



# GR Series Dimensions

Styles: BMQ, BM, B

**CAST IRON  
GR SERIES**

Single Reduction  
Worm Gear Reducers

Double Reduction  
Worm - Worm Gear Reducers

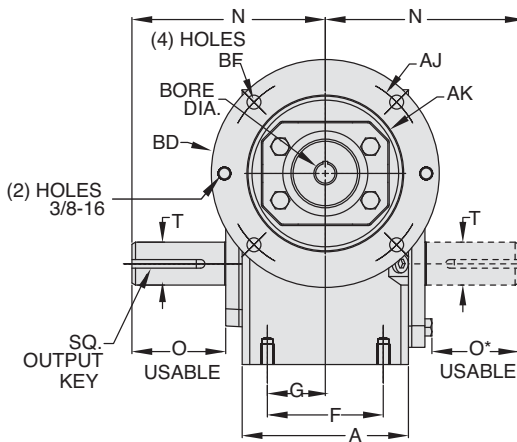
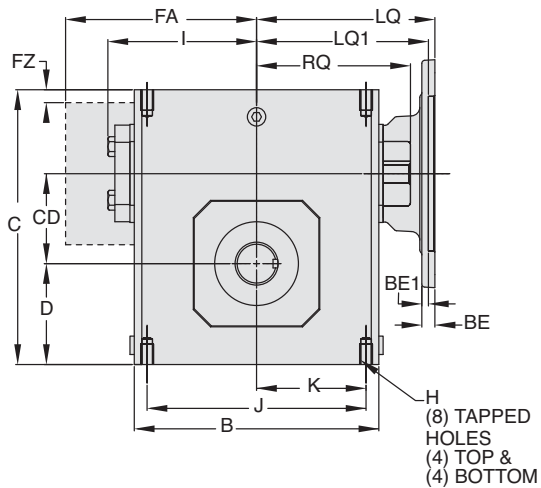
Double Reduction  
Helical - Worm Gear Reducers

WASHGUARD® Reducers  
and GEAR+MOTOR™

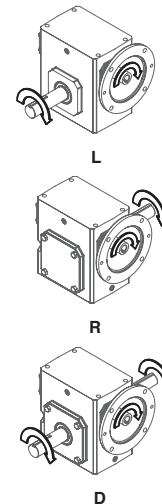
Ratio Multipliers

Accessories and  
Additional Capabilities

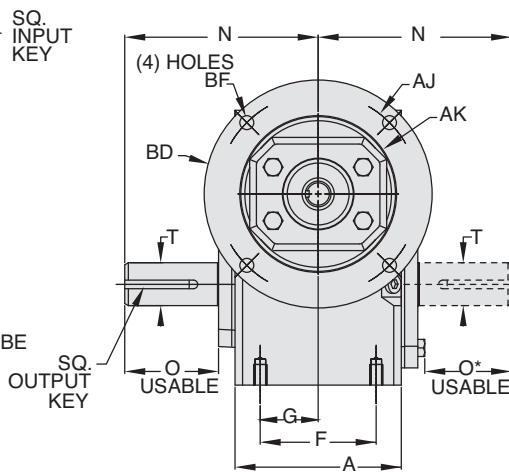
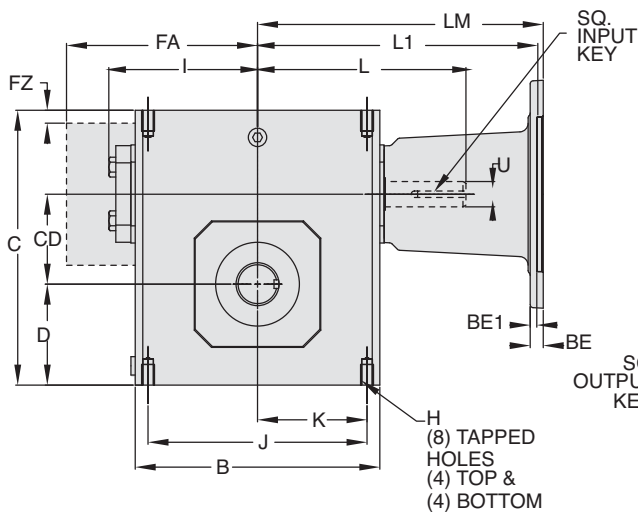
## Style BMQ



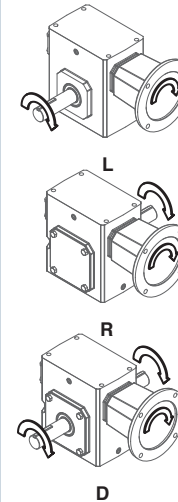
### ASSEMBLIES



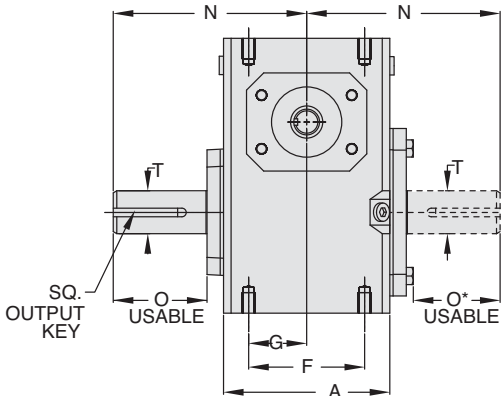
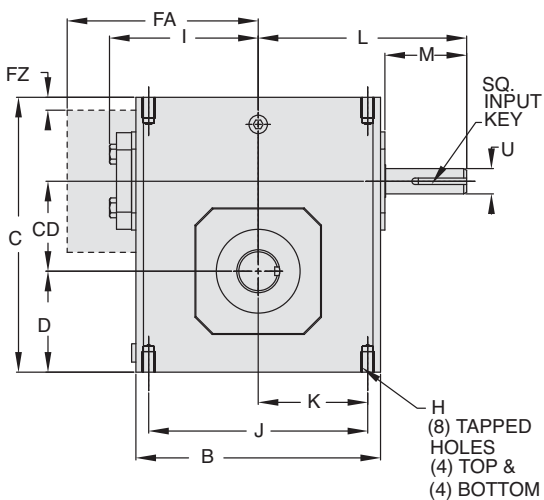
## Style BM



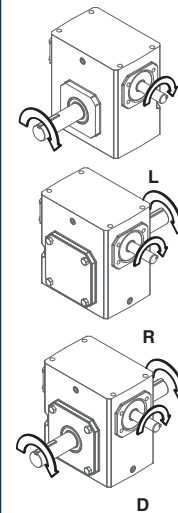
### ASSEMBLIES



## Style B



### ASSEMBLIES



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		180TC	LQ1	210TC	250TC	RQ			
	48CZ	56C/140TC				48CZ/56C/140TC	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	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	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	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	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	N/A	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	N/A	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	N/A	N/A	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	N/A	N/A	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	N/A	N/A	N/A
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	N/A	N/A	N/A
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	N/A	N/A	N/A
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	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	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

WASHGUARD® Reducers  
and GEAR-HOTOR™

Ratio Multipliers

Accessories and  
Additional Capabilities

Style WBMQ

Style WHMQ



**821 Series**

Ratio	Input RPM	Output RPM+	Input HP	Output HP	Output Torque (lb-in)	NEMA C Input Frame▲	Left Hand Catalog No.	Right Hand Catalog No.	Double Extension Catalog No.	Hollow Output Catalog No.*
<b>5</b>	1750	350.0	3.653	3.410	614	56C	<u>8213001</u>	<u>8213013</u>	<u>8213025</u>	<u>8213501.XX</u>
						143-5TC	<u>8213037</u>	<u>8213049</u>	<u>8213061</u>	<u>8213513.XX</u>
<b>7.5</b>	1750	233.3	2.793	2.562	692	56C	<u>8213002</u>	<u>8213014</u>	<u>8213026</u>	<u>8213502.XX</u>
						143-5TC	<u>8213038</u>	<u>8213050</u>	<u>8213062</u>	<u>8213514.XX</u>
<b>10</b>	1750	175.0	2.464	2.235	805	56C	<u>8213003</u>	<u>8213015</u>	<u>8213027</u>	<u>8213503.XX</u>
						143-5TC	<u>8213039</u>	<u>8213051</u>	<u>8213063</u>	<u>8213515.XX</u>
<b>15</b>	1750	116.7	1.887	1.661	897	56C	<u>8213004</u>	<u>8213016</u>	<u>8213028</u>	<u>8213504.XX</u>
						143-5TC	<u>8213040</u>	<u>8213052</u>	<u>8213064</u>	<u>8213516.XX</u>
<b>20</b>	1750	87.5	1.584	1.338	964	56C	<u>8213005</u>	<u>8213017</u>	<u>8213029</u>	<u>8213505.XX</u>
						143-5TC	<u>8213041</u>	<u>8213053</u>	<u>8213065</u>	<u>8213517.XX</u>
<b>25</b>	1750	70.0	1.333	1.094	985	56C	<u>8213006</u>	<u>8213018</u>	<u>8213030</u>	<u>8213506.XX</u>
						143-5TC	<u>8213042</u>	<u>8213054</u>	<u>8213066</u>	<u>8213518.XX</u>
<b>30</b>	1750	58.3	1.129	0.896	968	56C	<u>8213007</u>	<u>8213019</u>	<u>8213031</u>	<u>8213507.XX</u>
						143-5TC	<u>8213043</u>	<u>8213055</u>	<u>8213067</u>	<u>8213519.XX</u>
<b>40</b>	1750	43.8	0.916	0.674	971	56C	<u>8213008</u>	<u>8213020</u>	<u>8213032</u>	<u>8213508.XX</u>
						143-5TC	<u>8213044</u>	<u>8213056</u>	<u>8213068</u>	<u>8213520.XX</u>
<b>50</b>	1750	35.0	0.769	0.539	970	56C	<u>8213009</u>	<u>8213021</u>	<u>8213033</u>	<u>8213509.XX</u>
						143-5TC	<u>8213045</u>	<u>8213057</u>	<u>8213069</u>	<u>8213521.XX</u>
<b>60</b>	1750	29.2	0.674	0.435	940	56C	<u>8213010</u>	<u>8213022</u>	<u>8213034</u>	<u>8213510.XX</u>
						143-5TC	<u>8213046</u>	<u>8213058</u>	<u>8213070</u>	<u>8213522.XX</u>
<b>80</b>	1750	21.9	0.304	0.190	547	56C	<u>8213011</u>	<u>8213023</u>	<u>8213035</u>	<u>8213511.XX</u>
						143-5TC	<u>8213047</u>	<u>8213059</u>	<u>8213071</u>	<u>8213523.XX</u>
<b>100</b>	1750	17.5	0.217	0.122	439	56C	<u>8213012</u>	<u>8213024</u>	<u>8213036</u>	<u>8213512.XX</u>
						143-5TC	<u>8213048</u>	<u>8213060</u>	<u>8213072</u>	<u>8213524.XX</u>

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

▲ Contact Factory for other motor flanges available.

+ For gear reducer ratings at other input speeds, refer to basic reducer selection tables on pages 28-29.

**How To Build a Part Number For Size GRG821, GRL821, EL821**

1. Select partial catalog number from the selection table
2. Replace leading “\_” with series code (GRG, GRL, EL)
3. For Hollow output, replace “XX” suffix with bore code.

**Example:**

GR Series Style WBMQ, 10:1 Left Hand Output, 56C  
GRG-WBMQ821-10-L-56, GRG8213003

**GRG = GROVE GEAR**

- Direct replacement to Grove Gear Flexaline
- Mounting footprint 3.00” x 4.75”
- See pages 52-73 for dimensions



**GRL = IRONMAN BY OHIO GEAR Interchange**

- Direct replacement to LEESON IRONMAN & major brands.
- Mounting footprint 2.88” x 5.00”
- See pages 52-73 for dimensions

**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

\* Catalog numbers are for hollow output shaft reducers. When ordering, substitute the XX suffix with the required output bore code.

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