

Maximum Rating Tables

Size 842 • GR, NH & EL Series



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 B

Style H



Size 842









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	20.79	19.87	2589	_8420001	_8420013	_8420025	_8420501.XX
	1750	350	18.08	17.25	3209				
	1170	234	15.18	14.43	4016				
	100	20	2.751	2.376	7738				
7.5	2500	333	18.84	17.83	3372	_8420002	_8420014	_8420026	_8420502.XX
	1750	233	16.27	15.36	4148				
	1170	156	13.42	12.61	5094				
	100	13	2.342	1.931	9126				
10	2500	250	17.39	16.37	4127	_8420003	_8420015	_8420027	_8420503.XX
	1750	175	14.93	14.00	5042				
	1170	117	12.31	11.47	6180				
	100	10	2.051	1.629	10629				
15	2500	166	12.94	11.92	4507	_8420004	_8420016	_8420028	_8420504.XX
	1750	116	11.13	10.20	5508				
	1170	78	9.193	8.357	6752				
	100	6.7	1.608	1.190	11245				
20	2500	125	11.02	9.91	4999	_8420005	_8420017	_8420029	_8420505.XX
	1750	87	9.462	8.458	6092				
	1170	58	7.816	6.913	7447				
	100	5.0	1.407	0.956	12056				
25	2500	100	9.256	8.164	5145	_8420006	_8420018	_8420030	_8420506.XX
	1750	70	7.940	6.946	6254				
	1170	46	6.551	5.658	7619				
	100	4.0	1.210	0.764	12038				
30	2500	83	7.517	6.455	4882	_8420007	_8420019	_8420031	_8420507.XX
	1750	58	6.481	5.517	5960				
	1170	39	5.384	4.518	7300				
	100	3.3	1.066	0.636	12026				
40	2500	62	6.101	5.013	5055	_8420008	_8420020	_8420032	_8420508.XX
	1750	43	5.262	4.274	6156				
	1170	29	4.379	3.490	7520				
	100	2.5	0.920	0.480	12090				
50	2500	50	5.088	4.029	5078	_8420009	_8420021	_8420033	_8420509.XX
	1750	35	4.389	3.426	6170				
	1170	23	3.655	2.788	7510				
	100	2.0	0.804	0.375	11809				
60	2500	41	4.333	3.317	5017	_8420010	_8420022	_8420034	_8420510.XX
	1750	29	3.681	2.772	5989				
	1170	19	3.116	2.285	7386				
	100	1.7	0.715	0.302	11439				
80	2500	31	2.019	1.486	2995	_8420011	_8420023	_8420035	_8420511.XX
	1750	21	1.760	1.257	3620				
	1170	14	1.585	1.049	4519				
	100	1.3	0.290	0.135	6804				
100	2500	25	1.341	0.933	2351	_8420012	_8420024	_8420036	_8420512.XX
	1750	17	1.201	0.792	2852				
	1170	11	1.062	0.655	3527				
100	1.0	0.197	0.083	5219					

How To Build a Part Number For Size GR842, NH842, EL842

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-B842-5-L
GR8420001

	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
182-4TC	8420109	8420121	8420133	8420537.XX	8420289	8420301	8420313	8420597.XX	5
213-5TC	8420145	8420157	8420169	8420549.XX	8420325	8420337	8420349	8420609.XX	
254-6TC	8420181	8420193	8420205	8420561.XX	8420361	8420373	8420385	8420621.XX	
182-4TC	8420110	8420122	8420134	8420538.XX	8420290	8420302	8420314	8420598.XX	7.5
213-5TC	8420146	8420158	8420170	8420550.XX	8420326	8420338	8420350	8420610.XX	
254-6TC	8420182	8420194	8420206	8420562.XX	8420362	8420374	8420386	8420622.XX	
182-4TC	8420111	8420123	8420135	8420539.XX	8420291	8420303	8420315	8420599.XX	10
213-5TC	8420147	8420159	8420171	8420551.XX	8420327	8420339	8420351	8420611.XX	
254-6TC	8420183	8420195	8420207	8420563.XX	8420363	8420375	8420387	8420623.XX	
182-4TC	8420112	8420124	8420136	8420540.XX	8420292	8420304	8420316	8420600.XX	15
213-5TC	8420148	8420160	8420172	8420552.XX	8420328	8420340	8420352	8420612.XX	
182-4TC	8420113	8420125	8420137	8420541.XX	8420293	8420305	8420317	8420601.XX	20
213-5TC	8420149	8420161	8420173	8420553.XX	8420329	8420341	8420353	8420613.XX	
143-5TC	8420078	8420090	8420102	8420530.XX	8420258	8420270	8420282	8420590.XX	25
182-4TC	8420114	8420126	8420138	8420542.XX	8420294	8420306	8420318	8420602.XX	
213-5TC	8420150	8420162	8420174	8420554.XX	8420330	8420342	8420354	8420614.XX	
143-5TC	8420079	8420091	8420103	8420531.XX	8420259	8420271	8420283	8420591.XX	30
182-4TC	8420115	8420127	8420139	8420543.XX	8420295	8420307	8420319	8420603.XX	
143-5TC	8420080	8420092	8420104	8420532.XX	8420260	8420272	8420284	8420592.XX	40
182-4TC	8420116	8420128	8420140	8420544.XX	8420296	8420308	8420320	8420604.XX	
143-5TC	8420081	8420093	8420105	8420533.XX	8420261	8420273	8420285	8420593.XX	50
182-4TC	8420117	8420129	8420141	8420545.XX	8420297	8420309	8420321	8420605.XX	
56C	8420046	8420058	8420070	8420522.XX	8420226	8420238	8420250	8420582.XX	60
143-5TC	8420082	8420094	8420106	8420534.XX	8420262	8420274	8420286	8420594.XX	
182-4TC	8420118	8420130	8420142	8420546.XX	8420298	8420310	8420322	8420606.XX	
56C	8420047	8420059	8420071	8420523.XX	8420227	8420239	8420251	8420583.XX	80
143-5TC	8420083	8420095	8420107	8420535.XX	8420263	8420275	8420287	8420595.XX	
56C	8420048	8420060	8420072	8420524.XX	8420228	8420240	8420252	8420584.XX	100
143-5TC	8420084	8420096	8420108	8420536.XX	8420264	8420276	8420288	8420596.XX	

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	1-7/16"	1-1/2"	1-5/8"	1-11/16"	1-3/4"	1-7/8"	1-15/16"	2"	2-3/16"
Decimal Size	1.438	1.500	1.625	1.688	1.750	1.875	1.938	2.000	2.188
Output Bore Code	23	24	26	27	28	30	31	32	35



GR Series Dimensions

Styles: BMQ, BM, B

**CAST IRON
GR SERIES**

Single Reduction
Worm Gear Reducers

Double Reduction
Worm - Worm Gear Reducers

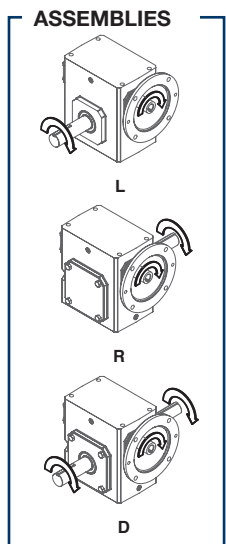
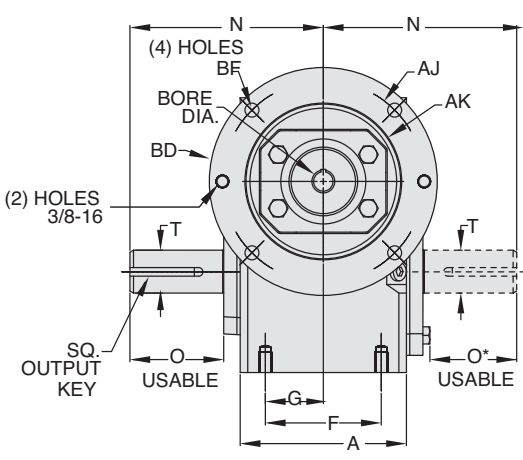
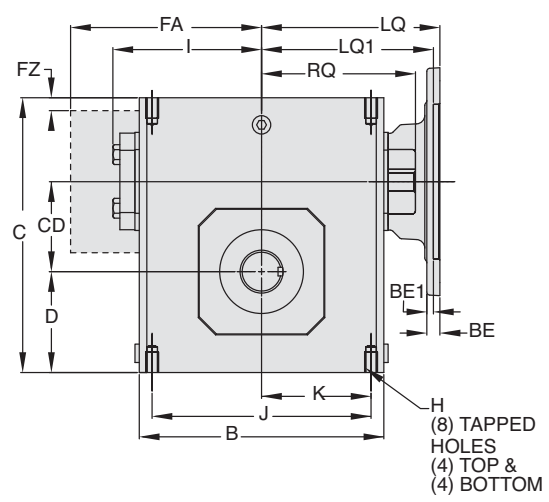
Double Reduction
Helical - Worm Gear Reducers

WASHGUARD® Reducers
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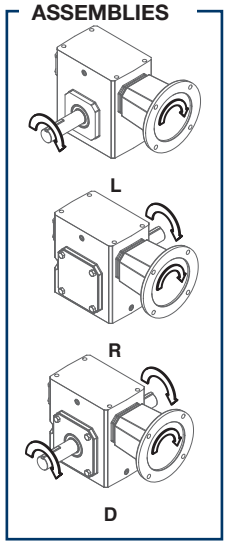
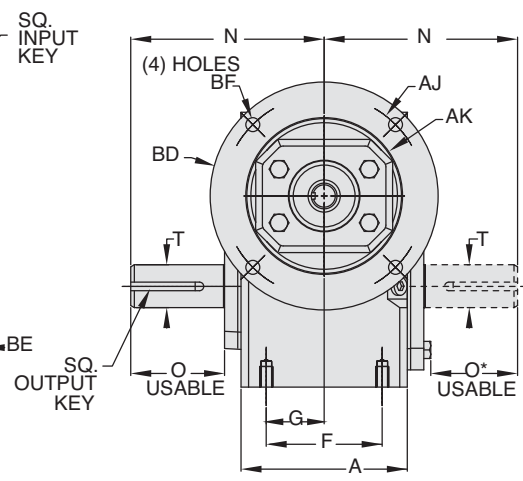
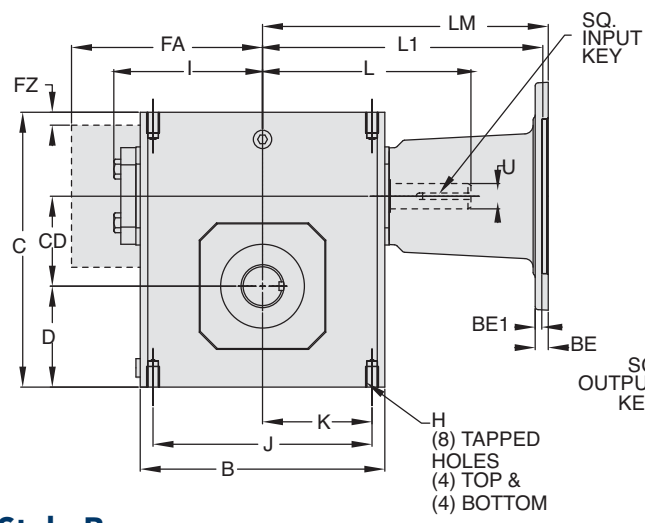
Ratio Multipliers

Accessories and
Additional Capabilities

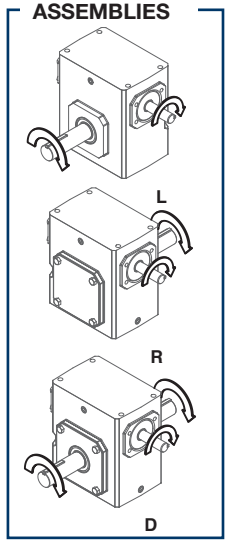
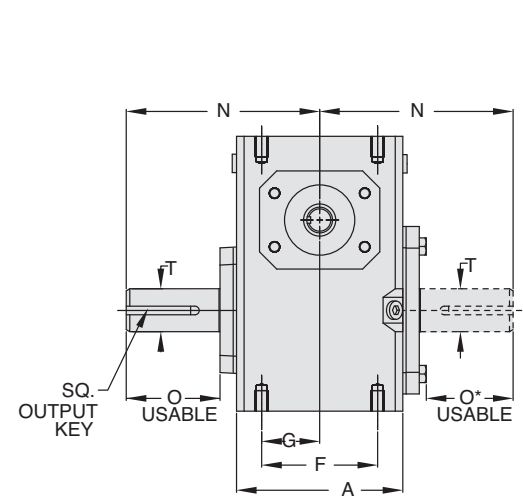
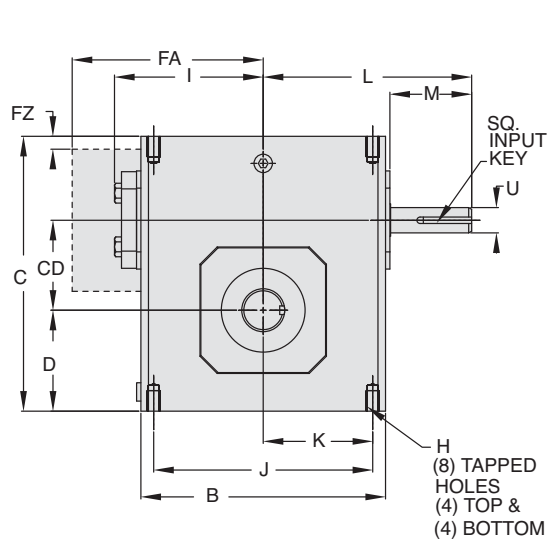
Style BMQ



Style BM



Style B



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



STYLE BMQ, BM, B DIMENSIONS (Inches)

Size	A	B	C	D	CD	F	FA ▼	FZ ▼	G	H		I	J	K	L	M	N	O	O*	T +0.000 -0.0015	U +0.000 -0.0015	Input Key*	Output Key
										Tap Size	Depth												
GR813	2.82	3.80	4.66	1.72	1.33	2.00	N/A	N/A	1.00	5/16-18 UNC	.50	2.61	3.25	1.63	3.82	1.76	4.00	2.16	1.94	.625	.500	1/8 X 1.00	3/16 X 1.50
GR815	3.44	4.88	5.38	1.91	1.54	2.75	N/A	N/A	1.38	5/16-18 UNC	.63	3.14	4.19	2.09	4.35	1.76	4.31	2.11	1.90	.750	.625	3/16 X 1.38	3/16 X 1.50
GR818	3.56	5.06	5.75	2.06	1.75	2.75	N/A	N/A	1.38	5/16-18 UNC	.63	3.24	4.19	2.09	4.45	1.76	4.31	2.05	1.84	.875	.625	3/16 X 1.38	3/16 X 1.38
GR821	3.81	5.80	6.38	2.28	2.06	▲	N/A	N/A	1.44	5/16-18 UNC	.63	3.61	▲	2.50	4.82	1.76	4.68	2.29	2.08	1.000	.625	3/16 X 1.38	1/4 X 1.44
GR824	4.06	6.12	6.94	2.50	2.38	2.88	N/A	N/A	1.44	3/8-16 UNC	.69	3.77	5.00	2.50	5.51	2.38	5.14	2.66	2.44	1.125	.750	3/16 X 1.63	1/4 X 1.75
GR826	4.84	7.12	8.00	2.94	2.63	3.38	N/A	N/A	1.69	3/8-16 UNC	.69	4.34	6.38	3.19	6.07	2.38	5.63	2.73	2.52	▲	.750	3/16 X 1.63	1/4 X 1.75
GR830	5.25	8.12	8.88	3.25	3.00	4.00	N/A	N/A	2.00	7/16-14 UNC	.88	4.84	7.00	3.50	6.57	2.38	6.75	3.60	3.36	1.250	.875	3/16 X 1.63	1/4 X 1.75
GR832	5.75	8.50	9.38	3.50	3.25	4.00	N/A	N/A	2.00	7/16-14 UNC	.88	5.02	7.50	3.75	6.76	2.38	7.06	3.66	3.42	▲	.875	3/16 X 1.63	▲
GR842	6.13	10.25	11.38	4.44	4.25	5.00	N/A	N/A	2.50	5/8-11 UNC	1.00	6.10	8.50	4.25	9.57	3.47	8.12	4.50	4.21	1.875	1.250	1/4 X 2.50	1/2 X 3.06
GR852	7.19	13.00	14.00	5.12	5.25	5.81	N/A	N/A	2.91	5/8-11 UNC	1.25	7.50	11.00	5.50	10.88	3.38	9.06	4.78	4.53	2.000	1.250	1/4 X 3.00	1/2 X 3.50
GR860	8.13	14.25	16.50	6.50	6.00	6.38	11.13	0.33	3.19	5/8-11 UNC	1.00	N/A	12.75	6.38	11.78	3.41	10.00	4.65	4.65	2.500	1.500	3/8 X 3.00	5/8 X 4.00
GR870	7.63	14.88	18.91	7.59	7.00	5.50	11.37	0.35	2.75	1-8 UNC	1.56	N/A	12.50	6.25	11.50	2.97	11.76	5.65	5.65	2.750	1.625	3/8 x 2.87**	5/8 x 4.00**
GR880	8.63	17.00	20.96	8.86	8.00	6.50	12.52	0.57	3.25	1-8 UNC	1.66	N/A	14.25	7.13	12.50	2.84	12.25	5.98	5.98	3.000	1.875	1/2 x 2.81**	3/4 x 4.50**
GR8100	9.53	20.88	25.47	10.36	10.00	6.88	14.69	0.51	3.44	1-1/4 -7 UNC	2.04	N/A	17.75	8.88	15.50	3.76	14.75	6.76	6.76	3.750	2.250	1/2 x 3.69**	7/8 x 5.00**

▲ See feature comparison chart.

FEATURE COMPARISON (821, 826, 832)

Size	Output Shaft Diameter Needed?	Mounting Footprint Needed?	Output Key Needed?	All Other Features	Grove Gear Flexaline Interchange	LEESON IRONMAN Interchange	Replace With Series Code Below:
821	Identical	(F)3.00" x (J)4.75"	Identical	Identical	✓	✓	GRG
		(F)2.88" x (J)5.00"					GRL
826	1.250"	Identical	Identical	Identical	✓	✓	GRG
	1.125"						GRL
832	1.500"	Identical	3/8 x 2.63	Identical	✓	✓	GRG
	1.375"		5/16 x 2.63				GRL

Motor Mounting Dimensions

NEMA DIMENSIONS (Inches)

Size	LM		180TC/ 210TC	L1 250TC	LQ 48CZ/ 56C/140TC	180TC	LQ1 210TC	250TC	RQ			
	48CZ	56C/ 140TC							48CZ/ 56C/140TC	180TC	210TC	250TC
GR813	5.63	6.07	N/A	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	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	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	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	N/A	4.63	5.06	N/A	N/A	4.09	4.56	N/A	N/A
GR826*	N/A	8.32	9.32	N/A	5.19	5.62	N/A	N/A	4.82	5.13	N/A	N/A
GR830	N/A	8.82	9.82	N/A	5.95	6.15	6.56	N/A	5.32	5.63	6.06	N/A
GR832*	N/A	9.01	10.01	N/A	6.14	6.34	6.75	N/A	5.51	5.81	6.25	N/A
GR842	N/A	11.81	12.90	13.46	6.45	7.21	7.21	7.77	6.04	6.68	6.68	7.24
GR852	N/A	13.21	14.30	14.86	7.85	8.61	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	9.33	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	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	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	LQ1					RQ						
	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	N/A	4.09	4.72	4.72	5.07	N/A
GR830	N/A	4.78	5.41	5.41	5.88	N/A	N/A	4.59	5.22	5.22	5.57	N/A
GR832*	N/A	4.97	5.59	5.59	6.07	N/A	N/A	4.78	5.41	5.41	5.76	N/A
GR842	N/A	N/A	N/A	6.38	6.39	7.17	N/A	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	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

* 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 BM 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 B and BM only.

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

WARNING

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

Single Reduction
Worm Gear Reducers

Double Reduction
Worm - Worm Gear Reducers

Double Reduction
Helical - Worm Gear Reducers

WASHGARD® Reducers
and GEAR-HOTOR™

Ratio Multipliers

Accessories and
Additional Capabilities