



# Kinetix Rotary Motion Specifications

Kinetix VPL, VPC, VPF, VPH, VPS, MPL, MPM, MPF, MPS, TLP, TL, TLY, RDB, HPK

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This publication provides catalog numbers and product specifications, including performance, environmental, certifications, load force, and dimension drawings for Allen-Bradley® rotary motors.

Use this publication in conjunction with the Kinetix® Motion Control Selection Guide, publication [KNX-SG001](#), to help make decisions on the motion control products best suited for your system requirements.

## Summary of Changes

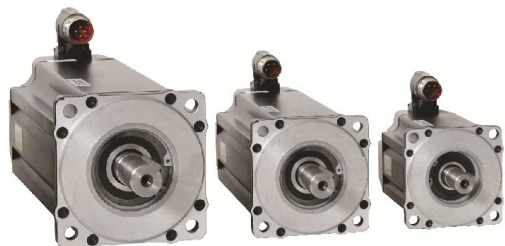
This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

Topic	Page
Added Kinetix 5300 servo drives as compatible with Kinetix TLP multi-purpose servo motors.	2
Added Kinetix 5100 and Kinetix 5300 servo drives as compatible with Kinetix TL and TLY compact servo motors.	
Corrected Kinetix VPC motor weights in the Kinetix VPC Servo Motor Performance Specifications table.	30
Added Kinetix TLP (400V-class) servo motor specifications.	130...144
Updated thermal and environmental ratings with Kinetix TLP (400V) servo motor specifications.	179

## Servo Drive Compatibility

Servo Drive Family	Kinetix VPL	Kinetix VPC	Kinetix VPF	Kinetix VPH	Kinetix VPS	Kinetix MPL	Kinetix MPM	Kinetix MPF	Kinetix MPS	Kinetix TLP	Kinetix TL	Kinetix TLY	Kinetix RDB	Kinetix HPK
Kinetix 5700	X	X	X	X	X	X	X	X	X	-	-	-	X	X
Kinetix 5500	X	-	X	X	X	X	X	X	X	-	-	-	-	-
Kinetix 5100	-	-	-	-	-	X	X	X	X	X	X	X	-	-
Kinetix 5300	-	-	-	-	-	X	X	X	X	X	X	X	-	-
Kinetix 6500	-	-	-	-	-	X	X	X	X	-	-	-	X	-
Kinetix 6200	-	-	-	-	-	X	X	X	X	-	-	-	X	-
Kinetix 6000	-	-	-	-	-	X	X	X	X	-	-	X (TLY-Axx-H)	X	-
Kinetix 300/350	-	-	-	-	-	X	X	X	X	-	-	X	-	-
Kinetix 3	-	-	-	-	-	-	-	-	-	-	X (TL-Axx-B)	X	-	-
Kinetix 2000	-	-	-	-	-	X	X	X	X	-	-	X	-	-
Kinetix 7000	-	-	-	-	-	X	X	-	-	-	-	-	X	X

# Kinetix VPL Low-inertia Servo Motors



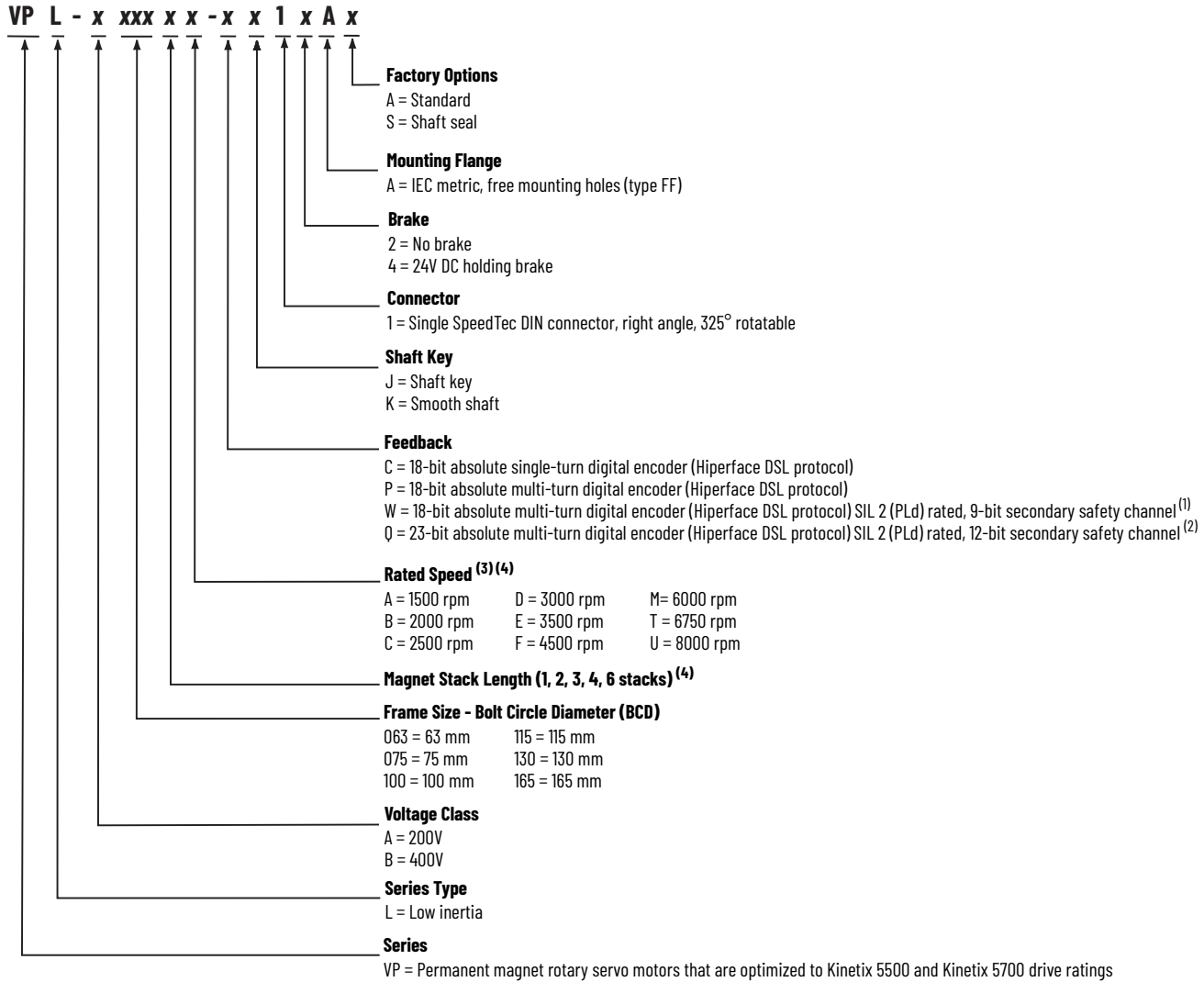
Kinetix VPL servo motors are available with winding options matched to the ratings of Kinetix 5500 drives and Kinetix 5700 dual-axis inverters. Optimized system sizing lowers system cost and improves energy efficiency. The digital feedback device provides real-time motor performance information to the control system and the 2090-Series single cable design between motor and drive simplifies installation. Kinetix VPL servo motors are based on proven Kinetix MPL servo motor technology for dynamic performance, increased reliability, and leverages high volume production.

## Kinetix VPL Servo Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• Developed to match the ratings of Kinetix 5500 drives and Kinetix 5700 dual-axis inverters</li> <li>• 2090-Series single cable technology</li> <li>• Hiperface DSL encoder protocol</li> <li>• High torque to size ratio</li> <li>• Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 200V and 400V-class windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• SIL 2 (PLd) rated encoder options</li> <li>• High-energy rare-earth magnets</li> <li>• Shaft-end threaded hole</li> <li>• SpeedTec DIN connector, rotates 325°</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>• IP50 minimum, without shaft seal (standard)</li> <li>• IP66 with optional shaft seal and use of environmentally sealed cable connectors</li> </ul>
Certifications	Kinetix VPL rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	0.46...33 N•m (4...292 lb•in)
Peak stall torque	1.33...79 N•m (12...702 lb•in)
Rated speed	Up to 8000 rpm
Motor rated output	0.19...7.16 kW (0.25...9.60 Hp)
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5700</li> <li>• Kinetix 5500</li> </ul>
Compatible servo cables	<ul style="list-style-type: none"> <li>• 2090-CSxM1xx-xxAA/AFxx (TPE) cables</li> <li>• 2090-CSxM1xx-xxVA/LFxx (PVC and PUR) cables</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>• Packaging</li> <li>• Converting</li> <li>• Material handling</li> <li>• Electronic assembly</li> <li>• Automotive</li> </ul>

# Catalog Numbers - Kinetix VPL Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) This encoder option is available with only VPL-B063xx and VPL-B075xx motor frame sizes.  
 (2) This encoder option is available with only VPL-A/B100xx, VPL-A/B115xx, VPL-A/B130xx, and VPL-B165xx motor frame sizes.  
 (3) Rated speed hierarchy is only for comparative purposes. Use Motion Analyzer software to size and select motors for your application, and/or the torque/speed curves in the Kinetix 5500 Drive System Design Guide, publication [KNX-RM009](#), and the Kinetix 5700 Drive System Design Guide, publication [KNX-RM010](#).  
 (4) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in Kinetix VPL Servo Motor (200V-class) Performance Specifications on [page 7](#) and Kinetix VPL Servo Motor (400V-class) Performance Specifications on [page 8](#), are available. Use Motion Analyzer software to size and select motors for your application.

## Kinetix VPL Servo Motor High-resolution Encoders

Kinetix VPL servo motors are available with high-performance encoders with a choice of single-turn (-C), multi-turn (-P), and SIL 2 rated (-Q and -W) multi-turn high-resolution feedback:

- 18-bit resolution for 262,144 counts per revolution (choice of single-turn or multi-turn)
  - Single-turn encoder (-C) provides absolute position feedback within one turn
  - Multi-turn encoder (-P) provides absolute position feedback within 4096 turns
  - Electromechanical design does not require a battery.
- SIL 2 rated absolute multi-turn digital encoder (Hiperface DSL protocol)
  - 23-bit resolution for 8,388,608 counts per revolution, multi-turn absolute position feedback within 4096 turns (-Q) option has 12-bit secondary safety channel
  - 18-bit resolution for 262,144 multi-turn absolute position feedback within 4096 turns (-W) option has 9-bit secondary safety channel

## Kinetix 2090-Series Single Cable Technology

Motor connectivity reduced to a single connector and cable.

- Single cable eliminates hardware and wire terminations
- Purely digital two-wire communication integrated into the motor power cable
- TPE cable material for standard (non-flex) and continuous-flex cable
- PVC cable material for standard (non-flex) and Halogen-free PUR continuous-flex cable
- 2090-CSxM1Dx cables are available in 1.0 m (3.2 ft) increments up to 50 m (164 ft) for Kinetix 5500 drives, 90 m (295 ft) for Kinetix 5700 drives

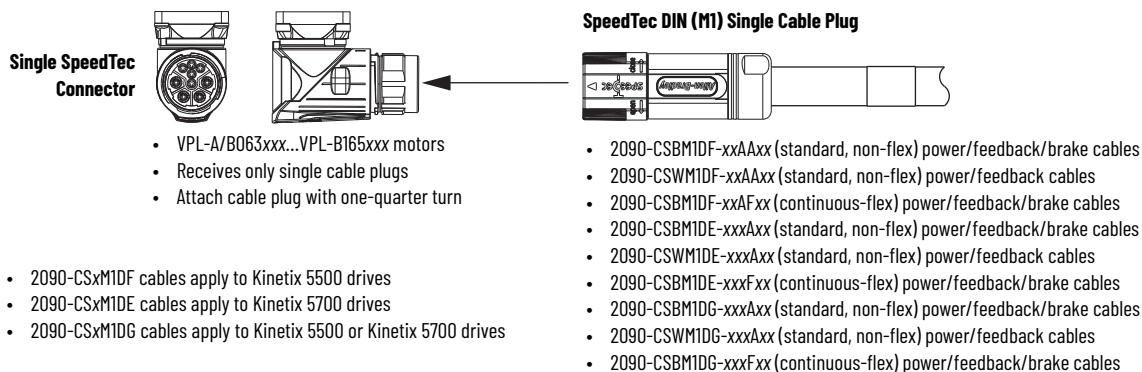
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**IMPORTANT** Due to the unique characteristics of 2090-series single cable technology, designed for and tested with Kinetix 5500 drives, Kinetix 5700 dual-axis inverters, and Kinetix VP servo motors, building your own cables or using third-party cable is not an option.

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## Motor Connector/Cable Compatibility

Kinetix VPL servo motors are equipped with SpeedTec DIN connectors.



For 2090-Series single motor cable specifications, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

## Kinetix VPL Servo Motor Options

Kinetix VPL servo motors are available with these configurable options:

- Single-turn or multi-turn encoder.
- 24V DC holding brake.
- Choice of keyed or keyless shaft.
- Shaft seal kits are available, as are replacement kits for field installation. Shaft seals are made of nitrile and kits include a lubricant to reduce wear.

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**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

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### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPL-A063xx and VPL-B063xx	VPL-SSN-F063075
VPL-A075xx and VPL-B075xx	
VPL-A100xx and VPL-B100xx	MPL-SSN-A3B3
VPL-A115xx and VPL-B115xx	MPL-SSN-A4B4
VPL-A130xx and VPL-B130xx	MPL-SSN-A5B5
VPL-B165xx	MPL-SSN-F165

Refer to the Kinetix VPL Low-inertia Servo Motors Installation Instructions, publication [VPL-IN001](#), for more information on motor accessories.

## Technical Specifications - Kinetix VPL Servo Motors

### Kinetix VPL Servo Motor (200V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N•m (lb•in)	Peak Stall Torque N•m (lb•in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg•m <sup>2</sup> (lb•in•s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
VPL-A0631E	4500	4500	0.46 (4.0)	1.33 (12.0)	0.19 (0.25)	0.0000094 (0.000083)	1.04 (2.30)
VPL-A0631M	7200	7200	0.46 (4.0)	1.33 (12.0)	0.28 (0.38)		
VPL-A0632F	4800	4800	0.93 (8.0)	2.69 (24.0)	0.39 (0.52)	0.000017 (0.00015)	1.36 (3.0)
VPL-A0633C	3000	3000	1.27 (11.0)	4.09 (36.0)	0.37 (0.50)	0.0000247 (0.00022)	1.68 (3.70)
VPL-A0633F	4500	4500	1.27 (11.0)	4.09 (36.0)	0.50 (0.67)		
VPL-A0751E	4800	4800	1.01 (9.0)	2.27 (20.0)	0.44 (0.59)	0.0000136 (0.00012)	1.48 (3.26)
VPL-A0752C	3300	3300	1.61 (14.0)	4.39 (39.0)	0.49 (0.66)	0.000025 (0.00022)	2.03 (4.47)
VPL-A0752E	4800	4800	1.61 (14.0)	4.39 (39.0)	0.66 (0.88)		
VPL-A0753C	3300	3300	2.16 (19.0)	7.02 (62.0)	0.59 (0.79)	0.0000365 (0.00032)	2.59 (5.70)
VPL-A0753E	4600	4600	2.28 (20.0)	7.35 (65.0)	0.80 (1.07)		
VPL-A1001C	2800	2800	1.93 (17.0)	3.78 (33.0)	0.56 (0.75)	0.000044 (0.00039)	2.63 (5.80)
VPL-A1001M	6500	6500	1.95 (17.0)	3.78 (33.0)	1.29 (1.73)		
VPL-A1002C	3000	3000	3.39 (30.0)	7.82 (69.0)	1.03 (1.38)	0.000078 (0.00069)	4.52 (9.95)
VPL-A1002F	5000	5000	3.26 (29.0)	7.82 (69.0)	1.60 (2.14)		
VPL-A1003C	2250	2250	4.18 (37.0)	11.15 (99.0)	0.87 (1.17)	0.00012 (0.0010)	4.45 (9.80)
VPL-A1003E	3750	3750	4.18 (37.0)	11.15 (99.0)	1.31 (1.76)		
VPL-A1003F	5500	5500	4.18 (37.0)	11.15 (99.0)	1.90 (2.55)		
VPL-A1152B	2150	2150	5.10 (45.0)	13.12 (116)	1.02 (1.37)	0.00026 (0.0023)	4.43 (9.75)
VPL-A1152E	3300	3300	5.08 (45.0)	13.12 (116)	1.47 (1.97)		
VPL-A1152F	5000	5000	4.70 (42.0)	13.12 (116)	2.16 (2.90)		
VPL-A1153C	2300	2300	6.55 (58.0)	20.33 (180)	1.35 (1.81)	0.00038 (0.0033)	6.01 (13.23)
VPL-A1303B	1950	1950	8.80 (78.0)	20.72 (183)	1.61 (2.16)	0.00040 (0.0035)	7.54 (16.60)
VPL-A1303F	4000	4000	7.75 (69.0)	20.72 (183)	2.50 (3.35)		
VPL-A1304A	1600	1600	10.29 (91.0)	28.45 (252)	1.55 (2.08)	0.00052 (0.0046)	9.10 (20.05)
VPL-A1304D	3000	3000	10.20 (90.0)	27.10 (240)	2.60 (3.50)		
VPL-A1306C	2000	2000	13.38 (118)	34.62 (306)	2.13 (2.86)	0.00078 (0.0069)	12.21 (26.90)

(1) Refer to Kinetix VPL Servo Motor Brake Specifications on [page 9](#) for brake rotor inertia and brake motor weight.

**Kinetix VPL Servo Motor (400V-class) Performance Specifications**

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
VPL-B0631T	8000	8000	0.46 (4.0)	1.33 (12.0)	0.31 (0.42)	0.0000094 (0.000083)	1.04 (2.30)
VPL-B0631U	8000	8000	0.46 (4.0)	1.33 (12.0)	0.31 (0.42)		
VPL-B0632F	4600	4600	0.93 (8.0)	2.69 (24.0)	0.37 (0.50)	0.000017 (0.00015)	1.36 (3.00)
VPL-B0632T	8000	8000	0.93 (8.0)	2.69 (24.0)	0.54 (0.72)		
VPL-B0633M	6500	6700	1.27 (11.0)	4.09 (36.0)	0.57 (0.76)	0.0000247 (0.00022)	1.68 (3.70)
VPL-B0633T	6500	8000	1.27 (11.0)	4.09 (36.0)	0.57 (0.76)		
VPL-B0751M	8000	8000	1.01 (9.0)	2.27 (20.0)	0.54 (0.72)	0.0000136 (0.00012)	1.48 (3.26)
VPL-B0752E	4900	4900	1.61 (14.0)	4.39 (39.0)	0.67 (0.90)	0.0000250 (0.00022)	2.03 (4.47)
VPL-B0752F	7000	7000	1.61 (14.0)	4.39 (39.0)	0.80 (1.07)		
VPL-B0752M	8000	8000	1.61 (14.0)	4.39 (39.0)	0.81 (1.09)		
VPL-B0753E	4500	4500	2.28 (20.0)	7.35 (65.0)	0.81 (1.09)	0.0000365 (0.00032)	2.59 (5.70)
VPL-B0753F	4500	6600	2.16 (19.0)	7.02 (62.0)	0.65 (0.87)		
VPL-B0753M	6000	8000	2.28 (20.0)	7.35 (65.0)	0.82 (1.10)		
VPL-B1001M	6000	6000	1.93 (17.0)	3.78 (33.0)	1.14 (1.53)	0.000044 (0.00039)	2.63 (5.80)
VPL-B1002E	3300	3300	3.39 (30.0)	7.82 (69.0)	1.12 (1.50)	0.000078 (0.00069)	3.56 (7.85)
VPL-B1002M	6000	6000	3.39 (30.0)	7.82 (69.0)	1.86 (2.49)		
VPL-B1003C	2500	2500	4.18 (37.0)	11.15 (99.0)	0.96 (1.29)	0.00012 (0.0010)	4.45 (9.80)
VPL-B1003F	4750	4750	4.18 (37.0)	11.15 (99.0)	1.65 (2.21)		
VPL-B1003T	7000	7000	4.18 (37.0)	11.15 (99.0)	1.77 (2.37)		
VPL-B1152C	2250	2250	5.10 (45.0)	13.12 (116)	1.06 (1.42)	0.00026 (0.0023)	5.30 (11.67)
VPL-B1152F	4000	4500	5.10 (45.0)	13.12 (116)	1.40 (1.88)		
VPL-B1152T	6500	6500	5.08 (45.0)	13.12 (116)	2.29 (3.07)		
VPL-B1153E	3200	3200	6.55 (58.0)	20.33 (180)	1.75 (2.35)	0.00038 (0.0033)	6.01 (13.23)
VPL-B1153F	5000	5000	6.55 (58.0)	20.33 (180)	2.30 (3.08)		
VPL-B1303C	2250	2250	8.80 (78.0)	20.72 (183)	1.83 (2.45)	0.00040 (0.0035)	7.54 (16.60)
VPL-B1303F	4000	4000	8.80 (78.0)	20.72 (183)	2.82 (3.78)		
VPL-B1304C	2150	2150	10.29 (91.0)	28.45 (252)	1.75 (2.35)	0.00052 (0.0046)	9.10 (20.05)
VPL-B1304E	3500	3500	10.29 (91.0)	28.45 (252)	2.82 (3.78)		
VPL-B1306C	2500	2500	13.38 (118)	34.62 (306)	2.46 (3.30)	0.00078 (0.0069)	12.21 (26.9)
VPL-B1306F	4250	4250	13.38 (118)	34.62 (306)	2.95 (3.95)		
VPL-B1651C	2750	2750	11.50 (102)	22.45 (199)	2.32 (3.11)	0.000783 (0.0069)	15.30 (33.70)
VPL-B1651F	4750	4750	11.43 (101)	22.45 (199)	4.38 (5.87)		
VPL-B1652C	2700	2700	19.40 (172)	48.60 (430)	4.18 (5.60)	0.00147 (0.013)	17.80 (39.24)
VPL-B1652F	4000	4000	17.60 (156)	48.60 (430)	4.77 (6.40)		
VPL-B1653C	2300	2300	25.76 (228)	66.70 (590)	4.38 (5.87)	0.00213 (0.019)	20.66 (45.50)
VPL-B1653D	3000	3000	24.20 (214)	67.80 (600)	5.50 (7.30)		
VPL-B1654B	1850	1850	32.97 (292)	79.30 (702)	5.55 (7.44)	0.00289 (0.025)	25.65 (56.55)
VPL-B1654D	3000	3000	32.0 (283)	75.30 (666)	7.16 (9.60)		

(1) Refer to Kinetix VPL Servo Motor Brake Specifications on [page 9](#) for brake rotor inertia and brake motor weight.



## Kinetix VPL Servo Motor Brake Specifications

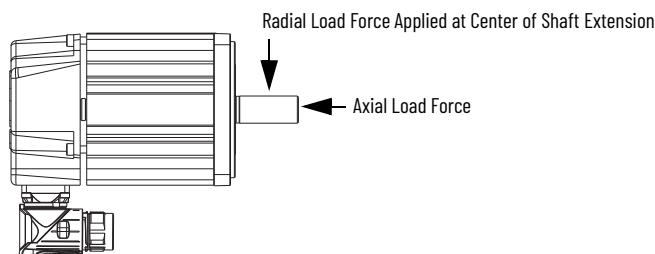
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time		Brake Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)	
				Release ms	Engage <sup>(1)</sup> ms			
VPL-A/B0631	30	1.50 (13)	0.297...0.363	38	25	0.0000118 (0.00010)	1.36 (3.0)	
VPL-A/B0632						0.0000194 (0.00017)	1.70 (3.74)	
VPL-A/B0633						0.0000271 (0.00024)	2.02 (4.45)	
VPL-A/B0751		3.0 (27)	0.567...0.693	66	42	0.0000182 (0.00016)	2.06 (4.54)	
VPL-A/B0752						0.0000297 (0.00026)	2.62 (5.77)	
VPL-A/B0753						0.0000412 (0.00036)	3.18 (7.0)	
VPL-A/B1001	30	4.18 (37)	0.45...0.55	90	65	0.000059 (0.00052)	3.26 (7.19)	
VPL-A/B1002						0.000093 (0.00082)	4.20 (9.24)	
VPL-A/B1003						0.000135 (0.0012)	5.08 (11.19)	
VPL-A/B1152		6.55 (58)	0.621...0.759	90	95	0.000289 (0.0025)	5.43 (11.95)	
VPL-A/B1153						0.000409 (0.0036)	6.88 (15.15)	
VPL-A/B1303						14.10 (125)	0.738...0.902	125
VPL-A/B1304		0.000553 (0.0049)	10.21 (22.48)					
VPL-A/B1306		0.000813 (0.0072)	13.32 (29.33)					
VPL-B1651		30	32.0 (283)	1.053...1.287	140	120	0.000845 (0.0075)	17.15 (37.78)
VPL-B1652							0.00153 (0.013)	19.65 (43.32)
VPL-B1653							0.00219 (0.019)	22.51 (49.58)
VPL-B1654							0.00295 (0.026)	27.50 (60.63)

(1) By using diode and zener diode as arc suppression device in external control circuit.

## Kinetix VPL Servo Motor Load Force Ratings

Kinetix VPL servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables starting below represent an L<sub>10</sub> bearing fatigue life of 20,000 hours. This 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

## Load Forces on Shaft



## Kinetix VPL Servo Motors (063...075 frame size)

### Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	-	26.7	-	-	20.8 *	18.5	-	-	16.2	-	-	-	-	-	-
VPL-A0631M	7200	-	-	23.3	-	19.7	-	-	-	16.7 *	-	-	-	-	13.8	-
VPL-A0632F	4800	-	28.9	25.2	-	-	21.0 *	-	-	-	17.1 *	-	-	-	-	-
VPL-A0633C	3000	38.1	30.3	27.4 *	-	-	21.0	-	-	-	-	-	-	-	-	-
VPL-A0633F	4500	38.1	-	26.4	-	-	21.0	-	-	18.3	-	-	-	-	-	-
VPL-A0751E	4800	33.3	26.4	-	-	20.6 *	-	-	-	-	15.7 *	-	-	-	-	-
VPL-A0752C	3300	36.1	28.6	25.9 *	-	-	-	19.2 *	-	-	-	-	-	-	-	-
VPL-A0752E	4800	36.1	28.6	-	-	21.8 *	-	-	-	-	17.0 *	-	-	-	-	-
VPL-A0753C	3300	37.8	30.0	27.5 *	-	-	-	20.2 *	-	-	-	-	-	-	-	-
VPL-A0753E	4600	37.8	30.0	-	-	23.3 *	-	-	-	-	18.0 *	-	-	-	-	-
VPL-B0631T	8000	-	-	23.3	-	-	18.5	-	-	-	-	14.9 *	-	-	-	13.3
VPL-B0631U	8000	-	-	23.3	-	-	18.5	-	-	-	15.6	-	-	-	-	13.3
VPL-B0632F	4600	-	28.9	25.2	-	-	21.0 *	-	-	-	17.1 *	-	-	-	-	-
VPL-B0632T	8000	-	-	-	22.9	-	-	-	18.2	-	-	-	15.6 *	-	-	14.4
VPL-B0633M	6700	-	30.3	-	24.0	-	-	-	19.2 *	-	-	-	-	15.9 *	-	-
VPL-B0633T	8000	-	-	26.4	-	-	21.0	-	-	-	-	16.8 *	-	-	-	15.1
VPL-B0751M	8000	-	-	23.1	-	-	18.3	-	-	-	15.7 *	-	-	-	-	13.2
VPL-B0752E	4900	36.1	28.6	-	-	22.0 *	-	-	-	-	17.0 *	-	-	-	-	-
VPL-B0752F	7000	-	28.6	-	22.7	-	-	19.3 *	-	-	-	-	-	15.0	-	-
VPL-B0752M	8000	-	-	25.0	-	-	20.8	-	-	-	16.8 *	-	-	-	-	14.3
VPL-B0753E	4500	37.8	30.0	-	23.8	-	-	-	-	18.2	-	-	-	-	-	-
VPL-B0753F	6600	-	30.0	-	23.8	-	-	20.6 *	-	-	-	-	16.1	-	-	-
VPL-B0753M	8000	-	-	26.2	-	-	19.8	-	-	-	18.0 *	-	-	-	-	15.0

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings (maximum radial load) for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	-	22.3	-	-	16.1 *	13.8	-	-	11.6	-	-	-	-	-	-
VPL-A0631M	7200	-	-	18.7	-	15.0	-	-	-	12.1 *	-	-	-	-	9.5 *	-
VPL-A0632F	4800	-	23.5	19.7	-	-	15.5 *	-	-	-	11.9 *	-	-	-	-	-
VPL-A0633C	3000	32.7	24.2	21.3 *	-	-	15.0	-	-	-	-	-	-	-	-	-
VPL-A0633F	4500	32.7	-	20.3	-	-	15.0	-	-	12.6	-	-	-	-	-	-
VPL-A0751E	4800	30.0	22.2	-	-	16.1 *	-	-	-	-	11.2 *	-	-	-	-	-
VPL-A0752C	3300	31.5	23.3	20.5 *	-	-	-	13.9 *	-	-	-	-	-	-	-	-
VPL-A0752E	4800	31.5	23.3	-	-	16.4 *	-	-	-	-	11.8 *	-	-	-	-	-
VPL-A0753C	3300	32.5	24.1	21.5 *	-	-	-	14.3 *	-	-	-	-	-	-	-	-
VPL-A0753E	4600	32.5	24.1	-	-	17.3 *	-	-	-	-	12.4 *	-	-	-	-	-
VPL-B0631T	8000	-	-	18.7	-	-	13.8	-	-	-	-	10.5 *	-	-	-	9.0
VPL-B0631U	8000	-	-	18.7	-	-	13.8	-	-	-	11.1	-	-	-	-	9.0
VPL-B0632F	4600	-	23.5	19.7	-	-	15.5 *	-	-	-	11.9 *	-	-	-	-	-
VPL-B0632T	8000	-	-	-	17.4	-	-	-	12.9	-	-	-	10.6	-	-	9.5
VPL-B0633M	6700	-	24.2	-	17.9	-	-	-	13.4 *	-	-	-	-	10.5 *	-	-
VPL-B0633T	8000	-	-	20.3	-	-	15.0	-	-	-	-	11.3 *	-	-	-	9.8
VPL-B0751M	8000	-	-	18.6	-	-	13.8	-	-	-	11.2 *	-	-	-	-	9.0
VPL-B0752E	4900	31.5	23.3	-	-	16.6 *	-	-	-	-	11.8 *	-	-	-	-	-
VPL-B0752F	7000	-	23.3	-	17.3	-	-	14.0 *	-	-	-	-	-	10.0	-	-
VPL-B0752M	8000	-	-	19.6	-	-	14.5	-	-	-	11.7 *	-	-	-	-	9.5
VPL-B0753E	4500	32.5	24.1	-	17.8	-	-	-	-	12.5	-	-	-	-	-	-
VPL-B0753F	6600	-	24.1	-	17.8	-	-	14.7 *	-	-	-	-	10.7	-	-	-
VPL-B0753M	8000	-	-	20.2	-	-	14.9	-	-	-	12.4 *	-	-	-	-	9.8

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (zero radial load) for Non-brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	-	27.5	-	-	19.9 *	17.1	-	-	14.3	-	-	-	-	-	-
VPL-A0631M	7200	-	-	23.0	-	18.5	-	-	-	14.9 *	-	-	-	-	11.7 *	-
VPL-A0632F	4800	-	27.5	23.0	-	-	18.1 *	-	-	-	13.9 *	-	-	-	-	-
VPL-A0633C	3000	37.1	27.5	24.1 *	-	-	17.1	-	-	-	-	-	-	-	-	-
VPL-A0633F	4500	37.1	-	23.0	-	-	17.1	-	-	14.3	-	-	-	-	-	-
VPL-A0751E	4800	37.1	27.5	-	-	19.9 *	-	-	-	-	13.9 *	-	-	-	-	-
VPL-A0752C	3300	37.1	27.5	24.1 *	-	-	-	16.4 *	-	-	-	-	-	-	-	-
VPL-A0752E	4800	37.1	27.5	-	-	19.3 *	-	-	-	-	13.9 *	-	-	-	-	-
VPL-A0753C	3300	37.1	27.5	24.5 *	-	-	-	16.4 *	-	-	-	-	-	-	-	-
VPL-A0753E	4600	37.1	27.5	-	-	19.7 *	-	-	-	-	14.2 *	-	-	-	-	-
VPL-B0631T	8000	-	-	23.0	-	-	17.1	-	-	-	-	12.9 *	-	-	-	11.1
VPL-B0631U	8000	-	-	23.0	-	-	17.1	-	-	-	13.7	-	-	-	-	11.1
VPL-B0632F	4600	-	27.5	23.0	-	-	18.1 *	-	-	-	13.9 *	-	-	-	-	-
VPL-B0632T	8000	-	-	-	20.3	-	-	-	15.1	-	-	-	12.4 *	-	-	11.1
VPL-B0633M	6700	-	27.5	-	20.3	-	-	-	15.2 *	-	-	-	-	11.9 *	-	-
VPL-B0633T	8000	-	-	23.0	-	-	17.1	-	-	-	-	12.8 *	-	-	-	11.1
VPL-B0751M	8000	-	-	23.0	-	-	17.1	-	-	-	13.9 *	-	-	-	-	11.1
VPL-B0752E	4900	37.1	27.5	-	-	19.5 *	-	-	-	-	13.9 *	-	-	-	-	-
VPL-B0752F	7000	-	27.5	-	20.3	-	-	16.5 *	-	-	-	-	-	-	11.8	-
VPL-B0752M	8000	-	-	23.0	-	-	17.1	-	-	-	13.8 *	-	-	-	-	11.1
VPL-B0753E	4500	37.1	27.5	-	20.3	-	-	-	-	14.3	-	-	-	-	-	-
VPL-B0753F	6600	-	27.5	-	20.3	-	-	16.8 *	-	-	-	-	12.2	-	-	-
VPL-B0753M	8000	-	-	23.0	-	-	17.1	-	-	-	14.2 *	-	-	-	-	11.1

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	-	29.2	-	-	22.8 *	20.3	-	-	17.7	-	-	-	-	-	-
VPL-A0631M	7200	-	-	25.5	-	21.5	-	-	-	18.3 *	-	-	-	-	15.1 *	-
VPL-A0632F	4800	-	30.5	26.6	-	-	22.2 *	-	-	-	18.1 *	-	-	-	-	-
VPL-A0633C	3000	39.5	31.4	28.4 *	-	-	21.8	-	-	-	-	-	-	-	-	-
VPL-A0633F	4500	39.5	-	27.4	-	-	21.8	-	-	19.0	-	-	-	-	-	-
VPL-A0751E	4800	36.5	29.0	-	-	22.6 *	-	-	-	-	17.2 *	-	-	-	-	-
VPL-A0752C	3300	38.1	30.3	27.4	-	-	-	20.3 *	-	-	-	-	-	-	-	-
VPL-A0752E	4800	38.1	30.3	-	-	23.1 *	-	-	-	-	17.9 *	-	-	-	-	-
VPL-A0753C	3300	39.2	31.2	28.5 *	-	-	-	20.9 *	-	-	-	-	-	-	-	-
VPL-A0753E	4600	39.2	31.2	-	-	24.1 *	-	-	-	-	18.7 *	-	-	-	-	-
VPL-B0631T	8000	-	-	25.5	-	-	20.3	-	-	-	-	16.4 *	-	-	-	14.6
VPL-B0631U	8000	-	-	25.5	-	-	20.3	-	-	-	17.1	-	-	-	-	14.6
VPL-B0632F	4600	-	30.5	26.6	-	-	22.2 *	-	-	-	18.1 *	-	-	-	-	-
VPL-B0632T	8000	-	-	-	24.2	-	-	-	19.2	-	-	-	16.5 *	-	-	15.3
VPL-B0633M	6700	-	31.4	-	24.9	-	-	-	19.9 *	-	-	-	-	16.5 *	-	-
VPL-B0633T	8000	-	-	27.4	-	-	21.8	-	-	-	-	17.5 *	-	-	-	15.7
VPL-B0751M	8000	-	-	25.3	-	-	20.1	-	-	-	17.2 *	-	-	-	-	14.5
VPL-B0752E	4900	38.1	30.3	-	-	23.3 *	-	-	-	-	17.9 *	-	-	-	-	-
VPL-B0752F	7000	-	30.3	-	24.0	-	-	20.4 *	-	-	-	-	-	-	15.8	-
VPL-B0752M	8000	-	-	26.4	-	-	21.0	-	-	-	17.8 *	-	-	-	-	15.1
VPL-B0753E	4500	39.2	31.2	-	24.7	-	-	-	-	18.9	-	-	-	-	-	-
VPL-B0753F	6600	-	31.2	-	24.7	-	-	21.4 *	-	-	-	-	16.7	-	-	-
VPL-B0753M	8000	-	-	27.2	-	-	21.6	-	-	-	18.7 *	-	-	-	-	15.6

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (maximum radial load) for Brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	-	23.7	-	-	17.2 *	14.7	-	-	12.3	-	-	-	-	-	-
VPL-A0631M	7200	-	-	19.9	-	15.9	-	-	-	12.8	-	-	-	-	10.0 *	-
VPL-A0632F	4800	-	24.3	20.4	-	-	16.1 *	-	-	-	12.3 *	-	-	-	-	-
VPL-A0633C	3000	33.5	24.8	21.8 *	-	-	15.4	-	-	-	-	-	-	-	-	-
VPL-A0633F	4500	33.5	-	20.8	-	-	15.4	-	-	12.9	-	-	-	-	-	-
VPL-A0751E	4800	31.8	23.5	-	-	17.1 *	-	-	-	-	11.9 *	-	-	-	-	-
VPL-A0752C	3300	32.7	24.2	21.3 *	-	-	-	14.4 *	-	-	-	-	-	-	-	-
VPL-A0752E	4800	32.7	24.2	-	-	17.0 *	-	-	-	-	12.3 *	-	-	-	-	-
VPL-A0753C	3300	33.4	24.7	22.0 *	-	-	-	14.7 *	-	-	-	-	-	-	-	-
VPL-A0753E	4600	33.4	24.7	-	-	17.7 *	-	-	-	-	12.7 *	-	-	-	-	-
VPL-B0631T	8000	-	-	19.9	-	-	14.7	-	-	-	-	11.1 *	-	-	-	9.6
VPL-B0631U	8000	-	-	19.9	-	-	14.7	-	-	-	11.8	-	-	-	-	9.6
VPL-B0632F	4600	-	24.3	20.4	-	-	16.1 *	-	-	-	12.3 *	-	-	-	-	-
VPL-B0632T	8000	-	-	-	18.0	-	-	-	13.3	-	-	-	11.0 *	-	-	9.9
VPL-B0633M	6700	-	24.8	-	18.4	-	-	-	13.7 *	-	-	-	-	10.7 *	-	-
VPL-B0633T	8000	-	-	20.8	-	-	15.4	-	-	-	-	11.6 *	-	-	-	10.1
VPL-B0751M	8000	-	-	19.7	-	-	14.6	-	-	-	11.9 *	-	-	-	-	9.5
VPL-B0752E	4900	32.7	24.2	-	-	17.2 *	-	-	-	-	12.3 *	-	-	-	-	-
VPL-B0752F	7000	-	24.2	-	17.9	-	-	14.5 *	-	-	-	-	-	10.4	-	-
VPL-B0752M	8000	-	-	20.3	-	-	15.0	-	-	-	12.1 *	-	-	-	-	9.8
VPL-B0753E	4500	33.4	24.7	-	18.3	-	-	-	-	12.9	-	-	-	-	-	-
VPL-B0753F	6600	-	24.7	-	18.3	-	-	15.1 *	-	-	-	-	11.0	-	-	-
VPL-B0753M	8000	-	-	20.7	-	-	15.3	-	-	-	12.7 *	-	-	-	-	10.0

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings (zero radial load) for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	-	27.5	-	-	19.9 *	17.1	-	-	14.3	-	-	-	-	-	-
VPL-A0631M	7200	-	-	23.0	-	18.5	-	-	-	14.9 *	-	-	-	-	11.7 *	-
VPL-A0632F	4800	-	27.5	23.0	-	-	18.1 *	-	-	-	13.9 *	-	-	-	-	-
VPL-A0633C	3000	37.1	27.5	24.1 *	-	-	17.1	-	-	-	-	-	-	-	-	-
VPL-A0633F	4500	37.1	-	23.0	-	-	17.1	-	-	14.3	-	-	-	-	-	-
VPL-A0751E	4800	37.1	27.5	-	-	19.9 *	-	-	-	-	13.9 *	-	-	-	-	-
VPL-A0752C	3300	37.1	27.5	24.1 *	-	-	-	16.4 *	-	-	-	-	-	-	-	-
VPL-A0752E	4800	37.1	27.5	-	-	19.3 *	-	-	-	-	13.9 *	-	-	-	-	-
VPL-A0753C	3300	37.1	27.5	24.5 *	-	-	-	16.4 *	-	-	-	-	-	-	-	-
VPL-A0753E	4600	37.1	27.5	-	-	19.7 *	-	-	-	-	14.2 *	-	-	-	-	-
VPL-B0631T	8000	-	-	23.0	-	-	17.1	-	-	-	-	12.9 *	-	-	-	11.1
VPL-B0631U	8000	-	-	23.0	-	-	17.1	-	-	-	13.7	-	-	-	-	11.1
VPL-B0632F	4600	-	27.5	23.0	-	-	18.1 *	-	-	-	13.9 *	-	-	-	-	-
VPL-B0632T	8000	-	-	-	20.3	-	-	-	15.1	-	-	-	12.4 *	-	-	11.1
VPL-B0633M	6700	-	27.5	-	20.3	-	-	-	15.2 *	-	-	-	-	11.9 *	-	-
VPL-B0633T	8000	-	-	23.0	-	-	17.1	-	-	-	-	12.8 *	-	-	-	11.1
VPL-B0751M	8000	-	-	23.0	-	-	17.1	-	-	-	13.9 *	-	-	-	-	11.1
VPL-B0752E	4900	37.1	27.5	-	-	19.5 *	-	-	-	-	13.9 *	-	-	-	-	-
VPL-B0752F	7000	-	27.5	-	20.3	-	-	16.5 *	-	-	-	-	-	-	11.8	-
VPL-B0752M	8000	-	-	23.0	-	-	17.1	-	-	-	13.8 *	-	-	-	-	11.1
VPL-B0753E	4500	37.1	27.5	-	20.3	-	-	-	-	14.3	-	-	-	-	-	-
VPL-B0753F	6600	-	27.5	-	20.3	-	-	16.8 *	-	-	-	-	12.2	-	-	-
VPL-B0753M	8000	-	-	23.0	-	-	17.1	-	-	-	14.2 *	-	-	-	-	11.1

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Kinetix VPL Servo Motors (100...165 frame size)

### Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	79.1	-	62.8	-	49.8	-	44.6 *	-	-	-	-	-	-	-	-
VPL-A1001M	6500	-	-	-	54.9	-	46.3	-	-	-	38.0	-	-	-	33.6	-
VPL-A1002C	3000	87.9	-	69.7	-	55.4	-	48.4	-	-	-	-	-	-	-	-
VPL-A1002F	5000	-	-	69.7	60.9	-	-	48.4	-	-	-	40.8	-	-	-	-
VPL-A1003C	2250	93.6	-	74.3	64.9	-	56.7 *	-	-	-	-	-	-	-	-	-
VPL-A1003E	3750	93.6	-	74.3	-	59.0	-	-	-	47.8 *	-	-	-	-	-	-
VPL-A1003F	5500	-	-	-	64.9	-	54.8	-	-	46.8	-	-	42.1	-	-	-
VPL-A1152B	2150	98.8	-	78.4	68.5	-	60.8 *	-	-	-	-	-	-	-	-	-
VPL-A1152E	3300	98.8	-	78.4	-	62.2	-	-	52.7 *	-	-	-	-	-	-	-
VPL-A1152F	5000	-	-	78.4	-	62.2	-	54.4	-	-	-	45.9	-	-	-	-
VPL-A1153C	2300	106.4	-	84.5	73.8	-	64.0 *	-	-	-	-	-	-	-	-	-
VPL-A1303B	1950	132.9	-	105.5	92.2	84.4 *	-	-	-	-	-	-	-	-	-	-
VPL-A1303F	4000	-	-	105.5	-	83.7	-	73.1	-	66.5	-	-	-	-	-	-
VPL-A1304A	1600	140.2	122.5	112.2 *	-	95.2 *	-	-	-	-	-	-	-	-	-	-
VPL-A1304D	3000	140.2	-	111.3	-	88.3	-	77.2	-	-	-	-	-	-	-	-
VPL-A1306C	2000	150.0	-	128.3 *	107.7 *	94.5	-	-	-	-	-	-	-	-	-	-
VPL-B1001M	6000	-	-	-	-	49.8	-	43.5	-	39.6	-	-	-	34.6	-	-
VPL-B1002E	3300	87.9	-	69.7	-	55.4	-	-	46.8 *	-	-	-	-	-	-	-
VPL-B1002M	6000	-	-	-	60.9	-	-	48.4	-	-	42.2	-	-	38.4	-	-
VPL-B1003C	2500	93.6	-	74.3	64.9	-	54.8	-	-	-	-	-	-	-	-	-
VPL-B1003F	4750	-	-	74.3	64.9	-	-	51.5	-	-	-	44.2 *	-	-	-	-
VPL-B1003T	7000	-	-	-	64.9	-	54.8	-	-	-	45.0	-	-	-	-	38.9
VPL-B1152C	2250	98.8	-	78.4	68.5	-	59.8 *	-	-	-	-	-	-	-	-	-
VPL-B1152F	4000	-	-	78.4	-	62.2	-	54.4	-	-	47.5	-	-	-	-	-
VPL-B1152T	6500	-	-	-	68.5	-	57.8	-	-	49.4	-	-	-	-	42.0	-
VPL-B1153E	3200	106.4	-	84.5	-	67.0	-	-	57.3 *	-	-	-	-	-	-	-
VPL-B1153F	5000	-	-	84.5	-	67.0	-	58.6	-	-	-	49.4	-	-	-	-
VPL-B1303C	2250	132.9	-	105.5	92.2	-	80.5 *	-	-	-	-	-	-	-	-	-
VPL-B1303F	4000	-	-	105.5	-	83.7	-	74.0 *	-	66.5	-	-	-	-	-	-
VPL-B1304C	2150	140.2	-	111.3	99.5 *	-	86.2 *	-	-	-	-	-	-	-	-	-
VPL-B1304E	3500	-	-	111.3	97.2	-	84.3 *	-	73.3	-	-	-	-	-	-	-
VPL-B1306C	2500	150.0	-	119.1	-	100.8 *	87.7	-	-	-	-	-	-	-	-	-
VPL-B1306F	4250	-	-	119.0	-	94.5	-	82.6	-	-	73.5 *	-	-	-	-	-
VPL-B1651C	2750	161.3	-	128.0	-	108.3 *	-	91.4 *	-	-	-	-	-	-	-	-
VPL-B1651F	4750	-	-	128.0	-	101.6	-	88.7	-	-	-	76.1 *	-	-	-	-
VPL-B1652C	2700	180.7	-	143.4	125.3	-	-	103.0 *	-	-	-	-	-	-	-	-
VPL-B1652F	4000	-	-	143.4	125.3	-	-	105.7	-	-	90.4	-	-	-	-	-
VPL-B1653C	2300	192.4	-	152.7	136.5 *	-	115.7 *	-	-	-	-	-	-	-	-	-
VPL-B1653D	3000	-	-	152.7	139.9 *	125.5 *	-	105.9	-	-	-	-	-	-	-	-
VPL-B1654B	1850	200.1	174.8	-	152.5 *	129.4 *	-	-	-	-	-	-	-	-	-	-
VPL-B1654D	3000	-	-	158.8	138.8	126.1	-	110.1	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.



## Axial Load Force Ratings (maximum radial load) for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	25.0	-	19.0	-	10.0	-	10.0 *	-	-	-	-	-	-	-	-
VPL-A1001M	6500	-	-	-	15.0	-	12.0	-	-	-	9.0	-	-	-	8.0	-
VPL-A1002C	3000	30.0	-	22.0	-	16.0	-	13.0	-	-	-	-	-	-	-	-
VPL-A1002F	5000	-	-	22.0	18.0	-	-	13.0	-	-	-	11.0	-	-	-	-
VPL-A1003C	2250	33.0	-	24.0	20.0	-	17.0 *	-	-	-	-	-	-	-	-	-
VPL-A1003E	3750	33.0	-	24.0	-	18.0	-	-	-	13.0 *	-	-	-	-	-	-
VPL-A1003F	5500	-	-	-	20.0	-	16.0	-	-	13.0	-	-	11.0	-	-	-
VPL-A1152B	2150	44.0	-	32.0	27.0	-	23.0 *	-	-	-	-	-	-	-	-	-
VPL-A1152E	3300	44.0	-	32.0	-	24.0	-	-	15.0 *	-	-	-	-	-	-	-
VPL-A1152F	5000	-	-	32.0	-	24.0	-	20.0	-	-	-	16.0	-	-	-	-
VPL-A1153C	2300	48.0	-	35.0	29.0	-	24.0 *	-	-	-	-	-	-	-	-	-
VPL-A1303B	1950	39.0	-	29.0	24.0	22.0 *	-	-	-	-	-	-	-	-	-	-
VPL-A1303F	4000	-	-	29.0	-	21.0	-	18.0	-	16.0	-	-	-	-	-	-
VPL-A1304A	1600	43.0	36.0	32.0 *	-	26.0 *	-	-	-	-	-	-	-	-	-	-
VPL-A1304D	3000	43.0	-	32.0	-	23.0	-	20.0	-	-	-	-	-	-	-	-
VPL-A1306C	2000	48.0	-	39.0 *	31.0 *	26.0	-	-	-	-	-	-	-	-	-	-
VPL-B1001M	6000	-	-	-	-	14.0	-	11.0	-	10.0	-	-	-	8.0	-	-
VPL-B1002E	3300	30.0	-	22.0	-	16.0	-	-	13.0 *	-	-	-	-	-	-	-
VPL-B1002M	6000	-	-	-	18.0	-	-	13.0	-	-	11.0	-	-	10.0	-	-
VPL-B1003C	2500	33.0	-	24.0	20.0	-	16.0	-	-	-	-	-	-	-	-	-
VPL-B1003F	4750	-	-	24.0	20.0	-	-	15.0	-	-	-	12.0 *	-	-	-	-
VPL-B1003T	7000	-	-	-	20.0	-	16.0	-	-	-	12.0	-	-	-	-	10.0
VPL-B1152C	2250	44.0	-	32.0	27.0	-	22.0 *	-	-	-	-	-	-	-	-	-
VPL-B1152F	4000	-	-	32.0	-	24.0	-	20.0	-	-	17.0	-	-	-	-	-
VPL-B1152T	6500	-	-	-	27.0	-	21.0	-	-	17.0	-	-	-	-	14.0	-
VPL-B1153E	3200	48.0	-	35.0	-	26.0	-	-	21.0 *	-	-	-	-	-	-	-
VPL-B1153F	5000	-	-	35.0	-	26.0	-	22.0	-	-	-	17.0	-	-	-	-
VPL-B1303C	2250	39.0	-	29.0	-	24.0	20.0 *	-	-	-	-	-	-	-	-	-
VPL-B1303F	4000	-	-	29.0	-	21.0	-	18.0 *	-	16.0	-	-	-	-	-	-
VPL-B1304C	2150	43.0	-	32.0	27.0 *	-	23.0 *	-	-	-	-	-	-	-	-	-
VPL-B1304E	3500	-	-	32.0	27.0	-	22.0 *	-	18.0	-	-	-	-	-	-	-
VPL-B1306C	2500	48.0	-	36.0	-	29.0 *	24.0	-	-	-	-	-	-	-	-	-
VPL-B1306F	4250	-	-	36.0	-	26.0	-	22.0	-	-	19.0 *	-	-	-	-	-
VPL-B1651C	2750	48.0	-	35.0	-	28.0 *	-	23.0 *	-	-	-	-	-	-	-	-
VPL-B1651F	4750	-	-	35.0	-	26.0	-	22.0	-	-	-	18.0 *	-	-	-	-
VPL-B1652C	2700	58.0	-	43.0	36.0	-	-	27.0 *	-	-	-	-	-	-	-	-
VPL-B1652F	4000	-	-	43.1	36.1	-	28.9	-	-	23.6	-	-	-	-	-	-
VPL-B1653C	2300	64.0	-	47.0	41.0 *	-	33.0 *	-	-	-	-	-	-	-	-	-
VPL-B1653D	3000	-	-	47.6	42.5 *	36.9 *	-	29.5	-	-	-	-	-	-	-	-
VPL-B1654B	1850	68.0	-	57.0	48.0 *	38.0 *	-	-	-	-	-	-	-	-	-	-
VPL-B1654D	3000	-	-	50.7	42.5	37.5	-	31.5	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (zero radial load) for Non-brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	49.4	-	36.5	-	27.0	-	23.4 *	-	-	-	-	-	-	-	-
VPL-A1001M	6500	-	-	-	30.6	-	24.5	-	-	-	19.0	-	-	-	16.2	-
VPL-A1002C	3000	49.4	-	36.5	-	27.0	-	22.7	-	-	-	-	-	-	-	-
VPL-A1002F	5000	-	-	36.5	30.6	-	-	22.7	-	-	-	18.2	-	-	-	-
VPL-A1003C	2250	49.4	-	36.5	30.6	-	25.7 *	-	-	-	-	-	-	-	-	-
VPL-A1003E	3750	49.4	-	36.5	-	27.0	-	-	-	20.6 *	-	-	-	-	-	-
VPL-A1003F	5500	-	-	-	30.6	-	24.5	-	-	20.0	-	-	17.4	-	-	-
VPL-A1152B	2150	68.3	-	50.5	42.4	-	36.0 *	-	-	-	-	-	-	-	-	-
VPL-A1152E	3300	68.3	-	50.5	-	37.4	-	-	30.1 *	-	-	-	-	-	-	-
VPL-A1152F	5000	-	-	50.5	-	37.4	-	31.4	-	-	-	25.1	-	-	-	-
VPL-A1153C	2300	68.3	-	50.5	42.4	-	35.2 *	-	-	-	-	-	-	-	-	-
VPL-A1303B	1950	68.3	-	50.5	42.4	37.8 *	-	-	-	-	-	-	-	-	-	-
VPL-A1303F	4000	-	-	50.5	-	37.4	-	31.4	-	27.7	-	-	-	-	-	-
VPL-A1304A	1600	68.3	57.2	51.1 *	-	41.2 *	-	-	-	-	-	-	-	-	-	-
VPL-A1304D	3000	68.3	-	50.5	-	37.4	-	31.4	-	-	-	-	-	-	-	-
VPL-A1306C	2000	68.3	-	55.7 *	44.3 *	37.4	-	-	-	-	-	-	-	-	-	-
VPL-B1001M	6000	-	-	-	-	27.0	-	22.7	-	20.0	-	-	-	16.8	-	-
VPL-B1002E	3300	49.4	-	36.5	-	27.0	-	-	21.8 *	-	-	-	-	-	-	-
VPL-B1002M	6000	-	-	-	30.6	-	-	22.7	-	-	19.0	-	-	16.8	-	-
VPL-B1003C	2500	49.4	-	36.5	30.6	-	24.5	-	-	-	-	-	-	-	-	-
VPL-B1003F	4750	-	-	36.5	30.6	-	-	22.7	-	-	-	18.6 *	-	-	-	-
VPL-B1003T	7000	-	-	-	30.6	-	24.5	-	-	-	19.0	-	-	-	-	15.7
VPL-B1152C	2250	68.3	-	50.5	42.4	-	35.5 *	-	-	-	-	-	-	-	-	-
VPL-B1152F	4000	-	-	50.5	-	37.4	-	31.4	-	-	26.3	-	-	-	-	-
VPL-B1152T	6500	-	-	-	42.4	-	33.9	-	-	27.7	-	-	-	-	22.4	-
VPL-B1153E	3200	68.3	-	50.5	-	37.4	-	-	30.5 *	-	-	-	-	-	-	-
VPL-B1153F	5000	-	-	50.5	-	37.4	-	31.4	-	-	25.1	-	-	-	-	-
VPL-B1303C	2250	68.3	-	50.5	42.3	-	35.5 *	-	-	-	-	-	-	-	-	-
VPL-B1303F	4000	-	-	50.5	-	37.4	-	31.8 *	-	27.7	-	-	-	-	-	-
VPL-B1304C	2150	68.3	-	50.5	43.6 *	-	36.2 *	-	-	-	-	-	-	-	-	-
VPL-B1304E	3500	-	-	50.5	42.4	-	35.2 *	-	29.3	-	-	-	-	-	-	-
VPL-B1306C	2500	68.3	-	50.5	-	40.6 *	33.9	-	-	-	-	-	-	-	-	-
VPL-B1306F	4250	-	-	50.5	-	37.4	-	31.4	-	-	27.0 *	-	-	-	-	-
VPL-B1651C	2750	90.1	-	66.7	-	53.7 *	-	43.0 *	-	-	-	-	-	-	-	-
VPL-B1651F	4750	-	-	66.7	-	49.4	-	41.4	-	-	-	33.9 *	-	-	-	-
VPL-B1652C	2700	90.1	-	66.7	55.9	-	-	43.3 *	-	-	-	-	-	-	-	-
VPL-B1652F	4000	-	-	66.7	55.9	-	44.8	-	-	36.5	-	-	-	-	-	-
VPL-B1653C	2300	90.1	-	66.7	57.6 *	-	46.4 *	-	-	-	-	-	-	-	-	-
VPL-B1653D	3000	-	-	66.7	59.5 *	51.7 *	-	41.4	-	-	-	-	-	-	-	-
VPL-B1654B	1850	90.1	75.6	-	63.2 *	51.1 *	-	-	-	-	-	-	-	-	-	-
VPL-B1654D	3000	-	-	66.7	55.9	49.4	-	41.4	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	90.2	-	71.6	-	56.8	-	50.8 *	-	-	-	-	-	-	-	-
VPL-A1001M	6500	-	-	-	62.5	-	52.7	-	-	-	43.4	-	-	-	38.4	-
VPL-A1002C	3000	95.3	-	75.6	-	60.0	-	52.4	-	-	-	-	-	-	-	-
VPL-A1002F	5000	-	-	75.6	66.1	-	-	52.4	-	-	-	44.2	-	-	-	-
VPL-A1003C	2250	99.0	-	78.5	68.6	-	59.9 *	-	-	-	-	-	-	-	-	-
VPL-A1003E	3750	99.0	-	78.5	-	62.3	-	-	-	50.6 *	-	-	-	-	-	-
VPL-A1003F	5500	-	-	-	68.6	-	57.9	-	-	49.5	-	-	44.5	-	-	-
VPL-A1152B	2150	111.3	-	88.4	77.2	-	68.5 *	-	-	-	-	-	-	-	-	-
VPL-A1152E	3300	111.3	-	88.4	-	70.1	-	-	59.4 *	-	-	-	-	-	-	-
VPL-A1152F	5000	-	-	88.4	-	70.1	-	61.3	-	-	-	51.7	-	-	-	-
VPL-A1153C	2300	115.4	-	91.6	80.0	-	69.4 *	-	-	-	-	-	-	-	-	-
VPL-A1303B	1950	145.3	-	115.3	100.7	92.3 *	-	-	-	-	-	-	-	-	-	-
VPL-A1303F	4000	-	-	115.3	-	91.5	-	80.0	-	72.7	-	-	-	-	-	-
VPL-A1304A	1600	149.7	130.8	119.8 *	-	101.6 *	-	-	-	-	-	-	-	-	-	-
VPL-A1304D	3000	149.5	-	118.6	-	94.2	-	82.3	-	-	-	-	-	-	-	-
VPL-A1306C	2000	156.0	-	133.4 *	112.1 *	98.3	-	-	-	-	-	-	-	-	-	-
VPL-B1001M	6000	-	-	-	-	56.8	-	49.6	-	45.1	-	-	-	39.4	-	-
VPL-B1002E	3300	95.3	-	75.6	-	60.0	-	-	50.8 *	-	-	-	-	-	-	-
VPL-B1002M	6000	-	-	-	66.1	-	-	52.4	-	-	45.8	-	-	41.6	-	-
VPL-B1003C	2500	99.0	-	78.5	68.6	-	57.9	-	-	-	-	-	-	-	-	-
VPL-B1003F	4750	-	-	78.5	68.6	-	-	54.5	-	-	-	46.7 *	-	-	-	-
VPL-B1003T	7000	-	-	-	68.6	-	57.9	-	-	-	47.6	-	-	-	-	41.1
VPL-B1152C	2250	111.3	-	88.4	77.2	-	67.4 *	-	-	-	-	-	-	-	-	-
VPL-B1152F	4000	-	-	88.4	-	70.1	-	61.3	-	-	53.5	-	-	-	-	-
VPL-B1152T	6500	-	-	-	77.2	-	65.1	-	-	55.7	-	-	-	-	47.4	-
VPL-B1153E	3200	115.4	-	91.6	-	72.7	-	-	62.2 *	-	-	-	-	-	-	-
VPL-B1153F	5000	-	-	91.6	-	72.7	-	63.5	-	-	-	53.6	-	-	-	-
VPL-B1303C	2250	145.3	-	115.3	100.7	-	88.0 *	-	-	-	-	-	-	-	-	-
VPL-B1303F	4000	-	-	115.3	-	91.5	-	80.9 *	-	72.7	-	-	-	-	-	-
VPL-B1304C	2150	149.7	-	118.8	106.2 *	-	92.0 *	-	-	-	-	-	-	-	-	-
VPL-B1304E	3500	-	-	118.8	103.8	-	90.0 *	-	78.2	-	-	-	-	-	-	-
VPL-B1306C	2500	156.0	-	123.8	-	104.8 *	91.2	-	-	-	-	-	-	-	-	-
VPL-B1306F	4250	-	-	123.8	-	98.3	-	85.9	-	-	76.5 *	-	-	-	-	-
VPL-B1651C	2750	180.9	-	143.6	-	121.5 *	-	102.5 *	-	-	-	-	-	-	-	-
VPL-B1651F	4750	-	-	143.6	-	114.0	-	99.6	-	-	-	85.4 *	-	-	-	-
VPL-B1652C	2700	192.5	-	152.8	133.5	-	-	109.7 *	-	-	-	-	-	-	-	-
VPL-B1652F	4000	-	-	152.8	133.5	-	112.6	-	-	96.3	-	-	-	-	-	-
VPL-B1653C	2300	200.2	-	158.9	142.1 *	-	120.4 *	-	-	-	-	-	-	-	-	-
VPL-B1653D	3000	-	-	158.9	145.6 *	130.6 *	-	110.2	-	-	-	-	-	-	-	-
VPL-B1654B	1850	205.7	179.7	-	156.8 *	133.0 *	-	-	-	-	-	-	-	-	-	-
VPL-B1654D	3000	-	-	163.3	142.7	129.6	-	113.2	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (maximum radial load) for Brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	31.0	-	23.0	-	17.0	-	14.0 *	-	-	-	-	-	-	-	-
VPL-A1001M	6500	-	-	-	19.0	-	15.0	-	-	-	12.0	-	-	-	10.0	-
VPL-A1002C	3000	34.0	-	25.0	-	18.0	-	15.0	-	-	-	-	-	-	-	-
VPL-A1002F	5000	-	-	25.0	21.0	-	-	15.0	-	-	-	12.0	-	-	-	-
VPL-A1003C	2250	36.0	-	26.0	22.0	-	18.0 *	-	-	-	-	-	-	-	-	-
VPL-A1003E	3750	36.0	-	26.0	-	19.0	-	-	-	15.0 *	-	-	-	-	-	-
VPL-A1003F	5500	-	-	-	22.0	-	18.0	-	-	14.0	-	-	12.0	-	-	-
VPL-A1152B	2150	50.0	-	37.0	31.0	-	26.0 *	-	-	-	-	-	-	-	-	-
VPL-A1152E	3300	51.0	-	37.0	-	27.0	-	-	22.0 *	-	-	-	-	-	-	-
VPL-A1152F	5000	-	-	37.0	-	27.0	-	23.0	-	-	-	18.0	-	-	-	-
VPL-A1153C	2300	53.0	-	39.0	32.0	-	27.0 *	-	-	-	-	-	-	-	-	-
VPL-A1303B	1950	46.0	-	34.0	28.0	25.0 *	-	-	-	-	-	-	-	-	-	-
VPL-A1303F	4000	-	-	34.0	-	25.0	-	21.0	-	18.0	-	-	-	-	-	-
VPL-A1304A	1600	48.0	40.0	36.0 *	-	29.0 *	-	-	-	-	-	-	-	-	-	-
VPL-A1304D	3000	48.0	-	36.0	-	26.0	-	22.0	-	-	-	-	-	-	-	-
VPL-A1306C	2000	52.0	-	42.0 *	33.3 *	28.0	-	-	-	-	-	-	-	-	-	-
VPL-B1001M	6000	-	-	-	-	17.0	-	14.0	-	12.0	-	-	-	10.0	-	-
VPL-B1002E	3300	34.0	-	25.0	-	18.0	-	-	15.0 *	-	-	-	-	-	-	-
VPL-B1002M	6000	-	-	-	21.0	-	-	15.0	-	-	13.0	-	-	11.0	-	-
VPL-B1003C	2500	36.0	-	26.0	22.0	-	18.0	-	-	-	-	-	-	-	-	-
VPL-B1003F	4750	-	-	26.0	22.0	-	-	16.0	-	-	-	13.0 *	-	-	-	-
VPL-B1003T	7000	-	-	-	22.0	-	18.0	-	-	-	13.0	-	-	-	-	11.0
VPL-B1152C	2250	51.0	-	37.0	31.0	-	26.0 *	-	-	-	-	-	-	-	-	-
VPL-B1152F	4000	-	-	37.0	-	27.0	-	23.0	-	-	19.0	-	-	-	-	-
VPL-B1152T	6500	-	-	-	31.0	-	25.0	-	-	20.0	-	-	-	-	16.0	-
VPL-B1153E	3200	53.0	-	39.0	-	29.0	-	-	23.0*	-	-	-	-	-	-	-
VPL-B1153F	5000	-	-	39.0	-	29.0	-	24.0	-	-	-	19.0	-	-	-	-
VPL-B1303C	2250	46.0	-	34.0	28.0	-	24.0 *	-	-	-	-	-	-	-	-	-
VPL-B1303F	4000	-	-	34.0	-	25.0	-	21.0 *	-	18.0	-	-	-	-	-	-
VPL-B1304C	2150	48.0	-	36.0	31.0 *	-	25.0 *	-	-	-	-	-	-	-	-	-
VPL-B1304E	3500	-	-	36.0	30.0	-	25.0 *	-	20.0	-	-	-	-	-	-	-
VPL-B1306C	2500	52.0	-	38.0	-	31.0 *	25.0	-	-	-	-	-	-	-	-	-
VPL-B1306F	4250	-	-	38.0	-	28.0	-	24.0	-	-	20.0 *	-	-	-	-	-
VPL-B1651C	2750	58.0	-	43.0	-	34.0 *	-	27.0 *	-	-	-	-	-	-	-	-
VPL-B1651F	4750	-	-	43.0	-	31.0	-	26.0	-	-	-	21.0 *	-	-	-	-
VPL-B1652C	2700	64.0	-	47.0	39.0	-	-	30.0 *	-	-	-	-	-	-	-	-
VPL-B1652F	4000	-	-	47.6	40.0	-	32.0	-	-	26.1	-	-	-	-	-	-
VPL-B1653C	2300	68.0	-	50.0	43.0 *	-	35.0 *	-	-	-	-	-	-	-	-	-
VPL-B1653D	3000	-	-	50.7	45.3 *	39.3 *	-	31.5	-	-	-	-	-	-	-	-
VPL-B1654B	1850	71.0	59.0	-	50.0 *	40.0 *	-	-	-	-	-	-	-	-	-	-
VPL-B1654D	3000	-	-	52.9	44.4	39.2	-	32.9	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings (zero radial load) for Brake Motors

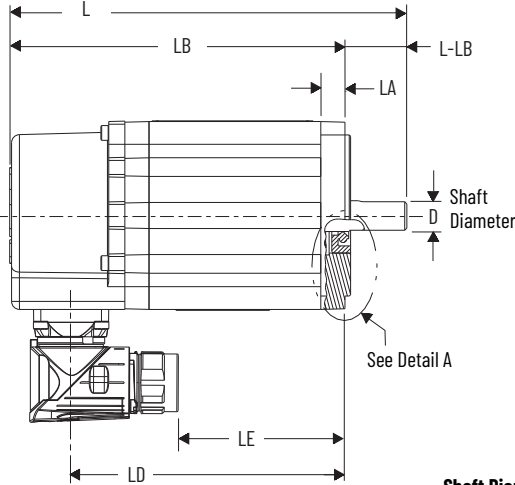
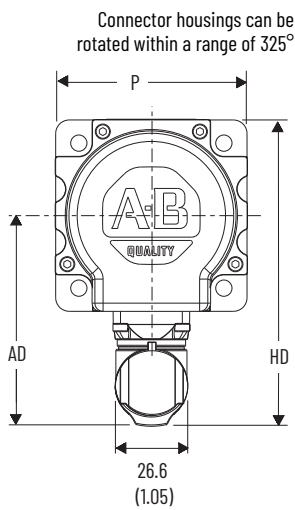
Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	49.4	-	36.5	-	27.0	-	23.4 *	-	-	-	-	-	-	-	-
VPL-A1001M	6500	-	-	-	30.6	-	24.5	-	-	-	19.0	-	-	-	16.2	-
VPL-A1002C	3000	49.4	-	36.5	-	27.0	-	22.7	-	-	-	-	-	-	-	-
VPL-A1002F	5000	-	-	36.5	30.6	-	-	22.7	-	-	-	18.2	-	-	-	-
VPL-A1003C	2250	49.4	-	36.5	30.6	-	25.7 *	-	-	-	-	-	-	-	-	-
VPL-A1003E	3750	49.4	-	36.5	-	27.0	-	-	-	20.6 *	-	-	-	-	-	-
VPL-A1003F	5500	-	-	-	30.6	-	24.5	-	-	20.0	-	-	17.4	-	-	-
VPL-A1152B	2150	68.3	-	50.5	42.4	-	36.2 *	-	-	-	-	-	-	-	-	-
VPL-A1152E	3300	68.3	-	50.5	-	37.4	-	-	30.1 *	-	-	-	-	-	-	-
VPL-A1152F	5000	-	-	50.5	-	37.4	-	31.4	-	-	-	25.1	-	-	-	-
VPL-A1153C	2300	68.3	-	50.5	42.4	-	35.2 *	-	-	-	-	-	-	-	-	-
VPL-A1303B	1950	68.3	-	50.5	42.4	37.8 *	-	-	-	-	-	-	-	-	-	-
VPL-A1303F	4000	-	-	50.5	-	37.4	-	31.4	-	27.7	-	-	-	-	-	-
VPL-A1304A	1600	68.3	57.2	51.1 *	-	41.2 *	-	-	-	-	-	-	-	-	-	-
VPL-A1304D	3000	68.3	-	50.5	-	37.4	-	31.4	-	-	-	-	-	-	-	-
VPL-A1306C	2000	68.3	-	55.7 *	44.3	37.4	-	-	-	-	-	-	-	-	-	-
VPL-B1001M	6000	-	-	-	-	27.0	-	22.7	-	20.0	-	-	-	16.8	-	-
VPL-B1002E	3300	49.4	-	36.5	-	27.0	-	-	21.8 *	-	-	-	-	-	-	-
VPL-B1002M	6000	-	-	-	30.6	-	-	22.7	-	-	19.0	-	-	16.8	-	-
VPL-B1003C	2500	49.4	-	36.5	30.6	-	24.5	-	-	-	-	-	-	-	-	-
VPL-B1003F	4750	-	-	36.5	30.6	-	-	22.7	-	-	-	18.6 *	-	-	-	-
VPL-B1003T	7000	-	-	-	30.6	-	24.5	-	-	-	19.0	-	-	-	-	15.7
VPL-B1152C	2250	68.3	-	50.5	42.4	-	35.5 *	-	-	-	-	-	-	-	-	-
VPL-B1152F	4000	-	-	50.5	-	37.4	-	31.4	-	-	26.3	-	-	-	-	-
VPL-B1152T	6500	-	-	-	42.4	-	33.9	-	-	27.7	-	-	-	-	22.4	-
VPL-B1153E	3200	68.3	-	50.5	-	37.4	-	-	30.5 *	-	-	-	-	-	-	-
VPL-B1153F	5000	-	-	50.5	-	37.4	-	31.4	-	-	-	25.1	-	-	-	-
VPL-B1303C	2250	68.3	-	50.5	42.4	-	35.5 *	-	-	-	-	-	-	-	-	-
VPL-B1303F	4000	-	-	50.5	-	37.4	-	31.8 *	-	27.7	-	-	-	-	-	-
VPL-B1304C	2150	68.3	-	50.5	43.6 *	-	36.2 *	-	-	-	-	-	-	-	-	-
VPL-B1304E	3500	-	-	50.5	42.4	-	35.2 *	-	29.3	-	-	-	-	-	-	-
VPL-B1306C	2500	68.3	-	50.5	-	40.6 *	33.9	-	-	-	-	-	-	-	-	-
VPL-B1306F	4250	-	-	50.5	-	37.4	-	31.4	-	-	27.0 *	-	-	-	-	-
VPL-B1651C	2750	90.1	-	66.7	-	53.7	-	43.0 *	-	-	-	-	-	-	-	-
VPL-B1651F	4750	-	-	66.7	-	49.4	-	41.4	-	-	-	33.9 *	-	-	-	-
VPL-B1652C	2700	90.1	-	66.7	55.9	-	-	43.3 *	-	-	-	-	-	-	-	-
VPL-B1652F	4000	-	-	66.7	55.9	-	44.8	-	-	36.5	-	-	-	-	-	-
VPL-B1653C	2300	90.1	-	66.7	57.6 *	-	46.4 *	-	-	-	-	-	-	-	-	-
VPL-B1653D	3000	-	-	66.7	59.5 *	51.7 *	-	41.4	-	-	-	-	-	-	-	-
VPL-B1654B	1850	90.1	75.6	-	63.2 *	51.1 *	-	-	-	-	-	-	-	-	-	-
VPL-B1654D	3000	-	-	66.7	55.9	49.4	-	41.4	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

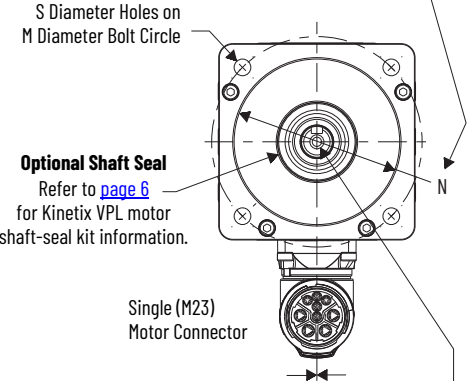
# Dimensions - Kinetix VPL Servo Motors

## VPL-A/B063xx and VPL-A/B075xx Motor Dimensions

Dimensions are in mm (in.)



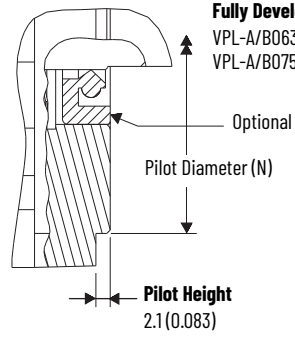
**Pilot Diameter Tolerances**  
 VPL-A/B063xx Motors:  
 $\varnothing 39.995...40.011$  (1.5746...1.5752)  
 VPL-A/B075xx Motors:  
 $\varnothing 59.993...60.012$  (2.3619...2.3627)



**Shaft Diameter Tolerances**  
 VPL-A/B063xx Motors:  
 $\varnothing 8.998...9.007$  (0.3543...0.3546)  
 VPL-A/B075xx Motors:  
 $\varnothing 10.997...11.008$  (0.4330...0.4334)

**Shaft-end Threaded Hole**  
 VPL-A/B063xx Motors:  
 Thread - M3 x 0.5-6H  
 Thread Depth - 9.0 (0.354)  
 VPL-A/B075xx Motors:  
 Thread - M4 x 0.7-6H  
 Thread Depth - 10.0 (0.393)

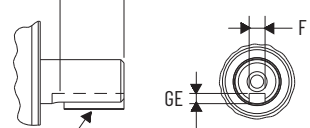
**Detail A**



**Fully Developed Keyway Length**  
 VPL-A/B063xx Motors: 14.0 (0.551)  
 VPL-A/B075xx Motors: 16.0 (0.630)

**Key Supplied**  
 VPL-A/B063xx =  $3_{(+0, -0.025)} \times 3_{(+0, -0.025)} \times 13$  Key  
 VPL-A/B075xx =  $4_{(+0, -0.030)} \times 4_{(+0, -0.030)} \times 15$  Key

**Shaft Detail with Key**



Shaft, Pilot, and Keyway Tolerances	VPL-A/B063xx	VPL-A/B075xx
Shaft Runout (T.I.R.)	0.030 (0.0012)	0.035 (0.0014)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)
Keyway Depth (GE)	1.80...1.90 (0.071...0.075)	2.50...2.60 (0.098...0.102)
Keyway Width (F)	2.971...2.996 (0.117...0.118)	3.970...4.000 (0.156...0.158)

## VPL-A/B063xx and VPL-A/B075xx Motor Dimensions

Motor Cat. No.	AD mm (in.)	HD mm (in.)	LA mm (in.)	LD <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	D <sup>(4)</sup> mm (in.)	M mm (in.)	S <sup>(3)</sup> mm (in.)	N <sup>(4)</sup> mm (in.)	P mm (in.)	GE <sup>(4)</sup> mm (in.)	F <sup>(4)</sup> mm (in.)
VPL-A/B0631				100.2 (3.94)	60.3 (2.37)	143.1 (5.63)	123.1 (4.85)								
VPL-A/B0632	69.5 (2.74)	97.0 (3.82)	9.0 (0.35)	125.2 (4.93)	85.3 (3.36)	168.1 (6.61)	148.1 (5.83)	20.0 (0.787)	9.0 (0.354)	63.0 (2.480)	5.80 (0.234)	40.0 (1.575)	55.0 (2.17)	1.90 (0.075)	3.0 (0.118)
VPL-A/B0633				150.2 (5.91)	110.3 (4.34)	193.1 (7.59)	173.1 (6.81)								
VPL-A/B0751				102.0 (4.02)	62.1 (2.44)	147.9 (5.82)	124.9 (4.92)								
VPL-A/B0752	77.0 (3.03)	112.0 (4.41)	9.0 (0.35)	127.0 (5.00)	87.1 (3.43)	172.9 (6.80)	149.9 (5.90)	23.0 (0.906)	11.0 (0.433)	75.0 (2.953)	5.80 (0.234)	60.0 (2.362)	70.0 (2.76)	2.60 (0.102)	4.0 (0.157)
VPL-A/B0753				152.0 (5.98)	112.1 (4.41)	197.9 (7.79)	174.9 (6.89)								

(1) If ordering an VPL-A/B063xx or VPL-A/B075xx motor with brake, add 30.6 mm (1.20 in.) to dimension L, LB, LE, and LD.

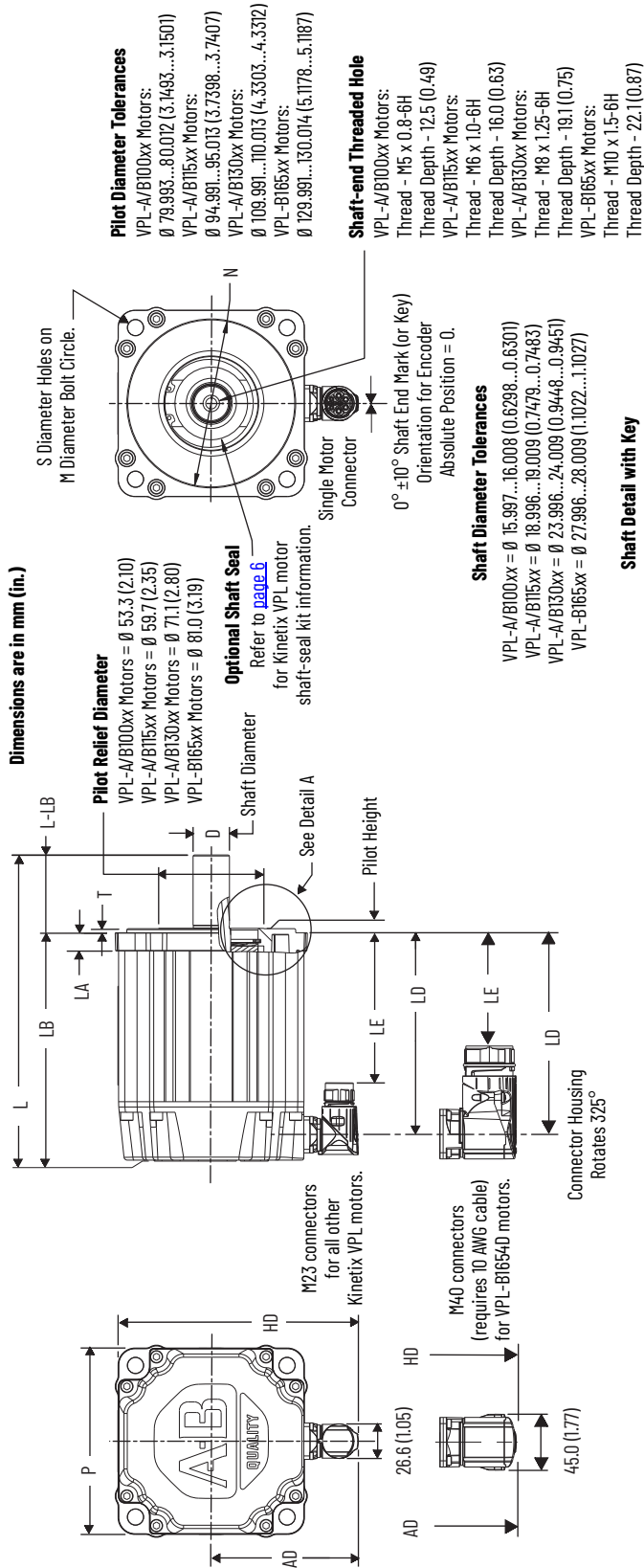
(2) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.028$  in.).

(3) Tolerance for this dimension is  $+0.3$ ,  $-0.0$  mm ( $\pm 0.006$  in.).

(4) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 22](#).

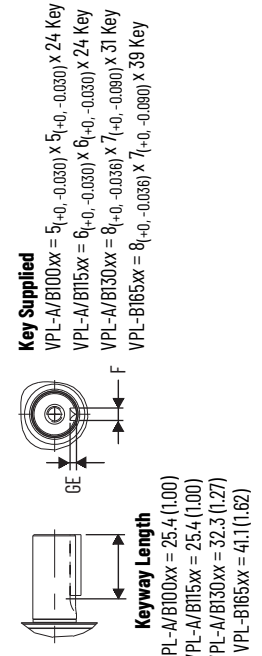
Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

VPL-A/B100xx, VPL-A/B115xx, VPL-A/B130xx, and VPL-B165xx Motor Dimensions (SpeedTec DIN connectors)

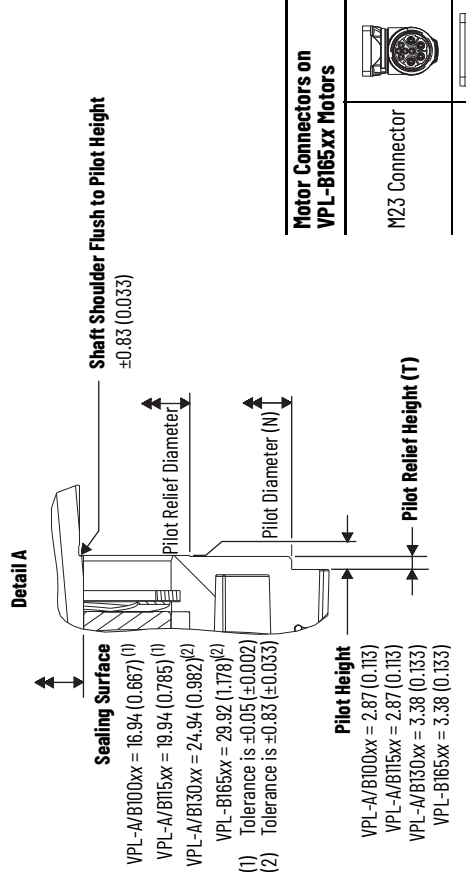


**Pilot Diameter Tolerances**  
 VPL-A/B100xx Motors:  
 $\varnothing$  78.993...80.072 (3.1493...3.1501)  
 VPL-A/B115xx Motors:  
 $\varnothing$  94.991...95.013 (3.7398...3.7407)  
 VPL-A/B130xx Motors:  
 $\varnothing$  108.991...110.013 (4.3303...4.3312)  
 VPL-B165xx Motors:  
 $\varnothing$  129.991...130.014 (5.1178...5.1187)

**Shaft-end Threaded Hole**  
 VPL-A/B100xx Motors:  
 Thread - M5 x 0.8-6H  
 Thread Depth - 12.5 (0.49)  
 VPL-A/B115xx Motors:  
 Thread - M6 x 1.0-6H  
 Thread Depth - 16.0 (0.63)  
 VPL-A/B130xx Motors:  
 Thread - M8 x 1.25-6H  
 Thread Depth - 19.1 (0.75)  
 VPL-B165xx Motors:  
 Thread - M10 x 1.5-6H  
 Thread Depth - 22.1 (0.87)



**Shaft Detail with Key**



Motor Connectors on VPL-B165xx Motors	Motor Cat. No.	Shaft, Pilot, and Keyway Tolerances	VPL-A/B100xx	VPL-A/B115xx	VPL-A/B130xx VPL-B165xx
M23 Connector	VPL-B1651x VPL-B1652x VPL-B1653x VPL-B1654B	Shaft Runout (T.I.R.)	0.04 (0.0016)		
M40 Connector	VPL-B1654D	Pilot Eccentricity (T.I.R.)	0.078 (0.0031)		
		Max Face Runout (T.I.R.)	0.078 (0.0031)		
		Keyway Depth (GE)	3.00...3.10 (0.118...0.122)	3.50...3.60 (0.138...0.142)	4.00...4.20 (0.158...0.165)
		Keyway Width (F)	4.97...5.00 (0.196...0.197)	5.97...6.00 (0.235...0.236)	7.96...8.00 (0.314...0.315)



## VPL-A/B100xx, VPL-A/B115xx, VPL-A/B130xx, and VPL-B165xx Motor Dimensions (SpeedTec DIN connectors)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD (1) mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D (3) mm (in.)	M mm (in.)	S mm (in.)	N (3) mm (in.)	P mm (in.)	GE (3) mm (in.)	F (3) mm (in.)		
VPL-A/B1001					108.7 (4.28)	68.9 (2.71)	169.8 (6.68)	129.8 (5.11)										
VPL-A/B1002	86.5 (3.40)	131.2 (5.17)	2.74 (0.108)	9.90 (0.39)	134.1 (5.28)	94.3 (3.71)	195.2 (7.68)	155.2 (6.11)	40.0 (1.575)	16.0 (0.630)	100.0 (3.937)	7.00 (4) (0.283)	80.0 (3.15)	89.4 (3.52)	3.0 (0.118)	5.0 (0.197)		
VPL-A/B1003					159.5 (6.28)	119.7 (4.71)	220.6 (8.68)	180.6 (7.11)										
VPL-A/B1152	90.8 (3.58)	140.0 (5.51)	2.74 (0.108)	10.16 (0.40)	130.6 (5.14)	90.7 (3.57)	191.6 (7.54)	151.6 (5.97)	40.0 (1.575)	19.0 (0.748)	115.0 (4.528)	10.00 (4) (0.401)	95.0 (3.74)	98.3 (3.87)	3.5 (0.138)	6.0 (0.236)		
VPL-A/B1153					156.0 (6.14)	116.1 (4.57)	217.0 (8.54)	177.0 (6.97)										
VPL-A/B1303					159.3 (6.27)	119.4 (4.70)	230.3 (9.06)	180.3 (7.10)										
VPL-A/B1304	98.6 (3.88)	155.4 (6.12)	2.74 (0.108)	12.19 (0.48)	184.7 (7.27)	144.8 (5.70)	255.7 (10.06)	205.7 (8.10)	50.0 (1.969)	24.0 (0.945)	130.0 (5.118)	10.00 (4) (0.401)	110.0 (4.33)	113.7 (4.48)	4.0 (0.158)	8.0 (0.315)		
VPL-A/B1306					235.5 (9.27)	195.6 (7.70)	306.5 (12.06)	256.5 (10.10)										
VPL-B1651					155.4 (6.12)	115.6 (4.55)	235.6 (9.27)	175.6 (6.92)										
VPL-B1652					206.2 (8.12)	166.4 (6.55)	286.4 (11.27)	226.4 (8.92)										
VPL-B1653	113.3 (4.46)	185.0 (7.28)	3.12 (0.123)	14.0 (0.55)	257.0 (10.12)	217.2 (8.55)	337.2 (13.27)	277.2 (10.92)	60.0 (2.362)	28.0 (1.102)	165.0 (6.496)	12.00 (5) (0.481)	130.0 (5.118)	143.5 (5.65)	4.0 (0.158)	8.0 (0.315)		
VPL-B1654B					307.8 (12.12)	268.0 (10.55)	388.0 (15.28)	328.0 (12.92)										
VPL-B1654D	132.9 (5.23)	204.6 (8.06)			306.8 (12.08)	235.8 (9.28)												

(1) If ordering a VPL-A/B100xx-xxx4xx motor with brake, add 34.5 mm (1.36 in.) to dimensions L, LB, LE, and LD.

If ordering a VPL-A/B115xx-xxx4xx motor with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LE, and LD.

If ordering a VPL-A/B130xx-xxx4xx motor with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LE, and LD.

If ordering a VPL-B165xx-xxx4xx motor with brake, add 51.5 mm (2.03 in.) to dimensions L, LB, LE, and LD.

(2) Tolerance for this dimension is ±0.7 mm (±0.028 in.).

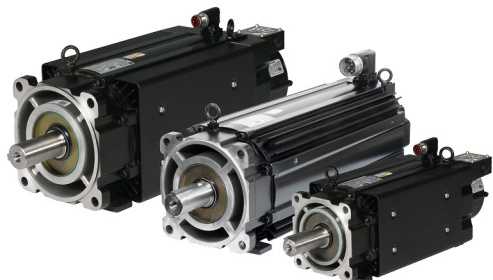
(3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 24](#).

(4) Tolerance for this dimension is +0.36, -0.0 mm (±0.007 in.).

(5) Tolerance for this dimension is +0.43, -0.0 mm (±0.008 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

# Kinetix VPC Continuous-duty Servo Motors



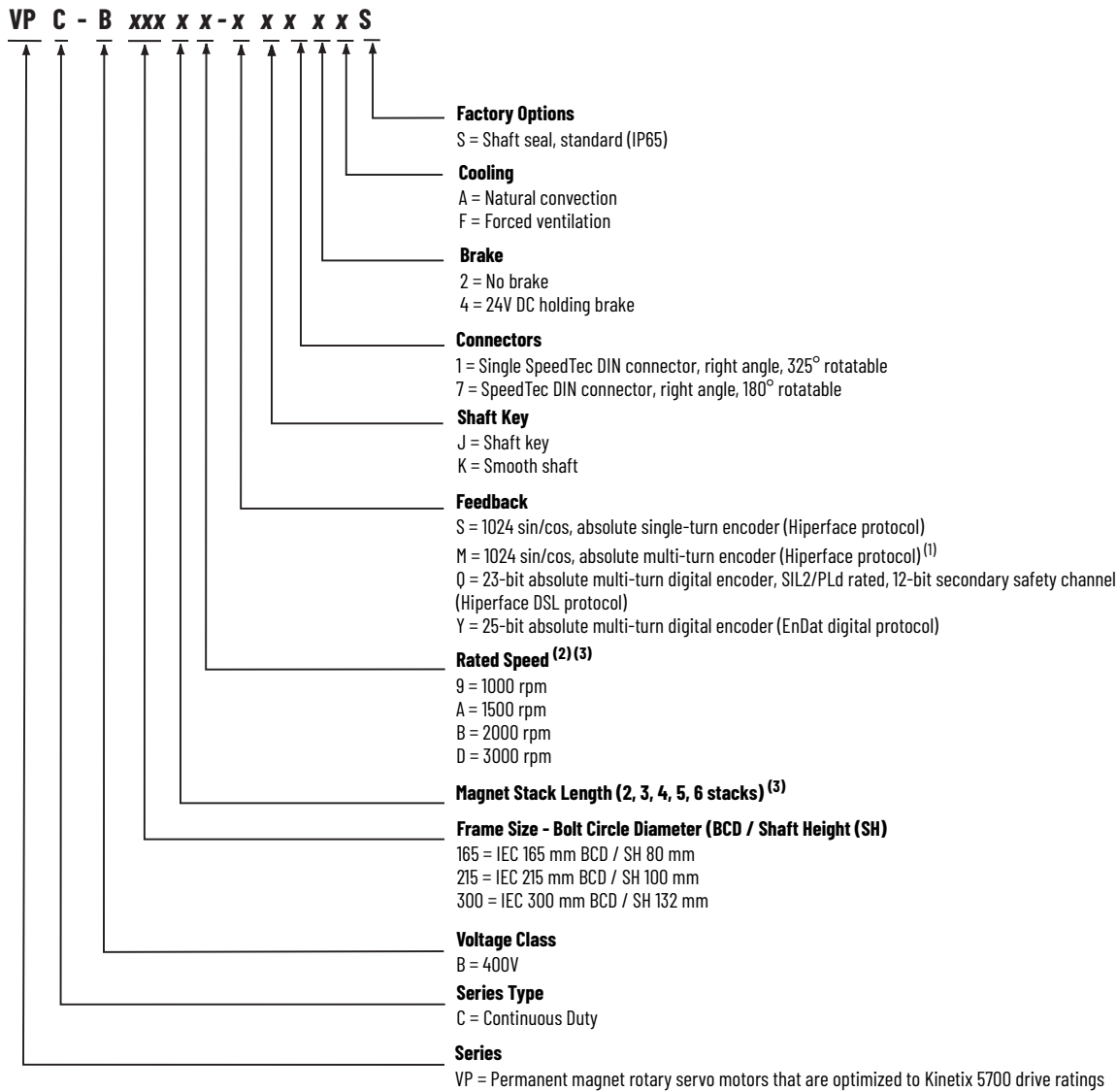
The Kinetix VPC servo motors are available with optimized performance ratings and features aligned to the Kinetix 5700 drive system for applications with high-torque and high-speed demands. With improved encoder offerings, 2090-Series single cable capability, and a field-replaceable fan, this motor provides a significant boost in functionality and power. Kinetix VPC servo motors employ cutting-edge interior permanent-magnet technology that enables increased maximum speeds, low-torque ripple, and IE4/IE5 energy efficiency to improve and extend machine performance while maintaining a competitive system cost.

## Kinetix VPC Servo Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• Developed to match Kinetix 5700 drives for optimized system sizing and performance</li> <li>• 2090-Series single cable technology</li> <li>• Cooling fan (F option) or fanless (without cooling fan) motor (A option)                             <ul style="list-style-type: none"> <li>– Fan for increased torque/power output</li> <li>– Fanless for reduced wiring and less air disturbance</li> </ul> </li> <li>• Larger bearings for higher radial loads and longer life</li> <li>• Integrated foot mount for expanded application space</li> <li>• IE4 and IE5 energy efficiency rated</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 400V-class windings</li> <li>• Single-turn and multi-turn high-resolution absolute encoders</li> <li>• SIL 2 (PLd) rated encoder options</li> <li>• High-accuracy EnDat digital encoder option</li> <li>• Interior permanent-magnet design</li> <li>• Shaft-end threaded hole</li> <li>• SpeedTec DIN connector</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	IP65 with shaft seal and use of environmentally sealed cable connectors
Certifications	Kinetix VPC rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	17.6...191.1 N•m (156...1691 lb•in)
Peak stall torque	40.3...327.8 N•m (357...2901 lb•in)
Rated speed	1000, 1500, 2000, and 3000 rpm
Motor rated output	3.4...30 kW (4.6...40.2 Hp)
Compatible servo drives	Kinetix 5700
Compatible servo cables	<ul style="list-style-type: none"> <li>• 2090-CSxM1xx-xxAA/AFxx (TPE) cables</li> <li>• 2090-CSxM1xx-xxVA/LFxx (PVC and PUR) cables</li> <li>• 2090-CxxM7xx cables</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>• Converting</li> <li>• Printing</li> <li>• Web handling</li> <li>• Material handling</li> </ul>

# Catalog Numbers - Kinetix VPC Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) M encoder option is available on only VPC-B3004x servo motors.  
 (2) Rated speed hierarchy is only for comparative purposes. Use Motion Analyzer software to size and select motors for your application, and/or the torque/speed curves in the Kinetix 5700 Drive System Design Guide, publication [KNX-RM010](#).  
 (3) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in on [page 30](#) are available. Use Motion Analyzer software to size and select motors for your application.

## Kinetix VPC Servo Motor High-resolution Encoders

Kinetix VPC servo motors are available with high-performance encoders with a choice of single-turn (-S) or multi-turn (-M, -Q, or -Y) high-resolution feedback:

- VPC-Bxxxx-S motors with Hiperface protocol
  - 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution), absolute single-turn encoder
- VPC-B3004x-M motors with Hiperface protocol
  - 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution), absolute multi-turn encoder
- VPC-Bxxxx-Q motor with Hiperface DSL protocol
  - 23-bit resolution for up to 8,388,608 counts per revolution, absolute multi-turn digital encoder, 4096 turns
  - SIL2/PLd rated, 12-bit secondary safety channel
  - Digital two-wire communication integrated into the 2090-Series single motor cable
- VPC-Bxxxx-Y motors with EnDat Digital protocol
  - 25-bit resolution for up to 33,554,432 counts per revolution, absolute multi-turn digital encoder, 4096 turns

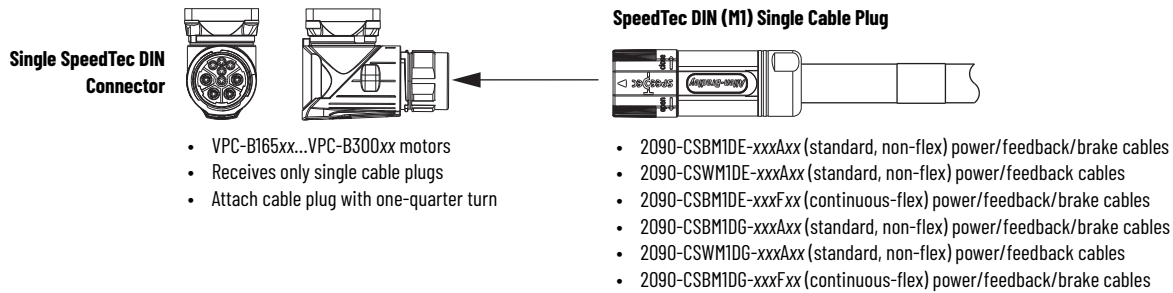
## Kinetix 2090-Series Single Cable Technology

Motor connectivity reduced to a single connector and cable with VPC-Bxxxx-Q motors

- Single cable eliminates hardware and wire terminations
- Purely digital two-wire communication integrated into the motor power cable
- TPE cable material for standard (non-flex) and continuous-flex cable
- PVC cable material for standard (non-flex) and Halogen-free PUR continuous-flex cable
- 2090-CSxM1Dx cables are available in 1.0 m (3.2 ft) increments up to 90 m (295 ft) for Kinetix 5700 drives

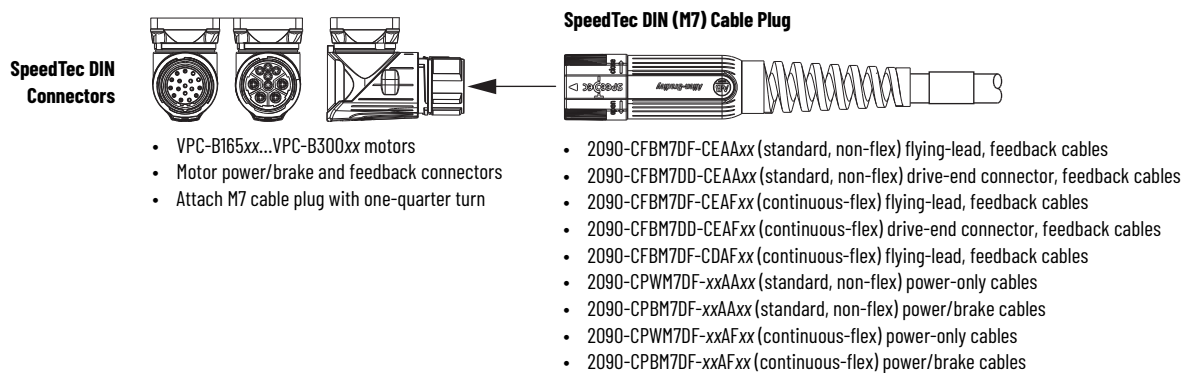
## Motor Connector/Cable Compatibility

VPC-Bxxxx-Q motors are equipped with DSL encoders.



**IMPORTANT** Due to the unique characteristics of 2090-series single cable technology, designed for and tested with Kinetix 5700 drives and Kinetix VPC-Bxxxx-Q motors, building your own cables or using third-party cable is not an option.

VPC-Bxxxx-S and VPC-B3004x-M motors are equipped with Hiperface encoders and VPC-Bxxxx-Y motors are equipped with EnDat encoders.



For 2090-Series motor cable specifications, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

## Kinetix VPC Servo Motor Options

Kinetix VPC servo motors are available with these configurable options:

- 24V DC holding brake.
- Choice of forced ventilation (fan) or natural convection (without fan) motor.
- Choice of keyed or smooth shaft.
- Shaft seal kits are standard and are also available as replacement kits for field installation. Shaft seals are made of nitrile and kits include a lubricant to reduce wear.

**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPC-B165xx	MPL-SSN-A6B6
VPC-B215xx	VPL-SS-X256
VPC-B300xx	VPC-SSN-F300

Refer to the Kinetix VPC Continuous-duty Servo Motors Installation Instructions, publication [VPC-IN001](#), for more information on motor accessories.

## Technical Specifications - Kinetix VPC Servo Motors

Kinetix VPC servo motors are available with (-xxxxFS) and without (-xxxxAS) a cooling fan. The Continuous Rated Torque column lets you compare torque values for both options at the corresponding rated speed.

### Kinetix VPC Servo Motor Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed <sup>(1)</sup> rpm	Continuous Stall Torque N·m (lb·in)	Continuous Rated Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Motor Rated Efficiency <sup>(2)</sup> %	Rotor Inertia <sup>(3)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
VPC-B1652A-xxxxAS	1500	2300	25.2 (223)	21.9 (194)	40.3 (357)	3.4 (4.6)	91.2 (IE4)	0.00286 (0.025)	18.5 (40.8)
VPC-B1652A-xxxxFS		4500 (2347)	25.5 (226)	25.5 (226)		4.0 (5.4)	91.1 (IE4)		20.1 (44.3)
VPC-B1653A-xxxxAS	1500	2300	31.8 (281)	28.1 (249)	60.6 (536)	4.4 (5.9)	93.1 (IE5)	0.00410 (0.036)	25.7 (56.7)
VPC-B1653A-xxxxFS		4500 (2310)	35.1 (311)	35.1 (311)		5.5 (7.4)	92.6 (IE5)		24.0 (52.8)
VPC-B1652D-xxxxAS	3000	4400	17.6 (156)	15.3 (135)	40.7 (360)	4.8 (6.4)	94.0 (IE5)	0.00286 (0.025)	18.5 (40.8)
VPC-B1652D-xxxxFS		5000 (4452)		17.6 (156)		5.5 (7.4)	93.0 (IE5)		20.1 (44.3)
VPC-B1653D-xxxxAS	3000	4200	24.0 (212)	18.5 (164)	61.4 (543)	5.8 (7.8)	94.1 (IE5)	0.00410 (0.036)	24.0 (52.8)
VPC-B1653D-xxxxFS		5000 (4294)	24.0 (212)	24.0 (212)		7.5 (10.1)	93.8 (IE5)		25.7 (56.7)
VPC-B1654D-xxxxAS	3000	4200	35.1 (311)	22.3 (197)	76.6 (678)	7.0 (9.4)	95.3 (IE5)	0.00532 (0.047)	29.5 (65.1)
VPC-B1654D-xxxxFS		5000 (4494)		35.1 (311)		35.1 (311)	11.0 (14.7)		93.5 (IE5)
VPC-B21539-xxxxAS	1000	1500	52.5 (465)	51.1 (452)	118.8 (1051)	5.3 (7.2)	92.8 (IE5)	0.0106 (0.09)	38.7 (85.4)
VPC-B21539-xxxxFS		3000 (1573)		52.5 (465)		5.5 (7.4)	92.7 (IE5)		41.8 (92.1)
VPC-B21549-xxxxAS	1000	1500	72.0 (637)	64.4 (570)	158.4 (1402)	6.7 (9.0)	93.1 (IE5)	0.0138 (0.12)	46.8 (103.2)
VPC-B21549-xxxxFS		3000 (1573)		72.0 (637)		7.5 (10.1)	92.9 (IE5)		50.2 (110.6)
VPC-B2153A-xxxxAS	1500	2300	48.0 (425)	46.2 (409)	111.8 (990)	7.3 (9.7)	93.3 (IE5)	0.0106 (0.09)	38.4 (85.4)
VPC-B2153A-xxxxFS		4500 (2325)		48.0 (425)		7.5 (10.1)	93.9 (IE5)		41.8 (92.1)
VPC-B2154A-xxxxAS	1500	2300	70.1 (620)	58.7 (520)	140.1 (1240)	9.2 (12.3)	94.4 (IE5)	0.0138 (0.12)	46.8 (103.2)
VPC-B2154A-xxxxFS		4500 (2333)		70.1 (620)		11.0 (14.7)	94.5 (IE5)		50.2 (110.6)
VPC-B2154B-xxxxAS	2000	3200	48.0 (425)	45.1 (399)	131.4 (1163)	9.4 (12.6)	95.7 (IE5)	0.0138 (0.12)	46.8 (103.2)
VPC-B2154D-xxxxFS	3000	5000 (4294)		48.0 (425)		15.0 (20.1)	94.5 (IE5)		50.2 (110.6)
VPC-B2155B-xxxxAS	2000	3200	59.0 (522)	51.7 (458)	156.7 (1387)	10.8 (14.5)	94.4 (IE5)	0.0170 (0.15)	55.6 (122.5)
VPC-B2155D-xxxxFS	3000	5000 (4172)	59.0 (522)	59.0 (522)	156.7 (1387)	18.5 (24.8)	94.0 (IE4)	0.0170 (0.15)	58.9 (129.9)

## Kinetix VPC Servo Motor Performance Specifications (continued)

Motor Cat. No.	Rated Speed rpm	Maximum <sup>(1)</sup> Speed rpm	Continuous Stall Torque N·m (lb·in)	Continuous Rated Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Motor Rated <sup>(2)</sup> Efficiency %	Rotor Inertia <sup>(3)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(3)</sup> approx kg (lb)
VPC-B2156A-xxxxAS	1500	2800	70.1 (620)	56.1 (497)	185.5 (1642)	8.8 (11.8)	93.9 (IE5)	0.0203 (0.17)	63.3 (139.6)
VPC-B2156D-xxxxFS	3000	5000 (4101)	70.1 (620)	70.1 (620)	185.5 (1642)	22.0 (29.5)	94.0 (IE4)		66.8 (147.3)
VPC-B30029-xxxxAS	1000	1400	103.4 (915)	100.2 (887)	183.7 (1626)	10.5 (14.1)	94.8 (IE5)	0.0285 (0.25)	75.0 (165.2)
VPC-B30029-xxxxFS		3000 (1493)	105.1 (930)	105.1 (930)		11.0 (14.7)	94.9 (IE5)		81.4 (179.5)
VPC-B30039-xxxxAS	1000	1400	142.4 (1260)	135.7 (1201)	237.9 (2106)	14.2 (19.1)	96.4 (IE5)	0.0399 (0.35)	89.3 (196.8)
VPC-B30039-xxxxFS		3000 (1472)	143.3 (1268)	143.3 (1268)		15.0 (20.1)	96.3 (IE5)		95.7 (210.9)
VPC-B30049-xxxxAS	1000	1400	176.1 (1558)	167.7 (1484)	327.8 (2901)	17.6 (23.6)	95.6 (IE5)	0.0520 (0.46)	109.8 (242.2)
VPC-B30049-xxxxFS		3000 (1429)	176.7 (1564)	176.7 (1564)		18.5 (24.8)	96.5 (IE5)		116.7 (257.2)
VPC-B3002A-xxxxAS	1500	2200	95.5 (845)	90.6 (802)	170.4 (1508)	14.2 (19.1)	94.6 (IE5)	0.0285 (0.25)	75.0 (165.2)
VPC-B3002A-xxxxFS		4000 (2212)		95.5 (845)		15.0 (20.1)	95.2 (IE5)		81.4 (179.5)
VPC-B3003A-xxxxAS	1500	2100	140.3 (1242)	111.3 (985)	244.8 (2167)	17.5 (23.4)	96.7 (IE5)	0.0399 (0.35)	89.3 (196.8)
VPC-B3003A-xxxxFS		3500 (2166)		140.3 (1242)		22.0 (29.5)	96.3 (IE5)		95.7 (210.9)
VPC-B3004A-xxxxAS	1500	2100	191.1 (1691)	155.1 (1373)	319.0 (2823)	24.4 (34.1)	95.9 (IE5)	0.0520 (0.46)	109.8 (242.2)
VPC-B3004A-xxxxFS		3500 (2128)		191.1 (1691)		30.0 (40.2)	96.0 (IE5)		116.7 (257.2)
VPC-B3004B-xxxxAS	2000	2800	95.5 (845)	78.1 (691)	257.7 (2281)	16.4 (22.0)	94.0 (IE5)	0.0520 (0.46)	109.8 (242.2)
VPC-B3004D-xxxxFS	3000	4000 (4054)	95.5 (845)	95.5 (845)	257.7 (2281)	30.0 (40.2)	94.7 (IE4)		116.7 (257.2)

(1) Operation beyond maximum speed requires DC-bus protection. Bus overvoltage speed is shown in parentheses. See the Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), for more information on bus overvoltage speed, field-weakening mode, and the extended speed feature.

(2) Kinetix VPC motor is rated at or above IE4 efficiency for rated torque, speed, and temperature, with power supplied by a Kinetix 5700 drive, and switching at 4.0 kHz PWM frequency.

(3) Refer to Kinetix VPC Servo Motor Brake Specifications for brake rotor inertia and brake motor weight.

## Kinetix VPC Servo Motor Brake Specifications

Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time		Brake Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor <sup>(1)</sup> Weight, approx kg (lb)	Brake Motor <sup>(2)</sup> Weight, approx kg (lb)	
				Release ms	Engage <sup>(3)</sup> ms				
VPC-B1652	30	35.0 (310)	1.01...1.70	50	200	0.00299 (0.026)	23.3 (51.4)	21.6 (47.6)	
VPC-B1653						0.00421 (0.037)	28.9 (63.7)	27.1 (59.7)	
VPC-B1654						0.00543 (0.048)	34.3 (75.7)	32.4 (71.4)	
VPC-B2153		72 (637)	1.73...3.00	200	300	0.0108 (0.09)	52.7 (116.1)	49.4 (108.9)	
VPC-B2154						0.0141 (0.12)	60.7 (133.7)	57.2 (126.2)	
VPC-B2155						0.0174 (0.15)	69.8 (153.8)	66.3 (146.2)	
VPC-B2156							0.0205 (0.18)	77.7 (171.3)	74.2 (163.6)
VPC-B3002		200 (1770)	2.35...3.90	300	1000	0.0290 (0.25)	102.9 (226.8)	96.0 (211.7)	
VPC-B3003						0.0412 (0.36)	117.1 (258.1)	110.1 (242.7)	
VPC-B3004						0.0539 (0.47)	138.1 (304.5)	130.7 (288.2)	

(1) Brake motor weight with cooling fan, catalog number VPC-Bxxxxx-xxxxFS.

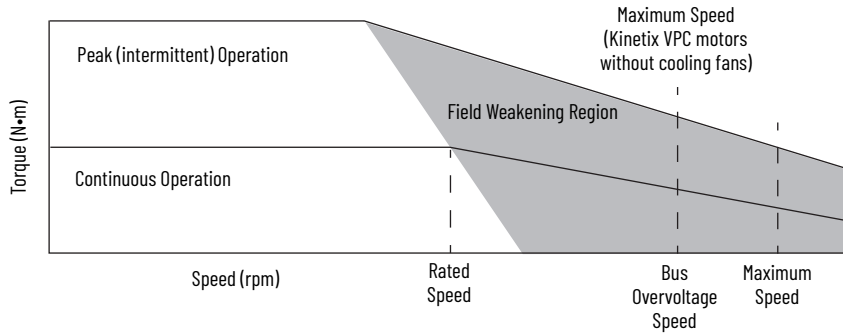
(2) Brake motor weight without cooling fan, catalog number VPC-Bxxxxx-xxxxAS.

(3) By using diode and zener diode as arc suppression device in external control circuit.

## Field Weakening Mode

Kinetix VPC interior permanent magnet (IPM) motors are designed to operate in Field Weakening mode to widen the speed range. Operation in Field Weakening mode can result in Back EMF voltage increasing to a level that exceeds the DC-bus voltage if a loss of control occurs. When this loss of control occurs, the Back EMF voltage can charge the DC-bus to a level that can overvoltage the DC-bus caps and result in a failure of the common DC-bus.

### Field Weakening Region



**ATTENTION:** Operation at speeds exceeding the Bus Overvoltage Speed requires the use of an active shunt, configured in the Studio 5000 Logix Designer® application, to protect the DC bus system from an overvoltage condition. DC-bus failure can cause damage to all drive modules in the bus group, not just the inverter connected to the Kinetix VPC servo motor. See the Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), for information on active shunt selection and configuration.

## Extended Speed Feature

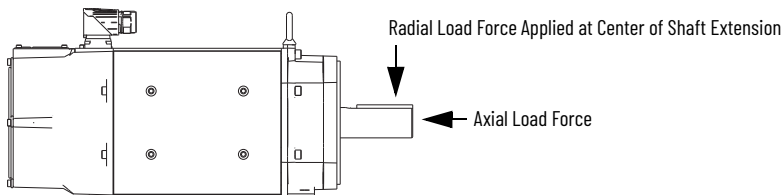
The Extended Speed feature is implemented in the Studio 5000 Logix Designer application to help prevent accidental operation at unsafe speeds. With this feature, the Logix 5000™ controller calculates a Bus Overvoltage Speed based on the drive's maximum bus-voltage and the Back EMF of the motor. This is the maximum speed that does not risk damaging the drive modules in the bus group. By default, the Extended Speed feature limits motor velocity to the Bus Overvoltage Speed.

**IMPORTANT** Bus Overvoltage Speed, identified in the Field Weakening Region figure, is maximum speed for Kinetix VPC motors without cooling fans.

## Kinetix VPC Servo Motor Load Force Ratings

Kinetix VPC servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. There are two sets of tables starting below that represent an L<sub>10</sub> bearing fatigue life of 20,000 and 40,000 hours. Bearing fatigue life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

### Load Forces on Shaft





## Kinetix VPC Servo Motors (20,000 hours bearing-fatigue life)

### Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Maximum (2) Speed rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2719 (611.3)	2158 (485.2)	1885 (423.8)	1713 (385.1)	1590 (357.5)	1496 (336.4)	1421 (319.5)	1359 (305.6)	1307 (293.9)	-
VPC-B1653A	4500	2871 (645.5)	2279 (512.3)	1991 (447.6)	1809 (406.6)	1679 (377.5)	1580 (355.2)	1501 (337.4)	1436 (322.7)	1380 (310.3)	-
VPC-B1652D	5000	2719 (611.3)	2158 (485.2)	1885 (423.8)	1713 (385.1)	1590 (357.5)	1496 (336.4)	1421 (319.5)	1359 (305.6)	1307 (293.9)	1262 (283.7)
VPC-B1653D	5000	2871 (645.5)	2279 (512.3)	1991 (447.6)	1809 (406.6)	1679 (377.5)	1580 (355.2)	1501 (337.4)	1436 (322.7)	1380 (310.3)	1333 (299.6)
VPC-B1654D	5000	2952 (663.7)	2343 (526.7)	2047 (460.2)	1860 (418.1)	1726 (388.1)	1625 (365.2)	1543 (346.9)	1476 (331.8)	1419 (319.1)	1370 (308.0)
VPC-B21539	3000	3763 (846.1)	2987 (671.5)	2609 (586.6)	2371 (533.0)	2201 (494.8)	2071 (465.6)	-	-	-	-
VPC-B21549	3000	3862 (868.3)	3066 (689.2)	2678 (602.0)	2433 (547.0)	2259 (507.8)	2126 (477.8)	-	-	-	-
VPC-B2153A	4500	3763 (846.1)	2987 (671.5)	2609 (586.6)	2371 (533.0)	2201 (494.8)	2071 (465.6)	1967 (442.3)	1882 (423.0)	1809 (406.7)	-
VPC-B2154A	4500	3862 (868.3)	3066 (689.2)	2678 (602.0)	2433 (547.0)	2259 (507.8)	2126 (477.8)	2019 (453.9)	1931 (434.1)	1857 (417.4)	-
VPC-B2154B	3200	3862 (868.3)	3066 (689.2)	2678 (602.0)	2433 (547.0)	2259 (507.8)	2126 (477.8)	-	-	-	-
VPC-B2154D	5000	3862 (868.3)	3066 (689.2)	2678 (602.0)	2433 (547.0)	2259 (507.8)	2126 (477.8)	2019 (453.9)	1931 (434.1)	1857 (417.4)	1793 (403.0)
VPC-B2155B	3200	3941 (886.1)	3128 (703.3)	2733 (614.4)	2483 (558.2)	2305 (518.2)	2169 (487.6)	-	-	-	-
VPC-B2155D	5000	3941 (886.1)	3128 (703.3)	2733 (614.4)	2483 (558.2)	2305 (518.2)	2169 (487.6)	2060 (463.2)	1971 (443.0)	1895 (426.0)	1829 (411.3)
VPC-B2156A	2800	4006 (900.6)	3180 (714.8)	2778 (624.4)	2524 (567.3)	2343 (526.7)	-	-	-	-	-
VPC-B2156D	5000	4006 (900.6)	3180 (714.8)	2778 (624.4)	2524 (567.3)	2343 (526.7)	2205 (495.6)	2094 (470.8)	2003 (450.3)	1926 (433.0)	1859 (418.0)
VPC-B30029	3000	5702 (1282.0)	4526 (1017.5)	3954 (888.9)	3592 (807.6)	3335 (749.7)	3138 (705.5)	-	-	-	-
VPC-B30039	3000	5702 (1282.0)	4526 (1017.5)	3954 (888.9)	3592 (807.6)	3335 (749.7)	3138 (705.5)	-	-	-	-
VPC-B30049	3000	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	3226 (725.2)	-	-	-	-
VPC-B3002A	4000	5702 (1282.0)	4526 (1017.5)	3954 (888.9)	3592 (807.6)	3335 (749.7)	3138 (705.5)	2981 (670.2)	2851 (641.0)	-	-
VPC-B3003A	3500	5702 (1282.0)	4526 (1017.5)	3954 (888.9)	3592 (807.6)	3335 (749.7)	3138 (705.5)	2981 (670.2)	-	-	-
VPC-B3004A	3500	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	3226 (725.2)	3064 (688.8)	-	-	-
VPC-B3004B	2800	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	-	-	-	-	-
VPC-B3004D	4000	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	3226 (725.2)	3064 (688.8)	2931 (658.8)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

**Axial Load Force Ratings (maximum radial load) for Non-brake Motors**

Motor Cat. No. (1)	Maximum (2) Speed rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	-
VPC-B1653A	4500	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	-
VPC-B1652D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B1653D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B1654D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B21539	3000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	-	-	-	-
VPC-B21549	3000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	-	-	-	-
VPC-B2153A	4500	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	-
VPC-B2154A	4500	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	-
VPC-B2154B	3200	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	-	-	-	-
VPC-B2154D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B2155B	3200	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	-	-	-	-
VPC-B2155D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B2156A	2800	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	-	-	-	-	-
VPC-B2156D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B30029	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	-	-	-	-
VPC-B30039	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	-	-	-	-
VPC-B30049	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	-	-	-	-
VPC-B3002A	4000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	737 (165.8)	-	-
VPC-B3003A	3500	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	-	-	-
VPC-B3004A	3500	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	-	-	-
VPC-B3004B	2800	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	-	-	-	-	-
VPC-B3004D	4000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	737 (165.8)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

## Axial Load Force Ratings (zero radial load) for Non-brake Motors

Motor Cat. No. (1)	Maximum (2) Speed rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	-
VPC-B1653A	4500	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	-
VPC-B1652D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B1653D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B1654D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B21539	3000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	-	-	-	-
VPC-B21549	3000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	-	-	-	-
VPC-B2153A	4500	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	-
VPC-B2154A	4500	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	-
VPC-B2154B	3200	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	-	-	-	-
VPC-B2154D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B2155B	3200	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	-	-	-	-
VPC-B2155D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B2156A	2800	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	-	-	-	-	-
VPC-B2156D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B30029	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	-	-	-	-
VPC-B30039	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	-	-	-	-
VPC-B30049	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	-	-	-	-
VPC-B3002A	4000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	2160 (485.7)	-	-
VPC-B3003A	3500	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	-	-	-
VPC-B3004A	3500	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	-	-	-
VPC-B3004B	2800	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	-	-	-	-	-
VPC-B3004D	4000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	2160 (485.7)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. (1)	Maximum (2) Speed rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2871 (645.5)	2279 (512.3)	1991 (447.6)	1809 (406.6)	1679 (377.5)	1580 (355.2)	1501 (337.4)	1436 (322.7)	1380 (310.3)	-
VPC-B1653A	4500	2952 (663.7)	2343 (526.7)	2047 (460.2)	1860 (418.1)	1726 (388.1)	1625 (365.2)	1543 (346.9)	1476 (331.8)	1419 (319.1)	-
VPC-B1652D	5000	2871 (645.5)	2279 (512.3)	1991 (447.6)	1809 (406.6)	1679 (377.5)	1580 (355.2)	1501 (337.4)	1436 (322.7)	1380 (310.3)	1333 (299.6)
VPC-B1653D	5000	2952 (663.7)	2343 (526.7)	2047 (460.2)	1860 (418.1)	1726 (388.1)	1625 (365.2)	1543 (346.9)	1476 (331.8)	1419 (319.1)	1370 (308.0)
VPC-B1654D	5000	3016 (678.1)	2394 (538.2)	2091 (470.2)	1900 (427.2)	1764 (396.5)	1660 (373.2)	1577 (354.5)	1508 (339.0)	1450 (326.0)	1400 (314.7)
VPC-B21539	3000	3941 (886.1)	3128 (703.3)	2733 (614.4)	2483 (558.2)	2305 (518.2)	2169 (487.6)	-	-	-	-
VPC-B21549	3000	4006 (900.6)	3180 (714.8)	2778 (624.4)	2524 (567.3)	2343 (526.7)	2205 (495.6)	-	-	-	-
VPC-B2153A	4500	3941 (886.1)	3128 (703.3)	2733 (614.4)	2483 (558.2)	2305 (518.2)	2169 (487.6)	2060 (463.2)	1971 (443.0)	1895 (426.0)	-
VPC-B2154A	4500	4006 (900.6)	3180 (714.8)	2778 (624.4)	2524 (567.3)	2343 (526.7)	2205 (495.6)	2094 (470.8)	2003 (450.3)	1926 (433.0)	-
VPC-B2154B	3200	4006 (900.6)	3180 (714.8)	2778 (624.4)	2524 (567.3)	2343 (526.7)	2205 (495.6)	-	-	-	-
VPC-B2154D	5000	4006 (900.6)	3180 (714.8)	2778 (624.4)	2524 (567.3)	2343 (526.7)	2205 (495.6)	2094 (470.8)	2003 (450.3)	1926 (433.0)	1859 (418.0)
VPC-B2155B	3200	4106 (923.0)	3259 (732.5)	2847 (639.9)	2586 (581.4)	2401 (539.7)	2259 (507.9)	-	-	-	-
VPC-B2155D	5000	4106 (923.0)	3259 (732.5)	2847 (639.9)	2586 (581.4)	2401 (539.7)	2259 (507.9)	2146 (482.5)	2053 (461.5)	1974 (443.7)	1906 (428.4)
VPC-B2156A	2800	4106 (923.0)	3259 (732.5)	2847 (639.9)	2586 (581.4)	2401 (539.7)	-	-	-	-	-
VPC-B2156D	5000	4106 (923.0)	3259 (732.5)	2847 (639.9)	2586 (581.4)	2401 (539.7)	2259 (507.9)	2146 (482.5)	2053 (461.5)	1974 (443.7)	1906 (428.4)
VPC-B30029	3000	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	3226 (725.2)	-	-	-	-
VPC-B30039	3000	5990 (1346.5)	4754 (1068.7)	4153 (933.6)	3773 (848.3)	3503 (787.5)	3296 (741.0)	-	-	-	-
VPC-B30049	3000	6184 (1390.2)	4908 (1103.4)	4288 (963.9)	3896 (875.8)	3616 (813.0)	3403 (765.1)	-	-	-	-
VPC-B3002A	4000	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	3226 (725.2)	3064 (688.8)	2931 (658.8)	-	-
VPC-B3003A	3500	5990 (1346.5)	4754 (1068.7)	4153 (933.6)	3773 (848.3)	3503 (787.5)	3296 (741.0)	3131 (703.9)	-	-	-
VPC-B3004A	3500	6184 (1390.2)	4908 (1103.4)	4288 (963.9)	3896 (875.8)	3616 (813.0)	3403 (765.1)	3233 (726.8)	-	-	-
VPC-B3004B	2800	6184 (1390.2)	4908 (1103.4)	4288 (963.9)	3896 (875.8)	3616 (813.0)	-	-	-	-	-
VPC-B3004D	4000	6184 (1390.2)	4908 (1103.4)	4288 (963.9)	3896 (875.8)	3616 (813.0)	3403 (765.1)	3233 (726.8)	3092 (695.1)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

## Axial Load Force Ratings (maximum radial load) for Brake Motors

Motor Cat. No. (1)	Maximum (2) Speed rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	-
VPC-B1653A	4500	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	-
VPC-B1652D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B1653D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B1654D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B21539	3000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	-	-	-	-
VPC-B21549	3000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	-	-	-	-
VPC-B2153A	4500	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	-
VPC-B2154A	4500	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	-
VPC-B2154B	3200	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	-	-	-	-
VPC-B2154D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B2155B	3200	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	-	-	-	-
VPC-B2155D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B2156A	2800	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	-	-	-	-	-
VPC-B2156D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B30029	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	-	-	-	-
VPC-B30039	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	-	-	-	-
VPC-B30049	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	-	-	-	-
VPC-B3002A	4000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	737 (165.8)	-	-
VPC-B3003A	3500	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	-	-	-
VPC-B3004A	3500	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	-	-	-
VPC-B3004B	2800	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	-	-	-	-	-
VPC-B3004D	4000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	737 (165.8)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

**Axial Load Force Ratings (zero radial load) for Brake Motors**

Motor Cat. No. (1)	Maximum Speed (2) rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	-
VPC-B1653A	4500	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	-
VPC-B1652D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B1653D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B1654D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B21539	3000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	-	-	-	-
VPC-B21549	3000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	-	-	-	-
VPC-B2153A	4500	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	-
VPC-B2154A	4500	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	-
VPC-B2154B	3200	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	-	-	-	-
VPC-B2154D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B2155B	3200	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	-	-	-	-
VPC-B2155D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B2156A	2800	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	-	-	-	-	-
VPC-B2156D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B30029	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	-	-	-	-
VPC-B30039	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	-	-	-	-
VPC-B30049	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	-	-	-	-
VPC-B3002A	4000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	2160 (485.7)	-	-
VPC-B3003A	3500	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	-	-	-
VPC-B3004A	3500	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	-	-	-
VPC-B3004B	2800	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	-	-	-	-	-
VPC-B3004D	4000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	2160 (485.7)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

## Kinetix VPC Servo Motors (40,000 hours bearing-fatigue life)

### Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Maximum (2) Speed rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2158 (485.2)	1713 (385.1)	1496 (336.4)	1359 (305.6)	1262 (283.7)	1188 (267.0)	1128 (253.6)	1079 (242.6)	1037 (233.2)	-
VPC-B1653A	4500	2279 (512.3)	1809 (406.6)	1580 (355.2)	1436 (322.7)	1333 (299.6)	1254 (281.9)	1191 (267.8)	1139 (256.2)	1096 (246.3)	-
VPC-B1652D	5000	2158 (485.2)	1713 (385.1)	1496 (336.4)	1359 (305.6)	1262 (283.7)	1188 (267.0)	1128 (253.6)	1079 (242.6)	1037 (233.2)	1002 (225.2)
VPC-B1653D	5000	2279 (512.3)	1809 (406.6)	1580 (355.2)	1436 (322.7)	1333 (299.6)	1254 (281.9)	1191 (267.8)	1139 (256.2)	1096 (246.3)	1058 (237.8)
VPC-B1654D	5000	2343 (526.7)	1860 (418.1)	1625 (365.2)	1476 (331.8)	1370 (308.0)	1289 (289.9)	1225 (275.4)	1172 (263.4)	1126 (253.2)	1088 (244.5)
VPC-B21539	3000	2987 (671.5)	2371 (533.0)	2071 (465.6)	1882 (423.0)	1747 (392.7)	1644 (369.6)	-	-	-	-
VPC-B21549	3000	3066 (689.2)	2433 (547.0)	2126 (477.8)	1931 (434.1)	1793 (403.0)	1687 (379.3)	-	-	-	-
VPC-B2153A	4500	2987 (671.5)	2371 (533.0)	2071 (465.6)	1882 (423.0)	1747 (392.7)	1644 (369.6)	1562 (351.0)	1494 (335.8)	1436 (322.8)	-
VPC-B2154A	4500	3066 (689.2)	2433 (547.0)	2126 (477.8)	1931 (434.1)	1793 (403.0)	1687 (379.3)	1603 (360.3)	1533 (344.6)	1474 (331.3)	-
VPC-B2154B	3200	3066 (689.2)	2433 (547.0)	2126 (477.8)	1931 (434.1)	1793 (403.0)	1687 (379.3)	-	-	-	-
VPC-B2154D	5000	3066 (689.2)	2433 (547.0)	2126 (477.8)	1931 (434.1)	1793 (403.0)	1687 (379.3)	1603 (360.3)	1533 (344.6)	1474 (331.3)	1423 (319.9)
VPC-B2155B	3200	3128 (703.3)	2483 (558.2)	2169 (487.6)	1971 (443.0)	1829 (411.3)	1722 (387.0)	-	-	-	-
VPC-B2155D	5000	3128 (703.3)	2483 (558.2)	2169 (487.6)	1971 (443.0)	1829 (411.3)	1722 (387.0)	1635 (367.6)	1564 (351.6)	1504 (338.1)	1452 (326.4)
VPC-B2156A	2800	3180 (714.8)	2524 (567.3)	2205 (495.6)	2003 (450.3)	1859 (418.0)	-	-	-	-	-
VPC-B2156D	5000	3180 (714.8)	2524 (567.3)	2205 (495.6)	2003 (450.3)	1859 (418.0)	1750 (393.4)	1662 (373.7)	1590 (357.4)	1529 (343.6)	1476 (331.8)
VPC-B30029	3000	4526 (1017.5)	3592 (807.6)	3138 (705.5)	2851 (641.0)	2647 (595.0)	2491 (559.9)	-	-	-	-
VPC-B30039	3000	4526 (1017.5)	3592 (807.6)	3138 (705.5)	2851 (641.0)	2647 (595.0)	2491 (559.9)	-	-	-	-
VPC-B30049	3000	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	2560 (575.6)	-	-	-	-
VPC-B3002A	4000	4526 (1017.5)	3592 (807.6)	3138 (705.5)	2851 (641.0)	2647 (595.0)	2491 (559.9)	2366 (531.9)	2263 (508.7)	-	-
VPC-B3003A	3500	4526 (1017.5)	3592 (807.6)	3138 (705.5)	2851 (641.0)	2647 (595.0)	2491 (559.9)	2366 (531.9)	-	-	-
VPC-B3004A	3500	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	2560 (575.6)	2432 (546.7)	-	-	-
VPC-B3004B	2800	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	-	-	-	-	-
VPC-B3004D	4000	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	2560 (575.6)	2432 (546.7)	2326 (522.9)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

**Axial Load Force Ratings (maximum radial load) for Non-brake Motors**

Motor Cat. No. (1)	Maximum (2) Speed rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	-
VPC-B1653A	4500	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	-
VPC-B1652D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B1653D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B1654D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B21539	3000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	-	-	-	-
VPC-B21549	3000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	-	-	-	-
VPC-B2153A	4500	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	-
VPC-B2154A	4500	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	-
VPC-B2154B	3200	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	-	-	-	-
VPC-B2154D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B2155B	3200	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	-	-	-	-
VPC-B2155D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B2156A	2800	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	-	-	-	-	-
VPC-B2156D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B30029	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	-	-	-	-
VPC-B30039	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	-	-	-	-
VPC-B30049	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	-	-	-	-
VPC-B3002A	4000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	546 (122.7)	-	-
VPC-B3003A	3500	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	-	-	-
VPC-B3004A	3500	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	-	-	-
VPC-B3004B	2800	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	-	-	-	-	-
VPC-B3004D	4000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	546 (122.7)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).



## Axial Load Force Ratings (zero radial load) for Non-brake Motors

Motor Cat. No. (1)	Maximum (2) Speed rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	-
VPC-B1653A	4500	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	-
VPC-B1652D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B1653D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B1654D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B21539	3000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	-	-	-	-
VPC-B21549	3000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	-	-	-	-
VPC-B2153A	4500	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	-
VPC-B2154A	4500	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	-
VPC-B2154B	3200	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	-	-	-	-
VPC-B2154D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B2155B	3200	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	-	-	-	-
VPC-B2155D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B2156A	2800	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	-	-	-	-	-
VPC-B2156D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B30029	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	-	-	-	-
VPC-B30039	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	-	-	-	-
VPC-B30049	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	-	-	-	-
VPC-B3002A	4000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	1599 (359.4)	-	-
VPC-B3003A	3500	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	-	-	-
VPC-B3004A	3500	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	-	-	-
VPC-B3004B	2800	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	-	-	-	-	-
VPC-B3004D	4000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	1599 (359.4)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. (1)	Maximum (2) Speed rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2279 (512.3)	1809 (406.6)	1580 (355.2)	1436 (322.7)	1333 (299.6)	1254 (281.9)	1191 (267.8)	1139 (256.2)	1096 (246.3)	-
VPC-B1653A	4500	2343 (526.7)	1860 (418.1)	1625 (365.2)	1476 (331.8)	1370 (308.0)	1289 (289.9)	1225 (275.4)	1172 (263.4)	1126 (253.2)	-
VPC-B1652D	5000	2279 (512.3)	1809 (406.6)	1580 (355.2)	1436 (322.7)	1333 (299.6)	1254 (281.9)	1191 (267.8)	1139 (256.2)	1096 (246.3)	1058 (237.8)
VPC-B1653D	5000	2343 (526.7)	1860 (418.1)	1625 (365.2)	1476 (331.8)	1370 (308.0)	1289 (289.9)	1225 (275.4)	1172 (263.4)	1126 (253.2)	1088 (244.5)
VPC-B1654D	5000	2394 (538.2)	1900 (427.2)	1660 (373.2)	1508 (339.0)	1400 (314.7)	1317 (296.2)	1251 (281.3)	1197 (269.1)	1151 (258.7)	1111 (249.8)
VPC-B21539	3000	3128 (703.3)	2483 (558.2)	2169 (487.6)	1971 (443.0)	1829 (411.3)	1722 (387.0)	-	-	-	-
VPC-B21549	3000	3180 (714.8)	2524 (567.3)	2205 (495.6)	2003 (450.3)	1859 (418.0)	1750 (393.4)	-	-	-	-
VPC-B2153A	4500	3128 (703.3)	2483 (558.2)	2169 (487.6)	1971 (443.0)	1829 (411.3)	1722 (387.0)	1635 (367.6)	1564 (351.6)	1504 (338.1)	-
VPC-B2154A	4500	3180 (714.8)	2524 (567.3)	2205 (495.6)	2003 (450.3)	1859 (418.0)	1750 (393.4)	1662 (373.7)	1590 (357.4)	1529 (343.6)	-
VPC-B2154B	3200	3180 (714.8)	2524 (567.3)	2205 (495.6)	2003 (450.3)	1859 (418.0)	1750 (393.4)	-	-	-	-
VPC-B2154D	5000	3180 (714.8)	2524 (567.3)	2205 (495.6)	2003 (450.3)	1859 (418.0)	1750 (393.4)	1662 (373.7)	1590 (357.4)	1529 (343.6)	1476 (331.8)
VPC-B2155B	3200	3259 (732.5)	2586 (581.4)	2259 (507.9)	2053 (461.5)	1906 (428.4)	1793 (403.1)	-	-	-	-
VPC-B2155D	5000	3259 (732.5)	2586 (581.4)	2259 (507.9)	2053 (461.5)	1906 (428.4)	1793 (403.1)	1703 (382.9)	1629 (366.3)	1567 (352.2)	1512 (340.0)
VPC-B2156A	2800	3259 (732.5)	2586 (581.4)	2259 (507.9)	2053 (461.5)	1906 (428.4)	-	-	-	-	-
VPC-B2156D	5000	3259 (732.5)	2586 (581.4)	2259 (507.9)	2053 (461.5)	1906 (428.4)	1793 (403.1)	1703 (382.9)	1629 (366.3)	1567 (352.2)	1512 (340.0)
VPC-B30029	3000	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	2560 (575.6)	-	-	-	-
VPC-B30039	3000	4754 (1068.7)	3773 (848.3)	3296 (741.0)	2995 (673.3)	2780 (625.0)	2616 (588.2)	-	-	-	-
VPC-B30049	3000	4908 (1103.4)	3896 (875.8)	3403 (765.1)	3092 (695.1)	2870 (645.3)	2701 (607.2)	-	-	-	-
VPC-B3002A	4000	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	2560 (575.6)	2432 (546.7)	2326 (522.9)	-	-
VPC-B3003A	3500	4754 (1068.7)	3773 (848.3)	3296 (741.0)	2995 (673.3)	2780 (625.0)	2616 (588.2)	2485 (558.7)	-	-	-
VPC-B3004A	3500	4908 (1103.4)	3896 (875.8)	3403 (765.1)	3092 (695.1)	2870 (645.3)	2701 (607.2)	2566 (576.8)	-	-	-
VPC-B3004B	2800	4908 (1103.4)	3896 (875.8)	3403 (765.1)	3092 (695.1)	2870 (645.3)	-	-	-	-	-
VPC-B3004D	4000	4908 (1103.4)	3896 (875.8)	3403 (765.1)	3092 (695.1)	2870 (645.3)	2701 (607.2)	2566 (576.8)	2454 (551.7)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

## Axial Load Force Ratings (maximum radial load) for Brake Motors

Motor Cat. No. (1)	Maximum (2) Speed rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	-
VPC-B1653A	4500	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	-
VPC-B1652D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B1653D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B1654D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B21539	3000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	-	-	-	-
VPC-B21549	3000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	-	-	-	-
VPC-B2153A	4500	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	-
VPC-B2154A	4500	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	-
VPC-B2154B	3200	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	-	-	-	-
VPC-B2154D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B2155B	3200	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	-	-	-	-
VPC-B2155D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B2156A	2800	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	-	-	-	-	-
VPC-B2156D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B30029	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	-	-	-	-
VPC-B30039	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	-	-	-	-
VPC-B30049	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	-	-	-	-
VPC-B3002A	4000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	546 (122.7)	-	-
VPC-B3003A	3500	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	-	-	-
VPC-B3004A	3500	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	-	-	-
VPC-B3004B	2800	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	-	-	-	-	-
VPC-B3004D	4000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	546 (122.7)	-	-

(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

**Axial Load Force Ratings (zero radial load) for Brake Motors**

Motor Cat. No. <sup>(1)</sup>	Maximum Speed <sup>(2)</sup> rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	-
VPC-B1653A	4500	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	-
VPC-B1652D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B1653D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B1654D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B21539	3000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	-	-	-	-
VPC-B21549	3000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	-	-	-	-
VPC-B2153A	4500	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	-
VPC-B2154A	4500	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	-
VPC-B2154B	3200	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	-	-	-	-
VPC-B2154D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B2155B	3200	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	-	-	-	-
VPC-B2155D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B2156A	2800	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	-	-	-	-	-
VPC-B2156D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B30029	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	-	-	-	-
VPC-B30039	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	-	-	-	-
VPC-B30049	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	-	-	-	-
VPC-B3002A	4000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	1599 (359.4)	-	-
VPC-B3003A	3500	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	-	-	-
VPC-B3004A	3500	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	-	-	-
VPC-B3004B	2800	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	-	-	-	-	-
VPC-B3004D	4000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	1599 (359.4)	-	-

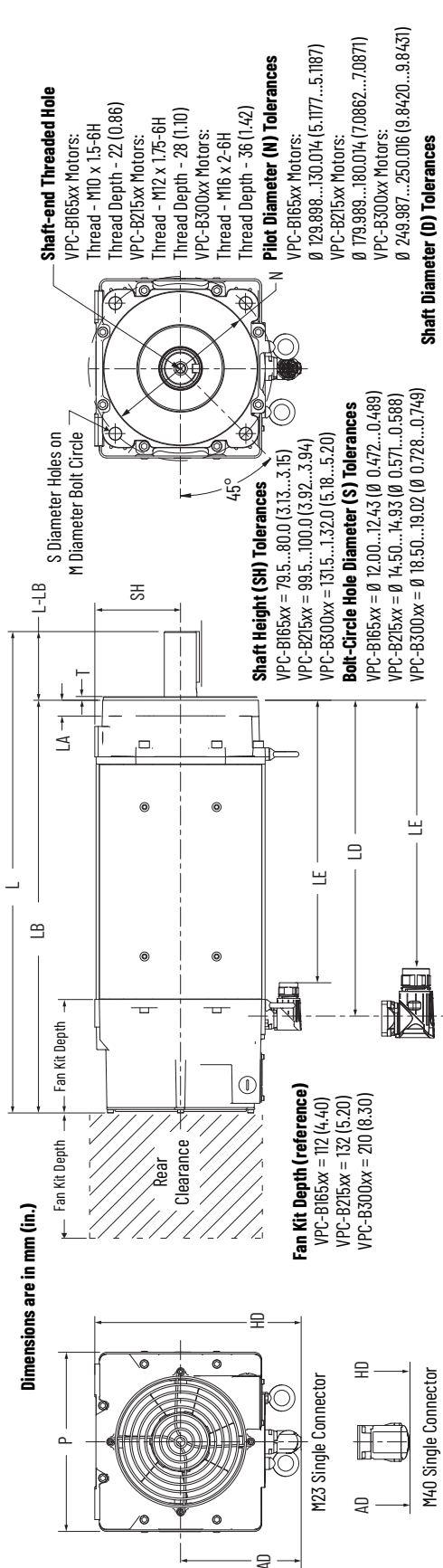
(1) 1.0 N = 0.225 lb

(2) For Kinetix VPC bus overvoltage speed with and without a cooling fan, see [Technical Specifications - Kinetix VPC Servo Motors](#) on [page 30](#).

**Notes:**

# Dimensions - Kinetix VPC Servo Motors

VPC-B165xx, VPC-B215xx, and VPC-B300xx Motor Dimensions (single motor connector, with fan)



M23 connector housings rotate 325°  
 M40 connector housings rotate 330°

Motor Connector on Kinetix VPC Servo motors	Motor Cat. No. (1)
M23 Connector	VPC-B1652x
	VPC-B1653x
	VPC-B2153x
	VPC-B21549
M40 Connector	VPC-B16540
	VPC-B2154A
	VPC-B2154B/D
	VPC-B2155B/D
	VPC-B2156A/D
	VPC-B30029
VPC-B3007A	
VPC-B30039	
VPC-B3003A	
VPC-B30049	

(1) Catalog numbers B/ and A/ represent rated speed for the fanless motor. /D represents rated speed for the fan motor.

Shaft, Pilot, and Keyway Tolerances	VPC-B165xx	VPC-B215xx	VPC-B300xx
Shaft Runout (T.I.R.)	0.10 (0.0039)	0.05 (0.002)	0.10 (0.0039)
Pilot Eccentricity (T.I.R.)	0.10 (0.0039)	0.10 (0.0039)	0.125 (0.0049)
Max Face Runout (T.I.R.)	5.0...5.2 (0.197...0.205)	5.5...5.7 (0.216...0.224)	13.957...14.000 (0.5495...0.5512)
Keyway Depth (GE)	9.964...10.000 (0.3923...0.3937)		
Keyway Width (F)			

VPC-B165xx, VPC-B215xx, and VPC-B300xx Motor Dimensions (single motor connector)

Motor Cat. No. (1)	AD mm (in.)	HD mm (in.)	T (4) mm (in.)	LA mm (in.)	LD (2) mm (in.)	LE (2) mm (in.)	L (2) mm (in.)	LB (2) mm (in.)	L-LB (3) mm (in.)	A mm (in.)	B (2) mm (in.)	C mm (in.)	H mm (in.)	D (4) mm (in.)	M (4) mm (in.)	SH (4) mm (in.)	S (4) mm (in.)	K (4) mm (in.)	N (4) mm (in.)	P mm (in.)	GE (4) mm (in.)	F (4) mm (in.)
VPC-B1652x	120.5 (4.75)	200.3 (7.89)			251.9 (9.92)	211.9 (8.34)	427.6 (16.83)	347.6 (13.69)			216.9 (8.54)		62.5 (2.46)	32.00 (1.260)	165.00 (6.496)	80.00 (3.15)	12.00 (0.472)	10.00 (0.394)		168.9 (6.65)	5.00 (0.198)	10.00 (0.394)
VPC-B1653x			3.5 (0.14)	14.3 (0.56)	307.4 (12.10)	267.4 (10.53)	483.1 (19.02)	403.1 (15.87)	80.0 (3.15)	125.0 (4.92)	272.4 (10.72)	34.0 (1.34)										
VPC-B1654D	140.0 (5.51)	219.8 (8.65)			352.1 (13.86)	281.1 (11.07)	523.6 (20.61)	443.6 (17.46)			312.9 (12.32)											
VPC-B2153x	140.5 (5.53)	240.5 (9.47)			328.4 (12.93)	288.5 (11.36)	520.1 (20.48)	440.1 (17.33)			284.9 (11.22)											
VPC-B21549						329.0 (12.95)	560.6 (22.07)	480.6 (18.92)			325.4 (12.81)											
VPC-B2154A			4.0 (0.16)	18.4 (0.72)	368.9 (14.52)	297.9 (11.73)			80.0 (3.15)	160.0 (6.30)	43.0 (1.69)		80.0 (3.15)	38.00 (1.496)	215.00 (8.465)	100.00 (3.94)	14.50 (0.571)	12.00 (0.472)	180.00 (7.087)	210.9 (8.30)	5.00 (0.198)	10.00 (0.394)
VPC-B2154B/D					409.4 (16.12)	338.4 (13.32)	601.1 (23.67)	521.1 (20.52)			365.9 (14.41)											
VPC-B2155B/D	160.5 (6.32)	260.5 (10.25)			449.9 (17.71)	378.9 (14.92)	641.6 (25.26)	561.6 (22.11)			406.4 (16.00)											
VPC-B2156A/D					400.7 (15.78)	329.7 (12.98)	692.1 (27.23)	582.1 (22.92)			344.7 (13.57)											
VPC-B3002x	192.0 (7.56)	324.0 (12.75)	5.0 (0.20)	22.9 (0.90)	448.2 (17.65)	377.2 (14.85)	739.6 (29.12)	629.6 (24.79)	110.0 (4.33)	216.0 (8.50)	53.0 (2.09)		108.0 (4.25)	48.00 (1.890)	300.00 (11.811)	132.00 (5.20)	18.50 (0.728)	12.00 (0.472)	250.00 (9.843)	275.9 (10.86)	5.50 (0.217)	14.00 (0.551)
VPC-B3003x																						
VPC-B30049																						

(1) Catalog numbers /B and /A represent rated speed for the fanless motor. /D/ represents rated speed for the fan motor.

(2) If ordering VPC-B1652x motors with brake, add 55.5 mm (2.19 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B1653x or VPC-B1654D motors with brake, add 40.5 mm (1.59 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B2153x, VPC-B2154x, or VPC-B2156A/D motors with brake, add 81.0 mm (3.19 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B2155B/D motors with brake, add 121.5 mm (4.78 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B3002x motors with brake, add 47.5 mm (1.87 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B3003x motors with brake, add 95.0 mm (3.74 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B3004x motors with brake, add 142.5 mm (5.61 in.) to dimension L, LB, LE, LD and B.

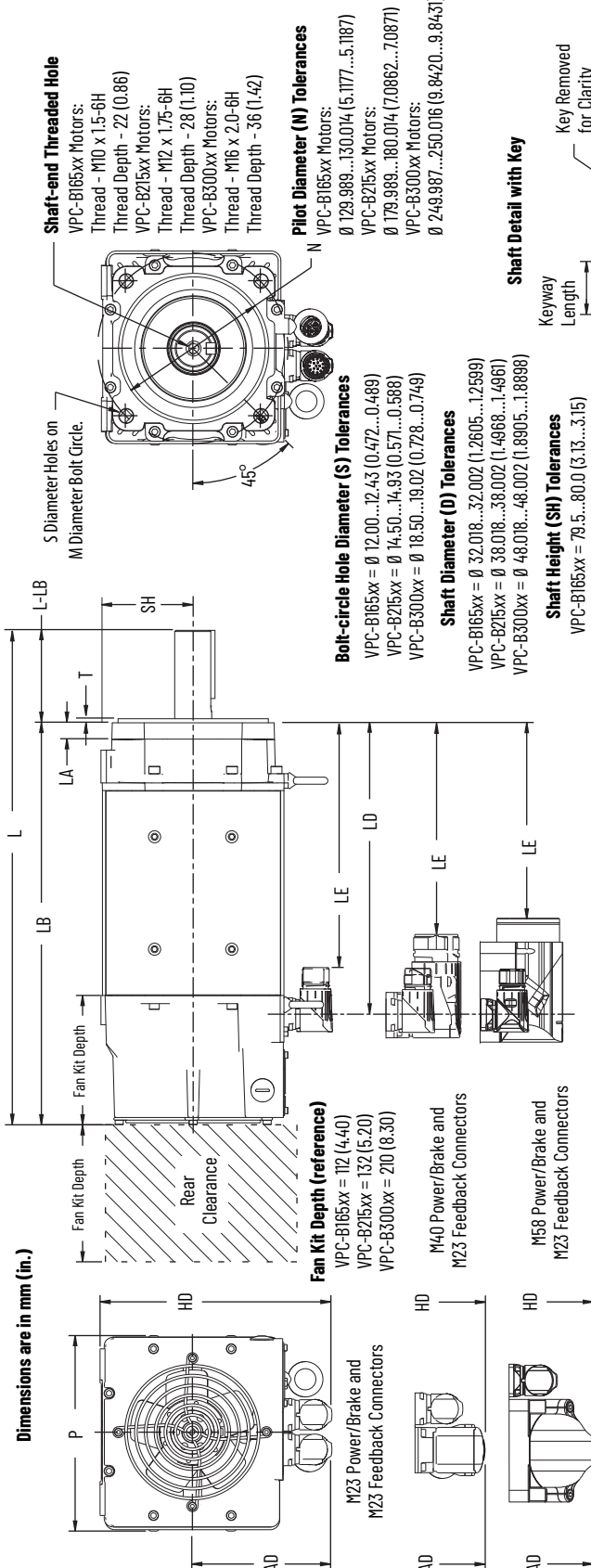
(3) Tolerance for this dimension is ±0.7 mm (±0.028 in.).

(4) For shaft diameter, mounting hole diameter, pilot diameter, and keyway tolerances, see the figure on [page 46](#).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

VPC-B165xx, VPC-B215xx, and VPC-B300xx Motor Dimensions (motor power/feedback connectors, with fan)

Dimensions are in mm (in.)



**Fan Kit Depth (reference)**  
 VPC-B165xx = 112 (4.40)  
 VPC-B215xx = 132 (5.20)  
 VPC-B300xx = 210 (8.30)

**Bolt-circle Hole Diameter (S) Tolerances**  
 VPC-B165xx =  $\varnothing$  12.00...12.43 (0.472...0.489)  
 VPC-B215xx =  $\varnothing$  14.50...14.83 (0.571...0.588)  
 VPC-B300xx =  $\varnothing$  18.50...19.02 (0.728...0.749)

**Shaft Diameter (D) Tolerances**  
 VPC-B165xx =  $\varnothing$  32.018...32.002 (1.2605...1.2599)  
 VPC-B215xx =  $\varnothing$  38.018...38.002 (1.4968...1.4961)  
 VPC-B300xx =  $\varnothing$  48.018...48.002 (1.8905...1.8898)

**Shaft Height (SH) Tolerances**  
 VPC-B165xx = 79.5...80.0 (3.13...3.15)  
 VPC-B215xx = 99.5...100.0 (3.92...3.94)  
 VPC-B300xx = 131.5...132.0 (5.18...5.20)

**Keyway Length**  
 Keyway Length  
 Key Removed for Clarity

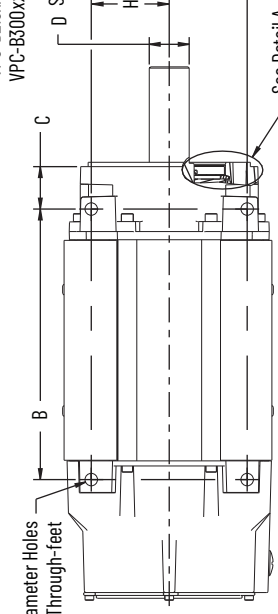
**Key Supplied**  
 VPC-B165xx = 10 (+0, -0.036) X 8 (+0, -0.090) X 59 Key  
 VPC-B215xx = 10 (+0, -0.036) X 8 (+0, -0.090) X 59 Key  
 VPC-B300xx = 14 (+0, -0.043) X 9 (+0, -0.090) X 79 Key

**Foot-mounting Hole Diameter (K) Tolerances**  
 VPC-B165xx =  $\varnothing$  10.00...10.36 (0.394...0.408)  
 VPC-B215xx =  $\varnothing$  12.00...12.43 (0.472...0.489)  
 VPC-B300xx =  $\varnothing$  12.00...12.43 (0.472...0.489)

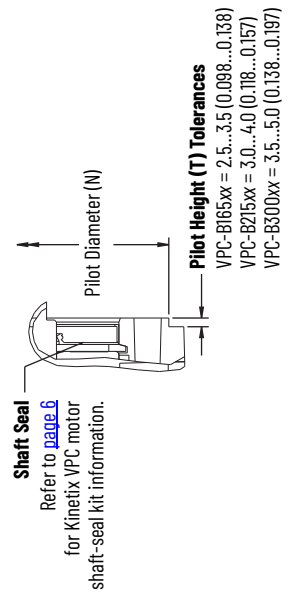
**Keyway Length**  
 VPC-B165xx = 60.0 (2.36)  
 VPC-B215xx = 60.0 (2.36)  
 VPC-B300xx = 81.0 (3.19)

M23 and M40 connector housings rotate 180°.  
 M58 connector housings do not rotate.

Power/Brake Connectors on Kinetix VPC Servo Motors	Motor Cat. No. (1)
M23 Connector	VPC-B1652x
	VPC-B1653x
	VPC-B2153x
	VPC-B21549
M40 Connector	VPC-B1654D
	VPC-B2154A
	VPC-B2154B/D
	VPC-B2155B/D
M58 Connector	VPC-B2156A/D
	VPC-B3002x
	VPC-B3003x
	VPC-B30049
M58 Connector	VPC-B3004A
	VPC-B3004D/B



Shaft, Pilot, and Keyway Tolerances	VPC-B165xx	VPC-B215xx	VPC-B300xx
Shaft Runout (T.I.R.)	0.05 (0.002)	0.10 (0.0039)	0.125 (0.0049)
Pilot Eccentricity (T.I.R.)	0.10 (0.0039)	0.10 (0.0039)	0.125 (0.0049)
Max Face Runout (T.I.R.)	5.00...5.20 (0.197...0.205)	5.00...5.20 (0.197...0.205)	5.50...5.70 (0.216...0.224)
Keyway Depth (GE)	9.964...10.000 (0.392...0.3937)	9.964...10.000 (0.392...0.3937)	13.957...14.000 (0.5495...0.5512)
Keyway Width (F)			



(1) Catalog numbers B/ and A/ represent rated speed for the fanless motor. /D represents rated speed for the fan motor.



VPC-B165xx, VPC-B215xx, and VPC-B300xx Motor Dimensions (motor power/feedback connectors)

Motor Cat. No. (1)	AD mm (in.)	HD mm (in.)	T (4) mm (in.)	LA mm (in.)	LD (2) mm (in.)	LE (2) mm (in.)	L (2) mm (in.)	LB (2) mm (in.)	L-LB (3) mm (in.)	A mm (in.)	B (2) mm (in.)	C mm (in.)	H mm (in.)	D (4) mm (in.)	M (4) mm (in.)	SH (4) mm (in.)	S (4) mm (in.)	K (4) mm (in.)	N (4) mm (in.)	P mm (in.)	GE (4) mm (in.)	F (4) mm (in.)	
VPC-B1652x	120.5 (4.75)	200.3 (7.89)	3.5 (0.14)	14.3 (0.56)	251.9 (9.92)	211.9 (8.34)	427.6 (16.83)	347.6 (13.69)		125.0 (4.92)	216.9 (8.54) 272.4 (10.72)	34.0 (1.34)	62.5 (2.46)	32.0 (1.260)	165.0 (6.496)	80.00 (3.15)	12.00 (0.472)	10.00 (0.394)	130.0 (5.118)	168.9 (6.65)		5.00 (0.198)	10.00 (0.394)
VPC-B1653x	140.0 (5.51)	219.9 (8.66)			307.4 (12.10)	267.4 (10.53)	483.1 (19.02)	403.1 (15.87)	80.0 (3.15)		312.9 (12.32)												
VPC-B1654D					352.1 (13.86)	281.1 (11.07)	523.6 (20.61)	443.6 (17.46)															
VPC-B2153x	140.5 (5.53)	240.5 (9.47)			328.4 (12.93)	288.5 (11.40)	520.1 (20.48)	440.1 (17.33)			284.9 (11.22)												
VPC-B2154D					329.0 (12.95)																		
VPC-B2154A			4.0 (0.16)	18.4 (0.72)	368.9 (14.52)	297.9 (11.73)	560.6 (22.07)	480.6 (18.92)	80.0 (3.15)	160.0 (6.30)	325.4 (12.81)	43.0 (1.69)	80.00 (3.15)	38.00 (1.496)	215.00 (8.465)	100.00 (3.94)	14.50 (0.571)	12.00 (0.472)	180.00 (7.087)	210.9 (8.30)		5.00 (0.198)	10.00 (0.394)
VPC-B2154B/D					408.4 (16.12)	338.4 (13.32)	601.1 (23.67)	521.1 (20.52)			365.9 (14.41)												
VPC-B2156A/D	160.1 (6.30)	260.1 (10.24)			448.9 (17.71)	378.9 (14.92)	641.6 (25.26)	561.6 (22.11)			406.4 (16.00)												
VPC-B3002x					400.7 (15.78)	329.7 (12.98)	692.1 (27.23)	582.1 (22.92)			344.7 (13.57)												
VPC-B3003x	192.0 (7.56)	324.0 (12.76)	5.0 (0.20)	22.9 (0.90)	448.2 (17.65)	371.2 (14.85)	739.6 (29.12)	629.6 (24.79)	110.0 (4.33)	216.0 (8.50)	392.2 (15.44)	53.0 (2.09)	108.0 (4.25)	48.00 (1.890)	300.00 (11.811)	132.00 (5.20)	18.50 (0.728)	12.00 (0.472)	250.00 (9.843)	275.9 (10.86)		5.50 (0.217)	14.00 (0.551)
VPC-B3004A					448.2 (17.65)	400.2 (15.76)																	
VPC-B3004B/D	203.3 (8.00)	335.3 (13.20)																					

(1) Catalog numbers /B and /A represent rated speed for the fanless motor. /D/ represents rated speed for the fan motor.

(2) If ordering VPC-B1652x motors with brake, add 55.5 mm (2.19 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B1653x or VPC-B1654D motors with brake, add 40.5 mm (1.59 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B2153x, VPC-B2154x or VPC-B2156A/D motors with brake, add 81.0 mm (3.19 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B2156B/D motors with brake, add 121.5 mm (4.78 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B3002x motors with brake, add 47.5 mm (1.87 in.) to dimension L, LB, LE, LD and B.

If ordering VPC-B3003x motors with brake, add 95.0 mm (3.74 in.) to dimension L, LB, LE, LD and B.

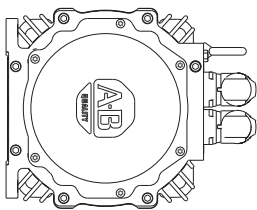
If ordering VPC-B3004x motors with brake, add 142.5 mm (5.61 in.) to dimension L, LB, LE, LD and B.

(3) Tolerance for this dimension is ±0.7 mm (±0.028 in.).

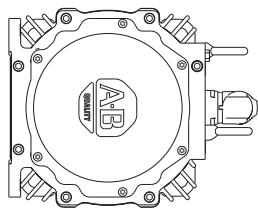
(4) For shaft diameter, mounting hole diameter, pilot diameter, and keyway tolerances, see the figure on [page 48](#).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

VPC-B165xx, VPC-B215xx, and VPC-B300xx Motor Dimensions (without fan)

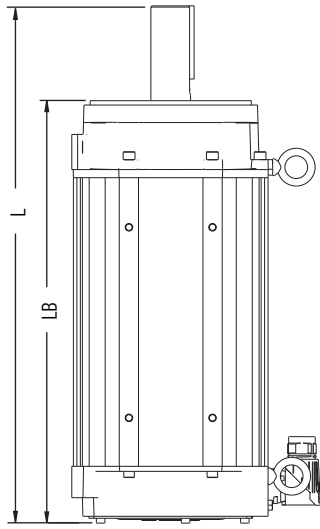
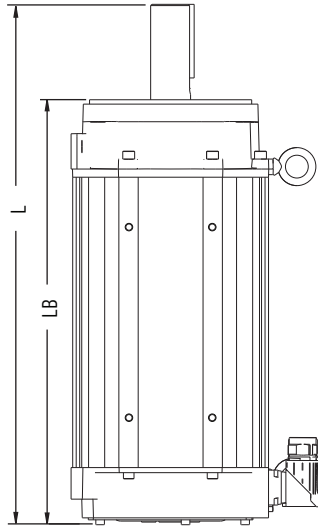
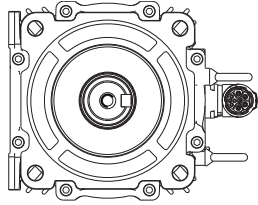
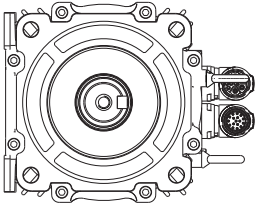


M23 Power/Brake and  
M23 Feedback Connectors



M23 Single Connector

Dimensions are in mm (in.)



Motor Cat. No. (1)	L (2) mm (in.)	LB (2) mm (in.)
VPC-B1652x	361.7 (14.24)	281.7 (11.09)
VPC-B1653x	417.2 (16.43)	337.2 (13.27)
VPC-B1654D	457.7 (18.02)	371.7 (14.87)
VPC-B2153x	434.0 (17.09)	354.0 (13.93)
VPC-B21549	474.5 (18.68)	394.5 (15.53)
VPC-B2154A		
VPC-B2154B/D		

Motor Cat. No.	L (2) mm (in.)	LB (2) mm (in.)
VPC-B2155B/D	515.0 (20.28)	435.0 (17.13)
VPC-B2156A/D	555.5 (21.87)	475.5 (18.72)
VPC-B3002x	578.8 (22.79)	468.8 (18.46)
VPC-B3003x	578.6 (22.78)	468.6 (18.45)
VPC-B30049	626.3 (24.66)	516.3 (20.32)
VPC-B3004A		
VPC-B3004B		

- (1) Catalog numbers B/ and A/ represent rated speed for the fanless motor. /D represents rated speed for the fan motor.
- (2) If ordering VPC-B1652x motors with brake, add 55.5 mm (2.19 in.) to dimension L and LB.  
If ordering VPC-B1653x or VPC-B1654D motors with brake, add 40.5 mm (1.59 in.) to dimension L and LB.  
If ordering VPC-B2153x, VPC-B2154x or VPC-B2156A/D motors with brake, add 81.0 mm (3.19 in.) to dimension L and LB.  
If ordering VPC-B2155B/D motors with brake, add 121.5 mm (4.78 in.) to dimension L and LB.  
If ordering VPC-B3002x motors with brake, add 47.5 mm (1.87 in.) to dimension L and LB.  
If ordering VPC-B3003x motors with brake, add 95.0 mm (3.74 in.) to dimension L and LB.  
If ordering VPC-B3004x motors with brake, add 142.5 mm (5.61 in.) to dimension L and LB.

# Kinetix VPF Food-grade Servo Motors



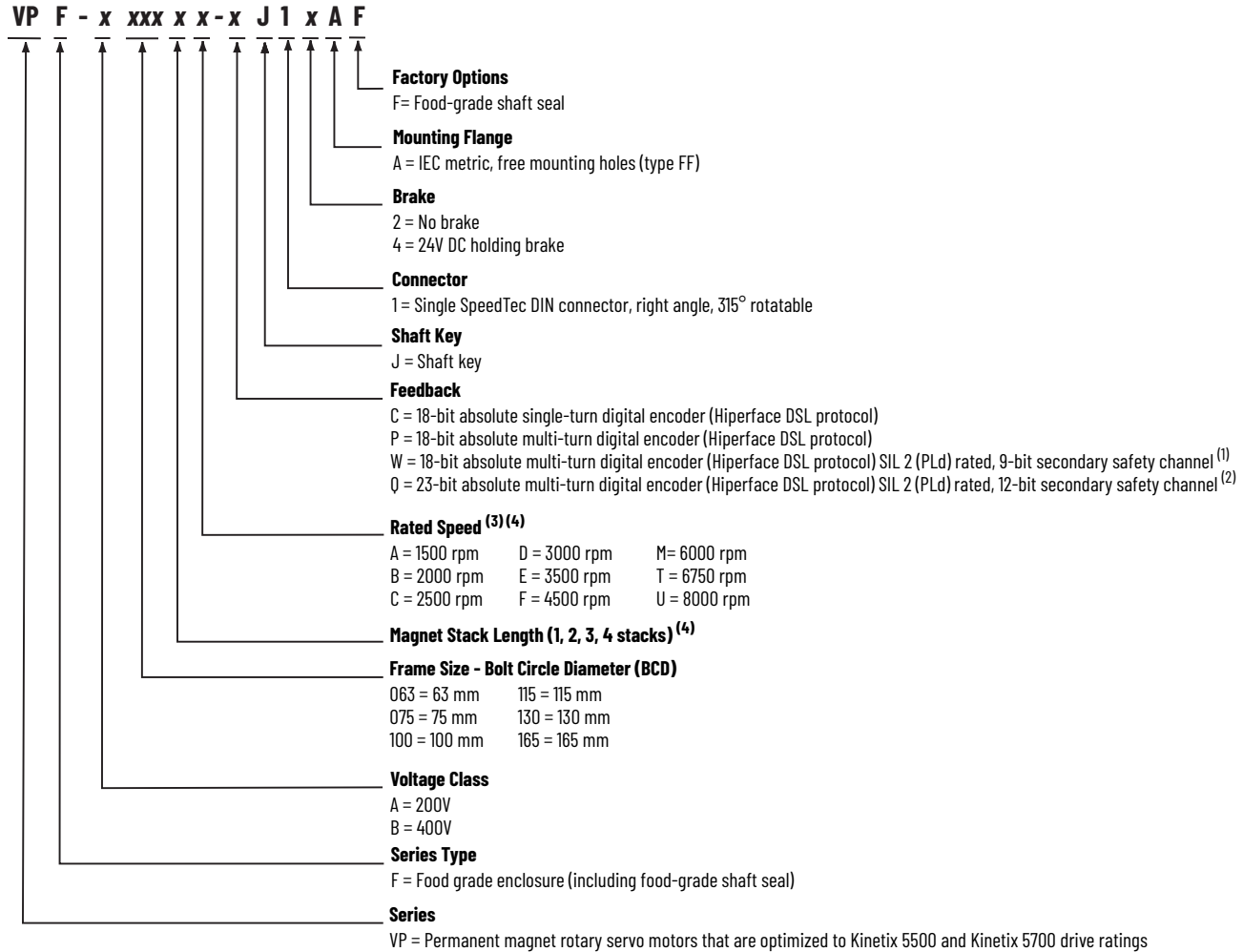
Kinetix VPF servo motors combine the characteristics of the Kinetix VPL servo motors with features specifically designed to meet the unique needs of many food and beverage applications. Windings are matched to the ratings of Kinetix 5500 drives and Kinetix 5700 dual-axis inverters to optimize system sizing, lower system cost, and improve energy efficiency. The Kinetix 2090-Series single cable design between motor and drive simplifies installation. These high-performance servo motors address the challenges of food environments by incorporating food-grade paint and shaft seal, along with noncorrosive fasteners and stainless steel shaft.

## Kinetix VPF Servo Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>Configurable winding options, brakes, and encoder feedback</li> <li>Developed to match the ratings of Kinetix 5500 drives and Kinetix 5700 dual-axis inverters</li> <li>2090-Series single cable technology</li> <li>Hiperface DSL encoder protocol</li> <li>Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>Food-grade epoxy coated</li> <li>200V and 400V-class windings</li> <li>Single-turn and multi-turn absolute feedback</li> <li>SIL 2 (PLd) rated encoder options</li> <li>High-energy rare-earth magnets</li> <li>Shaft end threaded hole</li> <li>SpeedTec DIN connector, rotates 315°</li> <li>Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>IP66/IP67 with shaft seal (standard) and use of environmentally sealed cable connector</li> <li>Food grade grease on shaft seal</li> </ul>
Certifications	Kinetix VPF rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	0.93...19 N•m (8...172 lb•in)
Peak stall torque	2.69...49 N•m (24...430 lb•in)
Rated speed	Up to 8000 rpm
Motor rated output	0.34...4.18 kW (0.46...5.60 Hp)
Compatible servo drives	<ul style="list-style-type: none"> <li>Kinetix 5700</li> <li>Kinetix 5500</li> </ul>
Compatible servo cables	<ul style="list-style-type: none"> <li>2090-CSxM1xx-xxAA/AFxx (TPE) cables</li> <li>2090-CSxM1xx-xxVA/LFxx (PVC and PUR) cables</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>Food packaging</li> <li>Volumetric filling</li> <li>Form, fill, seal</li> <li>Food handling</li> <li>For meat and poultry applications, the Kinetix VPS stainless-steel motors are recommended</li> </ul>

## Catalog Numbers - Kinetix VPF Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) This encoder option is available with only VPF-B063xx and VPF-B075xx motor frame sizes.  
 (2) This encoder option is available with only VPF-A/B100xx, VPF-A/B115xx, VPF-A/B130xx, and VPF-B165xx motor frame sizes.  
 (3) Rated speed hierarchy is only for comparative purposes. Use Motion Analyzer software to size and select motors for your application, and/or the torque/speed curves in the Kinetix 5500 Drive System Design Guide, publication [KNX-RM009](#), and the Kinetix 5700 Drive System Design Guide, publication [KNX-RM010](#).  
 (4) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in Kinetix VPF Servo Motor (200V-class) Performance Specifications on [page 55](#) and Kinetix VPF Servo Motor (400V-class) Performance Specifications on [page 56](#), are available. Use Motion Analyzer software to size and select motors for your application.

## Kinetix VPF Servo Motor High-resolution Encoders

Kinetix VPF servo motors are available with high performance encoders with a choice of single-turn (-C), multi-turn (-P), and SIL 2 rated (-Q and -W) high-resolution feedback:

- 18-bit resolution for 262,144 counts per revolution (choice of single-turn or multi-turn)
  - Single-turn encoder (-C) provides absolute position feedback within one turn
  - Multi-turn encoder (-P) provides absolute position feedback within 4096 turns
  - Electromechanical design does not require a battery.
- SIL 2 rated absolute multi-turn digital encoder (Hiperface DSL protocol)
  - 23-bit resolution for 8,388,608 counts per revolution, multi-turn absolute position feedback within 4096 turns (-Q) option has 12-bit secondary safety channel
  - 18-bit resolution for 262,144 multi-turn absolute position feedback within 4096 turns (-W) option has 9-bit secondary safety channel

## Kinetix 2090-Series Single Cable Technology

Motor connectivity reduced to a single connector and cable

- Single cable eliminates hardware and wire terminations
- Purely digital two-wire communication integrated into the motor power cable
- TPE cable material for standard (non-flex) and continuous-flex cable
- PVC cable material for standard (non-flex) and Halogen-free PUR continuous-flex cable
- 2090-CSxM1Dx cables are available in 1.0 m (3.2 ft) increments up to 50 m (164 ft) for Kinetix 5500 drives, 90 m (295 ft) for Kinetix 5700 drives

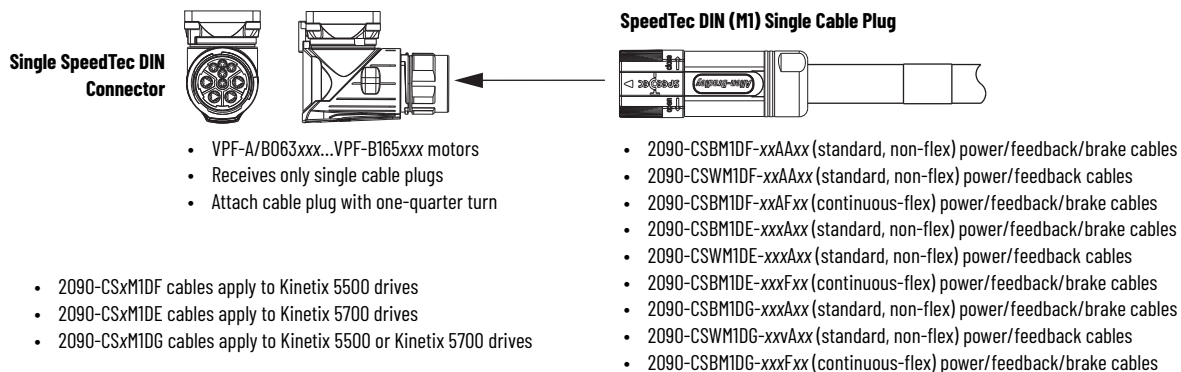
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**IMPORTANT** Due to the unique characteristics of single cable technology, designed for and tested with Kinetix 5500 drives, Kinetix 5700 dual-axis inverters, and Kinetix VP servo motors, building your own cables or using third-party cable is not an option.

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## Motor Connector/Cable Compatibility

Kinetix VPF servo motors are equipped with SpeedTec DIN connectors.



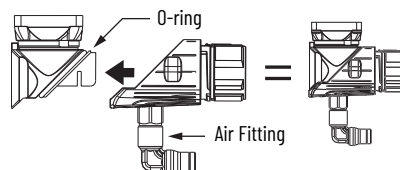
For 2090-Series single motor cable specifications, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

## Kinetix VPF Servo Motor Options

Kinetix VPF servo motors are available with these configurable options:

- Single-turn or multi-turn encoder.
- 24V DC holding brake.
- Positive Air Pressure kit (catalog number VPF-AIR-PURGE) is mounted on the feedback connector to provide positive air pressure to further reduce the chance of contamination inside the motor.

Refer to the Kinetix VPF Food-grade Servo Motors Installation Instructions, publication [VPF-IN001](#), for more information.



- Shaft seal kits are food-grade, available for field replacement, and include a food-grade lubricant to reduce wear.

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**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

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### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.	Shaft Seal Material
VPF-A063xx and VPF-B063xx	VPF-SSN-F063075	Teflon
VPF-A075xx and VPF-B075xx		
VPF-A100xx and VPF-B100xx	MPF-SST-A3B3	PTFE
VPF-A115xx and VPF-B115xx	MPF-SST-A4B4	
VPF-A130xx and VPF-B130xx	MPF-SST-A45B45	
VPF-B165xx	MPF-SST-F165	

## Technical Specifications - Kinetix VPF Servo Motors

### Kinetix VPF Servo Motor (200V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
VPF-A0632F	4800	4800	0.93 (8.0)	2.69 (24.0)	0.36 (0.48)	0.0000170 (0.00015)	1.36 (3.0)
VPF-A0633C	3000	3000	1.27 (11.0)	4.09 (36.0)	0.37 (0.50)	0.0000247 (0.00022)	1.68 (3.70)
VPF-A0633F	4500	4500	1.27 (11.0)	4.09 (36.0)	0.47 (0.63)		
VPF-A0752C	3300	3300	1.61 (14.0)	4.39 (39.0)	0.49 (0.66)	0.0000250 (0.00022)	2.03 (4.47)
VPF-A0752E	4800	4800	1.61 (14.0)	4.39 (39.0)	0.63 (0.84)		
VPF-A0753C	3300	3300	2.16 (19.0)	7.02 (62.0)	0.59 (0.79)	0.0000365 (0.00032)	2.59 (5.70)
VPF-A0753E	4600	4600	2.28 (20.0)	7.35 (65.0)	0.76 (1.02)		
VPF-A1001C	2800	2800	1.93 (17.0)	3.78 (33.0)	0.56 (0.75)	0.000044 (0.00039)	2.63 (5.80)
VPF-A1001M	6500	6500	1.95 (17.0)	3.78 (33.0)	1.29 (1.73)		
VPF-A1002C	3000	3000	3.39 (30.0)	7.82 (69.0)	1.03 (1.38)	0.000078 (0.00069)	4.52 (9.95)
VPF-A1002F	5000	5000	3.26 (29.0)	7.82 (69.0)	1.60 (2.14)		
VPF-A1003C	2250	2250	4.18 (37.0)	11.15 (99.0)	0.83 (1.11)	0.00012 (0.0010)	4.45 (9.80)
VPF-A1003E	3750	3750	4.18 (37.0)	11.15 (99.0)	1.25 (1.67)		
VPF-A1003F	5500	5500	4.18 (37.0)	11.15 (99.0)	1.81 (2.42)		
VPF-A1153C	2300	2300	6.50 (58.0)	20.33 (180)	1.16 (1.56)	0.00038 (0.0033)	6.01 (13.23)
VPF-A1303B	1950	1950	8.80 (78.0)	20.72 (183)	1.53 (2.05)	0.00040 (0.0035)	7.54 (16.60)
VPF-A1303F	4000	4000	7.75 (69.0)	20.72 (183)	2.25 (3.02)		
VPF-A1304A	1600	1600	10.29 (91.0)	28.45 (252)	1.47 (1.98)	0.00052 (0.0046)	9.10 (20.05)
VPF-A1304D	3000	3000	10.20 (90.0)	27.10 (240)	1.98 (2.65)		

(1) Refer to Kinetix VPF Servo Motor Brake Specifications on [page 56](#) for brake rotor inertia and brake motor weight.

**Kinetix VPF Servo Motor (400V-class) Performance Specifications**

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
VPF-B0632F	4600	4600	0.93 (8.0)	2.69 (24.0)	0.34 (0.46)	0.000017 (0.00015)	1.36 (3.00)
VPF-B0632T	7200	8000	0.93 (8.0)	2.69 (24.0)	0.41 (0.55)		
VPF-B0633M	6700	6700	1.27 (11.0)	4.09 (36.0)	0.49 (0.66)	0.0000247 (0.00022)	1.68 (3.70)
VPF-B0633T	6000	8000	1.27 (11.0)	4.09 (36.0)	0.48 (0.64)		
VPF-B0752E	4900	4900	1.61 (14.0)	4.39 (39.0)	0.64 (0.86)	0.000025 (0.00022)	2.03 (4.47)
VPF-B0752F	7000	7000	1.61 (14.0)	4.39 (39.0)	0.76 (1.02)		
VPF-B0752M	8000	8000	1.61 (14.0)	4.39 (39.0)	0.77 (1.04)		
VPF-B0753E	4500	4500	2.28 (20.0)	7.35 (65.0)	0.77 (1.04)	0.0000365 (0.00032)	2.59 (5.70)
VPF-B0753F	4500	6600	2.16 (19.0)	7.02 (62.0)	0.61 (0.82)		
VPF-B0753M	6000	8000	2.28 (20.0)	7.35 (65.0)	0.78 (1.05)		
VPF-B1001M	6000	6000	1.93 (17.0)	3.78 (34.0)	1.14 (1.53)	0.000044 (0.00039)	2.63 (5.80)
VPF-B1002E	3300	3300	3.39 (30.0)	7.82 (69.0)	1.12 (1.50)	0.000078 (0.00069)	3.56 (7.85)
VPF-B1002M	6000	6000	3.39 (30.0)	7.82 (69.0)	1.86 (2.49)		
VPF-B1003C	2500	2500	4.18 (37.0)	11.15 (99.0)	0.91 (1.23)	0.00012 (0.0010)	4.45 (9.80)
VPF-B1003F	4750	4750	4.18 (37.0)	11.15 (99.0)	1.57 (2.10)		
VPF-B1003T	7000	7000	4.18 (37.0)	11.15 (99.0)	1.68 (2.25)		
VPF-B1153E	3200	3200	6.50 (58.0)	20.33 (180)	1.40 (1.88)	0.00038 (0.0033)	6.01 (13.23)
VPF-B1153F	4000	5000	6.50 (58.0)	20.33 (180)	1.49 (2.00)		
VPF-B1303C	2250	2250	8.80 (78.0)	20.72 (183)	1.74 (2.33)	0.00040 (0.0035)	7.54 (16.60)
VPF-B1303F	4000	4000	8.80 (78.0)	20.72 (183)	2.54 (3.40)		
VPF-B1304C	2150	2150	10.29 (91.0)	28.45 (252)	1.49 (2.00)	0.00052 (0.0046)	9.10 (20.05)
VPF-B1304E	3500	3500	10.29 (91.0)	28.45 (252)	2.40 (3.21)		
VPF-B1652C	2700	2700	19.40 (172)	48.60 (430)	4.18 (5.60)	0.00147 (0.013)	17.80 (39.24)

(1) Refer to Kinetix VPF Servo Motor Brake Specifications on [page 56](#) for brake rotor inertia and brake motor weight.

**Kinetix VPF Servo Motor Brake Specifications**

Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time		Brake Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage <sup>(1)</sup> ms		
VPF-A/B0632	30	1.50 (13)	0.297...0.363	38	25	0.0000194 (0.00017)	1.70 (3.74)
VPF-A/B0633						0.0000271 (0.00024)	2.02 (4.45)
VPF-A/B0752		3.0 (27)	0.567...0.693	66	42	0.0000297 (0.00026)	2.62 (5.77)
VPF-A/B0753						0.0000412 (0.00036)	3.18 (7.0)
VPF-A/B1001		4.18 (37)	0.45...0.55	90	65	0.000059 (0.00052)	3.26 (7.19)
VPF-A/B1002						0.000093 (0.00082)	4.20 (9.24)
VPF-A/B1003						0.000135 (0.0012)	5.08 (11.19)
VPF-A/B1153		6.55 (58)	0.621...0.759	90	95	0.000409 (0.0036)	6.88 (15.15)
VPF-A/B1303		14.10 (125)	0.738...0.902	125	120	0.000433 (0.0038)	8.64 (19.03)
VPF-A/B1304						0.000553 (0.0049)	10.21 (22.48)
VPF-B1652	32.0 (283)	1.053...1.287	140	120	0.00153 (0.013)	19.65 (43.32)	

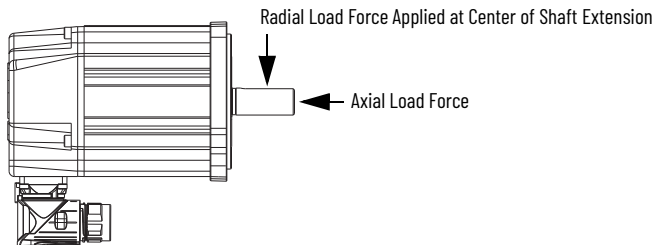
(1) By using diode and zener diode as arc suppression device in external control circuit.



## Kinetix VPF Servo Motor Load Force Ratings

Kinetix VPF servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables starting below represent an  $L_{10}$  bearing fatigue life of 20,000 hours. This 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

### Load Forces on Shaft



## Kinetix VPF Servo Motors (063...075 frame size)

### Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	-	28.9	25.2	-	-	21.0 *	-	-	-	17.1 *	-	-	-	-	-
VPF-A0633C	3000	38.1	30.3	27.4 *	-	-	21.0	-	-	-	-	-	-	-	-	-
VPF-A0633F	4500	38.1	-	26.4	-	-	21.0	-	-	18.3	-	-	-	-	-	-
VPF-A0752C	3300	36.1	28.6	25.9 *	-	-	-	19.2 *	-	-	-	-	-	-	-	-
VPF-A0752E	4800	36.1	28.6	-	-	21.8 *	-	-	-	-	17.0 *	-	-	-	-	-
VPF-A0753C	3300	37.8	30.0	27.5 *	-	-	-	20.2 *	-	-	-	-	-	-	-	-
VPF-A0753E	4600	37.8	30.0	-	-	23.3 *	-	-	-	-	18.0 *	-	-	-	-	-
VPF-B0632F	4600	-	28.9	25.2	-	-	21.0 *	-	-	-	17.1 *	-	-	-	-	-
VPF-B0632T	8000	-	-	-	22.9	-	-	-	18.2	-	-	-	15.6 *	-	-	14.4
VPF-B0633M	6700	-	30.3	-	24.0	-	-	-	19.2 *	-	-	-	-	15.9 *	-	-
VPF-B0633T	8000	-	-	26.4	-	-	21.0	-	-	-	-	16.8 *	-	-	-	15.1
VPF-B0752E	4900	36.1	28.6	-	-	22.0 *	-	-	-	-	17.0 *	-	-	-	-	-
VPF-B0752F	7000	-	28.6	-	22.7	-	-	19.3 *	-	-	-	-	-	15.0	-	-
VPF-B0752M	8000	-	-	25.0	-	-	20.8	-	-	-	16.8 *	-	-	-	-	14.3
VPF-B0753E	4500	37.8	30.0	-	23.8	-	-	-	-	18.2	-	-	-	-	-	-
VPF-B0753F	6600	-	30.0	-	23.8	-	-	20.6 *	-	-	-	-	16.1	-	-	-
VPF-B0753M	8000	-	-	26.2	-	-	19.8	-	-	-	18.0 *	-	-	-	-	15.0

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (maximum radial load) for Non-brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	-	23.5	19.7	-	-	15.5 *	-	-	-	11.9 *	-	-	-	-	-
VPF-A0633C	3000	32.7	24.2	21.3 *	-	-	15.0	-	-	-	-	-	-	-	-	-
VPF-A0633F	4500	32.7	-	20.3	-	-	15.0	-	-	12.6	-	-	-	-	-	-
VPF-A0752C	3300	31.5	23.3	20.5 *	-	-	-	13.9 *	-	-	-	-	-	-	-	-
VPF-A0752E	4800	31.5	23.3	-	-	16.4 *	-	-	-	-	11.8 *	-	-	-	-	-
VPF-A0753C	3300	32.5	24.1	21.5 *	-	-	-	14.3 *	-	-	-	-	-	-	-	-
VPF-A0753E	4600	32.5	24.1	-	-	17.3 *	-	-	-	-	12.4 *	-	-	-	-	-
VPF-B0632F	4600	-	23.5	19.7	-	-	15.5 *	-	-	-	11.9 *	-	-	-	-	-
VPF-B0632T	8000	-	-	-	17.4	-	-	-	12.9	-	-	-	10.6	-	-	9.5
VPF-B0633M	6700	-	24.2	-	17.9	-	-	-	13.4 *	-	-	-	-	10.5 *	-	-
VPF-B0633T	8000	-	-	20.3	-	-	15.0	-	-	-	-	11.3 *	-	-	-	9.8
VPF-B0752E	4900	31.5	23.3	-	-	16.6 *	-	-	-	-	11.8 *	-	-	-	-	-
VPF-B0752F	7000	-	23.3	-	17.3	-	-	14.0 *	-	-	-	-	-	10.0	-	-
VPF-B0752M	8000	-	-	19.6	-	-	14.5	-	-	-	11.7 *	-	-	-	-	9.5
VPF-B0753E	4500	32.5	24.1	-	17.8	-	-	-	-	12.5	-	-	-	-	-	-
VPF-B0753F	6600	-	24.1	-	17.8	-	-	14.7 *	-	-	-	-	10.7	-	-	-
VPF-B0753M	8000	-	-	20.2	-	-	14.9	-	-	-	12.4 *	-	-	-	-	9.8

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (zero radial load) for Non-brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	-	27.5	23.0	-	-	18.1 *	-	-	-	13.9 *	-	-	-	-	-
VPF-A0633C	3000	37.1	27.5	24.1 *	-	-	17.1	-	-	-	-	-	-	-	-	-
VPF-A0633F	4500	37.1	-	23.0	-	-	17.1	-	-	14.3	-	-	-	-	-	-
VPF-A0752C	3300	37.1	27.5	24.1 *	-	-	-	16.4 *	-	-	-	-	-	-	-	-
VPF-A0752E	4800	37.1	27.5	-	-	19.3 *	-	-	-	-	13.9 *	-	-	-	-	-
VPF-A0753C	3300	37.1	27.5	24.5 *	-	-	-	16.4 *	-	-	-	-	-	-	-	-
VPF-A0753E	4600	37.1	27.5	-	-	19.7 *	-	-	-	-	14.2 *	-	-	-	-	-
VPF-B0632F	4600	-	27.5	23.0	-	-	18.1 *	-	-	-	13.9 *	-	-	-	-	-
VPF-B0632T	8000	-	-	-	20.3	-	-	-	15.1	-	-	-	12.4 *	-	-	11.1
VPF-B0633M	6700	-	27.5	-	20.3	-	-	-	15.2 *	-	-	-	-	11.9 *	-	-
VPF-B0633T	8000	-	-	23.0	-	-	17.1	-	-	-	-	12.8 *	-	-	-	11.1
VPF-B0752E	4900	37.1	27.5	-	-	19.5 *	-	-	-	-	13.9 *	-	-	-	-	-
VPF-B0752F	7000	-	27.5	-	20.3	-	-	16.5 *	-	-	-	-	-	11.8	-	-
VPF-B0752M	8000	-	-	23.0	-	-	17.1	-	-	-	13.8 *	-	-	-	-	11.1
VPF-B0753E	4500	37.1	27.5	-	20.3	-	-	-	-	14.3	-	-	-	-	-	-
VPF-B0753F	6600	-	27.5	-	20.3	-	-	16.8 *	-	-	-	-	12.2	-	-	-
VPF-B0753M	8000	-	-	23.0	-	-	17.1	-	-	-	14.2 *	-	-	-	-	11.1

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	-	30.5	26.6	-	-	22.2 *	-	-	-	18.1 *	-	-	-	-	-
VPF-A0633C	3000	39.5	31.4	28.4 *	-	-	21.8	-	-	-	-	-	-	-	-	-
VPF-A0633F	4500	39.5	-	27.4	-	-	21.8	-	-	19.0	-	-	-	-	-	-
VPF-A0752C	3300	38.1	30.3	27.4	-	-	-	20.3 *	-	-	-	-	-	-	-	-
VPF-A0752E	4800	38.1	30.3	-	-	23.1 *	-	-	-	-	17.9 *	-	-	-	-	-
VPF-A0753C	3300	39.2	31.2	28.5 *	-	-	-	20.9 *	-	-	-	-	-	-	-	-
VPF-A0753E	4600	39.2	31.2	-	-	24.1 *	-	-	-	-	18.7 *	-	-	-	-	-
VPF-B0632F	4600	-	30.5	26.6	-	-	22.2 *	-	-	-	18.1 *	-	-	-	-	-
VPF-B0632T	8000	-	-	-	24.2	-	-	-	19.2	-	-	-	16.5 *	-	-	15.3
VPF-B0633M	6700	-	31.4	-	24.9	-	-	-	19.9 *	-	-	-	-	16.5 *	-	-
VPF-B0633T	8000	-	-	27.4	-	-	21.8	-	-	-	-	17.5 *	-	-	-	15.7
VPF-B0752E	4900	38.1	30.3	-	-	23.3 *	-	-	-	-	17.9 *	-	-	-	-	-
VPF-B0752F	7000	-	30.3	-	24.0	-	-	-	20.4 *	-	-	-	-	-	15.8	-
VPF-B0752M	8000	-	-	26.4	-	-	21.0	-	-	-	17.8 *	-	-	-	-	15.1
VPF-B0753E	4500	39.2	31.2	-	24.7	-	-	-	-	18.9	-	-	-	-	-	-
VPF-B0753F	6600	-	31.2	-	24.7	-	-	-	21.4 *	-	-	-	-	16.7	-	-
VPF-B0753M	8000	-	-	27.2	-	-	21.6	-	-	-	18.7 *	-	-	-	-	15.6

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings (maximum radial load) for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	-	24.3	20.4	-	-	16.1 *	-	-	-	12.3 *	-	-	-	-	-
VPF-A0633C	3000	33.5	24.8	21.8 *	-	-	15.4	-	-	-	-	-	-	-	-	-
VPF-A0633F	4500	33.5	-	20.8	-	-	15.4	-	-	12.9	-	-	-	-	-	-
VPF-A0752C	3300	32.7	24.2	21.3 *	-	-	-	14.4 *	-	-	-	-	-	-	-	-
VPF-A0752E	4800	32.7	24.2	-	-	17.0 *	-	-	-	-	12.3 *	-	-	-	-	-
VPF-A0753C	3300	33.4	24.7	22.0 *	-	-	-	14.7 *	-	-	-	-	-	-	-	-
VPF-A0753E	4600	33.4	24.7	-	-	17.7 *	-	-	-	-	12.7 *	-	-	-	-	-
VPF-B0632F	4600	-	24.3	20.4	-	-	16.1 *	-	-	-	12.3 *	-	-	-	-	-
VPF-B0632T	8000	-	-	-	18.0	-	-	-	13.3	-	-	-	11.0 *	-	-	9.9
VPF-B0633M	6700	-	24.8	-	18.4	-	-	-	13.7 *	-	-	-	-	10.7 *	-	-
VPF-B0633T	8000	-	-	20.8	-	-	15.4	-	-	-	-	11.6 *	-	-	-	10.1
VPF-B0752E	4900	32.7	24.2	-	-	17.2 *	-	-	-	-	12.3 *	-	-	-	-	-
VPF-B0752F	7000	-	24.2	-	17.9	-	-	-	14.5 *	-	-	-	-	-	10.4	-
VPF-B0752M	8000	-	-	20.3	-	-	15.0	-	-	-	12.1 *	-	-	-	-	9.8
VPF-B0753E	4500	33.4	24.7	-	18.3	-	-	-	-	12.9	-	-	-	-	-	-
VPF-B0753F	6600	-	24.7	-	18.3	-	-	-	15.1 *	-	-	-	-	11.0	-	-
VPF-B0753M	8000	-	-	20.7	-	-	15.3	-	-	-	12.7 *	-	-	-	-	10.0

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (zero radial load) for Brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	-	27.5	23.0	-	-	18.1 *	-	-	-	13.9 *	-	-	-	-	-
VPF-A0633C	3000	37.1	27.5	24.1 *	-	-	17.1	-	-	-	-	-	-	-	-	-
VPF-A0633F	4500	37.1	-	23.0	-	-	17.1	-	-	14.3	-	-	-	-	-	-
VPF-A0752C	3300	37.1	27.5	24.1 *	-	-	-	16.4 *	-	-	-	-	-	-	-	-
VPF-A0752E	4800	37.1	27.5	-	-	19.3 *	-	-	-	-	13.9 *	-	-	-	-	-
VPF-A0753C	3300	37.1	27.5	24.5 *	-	-	-	16.4 *	-	-	-	-	-	-	-	-
VPF-A0753E	4600	37.1	27.5	-	-	19.7 *	-	-	-	-	14.2 *	-	-	-	-	-
VPF-B0632F	4600	-	27.5	23.0	-	-	18.1 *	-	-	-	13.9 *	-	-	-	-	-
VPF-B0632T	8000	-	-	-	20.3	-	-	-	15.1	-	-	-	12.4 *	-	-	11.1
VPF-B0633M	6700	-	27.5	-	20.3	-	-	-	15.2 *	-	-	-	-	11.9 *	-	-
VPF-B0633T	8000	-	-	23.0	-	-	17.1	-	-	-	-	12.8 *	-	-	-	11.1
VPF-B0752E	4900	37.1	27.5	-	-	19.5 *	-	-	-	-	13.9 *	-	-	-	-	-
VPF-B0752F	7000	-	27.5	-	20.3	-	-	16.5 *	-	-	-	-	-	11.8	-	-
VPF-B0752M	8000	-	-	23.0	-	-	17.1	-	-	-	13.8 *	-	-	-	-	11.1
VPF-B0753E	4500	37.1	27.5	-	20.3	-	-	-	-	14.3	-	-	-	-	-	-
VPF-B0753F	6600	-	27.5	-	20.3	-	-	16.8 *	-	-	-	-	12.2	-	-	-
VPF-B0753M	8000	-	-	23.0	-	-	17.1	-	-	-	14.2 *	-	-	-	-	11.1

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Kinetix VPF Servo Motors (100...165 frame size)

### Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	79.1	-	62.8	-	49.8	-	44.6 *	-	-	-	-	-	-	-	-
VPF-A1001M	6500	-	-	-	54.9	-	46.3	-	-	-	38.0	-	-	-	33.6	-
VPF-A1002C	3000	87.9	-	69.7	-	55.4	-	48.4	-	-	-	-	-	-	-	-
VPF-A1002F	5000	-	-	69.7	60.9	-	-	48.4	-	-	-	40.8	-	-	-	-
VPF-A1003C	2250	93.6	-	74.3	64.9	-	56.7 *	-	-	-	-	-	-	-	-	-
VPF-A1003E	3750	93.6	-	74.3	-	59.0	-	-	-	47.8 *	-	-	-	-	-	-
VPF-A1003F	5500	-	-	-	64.9	-	54.8	-	-	46.8	-	-	42.1	-	-	-
VPF-A1153C	2300	106.4	-	84.5	73.8	-	64.0 *	-	-	-	-	-	-	-	-	-
VPF-A1303B	1950	132.9	-	105.5	92.2	84.4 *	-	-	-	-	-	-	-	-	-	-
VPF-A1303F	4000	-	-	105.5	-	83.7	-	73.1	-	66.5	-	-	-	-	-	-
VPF-A1304A	1600	140.2	122.5	112.2 *	-	95.2 *	-	-	-	-	-	-	-	-	-	-
VPF-A1304D	3000	140.2	-	111.3	-	88.3	-	77.2	-	-	-	-	-	-	-	-
VPF-B1001M	6000	-	-	-	-	49.8	-	43.5	-	39.6	-	-	-	34.6	-	-
VPF-B1002E	3300	87.9	-	69.7	-	55.4	-	-	46.8 *	-	-	-	-	-	-	-
VPF-B1002M	6000	-	-	-	60.9	-	-	48.4	-	-	42.2	-	-	38.4	-	-
VPF-B1003C	2500	93.6	-	74.3	64.9	-	54.8	-	-	-	-	-	-	-	-	-
VPF-B1003F	4750	-	-	74.3	64.9	-	-	51.5	-	-	-	44.2 *	-	-	-	-
VPF-B1003T	7000	-	-	-	64.9	-	54.8	-	-	-	45.0	-	-	-	-	38.9
VPF-B1153E	3200	106.4	-	84.5	-	67.0	-	-	57.3 *	-	-	-	-	-	-	-
VPF-B1153F	5000	-	-	84.5	-	67.0	-	58.6	-	-	-	49.4	-	-	-	-
VPF-B1303C	2250	132.9	-	105.5	92.2	-	80.5 *	-	-	-	-	-	-	-	-	-
VPF-B1303F	4000	-	-	105.5	-	83.7	-	74.0 *	-	66.5	-	-	-	-	-	-
VPF-B1304C	2150	140.2	-	111.3	99.5 *	-	86.2 *	-	-	-	-	-	-	-	-	-
VPF-B1304E	3500	-	-	111.3	97.2	-	84.3 *	-	73.3	-	-	-	-	-	-	-
VPF-B1652C	2700	180.7	-	143.4	125.3	-	-	103.0 *	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (maximum radial load) for Non-brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	25.0	-	19.0	-	10.0	-	10.0 *	-	-	-	-	-	-	-	-
VPF-A1001M	6500	-	-	-	15.0	-	12.0	-	-	-	9.0	-	-	-	8.0	-
VPF-A1002C	3000	30.0	-	22.0	-	16.0	-	13.0	-	-	-	-	-	-	-	-
VPF-A1002F	5000	-	-	22.0	18.0	-	-	13.0	-	-	-	11.0	-	-	-	-
VPF-A1003C	2250	33.0	-	24.0	20.0	-	17.0 *	-	-	-	-	-	-	-	-	-
VPF-A1003E	3750	33.0	-	24.0	-	18.0	-	-	-	13.0 *	-	-	-	-	-	-
VPF-A1003F	5500	-	-	-	20.0	-	16.0	-	-	13.0	-	-	11.0	-	-	-
VPF-A1153C	2300	48.0	-	35.0	29.0	-	24.0 *	-	-	-	-	-	-	-	-	-
VPF-A1303B	1950	39.0	-	29.0	24.0	22.0 *	-	-	-	-	-	-	-	-	-	-
VPF-A1303F	4000	-	-	29.0	-	21.0	-	18.0	-	16.0	-	-	-	-	-	-
VPF-A1304A	1600	43.0	36.0	32.0 *	-	26.0 *	-	-	-	-	-	-	-	-	-	-
VPF-A1304D	3000	43.0	-	32.0	-	23.0	-	20.0	-	-	-	-	-	-	-	-
VPF-B1001M	6000	-	-	-	-	14.0	-	11.0	-	10.0	-	-	-	8.0	-	-
VPF-B1002E	3300	30.0	-	22.0	-	16.0	-	-	13.0 *	-	-	-	-	-	-	-
VPF-B1002M	6000	-	-	-	18.0	-	-	13.0	-	-	11.0	-	-	10.0	-	-
VPF-B1003C	2500	33.0	-	24.0	20.0	-	16.0	-	-	-	-	-	-	-	-	-
VPF-B1003F	4750	-	-	24.0	20.0	-	-	15.0	-	-	-	12.0 *	-	-	-	-
VPF-B1003T	7000	-	-	-	20.0	-	16.0	-	-	-	12.0	-	-	-	-	10.0
VPF-B1153E	3200	48.0	-	35.0	-	26.0	-	-	21.0 *	-	-	-	-	-	-	-
VPF-B1153F	5000	-	-	35.0	-	26.0	-	22.0	-	-	-	17.0	-	-	-	-
VPF-B1303C	2250	39.0	-	29.0	-	24.0	20.0 *	-	-	-	-	-	-	-	-	-
VPF-B1303F	4000	-	-	29.0	-	21.0	-	18.0 *	-	16.0	-	-	-	-	-	-
VPF-B1304C	2150	43.0	-	32.0	27.0 *	-	23.0 *	-	-	-	-	-	-	-	-	-
VPF-B1304E	3500	-	-	32.0	27.0	-	22.0 *	-	18.0	-	-	-	-	-	-	-
VPF-B1652C	2700	58.0	-	43.0	36.0	-	-	27.0 *	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings (zero radial load) for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	49.4	-	36.5	-	27.0	-	23.4 *	-	-	-	-	-	-	-	-
VPF-A1001M	6500	-	-	-	30.6	-	24.5	-	-	-	19.0	-	-	-	16.2	-
VPF-A1002C	3000	49.4	-	36.5	-	27.0	-	22.7	-	-	-	-	-	-	-	-
VPF-A1002F	5000	-	-	36.5	30.6	-	-	22.7	-	-	-	18.2	-	-	-	-
VPF-A1003C	2250	49.4	-	36.5	30.6	-	25.7 *	-	-	-	-	-	-	-	-	-
VPF-A1003E	3750	49.4	-	36.5	-	27.0	-	-	-	20.6 *	-	-	-	-	-	-
VPF-A1003F	5500	-	-	-	30.6	-	24.5	-	-	20.0	-	-	17.4	-	-	-
VPF-A1153C	2300	68.3	-	50.5	42.4	-	35.2 *	-	-	-	-	-	-	-	-	-
VPF-A1303B	1950	68.3	-	50.5	42.4	37.8 *	-	-	-	-	-	-	-	-	-	-
VPF-A1303F	4000	-	-	50.5	-	37.4	-	31.4	-	27.7	-	-	-	-	-	-
VPF-A1304A	1600	68.3	57.2	51.1 *	-	41.2 *	-	-	-	-	-	-	-	-	-	-
VPF-A1304D	3000	68.3	-	50.5	-	37.4	-	31.4	-	-	-	-	-	-	-	-
VPF-B1001M	6000	-	-	-	-	27.0	-	22.7	-	20.0	-	-	-	16.8	-	-
VPF-B1002E	3300	49.4	-	36.5	-	27.0	-	-	21.8 *	-	-	-	-	-	-	-
VPF-B1002M	6000	-	-	-	30.6	-	-	22.7	-	-	19.0	-	-	16.8	-	-
VPF-B1003C	2500	49.4	-	36.5	30.6	-	24.5	-	-	-	-	-	-	-	-	-
VPF-B1003F	4750	-	-	36.5	30.6	-	-	22.7	-	-	-	18.6 *	-	-	-	-
VPF-B1003T	7000	-	-	-	30.6	-	24.5	-	-	-	19.0	-	-	-	-	15.7
VPF-B1153E	3200	68.3	-	50.5	-	37.4	-	-	30.5 *	-	-	-	-	-	-	-
VPF-B1153F	5000	-	-	50.5	-	37.4	-	31.4	-	-	25.1	-	-	-	-	-
VPF-B1303C	2250	68.3	-	50.5	42.3	-	35.5 *	-	-	-	-	-	-	-	-	-
VPF-B1303F	4000	-	-	50.5	-	37.4	-	31.8 *	-	27.7	-	-	-	-	-	-
VPF-B1304C	2150	68.3	-	50.5	43.6 *	-	36.2 *	-	-	-	-	-	-	-	-	-
VPF-B1304E	3500	-	-	50.5	42.4	-	35.2 *	-	29.3	-	-	-	-	-	-	-
VPF-B1652C	2700	90.1	-	66.7	55.9	-	-	43.3 *	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	90.2	-	71.6	-	56.8	-	50.8 *	-	-	-	-	-	-	-	-
VPF-A1001M	6500	-	-	-	62.5	-	52.7	-	-	-	43.4	-	-	-	38.4	-
VPF-A1002C	3000	95.3	-	75.6	-	60.0	-	52.4	-	-	-	-	-	-	-	-
VPF-A1002F	5000	-	-	75.6	66.1	-	-	52.4	-	-	-	44.2	-	-	-	-
VPF-A1003C	2250	99.0	-	78.5	68.6	-	59.9 *	-	-	-	-	-	-	-	-	-
VPF-A1003E	3750	99.0	-	78.5	-	62.3	-	-	-	50.6 *	-	-	-	-	-	-
VPF-A1003F	5500	-	-	-	68.6	-	57.9	-	-	49.5	-	-	44.5	-	-	-
VPF-A1153C	2300	115.4	-	91.6	80.0	-	69.4 *	-	-	-	-	-	-	-	-	-
VPF-A1303B	1950	145.3	-	115.3	100.7	92.3 *	-	-	-	-	-	-	-	-	-	-
VPF-A1303F	4000	-	-	115.3	-	91.5	-	80.0	-	72.7	-	-	-	-	-	-
VPF-A1304A	1600	149.7	130.8	119.8 *	-	101.6 *	-	-	-	-	-	-	-	-	-	-
VPF-A1304D	3000	149.5	-	118.6	-	94.2	-	82.3	-	-	-	-	-	-	-	-
VPF-B1001M	6000	-	-	-	-	56.8	-	49.6	-	45.1	-	-	-	39.4	-	-
VPF-B1002E	3300	95.3	-	75.6	-	60.0	-	-	50.8 *	-	-	-	-	-	-	-
VPF-B1002M	6000	-	-	-	66.1	-	-	52.4	-	-	45.8	-	-	41.6	-	-
VPF-B1003C	2500	99.0	-	78.5	68.6	-	57.9	-	-	-	-	-	-	-	-	-
VPF-B1003F	4750	-	-	78.5	68.6	-	-	54.5	-	-	-	46.7 *	-	-	-	-
VPF-B1003T	7000	-	-	-	68.6	-	57.9	-	-	-	47.6	-	-	-	-	41.1
VPF-B1153E	3200	115.4	-	91.6	-	72.7	-	-	62.2 *	-	-	-	-	-	-	-
VPF-B1153F	5000	-	-	91.6	-	72.7	-	63.5	-	-	-	53.6	-	-	-	-
VPF-B1303C	2250	145.3	-	115.3	100.7	-	88.0 *	-	-	-	-	-	-	-	-	-
VPF-B1303F	4000	-	-	115.3	-	91.5	-	80.9 *	-	72.7	-	-	-	-	-	-
VPF-B1304C	2150	149.7	-	118.8	106.2 *	-	92.0 *	-	-	-	-	-	-	-	-	-
VPF-B1304E	3500	-	-	118.8	103.8	-	90.0 *	-	78.2	-	-	-	-	-	-	-
VPF-B1652C	2700	192.5	-	152.8	133.5	-	-	109.7 *	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.



## Axial Load Force Ratings (maximum radial load) for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	31.0	-	23.0	-	17.0	-	14.0 *	-	-	-	-	-	-	-	-
VPF-A1001M	6500	-	-	-	19.0	-	15.0	-	-	-	12.0	-	-	-	10.0	-
VPF-A1002C	3000	34.0	-	25.0	-	18.0	-	15.0	-	-	-	-	-	-	-	-
VPF-A1002F	5000	-	-	25.0	21.0	-	-	15.0	-	-	-	12.0	-	-	-	-
VPF-A1003C	2250	36.0	-	26.0	22.0	-	18.0 *	-	-	-	-	-	-	-	-	-
VPF-A1003E	3750	36.0	-	26.0	-	19.0	-	-	-	15.0 *	-	-	-	-	-	-
VPF-A1003F	5500	-	-	-	22.0	-	18.0	-	-	14.0	-	-	12.0	-	-	-
VPF-A1153C	2300	53.0	-	39.0	32.0	-	27.0 *	-	-	-	-	-	-	-	-	-
VPF-A1303B	1950	46.0	-	34.0	28.0	25.0 *	-	-	-	-	-	-	-	-	-	-
VPF-A1303F	4000	-	-	34.0	-	25.0	-	21.0	-	18.0	-	-	-	-	-	-
VPF-A1304A	1600	48.0	40.0	36.0 *	-	29.0 *	-	-	-	-	-	-	-	-	-	-
VPF-A1304D	3000	48.0	-	36.0	-	26.0	-	22.0	-	-	-	-	-	-	-	-
VPF-B1001M	6000	-	-	-	-	17.0	-	14.0	-	12.0	-	-	-	10.0	-	-
VPF-B1002E	3300	34.0	-	25.0	-	18.0	-	-	15.0 *	-	-	-	-	-	-	-
VPF-B1002M	6000	-	-	-	21.0	-	-	15.0	-	-	13.0	-	-	11.0	-	-
VPF-B1003C	2500	36.0	-	26.0	22.0	-	18.0	-	-	-	-	-	-	-	-	-
VPF-B1003F	4750	-	-	26.0	22.0	-	-	16.0	-	-	-	13.0 *	-	-	-	-
VPF-B1003T	7000	-	-	-	22.0	-	18.0	-	-	-	13.0	-	-	-	-	11.0
VPF-B1153E	3200	53.0	-	39.0	-	29.0	-	-	23.0*	-	-	-	-	-	-	-
VPF-B1153F	5000	-	-	39.0	-	29.0	-	24.0	-	-	-	19.0	-	-	-	-
VPF-B1303C	2250	46.0	-	34.0	28.0	-	24.0 *	-	-	-	-	-	-	-	-	-
VPF-B1303F	4000	-	-	34.0	-	25.0	-	21.0 *	-	18.0	-	-	-	-	-	-
VPF-B1304C	2150	48.0	-	36.0	31.0 *	-	25.0 *	-	-	-	-	-	-	-	-	-
VPF-B1304E	3500	-	-	36.0	30.0	-	25.0 *	-	20.0	-	-	-	-	-	-	-
VPF-B1652C	2700	64.0	-	47.0	39.0	-	-	30.0 *	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

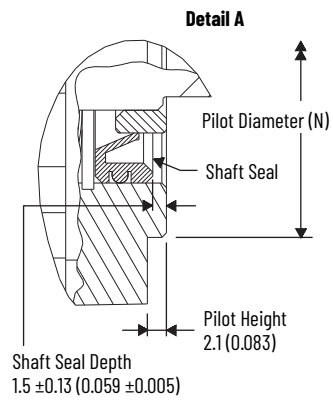
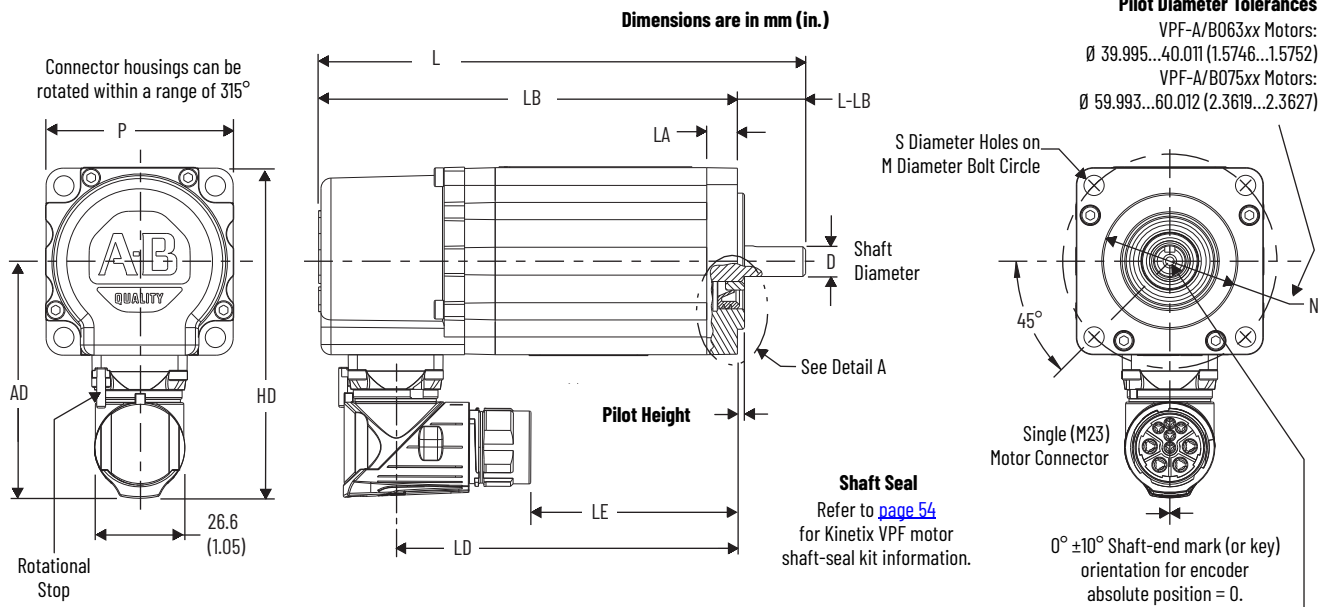
**Axial Load Force Ratings (zero radial load) for Brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	49.4	-	36.5	-	27.0	-	23.4 *	-	-	-	-	-	-	-	-
VPF-A1001M	6500	-	-	-	30.6	-	24.5	-	-	-	19.0	-	-	-	16.2	-
VPF-A1002C	3000	49.4	-	36.5	-	27.0	-	22.7	-	-	-	-	-	-	-	-
VPF-A1002F	5000	-	-	36.5	30.6	-	-	22.7	-	-	-	18.2	-	-	-	-
VPF-A1003C	2250	49.4	-	36.5	30.6	-	25.7 *	-	-	-	-	-	-	-	-	-
VPF-A1003E	3750	49.4	-	36.5	-	27.0	-	-	-	20.6 *	-	-	-	-	-	-
VPF-A1003F	5500	-	-	-	30.6	-	24.5	-	-	20.0	-	-	17.4	-	-	-
VPF-A1153C	2300	68.3	-	50.5	42.4	-	35.2 *	-	-	-	-	-	-	-	-	-
VPF-A1303B	1950	68.3	-	50.5	42.4	37.8 *	-	-	-	-	-	-	-	-	-	-
VPF-A1303F	4000	-	-	50.5	-	37.4	-	31.4	-	27.7	-	-	-	-	-	-
VPF-A1304A	1600	68.3	57.2	51.1 *	-	41.2 *	-	-	-	-	-	-	-	-	-	-
VPF-A1304D	3000	68.3	-	50.5	-	37.4	-	31.4	-	-	-	-	-	-	-	-
VPF-B1001M	6000	-	-	-	-	27.0	-	22.7	-	20.0	-	-	-	16.8	-	-
VPF-B1002E	3300	49.4	-	36.5	-	27.0	-	-	21.8 *	-	-	-	-	-	-	-
VPF-B1002M	6000	-	-	-	30.6	-	-	22.7	-	-	19.0	-	-	16.8	-	-
VPF-B1003C	2500	49.4	-	36.5	30.6	-	24.5	-	-	-	-	-	-	-	-	-
VPF-B1003F	4750	-	-	36.5	30.6	-	-	22.7	-	-	-	18.6 *	-	-	-	-
VPF-B1003T	7000	-	-	-	30.6	-	24.5	-	-	-	19.0	-	-	-	-	15.7
VPF-B1153E	3200	68.3	-	50.5	-	37.4	-	-	30.5 *	-	-	-	-	-	-	-
VPF-B1153F	5000	-	-	50.5	-	37.4	-	31.4	-	-	25.1	-	-	-	-	-
VPF-B1303C	2250	68.3	-	50.5	42.4	-	35.5 *	-	-	-	-	-	-	-	-	-
VPF-B1303F	4000	-	-	50.5	-	37.4	-	31.8 *	-	27.7	-	-	-	-	-	-
VPF-B1304C	2150	68.3	-	50.5	43.6 *	-	36.2 *	-	-	-	-	-	-	-	-	-
VPF-B1304E	3500	-	-	50.5	42.4	-	35.2 *	-	29.3	-	-	-	-	-	-	-
VPF-B1652C	2700	90.1	-	66.7	55.9	-	-	43.3 *	-	-	-	-	-	-	-	-

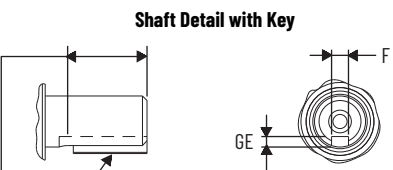
(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

# Dimensions - Kinetix VPF Servo Motors

## VPF-A/B063xx and VPF-A/B075xx Motor Dimensions



**Shaft Diameter Tolerances**  
 VPF-A/B063xx Motors:  $\varnothing 8.998...9.007 (0.3543...0.3546)$   
 VPF-A/B075xx Motors:  $\varnothing 10.997...11.008 (0.4330...0.4334)$



**Key Supplied**  
 VPF-A/B063xx =  $3_{(+0, -0.025)} \times 3_{(+0, -0.025)} \times 13$  Key  
 VPF-A/B075xx =  $4_{(+0, -0.030)} \times 4_{(+0, -0.030)} \times 15$  Key

**Fully Developed Keyway Length**  
 VPF-A/B063xx Motors: 14.0 (0.551)  
 VPF-A/B075xx Motors: 16.0 (0.630)

**Shaft Seal**  
 Refer to [page 54](#) for Kinetix VPF motor shaft-seal kit information.

**Shaft End Threaded Hole**  
 VPF-A/B063xx Motors:  
 Thread - M3 x 0.5-6H  
 Thread Depth - 9.0 (0.354)  
 VPF-A/B075xx Motors:  
 Thread - M4 x 0.7-6H  
 Thread Depth - 10.0 (0.393)

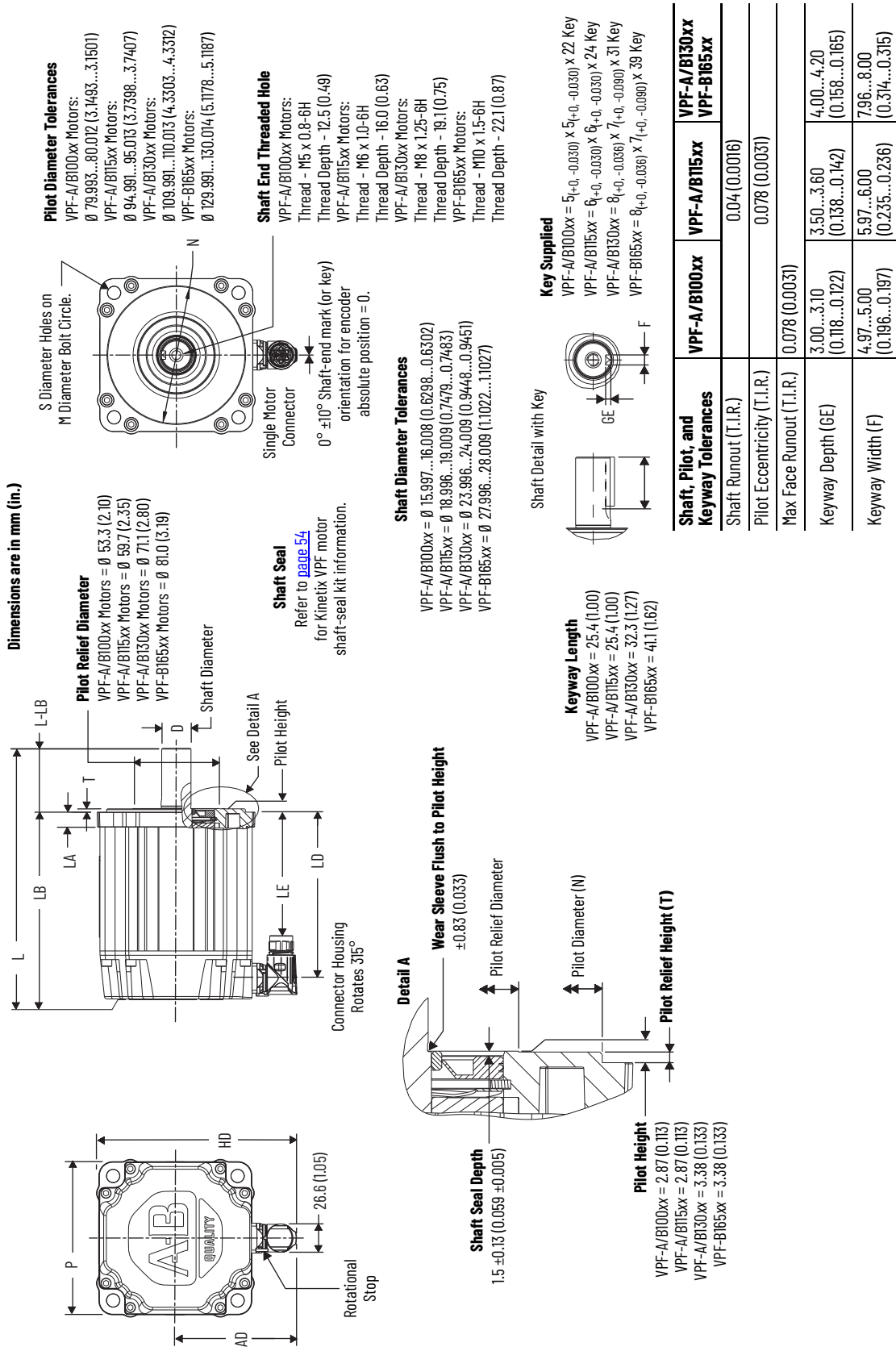
Shaft, Pilot, and Keyway Tolerances	VPF-A/B063xx	VPF-A/B075xx
Shaft Runout (T.I.R.)	0.030 (0.0012)	0.035 (0.0014)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)
Keyway Depth (GE)	1.80...1.90 (0.071...0.075)	2.50...2.60 (0.098...0.102)
Keyway Width (F)	2.971...2.996 (0.117...0.118)	3.970...4.000 (0.156...0.158)

## VPF-A/B063xx and VPF-A/B075xx Motor Dimensions

Motor Cat. No.	AD mm (in.)	HD mm (in.)	LA mm (in.)	LD (1) mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D (4) mm (in.)	M mm (in.)	S (3) mm (in.)	N (4) mm (in.)	P mm (in.)	GE (4) mm (in.)	F (4) mm (in.)
VPF-A/B0632	69.5 (2.74)	97.0 (3.82)	9.0 (0.35)	125.2 (4.93)	85.3 (3.36)	168.1 (6.61)	148.1 (5.83)	20.0 (0.787)	9.0 (0.354)	63.0 (2.480)	5.80 (0.234)	40.0 (1.575)	55.0 (2.17)	1.90 (0.075)	3.0 (0.118)
VPF-A/B0633				150.2 (5.91)	110.3 (4.34)	193.1 (7.59)	173.1 (6.81)								
VPF-A/B0752	77.0 (3.03)	112.0 (4.41)	9.0 (0.35)	127.0 (5.00)	87.1 (3.43)	172.9 (6.80)	149.9 (5.90)	23.0 (0.906)	11.0 (0.433)	75.0 (2.953)	5.80 (0.234)	60.0 (2.362)	70.0 (2.76)	2.60 (0.102)	4.0 (0.157)
VPF-A/B0753				152.0 (5.98)	112.1 (4.41)	197.9 (7.79)	174.9 (6.89)								

(1) If ordering an VPF-A/B063xx or VPF-A/B075xx motor with brake, add 30.6 mm (1.20 in.) to dimension L, LB, LE, and LD.  
 (2) Tolerance for this dimension is ±0.7 mm (±0.028 in.).  
 (3) Tolerance for this dimension is 0.3, -0.0 mm (±0.006 in.).  
 (4) For keyway, shaft diameter, and pilot diameter tolerances, see the [Shaft, Pilot, and Keyway Tolerances](#) table above.

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.



Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

## VPF-A/B100xx, VPF-A/B115xx, VPF-A/B130xx, and VPF-B165xx Motor Dimensions (SpeedTec DIN connectors)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD (1) mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D (3) mm (in.)	M mm (in.)	S mm (in.)	N (3) mm (in.)	P mm (in.)	GE (3) mm (in.)	F (3) mm (in.)
VPF-A/B1001					108.7 (4.28)	68.9 (2.71)	169.8 (6.68)	129.8 (5.11)								
VPF-A/B1002	86.5 (3.40)	131.2 (5.17)	2.74 (0.108)	9.90 (0.39)	134.1 (5.28)	94.3 (3.71)	195.2 (7.68)	155.2 (6.11)	40.0 (1.575)	16.0 (0.630)	100.0 (3.937)	7.00 (4) (0.283)	80.0 (3.15)	89.4 (3.52)	3.0 (0.118)	5.0 (0.197)
VPF-A/B1003					159.5 (6.28)	119.7 (4.71)	220.6 (8.68)	180.6 (7.11)								
VPF-A/B1153	90.8 (3.58)	140.0 (5.51)	2.74 (0.108)	10.16 (0.40)	156.0 (6.14)	116.1 (4.57)	217.0 (8.54)	177.0 (6.97)	40.0 (1.575)	19.0 (0.748)	115.0 (4.528)	10.00 (4) (0.401)	95.0 (3.74)	98.3 (3.87)	3.5 (0.138)	6.0 (0.236)
VPF-A/B1303	98.6 (3.88)	155.4 (6.12)	2.74 (0.108)	12.19 (0.48)	159.3 (6.27)	119.4 (4.70)	230.3 (9.06)	180.3 (7.10)	50.0 (1.969)	24.0 (0.945)	130.0 (5.118)	10.00 (4) (0.401)	110.0 (4.331)	113.7 (4.48)	4.0 (0.158)	8.0 (0.315)
VPF-A/B1304					184.7 (7.27)	144.8 (5.70)	255.7 (10.06)	205.7 (8.10)								
VPF-B1652	113.3 (4.46)	185.0 (7.28)	3.12 (0.123)	14.0 (0.55)	206.2 (8.12)	166.4 (6.55)	286.4 (11.27)	226.4 (8.92)	60.0 (2.362)	28.0 (1.102)	165.0 (6.496)	12.00 (5) (0.481)	130.0 (5.118)	143.5 (5.65)	4.0 (0.158)	8.0 (0.315)

(1) If ordering a VPF-A/B100xx-xx4xx motor with brake, add 34.5 mm (1.36 in.) to dimensions L, LB, LE, and LD.

If ordering a VPF-A/B115xx-xxx4xx motor with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LE, and LD.

If ordering a VPF-A/B130xx-xxx4xx motor with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LE, and LD.

If ordering a VPF-B165xx-xxx4xx motor with brake, add 51.5 mm (2.03 in.) to dimensions L, LB, LE, and LD.

(2) Tolerance for this dimension is ±0.7 mm (±0.028 in.).

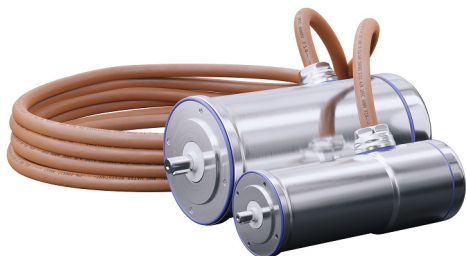
(3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 68](#).

(4) Tolerance for this dimension is -0.36, -0.0 mm (±0.007 in.).

(5) Tolerance for this dimension is +0.43 -0.0 mm (±0.008 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

# Kinetix VPH Hygienic Stainless-steel Servo Motors



Kinetix VPH servo motors are specifically designed to meet the unique needs of washdown environments such as those found in food and beverage, dairy, meat processing, and pharmaceutical manufacturing equipment. The enhanced hygienic design includes a 316-grade stainless-steel housing that provides a reliable and convenient solution to the requirements of machine cleaning and hygienic operations.

Windings are matched to the ratings of Kinetix 5500 and Kinetix 5700 drives to optimize system sizing, lower system cost, and improve energy efficiency. The Kinetix 2090-Series single cable design between motor and drive simplifies installation.

## Kinetix VPH Servo Motor Features

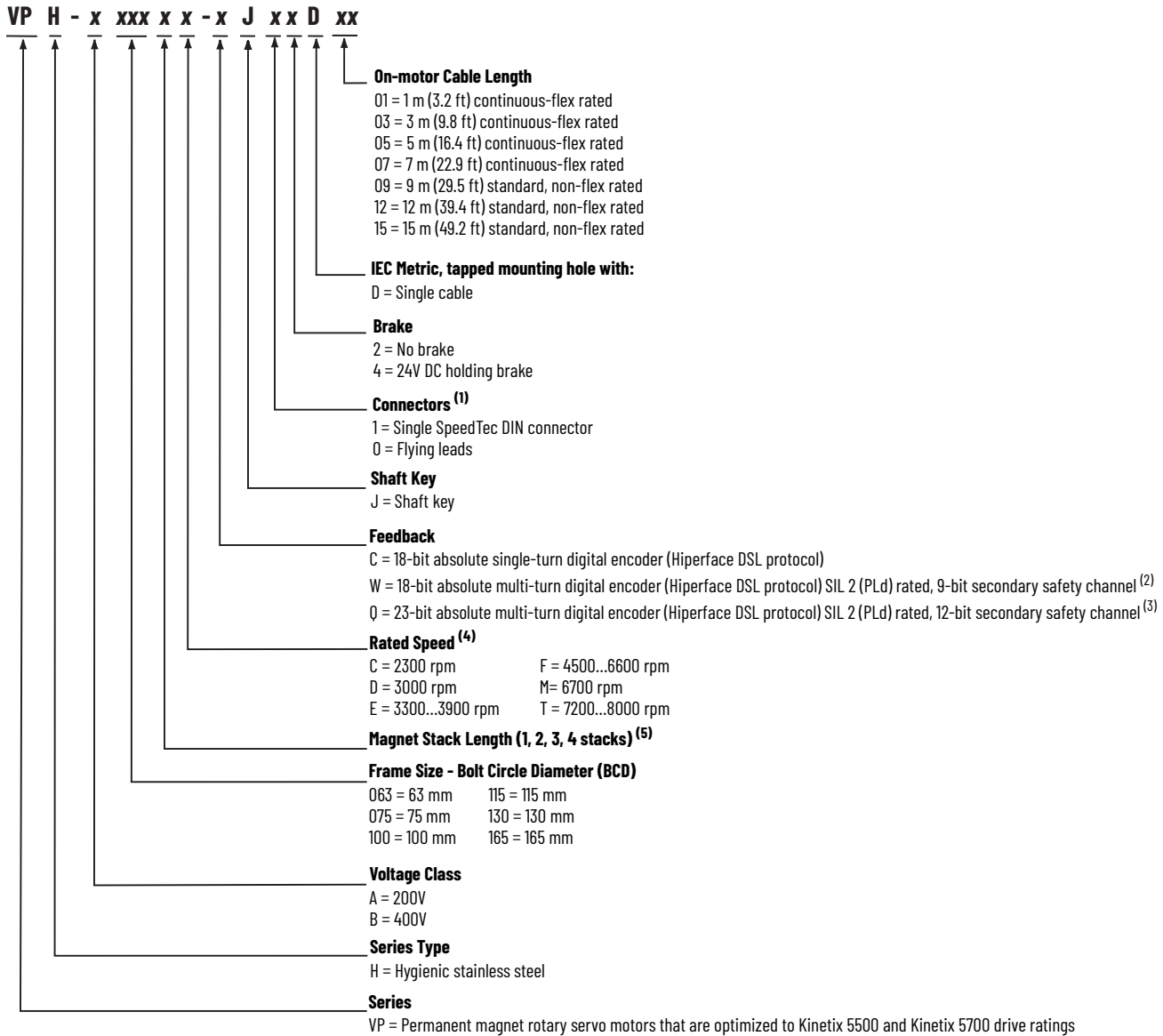
Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• Design per EHEDG guidelines for smooth surface and liquid collection. For use with high-pressure, highly-caustic washdown applications.</li> <li>• 2090-Series single cable technology</li> <li>• Hiperface DSL encoder protocol</li> <li>• Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>• Smooth, passivated, 316 grade stainless-steel cylindrical exterior</li> <li>• Designed per EHEDG guidelines</li> <li>• 3A certified</li> <li>• Certified and listed to NSF/ANSI Standard 169</li> <li>• 200V and 400V-class windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• SIL 2 (PLd) rated encoder options</li> <li>• Shaft-end threaded hole</li> <li>• On-motor cable extensions available in 1...15 m (3.2 ft...49.2 ft) lengths</li> <li>• High-energy rare-earth magnets</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>• IP66/IP67 with shaft seal (standard) and use of environmentally sealed cable connector</li> <li>• IP69K for 1200 psi motor washdown <sup>(1)</sup></li> </ul>
Certifications	Kinetix VPH rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certification website.
Continuous stall torque	0.80...19 N•m (7...165 lb•in)
Peak stall torque	2.76...67.8 N•m (24...600 lb•in)
Rated speed	2300...8000 rpm
Motor rated output	0.40...3.16 kW (0.54...4.23 Hp)
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5700</li> <li>• Kinetix 5500</li> </ul>
Compatible servo cables	<ul style="list-style-type: none"> <li>• 2090-CSxM1xx-xxAA/AFxx (TPE) cables</li> <li>• 2090-CSxM1xx-xxVA/LFxx (PVC and PUR) cables</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>• Meat, poultry, dairy, food and beverage processing</li> <li>• Food slicing and filling</li> <li>• Raw food handling</li> <li>• Life science</li> <li>• Consumer products</li> </ul>

(1) The cable connectors are rated IP66 and IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.

Refer to the Kinetix VPH Hygienic Stainless-steel Servo Motor Installation Instructions, publication [VPH-IN001](#), for mounting and installation information.

## Catalog Numbers - Kinetix VPH Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) Option 1 includes nickel-plated mating on-motor cable connector to 2090-CSxM1Dx single cable. Option 0 (flying leads) connects directly to DSL feedback connector kit and motor/brake connectors on the drive.  
 (2) This encoder option is available with only VPH-A/B063xx and VPH-A/B075xx motor frame sizes.  
 (3) This encoder option is available with only VPH-A/B100xx, VPH-A/B115xx, VPH-A/B130xx, and VPH-B165xx motor frame sizes.  
 (4) Rated speed hierarchy is only for comparative purposes. Use Motion Analyzer software to size and select motors for your application, and/or the torque/speed curves in the Kinetix 5500 Drive System Design Guide, publication [KNX-RM009](#), and the Kinetix 5700 Drive System Design Guide, publication [KNX-RM010](#).  
 (5) Not all combinations are available. Only the configurations for magnet stack length as listed in Technical Specifications - Kinetix VPH Servo Motors on [page 74](#) are available.

**IMPORTANT** The connector is O-ring sealed, but not designed to withstand direct high-pressure washdown with aggressive cleaning compounds. The 1...15 m (3.2...49.2 ft) cable extensions are provided so the connector can be positioned in an area away from direct exposure to the cleaning process, such as within washdown-rated conduit or junction boxes.

## Kinetix VPH Servo Motor High-resolution Encoders

Kinetix VPH servo motors are available with high-performance encoders with a choice of single-turn (-C), and SIL 2 rated (-Q and -W) multi-turn high-resolution feedback:

- 18-bit resolution for 262,144 counts per revolution
  - Single-turn encoder (-C) provides absolute position feedback within one turn
  - Electromechanical design does not require a battery.
- SIL 2 rated absolute multi-turn digital encoder (Hiperface DSL protocol)
  - 23-bit resolution for 8,388,608 counts per revolution, multi-turn absolute position feedback within 4096 turns (-Q) option has 12-bit secondary safety channel
  - 18-bit resolution for 262,144 multi-turn absolute position feedback within 4096 turns (-W) option has 9-bit secondary safety channel

## Kinetix 2090-Series Single Cable Technology

Motor connectivity reduced to a single connector and cable.

- Single cable eliminates hardware and wire terminations
- Purely digital two-wire communication integrated into the motor power cable
- Mating 2090-Series single cables with:
  - TPE cable material for standard (non-flex) and continuous-flex cable
  - PVC cable material for standard (non-flex) and Halogen-free PUR continuous-flex cable
- Mating 2090-CSxM1Dx cables are available in 1.0 m (3.2 ft) increments. Total cable length includes the on-motor extension cable and varies depending on cable type and drive family.

### Maximum Cable Length Including On-motor Cable Extension

Cable Cat. No.	Motor Cable Type	On-motor TPE Cable Extension m (ft)	Kinetix 5500 Drives <sup>(1) (2) (3)</sup> m (ft)	Kinetix 5700 Drives <sup>(1) (2)</sup> m (ft)
2090-CSxM1Dx-xxxFxx	Single, continuous-flex cable	01 = 1 m (3.2 ft) 03 = 3 m (9.8 ft) 05 = 5 m (16.4 ft) 07 = 7 m (22.9 ft)	Cable length, max = 45 (148) Plus extension cable ± 5 (16.4) Total cable length = 50 (164)	Cable length, max = 85 (279) Plus extension cable ± 5 (16.4) Total cable length = 90 (295)
2090-CSxM1Dx-xxxAxx	Single, standard (non-flex) cable	09 = 9 m (29.5 ft) 12 = 12 m (39.4 ft) 15 = 15 m (49.2 ft)		

(1) This table illustrates how the motor cable extension is included in the maximum cable length calculation. However, there are other variables to consider. See Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#), or Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), for maximum cable length specifications specific to those drive families.  
 (2) In this example, the motor cable extension specified in the motor catalog number is 5 m (16.4 ft).  
 (3) Applies to all Kinetix 5500 (frame 2 and 3) drives. For Kinetix 5500 (frame 1) drives in continuous-flex applications or Kinetix VPH on-motor cable extensions from 1...7 m (3.2...22.9 ft), 30 m (98.4 ft) is the maximum cable length.

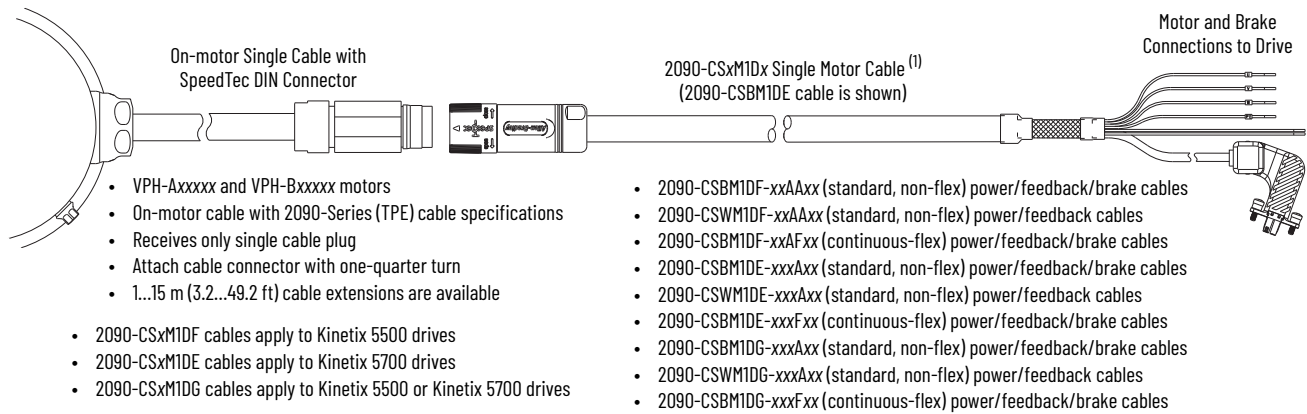
**IMPORTANT** Because of the unique characteristics of 2090-series single cable technology, designed for and tested with Kinetix 5500 drives, Kinetix 5700 dual-axis inverters, and Kinetix VPH servo motors; building your own cables, using field modified Rockwell Automation® factory-delivered cable, or using third-party cables is not an option.



## On-motor Cable Connections-to-Drive Options

Kinetix VPH motors are available with flying leads that wire to a 2198-KITCON-DSL (feedback) connector kit and motor power and brake connectors on the drive or SpeedTec DIN connector that connects to 2090-CSxM1Dx cables.

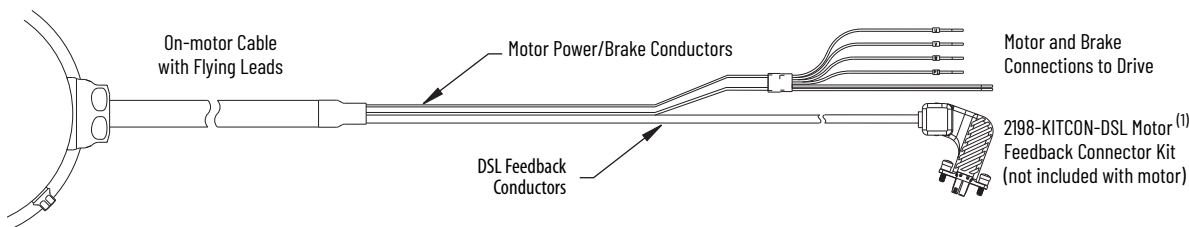
### Kinetix VPH Servo Motors with Connector Option 1 (SpeedTec DIN connectors)



(1) The 2198-KITCON-DSL feedback connector kit is included with 2090-CSxM1DE cables.

Product specifications for Kinetix VPH on-motor cables are identical to 2090-CSxM1xx (TPE) motor cable. For 2090-Series single cable specifications, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

### Kinetix VPH Servo Motors with Connector Option 0 (flying leads)



(1) The 2198-KITCON-DSL feedback connector kit is included with Kinetix 5500 drives and can be purchased separately. The kit is not included with Kinetix VPH servo motors.

## Kinetix VPH Servo Motor Options

The following motor options are available for Kinetix VPH servo motors:

- The positive air-pressure kit (catalog number MPS-AIR-PURGE) consists of a single fitting that is used to connect a positive-pressure air supply line, 0.1 bar, max (1.45 psi), to the motor interior. Positive air pressure inside the motor provides an additional level of protection against the ingress of foreign substances and moisture. No special tool is required for installation and removal.
- Shaft seal kits are available for field replacement. Shaft seals (PTFE) include a lubricant to reduce wear.

**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPH-A063xx and VPH-B063xx	VPH-SST-F063
VPH-A075xx and VPH-B075xx	VPH-SST-F075
VPH-A100xx and VPH-B100xx	VPH-SST-F100

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPH-A115xx and VPH-B115xx	VPH-SST-F115
VPH-A130xx and VPH-B130xx	VPH-SST-F130
VPH-B165xx	VPH-SST-F165

- The O-ring kit is designed to seal the gap between the motor front end-bell and the mounting plate. Sealing this area helps prevent the ingress of liquids onto the shaft and shaft seal.

**O-ring Kit Catalog Numbers**

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPH-A063xx and VPH-B063xx	VPH-F063-ORING
VPH-A075xx and VPH-B075xx	VPH-F075-ORING
VPH-A100xx and VPH-B100xx	VPH-F100-ORING

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPH-A115xx and VPH-B115xx	VPH-F115-ORING
VPH-A130xx and VPH-B130xx	VPH-F130-ORING
VPH-B165xx	VPH-F165-ORING

## Technical Specifications - Kinetix VPH Servo Motors

### Kinetix VPH Servo Motor (200V-class) Performance Specifications (non-brake)

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
VPH-A0633F-xxx2	4500	4500	1.09 (9.7)	4.09 (36.0)	0.45 (0.61)	0.0000255 (0.00022)	6.2 (13.67)
VPH-A0753F-xxx2	4600	4600	1.90 (16.8)	7.0 (62.0)	0.68 (0.92)	0.0000373 (0.00033)	8.2 (18.08)
VPH-A1003F-xxx2	5500	5500	3.41 (30.1)	11.15 (99.0)	1.32 (1.77)	0.000114 (0.00100)	12.7 (28.0)
VPH-A1152E-xxx2	3300	3300	4.04 (35.8)	13.12 (116)	1.07 (1.43)	0.000268 (0.00237)	13.3 (29.33)
VPH-A1153C-xxx2	2300	2300	5.17 (45.8)	20.33 (180)	1.11 (1.49)	0.000391 (0.00346)	15.3 (33.74)
VPH-A1304D-xxx2	3000	3000	8.44 (74.7)	27.1 (240)	1.79 (2.40)	0.000533 (0.00471)	22.9 (50.49)

### Kinetix VPH Servo Motor (200V-class) Performance Specifications (brake)

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
VPH-A0633F-xxx4	4500	4500	1.07 (9.5)	4.09 (36.0)	0.43 (0.57)	0.0000269 (0.00023)	7.1 (15.66)
VPH-A0753F-xxx4	4600	4600	1.73 (15.3)	7.0 (62.0)	0.60 (0.80)	0.0000386 (0.00034)	9.2 (20.29)
VPH-A1003F-xxx4	5500	5500	3.18 (28.2)	11.15 (99.0)	1.06 (1.42)	0.000123 (0.00108)	14.6 (32.19)
VPH-A1152E-xxx4	3300	3300	4.00 (35.4)	13.12 (116)	1.07 (1.43)	0.000287 (0.00254)	15.6 (34.4)
VPH-A1153C-xxx4	2300	2300	5.03 (44.5)	20.33 (180)	1.11 (1.49)	0.000409 (0.00361)	17.5 (38.59)
VPH-A1304D-xxx4	3000	3000	8.27 (73.2)	27.1 (240)	1.79 (2.40)	0.000548 (0.00485)	26.1 (57.55)

### Kinetix VPH Servo Motor (400V-class) Performance Specifications (non-brake)

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
VPH-B0632T-xxx2	8000	8000	0.84 (7.5)	2.69 (24.0)	0.52 (0.69)	0.0000179 (0.00015)	5.5 (12.13)
VPH-B0633M-xxx2	6700	6700	1.03 (9.2)	4.09 (36.0)	0.50 (0.67)	0.0000255 (0.00022)	6.2 (13.67)
VPH-B0753F-xxx2	6600	6600	1.87 (16.6)	7.02 (62.2)	0.74 (0.99)	0.0000373 (0.00033)	8.2 (18.08)
VPH-B1001F-xxx2	5000	5000	1.44 (12.8)	3.61 (32.0)	0.70 (0.93)	0.0000438 (0.00038)	9.2 (20.29)
VPH-B1003F-xxx2	4750	4750	3.43 (30.4)	11.15 (99.0)	1.36 (1.83)	0.000114 (0.00100)	12.7 (28.00)
VPH-B1152F-xxx2	4500	4500	4.03 (35.7)	13.12 (116)	1.37 (1.84)	0.000268 (0.00237)	13.3 (29.33)
VPH-B1153E-xxx2	3900	5000	5.13 (45.4)	20.33 (180)	1.27 (1.70)	0.000391 (0.00346)	15.3 (33.74)
VPH-B1304E-xxx2	3500	3500	8.41 (74.5)	28.45 (252)	2.15 (2.88)	0.000533 (0.00471)	22.9 (50.49)
VPH-B1653D-xxx2	3000	3000	18.67 (165)	67.80 (600)	3.16 (4.23)	0.00214 (0.01894)	37.7 (83.13)

## Kinetix VPH Servo Motor (400V-class) Performance Specifications (brake)

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
VPH-B0632T-xxx4	7200	8000	0.80 (7.1)	2.69 (24.0)	0.40 (0.54)	0.0000193 (0.00017)	6.5 (14.33)
VPH-B0633M-xxx4	6700	6700	1.01 (8.9)	4.09 (36.0)	0.50 (0.67)	0.0000269 (0.00023)	7.1 (15.66)
VPH-B0753F-xxx4	6600	6600	1.81 (16.0)	7.02 (62.2)	0.68 (0.92)	0.0000386 (0.00034)	9.2 (20.29)
VPH-B1001F-xxx4	5000	5000	1.42 (12.6)	3.61 (32.0)	0.68 (0.91)	0.0000533 (0.00047)	11.2 (24.70)
VPH-B1003F-xxx4	4750	4750	3.29 (29.1)	11.15 (99.0)	1.16 (1.56)	0.000123 (0.00108)	14.6 (32.19)
VPH-B1152F-xxx4	4500	4500	4.03 (35.7)	13.12 (116)	1.37 (1.84)	0.000287 (0.00254)	15.6 (34.40)
VPH-B1153E-xxx4	3900	5000	5.13 (45.4)	20.33 (180)	1.08 (1.45)	0.000409 (0.00361)	17.5 (38.59)
VPH-B1304E-xxx4	3500	3500	8.24 (73.0)	28.45 (252)	1.76 (2.36)	0.000548 (0.00485)	26.1 (57.55)
VPH-B1653D-xxx4	3000	3000	18.67 (165)	67.80 (600)	2.91 (3.91)	0.0022 (0.01947)	41.0 (90.41)

## Kinetix VPH Servo Motor Brake Specifications

Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time	
				Release ms	Engage <sup>(1)</sup> ms
VPH-A/B0632	30	1.50 (13)	0.33	46	34
VPH-A/B0633					
VPH-A/B0753		3.00 (27)	0.63	80	101
VPH-A/B1001		4.18 (37)	0.50	108	144
VPH-A/B1003					
VPH-A/B1152		6.55 (58)	0.69	108	134
VPH-A/B1153					
VPH-A/B1304		14.1 (125)	0.82	150	208
VPH-B1653	32.0 (283)	1.17	168	144	

(1) By using diode and zener diode as arc suppression device in external control circuit.

## On-motor Cable Weight Specifications

Motor Cat. No.	Cable Type	Cable Options	Cable Length m (ft)	Cable Weight, approx kg (lb)		
				Frame 063 and 075	Frame 100, 115, 130, 165	
VPH-A/Bxxxx-xJ0xD01	Continuous-flex	Flying leads	01	1 (3.2)	0.3 (0.7)	0.4 (0.9)
VPH-A/Bxxxx-xJ1xD01		Connector			0.4 (0.9)	0.5 (1.1)
VPH-A/Bxxxx-xJ0xD03		Flying leads	03	3 (9.8)	0.9 (2.0)	1.2 (2.6)
VPH-A/Bxxxx-xJ1xD03		Connector			1.2 (2.6)	1.5 (3.3)
VPH-A/Bxxxx-xJ0xD05		Flying leads	05	5 (16.4)	1.5 (3.3)	1.6 (3.4)
VPH-A/Bxxxx-xJ1xD05		Connector			2.0 (4.3)	2.5 (5.5)
VPH-A/Bxxxx-xJ0xD07		Flying leads	07	7 (22.9)	2.1 (4.6)	2.7 (6.0)
VPH-A/Bxxxx-xJ1xD07		Connector			2.7 (6.0)	3.5 (7.7)
VPH-A/Bxxxx-xJ0xD09		Flying leads	09	9 (29.5)	2.7 (5.9)	3.5 (7.7)
VPH-A/Bxxxx-xJ1xD09		Connector			3.5 (7.7)	4.7 (10.3)
VPH-A/Bxxxx-xJ0xD12	Standard (non-flex)	Flying leads	12	12 (39.4)	3.6 (7.8)	4.7 (10.2)
VPH-A/Bxxxx-xJ1xD12		Connector			4.7 (10.2)	5.6 (12.3)
VPH-A/Bxxxx-xJ0xD15		Flying leads	15	15 (49.2)	4.5 (9.8)	5.8 (12.8)
VPH-A/Bxxxx-xJ1xD15		Connector			5.8 (12.8)	6.7 (14.8)

**On-motor Cable Gauge Specifications**

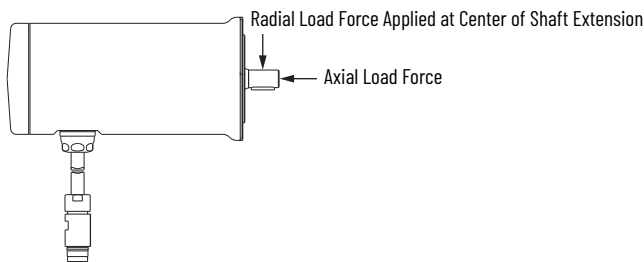
Motor Cat. No.	Cable Gauge <sup>(1)</sup>
VPH-A/B063xx, VPH-A/B075xx	18
VPH-A/B100xx, VPH-A/B115xx	14
VPH-A/B130xx, VPH-A/B165xx	

(1) For mating 2090-CSxMIDx single cable, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-T0004](#).

**Kinetix VPH Servo Motor Load Force Ratings**

Kinetix VPH servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables starting below represent an L<sub>10</sub> bearing fatigue life of 20,000 hours. This 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

**Load Forces on Shaft**



**Radial Load Force Ratings for Non-brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)															
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPH-A0633F	4500	37.2	29.5	25.8	23.4	21.7	20.5	19.4	18.6	17.9	-	-	-	-	-	-	-
VPH-A0753F	4600	38.2	30.3	26.5	24.0	22.3	21.0	20.0	19.1	18.4	17.7*	-	-	-	-	-	-
VPH-A1003F	5500	93.6	74.3	64.9	59.0	54.7	51.5	48.9	46.8	45.0	43.4	42.1	-	-	-	-	-
VPH-A1152E	3300	102.2	81.1	70.8	64.4	59.8	56.2	53.4*	-	-	-	-	-	-	-	-	-
VPH-A1153C	2300	108.6	86.2	75.3	68.4	63.5*	-	-	-	-	-	-	-	-	-	-	-
VPH-A1304D	3000	142.7	113.2	98.9	89.9	83.4	78.5	-	-	-	-	-	-	-	-	-	-
VPH-B0632T	8000	35.4	28.1	24.5	22.3	20.7	19.5	18.5	17.7	17	16.4	15.9	15.5	15.0	14.7	14.3	14.0
VPH-B0633M	6700	37.2	29.5	25.8	23.4	21.7	20.5	19.4	18.6	17.9	17.3	16.7	16.2	15.8	15.4*	-	-
VPH-B0753F	6600	38.2	30.3	26.5	24.0	22.3	21.0	20.0	19.1	18.4	17.7	17.2	16.7	16.2	15.8*	-	-
VPH-B1001F	5000	79.9	63.4	55.4	50.3	46.7	44.0	41.8	40.0	38.4	37.1	-	-	-	-	-	-
VPH-B1003F	4750	93.6	74.3	64.9	59.0	54.7	51.5	48.9	46.8	45.0	43.4*	-	-	-	-	-	-
VPH-B1152F	4500	102.2	81.1	70.8	64.4	59.8	56.2	53.4	51.1	49.1	-	-	-	-	-	-	-
VPH-B1153E	5000	108.6	86.2	75.3	68.4	63.5	59.7	56.7	54.3	52.2	50.4	-	-	-	-	-	-
VPH-B1304E	3500	142.7	113.2	98.9	89.9	83.4	78.5	74.6	-	-	-	-	-	-	-	-	-
VPH-B1653D	3000	193.4	153.5	134.1	121.8	113.1	106.4	-	-	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings with Maximum Radial Load for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)															
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPH-A0633F	4500	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	-	-	-	-	-	-	-
VPH-A0753F	4600	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7*	-	-	-	-	-	-
VPH-A1003F	5500	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1	11.6	-	-	-	-	-
VPH-A1152E	3300	38.2	28.2	23.7	20.9	19.0	17.5	16.4*	-	-	-	-	-	-	-	-	-
VPH-A1153C	2300	38.2	28.2	23.7	20.9	19.0*	-	-	-	-	-	-	-	-	-	-	-
VPH-A1304D	3000	48.9	36.2	30.4	26.8	24.3	22.5	-	-	-	-	-	-	-	-	-	-
VPH-B0632T	8000	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0	3.9	3.8
VPH-B0633M	6700	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0*	-	-
VPH-B0753F	6600	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0*	-	-
VPH-B1001F	5000	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1	-	-	-	-	-	-
VPH-B1003F	4750	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1*	-	-	-	-	-	-
VPH-B1152F	4500	38.2	28.2	23.7	20.9	19.0	17.5	16.4	15.5	14.7	-	-	-	-	-	-	-
VPH-B1153E	5000	38.2	28.2	23.7	20.9	19.0	17.5	16.4	15.5	14.7	14.0	-	-	-	-	-	-
VPH-B1304E	3500	48.9	36.2	30.4	26.8	24.3	22.5	21.0	-	-	-	-	-	-	-	-	-
VPH-B1653D	3000	63.0	46.6	39.1	34.5	34.5	28.9	-	-	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings with Zero Radial Load for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)															
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPH-A0633F	4500	17.1	27.5	23.0	20.3	18.5	17.1	16.0	15.1	15.1	-	-	-	-	-	-	-
VPH-A0753F	4600	37.1	27.5	23.0	20.3	18.5	17.1	16.0	15.1	15.1	13.7*	-	-	-	-	-	-
VPH-A1003F	5500	96.5	71.4	71.4	52.8	52.8	44.3	41.4	39.1	37.2	35.5	34.1	-	-	-	-	-
VPH-A1152E	3300	39.4	82.6	82.6	61.2	55.5	51.3	48.0*	-	-	-	-	-	-	-	-	-
VPH-A1153C	2300	111.7	82.6	82.6	61.2	55.5*	-	-	-	-	-	-	-	-	-	-	-
VPH-A1304D	3000	71.2	106.0	88.9	78.5	71.2	65.8	-	-	-	-	-	-	-	-	-	-
VPH-B0632T	8000	17.1	27.5	23.0	20.3	18.5	17.1	17.1	15.1	14.3	13.7	13.7	12.6	12.2	11.8	11.8	11.1
VPH-B0633M	6700	11.1	27.5	27.5	20.3	18.5	17.1	16.0	15.1	14.3	13.7	13.1	12.6	12.6	11.8*	-	-
VPH-B0753F	6600	11.8	27.5	23.0	20.3	18.5	17.1	16.0	15.1	14.3	13.7	13.1	12.6	12.6	11.8*	-	-
VPH-B1001F	5000	96.5	71.4	59.9	52.8	48.0	44.3	41.4	39.1	37.2	35.5	-	-	-	-	-	-
VPH-B1003F	4750	96.5	71.4	71.4	52.8	52.8	44.3	41.4	39.1	37.2	35.5*	-	-	-	-	-	-
VPH-B1152F	4500	41.1	82.6	69.3	61.2	55.5	51.3	48.0	45.3	43.0	-	-	-	-	-	-	-
VPH-B1153E	5000	43.0	82.6	69.3	61.2	55.5	51.3	48.0	45.3	45.3	41.1	-	-	-	-	-	-
VPH-B1304E	3500	65.8	106.0	88.9	78.5	71.2	65.8	61.5	-	-	-	-	-	-	-	-	-
VPH-B1653D	3000	184.4	136.5	114.5	101.0	91.7	84.7	-	-	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

Radial Load Force Ratings for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)															
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPH-A0633F	4500	38.7	30.7	26.8	24.4	22.6	21.3	20.2	19.3	18.6	-	-	-	-	-	-	-
VPH-A0753F	4600	39.4	31.3	27.3	24.8	23.0	21.7	20.6	19.7	18.9	18.3*	-	-	-	-	-	-
VPH-A1003F	5500	98.4	78.1	68.2	62	57.6	54.2	51.5	49.2	47.3	45.7	44.3	-	-	-	-	-
VPH-A1152E	3300	110.6	87.8	76.7	69.7	64.7	60.9	57.8*	-	-	-	-	-	-	-	-	-
VPH-A1153C	2300	114.7	91.1	79.6	72.3	67.1*	-	-	-	-	-	-	-	-	-	-	-
VPH-A1304D	3000	149.5	118.7	103.7	94.2	87.5	82.3	-	-	-	-	-	-	-	-	-	-
VPH-B0632T	8000	37.5	29.8	26.0	23.6	21.9	20.6	19.6	18.8	18.0	17.4	16.9	16.4	16.0	15.6	15.2	14.9
VPH-B0633M	6700	38.7	30.7	26.8	24.4	22.6	21.3	20.2	19.3	18.6	18.0	17.4	16.9	16.5	16.1*	-	-
VPH-B0753F	6600	39.4	31.3	27.3	24.8	23.0	21.7	20.6	19.7	18.9	18.3	17.7	17.2	16.7	16.3*	-	-
VPH-B1001F	5000	89.7	71.2	62.2	56.5	52.5	49.4	46.9	44.9	43.1	41.6	-	-	-	-	-	-
VPH-B1003F	4750	98.4	78.1	68.2	62	57.6	54.2	51.5	49.2	47.3	45.7*	-	-	-	-	-	-
VPH-B1152F	4500	110.6	87.8	76.7	69.7	64.7	60.9	57.8	55.3	53.2	-	-	-	-	-	-	-
VPH-B1153E	5000	114.7	91.1	79.6	72.3	67.1	63.1	60.0	57.4	55.2	53.3	-	-	-	-	-	-
VPH-B1304E	3500	149.5	118.7	103.7	94.2	87.5	82.3	78.2	-	-	-	-	-	-	-	-	-
VPH-B1653D	3000	199.8	158.6	138.5	125.8	116.8	109.9	-	-	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

Axial Load Force Ratings with Maximum Radial Load for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)															
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPH-A0633F	4500	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	-	-	-	-	-	-	-
VPH-A0753F	4600	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7*	-	-	-	-	-	-
VPH-A1003F	5500	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1	11.6	-	-	-	-	-
VPH-A1152E	3300	38.2	28.2	23.7	20.9	19.0	17.5	16.4*	-	-	-	-	-	-	-	-	-
VPH-A1153C	2300	38.2	28.2	23.7	20.9	19.0*	-	-	-	-	-	-	-	-	-	-	-
VPH-A1304D	3000	48.9	36.2	30.4	26.8	24.3	22.5	-	-	-	-	-	-	-	-	-	-
VPH-B0632T	8000	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0	3.9	3.8
VPH-B0633M	6700	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0*	-	-
VPH-B0753F	6600	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0*	-	-
VPH-B1001F	5000	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1	-	-	-	-	-	-
VPH-B1003F	4750	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1*	-	-	-	-	-	-
VPH-B1152F	4500	38.2	28.2	23.7	20.9	19.0	17.5	16.4	15.5	14.7	-	-	-	-	-	-	-
VPH-B1153E	5000	38.2	28.2	23.7	20.9	19.0	17.5	16.4	15.5	14.7	14.0	-	-	-	-	-	-
VPH-B1304E	3500	48.9	36.2	30.4	26.8	24.3	22.5	21.0	-	-	-	-	-	-	-	-	-
VPH-B1653D	3000	28.9	46.6	39.1	34.5	31.3	28.9	-	-	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

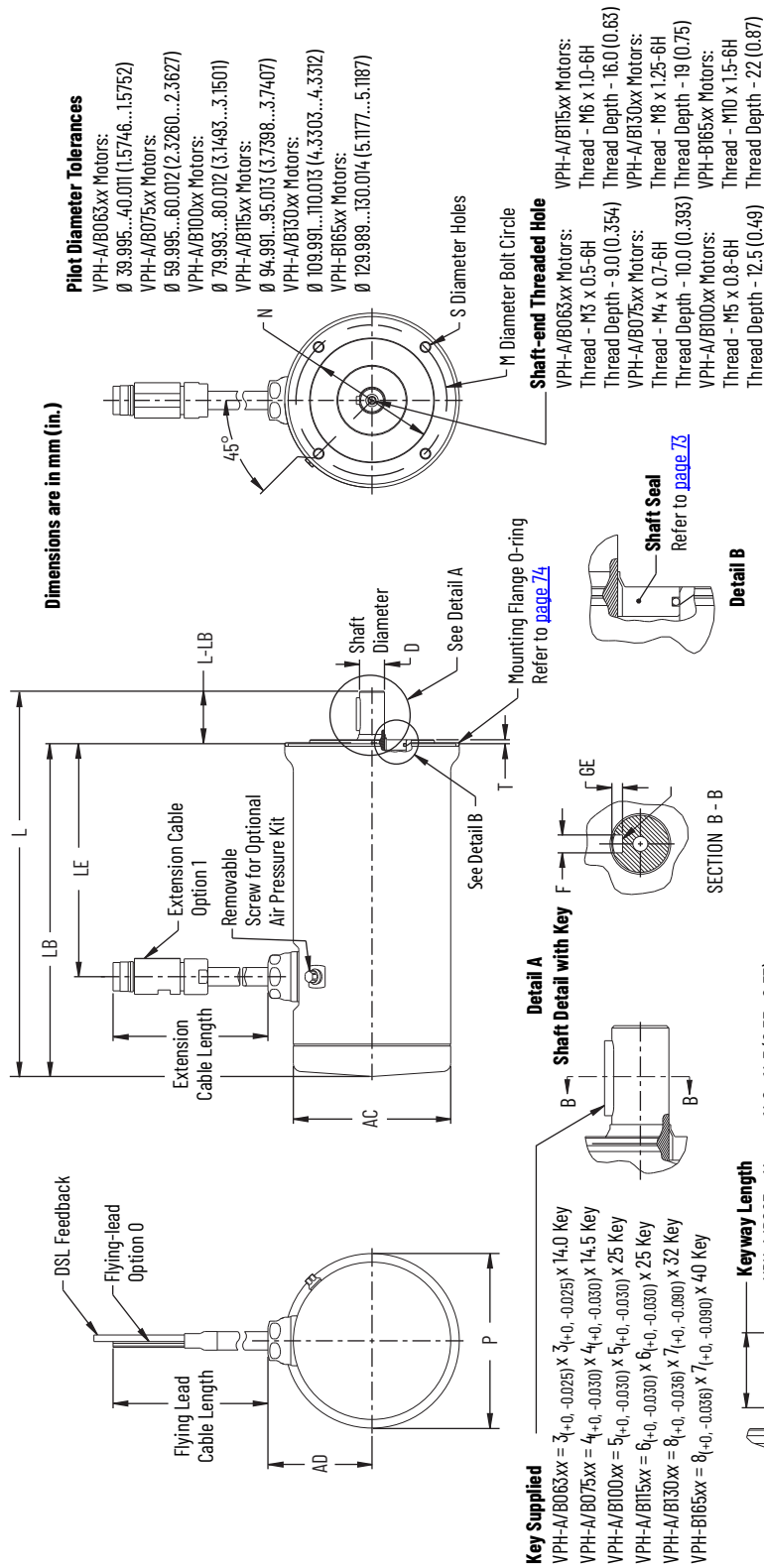
## Axial Load Force Ratings with Zero Radial Load for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	Load (kgf) at Speed (rpm)															
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPH-A0633F	4500	37.1	27.5	23.0	20.3	18.5	17.1	17.1	15.1	15.1	-	-	-	-	-	-	-
VPH-A0753F	4600	37.1	27.5	23.0	20.3	18.5	18.5	16.0	16.0	14.3	13.7*	-	-	-	-	-	-
VPH-A1003F	5500	96.5	71.4	59.9	52.8	48.0	44.3	41.4	39.1	39.1	35.5	35.5	-	-	-	-	-
VPH-A1152E	3300	111.7	111.7	69.3	61.2	55.5	51.3	48.0*	-	-	-	-	-	-	-	-	-
VPH-A1153C	2300	111.7	82.6	69.3	61.2	55.5*	-	-	-	-	-	-	-	-	-	-	-
VPH-A1304D	3000	65.8	106.0	88.9	78.5	71.2	65.8	-	-	-	-	-	-	-	-	-	-
VPH-B0632T	8000	11.1	27.5	23.0	20.3	18.5	17.1	16.0	15.1	14.3	13.7	13.1	12.6	12.6	11.8	11.8	11.1
VPH-B0633M	6700	37.1	37.1	23.0	20.3	18.5	17.1	16.0	15.1	14.3	13.7	13.1	12.6	12.2	11.8*	-	-
VPH-B0753F	6600	37.1	27.5	23.0	20.3	18.5	17.1	16.0	15.1	14.3	13.7	13.1	13.1	12.2	11.8*	-	-
VPH-B1001F	5000	35.5	71.4	71.4	52.8	48.0	44.3	41.4	39.1	39.1	35.5	-	-	-	-	-	-
VPH-B1003F	4750	96.5	96.5	59.9	52.8	48.0	44.3	41.4	39.1	37.2	35.5*	-	-	-	-	-	-
VPH-B1152F	4500	111.7	82.6	69.3	61.2	55.5	51.3	48.0	45.3	43.0	-	-	-	-	-	-	-
VPH-B1153E	5000	111.7	82.6	82.6	61.2	55.5	51.3	48.0	45.3	43.0	41.1	-	-	-	-	-	-
VPH-B1304E	3500	143.2	106.0	106	78.5	78.5	65.8	61.5	-	-	-	-	-	-	-	-	-
VPH-B1653D	3000	184.4	136.5	114.5	101.0	91.7	84.7	-	-	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

# Dimensions - Kinetix VPH Servo Motors

VPH-A/B063xx, VPH-A/B075xx, VPH-A/B100xx, VPH-A/B115xx, VPH-A/B130xx, VPH-B165xx Motor Dimensions



Runout and Pilot Tolerances	VPH-A/B063	VPH-A/B075	VPH-A/B100	VPH-A/B115	VPH-A/B130	VPH-B165
Shaft Runout (T.I.R.)	0.03 (0.0012)	0.035 (0.0016)	0.035 (0.0016)	0.04 (0.0016)	0.04 (0.0016)	0.04 (0.0016)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)	0.08 (0.0031)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)	0.08 (0.0031)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)



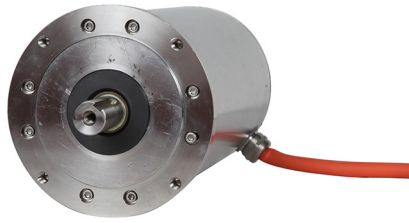
VPH-A/B063xx, VPH-A/B075xx, VPH-A/B100xx, VPH-A/B115xx, VPH-A/B130xx, VPH-B165xx Motor Dimensions

Motor Cat. No.	AD mm (in.)	AC mm (in.)	T mm (in.)	LE (1) mm (in.)	L mm (in.)	LB mm (in.)	L-LB mm (in.)	D mm (in.)	M mm (in.)	S mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
VPH-A/B0632	58.5 (2.30)	81.9 (3.20)	1.30...2.50 (0.051...0.098)	125.9 (4.96)	230.6 (9.10)	200.6 (7.90)	30.0 (1.20)	9.0 (0.354)	63.0 (2.480)	M5x0.8-6H Depth: Tl (0.43)	40.0 (1.57)	81.9 (3.20)	1.80...1.90 (0.071...0.075)	2.969...2.994 (0.1169...0.1179)
VPH-A/B0633				150.9 (5.94)	255.6 (10.08)	225.6 (8.88)								
VPH-A/B0753	65.6 (2.60)	94.9 (3.70)	1.70...2.50 (0.067...0.098)	153.7 (6.05)	251.9 (9.91)	288.9 (9.01)	23.0 (0.90)	11.0 (0.433)	75.0 (2.953)		60.0 (2.36)	94.9 (3.70)	2.50...2.60 (0.098...0.102)	3.958...3.988 (0.1558...0.1570)
VPH-A/B1001				110.8 (4.36)	223.0 (8.78)	183.0 (7.20)								
VPH-A/B1003	74.5 (2.90)	109.9 (4.33)		161.6 (6.36)	273.8 (10.77)	233.8 (9.20)	40.0 (1.57)	16.0 (0.630)	100.0 (3.937)	M6x1.0-6H Depth: Tl (0.43)	80.0 (3.15)	119.8 (4.72)	3.00...3.10 (0.118...0.122)	4.958...4.988 (0.1952...0.1964)
VPH-A/B1152			2.20...3.00 (0.087...0.118)	141.8 (5.58)	257.9 (10.15)	217.9 (8.58)								
VPH-A/B1153	79.3 (3.10)	119.9 (4.70)		167.2 (6.58)	283.3 (11.15)	243.3 (9.58)	40.0 (1.57)	19.0 (0.748)	115.0 (4.528)	M8x1.25-6H Depth: 13 (0.51)	95.0 (3.74)	133.0 (5.20)	3.50...3.60 (0.138...0.142)	5.958...5.988 (0.2346...0.2357)
VPH-A/B1304	87.6 (3.40)	136.9 (5.40)	2.42...3.50 (0.095...0.138)	194.8 (7.67)	321.5 (12.66)	271.5 (10.69)	50.0 (1.97)	24.0 (0.945)	130.0 (5.118)	M8x1.25-6H Depth: 16 (0.63)	110.0 (4.33)	155.1 (6.10)	4.00...4.20 (0.157...0.165)	7.949...7.985 (0.3130...0.3144)
VPH-B1653	100.1 (3.90)	159.9 (6.30)		261.0 (10.28)	398.5 (15.73)	338.5 (13.33)	60.0 (2.40)	28.0 (1.103)	165.0 (6.50)	M10x1.5-6H Depth: 15 (0.59)	130.0 (5.12)	186.0 (7.30)		

(1) If ordering a VPH-A/B063xx-xJx4Dxx motor with brake, add 30.6 mm (1.21 in.) to dimensions LE, L, and LB.  
 If ordering a VPH-A/B075xx-xJx4Dxx motor with brake, add 271 mm (1.07 in.) to dimensions LE, L, and LB.  
 If ordering a VPH-A/B100xx-xJx4Dxx motor with brake, add 321 mm (1.27 in.) to dimensions LE, L, and LB.  
 If ordering a VPH-A/B115xx-xJx4Dxx motor with brake, add 35.8 mm (1.41 in.) to dimensions LE, L, and LB.  
 If ordering a VPH-A/B130xx-xJx4Dxx motor with brake, add 37.9 mm (1.49 in.) to dimensions LE, L, and LB.  
 If ordering a VPH-B165xx-xJx4Dxx motor with brake, add 43.2 mm (1.70 in.) to dimensions LE, L, and LB.

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

# Kinetix VPS Stainless-steel Servo Motors



Kinetix VPS servo motors are specifically designed to meet the unique needs of sanitary processing environments. They also feature a digital feedback device that delivers real-time motor performance information back to the control system through a 2090-Series single cable design between motor and drive that simplifies system installation.

Windings are matched to the ratings of Kinetix 5500 and Kinetix 5700 drive to optimize system sizing, lower system cost, and improve energy efficiency.

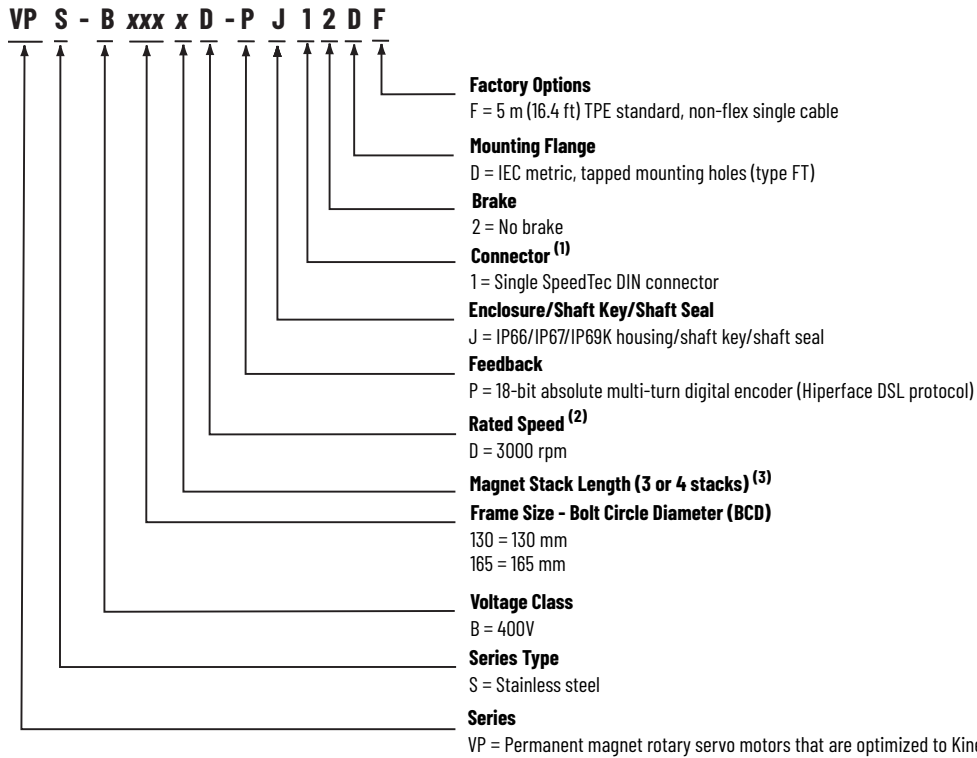
## Kinetix VPS Servo Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>Specifically designed for sanitary environments for use with high-pressure, highly-caustic washdown applications</li> <li>2090-Series single cable technology</li> <li>Hiperface DSL encoder protocol</li> <li>Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>Smooth, passivated 300 series stainless-steel cylindrical exterior</li> <li>Complies with NSF/ANSI Standard 169</li> <li>400V-class windings</li> <li>Shaft-end threaded hole</li> <li>Cable extended 5 m (16.4 ft) from motor to protect connector</li> <li>Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>IP66/IP67 with shaft seal (standard) and use of environmentally sealed cable connector</li> <li>IP69K for 1200 psi motor washdown <sup>(1)</sup></li> </ul>
Certifications	Kinetix VPS rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	8.1 and 21.0 N•m (72 and 186 lb•in)
Peak stall torque	27.1 and 67.8 N•m (240 and 600 lb•in)
Rated speed	3000 rpm
Motor rated output	1.4 and 3.3 kW (1.9 and 4.4 Hp)
Compatible servo drives	<ul style="list-style-type: none"> <li>Kinetix 5700</li> <li>Kinetix 5500</li> </ul>
Compatible servo cables	<ul style="list-style-type: none"> <li>2090-CSxM1xx-xxAA/AFxx (TPE) cables</li> <li>2090-CSxM1xx-xxVA/LFxx (PVC and PUR) cables</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>Meat and poultry</li> <li>Food slicing and filling</li> <li>Raw food handling</li> <li>Processing</li> <li>Life science</li> <li>Consumer products</li> </ul>

(1) The cable connectors are rated IP66 and IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.

## Catalog Numbers - Kinetix VPS Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) The motor has 5 m (16.4 ft) 2090-Series TPE cable extension with nickel-plated connector extensions.

(2) Rated speed hierarchy is only for comparative purposes. Use Motion Analyzer software to size and select motors for your application, and/or the torque/speed curves in the Kinetix 5500 Drive System Design Guide, publication [KNX-RM009](#), and the Kinetix 5700 Drive System Design Guide, publication [KNX-RM010](#).

(3) Not all combinations are available. Only the configurations for magnet stack length as listed in Kinetix VPS Servo Motor (400V-class) Performance Specifications on [page 85](#) are available.

**IMPORTANT** The connectors are O-ring sealed, but not designed to withstand direct high-pressure washdown with aggressive cleaning compounds. The 5 m (16.4 ft) cables are provided so the connectors can be positioned in an area away from direct exposure to the cleaning process, such as within washdown-rated conduit or junction boxes.

## Kinetix VPS Servo Motor High-resolution Encoders

Kinetix VPS servo motors are available with high-performance encoders with multi-turn (-P) high-resolution feedback:

- 18-bit resolution for 262,144 counts per revolution, multi-turn encoder (-P) provides absolute position feedback within 4096 turns
- Electromechanical design does not require a battery.

## Kinetix 2090-Series Single Cable Technology

Motor connectivity reduced to a single connector and cable.

- Single cable eliminates hardware and wire terminations
- Purely digital two-wire communication integrated into the motor power cable
- Mating 2090-Series single cables with:
  - TPE cable material for standard (non-flex) and continuous-flex cable
  - PVC cable material for standard (non-flex) and Halogen-free PUR continuous-flex cable
- Mating 2090-CSxM1Dx cables are available in 1.0 m (3.2 ft) increments. Total cable length includes the 5m (16.4 ft) extension cable attached to the motor and varies depending on cable type and drive family.

### Maximum Cable Length Including Cable Extension

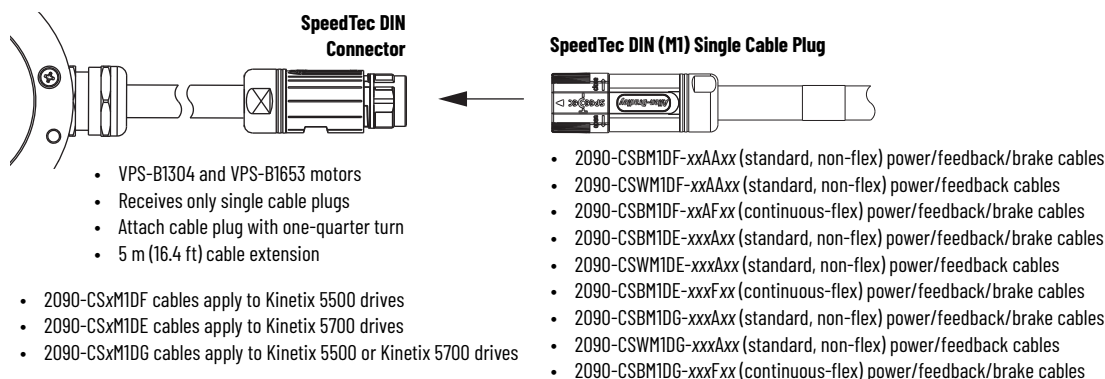
Cable Cat. No.	Motor Cable Type	Kinetix 5500 Drives <sup>(1)</sup> m (ft)	Kinetix 5700 Drives <sup>(1)</sup> m (ft)
2090-CSxM1Dx-xxxAxx	Single, standard (non-flex) cable	Cable length, max = 45 (148) Plus extension cable + 5 (16.4) Total cable length = 50 (164)	Cable length, max = 85 (279) Plus extension cable + 5 (16.4) Total cable length = 90 (295)
2090-CSxM1Dx-xxxFxx	Single, continuous-flex cable	Cable length, max = 25 (82.0) Plus extension cable + 5 (16.4) Total cable length = 30 (98.4)	

(1) This table illustrates how the motor cable extension is included in the maximum cable length calculation. However, there are other variables to consider. See Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#), or Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), for maximum cable length specifications specific to those drive families.

**IMPORTANT** Due to the unique characteristics of single cable technology, designed for and tested with Kinetix 5500 drives, Kinetix 5700 dual-axis inverters, and Kinetix VPS servo motors, building your own cables or using third-party cable is not an option.

## On-Motor Cable Connector/Cable Compatibility

Kinetix VPS servo motors are equipped with SpeedTec DIN connectors.



Product specifications for Kinetix VPS on-motor cables are identical to 2090-CSxM1xx (TPE) motor cable. For 2090-Series single motor cable specifications, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

## Kinetix VPS Servo Motor Options

Kinetix VPS servo motors are available with these configurable options:

- The positive air pressure accessory kit (catalog number MPS-AIR-PURGE) is mounted to the rear cover of the motor to provide positive air pressure and further reduce the chance of contamination inside the motor. No special tool is required for installation and removal.
- Shaft seal kits (with slinger) are available for field replacement. Shaft seals are made of PTFE and include a lubricant to reduce wear.

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**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

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### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPS-B1304D	MPS-SST-A45B45
VPS-B1653D	MPS-SST-F165

Refer to the Kinetix VP Stainless-steel Servo Motor Installation Instructions, publication [VPS-IN002](#), for more information.

## Technical Specifications - Kinetix VPS Servo Motors

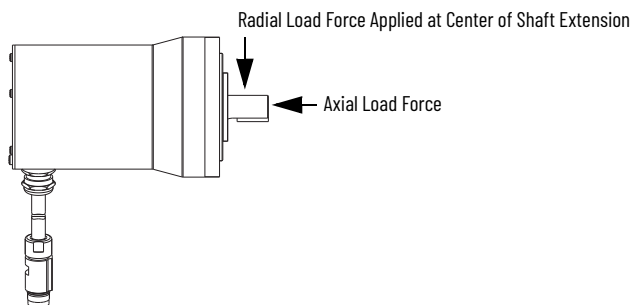
### Kinetix VPS Servo Motor (400V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N•m (lb•in)	Peak Stall Torque N•m (lb•in)	Motor Rated Output kW (Hp)	Rotor Inertia kg•m <sup>2</sup> (lb•in•s <sup>2</sup> )	Motor Weight, approx kg (lb)
VPS-B1304D	3000	3000	8.1 (72.0)	27.1 (240)	1.4 (1.9)	0.00052 (0.0046)	13.4 (29.4)
VPS-B1653D	3000	3000	21.0 (186)	67.8 (600)	3.3 (4.4)	0.0023 (0.0203)	30.4 (66.8)

## Kinetix VPS Servo Motor Load Force Ratings

Kinetix VPS servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables starting below represent an L<sub>10</sub> bearing fatigue life of 20,000 hours. This 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

### Load Forces on Shaft



### Radial Load Force Ratings (maximum)

Motor Cat. No.	Maximum Speed rpm	RPM			
		500 kgf (lbf)	1000 kgf (lbf)	2000 kgf (lbf)	3000 kgf (lbf)
VPS-B1304D	3000	140 (308)	111 (244)	89 (196)	77 (169)
VPS-B1653D	3000	-	154 (338)	122 (268)	106 (234)

### Axial Load Force Ratings (maximum radial load)

Motor Cat. No.	Maximum Speed rpm	RPM			
		500 kgf (lbf)	1000 kgf (lbf)	2000 kgf (lbf)	3000 kgf (lbf)
VPS-B1304D	3000	49 (108)	36 (79)	27 (59)	22 (48)
VPS-B1653D	3000	-	52 (115)	39 (85)	32 (71)

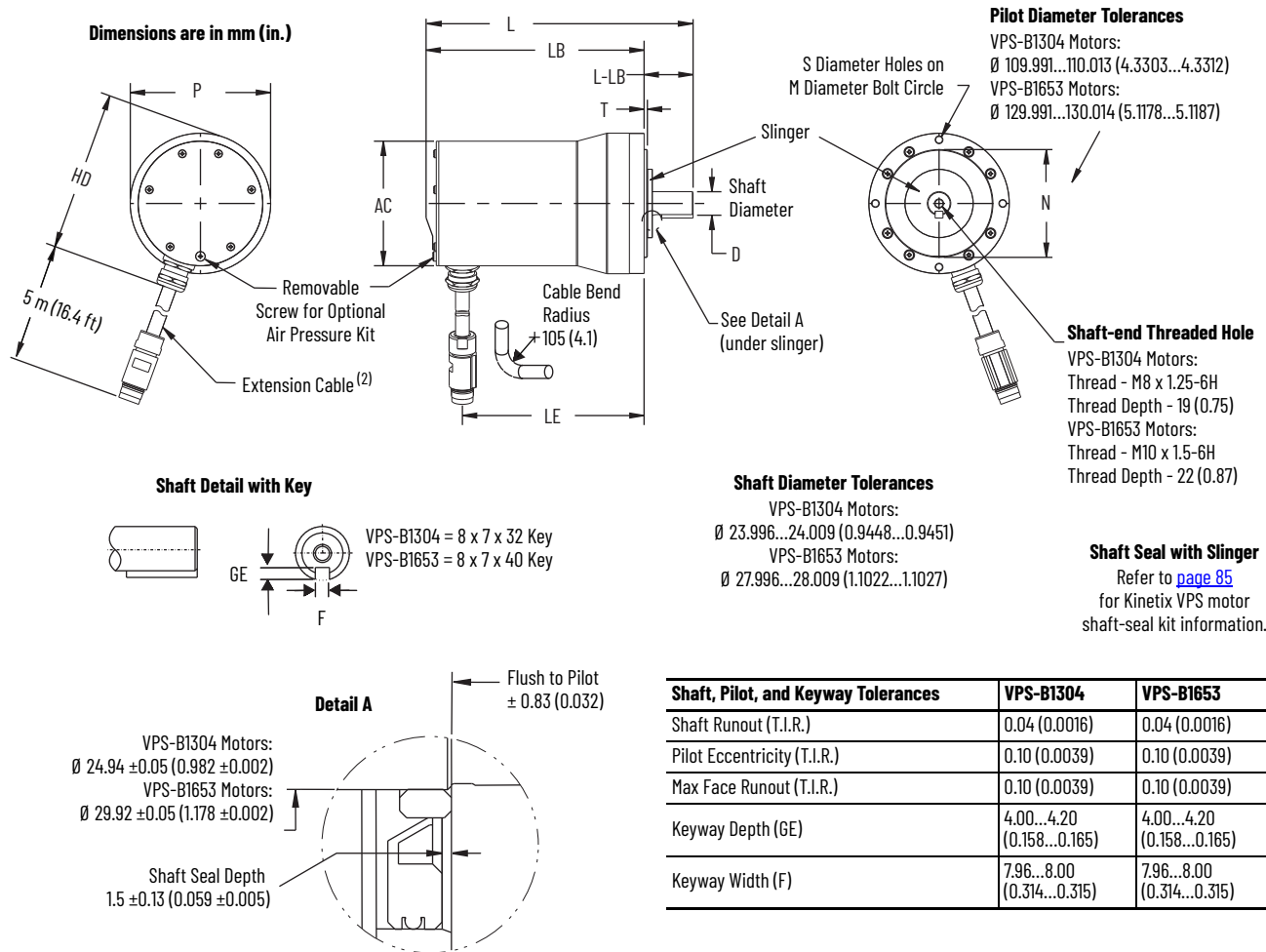
### Axial Load Force Ratings (zero radial load)

Motor Cat. No.	Maximum Speed rpm	RPM			
		500 kgf (lbf)	1000 kgf (lbf)	2000 kgf (lbf)	3000 kgf (lbf)
VPS-B1304D	3000	69 (152)	51 (112)	38 (83)	31 (68)
VPS-B1653D	3000	-	68 (149)	50 (109)	42 (92)

Loads are measured in kilograms-force. Pound-force loads are approximate conversions from kilograms-force.

# Dimensions - Kinetix VPS Servo Motors

## VPS-B1304D and VPS-B1653D Motor Dimensions



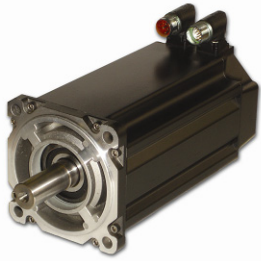
Shaft, Pilot, and Keyway Tolerances	VPS-B1304	VPS-B1653
Shaft Runout (T.I.R.)	0.04 (0.0016)	0.04 (0.0016)
Pilot Eccentricity (T.I.R.)	0.10 (0.0039)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.10 (0.0039)	0.10 (0.0039)
Keyway Depth (GE)	4.00...4.20 (0.158...0.165)	4.00...4.20 (0.158...0.165)
Keyway Width (F)	7.96...8.00 (0.314...0.315)	7.96...8.00 (0.314...0.315)

Motor Cat. No.	HD mm (in.)	AC mm (in.)	T mm (in.)	LE mm (in.)	L mm (in.)	LB mm (in.)	L-LB <sup>(1)</sup> mm (in.)	D mm (in.)	M mm (in.)	S mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
VPS-B1304	164.0 (6.40)	127.1 (5.00)	3.38 (0.133)	185.0 (7.30)	266.0 (10.47)	216.0 (8.50)	50.0 (1.97)	24.0 (0.945)	130.0 (5.118)	M8x1.25-6H Depth: 9.0 (0.35)	110.0 (4.33)	143.2 (5.64)	4.0 (0.158)	8.0 (0.315)
VPS-B1653	198.0 (7.80)	168.3 (6.63)	3.38 (0.13)	302.0 (11.90)	396.4 (15.60)	336.4 (13.24)	60.0 (2.36)	28.0 (1.10)	165.0 (6.49)	M10x1.50-6H Depth: 11.0 (0.43)	130.0 (5.12)	181.0 (7.13)	4.0 (0.158)	8.0 (0.315)

(1) Tolerance for this dimension is  $\pm$ 0.7 mm ( $\pm$ 0.03 in.).  
 (2) Specifications for the 5 m (16.4 ft) 2090-Series cable extensions are identical to those of the 2090-CSxM1xx-xxAxx single motor cables. Refer to Kinetix Motion Accessories Technical Data, publication [KNX-TD004](#), for cable specifications.

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

# Kinetix MPL Low-inertia Servo Motors



Kinetix MPL servo motors have a compact design to reduce motor size while delivering significantly higher torque. These compact and highly-dynamic brushless servo motors are designed by Allen-Bradley to meet the demanding requirements of high-performance motion systems.

## Kinetix MPL Servo Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• High torque to size ratio</li> <li>• Smart Motor Technology</li> <li>• Hiperface (Stegmann) encoder protocol</li> <li>• Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 200V and 400V-class windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• Incremental and resolver feedback options</li> <li>• High-energy rare-earth magnets</li> <li>• Shaft-end threaded hole</li> <li>• DIN connectors, rotates 180°</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>• IP50 minimum, without shaft seal (standard).</li> <li>• IP66 with optional shaft seal and use of environmentally sealed cable connectors.</li> </ul>
Certifications	Kinetix MPL rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	0.26...163 N•m (2.3...1440 lb•in)
Peak stall torque	0.74...278 N•m (6.6...2460 lb•in)
Rated speed	Up to 8000 rpm
Motor rated output	0.16...18.6 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5500 <sup>(1)</sup></li> <li>• Kinetix 5700 <sup>(2)</sup></li> <li>• Kinetix 6200/6500</li> <li>• Kinetix 6000</li> <li>• Kinetix 300/350</li> <li>• Kinetix 2000</li> <li>• Kinetix 7000</li> </ul>
Compatible servo cables	2090-CxxM7xx cables
Typical applications	<ul style="list-style-type: none"> <li>• Packaging</li> <li>• Converting</li> <li>• Material handling</li> <li>• Electronic assembly</li> <li>• Automotive</li> </ul>

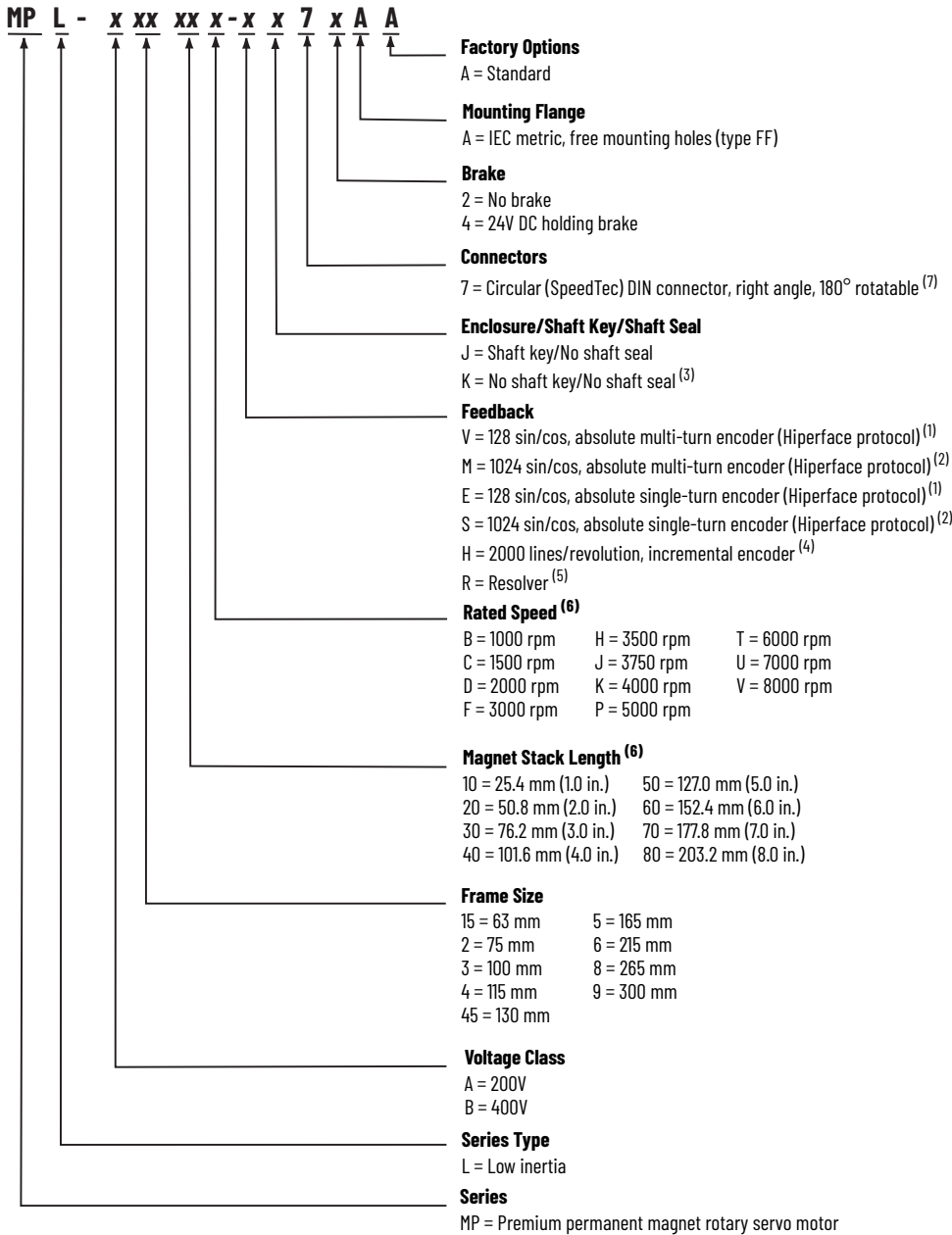
(1) Requires the 2198-H2DCK (series B or later) Hiperface-to-DSL feedback converter kit.

(2) Requires the 2198-K57CK-D15M universal feedback connector kit.



# Catalog Numbers - Kinetix MPL Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) Applies to MPL-A/B15xx and MPL-A/B2xx motors.  
 (2) Applies to MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx, MPL-B6xx, MPL-B8xx, and MPL-B9xx motors.  
 (3) Requires longer lead times. Applies to only limited frame sizes.  
 (4) Applies to MPL-A/B15xxx-H, MPL-A/B2xxx-H, MPL-A/B3xxx-H, MPL-A/B4xxx-H, MPL-A/B45xxx-H motors.  
 (5) Applies to MPL-B3xxx-R, MPL-B4xxx-R, and MPL-B45xxx-R motors.  
 (6) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in Kinetix MPL Servo Motor (200V-class) Performance Specifications on [page 92](#) and Kinetix MPL Servo Motor (400V-class) Performance Specifications on [page 93](#), are available. Use Motion Analyzer software to size and select motors for your application.  
 (7) Applies to all Kinetix MPL motors with M23 and M40 cable connectors. M58 connectors (MPL-B8xx and MPL-B9xx motors) must be physically removed and repositioned in 90° increments.

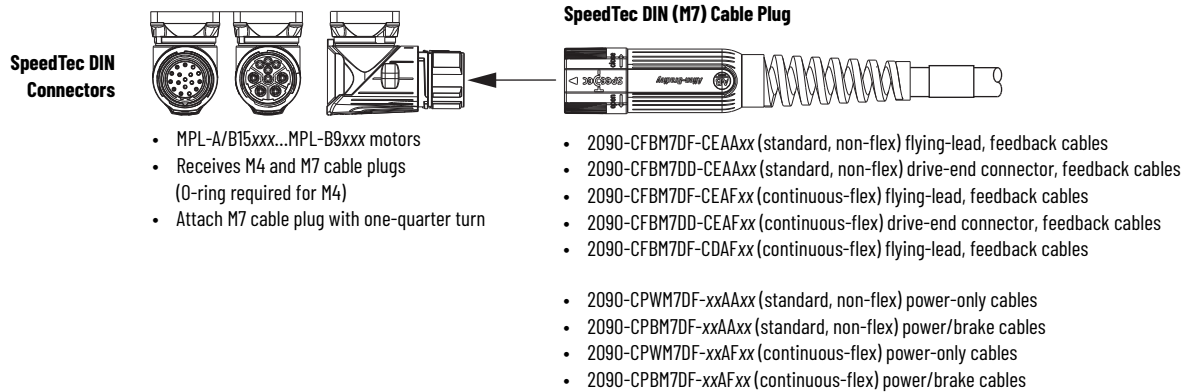
## Kinetix MPL Servo Motor High-resolution Encoders

Kinetix MPL servo motors are available with high performance encoders with a choice of single-turn (-E, -S) or multi-turn (-V, -M) high resolution feedback:

- 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution) -M and -S (MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx, MPL-B6xx, MPL-B8xx, and MPL-B9xx motors).
- 128 sin/cos cycles per revolution for up to 18-bit resolution (262,144 counts per revolution) -E and -V (MPL-A/B15xx and MPL-A/B2xx motors).
- Single-turn encoder provides high-resolution absolute position feedback within one turn.
- Multi-turn encoder provides high-resolution absolute position feedback within 4096 turns. The electromechanical design does not require a battery.

## Motor Connector/Cable Compatibility

Kinetix MPL servo motors are equipped with SpeedTec DIN connectors.



For information on transitioning your Kinetix MPL servo motor installation from bayonet cables to circular DIN cables, refer to Kinetix Motion Accessories Technical Data, publication [KNX-TD004](#).

## Kinetix MPL Servo Motor Options

Kinetix MPL servo motors are available with these options:

- 24V DC holding brake.
- Optional keyless shaft available in limited frame sizes with extended lead times (MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, and MPL-A/B5xx motors).
- Shaft seal kits are available, as are replacement kits for field installation. Shaft seals are made of nitrile and kits include a lubricant to reduce wear.

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**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

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### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
MPL-A15xx and MPL-B15xx	MPL-SSN-F63F75
MPL-A2xx and MPL-B2xx	
MPL-A3xx and MPL-B3xx	MPL-SSN-A3B3
MPL-A4xx and MPL-B4xx	MPL-SSN-A4B4
MPL-A45xx and MPL-B45xx	MPL-SSN-A5B5
MPL-A520 and MPL-B520 MPL-A540 and MPL-B540 MPL-A560 and MPL-B560	MPL-SSN-F165
MPL-B580	MPL-SSN-F165-32MM
MPL-B6xx	MPL-SSN-A6B6
MPL-B8xx	MPL-SSN-A8B8
MPL-B9xx	MPL-SSN-A9B9

## Technical Specifications - Kinetix MPL Servo Motors

### Kinetix MPL Servo Motor (200V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPL-A1510V	8000	8000	0.26 (2.3)	0.77 (6.8)	0.16	0.0000074 (0.000065)	1.0 (2.2)
MPL-A1520U	7000	7000	0.49 (4.3)	1.58 (14)	0.27	0.000013 (0.00012)	1.2 (2.6)
MPL-A1530U	7000	7000	0.90 (8.0)	2.80 (25)	0.39	0.000023 (0.00020)	1.6 (3.4)
MPL-A210V	8000	8000	0.55 (4.9)	1.50 (13.5)	0.37	0.000015 (0.00013)	1.4 (3.1)
MPL-A220T	6000	6000	1.61 (14.2)	4.74 (42)	0.62	0.000039 (0.00035)	2.0 (4.4)
MPL-A230P	5000	5000	2.10 (18.6)	8.20 (73)	0.86	0.000063 (0.00056)	2.6 (5.7)
MPL-A310P	4750	5000	1.58 (14)	3.61 (32)	0.73	0.000044 (0.00039)	2.7 (5.8)
MPL-A310F	3000	3000	1.58 (14)	3.61 (32)	0.46		
MPL-A320P	4750	5000	3.05 (27)	7.91 (70)	1.3	0.000078 (0.00069)	3.7 (8.0)
MPL-A320H	3350	3500	3.05 (27)	7.91 (70)	1.0		
MPL-A330P	5000	5000	4.18 (37)	11.1 (98)	1.8	0.00012 (0.0010)	4.6 (10)
MPL-A420P	5000	5000	4.74 (42)	10.2 (90)	2.0	0.00026 (0.0023)	4.3 (9.4)
MPL-A430P	5000	5000	5.99 (53)	19.8 (175)	2.2	0.00038 (0.0033)	5.5 (12)
MPL-A430H	3500	3500	6.21 (55)	19.8 (175)	1.8		
MPL-A4530K	4000	4000	8.13 (72)	20.3 (180)	2.5	0.00040 (0.0036)	7.3 (16)
MPL-A4530F	2800	2800	8.36 (74)	20.3 (180)	1.9		
MPL-A4540C	1500	1500	10.2 (90)	27.1 (240)	1.5	0.00052 (0.0046)	8.6 (19)
MPL-A4540F	3000	3000	10.2 (90)	27.1 (240)	2.6		
MPL-A4560F	3000	3000	14.1 (125)	34.4 (305)	3.0	0.00078 (0.0067)	11.82 (26)
MPL-A520K	3500	4000	10.7 (95)	24.3 (215)	3.5	0.000783 (0.0069)	9.8 (21.5)
MPL-A540K	4000	4000	19.4 (172)	48.6 (430)	5.5	0.00147 (0.013)	15.0 (33)
MPL-A560F	3000	3000	26.8 (237)	61.0 (540)	5.3	0.00213 (0.019)	20.2 (44.5)

(1) Refer to Kinetix MPL Servo Motor Brake Specifications on [page 94](#) for brake rotor inertia and brake motor weight.

## Kinetix MPL Servo Motor (400V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPL-B1510V	8000	8000	0.26 (2.3)	0.77 (6.8)	0.16	0.0000074 (0.000065)	1.0 (2.2)
MPL-B1520U	7000	7000	0.49 (4.3)	1.58 (14)	0.27	0.000013 (0.00012)	1.2 (2.6)
MPL-B1530U	7000	7000	0.90 (8.0)	2.80 (25)	0.39	0.000023 (0.00020)	1.6 (3.4)
MPL-B210V	8000	8000	0.55 (4.9)	1.50 (13.5)	0.37	0.000015 (0.00013)	1.4 (3.1)
MPL-B220T	6000	6000	1.61 (14.2)	4.74 (42)	0.62	0.000039 (0.00035)	2.0 (4.4)
MPL-B230P	5000	5000	2.10 (18.6)	8.20 (73)	0.86	0.000063 (0.00056)	2.6 (5.7)
MPL-B310P	5000	5000	1.58 (14)	3.61 (32)	0.77	0.000044 (0.00039) <sup>(2)</sup>	2.7 (5.8)
MPL-B320P	5000	5000	3.05 (27)	7.91 (70)	1.5	0.000078 (0.00069) <sup>(2)</sup>	3.7 (8.0)
MPL-B330P	5000	5000	4.18 (37)	11.1 (98)	1.8	0.00012 (0.0010) <sup>(2)</sup>	4.6 (10)
MPL-B420P	5000	5000	4.74 (42)	13.5 (120)	1.9	0.00026 (0.0023) <sup>(2)</sup>	4.3 (9.4)
MPL-B430P	5000	5000	6.55 (58)	19.8 (175)	2.2	0.00038 (0.0033) <sup>(2)</sup>	5.5 (12)
MPL-B4530F	3000	3000	8.25 (73)	20.3 (180)	2.1	0.00040 (0.0036) <sup>(2)</sup>	7.3 (16)
MPL-B4530K	4000	4000	8.25 (73)	20.3 (180)	2.6		
MPL-B4540F	3000	3000	10.2 (90)	27.1 (240)	2.6	0.00052 (0.0046) <sup>(2)</sup>	8.6 (19)
MPL-B4560F	3000	3000	14.1 (125)	34.4 (305)	3.2	0.00078 (0.0067) <sup>(2)</sup>	11.82 (26)
MPL-B520K	3500	4000	10.7 (95)	23.2 (205)	3.5	0.000783 (0.0069)	9.8 (21.5)
MPL-B540D	2000	2000	19.4 (172)	41.0 (362)	3.4	0.00147 (0.013)	15 (33)
MPL-B540K	4000	4000	19.4 (172)	48.6 (430)	5.4	0.00147 (0.013)	
MPL-B560F	3000	3000	26.8 (237)	67.8 (600)	5.5	0.00213 (0.019)	20.2 (44.5)
MPL-B580F	3000	3000	34.0 (301)	87.0 (770)	7.1	0.00289 (0.023)	25.4 (56)
MPL-B580J	3800	3800	34.0 (301)	81.0 (716)	7.9		
MPL-B640F	2000	3000	36.7 (325)	72.3 (640)	6.11	0.004 (0.0354)	26.8 (59)
MPL-B660F	2000	3000	48.0 (425)	101.1 (895)	6.15	0.0058 (0.051)	35.0 (77)
MPL-B680D	2000	2000	62.8 (556)	154.2 (1365)	9.3	0.00775 (0.0685)	40.4 (89)
MPL-B680F	2000	3000	60.0 (531)	108.5 (960)	7.5		
MPL-B680H	2000	3500	60.0 (531)	146.9 (1300)	7.5		
MPL-B860D	2000	2000	83.0 (735)	152.5 (1350)	12.5	0.0169 (0.150)	57.3 (126)
MPL-B880C	1500	1500	110.0 (973)	203 (1800)	12.6	0.0224 (0.198)	72.7 (160)
MPL-B880D	2000	2000	110.0 (973)	147 (1300)	12.6		
MPL-B960B	1200	1200	130.0 (1150)	231 (2050)	12.7	0.0273 (0.242)	76.0 (167)
MPL-B960C	1500	1500	124.3 (1100)	226 (2000)	14.8		
MPL-B960D	2000	2000	124.3 (1100)	226 (2000)	15.0		
MPL-B980B	1000	1000	162.7 (1440)	278 (2460)	15.2	0.0354 (0.313)	94.5 (208)
MPL-B980C	1500	1500	158.2 (1400)	271 (2400)	16.8		
MPL-B980D	2000	2000	158.2 (1400)	260 (2300)	18.6		
MPL-B980E	1500	2750	141.0 (1250)	237 (2100)	13.0		

(1) Refer to Kinetix MPL Servo Motor Brake Specifications on [page 94](#) for brake rotor inertia and brake motor weight.

(2) Rotor inertia can vary slightly depending on feedback.

Kinetix MPL Servo Motor Brake Specifications

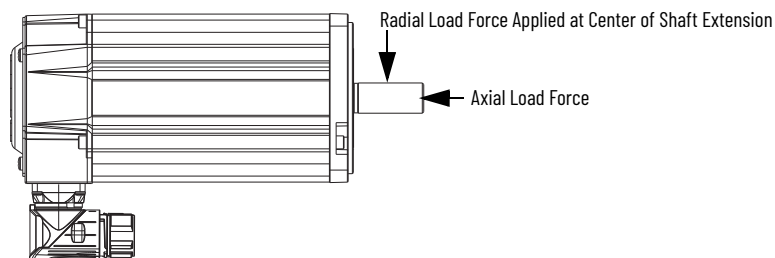
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time			Brake Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage (1)			
					MOV ms	Diode ms		
MPL-A/B1510V	0	0.9 (8.0)	0.43...0.53	23	9	18	0.000099 (0.000088)	1.2 (2.6)
MPL-A/B1520U							0.000015 (0.00013)	1.4 (3.1)
MPL-A/B1530U							0.000026 (0.00023)	1.8 (3.9)
MPL-A/B210V		4.5 (40)	0.46...0.56	58	20	42	0.000033 (0.00029)	1.8 (4.0)
MPL-A/B220T							0.000057 (0.00050)	2.4 (5.4)
MPL-A/B230P							0.000082 (0.00073)	3.0 (6.7)
MPL-A/B310	45	4.18 (37)	0.45...0.55	50	20	110	0.000057 (0.00050)	3.7 (8)
MPL-A/B320							0.000092 (0.00081)	4.6 (10)
MPL-A/B330							0.00013 (0.0011)	5.6 (12.4)
MPL-A/B420	37	10.2 (90)	0.576...0.704	110	25	160	0.00030 (0.0027)	6.0 (13.2)
MPL-A/B430							0.00042 (0.0038)	7.3 (16)
MPL-A/B4530							0.00044 (0.0039)	9.1 (20)
MPL-A/B4540							0.00056 (0.0050)	11.0 (24)
MPL-A/B4560							0.00084 (0.0072)	15.1 (33.2)
MPL-A/B520	25	28.3 (250)	1.05...1.28	70	50	250	0.000897 (0.0079)	12.38 (27.25)
MPL-A/B540							0.00157 (0.0139)	17.6 (38.75)
MPL-A/B560							0.00227 (0.020)	22.8 (50.1)
MPL-B580							0.0030 (0.026)	29.0 (63.8)
MPL-B640	25	70.0 (619)	1.91...2.19	200	120	900	0.00438 (0.03863)	37.27 (82.0)
MPL-B660							0.00628 (0.0555)	42.95 (94.5)
MPL-B680							0.0079 (0.0698)	50.8 (112.0)
MPL-B860		106.0 (938)	2.05...2.50	250	200	1000	0.0177 (0.1570)	72.7 (160)
MPL-B880							0.0232 (0.205)	87.7 (193)
MPL-B960							153.0 (1350)	3.85...4.70
MPL-B980	0.0378 (0.334)	116.5 (256)						

(1) By using an arc suppression device in external control circuit.

## Kinetix MPL Servo Motor Load Force Ratings

Kinetix MPL servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables starting below represent an  $L_{10}$  bearing fatigue life of 20,000 hours. This 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

### Load Forces on Shaft



### Radial Load Force Ratings

Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	4000 rpm kg (lb)	5000 rpm kg (lb)	6000 rpm kg (lb)	7000 rpm kg (lb)	8000 rpm kg (lb)
MPL-A/B1510	-	24 (52)	19 (41)	-	-	15 (33)	-	-	-	12 (26)
MPL-A/B1520	-	25 (56)	20 (45)	-	-	16 (36)	-	-	14 (30)	-
MPL-A/B1530	-	28 (62)	22 (49)	-	-	18 (39)	-	-	15 (33)	-
MPL-A/B210	-	24 (52)	19 (41)	-	-	15 (33)	-	-	-	12 (26)
MPL-A/B220	-	27 (59)	21 (47)	-	18 (39)	-	-	15 (33)	-	-
MPL-A/B230	-	29 (64)	23 (51)	-	19 (42)	-	17 (37)	-	-	-
MPL-A/B310	78 (172)	62 (137)	49 (108)	-	40 (88)	-	36 (79)	-	-	-
MPL-A/B320	87 (192)	69 (152)	55 (121)	-	45 (99)	-	40 (88)	-	-	-
MPL-A/B330	-	74 (163)	59 (130)	-	49 (108)	-	43 (95)	-	-	-
MPL-A/B420	-	78 (172)	62 (137)	-	51 (112)	-	45 (99)	-	-	-
MPL-A/B430	106 (234)	84 (185)	67 (148)	-	55 (121)	-	49 (108)	-	-	-
MPL-A/B4530	133 (293)	105 (232)	84 (185)	73 (161)	-	66 (146)	-	-	-	-
MPL-A4540C	140 (309)	112 (245)	96 (211)	-	-	-	-	-	-	-
MPL-A/B4540	140 (309)	111 (245)	89 (196)	77 (170)	-	-	-	-	-	-
MPL-A/B4560	-	151 (332)	119 (263)	95 (209)	-	-	-	-	-	-
MPL-A/B520	-	127 (280)	100 (222)	88 (194)	-	80 (176)	-	-	-	-
MPL-A/B540	-	143 (316)	114 (251)	99 (219)	-	90 (199)	-	-	-	-
MPL-A/B560	-	153 (338)	121 (268)	106 (234)	-	-	-	-	-	-
MPL-B580	-	153 (338)	121 (268)	106 (234)	-	-	-	-	-	-
MPL-B640	253 (557)	200 (442)	159 (351)	139 (307)	-	-	-	-	-	-
MPL-B660	275 (607)	219 (482)	173 (382)	151 (334)	-	-	-	-	-	-
MPL-B680	291 (641)	230 (508)	183 (404)	160 (353)	-	-	-	-	-	-
MPL-B860	347 (764)	276 (607)	219 (481)	-	-	-	-	-	-	-
MPL-B880	368 (810)	292 (643)	231 (510)	-	-	-	-	-	-	-
MPL-B960	466 (1028)	370 (816)	323 (713)	-	-	-	-	-	-	-
MPL-B980	494 (1089)	392 (864)	352 (775)	-	-	-	-	-	-	-

**Axial Load Force Ratings (maximum radial load)**

<b>Motor Cat. No.</b>	<b>500 rpm</b> kg (lb)	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>3500 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)	<b>6000 rpm</b> kg (lb)	<b>7000 rpm</b> kg (lb)	<b>8000 rpm</b> kg (lb)
MPL-A/B1510	-	15 (33)	10 (22)	-	-	7 (15)	-	-	-	5 (11)
MPL-A/B1520	-	14 (31)	10 (22)	-	-	6 (13)	-	-	4 (9)	-
MPL-A/B1530	-	13 (29)	9 (20)	-	-	6 (13)	-	-	4 (8)	-
MPL-A/B210	-	15 (33)	10 (22)	-	-	7 (15)	-	-	-	5 (11)
MPL-A/B220	-	14 (30)	9 (20)	-	7 (15)	-	-	5 (11)	-	-
MPL-A/B230	-	13 (28)	9 (19)	-	6 (13)	-	5 (11)	-	-	-
MPL-A/B310	30 (66)	23 (51)	16 (35)	-	13 (29)	-	11 (24)	-	-	-
MPL-A/B320	34 (75)	25 (55)	19 (42)	-	15 (33)	-	13 (29)	-	-	-
MPL-A/B330	-	27 (60)	20 (44)	-	16 (35)	-	13 (29)	-	-	-
MPL-A/B420	-	36 (79)	27 (60)	-	21 (46)	-	18 (40)	-	-	-
MPL-A/B430	52 (115)	39 (86)	29 (64)	-	22 (49)	-	19 (42)	-	-	-
MPL-A/B4530	45 (99)	34 (75)	25 (55)	21 (46)	-	19 (42)	-	-	-	-
MPL-A4540C	31 (68)	37 (81)	49 (108)	-	-	-	-	-	-	-
MPL-A/B4540	49 (108)	36 (79)	27 (60)	22 (49)	-	-	-	-	-	-
MPL-A/B4560	-	53 (117)	40 (88)	30 (65)	-	-	-	-	-	-
MPL-A/B520	-	42 (94)	30 (68)	26 (58)	-	22 (50)	-	-	-	-
MPL-A/B540	-	48 (107)	35 (79)	30 (66)	-	26 (58)	-	-	-	-
MPL-A/B560	-	52 (115)	43 (95)	32 (71)	-	-	-	-	-	-
MPL-B580	-	52 (115)	43 (95)	32 (71)	-	-	-	-	-	-
MPL-B640	89 (197)	66 (146)	48 (107)	41 (90)	-	-	-	-	-	-
MPL-B660	98 (217)	72 (159)	53 (118)	45 (99)	-	-	-	-	-	-
MPL-B680	104 (230)	77 (169)	34 (125)	47 (104)	-	-	-	-	-	-
MPL-B860	145 (320)	107 (237)	79 (175)	-	-	-	-	-	-	-
MPL-B880	153 (338)	113 (250)	84 (185)	-	-	-	-	-	-	-
MPL-B960	142 (314)	105 (232)	88 (194)	-	-	-	-	-	-	-
MPL-B980	153 (338)	113 (249)	94 (207)	-	-	-	-	-	-	-

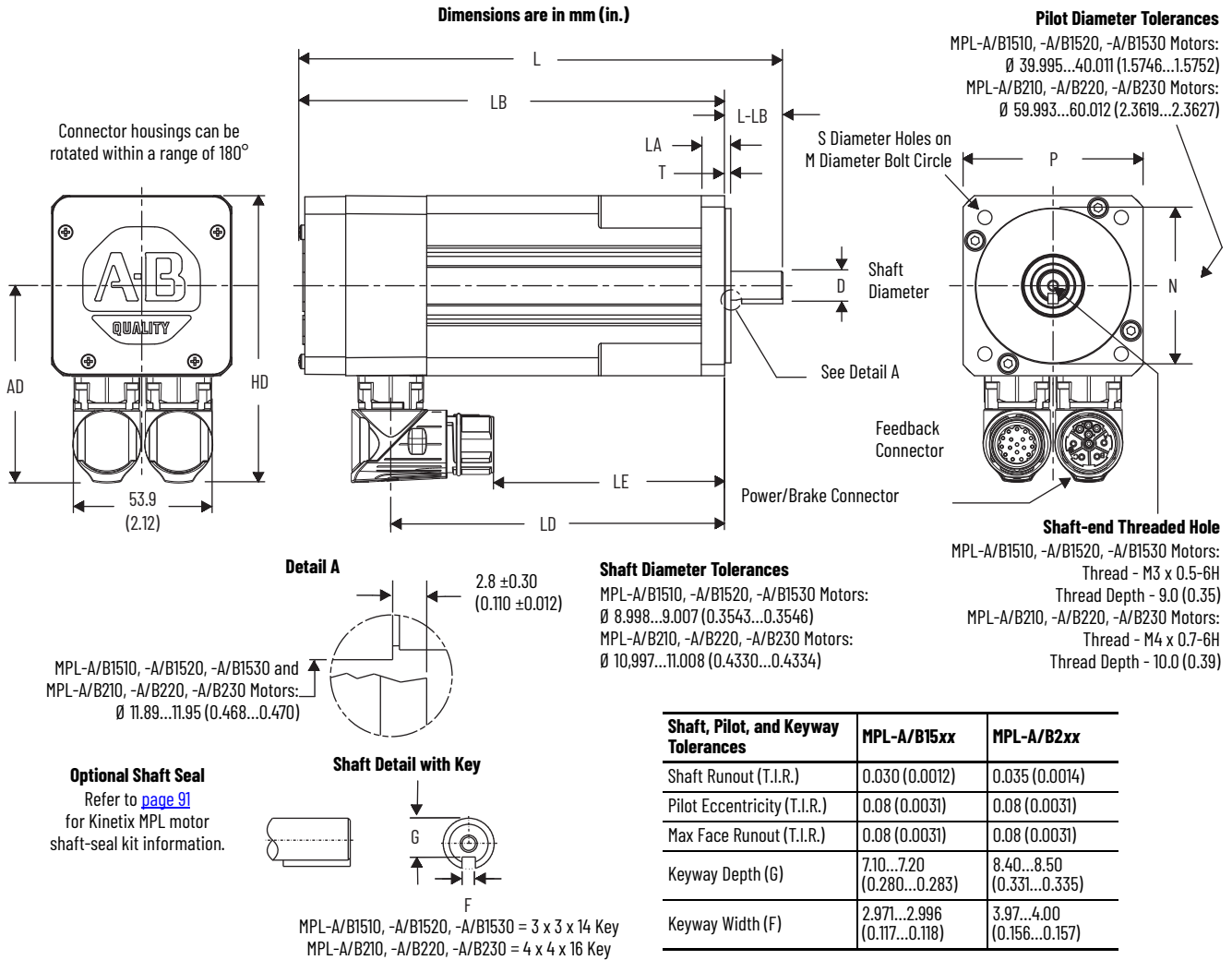


## Axial Load Force Ratings (zero radial load)

Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	4000 rpm kg (lb)	5000 rpm kg (lb)	6000 rpm kg (lb)	7000 rpm kg (lb)	8000 rpm kg (lb)
MPL-A/B1510	-	24 (53)	17 (37)	-	-	12 (26)	-	-	-	8 (18)
MPL-A/B1520	-	24 (53)	17 (37)	-	-	12 (26)	-	-	9 (19)	-
MPL-A/B1530	-	24 (53)	17 (37)	-	-	12 (26)	-	-	9 (19)	-
MPL-A/B210	-	24 (53)	17 (37)	-	-	12 (26)	-	-	-	8 (18)
MPL-A/B220	-	24 (53)	17 (37)	-	13 (28)	-	-	10 (22)	-	-
MPL-A/B230	-	24 (53)	17 (37)	-	13 (28)	-	10 (22)	-	-	-
MPL-A/B310	49 (108)	36 (79)	27 (60)	-	21 (46)	-	18 (40)	-	-	-
MPL-A/B320	49 (108)	36 (79)	27 (60)	-	21 (46)	-	18 (40)	-	-	-
MPL-A/B330	-	36 (79)	27 (60)	-	21 (46)	-	18 (40)	-	-	-
MPL-A/B420	-	51 (112)	38 (84)	-	30 (66)	-	25 (55)	-	-	-
MPL-A/B430	69 (152)	51 (112)	38 (84)	-	30 (66)	-	25 (55)	-	-	-
MPL-A/B4530	69 (152)	51 (112)	38 (84)	31 (68)	-	28 (62)	-	-	-	-
MPL-A4540C	68 (150)	51 (112)	43 (95)	-	-	-	-	-	-	-
MPL-A/B4540	69 (152)	51 (112)	38 (84)	31 (68)	-	-	-	-	-	-
MPL-A/B4560	-	69 (152)	51 (112)	38 (84)	-	-	-	-	-	-
MPL-A/B520	-	67 (149)	49 (109)	41 (92)	-	36 (81)	-	-	-	-
MPL-A/B540	-	67 (149)	49 (109)	41 (92)	-	36 (81)	-	-	-	-
MPL-A/B560	-	67 (149)	49 (109)	41 (92)	-	-	-	-	-	-
MPL-B580	-	67 (149)	49 (109)	41 (92)	-	-	-	-	-	-
MPL-B640	136 (300)	99 (219)	74 (163)	62 (137)	-	-	-	-	-	-
MPL-B660	136 (300)	99 (219)	74 (163)	62 (137)	-	-	-	-	-	-
MPL-B680	136 (300)	99 (219)	74 (163)	62 (137)	-	-	-	-	-	-
MPL-B860	201 (443)	147 (323)	110 (242)	-	-	-	-	-	-	-
MPL-B880	201 (443)	147 (323)	110 (242)	-	-	-	-	-	-	-
MPL-B960	215 (473)	159 (350)	133 (293)	-	-	-	-	-	-	-
MPL-B980	215 (473)	159 (350)	133 (293)	-	-	-	-	-	-	-

# Dimensions - Kinetix MPL Servo Motors

## MPL-A/B15xx and MPL-A/B2xx Motor Dimensions (SpeedTec DIN connectors)



## MPL-A/B15xx and MPL-A/B2xx Motor Dimensions (SpeedTec DIN connectors)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD (1) mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D (3) mm (in.)	M mm (in.)	S (4) mm (in.)	N (3) mm (in.)	P mm (in.)	G (3) mm (in.)	F (3) mm (in.)
MPL-A/B1510					78.3 (3.08)	37.8 (1.49)	133.2 (5.25)	113.5 (4.47)								
MPL-A/B1520	68.9 (2.71)	96.4 (3.80)	2.50 (0.098)	9.0 (0.35)	91.3 (3.60)	50.9 (2.00)	146.2 (5.76)	126.5 (4.98)	19.7 (0.776)	9.0 (0.35)	63.0 (2.480)	5.80 (0.228)	40.0 (1.57)	55.0 (2.17)	7.2 (0.283)	3.0 (0.118)
MPL-A/B1530					116.3 (4.58)	76.7 (2.98)	171.2 (6.74)	151.5 (5.96)								
MPL-A/B210					78.6 (3.09)	38.4 (1.51)	137.3 (5.40)	114.6 (4.51)								
MPL-A/B220	76.2 (3.00)	111.2 (4.38)	2.50 (0.098)	9.0 (0.35)	104.1 (4.10)	63.9 (2.52)	162.8 (6.41)	140.1 (5.52)	22.7 (0.894)	11.0 (0.43)	75.0 (2.953)	5.80 (0.228)	60.0 (2.36)	70.0 (2.76)	8.5 (0.335)	4.0 (0.157)
MPL-A/B230					129.6 (5.10)	89.4 (3.52)	188.3 (7.41)	165.6 (6.52)								

(1) If ordering an MPL-A/B1510, MPL-A/B1520, or MPL-A/B1530 motor with brake, add 36.1 mm (1.421 in.) to dimension L and LB, and add 33.4 mm (1.32 in.) to LD and LE.

If ordering an MPL-A/B210, A/B220, or A/B230 motor with brake, add 39.0 mm (1.535 in.) to dimension L and LB, and add 24.7 mm (0.97 in.) to LD and LE.

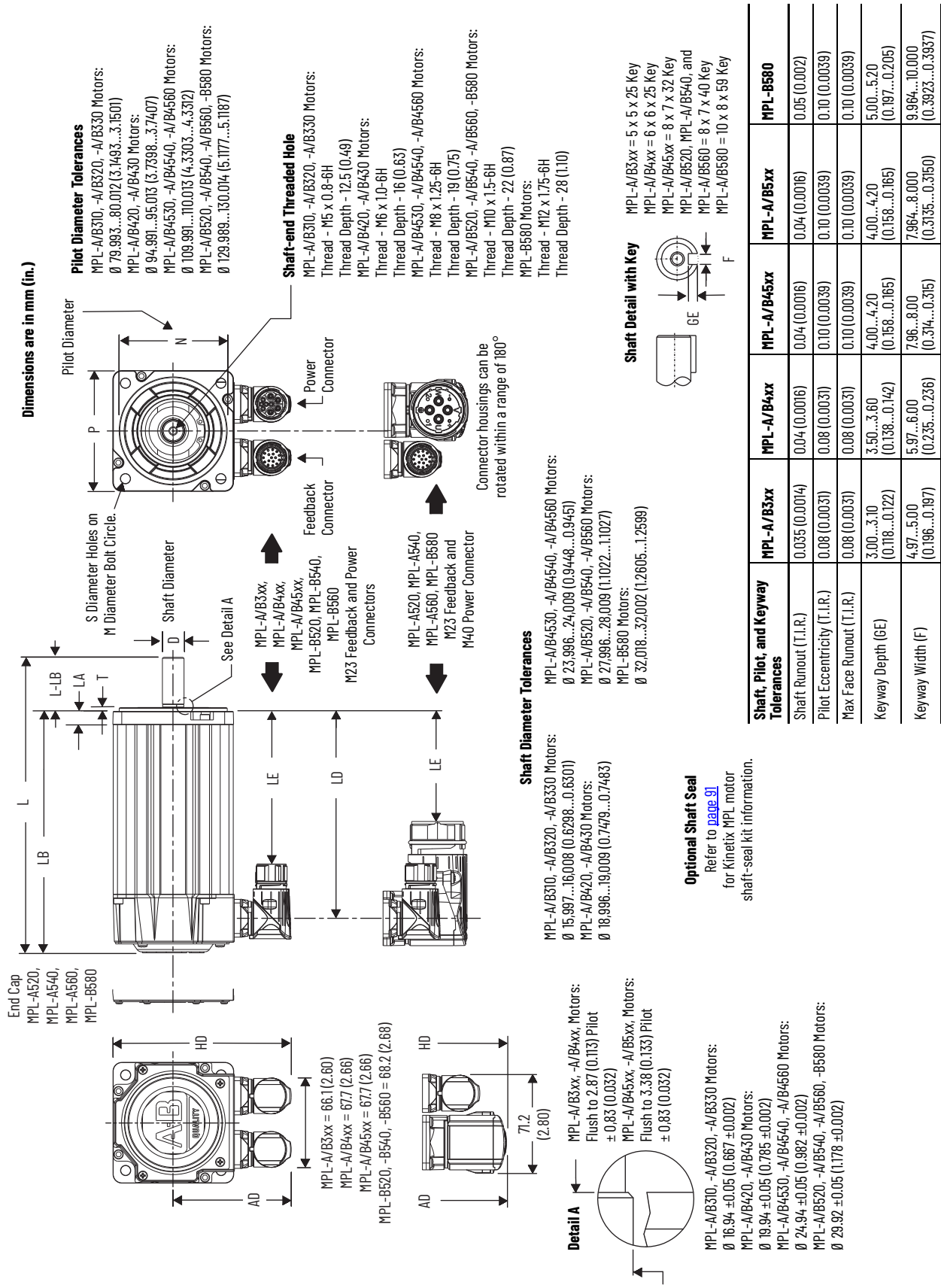
(2) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.028$  in.).

(3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 98](#).

(4) Tolerance for this dimension is  $+0.3$  mm ( $+0.012$  in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx Motor Dimensions (SpeedTec DIN connectors)

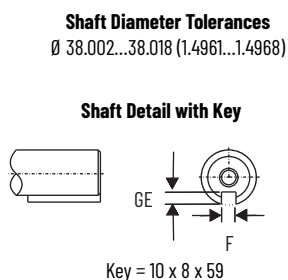
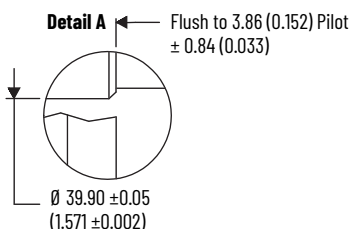
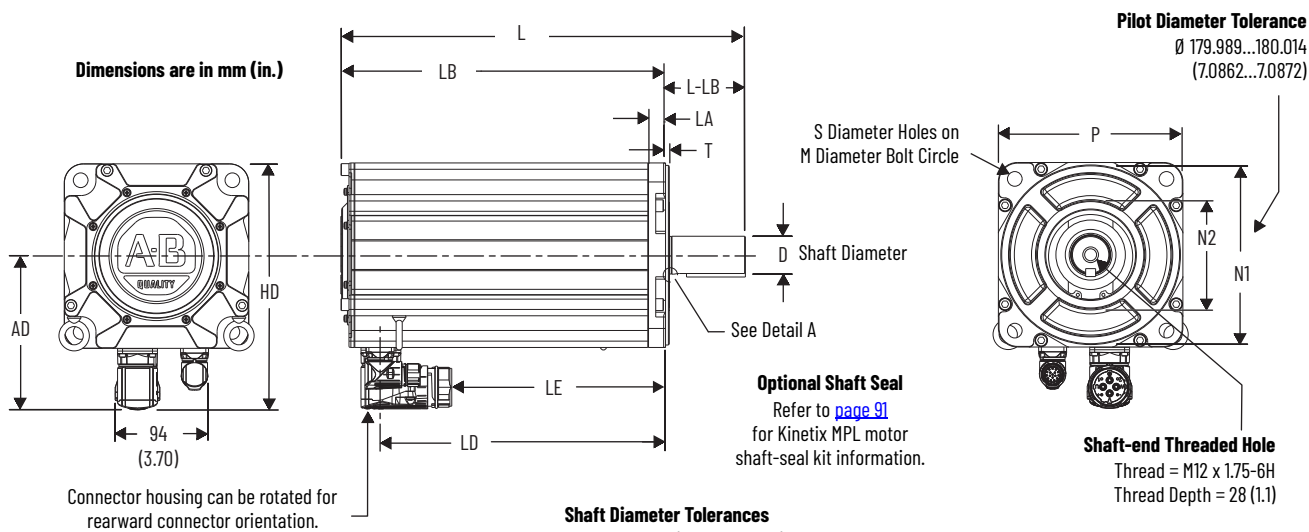


MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx Motor Dimensions (SpeedTec DIN connectors)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD (1) mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D (3) mm (in.)	M mm (in.)	S (4) mm (in.)	N (3) mm (in.)	P mm (in.)	GE (3) mm (in.)	F (3) mm (in.)	
MPL-A/B310					102.0 (4.03)	62.0 (2.45)	168.0 (6.62)	128.0 (5.04)									
MPL-A/B320	87.2 (3.44)	132.0 (5.20)	2.74 (0.108)	9.90 (0.39)	128.0 (5.03)	88.0 (3.45)	193.0 (7.62)	153.0 (6.04)	40.0 (1.58)	16.0 (0.629)	100.0 (3.937)	7.0 (0.283)	80.0 (3.15)	89.4 (3.52)	3.0 (0.118)	5.0 (0.197)	
MPL-A/B330					153.0 (6.03)	113.0 (4.45)	219.0 (8.62)	179.0 (7.04)									
MPL-A/B420	90.9 (3.58)	140.1 (5.52)	2.74 (0.108)	10.16 (0.40)	124.0 (4.89)	84.0 (3.31)	190.0 (7.48)	150.0 (5.90)	40.0 (1.58)	19.0 (0.748)	115.0 (4.528)	10.0 (0.401)	95.0 (3.74)	98.3 (3.87)	3.5 (0.138)	6.0 (0.236)	
MPL-A/B430					150.0 (5.89)	110.0 (4.31)	215.0 (8.48)	175.0 (6.90)									
MPL-A/B4530					153.0 (6.02)	113.0 (4.44)	229.0 (9.0)	179.0 (7.03)									
MPL-A/B4540	98.6 (3.88)	155.4 (6.12)	2.74 (0.108)	12.19 (0.48)	178.0 (7.02)	138.0 (5.44)	254.0 (10.0)	204.0 (8.03)	50.0 (1.97)	24.0 (0.945)	130.0 (5.118)	10.0 (0.401)	110.0 (4.33)	113.7 (4.48)	4.0 (0.158)	8.0 (0.315)	
MPL-A/B4560					229.0 (9.02)	189.0 (7.44)	305.0 (12.0)	255.0 (10.03)									
MPL-A520					151.0 (5.95)	80.0 (3.15)	236.0 (9.28)	176.0 (6.92)									
MPL-A540	136.4 (5.37)	208.1 (8.19)	3.12 (0.123)	14.0 (0.55)	202.0 (7.95)	131.0 (5.15)	287.0 (11.28)	227.0 (8.92)	60.0 (2.362)	28.0 (1.102)	165.0 (6.496)	12.0 (0.481)	130.0 (5.118)	143.5 (5.65)	4.0 (0.158)	8.0 (0.315)	
MPL-A560					253.0 (9.95)	182.0 (7.15)	337.0 (13.28)	277.0 (10.92)									
MPL-B520					149.0 (5.88)	109.0 (4.30)	236.0 (9.28)	176.0 (6.92)									
MPL-B540	113.4 (4.47)	185.2 (7.29)	3.12 (0.123)	14.0 (0.55)	200.0 (7.88)	160.0 (6.30)	287.0 (11.28)	227.0 (8.92)	60.0 (2.38)	28.0 (1.102)	165.0 (6.496)	12.0 (0.481)	130.0 (5.118)	143.5 (5.65)	4.0 (0.158)	8.0 (0.315)	
MPL-B560					251.0 (9.88)	211.0 (8.30)	337.0 (13.28)	277.0 (10.92)									
MPL-B580	136.4 (5.37)	208.1 (8.19)	3.12 (0.123)	14.0 (0.55)	304.0 (11.95)	232.0 (9.15)	408.0 (16.07)	328.0 (12.92)	80.0 (3.15)	32.0 (1.260)					5.0 (0.198)	10.0 (0.393)	

(1) If ordering an MPL-A/B310, MPL-A/B320, or MPL-A/B330 motor with brake, add 35.0 mm (1.38 in.) to dimensions L, LB, LE, and LD.  
 If ordering an MPL-A/B420, MPL-A/B430, MPL-A/B4530, MPL-A/B4540, or MPL-A/B4560 motor with brake, add 48.0 mm (1.89 in.) to dimensions L, LB, LE, and LD.  
 If ordering an MPL-A/B520, MPL-A/B540, MPL-A/B560, or MPL-B580 motor with brake, add 52.0 mm (2.03 in.) to dimensions L, LB, LE, and LD.  
 (2) Tolerance for this dimension is ±0.7 mm (±0.028 in.).  
 (3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 100](#).  
 (4) Tolerance for this dimension is +0.36 mm (±0.007 in.) on MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, and +0.43 mm (±0.008 in.) on MPL-A/B5xx.

MPL-B6xx Motor Dimensions (SpeedTec DIN connectors)



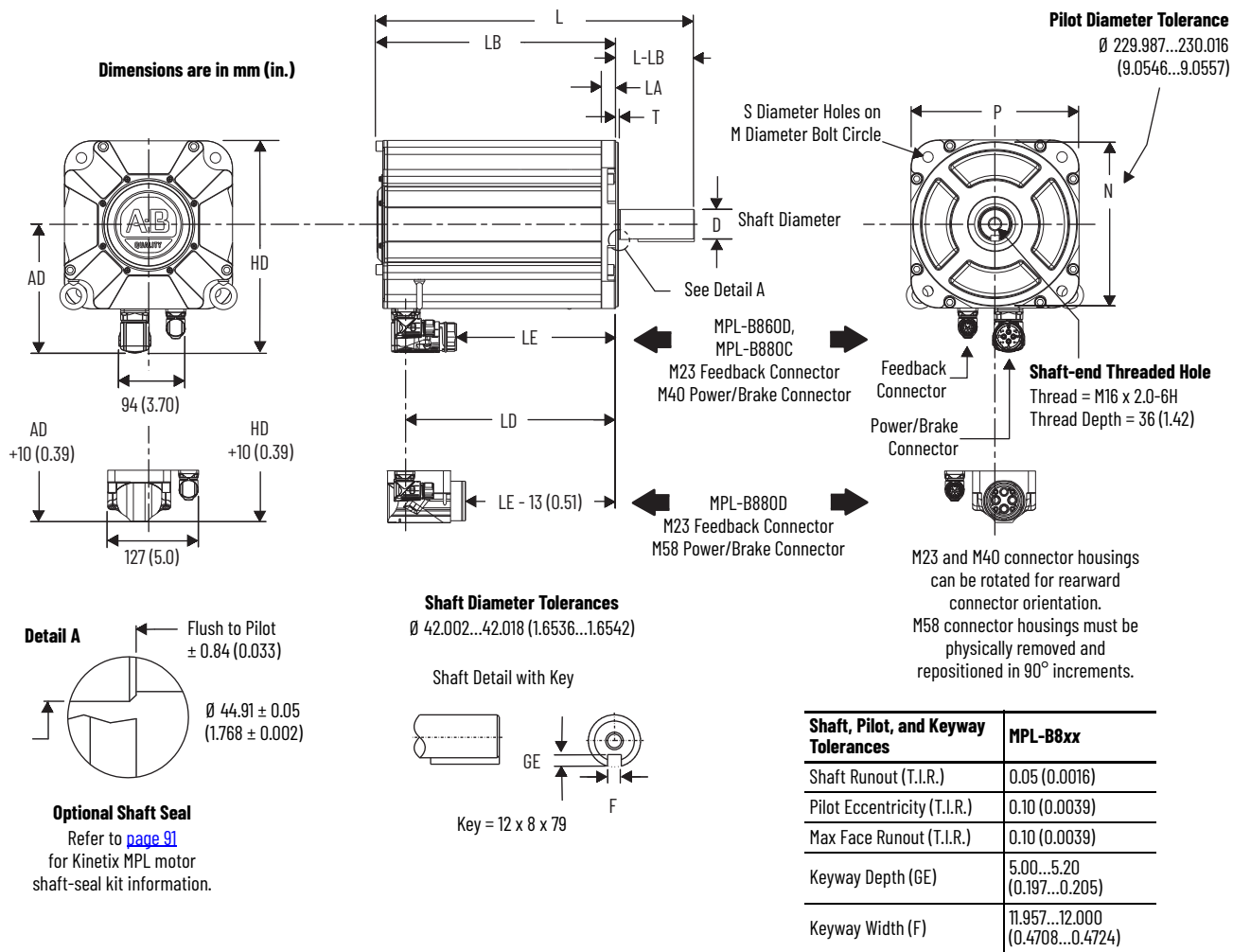
Shaft, Pilot, and Keyway Tolerances	MPL-B6xx
Shaft Runout (T.I.R.)	0.05 (0.002)
Pilot Eccentricity (T.I.R.)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.10 (0.0039)
Keyway Depth (GE)	5.00...5.20 (0.197...0.205)
Keyway Width (F)	9.964...10.000 (0.3923...0.3937)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD (1) mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D mm (in.)	M mm (in.)	S (3) mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
MPL-B640					184.0 (7.23)	113.0 (4.43)	304.0 (11.96)	224.0 (8.83)								
MPL-B660	154.0 (6.06)	246.5 (9.70)	3.73 (0.147)	17.8 (0.70)	234.0 (9.23)	163.0 (6.43)	355.0 (13.96)	275.0 (10.83)	80.0 (3.15)	38.0 (1.5)	215.0 (8.465)	14.50 (0.579)	180.0 (7.09)	184.9 (7.28)	5.0 (0.197)	10.0 (0.394)
MPL-B680					285.0 (11.23)	214.0 (8.43)	405.0 (15.96)	325.0 (12.83)								

(1) If ordering an MPL-B640, MPL-B660, or MPL-B680 motor with brake, add 89 mm (3.5 in.) to dimensions LD, LE, L, and LB.  
 (2) Tolerance for this dimension is ±0.7 mm (±0.028 in.).  
 (3) Tolerance for this dimension is ±0.215 mm (±0.008 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

MPL-B8xx Motor Dimensions (SpeedTec DIN connectors)



Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD (1) mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D mm (in.)
MPL-B860	179 (7.05)	297 (11.67)	3.86 (0.152)	20.3 (0.80)	243 (9.55)	171 (6.75)	394 (15.53)	284 (11.20)	110 (4.33)	42.0 (1.654)
MPL-B880					293 (11.55)	222 (8.75)	445 (17.53)	335 (13.20)		

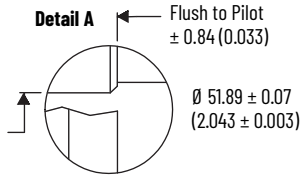
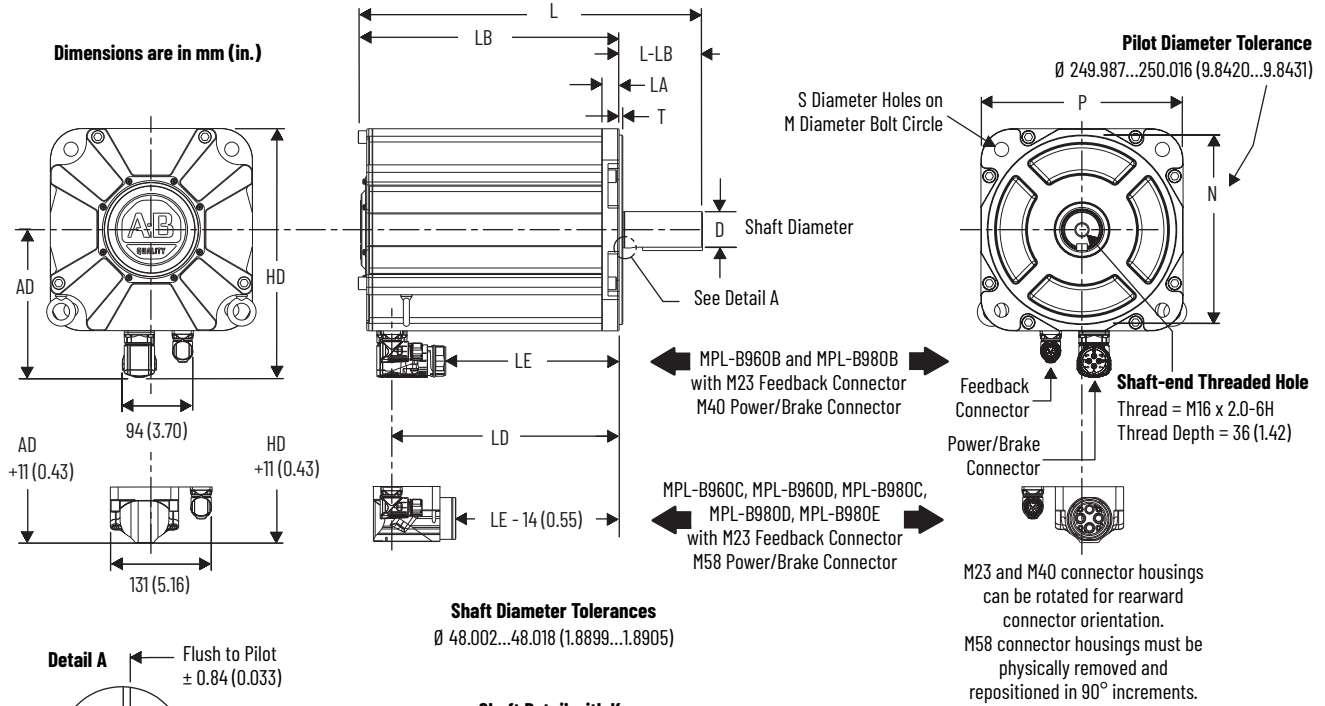
(1) If ordering an MPL-B860 or MPL-B880 motor with brake, add 108 mm (4.24 in.) to dimensions LD, LE, L, and LB.  
 (2) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.028$  in.).

Motor Cat. No.	M mm (in.)	S (1) mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
MPL-B860	265 (10.43)	14.50 (0.579)	230 (9.055)	235 (9.25)	5.0 (0.197)	12.0 (0.4724)
MPL-B880						

(1) Tolerance for this dimension is  $\pm 0.43$  mm ( $\pm 0.008$  in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

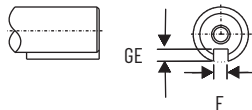
MPL-B9xx Motor Dimensions (SpeedTec DIN connectors)



**Optional Shaft Seal**  
Refer to [page 91](#) for Kinetix MPL motor shaft-seal kit information.

**Shaft Diameter Tolerances**  
 $\varnothing 48.002...48.018 (1.8899...1.8905)$

**Shaft Detail with Key**



Key = 14 x 9 x 79

Shaft, Pilot, and Keyway Tolerances	MPL-B9xx
Shaft Runout (T.I.R.)	0.05 (0.002)
Pilot Eccentricity (T.I.R.)	0.125 (0.005)
Max Face Runout (T.I.R.)	0.125 (0.005)
Keyway Depth (GE)	5.50...5.70 (0.217...0.224)
Keyway Width (F)	13.957...14.000 (0.5495...0.5512)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD (1) mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D mm (in.)
MPL-B960	195 (7.68)	328 (12.92)	4.88 (0.192)	22.9 (0.90)	249 (9.80)	178 (7.0)	403 (15.87)	293 (11.55)	110 (4.33)	48.0 (1.89)
MPL-B980					300 (11.80)	229 (9.0)	454 (17.87)	344 (13.55)		

(1) If ordering an MPL-B960 or MPL-B980 motor with brake, add 127 mm (5.0 in.) to dimensions LD, LE, L, and LB.  
(2) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.028$  in.).

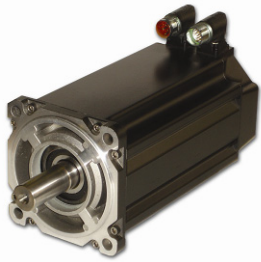
Motor Cat. No.	M mm (in.)	S (1) mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
MPL-B960	300 (11.81)	18.50 (0.738)	250 (9.84)	267 (10.50)	5.50 (0.217)	14.0 (0.5512)
MPL-B980						

(1) Tolerance for this dimension is  $+0.52$  mm ( $\pm 0.010$  in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.



# Kinetix MPM Medium-inertia Servo Motors



Kinetix MPM servo motors offer a compact, power dense, feature-rich solution for applications with heavier loads and greater inertia. Leveraging the proven Kinetix MPL servo motor technology and quality standards, these servo motors are ideal for print, converting, web handling, automotive, and other applications with high inertias and heavy payloads.

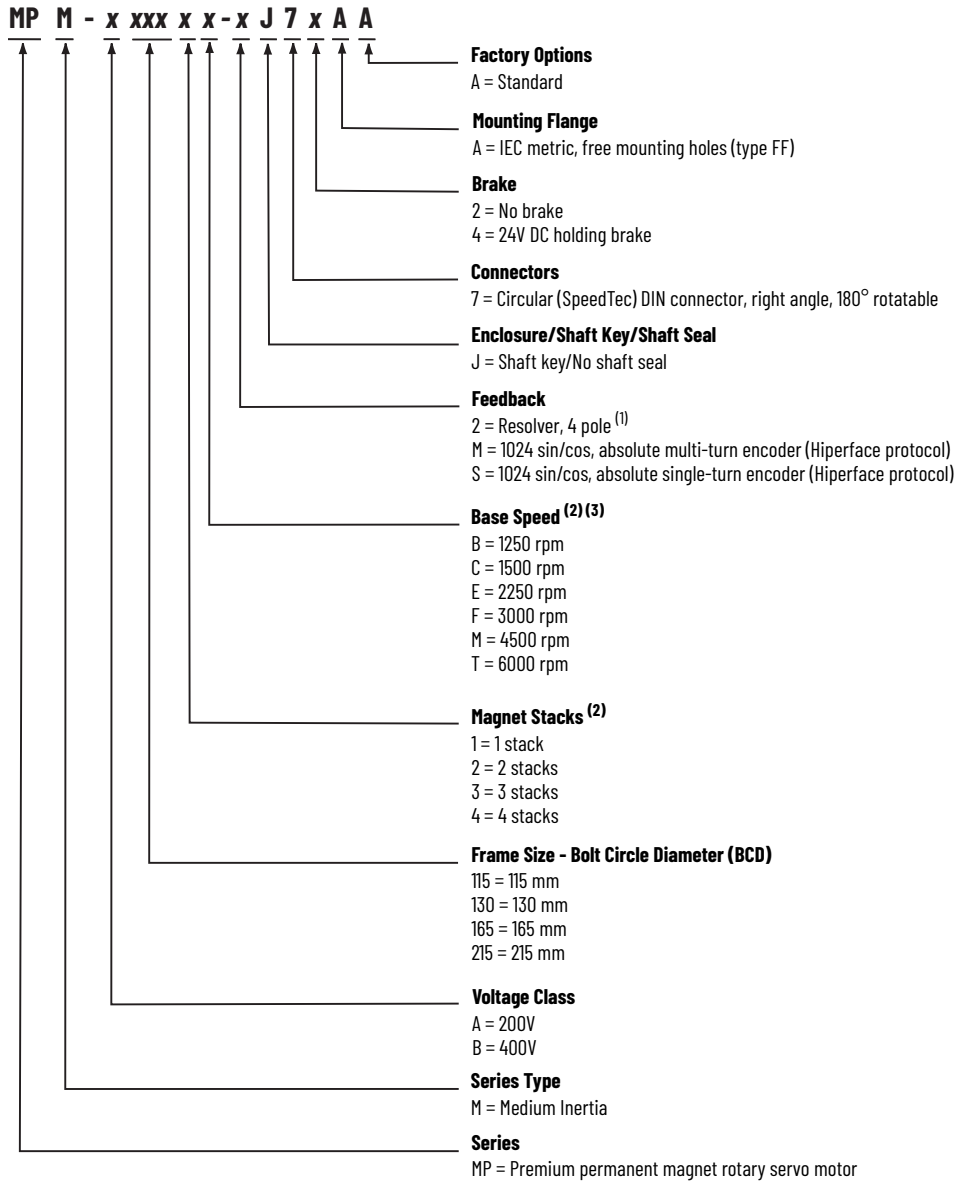
## Kinetix MPM Servo Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• High torque to size ratio</li> <li>• Smart Motor Technology</li> <li>• Hiperface encoder protocol</li> <li>• Medium rotor inertia</li> <li>• Easy migration from 1326AB motors</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 200V and 400V-class windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• Resolver feedback option</li> <li>• Multiple winding speed options</li> <li>• High-energy rare-earth magnets</li> <li>• Shaft-end threaded hole</li> <li>• SpeedTec DIN connectors, rotates 180°</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>• IP50 minimum, without shaft seal (standard).</li> <li>• IP66 with optional shaft seal and use of environmentally sealed cable connectors.</li> </ul>
Certifications	Kinetix MPM rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	2.18...62.8 N•m (19.3...556 lb•in)
Peak stall torque	6.6...154.2 N•m (58...1365 lb•in)
Rated speed	Up to 7000 rpm
Motor rated output	0.75...7.50 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5500 <sup>(1)</sup></li> <li>• Kinetix 5700</li> <li>• Kinetix 6200/6500</li> <li>• Kinetix 6000</li> <li>• Kinetix 300/350</li> <li>• Kinetix 2000</li> <li>• Kinetix 7000</li> </ul>
Compatible servo cables	2090-CxxM7xx cables
Typical applications	<ul style="list-style-type: none"> <li>• Printing</li> <li>• Web handling</li> <li>• Converting</li> <li>• Automotive</li> </ul>

(1) Requires the 2198-H2DCK Hiperface-to-DSL feedback converter kit. Kinetix MPM (200V-class) motors require the 2198-H2DCK (series B or later) converter kit.

# Catalog Numbers - Kinetix MPM Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) Resolver feedback is not available on all models.  
 (2) Not all combinations are available. Only the configurations for rated speed and magnet stacks, as listed in Kinetix MPM Servo Motor (200V-class) Performance Specifications on [page 108](#) and on [page 108](#), are available. Use Motion Analyzer software to size and select motors for your application.  
 (3) Base speed equals maximum speed at peak torque. Maximum speed is servo drive dependent.

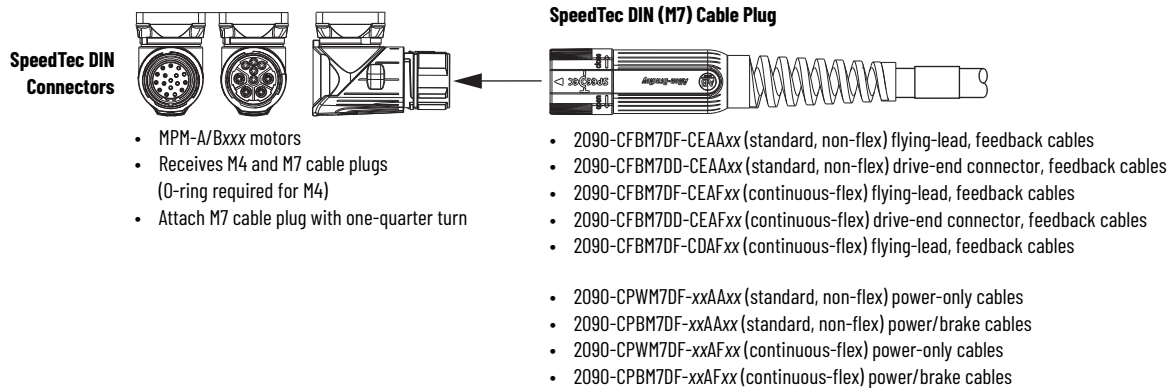
## Kinetix MPM Servo Motor High-resolution Encoders

Kinetix MPM servo motors are available with high performance encoders with a choice of single-turn (-S) or multi-turn (-M) high-resolution feedback:

- 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution) -M and -S (MPM-A/B115x, MPM-A/B130x, MPM-A/B165x, and MPM-A/B215x motors).
- Single-turn encoder provides high-resolution absolute position feedback within one turn.
- Multi-turn encoder provides high-resolution absolute position feedback within 4096 turns. The electromechanical design does not require a battery.

## Motor Connector/Cable Compatibility

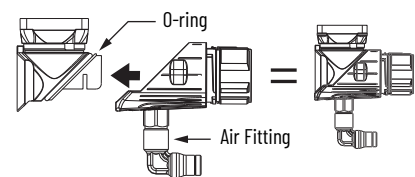
Kinetix MPM servo motors are equipped with SpeedTec DIN connectors.



## Kinetix MPM Servo Motor Options

Kinetix MPM servo motors are available with these options:

- 24V DC holding brake.
- The positive air-pressure kit (catalog number MPF-7-AIR-PURGE) is mounted on the feedback connector to provide positive air pressure to further reduce the chance of contamination inside the motor.
- Shaft seal kits are available, as are replacement kits for field installation. Shaft seals are made of nitrile and kits include a lubricant to reduce wear.



**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
MPM-A115xx and MPL-B115xx	MPL-SSN-A4B4
MPM-A130xx and MPL-B130xx	MPL-SSN-A5B5
MPM-A165xx and MPM-B165xx	MPL-SSN-F165
MPM-A215xx and MPL-B215xx	MPL-SSN-A6B6

Refer to the Kinetix MPM Medium-inertia Servo Motor Installation Instructions, publication [MPM-IN001](#), for more information on motor accessories.

## Technical Specifications - Kinetix MPM Servo Motors

### Kinetix MPM Servo Motor (200V-class) Performance Specifications

Motor Cat. No.	Base Speed rpm	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
MPM-A1151M	4500	5000	6000	2.18 (19.3)	6.60 (58.0)	0.90	0.00065 (0.00575)	3.45 (7.6)
MPM-A1152F	3000	4000	5000	4.74 (42.0)	13.5 (119)	1.40	0.00077 (0.00682)	5.20 (11.4)
MPM-A1153F	3000	4000	5000	6.55 (58.0)	19.8 (175)	1.45	0.00089 (0.00784)	6.4 (14.0)
MPM-A1302F	3000	4000	4500	5.99 (53.0)	13.5 (119)	1.65	0.000983 (0.00870)	6.8 (15.0)
MPM-A1304F	3000	3500	4000	9.30 (82.0)	19.3 (171)	2.20	0.001223 (0.01082)	9.6 (21.2)
MPM-A1651F	3000	3000	5000	10.7 (95.0)	20.5 (181)	2.50	0.006605 (0.05846)	15.3 (33.8)
MPM-A1652F	3000	3500	4000	13.5 (119)	36.0 (319)	4.03	0.007265 (0.06430)	20.6 (45.4)
MPM-A1653F	3000	3000	4000	18.6 (165)	42.0 (372)	5.10	0.008025 (0.07103)	25.6 (56.4)
MPM-A2152F	3000	2000	4000	27.0 (239)	56.0 (496)	5.20	0.02059 (0.18223)	35.8 (79.0)
MPM-A2153F	3000	2000	3600	34.0 (301)	58.0 (513)	5.80	0.02254 (0.19950)	44.6 (98.3)
MPM-A2154C	1500	1750	2000	55.0 (487)	106 (938)	6.50	0.02449 (0.21675)	53.6 (118)
MPM-A2154E	2250	2000	2650	44.0 (389)	84.0 (743)	7.00		

(1) Refer to Kinetix MPM Servo Motor Brake Specifications on [page 109](#) for brake rotor inertia and brake motor weight.

### Kinetix MPM Servo Motor (400V-class) Performance Specifications

Motor Cat. No.	Base Speed rpm	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
MPM-B1151F	3000	4000	5000	2.18 (19.3)	6.6 (58.0)	0.75	0.00065 (0.00575)	3.45 (7.6)
MPM-B1151T	6000	5000	7000			0.90		
MPM-B1152C	1500	2500	3000	4.74 (42.0)	13.5 (119)	1.20	0.00077 (0.00681)	5.20 (11.4)
MPM-B1152F	3000	4000	5200			1.40		
MPM-B1152T	6000		7000	6.55 (58.0)	19.8 (175)	1.40	0.00089 (0.00788)	6.40 (14.0)
MPM-B1153E	2250	3000	3500			1.45		
MPM-B1153F	3000	4000	5500	5.99 (53.0)	13.5 (119)	1.65	0.000983 (0.00870)	6.80 (15.0)
MPM-B1153T	6000		7000					
MPM-B1302F	3000	4000	4500	10.2 (90.0)	27.1 (240)	2.00	0.001223 (0.01082)	9.60 (21.2)
MPM-B1302M	4500		6000			2.20		
MPM-B1302T	6000		7000	10.7 (95.0)	23.2 (205)	2.50	0.006605 (0.05846)	15.3 (33.8)
MPM-B1304C	1500	1870	2750					
MPM-B1304E	2250	3500	4000	16.0 (142)	40.0 (354)	3.80	0.007265 (0.06430)	20.6 (45.4)
MPM-B1304M	4500		6000			4.30		
MPM-B1651C	1500	3000	3500	19.4 (172)	48.0 (425)	4.60	0.008025 (0.07103)	25.6 (56.4)
MPM-B1651F	3000		5000			5.10		
MPM-B1651M	4500		5000	26.8 (237)	62.0 (549)	5.60	0.02059 (0.18224)	35.8 (79.0)
MPM-B1652C	1500	2500	2500			5.90		
MPM-B1652E	2250	3500	3500	36.7 (325)	72.3 (640)	6.80	0.02254 (0.19949)	44.6 (98.3)
MPM-B1652F	3000		4500			7.20		
MPM-B1653C	1500	2000	2500	48.0 (425)	101.1 (895)	7.20	0.02254 (0.19949)	44.6 (98.3)
MPM-B1653E	2250	3000	3500					
MPM-B1653F	3000		4000	44.0 (389)	84.0 (743)		0.02449 (0.21675)	53.6 (118)
MPM-B2152C	1500	2000	2500					
MPM-B2152F	3000	2500	4500	33.0 (292)	50.0 (443)		0.02254 (0.19949)	44.6 (98.3)
MPM-B2152M	4500		5000					
MPM-B2153B	1250	1750	2000	45.0 (398)	99.0 (876)		0.02449 (0.21675)	53.6 (118)
MPM-B2153E	2250	2000	3000					
MPM-B2153F	3000		3800					

## Kinetix MPM Servo Motor (400V-class) Performance Specifications (continued)

Motor Cat. No.	Base Speed rpm	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
MPM-B2154B	1250	1750	2000	62.8 (556)	154.2 (1365)	6.90	0.02449 (0.21675)	53.6 (118.2)
MPM-B2154E	2250	2000	3000	56.0 (496)	112.0 (991)	7.50		
MPM-B2154F	3000		3300		88.0 (779)			

(1) Refer to Kinetix MPM Servo Motor Brake Specifications on [page 109](#) for brake rotor inertia and brake motor weight.

## Kinetix MPM Servo Motor Brake Specifications

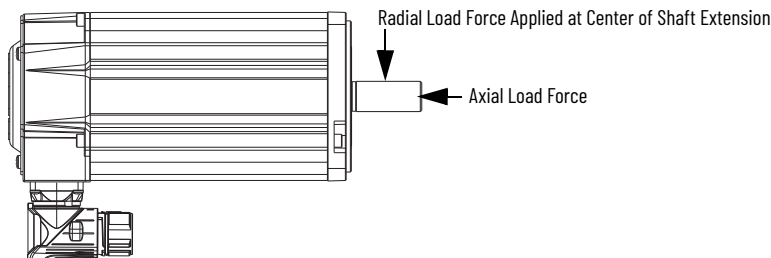
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time			Brake Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage <sup>(1)</sup>			
					MOV ms	Diode ms		
MPM-A/B1151	45	4.18 (37)	0.45...0.55	50	20	110	0.00065 (0.00575)	5.2 (11.4)
MPM-A/B1152							0.00077 (0.00681)	6.9 (15.2)
MPM-A/B1153							0.00089 (0.00788)	8.1 (17.8)
MPM-A/B1302	48	10.2 (90)	0.576...0.704	110	25	160	0.000983 (0.00870)	8.6 (19.0)
MPM-A/B1304							0.001223 (0.01082)	11.7 (25.7)
MPM-A/B1651	25	28.3 (250)	1.05...1.28	70	50	250	0.006605 (0.05846)	17.9 (39.5)
MPM-A/B1652							0.007265 (0.06430)	23.2 (51.1)
MPM-A/B1653							0.008025 (0.07103)	28.2 (62.1)
MPM-A/B2152	25	70 (619)	1.84...2.25	200	120	900	0.02059 (0.18224)	43.8 (96.5)
MPM-A/B2153							0.02254 (0.19949)	53.6 (115.8)
MPM-A/B2154							0.02449 (0.21675)	61.6 (135.7)

(1) By using an arc suppression device in external control circuit.

## Kinetix MPM Servo Motor Load Force Ratings

Kinetix MPM servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables starting below represent an  $L_{10}$  bearing fatigue life of 20,000 hours. This 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

### Load Forces on Shaft



### Radial Load Force Ratings

Motor Cat. No.	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	5000 rpm kg (lb)	7000 rpm kg (lb)
MPM-A/B1151	77 (170)	61 (134)	54 (119)	45 (99)	40 (88)
MPM-A/B1152	84 (185)	66 (145)	58 (128)	49 (108)	43 (95)
MPM-A/B1153	88 (194)	70 (154)	61 (134)	51 (112)	46 (101)
MPM-A/B1302	105 (231)	83 (183)	72 (159)	61 (134)	54 (119)
MPM-A/B1304	115 (253)	91 (200)	80 (176)	67 (148)	-
MPM-A/B1651	141 (311)	112 (247)	97 (214)	82 (181)	-
MPM-A/B1652	151 (333)	119 (262)	104 (229)	-	-
MPM-A/B1653	156 (344)	123 (271)	107 (236)	-	-
MPM-A/B2152	216 (476)	171 (377)	149 (328)	-	-
MPM-A/B2153	228 (502)	180 (396)	156 (344)	-	-
MPM-A/B2154	235 (518)	185 (407)	161 (355)	-	-

### Axial Load Force Ratings (maximum radial load)

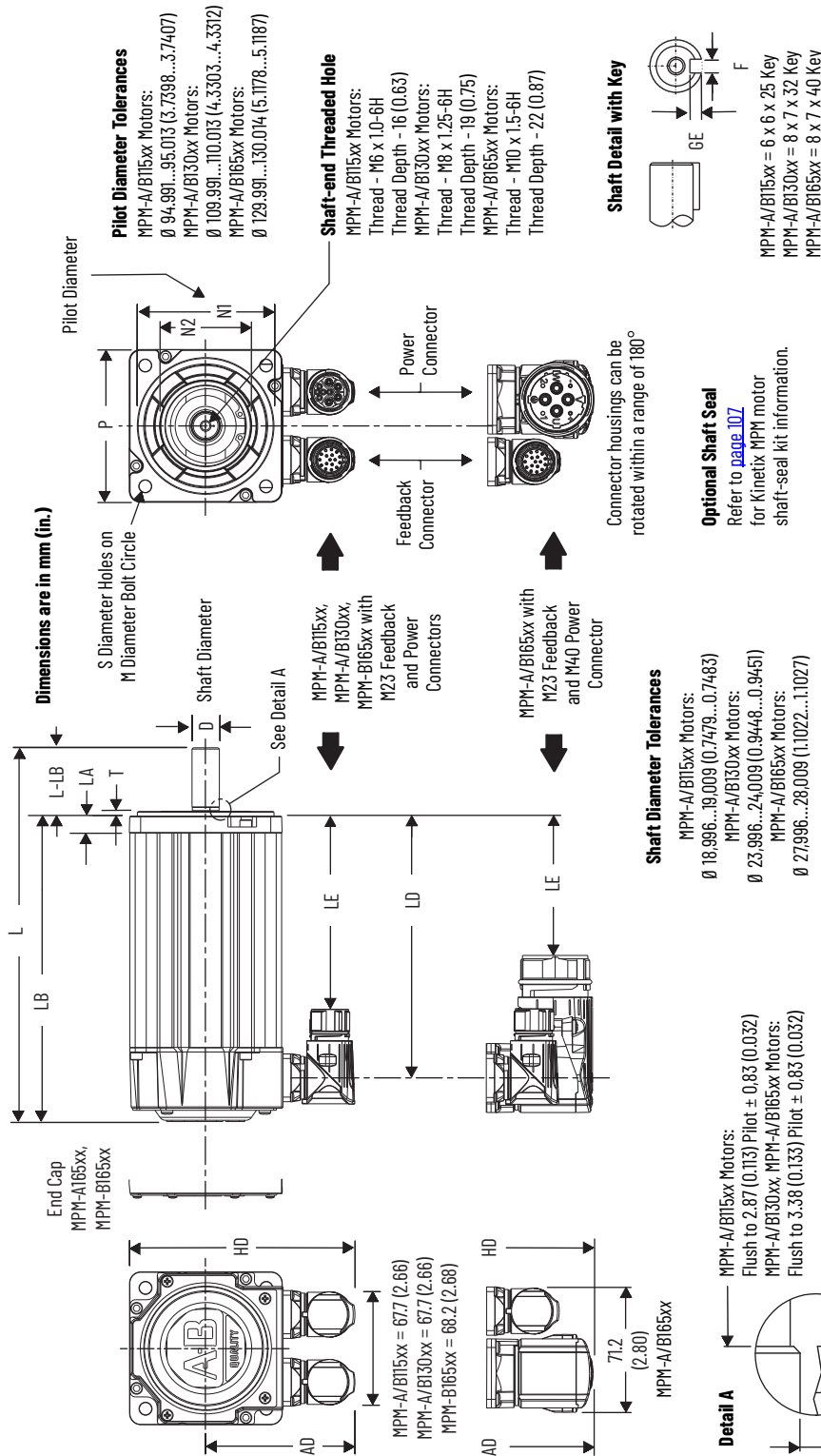
Motor Cat. No.	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	5000 rpm kg (lb)	7000 rpm kg (lb)
MPM-A/B1151	29 (64)	22 (48)	18 (40)	14 (31)	12 (26)
MPM-A/B1152	31 (68)	23 (51)	19 (42)	15 (33)	13 (29)
MPM-A/B1153	33 (73)	24 (53)	20 (44)	16 (35)	14 (31)
MPM-A/B1302	26 (57)	19 (42)	16 (35)	13 (29)	11 (24)
MPM-A/B1304	30 (66)	22 (48)	18 (40)	15 (33)	-
MPM-A/B1651	37 (81)	28 (62)	23 (51)	18 (40)	-
MPM-A/B1652	41 (90)	30 (66)	25 (55)	-	-
MPM-A/B1653	43 (95)	32 (70)	27 (59)	-	-
MPM-A/B2152	55 (121)	40 (88)	34 (75)	-	-
MPM-A/B2153	60 (132)	44 (97)	36 (79)	-	-
MPM-A/B2154	63 (139)	46 (101)	38 (84)	-	-

## Axial Load Force Ratings (zero radial load)

Motor Cat. No.	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	5000 rpm kg (lb)	7000 rpm kg (lb)
MPM-A/B1151	46 (101)	34 (75)	28 (62)	23 (51)	19 (42)
MPM-A/B1152	46 (101)	34 (75)	28 (62)	23 (51)	19 (42)
MPM-A/B1153	46 (101)	34 (75)	28 (62)	23 (51)	19 (42)
MPM-A/B1302	46 (101)	34 (75)	28 (62)	23 (51)	19 (42)
MPM-A/B1304	46 (101)	34 (75)	28 (62)	23 (51)	-
MPM-A/B1651	61 (134)	44 (97)	38 (84)	30 (66)	-
MPM-A/B1652	61 (134)	44 (97)	38 (84)	-	-
MPM-A/B1653	61 (134)	44 (97)	38 (84)	-	-
MPM-A/B2152	90 (198)	65 (143)	54 (119)	-	-
MPM-A/B2153	90 (198)	65 (143)	54 (119)	-	-
MPM-A/B2154	90 (198)	65 (143)	54 (119)	-	-

# Dimensions - Kinetix MPM Servo Motors

MPM-A/B115xx, MPM-A/B130xx, MPM-A/B165xx Motor Dimensions



Shaft, Pilot, and Keyway Tolerances	MPM-A/B115xx	MPM-A/B130xx	MPM-A/B165xx
Shaft Runout (T.I.R.)	0.04 (0.0016)	0.04 (0.0016)	0.04 (0.0016)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Keyway Depth (GE)	3.50...3.60 (0.138...0.142)	4.00...4.20 (0.158...0.165)	4.00...4.20 (0.158...0.165)
Keyway Width (F)	5.97...6.00 (0.235...0.236)	7.96...8.00 (0.314...0.315)	7.964...8.000 (0.3135...0.3150)

Power Connectors on MPM-A/B165xx Motors	MPM-A165xx Cat. No.	MPM-B165xx Cat. No.
M23 Power Connector	N/A	MPM-B1651F, MPM-B1651C, MPM-B1652C, MPM-B1653C
M40 Power Connector	MPM-A165xx	MPM-B1651M, MPM-B1652E, MPM-B1652F, MPM-B1653E, MPM-B1653F



## MPM-A/B115x, MPM-A/B130x, MPM-A/B165x Motor Dimensions

Motor Cat. No.	AD (1) mm (in.)	HD (1) mm (in.)	T mm (in.)	LA mm (in.)	LD (2)(3) mm (in.)	LE (2)(4) mm (in.)	L (2) mm (in.)	LB (2) mm (in.)	L-LB (5) mm (in.)	D (6) mm (in.)	M mm (in.)	S (7) mm (in.)	NT (6) mm (in.)	N2 mm (in.)	P mm (in.)	GE (6) mm (in.)	F (6) mm (in.)	
MPM-A/B1151					124 (4.89)	84.1 (3.31)	190 (7.48)	150 (5.90)										
MPM-A/B1152	90.9 (3.58)	140.1 (5.52)	2.74 (0.108)	10.16 (0.40)	150 (5.89)	110 (4.31)	215 (8.48)	175 (6.90)	40.0 (1.58)	19.0 (0.748)	115.0 (4.528)	10.0 (0.401)	95.0 (3.74)	59.0 (2.32)	98.3 (3.87)	3.5 (0.138)	6.0 (0.236)	
MPM-A/B1153					175 (6.89)	135 (5.31)	241 (9.48)	201 (7.90)										
MPM-A/B1302	98.6 (3.88)	155.4 (6.12)	2.74 (0.108)	12.19 (0.48)	153 (6.02)	113 (4.44)	229 (9.0)	179 (7.03)	50.0 (1.97)	24.0 (0.945)	130.0 (5.118)	10.0 (0.401)	110.0 (4.331)	70.3 (2.77)	113.7 (4.48)	4.0 (0.158)	8.0 (0.315)	
MPM-A/B1304					204 (8.02)	164 (6.44)	279 (11.0)	229 (9.03)										
MPM-A/B1651					200 (7.88)	160 (6.30)	287 (11.28)	227 (8.92)										
MPM-A/B1652	113.4 (4.47)	185.2 (7.29)	3.12 (0.123)	14.0 (0.55)	251 (9.88)	211 (8.30)	337 (13.28)	277 (10.92)	60.0 (2.36)	28.0 (1.102)	165.0 (6.496)	12.0 (0.481)	130.0 (5.118)	81.0 (3.19)	143.5 (5.65)	4.0 (0.158)	8.0 (0.315)	
MPM-A/B1653					302 (11.88)	262 (10.30)	388 (15.28)	328 (12.92)										

(1) This dimension applies to MPM-B165x motors with M23 connectors. For MPM-A/B165x motors with M40 connectors, add 23 mm (0.91 in.).

(2) If ordering an MPM-A/B115x or MPM-A/B130x motor with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LE, and LD.

(3) If ordering an MPM-A/B165x motor with brake, add 51.5 mm (2.03 in.) to dimensions L, LB, LE, and LD.

(4) This dimension applies to MPM-B165x motors with M23 connectors. For MPM-A/B165x motors with M40 connectors, add 2.0 mm (0.07 in.).

(5) This dimension applies to MPM-B165x motors with M23 connectors. For MPM-A/B165x motors with M40 connectors, subtract 29.0 mm (1.15 in.).

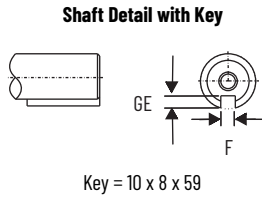
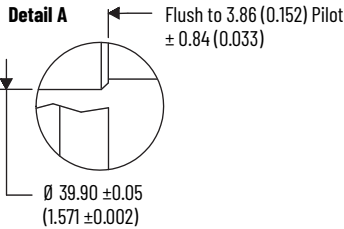
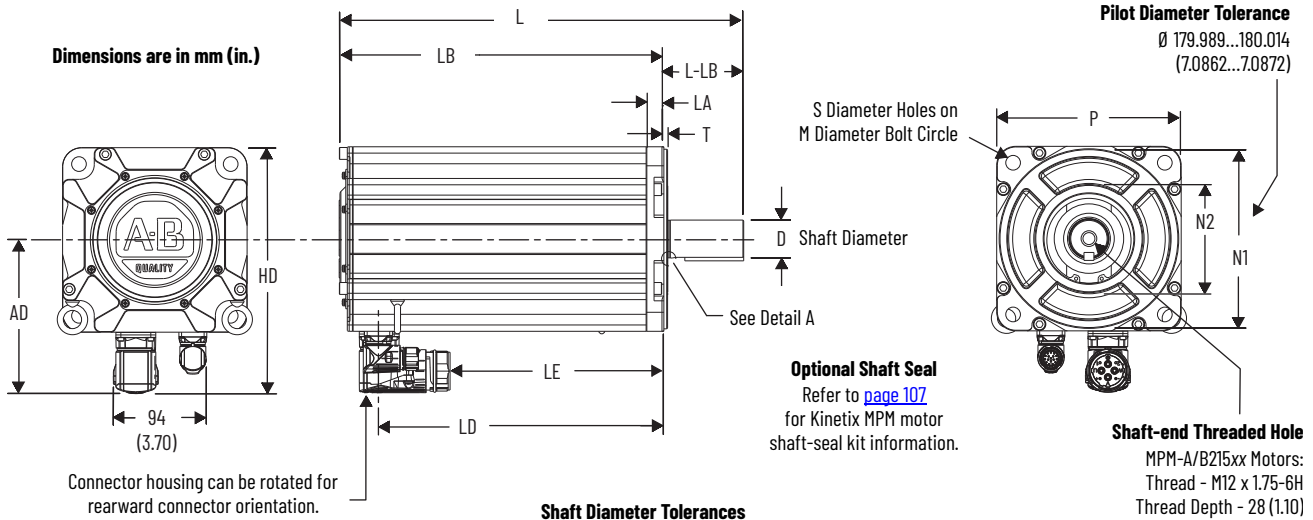
(6) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 12](#).

(7) For MPM-A/B115x and MPM-A/B130x motors, the tolerance for this dimension is +0.36 mm (±0.007 in.).

For MPM-A/B165x motors, the tolerance is +0.43 mm (±0.008 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

MPM-A/B215x Motor Dimensions



Shaft, Pilot, and Keyway Tolerances	MPM-A/B215x
Shaft Runout (T.I.R.)	0.05 (0.002)
Pilot Eccentricity (T.I.R.)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.10 (0.0039)
Keyway Depth (GE)	5.00...5.20 (0.197...0.205)
Keyway Width (F)	9.964...10.000 (0.3923...0.3937)

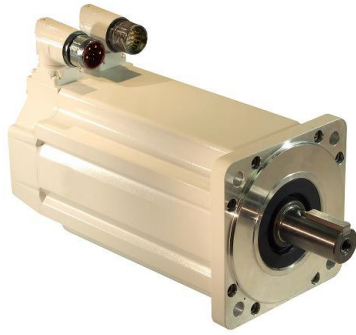
Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD (1) mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D mm (in.)	M mm (in.)	S (3) mm (in.)	N1 mm (in.)	N2 mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
MPM-A/B2152					234 (9.23)	163 (6.43)	355 (13.96)	275 (10.81)									
MPM-A/B2153	154 (6.06)	247 (9.70)	3.73 (0.147)	17.8 (0.70)	285 (11.23)	214 (8.43)	405 (15.96)	325 (12.81)	80.0 (3.150)	38.0 (1.50)	215 (8.465)	14.50 (0.579)	180 (7.09)	108 (4.25)	185 (7.28)	5.0 (0.197)	10.0 (0.394)
MPM-A/B2154					336 (13.23)	265 (10.43)	456 (17.96)	376 (14.81)									

(1) If ordering an MPM-A/B215x motor with brake, add 88.9 mm (3.5 in.) to dimensions LD, LE, L, and LB.  
 (2) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.028$  in.).  
 (3) Tolerance for this dimension is  $+0.43$  mm ( $\pm 0.008$  in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

**Notes:**

# Kinetix MPF Food-grade Servo Motors



Kinetix MPF servo motors combine the characteristics of the Kinetix MPL servo motors with features specifically designed to meet the unique needs of many food and beverage applications. These high-performance servo motors address the challenges of food environments by incorporating food-grade paint and shaft seal, along with noncorrosive fasteners and stainless steel shaft. For meat and poultry applications, and for applications with high pressure wash and caustic chemicals, the Kinetix MPS stainless-steel servo motors are recommended.

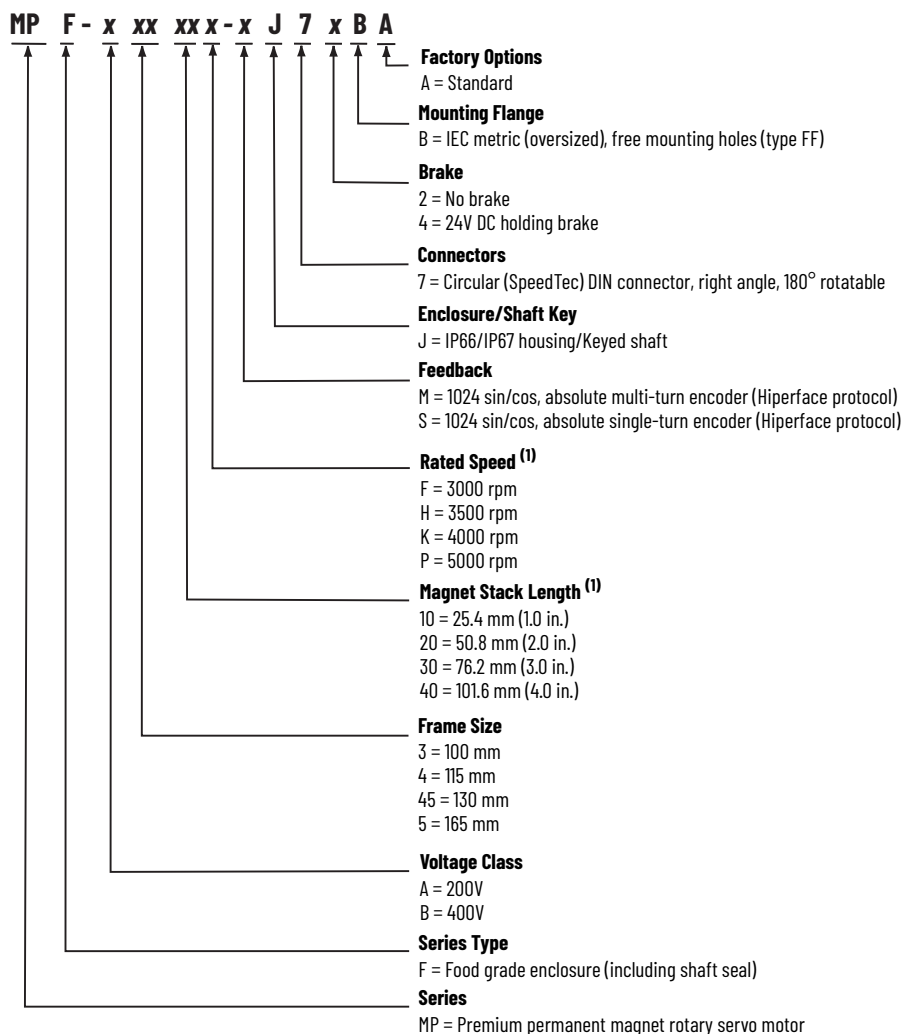
## Kinetix MPF Servo Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>Configurable winding options, brakes, and encoder feedback</li> <li>Hiperface encoder protocol</li> <li>Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>Food-grade epoxy coated</li> <li>200V and 400V-class windings</li> <li>Single-turn and multi-turn absolute feedback</li> <li>Shaft-end threaded hole</li> <li>SpeedTec DIN connectors, rotates 180°</li> <li>Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>IP66/IP67 with shaft seal (standard) and use of environmentally sealed cable connectors</li> <li>Food grade grease on shaft seal</li> </ul>
Certifications	Kinetix MPF rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	1.6...19.4 N•m (14...172 lb•in)
Peak stall torque	3.61...48.6 N•m (32...430 lb•in)
Rated speed	Up to 5000 rpm
Motor rated output	0.73...4.1 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>Kinetix 5500 <sup>(1)</sup></li> <li>Kinetix 5700</li> <li>Kinetix 6200/6500</li> <li>Kinetix 6000</li> <li>Kinetix 300/350</li> <li>Kinetix 2000</li> </ul>
Compatible servo cables	2090-CxxM7xx cables
Typical applications	<ul style="list-style-type: none"> <li>Food packaging</li> <li>Volumetric filling</li> <li>Form, fill, seal</li> <li>Food handling</li> <li>For meat and poultry applications, the Kinetix MPS stainless-steel motors are recommended</li> </ul>

(1) Requires the 2198-H2DCK Hiperface-to-DSL feedback converter kit. Kinetix MPF (200V-class) servo motors require the 2198-H2DCK (series B or later) converter kit.

## Catalog Numbers - Kinetix MPF Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in Kinetix MPF Servo Motor (200V-class) Performance Specifications on [page 119](#) and Kinetix MPF Servo Motor (400V-class) Performance Specifications on [page 120](#), are available. Use Motion Analyzer software to size and select motors for your application.

## Kinetix MPF Servo Motor High-resolution Encoders

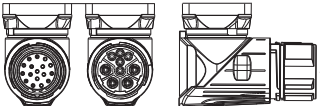
Kinetix MPF servo motors are available with high performance encoders with a choice of single-turn (-S) or multi-turn (-M) high resolution feedback:

- 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution) -M and -S (MPF-A/B3xx, MPF-A/B4xx, MPF-A/B45xx, and MPF-A/B5xx motors).
- Single-turn encoder provides high-resolution absolute position feedback within one turn.
- Multi-turn encoder provides high-resolution absolute position feedback within 4096 turns. The electromechanical design does not require a battery.

## Motor Connector/Cable Compatibility

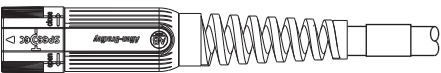
Kinetix MPF servo motors are equipped with SpeedTec DIN connectors.

**SpeedTec DIN Connectors**



- MPF-A/Bxxx motors
- Receives M4 and M7 cable plugs (O-ring required for M4)
- Attach M7 cable plug with one-quarter turn

**SpeedTec DIN (M7) Cable Plug**

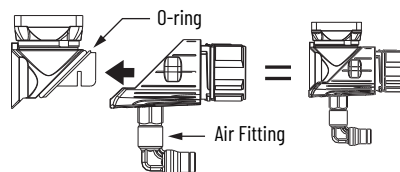


- 2090-CFBM7DF-CEAAxx (standard, non-flex) flying-lead, feedback cables
- 2090-CFBM7DD-CEAAxx (standard, non-flex) drive-end connector, feedback cables
- 2090-CFBM7DF-CEAFxx (continuous-flex) flying-lead, feedback cables
- 2090-CFBM7DD-CEAFxx (continuous-flex) drive-end connector, feedback cables
- 2090-CFBM7DF-CDAFxx (continuous-flex) flying-lead, feedback cables
  
- 2090-CPWM7DF-xxAAxx (standard, non-flex) power-only cables
- 2090-CPBM7DF-xxAAxx (standard, non-flex) power/brake cables
- 2090-CPWM7DF-xxAFxx (continuous-flex) power-only cables
- 2090-CPBM7DF-xxAFxx (continuous-flex) power/brake cables

## Kinetix MPF Servo Motor Options

Kinetix MPF servo motors are available with these options:

- 24V DC holding brake.
- The positive air-pressure kit (catalog number MPF-7-AIR-PURGE) is mounted on the feedback connector to provide positive air pressure to further reduce the chance of contamination inside the motor.
- Shaft seal kits are available for field replacement. Shaft seals are made of PTFE and the kit includes a lubricant to reduce wear.



**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
MPF-A3xx and MPF-B3xx	MPF-SST-A3B3
MPF-A4xx and MPF-B4xx	MPF-SST-A4B4
MPF-A45xx and MPF-B45xx	MPF-SST-A45B45
MPF-A5xx and MPF-B5xx	MPF-SST-F165

Refer to the Kinetix MPF Food-grade Servo Motor Installation Instructions, publication [MP-IN004](#), for motor accessory information.

## Technical Specifications - Kinetix MPF Servo Motors

### Kinetix MPF Servo Motor (200V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPF-A310P	4750	5000	1.58 (14)	3.61 (32)	0.73	0.000044 (0.00039)	2.8 (6.1)
MPF-A320P	4750	5000	3.05 (27)	7.91 (70)	1.3		
MPF-A320H	3350	3500	3.05 (27)	7.91 (70)	1.0	0.000078 (0.00069)	3.8 (8.3)
MPF-A330P	5000	5000	4.18 (37)	11.1 (98)	1.6	0.00012 (0.0010)	4.7 (10)
MPF-A430P	5000	5000	5.99 (53)	19.8 (175)	1.9	0.00038 (0.0033)	5.6 (12)
MPF-A430H	3500	3500	6.21 (55)	19.8 (175)	1.8		
MPF-A4530K	4000	4000	8.13 (72)	20.3 (180)	2.3	0.00040 (0.0036)	7.4 (16)
MPF-A4540F	3000	3000	10.2 (90)	27.1 (240)	2.5	0.00052 (0.0046)	8.7 (19)
MPF-A540K	4000	4000	19.4 (172)	48.6 (430)	4.1	0.00147 (0.013)	16 (35)

(1) Refer to Kinetix MPF Servo Motor Brake Specifications on [page 120](#) for brake rotor inertia and brake motor weight.

**Kinetix MPF Servo Motor (400V-class) Performance Specifications**

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N•m (lb•in)	Peak Stall Torque N•m (lb•in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg•m <sup>2</sup> (lb•in•s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPF-B310P	5000	5000	1.58 (14)	3.61 (32)	0.77	0.000044 (0.00039)	2.8 (6.1)
MPF-B320P	5000	5000	3.05 (27)	7.91 (70)	1.5	0.000078 (0.00069)	3.8 (8.3)
MPF-B330P	5000	5000	4.18 (37)	11.1 (98)	1.6	0.00012 (0.0010)	4.7 (10)
MPF-B430P	5000	5000	6.55 (58)	19.8 (175)	2.0	0.00038 (0.0033)	5.6 (12)
MPF-B4530K	4000	4000	8.25 (73)	20.3 (180)	2.4	0.00040 (0.0036)	7.4 (16)
MPF-B4540F	3000	3000	10.2 (90)	27.1 (240)	2.5	0.00052 (0.0046)	8.7 (19)
MPF-B540K	4000	4000	19.4 (172)	48.6 (430)	4.1	0.00147 (0.013)	16 (35)

(1) Refer to Kinetix MPF Servo Motor Brake Specifications on [page 120](#) for brake rotor inertia and brake motor weight.

**Kinetix MPF Servo Motor Brake Specifications**

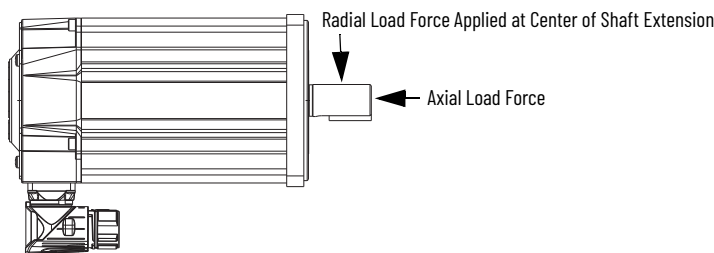
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N•m (lb•in)	Coil Current at 24V DC A	Brake Response Time			Brake Rotor Inertia kg•m <sup>2</sup> (lb•in•s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage <sup>(1)</sup>			
					MOV ms	Diode ms		
MPF-A/B310	45	4.18 (37)	0.45...0.55	50	20	110	0.000057 (0.00050)	3.8 (8.3)
MPF-A/B320							0.000092 (0.00081)	4.7 (10)
MPF-A/B330							0.00013 (0.0011)	5.7 (13)
MPF-A/B430	37	10.2 (90)	0.576...0.704	110	25	160	0.00042 (0.0038)	7.4 (16)
MPF-A/B4530							0.00044 (0.0039)	9.2 (20)
MPF-A/B4540							0.00056 (0.0050)	11 (24)
MPF-A/B540	25	28.3 (250)	1.05...1.28	70	50	250	0.00157 (0.0139)	19 (41)

(1) By using an arc suppression device in external control circuit.

**Kinetix MPF Servo Motor Load Force Ratings**

Kinetix MPF servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables below represent an L<sub>10</sub> bearing fatigue life of 20,000 hours. This 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

**Load Forces on Shaft**





## Radial Load Force Ratings

Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	4000 rpm kg (lb)	5000 rpm kg (lb)
MPF-A/B310	78 (172)	62 (137)	49 (108)	-	40 (88)	-	36 (79)
MPF-A/B320	87 (192)	69 (152)	55 (121)	-	45 (99)	-	40 (88)
MPF-A/B330	-	74 (163)	59 (130)	-	49 (108)	-	43 (95)
MPF-A/B430	106 (234)	84 (185)	67 (148)	-	55 (121)	-	49 (108)
MPF-A/B4530	133 (293)	105 (232)	84 (185)	73 (161)	-	66 (146)	-
MPF-A/B4540	140 (309)	111 (245)	89 (196)	77 (170)	-	-	-
MPF-A/B540	-	143 (316)	114 (251)	99 (219)	-	90 (199)	-

## Axial Load Force Ratings (maximum radial load)

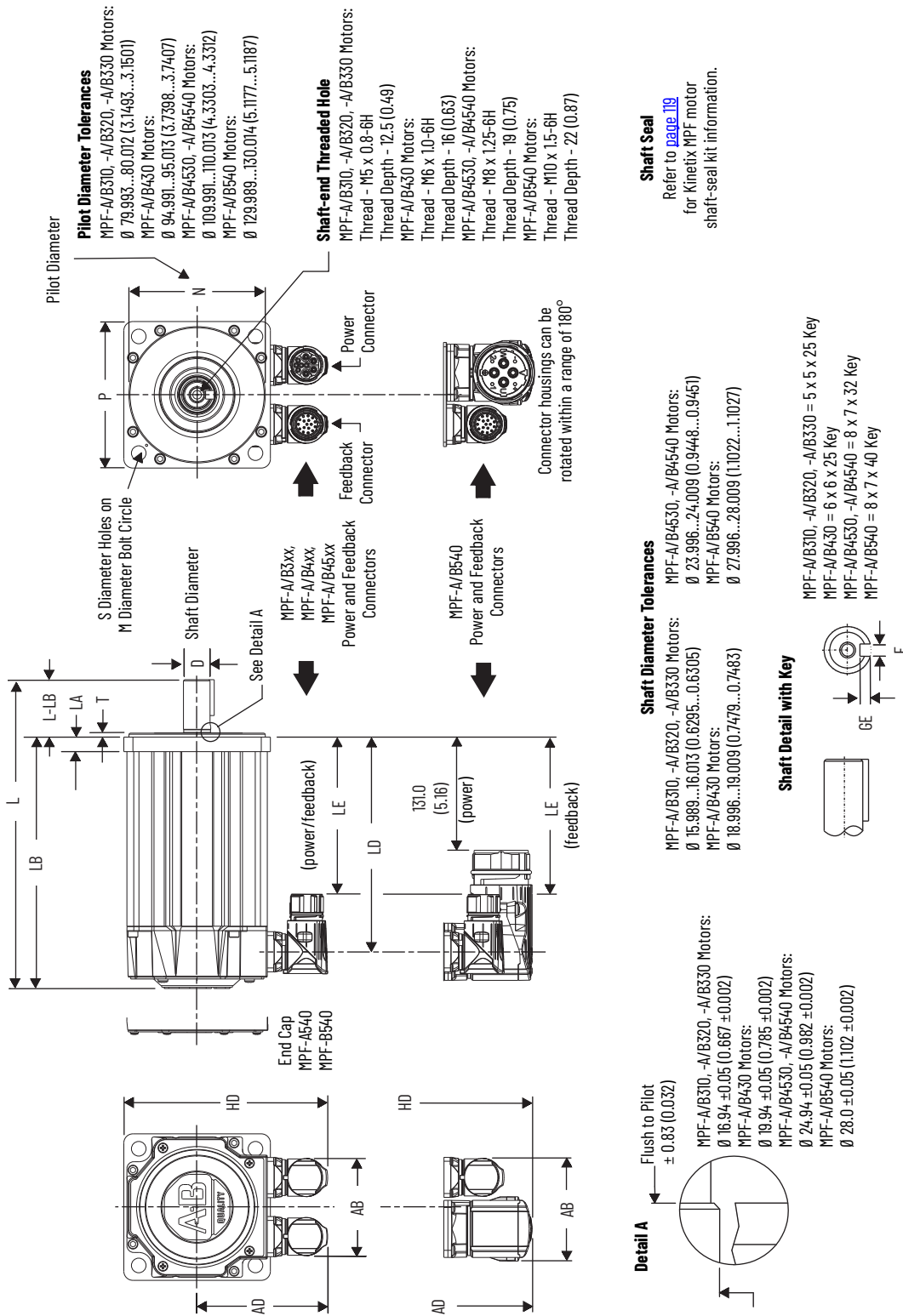
Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	4000 rpm kg (lb)	5000 rpm kg (lb)
MPF-A/B310	30 (66)	23 (51)	16 (35)	-	13 (29)	-	11 (24)
MPF-A/B320	34 (75)	25 (55)	19 (42)	-	15 (33)	-	13 (29)
MPF-A/B330	-	27 (60)	20 (44)	-	16 (35)	-	13 (29)
MPF-A/B430	52 (115)	39 (86)	29 (64)	-	22 (49)	-	19 (42)
MPF-A/B4530	45 (99)	34 (75)	25 (55)	21 (46)	-	19 (42)	-
MPF-A/B4540	49 (108)	36 (79)	27 (60)	22 (49)	-	-	-
MPF-A/B540	-	48 (107)	35 (79)	30 (66)	-	26 (58)	-

## Axial Load Force Ratings (zero radial load)

Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	4000 rpm kg (lb)	5000 rpm kg (lb)
MPF-A/B310	49 (108)	36 (79)	27 (60)	-	21 (46)	-	18 (40)
MPF-A/B320	49 (108)	36 (79)	27 (60)	-	21 (46)	-	18 (40)
MPF-A/B330	-	36 (79)	27 (60)	-	21 (46)	-	18 (40)
MPF-A/B430	69 (152)	51 (112)	38 (84)	-	30 (66)	-	25 (55)
MPF-A/B4530	69 (152)	51 (112)	38 (84)	31 (68)	-	28 (62)	-
MPF-A/B4540	69 (152)	51 (112)	38 (84)	31 (68)	-	-	-
MPF-A/B540	-	67 (149)	49 (109)	41 (92)	-	36 (81)	-

# Dimensions - Kinetix MPF Servo Motors

## MPF-A/B3xx, MPF-A/B4xx, MPF-A/B45xx, MPF-A/B5xx Motor Dimensions



Shaft, Pilot, and Keyway Tolerances	MPF-A/B4xx	MPF-A/B45xx	MPF-A/B540
Shaft Runout (T.I.R.)	0.035 (0.0014)	0.04 (0.0016)	0.04 (0.0016)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Keyway Depth (6E)	3.50...3.60 (0.138...0.142)	4.00...4.20 (0.158...0.165)	4.00...4.20 (0.158...0.165)
Keyway Width (F)	4.97...5.00 (0.196...0.197)	7.96...8.00 (0.314...0.315)	7.964...8.000 (0.3135...0.3150)

## MPF-A/B3xx, MPF-A/B4xx, MPF-A/B45xx, MPF-A/B5xx Motor Dimensions

Motor Cat. No.	AB mm (in.)	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD (1) mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D (3) mm (in.)	M mm (in.)	S (4) mm (in.)	N (3) mm (in.)	P mm (in.)	GE (3) mm (in.)	F (3) mm (in.)
MPF-A/B310						102.0 (4.03)	62.0 (2.45)	168.0 (6.62)	128.0 (5.04)								
MPF-A/B320	66.0 (2.60)	87.25 (3.43)	133.4 (5.25)	2.74 (0.11)	9.91 (0.39)	128.0 (5.03)	88.0 (3.45)	193.0 (7.62)	153.0 (6.04)	40.0 (1.57)	16.0 (0.629)	100.0 (3.94)	7.0 (0.283)	80.0 (3.15)	92.39 (3.64)	3.0 (0.118)	5.0 (0.197)
MPF-A/B330						153.0 (6.03)	113.0 (4.45)	219.0 (8.62)	179.0 (7.04)								
MPF-A/B430	67.7 (2.66)	90.9 (3.58)	142.0 (5.59)	2.74 (0.11)	10.16 (0.40)	150.0 (5.89)	110.0 (4.31)	215.0 (8.48)	175.0 (6.90)	40.0 (1.57)	19.0 (0.748)	115.0 (4.53)	10.0 (0.401)	95.0 (3.74)	102.1 (4.02)	3.5 (0.138)	6.0 (0.236)
MPF-A/B4530	67.7 (2.66)	98.6 (3.88)	157.6 (6.20)	2.74 (0.11)	12.19 (0.48)	153.0 (6.02)	113.0 (4.44)	229.0 (9.0)	179.0 (7.03)	50.0 (1.97)	24.0 (0.945)	130.0 (5.12)	10.0 (0.401)	110.0 (4.33)	118.1 (4.65)	4.0 (0.158)	8.0 (0.315)
MPF-A/B4540						178.0 (7.02)	138.0 (5.44)	254.0 (10.0)	204.0 (8.03)								
MPF-A/B540	71.2 (2.80)	136.4 (5.37)	209.0 (8.23)	3.12 (0.12)	13.97 (0.55)	202.0 (7.95)	162.0 (6.38)	287.0 (11.30)	227.0 (8.92)	60.0 (2.36)	28.0 (1.102)	165.0 (6.50)	12.0 (0.481)	130.0 (5.12)	145.3 (5.72)	4.0 (0.158)	8.0 (0.315)

(1) If ordering an MPF-A/B310, MPF-A/B320, or MPF-A/B330 motor with brake, add 35 mm (1.38 in.) to dimensions L, LB, LD, and LE.

If ordering an MPF-A/B430 motor with brake, add 48 mm (1.89 in.) to dimensions L, LB, LD, and LE.

If ordering an MPF-A/B4530 or MPF-A/B4540 motor with brake, add 23 mm (0.90 in.) to dimensions L, LB, LD, and LE.

If ordering an MPF-A/B540 motor with brake, add 51 mm (2.0 in.) to dimensions L, LB, LD, and LE.

(2) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.028$  in.).

(3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 122](#).

(4) Tolerance for this dimension is: MPF-A/B3xx, MPF-A/B4xx, or MPF-A/B45xx  $\pm 0.36$  mm ( $\pm 0.014$  in.) and MPF-A/B5xx  $\pm 0.43$  mm ( $\pm 0.017$  in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

# Kinetix MPS Stainless-steel Servo Motors



Kinetix MPS servo motors are specifically designed to meet the unique needs of washdown environments. These motors are specifically designed for high-pressure, highly caustic washdown environments. The Kinetix MPS servo motors extend the wide range of Allen-Bradley servo motors into new applications on food, beverage, brewing, dairy, pharmaceutical, and health and beauty manufacturing equipment. For EHEDG type of hygienic requirements, we recommend the Kinetix VPH hygienic stainless-steel servo motors.

## Kinetix MPS Stainless-steel Motor Features

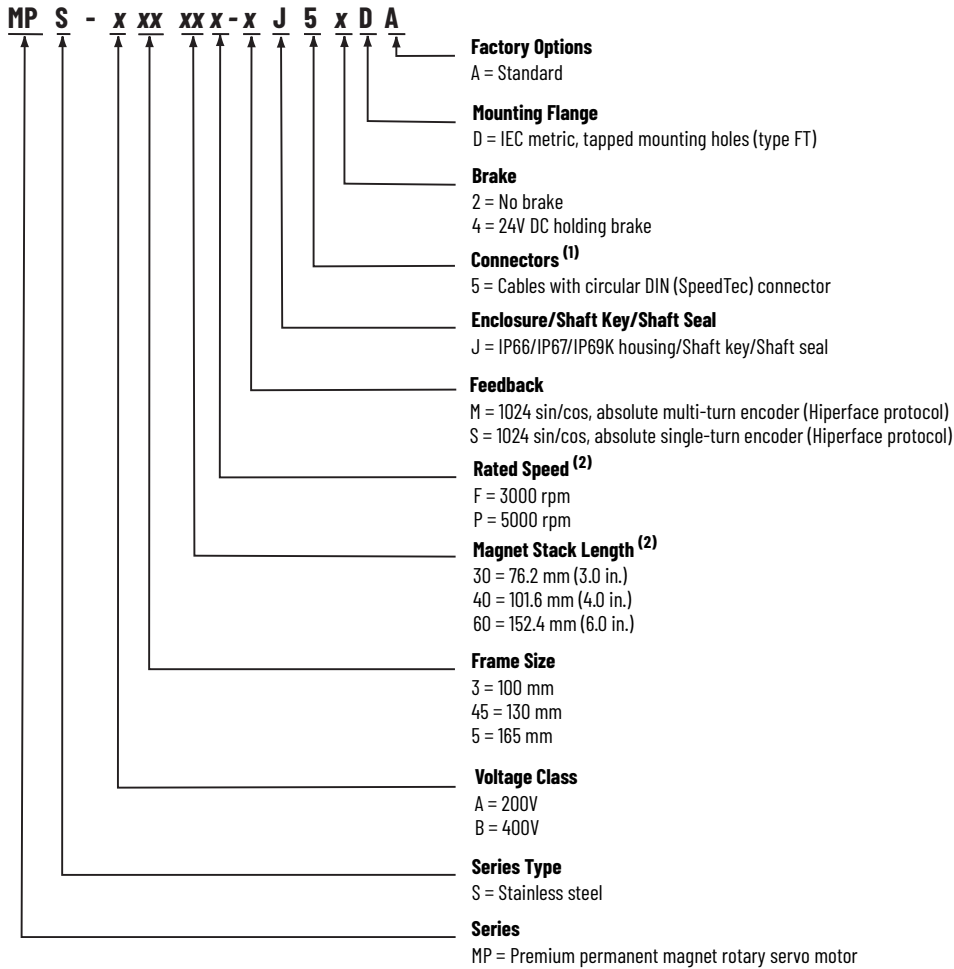
Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>Specifically designed for hygienic environments for use with high pressure, highly caustic washdown applications</li> <li>Hiperface encoder protocol</li> <li>Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>Smooth, passivated 300 series stainless-steel cylindrical exterior</li> <li>Certified and listed to NSF/ANSI Standard 169</li> <li>200V and 400V-class windings</li> <li>Single-turn and multi-turn absolute feedback options</li> <li>Shaft-end threaded hole</li> <li>Cable extensions, 3 m (9.8 ft)</li> <li>Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>IP66/IP67 with shaft seal (standard) and use of environmentally sealed cable connectors</li> <li>IP69K for 1200 psi washdown <sup>(1)</sup></li> </ul>
Certifications	Kinetix MPS rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	3.6...21.5 N•m (32...190 lb•in)
Peak stall torque	11.1...98 N•m (67.8...600 lb•in)
Rated speed	3000 and 5000 rpm
Motor rated output	1.3...3.5 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>Kinetix 5500 <sup>(2)</sup></li> <li>Kinetix 5700</li> <li>Kinetix 6200/6500</li> <li>Kinetix 6000</li> <li>Kinetix 300/350</li> <li>Kinetix 2000</li> </ul>
Compatible servo cables	2090-CxxM7xx cables
Typical applications	<ul style="list-style-type: none"> <li>Meat and poultry</li> <li>Food slicing and filling</li> <li>Raw food handling</li> <li>Processing</li> <li>Life science</li> <li>Consumer products</li> </ul>

(1) The cable connectors are rated IP66 and IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.

(2) Requires the 2198-H2DCK Hiperface-to-DSL feedback converter kit. Kinetix MPS (200V-class) servo motors require the 2198-H2DCK (series B or later) converter kit.

## Catalog Numbers - Kinetix MPS Stainless-steel Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) The motor has 3 m (9.8 ft) cables with nickel-plated connector extensions.

**IMPORTANT** The connectors are O-ring sealed, but not designed to withstand direct high-pressure washdown with aggressive cleaning compounds. The 3 m (9.8 ft) cables are provided so the connectors can be positioned in an area away from direct exposure to the cleaning process, such as within washdown-rated conduit or junction boxes.

(2) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in Kinetix MPS Servo Motor (200V-class) Performance Specifications on [page 127](#) and Kinetix MPS Servo Motor (400V-class) Performance Specifications on [page 127](#), are available. Use Motion Analyzer software to size and select motors for your application.

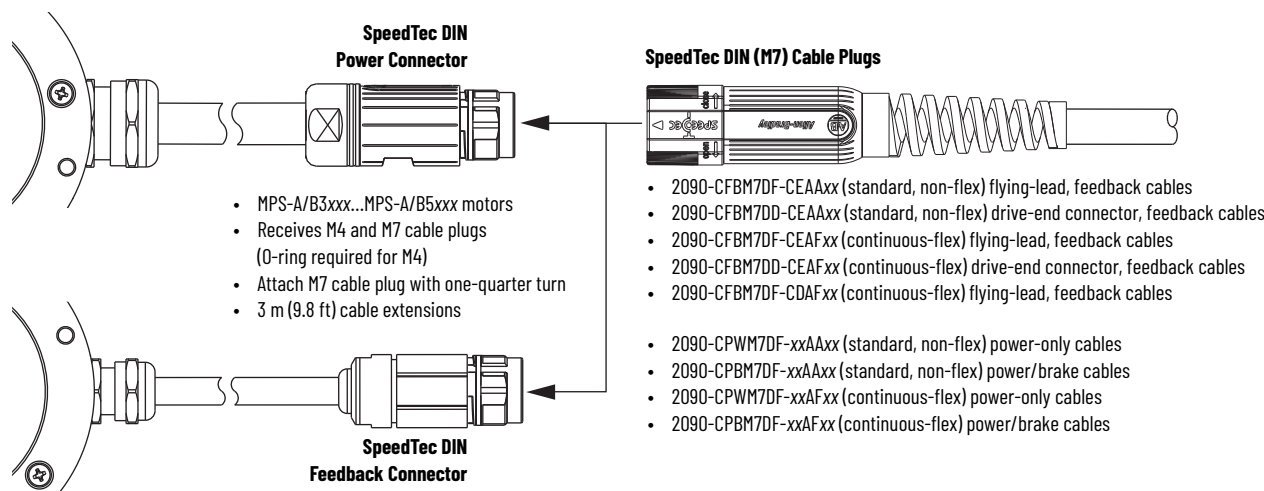
## Kinetix MPS Stainless-steel Motor High-resolution Encoders

Kinetix MPS servo motors are available with high-performance encoders with a choice of single-turn (-S) or multi-turn (-M) high-resolution feedback:

- 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution) -M and -S (MPS-A/B3xx, MPS-A/B45xx, and MPS-B5xx motors).
- Single-turn encoder provides high-resolution absolute position feedback within one turn.
- Multi-turn encoder provides high-resolution absolute position feedback within 4096 turns. The electromechanical design does not require a battery.

## Motor Connector/Cable Compatibility

Kinetix MPS servo motors are equipped with SpeedTec DIN connectors.



## Kinetix MPS Stainless-steel Motor Options

Kinetix MPS servo motors are available with these options:

- 24V DC holding brake.
- The positive air-pressure accessory kit (catalog number MPS-AIR-PURGE) is mounted to the rear cover of the motor to provide positive air pressure and further reduce the chance of contamination inside the motor. No special tool is required for installation and removal.
- Shaft seal kits (with slinger) are available for field replacement. Shaft seals are made of PTFE and kits include a lubricant to reduce wear.

**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
MPS-A3xx and MPS-B3xx	MPS-SST-A3B3
MPS-A45xx and MPS-B45xx	MPS-SST-A45B45
MPS-B5xx	MPS-SST-F165

Refer to the Kinetix MPS Stainless-steel Servo Motor Installation Instructions, publication [MP-IN005](#), for more information.

## Technical Specifications - Kinetix MPS Stainless-steel Servo Motors

### Kinetix MPS Servo Motor (200V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPS-A330P	5000	5000	3.6 (32)	11.1 (98)	1.3	0.00012 (0.0010)	7.4 (16.2)
MPS-A4540F	3000	3000	8.1 (72)	27.1 (240)	1.4	0.00052 (0.0046)	13 (28.5)

(1) Refer to Kinetix MPS Servo Motor Brake Specifications on [page 127](#) for brake rotor inertia and brake motor weight.

### Kinetix MPS Servo Motor (400V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)(2)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPS-B330P	5000	5000	3.6 (32)	11.1 (98)	1.3	0.00012 (0.0010)	7.4 (16.2)
MPS-B4540F	3000	3000	8.1 (72)	27.1 (240)	1.4	0.00052 (0.0046)	13 (28.5)
MPS-B560F	3000	3000	21.5 (190)	67.8 (600)	3.5	0.00227 (0.0200)	30 (66)

(1) Refer to Kinetix MPS Servo Motor Brake Specifications on [page 127](#) for brake rotor inertia and brake motor weight.

(2) Rotor inertia can vary slightly depending on feedback.

### Kinetix MPS Servo Motor Brake Specifications

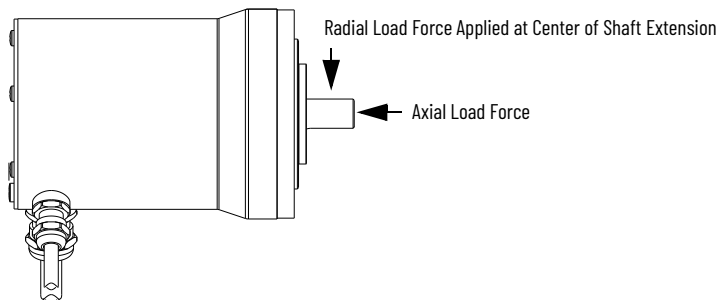
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time			Brake Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage <sup>(1)</sup>			
					MOV ms	Diode ms		
MPS-A/B330	45	4.18 (37)	0.45...0.55	50	20	110	0.00013 (0.0011)	8.8 (19.3)
MPS-A/B4540	48	10.2 (90)	0.576...0.704	110	25	160	0.00052 (0.0046)	15.4 (34.0)
MPS-B560	25	28.3 (250)	1.05...1.28	70	50	250	0.00227 (0.0200)	32.2 (70.8)

(1) By using an arc suppression device in external control circuit.

## Kinetix MPS Stainless-steel Motor Load Force Ratings

Kinetix MPS servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables starting below represent an L<sub>10</sub> bearing fatigue life of 20,000 hours. This 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

### Load Forces on Shaft



**Radial Load Force Ratings**

<b>Motor Cat. No.</b>	<b>500 rpm</b> kg (lb)	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>3500 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)
MPS-A/B330	-	74 (163)	59 (130)	-	49 (108)	-	43 (95)
MPS-A/B4540	140 (309)	111 (245)	89 (195)	77 (170)	-	-	-
MPS-B560	-	154 (338)	122 (268)	106 (234)	-	-	-

**Axial Load Force Ratings (maximum radial load)**

<b>Motor Cat. No.</b>	<b>500 rpm</b> kg (lb)	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>3500 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)
MPS-A/B330	-	27 (59)	20 (44)	-	16 (35)	-	13 (29)
MPS-A/B4540	49 (107)	36 (80)	27 (59)	22 (49)	-	-	-
MPS-B560	-	52 (115)	39 (85)	32 (71)	-	-	-

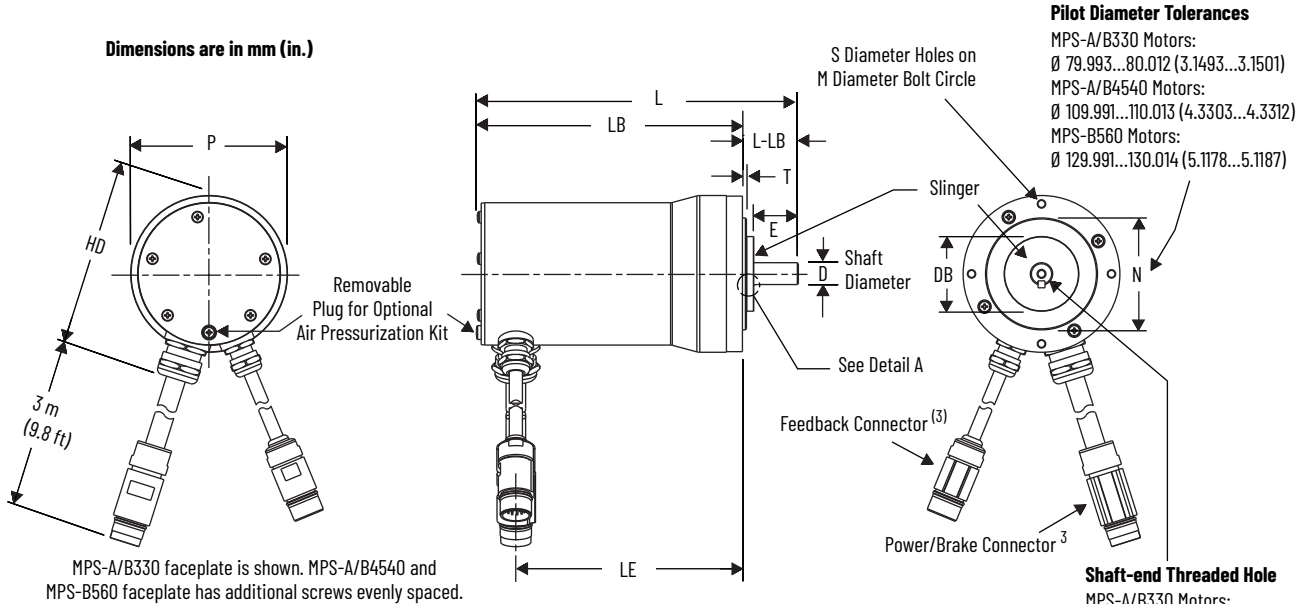
**Axial Load Force Ratings (zero radial load)**

<b>Motor Cat. No.</b>	<b>500 rpm</b> kg (lb)	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>3500 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)
MPS-A/B330	-	36 (79)	27 (59)	-	21 (46)	-	18 (40)
MPS-A/B4540	69 (152)	51 (112)	38 (83)	31 (69)	-	-	-
MPS-B560	-	68 (149)	50 (109)	42 (92)	-	-	-



# Dimensions - Kinetix MPS Stainless-steel Servo Motors

## MPS-A/B330, MPS-A/B4540, MPS-B560 Motor Dimensions



**Pilot Diameter Tolerances**

MPS-A/B330 Motors:  
 Ø 79.993...80.012 (3.1493...3.1501)  
 MPS-A/B4540 Motors:  
 Ø 109.991...110.013 (4.3303...4.3312)  
 MPS-B560 Motors:  
 Ø 129.991...130.014 (5.1178...5.1187)

**Shaft Diameter Tolerances**

MPS-A/B330 Motors:  
 Ø 15.997...16.008 (0.6298...0.6301)  
 MPS-A/B4540 Motors:  
 Ø 23.996...24.009 (0.9448...0.9451)  
 MPS-B560 Motors:  
 Ø 27.996...28.009 (1.1022...1.1027)

**Shaft-end Threaded Hole**

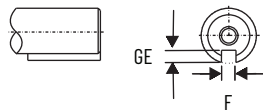
MPS-A/B330 Motors:  
 Thread - M5 x 0.8-6H  
 Thread Depth - 12.5 (0.49)  
 MPS-A/B4540 Motors:  
 Thread - M8 x 1.25-6H  
 Thread Depth - 19 (0.75)  
 MPS-B560 Motors:  
 Thread - M10 x 1.5-6H  
 Thread Depth - 22 (0.87)

**Detail A**

Flush to Pilot ± 0.83 (0.032)

MPS-A/B330 Motors:  
 Ø 16.891...16.896 (0.6650...0.6652)  
 MPS-A/B4540 Motors:  
 Ø 24.94 ± 0.05 (0.982 ± 0.002)  
 MPS-A/B560 Motors:  
 Ø 29.92 ± 0.05 (1.178 ± 0.002)

**Shaft Detail with Key**



**Shaft Seal (with slinger)**  
 Refer to [page 126](#)  
 for Kinetix MPS motor  
 shaft-seal kit information.

MPS-A/B330 = 5 x 5 x 25 Key  
 MPS-A/B4540 = 8 x 7 x 32 Key  
 MPS-B560 = 8 x 7 x 40 Key

Shaft, Pilot, and Keyway Tolerances	MPS-A/B330	MPS-A/B4540	MPS-B560
Shaft Runout (T.I.R.)	0.035 (0.0014)	0.04 (0.0016)	0.04 (0.0016)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Keyway Depth (GE)	3.00...3.10 (0.118...0.122)	4.00...4.20 (0.158...0.165)	4.00...4.20 (0.158...0.165)
Keyway Width (F)	4.97...5.00 (0.196...0.197)	7.96...8.00 (0.314...0.315)	7.96...8.00 (0.314...0.315)

Motor Cat. No.	HD mm (in.)	T mm (in.)	E mm (in.)	LE (1) mm (in.)	L (1) mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	D mm (in.)	DB mm (in.)	M mm (in.)	S mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
MPS-A/B330	135 (5.31)	2.87 (0.113)	32.1 (1.26)	162 (6.38)	230 (9.05)	190 (7.49)	40.0 (1.57)	16.0 (0.63)	50.8 (2.0)	100 (3.94)	M6x1.0-6H Depth: 7.0 (0.28)	80.0 (3.15)	112 (4.41)	3.0 (0.118)	5.0 (0.197)
MPS-A/B4540	164 (6.46)	3.38 (0.133)	41.4 (1.63)	185 (7.30)	266 (10.45)	216 (8.48)	50.0 (1.97)	24.0 (0.945)	70.0 (2.75)	130 (5.12)	M8x1.25-6H Depth: 9.0 (0.35)	110 (4.33)	143.2 (5.64)	4.0 (0.158)	8.0 (0.315)
MPS-B560	198 (7.79)	3.38 (0.13)	51.52 (2.03)	302 (11.90)	396 (15.60)	336 (13.24)	60.0 (2.36)	28.0 (1.10)	82.6 (3.25)	165 (6.49)	M10x1.5-6H Depth: 11.0 (0.43)	130 (5.12)	181 (7.13)	4.0 (0.158)	8.0 (0.315)

(1) If ordering an MPS-A/B330 motor with brake, add 35 mm (1.38 in.) to dimensions L and LB, and 34 mm (1.34 in.) to dimension LE.  
 If ordering an MPS-A/B4540 motor with brake add 48.5 mm (1.91 in.) to dimensions L, LB, and LE.  
 (2) Tolerance for this dimension is ±0.7 mm (±0.028 in.).  
 (3) Specifications for the 3 m (9.8 ft) power and feedback cable leads are identical to those of the 2090-XXNPMF-xxSxx (power) and 2090-XXNFMF-Sxx (feedback) cables. Refer to Kinetix Motion Accessories Technical Data, publication [KNX-TD004](#), for more information.

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

# Kinetix TLP Multi-purpose Servo Motors



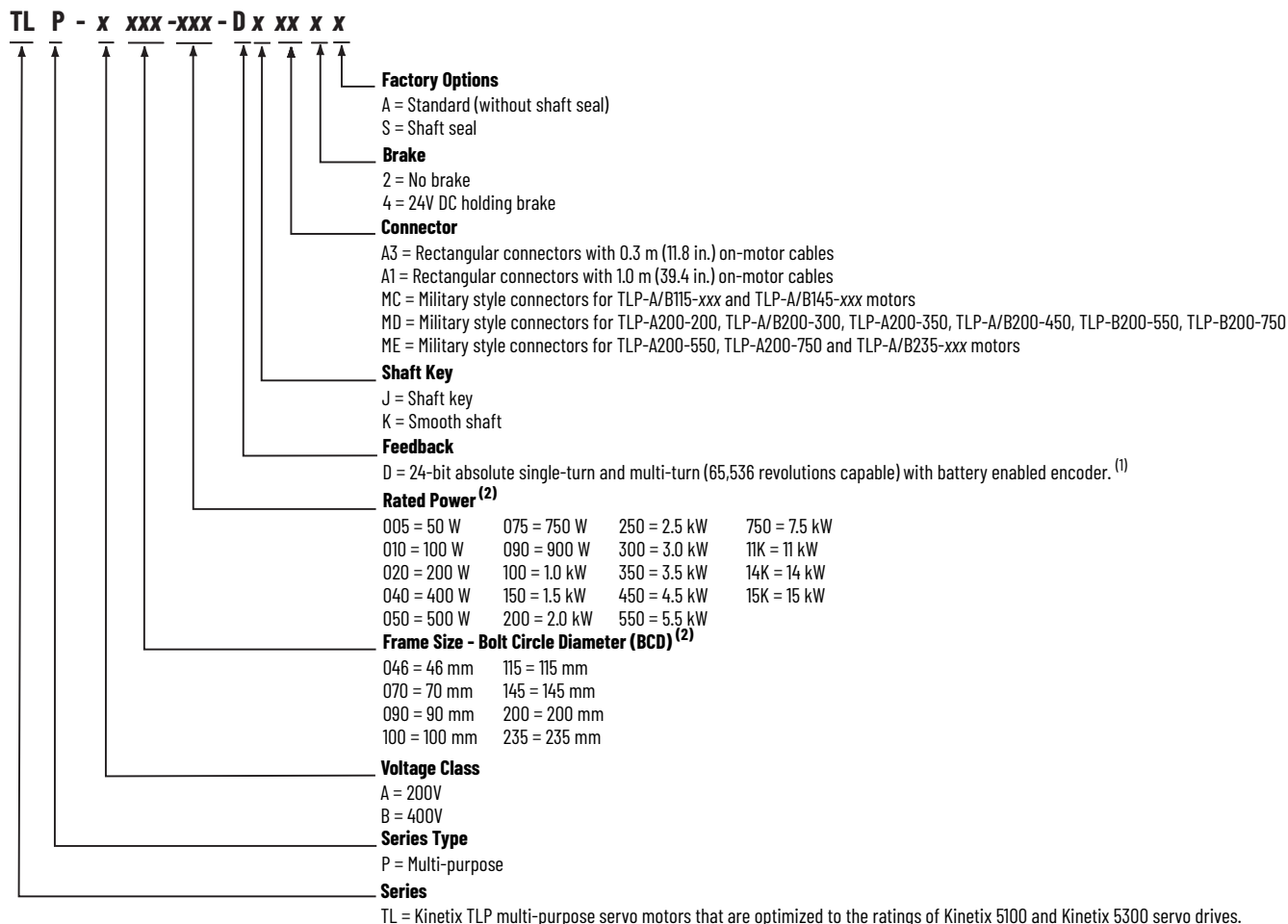
Kinetix TLP servo motors, tested and validated for optimal performance with Kinetix 5100 and Kinetix 5300 servo drives, are available with 230V or 480V windings and with or without 24V DC holding brakes. A wide-range of other economical and customizable options are also available.

## Kinetix TLP Servo Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>Developed to match Kinetix 5100 and Kinetix 5300 servo drive for optimal system performance</li> <li>Metric frame sizes</li> <li>High torque to size ratio</li> </ul>
Features	<ul style="list-style-type: none"> <li>200V and 400V-class windings</li> <li>24-bit high-resolution single-turn and multi-turn absolute feedback</li> <li>Shaft-end threaded hole</li> <li>Metric mounting, consistent with Kinetix TL and TLY compact servo motors</li> </ul>
Motor type	Brushless AC synchronous servo motors
Cables and connectors	<ul style="list-style-type: none"> <li>On-motor cables (TLP-x046...TLP-x100 frame sizes)</li> <li>Military style motor connectors (TLP-A/B115...TLP-A/B235 frame sizes)</li> <li>Kinetix TLP drive/motor system cables lengths up to 50 m (164 ft)</li> <li>Build your own cable options with available connector kits</li> </ul>
Environmental rating	<ul style="list-style-type: none"> <li>IP30 on-motor cable connectors (TLP-x046...TLP-x100 frame sizes)</li> <li>IP40 motor without shaft seal</li> <li>IP65 motor with optional shaft seal and use of environmentally sealed cable connectors</li> </ul>
Certifications	Kinetix TLP rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	0.160...95.4 N•m (1.42...884 lb•in)
Peak stall torque	0.447...185 N•m (3.96...1634 lb•in)
Rated speed	Up to 3000 rpm
Motor rated output	0.05...15.0 kW (0.067...20.1 Hp)
Compatible servo drives	<ul style="list-style-type: none"> <li>Kinetix 5100</li> <li>Kinetix 5300</li> </ul>
Compatible servo cables	2090-CTxx-xxxx-xxxxx Kinetix TLP motor cables
Typical applications	<ul style="list-style-type: none"> <li>Packaging</li> <li>Converting</li> <li>Material handling</li> <li>Electronic assembly</li> <li>Automotive</li> <li>Robotics</li> <li>Medical laboratory equipment</li> </ul>

## Catalog Numbers - Kinetix TLP Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) Multi-turn revolution depends on the system settings and configuration.

(2) Not all combinations are available. Only the configurations for rated power and frame size, as listed in [Kinetix TLP Servo Motor \(200V-class\) Performance Specifications](#) on page 134 are available. Use Motion Analyzer software to size and select motors for your application.

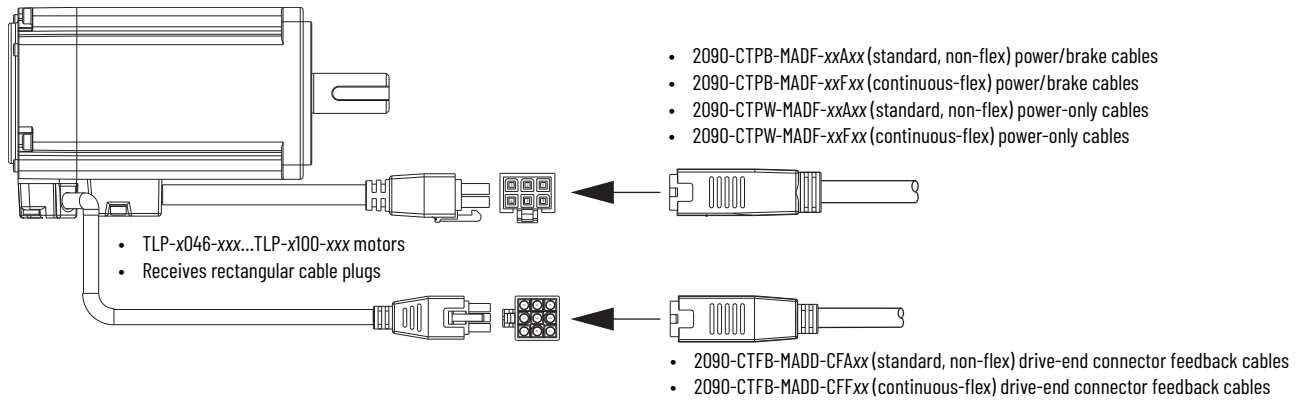
## Kinetix TLP Servo Motor High-resolution Encoders

Kinetix TLP servo motors are equipped with 24-bit high-resolution serial encoders that are capable of single-turn and multi-turn operation:

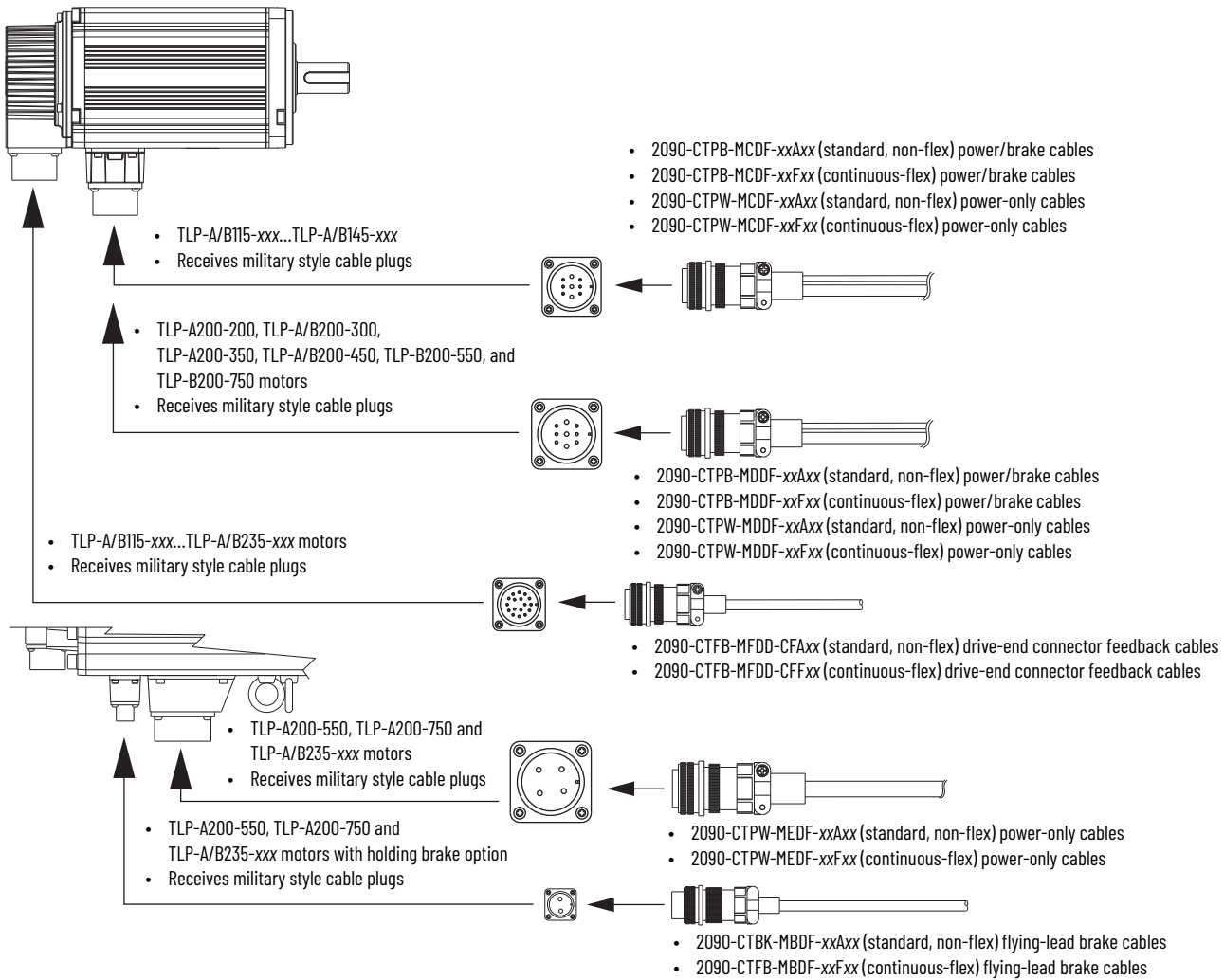
- Single-turn encoder operation (without battery backup) provides high-resolution absolute position feedback within one turn.
- Multi-turn encoder operation (battery required) provides high-resolution absolute position feedback within 65,536 turns. Actual multi-turn revolutions depend on the system settings and configuration.

## Motor Connector/Cable Compatibility

TLP-x046...TLP-x100 servo motors are equipped with rectangular connectors.



TLP-A/B115...TLP-A/B235 servo motors are equipped with military style connectors.



For cable specifications, refer to Kinetix Motion Accessories Technical Data, publication [KNX-TD004](#).

## Kinetix TLP Servo Motor Options

Kinetix TLP servo motors are available with these options:

- 24V DC holding brake
- Keyed or keyless shaft
- Shaft seal kits are available, as are replacement kits for field installation. A shaft seal provides a barrier that prevents moisture and particles from entering the motor bearings. Shaft seals are made of nitrile and kits and require lubrication to reduce wear.

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**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

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### Shaft Seal Kit Selection

Motor Cat. No.	Shaft Seal Kit Cat. No.
TLP-A046	TLP-SSN-F046
TLP-A/B070	TLP-SSN-F070
TLP-A/B090	TLP-SSN-F090
TLP-A100	TLP-SSN-F100
TLP-A/B115	TLP-SSN-F115
TLP-A/B145	TLP-SSN-F145
TLP-A/B200	TLP-SSN-F200
TLP-A/B235	TLP-SSN-F235

See Shaft Seal Kits for Kinetix TLP Servo Motors Installation Instructions, publication [2090-IN044](#), for instructions on how to install a shaft seal.

## Technical Specifications - Kinetix TLP Servo Motors

### Kinetix TLP Servo Motor (200V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
TLP-A046-005	3000	6000	0.16 (1.42)	0.447 (3.96)	0.05 (0.067)	0.00000384 (0.00003398)	0.45 (0.99)
TLP-A046-010	3000	6000	0.32 (2.83)	1.034 (9.15)	0.10 (0.134)	0.00000627 (0.00005549)	0.60 (1.32)
TLP-A070-020	3000	6000	0.64 (5.66)	2.160 (19.12)	0.20 (0.268)	0.000025 (0.0002212)	1.1 (2.43)
TLP-A070-040	3000	6000	1.27 (11.2)	4.275 (37.84)	0.40 (0.536)	0.000045 (0.0003982)	1.5 (3.31)
TLP-A090-075	3000	6000	2.39 (21.2)	7.505 (66.42)	0.75 (1.005)	0.000151 (0.001336)	3.0 (6.61)
TLP-A100-100	3000	3000	3.18 (28.2)	8.740 (77.36)	1.0 (1.34)	0.000262 (0.002319)	3.8 (8.38)
TLP-A115-100	3000	5000	3.18 (28.2)	8.455 (74.83)	1.0 (1.34)	0.000265 (0.002345)	4.3 (9.48)
TLP-A115-200	3000	5000	6.37 (56.4)	17.48 (154.7)	2.0 (2.68)	0.000445 (0.003938)	6.2 (13.7)
TLP-A145-050	2000	3000	2.39 (21.6)	6.81 (60.27)	0.50 (0.670)	0.000817 (0.00723)	6.8 (15.0)
TLP-A145-090	1000	2000	8.59 (76.0)	20.52 (181.6)	0.90 (1.206)	0.001118 (0.009894)	7.5 (16.5)
TLP-A145-100	2000	3000	4.77 (42.2)	13.30 (117.7)	1.0 (1.34)	0.000841 (0.007442)	7.0 (15.4)
TLP-A145-150	2000	3000	7.16 (63.4)	19.66 (174.0)	1.5 (2.01)	0.001118 (0.009894)	7.5 (16.5)
TLP-A145-250	3000	4500	7.96 (70.5)	24.51 (216.9)	2.5 (3.35)	0.00127 (0.01124)	7.8 (17.2)
TLP-A200-200	2000	3000	9.55 (84.5)	21.85 (193.4)	2.0 (2.68)	0.003468 (0.03069)	13.5 (29.8)
TLP-A200-300	1500	2500	19.10 (169.1)	47.03 (416.3)	3.0 (4.02)	0.005495 (0.04863)	18.5 (40.8)
TLP-A200-350	2000	3000	16.71 (147.9)	43.23 (382.6)	3.5 (4.69)	0.005495 (0.04863)	18.5 (40.8)
TLP-A200-450	1500	3000	28.65 (253.6)	64.04 (566.8)	4.5 (6.03)	0.007775 (0.06881)	23.5 (51.8)
TLP-A200-550	1500	3000	35.01 (309.9)	79.96 (707.7)	5.5 (7.37)	0.009978 (0.0883)	30.5 (67.2)
TLP-A200-750	1500	2500	47.74 (422.5)	104.30 (923.1)	7.5 (10.1)	0.01427 (0.12628)	40.5 (89.3)
TLP-A235-11K	1500	2000	70.0 (619.6)	144.30 (1277)	11.0 (14.7)	0.0338 (0.2991)	56.7 (125)
TLP-A235-15K	1500	2000	95.40 (844.4)	184.57 (1634)	15.0 (20.1)	0.0451 (0.3991)	74.0 (163)

(1) Refer to [Kinetix TLP Servo Motor Brake Specifications](#) on [page 135](#) for brake rotor inertia and brake motor weight.

### Kinetix TLP Servo Motor (400V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> kg (lb)
TLP-B070-040	3000	6000	1.27 (11.2)	4.25 (37.6)	0.40 (0.54)	0.000045 (0.0003982)	1.5 (3.3)
TLP-B090-075	3000	6000	2.39 (21.2)	8.05 (71.2)	0.75 (1.01)	0.000151 (0.001336)	3.0 (6.6)
TLP-B115-100	3000	5000	3.18 (28.1)	9.34 (82.6)	1.0 (1.34)	0.000262 (0.002318)	4.3 (9.5)
TLP-B115-200	3000	5000	6.37 (56.4)	19.10 (169.0)	2.0 (2.68)	0.000445 (0.003938)	6.2 (13.7)
TLP-B145-050	2000	3000	2.39 (21.2)	6.93 (61.3)	0.50 (0.67)	0.000817 (0.00723)	6.8 (15.0)
TLP-B145-100	2000	3000	4.77 (42.4)	13.03 (115.3)	1.0 (1.34)	0.000841 (0.007442)	7.0 (15.4)
TLP-B145-150	2000	3000	7.16 (63.4)	20.54 (181.8)	1.5 (2.01)	0.001118 (0.009894)	7.5 (16.5)
TLP-B145-200	2000	3000	9.55 (84.5)	24.40 (216.0)	2.0 (2.68)	0.001459 (0.012911)	7.8 (17.2)
TLP-B145-250	3000	4500	7.96 (70.5)	26.30 (232.8)	2.5 (3.35)	0.00127 (0.01124)	7.8 (17.2)
TLP-B200-300	1500	2500	19.1 (169.0)	47.8 (423.0)	3.0 (4.02)	0.005495 (0.04863)	18.5 (40.7)
TLP-B200-450	1500	3000	28.7 (254.0)	67.6 (598.0)	4.5 (6.03)	0.007775 (0.06881)	23.5 (51.7)
TLP-B200-550	1500	3000	35.0 (310.0)	83.8 (742.0)	5.5 (7.38)	0.009978 (0.0883)	30.5 (67.1)
TLP-B200-750	1500	2500	47.7 (422.0)	101.3 (896.0)	7.5 (10.1)	0.01427 (0.12628)	40.5 (89.1)
TLP-B235-11K	1500	2000	70.0 (620.0)	158.5 (1403)	11.0 (14.8)	0.0338 (0.2991)	56.7 (125)
TLP-B235-14K	1500	2000	89.1 (789.0)	143.6 (1271)	14.0 (18.8)	0.0451 (0.3991)	74.0 (163)

(1) Refer to [Kinetix TLP Servo Motor Brake Specifications](#) on [page 135](#) for brake rotor inertia and brake motor weight.

## Kinetix TLP Servo Motor Brake Specifications

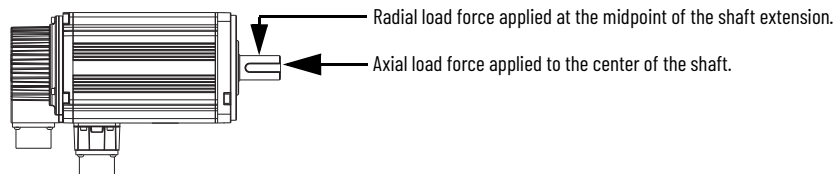
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time		Brake Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)		
				Release ms	Engage <sup>(1)</sup> ms				
TLP-A046-005	180	0.32 (2.83)	0.25	40	80	0.00000446 (0.00003947)	0.65 (1.43)		
TLP-A046-010						0.00000689 (0.00006097)	0.80 (1.76)		
TLP-A070-020	96	1.27 (11.24)	0.30			0.000028 (0.0002478)	1.5 (3.31)		
TLP-A/B070-040						0.000048 (0.0004248)	1.9 (4.19)		
TLP-A/B090-075	72	2.39 (21.15)	0.33			0.000166 (0.001469)	3.8 (8.38)		
TLP-A100-100						3.18 (28.15)	0.35	0.000267 (0.002363)	5.5 (12.1)
TLP-A/B115-100								6.37 (56.38)	0.81
TLP-A/B115-200						0.000495 (0.004381)	7.2 (15.9)		
TLP-A/B145-050	54	9.55 (84.53)	0.90			50	110	0.000894 (0.007912)	8.2 (18.1)
TLP-A145-090								0.00119 (0.01053)	8.9 (19.6)
TLP-A/B145-100				0.000914 (0.008088)	8.4 (18.5)				
TLP-A/B145-150				0.00119 (0.01053)	8.9 (19.6)				
TLP-B145-200				0.001588 (0.014053)	9.2 (20.3)				
TLP-A/B145-250				0.0014 (0.01239)	9.2 (20.3)				
TLP-A200-200				30	16.71 (147.9)			1.3	60
TLP-A/B200-300	0.005706 (0.0505)	22.5 (49.6)							
TLP-A200-350			0.005706 (0.0505)			22.5 (49.6)			
TLP-A/B200-450	47.74 (422.5)	1.3	100		150	0.008065 (0.07137)	29.0 (63.9)		
TLP-A/B200-550						0.01027 (0.09088)	36.0 (79.4)		
TLP-A/B200-750	0.014555 (0.1288)	46.0 (101)							
TLP-A/B235-11K	95.4 (844.4)	1.3	150		300	0.03465 (0.3066)	66.2 (146)		
TLP-B235-14K						0.04618 (0.4087)	83.0 (183)		
TLP-A235-15K								0.04618 (0.4087)	83.0 (183)

(1) By using diode and zener diode as arc suppression device in external control circuit.

## Kinetix TLP Servo Motor Load Force Ratings

Kinetix TLP servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables starting below represent an  $L_{10}$  bearing fatigue life of 40,000 hours. This 40,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

## Load Forces on Shaft



Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1125 kgf	1250 kgf	1500 kgf	2000 kgf	2250 kgf	2500 kgf	3000 kgf	3375 kgf	3750 kgf	4500 kgf	5000 kgf	6000 kgf
TLP-A046-005-Dxxx2x	6000	-	-	-	-	-	8.8	-	-	-	7.0	-	-	6.1	-	5.6
TLP-A046-010-Dxxx2x	6000	-	-	-	-	-	9.7	-	-	-	7.7	-	-	6.8	-	6.1
TLP-A070-020-Dxxx2x	6000	-	-	-	-	-	22.4	-	-	-	17.8	-	-	15.5	-	14.1
TLP-A070-040-Dxxx2x	6000	-	-	-	-	-	25	-	-	-	19.9	-	-	17.4	-	15.8
TLP-A090-075-Dxxx2x	6000	-	-	-	-	-	35.6	-	-	-	28.2	-	-	24.7	-	22.4
TLP-A100-100-Dxxx2x	3000	-	61.8	-	-	-	49.0	-	42.8	-	38.9	-	-	-	-	-
TLP-A115-100-Dxxx2x	5000	-	-	-	-	52.9	-	-	-	42	-	-	36.7	-	33.3	-
TLP-A115-200-Dxxx2x	5000	-	-	-	-	58.1	-	-	-	46.1	-	-	10.3	-	36.6	-
TLP-A145-050-Dxxx2x	3000	-	106.8	-	-	-	84.7	-	74	-	67.3	-	-	-	-	-
TLP-A145-090-Dxxx2x	2000	130.1	-	103.3	-	-	90.2	82	-	-	-	-	-	-	-	-
TLP-A145-100-Dxxx2x	3000	-	106.8	-	-	-	84.7	-	74	-	67.3	-	-	-	-	-
TLP-A145-150-Dxxx2x	3000	-	113.6	-	-	-	90.2	-	78.8	-	71.6	-	-	-	-	-
TLP-A145-250-Dxxx2x	4500	-	-	-	105.1	-	-	-	83.4	-	-	72.8	-	66.2	-	-
TLP-A200-200-Dxxx2x	3000	-	125.9	-	-	-	99.9	-	87.3	-	79.3	-	-	-	-	-
TLP-A200-300-Dxxx2x	2500	-	140	-	-	-	111.1	-	97.1	-	88.2	-	-	-	-	-
TLP-A200-350-Dxxx2x	3000	-	140	-	-	-	111.1	-	97.1	-	88.2	-	-	-	-	-
TLP-A200-450-Dxxx2x	3000	-	149.7	-	-	-	118.8	-	103.8	-	94.3	-	-	-	-	-
TLP-A200-550-Dxxx2x	3000	-	149.2	-	-	-	118.4	-	103.4	-	94	-	-	-	-	-
TLP-A200-750-Dxxx2x	2500	-	159.3	-	-	-	126.4	-	110.4	-	100.3	-	-	-	-	-
TLP-A235-11K-Dxxx2x	2000	435	-	345.3	-	-	301.6	274	-	-	-	-	-	-	-	-
TLP-A235-15K-Dxxx2x	2000	463.1	-	367.6	-	-	321.1	291.7	-	-	-	-	-	-	-	-
TLP-B070-040-Dxxx2x	6000	-	-	-	-	-	25	-	-	-	19.9	-	-	17.4	-	15.8
TLP-B090-075-Dxxx2x	6000	-	-	-	-	-	35.6	-	-	-	28.2	-	-	24.7	-	22.4
TLP-B115-100-Dxxx2x	5000	-	-	-	-	52.9	-	-	-	42	-	-	36.7	-	33.3	-
TLP-B115-200-Dxxx2x	5000	-	-	-	-	58.1	-	-	-	46.1	-	-	10.3	-	36.6	-
TLP-B145-050-Dxxx2x	3000	-	106.8	-	-	-	84.7	-	74	-	67.3	-	-	-	-	-
TLP-B145-100-Dxxx2x	3000	-	106.8	-	-	-	84.7	-	74	-	67.3	-	-	-	-	-
TLP-B145-150-Dxxx2x	3000	-	113.6	-	-	-	90.2	-	78.8	-	71.6	-	-	-	-	-
TLP-B145-200-Dxxx2x	3000	-	120.3	-	-	-	95.5	-	83.4	-	75.8	-	-	-	-	-
TLP-B145-250-Dxxx2x	4500	-	-	-	105.1	-	-	-	83.4	-	-	72.8	-	66.2	-	-
TLP-B200-300-Dxxx2x	2500	-	140	-	-	-	111.1	-	97.1	-	88.2	-	-	-	-	-
TLP-B200-450-Dxxx2x	3000	-	149.7	-	-	-	118.8	-	103.8	-	94.3	-	-	-	-	-
TLP-B200-550-Dxxx2x	3000	-	149.2	-	-	-	118.4	-	103.4	-	94	-	-	-	-	-
TLP-B200-750-Dxxx2x	2500	-	159.3	-	-	-	126.4	-	110.4	-	100.3	-	-	-	-	-
TLP-B235-11K-Dxxx2x	2000	435	-	345.3	-	-	301.6	274	-	-	-	-	-	-	-	-
TLP-B235-14K-Dxxx2x	2000	463.1	-	367.6	-	-	321.1	291.7	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N.



## Axial Load Force Ratings (maximum radial load) for Non-brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1125 kgf	1250 kgf	1500 kgf	2000 kgf	2250 kgf	2500 kgf	3000 kgf	3375 kgf	3750 kgf	4500 kgf	5000 kgf	6000 kgf
TLP-A046-005-Dxxx2x	6000	-	-	-	-	-	5.6	-	-	-	4.1	-	-	3.4	-	3.0
TLP-A046-010-Dxxx2x	6000	-	-	-	-	-	6	-	-	-	4.4	-	-	3.7	-	3.3
TLP-A070-020-Dxxx2x	6000	-	-	-	-	-	10.1	-	-	-	7.4	-	-	6.2	-	5.5
TLP-A070-040-Dxxx2x	6000	-	-	-	-	-	11.3	-	-	-	8.3	-	-	7.0	-	6.2
TLP-A090-075-Dxxx2x	6000	-	-	-	-	-	13.6	-	-	-	10.1	-	-	8.5	-	7.5
TLP-A100-100-Dxxx2x	3000	-	18.4	-	-	-	13.6	-	11.4	-	10.1	-	-	-	-	-
TLP-A115-100-Dxxx2x	5000	-	-	-	-	18.1	-	-	-	13.4	-	-	11.2	-	9.9	-
TLP-A115-200-Dxxx2x	5000	-	-	-	-	20.5	-	-	-	15.1	-	-	12.7	-	11.2	-
TLP-A145-050-Dxxx2x	3000	-	28.1	-	-	-	20.8	-	17.5	-	15.4	-	-	-	-	-
TLP-A145-090-Dxxx2x	2000	37.2	-	27.5	-	-	23.1	20.4	-	-	-	-	-	-	-	-
TLP-A145-100-Dxxx2x	3000	-	28.1	-	-	-	20.8	-	17.5	-	15.4	-	-	-	-	-
TLP-A145-150-Dxxx2x	3000	-	31.2	-	-	-	23.1	-	19.4	-	17.1	-	-	-	-	-
TLP-A145-250-Dxxx2x	4500	-	-	-	28.7	-	-	-	21.1	-	-	17.8	-	15.7	-	-
TLP-A200-200-Dxxx2x	3000	-	54.3	-	-	-	40.2	-	33.7	-	29.7	-	-	-	-	-
TLP-A200-300-Dxxx2x	2500	-	60.8	-	-	-	45.0	-	37.7	-	33.3	-	-	-	-	-
TLP-A200-350-Dxxx2x	3000	-	60.8	-	-	-	45.0	-	37.7	-	33.3	-	-	-	-	-
TLP-A200-450-Dxxx2x	3000	-	65.3	-	-	-	48.3	-	40.5	-	35.8	-	-	-	-	-
TLP-A200-550-Dxxx2x	3000	-	65.0	-	-	-	48.1	-	40.3	-	35.6	-	-	-	-	-
TLP-A200-750-Dxxx2x	2500	-	69.8	-	-	-	51.7	-	43.3	-	38.2	-	-	-	-	-
TLP-A235-11K-Dxxx2x	2000	65.0	-	48.1	-	-	40.3	35.6	-	-	-	-	-	-	-	-
TLP-A235-15K-Dxxx2x	2000	77.7	-	57.5	-	-	48.2	42.6	-	-	-	-	-	-	-	-
TLP-B070-040-Dxxx2x	6000	-	-	-	-	-	11.3	-	-	-	8.3	-	-	7	-	6.2
TLP-B090-075-Dxxx2x	6000	-	-	-	-	-	13.6	-	-	-	10.1	-	-	8.5	-	7.5
TLP-B115-100-Dxxx2x	5000	-	-	-	-	18.1	-	-	-	13.4	-	-	11.2	-	9.9	-
TLP-B115-200-Dxxx2x	5000	-	-	-	-	20.5	-	-	-	15.1	-	-	12.7	-	11.2	-
TLP-B145-050-Dxxx2x	3000	-	28.1	-	-	-	20.8	-	17.5	-	15.4	-	-	-	-	-
TLP-B145-100-Dxxx2x	3000	-	28.1	-	-	-	20.8	-	17.5	-	15.4	-	-	-	-	-
TLP-B145-150-Dxxx2x	3000	-	31.2	-	-	-	23.1	-	19.4	-	17.1	-	-	-	-	-
TLP-B145-200-Dxxx2x	3000	-	34.2	-	-	-	25.3	-	21.2	-	18.7	-	-	-	-	-
TLP-B145-250-Dxxx2x	4500	-	-	-	28.7	-	-	-	21.1	-	-	17.8	-	15.7	-	-
TLP-B200-300-Dxxx2x	2500	-	60.8	-	-	-	45	-	37.7	-	33.3	-	-	-	-	-
TLP-B200-450-Dxxx2x	3000	-	65.3	-	-	-	48.3	-	40.5	-	35.8	-	-	-	-	-
TLP-B200-550-Dxxx2x	3000	-	65	-	-	-	48.1	-	40.3	-	35.6	-	-	-	-	-
TLP-B200-750-Dxxx2x	2500	-	69.8	-	-	-	51.7	-	43.3	-	38.2	-	-	-	-	-
TLP-B235-11K-Dxxx2x	2000	65	-	48.1	-	-	40.3	35.6	-	-	-	-	-	-	-	-
TLP-B235-14K-Dxxx2x	2000	77.7	-	57.5	-	-	48.2	42.6	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N.

**Axial Load Force Ratings (zero radial load) for Non-brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1125 kgf	1250 kgf	1500 kgf	2000 kgf	2250 kgf	2500 kgf	3000 kgf	3375 kgf	3750 kgf	4500 kgf	5000 kgf	6000 kgf
TLP-A046-005-Dxxx2x	6000	-	-	-	-	-	7.8	-	-	-	5.7	-	-	4.8	-	4.2
TLP-A046-010-Dxxx2x	6000	-	-	-	-	-	7.8	-	-	-	5.7	-	-	4.8	-	4.2
TLP-A070-020-Dxxx2x	6000	-	-	-	-	-	15.4	-	-	-	11.4	-	-	9.5	-	8.4
TLP-A070-040-Dxxx2x	6000	-	-	-	-	-	15.4	-	-	-	11.4	-	-	9.5	-	8.4
TLP-A090-075-Dxxx2x	6000	-	-	-	-	-	20.4	-	-	-	15.1	-	-	12.6	-	11.1
TLP-A100-100-Dxxx2x	3000	-	27.5	-	-	-	20.4	-	17.1	-	15.1	-	-	-	-	-
TLP-A115-100-Dxxx2x	5000	-	-	-	-	27.9	-	-	-	20.6	-	-	17.3	-	15.3	-
TLP-A115-200-Dxxx2x	5000	-	-	-	-	27.9	-	-	-	20.6	-	-	17.3	-	15.3	-
TLP-A145-050-Dxxx2x	3000	-	56.4	-	-	-	41.7	-	35.0	-	30.9	-	-	-	-	-
TLP-A145-090-Dxxx2x	2000	67.2	-	49.7	-	-	41.7	36.8	-	-	-	-	-	-	-	-
TLP-A145-100-Dxxx2x	3000	-	56.4	-	-	-	41.7	-	35.0	-	30.9	-	-	-	-	-
TLP-A145-150-Dxxx2x	3000	-	56.4	-	-	-	41.7	-	35.0	-	30.9	-	-	-	-	-
TLP-A145-250-Dxxx2x	4500	-	-	-	47.3	-	-	-	35.0	-	-	29.3	-	25.9	-	-
TLP-A200-200-Dxxx2x	3000	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A200-300-Dxxx2x	2500	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A200-350-Dxxx2x	3000	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A200-450-Dxxx2x	3000	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A200-550-Dxxx2x	3000	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A200-750-Dxxx2x	2500	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A235-11K-Dxxx2x	2000	136.5	-	101.0	-	-	84.7	74.8	-	-	-	-	-	-	-	-
TLP-A235-15K-Dxxx2x	2000	136.5	-	101.0	-	-	84.7	74.8	-	-	-	-	-	-	-	-
TLP-B070-040-Dxxx2x	6000	-	-	-	-	-	15.4	-	-	-	11.4	-	-	9.5	-	8.4
TLP-B090-075-Dxxx2x	6000	-	-	-	-	-	20.4	-	-	-	15.1	-	-	12.6	-	11.1
TLP-B115-100-Dxxx2x	5000	-	-	-	-	27.9	-	-	-	20.6	-	-	17.3	-	15.3	-
TLP-B115-200-Dxxx2x	5000	-	-	-	-	27.9	-	-	-	20.6	-	-	17.3	-	15.3	-
TLP-B145-050-Dxxx2x	3000	-	56.4	-	-	-	41.7	35	-	30.9	-	-	-	-	-	-
TLP-B145-100-Dxxx2x	3000	-	56.4	-	-	-	41.7	35	-	30.9	-	-	-	-	-	-
TLP-B145-150-Dxxx2x	3000	-	56.4	-	-	-	41.7	35	-	30.9	-	-	-	-	-	-
TLP-B145-200-Dxxx2x	3000	-	56.4	-	-	-	41.7	35	-	30.9	-	-	-	-	-	-
TLP-B145-250-Dxxx2x	4500	-	-	-	47.3	-	-	-	35	-	-	29.3	-	25.9	-	-
TLP-B200-300-Dxxx2x	2500	-	91.9	-	-	-	68	-	57	-	50.3	-	-	-	-	-
TLP-B200-450-Dxxx2x	3000	-	91.9	-	-	-	68	-	57	-	50.3	-	-	-	-	-
TLP-B200-550-Dxxx2x	3000	-	91.9	-	-	-	68	-	57	-	50.3	-	-	-	-	-
TLP-B200-750-Dxxx2x	2500	-	91.9	-	-	-	68	-	57	-	50.3	-	-	-	-	-
TLP-B235-11K-Dxxx2x	2000	136.5	-	101	-	-	84.7	74.8	-	-	-	-	-	-	-	-
TLP-B235-14K-Dxxx2x	2000	136.5	-	101	-	-	84.7	74.8	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N.

## Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1125 kgf	1250 kgf	1500 kgf	2000 kgf	2250 kgf	2500 kgf	3000 kgf	3375 kgf	3750 kgf	4500 kgf	5000 kgf	6000 kgf
TLP-A046-005-Dxxx4x	6000	-	-	-	-	-	10.5	-	-	-	8.4	-	-	7.3	-	6.6
TLP-A046-010-Dxxx4x	6000	-	-	-	-	-	10.9	-	-	-	8.7	-	-	7.6	-	6.9
TLP-A070-020-Dxxx4x	6000	-	-	-	-	-	26	-	-	-	20.6	-	-	18	-	16.4
TLP-A070-040-Dxxx4x	6000	-	-	-	-	-	27.3	-	-	-	21.7	-	-	18.9	-	17.2
TLP-A090-075-Dxxx4x	6000	-	-	-	-	-	39.3	-	-	-	31.2	-	-	27.2	-	24.7
TLP-A100-100-Dxxx4x	3000	-	65.3	-	-	-	51.8	-	45.3	-	41.1	-	-	-	-	-
TLP-A115-100-Dxxx4x	5000	-	-	-	-	57.9	-	-	-	45.9	-	-	40.1	-	36.4	-
TLP-A115-200-Dxxx4x	5000	-	-	-	-	60.3	-	-	-	47.8	-	-	41.8	-	38	-
TLP-A145-050-Dxxx4x	3000	-	120.3	-	-	-	95.5	-	83.4	-	75.8	-	-	-	-	-
TLP-A145-090-Dxxx4x	2000	142.1	-	112.8	-	-	98.5	89.5	-	-	-	-	-	-	-	-
TLP-A145-100-Dxxx4x	3000	-	120.3	-	-	-	95.5	-	83.4	-	75.8	-	-	-	-	-
TLP-A145-150-Dxxx4x	3000	-	124.1	-	-	-	98.5	-	86	-	78.2	-	-	-	-	-
TLP-A145-250-Dxxx4x	4500	-	-	-	111.2	-	-	-	88.2	-	-	77.1	-	70	-	-
TLP-A200-200-Dxxx4x	3000	-	140.4	-	-	-	111.4	-	97.3	-	88.4	-	-	-	-	-
TLP-A200-300-Dxxx4x	2500	-	149.7	-	-	-	118.8	-	103.8	-	94.3	-	-	-	-	-
TLP-A200-350-Dxxx4x	3000	-	149.7	-	-	-	118.8	-	103.8	-	94.3	-	-	-	-	-
TLP-A200-450-Dxxx4x	3000	-	158.8	-	-	-	126.1	-	110.1	-	100.1	-	-	-	-	-
TLP-A200-550-Dxxx4x	3000	-	154.8	-	-	-	122.9	-	107.3	-	97.5	-	-	-	-	-
TLP-A200-750-Dxxx4x	2500	-	163.3	-	-	-	129.6	-	113.2	-	102.9	-	-	-	-	-
TLP-A235-11K-Dxxx4x	2000	458.3	-	363.8	-	-	317.8	288.7	-	-	-	-	-	-	-	-
TLP-A235-15K-Dxxx4x	2000	478.8	-	380	-	-	332	301.6	-	-	-	-	-	-	-	-
TLP-B070-040-Dxxx4x	6000	-	-	-	-	-	27.3	-	-	-	21.7	-	-	18.9	-	17.2
TLP-B090-075-Dxxx4x	6000	-	-	-	-	-	39.3	-	-	-	31.2	-	-	27.2	-	24.7
TLP-B115-100-Dxxx4x	5000	-	-	-	-	57.9	-	-	-	45.9	-	-	40.1	-	36.4	-
TLP-B115-200-Dxxx4x	5000	-	-	-	-	60.3	-	-	-	47.8	-	-	41.8	-	38	-
TLP-B145-050-Dxxx4x	3000	-	120.3	-	-	-	95.5	-	83.4	-	75.8	-	-	-	-	-
TLP-B145-100-Dxxx4x	3000	-	120.3	-	-	-	95.5	-	83.4	-	75.8	-	-	-	-	-
TLP-B145-150-Dxxx4x	3000	-	124.1	-	-	-	98.5	-	86	-	78.2	-	-	-	-	-
TLP-B145-200-Dxxx4x	3000	-	127.2	-	-	-	101	-	88.2	-	80.2	-	-	-	-	-
TLP-B145-250-Dxxx4x	4500	-	-	-	111.2	-	-	-	88.2	-	-	77.1	-	70	-	-
TLP-B200-300-Dxxx4x	2500	-	149.7	-	-	-	118.8	-	103.8	-	94.3	-	-	-	-	-
TLP-B200-450-Dxxx4x	3000	-	158.8	-	-	-	126.1	-	110.1	-	100.1	-	-	-	-	-
TLP-B200-550-Dxxx4x	3000	-	154.8	-	-	-	122.9	-	107.3	-	97.5	-	-	-	-	-
TLP-B200-750-Dxxx4x	2500	-	163.3	-	-	-	129.6	-	113.2	-	102.9	-	-	-	-	-
TLP-B235-11K-Dxxx4x	2000	458.3	-	363.8	-	-	317.8	288.7	-	-	-	-	-	-	-	-
TLP-B235-14K-Dxxx4x	2000	478.8	-	380	-	-	332	301.6	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N.

**Axial Load Force Ratings (maximum radial load) for Brake Motors**

Motor Cat. No. (1)	Maximum Speed rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1125 kgf	1250 kgf	1500 kgf	2000 kgf	2250 kgf	2500 kgf	3000 kgf	3375 kgf	3750 kgf	4500 kgf	5000 kgf	6000 kgf
TLP-A046-005-Dxxx4x	6000	-	-	-	-	-	6.7	-	-	-	5	-	-	4.2	-	3.7
TLP-A046-010-Dxxx4x	6000	-	-	-	-	-	6.9	-	-	-	5.1	-	-	4.3	-	3.8
TLP-A070-020-Dxxx4x	6000	-	-	-	-	-	11.7	-	-	-	8.7	-	-	7.3	-	6.4
TLP-A070-040-Dxxx4x	6000	-	-	-	-	-	12.3	-	-	-	9.1	-	-	7.6	-	6.7
TLP-A090-075-Dxxx4x	6000	-	-	-	-	-	15.3	-	-	-	11.3	-	-	9.5	-	8.4
TLP-A100-100-Dxxx4x	3000	-	20.1	-	-	-	14.9	-	12.5	-	11	-	-	-	-	-
TLP-A115-100-Dxxx4x	5000	-	-	-	-	20.3	-	-	-	15	-	-	12.6	-	11.1	-
TLP-A115-200-Dxxx4x	5000	-	-	-	-	21.5	-	-	-	15.9	-	-	13.3	-	11.8	-
TLP-A145-050-Dxxx4x	3000	-	34.2	-	-	-	25.3	-	21.2	-	18.7	-	-	-	-	-
TLP-A145-090-Dxxx4x	2000	42.9	-	31.8	-	-	26.6	23.5	-	-	-	-	-	-	-	-
TLP-A145-100-Dxxx4x	3000	-	34.2	-	-	-	25.3	-	21.2	-	18.7	-	-	-	-	-
TLP-A145-150-Dxxx4x	3000	-	36	-	-	-	26.6	-	22.3	-	19.7	-	-	-	-	-
TLP-A145-250-Dxxx4x	4500	-	-	-	31.4	-	-	-	23.2	-	-	19.5	-	17.2	-	-
TLP-A200-200-Dxxx4x	3000	-	60.9	-	-	-	45.1	-	37.8	-	33.4	-	-	-	-	-
TLP-A200-300-Dxxx4x	2500	-	65.3	-	-	-	48.3	-	40.5	-	35.8	-	-	-	-	-
TLP-A200-350-Dxxx4x	3000	-	65.3	-	-	-	48.3	-	40.5	-	35.8	-	-	-	-	-
TLP-A200-450-Dxxx4x	3000	-	69.6	-	-	-	51.5	-	43.2	-	38.1	-	-	-	-	-
TLP-A200-550-Dxxx4x	3000	-	67.7	-	-	-	50.1	-	42	-	37.1	-	-	-	-	-
TLP-A200-750-Dxxx4x	2500	-	71.7	-	-	-	53.1	-	44.5	-	39.3	-	-	-	-	-
TLP-A235-11K-Dxxx4x	2000	75.5	-	55.9	-	-	46.8	41.3	-	-	-	-	-	-	-	-
TLP-A235-15K-Dxxx4x	2000	85	-	62.9	-	-	52.8	46.6	-	-	-	-	-	-	-	-
TLP-B070-040-Dxxx4x	6000	-	-	-	-	-	12.3	-	-	-	9.1	-	-	7.6	-	6.7
TLP-B090-075-Dxxx4x	6000	-	-	-	-	-	15.3	-	-	-	11.3	-	-	9.5	-	8.4
TLP-B115-100-Dxxx4x	5000	-	-	-	-	20.3	-	-	-	15	-	-	12.6	-	11.1	-
TLP-B115-200-Dxxx4x	5000	-	-	-	-	21.5	-	-	-	15.9	-	-	13.3	-	11.8	-
TLP-B145-050-Dxxx4x	3000	-	34.2	-	-	-	25.3	-	21.2	-	18.7	-	-	-	-	-
TLP-B145-100-Dxxx4x	3000	-	34.2	-	-	-	25.3	-	21.2	-	18.7	-	-	-	-	-
TLP-B145-150-Dxxx4x	3000	-	36	-	-	-	26.6	-	22.3	-	19.7	-	-	-	-	-
TLP-B145-200-Dxxx4x	3000	-	37.4	-	-	-	27.7	-	23.2	-	20.5	-	-	-	-	-
TLP-B145-250-Dxxx4x	4500	-	-	-	31.4	-	-	-	23.2	-	-	19.5	-	17.2	-	-
TLP-B200-300-Dxxx4x	2500	-	65.3	-	-	-	48.3	-	40.5	-	35.8	-	-	-	-	-
TLP-B200-450-Dxxx4x	3000	-	69.6	-	-	-	51.5	-	43.2	-	38.1	-	-	-	-	-
TLP-B200-550-Dxxx4x	3000	-	67.7	-	-	-	50.1	-	42	-	37.1	-	-	-	-	-
TLP-B200-750-Dxxx4x	2500	-	71.7	-	-	-	53.1	-	44.5	-	39.3	-	-	-	-	-
TLP-B235-11K-Dxxx4x	2000	75.5	-	55.9	-	-	46.8	41.3	-	-	-	-	-	-	-	-
TLP-B235-14K-Dxxx4x	2000	85	-	62.9	-	-	52.8	46.6	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N.

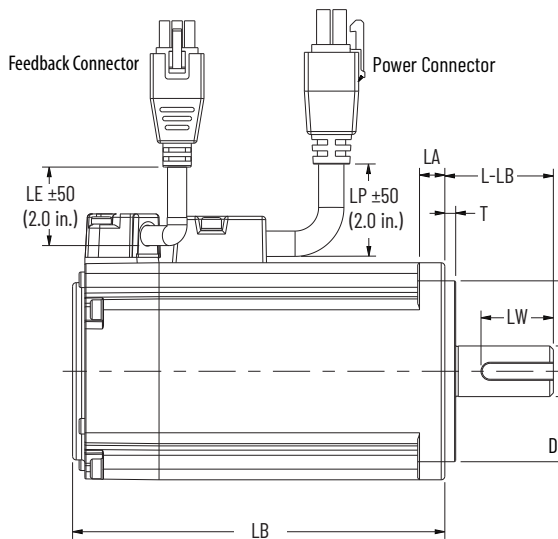
## Axial Load Force Ratings (zero radial load) for Brake Motors

Motor Cat. No. (1)	Maximum Speed rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1125 kgf	1250 kgf	1500 kgf	2000 kgf	2250 kgf	2500 kgf	3000 kgf	3375 kgf	3750 kgf	4500 kgf	5000 kgf	6000 kgf
TLP-A046-005-Dxxx4x	6000	-	-	-	-	-	8.1	-	-	-	6	-	-	5.0	-	4.4
TLP-A046-010-Dxxx4x	6000	-	-	-	-	-	8.1	-	-	-	6	-	-	5.0	-	4.4
TLP-A070-020-Dxxx4x	6000	-	-	-	-	-	15.4	-	-	-	11.4	-	-	9.5	-	8.4
TLP-A070-040-Dxxx4x	6000	-	-	-	-	-	15.4	-	-	-	11.4	-	-	9.5	-	8.4
TLP-A090-075-Dxxx4x	6000	-	-	-	-	-	20.4	-	-	-	15.1	-	-	12.6	-	11.1
TLP-A100-100-Dxxx4x	3000	-	27.5	-	-	-	20.4	-	17.1	-	15.1	-	-	-	-	-
TLP-A115-100-Dxxx4x	5000	-	-	-	-	27.9	-	-	-	20.6	-	-	17.3	-	15.3	-
TLP-A115-200-Dxxx4x	5000	-	-	-	-	27.9	-	-	-	20.6	-	-	17.3	-	15.3	-
TLP-A145-050-Dxxx4x	3000	-	56.4	-	-	-	41.7	-	35.0	-	30.9	-	-	-	-	-
TLP-A145-090-Dxxx4x	2000	67.2	-	49.7	-	-	41.7	36.8	-	-	-	-	-	-	-	-
TLP-A145-100-Dxxx4x	3000	-	56.4	-	-	-	41.7	-	35.0	-	30.9	-	-	-	-	-
TLP-A145-150-Dxxx4x	3000	-	56.4	-	-	-	41.7	-	35.0	-	30.9	-	-	-	-	-
TLP-A145-250-Dxxx4x	4500	-	-	-	47.3	-	-	-	35.0	-	-	29.3	-	25.9	-	-
TLP-A200-200-Dxxx4x	3000	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A200-300-Dxxx4x	2500	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A200-350-Dxxx4x	3000	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A200-450-Dxxx4x	3000	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A200-550-Dxxx4x	3000	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A200-750-Dxxx4x	2500	-	91.9	-	-	-	68.0	-	57.0	-	50.3	-	-	-	-	-
TLP-A235-11K-Dxxx4x	2000	136.5	-	101.0	-	-	84.7	74.8	-	-	-	-	-	-	-	-
TLP-A235-15K-Dxxx4x	2000	136.5	-	101.0	-	-	84.7	74.8	-	-	-	-	-	-	-	-
TLP-B070-040-Dxxx4x	6000	-	-	-	-	-	15.4	-	-	-	11.4	-	-	9.5	-	8.4
TLP-B090-075-Dxxx4x	6000	-	-	-	-	-	20.4	-	-	-	15.1	-	-	12.6	-	11.1
TLP-B115-100-Dxxx4x	5000	-	-	-	-	27.9	-	-	-	20.6	-	-	17.3	-	15.3	-
TLP-B115-200-Dxxx4x	5000	-	-	-	-	27.9	-	-	-	20.6	-	-	17.3	-	15.3	-
TLP-B145-050-Dxxx4x	3000	-	56.4	-	-	-	41.7	-	35	-	30.9	-	-	-	-	-
TLP-B145-100-Dxxx4x	3000	-	56.4	-	-	-	41.7	-	35	-	30.9	-	-	-	-	-
TLP-B145-150-Dxxx4x	3000	-	56.4	-	-	-	41.7	-	35	-	30.9	-	-	-	-	-
TLP-B145-200-Dxxx4x	3000	-	56.4	-	-	-	41.7	-	35	-	30.9	-	-	-	-	-
TLP-B145-250-Dxxx4x	4500	-	-	-	47.3	-	-	-	35	-	-	29.3	-	25.9	-	-
TLP-B200-300-Dxxx4x	2500	-	91.9	-	-	-	68	-	57	-	50.3	-	-	-	-	-
TLP-B200-450-Dxxx4x	3000	-	91.9	-	-	-	68	-	57	-	50.3	-	-	-	-	-
TLP-B200-550-Dxxx4x	3000	-	91.9	-	-	-	68	-	57	-	50.3	-	-	-	-	-
TLP-B200-750-Dxxx4x	2500	-	91.9	-	-	-	68	-	57	-	50.3	-	-	-	-	-
TLP-B235-11K-Dxxx4x	2000	136.5	-	101	-	-	84.7	74.8	-	-	-	-	-	-	-	-
TLP-B235-14K-Dxxx4x	2000	136.5	-	101	-	-	84.7	74.8	-	-	-	-	-	-	-	-

(1) 1.0 kgf = 2.2 lbf or 9.8 N.

# Dimensions - Kinetix TLP Servo Motors

## Motor Dimensions (frame sizes 046, 070, 090, and 100 mm)



Dimensions are in mm (in.)

### Pilot Diameter Tolerances

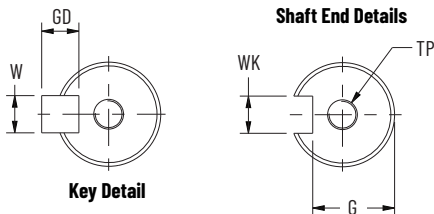
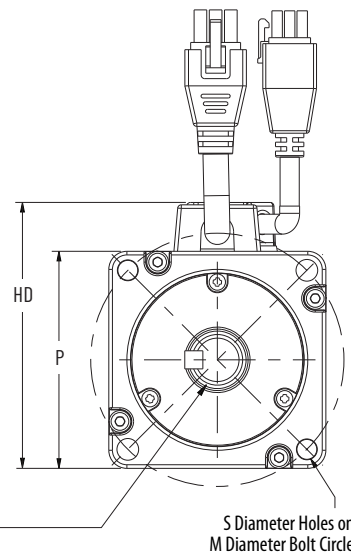
- TLP-A046xx Motors:  
Ø 29.979...30.000 (1.180...1.181)
- TLP-A/B070xx Motors:  
Ø 49.975...50.000 (1.967...1.968)
- TLP-A/B090xx Motors:  
Ø 69.970...70.000 (2.754...2.755)
- TLP-A100xx Motors:  
Ø 79.970...80.000 (3.148...3.149)

### Shaft Diameter Tolerances

- TLP-A046xx Motors:  
Ø 7.991...8.000 (0.3146...0.3149)
- TLP-A/B070xx Motors:  
Ø 13.989...14.000 (0.5507...0.5512)
- TLP-A/B090xx Motors:  
Ø 18.987...19.000 (0.7475...0.7480)
- TLP-A100xx Motors:  
Ø 15.989...16.000 (0.6295...0.6299)

### Optional Shaft Seal

Refer to [page 133](#) for motor shaft seal kit information.



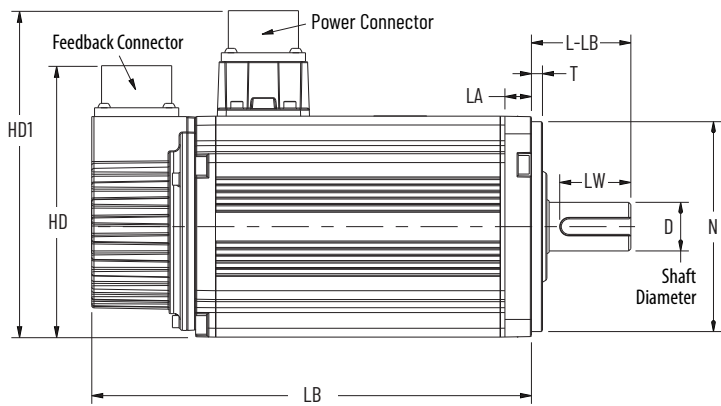
Shaft and Pilot Tolerances	TLP-A046xx	TLP-A/B070xx	TLP-A/B090xx	TLP-A100xx
Shaft Runout (T.I.R.)	0.02 (0.0008)	0.02 (0.0008)	0.02 (0.0008)	0.02 (0.0008)
Pilot Eccentricity (T.I.R.)	0.04 (0.0016)	0.30 (0.0118)	0.04 (0.0016)	0.04 (0.0016)
Max Face Runout (T.I.R.)	0.04 (0.0016)	0.04 (0.0016)	0.04 (0.0016)	0.04 (0.0016)
Shaft-end Threaded Hole (TP)	M3x0.5-6H, ↯ 6	M4x0.7-6H, ↯ 8	M6x1.0-6H, ↯ 10	M5x0.8-6H, ↯ 15
On-motor Cable Length (LE/LP)	A1 Connector = 1.0 m (39.4 in.), A3 Connector = 300 mm (11.8 in.)			

Motor Cat. No.	HD mm (in.)	T mm (in.)	LA mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	LW mm (in.)	D mm (in.)	M mm (in.)	S mm (in.)	N <sup>(3)</sup> mm (in.)	P mm (in.)	G mm (in.)	GD mm (in.)	W mm (in.)	WK mm (in.)
TLP-A046-005	53.8 (2.12)	2.5 <sup>(4)</sup> (0.10)	5.0 (0.20)	71.9 (2.83)	25.0 (0.98)	16.0 (0.630)	8.0 (0.3149)	46.0 (1.811)	4.50 <sup>(4)</sup> (0.177)	30.0 (1.181)	40.0 (1.57)	6.20 (0.244)	3.0 (0.118)	3.0 <sup>(5)</sup> (0.118)	3.0 <sup>(6)</sup> (0.118)
TLP-A046-010				86.0 (3.39)											
TLP-A070-020	74.1 (2.92)	3.0 <sup>(4)</sup> (0.12)	7.5 (0.30)	84.7 (3.33)	30.0 (1.18)	20.0 (0.787)	14.0 (0.5512)	70.0 (2.756)	5.50 <sup>(7)</sup> (0.216)	50.0 (1.968)	60.0 (2.36)	11.0 (0.433)	5.0 (0.197)	5.0 <sup>(8)</sup> (0.197)	5.0 <sup>(8)</sup> (0.197)
TLP-A/B070-040				106.7 (4.20)											
TLP-A/B090-075	94.1 (3.70)	3.0 <sup>(9)</sup> (0.12)	8.0 (0.31)	116.5 (4.59)	40.0 (1.57)	25.0 (0.984)	19.0 (0.7480)	90.0 (3.543)	6.60 <sup>(7)</sup> (0.260)	70.0 (2.755)	80.0 (3.15)	15.5 (0.610)	6.0 (0.236)	6.0 <sup>(8)</sup> (0.236)	6.0 <sup>(8)</sup> (0.236)
TLP-A100-100	98.8 (3.89)	3.0 <sup>(4)</sup> (0.12)		153.9 (6.06)	35.0 (1.38)	20.0 (0.787)	16.0 (0.6299)	100 (3.937)	6.60 <sup>(4)</sup> (0.260)	80.0 (3.149)	86.0 (3.38)	13.0 (0.630)	5.0 (0.197)	5.0 <sup>(8)</sup> (0.197)	5.0 <sup>(8)</sup> (0.197)

- (1) For TLP-A046-005 motors with brake, add 34.2 mm (1.35 in.). For TLP-A046-010 motors with brake, add 34.8 mm (1.37 in.). For TLP-A070-020 motors with brake, add 33.6 mm (1.32 in.). For TLP-A/B070-040 motors with brake, add 33.7 mm (1.33 in.). For TLP-A/B090-075 motors with brake, add 37.4 mm (1.47 in.). For TLP-A100-100 motors with brake, add 31.1 mm (1.22 in.).
- (2) Tolerance for this dimension is ±0.50 mm (±0.020 in.).
- (3) See dimensions diagram for tolerances.
- (4) Tolerance for this dimension is ±0.10 mm (±0.0039 in.).
- (5) Tolerance for this dimension is -0.004, -0.029 mm (0.000157, -0.001141 in.).
- (6) Tolerance for this dimension is +0, -0.025 mm (+0, -0.000984 in.).
- (7) Tolerance for this dimension is ±0.20 mm (±0.0079 in.).
- (8) Tolerance for this dimension is +0, -0.030 mm (+0, -0.001181 in.).
- (9) Tolerance for this dimension is ±0.25 mm (±0.0098 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

Motor Dimensions (frame sizes 115 and 145 mm)



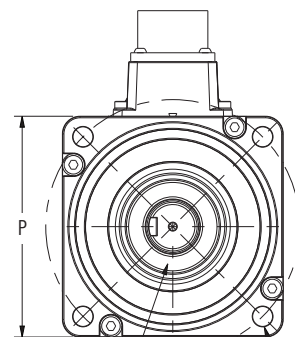
Dimensions are in mm (in.)

Pilot Diameter Tolerances

TLP-A/B115xx Motors:  
 Ø 94.965...95.000 (3.739...3.740)  
 TLP-A/B145xx Motors:  
 Ø 109.965...110.000 (4.329...4.330)

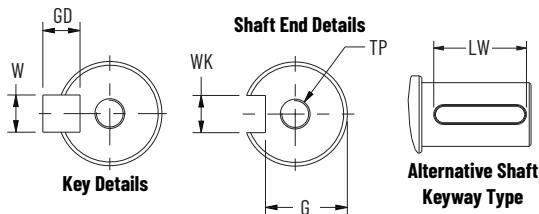
Shaft Diameter Tolerances

TLP-A/B115xx Motors:  
 Ø 21.987...22.000 (0.8656...0.8661)  
 TLP-A/B145-050... TLP-B145-200 Motors:  
 Ø 21.987...22.000 (0.8656...0.8661)  
 TLP-A/B145-250 Motors:  
 Ø 23.987...24.000 (0.9444...0.9449)



Optional Shaft Seal  
 Refer to [page 133](#)  
 for motor shaft seal  
 kit information.

S Diameter Holes on  
 M Diameter Bolt Circle



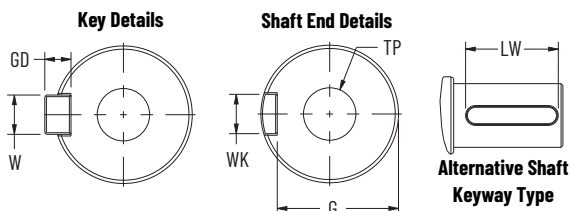
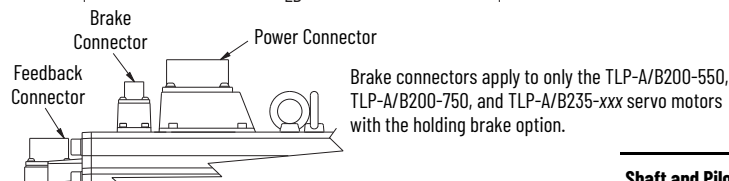
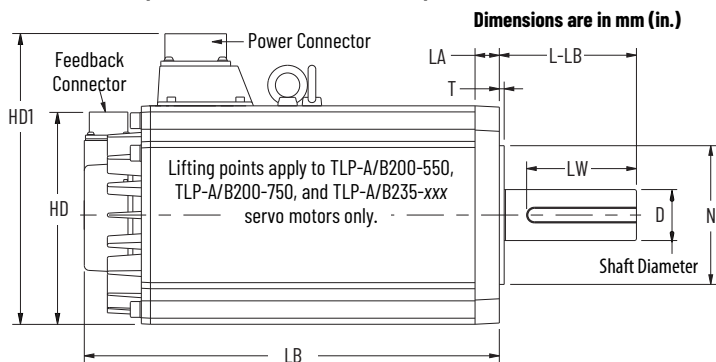
Shaft and Pilot Tolerances	TLP-A/B115xx	TLP-A/B145xx
Shaft Runout (T.I.R.)	0.02 (0.0008)	0.02 (0.0008)
Pilot Eccentricity (T.I.R.)	0.04 (0.0016)	0.04 (0.0016)
Max Face Runout (T.I.R.)	0.02 (0.0008)	0.04 (0.0016)
Shaft-end Threaded Hole (TP)	M6x1.0-6H, $\nabla$ 20	M6x1.0-6H, $\nabla$ 20

Motor Cat. No.	HD mm (in.)	HD1 mm (in.)	T mm (in.)	LA mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB mm (in.)	LW mm (in.)	D <sup>(2)</sup> mm (in.)	M mm (in.)	S <sup>(3)</sup> mm (in.)	N <sup>(2)</sup> mm (in.)	P mm (in.)	G mm (in.)	GD mm (in.)	W <sup>(4)</sup> mm (in.)	WK <sup>(4)</sup> mm (in.)
TLP-A/B115-100	122.9 (4.84)	148.1 (5.83)	5.0 <sup>(5)</sup> (0.20)	12.0 (0.47)	154.0 (6.06)	45.0 <sup>(6)</sup> (1.77)			115 (4.53)		95.0 (3.74)	100 (3.94)				
TLP-A/B115-200					199.7 (7.86)											
TLP-A/B145-050					148.2 (5.83)											
TLP-A145-090					164.2 (6.46)		36.0 (1.42)	22.0 (0.87)		9.0 (0.354)			18.0 (0.71)	7.0 (0.28)	8.0 (0.315)	8.0 (0.315)
TLP-A/B145-100	138.6 (5.46)	176.4 (6.94)	6.0 <sup>(7)</sup> (0.24)	11.5 (0.45)	148.2 (5.83)	55.0 (2.17)			145 (5.71)		110 (4.33)	130 (5.12)				
TLP-A/B145-150					168.2 (6.62)											
TLP-B145-200					188.2 (7.41)											
TLP-A/B145-250								24.0 (0.94)					20.0 (0.79)			

- (1) For TLP-A/B115-100 motors with brake, add 39.3 mm (1.55 in.).  
 For TLP-A/B115-200 motors with brake, add 27.0 mm (1.06 in.).  
 For TLP-A/B145-050 and TLP-A/B145-100 motors with brake, add 36.0 mm (1.42 in.).  
 For TLP-A145-090 and TLP-A/B145-150 motors with brake, add 34.5 mm (1.36 in.).  
 For TLP-B145-200 and TLP-A/B145-250 motors with brake, add 28.5 mm (1.22 in.).
- (2) See dimensions diagram for tolerances.
- (3) For TLP-A/B115 motors, the tolerance is ±0.10 mm (±0.0039 in.).  
 For TLP-A/B145 motors, the tolerance is ±0.30 mm (±0.0118 in.).
- (4) Tolerance for this dimension is +0, -0.036 mm (+0, -0.01417 in.).
- (5) Tolerance for this dimension is ±0.10 mm (±0.0039 in.).
- (6) Tolerance for this dimension is +0.38, -0.50 mm (+0.015, -0.020 in.).
- (7) Tolerance for this dimension is ±0.15 mm (±0.0059 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

Motor Dimensions (frame sizes 200 and 235 mm)

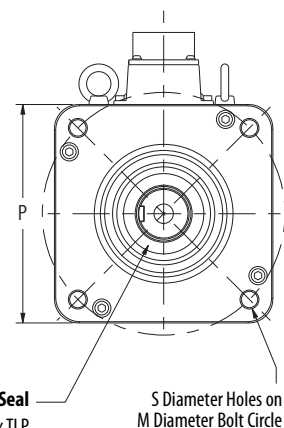


**Pilot Diameter Tolerances**

TLP-A200-200...TLP-A/B200-750 Motors:  
 Ø 114.265...114.300 (4.4986...4.500)  
 TLP-A/B235-11K...TLP-A235-15K Motors:  
 Ø 199.954...200.00 (7.8722...7.8740)

**Shaft Diameter Tolerances**

TLP-A200-200...TLP-A/B200-450 Motors:  
 Ø 34.984...35.000 (1.3773...1.3779)  
 TLP-A/B200-550...TLP-A/B200-750 Motors:  
 Ø 41.984...42.000 (1.6529...1.6535)  
 TLP-A/B235-11K Motors:  
 Ø 41.984...42.000 (1.6529...1.6535)  
 TLP-B235-14K and TLP-A235-15K Motors:  
 Ø 54.989...55.030 (2.1649...2.1665)



**Optional Shaft Seal**  
 Refer to page 133 for Kinetix TLP motor shaft-seal kit information.

Shaft and Pilot Tolerances	TLP-A/B200-xxx	TLP-A/B235-11K	TLP-B235-14K TLP-A235-15K
Shaft Runout (T.I.R.)	0.02 (0.0008)	0.04 (0.0016)	0.04 (0.0016)
Pilot Eccentricity (T.I.R.)	0.04 (0.0016)	0.04 (0.0016)	0.04 (0.0016)
Max Face Runout (T.I.R.)	0.04 (0.0016)	0.06 (0.0024)	0.06 (0.0024)
Shaft-end Threaded Hole (TP)	M12x1.75-6H, $\nabla$ 25	M16x2.0-6H, $\nabla$ 32	M20x2.5-6H, $\nabla$ 40

Motor Cat. No.	HD mm (in.)	HD1 mm (in.)	T mm (in.)	LA mm (in.)	LB (1) mm (in.)	L-LB (2) mm (in.)	LW mm (in.)	D mm (in.)	M mm (in.)	S mm (in.)	N (3) mm (in.)	P mm (in.)	G mm (in.)	GD mm (in.)	W mm (in.)	WK (3) mm (in.)
TLP-A200-200	174.9 (6.89)	231.0 (9.09)	4.0 (0.16)	20.0 (0.79)	169.7 (6.68)	79.0 (3.11)	63.0 (2.48)	35.0 (1.38)	200.0 (7.87)	13.5 (0.53)	114.3 (4.50)	180.0 (7.09)	30.0 (1.18)	8.0 (0.31)	10.0 (0.394)	10.0 (0.394)
TLP-A/B200-300					202.8 (7.98)											
TLP-A200-350					254.0 (10.0)											
TLP-A/B200-450	240.0 (9.45)	240.0 (9.45)	4.0 (0.16)	20.0 (0.79)	280.4 (11.04)	113.0 (4.45)	90.0 (3.54)	42.0 (1.65)	235.0 (9.25)	13.5 (0.53)	200.0 (7.87)	220.0 (8.66)	37.0 (1.46)	10.0 (0.39)	12.0 (0.47)	12.0 (0.47)
TLP-A/B200-550					342.7 (13.49)											
TLP-A/B200-750	194.6 (7.66)	279.1 (10.99)	4.0 (0.16)	20.0 (0.79)	372.1 (14.65)	116.0 (4.57)	90.0 (3.54)	55.0 (2.17)	235.0 (9.25)	13.5 (0.53)	200.0 (7.87)	220.0 (8.66)	49.0 (1.93)	10.0 (0.39)	16.0 (0.63)	16.0 (0.63)
TLP-A/B235-11K					451.1 (17.76)											
TLP-B235-14K																
TLP-A235-15K																

- (1) For TLP-A200-200 and TLP-A/B200-750 motors with brake, add 34.1 mm (1.34 in.).  
 For TLP-A/B200-300 and TLP-A/B200-350 motors with brake, add 33.2 mm (1.31 in.).  
 For TLP-A/B200-450 motors with brake, add 44.0 mm (1.73 in.).  
 For TLP-A/B200-550 motors with brake, add 32.0 mm (1.26 in.).  
 For TLP-A/B235-11K, TLP-B235-14K, and TLP-A235-15K motors with brake, add 63.0 mm (2.48 in.).
- (2) Tolerance for this dimension is +0.38, -0.50 mm (+0.015, -0.020 in.).
- (3) See dimensions diagram for tolerances.
- (4) Tolerance for this dimension is ±0.10 mm (±0.0039 in.).
- (5) Tolerance for this dimension is +0, -0.036 mm (+0, -0.01417 in.).
- (6) Tolerance for this dimension is ±0.20 mm (±0.0079 in.).
- (7) Tolerance for this dimension is +0, -0.043 mm (+0, -0.00169 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.



# Kinetix TL and TLY Compact Servo Motors

The Kinetix TL and TLY servo motors are low-inertia high-performance servo motors featuring metric and NEMA frame sizes. They combine a compact size with a high torque density afforded by their superior stator design. The result is a package that provides substantial power in a small footprint.

## Kinetix TL Servo Motors



Kinetix TL compact motor performance specifications match the Kinetix TLY motor specifications identically, but are available in only metric frame sizes and with high-resolution absolute position encoders. Similar to the Kinetix TLY motors, Kinetix TL compact motors support frame sizes TL-A110, TL-A120, TL-A130, TL-A220, TL-A230, TL-A2530, TL-A2540, and TL-A410 (TL-A310 is not supported).

The Kinetix TL compact motors are equipped with rectangular plastic connectors and are intended for use with Kinetix 3 servo drives.

## Kinetix TLY Servo Motors



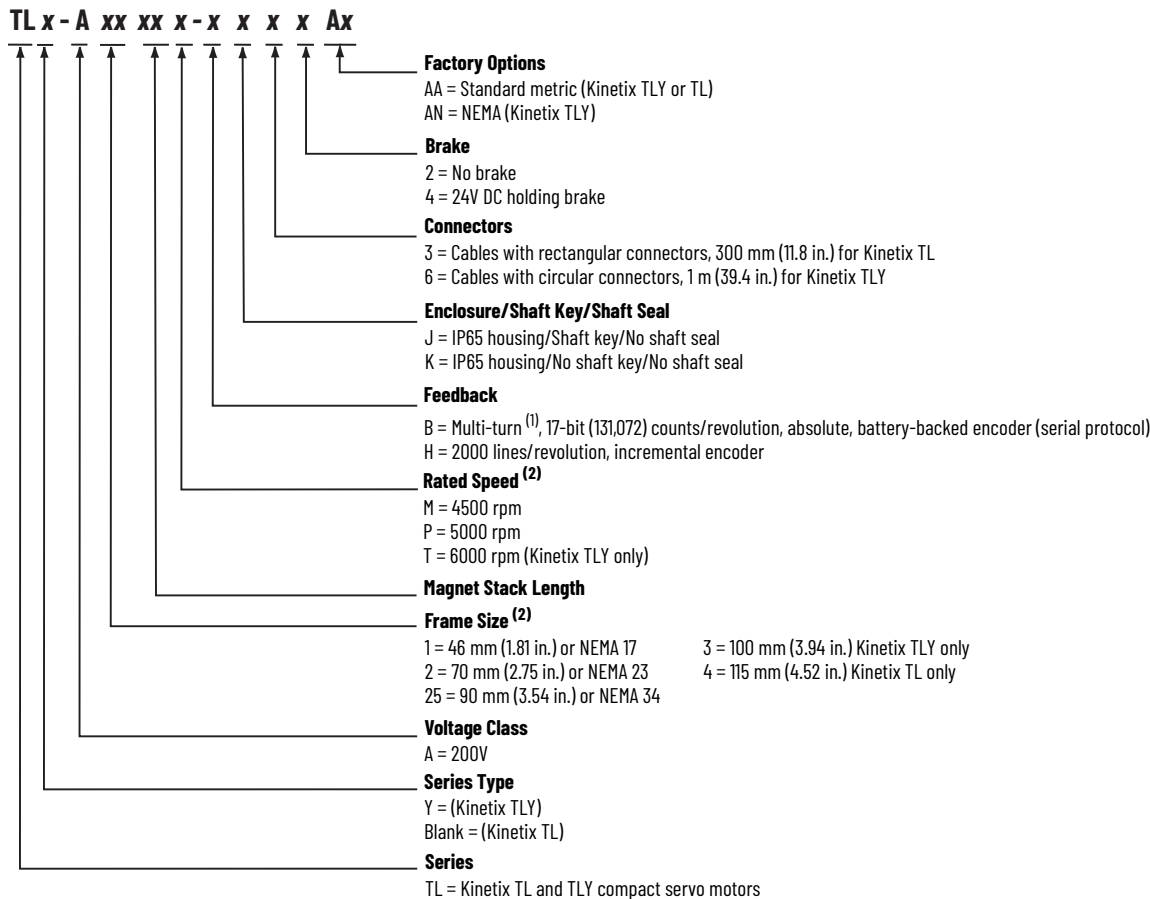
Kinetix TLY motors are equipped with circular plastic connectors and when used with the Kinetix 2000, Kinetix 6000, or Ultra3000 drives, the Kinetix TLY motors are able to offer the benefits of Kinetix Integrated Motion.

**Kinetix TL and TLY Servo Motor Features**

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• Compact size, high torque density</li> <li>• Metric and NEMA frame sizes</li> <li>• Smart Motor Technology</li> <li>• Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 200V-class windings</li> <li>• High-energy Neodymium-Iron-Boron (NeFeB) magnets</li> <li>• Cable extensions, 1 m (3.2 ft)</li> <li>• 17-bit serial communication</li> </ul>
Motor type	Brushless AC Synchronous Servo Motors
Environmental rating	IP65 with optional shaft seal
Certifications	Kinetix TL and TLY rotary motors are CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	0.086...5.42 N•m (0.76...48 lb•in)
Peak stall torque	0.22...13 N•m (1.94...115 lb•in)
Rated speed	4500, 5000, and 6000 rpm
Motor rated output	0.037...2.0 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5100 (Kinetix TL and TLY)</li> <li>• Kinetix 5300 (Kinetix TL and TLY)</li> <li>• Kinetix 6000 (Kinetix TLY)</li> <li>• Kinetix 300/350 (Kinetix TLY)</li> <li>• Kinetix 3 (Kinetix TL and TLY)</li> <li>• Kinetix 2000 (Kinetix TLY)</li> <li>• Ultra3000 (Kinetix TLY)</li> </ul>
Compatible servo cables	<ul style="list-style-type: none"> <li>• 2090-CxxM6xx cables (Kinetix TLY)</li> <li>• 2090-DANxxx cables (Kinetix TL)</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>• Robotics</li> <li>• Material handling</li> <li>• X-Y tables</li> <li>• Specialty machinery</li> <li>• Semiconductor manufacturing</li> <li>• Medical/laboratory equipment</li> <li>• Light packaging machines</li> <li>• Office machinery</li> </ul>

## Catalog Numbers - Kinetix TL and TLY Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) Single-turn if used without battery backup.

(2) Not all combinations are available. Only the configurations for rated speed, as listed in [Technical Specifications - Kinetix TL and TLY Servo Motors](#) on [page 150](#), are available. Use Motion Analyzer software to size and select motors for your application.

For Kinetix TL and TLY connector kit catalog numbers, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

## Kinetix TL and TLY Servo Motor Encoders

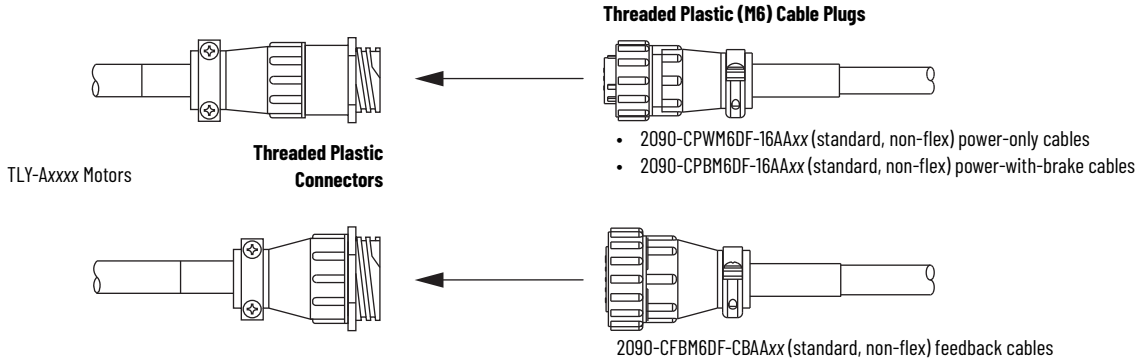
Kinetix TL and TLY motors are available with high-resolution or industry standard incremental encoder feedback:

- High-resolution, high performance encoders providing multi-turn absolute position feedback (131,072 counts/revolution) for smooth performance.  
 Servo drives compatible with multi-turn absolute position feedback require the appropriate connector kit, with battery, for absolute position backup in the event of a power loss.
- Industry standard incremental encoder feedback (2000 counts/revolution) applies to Kinetix TLY motors.

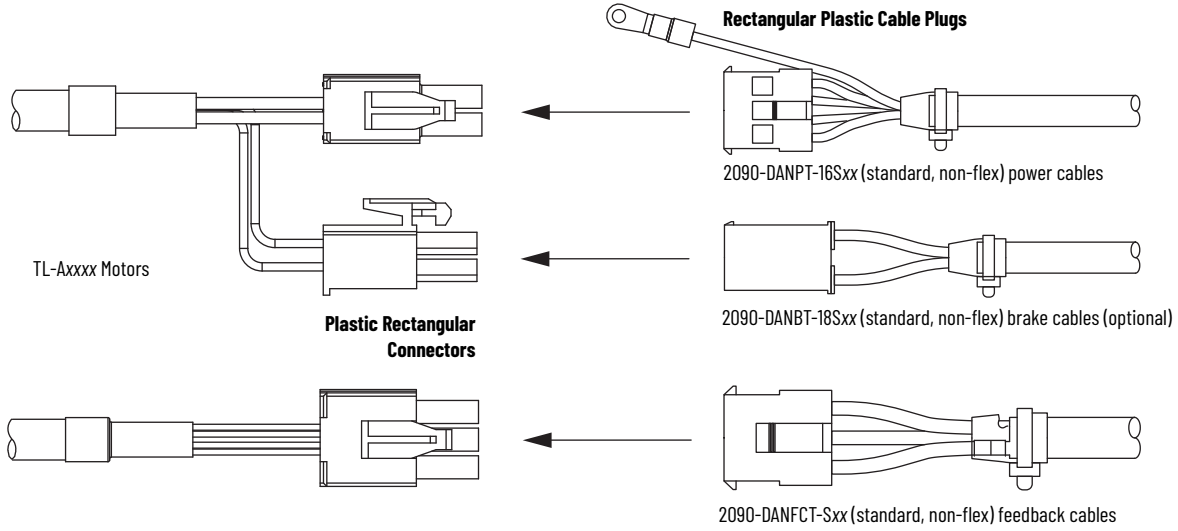
# Motor Connector/Cable Compatibility

Kinetix TL and TLY motors are equipped with either threaded or rectangular plastic connectors.

## Kinetix TLY Motor Connectors



## Kinetix TL Motor Connectors



## Kinetix TL and TLY Servo Motor Options

Kinetix TL and TLY servo motors are available with these options:

- 24V DC holding brake.
- Shaft seal kits are available, as are replacement kits for field installation. Lubricant is provided with each kit to reduce wear.

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**IMPORTANT** Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

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### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
TLY-A1xx TL-A1xx	TL-SSN-1
TLY-A2xx TL-A2xx	TL-SSN-2
TLY-A25xx TL-A25xx	TL-SSN-3
TLY-A3xx	
TL-A4xx	TL-SSN-4

## Transition Plates for N-Series Retrofit

Transition plates provide a means of retrofitting an existing N-Series motor with a Kinetix TLY NEMA motor. In most applications, the Kinetix TLY NEMA motors are physically smaller, but deliver the same torque rating as the N-Series motor it is replacing. Transition plates are not available for the N-56xx motors. Select your transition plate catalog number from the table below.

### N-Series to Kinetix TLY Transition Plates

Transition Plate Cat. No.	Description	Converts from This N-Series Motor	To This Kinetix TLY NEMA Motor
TL-TRPLAT-17-23	Kinetix TLY Transition Plate, NEMA 17 to 23	N-23xx	TLY-A1xxx-HxxxAN
TL-TRPLAT-23-34	Kinetix TLY Transition Plate, NEMA 23 to 34	N-34xx	TLY-A2xxx-HxxxAN
TL-TRPLAT-34-42	Kinetix TLY Transition Plate, NEMA 34 to 42	N-42xx	TLY-A25xxx-HxxxAN

## Technical Specifications - Kinetix TL and TLY Servo Motors

### Kinetix TL and TLY (non-brake) Motor Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	
TLY-A110 <sup>(2)</sup>	5000	6000 <sup>(3)</sup>	0.096 (0.85)	0.20 (1.75)	0.041	0.000001 (0.0000089)	
TL-A110 <sup>(2)</sup>				0.22 (1.94)			
TLY-A120 TL-A120	5000		0.181 (1.60)	0.36 (3.20)	0.086	0.000002 (0.000018)	
TLY-A130 TL-A130	5000		0.325 (2.88)	0.76 (6.70)	0.14	0.000003 (0.000027)	
TLY-A220 TL-A220	5000		0.836 (7.40)	1.48 (13.1)	0.35	0.000018 (0.00016)	
TLY-A230 TL-A230	5000		1.30 (11.50)	3.05 (27.0)	0.44	0.000034 (0.00030)	
TLY-A2530 TL-A2530	4400		5000	2.60 (23.0)	5.20 (46.0)	0.69	0.000098 (0.00087)
TLY-A2540 TL-A2540	4575			2.94 (26.0)	7.10 (63.0)	0.86	0.00011 (0.00096)
TLY-A310	4000	4500	3.61 (32.0)	9.0 (80.0)	0.95	0.00015 (0.0013)	
TL-A410 <sup>(2)</sup>	4500		5.42 (48.0)	13.00 (115)	2.0	0.00036 (0.0032)	

(1) Refer to [Kinetix TL and TLY Motor Weight Specifications](#) on [page 151](#) for brake motor weight.

(2) The TLY/TL-A110 and TL-A410 motors are available in only metric frame sizes. All other motors are available in metric and NEMA frame sizes.

(3) Applies to TLY-AxxxT-H motors with incremental feedback. The TLY/TL-AxxxP-B motors with absolute high-resolution encoders are rated at 5000 rpm.

### Kinetix TL and TLY (brake) Motor Performance Specifications

Motor Cat. No.	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	
TLY-A110 <sup>(2)</sup>	5000	6000 <sup>(3)</sup>	0.086 (0.76)	0.20 (1.75)	0.037	0.000004 (0.000035)	
TL-A110 <sup>(2)</sup>				0.22 (1.94)			
TLY-A120 TL-A120	5000		0.163 (1.44)	0.36 (3.20)	0.077	0.000005 (0.000044)	
TLY-A130 TL-A130	5000		0.293 (2.59)	0.76 (6.70)	0.13	0.000006 (0.000053)	
TLY-A220 TL-A220	5000		0.757 (6.70)	1.48 (13.1)	0.24	0.000028 (0.00025)	
TLY-A230 TL-A230	4250		1.16 (10.3)	3.05 (27.0)	0.32	0.000044 (0.00039)	
TLY-A2530 TL-A2530	3650		5000	2.60 (23.0)	5.20 (46.0)	0.55	0.00012 (0.0011)
TLY-A2540 TL-A2540	3750			2.94 (26.0)	7.10 (63.0)	0.66	0.00013 (0.0012)
TLY-A310	3900	4500	3.61 (32.0)	9.0 (80.0)	0.90	0.00017 (0.0017)	
TL-A410 <sup>(2)</sup>	4500		4.86 (43.0)	13.0 (115)	1.80	0.00041 (0.0036)	

(1) Refer to [Kinetix TL and TLY Motor Weight Specifications](#) on [page 151](#) for brake motor weight.

(2) The TLY/TL-A110 and TL-A410 motors are available in only metric frame sizes. All other motors are available in metric and NEMA frame sizes.

(3) Applies to TLY-AxxxT-H motors with incremental feedback. The TLY/TL-AxxxP-B motors with absolute high-resolution encoders are rated at 5000 rpm.

## Kinetix TL and TLY Motor Weight Specifications

Motor Cat. No.	High Resolution Feedback Option Kinetix TLY/TL-Axxxx-B Motors		Incremental Feedback Option Kinetix TLY-Axxxx-H Motors	
	Motor Weight, approx kg (lb)	Brake Motor Weight, approx kg (lb)	Motor Weight, approx kg (lb)	Brake Motor Weight, approx kg (lb)
TLY-A110 TL-A110	0.29 (0.64)	0.55 (1.2)	0.29 (0.64)	0.55 (1.2)
TLY-A120 TL-A120	0.34 (0.75)	0.59 (1.3)	0.35 (0.78)	0.59 (1.3)
TLY-A130 TL-A130	0.46 (1.0)	0.68 (1.5)	0.50 (1.1)	0.68 (1.5)
TLY-A220 TL-A220	0.95 (2.1)	1.4 (3.0)	1.1 (2.4)	1.5 (3.4)
TLY-A230 TL-A230	1.4 (3.0)	1.8 (4.0)	1.5 (3.3)	2.0 (4.4)
TLY-A2530 TL-A2530	2.3 (5.0)	3.2 (7.0)	2.3 (5.1)	3.2 (7.0)
TLY-A2540 TL-A2540	2.6 (5.7)	3.5 (7.7)	2.6 (5.8)	3.5 (7.7)
TLY-A310	3.9 (8.6)	4.5 (10.0)	3.9 (8.6)	4.5 (10.0)
TL-A410	5.5 (12.0)	6.80 (15.0)	5.5 (12.0)	6.80 (15.0)

## Kinetix TL and TLY Motor Brake Specifications

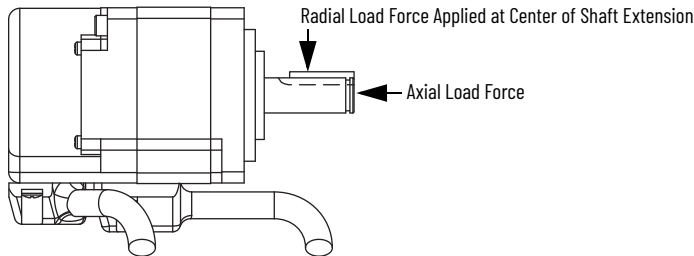
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time		
				Release ms	Engage <sup>(1)</sup>	
					MOV ms	Diode ms
TLY-A110 TL-A110	60	0.32 (2.8)	0.18...0.22	21	7	40
TLY-A120 TL-A120						
TLY-A130 TL-A130						
TLY-A220 TL-A220		1.24 (11.0)	0.333...0.407	22	13	73
TLY-A230 TL-A230						
TLY-A2530 TL-A2530		2.5 (22.0)	0.351...0.429	42	14	86
TLY-A2540 TL-A2540						
TLY-A310						
TL-A410	9.3 (82.0)	0.648...0.792	69	20	84	

(1) By using an arc suppression device in external control circuit.

## Kinetix TL and TLY Motor Load Force Ratings

Kinetix TL and TLY servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables below represent an  $L_{10}$  bearing fatigue life of 20,000 hours. This 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

### Load Forces on Shaft



### Radial Load Force Ratings

Motor Cat. No.	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	4000 rpm kg (lb)	4500 rpm kg (lb)	5000 rpm kg (lb)	6000 rpm kg (lb)
TLY-A110 TL-A110	11 (24)	9 (19)	7 (16)	7 (16)	-	6 (13)	6 (13)
TLY-A120 TL-A120	12 (26)	10 (21)	8 (18)	7 (16)	-	7 (15)	6 (13)
TLY-A130 TL-A130	13 (29)	10 (23)	9 (20)	8 (18)	-	8 (17)	7 (15)
TLY-A220 TL-A220	27 (60)	22 (48)	19 (42)	17 (37)	-	16 (35)	15 (33)
TLY-A230 TL-A230	31 (68)	24 (54)	21 (47)	19 (42)	-	18 (40)	17 (37)
TLY-A2530 TL-A2530	48 (106)	38 (84)	34 (74)	-	-	28 (62)	-
TLY-A2540 TL-A2540	50 (110)	39 (87)	34 (76)	-	-	29 (64)	-
TLY-A310	80 (177)	63 (139)	56 (123)	-	48 (106)	-	-
TL-A410	76 (168)	60 (133)	53 (117)	-	44 (98)	-	-



**Axial Load Force Ratings (maximum radial load)**

<b>Motor Cat. No.</b>	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>4500 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)	<b>6000 rpm</b> kg (lb)
TLY-A110 TL-A110	8 (18)	6 (13)	5 (11)	4 (9)	-	4 (9)	3 (7)
TLY-A120 TL-A120	9 (20)	7 (16)	5 (11)	4 (9)	-	4 (9)	3 (7)
TLY-A130 TL-A130	10 (22)	8 (17)	6 (13)	5 (12)	-	5 (11)	4 (9)
TLY-A220 TL-A220	15 (33)	11 (24)	9 (20)	8 (17)	-	7 (16)	5 (11)
TLY-A230 TL-A230	15 (33)	12 (26)	10 (21)	9 (20)	-	8 (17)	6 (13)
TLY-A2530 TL-A2530	18 (39)	13 (29)	11 (24)	-	-	9 (19)	-
TLY-A2540 TL-A2540	18 (39)	13 (29)	11 (25)	-	-	9 (20)	-
TLY-A310	19 (42)	14 (31)	11 (25)	-	10 (21)	-	-
TL-A410	29 (64)	21 (47)	18 (40)	-	14 (31)	-	-

**Axial Load Force Ratings (zero radial load)**

<b>Motor Cat. No.</b>	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>4500 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)	<b>6000 rpm</b> kg (lb)
TLY-A110 TL-A110	12 (26)	9 (20)	7 (16)	6 (13)	-	6 (13)	5 (11)
TLY-A120 TL-A120	12 (26)	9 (20)	7 (16)	6 (13)	-	6 (13)	5 (11)
TLY-A130 TL-A130	12 (26)	9 (20)	7 (16)	6 (13)	-	6 (13)	5 (11)
TLY-A220 TL-A220	19 (41)	14 (30)	11 (25)	10 (21)	-	9 (20)	8 (17)
TLY-A230 TL-A230	19 (41)	14 (30)	11 (25)	10 (21)	-	9 (20)	8 (17)
TLY-A2530 TL-A2530	23 (50)	17 (37)	14 (31)	-	-	11 (25)	-
TLY-A2540 TL-A2540	23 (50)	17 (37)	14 (31)	-	-	11 (25)	-
TLY-A310	26 (57)	19 (42)	16 (35)	-	14 (31)	-	-
TL-A410	34 (75)	25 (55)	21 (47)	-	17 (37)	-	-

# Dimensions - Kinetix TL and TLY Servo Motors

## TLY-Axxxx-xx6xAA or TL-Axxxx-Bx3xAA Motor Dimensions

**Mounting pattern has two holes for A110 through A130 (shown). All others have four holes.**

**Dimensions are in mm (in.)**

**Pilot Diameter Tolerances**

TLV/TL-A110, -A120, and -A130 Motors:  
 $\varnothing$  29.979...30.000 (1.1803...1.1811)

TLV/TL-A220 and -A230 Motors:  
 $\varnothing$  49.975...50.000 (1.9675...1.9685)

TLV/TL-A2530 and -A2540 Motors:  
 $\varnothing$  69.970...70.000 (2.7547...2.7556)

TLV-A310 Motors:  
 $\varnothing$  79.970...80.000 (3.1484...3.1496)

TL-A410 Motors:  
 $\varnothing$  94.965...95.000 (3.7388...3.7402)

**Optional Shaft Seal**  
Refer to [page 149](#) for Kinetix TLY/TL motor shaft-seal kit information.

**Shaft Diameter Tolerances**

TLV/TL-A110, -A120, and -A130 Motors:  
 $\varnothing$  7.991...8.000 (0.3146...0.3150)

TLV/TL-A220 and -A230 Motors:  
 $\varnothing$  11.989...12.000 (0.4720...0.4724)

TLV/TL-A2530 and -A2540 Motors:  
 $\varnothing$  15.989...16.000 (0.6295...0.6299)

TLV-A310 Motors:  
 $\varnothing$  15.989...16.000 (0.6295...0.6299)

TL-A410 Motors:  
 $\varnothing$  21.987...22.000 (0.8656...0.8661)

**Shaft Detail with Key**

TLV/TL-A110, -A120, and -A130 Motors  
3+0, -0.025 x 3+0, -0.025 x 15 Key

TLV/TL-A220 and -A230 Motors  
4+0, -0.030 x 4+0, -0.030 x 15 Key

TLV/TL-A2530 and -A2540 Motors  
5+0, -0.030 x 5+0, -0.030 x 20 Key

TLV-A310 Motors  
5+0, -0.030 x 5+0, -0.030 x 20 Key

TL-A410 Motors  
8+0, -0.036 x 7+0, -0.036 x 25 Key

**Shaft, Pilot, and Keyway Tolerances**

	TLV/TL-A1xx	TLV/TL-A2xx	TLV/TL-A25xx	TLV-A3xx	TL-A4xx
Shaft Runout (T.I.R.)	0.02 (0.001)	0.02 (0.001)	0.02 (0.001)		0.02 (0.001)
Pilot Eccentricity (T.I.R.)	0.06 (0.0024)	0.06 (0.0024)	0.06 (0.0024)		0.04 (0.0016)
Max Face Runout (T.I.R.)	0.07 (0.003)	0.07 (0.003)	0.07 (0.003)		0.04 (0.0016)
Keyway (G)	6.00...6.20 (0.236...0.244)	9.30...9.50 (0.366...0.374)	12.8...13.0 (0.504...0.512)		17.8...18.0 (0.701...0.709)
Keyway (F)	2.968...2.994 (0.117...0.118)	3.958...3.988 (0.156...0.157)	4.958...4.988 (0.1952...0.1964)		7.949...7.985 (0.313...0.314)

## TLY-Axxxx-xx6xAA or TL-Axxxx-Bx3xAA Motor Dimensions

Motor Cat. No.	AD mm (in.)	BE mm (in.)	D (1) mm (in.)	HD mm (in.)	L (2) mm (in.)	L-LB (3) mm (in.)	LA mm (in.)	LB (2) mm (in.)	LE (2) mm (in.)	M mm (in.)	N (1) mm (in.)	NB mm (in.)	P mm (in.)	S mm (in.)	T mm (in.)	TB mm (in.)	G (1) mm (in.)	F (1) mm (in.)
TLY/TL-A110					78.5 (3.09)			53.5 (2.11)										
TLY/TL-A120	31.1 (1.22)	21.0 (0.83)	8.0 (0.31)	51.1 (2.01)	84.5 (3.33)	25.0 (0.98)	5.0 (0.20)	59.5 (2.34)	39.1 (1.54)	46.0 (1.81)	30.0 (1.18)	20.0 (0.79)	40.0 (1.57)	4.5 (0.18)	2.5 (0.10)	4.5 (0.18)	6.2 (0.24)	3.0 (0.12)
TLY/TL-A130					98.5 (3.88)			73.5 (2.89)										
TLY/TL-A220	43.0 (1.69)	27.6 (1.09)	12.0 (0.47)	73.0 (2.87)	106.1 (4.18)	30.0 (1.18)	6.0 (0.24)	76.1 (3.00)	42.8 (1.69)	70.0 (2.76)	50.0 (1.97)	27.0 (1.06)	60.0 (2.36)	5.5 (0.22)	3.0 (0.12)	7.0 (0.28)	9.5 (0.37)	4.0 (0.16)
TLY/TL-A230					128.0 (5.04)			98.1 (3.86)										
TLY/TL-A2530	53.0 (2.09)	27.6 (1.09)	16.0 (0.63)	93.0 (3.66)	134.7 (5.30)	35.0 (1.38)	8.0 (0.32)	99.7 (3.93)	43.8 (1.72)	90.0 (3.54)	70.0 (2.76)	34.0 (1.34)	80.0 (3.15)	6.6 (0.26)	3.0 (0.12)	7.0 (0.28)	13.0 (0.51)	5.0 (0.20)
TLY/TL-A2540					143.7 (5.66)			108.7 (4.28)										
TLY-A310	56.0 (2.20)			99.0 (3.90)	179.2 (7.06)			144.2 (5.68)	57.1 (2.24)	100.0 (3.94)	80.0 (3.15)		86.0 (3.39)					
TL-A410	67.0 (2.64)	38.4 (1.51)	22.0 (0.87)	117.0 (4.61)	216.0 (8.50)	40.0 (1.57)	17.0 (0.67)	176.0 (6.93)	102.0 (4.02)	115.0 (4.53)	95.0 (3.74)	N/A	100.0 (3.94)	9.0 (0.35)	7.0 (0.28)	N/A	18.0 (0.71)	8.0 (0.32)

(1) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 154](#).

(2) If ordering an TLY/TL-A110, TLY/TL-A120 or TLY/TL-A130 motor with brake, add 35.6 mm (1.40 in.) to dimensions L, LB, and LE.

If ordering an TLY/TL-A220 or TLY/TL-A230 motor with brake, add 34.6 mm (1.36 in.) to dimensions L, LB, and LE.

If ordering an TLY/TL-A2530 or TLY/TL-A2540 motor with brake, add 36.6 mm (1.44 in.) to dimensions L, LB, and LE.

If ordering an TLY-A310 motor with brake, add 23.0 mm (0.90 in.) to dimensions L, LB, and LE.

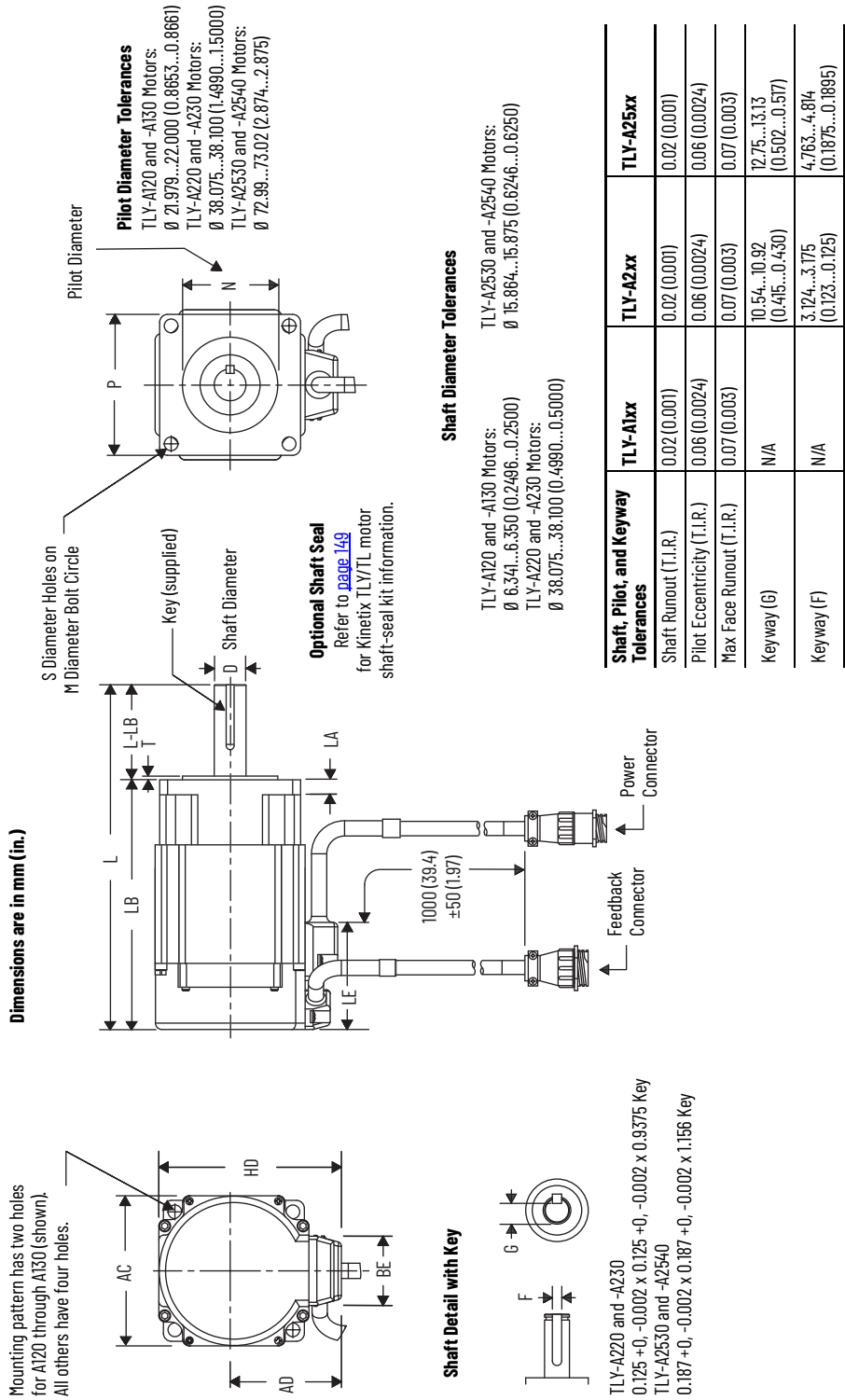
If ordering an TL-A410 motor with brake, add 32.0 mm (1.26 in.) to dimensions L, LB, and LE.

(3) Tolerance for this dimension is ±1.0 mm (±0.039 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

# Kinetix TLY NEMA Servo Motor Dimensions

## TLY-Axxxxx-Hx6xAN NEMA Motor Dimensions



## TLY-Axxxx-Hx6xAN NEMA Motor Dimensions

Motor Cat. No.	AC mm (in.)	AD mm (in.)	BE mm (in.)	D (1) mm (in.)	HD mm (in.)	L (2) mm (in.)	L-LB (3) mm (in.)	LA mm (in.)	LB (2) mm (in.)	LE (2) mm (in.)	M mm (in.)	N (1) mm (in.)	P mm (in.)	S mm (in.)	T mm (in.)	G (1) mm (in.)	F (1) mm (in.)
TLY-A120		31.10 (1.22)	21.0 (0.83)	6.35 (0.25)	52.0 (2.05)	91.5 (3.603) 105.5 (4.153)	27.0 (1.06)	5.0 (0.20)	64.5 (2.54) 78.5 (3.09)	39.1 (1.54)	43.8 (1.725)	22.0 (0.86)	42.0 (1.65)	8-32 Thread	2.0 (0.08)	N/A	N/A
TLY-A220	60 (2.36)	43.0 (1.69)		12.70 (0.50)	73.0 (2.87)	137.9 (5.43) 159.9 (6.30)	38.1 (1.50)	6.0 (0.24)	99.8 (3.93) 121.8 (4.80)	43.3 (1.70)	66.7 (2.625)	38.1 (1.50)	56.4 (2.22)	5.5 (0.217)	1.5 (0.06)	10.92 (0.43)	3.175 (0.125)
TLY-A2530	N/A	53.0 (2.09)	27.6 (1.09)	15.875 (0.625)	96.0 (3.78)	149.2 (5.872) 158.2 (6.205)	44.5 (1.752)	8.0 (0.32)	104.7 (4.12) 113.7 (4.48)	43.8 (1.72)	98.4 (3.875)	73.02 (2.87)	86.0 (3.39)	5.5 (0.217)	1.5 (0.06)	13.13 (0.517)	4.814 (0.189)

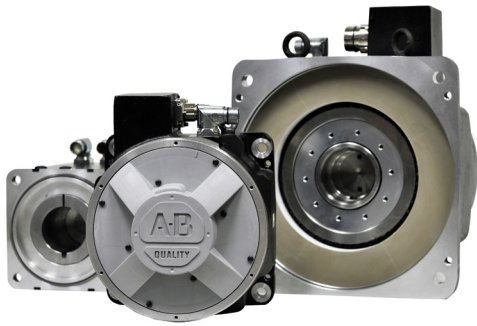
(1) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 156](#).

(2) If ordering an TLY-A120 or TLY-A130 motor with brake, add 35.6 mm (1.40 in.) to dimensions L, LB, and LE.  
If ordering an TLY-A220 or TLY-A230 motor with brake, add 34.6 mm (1.36 in.) to dimensions L, LB, and LE.

(3) If ordering an TLY-A2530 or TLY-A2540 motor with brake, add 36.6 mm (1.44 in.) to dimensions L, LB, and LE.  
Tolerance for this dimension is ±0.039 in.

NEMA motor flanges and shafts are designed to inch dimensions. Other frame areas are designed to metric dimensions. Conversions are approximate values.

# Kinetix RDB Direct-drive Servo Motors



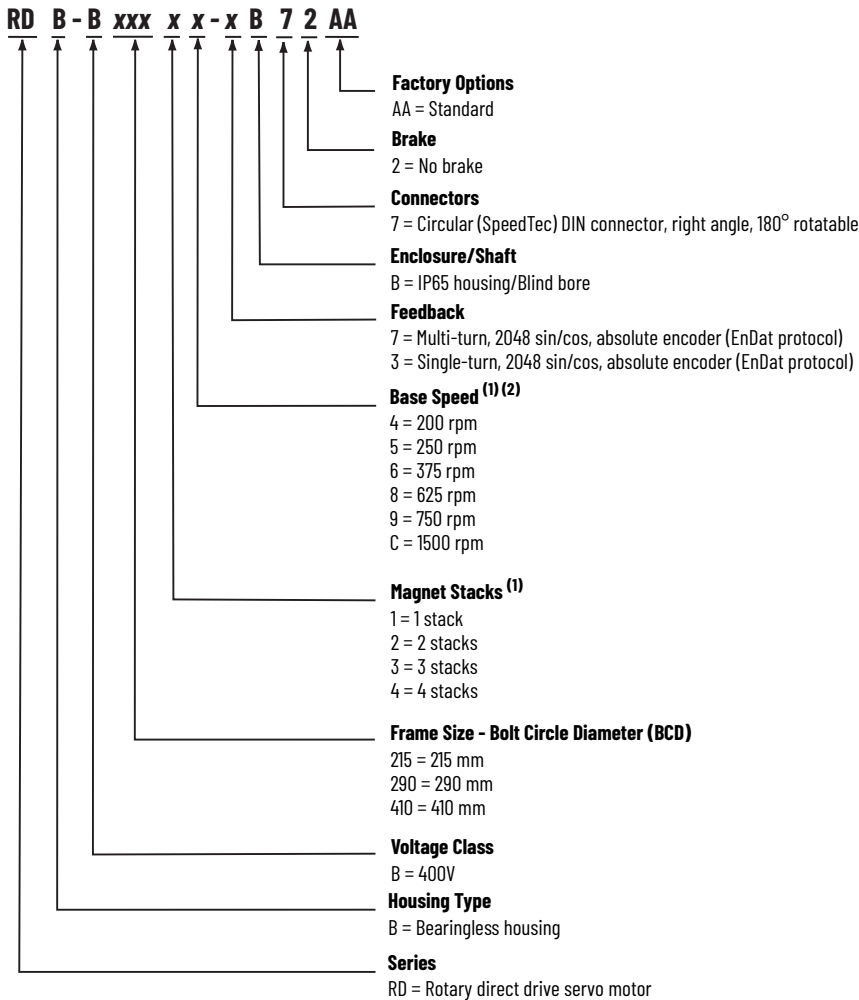
Kinetix RDB servo motor design provides direct-coupling to the load, thus improving system performance and efficiency by eliminating the need for inefficient mechanical power transmission devices, such as gearboxes, timing belts and pulleys. The Kinetix RDB servo motors incorporate a bearingless housed configuration designed for applications where the load is already supported by its own bearings.

## Kinetix RDB Servo Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• Direct coupling to the load</li> <li>• Smart Motor Technology</li> <li>• Heidenhain (EnDat analog) encoder protocol</li> <li>• Bearingless housed configuration</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 400V-class windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• Multiple winding speed options</li> <li>• SpeedTec DIN connectors, rotates 180°</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Direct-drive rotary servo motor
Environmental rating	IP65 with use of environmentally sealed cable connectors
Certifications	Kinetix RDB rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	32.7...426 N•m (289...3770 lb•in)
Peak stall torque	86.5...1050 N•m (766...9293 lb•in)
Rated speed	Rated speeds between 177...1836 rpm
Motor rated output	1.97...8.69 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5700</li> <li>• Kinetix 6200/6500</li> <li>• Kinetix 6000</li> <li>• Kinetix 7000</li> </ul>
Compatible servo cables	2090-CxxM7xx cables
Typical applications	<ul style="list-style-type: none"> <li>• Use to replace mechanical gear reduction (gear boxes, belts, pulleys)</li> <li>• Tight space constraints</li> <li>• Axes with high-power and high-performance requirements</li> </ul>

## Catalog Numbers - Kinetix RDB Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) Not all combinations are available. Only the configurations for rated speed and magnet stacks, as listed in Kinetix RDB Servo motor Performance Specifications on [page 161](#), are available. Use Motion Analyzer software to size and select motors for your application.

(2) Base speed equals maximum speed at peak torque. Maximum speed is servo drive dependent.

## Kinetix RDB Servo Motor High-resolution Encoders

Kinetix RDB servo motors are available with high performance encoders with a choice of single-turn (-3) or multi-turn (-7) high-resolution feedback:

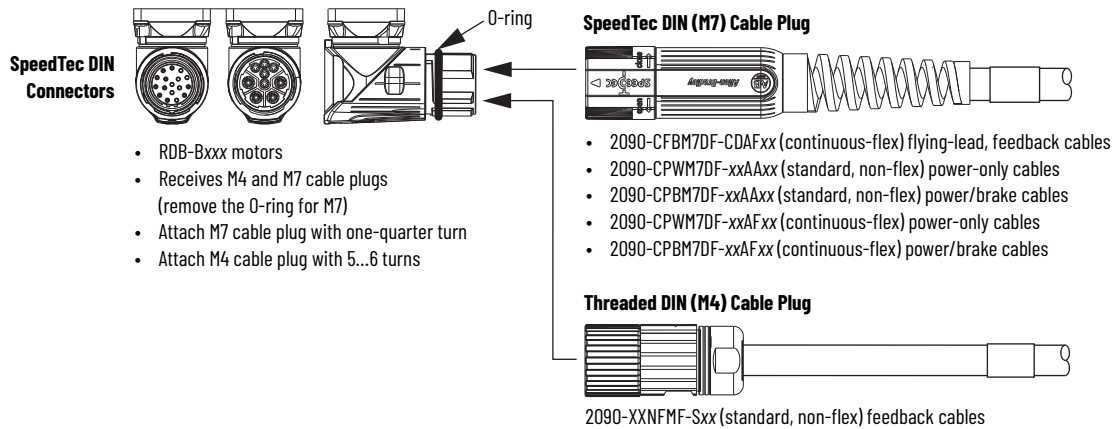
- Up to 4 million counts per revolution (-3 and -7) for smooth performance.
- Single-turn encoder provides high-resolution absolute position feedback within one turn.
- Multi-turn encoder provides high-resolution absolute position feedback within 4096 turns. The electromechanical design does not require a battery.

### Feedback Connector Kit Compatibility

Servo Drive System	Connector Kit Cat. No.
Kinetix 5700	2198-K57CK-D15M
<ul style="list-style-type: none"> <li>• Kinetix 6200</li> <li>• Kinetix 6500</li> </ul>	2090-K6CK-D15M
Kinetix 6000	2090-K6CK-KENDAT
Kinetix 7000	2090-K7CK-KENDAT

## Motor Connector/Cable Compatibility

Kinetix RDB servo motors are equipped with SpeedTec DIN connectors, however, EnDat encoder feedback requires the additional conductors included in the cables listed.





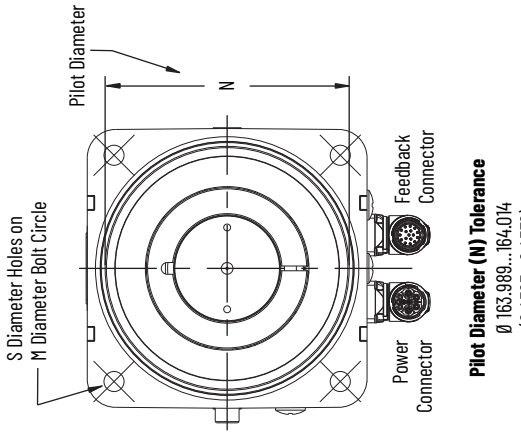
## Technical Specifications - Kinetix RDB Servo Motors

### Kinetix RDB Servo motor Performance Specifications

Motor Cat. No.	Base Speed rpm	Rated Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
RDB-B21519	750	1235	1235	32.7 (289)	86.5 (766)	3.64	0.0094 (0.083)	19.1 (42)
RDB-B2151C	1500	2125	2125			5.23		
RDB-B21529	750	1035	1035	45.4 (402)	116 (1027)	4.33	0.0126 (0.112)	24.5 (54)
RDB-B2152C	1500	2125	2125			6.41		
RDB-B21539	750	1250	1250	53.7 (475)	143 (1266)	5.34	0.0157 (0.139)	29.5 (65)
RDB-B2153C	1500	1772	2250			5.87		
RDB-B29014	200	391	450	49.2 (435)	110 (974)	1.97	0.028 (0.25)	28.6 (63)
RDB-B29016	375	729	785			3.18		
RDB-B29019	750	1128	1500			3.63		
RDB-B29024	200	413	435	98.0 (867)	214 (1894)	3.33	0.047 (0.42)	42.7 (94)
RDB-B29026	375	632	885			4.05		
RDB-B29029	750		1200					
RDB-B29034	200	493	500	140 (1239)	318 (2815)	5.16	0.066 (0.58)	55.4 (122)
RDB-B29036	375	646	750			5.49		
RDB-B29039	750	578	1000	122 (1080)	318 (2815)	4.41		
RDB-B41014	200	360	385	183 (1620)	340 (3009)	5.20	0.123 (1.09)	67.6 (149)
RDB-B41016	375	440	700			4.83		
RDB-B41018	625		700					
RDB-B41024	200	350	365	332 (2938)	690 (6107)	7.29	0.225 (1.99)	108 (238)
RDB-B41026	375		600	308 (2726)				
RDB-B41035	250	361	490	426 (3770)	1050 (9293)	8.69	0.302 (2.67)	136 (300)

# Dimensions - Kinetix RDB Servo Motors

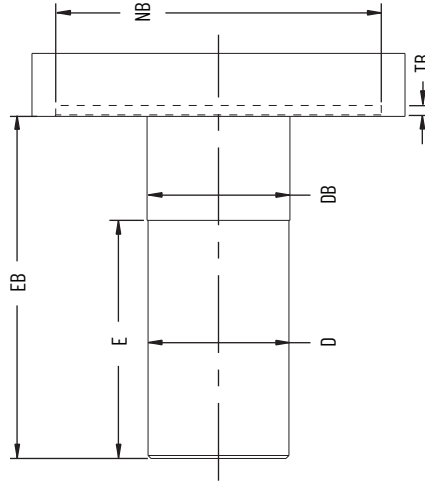
## RDB-B215xx Motor Dimensions



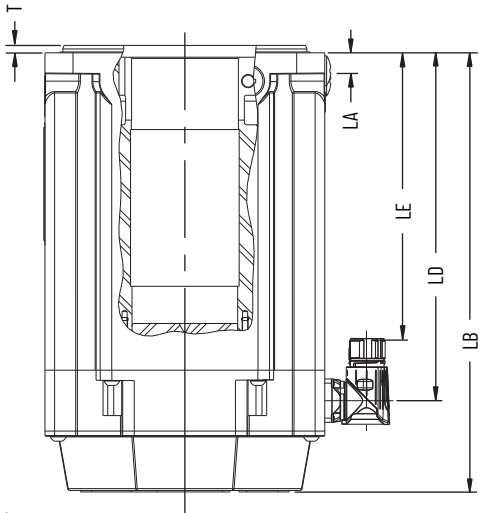
**Pilot Diameter (N) Tolerance**  
 Ø 163.989...164.014  
 (6.4583...6.4572)

**Pilot Diameter (NB) Tolerance**  
 Ø 164.040...164.090  
 (6.4583...6.4602)

### Machine Mounting Dimensions



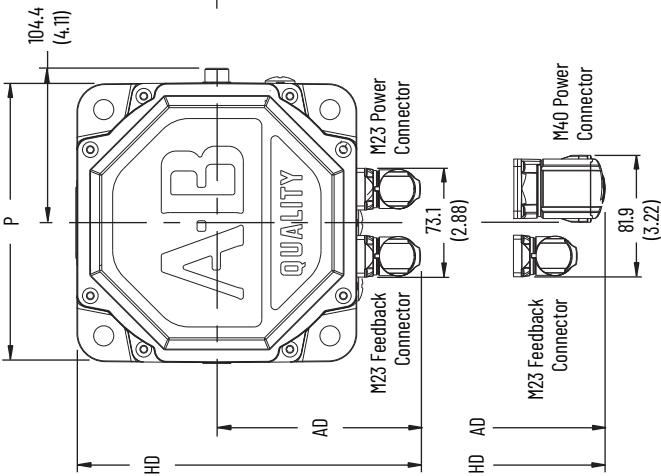
Dimensions are in mm (in.)



**Shaft Diameter (D) Tolerance**  
 Ø 70.985...71.000  
 (2.7947...2.7953)

**Shaft Diameter (DB) Tolerance**  
 Ø 71.985...72.000  
 (2.8340...2.8346)

Shaft and Pilot Tolerances	RDB-B215xx
Shaft Runout (T.I.R.)	0.13 (0.005)
Pilot Concentricity (T.I.R.)	0.10 (0.004)
Mounting Surface Perpendicularity	0.10 (0.004)



**RDB-B215xx Motor Dimensions**

Motor Cat. No.	AD (1) mm (in.)	HD (1) mm (in.)	T mm (in.)	LA mm (in.)	LD mm (in.)	LE mm (in.)	LB (2) mm (in.)	D mm (in.)	DB mm (in.)	E (3) mm (in.)	EB (4) mm (in.)	TB mm (in.)	M mm (in.)	S (5) mm (in.)	N mm (in.)	NB mm (in.)	P mm (in.)
RDB-B2151					166 (6.52)	124 (4.90)	226 (8.90)			49.0 (1.93)	104 (4.09)						
RDB-B2152	136.7 (5.38)	230.9 (9.09)	5.0 (0.197)	14.0 (0.55)	200 (7.86)	158 (6.24)	260 (10.24)	71.0 (2.795)	72.0 (2.834)	83.0 (3.27)	138 (5.43)	5.5 (0.22)	215 (8.465)	13.50 (0.5315)	164 (6.456)	164 (6.459)	189 (7.44)
RDB-B2153					234 (9.20)	192 (7.58)	294 (11.56)			117 (4.61)	172 (6.77)						

(1) Dimension is for motor with M23 power connector. For motor with M40 power connector, add 18.6 (0.73 in.).

(2) Tolerance for this dimension is  $\pm 0.52$  mm ( $\pm 0.02$  in.).

(3) Tolerance for this dimension is  $\pm 0.40$  mm ( $\pm 0.015$  in.).

(4) Tolerance for this dimension is  $\pm 1.50$  mm ( $\pm 0.06$  in.), static,  $\pm 0.13$  mm ( $\pm 0.005$  in.), dynamic.

(5) Tolerance for this dimension is  $+0.430$ ,  $-0.000$  mm ( $+0.0169$ ,  $-0.0000$  in.).

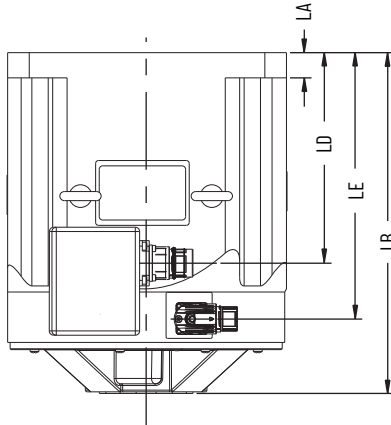
Power Connectors on Kinetix RDB Servo Motors	Motor Cat. No.
M23 Power Connector	RDB-B21519, RDB-B21529, RDB-B2151C, RDB-B21539, RDB-B2152C
M40 Power Connector	RDB-B2153C

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

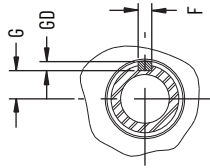
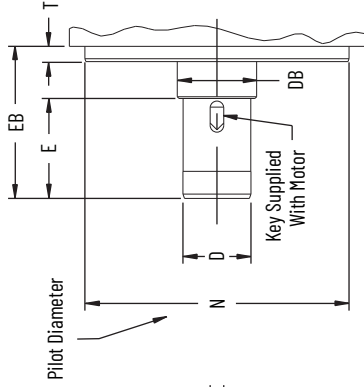
RDB-B290xx and RDB-B410xx Motor Dimensions

Shaft, Pilot, and Keyway Tolerances	RDB-B290xx	RDB-B410xx
Shaft Runout (T.I.R.)	0.038 (0.0015)	
Pilot Concentricity (T.I.R.)	0.05 (0.002)	
Mounting Surface Perpendicularity	0.05 (0.002)	
Keyway Depth (G)	24.80...24.99 (0.976...0.984)	29.80...29.99 (1.173...1.181)
Keyway Depth (GD)	7.90...8.00 (0.311...0.315)	
Keyway Width (F)	11.957...12.000 (0.4707...0.4724)	

Dimensions are in mm (in.)



Machine Mounting Dimensions



Shaft Key Detail

Pilot Diameter Tolerance

- RDB-B290xx Motors:  
Ø 232.92...232.96 (9.170...9.172)
- RDB-B410xx Motors:  
Ø 333.94...333.98 (13.147...13.149)

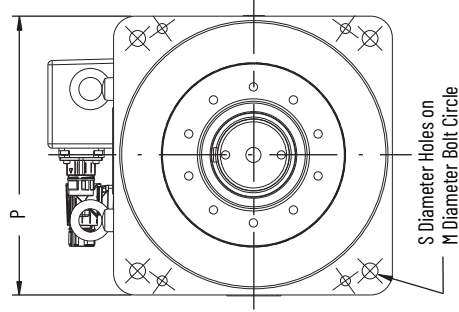
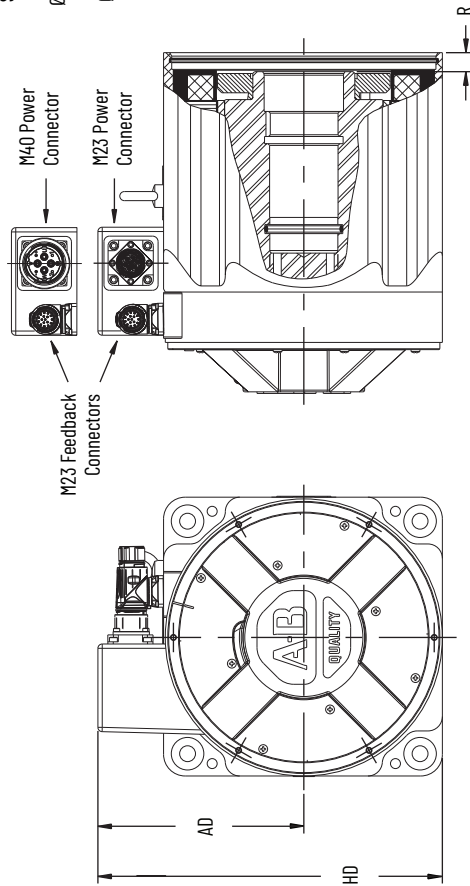
Shaft Diameter (D) Tolerance

- RDB-B290xx Motors:  
Ø 59.988...59.999 (2.3617...2.3622)
- RDB-B410xx Motors:  
Ø 69.988...69.999 (2.7554...2.7559)

Shaft Diameter (DB) Tolerance

- RDB-B290xx Motors:  
Ø 69.988...69.999 (2.7554...2.7559)
- RDB-B410xx Motors:  
Ø 79.988...79.999 (3.1491...3.1496)

RDB-B290xx and RDB-B410xx motors have either M23 or M40 power connectors, with no significant difference in dimensions.



**RDB-B290xx and RDB-B410xx Motor Dimensions**

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA (1) mm (in.)	LD mm (in.)	LE mm (in.)	LB (2) mm (in.)	D mm (in.)	DB mm (in.)	E (3) mm (in.)	EB (4) mm (in.)	M mm (in.)	S mm (in.)	N mm (in.)	P (5) mm (in.)	G mm (in.)	GD mm (in.)	F mm (in.)
RDB-B2901					86.5 (3.40)	136 (5.34)	201 (7.92)			43.94 (1.730)	88.92 (3.540)							
RDB-B2902	182.3 (7.18)	305.9 (12.05)	13.5 (0.53)	22.2 (0.88)	136 (5.36)	185 (7.30)	251 (9.90)	59.9 (2.362)	69.9 (2.755)	88.14 (3.470)	134.11 (5.280)	290 (11.417)	14.0 (0.551)	232.9 (9.17)	245.9 (9.68)	24.99 (0.984)	8.00 (0.315)	12.0 (0.472)
RDB-B2903					186 (7.31)	235 (9.25)	301 (11.83)			124.7 (4.910)	170.69 (6.720)							
RDB-B4101					105 (4.14)	164 (6.46)	230 (9.05)			40.39 (1.590)	114.05 (4.490)							
RDB-B4102	256.3 (10.09)	432.1 (17.01)	17.8 (0.70)	25.4 (1.00)	174 (6.86)	233 (9.18)	300 (11.77)	69.9 (2.755)	79.9 (3.149)	83.82 (3.300)	167.89 (6.610)	40 (16.142)	17.5 (0.689)	333.9 (13.14)	350.0 (13.78)	29.99 (1.181)	8.00 (0.315)	12.0 (0.472)
RDB-B4103					243 (9.58)	302 (11.90)	368 (14.49)			118.62 (4.670)	253.49 (9.980)							

(1) Tolerance for this dimension is ±2.15 mm (±0.085 in.).

(2) Tolerance for this dimension is ±2.30 mm (±0.09 in.).

(3) Tolerance for this dimension is ±0.13 mm (±0.005 in.).

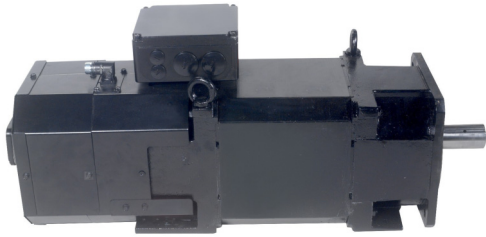
(4) Tolerance for this dimension is ±1.50 mm (±0.060 in.) static; ±0.05 mm (±0.002 in.) dynamic.

(5) Tolerance for this dimension is ±1.52 mm (±0.06 in.).

Power Connectors on Kinetix RDB Servo Motors	RDB-B290xx Cat. No.	RDB-B410xx Cat. No.
M23 Power Connector	RDB-B29014, RDB-B29016, RDB-B29024, RDB-B29019, RDB-B29034, RDB-B29026	N/A
M40 Power Connector	RDB-B29036, RDB-B29029, RDB-B29039	RDB-B410xx

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

# Kinetix HPK Asynchronous Servo Motors



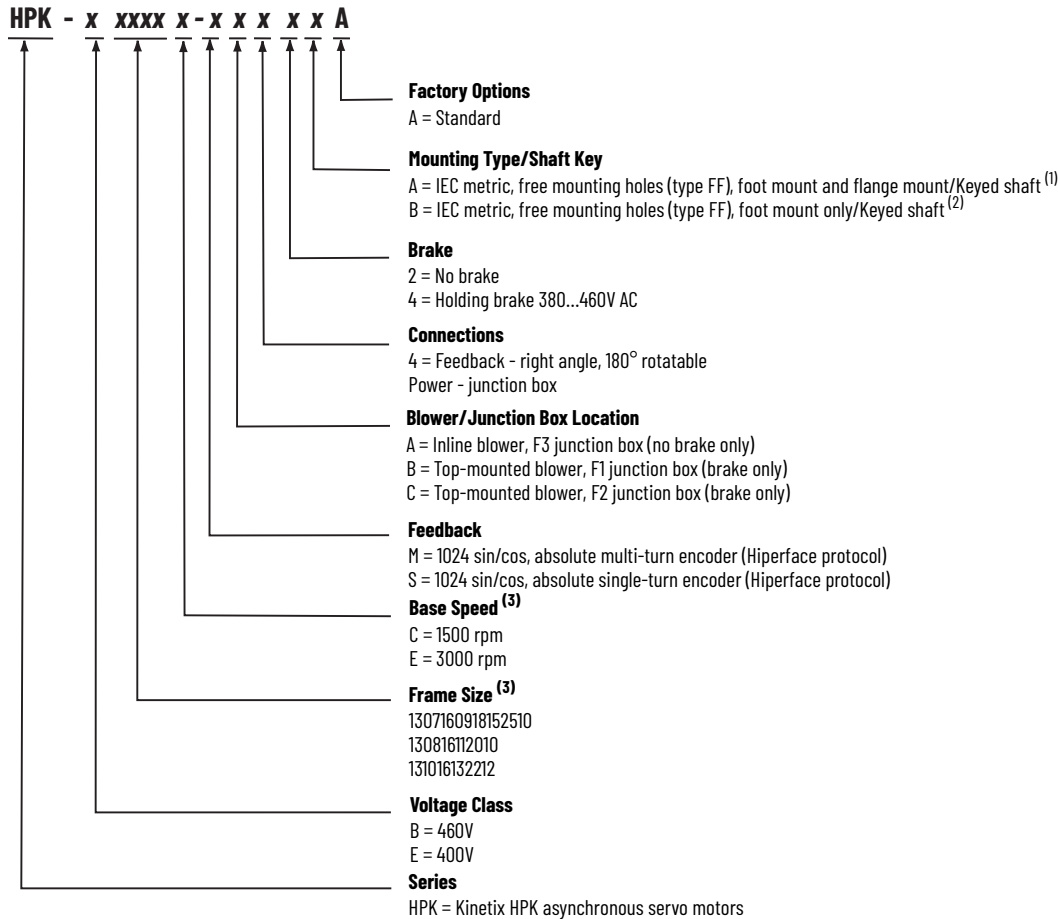
Kinetix HPK servo motors employ proven induction motor technology optimized for servo system performance. These high horsepower motors offer exceptional performance for rapid acceleration and deceleration. These motor pair with the Kinetix 5700 single-axis inverters or Kinetix 7000 servo drives to extend the range of Kinetix Integrated Motion solutions up to 150 kW.

## Kinetix HPK Servo Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• High-power</li> <li>• Hiperface encoder protocol</li> <li>• Large load inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 400V and 460V windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• DIN connectors, rotates 180°</li> <li>• Blower cooled</li> <li>• IEC flange or foot mount</li> </ul>
Motor type	Asynchronous servo motors
Environmental rating	IP54
Certifications	Kinetix HPK rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://rok.auto/certifications">rok.auto/certifications</a> for the Product Certifications website.
Continuous stall torque	96...955 N•m (849...8452 lb•in)
Peak stall torque	165...1927 N•m (1460...17,054 lb•in)
Rated speed	Rated speeds of 1500 and 3000 rpm
Motor rated output	17.1...150 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5700</li> <li>• Kinetix 7000</li> </ul>
Compatible servo cables	2090-CxxM7xx feedback cables
Typical applications	<ul style="list-style-type: none"> <li>• High power packaging</li> <li>• Converting</li> <li>• Wind/unwind/rewind</li> <li>• Sheeters</li> <li>• Flying knife</li> <li>• Material handling</li> </ul>

## Catalog Numbers - Kinetix HPK Servo Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) Applies to only HPK-B/E13xx and HPK-B/E16xx motors.

(2) Applies to only HPK-B/E18xx, HPK-B/E20xx, HPK-B22xx, and HPK-B25xx motors.

(3) Not all combinations are available. Only the configurations for rated speed and frame size, as listed in Kinetix HPK Servo Motor (460V) Performance Specifications on [page 168](#) and Kinetix HPK Servo Motor (400V) Performance Specifications on [page 169](#), are available. Use Motion Analyzer software to size and select motors for your application.

## Kinetix HPK Servo Motor Encoders

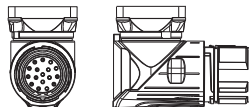
Kinetix HPK servo motors are available with high performance encoders with a choice of single-turn (-S) or multi-turn (-M) high-resolution feedback:

- 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution) -M and -S (HPK-Bxxxx and HPK-Exxxx motors).
- Single-turn encoder provides high-resolution absolute position feedback within one turn.
- Multi-turn encoder provides high-resolution absolute position feedback within 4096 turns. The electromechanical design does not require a battery.

## Motor Connector/Cable Compatibility


Kinetix HPK servo motors are equipped with SpeedTec DIN connectors.

**SpeedTec DIN Connector**



- HPK-B/Exxxx motors
- Receives M4 and M7 cable plugs (O-ring required for M4)
- Attach M7 cable plug with one-quarter turn

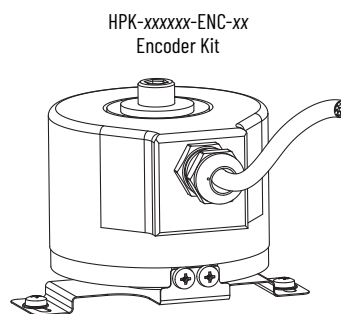
**SpeedTec DIN (M7) Cable Plug**



- 2090-CFBM7DF-CEAxx (standard, non-flex) flying-lead, feedback cables
- 2090-CFBM7DD-CEAxx (standard, non-flex) drive-end connector, feedback cables
- 2090-CFBM7DF-CEAFxx (continuous-flex) flying-lead, feedback cables
- 2090-CFBM7DD-CEAFxx (continuous-flex) drive-end connector, feedback cables
- 2090-CFBM7DF-CDAFxx (continuous-flex) flying-lead, feedback cables

## Kinetix HPK Servo Motor Options

- Multiple junction box mounting locations (F1, F2, and F3).
- Holding brake, 380V...460V AC.
- 460V and 400V windings.
- Encoder kit (catalog number HPK-xxxxxx-ENC-xx) available for field replacement. Kits are pre-programmed for a specific motor catalog number. Kit includes cable and DIN connector.



## Technical Specifications - Kinetix HPK Servo Motors

### Kinetix HPK Servo Motor (460V) Performance Specifications

Motor Cat. No.	Base Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
HPK-B1307C	1500	3000	112 (991)	257 (2274)	17.1 (22.9)	0.081 (0.7168)	135 (297)
HPK-B1308C			141 (1247)	262 (2319)	21.6 (28.9)	0.098 (0.8673)	152 (335)
HPK-B1310C			155 (1372)	325 (2876)	23.8 (31.9)	0.111 (0.9823)	166 (366)
HPK-B1613C			271 (2398)	542 (4797)	41.7 (55.9)	0.206 (1.8231)	275 (606)
HPK-B1815C			360 (3186)	850 (7523)	55.9 (74.9)	0.468 (4.1418)	474 (1045)
HPK-B2010C			482 (4266)	970 (8585)	75.0 (100.5)	0.885 (7.8322)	531 (1170)
HPK-B2212C			607 (5371)	1105 (9780)	94.0 (127)	1.900 (16.829)	847 (1867)
HPK-B2510C			2000	955 (8452)	1927 (17,054)	150 (200)	3.070 (27.192)
HPK-B1307E	3000	5000	96 (849)	165 (1460)	29.8 (39.9)	0.081 (0.7168)	135 (297)
HPK-B1308E			115 (1018)	230 (2035)	35.7 (47.8)	0.098 (0.8673)	152 (335)
HPK-B1609E			156 (1381)	270 (2390)	48.4 (64.8)	0.147 (1.3009)	231 (469)
HPK-B1611E			183 (1619)	400 (3540)	57.0 (76.4)	0.177 (1.5664)	244 (538)
HPK-B1613E			237 (2097)	459 (4062)	73.7 (98.8)	0.206 (1.8231)	275 (606)
HPK-B2010E			295 (2610)	500 (4425)	92.0 (125)	0.885 (7.8322)	576 (1270)

(1) Rotor inertia can vary slightly depending on feedback.



## Kinetix HPK Servo Motor (400V) Performance Specifications

Motor Cat. No.	Base Speed rpm	Maximum Speed rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
HPK-E1307C	1500	3000	112 (991)	263 (2327)	17.1 (22.9)	0.081 (0.7168)	135 (297)
HPK-E1310C			155 (1372)	380 (3363)	23.8 (32.4)	0.111 (0.9823)	166 (366)
HPK-E1613C			271 (2398)	625 (5531)	41.7 (55.9)	0.206 (1.8231)	275 (606)
HPK-E1815C			360 (3186)	840 (7434)	55.9 (74.9)	0.468 (4.1418)	474 (1045)
HPK-E2010C			482 (4266)	870 (7700)	75.0 (100.5)	0.885 (7.8322)	531 (1170)
HPK-E1307E	3000	5000	96.0 (849)	202 (1788)	29.8 (39.9)	0.081 (0.7168)	135 (297)
HPK-E1308E			107 (947)	200 (1770)	33.2 (45.0)	0.098 (0.8673)	152 (335)
HPK-E1609E			156 (1381)	359 (3176)	48.4 (64.9)	0.147 (1.3009)	213 (469)
HPK-E1611E			183 (1619)	430 (3805)	57.0 (76.4)	0.177 (1.5664)	244 (538)
HPK-E1613E			237 (2097)	430 (3805)	73.7 (98.8)	0.206 (1.8231)	275 (606)

(1) Rotor inertia can vary slightly depending on feedback.

## Kinetix HPK Servo Motor Brake Specifications

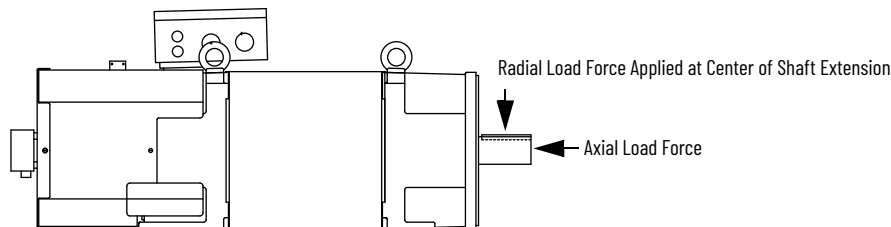
Motor Cat. No.	Holding Torque N·m (lb·in)
HPK-B/E1307C	20 (177)
HPK-B/E1308C	
HPK-B/E1310C	
HPK-B/E1613C	
HPK-B/E1815C	48 (425)
HPK-B/E2010C	
HPK-B2212C	102 (903)

Motor Cat. No.	Holding Torque N·m (lb·in)
HPK-B/E1307E	20 (177)
HPK-B/E1308E	
HPK-B/E1609E	
HPK-B/E1611E	
HPK-B/E1613E	
HPK-B/E2010E	48 (425)

## Kinetix HPK Servo Motor Load Force Ratings

Kinetix HPK servo motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables starting below represent an  $L_{10}$  bearing fatigue life of 10,000 hours. This 10,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

### Load Forces on Shaft



### Radial Load Force Ratings (zero axial load)

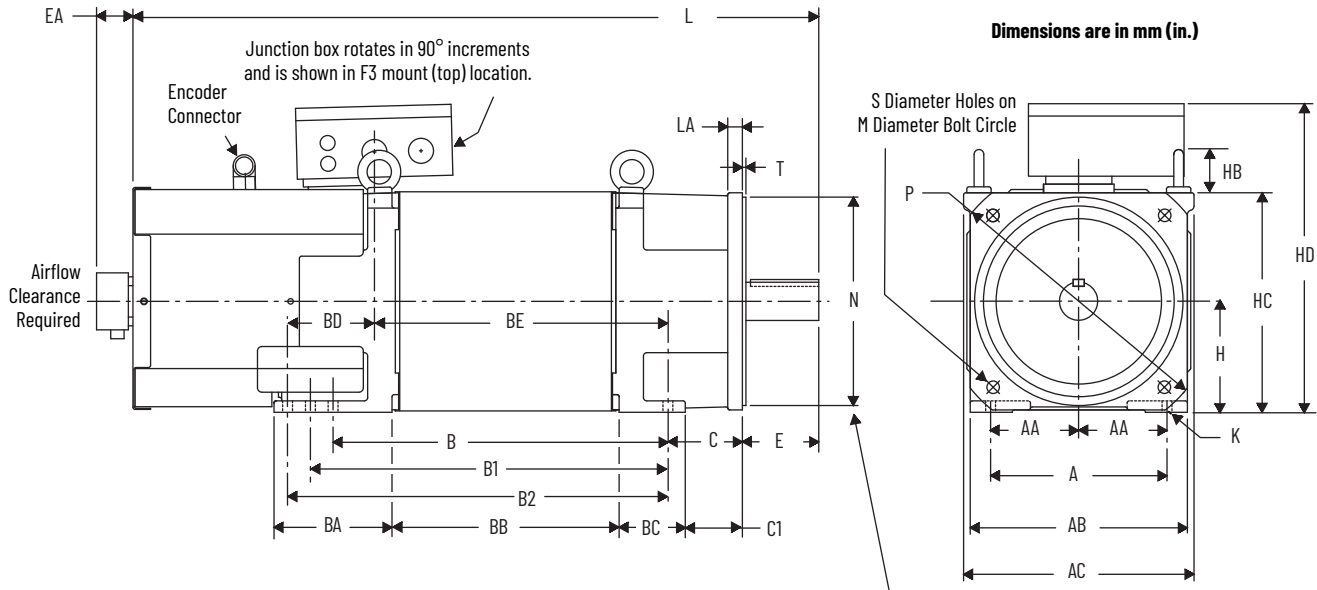
Motor Cat. No.	850 rpm kg (lb)	1150 rpm kg (lb)	1750 rpm kg (lb)	2500 rpm kg (lb)
HPK-B/E1307	320 (704)	290 (638)	250 (550)	220 (485)
HPK-B/E1308	320 (704)	290 (638)	250 (550)	220 (485)
HPK-B/E1310	320 (704)	290 (638)	250 (550)	220 (485)
HPK-B/E1609	500 (1100)	450 (990)	390 (858)	350 (770)
HPK-B/E1611	500 (1100)	450 (990)	390 (858)	350 (770)
HPK-B/E1613	500 (1100)	450 (990)	390 (858)	350 (770)
HPK-B/E1815	530 (1166)	530 (1166)	530 (1166)	450 (990)
HPK-B/E2010	660 (1452)	660 (1452)	660 (1452)	580 (1276)
HPK-B2212	730 (1609)	690 (1521)	600 (1323)	530 (1168)
HPK-B2510				

### Axial Load Force Ratings (zero radial load)

Motor Cat. No.	850 rpm kg (lb)	1150 rpm kg (lb)	1750 rpm kg (lb)	2500 rpm kg (lb)
HPK-B/E1307	260 (572)	240 (528)	210 (462)	180 (396)
HPK-B/E1308	260 (572)	240 (528)	210 (462)	180 (396)
HPK-B/E1310	260 (572)	240 (528)	210 (462)	180 (396)
HPK-B/E1609	360 (796)	330 (726)	290 (638)	250 (550)
HPK-B/E1611	360 (796)	330 (726)	290 (638)	250 (550)
HPK-B/E1613	360 (796)	330 (726)	290 (638)	250 (550)
HPK-B/E1815	440 (970)	380 (838)	310 (682)	260 (572)
HPK-B/E2010	530 (1166)	460 (1012)	370 (814)	310 (682)
HPK-B2212	800 (1764)	730 (1609)	630 (1389)	560 (1235)
HPK-B2510				

# Dimensions - Kinetix HPK Servo Motors

## HPK-B/E13xx and HPK-B/E16xx Motor (non-brake) Dimensions



Dimensions are in mm (in.)

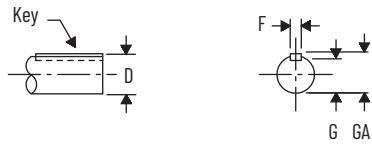
### Shaft Diameter Tolerances

- HPK-B/E1307, 1308, 1310  
 $\varnothing$  48.003...48.016 (1.8899...1.8904)
- HPK-B/E1609, 1611, 1613  
 $\varnothing$  55.011...55.030 (2.1658...2.1665)

### Pilot Diameter Tolerances

- HPK-B/E1307, 1308, 1310  
 $\varnothing$  249.99...250.02 (9.842...9.844)
- HPK-B/E1609, 1611, 1613  
 $\varnothing$  299.99...300.02 (11.809...11.811)

### Shaft Detail with Key



- HPK-B/E1307, 1308, 1310 = 14 x 9 x 80 Key
- HPK-B/E1609, 1611, 1613 = 16 x 10 x 90 Key

Shaft, Pilot, and Keyway Tolerances	HPK-B/E13xx	HPK-B/E16xx
Shaft Runout (T.I.R.)	0.06 (0.002)	0.06 (0.002)
Max Face Runout (T.I.R.)	0.13 (0.005)	0.13 (0.005)
Keyway Depth (GA)	51.30...51.9 (2.02...2.04)	58.67...58.92 (2.31...2.32)
Keyway Depth (G)	42.42...42.92 (1.67...1.69)	48.50...49.00 (1.91...1.93)
Keyway Width (F)	13.94...13.99 (0.549...0.551)	15.95...16.00 (0.628...0.630)

HPK-B/E13xx and HPK-B/E16xx Motor (non-brake) Dimensions

Motor Cat. No.	H mm (in.)	HC mm (in.)	HD mm (in.)	HB mm (in.)	L mm (in.)	EA mm (in.)	LA mm (in.)	T mm (in.)	P mm (in.)	M mm (in.)	S <sup>(1)</sup> mm (in.)	N <sup>(2)</sup> mm (in.)	D <sup>(2)</sup> mm (in.)	G <sup>(2)</sup> mm (in.)	GA <sup>(2)</sup> mm (in.)	F <sup>(2)</sup> mm (in.)
HPK-B/E1307					806 (31.7)											
HPK-B/E1308	132 (5.20)	262 (10.3)	366 (14.4)	53.0 (2.09)	845 (33.2)	52.0 (2.05)	17.0 (0.67)	5.0 (0.20)	350 (13.7)	300 (11.8)	18.5 (0.73)	250 (9.84)	48.0 (1.89)	42.4 (1.67)	51.3 (2.02)	13.9 (0.55)
HPK-B/E1310					876 (34.4)											
HPK-B/E1609			444 (17.4)		886 (34.8)											
HPK-B/E1611	160 (6.30)	316 (12.4)	450 (17.7)	62.0 (2.44)	937 (36.8)	52.0 (2.05)	21.0 (0.83)	5.0 (0.20)	400 (15.7)	350 (13.7)	18.5 (0.73)	300 (11.8)	55.0 (2.16)	48.5 (1.91)	58.7 (2.31)	16.0 (0.63)
HPK-B/E1613					987 (38.8)											

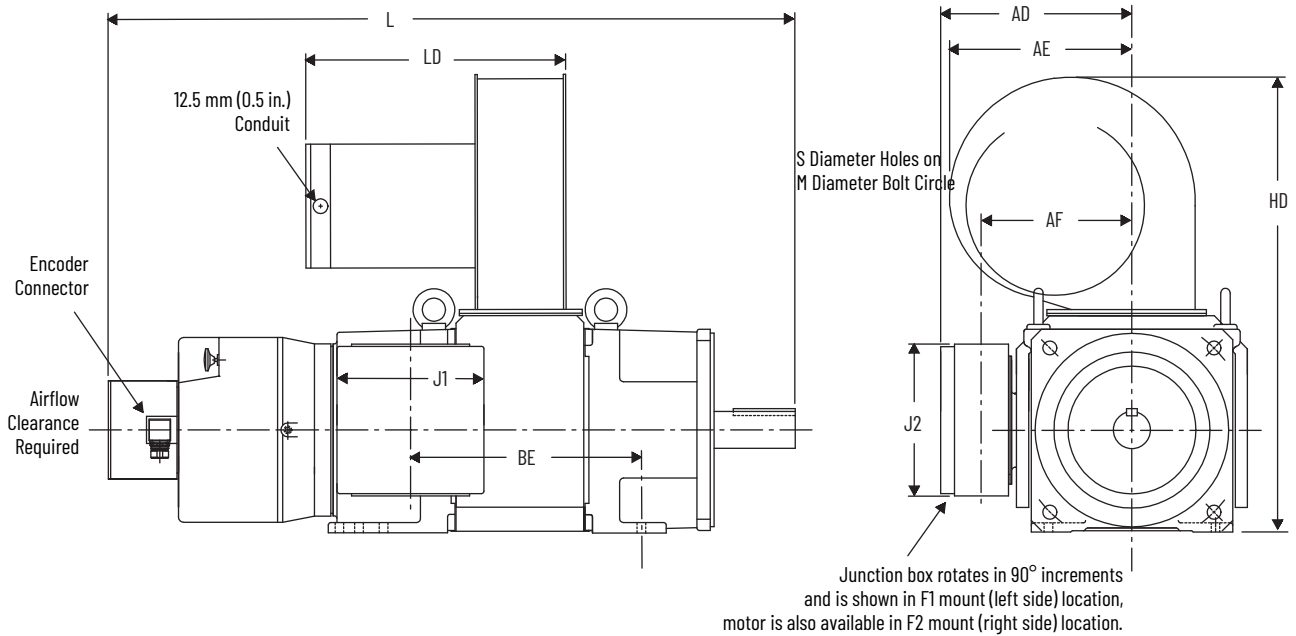
(1) Tolerance for this dimension is +0.52, -0.0 mm (+0.02, -0.0 in.).  
 (2) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 171](#).

Motor Cat. No.	K mm (in.)	A mm (in.)	AA mm (in.)	AB mm (in.)	AC mm (in.)	B mm (in.)	B1 mm (in.)	B2 mm (in.)	BA mm (in.)	BB mm (in.)	BC mm (in.)	C mm (in.)	C1 mm (in.)	E mm (in.)	BD mm (in.)	BE mm (in.)
HPK-B/E1307						333 (13.1)	365 (14.3)	390 (15.3)		187 (7.36)						300 (11.8)
HPK-B/E1308	12.0 (0.47)	216 (8.50)	108 (4.25)	260 (10.2)	279 (10.9)	371 (14.6)	403 (15.8)	428 (16.8)	154 (6.06)	226 (8.90)	95.0 (3.74)	89.0 (3.50)	57.0 (2.24)	110 (4.33)	91.0 (3.58)	338 (13.3)
HPK-B/E1310						403 (15.8)	435 (17.1)	462 (18.1)		257 (10.1)						369 (14.5)
HPK-B/E1609						N/A	414 (16.3)	452 (17.8)		225 (8.86)						321 (12.6)
HPK-B/E1611	14.0 (0.55)	254 (10.0)	127 (5.0)	313 (12.3)	332 (13.0)	N/A	464 (18.2)	502 (19.7)	170 (6.69)	276 (10.8)	95.0 (3.74)	108 (4.25)	82.0 (3.23)	110 (4.33)	130 (5.12)	372 (14.6)
HPK-B/E1613						N/A	515 (20.2)	548 (21.5)		327 (12.8)					125 (4.92)	423 (16.6)

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

HPK-B/E13xx and HPK-B/E16xx Motor (brake) Dimensions

Dimensions are in mm (in.)

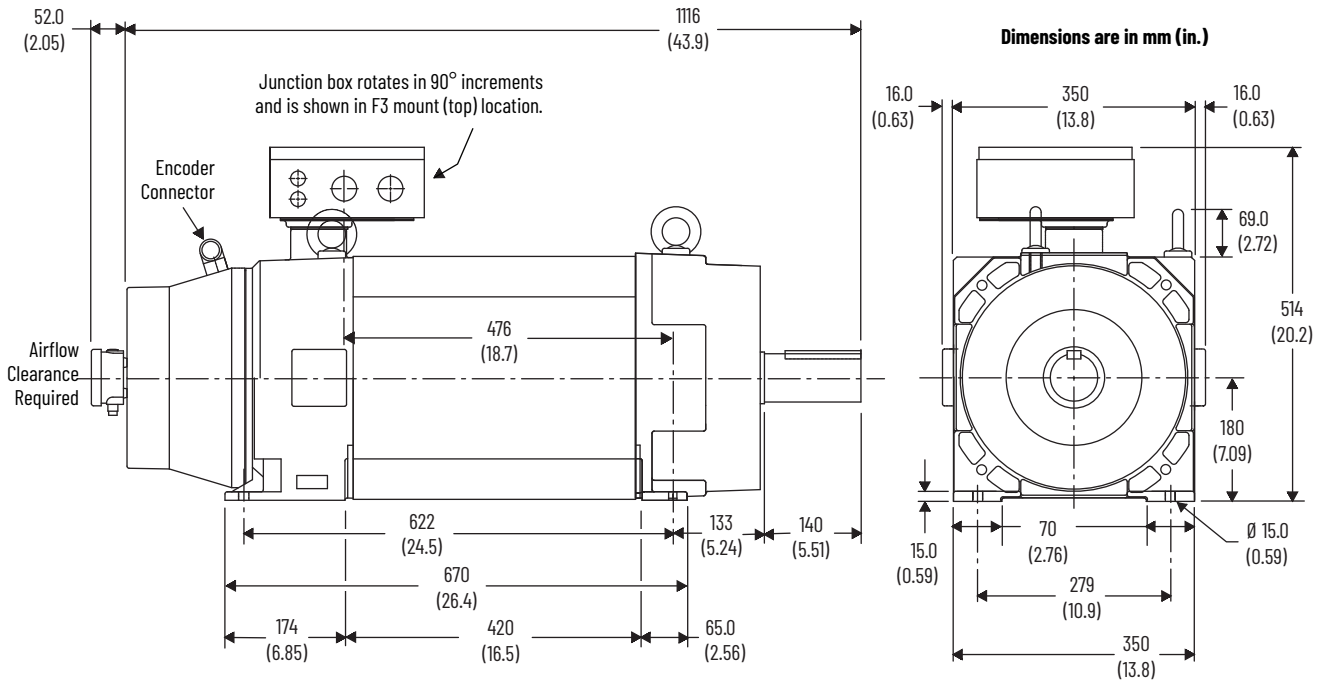


HPK-B/E13xx and HPK-B/E16xx Motor (brake) Dimensions

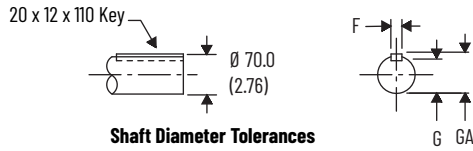
Motor Cat. No.	L mm (in.)	LD mm (in.)	BE mm (in.)	AD mm (in.)	AE mm (in.)	AF mm (in.)	HD mm (in.)	J1 mm (in.)	J2 mm (in.)
HPK-B/E1307	888 (34.9)		298 (11.7)						
HPK-B/E1308	926 (36.4)	336 (13.2)	336 (13.2)	247 (9.72)	236 (9.29)	195 (7.68)	588 (23.1)	190 (7.48)	196 (7.72)
HPK-B/E1310	957 (37.7)		368 (14.5)						
HPK-B/E1609	967 (38.0)		328 (12.9)						
HPK-B/E1611	1018 (40.1)	332 (13.0)	379 (14.9)	285 (11.2)	236 (9.29)	225 (8.86)	670 (26.3)	224 (8.82)	228 (8.98)
HPK-B/E1613	1069 (42.1)		430 (16.9)						

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

**HPK-B/E1815 Motor (non-brake) Dimensions**



**Shaft Detail with Key**

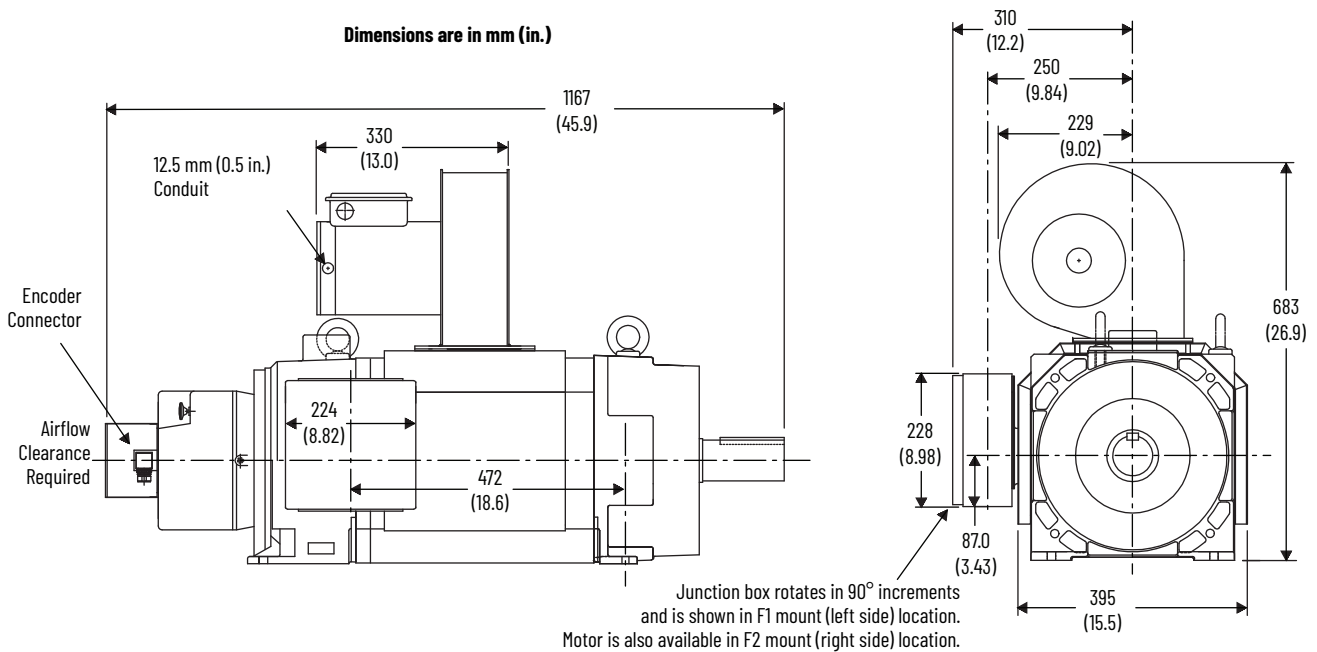


**Shaft Diameter Tolerances**

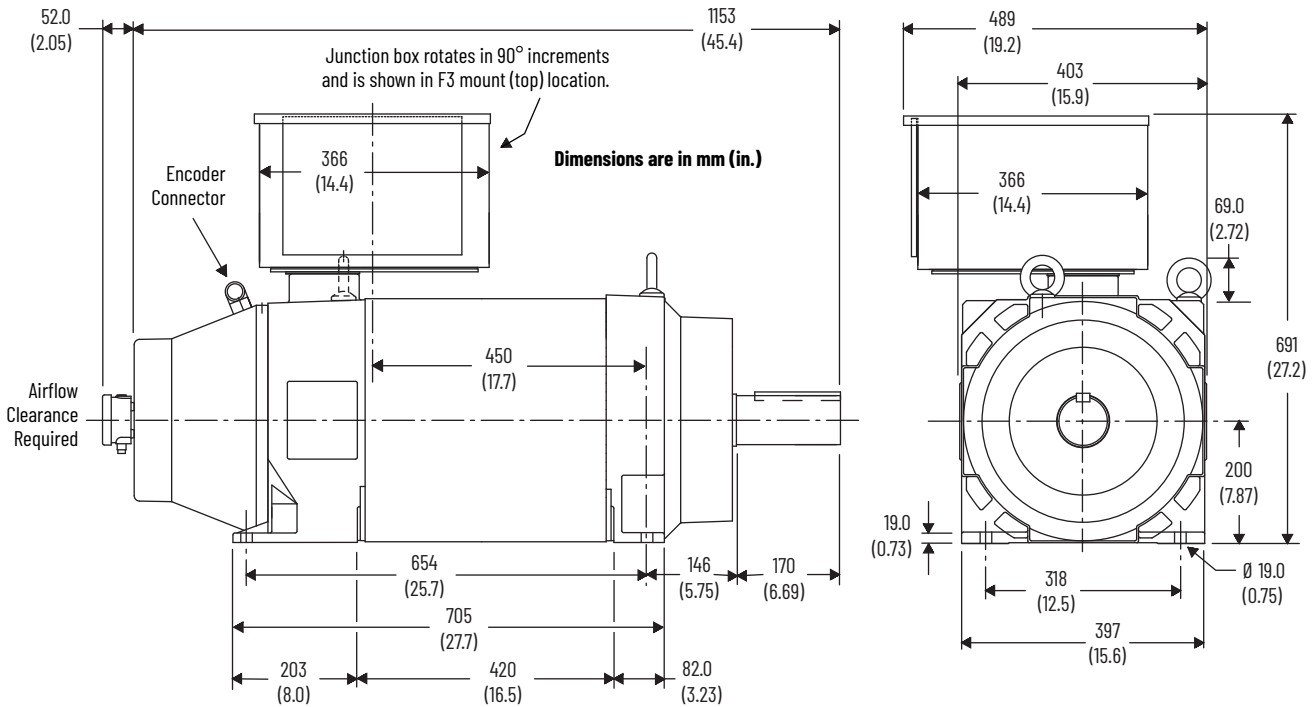
HPK-B/E1815  
 Ø 70.007...70.033 (2.7562...2.7572)

Shaft, Pilot, and Keyway Tolerances	HPK-B/E1815
Shaft Runout (T.I.R.)	0.06 (0.002)
Max Face Runout (T.I.R.)	0.13 (0.005)
Keyway Depth (GA)	73.90...74.50 (2.91...2.93)
Keyway Depth (G)	62.00...62.50 (2.44...2.46)
Keyway Width (F)	19.94...19.99 (0.785...0.787)

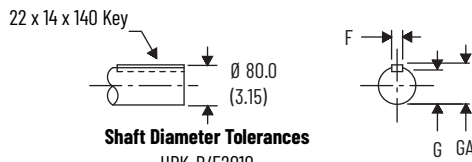
**HPK-B/E1815 Motor (brake) Dimensions**



**HPK-B/E2010 Motor (non-brake) Dimensions**



**Shaft Detail with Key**

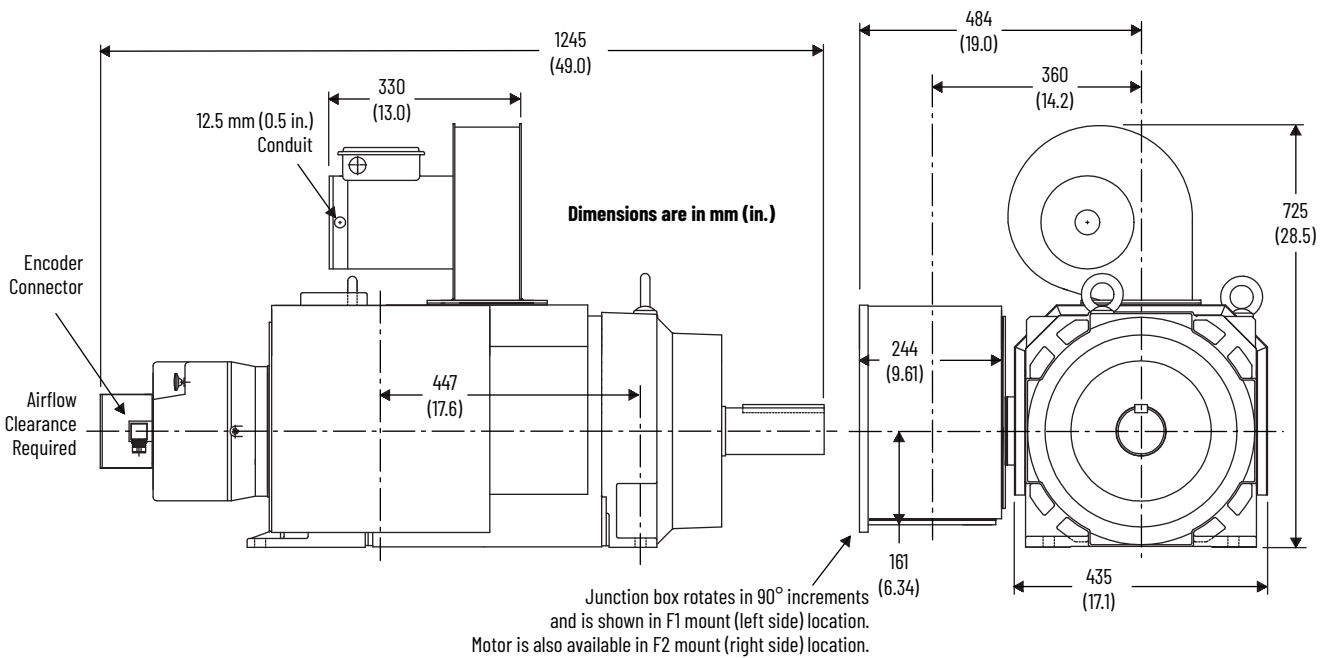


**Shaft Diameter Tolerances**

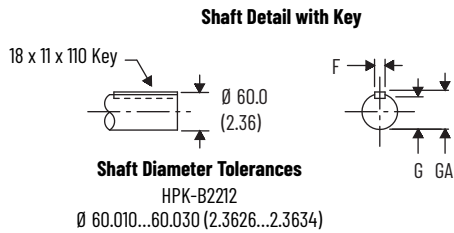
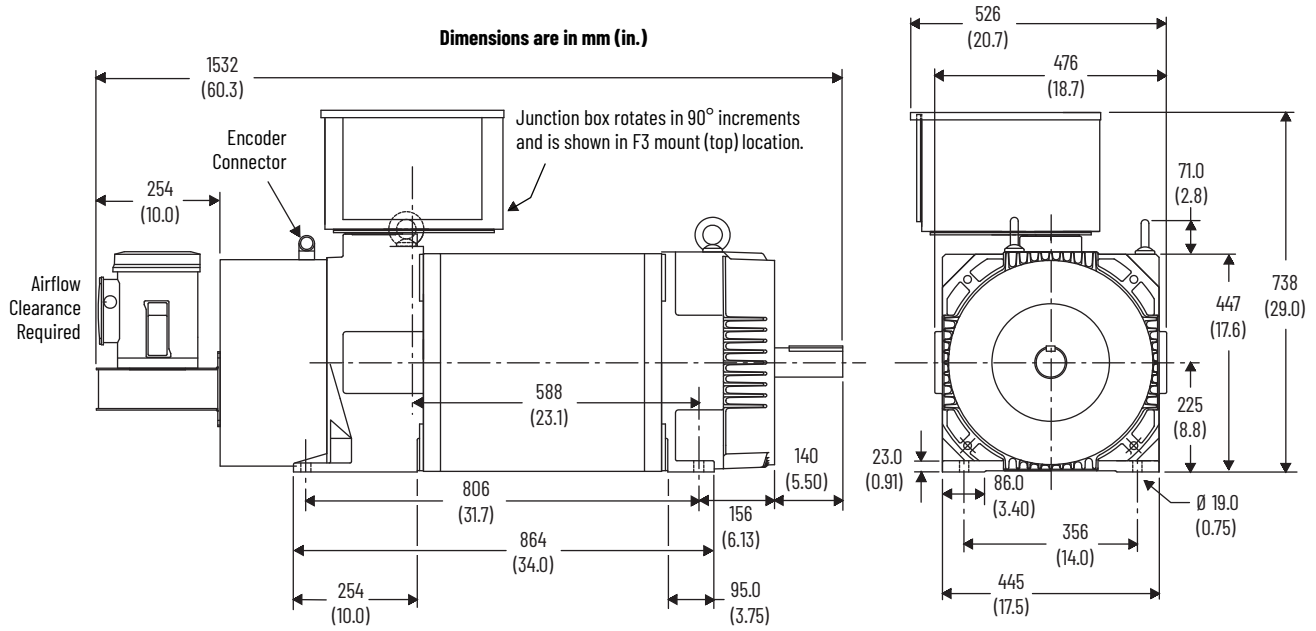
HPK-B/E2010  
 Ø 80.010...80.028 (3.1500...3.1507)

Shaft, Pilot, and Keyway Tolerances	HPK-B/E2010
Shaft Runout (T.I.R.)	0.06 (0.002)
Max Face Runout (T.I.R.)	0.13 (0.005)
Keyway Depth (GA)	84.50...85.10 (3.33...3.35)
Keyway Depth (G)	70.60...71.10 (2.78...2.80)
Keyway Width (F)	21.95...22.00 (0.864...0.866)

**HPK-B/E2010 Motor (brake) Dimensions**

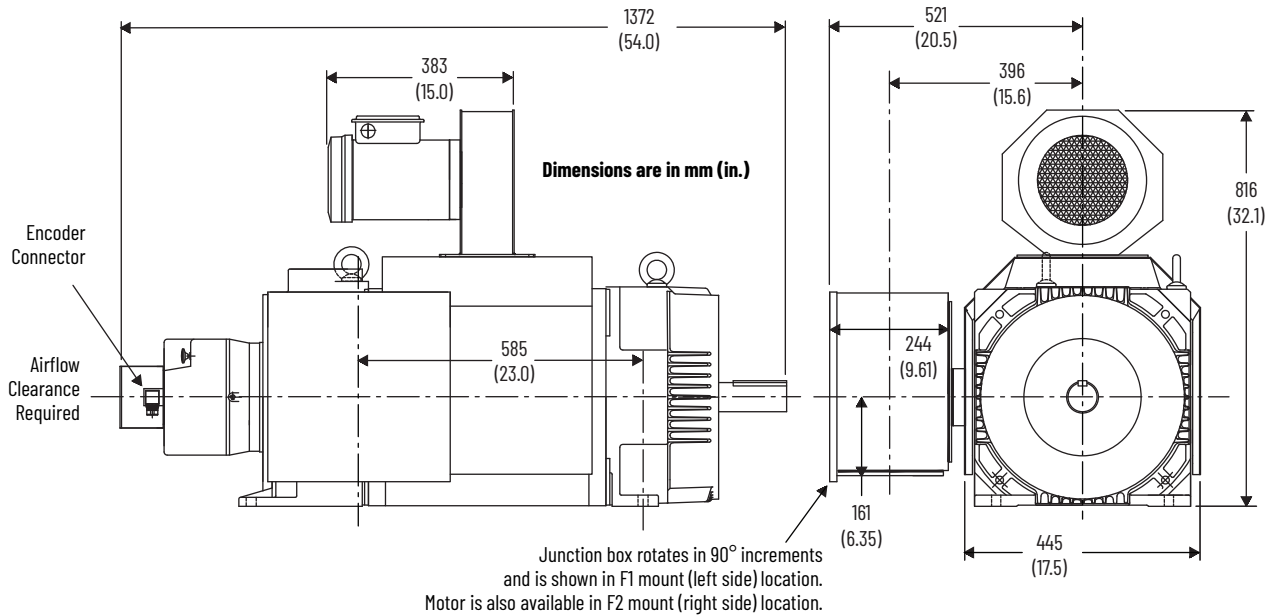


HPK-B2212 Motor (non-brake) Dimensions



Shaft, Pilot, and Keyway Tolerances	HPK-B2212
Shaft Runout (T.I.R.)	0.06 (0.002)
Max Face Runout (T.I.R.)	0.13 (0.005)
Keyway Depth (GA)	63.08...64.08 (2.48...2.59)
Keyway Depth (G)	52.57...53.08 (2.07...2.09)
Keyway Width (F)	21.95...22.00 (0.864...0.866)

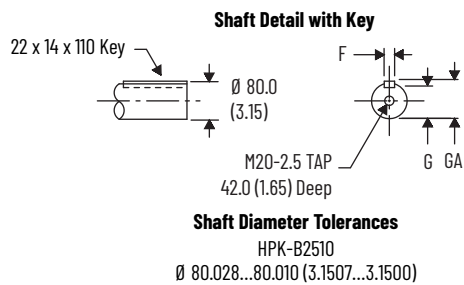
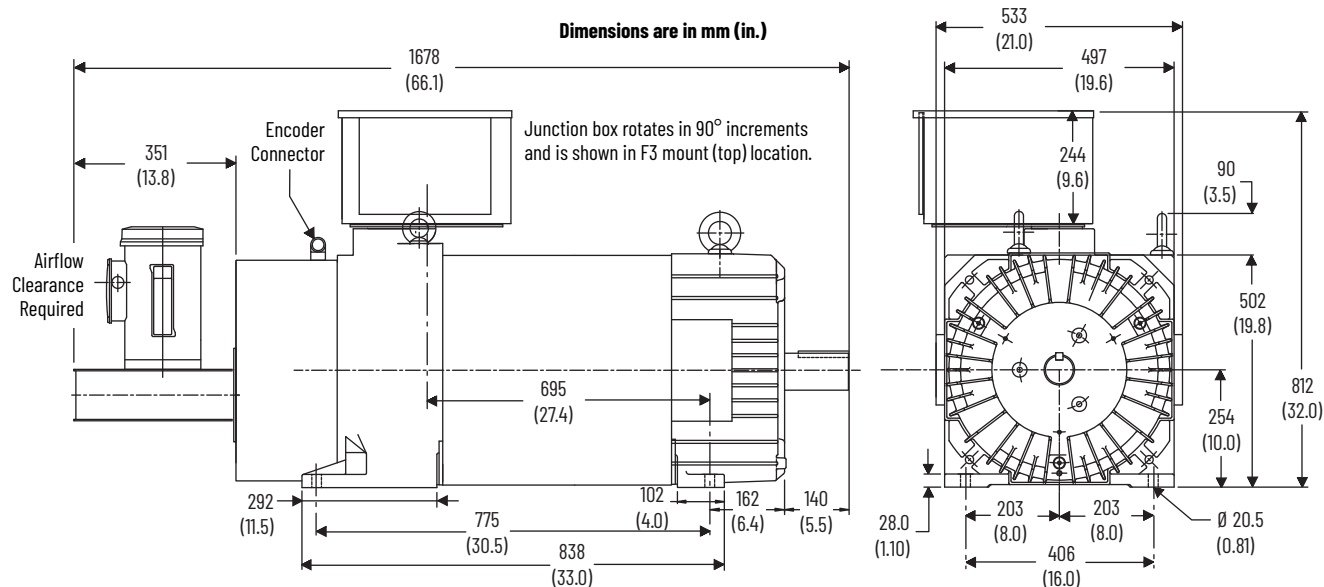
HPK-B2212 Motor (brake) Dimensions



Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.



HPK-B2510 Motor (non-brake) Dimensions



Shaft, Pilot, and Keyway Tolerances	HPK-B2510
Shaft Runout (T.I.R.)	0.06 (0.002)
Max Face Runout (T.I.R.)	0.13 (0.005)
Keyway Depth (GA)	85.1...84.5 (3.35...3.33)
Keyway Depth (G)	71.1...70.6 (2.80...2.78)
Keyway Width (F)	22.0...21.95 (0.866...0.864)

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

# Common Rotary Motor Specifications

These specifications are common to all Kinetix rotary motor families.

## Environmental Specifications - Kinetix Rotary Motion

Attribute	Kinetix VPL and VPF	Kinetix VPC	Kinetix VPH	Kinetix VPS	Kinetix TLP	Kinetix MP	Kinetix RDB	Kinetix TL and TLY	Kinetix HPK
Temperature, ambient	0...40 °C (32...104 °F)	-20...+40 °C (-4...+104 °F)		0...40 °C (32...104 °F)					
Temperature, storage	-30...+40 °C (-22...+104 °F)		-30...+70 °C (-22...+158 °F)		-10...+80 °C (+14...+176 °F)		-30...+70 °C (-22...+158 °F)		
Relative humidity (noncondensing)	5...90%		5...95%		20...90%		5...95%		
Shock <sup>(1)</sup>	20 g peak, 6 ms duration								10 g peak, 6 ms duration
Vibration <sup>(1)</sup>	2.5 g peak @ 30...2000 Hz								

(1) Any shock and vibration application exceeding these specifications can result in premature motor failure. Repetitive acceleration is considered vibration, not intermittent shock.

## Thermal Ratings - Kinetix Rotary Motion

To obtain the specified motor thermal rating do not mount the motor in an area with restricted airflow. Keep other heat producing devices away from the motor and mount the motor on a surface with heat dissipation equivalent to an aluminum heatsink attached as specified in the following table.

Heatsink Size mm (in.)	203 x 203 x 6.35 (8 x 8 x 0.25)	254 x 254 x 6.35 (10 x 10 x 0.25)	305 x 305 x 12.7 (12 x 12 x 0.50)	305 x 305 x 25.4 (12 x 12 x 1.0)	407 x 407 x 19.1 (16 x 16 x 0.75)	457 x 457 x 12.7 (18 x 18 x 0.50)	508 x 508 x 19.1 (20 x 20 x 0.75)	533 x 533 x 25.4 (21 x 21 x 1.0)
Motor Cat. No.								
VPL-x063xx, VPF-x063xx, VPH-x063xx	X	-	-	-	-	-	-	-
VPL-x075xx, VPF-x075xx, VPH-x075xx	-	X	-	-	-	-	-	-
VPL-x100xx, VPL-x115xx, VPL-x130xx, VPL-B165xx VPF-x100xx, VPF-x115xx, VPF-x130xx, VPF-B165xx VPH-x100xx, VPH-x115xx, VPH-x130xx, VPH-B165xx VPS-B1304, VPS-B1653	-	-	X	-	-	-	-	-
VPC-B165xx	-	-	X	-	-	-	-	-
VPC-B215xx	-	-	-	X	-	-	-	-
VPC-B300xx	-	-	-	-	-	-	-	X
MPL-x15xx	X	-	-	-	-	-	-	-
MPL-x2xx	-	X	-	-	-	-	-	-
MPL-x3xx, MPL-x4xx, MPL-x45xx, MPL-x5xx MPM-xxxx, MPF-xxxx, MPS-xxxx, MDF-SBxxxx	-	-	X	-	-	-	-	-
MPL-B6xx	-	-	-	X	-	-	-	-
MPL-B8xx, MPL-B9xx	-	-	-	-	-	-	-	X
RDB-B215x	-	-	-	-	-	X	-	-
RDB-B290x	-	-	-	-	X	-	-	-
RDB-B410x	-	-	-	-	-	-	X	-
TL-A1xx, TLY-A1xx	X	-	-	-	-	-	-	-
TL-A2xx, TLY-A2xx	-	X	-	-	-	-	-	-
TL-A25xx, TLY-A25xx, TL-A3xx, TLY-A3xx	-	-	X	-	-	-	-	-

## Kinetix TLP Servo Motor Thermal Ratings

Motor Cat. No.	Heatsink Size mm (in.)
TLP-A046-xxx	250 x 250 x 6 (9.8 x 9.8 x 0.24)
TLP-A/B070-xxx	
TLP-A/B090-xxx	
TLP-A100-xxx	
TLP-A/B115-xxx	300 x 300 x 12 (11.8 x 11.8 x 0.47)
TLP-A/B145-xxx	400 x 400 x 20 (15.7 x 15.7 x 0.79)
TLP-A/B200-xxx	550 x 550 x 30 (21.6 x 21.6 x 1.2)
TLP-A/B235-xxx	650 x 650 x 35 (25.6 x 25.6 x 1.4)

## Environmental Ratings - Kinetix Rotary Motion

IP Rating <sup>(1)</sup>	Dust Protection	Liquid Protection	Shaft Seal/On-motor Connectors	Servo Motors
IP30	Protection from objects with a diameter of 2.5 mm (0.098 in.) or more	No protection from liquids.	On-motor cable connectors.	Kinetix TLP-x046...TLP-x100
IP40	Protection from objects with a diameter of 1.0 mm (0.039 in.) or more		Motor without shaft seal.	Kinetix TLP-x046...TLP-x235 <sup>(3)</sup>
IP50	Limited protection from dust (no harmful deposit).			Kinetix VPL • Kinetix MPL and MPM
IP54				
IP65	Total protection from dust.	Protected against low-pressure jets of water from all directions.	Motor with shaft seal (on-motor cable connectors rated IP54).	Kinetix TL and TLY
IP66		Protected against strong jets of water.	Motor with shaft seal and Bulletin 2090 <sup>(2)</sup> environmentally sealed cable connectors.	• Kinetix TLP-x046...TLP-x235 <sup>(3)</sup> • Kinetix VPC • Kinetix RDB <sup>(4)</sup>
IP67		Protected against the effects of temporary liquid immersion.		• Kinetix VPL, VPF, VPH, and VPS • Kinetix MPL, MPM, MPF, and MPS
IP69K		Protected against the effects of water/stream jets up to 100 bar (1200 psi) with nozzle temperature at approximately 80 °C (176 °F).		• Kinetix VPF, VPH, and VPS • Kinetix MPF and MPS
				• Kinetix VPH and VPS • Kinetix MPS

(1) IP rating descriptions are for reference only. Refer to the international standards for more complete rating descriptions.

(2) The cable connectors are rated IP66 and IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.

(3) Does not include on-motor cable connectors for TLP-x046...TLP-x100 servo motors.

(4) Environmental rating applies from mounting face to rear of motor. Customer is responsible for providing environmental protection to mounting face of motor.

## Certifications - Kinetix Rotary Motion

Rotary Motor Family	cULus <sup>(1)</sup>	CE <sup>(2)</sup>
Kinetix VPL, VPC, VPF, VPH, VPS	X	X
Kinetix MPL, MPM, MPF, MPS	X	X
Kinetix TLP	X	X
Kinetix TL and TLY	-	X
Kinetix RDB	X	X
Kinetix HPK	X	X

(1) UL recognized components to applicable UL and CSA standards.

(2) When product is marked, see the Product Certifications website at [rok.auto/certifications](http://rok.auto/certifications) for Declarations of Conformity, certificates, and other certification details.

## Motor Brake Application Guidelines

The brake option offered on these servo motors are holding brakes designed to hold the motor shaft at 0 rpm up to the rated brake holding torque. The brakes release when voltage is applied to the brake coil. Voltage and polarity supplied to the brake must be as specified to be sure of proper brake performance.

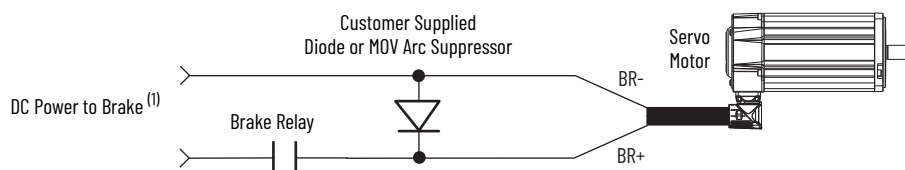
The brakes are not designed for stopping the rotation of the motor shaft. Use servo drive inputs to stop motor shaft rotation. The recommended method to stop the motor shaft from rotating is to command the servo drive to decelerate the motor to 0 rpm and engage the holding brake only after the motor has decelerated to 0 rpm.

If system mains power fails, the brakes can withstand use as stopping brakes. However, use of the brakes as stopping brakes creates rotational mechanical backlash that can damage the system, increase brake pad wear, and reduce brake life. The brakes are not designed, nor are they intended, to be used as a safety device.

A separate power source is required to disengage the brake. This power source can be controlled by the servo motor controls, in addition to manual operator controls. Electrical arcing can occur at the relay contacts until the brake power dissipates. A customer supplied diode or metal oxide varistor (MOV) is recommended to prevent arcing. Use of an MOV can also reduce the time to mechanically engage the brake. For brake response time specifications, refer to the motor brake specification tables.

For more information on the use of holding brakes, see the Vertical Load and Holding Brake Management Application Technique, publication [MOTION-AT003](#).

### Suppression Device for Brake Relay Contacts



(1) Kinetix 2000, Kinetix 5500, Kinetix 5700, Kinetix 6000, Kinetix 6200, Kinetix 6500, and Kinetix 7000 servo drives provide motor brake relay outputs and supply an MOV arc suppressor. Customer supplied arc suppressor is not required unless the coil current of motor brake is greater than the maximum brake current rating of the drive relay output.

## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
Kinetix Linear Motion Specifications, publication <a href="#">KNX-TD002</a>	Provides product specifications for Kinetix MPAS and MPMA linear stages, Kinetix VPAR, MPAR, and MPAI electric cylinders, and LDC-Series™ and LDL-Series™ linear motors.
Kinetix Servo Drives Specifications, publication <a href="#">KNX-TD003</a>	Provides product specifications for Kinetix Integrated Motion over EtherNet/IP™, Integrated Motion over sercos interface, EtherNet/IP networking, and component servo drive families.
Kinetix Motion Accessories Specifications, publication <a href="#">KNX-TD004</a>	Provides product specifications for Bulletin 2090 motor and interface cables, low-profile connector kits, drive power components, and other servo drive accessory items.
Kinetix Motion Control Selection Guide, publication <a href="#">KNX-SG001</a>	Provides an overview of Kinetix servo drives, motors, actuators, and motion accessories designed to help make initial decisions for the motion control products best suited for your system requirements.
Kinetix 5500 Drive Systems Design Guide, publication <a href="#">KNX-RM009</a>	Provides information to determine and select the required (drive specific) drive module, power accessory, connector kit, motor cable, and interface cable catalog numbers for your drive and motor/actuator motion control system. Includes system performance specifications and torque/speed curves (rotary motion) and force/velocity curves (linear motion) for your motion application.
Kinetix 5700 Drive Systems Design Guide, publication <a href="#">KNX-RM010</a>	
Kinetix 5100 Drive Systems Design Guide, publication <a href="#">KNX-RM011</a>	
Kinetix 5300 Drive Systems Design Guide, publication <a href="#">KNX-RM012</a>	
Kinetix 6000 and Kinetix 6200/6500 Drive Systems Design Guide, publication <a href="#">KNX-RM003</a>	
Kinetix 300/350 Drive Systems Design Guide, publication <a href="#">KNX-RM004</a>	
Kinetix 3 Drive Systems Design Guide, publication <a href="#">KNX-RM005</a>	
Kinetix 2000 Drive Systems Design Guide, publication <a href="#">KNX-RM006</a>	
Kinetix 7000 Drive Systems Design Guide, publication <a href="#">GMC-RM007</a>	
Vertical Load and Holding Brake Management Application Technique, publication <a href="#">MOTION-AT003</a>	Provides information on vertical loads and how the servo motor holding-brake option can be used to help keep a load from falling.
Motor Nameplate Datasheet Entry for Custom Motor Applications Application Technique, publication <a href="#">2198-AT002</a>	Provides information on the use of nameplate data entry for custom induction motors and permanent-magnet motors that are used in applications with Kinetix 5700 servo drives.
Kinetix 6200 and Kinetix 6500 Safe Speed Monitoring Servo Drives Safety Reference Manual, publication <a href="#">2094-RM001</a>	Provides information on wiring, configuring, and troubleshooting the safe-speed features of your Kinetix 6200 and Kinetix 6500 drives.
Kinetix 6200 and Kinetix 6500 Safe Torque-off Servo Drives Safety Reference Manual, publication <a href="#">2094-RM002</a>	Provides information on wiring, configuring, and troubleshooting the safe torque-off features of your Kinetix 6200 and Kinetix 6500 drives.
Kinetix Safe-off Feature Safety Reference Manual, publication <a href="#">GMC-RM002</a>	Provides information on wiring and troubleshooting your Kinetix 6000 and Kinetix 7000 servo drives with the safe-off feature.
System Design for Control of Electrical Noise Reference Manual, publication <a href="#">GMC-RM001</a>	Provides information, examples, and techniques designed to minimize system failures caused by electrical noise.
ControlLogix Selection Guide, publication <a href="#">1756-SG001</a>	Provides information to determine which ControlLogix® controller fits your application and the product specifications to help design a ControlLogix system and select the appropriate components.
CompactLogix Selection Guide, publication <a href="#">1769-SG001</a>	Provides information to determine which CompactLogix™ controller fits your application and the product specifications to help design a CompactLogix system and select the appropriate components.
Kinetix Halogen-free PUR and PVC Single Motor Cables Quick Reference, publication <a href="#">2090-OR002</a>	Provides product specifications comparing 2090-CSBM1xx-xxLFxx (Halogen-free PUR) and 2090-CSxM1xx-xxVAxx (PVC) single motor cables.
Industrial Ethernet Media Brochure, publication <a href="#">1585-BR001</a>	Provides information to determine which Bulletin 1585 Ethernet cable fits your application and the product specifications to help select the appropriate components.
Motion Analyzer System Sizing and Selection Tool <a href="https://motionanalyzer.rockwellautomation.com/">https://motionanalyzer.rockwellautomation.com/</a>	Provides comprehensive motion application sizing tool used for analysis, optimization, selection, and validation of your Kinetix Motion Control system.
Rockwell Automation Product Selection <a href="https://www.rockwellautomation.com/en-us/support/product/product-selection-configuration.html">https://www.rockwellautomation.com/en-us/support/product/product-selection-configuration.html</a>	Provides online product selection and system configuration tools, including AutoCAD (DXF) drawings.
Ethernet Reference Manual, <a href="#">ENET-RM002</a>	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication <a href="#">SGI-1.1</a>	Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components.
Product Certifications website, <a href="http://rok.auto/certifications">rok.auto/certifications</a> .	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at [rok.auto/literature](http://rok.auto/literature).

# Rockwell Automation Support

Use these resources to access support information.

<b>Technical Support Center</b>	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	<a href="http://rok.auto/support">rok.auto/support</a>
<b>Knowledgebase</b>	Access Knowledgebase articles.	<a href="http://rok.auto/knowledgebase">rok.auto/knowledgebase</a>
<b>Local Technical Support Phone Numbers</b>	Locate the telephone number for your country.	<a href="http://rok.auto/phonesupport">rok.auto/phonesupport</a>
<b>Literature Library</b>	Find installation instructions, manuals, brochures, and technical data publications.	<a href="http://rok.auto/literature">rok.auto/literature</a>
<b>Product Compatibility and Download Center (PCDC)</b>	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	<a href="http://rok.auto/pcdc">rok.auto/pcdc</a>

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