWD3326	108227.00		CJM3155	114202.00		CM3542	110916.00		CM7034	114634.00	F29	CWDM3559T	G120911.00	
BL3510	111951.00	F04	CDPWD3330	108226.00		CJM3158	114201.00		CM3542-5	110178.00	K30	CM7037T	G121182.00		CWDM3611T	G130664.00	
BL3517	114165.00	F04	CDPWD3346	108229.00	E01	CL1301	103023.00		CM3543	116340.00		CM7042T	G850617.00	C02	CWDM3613T	G131167.00	
BL3518	111950.00	F04	CDPWD3440	108228.00	E01	CL1303	103024.00		CM3545	110181.00		CM7044T	G850618.00	C02	CWDM3615T	G131171.00	
BM3108	114162.00		CDPWD3455	108230.00		CL1304	101651.00		CM3546	110912.00		CM7045T	G850589.00	C02	CWDM3616T	G132016.00	
BM3112	114163.00		CDPWD3455	108231.00		CL1307	101650.00		CM3546-5	110206.00	K30	CM7047T	G850619.00	C02	CWDM3709T	G131165.00	
BM3116	114164.00		CDPWD3575	108232.00		CL1310	113930.00		CM3546T	G121286.00	F07	CM7053T	G850591.00		CWDM3710T	G140466.00	
BM3154T	G120370.00		CDPX3420	118015.00		CL1408TM	131629.00		CM3546T-5	120122.00	K33	CM7054T	G850621.00		CWDM3711T	G140700.00	
BM3157T	G120371.00		CDPX3426	118017.00		CL1410TM	131630.00		CM3550	110917.00		CM7056T	G850622.00		CWDM3713T	G140701.00	
BM3211T	G131626.00		CDPX3430	118016.00		CL1430TM	131630.00		CM3550T	G121290.00		CM7058T	G850623.00		CWDM3714T	G140464.00	
BM3218T	G131627.00		CDPX3436	118019.00		CL3501	102930.00		CM3554	110918.00		CM7059T	G850592.00		DGC1301M	191742.00	
BM3248T	G131627.00		CDPX3440	118018.00		CL3503	102903.00		CM3554-5	110893.00	K30	CM7060T	G850624.00		DGC1304M	108020.00	
BM3311T	G140611.00		CEM2333T	171587.60		CL3504	102907.00		CM3554T	G121287.00		CM7062T	G850625.00		DGC1307M	113642.00	
BM3313T	G140635.00		CEM2334T	171589.60		CL3506	112135.00		CM3554T-5	120021.00	K33	CM7063T	G850593.00		ECP2276T-4	170122.60	C47,C53,K59
BM3538	114150.00		CEM2394T	171586.60		CL3507	110905.00		CM3555	113927.00		CM7064T	G850626.00		ECP2332T-4	170123.60	C47,C53,K59
BM3539	114149.00		CEM3581T	121179.00	C01	CL3509	110180.00		CM3555T	G121510.00		CM7071T	114635.00	F29	ECP2333T-4	170066.60	C47,C53,K59
BM3542	114147.00		CEM3583T	121672.00	C01	CL3510	110908.00		CM3556T	G120428.00		CM7072T	G850588.00	C02	ECP2334T-4	170007.60	C47,C53,K59
BM3543	114148.00		CEM3586T	121673.00	C01	CL3513	110909.00		CM3557	114198.00		CM7075T	114636.00	F29	ECP2394T-4	170062.60	C47,C53,K59
BM3546	114146.00		CEM3587T	121181.00	C01	CL3514	110910.00		CM3558	116106.00	F29	CM7170T	G850620.00		ECP3661T-4	171320.00	C47,C53,K57
BM3546T	G121679.00		CEM3660T	132079.00	C01	CL3515	113931.00		CM3558T	G120276.00		CM7174T	G850599.00		ECP3665T-4	171322.00	C47,C53,K57
BM3554	116767.00		CEM3661T	131504.00	C01	CL3515T	121008.00		CM3558T-5	120019.00	K33	CSSWDM3537	116165.00	F29	ECP3764T-4		

# BALDOR-TO-LEESON CROSS REFERENCE

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
ECP4117T-4	170005.60		EM2542T	170040.60	C02	EM3764T	171378.60		GCP3305	096007.00	C32,E02	IDM3774T	810140.00	E01	JML1511T	140644.00	C25
C47,C53,K62			EM2543T	170021.60	C02	EM3768T	171379.60		GLP3330	096049.00		IDM4100T	810068.00		JML1512T	140666.00	
ECP4308T-4	170096.60	C47,C53,K62	EM2544T	170148.60		EM3769T	170158.60		GLP3332	096050.00		IDM4102T	810001.00		JMM2333T	151568.60	
ECP4310T-4	170043.60	C47,C53,K62	EM2546T	170042.60	C02	EM3770T	170157.60		GLP3336	096051.00		IDM4103T	810011.00		JMM2334T	151570.60	
ECP4312T-4	170097.60	C47,C53,K62	EM2547T	170025.60	C02	EM3771T	170159.60		GLP3338	096052.00		IDM4104T	810015.00		JMM2394T	151567.60	
ECP4313T-4	170045.60	C47,C53,K62	EM2549T	170044.60	C02	EM3774T	170140.60		GMP3330	096013.00		IDM4110T	810019.00		JMM2513T	151361.60	C02
ECP4314T-4	170027.60	C47,C53,K62	EM2550T	170151.60	C02	EM4100T	170068.60		GMP3332	096014.00		IDM4111T	810003.00		JMM2514T	151381.60	C02
ECP4316T-4	170031.60	C47,C53,K62	EM2551T	170029.60	C02	EM4102T	170001.60		GMP3336	096015.00		IDM4115T	810023.00		JMM2515T	151362.60	C02
ECP4400T-4	170087.60	C47,C53,K63	EM2554T-4	170154.60	C02,C47	EM4103T	170011.60		GMP3338	096016.00		IDM4117T	810005.00		JMM2516T	151382.60	C02
ECP4402T-4	170160.60	C47,C53,K63	EM2555T-4	170152.60	C02,C47	EM4104T	170015.60		GP233003	M115019.00	B36,S08	IDM4308T	810096.00		JMM2531T	801028.00	C02
ECP4403T-4	170098.60	C47,C53,K63	EM2556T-4	171449.60	C02	EM4106T	170033.60		GP233007	M115020.00	B36,S08	IDM4312T	810097.00		JMM2534T	801040.00	C02
ECP4404T-4	170099.60	C47,C53,K63	EM2557T-4	170259.60		EM4107T	170035.60		GP7402	M1135038.00	B36,S08,S11	IDM4314T	810027.00		JMM2535T	801029.00	C02
ECP4406T-4	170371.60	C47,C53,K64	EM2558T-4	171522.60		EM4108T	170037.60		GP7403	M1135069.00	B36,S08,S11	IDM4316T	810031.00		JMM2538T	801041.00	C02
ECP4407T-4	170352.60	K64	EM2559T-4	170155.60	C02,C47	EM4109T	170039.60		GP7405	M1135042.00	B36,S08,S11	IDM4400T-4	810087.00		JMM2539T	801030.00	C02
ECP4408T-4	151516.60	C08,C53	EM2560T-4	171576.60		EM4110T	170019.60		GP7407	M1135043.00	B36,S08,S11	IDM4403T	810098.00		JMM2542T	801042.00	C02
ECP4409T-4	170256.60	C53,K64	EM2562T-4	171573.60		EM4111T	170003.60		GP7425	M1135062.00	B36,S08,S11	IDM4404T	810099.00		JMM3116T	121850.00	
ECP4410T-4	170369.60	C53,K64	EM2563T-4	171523.60		EM4114T	170041.60		GP7427	M1135063.00	B36,S08,S11	IDM4406T-4	811371.00		JMM3154T	121851.00	
ECP4411T-4	170260.60	C53,K64	EM2564T-4	171577.60		EM4115T	170023.60		GPP12503	M1125004.00		IDM4407T-4	810503.00		JMM3155T	121855.00	
ECP44156T-4	171315.60	C47,C53,K64	EM2569T-4	151525.60	C08	EM4117T	170005.60		GPP12545	M1125072.00		IDM4409T-4	811367.00		JMM3157T	121852.00	
ECP44206T-4	171316.60	C47,C53,K106	EM2583T-4	170255.60		EM4308T	170096.60		GPP12547	M1125070.00		IDM4410T-4	811369.00		JMM3158T	121854.00	
EFM2333T	170066.60	C04	EM3115	116128.00		EM4310T	170043.60		GPP231108	M1115001.00		IDNM2333T	810066.00		JMM3211T	131562.00	
EFM2334T	170007.60	C04	EM3116T	121003.00		EM4312T	170097.60		GPP231109	M1115002.00		IDNM3581T	810548.00		JMM3212T	131574.00	
EFM2513T	170065.60	C04	EM3120T	121514.00		EM4313T	170045.60		GPP232110	M1115000.00		IDNM3584T	810547.00	F07	JMM3218T	131563.00	
EFM2515T	170006.60	C04	EM3154T	121004.00		EM4314T	170027.60		GPP233111	M1115028.00		IDNM3587T	810546.00		JMM3219T	131576.00	
EFM2531T	170009.60	C04	EM3155T	121515.00	F06	EM4316T	170031.60		GPP233112	M1115027.00		IDNM3661T	811320.00		JMM3311T	140618.00	
EFM2535T	170013.60	C04	EM3156T	121517.00		EM4403T	170098.60		GPP233120	M1125048.00		IDNM3665T	811322.00		JMM3312T	131577.00	
EFM2539T	170017.60	C04	EM3157T	121005.00		EM4404T	170099.60		GPP233121	M1125036.00		IDNM3770T	810157.00	E01	JMM3313T	140619.00	
EFM2543T	170021.60	C04	EM3158T	121516.00		FDL3501M	113256.00		GPP233140	M1115026.00	B36	IM3540A	111304.00		JMM3314T	151380.60	
EFM2547T	170025.60	C04	EM3207T	131971.00		FDL3504M	110086.00		GPP7451	M1135116.00		IR3507M	114932.00		JMM3546T	121855.00	
EFM3211T	G131240.00		EM3211T	131519.00		FDL3507M	110087.00		GGP7452	M1135112.00		IR3510M	114933.00	C25	JMM3550T	121858.00	
EFM3218T	G131239.00		EM3212T	131986.00	F09	FDL3510M	110088.00	F03	GGP7453	M1135111.00		JL1303A	100207.00		JMM3554T	121856.00	
EFM3311T	G140609.00		EM3215T	131972.00		FDL3510TM	121569.00		GGP7454	M1135114.00		JL1306A	100208.00		JMM3555T	121859.00	
EFM3313T	170144.60	C04	EM3218T	131520.00		FDL3514M	110089.00	C39	GGP7455	M1135110.00		JL1309A	100723.00		JMM3558T	121857.00	
EFM4103T	170011.60	C04	EM3219T	131988.00		FDL3514TM	113938.00	C39	GGP7456	M1135108.00		JL1313A	110292.00		JMM3559T	121860.00	
EFM4104T	170015.60	C04	EM3305T	171574.60	C02	FDL3516TM	110090.00		GGP7457	M1135117.00		JL1317A	110293.00		JMM3611T	131579.00	
EL1203	101423.00	C08,C25	EM3309T	171575.60	C02	FDL3610M	131542.00	F09	GGP7458	M1135107.00		JL1323A	110286.00		JMM3613T	131580.00	
EL1301	113765.00	E02	EM3311T	140470.00		FDL3610TM	131542.00		GGP7459	M1135106.00		JL225A	100207.00	H01	JMM3615T	131581.00	
EL1304	113766.00	E02	EM3312T	140753.00		FDL3611M	110090.00	B22	GGP7460	M1135109.00		JL325A	100207.00		JMM3616T	131582.00	
EL1307	101544.00		EM3313T	140472.00		FDL3611TM	131541.00		GGP7461	M1135115.00		JL3503A	113955.00		JMM3709T	132027.00	
EL1310	113630.00		EM3314T	140754.00		FDL3612TM	131543.00		GGP7470	M1135150.00		JL3506A	113956.00		JMM3710T	140622.00	
EL1319	113769.00	E02	EM3545	116129.00		FDL3619TM	131542.00		GGP7471	M1135149.00		JL3509A	113639.00		JMM3711T	131583.00	
EL1319T	120042.00	C08	EM3546	116757.00		FDL3712TM	140414.00		GGP7472	M1135148.00		JL3513A	113640.00		JMM3713T	140764.00	
EL1405T	131515.00	C08	EM3546T	120921.00		FDL3731M	131543.00	B23	GGP7473	M1135147.00		JL3515A	113641.00		JMM3714T	140623.00	
EL1408T	131851.00		EM3546T-5	120122.00		FDL3732M	140707.00	F12	GGP7474	M1135146.00		JL425A	100208.00		JMM4103T	151418.60	
EL1410T	131537.00	C08	EM3550	116758.00		FDL3733TM	140707.00		GGP7475	M1135145.00		JL5003A	116188.00		JMM4104T	151422.60	
EL3501	113765.00	C25,P02	EM3550T	121518.00		FDL3737TM	140706.00		GGP7476	M1135143.00		JL5006A	116186.00		JMM4106T	151569.60	
EL3504	113766.00	C25,P02	EM3554	116759.00		FM2513T	G150065.60	C04	GGP7477	M1135141.00		JL5009A	116185.00		JMM4107T	151417.60	
EL3507	113767.00	C25,P02	EM3554T	120922.00		FM2515T	G150066.60	C04	GGP7478	M1135140.00		JL5030	116183.00		JMM4108T	151420.60	
EL3510	113768.00	C25,F03,P02	EM3555	116760.00		FM2531T	G150069.60	C04	GGP7479	M1135139.00		JL5031	116181.00		JMM4109T	151424.60	
EL3514	113769.00	C25,P02	EM3555T	121519.00		FM2535T	G150013.60	C04	GSL3509M	111330.00		JL525A	100723.00		JMM4110T	151426.60	
EL3514T	113769.00	C05,F05,P02	EM3556	121520.00	F06	FM2539T	G150017.60	C04	HM3108	100029.00	C25	JL625A	110292.00		JMWDM3546T	121579.00	E02
EL3605T	131541.00	C08,F08	EM3558	116761.00	F05	FM2543T	G150021.60	C04	HM3112	100030.00		JL725A	110293.00		JMWDM3550T	121580.00	
EL3609T	131533.00	C08	EM3558T	120923.00		FM3211T	G131240.00		HM3116	115827.00		JL825A	110286.00		JMWDM3554T	121581.00	E02
EL3612T	131538.00	C08	EM3581T	120921.00	C01	FM3218T	G131239.00		HM3154	115825.00		JM3006	102197.00		JMWDM3555T	121582.00	
EM2276T	170122.60		EM3582T	121520.00	C01	FM3311T	G140609.00		HM3154A	111309.00	F03	JM3107	102198.00		JMWDM3558T	121583.00	
EM2332T	170123.60		EM3583T	121518.00	C01	FM3313T	G150144.60	C04	HM3157	115826.00		JM3111	101637.00		JMWDM3559T	121584.00	
EM2333T	170066.60		EM3584T	120922.00	C01	FM3611T	G131237.00		HM3161A	116595.00	P03	JM3115	101638.00		JMWDM3611T	131967.00	
EM2334T	170007.60		EM3586T	121519.00	C01	FM3615T	G131236.00		HM3218TA	G130565.00		JM3120	113891.00		JMWDM3613T	131968.00	
EM2394T	170062.60		EM3587T	120923.00	C01	FM3710T	G140604.00		IDGM2500	M1145131.00	B36	JM3155	113892.00		JMWDM3615T	131969.00	
EM2506T	170145.60	C02	EM3610T	131985.00		FM3714T	G150140.60	C04	IDGM2501	M1145130.00	B36	JM3158	113893.00		JMWDM3616T	131970.00	C39
EM2511T	170146.60	C02	EM3611T	131463.00		GC24302	M1125084.00	B36,C32,S08	IDGM2503	M1145129.00	B36	JM3460	114931.00		JMWDM3710T	140733.00	
EM2513T	170065.60	C02	EM3613T	131987.00		GC24306	M1125083.00	B36,C32,S08	IDGM2506	M1145128.00	B36	JM3463	114208.00		JMWDM3711T	140734.00	
EM2514T	170032.60	C02	EM3615T	131464.00		GC24310	M1125081.00	B36,C32,S08	IDGM2508	M1145127.00	B36	JM3545	114207.00		JMWDM3713T	140736.00	C39
EM2515T	170006.60	C02	EM3660T	131985.00	C01	GC25010	M1145039										

**BALDOR-TO-LEESON CROSS REFERENCE**

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
JPM2539T	801055.00	C02	L1317	11063.00	F03	L3508	110400.00		M1758T	131475.00		M2572T-4	151518.60	F19	M3461	100961.00	
JPM2542T	801060.00	C02	L1317-50	113905.00		L3508T	110400.00	F05	M1759T	140447.00	C11	M2583T	170255.60	C15	M3463	100960.00	
JPM3154T	121846.00		L1317A	110362.00	P02,F03	L3509	110059.00	F03	M1760T	140448.00		M3003	100027.00	F02	M3531	110441.00	H03
JPM3157T	121847.00		L1318	110004.00	F03	L3509-50	113919.00		M2237	G140578.00	B24	M3006	101447.00		M3532	114618.00	H01
JPM3158T	121849.00		L1318-50	110397.00		L3509M	110142.00	F03	M2238	G150140.60	B24	M3007	100446.00		M3534	101079.00	
JPM3211T	131882.00		L1318M	110167.00	C39,F03	L3510	110209.00	F03	M2275	G140126.00	B24	M3009	110425.00	H03	M3535	110441.00	
JPM3212T	131884.00		L1318T	120044.00		L3510-50	113911.00	F05	M2276T	G150122.60		M3010	100961.00	E02	M3536	114618.00	H01
JPM3218T	131883.00		L1318TM	120003.00	C39	L3510A	110018.00	F03	M2280T	151355.22		M3012	100960.00	E02	M3537	101448.00	E03
JPM3219T	131885.00		L1319	110005.00		L3510M	110023.00	F03	M2332	G150123.60	B25	M3101	110425.00	H03	M3537-5	110714.00	E01
JPM3311T	140667.00		L1319-50	110398.00		L3510T	120025.00		M2332T	G150123.60		M3104	100028.00		M3538	100913.00	
JPM3312T	140655.00		L1319M	110006.00		L3510TM	120008.00		M2333	G150066.60	B25	M3105	110425.00		M3538-5	110199.00	E01
JPM3313T	140668.00		L1319T	120004.00		L3513	110094.00	F03	M2333T	G150066.60		M3107	101448.00		M3538-50	102693.00	
JPM3314T	140656.00		L1320T	120106.00		L3513-50	113920.00	C25,F05	M2334	G150007.60	B25	M3108	100029.00		M3539	110353.00	
JSL1303A	MST1052.00		L1321T	120001.00	P01	L3513M	110109.00	F03	M2334T	G150007.60	C52	M3108A	100796.00	B32	M3541	110313.00	
JSL1306A	MST1072.00		L1321TM	120004.00		L3513T	120130.00		M2334T-12	G150007.60		M3109	110027.00		M3541-50	114306.00	
JSL1309A	MST1102.00		L1322T	120067.00		L3514	110253.00		M2393	G140686.00	B24	M3111	101449.00		M3542	110034.00	
JSL1313A	MST1152.00		L1322TM	120879.00		L3514-50	110424.00	F05	M2394	G151317.60	B24	M3112	100030.00		M3542-5	110178.00	
JSL1317A	MST1202.00		L1401	120044.00	B22	L3514A	110019.00		M2394T	G150062.60		M3112A	100908.00	B32	M3542-50	114307.00	C39
KBL3406	114165.00		L1401M	120003.00	B22	L3514M	113333.00		M2395T	150261.22		M3115	110426.00		M3543	110275.00	F03
KBL3409	111950.00		L1403	120001.00	B22	L3514T	120026.00		M2401T	151356.22		M3116	110029.00		M3543T	121009.00	
KBM3458	114158.00		L1403M	120004.00	B22	L3514TM	120009.00		M2402T	150282.22		M3116A	111311.00	B32	M3543T-5	111394.00	F03
KL1203	100023.00	K89	L1405	131515.00	F08	L3515	110352.00		M2504T	151355.22	C02,E02	M3116T	G120010.00		M3545	110145.00	
KL1205	100354.00	K89	L1405T	131515.00		L3515-50	113928.00	F05	M2505	G140471.00	B24	M3120	110429.00		M3545-5	110715.00	
KL1205A	100355.00	K89	L1405T-50	131553.00		L3515M	110402.00		M2506T	G150145.60	C02	M3120T	G120103.00		M3545-50	114308.00	
KL3403	102866.00		L1406T	131636.00		L3515T	120036.00		M2508T	151356.22	C02,E02	M3153	110028.00		M3546	110035.00	
KL3405	102870.00		L1407	120043.00	B22,E02	L3516TM	110090.00		M2510	G140490.00	B24	M3154	110430.00		M3546-5	110206.00	
KM3003	103014.00		L1408T	131534.00		L3601	120025.00	B22	M2511T	G150146.60	C02	M3154A	111309.00		M3546T	G120014.00	
KM3006	100375.00		L1408T-50	131554.00		L3603	120026.00	B22	M2513T	G140579.00		M3154T	G120011.00		M3546T-50	121096.00	
KM3454	101767.00		L1408TM	131851.00		L3605	131509.00	F08	M2514T	G150032.60	C02	M3155	113292.00		M3546T-8	120047.00	
KM3454-50	102184.00		L1409T	131616.00		L3605M	131509.00	F08,P03	M2515T	G150006.60	C02,C52	M3155T	G120076.00		M3550	110745.00	
KM3457	110446.00	E01	L1410T	131537.00		L3605T	131509.00		M2515T-12	G150006.60	C02	M3156	113933.00	E02	M3550T	G120086.00	
KNM3454	101648.00	C25,C39	L1410TM	131622.00		L3605T-50	131556.00		M2516T	G150034.60	C02	M3156T	G120089.00		M3550T-5	120170.00	C08
KNM3534	102863.00		L1430T	131537.00		L3605TM	131509.00	P03	M2523	G140579.00	B25	M3157	113025.00		M3550T-50	121097.00	
L1200	102012.00	E02	L1430TM	131622.00		L3606	131637.00	F08	M2524T	G150067.60	C02	M3157T	G120012.00		M3554	110444.00	
L1201	102013.00	E02	L1502	131515.00	B23	L3606T	131637.00		M2527	G150006.60	B25	M3157TA	111310.00	F03	M3554T	G120015.00	C25
L1203	101423.00	P02	L1505	131534.00	B23	L3607	120043.00	B22	M2528T	G150000.60	C02	M3158	113293.00		M3554T-5	120021.00	C08
L1203M	101423.00		L1508T-50	131555.00		L3608T	131549.00		M2531	G150009.60	B26	M3158T	G120077.00		M3554T-50	121093.00	
L1204	102015.00	E02	L1509T	140680.00		L3608TM	132042.00	C39	M2531T	G150009.60	C02	M3159	114930.00	E02	M3554T-8	120032.00	
L1205	100336.00	F02	L1510T	140155.00		L3609T	131533.00		M2531T-12	G150009.60	C02	M3161T	116595.00	F05	M3555	111916.00	F03
L1206	100116.00	P01	L1511T	140681.00		L3609T-50	131557.00		M2532T	G150002.60	C02	M3161TA	116595.00	P03	M3555T	G120088.00	
L1206-50	110394.00	F03	L1512T	140311.00		L3609TM	131855.00	C39	M2534T	G150036.60	C02	M3203	G120010.00	B22	M3555T-50	121094.00	
L1206M	100588.00	F02	L3351	092111.00		L3612TM	131856.00	C39	M2535	G150013.60	B26	M3206	G120011.00	B22	M3556	113933.00	F03
L1207	110001.00	F03	L3353	092114.00		L3613T	131526.00		M2535T	G150013.60	C02,C52	M3207T	G130010.00		M3556T	G120087.00	
L1208	100184.00	F03	L3355	092116.00		L3703	140747.00	C39,F12	M2535T-12	G150013.60	C02	M3208	G120076.00	B22	M3556T-5	120167.00	C08
L1208-50	113901.00	F03	L3356	092112.00		L3705	131855.00	B23	M2536T	G150004.60	C02	M3209	G120012.00	B22	M3557	114930.00	
L1209	100338.00	F03	L3400	102012.00		L3708	140203.00	F12,P02	M2538T	G150038.60	C02	M3210	G120077.00	B22	M3558	113026.00	
L1209-50	110395.00	F03	L3401	102013.00		L3708T	140203.00	F12,P02	M2539T	G150017.60	C02,C52	M3211T	G130000.00		M3558T	G120016.00	
L1209M	100004.00	F02	L3403	102014.00		L3708T-50	140475.00	P02	M2539T-12	G150017.60	C02	M3211T/36	G130000.00		M3558T-50	121095.00	
L1300	114617.00	E02	L3403M	101446.00		L3708TM	140203.00	F12	M2540T	G150147.60	C02	M3211TA	G131338.00		M3558T-8	120034.00	
L1301	100006.00		L3404	102015.00		L3709T	140684.00		M2542T	G150040.60	C02	M3212T	G130282.00		M3559	114614.00	C11
L1301M	100588.00		L3405	102016.00		L3710T	140120.00		M2543T	G150021.60	C02,C52	M3215T	G130012.00		M3559T	G120185.00	
L1302	110001.00		L3406	100955.00		L3711T	140685.00		M2543T-12	G150021.60	C02	M3216T	131478.00	E02	M3560	114618.00	F03
L1303	100337.00		L3406M	102018.00		L3712T	140581.00		M2544T	G150148.60	C02	M3218T	G130004.00		M3581T	G120014.00	C01,C25
L1304	100007.00		L3407	102019.00		L5001A	111074.00	E01	M2546T	G150042.60	C02	M3218T-8	131500.00		M3582T	G120087.00	C01,C25
L1304-50	110395.00		L3408	102020.00		L5004A	111084.00	F05	M2547T	G150025.60	C02,C52	M3218TA	G130565.00		M3583T	G120086.00	C01,C25
L1304A	100002.00		L3409	100956.00		L5007A	110934.00	F05	M2547T-12	G150025.60	C02	M3219T	G130284.00		M3584T	G120015.00	C01,C25
L1304M	100004.00		L3409M	100956.00	P03	L5023A	110961.00	F05	M2548T	G150149.60	C02	M3220T	131479.00	E02	M3586T	G120088.00	C01,C25
L1305	110002.00	F03	L3500	114617.00		M1504T	120942.00		M2549T	G150044.60	C02	M3303T	140516.00	E02	M3587T	G120016.00	C01,C25
L1306	100340.00		L3501	102931.00		M1506T	131473.00		M2550T	G150151.60	C02	M3304	G131338.00	B23	M3600	114618.00	B22
L1306-50	113902.00		L3501-50	110423.00	C25	M1507T	131472.00	C11	M2551T	G150029.60	C02,C52	M3305T	G140550.00		M3601	121009.00	B22
L1306A	100053.00	P02	L3501M	102933.00		M1508T	140446.00		M2551T-12	G150029.60	C02	M3306T	140516.00	E02	M3602	121199.00	C25,F22
L1307	100008.00		L3502	110009.00		M1554T	120944.00		M2552T	G150150.60	C02	M3307	G130282.00	B23	M3603	G120014.00	B22
L1307-50	110396.00		L3503	102905.00		M1555T	120947.00	C11	M2554T-4	G150154.60	C02,C47	M3308	G130565.00	B23	M3604	G120087.00	B22
L1307A	100003.00		L3503-50	113917.00		M1556T	120946.00		M2555T	G150152.60	C02,C52	M3309T	G140122.00		M3605	G120086.00	B22
L1307M	100005.00		L3504	102906.00		M1557T	131468.00	C11	M2555T-12	G150152.60	C02	M3310	G130284.00	B23	M3606	G120015.00	B22
L1308	110003.																

# BALDOR-TO-LEESON CROSS REFERENCE

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
M36117/36	G130008.00		M4316T	G150031.60	C52	MM3454	192010.00	C39	MVM3559C	192087.00		PCL1317M	114215.00		RM3007	100210.00	F03
M3611T-50	131459.00		M4316T-12	G150031.60		MM3457	192020.00	C39	MVM3559D	192084.00		PCL1319M	113700.00	F29	RM3009	101640.00	F03,P01
M3611T-8	131465.00		M4400T	G150087.60	C52	MM3458	192021.00	C39	MVM3611	193085.60	C02	PCL1322M	113281.00	F29	RM3010	100145.00	F03
M3613T	G130101.00		M4400T-12	G150087.60		MM3460	192030.00	C39	MVM3611C	193088.60		PCL1326M	116707.00	F29	RM3104	100210.00	
M3613T-50	131481.00		M4402T-4	G150160.60		MM3461	192031.00	C39	MVM3613C	193107.60		PCL1327M	116709.00	F29	RM3108	100145.00	
M3614T	G130016.00		M4403T	G150098.60		MM3463	192040.00	C39	MVM3613D	193104.60	C02	PCL3513M	115024.00		RM3108A	100796.00	
M3615T	G130027.00		M4404T	G150099.60		MM3542	192041.00	C39	MVM3615C	193108.60		PCL3514M	116703.00	F29	RM3111	101773.00	
M3615T-50	131454.00		M4406T-4	G151371.60		MM3545	192050.00	C39	MVM3615D	193105.60	C02	PCL3515M	114995.00	F29	RM3111A	101641.00	
M3615T-8	131466.00		M4407T-4	G150352.60		MM3546	192051.00	C39	MVM3709D	193114.60	C02	PCL3519M	115048.00	C11,F29	RM3112	100146.00	
M3616T	G131082.00		M4408T-4	151516.60	F25	MM3550	192060.00	C39	MVM3710D	193115.60	C02	PL1313M	113631.00		RM3112A	100908.00	
M3617T	131478.00		M4409T	G151367.60		MM3554	192061.00		MVM3711D	193124.60	C02	PL1317M	113632.00		RM3115	114192.00	
M3618T	131479.00		M4410T-4	G151369.60		MM3555	192070.00		MVM3714D	193125.60	C02	PL1319M	113266.00		RM3115A	113895.00	
M3660T	G151563.60		M4411T-4	G151370.60		MM3558	192071.00		MVM5100C	192017.00		PL1322M	116704.00	F05	RM3156	110052.00	
M3661T	G151320.60		M4412T-4	G151368.60		MM3559	192080.00		MVM5100C-5	192088.00	K10	PL1326M	116706.00	F05	RM3116A	111311.00	
M3663T	G150299.60		M44156T-4	171315.60	C15	MM3611	193081.60	C02	MVM5100D	192014.00		PL1327M	116708.00		RM3120	114194.00	
M3664T	G130016.00	C01	M44206T-4	171316.60	C15	MM3613	193100.60	C02	MVM5100D-5	192088.00	K01	PL3513M	110109.00		RM3120A	113896.00	
M3665T	G151322.60		M44304T-4	151529.60		MM3615	193101.60	C02	MVM5150C	192018.00		PL3514M	113333.00	F05	RM3154	110433.00	
M3667T	G130015.00	C01	M44354T-4	151530.60		MM3709	193110.60	C02	MVM5150C-5	192089.00	K10	PL3515M	110402.00	F05	RM3154A	113846.00	
M3701	131479.00	B23	M7002A	111932.00	E01	MM3710	193111.60	C02	MVM5150D	192015.00		PL3519M	116705.00	F05	RM3155	114196.00	
M3702T	140516.00		M7003A	111940.00		MM3711	193120.60	C02	MVM5150D-5	192089.00	K01	PSC3413A	100699.00		RM3155A	113897.00	
M3703	G130008.00	B23	E01,F05			MM3714	193121.60	C02	MVM5200C	192027.00		PSC3416A	100700.00		RM3157	114197.00	
M3704	G140551.00	F12	M7005A	111934.00	E01	MM4103	193151.60		MVM5200C-5	192097.00	K10	PSC3524A	100701.00		RM3157A	113847.00	
M3704T	G140551.00		M7006A	111929.00	E01	MM4104	193161.60		MVM5200D	192024.00		RHM3104	100210.00		RM3158	113926.00	P01
M3705T	140518.00		M7007A	111938.00	F05	MM4110	193171.60		MVM5200D-5	192097.00	K01	RHM3108	100145.00		RM3158TA	113926.00	
M3706	G130101.00	F09	M7009A	111937.00		MM5100	192010.00		MVM5250C	192028.00		RHM3108A	100796.00		RM3161TA	116593.00	
M3707	G130027.00	F09	M7010A	111923.00		MM5100-5	192088.00		MVM5250C-5	192098.00	K11	RHM3111	101773.00		RSP1441A	191868.00	
M3708T	G140126.00		M7013	111942.00		MM5150	192011.00		MVM5250D	192025.00		RHM3111A	101641.00		RSP1442A	191868.00	
M3709	G130103.00	F12	M7014	111922.00		MM5150-5	192089.00		MVM5250D-5	192098.00	K02	RHM3112	100146.00	F05	RSP2441A	191869.00	
M3709T	G130103.00		P01,F05			MM5200	192020.00		MVM5300C	192037.00		RHM3112A	100908.00		RSP2442A	191869.00	
M3710T	G140578.00		M7014T	111922.00		MM5200-5	192097.00		MVM5300C-5	192106.00	K11	RHM3115	114192.00		RSP3441A	191870.00	
M3710T-5	140593.00		F05,P01			MM5250	192021.00		MVM5300D	192034.00		RHM3115A	113895.00	F03	RSP3442A	191870.00	
M3710T-8	131467.00		M7018T	G120489.00		MM5250-5	192098.00		MVM5300D-5	192106.00	K02	RHM3116	110052.00		UCL1015	140640.00	
M3711T	G140686.00		M7019	G120490.00	B22	MM5300	192030.00		MVM5350C	192038.00		RHM3116A	111311.00		UCL570	131847.00	
M3712	G130016.00	B23	M7023	G120391.00	B22	MM5300-5	192106.00		MVM5350C-5	192107.00	K11	RHM3120A	113896.00		UCL710	131848.00	
M3713T	G140687.00		M7026	G120387.00	B22	MM5350	192031.00		MVM5350D	192035.00		RHM3154	110433.00		UCM1014	140641.00	
M3714T	G140489.00		M7027	G158362.00	B23	MM5350-5	192107.00		MVM5350D-5	192107.00	K02	RHM3154A	113846.00		UCM575	131849.00	
M3714T-8	140013.00		M7030	G158366.00	B23	MM5400	192040.00		MVM5400C	192047.00		RHM3155A	113897.00		UCME1014	140641.00	
M3764T	G140551.00	C01	M7034T	G120490.00		MM5400-5	192115.00		MVM5400C-5	192115.00	K11	RHM3157	114197.00		UCME570	131849.00	
M3768T	G140126.00	C01	M7037T	G120391.00		MM5450	192041.00		MVM5400D	192044.00		RHM3157A	113847.00		VBM3108	114156.00	
M3769T	G150158.60		M7042T	G158362.00	C02	MM5450-5	192116.00		MVM5400D-5	192115.00	K02	RHM3158	113926.00		VBM3112	114157.00	
M3770T	G150157.60		M7044T	G158366.00	C02	MM5500	192050.00		MVM5450C	192048.00		RHM3158TA	113926.00		VBM3116	114166.00	
M3771T	G150159.60		M7045T	G158158.00	C02	MM5500-5	192124.00		MVM5450C-5	192116.00	K12	RHM3161TA	116593.00		VBM3116T	121678.00	
M3774T	G150140.60		M7047T	G158157.00	C02	MM5550	192051.00		MVM5450D	192045.00		RHM3162TA	121665.00		VBM3154	116766.00	
M4100T	G150068.60		M7053T	G158000.00		MM5550-5	192125.00		MVM5450D-5	192116.00	K03	RL1205A	101431.00	C11	VBM3157T	120373.00	
M4102T	G150001.60		M7054T	G158001.00		MM5600	192060.00		MVM5500C	192057.00		RL1208A	101432.00	C11	VBM3211T	131624.00	
M4103	G150011.60	B26	M7056T	G158010.00		MM5600-5	192133.00		MVM5500C-5	192124.00	K12	RL130	100012.00	F05	VBM3218T	131625.00	
M4103T	G150011.60	C52	M7058T	G825047.00		MM5650	192061.00		MVM5500D	192054.00		RL1301A	100110.00		VBM3248T	131625.00	
M4103T-12	G150011.60		M7059T	G825039.00		MM5650-5	192134.00		MVM5500D-5	192124.00	K03	RL1301A277	102964.00		VBM3538	114159.00	E02
M4104	G150015.60	B26	M7060T	G825041.00		MM5700	192070.00		MVM5550C	192058.00		RL1304A	100011.00		VBM3542	114160.00	E02
M4104T	G150015.60	C52	M7062T	G825043.00		MM5700-5	192142.00		MVM5550C-5	192125.00	K12	RL1304A277	102965.00		VBM3542-5	110177.00	K91
M4104T-12	G150015.60		M7063T	G825046.00		MM5750	192071.00		MVM5550D	192054.00		RL1306A	100603.00	F05	VBM3546	114161.00	
M4106	G150033.60	B25	M7064T	G825045.00		MM5750-5	192143.00		MVM5550D-5	192125.00	K03	RL1307A277	102966.00		VBM3546T	121556.00	
M4106T	G150033.60		M7066T	G825002.00		MVM3457D	192024.00		MVM5600C	192067.00		RL1309A	110478.00		VBM3546T-5	120176.00	K91
M4107	G150035.60	B26	M7067T	G825042.00		MVM3458C	192028.00		MVM5600C-5	192133.00	K12	RL1310A	100065.00		VBM3554	116768.00	
M4107T	G150035.60		M7068T	G825005.00		MVM3458D	192025.00		MVM5600D	192064.00		RL1310A277	116599.00		VBM3554T	120331.00	
M4108T	G150037.60		M7071T	G120491.00		MVM3460C	192037.00		MVM5600D-5	192133.00	K03	RL1313A	110479.00		VBM3558T	120332.00	
M4109T	G150039.60		M7072T	G158319.00	C02	MVM3460D	192034.00		MVM5650C	192068.00		RL1317A	113633.00		VBM3611T	131610.00	
M4110T	G150019.60	C52	M7074T	G158159.00	C02	MVM3461C	192038.00		MVM5650C-5	192134.00	K13	RL1319A	110579.00		VBM3615T	131611.00	
M4110T-12	G150019.60		M7075T	G120387.00		MVM3461D	192035.00		MVM5650D	192065.00		RL1319A277	116600.00		VBM3710T	131612.00	
M4111T	G150003.60		M7081T	G825044.00		MVM3463C	192047.00		MVM5650D-5	192134.00	K04	RL132	100065.00	F05	VBM3714T	140637.00	
M4112T	150263.22		M7083T	G825040.00		MVM3463D	192044.00		MVM5700C	192077.00		RL1323A	100064.00		VEM3545	116748.00	
M4114T	G150041.60		M7090T	G825008.00		MVM3542C	192048.00		MVM5700C-5	192142.00	K13	RL144A	100109.00		VEM3546	114638.00	
M4115T	G150023.60	C52	M7134T	G120490.00	C01	MVM3542D	192045.00		MVM5700D	192074.00		RL224A	101431.00	C11	VEM3550	116750.00	
M4115T-12	G150023.60		M7137T	G120391.00	C02	MVM3545C	192057.00		MVM5700D-5	192142.00	K04	RL245A	100010.00	C25	VEM3554	116743.00	
M4116T	150265.22		M7142T	G158362.00		MVM3545D	192054.00		MVM5750C	192078.00		RL324A	101432.00	C11	VEM3555	116751.00	
M4117T	G150005.60																



**BALDOR-TO-LEESON CROSS REFERENCE**

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception	Baldor	Equivalent	Exception
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
VFDL3501M	113290.00		VL625A	110288.00		VM3554	110125.00		VP3439D	098017.00	K19						
VFDL3504M	110492.00		VL725A	110289.00		VM3554-5	111444.00		VP3455-14	108370.00	K23						
VFDL3507M	110493.00		VL825A	110280.00		VM3554T	120037.00		VP3455D	108370.00	K19						
VFDL3510M	110494.00		VM2333T	151350.60		VM3554T-5	120177.00		VP3458D	108372.00	K19						
VFDL3514M	110495.00	C39	VM2334T	151352.60		VM3554T-50	121275.00		VP3468D	108373.00	K20						
VFDL3516TM	120855.00		VM2513T	151682.60	C02	VM3555	111273.00		VP3575-14	118007.00	K24						
VFDL3610TM	131603.00	C39	VM2514T	151683.60	C02	VM3555-5	111611.00		VP3575D	118007.00	K20						
VFDL3612TM	131602.00	C39	VM2515T	151684.60	C02	VM3555T	120061.00		VP3585-14	118008.00	K24						
VL1301	100024.00	K89	VM2516T	151685.60	C02	VM3555T-50	121276.00		VP3585D	118008.00	K20						
VL1303	100356.00	K89	VM2531T	151686.60	C02	VM3556	112379.00		VP3588D	118009.00	K20						
VL1303A	100204.00		VM2534T	151687.60	C02	VM3556T	120098.00		VP3603D	118014.00	K21						
VL1304	100025.00	K89	VM3104	100048.00		VM3557	113634.00		VP3605D	118010.00	K21						
VL1305	110381.00	K82	VM3107	100056.00		VM3557T	120161.00		VP7424-14	M1130139.00	E02						
VL1306	100357.00	K89	VM3108	100049.00		VM3558	110451.00		VP7424D	M1130149.00	E02						
VL1306A	100205.00		VM3109	110434.00		VM3558T	120038.00		VSSWDM3537	116316.00							
VL1307	100026.00	K89	VM3111	100378.00		VM3558T-5	120178.00		VSSWDM3538	116166.00							
VL1307A	101523.00	K89	VM3112	100050.00		VM3558T-50	121277.00		VSSWDM3541	116317.00							
VL1308	110382.00	K82	VM3115	110111.00		VM3559	111630.00		VSSWDM3542	116168.00							
VL1309	110384.00	K82	VM3116	110043.00	C25	VM3559T	120993.00		VSSWDM3545	116318.00							
VL1309A	100722.00		VM3116T	120172.00	C25	VM3561	113890.00	C11	VSSWDM3546	116170.00							
VL1310	110220.00	K82	VM3120	110437.00		VM3603	120024.00	F07	VSSWDM3550	121560.00	E02,F07						
VL1313	110387.00	K82	VM3120T	121668.00		VM3606	120037.00	F07	VSSWDM3554T	121525.00							
VL1313A	110288.00		VM3153	116728.00		VM3607	120161.00	F07	VSSWDM3555T	121561.00							
VL1317	110390.00	K82	VM3153T	120063.00		VM3609	120038.00	F07	VSSWDM3558T	121527.00							
VL1317A	110289.00		VM3154	110044.00		VM3610	120993.00	F07	VSSWDM3559T	121562.00							
VL1318	110220.00	K82	VM3154T	120081.00		VM3610T	131513.00		VSSWDM3611T	131923.00							
VL1318A	110036.00	C39,P02	VM3155	113894.00		VM3611	131491.00	F10	VSSWDM3613T	131949.00							
VL1319	110388.00	K82	VM3155T	121670.00		VM3611T	131491.00		VSSWDM3615T	131924.00							
VL1322T	120073.00	K82	VM3156T	120082.00		VM3611T-5	131498.00		VSWDM3538	191205.00							
VL1323A	110280.00		VM3157	115553.00		VM3613	131514.00	F10	VSWDM3542	191208.00							
VL1406T	131544.00	K84	VM3157T	120035.00		VM3613T	131514.00		VSWDM3546	191290.00							
VL1408T	131539.00	K84	VM3158	114420.00		VM3614	120038.00	F07	VSWDM3546T	191214.00							
VL225A	100204.00	H01	VM3158T	121187.00		VM3614T	131525.00		VSWDM3554	191219.00							
VL325A	100204.00		VM3159T	121669.00		VM3615	131492.00	F10	VSWDM3554T	191220.00							
VL3501	101766.00		VM3161T	121405.00		VM3615T	131492.00		VSWDM3558T	191226.00							
VL3501-50	113921.00	C25	VM3211	121405.00	F07	VM3615T-5	131499.00		VWDL3504	114313.00	C55						
VL3503	102864.00		VM3211T	131489.00		VM3616T	131510.00		VWDL3507	114315.00	C55						
VL3503-50	113912.00		VM3212T	131779.00		VM3703	131491.00	B23	VWDL3510	114317.00	C55						
VL3504	102862.00		VM3215T	132059.00		VM3704	131642.00	F24	VWDL3514	114319.00	C55						
VL3504-50	113922.00		VM3218	131490.00	F10	VM3704T	131642.00		VWDM3538	113473.00							
VL3505	110411.00		VM3218T	131490.00		VM3707	131492.00	B23	VWDM3542	113019.00							
VL3506	110413.00		VM3219T	131780.00		VM3708T	140535.00		VWDM3546	113020.00							
VL3506-50	113913.00		VM3305T	140765.00		VM3709T	131912.00		VWDM3546T	120760.00							
VL3506A	110412.00	P02	VM3309T	140766.00		VM3710T	131528.00		VWDM3554	113021.00							
VL3507	110057.00		VM3311T	131527.00		VM3711T	140690.00		VWDM3554T	120761.00							
VL3507-50	113923.00		VM3312T	140688.00		VM3713T	140691.00		VWDM3558	114616.00							
VL3508	110414.00		VM3313T	140108.00		VM3714T	140109.00		VWDM3558T	120762.00							
VL3509	110416.00		VM3314T	140689.00		VM4103T	151507.60		VWDM3611T	131596.00							
VL3509-50	113914.00		VM3534	101769.00		VM4104T	151508.60		VWDM3615T	131597.00							
VL3509A	110415.00	P02	VM3534-5	110176.00	E01,H01	VM4106T	151351.60		VWDM3710T	140467.00							
VL3510	110058.00		VM3534-50	102689.00		VM7002A	111931.00	E01	VWDM3714T	140465.00							
VL3510-50	113924.00		VM3535	113311.00		VM7005A	111933.00	E01	WDM3538	112427.00	E02						
VL3510T	121001.00		VM3537	114176.00		VM7006A	111930.00	E01	WDM3542	112428.00	E02						
VL3513	110419.00		VM3537-50	102691.00		VM7009A	111936.00		WDM3546T	G120585.00	E02						
VL3513-50	113915.00	C25	VM3538	102860.00		VM7010A	111935.00		WDM3554T	G120858.00	E02						
VL3513T	120101.00		VM3538-5	110176.00	E01	VM7013	111943.00		WDM3558T	G120586.00							
VL3514	110420.00		VM3538-50	102694.00		VM7014	111926.00		WDM3558TP	G121191.00							
VL3514-50	113925.00		VM3539	110163.00		VM7018T	111939.00	F04	WDM3561TP	115751.00							
VL3514T	120017.00		VM3541	110448.00		VM7034	111941.00		WDM3611T	G130662.00							
VL3515	110422.00		VM3541-50	114893.00		VM7037T	121178.00		WDM3615T	G130663.00							
VL3515-50	120990.00	F07	VM3542	110047.00		VM7042T	158003.00	C02	WDM3710T	G140280.00							
VL3515T	120102.00		VM3542-5	110177.00		VM7044T	158005.00	C02	WDM3714T	G140281.00							
VL3605	120060.00	F07	VM3542-50	114894.00		VM7071T	113971.00	F04	WWL3515T	120997.00	C25						
VL3605T	131516.00		VM3543	112378.00		VM7075T	114419.00	F04	WWL3606	120728.00							
VL3606T	132083.00	B31	VM3543T	120097.00		VNM3538	102861.00		YPC144A	191872.00							
VL3609T	131545.00		VM3545	110112.00		VNM3542	110047.00	C25,E02	YPC164A	191891.00							
VL425A	100205.00		VM3545-50	114895.00		VP3311D	M1130149.00	E02	YPC244A	191871.00							
VL5001A	111075.00	E01	VM3546	110048.00		VP3316D	098014.00	E02,K18	YPC245A	191910.00							
VL5003A	111098.00		VM3546-5	110204.00		VP3326D	098015.00	E02,K18	YPC264A	191892.00							
VL5004A	111085.00		VM3546T	120024.00		VP3411-14	M1130139.00	E02	YPC265A	191911.00							
VL5006A	111097.00		VM3546T-5	120176.00		VP3416-14	098014.00	K22	YPC344A	191873.00							
VL5007A	111086.00		VM3546T-50	121272.00		VP3426-14	098015.00	K22	YPC345A	191875.00							
VL5009A	111096.00		VM3550	110192.00		VP3428D	098016.00	K18	YPC364A	191893.00							
VL5023A	110852.00		VM3550T	120105.00		VP3436-14	108369.00	K23	YPC365A	191912.00							
VL525A	100722.00		VM3550T-50	121274.00		VP3436D	108369.00	K19									

# MARATHON-TO-LEESON CROSS REFERENCE

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Marathon	Equivalent	Exception	Marathon	Equivalent	Exception	Marathon	Equivalent	Exception	Marathon	Equivalent	Exception	Marathon	Equivalent	Exception	Marathon	Equivalent	Exception
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
143A	175034		A645	175691		C238	131510		E228	170160		E748	G150149		E965	G150007	C02
145A	175035		A647	175192		C250	120098		E231	131980	C01	E749	G150150		E966	G150005	
1814T	175091		A648	175192		C252	131525		E232	131981		E753	G150151		E967	G130099	
182A	175036		A649	175192		C253	131642		E235	170122		E754	G150154		E968	G150001	
184A	175037		A650	175118		C254	140535		E236	170123		E755	G151449		E969	G140686	
2118T	175092		A651	175119		C260	121035		E237	170068		E759	150212	C02,E02	E970	G140126	
213A	175038		A655	175077		C276	120824	P02	E238	170001		E760	150116	C02,E02	E971	G150039	
215A	175039		A691	175676		C282	121008		E239	170003		E761	150117	C02,E02	E972	G130103	
254B2	175040		A692	175675		C284	121060		E240	170005		E762	150118		E974	G150033	C02
256B2	175041		A694	175677		C301	111939	C01,P01	E241	170096		E763	150119	E02	E975	G150035	
25U21T	175093		A695	175678		C321	111941	C01,P01	E242	170097		E764	150120	E02	E975	G151318	
284B2	175042		A763	E175927		C322	121178	C01,P01	E243	170098		E765	150121	E02	E976	G150041	
286B2	175043		A764	E175921		C401	G121051		E244	170099		E766	150239	E02	E978	G150068	
28U25T	175094		A772	E175928		C403	G121052		E246	170260		E783	G120103		E979	G120087	
324B2	175044		A775	E175922		C405	G131617		E247	170352	C09	E784	G120077		E980	G140551	
326B2	175045		A776	E175930		C406	G131618		E276	151516	C09	E793	G150009		E982	G130015	
32U28T	175095		A778	E175924		C407	G140605		E277	151529	C09	E798	120170	E02	E983	G150015	
364B2	175046		A779	E175929		C408	G140639		E278	151530	C09	E800	150118		E984	G150019	
365B2	175047		A780	E175931		D010	110160		E295	171523		E801	G150023		E985	G150043	
36U32T	175097		A781	E175923		D012	110232		E303	171320	E02	E802	G150027		E986	G151371	
404B2	175048		A782	E175925		D013	110222		E304	131461	C01	E803	G150098		E987	G151369	
405B2	175049		A903	175131		D017	111275		E305	131546	C01	E804	G150031		E988	G150096	
40U36T	175098		A904	175132		D018	110161		E306	150212		E805	150244		E989	G150352	C09
444B2	175088		A906	175133		D110	101432	C12	E307	150116		E806	G150099		E991	G150045	
445B2	175089		A907	175134		D111	100011	C09	E308	150117		E807	G150160		E992	G151368	
447B2	175090		B193	113926		D113	100012	P01	E309	150118		E809	G151367		E993	G150097	
44U40T	175127		B210	100010		D114	110007		E310	150119		E815	150120		E994	G120088	
A204	175844		B310	113027		D115	110479		E311	150120		E816	G150019		E995	G130016	
A206	175844		B311	110007		D116	113633		E312	150121		E817	150119		E996	G150066	C02
A209	175191		B314	100014		D117	100603	C09	E313	150239		E818	G150015		E997	150116	C02
A214	175062		B315	100110	F01	D118	110478	C09	E314	150253		E819	150228		E998	150117	C02
A216	175060		B316	100015		D311	110310	B34	E315	150244		E820	G150003		E999	G150011	
A217	175063		B317	100011		D312	112135	B34	E318	150228		E821	150197	C02	F101	113256	
A219	175060		B318	100016		D313	110180	B34	E319	150232		E822	140013		F102	110086	
A220	175063		B319	100012		D314	110909	B34	E348	121199		E823	G130015		F103	110087	
A223	175199		B330	110579		D315	113931	B34	E354	G120016		E824	120047		F104	110088	
A226	175199		B336	110579	P01	D391	114142	B34	E702	G120076		E827	120122		F105	110089	
A229	175664		B352	113608		D392	110915	B34	E704	G130282		E832	G120086		F131	116485	
A232	175664		C101	121668		D393	110181	B34	E705	G130284		E834	120170		F132	116486	
A239	175191		C102	121670		D394	110917	B34	E706	G140682		E836	120032		F133	116487	
A284	175191		C103	121187		D395	113927	B34	E707	G140683		E838	120021		F134	116488	
A287	175058		C104	131779		D396	114615	B34	E708	G150032	C02	E843	120171		F135	116489	F04
A297	175177		C105	131780		D400	114165		E709	G150034	C02	E845	120034		F201	101435	
A298	175178		C106	140688		D401	111950		E710	G150036		E847	120019		F202	101436	
A299	175179		C111	120063		D402	114167		E711	G150038		E849	G130016		F203	101437	
A301	175139		C120	120172		D403	111951		E712	G150040		E905	131500		F204	113302	
A302	175140		C121	120081		D450	110669		E713	G150042		E906	131547		F205	113301	
A303	175141		C122	120035		D452	114154		E714	G150044		E907	140004		G044	100027	F02
A306	175659		C123	131489		D453	114152		E715	115827		E913	120011	E02	G047	100028	
A307	175660		C124	131490		D454	114155		E716	G120011		E914	120019	E02	G061	110425	
A395	175063		C125	140580		D456	110679		E717	G120012		E920	170025		G063	100029	
A396	175063		C126	140108		D547	116768	B33	E718	G130000		E921	170029		G065	110199	E01
A435	175075		C150	120082		E202	171322		E719	G130004		E927	121003		G067	110027	
A436	175181		C152	132059		E203	170157		E720	G140147		E928	121004		G076	100115	P01
A437	175076		C153	140765		E203	G140578	C01	E721	G140490		E929	121005		G078	101423	
A438	175077		C154	140766		E204	170140		E722	G150065		E930	131519		G080	101149	
A569	175850		C162	121669		E205	170066		E723	G150006		E931	131520		G084	100030	
A570	175852		C163	121405		E206	170007		E724	G150009		E934	120167	E02	G086	110178	E02
A571	175854		C171	120073		E207	170011		E725	G150013		E940	170065		G088	110028	
A572	175856		C174	131544		E208	170015		E726	G150017	C02	E941	170006		G091	100336	F02
A573	175882		C201	120105		E209	170019		E727	G150021	C02	E942	170009		G093	100006	
A574	175884		C202	120061		E210	170023		E728	G120089		E943	170013		G094	100116	
A575	175886		C203	131513		E211	170027		E729	G130010		E944	170017	C02	G095	100588	
A576	175888		C204	131514		E212	170031		E730	G130012		E945	170021	C02	G096	110001	
A577	175890		C205	131912		E213	170087		E731	G140550		E945	G150021		G098	100184	
A601	175191		C206	140690		E214	170369		E732	G140122		E950	G120014		G100	111311	
A603	175077		C220	120024		E215	170371		E733	G150145	C02	E951	G120015		G101	100908	
A606	175845		C221	120037		E216	131985	C01	E734	G150146	C02	E952	G120016		G106	101520	
A608	175067		C222	120038		E217	131987		E735	G150067		E953	G130008		G107	100796	
A609	175844		C223	131491		E218	170158	E02	E736	G150000		E954	G130027		G109	100145	
A610	175058		C224	131492		E219	170159		E737	G150002		E955	G140578		G115	100109	C09
A611	175061		C225	151346	C02	E220	170062		E738	G150004		E956	G140489		G120	111311	P01
A612	175067		C226	140109		E221	170033		E739	G150025		E957	G150031		G126	113846	
A613	175059		C227	151350	C02	E222	170035		E740	G150029		E959	G150087		G127	113847	P01
A614	175062		C230	120176		E223	170037		E741	G150152		E960	G150043		G128	113847	
A615	175061		C231	120177		E224	170039		E742	G150155		E961	G150011		G135	100010	C09
A620	175664		C232	120178		E225	170041		E743	G151522		E962	G150023		G151	100011	C09
A621	175664		C236	120993		E226	170043		E746	G150147		E963	G130101		G156	100016	
A644	175691		C237	140691		E227	170045		E747	G150148		E964	G150037		G162	100210	

CROSS REFERENCE

# MARATHON-TO-LEESON CROSS REFERENCE

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Marathon	Equivalent	Exception	Marathon	Equivalent	Exception	Marathon	Equivalent	Exception	Marathon	Equivalent	Exception	Marathon	Equivalent	Exception	Marathon	Equivalent	Exception
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
G167	101641		G379	110108		G873	116611		I214	131538		K801	110915		M330	151381	
G180	113895		G383	110745		G874	116612		I215	140120		K802	120485		M331	151362	
G183	113896		G384	111916		G875	116613		I217	140581		K803	110181		M332	151382	
G186	113897		G385	114614		G876	116614		I220	120130		K804	110917		M333	801028	
G201	100048		G386	120423		G910	100007	C09	I221	120036		L409	131478		M334	801040	
G203	100049		G390	110142		G911	100002		I223	131549		L410	131479		M335	801041	
G205	100378		G391	110109		G912	100004		I224	140684		L412	151355		M351	801029	
G207	100050		G392	110402		G913	110002		I225	140685		L413	151356		M352	801030	
G209	110111		G393	110141		G915	100340	F02	I305	131853		L414	150282		M353	151361	
G212	100023	F02	G396	115024		G917	100008	C09	I308	131854		L415	150261		M354	151381	
G216	100354	F02	G396	116703		G918	100003	C09	I314	131857		L416	150263		M358	801042	
G221	110043		G507	102860		G919	100005	C09	I314	131994		L417	150265		M360	131562	
G223	110437		G508	110176		G923	111309		I315	131995		L454	151516	C09	M361	131562	
G225	110044		G511	102866		G930	110003		I315	131858		L455	151516		M362	131574	
G227	113894		G513	101766	F02	G932	110360		I700	121507	C48	L462	151529	C09	M363	131574	
G229	115553		G514	102864		G934	110004		I704	131855		L463	151529		M401	121855	
G230	100024		G515	102862		G935	110000		I706	131856		L467	151530	C09	M402	121856	
G232	100356	F02	G516	110413		G936	110167		J009	100204		L633	131465		M403	121859	
G234	100025	F02	G517	110057		G936	113630		J013	100205		L909	G130027		M404	121857	
G238	100357	F02	G518	110416		G936	120003		J017	100722		M105	121846		M406	131579	
G240	100375		G519	110058		G937	110361		J019	110288		M106	121846	K83	M407	131580	
G241	100056		G522	110047		G939	110005		J021	110289		M109	121847		M408	131581	
G242	110176	E01	G523	110177		G950	113266	P01	J023	110280		M110	121847	K83	M411	131583	
G243	110177	E01	G527	110048		G951	110006		J034	100207		M111	121849		M414	801071	
G244	110204	E01	G528	110204		G951	120004		J035	100208		M112	121849	K83	M415	121858	
G245	101648	E01	G530	110419		G952	110363		J036	100723		M113	131860		M416	131582	
G245	103014		G531	110420		G958	113266		J037	110292		M114	131862		M417	801070	
G246	116728		G533	110422		G966	100908	P01	J038	110293		M115	131861		M418	121860	
G248	110434		G534	102870		G976	113632		J039	110286		M116	131863		M420	801075	
G250	100026	F02	G541	110125		G979	116704		J041	102199		M117	140653		M421	801076	
G254	110384		G544	110451		G986	110110	P01	J042	101776		M118	140655		M422	131579	
G256	110220		G547	101767		G987	113631		J043	101775		M119	140654		M423	131580	
G258	110387		G548	111444		G996	116706		J044	114203		M120	140656		N302	112627	E02
G270	110388		G550	114144		H502	G825020		J045	114202		M121	801051		N305	112427	E02
G272	110390		G551	110734		H513	G825019		J046	114201		M123	801056		N306	112428	E02
G278	110381		G552	110905		H580	G825019		J049	113028		M124	801052		N307	112427	E02
G289	114420		G553	110908		H581	G825020		J050	113029		M125	801057		N308	112428	E02
G290	113700		G559	110310		H613	131500		J051	113030		M126	801053		N309	112627	E02
G303	101079		G560	114141		H616	131547		J052	113031		M127	801058		N310	G120585	E02
G306	110441		G561	114140		H619	140004		J053	113032		M128	801054		N311	G120858	E02
G308	100905		G562	110916		H664	120047		K000	110426		M129	801059		N312	G120586	
G309	110714	E01	G563	110912		H665	120032		K004	110029		M130	801055		N313	115751	
G316	114617		G564	110918		H666	120034		K009	110429		M133	801060		N314	G130629	
G321	100913		G569	114142		H668	131466		K016	101544		M163	131861	K84	N315	G131775	
G322	110199	E01	G570	114144	B34	H669	131467		K022	110430		M164	131863	K84	N316	G130662	
G324	110353		G571	110734	B34	H670	140013		K025	113292		M165	140653	K85	N317	G131776	
G326	110313		G572	110905	B34	H700	121009		K027	101448		M166	140655	K85	N318	G140280	
G327	110354		G573	110908	C46	H710	G130008		K041	113025		M167	140654	K85	N319	G140281	
G329	110034		G574	110910	B34	H803	116595		K048	113293		M168	140656	K85	N400	115633	
G330	113635		G577	114143	B34	H956	151457		K061	110893	E02	M170	131860		N401	115634	
G331	114613		G580	110911	B34	H957	151461		K064	115825	P03	M171	131860	K84	N402	115635	
G332	114619		G581	114140	B34	I101	120107		K065	115826	P03	M172	131862		N403	121419	
G333	110009		G582	110916	B34	I102	120106		K073	110362	P02	M176	131862	K84	N404	G121420	
G337	110012		G583	110912	B34	I103	131636		K136	110478		M301	121850		N405	G121421	
G338	110016		G584	110918	B34	I104	131616		K152	113633		M305	121851		N520	113473	
G339	110021		G588	110914	B34	I105	140680		K219	116707		M306	121851		N521	113019	
G340	110178		G589	116340		I106	140681		K232	113281		M307	121853		N522	113020	
G342	110275		G647	111932		I110	120044		K233	113334	P01	M308	121853		N523	114313	
G344	110145		G648	111934		I111	120042		K236	101651	P03,F02	M309	121852		N524	114314	
G345	110715		G651	111074		I112	131515		K237	101650	P03,F02	M310	121852		N525	114315	
G347	110035		G654	111084		I113	131534		K319	114955		M311	121854		N526	114316	
G348	110206		G657	110934		I114	131537		K319	121625	F07	M312	121854		N527	114317	
G350	110011		G659	110961		I115	140155		K338	116705		M313	131562		N528	114318	
G352	110276		G660	111929		I116	140311		K339	110399		M314	131562		N529	114319	
G354	110013		G660	111937		I118	120067		K350	110352		M315	131574		N530	114310	
G355	110017		G661	111923		I119	131852		K402	113311		M316	131574		N531	114311	
G356	110022		G662	111942		I119	131622		K403	110163		M317	131563		N532	114312	
G357	110400		G663	111922		I122	120879		K404	120097		M318	131563		N540	113582	
G359	110059		G828	111931		I130	131851		K406	113890		M319	131576		N541	112528	
G360	113933		G829	111930		I143	140747		K407	112379		M320	131576		N542	113583	
G365	110444		G840	111935		I147	113608	P01	K420	101646		M321	140618		N543	112529	
G369	113026		G841	111926		I201	120009		K421	101647		M322	140619		N544	113584	
G371	110209		G853	111075		I203	120395		K422	100961		M323	131577		N545	113300	
G372	110018		G854	111098		I204	120341		K618	115048		M324	131577		N556	113580	
G373	110023		G855	111085		I206	131637		K619	112135		M325	140619		N557	112526	
G374	110094		G856	111097		I210	120025		K630	110180		M326	140619		N558	113581	
G376	110253		G857	111086		I211	120026		K631	110909		M327	151380		N559	112527	
G377	110019		G858	111096		I212	131509		K700	114198	B34	M328	151380		N564	112523	E02
G378	113333		G870	110852		I213	131533		K800	110914		M329	151361		N567	113588	

This information is furnished as a guide only. Always check specific motor to determine suitability for direct replacement.

**MARATHON-TO-LEESON CROSS REFERENCE**

Marathon			LEESON			Marathon			LEESON			Marathon			LEESON			Marathon			LEESON			
Cat. No.	Equivalent	Exception	Cat. No.	Equivalent	Exception	Cat. No.	Equivalent	Exception	Cat. No.	Equivalent	Exception	Cat. No.	Equivalent	Exception	Cat. No.	Equivalent	Exception	Cat. No.	Equivalent	Exception	Cat. No.	Equivalent	Exception	
	Cat. No.	Code		Cat. No.	Code		Cat. No.	Code		Cat. No.	Code		Cat. No.	Code		Cat. No.	Code		Cat. No.	Code		Cat. No.	Code	
N569	113589		R302	192012		S127	101015	C09	U633	G150122		U781	170144	C02	Y582	810001								
N587	112643		R303	192020		S128	100064	C09	U636	G150159		U782	170044		Y590	810547								
N588	112644		R304	192021		T014	110108		U637	150197		U783	170029		Y595	810157								
N589	121039		R305	192022		T016	110142		U638	150198		U784	170151		Y965	G120587	E02							
N591	113588		R306	192030		T018	110109		U639	G150140		U903	150253	E02	Y967	G120588								
N592	113589		R307	192031		T019	110402		U640	150212	C02	U930	111922	C01	Y972	120761								
N593	113587		R308	192032		T031	120341		U641	150212		U932	G120489	C01	Y973	120762								
N595	113589		R309	192040		U004	G158362		U642	G150123		U933	G120490	C01	Z115	140209								
N595	112524		R310	192041		U005	G158366		U644	G150062		U935	G120491	C01	Z116	140414								
N596	113591		R311	192042		U006	G158157		U645	150198	C02	U936	G120391	C01	Z117	140223								
N599	113587		R312	192050		U007	G158140		U647	G150066		U938	G120387	C01	Z119	131541								
N600	115744		R313	192051		U008	G158001		U648	150116		U939	G158362		Z120	131542								
N601	113589		R314	192052		U009	G158010		U649	G150033		U941	G158319		Z121	131543								
N602	112524		R315	192060		U010	G825047		U650	150199		U942	G158366		Z122	140130								
N603	G120587	E02	R316	192061		U011	G825041		U652	G150007		U944	G158158		Z123	121569								
N604	115745		R318	192070		U012	G825043		U653	150117		U945	G158157		Z128	110090								
N605	113591		R319	192071		U013	G825045		U654	150224		U947	G158159		Z305	131847								
N606	112643		R320	193072		U014	G825002		U659	150121		U948	G158140		Z308	140640								
N608	115746		R321	192080		U015	G825005		U660	150239		U950	G158000		Z313	131848								
N609	113592		R322	193081		U016	G825008		U661	150253		U951	G158001		Z315	140640								
N610	121039		R324	193100		U017	G825011		U663	G151370		U953	G825039		Z401	120996								
N611	112644		R325	193101		U018	G825014		U668	131466		U954	G158010		Z403	120994								
N612	G120588		R326	193102		U019	G825017		U669	G150352		U956	G825046		Z404	121190								
N613	G120911		R327	193110		U056	G158001		U670	G140687		U957	G825047		Z405	132073								
N614	G130664		R328	193111		U057	G158010		U671	150196		U959	G825040		Z406	131640								
N615	G131167		R329	193112		U061	G158319		U701	G121286		U960	G825041		Z407	131604								
N616	G131171		R330	193120		U062	G158158		U704	G121287		U962	G825042		Z408	131641								
N617	G131165		R331	193121		U063	G158159		U707	G120276		U963	G825043		Z409	131605								
N618	G140466		R332	193122		U064	G158000		U710	G130326		U965	G825044		Z410	140642								
N619	G140464		R333	193130		U065	G825039		U713	G130328		U966	G825045		Z411	140643								
N620	112547	E02	R334	193131		U066	G825046		U716	G140183		U968	G825001		Z412	140644								
N640	113649		R335	193132		U067	G825040		U719	G140147		U969	G825002		Z413	140645								
N641	113954		R336	193140		U068	G825042		U722	G150102	C02	U971	G825004		Z427	131589								
N642	113473		R337	193141		U069	G825044		U724	G150080	C02	U972	G825005		Z429	140646								
N643	113022		R338	193142		U070	G825001		U725	G150081		U974	G825007		Z431	140647								
N644	113019		R339	193150		U071	G825004		U726	G150082		U975	G825008		Z502	131534								
N645	113023		R340	193151		U072	G825007		U727	G150083		U977	G825010		Z506	131537								
N646	113020		R341	193152		U073	G825010		U728	G150084		U978	G825011		Z602	098002								
N647	120760		R342	193160		U074	G825013		U729	G150085		U980	G825013		Z603	098003								
N648	113024		R343	193161		U075	G825016		U730	G150086		U981	G825014		Z604	098004								
N649	113024		R344	193162		U086	G825014		U733	G121290		U983	G825016		Z605	098005								
N650	120761		R345	193170		U087	G825017		U735	113927		U984	G825017		Z608	108014								
N651	113593		R346	193171		U401	G120172		U739	G151446	C02	X024	100699		Z609	108015								
N652	121040		R347	193172		U402	G131249		U741	G131774		X025	100700		Z610	108018								
N653	114616		R348	193180		U403	G130327		U744	G140696		X026	100701		Z611	108019								
N654	120762		R349	193181		U404	G131250		U746	G150103	C02	X030	100699		Z612	108022								
N655	120987		R350	193182		U405	G150170	C02	U748	G150079	C02	X031	100700		Z613	108023								
N656	131596		S003	101423	P02,C09	U405	G140589		U749	G150106		X032	100701		Z615	128000								
N657	131595		S006	100006	C09	U427	131500		U750	G150108		X500	116772	S14	Z617	128001								
N658	131597		S010	100006	C09	U429	131547		U751	G120428		X501	116773	S14	Z619	108502								
N659	131594		S011	100116	C09	U432	G140692		U753	G131497		X513	115778		Z630	108423								
N660	140467		S012	100007	C09	U433	G140146		U754	G140602		X523	115779		Z634	108226								
N661	140465		S013	100002	C09	U435	G140693		U755	G140482		X902	111330		Z635	108227								
N680	112431		S014	100008	C09	U436	G150175	C02	U756	G150138	C02	X920	191872		Z636	108228								
N681	112432		S022	100007	C09	U437	G150070	C02	U757	G150139	C02	X921	191871		Z638	108230								
N682	112626		S025	100115	C09	U438	G150071	C02	U758	121003		X922	191873		Z639	108231								
N684	131571		S026	100116	C09	U440	G150023	C02	U759	121004		X923	191891		Z641	108232								
P001	102197		S027	100002	C09	U442	G151377	C02	U760	121005		X924	191892		Z652	118015								
P002	102198		S030	100588		U444	G151378	C02	U761	131519		X925	191893		Z654	118016								
P003	101637		S033	100004		U446	G151379	C02	U762	131520		Y302	131849		Z655	118017								
P004	101638		S036	100005		U602	G130099		U763	170142		Y303	131850		Z656	118018								
P005	113891		S037	110004		U605	131465		U764	170143		Y304	140641		Z657	118019								
P006	113893		S038	110000		U608	131460		U765	170144		Y509	810066		Z660	108045								
P007	113893		S039	110167		U609	131460		U766	170064		Y510	810007		Z662	108046								
P101	110446		S102	100111	P01,C09	U613	G150299		U767	170065		Y525	810548		Z663	108050								
P102	114176		S103	100111	C09	U614	131552		U768	170032		Y526	810546		Z664	108047								
P102	114931		S106	100014	C09	U615	131552	C01	U769	170006		Y527	811320		Z665	108051								
P103	110448		S110																					

**MAGNETEK/A.O. SMITH TO-LEESON CROSS REFERENCE**

Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON		
A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
1-103017-2	175004		A023	111938	E02,F05	B3204	113847	S07	B815	113931	F05,C10	C224	100588		C774	110167	
175755.01	175659		A024	114627		B374	100207		B816	110422	C10	C225	114619		C775	110006	F05
175755.02	175139		A025	114629		B375	100208		B819	110232	C10	C226	100014		C775	113266	F05
175755.03	175177		A026	114631		B376	100723		B860	114215	C07	C235	100024		C776	113700	F05,C07
175755.04	175660		A027	111931		B380	110161	C10	B861	114995	F05	C236	102867		C777	110910	
175755.05	175140		A028	111930		B382	115048		B870	114214	C07	C308	100001		C802	110352	F05
175755.06	175178		A029	111935		B382	121060	C07,F06	B871	110909	T01	C309	100010	C46	C824	114144	B34
175755.07	175662		A030	111926		B384	116789		B871	115024		C310	113256	E02,C39	C826	110734	B34
175755.08	175141		A031	111941		B386	111275	B30	B888	110310	B34	C311	110086	C39	C828	110905	B34
175755.09	175179		A113	G120391		B412	102016	F01	B889	112135	B34	C312	110087		C830	110908	B34,F04
4-308681-04	175034		A130	G120489	F05	B413	100361	T01	B890	110180	B34	C313	110088		C831	110910	B34
4-308681-05	175035		A131	G120490		B415	113955	H01	B891	110909	B34,F04	C314	110089		C832	120274	B34,F07
4-308681-06	175036		A132	G120491		B420	114145	E02	B892	113931	B34	C315	100025		C907	102862	
4-308681-07	175037		A228	G120387		B421	102873		B893	121060	F07,B34	C316	100026		C916	110057	
4-308681-08	175038		A229	G158362	T02	B509	110278		BF1052	101432	C11	C317	111330		C926	110058	
4-308681-09	175039		A230	G158319	T02	B512	100337		BK1054	100011	C03,C28	C319	110090		CP1072M	110160	H02
4-308681-10	175040		A231	G158366	T02	B514	113955		BK1072	100603	C03,C28	C320	100004		CP1072M	100053	
4-308681-11	175041		A328	G158158	T02	B518	110310		BK1074	100012	C03,C28	C322	110011		CP1102M	110160	
4-308681-13	175043		A329	G158157	T02	B519	102864		BK1102	110478	C03,C28	C323	100005		CP1152M	110161	C10
4-308681-14	175044		A330	G158159	T02	B570	110293	C10	BP1104	110007	C03,C28	C324	110003		CP1202M	110232	
4-308681-15	175045		A331	G158140	T02	B587	113939		BK1154	110579	C03,C28	C325	100004		CP1302M	110222	C10
4-308681-16	175046		A400	G158001	T02	B588	100603		BK12	175674		C326	110734		CP1502M	120554	
4-308681-17	175047		A401	G158010	T02	B589	110478		BK1202	113633	C03,C28	C327	110411		CP1502M	111273	
4-308681-18	175048		A410	G158000	C26,T02	B592	113939	H01	BK1204	113608	C03,C28	C325	101651		CP1502MV1	116523	
4-308681-19	175049		A412	G825039	T02,C26	B604	100205		BK13	175675		C336	110734		D027	098002	E02
4-308681-2	175042		A500	G825047	T02,C26	B606	113637	E02	BK14	175676		C337	114932	H07	D029	098002	
4-308681-20	175088		A501	G825041	T02,C26	B614	100207		BK15	175677		C338	114932		D030	098002	E02
4-308681-21	175089		A510	G825046	T02,C26	B615	113956		BK16	175678		C339	114933		D031	098004	E02
4-308681-29	175090		A512	G825040	T02,C26	B618	112135		BK3052	101640		C340	113280		D032	098000	
4-316239-01	175092		A600	G825043	T02,C26	B619	110413		BK3054	100796		C340	113301		D033	098000	E02
4-316239-02	175093		A601	G825045	T02,C26	B620	113638	E02	BK3072	101641		C403	100010		D034	098032	
4-316239-06	175094		A612	G825042	T02,C26	B621	110399		BK3074	100908	B30	C412	100011		D035	108022	
4-316239-06	175095		A613	G825044	T02,C26	B622	113957	E02	BK3102	113895	B30	C420	110002		D038	098002	
4-316239-09	175097		A676	G825002	C26,T02	B628	100204		BK3104	111311		C426	100012		D039	098002	E02
4-316239-10	175098		A677	G825005	T02,C26	B633	100208		BK3152	113896		C435	111954	F05	D040	098004	E02
4-316239-12	175127		A682	G825001	C26,T02	B643	100053		BK3154	113846	S07	C445	110220		D041	098000	
486	191873	C20,C21	A683	G825004	T02,C26	B646	110241		BK3202	113897		C446	101650		D041	108014	
5EB3104V1	120122		A751	G825008	T02,C26	B664	110276		BK3302	113926		C447	110057		D042	098000	E02
5EB3104V1	110206	B30	A754	G825007	T02,C26	B665	100340		BK3304	116593		C448	113672	F05	D043	098032	
5EB3154V1	120021		A826	G825011	T02,C26	B671	110360		BR3104	110029	P03	C457	100006		D043	108018	
5EB3154V1	110893	B30	A827	G825014	T02,C26	B674	110059		BR3152	110429	B30,P03	C461	100011	C46	D044	108022	
5EB3204V1	120019		A828	G825017	T02,C26	B695	110142		BR3154	115825	B30,P03	C471	111955	F05,C07	D052	098008	
801	100109	C10,C12,H04	A831	G825010	T02,C26	B696	110109		BR3155	111309	B30	C472	113373	F05,C07	D053	098007	E02
808	191868		A833	G825013	T02,C26	B697	110402		BR3202	111310		C506	110388		D054	098069	
809	191869		A835	G825016	T02,C26	B702	110097		BR3204V1	115826	P03	C507	110420		D055	108023	
812	191870	F01	A877	G825019	T02	B703	110478	P01	BR3302	113923	P03	C508	113932	F05	D059	098009	
838	100109	C10,C12	A878	G825020	T02	B714	113639		BR3304V1	116595	P03	C509	110910	F05	D059	108016	
839	100110	C12,C10	B108	110279	C10	B715	113640		C026	114617		C520	110022		D060	098008	
875	100109	C10,C12,P01	B109	110285	C10	B716	113641		C027	110009	E02	C521	110021		D060	108015	
878	100115	P01,C10	B110	110280	C10	B718	100722		C042	100803	C23	C523	110007		D061	098069	
883	100110	C12,P01,C10	B111	110286	C10	B719	100723		C043	100804	C23	C524	113027		D061	108019	
885	100110	C12,C10	B120	101524	C10	B721	110110		C044	111323	F05,C23	C526	100003		D062	108023	
889	100116	C10	B121	101525	C10	B722	110479		C045	100824	C24	C527	100012		D066	098006	E02
902	102014	C10	B122	101526	C10	B733	113633	C10	C046	100825	C24	C530	113930		D068	098008	C2
914	191872	C29,C12	B123	113686	C10	B734	110363	C10	C047	111321	F05,C24	C531	110058		D070	128000	
915	191875	C29,C12	B124	110279	C10,C45	B736	110288		C048	111919	F05	C540	114165	H03	D071	128010	
921	100804	C29,C11,P01	B125	110280	C10,C45	B737	110292		C102	100116		C541	114165		D072	108502	
922	100804	C29,C11	B126	101527	C10	B744	110289	C39	C105	100110	P01	C608	100007		D073	108021	
924	101020		B127	101528	C10	B753	114214	P02	C109	100006	F02	C612	110012		D074	108265	
925	101021	F05	B128	101529	C10	B754	113958	E02	C138	101423	P02	C613	110016		D075	108266	
9451	191872		B129	113687	C10	B759	110361		C138	100115	P01	C620	110023		D076	108020	
9452	191875	C20,C21	B130	110285	C10,C45	B762	110094		C149	100109		C621	110579		D080	128000	
970	191871	C20	B131	110286	C10,C45	B764	114215	P02	C150	100955		C630	100002		D081	128000	
A010	111095	E01	B132	110278	C10	B765	113959	E02	C151	100955	P03	C634	100015		D082	108502	C18
A011	111097	B33	B133	110241	C10	B765	110285		C152	100023		C635	100020		D092	098005	E02
A012	111096	B33	B134	110242	C10	B767	110289		C153	102868		C639	100008		D203	108423	E01
A013	111075	B31	B135	110243	C10	B770	110279	C10,P01	C154	100024		C655	100008		D204	108424	E01
A014	111084	B33	B136	110281	C10	B777	110180		C155	102867		C658	100003		D205	108226	
A014	111085	B31	B137	110282	C10	B778	110909		C157	100115		C664	110014		D206	108227	E01
A015	110918		B138	110283	C10	B780	110280	C07	C187	100003		C665	101523		D207	108228	E01
A015	110934	B33	B139	110284	C10	B781	110286		C196	100109		C666	100016		D208	108229	E01
A015	111086	B31	B171	101431		B784	110242		C198	102014		C669	110013		D209	108230	
A016	110852		B172	100184		B785	110243		C199	100000		C671	110016		D210	108231	
A016	110961	B33	B176	113631		B786	110279	C10	C202	114617	P03,E02	C682	110000		E100	G120010	
A017	111932		B177	110362		B787	110160		C204	131986		C683	11020				

# MAGNETEK/A.O. SMITH TO-LEESON CROSS REFERENCE

Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON		
A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
E1010	G120103		E205	131988		E322	G150157	C47	E491	151382	C02	E634	170040	C02,T02	EB1052	110399	
E1011	G120088	F06	E206	131971		E323	G150140	C47	E492	801057	C47	E635	170042	C02,T02	EB1054	110012	
E1012	G120076		E207	131972		E325	150212		E494	170032	C02,T02	E636	G150002		EB1054A	110016	
E1013	G120077		E208	G130282		E336	G130103		E495	170034	C02,T02	E637	G150004		EB1054M	110086	
E1015	121003	T02	E209	G130284		E336SD	170158	K58	E497	170146		E642	G150039		EB1072	110276	
E1016	121004	T02	E214	G130010		E337	G140686		E5001	G150036	C02	E642SD	G150039	K61	EB1074	110013	
E1017	121005	T02	E215	G130012		E337SD	G150159	K58	E5002	G150038	C02	E643	G150041		EB1074A	110017	
E1018	120034		E218	171322		E342	G140551	C01	E5002R	G150038		E643SD	G150041	K61	EB1074M	110087	
E1019	120923	T02	E219	171322	C02,T02	E343	G140126	C01	E5003	G150073		E646	150120		EB1102	110059	
E102	G120012		E219	131463	T02	E350	170157	C47	E5004	G151377	B31	E646R	150120		EB1102M	110142	
E1020	G120089	C47	E220	G130008		E351	170157	T02	E5005	G150073	B31	E647	150121	E02	EB1104	110209	
E1021	120921	T02	E221	G130027		E352	131546		E5006	G151377		E647R	150121	E02	EB1104A	110018	
E1023	G120276		E222	171320	C47	E353	170140	C47	E5007	G150081		E648	G150040	C02	EB1104M	110088	
E1024	G120276	B34	E223	171322	C47	E354	170140	T02	E5008	G150082		E650	G150042	C02	EB1104T	120025	
E1025	G121287		E226	G130000		E355	150212		E5012	G150009	C47	E664	150232		EB1104tm	120008	
E1026	G121286	B34,F07	E227	G130004		E356	G150157		E5016	G150013	C47	E665	150120		EB1152	110094	
E1027	G120428		E236	131504		E356	G140578	C01	E511	G150067	C02	E667	150121		EB1152T	120130	
E103	120047	E02	E237	131502		E356SD	G150157	K58	E512	G150000	C02	E668	G150083		EB1154	110253	
E104	120032	E02	E240	G130099		E357	G150140	C25	E514	170009	C02,T02	E669	G150084		EB1154A	110019	
E105	120034	E02	E241	G150299		E357SD	G150140	K58	E516	170013	C02,T02	E671	G150004		EB1154M	110089	
E113	121181	T02	E241	G130101		E364	131546		E535	G150068		E700	G150025	C02	EB1154T	120026	
E116	120923	T02	E241SD	G150299	K57	E366	150196		E535SD	G150068	K60	E700R	G150025		EB1154TM	113938	
E117	121850		E244	G130015		E367	150197		E536	G150001		E701	G150029	C02	EB1202	110352	
E120	G120014	C01,C25	E245	G130016		E368	140618		E536SD	G150001	K60	E701R	G150029		EB1202M	110402	
E121	G120015		E252	171320	C47	E369	140653	C47	E546	G150009	C02	E708	G150147	C02	EB1202T	120036	
E122	G120016		E253	171320	T02	E371	131577	C47	E548	G150013	C02	E709	G150148	C02	EB3034	101079	
E123	120047		E255	171322		E372	140655	C47	E549	170011	C47	E712	G150027		EB3054	100913	
E124	120032		E256	171322	T02	E374	140619		E550	170011	T02	E712SD	G150027	K62	EB3072	110313	
E125	120034		E260	G130008	C01	E375	140654	C47	E551	150118		E714	G150031		EB3074	110034	
E126	120122		E260SD	171320	K57	E377	151380	C02	E552	170015	T02	E714SD	G150031	K62	EB3102	110145	
E127	120021		E261	G130027		E378	140656	C47	E554	G150011		E716	170025		EB3104	110035	
E128	120019		E261SD	171322	K57	E392	170143	C02,T02	E554SD	G150011	K60	E721	150239		EB3104VI	115830	
E136	120921	C19	E282	131563	C47	E393	170064	C02,T02	E555	G150015		E722	G150031		EB3152	110745	
E136	120922	C19	E283	131861	C47	E397	170144		E555SD	G150015	K60	E728	170044	C02,T02	EB3154	110444	
E140	121179	T02	E285	131576	C47	E394	171574	C02	E557	G150035		E729	170151	C02,T02	EB3154VI	115829	
E153	120923	C01,C19,T02	E286	131863	C47	E4001	G140693		E557SD	G150035	K60	E730	170096	E02,C47	EB3202	111916	
E154	120019	C01,C19	E292	171320	C02	E4002	G150175		E558	G150037		E731	170097	E02	EB3202VI	111916	
E156	121851		E292	131463		E4003	G150071		E558SD	G150037	K60	E745	G150149	C02	EB3204	113026	
E156RF	121851	C47	E293	131464		E4004	G150071	B31	E560	150224		E746	G150150	C02	EB3204VI	115828	
E157	121846	C47	E293	171322	C02	E4005	G150102		E561	150228		E749	G150087		EC1034	101766	
E159	121853		E294	131562	C47	E4006	G150080		E564	150118		E760	G150096		EC1054	102862	
E159RF	121853	C47	E294RF	131562	C47	E4010	G150065	C47	E565	150119		E760SD	G150096	K62	EC1054A	102871	
E161	G120086	C25	E295	131860	C47	E4014	G150006	C47	E566	801028	C47	E763	150239		EC1074	110057	
E162	G120088	C25	E296	131574		E407	170006	C02,T02	E567	801053	C47	E763R	150239	C01	EC1074A	110308	
E164	G120014	C25	E296RF	131574	C47	E407	170006	C02	E569	801040	C47	E764	G150044	C02	EC1104	110058	
E165	G120015	C01,C25	E297	131862		E408	G150032	C02	E570	801058	C47	E767	150244	E02	EC1104M	110041	
E166	G120016	C25	E300	G150142		E409	G150034	C02	E572	801029	C47	E767R	150244	C01	EC1154	110420	
E174	121852		E300	G140471		E414	G150145		E573	801054	C47	E768	G150151	C02	EC1154M	110042	
E174RF	121852	C47	E3002	131527		E415	G150146		E575	801041	C47	E771	150253		EC1154T	120017	
E175	121847	C47	E3002	140580		E422	G150066	C47	E576	801059	C47	E771R	150253	C01	EC3034	101769	
E177	121854		E3003	G150170	C02	E430	150198		E584	170036	C02,T02	E772	G150154	C02	EC3054	102860	
E177RF	121854	C47	E3004	G140692		E431	150116		E585	170038	C02,T02	E774	G151449		EC3074	112378	
E178	121849		E3006	G150172	C02	E432	150199		E586	G150087	C47	E775	G150152		EC3074	110047	
E180	114624	T02	E3006	G140146		E433	150117		E586	170067		E775R	G150152		EC3104	110048	
E181	102024	T02	E3008	131528	C01	E436	G150062		E587	170000		E776	G150152	F23	EC3104T	120024	
E188	114638		E3009	G150165		E436	G140687		E587	G150000	C47	E782	G150043		EC3154	110125	
E2002	G150142	P03	E3009	G140183		E436SD	G150062	K59	E594	150118	E02	E782SD	G150043	K62	EC3154T	120037	
E2003	G130325		E301	G150144		E437	G150033		E595	150119	E02	E783SD	G150045	K62	EC3204	110451	
E2004	131489	B33	E3010	140109	C01	E437SD	G150033	K59	E600	G150017	C02	E784	G150160		EC3204T	120038	
E2005	G131249		E3010	151348		E442	G150122		E600R	G150017		E785	G150097		ECB1054	110734	
E2006	131490		E3011	G150167		E442SD	G150122	K59	E601	G150021		E785SD	G150097	K62	ECB1054	110310	
E2007	G130327		E3011	G140147		E442SD	G150123	K59	E601R	G150021		E786	G150098		ECB1074	110905	
E2008	G131250		E3012	G140280		E443	G150123		E607	G150021	C44	E786SD	G150098	K62	ECB1074	112135	
E2009	131491	C01	E3013	G140281		E449	G150065	C02	E608	G150017	C44	E787	G150099		ECB1104	110908	
E2010	G130326	C01	E3014	G140466		E451	170065	C02,T02	E612	G150002	C02	E787SD	G150099	K63	ECB1104	110180	
E2011	131492	C01	E3015	G140464		E457	G150006	C02	E613	G150004	C02	E826	G151367	E02	ECB1104M	115879	
E2012	G130328	C01	E3016	140467		E460	170066	C47	E614	G150003		E831	G151369		ECB3054	114140	
E2013	G130662		E3016	G140466		E461	170066		E614SD	G150003	K61	E843	170371		ECB3074	110916	
E2014	G130663		E3017	140465		E462	150116		E615	G150005		E845	170352		ECB3104	110912	
E2016	G130664		E3017	G140464		E464	170007		E620	G150019		E847	171523		ECB3154	110918	
E2017	G131171		E3021	G150142	C47	E465	150117		E620SD	G150019	K61	E855	G151371		ECB3204	116106	
E2018	131596		E3025	G150144	C47	E466	G150066		E622	G150023		E869	G151368		ECT1052A	113955	
E2018	G130664		E308	G140682		E466SD	G150066	K59	E622SD	G150023	K61	E872	G151367		ECT1072A	113956	
E2019	131597		E309	G140683		E467	G150007		E625	170017	C02,T02	E873	G151370		ECT1102A	113639	
E2019	G131171	B31	E314	G140550		E482	151361		E627	170021		E877	151529		ECT1152A	113640	
E202	131465	E02	E315	G140122	C25	E483	801051	C47	E628	170019	T02	E881	151530		ECT3052	114931	
E2023	171320	E02	E317	170142	C02,T02	E485	151381	C02	E629	150120		EB1034	113256	P02	ECT3072	114208	
E2027	171322	E02,C47	E319	170144	C02,T02	E486	801056	C47	E630	170021	C02,T02	EB1034A	114613		ECT3102	114207	
E203																	

# MAGNETEK/A.O. SMITH TO-LEESON CROSS REFERENCE

Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON			Magnetek/ LEESON		
A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception	A.O. Smith	Equivalent	Exception
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
F387	11953	F05	H260	100446		H648	112430		H976	110204		MF409	175883	C02	P140	131641	
F683	100825		H261	101647	E02	H648	113587		H979	G130565	F09	MF501	175852		P229	131640	
FY3106	111147	C37	H262	100028		H655	111956		H980	G131338	F08	MF502	175854		P230	131604	C34
FY3156	111148	C37	H264	100210	F02	H656	111957	F05	H991	101051	C39,E02	MF503	175856		P231	131641	
GPD333-A005N4	174730		H267	110425		H657	111958		H992	110178	C39,E02	MF504	175884	C02	P235	131859	
GPD505V-A027	174545		H268	110441	E02	H658	111959	F05	H993	110206	C39,E02	N025	120061		P318	140626	
GPD505V-A027	174551		H271	100905	E02,F01	H661	114206		K100	120025		N103	120037		P319	140643	
GPD505V-A036	174557		H273	100029		H667	111147		K101	120026		N104	120038		P320	140644	
GPD505V-A054	174560		H274	100913	E02	H683	110901	C39,C47	K102	121569		N142	121199	F06	P325	140646	
GPD505V-B011	174924		H275	100145		H683	116784		K1024L	100023		N147	121858	C13	P327	140647	
GPD505V-B014	174552		H276	110199		H684	110912		K103	113938		N148	121858	C47	PCT2	175655	
GPD505V-B021	174558		H279	110027		H687	111328		K1034L	100024		N149	121855	C47	PCT3	175068	
GPD505V-B027	174561		H280	110353	E02	H688	101079		K104	113938		N153	121859	C47	PCT4	175191	
GPD505V-B034	174563		H282	102198	C40	H693	110902	C39,C47	K1050	100204		N154	120098		PCT5	175061	
GPD505V-B041	174565		H283	114931	E02	H693	116785		K1052	100204		N157	121860		PCT6	175062	
GPD505V-B052	174567		H286	100600	C40	H694	G121287		K1054L	100025		N161	121856	C47	PDT2	175658	
H025	110434		H288	110446		H703	110451		K107	112136		N163	121857	C47	PD73	175115	
H026	110914	E02	H290	100601		H704	113894	C39	K1070	100205		N214	G130008	C47	PD74	175192	
H027	120063	F06	H291	114140	E02	H705	113892	C39	K1074L	100026		N215	G130027		PD75	175119	
H031	101291		H358	100049		H706	114205		K1100	100722		N219	131861	E03	PD76	175121	
H031	113311	E02	H377	101449		H707	114204		K1104L	110220		N232	131579		Q651	801060	
H033	110163	E02	H379	100050		H708	116630		K115	120017		N245	131580	E03	R110	111309	C47
H034	110914	E02	H413	110182		H709	116106		K1150	110288		N246	131581		R127	111310	F05
H035	112378		H413	114142	E02	H710	115553	C39,C47	K1152	110288		N252	131860		R131	120024	E02
H036	116340		H437	101448		H711	114218	C39,C47	K1154L	110388		N268	G131613	C01	R132	120172	
H037	113020		H446	101637		H715	110917		K1200	110289	C10	N269	G131614	C01	R133	120081	
H038	113021		H448	110313	E02	H716	113927		K1202	110289	C10	N316	G140578	C47	R134	120035	
H049	114394		H449	101773		H717	111960	F05	K200	131509		N317	G140489	C47	R156	120082	
H050	114395		H451	101637	C39	H718	111961	F05	K203	131533		N324	140109		R166	G121053	
H051	115635	B31	H461	110178	E02	H733	113892		K205	131542		N324	151348	C01	R167	G121054	
H052	114581		H464	114192		H734	113893		K208	131543		N329	140653	E03	R173	G120585	E02
H060	101767		H467	110028		H736	114420		K209	131631	P02	N344	140622		R174	G120587	E02
H061	101769		H468	121199	F06	H738	114614	C11	K213	131541		N345	140623		R174	120760	
H062	102860		H473	110144		H740	113334		K214	131542		N347	140654		R175	G120858	E02
H063	110047		H473	114176	E02	H741	113893		K215	131543		N376	G140603		R176	112643	E02
H064	120024		H505	110145		H743	113893	C47	K223	131549		N377	G140636		R177	G120586	
H1001	110446	B33	H506	101638		H745	110437	C47	K300	140223	C07	N417	801070		R178	G120588	
H1002	110911	B34	H508	100378		H751	110192		K301	140209		N419	801051	E03	R182	113591	E01
H1003	101291	B33	H511	110111		H753	111273		K302	140414		N424	801075		R184	112643	E02
H1004	114142	B34	H514	101638	C39	H756	110429	F04	K3054L	100049		N435	801052	E03	R184	120761	
H1005	114140	B34	H515	114208		H767	111148		K3074A	100050		N525	801053	E03	R185	113592	C11,E01
H1006	110914	B34	H516	114207		H770	113588		K3074L	100050		OB1024	100115	P01	R186	121039	E01
H1007	110915	B34	H517	110715		H771	113473		K3104L	110043	C39	OB1034	100006		R187	114616	
H1008	110916	B34	H522	111326		H772	113589		K311	140130		OB1034A	100001		R188	G120588	
H1009	116340	B34	H524	110035		H773	113019		K312	140414		OB1054	100007		R189	120762	
H1010	110181	B34	H525	110206		H774	113590	E01	K314	140684		OB1054A	100002		R212	G130000	C47
H1011	110912	F04,B34	H528	113933		H775	G120585	E02,F22	K315	140685		OB1074	100008		R213	G130004	C47
H1011	G121286	F07,B34	H530	110745	C47	H776	113020		K3154L	110044	C39	OB1074A	100003		R234	G130565	
H1013	110917	B34	H531	114194		H776	G120587	F22	K3202	113894	C39	OB1074M	100005		R314	G150142	C47
H1014	110918	F04,B34	H534	110430		H777	120760		K3302	114420		OB1104	110004		R315	G150144	C47
H1014	G121287	F07,B34	H535	110444		H803	111630		M116	120945	C37	OB1104A	110000		RB1034A	100010	
H1015	113927	F04,B34	H536	110433		H840	101640		M120	120941	C37	OB1104T	120044		RB1054	100015	C12
H1016	G120276	F07,B34	H537	111916		H841	101641		M121	120940	C37	OB1154	110005		RB1054A	100011	
H1017	114615	C11,B34	H538	114196		H842	113895	F04	M126	120944	C13,C37	OB1154T	120042		RB1072A	100603	
H1017	G120991	F07,B34	H551	110915	E02	H843	113896		M127	120947	C13,C37	OB1204T	120067		RB1074	100016	
H137	102197		H563	110448	E02	H844	113897		M128	120946	C13,C37	OB3035	100028	C47	RB1074A	100012	
H155	102198		H575	110893		H845	113926		M129	120944	C13	OB3055	100029	C47	RB1102	110478	P01
H156	101767	E02,C47	H580	110034	E02	H850	100796		M130	120945		OB3075	100030	C47	RB1102A	110478	
H157	101648		H581	100030		H851	100908	F05	M131	120947	C13	OB3104	110029	C47	RB1104	113027	
H157	101767		H582	100146	F05	H852	111311		M132	120941		OB3104VI	115827	C47	RB1104A	110007	C39
H158	100048		H583	110181	C47,E02	H853	113846		M133	120946	C13	OB3154	110430	C47	RB1152A	110479	C39
H159	102863		H585	100602	C47	H854	113847		M134	120940		OB3154VI	115825	C47	RB1154A	110579	C39
H181	113025		H585	102971		H860	114158	H03	M206	131474	C37,F09	OB3202	113292	B30,C47	RB1202A	113633	C39
H191	110446	C47	H586	110916	E02	H861	110669		M222	131468	C13,C37,F09	OB3204	113025	C47	RB1204A	113608	
H192	110144	C47	H594	111327		H862	110670		M223	131469	C13,C37	OB3204VI	115826	C47	RB3034A	101520	
H193	110448	C47	H602	110426		H862	114154	E02	M240	131468	C13,F09	OB3304VI	116595	C47	RB3054	100145	
H194	110112	C47	H607	113891		H864	114152	F04	M241	131474	F09	OS1034	100006	C12	RB3054A	100796	
H195	110192	C47	H609	110437		H865	110671		M242	131469	C13	OS1034A	100001	C12	RB3		

# MAGNETEK/A.O. SMITH TO-LEESON CROSS REFERENCE

Magnetek/ A.O. Smith	LEESON		Magnetek/ A.O. Smith	LEESON		Magnetek/ A.O. Smith	LEESON		Magnetek/ A.O. Smith	LEESON		Magnetek/ A.O. Smith	LEESON		Magnetek/ A.O. Smith	LEESON	
Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code	Cat. No.	Cat. No.	Code
RBF1034A	100109	C12	T108	192011	H04												
RBF1052A	101432	C12,C11	T109	192011													
RBF1072A	101433	C11	T110	192022													
RS1030A	100115	C12	T1102	100723	C35												
RS1035A	100109	C12	T111	192031													
RS1051A	100064	C12	T112	192041													
RS1054	100015	C12	T113	192051													
RS1054A	100011	C12	T114	192061													
RS1055	114225	C12	T115	192071													
RS1070A	100065	C12	T1152	110292	C35												
RS1074	100016	C12	T117	192025													
RS1074A	100012	C12	T118	192034													
RS1102A	110478	C12	T119	192035													
RS1104A	110007	C12,C39	T120	192044													
RT1302	110286	C35	T1202	110293	C35,C40												
S226	171320	K57	T121	192045													
S227	G150299	K57	T122	192054													
S228	171322	K57	T123	192055													
S303	170157	K58	T124	192064													
S304	170140	K58	T125	192065													
S307	170158	K58	T126	192074													
S308	170159	K58	T127	192075													
S440	170066	K59	T128	192084													
S441	170007	K59	T242	193085													
S442	170122	K59	V100	120044													
S443	170123	K59	V101	120042													
S444	170062	K59	V102	120067													
S445	170033	K59	V106	120992													
S500	170011	K60	V108	120073													
S501	170015	K60	V110	120106													
S502	170068	K60	V200	131515													
S503	170001	T02	V201	131534													
S504	170035		V203	131781	C07												
S505	170037	K60	V205	131537													
S600	G150019	K61	V208	131537													
S601	170023	K61	V209	131537													
S602	G150003	K61	V210	131636													
S604	170039		V211	131616	C07												
S605	170041		V212	131629	P02												
S676	170027	K62	V305	140155													
S677	170031	K62	V310	140680													
S678	170096	K62	V311	140681													
S679	170097	K62	W200	128001	C18												
S680	170043		W201	108502	C18												
S681	170045		XP1030	111074													
S751	170087	K63	XP1050	111084													
S752	170098	K63	XP1070	110934													
S753	170099	K63	XPC1030	111075													
S754	170160		XPC1050	111085													
SK1302	110280	C36	XPC1070	111086													
SP001	810548		XPCB1030	111075													
SP002	810546		XPCB1050	111085													
SP003	811320																
SP005	811322	C50															
SP010	810140																
SP015	810066																
SP020	810007																
SP025	810011																
SP030	810015																
SP040	810019																
SP050	810023																
SP060	810027																
SP075	810031																
SP1P5	810547																
SP7P5	810157	C50															
ST1052	100207	S13															
ST1072	100208	S13															
ST1102	100723	C41,S13															
ST1152	110292	S13															
ST1202	110293	S13,C40															
ST1302	110286	C35,S13															
T100	192010																
T101	192020																
T102	192030																
T103	192040																
T104	192050																
T1052	100207	C35															
T106	192070																
T107	192080																
T1072	100208	C35															

This information is furnished as a guide only. Always check specific motor to determine suitability for direct replacement.

CROSS REFERENCE



## W.W. GRAINGER/DAYTON-TO-LEESON CROSS REFERENCE

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code
1A767	175077		12905	G121651		2K496	131636		2K650	101522		2N938	G150157	B24,C02	3GC70	111934	
1A770	175004		12911	110902		2K497	131616		2K651	100020		2N941	G120087	B22	3GC71	111938	
1A771	175030		12914	114218		2K501	140155		2K653	101523		2N942	116591	B22	3GC72	111937	
1A772	175031		12916	116630		2K502	113027		2K654	101523		2N943	G130016	B23	3GC75	111942	
1D056	100340		12918	G120275		2K504	100109	C12	2K655	110036	P02	2N945	G140126	B24	3GC78	G120387	
1D060	100116		12920	G121072		2K505	100109	P01	2K661	110422		2N946	G120086	B22	3GC81	114930	
1D061	100184		12924	116631		2K510	100767	C29,P01	2K663	102870		2N947	G120088	B22	3GC84	G120088	
1D062	100340		12946	100375					2K664	110310		2N948	G120185	B22	3GC85	114141	
1D063	110360		12948	113311	E02	2K511	100767	C29	2K665	110419		2N949	G150299	B23,C02	3GC86	101052	
1D065	101431		12955	100056		2K519	100012	P01	2K666	110411		2N980	G120010	B22	3GC87	114140	
1D066	100804	C29,P01	12958	100378		2K524	110363		2K670	102866		2N981	G120011	B22	3GC88	101051	
1D067	100804	C29	12972	112378		2K525	120341	E02	2K671	112135		2N982	G120012	B22	3GC89	100601	
1D068	101432	P01	12976	120063	E02	2K526	110004		2K673	110180		2N983	G130000	B23	3GC91	110178	
1D070	101781		12983	110111		2K529	110004		2K674	114144		2N984	G130004	B23	3HX70	174914	
1F640	108231		12995	120105	E02	2K530	100115		2K676	110905		2N985	G150142	B24	3HX71	174914	
1F642	108230		12997	110437		2K532	101423	P02	2K677	110734		2N986	G150144	B24	3HX72	174915	
1F644	108229		2A754	M1760003		2K533	100115		2K678	110910		2N988	G120089	B22	3HX73	174917	
1F646	108228		2K253	101433		2K539	100006		2K773	100015	P01	2N989	120856	B22	3HX74	174918	
1F648	108227		2K258	110579		2K542	110001		2K774	100012	P01	2N990	G130012	B23	3HX75	174919	
1F650	108226		2K259	113608		2K546	100338		2K776	111954	C10	2N992	G140122	B24	3HX76	174920	
1F652	108424		2K261	111953		2K548	100007		2K778	111955		2N995	G120103	B22	3HX77	174921	
1F654	108423		2K264	111954	C10	2K549	100004		2K779	113373		2N996	G120076	B22	3HX78	174922	
1K060	092114		2K267	113672	C10	2K551	110002		2M167	108010		2N997	G120077	B22	3HX79	174923	
1K061	092116		2K343	131541	S07	2K554	100008		2M167	098002		2R918	120061	E02	3K015	101766	
1K064	120067		2K344	131542		2K555	100005		2M168	108014		2R920	113894		3K015	102867	E01
1K065	110209		2K345	131543		2K558	110003		2M168	098000		2R922	114420		3K016	102862	
1K066	110253		2K347	140130		2K559	110361		2M169	108018		2R924	121187		3K017	110057	
1K068	111095	E01	2K348	100804		2K560	110005		2M169	098032		2R926	114142		3K018	110058	
1K069	111098		2K349	100803		2K566	140414	P02,S04	2M170	108022		2R928	110914		3K020	110420	
1K070	111097		2K350	101159		2K567	131637		2M501	108010		2R930	110915		3K054	101015	C12
1K071	111096		2K351	113280		2K568	131549		2M501	098002		2R932	116340	B34,E02	3K060	100064	
1K072	110852		2K352	120374	P03	2K570	140120		2M502	108011		2R934	110181		3K064	110007	
1K073	110388		2K353	120375	P03,C10	2K572	110025		2M502	098004		2R938	110917		3K070	100023	
1K074	112136	E02				2K573	110026		2M503	108014		2R940	G121290		3K071	100024	
1K075	112136		2K354	120376	P03	2K574	111915		2M503	098000		2R942	G121287		3K072	100025	
1K076	114145	P03	2K366	100207	H01	2K577	102014		2M504	108018		2R946	G120276		3K073	100026	
1K077	114144		2K367	100207		2K579	101446	P02	2M504	098032		2R948	G120991		3K074	110220	
1K078	110310	P03	2K368	100208		2K581	114617		2M505	108022		2R950	110434		3K080	111953	
1K079	110734		2K369	100723		2K584	113635		2M506	108023		2Z267	G120077		3K081	111954	
1K080	112135	P03	2K370	110292		2K587	110009		2M507	108015		2Z276	116595		3K083	111955	
1K081	110905		2K371	110293		2K588	102020	P03	2M507	098008		2Z347	110714	E01	3K084	113373	C11
1K082	110910		2K372	110286		2K589	110399		2M508	108019		2Z380	110214		3K091	191868	C12
1K082	121681		2K376	102864	P03	2K590	100956		2M508	098069		2Z500	110354		3K092	101432	
1K084	101650		2K377	110416	P03	2K591	110012		2M509	098004		2Z657	121009		3K093	100064	
1L498	M1135042	S07,S08	2K378	113956		2K593	110011		2M530	174924		2Z817	M1145023	C29,E01	3K093	100011	
1L499	M1135043	S07,S08	2K379	110310	P03	2K595	110276		2M531	174552		2Z818	M1145026	C29,E01	3K094	100603	
1L502	M1145038	S07,S08,C29	2K380	110180	P03	2K596	110108		2M532	174558		2Z828	111394		3K095	111266	
1L533	M112508	S08,S09,B36	2K381	102871		2K597	110013		2M533	174561		2Z841	M1145027	C29,E01	3K095	100012	
1L534	M1125083	S08,S09,B36	2K382	113955		2K599	110400		2M534	174563		2Z842	107011	C10,C32	3K096	110478	
1L535	M1125082		2K383	110422	P03	2K600	110059		2M535	174565		2Z843	107009	C10,C32	3K097	110007	
S08,S09,B36	1L536	M1125080	2K386	113913	E02	2K601	110142		2N863	110030	E01	2Z844	107008	C10,C32	3K098	110479	
S08,S09,B36			2K388	110413	P03	2K602	110209		2N864	110031	E01	2Z845	107007	C10,C32	3K099	113633	
1L538	M1125081	S08,S09,B36	2K389	110419	P03	2K604	120025		2N864	101079		2Z937	110715		3K142	100011	
1Z840	M1120039		2K390	113641		2K606	110109		2N865	110032	E01	2Z981	110206		3K143	100012	
1Z842	M1120045		2K391	100204	H01	2K607	110253		2N865	100913		3GC39	113933		3K144	110007	
1Z851	M1120043		2K392	100204		2K609	110402		2N866	110034		3GC47	G120185		3K147	110579	
1Z854	M1130053		2K393	100205		2K620	111075	H03	2N913	100048		3GC49	111933		3K148	100109	
1Z874	100599		2K394	100722		2K621	111075		2N914	100049		3GC51	111936		3K152	110019	
1Z876	100600		2K395	110288		2K622	111098		2N915	102863	E01	3GC53	111943		3K152	120009	
1Z881	100602		2K396	110289		2K624	111085		2N916	102860		3GC57	113971		3K155	131509	
1Z881	102971		2K397	100207	H01	2K625	111086		2N923	100050		3GC58	121178		3K156	131533	
1Z881	G121650		2K398	100207		2K631	113921	P02	2N924	110047		3GC59	114419		3K159	131538	
1Z883	G121286	E02	2K399	100208		2K633	111098		2N925	110441		3GC60	114627		3K160	110014	E01
1Z897	110901		2K400	100723		2K634	113922	P02	2N926	110353		3GC61	114629		3K170	100001	
1Z897	116784		2K401	110292		2K636	110852		2N933	G120014	B22	3GC63	114631		3K171	100052	
1Z899	110917	E02	2K402	110293		2K645	110382		2N934	G120015	B22	3GC64	114633		3K172	100002	
1Z899	116785		2K409	100204	H01	2K646	110361		2N935	G120016	B22	3GC66	114635		3K173	100053	
1Z901	G121290	E02	2K410	100207	H01	2K648	101521		2N936	G130008	B23	3GC67	G121182		3K174	100003	
1Z905	G121287	E02	2K484	100588		2K649	101522		2N937	G130027	B23	3GC69	111940		3K175	110097	

This information is furnished as a guide only. Always check specific motor to determine suitability for direct replacement.

CROSS REFERENCE

## W.W. GRAINGER/DAYTON TO LEESON CROSS REFERENCE

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code
3K176	110000		3KW25	121003		3N349	101649		3N516	G130027		3N614	G150019		3N738	G150011	
3K177	110110		3KW28	121004		3N350	110031		3N517	G130015		3N615	G150023		3N739	G150015	
3K199	100011		3KW31	121005		3N350	101647		3N518	G130016		3N616	G150027		3N740	G150019	
3K201	100000	C12	3KW34	131519		3N351	100961		3N521	G150157	C02	3N617	G150031		3N741	G150023	
3K211	100002	C12	3KW37	131520		3N352	110034		3N522	G150140	C02	3N618	G150087		3N742	G150027	
3K213	100011	C12	3KW40	170142		3N367	111932	E01	3N524	G140126		3N629	111329		3N743	G150031	
3K218	100003	C12	3KW42	G140682		3N368	111929	E01	3N526	G150159	C02	3N634	101640		3N744	G150087	
3K224	100012	C12	3KW43	170144		3N369	111923		3N527	100028		3N634	101641	H07	3N752	G150159	
3K225	110015	E01	3KW45	G140683		3N370	111922		3N528	100029		3N635	101641		3N753	G150062	
3K225	114613		3KW46	170065		3N390	G120010		3N529	100030		3N636	113895		3N755	G150035	
3K227	110016		3KW48	170032		3N391	G120011		3N530	101449		3N637	113896		3N761	G120185	
3K228	110141	P02	3KW49	170006		3N392	G120012		3N531	110029		3N638	113897		3N773	112524	E01
3K228	110399	P03	3KW51	170034		3N393	G130000		3N532	110426		3N639	100027		3N774	112643	E02
3K229	110017		3KW52	170009		3N394	G130004		3N533	110430		3N640	100028		3N775	112644	
3K230	110108	P02	3KW54	170036		3N395	G150142		3N534	110429		3N641	100029		3N779	G140464	
3K230	110276	P03	3KW55	170013		3N396	G150144		3N535	110031		3N642	100030		3N780	113473	
3K231	110018		3KW57	170038		3N397	G150065		3N536	100913		3N643	110029		3N780	112429	
3K234	110142	P02	3KW58	170017		3N398	G150006		3N536	101079		3N644	110430		3N781	113019	
3K234	110059	P03	3KX06	G130103		3N399	G150009		3N536	110032		3N647	111147		3N781	112430	
3K235	113333	P02	3KX08	G140686		3N403	G130008		3N537	110143		3N648	111148		3N782	113020	
3K235	110019		3M130	175091		3N404	G130027		3N538	110034		3N649	111630		3N782	112524	
3K239	110109	P02	3M131	175092		3N405	G150157	C02	3N539	110313		3N650	113890		3N783	113021	
3K239	110094	P03	3M132	175093		3N406	G150140	C02	3N540	110035		3N655	G120010		3N783	112643	
3K300	120130		3M276	175033		3N407	G150066	C02	3N541	110145		3N657	G120012		3N784	120762	
3K344	120036		3M277	175034		3N408	G150000	C02	3N542	110444		3N658	G130000		3N784	112644	
3K344	120395		3M278	175035		3N409	G150011	C02	3N544	G120076		3N659	G130004		3N785	G130664	
3K348	110180		3M279	175036		3N418	100028		3N544	G130282		3N660	G150142	C02	3N787	121850	
3K614	191868		3M280	175037		3N419	100029		3N546	G120088		3N661	G150144	C02	3N789	121851	
3K615	191869		3M281	175038		3N420	100030		3N548	G120014		3N662	G150065	C02	3N791	121852	
3K616	191870		3M282	175039		3N421	110029		3N549	G120087		3N663	G150006	C02	3N792	121854	
3K781	100052	C12	3M367	175094		3N422	110430		3N550	G120015		3N664	G150009	C02	3N793	130529	
3K782	100002		3M593	113292		3N427	110275		3N551	G120086		3N666	G120103		3N793	131562	
3K783	100053	C12	3N003	G150143	B24	3N428	G120323		3N552	G130015		3N667	G120076		3N794	131574	
3K784	100003	C12	3N013	121004		3N429	G120324		3N553	G120016		3N668	G120077		3N795	131563	
3K785	110160		3N017	110035		3N430	G120325		3N554	G120088		3N669	G130282		3N796	131576	
3K785	110097	C12	3N018	110444		3N442	110143	E01	3N555	G130016		3N671	G150143	C02	3N798	131577	
3K786	110161		3N026	100796	H01,P01	3N443	110313		3N556	G130008		3N672	G150064	C02	3N799	140619	
3K786	110110	C12	3N026	100210		3N444	110745		3N558	G130027		3N673	G150032	C02	3N817	100375	
3K787	113632	C12	3N027	100145		3N445	111916		3N560	110143		3N674	G150034	C02	3N818	100056	
3K788	110222	C12	3N028	110043		3N446	110912		3N561	110313		3N675	G120089		3N819	100378	
3K790	111275		3N044	121004		3N447	113927		3N562	110145		3N676	G130010		3N820	110111	
3K794	111074		3N073	G150066		3N450	G120010		3N567	G120489		3N677	G130012		3N821	110437	
3K795	111085		3N087	110048		3N451	G120011		3N570	G140126		3N679	G140122		3N822	113894	
3K795	111084		3N088	101776		3N452	G120012		3N572	G150157	C02	3N680	113028	H07	3N823	114420	
3K796	110934		3N090	114203		3N453	G130000		3N573	G150159	C02	3N681	113031		3N827	113473	E01
3K796	111086		3N234	113028		3N454	G130004		3N574	G150140	C02	3N682	113032		3N828	113019	E01
3K801	100204	H01	3N235	113029		3N455	G150142	C02	3N577	G150013	C02	3N683	100049		3N829	113020	E01
3K802	100207	H01	3N236	113030		3N456	G150144	C02	3N578	G150017	C02	3N684	100050		3N830	120760	E01
3K803	100204		3N237	110112		3N469	111147		3N579	G150021	C02	3N685	110043		3N831	113021	E01
3K804	100207		3N238	111273		3N470	111148		3N580	G150025	C02	3N686	102863		3N832	120761	E01
3K805	100205		3N254	G150007	C02	3N471	114176		3N581	G150029	C02	3N687	102860		3N833	113593	E01
3K806	100208		3N255	G150011	C02	3N471	110144		3N582	G150152	C02	3N688	110047		3N834	121040	
3K807	100722		3N265	110125		3N472	110448		3N583	G150015	C02	3N689	110048		3N835	113586	E01
3K808	100723		3N266	110451		3N473	110192		3N584	G150019	C02	3N690	110125		3N835	113588	E01
3K809	110288		3N285	110035		3N474	G150025	C02	3N585	G150023	C02	3N691	G150145		3N836	113589	E01
3K810	110292		3N291	G158362	C02	3N475	G150029	C02	3N586	G150027	C02	3N692	G150146		3N837	113590	E01
3K973	111074	H03	3N317	110145		3N476	G150152	C02	3N587	G150031	C02	3N693	113025		3N838	113592	
3K978	110288		3N329	G158366	C02	3N486	113026		3N588	G150087	C02	3N695	102024	F04	3N839	G120911	
3K985	100723		3N330	G158157	C02	3N487	100146		3N590	101448		3N696	114624	F04	3N849	101646	
3K986	110292		3N331	G158140	C02	3N488	110052		3N592	110429		3N723	114931		3N855	100905	
3K994	101435		3N333	G120490		3N489	110433		3N599	G150159		3N724	114208		3N856	100960	
3K995	101436		3N334	G120391		3N497	G150062	C02	3N600	G150062	C02	3N725	114207		3N857	111931	
3K996	101437		3N341	G150140	C02	3N499	G150035	C02	3N602	G150035		3N726	114206		3N858	111930	
3K962	174931		3N343	110918		3N509	G120014		3N608	G150157		3N727	114205		3N859	111935	
3KV63	174933		3N344	G120276		3N510	G120015		3N609	G150140		3N728	114204		3N860	111926	
3KV64	174934		3N345	G130326		3N511	G120016		3N610	G150066		3N734	G150157		3N861	111941	
3KV65	174930		3N346	G130328		3N512	G120087		3N611	G150007		3N735	G150140		3N863	114626	
3KV66	174920		3N347	G150165	C02	3N514	G120088		3N612	G150011		3N736	G150066		3N864	114628	
3KV67	174931		3N348	G150167	C02	3N515	G130008		3N613	G150015		3N737	G150007		3N865	114630	

This information is furnished as a guide only. Always check specific motor to determine suitability for direct replacement.

## W.W. GRAINGER/DAYTON-TO-LEESON CROSS REFERENCE

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code
3N866	114632		4FM58	170043	C44	4K108	100204	H01	4LX30	G130008		4N940	170159		4RG34	174914	
3N867	114634		4FM59	170027	C44	4K109	100204		4LX31	G130027		4N941	170062		4RG35	174914	
3N869	120172		4FM60	170027	C44,F15	4K110	100205		4LX32	G150157	C02	4N942	170033		4RG36	174915	
3N870	120081		4FM62	170045	C44	4K111	100722		4LX33	G130326		4N943	170035		4RG37	174917	
3N871	115553		4FM63	170031	C44	4K112	110288		4LX34	G130328		4N944	170037		4RG38	174918	
3N872	120035		4FM64	170031	C44,F16	4K113	110289		4LX35	G150165		4N945	170039		4RG39	174919	
3N873	110916		4FN11	170222	C44	4K114	110280		4M040	111321		4N946	170041		4RG41	174935	
3N874	101767	E02	4FN19	170019	C44	4K118	101159		4M041	100825		4N947	170043		4RG43	174935	
3N875	110044		4FN22	150120	C44	4K119	101120		4M042	100824		4N948	170045		4RG44	174939	
3VF56	110167		4FN25	150121	C44	4K120	101119		4M196	191891		4N949	170140		4RR19	G130664	
3VF58	111266		4FN28	150239	C44	4K121	112615		4M197	191912		4N950	170066		4RR20	G131171	
3VF68	098003		4FN29	150239	C44,F15	4K129	110097	P02	4M250	114620		4N951	170007		4RR21	G140466	
3VF69	098005		4FN57	120921		4K131	100184	C12,P03	4M251	100803		4N952	170011		4RX46	G120911	
3VF70	098000		4FN60	120922		4K252	191869		4M252	100804		4N953	170015		4TC28	G150086	
3VF71	098007		4FN63	120923		4K259	191870		4M253	111323		4N954	170019		4TC66	G120858	
3VF72	098009		4FN66	171320		4K260	112527		4M254	191872		4N955	170023		4TC72	G120586	
3VF73	108016		4FN68	131987	C01	4K261	112528		4M255	191871		4N960	170119		4TD79	G150166	
3VF74	108020		4FN69	171322		4K262	112529		4M256	191873		4N961	150121		4TD80	G150165	
3VF75	108021		4FN71	170158		4K263	113300		4N061	113304		4N962	150120		4TD81	G150168	
3VG03	G150165		4FN72	170157		4K530	100006		4N062	102198		4N963	150239		4TD82	G150167	
3VG04	G150167		4FN73	170122		4K531	100014		4N063	101637		4N964	170253		4TD83	G150103	
3VG05	G150102		4FN74	170159		4K588	100109	P01	4N064	101638		4N969	170140		4TD84	G150102	
3VG06	G150079		4FN75	170140		4K700	101602	P01,F01	4N065	113891		4N970	170066		4TD85	G150079	
3VG07	G150080		4FN76	170123		4K708	101405	P01,F01	4N066	113892		4N971	170007		4TD86	G150080	
3VG08	G150081		4FN77	170062		4K715	101585	P01,F01	4N067	113893		4N972	170019		4TD87	G150106	
3VG09	G150082		4FN78	170066		4K781	101781		4N068	110446	E01	4N973	170019	F14	4TD88	G150081	
3VG47	101524	C10	4FN79	170033		4K811	113930		4N069	114176		4N974	170023		4TD89	G150108	
3VG48	101525	C10	4FN80	170007		4K812	120071		4N070	114931		4N975	170023	F14	4TD90	G150082	
3VG49	101526	C10	4FN81	131640		4K813	120992	C42	4N071	110448		4N976	170027		4TD91	G150083	
3VG50	113686	C10	4FN82	131604	C34	4K814	132083		4N072	114208		4N977	170027	F15	4TD92	G150084	
3VG51	110279	C10	4FN83	131641		4K852	100006		4N073	110112		4N978	170031		4TD93	G150085	
3VG52	101527	C10	4FN84	131605		4K853	100014		4N074	114207		4N979	170031	F16	4TD94	G150086	
3VG53	101528	C10	4FN97	132044		4K855	100007		4N075	110192		4N980	170087		4TF03	G130662	
3VG54	101529	C10	4HZ72	G120490		4K856	100015		4N076	114206		4N981	170087	F17	4TF04	G130663	
3VG55	113687	C10	4JV45	M1760007		4K858	100008		4N077	111273		4N988	170011		4TF05	120761	
3VG56	110285	C10	4K015	110015	E01	4K859	100016		4N078	114205		4N989	170015		4TF06	120762	
3ZP87	110017		4K016	110012		4K928	100116		4N079	111630		4N990	170123		4TF07	112644	
3ZP89	G120077		4K017	110016		4K929	101015		4N080	114204		4N991	170068		4TF08	114616	
3ZP93	191869		4K018	110013		4K936	113635		4N082	113029		4N992	170001		4TF09	131596	
3ZP94	191869		4K019	110017		4K999	113583		4N083	113030		4N995	170096		4TF10	131597	
3ZP98	174914		4K020	110209		4KC00	113584		4N087	102197		4N996	170097		4TF12	112643	
3ZP99	174915		4K021	110018		4LW63	G120086		4N582	100446		4N997	170098		4TF14	G120588	
3ZR01	174914		4K022	110253		4LW65	G120076		4N590	114304		4N998	170099		4TF16	G130664	
3ZR02	174915		4K023	111333	P02	4LW66	G120088		4N601	121096		4RF79	174936		4TF17	G131171	
4FG52	120554		4K024	100023		4LW67	121039		4N605	121093		4RF80	174939		4UX39	115048	
4FM29	171320	C44	4K025	100024		4LW68	G120185		4N609	121095		4RF82	174937		4UX54	114995	
4FM32	171322	C44	4K026	100025		4LW69	G120587		4N827	100905		4RF83	174940		4UX69	115024	
4FM34	170158	C44	4K027	100026		4LW71	G120588		4N865	G158159		4RF85	174938		4VZ02	121625	F04
4FM35	170157	C44	4K028	110220		4LW72	120761	E01	4N866	G158000		4RF86	174941		4VZ06	116485	
4FM36	170122	C44	4K029	110388	C07	4LW73	G121191		4N867	G825039		4RF87	174730		4VZ08	116486	
4FM37	170159	C44	4K058	111332	P03	4LW76	120760		4N868	G158001		4RF88	174942		4VZ10	116487	
4FM38	170140	C44	4K059	111333	P03	4LW77	114560		4N869	G158140		4RG15	174914		4VZ12	116488	
4FM39	170123	C44	4K060	120374	P03	4LW78	114562		4N870	G158010		4RG16	174915		4VZ36	116489	F04
4FM40	170062	C44	4K061	120375	P03	4LW79	114561		4N871	G825045		4RG17	174917		4X788	175026	
4FM41	170066	C44	4K062	120376	P03	4LW81	121165		4N872	G825047		4RG18	174918		4Z128	M1125074	
4FM42	170068	C44	4K064	110141		4LW82	G121166		4N873	G825041		4RG19	174919		4Z129	M1125071	
4FM43	170033	C44	4K065	110108		4LW86	G121286		4N874	G825043		4RG20	174545		4Z130	M1125069	
4FM44	170007	C44	4K066	110142		4LW89	110918		4N882	G158158		4RG21	174551		4Z131	M1115029	
4FM45	170001	C44	4K067	110109		4LW94	G120014		4N883	G158157		4RG22	174557		4Z132	M1115028	
4FM46	170035	C44	4K090	110090		4LW95	G120015		4N913	170159		4RG23	174560		4Z133	M1115027	
4FM47	170011	C44	4K092	131847		4LW96	G120016		4N914	170062		4RG24	174569		4Z134	M1115026	
4FM49	170037	C44	4K094	140640		4LW97	121004		4N915	170033		4RG25	174571		4Z137	M1135038 S07,S10,K86	
4FM50	170015	C44	4K096	113766	E02,P02	4LW98	G120015		4N916	170035		4RG27	174567		4Z140	M1120027	
4FM52	170039	C44	4K097	113767	E02,P02	4LX01	121003		4N917	170037		4RG28	174593		4Z141	M1120013	
4FM53	170019	C44	4K098	113768	E02,P02	4LX02	G120014		4N918	170039		4RG29	174572		4Z142	M1110003	
4FM54	170096	C44	4K099	113769	E02,P02	4LX04	G120087		4N919	170041		4RG30	174930		4Z143	M1120044	
4FM55	170041	C44	4K101	101602	F01	4LX05	G120016		4N920	170160		4RG31	174931		4Z144	M1120040	
4FM56	170023	C44	4K102	101405	F01	4LX06	G120012		4N928	170039	S05	4RG32	174931		4Z145	M1110006	
4FM57	170097	C44	4K103	101585	F01	4LX07	116595		4N929	170041	S05	4RG33	174933		4Z378	108023	

# W.W. GRAINGER/DAYTON-TO-LEESON CROSS REFERENCE

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code
42379	108262		5K454	100015		5K960	110142		5N091	111941		5N702	G158000		5N832	170097	
42380	128001		5K455	100004		5K961	110402		5N092	111932	H03	5N703	G158001		5N833	170043	
42381	M1125073		5K456	100008	C12	5K966	131509		5N093	111932		5N705	G825039		5N834	170027	
42382	M1125072		5K457	100008	C12	5K967	131533		5N094	111940		5N706	G158010		5N835	170098	
42383	M1125070		5K458	100008	C12	5K982	100003	C12	5N095	111929		5N708	G825046		5N836	170045	
42384	107026		5K459	100003	C12	5K987	100338	C12,P03	5N096	111929		5N709	G825047		5N837	170031	
42385	107027		5K459	100065		5K989	100111	P01,C12	5N097	111938		5N711	G825040		5N838	170099	
42386	107028		5K460	100005		5K991	101015	C12,P01	5N098	111923		5N712	G825041		5N839	170160	
42387	107029		5K469	110288		5K995	120044		5N099	111923		5N714	G825042		5N840	170087	
42388	107030		5K470	110289		5K995	120004		5N102	111942		5N715	G825043		5N844	170260	
42389	107031		5K475	110292		5K997	120042		5N103	111922		5N716	G825044		5N846	170371	
42390	107033		5K476	110293		5K999	131534		5N107	G120489		5N717	G825045		5N849	170352	
42391	107034		5K480	120000	B22	5M078	101341	C32	5N108	G120490		5N725	G158362		5U129	112527	
42392	107035		5K481	120042	B22	5M255	G120587	E02	5N111	G120391		5N728	G158319		5U130	112528	
42393	107036		5K482	131515	B23	5M256	113586		5N169	121556		5N730	G158366		5U131	113583	
42394	107037		5K483	131534	B23	5M257	113587		5N237	170215		5N746	G825046		5U132	112529	
42518	M1145023		5K484	131537	B23	5M258	112643		5N251	170158		5N748	G825040		5U133	113584	
42519	M1145024		5K485	120025	B22	5M259	112524		5N252	170122		5N773	120921		5U134	113300	
42520	M1145025		5K486	120026	B22	5M262	115751		5N253	170159		5N774	120922		5U175	111332	P03
42521	M1145026		5K487	131509	B23	5M264	113588		5N254	170123		5N775	120923		5U176	111333	P03
42522	M1145027		5K488	131533	B23	5M265	113589		5N255	170062		5N776	171320		5U192	174920	
42523	M1145028		5K489	131538	B23	5M266	113590		5N256	170066		5N777	171322		5U193	174921	
42524	108015		5K502	110009		5M267	113591		5N257	170068		5N778	170157		5U194	174922	
42524	098008		5K504	100011	C32	5M268	121039		5N258	170033		5N779	170140		5U195	174923	
42525	108019		5K554	101021	C12	5M269	113022		5N259	170007		5N780	170066		5U196	174924	
42525	098032		5K556	113643	C12	5M270	113023		5N260	170001		5N781	170007		5U197	174552	
42528	M1120042		5K565	110019		5M271	113024		5N261	170035		5N782	170011		5U198	174558	
42529	M1120046		5K597	100004	C10	5M277	113591	E01	5N262	170011		5N783	170015		5U199	174561	
5K044	101120		5K599	100558		5M279	113023		5N264	170037		5N784	121003		5U200	174563	
5K046	101119		5K606	110015		5M280	113593	E01	5N265	170015		5N785	121004		5U201	174565	
5K109	110900	E02	5K607	110016		5M281	120987	F07	5N267	170039		5N786	121005		5U202	112427	H01
5K109	103023		5K608	110017		5M282	113954		5N268	170019		5N787	131519		5U203	112427	
5K110	101651		5K609	110018		5M283	112427	H01	5N269	170096		5N788	131520		5U204	112428	
5K115	100001		5K617	110002		5M285	114312	E02	5N270	170041		5N789	170142	C02	5U206	G120585	
5K116	100002		5K636	110020		5M286	114314	E02	5N271	170023		5N790	170144	C02	5U210	113473	
5K117	100003		5K636	114619		5M287	114316	E02	5N272	170097		5N791	170065	C02	5U211	113019	
5K118	110001		5K641	113333		5M288	113581	E02	5N273	170043		5N792	170006	C02	5U212	113020	
5K121	110015		5K642	110004		5M289	113582	E02	5N274	170027		5N793	170009	C02	5U213	120760	
5K121	114613		5K644	110005		5M290	114313	E02	5N275	170098		5N794	170013	C02	5U214	113021	
5K221	191869	F01	5K645	120067		5M291	114317	E02	5N276	170045		5N795	120921		5U218	113588	
5K254	100016		5K657	100204		5M292	114315	E02	5N277	170031		5N798	120922		5U219	113586	
5K258	191870	F01	5K658	100205		5N004	170123		5N278	170099		5N799	131980	C01	5U220	112483	
5K262	110008		5K659	100722		5N005	170068		5N279	170160		5N801	120923		5U221	113589	
5K263	110014		5K660	100207		5N006	170001		5N280	170087		5N802	131981	C01	5U222	113587	
5K283	100015	C10	5K661	100208		5N010	170222		5N293	120921		5N804	171320		5U223	112484	
5K286	101782	F01	5K662	100723		5N034	171320		5N294	120922		5N805	171378		5U224	113590	
5K288	100015	C10	5K671	101020	C12	5N036	171320		5N295	120923		5N807	171322		5U225	112524	
5K308	101015	C12,P01	5K672	110011		5N046	171322		5N296	171320		5N808	171379		5U226	G120587	
5K339	100024		5K673	110220		5N048	171322		5N297	171322		5N809	170158		5U227	112522	
5K340	100025		5K675	131534		5N055	170158		5N298	170157		5N810	170157		5U228	113591	
5K341	102867		5K677	140155		5N057	170158		5N299	170140		5N811	170122		5U232	121039	
5K341	101766		5K683	100184	P03	5N058	170157		5N303	131971		5N812	170159		5U264	101776	
5K413	191869	F01	5K684	101433	P01	5N060	170157		5N305	131972		5N813	170140		5U265	114203	
5K423	111953	C12	5K694	100005		5N061	170122		5N307	171574	C02	5N814	170123		6A192	M1135069	S07,S10
5K431	110004	C12	5K696	100004		5N062	170122		5N308	131986		5N815	170062		6A193	M1115024	
5K432	113027	C12	5K756	100109		5N073	G825001		5N310	171575	C02	5N816	170066		6A194	M1115025	
5K435	100026		5K790	100011		5N074	G825004		5N311	131988		5N817	170068		6A197	M1125131	E02
5K442	110001	C12	5K801	100012		5N075	G825007		5N316	170146	C02	5N818	170033		6FN65	131985	C01
5K443	100001	P01	5K907	191868	C12	5N076	G825013		5N319	170067	C02	5N819	170007		6K005	101522	
5K444	100010	C12	5K914	191868	C12	5N077	G825002		5N321	170006		5N820	170001		6K024	110279	
5K445	100001		5K915	191868	C12	5N078	G825005		5N322	170000		5N821	170035		6K026	130030	
5K446	100014	C12	5K917	191869	C12,P01	5N079	G825008		5N351	171523		5N822	170011		6K026	131537	
5K448	100014		5K918	191869	C12	5N080	G825010		5N691	G158362		5N824	170037		6K030	191869	F01
5K449	100007	C12	5K921	110004		5N081	G825014		5N693	G158319		5N825	170015		6K034	111074	E01,H03
5K450	100002	C12	5K922	113027		5N085	G825011		5N694	G158366		5N827	170039		6K036	111074	E01
5K451	100007	C12	5K923	110005		5N087	111931		5N696	G158158		5N828	170019		6K039	111084	C05
5K452	100015		5K953	131515		5N088	111930		5N697	G158157		5N829	170096		6K040	110934	C05
5K453	100011	C12	5K955	100204	H01	5N089	111935		5N699	G158159		5N830	170041		6K041	110961	C05
5K453	100064		5K956	100207	H01	5N090	111926		5N700	G158140		5N831	170023		6K045	110908	B30

This information is furnished as a guide only. Always check specific motor to determine suitability for direct replacement.

**W.W. GRAINGER/DAYTON-TO-LEESON CROSS REFERENCE**

LEESON			LEESON			LEESON			LEESON			LEESON			LEESON		
Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code	Grainger Cat. No.	Equivalent Cat. No.	Exception Code
6K045	121680		6K352	107002	C10,C32	6K630	120107		6K840	113256		6Z076	M1125127	E02,C29			
6K085	100064	P01	6K353	107005	C10,C32	6K631	120106		6K841	110086		6Z081	M1125052				
6K100	140311	S04	6K354	107001	C10,C32	6K632	131636		6K841	110087		6Z081	M1125128	E02,C29			
6K108	100014		6K358	110108		6K633	131616		6K843	110088		6Z082	M1125129	E02			
6K120	100010		6K365	110479		6K634	140680		6K847	131543		6Z083	M1125130	E02			
6K122	110016		6K366	100010		6K635	100205		6K851	110089		6Z400	107000	C10,C32			
6K123	110017		6K369	107010	C10,C32	6K637	110021		6K854	130030		6Z401	107003	C10,C32			
6K130	140203		6K375	107017	C10,C32	6K639	110022		6K854	131537		6Z402	107006	C10,C32			
6K137	113373	C12	6K376	100012		6K640	110023		6K862	101524		6Z403	107013	C10,C32			
6K138	110363		6K383	107015	C10,C32	6K652	110362		6K863	101527		6Z404	107025				
6K145	131637		6K385	110097		6K674	110058		6K867	101525		6Z405	107032				
6K146	131549		6K388	100802		6K690	100722		6K868	101528		6Z406	108700				
6K148	110000		6K393	120067		6K695	100207	H01	6K869	111323	C32	6Z407	108701				
6K162	110005	C07	6K396	107012	C10,C32	6K699	101617		6K873	110241		6Z408	108702				
6K176	140120		6K397	101611		6K702	110420		6K874	110242		6Z409	108703				
6K177	100956		6K397	100064		6K704	100207		6K875	110243		6Z410	108704				
6K178	100338		6K403	191872	E01	6K706	100208		6K876	110282		6Z411	108705				
6K179	140684		6K405	191875	E01	6K709	100723		6K877	110283		6Z412	108706				
6K181	102870	P03	6K406	191872		6K710	113256		6K878	110284		6Z413	108707				
6K182	102864	P03	6K407	110209		6K714	110086		6K880	113642		6Z414	108708				
6K182	110349	P03	6K407	120025		6K716	191868	P01	6K881	131542		6Z415	108709				
6K184	110141		6K408	110064		6K717	191869		6K882	131543		6Z416	108710				
6K186	100015		6K409	110066		6K719	110087		6K883	140203		6Z417	108711				
6K187	100007		6K410	191871	E01	6K727	110088		6K883	140223		6Z418	108712				
6K188	100008		6K411	191875		6K728	111086		6K884	140130		6Z791	108502				
6K197	110416	P03	6K415	100741		6K734	111074	C10,H03,E01	6K884	140209		6Z816	M1145029				
6K232	110360		6K418	120008		6K738	111074	C10, E01	6K885	140414		6Z817	M1145031				
6K236	100003	C32	6K419	110253		6K740	110089		6K886	113938		6Z817	M1145030				
6K236	100065		6K419	120026		6K744	191869		6K887	131541	S07	6Z818	M1145031				
6K237	110000		6K420	120009		6K745	100052		6K891	101526		6Z819	M1145032				
6K241	100116	P03	6K422	110006		6K748	100053		6K893	101529		6Z820	M1145033				
6K243	100116	P03	6K422	120004		6K754	110097		6K894	113686		6Z821	M1145034				
6K244	101015	C12	6K424	120003		6K754	110160		6K896	113687		6Z822	M1145035				
6K246	110054	C12	6K436	110057		6K756	131534		6K897	110279		6Z911	M1115002	K87,C30			
6K247	110278		6K438	100109	C12	6K757	131537	C10	6K899	110285		6Z912	M1115001	K87,C30			
6K248	110241		6K472	110423		6K757	130030		6K902	101423	P02	6Z913	M1115000	K87,C30			
6K249	110242		6K473	110065		6K759	100003		6K912	100115	C12	6Z914	M1125002	K86,C30			
6K250	110281		6K477	110025		6K760	110054		6K924	100111	C12	6Z914	M1125003				
6K255	110282		6K478	110026		6K763	191870	C12,P01	6K927	101015	P01	6Z915	M1125003				
6K256	110283		6K481	102016	P03	6K765	110161		6K937	110012		6Z916	M1125005	K86,C30			
6K266	110243		6K490	100110	P03	6K765	110110		6K937	100012		C1422	110361				
6K267	110284		6K502	101544	C07	6K767	111267		6K938	110013		F100	110089				
6K271	120044		6K503	113630	C07	6K768	191870		6K949	110003		IL501	M1145037				
6K272	120042		6K504	113266		6K773	110232		6K949	100003		IL503	M1145082	S07,S08,C29			
6K284	110361		6K506	107014	C10,C32	6K773	110362		6K950	113921		IL504	M1145039	S07,S08,C29			
6K303	M1145024	C29,E01	6K508	110209		6K775	100015	C10	6K952	113922	P02	IL505	M1145040	S07,S08,C29			
6K306	110015	E01	6K510	110253		6K779	110222		6K958	100338							
6K306	114613		6K519	100008		6K794	120554		6K959	113923	P02						
6K307	110016		6K553	191868	C12	6K805	113633		6K969	140130							
6K308	110017		6K562	110018		6K806	191872		6K970	140414							
6K309	110018		6K563	111324		6K807	191871		6K971	100115	C12						
6K311	113938		6K570	191869	C12	6K809	191875		6K972	120879							
6K313	131541		6K571	100204	H01	6K810	111915		6K973	100116	C12						
6K321	110007		6K573	100204		6K812	113938		6K974	100023							
6K324	110579		6K575	100204		6K813	131541		6K975	102868							
6K328	M1145031	C29,C32	6K583	107016	C10,C32	6K814	131542		6K975	102866							
6K329	M1145032	C29,C32	6K589	191870		6K815	131543		6K981	111330							
6K330	111075	E01	6K592	110086	P02	6K816	140223		6K994	121569							
6K331	M1145033	C29,C32	6K596	113955	H01	6K817	140209		6N020	113020							
6K332	M1145034	C29,C32	6K597	113955		6K818	140414		6N021	113021							
6K333	111085		6K598	113956		6K825	120044		6N022	113019							
6K334	M1145035	C29,C32	6K599	113639		6K826	120042		6N023	113473							
6K336	110279		6K600	113640		6K827	120025		6N024	120760							
6K337	110285		6K610	130043		6K828	120026		6N025	120761							
6K338	110109		6K610	131542		6K829	111075		6N028	113021							
6K342	102862		6K614	110110		6K831	110413	P03	6N029	113020							
6K346	100603		6K619	110087	P02	6K832	110419	P03	6N030	113019							
6K347	110478		6K622	110088	P02	6K833	111085		6N031	112427							
6K351	107004	C10,C32	6K628	140681		6K837	111086		6Z074	M1125050	E01,C29						

CROSS REFERENCE

This information is furnished as a guide only. Always check specific motor to determine suitability for direct replacement.

# DC SUB-FHP GEARMOTOR CROSS REFERENCE

## PZ SERIES DC GEARMOTORS: Parallel Shaft

Output RPM	F.L. Torque (lb.in.)	Input HP	LEESON Catalog No.	Cross Reference			
				Dayton	Bodine	Baldor	Bison
4	100	1/40	M1115002	6Z911	199	—	011-190-0362
			M1125046	—	—	—	—
10	100	1/20	M1115001	6Z912	198	GPP231108	011-190-0186
			M1125047	—	—	—	—
20	100	1/20	M1115000	6Z913	196	GPP232110	011-190-0096
			M1125048	—	—	GPP233120	—
30	100	1/17	M1125002	6Z914	190	GPP233112	011-190-0072
			M1125037	—	—	—	—
60	56	1/17	M1125003	6Z914	—	GPP233111	011-190-0025
			M1125036	—	—	GPP233121	—
100	36	1/17	M1125004	—	189	GPP12503	011-190-0019
			M1125035	—	—	—	—
150	24	1/17	M1125005	6Z916	188	—	011-190-0013
			M1125034	—	—	—	—
300	10	1/17	M1125006	—	157	—	011-190-0007
			M1125033	—	—	—	—

## P300 SERIES DC GEARMOTORS: Parallel Shaft

Output RPM	F.L. Torque (lb.in.)	Input HP	LEESON Catalog No.	Cross Reference			
				Dayton	Bodine	Baldor	Bison
5	353	1/20	M1115024	6A193	—	—	011-336-1369
9	268	1/20	M1115025	6A194	4147	GPP233141	011-336-1208
18	150	1/20	M1115026	4Z134	4146	GPP233140	011-336-1091
24	280	1/8	M1125069	4Z130	4156	—	011-336-2082
31	220	1/8	M1125070	4Z383	4155	GPP12547	011-336-2060
34	82	1/20	M1115027	4Z133	—	GPP233112	011-336-1053
51	130	1/8	M1125071	4Z129	4154	—	011-336-2036
51	55	1/20	M1115028	4Z132	—	GPP233111	011-336-1030
61	113	1/8	M1125072	4Z382	4154	GPP12545	011-336-2028
94	77	1/8	M1125073	4Z381	4153	GPP12544	011-336-2019
109	27	1/20	M1115029	4Z131	—	—	011-336-1017
170	43	1/8	M1125074	4Z128	4151	GPP12542	011-336-2011

## P1100 SERIES DC GEARMOTORS: Parallel Shaft

Output RPM	F.L. Torque (lb.in.)	Ratio to 1	Input HP	LEESON Catalog No.	Cross Reference	
					Dayton	Bison
8	1087	212	1/4	108700	6Z406	011-483-4197
12	1030	143	1/4	108701	6Z407	011-483-4131
18	750	95	1/4	108702	6Z408	011-483-4087
42	353	42	1/4	108703	6Z409	011-483-4041
60	238	29	1/4	108704	6Z410	011-483-4028
92	160	19	1/4	108705	6Z411	011-483-4018
135	105	13	1/4	108706	6Z412	011-483-4012
18	1112	95	1/2	108707*	6Z413	011-483-2087
33	882	53	1/2	108708*	6Z414	011-483-2058
42	705	42	1/2	108709*	6Z415	011-483-2041
60	476	29	1/2	108710*	6Z416	011-483-2028
92	320	19	1/2	108711*	6Z417	011-483-2018
135	210	13	1/2	108712*	6Z418	011-483-2012

\* Indicates TEFC design, others are TENV

Application Notes:

P1100 DC gearmotors have the same mounting dimensions as Bison 483 gearmotors and Dayton gearmotors. For additional information, see Bulletin 1830.

## RIGHT-ANGLE DC GEARMOTORS

Output RPM	F.L. Torque (lb.in.)	Input HP	LEESON Catalog No.	Cross Reference		
				Dayton	Bodine	Baldor
42	30	1/17	M1115018	—	99	—
62	35	1/17	M1115019	—	98	GP233003~
125	20	1/17	M1115020	—	96	GP233007~
250	11	1/17	M1115021	—	94	—
500	6	1/17	M1115022	—	93	—
42	80	1/8	M1135069	6A192	—	GP7403~
62	70	1/8	M1135038	4Z137	4144	GP7402~
			M1135058	—	6144	—
125	45	1/8	M1135039	—	4142	—
			—	—	6142	—
250	25	1/8	M1135040	—	4141	—
500	13	1/8	M1135041	—	4140	—
62	135	1/4	M1135042	1L498	4138	GP7405~
			M1135062	—	—	GP7425~
83	125	1/4	M1135043	1L499	4137	GP7407~
			M1135063	—	—	GP7427~
125	90	1/4	M1135044	—	4136	—
250	50	1/4	M1135045	—	4135	—
500	30	1/4	M1135046	—	4134	—

~Mounting base and output shaft height are not 'drop-in' replacement.

Some Dayton and all Baldor right-angle gearmotors have double output shafts.

## PE350 SERIES DC GEARMOTORS: Parallel Shaft

Output RPM	F.L. Torque (lb.in.)	Input HP	LEESON Catalog No.	Baldor	Cross Reference		
					Bodine	Bison	Dayton
7	330	1/8	M1135106	GPP7459	4175	011-348-7215	6ML63
			M1135139	GPP7479	—	—	6ML64
14	341	1/8	M1135107	GPP7462	4174	011-348-7102	6ML65
			M1135140	GPP7478	—	—	6ML66
21	371	1/4	M1135117	GPP7457	4173	—	6ML67
			M1135141	GPP7477	—	—	6ML68
27	305	1/4	M1135115	GPP7461	—	—	6ML69
			M1135142	—	—	—	6ML70
42	280	1/4	M1135108	GPP7456	4185	011-348-7041	6ML71
			M1135143	GPP7476	—	—	6ML72
50	250	1/4	M1135109	GPP7460	—	011-348-7034	6ML73
			M1135144	—	—	—	6ML74
62	220	1/4	M1135110	GPP7455	4184	011-348-7029	6ML75
			M1135145	GPP7475	—	—	6ML51
83	155	1/4	M1135114	GPP7454	4183	—	6ML52
			M1135146	GPP7474	—	—	6ML53
125	100	1/4	M1135111	GPP7453	4182	—	6ML54
			M1135147	GPP7473	—	—	6ML55
165	70	1/4	M1135112	GPP7452	4181	—	6ML56
			M1135148	GPP7472	—	—	6ML57
250	45	1/4	M1135116	GPP7451	4180	—	6ML58
			M1135149	GPP7471	—	—	6ML59
500	25	1/4	M1135113	GPP7450	4179	—	6ML60
			M1135150	GPP7470	—	—	6ML61

This information is furnished as a guide only. Always check specific motor to determine suitability for direct replacement.

# AC SUB-FHP GEARMOTOR CROSS REFERENCE

## PZ SERIES AC GEARMOTORS: Parallel Shaft

Output RPM	F.L. Torque (lb.in.)	Input HP	LEESON Catalog No.	Cross Reference			
				Dayton	Bodine	Baldor	Bison
2	100	1/150	M1125050	6Z074	—	—	016-103-2362
9	100	1/15	M1125127*	6Z076	0449	GCP24114	016-103-2186
19	100	1/15	M1125128*	6Z081	0448	GCP24122	016-103-1096
28	100	1/15	M1125129*	6Z082	0455	GCP24124	—
57	56	1/15	M1125130*	6Z083	0454	GCP24134	016-103-1025
94	36	1/15	M1125131*	6A197	0453	—	016-103-1019
142	24	1/15	M1125132*	—	0452	—	016-103-1013
283	12	1/15	M1125133*	—	0451	—	—

\* These motors are TEFC.

## P240 SERIES AC GEARMOTORS: Parallel Shaft

Output RPM	F.L. Torque (lb.in.)	Input HP	LEESON Catalog No.	Cross Reference			
				Dayton	Bodine	Baldor	Bison
8	345	1/15	M1145029	6Z816	0476	GCP24004	016-226-6215
15	250	1/15	M1145023	4Z518	0485	—	—
16	391	1/6	M1145030	6Z817	0485	—	016-226-6102
30	135	1/15	M1145024	4Z519	—	—	—
30	295	1/6	M1145031	6Z818	0484	—	016-226-6058
40	219	1/6	M1145032	6Z819	0483	GCP25052	016-226-6036
45	92	1/15	M1145025	4Z520	—	—	—
60	157	1/6	M1145033	6Z820	0482	GCP25054	016-226-6028
70	61	1/15	M1145026	4Z521	—	—	—
90	103	1/6	M1145034	6Z821	0481	GCP25056	016-226-6019
97	43	1/15	M1145027	4Z522	—	—	—
139	30	1/15	M1145028	4Z523	0480	—	—
156	60	1/6	M1145035	6Z822	—	GCP25060	016-226-6011

## PE350 SERIES AC GEARMOTORS • SINGLE PHASE: Parallel Shaft

Output RPM	F.L. Torque (lb.in.)	Input HP	LEESON Catalog No.	Cross Reference			
				Baldor	Bodine	Bison	Dayton
5	310	1/12	096000	—	0671	016-246-6254	6MK70
9	341	1/12	096001	—	0669	016-246-6170	6MK71
14	330	1/12	096002	GCP9320	0636*	—	6MK72
19	250	1/12	096003	GCP9322	0635*	016-246-6082	6MK73
29	270	1/6	096004	—	0685	016-246-6058	6MK74
34	250	1/6	096005	—	—	—	6MK75
40	180	1/6	096006	—	0654*	—	6MK76
59	135	1/6	096007	GCP3305	0683	016-246-6028	6MK77
75	90	1/6	096008	—	0681	016-246-6023	6MK78
113	68	1/6	096009	—	0651*	016-246-6015	6MK79
160	45	1/6	096010	GCP3315	0680	016-246-6011	6MK80
340	25	1/6	096011	GCP3320	0679	016-246-6005	6MK81

\*Split Phase Type

## PE350 HIGH TORQUE • SINGLE PHASE: Cap Start

Output RPM	F.L. Torque (lb.in.)	Input HP	LEESON Catalog No.	Cross Reference			
				Baldor	Bodine	Bison	Dayton
58	320	1/3	096049	GLP3330	0664*	—	—
85	218	1/3	096050	GLP3332	0663*	—	—
173	109	1/3	096051	GLP3336	0662*	—	—
345	55	1/3	096052	GLP3338	0662*	—	—

\*Split Phase Type

## PE350 SERIES AC GEARMOTORS • THREE PHASE: Parallel Shaft

Output RPM	F.L. Torque (lb.in.)	Input HP	LEESON Catalog No.	Cross Reference			
				Baldor	Bodine	Bison	Dayton
58	320	1/3	096013	GMP3330	0666	017-246-0029	6MK82
85	218	1/3	096014	GMP3332	0642	017-246-0019	6MK83
173	109	1/3	096015	GMP3336	0665	017-246-0011	6MK84
345	55	1/3	096016	GMP3338	—	017-246-0005	6MK85

This information is furnished as a guide only. Always check specific motor to determine suitability for direct replacement.

## P1100 SERIES AC GEARMOTORS • SINGLE PHASE: Parallel Shaft

Output RPM	F.L. Torque (lb.in.)	Ratio to 1	Input HP	LEESON Catalog No.	Cross Reference	
					Dayton	Bison*
8	975	212	1/4	107000	6Z400	014-482-4211
12	1030	143	1/4	107004	6K351	014-482-4143
18	800	95	1/4	107003	6Z401	014-482-4095
26	569	66	1/4	107002	6K352	—
59	248	29	1/4	107005	6K353	014-482-4029
133	114	13	1/4	107001	6K354	014-482-4011
18	1089	95	1/3	107006	6Z402	014-482-3095
26	752	66	1/3	107012	6K396	014-482-3066
41	461	42	1/3	107011	2Z842	014-482-3042
59	330	29	1/3	107010	6K369	014-482-3029
91	224	19	1/3	107009	2Z843	014-482-3019
157	125	11	1/3	107008	2Z844	014-482-3011
288	70	6	1/3	107007	2Z845	014-482-3006
22	1105	79	1/2	107013	6Z403	—
41	700	42	1/2	107017	6K375	014-482-2042
59	496	29	1/2	107016	6K583	014-482-2029
91	336	19	1/2	107015	6K383	014-482-2019
133	229	13	1/2	107014	6K506	014-482-2011

\* Bison units are split phase design.

## P1100 SERIES AC GEARMOTORS • THREE PHASE: Parallel Shaft

Output RPM	F.L. Torque (lb.in.)	Ratio to 1	Input HP	LEESON Catalog No.	Cross Reference	
					Dayton	Bison
18	1089	95	1/3	107025	6Z404	—
26	752	66	1/3	107026	4Z384	—
41	461	42	1/3	107027	4Z385	—
59	330	29	1/3	107028	4Z386	—
91	224	19	1/3	107029	4Z387	—
157	125	11	1/3	107030	4Z388	—
288	70	6	1/3	107031	4Z389	—
22	1105	79	1/2	107032	6Z405	017-482-0095
41	700	42	1/2	107033	4Z390	017-482-0042
59	496	29	1/2	107034	4Z391	017-482-0029
91	336	19	1/2	107035	4Z392	017-482-0019
133	229	13	1/2	107036	4Z393	017-482-0011
288	100	6	1/2	107037	4Z394	017-482-0006

Application Notes:

P1100 AC gearmotors have the same mounting dimensions as Bison 482 gearmotors and Dayton gearmotors. For additional information, see Bulletin 1830.

## RIGHT-ANGLE AC GEARMOTORS

Output RPM	F.L. Torque (lb.in.)	Input HP	LEESON Catalog No.	Cross Reference			
				Dayton	Bodine	Baldor	Bison
28	37	1/15	M1125080	IL536	0492	—	—
43	34	1/15	M1125081	IL538	0491	GC24310-	—
58	40	1/15	M1125082	IL535	0487	—	—
85	24	1/15	M1125083	IL534	0490	GC24306-	—
173	14	1/15	M1125084	IL533	0488	GC24302-	—
29	110	1/6	M1145037	IL501	—	—	—
43	113	1/6	M1145038	IL502	0678	GC25020-	—
57	95	1/6	M1145082	IL503	—	GC25015-	026-756-8030
83	75	1/6	M1145039	IL504	0677	GC25010-	026-756-8020
170	43	1/6	M1145040	IL505	0672	—	026-756-8010
340	23	1/6	M1145041	—	0670	—	026-756-8005

~Mounting base and output shaft height are not 'drop-in' replacement. Some Dayton and all Baldor right-angle gearmotors have double output shafts.

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970.577	1/6	159	100007.00	1/2	62	100913.00	1/2	20	102200.00	1/2	24	103395.00	1/3	93
970.600	1/8	159	100008.00	3/4	62	100955.00	1/3	62	102661.00	1/6	64	103396.00	1/2	93
970.600	1/8	159	100010.00	1/3	103	100956.00	1/2	62	102662.00	1/6	24	103397.00	1/3	93
970.601	1/8	159	100011.00	1/2	103	100960.00	3/4	20	102663.00	1/3	64	103398.00	1/2	93
970.620	1/6	159	100012.00	3/4	103	100961.00	1/2	20	102664.00	1/3	24	103399.00	3/4	93
970.620	1/6	159	100014.00	1/3	103	101013.00	1/3	102	102665.00	1/2	64	103400.00	1/3	93
970.621	1/6	159	100015.00	1/2	103	101015.00	1/3	103	102666.00	1/2	24	103401.00	1/2	93
980.143	1/15	159	100016.00	3/4	103	101020.00	1/4	109	102684.00	1/3	20	103402.00	3/4	93
980.159	1/15	159	100018.00	1/3	64	101021.00	1/3	109	102685.00	1/4	132	103403.00	1/3	93
980.549	1/15	159	100019.00	1/2	64	101051.00	1/2	133	102686.00	1/3	132	103404.00	1/2	93
003042.02		179	100020.00	1/2	64	101079.00	1/3	20	102687.00	1/3	132	103405.00	1/3	93
003042.04		179	100021.00	3/4	64	101119.00	3/4	76	102688.00	1/3	132	103406.00	1/2	93
003042.05		179	100023.00	1/4	64	101120.00	1/2	76	102689.00	1/3	132	103407.00	3/4	93
003042.06		179	100024.00	1/3	64	101159.00	1/3	76	102690.00	1/2	132	103408.00	1/3	93
003043.01		179	100025.00	1/2	64	101176.00	1/2	73,109	102691.00	1/2	132	103409.00	1/2	93
003043.05		179	100026.00	3/4	64	101252.00	1/4	73,109	102692.00	1/2	132	103410.00	3/4	93
006707.01		208	100027.00	1/4	20	101253.00	1/3	73,109	102693.00	1/2	132	103411.00	1/2	95
006708.01		208	100028.00	1/3	20	101291.00	1/3	24	102694.00	1/2	132	103412.00	3/4	95
006708.01		211	100029.00	1/2	20	101341.00	1/4	76	102695.00	1/3	24	103413.00	1/2	95
092011.00	1/6	102	100030.00	3/4	20	101405.00	1/3	28,103	102696.00	1/3	24	103414.00	3/4	95
092012.00	1/6	102	100045.00	1/2	103	101423.00	1/4	62	102697.00	1/3	26	103417.00	1/3	95
092013.00	1/4	102	100046.00	3/4	103	101431.00	1/3	103	102792.00	1/6	28	103418.00	1/2	95
092014.00	1/6	102	100047.00	3/4	103	101432.00	1/2	103	102793.00	1/4	28	103460.00	1/2	108
092015.00	1/6	102	100048.00	1/3	24	101433.00	3/4	103	102794.00	1/3	28	107000.00	1/4	177
092016.00	1/4	102	100049.00	1/2	24	101434.00	1/4	103	102795.00	1/2	28	107001.00	1/4	177
092111.00	1/12	62	100050.00	3/4	24	101435.00	1/3	76	102860.00	1/2	24	107002.00	1/4	177
092112.00	1/4	62	100052.00	1/2	62	101436.00	1/2	76	102861.00	1/2	24	107003.00	1/4	177
092114.00	1/8	62	100053.00	3/4	62	101437.00	3/4	76	102862.00	1/2	64	107004.00	1/4	177
092116.00	1/6	62	100054.00	1/2	64	101446.00	1/4	62	102863.00	1/3	24	107005.00	1/4	177
096000.00	1/12	176	100055.00	3/4	64	101447.00	1/3	20	102864.00	1/2	64	107006.00	1/3	177
096001.00	1/12	176	100056.00	1/2	24	101448.00	1/2	20	102865.00	1/2	64	107007.00	1/3	177
096002.00	1/12	176	100063.00	1/3	103	101449.00	3/4	20	102866.00	1/4	64	107008.00	1/3	177
096003.00	1/12	176	100064.00	1/2	103	101520.00	1/3	104	102867.00	1/3	64	107009.00	1/3	177
096004.00	1/6	176	100065.00	3/4	103	101521.00	1/4	64	102868.00	1/4	64	107010.00	1/3	177
096005.00	1/6	176	100109.00	1/4	103	101522.00	1/3	64	102869.00	1/3	64	107011.00	1/3	177
096006.00	1/6	176	100110.00	1/3	103	101523.00	3/4	64	102870.00	1/3	64	107012.00	1/3	177
096007.00	1/6	176	100111.00	1/4	103	101524.00	1/2	126	102871.00	1/2	64	107013.00	1/2	177
096008.00	1/6	176	100115.00	1/4	62	101525.00	3/4	126	102872.00	1/2	64	107014.00	1/2	177
096009.00	1/6	176	100116.00	1/3	62	101526.00	1	126	102873.00	1/3	64	107015.00	1/2	177
096010.00	1/6	176	100123.00	1/4	102	101527.00	1/2	126	102903.00	1/2	65	107016.00	1/2	177
096011.00	1/6	176	100145.00	1/2	104	101528.00	3/4	126	102904.00	1/2	62	107017.00	1/2	177
096013.00	1/3	176	100146.00	3/4	104	101529.00	1	126	102905.00	1/2	62	107025.00	1/3	177
096014.00	1/3	176	100184.00	1/2	62	101544.00	3/4	62	102906.00	1/2	62	107026.00	1/3	177
096015.00	1/3	176	100204.00	1/2	124	101585.00	1/2	28,103	102907.00	1/2	65	107027.00	1/3	177
096016.00	1/3	176	100205.00	3/4	124	101602.00	1/4	28,103	102908.00	1/2	62	107028.00	1/3	177
096049.00	1/3	176	100207.00	1/2	124	101611.00	1/2	103	102909.00	1/2	62	107029.00	1/3	177
096050.00	1/3	176	100208.00	3/4	124	101637.00	3/4	125	102910.00	1/3	65	107030.00	1/3	177
096051.00	1/3	176	100210.00	1/3	104	101638.00	1	125	102911.00	1/3	102	107031.00	1/3	177
096052.00	1/3	176	100336.00	1/3	62	101639.00	1/3	104	102912.00	1/3	102	107032.00	1/2	177
096065.00	1/6	180	100337.00	1/2	62	101640.00	1/2	104	102913.00	1/3	102	107033.00	1/2	177
096066.00	1/4	180	100338.00	1/2	62	101641.00	3/4	104	102914.00	1/4	102	107034.00	1/2	177
096067.00	1/4	180	100340.00	3/4	62	101643.00	1/2	76	102915.00	1/4	102	107035.00	1/2	177
096068.00	1/4	180	100354.00	1/3	64	101644.00	3/4	76	102916.00	1/4	65	107036.00	1/2	177
096069.00	1/4	180	100355.00	1/3	64	101645.00	1/2	73,109	102917.00	1/2	26	107037.00	1/2	177
096070.00	1/4	180	100356.00	1/2	64	101646.00	1/4	20	102918.00	1/2	102	108014.00	1/2	153
098000.00	1/2	153	100357.00	3/4	64	101647.00	1/3	20	102919.00	1/2	26	108015.00	1/2	153
098002.00	1/4	153	100361.00	1/4	102	101648.00	1/4	24	102920.00	1/3	102	108016.00	3/4	153
098003.00	1/4	153	100362.00	1/3	102	101649.00	1/4	102	102921.00	1/3	26	108017.00	3/4	153
098004.00	1/3	153	100366.00	1/2	102	101650.00	3/4	65	102922.00	1/3	26	108018.00	3/4	153
098005.00	1/3	153	100375.00	1/3	24	101651.00	1/2	65	102929.00	1/3	65	108019.00	3/4	153
098006.00	1/2	153	100378.00	3/4	24	101765.00	1/4	64	102930.00	1/3	65	108020.00	1	153
098007.00	1/2	153	100443.00	1/3	102	101766.00	1/3	64	102931.00	1/3	62	108021.00	1	153
098008.00	1/2	153	100446.00	1/3	20	101767.00	1/4	24	102932.00	1/3	62	108022.00	1	153
098009.00	3/4	153	100449.00	1/2	24	101769.00	1/3	24	102933.00	1/3	62	108023.00	1	153
098010.00	3/4	153	100486.00	1/2	24	101773.00	3/4	104	102963.00	1/4	103	108045.00	1/4	158
098014.00	1/3	156	100588.00	1/3	62	101775.00	1	125	102964.00	1/3	103	108046.00	1/3	158
098015.00	1/2	156	100599.00	1/3	26	101776.00	3/4	125	102965.00	1/2	103	108047.00	1/2	158
098016.00	1/2	156	100600.00	1/2	26	101780.00	1/2	24	102966.00	3/4	103	108048.00	3/4	158
098017.00	3/4	156	100601.00	1/2	26	101781.00	1/2	107	102971.00	3/4	26	108050.00	1/3	158
098032.00	3/4	153	100602.00	3/4	26	101782.00	3/4	107	103014.00	1/4	24	108051.00	1/2	158
098040.00	1/2	154	100603.00	3/4	103	101839.00	3/4	103	103017.00	1/3	20	108052.00	3/4	158
098065.00	1/4	158	100604.00	1/3	73,109	101965.00	1/4	24	103018.00	1/2	20	108053.00	1	158
098066.00	1/2	158	100699.00	1/4	73,109	101966.00	1/4	24	103019.00	1/3	20	108092.00	1.5	153
098067.00	1/2	158	100700.00	1/3	73,109	101981.00	1/4	24	103020.00	1/2	20	108226.00	1/2	85,154
098069.00	3/4	153	100701.00	1/2	73,109	102012.00	1/6	62	103021.00	1/3	26	108227.00	1/2	85,154
098375.00	1/4	85,154	100704.00	1/2	108	102013.00	1/6	62	103022.00	1/2	26	108228.00	3/4	85,154
098376.00	1/3	85,154	100722.00	1	124	102014.00	1/4	62	103023.00	1/3	65	108229.00	3/4	85,154
098377.00	1/4	153	100723.00	1	124	102015.00	1/4	62	103024.00	1/2	65	108230.00	1	85,154
098378.00	1/3	153	100767.00	1/3	73,109	102016.00	1/3	62	103025.00	3/4	65	108231.00	1	85,154
098379.00	1/2	153	100768.00	1/2	73									



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108423.00	1/4	85,154	110042.00	1.5	64	110411.00	1/2	64	111444.00	1.5	133	113300.00	1.5	85
108424.00	1/3	85,154	110043.00	1	24	110412.00	3/4	64	111611.00	2	133	113301.00	1.5	76
108455.00	1	158	110044.00	1.5	24	110413.00	3/4	64	111630.00	3	25	113302.00	1	76
108456.00	1	158	110047.00	3/4	24	110414.00	3/4	64	111915.00	1	103	113311.00	1/3	24
108457.00	1.5	158	110048.00	1	24	110415.00	1	64	111916.00	2	21	113333.00	1.5	63
108458.00	2	158	110052.00	1	104	110416.00	1	64	111917.00	1/2	104	113334.00	3	64
108502.00	3	153	110054.00	1	103	110418.00	1.5	64	111918.00	1	104	113335.00	2	64
108700.00	1/4	168	110057.00	3/4	64	110419.00	1.5	64	111919.00	1/2	73,109	113336.00	1.5	64
108701.00	1/4	168	110058.00	1	64	110420.00	1.5	64	111922.00	1	121	113337.00	1	64
108702.00	1/4	168	110059.00	1	62	110421.00	2	64	111923.00	3/4	121	113373.00	1	109
108703.00	1/4	168	110064.00		131	110422.00	2	64	111926.00	1	121	113473.00	1/2	86
108704.00	1/4	168	110065.00		131	110423.00		131	111929.00	1/2	121	113580.00	1/3	85
108705.00	1/4	168	110066.00		131	110424.00		131	111930.00	1/2	121	113581.00	1/2	85
108706.00	1/4	168	110086.00	1/2	72	110425.00	1/3	20	111931.00	1/3	121	113582.00	3/4	85
108707.00	1/2	168	110087.00	3/4	72	110426.00	1	20	111932.00	1/3	121	113583.00	1	85
108708.00	1/2	168	110088.00	1	72	110429.00	1.5	20	111933.00	1/2	121	113584.00	1.5	85
108709.00	1/2	168	110089.00	1.5	72	110430.00	1.5	20	111934.00	1/2	121	113586.00	1/2	86
108710.00	1/2	168	110090.00	2	72	110433.00	1.5	104	111935.00	3/4	121	113587.00	3/4	86
108711.00	1/2	168	110094.00	1.5	63	110434.00	1/2	24	111936.00	3/4	121	113588.00	1/2	86
108712.00	1/2	168	110097.00	1	62	110437.00	1.5	24	111937.00	3/4	121	113589.00	3/4	86
108729.00	1/4	168	110108.00	3/4	62	110441.00	1/3	20	111938.00	1/2	121	113590.00	1	86
108730.00	1/4	168	110109.00	1.5	63	110444.00	1.5	20	111939.00	1.5	121	113591.00	1.5	86
108731.00	1/2	168	110110.00	1.5	63	110446.00	1/3	24	111940.00	1/3	121	113592.00	2	86
108732.00	1/2	168	110111.00	1	24	110448.00	3/4	24	111941.00	1.5	121	113593.00	2	86
109065.00	1/4	161	110112.00	1	24	110451.00	2	25	111942.00	1	121	113608.00	2	103
109066.00	1/3	161	110125.00	1.5	24	110478.00	1	103	111943.00	1	121	113627.00	1.5	107
109067.00	1/3	161	110142.00	1	62	110479.00	1.5	103	111944.00	1/3	121	113630.00	1	62
109068.00	1/3	161	110143.00	1/2	102	110492.00	1/2	72	111949.00	1.5	74, 110	113631.00	1.5	63
109069.00	1/2	161	110144.00	1/2	24	110493.00	3/4	72	111950.00	1/2	116	113632.00	2	63
109070.00	1/2	161	110145.00	1	20	110494.00	1	72	111951.00	1	116	113633.00	2	103
109071.00	1/2	161	110160.00	1	106	110495.00	1.5	72	111953.00	1/2	109	113634.00	1.5	24
109072.00	3/4	161	110161.00	1.5	106	110579.00	1.5	103	111954.00	3/4	109	113637.00	1/2	124
109073.00	3/4	161	110163.00	1/2	24	110669.00	1/3	117	111955.00	1	109	113638.00	3/4	124
109074.00	3/4	161	110167.00	1	62	110670.00	1/2	117	111956.00	1/2	109	113639.00	1	124
109075.00	1	161	110176.00	1/2	133	110671.00	3/4	117	111957.00	1/2	109	113640.00	1.5	124
109076.00	1	161	110177.00	3/4	133	110679.00	1	117	111958.00	3/4	109	113641.00	2	124
109077.00	1	161	110178.00	3/4	133	110714.00	1/2	133	111959.00	3/4	109	113642.00	3/4	108
109078.00	1/4	161	110180.00	1	65	110715.00	1	133	111960.00	1	109	113643.00	1/2	109
109079.00	1/3	161	110181.00	1	26	110745.00	1.5	20	111961.00	1	109	113649.00	1/4	86
109080.00	1/3	161	110182.00	1/2	26	110852.00	1	120	111962.00	1.5	109	113672.00	3/4	109
109081.00	1/3	161	110192.00	1.5	24	110893.00	1.5	133	111963.00	1.5	109	113686.00	1.5	126
109082.00	1/2	161	110199.00	1/2	133	110901.00	1	26	112135.00	3/4	65	113687.00	1.5	126
109083.00	1/2	161	110204.00	1	133	110902.00	1.5	26	112136.00	2	64	113700.00	1.5	65,105
109084.00	1/2	161	110206.00	1	133	110905.00	3/4	65	112378.00	3/4	24	113765.00	1/3	28
109085.00	3/4	161	110209.00	1	62	110908.00	1	65	112379.00	1	24	113766.00	1/2	28
109086.00	3/4	161	110220.00	1	64	110909.00	1.5	65	112427.00	1/2	86	113767.00	3/4	28
109087.00	3/4	161	110222.00	3	106	110910.00	1.5	65	112428.00	3/4	86	113768.00	1	28
109088.00	1	161	110232.00	2	106	110912.00	1	26	112429.00	1/2	86	113769.00	1.5	28
109089.00	1	161	110241.00	3/4	126	110914.00	1/2	26	112430.00	3/4	86	113770.00	2	28
109090.00	1	161	110242.00	1	126	110915.00	3/4	26	112431.00	1/2	85	113846.00	1.5	104
109096.00	1	153	110243.00	1.5	126	110916.00	3/4	26	112432.00	3/4	85	113847.00	2	104
109097.00	1	153	110253.00	1.5	63	110917.00	1.5	26	112483.00	1/2	86	113890.00	3	25
109098.00	1/3	153	110255.00	1	133	110918.00	1.5	26	112484.00	3/4	86	113891.00	1.5	125
109099.00	1/2	153	110275.00	3/4	20	110934.00	3/4	120	112520.00	1/4	86	113892.00	2	125
109100.00	3/4	153	110276.00	3/4	62	110961.00	1	120	112521.00	1/3	86	113893.00	3	125
109101.00	1	158	110278.00	1/2	126	111074.00	1/3	120	112522.00	1	86	113894.00	2	25
109102.00	1	158	110279.00	2	126	111075.00	1/3	120	112523.00	1/4	86	113895.00	1	104
109103.00	1.5	158	110280.00	3	124,126	111084.00	1/2	120	112524.00	1	86	113896.00	1.5	104
109104.00	1.5	158	110281.00	1/2	126	111085.00	1/2	120	112526.00	1/3	85	113897.00	2	104
109105.00	1.5	158	110282.00	3/4	126	111086.00	3/4	120	112527.00	1/2	85	113901.00	1/2	131
109106.00	2	158	110283.00	1	126	111095.00	1/3	120	112528.00	3/4	85	113902.00	3/4	131
109107.00	2	158	110284.00	1.5	126	111096.00	1	120	112529.00	1	85	113903.00	1	131
109108.00	2	158	110285.00	2	126	111097.00	3/4	120	112547.00	1/3	86	113904.00	1.5	131
110000.00	1	62	110286.00	3	124,126	111098.00	1/2	120	112615.00	1	76	113905.00	2	131
110001.00	1/3	62	110288.00	1.5	124	111147.00	1	110	112626.00	1	85	113906.00	1	76
110002.00	1/2	62	110289.00	2	124	111148.00	1.5	110	112627.00	1	86	113907.00	1.5	76
110003.00	3/4	62	110292.00	1.5	124	111202.00	1/3	73,109	112643.00	1.5	86	113908.00	1	131
110004.00	1	62	110293.00	2	124	111266.00	3/4	73,109	112644.00	2	86	113909.00	1	131
110005.00	1.5	63	110308.00	3/4	64	111267.00	1	73,109	112991.00	2	75	113910.00	1	131
110006.00	1.5	63	110313.00	3/4	20	111273.00	2	25	113019.00	3/4	86	113911.00	1	131
110007.00	1	103	110352.00	2	63	111275.00	5	106	113020.00	1	86	113912.00	1	131
110009.00	1/3	62	110353.00	1/2	20	111304.00	1	75	113021.00	1.5	86	113913.00	1	131
110011.00	1/2	62	110354.00	3/4	133	111309.00	1.5	20	113022.00	3/4	86	113914.00	1	131
110013.00	3/4	62	110360.00	1	62	111310.00	2	21	113023.00	1	86	113915.00	1	131
110017.00	3/4	62	110361.00	1.5	63	111311.00	1	104	113024.00	1.5	86	113916.00	1	131
110018.00	1	62	110362.00	2	63	111321.00	1/2	73,109	113025.00	2	21	113917.00	1	131
110019.00	1.5	63	110363.00	2	63	111322.00	3/4	73,109	113026.00	2	21	113918.00	1	131
110022.00	3/4	62	110381.00	1/2	64	111323.00	1/2	73,109	113027.00	1	103	113919.00	1	131
110023.00	1	62	110382.00	3/4	64	111324.00	3/4	73,109	113028.00	3/4	125	113920.00	1	131
110025.00	1/2	103	110384.00	1	64	111326.00	1/2	116	113029.00	1	125	113921.00	1	131
110026.00	3/4	103	110387.00	1.5	64	111327.00								

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Catalog Number	HP	Page	Catalog Number	HP	Page	Catalog Number	HP	Page	Catalog Number	HP	Page	Catalog Number	HP	Page
113931.00	2	65	114562.00	1	88	116464.00	3/4	87,117	116773.00	3/4	110	120331.00	1.5	117
113932.00	1.5	65	114561.00	1.5	88	116465.00	1	87,117	116774.00	3/4	87,125	120332.00	2	117
113933.00	1	20	114582.00	2	88	116466.00	1/3	87,117	116775.00	1	87,125	120341.00	3	63
113936.00		131	114614.00	3	21	116467.00	1/2	87,117	116776.00	1.5	87,125	120372.00	1.5	116
113937.00	3	131	114615.00	3	26	116468.00	3/4	87,117	116777.00	2	87,125	120373.00	2	116
113938.00	1.5	72	114616.00	2	86	116469.00	1	87,117	116778.00	3	87,125	120374.00	1.5	74, 110
113939.00	1/2	75	114617.00	1/4	62	116482.00	1.5	92	116779.00	3/4	87,125	120375.00	2	74, 110
113954.00	1/3	86	114618.00	1/2	20	116483.00	1/2	92,117	116780.00	1	87,125	120376.00	3	74, 110
113955.00	1/2	124	114620.00	1/2	73	116484.00	1	92,117	116781.00	1.5	87,125	120377.00	1.5	74, 110
113956.00	3/4	124	114624.00	3/4	26	116485.00	1/3	72,105	116782.00	2	87,125	120378.00	2	74, 110
113957.00	1	124	114625.00	1/3	122	116486.00	1/2	72,105	116783.00	3	87,125	120379.00	3	74, 110
113958.00	1.5	124	114626.00	1/3	122	116487.00	3/4	72,105	116784.00	1	26	120395.00	2	63
113959.00	2	124	114627.00	1/2	122	116488.00	1	72	116785.00	1.5	26	120485.00	3/4	26
113971.00	2	121	114628.00	1/2	122	116489.00	1.5	72	116789.00	5	106	120554.00	5	106
114102.00	1/2	76	114629.00	3/4	122	116523.00	5SPL	106	116922.00	1	65	120589.00	1	85
114142.00	1/2	26	114630.00	3/4	122	116591.00	1.5	20	117118.00	1/2	95	120590.00	1.5	85
114146.00	1	117	114631.00	1	122	116592.00	1.5	26	117119.00	1/2	95	120728.00	3	107
114147.00	3/4	117	114632.00	1	122	116593.00	3	104	117120.00	3/4	95	120760.00	1	86
114148.00	3/4	117	114633.00	1.5	122	116594.00	3	21	117121.00	3/4	95	120761.00	1.5	86
114149.00	1/2	117	114634.00	1.5	122	116595.00	3	21	117122.00	1	95	120824.00	3	64,107
114150.00	1/2	117	114635.00	2	122	116599.00	1	103	117123.00	1	95	120855.00	2	72
114151.00	1/3	117	114636.00	3	122	116600.00	1.5	103	117126.00	1/2	95	120867.00	2	63
114152.00	1/2	117	114637.00	2	85	116601.00	2	103	117127.00	1/2	95	120879.00	2	63
114154.00	1/2	117	114638.00	1	24	116605.00	1/3	120	117128.00	3/4	95	120921.00	1	20
114155.00	3/4	117	114888.00	1	132	116606.00	1/3	120	117129.00	3/4	95	120922.00	1.5	20
114156.00	1/2	116	114889.00	1/3	132	116607.00	1/3	120	117130.00	1	95	120923.00	2	21
114157.00	3/4	116	114891.00	1/2	132	116608.00	1/2	120	117131.00	1	95	120925.00	1.5	107
114158.00	1/3	117	114892.00	1/2	132	116609.00	1/2	120	117266.00	1/2	92	120940.00	2	115
114159.00	1/2	117	114893.00	3/4	132	116610.00	1/2	120	117267.00	3/4	92	120941.00	1.5	115
114160.00	3/4	117	114894.00	3/4	132	116611.00	3/4	120	117269.00	1/2	92	120942.00	1	115
114161.00	1	117	114895.00	1	132	116612.00	3/4	120	117270.00	1/2	92	120943.00	1	115
114162.00	1/2	116	114896.00	1	132	116613.00	1	120	117271.00	3/4	92	120944.00	1	115
114163.00	3/4	116	114930.00	1.5	20	116614.00	1	120	117272.00	3/4	92	120945.00	1	115
114164.00	1	116	114931.00	1/2	125	116615.00	1.5	120	117273.00	1	92	120946.00	2	115
114165.00	1/3	116	114932.00	3/4	108	116616.00	2	120	117274.00	1	92	120947.00	1.5	115
114166.00	1	116	114933.00	1	108	116630.00	2	26	117275.00	1/2	92	120990.00		131
114167.00	3/4	116	114934.00	3/4	24	116631.00	3	26	117276.00	3/4	92	120992.00	2	65
114176.00	1/2	24	114995.00	2	65,105	116640.00	1/3	86	117277.00	1	92	120994.00	1.5	129
114192.00	1	104	115024.00	1.5	65,105	116641.00	1/3	86	117278.00	1.5	92	120995.00	2	129
114194.00	1.5	104	115048.00	3	65,105	116642.00	1/3	86	117279.00	1/2	92	120996.00	1	129
114196.00	2	104	115553.00	2	25	116643.00	1/2	86	117280.00	3/4	92	120997.00	2	107
114197.00	2	104	115635.00	1	92	116644.00	1/2	86	117281.00	1	92	120998.00	4	107
114198.00	1.5	26	115743.00	1/2	86	116645.00	3/4	86	117282.00	1.5	92	121001.00	1	64
114201.00	3	125	115744.00	3/4	86	116646.00	1	86	117283.00	2	92	121002.00	1	64
114202.00	2	125	115745.00	1	86	116647.00	1.5	86	117284.00	1.5	92	121003.00	1	20
114203.00	1.5	125	115746.00	1.5	86	116698.00	5	125	117285.00	2	92	121003.00	1	20,106
114204.00	3	125	115751.00	3	76,86	116699.00	5	125	117286.00	1	92	121004.00	1.5	20
114205.00	2	125	115778.00	1	110	116703.00	1.5	65,105	117287.00	1	92	121004.00	1.5	20,106
114206.00	1.5	125	115779.00	1.5	110	116704.00	2	63	117296.00	1.5	95	121005.00	2	21, 106
114207.00	1	125	115825.00	1.5	20	116705.00	3	63	117297.00	1.5	95	121008.00	2	65
114208.00	3/4	125	115826.00	2	21	116706.00	3	63	117298.00	2	95	121009.00	3/4	20
114213.00	3/4	24	115827.00	1	20	116707.00	3	65,105	117299.00	2	95	121039.00	2	86
114214.00	1.5	65,105	115828.00	2	21	116708.00	5	63	117516.00	1	93	121040.00	2	86
114215.00	2	65,105	115829.00	1.5	20	116709.00	5	65,105	117517.00	1.5	93	121060.00	3	65
114216.00	1	107	115830.00	1	20	116728.00	3/4	24	117518.00	2	93	121063.00	1.5	24
114218.00	2	26	115877.00	1	65,105	116738.00	3/4	20	118007.00	1.5	156	121064.00	1	24
114222.00	1/3	131	115878.00	2	65	116739.00	3/4	20	118008.00	2	156	121065.00	2	25
114223.00	1/3	131	115879.00	1	65,105	116740.00	1	24	118009.00	2	156	121066.00	1.5	24
114224.00	1/2	131	115976.00	3	86	116741.00	1.5	24	118010.00	3	156	121067.00	1	24
114225.00	1/2	131	116106.00	2	26	116742.00	2	24	118014.00	3	156	121070.00		131
114226.00	3/4	131	116107.00	3	26	116743.00	1.5	24	118015.00	1/3	154	121071.00	2	25
114227.00	3/4	131	116128.00	1	20	116744.00	2	25	118016.00	1/2	154	121093.00	1.5	132
114228.00	1	131	116129.00	1	20	116745.00	1	26	118017.00	1/2	154	121094.00	2	132
114229.00	1	131	116180.00	2	121,125	116746.00	1.5	26	118018.00	3/4	154	121095.00	2	132
114231.00	1.5	131	116181.00	2	120,124	116747.00	2	26	118019.00	3/4	154	121096.00	1	132
114233.00	2	131	116182.00	1.5	121,125	116748.00	1	24	120000.00	1	62	121097.00	1.5	132
114304.00	1/2	132	116183.00	1.5	120,124	116749.00	1	24	120001.00	1.5	63	121098.00	1	102
114306.00	3/4	132	116184.00	1	121,125	116750.00	1.5	24	120003.00	1	62	121099.00	1.5	102
114307.00	3/4	132	116185.00	1	120,124	116751.00	2	25	120004.00	1.5	63	121109.00	1	88
114308.00	1	132	116186.00	3/4	120,124	116752.00	1	20	120008.00	1	62	121165.00	1	88
114309.00	3/4	102	116187.00	1/2	121,125	116753.00	1.5	20	120009.00	1.5	63	121179.00	1	26
114310.00	1/3	85	116188.00	1/2	120,124	116754.00	1.5	20	120017.00	1.5	64	121180.00	1.5	26
114311.00	1/3	85	116190.00	1/2	122	116755.00	2	21	120025.00	1	62	121181.00	2	26
114312.00	1/2	85	116191.00	3/4	122	116756.00	2	21	120026.00	1.5	63	121184.00	2	64
114313.00	1/2	85	116201.00	1/2	73	116757.00	1	20	120036.00	2	63	121190.00	2	129
114314.00	3/4	85	116202.00	1	73	116758.00	1.5	20	120042.00	1.5	63	121199.00	3/4	20
114315.00	3/4	85	116340.00	3/4	26	116759.00	1.5	20	120043.00	1	62	121272.00	1	132
114316.00	1	85	116343.00	1/3	92	116760.00	2	21	120044.00	1	62	121273.00	1	132
114317.00	1	85	116344.00	1/2	92	116761.00	2	21	120060.00	2	64	121274.00	1.5	132
114318.00	1.5	85	116345.00	1/2	92	116762.00	3/4	26	120063.00	3/4	24	121275.00	1.5	132
114319.00	1.5	85	116346.00	3/4	92	116763.00	1	26	120067.00	2	63	121276.00	2	132
114394.00	1/2	88	116347.00											

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121520.00	1	20	131474.00	3	115	131987.00	5	21	140754.00	15	22	170121.60	50	133
121556.00	1	117	131475.00	5	115	131988.00	7.5	21	140755.00	10	22	170122.60	7.5	21
121569.00	1	72	131480.00	3	132	131994.00	3	72	140756.00	7.5	21	170123.60	10	22
121613.00	1	87,117	131481.00	5	132	131995.00	5	72	140767.00	7.5	27	170138.60	7.5	27
121614.00	1.5	87,117	131501.00	5	25	132042.00	5	63	140768.00	10	27	170139.60	10	27
121615.00	2	87,117	131502.00	5	27	132043.00	7.5	65	140769.00	10	27	170140.60	10	22
121616.00	1	87,117	131503.00	3	25	132044.00	7.5	63	140770.00	7.5	27	170142.60	7.5	21
121622.00	1.5	92	131504.00	3	26	132073.00	2	129	140806.00	7.5	65	170143.60	10	22
121623.00	2	92	131505.00	3	132	132079.00	3	26	140807.00	7.5	65	170144.60	10	22
121624.00	1.5	92	131506.00	3	132	132080.00	5	27	140819.00	7.5	86	170145.60	7.5	21
121625.00	2	72	131507.00	5	132	132081.00	3	26	140820.00	10	86	170146.60	10	22
121632.00	2	92	131508.00	5	132	132082.00	5	27	140821.00	10	86	170147.60	40	22
121633.00	2	92	131509.00	2	63	132083.00	3	65	140822.00	7.5	86	170148.60	50	23
121672.00	1.5	26	131515.00	2	63	132196.00	3	86	140823.00	10	86	170149.60	60	23
121673.00	2	26	131516.00	2	64	132197.00	5	86	140825.00	7.5	92	170150.60	75	23
121674.00	1	26	131517.00	5	25	132198.00	3	86	140826.00	7.5	92	170151.60	100	23
121675.00	1.5	26	131518.00	3	25	132199.00	7.5	86	140827.00	10	92	170152.60	100	23
121676.00	2	26	131519.00	3	21, 106	132200.00	5	86	140828.00	10	92	170154.60	125	23
121678.00	1	116	131520.00	5	21, 106	132201.00	5	86	140831.00	7.5	102	170155.60	125	23
121680.00	1.5	65	131526.00	1.5	63	132202.00	5	86	140832.00	7.5	102	170157.60	7.5	21
121681.00	2	65	131530.00	3	63	132203.00	7.5	86	140833.00	10	75	170158.60	7.5	21
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121795.00	1	92	131537.00	5	63	132232.00	3	102	141119.00	15	27	170167.60	10	27
121796.00	1	92	131538.00	5	63	132233.00	5	102	141120.00	7.5	86	170168.60	10	27
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121866.00	2	86	131544.00	3	64	132243.00	2	26	170003.60	25	22	170196.60	7.5	133
121867.00	1	86	131545.00	3	64	132244.00	7.5	27	170004.60	30	22	170197.60	10	133
121868.00	2	86	131548.00	1.5	72	132251.00	1.5	133	170005.60	30	22	170198.60	15	133
121869.00	1.5	86	131549.00	5	63	132252.00	2	133	170006.60	20	22	170199.60	20	133
121870.00	3	86	131553.00	2	131	132253.00	3	133	170006.60	20	22, 106	170212.60	10	133
121871.00	1.5	86	131554.00	3	131	132254.00	5	133	170007.60	20	22	170224.60	25	133
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121874.00	1.5	92	131556.00		131	140120.00	7.5	63	170009.60	25	22	170232.60	40	133
121875.00	1.5	92	131557.00		131	140130.00	7.5	74	170011.60	25	22	170239.60	60	133
121876.00	2	92	131560.00	5	63	140155.00	7.5	63	170013.60	30	22	170244.60	75	133
121877.00	2	92	131561.00	3	63	140203.00	5	72	170015.60	30	22	170253.60	100	133
121878.00	3	92	131563.00	5	129	140209.00	7.5	72	170017.60	40	22	170255.60	100	23
121879.00	1-12	95	131571.00	2	85	140223.00	5	72	170019.60	40	22	170256.60	100	23
121880.00	1-12	95	131576.00	7.5	129	140311.00	10	63	170021.60	50	23	170259.60	125	23
121881.00	2	95	131578.00	10	131	140414.00	10	72	170023.60	50	23	170260.60	125	23
121881.00	2	95	131599.00	2	131	140443.00	7	115	170025.60	60	23	170352.60	200	23
121882.00	2	95	131600.00	10	131	140444.00	10	115	170027.60	60	23	170369.60	125	23
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121909.00	1.5	95	131603.00	3	72	140447.00	7	115	170032.60	20	22	170379.60	50	27
121910.00	2	95	131604.00	3	129	140448.00	10	115	170033.60	20	22	170540.60	15	73
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121916.00	2	121	131622.00	5	63	140483.00	7.5	25	170039.60	40	22	171115.60	75	27
121917.00	2	121	131624.00	3	116	140484.00	10	25	170040.60	50	23	171116.60	5	27
121918.00	3	121	131625.00	5	116	140485.00	10	25	170041.60	50	23	171315.60	150	23
121919.00	1	122	131629.00	3	65	140486.00	7.5	25	170042.60	60	23	171316.60	200	23
121920.00	1.5	122	131630.00	5	65, 105	140521.00	7.5	27	170043.60	60	23	171320.60	3	21
121921.00	2	122	131631.00	3	65	140522.00	10	27	170044.60	75	23	171322.60	5	21
121922.00	2	122	131632.00	5	65, 105	140581.00	10	63	170045.60	75	23	171377.60	30	27
121928.00	3	26	131633.00	7.5	65, 105	140637.00	10	117	170062.60	15	22	171378.60	3	21
121929.00	3	26	131636.00	3	63	140640.00	10	74	170064.60	15	22	171379.60	5	21
121935.00	1	26	131637.00	3	63	140641.00	10	74	170065.60	15	22	171446.60	5	27
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121937.00	1	133	131640.00	3	129	140644.00	10	129	170066.60	15	22, 106	171522.60	150	23
121938.00	1	133	131641.00	5	129	140646.00	7.5	128	170067.60	15	22	171523.60	200	23
121939.00	1.5	133	131777.00	5	64	140647.00	10	128	170068.60	15	22	171564.60	3	26
121940.00	1.5	133	131778.00	5	64	140665.00	7.5	129	170070.60	20	27	171565.60	3	26
121941.00	2	133	131781.00	5	65	140666.00	10	129	170071.60	20	27	171566.60	5	27
121942.00	2	133	131847.00	5	74	140678.00	10	65	170073.60	25	27	171573.60	200	23
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128001.00	2	153	131850.00	7.5	74	140684.00	7.5	63	170097.60	50	23	171576.60	150	23
128010.00	2	153	131851.00	3	63	140685.00	10	63	170098.60	60	23	171577.60	200	23
128023.00	1	153	131853.00	3	65, 105	140694.00	10	65	170099.60	75	23	171578.60	150	23
131454.00	5	132	131855.00	3	63	140695.00	10	65	170104.60	15	27	171579.60	200	23
131459.00	3	132	131856.00	5	63	140705.00	10	75	170108.60	30	27	171580.60	125	23
131463.00	3	21, 106	131857.00	5	65, 105	140706.00	10	72	170110.60	40	27	171586.60	15	

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171594.60	50	27	174176.00		200	174444.00	5	202	174603.00	1/3	204	174763.00	15	199	
171595.60	60	27	174177.00		200	174445.00	1.5	202	174604.00	1/2	204	174764.00	15	199	
171596.60	75	27	174178.00		200	174446.00	5	202	174605.00	1	204	174766.00	20	199	
171597.60	100	27	174179.00		200	174447.00	5	202	174606.00	1/3	204	174767.00	20	199	
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171620.60	15	58	174182.00		200	174453.00	1/2	202	174609.00	1.5	204	174915.00	1	198	
171621.60	20	58	174183.00		200	174454.00	1	202	174610.00	2	204	174916.00	1.5	198	
171622.60	7.5	58	174184.00		200	174455.00	1	202	174611.00	3	204	174917.00	2	198	
171623.60	3	58	174185.00		200	174456.00	1.5	202	174612.00	1.5	204	174918.00	3	198	
171624.60	3	133	174186.00		207	174457.00	2	202	174613.00	2	204	174919.00	5	198	
171630.60	5	58	174187.00		207	174458.00	3	202	174614.00	3	204	174920.00	1	198	
171631.60	10	58	174188.00		207	174459.00	1/2	202	174615.00	5	204	174921.00	2	198	
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171642.60	1.5	20	174266.00	1.5	203	174493.00	1.5	202	174625.00	5	204	174931.00	1	198	
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174010.00	5	206	174286.00	3	203	174529.00	1.5	199	174654.00	1.5	205	174998.00	1/2	199	
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174015.00	1/2	206	174290.00	10	203	174532.00	1	199	174657.00	1.5	205	175003.00		124,216	
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174020.00	5	206	174299.00		159,211	174537.00	2	199	174662.00	10	205	175033.00		219	
174021.00	7.5	206	174306.00		208	174538.00	3	199	174663.00	1	205	175034.00		219	
174022.00	10	206	174307.00		210	174539.00	5	199	174664.00	2	205	175035.00		219	
174027.00	1	206	174308.00		210	174545.00	7.5	198	174665.00	3	205	175036.00		219	
174028.00	2	206	174311.00		210	174548.00	7.5	199	174666.00	5	205	175037.00		219	
174029.00	3	206	174314.00		210	174549.00	7.5	199	174667.00	7.5	205	175038.00		219	
174030.00	5	206	174316.00		210	174551.00	10	198	174668.00	10	205	175039.00		219	
174031.00	7.5	206	174400.00		207	174552.00	10	198	174671.00	1/2	205	175040.00		219	
174032.00	10	206	174401.00		207	174553.00	10	198	174672.00	1	205	175041.00		219	
174102.00		210	174402.00		207	174554.00	10	199	174673.00	1.5	205	175042.00		219	
174103.00		210	174403.00		207	174556.00	10	199	174674.00	2	205	175043.00		219	
174107.00		210	174404.00		207	174557.00	15	198	174675.00	3	205	175044.00		219	
174140.00		200,208	174405.00		207	174558.00	15	198	174676.00	5	205	175045.00		219	
174141.00		200	174406.00		207	174559.00	15	198	174677.00	7.5	205	175046.00		219	
174142.00		200	174407.00		207	174560.00	20	198	174678.00	10	205	175047.00		219	
174143.00		200	174408.00		207	174561.00	20	198	174693.00		208	175048.00		219	
174144.00		200	174409.00		207	174562.00	20	198	174694.00		211	175049.00		219	
174145.00		200	174410.00		207	174563.00	25	198	174695.00		211	175050.60		216	
174146.00		200	174411.00		207	174564.00	25	198	174696.00		211	175051.60		216	
174147.00		200	174412.00		207	174565.00	30	198	174697.00		208	175052.60		216	
174148.00		200	174413.00		207	174567.00	40	198	174698.00		208	175053.60		216	
174149.00		200,208	174414.00		207	174569.00	25	198	174709.00		210	175054.60		216	
174150.00		208	174415.00		207	174571.00	30	198	174729.00	3	199	175055.60		216	
174151.00		207	174416.00		207	174572.00	60	198	174730.00	5	199	175056.60		216	
174152.00		207	174417.00		208	174573.00	60	198	174732.00	5	199	175058.60		217	
174153.00		207	174418.00		208	174574.00	60	199	174734.00	7.5	199	175059.60		217	
174154.00		207	174419.00		208	174575.00	60	199	174735.00	7.5	199	175060.60		217	
174155.00		207	174422.00		209	174576.00	40	198	174737.00	10	199	175061.60		217	
174156.00		207	174429.00		15	202	174578.00	40	198	174738.00	10	199	175062.60		217
174157.00		207	174430.00		20	202	174580.00	75	198	174740.00	15	199	175063.60		217
174158.00		207	174431.00		15	202	174581.00	75	199	174741.00	15	199	175066.60		217
174159.00		207	174432.00		20	202	174582.00	100	198	174743.00	20	199	175067.60		217
174160.00		207	174433.00		25	202	174583.00	100	199	174745.00	7.5	199	175068.60		217
174161.00		207	174434.00		15	202	174584.00	125	198	174747.00	10	199	175069.60		217
174162.00		207	174435.00		20	202	174585.00	125	199	174749.00	15	199	175075.00		217
174163.00		207	174436.00		25	202	174586.00	150	198	17475					

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Catalog Number	HP	Page	Catalog Number	HP	Page	Catalog Number	HP	Page	Catalog Number	HP	Page	Catalog Number	HP	Page
175091.00		219	175581.00		119	175794.00		217	191421.00	1	90	192125.00	1	151
175092.00		219	175582.00		119	175795.00		217	191474.00	1/2	90	192133.00	1.5	151
175093.00		219	175583.00		119	175796.00		217	191475.00	1/2	90	192200.00	1	148
175094.00		219	175584.00		119	175797.00		217	191476.00	3/4	90	192201.00	1	149
175095.00		219	175585.00		119	175810.60		149	191477.00	3/4	90	192202.00	1.5	148
175097.00		219	175586.00		119	175811.60		149	191478.00	1	90	192203.00	1.5	149
175098.00		219	175587.00		119	175812.60		149	191479.00	1	90	192204.00	1.5	150
175101.00		216	175588.00		119	175817.60		150	191480.00	1.5	90	192205.00	2	148
175106.00		157	175589.00		119	175818.60		150	191481.00	1.5	90	192206.00	2	149
175107.00		157	175590.00		119	175819.60		150	191482.00	2	90	192207.00	2	150
175108.00		157	175593.00		161	175842.60		217	191483.00	2	90	192208.00	2	148
175109.00		157	175594.00		161	175843.60		216	191486.00	1	90	192209.00	3	148
175114.60		216	175595.00		161	175844.00		217	191487.00	1	90	192210.00	2	149
175115.60		216	175596.00		161	175845.00		216	191488.00	1.5	90	192211.00	3	149
175116.60		216	175597.00		161	175846.00		216	191489.00	1.5	90	192212.00	1	150
175118.60		216	175598.00		161	175847.00		218	191490.00	2	90	192213.00	2	150
175119.60		216	175599.00		161	175849.00		216	191491.00	2	90	192214.00	3	150
175120.60		216	175601.60		217	175850.00		149	191492.00	3	90	192230.00	1.5	151
175121.60		216	175602.60		216	175851.00		150	191493.00	1	90	192231.00	2	151
175127.00		219	175603.60		217	175852.00		149	191742.00	1/3	108	192232.00	2	151
175129.00		157	175604.60		216	175853.00		150	191743.00	1/2	108	192233.00	3	151
175130.00		157	175605.60		217	175854.00		149	191868.00	1/4	111	193300.60	2	148
175137.00		157	175606.60		217	175855.00		150	191869.00	1/3	111	193301.60	3	148
175139.00		118	175607.60		216	175856.00		149	191870.00	1/2	111	193302.60	3	148
175140.00		118	175608.60		216	175857.00		150	191871.00	1/3	111	193303.60	4	148
175141.00		118	175614.00		216	175869.60		217	191872.00	1/4	111	193304.60	4	148
175142.00		156	175615.00		118	175871.00		216	191873.00	1/2	111	193305.60	4	148
175143.00		156	175616.00		87,118	175872.00		216	191875.00	1/2	111	193306.60	5	148
175144.00		156	175617.00		87,118	175873.00		216	191891.00	1/4	111	193307.60	5	148
175145.00		156	175618.00		87,118	175874.00		216	191892.00	1/3	111	193308.60	5	148
175146.00		156	175641.00		218	175875.00		216	191893.00	1/2	111	193309.60	7.5	148
175156.00		159	175642.00		218	175876.00		218	191908.00	1/4	111	193310.60	7.5	148
175157.00		159	175643.00		218	175879.00		218	191909.00	1/4	111	193311.60	7.5	148
175158.00		159	175644.00		218	175880.00		218	191910.00	1/3	111	193312.60	10	148
175159.00		159	175645.00		218	175881.00		218	191911.00	1/3	111	193313.60	10	148
175177.00		118	175646.00		217	175890.60		149	191912.00	1/2	111	193314.60	10	148
175178.00		118	175647.00		217	175891.60		216	192010.00	1/4	148	193315.60	15	148
175179.00		118	175649.00		218	175892.00		218	192011.00	1/4	148	193316.60	15	148
175180.00		217	175655.60		217	175893.00		179	192012.00	1/4	148	193317.60	15	148
175181.00		217	175657.60		216	175894.00		216	192014.00	1/4	149	193318.60	20	148
175182.00		153	175658.60		216	175895.00		218	192015.00	1/4	149	193319.60	20	148
175191.60		217	175659.00		118	175896.00		218	192016.00	1/4	149	193320.60	20	148
175192.60		216	175660.00		118	175897.00		218	192017.00	1/4	150	193321.60	25	148
175193.00		159	175661.00		217	175898.00		218	192018.00	1/4	150	193322.60	25	148
175194.00		159	175662.00		218	175900.00		148	192019.00	1/4	150	193323.60	25	148
175199.60		217	175663.60		216	175901.00		148	192020.00	1/3	148	193324.60	30	148
175290.00		159,211	175664.60		217	175902.00		148	192021.00	1/3	148	193325.60	30	148
175291.00		159,211	175665.60		218	175903.00		148	192022.00	1/3	148	193326.60	30	148
175292.00		159,211	175666.60		218	175911.60		150	192024.00	1/3	149	193327.60	40	148
175294.00		217	175667.60		218	175932.00		217	192025.00	1/3	149	193328.60	40	148
175297.00		217	175668.60		218	175933.00		217	192026.00	1/3	149	193329.60	40	148
175298.00		124,216	175674.00		218	175955.60		216	192027.00	1/3	150	193330.60	50	148
175302.00		219	175675.00		218	175956.60		216	192028.00	1/3	150	193331.60	50	148
175303.00		217	175676.00		218	175957.60		216	192029.00	1/3	150	193332.60	50	148
175304.00		217	175677.00		218	175958.60		217	192030.00	1/2	148	193333.60	2	149
175305.00		216,217	175678.00		218	175959.60		216	192031.00	1/2	148	193334.60	3	149
175310.00		209	175684.00		218	175960.00		218	192032.00	1/2	148	193335.60	3	149
175311.00		209	175685.00		218	175961.00		216	192034.00	1/2	149	193336.60	4	149
175318.00		209	175686.00		218	175962.00		216	192035.00	1/2	149	193337.60	4	149
175319.00		209	175687.00		218	175963.00		216	192036.00	1/2	149	193338.60	4	149
175320.00		209	175691.00		217	175969.00		217	192037.00	1/2	150	193339.60	5	149
175321.00		209	175693.00		217	175990.60		149	192038.00	1/2	150	193340.60	5	149
175322.00		209	175694.00		216	175994.60		149	192039.00	1/2	150	193341.60	5	149
175323.00		209	175695.00		216	175995.60		149	192040.00	3/4	148	193342.60	7.5	149
175324.00		209	175696.00		118	191200.00		1/3 90	192041.00	3/4	148	193343.60	7.5	149
175325.00		209	175697.00		118	191201.00		1/3 90	192042.00	3/4	148	193344.60	7.5	149
175326.00		209	175698.00		118	191202.00		1/3 90	192044.00	3/4	149	193345.60	10	149
175394.60		217	175699.00		118	191203.00		1/2 90	192045.00	3/4	149	193346.60	10	149
175396.60		216	175710.00		118	191204.00		1/2 90	192046.00	3/4	149	193347.60	10	149
175454.60		217	175711.00		118	191205.00		1/2 90	192047.00	3/4	150	193348.60	15	149
175455.60		216	175720.00		210	191206.00		3/4 90	192048.00	3/4	150	193349.60	15	149
175558.00		218	175721.00		210	191207.00		3/4 90	192049.00	3/4	150	193350.60	15	149
175563.00		119	175722.00		210	191208.00		3/4 90	192050.00	1	148	193351.60	20	149
175564.00		119	175755.00		218	191209.00		1 90	192051.00	1	148	193352.60	20	149
175565.00		119	175762.00		118	191211.00		1 90	192054.00	1	149	193353.60	20	149
175566.00		87,119	175763.00		118	191213.00		1 90	192055.00	1	149	193354.60	25	149
175567.00		87,119	175764.00		118	191215.00		1.5 90	192057.00	1	150	193355.60	25	149
175568.00		87,119	175765.00		118	191217.00		1.5 90	192058.00	1	150	193356.60	30	149
175569.00		119	175766.00		118	191219.00		1.5 90	192060.00	1.5	148	193357.60	30	149
175570.00		119	175767.00		118	191221.00		2 90	192064.00	1.5	149	193358.60	2	150
175571.00		119	175771.00		87, 118	191223.00		2 90	192067.00	1.5	150	193359.60	3	150
175572.00		87,119	175772.00		87, 118	191225.00		2 90	192088.00	1/4	151	193360.60	3	150
175573.00		87,119	175773.00		87, 118	191290.00		1 90	192089.00	1/4	151	193361.60	4	150
175574.00		87,119	175775.00		218	191291.00		1 90	192097.00	1/3	151	193362.60	4	150
175575.00		119	175786.00		217	191414.00		1/2 90	192098.00	1/3	151	193363.60	4	150
175576.00		119	175787.00		217	191415.00								

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193369.60	7.5	150	811569.00	75	58	5KCP39NGAA44S	3/4	112	G121670.00	2	24	G140618.00	7.5	
193370.60	10	150	811570.00	100	58	5KCP39NG656S	1/2	112	G121679.00	1	117	G140619.00	10	
193371.60	10	150	811571.00	100	58	5KCP39NGU724S	1/3	113	G121739.00	2	95	G140622.00	7.5	130
193372.60	10	150	825071.00	5	122	5KCP39PFM210S	3/4	113	G121740.00	2	95	G140623.00	10	130
193373.60	15	150	825072.00	7.5	122	5KCP39PGL795S	1/2	112	G121748.00	1-1/2	95	G140635.00	10	116
193374.60	15	150	825073.00	7.5	122	5KCP39PGL811S	1/2	112	G121749.00	1-1/2	95	G140636.00	10	117
193375.60	15	150	825074.00	10	122	5KCP39PGN091S	3/4	112	G121846.00	1.5	128	G140638.00	10	116
193376.60	20	150	825075.00	10	122	5KCP39PGN092S	3/4	112	G121847.00	2	128	G140639.00	10	117
193377.60	20	150	825076.00	15	122	5KCP39PGN655S	1/2	112	G121849.00	3	128	G140655.00	10	128
193378.60	25	150	825077.00	15	122	5KCP39PGN658S	3/4	112	G121850.00	1	129	G140656.00	15	128
193379.60	3	151	825078.00	20	122	5KCP39PGS618S	1/2	112	G121851.00	1.5	129	G140667.00	7.5	128
193380.60	4	151	825079.00	20	122	5KCP39RGU718S	1/2	113	G121852.00	2	129	G140668.00	10	128
193381.60	4	151	825080.00	25	122	5KCP39RGU723S	1/2	113	G121853.00	2	129	G140688.00	10	25
193382.60	5.5	151	825081.00	25	122	5KCP39RGT799S	1/2	113	G121854.00	3	129	G140689.00	15	25
193383.60	5.5	151	825082.00	30	122	5KCP39SGL794S	3/4	112	G121855.00	1	130	G140690.00	10	25
193384.60	7.5	151	825083.00	40	122	5KCP39SGL938S	3/4	112	G121856.00	1.5	130	G140691.00	15	25
193385.60	7.5	151	825084.00	50	122	5KCP39SGT039S	3/4	112	G121857.00	2	130	G140733.00	7.5	87
193386.60	10	151	825085.00	3	123	5KCP39SGU717S	3/4	113	G121858.00	1.5	130	G140734.00	10	87
193387.60	10	151	825086.00	5	123	5KCP39SGU725S	3/4	113	G121859.00	2	130	G140735.00	10	87
193388.60	15	151	825087.00	5	123	5KCP39SGY805S	3/4	113	G121860.00	3	130	G140736.00	15	87
193389.60	15	151	825088.00	7.5	123	E175921.00		29	G131465.00	3	133	G140737.00	10	86
193390.60	20	151	825089.00	7.5	123	E175922.00		29	G131466.00	5	133	G140738.00	15	86
193391.60	20	151	825090.00	10	123	E175923.00		29	G131478.00	1	20	G140740.00	7.5	92
193392.60	25	151	825091.00	10	123	E175924.00		29	G131479.00	1.5	20	G140741.00	7.5	92
193393.60	25	151	825092.00	15	123	E175925.00		29	G131489.00	3	25	G140742.00	10	92
193394.60	30	151	825093.00	15	123	E175927.00		29	G131490.00	5	25	G140743.00	10	92
193395.60	30	151	825094.00	20	123	E175928.00		29	G131491.00	3	25	G140764.00	15	130
193396.60	40	151	825095.00	20	123	E175929.00		29	G131492.00	5	25	G140765.00	3	25
193397.60	40	151	825096.00	25	123	E175930.00		29	G131498.00	3	133	G141113.00	7.5	25
193398.60	50	151	825097.00	25	123	E175931.00		29	G131499.00	5	133	G141121.00	10	129
193399.60	50	151	825098.00	30	123	ECB175926.00		29	G131500.00	5	133	G141122.00	10	130
810001.00	20	29	825099.00	30	123	G120024.00	1	24	G131510.00	7.5	25	G141123.00	7.5	133
810003.00	25	29	825100.00	40	123	G120032.00	1.5	133	G131513.00	3	25	G141124.00	7.5	72
810005.00	30	29	825101.00	40	123	G120034.00	2	133	G131514.00	5	25	G150261.22	15	22
810007.00	20	29	825102.00	50	123	G120035.00	2	25	G131525.00	2	25	G150263.22	20	22
810011.00	25	29	825103.00	50	123	G120037.00	1.5	24	G131558.00	3	116	G150265.22	25	22
810015.00	30	29	825104.00	60	123	G120038.00	2	25	G131559.00	5	116	G150282.22	10	22
810019.00	40	29	825105.00	60	123	G120047.00	1	133	G131562.00	3	129	G151345.60	7.5	25
810023.00	50	29	825106.00	75	123	G120061.00	2	25	G131563.00	5	129	G151346.60	7.5	25
810027.00	60	29	825107.00	75	123	G120081.00	1.5	24	G131574.00	5	129	G151347.60	10	25
810031.00	75	29	825108.00	100	123	G120082.00	1	24	G131576.00	7.5		G151348.60	10	25
810066.00	15	29	825109.00	100	123	G120098.00	1	24	G131579.00	3	130	G151349.60	15	25
810068.00	15	29	825110.00	125	123	G120105.00	1.5	24	G131580.00	5	130	G151350.60	15	25
810087.00	100	29	825111.00	125	123	G120161.00	1.5	24	G131581.00	5	130	G151351.60	20	25
810096.00	40	29	825112.00	150	123	G120172.00	1	24	G131582.00	7.5	130	G151352.60	20	25
810097.00	50	29	825113.00	150	123	G120176.00	1	133	G131594.00	7.5	86	G151355.22	5	21
810098.00	60	29	825114.00	200	123	G120177.00	1.5	133	G131595.00	5	86	G151356.22	7.5	21
810099.00	75	29	825115.00	200	123	G120178.00	2	133	G131596.00	3	86	G151361.60	15	129
810140.00	10	29	825125.00	3	122	G120329.00	1.5	117	G131597.00	5	86	G151362.60	20	129
810157.00	7.5	29	825126.00	3	122	G120330.00	2	117	G131613.00	3	117	G151380.60	15	129
810503.00	200	29	825127.00	5	122	G120370.00	1.5	116	G131614.00	5	117	G151381.60	20	129
810546.00	2	29	900282.01		211	G120371.00	2	116	G131617.00	3	117	G151382.60	25	129
810547.00	1.5	29	01130137.00	1/8	156	G120762.00	2	86	G131618.00	5	117	G151417.60	25	130
810548.00	1	29	6439191250	1/2	108	G120987.00	3	86	G131620.00	2	117	G151418.60	25	130
811320.00	3	29	6439191251	3/4	108	G120993.00	3	25	G131626.00	3	116	G151420.60	30	130
811322.00	5	29	6439191252	1	108	G121050.00	1	117	G131627.00	5	116	G151422.60	30	130
811367.00	100	29	6439191253	1.5	108	G121051.00	1.5	117	G131642.00	3	25	G151424.60	40	130
811369.00	125	29	6439191260	1/2	108	G121052.00	2	117	G131779.00	5	25	G151426.60	40	130
811371.00	150	29	6439191261	3/4	108	G121053.00	1.5	116	G131780.00	7.5	25	G151507.60	25	25
811516.00	250	29	6439191262	1	108	G121054.00	2	116	G131882.00	3	128	G151508.60	30	25
811529.00	300	29	6439191263	1.5	108	G121178.00	2	121	G131883.00	5	128	G151509.60	40	25
811530.00	350	29	6439191264	2	108	G121187.00	3	25	G131884.00	5	128	G151510.60	50	25
811541.00	1	58	5KCP39DGP081S	1/6	113	G121350.00	1.5	88	G131885.00	7.5	128	G151516.60	250	23
811542.00	1.5	58	5KCP39DGS375S	1/6	112	G121351.00	2	88	G131912.00	7.5	25	G151518.60	350	23
811543.00	1.5	58	5KCP39DGU716S	1/6	113	G121525.00	1.5	92	G131923.00	3	92	G151519.60	60	25
811544.00	2	58	5KCP39DGY779S	1/6	113	G121527.00	2	92	G131924.00	5	92	G151524.60	250	23
811545.00	2	58	5KCP39EGAA09S	1/4	112	G121557.00	1	117	G131949.00	5	92	G151525.60	300	23
811546.00	3	58	5KCP39EGAA10S	1/4	112	G121560.00	1.5	92	G131967.00	3	87	G151529.60	300	23
811547.00	3	58	5KCP39EGP697S	1/4	113	G121561.00	2	92	G131968.00	5	87	G151530.60	350	23
811548.00	5	58	5KCP39FGL114S	1/4	112	G121562.00	3	92	G131969.00	5	87	G151567.60	15	130
811549.00	5	58	5KCP39FGL782S	1/4	112	G121579.00	1	87	G131970.00	7.5	87	G151568.60	15	130
811550.00	7.5	58	5KCP39FGM421S	1/4	112	G121580.00	1.5	87	G131996.00	3	92	G151569.60	20	130
811551.00	7.5	58	5KCP39FGM433S	1/4	112	G121581.00	1.5	87	G131997.00	5	92	G151570.60	20	130
811552.00	10	58	5KCP39FGM599S	1/4	112	G121582.00	2	87	G131998.00	5	92	G151682.60	15	25
811553.00	10	58	5KCP39GGU714S	1/4	113	G121583.00	2	87	G132027.00	7.5	130	G151683.60	20	25
811554.00	15	58	5KCP39GGY796S	1/4	113	G121584.00	3	87	G132059.00	2	25	G151684.60	20	25
811555.00	15	58	5KCP39HGAA06AS	1/3	112	G121617.00	2	87,117	G140004.00	10	133	G151685.60	25	25
811556.00	20	58	5KCP39HGAA11AT	1/3	112	G121618.00	1.5	87,117	G140013.00	10	133	G151686.60	25	25
811557.00	20	58	5KCP39HGAA37T	1/3	112	G121626.00	1	92	G140108.00	10	25	G151687.60	30	25
811558.00	25	58	5KCP39HGP698S	1/3	113	G121627.00	1.5	92	G140109.00	10	25	G151736.60	1.5	130
811559.00	25	58	5KCP39HGU722S	1/4	113	G121628.00	1.5	92	G140465.00	10	86	G151737.60	2	130
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G151752.60	30	130	M1120014.00	1/10	155	M1125274.00	1/4	172	M1135250.00	1/8	169	MT1152.00	1.5	127
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G191226.00	2	90	M1120045.00	1/8	155	M1125282.00	1/15	180	M1135289.00	1/4	170			
G801028.00	25	129	M1120046.00	1/6-1/3	159	M1125283.00	1/15	180	M1135290.00	1/4	170			
G801029.00	30	129	M1120058.00	1/6	155	M1125284.00	1/15	180	M1135291.00	1/8	170			
G801030.00	40	129	M1120059.00	1/8	155	M1125285.00	1/15	180	M1135292.00	1/8	170			
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G801041.00	40	129	M1120062.00	1/4	155	M1130054.00	1/6	155	M1135294.00	1/4	170			
G801042.00	50	129	M1120181.00	1/8	155	M1130055.00	1/4	155	M1135295.00	1/4	170			
G801051.00	15	128	M1120182.00	1/8	155	M1130118.00	1/8	155	M1135296.00	1/4	170			
G801052.00	20	128	M1120183.00	1/6	155	M1130119.00	1/6	155	M1135297.00	1/4	170			
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G801054.00	30	128	M1120185.00	1/4	155	M1130136.00	1/12	156	M1140172.00	1/4	181			
G801055.00	40	128	M1120186.00	1/4	155	M1130138.00	1/6	156	M1140173.00	1/6	181			
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G801057.00	25	128	M1125003.00	1/17	164	M1130140.00	1/8	156	M1145024.00	1/15	175			
G801058.00	30	128	M1125004.00	1/17	164	M1130141.00	1/6	156	M1145025.00	1/15	175			
G801059.00	40	128	M1125005.00	1/17	164	M1130142.00	1/4	156	M1145026.00	1/15	175			
G801060.00	50	128	M1125006.00	1/17	164	M1130143.00	1/3	156	M1145027.00	1/15	175			
G825071.00	250	123	M1125033.00	1/17	164	M1130146.00	1/12	156	M1145028.00	1/15	175			
G825072.00	250	123	M1125034.00	1/17	164	M1130147.00	1/8	156	M1145029.00	1/15	175			
G825116.00	3	121	M1125035.00	1/17	164	M1130148.00	1/6	156	M1145030.00	1/6	175			
G825128.00	5	121	M1125036.00	1/17	164	M1130149.00	1/4	156	M1145031.00	1/6	175			
M002256.00	1/3	77	M1125037.00	1/17	164	M1130150.00	1/8	156	M1145032.00	1/6	175			
M002290.00	1/3	77	M1125038.00	1/8	165	M1130151.00	1/6	156	M1145033.00	1/6	175			
M009086.00	1/2	77	M1125039.00	1/8	165	M1130152.00	1/4	156	M1145034.00	1/6	175			
M009087.00	3/4	77	M1125040.00	1/8	165	M1130153.00	1/3	156	M1145035.00	1/6	175			
M009088.00	1	77	M1125041.00	1/8	165	M1130206.00	1/4	158	M1145037.00	1/6	178			
M009089.00	1.5	77	M1125046.00	1/40	164	M1130207.00	1/4	158	M1145038.00	1/6	178			
M009090.00	2	77	M1125047.00	1/20	164	M1130296.00	1/4	158	M1145039.00	1/6	178			
M009492.00	1/2	77	M1125048.00	1/20	164	M1130297.00	1/4	158	M1145040.00	1/6	178			
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M009581.00	3/4	77	M1125071.00	1/8	165	M1135041.00	1/8	169	M1145123.00	1/6	180			
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M009644.00	1	73	M1125074.00	1/8	165	M1135044.00	1/4	169	M1145126.00	1/6	180			
M009782.00	1	77	M1125080.00	1/15	178	M1135045.00	1/4	169	M1145127.00	3/4	180			
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M090085.00	1/3	73	M1125082.00	1/15	178	M1135053.00	1/12	169	M1145129.00	3/4	180			
M090086.00	1/2	73	M1125083.00	1/15	178	M1135054.00	1/12	169	M1145130.00	3/4	180			
M090253.00	1/3	73	M1125084.00	1/15	178	M1135055.00	1/12	169	M1145131.00	3/4	180			
M090405.00	1/3	111	M1125092.00	1/20	165	M1135056.00	1/12	169	M1145138.00	5/32	175			
M090585.00	1/2	111	M1125093.00	1/20	165	M1135057.00	1/12	169	M1145139.00	5/32	175			
M090602.00	1/4	111	M1125094.00	1/20	165	M1135058.00	1/8	169	M1145140.00	5/32	175			
M092550.00	1/2	73	M1125127.00	1/15	174	M1135059.00	1/8	169	M1145141.00	3/8	178			
M092551.00	1/2	73	M1125128.00	1/15	174	M1135060.00	1/8	169	M1145142.00	3/8	178			
M09260.00	1/4	73	M1125129.00	1/15	174	M1135061.00	1/8	169	M1145143.00	3/8	178			
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M099460.00	1/4	77	M1125131.00	1/15	174	M1135063.00	1/4	169	M1145145.00	1/6	175			
M099461.00	1/3	77	M1125132.00	1/15	174	M1135064.00	1/4	169	M1145146.00	3/8	178			
M099462.00	1/2	77	M1125133.00	1/15	174	M1135065.00	1/4	169	M1145147.00	3/8	178			
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M099800.00	1/3	73	M1125214.00	1/17	164	M1135069.00	1/8	169	M1740006.00		210			
M099801.00	1/2	73	M1125215.00	1/17	164	M1135106.00	1/8	167	M1740007.00		210			
M099836.00	1/2	73	M1125216.00	1/17	164	M1135107.00	1/8	167	M1740008.00		210			
M099847.00	3/4	73	M1125217.00	1/20	165	M1135108.00	1/4	167	M1740009.00		210			
M099899.00	1/4	77	M1125218.00	1/8	165	M1135109.00	1/4	167	M1760000.00		179			
M099900.00	1/3	77	M1125219.00	1/8	165	M1135110.00	1/4	167	M1760003.00		179			
M099901.00	1/2	77	M1125220.00	1/8	165	M1135111.00	1/4	167	M1760006.00		179			
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M1110003.00	1/25	155	M1125248.00	1/8	166	M1135113.00	1/4	167	M1760011.00		179			
M1110006.00	1/20-1/10	159	M1125249.00	1/8	166	M1135114.00	1/4	167	M1760012.00		179			
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M1110024.00	1/12	156	M1125252.00	1/8	166	M1135117.00	1/4	167	M900195.00	1/4	111			
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M1115000.00	1/20	164	M1125255.00	1/20	166	M1135141.00	1/4	167	M900277.00	1/3	111			
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LM22646	50	LM24130	45	LM24467	66	LM24685	68	LM24804	78	LM25068	138
LM22647	52	LM24131	36	LM24486	80	LM24687	66	LM24805	78	LM25069	138
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## LEESON MOTOR MODEL NUMBER NOMENCLATURE

All LEESON motors, both stock and custom, have a catalog number and a model number. The model number appears on the motor's nameplate and describes pertinent electrical and mechanical features of the motor. An example follows along with a listing of the various letters and positions used.

### POSITION 1: U.L. PREFIX

- A = Auto protector. U.L. recognized for locked rotor plus run, also recognized construction (U.L. 1004)\*.
- M = Manual protector. U.L. recognized for locked rotor plus run, also recognized construction (U.L. 1004)\*.
- L = Locked rotor protector (automatic). U.L. recognized for locked rotor only, also recognized construction (U.L. 1004)\*.
- C = Component recognition. (U.L. 1004) No protector.
- U = Auto protector. U.L. recognized construction (UL1004). Motor/protector combination not UL recognized.
- P = Manual protector. U.L. recognized construction (UL1004). Motor/protector combination not UL recognized.
- T = Thermostat, not U.L. recognized.
- N = No overload protection.

\*This applies only to 48, S56, and 56 frame designs through 1 HP, Open & TENV.

### POSITION 2: (OPTIONAL)

- This position is not always used.
- M = Sub-Fractional HP Motors.
- Z = BISSC Approved.
- Other = Customer Code

### POSITION 3: FRAME

4 = 48 Frame	23 = 23 Frame	40 = 40 Frame
6 = 56 Frame	30 = 30 Frame	43 = 43 Frame
42 = 42 Frame	34 = 34 Frame	44 = 44 Frame
143 = 143T Frame	36 = 36 Frame	53 = 53 Frame
145 = 145T Frame	38 = 38 Frame	65 = 65 Frame
182 = 182T Frame	39 = 39 Frame	
184 = 184T Frame		
213 = 213T Frame		
215 = 215T Frame		
254 = 254T Frame		
256 = 256T Frame		
284 = 284T Frame		
286 = 286T Frame		
324 = 324T Frame		
326 = 326T Frame		
364 = 364T Frame		
365 = 365T Frame		
404 = 404T Frame		
405 = 405 T Frame		
444 = 444T Frame		
447 = 447T Frame		
449 = 449T Frame		

### POSITION 4: MOTOR TYPE

- C = Cap. Start/Ind. Run
- D = Direct Current
- K = Cap. Start/Cap. Run
- P = Permanent Split
- S = Split Phase
- T = Three Phase
- B = Brushless DC
- H = Hysteresis Sync.
- R = Reluctance Sync.

Odd frequencies other than 50 Hz show synchronous speed code.

DC and special motors may have one, two, or three digits indicating motor speed rounded to the nearest hundred RPM.

### EXAMPLE:

Position No.	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
Sample Model No.	<b>A</b>	<b>B</b>	<b>4</b>	<b>C</b>	<b>17</b>	<b>D</b>	<b>B</b>	<b>1</b>	<b>A</b>	<b>(A-Z)</b>

### POSITION 5: RPM

RPM-Single Speed	RPM-Multi-Speed
34 = 3450 RPM 60 Hz 2 Pole	24 = 2 and 4 Poles
28 = 2850 RPM 50 Hz 2 Pole	26 = 2 and 6 Poles
17 = 1725 RPM 60 Hz 4 Pole	82 = 2 and 8 Poles
14 = 1425 RPM 50 Hz 4 Pole	212 = 2 and 12 Poles
11 = 1140 RPM 60 Hz 6 Pole	46 = 4 and 6 Poles
9 = 950 RPM 50 Hz 6 Pole	48 = 4 and 8 Poles
8 = 960 RPM 60 Hz 8 Pole	410 = 4 and 10 Poles
7 = 720 RPM 50 Hz 8 Pole	412 = 4 and 12 Poles
7 = 795 RPM 60 Hz 10 Pole	68 = 6 and 8 Poles
6 = 580 RPM 50 Hz 10 Pole	
6 = 580 RPM 60 Hz 12 Pole	

### POSITION 6: ENCLOSURE

- D = Drip-Proof
- E = Explosion-Proof TENV
- F = Fan Cooled
- N = TENV
- O = Open
- S = Splashproof
- W = Weatherproof, Severe Duty, Chemical Duty, WASHGUARD - TEFC
- X = Explosion-Proof TEFC
- V = Weatherproof, Severe Duty, Chemical Duty, WASHGUARD - TENV

### POSITION 7: MOUNTING

- B = Rigid base standard
- C = "C" face - no base - NEMA
- D = "D" flange - no base - NEMA
- H = 48 frame - 56 frame mounting/shaft rigid
- J = 48 frame - 56 frame mounting/shaft resilient
- K = Rigid mount with "C" flange
- L = Rigid mount with "D" flange
- M = Motor parts - rotor and stator
- R = Resilient base
- S = Shell motor
- T = Round body
- Z = Special mounting

### POSITION 8: SEQUENCE NUMBER

Number assigned as required when new designs with new characteristics are needed.

### POSITION 9: MODIFICATION LETTER

Major modification letter. Used when revisions made in existing model *will* affect service parts.

### POSITION 10: (OPTIONAL)

A date code consisting of either A-Z, and two digits 00-99.

Letter when shown on nameplate indicates model has U.L. primary single phasing recognition. (Applies to 3 phase motors only.)

Code letters indicate manufacturing location:

- A = Grafton, WI
- B = Black River Falls, WI
- C = Saukville, WI
- E = Neillsville, WI
- G = Lincoln, MO
- P = West Plains, MO

## NOTES AND SYMBOLS

- A = NEMA Design A
- AG = Conforms to GM-7EH
- AH = Conforms to GM-7EH and satisfies Chrysler NPEM-100 and Ford EM-1 specifications.
- AQ = Conforms to GM-7EQ, Chrysler NPEM-100 and Ford EM-1 specifications.
- AT = Auto reset overload protection
- C = Meets or exceeds NEMA Design C starting (locked rotor) torque requirements for 1 - 200 HP, 1800 & 1200 RPM.
- D = Item to be discontinued when present stock is depleted.
- E3 = Class H Insulation
- F = Meets Ford EM1-1996 specifications
- NN = No-Nafta
- ML = Manual reset overload protection
- S = Stock item
- TT = Thermostat overload protection

Nameplated for the following operation:

- H = 208 V, 60 Hz @ 1.15 SF
- J = 208 V, 60 Hz @ 1.05 SF
- K = 208 V, 60 Hz @ 1.00 SF
- M = 380-415 V, 50 Hz @ 1.15 SF
- N = 380-415 V, 50 Hz @ 1.00 SF
- P = 208/415 V, 50 Hz @ 1.15 SF
- Q = 208/415 V, 50 Hz @ 1.00 SF
- T = 415 V, 50 Hz @ 1.15 SF
- U = 415 V, 50 Hz @ 1.00 SF
- V = 190-208/380-415, 50 Hz @ 1.15 SF
- W = 190-208/380-415, 50 Hz @ 1.00 SF
- X = 190/380, 50 Hz @ 1.15 SF
- Y = 190/380, 50 Hz @ 1.00 SF
- Z = 200/400, 50 Hz @ 1.15 SF
- ▼ = 190/380, 50 Hz at next lower HP @ 1.00 SF
- ◆ = 190/380, 50 Hz at next lower HP @ 1.15 SF
- = 190-208/380-415, 50 Hz at next lower HP @ 1.15 SF
- = 190-208/380-415, 50 Hz at next lower HP @ 1.00 SF

## THREE WAYS TO ORDER QUALITY LINCOLN MOTORS

**I. Product Number**  
LM16110

**II. Model Number**  
SF2P50TSC61YB

**III. Generic Description**  
50HP 3600RPM 326TS Steel Frame Ultimate E1® (P) TEFC 230/460/3/60 with drive end C-Face and F-2 mount.

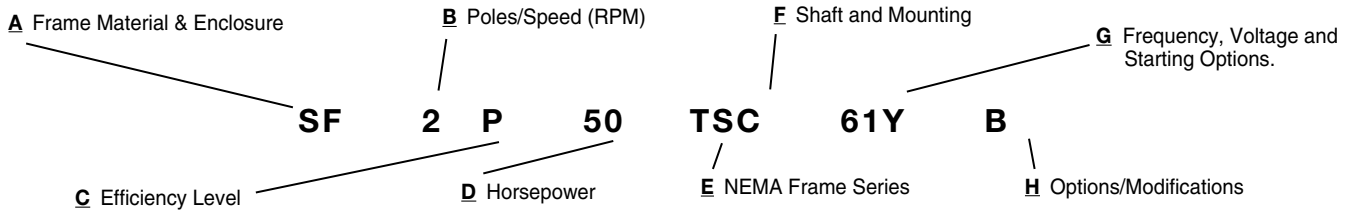
**I.** The **Product Number**, LM16110, is a unique letter and number combination that permanently identifies a motor and its options/modifications. It is assigned by the factory. Any change to a motor already assigned a Product Number dictates a different Product Number.

**II.** The **Model Number**, SF2P50TSC61YB, is a unique letter/number combination that permanently identifies a motor. Each character in conjunction with its position in the

Model Number has significance (see Quick Reference). Options/modifications are addressed by additional letters/numbers inserted in the appropriate slot.

**III.** The **Generic Description** completely describes the motor by listing HP (50), speed (3600 RPM), frame size (326TS), construction material (steel), efficiency code (P), enclosure (TEFC), voltage (230/460), frequency (60) and options/modifications (C-Face, F-2 mount).

## MODEL NUMBER - QUICK REFERENCE



**A Frame Material (first letter):** A = extruded aluminum; C = cast iron, M = steel with encapsulated windings; R (56-56H) and S (143T-449T) = steel.

**Enclosure (second letter):** A = TEAO; B = TEBC; C and F = TEFC; D = ODP; E = ODP w/encapsulated windings; EW = Wash-Thru™ motor, J and N = TENV; P = IEEE 841 Severe Duty; S = Severe Duty.

**B Poles/Speed (rpm):** this leads to motor synchronous speed  
60 Hz: 2 = 3600, 4 = 1800, 6 = 1200, 8 = 900.  
50 Hz: 2 = 3000, 4 = 1500, 6 = 1000, 8 = 750.

**C Efficiency Level:** B = exceeds NEMA MG-1 Table 12-10 values; P = meets NEMA MG-1 Table 12-10.

**D Horsepower:** Fractional thru largest available. 0.25 (1/4 HP) to 800 (800 HP).

**E NEMA Frame Series and Dimensions:**

T or U = sets frame number and dimensions in accordance with NEMA design standards.

**F Shaft and Mounting:** C = C-Face; JM & JP = NEMA Pump bracket and shaft; N = No feet; R = Resilient mount; S = NEMA short shaft.

**G Frequency (first digit):** 6 = 60 Hz; 5 = 50 Hz.

**Voltage (all digits):** 61 = 230/460; 62 = 200/400; 64 = 460; 65 = 575; 6024 = 2300/4000; 51 = 220/380; 55 = 380.

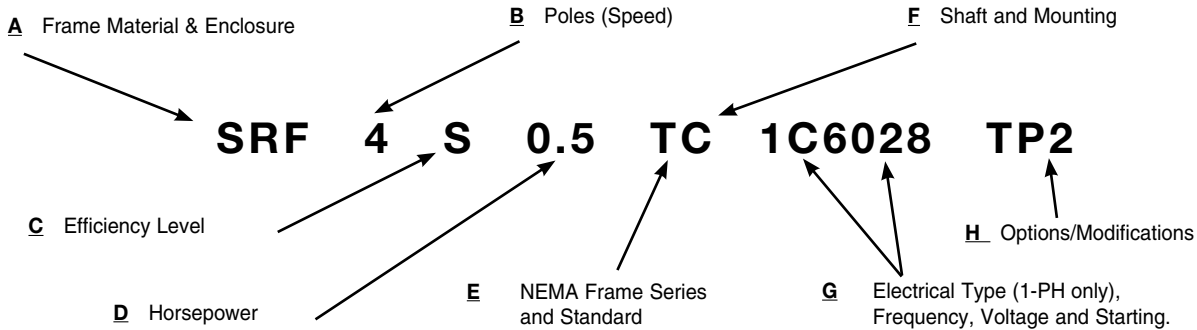
**Reduced voltage start capability:**

P = Part winding start; Y = Y delta start.

**H Options/Modifications:** Listed in alphabetical sequence.

B = F-2 mount; Q10 = CTAC® w/feedback mount provision; Q15 = CTAC w/1024 ppr encoder; Q20 = CTAC w/o encoder mount; Q40 = Premium efficient CTAC w/o encoder mount; RB = Roller Bearing.

**A TYPICAL SINGLE PHASE MOTOR MODEL NUMBER**



**A Frame Material:**

- A, AA = Extruded aluminum
- AV = Alum 63 frame
- AP = Alum 71 frame
- AR = Alum 80 frame
- C = Cast iron
- M = Steel (encapsulated windings, 284T-445T frames)
- S = Steel (143T-449T frames)

*Signature Series* Motors

- SP = Steel (48 frames)
- SR = Steel (56 frames)
- SS = Steel (143T-215T frames)
- CC = Cast iron (143T and larger)

**Enclosure (follows Frame Material\*):**

- A = TEAO
- B = TEBC
- D = ODP
- E = ODP-Encapsulated
- EW = Wash-Thru™ Motor
- F = TEFC
- RN = Steel TENV 48 frame
- N = TENV
- P = Severe Duty IEEE 841
- S = Severe Duty
- FW = TEFC, Washdown
- FX = TE, Explosion-proof
- NW = TENV, Washdown
- RA = TEAO, Steel
- NX = XP, TENV
- YF = TEFC, Metric
- PA = Steel 48 frame
- PN = Steel TENV 48 frame
- RN = Steel TENV 48 frame

**B Number of Magnetic Poles: this leads to motor synchronous speed (rpm).**

Poles	Speed	Speed
	60 Hz	50 Hz
2	3600 RPM	3000 RPM
4	1800	1500
6	1200	1000
8	900	750

Single speed motors:  
4 = 1800 (60 Hz) or 1500 (50 Hz)

Two speed motors:  
2/4/1 = 3600 and 1800 (60 Hz), one winding  
4/8/2 = 1800 and 900 (60 Hz), two windings

**C Efficiency Level:**

- B = Motors built after 12/19/10 meet NEMA Premium Table 12-12. Motors over 200 HP having a B, exceed Epack levels.
- G = Below NEMA MG-1 Table 12-10, GM7EQ
- P = Meets EPack, NEMA MG-1 Table 12-10 and GM-7EH.
- S, H = Below NEMA MG-1 Table 12-10

**D Horsepower:**

Single speed motor examples: 0.25, 0.5, 1.5, 75, 800  
 Horsepower range example: 5-7 = 5 to 7  
 Two speed motor example:  
 10/2.5 = 10 HP high speed, 2.5 HP low speed

**E NEMA Frame Series and Dimensions:**

**T or U** = sets frame number and dimensions in accordance with NEMA T or U design standards for the motor's HP, speed and enclosure.  
**E** = Metric design IEC

**F Shaft and Mounting:**

- AD = Auger drive
- C = C-Face, B14
- D = D-Flange, B5
- J = Jet Pump
- JM = JM Pump Mount
- JP = JP Pump Mount
- L = Locked bearing
- N = No feet
- R = Resilient mount
- S = NEMA short shaft
- Y = special mounting (ie. extended thru-bolts)
- Z = non-standard shaft dimensions (-1, -2, -3, etc. will appear at the end of the Model Number)

Double shaft motors are identified by two symbols, the first for the "normal drive end" and the second for the "opposite normal drive end": SD4B30TTM61Y and SD4P75TST61Y

Each end of the double shaft can have its own mounting: MD4S125TSCTSC61 and CS6P15TTMC61Y

Mounting symbols are listed in alphabetical order when more than one is specified: SSD2S25TJMN61

## G Electrical Type (Single Phase Only):

- 1A = permanent split capacitor
- 1B = capacitor start, capacitor run
- 1C = capacitor start, induction run
- 1N = split phase start, capacitor run
- 1S = split phase

### Frequency:

6\_ = 60 Hz and 5\_ = 50 Hz

### Voltage:

The specific number has no significance. Lincoln will assign the next number in sequence to a new, previously unmanufactured voltage when it is ordered.

Commonly used voltage codes:

60 Hz	50 Hz
61 = 230/460 V	51 = 220/380 V
62 = 200/400	52 = 240/415
63 = 208	53 = 230/400
64 = 460	54 = 200/400
65 = 575	55 = 380
66 = 230	56 = 400
67 = 440	57 = 415
68 = 380	58 = 440
69 = 480	59 = 220/440
6003 = 220/380	5001 = 190/380
6004 = 220/440	5007 = 346
6011 = 400V 60Hz	5012 = 550
6020 = 2300	5014 = 380-415
6021 = 4000	
6024 = 2300/4000	
6026 = 208-230/460	
6027 = 115/230	
6028 = 115/208-230	
6029 = 208-220/440	

### Reduced Voltage Start Capability:

- P = Part winding start (PWS)
- Y = Wye-delta start (YDS)
- PY = PWS and YDS

## H Options/Modifications:

If a motor has more than one Option / Modification, the symbols will appear in alphabetical order.

- AP1 CE Compliant Motor
- AP5 Fire Pump certified
- AP7 Farm Duty, High Torque
- AP8 Farm Duty, Extra High Torque
- AP9 Grain Stirring
- AP10 PSC Variable Speed

## H Options/Modifications (cont'd):

- AP11 PSC Variable Speed, expanded speed range
- AP13 UL Listed Class 1 Groups C & D and Class 2 Groups F & G, thermostats
- AP14 UL Listed Class 1 Groups C & D and Class 2 Groups F & G, auto reset thermal protector
- AP15 UL Listed Class 1 Group D and Class 2 Groups F & G, thermostats
- AP21 China sourced
- AP23 India sourced
- AP25 China sourced
- B F-2 Mount
- C\_ Ceiling Mount - NEMA position follows "C"; 1-2
- E3 Class H Insulation
- E5 Class H Insulation & High Temperature Grease
- F Fungus Proofing (Tropicalization)
- H4 Leads exit motor at 12 o'clock position
- HS Precision Dynamic Balance
- HT1 Space Heater, 120V
- HT2 Space Heater, 240 V
- K Omit Terminal Box
- L\_ Additional Lead Length - "L" followed by additional length in inches
- MB3 Insulated bearings, both ends
- MB6 Double sealed bearings, both ends
- MK\_ Brake installed on motor
- Q10 CTAC® Inverter Duty Motor with provision for mounting feedback device
- Q15 CTAC Inverter Duty Motor with factory installed Dynapar 625 1024 ppr encoder
- Q15\_ CTAC Inverter Duty Motor with factory installed encoder - letter following "Q15" represents brand and ppr rating of encoder, A through S.
- Q20 CTAC Inverter Duty motor without provision for mounting feedback device
- Q40 CTAC Inverter Duty Motor without provision for mounting feedback device
- QS10 Crop dryer (single phase, auto reset)
- QS11 Crop dryer (single phase, thermostats)
- QS12 Crop dryer (three phase, thermostats)
- RB Roller bearing on drive end
- T1 Thermostats, Class F, 3 in series
- T5 Thermostats (2) Class F
- TD1,2 RTD - Winding, 100 platinum
- TD4 RTD - Winding, 10 copper
- TD6 RTD - Winding, 120 nickel
- TP1 Overload protection, manual reset
- TP2 Overload protection, auto reset
- TX1 Thermistors, 3 in series
- W\_ Wall Mount - W followed by NEMA position number, 1-8
- X\_ Paint color deviation



## MOTOR SELECTION

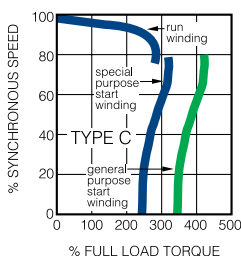
Electric motors are the workhorses of industry. Many applications exist where more than one motor can be used and/or the exact replacement is not available. LEESON makes every effort to maximize interchangeability, mechanically and electrically, where compromise does not interfere with reliability and safety standards. If you are not certain of a replacement condition, contact any LEESON Authorized Distributor or the LEESON District Sales Office.

### SELECTION

Identifying a motor for replacement purposes or specifying a motor for new applications can be done easily if the following information is known:

1. Nameplate Data
2. Motor Type
3. Electrical and Performance Characteristics
4. Mechanical Construction

### TYPICAL SPEED TORQUE CURVES



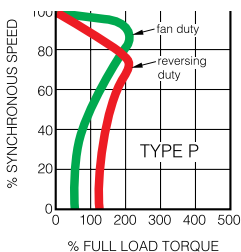
#### Capacitor Start/Induction Run

A single phase general purpose design, with an electrolytic capacitor in series with the start winding, offering maximum starting torque per ampere.

A centrifugal switch removes the auxiliary winding and capacitor when the motor approaches full load speed. The design is a heavy-duty unit which has approximately 300% (of full load) starting torque. Common applications include compressors, pumps, conveyors and other "hard-to-start" applications.

#### Capacitor Start/Capacitor Run

This design has two capacitors of different values. A centrifugal switch is used to remove the electrolytic capacitor when the motor approaches full load speed. A second run capacitor remains in series with the auxiliary winding during full load operation. This type of design has lower full-load amps as a result of the run capacitor and is consequently used on most higher horsepower single phase motors.



#### Permanent Split Capacitor (PSC)

This design has an auxiliary winding with a "run" capacitor, but unlike the capacitor start/induction run motor, the capacitor and auxiliary winding remain in the circuit under running conditions. (There is no centrifugal switch on this type motor.) A permanent split capacitor design has low starting torque and low starting current. They are generally used on direct-drive fans and blowers. They can also be designed for higher starting torque and intermittent applications, where rapid reversing is desired.

### NAMEPLATE DATA

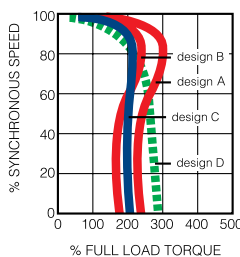
Nameplate data is the most important first step in determining motor replacement. Much of the information needed can generally be obtained from the nameplate of the motor to be replaced. Take time to record all the nameplate information because it can save time, avoid confusion and MISAPPLICATION.

### MOTOR TYPE

Alternating current (AC) induction motors are divided into two electrical categories, based on power source—single phase and polyphase (three phase). Direct current (DC) motors are used in applications where precise speed control is required or when battery or generated direct current is the available power source.

### Three Phase or Polyphase

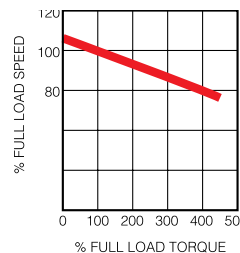
General purpose three phase motors have different electrical design classifications as defined by NEMA. NEMA Design A and B motors are of normal starting torque with normal starting current. NEMA Design C motors have higher starting torque with normal starting current. All three types have slip of less than 5%. ("Slip" being a term which expresses, as a percentage, the difference between synchronous motor speed and full load motor speed, for example, 1800 rpm synchronous versus a full load speed of



1740 rpm.

NEMA's Design B and C standards are minimum performance standards. In practice, some manufacturers (including LEESON) build small integral HP Design B motors with locked rotor and breakdown torque levels equaling NEMA Design C standards.

NEMA T frame motors 1 through 200 HP covered by EPACT (identified with a "G" catalog prefix) are labeled Design B, exceed NEMA Design B performance levels, and have efficiencies equal to EPACT mandated levels. EPACT exempt three phase, base-mounted motors are labeled Design C and have performance characteristics meeting NEMA's Design C standards, with standard motor efficiencies. Motors 250 HP and larger are exempt from EPACT legislation.



### Permanent Magnet DC

This design has linear speed/torque characteristics over the entire speed range. SCR rated motor features include high starting torque for heavy load applications and dynamic braking, variable speed and reversing capabilities. Designs are also available for use on generated low voltage DC power or remote applications requiring battery power.

## ELECTRICAL AND PERFORMANCE CHARACTERISTICS

One of the best ways to guarantee economical performance and long motor life is to make sure your motors operate at nameplate voltage. Applying too high a voltage may reduce the motor's efficiency and increase operating temperatures. The net result is shorter motor life.

Under-voltage can also shorten motor life. Operating on too low a voltage reduces the motor's effective horsepower. The motor will attempt to drive the load it was intended to drive, become overloaded, draw more current than normal, and overheat. Again, the result will be premature failure.

### ENCLOSURES AND ENVIRONMENT

**DRIP-PROOF:** Venting in end frame and/or main frame located to prevent drops of liquid from falling into motor within a 15° angle from vertical. Designed for use in areas that are reasonably dry, clean, and well ventilated (usually indoors). If installed outdoors, it is recommended that the motor be protected with a cover that does not restrict the flow of air to the motor.

**TOTALLY ENCLOSED AIR OVER (TEAO):** Dust-tight fan and blower duty motors designed for shaft mounted fans or belt driven fans. The motor must be mounted within the airflow of the fan.

**TOTALLY ENCLOSED NON-VENTILATED (TENV):** No vent openings,

tightly enclosed to prevent the free exchange of air, but not airtight. Has no external cooling fan and relies on convection for cooling. Suitable for use where exposed to dirt or dampness, but not for hazardous (explosive) locations.

**TOTALLY ENCLOSED FAN COOLED (TEFC):** Same as the TENV except has external fan as an integral part of the motor, to provide cooling by blowing air around the outside frame of the motor.

**TOTALLY ENCLOSED, HOSTILE AND SEVERE ENVIRONMENT MOTORS:** Designed for use in extremely moist or chemical environments, but not for hazardous locations.

**TOTALLY ENCLOSED BLOWER COOLED MOTORS (TEBC):** Used to extend the safe speed range of inverter-fed motors. Similar to TEFC except a small, constant-speed fan provides uniform airflow regardless of the drive motor's operating speed.

**EXPLOSION-PROOF MOTORS:** These motors meet Underwriters Laboratories and Canadian Standards Association standards for use in hazardous (explosive) locations, as indicated by the UL label affixed to the motor. Locations are considered hazardous because the atmosphere does or may contain gas, vapor, or dust in explosive quantities.

**NEMA SERVICE FACTORS**

HP	ENCLOSURE	RPM		
		3600	1800	1200
1/4-1/3	Open	1.35	1.35	1.35
1/2-3/4	Open	1.25	1.25	1.25
1 & Larger	Open	1.15	1.15	1.15
All	Totally Enclosed	1.00	1.00	1.00

Most LEESON Totally Enclosed Motors have 1.15 Service Factor. Refer to the Service Factor information on each page to identify specific totally enclosed motors with NEMA 1.00 Service Factor or LEESON 1.15 Service Factor. All drip-proof motors have NEMA Service Factors of 1.15 or higher. All three phase totally enclosed motors have NEMA Service Factors of 1.15 except when noted ( ).

**SCR PM DC MOTORS ON PWM POWER SUPPLIES**

Pulse width modulated DC controls have a voltage output similar to pure direct current which has a form factor of 1.00. SCR thyristor drives, such as the SPEEDMASTER® controls listed on page 117, have a form factor of 1.4.

LEESON stock SCR rated motors can also be used with PWM controls. In fact, the motor's HP rating can be increased because of less heating in the motor. In addition, the motor will operate quieter and the brush life will be extended.

Rated HP 1.40 FF	Rated RPM	Rated Volts	Catalog Number	Rated HP 1.05 FF
1/4	1750	90	098002	0.40
	1750	180	098003	0.50
1/3	1750	90	098004	0.50
	1750	90	108424	0.56
	1750	180	098005	0.50
1/2	2500	90	098006	0.75
	2500	180	098007	0.70
	1750	90	098000	0.70
	1750	90	108014	0.75
	1750	90	108226	0.75
	1750	180	098008	0.56
3/4	1750	180	108015	0.70
	1750	180	108015	0.70
	1750	180	108227	0.70
	2500	90	098009	1.00
	2500	90	108016	1.00
	2500	180	098010	1.00
	2500	180	108017	0.86
	1750	90	098032	1.00
	1750	90	108018	1.00
	1750	90	108228	1.25
1	1750	180	098069	1.00
	1750	180	108019	1.00
	1750	180	108229	1.25
	2500	90	108020	1.50
	2500	180	108021	1.50
	1750	90	108022	1.25
1 1/2	1750	90	108230	1.25
	1750	180	108023	1.25
	1750	180	108231	1.25
	2500	180	108265	2.00
	1750	180	108092	1.75
2	1750	180	108262	1.75
	1750	180	108232	1.75
	1750	180	128000	--
	2500	180	108266	3.00
3	1750	180	128001	--
	1750	180	128010	--
3	2500	180	128008	--
	1750	180	108502	--

**METRIC (IEC) DESIGNATIONS**

The International Electrotechnical Commission (IEC) is a European-based organization that publishes and promotes worldwide mechanical and electrical standards for motors, among other things. In simple terms, it can be said that IEC is the international counterpart to the National Electrical Manufacturers Association (NEMA), which publishes the motor standards used in the United States.

IEC standards are expressed in metric units.

**IEC ENCLOSURE PROTECTION INDEXES**

Like NEMA, IEC has designations indicating the protection provided by a motor's enclosure. However, where NEMA designations are word descriptive, such as Open Drip-Proof or Totally Enclosed Fan Cooled. IEC uses a two-digit Index of Protection (IP) designation. The first digit indicates how well-protected the motor is against the entry of solid objects, the second digit refers to water entry.

By way of general comparison, an IP22 motor relates to Open Drip-Proof, IP54 to totally enclosed.

Protection Against Solid Objects		Protection Against Liquids	
Number	Definition	Number	Definition
0	No protection	0	No protection
1	Protected against solid objects of over 50 mm (e.g. accidental hand contact)	1	Protected against water vertically dripping (condensation)
2	Protected against solid objects of over 12 mm (e.g. finger)	2	Protected against water dripping up to 15° from the vertical
3	Protected against solid objects of over 2.5 mm (e.g. tools, wire)	3	Protected against rain falling at up to 60° from the vertical
4	Protected against solid objects of over 1 mm (e.g. thin wire)	4	Protected against water splashes from all directions
5	Protected against dust	5	Protected against jets of water from all directions
6	Totally protected against dust.	6	Protected against jets of water comparable to heavy seas
		7	Protected against the effects of immersion to depths of between 0.15 and 1m
		8	Protected against the effects of prolonged immersion at depth

**IEC DESIGN TYPES**

The electrical performance characteristics of IEC Design N motors in general mirror those of NEMA Design B—the most common type of motor for industrial applications. By the same token, the characteristics of IEC Design H are nearly identical to those of NEMA Design C. There is no specific IEC equivalent to NEMA Design D.

**MOTOR EFFICIENCY TEST METHODS**

Performance data of single phase motors is determined by using I.E.E.E. Std. 114 (Method B), three phase motors by I.E.E.E. Std. 112 (Method B). Motor efficiency is calculated using CSA C390. These testing methods meet the requirements of EPACT of 1992 and most utility companies.

For complete performance data on all LEESON motors, please review the Find-A-Product section on [www.leeson.com](http://www.leeson.com).

**Motors Designed For Use In The Automotive Industry**

Automotive Duty 56 frame and U Frame motors (pages 233-240) are designed to meet automotive industry specifications from General Motors (GM-7EQ, GM-7EH), Ford (EM1) and Chrysler (NPEM-100). Actual qualifications for individual ratings are indicated in the footnotes on the price pages.

Automotive Duty T Frame motors (pages 233-240) are designed to meet or exceed Ford EM1-1996 specification (see footnotes on the price pages).

**UL Recognized Component Listing**

Low voltage (< 600 V) motors in frames 48-449T and 182U-445U listed in this catalog (excludes REW, SREW, SEW, SSEW, MD and SE models) carry UL Recognized Component Listing (contact Lincoln for file number).

Web: [www.ul.com](http://www.ul.com)

**NAFTA**

A NAFTA (North American Free Trade Agreement) Certificate of Origin can be supplied on request.

**Canadian Standards Association (CSA)**

Low voltage (< 600 V) motors in frames 48-449T and 182U-445U listed in this catalog have Canadian Standards Association approval (contact Lincoln for file number).

Web: [www.csa-international.org](http://www.csa-international.org)


**CE (Conformité Européene)**

Lincoln offers a variety of CE-compliant motors. Copies of Lincoln's Declaration of Conformity for the Low Voltage Directive and Manufacturer's Declaration for the Machinery Directive are available on request.

**Motors for Hazardous Locations**

NEMA defines an explosion-proof motor as follows: "a totally-enclosed machine designed and constructed to withstand an explosion of a specified gas or vapor which may occur within it and to prevent ignition of specified gas or vapor surrounding the machine by sparks, flashes or explosions of the specified gas or vapor which may occur within the machine casing".

Typical applications include petroleum and chemical plants or pipelines, gasoline pumps and natural gas compressors.

A **dust-ignition-proof** motor is "a totally enclosed machine whose enclosure is designed and constructed in a manner which will exclude ignitable amounts of dust or amounts which might affect performance or rating, and which will not permit arcs, sparks, or heat otherwise generated or liberated inside of the enclosure to cause ignition of exterior accumulations or atmospheric suspensions of a specific dust on or in the vicinity of the enclosure. Successful operation of this type of machine requires avoidance of overheating from such causes as excessive overloads, stalling, or accumulation of excessive quantities of dust on the machine".

Typical applications include grain elevators, coal handling equipment, feed and cereal mills, sugar refineries and chemical plants. Both types of motors are submitted to Underwriters Laboratories (UL) for approval.

The following is a brief description of the hazardous locations of both gaseous and dusty atmospheres as classified by the National Fire Protection Association's (NFPA) National Electrical Code (NEC) and printed from the 1996 Handbook. Consult the National Electrical Code for more information on explosion proof regulations.

**Class 1 Group Classifications:**

Class C - Atmospheres containing ethyl ether, ethylene, or gases or vapors of equivalent hazard.

Class D - Atmospheres such as acetone, ammonia, benzene, butane, cyclopropane, ethanol, gasoline, hexane, methanol, methane, natural gas, naphtha, propane, or gases or vapors of equivalent hazard.

**Class 2 Group Classifications:**

Group F - atmospheres containing carbonaceous dusts, including carbon black, charcoal, coal or coke dusts that have more than 8% total entrapped volatiles, or dusts that have been sensitized by other materials so that they present an explosion hazard.

Group G - atmospheres containing combustible dusts not included in Group E or F, including flour, grain, wood, plastic, and chemicals.

Lincoln Explosion-Proof motors are UL listed in the following NEC locations (indicated by ✓ mark):

Because these motors are suitable for Division 1 locations, they are also suitable for Division 2 locations of the same Class and Group.

**BAKING INDUSTRY SANITATION STANDARDS COMMITTEE**

WASHGUARD II, stainless steel washdown duty motors, NEMA frames 56, 143T, 145T, 182T and 184T are certified to Standard No. 29 for Electric Motors and Accessory Equipment, authorization number 769. The WBMQ Series of gear reducers are BISSC certified to Standard No. 29 for Electric Motors and Accessory Equipment, authorization number 941.

**SAUDI ARABIAN STANDARDS ORGANIZATION**

SCCP Ref. No.: R-100157

**The CE Mark**

**CE** is an acronym for the French phrase "*Conformite Europeene*" and is similar to the UL or CSA marks of North America. However, unlike UL or CSA which require independent laboratory testing, the CE mark can be applied by the motor manufacturer through "self certifying" that its products are designed to the appropriate standards. The European Union has issued 24 directives related to the **CE** mark. Three Directives apply to electric motors.

**Low Voltage Directive** (2006/95/EC) This directive applies to electrical equipment operating in the voltage range of 50-1000 volts AC or 75-1500 volts DC. Virtually all LEESON motors (except low voltage DC) are included in this directive.

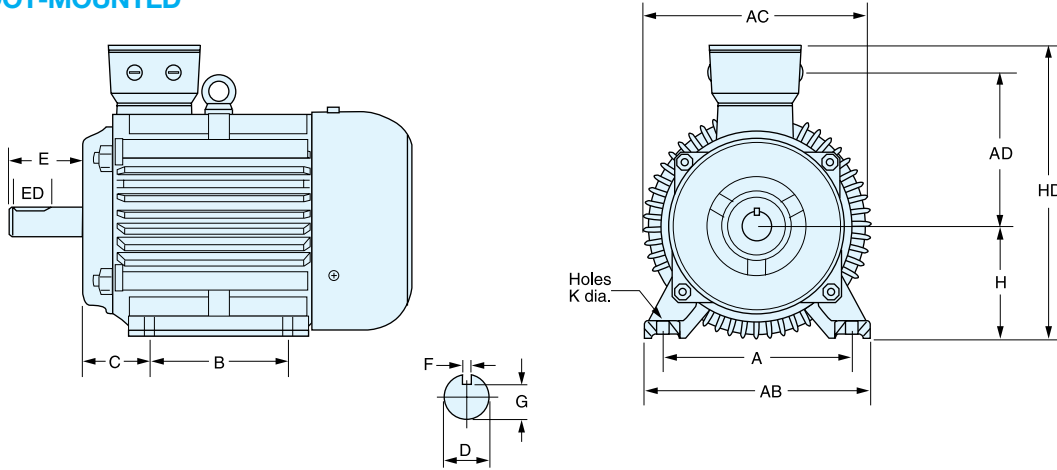
Based on our testing to the applicable electrical and mechanical standards EN60034 and IEC 34, LEESON certifies conformity to this directive. All three phase 50 Hz stock motors comply with the nameplate designations, lead markings and connection diagrams required. A "Declaration of Conformity" accompanies these motors and a CE label is applied.

**Machinery Directive** (89/3392/EEC) This directive applies to machinery that may contain certain motors. This is an issue with equipment manufacturers and requires the use of a motor meeting the Low Voltage Directive and requires a "Declaration of Incorporation" document which means that only the motor complies with the requirements of the Low Voltage Directive. A CE label is applied to the motor but it remains the responsibility of the equipment manufacturer to obtain certification for the finished product.

**Electromagnetic Compatibility (EMC) Directive** (2004/108/EC) This directive addresses the final product and is again a concern for the equipment manufacturer. Since this Directive addresses electromagnetic interference (EMI) concerns, it does not affect three phase AC motors because they do not produce EMI. DC motors, however, do produce EMI. How much of the "noise" is emitted outside the machine depends on a host of factors. LEESON's Engineering Department can assist OEM's in applying DC motors in machinery destined for Europe and requiring certification to the EMC Directive.



**B3 FOOT-MOUNTED**

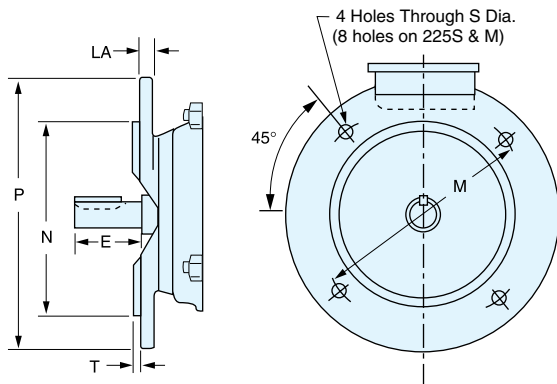


**METRIC (IEC) FRAME DIMENSIONS (Millimeters)**

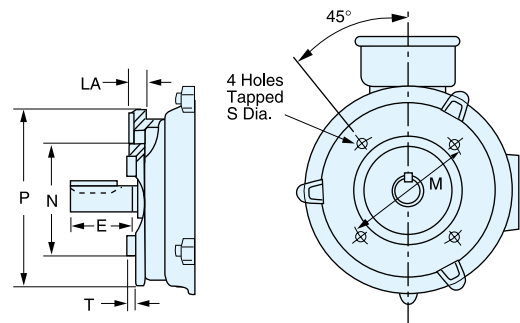
Frame	Mounting						Shaft						General			B5 Flange					B14 Face						
	A	B	C	H	AB	K	D	E	F	G	ED	DH	AC	AD	HD	M	N	P	S	T	LA	M	N	P	S	T	LA
D56	90	71	36	56	107	6	9	20	3	7.5	8	M3 x 8	-	-	-	100	80	120	7	2.5	7	65	50	80	M5	2.5	7
D63	100	80	40	63	122	7	11	23	4	8.5	10	M4 x 10	126	84	171	115	95	140	10	3.0	7	75	60	90	M5	2.5	7
D71	112	90	45	71	136	7	14	30	5	11.0	20	M5 x 12.5	141	94	191	130	110	160	10	3.5	7	85	70	105	M6	2.5	9
D80	125	100	50	80	154	10	19	40	6	15.5	25	M6 x 16	159	102	206	165	130	200	12	3.5	12	100	80	120	M6	3.0	9
D90S	140	100	56	90	172	10	24	50	8	20.0	32	M8 x 19	180	112	229	165	130	200	12	3.5	12	115	95	140	M8	3.0	9
D90L	140	125	56	90	172	10	24	50	8	20.0	32	M8 x 19	180	112	229	165	130	200	12	3.5	12	115	95	140	M8	3.0	9
DF100L	160	140	63	100	205	12	28	60	8	24.0	40	M10 x 22	205	130	270	215	180	250	15	4.0	11	130	110	160	M8	3.5	14
DF112M	190	140	70	112	230	12	28	60	8	24.0	40	M10 x 22	240	150	300	215	180	250	15	4.0	12	130	110	160	M8	3.5	11
DF132S	216	140	89	132	270	12	38	80	10	33.0	56	M12 x 28	275	180	345	265	230	300	15	4.0	12	165	130	200	M10	3.5	14
DF132M	216	178	89	132	270	12	38	80	10	33.0	56	M12 x 28	275	180	345	265	230	300	15	4.0	12	165	130	200	M10	3.5	14
DF160M	254	210	108	160	320	15	42	110	12	37.0	80	M16 x 36	330	210	420	300	250	350	19	5.0	13	215	180	250	M12	4.0	13
DF160L	254	254	108	160	320	15	42	110	12	37.0	80	M16 x 36	330	210	420	300	250	350	19	5.0	13	215	180	250	M12	4.0	13
DF180M	279	241	121	180	355	15	48	110	14	42.5	80	M16 x 36	360	236	455	300	250	350	19	5.0	15	-	-	-	-	-	-
DF180L	279	279	121	180	355	15	48	110	14	42.5	80	M16 x 36	360	236	455	300	250	350	19	5.0	15	-	-	-	-	-	-
DF200L	318	305	133	200	395	19	55	110	16	49.0	100	M20 x 42	420	260	505	350	300	400	19	5.0	18	-	-	-	-	-	-
DF225S	356	286	149	225	435	19	55*/ 60	110*/ 140	16*/ 18	49*/ 53	100*/ 125	M20 x 42	450	275	580	400	350	450	19	5.0	18	-	-	-	-	-	-
DF225M	356	311	149	225	435	19	55*/ 60	110*/ 140	16*/ 18	49*/ 53	100*/ 125	M20 x 42	450	275	580	400	350	450	19	5.0	18	-	-	-	-	-	-
DF250M	406	349	168	250		24	60*/ 65	140*/ 140	18*/ 18	53*/ 58	125*/ 125	M20 x 42	508	300	625	-	-	-	-	-	-	-	-	-	-	-	-

\* 2 Pole Dimensions

The overall length dimension for each catalog item is listed on pages 148-151 of this catalog. Frames DF100L through DF132M, conduit box is located in the center of the frame.

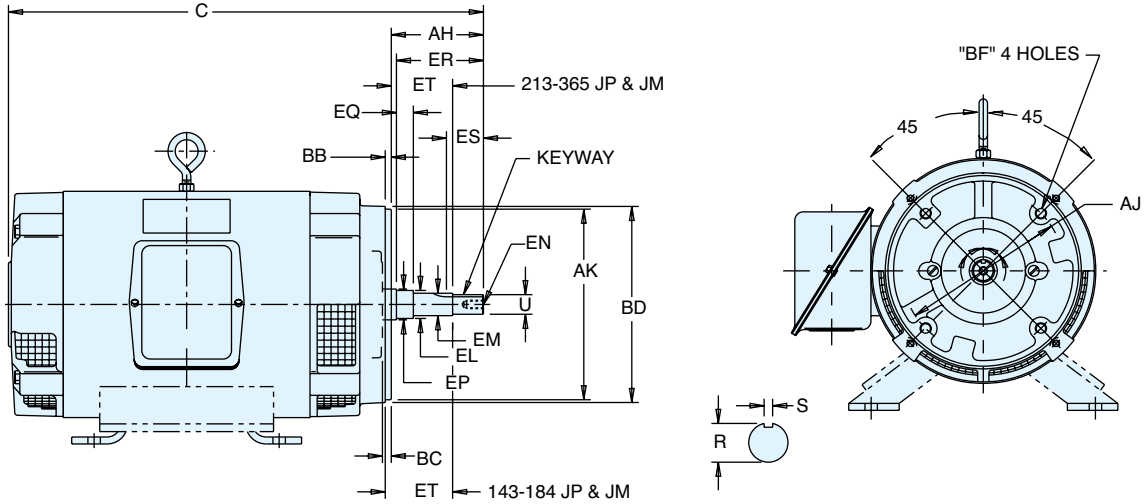


**B5 FLANGE**



**B14 FACE**

**TYPICAL CLOSE COUPLED PUMP MOTOR**



For standard NEMA base dimensions, see pages 280 and 282.

**DIMENSIONS FOR TYPE JM**

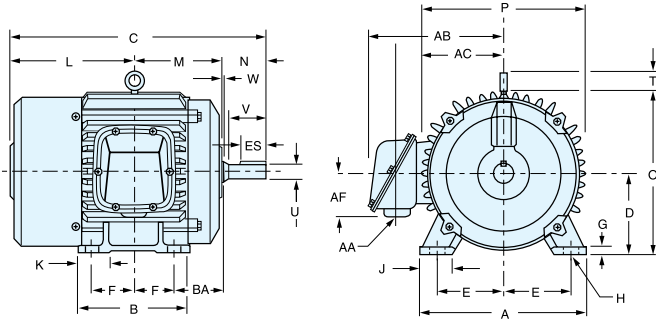
Frame Desig.	U	AH	AJ	AK	BB	BD Max.	BF			EL	EM	EN			Keyseat						
							No.	Tap Size	Bolt Pen. Allow.			Tap Size	Tap Drill Depth Max.	Bolt Pen. Allow.	EP Min.	EQ	ER Min.	R	ES Min.	S	ET
143 & 145JM	0.8745 0.8740	4.15 4.10	5.890 5.860	4.500 4.497	0.150 0.10	6.62	4	3/8-16	0.56	1.156 1.154	1.0000 0.9995	3/8-16	1.12	0.75	1.156 0.610	0.640 0.610	4.25	0.771 0.756	1.65	0.190 0.188	2.890 2.860
182 & 184JM	0.8745 0.8740	4.13 4.09	5.89 5.86	4.500 4.497	0.16 0.125	6.62	4	3/8-16	0.56	1.250 1.248	1.0000 0.9995	3/8-16	1.12	0.75	1.250 0.610	0.640 0.610	4.25	0.771 0.756	1.65	0.190 0.188	2.890 2.860
213 & 215JM	0.8750 0.8745	4.25	7.265 7.235	8.500 8.497	0.312 0.250	9.00	4	1/2-13	0.75	1.250 1.248	1.0000 0.9995	3/8-16	1.12	0.75	1.750 0.610	0.640 0.610	4.25	0.771 0.756	1.65	0.190 0.188	2.890 2.860
254 & 256JM	1.2495 1.2490	5.25	7.250	8.500 8.497	0.312 0.250	10.00	4	1/2-13	0.75	1.750 1.748	1.3750 1.3745	1/2-13	1.50	1.00	1.750 0.610	0.640 0.610	5.25	1.112 1.097	2.53	0.252 0.250	3.015 2.985
284 & 286JM	1.2495 1.2490	5.281 5.219	11.00	12.500 12.495	0.312 0.250	14.00	4	5/8-11	0.94	1.750 1.748	1.3750 1.3745	1/2-13	1.50	1.00	2.125 0.605	0.645 0.605	5.25	1.112 1.097	2.53	0.252 0.250	3.020 2.980
324 & 326JM	1.2495 1.2490	5.281 5.219	11.00	12.500 12.495	0.312 0.250	14.00	4	5/8-11	0.94	1.750 1.478	1.3750 1.3745	1/2-13	1.50	1.00	2.125 0.605	0.645 0.605	5.25	1.112 1.097	2.53	0.252 0.250	3.020 2.980

**DIMENSIONS FOR TYPE JP**

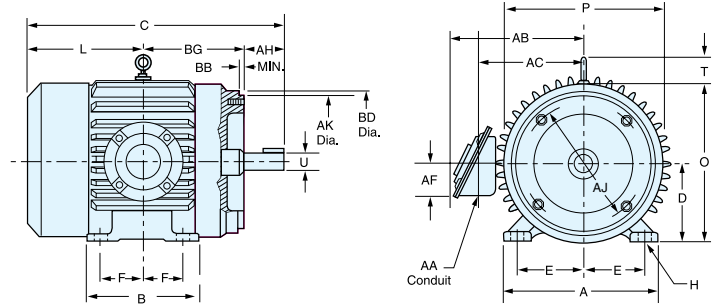
Frame Desig.	U	AH	AJ	AK	BB	BD Max.	BF			EL	EM	EN			Keyseat						
							No.	Tap Size	Bolt Pen. Allow.			Tap Size	Tap Drill Depth Max.	Bolt Pen. Allow.	EP Min.	EQ	ER Min.	R	ES Min.	S	ET
143 & 145JP	0.8745 0.8740	7.19 7.15	5.890 5.860	4.500 4.497	0.156 0.125	6.62	4	3/8-16	0.56	1.156 1.154	1.0000 0.9995	3/8-16	1.12	0.75	1.156 1.548	1.578 1.548	7.312	0.771 0.756	1.65	0.190 0.188	5.952 5.922
182 & 184JP	0.8745 0.8740	7.21 7.15	5.890 5.860	4.500 4.497	0.156 0.100	6.62	4	3/8-16	0.56	1.250 1.248	1.0000 0.9995	3/8-16	1.12	0.75	1.250 1.548	1.578 1.548	7.312	0.771 0.756	1.65	0.190 0.188	5.952 5.922
213 & 215JP	1.2495 1.2490	8.12	7.250	8.500 8.497	0.312 0.250	9.00	4	1/2-13	0.75	1.750 1.748	1.3750 1.3745	1/2-13	1.50	1.00	1.750 2.360	2.390 2.360	8.125	1.112 1.097	2.53	0.252 0.250	5.890 5.860
254 & 256JP	1.2495 1.2490	8.156 8.094	7.250	8.500 8.497	0.312 0.250	10.00	4	1/2-13	0.75	1.750 1.748	1.3750 1.3745	1/2-13	1.50	1.00	1.750 2.360	2.390 2.360	8.125	1.112 1.097	2.53	0.252 0.250	5.890 5.855
284 & 286JP	1.2495 1.2490	8.156 8.094	11.00	12.500 12.495	0.312 0.250	14.00	4	5/8-11	0.94	1.750 1.748	1.3750 1.3745	1/2-13	1.50	1.00	2.125 2.360	2.390 2.360	8.125	1.112 1.097	2.53	0.252 0.250	5.895 5.860
324JP & 326JP	1.2495 1.2490	8.12	11.00	12.500 12.495	0.312 0.250	14.00	4	5/8-11	0.94	1.750 1.748	1.3750 1.3745	1/2-13	1.50	1.00	2.125 2.355	2.395 2.355	8.125	1.112 1.097	2.53	0.252 0.250	5.895 5.855
364JP & 365JP	1.6245 1.6240	8.12	11.00	12.500 12.495	0.312 0.250	14.00	4	5/8-11	0.94	2.125 2.13	1.7500 1.7495	1/2-13	1.50	1.00	2.500 2.355	2.395 2.355	8.125	1.416 1.401	2.53	0.377 0.375	5.895 5.855

All dimensions are measured in inches. For "C" dimensions, refer to the appropriate catalog page. Certified drawings are available upon request - contact LEESON for details.

**RIGID MOUNT 158 SERIES**



**C FACE 158 SERIES**



**NEMA EXPLOSION-PROOF • 158 SERIES • RIGID MOUNT DIMENSIONS (Inches)**

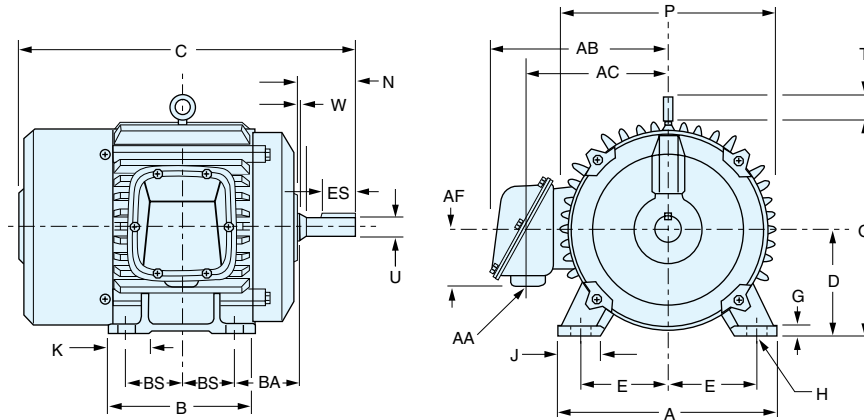
Frame Size	A	B	D	E	F	G	H	J	K	L	M	N	O	P	T	U	V	N-W	ES	AA	AB	AC	AF	BA	KEY	
182T	9	6	4 1/2	3 3/4	2 1/4	7/16	7/16	1 3/4	1 7/8	6 13/16	4 15/16	2 13/16	9 1/8	9 1/4	—	1.125	2 1/2	2 3/4	1 7/8	3/4	7 13/16	6 9/16	3 1/8	2 3/4		
184T		7			2 3/4					7 5/16	5 7/16	2 15/16														
213T	10 1/2	7	5 1/4	4 1/4	2 3/4	7/16	7/16	2	1 7/8	8 1/8	6 3/16	3 7/16	10 1/2	10 1/2	2 5/16	1.375	3 1/8	3 1/4	2 7/16	1	9 1/4	7 5/8	3 1/2	3 1/2	5/16	
215T		8 1/2			3 1/2					8 7/8	6 15/16															
254T	12 1/2	10 1/4	6 1/4	5	4 1/8	5/8	9/16	2 1/2	2 5/8	10 3/8	8 5/16	4 1/16	12 1/2	12 1/2	2 5/16	1.625	3 3/4	3 7/8	2 5/16	1 1/4	10 1/4	8 7/8	3 7/8	4 1/4		
256T		12			5					11 1/4	9 3/16															
284T	13 3/4	11 1/2	7	5 1/2	4 3/4	5/8	9/16	2 1/2	2 3/4	11 13/16	9 7/16	4 11/16	14	14	2 7/16		1.875	4 3/8	4 1/2	3 1/4	1 1/2	12 1/8	10	4 7/16	4 3/4	1/2
284TS					3 5/16					1.625	3	3 1/8					1 15/16	3/8								
286T					4 11/16					1.875	4 3/8	4 1/2					3 1/4	1/2								
286TS					3 5/16					1.625	3	3 1/8					1 15/16	3/8								
324T	15 1/2	13 1/4	8	6 1/4	5 1/4	5/8	1 1/16	2 3/4	3 1/8	13 3/16	10 7/16	5 5/16	16	16	2 5/8		2.125	5	5 1/8	4	2	14 3/8	11 3/4	5 3/8	5 1/4	
324TS					3 13/16					1.875	3 1/2	3 5/8					2	3/8								
326T					5 5/16					2.125	5	5 1/8					3									
326TS					3 13/16					1.875	3 1/2	3 5/8					2 1/16									
364T	17	15	9	7	5 5/8	7/8	1 1/16	2 3/4	3 7/8	16 1/16	11 3/8	6	18 1/2	19	12 7/8		2.375	5 5/8	5 3/4	4 1/4	3	16 1/16	13 5/16	6 7/8	5 7/8	5/8
364TS					3 7/8					1.875	3 1/2	3 5/8					2 1/16	1/2								
365T					6					2.375	5 5/8	5 3/4					4 1/4	5/8								
365TS					3 7/8					1.875	3 1/2	3 5/8					2 1/16	1/2								
405T	19	16	10	8	6 7/8	1 1/8	1 3/16	3 1/4	3 1/4	17 9/16	13 1/8	7 5/8	21 5/16	22 5/16	2 15/16		2.875	7	7 1/8	5 11/16	4	16 3/8	13 1/4	7 1/2	6 5/8	3/4
405TS					4 5/8					2.125	4	4 1/8					2 7/8	1/2								

**NEMA EXPLOSION-PROOF • 158 SERIES • C FACE DIMENSIONS (Inches)**

Frame Size	A	B	D	E	F	H	L	O	P	T	U	V	AH	AJ		BB	AK	BD	BG	AA	AB	AC	AF	KEYWAY
														DIA.	BARR.									
182T	9	6	4 1/2	3 3/4	2 1/4	7/16	6 5/8	9 1/8	9 1/4	—	1.1250	2 1/2	2 5/8	7 1/4	4	9/32	8.500	8 3/4	5 7/8	3/4	9 3/8	7 1/8	2 1/2	1/4
184T		7			2 3/4		7 1/8												6 3/8					

The condensed dimensions shown on these pages are for general reference only and are not for construction. The overall length or "C" dimension for each catalog item is included in this catalog. [Certified drawings of all ratings are available for construction purposes.](#)

**RIGID MOUNT G-SERIES**

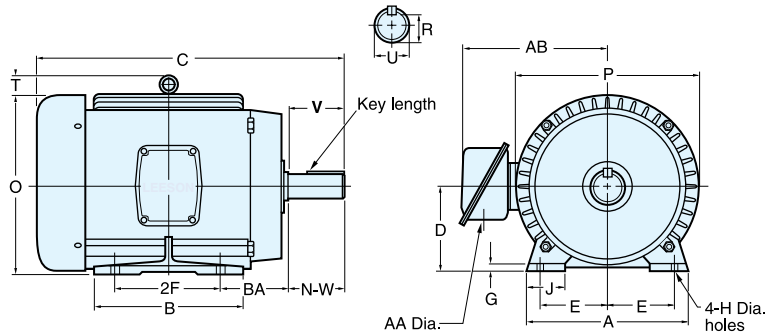


**NEMA EXPLOSION-PROOF • G-SERIES • RIGID MOUNT DIMENSIONS (Inches)**

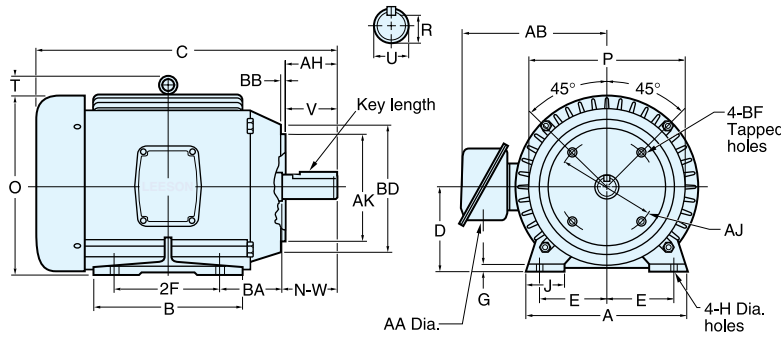
Frame Size	A	B	D	E	2F*	G	H	J	K	N	O	P	T	U	N-W	ES	AA	AB	AC	AF	BA	BS	KEY	C Dim
182T 184T	8.88	7.75	—	3.75	6.75	0.45	0.41-0.46	1.56	—	2.78	9.36	9.76	2.62	1.125	2.75	1.75	0.75	9.73	7.13	—	2.75	3.37	0.25	17.12
213T 215T	10.38	8.50	5.19 5.25	4.25	7.00	0.60	0.44	1.87	—	3.41	10.60	11.50	2.62	1.375	3.38	2.38	0.75	10.94	8.32	2.55	3.50	3.50	0.31	20.18
254T 256T	12.12	10.25	6.19 6.25	5.00	8.25 10.00	0.55	0.53-0.58	2.08	—	4.19	14.07	14.12	—	1.625	4.00	2.88	1.25	13.67	10.65	3.12	4.25	4.12 5.00	0.38	23.52 25.27
284T 284TS 286T 286TS	13.00	11.50 13.00	6.94 7.00	5.00	9.50 11.00	0.88	0.53-0.58	2.50 2.50	—	4.81 3.44 4.81 3.44	14.74	15.50	3.25	1.875 1.625 1.875 1.625	— 4.62	3.25 1.88 3.25 1.88	1.50	15.33	11.44	5.38	4.75	4.75 5.50	0.50 0.38 0.50 0.38	26.30 24.94 27.80 26.44
324T 324TS 326T 326TS	15.75	13.00 14.50	7.94 8.00	6.25	10.50 12.00	0.86	0.66-0.71	3.50 —	—	5.50 4.00 5.50 4.00	17.10	16.00	3.25	2.125 1.875 2.125 1.875	5.25 3.75 5.25 3.75	3.88 2.00 3.88 2.00	2.00	16.50	12.64	5.38	5.25	6.00	0.50 0.50	28.87 27.37 30.37 28.87
364T 364TS 365T 365TS	17.75	13.25 14.25	8.94 9.00	7.00	11.25 12.25	1.12	0.66-0.71	4.00 3.25	3.25	6.12 4.00 6.12 4.00	19.00	20.00	3.62	2.375 1.875 2.375 1.875	5.88 3.75 5.88 3.75	— 4.24	2.50	19.75	14.50	5.38	5.88	5.62 6.12	0.62	31.50 29.38 32.50 30.38
405T 405TS	19.25	16.25	—	8.00	13.75	1.12	0.81-0.86	4.25 3.75	3.75	7.50 4.50	20.87	21.75	3.62	2.875 2.125	7.25 4.25	5.62 2.75	2.50	21.50	16.38	5.38	6.62	6.88	0.75 0.50	37.12 34.12
444T 444TS 445T 445TS 449T 449TS	21.50	18.00 19.75 28.25	10.94 — 11.00	9.00	14.50 16.50 25.00	1.25 1.22 1.25	— 0.81-0.86	— 3.75	4.50 5.12 9.88	— 5.12 5.00	8.75 23.12 24.19	24.25 26.31 26.31	3.62 2.44 0.77	3.375 2.375 3.375 3.375 2.375	8.50 4.75 8.50 4.75 4.75	6.88 3.00 6.88 6.88 3.00	2.50 3.00	22.75 27.24 26.09	17.50 20.06 18.88	5.38 6.18	7.50	7.25 8.25 1.78	0.88 0.62 0.88 0.62	41.25 37.50 43.19 39.44 51.69 47.97

\* 182-4T and 213-5T frames have eight-hole bases. 449T and TS frames have six-hole bases. Others have four-hole bases.

### RIGID MOUNT 150 & 170 SERIES



### C FACE 150 & 170 SERIES



### NEMA SHAFT AND KEYWAY DIMENSIONS (Inches)

NEMA SHAFT (U)	KEYWAY DIMENSIONS (R) (S)		NEMA SHAFT (U)	KEYWAY DIMENSIONS (R) (S)	
3/8	21/64	FLAT	1-7/8	1-19/32	1/2
1/2	29/64	FLAT	2-1/8	1-27/32	1/2
5/8	33/64	3/16	2-3/8	2-1/64	5/8
7/8	49/64	3/16	2-1/2	2-3/16	5/8
1-1/8	63/64	1/4	2-7/8	2-29/64	3/4
1-3/8	1-13/64	5/16	3-3/8	2-7/8	7/8
1-5/8	1-13/32	3/8	3-7/8	3-5/16	1

■ S is keyway width.  
U minus R is keyway depth.

### NEMA CAST IRON FRAME • 150 & 170 SERIES DIMENSIONS (Inches)

Frame Size ▲	B		D	E	2F	H	N	O	P	U	N-W	AA	AB	AH	AJ	AK	BA	BB	BD	T	T	TAP	KEY																	
	TEFC	ODP																		TEFC	TS	**																		
182T	7 1/4	6 7/8	4 1/2	3 3/4	4 1/2	13/32	2 7/8	8 3/4	8 15/32	1 1/8	2 3/4	3/4	6 3/8	2 5/8	7 1/4	8 1/2	*2 3/4	1/4	8 7/8	1 9/16	2 1/2	1/2-13	1/4																	
184T					5 1/2															13/4																				
213T	7 1/2	7 1/2	5 1/4	4 1/4	5 1/2	13/32	—	10 11/16	10 13/16	1 3/8	3 3/8	1	8 5/16	3 1/8	7 1/4	8 1/2	*3 1/2	1/4	9	1 15/16	3 1/8	1/2-13	5/16																	
215T	9	9			7															2																				
254T	10 3/8	10 3/8	6 1/4	5	8 1/4	17/32	—	12 15/16	13 1/4	1 5/8	4	1 1/4	11 5/8	3 3/4	7 1/4	8 1/2	*4 1/4	1/4	9 5/8	2 19/32	3 3/4	1/2-13	3/8																	
256T					10															2 11/16																				
284TS	11 3/4	11 3/4	7	5 1/2	9 1/2	17/32	—	14 1/2	14 3/4	1 5/8	3 1/4	1 1/2	11 3/4	3	9	10 1/2	4 3/4	1/4	11	2 19/32	4 3/8	1/2-13	3/8																	
284T																																								
286TS	13 1/4	13 1/4																									1 7/8	4 5/8		4 3/8										
286T														11													1 5/8	3 1/4		3										
324TS	12 7/8	13 3/8	8	6 1/4	10 1/2	21/32	—	15 3/4	15 3/4	1 7/8	3 3/4	2	13 1/2	3 1/2	11	12 1/2	5 1/4	1/4	13 3/8	2 3/4	5	5/8-11	1/2																	
324T																																								
326TS	14 3/8	14 7/8																									2 1/8	5 1/4		5										
326T														12													1 7/8	3 3/4		3 1/2										
364TS	13 3/8	14 7/16	9	7	11 1/4	21/32	—	17 13/16	16	1 7/8	3 3/4	3	15 7/16	3 1/2	11	12 1/2	5 7/8	1/4	14	2 1/2	5 5/8	5/8-11	1/2																	
364T																																								
365TS	14 3/8	15 7/16																									2 3/8	5 7/8		5 5/8										
365T														12 1/4													1 7/8	3 3/4		3 1/2										
404TS	15 15/16	15 15/16	10	8	12 1/4	13/16	—	19 5/16	19 1/8	2 1/8	4 1/4	3	16 5/16	4	11	12 1/2	6 5/8	1/4	15 1/2	2 25/32	7	5/8-11	1/2																	
404T																																								
405TS	17 7/16	17 7/16																									2 1/8	4 1/4		4										
405T														13 3/4													2 1/8	7 1/4		7										
444T	18 11/16	20 5/8	11	9	14 1/2	13/16	—	22 1/4	22	3 3/8	8 1/2	3	21 11/16	8 1/4	14	16	7 1/2	1/4	18	3	8 1/4	5/8-11	7/8																	
444TS																																								
445T	20 5/8	20 5/8																									2 3/8	4 3/4		3										
445TS														16 1/2													3 3/8	8 1/2		3										
447T	24 3/16	29 1/8	11	9	20	13/16	—	24 1/4	26 1/2	3 3/8	8 1/2	3	25 15/16	8 1/4	14	16	7 1/2	1/4	18	3 3/16	8 1/4	5/8-11	7/8																	
449T																																								

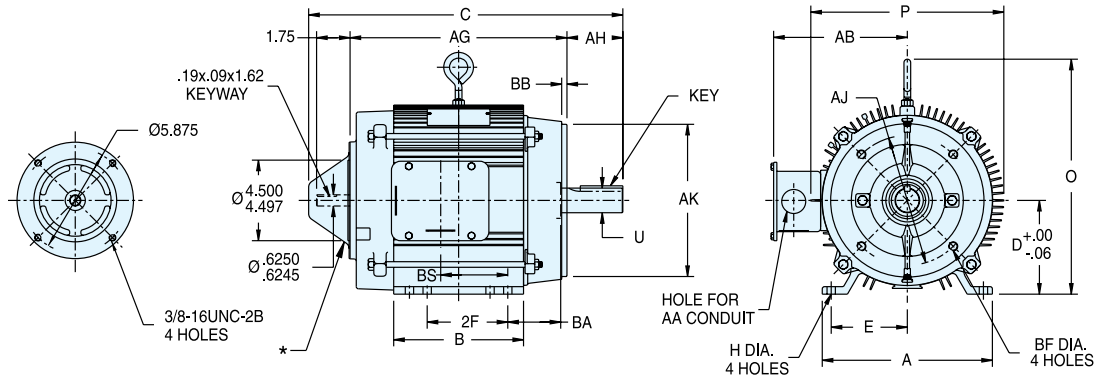
\* 182-184TC NEMA C face BA dimension is 3 1/2", 213-215TC NEMA C face BA dimension is 4 1/4", 254-256T NEMA C face BA dimension is 4 3/4".

\*\* 326TC and smaller have 4 mounting holes in NEMA C face, 364TC and larger have 8 mounting holes.

▲ Blue shading denotes dimensions established by NEMA standard MG1, others are unique to LEESON, and will vary with each manufacturer.



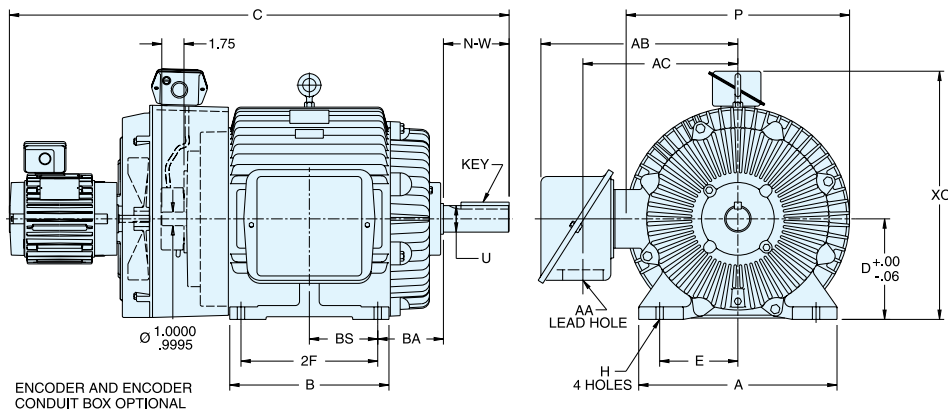
**TENV—C FACE, RIGID BASE**



**TENV • C FACE • RIGID BASE • DIMENSIONS (Inches)**

Frame Size	D	E	2F	H	O MAX.	P MAX.	U	AA	AB MAX.	AG MAX.	AH	AJ	AK	BA	BB	BF	BS	KEY
143TC	3.50	2.75	4.00	.38	7.45	7.98	.875	1.09	7.04	9.25	2.12	5.875	4.50	2.62	.13	3/8-16	2.81	.19 x .19 x 1.38
145TC	3.50	2.75	5.00	.35	7.45	7.98	.875	1.09	7.04	10.25	2.12	5.875	4.50	2.62	.13	3/8-16	3.81	.19 x .19 x 1.38
182TC	4.50	3.75	4.50	.41	9.36	9.76	1.125	1.09	8.08	11.75	2.62	7.250	8.50	3.50	.27	1/2-13	2.25	.25 x .25 x 1.75
184TC	4.50	3.75	5.50	.41	9.36	9.76	1.125	1.09	8.08	12.75	2.62	7.250	8.50	3.50	.27	1/2-13	2.75	.25 x .25 x 1.75
213TC	5.25	4.25	5.50	.44	10.97	11.50	1.375	1.09	9.31	15.12	3.12	7.250	8.50	4.25	.27	1/2-13	3.50	.31 x .31 x 2.38
215TC	5.25	4.25	7.00	.44	10.97	11.50	1.375	1.09	9.31	17.31	3.12	7.250	8.50	4.25	.27	1/2-13	6.18	.31 x .31 x 2.38
254TC	6.25	5.00	8.25	.53	14.09	14.27	1.625	1.25	9.83	19.06	3.75	7.250	8.50	4.75	.27	1/2-13	6.31	.38 x .38 x 2.88
256TC	6.25	5.00	10.00	.56	14.09	14.27	1.625	1.25	11.08	18.82	3.75	7.250	8.50	4.75	.27	1/2-13	5.00	.38 x .38 x 2.88
284TC	7.00	5.50	9.50	.56	14.16	14.32	1.875	1.50	12.31	20.57	4.38	9.000	10.50	4.75	.27	1/2-13	5.50	.50 x .50 x 3.25

**TEBC—TOTALLY ENCLOSED BLOWER COOLED, RIGID BASE**

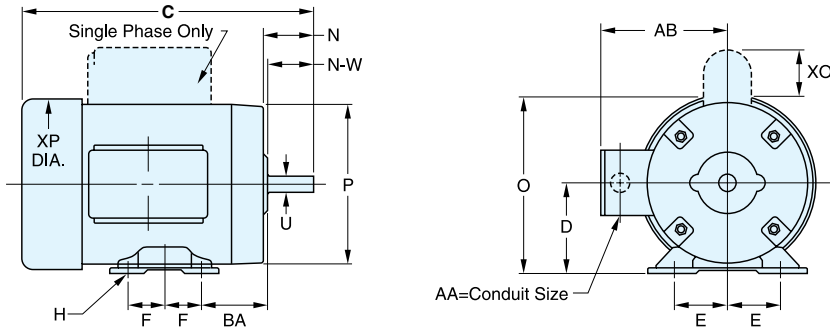


ENCODER AND ENCODER CONDUIT BOX OPTIONAL

**TEBC • TOTALLY ENCLOSED BLOWER COOLED • RIGID BASE • DIMENSIONS (Inches)**

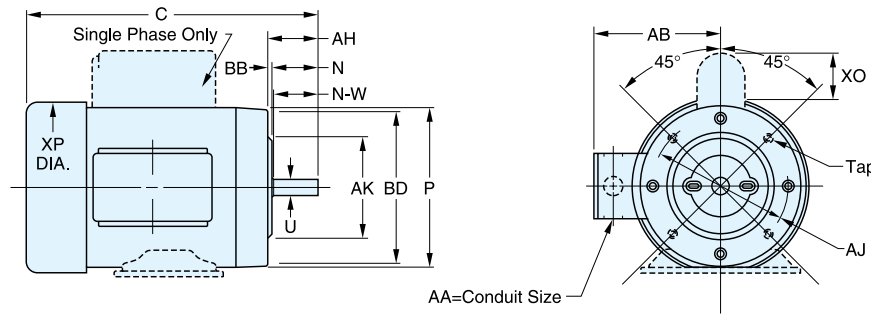
Frame Size	D	E	2F	H	O MAX.	P MAX.	U	AA	AB MAX.	AC MAX.	BA	BS	FU	N-W	KEY
325T	8.00	6.25	10.50	.66	16.00	15.88	2.12	2.00	13.69	10.69	5.25	5.25	1.00	5.25	.50 x .50 x 3.88
326T	8.00	6.25	12.00	.66	16.00	15.88	2.12	2.00	13.69	10.69	5.25	6.00	1.00	5.25	.50 x .50 x 3.88
364T	9.00	7.00	11.25	.66	19.00	20.00	2.38	3.62	17.85	14.56	5.88	5.62	1.00	5.88	.62 x .62 x 4.25
365T	9.00	7.00	12.25	.66	19.00	20.00	2.38	3.62	17.85	14.56	5.88	6.12	1.00	5.88	.62 x .62 x 4.25
404T	10.00	8.00	12.25	.81	20.88	21.75	2.88	3.62	18.75	14.75	6.62	6.12	1.00	7.25	.75 x .75 x 5.62
405T	10.00	8.00	13.75	.81	20.88	21.75	2.88	3.62	19.75	16.25	6.62	6.88	1.00	7.25	.75 x .75 x 5.62
444T	11.00	9.00	14.50	.81	24.19	25.31	3.38	3.62	20.94	17.38	7.50	7.25	1.00	8.50	.88 x .88 x 6.88
445T	11.00	9.00	16.50	.81	24.19	26.31	3.38	3.62	20.94	17.38	7.50	8.25	1.00	8.50	.88 x .88 x 6.88
449T	11.00	9.00	25.00	.81	24.22	26.31	3.38	4.62	25.90	19.31	7.50	1.78	1.00	8.50	.88 x .88 x 6.88

**RIGID MOUNT**



The condensed dimensions shown on these pages are for general reference only and are not for construction. The overall length or "C" dimension for each catalog item is included in this catalog. **Certified drawings of all ratings are available for construction purposes.**

**C FACE**



**NEMA SHAFT AND KEYWAY DIMENSIONS (Inches)**

NEMA SHAFT (U)	KEYWAY DIMENSIONS (R) (S)		NEMA SHAFT (U)	KEYWAY DIMENSIONS (R) (S)	
	(R)	(S)		(R)	(S)
3/8	21/64	FLAT	1-7/8	1-19/32	1/2
1/2	29/64	FLAT	2-1/8	1-27/32	1/2
5/8	33/64	3/16	2-3/8	2-1/64	5/8
7/8	49/64	3/16	2-1/2	2-3/16	5/8
1-1/8	63/64	1/4	2-7/8	2-29/64	3/4
1-3/8	1-13/64	5/16	3-3/8	2-7/8	7/8
1-5/8	1-13/32	3/8	3-7/8	3-5/16	1

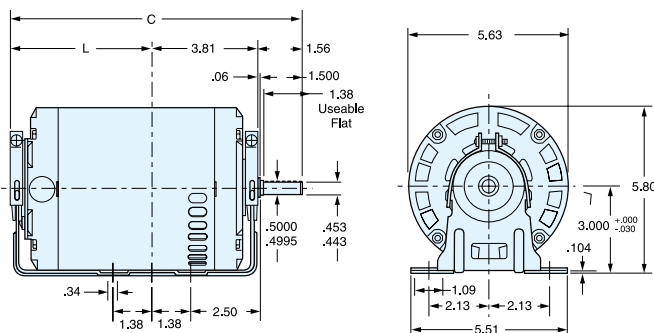
■ S is keyway width.  
U minus R is keyway depth.

**NEMA STEEL FRAME DIMENSIONS (Inches)**

Frame Size ▲	D	E	F	H	N	O	P	U	N-W	AA	AB	AH	AJ	AK	BA	BB	BD	XO	XP	TAP **	KEY
42	2 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	27 <sup>3</sup> / <sub>32</sub>	9 <sup>3</sup> / <sub>32</sub> Slot	1 <sup>3</sup> / <sub>16</sub>	5 <sup>1</sup> / <sub>16</sub>	4 <sup>7</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	1 <sup>5</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>4</sub>	3	2 <sup>1</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>8</sub>	1/4-20	3 <sup>3</sup> / <sub>64</sub> Flat
48	3	2 <sup>1</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	11 <sup>3</sup> / <sub>32</sub> Slot	1 <sup>9</sup> / <sub>16</sub>	5 <sup>13</sup> / <sub>16</sub>	5 <sup>19</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	4 <sup>7</sup> / <sub>8</sub>	1 <sup>11</sup> / <sub>16</sub>	3 <sup>3</sup> / <sub>4</sub>	3	2 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>8</sub>	5	2 <sup>1</sup> / <sub>4</sub>	5 <sup>7</sup> / <sub>8</sub>	1/4-20	3 <sup>3</sup> / <sub>64</sub> Flat
S56 56	3 <sup>1</sup> / <sub>2</sub>	2 <sup>7</sup> / <sub>16</sub>	1 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>32</sub> Slot	1 <sup>15</sup> / <sub>16</sub>	6 <sup>5</sup> / <sub>16</sub> 6 <sup>13</sup> / <sub>16</sub>	5 <sup>19</sup> / <sub>32</sub> 6 <sup>19</sup> / <sub>32</sub>	5 <sup>5</sup> / <sub>8</sub>	1 <sup>7</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	4 <sup>7</sup> / <sub>8</sub> 5 <sup>5</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>16</sub>	5 <sup>7</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>4</sub>	5 <sup>7</sup> / <sub>8</sub> 7 <sup>5</sup> / <sub>32</sub>	3/8-16	3/16
143T 145T	3 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	2 2 <sup>1</sup> / <sub>2</sub>	11 <sup>3</sup> / <sub>32</sub>	2 <sup>3</sup> / <sub>8</sub>	6 <sup>13</sup> / <sub>16</sub>	6 <sup>19</sup> / <sub>32</sub>	7 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	3/4	5 <sup>5</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>8</sub>	5 <sup>7</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>	*2 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>4</sub>	7 <sup>5</sup> / <sub>32</sub>	3/8-16	3/16
182T 184T	4 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub> 2 <sup>3</sup> / <sub>4</sub>	13 <sup>3</sup> / <sub>32</sub>	2 <sup>7</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>4</sub>	8 <sup>15</sup> / <sub>32</sub>	1 <sup>1</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>4</sub>	3/4	6 <sup>7</sup> / <sub>16</sub>	2 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>	*2 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>4</sub>	8 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	9 <sup>7</sup> / <sub>32</sub>	1/2-13	1/4
S213T 213T 215T	5 <sup>1</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub> 2 <sup>3</sup> / <sub>4</sub> 3 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>32</sub>	3 <sup>1</sup> / <sub>2</sub>	9 <sup>27</sup> / <sub>32</sub> 10 <sup>5</sup> / <sub>8</sub>	8 <sup>13</sup> / <sub>32</sub> 9 <sup>21</sup> / <sub>32</sub>	1 <sup>3</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	3/4	7 <sup>7</sup> / <sub>32</sub>	3 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>	*3 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>4</sub>	8 <sup>7</sup> / <sub>8</sub> 8 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	9 <sup>7</sup> / <sub>32</sub> 10 <sup>13</sup> / <sub>16</sub>	1/2-13	5/16

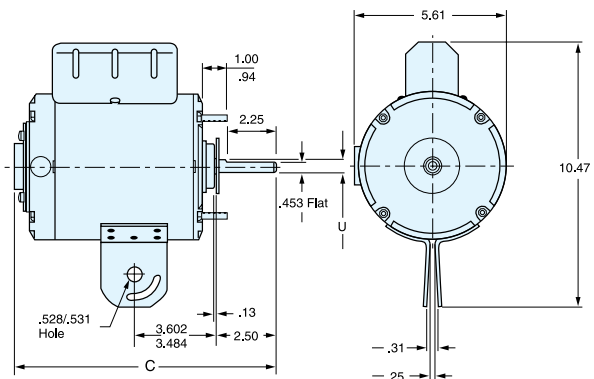
\* 143-5TC NEMA C face BA dimension is 2<sup>3</sup>/<sub>4</sub>". 182-4TC NEMA C face BA dimension is 3<sup>1</sup>/<sub>2</sub>". 213-5TC NEMA C face BA dimension is 4<sup>1</sup>/<sub>4</sub>".  
\*\* 326TC and smaller have 4 mounting holes in NEMA C face, 364TC and larger have 8 mounting holes.  
▲ Blue shading denotes dimensions established by NEMA standard MG1, others are unique to LEESON, and will vary with each manufacturer.

**Split-Phase Motors - 191868, 191869 & 191870 (page 111)**

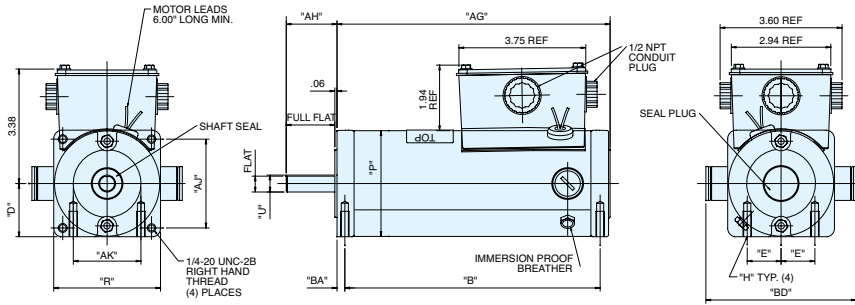


**Pedestal Fan Motors (page 111)**

Note: Motors with U = .625 have a 3/16" keyway.

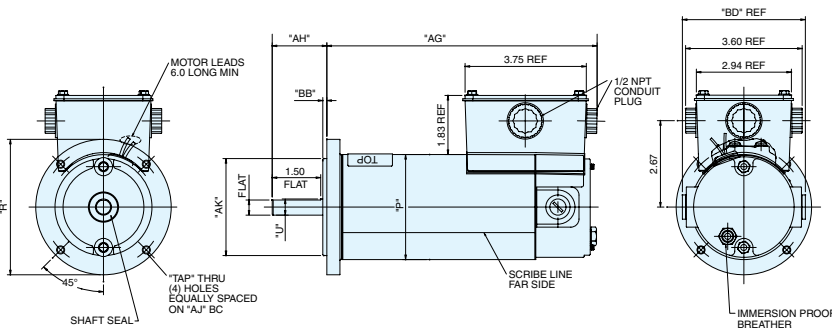


INFORMATION



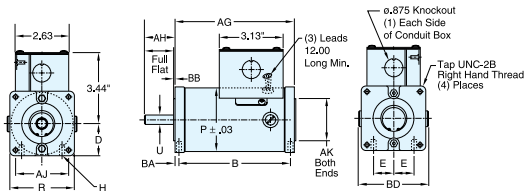
**WASHGUARD 31 FRAME SQUARE FLANGE MOUNT STYLE DIMENSIONS (Inches)**

Catalog Number	Frame	AG	P	BD	U	AH	AH-BB	AJ	Tap	R	AK	BB	D	BA	E	F	H
M1120181	31S	7.07	3.13	3.80	.50000	1.5	1.44	2.63	1/4-20	3.16	1.99	.07	1.57	.235	1.000	6.55	1/4-20
M1120182	31S	6.57	3.13	4.45	.50000	1.5	1.44	2.63	1/4-20	3.16	1.99	.07	1.57	.235	1.000	6.05	1/4-20
M1120183	31S	8.57	3.13	3.80	.50000	1.5	1.44	2.63	1/4-20	3.16	1.99	.07	1.57	.235	1.000	8.05	1/4-20
M1120184	31S	8.07	3.13	4.45	.50000	1.5	1.44	2.63	1/4-20	3.16	1.99	.07	1.57	.235	1.000	7.55	1/4-20



**WASHGUARD 42C FACE MOUNT STYLE DIMENSIONS (Inches)**

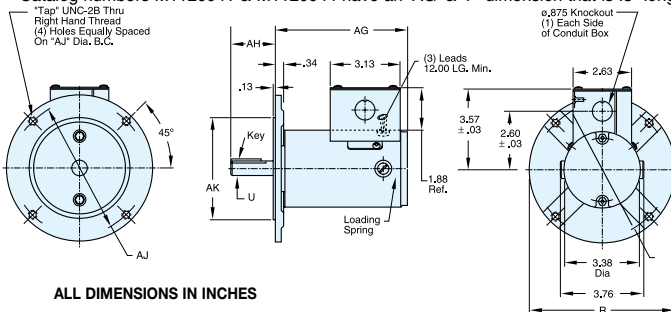
Catalog Number	Frame	AG	P	U	AH	AH-BB	KEY	AJ	TAP	AK	R	BD
M1120185	32F42CZ	8.36	3.25	.500	1.69	1.50	.13 SQ	3.750	1/4-20	3.00	4.19	3.80
M1120186	32F42CZ	7.86	3.25	.500	1.69	1.50	.13 SQ	3.750	1/4-20	3.00	4.19	4.43



**25 & 31 FRAME SQUARE FLANGE MOUNT DIMENSIONS (Inches)**

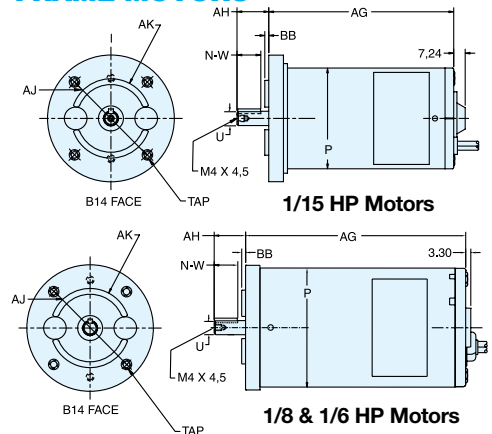
Frame & Type	AG	P	BD	U	AH	AH-BB	AJ	TAP	R	AK	BB	D	BA	E	B	H	
25	AS	4.08	2.50	3.00	.312	1.5	1.00	1.73	8-32	2.62	.997	.03	1.28	.125	.625	3.83	8-32
	CS	4.94	2.50	3.00	.312	1.5	1.00	1.73	8-32	2.62	.997	.03	1.28	.125	.625	4.69	8-32
	BS	5.39	3.07	3.45	.5000	1.5	1.00	2.63	1/4-203.16	1.99	.07	1.57	.235	1.000	4.92	1/4-20	
31	CS**	5.89	3.07	3.45	.5000	1.5	1.00	2.63	1/4-203.16	1.99	.07	1.57	.235	1.000	5.42	1/4-20	
	ES**	6.89	3.07	3.45	.5000	1.5	1.00	2.63	1/4-203.16	1.99	.07	1.57	.235	1.000	6.42	1/4-20	
	GS	7.89	3.07	3.45	.5000	1.5	1.00	2.63	1/4-203.16	1.99	.07	1.57	.235	1.000	7.42	1/4-20	
	ES**	6.89	3.07	3.45	.5000	1.5	1.00	2.63	1/4-203.16	1.99	.07	1.57	.235	1.000	6.42	1/4-20	

\*\*Catalog numbers M1120041 & M1120044 have an 'AG' & 'F' dimension that is .5" longer than stated in table.



ALL DIMENSIONS IN INCHES

**COMMERCIAL DUTY METRIC (IEC) FRAME MOTORS**



**DIMENSIONS (Inches)**

Frame Voltage	AG	P	U	AH	N-W	AJ	TAP	AK	BB		
12	4.59	2.50	.35	.787	.591	2.56	M5x.8	1.97	.10		
	2.50	24	4.59	2.50	.35	.787	.591	2.56	M5x.8	1.97	.10
	90	4.59	2.50	.35	.787	.591	2.56	M5x.8	1.97	.10	
3.00	12	5.53	3.00	.35	.787	.591	2.56	M5x.8	1.97	.10	
	24	5.53	3.00	.35	.787	.591	2.56	M5x.8	1.97	.10	
	90	5.53	3.13	.35	.787	.591	2.56	M5x.8	1.97	.10	
3.00	12	5.87	3.00	.35	.787	.591	2.56	M5x.8	1.97	.10	
	24	5.87	3.00	.35	.787	.591	2.56	M5x.8	1.97	.10	
	90	5.87	3.13	.35	.787	.591	2.56	M5x.8	1.97	.10	

Note: Optional conduit box not included on 25 frame models. Conduit box dimensions shown here are for 31 frame only.

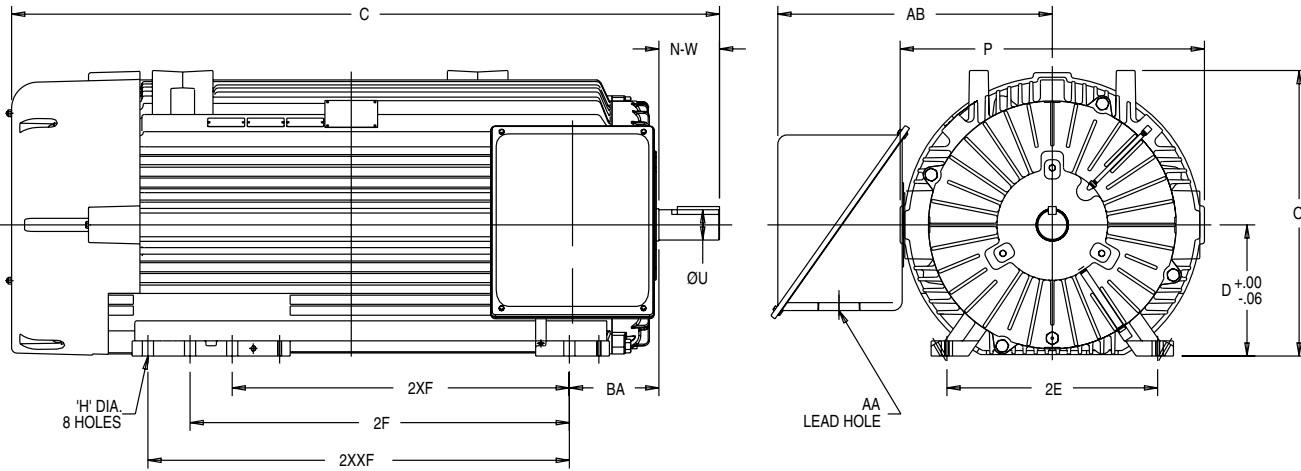
**42C FACE MOUNT DIMENSIONS (Inches)**

Frame	AG	P	U	AH	AH-BB	KEY	AJ	TAP	AK	R
34D42C	6.43	3.38	.500	1.38	1.25	.13 SQ	3.750	1/4-20	3.00	4.25

**56C FACE MOUNT DIMENSIONS (Inches)**

Frame	AG	P*	U	AH	AH-BB	KEY	AJ	TAP	AK	R
34E56C	6.87	3.38	.625	2.06	1.93	.19 SQ	5.875	3/8-16	4.50	6.50
34G56C	8.59	3.38	.625	2.06	1.93	.19 SQ	5.875	3/8-16	4.50	6.50

\*For 1/4 HP 34 frame TEFC designs. Fan cover diameter is 3.88".



FRAME	H	BA	2XF	2F	2XXF	N-W	U	AB (MAX.)	P (MAX.)	O (MAX.)	D	2E	AA
5010LS	1.062 1.077	8.50	32.00	—	—	5.75	2.875 2.874	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5011LS	1.062 1.077	8.50	—	36.00	—	5.75	2.875 2.874	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5012LS	1.062 1.077	8.50	—	—	40.00	5.75	2.875 2.874	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5013LS	1.062 1.077	8.50	45.00	—	—	5.75	2.875 2.874	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5010LX	1.062 1.077	8.50	32.00	—	—	12.00	3.875 3.874	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5011LX	1.062 1.077	8.50	—	36.00	—	12.00	3.875 3.874	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5012LX	1.062 1.077	8.50	—	—	40.00	12.00	3.875 3.874	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5013LX	1.062 1.077	8.50	45.00	—	—	12.00	3.875 3.874	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5010L	1.062 1.077	8.50	32.00	—	—	9.50	4.000 3.999	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5011L	1.062 1.077	8.50	—	36.00	—	9.50	4.000 3.999	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5012L	1.062 1.077	8.50	—	—	40.00	9.50	4.000 3.999	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5013L	1.062 1.077	8.50	45.00	—	—	9.50	4.000 3.999	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5010S	1.062 1.077	8.50	32.00	—	—	5.75	2.625 2.624	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5011S	1.062 1.077	8.50	—	36.00	—	5.75	2.625 2.624	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5012S	1.062 1.077	8.50	—	—	40.00	5.75	2.625 2.624	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT
5013S	1.062 1.077	8.50	45.00	—	—	5.75	2.625 2.624	26.05	28.88	27.08	12.470 12.410	20.00	4.00 NPT

All dimensions are measured in inches. For "C" dimensions, refer to the appropriate catalog page. Certified drawings are available upon request - contact LEESON Electric for details.

**TERMS AND CONDITIONS OF SALES QUOTATIONS ARE MADE AND ORDERS ARE ACCEPTED BY SELLER ONLY TO THESE TERMS AND CONDITIONS. THE SELLER FOR THESE TERMS AND CONDITIONS APPLY TO BOTH LEESON ELECTRIC AND LINCOLN MOTORS PRODUCTS:****1. AGREEMENT AND MODIFICATION OF SALES TERMS.**

The agreement between Seller and Buyer ("Sales Contract") is with respect to the sale of goods described on the other side hereof (the "Goods"). Any Terms and Conditions contained in any purchase order or other form of communication from Seller's customers, which are additional to or different from these Terms and Conditions, shall be deemed rejected by Seller unless expressly accepted in writing by Seller.

**2. ACCEPTANCE OF ORDERS.**

Acceptance by Seller of Buyer's purchase order(s) is expressly conditioned upon Buyer's assent to these Terms and Conditions. Buyer will be deemed to have assented to such Terms and Conditions unless Seller receives written notice of any objections within 10 days after Buyer's receipt of this form or in all events prior to any delivery or other performance by Seller of Buyer's order.

**3. QUOTATIONS.**

Quotations by Seller shall be deemed to be offers by Seller to sell the Goods described therein subject to these Terms and Conditions, and acceptance of such offers is expressly limited to acceptance by Buyer of all of these Terms and Conditions within 30 days from the date of the quotation or as specified. Purchase orders submitted by Buyer for the Goods quoted by Seller shall be subject to and will be deemed to constitute acceptance of these Terms and Conditions. All purchase orders will be subject to approval by Seller.

**4. TERMINATION OR MODIFICATION.**

The Sales Contract may be modified or terminated only upon Seller's express written consent, which consent will at all times be conditioned on Buyer's agreement to pay Seller's modification or termination charges including, but not limited to expenses and costs plus a reasonable profit, except that any Goods completed on or before Seller's acceptance of termination shall be accepted and paid in full by Buyer.

**5. PRICES AND TERMS.**

Fulfillment of Buyer's order is contingent upon the availability of materials. The price of the Goods sold pursuant to the Sales Contract shall be based upon Seller's prices in effect at the time of shipment and any acceptance of the order will be on the basis of the freight rates in effect at the time of shipment. In the event of an increase or decrease in the applicable freight charges before the material is shipped, such changes in freight charges will be for the account of Buyer. Price advances, discounts, extras and terms and conditions are subject to changes without notice. Unless otherwise provided on the front side hereof, price is F.O.B. Seller's point of shipment, and terms of payment shall be net 30 days from date of invoice. Seller may assess finance and service charges of 1-1/2 percent per month (or the highest rate allowed by state law) on invoices not paid within stated payment terms. Open account credit status is offered at the discretion of the Seller. Seller may discontinue open account status or change credit limit as warranted, in its opinion, by the financial condition and/or credit history of the Buyer. Seller may require full or partial payment or payment guarantees in advance of shipment whenever, in its opinion, the financial condition and/or credit history of Buyer so warrants. In addition, Seller may, at any time, suspend performance of any order or require payment in cash, security or other adequate assurance satisfactory to Seller when, in Seller's opinion, the financial condition and/or credit history of Buyer warrants such action.

**6. TAXES.**

Prices do not include sales, use or other similar federal, state or local taxes. Buyer shall either have a tax-exemption certificate on file with the Seller or pay to Seller, in addition to the price of the Goods, any and all applicable taxes, which may be invoiced separately at a later date.

**7. DESIGN; EXTRA WORK; BUYER'S MATERIAL.**

(a) If any order accepted by Seller contemplates the preparation of special designs by Seller, Buyer issuing such order will have a responsible representative specifically approve all designs prepared by Seller. (b) If Buyer requests extra work not included in the quotation or original order, Buyer will pay for the extra work at reasonable rates as determined by Seller. (c) In the event spoilage/damage occurs on orders where Buyer furnishes any material, Seller shall not be liable for replacement of or damage to such material.

**8. RISK OF LOSS, SECURITY INTEREST.**

Delivery shall occur, and risk of loss shall pass to Buyer, upon delivery of the Goods to a carrier at the F.O.B. point of shipment. Transportation shall be at Buyer's sole risk and expense, and any claims for losses or damage in transit shall be against the carrier only. Buyer agrees to perform all acts necessary to provide a fully perfected security interest in the Goods in favor of Seller. Seller may, at its option, repossess the same, upon Buyer's default in payment hereunder, and charge Buyer with any deficiency.

**9. DELIVERIES AND QUANTITIES.**

(a) Delivery dates are not guaranteed but are estimated on the basis of immediate receipt by Seller of all information to be furnished by Buyer and the absence of delay, direct or indirect, resulting from or contributed to by circumstances beyond Seller's reasonable control. If the Goods are non-catalog Goods, Seller may ship overages or underages to the extent of 10 percent of quantity ordered, and Buyer shall pay for such quantity based upon the unit price of the Goods. Seller shall not be required to maintain closer control of quantity, unless specifically agreed to by Seller in writing. Quantities of all Goods may be determined by weight. Any claims for shortage must be within 10 days from the date of receipt of the Goods by Buyer, and in every case the weights found in any particular

shipment, including tare, must be given and Seller advised as to the method used by Buyer in computing the count of Goods. (b) In the event that Buyer is unable to accept delivery of the Goods at time of shipment, Seller shall invoice Buyer for the full purchase price as if shipment had been made and: (i) if Seller is able to store such Goods in its own facilities, Buyer will pay Seller the reasonable handling and storage charges for the period of such storage, and (ii) if Seller is unable to store such Goods at its own facility, Seller reserves the right to arrange handling and storage in a suitable bonded warehouse for the Buyer at Buyer's expense. In cases where handling and storage become necessary, it shall be Buyer's responsibility to notify Seller when shipment is to be made. Seller will make necessary arrangements for shipment at Buyer's expense.

Freight and handling charges by Seller may not reflect actual freight charges prepaid to the carrier by Seller due to incentive discounts earned by Seller based upon Seller's aggregate volume of freight tendered to a carrier or when a carrier must be used which charges a rate which is different than the rate upon which the Seller's freight and handling charges were based. When shipments are delivered in Seller's private trucks, Buyer will be charged an amount approximating the prevailing common carrier rate.

**10. RETURNED GOODS.**

Goods may not be returned. However, if Seller consents in writing or upon verbal authorization to the return of Goods for any reason, Buyer, who also shall assume all risk of loss of such returned Goods until actual receipt by Seller, must prepay transportation charges.

**11. INSPECTION, ACCEPTANCE.**

Buyer shall inspect the Goods immediately upon the receipt thereof. All claims by Buyer (including claims for shortages), except only those provided for under the WARRANTY AND LIMITATIONS OF LIABILITY and PATENTS clauses below, must be asserted in writing by Buyer within a 10-day period or they are waived. If this contract involves partial performances, all such claims must be asserted within a 10-day period for each partial performance. Rejection may be only for defects substantially impairing the value of the Goods. Buyer's remedy for lesser defects shall be those provided for under the Warranty and Limitations of Liability clauses. THERE SHALL BE NO REVOCATION OF ACCEPTANCE. If Buyer wrongfully rejects, revokes or delays acceptance of items or work tendered under this contract, or fails to make a payment due on or before delivery, or repudiates this contract, Seller shall, at its option, have the right to recover as damages, either the price as stated herein (upon recovery of the price, the Goods involved shall become the property of the Buyer) or the profit (including reasonable overhead) which the Seller would make from performance together with incidental damages and reasonable costs.

**12. WARRANTIES, LIMITATIONS OF LIABILITY AND DISCLAIMER.**

(a) Seller warrants to the Buyer that its motors, gear reducers, gearmotors, gearboxes, DC controllers, and AC drives are free from defects in workmanship and materials when operated under normal conditions and in accordance with nameplate characteristic limits. This warranty shall be in effect for a period of 12 months from date of installation, but in no event be in effect for more than 18 months from date of manufacture, with the following exceptions: i) EPACT motors ("G" prefix), which are warranted for a period of 24 months from date of installation but for not more than 30 months from date of manufacture, ii) Wattsaver Premium Efficiency three phase motors and Speedmaster Inverter-Duty motors are warranted for a period of 36 months from the date of installation but for not more than 42 months from the date of manufacture, & iii) Motor brakes provided as coupler brakes, brake kits, or as part of brakemotors are covered by the manufacturers' (Stearns or Dings) warranties. Certain Goods are warranted for different periods of time under specific conditions. Buyer must consult the current product catalog or internet site to confirm this warranty period.

(b) Seller's sole obligation under the foregoing warranties is limited to either, at Seller's option, replacing or repairing defective Goods (or defective parts thereof) within the warranty period. Seller shall not be liable under any circumstances, for consequential or incidental damages, including, but not limited to personal injury or labor costs. This warranty does not cover the cost of removal, installation, or re-testing of the new or repaired Goods or parts, or any other direct or incidental expenses incurred in shipping the Goods to or from Seller. Replacement Goods or parts are warranted for the remainder of the warranty period applicable to the Goods originally supplied by Seller. All claims for allegedly defective Goods must be made within 10 days after Buyer learns of such alleged defects. All claims not made in writing and received by Seller within such 10-day period shall be deemed waived. With prior approval from Seller, Buyer shall return a sample of the alleged defective part, freight prepaid, for Seller's inspection, and no other Goods shall be returned to Seller's District Office/Warehouse, nearest factory, or Authorized Service Center without Seller's written consent. This warranty shall not extend to Goods subjected to misuse, abuse, neglect, accident or improper installation or maintenance, incorrect lubrication, incorrect electrical connection, improper power supply, or Goods which have been altered or repaired by anyone other than Seller or its authorized representative.

(c) Under no circumstances will Seller be responsible for any expense in connection with any repairs made by anyone other than Seller or an Authorized Service Center, unless such repairs have been specifically authorized in writing by the Seller Service and Warranty Department.



(d) In the case of motors, drives, gears and reducers manufactured or marketed by Seller, Seller warrants only that such Goods, when shipped, shall be capable of delivering the service rated as indicated in Seller's written documents, including quotations and catalogs or as noted on such Goods, providing such Goods are properly installed, connected, and maintained, correctly lubricated, operating under normal conditions with competent supervision, and within the load limits and voltage range for which it was sold, and provided further that the equipment is free from critical speed, torsional or other type vibration, no matter how induced.

(e) If any prototype or sample was provided to the Buyer, it was used merely to illustrate the general type and quality of Goods and not to warrant that Goods shipped would be of that type or quality.

(f) UNLESS AUTHORIZED IN WRITING BY A CORPORATE OFFICER OR VICE PRESIDENT, NO AGENT, EMPLOYEE OR REPRESENTATIVE OF SELLER HAS ANY AUTHORITY TO BIND SELLER TO ANY AFFIRMATION, REPRESENTATION OR WARRANTY CONCERNING THE GOODS SOLD UNDER THE SALES CONTRACT AND ANY SUCH AFFIRMATION, REPRESENTATION OR WARRANTY HAS NOT FORMED A PART OF THE BASIS OF THE BARGAIN AND SHALL BE UNENFORCEABLE.

(g) THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND/OR ANY OTHER TYPE, WHETHER EXPRESS OR IMPLIED.

(h) Products not manufactured and work not performed by Seller are warranted only to the extent and in the manner that the same are warranted to Seller by Seller's vendors, and then only to the extent that Seller is reasonably able to enforce such warranty. In enforcing such warranty, it is understood Seller shall have no obligation to initiate litigation unless Buyer undertakes to pay all costs and expenses therefor, including but not limited to reasonable attorney's fees, and indemnifies Seller against any liability to Seller's vendors arising out of such litigation.

(i) THE FOREGOING IS SELLER'S ONLY OBLIGATION AND BUYER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY. BUYER'S FAILURE TO SUBMIT A CLAIM AS PROVIDED ABOVE SHALL SPECIFICALLY WAIVE ALL CLAIMS FOR DAMAGES OR OTHER RELIEF INCLUDING BUT NOT LIMITED TO CLAIMS BASED ON LATENT DEFECTS. EVEN IF THE REPAIR OR REPLACEMENT REMEDY SHALL BE DEEMED TO HAVE FAILED OF ITS ESSENTIAL PURPOSE UNDER SECTION 2-719 OF THE UNIFORM COMMERCIAL CODE, SELLER SHALL HAVE NO LIABILITY TO BUYER FOR CONSEQUENTIAL DAMAGES, SUCH AS LOST PROFITS, LOST REVENUE, DAMAGE TO OTHER EQUIPMENT OR LIABILITY OR INJURY TO A THIRD PARTY. IN NO EVENT SHALL BUYER BE ENTITLED TO INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES, NOR SHALL SELLER'S LIABILITY EXCEED THE PURCHASE PRICE OF THE GOODS. ANY ACTION ARISING HEREUNDER OR RELATED HERETO MUST BE COMMENCED WITHIN ONE (1) YEAR AFTER THE CAUSE OF ACTION OCCURS OR IT SHALL BE BARRED, NOTWITHSTANDING ANY STATUTORY PERIOD OF LIMITATIONS TO THE CONTRARY.

(j) In the event of the resale of any of the Goods, in whatever form, Buyer will include the following language in a conspicuous place and in a conspicuous manner in a written agreement covering such resale: "THE MANUFACTURER MAKES NO WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, AS TO THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE GOODS SOLD HEREUNDER. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE GOODS PURCHASED HEREUNDER WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. IN NO EVENT WILL MANUFACTURER BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL OR OTHER DAMAGES."

(k) Nuclear Use Disclaimer - Goods sold by Seller are not intended for use in connection with any nuclear facility or activity. If so used, Seller disclaims all liability for any nuclear damage, injury or contamination, and Buyer shall indemnify and hold Seller, its officers, agents, employees, successors, assigns and customers harmless from and against any and all losses, damages or expenses of whatever form or nature (including attorneys' fees and other costs of defending any action) which they or any of them may sustain or incur, whether as a result of breach of contract, warranty, tort (including negligence) or otherwise, by reason of such use.

### 13. REMEDIES AND LIMITATIONS OF LIABILITY.

In the event Buyer claims Seller has breached any of its obligations under the Sales Contract, whether of warranty or otherwise, Seller may request the return of Goods and tender to Buyer, at Seller's option, a replacement shipment of Goods. If Seller so requests the return of the Goods, the Goods will be redelivered to Seller in accordance with Seller's instructions and at Buyer's expense. Except as herein provided, Seller shall have no further obligation under the Sales Contract. The remedies contained in this paragraph and paragraph 12 hereof shall constitute the sole recourse of Buyer against Seller for breach of any of Seller's obligations under the Sales Contract, whether warranty or otherwise.

### 14. TECHNICAL ADVICE.

Any technical advice furnished or recommendation made by Seller or any representative of Seller concerning any use or application of any of the Goods is believed to be reliable, but SELLER MAKES NO WARRANTY, EXPRESSED OR IMPLIED, ON RESULTS TO BE OBTAINED. BUYER ASSUMES ALL RESPONSIBILITY FOR LOSS OR DAMAGE RESULTING FROM THE HANDLING OR USE OF ANY OF THE GOODS.

### 15. FORCE MAJEURE.

Seller shall not be liable for failure to perform its obligations under the Sales Contract in whole or in part caused by the occurrence of any contingencies beyond the reasonable control either of Seller or of suppliers of Seller. If any such contingency occurs, Seller may allocate Goods and deliveries among Seller's customers.

### 16. ASSIGNMENT AND DELEGATION.

No right or interest in the Sales Contract shall be assigned by Buyer without Seller's prior written consent, and no delegation of any obligation owed, or to the performance of any obligation by Buyer shall be made without Seller's prior written consent. Any attempt at assignment or delegation shall be wholly void and totally ineffective for all purposes unless made in conformity with this paragraph.

### 17. PATTERNS AND TOOLING.

Unless otherwise agreed to in writing with Buyer, Seller shall retain title to and possession of all special tooling, patterns and dies whether paid for by Buyer or not, but such special tooling, patterns and dies that are specifically paid for by Buyer will be held by Seller exclusively for the manufacture of Buyer's Goods for not more than 2 years after the date of Buyer's last order requiring their use. Seller will exercise reasonable care in handling and storing any tooling, patterns or dies specifically paid for by Buyer, but Seller shall not be liable for damage or loss thereof.

### 18. PATENTS. SELLER MAKES NO REPRESENTATION OR WARRANTY WITH RESPECT TO THE PATENTABILITY OF THE GOODS OR THAT ANY OF THE GOODS WILL BE FREE FROM CLAIMS OF INFRINGEMENT.

Buyer agrees to indemnify and defend Seller in any such suit, action or proceeding for any claim resulting from actual or alleged infringement of any domestic or foreign letters patent for (i) any feature, construction or design incorporated at Buyer's request in any Goods or to adapt such Goods to the particular use of Buyer or Buyer's customers or (ii) any additions, changes or adaptations made by Buyer or Buyer's customers after delivery of the Goods.

### 19. CONFIDENTIAL INFORMATION.

All drawings, diagrams, specifications, technical data and other materials furnished by Seller and identified by Seller as confidential are and shall remain the exclusive property of Seller and shall be returned to Seller upon request. Buyer agrees to treat such information and material as confidential and not to reproduce or disclose such information or materials without Seller's prior written consent. This paragraph does not apply to any information already known to and readily accessible in the trade or which may become so through no fault of Buyer.

### 20. CHANGES.

Seller may, at any time, without notice, make changes (whether in design, material, improvements or otherwise) in any catalog Goods, and may discontinue the manufacture of any catalog Goods, all in its sole discretion, without incurring any obligations of any kind as a result thereof, whether for failure to fill an order of Buyer or otherwise.

### 21. CANCELLATION.

The Buyer may not cancel purchase orders without the prior written consent of Seller. This consent will be conditioned on Buyer's agreement to pay Seller's cancellation charges. Purchase orders for Goods that are substantially complete, as judged by Seller, may not be cancelled and will be shipped and invoiced at the price on the order. For Goods that are not substantially complete, the cancellation charge shall amount to all costs and expenses incurred by Seller and arising out of or in connection with Buyer's order, net of recoverability, but in no event less than 10% of the total invoice price of the equipment or more than the total invoice price.

### 22. INSTALLATION.

Installation of the Goods shall be by Buyer unless otherwise specifically stated in the Sales Contract.

### 23. SEVERABILITY.

If any term or provision contained in the Sales Contract is declared or held invalid by a court of competent jurisdiction, such declaration or holding shall not affect the validity of any other term, clause or provision contained herein.

### 24. GOVERNING LAW AND LIMITATION.



(a) These Terms and Conditions, and the contract of sale between Seller and Buyer, shall be governed by and construed in accordance with the laws of the State of Wisconsin. Seller and Buyer hereby agree that any legal action deemed necessary by either party hereto shall be brought in the Circuit Court in and for Ozaukee County, Wisconsin and hereby consent to the personal jurisdiction of such court in any such action over the parties hereto. The rights and obligations of Seller and Buyer shall not be governed by the provisions of the United Nations Convention on Contracts for the International Sale of Goods.

(b) Attorney's Fees - Buyer agrees to pay all of Seller's costs and expenses of collection and litigation, including but not limited to attorneys' fees and costs.

(c) Applicability - The Terms and Conditions as stated herein are applicable as of the date of this printing and until such time as changed by Seller.

**IMPORTANT INFORMATION**  
**PLEASE READ CAREFULLY**

This catalog is not intended to provide operational instructions. Appropriate LEESON Electric instructions provided with the motor and precautions attached to the motor should be read carefully prior to installation, operation and/or maintenance of the equipment. Injury to personnel or motor failure may be caused by improper installation, maintenance or operation.

The following  **WARNING** and  **CAUTION** information is supplied to you for your protection and to provide you with many years of trouble free and safe operation of your LEESON Electric product:



- Disconnect power and lock out driven equipment before working on a motor.
- Always keep hands and clothing away from moving parts.
- The lifting support on the motor is not to be used to lift the entire machine. Only the motor attached directly to the support may be safely lifted by the support.
- Install and ground per local and national codes.
- Discharge all capacitors before servicing a single phase motor.
- Misapplication of a motor in hazardous environments can cause fire or an explosion and result in serious injury. Only the end user, local authority having jurisdiction, and/or insurance underwriter are qualified to identify the appropriate class(es), group(s), division and temperature code LEESON Electric personnel cannot evaluate or recommend what motors may be suitable for use in hazardous environments. If a motor is name plated for hazardous locations, do not operate the motor without all of the grease and drain plugs installed.
- Never attempt to measure the temperature rise of a motor by touch. Temperature rise must be measured by thermometer, resistance, resistance, imbedded detector or thermocouple.
- Motors with automatic reset thermal protectors will automatically restart when the protector temperature drops sufficiently. Do not use motors with automatic reset thermal protectors in applications where automatic restart will be hazardous to personnel or equipment.
- Motors with manual reset thermal protectors may start unexpectedly after the protector trips when the surrounding air is at +20° Fahrenheit or lower. If the manual reset protector trips, disconnect motor from its power supply. After the protector cools (five minutes or more), it can be reset and power may be applied to the motor.
- Connect all protective device leads, marked P1, P2, etc., per instructions supplied with the motor.
- Operation of a motor at other than its nameplate rating may result in fire, damage to equipment or serious injury to personnel.
- For safety, Buyer or User should provide protective guards over all shaft extensions and any moving apparatus mounted thereon. The User is responsible for checking all applicable safety codes in his area and providing suitable guards. Failure to do so may result in bodily injury and/or damage to equipment.



- Consult qualified personnel with questions and all electrical repairs must be performed by trained and qualified personnel only.
- For motors nameplated as “belted duty only”, do not operate the motor without belts properly installed.
- Motors and/or driven equipment should not be operated faster than their rated speed.
- For inverter applications, follow the inverter manufacturer’s installation guidelines.
- Make sure the motor is properly secured and aligned before operation.

In the event of the resale of any of the goods, in whatever form, Resellers/Buyers will include the following language in a conspicuous place and in a conspicuous manner in a written agreement covering such sale:

The manufacturer makes no warranty or representations, express or implied, by operation of law or otherwise, as to the merchantability or fitness for a particular purpose of the goods sold hereunder. Buyer acknowledges that it alone has determined that the goods purchased hereunder will suitably meet the requirements of their intended use. In no event will the manufacturer be liable for consequential, incidental or other damages. Even if the repair or replacement remedy shall be deemed to have failed of its essential purpose under Section 2-719 of the Uniform Commercial Code, the manufacturer shall have no liability to Buyer for consequential damages.

Resellers/Buyers agree to also include this entire document including the warnings and cautions above in a conspicuous place and in a conspicuous manner in writing to instruct users on the safe usage of the product.

This information should be read together with all other printed information supplied by LEESON Electric.

For more information contact: **LEESON Electric**, 2100 Washington Street, Grafton, Wisconsin 53024  
Phone: 262-377-8810 or Fax: 262-377-3440



**IMPORTANT INFORMATION**  
**PLEASE READ CAREFULLY**



The following and information is supplied to you for your protection and to provide you with many years of trouble free and safe operation of your LEESON Electric product:

Read **ALL** instructions prior to operating reducer. Injury to personnel or reducer failure may be caused by improper installation, maintenance or operation.



- Written authorization from LEESON Electric is required to operate or use reducers in man lift or people moving devices.
- Check to make certain application does not exceed the allowable load capacities published in the current catalog.
- Buyer shall be solely responsible for determining the adequacy of the product for any and all uses to which Buyer shall apply the product. The application by Buyer shall not be subject to any implied warranty of fitness for a particular purpose.
- For safety, Buyer or User should provide protective guards over all shaft extensions and any moving apparatus mounted thereon. The User is responsible for checking all applicable safety codes in his area and providing suitable guards. Failure to do so may result in bodily injury and/or damage to equipment.
- Hot oil and reducers can cause severe burns. Use extreme care when removing lubrication plugs and vents.
- Make certain that the power supply is disconnected before attempting to service or remove any components. Lock out the power supply and tag it to prevent unexpected application of power.
- Reducers are not to be considered fail safe or self-locking devices. If these features are required, a properly sized, independent holding device should be utilized. Reducers should not be used as a brake.
- Any brakes that are used in conjunction with a reducer must be sized or positioned in such a way so as to not subject the reducer to loads beyond the catalog rating.
- Lifting supports including eyebolts are to be used for vertically lifting the gearbox only and no other associated attachments or motors.
- Use of an oil with an EP additive on units with backstops may prevent proper operation of the backstop. Injury to personnel, damage to the reducer or other equipment may result.
- Overhung loads subject shaft bearings and shafts to stress which may cause premature bearing failure and/or shaft breakage from bending fatigue, if not sized properly.



- Test run unit to verify operation. If the unit tested is a prototype, that unit must be of current production.
- If the speed reducer cannot be located in a clear and dry area with access to adequate cooling air supply, then precautions must be taken to avoid the ingestion of contaminants such as water and the reduction in cooling ability due to exterior contaminants.
- Mounting bolts should be routinely checked to ensure that the unit is firmly anchored for proper operation.

In the event of the resale of any of the goods, in whatever form, Resellers/Buyers will include the following language in a conspicuous place and in a conspicuous manner in a written agreement covering such sale:

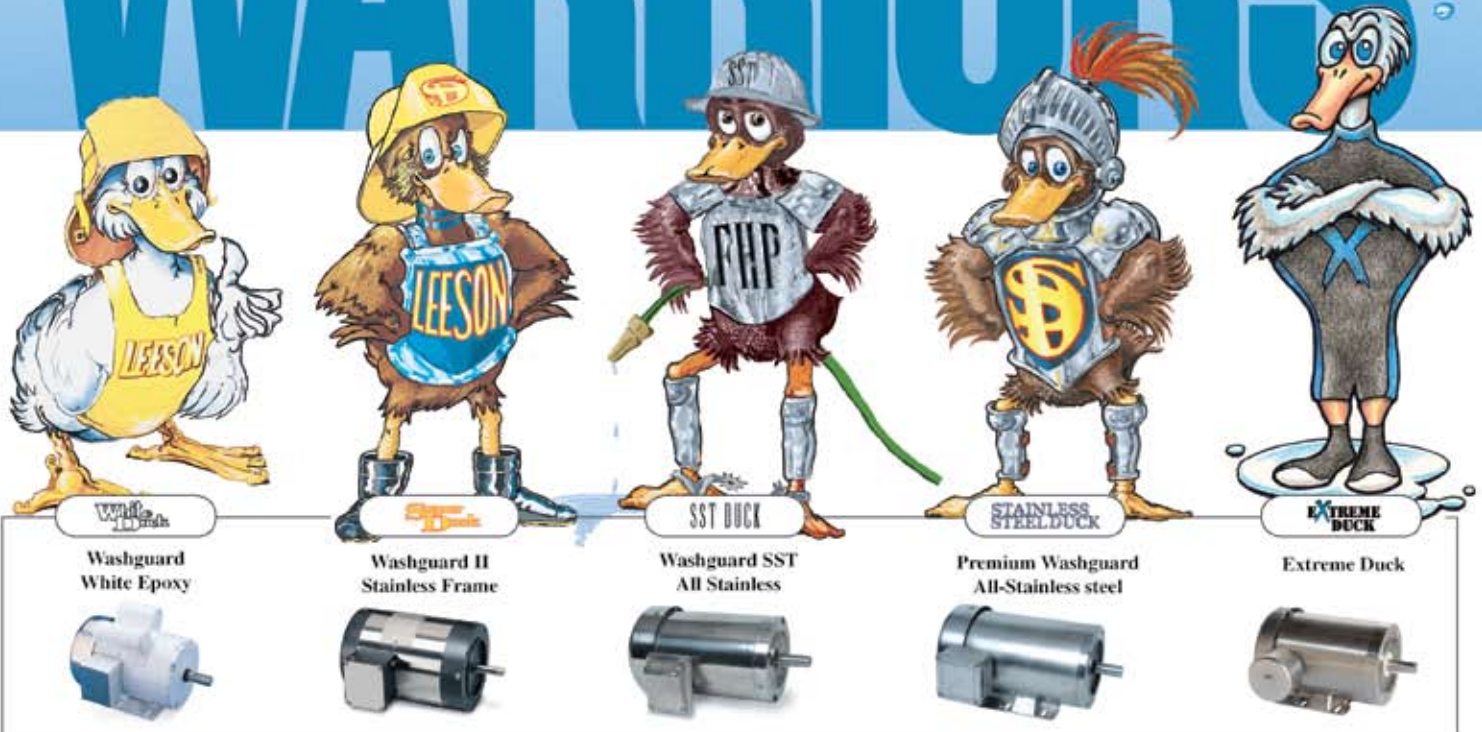
The manufacturer makes no warranties or representations, express or implied, by operation of law or otherwise, as to the merchantability or fitness for a particular purpose of the goods sold hereunder. Buyer acknowledges that it alone has determined that the goods purchased hereunder will suitably meet the requirements of their intended use. In no event will the manufacturer be liable for consequential, incidental or other damages. Even if the repair or replacement remedy shall be deemed to have failed of its essential purpose under Section 2-719 of the Uniform Commercial Code, the manufacturer shall have no liability to Buyer for consequential damages.

Resellers/Buyers agree to also include this entire document including the warnings and cautions above in a conspicuous place and in a conspicuous manner in writing to instruct users on the safe usage of the product.

This information should be read together with all other printed information supplied by LEESON Electric.



# WATER WARRIORS



Harsh washdown environments require tough motors. LEESON's Washguard warriors fight off contaminants and seal out moisture found in the toughest food processing conditions. It all began 20 years ago with our white epoxy motors and continues today with our new patent pending Extreme Duck motor. LEESON's family of motors stands strong, ready to protect in even the harshest environments.

See pages 83-101 for more information on LEESON's family of Washguard Motors.

# POWER TRANSMISSION SOLUTIONS FOR EVERY



Grove Gear IRONMAN  
High Efficiency  
Gear Reducers



Grove Gear IRONMAN  
GR Series  
Worm Gear Reducers



Grove Gear  
Stainless Steel  
Worm Gear Reducers



Grove Gear  
WASHGUARD®  
Worm Gear Reducers



Electra-Gear  
EL Series  
Worm Gear Reducers



Grove Gear IRONMAN  
NH Series  
Worm Gear Reducers

Recognized throughout the world as a leader in industrial-duty gear reducers, GEAR+MOTORS™ and integral gearmotors, Grove Gear offers a solution for every power transmission need. From single reduction worm gear reducers to quintuple reduction helical-bevel reducers Grove Gear is a one-stop shop.

Grove Gear IRONMAN is the industry's most comprehensive and superior line of gear reducers, available in right angle worm and high efficiency options. Electra-Gear offers the industry's only industrial-duty aluminum worm reducers designed and built in the U.S.A. Electra-Gear products are built with premium features from the IRONMAN line and offer a clean, paint-free finish perfect for washdown applications.

LeCENTRIC™ and Bravo® reducers are a compact and lightweight alternative to traditional cast iron units.

By combining a Grove Gear or Electra-Gear reducer with any LEESON or Lincoln c-face motor, a performance-matched GEAR+MOTOR™ or integral gearmotor is created instantly.

**GROVE GEAR** *ELECTRA-GEAR*

Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information

# APPLICATION



Grove Gear  
BRAVO®  
Gear Reducers



Grove Gear  
LeCENTRIC™  
Gear Reducers



## SERIES COMPARISON

**LEESON**®

### CAST IRON GR SERIES



- Grove Gear IRONMAN 800 Series
- Cast Iron Housing Construction
- Mounting dimensions are interchangeable with most industry standard reducers
- Designed with industry leading premium features as standard
- Combines the premium features of the LEESON IRONMAN with the industry's broadest product offering of the Grove Gear Flexaline
- GEAR+MOTOR™ Available

### CAST IRON NH SERIES



- Grove Gear IRONMAN Narrow Housing 800 Series
- Cast Iron Housing Construction
- Designed with industry leading premium features as standard
- Replacement for Grove Gear OE Series and original Alling Lander gear reducers
- Compact housing design to fit where other reducer brands cannot
- GEAR+MOTOR™ Available

### ALUMINUM EL SERIES



#### ELECTRA-GEAR

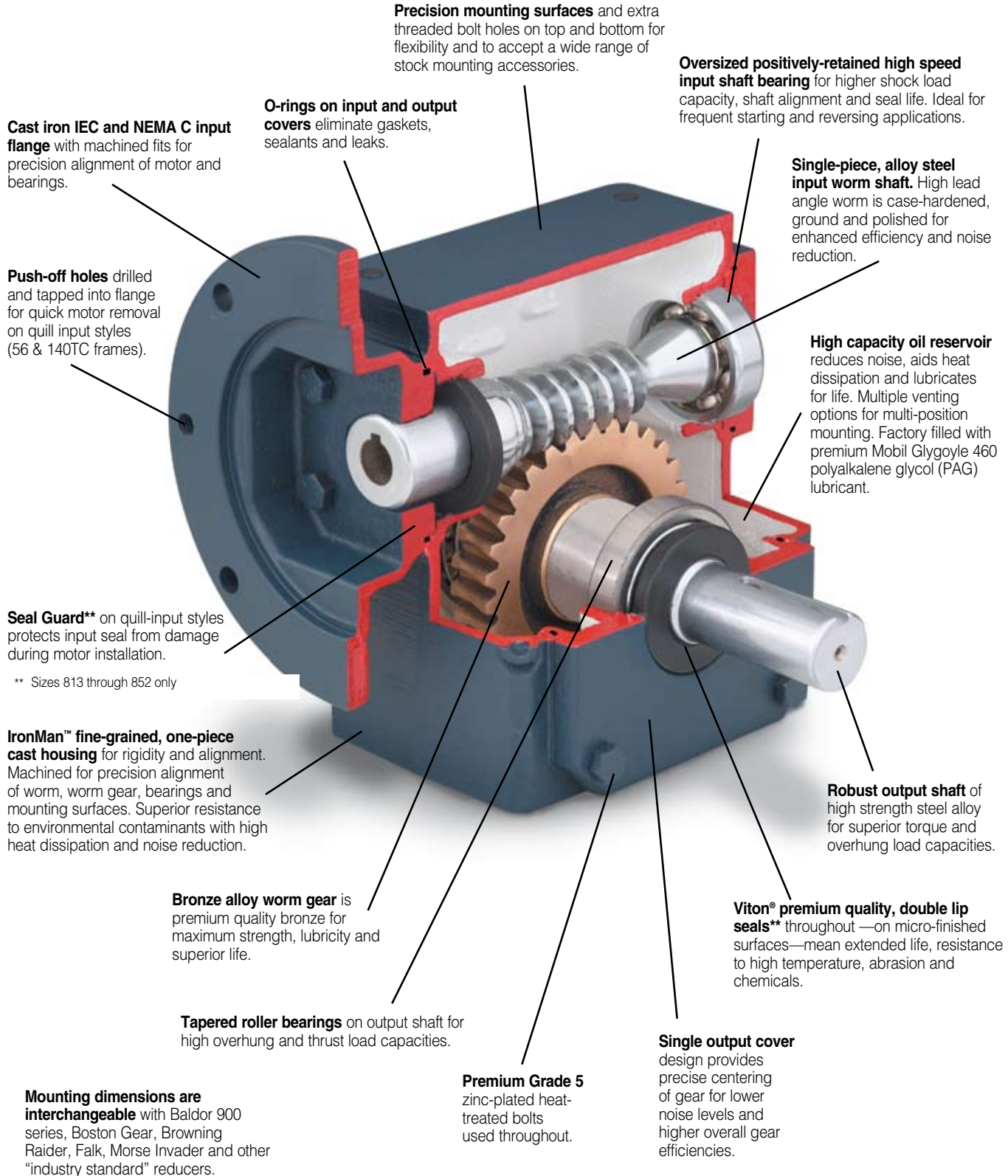
- Electra-Gear 800 Series
- Aluminum Housing Construction
- Lightweight design with all the premium features of the GR and NH series as standard
- Replacement to original Electra-Gear reducers
- GEAR+MOTOR™ Available

Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information

Specifications are subject to change without notice



# 800 Series Gear Reducers Built For Industrial Use



**Precision mounting surfaces** and extra threaded bolt holes on top and bottom for flexibility and to accept a wide range of stock mounting accessories.

**Oversized positively-retained high speed input shaft bearing** for higher shock load capacity, shaft alignment and seal life. Ideal for frequent starting and reversing applications.

**Cast iron IEC and NEMA C input flange** with machined fits for precision alignment of motor and bearings.

**O-rings on input and output covers** eliminate gaskets, sealants and leaks.

**Single-piece, alloy steel input worm shaft.** High lead angle worm is case-hardened, ground and polished for enhanced efficiency and noise reduction.

**Push-off holes** drilled and tapped into flange for quick motor removal on quill input styles (56 & 140TC frames).

**High capacity oil reservoir** reduces noise, aids heat dissipation and lubricates for life. Multiple venting options for multi-position mounting. Factory filled with premium Mobil Glygoyle 460 polyalkalene glycol (PAG) lubricant.

**Seal Guard\*\*** on quill-input styles protects input seal from damage during motor installation.

\*\* Sizes 813 through 852 only

**IronMan™ fine-grained, one-piece cast housing** for rigidity and alignment. Machined for precision alignment of worm, worm gear, bearings and mounting surfaces. Superior resistance to environmental contaminants with high heat dissipation and noise reduction.

**Robust output shaft** of high strength steel alloy for superior torque and overhung load capacities.

**Bronze alloy worm gear** is premium quality bronze for maximum strength, lubricity and superior life.

**Viton® premium quality, double lip seals\*\*** throughout—on micro-finished surfaces—mean extended life, resistance to high temperature, abrasion and chemicals.

**Tapered roller bearings** on output shaft for high overhung and thrust load capacities.

**Single output cover** design provides precise centering of gear for lower noise levels and higher overall gear efficiencies.

**Premium Grade 5** zinc-plated heat-treated bolts used throughout.

**Mounting dimensions are interchangeable** with Baldor 900 series, Boston Gear, Browning Raider, Falk, Morse Invader and other "industry standard" reducers.

**Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information**

Specifications are subject to change without notice

# GROVE GEAR ELECTRA-GEAR

*Geared To Be The Best*



"Patent Pending"

## Grove Gear IronMan E Series High Efficiency Gear Reducers

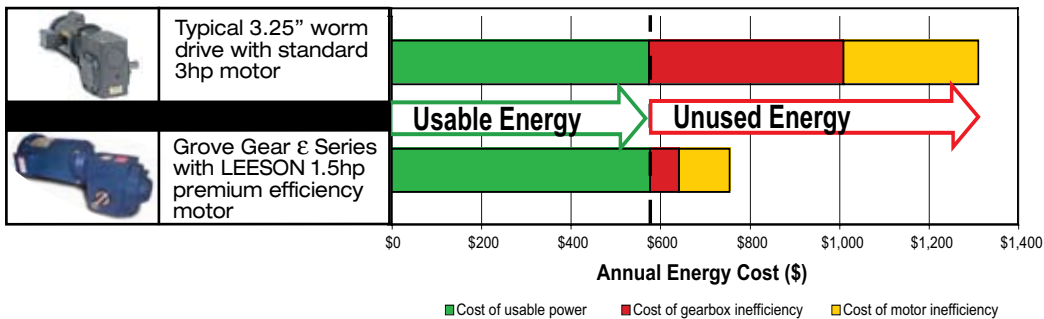
### Product Highlights:

- Green product: 90% operating efficiency
- Up to 60% torque increase
- Interchangeable to major brands
- Rapid Payback – Up to \$550 savings annually per motor horsepower
- 4 models available

### Standard Features:

- 2 stage ratios to 60:1; 3 stage ratios to 450:1
- Available preassembled with LEESON WATSAVER® premium efficiency motors
  - Filled with premium synthetic lubricant - meets USDA Class H1 standards
  - Viton® double-lip seals

### Operating Cost Example\*



### Annual Savings\*

- 42% energy savings (\$550)
- 5,500 kW-hrs
- 3.9 tons of CO<sub>2</sub>\*\*

GEARING

\*Based on 60:1 Ratio, 2600 in. lbs. output torque, 1800 rpm input, 24/5 duty cycle

\*\* 7.18x10<sup>-4</sup> tons CO<sub>2</sub>/kW-hrs (source:www.epa.gov)



## Reduce. Conserve. Evolve.

Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information

# HIGH EFFICIENCY GEAR REDUCERS

Grove Gear offers a complete line of high efficiency gearing products including: helical inline, helical bevel, helical worm and parallel shaft reducers. System operating efficiency is maximized with gear reducer efficiencies up to 97%. In many cases, high efficiency gear products can do the same job as a conventional worm drive, but with a smaller motor and lower energy consumption. All Grove Gear high efficiency gearing products offer decreased motor power requirements, no thermal limitations, industry standard mounting capability and modular design.

	STANDARD	GROVE GEAR HIGH EFFICIENCY GEAR REDUCERS				
	Worm	Helical Worm	Helical Bevel	Helical Inline	Helical Parallel Drives	LeCentric Inline
<b>Ratios</b>	5:1 thru 60:1	Up to 3000:1	Up to 3400:1	Up to 3700:1	Up to 3333:1	Up to 280:1
<b>Housing</b>	Cast Iron, Aluminum, & Stainless Steel	Cast Iron & Stainless Steel	Cast Iron & Stainless Steel	Cast Iron & Stainless Steel	Cast Iron	Aluminum
<b>C-Flange</b>	Standard Product Offering					
<b>Integral Motor</b>	Available	Available	Available	Available	Available	Not Available
<b>Self-Locking</b>	Not Guaranteed	Not Guaranteed	Not Guaranteed	Not Guaranteed	Not Guaranteed	Not Guaranteed
<b>Minimum Backlash</b>	Available	No	No	No	No	No
<b>Hollow Bore Output</b>	Standard Product Offering			No	Available	No
<b>Solid Shaft Output</b>	Standard Product Offering					
<b>Thermal Limits</b>	No	No	No	No	No	No
<b>Efficiency</b>	48% - 85%	46% - 83%	85% - 95%	90% - 97%	90 - 97%	93 - 97%

## IRONMAN HIGH EFFICIENCY GEAR REDUCERS



### Helical Worm

- 4 sizes available in reducer, GEAR+MOTOR™ and integral gearmotor designs
- Input horsepower ratings up to 17 HP
- Available in double, triple and quadruple reduction with ratios from 7:1 to 3400:1
- Solid output shaft and hollow output shaft available in all sizes
- Hardened and ground steel worm shaft and high capacity bronze alloy worm gear give you the advantages of worm gearing with the efficiency of helical gearing



### Helical Bevel

- 6 sizes available in reducer, GEAR+MOTOR™, and integral gearmotor designs
- Input horsepower ratings to 130 HP
- Available in triple and quintuple reduction with ratios from 6.2:1 to 3400:1
- Solid output shaft and hollow output shaft available in all sizes
- Precision carburized and hardened spiral bevel gearing for quiet, efficient, right angle speed reduction



### Helical Inline

- 10 sizes available in reducer, GEAR+MOTOR™, and integral gearmotor designs
- Input horsepower ratings to 125 HP
- Available in double, triple and quadruple reduction with ratios from 2.2:1 to 3700:1
- Base mount and output flange designs available in all sizes



**GROVE GEAR** ELECTRA-GEAR

Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information

## IRONMAN HIGH EFFICIENCY GEAR REDUCERS

### Helical Parallel Drives

- Power ratings from 1/4 to 20 HP
- Ratios from 3.42:1 thru 3333:1
- Output speeds .5 rpm to 280 rpm
- Universal base, flange and hollow bore mounting with competitive interchange capability
- Precision carburized and hardened crowned helical gearing
- Double lip spring loaded seals with precision ground seal journals
- High capacity ball and tapered bearings with splash lubrication, factory filled
- Enhanced high tensile strength steel shafting with low notch sensitivity
- Optimum structural designed housings made of high strength alloy case iron



## LeCENTRIC INLINE GEAR REDUCERS

- LeCentric inline reducers available in four sizes with ratings to 15 HP and in ratios from 3.5:1 to 280:1
- Fit into small spaces. Up to one third smaller than other brands
- Sealed for life, never change or add oil
- Lightweight OEM design suitable for mobile equipment and difficult installations
- Mounting dimensions are interchangeable with most major worldwide competitors



## IRONMAN HIGH EFFICIENCY STAINLESS STEEL REDUCERS

- Helical-Inline and Helical-Bevel reducers available.
- 316 stainless steel housing and covers.
- 303 stainless steel output shaft.
- Viton® double-lip seals.
- Vent-free "sealed-for-life" design with Enviroseal technology.
- Factory filled with premium Mobil Glygoyle 460 polyalkalene glycol lubricant - meets USDA Class H1 standards.



## IRONMAN HIGH EFFICIENCY WASHGUARD® REDUCERS

- Helical-Inline, Helical-Worm, Helical-Bevel and Parallel Shaft Drives available.
- Factory-filled with premium Mobil Glygoyle 460 polyalkalene glycol lubricant - meets USDA Class H1 standards.
- Viton® double-lip seals.
- Patented Forsheda V-ring on output shaft provides extra protection from contaminants.
- O-ring on "flat-faced" input flange provides a positive seal against moisture intrusion.
- Food grade white epoxy paint.



Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information

# WASHGUARD GEAR REDUCERS & GEAR+MOTOR™ SOLUTIONS

With gear reducers in epoxy painted cast iron, polished aluminum and stainless steel, Grove Gear offers a solution for any washdown application.

**GOOD**



## CAST IRON WASHGUARD® GEAR REDUCERS

Grove Gear **IRONMAN WASHGUARD®** reducers are designed and built to withstand the rigors of high pressure washdown environments in food service and other wet or humid conditions. A white, food-grade epoxy finish provides superior durability in wet environments and resists caustic cleaning solutions. All standard cast iron products are available enhanced with WASHGUARD® features assuring trouble-free operation.

**BETTER**



## ALUMINUM PLATINUM GEAR REDUCERS

**EL Series PLATINUM** aluminum gear reducers are a light weight, yet durable alternative for food processing and washguard environments featuring a smooth, polished and paint-free finish. They are available off-the-shelf or customized to your exact specifications. Available in worm gear reducers, ratio multipliers and small, helical-concentric reducers.

**BEST**



## STAINLESS STEEL GEAR REDUCERS

**Premium WASHGUARD® All-Stainless** reducers offer superior corrosion protection. Our stainless steel housing, shaft, covers and external hardware offer an exceptionally long life. Each reducer comes with USDA H1 synthetic oil, eliminating the need for oil changes. Our premium stainless gear reducers are supplied with 316 grade stainless steel housing and covers. These premium reducers offer superior corrosion protection, and can withstand the harshest conditions. Available in worm gear reducers, ratio multipliers, helical-concentric and helical-bevel reducers.



**GEAR+  
MOTOR™**

## STOCK GEAR+MOTOR™

By combining Grove Gear long lasting, energy efficient gear reducers with performance matched LEESON or Lincoln motors, you can maximize system efficiency and rely on unmatched product strength, precision and dependability.

**Save Money. Save Energy. Save the Environment.**

Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information



## CHEMICAL COMPATIBILITY SUMMARY

Material	Reaction Level to Material		
	Cast Iron	Aluminum	316 Stainless
Ammonia Anhydrous	D	B	A
Acetic Acid	D	B	B
Arsenic Acid	D	D	A
Barium Chloride	C	D	A
Barium Sulfate	B	B	B
Beer	D	A	A
Butter	D	A	A
Butyl Alcohol	A	B	C
Calcium Chloride	C	D	B
Carbonic Acid	D	B	A
Catsup	D	D	A
Citric Acid	D	C	A
Chlorine (Dry)	A	C	A
Detergents	N/A	B	A
Diethylene Glycol	A	B	A
Formaldehyde	D	A	A
Grape Juice	D	N/A	A
Lactic Acid	D	B	B
Mayonaise	D	A	A
Nitric Acid (50%)	D	D	A
Salad Dressing	D	B	A
Soap Solutions	A	C	A
Sodium Hydroxide (80%)	D	D	B
Sodium Hypochlorite (<20%)	D	D	C
Sodium Sulfide	A	C	B
Soy Sauce	D	A	A
Sulfuric Acid (<10%)	C	D	B
Sulfur Dioxide	N/A	C	A
Tannic Acid	C	C	A
Turpentine	A	C	B
Vegetable Juice	D	D	A
Vinegar	D	D	A
Water, Fresh	D	B	A
Water, Salt	D	B	B
Whey	N/A	B	A
Whiskey and Wines	D	C	A
Zinc Chloride	D	D	B
Zinc Sulfate	D	D	A

**A** = Excellent  
**B** = Good, minor effect  
**C** = Fair, moderate affect (not recommended for continuous use)  
**D** = Severe effect, not recommended  
 N/A = Information not available

- Viton® double-lip seals - up to five times more durable than nitrile seals - provide added resistance to chemicals
- Patented Forsheda V-ring on output shaft provides extra protection from contaminants
- O-ring on “flat-faced” input flange provides a positive seal against moisture intrusion
- Food grade white epoxy paint
- Food-Grade Synthetic Lubricant, Mobil PAG 460 or equivalent, meets USDA Class H1 standards
- Enviroseal feature provides a vent-free and “sealed for life” design

**GOOD**

- Nine sizes available to 29 HP
- Available in single, double and triple reduction with ratios from 5:1 to 216,000:1
- Worm gear reducers and helical-worm gear reducers
- Clean, polished and paint-free finish
- Lightweight alternative to cast iron
- Lower cost alternative to stainless steel
- Superior corrosion resistance to painted cast iron
- Food-Grade Synthetic Lubricant, Mobil PAG 460 or equivalent, meets USDA Class H1 standards
- Stainless steel shafts and hardware

**BETTER**

- O-ring on face of input flange provides a positive seal against moisture intrusion
- Stainless steel output shaft
- Stainless steel hardware, including square-head pipe plugs to eliminate particle entrapment in vent locations
- Enviroseal eliminates the need for a vent, creating a “sealed for life” design
- Viton® double-lip shaft seals for superior resistance to chemicals common in washdown applications
- Food-Grade Synthetic Lubricant, Mobil PAG 460 or equivalent, meets USDA Class H1 standards
- Housing and covers are 300 series cast stainless steel to withstand extreme environments

**BEST**



Refer to Grove Gear / Electra-Gear Gearing Catalog 8050 for More Information

# INDUSTRY STANDARD POWER TRANSMISSION SOLUTIONS!

**ISO9001 certified** manufacturing facility

**Dynamically  
balanced to Q6.3  
ISO 1940 precision**

**Dual bolt pattern** to allow for  
reverse mounting in limited  
clearance applications

**Precision CNC machined  
Grooves**

**Industry standard taper  
design** insures  
interchangeability

**Fixed Bores** are  
CNC machined to  
H7 precision

**6500 ft/min Max  
rim speed**

**Castings** are vibration aged  
to relieve internal stresses  
insuring long, trouble free  
service life

**Quality Gray  
cast Iron grade GG25  
(ASTM A48 grade 40B)**

# STANDARDIZED TAPER BUSHINGS & SHEAVES FOR ALL YOUR POWER TRANSMISSION NEEDS!





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■ SALES OFFICE AND WAREHOUSE □ SALES OFFICE ONLY

**LEESON District Sales Offices & Warehouses can provide complete information including price and availability on both standard stock and special motors.**

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 Fax: 323/278-7955
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 Fax: 514/337-0773



## How to achieve the greatest energy savings:

Step one: Take our Premium Efficient Motors

Step two: Add High Efficient Gearing

Step three: Combine with our AC Inverters



**FOR MORE INFORMATION CONTACT:**



*Saving Energy for the Next Generation*

GRAFTON, WISCONSIN 53024-0241 U.S.A.  
TEL (262)377-8810 FAX (262)377-9025 [www.leeson.com](http://www.leeson.com)

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