



MAXUM Concentric Reducer HORSEPOWER METHOD OF SELECTION

Step 1: Determine Service Factor - See Table 2 for electric motor, hydraulic motor, steam turbine or gas turbine driven applications operating up to 10 hours per day or over 10 hours per day. If the application is engine driven, refer to Table 1 to convert the service factor obtained from Table 2 to the service factor required for engine driven applications. Service factor recommendations are minimum. (For extreme shock or high energy loads which must be absorbed, as when stalling, or for power sources not listed, consult DODGE for special consideration.)

Step 2: Calculate Equivalent Horsepower - Multiply the actual horsepower to be transmitted by the service factor obtained from Step 1.

CAUTION: Instantaneous gear loading is limited to 200% of the reducer rating. Do not allow starting load or other peak loads to exceed this value. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

Step 3: Calculate Required Ratio - Divide the high speed shaft rpm by the low speed shaft rpm.

Step 4: Determine Unit Size and Ratio - Refer to the horsepower tables on pages G3-60, G3-62 and G3-66. From the high speed input shaft rpm in the left hand column and desired ratio and output speed in the next two columns, trace right into the table and find the horsepower rating equal to or greater than the equivalent horsepower obtained from Step 2. (When the required input speed falls between those tabulated, use straight line interpolation to determine the unit rating.)

Step 5: Check Thermal Ratings - When the horsepower rating of the reducer selected from Step 4 falls in the shaded area, compare the actual horsepower required (without service factor) with the thermal horsepower capacity by referring to the thermal horsepower rating tables on pages G3-68 and G3-69. If the actual transmitted horsepower exceeds the thermal capacity, an auxiliary cooling fan or a heat exchanger may be added to provide additional thermal capacity or a larger reducer may be required.

NOTE: On applications where the continuous running time never exceeds three hours and the idle time is equal to or greater than the running time, thermal limitations can be disregarded and the unit operated at loads up to the listed mechanical rating modified by applicable service factors.

Step 6: Check Overhung and Thrust Loads - Refer to the Overhung Load explanation on page G3-59. Overhung loads may be imposed on the input or output shafts when connected by means other than a coupling. If overhung loads are present, refer to the method and example for calculating overhung loads.

External thrust loads may exist in applications such as agitators, mixers and similar equipment. Calculate the direction and magnitude of the thrust as well as the direction of the shaft rotation and consult DODGE.

Step 7: Variable Speed Applications - When mounting variable speed AC or DC motors, consult the guidelines on pages G3-81 and G3-82.

Step 8: Check Dimensions - See applicable pages for dimensions, weights, part numbers and instructions on how to order.

TORQUE METHOD OF SELECTION

Determine service factor, equivalent torque and unit size using the same steps as outlined above for the horsepower method, except in Step 4 refer to the torque tables on pages G3-61, G3-64 and G3-67. Interpolate for speeds not listed. When ratings are shown in the shaded area, convert the required torque without service factor to horsepower by using the following formula:

$$\text{Horsepower} = \frac{\text{Torque (lb-in)} \times \text{Low Speed Shaft rpm}}{63025}$$

and compare the computed results with the thermal capacities shown in Table 20, page G3-68 and G3-69.

EXAMPLES OF SELECTION

Horsepower Method

A centrifugal pump operating at 230 rpm is driven by a 200 horsepower 1750 rpm motor. The duty cycle is 24 hours per day. Both the input and output reducer shafts are coupling connected.

Step 1: Determine Service Factor - From Table 2, Service Factors, locate "Pumps - Centrifugal" and under the column headed "10+ Hrs/Day Service" find the Service Factor which is 1.25.

Step 2: Calculate Equivalent Horsepower - Multiply the motor horsepower by the service factor (200 x 1.25 = 250) to get the equivalent horsepower of 250.

Step 3: Calculate Required Ratio - Divide the high speed shaft rpm by the low speed shaft rpm (1750 / 230 = 7.6) to get the required ratio of 7.6:1.

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Step 4: Determine Unit Size and Ratio - Locate the horsepower table for 1750 high speed shaft rpm (Table 14, page G3-60). Trace down the ratio column to the closest nominal ratio to the 7.6:1 required ratio and find 7.59:1 ratio. Trace to the right until the horsepower equals or exceeds the calculated equivalent horsepower of 250 and find 323 horsepower listed under a MAXUM size 7 reducer.

Step 5: Check Thermal Ratings - Because the 323 mechanical horsepower rating for the MAXUM size 7 reducer fell in the shaded area, the thermal capacity must be checked. Refer to the thermal horsepower rating tables on page G3-68. Locate the table for 1750 high speed shaft rpm and find the thermal ratings for the MAXUM size 7 reducer. Note that the thermal rating without a fan is 150 horsepower and that the thermal rating with a fan is 273 horsepower. When a dash (-) is shown, the dash means that the thermal capacity exceeds the mechanical capacity. Since the actual transmitted horsepower of 200 exceeds the 150 thermal rating without a fan, an auxiliary cooling fan is required.

Step 6: Check Overhung and Thrust Loads - Since both shafts are coupling connected, overhung or thrust loads are not applied.

Step 7: Variable Speed Applications - Since this is a constant speed application, variable speed does not apply.

Step 8: Check Dimensions - Refer to the specifications/dimensions page G3-29 for DODGE MAXUM size 7 reducers. The part number for the reducer is **299140** and for the auxiliary cooling fan is **299523**. The exact ratio of the reducer is given in Table 24, page G3-74 and is 7.527:1.

TORQUE METHOD

Running 10 hours a day, a scum breaker for a sewage disposal system requires 51,350 lb-in of torque at 230 rpm and has an overhung load of 6,710 pounds on the low speed shaft. The overhung load is located 4 inches out from the reducer on the usable shaft extension. The motor speed is 1170 rpm and is coupling connected.

Step 1: Determine Service Factor - From Table 2, Service Factors, locate "Sewage Disposal - Scum Breakers" and under the column headed "3-10 Hrs/Day Service" locate the service factor which is 1.50.

Step 2: Calculate Equivalent Torque - Multiply the system torque of 51,350 by the service factor of 1.50

(51,350 x 1.50 = 77,025) to get 77,025 lb-in equivalent torque.

Step 3: Calculate Required Ratio - Divide the high speed shaft rpm by the low speed shaft rpm (1170 / 230 = 5.09) to get the required ratio of 5.09:1.

Step 4: Determine Unit Size and Ratio - Locate the torque table for 1170 high speed shaft rpm (Table 17, page G3-64). Trace down the ratio column to the closest nominal ratio to the 5.09:1 required ratio and find 5.06:1 ratio. Trace to the right until the torque equals or exceeds the calculated equivalent torque of 77,025 and find 77,700 listed under a MAXUM size 7 reducer.

Step 5: Check Thermal Ratings - Because the 77,700 mechanical rating falls in the shaded area, the thermal ratings must be checked. First, convert the required torque without service factor (51,350) to horsepower at 230 rpm as follows:

$$\text{Horsepower} = \frac{510350 \times 230}{63025} = 187 \text{ hp}$$

Locate the table for the thermal horsepower ratings at 1170 high speed shaft rpm and find the MAXUM size 7 reducer with a 5.06 ratio. Since the 187 calculated horsepower exceeds the thermal rating shown without a fan, an auxiliary cooling fan is required.

Step 6: Check Overhung and Thrust Loads - An overhung load of 6,710 pounds is on the low speed shaft. It must first be adjusted for its position on the shaft. Turn to Table 22, page G3-71 load location factors for low speed shafts and locate the 4 inch distance in the left hand column. Under the MAXUM 7 column find the load location factor of 1.06. Multiply the 6,710 overhung load by this factor (6,710 x 1.06 = 7,113) to get an equivalent overhung load of 7,113 pounds. Now turn to the output shaft overhung load Table 24, page G3-74 and locate 230 low speed shaft rpm in the left column. Trace right to the MAXUM size 7 reducer and find the overhung load capacity of 7,480 pounds. Since the capacity exceeds the equivalent overhung load, the selection is acceptable.

Step 7: Variable Speed Applications - Since this is a constant speed application, variable speed does not apply.

Step 8: Check Dimensions - Refer to the specifications/dimensions page G3-29 for DODGE MAXUM size 7 reducers. The part number for the reducer is **299138** and for the auxiliary cooling fan is **299523**. The exact ratio of the reducer is given in Table 25 and is 5.065:1.

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MAXUM Concentric Reducer THRUST AND OVERHUNG LOADS- HOW TO CALCULATE

Thrust Loads as defined here are external axial forces applied to the input or output shafts. They may exist in applications such as agitators, mixers and similar equipment. Calculate the direction and magnitude of the thrust load, determine the direction of shaft rotation and consult DODGE.

Overhung Loads as defined here are external radial forces applied to the input or output shafts. They may occur in any angular position and at any distance out on the shaft from the reducer. Overhung loads may be calculated by the use of the following formula:

$$\text{OHL} = \frac{126,000 \times \text{hp} \times \text{Fc} \times \text{Lf}}{\text{PD} \times \text{rpm}}$$

Where: OHL = Overhung Load (lbs.).
 hp = Horsepower.
 Fc = Load Connection Factor.
 (See Table 13 below)
 Lf = Load Location Factor.
 (See Table 23 for High Speed Shafts)
 (See Table 24 for Low Speed Shafts)
 PD = Pitch Diameter of the Item Mounted on the Shaft (inches).
 rpm = Speed of Shaft with Overhung Load on it in Revolutions Per Minute.
 (Interpolate for shaft speeds not listed)

Use the above formula to calculate the overhung load on the shaft. Compare the calculated OHL results with the values published for the reducer shaft and condition. If the calculated OHL results exceed the published values, consult DODGE or consider a larger size reducer.

Location of Load Centerline - To minimize the affects of overhung loads and to increase bearing life, the centerline of the overhung load should always be located as close to the reducer oil seal as possible. For many applications the unit will accommodate more overhung load than is published. Overhung load ratings have been established for the most unfavorable combination of conditions that will be encountered.

Overhung Loads - Examples

High Speed Shaft Example - A MAXUM size 4 reducer with a 47.08:1 ratio is driven by a 1750 rpm 7 1/2 hp electric motor through a set of V-Belts at 870 rpm of the high speed shaft. The V-Belt drive consists of a 4.0" PD driver (2A3.6B4.0-1610) and a 8.6" PD driven sheave (2A8.2B8.6-2517). The driven sheave is mounted as close to the reducer oil seal as possible while allowing 1/4" for a guard thereby making the centerline of the belt pull 1.125" out from the reducer on the high speed shaft.

High Speed Shaft Calculation - Using the OHL equation previously given and substituting for the values as follows:

$$\begin{aligned} \text{hp} &= 7.5 \text{ (Motor Horsepower)} \\ \text{Fc} &= 1.5 \text{ (From Table 13 for V-Belts)} \\ \text{Lf} &= 0.975 \text{ (From Table 21 for MAXUM size 4 at 1.125,)} \\ \text{PD} &= 8.6 \text{ (Driven sheave pitch diameter)} \\ \text{rpm} &= 870 \text{ (High speed shaft rpm)} \end{aligned}$$

$$\text{OHL} = \frac{126,000 \times 7.5 \times 1.5 \times 0.975}{8.6 \times 870} = 185 \text{ pounds}$$

Turn to Table 23, High Speed Shaft Overhung Load, and in the left hand column locate 870 rpm and in the ratio column locate the 47.08 ratio. Trace right to the MAXUM size 4 and note that the High Speed Shaft Overhung Load capacity is 540 pounds. Since the 540 pound capacity exceeds the calculated overhung load of 185 pounds, the overhung load capacity is acceptable.

Low Speed Shaft Example - A MAXUM size 6 reducer is used to drive a uniformly loaded belt conveyor 24 hours per day. The reducer is driven by a 50 hp, 1750 rpm, electric motor coupled to the high speed shaft. The low speed shaft is rotating at 83.6 rpm and has a 160BTL26-3535 single strand sprocket with an oil tight chain casing mounted on it. The sprocket has a pitch diameter of 16.592 inches and the centerline of the teeth is located 4 inches out on the shaft.

Low Speed Calculation - Using the OHL equation previously given and substituting for the values as follows:

$$\begin{aligned} \text{hp} &= 50.0 \text{ (Motor Horsepower)} \\ \text{Fc} &= 1.0 \text{ (From Table 13 for Sprockets)} \\ \text{Lf} &= 1.11 \text{ (From Table 22 for MAXUM size 6 at 4,)} \\ \text{PD} &= 16.592 \text{ (Driving sprocket pitch diameter)} \\ \text{rpm} &= 83.6 \text{ (Low speed shaft rpm)} \end{aligned}$$

$$\text{OHL} = \frac{126,000 \times 50.0 \times 1.0 \times 1.11}{16.592 \times 83.6} = 5041 \text{ pounds}$$

Turn to Table 24, page G3-74, Low Speed Shaft Overhung Load, and in the left hand column locate the low speed shaft speed of 83.6 rpm. Trace right to the MAXUM size 6 and note that the low speed shaft overhung load capacity is 8250 pounds. Since the 8025 pound capacity exceeds the calculated overhung load of 5041 pounds, the overhung load capacity is acceptable.

Table 13: Load Connection Factors - Fc

Drive Type	Fc
Roller Chain Sprocket	1.0
Machined Pinion or Gear	1.25
Synchronous Belt	1.3
V-Belt	1.5
V-Ribbed Belt	1.7
Flat Belt	2.5

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Table 14: 1750, 1450 RPM Input - Input Horsepower Ratings

High Speed Shaft RPM	AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	Rating Data @ 1.0 Service Factor for MAXUM unit size of:														
				1	2	3	4	5	6	7	9	10	11	12				
1750	2.25	777.8	DOUBLE	32.8	52.8	84.8	127	183	248									
	2.75	636.4		30.1	47.2	81.9	122	165	224									
	3.37	519.3		25.7	42.4	70.9	109	147	199									
	4.13	423.7		31.9	52.8	73.4	123	184	221									
	5.06	345.8		28.2	47.2	65.3	111	165	197	402	506	789	1111	1602				
	6.20	282.3		25.1	42.4	57.9	97.3	146	174	345	468	699	1000	1428				
	7.59	230.6		22.0	39.2	50.0	86.0	127	153	323	417	613	884	1284				
	9.30	188.2		18.8	32.5	44.1	75.8	111	135	270	367	538	790	1105				
	11.39	153.6		15.8	27.6	40.0	66.2	95.4	119	230	325	477	690	964				
	13.95	125.4	13.2	22.9	34.1	58.4	78.3	102	190	283	418	604	814					
	17.09	102.4	11.1	19.2	30.1	51.0	63.9	91.4	156	247	370	531	696					
	20.93	83.6	9.15	16.0	25.6	43.1	53.0	79.7	132	216	319	458	596					
	25.63	68.3	7.58	13.5	21.7	34.7	43.5	71.0	108	189	277	375	493					
	1450	31.39	55.8	TRIPLE	6.53	11.6	18.1	30.1	35.2	57.4	87.5	163	233	301	403			
		38.44	45.5		5.44	9.53	15.0	25.1	30.9	50.0	76.8	138	204	272	346			
		47.08	37.2		4.52	7.90	12.6	21.0	26.8	43.6	65.0	114	173	228	291			
		57.67	30.4		3.72	6.50	10.5	17.6	22.3	36.2	54.9	94.2	141	189	242			
		70.62	24.8		3.07	5.41	8.77	14.1	18.3	30.8	45.8	78.2	116	158	198			
86.50		20.2	2.56		4.47	7.28	11.8	14.6	25.1	37.7	63.9	100	131	164				
105.90		16.5	2.12		3.64	5.95	9.90	11.9	20.0	31.8	52.7	81.7	108	134				
129.70		13.5	1.76		3.00	4.96	8.21	9.7	16.9	26.5	43.7	67.2	90.3	112				
158.90		11.0	1.44		2.45	4.09	6.84	8.05	13.8	21.5	36.3	56.1	75.1	93.1				
194.60		9.0	1.19	2.03	3.45	5.38	6.60	11.6	17.9	30.1	46.1	62.5	75.7					
1450		2.25	644.4	DOUBLE	28.3	46.3	73.4	106	154	218								
		2.75	527.3		26.0	41.4	70.8	103	138	196								
		3.37	430.3		22.2	37.2	61.3	92.2	124	175								
		4.13	351.1		28.0	46.3	64.4	106	161	194								
		5.06	286.6		24.7	41.4	57.2	96.9	144	173	349	427	692	974	1404			
		6.20	233.9		22.0	37.2	50.7	85.3	128	153	300	399	613	877	1252			
		7.59	191.0		18.9	33.4	43.9	75.4	112	134	275	365	538	775	1126			
		9.30	155.9		15.9	27.7	38.6	66.4	96.7	119	231	322	471	693	961			
	11.39	127.3	13.4		23.5	34.5	58.1	80.9	104	195	285	418	605	830				
	13.95	103.9	11.2	19.5	29.9	51.2	66.3	89.6	162	248	366	529	700					
	17.09	84.8	9.34	16.3	26.0	43.2	54.2	80.1	132	216	325	466	601					
	20.93	69.3	7.72	13.5	21.6	36.4	44.9	69.9	112	189	280	389	506					
	25.63	56.6	6.39	11.3	18.3	29.3	36.9	62.2	92.0	163	242	324	416					
	1450	31.39	46.2	TRIPLE	5.50	9.76	15.4	25.2	30.9	50.3	76.7	142	205	263	354			
		38.44	37.7		4.58	8.02	12.6	21.2	27.1	42.8	67.3	116	172	230	291			
		47.08	30.8		3.80	6.62	10.6	17.6	22.5	36.7	54.8	95.5	146	193	245			
		57.67	25.1		3.13	5.44	8.72	14.8	18.7	30.5	46.2	79.0	119	159	203			
		70.62	20.5		2.58	4.52	7.38	11.8	15.3	25.9	38.5	65.5	98.0	133	166			
86.50		16.8	2.15		3.73	6.12	9.94	12.3	21.0	31.8	53.5	84.3	110	137				
105.90		13.7	1.78		3.04	5.00	8.31	9.97	16.8	26.7	44.1	68.7	90.9	112				
129.70		11.2	1.48		2.50	4.17	6.89	8.14	14.2	22.2	36.5	56.5	76.0	94.0				
158.90		9.1	1.21		2.04	3.43	5.75	6.75	11.6	18.0	30.4	47.2	63.0	77.9				
194.60		7.5	1.00	1.69	2.89	4.51	5.54	9.70	15.0	25.1	38.7	52.5	63.3					

Mechanical HP ratings shown in shaded areas exceed the unit thermal HP ratings.

Refer to Thermal HP Table 20, page G3-68.

Sizes 1-3 discounted remaining stock may be available.

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Table 15: 1750, 1450 RPM Input - Output Torque Ratings (In. - Lb.)

High Speed Shaft RPM	AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	Rating Data @ 1.0 Service Factor for MAXUM unit size of (multiply value shown by 1000):														
				1	2	3	4	5	6	7	9	10	11	12				
1750	2.25	777.8	DOUBLE	2.55	4.12	6.63	9.81	14.3	19.5									
	2.75	636.4		2.92	4.57	7.82	11.3	15.7	21.5									
	3.37	519.3		3.03	4.95	8.25	12.5	17.0	23.4									
	4.13	423.7		4.52	7.50	10.6	17.5	26.2	31.6									
	5.06	345.8		4.95	8.31	11.5	19.0	28.5	34.3	70.4	89.3	135	196	282				
	6.20	282.3		5.36	9.00	12.4	20.7	30.7	37.2	73.1	99.5	148	212	307				
	7.59	230.6		5.81	10.2	13.5	22.6	33.1	40.5	84.1	108	161	231	332				
	9.30	188.2		6.03	10.5	14.5	24.3	35.4	43.4	86.0	117	175	248	356				
	11.39	153.6		6.17	10.8	15.7	26.2	37.5	46.6	89.1	126	187	269	377				
	13.95	125.4		6.31	11.1	16.6	28.1	37.9	50.4	91.6	136	201	290	394				
	17.09	102.4	6.45	11.4	17.8	30.0	37.9	53.3	94.3	146	214	310	407					
	20.93	83.6	6.59	11.7	18.7	30.6	37.9	57.0	96.3	157	231	330	425					
	25.63	68.3	6.72	11.9	19.0	31.4	37.9	60.5	95.6	167	248	328	436					
	31.39	55.8	6.84	12.2	19.1	32.1	37.4	62.3	90.4	169	250	319	427					
	38.44	45.5	6.96	12.4	19.8	32.5	40.5	68.0	98.5	178	268	355	453					
	47.08	37.2	7.08	12.6	20.1	33.3	43.0	70.1	105	181	273	362	460					
	57.67	30.4	7.20	12.8	20.7	33.7	43.0	71.4	107	184	279	370	467					
	70.62	24.8	7.32	12.9	20.8	34.3	43.0	72.4	108	186	285	377	474					
	86.50	20.2	7.43	13.0	21.1	34.8	43.0	73.2	110	188	289	384	480					
	105.90	16.5	7.53	13.1	21.4	35.3	43.0	73.2	112	190	294	391	486					
129.70	13.5	7.64	13.3	21.8	35.9	43.0	73.2	114	192	300	397	491						
158.90	11.0	7.75	13.3	22.1	36.2	43.0	73.2	116	194	304	405	496						
194.60	9.0	7.85	13.4	22.3	36.2	43.0	73.2	117	196	309	410	502						
1450	2.25	644.4	DOUBLE	2.66	4.36	6.93	9.81	14.5	20.7									
	2.75	527.3		3.04	4.84	8.16	11.5	15.9	22.7									
	3.37	430.3		3.16	5.24	8.61	12.8	17.2	24.7									
	4.13	351.1		4.78	7.93	11.2	18.2	27.7	33.5									
	5.06	286.6		5.24	8.79	12.1	20.1	30.1	36.3	73.8	90.9	143	208	298				
	6.20	233.9		5.67	9.52	13.1	21.9	32.5	39.3	76.5	103	156	225	325				
	7.59	191.0		6.02	10.4	14.3	23.9	35.1	42.9	86.5	114	170	244	351				
	9.30	155.9		6.16	10.8	15.4	25.7	37.4	45.9	89.0	124	185	262	374				
	11.39	127.3		6.30	11.1	16.3	27.8	38.4	49.3	91.3	133	198	285	392				
	13.95	103.9		6.44	11.4	17.6	29.7	38.8	53.3	93.8	144	213	307	409				
	17.09	84.8	6.58	11.7	18.6	30.6	38.8	56.4	96.4	155	227	328	424					
	20.93	69.3	6.71	11.9	19.0	31.2	38.8	60.3	98.4	166	245	338	435					
	25.63	56.6	6.84	12.2	19.4	32.0	38.8	64.1	98.6	174	262	342	444					
	31.39	46.2	6.96	12.4	19.7	32.5	39.6	65.9	95.7	178	265	337	451					
	38.44	37.7	7.07	12.6	20.1	33.1	42.8	70.2	104	181	273	362	460					
	47.08	30.8	7.19	12.8	20.4	33.7	43.6	71.3	107	183	278	369	467					
	57.67	25.1	7.31	12.9	20.8	34.2	43.6	72.5	108	186	284	376	473					
	70.62	20.5	7.42	13.0	21.1	34.8	43.6	73.6	110	188	289	383	480					
	86.50	16.8	7.53	13.1	21.4	35.3	43.6	74.2	112	190	294	390	486					
	105.90	13.7	7.63	13.2	21.7	35.8	43.6	74.2	114	192	299	397	491					
129.70	11.2	7.74	13.3	22.0	36.3	43.6	74.2	115	194	304	403	496						
158.90	9.1	7.84	13.4	22.3	36.7	43.6	74.2	117	196	308	410	501						
194.60	7.5	7.95	13.5	22.6	36.7	43.6	74.2	119	197	313	416	506						

Torque ratings shown in shaded areas exceed the unit thermal HP ratings.
 Convert torque (**without service factor**) to HP per the formula given on page G3-58.
 Refer to Thermal HP Table 20, page G3-68.

Sizes 1-3 discounted remaining stock may be available.

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ENGINEERING/TECHNICAL



MAXUM Concentric Reducer

Table 16: 1170, 870, 720 RPM Input - Input Horsepower Ratings

High Speed Shaft RPM	AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	Rating Data @ 1.0 Service Factor for MAXUM unit size of:															
				1	2	3	4	5	6	7	9	10	11	12					
1170	2.25	520.0	DOUBLE	23.9	39.8	62.2	85.2	126	182										
	2.75	425.5		22.0	35.6	60.0	84.7	113	163										
	3.37	347.2		18.8	32.0	51.9	75.5	101	144										
	4.13	283.3		23.9	39.8	55.4	85.2	139	167										
	5.06	231.2		21.3	35.6	49.2	83.4	124	149	297	351	595	838	1209					
	6.20	188.7		18.8	32.0	43.6	73.4	110	131	255	329	527	755	1077					
	7.59	154.2		15.6	27.8	37.7	64.8	96.1	115	229	304	463	667	969					
	9.30	125.8		13.2	23.0	33.2	57.1	80.1	102	192	276	406	596	816					
	11.39	102.7		11.1	19.5	29.7	50.0	66.9	89.4	162	245	360	520	699					
	13.95	83.9		9.23	16.1	25.6	42.7	54.3	77.1	134	213	315	455	589					
	17.09	68.5		7.69	13.4	21.5	35.6	44.4	68.9	109	186	279	387	499					
	20.93	55.9		6.35	11.1	17.8	30.0	36.8	60.1	92.4	161	241	322	417					
	25.63	45.6		5.26	9.33	15.1	24.1	30.2	52.5	76.8	135	200	270	342					
	870	31.39		37.3	TRIPLE	4.52	8.02	12.7	20.8	26.6	43.2	66.0	116	171	227	291			
		38.44		30.4		3.76	6.56	10.4	17.4	22.4	35.2	55.5	95.2	142	189	239			
		47.08		24.9		3.12	5.40	8.68	14.5	18.3	30.2	45.1	78.1	120	159	200			
57.67		20.3	2.57	4.43		7.15	12.1	15.2	25.0	38.0	64.5	97.8	131	166					
70.62		16.6	2.12	3.68		6.05	9.7	12.5	21.2	31.6	53.5	80.5	110	136					
86.50		13.5	1.76	3.04		5.01	8.15	9.97	17.1	26.0	43.6	69.3	90.5	112					
105.90		11.0	1.46	2.47		4.09	6.81	8.10	13.6	21.9	35.9	56.4	74.6	91.8					
129.70		9.0	1.21	2.03		3.41	5.64	6.61	11.5	18.2	29.7	46.3	62.3	76.7					
158.90		7.4	0.990	1.66		2.81	4.67	5.49	9.4	14.8	24.7	38.7	51.6	63.5					
194.60		6.0	0.815	1.38		2.37	3.67	4.5	7.88	12.3	20.4	31.7	43.1	51.6					
720		2.25	386.7	DOUBLE		18.9	32.4	49.3	63.4	95.6	139								
	2.75	316.4	17.4		28.9	47.5	63.4	86.2	124										
	3.37	258.2	14.8		26.0	41.1	57.3	77.0	109										
	4.13	210.7	18.9		32.4	45.0	63.4	113	136										
	5.06	171.9	17.2		28.9	40.0	63.4	101	121	236	269	484	681	982					
	6.20	140.3	14.5		25.6	35.5	59.4	89.6	107	203	252	429	613	875					
	7.59	114.6	12.0		21.5	30.7	52.7	74.2	93.5	177	232	376	542	769					
	9.30	93.5	10.1		17.7	27.0	46.4	61.6	82.9	148	211	330	484	643					
	11.39	76.4	8.47		15.0	23.9	38.9	50.5	72.7	124	190	293	423	548					
	13.95	62.4	7.06		12.4	19.6	32.7	41.0	62.7	103	173	256	354	453					
	17.09	50.9	5.88		10.3	16.4	27.2	33.5	56.0	83.7	148	227	298	381					
	20.93	41.6	4.85		8.49	13.6	22.9	27.8	47.2	70.7	123	186	247	318					
	25.63	33.9	4.01		7.11	11.5	18.4	22.8	39.6	59.1	102	153	207	260					
	720	31.39	27.7		TRIPLE	3.44	6.07	9.66	15.8	20.7	33.0	51.6	88.2	131	175	221			
		38.44	22.6			2.86	4.95	7.91	13.2	16.8	26.8	42.3	72.1	108	145	181			
		47.08	18.5			2.37	4.07	6.60	11.0	13.7	23.0	34.3	59.1	91.5	121	152			
57.67		15.1	1.95	3.34		5.44	9.21	11.4	19.0	28.9	48.7	74.6	100	126					
70.62		12.3	1.61	2.77		4.59	7.36	9.32	15.9	24.1	40.4	61.3	83.6	103					
86.50		10.1	1.33	2.28		3.80	6.18	7.46	12.8	19.8	32.9	52.7	68.9	84.7					
105.90		8.2	1.10	1.86		3.10	5.16	6.06	10.2	16.6	27.1	42.9	56.8	69.2					
129.70		6.7	0.914	1.52		2.59	4.23	4.95	8.62	13.8	22.4	35.2	47.4	57.8					
158.90		5.5	0.750	1.25		2.13	3.49	4.11	7.03	11.2	18.6	29.4	39.2	47.8					
194.60		4.5	0.617	1.03		1.79	2.74	3.37	5.89	9.3	15.4	24.1	32.7	38.8					

Mechanical HP ratings shown in shaded areas exceed the unit thermal HP ratings.

Refer to Thermal HP Table 20, page G3-68.

Sizes 1-3 discounted remaining stock may be available.

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MAXUM Concentric Reducer

Table 16: 1170, 870, 720 RPM Input - Input Horsepower Ratings (cont'd)

High Speed Shaft RPM	AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	Rating Data @ 1.0 Service Factor for MAXUM unit size of:														
				1	2	3	4	5	6	7	9	10	11	12				
720	2.25	320.0	DOUBLE	16.3	28.3	42.5	52.4	80.2	116									
	2.75	261.8		14.9	25.3	40.9	52.4	72.3	104									
	3.37	213.6		12.7	22.8	35.3	48.1	64.6	91.6									
	4.13	174.3		16.3	28.3	39.4	52.4	95.4	119									
	5.06	142.3		14.6	25.3	35.1	52.4	85.9	106	204	226	424	597	861				
	6.20	116.1		12.3	21.7	31.1	50.0	75.9	93.6	175	212	375	537	765				
	7.59	94.9		10.1	18.2	26.9	46.2	62.7	81.9	150	196	329	475	661				
	9.30	77.4		8.51	15.0	23.5	39.6	52.0	72.6	125	178	289	424	550				
	11.39	63.2		7.14	12.7	20.1	32.8	42.7	63.7	105	161	256	360	462				
	13.95	51.6		5.94	10.4	16.5	27.5	34.6	54.9	86.7	151	224	300	381				
	17.09	42.1	4.94	8.64	13.8	22.9	28.3	48.8	70.6	125	191	251	321					
	20.93	34.4	4.07	7.14	11.4	19.3	23.5	39.9	59.6	103	157	208	267					
	25.63	28.1	3.37	5.94	9.66	15.4	19.2	33.4	49.7	85.8	129	175	218					
	31.39	22.9	2.89	5.07	8.12	13.3	17.2	27.7	43.4	73.8	110	147	185					
	38.44	18.7	2.40	4.13	6.64	11.1	14.0	22.5	35.6	60.3	91.0	122	152					
	47.08	15.3	1.99	3.40	5.54	9.23	11.4	19.3	28.9	49.4	77.0	102	127					
	57.67	12.5	1.63	2.78	4.56	7.73	9.46	15.8	24.3	40.7	62.7	84.0	105					
	70.62	10.2	1.35	2.31	3.85	6.17	7.76	13.2	20.2	33.7	51.5	70.2	85.7					
	86.50	8.3	1.12	1.90	3.19	5.18	6.22	10.7	16.6	27.4	44.2	57.8	70.8					
	105.90	6.8	.925	1.55	2.60	4.31	5.05	8.5	13.9	22.6	35.9	47.6	57.8					
129.70	5.6	.765	1.27	2.16	3.52	4.12	7.18	11.6	18.7	29.5	39.7	48.2						
158.90	4.5	.628	1.04	1.78	2.91	3.42	5.86	9.38	15.5	24.6	32.9	39.9						
194.60	3.7	.516	.859	1.50	2.29	2.80	4.91	7.76	12.8	20.2	27.4	32.3						

Mechanical HP ratings shown in shaded areas exceed the unit thermal HP ratings. Refer to Thermal HP Table 20, page G3-68.

Sizes 1-3 discounted remaining sotck may be availble.



MAXUM Concentric Reducer

Table 17: 1170, 870, 720 RPM Input - Output Torque Ratings (In. - Lb.)

High Speed Shaft RPM	AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	Rating Data @ 1.0 Service Factor for MAXUM unit size of (multiply value shown by 1000):															
				1	2	3	4	5	6	7	9	10	11	12					
1170	2.25	520.0	DOUBLE	2.79	4.65	7.28	9.81	14.7	21.4										
	2.75	425.5		3.18	5.16	8.56	11.7	16.1	23.3										
	3.37	347.2		3.30	5.58	9.03	13.0	17.5	25.2										
	4.13	283.3		5.07	8.46	11.9	18.2	29.5	35.7										
	5.06	231.2		5.59	9.38	12.9	21.4	32.1	38.7	77.7	92.8	153	221	318					
	6.20	188.7		6.00	10.2	14.0	23.4	34.7	41.9	80.5	105	167	239	347					
	7.59	154.2		6.18	10.8	15.3	25.5	37.4	45.7	89.1	118	182	261	374					
	9.30	125.8		6.32	11.1	16.4	27.4	38.4	49.0	91.5	131	197	280	394					
	11.39	102.7		6.45	11.4	17.4	29.6	39.3	52.6	93.8	142	211	304	409					
	13.95	83.9	6.58	11.7	18.7	30.7	39.3	56.8	96.2	153	227	327	426						
	17.09	68.5	6.71	11.9	19.0	31.3	39.3	60.1	98.7	165	242	338	436						
	20.93	55.9	6.85	12.2	19.4	31.9	39.3	64.3	101	175	261	347	444						
	25.63	45.6	6.97	12.4	19.7	32.6	39.3	66.9	102	178	268	354	453						
	870	31.39	37.3	TRIPLE	7.08	12.6	20.1	33.2	42.3	70.2	102	181	273	360	460				
		38.44	30.4		7.20	12.8	20.5	33.7	43.9	71.6	106	184	279	370	468				
		47.08	24.9		7.31	12.9	20.8	34.3	43.9	72.6	109	186	284	377	474				
		57.67	20.3		7.42	13.0	21.1	34.8	43.9	73.8	110	188	289	384	480				
		70.62	16.6		7.54	13.1	21.4	35.4	43.9	74.7	112	190	295	390	486				
86.5		13.5	7.64		13.2	21.7	35.9	43.9	74.7	114	192	299	397	491					
105.9		11.0	7.75		13.3	22.1	36.4	43.9	74.7	116	194	304	404	497					
129.7		9.0	7.85		13.4	22.4	36.9	43.9	74.7	117	196	309	410	501					
158.9		7.4	7.95		13.5	22.7	36.9	43.9	74.7	119	197	313	416	506					
194.6		6.0	8.05		13.6	22.9	36.9	43.9	74.7	121	199	318	422	511					
720		2.25	386.7		DOUBLE	2.97	5.09	7.77	9.81	15.00	21.9								
		2.75	316.4			3.39	5.64	9.13	11.8	16.5	23.9								
	3.37	258.2	3.51	6.10		9.61	13.2	17.9	25.8										
	4.13	210.7	5.39	9.25		13.0	18.2	32.3	39.0										
	5.06	171.9	6.10	10.2		14.2	21.9	35.1	42.3	83.3	95.4	167	242	348					
	6.20	140.3	6.24	10.9		15.3	25.4	37.8	45.8	86.2	108	182	262	379					
	7.59	114.6	6.39	11.2		16.7	27.8	38.8	50.0	92.6	121	199	285	400					
	9.30	93.5	6.52	11.5		17.9	30.0	39.8	53.5	94.9	135	215	306	417					
	11.39	76.4	6.65	11.8		18.8	31.0	39.9	57.5	97.1	148	231	332	431					
	13.95	62.4	6.77	12.1	19.2	31.6	39.9	62.1	99.4	168	248	342	440						
	17.09	50.9	6.90	12.3	19.6	32.2	39.9	65.7	102	176	264	350	448						
	20.93	41.6	7.02	12.5	19.9	32.8	39.9	67.9	104	180	270	358	456						
	25.63	33.9	7.15	12.7	20.3	33.5	39.9	67.9	106	182	276	365	464						
	720	31.39	27.7	TRIPLE	7.25	12.8	20.6	34.0	44.2	72.0	107	184	281	373	470				
		38.44	22.6		7.36	12.9	21.0	34.5	44.2	73.3	109	187	287	380	477				
		47.08	18.5		7.47	13.1	21.3	35.0	44.2	74.3	111	189	291	387	483				
		57.67	15.1		7.58	13.2	21.6	35.5	44.2	75.2	113	191	297	394	488				
		70.62	12.3		7.69	13.3	21.9	36.2	44.2	75.2	115	193	302	400	494				
86.5		10.1	7.79		13.4	22.2	36.6	44.2	75.2	116	195	306	407	499					
105.9		8.2	7.89		13.5	22.5	37.1	44.2	75.2	118	197	311	413	504					
129.7		6.7	7.99		13.6	22.8	37.1	44.2	75.2	120	198	316	419	508					
158.9		5.5	8.09		13.7	23.1	37.1	44.2	75.2	121	200	320	425	512					
194.6	4.5	8.20	13.7	23.3	37.1	44.2	75.2	123	201	324	431	517							

Torque ratings shown in shaded areas exceed the unit thermal HP ratings.

Refer to Thermal HP Table 20, page G3-68

Convert torque (**without service factor**) to HP per the formula on page G3-58.

Sizes 1-3 discounted remaining stock may be available.

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MAXUM Concentric Reducer

Table 17: 1170, 870, 720 RPM Input - Output Torque Ratings (In. - Lb.)

High Speed Shaft RPM	AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	Rating Data @ 1.0 Service Factor for MAXUM unit size of (multiply value shown by 1000):														
				1	2	3	4	5	6	7	9	10	11	12				
720	2.25	320.0	DOUBLE	3.09	5.38	8.08	9.81	15.3	22.2									
	2.75	261.8		3.52	5.97	9.49	11.80	16.7	24.2									
	3.37	213.6		3.64	6.46	10.0	13.4	18.1	26.1									
	4.13	174.3		5.60	9.79	13.8	18.2	33.0	41.3									
	5.06	142.3		6.24	10.8	15.0	21.9	36.1	44.8	86.9	97.1	177	256	368				
	6.20	116.1		6.37	11.2	16.2	25.9	38.7	48.5	89.9	110	193	277	400				
	7.59	94.9		6.52	11.5	17.6	29.4	39.7	52.9	94.8	123	210	302	415				
	9.30	77.4		6.64	11.8	18.8	30.9	40.6	56.6	97.0	138	228	324	431				
	11.39	63.2		6.77	12.0	19.2	31.6	40.8	60.9	99.1	151	244	342	439				
	13.95	51.6		6.89	12.3	19.6	32.2	40.8	65.7	101	176	263	350	448				
	17.09	42.1	7.01	12.5	19.9	32.8	40.8	69.2	104	180	269	357	456					
	20.93	34.4	7.13	12.7	20.3	33.3	40.8	69.4	106	182	275	365	463					
	25.63	28.1	7.25	12.8	20.6	34.0	40.8	69.4	107	185	281	372	470					
	31.39	22.9	7.36	12.9	20.9	34.5	44.5	73.1	109	187	286	379	476					
	38.44	18.7	7.47	13.0	21.3	35.0	44.5	74.4	111	189	291	387	483					
	47.08	15.3	7.57	13.2	21.6	35.5	44.5	75.4	113	191	296	393	488					
	57.67	12.5	7.68	13.3	21.9	36.0	44.5	75.7	115	193	301	400	493					
	70.62	10.2	7.79	13.4	22.2	36.6	44.5	75.7	116	195	306	406	499					
	86.5	8.3	7.89	13.5	22.5	37.1	44.5	75.7	118	196	310	413	503					
	105.9	6.8	7.98	13.6	22.8	37.4	44.5	75.7	120	198	315	419	508					
129.7	5.6	8.08	13.6	23.1	37.4	44.5	75.7	121	200	320	425	512						
158.9	4.5	8.19	13.7	23.3	37.4	44.5	75.7	123	201	324	431	516						
194.6	3.7	8.29	13.8	23.6	37.4	44.5	75.7	124	202	328	436	521						

Torque ratings shown in shaded areas exceed the unit thermal HP ratings.

Refer to Thermal HP Table 20, page G3-68

Convert torque (**without service factor**) to HP per the formula on page G3-58.

Sizes 1-3 discounted remaining stock may be available.

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ENGINEERING/TECHNICAL



MAXUM Concentric Reducer

Table 18: 580, 100 RPM Input - Input Horsepower Ratings

High Speed Shaft RPM	AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	Rating Data @ 1.0 Service Factor for MAXUM unit size of:													
				1	2	3	4	5	6	7	9	10	11	12			
580	2.25	257.8	DOUBLE	13.7	24.4	35.8	42.2	65.6	95.2								
	2.75	210.9		12.5	21.8	34.4	42.2	59.2	85.0								
	3.37	172.1		10.7	19.6	29.7	39.3	52.9	75.0								
	4.13	140.4		13.7	24.4	33.9	42.2	78.1	102.0								
	5.06	114.6		12.0	21.2	30.1	42.2	70.3	90.9	172	186	358	513	739			
	6.20	93.5		10.1	18.0	26.7	41.1	62.6	80.4	147	174	323	462	643			
	7.59	76.4		8.35	15.1	23.1	38.5	51.7	70.4	124	161	283	408	553			
	9.30	62.4		7.00	12.4	19.4	32.6	42.4	62.4	103	146	248	360	453			
	11.39	50.9		5.86	10.4	16.5	27.0	34.6	54.7	86.6	132	220	297	380			
	13.95	41.6		4.88	8.55	13.6	22.6	28.1	46.7	71.3	124	186	247	313			
	17.09	33.9	4.06	7.08	11.3	18.8	22.9	39.7	58.0	102	158	207	263				
	20.93	27.7	3.34	5.81	9.36	15.8	19.0	32.4	48.9	84.3	129	171	219				
	25.63	22.6	2.76	4.83	7.92	12.6	15.6	27.1	40.8	70.0	106	144	179				
	31.39	18.5	2.36	4.12	6.65	10.9	13.9	22.70	35.60	60.2	90.2	121	151				
	38.44	15.1	1.96	3.36	5.43	9.1	11.3	18.4	29.2	49.1	74.7	100	124				
	47.08	12.3	1.63	2.76	4.53	7.55	9.25	15.7	23.6	40.2	63.1	83.5	104				
	57.67	10.1	1.33	2.26	3.73	6.32	7.67	12.8	19.9	33.1	51.3	68.8	85.8				
	70.62	8.2	1.10	1.87	3.14	5.05	6.29	10.7	16.5	27.4	42.1	57.5	69.7				
	86.5	6.7	.912	1.54	2.60	4.23	5.04	8.64	13.6	22.3	36.2	47.3	57.5				
	105.9	5.5	.755	1.25	2.12	3.49	4.09	6.89	11.4	18.3	29.4	38.9	47				
129.7	4.5	.625	1.03	1.77	2.85	3.34	5.82	9.47	15.2	24.1	32.5	39.2					
158.9	3.7	.512	.840	1.45	2.36	2.77	4.75	7.62	12.6	20.1	26.8	32.4					
194.6	3.0	.421	.697	1.22	1.85	2.27	3.98	6.29	10.4	16.5	22.4	26.3					
100	2.25	44.4	DOUBLE	2.36	4.20	7.28	11.3	16.4									
	2.75	36.4		2.16	3.75	5.93	7.28	10.2	14.7								
	3.37	29.7		1.84	3.38	5.12	6.77	9.1	12.9								
	4.13	24.2		2.36	4.20	5.84	7.28	13.5	17.6								
	5.06	19.8		2.07	3.65	5.20	7.28	12.1	15.7	29.7	32.1	61.8	88.4	127.5			
	6.20	16.1		1.74	3.10	4.60	7.09	10.8	13.9	25.4	30.1	55.6	79.6	110.9			
	7.59	13.2		1.44	2.60	3.98	6.63	8.92	12.1	21.3	27.8	48.8	70.4	95.3			
	9.30	10.8		1.21	2.13	3.34	5.63	7.31	10.8	17.8	25.2	42.8	62.1	78.0			
	11.39	8.8		1.01	1.79	2.85	4.65	5.96	9.43	14.9	22.8	38.0	51.2	65.5			
	13.95	7.2		.84	1.47	2.34	3.90	4.84	8.06	12.3	21.4	32.0	42.6	53.9			
	17.09	5.9	.70	1.22	1.96	3.25	3.96	6.84	10.0	17.6	27.2	35.7	45.3				
	20.93	4.8	.58	1.00	1.61	2.72	3.28	5.58	8.44	14.5	22.2	29.6	37.7				
	25.63	3.9	.48	.833	1.37	2.18	2.69	4.68	7.04	12.1	18.3	24.8	30.8				
	31.39	3.2	.408	.711	1.15	1.88	2.40	3.92	6.13	10.4	15.6	20.8	26.1				
	38.44	2.6	.338	.579	.937	1.57	1.95	3.18	5.03	8.47	12.9	17.2	21.3				
	47.08	2.1	.280	.476	.781	1.30	1.59	2.71	4.07	6.93	10.9	14.4	17.8				
	57.67	1.7	.230	.389	.643	1.09	1.32	2.21	3.43	5.71	8.85	11.9	14.8				
	70.62	1.4	.190	.323	.542	.870	1.08	1.85	2.85	4.72	7.26	9.91	12.0				
	86.50	1.2	.157	.266	.449	.730	.869	1.49	2.34	3.84	6.24	8.16	9.9				
	105.9	.9	.130	.216	.366	.602	.706	1.19	1.97	3.16	5.07	6.71	8.1				
129.7	.8	.108	.177	.305	.492	.576	1.00	1.63	2.61	4.15	5.60	6.75					
158.9	.6	.088	.145	.250	.407	.478	.819	1.31	2.17	3.47	4.63	5.58					
194.6	.5	.073	.120	.211	.319	.392	.686	1.09	1.79	2.84	3.86	4.53					

Torque ratings shown in shaded areas exceed the unit thermal HP ratings.

Refer to Thermal HP Table 20, page G3-68

Convert torque (**without service factor**) to HP per the formula on page G3-58.

Sizes 1-3 discounted remaining stock may be available.

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MAXUM Concentric Reducer

Table 19: 580, 100 RPM Input - Output Torque Ratings (In. - Lb.)

High Speed Shaft RPM	AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	Rating Data @ 1.0 Service Factor for MAXUM unit size of (multiply value shown by 1000):														
				1	2	3	4	5	6	7	9	10	11	12				
580	2.25	257.8	DOUBLE	3.22	5.74	8.45	9.81	15.5	22.6									
	2.75	210.9		3.67	6.36	9.91	11.8	17.0	24.6									
	3.37	172.1		3.80	6.89	10.40	13.6	18.4	26.5									
	4.13	140.4		5.85	10.4	14.7	18.2	33.5	44.1									
	5.06	114.6		6.39	11.2	16.0	21.9	36.7	47.8	91.1	99.1	185	273	393				
	6.20	93.5		6.52	11.5	17.3	26.4	39.7	51.8	94.1	112	206	296	417				
	7.59	76.4		6.66	11.8	18.8	30.5	40.6	56.4	97.2	126	224	322	431				
	9.30	62.4		6.78	12.1	19.2	31.6	41.0	60.4	99.3	141	243	341	440				
	11.39	50.9		6.90	12.3	19.6	32.2	41.0	64.9	101	154	260	350	448				
	13.95	41.6		7.02	12.5	19.9	32.8	41.0	69.5	104	180	270	358	457				
	17.09	33.9	7.14	12.7	20.3	33.4	41.0	69.8	106	182	275	365	463					
	20.93	27.7	7.26	12.8	20.6	33.9	41.0	69.8	108	185	281	373	470					
	25.63	22.6	7.37	12.9	20.9	34.5	41.0	69.8	109	187	287	380	477					
	31.39	18.5	7.47	13.1	21.3	35.1	44.7	74.4	111	189	292	387	483					
	38.44	15.1	7.58	13.2	21.6	35.6	44.7	75.7	113	191	297	394	489					
	47.08	12.3	7.68	13.3	21.9	36.1	44.7	76.2	115	193	301	400	494					
	57.67	10.1	7.79	13.4	22.2	36.6	44.7	76.2	116	195	306	407	499					
	70.62	8.2	7.90	13.5	22.5	37.2	44.7	76.2	118	196	311	413	504					
	86.50	6.7	8.00	13.6	22.8	37.6	44.7	76.2	120	198	315	419	508					
	105.9	5.5	8.09	13.7	23.1	37.6	44.7	76.2	121	200	320	425	513					
129.7	4.5	8.19	13.7	23.4	37.6	44.7	76.2	123	201	324	431	517						
158.9	3.7	8.29	13.8	23.6	37.6	44.7	76.2	124	203	328	437	521						
194.6	3.0	8.38	13.9	23.9	37.6	44.7	76.2	125	204	333	442	525						
100	2.25	44.4	DOUBLE	3.22	5.74	8.45	9.81	15.5	22.6									
	2.75	36.4		3.67	6.36	9.91	11.8	17.0	24.6									
	3.37	29.7		3.80	6.89	10.40	13.6	18.4	26.5									
	4.13	24.2		5.85	10.4	14.7	18.2	33.5	44.1									
	5.06	19.8		6.39	11.2	16.0	21.9	36.7	47.8	91.1	99.1	185	273	393				
	6.20	16.1		6.52	11.5	17.3	26.4	39.7	51.8	94.1	112	206	296	417				
	7.59	13.2		6.66	11.8	18.8	30.5	40.6	56.4	97.2	126	224	322	431				
	9.30	10.8		6.78	12.1	19.2	31.6	41.0	60.4	99.3	141	243	341	440				
	11.39	8.8		6.90	12.3	19.6	32.2	41.0	64.9	101	154	260	350	448				
	13.95	7.2		7.02	12.5	19.9	32.8	41.0	69.5	104	180	270	358	457				
	17.09	5.9	7.14	12.7	20.3	33.4	41.0	69.8	106	182	275	365	463					
	20.93	4.8	7.26	12.8	20.6	33.9	41.0	69.8	108	185	281	373	470					
	25.63	3.9	7.37	12.9	20.9	34.5	41.0	69.8	109	187	287	380	477					
	31.39	3.2	7.47	13.1	21.3	35.1	44.7	74.4	111	189	292	387	483					
	38.44	2.6	7.58	13.2	21.6	35.6	44.7	75.7	113	191	297	394	489					
	47.08	2.1	7.68	13.3	21.9	36.1	44.7	76.2	115	193	301	400	494					
	57.67	1.7	7.79	13.4	22.2	36.6	44.7	76.2	116	195	306	407	499					
	70.62	1.4	7.90	13.5	22.5	37.2	44.7	76.2	118	196	311	413	504					
	86.50	1.2	8.00	13.6	22.8	37.6	44.7	76.2	120	198	315	419	508					
	105.9	.9	8.09	13.7	23.1	37.6	44.7	76.2	121	200	320	425	513					
129.7	.8	8.19	13.7	23.4	37.6	44.7	76.2	123	201	324	431	517						
158.9	.6	8.29	13.8	23.6	37.6	44.7	76.2	124	203	328	437	521						
194.6	.5	8.38	13.9	23.9	37.6	44.7	76.2	125	204	333	442	525						

Torque ratings shown in shaded areas exceed the unit thermal HP ratings
 Convert torque (without service factor) to HP per the formula given on page G3-58.
 Refer to Thermal HP Table 20, page G3-68.

Sizes 1-3 discounted remaining stock may be available.

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Table 20: Thermal Horsepower Ratings *

High Speed Shaft RPM	AGMA Nominal Ratio	Thermal Horsepower Ratings Without Fan †										Thermal Horsepower Ratings With Fan ‡									
		2	3	4	5	6	7	9	10	11	12	3	4	5	6	7	9	10	11	12	
1750	2.25	42	54	55	55	44						-	-	155	185						
	2.75	45	59	62	66	72						-	-	-	211						
	3.37	-	60	67	74	89						-	-	-	-						
	4.13	33	46	51	57	61						-	116	138	170						
	5.06	34	47	53	61	71	143	72	0	0	0	-	-	137	174	285	373	299	362	256	
	6.20	33	46	54	61	76	150	101	43	0	0	-	-	131	173	284	381	344	433	393	
	7.59	32	44	54	61	81	150	121	90	69	39	-	-	-	-	273	385	376	473	500	
	9.30	29	41	52	58	79	147	132	115	112	118	-	-	-	-	262	-	379	493	543	
	11.39	-	39	48	55	76	140	137	126	140	158	-	-	-	-	-	-	368	489	548	
	13.95	-	-	45	51	70	131	132	129	149	181	-	-	-	-	-	-	349	462	536	
	17.09	-	-	41	46	64	121	126	127	151	189	-	-	-	-	-	-	326	436	513	
	20.93	-	-	37	42	58	111	115	121	148	184	-	-	-	-	-	-	300	405	475	
	25.63	-	-	-	39	54	100	106	110	137	179	-	-	-	-	-	-	268	364	445	
	31.39	-	-	-	-	-	-	125	114	179	169	-	-	-	-	-	-	-	-	-	
	38.44	-	-	-	-	-	-	111	106	161	157	-	-	-	-	-	-	-	-	-	
47.08	-	-	-	-	-	-	103	98	147	147	-	-	-	-	-	-	-	-	-		
57.67	-	-	-	-	-	-	-	90	133	135	-	-	-	-	-	-	-	-	-		
70.62	-	-	-	-	-	-	-	81	118	125	-	-	-	-	-	-	-	-	-		
1450	2.25	-	62	68	72	77								-	-	204					
	2.75	-	64	72	80	95								-	-	-					
	3.37	-	-	72	82	105								-	-	-					
	4.13	34	49	56	66	78								-	-	136	174				
	5.06	34	49	57	66	82	159	120	60	30	0	-	-	132	-	-	280	388	352	440	406
	6.20	32	47	55	64	83	160	136	101	89	55	-	-	126	-	-	274	389	375	476	484
	7.59	32	-	55	63	84	155	144	128	131	135	-	-	-	-	-	261	-	384	493	545
	9.30	-	-	52	59	81	150	147	140	154	180	-	-	-	-	-	-	-	374	495	556
	11.39	-	-	47	55	76	142	146	142	166	199	-	-	-	-	-	-	-	358	478	547
	13.95	-	-	44	51	69	131	137	139	165	206	-	-	-	-	-	-	-	334	445	522
	17.09	-	-	41	46	64	121	129	132	160	204	-	-	-	-	-	-	-	309	413	493
	20.93	-	-	-	42	58	111	116	123	153	194	-	-	-	-	-	-	-	-	384	454
	25.63	-	-	-	-	53	-	106	111	139	185	-	-	-	-	-	-	-	-	-	-
	31.39	-	-	-	-	-	-	124	119	191	183	-	-	-	-	-	-	-	-	-	-
	38.44	-	-	-	-	-	-	113	111	172	170	-	-	-	-	-	-	-	-	-	-
47.08	-	-	-	-	-	-	-	103	156	159	-	-	-	-	-	-	-	-	-	-	
57.67	-	-	-	-	-	-	-	95	142	146	-	-	-	-	-	-	-	-	-	-	
70.62	-	-	-	-	-	-	-	85	126	136	-	-	-	-	-	-	-	-	-	-	
1170	2.25	-	-	77	84	104								-	-	169					
	2.75	-	-	77	88	113								-	-	-					
	3.37	-	-	75	87	115								-	-	-					
	4.13	35	50	60	69	88								-	-	104	136				
	5.06	34	-	58	68	89	168	155	123	122	101	-	-	101	135	219	316	295	373	371	
	6.20	-	-	55	65	87	165	160	144	153	157	-	-	96	130	212	310	306	390	409	
	7.59	-	-	54	63	85	158	160	154	172	203	-	-	91	-	202	299	304	392	442	
	9.30	-	-	51	59	81	150	155	154	182	221	-	-	-	-	191	-	292	389	442	
	11.39	-	-	46	55	75	142	150	151	182	226	-	-	-	-	-	-	278	372	430	
	13.95	-	-	-	51	68	130	138	143	172	220	-	-	-	-	-	-	-	258	342	406
	17.09	-	-	-	-	62	-	129	142	165	212	-	-	-	-	-	-	-	254	320	383
	20.93	-	-	-	-	56	-	116	123	155	198	-	-	-	-	-	-	-	217	296	352
	25.63	-	-	-	-	52	-	106	111	139	187	-	-	-	-	-	-	-	193	264	328
	31.39	-	-	-	-	-	-	-	122	195	192	-	-	-	-	-	-	-	-	-	-
	38.44	-	-	-	-	-	-	-	113	175	178	-	-	-	-	-	-	-	-	-	-
47.08	-	-	-	-	-	-	-	110	-	167	-	-	-	-	-	-	-	-	-	-	
57.67	-	-	-	-	-	-	-	96	-	154	-	-	-	-	-	-	-	-	-	-	

* Actual horsepower, without service factor, that reducer will transmit continuously without overheating.

† Values shown are horsepower ratings when thermal HP is less than mechanical HP.

- No values listed if thermal HP is equal to or greater than mechanical HP.

‡ For thermal capacities beyond the range of cooling fans, refer to heat exchanger page G3-40 or consult DODGE.

█ Sizes 1-3 discounted remaining sotck may be available.

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MAXUM Concentric Reducer

Table 20: Thermal Horsepower Ratings (cont'd)

High Speed Shaft RPM	AGMA Nominal Ratio	Thermal Horsepower Ratings Without Fan †										Thermal Horsepower Ratings With Fan ‡									
		2	3	4	5	6	7	9	10	11	12	3	4	5	6	7	9	10	11	12	
870	2.25	-	-	-	92	121															
	2.75	-	-	-	-	123															
	3.37	-	-	-	-	-															
	4.13	-	-	61	71	94															
	5.06	-	-	57	67	91	169	180	166	189	211										
	6.2	-	-	54	64	87	163	176	170	198	231										
	7.59	-	-	52	61	84	155	169	169	199	248										
	9.3	-	-	-	57	79	146	159	162	197	247										
	11.39	-	-	-	-	-	-	150	154	189	240										
	13.95	-	-	-	-	-	-	134	142	175	227										
	17.09	-	-	-	-	-	-	125	131	165	215										
	20.93	-	-	-	-	-	-	113	121	153	197										
	25.63	-	-	-	-	-	-	-	108	136	189										
	31.39	-	-	-	-	-	-	-	-	122	195										
720	2.25	-	-	-	-	-															
	2.75	-	-	-	-	-															
	3.37	-	-	-	-	-															
	4.13	-	-	-	70	93															
	5.06	-	-	-	67	90	167	186	177	209	246										
	6.2	-	-	-	63	90	160	180	176	210	251										
	7.59	-	-	-	60	-	-	170	170	206	259										
	9.3	-	-	-	-	-	-	158	160	199	252										
	11.39	-	-	-	-	-	-	148	150	189	241										
	13.95	-	-	-	-	-	-	131	139	180	226										
	17.09	-	-	-	-	-	-	122	129	163	212										
	20.93	-	-	-	-	-	-	-	118	150	194										
	25.63	-	-	-	-	-	-	-	105	133	180										
	580	2.25	-	-	-	-	-														
2.75		-	-	-	-	-															
3.37		-	-	-	-	-															
4.13		-	-	-	-	-															
5.06		-	-	-	-	-	161			183	217	264									
6.2		-	-	-	-	-	-			176	214	262									
7.59		-	-	-	-	-	-			167	204	263									
9.3		-	-	-	-	-	-			156	196	251									
11.39		-	-	-	-	-	-			145	185	238									
13.95		-	-	-	-	-	-			134	170	221									
17.09		-	-	-	-	-	-			124	158	206									
20.93		-	-	-	-	-	-			113	145	187									
25.63		-	-	-	-	-	-			101	128	174									

* Actual horsepower, without service factor, that reducer will transmit continuously without overheating.

† Values shown are horsepower ratings when thermal HP is less than mechanical HP.

- No values listed if thermal HP is equal to or greater than mechanical HP.

‡ For thermal capacities beyond the range of cooling fans, refer to heat exchanger page G3-40 or consult DODGE.

§ Sizes 1-3 discounted remaining stock may be available.



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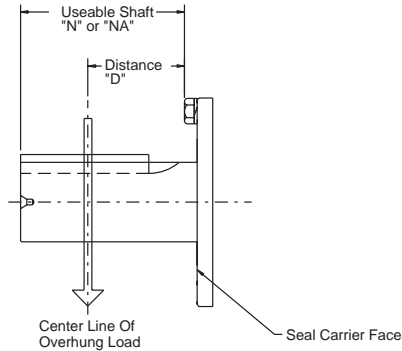


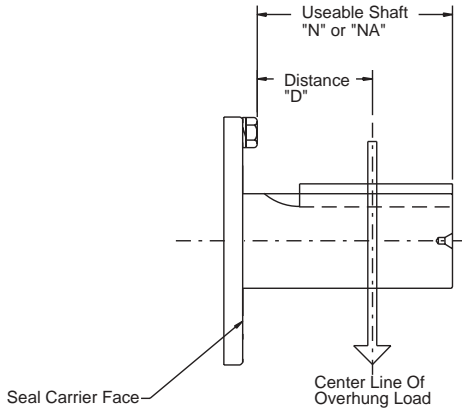
Table 21: Load Location Factors for High Speed Shafts

Distance In Inches	MAXUM Reducer Size									
	1	2	3	4	5		6		7	
	DCR1/ TCR1	DCR2/ TCR2	DCR3/ TCR3	DCR4/ TCR4	DCR5	TCR5	DCR6	TCR6	DCR7	TCR7
1.00	0.99	0.99	0.96	0.96	0.93	0.96	0.93	0.95	0.92	0.92
1.25	1.07	1.07	0.99	0.99	0.95	1.00	0.95	0.98	0.94	0.95
1.50	1.17	1.17	1.06	1.06	0.97	1.08	0.98	1.04	0.95	0.97
1.75	1.27	1.27	1.14	1.14	1.00	1.16	1.00	1.12	0.97	0.99
2.00	1.37	1.37	1.23	1.23	1.07	1.24	1.07	1.20	0.99	1.03
2.25	1.47	1.47	1.31	1.31	1.13	1.31	1.13	1.28	1.01	1.09
2.50	1.57	1.57	1.40	1.40	1.20	1.39	1.20	1.35	1.06	1.14
2.75	1.67	1.67	1.49	1.49	1.27	1.47	1.27	1.43	1.12	1.20
3.00	1.77	1.77	1.57	1.57	1.34	1.55	1.34	1.51	1.18	1.25
3.50			1.74	1.74	1.48	1.71	1.48	1.66	1.29	1.36
4.00					1.62		1.62		1.40	1.47
4.50					1.75		1.75		1.51	
5.00									1.63	
5.50									1.74	
Distance In Inches	9		10		11		12			
	DCR9	TCR9	DCR10	TCR10	DCR11	TCR11	DCR12	TCR12		
1.00	0.91	0.91	0.89	0.87	0.87	0.88	0.87	0.90		
1.25	0.93	0.93	0.90	0.89	0.88	0.90	0.88	0.91		
1.50	0.94	0.95	0.92	0.91	0.89	0.92	0.89	0.93		
1.75	0.95	0.97	0.93	0.93	0.91	0.93	0.90	0.95		
2.00	0.97	0.99	0.94	0.94	0.92	0.95	0.92	0.97		
2.25	0.98	1.03	0.96	0.96	0.93	0.97	0.93	0.99		
2.50	1.00	1.07	0.97	0.98	0.94	0.99	0.94	1.02		
2.75	1.03	1.12	0.98	1.00	0.95	1.01	0.95	1.07		
3.00	1.08	1.17	1.00	1.04	0.96	1.05	0.96	1.11		
3.50	1.17	1.26	1.07	1.12	0.99	1.14	0.99	1.20		
4.00	1.26	1.36	1.16	1.21	1.04	1.22	1.04	1.29		
4.50	1.35	1.45	1.25	1.29	1.11	1.31	1.11	1.38		
5.00	1.45		1.34	1.38	1.18	1.39	1.18	1.47		
5.50	1.54		1.43		1.25		1.25			
6.00	1.63		1.52		1.32		1.32			
6.50	1.72		1.60		1.39		1.39			

Sizes 1-3 discounted remaining stock may be available.



MAXUM Concentric Reducer



$$\text{OHL} = \frac{126,000 \times \text{hp} \times \text{Fc} \times \text{Lf}}{\text{PD} \times \text{rpm}}$$

- Where:
- OHL = Overhung Load
 - hp = Horsepower
 - Fc = Load Connection Factor
(See Table 13, page G3-59)
 - Lf = Load Location Factor
(See Table 21 for High Speed Shafts
See Table 22 for Low Speed Shafts)
 - PD = Pitch Diameter of the Item mounted on the Shaft
 - rpm = Speed of Shaft with Overhung Load on it in
Revolutions Per Minute
(Interpolate for shaft speeds not listed)

Table 22: Load Location Factors For Low Speed Shafts

Distance In Inches	MAXUM Reducer Size											
	1	2	3	4	5	6	7	9	10	11	12	
1.00	0.93	0.89	0.80	0.83	0.85	0.79	0.79	0.76	0.73	0.72	0.70	
1.25	0.98	0.92	0.84	0.86	0.88	0.82	0.81	0.78	0.74	0.74	0.72	
1.50	1.04	0.96	0.87	0.88	0.90	0.84	0.83	0.79	0.76	0.75	0.73	
1.75	1.12	1.00	0.90	0.91	0.93	0.86	0.85	0.81	0.77	0.77	0.74	
2.00	1.20	1.07	0.93	0.94	0.95	0.88	0.87	0.83	0.79	0.78	0.76	
2.25	1.28	1.13	0.97	0.97	0.98	0.90	0.89	0.84	0.80	0.80	0.77	
2.50	1.36	1.20	1.00	1.00	1.01	0.93	0.91	0.86	0.82	0.81	0.79	
2.75	1.44	1.27	1.05	1.05	1.05	0.95	0.93	0.87	0.83	0.82	0.80	
3.00	1.52	1.34	1.11	1.10	1.10	0.97	0.95	0.89	0.85	0.84	0.81	
3.50	1.69	1.48	1.22	1.21	1.19	1.03	0.99	0.92	0.88	0.87	0.84	
4.00		1.62	1.33	1.32	1.28	1.11	1.06	0.95	0.91	0.90	0.87	
4.50		1.75	1.44	1.42	1.37	1.20	1.14	0.99	0.94	0.92	0.90	
5.00			1.55	1.53	1.46	1.28	1.22	1.03	0.97	0.95	0.93	
5.50			1.66	1.64	1.55	1.37	1.30	1.09	1.00	0.98	0.95	
6.00				1.74	1.64	1.45	1.38	1.14	1.06	1.02	0.98	
6.50					1.74	1.54	1.45	1.20	1.11	1.07	1.02	
7.00					1.83	1.62	1.53	1.25	1.17	1.12	1.07	
7.50						1.71	1.61	1.31	1.23	1.17	1.12	
8.00							1.69	1.36	1.28	1.22	1.16	
8.50								1.42	1.34	1.27	1.21	
9.00								1.48	1.39	1.32	1.26	
9.50								1.53	1.45	1.37	1.31	
10.00								1.59	1.50	1.42	1.36	
10.50								1.64	1.56	1.47	1.41	
11.00								1.70	1.61	1.52	1.46	
11.50										1.57	1.51	
12.00											1.56	

Sizes 1-3 discounted remaining stock may be available.

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ENGINEERING/TECHNICAL



MAXUM Concentric Reducer Table 23: High Speed Shaft Overhung Loads

High Speed Shaft RPM	AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	High Speed Shaft Overhung Load (pounds) for MAXUM Reducer Size.											
				1	2	3	4	5	6	7	9	10	11	12	
1450	5.06	286.6	DOUBLE	470	0	570	270	1080	960	1400	30	1750	2000	600	
	6.2	233.9		470	0	590	420	1080	1000	1400	30	1750	2000	640	
	7.59	191		470	140	600	660	1080	1250	1400	100	1750	2000	1930	
	9.3	155.9		470	200	600	700	1080	1250	1400	400	1750	2000	2000	
	11.39	127.3		470	250	600	810	1080	1250	1400	550	1750	2000	2000	
	13.95	103.9		470	290	580	770	1080	1250	1400	1750	1750	1900	2000	
	17.09	84.8		470	310	560	800	1080	1190	1400	1750	1750	1590	2000	
	20.93	69.3		470	330	590	850	1080	1040	1400	1750	1750	1750	2000	
	25.63	56.6		470	100	610	0	1000	1250	670	1500	1750	2000	2000	
	31.39	46.2	180	70	20	150	0	80	280	1000	1200	1200	0		
	38.44	37.7	180	180	150	310	190	410	670	1180	1200	1200	1200		
	47.08	30.8	180	260	220	420	370	600	900	1180	1200	1200	1200		
	57.67	25.1	180	270	280	500	490	760	900	1180	1200	1200	1200		
	70.62	20.5	180	270	310	540	580	800	900	1180	1200	1200	1200		
	86.5	16.8	100	140	110	270	160	280	600	800	900	1080	1000		
	105.9	13.7	100	140	180	270	290	470	600	800	900	1080	1180		
	129.7	11.2	100	140	180	270	290	470	600	800	900	1080	1180		
	158.9	9.1	100	140	180	270	290	470	250	270	0	400	1180		
194.6	7.5	100	140	180	270	290	470	420	550	520	900	1180			
1170	5.06	231.2	DOUBLE	470	0	610	90	1080	1020	1400	30	1750	2000	640	
	6.2	188.7		470	0	630	250	1080	1070	1400	30	1750	2000	690	
	7.59	154.2		470	200	640	530	1080	1250	1400	30	1750	2000	2000	
	9.3	125.8		470	270	640	590	1080	1250	1400	30	1750	2000	2000	
	11.39	102.7		470	320	630	870	1080	1250	1400	200	1750	2000	2000	
	13.95	83.9		470	360	620	900	1080	1250	1400	1750	1750	2000	2000	
	17.09	68.5		470	390	660	900	1080	1250	1400	1750	1750	2000	2000	
	20.93	55.9		470	420	690	900	1080	1110	1400	1750	1750	2000	2000	
	25.63	45.6		470	80	710	0	950	1250	650	1500	1750	2000	2000	
	31.39	37.3	180	110	60	210	0	90	300	1180	1200	1200	420		
	38.44	30.4	180	220	180	360	260	510	820	1180	1200	1200	1200		
	47.08	24.9	180	270	250	480	440	690	900	1180	1200	1200	1200		
	57.67	20.3	180	270	310	540	550	800	900	1180	1200	1200	1200		
	70.62	16.6	180	270	340	540	600	800	900	1180	1200	1200	1200		
	86.5	13.5	100	140	180	270	260	420	600	800	900	1080	1000		
	105.9	11	100	140	180	270	290	470	600	800	900	1080	1180		
	129.7	9	100	140	180	270	290	470	600	800	900	1080	1180		
	158.9	7.4	100	140	180	270	290	470	250	270	0	370	1180		
194.6	6	100	140	180	270	290	470	420	520	500	850	1180			
870	5.06	171.9	DOUBLE	470	0	660	80	1080	1110	1400	50	1200	2000	700	
	6.2	140.3		470	30	680	20	1080	1170	1400	50	1750	2000	750	
	7.59	114.6		470	310	700	320	1080	1250	1400	50	1750	2000	2000	
	9.3	93.5		470	380	700	410	1080	1250	1400	50	1750	2000	2000	
	11.39	76.4		470	430	710	900	1080	1250	1400	50	1750	2000	2000	
	13.95	62.4		470	480	770	900	1080	1250	1400	1750	1750	2000	2000	
	17.09	50.9		470	510	800	900	1080	1250	1400	1750	1750	2000	2000	
	20.93	41.6		470	540	800	900	1080	1250	1400	1750	1750	2000	2000	
	25.63	33.9		470	60	800	0	900	1250	650	1400	1750	2000	2000	
	31.39	27.7	180	169	120	300	80	280	490	1180	1200	1200	1070		
	38.44	22.6	180	270	230	450	370	640	900	1180	1200	1200	1200		
	47.08	18.5	180	270	300	540	540	800	900	1180	1200	1200	1200		
	57.67	15.1	180	270	350	540	600	800	900	1180	1200	1200	1200		
	70.62	12.3	180	270	370	540	600	800	900	1180	1200	1200	1200		
	86.5	10.1	100	140	180	270	290	470	600	800	900	1080	900		
	105.9	8.2	100	140	180	270	290	470	600	800	900	1080	1180		
	129.7	6.7	100	140	180	270	290	470	600	800	900	1080	1180		
	158.9	5.5	100	140	180	270	290	470	250	250	0	350	1180		
194.6	4.5	100	140	180	270	290	470	420	500	470	800	1180			

† Capacities listed are for pure radial loads on a reducer. If overhung load exceeds the value shown or if overhung load is applied at the same time as thrust loads, consult DODGE Application Engineering.

Sizes 1-3 discounted remaining stock may be available.

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MAXUM Concentric Reducer

Table 23: High Speed Shaft Overhung Loads (cont'd)

High Speed Shaft RPM	AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	High Speed Shaft Overhung Load (pounds) † for MAXUM Reducer Size											
				1	2	3	4	5	6	7	9	10	11	12	
720	5.06	142.3	DOUBLE	470	0	700	170	1080	1180	1400	50	500	1650	740	
	6.2	116.1		470	100	730	20	1080	1240	1400	50	1500	2000	860	
	7.59	94.9		470	380	740	180	1080	1250	1400	50	1750	2000	2000	
	9.3	77.4		470	460	750	370	1080	1250	1400	50	1750	2000	2000	
	11.39	63.2		470	510	800	900	1080	1250	1400	50	1750	2000	2000	
	13.95	51.6		470	560	800	900	1080	1250	1400	1750	1750	2000	2000	
	17.09	42.1		470	590	800	900	1080	1250	1400	1750	1750	2000	2000	
	20.93	34.4		470	620	800	900	1080	1250	1400	1750	1750	2000	2000	
	25.63	28.1		470	50	800	0	850	1250	600	1300	1750	2000	2000	
	31.39	22.9		180	210	150	360	180	390	670	1180	1200	1200	1200	
	38.44	18.7	180	270	260	500	440	740	900	1180	1200	1200	1200		
	47.08	15.3	180	270	330	540	600	800	900	1180	1200	1200	1200		
	57.67	12.5	180	270	370	540	600	800	900	1180	1200	1200	1200		
	70.62	10.2	180	270	370	540	600	800	900	1180	1200	1200	1200		
	86.5	8.3	100	140	180	270	290	470	600	800	900	1080	800		
	105.9	6.8	100	140	180	270	290	470	600	800	900	1080	1180		
	129.7	5.6	100	140	180	270	290	470	600	800	900	1080	1180		
	158.9	4.5	100	140	180	270	290	470	250	220	0	320	1180		
	194.6	3.7	100	140	180	270	290	470	420	450	450	750	1180		
	580	5.06	114.6	DOUBLE	470	70	750	270	1080	1250	1400	50	50	1000	800
6.2		93.5	470		190	770	20	1080	1250	1400	50	650	1700	1600	
7.59		76.4	470		470	790	100	1080	1250	1400	50	1600	2000	2000	
9.3		62.4	470		550	800	360	1080	1250	1400	50	1750	2000	2000	
11.39		50.9	470		610	800	900	1080	1250	1400	50	1750	2000	2000	
13.95		41.6	470		620	800	900	1080	1250	1400	1750	1750	2000	2000	
17.09		33.9	470		620	800	900	1080	1250	1400	1750	1750	2000	2000	
20.93		27.7	470		620	800	900	1080	1250	1400	1750	1750	2000	2000	
25.63		22.6	470		0	800	0	750	1250	600	1200	1750	2000	2000	
31.39		18.5	180		260	200	430	300	530	880	1180	1200	1200	1200	
38.44		15.1	180	270	300	540	530	800	900	1180	1200	1200	1200		
47.08		12.3	180	270	370	540	600	800	900	1180	1200	1200	1200		
57.67		10.1	180	270	370	540	600	800	900	1180	1200	1200	1200		
70.62		8.2	180	270	370	540	600	800	900	1180	1200	1200	1200		
86.5		6.7	100	140	180	270	290	470	600	800	900	1080	700		
105.9		5.5	100	140	180	270	290	470	600	800	900	1080	1180		
129.7		4.5	100	140	180	270	290	470	600	800	900	1080	1180		
158.9		3.7	100	140	180	270	290	470	200	200	0	300	1180		
194.6		3	100	140	180	270	290	470	400	400	400	700	1180		

† Capacities listed are for pure radial loads on a reducer. If overhung load exceeds the value shown or if overhung load is applied at the same time as thrust loads, consult DODGE Application Engineering.

■ Sizes 1-3 discounted remaining sotck may be available.



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Table 24: Low Speed Overhung Loads

Approx. Low Speed Shaft RPM	Unit Red.	Overhung Load Capacity MAXUM Reducer Size (multiply value shown by 1000) †											
		1	2	3	4	5	6	7	9	10	11	12	
777.8	DOUBLE	1.38	1.94	2.29	2.87	3.69	4.84	.	.	.	.	.	.
636.4		1.43	2.05	2.37	2.96	3.87	5.07	.	.	.	.	.	.
519.3		1.54	2.16	2.52	3.12	4.08	5.33	.	.	.	.	.	.
423.7		1.41	2.1	2.64	3.17	3.98	5.39	.	.	.	.	.	.
345.8		1.47	2.19	2.78	3.32	4.18	5.65	7.05	10.3	10.3	12.2	10.4	
282.3		1.54	2.28	2.94	3.51	4.39	5.95	7.56	10.7	10.9	12.8	10.9	
230.6		1.62	2.32	3.13	3.70	4.66	6.29	7.48	11.2	11.5	13.4	11.3	
188.2		1.74	2.53	3.31	3.91	4.95	6.61	8.27	11.9	12.1	14.1	12.0	
153.6		1.90	2.74	3.48	4.14	5.27	6.98	8.97	12.5	12.7	14.9	12.7	
125.4		2.07	2.98	3.70	4.37	5.71	7.43	9.88	13.3	13.5	15.7	13.8	
102.4		2.26	3.24	3.92	4.63	6.16	7.78	10.9	14.1	14.2	16.6	14.9	
83.6		2.47	3.51	4.19	4.98	6.62	8.25	11.8	14.9	15.1	17.7	16.0	
68.3		2.70	3.79	4.47	5.46	7.13	8.66	13.1	15.8	16.0	19.4	17.5	
55.8		TRIPLE	2.91	4.08	4.85	5.86	8.03	9.64	14.6	16.9	17.5	21.7	19.6
45.5	3.16		4.40	5.22	6.31	8.51	10.2	15.4	18.2	18.5	22.6	21.0	
37.2	3.40		4.74	5.48	6.80	8.85	10.5	16.6	19.7	19.9	24.4	22.8	
30.4	3.55		4.78	5.48	6.98	8.88	10.5	17.8	20.0	21.8	26.5	24.8	
24.8	3.58		4.80	5.48	6.98	8.90	10.5	17.8	20.0	23.7	28.6	27.1	
20.2	3.58		4.80	5.48	6.98	8.95	10.6	17.9	20.0	24.6	29.5	29.4	
16.5	3.60		4.83	5.48	6.98	8.98	10.6	17.9	20.0	24.6	29.5	29.4	
13.5	3.60		4.85	5.48	6.98	9.00	10.6	17.9	20.0	24.6	29.5	29.4	
11.0	3.63		4.85	5.48	6.98	9.03	10.6	18.0	20.0	24.6	29.5	29.4	
9.0	3.63		4.85	5.48	6.98	9.05	10.7	18.0	20.0	24.6	29.5	29.4	

* Interpolate for intermediate values.

† Capacities are for pure radial loads.

‡ If overhung loads are applied at the same time as thrust loads, consult DODGE Application Engineering.

• Consult DODGE.

Table 25: Actual Ratios

AGMA Nominal Ratio	Approx. Low Speed Shaft RPM	Unit Red.	Actual Ratio of Reduction MAXUM Reducer Size											
			1	2	3	4	5	6	7	9	10	11	12	
2.25	777.8	DOUBLE	2.253	2.259	2.263	2.225	2.263	2.273						
2.75	636.4		2.801	2.800	2.760	2.679	2.750	2.770						
3.37	519.3		3.406	3.373	3.364	3.320	3.338	3.392						
4.13	423.7		4.091	4.108	4.167	4.125	4.114	4.133						
5.06	345.8		5.087	5.091	5.081	4.966	5.000	5.037	5.065	5.103	4.958	5.104	5.089	
6.20	282.3		6.184	6.133	6.194	6.154	6.069	6.167	6.115	6.154	6.109	6.134	6.220	
7.59	230.6		7.639	7.484	7.813	7.586	7.520	7.680	7.527	7.478	7.589	7.552	7.464	
9.30	188.2		9.282	9.333	9.524	9.280	9.273	9.273	9.217	9.200	9.385	9.077	9.325	
11.39	153.6		11.28	11.30	11.33	11.45	11.37	11.37	11.21	11.20	11.33	11.28	11.31	
13.95	125.4		13.79	14.00	14.09	13.89	14.00	14.25	13.91	13.88	13.93	13.89	13.98	
17.09	102.4		16.87	17.18	17.13	17.00	17.14	16.86	17.47	17.14	16.73	16.90	16.90	
20.93	83.6		20.83	21.14	21.11	20.57	20.67	20.67	21.06	21.00	20.92	20.83	20.60	
25.63	68.3		25.64	25.67	25.32	26.18	25.20	24.67	25.68	25.60	25.89	25.32	25.59	
31.39	55.8		TRIPLE	30.90	30.96	31.28	31.50	31.38	32.00	30.50	30.68	31.61	31.29	31.21
38.44	45.5	37.77		38.35	38.88	38.21	38.64	40.11	37.83	38.03	38.86	38.51	38.60	
47.08	37.2	46.20		47.05	47.28	46.75	47.31	47.45	47.53	46.96	46.68	46.85	46.63	
57.67	30.4	57.05		57.91	58.27	56.57	57.04	58.17	57.29	57.52	58.36	57.77	56.85	
70.62	24.8	70.22		70.30	69.88	72.00	69.55	69.43	69.86	70.12	72.12	70.21	70.63	
86.50	20.2	85.73		85.91	85.52	86.86	86.81	86.21	86.27	86.94	85.07	86.60	86.36	
105.9	16.5	104.8		106.4	106.3	105.4	106.9	108.1	104	106.5	106.4	106.8	106.8	
129.7	13.5	128.2		130.5	129.3	128.9	130.9	127.8	126.8	129.8	131.6	129.8	129	
158.9	11.0	158.3		160.7	159.3	156	157.8	156.7	158.9	157.5	159.8	159.1	157.3	
194.6	9.0	194.8		195.1	191.1	198.5	192.4	187.1	193.8	192	197.7	193.4	195.4	

† Based on 1750 high speed shaft RPM.

‡ Sizes 1-3 discounted remaining sotck may be available.

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MAXUM Concentric Reducer

Table 26: WR² Values

AGMA Nominal Ratio	Approx. † Low Speed Shaft RPM	Unit Red.	WR ² (lb. - In ²) at high Speed Shaft ★ MAXUM Reducer Size														
			1	2	3	4	5	6	7	9	10	11	12				
2.25	777.8	DOUBLE	10.22	17.02	42.06	77.41	125.4	253.9									
2.75	636.4		7.699	12.61	32	59.02	94.8	189.3									
3.37	519.3		6.11	9.869	24.59	43.48	73.97	141.5									
4.13	423.7		7.932	12.86	31.9	57.81	93.81	184.3									
5.06	345.8		6.217	9.901	25.17	45.49	73.42	142.4	309.3	768.4	1469	2529	4140				
6.2	282.3		5.107	8.004	19.99	34.67	59.45	110.3	259.9	611.2	1127	2008	3201				
7.59	230.6		4.24	6.408	15.55	26.33	46.29	82.57	205.8	487.2	868.0	1559	2559				
9.3	188.2		3.633	5.179	12.7	21.03	37.06	66.14	164.5	387.7	683.6	1272	1959				
11.39	153.6		3.158	4.344	10.73	16.09	29.44	50.6	133.1	309.6	558.5	1003	1564				
13.95	125.4		2.807	3.528	8.316	13	24.09	39.11	106.4	258.8	455.0	813.6	1234				
17.09	102.4		2.35	2.898	6.616	10.45	19.65	32.35	85.34	209.7	373.0	655.3	986.5				
20.93	83.6		2.017	2.466	5.406	8.541	17.24	25.92	72.74	173.7	298.5	525.0	784.6				
25.63	68.3		1.765	2.147	4.559	6.967	15.01	21.9	61.73	148.5	244.9	428.2	622.0				
31.39	55.8		2.196	3.322	5.609	8.648	11.88	19.57	48.58	106.9	185.8	337.9	493.5				
38.44	45.5		2.140	3.225	5.370	8.272	11.25	18.20	45.38	99.01	172.3	311.5	449.4				
47.08	37.2		2.099	3.158	5.208	7.972	10.73	17.42	42.93	93.41	163.0	293.2	419.0				
57.67	30.4	2.068	3.110	5.077	7.746	10.38	16.69	41.39	89.04	154.7	278.4	394.2					
70.62	24.8	2.046	3.073	4.985	7.549	10.11	16.18	40.11	86.03	148.5	267.6	374.5					
86.50	20.2	1.170	1.579	2.303	3.333	4.771	6.594	27.36	52.16	84.71	145.5	144.1					
105.9	16.5	1.163	1.566	2.271	3.284	4.689	6.406	26.89	50.89	82.20	141.2	138.4					
129.7	13.5	1.158	1.558	2.249	3.244	4.621	6.298	26.50	50.01	80.33	138.0	134.4					
158.9	11.0	1.154	1.552	2.232	3.214	4.576	6.197	22.60	40.82	62.58	107.0	131.2					
194.6	9.0	1.151	1.547	2.220	3.189	4.541	6.127	22.43	40.42	61.76	105.5	128.6					

★ For WR² at low speed shaft, multiply the WR² value listed by (actual ratio)². See Table 25 for actual ratios.

† Based on 1750 high speed shaft RPM.

■ Sizes 1-3 discounted remaining stock may be available.

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MAXUM Concentric Reducer

CAUTION: Unit is shipped without oil. Add proper amount of recommended lubricant before operating. Failure to observe these precautions could result in damage to, or destruction of, the equipment.

Lubrication is extremely important for satisfactory operation. The proper oil level as shown in Table 29, page G3-77, must be maintained at all times. Frequent inspections with the unit not running and allowing sufficient time for the oil to cool and the entrapped air to settle out of the oil should be made by removing the level plug to see that the level is being maintained. If low, add the proper type and viscosity of lubricant through one of the upper openings until it comes out of the oil level hole. Replace the oil level plug securely. Refer to Table 27 and Table 28 below for viscosity recommendations.

After an initial operation of about two weeks, the oil should be changed. If desired, this oil may be filtered and reused. Very often, small metal particles will show up in the oil due to the wearing in process. After the initial break in period, the lubricant should be drained, magnetic drain plug cleaned, gear case flushed and refilled every 2500 hours of operation under average industrial conditions. More frequent oil changes are recommended when operating

continuously or at high temperatures or under conditions of extreme dirt or dust. Use only recommended lubricants listed on this page, or equivalent. Special attention should be given to checking of lubricants when any of the following conditions exist:

10. High operating temperatures resulting from heavy intermittent loads causing the temperature of the gear case to rise rapidly and then cool.
11. Unusual ambient conditions, which may tend to cause condensation on the inside of the gear case thereby contaminating the oil.
12. Operating temperatures that would cause oil to approach 200°F continually.
13. If the reducer is subjected to unusual vapors or moist atmosphere.

Operating Temperatures

Heating is a natural characteristic of enclosed gearing, and a maximum gear case temperature approaching 200°F is not uncommon for some units operating in normal ambient temperatures (80°F). When operating at rated capacity, no damage will result from this temperature as this was taken into consideration in the design of the gear case and in the selection of the lubricants.

Table 27: Lubrication Recommendations - ISO Grades for Ambient Temperatures of 50 thru 125 Degrees F *

Output RPM	MAXUM Reducer Size											
	1	2	3	4	5	6	7	9	10	11	12	
230	220	220	220	220	220	220	220	220	220	220	220	
190	320	320	220	220	220	220	220	220	220	220	220	
155	320	320	320	220	220	220	220	220	220	220	220	
125	320	320	320	320	320	220	220	220	220	220	220	
100	320	320	320	320	320	320	220	220	220	220	220	
84	320	320	320	320	320	320	220	220	220	220	220	
68	320	320	320	320	320	320	320	220	220	220	220	
56	320	320	320	320	320	320	320	320	320	320	220	
45	320	320	320	320	320	320	320	320	320	320	320	

* NOTES:

1. Use ISO 220 above 230 Output RPM.
2. Use ISO 320 below 45 Output RPM.
3. Assumes Auxiliary Cooling where Recommended in the Catalog.

Table 28: Lubrication Recommendations ISO Grades For Ambient Temperatures Of 15 Thru 60 Degrees F*

Output RPM	MAXUM Reducer Size											
	1	2	3	4	5	6	7	9	10	11	12	
230	150	150	150	150	150	150	150	150	150	150	150	
190	220	220	150	150	150	150	150	150	150	150	150	
155	220	220	220	150	150	150	150	150	150	150	150	
125	220	220	220	220	220	150	150	150	150	150	150	
100	220	220	220	220	220	220	150	150	150	150	150	
84	220	220	220	220	220	220	150	150	150	150	150	
68	220	220	220	220	220	220	220	150	150	150	150	
56	220	220	220	220	220	220	220	220	220	220	150	
45	220	220	220	220	220	220	220	220	220	220	220	

* NOTES:

1. Use ISO 150 above 230 Output RPM.
2. Use ISO 220 below 45 Output RPM.
3. Assumes Auxiliary Cooling where Recommended in the Catalog.

Lubricant Grade Equivalents

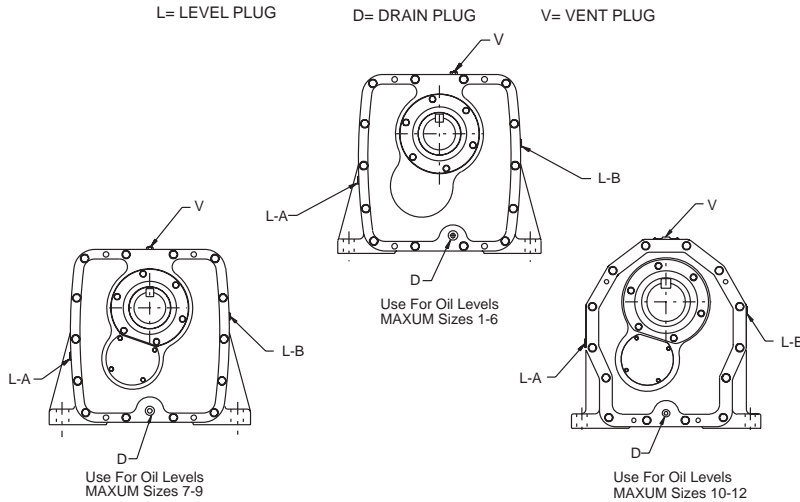
ISO	AGMA
150	4
220	5
320	6

NOTE: Mobile SHC 630 Series oil is recommended for high ambient temperatures. For a wide range of ambient temperatures (-10 F/120 F) use Mobile SHC 629,

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MAXUM Concentric Reducer OIL LEVEL LOCATIONS FOR POSTION A-1



**Table 29: Approximate Oil Capacities And Oil Levels*
VS Output RPM'S For Floor Mounted Position**

MAXUM Size	Output RPM	Approximate Oil Capacity	Level Position
1	ABOVE 375 BELOW 375	2.8 QUARTS 5.2 QUARTS	L-AL-B
2	ABOVE 355 BELOW 355	4.1 QUARTS 7.3 QUARTS	L-AL-B
3	ABOVE 300 BELOW 300	6.5 QUARTS 12.0 QUARTS	L-AL-B
4	ABOVE 270 BELOW 270	9.0 QUARTS 16.6 QUARTS	L-AL-B
5	ABOVE 250 BELOW 250	10.9 QUARTS 21.2 QUARTS	L-AL-B
6	ABOVE 215 BELOW 215	15.7 QUARTS 30.7 QUARTS	L-AL-B

MAXUM Size	Output RPM	Approximate Oil Capacity	Level Position
7	ABOVE 175 BELOW 175	8.3 GALLONS 17.6 GALLONS	L-AL-B
9	ABOVE 140 BELOW 140	12.6 GALLONS 27.2 GALLONS	L-AL-B
10	ABOVE 120 BELOW 120	12.9 GALLONS 29.8 GALLONS	L-AL-B
11	ABOVE 110 BELOW 110	16.3 GALLONS 36.9 GALLONS	L-AL-B
12	ABOVE 95 BELOW 95	20.0 GALLONS 42.5 GALLONS	L-AL-B

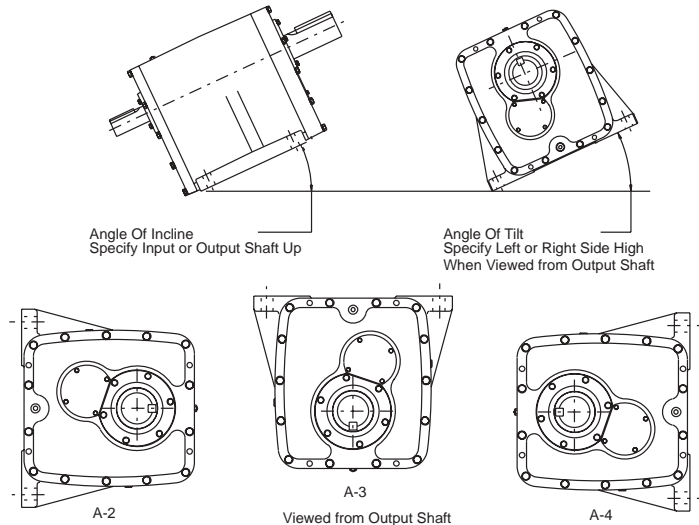
* Always fill to the oil plug regardless of the stated quantities. Refer to instruction manual for more information.

The lubrication instructions on pages G3-76 and G3-77 are offered for general guidelines. Refer to the instruction manual shipped with the reducer for specific lubrication instructions

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MAXUM Concentric Reducer



DODGE MAXUM Concentric Shaft Reducers can be modified to permit mounting in positions other than the conventional (A-1) floor mounting. Some of these include ceiling (A-3) and wall (A-2 and A-4) and various inclined, vertical and tilted positions. Consult DODGE to determine what modifications are required for your specific application.

In order for DODGE to make recommendations on the required modifications, the following information must be provided:

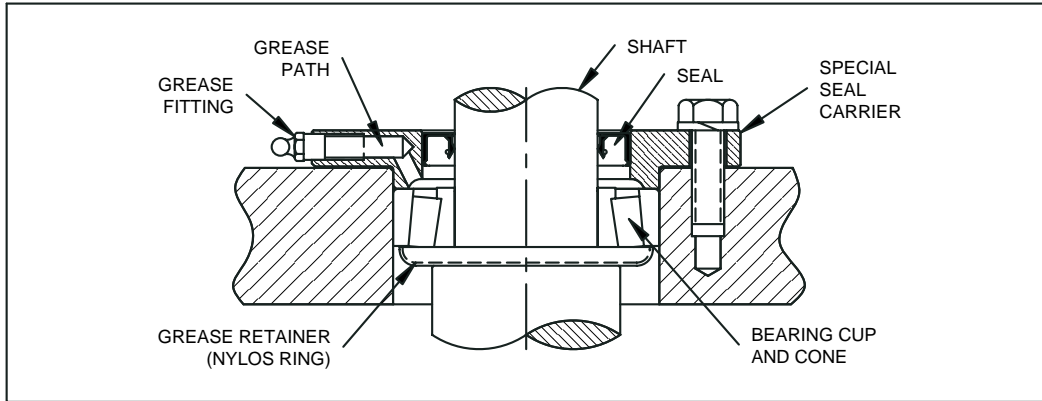
- Reducer Size.
- Ratio.
- Input and/or output speed.
- Transmitted Horsepower.
- Duty cycle. Continuous or intermittent operation. If intermittent, running time vs. idle time.
- Mounting position, such as A-2, A-3 or A-4 with shafts level, or a more complete description of the mounting arrangement including the angle of tilt of the housing, the incline of the shafts and whether the output shaft is higher or lower than the input shaft.



MAXUM Concentric Reducer Vertical And Inclined Application

When the reducer is mounted vertically, the upper bearings will not receive adequate lubrication from normal means of splash lubrication. The MAXUM reducer design uses a center web in the housing to support the inside bearings. This center web becomes a splash baffle when the reducer is mounted in a vertical position so other alternatives for lubrication need to be considered.

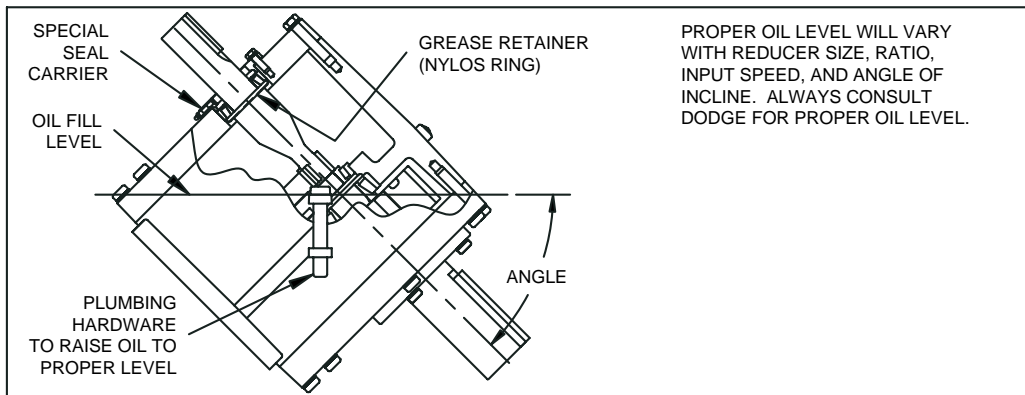
The MAXUM solution to this problem is to use a Nylos Ring - a thin dish or cup mounted between the shaft shoulders and the Timken cone (see Drawing A). The purpose of this cup is to hold a reservoir of grease to lubricate the upper bearings. If the low speed shaft is up, we provide this modification for both the low speed pinion bearing and the countershaft bearing.



DRAWING A

In addition to the Nylos Ring, we provide a means to initially charge and replace the grease reservoir. The seal carrier of the housing is drilled, and a grease fitting is provided to maintain a level of lubricant in this cavity. Lubrication of the upper gearset also needs to be

considered, and this is provided for by increasing the lubricant level to make contact with the upper gearset. We provide this information for each application, by a drawing similar to Drawing B below.



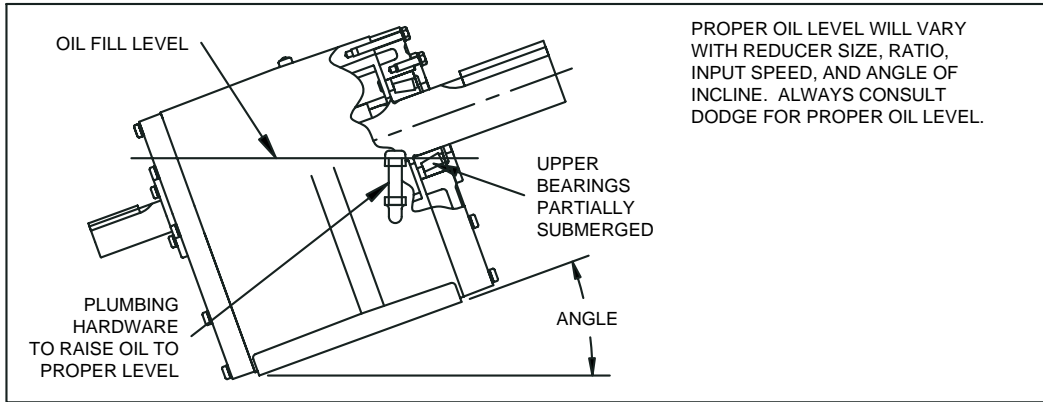
DRAWING B

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ENGINEERING/TECHNICAL

MAXUM Concentric Reducer Vertical And Inclined Application

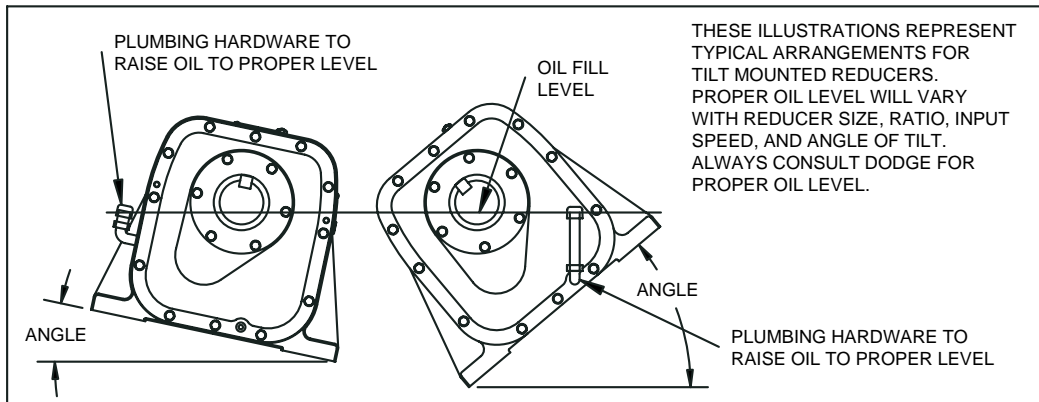


PROPER OIL LEVEL WILL VARY WITH REDUCER SIZE, RATIO, INPUT SPEED, AND ANGLE OF INCLINE. ALWAYS CONSULT DODGE FOR PROPER OIL LEVEL.

DRAWING C

We are frequently asked at what angle of incline should the vertical modification be considered. On the list price modification page, we state “exceeding 10° of incline”. This is conservative and would provide the lubrication required at very slow output speeds where there would be minimum splash generated. If the MAXUM reducer is operating at moderate to high speed, this minimum guideline may be increased. See Drawing C.

Another area where special lubrication needs to be considered is “tilt mounting”. The input and output shafts are horizontal but the reducer may be mounted in an A-2, A-3 or A-4 position or at some angle in between. The solution for this type of mounting is one of using the proper oil level only (no modification needed). Drawing D illustrates the use of a standpipe to meet oil level requirements.



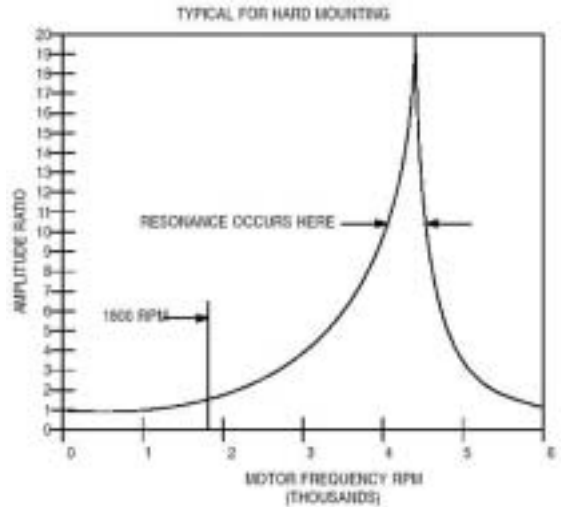
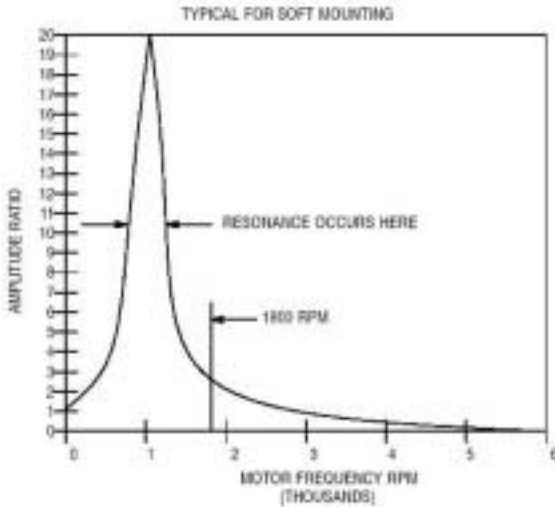
THESE ILLUSTRATIONS REPRESENT TYPICAL ARRANGEMENTS FOR TILT MOUNTED REDUCERS. PROPER OIL LEVEL WILL VARY WITH REDUCER SIZE, RATIO, INPUT SPEED, AND ANGLE OF TILT. ALWAYS CONSULT DODGE FOR PROPER OIL LEVEL.

DRAWING D

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MAXUM Concentric Reducer GENERAL GUIDELINES FOR MOUNTING VARIABLE SPEED AC OR DC MOTORS AMPLITUDE RATIO



DEFINITIONS:

FUNDAMENTAL NATURAL FREQUENCY is the lowest number of times per minute that the motor and supporting structure will maintain a periodic oscillation, once displaced, under the sole influence of its own mass and stiffness.

RESONANCE is a vibration of large amplitude caused by the small periodic stimulus of the unbalance force when the motor speed is the same or nearly the same frequency as

the fundamental natural frequency of the motor and support structure.

SOFT MOUNTING - The fundamental natural frequency is below the motor operating speed.

HARD MOUNTING - The fundamental natural frequency is above the motor operating speed.

(Continued on page G3-82)

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ENGINEERING/TECHNICAL




MAXUM Concentric Reducer

GENERAL GUIDELINES FOR MOUNTING VARIABLE SPEED AC OR DC MOTORS

SCOOP MOUNT ACCESSORY

1. This is a soft mounting of the motor.
2. The benefits obtained by using this accessory are low cost and isolation of the reducer support structure from the motor vibration.
3. This motor mount was designed for use with a constant speed motor at 1750 RPM. Use of motors with lower base speeds increases the chance of producing resonance. Stiffening techniques within the scoop structure can increase the fundamental natural frequency about 20% which is generally enough to eliminate resonance should it occur.
4. This accessory is NOT recommended for variable speed DC or AC applications.
5. Customers who prefer to use the scoop mount accessory to mount variable speed AC or DC motors must state on the face of the purchase order that they plan to support scoop and assume full responsibility for any vibratory or transient load induced by the motor. For recommended scoop support, contact Reliance Electric and reference drawing #A31512.

NOTE: For more information on DODGE MAXUM Concentric Reducer Scoop Mount Reducers, refer to page G3-41.

TOP MOUNT ACCESSORY

1. This may be a soft or hard mounting of the motor depending on the size of the motor and the distance that the adjusting screws are extended.

2. The benefits obtained by using this accessory are low cost, minimum floor space used for the motor/reducer assembly, and greater flexibility to obtain the required output RPM of the reducer than concentric coupling.
3. This motor mount was designed for use with a constant speed motor at 1750 RPM.
4. This accessory is NOT recommended for variable speed DC or AC applications. Consult Reliance.

NOTE: For more information on DODGE MAXUM Concentric Reducer Motor Mounts, refer to pages G3-51 through G3-52.

HD BASEPLATE ACCESSORY

1. This is a hard mounting of the motor.
2. The benefits obtained by using this accessory are:
 - a. resonance problems are minimized
 - b. accurate assembly of motor/coupling/reducer can be done at the factory instead of the job site. Note: Alignment must always be rechecked at job site prior to start-up.
 - c. large motors can be rigidly mounted to keep deflection under control and provide longer service life.
3. This accessory is recommended for large motors where the motor weight exceeds the reducer weight or 700 lbs., and for variable speed DC or AC applications regardless of the motor weight. For mounting dimensions see page G3-39.

NOTE: For more information on DODGE MAXUM Concentric Reducer HD Baseplates, refer to pages G3-38.