Gear Catalog

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Shaft-Mounted Planetgear (SMP)

(Inch)

Shaft-Mounted Planetgear (SMP)

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visit **www.rexnord.com**, where you'll find:
Product information • Brochures • Catalogs • Manuals
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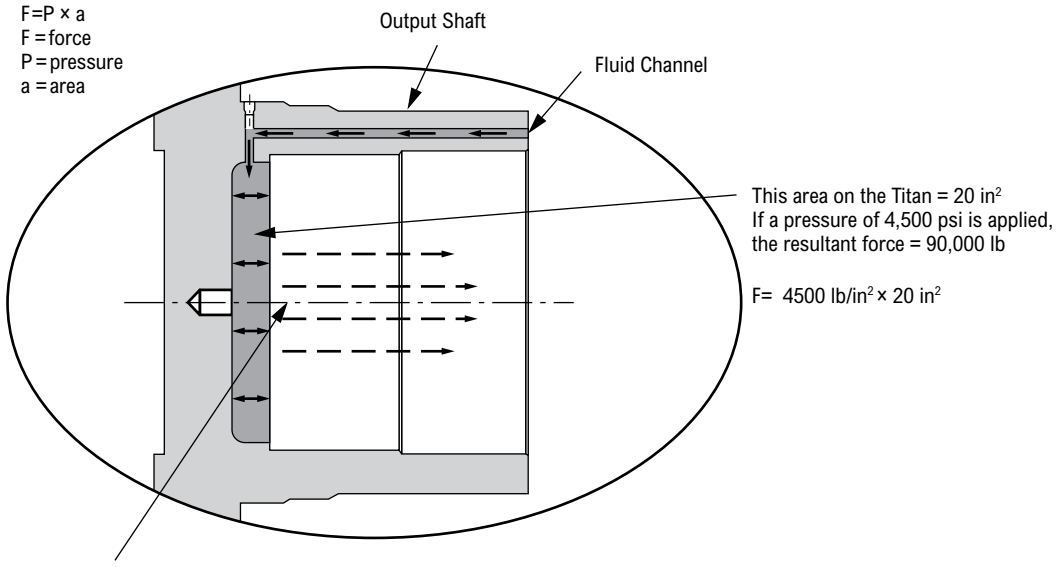
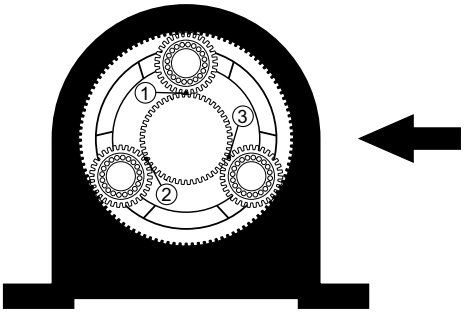


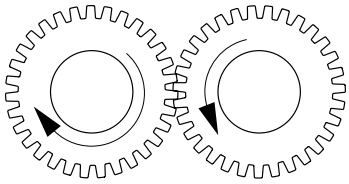
Rexnord Planetgear Basic Information

Proven, Reliable Gear Performance

With Planetgear reducers, self-aligning planet carriers float radially and axially to provide perfect alignment of the gear train. Unlike “traditional gears”, which have only one point of contact per reduction, Planetgear transmits the torque through three points of contact between sun gears and planet gears. The floating gear train ensures equal loading among the three points. State-of-the-art heat-treating techniques provide hardened, wear-resistant gearing.



Planetgear —
three points of contact

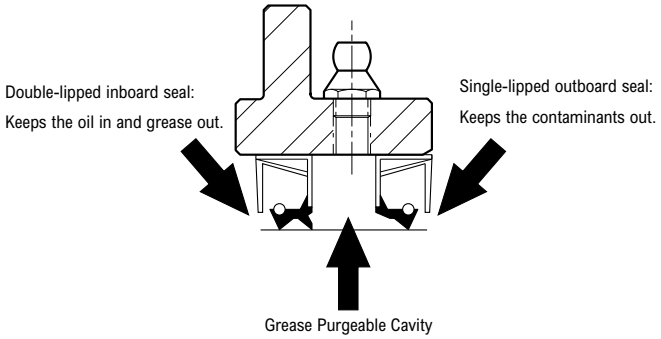


Traditional Gears —
only one point of contact

Superior Seal Protection

Many reducer failures are attributed to bearing contamination.

Planetgear reducers are designed with TWO seals on both the input and output shafts. Our successful seal layout can be seen below.



Planetgear reducers assure extended reducer service-life even in the worst environments.

How to Select Gear Drives

Selection of Planetgear

Selection of Planetgear is based on the required output torque capacity of the application. The service factor method illustrated below is used to apply industry application standards based on the hours per day of operation. These application standards (service factors) are cataloged and have been developed based on practical application experience.

Information required to make reducer selection:

- The specific application and hours per day of operation.
- Reducer input speed.
- Input horsepower.
- Desired reducer output speed.
- If applicable, overhung load.

Step 1 — Determine service factor

Select the appropriate service factor from **Table 1** on **pages 8 and 9** for the industry and specific applications at hand. These service factors are designed for applications driven by electric motors.

Steam & Gas Turbines, Hydraulic or Electric Motors	Single Cylinder Engines	Multi-Cylinder Engines
1.00	1.50	1.25
1.25	1.75	1.50
1.50	2.00	1.75
1.75	2.25	2.00
2.00	2.50	2.25

If a single or multiple cylinder engine is used, adjust the service factor that is taken from **Table 1** with the corresponding values listed above.

Rating tables are available for horizontal mounting and input speeds of 1750, 1430, 1170 and 870 rpm.

Step 2 — Calculate the desired reducer ratio (D.R.) using:

$$\text{D.R.} = \frac{\text{Input Speed (RPM)}}{\text{Output Speed (RPM)}}$$

Step 3 — Select closest nominal ratio (N.R.)

Reference **pages 11-15**. Pick the ratio that is closest to the desired ratio calculated in Step 2.

Step 4 — Calculate equivalent output torque (E.O.T.) using:

A. When input motor horsepower is known:

NOTE: 59,900 is used to represent the average mechanical efficiency of reducers (59,900 = 63,025 x 95%).

$$\text{E.O.T.} = \frac{\text{HP} \times \text{N.R.} \times \text{S.F.} \times 59{,}900}{\text{RPM}_{in}}$$

B. Where required output torque is known:

$$\text{E.O.T.} = T_O \times \text{S.F.}$$

where:

HP = Motor horsepower

N.R. = Nominal ratio from Step 3

S.F. = Service factor from Step 1

RPM_{in} = Reducer input shaft speed in revolutions per minute

T_o = Output torque required in lb-in

Step 5 — Select reducer

Use the nominal ratio determined from Step 3. Locate the smallest series that offers the output torque (lb-in) rating that is equal to or greater than the equivalent output torque (E.O.T.) determined from Step 4 for the nominal ratio required.

Step 6 — Check thermal capacity

The motor horsepower capacity must be compared to the thermal capacity of the reducer. Refer to the thermal horsepower limits tables on **page 16** and select the rating With Fan which corresponds to the reducer series and nominal ratio required. If the nominal ratio is not listed, your application will not be thermally limited with respect to horsepower. If no horsepower is listed under the nominal ratio, your application will not be thermally limited with respect to horsepower.

If a number is listed, it may need to be adjusted based on application details before comparing against the motor rating. Use the following formula for comparison:

$$\text{Motor HP Rating vs. } (T_r)(Ac)$$

where:

T_r = Thermal rating - **page 16**

Ac = Ambient Temperature Adjustment Factor from **page 17**

If the motor horsepower is less than or equal to the rating, your application will not be thermally limited with respect to horsepower with a cooling fan. If your motor horsepower exceeds this rating, contact the factory to review the possibility of increasing the thermal capacity by use of a heat exchanger. Thermal ratings can be ignored if continuous running time does not exceed idle time on a per-hour basis.

Step 7 — Check dimensions

Dimensional drawings for reducers with and without accessories are found on **pages 18-23**.

Step 8 — Ordering reducers

See reducer order form on **page 26.**

How to Select Gear Drives

When Motor Horsepower Is Known:

A 75 hp 1,750 rpm motor in a 365T frame is used to drive a heavy-duty bucket elevator 24 hrs/day with a 6-7/16" head shaft. The application requires a reducer that is hollow shaft-mounted with an output speed of 18 rpm. A motor will be mounted on top of the reducer and driven by a 2.25:1 v-belt drive into the reducer. The pitch diameter of the sheave mounted on the reducer input shaft is 16". The centerline will be positioned at 2.25" from the input shaft seal carrier. In addition, the customer has requested an internal backstop and input shaft belt guard.

Step 1 — Select service factor

From **Table 1** on **pages 8 and 9**, the service factor for a heavy-duty bucket elevator 24 hrs/day operation is 1.5.

Step 2 — Calculate desired ratio (D.R.)

$$\text{Reducer Input Speed} = \frac{\text{Motor RPM}}{\text{Belt Drive Ratio}} = \frac{1750}{2.25} = 778 \text{ RPM input}$$

$$\text{D.R.} = \frac{778 \text{ RPM}}{18 \text{ RPM}} = 43.22$$

Step 3 — Select closest nominal ratio (N.R.)

Reference **pages 10-14**. Select nominal ratio = 43.78

$$\text{Output Speed} = \frac{778 \text{ RPM}}{43.78} = 17.8 \text{ RPM}$$

Step 4 — Calculate equivalent output torque (E.O.T.) hp method

$$\text{E.O.T.} = \frac{75 \text{ HP} \times 43.78 \text{ N.R.} \times 1.5 \text{ S.F.} \times 59{,}900}{778 \text{ (input RPM)}} = 379{,}206 \text{ lb-in}$$

Step 5 — Select reducer

Reference **pages 11 and 12**. The Orion rates for 263,205 lb-in and the Titan rates for 471,737 lb-in. The smallest series that meets the E.O.T. calculated in Step 4 is the Titan.

Step 6 — Check thermal capacity

Compare the motor horsepower to the thermal ratings of the reducers with the following formula:

Motor HP ≤ $(T_r)(Ac)$

Using the 870 RPM input speed from the thermal rating on **page 16** is 43.78:1 ratio T_r with fan = 144.

Ac = 1.0

75 (Motor HP) ≤ 144 (thermal rating) (1.0)

75 < 144

The motor horsepower is less than the thermal rating.

Step 7 — Check dimensions

Dimensions for the Titan on **pages 18 and 19** for available hollow bore sizes and reducer dimensions, **page 20** for top motor mount detail and **page 21** for belt guard detail.

Step 8 — Order Shaft-Mounted Planetgear reducer

Create the model number using **page 10**. The correct model number is WDVA0043336J41A.

When Required Output Torque Is Known:

A heavy-duty apron conveyor is operating 24 hrs/day. The conveyor requires a reducer with a 3.7 rpm output speed and 1,600,000 lb-in output torque. The reducer will be driven by a 100 hp motor in a 405T frame with a 1750 rpm base speed. The v-belt drive ratio is 2:1 with an 18" diameter sheave on the reducer input shaft 3" from the seal carrier.

Step 1 — Select service factor

From **Table 1** on **pages 8 and 9**, the service factor for a heavy-duty apron conveyor 24 hrs/day operation is 1.50.

Step 2 — Calculate desired ratio (D.R.)

Step 3 — Select closest nominal ratio (N.R.)

Reference **pages 11-15**. Select nominal ratio = 238.2.

Step 4 — Calculate equivalent output torque (E.O.T.)

Since output torque is known:

E.O.T. = 1,600,000 (output torque in lb-in) × 1.5 (service factor) = 2,400,000 lb-in.

Step 5 — Select reducer

Use rating selection on **pages 11-15**. With nominal ratio of 238.2, the smallest series listed for the E.O.T. calculated in Step 4 (2,400,000 lb.-in.) is a Hercules at 2,995,000 lb-in.

Step 6 — Order Shaft-Mounted Planetgear reducer

See reducer order form on **page 26**.

Service Factors

Non-Motorized Selection

Table 1 — Service Factors

Application	Service 10 Hrs/ Day	Service 24 Hrs/ Day
AGITATORS		
Pure Liquids	1.00	1.25
Liquids & Solids	1.25	1.50
Liquids-Variable Density	1.25	1.50
APRON CONVEYORS		
Uniformly-Loaded or Fed	1.00	1.25
Heavy-Duty	1.25	1.50
APRON FEEDERS	1.25	1.50
ASSEMBLY CONVEYORS		
Uniformly-Loaded or Fed	1.00	1.25
Heavy-Duty	1.25	1.50
BALL MILLS	**	**
BARGE HAUL PULLERS	1.75	2.00
BARKING		
Drums (Coupling-Connected)	–	2.00
Mechanical	–	2.00
BAR SCREENS (Sewage)	1.00	1.25
BATCHERS (Textile)	1.25	1.50
BELT CONVEYORS		
Uniformly-Loaded or Fed	1.00	1.25
Heavy-Duty	1.25	1.50
BELT FEEDERS	1.25	1.50
BENDING ROLLS (Machine)	1.25	1.50
BLOWERS		
Centrifugal	1.00	1.25
Lobe	1.25	1.50
Vane	1.00	1.25
BOTTLING MACHINERY	1.00	1.25
BREWING & DISTILLING		
Bottling Machinery	1.00	1.25
Brew Kettles, Cont. Duty	1.00	1.25
Can Filling Machines	1.00	1.25
Cookers, Cont. Duty	1.00	1.25
Mash Tubs, Cont. Duty	1.00	1.25
Scale Hoppers, Freq. Starts	1.25	1.50
BRICK PRESS (Clay Working)	1.75	2.00
BRIQUETTE MACHINES (Clay Working)	1.75	2.00
BUCKET		
Conveyors Uniform	1.00	1.25
Conveyors Heavy-Duty	1.25	1.50
Elevators Continuous	1.00	1.25
Elevators Uniform	1.00	1.25
Elevators Heavy-Duty	1.25	1.50
CALENDERS		
Rubber	1.50	1.50
Textile	1.25	1.50
CAN FILLING MACHINES	1.00	1.25
CANE KNIVES	1.50	1.50
CARD MACHINES (Textile)	1.25	1.50
CAR DUMPERS	1.75	2.00
CAR PULLERS	1.25	1.50
CEMENT KILNS	**	**
CENTRIFUGAL		
Blowers, Compressors, Discharge Elevators, Fans or Pumps	1.00	1.25
CHAIN CONVEYORS		
Uniformly-Loaded or Fed	1.00	1.25
Heavy-Duty	1.25	1.50
CHEMICAL FEEDERS (Sewage)	1.00	1.25
CLARIFIERS	1.00	1.25
CLASSIFIERS	1.25	1.50
CLAY WORKING INDUSTRY		
Brick Press	1.75	2.00
Briquette Machines	1.75	2.00
Clay Working Machinery	1.25	1.50
Pug Mills	1.25	1.50
COLLECTORS (Sewage)	1.00	1.25
COMPRESSORS		
Centrifugal	1.00	1.25
Lobe	1.25	1.50
Reciprocating		
Multi-Cylinder	1.50	1.75
Single-Cylinder	2.25	2.50
CONCRETE MIXERS		
Continuous	1.25	1.50
Intermittent	1.25	1.50
CONVEYORS — Uniformly-Loaded or Fed		
Apron, Bucket, Assembly, Belt, Chain, Flight, Oven, Screw	1.00	1.25
CONVEYORS — Heavy-Duty, Not Uniformly Fed		
Apron, Assembly, Belt, Bucket, Chain, Flight, Oven, Screw	1.25	1.50
CONVEYORS — Severe Duty		
Live Roll	*	*
Reciprocating Shaker	1.75	2.00
COOKERS (Brewing & Distilling), (Food)	1.00	1.25
COOLING TOWER FANS	*	*
CRANES		
Dry Dock Cranes	◆	◆
Main Hoist	*	*
Bridge and Trolley Travel	*	*
CRUSHERS		
Ore or Stone	1.75	2.00
Sugar	–	1.50
DEWATERING SCREENS (Sewage)	1.25	1.50
DISC FEEDERS	1.00	1.25
DISTILLING (See Brewing)		
DOUBLE-ACTING PUMPS		
2 or more Cylinders	1.25	1.50
Single-Cylinder	*	*
DOUGH MIXER (Food)	1.25	1.50
DRAW BENCH (Metal Mills)		
Carriage & Main Drive	1.25	1.50
DREDGES		
Cable Reels, Conveyors	1.25	1.50
Cutter Head & Jig Drives	1.75	2.00
Maneuvering Winches, Pumps	1.25	1.50
Screen Drives	1.75	2.00
Stackers, Utility Winches	1.25	1.50
DRY DOCK CRANES	◆	◆
DRYERS & COOLERS (Mills, Rotary)	–	1.50
DYEING MACHINERY (Textile)	1.25	1.50
ELEVATORS		
Bucket-Uniform-Load	1.00	1.25
Bucket-Heavy-Duty	1.25	1.50
Bucket-Continuous	1.00	1.25
Centrifugal Discharge	1.00	1.25
Escalators	*	*
Freight	*	*
Gravity Discharge	1.00	1.25
Man Lifts, Passenger	*	*
EXTRUDERS	‡	‡
FANS		
Centrifugal	1.00	1.25
Cooling Towers	*	*
Forced Draft	–	1.25
Induced Draft	1.25	1.50
Large (Mine, etc.)	1.25	1.50
Large Industrial	1.25	1.50
Light (Small Diameter)	1.00	1.25
FEEDERS		
Apron, Belt	1.25	1.50
Disc	1.00	1.25
Reciprocating	1.75	2.00
Screw	1.25	1.50
FLIGHT CONVEYORS		
Uniform	1.00	1.25
Heavy	1.25	1.50
FOOD INDUSTRY		
Beet Slicers	1.25	1.50
Bottling, Can Filling Machine	1.00	1.25
Cereal Cookers	1.00	1.25
Dough Mixers, Meat Grinders	1.25	1.50
GENERATORS (Not Welding)	1.00	1.25
GRAVITY DISCHARGE ELEVATORS	1.00	1.25
HAMMER MILLS	1.75	2.00
HOISTS		
Heavy-Duty	1.75	2.00
Medium Duty	1.25	1.50
Skip Hoist	1.25	1.50
INDUCED DRAFT FANS	1.25	1.50
KILNS	**	**
LAUNDRY WASHERS & TUMBLERS	1.25	1.50
LINE SHAFTS		
Driving Processing Equipment	1.25	1.50
Other Line Shafts, Light	1.00	1.25
LIVE ROLL CONVEYORS	*	*
LOBE BLOWERS OR COMPRESSORS	1.25	1.50
LOG HAULS (Lumber)		
Incline-Well Type	1.75	1.75
LOOMS (Textile)	1.25	1.50
LUMBER INDUSTRY		
Barkers – Spindle Feed	1.25	1.50
Barkers – Main Drive	1.75	1.75
Carriage Drive	*	*
Chain – Floor	1.50	1.50
Chains – Green	1.50	1.75
Conveyors		
Burner	1.25	1.50
Main or Heavy-Duty	1.50	1.50
Main Log	1.75	2.00
Re-Saw Merry-Go-Round	1.25	1.50
Slab	1.75	2.00
Transfer	1.25	1.50
Cut-Off Saws – Chain & Drag	1.50	1.75
Debarking Drums	1.75	2.00
Feeds – Edger	1.25	1.50
Feeds – Gang	1.75	1.75
Feeds – Trimmer	1.25	1.50
Log Deck	2.00	2.00
Log Hauls – Incline-Well Type	1.75	1.75
Log Turning Devices	1.75	1.75
Planer Feed	1.25	1.50
Planer Tilting Hoists	1.50	1.50
Rolls, Live Off Bearing		
Roll Cases	1.75	1.75
Sorting, Table, Tipple Hoist	1.25	1.50
Transfers – Chain & Craneway	1.50	1.75
Tray Devices	1.25	1.50
Veneer Lathe Drives	*	*
MACHINE TOOLS		
Auxiliary Drives	1.00	1.25
Bending Rolls	1.25	1.50
Main Drives	1.25	1.50
Notching Press (Belted)	*	*
Plate Planers	1.75	2.00
Punch Press (Geared)	1.75	2.00
Tapping Machines	1.75	2.00
MANGLE (Textile)	1.25	1.50
MASH TUBS (Brewing & Distilling)	1.00	1.25
MEAT GRINDERS (Food)	1.25	1.50
METAL MILLS		
Draw Bench Carriages & Main Drives	1.25	1.50
Pinch, Dryer & Scrubber Rolls, Reversing	*	*
Slitters	1.25	1.50
Table Conveyors, Non-Reversing Group Drives	1.25	1.50
Individual	1.75	2.00
Reversing	*	*
Wire Drawing & Flattening Machines	1.25	1.50
Wire Winding Machines	1.25	1.50
MILLS, ROTARY		
Ball and Rod Mills		
with Spur Ring Gear	–	2.00
with Helical Ring Gear	–	1.50
Direct Connected	–	2.00
Kilns, Dryers & Coolers, Pebble, Plain & Cement Kilns	*	*
Wedge Bar Mills	–	1.50
Tumbling Barrels	1.75	2.00
MIXER (Also see Agitators)		
Concrete, Cont.	1.25	1.50
Concrete, Int.	1.25	1.50
Constant Density	1.00	1.25
Variable Density	1.25	1.50
NAPPERS (Textile)	1.25	1.50
OIL INDUSTRY		
Chillers	1.25	1.50
Oil Well Pumping	*	*
Paraffin Filter Press	1.25	1.50
Rotary Kilns	1.25	1.50
ORE CRUSHERS	1.75	2.00
OVEN CONVEYORS		
Uniform	1.00	1.25
Heavy-Duty	1.25	1.50
PAPER MILLS ●		
Agitator (Mixer)	–	1.50
Agitator for Pure Liquors	–	1.25
Barking Drums, Barkers Mechanical	–	2.00
Beater	–	1.50
Breaker Stack	–	1.25
Calender ■	–	1.25
Chipper	–	2.00
Chip Feeder	–	1.50
Coating Rolls	–	1.25
Conveyors –		
Chip, Bark, Chemical	–	1.25
Log (including Slab)	–	2.00
Couch Rolls	–	1.25
Cutter	–	2.00
Cylinder Molds	–	1.25
Dryers – ■		
Paper Machine & Conveyor Type	–	1.25
Embosser	–	1.25
Extruder	–	1.50
Foundrinier Rolls		
Lumberbreaker, Wire Turning, Dandy & Return Rolls	–	1.25
Jordan	–	1.50

◆ Dry Dock Cranes (Hammerhead, Rotating and Whirler, Stationary or Moving) for any duration of service: Main Hoist, Auxiliary Hoist, Boom (Lifting): 3.00 S.F.; Rotating (Swing or Slew): 3.00 S.F.; Tracking (Drive Wheels): 3.00 S.F.

● Service factors for paper mill application are applied to nameplate rating of electric motor at the motor-rated base speed – consistent with TAPPI Standards.

▲ When a super calender operates over a speed range of part constant HP and torque and the constant HP speed range is greater than 1.5:1, use a service factor of 1.0 at base speed. When operating at constant torque over the entire speed range or when the constant HP speed range is less than 1.5:1, a 1.25 factor should be applied.

* Consult Factory.

** See Mills, Rotary.

■ Using anti-friction bearings only.

‡ See Rubber & Plastics Industries.

Service Factors

Non-Motorized Selection

Table 1 — Service Factors (Continued)

Application	Service 10 Hrs/ Day	Service 24 Hrs/ Day
Kiln Drive	–	1.50
Mt. Hope & Paper Rolls	–	1.25
Platter	–	1.50
Presses (Felt & Suction)	–	1.25
Pulper – Continuous	–	1.50
Repulper – Heavy Stock	–	2.00
Vacuum Pumps	–	1.50
Reel (Surface Type)	–	1.25
Screens –		
Chip, Rotary	–	1.50
Vibrating	–	2.00
Size Press	–	1.25
Super Calender ▲	–	1.25
Thickener & Washer –		
AC Motor	–	1.50
DC Motor	–	1.25
Wind & Unwind Stand	–	1.00
Winders (Surface Type)	–	1.25
Yankee Dryers	–	1.25
PASSENGER ELEVATORS	*	*
PEBBLE MILLS	–	1.50
PLASTIC INDUSTRY ‡	‡	‡
PLATE PLANERS	1.75	2.00
PRINTING PRESSES	*	*
PROPORTIONING PUMPS	1.25	1.50
PUG MILLS (Clay)	1.25	1.50
PULLERS (Barge Haul)	1.75	2.00
PUMPS		
Centrifugal	1.00	1.25
Proportioning	1.25	1.50
Reciprocating		
Single-Act., 3 or more Cyl.	1.25	1.50
Double-Act., 2 or more Cyl.	1.25	1.50
Single-Act., 1 or 2 Cyl.	*	*
Double-Acting, 1 Cyl.	*	*
Rotary: Gear, Lobe, Vane	1.00	1.25
PUNCH PRESSES (Gear-Driven)	1.75	2.00
RECIPROCATING		
Conveyors & Feeders	1.75	2.00
RECIPROCATING COMPRESSORS		
Multi-Cylinder	1.25	1.50
Single-Cylinder	1.50	2.50
ROD MILLS	**	**
ROTARY		
Pumps	1.00	1.25
Screens (Sand or Gravel)	1.25	1.50
RUBBER & PLASTICS INDUSTRIES		
Calenders	1.50	1.50
Crackers	2.00	2.00
Mills (2 on-line)	1.50	1.50
Mills (3 on-line)	1.25	1.25
Mixing Mills	1.50	1.50
Refiners & Sheeters	1.50	1.50
SAND MULLERS	1.25	1.50
SCREENS		
Air Washing	1.00	1.25
Rotary – Sand or Gravel	1.25	1.50
Traveling Water Intake	1.00	1.25
SCREW CONVEYORS		
Uniform	1.00	1.25
Heavy-Duty or Feeder	1.25	1.50
SCUM BREAKERS (Sewage)	1.25	1.50
SEWAGE DISPOSAL		
Bar Screens	1.00	1.25
Chemical Feeders	1.00	1.25
Collectors	1.00	1.25
Dewatering Screens	1.25	1.50
Scum Breakers	1.25	1.50
Slow or Rapid Mixers	1.25	1.50
Thickeners	1.25	1.50
Vacuum Filters	1.25	1.50
SHAKER CONVEYORS	1.75	2.00
SINGLE-ACTING PUMP		
I or 2 Cylinders	*	*
3 or more Cylinders	1.25	1.50
SKIP HOIST	1.25	1.50
SLAB PUSHERS	1.25	1.50
SLITTERS (Metal)	1.25	1.50
SLUDGE COLLECTORS (Sewage)	1.00	1.25
SOAPERS (Textile)	1.25	1.50
SPINNERS (Textile)	1.25	1.50
STEERING GEARS	*	*
STOKERS	1.00	1.25
STONE CRUSHERS	1.75	2.00
SUGAR INDUSTRY		
Cane, Knives, Crushers	1.50	1.50
Mills (Low-Speed End)	2.00	2.00
TABLE CONVEYORS (Non-Reversing)		
Group Drives	1.25	1.50
Individual Drives	1.75	2.00
Reversing	*	*
TENTER FRAMES (Textile)	1.25	1.50
TEXTILE INDUSTRY		
Batchers, Calenders	1.25	1.50
Card Machines	1.25	1.50
Dry Cans, Dryers	1.25	1.50
Dyeing Machinery	1.25	1.50
Knitting Machinery	*	*
Looms, Mangles, Nappers, Pads	1.25	1.50
Range Drives	*	*
Slashers, Soapers, Spinners	1.25	1.50
Tenter Frames, Washers, Winders	1.25	1.50
THICKENERS (Sewage)	1.25	1.50
TUMBLING BARRELS	1.75	2.00
VACUUM FILTERS (Sewage)	1.25	1.50
VANE BLOWERS	1.00	1.25
WINCHES (Dredges)	1.25	1.50
WINDERS (Textile)	1.25	1.50
WINDLASS	*	*
WIRE		
Drawing Machines	1.25	1.50
Winding Machines	1.25	1.50

◆ Dry Dock Cranes (Hammerhead, Rotating and Whirler, Stationary or Moving) for any duration of service: Main Hoist, Auxiliary Hoist, Boom (Lifting): 3.00 S.F.; Rotating (Swing or Slew): 3.00 S.F.; Tracking (Drive Wheels): 3.00 S.F.

● Service factors for paper mill application are applied to nameplate rating of electric motor at the motor-rated base speed – consistent with TAPPI Standards.

▲ When a super calender operates over a speed range of part constant HP and torque and the constant HP speed range is greater than 1.5:1, use a service factor of 1.0 at base speed. When operating at constant torque over the entire speed range or when the constant HP speed range is less than 1.5:1, a 1.25 factor should be applied.

* Consult Factory.

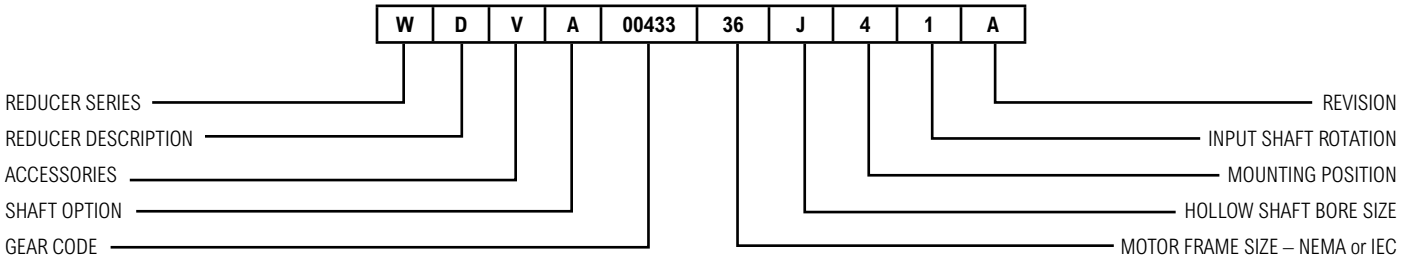
** See Mills, Rotary.

■ Using anti-friction bearings only.

‡ See Rubber & Plastics Industries.

Nomenclature

Table 2 — Part Number Schema and Processes for User Configurable Units



Reducer Series

W Orion
T Titan
J Jupiter
G Gemini
H Hercules

Reducer Description

A Standard
B Backstop
C Non-Horizontal
D Non-Horizontal w/Backstop
E Integral
F Non-Horizontal Integral

Accessories

A No Accessories
B Scoop Mount with Omega Coupling
E Motor Mount
K Special
P Scoop Mount without High-Speed Coupling
V Motor Mount with Belt Guard

Shaft Option

A Input/Output Standard
B Input/Output Standard w/Fan & Shroud
C Input Modified
D Input Modified w/Fan & Shroud
E Output Modified
F Output Modified w/Fan & Shroud
G Input/Output Modified
H Input/Output Modified w/Fan & Shroud
S Heavy-Duty Input
T Heavy-Duty Input w/Fan & Shroud

Gear Code

000XX Double
00XXX Triple
0XXXX Quad
XXXXX Quint

Motor Frame Size - NEMA

00 None
05 56
14 143/145T
18 182/184T
21 213/215T
25 254/256T
28 284/286T
32 324/326T
36 364/365T
40 404/405T
44 444/445T
47 447/449T
ZZ Special

Motor Frame Size - IEC

00 None
80 80
90 90S&L
11 112M
13 132S&L
16 160M&L
17 180M&L
20 200L
22 225S
23 225L

Hollow Shaft Bore Size

F 5.313"
G 5.437"
H 5.708"
I 6.299"
J 6.436"
K 6.692"
L 7.480"
M 7.874"
N 9.843"
O 11.811"
Z Special

Mounting Position

1 B3
2 B6
3 B7
4 B8
5 V5
6 V6
Z Special

Input Shaft Rotation

1 Clockwise
2 Counterclockwise
X No Backstop

Revision

A

Orion Ratings

Orion Ratings Table

Nominal Ratio	Orion		1750			1450			1170			870		
	Exact Ratio	Gear Code	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲
11.02	11.02	00033	158.8	371	140	131.6	325	148	106.2	280	158	79.0	227	172
13.85	13.66	00043	128.1	310	145	106.2	273	154	85.7	235	164	63.7	190	179
17.21	…	…	…	…	…	…	…	…	…	…	…	…	…	…
20.41	19.05	00063	91.9	236	154	76.1	207	163	61.4	178	174	45.7	145	190
24.00	…	…	…	…	…	…	…	…	…	…	…	…	…	…
31.63	31.37	00323	55.8	152	159	46.2	133	168	37.3	114	179	27.7	93.1	196
36.56	36.57	00333	47.9	164	200	39.7	144	212	32.0	124	226	23.8	101	247
43.78	45.33	00433	38.6	141	214	32.0	124	226	25.8	106	241	19.2	86.7	264
54.45	56.18	00443	31.1	118	222	25.8	103	234	20.8	89.1	250	15.5	67.3	254
64.42	63.23	00633	27.7	112	236	22.9	98.1	250	18.5	84.3	266	13.8	64.1	272
69.63	68.20	00373	25.7	90.1	205	21.3	75.0	206	17.2	61.1	208	12.8	45.9	210
80.01	78.37	00643	22.3	93.7	245	18.5	80.4	254	14.9	64.9	254	11.1	48.5	255
91.41	84.54	00473	20.7	73.4	207	17.2	61.1	208	13.8	49.8	210	10.3	37.3	212
99.38	104.12	03323	16.8	49.9	169	13.9	43.8	179	11.2	37.7	191	8.4	30.7	209
111.5	109.32	00663	16.0	58.4	213	13.3	48.6	214	10.7	39.2	214	8.0	29.3	215
121.4	121.37	03333	14.4	49.9	197	11.9	43.6	208	9.6	37.6	222	7.2	30.7	244
138.5	129.06	03423	13.6	49.8	209	11.2	43.8	222	9.1	37.6	236	6.7	30.7	259
159.8	150.44	03433	11.6	49.8	244	9.6	43.7	258	7.8	37.6	275	5.8	27.8	274
174.8	180.03	03623	9.7	45.4	266	8.1	39.5	279	6.5	31.8	279	4.8	23.8	280
193.1	186.48	04433	9.4	41.7	253	7.8	37.4	274	6.3	30.2	274	4.7	22.5	275
206.2	209.86	03633	8.3	40.1	274	6.9	32.5	268	5.6	26.8	274	4.1	20.0	275
238.2	223.16	04623	7.8	38.4	279	6.5	31.8	279	5.2	25.8	280	3.9	19.2	280
265.4	260.13	04633	6.7	32.4	274	5.6	26.8	274	4.5	21.7	275	3.3	16.1	275
295.7	311.30	06623	5.6	27.5	279	4.7	22.9	280	3.8	18.5	280	2.8	13.7	280
330.1	345.59	04643	5.1	22.8	257	4.2	18.9	257	3.4	15.3	257	2.5	11.4	258
369.8	362.87	06633	4.8	23.3	275	4.0	19.3	275	3.2	15.6	275	2.4	11.6	275
412.1	402.84	33333	4.3	21.5	275	3.6	17.8	275	2.9	14.4	275	2.2	10.7	275
459.0	449.79	06643	3.9	17.6	257	3.2	14.5	257	2.6	11.8	258	1.9	8.8	258
532.5	531.01	44323	3.3	16.3	275	2.7	13.8	280	2.2	11.1	280	1.6	8.3	280
617.9	618.97	44333	2.8	14.0	275	2.3	11.6	275	1.9	9.4	275	1.4	7.0	276
660.6	696.55	63333	2.5	12.4	275	2.1	10.3	275	1.7	8.3	276	1.2	6.2	276
741.2	767.25	44433	2.3	11.3	275	1.9	9.4	275	1.5	7.6	276	1.1	5.6	276
900.3	863.42	64333	2.0	10.0	275	1.7	8.3	276	1.4	6.7	276	1.0	5.0	276
1057	1070.26	64433	1.6	8.1	276	1.4	6.7	276	1.1	5.4	276	0.8	4.0	276
1255	1204.40	66333	1.5	7.2	276	1.2	6.0	276	1.0	4.8	276	0.7	3.6	276
1450	1492.93	66433	1.2	5.8	276	1.0	4.8	276	0.8	3.9	276	0.6	2.9	276
1785	1786.58	66623	1.0	4.9	280	0.8	4.1	280	0.7	3.3	280	0.5	2.5	280

▲ Torque shown in 1,000 lb-in.

Titan Ratings

Titan Ratings Table

Nominal Ratio	Titan		1750			1450			1170			870		
	Exact Ratio	Gear Code	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲
11.02	11.02	00033	158.8	665	251	131.6	582	265	106.2	502	283	79.0	407	309
13.85	13.66	00043	128.1	556	260	106.2	487	275	85.7	409	286	63.7	341	321
17.21	…	…	…	…	…	…	…	…	…	…	…	…	…	…
20.41	19.05	00063	91.9	422	275	76.1	370	291	61.4	319	311	45.7	258	339
24.00	24.60	00083	71.1	346	291	58.9	302	307	47.6	260	328	35.4	212	359
31.63	31.37	00233	55.8	328	343	46.2	280	363	37.3	247	387	27.7	201	423
36.56	36.57	00333	47.9	294	359	39.7	258	380	32.0	222	405	23.8	180	443
43.78	45.33	00433	38.6	253	383	32.0	222	405	25.8	191	432	19.2	155	472
54.45	56.18	00443	31.1	212	398	25.8	186	420	20.8	160	449	15.5	126	477
64.42	63.23	00633	27.7	200	423	22.9	176	448	18.5	151	477	13.8	113	478
69.63	…	…	…	…	…	…	…	…	…	…	…	…	…	…
80.01	78.37	00643	22.3	168	440	18.5	148	466	14.9	122	477	11.1	90.8	478
91.41	…	…	…	…	…	…	…	…	…	…	…	…	…	…
99.38	104.12	03233	16.8	141	477	13.9	117	478	11.2	94.3	478	8.4	70.3	479
111.5	109.32	00663	16.0	124	454	13.3	109	478	10.7	87.6	478	8.0	65.3	479
121.4	121.37	03333	14.4	121	478	11.9	100	478	9.6	80.9	478	7.2	60.3	479
138.5	129.06	04233	13.6	114	478	11.2	94.3	478	9.1	76.1	478	6.7	56.7	479
159.8	150.44	04333	11.6	97.6	478	9.6	80.9	478	7.8	65.4	479	5.8	48.6	479
174.8	180.03	06233	9.7	81.6	478	8.1	67.7	479	6.5	54.7	479	4.8	40.6	479
193.1	186.48	04433	9.4	78.8	478	7.8	65.4	479	6.3	52.8	479	4.7	39.2	479
206.2	209.86	06333	8.3	70.1	479	6.9	58.1	479	5.6	46.9	479	4.1	34.9	479
238.2	231.16	04443	7.6	63.7	479	6.3	52.8	479	5.1	42.6	479	3.8	31.7	479
265.4	260.13	06433	6.7	56.6	479	5.6	46.9	479	4.5	37.8	479	3.3	28.1	479
295.7	280.59	04733	6.2	52.5	479	5.2	43.5	479	4.2	35.1	479	3.1	26.1	479
330.1	322.45	06443	5.4	45.6	479	4.5	37.8	479	3.6	30.5	479	2.7	22.7	479
369.8	362.87	06633	4.8	40.6	479	4.0	33.6	479	3.2	27.1	479	2.4	20.2	480
412.1	391.40	06733	4.5	37.6	479	3.7	31.2	479	3.0	25.1	479	2.2	18.7	480
459.0	449.79	06643	3.9	32.7	479	3.2	27.1	479	2.6	21.9	479	1.9	16.3	480
532.5	531.01	44233	3.3	28.4	479	2.7	23.6	479	2.2	19.0	480	1.6	14.2	480
617.9	627.43	06663	2.8	23.5	479	2.3	19.5	480	1.9	15.7	480	1.4	11.7	480
660.6	676.77	06763	2.6	21.7	479	2.1	18.1	480	1.7	14.6	480	1.3	10.8	480
741.2	767.25	44433	2.3	19.2	480	1.9	16.3	480	1.5	13.2	480	1.1	9.8	480
900.3	863.42	64333	2.0	17.5	480	1.7	14.5	480	1.4	11.7	480	1.0	8.7	480
1057	1070.26	64433	1.6	14.1	480	1.4	11.7	480	1.1	9.4	480	0.8	7.0	480
1255	1204.40	66333	1.5	12.6	480	1.2	10.4	480	1.0	8.4	480	0.7	6.2	480
1450	1492.93	66433	1.2	10.1	480	1.0	8.4	480	0.8	6.8	480	0.6	5.0	480
1785	1850.58	66443	0.9	8.2	480	0.8	6.8	480	0.6	5.5	480	0.5	4.1	480

▲ Torque shown in 1,000 lb-in.

Jupiter Ratings

Jupiter Ratings Table

Nominal Ratio	Jupiter		1750			1450			1170			870		
	Exact Ratio	Gear Code	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲
11.02	…	…	…	…	…	…	…	…	…	…	…	…	…	…
13.85	12.80	00034	136.7	1088	477	113.3	953	504	91.4	821	538	68.0	667	588
17.21	15.87	00044	110.3	898	488	91.4	788	517	73.7	678	551	54.8	551	602
20.41	22.14	00064	79.1	683	518	65.5	599	548	52.9	515	584	39.3	419	638
24.00	…	…	…	…	…	…	…	…	…	…	…	…	…	…
31.63	…	…	…	…	…	…	…	…	…	…	…	…	…	…
36.56	…	…	…	…	…	…	…	…	…	…	…	…	…	…
43.78	42.49	00334	41.2	482	683	34.1	422	722	27.5	363	771	20.5	289	824
54.45	52.67	00344	33.2	398	700	27.5	349	741	22.2	300	789	16.5	233	825
64.42	60.92	00354	28.7	355	722	23.8	311	764	19.2	268	816	14.3	202	826
69.63	65.29	00444	26.8	343	747	22.2	300	789	17.9	253	825	13.3	188	826
80.01	75.52	00454	23.2	306	772	19.2	268	816	15.5	219	826	11.5	163	827
91.41	91.08	00644	19.2	271	825	15.9	225	825	12.8	182	826	9.55	135	827
99.38	…	…	…	…	…	…	…	…	…	…	…	…	…	…
111.5	105.34	00654	16.6	235	825	13.8	195	826	11.1	157	827	8.26	117.1	828
121.4	127.05	00664	13.8	195	826	11.4	162	827	9.21	130	827	6.85	97.1	828
138.5	136.04	00854	12.9	182	826	10.7	151	827	8.60	122	827	6.40	90.6	828
159.8	149.98	02434	11.7	169	827	9.67	140	827	7.80	113	828	5.80	84.3	828
174.8	174.83	04334	10.0	145	827	8.29	121	828	6.69	97.3	828	4.98	72.4	829
193.1	202.21	03354	8.7	126	827	7.17	104	828	5.79	84.1	828	4.30	62.6	829
206.2	216.71	04434	8.1	117	828	6.69	97.3	828	5.40	78.6	829	4.01	58.4	829
238.2	260.13	06334	6.7	97.8	828	5.57	81.0	828	4.50	65.5	829	3.34	48.7	829
265.4	268.63	04444	6.5	94.7	828	5.40	78.6	829	4.36	63.4	829	3.24	47.1	829
295.7	302.30	06434	5.8	84.2	828	4.80	69.8	829	3.87	56.3	829	2.88	41.9	829
330.1	326.07	07434	5.4	78.1	829	4.45	64.7	829	3.59	52.2	829	2.67	38.8	829
369.8	374.71	06444	4.7	68.0	829	3.87	56.3	829	3.12	45.4	829	2.32	33.8	829
412.1	404.18	07444	4.3	63.0	829	3.59	52.2	829	2.89	42.1	829	2.15	31.3	829
459.0	454.84	07634	3.8	56.0	829	3.19	46.4	829	2.57	37.4	829	1.91	27.8	829
532.5	522.70	06644	3.3	48.7	829	2.77	40.4	829	2.24	32.6	829	1.66	24.2	829
617.9	580.28	43334	3.0	45.0	829	2.50	37.3	829	2.02	30.1	829	1.50	22.4	830
660.6	652.10	07654	2.7	39.1	829	2.22	32.4	829	1.79	26.1	829	1.33	19.4	830
741.2	729.13	06664	2.4	34.9	829	1.99	28.9	829	1.60	23.4	829	1.19	17.4	830
900.3	891.61	44434	2.0	29.3	829	1.63	24.3	829	1.31	19.6	830	0.98	14.6	830
1057	1031.25	44354	1.7	25.3	829	1.41	21.0	830	1.13	17.0	830	0.84	12.6	830
1255	1243.73	64434	1.4	21.0	830	1.17	17.4	830	0.94	14.1	830	0.70	10.5	830
1450	1438.51	64354	1.2	18.2	830	1.01	15.1	830	0.81	12.2	830	0.60	9.0	830
1785	1734.92	66434	1.0	15.1	830	0.84	12.5	830	0.67	10.1	830	0.50	7.5	830

▲ Torque shown in 1,000 lb-in.

Gemini Ratings

Gemini Ratings Table

Nominal Ratio	Gemini		1750			1450			1170			870		
	Exact Ratio	Gear Code	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲
11.02	11.84	00034	147.8	1968	798	122.5	1770	866	98.8	1522	923	73.5	1237	1,009
13.85	14.68	00044	119.2	1650	829	98.8	1482	899	79.7	1276	959	59.3	1037	1,048
17.21	…	…	…	…	…	…	…	…	…	…	…	…	…	…
20.41	…	…	…	…	…	…	…	…	…	…	…	…	…	…
24.00	…	…	…	…	…	…	…	…	…	…	…	…	…	…
31.63	…	…	…	…	…	…	…	…	…	…	…	…	…	…
36.56	39.30	00334	44.5	665	872	36.9	582	922	29.8	501	984	22.1	407	1,075
43.78	48.72	00344	35.9	665	1,081	29.8	597	1,172	24.0	501	1,219	17.9	396	1,297
54.45	…	…	…	…	…	…	…	…	…	…	…	…	…	…
64.42	60.39	00444	29.0	556	1,121	24.0	487	1,186	19.4	420	1,266	14.4	341	1,383
69.63	67.96	00634	25.8	422	958	21.3	370	1,013	17.2	318	1,080	12.8	259	1,181
80.01	84.24	00644	20.8	422	1,187	17.2	370	1,256	13.9	318	1,339	10.3	259	1,464
91.41	87.76	00834	19.9	345	1,011	16.5	303	1,070	13.3	260	1,141	9.9	212	1,247
99.38	…	…	…	…	…	…	…	…	…	…	…	…	…	…
111.5	108.79	00844	16.1	345	1,253	13.3	303	1,326	10.8	260	1,414	8.0	212	1,545
121.4	130.45	03334	13.4	294	1,249	11.1	256	1,310	9.0	222	1,410	6.7	180	1,541
138.5	138.72	02344	12.6	328	1,479	10.5	287	1,565	8.4	247	1,669	6.3	189	1,713
159.8	161.70	03344	10.8	294	1,549	9.0	258	1,638	7.2	217	1,707	5.4	162	1,719
174.8	171.96	02444	10.2	274	1,535	8.4	240	1,624	6.8	204	1,710	5.1	153	1,721
193.1	193.51	02634	9.0	208	1,311	7.5	182	1,387	6.0	150	1,414	4.5	112	1,420
206.2	200.44	04344	8.7	250	1,630	7.2	217	1,707	5.8	176	1,716	4.3	131	1,725
238.2	225.57	06334	7.8	201	1,472	6.4	176	1,558	5.2	151	1,661	3.9	119	1,750
265.4	248.46	04444	7.0	199	1,608	5.8	176	1,716	4.7	142	1,723	3.5	106	1,731
295.7	301.59	07344	5.8	172	1,691	4.8	145	1,722	3.9	118	1,728	2.9	87.9	1,735
330.1	346.58	06444	5.0	150	1,693	4.2	127	1,726	3.4	103	1,731	2.5	76.6	1,737
369.8	373.84	07444	4.7	139	1,695	3.9	118	1,728	3.1	95.2	1,733	2.3	71.0	1,738
412.1	432.99	33334	4.0	127	1,750	3.3	106	1,752	2.7	85.3	1,754	2.0	63.5	1,756
459	460.44	42334	3.8	120	1,751	3.1	99.4	1,752	2.5	80.3	1,754	1.9	59.7	1,756
532.5	536.72	43334	3.3	103	1,752	2.7	85.3	1,754	2.2	68.9	1,755	1.6	51.3	1,757
617.9	570.75	42434	3.1	96.7	1,752	2.5	80.2	1,754	2.0	64.8	1,756	1.5	48.3	1,758
660.6	642.29	62334	2.7	86.1	1,754	2.3	71.3	1,755	1.8	57.6	1,757	1.4	42.9	1,758
741.2	748.68	63334	2.3	73.9	1,755	1.9	61.2	1,756	1.6	49.4	1,757	1.2	36.8	1,759
900.3	824.67	44434	2.1	67.1	1,756	1.8	55.6	1,757	1.4	44.9	1,758	1.1	33.4	1,759
1057	1001.02	47334	1.7	55.3	1,757	1.4	45.9	1,758	1.2	37.0	1,759	0.9	27.5	1,760
1255	1150.36	64434	1.5	48.2	1,758	1.3	39.9	1,758	1.0	32.2	1,759	0.8	24.0	1,760
1450	1396.36	67334	1.3	39.7	1,758	1.0	32.9	1,759	0.8	26.6	1,760	0.6	19.7	1,760
1785	1730.87	67434	1.0	32.0	1,759	0.8	26.6	1,760	0.7	21.4	1,760	0.5	15.9	1,761

▲ Torque shown in 1,000 lb-in.

Hercules Ratings

Hercules Ratings Table

Nominal Ratio	Hercules		1750			1450			1170			870		
	Exact Ratio	Gear Code	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲	RPM Out	HP	Torque ▲
11.02	…	…	…	…	…	…	…	…	…	…	…	…	…	…
13.85	…	…	…	…	…	…	…	…	…	…	…	…	…	…
17.21	…	…	…	…	…	…	…	…	…	…	…	…	…	…
20.41	…	…	…	…	…	…	…	…	…	…	…	…	…	…
24.00	…	…	…	…	…	…	…	…	…	…	…	…	…	…
31.63	…	…	…	…	…	…	…	…	…	…	…	…	…	…
36.56	…	…	…	…	…	…	…	…	…	…	…	…	…	…
43.78	47.80	00344	36.6	1115	1,779	30.3	978	1,883	24.5	841	2,008	18.2	684	2,195
54.45	59.25	00444	29.5	922	1,823	24.5	808	1,928	19.7	695	2,057	14.7	565	2,248
64.42	68.52	00544	25.5	823	1,883	21.2	722	1,992	17.1	621	2,125	12.7	505	2,322
69.63	71.21	00454	24.6	884	2,101	20.4	775	2,223	16.4	658	2,339	12.2	492	2,354
80.01	82.37	00554	21.2	798	2,195	17.6	700	2,323	14.2	571	2,347	10.6	427	2,361
91.41	88.15	00464	19.9	615	1,809	16.4	513	1,821	13.3	416	1,832	9.87	312	1,844
99.38	99.34	00654	17.6	700	2,322	14.6	586	2,346	11.8	475	2,356	8.76	355	2,367
111.5	106.59	00564	16.4	512	1,821	13.6	426	1,831	11.0	346	1,840	8.16	258	1,850
121.4	128.56	00664	13.6	427	1,831	11.3	355	1,840	9.10	288	1,847	6.77	215	1,856
138.5	…	…	…	…	…	…	…	…	…	…	…	…	…	…
159.8	158.64	03344	11.0	494	2,550	9.14	433	2,698	7.38	373	2,878	5.48	280	2,909
174.8	…	…	…	…	…	…	…	…	…	…	…	…	…	…
193.1	196.65	04344	8.9	425	2,720	7.37	373	2,878	5.95	313	2,992	4.42	233	2,995
206.2	227.44	03544	7.7	364	2,698	6.38	320	2,855	5.14	270	2,994	3.83	201	2,995
238.2	243.75	04444	7.2	351	2,786	5.95	308	2,948	4.80	252	2,994	3.57	188	2,995
265.4	274.31	06344	6.4	335	2,992	5.29	278	2,994	4.27	224	2,995	3.17	167	2,996
295.7	281.93	04544	6.2	326	2,992	5.14	270	2,994	4.15	218	2,995	3.09	162	2,996
330.1	340.02	06444	5.1	271	2,994	4.26	224	2,995	3.44	181	2,996	2.56	135	2,996
369.8	354.25	08344	4.9	260	2,994	4.09	215	2,995	3.30	174	2,996	2.46	129	2,997
412.1	439.12	08444	4.0	210	2,995	3.30	174	2,996	2.66	140	2,996	1.98	104	2,997
459.0	474.30	06644	3.7	194	2,995	3.06	161	2,996	2.47	130	2,997	1.83	96.5	2,997
532.5	507.88	08544	3.4	181	2,996	2.85	150	2,997	2.30	121	2,997	1.71	90.1	2,997
617.9	612.53	08644	2.9	150	2,996	2.37	125	2,997	1.91	101	2,997	1.42	74.8	2,999
660.6	652.70	43344	2.7	145	2,996	2.22	120	2,997	1.79	96.7	2,997	1.33	72.0	2,999
741.2	754.91	33544	2.3	125	2,997	1.92	104	2,997	1.55	83.6	2,997	1.15	62.2	2,999
900.3	910.46	63344	1.9	104	2,997	1.59	86.0	2,997	1.29	69.4	2,999	0.96	51.6	2,999
1057	1044.33	27444	1.7	90.4	2,997	1.39	75.0	2,999	1.12	60.5	2,999	0.83	45.0	2,999
1255	1217.33	74344	1.4	77.6	2,998	1.19	64.3	2,999	0.96	51.9	2,999	0.71	38.6	2,999
1450	1407.97	73544	1.2	67.1	2,999	1.03	55.6	2,999	0.83	44.9	2,999	0.62	33.4	2,999
1785	1698.08	76344	1.0	55.7	2,999	0.85	46.1	2,999	0.69	37.2	2,999	0.51	27.7	3,000

▲ Torque shown in 1,000 lb-in.

Thermal Horsepower Limits

• Consult factory for drive thermal ratings without shaft fan cooling

1750 RPM

Ratio	Orion	Titan	Jupiter	Gemini	Hercules
	W/Fan	W/Fan	W/Fan	W/Fan	W/Fan
11.02	46	*	*	*	*
13.85	56	37	23	26	*
17.21	*	*	28	*	*
20.41	61	115	109	*	*
24.00	*	126	*	*	*
31.63	48	64	*	*	*
36.56	44	64	*	69	*
43.78	47	66	84	92	99
54.45	47	73	84	*	137
64.42	45	69	103	132	161
69.63	48	*	108	128	149
80.01	49	99	108	144	180
91.41	50	*	131	146	161
99.38	50	100	*	*	166
111.5	49	100	136	163	190
121.4	46	100	133	165	209
138.5	50	101	137	165	*
159.8	49	100	126	165	161

1450 RPM

Ratio	Orion	Titan	Jupiter	Gemini	Hercules
	W/Fan	W/Fan	W/Fan	W/Fan	W/Fan
11.02	64	19	*	20	*
13.85	82	85	96	109	*
17.21	*	*	115	*	*
20.41	85	121	161	*	*
24.00	*	144	*	*	*
31.63	64	95	*	*	*
36.56	68	95	*	140	*
43.78	69	102	133	146	160
54.45	71	131	133	*	225
64.42	72	130	154	203	252
69.63	72	*	145	192	239
80.01	73	134	173	223	273
91.41	74	*	186	219	252
99.38	73	135	*	*	285
111.5	73	136	193	238	285
121.4	65	135	100	141	179
138.5	73	136	101	144	*
159.8	72	135	100	134	166

1170 RPM

Ratio	Orion	Titan	Jupiter	Gemini	Hercules
	W/Fan	W/Fan	W/Fan	W/Fan	W/Fan
11.02	93	104	*	124	*
13.85	96	134	139	159	*
17.21	*	*	167	*	*
20.41	98	163	209	*	*
24.00	*	172	*	*	*
31.63	75	119	*	*	*
36.56	83	119	*	175	*
43.78	85	124	164	199	234
54.45	86	130	174	*	293
64.42	86	126	196	257	317
69.63	86	*	179	242	305
80.01	87	135	201	242	335
91.41	89	*	217	242	317
99.38	88	136	*	*	344
111.5	87	139	223	242	346
121.4	87	139	221	242	365
138.5	87	138	221	242	*
159.8	87	138	221	242	365

870 RPM

Ratio	Orion	Titan	Jupiter	Gemini	Hercules
	W/Fan	W/Fan	W/Fan	W/Fan	W/Fan
11.02	92	133	*	167	*
13.85	93	155	189	215	*
17.21	*	*	226	*	*
20.41	95	176	257	*	*
24.00	*	182	*	*	*
31.63	93	139	*	*	*
36.56	88	139	*	208	*
43.78	90	144	197	254	311
54.45	91	147	207	*	357
64.42	91	146	225	301	377
69.63	91	*	212	289	366
80.01	92	153	231	311	391
91.41	94	*	242	309	376
99.38	93	153	*	*	380
111.5	92	155	246	322	399
121.4	93	154	244	322	414
138.5	93	156	247	322	*
159.8	93	154	245	322	414

NOTE: Application-adjusted thermal ratings must be calculated using the Ambient Temperature Adjustment Factors on **page 17** before comparing to the required load. For cooling beyond the range of values listed, contact the Factory. Thermal ratings are calculated assuming a 200ºF sump temperature, but actual sump temperatures will vary based upon exact ambient conditions and load profile.

* Contact Factory.

Ambient Temperature Adjustment Factor & Overhung Load Capacity

Ambient Temperature Adjustment Factor (Ac)

Ambient Temperature (°F)	Percent of Operational Time Per Hour		
	100%	75%	50%
below 54	1.20	1.27	1.40
55 to 69	1.10	1.17	1.29
70 to 84	1.00	1.06	1.17
85 to 99	0.85	0.90	0.99
100 to 114	0.70	0.74	0.81
above 115	Consult Factory		

Overhung Load Capacity

Distance (in) ★	Load Location Factor (L1) - High-Speed Shaft			
	Orion (qu) Titan (qu)	Orion Orion (q)	Titan, Titan (q) Jupiter, Jupiter (q) Jupiter (qu) Gemini, Gemini (q) Gemini (qu)	Hercules Hercules (q) Hercules (qu)
3/4	0.80	0.73	0.70	0.73
1	0.85	0.78	0.74	0.76
1-1/4	0.89	0.82	0.79	0.79
1-1/2	0.93	0.87	0.83	0.82
1-3/4	0.98	0.92	0.87	0.85
2	1.02	0.97	0.91	0.88
2-1/4	1.07	1.03	0.96	0.91
2-1/2	1.11	1.08	1.00	0.94
2-3/4	1.15	1.13	1.04	0.97
3	1.2	1.18	1.09	1.00
3-1/4	1.25	1.23	1.13	1.03
3-1/2	1.31	1.28	1.17	1.06
3-3/4	1.38	1.33	1.21	1.09
4	1.44	1.38	1.26	1.12
4-1/4	1.50	1.43	1.31	1.15
4-1/2	…	1.49	1.37	1.18
4-3/4	…	…	1.42	1.21
5	…	…	1.47	1.24
5-1/2	…	…	1.58	1.30
6	…	…	…	1.36
6-1/2	…	…	…	1.42

H.S. Shaft RPM ■	Overhung Load Capacity (lbf) - High-Speed Shaft			
	Orion (qu) Titan (qu)	Orion Orion (q)	Titan, Titan (q) Jupiter, Jupiter (q) Jupiter (qu) Gemini, Gemini (q) Gemini (qu)	Hercules Hercules (q) Hercules (qu)
1750	941	1,500	1,900	2,500
1430	999	1,600	2,040	2,660
1170	1,060	1,700	2,160	2,830
870	1,160	1,860	2,360	3,100
720	1,230	1,960	2,500	3,270
580	1,310	2,100	2,670	3,490

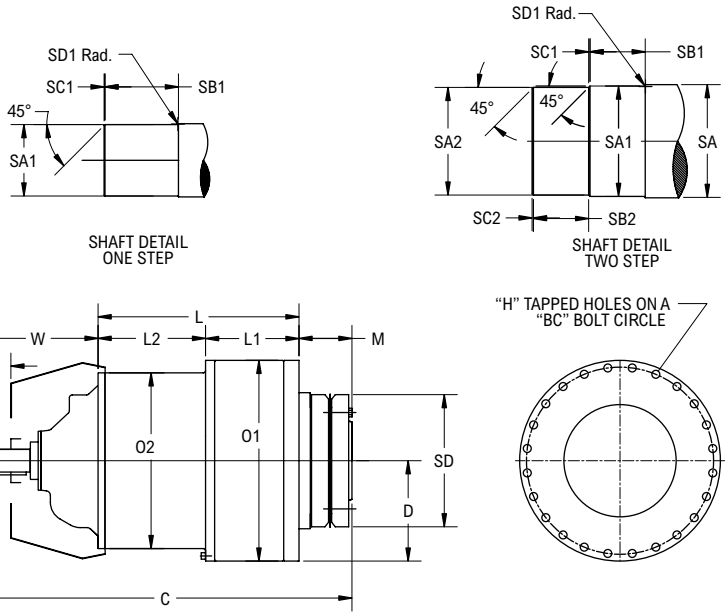
★ Interpolate for intermediate values.
■ If desired speed is not shown, use next higher speed.

Distance (in)	Orion Factor	Titan Jupiter Gemini Factor
SMP High Overhung Load LLF (L1) High-Speed Shaft — (d, t, q)		
0.25	…	0.77
0.50	…	0.80
0.75	0.81	0.82
1.00	0.85	0.85
1.25	0.89	0.88
1.50	0.93	0.90
1.75	0.97	0.92
2.00	1.01	0.95
2.25	1.04	0.97
2.50	1.08	1.00
2.75	1.12	1.02
3.00	1.16	1.05
3.25	1.20	1.07
3.50	1.24	1.10
3.75	1.27	1.12
4.00	1.31	1.15
4.25	1.35	1.17
4.50	1.39	1.20
4.75	1.43	1.22
5.00	1.47	1.25
5.25	1.54	1.28
5.50	1.62	1.30
5.75	1.70	1.32
6.00	1.78	1.35
6.50	1.85	1.40
7.00	…	1.45
7.50	…	1.50
8.00	…	1.55
8.50	…	1.60
9.00	…	1.65
SMP High Overhung Load Capacity (lbf) High-Speed Shaft		
1750	3560	5510
1430	3790	5860
1170	4020	6220
870	4400	6800
720	4650	7200
580	4950	7670

s = single reduction d = double reduction t = triple reduction q = quadruple reduction qu = quintuple reduction

One and Two-Step Shaft

Shaft Mount Flange B.C.



Dimensions (in)

Series	SA (Ø)	SA1 (Ø)	SB1	SC1	SD1	SA2 (Ø)	SB2	SC2	SD2	H	B.C. (Ø)	M
Orion	…	5.313	6.102	0.110	0.06	…	…	…	11.811	(24) M16	17.250	4.65
Orion	…	5.437	6.102	0.110	0.06	…	…	…	11.811	(24) M16	17.250	4.65
Titan	…	5.708	7.480	0.120	0.06	…	…	…	12.992	(24) M20	20.625	5.17
Titan	…	6.299	7.480	0.120	0.06	…	…	…	14.567	(24) M20	20.625	5.17
Titan	…	6.436	7.480	0.120	0.06	…	…	…	14.567	(24) M20	20.625	5.17
Titan	…	6.692	7.480	0.120	0.06	…	…	…	15.945	(24) M20	20.625	5.17
Titan	…	7.480	7.480	0.120	0.06	…	…	…	15.945	(24) M20	20.625	5.17
Jupiter	7.874	7.480	3.937	0.098	0.06	7.677	3.937	0.098	16.929	(32) M20	22.375	7.02
Jupiter	8.268	7.874	3.937	0.098	0.06	7.677	3.937	0.098	16.929	(32) M20	22.375	7.02
Gemini	10.236	9.843	4.724	0.098	0.06	9.646	4.724	0.098	20.472	(32) M24	26.125	8.67
Hercules	12.210	11.811	5.021	0.098	0.06	11.614	5.021	0.098	25.394	(32) M24	33.375	9.34

Series	NA				UA		E	
	w/o Fan		w/Fan					
	d, t, q	qu	d, t, q	qu	d, t, q	qu	d, t, q	qu
Orion	4.50	4.25	3.25	2.88	2.125	1.875	1/2 x 1/2 x 4	1/2 x 1/2 x 3-3/4
Titan	5.68	4.25	3.56	2.88	2.500	1.875	5/8 x 5/8 x 5-1/8	1/2 x 1/2 x 3-3/4
Jupiter	6.50	5.68	4.11	3.56	2.500	2.500	5/8 x 5/8 x 6	5/8 x 5/8 x 5-1/8
Gemini	6.50	5.68	4.11	3.56	2.500	2.500	5/8 x 5/8 x 6	5/8 x 5/8 x 5-1/8
Hercules	6.50	6.50	4.38	4.38	3.000	3.000	3/4 x 3/4 x 5-7/8	3/4 x 3/4 x 5-7/8

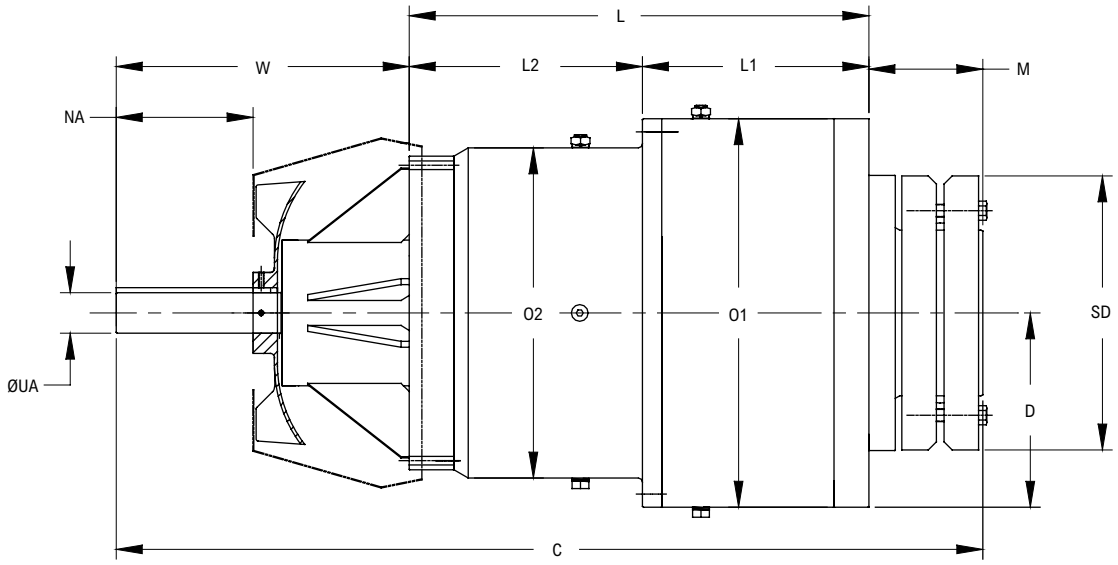
Series	C		D	L		L2		L1		O1	O2	W	
	d, t, q	qu		d, t, q	qu	d, t, q	qu	d, t, q	qu			d, t, q	qu
Orion	33.36	34.98	9.19	17.27	17.33	8.64	8.70	8.63	8.63	18.38	14.37	11.44	13.00
Titan	40.49	39.88	11.06	22.16	21.91	11.86	11.61	10.30	10.30	22.13	19.37	13.16	12.80
Jupiter	47.30	49.93	12.00	26.30	29.75	12.36	15.81	13.94	13.94	24.00	20.40	13.98	13.16
Gemini	53.38	56.01	13.88	30.73	34.18	12.36	15.81	18.37	18.37	27.75	20.40	13.98	13.16
Hercules	65.75	65.75	17.75	42.16	42.16	23.20	23.20	18.96	18.96	35.50	26.75	14.25	14.25

s = single reduction d = double reduction t = triple reduction q = quadruple reduction qu = quintuple reduction

NOTE: Dimensions subject to change. Certified dimensions of ordered material furnished upon request.

One and Two-Step Shaft — Heavy-Duty

Shaft Mount Flange B.C.



Dimensions (in)

Series	SA (Ø)	SA1 (Ø)	SB1	SC1	SD1	SA2 (Ø)	SB2	SC2	SD2	H	B.C. (Ø)	M
Orion	…	5.315	6.102	0.110	0.06	…	…	…	11.811	(24) M16	17.250	4.65
Titan	…	6.299	7.480	0.120	0.06	…	…	…	13.000	(24) M20	20.625	5.17
Jupiter	8.268	7.874	3.937	0.098	0.06	7.677	3.937	0.098	16.929	(32) M20	22.375	7.02
Gemini	10.236	9.843	4.724	0.098	0.06	9.646	4.724	0.098	20.472	(32) M24	26.125	8.67

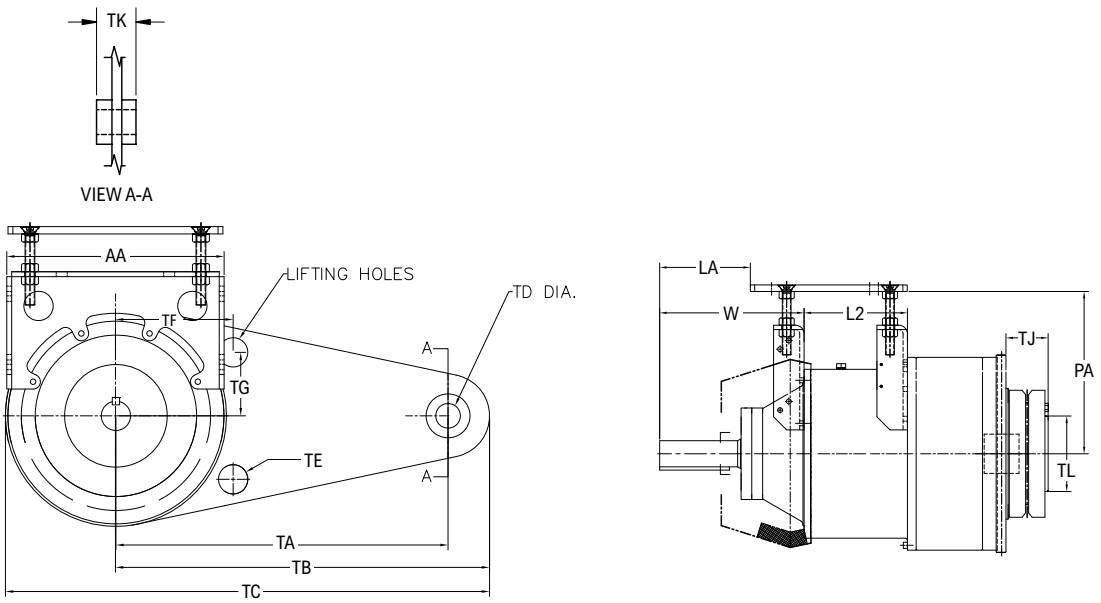
Series	NA		UA	W	E	C	D	L	L2	L1	O1	O2
	w/o Fan	w/Fan										
Orion	7.93	5.06	2.130	13.88	1/2 x 1/2 x 4	37.05	9.19	18.52	9.89	8.63	18.38	14.37
Titan	9.19	7.43	2.500	17.04	5/8 x 5/8 x 8-1/2	46.37	11.06	24.16	13.86	10.30	22.13	19.37
Jupiter	10.19	8.43	2.500	18.04	5/8 x 5/8 x 9-1/2	53.36	12.00	28.30	14.36	13.94	24.00	20.40
Gemini	10.19	8.43	2.500	18.04	5/8 x 5/8 x 9-1/2	59.44	13.88	32.73	14.36	18.37	27.75	20.40

s = single reduction d = double reduction t = triple reduction q = quadruple reduction qu = quintuple reduction

NOTE: Dimensions subject to change. Certified dimensions of ordered material furnished upon request.

Top Motor Mount & Torque Arm

Shaft Mount



Dimensions (in)

Series	AA	C		L2		LA		PA		W		TA	TB	TC
		d, t, q	qu	d, t, q	qu	d, t, q	qu	min.	max.	d, t, q	qu			
Orion	19.00	33.36	34.98	8.64	8.70	6.69	8.19	13.35	16.53	11.44	13.00	34.00	38.25	48.75
Titan	22.25	40.49	39.88	11.86	11.61	7.66	7.06	16.72	20.52	13.16	12.80	34.00	38.25	49.56
Jupiter	27.25	47.30	49.93	12.36	15.81	7.95	7.95	16.85	20.52	13.98	13.16	43.31	48.31	64.31
Gemini	22.25	53.38	56.01	12.36	15.81	7.50	7.88	16.75	20.50	13.98	13.16	59.06	65.31	81.31
Hercules	30.00	65.75	65.75	23.20	23.20	10.25	10.25	19.19	22.63	14.25	14.25	72.83	80.34	98.08

Series	TG	TF	TK	TE (Ø)	TD (Ø) ■	TJ	TH	TL (Ø)
Orion	6.000	11.00	4.00	3.00	2.520	3.650	2.220	6.890
Titan	6.500	12.00	4.00	3.00	2.520	4.170	2.669	7.284
Jupiter	8.250	12.50	4.33	3.00	5.020	6.141	4.415	10.236
Gemini	8.8750	13.50	4.00	3.00	6.375	7.291	6.041	12.598
Hercules	12.375	15.25	4.00	3.00	7.188	7.466	6.466	14.961

Motor Frame Size ▲									
Orion	Titan	Jupiter	Gemini	Hercules	Orion HD ●	Titan HD ●	Jupiter HD ●	Gemini HD ●	Hercules HD ●
213T/215T	213T/215T	213T/215T	213T/215T	213T/215T	213T/215T	213T/215T	213T/215T	213T/215T	213T/215T
254T/256T	254T/256T	254T/256T	254T/256T	254T/256T	254T/256T	254T/256T	254T/256T	254T/256T	254T/256T
284T/286T	284T/286T	284T/286T	284T/286T	284T/286T	284T/286T	284T/286T	284T/286T	284T/286T	284T/286T
324T/326T	324T/326T	324T/326T	324T/326T	324T/326T	324T/326T	324T/326T	324T/326T	324T/326T	324T/326T
364T/365T	364T/365T	364T/365T	364T/365T	364T/365T	364T/365T	364T/365T	364T/365T	364T/365T	364T/365T
404T/405T	404T/405T	404T/405T	404T/405T	404T/405T	404T/405T	404T/405T	404T/405T	404T/405T	404T/405T
444T/445T	444T/445T	444T/445T	444T/445T	444T/445T	444T/445T	444T/445T	444T/445T	444T/445T	444T/445T

Series Heavy-Duty d,t,q	AA	C	L2	LA	PA		W	TA	TB
		d, t, q	s, d, t	d, t, q	min.	max.	d, t, q		
Orion	19.00	37.05	9.89	9.56	13.35	16.53	13.88	34.00	38.25
Titan	22.25	46.37	13.86	13.53	16.72	20.52	17.04	34.00	38.25
Jupiter	23.75	53.36	14.36	13.04	16.85	20.52	18.04	43.31	48.31
Gemini	23.75	59.44	14.36	10.75	16.75	20.50	18.04	59.06	65.31

Series Heavy-Duty d,t,q	TC	TG	TF	TK	TE (Ø)	TD (Ø) ■	TJ	TH	TL (Ø)
Orion	48.75	6.000	11.00	4.00	3.00	2.520	3.650	2.220	6.890
Titan	49.56	6.500	12.00	4.00	3.00	2.520	4.170	2.669	7.284
Jupiter	64.31	8.250	12.50	4.33	3.00	5.020	6.141	4.415	10.236
Gemini	81.31	8.875	13.50	4.00	3.00	6.375	7.291	6.041	12.598

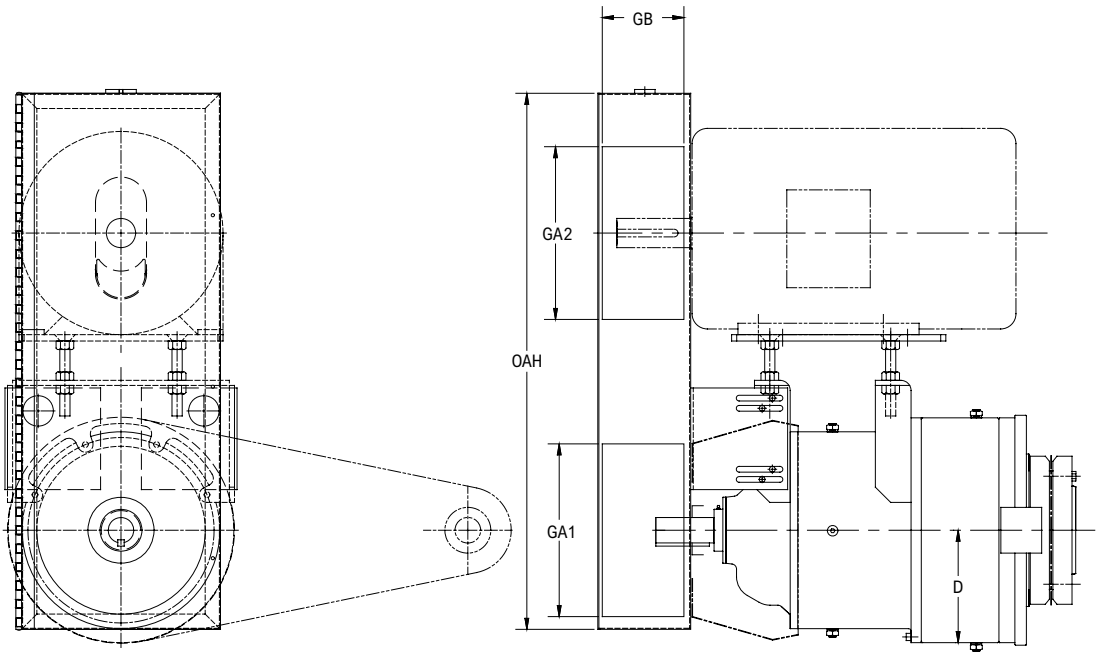
▲ Contact factory for motor frame sizes other than "T" frame motors.
■ TOLERANCES: 3.000" Diameter or less +.000/-.001
● Heavy-Duty

s = single reduction d = double reduction t = triple reduction q = quadruple reduction qu = quintuple reduction

NOTE: Dimensions subject to change. Certified dimensions of ordered material furnished upon request.

Belt Guards

Shaft Mount



Dimensions (in) ▲

Series	D	GA1	GA2	GB	OAH	Motor Size Range
	Base to Centerline	Max Sheave Ø Reducer	Max Sheave Ø Motor	Max Sheave Width	Overall Height	
Orion	9.19	15.00	15.00	8.00	43.50	215T-286T
					50.25	324T-405T
Titan	11.06	17.00	17.00	8.00	48.00	215T-286T
					53.75	324T-445T
Jupiter	12.00	17.00	17.00	8.00	48.00	215T-286T
					53.75	324T-445T
Gemini	13.88	17.00	17.00	8.00	48.00	215T-286T
					53.75	324T-445T
Hercules	17.75	19.50	19.50	8.00	53.38	215T-286T
					57.50	324T-445T

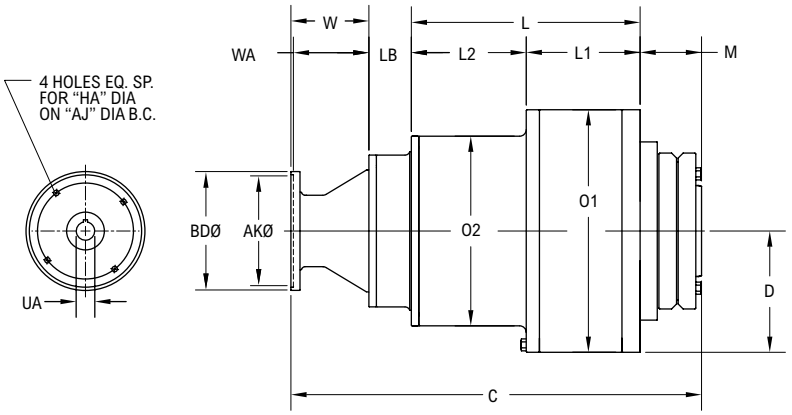
Series Heavy-Duty	D	GA1	GA2	GB	OAH	Motor Size Range
	Base to Centerline	Max Sheave Ø Reducer	Max Sheave Ø Motor	Max Sheave Width	Overall Height	
Orion	9.19	15.00	15.00	8.00	43.50	215T-286T
					50.25	324T-405T
Titan	11.06	17.00	17.00	8.00	48.00	215T-286T
					53.75	324T-445T
Jupiter	12.00	17.00	17.00	8.00	48.00	215T-286T
					53.75	324T-445T
Gemini	13.88	17.00	17.00	8.00	53.38	215T-286T
					57.50	324T-445T
Hercules	13.88	19.50	19.50	8.00	53.38	215T-286T
					57.50	324T-445T

▲ Guards based on synchronous belt with ratio not to exceed 2.5:1.

NOTE: Dimensions subject to change. Certified dimensions of ordered material furnished upon request.

Integral

Shaft Mount



Dimensions (in)

Series	Frame Size	HA (Ø)	AJ (Ø)	UA	BD (Ø)	AK (Ø)	W	WA	L	L2	L1	M	C	D	LB	O1	O2
Orion (d,t,q)	143TC-145TC	0.38	5.875	0.875	6.63	4.50	4.86	4.67	17.33	8.70	8.63	4.650	30.06	9.19	3.22	18.38	14.37
	182TC-184TC	0.50	7.250	1.125	9.00	8.50	5.91	5.72	17.33	8.70	8.63	4.650	31.11	9.19	3.22	18.38	14.37
	213TC-215TC	0.50	7.250	1.375	9.00	8.50	5.91	5.72	17.33	8.70	8.63	4.650	31.11	9.19	3.22	18.38	14.37
	254TC-256TC	0.50	7.250	1.625	9.00	8.50	5.91	5.72	17.33	8.70	8.63	4.650	31.11	9.19	3.22	18.38	14.37
	284TC-286TC	0.50	9.000	1.875	11.00	10.50	6.06	5.87	17.33	8.70	8.63	4.650	31.26	9.19	3.22	18.38	14.37

Series	Frame Size	HA (Ø)	AJ (Ø)	UA	BD (Ø)	AK (Ø)	W	WA	L	L2	L1	M	C	D	LB	O1	O2
Orion (qu)	143TC-145TC	0.38	5.875	0.875	6.63	4.50	4.86	4.67	17.33	8.70	8.63	4.650	30.06	9.19	3.22	18.38	14.37
	182TC-184TC	0.50	7.250	1.125	9.00	8.50	5.91	5.72	17.33	8.70	8.63	4.650	31.11	9.19	3.22	18.38	14.37
	213TC-215TC	0.50	7.250	1.375	9.00	8.50	5.91	5.72	17.33	8.70	8.63	4.650	31.11	9.19	3.22	18.38	14.37
	254TC-256TC	0.50	7.250	1.625	9.00	8.50	5.91	5.72	17.33	8.70	8.63	4.650	31.11	9.19	3.22	18.38	14.37
	284TC-286TC	0.50	9.000	1.875	11.00	10.50	6.06	5.87	17.33	8.70	8.63	4.650	31.26	9.19	3.22	18.38	14.37

Series	Frame Size	HA (Ø)	AJ (Ø)	UA	BD (Ø)	AK (Ø)	W	WA	L	L2	L1	M	C	D	LB	O1	O2
Titan (qu)	143TC-145TC	0.38	5.875	0.875	6.63	4.50	4.86	4.67	21.91	11.61	10.30	5.17	34.96	11.06	3.02	22.13	19.37
	182TC-184TC	0.50	7.250	1.125	9.00	8.50	5.91	5.72	21.91	11.61	10.30	5.17	36.01	11.06	3.02	22.13	19.37
	213TC-215TC	0.50	7.250	1.375	9.00	8.50	5.91	5.72	21.91	11.61	10.30	5.17	36.01	11.06	3.02	22.13	19.37
	254TC-256TC	0.50	7.250	1.625	9.00	8.50	5.91	5.72	21.91	11.61	10.30	5.17	36.01	11.06	3.02	22.13	19.37
	284TC-286TC	0.50	9.000	1.875	11.00	10.50	6.06	5.87	21.91	11.61	10.30	5.17	36.16	11.06	3.02	22.13	19.37

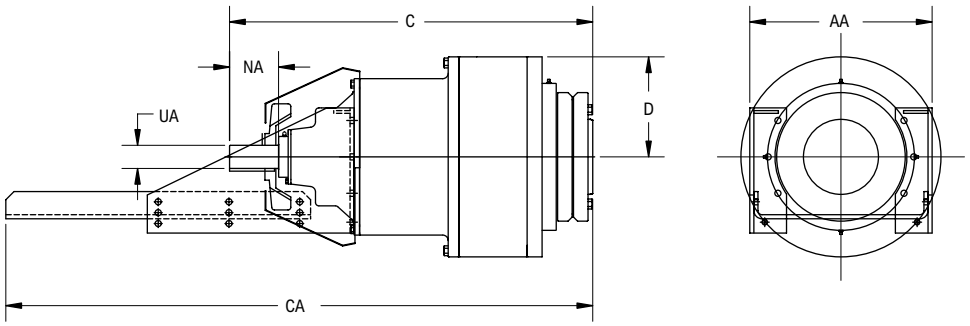
Series	Frame Size	HA (Ø)	AJ (Ø)	UA	BD (Ø)	AK (Ø)	W	WA	L	L2	L1	M	C	D	LB	O1	O2
Titan (d,t,q)	143TC-145TC	0.38	5.875	0.875	6.63	4.50	4.86	4.67	21.91	11.61	10.30	5.17	34.96	11.06	3.02	22.13	19.37
	182TC-184TC	0.50	7.250	1.125	9.00	8.50	5.91	5.72	21.91	11.61	10.30	5.17	36.01	11.06	3.02	22.13	19.37
	213TC-215TC	0.50	7.250	1.375	9.00	8.50	5.91	5.72	21.91	11.61	10.30	5.17	36.01	11.06	3.02	22.13	19.37
	254TC-256TC	0.50	7.250	1.625	9.00	8.50	5.91	5.72	21.91	11.61	10.30	5.17	36.01	11.06	3.02	22.13	19.37
	284TC-286TC	0.50	9.000	1.875	11.00	10.50	6.06	5.87	21.91	11.61	10.30	5.17	36.16	11.06	3.02	22.13	19.37

s = single reduction d = double reduction t = triple reduction q = quadruple reduction qu = quintuple reduction

NOTE: Dimensions subject to change. Certified dimensions of ordered material furnished upon request.

Scoop

Shaft Mount



Dimensions (in)

Series	Motor Range Size	C		CA		AA		D Base to Centerline
		d,t,q	qu	d,t,q	qu	d,t,q	qu	
Orion	143T-256T	33.36	34.98	53.92	55.14	16.75	15.25	9.19
	284T-326T	33.36	34.98	58.92	58.14	19.00	17.00	
Titan	143T-286T	40.49	39.88	63.33	60.03	23.00	15.25	11.06
	324T-326T	40.49	39.88	66.33	63.03	23.00	17.00	
Jupiter	143T-286T	47.30	49.93	72.82	72.76	27.25	23.00	12.00
	324T-326T	47.30	49.93	75.82	75.76	27.25	23.00	
Gemini	143T-286T	53.38	56.01	78.90	78.85	27.25	23.00	13.88
	324T-326T	53.38	56.01	81.90	81.85	27.25	23.00	
Hercules	143T-326T	65.75	65.75	91.00	91.00	27.25	27.25	17.75
	364T-365T	65.75	65.75	94.00	94.00	27.25	27.25	

Series	NA				UA ▲		Key		Avg. Wt. (lb)
	w/o Fan		w/Fan						
	d, t, q	qu	d, t, q	qu	d, t, q	qu	d, t, q	qu	
Orion	4.50	4.25	3.25	2.88	2.125	1.875	1/2 x 1/2 x 4	1/2 x 1/2 x 3-3/4	950
Titan	5.68	4.25	3.56	2.88	2.50	1.875	5/8 x 5/8 x 5-1/8	1/2 x 1/2 x 3-3/4	1,825
Jupiter	6.50	5.68	4.11	3.56	2.50	2.50	5/8 x 5/8 x 6	5/8 x 5/8 x 5-1/8	2,600
Gemini	6.50	5.68	4.11	3.56	2.50	2.50	5/8 x 5/8 x 6	5/8 x 5/8 x 5-1/8	4,853
Hercules	6.50	6.50	4.38	4.38	3.00	3.00	3/4 x 3/4 x 5-7/8	3/4 x 3/4 x 5-7/8	6,850

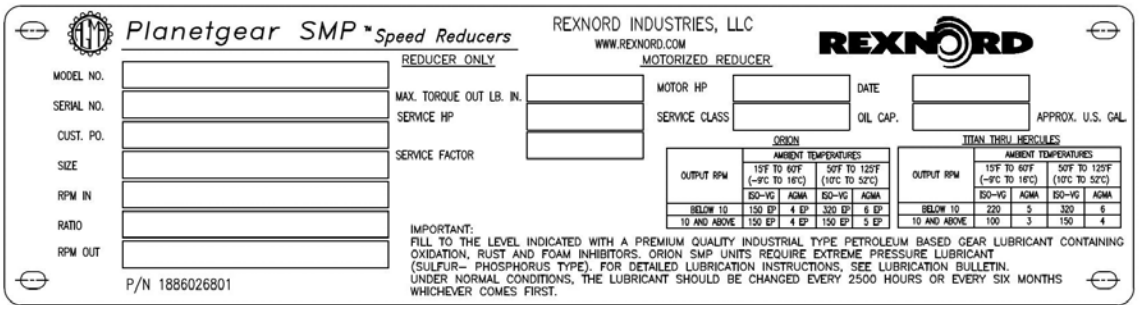
s = single reduction d = double reduction t = triple reduction q = quadruple reduction qu = quintuple reduction

NOTE: Dimensions subject to change. Certified dimensions of ordered material furnished upon request.

Installation and Maintenance Information

NOTE: The following instructions apply to all standard horizontally mounted Planetgear speed reducers. To assure long life and performance of Planetgear speed reducers, the following practices should be followed.

Nameplate



Operation of the reducer shall not differ from the application data warranted on the nameplate. Any change from this data requires submittal of new application information along with all nameplate data to the factory for engineering approval. All data changes require a new nameplate be issued and installed on the reducer. Note location of serial number and model number on the nameplate. When contacting the factory or sales representative, have the serial number and model number available as these unique numbers fully describe the reducer and allow for the fastest and most accurate exchange of information.

Spare and Repair Parts

When ordering parts, always give complete data from the nameplate on the Planetgear reducer. Model number and serial number information is necessary. Complete nameplate data will assure that you are receiving the correct parts. If a new nameplate is received with the new parts (as when a drive ratio is changed), replace the old nameplate on the drive with the new nameplate for future reference. Sun gears and carrier assemblies are stamped with a part number for easy identification.

Alignment

If reducer is received coupled to a motor, it has been aligned at the factory. However, because alignment may have been disturbed in shipment, it is best to check alignment and realign if necessary. The reliability and long life of the reducer requires careful installation of accessories and accurate alignment of the connecting shafts.

If the reducer is mounted onto a Planetgear baseplate and must be direct-coupled to a drive shaft, shimming should be done underneath the baseplate. Shim under the baseplate until the baseplate is level and all feet are on the same plane.

After first week — Check alignment of the total system and realign if necessary. Also tighten all bolts and plugs as required. Remember to remove the load from the system before attempting to service the reducer. This action reduces the possibility of unexpected motion in the system. Check coupling for alignment to make sure that settling or vibration has not caused excessive misalignment.

Coupling Alignment

Detailed instructions for installation of Rexnord Elastomer couplings are available from the factory, your Sales Engineer or local distributor. The following are general instructions:

- Correct for angular misalignment by measuring the distance from coupling hub (on motor shaft) to coupling hub (on reducer input shaft) at four places, each 90 degrees apart. Adjust or shim until the four readings are equal.
- Correct for parallel offset misalignment by placing a straight edge across the hub flange in two places, 90 degrees apart. Adjust or shim until the straight edge lays flat on both ends.
- Recheck for angular misalignment, adjust if necessary and tighten down the connected equipment.
- Install Elastomer center member elements. Tighten all cap screws to the correct torque value listed in the coupling installation sheet.

Face Mounted Scoops

The scoops have been designed to accommodate the motor weight and the starting torque based on the correct selections in this catalog and using standard 1750, 1430, 1170 and 950 AC motors. If a customer feels deflection is excessive, we suggest either placing a support under the end of the scoop, or drilling a hole in the end of the face scoop and installing a jack screw.

Pulley and Sheave Connections

Mount power takeoff as close as possible to the gear case in order to reduce the cantilever effect of overhung loads on the shaft bearings. If the power takeoff has only one hub, that hub should be on the outside with the plate closest to the seal cage of the reducer. Adjust belts to manufacturer specifications to prevent overtightening.

Installation and Maintenance Information

Gear Drive Lubrication

Read and carry out all instructions on the nameplate and review all warning tags. Determine minimum and maximum ambient temperatures the unit is to operate in. From the nameplate or the Ambient Temperature Table below, determine the proper AGMA or ISO grade lubricant for those temperature conditions and select an appropriate oil. SAE oils apply to gear lubricants only. Automotive oils are not recommended. All drives are splash-lubricated by gear rotation with even distribution to all gear meshes and bearings.

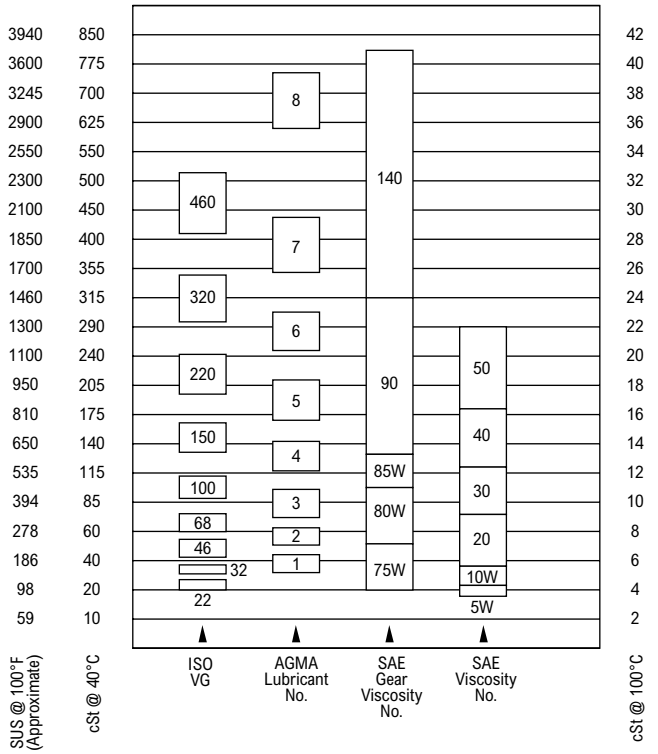
Determine specific oil quantity needed. **From the nameplate, determine the quantity of oil needed to operate the gear drive.**

Ambient Temperature – Speeds > 6 RPM Out

Ambient Temp.	Viscosity @ 40°C Centistokes	AGMA Grade #	ISO Grade #
-10°C to 15°C 15°F to 60°F	90 - 110	3	100
10°C to 50°C 50°F to 125°F	135 - 165	4	150

Ambient Temperature – Speeds < 6 RPM Out

Ambient Temp.	Viscosity @ 40°C Centistokes	AGMA Grade #	ISO Grade #
-10°C to 15°C 15°F to 60°F	198 - 242	5	220
10°C to 50°C 50°F to 125°F	288 - 352	6	320



Petroleum Based R&O Gear Oils

Maximum operating temperature of lubricants: 200°F (93°C)
AGMA 3: 15°F - 60°F AGMA 4: 50°F - 125°F

Manufacturer	AGMA Viscosity Grade 3 Lubricant	AGMA Viscosity Grade 4 Lubricant
Amoco Oil Co.	American Ind. Oil #100	American Ind. Oil #150
Chevron U.S.A. Inc.	AW Machine Oil 100	AW Machine Oil 150
Cities Service Co.	Citgo Pacemaker 100	Citgo Pacemaker 150
Conoco Inc.	Dectol R&O Oil 100	Dectol R&O Oil 150
Exxon Company, U.S.A.	Teresstic 100	Teresstic 150
Gulf Oil Corp.	Harmony 100	Harmony 150 D
Gulf Canada Limited	Harmony 66	Harmony 77
Imperial Oil Ltd.	Teresso 100	Teresso 150
Mobil Oil Corp.	DTE Heavy	DTE Extra Heavy
Phillips Petroleum Co.	Magnus Oil 100	Magnus Oil 150
Shell Oil Co.	Morlina 100	Morlina 150
Shell Canada Limited	Tellus 100	Tellus 150
Standard Oil Co. (Ohio)	Industron 66	Industron 80
Texaco Inc.	Regal Oil R&O 100	Regal Oil R&O 150
Texas Canada Inc.	Regal R&O 100	Regal R&O 150
Union Oil Co. of Calif. (East)	Unax RX 100	Unax RX 150
Union Oil Co. of Calif. (West)	Turbine Oil 100	Turbine Oil 150

Maximum operating temperature of lubricants: 200°F (93°C)
AGMA 5: 15°F - 60°F AGMA 6: 50°F - 125°F

Manufacturer	AGMA Viscosity Grade 5 198-242 Lubricant	AGMA Viscosity Grade 6 288-352 Lubricant
Amoco Oil Co.	Amer. Ind. Oil 220	Amer. Ind. Oil 320
BP Oil Co.	Energol HLP-HD 220	…
Chevron U.S.A., Inc.	Machine Oil AW 220	Machine Oil AW 320
Citgo Petroleum Corp.	Citgo Pacemaker 220	Citgo Pacemaker 320
Conoco Inc.	Dectol R&O Oil 220	Dectol R&O Oil 320
Exxon Company, U.S.A.	Teresstic 220	Teresstic 320
Houghton Internation, Inc.	hydro-Drive HP 1000	…
Imperial Oil Ltd.	Teresso 220	Teresso 320
Kendall Refining Co.	…	…
Keystone Lubricants	KLC-50	…
Lyondell Petrochemical (ARCO)	Duro 220	Duro 32
Mobil Oil Corp.	DTE Oil BB	DTE Oil AA
Pennzoil Products Company	Pennzbell AW Oil 220	Pennzbell AW Oil 320
Petro-Canada Products	Premium R&O Oil 220	Premium R&O 320
Phillips 66 Co.	Magnus Oil 220	Magnus Oil 320
Shell Oil Co.	Morlina 220	Morlina 320
Shell Canada Limited	Tellus 220	Tellus 320
Sun Oil Co.	Sunvis 9220	…
Texaco Lubricants	Regal Oil R&O 220	Regal Oil R&O 320
Unocal 76 (East)	Unax RX 220	Unax AW 320
Unocal 76 (West)	Turbine Oil 220	Turbine Oil 320
Valvoline Oil Co.	Valvoline AW ISO 220	Valvoline AW ISO 320

Operating Temperature

If the speed reducer operates under extreme conditions or is exposed to large temperature fluctuations, the use of a synthetic oil is recommended. Contact lubrication supplier for recommendations.

NOTE: The synthetic lubricant should conform to the requirements of ANSI/AGMA 9005-D94.

If the speed reducer operates in an environment where the temperature fluctuations are predictable, choose an oil viscosity that is recommended for that given temperature (i.e. for cold weather operation, use an oil that will circulate freely at all times). The pour point of the oil should be 9°F (5°C) less than the minimum external temperature during reducer operation. During hot weather, use a higher viscosity oil that will not thin out and lose its lubricating qualities.

Special measures should be taken to protect drives operating in direct sunlight at ambient temperatures over 38°F (100°F). This protection can consist of a canopy over the drive or reflective paint on the drive.

If neither is possible, a heat exchanger or other cooling device may be required to prevent the reducer sump temperature from exceeding the allowable maximum oil temperature of 200°F (93°C).

Temperatures in excess of 120°F (49°C) feel hot to the human hand. Planetgear reducers can be operated with reducer sump oil temperatures of up to 200°F (93°C).

Oil Levels

Determine specific oil quantity needed. From the nameplate or the oil capacity chart, determine the quantity of oil in gallons needed to operate the reducer.

Lubrication Changes

For normal conditions, change oil every six months or 2,500 hours, whichever comes first. If operating under abnormal conditions such as high temperature, severe duty, moisture or particle contamination, oil may need to be changed more frequently. Reference Owners' Manual for maintenance.

Gear Drive Order Form

The following information is required when ordering a Planetgear speed gear drive:

Reducer Series:

☐ Orion ☐ Titan ☐ Jupiter ☐ Gemini ☐ Hercules

Hollow Bore Size: _____

Mounting Orientation:

☐ Horizontal

☐ Inclined

- ☐ ____ Degrees High-Speed Shaft Up
- ☐ ____ Degrees Low-Speed Shaft Up

☐ Vertical

- ☐ High-Speed Shaft Up
- ☐ Low-Speed Shaft Up

☐ Rotated

- ☐ Degrees Clockwise Rotation (viewing Low Speed Shaft)
- ☐ Degrees Counterclockwise Rotation (viewing Low Speed Shaft)

Rating Information:

Torque Rating: _____

Input RPM: _____

Ratio: _____

Output RPM: _____

Motor HP: _____

Service Class/SF: _____

Standard Reducers/Non-Motorized:

Basic Configuration

☐ Gear Drive Only

☐ Top Mount (Frame Size _____)

☐ Scoop Mount (Frame Size_____)

☐ C-Face (Frame Size_____)

Optional Accessories

Couplings

Coupling Guard

Fan & Shroud

Backstop (Rotation CW or CCW)

Vertical Modification

High Temperature Seals

Extended Shafts

Motor

Double Torque Arm

866-REXNORD/866-739-6673 (Within the U.S.)
414-643-2366 (Outside the U.S.)
www.rexnord.com

Why Choose Rexnord?

When it comes to providing highly engineered products that improve productivity and efficiency for industrial applications worldwide, Rexnord is the most reliable in the industry. Commitment to customer satisfaction and superior value extend across every business function.

Delivering Lowest Total Cost of Ownership

The highest quality products are designed to help prevent equipment downtime and increase productivity and dependable operation.

Valuable Expertise

An extensive product offering is accompanied by global sales specialists, customer service and maintenance support teams, available anytime.

Solutions to Enhance Ease of Doing Business

Commitment to operational excellence ensures the right products at the right place at the right time.

REXNORD

Rexnord Company Overview
Rexnord is a growth-oriented, multi-platform industrial company with leading market shares and highly trusted brands that serve a diverse array of global end markets.

Process & Motion Control
The Rexnord Process & Motion Control platform designs, manufactures, markets and services specified, highly engineered mechanical components used within complex systems where our customers' reliability requirements and the cost of failure or downtime are extremely high.

Water Management
The Rexnord Water Management platform designs, procures, manufactures and markets products that provide and enhance water quality, safety, flow control and conservation.

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