



## 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:

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

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

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:

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

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

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<br>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<br>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<br>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.

|                                |                           |                             |                                    |
|--------------------------------|---------------------------|-----------------------------|------------------------------------|
| FEATURES/BENEFITS<br>PAGE G3-3 | NOMENCLATURE<br>PAGE G3-6 | EASY SELECTION<br>PAGE G3-7 | SELECTION/DIMENSIONS<br>PAGE G3-23 |
|--------------------------------|---------------------------|-----------------------------|------------------------------------|



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

Refer to Thermal HP Table 20, page G3-68

Sizes 1-3 discounted remaining stock may be available.

# 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<br>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.

|                                |                           |                             |                                    |
|--------------------------------|---------------------------|-----------------------------|------------------------------------|
| FEATURES/BENEFITS<br>PAGE G3-3 | NOMENCLATURE<br>PAGE G3-6 | EASY SELECTION<br>PAGE G3-7 | SELECTION/DIMENSIONS<br>PAGE G3-23 |
|--------------------------------|---------------------------|-----------------------------|------------------------------------|





## 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.

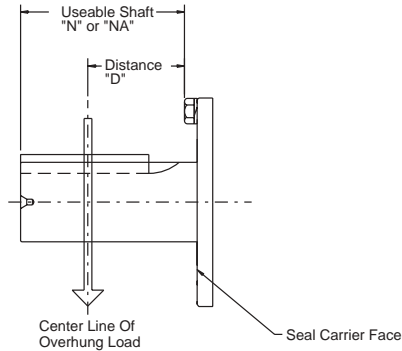
‡ For thermal capacities beyond the range of cooling fans, refer to heat exchanger page G3-40 or consult DODGE.

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



# ENGINEERING/TECHNICAL

## MAXUM Concentric Reducer



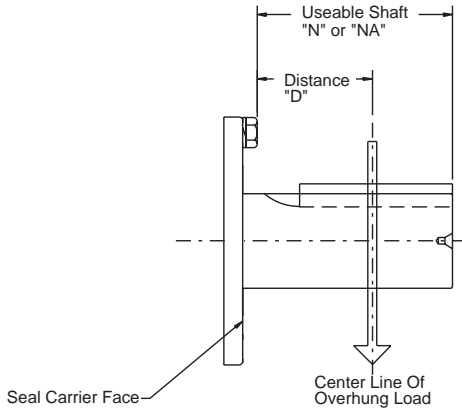
**Table 21: Load Location Factors for High Speed Shafts**

| Distance<br>In<br>Inches | MAXUM Reducer Size |               |               |               |       |       |       |       |      |      |
|--------------------------|--------------------|---------------|---------------|---------------|-------|-------|-------|-------|------|------|
|                          | 1                  | 2             | 3             | 4             | 5     |       | 6     |       | 7    |      |
|                          | DCR1/<br>TCR1      | DCR2/<br>TCR2 | DCR3/<br>TCR3 | DCR4/<br>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<br>In<br>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<br>In<br>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)<br>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) †<br>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.



# ENGINEERING/TECHNICAL

## MAXUM Concentric Reducer

**Table 24: Low Speed Overhung Loads**

| Approx. Low Speed Shaft RPM | Unit Red. | Overhung Load Capacity<br>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<br>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 | 72.21 | 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: WR<sup>2</sup> Values

| AGMA Nominal Ratio | Approx. † Low Speed Shaft RPM | Unit Red. | WR <sup>2</sup> (lb. - In <sup>2</sup> ) at high Speed Shaft ★<br>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 WR<sup>2</sup> at low speed shaft, multiply the WR<sup>2</sup> value listed by (actual ratio)<sup>2</sup>. 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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# ENGINEERING/TECHNICAL




## 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 | 220 |
| 190        | 320                | 320 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 |
| 155        | 320                | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 |
| 125        | 320                | 320 | 320 | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 | 220 |
| 100        | 320                | 320 | 320 | 320 | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 |
| 84         | 320                | 320 | 320 | 320 | 320 | 320 | 220 | 220 | 220 | 220 | 220 | 220 |
| 68         | 320                | 320 | 320 | 320 | 320 | 320 | 320 | 220 | 220 | 220 | 220 | 220 |
| 56         | 320                | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 220 |
| 45         | 320                | 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 | 150 |
| 190        | 220                | 220 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| 155        | 220                | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| 125        | 220                | 220 | 220 | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 | 150 |
| 100        | 220                | 220 | 220 | 220 | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 |
| 84         | 220                | 220 | 220 | 220 | 220 | 220 | 150 | 150 | 150 | 150 | 150 | 150 |
| 68         | 220                | 220 | 220 | 220 | 220 | 220 | 220 | 150 | 150 | 150 | 150 | 150 |
| 56         | 220                | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 220 | 150 |
| 45         | 220                | 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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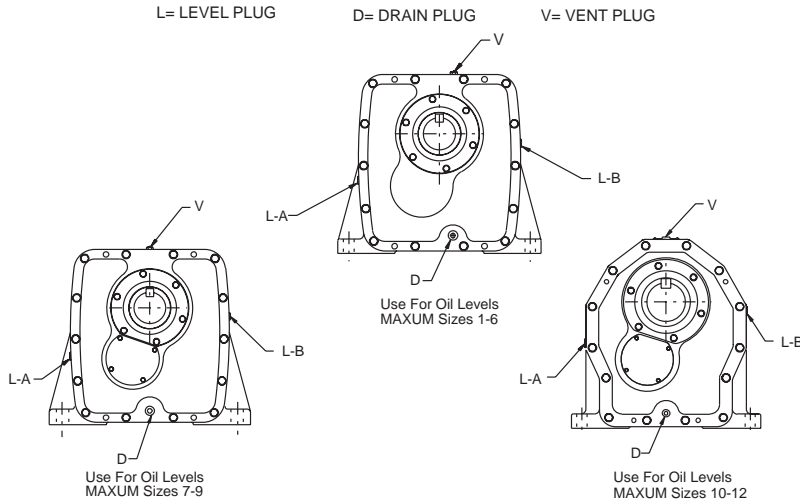
NOMENCLATURE  
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EASY SELECTION  
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SELECTION/DIMENSIONS  
PAGE G3-23



## 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<br>BELOW 375 | 2.8 QUARTS<br>5.2 QUARTS   | L-AL-B         |
| 2          | ABOVE 355<br>BELOW 355 | 4.1 QUARTS<br>7.3 QUARTS   | L-AL-B         |
| 3          | ABOVE 300<br>BELOW 300 | 6.5 QUARTS<br>12.0 QUARTS  | L-AL-B         |
| 4          | ABOVE 270<br>BELOW 270 | 9.0 QUARTS<br>16.6 QUARTS  | L-AL-B         |
| 5          | ABOVE 250<br>BELOW 250 | 10.9 QUARTS<br>21.2 QUARTS | L-AL-B         |
| 6          | ABOVE 215<br>BELOW 215 | 15.7 QUARTS<br>30.7 QUARTS | L-AL-B         |

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

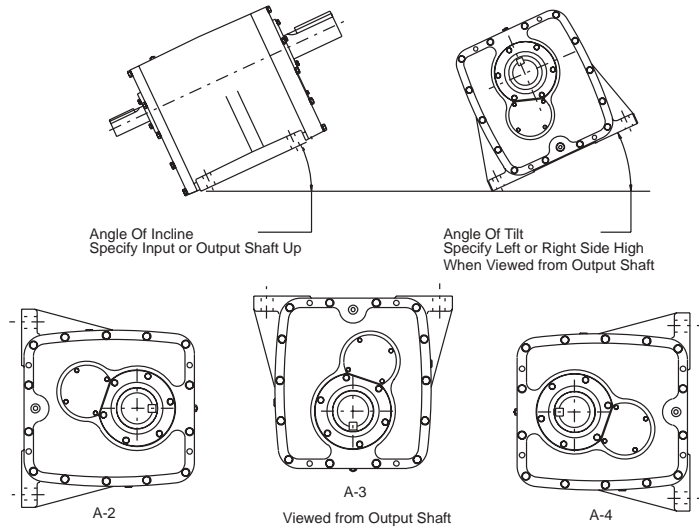
\* Always fill to the oil plug regardless of the stated quantities. Refer to instruction manual for more information.

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:

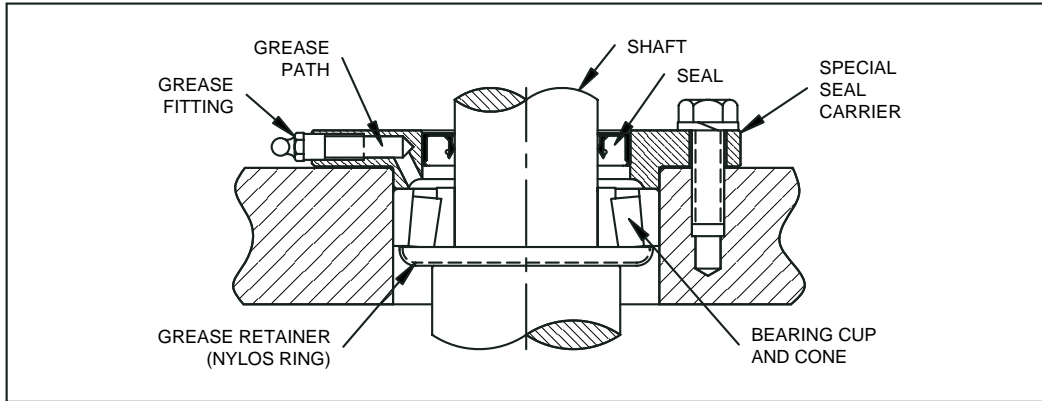
- Reducer Size.
- Ratio.
- Input and/or output speed.
- Transmitted Horsepower.
- Duty cycle. Continuous or intermittent operation. If intermittent, running time vs. idle time.
- Mounting position, such as A-2, A-3 or A-4 with shafts level, or a more complete description of the mounting arrangement including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

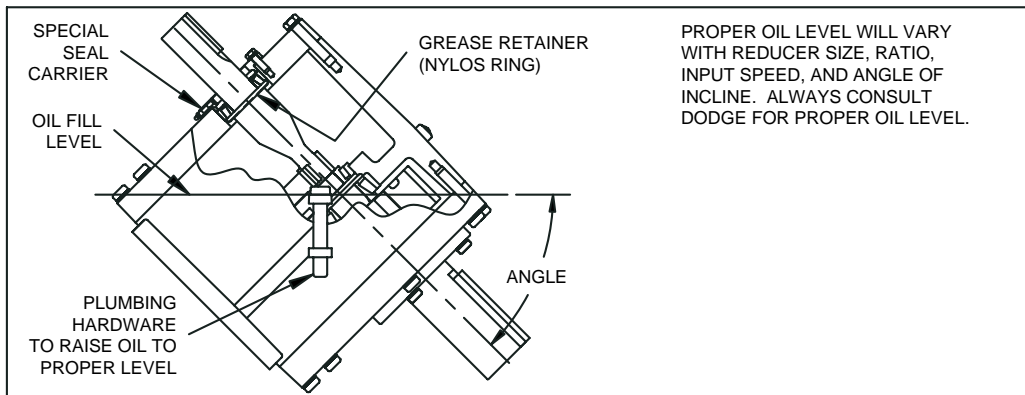
The MAXUM solution to this problem is to use a Nylos Ring - a thin dish or cup mounted between the shaft shoulders and the Timken cone (see Drawing A). The purpose of this cup is to hold a reservoir of grease to lubricate the upper bearings. If the low speed shaft is up, we provide this modification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



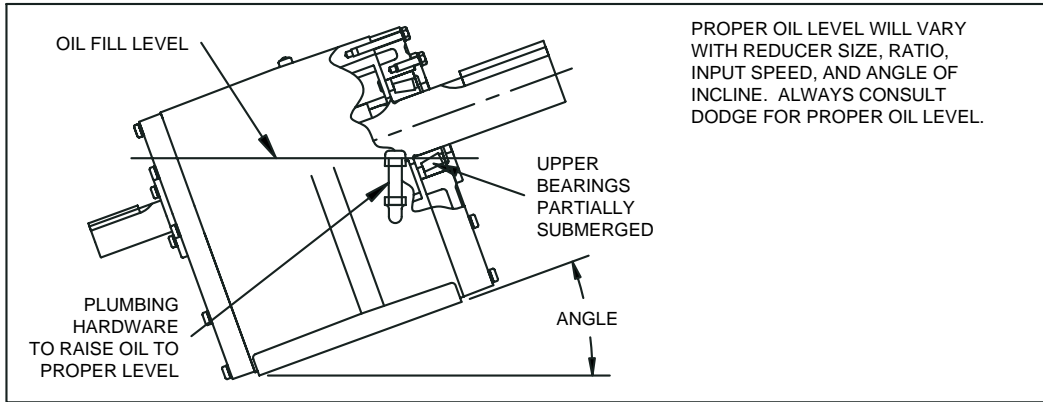
DRAWING B

|                                |                           |                             |                                    |
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## MAXUM Concentric Reducer Vertical And Inclined Application

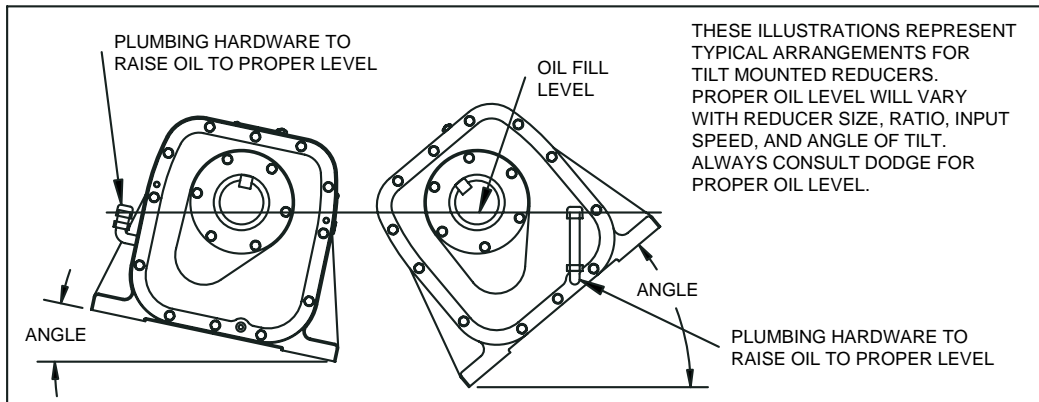


PROPER OIL LEVEL WILL VARY WITH REDUCER SIZE, RATIO, INPUT SPEED, AND ANGLE OF INCLINE. ALWAYS CONSULT DODGE FOR PROPER OIL LEVEL.

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

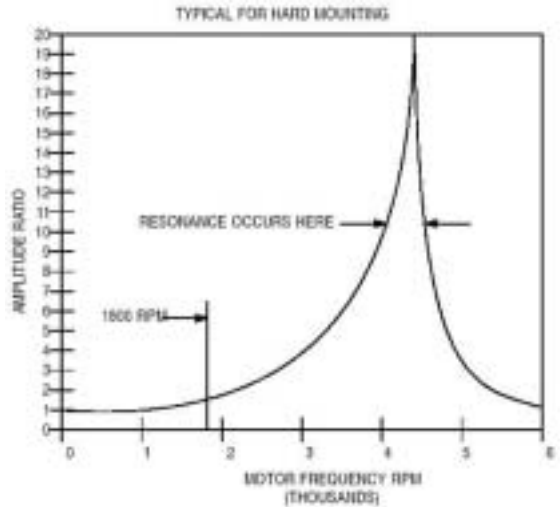
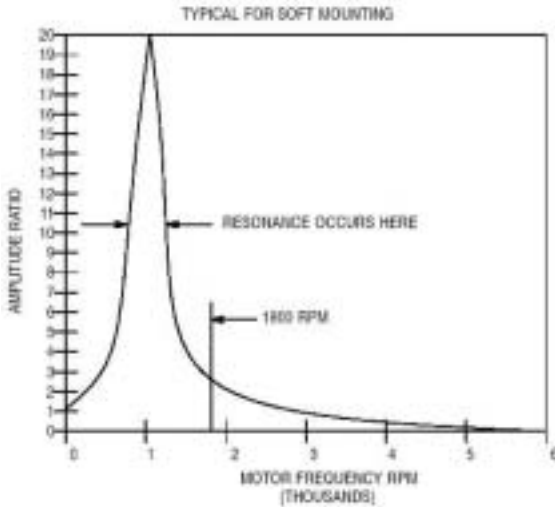
|                                |                           |                             |                                    |
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## MAXUM Concentric Reducer

### 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.