

Maximum Rating Tables

Size 824 • GR, NH, EL Series

CAST IRON
GR SERIES

CAST IRON
NH SERIES

ALUMINUM
EL SERIES

Style B

Style H



Size 824

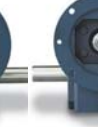
Ratio	Input RPM	Output RPM	Input HP	Output HP	Output Torque (lb-in)	Left Hand Catalog No.	Right Hand Catalog No.	Double Extension Catalog No.	Hollow Output Catalog No.*
5	2500	500.0	6.322	5.950	750				
	1750	350.0	5.323	4.985	898				
	1170	234.0	4.280	3.976	1071				
	100	20.0	0.655	0.489	1540	__8240001	__8240013	__8240025	__8240501.XX
7.5	2500	333.3	4.739	4.401	832				
	1750	233.3	3.992	3.685	995				
	1170	156.0	3.204	2.929	1183	__8240002	__8240014	__8240026	__8240502.XX
	100	13.3	0.502	0.357	1689				
10	2500	250.0	4.199	3.862	974				
	1750	175.0	3.564	3.253	1172				
	1170	117.0	2.808	2.531	1364	__8240003	__8240015	__8240027	__8240503.XX
	100	10.0	0.442	0.295	1857				
15	2500	166.7	3.268	2.913	1102				
	1750	116.7	2.765	2.439	1318				
	1170	78.0	2.178	1.888	1526	__8240004	__8240016	__8240028	__8240504.XX
	100	6.7	0.369	0.217	2056				
20	2500	125.0	2.750	2.365	1192				
	1750	87.5	2.326	1.972	1421				
	1170	58.5	1.835	1.522	1640	__8240005	__8240017	__8240029	__8240505.XX
	100	5.0	0.337	0.174	2193				
25	2500	100.0	2.335	1.949	1228				
	1750	70.0	1.967	1.615	1454				
	1170	46.8	1.551	1.239	1669	__8240006	__8240018	__8240030	__8240506.XX
	100	4.0	0.302	0.140	2205				
30	2500	83.3	1.945	1.579	1194				
	1750	58.3	1.653	1.317	1423				
	1170	39.0	1.314	1.016	1642	__8240007	__8240019	__8240031	__8240507.XX
	100	3.3	0.270	0.116	2197				
40	2500	62.5	1.574	1.195	1205				
	1750	43.8	1.342	0.994	1433				
	1170	29.3	1.074	0.766	1650	__8240008	__8240020	__8240032	__8240508.XX
	100	2.5	0.245	0.087	2198				
50	2500	50.0	1.335	0.961	1211				
	1750	35.0	1.137	0.795	1432				
	1170	23.4	0.911	0.609	1641	__8240009	__8240021	__8240033	__8240509.XX
	100	2.0	0.224	0.069	2163				
60	2500	41.7	1.149	0.806	1219				
	1750	29.2	0.967	0.656	1418				
	1170	19.5	0.770	0.496	1604	__8240010	__8240022	__8240034	__8240510.XX
	100	1.7	0.197	0.054	2054				
80	2500	31.3	0.520	0.348	701				
	1750	21.9	0.455	0.288	830				
	1170	14.6	0.370	0.219	946	__8240011	__8240023	__8240035	__8240511.XX
	100	1.3	0.056	0.024	1202				
100	2500	25.0	0.351	0.219	551				
	1750	17.5	0.307	0.180	648				
	1170	11.7	0.251	0.136	735	__8240012	__8240024	__8240036	__8240512.XX
	100	1.0	0.039	0.015	926				

How To Build a Part Number For Size GR824, NH824, EL824

1. Select partial catalog number from the selection table
2. Replace leading “__” with series code (GR, NH, EL)
3. For hollow output, replace “XX” suffix with bore code (see next page for codes)

Example:

Grove Gear IRONMAN, style B, 5:1 ratio, left hand output
GR-B824-5-L
GR8240001

	Style BM			Style HM	Style BMQ			Style HMQ	
									
NEMA C Input Flange ▲	Left Hand Catalog No.	Right Hand Catalog No.	Double Extension Catalog No.	Hollow Output Catalog No.*	Left Hand Catalog No.	Right Hand Catalog No.	Double Extension Catalog No.	Hollow Output Catalog No.*	Ratio
143-5TC 182-4TC	8240073 8240109	8240085 8240121	8240097 8240133	8240525.XX 8240537.XX	8240181 8240217	8240193 8240229	8240205 8240241	8240561.XX 8240573.XX	5
143-5TC 182-4TC	8240074 8240110	8240086 8240122	8240098 8240134	8240526.XX 8240538.XX	8240182 8240218	8240194 8240230	8240206 8240242	8240562.XX 8240574.XX	7.5
143-5TC 182-4TC	8240075 8240111	8240087 8240123	8240099 8240135	8240527.XX 8240539.XX	8240183 8240219	8240195 8240231	8240207 8240243	8240563.XX 8240575.XX	10
56C 143-5TC	8240040 8240076	8240052 8240088	8240064 8240100	8240516.XX 8240528.XX	8240148 8240184	8240160 8240196	8240172 8240208	8240552.XX 8240564.XX	15
56C 143-5TC	8240041 8240077	8240053 8240089	8240065 8240101	8240517.XX 8240529.XX	8240149 8240185	8240161 8240197	8240173 8240209	8240553.XX 8240565.XX	20
56C 143-5TC	8240042 8240078	8240054 8240090	8240066 8240102	8240518.XX 8240530.XX	8240150 8240186	8240162 8240198	8240174 8240210	8240554.XX 8240566.XX	25
56C 143-5TC	8240043 8240079	8240055 8240091	8240067 8240103	8240519.XX 8240531.XX	8240151 8240187	8240163 8240199	8240175 8240211	8240555.XX 8240567.XX	30
56C 143-5TC	8240044 8240080	8240056 8240092	8240068 8240104	8240520.XX 8240532.XX	8240152 8240188	8240164 8240200	8240176 8240212	8240556.XX 8240568.XX	40
56C 143-5TC	8240045 8240081	8240057 8240093	8240069 8240105	8240521.XX 8240533.XX	8240153 8240189	8240165 8240201	8240177 8240213	8240557.XX 8240569.XX	50
56C 143-5TC	8240046 8240082	8240058 8240094	8240070 8240106	8240522.XX 8240534.XX	8240154 8240190	8240166 8240202	8240178 8240214	8240558.XX 8240570.XX	60
56C	8240047	8240059	8240071	8240523.XX	8240155	8240167	8240179	8240559.XX	80
56C	8240048	8240060	8240072	8240524.XX	8240156	8240168	8240180	8240560.XX	100

For input/ output shaft overhung load and thrust load ratings, refer to pages 419-422.

▲ Consult Factory for other motor flanges available.

* Catalog numbers are for hollow output shaft reducers.

When ordering, substitute the XX suffix with the required output bore code.

Available bore codes

Fraction Size	1"	1-1/8"	1-3/16"	1-1/4"	1-7/16"	1-1/2"
Decimal Size	1.000	1.125	1.188	1.250	1.438	1.500
Output Bore Code	16	18	19	20	23	24

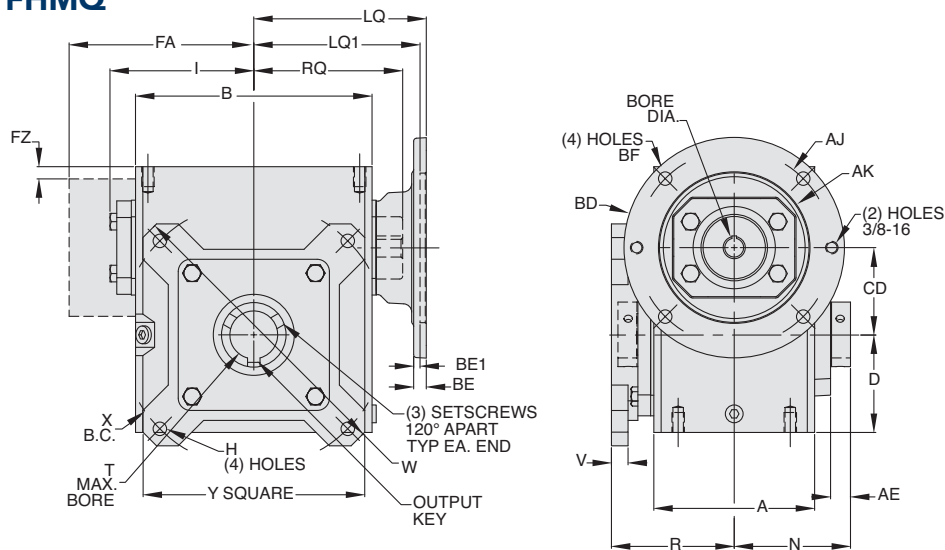


GR Series Dimensions

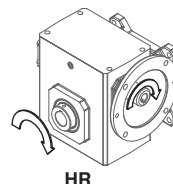
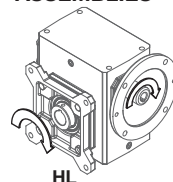
Styles: FHM, FHM, FH

CAST IRON
GR SERIES

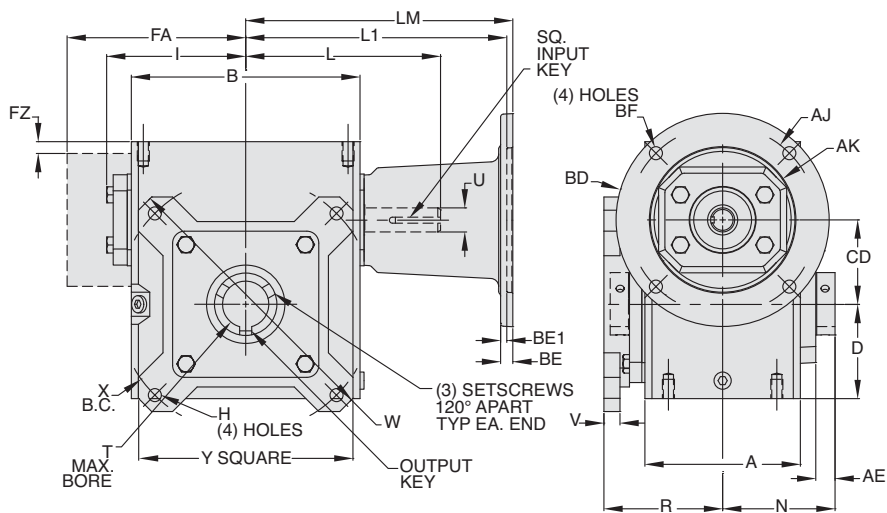
Style FHM



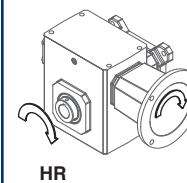
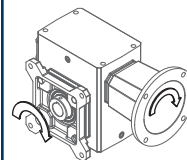
ASSEMBLIES



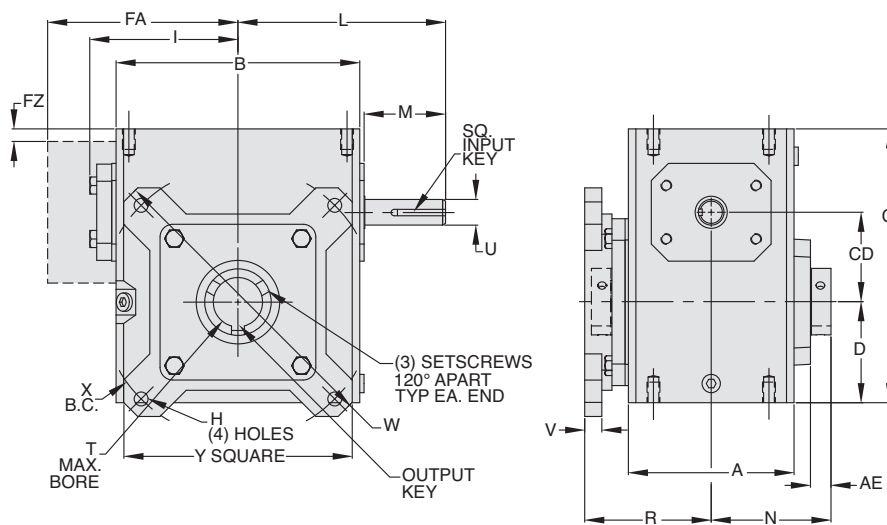
Style FHM



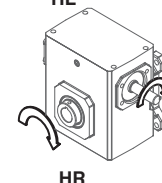
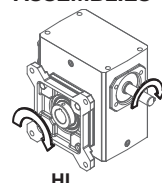
ASSEMBLIES



Style FH



ASSEMBLIES



REVERSE ALL ARROWS
FOR OPPOSITE INPUT SHAFT
ROTATION. CONTACT FACTORY
FOR OTHER MOUNTINGS OR
ASSEMBLY POSITIONS.

Single Reduction
Worm Gear Reducers

Double Reduction
Worm - Worm Gear Reducers

Double Reduction
Helical - Worm Gear Reducers

WASHGUARD® Reducers
and GEAR+MOTOR™

Ratio Multipliers

Accessories and
Additional Capabilities

STYLE FHM, FHM, FH DIMENSIONS (Inches)

Series	A	B	BB	C	D	CD	FA t	FZ t	H	I	L	M	N	O	R	V	W	X	Y	T MAX+ -0.000 +0.0025	U +0.000 -0.0015	Input Key*	Output Key
GR813	2.82	3.80	0.675	4.66	1.72	1.33	N/A	N/A	0.03	2.61	3.82	1.76	4.00	1.94	2.52	0.38	5.92	5.00	4.50	0.625	0.500	1/8 x 1.00	3/16 x 1.50
GR815	3.44	4.88	0.675	5.38	1.91	1.54	N/A	N/A	0.03	3.14	4.35	1.76	4.31	1.90	2.87	0.38	5.88	5.00	4.50	0.750	0.625	3/16 x 1.38	3/16 x 1.50
GR818	3.56	5.06	0.925	5.75	2.06	1.75	N/A	N/A	0.03	3.24	4.45	1.76	4.31	1.84	3.18	0.38	6.64	5.88	5.00	0.875	0.625	3/16 x 1.38	3/16 x 1.38
GR821	3.81	5.80	1.240	6.38	2.28	2.06	N/A	N/A	0.41	3.61	4.82	1.76	4.68	2.08	3.69	0.44	7.88	7.00	5.99	1.000	0.625	3/16 x 1.38	1/4 x 1.44
GR824	4.06	6.12	1.560	6.94	2.50	2.38	N/A	N/A	0.41	3.77	5.51	2.38	5.14	2.44	3.73	0.44	8.39	7.50	6.27	1.125	0.750	3/16 x 1.63	1/4 x 1.75
GR826x	4.84	7.12	0.796	8.00	2.94	2.63	N/A	N/A	0.41	4.34	6.07	2.38	5.63	2.52	3.70	0.50	8.88	8.00	6.67	1.125	0.750	3/16 x 1.63	1/4 x 1.75
GR830	5.25	8.12	0.636	8.88	3.25	3.00	N/A	N/A	0.41	4.84	6.57	2.38	6.75	3.36	3.78	0.50	9.89	9.00	7.37	1.250	0.875	3/16 x 1.63	1/4 x 1.75
GR832x	5.75	8.50	0.636	9.38	3.50	3.25	N/A	N/A	0.41	5.02	6.76	2.38	7.06	3.42	4.03	0.50	9.89	9.00	7.37	1.688	0.875	3/16 x 1.63	3/8 x 2.25
GR842	6.13	10.25	0.940	11.38	4.44	4.25	N/A	N/A	0.56	6.10	9.57	3.47	8.12	4.21	4.56	0.62	12.95	11.50	9.65	1.875	1.250	1/4 x 2.50	1/2 x 3.06
GR852	7.19	13.00	1.340	14.00	5.12	5.25	N/A	N/A	0.69	7.50	10.88	3.38	9.16	4.53	5.62	0.75	15.50	14.00	11.75	2.000	1.250	1/4 x 3.00	1/2 x 3.50
GR860	8.13	14.25	2.603	16.50	6.50	6.00	11.13	0.33	0.69	N/A	11.78	3.41	10.00	4.65	7.26	0.75	18.00	15.63	14.00	2.500	1.500	3/8 x 3.00	5/8 x 4.00
GR870	7.63	14.88	2.770	18.91	7.59	7.00	11.37	0.35	0.78	N/A	11.50	2.97	11.76	5.65	7.45	0.75	21.00	18.38	15.63	2.750	1.625	3/8 x 2.87**	5/8 x 4.00**
GR880	8.63	17.00	3.090	20.96	8.86	8.00	12.52	0.57	1.03	N/A	12.50	2.84	12.25	5.98	8.34	0.75	24.00	21.00	17.88	3.000	1.875	1/2 x 2.81**	3/4 x 4.50**
GR8100	9.53	20.88	3.298	25.47	10.36	10.00	14.69	0.51	1.03	N/A	15.50	3.76	14.75	6.76	9.07	1.00	29.00	25.00	21.19	3.750	2.250	1/2 x 3.69**	7/8 x 5.00**

FEATURE COMPARISON (821)

Size	Output Shaft Diameter Needed?	Mounting Footprint Needed?	All Other Features	Grove Gear Flexaline Interchange	LEESON IRONMAN Interchange	Replace With Series Code Below:
821	Identical	Identical	Identical	✓	✓	GRL

† If Accessory kit is removed, dimensions will vary.

NOTE: If reducer is used without the accessory mounted, select based mounting dimensions on pages 52-53 (B, BM, BMQ).

Motor Mounting Dimensions
NEMA DIMENSIONS (Inches)

Size	LM 48CZ 140TC	L1 180TC 210TC	L2 250TC	LQ 48CZ/ 56C/140TC	180TC	LQ1 210TC	250TC	48CZ/ 56C/140TC	RQ 180TC	210TC	250TC
GR813	5.63	6.07	N/A	3.46	N/A	N/A	N/A	3.09	N/A	N/A	N/A
GR815	6.16	6.60	N/A	3.99	N/A	N/A	N/A	3.62	N/A	N/A	N/A
GR818	6.26	6.70	N/A	4.09	N/A	N/A	N/A	3.59	N/A	N/A	N/A
GR821*	6.63	7.07	N/A	4.46	N/A	N/A	N/A	4.06	N/A	N/A	N/A
GR824	N/A	7.76	8.76	4.63	5.06	N/A	N/A	4.09	4.56	N/A	N/A
GR826*	N/A	8.32	9.32	5.19	5.62	N/A	N/A	4.82	5.13	N/A	N/A
GR830	N/A	8.82	9.82	5.95	6.15	6.56	N/A	5.32	5.63	6.06	N/A
GR832*	N/A	9.01	10.01	6.14	6.34	6.75	N/A	5.51	5.81	6.25	N/A
GR842	N/A	11.81	12.90	6.45	7.21	7.77	6.04	6.68	6.68	7.24	
GR852	N/A	13.21	14.30	7.85	8.61	9.17	7.35	7.98	7.98	8.54	
GR860	N/A	N/A	15.88	16.50	10.45	9.33	9.94	10.01	8.69	8.69	8.69
GR870	N/A	N/A	15.50	15.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A
GR880	N/A	N/A	16.58	16.58	N/A	N/A	N/A	N/A	N/A	N/A	N/A

NEMA DIMENSIONS (Inches)

Frame	AJb	AK	BD	BE	BE1	Bore Dia.	Keyway	BFB
48CZ	3.75	3.00	4.36	0.38	N/A	.500	1/8 X 1/16	0.28
56C	5.88	4.50	6.50	0.38	N/A	.625	3/16 X 3/32	0.41
140TC	5.88	4.50	6.50	0.38	N/A	.875	3/16 X 3/32	0.41
180TC	7.25	8.50	9.00	N/A	0.50	1.125	1/4 X 1/8	0.53
210TC	7.25	8.50	9.00	N/A	0.50	1.375	5/16 X 5/32	0.53
250TC	7.25	8.50	9.00	N/A	0.50	1.625	3/8 X 3/16	0.53

IEC B5 & B3/B5 METRIC DIMENSIONS (Inches)*

Size	D63D	D71D	D80D	D90D	D100LD/ D112MD	D132D	D63D	D71D	D80D	D90D	D100LD/ D112MD	D132D
GR813	2.62	2.65	2.89	N/A	N/A	N/A	2.45	2.47	2.71	N/A	N/A	N/A
GR815	3.15	3.18	3.42	N/A	N/A	N/A	2.98	3.00	3.24	N/A	N/A	N/A
GR818	3.25	3.28	3.52	N/A	N/A	N/A	2.95	2.97	3.21	N/A	N/A	N/A
GR821*	3.62	3.65	3.89	N/A	N/A	N/A	3.43	3.44	3.68	N/A	N/A	N/A
GR824	N/A	3.72	4.34	N/A	N/A	N/A	3.46	3.71	N/A	N/A	N/A	N/A
GR826*	N/A	4.28	4.90	4.90	5.30	N/A	4.09	4.72	4.72	5.07	N/A	N/A
GR830	N/A	4.78	5.41	5.41	5.88	N/A	4.59	5.22	5.22	5.57	N/A	N/A
GR832*	N/A	4.97	5.59	5.59	6.07	N/A	4.78	5.41	5.41	5.76	N/A	N/A
GR842	N/A	N/A	N/A	6.38	6.39	7.17	N/A	N/A	6.16	6.14	6.93	
GR852	N/A	N/A	N/A	7.78	7.78	8.57	N/A	N/A	7.46	7.45	8.24	

IEC B5 & B3/B5 METRIC DIMENSIONS (MM)

Frame	AJ	AK	BD	BE	Bore Dia.	Keyway	BF TAP	OD
D63D	115	95	117	10	11	4 X 2	M8 X 1.25	131
D71D	130	110	132	11	14	5 X 2.5	M8 X 1.25	146
D80D	165	130	165	15	19	6 X 3	M10 X 1.50	184
D90D	165	130	165	15	24	8 X 3.5	M10 X 1.50	184
D100LD/ D112MD	215	180	216	18	28	8 X 3.5	M12 X 1.75	237
D132D	265	230	267	18	38	10 X 4	M12 X 1.75	290

* Max bore dimensions shown. For additional bores available, refer to page 20.

* Applies to double output shaft

** Key not provided with gear reducer. Keyway dimension shown.

◆ Keyway width by depth

⊕ Mounting holes rotated 45 degrees from positions shown on Size GR860, Style FHM with frame sizes 180TC-250TC.

■ 48CZ not available

● 180TC not available

◆ Metric IEC B5 input flange options are available only on quill input styles.

* Dimensions same for GRG and GRL Series

* Style FH and FHM only.

▼ Sizes 860-8100 are supplied with a fan. Dimensions refer to fan guard location.



For safety, purchaser or user should provide protective guards over shaft extensions and any couplings, sheaves and belts, sprockets and chains, etc., mounted thereon.