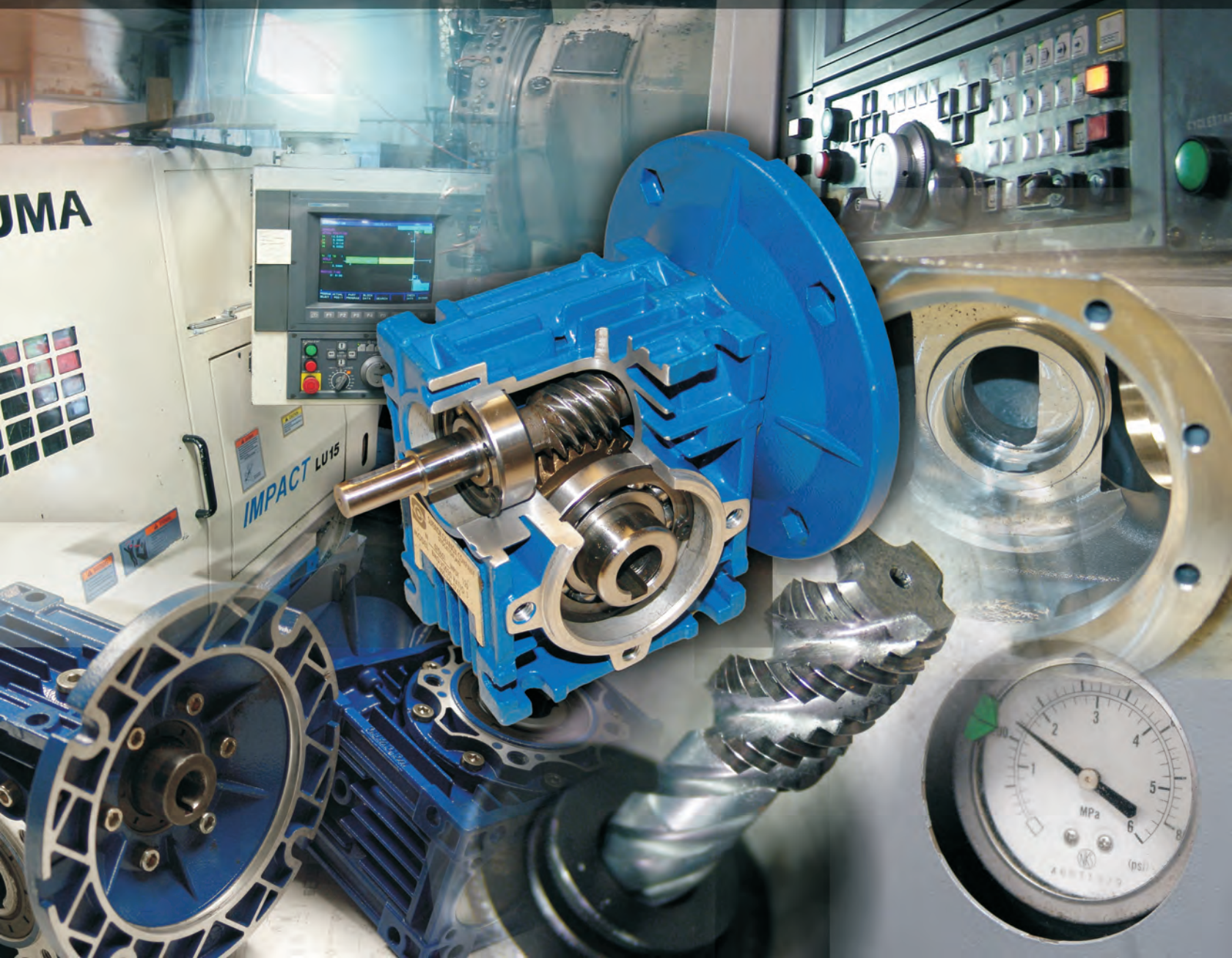




**SUPERIOR  
GEARBOX  
COMPANY**

*Worm Gear Drives - Industry Innovators Since 1975*





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## Limited Warranty

Superior Gearbox Company warrants its products to be free from defects in materials and workmanship for one year from date of shipment, or in-service date. The start of the in-service date cannot exceed ship date by more than one year. It is the responsibility of the customer to provide proof of in-service date. Superior Gearbox Company will repair or replace, at its option, any item found to be defective upon inspection at our factory. Warranty claims must be made in writing to Superior Gearbox Company, and authorization for return of defective items must be obtained prior to shipment. All shipments must be prepaid. Superior's responsibility under this warranty shall be limited to the repair or replacement of our product. The manufacturer disclaims any liability of consequential or special damages or economic loss resulting from the failure of the product.

## Warranted Product Limited Warranty

In the event that a product is repaired or replaced under the warranty policy, that unit's warranty will extend to the original warranty date or sixty days from the date of shipment from Superior Gearbox Company, whichever is longer.

Contact the sales department to get a return authorization number. This number needs to be on the outside of the returned package. The gearbox warranty will be void if the gearbox has been opened. Items returned for restock will have a 15% restock fee issued once they are determined to be in new condition.



P.O. Box 645  
 803 West Street  
 Stockton, MO 65785  
 1-800-346-5745  
 Fax: 417-276-3492  
[www.superiorgearbox.com](http://www.superiorgearbox.com)  
 (Revised September, 2018)



## Variodrive Features and Benefits

Ribbed aluminum housing\* provides expanded surface area and greater heat dissipation than traditional cast iron housings. This allows for higher thermal capacity and reduced internal pressure build up.

Variodrive units have two bearings along the input shaft. This helps prevent leaks and increases flexibility in mounting options versus reducers with a bushing on the input.

Variodrive units are available with standard NEMA motor flange as well as optional IEC motor flanges to fit your needs.

Variodrive units utilize O-rings on the input flange and output cover to prevent leaks. Units are sealed more effectively than similar units using paper gaskets.

All Variodrive units come standard as a hollow output bore design with optional plug-in shafts. This allows you to lower inventory levels and improve profitability.

Due to the improved heat dissipation of the Variodrive unit, no breather plug or ventilation is required. Our units are sealed for life which greatly reduces the opportunity for outside contaminants to enter lubricant and reduce reducer life.

Variodrive units are available in ratios up to 100:1 in a single reduction stage and 10,000:1 in a double reduction unit.

Variodrive units are painted with high quality epoxy paint. This, along with the aluminum housings, help keep these units free from corrosion.

\*Units 030-090.



## Variodrive Features and Benefits



# Variodrive Nomenclature

BMQ	075	80	56C	SM	B3	TA
Model	Size	Ratio	Input Size	Output Design	Mounting	Accessories
BMQ Motor	Aluminum Housing 030	5		Shaft Mount Standard—Hollow Output Bore SM	B3	Torque Arm TA
	040	7.5	48C		B6	
Input Flang	050	10	56C	Foot Mount Single or Double Output Shaft	B7	Baseplate BP (A/B)
	063	15	140TC		B8	
	075	20	180TC		V5	
B Input Shaft	Cast Iron Housing 090	25	210TC	Flange Mount Optional Mounting Flange and Hollow Bore FL	V6	Double Extended Input DI
		30	250TC			
	110	40	Protective Cover PC			
	130	50				
	150	60				
		80				
	100	Special SP				

## Determining Your Variodrive Part Number

- Model:** Your Variodrive model is based on whether you require the reducer to be direct coupled to a motor (BMQ) or will be driving the reducer via an external input shaft (B).
- Size:** Select the size of your Variodrive reducer by using our selection charts on pages 6-9. Be sure to select the reducer size that fits the service factor and horsepower requirements of your application.
- Ratio:** Select the appropriate ratio that will give you your desired output rpm.
- Input Size:** Input size is based on the motor that will be coupled to the reducer. This only applies to BMQ style reducers.
- Output Design:** The Variodrive unit comes standard as a hollow output bore (SM). This unit may also be ordered with a single output shaft (FMR & FML), double output shaft (FMD), or as a flange mount design (FL).
- Mounting Position:** Select the appropriate Variodrive mounting position from page 13.
- Accessories:** Variodrive accessories can be found on pages 14-15. Units which are outside of the standard Variodrive design should be designated as “special” and should be submitted for quote. Quote requests should be accompanied by a detailed explanation of the special characteristics of your requested unit.





# Variodrive Quick Select Guide

Using the Variodrive Quick Select Guide

Input HP	Service Factor											
	5	7.5	10	15	20	25	30	40	50	60	80	100
0.13	030	030	030	030	030	030	030	030	030	030	040	040
0.16	030	030	030	030	030	030	030	030	040	040	040	050
0.25	030	030	030	030	030	030	030	040	040	040	050	050
0.33	030	030	030	030	040	040	040	040	050	050	050	063
0.50	030	030	030	040	040	040	040	050	050	063	063	063
0.75	030	040	040	040	050	050	050	063	063	063	075	075
1.00	030	040	040	050	050	063	063	063	063	075	090	090
1.50	040	040	050	063	063	063	063	075	075	090	110	110
2.00	050	050	050	063	063	075	075	090	090	110	110	130
3.00	050	063	063	075	075	090	090	110	110	110	130	150
5.00	-	075	075	090	090	110	110	130	130	130	150	-
7.50	-	090	090	110	110	130	130	130	150	-	-	-
10.00	-	090	110	110	130	130	130	150	-	-	-	-
15.00	-	110	130	130	150	-	-	-	-	-	-	-
20.00	-	130	130	150	-	-	-	-	-	-	-	-
30.00	-	150	150	-	-	-	-	-	-	-	-	-

# Variodrive Quick Select Guide

## To use the Variodrive Quick Select Guide\*:

1. Select the appropriate service factor for your application (see the Superior Gearbox Service Factor Guide on pgs. 17-23).
2. Select your input horsepower on the appropriate chart.
3. Read across the selected horsepower line until you get to the ratio of the gearbox that you will be using.
4. Upon reaching the appropriate ratio column you will find the Superior Gearbox Variodrive model number that best suits your selected application.
5. The example above shows how you would select the proper gearbox for an application that requires a 0.25 hp motor and a 50:1 ratio with a 1.0 service factor. The model that would be selected is a size 040 reducer.

\*The Variodrive Quick Selection Guide is to be used as a selection aid only. The customer is responsible for certifying that the gearbox selected is appropriate for their application.



Variodrive  
Quick  
Select  
Guide

# Variodrive Quick Select Guide

Service Factor 1.00  
Ratio

Input HP	5	7.5	10	15	20	25	30	40	50	60	80	100
0.13	030	030	030	030	030	030	030	030	030	030	040	040
0.16	030	030	030	030	030	030	030	030	040	040	040	050
0.25	030	030	030	030	030	030	030	040	040	040	050	050
0.33	030	030	030	030	040	040	040	040	050	050	050	063
0.50	030	030	030	040	040	040	040	050	050	063	063	063
0.75	030	040	040	040	050	050	050	063	063	063	075	075
1.00	030	040	040	050	050	063	063	063	063	075	090	090
1.50	040	040	050	063	063	063	063	075	075	090	110	110
2.00	050	050	050	063	063	075	075	090	090	110	110	130
3.00	050	063	063	075	075	090	090	110	110	110	130	150
5.00	-	075	075	090	090	110	110	130	130	130	150	-
7.50	-	090	090	110	110	130	130	130	150	-	-	-
10.00	-	090	110	110	130	130	130	150	-	-	-	-
15.00	-	110	130	130	150	-	-	-	-	-	-	-
20.00	-	130	130	150	-	-	-	-	-	-	-	-
30.00	-	150	150	-	-	-	-	-	-	-	-	-

Service Factor 1.25  
Ratio

Input HP	5	7.5	10	15	20	25	30	40	50	60	80	100
0.13	030	030	030	030	030	030	030	030	040	040	040	050
0.16	030	030	030	030	030	030	030	030	040	040	040	050
0.25	030	030	030	030	030	030	040	040	040	050	050	063
0.33	030	030	030	040	040	040	040	050	050	050	063	063
0.50	030	030	040	040	040	050	050	050	063	063	063	075
0.75	040	040	040	050	050	063	050	063	063	075	075	090
1.00	040	040	050	050	063	063	063	063	075	075	090	110
1.50	040	050	050	063	063	075	075	075	090	090	110	130
2.00	050	050	063	063	075	075	075	090	110	110	130	130
3.00	-	063	075	075	090	090	090	110	110	130	150	150
5.00	-	075	090	090	110	110	110	130	130	150	-	-
7.50	-	090	110	110	130	110	130	150	-	-	-	-
10.00	-	110	130	130	130	150	-	-	-	-	-	-
15.00	-	130	130	150	150	-	-	-	-	-	-	-
20.00	-	130	150	-	-	-	-	-	-	-	-	-
30.00	-	150	-	-	-	-	-	-	-	-	-	-



Variodrive  
Quick  
Select  
Guide

Service Factor 1.40  
Ratio

Input HP	5	7.5	10	15	20	25	30	40	50	60	80	100
0.13	030	030	030	030	030	030	030	030	040	040	040	050
0.16	030	030	030	030	030	030	030	040	040	040	050	050
0.25	030	030	030	030	040	040	040	040	050	050	050	063
0.33	030	030	030	040	040	040	040	050	050	050	063	063
0.50	030	040	040	040	050	050	050	050	063	063	075	075
0.75	040	040	040	050	050	063	063	063	075	075	090	090
1.00	040	040	050	050	063	063	063	075	075	090	110	110
1.50	050	050	063	063	075	075	075	090	090	110	110	130
2.00	050	063	063	075	075	090	090	090	110	110	130	130
3.00	-	063	075	090	090	110	090	110	130	130	150	-
5.00	-	090	090	110	110	130	130	130	150	150	-	-
7.50	-	090	110	110	130	130	130	150	-	-	-	-
10.00	-	110	110	130	150	150	-	-	-	-	-	-
15.00	-	130	130	150	-	-	-	-	-	-	-	-
20.00	-	150	150	-	-	-	-	-	-	-	-	-
30.00	-	150	-	-	-	-	-	-	-	-	-	-

Service Factor 1.50  
Ratio

Input HP	5	7.5	10	15	20	25	30	40	50	60	80	100
0.13	030	030	030	030	030	030	030	030	040	040	040	050
0.16	030	030	030	030	030	030	030	040	040	040	050	050
0.25	030	030	030	030	040	040	040	040	050	050	050	063
0.33	030	030	030	040	040	040	040	050	050	050	063	063
0.50	030	040	040	040	050	050	050	063	063	063	075	075
0.75	040	040	050	050	050	063	063	063	075	075	090	090
1.00	040	040	050	050	063	063	063	075	075	090	110	110
1.50	050	050	063	063	075	075	075	090	090	110	110	130
2.00	050	063	063	075	075	090	090	090	110	110	130	150
3.00	-	063	075	090	090	110	110	110	130	130	150	-
5.00	-	090	090	110	110	130	130	130	150	150	-	-
7.50	-	110	110	130	130	150	150	150	-	-	-	-
10.00	-	110	130	130	150	-	-	-	-	-	-	-
15.00	-	130	130	150	-	-	-	-	-	-	-	-
20.00	-	150	150	-	-	-	-	-	-	-	-	-



Variodrive  
Quick  
Select  
Guide

Service Factor 1.75  
Ratio

Input HP	5	7.5	10	15	20	25	30	40	50	60	80	100
0.13	030	030	030	030	030	030	030	040	040	040	050	050
0.16	030	030	030	030	030	030	040	040	040	050	050	050
0.25	030	030	030	040	040	040	040	050	050	050	063	063
0.33	030	030	040	040	040	050	050	050	050	063	063	063
0.50	030	040	040	050	050	050	050	063	063	063	075	090
0.75	040	040	050	050	063	063	063	075	075	090	090	110
1.00	040	050	050	063	063	075	063	075	090	090	110	110
1.50	050	050	063	063	075	090	090	090	110	110	130	130
2.00	-	063	063	075	090	090	090	110	110	130	130	150
3.00	-	075	075	090	110	110	110	130	130	150	150	-
5.00	-	090	110	110	130	130	130	150	150	-	-	-
7.50	-	110	110	130	130	150	-	-	-	-	-	-
10.00	-	110	130	150	150	-	-	-	-	-	-	-
15.00	-	130	150	-	-	-	-	-	-	-	-	-
20.00	-	150	-	-	-	-	-	-	-	-	-	-

Service Factor 2.00  
Ratio

Input HP	5	7.5	10	15	20	25	30	40	50	60	80	100
0.13	030	030	030	030	030	030	030	040	040	040	050	050
0.16	030	030	030	030	040	040	040	040	050	050	050	063
0.25	030	030	030	040	040	040	040	050	050	063	063	063
0.33	030	030	040	040	050	050	050	050	063	063	063	075
0.50	030	040	040	050	050	063	063	063	063	075	090	090
0.75	040	040	050	063	063	063	063	075	075	090	110	110
1.00	050	050	050	063	063	075	075	090	090	110	110	130
1.50	050	063	063	075	075	090	090	090	110	110	130	150
2.00	-	063	075	090	090	090	090	110	130	130	150	-
3.00	-	075	090	090	110	110	110	130	130	150	-	-
5.00	-	090	110	110	130	130	130	150	-	-	-	-
7.50	-	110	130	130	150	-	-	-	-	-	-	-
10.00	-	130	130	150	-	-	-	-	-	-	-	-
15.00	-	150	150	-	-	-	-	-	-	-	-	-
20.00	-	150	-	-	-	-	-	-	-	-	-	-





# Variodrive Ratings

1750 RPM		Ratio	5	7.5	10	15	20	25	30	40	50	60	80	100
BMQ030	Input HP		1.02	0.69	0.54	0.38	0.3	0.3	0.25	0.19	0.15	0.13	0.09	
B030	Output Torque (in. lbs.)		159	159	159	159	159	186	177	159	150	14	115	
	Output RPM		350	233	175	117	88	70	58	44	35	29	22	
	Output OHL (lbs.)		113	129	142	163	179	193	205	225	243	259	284	
BMQ040	Input HP		1.88	1.51	1.16	0.8	0.61	0.5	0.53	0.39	0.31	0.25	0.19	0.15
B040	Output Torque (in. lbs.)		301	354	354	354	345	336	398	363	345	319	292	257
	Output RPM		350	233	175	117	88	70	58	44	35	29	22	18
	Output OHL (lbs.)		221	253	279	319	350	378	403	441	476	507	556	595
BMQ050	Input HP		3.43	2.64	2.06	1.48	1.14	0.9	0.96	0.7	0.57	0.47	0.38	0.28
B050	Output Torque (in. lbs.)		549	628	637	655	646	619	743	672	646	602	575	487
	Output RPM		350	233	175	117	88	70	58	44	35	29	22	18
	Output OHL (lbs.)		322	369	406	464	510	551	586	643	694	739	810	866
BMQ063	Input HP			4.77	3.67	2.76	2.05	1.64	1.77	1.27	1.01	0.86	0.66	0.57
B063	Output Torque (in. lbs.)			1133	1150	1239	1194	1150	1416	1283	1194	1150	1079	1044
	Output RPM			233	175	117	88	70	58	44	35	29	22	18
	Output OHL (lbs.)			463	510	583	641	692	736	807	871	928	1017	1088
BMQ075	Input HP			6.81	5.45	3.86	3.15	2.46	2.48	1.88	1.5	1.26	0.97	0.8
B075	Output Torque (in. lbs.)			1637	1725	1770	1858	1770	2035	1947	1858	1770	1681	1593
	Output RPM			233	175	117	88	70	58	44	35	29	22	18
	Output OHL (lbs.)			549	604	691	759	820	873	957	1033	1099	1205	1289
BMQ090	Input HP			10.56	8.56	6.86	5.19	4.08	4.31	2.95	2.32	1.9	1.39	1.12
B090	Output Torque (in. lbs.)			2566	2743	3185	3141	3008	3628	3185	3008	2831	2522	2389
	Output RPM			233	175	117	88	70	58	44	35	29	22	18
	Output OHL (lbs.)			631	694	794	873	942	1003	1100	1187	1264	1386	1482
BMQ110	Input HP			17.48	14.36	10.86	8.1	6.9	6.53	4.81	3.93	3.19	2.25	1.79
B110	Output Torque (in. lbs.)			4247	4601	5043	4955	5220	5574	5397	5309	4955	4336	4070
	Output RPM			233	175	117	88	70	58	44	35	29	22	18
	Output OHL (lbs.)			776	853	976	1073	1158	1233	1352	1459	1553	1073	1821
BMQ130	Input HP			27.01	22.64	17.33	13	10.88	10.65	8.27	6.42	5.12	3.79	2.84
B130	Output Torque (in. lbs.)			6636	7255	8140	8052	8229	9202	9290	8671	7963	7432	6548
	Output RPM			233	175	117	88	70	58	44	35	29	22	18
	Output OHL (lbs.)			1017	1119	1279	1407	1518	1616	1772	1913	2036	2233	2387
BMQ150	Input HP			43.22	33.86	23.27	18.58	14.04	11.85	12.21	9.05	7.07	5.2	3.84
B150	Output Torque (in. lbs.)			10618	10972	11060	11502	10618	10618	13715	12387	11149	10175	8848
	Output RPM			233	175	117	88	70	58	44	35	29	22	18
	Output OHL (lbs.)			1425	1568	1793	1971	2127	2265	2484	2680	2854	3129	3346

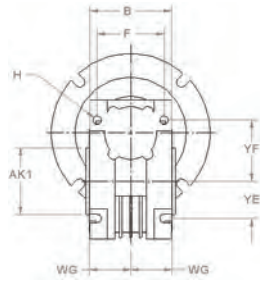
NOTE: All ratings are based on 1.0 Service Factor.



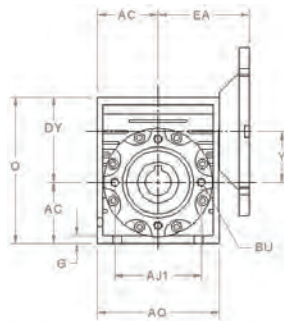
# Variodrive Dimensions

# Variodrive Dimensions

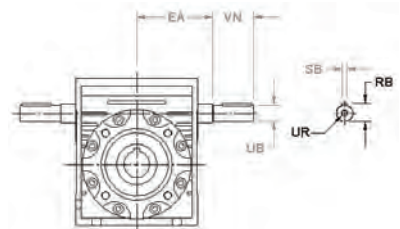
FLANGE INPUT (BMQ)



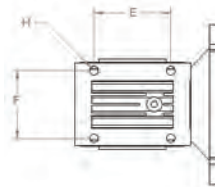
FLANGE INPUT (BMQ)



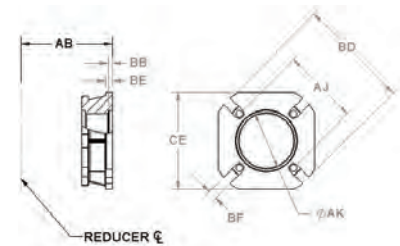
SHAFT INPUT (B)



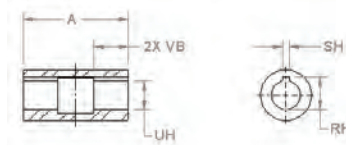
FLANGE INPUT (BMQ)



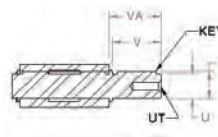
OUTPUT FLANGE



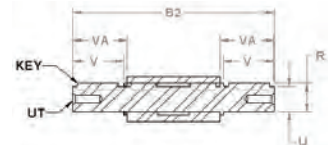
HOLLOW BORE OUTPUT



SINGLE OUTPUT SHAFT



DOUBLE OUTPUT SHAFT



Input Key	30	40	50	63	75	90	110	130	150
Length	0.875	0.875	1.125	1.500	1.875	1.875	2.250	2.500	2.875
Square	0.094	0.125	0.188	0.188	0.188	0.188	0.250	0.250	0.313

Output Key

Length	1.125	1.500	1.500	1.875	2.250	2.500	2.750	2.750	3.563
Square	0.188	0.188	0.250	0.250	0.250	0.313	0.375	0.375	0.500

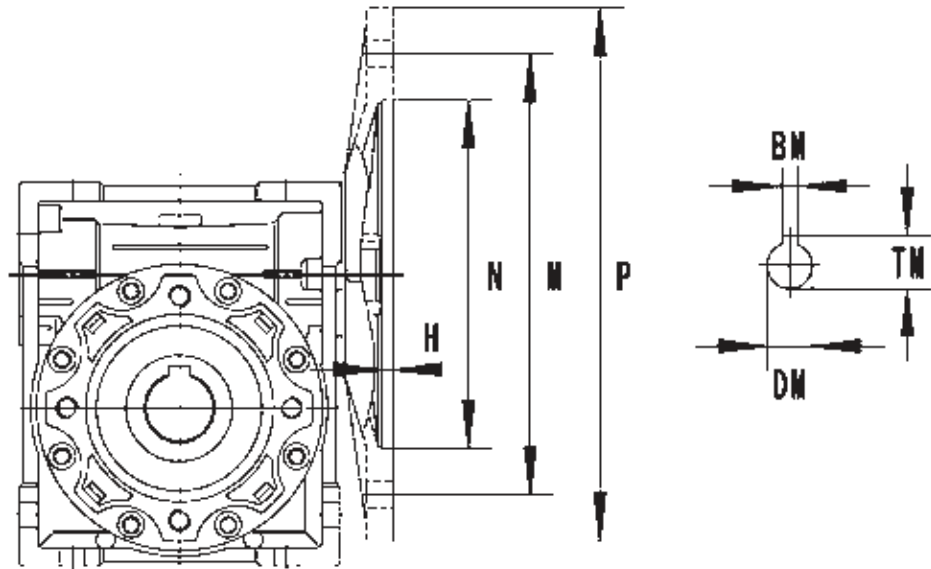


	30	40	50	63	75	90	110	130	150
A	2.48	3.07	3.62	4.41	4.72	5.51	6.10	6.69	7.87
AB	2.15	2.64	3.54	3.23	4.37	4.37	5.16	5.51	6.10
AC	1.57	1.97	2.36	2.83	3.39	4.06	5.02	5.81	6.69
AJ	2.68	2.95	3.35	5.91	6.49	6.89	9.06	10.03	10.03
AJ1	2.56	2.95	3.35	3.74	4.53	5.12	6.50	8.46	8.46
AK	1.970/1.976	2.360/2.366	2.760/2.766	4.530/4.536	5.120/5.126	5.980/5.986	6.690/6.696	7.090/7.096	7.090/7.096
AK1	2.16/2.17	2.35/2.36	2.75/2.76	3.14/3.15	3.73/3.74	4.32/4.33	5.11/5.12	7.08/7.09	7.08/7.09
AQ	3.15	3.94	4.72	5.67	6.77	8.11	9.94	11.52	13.39
B	2.20	2.80	3.35	4.06	4.41	5.12	5.67	6.10	7.28
B2	5.83	7.24	7.83	9.41	10.51	12.13	16.14	14.17	16.14
BB	0.16	0.16	0.20	0.24	0.24	0.24	0.24	0.28	0.28
BD	3.15	4.33	4.92	7.09	7.87	8.27	11.02	12.60	12.60
BE	0.24	0.28	0.35	0.39	0.51	0.51	0.59	0.59	0.59
BF	4x .26	4x .35	4x .43	4x .43	4x .55	4x .55	8x .55	8x .63	8x .63
BU	4x M6 $\nabla$ .40	4x M6 $\nabla$ .32	4x M8 $\nabla$ .26	8x M8 $\nabla$ .27	8x M8 $\nabla$ .35	8x M10 $\nabla$ .42	8x M10 $\nabla$ .52	8x M12 $\nabla$ .60	8x M12 $\nabla$ .77
CE	2.76	3.74	4.33	5.60	6.69	7.87	10.24	11.42	11.42
DY	2.24	2.81	3.31	4.02	4.69	5.32	6.59	7.38	9.06
E	2.13	2.76	3.15	3.94	4.72	5.51	6.69	7.87	9.45
EA	2.64	3.15	3.54	4.13	4.96	5.63	6.81	7.60	8.27
F	1.73	2.36	2.76	3.35	3.54	3.94	4.53	4.72	5.71
G	0.22	0.26	0.28	0.32	0.39	0.43	0.57	0.61	0.71
H	0.26	0.26	0.34	0.33	0.45	0.51	0.55	0.63	0.71
O	3.82	4.78	5.67	6.85	8.07	9.37	11.61	13.19	15.75
R	0.70	0.83	1.11	1.23	1.36	1.51	1.79	1.92	2.50
RB	0.42	0.55	0.70	0.83	0.96	0.96	1.23	1.36	1.51
RH	0.71	0.84	1.12	1.24	1.37	1.52	1.80	1.93	2.20
S	0.188	0.188	0.250	0.250	0.250	0.313	0.375	0.375	0.500
SB	0.094	0.125	0.188	0.188	0.188	0.188	0.250	0.250	0.313
SH	0.188	0.188	0.250	0.250	0.250	0.313	0.375	0.375	0.710
U	.621/.626	.746/.751	.996/1.001	1.121/1.126	1.246/1.251	1.371/1.376	1.621/1.626	1.746/1.751	1.996/2.001
UB	.3745/.3780	.4995/.5030	.6245/.6280	.7495/.7530	.8745/.8780	.8745/.8780	1.1245/1.1280	1.2495/1.2530	1.3745/1.3780
UH	.624/.628	.749/.753	.999/1.003	1.124/1.128	1.249/1.253	1.374/1.378	1.624/1.628	1.749/1.753	1.999/2.003
UR		1/4-20	1/4-20	1/4-20	1/4-20	1/4-20	3/8-16	1/2-13	1/2-13
UT	1/4-20	1/4-20	3/8-16	3/8-16	1/2-13	1/2-13	5/8-11	5/8-11	3/4-10
V	1.58	1.97	1.97	2.36	2.76	3.15	3.54	3.54	4.02
VA	1.67	2.09	2.11	2.50	2.89	3.33	4.13	3.74	4.57
VB	0.827	1.024	1.181	1.417	1.575	1.772	1.969	2.362	2.850
VN	1.18	1.18	1.58	1.97	2.36	2.36	2.76	3.15	3.15
WG	1.14	1.44	1.71	2.09	2.24	2.64	2.91	3.19	3.78
Y	1.18	1.58	1.97	2.48	2.95	3.54	4.33	5.12	5.91
YE	1.06	1.38	1.58	1.97	2.36	2.76	3.35	3.94	4.72
YF	1.73	2.17	2.52	3.15	3.66	4.02	4.92	5.51	7.09
Wt. (lbs)	3	5	8	14	20	29	77	106	185



# Variodrive NEMA Input Dimensions

# Variodrive NEMA Input Dimensions

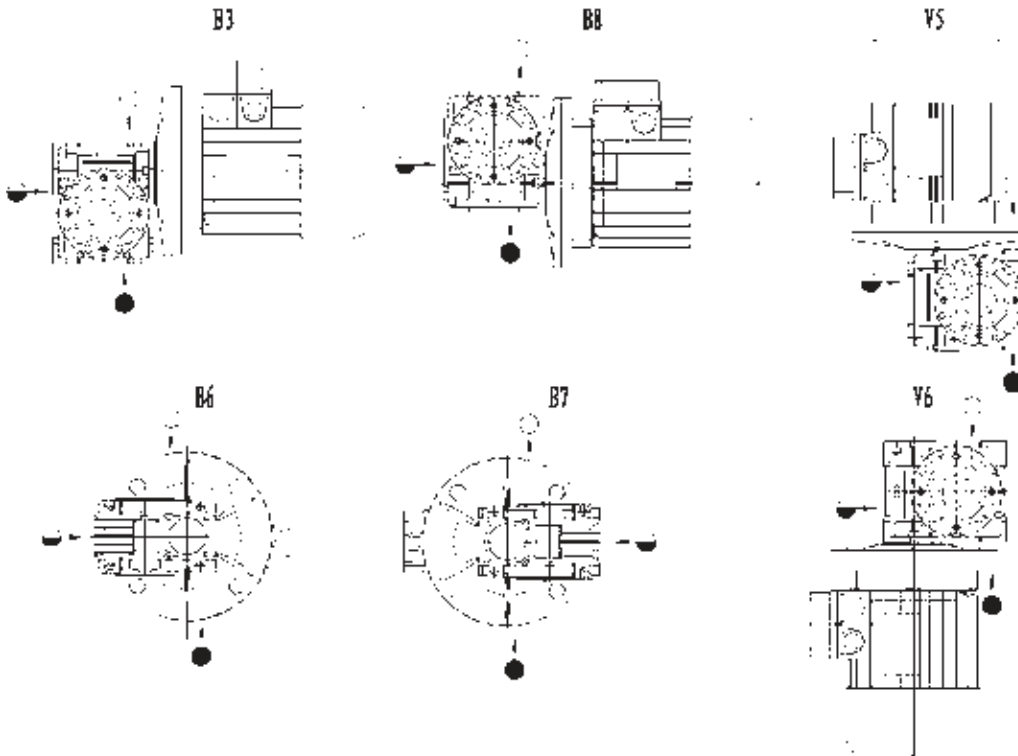


NEMA Flange	Dimensions								Available Ratios												
	N	M	P	H	TM	BM	DM	5	7.5	10	15	20	25	30	40	50	60	80	100		
BMQ030 48C	3.00	3.75	5.63	0.20	0.56	0.125	0.500	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BMQ040 56C	4.50	5.88	6.50	0.20	0.71	0.188	0.625	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BMQ050 56C	4.50	5.88	6.50	0.20	0.71	0.188	0.625	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BMQ063 56C	4.50	5.88	6.50	0.20	0.71	0.188	0.625	.	.	.	.	.	.	.	.	.	.	.	.	.	.
140TC	4.50	5.88	6.50	0.20	0.97	0.188	0.875	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BMQ075 56C	4.50	5.88	6.50	0.20	0.71	0.188	0.625	.	.	.	.	.	.	.	.	.	.	.	.	.	.
140TC	4.50	5.88	6.50	0.20	0.97	0.188	0.875	.	.	.	.	.	.	.	.	.	.	.	.	.	.
180TC	8.50	7.25	9.00	0.22	1.24	0.250	1.125	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BMQ090 56C	4.50	5.88	6.50	0.20	0.71	0.188	0.625	.	.	.	.	.	.	.	.	.	.	.	.	.	.
140TC	4.50	5.88	6.50	0.20	0.97	0.188	0.875	.	.	.	.	.	.	.	.	.	.	.	.	.	.
180TC	8.50	7.25	9.00	0.22	1.24	0.250	1.125	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BMQ110 140TC	4.50	5.88	6.50	0.20	0.97	0.188	0.875	.	.	.	.	.	.	.	.	.	.	.	.	.	.
180TC	8.50	7.25	9.00	0.22	1.24	0.250	1.125	.	.	.	.	.	.	.	.	.	.	.	.	.	.
210TC	8.50	7.25	9.00	0.22	1.52	0.313	1.375	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BMQ130 140TC	4.50	5.88	6.50	0.20	0.97	0.188	0.875	.	.	.	.	.	.	.	.	.	.	.	.	.	.
180TC	8.50	7.25	9.00	0.22	1.24	0.250	1.125	.	.	.	.	.	.	.	.	.	.	.	.	.	.
210TC	8.50	7.25	9.00	0.22	1.52	0.313	1.375	.	.	.	.	.	.	.	.	.	.	.	.	.	.
BMQ150 180TC	8.50	7.25	9.00	0.22	1.24	0.250	1.125	.	.	.	.	.	.	.	.	.	.	.	.	.	.
210TC	8.50	7.25	9.00	0.22	1.52	0.313	1.375	.	.	.	.	.	.	.	.	.	.	.	.	.	.
250TC	8.50	7.25	9.00	0.22	1.80	0.375	1.625	.	.	.	.	.	.	.	.	.	.	.	.	.	.



# Variodrive Mounting Positions

# Variodrive Mounting Positions



Note: Mounting a worm gear reducer with the input shaft down (B8 or V6) will reduce the life of the input seals due to increased heat and pressure. This can lead to premature seal failure. Superior Gearbox Company always recommends that worm gear units be mounted such that oil pressure on the high speed shaft seal is minimized.

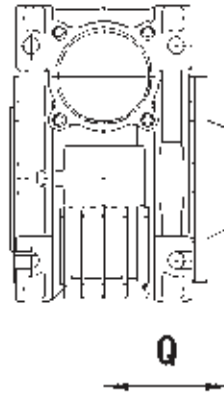
Please contact Superior Gearbox Engineering for V5 or V6 mount.



# Variodrive Accessories

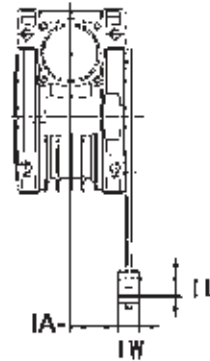
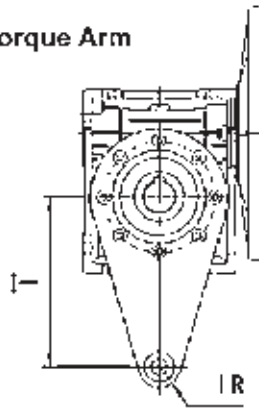
# Variodrive Accessories

Protective Cover



	Q
40	1.97
50	2.28
63	2.72
75	2.91
90	3.39
110	3.70
130	4.02
150	4.45

Torque Arm

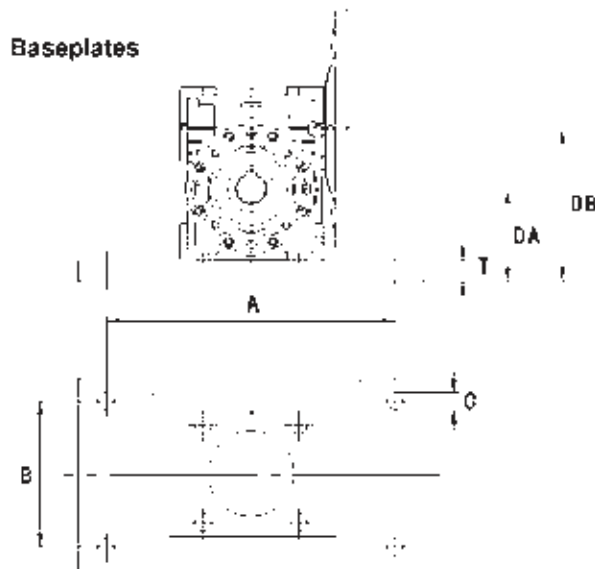


	30	40	50	63	75	90	110	130	150
I	3.35	3.94	3.94	5.91	7.87	7.87	9.84	9.84	9.84
IA	0.94	1.24	1.52	1.93	1.87	2.26	2.44	2.72	3.31
IL	0.31	0.39	0.39	0.39	0.79	0.79	0.98	0.98	0.98
IR	0.59	0.71	0.71	0.71	1.18	1.18	1.38	1.38	1.38
IW	0.55	0.55	0.55	0.55	0.98	0.98	1.18	1.18	1.18



# Variodrive Accessories

# Variodrive Accessories



	30	040-A	040-B	50	063-A	063-B	75	90
A	4.38	4.38	5.75	6.38	7.06	8.00	8.44	9.50
B	3.31	3.31	4.50	4.69	4.88	5.25	5.88	6.13
C	0.34	0.34	0.41	0.50	0.50	0.50	0.50	0.50
DA	2.25	2.65	2.75	3.00	3.50	3.68	4.00	4.63
DB	3.43	4.22	4.32	4.97	5.97	6.16	6.95	8.17
T	0.68	0.68	0.78	0.64	0.66	0.85	0.61	0.57

## Baseplate Competitive Cross Reference

Size	Baldor 900	Boston	Browning / Morse	Grove Gear	Ohio	Dodge	Sterling
030	913	713	133	1133	2133	133	133
040-A	913	713	133	1133	2133	133	133
040-B	918	718	175	1175	2175	175	175
050	921	721	206	1206	2206	200	206
063-A	924	724	237	1238	2238	N/A	237
063-B	924	726	262	1262	2262	262	262
075	932	N/A	300	1300	2300	N/A	300
090	N/A	732	325	1325	2325	350	325

Note: Base footprints are designed to match our competitors units. Other gearbox dimensions may be different from competitor's models. Please contact Superior Gearbox for further information.



# Variodrive Competitor Cross Reference

# Variodrive Competitor Cross Reference

	Variodrive Model										
	030	040	040	050	063	063	075	090	110	130	150
Baldor	133	133	175	200	225	258	300	350	400	500	N/A
Baldor 900	913	913	918	921	924	924	932	N/A	N/A	N/A	N/A
Bonfiglioli	30	44	44	49	63	63	72	86	110	130	150
Boston Gear	713	713	718	721	724	726	N/A	732	N/A	752	760
Morse Raider	133	133	154, 175	206	237	262	300	325	450	516	600
Electra	13	13	17	21	N/A	26	30	35	400	500	600
Morse Cobra	13	13	18	21	26	26	N/A	38	N/A	N/A	N/A
Grove (Old)	1133	1133	1154, 1175	1206	1238	1262	1300	1325	1425	1525	1600
Grove (New)	213	213	215, 218	206	224	226	230	232	242	252	2600
Hampton	34	45	45	50	60	60	70	80	100,120	135	155
Hub City	130	130	180	210	N/A	260	N/A	320	450	520	60
Leeson Iron Man	613	613, 618	618	621	624	624, 626	626	632	638	652	660
Morse Invader	13	13	15,18	21	N/A	24,26	30	32	38,45	52	60
Motovario	030	040	040	050	063	063	075	090	110	130	150
Ohio Gear	2133	2133	2175	2206	2238	2262	2300	2325	2425	2525	2600
Dodge	133	133	150, 175	200	N/A	262	N/A	350	N/A	N/A	N/A
Sterling	133	133	175	206	238	262	300	325	425	525	600
Winsmith	913D	913D	917D	920D	924D	926D	930D	6C	72C	9C	10C

Note: This cross reference is based on competitor's published torque ratings. Gearbox dimensions may vary. It is the customer's responsibility to verify fit and function.





## Service Factors for Enclosed Gear Drives

## Service Factors for Enclosed Gear Drives

Application	Up to 3 Hours/day	3-10 Hours/Day	Over 10 Hours/Day
<b>Agitators (Mixers)</b>			
Pure Solids	-	1.00	1.25
<b>Liquids and Solids</b>			
Liquids- Variable Density	1.00	1.25	1.50
<b>Blowers</b>			
Centrifugal	1.00	1.25	-
Lobe	1.00	1.25	1.50
Vane	-	1.00	1.25
<b>Brewing and Distilling</b>			
Bottling Machinery	-	1.00	1.25
Brew Kettles, Continuous Duty	-	1.00	1.25
Cookers, Continuous Duty	-	1.00	1.25
Mash Tubs, Continuous Duty	-	1.00	1.25
Scale Hopper,Frequent Starts	1.00	1.25	1.50
Can Filling Machines	-	1.00	1.25
Car Dumpers	1.25	1.50	1.75
Car Pullers	1.00	1.25	1.50
Clarifiers	-	1.00	1.25
Classifiers	1.00	1.25	1.50
<b>Clay Working Machinery</b>			
Brick Press	1.25	1.50	1.75
Briquette Machine	1.25	1.50	1.75
Pug Mill	1.00	1.25	1.50
Compactors	1.50	1.75	2.00
<b>Compressors</b>			
Centrifugal	-	1.00	1.25
Lobe	1.00	1.25	1.50
Reciprocating, Multi-Cylinder	1.00	1.25	1.50
Reciprocating, Single-Cylinder	1.25	1.50	1.75
<b>Conveyors-General Purpose</b>			
Uniformly Loaded or Fed	-	1.00	1.25
Not Uniformly Fed	1.00	1.25	1.50
Reciprocating or Shaker	1.25	1.50	1.75
<b>Cranes</b>			
<b>Dry Dock</b>			
Main Hoist	1.25	1.50	1.75
Auxilliary	1.25	1.50	1.75
Boom Hoist	1.25	1.50	1.75
Slewing Drive	1.25	1.50	1.75
Traction Drive	1.50	1.50	1.50



## Service Factors for Enclosed Gear Drives

Application	Up to 3 Hours/day	3-10 Hours/Day	Over 10 Hours/Day
<b>Container</b>			
Main Hoist	See Tech. Services		
Boom Hoist	See Tech. Services		
Trolley Drive	See Tech. Services		
<b>Mill Duty</b>			
Main Hoist	See Tech. Services		
Auxilliary	See Tech. Services		
Bridge and Trolley Travel	See Tech. Services		
<b>Industrial Duty</b>			
Main Hoist	1.00	1.25	1.50
Auxilliary	See Tech. Services		
Bridge and Trolley Travel	See Tech. Services		
<b>Crusher</b>			
Stone or Ore	1.50	1.75	2.00
<b>Dredges</b>			
Cable Reels	1.00	1.25	1.50
Conveyors	1.00	1.25	1.50
Cutter Head Drives	1.25	1.50	1.75
Pumps	1.00	1.25	1.50
Screen Drives	1.25	1.50	1.75
Stackers	1.00	1.25	1.50
Winches	1.00	1.25	1.50
<b>Elevators</b>			
Bucket	1.00	1.25	1.50
Centrifugal Discharge	-	1.00	1.25
Escalators	See Tech. Services		
Freight	See Tech. Services		
Gravity Discharge	-	1.00	1.25
<b>Extruders</b>			
General	1.25	1.25	1.25
<b>Plastics</b>			
a) Variable Speed Drive	1.50	1.50	1.50
b) Fixed Speed Drive	1.75	1.75	1.75
<b>Rubber</b>			
a) Continuous Screw Operation	1.50	1.50	1.50
b) Intermittent Screw Operation	1.75	1.75	1.75
<b>Fans</b>			
Centrifugal	-	1.00	1.25
Cooling	Towers See Tech. Services		
Forced Draft	1.25	1.25	1.25
Induced Draft	1.00	1.25	1.50
Industrial and Mine	1.00	1.25	1.50
<b>Feeders</b>			
Apron	-	1.00	1.25
Belt	1.00	1.25	1.50
Disc	-	1.00	1.25
Reciprocating	1.25	1.50	1.75
Screw	1.00	1.25	1.50



## Service Factors for Enclosed Gear Drives

Application	Up to 3 Hours/day	3-10 Hours/Day	Over 10 Hours/Day
<b>Food Industry</b>			
Cereal Cooker	-	1.00	1.25
Dough Mixer	1.00	1.25	1.50
Meat Grinders	1.00	1.25	1.50
Slicers	1.00	1.25	1.50
<b>Generators and Exciters</b>			
	-	1.00	1.25
<b>Hammer Mills</b>			
	1.50	1.50	1.75
<b>Hoists</b>			
Heavy Duty	1.25	1.50	1.75
Medium Duty	1.00	1.25	1.50
Skip Hoist	1.00	1.25	1.50
<b>Laundry Tumblers</b>			
	1.00	1.25	1.50
<b>Laundry Washers</b>			
	1.25	1.25	1.50
<b>Lumber Industry</b>			
<b>Barkers</b>			
Spindle Feed	1.25	1.25	1.25
Main Drive	1.50	1.50	1.50
<b>Conveyors</b>			
Burner	1.25	1.25	1.50
Main or Heavy Duty	1.50	1.50	1.50
Main Log	1.50	1.50	1.50
Re-Saw, Merry-Go-Round	1.25	1.25	1.50
Slab	1.50	1.50	1.75
Transfer	1.25	1.25	1.50
<b>Chains</b>			
Floor	1.50	1.50	1.50
Green	1.50	1.50	1.50
<b>Cut-Off Saws</b>			
Chain	1.50	1.50	1.50
Drag	1.50	1.50	1.50
Debarking Drums	1.50	1.50	1.75
<b>Feeds</b>			
Edger	1.25	1.25	1.50
Gang	1.50	1.50	1.50
Trimmer	1.25	1.25	1.50
Log Deck	1.50	1.50	1.50
Log Hauls-Incline-Well Type	1.50	1.50	1.50
Log Turning Devices	1.50	1.50	1.50
Planer Feed	1.25	1.25	1.50
Planar Tilting Hoists	1.50	1.50	1.50
Rolls-Live-Off Brg.-Roll Cases	1.50	1.50	1.50
Sorting Table	1.25	1.25	1.50
Tipple Hoist	1.25	1.25	1.50
<b>Transfers</b>			
Chain	1.50	1.50	1.50
Causeway	1.50	1.50	1.50
Tray Drives	1.25	1.25	1.50
Veneer Lathe Drives	See Tech. Services		



## Service Factors for Enclosed Gear Drives

Application	Up to 3 Hours/day	3-10 Hours/Day	Over 10 Hours/Day
<b>Metal Mills</b>			
Draw Bench Carriage and Main Drive	1.00	1.25	1.50
Runout Table	1.00	1.25	1.50
<b>Non-reversing</b>			
Group Drives	1.00	1.25	1.50
Individual Drives	1.50	1.50	1.75
Reversing	1.50	1.50	1.75
Slab Pushers	1.25	1.25	1.50
Shears	1.50	1.50	1.75
Wire Drawing	1.00	1.25	1.50
Wire Winding Machine	1.00	1.25	1.50
<b>Metal Strip Processing Machinery</b>			
Bridles	1.25	1.25	1.50
Coilers & Uncoilers	1.00	1.00	1.25
Edge Trimmers	1.00	1.25	1.50
Flatteners	1.00	1.25	1.50
Loopers (Accumulators)	1.00	1.00	1.00
Pinch Rolls	1.00	1.25	1.50
Scrap Choppers	1.00	1.25	1.50
Shears	1.50	1.50	1.75
Slitters	1.00	1.25	1.50
<b>Mills-Rotary Type</b>			
<b>Ball &amp; Rod</b>			
Spur Ring Gear	1.50	1.50	1.75
Helical Ring Gear	1.50	1.50	1.50
Direct Connected	1.50	1.50	1.75
Cement Kilns	1.50	1.50	1.50
Dryers & Coolers	1.50	1.50	1.50
Mixers, Concrete	1.00	1.25	1.50
<b>Paper Mills</b>			
Agitator (Mixer)	1.50	1.50	1.50
Agitator for Pure Liquids	1.25	1.25	1.25
Barking Drums	1.75	1.75	1.75
Barkers - Mechanical	1.75	1.75	1.75
Beater	1.50	1.50	1.50
Breaker Stack	1.25	1.25	1.25
Colander	1.25	1.25	1.25
Chipper	1.75	1.75	1.75
Chip Feeder	1.50	1.50	1.50
Coating Rolls	1.25	1.25	1.25
<b>Conveyors</b>			
Chip, Bark, Chemical	1.25	1.25	1.25
Log (Including Slab)	1.75	1.75	1.75
Couch Rolls	1.25	1.25	1.25
Cutter	1.75	1.75	1.75
Cylinder Molds	1.25	1.25	1.25
<b>Dryers</b>			
Paper Machine	1.25	1.25	1.25
Conveyor Type	1.25	1.25	1.25



## Service Factors for Enclosed Gear Drives

Application	Up to 3 Hours/day	3-10 Hours/Day	Over 10 Hours/Day
Embosser	1.25	1.25	1.25
Extruder	1.50	1.50	1.50
Fourdrinier Rolls (Includes Lump Breaker, Dandy Roll, Wire Turning, and Return Rolls)	1.25	1.25	1.25
Jordan	1.25	1.25	1.25
Kiln Drive	1.50	1.50	1.50
Mt. Hope Roll	1.25	1.25	1.25
Paper Rolls	1.25	1.25	1.25
Platter	1.50	1.50	1.50
Presses - Felt & Suction	1.25	1.25	1.25
Pulper	1.50	1.50	1.75
Pumps - Vacuum	1.50	1.50	1.50
Reel (Surface Type)	1.25	1.25	1.50
Screens			
Chip	1.50	1.50	1.50
Rotary	1.50	1.50	1.50
Vibrating	1.75	1.75	1.75
Size Press	1.25	1.25	1.25
Super Colander (See Note)	1.25	1.25	1.25
Thickener			
AC Motor	1.50	1.50	1.50
DC Motor	1.25	1.25	1.25
Washer			
AC Motor	1.50	1.50	1.50
DC Motor	1.25	1.25	1.25
Wind and Unwind Stand	1.00	1.00	1.00
Winders (Surface Type)	1.25	1.25	1.25
Yankee Dryers	1.25	1.25	1.25
<b>Plastics Industry - Primary Processing</b>			
Intensive Internal Mixers			
Batch Mixers	1.75	1.75	1.75
Continuous Mixers	1.50	1.50	1.50
Batch Drop Mill - 2 Smooth Rolls	1.25	1.25	1.25
Continuous Feed, Holding & Blend Mill	1.25	1.25	1.25
Compounding Mills	1.25	1.25	1.25
Colanders	1.50	1.50	1.50
<b>Plastics Industry - Secondary Processing</b>			
Blow Molders	1.50	1.50	1.50
Coating	1.25	1.25	1.25
Film	1.25	1.25	1.25
Pipe	1.25	1.25	1.25
Pre-Plasticizers	1.50	1.50	1.50
Rods	1.25	1.25	1.25
Sheet	1.25	1.25	1.25
Tubing	1.25	1.25	1.50
Pullers-Barge Haul	1.00	1.50	1.75



## Service Factors for Enclosed Gear Drives

Application	Up to 3 Hours/day	3-10 Hours/Day	Over 10 Hours/Day
<b>Pumps</b>			
Centrifugal	-	1.00	1.25
Proportioning	1.00	1.25	1.50
<b>Reciprocating</b>			
Single Acting, 3 or more cylinders	1.00	1.25	1.50
Double Acting, 2 or more cylinders	1.00	1.25	1.50
<b>Rotary</b>			
Gear Type	-	1.00	1.50
Lobe	-	1.00	1.25
Vane	-	1.00	1.25
<b>Rubber Industry</b>			
<b>Intensive Internal Mixers</b>			
a) Batch Mixers	1.50	1.50	1.75
b) Continuous Mixers	1.25	1.50	1.50
Mixing Mill - 2 Smooth Rolls (If corrugated rolls are used , then use the same service factors that are used for a Cracker-Warmer)	1.50	1.50	1.50
Batch Drop Mill - 2 Smooth Rolls	1.50	1.50	1.50
Cracker Warmer - 2 Roll: 1 Corrugated Roll	1.75	1.75	1.75
Cracker - 2 Corrugated Rolls	1.75	1.75	1.75
Holding, Feed & Blend Mill - 2 Rolls	1.25	1.25	1.25
Refiner - 2 Rolls	1.50	1.50	1.50
Colanders	1.50	1.50	1.50
Sand Miller	1.00	1.25	1.50
<b>Sewage Disposal Equipment</b>			
Bar Screens	-	1.00	1.25
Chemical Feeders	-	1.00	1.25
Dewatering Screens	1.00	1.25	1.50
Scum Breakers	1.00	1.25	1.50
Slow or Rapid Mixers	1.00	1.25	1.50
Sludge Collectors	1.00	1.00	1.25
Thickener	1.00	1.25	1.50
Vacuum Filters	1.00	1.25	1.50
<b>Screens</b>			
Air Washing	-	1.00	1.25
Rotary - Stone or Gravel	1.00	1.25	1.50
Traveling - Water Intake	-	1.00	1.25
<b>Sugar Industry</b>			
Beet Slicer	1.50	1.50	1.75
Cane Knives	1.50	1.50	1.50
Crusher	1.50	1.50	1.50
Mills (Low Speed End)	1.50	1.50	1.50



## Service Factors for Enclosed Gear Drives

Application	Up to 3 Hours/day	3-10 Hours/Day	Over 10 Hours/Day
Textile Industry			
Batchers	1.00	1.25	1.50
Calenders	1.00	1.25	1.50
Cards	1.00	1.25	1.50
Dry Cans	1.00	1.25	1.50
Dryers	1.00	1.25	1.50
Dyeing Machinery	1.00	1.25	1.50
Looms	1.00	1.25	1.50
Mangles	1.00	1.25	1.50
Nappers	1.00	1.25	1.50
Pads	1.00	1.25	1.50
Slashers	1.00	1.25	1.50
Soapers	1.00	1.25	1.50
Spinners	1.00	1.25	1.50
Tenter Frames	1.00	1.25	1.50
Washers	1.00	1.25	1.50
Winders	1.00	1.25	1.50

## Enclosed Gear Drive Service Factor Chart

Service Factor	Operating Conditions
1.00	Moderate Shock - not more than 15 minutes in 2 hours Uniform Load - not more than 10 hours per day
1.25	Moderate Shock - not more than 10 hours per day Uniform Load - more than 10 hours per day
1.50	Heavy Shock - not more than 15 minutes in 2 hours Moderate Shock - more than 10 hours per day
1.75	Heavy Shock - not more than 10 hours per day
2.00	Heavy Shock - more than 10 hours per day

## Service Factors for Electric and Hydraulic Motors

Duration of Service (Hours per Day)	Uniform Load	Moderate Shock	Heavy Shock	Extreme Shock
Occasional 1/2 Hour	-	-	1.00	1.25
Less than 3 Hours	1.00	1.00	1.25	1.50
3-10 Hours	1.00	1.25	1.50	1.75
Over 10 Hours	1.25	1.50	1.75	2.00



P.O. Box 645  
803 West Street  
Stockton, MO 65785  
1-800-346-5745  
Fax: 417-276-3492

[www.superiorgearbox.com](http://www.superiorgearbox.com)