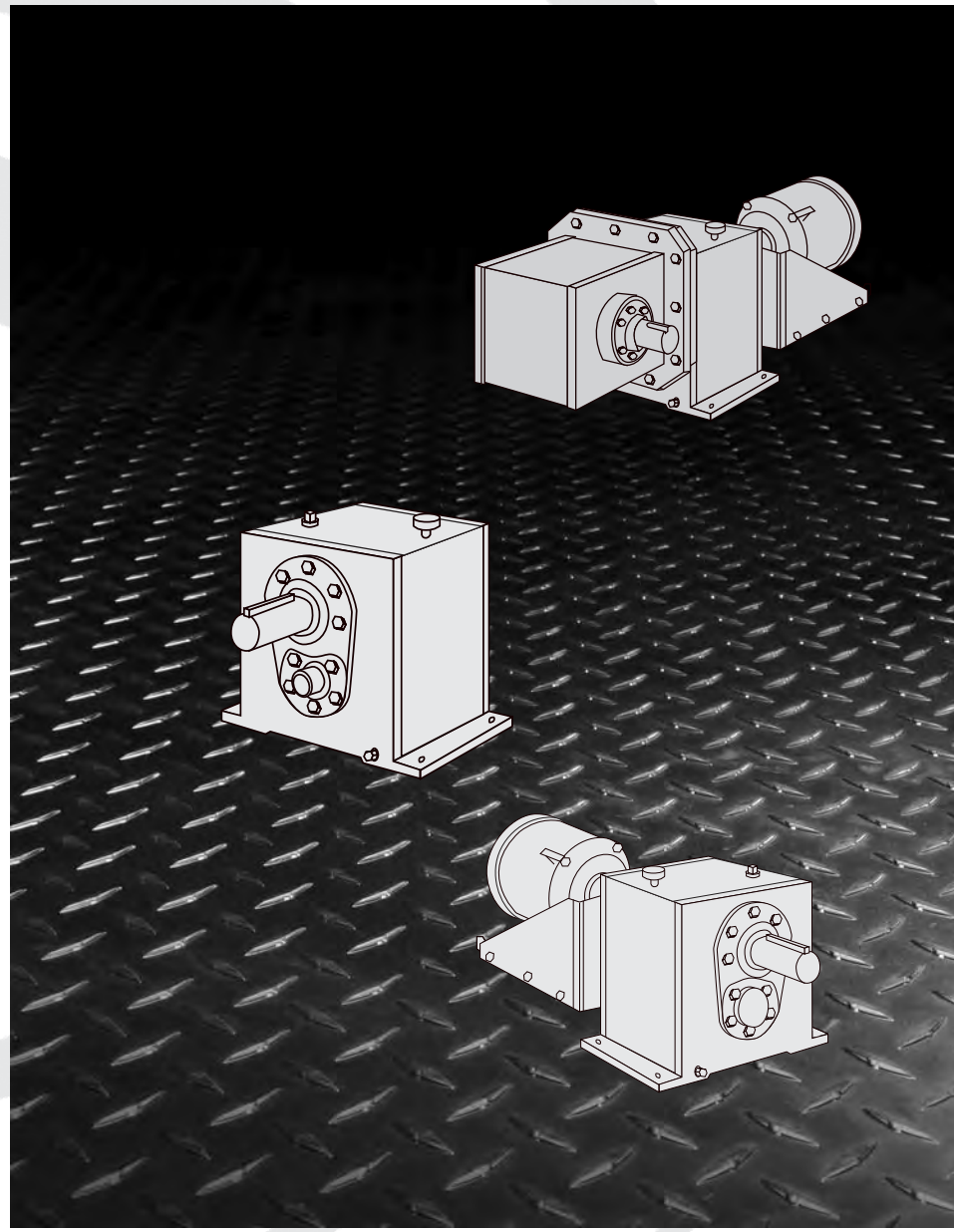
FALK™ CONCENTRIC & RIGHT ANGLE GEAR DRIVES 1000 SERIES F | SELECTION GUIDE



REXNORD

Selection Guide 311-310, December 2006

Tabel of Contents

THREE YEAR 3 THREE
HEAVY DUTY WARRANTY

Factory Warranty We're so confident in the performance and reliability of these Falk gear drives that we're backing this comprehensive offering with the best standard warranty in the business. Our full, 3-year Heavy-Duty Warranty provides "shaft-to-shaft" protection on all Falk components – including bearings and seals (warranty extends for 3 years from date of shipment). It's an industry first... and one more powerful reason why Rexnord is your ultimate bottom-line value.

Basic Information

Safety Notes

Gear Drives The power supplied to the geared drive must be equal to or less than the power for which the drive was selected using the appropriate service factor for the application. The customer must also assume the responsibility of isolating the geared drive from any vibratory or transient load induced by the driven equipment.

Install and operate Rexnord products in conformance with applicable local and national safety codes and per Rexnord installation manuals which are shipped with gear drives and are also available upon request. Suitable guards for rotating members may be purchased from Rexnord as optional accessories. Consult your local Rexnord Representative for complete details.

People Conveying Equipment Selection of Rexnord gear drives for applications whose primary purpose is the transportation of people is not approved. This includes such applications as freight or passenger elevators, escalators, man lift platforms and ski tows and ski lifts.

If the primary purpose of the application is material conveyance and occasionally people are transported, the Rexnord warranty may remain in effect provided the design and load conditions are not exceeded and certification to the appropriate safety codes and load conditions has been obtained by the system designer or end user from the appropriate enforcement authorities.

Gear Drive Ratings

All gear drive ratings in this selection guide allow 100% overload for starting loads and momentary overloads for electric motor driven applications operating ten hours per day under uniform conditions (unity service factor). For other conditions, compute an equivalent power by multiplying the actual power required for the application by the appropriate service factor.

Gear Drive Identification Tables in this selection guide identify gear drives by size, type and ratio. See Gear Drive Identification Pages 11 & 31.

Horsepower & Torque Gear drive mechanical horsepower and torque ratings are tabulated in the selection guide to permit selections for specific application requirements.

When ratings are shown in bold type in either the horsepower or torque tables, a thermal condition may exist. For more information, refer to Page 14 for concentric drives or Pages 40 & 41 for right angle drives.

Stored & Inactive Drives Each gear drive is spin-tested with a rust preventive oil that will protect parts against rust for a period of four months in an outdoor shelter or twelve months in a dry building after shipment from the Factory.

Periodically inspect stored or inactive drives and spray internal parts with rust inhibitor every six months or more often, if necessary. Drain oil before adding rust inhibitor. Indoor dry storage is recommended.

Drives ordered for extended storage can be treated at the Factory with a special preservative and sealed to rust-proof parts for periods longer than those cited above, if specified on the order.

Refer to appropriate service manual for extended storage of gear drives which have been in service.

Falk Renew Nothing lasts forever. Not even Falk products. But even after years of hard use, your Falk equipment can be restored to fully-warranted, as new condition.

Falk Renew can repair or rebuild your worn or damaged Falk equipment to the original specifications preserved in Falk engineering files. Quickly and economically. Call your Rexnord office or Rexnord-Falk Distributor for details.

Conditions Affecting Selections

Non-Standard Application Procedures

The following conditions may affect the drive selection procedure, drive size and auxiliary equipment being furnished.

Excessive Overloads The maximum momentary or starting load must not exceed 200% of rated load (100% overload). Rated load is defined as gear drive rating with a service factor of 1.0. If the maximum starting or momentary load exceeds the above conditions, compute a second equivalent power rating by dividing the peak load by two. The gear drive selected must have capacity equal to, or in excess of, the larger equivalent power rating.

Reversing Service Applications involving either more than 20 reversals per ten hour period, or less than 20 reversals per ten hour period with peak torques greater than 200% of normal load must be referred to Falk.

Brake Equipped Applications When a gear drive is equipped with a "working" brake that is used to decelerate the motion of the system and the brake is located between the prime mover and the gear drive, select the drive based on the brake rating or the highest equivalent power rating, whichever is greater. If the brake is used for holding only and is applied after the motion of the system has come to rest, the brake rating must be less than 200% of the catalog rating, refer the application to the Factory. Also refer to the Factory all applications in which the brake is located on the output shaft of the gear drive.

Oversized Prime Mover Published service factors do not cover applications that require oversize prime movers for high energy or peak loads. Refer such applications to the Factory for selection of suitable drives.

Speed Variation or Multi-Speed Applications

When selecting gear drives for variable or multi-speed applications, determine the speed which develops the greatest torque and select the gear drives on this basis. If the speed is not listed in the selection table, use the next lower output speed.

All variable or multi-speed applications will be referred to the Engineering Department to specify lubrication components for adequate lubrication at the slowest speed, without excessive heating or churning at the highest speed. It is essential that all orders indicate minimum and maximum speeds, as well as the speed duration cycles.

Effects of Solar Energy If a drive operates in the sun at ambient temperatures over 100°F (38°C), then special measures must be taken to protect the drive from solar energy. This protection can consist of a canopy over the drive or reflective paint on the drive. If neither is possible, additional cooling may be required, such as shaft fans, cooling tubes, or heat exchangers.

Overhung Loads & Thrust Loads The overhung load and thrust load ratings published in this selection guide are based on a service factor of unity and a combination of the most unfavorable conditions of rotation, speed, direction of applied load and drive loading. If the calculated load exceeds the published value, or if an overhung load and thrust load are applied simultaneously to a shaft, refer complete application information to the Factory. For more information refer to tables and guidelines on Pages 15-18 or 42-45.

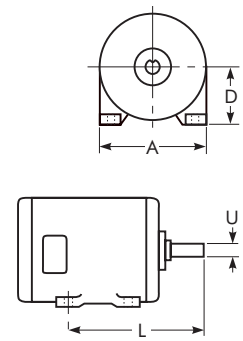
Product Modifications Rexnord can supply special product modifications to suit your application needs. Contact your local Rexnord-Falk Representative for housing modifications, special ratios, special shafts, special mounting conditions, accessory modifications and other special application requirements.

Non-Standard Motors Factory approval is required for motors and motor positions that vary from those shown in this selection guide. Motor brackets are designed to suit the standard Type T10 Steelflex couplings furnished with the drives and current standard 1750 rpm, single speed, A-C, NEMA, T series motor frames. Standard length and semi-standard length blank bracket dimensions are covered in 317-315. Use of oversized motors, the extending or modifying of motor brackets, addition of clutches, brakes, etc., require Factory approval. Normally, motor plates are recommended for these applications.

Motoreducer Selections for Non-NEMA Motors

After determining the correct drive size by using standard selection procedures, determine which T-frame motor listed in the table below is dimensionally equal to or larger than the substitute motor. If the T-frame size does not exceed the maximum listed in the table below, a standard motor bracket can be used with appropriate shim blocks. If the substitute motor is dimensionally too large for the drive selected, use a larger drive with a bracket that will accept the substitute motor, or use a motor plate, or consider the use of a semi-standard or special motor bracket.

Total cost of the reducer system should be considered in deciding the use of a motor plate or special motor bracket. Contact the local Rexnord-Falk sales office for assistance if necessary.



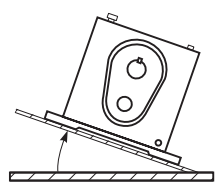
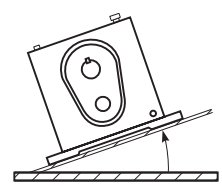
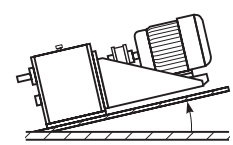
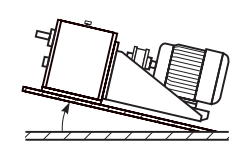
Max NEMA T-Frames for Standard Brackets

DRIVE SIZE	Max. NEMA T-Frame
1020 & 1030	215T
1040 &1050	326T
1060	365T
1070	405T
1080-1100	445T

HP Ratings & Mounting Dimensions for Standard 1750 rpm, 1964 Rerated, NEMA 60 Hertz, Open Drip Proof & Enclosed Motors

T-Frame Size	143T	145T	182T	184T	213T	215T	254T	256T	284T	286T	324T	326T	364T	365T	404T	405T	444T	445T
HP (Drip Proof)	1	1 1/2-2	3	5	7 1/2	10	15	20	25	30	40	50	60	75	100	125	150	200
HP (Enclosed)	1	1 1/2-2	3	5	7 1/2	10	15	20	25	30	40	50	60	75	. . .	100	125	150
U (Inch)	.875	.875	1.125	1.125	1.375	1.375	1.625	1.625	1.875	1.875	2.125	2.125	2.375	2.375	2.875	2.875	3.375	3.375
D (Inch)	3.50	3.50	4.50	4.50	5.25	5.25	6.25	6.25	7.00	7.00	8.00	8.00	9.00	9.00	10.00	10.00	11.00	11.00
A (Inch)	7.00	7.00	9.00	9.00	10.50	10.50	12.50	12.50	14.00	14.00	16.00	16.00	18.00	18.00	20.00	20.00	22.00	22.00
L (Inch)	8.50	9.50	10.00	11.00	12.38	13.88	16.50	18.25	18.88	20.38	21.00	22.50	23.00	24.00	26.12	27.62	30.50	32.50

Maximum Standard Allowable Tilt & Incline Mounting Limits ★

DRIVE SIZE ★	TILTED		INCLINED		DRIVE SIZE ★
	 LEFT HAND TILT	 RIGHT HAND TILT	 OUTPUT SHAFT DOWN	 OUTPUT SHAFT UP	
	Left Hand	Right Hand	H.S. Shaft Up	L.S. Shaft Up	
1020	5°	5°	5°	10°	1020
1030	5°	5°	5°	10°	1030
1040	5°	5°	5°	10°	1040
1050	5°	5°	5°	10°	1050
1060	5°	5°	5°	2°	1060
1070	5°	5°	5°	2°	1070
1080	5°	5°	5°	2°	1080
1090	5°	5°	5°	2°	1090
1100	5°	5°	5°	2°	1100

★ Maximum limits shown above apply to standard Type FC, FCB, FZ & FZB drives without modification. For applications requiring higher tilt or incline angles, refer to the Factory.

Service Factors

Table 1 — Class/Service Factor Conversion Table

Class	Service Factor
I	1.00
II	1.41
III	2.00

Service Factors

Drives may be selected by Service Factor or Load Classification. Selections may vary, so compare Service Factor against Load Classification. Selecting the lowest Service Factor from Table 1 will result in the most economical selection.

A gear drive is rated to a specific application by the use of Service Factors. Each application has its own conditions and operating requirements. These have been analyzed and catalogued. Numerical values, based on field experience. Have been assigned to these classifications for intermittent service of 3 to 10 hours per day and for service over 10 hours per day and also for the type of prime mover. . . Electric motor or engine. Values for most applications are listed by Application on Page 7, Table 4 and by Industry at right, Table 3. Refer unlisted applications to the Factory.

Since most industrial applications are electric motor driven, Service Factors are based on the use of electric motors. These factors can be easily converted to engine-drive factors as outlined in Table 2 below.

Service Factors are based on the assumption that the system is free of dynamic vibrations, as explained in the warranty section, and that maximum momentary or starting loads do not exceed 200% of the rated load. Refer applications subject to repetitive shocks and applications where exceedingly high energy load must be absorbed, as when stalling, to the Factory for special consideration.

Occasional & Intermittent Service or Engine Driven Applications

For multi-cylinder engine driven applications and all applications operating intermittently up to 3 hours per day, continuously or intermittently, require adjusted Service Factors. Determine the normal Service Factor for the application from the 3 to 10 hours per day column in Table 3 or 4. Next, in the first column of Table 2 below, find this same Service Factor in bold face type. Then, to the right under the desired hours of service and prime mover, locate the converted Service Factor.

For example, from Table 4, the Service Factor is 1.25 for a heavy duty belt conveyor. From Table 2, for the same application the following are the Service Factors for various conditions.

1. Engine driven (multi-cylinder): 3 to 10 hours per day; use 1.50
2. Engine driven (multi-cylinder): over 10 hours per day; use 1.75.
3. Motor driven (electric): up to 3 hours per day, use 1.00.

Table 2 — Service Factor Conversions

Table 3 or 4 3 to 10 Hour Service Factor	3 to 10 Hours per Day	Over 10 Hours per Day		Intermittent – Up to 3 Hours per Day †	
	Multi-Cyl. Engine ‡	Motor	Multi-Cyl. Engine ‡	Motor	Multi-Cyl. Engine ‡
1.00 (Class I)	1.25	1.25	1.50	.80	1.00
1.25	1.50	1.50	1.75	1.00	1.25
1.41 (Class II)	1.75	1.75	2.00	1.25	1.50
1.50	1.75	1.75	2.00	1.25	1.50
1.75	2.00	2.00	2.25	1.50	1.75
2.00 (Class III)	2.25	2.25	2.50	1.75	2.00

† For applications operating one half hour or less per day and applications driven by single cylinder engines, refer to Factory.

‡ These service factors are based on the assumption that the system is free from serious critical and torsional vibrations and that maximum momentary or starting loads do not exceed 200% of the normal load.

Table 3 — Service Factors Listed by Industry

For electric motor, steam turbine or hydraulic motor drives . . . recommendations are MINIMUM and normal conditions are assumed.

Industry	Service 3 to 10 Hour	Service Over 10 Hour
BREWING & DISTILLING		
Bottling Machinery	1.00	1.25
Brew Kettles, Continuous Duty	1.25	1.25
Can Filling machines	1.00	1.25
Cookers—Continuous Duty	1.25	1.25
Mash Tubs—Continuous Duty	1.25	1.25
Scale Hoppers—Frequent Starts.	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
DISTILLING	See Brewing	
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
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
LUMBER INDUSTRY		
Barkers—Spindle Feed.	1.25	1.50
Barkers—Main Drive	1.75	1.75
Carriage Drive	Refer to Factory	
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
Chains—Floor	1.50	1.50
Chains—Green.	1.50	1.75
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	1.75	1.75
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 Drives	1.25	1.50
Veneer Lathe Drives	Refer to Factory	
OIL INDUSTRY		
Chillers.	1.25	1.50
Oil Well Pumping	Refer to Factory	
Paraffin Filter Press	1.25	1.50
Rotary Kilns.	1.25	1.50
PAPER MILLS ★		
Agitator (Mixer)	...	1.50
Agitator for Pure Liquids.	...	1.25
Barking Drums, Barkers—Mech.	...	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 (incl. Slab)	...	2.00
Couch Rolls	...	1.25
Cutter.	...	2.00
Cylinder molds	...	1.25
♦Dryers —		
Paper Mach. & Conveyor Type	...	1.25
Embosser	...	1.25
Extruder	...	1.50
Fourdrinier Rolls—Lumpbreaker, Wire Turning Dandy & Return Rolls	...	1.25
Jordan	...	1.50
Kiln Drive	...	1.50
Mt. Hope & Paper Rolls	...	1.25
Platter	...	1.50
Presses (Felt & Suction)	...	1.25
Pulper (Continuous)	...	1.50
Repulper (Heavy Shock)	...	2.00
Reel (Surface Type)	...	1.25
Screens		
Chip & Rotary	...	1.50
Vibrating	...	2.00
Size Press	...	1.25
Super Calenders ●	...	1.25
Thickener & Washer		
AC Motor	...	1.50
DC Motor.	...	1.25
Vacuum Pumps	...	1.50
Wind & Unwind Stand	...	1.00
Winders (Surface Type)	...	1.25
♦Yankee Dryers	...	1.25
PLASTIC INDUSTRY		
Batch Drop Mill, 2 smooth rolls	1.25	1.25
Calenders.	1.50	1.50
Compounding Mills.	1.25	1.25
Continuous Feed, Holding & Blend Mill	1.25	1.25
Extruders	1.50	1.50
Variable Speed Drive.	1.50	1.50
Fixed Speed Drive	1.75	1.75
Intensive Internal Mixers		
Batch Mixers.	1.75	1.75
Continuous Mixers	1.50	1.50
RUBBER INDUSTRY		
Batch Drop Mill, 2 smooth rolls	1.50	1.50
Calenders.	1.50	1.50
Cracker, 2 corrugated rolls	2.00	2.00
Cracker Warmer—2 roll, 1 corrugated roll	1.75	1.75
Extruders		
Continuous Screw Operation	1.50	1.50
Intermittent Screw Operation	1.75	1.75
Holding, Feed & Blend Mill— 2 Roll	1.25	1.25
Intensive Internal Mixers		
Batch Mixers.	1.75	1.75
Continuous Mixers	1.50	1.50
Mixing Mill—2 smooth rolls (if corrugated rolls are used, use Cracker Warmer service factors)	1.50	1.50
Refiner—2 roll	1.50	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
SUGAR INDUSTRY		
Cane Knives, Crushers.	...	1.50
Mills (low speed end).	1.75	1.75
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	Refer to Factory	
Looms, Mangles, Nappers, Pads	1.25	1.50
Range Drives	Refer to Factory	
Slashers, Soapers, Spinners, Tenter Frames, Washers, Winders	1.25	1.50
WINDLASS	Refer to Factory	

★ Service Factors for paper mill applications are applied to the nameplate rating of the electric drive motor at the motor rated base speed and are consistent with those shown in TAPPI standards.

♦ Anti-friction bearings only.

● A service factor of 1.00 may be applied at base speed of a super calender operating over a speed range of part constant hp and part constant torque where the constant hp speed range is greater than 1.5 to 1. A service factor of 1.25 is applicable to super calenders operating at constant torque over the entire speed range or where the constant hp speed range is less than 1.5 to 1.

Table 4 — Service Factors Listed by Application

For electric motor, steam turbine or hydraulic motor drives . . . recommendations are MINIMUM and normal conditions are assumed.

Application	Service 3 to 10 Hour	Service Over 10 Hour
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	See Mills, Rotary	
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	See Table 3	
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 and Plastic	See Table 3	
Textile	1.25	1.50
CANE KNIVES	. . .	1.50
CAN FILLING MACHINES	1.00	1.25
CARD MACHINES (Textile)	1.25	1.50
CAR DUMPERS	1.75	2.00
CAR PULLERS	1.25	1.50
CEMENT KILNS	See Mills, Rotary	
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	See Table 3	
COLLECTORS (Sewage)	1.00	1.25
COMPRESSORS		
Centrifugal	1.00	1.25
Lobe	1.25	1.50
Reciprocating		
Multi-Cylinder	1.25	1.50
Single-Cylinder	1.75	2.00
CONCRETE MIXERS		
Continuous	1.25	1.50
Intermittent	1.25	1.50
▲CONVEYORS—Uniformly loaded or Fed:		
Apron, Assembly, Belt, Bucket, 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	Refer to Factory	
Reciprocating Shaker	1.75	2.00
COOKERS (Brewing & Distilling), (food)	1.00	1.25
COOLING TOWER FANS	Refer to Factory	
▲CRANES		
Dry Dock Cranes, Main Hoist, Bridge and Trolley Travel	Refer to Factory	
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 Table 3	
DOUBLE ACTING PUMPS		
2 or more Cylinders	1.25	1.50
Single Cylinder	Refer to Factory	
DOUGH MIXER (Food)	1.25	1.50
DRAW BENCH (Metal Mills) Carriage & Main Drive	1.25	1.50
DREDGES	See Table 3	
DRY DOCK CRANES	Refer to Factory	
DRYERS & COOLERS (Mills, Rotary)	. . .	1.50
DYEING MACHINERY (Textile)	1.25	1.50
ELEVATORS		
Bucket-Uniform Lood	1.00	1.25
Bucket-Heavy Duty	1.25	1.50
Bucket-Continuous	1.00	1.25
Centrifugal Discharge	1.00	1.25
▲Escalators	**Not Approved**	
▲Freight	**Not Approved**	
Gravity Discharge	1.00	1.25
▲Man Lifts, Passenger	**Not Approved**	
EXTRUDERS (Plastic & Rubber)	See Table 3	
FANS		
Centrifugal	1.00	1.25
Cooling Towers	Refer to Factory	
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	See Table 3	
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	See Mills, Rotary	
LAUNDRY WASHERS	1.25	1.50
LAUNDRY 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	Refer to Factory	
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	See Table 3	
MACHINE TOOLS		
Auxiliary Drives	1.00	1.25
Bending Rolls	1.25	1.50
Main Drives	1.25	1.50
Notching Press (Belted)	Refer to Factory	
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	Refer to Factory	
Slitters	1.25	1.50
Table Conveyors, Non-Reversing		
Group Drives	1.25	1.50
Non-Reversing Individual Drives	1.75	2.00
Reversing	Refer to Factory	
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
Cement Kilns, Dryers & Coolers, Pebble, Plain & Wedge Bar Mills	. . .	1.50
Tumbling Barrels	1.75	2.00
MIXER (Also see Agitators)		
Concrete, Cont. & 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	See Table 3	
ORE CRUSHERS	1.75	2.00
OVEN CONVEYORS		
Uniform	1.00	1.25
Heavy Duty	1.25	1.50
PAPER MILLS	See Table 3	
▲PASSENGER ELEVATOR	**Not Approved**	
PEBBLE MILLS	. . .	1.50
PLATE PLANERS	1.75	2.00
PRINTING PRESSES	Refer to Factory	
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	Refer to Factory	
Double Acting, 1 Cyl	Refer to Factory	
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	1.75	2.00
ROD MILLS	See Mills, Rotary	
ROTARY		
Pumps	1.00	1.25
Screens (Sand or Gravel)	1.25	1.50
RUBBER & PLASTICS INDUSTRIES	See Table 3	
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	See Table 3	
SHAKER CONVEYORS	1.75	2.00
SHEETERS (Rubber)	. . .	1.50
SINGLE ACTING PUMP		
1 or 2 Cylinders	Refer to Factory	
3 or more Cylinders	1.25	1.50
▲SKI TOWS & LIFTS	**Not Approved**	
▲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	Refer to Factory	
STOKERS	1.00	1.25
STONE CRUSHERS	1.75	2.00
SUGAR INDUSTRY	See Table 3	
TABLE CONVEYORS (Non-Reversing)		
Group Drives	1.25	1.50
Individual Drives	1.75	2.00
Reversing	Refer to Factory	
TENTER FRAMES (Textile)	1.25	1.50
TEXTILE INDUSTRY	See Table 3	
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	Refer to Factory	
WIRE		
Drawing Machines	1.25	1.50
Winding Machines	1.25	1.50

▲ Selection of Rexnord products for applications whose primary purpose is the transportation of people is not approved. This includes such applications as freight or passenger elevators, escalators, man lifts, work lift platforms and ski tows and ski lifts. If the primary purpose of the application is material conveyance and occasionally people are transported, the Factory warranty may remain in effect provided the design load conditions are not exceeded and certification to the appropriate safety codes and load conditions has been obtained by the system designer or end user from the appropriate enforcement authorities.

Contact your local Rexnord-Falk district office for proper selection of a Falk RAM mixer drive.

Load Classification Factors

Table 5 — Class/Service Factor Conversion Table

Class	Service Factor
I	1.00
II	1.41
III	2.00

Load Classification Factors

Drives may be selected by Service Factor or Load Classification. Selections may vary, so compare Service Factor against Load Classification. Selecting the lowest Service Factor from Table 5 will result in the most economical selection.

A drive is rated to a specific application by the use of Load Classification Factors. Each application has its own conditions and operating requirements. These have been analyzed and catalogued. Numerical values, based on field experience, have been assigned to these classifications for intermittent service of 3 to 10 hours per day and for service over 10 hours per day and also for the type of prime mover. . .electric motor or engine. Values for most applications are listed by Application on Page 9, Table 7 and by Industry at right, Table 6. Refer unlisted applications to the Factory.

Since most industrial applications are electric motor driven, Load Classification Factors are based on the use of electric motors. These factors can be easily converted to engine-drive factors as outlined in Table 2, Page 6.

Load Classification Factors are based on the assumption that the system is free of dynamic vibrations, as explained in the warranty section, and that maximum momentary or starting loads do not exceed 200% of the rated load. Refer applications subject to repetitive shocks and applications where exceedingly high energy load must be absorbed, as when stalling, to the Factory for special consideration.

Table 6 — Load Classification Factors Listed by Industry

(For electric motor, steam turbine or hydraulic motor drives . . . recommendations are MINIMUM and normal conditions are assumed.)

Industry	Service 3 to 10 Hour	Service Over 10 Hour
BREWING & DISTILLING		
Bottling Machinery	I	II
Brew Kettles, Continuous Duty	—	II
Can Filling machines	I	II
Cookers—Continuous Duty	—	II
Mash Tubs—Continuous Duty	—	II
Scale Hoppers—Frequent Starts	II	II
CLAY WORKING INDUSTRY		
Brick Press	III	III
Briquette Machines	III	III
Clay Working Machinery	II	II
Pug Mills	II	II
DISTILLING	See Brewing	
DREDGES		
Cable Reels	II	—
Conveyors	II	II
Cutter Head Drives	III	III
Jig Drives	III	III
Maneuvering Winches	II	—
Pumps	II	III
Screen Drives	III	III
Stackers	II	II
Utility Winches	II	—
FOOD INDUSTRY		
Beet Slicers	II	II
Bottling, Can Filling Machine	I	II
Cereal Cookers	I	II
Dough Mixers, Meat Grinders	II	II
LUMBER INDUSTRY		
Barkers—Spindle Feed	II	III
Barkers—Main Drive	III	III
Carriage Drive	Refer to Factory	
Conveyors		
Burner	II	III
Main or Heavy Duty	II	III
Main Log	III	III
Re-Saw Merry-Go-Round	II	III
Slab	III	III
Transfer	II	III
Chains—Floor	II	III
Chains—Green	II	III
Cut-Off Saws—Chain & Drag	II	III
Debarking Drums	III	III
Feeds—Edger	II	III
Feeds—Gang	III	III
Feeds—Trimmer	II	III
Log Deck	III	III
Log Hauls—Incline, Well Type	III	III
Log Turning Devices	III	III
Planer Feed	II	III
Planer Tilting Hoists	II	III
Rolls—Live—Off Bearing—Roll Cases	III	III
Sorting Table, Tipple Hoist	II	III
Transfers—Chain & Craneway	II	III
Tray Drives	II	III
OIL INDUSTRY		
Chillers	II	II
Oil Well Pumping	Refer to Factory	
Paraffin Filter Press	II	II
Rotary Kilns	II	II

Industry	Service 3 to 10 Hour	Service Over 10 Hour
PAPER MILLS		
Agitator (Mixer)	II	II
Barker—Auxiliaries—Hyd	—	III
Barker, Mechanical	—	III
Barking Drum	—	III
Beater & Pulper	—	II
Bleacher	—	II
♦Calenders	—	II
♦Calendars—Super	—	II
Converting Mach.—Except Cutters-Platers	—	II
Conveyors	—	II
Couch	—	II
Cutters, Platers	—	III
Cylinders	—	II
♦Dryers	—	II
Felt Stretchers	—	II
Felt Whippers	—	III
Jordans	—	II
Log Haul	—	III
Presses	—	II
Pulper (Continuous)	—	II
Repulper (Heavy Shock)	—	III
Stock Chests	—	II
Suction Rolls	—	II
Washers & Thickeners	—	II
Winders	—	II
RUBBER INDUSTRY		
Mixer	III	III
Rubber Calender	II	II
Rubber Mill (2 or more)	II	II
Sheeter	II	II
Tire Building Machines	Refer to Factory	
Tire, Tube Press Openers	Refer to Factory	
Tubers & Strainers	II	II
SEWAGE DISPOSAL		
Aerators	Refer to Factory	
Bar Screens	I	II
Chemical Feeders	I	II
Collectors	I	II
Dewatering Screens	II	II
Grit Collectors	I	II
Scum Breakers	II	II
Slow or Rapid Mixers	II	II
Sludge Collectors	I	II
Thickeners	II	II
Vacuum Filters	II	II
TEXTILE INDUSTRY		
Batchers, Calenders	II	II
Card Machines	II	II
Cloth Finishing Machines, Calenders, Dryers, Pads, Tenters, Washers)	II	II
Dry Cans	II	II
Dyeing Machinery	II	II
Knitting Machinery	Refer to Factory	
Looms, Mangles, Nappers	II	II
Range Drives	Refer to Factory	
Soapers, Spinners	II	II
Tenter Frames	II	II
Winders	II	II
Yarn Preparatory Machinery, (Cards, Spinners, Slashers)	II	II

♦ Anti-friction bearings only.

Table 7 — Load Classification Factors Listed by Application

(For electric motor, steam turbine or hydraulic motor drives . . . recommendations are MINIMUM and normal conditions are assumed.)

Application	Service 3 to 10 Hour	Service Over 10 Hour
AERATORS	Refer to Factory	
AGITATORS		
Paper Mills	II	II
Pure Liquids	I	II
Liquids & Solids	II	II
Liquids-Variable Density	II	II
APRON CONVEYORS		
Uniformly Loaded or Fed	I	II
Heavy Duty	II	II
APRON FEEDERS	II	II
ASSEMBLY CONVEYORS		
Uniformly Loaded or Fed	I	II
Heavy Duty	II	II
BALL MILLS	III	III
BARGE HAUL PULLERS	III	III
BARKING		
Drums	—	III
Hydraulic Auxiliaries	—	III
Mechanical	—	III
BAR SCREENS (Sewage)	I	II
BATCHERS (Textile)	II	II
BEATERS & PULPERS (Paper)	—	II
BELT CONVEYORS		
Uniformly Loaded or Fed	I	II
Heavy Duty	II	II
BELT FEEDERS	II	II
BENDING ROLLS (Machine)	II	II
BLEACHERS (Paper)	—	II
BLOWERS		
Centrifugal	I	II
Lobe	II	II
Vane	I	II
BOTTLING MACHINERY	I	II
BREWING	See Table 5	
BRICK PRESS (Clay Working)	III	III
BRIQUETTE MACHINES (Clay Working)	III	III
BUCKET		
Conveyors Uniform	I	II
Conveyors Heavy Duty	II	II
Elevators Continuous	I	II
Elevators Uniform	I	II
Elevators Heavy Duty	II	II
CALENDERS		
Rubber	II	II
Textile	II	II
CANE KNIVES	II	II
CAN FILLING MACHINES	I	II
CARD MACHINES (Textile)	II	II
CAR DUMPERS	III	—
CAR PULLERS	II	—
CEMENT KILNS	Refer to Factory	
CENTRIFUGAL		
Blowers, Compressors, Discharge Elevators, Fans or Pumps	I	II
CHAIN CONVEYORS		
Uniformly Loaded or Fed	I	II
Heavy Duty	II	II
CHEMICAL FEEDERS (Sewage)	I	II
CLARIFIERS	I	II
CLASSIFIERS	II	II
CLAY WORKING	See Table 5	
COLLECTORS (Sewage)	I	II
COMPRESSORS		
Centrifugal	I	II
Lobe	II	II
Reciprocating		
Multi-Cylinder	II	II
Single-Cylinder	III	III
CONCRETE MIXERS		
Continuous	II	II
Intermittent	I	—
CONVERTING MACHINES (Paper)	—	II
▲**CONVEYORS—Uniformly Loaded or Fed:**		
Apron, Assembly, Belt, Bucket, Chain, Flight, Oven, Screw	I	II
▲**CONVEYORS—Heavy Duty, Not Uniformly Fed**		
Apron, Assembly, Belt, Bucket, Chain, Flight, Oven, Screw	II	II
Live Roll (Package)	I	II
Reciprocating, Shaker	III	III
COOKERS (Brewing & Distilling), (food)	I	II
COOLING TOWER FANS	Refer to Factory	
COUCH (Paper)	—	II
▲**CRANES & HOISTS**		
Main Hoists		
Heavy Duty	III	III
Medium Duty	II	II
Reversing	II	II
Skip Hoists	II	II
Trolley Drive	II	II
Bridge Drive	II	II
CRUSHERS		
Ore or Stone	III	III
CUTTERS (Paper)	—	III
CYLINDERS (Paper)	—	II
DEWATERING SCREENS (Sewage)	II	II
DISC FEEDERS	I	II
DISTILLING	See Table 5	
DOUBLE ACTING PUMPS		
2 or more Cylinders	II	II
Single Cylinder	Refer to Factory	
DOUGH MIXER (Food)	II	II
DRAW BENCH (Metal Mills) Carriage & Main Drive	III	III
DREDGES	See Table 5	
DRYERS & COOLERS (Mills, Rotary)	II	II
DYEING MACHINERY (Textile)	II	II
ELEVATORS		
Bucket-Uniform Load	I	II
Bucket-Heavy Duty	II	II
Bucket-Continuous	I	II
Centrifugal Discharge	I	II
Escalators	**Not Approved**	
Freight	**Not Approved**	
Gravity Discharge	I	II
Man Lifts, Passenger	**Not Approved**	
FANS		
Centrifugal	II	II
Cooling Towers	Refer to Factory	
Forced Draft	Refer to Factory	
Induced Draft	II	II
Large (Mine, etc.)	II	II
Large Industrial	II	II
Light (Small Diameter)	I	II
FEEDERS		
Apron, Belt	II	II
Disc	I	II
Reciprocating	III	III
Screw	II	II
FELT		
Stretchers (Paper)	—	II
Whippers (Paper)	—	III
FLIGHT CONVEYORS		
Uniform	I	II
Heavy	II	II
FOOD INDUSTRY	See Table 5	
FORMING MACHINES (Metal Mills)	III	III
GENERATORS (Not Welding)	I	II
GRAVITY DISCHARGE ELEVATORS	I	II
GRIT COLLECTORS (Sewage)	I	II
HAMMER MILLS	III	III
INDUCED DRAFT FANS	II	II
KILNS (Mills, Rotary)	II	II
Cement	Refer to Factory	
LAUNDRY WASHERS	II	II
LAUNDRY TUMBLERS	II	II
LINE SHAFTS		
Heavy Shock Load	III	III
Moderate Shock Load	II	II
Uniform Load	I	II
LIVE ROLL CONVEYORS		
Package	I	II
LOBE BLOWERS OR COMPRESSORS	II	II
LOG HAULS (Paper & Lumber)	III	III
LOOMS (Textile)	II	II
LUMBER INDUSTRY	See Table 5	
MACHINE TOOLS		
Auxiliary Drives	I	II
Bending Rolls	II	II
Main Drives	II	II
Notching Press (Belted)	Refer to Factory	
Plate Planers	III	III
Punch Press (Geared)	III	III
Tapping machines	III	III
MANGLE (Textile)	II	II
MASH TUBS (Brewing & Distilling)	—	II
MEAT GRINDERS (Food)	II	II
METAL MILLS		
Draw Bench Carriages & Main Drives	III	III
Forming Machines	III	III
Pinch, Dryer & Scrubber Rolls, Reversing	Refer to Factory	
Slitters	II	II
Table Conveyors		
Non-Reversing	II	III
Reversing	Refer to Factory	
Wire Drawing & Flattening Machines	II	III
Wire Winding Machines	II	II
MILLS, ROTARY		
Ball, Pebble, Rod	III	III
Cement Kilns	Refer to Factory	
Coolers, Dryers, Kilns	II	II
Tumbling Barrels	III	III
MIXER (Also see Agitators)		
Concrete—Continuous	II	II
Concrete—Intermittent	I	—
Constant Density	I	II
Variable Density	II	II
NAPPERS (Textile)	II	II
OIL INDUSTRY	See Table 5	
ORE CRUSHERS	III	III
OVEN CONVEYORS		
Uniform	I	II
Heavy Duty	II	II
PAPER MILLS	See Table 5	
PASSENGER ELEVATORS	**Not Approved**	
PEBBLE MILLS	III	III
PLATE PLANERS	III	III
PRESSES PAPER	—	II
PROPORTIONING PUMPS	II	II
PUG MILLS (Clay)	II	II
PULLERS (Barge Haul)	III	III
PUMPS		
Centrifugal	I	II
Proportioning	II	II
Reciprocating		
Single Act., 3 or more Cyl.	II	II
Double Act., 2 or more Cyl.	II	II
Single Act., 1 or 2 Cyl.	Refer to Factory	
Rotary: Gear, Lobe, Vane	I	II
PUNCH PRESSES (Gear Driven)	III	III
RECIPROCATING Conveyors & Feeders	III	III
RECIPROCATING COMPRESSORS		
Multl-Cylinder	II	II
Single Cylinder	III	III
ROD MILLS	III	III
ROTARY		
Pumps: Gear, Lobe, Vane	I	II
Screens (Sand or Gravel)	II	II
RUBBER & PLASTICS INDUSTRIES	See Table 5	
SAND MULLERS	Refer to Factory	
SCREENS		
Air Washing	I	II
Rotary—Sand or Gravel	II	II
Traveling Water Intake	I	II
SCREW CONVEYORS		
Uniform	I	II
Heavy Duty or Feeder	II	II
SCUM BREAKERS (Sewage)	II	II
SEWAGE DISPOSAL	See Table 5	
SHAKER CONVEYORS	III	III
SHEETERS (Rubber)	II	II
SINGLE ACTING PUMP		
1 or 2 Cylinders	Refer to Factory	
3 or more Cylinders	II	II
SKI TOWS & LIFTS	**Not Approved**	
▲**SKIP HOIST**	II	II
SLAB PUSHERS	II	II
SLITTERS (Metal)	II	II
SLUDGE COLLECTORS (Sewage)	I	II
SOAPERS (Textile)	II	II
SPINNERS (Textile)	II	II
STEERING GEARS	II	II
STOCK CHESTS (Paper)	—	II
STOKERS	I	II
STONE CRUSHERS	III	III
SUCTION ROLLS (Paper)	—	II
TABLE CONVEYORS (Metal Mills)		
Non-Reversing	III	III
Reversing	Refer to Factory	
TENTER FRAMES (Textile)	II	II
TEXTILE INDUSTRY	See Table 5	
THICKENERS (Sewage)	II	II
TUMBLING BARRELS	III	III
VACUUM FILTERS (Sewage)	II	II
VANE BLOWERS	I	II
WINCHES (Dredges)	II	—
WINDERS (Textile)		
Paper	—	II
Textile	II	II
WINDLASS	II	II
WIRE		
Drawing Machines	II	III
Winding Machines	II	II

▲ See Page 7 for footnotes.

Types FC & FZ Concentric Shaft
How to Select
Rating Table Method by Horsepower or Torque

Selection Information

Use the Horsepower or Torque Rating Method to make Type FC or FZ concentric drive selections.

NOTE: If you have an unusual application involving any of the following conditions, refer to Pages 4 & 5.

- Excessive Overloads
- Reversing Service
- Brake Equipped Applications
- Oversized Prime Movers
- Multi-Speed or Variable Speed Applications
- Excessive Ambient Temperatures
- Excessive Overhung Loads or Thrust Loads
- Product Modifications
- Non-Standard Motors or Prime Movers
- Non-Horizontal Mounting Positions

How to Select by Horsepower

1. Determine Service Factor or Load Classification Factor — See Pages 6 & 7 or 8 & 9.
2. Calculate Equivalent Horsepower — Multiply the actual horsepower to be transmitted by the Service Factor.
3. Determine Drive Input Speed, Output Speed and Ratio.
4. Determine Drive Size — Select the nearest standard ratio from the Horsepower Rating Tables starting on Page 12. Opposite the high speed shaft rpm, and the desired ratio and output speed, trace right to a horsepower capacity equal to or in excess of the equivalent horsepower calculated in Step 2. Read the size of drive at the top of the column. When the required input speed falls between two tabulated input speeds of a drive with the same number of gear reductions, interpolate to determine drive rating.
5. Select Drive Configuration — Type FC or FZ. See Pages 20 & 21.
6. Check Thermal Horsepower Ratings — When the horsepower rating is shown in **bold** type, check the drive thermal rating on Page 14. For ambient temperatures above 100°F (38°C) or altitudes above sea level, refer to correction factors on Page 14. If the thermal horsepower rating is less than the actual required horsepower (without service factor), check thermal rating with cooling fan. Where the thermal rating exceeds the actual required horsepower, the drive selection is satisfactory. However, when the cooling fan ratings are still not adequate, consider the use of an electric fan or pump and cooler. Contact the district sales office for ratings, selections and pricing.
7. Check Overhung Loads and Thrust Capacity — See Pages 15-18 for instructions.
8. Check Reducer Dimensions — Pages 20 thru 21.
9. Place the Order — See Page 11 for How to Order.

Example

Application: Belt conveyor, heavy duty, headshaft speed is 62 rpm.

Duty Cycle: 16 hours per day.

Driver: 5 hp, 1750 rpm electric motor.

Output: 5" pitch diameter sprocket with a 2:1 chain drive. The sprocket is to be mounted 1.75" from the L.S. Shaft seal cage.

1. From Table 4, Page 7 . . . Motor-driven, heavy duty belt conveyor at 16 hours per day requires a 1.50 Service Factor.
2. Calculate equivalent horsepower — 1.50 x 5 = 7.5 hp.
3. The headshaft speed must be multiplied by the chain drive to obtain the gear drive output speed. (62 rpm x 2 = 126 rpm) Input speed is 1750 rpm, output required is 125 rpm, resulting in a required nominal ratio of 13.95:1.
4. Refer to the Concentric Drive Horsepower Selection Table on Page 12 for ratios 1.50 through 31.39. Since the 1030F2 rates 9.91 hp, and is the first drive to exceed the equivalent hp requirement of 7.5 hp, the 1030F2 is the correct selection.
5. Since the 9.91 mechanical rating is not shown in **bold** type, the thermal rating exceeds the mechanical rating. (If it were in **bold** type, check the thermal rating on Page 14.)
6. Check the L.S. Shaft overhung. Calculate the overhung load using the formula on Page 15.

$$\frac{126{,}000 \times 5 \times 1.00 \times 1.08}{5.0 \times 125} = 1089 \text{ lb}$$

7. Check thrust load. For this example there is no thrust load.
8. Dimensions and weights for this reducer are given on Page 20.
9. Place the order for the reducer per instructions on Page 11.

How to Select by Torque

Simply follow the steps outlined in the horsepower method, substituting torque values for horsepower.

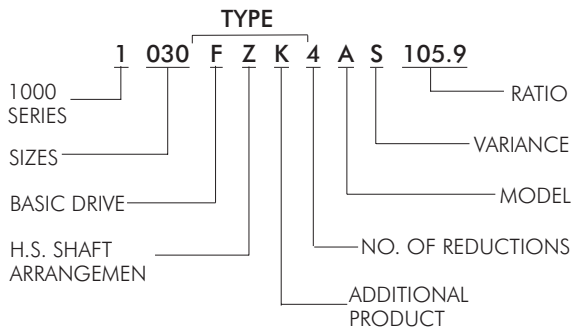
When the torque rating is shown in **bold** type, convert the actual required torque to horsepower and check against the thermal rating on Page 14. To convert, use the torque (lb.-in.) and speed (rpm) at low speed shaft of the drive in the following formula:

$$hp = \frac{\text{torque} \times \text{output speed}}{63{,}000}$$

Types FC & FZ Concentric Shaft
How to Order

Gear Drive Identification

Drives in this selection guide, product nameplates and customer orders are identified through the following nomenclature. Use the appropriate designations when placing an order or inquiring with a Rexnord Sales Engineer.



Sizes

1020 & 1030 — Cast iron housings

H.S. Shaft Arrangement

C — Speed Reducer
Z — Motoreducer with motor bracket & H.S. coupling
M — Motoreducer with motor plate & H.S. coupling

Additional Product Description

K — Torque rated basic drive

Reductions

2, 3, & 4

Model

A, B, C, etc.

Variance Symbol

A — Drive with backstop
S — Modified or special drive

Ratio

Exact ratio to four digits

How to Order Type F Gear Drives

The following information is required to quote or ship to your requirements.

Drive

A. Size and Type from selection tables.
B. Ratio.
C. Input and/or output speed (rpm).
D. Horsepower — Motor or brake
E. Service Factor for application.
F. Mounting position —Horizontal. See Page 5 for tilt limits.
G. Auxiliary equipment — Bed plate, couplings, backstop, etc.
H. Thrust and overhung loads —Specify type and amount.

Motor — Prime Mover

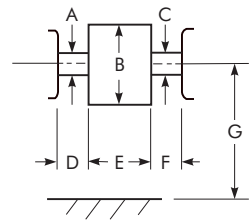
A. Type — Motor or engine.
B. Horsepower.
C. Speed — rpm.
D. Frame size — Dimension prints if Rexnord is to furnish mounting surface and/or mount the equipment.
E. Motor — driver characteristics, e.g. enclosure, modifications and accessories, altitude, brake, etc.
F. Furnished by: Rexnord... Purchaser...
G. Fitted by: Rexnord... Purchaser...

Driven Machine

A. Required horsepower or torque.
B. RPM
C. Application description —Belt conveyor, agitator, etc.
D. Service —Duty cycle, hours per day, reversals per minute if reversing.
E. Ambient temperature and operating conditions — Outdoor, taconite dust, etc.

Auxiliary Equipment

A. Motors — If Rexnord is to furnish, specify complete information, e.g. current characteristics, enclosure, modifications, accessories, etc.
B. Couplings — Specify size, type, driver or driven hub bore and keyway size.
C. Backstop —Specify direction of rotation of the low speed shaft (clockwise or counter clockwise) when looking toward the drive from the low speed end.
D. Motor Mount — Specify complete motor information, required belt centers and mounting arrangement.
E. Motor Plate — Specify complete motor, auxiliary equipment and coupling information.
F. Coupling Guards — Furnish description of couplings or other equipment to be guarded and all dimensions A-G below.



Types FC2 & FZ2 Concentric Shaft
Horsepower & Torque Ratings
Double Reduction — Ratios 1.50 through 31.39

(TORQUE IS IN POUND INCHES AT LOW SPEED SHAFT . . . MULTIPLY VALUES LISTED BELOW BY 1000)

High Speed Shaft rpm	Nominal Ratios ± 4%	Approx. L.S. Shaft rpm	HORSEPOWER DRIVE SIZE ♦ 1020	HORSEPOWER DRIVE SIZE ♦ 1030	TORQUE DRIVE SIZE ♦ 1020	TORQUE DRIVE SIZE ♦ 1030
1750	**1.50**	**1170**	10.8	21.5	.557	1.16
	1.84	**950**	9.58	19.1	.614	1.26
	2.25	**780**	8.58	17.2	.664	1.38
	2.76	**640**	7.57	15.1	.724	1.45
	3.38	**520**	6.52	13.1	.765	1.57
	4.13	**420**	5.69	11.3	.826	1.65
	5.06	**350**	7.47	21.1	1.36	3.95
	6.20	**280**	6.40	18.3	1.45	4.16
	7.59	**230**	5.60	15.9	1.53	4.40
	9.30	**190**	4.80	13.9	1.62	4.63
	11.39	**155**	4.14	11.9	1.71	4.95
	13.95	**125**	3.54	9.91	1.81	5.00
	17.09	**100**	3.09	8.05	1.91	5.03
	20.93	**84**	2.70	6.63	2.00	5.04
	25.63	**68**	2.33	4.75	2.11	4.45
	31.39	**56**	1.70 ‡	4.05	1.92 ‡	4.53
1430	**1.50**	**950**	9.25	18.5	.583	1.23
	1.84	**780**	8.23	16.4	.645	1.32
	2.25	**640**	7.37	14.7	.698	1.44
	2.76	**520**	6.50	13.0	.761	1.53
	3.38	**420**	5.60	11.2	.804	1.65
	4.13	**350**	4.89	9.75	.869	1.74
	5.06	**280**	6.42	18.1	1.43	4.15
	6.20	**230**	5.50	15.8	1.52	4.40
	7.59	**190**	4.81	13.7	1.61	4.64
	9.30	**155**	4.13	12.0	1.71	4.89
	11.39	**125**	3.56	9.82	1.80	4.99
	13.95	**100**	3.04	8.15	1.91	5.03
	17.09	**84**	2.65	6.62	2.01	5.07
	20.93	**68**	2.32	5.47	2.10	5.09
	25.63	**56**	2.00	4.00	2.22	4.59
	31.39	**45**	1.46 ‡	3.40	2.02 ‡	4.65
1170	**1.50**	**780**	7.96	15.8	.614	1.28
	1.84	**640**	7.08	14.2	.678	1.40
	2.25	**520**	6.34	12.7	.734	1.52
	2.76	**420**	5.60	11.2	.802	1.61
	3.38	**350**	4.82	9.66	.846	1.74
	4.13	**280**	4.21	8.39	.914	1.83
	5.06	**230**	5.52	15.6	1.50	4.37
	6.20	**190**	4.73	13.6	1.60	4.63
	7.59	**155**	4.14	11.8	1.69	4.89
	9.30	**125**	3.55	10.0	1.79	4.98
	11.39	**100**	3.06	8.09	1.90	5.03
	13.95	**84**	2.62	6.71	2.01	5.06
	17.09	**68**	2.28	5.44	2.11	5.09
	20.93	**56**	2.00	4.50	2.22	5.12
	25.63	**45**	1.72	3.35	2.33	4.69
	31.39	**37**	1.26 ‡	2.85	2.13 ‡	4.77
870	**1.50**	**580**	6.37	12.0	.660	1.31
	1.84	**470**	5.67	10.9	.731	1.44
	2.25	**390**	5.08	9.63	.791	1.55
	2.76	**320**	4.48	8.64	.862	1.67
	3.38	**260**	3.86	7.36	.911	1.78
	4.13	**210**	3.37	6.38	.984	1.87
	5.06	**175**	4.42	12.0	1.62	4.52
	6.20	**140**	3.79	10.9	1.72	4.99
	7.59	**115**	3.31	9.00	1.82	5.01
	9.30	**95**	2.84	7.53	1.93	5.04
	11.39	**77**	2.45	6.07	2.04	5.07
	13.95	**62**	2.10	5.03	2.16	5.10
	17.09	**50**	1.83	4.08	2.28	5.13
	20.93	**42**	1.60	3.37	2.38	5.15
	25.63	**34**	1.32	2.61	2.41	4.92
	31.39	**28**	1.01‡	2.20	2.30 ‡	4.95
720	**1.50**	**470**	5.53	10.0	.693	1.32
	1.84	**390**	4.92	9.12	.766	1.46
	2.25	**320**	4.41	8.06	.829	1.57
	2.76	**260**	3.89	7.22	.905	1.69
	3.38	**210**	3.35	6.14	.955	1.79
	4.13	**175**	2.93	5.33	1.03	1.89
	5.06	**140**	3.84	10.0	1.70	4.55
	6.20	**115**	3.29	9.06	1.81	5.01
	7.59	**95**	2.88	7.49	1.91	5.04
	9.30	**77**	2.47	6.26	2.03	5.07
	11.39	**62**	2.13	5.05	2.14	5.10
	13.95	**50**	1.82	4.18	2.27	5.12
	17.09	**42**	1.59	3.39	2.39	5.15
	20.93	**34**	1.34	2.80	2.41	5.17
	25.63	**28**	1.10	2.22	2.43	5.05
	31.39	**22**	.875 ‡	1.86	2.40 ‡	5.05
580	**1.50**	**390**	4.70	8.18	.731	1.34
	1.84	**320**	4.18	7.43	.808	1.47
	2.25	**260**	3.75	6.56	.876	1.58
	2.76	**210**	3.31	5.88	.956	1.71
	3.38	**175**	2.85	5.00	1.01	1.81
	4.13	**140**	2.49	4.33	1.09	1.90
	5.06	**115**	3.26	8.18	1.79	4.62
	6.20	**95**	2.80	7.35	1.91	5.05
	7.59	**77**	2.44	6.08	2.01	5.08
	9.30	**62**	2.10	5.08	2.14	5.10
	11.39	**50**	1.81	4.09	2.26	5.13
	13.95	**42**	1.55	3.39	2.40	5.16
	17.09	**34**	1.29	2.74	2.41	5.17
	20.93	**28**	1.08	2.26	2.41	5.18
	25.63	**22**	.886	1.84	2.43	5.20
	31.39	**18**	.714 ‡	1.55	2.43 ‡	5.23

♦ Mechanical hp and torque ratings shown in **bold** type exceed the drive thermal hp ratings. Check required hp (without service factor) against thermal hp ratings on Page 14. When selecting drive by torque method, convert required torque (without service factor) to hp and check against thermal ratings on Page 14. For ratings at speed higher than 1750 rpm and for variable speed applications, consult Factory or local Sales office. For speeds below 580 rpm, reduce hp rating proportionately or use torque for 580 rpm.

‡ Size 1020 with 31.39:1 ratio is a triple reduction (FC3 or FZ3) drive.

Types FC3 & 4/FZ3 & 4 Concentric Shaft

Horsepower & Torque Ratings

Triple & Quadruple Reduction — Ratios 38.44 through 194.6

(TORQUE IS IN POUND INCHES AT LOW SPEED SHAFT . . . MULTIPLY VALUES LISTED BELOW BY 1000)

High Speed Shaft rpm	Nominal Ratios ± 4%	Approx. L.S. Shaft rpm	HORSEPOWER DRIVE SIZE ♦ 1020	HORSEPOWER DRIVE SIZE ♦ 1030	TORQUE DRIVE SIZE ♦ 1020	TORQUE DRIVE SIZE ♦ 1030
TRIPLE REDUCTION						
1750	**38.44**	**45**	1.47	3.15	2.05	4.41
	47.08	**37**	1.26	2.84	2.16	4.84
	57.66	**30**	1.09	2.51	2.31	5.15
	70.62	**25**	.944	2.03	2.42	5.19
	86.50	**20**	.794	1.68	2.43	5.21
	105.9	**16.5**	.649	1.36	2.44	5.24
	129.7	**13.5**	. . .	1.12	. . .	5.24
	158.9	**11.0**	. . .	.913	. . .	5.27
	194.6	**9.0**	. . .	.715‡	. . .	5.01‡
1430	**38.44**	**37**	1.26	2.70	2.15	4.63
	47.08	**30**	1.09	2.44	2.28	5.09
	57.66	**25**	.935	2.07	2.43	5.20
	70.62	**20**	.776	1.67	2.43	5.23
	86.50	**16.5**	.650	1.38	2.44	5.24
	105.9	**13.5**	.532	1.11	2.44	5.23
	129.7	**11.0**	. . .	.919	. . .	5.27
	158.9	**9.0**	. . .	.748	. . .	5.28
	194.6	**7.5**	. . .	.586‡	. . .	5.03‡
1170	**38.44**	**30**	1.08	2.33	2.26	4.88
	47.08	**25**	.935	2.04	2.40	5.20
	57.66	**20**	.767	1.70	2.43	5.21
	70.62	**16.5**	.637	1.37	2.44	5.24
	86.50	**13.5**	.533	1.13	2.44	5.25
	105.9	**11.0**	.436	.914	2.45	5.26
	129.7	**9.0**	. . .	.754	. . .	5.28
	158.9	**7.5**	. . .	.613	. . .	5.29
	194.6	**6.0**	. . .	.481‡	. . .	5.05‡
870	**38.44**	**22**	.864	1.85	2.43	5.21
	47.08	**18**	.707	1.52	2.44	5.21
	57.66	**15**	.573	1.27	2.44	5.24
	70.62	**12.5**	.475	1.02	2.45	5.25
	86.50	**10.0**	.398	.844	2.45	5.27
	105.9	**8.3**	.325	.682	2.45	5.28
	129.7	**6.8**	. . .	.562	. . .	5.29
	158.9	**5.5**	. . .	.457	. . .	5.30
	194.6	**4.5**	. . .	3.59‡	. . .	5.06‡
720	**38.44**	**18**	.717	1.54	2.44	5.24
	47.08	**15**	.586	1.27	2.44	5.26
	57.66	**12.5**	.475	1.05	2.45	5.23
	70.62	**10.0**	.394	.847	2.45	5.27
	86.50	**8.3**	.330	.700	2.46	5.28
	105.9	**6.8**	.270	.566	2.46	5.30
	129.7	**5.5**	. . .	.466	. . .	5.30
	158.9	**4.5**	. . .	.379	. . .	5.31
	194.6	**3.8**	. . .	.298‡	. . .	5.08‡
580	**38.44**	**15**	.579	1.24	2.44	5.24
	47.08	**12.5**	.473	1.02	2.44	5.25
	57.66	**10.0**	.383	.852	2.45	5.27
	70.62	**8.3**	.318	.684	2.46	5.28
	86.50	**6.8**	.266	.565	2.46	5.29
	105.9	**5.5**	.217	.456	2.46	5.30
	129.7	**4.5**	. . .	.376	. . .	5.31
	158.9	**3.8**	. . .	.306	. . .	5.33
	194.6	**3.0**	. . .	.241‡	. . .	5.10‡

High Speed Shaft rpm	Nominal Ratios ± 4%	Approx. L.S. Shaft rpm	HP DRIVE SIZE ♦ 1030	TORQUE DRIVE SIZE ♦ 1030
QUADRUPLE REDUCTION				
1750	**238.4**	**7.5**	.621	5.29
	291.9	**6.0**	.511	5.30
	357.5	**5.0**	.425	5.30
	437.9	**4.0**	.341	5.31
	536.3	**3.2**	.282	5.32
	656.8	**2.7**	.228	5.34
	804.5	**2.2**	.187	5.33
	985.3	**1.8**	.152	5.33
	1207	**1.5**	.128	5.36
1430	**238.4**	**6.0**	.508	5.30
	291.9	**5.0**	.418	5.31
	357.5	**4.0**	.348	5.31
	437.9	**3.2**	.279	5.32
	536.3	**2.7**	.231	5.34
	656.8	**2.2**	.186	5.33
	804.5	**1.8**	.153	5.33
	985.3	**1.5**	.125	5.37
	1207	**1.2**	.104	5.33
1170	**238.4**	**5.0**	.416	5.30
	291.9	**4.0**	.343	5.32
	357.5	**3.2**	.285	5.32
	437.9	**2.7**	.229	5.33
	536.3	**2.2**	.189	5.34
	656.8	**1.8**	.152	5.33
	804.5	**1.5**	.126	5.37
	985.3	**1.2**	.102	5.35
	1207	**1.0**	.085	5.32
870	**238.4**	**3.8**	.310	5.31
	291.9	**3.0**	.255	5.32
	357.5	**2.5**	.212	5.32
	437.9	**2.0**	.170	5.32
	536.3	**1.6**	.141	5.36
	656.8	**1.3**	.114	5.37
	804.5	**1.1**	.093	5.33
	985.3	**.90**	.076	5.36
	1207	**.75**	.064	5.39
720	**238.4**	**3.0**	.257	5.32
	291.9	**2.5**	.212	5.34
	357.5	**2.0**	.176	5.34
	437.9	**1.6**	.141	5.34
	536.3	**1.3**	.117	5.37
	656.8	**1.1**	.094	5.35
	804.5	**.90**	.077	5.33
	985.3	**.75**	.063	5.37
	1207	**.60**	.053	5.40
580	**238.4**	**2.5**	.207	5.32
	291.9	**2.0**	.171	5.35
	357.5	**1.6**	.142	5.35
	437.9	**1.3**	.114	5.35
	536.3	**1.1**	.094	5.36
	656.8	**.90**	.076	5.37
	804.5	**.75**	.062	5.33
	985.3	**.60**	.051	5.40
	1207	**.50**	.042	5.31

♦ Since thermal hp ratings for drives listed above exceed mechanical hp ratings, it is not necessary to check for thermal limitations. For ratings at speeds higher than 1750 rpm and for variable speed applications, consult Factory or local Sales office. For speeds below 580 rpm, reduce hp rating proportionately or use torque for 580 rpm.

‡ Size 1030 with 194.6:1 ratio is a quadruple reduction (FC4 or FZ4) drive.

Types FC2 & FZ2 Concentric Shaft
Thermal Horsepower Ratings ‡

Double Reduction — Ratios 1.50 through 4.13

Thermal Horsepower

Thermal horsepower is the actual horsepower (without service factor) that a drive will transmit continually for three hours or more without overheating.

Thermal ratings need not be considered when the continuous operating period does not exceed three hours and the shutdown time equals or exceeds the running time. However, when the running time exceeds the shutdown time, selection must be made on a basis of adequate thermal rating.

Checking the thermal horsepower is extremely important, for if the drive creates heat faster than it can be dissipated, severe damage may occur.

When the horsepower or torque appears in **bold** type, compare the actual horsepower required (without Service Factor) with the thermal horsepower capacity. If the actual load exceeds the thermal capacity, a fan or pump and cooler may be added or a larger drive may be required.

For ambient temperatures above 100°F (38°C) or altitudes above sea level see correction factor tables at right.

High Speed Shaft rpm	Nominal Ratios ± 4%	Approx. L.S. Shaft rpm	DRIVE SIZE WITHOUT FAN 1030
1750	1.50	1170	18
	1.84	950	20
	2.25	780	21
	2.76	640	22
	3.38	520	23
	4.13	420	25
1430	1.50	950	20
	1.84	780	22
	2.25	640	24
	2.76	520	26
	3.38	420	28
	4.13	350	30
1170	1.50	780	22
	1.84	640	25
	2.25	520	28
	2.76	420	30

‡ This is actual hp (without service factor) that drive will transmit continually for three hours or more without overheating. For thermal ratings of drives mounted other than horizontal, refer to Factory.

Cooling Fan

If a drive creates heat faster than it can be dissipated, severe damage may occur. Rexnord cooling fans provide a simple, inexpensive way of permitting greater utilization of the mechanical rating of drives by lowering operating temperatures, thus increasing thermal horsepower capacity. Cooling fans have been successfully used on electric motors and other related machinery for many years and on Rexnord drives in paper mills, on desert overland conveyors, steel mills, and other applications for over a decade. Less than one quarter of one percent catalogued horsepower rating is required to drive the fan.

Pump & Cooler

Where a cooling fan is not practical, a pump and cooler system is an alternative to providing the necessary cooling to lower operating temperatures. Refer to selection guide 141-931 for pump and cooler information and contact the local Rexnord-Falk representative for drive selection alternatives, application and pricing considerations.

Thermal Rating Factors

Thermal horsepower ratings published herein are based on a 100°F (38°C) ambient temperature at sea level. For other conditions, the thermal horsepower rating may be multiplied by the factors shown in the tables below. Where no thermal horsepowers are shown in the tables, refer to Factory for selections at ambients above 100°F (38°C) and altitudes above sea level.

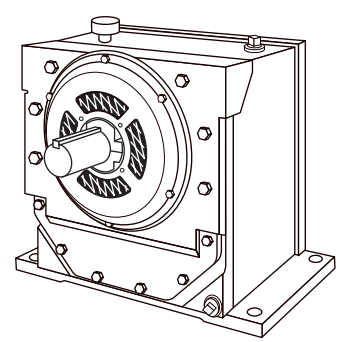
Table 1 — Altitude Factor

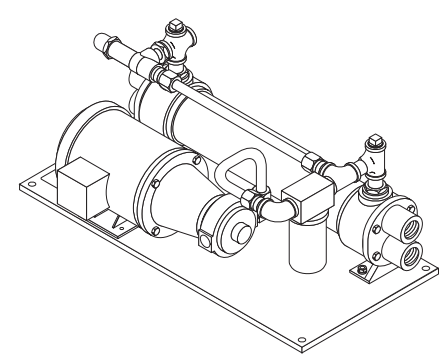
Altitude — ft. Sea Level = 0	Factor with or without Auxiliary Cooling
0 to 2,500	1.00
2,500	.95
5,000	.90
7,500	.85
10,000	.81
12,500	.76
15,000	.72
17,500	.68

Table 2 — Ambient Temperature Factor

Ambient Temperature ★	Factor w/o Aux. Cooling or with Fan
50°F (10°C)	1.39
60°F (16°C)	1.32
70°F (21°C)	1.25
80°F (27°C)	1.17
90°F (32°C)	1.09
100°F (38°C)	1.00
110°F (43°C)	.91
120°F (49°C)	.81

★ Factors for other ambient temperatures can be interpolated.





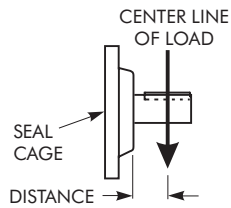
Type FC & FZ Concentric Shaft
Overhung Loads
High & Low Speed Shaft

The overhung load and thrust ratings published in this selection guide are based on a combination of the most unfavorable conditions of rotation, speed, direction of applied load and drive loading. If the calculated load exceeds the published value, or if an overhung load and thrust load are applied simultaneously to a shaft, refer complete application information to the Factory.

Overhung Loads — Overhung load is imposed upon a shaft when a pinion, sprocket or sheave is used as a power take-off. The magnitude of the load varies with the type of take-off and its proximity to the shaft bearing. Calculate the load and check the result against the tabulated overhung load rating.

Overhung Load Formula:

$$\text{Overhung Load} = \frac{126{,}000 \times hp \times F_c \times L_f}{\text{Pitch Diam} \times rpm}$$



F_c = Load Connection Factor.

Sprocket★	1.00
Machined Pinion & Gear ★	1.25
Synchronous (Timing)Belt	1.30
V-Belt	1.50
Flat Belt	2.50

L_f = Load Location Factor ✱

L.S.S. — See table on Page 16.

H.S.S. — See instructions at right.

★ Refer all multiple chain sprocket and pinion mounted applications to the Factory for deflection analysis.

✱ Load Location Factors for drives with fan or external backstop, refer to Selection Guide 311-112.

Locate the center of the load as close to the drive seal cage as practical to minimize the overhung load and increase bearing life. The above overhung load formula employs the transmitted horsepower, without service factor, providing the overloads, starting loads and brake capacities do not exceed the amounts listed in Gear Drive Ratings on Page 3.

Consult Factory for Higher Overhung Load Ratings — In many cases, overhung load capacity in excess of that published is available. Published ratings are based on a combination of the most unfavorable conditions of rotation, speed, direction of applied load, and drive loading. If the actual load should exceed the published capacity, refer full details to the Factory; provide complete application information (see Page 11), as well as direction of rotation, location and direction of applied load.

Low Speed Shaft

Calculate low speed shaft overhung load using the formula and F_c values at left. The L_f load location factors tabulated on Page 16 are based on the distance from the center line of the load to the drive seal cage.

Thrust Loads — Refer to Page 18 for low speed shaft thrust capacities. Thrust capacities are for pure thrust loads. If thrust and overhung loads are applied simultaneously, or if loads exceed these capacities, consult Falk.

High Speed Shaft

High speed shaft overhung load ratings published on Page 17 are for normal conditions where the center line of the load is one shaft diameter from the seal cage (or external backstop), and for speeds of 1430 rpm or lower. Where the center line of the load is one shaft diameter or closer, calculate the high speed shaft overhung load using $L_f = 1$ in the formula at left. Check the result against the rating on Page 17. Higher overhung load capacities are available when the full drive torque rating is not utilized. Refer to Factory for higher ratings for these conditions or if the calculated load (using $L_f = 1$) exceeds the published value or if the load is applied at a distance greater than one shaft diameter from the high speed shaft seal cage or external backstop.

Types FC & FZ Concentric Shaft

LSS L_f Load Location Factors *

Double, Triple & Quadruple Reduction

Based on distance from center line of load to gear drive seal cage

DISTANCE Inches	DRIVE SIZE	
	1020	1030
1	.90	.87
1½	1.00	.96
1¾	1.08	1.00
2	1.17	1.07
2½	1.33	1.22
2¾	1.41	1.29
3	1.50	1.36
3¼	. . .	1.43
3½	. . .	1.51

* Interpolate for intermediate values. For example L_f is 1.25 for Size 1020 when the distance is 2¼ inches.

Types FC & FZ Concentric Shaft

LSS Overhung Load Ratings ▲/Pounds

Double Reduction — Ratios 1.50 through 4.13

Multiply values listed below by 1000. . .Consult Factory for higher overhung load ratings

Approx. L.S. Shaft rpm	DRIVE SIZE	
	1020	1030
1170	1.15	1.52
950	1.23	1.61
780	1.30	1.70
640	1.38	1.80
520	1.47	1.92
420	1.56	2.04
350	1.66	2.17
280 ‡	1.77	2.31

Types FC & FZ Concentric Shaft

LSS Overhung Load Ratings ▲/Pounds

Double, Triple & Quadruple Reduction — Ratios 5.06 through 1207

Multiply values listed below by 1000. . .Consult Factory for higher overhung load ratings

Approx. L.S. Shaft rpm	DRIVE SIZE	
	1020	1030
350	1.64	1.96
280	1.75	2.08
230	1.86	2.21
190	1.97	2.34
155	2.00	2.49
125	2.00	2.50
100	2.00	2.50
84	2.00	2.50
68	2.00	2.50
56	2.00	2.50
45	2.00	2.50
37	2.00	2.50
28 ‡	2.00	2.50

▲ Ratings are for pure radial loads. If overhung load and thrust are applied simultaneously, or if loads exceed these values, consult Factory.

‡ The last overhung load value in each drive size column applies to all lower output speeds for that drive. Published ratings are based on a combination of the most unfavorable conditions of loading. For higher ratings, refer full data to the Factory.

Type FC Concentric Shaft

HSS Overhung Load Ratings ★/Pounds

Double, Triple & Quadruple Reduction

For loads applied one shaft diameter from seal cage. . .Consult Factory for higher overhung load ratings

High Speed Shaft rpm‡	Nominal Ratios	Approx. L.S. Shaft rpm	DRIVE SIZE WITH OR WITHOUT BACKSTOP 1020	1030
DOUBLE REDUCTION FC2				
1170	5.06	230	220	20
	6.20	190	220	50
	7.59	155	220	100
	9.30	125	220	150
	11.39	100	220	200
	13.95	84	220	230
	17.09	68	220	260
	20.93	56	220	280
	25.63	45	220	200
	31.39	37	. . .	220
870	5.06	175	220	80
	6.20	140	220	50
	7.59	115	220	170
	9.30	95	220	210
	11.39	77	220	260
	13.95	62	220	290
	17.09	50	220	300
	20.93	42	220	300
	25.63	34	220	260
	31.39	28	. . .	280
720	5.06	140	220	150
	6.20	115	220	120
	7.59	95	220	210
	9.30	77	220	250
	11.39	62	220	300
	13.95	50	220	300
	17.09	42	220	300
	20.93	34	220	300
	25.63	28	220	300
	31.39	22	. . .	300
580	5.06	115	220	190
	6.20	95	220	190
	7.59	77	220	260
	9.30	62	220	300
	11.39	50	220	300
TRIPLE REDUCTION FC3				
1170	31.39	37	200	. . .
	38.44	30	200	240
	47.08	25	200	240
	57.66	20	200	240
	70.62	16.5	200	240
	86.50	13.5	200	240
	105.9	11.0	200	240
	129.7	9.0	. . .	240
	158.9	7.5	. . .	240
	194.6	6.0	. . .	. . .
870	31.39	28	200	. . .
	38.44	22	200	240
	47.08	18	200	240
	57.66	15	200	240
	70.62	12.5	200	240
	86.50	10.0	200	240
	105.9	8.3	200	240
	129.7	6.8	. . .	240
	158.9	5.5	. . .	240
	194.6	4.5	. . .	. . .

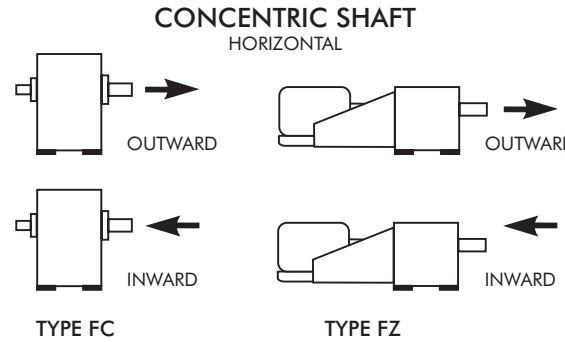
High Speed Shaft rpm‡	Nominal Ratios	Approx. L.S. Shaft rpm	DRIVE SIZE WITH OR WITHOUT BACKSTOP 1020	1030
TRIPLE REDUCTION FC3 (Continued)				
720	31.39	22	200	. . .
	38.44	18	200	240
	47.08	15	200	240
	57.66	12.5	200	240
	70.62	10.0	200	240
	86.50	8.3	200	240
	105.9	6.8	200	240
	129.7	5.5	. . .	240
	158.9	4.5	. . .	240
	194.6	3.8	. . .	. . .
580	31.39	18	200	. . .
	38.44	15	200	240
	47.08	12.5	200	240
	57.66	10.0	200	240
	70.62	8.3	200	240
	86.50	6.8	200	240
	105.9	5.5	200	240
	129.7	4.5	. . .	240
	158.9	3.8	. . .	240
	194.6	3.0	. . .	. . .
QUADRUPLE REDUCTION FC4				
1170	194.6	6.0	. . .	120
	238.4	5.0	. . .	120
	291.9	4.0	. . .	120
	357.5	3.2	. . .	120
	437.9	2.7	. . .	120
	536.3	2.2	. . .	120
	656.8	1.8	. . .	120
	804.5	1.5	. . .	120
	985.3	1.2	. . .	120
870	194.6	4.5	. . .	120
	238.4	3.8	. . .	120
	291.9	3.0	. . .	120
	357.5	2.5	. . .	120
	437.9	2.0	. . .	120
	536.3	1.6	. . .	120
	656.8	1.3	. . .	120
	804.5	1.1	. . .	120
	985.3	.90	. . .	120
720	194.6	3.8	. . .	120
	238.4	3.0	. . .	120
	291.9	2.5	. . .	120
	357.5	2.0	. . .	120
	437.9	1.6	. . .	120
	536.3	1.3	. . .	120
	656.8	1.1	. . .	120
	804.5	.90	. . .	120
	985.3	.75	. . .	120
580	194.6	3.0	. . .	120
	238.4	2.5	. . .	120
	291.9	2.0	. . .	120
	357.5	1.6	. . .	120
	437.9	1.3	. . .	120
	536.3	1.1	. . .	120
	656.8	.90	. . .	120
	804.5	.75	. . .	120
	985.3	.60	. . .	120

★ In each High Speed Shaft rpm section, the last overhung load value applies to all higher ratios of that gear reduction. Published ratings are based on a combination of the most unfavorable conditions of loading. For higher ratings and for loads applied at a distance greater than one shaft diameter from the seal cage or backstop, refer full application data to the Factory. Also refer to the Factory for ratings of drives with both a fan and a backstop.

‡ For input speeds higher than 1170 rpm, refer to 311-112.

Types FC & FZ Concentric Shaft
LSS Thrust Loads

Thrust Loads — External thrust loads are often imposed upon gear drive bearings by agitators, mixers and similar equipment through solid couplings and also some flexible couplings Calculate the direction and magnitude of the thrust and check the result against the tabulated thrust value.



Types FC & FZ Concentric Shaft
LSS Thrust Load Capacity */Pounds

All Ratios

Thrust inward or outward. . .multiply values listed below by 1000

Approx. L.S. Shaft rpm	DRIVE SIZE	
	1020	1030
1170	1.20	1.50
950	1.20	1.50
780	1.20	1.50
640	1.20	1.50
520	1.20	1.50
420	1.20	1.50
350	1.20	1.50
280	1.20	1.50
230	1.20	1.50
190	1.20	1.50
155	1.20	1.50
125	1.20	1.50
100	1.20	1.50
84	1.20	1.50
68	1.20	1.50
56	1.20	1.50
45	1.20	1.50
37	1.20	1.50
28‡	1.20	1.50

* Thrust capacities are for pure thrust loads. If thrust and overhung loads are applied simultaneously, or loads exceed these capacities, consult Factory.

‡ The last thrust capacity value in each drive size column applies to all lower output speeds for that drive.

Types FC & FZ Concentric Shaft

Exact Ratios *

Double, Triple, & Quadruple Reduction

Double Reduction

Nominal Ratios	Approx. L.S. Shaft rpm‡	DRIVE SIZE	
		1020	1030
1.50	**1170**	1.432*	1.503
1.84	**950**	1.780	1.827
2.25	**780**	2.149*	2.223
2.76	**640**	2.658	2.674
3.38	**520**	3.259	3.337
4.13	**420**	4.032	4.048
5.06	**350**	5.055	5.201
6.20	**280**	6.283	6.319
7.59	**230**	7.588	7.691
9.30	**190**	9.385	9.251
11.39	**155**	11.50	11.54
13.95	**125**	14.23	14.00
17.09	**100**	17.20	17.37
20.93	**84**	20.57	21.12
25.63	**68**	25.21	26.02
31.39	**56**	. . .	31.06

Triple Reduction

Nominal Ratios	Approx. L.S. Shaft rpm‡	DRIVE SIZE	
		1020	1030
31.39	**56**	31.39	. . .
38.44	**45**	38.82	38.91
47.08	**37**	47.58	47.36
57.66	**30**	58.87	56.97
70.62	**25**	71.14	71.09
86.50	**20**	85.09	86.22
105.9	**16.5**	104.3	107.0
129.7	**13.5**	. . .	130.1
158.9	**11.0**	. . .	160.2
194.6	**9.0**	. . .	. . .

Quadruple Reduction

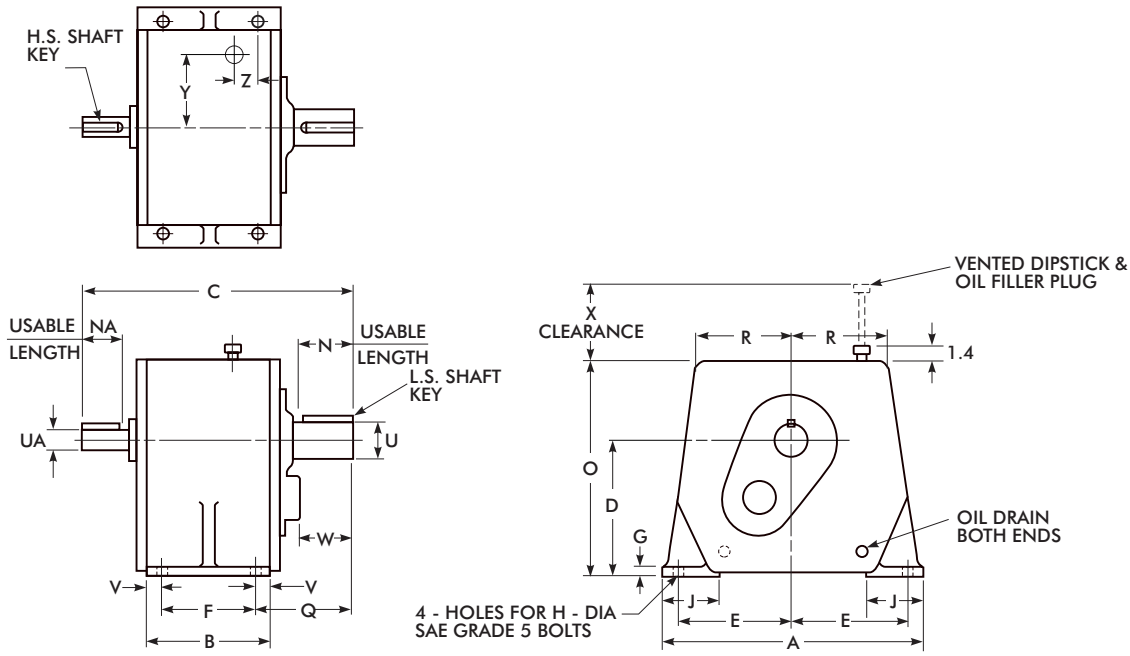
Nominal Ratios	Approx. L.S. Shaft rpm ‡	DRIVE SIZE	
		1020	1030
194.6	**9.0**	. . .	194.8
238.4	**7.5**	. . .	236.7
291.9	**6.0**	. . .	288.1
357.5	**5.0**	. . .	346.6
437.9	**4.0**	. . .	432.4
536.3	**3.2**	. . .	524.5
656.8	**2.7**	. . .	650.7
804.5	**2.2**	. . .	791.1
985.3	**1.8**	. . .	974.8
1207	**1.5**	. . .	1163

‡ Based on 1750 rpm input speed.

* Exact ratios are within ±4% of nominal for double and triple reduction drives and ±5% of nominal for quadruple reduction drives except where noted with an asterisk.

Type FC Concentric Shaft — Dimensions (Inches)

Double, Triple & Quadruple Reduction — Sizes 1020 & 1030



DRIVE SIZE ★	A	B	D	E	F	G	H	J	N	O	Q	R	L.S. SHAFT ✱ U	L.S. SHAFT ✱ Key	V	W ● W/O	W ● With	X	Y	Z	Max AA	Wt-lb Ave
1020	11.60	5.12	6.30	5.20	4.00	.68	.500	3.0	3.00	9.72	5.48	4.5	1.5000	.375 x .375 x 2.750	.58	3.24	2.86	7.0	2.60	1.26	13.10	90
1030	12.60	6.78	7.00	5.60	5.34	.70	.625	3.3	3.50	10.90	6.14	5.1	1.7500	.375 x .375 x 3.000	.72	3.60	3.22	7.7	3.00	1.86	13.10	140

DRIVE SIZE ★	Double Reduction — FC2/FZ2 C	NA	H.S. SHAFT ✱ UA	Key	Triple Reduction — FC3/FZ3 C	NA	H.S. SHAFT ✱ UA	Key	Quadruple Reduction — FC4/FZ4 C	NA	H.S. SHAFT ✱ UA	Key
1020	13.84	2.00	1.0000	.250 x .250 x 1.750	13.84	2.00	1.0000	.250 x .250 x 1.750	. . .	. . .	. . .	. . .
1030	16.26	2.26	1.1250	.250 x .250 x 2.000	16.32	2.26	1.1250	.250 x .250 x 2.000	15.76	1.76	.8750	.188 x .188 x 1.500

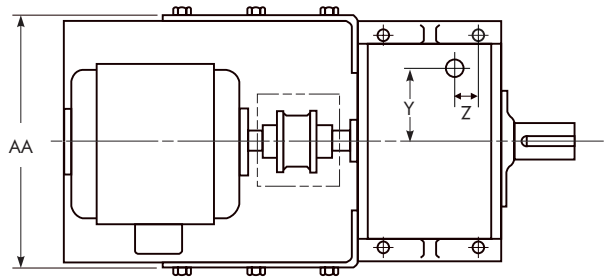
★ Dimensions are for reference only and are subject to change without notice unless certified.
Drives are for horizontal floor mounted operation or incline mounted operation within the limits specified on Page 5, unless specifically stated otherwise.

✱ Shaft diameters are held to limits of +.0000", –.0005". Shaft keyseat depth is one-half of key height.

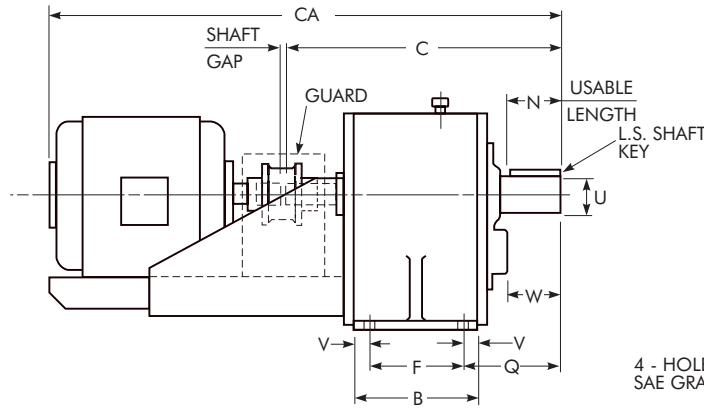
● Dimension W is clearance with and without (W/O) internal backstop. For drive with backstop, indicate L.S. shaft rotation when viewing drive from the end of the L.S. shaft.

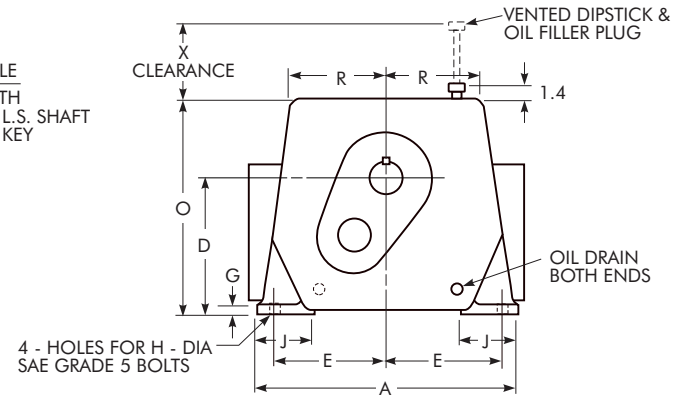
Type FZ Concentric Shaft — Dimensions (Inches)

Double, Triple & Quadruple Reduction — Sizes 1020 & 1030



DIMENSIONS ON PAGE 20
(CA IN TABLE BELOW)





DRIVE SIZE	Average Weight of Drive Only lb ■	Max ♦ NEMA T & U Frame Size	CA – APPROXIMATE OVERALL LENGTH WITH MOTOR AND TYPE T COUPLING ‡ MOTOR FRAME SIZE ♦				
			143T	145T	182T	184T	213T
OPEN MOTORS							
1020	90	215	28.4	28.4	29.5	29.5	30.3
1030	140	215	30.5	30.5	31.6	31.6	32.4
TEFC MOTORS							
1020	90	215	26.9	27.3	28.9	29.9	35.1
1030	140	215	29.1	29.5	31.1	32.1	37.4

‡ CA dimensions are approximate and may vary with motor manufacturer.

■ Weight shown is for Type FC drive. For Type FZ motoreducer weight, add average drive weight to approximate weight below.

♦ Brackets for Sizes 1020 and 1030 will accept either T, TS, U or US frame motors. Do not exceed the motoreducer ratings shown in the selection tables. Standard length and semi-standard length blank bracket dimensions are covered in Engineering 317-315.

Refer to Pages 4 and 5 for instructions when using other than T-frame motors.

APPROXIMATE WEIGHTS OF FALK MOTOR BRACKETS/COUPLINGS AND MOTORS — lb

HP	1	1 1/2	2	3	5	7 1/2	10
FRAME ♦	**143T**	**145T**	**145T**	**182T**	**184T**	**213T**	**215T**
DRIVE SIZE	**Bracket and Coupling Weights**						
1020 & 1030	35	35	35	35	35	45	45
	1750 rpm Motor Weights						
TEFC General Duty Motor	30	35	40	60	80	120	165
TEFC High Efficiency Motor	30	45	55	70	85	125	170
OPEN MOTOR	30	35	35	60	70	120	145

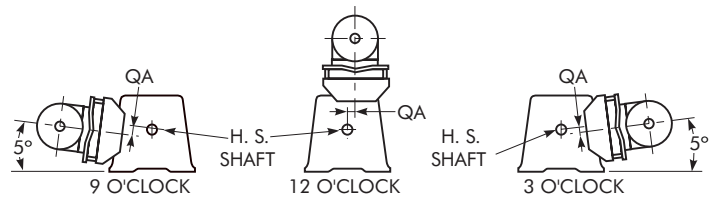
♦ See (♦) note above.

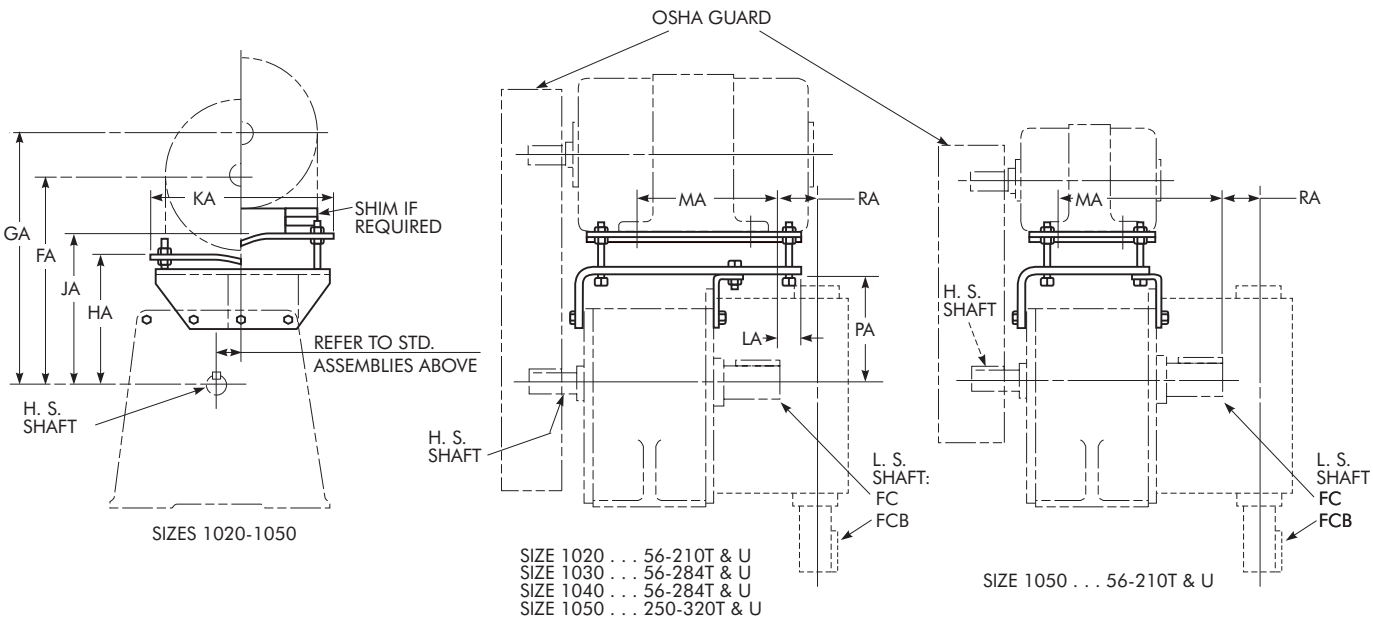
Type MM Motor Mounts

Sizes 1020 through 1050 – Dimensions (Inches)

Standard Assemblies

Assemblies are viewed from high speed end of drive. For 3 and 9 o'clock assemblies, refer to (♦) footnote below to determine dimensions FA, GA, HA and JA. Refer to Page 20, 48 or 50 for drive dimensions.





MOTOR MOUNT SIZE ★	MINIMUM AND MAXIMUM SHAFT CENTERS 12 O'clock Mounting ✱♦														3 & 9 ♦ O'clock FA & GA Addition	HA Min	JA Max	PA	Dimension QA Std Assemblies Clock Positions		
	56		140		180		210		250		280		320								
	FA	GA	FA	GA	FA	GA	FA	GA	FA	GA	FA	GA	FA	GA					3	9	12
MM1020	11.00	13.80	11.00	13.80	12.00	14.80	12.76	15.56	. . .	. . .	. . .	. . .	. . .	. . .	1.32	7.50	10.30	6.24	.10	.10	1.34
MM1030	12.22	15.22	12.22	15.22	13.22	16.22	13.98	16.98	14.98	17.98	15.72	18.72	. . .	. . .	1.40	8.72	11.72	7.44	.06	.06	1.50‡
MM1040	13.10	16.10	13.10	16.10	14.10	17.10	14.86	17.86	15.86	18.86	16.60	19.60	. . .	. . .	1.84	9.60	12.60	8.32	2.00	2.00	0
MM1050	14.06	17.00	14.06	17.00	15.06	18.00	15.82	18.76	16.82	19.76	17.56	20.50	18.56	21.50	2.14	10.56	13.50	9.30	2.34	2.34	0

MOTOR MOUNT SIZE ★	56 thru 210			56 thru 284			250 thru 284			250 thru 320			DIMENSION MA						
	KA	LA	Motor Mount Wt-lb	KA	LA	Motor Mount Wt-lb	KA	LA	Motor Mount Wt-lb	KA	LA	Motor Mount Wt-lb	56	140	180	210	250	280	320
MM1020	12.62	3.28	40	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	9.04	9.54	9.04	8.28	. . .	. . .	. . .
MM1030	. . .	. . .	. . .	14.00	3.36	65	. . .	. . .	. . .	. . .	. . .	. . .	11.24	11.74	11.24	10.50	9.74	9.24	. . .
MM1040	13.00	–2.28 ●	55	. . .	. . .	. . .	14.00	2.02	70	. . .	. . .	. . .	12.68	13.18	12.68	11.92	11.16	10.68	. . .
MM1050	15.00	. . .	60	. . .	. . .	. . .	. . .	. . .	. . .	16.00	2.72	90	15.28	15.78	15.28	14.54	13.78	13.28	12.78

★ Dimensions are for reference only and subject to change without notice unless certified.

✱ When determining belt length for minimum shaft centers, follow the belt manufacturer's installation allowance recommendations and also provide for future belt tensioning. Motors may be shimmed up to 1.5".

‡ For Size 1030 FCB, the motor center line is to the left of the gear drive center line.

● Measure (–) LA to left of shaft end instead of as shown; shaft extends beyond bracket.

♦ To determine shaft centers for 3 & 9 o'clock mountings, add amount shown in the 3 & 9 o'clock Addition column to the 12 o'clock FA & GA dimensions. Dimensions HA and JA will increase the same amounts.

How to Order

Your nearby Rexnord Representative or Authorized Distributor will be pleased to analyze your new or existing application requirements and recommend the most efficient and economical motor mount selections. At the same time, if you wish, his wide experience in the field of power transmission qualifies him to examine your installation and perhaps point out additional ways to increase efficiency and reduce cost with other Rexnord precision products.

The following information is required to make proper selection:

1. Rexnord Drive — size and type as shown on nameplate or from selection tables in this bulletin.
2. Motor make — horsepower and type.
3. NEMA motor frame size. Check dimension table to make certain motor mount is available for your motor frame size.
4. Required belt centers. If not known, the motor mount will be selected with minimum belt centers (Dimension FA above) based on information from Steps 1 thru 3.
5. Clock position — specify preferred mounting arrangement.

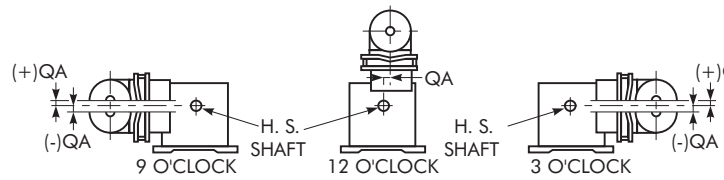
Type MM Motor Mounts

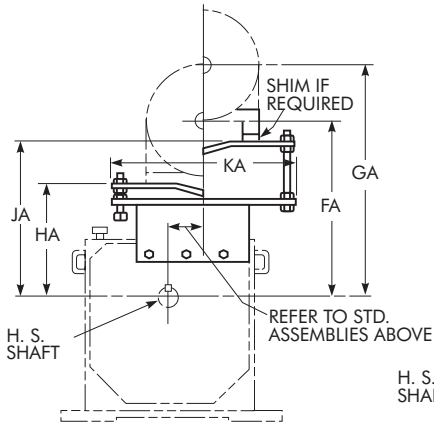
Sizes 1060 through 1100 – Dimensions(Inches)

Standard Assemblies

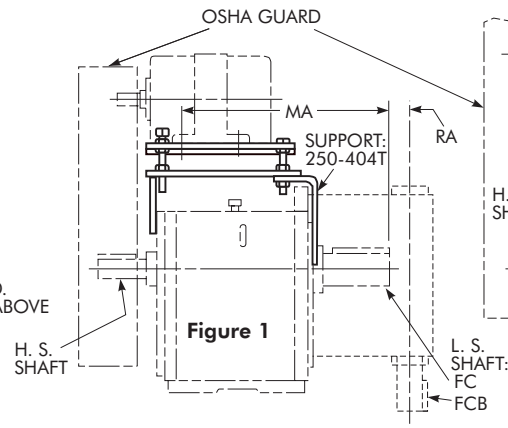
Assemblies are viewed from high speed end of drive. For 3 and 9 o'clock assemblies, refer to (♦) footnote below to determine dimensions FA, GA, HA and JA. Refer to Page 50 for drive dimensions.

NOTE: Motor mounts are not available for Drive Size 1100 with an external backstop or Drive Sizes 1060 thru 1100 with fans.

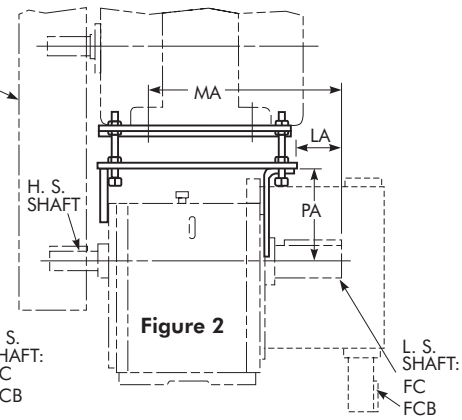




SIZES 1060 - 1100



SIZES 1060-1100 . . . 140-210T & U▲



SIZES 1060-1100 . . . 250-400T & U
(Size 1060 Max. U-Frame is 404)

MOTOR MOUNT SIZE ★	MINIMUM AND MAXIMUM SHAFT CENTERS 12 O'clock Mounting ✱♦																3 & 9 ♦ O'clock FA & GA Addition	HA † Min	JA ✱ Max	PA
	140		180		210		250		280		320		360		400					
	FA	GA	FA	GA	FA	GA	FA	GA	FA	GA	FA	GA	FA	GA	FA	GA				
MM1060	16.42	20.02	17.42	21.02	18.18	21.78	19.18	22.78	19.92	23.52	20.92	24.52	22.60	25.52	23.60	26.52	1.96	12.92	16.52	11.48
MM1070	16.92	20.52	17.92	21.52	18.68	22.28	19.68	23.28	20.42	24.02	21.42	25.02	23.10	26.02	24.10	27.02	2.40	13.42	17.02	11.98
MM1080	17.82	21.42	18.82	22.42	19.58	23.18	20.58	24.18	21.32	24.92	22.32	25.92	23.76	26.92	24.76	27.92	2.50	14.32	17.92	12.76
MM1090	18.94	22.54	19.94	23.54	20.70	24.30	21.70	25.30	22.44	26.04	23.44	27.04	24.88	28.04	25.88	29.04	2.32	15.44	19.04	13.88
MM1100	21.32	24.92	22.32	25.92	23.08	26.68	24.08	27.68	24.82	28.42	25.82	29.42	27.26	30.42	28.26	31.42	2.10	17.82	21.42	16.26

MOTOR MOUNT SIZE ★	140 thru 210		250 thru 320			360 thru 400			DIMENSION MA ‡ FCB3, FCB4 & FCB5								Dimension QA Standard Assemblies Clock Positions		
	KA	Motor Mount Wt-lb	KA	LA	Motor Mount Wt-lb	KA	LA	Motor Mount Wt-lb	140	180	210	250	280	320	360	400	3	9	12
MM1060	15.00	60	16.00	.08	115	20.00	(+)3.52 ●	200	18.74	18.24	17.48	16.74	16.24	15.74	15.36	14.60	(–) .84 ■	(+)1.84 ■	2.24■
MM1070	15.00	60	16.00	2.80‡	115	20.00	(+)0.82 ‡●	200	21.46	20.96	20.20	19.46	18.96	18.46	18.06	17.32	(–)2.64 ■	(–)1.76 ■	2.24■
MM1080	15.00	75	20.00	1.92 ‡	170	20.00	1.92 ‡	220	24.42	23.92	23.16	22.42	21.92	21.42	20.80	20.04	(–)2.44	(–)1.32	3.94
MM1090	15.00	75	20.00	4.94 ‡	175	20.00	4.94 ‡	225	27.44	26.94	26.18	25.44	24.94	24.44	23.82	23.06	(–)2.44	(–)1.32	3.94
MM1100	15.00	80	20.00	8.38	195	20.00	8.38	245	30.96	30.46	29.70	28.96	28.46	27.96	27.26	26.50	(–) .40	(+) .40	2.76

★ Dimensions are for reference only and are subject to change without notice unless certified.

▲ A support is furnished only for 250T and larger frames.

✱ When determining belt length for minimum shaft centers, follow the belt manufacturer's installation allowance recommendations and also provide for future belt tensioning. Motors may be shimmed up to 1.5".

† For 360 and 400 frames add the following to the "HA" dimension: .68" for sizes 1060 and 1070FCB; .44" for sizes 1080 thru 1100FCB.

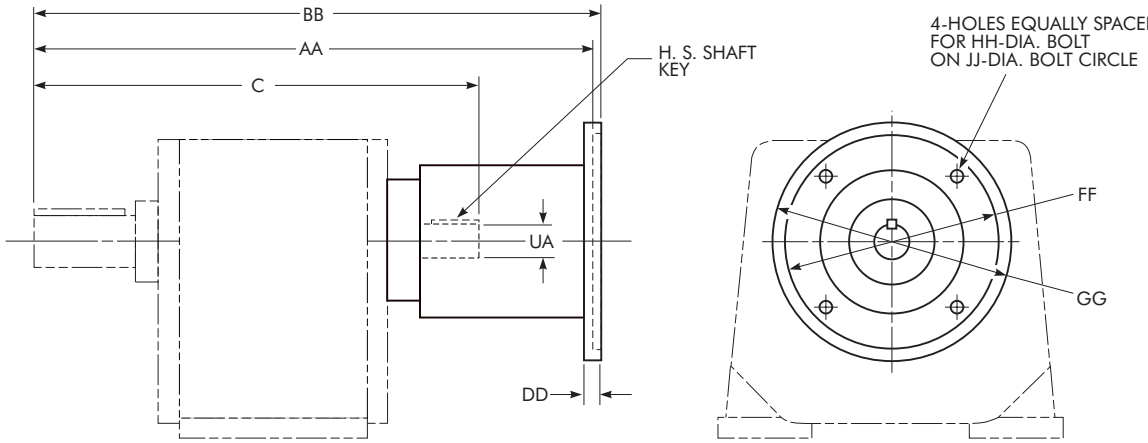
♦ To determine shaft centers for 3 & 9 o'clock mountings, add amount shown in the "3 & 9 o'clock Addition" column to the 12 o'clock FA & GA dimensions. Dimensions HA and JA will increase the same amounts.

‡ Sizes 1070FCB3: Add .12" to dimensions MA & LA. Sizes 1080 and 1090FCB3: Add .38" to dimensions MA & LA.

● Bracket extends beyond end of shaft; (+)LA is from end of shaft, (right), to end of bracket.

■ Dimension QA for Sizes 1060 and 1070FCB with the 360-400 motor frames are: add .46" for 3 o'clock; add .34" for 9 o'clock and use 4.34" for 12 o'clock.

Type MC C-Face Motor Adapters for Type FC Drives
Sizes 1020 & 1030



MOTOR ADAPTER & DRIVE SIZE ★	Drive Type & Reduction	Motor Frame	Dimensions — Inches									
			C	AA	BB	DD	FF	GG	HH	JJ	UA	KEY
MC1020	FC2	56-145	13.84	17.64	17.89	.64	4.502	7.38	.375	5.875	1.000	.250 x .250 x 1.75
		182-215	13.84	18.76	18.96	.64	8.502	9.25	.500	7.250	1.000	.250 x .250 x 1.5
	FC3	56-145	13.84	17.64	17.89	.64	4.502	7.38	.375	5.875	1.000	.250 x .250 x 1.75
MC1030	FC2	143-145	16.26	19.80	20.05	.64	4.502	7.38	.375	5.875	1.125	.250 x .250 x 2.00
		182-184	16.26	20.92	21.12	.64	8.502	9.25	.500	7.250	1.125	.250 x .250 x 2.00
		213-256	16.26	21.42	21.62	.64	8.502	9.25	.500	7.250	1.125	.250 x .250 x 2.00
	FC3	56-145	16.32	19.85	20.10	.64	4.502	7.38	.375	5.875	1.125	.250 x .250 x 2.00
		182-184	16.32	20.97	21.17	.64	8.502	9.25	.500	7.250	1.125	.250 x .250 x 2.00
	FC4	56-145	15.76	19.80	20.05	.64	4.502	7.38	.375	5.875	.875	.188 x .188 x 1.50

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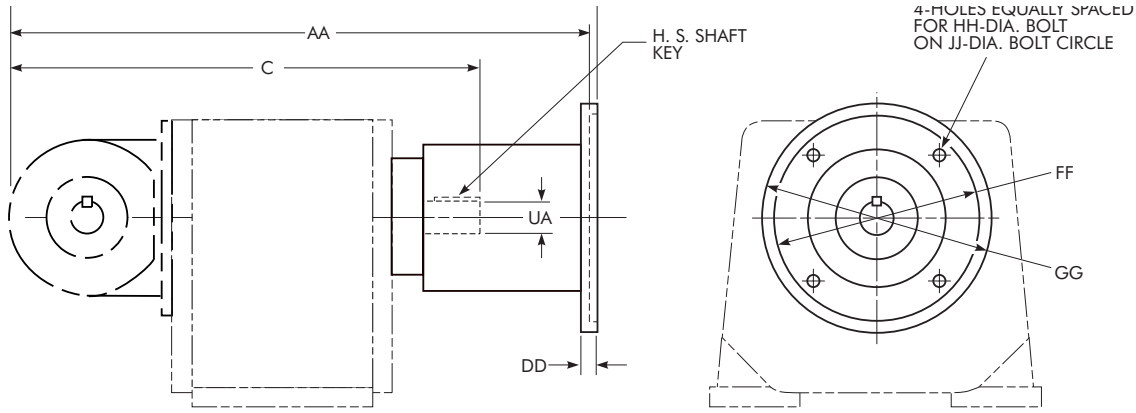
Type MC C-Face Motor Adapters for Type FCB Drives

Sizes 1020 through 1080



MOTOR ADAPTER & DRIVE SIZE ★	Drive Type & Reduction	Motor Frame	Dimensions — Inches									
			C	AA	BB	DD	FF	GG	HH	JJ	UA	KEY
MC1020	FCB3	56-145	18.18	21.98	22.23	.64	4.502	7.38	.375	5.875	1.000	.250 x .250 x 1.75
		182-215	18.18	23.10	23.30	.64	8.502	9.25	.500	7.250	1.000	.250 x .250 x 1.75
	FCB4	56-145	18.18	21.98	22.23	.64	4.502	7.38	.375	5.875	1.000	.250 x .250 x 1.75
MC1030	FCB3	143-145	22.12	25.66	25.91	.64	4.502	7.38	.375	5.875	1.125	.250 x .250 x 2.00
		182-184	22.12	26.78	26.98	.64	8.502	9.25	.500	7.250	1.125	.250 x .250 x 2.00
		213-256	22.12	27.28	27.48	.64	8.502	9.25	.500	7.250	1.125	.250 x .250 x 2.00
	FCB4	56-145	22.18	25.71	25.96	.64	4.502	7.38	.375	5.875	1.125	.250 x .250 x 2.00
		182-184	22.18	26.83	27.03	.64	8.502	9.25	.500	7.250	1.125	.250 x .250 x 2.00
	FCB5	56-145	21.62	25.66	25.91	.64	4.502	7.38	.375	5.875	.875	.188 x .188 x 1.50
MC1040	FCB3	182-184	25.50	29.67	29.87	.64	8.502	9.25	.500	7.250	1.375	.312 x .312 x 2.50
		213-256	25.50	30.17	30.37	.64	8.502	9.25	.500	7.250	1.375	.312 x .312 x 2.50
		284-286	25.50	30.92	31.12	.64	10.502	11.50	.500	9.000	1.375	.312 x .312 x 2.50
	FCB4	56-145	25.50	28.55	28.80	.64	4.502	7.38	.375	5.875	1.375	.312 x .312 x 2.50
		182-184	25.50	29.67	29.87	.64	8.502	9.25	.500	7.250	1.375	.312 x .312 x 2.50
		213-215	25.50	30.17	30.37	.64	8.502	9.25	.500	7.250	1.375	.312 x .312 x 2.50
	FCB5	56-145	24.46	28.50	28.75	.64	4.502	7.38	.375	5.875	.875	.188 x .188 x 1.50
MC1050	FCB3	182-184	28.66	33.59	33.79	.64	8.502	9.25	.500	7.250	1.625	.375 x .375 x 3.00
		213-256	28.66	34.09	34.29	.64	8.502	9.25	.500	7.250	1.625	.375 x .375 x 3.00
		284-286	28.66	34.84	35.04	.64	10.502	11.50	.500	9.000	1.625	.375 x .375 x 3.00
	FCB4	56-145	28.66	32.47	32.72	.64	4.502	7.38	.375	5.875	1.625	.375 x .375 x 3.00
		182-184	28.66	33.59	33.79	.64	8.502	9.25	.500	7.250	1.625	.375 x .375 x 3.00
		213-256	28.66	34.09	34.29	.64	8.502	9.25	.500	7.250	1.625	.375 x .375 x 3.00
	FCB5	56-145	27.10	30.90	31.15	.64	4.502	7.38	.375	5.875	1.000	.250 x .250 x 1.50
MC1060	FCB3	213-215	32.48	36.73	36.93	.64	8.502	9.25	.500	7.250	1.875	.500 x .500 x 3.25
		254-256	32.48	37.23	37.43	.64	8.502	9.25	.500	7.250	1.875	.500 x .500 x 3.25
		284-286	32.48	37.98	38.18	.64	10.502	11.50	.500	9.000	1.875	.500 x .500 x 3.25
	FCB4	143-145	31.86	35.01	35.26	.64	4.502	7.38	.375	5.875	1.625	.375 x .375 x 3.00
		182-184	31.86	36.13	36.33	.64	8.502	9.25	.500	7.250	1.625	.375 x .375 x 3.00
		213-256	31.86	36.63	36.83	.64	8.502	9.25	.500	7.250	1.625	.375 x .375 x 3.00
	FCB5	56-145	31.10	35.01	35.26	.64	4.502	7.38	.375	5.875	1.250	.250 x .250 x 2.25
		182-184	31.10	36.13	36.33	.64	8.502	9.25	.500	7.250	1.250	.250 x .250 x 2.25
MC1070	FCB3	213-215	38.08	42.45	42.65	.64	8.502	9.25	.500	7.250	2.125	.500 x .500 x 3.75
		254-256	38.08	42.95	43.15	.64	8.502	9.25	.500	7.250	2.125	.500 x .500 x 3.75
		284-286	38.08	43.70	43.90	.64	10.502	11.50	.500	9.000	2.125	.500 x .500 x 3.75
	FCB4	182-184	37.02	41.25	41.45	.64	8.502	9.25	.500	7.250	1.750	.375 x .375 x 3.00
		213-256	37.02	41.75	41.95	.64	8.502	9.25	.500	7.250	1.750	.375 x .375 x 3.00
		284-286	37.02	42.50	42.70	.64	10.502	11.50	.500	9.000	1.750	.375 x .375 x 3.00
	FCB5	56-145	36.28	39.93	40.18	.64	4.502	7.38	.375	5.875	1.375	.312 x .312 x 2.50
		182-184	36.28	41.05	41.25	.64	8.502	9.25	.500	7.250	1.375	.312 x .312 x 2.50
MC1080	FCB4	182-215	41.50	45.78	45.98	.64	8.502	9.25	.500	7.250	2.000	.500 x .500 x 3.50
		254-256	41.50	46.28	46.48	.64	8.502	9.25	.500	7.250	2.000	.500 x .500 x 3.50
		284-286	41.50	47.03	47.23	.64	10.502	11.50	.500	9.000	2.000	.500 x .500 x 3.50
	FCB5	56-145	40.76	43.91	44.16	.64	4.502	7.38	.375	5.875	1.625	.375 x .375 x 3.00
		182-184	40.76	45.03	45.23	.64	8.502	9.25	.500	7.250	1.625	.375 x .375 x 3.00
		213-215	40.76	45.53	45.73	.64	8.502	9.25	.500	7.250	1.625	.375 x .375 x 3.00

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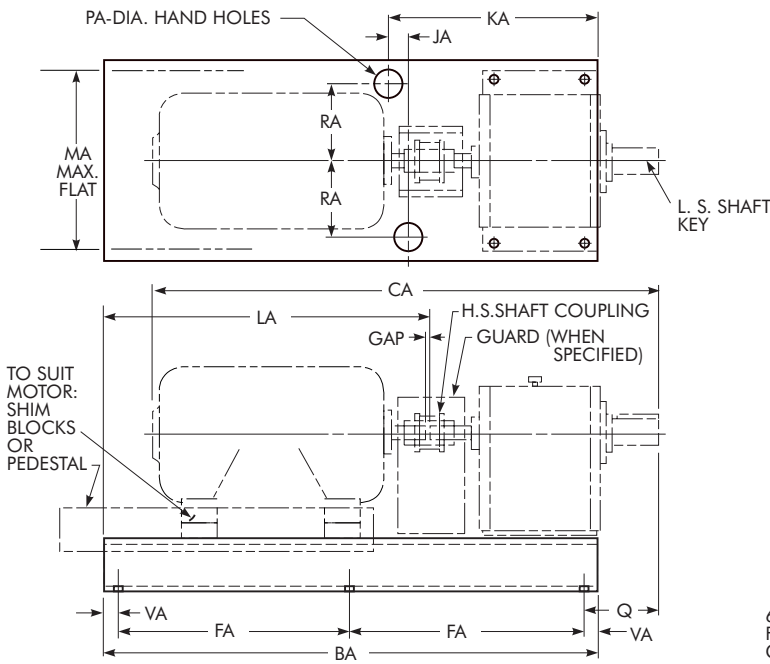
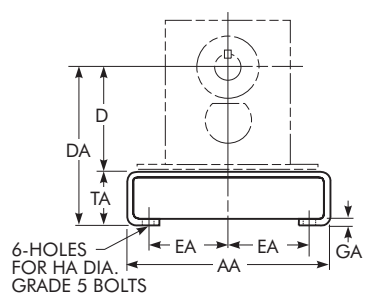
Type MP Motor Plates

Sizes 30 through 110 – Dimensions (Inches)



Type MP motor plates are used to accommodate oversize motors, special couplings, clutches, or brakes. Motor plates allow for simplified installation of the total assembly, and also provide a rigid, "hard" mounting of the drive and motor when required. Hand holes provide access to the drive, motor, and motor plate foundation bolts: they also provide simplified handling and venting when the motor plate is grouted in place. Standard motor plates are available; each plate accommodating two drive sizes, for example, MP20/30 is for Size 1020/1030 drives. For oversize prime movers, larger motor plates (MP60/70 with a Size 1050 drive) may be used and are priced accordingly.

Special motor plates can be designed to accommodate special couplings, clutches, brakes and prime movers which will not fit on the standard motor plates shown here.



DRIVE SIZE ★	Motor Plate (MP) Size	D	DA ±.14	LA			Q	QA
				FCB3 FC2	FCB4 FC3	FCB5 FC4		
1020	MP20/30	6.30	12.30	25.06	25.06	. . .	6.40	6.98
1030	MP20/30	7.00	13.00	23.16	23.10	23.66	6.92	8.02
1040	MP40/50	8.50	14.50	33.52	33.52	34.56	7.46	9.02
1050	MP40/50	9.60	15.60	31.62	31.62	33.18	8.66	9.66
1060	MP60/70-2 MP60/70	10.60 10.60	16.60 16.60	22.06 40.06	22.68 40.68	23.44 41.44	8.50 8.50	9.22 9.22
1070	MP60/70-2 MP60/70	11.66 11.66	17.66 17.66	19.66 37.66	20.72 38.72	21.46 39.46	9.50 9.50	11.00 11.00
1080	MP80/90-2 MP80/90	12.78 12.78	21.78 21.78	37.02 52.02	38.06 53.06	38.80 53.80	11.20 11.20	12.86 12.86
1090	MP80/90-2 MP80/90	15.74 15.74	24.74 24.74	34.82 49.82	36.24 51.24	36.98 51.98	12.40 12.40	14.42 14.42
1100	100/110-2 100/110	17.40 17.40	26.40 26.40	32.54 58.54	33.90 59.90	34.38 60.38	13.54 13.54	18.58 18.58

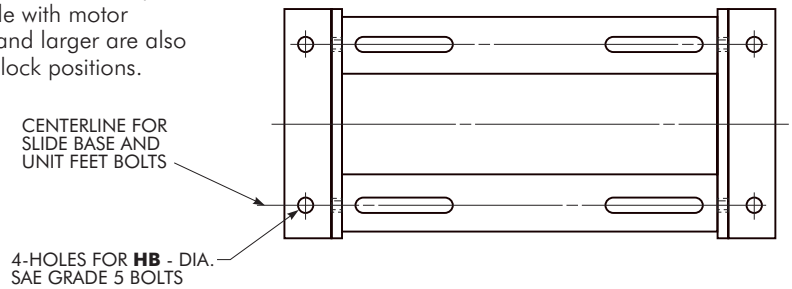
DRIVE SIZE ★	Motor Plate (MP) Size	AA*	BA	EA	FA	GA	HA	JA	KA	MA	PA	RA	TA ±.10	VA	Wt-lb (w/o Drive)
1020/1030	MP20/30	16.00	34.00	5.50	15.50	.50	1.000	. . .	. . .	14.00	. . .	. . .	5.90	1.50	140
1040/1050	MP40/50	20.00	46.00	7.50	21.50	.50	1.000	0	15.50	18.00	5.00	6.70	5.90	1.50	270
1060/1070	MP60/70-2 MP60/70	25.00 25.00	40.00 58.00	10.00 10.00	18.50 27.50	.50 .50	1.000 1.000	0 1.00	20.00 22.00	23.00 23.00	6.00 6.00	8.00 8.00	5.90 5.90	1.50 1.50	272 380
1080/1090	MP80/90-2 MP80/90	30.00 30.00	60.00 75.00	11.80 11.80	27.50 35.00	.75 .75	1.500 1.500	0 1.00	23.30 31.00	26.50 26.50	6.00 6.00	9.00 9.00	8.90 8.90	2.50 2.50	874 980
1100	MP100/110-2 MP100/110	35.00 35.00	60.00 86.00	14.20 14.20	27.50 40.50	.75 .75	1.500 1.500	0 2.00	30.00 36.00	31.50 31.50	6.00 6.00	12.00 12.00	8.90 8.90	2.50 2.50	942 1150

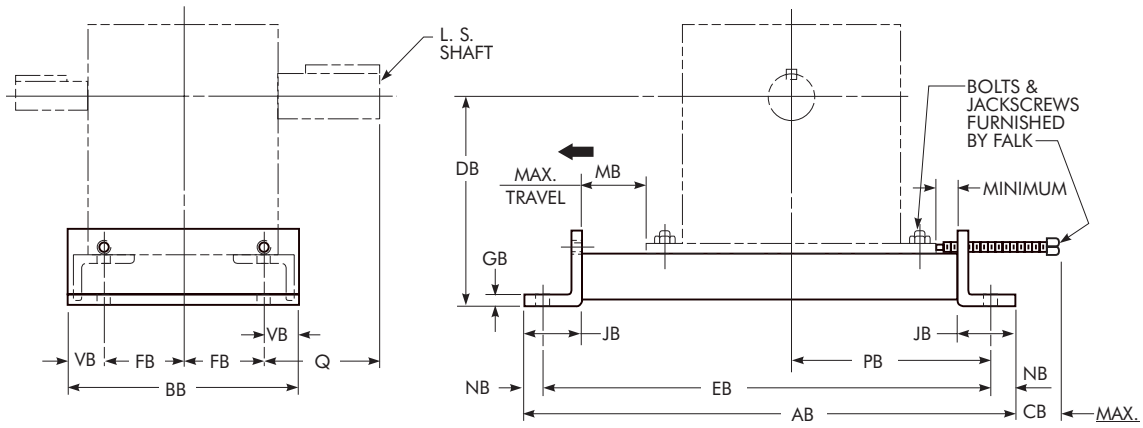
★ Dimensions are for reference only and are subject to change without notice unless certified. Drives are for horizontal floor mounted operation unless specifically stated otherwise. Consult Factory for other mountings.

✱ When a motor pedestal is furnished, dimension AA is 1.24" wider for MP 40/50, 1.50" wider for MP60 thru 90 and 1.0"[1] wider for MP100 thru 130.

Type SB Slide Bases
Sizes 20-100 –Dimensions (Inches)

Type SB slide bases provide for convenient positioning of drives, and facilitate chain and belt installation tensioning and service. The slide base is permanently bolted to the foundation, and when a change of position is desired, the drive is easily shifted by loosening the reducer foundation bolts and turning the adjusting screws. After the desired belt or chain tension is obtained, the drive foundation bolts are tightened, and the machine is ready for operation. All drives on slide bases are available with motor mounts in the 12 o'clock position; Sizes 1090 and larger are also available with motor mounts in the 3 and 9 o'clock positions.





SLIDE BASE SIZE ★	Q	AB	BB	CB	DB	EB	FB	GB	HB	JB	MB	NB	PB	VB	Wt-lb Average
SB20	5.48	20.32	7.00	4.00	8.30	18.92	2.00	.38	.500	2.00	4.10	.70	7.40	1.50	16
SB30	6.14	22.34	9.20	3.50	9.26	20.54	2.67	.50	.625	2.50	4.10	.90	8.20	1.92	34
SB40	6.86	25.02	10.20	3.36	10.76	23.22	3.05	.50	.750	2.50	4.10	.90	9.54	2.04	41
SB50	8.10	28.30	11.60	3.56	12.36	26.30	3.55	.50	.875	3.00	4.70	1.00	10.80	2.24	62
SB60	8.00	31.32	14.70	2.78	13.86	28.72	5.00	.62	1.000	3.50	4.70	1.30	12.00	2.35	92
SB70	9.20	33.72	16.40	2.90	14.92	31.12	5.65	.62	1.125	3.50	4.70	1.30	13.20	2.54	104
SB80	10.00	37.68	19.00	4.18	16.54	34.88	6.60	.75	1.250	4.00	5.70	1.40	14.58	2.90	169
SB90	11.50	44.72	21.00	2.18	20.00	39.72	7.15	1.00	1.500	6.00	5.70	2.50	17.00	3.35	228
SB100	13.14	46.16	21.20	2.26	21.66	41.16	7.48	1.00	1.500	6.00	5.70	2.50	17.72	3.12	264

★ Dimensions are for reference only and are subject to change without notice unless certified.

Backstops (Cartridge & Pawl) Dimensions (Inches)

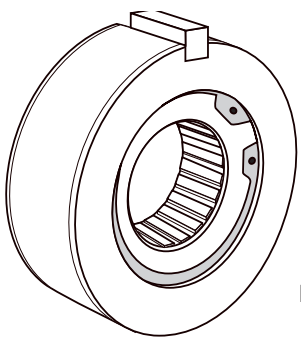
Prevent Reverse Rotation

Backstops provide positive prevention of reverse rotation or backrun without backlash on conveyors, elevator head shafts and similar applications. Designed as standard accessories, backstops can be furnished on all horizontal concentric shaft drives.

To prevent damage to backstops due to incorrect motor shaft rotation at start up, couplings are NOT assembled when drives are furnished with backstops. After completing the electrical connection, check motor and drive shaft rotations. Then complete alignment and assembly of coupling.

DO NOT use a backstop as a substitute for a brake.

Both types of backstops are designed to prevent reverse rotation 5 times or less in eight hours, with one minute or more in the over-running direction between backstopping load applications. If backstopping operations are more frequent, or the time between operations is less than one minute, the backstop is classified as a working or indexing device and the application must be referred to the Factory for selection. When ordering, specify L.S. shaft rotation when viewing drive from the end of the L.S. shaft.



Internal/cartridge type

Drive Sizes 1020 & 1030

Internal backstop . . . cartridge type . . . compact . . . reliable . . . no measurable power loss.

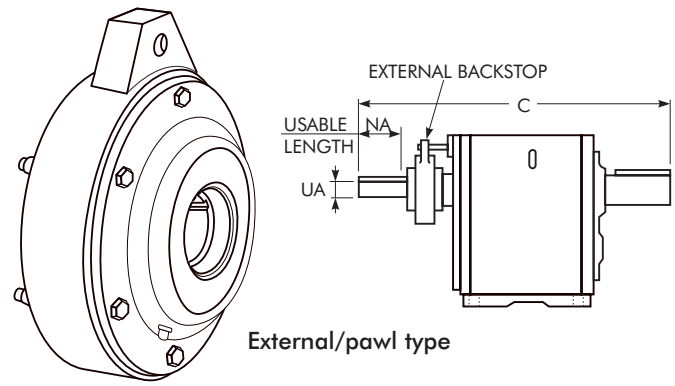
Can be added . . . removed . . . or reversed without disturbing revolving elements.

Mounted internally on the outer end of the low speed pinion shaft . . . backstop load transmitted only through low speed gear set.

Positive continuous lubrication . . . 50% or more of backstop is immersed in oil.

Drive dimensions with and without backstops . . . identical except for Dimension W shown on dimension pages.

Backstops are NOT available for drive sizes 1020-1030FC/FZ with 1.5 thru 4.57:1 ratios or for drive sizes 1020-1090FCB.



External/pawl type

Drive Size 1100

DO NOT use Falk pawl type backstops in tandem. Refer to Factory all applications involving the need for two or more backstops in one system. The Falk pawl type backstop is designed to operate during overrunning within a speed range of 400 to 1800 rpm and for creep drives between 100 and 400 rpm no more than one hour per month. For continuous speeds less than 400 rpm or greater than 1800 rpm, refer application to the Factory. Refer to Factory for tilt limits of pawl type backstops.

TYPE FCB — External Type B1F backstop, pawl type, mounted on extended high speed shaft.

TYPE FZB — Type B1F External pawl type, mounted on extended high speed shaft. Motor brackets for drives with external backstops may be slightly longer and are furnished blank (not drilled). Refer to price list for information required by Rexnord to drill and/or mount motor.

Falk self-contained backstop . . . precision manufactured . . . for either direction of rotation.

Backstop housing . . . case hardened on the inner periphery . . . precision ground. Pawls pivot about hardened steel pins in forged rotor hub.

Bearings . . . prelubricated and sealed (or shielded) and require no future lubrication.

Grease-purged seals . . . standard on Type B1F.

Drive dimensions with and without external backstops . . . identical except for the high speed shaft extension . . . see below.

DRIVE SIZE ★	TRIPLE REDUCTION FCB3/FZB3					DRIVE SIZE ★	QUADRUPLE REDUCTION — FCB4/FZB4				QUINTUPLE REDUCTION — FCB5/FZB5			
	C	Ratio Range	NA •	H.S. SHAFT *			C	NA	H.S. SHAFT *		C	NA	H.S. SHAFT *	
				UA	Key				UA	Key			UA	Key
1100	63.28	5.06-13.95 17.09-31.39	5.24 6.22	2.7500 2.1250	.625 x .625 x 11.000 .500 x .500 x 11.000	1100	60.92	3.88	2.1250	.500 x .500 x 9.000	60.44	3.38	1.8750	.500 x .500 x 8.000

★ Dimensions are for reference only and are subject to change without notice unless certified.

✱ Key extends from the end of the shaft through the backstop.

● Dimension NA for FCB3 = 5.24" for ratios 7.59-20.93:1 and 6.22" for ratios 25.63-47.08:1.

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Types FCB & FZB Right Angle Shaft
How to Select
Rating Table Method by Horsepower or Torque

Selection Information

Use the Horsepower or Torque Rating Method to make Type FB right angle drive selections.

NOTE: If you have an unusual application involving any of the following conditions, refer to Pages 4 & 5.

- Excessive Overloads
- Reversing Service
- Brake Equipped Applications
- Oversized Prime Movers
- Multi-Speed or Variable Speed Applications
- Excessive Ambient Temperatures
- Excessive Overhung Loads or Thrust Loads
- Product Modifications
- Non-Standard Motors or Prime Movers
- Non-Horizontal Mounting Positions

How to Select By Horsepower

1. Determine Service Factor or Load Classification Factor — See Pages 6 & 7 or 8 & 9.
2. Calculate Equivalent Horsepower — Multiply the actual horsepower to be transmitted by the Service Factor.
3. Determine Drive Input Speed, Output Speed and Ratio.
4. Determine Drive Size — Select the nearest standard ratio from the Horsepower Rating Tables starting on Page 32. Opposite the high speed shaft rpm, and the desired ratio and output speed, trace right to a horsepower capacity equal to or in excess of the equivalent horsepower calculated in Step 2. Read the size of drive at the top of the column. When the required input speed falls between two tabulated input speeds of a drive with the same number of gear reductions, interpolate to determine drive rating.
5. Select Drive Configuration — Type FCB or FZB. See Pages 48-51.
6. Check Thermal Horsepower Ratings — When the horsepower rating is shown in **bold** type, check the drive thermal rating on Page 41. For ambient temperatures above 100°F (38°C) or altitudes above sea level, refer to correction factors on Page 40. If the thermal horsepower rating is less than the actual required horsepower (without service factor), check thermal rating with cooling fan. Where the thermal rating exceeds the actual required horsepower, the drive selection is satisfactory. However, when the cooling fan ratings are still not adequate, consider the use of an electric fan or pump and cooler. Contact the district sales office for ratings, selections and pricing.
7. Check Overhung Loads and Thrust Capacity —See Pages 42-45 for instructions.
8. Check Reducer Dimensions — Pages 48-51.
9. Place the Order — See Page 31 for How to Order.

Example

Application: Concrete mixer, intermittent duty, right angle drive with low speed shaft down, L.S. shaft coupling connected to a fully supported mixer shaft.

Duty Cycle: 8 hours per day.

Driver: 50 hp, 1750 rpm electric motor, coupling connected to drive.

Output: 125 rpm.

1. From Table 4, Page 7 . . . concrete mixer, 3 to 10 hours per day, intermittent duty requires a 1.25 Service Factor.
2. Equivalent horsepower — 1.25 x 50 = 62.5 hp.
3. Input Speed is 1750 rpm, output is 125 rpm, resulting in a required ratio of 13.9:1.
4. Refer to the Right Angle Drive Horsepower Selection Table on Page 32 for ratios 2.25 through 47.08. In the 1750 rpm input section find 13.95:1 ratio. Trace right to 104 (nearest hp exceeding equivalent hp) and read Drive Size 1070 at top of column.
5. Assume that the Type FZB horizontal right angle shaft, assembly No. 1, L.S. shaft down drive is desired.
6. Note that the 104 is in **bold** print. Therefore, check the Thermal Rating Table on Page 41. Using the ACTUAL motor hp, compare the selection against the thermal horsepower rating which is 90 hp without fan, which means no fan is required.
7. Check the overhung load and thrust capacity per instructions on Pages 42-45.
8. Dimensions and weights for this reducer are given on Pages 50 & 51.
9. Place the order for the reducer per instructions on Page 31.

How to Select By Torque

Simply follow the steps outlined in the horsepower method, substituting torque values for horsepower.

Convert the actual required torque to horsepower and check against the thermal rating on Page 41. To convert, use the torque (lb.-in.) and speed (rpm) at low speed shaft of the drive in the following formula:

$$hp = \frac{\text{torque x output speed}}{63{,}000}$$

Example

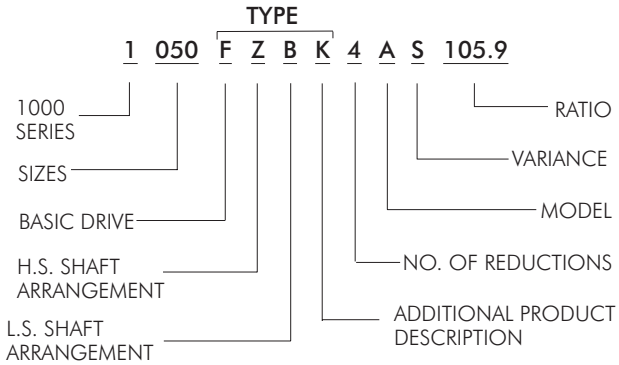
A right angle shaft reducer with a horizontal output shaft , Assembly No. 4, to drive a sludge collector, 24 hours per day, is to deliver 30,000 pound-inches output torque when output shaft operates at 1.5 rpm. Source of power is a 2 hp, 1750 rpm motor.

1. From Table 4, Page 7. . . sludge collector requires 1.25 Service Factor for 24 hour service.
2. Equivalent Torque — 1.25 x 30,000 = 37,500 pound-inches.
3. Input speed is 1750 rpm, output is 1.5 rpm, resulting in a required ratio of 1166:1.
4. Refer to the Output Torque capacity Table on Page 39. Closest standard ratio is 1207. In the 1750 high speed shaft section, opposite 1207 ratio, trace right to 57.2 (x 1000) (nearest torque exceeding equivalent torque) and read drive size 1070 at top of column.
5. Select a Type FCB right angle drive, assembly No. 4.
6. Published rating is not printed in **bold** type, therefore, no thermal problem exists..
7. Check the overhung load and thrust capacity per instructions on Pages 42-45.
8. Dimensions and weights for this drive are given on Pages 50 & 51.
9. Place the order for the drive per instructions on Page 31.

Types FCB & FZB Right Angle Shaft
How to Order

Gear Drive Identification

Drives in this selection guide, product nameplates and customer orders are identified through the following nomenclature. Use the appropriate designations when placing an order or inquiring through a Rexnord sales office.



Sizes

1020 thru 1050 — Cast iron housings
1060 thru 1100 — Fabricated steel housings

H.S. Shaft Arrangement

C — Speed Reducer
Z — Motoreducer with motor bracket & H.S. coupling
M — Motoreducer with motor plate & H.S. coupling

L.S. Shaft Arrangement

B — Right angle head drive

Additional Product Description

K — Torque rated basic drive

Reductions

3, 4, 5

Model

A, B, C, etc.

Variance Symbol

A — Drive with backstop
B — Drive with fan
C — Drive with backstop & fan
S — Modified or special drive

Ratio

Exact ratio to four digits.

How to Order Type FB Drives

The following information is required to quote or ship to your requirements.

Drive

A. Size and Type from selection tables.
B. Assembly figure No., see Page 47.
C. Ratio.
D. Input and/or output speed (rpm).
E. Horsepower — Motor or brake
F. Service Factor for application.
G. Mounting position —Horizontal. See Page 5 for tilt limits.
H. Auxiliary equipment — Bed plate, couplings, backstop, etc.
J. Thrust and overhung loads —Specify type and amount.

Motor — Prime Mover

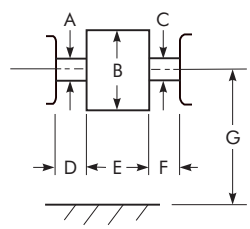
A. Type — Motor or engine.
B. Horsepower.
C. Speed — rpm.
D. Frame size — Dimension prints if Rexnord is to furnish mounting surface and/or mount the equipment.
E. Motor — driver characteristics, e.g. enclosure, modifications and accessories, altitude, brake, etc.
F. Furnished by: Rexnord... Purchaser...
G. Fitted by: Rexnord... Purchaser...

Driven Machine

A. Required horsepower or torque.
B. RPM
C. Application description —Belt conveyor, agitator, etc.
D. Service —Duty cycle, hours per day, reversals per minute if reversing.
E. Ambient temperature and operating conditions — Outdoor, taconite dust, etc.

Auxiliary Equipment

A. Motors — If Rexnord is to furnish, specify complete information, e.g. current characteristics, enclosure, modifications, accessories, etc.
B. Couplings — Specify size, type, driver or driven hub bore and keyway size.
C. Backstop —Specify direction of rotation of the low speed shaft (clockwise or counter clockwise) when looking toward the drive from the low speed end.
D. Motor Mount — Specify complete motor information, required belt centers and mounting arrangement.
E. Motor Plate — Specify complete motor, auxiliary equipment and coupling information.
F. Coupling Guards — Furnish description of couplings or other equipment to be guarded and all dimensions A-G below.



Types FCB3 & FZB3 Right Angle Shaft

Horsepower Ratings

Triple Reduction — Ratios 2.25 through 47.08

High Speed Shaft rpm	Nominal Ratios ±4%	Approx. L.S. Shaft rpm	DRIVE SIZE ♦								
			1020	1030	1040	1050	1060	1070	1080	1090	1100
1750	**2.25**	**780**	10.8	**21.5**	**32.0**	**62.9**	**117**	**193**	**273**	**386**	
	2.76	**640**	9.58	19.1	**28.1**	**55.7**	**109**	**186**	**298**	**351**	
	3.38	**520**	8.58	17.2	25.4	50.0	**94.3**	**173**	**253**	**308**	
	4.13	**420**	7.57	15.1	22.1	43.6	**85.2**	**151**	**225**	**271**	
	5.06	**350**	6.52	13.1	19.2	39.1	**76.9**	**121**	**199**	**210**	
	6.20	**280**	5.69	11.3	16.4	34.0	68.3	**105**	**152**	**185**	
	7.59	**230**	7.47	21.1	30.6	57.4	**102**	**181**	**128**	**334**	**551**
	9.30	**190**	6.41	18.3	26.2	49.5	**82.7**	**149**	**189**	**282**	**468**
	11.39	**155**	5.60	15.9	23.0	42.7	**67.9**	**123**	**158**	**229**	**409**
	13.95	**125**	4.80	13.9	19.6	37.6	57.0	**104**	**136**	**190**	**343**
	17.09	**100**	4.14	11.5	17.1	31.5	47.4	85.5	**111**	**154**	**277**
	20.93	**84**	3.54	9.57	14.5	26.0	39.2	70.8	90.9	**128**	**231**
	25.63	**68**	3.02	7.77	12.6	21.3	31.6	55.8	72.4	108	**190**
	31.39	**56**	2.54	6.42	11.1	17.3	25.5	47.4	60.4	88.8	**154**
	38.44	**45**	2.08	4.75	8.05	14.2	21.2	39.0	50.7	71.7	**132**
	47.08	**37**	1.68‡	4.05	7.37	11.7	17.4	31.8	41.6	60.5	**104**
1430	**2.25**	**640**	9.25	18.5	**27.5**	**54.1**	**99.0**	**160**	**228**	**322**	
	2.76	**520**	8.23	16.4	24.2	47.9	**94.4**	**160**	**249**	**293**	
	3.38	**420**	7.37	14.7	21.8	43.0	**81.8**	**144**	**210**	**257**	
	4.13	**350**	6.50	13.0	19.0	37.5	**74.0**	**126**	**187**	**226**	
	5.06	**280**	5.60	11.2	16.5	33.6	66.8	101	**166**	**175**	
	6.20	**230**	4.89	9.75	14.1	29.3	59.3	87.0	126	153	
	7.59	**190**	6.42	18.1	26.3	49.8	**84.5**	**150**	**188**	**277**	**469**
	9.30	**155**	5.50	15.8	22.5	43.0	68.4	**123**	**157**	**234**	**398**
	11.39	**125**	4.81	13.7	19.7	37.0	56.1	**102**	**130**	**189**	**339**
	13.95	**100**	4.13	11.7	16.9	31.2	47.1	86.0	**113**	**157**	**284**
	17.09	**84**	3.56	9.48	14.7	25.9	39.1	70.6	91.2	**127**	**229**
	20.93	**68**	2.98	7.87	12.5	21.4	32.3	58.4	75.0	106	**191**
	25.63	**56**	2.48	6.38	10.7	17.5	26.0	46.0	59.7	89.0	**157**
	31.39	**45**	2.08	5.28	9.16	14.3	21.0	39.0	49.7	73.2	127
	38.44	**37**	1.71	4.00	6.72	11.7	17.5	32.1	41.7	59.1	109
	47.08	**30**	1.38‡	3.40	6.13	9.64	14.3	26.1	34.2	49.8	85.7
1170	**2.25**	**520**	7.96	15.8	23.6	45.7	**82.4**	**134**	**190**	**269**	
	2.76	**420**	7.08	14.2	20.8	41.2	**82.1**	**137**	**207**	**244**	
	3.38	**350**	6.34	12.7	18.8	36.3	71.1	**120**	**175**	**214**	
	4.13	**280**	5.60	11.2	16.3	32.3	64.3	104	**156**	**188**	
	5.06	**230**	4.82	9.66	14.2	28.7	58.0	83.7	138	145	
	6.20	**190**	4.21	8.39	12.1	24.9	51.0	72.2	105	127	
	7.59	**155**	5.52	15.6	22.6	41.6	69.9	**124**	**156**	**229**	**392**
	9.30	**125**	4.74	13.6	19.4	35.9	56.5	102	**130**	**194**	**330**
	11.39	**100**	4.14	11.6	17.0	30.7	46.3	84.3	108	**157**	**280**
	13.95	**84**	3.55	9.68	14.5	25.8	38.8	71.1	93.0	130	**235**
	17.09	**68**	3.02	7.81	12.7	21.4	32.2	58.2	75.3	105	**189**
	20.93	**56**	2.45	6.48	10.7	17.7	26.6	48.2	61.8	87.4	**158**
	25.63	**45**	2.04	5.25	8.83	14.4	21.4	37.9	49.2	73.4	129
	31.39	**37**	1.71	4.34	7.54	11.7	17.3	32.1	41.0	60.3	105
	38.44	**30**	1.40	3.35	5.60	9.60	14.4	26.4	34.3	48.7	89.9
	47.08	**25**	1.13‡	2.85	5.00	7.93	11.7	21.5	28.1	41.0	70.6

♦ Mechanical hp ratings shown in **bold** type exceed drive thermal hp ratings. Check required hp (without service factor) against thermal hp ratings on Page 41. For ratings at speeds higher than 1750 rpm and for variable speed applications, consult Factory or local Sales office. For speeds below 580 rpm, reduce hp rating proportionately.

‡ Size 1020 with 47.08:1 ratio is a quadruple reduction (FCB4 or FZB4) drive.

Types FCB3 & FZB3 Right Angle Shaft
Torque Ratings
Triple Reduction — Ratios 2.25 through 47.08

(TORQUE IS IN POUND INCHES AT LOW SPEED SHAFT . . . MULTIPLY VALUES LISTED BELOW BY 1000)

High Speed Shaft rpm	Nominal Ratios ±4%	Approx. L.S. Shaft rpm	DRIVE SIZE†								
			1020	1030	1040	1050	1060	1070	1080	1090	1100
1750	**2.25**	**780**	.845	**1.76**	**2.57**	**5.08**	**10.1**	**15.8**	**23.2**	**33.1**	
	2.76	**640**	.931	1.91	**2.80**	**5.55**	**11.2**	**18.1**	**30.7**	**36.0**	
	3.38	**520**	1.01	2.09	3.04	6.16	**12.1**	**20.8**	**31.7**	**39.6**	
	4.13	**420**	1.10	2.20	3.30	6.44	**13.5**	**22.2**	**34.3**	**42.5**	
	5.06	**350**	1.16	2.38	3.45	7.02	**14.6**	**21.3**	**35.5**	**41.0**	
	6.20	**280**	1.25	2.50	3.69	7.45	15.8	**22.6**	**33.9**	**43.8**	
	7.59	**230**	2.06	5.99	8.38	15.6	**27.4**	**49.5**	**65.5**	**91.3**	**151**
	9.30	**190**	2.20	6.32	8.91	16.6	**27.8**	**50.2**	**66.2**	**92.4**	**163**
	11.39	**155**	2.32	6.68	9.41	17.7	**28.1**	**50.6**	**67.2**	**94.0**	**169**
	13.95	**125**	2.46	7.02	9.98	18.7	28.4	**51.2**	**67.6**	**95.2**	**171**
	17.09	**100**	2.60	7.25	10.5	19.1	28.7	51.8	**68.8**	**96.0**	**174**
	20.93	**84**	2.75	7.32	11.2	19.2	28.9	52.3	69.2	**96.9**	**175**
	25.63	**68**	2.84	7.37	11.8	19.4	29.2	52.9	69.9	98.1	**178**
	31.39	**56**	2.85	7.41	12.2	19.4	29.4	53.3	70.5	99.0	**180**
	38.44	**45**	2.86	6.75	11.3	19.6	29.6	53.6	71.0	99.8	**181**
	47.08	**37**	2.88‡	6.87	12.1	19.7	29.9	54.1	71.6	101	**183**
1430	**2.25**	640	.884	1.87	**2.71**	**5.35**	**10.5**	**16.0**	**23.8**	**33.7**	
	2.76	**520**	.978	2.00	2.95	5.84	**11.8**	**19.2**	**31.4**	**36.7**	
	3.38	**420**	1.06	2.18	3.19	6.49	**12.8**	**21.1**	**32.4**	**40.4**	
	4.13	**350**	1.15	2.32	3.47	6.78	**14.3**	**22.6**	**34.9**	**43.4**	
	5.06	**280**	1.22	2.50	3.62	7.39	15.5	21.7	**36.3**	**41.9**	
	6.20	**230**	1.32	2.64	3.89	7.84	16.7	23.1	34.3	44.4	
	7.59	**190**	2.17	6.29	8.82	16.6	**27.8**	**50.2**	**66.1**	**92.7**	**158**
	9.30	**155**	2.31	6.67	9.37	17.7	28.2	**50.7**	**67.3**	**93.8**	**169**
	11.39	**125**	2.44	7.04	9.87	18.8	28.5	**51.3**	**67.7**	**94.9**	**172**
	13.95	**100**	2.59	7.24	10.5	19.0	28.7	51.8	**68.7**	**93.6**	**174**
	17.09	**84**	2.74	7.32	11.0	19.2	29.0	52.4	69.1	**96.9**	**176**
	20.93	**68**	2.84	7.37	11.8	19.3	29.2	52.8	69.9	98.2	**177**
	25.63	**56**	2.85	7.41	12.2	19.5	29.4	53.4	70.5	98.9	**180**
	31.39	**45**	2.86	7.45	12.3	19.6	29.7	53.6	71.0	99.8	182
	38.44	**37**	2.88	6.96	11.5	19.8	29.9	54.0	71.5	101	183
	47.08	**30**	2.90‡	7.06	12.3	19.8	30.1	54.3	72.0	101	184
1170	**2.25**	520	.931	1.94	2.83	5.52	**10.7**	**16.3**	**24.3**	**34.4**	
	2.76	**420**	1.03	2.12	3.10	6.14	**12.6**	**20.1**	**31.9**	**37.5**	
	3.38	**350**	1.11	2.31	3.37	6.69	13.6	**21.6**	**33.0**	**41.1**	
	4.13	**280**	1.22	2.44	3.63	7.14	15.2	22.8	**35.7**	**44.1**	
	5.06	**230**	1.28	2.64	3.82	7.71	16.4	22.0	36.8	42.3	
	6.20	**190**	1.39	2.78	4.07	8.15	17.6	23.4	34.9	45.1	
	7.59	**155**	2.28	6.63	9.26	16.9	28.1	**50.7**	**67.0**	**93.7**	**161**
	9.30	**125**	2.43	7.02	9.87	18.0	28.4	51.4	**68.1**	**95.1**	**172**
	11.39	**100**	2.57	7.29	10.4	19.1	28.7	51.9	68.7	**96.4**	**173**
	13.95	**84**	2.72	7.32	11.0	19.2	28.9	52.3	69.1	97.5	**176**
	17.09	**68**	2.84	7.37	11.6	19.4	29.2	52.8	69.8	97.9	**177**
	20.93	**56**	2.85	7.41	12.3	19.5	29.4	53.3	70.4	99.0	**179**
	25.63	**45**	2.87	7.45	12.4	19.6	29.6	53.7	71.0	99.7	181
	31.39	**37**	2.87	7.49	12.4	19.6	29.9	54.0	71.6	101	184
	38.44	**30**	2.88	7.12	11.8	19.8	30.1	54.3	71.9	101	184
	47.08	**25**	2.90‡	7.23	12.2	19.9	30.1	54.7	72.3	102	185

† Torque ratings shown in **bold** type exceed drive thermal hp ratings. Convert required torque (without service factor) to hp and refer to Page 41 for thermal ratings. For ratings at speeds higher than 1750 rpm and for variable speed applications, consult Factory or local Sales office. For speeds below 580 rpm, use torques for 580 rpm.

‡ Size 1020 with 47.08:1 ratio is a quadruple reduction (FCB4 or FZB4) drive.

Types FCB3 & FZB3 Right Angle Shaft

Horsepower Ratings

Triple Reduction — Ratios 2.25 through 47.08

High Speed Shaft rpm	Nominal Ratios ±4%	Approx. L.S. Shaft rpm	DRIVE SIZE ♦ 1020	1030	1040	1050	1060	1070	1080	1090	1100
870	**2.25**	**390**	6.37	12.0	18.0	34.8	62.8	102	**145**	**205**	
	2.76	**320**	5.67	10.9	16.3	31.5	66.7	110	**158**	**186**	
	3.38	**260**	5.08	9.63	14.4	27.5	57.8	91.1	**133**	**163**	
	4.13	**210**	4.48	8.64	12.6	25.2	51.9	79.4	118	143	
	5.06	**175**	3.86	7.36	11.2	21.7	45.1	63.6	105	110	
	6.20	**140**	3.37	6.38	9.34	18.8	38.7	54.8	79.4	96.8	
	7.59	**115**	4.42	12.0	18.0	30.9	52.8	93.8	118	**174**	**299**
	9.30	**95**	3.79	10.5	15.5	26.7	42.6	76.9	97.8	146	**250**
	11.39	**77**	3.31	8.69	13.6	23.0	34.9	63.6	81.3	118	**212**
	13.95	**62**	2.76	7.26	11.6	19.4	29.2	53.5	70.1	97.7	**178**
	17.09	**50**	2.26	5.86	9.99	16.0	24.2	43.8	56.7	79.3	143
	20.93	**42**	1.84	4.86	8.00	13.2	20.0	36.2	46.5	65.8	119
	25.63	**34**	1.53	3.93	6.62	10.8	16.1	28.4	37.0	55.2	97.3
	31.39	**28**	1.28	3.25	5.65	8.80	13.0	24.1	30.7	45.3	78.6
	38.44	**22**	1.05	2.61	4.45	7.19	10.8	19.8	25.8	36.5	67.5
	47.08	**18**	.845‡	2.20	3.83	5.93	8.78	16.1	21.1	30.8	53.0
720	**2.25**	**320**	5.53	10.0	15.1	29.1	52.7	85.5	**122**	**173**	
	2.76	**260**	4.92	9.12	13.6	26.4	58.4	93.2	**132**	**156**	
	3.38	**210**	4.41	8.06	12.1	23.0	50.6	76.4	112	137	
	4.13	**175**	3.89	7.22	10.5	21.1	43.5	66.5	99.4	120	
	5.06	**140**	3.35	6.14	9.33	18.2	37.8	53.2	87.6	92.6	
	6.20	**115**	2.93	5.33	7.80	15.7	32.3	45.9	66.5	81.1	
	7.59	**95**	3.84	10.0	15.1	25.6	44.1	78.4	98.6	145	**249**
	9.30	**77**	3.29	8.75	13.5	22.0	35.6	64.2	81.7	122	**209**
	11.39	**62**	2.82	7.23	11.8	19.0	29.1	53.0	67.9	98.7	177
	13.95	**50**	2.29	6.05	9.95	16.1	24.4	44.6	58.5	81.5	148
	17.09	**42**	1.88	4.87	8.31	13.4	20.2	36.5	47.3	66.1	119
	20.93	**34**	1.53	4.04	6.65	11.0	16.7	30.2	38.7	54.8	99.3
	25.63	**28**	1.27	3.27	5.50	8.98	13.4	23.7	30.8	46.0	81.1
	31.39	**22**	1.06	2.70	4.69	7.31	10.8	20.1	25.6	37.7	65.5
	38.44	**18**	.870	2.20	3.70	5.97	8.95	16.5	21.4	30.4	56.2
	47.08	**15**	.701‡	1.85	3.18	4.93	7.30	13.4	17.5	25.6	44.1
580	**2.25**	**260**	4.70	8.18	12.3	23.8	43.1	70.0	99.4	141	
	2.76	**210**	4.18	7.43	11.1	21.5	48.5	76.2	108	128	
	3.38	**175**	3.75	6.56	9.84	18.8	43.5	62.4	91.5	112	
	4.13	**140**	3.31	5.88	8.55	17.2	35.5	54.3	81.2	98.0	
	5.06	**115**	2.85	5.00	7.59	14.8	30.8	43.5	71.6	75.6	
	6.20	**95**	2.49	4.33	6.35	12.8	26.4	37.4	54.2	65.4	
	7.59	**77**	3.26	8.18	12.3	20.6	35.8	63.8	80.3	118	200
	9.30	**62**	2.75	7.10	11.1	17.8	28.9	52.2	66.4	99.6	170
	11.39	**50**	2.28	5.86	9.84	15.4	23.6	43.1	55.1	80.3	144
	13.95	**42**	1.86	4.90	8.07	13.1	19.8	36.2	47.5	66.3	121
	17.09	**34**	1.52	3.95	6.73	10.8	16.4	29.6	38.4	53.7	96.9
	20.93	**28**	1.23	3.27	5.39	8.93	13.5	24.5	31.4	44.5	80.6
	25.63	**22**	1.02	2.64	4.45	7.27	10.8	19.2	24.9	37.3	65.8
	31.39	**18**	.859	2.18	3.80	5.92	8.72	16.3	20.7	30.6	53.1
	38.44	**15**	.703	1.78	2.99	4.83	7.24	13.3	17.3	24.6	45.6
	47.08	**12.5**	.566‡	1.49	2.57	3.98	5.90	10.8	14.2	20.7	35.7

♦ Mechanical hp ratings shown in **bold** type exceed drive thermal hp ratings. Check required hp (without service factor) against thermal hp ratings on Page 41. For ratings at speeds higher than 1750 rpm and for variable speed applications, consult Factory or local Sales office. For speeds below 580 rpm, reduce hp rating proportionately.

‡ Size 1020 with 47.08:1 ratio is a quadruple reduction (FCB4 or FZB4) drive.

Types FCB3 & FZB3 Right Angle Shaft

Torque Ratings

Triple Reduction — Ratios 2.25 through 47.08

(TORQUE IS IN POUND INCHES AT LOW SPEED SHAFT . . . MULTIPLY VALUES LISTED BELOW BY 1000)

High Speed Shaft rpm	Nominal Ratios ±4%	Approx. L.S. Shaft rpm	DRIVE SIZE †								
			1020	1030	1040	1050	1060	1070	1080	1090	1100
870	**2.25**	**390**	1.00	1.99	2.90	5.65	10.9	16.7	24.9	35.3	
	2.76	**320**	1.11	2.18	3.27	6.32	13.7	21.6	**32.8**	**38.4**	
	3.38	**260**	1.20	2.35	3.47	6.81	14.9	22.0	**33.6**	**42.2**	
	4.13	**210**	1.31	2.53	3.77	7.49	16.6	23.4	36.3	45.2	
	5.06	**175**	1.38	2.70	4.07	7.84	17.2	22.5	37.7	43.2	
	6.20	**140**	1.49	2.87	4.24	8.28	17.9	23.9	35.5	46.1	
	7.59	**115**	2.45	6.86	9.92	16.9	28.6	51.6	68.2	**95.7**	**165**
	9.30	**95**	2.62	7.29	10.6	18.0	28.8	52.1	68.9	96.2	**175**
	11.39	**77**	2.76	7.34	11.2	19.2	29.1	52.6	69.5	97.4	**177**
	13.95	**62**	2.85	7.38	11.9	19.4	29.3	53.0	70.1	98.5	**179**
	17.09	**50**	2.86	7.43	12.3	19.5	29.5	53.4	70.7	99.4	180
	20.93	**42**	2.88	7.48	12.4	19.6	29.7	53.8	71.2	100	182
	25.63	**34**	2.89	7.50	12.5	19.8	29.9	54.2	71.8	101	183
	31.39	**28**	2.89	7.54	12.5	19.9	30.2	54.5	72.1	102	185
	38.44	**22**	2.91	7.46	12.6	20.0	30.3	54.7	72.7	102	186
	47.08	**18**	2.91‡	7.51	12.6	20.0	30.4	55.1	73.0	103	187
720	**2.25**	**320**	1.05	2.00	2.95	5.72	11.1	16.9	25.4	36.0	
	2.76	**260**	1.16	2.21	3.30	6.40	14.5	22.0	**33.1**	**38.8**	
	3.38	**210**	1.26	2.38	3.53	6.89	15.8	22.3	34.2	42.8	
	4.13	**175**	1.37	2.56	3.80	7.58	16.7	23.7	36.9	45.8	
	5.06	**140**	1.45	2.72	4.07	7.95	17.5	22.6	38.0	44.0	
	6.20	**115**	1.56	2.87	4.27	8.36	18.1	24.2	36.0	46.7	
	7.59	**95**	2.58	6.90	10.1	16.9	28.8	52.1	68.9	96.4	**166**
	9.30	**77**	2.74	7.34	11.2	18.0	29.1	52.6	69.5	97.1	**177**
	11.39	**62**	2.84	7.38	11.7	19.2	29.3	53.0	70.2	98.5	178
	13.95	**50**	2.85	7.43	12.3	19.5	29.6	53.4	70.6	99.3	180
	17.09	**42**	2.87	7.46	12.4	19.7	29.7	53.8	71.2	100	181
	20.93	**34**	2.89	7.51	12.4	19.7	30.0	54.2	71.6	101	183
	25.63	**28**	2.90	7.54	12.5	19.9	30.1	54.6	72.3	102	185
	31.39	**22**	2.89	7.57	12.5	19.9	30.3	54.9	72.7	102	186
	38.44	**18**	2.91	7.60	12.6	20.0	30.4	55.1	72.9	103	187
	47.08	**15**	2.92‡	7.63	12.6	20.1	30.5	55.4	73.2	103	188
580	**2.25**	**260**	1.11	2.03	2.98	5.79	11.2	17.2	25.7	36.4	
	2.76	**210**	1.23	2.23	3.33	6.46	15.0	22.5	33.6	39.6	
	3.38	**175**	1.33	2.40	3.56	6.99	16.9	22.6	34.8	43.4	
	4.13	**140**	1.45	2.59	3.85	7.68	16.9	24.0	37.4	46.4	
	5.06	**115**	1.53	2.75	4.10	8.03	17.6	23.1	38.6	44.4	
	6.20	**95**	1.65	2.88	4.32	8.45	18.4	24.5	36.3	46.7	
	7.59	**77**	2.72	7.01	10.2	16.9	29.0	52.6	69.6	97.3	166
	9.30	**62**	2.85	7.39	11.4	18.0	29.3	53.0	70.2	98.4	178
	11.39	**50**	2.85	7.43	12.2	19.2	29.5	53.5	70.7	99.4	180
	13.95	**42**	2.88	7.47	12.4	19.7	29.8	53.8	71.2	100	182
	17.09	**34**	2.88	7.51	12.4	19.7	30.0	54.1	71.8	101	183
	20.93	**28**	2.89	7.55	12.5	19.9	30.1	54.6	72.1	102	185
	25.63	**22**	2.89	7.56	12.6	20.0	30.1	54.9	72.5	102	186
	31.39	**18**	2.91	7.59	12.6	20.1	30.4	55.3	72.9	103	187
	38.44	**15**	2.92	7.63	12.7	20.1	30.5	55.2	73.1	103	188
	47.08	**12.5**	2.93‡	7.63	12.7	20.2	30.6	55.4	73.7	104	189

† Torque ratings shown in **bold** type exceed drive thermal hp ratings. Convert required torque (without service factor) to hp and refer to Page 41 for thermal ratings. For ratings at speeds higher than 1750 rpm and for variable speed applications, consult Factory or local Sales office. For speeds below 580 rpm, use torques for 580 rpm.

‡ Size 1020 with 47.08:1 ratio is a quadruple reduction (FCB4 or FZB4) drive.

Types FCB4 & FZB4 Right Angle Shaft

Horsepower Ratings

Quadruple Reduction — Ratios 57.66 through 291.9

High Speed Shaft rpm	Nominal Ratios ±4%	Approx. L.S. Shaft rpm	DRIVE SIZE ♦ 1020	1030	1040	1050	1060	1070	1080	1090	1100
1750	57.66	30	1.36	3.15	5.58	8.03	14.2	26.3	33.3	48.7	86.2
	70.62	25	1.12	2.84	4.96	7.18	11.8	21.3	27.6	40.8	70.8
	86.50	20	.905	2.44	4.01	6.26	9.53	17.7	22.7	33.8	60.0
	105.9	16.5	.751	1.96	3.34	5.18	7.89	14.2	18.5	27.9	48.4
	129.7	13.5	.630	1.62	2.67	4.27	6.39	11.7	15.1	22.4	39.4
	158.9	11.0	.515	1.31	2.20	3.47	5.27	10.0	12.3	18.9	33.8
	194.6	9.0	. . .	1.08	1.82	2.82	4.29	7.88	10.2	14.9	26.0
	238.4	7.5	. . .	.880	1.47	2.30	3.61	6.78	8.54	12.1	22.3
	291.9	6.0	. . .	.715‡	1.08‡	1.81‡	2.99	5.56	6.98	10.2	17.4
1430	57.66	25	1.12	2.70	4.61	6.90	11.6	21.6	27.4	40.0	71.6
	70.62	20	.915	2.40	4.07	6.15	9.71	17.5	22.6	33.5	58.2
	86.50	16.5	.742	2.00	3.29	5.14	7.82	14.6	18.7	27.7	49.3
	105.9	13.5	.615	1.61	2.74	4.25	6.47	11.7	15.2	22.9	39.7
	129.7	11.0	.516	1.33	2.19	3.50	5.24	9.63	12.4	18.4	32.4
	158.9	9.0	.422	1.07	1.80	2.84	4.32	8.21	10.1	15.5	27.8
	194.6	7.5	. . .	.886	1.49	2.31	3.52	6.46	8.37	12.2	21.3
	238.4	6.0	. . .	.720	1.20	1.88	2.95	5.56	7.00	9.95	18.3
	291.9	5.0	. . .	.586‡	.885‡	1.56‡	2.45	4.56	5.72	8.36	14.3
1170	57.66	20	.917	2.33	3.80	5.94	9.56	17.8	22.5	32.9	59.4
	70.62	16.5	.751	1.97	3.34	5.05	7.98	14.4	18.6	27.6	47.9
	86.50	13.5	.609	1.64	2.70	4.22	6.42	12.0	15.3	22.8	40.6
	105.9	11.0	.505	1.32	2.25	3.49	5.31	9.57	12.5	18.8	32.7
	129.7	9.0	.423	1.09	1.79	2.87	4.30	7.91	10.2	15.1	26.6
	158.9	7.5	.346	.881	1.48	2.33	3.55	6.74	8.29	12.7	22.8
	194.6	6.0	. . .	.726	1.23	1.89	2.89	5.30	6.87	10.0	17.5
	238.4	5.0	. . .	.591	.990	1.55	2.42	4.56	5.74	8.16	15.0
	291.9	4.0	. . .	.481‡	.726‡	1.30‡	2.01	3.74	4.69	6.86	11.7
870	57.66	15	.685	1.78	2.85	4.65	7.15	13.3	16.9	24.7	44.6
	70.62	12.5	.560	1.47	2.50	3.78	5.97	10.7	13.9	20.7	35.9
	86.50	10.0	.454	1.22	2.01	3.16	4.80	8.95	11.5	17.1	30.4
	105.9	8.3	.377	.985	1.68	2.60	3.97	7.15	9.34	14.1	24.5
	129.7	6.8	.315	.814	1.34	2.14	3.21	5.91	7.59	11.3	19.9
	158.9	5.5	.258	.657	1.10	1.74	2.65	5.03	6.19	9.50	17.1
	194.6	4.5	. . .	.542	.918	1.41	2.15	3.96	5.13	7.47	13.1
	238.4	3.8	. . .	.440	.739	1.15	1.81	3.40	4.29	6.09	11.2
	291.9	3.0	. . .	.359‡	.542‡	.966‡	1.50	2.79	3.50	5.12	8.76
720	57.66	12.5	.568	1.48	2.37	3.86	5.94	11.1	14.0	20.5	37.1
	70.62	10.0	.465	1.22	2.07	3.13	4.96	8.92	11.6	17.2	29.8
	86.50	8.3	.377	1.02	1.67	2.62	3.98	7.43	9.53	14.2	25.2
	105.9	6.8	.312	.817	1.39	2.16	3.29	5.94	7.75	11.7	20.3
	129.7	5.5	.261	.675	1.11	1.78	2.66	4.90	6.30	9.38	16.5
	158.9	4.5	.214	.545	.916	1.44	2.19	4.17	5.14	7.88	14.2
	194.6	3.8	. . .	.449	.762	1.17	1.79	3.28	4.26	6.20	10.9
	238.4	3.0	. . .	.365	.613	.955	1.50	2.82	3.56	5.05	9.30
	291.9	2.5	. . .	.298‡	.450‡	.801‡	1.24	2.31	2.90	4.24	7.26
580	57.66	10.0	.459	1.20	1.92	3.12	4.80	8.94	11.3	16.6	30.0
	70.62	8.3	.375	.985	1.67	2.53	4.00	7.22	9.36	13.9	24.1
	86.50	6.8	.304	.821	1.35	2.12	3.22	6.01	7.70	11.5	20.4
	105.9	5.5	.252	.659	1.12	1.74	2.66	4.80	6.26	9.44	16.4
	129.7	4.5	.211	.545	.896	1.43	2.15	3.96	5.09	7.58	13.4
	158.9	3.8	.172	.440	.739	1.17	1.77	3.37	4.15	6.37	11.4
	194.6	3.0	. . .	.362	.616	.946	1.44	2.65	3.44	5.01	8.77
	238.4	2.5	. . .	.294	.494	.771	1.21	2.28	2.87	4.08	7.51
	291.9	2.0	. . .	.241‡	.363‡	.646‡	1.00	1.87	2.34	3.43	5.87

♦ Since thermal ratings for drives listed above exceed mechanical hp ratings, it is not necessary to check for thermal limitations. For ratings at speeds higher than 1750 rpm and for variable speed applications, consult Factory or local Sales office. For speeds below 580 rpm, reduce hp rating proportionately.

‡ Sizes 1030 thru 1050 with 291.9:1 ratio are quintuple reduction (FCB5 or FZB5) drives.

Types FCB4 & FZB4 Right Angle Shaft
Torque Ratings
Quadruple Reduction — Ratios 57.66 through 291.9

(TORQUE IS IN POUND INCHES AT LOW SPEED SHAFT . . . MULTIPLY VALUES LISTED BELOW BY 1000)

High Speed Shaft rpm	Nominal Ratios ±4%	Approx. L.S. Shaft rpm	DRIVE SIZE †								
			1020	1030	1040	1050	1060	1070	1080	1090	1100
1750	57.66	30	2.88	6.70	11.7	17.3	30.1	54.4	72.1	101	181
	70.62	25	2.91	7.35	12.5	19.1	30.1	54.8	72.6	102	186
	86.50	20	2.91	7.59	12.6	20.0	30.3	54.8	72.8	103	187
	105.9	16.5	2.92	7.61	12.6	20.1	30.4	55.3	73.1	103	188
	129.7	13.5	2.93	7.63	12.7	20.2	30.6	55.3	73.7	104	189
	158.9	11.0	2.93	7.65	12.7	20.2	30.7	55.7	73.8	104	189
	194.6	9.0	. . .	7.67	12.4	20.3	30.8	55.9	74.0	105	191
	238.4	7.5	. . .	7.70	12.7	20.4	30.9	56.1	74.4	105	192
	291.9	6.0	. . .	7.61‡	11.1‡	19.1‡	30.9	56.2	74.6	105	192
1430	57.66	25	2.91	7.02	11.9	18.2	30.1	54.7	72.6	102	184
	70.62	20	2.91	7.60	12.6	20.0	30.3	55.1	72.7	102	187
	86.50	16.5	2.92	7.62	12.7	20.1	30.4	55.4	73.3	103	188
	105.9	13.5	2.92	7.65	12.7	20.2	30.5	55.7	73.5	104	189
	129.7	11.0	2.93	7.67	12.7	20.3	30.7	55.7	74.1	104	190
	158.9	9.0	2.94	7.65	12.7	20.3	30.8	55.9	74.1	105	191
	194.6	7.5	. . .	7.70	12.4	20.4	30.9	56.1	74.3	105	191
	238.4	6.0	. . .	7.71	12.7	20.4	30.9	56.3	74.6	105	192
	291.9	5.0	. . .	7.63‡	11.1‡	20.2‡	31.0	56.4	74.8	106	193
1170	57.66	20	2.91	7.41	11.9	19.1	30.3	55.1	72.9	102	187
	70.62	16.5	2.92	7.62	12.6	20.1	30.4	55.4	73.2	103	188
	86.50	13.5	2.93	7.63	12.7	20.2	30.5	55.6	73.3	104	189
	105.9	11.0	2.94	7.67	12.7	20.3	30.6	55.7	73.9	104	190
	129.7	9.0	2.94	7.68	12.7	20.3	30.8	56.0	74.5	104	190
	158.9	7.5	2.95	7.70	12.8	20.3	30.9	56.1	74.4	105	191
	194.6	6.0	. . .	7.71	12.5	20.4	31.0	56.2	74.6	105	192
	238.4	5.0	. . .	7.74	12.8	20.5	31.0	56.4	74.8	106	193
	291.9	4.0	. . .	7.66‡	11.2‡	20.6‡	31.1	56.6	75.0	106	193
870	57.66	15	2.92	7.61	12.0	20.1	30.5	55.3	73.6	103	188
	70.62	12.5	2.93	7.65	12.7	20.2	30.6	55.4	73.5	104	189
	86.50	10.0	2.94	7.64	12.7	20.3	30.7	55.8	74.1	104	190
	105.9	8.3	2.95	7.69	12.8	20.3	30.8	56.0	74.3	105	191
	129.7	6.8	2.94	7.71	12.8	20.4	30.9	56.2	74.5	105	192
	158.9	5.5	2.96	7.72	12.8	20.4	31.0	56.3	74.7	105	193
	194.6	4.5	. . .	7.74	12.6	20.4	31.0	56.5	74.9	106	193
	238.4	3.8	. . .	7.75	12.9	20.5	31.2	56.5	75.1	106	194
	291.9	3.0	. . .	7.68‡	11.2‡	20.5‡	31.2	56.7	75.3	106	194
720	57.66	12.5	2.93	7.65	12.1	20.2	30.6	55.8	73.7	104	189
	70.62	10.0	2.94	7.67	12.7	20.2	30.7	55.8	74.1	104	190
	86.50	8.3	2.95	7.71	12.8	20.3	30.8	56.0	74.2	105	190
	105.9	6.8	2.95	7.71	12.8	20.4	30.9	56.2	74.5	105	192
	129.7	5.5	2.95	7.73	12.8	20.5	30.9	56.3	74.7	105	192
	158.9	4.5	2.96	7.74	12.9	20.4	31.0	56.4	74.9	106	193
	194.6	3.8	. . .	7.75	12.6	20.5	31.2	56.6	75.2	106	194
	238.4	3.0	. . .	7.76	12.9	20.5	31.2	56.7	75.3	106	194
	291.9	2.5	. . .	7.71‡	11.3‡	20.6‡	31.2	56.8	75.3	106	195
580	57.66	10.0	2.94	7.70	12.2	20.3	30.7	55.8	73.8	104	190
	70.62	8.3	2.94	7.69	12.7	20.3	30.8	56.0	74.3	105	191
	86.50	6.8	2.95	7.71	12.8	20.4	30.9	56.2	74.5	105	191
	105.9	5.5	2.95	7.72	12.8	20.4	31.0	56.4	74.7	105	192
	129.7	4.5	2.96	7.74	12.9	20.4	31.0	56.5	75.0	106	194
	158.9	3.8	2.96	7.76	12.9	20.6	31.1	56.6	75.1	106	193
	194.6	3.0	. . .	7.76	12.6	20.5	31.2	56.7	75.3	106	194
	238.4	2.5	. . .	7.76	12.9	20.6	31.2	56.9	75.4	107	195
	291.9	2.0	. . .	7.74‡	11.3‡	20.6‡	31.2	57.1	75.5	107	195

† Since thermal ratings for drives listed above exceed mechanical hp ratings, it is not necessary to check for thermal limitations. For ratings at speeds higher than 1750 rpm and for variable speed applications, consult Factory or local Sales office. For speeds below 580 rpm, use torques for 580 rpm.

‡ Sizes 1030 thru 1050 with 291.9:1 ratio are quintuple reduction (FCB5 or FZB5) drives.

Types FCB5 & FZB5 Right Angle Shaft

Horsepower Ratings

Quintuple Reduction — Ratios 357.5 through 1810

High Speed Shaft rpm	Nominal Ratios ±5%	Approx. L.S. Shaft rpm	DRIVE SIZE							
			1030	1040	1050	1060	1070	1080	1090	1100
1750	357.5	5.0	.598	.967	1.57	2.37	4.36	5.60	8.40	14.6
	437.9	4.0	.492	.837	1.27	1.92	3.53	4.58	6.86	11.7
	536.3	3.2	.410	.674	1.06	1.58	2.77	3.71	5.61	9.63
	656.8	2.7	.329	.561	.874	1.27	2.34	3.07	4.55	8.20
	804.5	2.2	.272	.447	.719	1.12	1.92	2.57	3.65	7.02
	985.3	1.8	.219	.369	.583	.899	1.57	2.11	3.03	5.52
	1207	1.5	.180	.309	.473	.721	1.33	1.74	2.58	4.31
	1478	1.2	.147	.246	.385	.597	1.09	1.46	2.07	3.61
	1810	1.0	.123	.211	.317	.485	.819	1.19	1.74	2.82
1430	357.5	4.0	.489	.793	1.28	1.94	3.57	4.59	6.88	12.0
	437.9	3.2	.403	.685	1.04	1.57	2.89	3.75	5.62	9.56
	536.3	2.7	.335	.552	.868	1.30	2.27	3.04	4.60	7.89
	656.8	2.2	.269	.459	.716	1.04	1.92	2.52	3.73	6.71
	804.5	1.8	.222	.366	.588	.920	1.57	2.10	2.99	5.75
	985.3	1.5	.179	.302	.477	.735	1.29	1.72	2.48	4.52
	1207	1.2	.148	.253	.387	.590	1.09	1.43	2.11	3.53
	1478	1.0	.120	.201	.315	.488	.889	1.19	1.69	2.96
	1810	.80	.101	.173	.259	.397	.670	.971	1.42	2.31
1170	357.5	3.2	.401	.651	1.05	1.59	2.93	3.76	5.64	9.82
	437.9	2.7	.330	.562	.853	1.29	2.37	3.08	4.61	7.84
	536.3	2.2	.275	.452	.711	1.06	1.86	2.49	3.77	6.47
	656.8	1.8	.220	.376	.586	.853	1.57	2.06	3.05	5.50
	804.5	1.5	.182	.300	.482	.754	1.29	1.72	2.45	4.71
	985.3	1.2	.147	.247	.391	.602	1.05	1.41	2.03	3.70
	1207	1.0	.121	.207	.317	.483	.890	1.17	1.73	2.89
	1478	.80	.098	.165	.258	.400	.729	.976	1.39	2.42
	1810	.65	.082	.142	.212	.325	.548	.796	1.16	1.89
870	357.5	2.5	.299	.486	.784	1.19	2.18	2.81	4.21	7.33
	437.9	2.0	.246	.418	.635	.961	1.77	2.29	3.44	5.85
	536.3	1.6	.205	.337	.530	.792	1.38	1.86	2.81	4.82
	656.8	1.3	.164	.280	.437	.636	1.17	1.54	2.28	4.10
	804.5	1.1	.135	.223	.359	.561	.958	1.28	1.82	3.51
	985.3	.90	.109	.184	.291	.449	.785	1.05	1.51	2.76
	1207	.75	.090	.155	.236	.360	.663	.871	1.29	2.15
	1478	.60	.073	.123	.192	.298	.543	.727	1.03	1.81
	1810	.50	.061	.105	.158	.242	.407	.593	.867	1.41
720	357.5	2.0	.248	.403	.650	.984	1.81	2.33	3.49	6.08
	437.9	1.6	.204	.347	.526	.796	1.47	1.90	2.85	4.85
	536.3	1.3	.170	.279	.439	.656	1.15	1.54	2.33	4.00
	656.8	1.1	.136	.232	.362	.527	.970	1.27	1.89	3.40
	804.5	.90	.112	.185	.297	.465	.794	1.06	1.51	2.91
	985.3	.75	.091	.152	.241	.372	.650	.872	1.25	2.29
	1207	.60	.075	.128	.196	.298	.549	.722	1.07	1.78
	1478	.50	.061	.102	.159	.247	.449	.602	.875	1.50
	1810	.40	.051	.087	.131	.200	.337	.491	.718	1.17
580	357.5	1.6	.200	.326	.524	.794	1.46	1.88	2.82	4.91
	437.9	1.3	.164	.280	.425	.643	1.18	1.53	2.30	3.91
	536.3	1.1	.137	.225	.354	.529	.926	1.24	1.88	3.23
	656.8	.90	.110	.187	.292	.425	.782	1.03	1.52	2.75
	804.5	.75	.090	.149	.240	.375	.640	.857	1.22	2.35
	985.3	.60	.073	.123	.194	.300	.524	.703	1.01	1.84
	1207	.50	.060	.103	.158	.240	.443	.582	.862	1.44
	1478	.40	.049	.082	.128	.199	.362	.485	.691	1.21
	1810	.32	.041	.070	.106	.162	.272	.396	.579	.941

♦ Since thermal ratings for drives listed above exceed mechanical hp ratings, it is not necessary to check for thermal limitations. For ratings at speeds higher than 1750 rpm and for variable speed applications, consult Factory or local Sales office. For speeds below 580 rpm, reduce hp rating proportionately.

Types FCB5 & FZB5 Right Angle Shaft

Torque Ratings

Quintuple Reduction — Ratios 357.5 through 1810

(TORQUE IS IN POUND INCHES AT LOW SPEED SHAFT . . . MULTIPLY VALUES LISTED BELOW BY 1000)

High Speed Shaft rpm	Nominal Ratios ±5%	Approx. L.S. Shaft rpm	DRIVE SIZE †							
			1030	1040	1050	1060	1070	1080	1090	1100
1750	357.5	5.0	7.73	12.4	20.5	31.0	56.4	74.8	106	193
	437.9	4.0	7.74	12.9	20.5	31.1	56.5	75.0	106	194
	536.3	3.2	7.76	12.9	20.5	31.1	56.8	75.2	106	194
	656.8	2.7	7.77	12.9	20.6	31.2	56.8	75.3	106	194
	804.5	2.2	7.79	12.9	20.6	31.1	57.0	75.6	107	195
	985.3	1.8	7.78	13.0	20.6	31.3	57.0	75.7	107	195
	1207	1.5	7.78	12.8	20.6	31.3	57.2	75.6	107	196
	1478	1.2	7.83	13.0	20.7	31.4	57.3	76.1	107	196
	1810	1.0	7.82	13.0	20.7	31.4	53.3	76.1	108	196
1430	357.5	4.0	7.74	12.4	20.4	31.1	56.6	75.1	106	194
	437.9	3.2	7.76	12.9	20.5	31.1	56.6	75.2	106	194
	536.3	2.7	7.76	12.9	20.6	31.3	56.9	75.4	106	195
	656.8	2.2	7.78	12.9	20.6	31.2	57.1	75.6	107	195
	804.5	1.8	7.78	13.0	20.6	31.3	57.1	75.6	107	195
	985.3	1.5	7.79	13.0	20.6	31.3	57.3	75.6	107	196
	1207	1.2	7.83	12.8	20.7	31.4	57.4	76.0	107	196
	1478	1.0	7.82	13.0	20.7	31.4	57.2	75.9	107	196
	1810	.80	7.85	13.0	20.7	31.5	53.4	76.0	107	197
1170	357.5	3.2	7.76	12.4	20.5	31.1	56.7	75.2	106	194
	437.9	2.7	7.77	12.9	20.6	31.2	56.8	75.5	106	195
	536.3	2.2	7.79	12.9	20.6	31.2	57.0	75.5	107	195
	656.8	1.8	7.77	13.0	20.6	31.3	57.0	75.6	107	195
	804.5	1.5	7.80	13.0	20.7	31.4	57.3	75.7	107	195
	985.3	1.2	7.81	13.0	20.7	31.4	57.0	75.7	107	196
	1207	1.0	7.82	12.8	20.7	31.4	57.2	76.0	107	196
	1478	.80	7.80	13.0	20.7	31.5	57.4	76.1	108	196
	1810	.65	7.79	13.1	20.7	31.5	53.3	76.2	107	197
870	357.5	2.5	7.78	12.5	20.6	31.3	56.8	75.5	106	195
	437.9	2.0	7.79	12.9	20.6	31.3	57.0	75.5	107	195
	536.3	1.6	7.81	13.0	20.6	31.3	56.9	75.8	107	195
	656.8	1.3	7.79	13.0	20.7	31.4	57.1	76.0	107	196
	804.5	1.1	7.78	13.0	20.7	31.4	57.2	75.7	107	196
	985.3	.90	7.79	13.0	20.7	31.5	57.3	75.8	107	196
	1207	.75	7.82	12.9	20.7	31.5	57.4	76.1	108	196
	1478	.60	7.82	13.0	20.7	31.5	57.5	76.2	107	197
	1810	.50	7.80	13.0	20.7	31.5	53.3	76.3	108	197
720	357.5	2.0	7.79	12.5	20.6	31.3	57.0	75.7	107	195
	437.9	1.6	7.80	13.0	20.6	31.3	57.2	75.6	107	196
	536.3	1.3	7.82	13.0	20.7	31.4	57.3	75.9	107	196
	656.8	1.1	7.81	13.0	20.7	31.4	57.2	75.7	107	196
	804.5	.90	7.80	13.0	20.7	31.4	57.3	75.8	107	196
	985.3	.75	7.86	13.0	20.7	31.5	57.3	76.1	107	197
	1207	.60	7.88	12.9	20.8	31.5	57.4	76.2	108	196
	1478	.50	7.89	13.1	20.7	31.6	57.4	76.2	108	198
	1810	.40	7.88	13.0	20.8	31.5	53.3	76.3	108	198
580	357.5	1.6	7.80	12.6	20.6	31.3	57.0	75.8	107	196
	437.9	1.3	7.79	13.0	20.7	31.4	57.0	75.6	107	196
	536.3	1.1	7.82	13.0	20.7	31.4	57.2	75.8	107	196
	656.8	.90	7.84	13.0	20.7	31.5	57.3	76.2	107	197
	804.5	.75	7.78	13.0	20.8	31.5	57.3	76.1	108	197
	985.3	.60	7.83	13.0	20.7	31.5	57.4	76.1	108	196
	1207	.50	7.82	12.9	20.8	31.5	57.5	76.3	108	197
	1478	.40	7.87	13.0	20.7	31.6	57.5	76.2	108	198
	1810	.32	7.86	13.0	20.9	31.7	53.4	76.4	108	198

† Since thermal ratings for drives listed above exceed mechanical hp ratings, it is not necessary to check for thermal limitations. For ratings at speeds higher than 1750 rpm and for variable speed applications, consult Factory or local Sales office. For speeds below 580 rpm, use torques for 580 rpm.

Thermal Horsepower

Thermal Horsepower

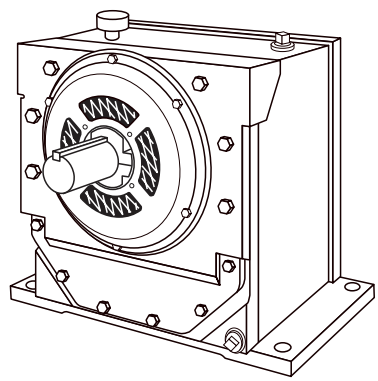
Thermal horsepower is the actual horsepower (without service factor) that a drive will transmit continually for three hours or more without overheating.

Thermal ratings need not be considered when the continuous operating period does not exceed three hours and the shutdown time equals or exceeds the running time. However, when the running time exceeds the shutdown time, selection must be made on a basis of adequate thermal rating.

Checking the thermal horsepower is extremely important, for if the drive creates heat faster than it can be dissipated, severe damage may occur.

When the horsepower or torque appears in bold type, compare the actual horsepower required (without Service Factor) with the thermal horsepower capacity. If the actual load exceeds the thermal capacity, a fan or pump and cooler may be added or a larger drive may be required.

For ambient temperatures above 100°F (38°C) or altitudes above sea level see correction factor tables at right.



Thermal Rating Factors

Thermal horsepower ratings published herein are based on a 100°F (38°C) ambient temperature at sea level. For other conditions, the thermal horsepower rating may be multiplied by the factors shown in the tables below. Where no thermal horsepowers are shown in the tables, refer to the Factory for selections at ambients above 100°F (38°C) and altitudes above sea level.

Table 1 — Altitude Factor

Altitude — ft. Sea Level = 0	Factor with or without Auxiliary Cooling
0 to 2.500	1.00
2.500	.95
5.000	.90
7,500	.85
10.000	.81
12.500	.76
15.000	.72
17,500	.68

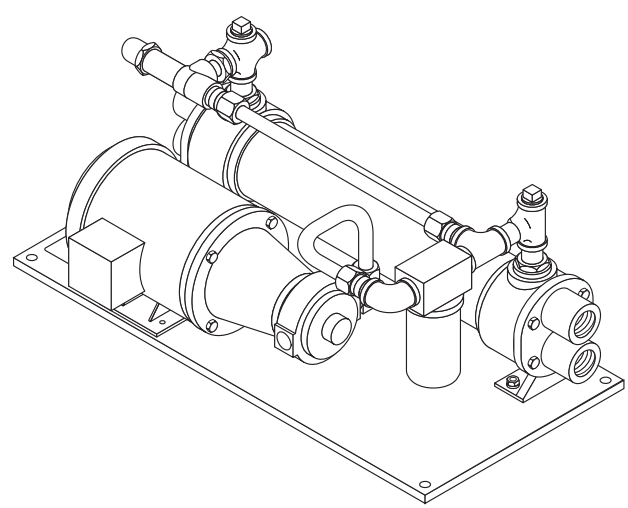
Table 2 — Ambient Temperature Factor

Ambient Temperature ★	Factor w/o Aux. Cooling or with Fan
50°F (10°C)	1.39
60°F (16°C)	1.32
70°F (21°C)	1.25
80°F (27°C)	1.17
90°F (32°C)	1.09
100°F (38°C)	1.00
110°F (43°C)	.91
120°F (49°C)	.81

★ Factors for other ambient temperatures can be interpolated.

Cooling Fan

If a drive creates heat faster than it can be dissipated, severe damage may occur. Falk cooling fans provide a simple, inexpensive way of permitting greater utilization of the mechanical rating of drives by lowering operating temperatures, thus increasing thermal horsepower capacity. Cooling fans have been successfully used on electric motors and other related machinery for many years and on Falk drives in paper mills, on desert overland conveyors, steel mills, and other applications for over a decade. Less than one quarter of one percent catalogued horsepower rating is required to drive the fan.



Pump & Cooler

Where a cooling fan is not practical, a pump and cooler system is an alternative to providing the necessary cooling to lower operating temperatures. Refer to selection guide 141-931 for pump and cooler information and contact the local Rexnord representative for drive selection alternatives, application and pricing considerations.

Types FCB3 & FZB3 Right Angle Shaft
Thermal Horsepower Ratings ★
Triple Reduction — Ratios 2.25 through 6.20

High Speed Shaft rpm	Nominal Ratios ±4%	Approx. L.S. Shaft rpm	DRIVE SIZE										
			WITHOUT FAN							WITH FAN			
			1030	1040	1050	1060	1070	1080	1090	1060	1070	1080	1090
1750	2.25	780	18	23	46	44	66	73	77	57	87	95	102
	2.76	640	20	25	50	48	70	79	85	62	92	102	114
	3.38	520	21	27	52	52	76	87	94	67	99	111	125
	4.13	420	22	30	54	60	84	98	108	76	109	127	142
	5.06	350	23	32	56	65	93	111	122	85	118	139	159
	6.20♦	280	25	35	58	70	95	123	142	95	125	155	179
1430	2.25	640	20	25	50	56	77	86	99	75	103	117	136
	2.76	520	22	28	53	60	81	93	107	80	108	123	148
	3.38	420	24	32	56	67	87	100	116	86	115	132	159
	4.13	350	26	36	60	72	94	113	130	95	123	147	177
	5.06	280	28	41	65	75	105	124	144	105	133	160	190
	6.20♦	230	30	45	70	80	110	130	164	120	145	175	200
1170	2.25	520	22	27	52	69	88	96	119	90	119	137	170
	2.76	420	25	30	55	73	92	107	128	95	125	143	182
	3.38	350	28	35	60	76	98	114	139	100	133	154	190
	4.13♦	280	30	40	65	80	105	127	153	110	140	160	195

High Speed Shaft rpm	Nominal Ratios ±4%	Approx. L.S. Shaft rpm	DRIVE SIZE	
			WITHOUT FAN	
			1080	1090
870	2.25	390	108	130
	2.76	320	115	140
	3.38	260	122	149
720	2.25	320	120	142
	2.76	260	123	153

★ This is actual hp (without service factor) that drive will transmit continually for three hours or more without overheating. For thermal capacities beyond range of cooling fans, refer to the Factory. For thermal ratings of drives mounted other than horizontal, refer to Falk.

♦ See table below for thermal ratings of drives with higher ratios.

Triple Reduction — Ratios 7.59 through 47.08 *

High Speed Shaft rpm	Nominal Ratios ±4%	Approx. L.S. Shaft rpm	DRIVE SIZE									
			WITHOUT FAN					WITH FAN				
			1060	1070	1080	1090	1100	1060	1070	1080	1090	1100
1750	7.59	230	62	90	96	105	107	81	124	140	165	182
	9.30	190	62	90	96	110	114	81	124	140	165	183
	11.39	155	62	90	96	110	117	82	124	140	170	184
	13.95	125	62	90	96	111	121	85	125	140	170	185
	17.09	100	61	90	96	111	122	86	119	131	170	185
	20.93	84	61	85	96	111	123	88	118	129	170	185
	25.63	68	61	79	96	111	130	90	109	127	166	192
	31.39	56	60	78	94	111	130	90	108	129	167	190
	38.44	45	60	78	96	113	116	89	108	131	169	168
	47.08	37	59	82	95	102	127	89	114	129	153	182
1430	7.59	190	70	99	110	125	134	89	128	142	202	208
	9.30	155	70	99	110	125	139	87	128	142	190	210
	11.39	125	66	99	110	125	139	86	128	144	181	204
	13.95	100	65	96	101	125	139	86	126	140	177	196
	17.09	84	64	92	99	125	139	86	122	137	171	184
	20.93	68	64	89	98	114	139	86	120	134	163	185
	25.63	56	64	82	97	115	139	87	111	133	163	190
	31.39	45	62	81	98	115	139	86	109	134	161	186
	38.44	37	61	80	98	116	118	85	109	135	162	162
1170	7.59	155	76	108	113	148	155	93	134	151	201	223
	9.30	125	73	108	113	148	160	91	134	151	203	223
	11.39	100	70	104	112	135	160	90	133	151	192	223
	13.95	84	69	101	109	131	150	89	131	146	186	208
	17.09	68	67	97	105	127	141	88	126	142	179	193
	20.93	56	66	94	103	121	144	88	123	139	170	194
	25.63	45	66	86	101	121	144	89	114	136	168	197
	31.39	37	64	83	101	120	141	88	112	137	166	192
870	7.59	115	83	118	126	157	179	98	142	161	217	245
	9.30	95	79	115	123	158	179	96	141	159	218	245
	11.39	77	75	112	122	148	169	93	140	159	204	230
	13.95	62	73	108	117	143	164	93	137	153	196	222
	17.09	50	71	102	112	137	152	91	131	148	187	204
	20.93	42	69	98	109	129	151	91	128	144	177	203
720	7.59	95	87	123	132	167	191	101	146	166	226	256
	9.30	77	82	120	129	166	191	98	145	163	225	253
	11.39	62	78	116	127	155	178	95	143	163	210	238
	13.95	50	75	111	121	149	171	94	140	156	201	228
580	7.59	77	80	128	138	175	203	103	150	171	233	267
	9.30	62	84	124	134	174	199	100	148	167	232	262

* Thermal hp values are for horizontal mounted drives. For thermal ratings of drives mounted other than horizontal, refer to the Factory. For thermal capacities beyond range of cooling fans, refer to Selection Guide 141-931 for pump and cooler selections or Selection Guide 141-933 for air-to-oil cooler selections.

Types FCB & FZB Right Angle Shaft
Overhung Loads

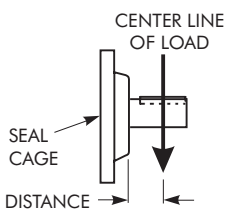
High & Low Speed Shaft

The overhung load and thrust ratings published in this selection guide are based on a combination of the most unfavorable conditions of rotation, speed, direction of applied load and drive loading. If the calculated load exceeds the published value, or if an overhung load and thrust load are applied simultaneously to a shaft, refer complete application information to the Factory.

Overhung Loads — Overhung load is imposed upon a shaft when a pinion, sprocket or sheave is used as a power take-off. The magnitude of the load varies with the type of take-off and its proximity to the shaft bearing. Calculate the load and check the result against the tabulated overhung load rating.

Overhung Load Formula:

$$\text{Overhung Load} = \frac{126{,}000 \times hp \times F_c \times L_f}{\text{Pitch Diam} \times rpm}$$



F_c = Load Connection Factor.

Sprocket ★	1.00
Machined Pinion & Gear ★	1.25
Synchronous (Timing) Belt	1.30
V-Belt	1.50
Flat Belt	2.50

L_f = Load Location Factor ✱.

L.S.S. — See table on Page 43.

H.S.S. — See instructions at right.

★ Refer all multiple chain sprocket and pinion mounted applications to Falk for deflection analysis.

✱ Load Location Factors for drives with fan or external backstop, refer to Selection Guide 311-112.

Locate the center of the load as close to the drive seal cage as practical to minimize the overhung load and increase bearing life. The above overhung load formula employs the transmitted horsepower, without service factor, providing the overloads, starting loads and brake capacities do not exceed the amounts listed in Gear Drive Ratings on Page 3.

Consult Factory for Higher Overhung Load Ratings — In many cases, overhung load capacity in excess of that published is available. Published ratings are based on a combination of the most unfavorable conditions of rotation, speed, direction of applied load, and drive loading. If the actual load should exceed the published capacity, refer full details to the Factory; provide complete application information (see Page 31), as well as direction of rotation, location and direction of applied load.

Low Speed Shaft

Calculate low speed shaft overhung load using the formula and F_c values at left. The L_f load location factors tabulated on Page 43 are based on the distance from the center line of the load to the drive seal cage.

Low Speed Shaft Overhung Load Example — An application requiring 7 hp is driven by a 1050FCB3 drive with 56 rpm output. A 5" pitch diameter single-chain sprocket is mounted on the low speed shaft and the center line of the load is 3 inches from the seal cage. Calculate the overhung load.

$$\text{Overhung load} = \frac{126{,}000 \times 7 \times 1.00 \times 1.05}{5 \times 56} = 3308 \text{ pounds}$$

Refer to the Type FCB table on Page 43 and note that the overhung load capacity for the 1050FCB at 56 rpm is 4500 pounds (4.50 x 1000) and is satisfactory for this selection. If the load were located 2 $^3/_4$ inches from the seal cage (one shaft diameter), the L_f would be 1.00 and the overhung load would be only 3150 pounds.

Thrust Loads — Refer to Page 45 for low speed shaft thrust capacities. Thrust capacities are for pure thrust loads. If thrust and overhung loads are applied simultaneously, or if loads exceed these capacities, consult Factory.

High Speed Shaft

High speed shaft overhung load ratings published on Page 44 are for normal conditions where the center line of the load is one shaft diameter from the seal cage (or external backstop), and for speeds of 1430 rpm or lower. Where the center line of the load is one shaft diameter or closer, calculate the high speed shaft overhung load using $L_f = 1$ in the formula at left. Check the result against the rating on Page 45. Higher overhung load capacities are available when the full drive torque rating is not utilized. Refer to the Factory for higher ratings for these conditions or if the calculated load (using $L_f = 1$) exceeds the published value or if the load is applied at a distance greater than one shaft diameter from the high speed shaft seal cage or external backstop.

High Speed Shaft Overhung Load Example — A 15 hp, 1750 rpm motor with a 4 inch pitch diameter sheave is V-belt connected to a 1070FCB3 drive which has a ratio of 31.39:1. A 12 inch pitch diameter sheave is mounted on the drive high speed shaft 2 inches (less than one shaft diameter) from the seal cage. Calculate the high speed shaft rpm and overhung load as follows:

$$\text{Drive high speed shaft rpm} = \frac{4}{12} \times 1750 = 583 \text{ rpm}$$

Using the overhung load formula above,

$$\text{Overhung Load} = \frac{126{,}000 \times 15 \times 1.50 \times 1.00}{12 \times 583} = 405 \text{ pounds}$$

From the table on Page 44, in the 580 high speed shaft rpm section, the overhung load capacity for a 1070FCB3 drive with 31.39:1 ratio is 800 pounds. The actual load is less than the published capacity and is acceptable.

Types FCB & FZB Right Angle Shaft
LSS L_f Load Location Factors*

Triple, Quadruple & Quintuple Reduction
Based on distance from center line of load to reducer seal cage

DISTANCE Inches	DRIVE SIZE								
	1020	1030	1040	1050	1060	1070	1080	1090	1100
1	.94	.92	.91	.90	.90	.89	.88	.87	.88
1½	.99	.96	.95	.93	.92	.91	.90	.89	.89
1¾	1.04	.98	.97	.94	.94	.92	.91	.90	.90
2	1.11	1.00	.98	.96	.95	.94	.92	.91	.91
2½	1.26	1.12	1.06	.99	.97	.96	.94	.93	.92
2¾	1.34	1.19	1.11	1.00	.99	.97	.95	.94	.93
3	. . .	1.25	1.17	1.05	1.00	.98	.96	.95	.94
3¼	. . .	1.31	1.22	1.10	1.04	.99	.97	.96	.95
3½	. . .	1.37	1.28	1.14	1.09	1.00	.98	.97	.96
4	. . .	. . .	1.39	1.24	1.18	1.08	1.00	.98	.97
4½	. . .	. . .	. . .	1.33	1.26	1.15	1.07	1.00	.98
4¾	. . .	. . .	. . .	1.38	1.31	1.19	1.11	1.03	.99
5	. . .	. . .	. . .	. . .	1.35	1.23	1.14	1.06	1.00
5½	. . .	. . .	. . .	. . .	. . .	1.30	1.21	1.12	1.06
6	. . .	. . .	. . .	. . .	. . .	1.38	1.28	1.18	1.12
6½	. . .	. . .	. . .	. . .	. . .	. . .	1.35	1.24	1.18
7	. . .	. . .	. . .	. . .	. . .	. . .	1.43	1.30	1.24
7½	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1.36	1.29
8	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1.42	1.35
8½	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	1.41

* Interpolate for intermediate values. For example L_f is 1.04 for Size 1070 when the distance is 3¾ inches.

Types FCB & FZB Right Angle Shaft
LSS Overhung Load Ratings ▲/Pounds

Triple Reduction — Ratios 2.25 through 6.20

Approx. L.S. Shaft rpm	DRIVE SIZE							
	1020	1030	1040	1050	1060	1070	1080	1090
780	880	1330	1830	3380	4500	5760	7920	7850
640	930	1410	1940	3570	4750	6130	8430	8360
520	990	1490	2050	3750	5000	6510	8950	8870
420	1040	1560	2170	3940	5250	6880	9460	9370
350	1100	1640	2280	4130	5500	7250	9970	9880
280	1150	1720	2390	4320	5750	7630	10500	10390

Types FCB & FZB Right Angle Shaft
LSS Overhung Load Ratings ▲/Pounds

Triple, Quadruple & Quintuple Reduction — Ratios 7.59 through 1810
Multiply values listed below by 1000. . .Consult Factory for higher overhung load ratings

Approx. L.S. Shaft rpm	DRIVE SIZE								
	1020	1030	1040	1050	1060	1070	1080	1090	1100
230	1.20	1.80	2.50	4.50	6.00	8.00	11.0	10.9	16.0
190	1.20	1.80	2.50	4.50	6.00	8.00	11.0	12.3	16.0
155	1.20	1.80	2.50	4.50	6.00	8.00	11.0	13.0	16.0
125	1.20	1.80	2.50	4.50	6.00	8.00	11.0	13.0	16.0
100	1.20	1.80	2.50	4.50	6.00	8.00	11.0	13.0	16.0
84 ‡	1.20	1.80	2.50	4.50	6.00	8.00	11.0	13.0	16.0

▲ Ratings are for pure radial loads. If overhung load and thrust are applied simultaneously, or if loads exceed these values, consult Falk. These ratings apply only to the shaded low speed shaft extensions shown on Page 47 and are based on a combination of the most unfavorable conditions of loading. For higher ratings and ratings of other shaft extensions, refer full data to the Factory.

‡ The last overhung load value in each Drive Size column applies to all lower output speeds for that drive.

Types FCB Right Angle Shaft

HSS Overhung Load Ratings/Pounds

Triple, Quadruple & Quintuple Reduction

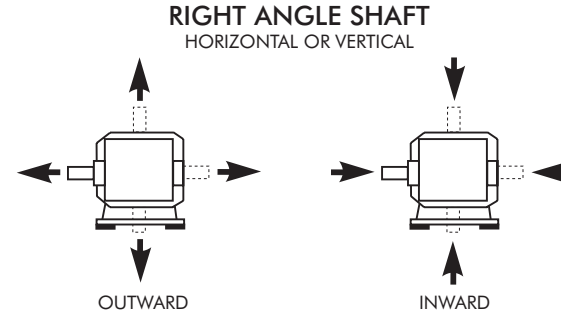
For loads applied one shaft diameter from seal cage. . .Consult Factory for higher overhung load ratings

High Speed Shaft rpm	Nominal Ratios	Approx. L.S. Shaft rpm	DRIVE SIZE 1020	1030	1040	1050	1060	1070	1080	1090	1100
TYPE FCB3 TRIPLE REDUCTION ★											
1430	7.59	190	220	20	90	140	310	420	940	1250	1400
	9.30	155	220	50	140	180	480	790	1050	1250	1400
	11.39	125	220	90	200	250	600	800	1050	1250	1400
	13.95	100	220	130	220						
	17.09	84	220	180	230						
	20.93	68	220	210	230						
	25.63	56	220	240	240						
	31.39	45	220	260	280						
	38.44	37	220	160	160						
	47.08	30	. . .	180	90						
1170	7.59	155	220	20	90	130	460	440	980	1250	1400
	9.30	125	220	50	140	180	600	800	1050	1250	1400
	11.39	100	220	120	210	320	600	800	1050	1250	1400
	13.95	84	220	170	240						
	17.09	68	220	220	230						
	20.93	56	220	250	250						
	25.63	45	220	280	330						
	31.39	37	220	300	380						
	38.44	30	220	200	240						
	47.08	25	. . .	220	200						
870	7.59	115	220	80	110	140	600	430	1050	1250	1400
	9.30	95	220	110	160	290	600	800	1050	1250	1400
	11.39	77	220	190	220						
	13.95	62	220	230	260						
	17.09	50	220	280	280						
	20.93	42	220	300	400						
	25.63	34	220	300	400						
	31.39	28	220	300	400						
	38.44	22	220	260	270						
	47.08	18	. . .	280	310						
720	7.59	95	220	150	200	220	600	540	1050	1250	1400
	9.30	77	220	170	160	370	600	800	1050	1250	1400
	11.39	62	220	230	230						
	13.95	50	220	270	300						
	17.09	42	220	300	380						
580	7.59	77	220	190	310	320	600	680	1050	1250	1400
	9.30	62	220	220	250	480	600	800	1050	1250	1400
	11.39	50	220	290	290						
	13.95	42	220	300	400						
TYPE FCB4 QUADRUPLE REDUCTION ★											
1430 & 1170	57.66		200	240	270	300	310	460	580	620	340
	86.50		200	240	270	300	320	340	580	620	670
	105.9		200	240	270	300	330	380	300	620	700
	129.7		200	240	270	300	290	400	580	620	700
	194.6		. . .	. . .	. . .	. . .	330	530	580	620	700
870 720 & 580	70.62		200	240	270	300	360	530	580	620	700
	86.50		200	240	270	300	380	340	580	620	700
	105.9		200	240	270	300	380	370	300	620	700
	129.7		200	240	270	300	290	390	580	620	700
	194.6		. . .	. . .	. . .	. . .	350	530	580	620	700
TYPE FCB5 QUINTUPLE REDUCTION ★											
1430 & 1170	357.5		. . .	120	150	150	150	170	230	290	450
	437.9		. . .	120	150	150	150	170	230	390	490
	536.3		. . .	120	150	150	150	170	230	410	510
	656.8		. . .	120	150	150	150	170	230	420	500
	1207		. . .	120	150	150	150	170	230	330	520
870 720 & 580	437.9		. . .	120	150	150	150	170	230	400	500
	536.3		. . .	120	150	150	150	170	230	420	520
	1207		. . .	120	150	150	150	170	230	330	520

★ In each High Speed Shaft rpm section, the last overhung load value applies to all higher ratios of that gear reduction. Published ratings are based on a combination of the most unfavorable conditions of loading. For higher ratings and for loads applied at a distance greater than one shaft diameter from the seal cage, refer full application data to the Factory. Also refer to the Factory for ratings of drives with both a fan and a backstop.

Types FCB & FZB Right Angle Shaft
LSS Thrust Loads

Thrust Loads — External thrust loads are often imposed upon gear drive bearings by agitators, mixers and similar equipment through solid couplings and also some flexible couplings. Calculate the direction and magnitude of the thrust and check the result against the tabulated thrust value.



Types FCB & FZB Right Angle Shaft
LSS Thrust Load Capacity */Pounds

All Ratios — Thrust inward or outward

Approx. L.S. Shaft rpm	DRIVE SIZE								
	1020	1030	1040	1050	1060	1070	1080	1090	1100
THRUST INWARD									
230	800	2000	3000	3380	4600	6620	5350	5900	9340
190	800	2000	3000	3590	5160	7430	6180	6740	10000
155	800	2000	3000	3810	5500	8000	7000	7710	10700
125	800	2000	3000	4050	5500	8000	7760	8760	12000
100	800	2000	3000	4480	5500	8000	8710	9000	12000
84	800	2000	3000	4840	5500	8000	9000	9000	12000
68	800	2000	3000	4840	5500	8000	9000	9000	12000
56	800	2000	3000	4840	5500	8000	9000	9000	12000
45	800	2000	3000	4840	5500	8000	9000	9000	12000
37‡	800	2000	3000	4840	5500	8000	9000	9000	12000
THRUST OUTWARD									
230	800	2000	3000	5000	6000	7500	8000	10000	14000
190	800	2000	3000	5000	6000	7500	8000	10000	14000
155‡	800	2000	3000	5000	6000	7500	8000	10000	14000

* Thrust capacities are for pure thrust loads. If thrust and overhung loads are applied simultaneously, or loads exceed these capacities, consult Factory.

‡ The last thrust capacity value in each drive size column applies to all lower output speeds for that drive.

Types FCB & FZB Right Angle Shaft

Exact Ratios

Triple, Quadruple & Quintuple Reduction

Triple Reduction

Nominal Ratios	Approx. L.S. Shaft rpm‡	DRIVE SIZE								
		1020	1030	1040	1050	1060	1070	1080	1090	1100
2.25	780	2.172	2.280	2.227	2.244	2.403✱	2.265	2.370✱	2.379✱	
2.76	640	2.700	2.772	2.766	2.769	2.845	2.710	2.864	2.849	
3.38	520	3.260	3.372	3.327	3.423	3.563✱	3.339	3.490	3.570✱	
4.13	420	4.032	4.056	4.139	4.107	4.390✱	4.078	4.238	4.360✱	
5.06	350	4.944	5.062	4.984	4.990	5.277✱	4.881	4.952	5.422✱	
6.20	280	6.117	6.141	6.262	6.082	6.411	6.010	6.174	6.585✱	
7.59	230	7.669	7.891	7.608	7.554	7.467	7.594	7.982✱	7.595	7.633
9.30	190	9.533	9.588	9.452	9.326	9.346	9.356	9.729✱	9.100	9.659
11.39	155	11.51	11.67	11.37	11.53	11.52	11.43	11.81	11.40	11.50
13.95	125	14.24	14.04	14.14	13.83	13.85	13.67	13.80	13.92	13.87
17.09	100	17.45	17.51	17.03	16.81	16.82	16.84	17.21	17.31	17.43
20.93	84	21.59	21.24	21.39	20.48	20.50	20.52	21.15	21.03	21.09
25.63	68	26.09	26.36	25.99	25.27	25.69	26.34	26.82✱	25.23	26.02
31.39	56	31.21	32.04	30.58	31.19	32.05	31.22	32.44	30.95	32.48
38.44	45	38.25	39.48	38.98	38.34	38.77	38.18	38.92	38.67	38.01
47.08	37	. . .	47.12	45.43	46.66	47.75	47.24	47.78	46.16	48.78

Quadruple Reduction

Nominal Ratios	Approx. L.S. Shaft rpm‡	DRIVE SIZE								
		1020	1030	1040	1050	1060	1070	1080	1090	1100
47.08	37	47.62	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
57.66	30	58.90	59.04	58.38	59.80	58.87	57.47	60.13	57.83	58.34
70.62	25	72.19	71.86	70.21	73.91	70.81	71.47	73.05	69.41	72.83
86.50	20	89.32	86.44	87.32	88.70	88.36	86.08	89.03	84.32	86.38
105.9	16.5	107.9	107.9	105.2	107.8	107.2	108.1	109.8	102.8	107.8
129.7	13.5	129.1	130.8	132.1	131.3	133.0	131.4	135.6	128.4	133.0
158.9	11.0	158.2	162.3	160.5	162.0	161.6	154.6	166.6	153.3	155.6
194.6	9.0	. . .	197.3	188.9	200.0	199.2	197.0	201.6	195.5	203.9
238.4	7.5	. . .	243.1	240.8	245.8	237.7	229.7	241.9	240.3	238.6
291.9	6.0	. . .	. . .	. . .	. . .	287.5	280.9	296.9	286.4	306.3

Quintuple Reduction

Nominal Ratios	Approx. L.S. Shaft rpm‡	DRIVE SIZE								
		1020	1030	1040	1050	1060	1070	1080	1090	1100
291.9	6.0	. . .	295.6	285.9	293.6	. . .	. . .	. . .	. . .	. . .
357.5	5.0	. . .	359.2	355.1	362.5	363.5	359.6	371.2	349.3	366.8
437.9	4.0	. . .	437.1	427.1	448.1	449.6	444.8	455.0	428.5	460.8✱
536.3	3.2	. . .	525.8	531.2	537.8	546.4	569.1✱	563.0	525.2	559.7
656.8	2.7	. . .	656.1	639.8	653.3	681.8	674.5	681.2	649.9	658.7
804.5	2.2	. . .	795.8	803.8	796.2	772.4	825.0	817.2	812.0	770.8
985.3	1.8	. . .	987.3	976.4	982.1	967.8	1008	997.1	981.2	982.5
1207	1.5	. . .	1200	1149	1212	1207	1195	1206	1151	1261
1478	1.2	. . .	1479	1465	1490	1460	1461	1447	1438	1506
1810	1.0	. . .	1765	1707	1814	1799	1808	1777	1716	1933✱

‡ Based on 1750 rpm input speed.

✱ Exact ratios are within ±4% or nominal for triple reduction drives and ±5% of nominal for quadruple and quintuple reduction drives except where noted with an asterisk.

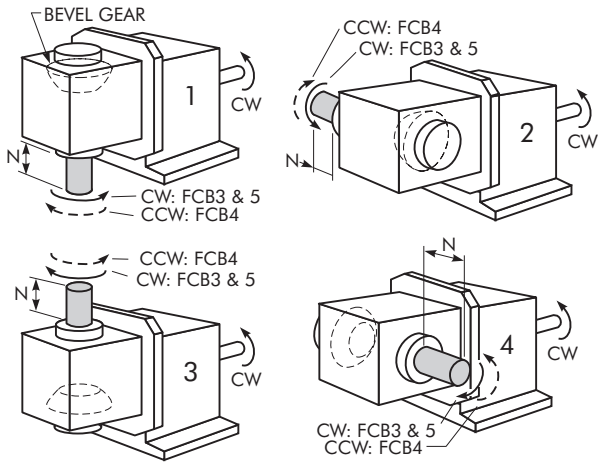
Types FCB & FZB Right Angle Shaft
Right Angle Assemblies & Shaft Rotations

Assemblies & Shaft Rotations — Please specify, from the views below, the number of the assembly required. Direction of rotation is determined by facing the end of the shaft extension. All high speed shaft rotations shown below are clockwise; if reversed, also reverse low speed shaft rotations. Refer to Pages 48 through 51 for low speed shaft lengths, Dimensions L & N.

Overhung & Thrust Loads — The values published on Pages 43 through 45 apply only to the shaded low speed shaft extensions: they are less for the unshaded extensions. Refer to the Factory for values of unshaded low speed shaft extensions or if thrust and overhung loads are applied simultaneously.

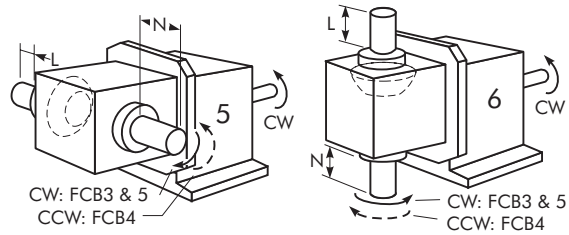
Standard Assemblies

. . .with standard shaft rotation



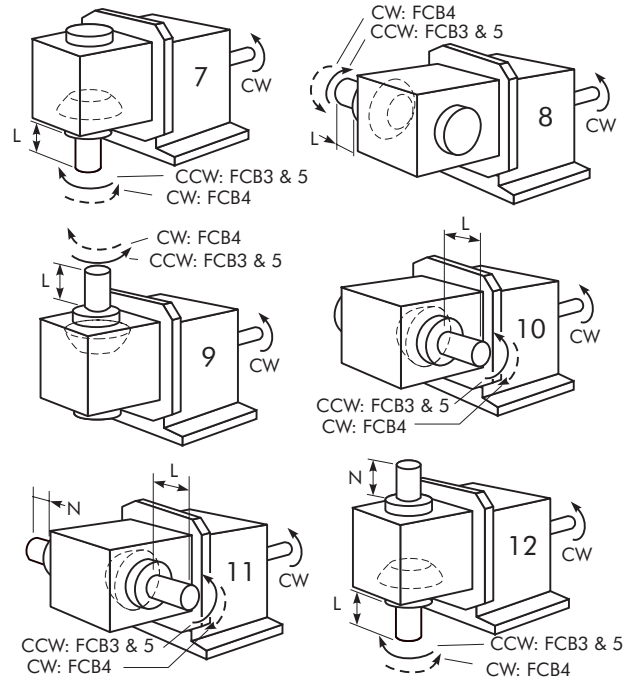
Special Assemblies

. . .with standard shaft rotation



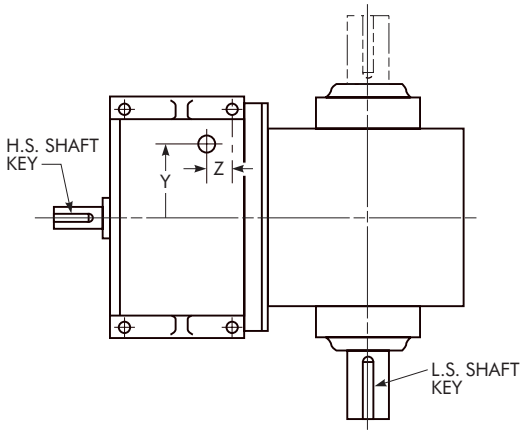
Special Assemblies

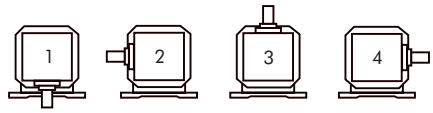
. . .with opposite standard shaft rotation



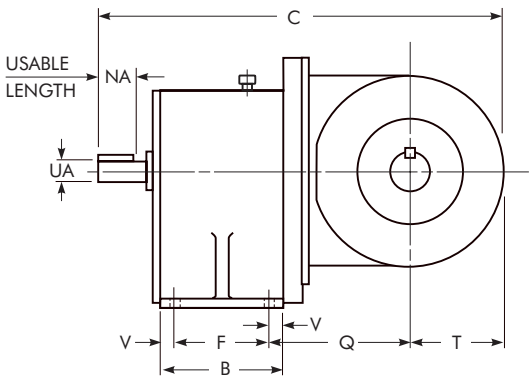
Type FCB Triple, Quadruple & Quintuple Reduction

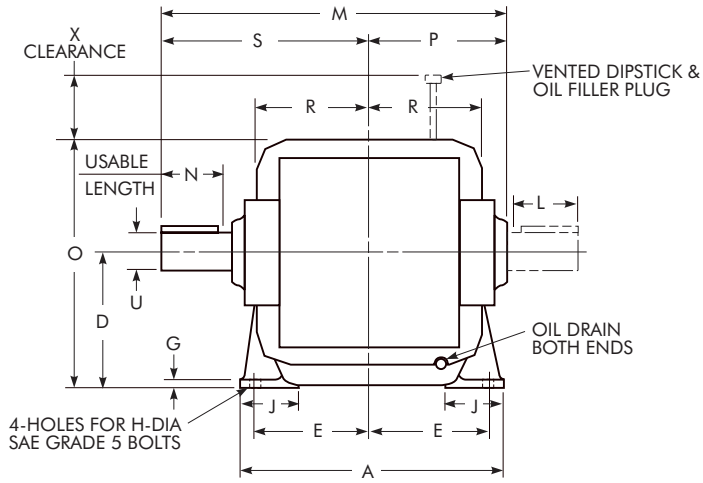
Sizes 1020 thru 1050 — Dimensions (Inches)





STANDARD ASSEMBLIES:
REFER TO PAGE 47 FOR RELATIVE SHAFT ROTATION AND SPECIAL ASSEMBLIES





DRIVE SIZE	A	B	D	E	F	G	H	J	L†	M	N†	O	P	Q	R	S	T	L.S. Shaft ✱		V	X	Y	Z
																		U	Key				
1020	11.60	5.12	6.30	5.20	4.00	.68	.500	3.0	2.84	13.10	2.84	11.18	4.84	6.06	4.88	8.26	3.76	1.6250	.375 x .375 x 2.500	.58	5.5	2.60	1.26
1030	12.60	6.78	7.00	5.60	5.34	.70	.625	3.3	3.60	15.92	3.60	13.00	5.82	7.24	6.00	10.10	4.76	2.0000	.500 x .500 x 3.000	.72	5.6	3.00	1.86
1040	15.00	7.90	8.50	6.60	6.10	.80	.750	4.3	4.02	18.32	4.02	15.62	6.84	8.42	7.12	11.48	5.50	2.2500	.500 x .500 x 3.500	.90	5.5	2.90	2.06
1050	16.60	8.98	9.60	7.30	7.10	1.00	.875	4.5	4.82	21.10	4.82	17.30	7.82	9.10	7.70	13.28	6.12	2.7500	.625 x .625 x 4.000	.94	5.9	3.40	2.90

DRIVE SIZE ★	Triple Reduction — FCB3/FZB3				Quadruple Reduction — FCB4/FZB4				Quintuple Reduction — FCB5/FZB5			
	C	NA	H.S. Shaft ✱		C	NA	H.S. Shaft ✱		C	NA	H.S. Shaft ✱	
			UA	Key			UA	Key			UA	Key
1020	18.18	2.00	1.0000	.250 x .250 x 1.750	18.18	2.00	1.0000	.250 x .250 x 1.750	...	...	...	...
1030	22.12	2.26	1.1250	.250 x .250 x 2.000	22.18	2.26	1.1250	.250 x .250 x 2.000	21.62	1.76	.8750	.188 x .188 x 1.500
1040	25.50	2.76	1.3750	.312 x .312 x 2.500	25.50	2.76	1.3750	.312 x .312 x 2.500	24.46	1.76	.8750	.188 x .188 x 1.500
1050	28.66	3.26	1.6250	.375 x .375 x 3.000	28.66	3.26	1.6250	.375 x .375 x 3.000	27.10	2.00	1.0000	.250 x .250 x 1.750

★ Dimensions are for reference only and are subject to change without notice unless certified. Drives are for horizontal floor mounted operation or incline mounted operation within the limits specified on Page 5, unless specifically stated otherwise. For accessory dimensions see Pages 22 through 28.

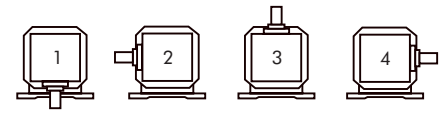
✱ Shaft diameters are held to limits of +.0000", –.0005". Shaft keyseat depth is one-half of key height.

† A single L.S. shaft extension with Dimension N and Standard Assemblies 1, 2, 3 & 4 is standard; a second extension (Dimension L) is special.

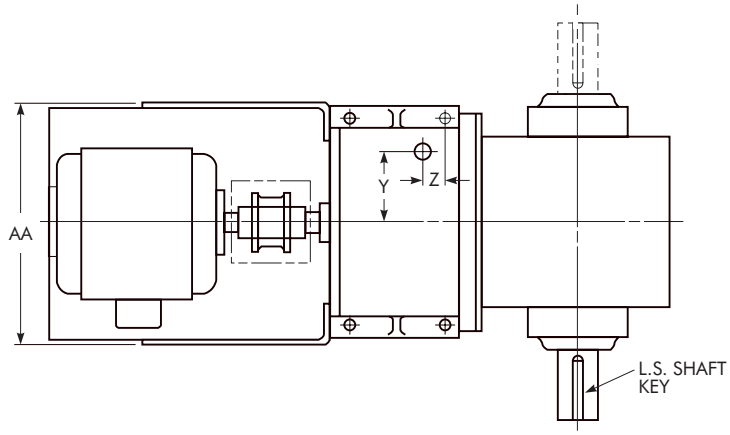
Type FZB Triple, Quadruple & Quintuple Reduction

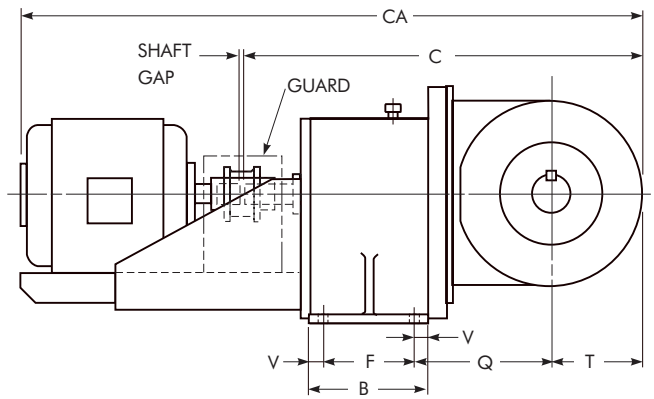
Sizes 1020 thru 1050 — Dimensions (Inches)

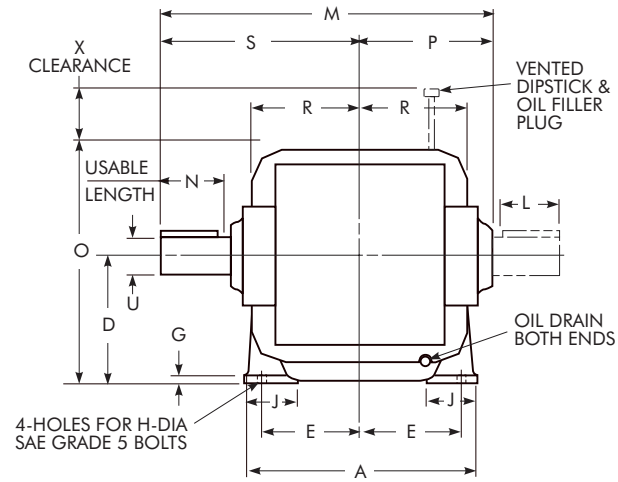
DIMENSIONS ON PAGE 48
(CA IN TABLE BELOW)



STANDARD ASSEMBLIES:
REFER TO PAGE 47 FOR RELATIVE
SHAFT ROTATION AND SPECIAL ASSEMBLIES







DRIVE SIZE	Average Weight of Drive Only lb ■	Max ♦ NEMA T & U Frame Size	CA — APPROXIMATE OVERALL LENGTH WITH OPEN MOTOR AND TYPE T COUPLING ‡ MOTOR FRAME SIZE ♦										
			143T	145T	182T	184T	213T	215T	254T	256T	284TS	286TS	324TS	326TS
OPEN MOTORS														
1020	150	215	32.7	32.7	33.8	33.8	34.6							
1030	260	215	36.4	36.4	37.5	37.5	38.3	39.8						
1040	390	326	41.0	41.0	41.0	41.0	42.1	43.3	47.0	48.6	51.0	51.0		
1050	600	326	43.3	43.3	43.3	43.3	44.6	46.1	49.5	51.3	53.3	53.3	55.9	55.9
TEFC MOTORS														
1020	150	215	31.3	31.7	33.3	34.3	39.5							
1030	260	215	35.0	35.4	37.0	38.0	43.3	43.3						
1040	390	326	37.8	38.2	40.2	41.2	46.1	46.1	52.2	52.2	53.3	53.3		
1050	600	326	40.8	41.3	43.4	44.4	48.8	48.8	54.9	54.9	56.0	56.0	60.0	

‡ CA dimensions are approximate and may vary with motor manufacturer.
■ Weight shown is for Type FBC drive. For Type FBZ motoreducer weight, add average drive weight to approximate weight below.
♦ Brackets for Sizes 1020 thru 1050 will accept either T, TS, U or US frame motors. Do not exceed the motoreducer ratings shown in the selection tables. Standard length and semi-standard length blank bracket dimensions are covered in Engineering 317-315.
Refer to Pages 4 and 5 for instructions when using other than T-frame motors.

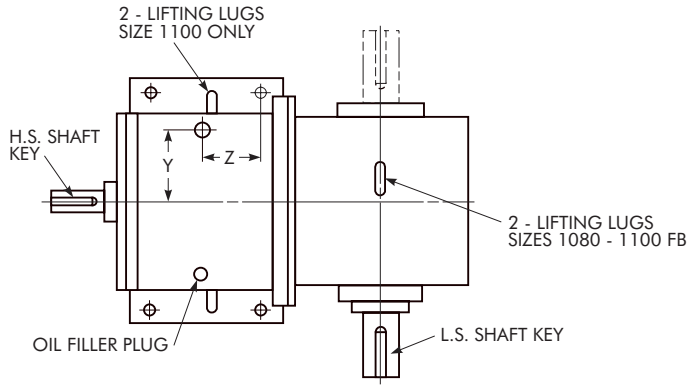
APPROXIMATE WEIGHTS OF FALK MOTOR BRACKETS/COUPLINGS AND MOTORS — lb

HP	1	1 1/2	2	3	5	7 1/2	10	15	20	25	30	40	50	60	75	100	125	150	200
FRAME ♦	**143T**	**145T**	**145T**	**182T**	**184T**	**213T**	**215T**	**254T**	**256T**	**284TS**	**286TS**	**324TS**	**326TS**	**364TS**	**365TS**	**404TS**	**405TS**	**444TS**	**445TS**
DRIVE SIZE	**Bracket and Coupling Weights**																		
1020-1030	35	35	35	35	35	45	45												
1040-1070	60	60	60	60	60	65	65	80	80	100	100	110	110	165	180	270	270		
1080-1090	65	65	65	65	75	80	80	95	100	115	115	120	120	165	180	270	285	340	
1100-1130	70	70	70	85	85	90	90	110	110	120	120	130	135	310	310	375	375	445	485
1750 rpm Motor Weights																			
TEFC MOTOR	30	35	35	60	70	135	170	250	300	335	365	465	550	735	845	1025	1080	1480	1585
OPEN MOTOR	30	35	35	60	70	125	145	190	215	255	315	370	400	575	640	810	895	1195	1375

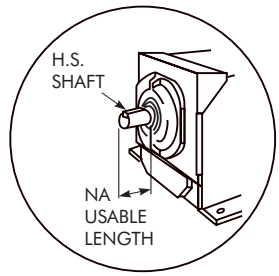
♦ See (♦) note above.

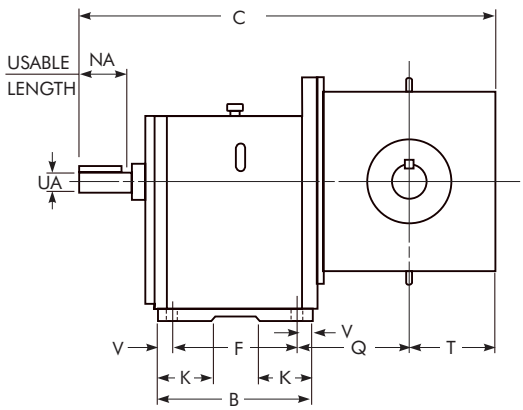
Type FCB Triple, Quadruple, & Quintuple Reduction

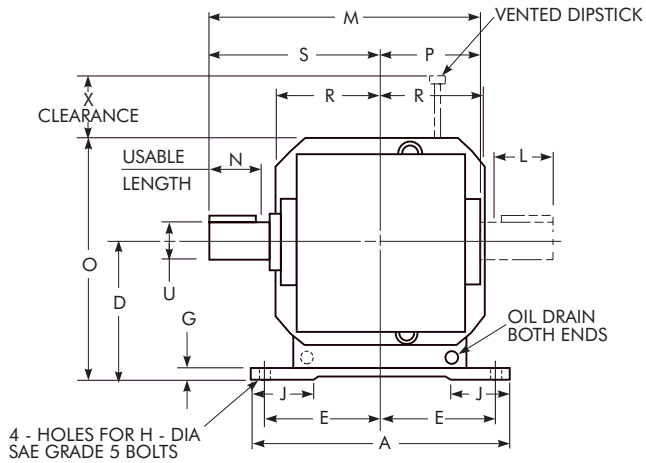
Sizes 1060 thru 1100 — Dimensions (Inches)



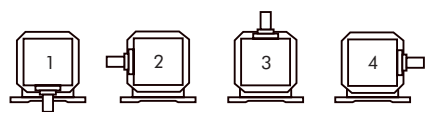
DRIVE WITH COOLING FAN







STANDARD ASSEMBLIES:
REFER TO PAGE 47 FOR RELATIVE SHAFT ROTATION AND SPECIAL



DRIVE SIZE ★	A ▲	B	D	E	F	G	H	J	K	L †	M	N †	O	P	Q	R	S	T	L.S. SHAFT ✱		V	X	Y	Z
																			U	Key †				
1060	18.40 ■	12.00	10.60	8.20	10.00	.66	1.000	4.2	‡	4.56	25.02	5.88	19.80	10.14	8.72	9.20	14.88	6.82	3.000	.750 x .750 x 5.00	1.0	5.6	5.64	4.92
1070	21.00 ■	13.70	11.66	9.30	11.30	.66	1.125	4.5	‡	5.06	28.54	6.06	22.36	11.56	10.70	10.70	16.98	8.24	3.500	.875 x .875 x 5.00	1.2	5.6	6.60	5.64
1080	23.00 ■	15.80	12.78	10.20	13.20	.78	1.250	5.5	‡	6.40	31.62	7.00	24.88	12.48	11.66	12.10	19.14	9.20	4.000	1.000 x 1.000 x 6.00	1.3	5.5	6.94	6.50
1090	26.00	17.50	15.74	11.40	14.30	.90	1.500	7.0	‡	8.16	35.68	8.80	28.64	13.58	13.52	12.90	22.10	10.54	4.500	1.000 x 1.000 x 7.50	1.6	7.3	8.12	7.20
1100	27.60 ■	19.16	17.40	12.20	14.96	1.00	1.500	9.0	7.0	8.46	40.10	8.62	32.40	15.66	18.18	15.00	24.44	13.14	5.000	1.250 x 1.250 x 7.50	2.1	7.9	9.18	7.56

DRIVE SIZE ★	Triple Reduction — FCB3/FZB3					Quadruple Reduction — FCB4/FZB4				Quintuple Reduction — FCB5/FZB5			
	C	NA		H.S. SHAFT ✱		C	NA	H.S.SHAFT ✱		C	NA	H.S.SHAFT ✱	
		W/O Fan	With Fan	UA	Key			UA	Key			UA	Key
1060	32.48	3.76	2.38	1.8750	.500 x .500 x 3.25	31.86	3.26	1.6250	.375 x .375 x 3.00	31.10	2.50	1.2500	.250 x .250 x 2.2
1070	38.08	4.26	2.80	2.1250	.500 x .500 x 3.75	37.02	3.50	1.7500	.375 x .375 x 3.00	36.28	2.76	1.3750	.312 x .312 x 2.5
1080	42.54	4.50	2.82	2.2500	.500 x .500 x 4.00	41.50	3.88	2.0000	.500 x .500 x 3.50	40.76	3.26	1.6250	.375 x .375 x 3.0
1090	47.64	4.76	2.80	2.5000	.625 x .625 x 4.00	46.22	3.88	2.0000	.500 x .500 x 3.50	45.48	3.26	1.6250	.375 x .375 x 3.0
1100	56.68	5.26	3.32	2.7500	.625 x .625 x 4.75	55.32	4.00	2.1250	.500 x .500 x 3.50	54.84	3.76	1.8750	.500 x .500 x 3.2

★ Dimensions are for reference only and are subject to change without notice unless certified. Drives are for horizontal floor mounted operation or incline mounted operation within the limits specified on Page 5, unless specifically stated otherwise. For accessory dimensions see Pages 22 through 28.

† A single L.S. shaft extension with Dimension N and Standard Assemblies 1, 2, 3 & 4 is standard; a second extension (Dimension L) is special. The key length for extension L is .500" to .750" shorter for Sizes 1060 thru 1090.

‡ Foundation pads extend full length of base for Sizes 1060 thru 1090.

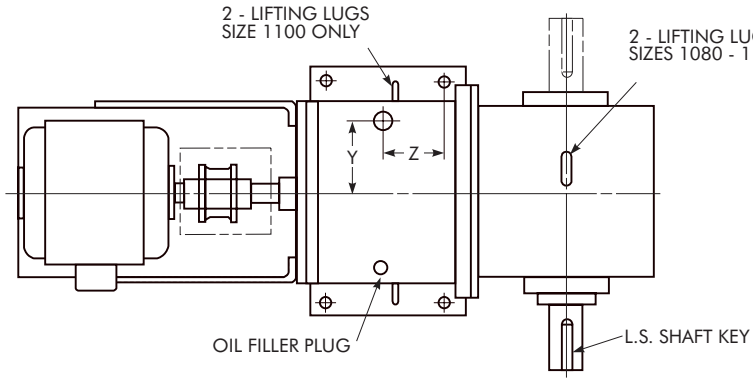
▲ Housing lifting lugs extend beyond Dimension A as follows: Size 1080, .36"; 1090, .18"; 1100 with vertical L.S. shaft, 1.70".

✱ Shaft diameters under 3" are held to limits of +.0000", –.0005". Shaft diameters 3" and over are held to limits of +.000", –.001". Shaft keyseat depth is one-half of key height.

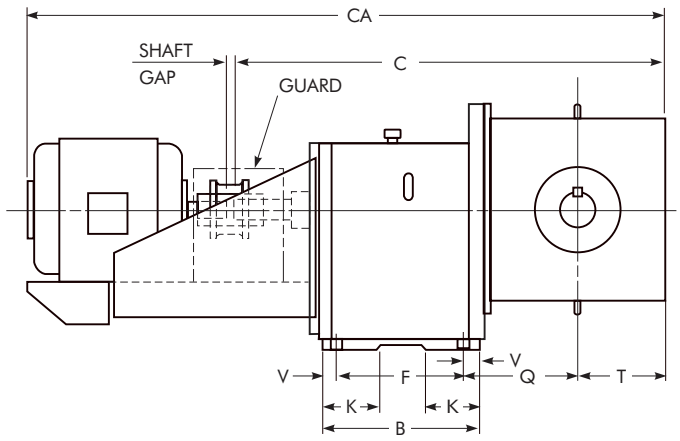
■ Allow clearance for the following bracket widths (Type FZB):
Size 1060 with 364 and 365 frame motors, 19.88".
Size 1070 with 404 and 405 frame motors, 22.78".
Size 1080 with 444 and 445 frame motors, 25.06".
Size 1100 with 364 and 445 frame motors, 28.50".

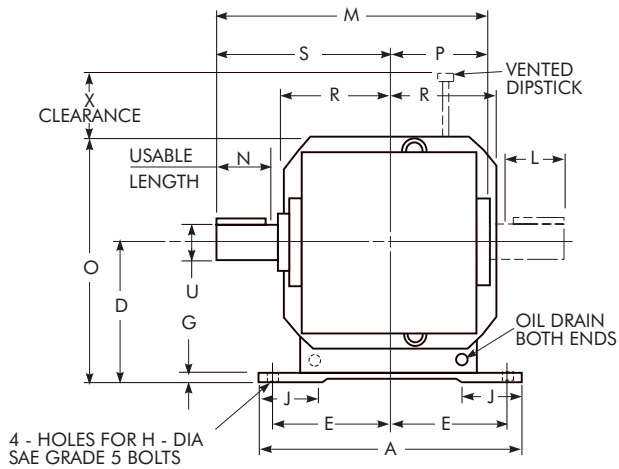
Type FZB Triple, Quadruple & Quintuple Reduction

Sizes 1060 thru 1100 — Dimensions (Inches)

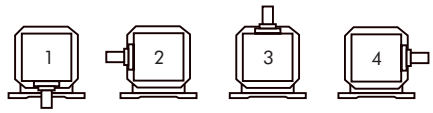


DIMENSIONS ON PAGE 50
(CA IN TABLE BELOW)





STANDARD ASSEMBLIES:
REFER TO PAGE 47 FOR RELATIVE SHAFT ROTATION AND SPECIAL



DRIVE SIZE	Average Weight of Drive Only lb ■	Max ♦ NEMA T & U Frame Size	CA — APPROXIMATE OVERALL LENGTH WITH OPEN MOTOR AND TYPE T COUPLING ‡ MOTOR FRAME SIZE ♦																	
			143T	145T	182T	184T	213T	215T	254T	256T	284TS	286TS	324TS	326TS	364TS	365TS	404TS	405TS	444TS	445TS
OPEN MOTORS																				
1060	750	365	46.7	46.7	46.7	46.7	48.3	49.9	53.0	54.8	56.5	56.5	59.3	59.3	59.9	60.1				
1070	1060	405	51.7	51.7	51.7	51.7	52.9	55.4	58.7	60.4	61.6	61.7	64.4	64.4	64.9	65.7	68.3	69.5		
1080	1600	445	55.5	55.5	55.5	55.5	57.6	59.1	63.4	65.0	65.3	66.2	68.9	68.9	69.3	70.7	72.5	73.8		
1090	2220	445	60.2	60.2	60.2	60.2	62.2	63.7	67.0	70.3	70.0	71.3	73.5	73.9	74.4	75.4	77.4	78.9	82.3	83.9
1100	3420	445	69.1	69.1	69.1	69.1	71.2	72.8	76.0	77.7	78.9	80.7	81.7	83.1	84.5	84.8	87.9	88.0	92.9	93.0
TEFC MOTORS																				
1060	750	365	44.1	44.5	46.6	47.6	52.8	52.8	58.2	58.2	60.6	60.6	63.3	63.3	64.8					
1070	1060	405	48.5	49.0	52.2	54.2	57.0	57.0	63.6	63.6	65.7	65.7	68.4	68.4	70.1	70.1				
1080	1600	445	52.9	53.4	55.5	57.2	61.6	61.6	68.1	68.1	69.9	69.9	72.9	72.9	74.4	74.4	79.0			
1090	2220	445	57.6	58.1	60.2	61.2	66.3	66.3	71.8	71.8	74.7	74.7	78.1	78.1	79.7	79.7	83.9			
1100	3420	445	67.7	68.2	69.7	70.7	75.3	75.3	80.8	80.8	83.2	83.2	85.9	85.9	88.8	88.8	92.7	92.7		

‡ CA dimensions are approximate and may vary with motor manufacturer.

♦ Brackets will accept either T, TS, U or US frame motors. Do not exceed the Motoreducer ratings shown in the selection tables. Standard length and semi-standard length blank bracket dimensions are covered in Engineering 317-315.

■ Weight shown is for Type FCB drive. For Type FZB Motoreducer weight, add average drive weight to appropriate weight at the bottom of Page 49.

▨ Refer to Pages 4 & 5 for instructions when using other than T-frame motors.

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