Sumitomo Drive Technologies

Always on the Move

Cyclo® HBB HELICAL BUDDYBOX

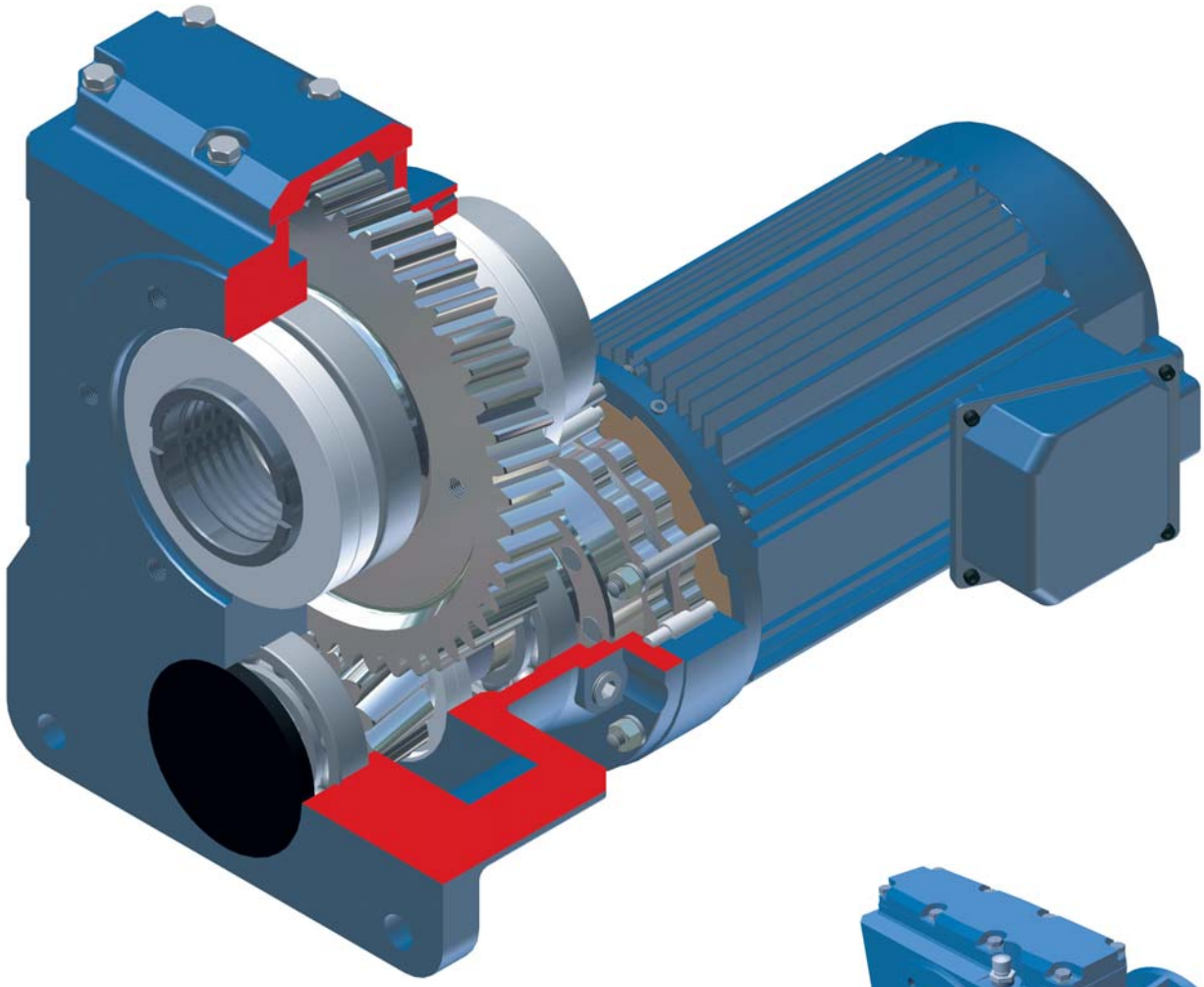
Speed Reducers and Gearmotors

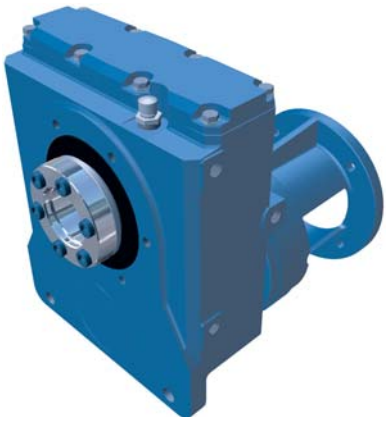
featuring Keyless Taper-Grip® Bushing

CATALOG 07.601.50.003

Cyclo® HBB Helical Buddybox

Rugged Helical Output, Modular Cyclo® Input, Compact Size





- The Cyclo® HBB is also available as a Speed Reducer

To request a catalog, or for more information on any of our high quality products, please visit our Website:

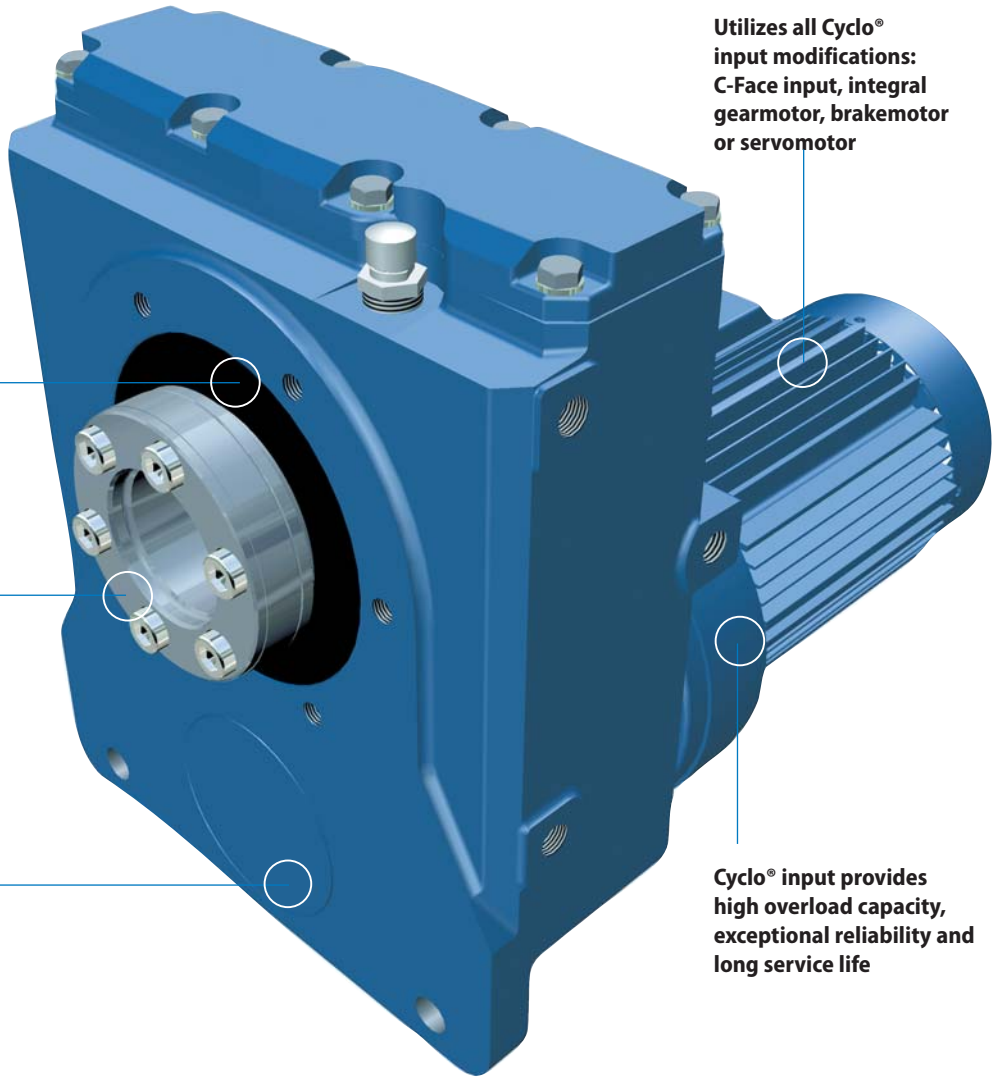
Speed Reducers and Gearmotors

Table of Contents

Cyclo® HBB Helical Buddybox

Flexible configurations

- Shaft Options:
  - hollow
- Mounting Options:
  - flange
  - face



Utilizes all Cyclo® input modifications: C-Face input, integral gearmotor, brakemotor or servomotor

Double output seals prevent lubricant leaks and protect from contamination

Patented keyless, steel Taper-Grip® bushing allows for quick and easy mounting and removal. Installs from either side

Patented universal housing design

Cyclo® input provides high overload capacity, exceptional reliability and long service life

Cyclo® Quality and Reliability, Shaft Mount Design

- High performance steel gearing components deliver **85-90% efficiency**

Product Description

Sumitomo's Cyclo® Helical Buddybox (Cyclo® HBB) speed reducers and gearmotors provide **innovative shaft mounted drive solutions for demanding services.** The Cyclo® HBB combines the quiet, efficient and reliable performance of the Cyclo® technology input with the **rugged helical gear output**. The **modular design** provides a compact, efficient product and the most flexible range of output speed and torque combinations available. Sumitomo's patented Taper Grip® bushing system enhances the Cyclo® HBB value by offering a simple shaft-mounting device that provides **self-aligning, backlash-free torque transmission** to the driven shaft. The Cyclo® HBB design is flexible and easily adapts to CEMA Screw Conveyor Drive applications with a modular conversion kit.

Features & Benefits

- **Cycloidal speed reduction technology**
  - ~ Quiet, efficient and reliable operation with high torque density and compact size
- **Modular design**
  - ~ Interchangeable cast iron housings in foot, flanged or face mount configurations
- **Double output seals**
  - ~ Virtually leak-free operation and optimal protection from lubrication contamination
- **Taper Grip® Bushing**
  - ~ Simple, steel, keyless shaft mounting system resists fretting and eases unit installation and removal from driven shaft
- **CEMA Screw Conveyor Drive option**
  - ~ Quick and simple conversion for Cyclo® HBB units to fit CEMA standard dimensions

Specifications

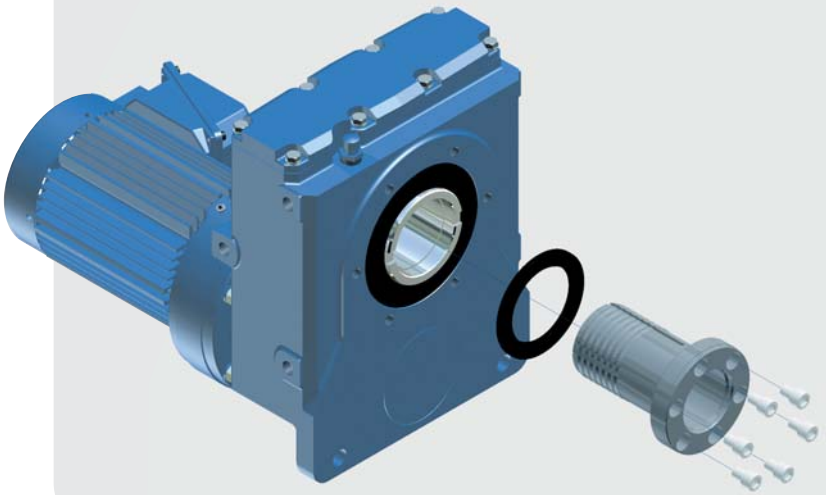
Ratios:	11:1 up to 26,000:1 and greater
Torque Capacity:	Up to 75,800 in. lbs.
HP:	1/8 to 40
Mounting:	Hollow Shaft, Flange, Face
Options:	Integral Motor, C-Face
Motor Standards:	NEMA, IEC, JIS, UL, CSA, CE

Keyless, steel Taper-Grip® bushing makes mounting of hollow shaft units easy and economical

The Sumitomo **Taper-Grip®** bushing is a keyless, torque transmission device integrated into the shaft mounted, offset parallel Cyclo® HBB reducer and gearmotor product lines.

The **unique, patented design** has a number of benefits :

- Easy mounting and removal of the unit to and from the driven shaft
- Standard bore sizes require no shaft preparation such as a keyway, undercut, or keeper plate
- Backlash free torque transmission
- Works with standard shafting, no special tolerances required
- Automatic shaft center alignment
- Resistant to fretting and corrosion
- Multiple stock bore sizes for quick delivery.



Applications

- Material Handling
- Conveyors
- Baggage Handling
- Shredders
- Belt Filter Press
- Mixer/Blender
- Rolling Mill Table
- Screw Conveyors
- Elevators
- Hoist Drives
- Climber Screens
- Food Processing

Product Range (Standard Motor and Reducer Combinations)

Single Reduction Ratios Ratios 11 — 417

Combinations with 1750 RPM motor

Ratio	11	18	21	28	39	46	53	60	74	88	102	123	151	179	207	249	305	417
Output Speed RPM (60 Hz)	159	97.2	83.3	62.5	44.9	38	33	29.2	23.6	19.9	17.2	14.2	11.6	9.8	8.45	7.03	5.74	4.20
Motor HP 1/8														●	●	●	●	●
1/4										●	●	●	●	●	●	●	●	●
1/3									●	●	●	●	●	●	●	●	●	●
1/2			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
3/4			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
1.5	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
3	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
5	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
7.5	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
10	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
15	●	●	●	●	●	●	●	●	●	●	●	●	●					
20	●	●	●	●	●	●	●	●	●	●	●							
25	●	●	●	●	●	●	●	●	●									
30	●	●	●	●	●	●	●	●										
40	●	●	●	●	●	●	●											

Double Reduction Ratios 364 — 4365

Combinations with 1750 RPM motor

Ratios available up to 26,492:1

Ratio	364	424	501	578	683	809	956	1117	1320	1656	1957	2272	2559	2944	3511	4365
Output Speed RPM (60 Hz)	4.81	4.13	3.5	3.03	2.56	2.16	1.83	1.57	1.33	1.06	0.894	0.77	0.684	0.595	0.499	0.401
Motor HP 1/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1/3	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
1/2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
1	●	●	●	●	●	●	●	●	●	●	●	●				
1.5	●	●	●	●	●	●	●	●	●	●						
2	●	●	●	●	●	●	●	●								
3	●	●	●	●	●	●										
5	●	●														
7.5	●															

FAQs

How do I select a Cyclo® HBB reducer or gearmotor?
Selection is based on the actual horsepower and/or torque requirements at the output shaft. The Cyclo® HBB speed reducer has particularly high efficiencies over a wide range of reduction ratios, which frequently permits the use of reduced input power requirements (smaller HP motor) without sacrificing output shaft torque. The selection procedures in this catalog, Speed Reducers pages 2.2 - 2.3 and Gearmotors pages 3.2 - 3.3, will guide you in choosing the most efficient reducer for your application.

What information do I need to get started in the selection process?
To select the proper reducer for your application, you will need to know:

- Application: type of driven machine
- Hours of operation per day
- Motor horsepower (HP) and speed (RPM)
- Loading Conditions
- Mounting Position

If there are any special environmental factors or operation requirements, they must also be noted. This information will be important in determining the Service Factor of your application.

What are service factors and how are they used?
In general, reducers and gearmotors are rated for specific conditions and operating requirements of the application by the use of AGMA-defined Service Factors. There are three AGMA load classifications for reducers: uniform (U), moderate shock (M), and heavy shock (H) (page 2.6) and three AGMA load classifications for gearmotors: I, II, and III (pages 3.6 - 3.7). The Service Factors are used in the product selection process to adjust for the specific conditions and operating requirements of your application.

What do I do if my application has particularly severe operating conditions?
The standard ratings for Cyclo® HBB are based on 10-hour daily service under conditions of uniform loads (equivalent to AGMA service factor 1.0). By following the product selection process, you will determine and apply the Service Factors to compensate for severe operating conditions.

How can I be sure that the reducer can withstand periodic excessive overloads?
Cyclo® HBB speed reducers provide 300% momentary intermittent shock loads capacity.
For applications with shock loads greater than 300%, consult an SMA Application Engineer.

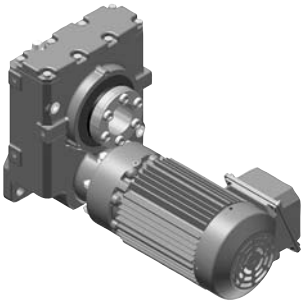
What are the standard input speeds?
In general terms, the speeds are 1750 and 1165 RPM. The selection tables in this catalog are based on 1750 RPM. When other input speeds are used, the horsepower and torque ratings will vary.

What are the thermal limitations of the Cyclo® HBB?
The Cyclo® speed reducer, by virtue of its smooth, almost frictionless operation (unlike traditional helical gears), has a thermal rating that far exceeds its mechanical capacity and all but eliminates the conventional limitations due to heat.

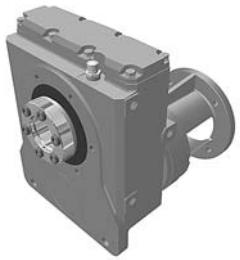
Why is a Taper-Grip® bushing used? What is its material?
The Taper-Grip® bushing is integral to the Cyclo® HBB and provides for easy mounting and removal to and from the shaft of the driven machine. Because it requires no keyway, the shaft isn't weakened and maximum torque is transmitted. With the added strength of steel, the Taper-Grip® bushing can be used in reversing and/or high start-up applications. The steel Taper-Grip® bushing can be used on all Taper-Grip® products.

What kind of torque arm do you supply? At what position should it be mounted?
The standard torque arm assembly is shown in the reducer dimensions, pages 2.14 - 2.21 and the gearmotor dimensions, pages 3.52 - 3.63. The torque arm should be mounted at 90 degrees to a line from the point of attachment to the reducer and the center of the output bore with up to 30 degrees plus or minus variance. It should always be mounted in tension, not compression. A bracket type torque arm is also offered as a non-stock option.

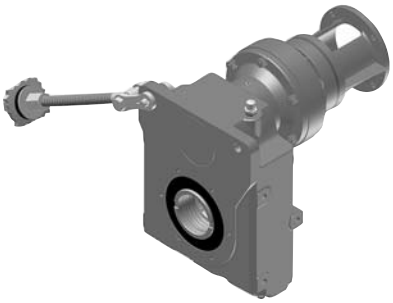
Common Configurations



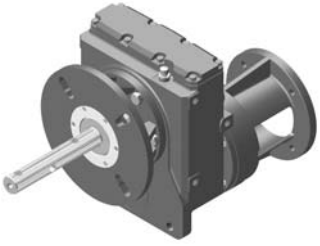
Single Reduction Gearmotor



Single Reduction Reducer with C-Face Adapter



Double Reduction, C-Face Reducer with Torque Arm



C-Face Reducer with Screw Conveyor Adapter

Standard Specifications

		Standard Specifications	Standard Specifications with Built-In Brake
3-Phase Integral Motor	**Capacity Range:**	1/8 HP ~ 40 HP, 4P	1/8 HP ~ 15 HP, 4P: FB Brake 20 HP, 4P: CMB Brake 25 HP ~ 40 HP, 4P: ESB Brake
	Enclosure:	Totally enclosed fan cooled type (1/8 HP, 4P Totally enclosed non ventilated)	Totally enclosed fan cooled type (1/8 HP, 4P Totally enclosed non ventilated)
	Power Supply:	230/460 Volts, 60 Hz 575 Volts, 60 Hz	230/460 Volts, 60 Hz 575 Volts, 60 Hz
	Insulation:	1/8 ~ 30 HP: Class B 40 HP: Class F	1/8 ~ 20 HP: Class B
	Time Rating	Continuous	Continuous

Reducer	**Reduction:**	Combination of Cyclo input and helical gear output.
	Lubrication:	Cyclo portion is grease or oil lubricated; helical portion is oil lubricated.
	Seals:	Nitrile material, dual lipped, double output seals.
	Material:	Rugged cast iron housings
	Paint Color:	Blue, Muenters color number 6.5PB 3.6/8.2
	Bearings:	Ball bearings on geared output; ball bearings on Cyclo input. Tapered roller bearings optional.

Ambient Conditions	**Installation Location:**	Indoors (Minimal dust and humidity)
	Ambient Temperature:	14°~104° F (-10° ~ 40° C)
	Ambient Humidity:	Under 85%
	Elevation:	Under 3,281 ft. (1000 meters)
	Atmosphere:	Well ventilated location, free of corrosive gases, explosive gases, vapors and dust.

Shaft Rotation

On single reduction Cyclo HBB speed reducers, ratios 11 through 417, the slow speed shaft rotates in a reverse direction to that of the high speed shaft.

On double reduction units, ratios 364 through 26,492, both the high speed and the slow speed shaft rotate in the same direction.

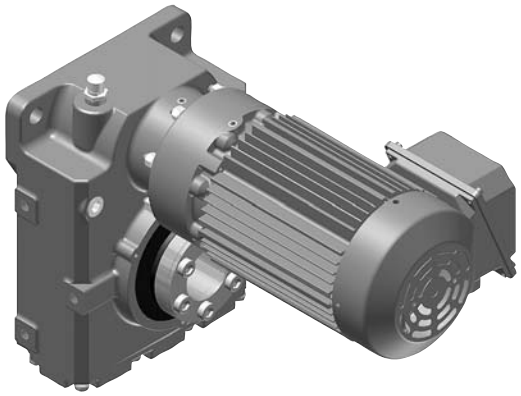
Input Speeds

The standard input speeds of single reduction units are 1750 and 1165 RPM.
When non-standard input speeds are used, the horsepower and torque ratings will also vary.

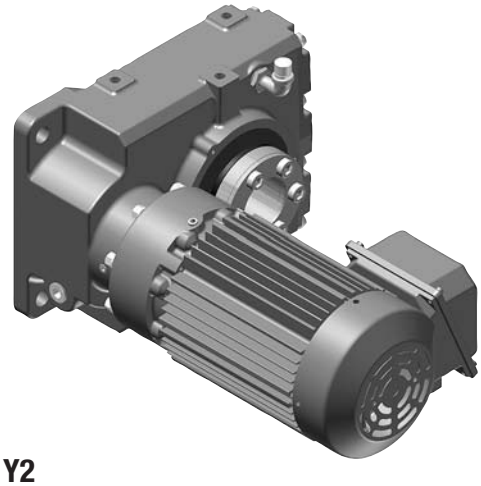
Thermal Capacity

The Cyclo HBB speed reducer's smooth, almost frictionless operation all but eliminates the conventional limitations due to heat. In all sizes, Helical Buddybox speed reducers have thermal ratings that exceed their mechanical capacity.

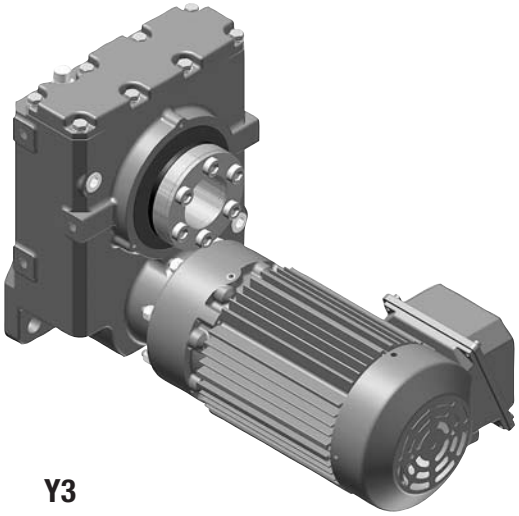
Mounting Positions



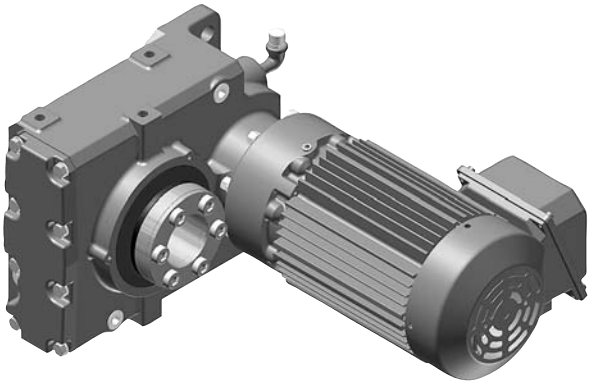
Y1



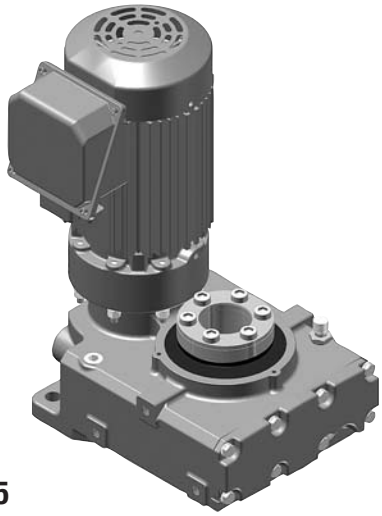
Y2



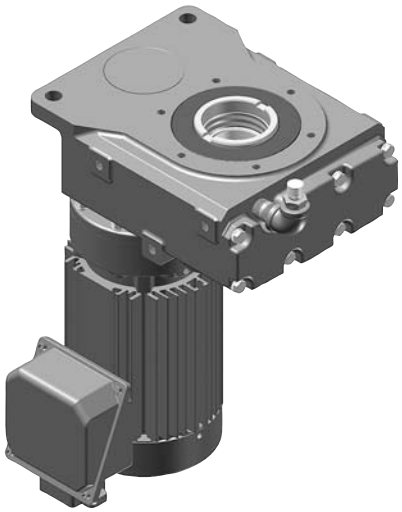
Y3



Y4



Y5

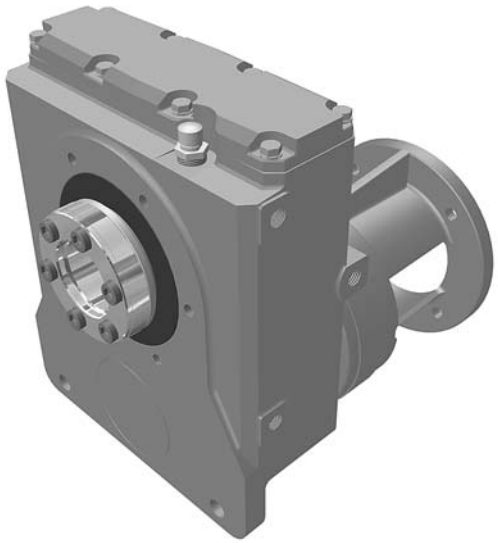


Y6

This page intentionally left blank.

2

Speed Reducers



How to select a Speed Reducer

Step 1: Collect data about your application

Before starting you need to know the:

- **Application (e.g. Conveyor, Mixer, etc.)**
- **Hours of Operation per day**
- **Motor Horsepower (HP) and Speed (RPM)**
- **Desired Output Speed**
- **Mounting Position and Style**
- **Overhung or Thrust Loads**
- **Bore Dimensions, inch or metric**

Step 2: Choose a Mounting Position

Find the correct Mounting Position from the *Mounting Positions Table* on the right.

Step 3: Select a Frame Size

3A: Find the **Load Classification** of your application in the *AGMA Load Classification Table* on page 2.6.

3B: Find the recommended **Service Factor** using the *Recommended Reducer Service Factor Table* on the right.

3C: Determine the **Selection Horsepower** by multiplying the Motor Horsepower by the Service Factor.

3D: Select a **Frame size** from the Reducer Selection Tables on pages 2.8–2.13 by matching both the Selection Horsepower and Desired Output Speed (RPMs) to a frame size model number. Note: For Mounting Positions Y1, Y3, Y2, Y4 see pages 2.8–2.9. For Mounting Positions Y5 and Y6 see pages 2.10–2.11.) For all Double Reduction Mounting Positions see pages 2.12–2.13.

Step 4: Verify Dimensions

Use the Dimensions information on pages 2.14–2.21 to verify that the selected Frame Size is appropriate.

Step 5: Choose a Bushing Bore Size

Choose a Taper-Grip® Bushing Bore Size from the *Stock Bushing Bore Size Table*.

Step 6: Choose Options

The following options may apply:
Washdown Modification
Screw Conveyor Kit
Bushing Guard
Please see the Cyclo® HBB pricelist for available modifications, and refer to Section 4 of this catalog for dimension drawings of selected popular options .

Step 7: Configure a Model Number

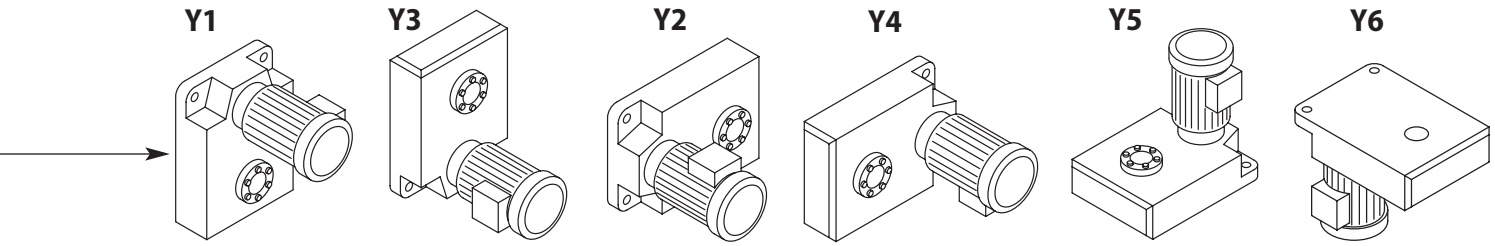
Go to page 2.4 to configure a model number.
Note: You will use the information you gather from the procedure on this page to Configure a Model Number.

STOCK BUSHING BORES

Size	Inch Sizes	Metric Sizes	Min. Bore*
Z	$1^{3}/_{16}$, $1^{7}/_{16}$,	30, 40	$1^{3}/_{16}$
A	$1^{15}/_{16}$, $2^{3}/_{16}$	50, 55	$1^{11}/_{16}$
B	$2^{3}/_{16}$, $2^{7}/_{16}$	60, 65	$1^{15}/_{16}$
C	$2^{7}/_{16}$, $2^{15}/_{16}$	65, 75	$2^{3}/_{16}$
D	$2^{15}/_{16}$, $3^{7}/_{16}$	75, 85	$2^{7}/_{16}$
E	$3^{7}/_{16}$, $3^{15}/_{16}$	90, 100	$2^{15}/_{16}$

*Min. Bore is also stock but needs slitting.

Mounting Positions



Recommended Reducer Service Factors

AGMA Load Classifications

		Uniform (U)	Moderate Shock (M)	Heavy Shock (H)
Duration of Service	1/2 hr. per day (Occasional)	0.50*	0.80*	1.25
	3 hrs. per day (Intermittent)	0.80*	1.00	1.50
	Up to 10 hrs. per day	1.00	1.25	1.75
	24 hrs. per day	1.20	1.50	2.00

*Maximum momentary or starting load must not exceed 300% of gear reducer rating (rating meaning service factor of 1.0). Time specified for occasional and intermittent service refers to total operating time per day.

Determine Selection Horsepower (HP)

Motor HP X Service Factor = Selection HP

Example: 10 Motor HP X 1.25 Service Factor = 12.5 Selection HP

Select a Frame Size

1 Match your OUTPUT RPM (or RATIO)...

Output RPM	167	100	83.3	62.5	45.5	38.5	33.3	29.4	23.8	Frame Size
Ratio	11	18	21	28	39	46	53	60	74	
Input HP	–	–		1.54	1.54	1.54	1.54	1.54	1.02	**Z6090**
Output Torque in-lbs	–	–		1430	1970	2330	2690	3050	2480	
Input HP	–	–		2.04	2.04	2.04	2.04	1.96	1.58	**Z6095**
Output Torque in-lbs	–	–						3870	3870	
Input HP	3.15	3.15						2.67	2.59	**A6100**
Output Torque in-lbs	1100	1830						5270	6320	
Input HP	4.26	4.26	4.26							**A6105**
Output Torque in-lbs	1490	2480	2970					6520	7660	
Input HP	6.80	6.80	6.80					6.80	5.31	**B6120**
Output Torque in-lbs	2370	3950	4740	6320	8690	10300	11900	13400	13000	
Input HP	7.79	7.79	7.79	9.32	7.94	7.94	7.94	7.59	6.42	**B6125**

2 ...to your SELECTION HP...

3 ...to find your FRAME SIZE

If Overhung Load is present, it must be checked against the capacity of the selection.

For special circumstances affecting **Frame Size** selection such as:

- Overhung Load
- Shock Loading

Consult Appendix, pages 5.2–5.4.

Configure a Model Number

Output Shaft Orientation

Type	Prefix
Horizontal	H
Vertical	V

Mounting Style

Type	Prefix
Shaft Mount (Hollow Shaft)	Y
Flange (Keyed Hollow Bore)	F

Input Connection

Input Connection	Prefix
C-Face Adapter	J
Hollow Input Shaft	X

Modification

	Prefix
Special	S
Standard	

Frame Size

Single Reduction

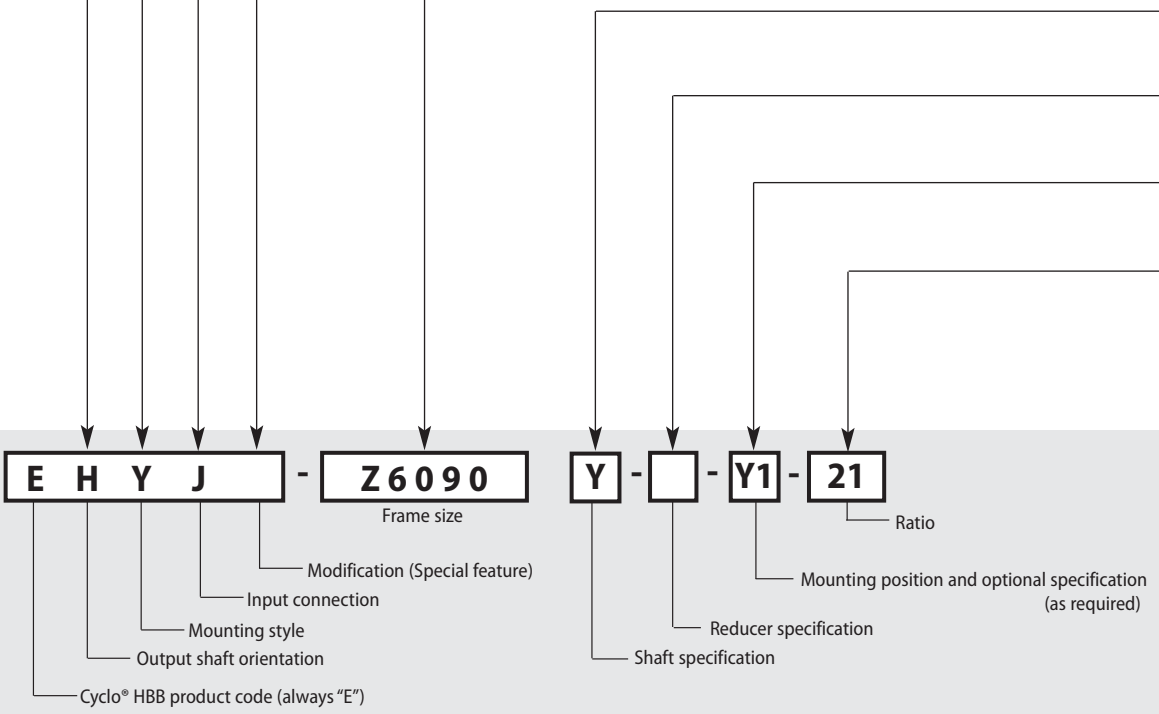
Z6090	B6120	D6160
Z6095	B6125	D6165
A6100	C6140	E6170
A6105	C6145	E6175

Double Reduction

Z609DA	C614DB	D616DC
A610DA	C614DC	E617DA
B612DA	D616DA	E617DB
B612DB	D616DB	E617DC
C614DA		

Include the following information when ordering:

- Motor Specification (230/460 VAC 60 Hz is supplied, unless otherwise specified)
- NEMA frame size for C-face adaptor
- Bushing Bore size **(must be supplied)**
- Optional conduit box positions must be specified, otherwise Y1 is supplied.



Nomenclature

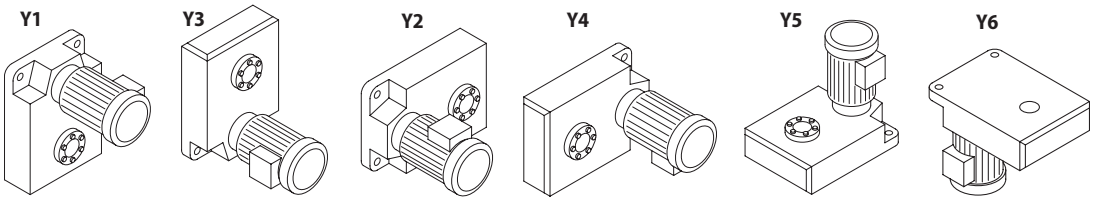
Shaft Specifications

Input Shaft	Hollow Output Shaft	Suffix
mm	Key (mm)	
DIN	Key (DIN)	**E**
Inch	Key (Inch)	**K**
mm	Taper-Grip®	**M**
DIN	Taper-Grip®	**G**
Inch	Taper-Grip®	**Y**

Reducer Specification

Type		Suffix
Standard		
High Capacity Bearing **(Required for Screw Conveyor)**		**R1**
Baseplate		**BP**
Shovel Base		**SB**
Top Mount	Center	–
	Right	**PR**
	Left	**PL**
Low Backlash		**LB**
Torque Limiter		**TL**

Mounting Positions



Nominal Total Ratio

Single Reduction	
Input Ratio	**Total Ratio**
3	**11**
5	**18**
6	**21**
8	**28**
11	**39**
13	**46**
15	**53**
17	**60**
21	**74**
25	**88**
29	**102**
35	**123**
43	**151**
51	**179**
59	**207**
71	**249**
87	**305**
119	**417**

Double Reduction	
Input Ratio	**Total Ratio**
104	**364**
121	**424**
143	**501**
165	**578**
195	**683**
231	**809**
273	**956**
319	**1117**
377	**1320**
473	**1656**
559	**1957**
649	**2272**
731	**2559**
841	**2944**
1003	**3511**
1247	**4365**
1479	**5177**
1849	**6472**
2065	**7228**
2537	**8880**
3045	**10568**
3481	**12184**
4437	**15530**
5133	**17966**
6177	**21620**
7569	**26492**

Nomenclature Example:

EHYJ – Z6090Y – Y1 – 21

E – Cyclo® Helical Buddybox
H – Horizontal O/P
Y – Shaft Mount (Hollow Shaft)
J – C-Face Input

Z6090 – Frame Size
Y – Inch Shaft Specification
Y1 – Installation Position
21 – Ratio

AGMA Load Classifications

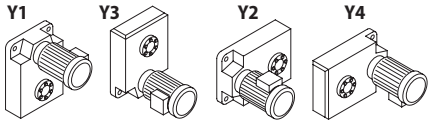
TYPE OF APPLICATION	TYPE OF LOAD
Agitators	
Pure liquids	U
Liquids and solids	M
Variable-density liquids	M
Blowers	
Centrifugal	U
Lobe	M
Vane	U
Brewing and Distilling	
Bottling machinery	U
Brew kettles, cont. duty	U
Cookers, cont. duty	U
Mash tubs, cont. duty	U
Scale hopper, frequent starts	M
Can Filling Machines	U
Cane Knives	M
Car Dumpers	H
Car Pullers	M
Clarifiers	U
Classifiers	M
Clay Working Machinery	
Brick press	H
Briquette machine	H
Clay working machinery	M
Pug mill	M
Compressors	
Centrifugal	U
Lobe	M
Reciprocating, multi-cylinder	M
Reciprocating, single-cylinder	H
Conveyors — Uniformly Loaded or Fed	
Apron	U
Assembly	U
Belt	U
Bucket	U
Chain	U
Flight	U
Oven	U
Screw	U
Conveyors — Heavy Duty, Not Uniformly Fed	
Apron	M
Assembly	M
Belt	M
Bucket	M
Chain	M
Flight	M
Live roll oven	M
Reciprocating	H
Screw	M
Shaker	H
Cranes (Except for Dry Dock Cranes)	
Main hoists	U
Bridge travel	S
Trolley travel	S
Crusher	
Ore	H
Stone	H
Sugar	M
Dredges	
Cable reels	M
Conveyors	M
Cutter head drives	H
Jig drives	H
Maneuvering winches	M
Pumps	M
Screen drive	H
Stackers	M
Utility winches	M
Dry Dock Cranes	S
Elevators	
Bucket, uniform load	U
Bucket, heavy load	M
Bucket, cont.	U
Centrifugal discharge	U
Escalators	U
Freight	M
Gravity discharge	U
Man lifts	S
Passenger	S
Extruders (Plastics)	
Blow molders	M
Coating	U
Film	U
Pipe	U
Pre-plasticizers	M
Rods	U
Sheet	U
Tubing	U
Fans	
Centrifugal	U
Cooling towers	S
Forced draft	S
Induced draft	M
Large (mine, etc.)	M
Large (industrial)	M
Light (small diameter)	U
Feeders	
Apron	M
Belt	M
Disc	U
Reciprocating	H
Screw	M
Food Industry	
Beet slicer	M
Cereal cooker	U
Dough mixer	M
Meat grinders	M
Generators (Not Welding)	U
Hammer Mills	H
Hoists	
Heavy duty	H
Medium duty	M
Skip	M
Laundry Washers — Reversing	M
Laundry Tumblers	M
Line Shaft	
Drive processing equipment	M
Light	U
Other line shafts	U
Lumber Industry	
Barkers — hydraulic and mechanical	S
Burner conveyor	M
Chain Saw and Drag Saw	H
Chain transfer	H
Craneway transfer	H
De-barking drum	S
Edger feed	H
Gang feed	M
Geen chain	M
Live rolls	H
Log haul-lockline	H
Log turning device	H
Main log conveyor	H
Off bearing rolls	M
Planer feed chains	M
Planer floor chains	M
Planer tilting hoist	M
Re-saw merry-go-round conveyor	M
Roll cases	H
Slab conveyor	H
Small waste-conveyor-belt	U
Small waste-conveyor-chain	M
Sorting table	M
Tipple hoist conveyor	M
Tipple hoist drive	M
Transfer conveyors	M
Transfer rolls	M
Tray drive	M
Trimmer feed	M
Waste conveyor	M
Machine Tools	
Bending roll	M
Notching press, belt driven	S
Plate planer	H
Punch press, gear driven	H
Tapping machine	H
Other machine tools	
Main drives	M
Auxiliary drives	U
Metal Mills	
Draw bench carriage and main drive	M
Forming machines	H
Pinch, dryer and scrubber rolls, reversing	S
Slitters	M
Table conveyors, nonreversing	
Group drives	M
Individual drives	H
Table conveyors, reversing	S
Wire drawing and flattening machine	M
Wire winding machine	M
Mills, Rotary Type	
Ball	M
Cement kilns	M
Dryers and coolers	M
Kilns	M
Pebble	M
Rod, plain and wedge bar	M
Tumbling barrels	H
Mixers	
Concrete mixers, cont.	M
Concrete mixers, intermittent	M
Constant density	U
Variable density	M
Oil Industry	
Chillers	M
Oil well pumps	S
Paraffin filter press	M
Rotary kilns	M
Paper Mills	
Agitators (mixers)	M
Barker, hydraulic	S
Barker, mechanical	S
Barking drum	S
Beater and pulper	M
Bleacher	U
Calenders	M
Calenders, super	H
Converting machine (except cutters, platers)	M
Conveyors	U
Couch	M
Cutters, platers	H
Cylinders	M
Dryers	M
Felt stretcher	M
Felt whipper	H
Jordans	H
Log haul	H
Presses	U
Pulp machine reel	M
Stock chest	M
Suction roll	U
Washers and thickeners	M
Winders	U
Printing Presses	S
Pullers, Barge Haul	H
Pumps	
Centrifugal	U
Proportioning	M
Reciprocating	
Single acting, 3 or more cylinders	M
Double acting, 2 or more cylinders	M
Rotary-gear type	U
Rubber and Plastics Industries	
Crackers	H
Laboratory equipment	M
Mixing mills	H
Refiners	M
Rubber calenders	M
Rubber mill (2 on line)	M
Rubber mill (3 on line)	U
Sheeter	M
Tire building machines	S
Tire and tube press openers	S
Tubers and strainers	M
Warming mills	M
Sand Muller	M
Screens	
Air washing	U
Rotary, stone or gravel	M
Traveling water intake	U
Sewage Disposal Equipment	
Bar screens	U
Chemical fenders	U
Collectors, circuline or straightline	U
Dewatering screens	M
Grit collectors	U
Scum breakers	M
Slow or rapid mixers	M
Sludge collectors	U
Thickeners	M
Vacuum filters	M
Slab Pushers	M
Steering Gear	S
Stokers	U
Sugar Industry	
Cane knives	M
Crushers	M
Mills	H
Textile Industry	
Batchers	M
Calenders	M
Cards	M
Dry cans	M
Dryers	M
Dyeing machinery	M
Knitting machines	S
Looms	M
Mangles	M
Nappers	M
Pads	M
Range drives	S
Slashers	M
Soapers	M
Spinners	M
Tenter frames	M
Washers	M
Winders	M
Windlass	S

U = Uniform Load
M = Moderate Shock
H = Heavy Shock
S = Contact Sumitomo

This page intentionally left blank.

Frame Size Selection Tables 60 Hz, 1750 RPM

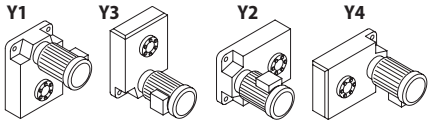
Single Reduction
Y1, Y3, Y2, Y4 Mounting Positions



Dimensions on pages 2.14–2.17

Output RPM	167	100	83.3	62.5	45.5	38.5	33.3	29.4	23.8	Frame Size
Ratio	11	18	21	28	39	46	53	60	74	
Input HP	–	–	1.54	1.54	1.54	1.54	1.54	1.54	1.02	**Z6090**
Output Torque in-lbs	–	–	1080	1430	1970	2330	2690	3050	2480	
Input HP	–	–	2.04	2.04	2.04	2.04	2.04	1.96	1.58	**Z6095**
Output Torque in-lbs	–	–	1420	1900	2610	3080	3550	3870	3870	
Input HP	3.15	3.15	3.15	3.15	3.15	3.15	3.15	2.67	2.59	**A6100**
Output Torque in-lbs	1100	1830	2200	2930	4030	4760	5490	5270	6320	
Input HP	4.26	4.26	4.26	4.26	4.26	4.26	4.26	3.30	3.14	**A6105**
Output Torque in-lbs	1490	2480	2970	3960	5450	6440	7430	6520	7660	
Input HP	6.80	6.80	6.80	6.80	6.80	6.80	6.80	6.80	5.31	**B6120**
Output Torque in-lbs	2370	3950	4740	6320	8690	10300	11900	13400	13000	
Input HP	7.79	7.79	7.79	9.32	7.94	7.94	7.94	7.59	6.42	**B6125**
Output Torque in-lbs	2720	4530	5430	8670	10100	12000	13800	15000	15700	
Input HP	17.4	17.4	17.4	17.4	17.4	17.4	16.1	13.5	11.6	**C6140**
Output Torque in-lbs	6080	10100	12200	16200	22300	26300	28100	26800	28300	
Input HP	20.2	20.2	20.2	20.2	20.2	20.2	18.0	15.9	12.8	**C6145**
Output Torque in-lbs	7060	11800	14100	18800	25900	30600	31300	31300	31300	
Input HP	27.2	27.2	27.2	26.4	26.4	26.4	25.1	17.6	17.3	**D6160**
Output Torque in-lbs	9490	15800	19000	24600	33800	39900	43700	34700	42200	
Input HP	32.3	32.3	32.3	32.3	32.3	30.3	30.3	25.2	21.6	**D6165**
Output Torque in-lbs	11300	18800	22500	30000	41300	45800	52800	49800	52700	
Input HP	37.0	37.0	37.0	37.0	37.0	36.6	34.2	26.4	26.1	**E6170**
Output Torque in-lbs	12900	21500	25800	34400	47300	55300	59600	52200	63800	
Input HP	40.3	40.3	40.3	40.3	40.3	40.3	40.3	32.3	31.1	**E6175**
Output Torque in-lbs	14100	23500	28100	37500	51600	61000	70400	63900	75800	

60 Hz, 1750 RPM Frame Size Selection Tables



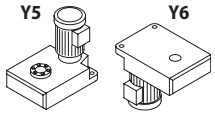
Single Reduction
Y1, Y3, Y2, Y4 Mounting Positions

Dimensions on pages 2.14–2.17

Output RPM	20.0	17.2	14.3	11.6	9.80	8.47	7.04	5.75	4.20	Frame Size
Ratio	88	102	123	151	179	207	249	305	417	
Input HP	0.899	0.838	0.820	0.583	0.445	0.414	0.338	0.283	0.168	**Z6090**
Output Torque in-lbs	2610	2820	3340	2920	2640	2840	2790	2860	2320	
Input HP	1.16	1.05	0.950	0.774	0.566	0.500	0.403	0.382	0.202	**Z6095**
Output Torque in-lbs	3370	3540	3870	3870	3350	3430	3330	3870	2800	
Input HP	1.70	1.62	1.31	1.05	0.751	0.692	0.584	0.580	0.282	**A6100**
Output Torque in-lbs	4950	5470	5320	5230	4450	4740	4820	5870	3890	
Input HP	2.24	2.13	1.61	1.45	1.04	0.949	0.752	0.757	0.383	**A6105**
Output Torque in-lbs	6510	7190	6550	7240	6170	6510	6210	7660	5300	
Input HP	4.14	4.01	3.34	2.56	2.31	1.74	1.28	1.27	–	**B6120**
Output Torque in-lbs	12000	13500	13600	12800	13700	12000	10600	12800	–	
Input HP	5.31	4.65	3.85	3.13	2.64	2.17	1.61	1.51	–	**B6125**
Output Torque in-lbs	15400	15700	15700	15700	15700	14900	13300	15300	–	
Input HP	9.24	7.98	6.98	5.28	4.60	3.97	3.26	2.65	–	**C6140**
Output Torque in-lbs	26800	26900	28400	26400	27300	27200	26900	26800	–	
Input HP	10.6	9.29	7.70	6.27	5.28	4.57	3.80	3.10	–	**C6145**
Output Torque in-lbs	30800	31300	31300	31300	31300	31300	31300	31300	–	
Input HP	13.2	14.1	13.0	9.99	7.71	5.92	4.65	4.65	–	**D6160**
Output Torque in-lbs	38400	47500	52700	49900	45700	40600	38400	47000	–	
Input HP	18.7	15.3	13.4	10.6	9.16	7.71	6.58	5.23	–	**D6165**
Output Torque in-lbs	54300	51500	54300	53000	54300	52900	54300	52900	–	
Input HP	21.2	19.2	16.1	13.1	11.2	9.58	7.94	6.45	–	**E6170**
Output Torque in-lbs	61600	64600	65500	65300	66700	65700	65500	65200	–	
Input HP	26.1	22.5	18.6	15.1	12.8	11.1	9.19	7.50	–	**E6175**
Output Torque in-lbs	75800	75800	75800	75700	75800	75800	75800	75800	–	

Frame Size Selection Tables 60 Hz, 1750 RPM

Single Reduction
Y5, Y6 Mounting Positions

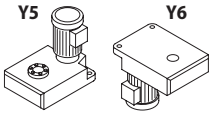


Dimensions on pages 2.14–2.17

Output RPM	167	100	83.3	62.5	45.5	38.5	33.3	29.4	23.8	Frame Size
Ratio	11[1]	18[1]	21	28	39	46	53	60	74	
Input HP	–	–	1.54	1.54	1.54	1.54	1.54	1.54	1.02	**Z6090**
Output Torque in-lbs	–	–	1080	1430	1970	2330	2690	3050	2480	
Input HP	–	–	2.04	2.04	2.04	2.04	2.04	1.96	1.58	**Z6095**
Output Torque in-lbs	–	–	1420	1900	2610	3080	3550	3870	3870	
Input HP	3.15	3.15	3.15	3.15	3.15	3.15	3.15	2.67	2.59	**A6100**
Output Torque in-lbs	1100	1830	2200	2930	4030	4760	5490	5270	6320	
Input HP	4.26	4.26	4.26	4.26	4.26	4.26	4.26	3.30	3.14	**A6105**
Output Torque in-lbs	1490	2480	2970	3960	5450	6440	7430	6520	7660	
Input HP	6.80	6.80	6.80	6.80	6.80	6.80	6.80	6.80	5.31	**B6120**
Output Torque in-lbs	2370	3950	4740	6320	8690	10300	11800	13400	12900	
Input HP	7.79	7.79	7.79	9.32	7.94	7.94	7.94	7.59	6.42	**B6125**
Output Torque in-lbs	2720	4530	5430	8670	10100	11900	13800	15000	15700	
Input HP	12.7	12.7	14.9	14.9	14.9	10.2	10.2	7.45	7.45	**C6140**
Output Torque in-lbs	4430	7380	10400	13800	19000	15300	17700	14700	18100	
Input HP	14.7	14.7	14.9	14.9	14.9	10.2	10.2	7.45	7.45	**C6145**
Output Torque in-lbs	5140	8570	10400	13800	19000	15300	17700	14700	18100	
Input HP	16.9	16.9	–	20.4	20.4	14.9	14.9	14.9	10.2	**D6160**
Output Torque in-lbs	5890	9740	–	18900	26000	22500	25900	29400	24800	
Input HP	20.1	20.1	–	20.4	20.4	14.9	14.9	14.9	10.2	**D6165**
Output Torque in-lbs	7010	11700	–	18900	26000	22500	25900	29400	24800	
Input HP	27.1	27.1	–	–	19.0	19.0	16.1	13.0	13.0	**E6170**
Output Torque in-lbs	9380	15700	–	–	24300	28800	28000	25700	31800	
Input HP	29.5	29.5	–	–	19.0	19.0	16.1	13.0	13.0	**E6175**
Output Torque in-lbs	10300	17100	–	–	24300	28800	28000	25700	31800	

Note: [1] Y6 position is not available for ratio 11 and 18.

60 Hz, 1750 RPM Frame Size Selection Tables



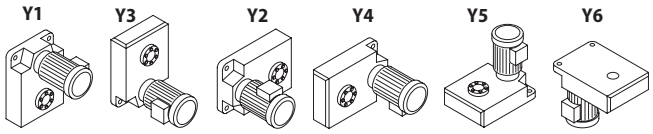
Single Reduction
Y5, Y6 Mounting Positions

Dimensions on pages 2.14–2.17

Output RPM	20.0	17.2	14.3	11.6	9.80	8.47	7.04	5.75	4.20	Frame Size
Ratio	88	102	123	151	179	207	249	305	417	
Input HP	0.899	0.838	0.820	0.583	0.445	0.414	0.338	0.283	0.168	**Z6090**
Output Torque in-lbs	2610	2820	3340	2920	2640	2840	2790	2860	2320	
Input HP	1.16	1.05	0.950	0.774	0.566	0.500	0.403	0.382	0.202	**Z6095**
Output Torque in-lbs	3370	3540	3870	3870	3350	3430	3330	3870	2800	
Input HP	1.70	1.62	1.31	1.05	0.751	0.692	0.584	0.580	0.282	**A6100**
Output Torque in-lbs	4950	5470	5320	5230	4450	4740	4820	5870	3890	
Input HP	2.24	2.13	1.61	1.45	1.04	0.949	0.752	0.757	0.383	**A6105**
Output Torque in-lbs	6510	7190	6550	7240	6170	6510	6210	7660	5300	
Input HP	4.14	4.01	3.34	2.56	2.31	1.74	1.28	1.27	–	**B6120**
Output Torque in-lbs	12000	13500	13500	12700	13600	11900	10500	12700	–	
Input HP	5.31	4.65	3.85	3.13	2.64	2.17	1.61	1.51	–	**B6125**
Output Torque in-lbs	15400	15700	15700	15700	15700	14900	13300	15300	–	
Input HP	7.45	5.01	5.01	2.98	2.98	2.98	2.04	2.04	–	**C6140**
Output Torque in-lbs	21600	16900	20400	14900	17600	20400	16800	20500	–	
Input HP	7.45	5.01	5.01	2.98	2.98	2.98	2.04	2.04	–	**C6145**
Output Torque in-lbs	21600	16900	20400	14900	17600	20400	16800	20500	–	
Input HP	10.2	10.2	10.2	5.01	5.01	5.01	2.98	2.98	–	**D6160**
Output Torque in-lbs	29500	34200	41300	25000	29600	34300	24500	30100	–	
Input HP	10.2	10.2	10.2	5.01	5.01	5.01	2.98	2.98	–	**D6165**
Output Torque in-lbs	29500	34200	41300	25000	29600	34300	24500	30100	–	
Input HP	14.9	14.9	10.2	10.2	7.45	7.45	5.01	5.01	–	**E6170**
Output Torque in-lbs	43200	50100	41300	50700	44200	51100	41300	50700	–	
Input HP	14.9	14.9	10.2	10.2	7.45	7.45	5.01	5.01	–	**E6175**
Output Torque in-lbs	43200	50100	41300	50700	44200	51100	41300	50700	–	

Frame Size Selection Tables 60 Hz, 1750 RPM

Double Reduction
Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions

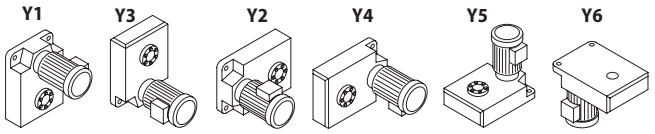


Dimensions on pages 2.18–2.21

Output RPM	4.81	4.13	3.50	3.03	2.56	2.16	1.83	1.57	1.33	1.06	0.894	0.770	0.684	Frame
Ratio	364	424	501	578	683	809	956	1117	1320	1656	1957	2272	2559	Size
Input HP	0.337	0.290	0.245	0.212	0.180	0.152	0.125 breakaway HP required for cold temp. or high inertia applications[1]							**Z609DA**
Output Torque in-lbs	3870	3870	3870	3870	3870	3870	3870	3870	3870	3870	3870	3870	3870	
Input HP	0.576	0.576	0.496	0.430	0.364	0.307	0.260	0.222	0.188	0.150	0.125 breakaway HP required for cold temp. or high inertia applications[1]			**A610DA**
Output Torque in-lbs	6600	7680	7820	7820	7820	7820	7820	7820	7820	7820	7820	7820	7820	
Input HP	0.576	0.576	0.576	0.576	0.576	0.576	0.520	0.445	0.377	0.300	0.254	0.219	0.194	**B612DA**
Output Torque in-lbs	6600	7680	9120	10400	12400	14700	15700	15700	15700	15700	15700	15700	15700	
Input HP	1.37	1.17	0.993	0.860	0.728	0.615	0.520	0.445	0.377	0.300	0.254	0.219	0.194	**B612DB**
Output Torque in-lbs	15700	15700	15700	15700	15700	15700	15700	15700	15700	15700	15700	15700	15700	
Input HP	0.576	0.576	0.576	0.576	0.576	0.576	0.576	0.576	0.576	0.576	0.508	0.438	0.388	**C614DA**
Output Torque in-lbs	6600	7680	9120	10400	12400	14700	17300	20300	24000	30000	31300	31300	31300	
Input HP	2.14	2.14	1.99	1.72	1.46	1.23	1.04	0.890	0.753	0.600	0.508	0.438	0.388	**C614DB**
Output Torque in-lbs	24600	28600	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	
Input HP	2.73	2.35	1.99	1.72	1.46	1.23	1.04	0.890	0.753	0.600	0.508	0.438	0.388	**C614DC**
Output Torque in-lbs	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	
Input HP	2.14	2.14	2.14	2.14	2.14	2.13	1.80	1.54	1.31	1.04	0.881	0.759	0.674	**D616DA**
Output Torque in-lbs	24600	28600	33800	39000	46100	54300	54300	54300	54300	54300	54300	54300	54300	
Input HP	4.50	4.07	3.44	2.98	2.53	2.13	1.80	1.54	1.31	1.04	0.881	0.759	0.674	**D616DB**
Output Torque in-lbs	51600	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	
Input HP	4.74	4.07	3.44	2.98	2.53	2.13	1.80	1.54	1.31	1.04	0.881	0.759	0.674	**D616DC**
Output Torque in-lbs	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	
Input HP	2.14	2.14	2.14	2.14	2.14	2.14	2.14	2.14	1.82	1.45	1.23	1.06	0.940	**E617DA**
Output Torque in-lbs	24600	28600	33800	39000	46100	54600	64600	75500	75800	75800	75800	75800	75800	
Input HP	4.50	4.50	4.50	4.17	3.53	2.98	2.52	2.15	1.82	1.45	1.23	1.06	0.940	**E617DB**
Output Torque in-lbs	51600	60100	71000	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	
Input HP	6.61	5.68	4.81	4.17	3.53	2.98	2.52	2.15	1.82	1.45	1.23	1.06	0.940	**E617DC**
Output Torque in-lbs	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	

Note: **[1]** A torque limiting device is recommended to protect the unit or driven machine.

60 Hz, 1750 RPM Frame Size Selection Tables



Double Reduction
Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions

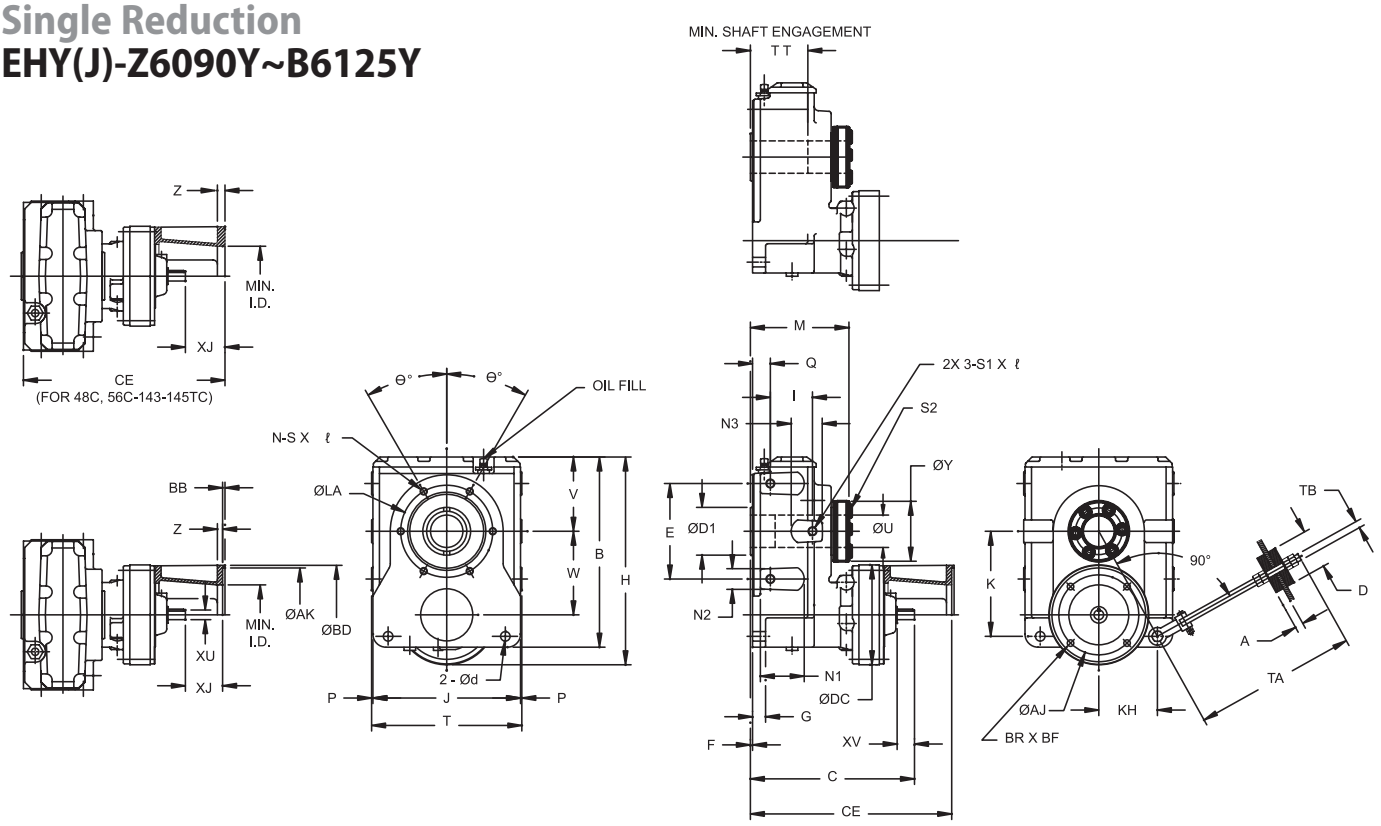
Dimensions on pages 2.18–2.21

Output RPM	0.595	0.499	0.401	0.338	0.270	0.242	0.197	0.164	0.144	0.113	0.0974	0.0809	0.0661	Frame
Ratio	2944	3511	4365	5177	6472	7228	8880	10658	12184	15530	17966	21620	26492	Size
Input HP	0.125 breakaway HP required for cold temp. or high inertia applications[1]													**Z609DA**
Output Torque in-lbs	3870	3870	3870	3870	3870	3870	3870	3870	3870	3870	3870			
Input HP	0.125 breakaway HP required for cold temp. or high inertia applications[1]													**A610DA**
Output Torque in-lbs	7820	7820	7820	7820	7820	7820	7820	7820	7820	7820	7820			
Input HP	0.169	0.142	0.125 breakaway HP required for cold temp. or high inertia applications[1]											**B612DA**
Output Torque in-lbs	15700	15700	15700	15700	15700	15700	15700	15700	15700	15700	15700			
Input HP	0.169	0.142	0.125 breakaway HP required for cold temp. or high inertia applications[1]											**B612DB**
Output Torque in-lbs	15700	15700	15700	15700	15700	15700	15700	15700	15700	15700	15700	15700	15700	
Input HP	0.338	0.283	0.25 breakaway HP required for cold temp. or high inertia applications[1]											**C614DA**
Output Torque in-lbs	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300			
Input HP	0.338	0.283	0.25 breakaway HP required for cold temp. or high inertia applications[1]											**C614DB**
Output Torque in-lbs	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	
Input HP	0.338	0.283	0.25 breakaway HP required for cold temp. or high inertia applications[1]											**C614DC**
Output Torque in-lbs	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	31300	
Input HP	0.586	0.5 breakaway HP required for cold temp. or high inertia applications[1]				0.25 breakaway HP required for cold temp. or high inertia applications[1]								**D616DA**
Output Torque in-lbs	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	
Input HP	0.586	0.5 breakaway HP required for cold temp. or high inertia applications[1]				0.25 breakaway HP required for cold temp. or high inertia applications[1]								**D616DB**
Output Torque in-lbs	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	
Input HP	0.586	0.5 breakaway HP required for cold temp. or high inertia applications[1]				0.25 breakaway HP required for cold temp. or high inertia applications[1]								**D616DC**
Output Torque in-lbs	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	54300	
Input HP	0.817	0.685	0.551	0.5 breakaway HP required for cold temp. or high inertia applications[1]				0.25 breakaway HP required for cold temp. or high inertia applications[1]						**E617DA**
Output Torque in-lbs	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	
Input HP	0.817	0.685	0.551	0.5 breakaway HP required for cold temp. or high inertia applications[1]				0.25 breakaway HP required for cold temp. or high inertia applications[1]						**E617DB**
Output Torque in-lbs	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	
Input HP	0.817	0.685	0.551	0.5 breakaway HP required for cold temp. or high inertia applications[1]				0.25 breakaway HP required for cold temp. or high inertia applications[1]						**E617DC**
Output Torque in-lbs	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	75800	

Note: [1] A torque limiting device is recommended to protect the unit or driven machine.

Dimensions

Single Reduction
EHY(J)-Z6090Y~B6125Y



All dimensions are in inches.

Model	NEMA C-Face	B	C	E	F	G	H	I	J	K	M	P	Q	T	TT	ØU Max (Std)	ØU Min
Z6090 Z6095	42C	11.02	9.09	5.51	0.20	0.79	11.87	2.20	8.30	6.18	6.06	0.12	1.06	8.54	3.96	1-7/16	1-3/16
	48C						11.87										
	56C~145TC						12.26[1]										
A6100 A6105	48C	11.83	9.92	5.91	0.20	0.79	12.70	2.60	9.17	6.44	6.61	0.12	1.14	9.41	4.57	2-3/16	1-11/16
	56C~145TC						13.09[1]										
	182~184TC						14.23[1]										
B6120 B6125	56C~145TC	14.47	12.05	7.48	0.20	0.98	16.10	3.39	11.41	7.97	7.64	0.12	1.22	11.65	5.43	2-7/16	1-15/16
	182~184TC						16.57[1]										
	213~215TC						16.57[1]										

Model	NEMA C-Face	V	W	ØY	Ød	ØD1	ØDC	KH	N1	N2	N3	S2	TA	A	D	TB
Z6090 Z6095	42C	4.25	4.69	3.23	0.55	2.56	5.91	3.54	1.02	1.02	N/A	M10	17.50	0.63	2.36	M20
	48C															
	56C~145TC															
A6100 A6105	48C	4.61	5.14	4.09	0.71	3.35	5.91	3.74	1.10	1.10	N/A	M12	17.50	0.63	2.36	M20
	56C~145TC															
	182~184TC															
B6120 B6125	56C~145TC	5.71	6.40	4.49	0.71	3.94	8.03	4.33	1.34	1.26	N/A	M12	17.87	0.63	2.36	M20
	182~184TC															
	213~215TC															

Note: **[1]** Dimension is to **C**, motor mounting flange.

Dimensions

Single Reduction
EHY(J)-Z6090Y~B6125Y (cont.)

All dimensions are in inches.

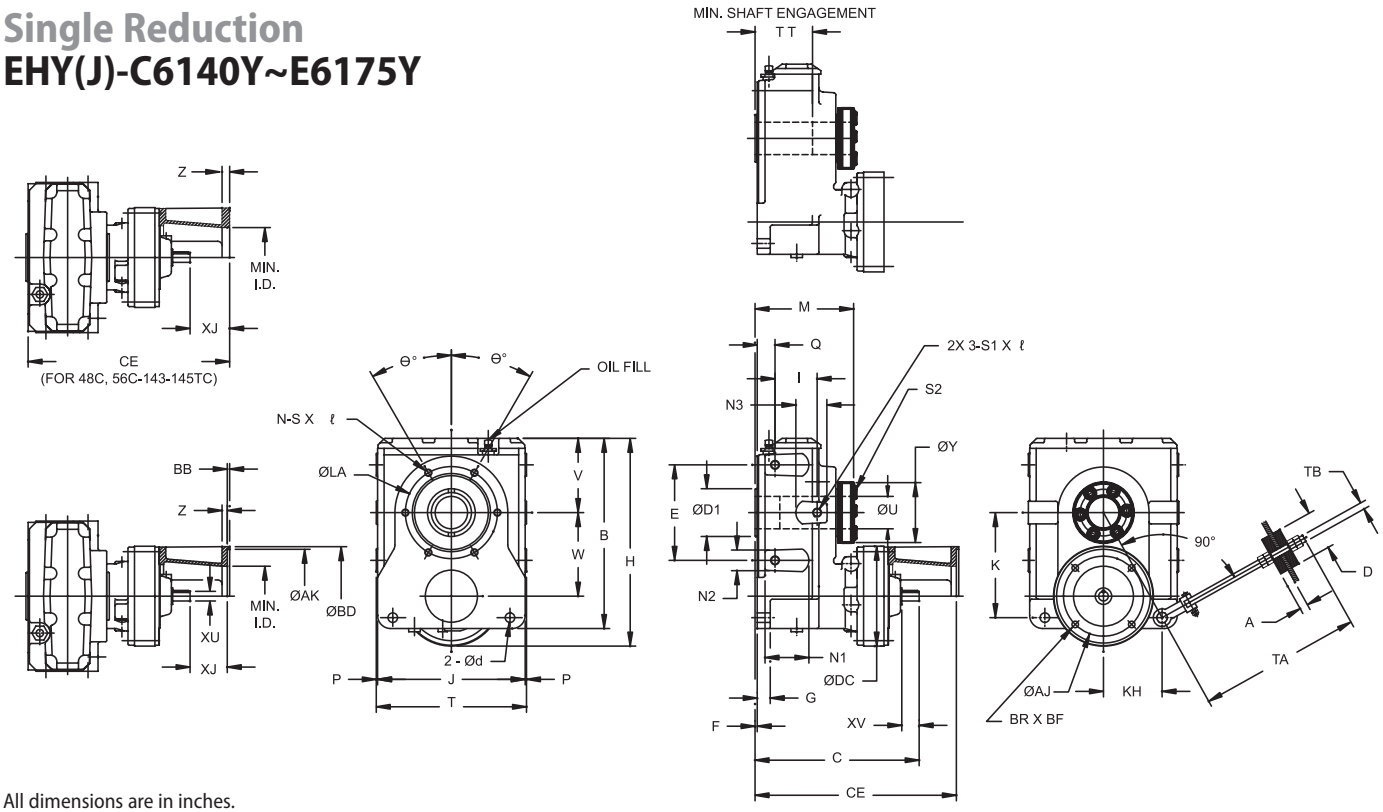
Model	NEMA C-Face	ØLA	Θ °	N	S x ℓ	S1 x ℓ	XU	XV	Key	Unit Weight (lb)
Z6090 Z6095	42C 48C 56C~145TC	4.72	0	4	M10x0.79	M10x0.79	0.625	0.98	3/16 x 3/16 x .75	66
A6100 A6105	48C 56C~145TC 182~184TC	6.10	30	6	M12x0.79	M12x0.87	0.625	0.98	3/16 x 3/16 x .75	80
B6120 B6125	56C~145TC 182~184TC 213~215TC	6.89	30	6	M12x0.87	M16x1.02	0.75	1.38	3/16 x 3/16 x .1.02	148

Model	NEMA C-Face	C-Face Dimensions									Unit + C-Face
		ØAJ	ØAK	ØBD	BB	BF	BR	CE	XJ	Z	Min. ID	Weight (lb)
Z6090 Z6095	42C	3.75	3.00	4.33	0.00	0.28	4	10.88	1.79	0.47	2.44	71
	48C	3.75	3.00	4.33	0.00	0.28	4	11.25	2.16	0.47	2.44	72
	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	11.72	2.63	0.47	4.21	74
A6100 A6105	48C	3.75	3.00	4.33	0.00	0.28	4	12.08	2.16	0.47	2.44	85
	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	12.55	2.63	0.47	4.21	87
	182~184TC	7.25	8.50	8.98	0.22	0.55	4	13.34	3.42	0.69	5.43	91
B6120 B6125	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	14.68	2.63	0.47	4.21	158
	182~184TC	7.25	8.50	8.98	0.22	0.55	4	15.39	3.34	0.47	5.43	161
	213~215TC	7.25	8.50	8.98	0.22	0.55	4	16.04	4.30	1.47	5.43	170

Dimensions shown are for reference only and are subject to change without notice, unless certified. Certified prints are available after receipt of an order; consult factory.

Dimensions

Single Reduction
EHY(J)-C6140Y~E6175Y



All dimensions are in inches.

Model	NEMA C-Face	B	C	E	F	G	H	I	J	K	M	P	Q	T	TT	ØU Max (Std)	ØU Min
C6140 C6145	56C~145TC 182~184TC 213~215TC 254~256TC	17.24	14.88	8.66	0.20	1.18	18.84	3.82	13.38	9.53	9.17	0.12	1.61	13.62	6.50	2-15/16	2-3/16
D6160 D6165	56C~145TC 182~184TC 213~215TC 245~256TC 284~286TC	21.22	17.87	9.84	0.28	1.38	24.30[1]	4.49	16.77	11.54	10.20	0.20	1.77	17.17	7.01	3-7/16	2-7/16
E6170 E6175	182~184TC 213~215TC 254~256TC 284~286TC 324~326TC	24.02	20.00	11.81	0.28	1.77	27.30[1]	5.00	18.89	13.07	10.98	0.20	1.97	19.29	8.62	3-15/16	2-15/16

Model	NEMA C-Face	V	W	ØY	Ød	ØD1	ØDC	KH	N1	N2	N3	S2	TA	A	D	TB
C6140 C6145	56C~145TC 182~184TC 213~215TC 254~256TC	6.73	7.58	5.43	0.87	4.33	9.06	5.31	3.98	2.05	2.83	M16	18.37	0.75	3.54	M24
D6160 D6165	56C~145TC 182~184TC 213~215TC 245~256TC 284~286TC	8.43	9.61	5.98	1.02	5.12	11.81	6.38	3.62	2.36	3.62	M16	19.50	0.75	3.54	M24
E6170 E6175	182~184TC 213~215TC 254~256TC 284~286TC 324~326TC	9.45	10.71	6.69	1.30	5.91	13.39	7.09	3.82	2.44	3.94	M16	20.25	0.75	3.54	M24

Note: **[1]** Dimension is to Cyclo® fan cover.

Dimensions

Single Reduction
EHY(J)-C6140Y~E6175Y (cont.)

All dimensions are in inches.

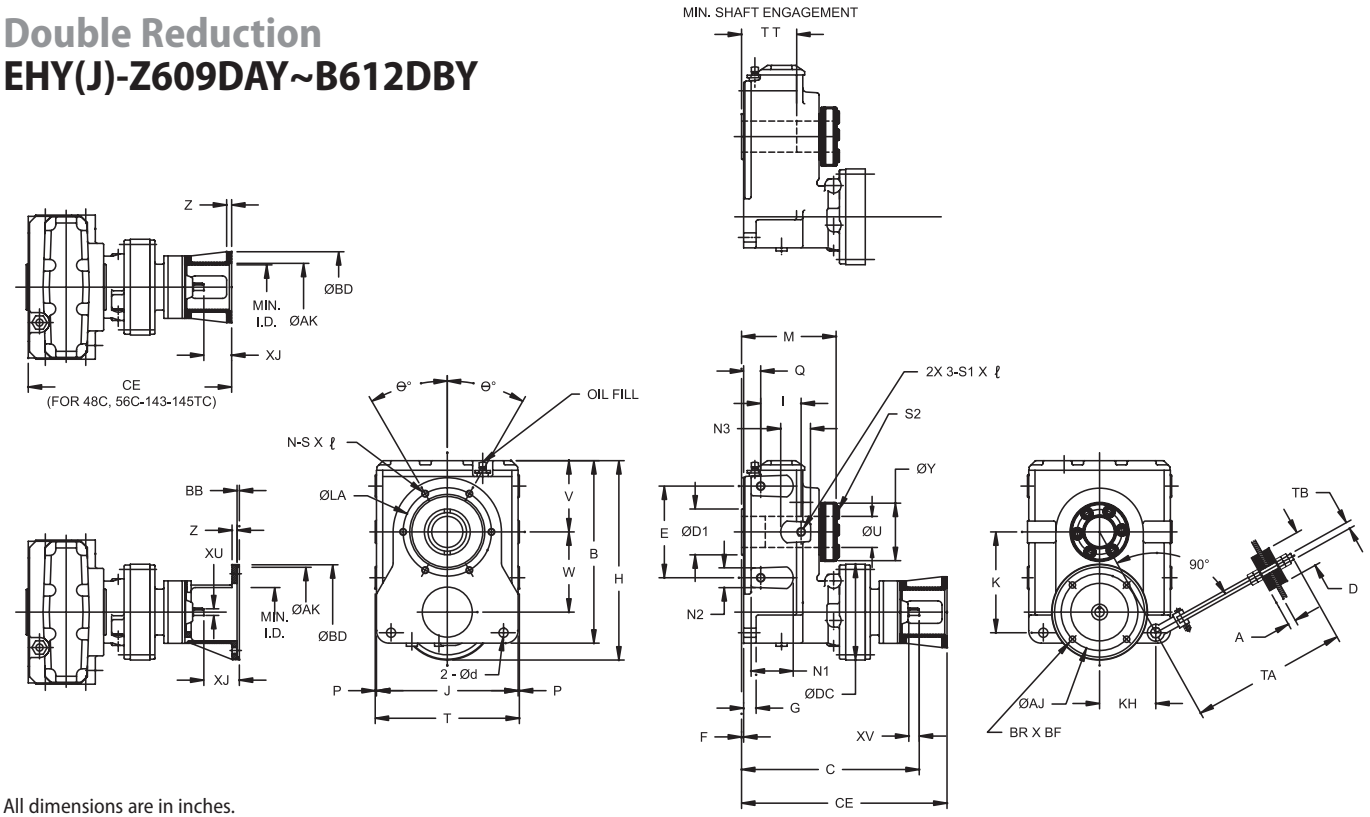
Model	NEMA C-Face	ØLA	Θ °	N	S x ℓ	S1 x ℓ	XU	XV	Key	Unit Weight (lb)
C6140 C6145	56C~145TC 182~184TC 213~215TC 254~256TC	8.35	30	6	M16x1.18	M20x1.38	0.875	1.57	3/16 X 3/16 X 1.38	245
D6160 D6165	56C~145TC 182~184TC 213~215TC 254~256TC 284~286TC	10.04	30	6	M20x1.38	M24x1.57	1.125	1.77	1/4 X 1/4 X 1.77	450
E6170 E6175	182~184TC 213~215TC 254~256TC 284~286TC 324~326TC	11.02	22.5	8	M20x1.38	M24x1.57	1.375	2.17	5/16 X 5/16 X 2.16	615

Model	NEMA C-Face	C-Face Dimensions									Unit + C-Face Weight (lb)
		ØAJ	ØAK	ØBD	BB	BF	BR	CE	XJ	Z	MIN. ID
C6140 C6145	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	17.51	2.63	0.47	4.21	257
	182~184TC	7.25	8.50	8.98	0.22	0.59	4	18.22	3.34	0.47	5.43	261
	213~215TC	7.25	8.50	8.98	0.22	0.59	4	19.00	4.12	1.10	5.43	268
	254~256TC	7.25	8.50	8.98	0.22	0.55	4	19.81	4.93	0.57	5.08	269
D6160 D6165	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	20.50	2.63	0.47	4.21	492
	182~184TC	7.25	8.50	8.98	0.22	0.55	4	21.21	3.34	0.57	5.71	496
	213~215TC	7.25	8.50	8.98	0.22	0.55	4	21.87	4.00	1.10	5.71	504
	254~256TC	7.25	8.50	8.98	0.22	0.55	4	22.62	4.75	0.57	5.71	499
	284~286TC	9.00	10.50	11.10	0.22	0.55	4	23.31	5.44	0.57	6.50	492
E6170 E6175	182~184TC	7.25	8.50	8.98	0.22	0.55	4	23.38	3.38	0.57	5.71	653
	213~215TC	7.25	8.50	8.98	0.22	0.55	4	24.00	4.00	1.10	5.71	660
	254~256TC	7.25	8.50	8.98	0.22	0.55	4	24.75	4.75	0.57	5.71	655
	284~286TC	9.00	10.50	11.10	0.22	0.55	4	25.44	5.44	0.57	7.87	666
	324~326TC	11.00	12.50	14.17	0.22	0.71	4	26.00	6.00	0.57	7.87	686

Dimensions shown are for reference only and are subject to change without notice, unless certified. Certified prints are available after receipt of an order; consult factory.

Dimensions

Double Reduction
EHY(J)-Z609DAY~B612DBY



All dimensions are in inches.

Model	NEMA C-FACE	B	C	E	F	G	H	I	J	K	M	P	Q	T	TT	U	
																Max (Std)	MIN
Z609DA	42C 48C 56C	11.02	10.73	5.51	0.20	0.79	11.87 11.87 12.26[1]	2.20	8.3	6.18	6.06	0.12	1.06	8.54	3.96	1-7/16	1-3/16
A610DA	42C 48C 56C	11.83	11.87	5.91	0.2	0.79	12.70 12.70 13.09[1]	2.60	9.17	6.44	6.61	0.12	1.14	9.41	4.57	2-3/16	1-11/16
B612DA	42C 48C 56C	14.47	13.39	7.48	0.20	0.98	16.10	3.39	11.41	7.97	7.64	0.12	1.22	11.65	5.43	2-7/16	1-15/16
B612DB	48C 56C~145TC	14.47	14.11	7.48	0.20	0.98	16.10	3.39	11.41	7.97	7.64	0.12	1.22	11.65	5.43	2-7/16	1-15/16

Model	NEMA C-FACE	V	W	ØY	Ød	ØD1	ØDC	KH	N1	N2	N3	S2	TA	A	D	TB
Z609DA	42C 48C 56C	4.25	4.69	3.23	0.55	2.56	5.91	3.54	1.02	1.02	N/A	M10	17.50	0.63	2.36	M20
A610DA	42C 48C 56C	4.61	5.14	4.09	0.71	3.35	5.91	3.74	1.10	1.10	N/A	M12	17.50	0.63	2.36	M20
B612DA	42C 48C 56C	5.71	6.40	4.49	0.71	3.94	8.03	4.33	1.34	1.26	N/A	M12	17.87	0.63	2.36	M20
B612DB	48C 56C~145TC	5.71	6.40	4.49	0.71	3.94	8.03	4.33	1.34	1.26	N/A	M12	17.87	0.63	2.36	M20

Note: **[1]** Dimension is to **C**, motor mounting flange.

Dimensions

Double Reduction
EHY(J)-Z609DAY~B612DBY (cont.)

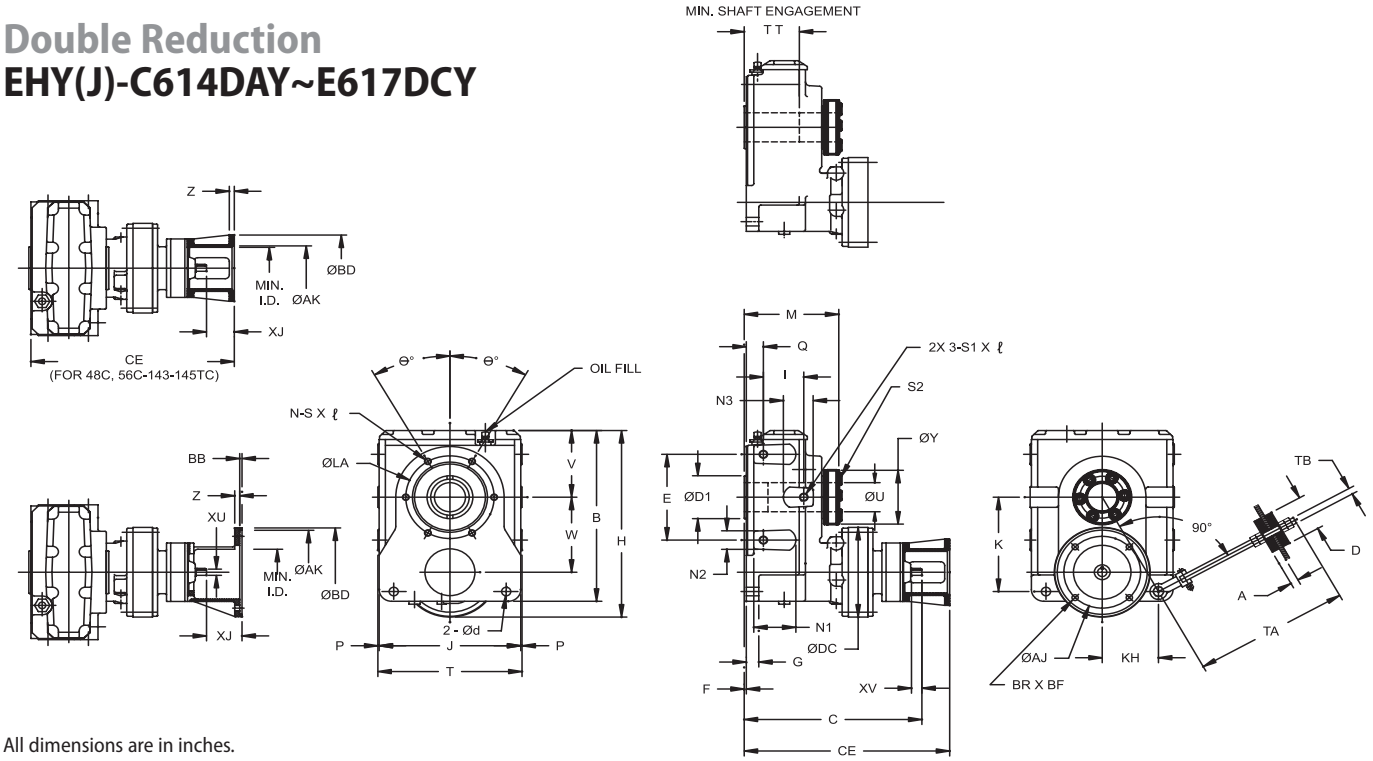
All dimensions are in inches.

Model	NEMA C-Face	ØLA	Θ °	N	S x ℓ	S1 x ℓ	XU	XV	KEY	Unit Weight (lb)
Z609DA	42C 48C 56C	4.72	0	4	M10x0.79	M10x0.79	0.500	0.98	3/16 X 3/16 X .71	62
A610DA	42C 48C 56C	6.10	30	6	M12x0.79	M12x0.87	0.500	0.98	3/16 X 3/16 X .71	83
B612DA	42C 48C 56C	6.89	30	6	M12x0.87	M16x1.02	0.500	0.98	1/8 X 1/8 X .71	145
B612DB	48C 56C~145TC	6.89	30	6	M12x0.87	M16x1.02	0.625	0.98	3/16 X 3/16 X .75	152

Model	NEMA C-Face	C-Face Dimensions									Unit + C-Face
		ØAJ	ØAK	ØBD	BB	BF	BR	CE	XJ	Z	Min. ID	Weight (lb)
Z609DA	42C	3.75	3.00	4.33	0.00	0.28	4	12.52	1.79	0.47	2.44	66
	48C	3.75	3.00	4.33	0.00	0.28	4	12.89	2.16	0.47	2.44	66
	56C	5.88	4.50	6.69	0.00	0.43	4	13.29	2.56	0.47	3.15	68
A610DA	42C	3.75	3.00	4.33	0.00	0.28	4	13.66	1.79	0.47	2.44	87
	48C	3.75	3.00	4.33	0.00	0.28	4	14.03	2.16	0.47	2.44	87
	56C	5.88	4.50	6.69	0.00	0.43	4	14.43	2.56	0.47	3.15	89
B612DA	42C	3.75	3.00	4.33	0.00	0.28	4	15.18	1.79	0.47	2.44	149
	48C	3.75	3.00	4.33	0.00	0.28	4	15.55	2.16	0.47	2.44	149
	56C	5.88	4.50	6.69	0.00	0.43	4	16.02	2.63	0.47	3.15	151
B612DB	48C	3.75	3.00	4.33	0.00	0.28	4	16.27	2.16	0.47	2.44	158
	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	16.74	2.63	0.47	4.21	160

Dimensions

Double Reduction
EHY(J)-C614DAY~E617DCY



All dimensions are in inches.

Model	NEMA C-FACE	B	C	E	F	G	H	I	J	K	M	P	Q	T	TT	U	
																Max (Std)	MIN
C614DA	48C 56C	17.24	15.93	8.66	0.20	1.18	18.84	3.82	13.38	9.53	9.17	0.12	1.61	13.62	6.50	2-15/16	2-3/16
C614DB	48C 56C~145TC	17.24	16.56	8.66	0.20	1.18	18.84	3.82	13.38	9.53	9.17	0.12	1.61	13.62	6.50	2-15/16	2-3/16
C614DC	56~145TC 182~184TC	17.24	16.80	8.66	0.2	1.18	18.84	3.82	13.38	9.53	9.17	0.12	1.61	13.62	6.5	2-15/16	2-3/16
D616DA	56C~145TC	21.22	18.66	9.84	0.28	1.38	23.94	4.49	16.77	11.54	10.20	0.20	1.77	17.17	7.01	3-7/16	2-7/16
D616DB	56C~145TC 182~184TC	21.22	18.90	9.84	0.28	1.38	23.94	4.49	16.77	11.54	10.20	0.20	1.77	17.17	7.01	3-7/16	2-7/16
D616DC	56~145TC 182~184TC	21.22	19.88	9.84	0.28	1.38	23.94	4.49	16.77	11.54	10.2	0.2	1.77	17.17	7.01	3-7/16	2-7/16
E617DA	56C~145TC	24.02	20.06	11.81	0.28	1.77	26.85	5.00	18.89	13.07	10.98	0.20	1.97	19.29	8.62	3-15/16	2-15/16
E617DB	56C~145TC 182~184TC	24.02	20.30	11.81	0.28	1.77	26.85	5.00	18.89	13.07	10.98	0.20	1.97	19.29	8.62	3-15/16	2-15/16
E617DC	182~184TC	24.02	21.26	11.81	0.28	1.77	26.85	5.00	18.89	13.07	10.98	0.20	1.97	19.29	8.62	3-15/16	2-15/16

Model	NEMA C-FACE	V	W	ØY	Ød	ØD1	ØDC	KH	N1	N2	N3	S2	TA	A	D	TB
C614DA	48C 56C	6.73	7.58	5.43	0.87	4.33	9.06	5.31	3.98	2.05	2.83	M16	18.37	0.75	3.54	M24
C614DB	48C 56C~145TC	6.73	7.58	5.43	0.87	4.33	9.06	5.31	3.98	2.05	2.83	M16	18.37	0.75	3.54	M24
C614DC	56~145TC 182~184TC	6.73	7.58	5.43	0.87	4.33	9.06	5.31	3.98	2.05	2.83	M16	18.37	0.75	3.54	M24
D616DA	56C~145TC	8.43	9.61	5.98	1.02	5.12	11.81	6.38	3.62	2.36	3.62	M16	19.50	0.75	3.54	M24
D616DB	56C~145TC 182~184TC	8.43	9.61	5.98	1.02	5.12	11.81	6.38	3.62	2.36	3.62	M16	19.50	0.75	3.54	M24
D616DC	56~145TC 182~184TC	8.43	9.61	5.98	1.02	5.12	11.81	6.38	3.62	2.36	3.62	M16	19.5	0.75	3.54	M24
E617DA	56C~145TC	9.45	10.71	6.69	1.30	5.91	13.39	7.09	3.82	2.44	3.94	M16	20.25	0.75	3.54	M24
E617DB	56C~145TC 182~184TC	9.45	10.71	6.69	1.30	5.91	13.39	7.09	3.82	2.44	3.94	M16	20.25	0.75	3.54	M24
E617DC	182~184TC	9.45	10.71	6.69	1.30	5.91	13.39	7.09	3.82	2.44	3.94	M16	20.25	0.75	3.54	M24

Dimensions shown are for reference only and are subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

Dimensions

Double Reduction
EHY(J)-C614DAY~E617DCY (cont.)

All dimensions are in inches.

Model	NEMA C-Face	ØLA	O °	N	S x ℓ	S1 x ℓ	XU	XV	KEY	Unit Weight (lb)
C614DA	48C 56C	8.35	30	6	M16x1.18	M20x1.38	0.500	0.98	1/8 X 1/8 X .71	244
C614DB	48C 182~184TC	8.35	30	6	M16x1.18	M20x1.38	0.625	0.98	3/16 X3/16 X .75	250
C614DC	56~145TC 182~184TC	8.35	30	6	M16x1.18	M20x1.38	0.625	0.98	3/16 X3/16 X .75	255
D616DA	56C~145TC	10.04	30	6	M20x1.38	M24x1.57	0.625	0.98	3/16 X 3/16 X .75	453
D616DB	56C~145TC 182~184TC	10.04	30	6	M20x1.38	M24x1.57	0.625	0.98	3/16 X 3/16 X .75	458
D616DC	56~145TC 182~184TC	10.04	30	6	M20x1.38	M24x1.57	0.75	1.38	3/16 X 3/16 X 1.02	483
E617DA	56C~145TC	11.02	22.5	8	M20x1.38	M24x1.57	0.625	0.98	3/16 X 3/16 X .75	600
E617DB	56C~145TC 182~184TC	11.02	22.5	8	M20x1.38	M24x1.57	0.625	0.98	3/16 X 3/16 X .75	605
E617DC	182~184TC	11.02	22.5	8	M20x1.38	M24x1.57	0.75	1.38	3/16 X 3/16 X 1.02	618

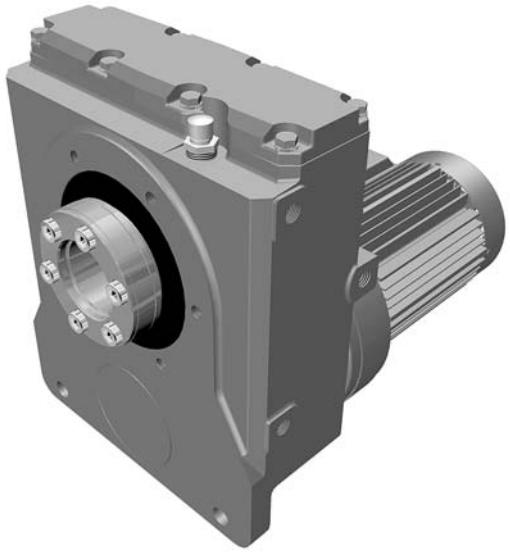
Model	NEMA C-Face	C-Face Dimensions										Unit + C-Face
		AJ	AK	BD	BB	BF	BR	CE	XJ	Z	Min. ID	Weight (lb)
C614DA	48C	3.75	3.00	4.33	0.00	0.28	4	18.09	2.16	0.47	2.44	248
	56C	5.88	4.50	6.69	0.00	0.43	4	18.49	2.56	0.47	3.15	250
C614DB	48C	3.75	3.00	4.33	0.00	0.28	4	18.72	2.16	0.47	2.44	256
	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	19.19	2.63	0.47	4.21	258
C614DC	56~145TC	5.88	4.5	6.69	0	0.43	4	19.43	2.63	0.47	4.21	266
	182~184TC	7.25	8.5	8.98	0.22	0.55	4	20.47	3.67	0.47	5.43	275
D616DA	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	21.29	2.63	0.47	4.13	461
D616DB	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	21.53	2.63	0.47	4.13	465
	182~184TC	7.25	8.50	8.98	0.00	0.55	4	22.32	3.42	0.47	5.43	469
D616DC	56~145TC	5.88	4.5	6.69	0	0.43	4	22.51	2.63	0.47	4.21	522
	182~184TC	7.25	8.5	8.98	0.22	0.55	4	23.25	3.37	0.47	5.43	525
E617DA	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	22.69	2.63	0.47	4.21	608
E617DB	56C~145TC	5.88	4.50	6.69	0.00	0.43	4	22.93	2.63	0.47	4.21	612
	182~184TC	7.25	8.50	8.98	0.22	0.55	4	23.72	3.42	0.47	5.43	616
E617DC	182~184TC	7.25	8.50	8.98	0.22	0.55	4	24.60	3.34	0.47	5.43	631

Dimensions shown are for reference only and are subject to change without notice, unless certified. Certified prints are available after receipt of an order; consult factory.

This page intentionally left blank.

3

Gearmotors



How to Select a Gearmotor

Step 1: Collect data about your application

Before starting you need to know the:

- **Application (e.g. Conveyor, Mixer, etc.)**
- **Hours of Operation per day**
- **Motor Horsepower (HP) and Speed (RPM)**
- **Desired Output Speed**
- **Mounting Position and Style**
- **Overhung or Thrust Loads**
- **Bore Dimensions, inch or metric**
- **Electrical Specifications**

Step 2: Choose a Mounting Position

Find the correct Mounting Position from the *Mounting Positions Table* on the right.

Step 3: Select a Frame Size

3A: Find the **Load Classification** of your application in the *AGMA Load Classification Tables* on pages 3.6 and 3.7.

3B: Go to the *Gearmotor Selection Table* that corresponds to the desired **Mounting Position** and **Motor HP**. Find the **Output Speed** closest to the desired output speed.

3C: Locate the **Service Class** in the *Gearmotor Selection Table* for your application and select the **Frame Size SELECTION** that matches the HP, Output Speed, and Service Class.

Step 4: Verify Dimensions

Use the Dimensions information on pages 3.52–3.63 to verify that the selected Frame Size is appropriate.

Step 5: Choose a Bushing Bore Size

Choose a Taper-Grip® Bushing Bore Size from the *Stock Bushing Bore Size Table*.

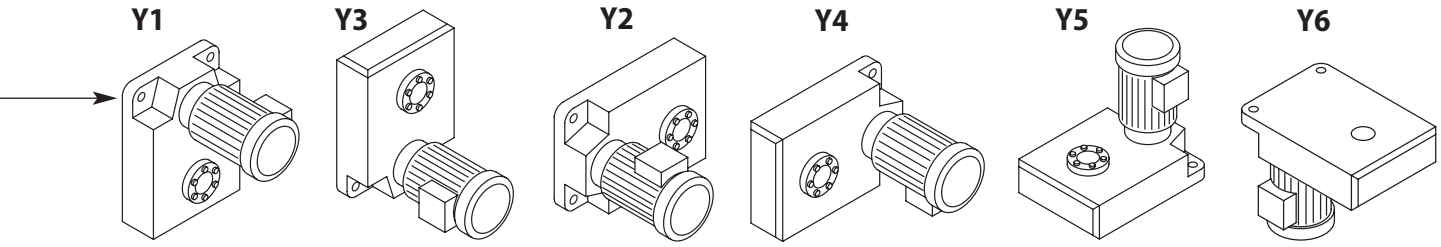
Step 6: Choose Options

The following options may apply:
Brakemotor
Washdown Modifications
Screw Conveyor Kit
Bushing Cover
Please see the Cyclo® HBB pricelist for available modifications, and refer to Section 4 of this catalog for dimension drawings of selected popular options .

Step 7: Configure a Model Number

Go to page 3.4 to configure a model number.
Note: You will use the information you gather from the procedure on this page to Configure a Model Number.

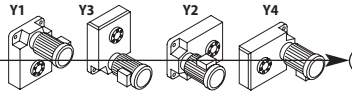
Mounting Positions



Select a Frame Size

60 Hz, 1750 RPM, Single Reduction **Selection Tables**

• Mounting Position



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

Dimensions on pages 3.52–3.57

• Motor HP → **1/3 HP**

• Output Speed → 8.47

• Service Class → I

• SELECTION → A6100

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
8.47	2300	1.24	I	03	**Z6090**	207
		1.49	II	03	**Z6095**	207
		2.06	III	03	**A6100**	207
		2.83	III	03	**A6105**	207
7.04	2770	1.01	I	03	**Z6090**	249
		1.20	I	03	**Z6095**	249
		1.74	II	03	**A6100**	249
		2.24	III	03	**A6105**	249
5.75	3390	0.84	-	03	**Z6090**	305
		1.14	I	03	**Z6095**	305
		1.73	II	03	**A6100**	305
		2.26	III	03	**A6105**	305
4.20	4640	0.84	-	03	**A6100**	417
		1.14	I	03	**A6105**	417

STOCK BUSHING BORES

Size	Inch Sizes	Metric Sizes	Min. Bore*
Z	$1^{3}/_{16}$, $1^{7}/_{16}$,	30, 40	$1^{3}/_{16}$
A	$1^{15}/_{16}$, $2^{3}/_{16}$	50, 55	$1^{11}/_{16}$
B	$2^{3}/_{16}$, $2^{7}/_{16}$	60, 65	$1^{15}/_{16}$
C	$2^{7}/_{16}$, $2^{15}/_{16}$	65, 75	$2^{3}/_{16}$
D	$2^{15}/_{16}$, $3^{7}/_{16}$	75, 85	$2^{7}/_{16}$
E	$3^{7}/_{16}$, $3^{15}/_{16}$	90, 100	$2^{15}/_{16}$

*Min. Bore is also stock but needs slitting.

For special circumstances affecting **Frame Size** selection such as:

- Overhung Load
- Shock Loading

Consult Appendix, pages 5.2–5.4.

If Overhung Load is present, it must be checked against the capacity of the selection.

Configure a Model Number

Include the following information when ordering:

- Motor Specification (230/460 VAC 60 Hz is supplied, unless otherwise specified
- NEMA frame size for C-face adaptor
- Bushing Bore size **(must be supplied)**
- Optional conduit box positions must be specified, otherwise Y1 is supplied.

Output Shaft Orientation

Type	Prefix
Horizontal	**H**
Vertical	**V**

Mounting Style

Type	Prefix
Shaft Mount (Hollow Shaft)	**Y**
Flange (Keyed Hollow Bore)	**F**

Input Connection

Input Connection	Prefix
Integral Motor	**M**
C-Face Adapter	**JM**
Hollow Input Shaft	**XM**

Modification

	Prefix
Special	**S**
Standard	

Gearmotor HP
(applies only to 1750 RPM)

HP	Prefix
1/8	**01**
1/4	**02**
1/3	**03**
1/2	**05**
3/4	**08**
1	**1**
1 1/2	**1H**
2	**2**
3	**3**
5	**5**
7 1/2	**8**
10	**10**
15	**15**
20	**20**
25	**25**
30	**30**
40	**40**

Frame Size

Single Reduction

Z6090	B6120	D6160
Z6095	B6125	D6165
A6100	C6140	E6170
A6105	C6145	E6175

Double Reduction

Z609DA	C614DB	D616DC
A610DA	C614DC	E617DA
B612DA	D616DA	E617DB
B612DB	D616DB	E617DC
C614DA		

AGMA Class

Class	Suffix
I	**A**
II	**B**
III	**C**

Gearmotor Specification

Specification	Suffix
Three-Phase Motor	
Single-Phase Motor	**SG**
AF Motor (Adj. Frequency)	**AV**
Single-Phase Motor	**SG**
Servo Motor	**SV**
DC Motor	**DV**
High Capacity Bearing **(Required for Screw Conveyor)**	**R1**
Torque Limiter	**TL**

Brake

	Suffix
With Brake	B
No Brake	–

E V Y M | **5** - **B 6 1 2 5** | **Y** | **B** - | | **Y1** - **B** - **28**

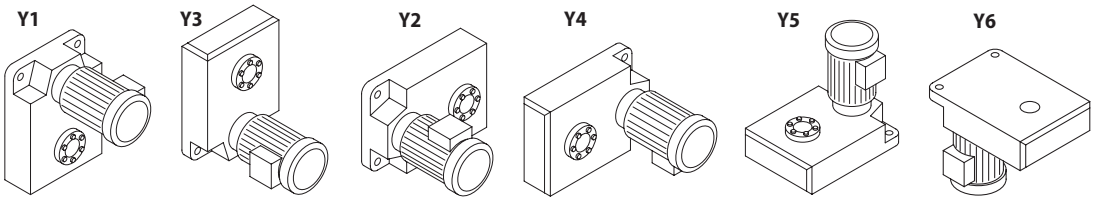
- E: Cyclo® HBB product code (always "E")
- V: Output shaft orientation
- Y: Mounting style
- M: Input connection
- Modification (Special feature)
- 5: Gearmotor HP (1750 rpm)
- B6125: Frame size
- Y: Shaft specification
- B: AGMA class
- Gearmotor Specification
- Y1: Mounting position and optional specification (as required)
- B: Brake
- 28: Ratio

Nomenclature

Shaft Specifications

Input Shaft	Hollow Output Shaft	Suffix
mm	Key (mm)	
DIN	Key (DIN)	**E**
Inch	Key (Inch)	**K**
mm	Taper-Grip®	**M**
DIN	Taper-Grip®	**G**
Inch	Taper-Grip®	**Y**

Mounting Positions



Nominal Total Ratio

Single Reduction	
Input Ratio	**Total Ratio**
3	**11**
5	**18**
6	**21**
8	**28**
11	**39**
13	**46**
15	**53**
17	**60**
21	**74**
25	**88**
29	**102**
35	**123**
43	**151**
51	**179**
59	**207**
71	**249**
87	**305**
119	**417**

Double Reduction	
Input Ratio	**Total Ratio**
104	**364**
121	**424**
143	**501**
165	**578**
195	**683**
231	**809**
273	**956**
319	**1117**
377	**1320**
473	**1656**
559	**1957**
649	**2272**
731	**2559**
841	**2944**
1003	**3511**
1247	**4365**
1479	**5177**
1849	**6472**
2065	**7228**
2537	**8880**
3045	**10568**
3481	**12184**
4437	**15530**
5133	**17966**
6177	**21620**
7569	**26492**

Nomenclature Example:

EVYM5 – B6125YB – AV Y5 – 53

E – Cyclo Helical Buddybox
V – Vertical
Y – Shaft Mount (Hollow Shaft)
M – Integral Motor
5 – 5 HP, 1750 RPM
B6125 – Frame Size
Y – Inch Shaft Specification
B – AGMA Class II
AV – Adj. Frequency Motor
Y5 – Installation Position
53 – Ratio

AGMA Load Classifications: Gearmotors

Gearmotor Classification

DURATION OF SERVICE	GEARMOTOR CLASS UNIFORM LOAD	MODERATE SHOCK LOAD	HEAVY SHOCK LOAD
Intermittent 3 Hr. per day	Class I	Class I	Class II
Up to 10 Hr. per day	Class I	Class II	Class III
24 Hr. per day	Class II	Class III	—

Class I For steady loads not exceeding normal motor rating, 8 to 10 hours a day. Moderate shock loads where service is intermittent (AGMA Service Factor: 1.0).

Class II For steady loads not exceeding normal motor rating and 24 hours a day service. Moderate shock loads for 8 hours a day (AGMA Service Factor: 1.4).

Class III For moderate shock loads for 24 hours a day. Heavy shock loads for 8 hours a day (AGMA Service Factor: 2.0).

Load Classification by INDUSTRY

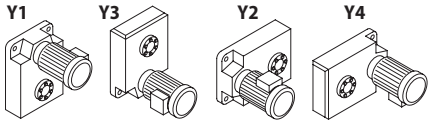
Application	Class: Up to 10 Hr. per day	Class: 24 Hr. per day
Brewing & Distilling		
Bottling Machinery	I	II
Brew Kettles, Cont. Duty	–	II
Can Filling Machines	I	II
Cookers–Cont. Duty	–	II
Mash Tubs–Cont. Duty	–	II
Scale Hoppers–Frequent Starts	II	II
Clay Working Industry		
Brick Press	III	III
Briquette 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	II
Screen Drives	III	III
Stackers	II	II
Utility Winches	II	–
Food Industry		
Beet Slicers	II	II
Bottlings, Can Filling Mach.	I	II
Cereal Cookers	I	II
Dough Mixers	II	II
Meat Grinders	II	II
Lumber Industry		
Barkers–		
Spindle Feed	Refer to Factory	
Barkers–		
Main Drive	Refer to Factory	
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	II	III
Cut-Off Saws–Drag	II	III
Debarking Drums	Refer to Factory	
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	II	III
Tipple Hoist	II	III
Transfers–Chain	II	III
Transfers–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
Paper Mills		
Agitators (Mixers)	II	II
Barker–Auxiliaries–Hyd.	Refer to Factory	
Barker, Mechanical	Refer to Factory	
Barking Drum	Refer to Factory	
Beater & Pulper	–	II
Bleacher	–	II
Calenders	–	II
Calenders–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
Pulp Machine Reels	–	II
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 & Stainers	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	II	II
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

Load Classification by APPLICATION

Application	Class: Up to 10 Hr. per day	Class: 24 Hr. per day
Agitators		
Pure Liquids	I	II
Liquids and Solids	II	II
Liquids – Variable Density	II	II
Semi-liquids – Variable Density	II	II
Blowers		
Centrifugal	I	II
Lobe	II	II
Vane	I	II
Brewing and Distilling		
Bottling Machinery	I	II
Brew Kettles – Continuous Duty	–	II
Cookers – Continuous Duty	–	II
Mash Tubs – Continuous Duty	–	II
Scale Hopper Frequent Starts	II	II
Can Filling Machines	I	II
Cane Knives	II	II
Car Dumpers	III	–
Car Pullers – Intermittent Duty	I	–
Clarifiers	I	II
Classifiers	II	II
Clay Working Machinery		
Brick Press	III	III
Briquette Machine	III	III
Clay Working Machinery	II	II
Pug Mill	II	II
Compressors		
Centrifugal	I	II
Lobe	II	II
Reciprocating Multi-Cylinder	II	II
Reciprocating Single Cylinder	III	III
Conveyors – Uniformly Loaded or Fed		
Apron	I	II
Assembly	I	II
Belt	I	II
Bucket	I	II
Chain	I	II
Flight	I	II
Oven	I	II
Screw	I	II
Conveyors – Heavy Duty Not Uniformly Fed		
Apron	II	II
Assembly	II	II
Belt	II	II
Bucket	II	II
Chain	II	II
Flight	II	II
Live Roll (Package)	I	II
Oven	II	II
Reciprocating	III	III
Screw	II	II
Shaker	III	III
Cranes and Hoists		
Main Hoists	III	III
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	III	III
Stone	III	III
Dredges		
Cable Reels	II	–
Conveyors	II	II
Cutter Head Drives	III	III
Jig Drives	III	III
Maneuvering Winches	II	–
Pumps	II	II
Screen Drive	III	III
Stackers	II	II
Utility Winches	II	–
Elevators		
Bucket – Uniform Load	I	II
Bucket – Heavy Load	II	II
Bucket – Continuous	I	II
Centrifugal Discharge	I	II
Escalators	I	II
Freight	I	II
Gravity Discharge	I	II
Man Lifts	Refer to Factory	
Passenger Service – Hand Lift	III	–
Fans		
Centrifugal	II	II
Cooling Towers Induced Draft	II	II
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	II	II
Belt	II	II
Disc	I	II
Reciprocating	III	III
Screw	II	II
Food Industry		
Beet Slicer	II	II
Cereal Cooker	I	II
Dough Mixer	II	II
Meat Grinders	II	II
Generators – (Not Welding)	I	II
Hammer Mills	III	III
Laundry Washers		
Reversing	II	II
Laundry Tumblers	II	II
Line Shafts		
Heavy Shock Load	III	III
Moderate Shock Load	II	II
Uniform Load	I	II
Lumber Industry		
Barkers – Spindle Feed	Refer to Factory	
Barkers – Main Drive	Refer to Factory	
Carriage Drive	Refer to Factory	
Conveyors – Burner	II	III
Conveyors – Main or Heavy Duty	II	III
Conveyors – Main Log	III	III
Conveyors – Merry-Go-Round	II	III
Conveyors – Slab	III	III
Conveyors – Transfer	II	III
Conveyors – Waste	II	II
Chains – Floor	II	III
Chains – Green	II	III
Cut-Off Saws – Chain	II	III
Cut-Off Saws – Drag	II	III
Debarking Drums	Refer to Factory	
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 Brg. – Roll Cases	III	III
Sorting Table	II	III
Tipple Hoist	II	III
Transfers – Chain	II	III
Transfers – Craneway	II	III
Tray Drives	II	III
Veneer Lathe Drives	Refer to Factory	
Machine Tools		
Bending Roll	II	II
Notching Press – Belt Driven	Refer to Factory	
Plate Planer	III	III
Punch Press – Gear Driven	III	III
Tapping Machines	III	III
Other Machine Tools Main Drives	II	II
Other Machine Tools Auxiliary Drives	I	II
Metal Mills		
Bridle Roll Drives	III	III
Draw Bench – Carriage	III	III
Draw Bench – Main Drive	III	III
Forming Machines	III	III
Pinch Dryer & Scrubber Rolls, Reversing	Refer to Factory	
Slitters	II	II
Table Conveyors Non-Reversing	II	III
Table Conveyors Reversing	–	III
Winding Reels – Strip	–	III
Wire Drawing & Flattening Machine	II	III
Wire Winding Machine	II	II
Mills, Rotary Type		
Ball	III	III
Cement Kilns		
Dryers & Coolers	II	II
Kilns	II	II
Pebble	III	III
Rod	III	III
Tumbling Barrels	III	III
Mixers		
Concrete Mixers, Continuous	II	II
Concrete Mixers, Intermittent	I	–
Constant Density	I	II
Variable Density	II	II
Oil Industry		
Chillers	II	II
Oil Well Pumping	Refer to Factory	
Paraffin Filter Press	II	II
Rotary Kilns	II	II
Paper Mills		
Aerators	Refer to Factory	
Agitators (Mixers)	II	II
Barker Auxiliaries, Hydraulic	Refer to Factory	
Barker, Mechanical	Refer to Factory	
Barking Drum	Refer to Factory	
Beater & Pulper	–	II
Bleacher	–	II
Calenders	–	II
Calenders – Super	–	II
Converting Machines, except Cutters, Platers	–	II
Conveyors	–	II
Conveyors, Log	–	III
Couch	–	II
Cutters, Platers	–	III
Cylinders	–	II
Dryers	–	II
Felt Stretcher	–	II
Felt Whipper	–	III
Jordans	–	II
Presses	–	II
Pulp Machines, Reel	–	II
Stock Chests	–	II
Suction Roll	–	II
Washers and Thickeners	–	II
Winders	–	II
Printing Presses	I	II
Pullers		
Barge Haul	III	III
Pumps		
Centrifugal	I	II
Proportioning	II	II
Reciprocating Single Acting 3 or more Cylinders	II	II
Reciprocating Double Acting 2 or more Cylinders	II	II
Reciprocating Single Acting 1 or 2 Cylinders	Refer to Factory	
Reciprocating Double Acting Single Cylinder	Refer to Factory	
Rotary – Gear Type	I	II
Rotary – Lobe, Vane	I	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 Equipment		
Aerators	Refer to Factory	
Bar Screens	I	II
Chemical Feeders	I	II
Collectors, Circuline or Straightline	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
Screens		
Air Washing	I	II
Rotary – Stone or Gravel	II	II
Traveling Water Intake	I	II
Slab Pushers	II	II
Steering Gear	II	II
Stokers	I	II
Textile Industry		
Batchers	II	II
Calenders	II	II
Card Machines	II	II
Cloth Finishing Machines (Washers, Pads, Tenters) (Dryers, Calenders, etc.)	II	II
Dry Cans	II	II
Dryers	II	II
Dyeing Machinery	II	II
Knitting Machines (Looms, etc.)	Refer to Factory	
Looms	II	II
Mangles	II	II
Nappers	II	II
Pads	II	II
Range Drives	Refer to Factory	
Slashers	II	II
Soapers	II	II
Spinners	II	II
Teneter Frames	II	II
Washers	II	II
Winders (Other than Batchers)	II	II
Yarn Preparatory Machines (Cards, Spinners, Slashers, etc.)	II	II
Windlass	II	II

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions



Dimensions on pages 3.52–3.57

1/8 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
7.04	1110	2.52	III	01	**Z6090**	249
5.75	1360	2.11	III	01	**Z6090**	305
		2.85	III	01	**Z6095**	305
4.20	1850	1.25	I	01	**Z6090**	417
		1.51	II	01	**Z6095**	417

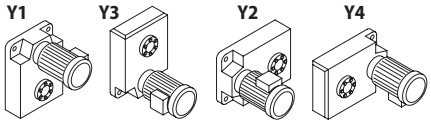
1/4 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
11.6	1340	2.18	III	02	**Z6090**	151
		2.89	III	02	**Z6095**	151
9.80	1590	1.66	II	02	**Z6090**	179
		2.11	III	02	**Z6095**	179
		2.80	III	02	**A6100**	179
8.47	1840	1.55	II	02	**Z6090**	207
		1.87	II	02	**Z6095**	207
		2.58	III	02	**A6100**	207
7.04	2210	1.26	I	02	**Z6090**	249
		1.51	II	02	**Z6095**	249
		2.18	III	02	**A6100**	249
		2.81	III	02	**A6105**	249
5.75	2710	1.06	I	02	**Z6090**	305
		1.43	II	02	**Z6095**	305
		2.17	III	02	**A6100**	305
		2.82	III	02	**A6105**	305
4.20	3710	1.05	I	02	**A6100**	417
		1.43	II	02	**A6105**	417

1/3 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
20.0	974	2.68	III	03	**Z6090**	88
17.2	1130	2.50	III	03	**Z6090**	102
14.3	1360	2.45	III	03	**Z6090**	123
		2.84	III	03	**Z6095**	123
11.6	1680	1.74	II	03	**Z6090**	151
		2.31	III	03	**Z6095**	151
9.80	1990	1.33	I	03	**Z6090**	179
		1.69	II	03	**Z6095**	179
		2.24	III	03	**A6100**	179

60 Hz, 1750 RPM, Single Reduction Selection Tables



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

Dimensions on pages 3.52–3.57

1/3 HP

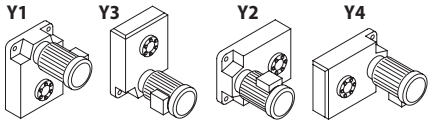
Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
8.47	2300	1.24	I	03	**Z6090**	207
		1.49	II	03	**Z6095**	207
		2.06	III	03	**A6100**	207
		2.83	III	03	**A6105**	207
7.04	2770	1.01	I	03	**Z6090**	249
		1.20	I	03	**Z6095**	249
		1.74	II	03	**A6100**	249
		2.24	III	03	**A6105**	249
5.75	3390	0.84	–	03	**Z6090**	305
		1.14	I	03	**Z6095**	305
		1.73	II	03	**A6100**	305
		2.26	III	03	**A6105**	305
4.20	4640	0.84	–	03	**A6100**	417
		1.14	I	03	**A6105**	417

1/2 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
83.3	374	2.88	III	05	**Z6090**	21
62.5	499	2.88	III	05	**Z6090**	28
45.5	686	2.88	III	05	**Z6090**	39
38.5	810	2.88	III	05	**Z6090**	46
33.3	935	2.88	III	05	**Z6090**	53
29.4	1060	2.88	III	05	**Z6090**	60
23.8	1310	1.90	II	05	**Z6090**	74
		2.95	III	05	**Z6095**	74
20.0	1560	1.68	II	05	**Z6090**	88
		2.16	III	05	**Z6095**	88
17.2	1810	1.56	II	05	**Z6090**	102
		1.96	II	05	**Z6095**	102
14.3	2180	1.53	II	05	**Z6090**	123
		1.77	II	05	**Z6095**	123
		2.44	III	05	**A6100**	123
11.6	2680	1.09	I	05	**Z6090**	151
		1.44	II	05	**Z6095**	151
		1.95	II	05	**A6100**	151
		2.70	III	05	**A6105**	151
9.80	3180	0.83	–	05	**Z6090**	179
		1.06	I	05	**Z6095**	179
		1.40	II	05	**A6100**	179
		1.94	II	05	**A6105**	179

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions



Dimensions on pages 3.52–3.57

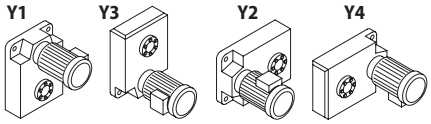
1/2 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
8.47	3680	0.93	–	05	**Z6095**	207
		1.29	I	05	**A6100**	207
		1.77	II	05	**A6105**	207
7.04	4430	1.09	I	05	**A6100**	249
		1.40	II	05	**A6105**	249
		2.39	III	05	**B6120**	249
5.75	5420	1.08	I	05	**A6100**	305
		1.41	II	05	**A6105**	305
		2.36	III	05	**B6120**	305
		2.82	III	05	**B6125**	305

3/4 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
83.3	514	2.09	III	08	**Z6090**	21
		2.76	III	08	**Z6095**	21
62.5	686	2.09	III	08	**Z6090**	28
		2.76	III	08	**Z6095**	28
45.5	943	2.09	III	08	**Z6090**	39
		2.76	III	08	**Z6095**	39
38.5	1110	2.09	III	08	**Z6090**	46
		2.76	III	08	**Z6095**	46
33.3	1290	2.09	III	08	**Z6090**	53
		2.76	III	08	**Z6095**	53
29.4	1460	2.09	III	08	**Z6090**	60
		2.65	III	08	**Z6095**	60
23.8	1800	1.38	I	08	**Z6090**	74
		2.15	III	08	**Z6095**	74
20.0	2140	1.22	I	08	**Z6090**	88
		1.57	II	08	**Z6095**	88
		2.31	III	08	**A6100**	88
17.2	2490	1.14	I	08	**Z6090**	102
		1.43	II	08	**Z6095**	102
		2.20	III	08	**A6100**	102
		2.89	III	08	**A6105**	102
14.3	3000	1.11	I	08	**Z6090**	123
		1.29	I	08	**Z6095**	123
		1.77	II	08	**A6100**	123
		2.18	III	08	**A6105**	123

60 Hz, 1750 RPM, Single Reduction Selection Tables



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

Dimensions on pages 3.52–3.57

3/4 HP

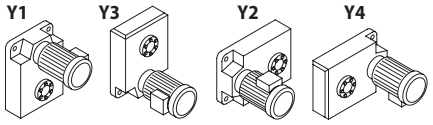
Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
11.6	3690	1.05	I	08	**Z6095**	151
		1.42	II	08	**A6100**	151
		1.96	II	08	**A6105**	151
9.80	4370	1.02	I	08	**A6100**	179
		1.41	II	08	**A6105**	179
8.47	5060	0.94	–	08	**A6100**	207
		1.29	I	08	**A6105**	207
		2.36	III	08	**B6120**	207
		2.95	III	08	**B6125**	207
7.04	6090	1.02	I	08	**A6105**	249
		1.74	II	08	**B6120**	249
		2.18	III	08	**B6125**	249
5.75	7460	1.03	I	08	**A6105**	305
		1.72	II	08	**B6120**	305
		2.05	III	08	**B6125**	305

1 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
83.3	701	1.53	II	1	**Z6090**	21
		2.03	III	1	**Z6095**	21
62.5	935	1.53	II	1	**Z6090**	28
		2.03	III	1	**Z6095**	28
45.5	1290	1.53	II	1	**Z6090**	39
		2.03	III	1	**Z6095**	39
38.5	1520	1.53	II	1	**Z6090**	46
		2.03	III	1	**Z6095**	46
33.3	1750	1.53	II	1	**Z6090**	53
		2.03	III	1	**Z6095**	53
29.4	1990	1.53	II	1	**Z6090**	60
		1.95	II	1	**Z6095**	60
		2.65	III	1	**A6100**	60
23.8	2450	1.01	I	1	**Z6090**	74
		1.58	II	1	**Z6095**	74
		2.57	III	1	**A6100**	74
20.0	2920	0.89	–	1	**Z6090**	88
		1.15	I	1	**Z6095**	88
		1.69	II	1	**A6100**	88
		2.23	III	1	**A6105**	88

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions



Dimensions on pages 3.52–3.57

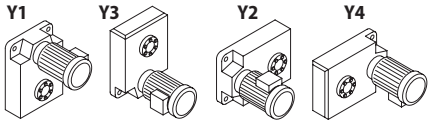
1 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
17.2	3390	0.83	–	1	**Z6090**	102
		1.05	I	1	**Z6095**	102
		1.61	II	1	**A6100**	102
		2.12	III	1	**A6105**	102
14.3	4090	0.82	–	1	**Z6090**	123
		0.95	–	1	**Z6095**	123
		1.30	I	1	**A6100**	123
		1.60	II	1	**A6105**	123
11.6	5030	1.04	I	1	**A6100**	151
		1.44	II	1	**A6105**	151
		2.55	III	1	**B6120**	151
9.80	5960	1.03	I	1	**A6105**	179
		2.29	III	1	**B6120**	179
		2.63	III	1	**B6125**	179
8.47	6900	0.94	–	1	**A6105**	207
		1.73	II	1	**B6120**	207
		2.16	III	1	**B6125**	207
7.04	8300	1.28	I	1	**B6120**	249
		1.60	II	1	**B6125**	249
5.75	10200	1.26	I	1	**B6120**	305
		1.51	II	1	**B6125**	305
		2.64	III	1	**C6140**	305

1.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	514	2.14	III	1H	**A6100**	11
		2.89	III	1H	**A6105**	11
100	857	2.14	III	1H	**A6100**	18
		2.89	III	1H	**A6105**	18
83.3	1030	1.05	I	1H	**Z6090**	21
		1.38	I	1H	**Z6095**	21
		2.14	III	1H	**A6100**	21
		2.89	III	1H	**A6105**	21
62.5	1370	1.05	I	1H	**Z6090**	28
		1.38	I	1H	**Z6095**	28
		2.14	III	1H	**A6100**	28
		2.89	III	1H	**A6105**	28
45.5	1890	1.05	I	1H	**Z6090**	39
		1.38	I	1H	**Z6095**	39
		2.14	III	1H	**A6100**	39
		2.89	III	1H	**A6105**	39

60 Hz, 1750 RPM, Single Reduction Selection Tables



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

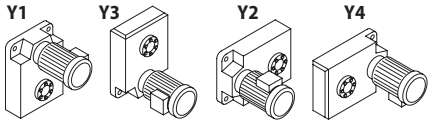
Dimensions on pages 3.52–3.57

1.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
38.5	2230	1.05	I	1H	**Z6090**	46
		1.38	I	1H	**Z6095**	46
		2.14	III	1H	**A6100**	46
		2.89	III	1H	**A6105**	46
33.3	2570	1.05	I	1H	**Z6090**	53
		1.38	I	1H	**Z6095**	53
		2.14	III	1H	**A6100**	53
		2.89	III	1H	**A6105**	53
29.4	2910	1.05	I	1H	**Z6090**	60
		1.33	I	1H	**Z6095**	60
		1.81	II	1H	**A6100**	60
		2.24	III	1H	**A6105**	60
23.8	3600	1.07	I	1H	**Z6095**	74
		1.75	II	1H	**A6100**	74
		2.13	III	1H	**A6105**	74
20.0	4290	1.15	I	1H	**A6100**	88
		1.52	II	1H	**A6105**	88
		2.81	III	1H	**B6120**	88
17.2	4970	1.10	I	1H	**A6100**	102
		1.45	II	1H	**A6105**	102
		2.72	III	1H	**B6120**	102
14.3	6000	0.89	–	1H	**A6100**	123
		1.09	I	1H	**A6105**	123
		2.26	III	1H	**B6120**	123
		2.61	III	1H	**B6125**	123
11.6	7370	0.98	–	1H	**A6105**	151
		1.74	II	1H	**B6120**	151
		2.12	III	1H	**B6125**	151
9.80	8740	1.56	II	1H	**B6120**	179
		1.79	II	1H	**B6125**	179
8.47	10100	1.18	I	1H	**B6120**	207
		1.47	II	1H	**B6125**	207
		2.69	III	1H	**C6140**	207
7.04	12200	0.87	–	1H	**B6120**	249
		1.09	I	1H	**B6125**	249
		2.21	III	1H	**C6140**	249
		2.57	III	1H	**C6145**	249
5.75	14900	0.86	–	1H	**B6120**	305
		1.03	I	1H	**B6125**	305
		1.80	II	1H	**C6140**	305
		2.10	III	1H	**C6145**	305

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

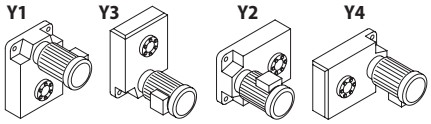


Dimensions on pages 3.52–3.57

2 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	701	1.57	II	2	**A6100**	11
		2.12	III	2	**A6105**	11
100	1170	1.57	II	2	**A6100**	18
		2.12	III	2	**A6105**	18
83.3	1400	1.01	I	2	**Z6095**	21
		1.57	II	2	**A6100**	21
		2.12	III	2	**A6105**	21
62.5	1870	1.01	I	2	**Z6095**	28
		1.57	II	2	**A6100**	28
		2.12	III	2	**A6105**	28
45.5	2570	1.01	I	2	**Z6095**	39
		1.57	II	2	**A6100**	39
		2.12	III	2	**A6105**	39
38.5	3040	1.01	I	2	**Z6095**	46
		1.57	II	2	**A6100**	46
		2.12	III	2	**A6105**	46
33.3	3510	1.01	I	2	**Z6095**	53
		1.57	II	2	**A6100**	53
		2.12	III	2	**A6105**	53
29.4	3970	0.97	-	2	**Z6095**	60
		1.33	I	2	**A6100**	60
		1.64	II	2	**A6105**	60
23.8	4910	1.29	I	2	**A6100**	74
		1.56	II	2	**A6105**	74
		2.64	III	2	**B6120**	74
20.0	5840	0.85	-	2	**A6100**	88
		1.11	I	2	**A6105**	88
		2.06	III	2	**B6120**	88
		2.64	III	2	**B6125**	88
17.2	6780	0.81	-	2	**A6100**	102
		1.06	I	2	**A6105**	102
		1.99	II	2	**B6120**	102
		2.31	III	2	**B6125**	102
14.3	8180	0.80	-	2	**A6105**	123
		1.66	II	2	**B6120**	123
		1.91	II	2	**B6125**	123
11.6	10100	1.27	I	2	**B6120**	151
		1.56	II	2	**B6125**	151
		2.63	III	2	**C6140**	151
9.80	11900	1.15	I	2	**B6120**	179
		1.31	I	2	**B6125**	179
		2.29	III	2	**C6140**	179
		2.63	III	2	**C6145**	179

60 Hz, 1750 RPM, Single Reduction Selection Tables



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

Dimensions on pages 3.52–3.57

2 HP

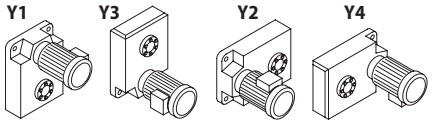
Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
8.47	13800	0.87	–	2	**B6120**	207
8.47	13800	1.08	I	2	**B6125**	207
8.47	13800	1.97	II	2	**C6140**	207
8.47	13800	2.27	III	2	**C6145**	207
8.47	13800	2.95	III	2	**D6160**	207
7.04	16600	0.80	–	2	**B6125**	249
7.04	16600	1.62	II	2	**C6140**	249
7.04	16600	1.89	II	2	**C6145**	249
7.04	16600	2.31	III	2	**D6160**	249
5.75	20300	1.32	I	2	**C6140**	305
5.75	20300	1.54	II	2	**C6145**	305
5.75	20300	2.31	III	2	**D6160**	305
5.75	20300	2.60	III	2	**D6165**	305

3 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	1030	1.07	I	3	**A6100**	11
		1.45	II	3	**A6105**	11
		2.30	III	3	**B6120**	11
		2.64	III	3	**B6125**	11
100	1710	1.07	I	3	**A6100**	18
		1.45	II	3	**A6105**	18
		2.30	III	3	**B6120**	18
		2.64	III	3	**B6125**	18
83.3	2060	1.07	I	3	**A6100**	21
		1.45	II	3	**A6105**	21
		2.30	III	3	**B6120**	21
		2.64	III	3	**B6125**	21
62.5	2740	1.07	I	3	**A6100**	28
		1.45	II	3	**A6105**	28
		2.30	III	3	**B6120**	28
45.5	3770	1.07	I	3	**A6100**	39
		1.45	II	3	**A6105**	39
		2.30	III	3	**B6120**	39
		2.69	III	3	**B6125**	39
38.5	4460	1.07	I	3	**A6100**	46
		1.45	II	3	**A6105**	46
		2.30	III	3	**B6120**	46
		2.69	III	3	**B6125**	46

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

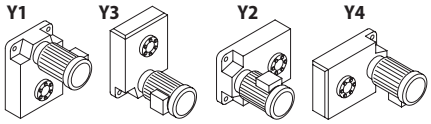


Dimensions on pages 3.52–3.57

3 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
33.3	5140	1.07	I	3	**A6100**	53
		1.45	II	3	**A6105**	53
		2.30	III	3	**B6120**	53
		2.69	III	3	**B6125**	53
29.4	5830	0.90	–	3	**A6100**	60
		1.12	I	3	**A6105**	60
		2.30	III	3	**B6120**	60
		2.57	III	3	**B6125**	60
23.8	7200	0.88	–	3	**A6100**	74
		1.06	I	3	**A6105**	74
		1.80	II	3	**B6120**	74
		2.18	III	3	**B6125**	74
20.0	8570	1.40	II	3	**B6120**	88
		1.80	II	3	**B6125**	88
17.2	9940	1.36	I	3	**B6120**	102
		1.58	II	3	**B6125**	102
		2.70	III	3	**C6140**	102
14.3	12000	1.13	I	3	**B6120**	123
		1.31	I	3	**B6125**	123
		2.37	III	3	**C6140**	123
		2.61	III	3	**C6145**	123
11.6	14700	0.87	–	3	**B6120**	151
		1.06	I	3	**B6125**	151
		1.79	II	3	**C6140**	151
		2.12	III	3	**C6145**	151
9.80	17500	0.90	–	3	**B6125**	179
		1.56	II	3	**C6140**	179
		1.79	II	3	**C6145**	179
		2.61	III	3	**D6160**	179
8.47	20200	1.35	I	3	**C6140**	207
		1.55	II	3	**C6145**	207
		2.01	III	3	**D6160**	207
		2.61	III	3	**D6165**	207
7.04	24300	1.10	I	3	**C6140**	249
		1.29	I	3	**C6145**	249
		1.58	II	3	**D6160**	249
		2.23	III	3	**D6165**	249
5.75	29800	0.90	–	3	**C6140**	305
		1.05	I	3	**C6145**	305
		1.58	II	3	**D6160**	305
		1.77	II	3	**D6165**	305

60 Hz, 1750 RPM, Single Reduction Selection Tables



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

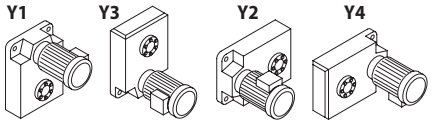
Dimensions on pages 3.52–3.57

5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	1730	1.37	I	5	**B6120**	11
		1.57	II	5	**B6125**	11
100	2880	1.37	I	5	**B6120**	18
		1.57	II	5	**B6125**	18
83.3	3460	1.37	I	5	**B6120**	21
		1.57	II	5	**B6125**	21
62.5	4610	1.37	I	5	**B6120**	28
		1.88	II	5	**B6125**	28
45.5	6340	1.37	I	5	**B6120**	39
		1.60	II	5	**B6125**	39
38.5	7500	1.37	I	5	**B6120**	46
		1.60	II	5	**B6125**	46
33.3	8650	1.37	I	5	**B6120**	53
		1.60	II	5	**B6125**	53
29.4	9800	1.37	I	5	**B6120**	60
		1.53	II	5	**B6125**	60
		2.73	III	5	**C6140**	60
23.8	12100	1.07	I	5	**B6120**	74
		1.29	I	5	**B6125**	74
		2.34	III	5	**C6140**	74
		2.59	III	5	**C6145**	74
20.0	14400	0.84	–	5	**B6120**	88
		1.07	I	5	**B6125**	88
		1.86	II	5	**C6140**	88
		2.14	III	5	**C6145**	88
		2.66	III	5	**D6160**	88
17.2	16700	0.81	–	5	**B6120**	102
		0.94	–	5	**B6125**	102
		1.61	II	5	**C6140**	102
		1.87	II	5	**C6145**	102
		2.84	III	5	**D6160**	102
14.3	20200	1.41	II	5	**C6140**	123
		1.55	II	5	**C6145**	123
		2.61	III	5	**D6160**	123
		2.69	III	5	**D6165**	123
11.6	24800	1.06	I	5	**C6140**	151
		1.26	I	5	**C6145**	151
		2.01	III	5	**D6160**	151
		2.14	III	5	**D6165**	151
		2.64	III	5	**E6170**	151

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions



Dimensions on pages 3.52–3.57

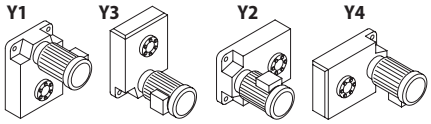
5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
9.80	29400	0.93	–	5	**C6140**	179
		1.07	I	5	**C6145**	179
		1.55	II	5	**D6160**	179
		1.85	II	5	**D6165**	179
		2.27	III	5	**E6170**	179
		2.58	III	5	**E6175**	179
8.47	34000	0.80	–	5	**C6140**	207
		0.92	–	5	**C6145**	207
		1.19	I	5	**D6160**	207
		1.55	II	5	**D6165**	207
		1.93	II	5	**E6170**	207
		2.23	III	5	**E6175**	207
7.04	40900	0.94	–	5	**D6160**	249
		1.33	I	5	**D6165**	249
		1.60	II	5	**E6170**	249
		1.85	II	5	**E6175**	249
5.75	50200	0.94	–	5	**D6160**	305
		1.05	I	5	**D6165**	305
		1.30	I	5	**E6170**	305
		1.51	II	5	**E6175**	305

7.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	2570	0.92	–	8	**B6120**	11
		1.06	I	8	**B6125**	11
		2.36	III	8	**C6140**	11
		2.75	III	8	**C6145**	11
100	4290	0.92	–	8	**B6120**	18
		1.06	I	8	**B6125**	18
		2.36	III	8	**C6140**	18
		2.75	III	8	**C6145**	18
83.3	5140	0.92	–	8	**B6120**	21
		1.06	I	8	**B6125**	21
		2.36	III	8	**C6140**	21
		2.75	III	8	**C6145**	21
62.5	6860	0.92	–	8	**B6120**	28
		1.26	I	8	**B6125**	28
		2.36	III	8	**C6140**	28
		2.75	III	8	**C6145**	28

60 Hz, 1750 RPM, Single Reduction Selection Tables



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

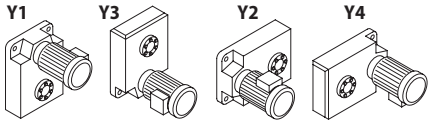
Dimensions on pages 3.52–3.57

7.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
45.5	9430	0.92	–	8	**B6120**	39
		1.08	I	8	**B6125**	39
		2.36	III	8	**C6140**	39
		2.75	III	8	**C6145**	39
38.5	11100	0.92	–	8	**B6120**	46
		1.08	I	8	**B6125**	46
		2.36	III	8	**C6140**	46
		2.75	III	8	**C6145**	46
33.3	12900	0.92	–	8	**B6120**	53
		1.08	I	8	**B6125**	53
		2.18	III	8	**C6140**	53
		2.44	III	8	**C6145**	53
29.4	14600	0.92	–	8	**B6120**	60
		1.03	I	8	**B6125**	60
		1.84	II	8	**C6140**	60
		2.15	III	8	**C6145**	60
		2.38	III	8	**D6160**	60
23.8	18000	0.87	–	8	**B6125**	74
		1.57	II	8	**C6140**	74
		1.74	II	8	**C6145**	74
		2.35	III	8	**D6160**	74
		2.93	III	8	**D6165**	74
20.0	21400	1.25	I	8	**C6140**	88
		1.44	II	8	**C6145**	88
		1.79	II	8	**D6160**	88
		2.54	III	8	**D6165**	88
		2.87	III	8	**E6170**	88
17.2	24900	1.08	I	8	**C6140**	102
		1.26	I	8	**C6145**	102
		1.91	II	8	**D6160**	102
		2.07	III	8	**D6165**	102
		2.60	III	8	**E6170**	102
14.3	30000	0.95	–	8	**C6140**	123
		1.04	I	8	**C6145**	123
		1.76	II	8	**D6160**	123
		1.81	II	8	**D6165**	123
		2.18	III	8	**E6170**	123
		2.53	III	8	**E6175**	123
11.6	36900	0.85	–	8	**C6145**	151
		1.35	I	8	**D6160**	151
		1.44	II	8	**D6165**	151
		1.77	II	8	**E6170**	151
		2.05	III	8	**E6175**	151

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions



Dimensions on pages 3.52–3.57

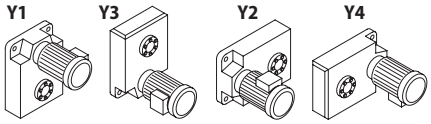
7.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
9.80	43700	1.05	I	8	**D6160**	179
		1.24	I	8	**D6165**	179
		1.53	II	8	**E6170**	179
		1.73	II	8	**E6175**	179
8.47	50600	0.80	–	8	**D6160**	207
		1.05	I	8	**D6165**	207
		1.30	I	8	**E6170**	207
		1.50	II	8	**E6175**	207
7.04	60900	0.89	–	8	**D6165**	249
		1.08	I	8	**E6170**	249
		1.25	I	8	**E6175**	249
5.75	74600	0.87	–	8	**E6170**	305
		1.02	I	8	**E6175**	305

10 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	3510	1.73	II	10	**C6140**	11
		2.01	III	10	**C6145**	11
		2.71	III	10	**D6160**	11
100	5840	1.73	II	10	**C6140**	18
		2.01	III	10	**C6145**	18
		2.71	III	10	**D6160**	18
83.3	7010	1.73	II	10	**C6140**	21
		2.01	III	10	**C6145**	21
		2.71	III	10	**D6160**	21
62.5	9350	1.73	II	10	**C6140**	28
		2.01	III	10	**C6145**	28
		2.63	III	10	**D6160**	28
45.5	12900	1.73	II	10	**C6140**	39
		2.01	III	10	**C6145**	39
		2.63	III	10	**D6160**	39
38.5	15200	1.73	II	10	**C6140**	46
		2.01	III	10	**C6145**	46
		2.63	III	10	**D6160**	46
33.3	17500	1.60	II	10	**C6140**	53
		1.79	II	10	**C6145**	53
		2.49	III	10	**D6160**	53

60 Hz, 1750 RPM, Single Reduction Selection Tables



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

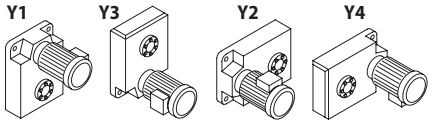
Dimensions on pages 3.52–3.57

10 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
29.4	19900	1.35	I	10	**C6140**	60
		1.58	II	10	**C6145**	60
		1.75	II	10	**D6160**	60
		2.51	III	10	**D6165**	60
		2.63	III	10	**E6170**	60
23.8	24500	1.15	I	10	**C6140**	74
		1.28	I	10	**C6145**	74
		1.72	II	10	**D6160**	74
		2.15	III	10	**D6165**	74
		2.60	III	10	**E6170**	74
20.0	29200	0.92	–	10	**C6140**	88
		1.05	I	10	**C6145**	88
		1.31	I	10	**D6160**	88
		1.86	II	10	**D6165**	88
		2.11	III	10	**E6170**	88
		2.60	III	10	**E6175**	88
17.2	33900	0.92	–	10	**C6145**	102
		1.40	II	10	**D6160**	102
		1.52	II	10	**D6165**	102
		1.91	II	10	**E6170**	102
		2.24	III	10	**E6175**	102
14.3	40900	1.29	I	10	**D6160**	123
		1.33	I	10	**D6165**	123
		1.60	II	10	**E6170**	123
		1.85	II	10	**E6175**	123
11.6	50300	0.99	–	10	**D6160**	151
		1.05	I	10	**D6165**	151
		1.30	I	10	**E6170**	151
		1.51	II	10	**E6175**	151
9.80	59600	0.91	–	10	**D6165**	179
		1.12	I	10	**E6170**	179
		1.27	I	10	**E6175**	179
8.47	69000	0.95	–	10	**E6170**	207
		1.10	I	10	**E6175**	207
7.04	83000	0.91	–	10	**E6175**	249

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

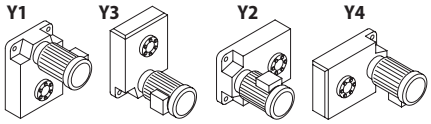


Dimensions on pages 3.52–3.57

15 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	5140	1.18	I	15	**C6140**	11
		1.37	I	15	**C6145**	11
		1.85	II	15	**D6160**	11
		2.19	III	15	**D6165**	11
		2.51	III	15	**E6170**	11
		2.74	III	15	**E6175**	11
100	8570	1.18	I	15	**C6140**	18
		1.37	I	15	**C6145**	18
		1.85	II	15	**D6160**	18
		2.19	III	15	**D6165**	18
		2.51	III	15	**E6170**	18
		2.74	III	15	**E6175**	18
83.3	10300	1.18	I	15	**C6140**	21
		1.37	I	15	**C6145**	21
		1.85	II	15	**D6160**	21
		2.19	III	15	**D6165**	21
		2.51	III	15	**E6170**	21
		2.74	III	15	**E6175**	21
62.5	13700	1.18	I	15	**C6140**	28
		1.37	I	15	**C6145**	28
		1.79	II	15	**D6160**	28
		2.19	III	15	**D6165**	28
		2.51	III	15	**E6170**	28
		2.74	III	15	**E6175**	28
45.5	18900	1.18	I	15	**C6140**	39
		1.37	I	15	**C6145**	39
		1.79	II	15	**D6160**	39
		2.19	III	15	**D6165**	39
		2.51	III	15	**E6170**	39
		2.74	III	15	**E6175**	39
38.5	22300	1.18	I	15	**C6140**	46
		1.37	I	15	**C6145**	46
		1.79	II	15	**D6160**	46
		2.05	III	15	**D6165**	46
		2.48	III	15	**E6170**	46
		2.74	III	15	**E6175**	46
33.3	25700	1.09	I	15	**C6140**	53
		1.22	I	15	**C6145**	53
		1.70	II	15	**D6160**	53
		2.05	III	15	**D6165**	53
		2.32	III	15	**E6170**	53
		2.74	III	15	**E6175**	53

60 Hz, 1750 RPM, Single Reduction Selection Tables



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

Dimensions on pages 3.52–3.57

15 HP

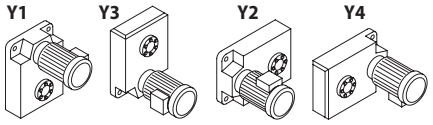
Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
29.4	29100	0.92	–	15	**C6140**	60
		1.07	I	15	**C6145**	60
		1.19	I	15	**D6160**	60
		1.71	II	15	**D6165**	60
		1.79	II	15	**E6170**	60
		2.19	III	15	**E6175**	60
23.8	36000	0.87	–	15	**C6145**	74
		1.17	I	15	**D6160**	74
		1.46	II	15	**D6165**	74
		1.77	II	15	**E6170**	74
		2.11	III	15	**E6175**	74
20.0	42900	0.90	–	15	**D6160**	88
		1.27	I	15	**D6165**	88
		1.44	II	15	**E6170**	88
		1.77	II	15	**E6175**	88
17.2	49700	0.95	–	15	**D6160**	102
		1.04	I	15	**D6165**	102
		1.30	I	15	**E6170**	102
		1.53	II	15	**E6175**	102
14.3	60000	0.88	–	15	**D6160**	123
		0.91	–	15	**D6165**	123
		1.09	I	15	**E6170**	123
		1.26	I	15	**E6175**	123
11.6	73700	0.89	–	15	**E6170**	151
		1.03	I	15	**E6175**	151
9.80	87400	0.87	–	15	**E6175**	179

20 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	7010	0.87	-	20	**C6140**	11
		1.01	I	20	**C6145**	11
		1.35	I	20	**D6160**	11
		1.61	II	20	**D6165**	11
		1.84	II	20	**E6170**	11
		2.01	III	20	**E6175**	11
100	11700	0.87	-	20	**C6140**	18
		1.01	I	20	**C6145**	18
		1.35	I	20	**D6160**	18
		1.61	II	20	**D6165**	18
		1.84	II	20	**E6170**	18
		2.01	III	20	**E6175**	18

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

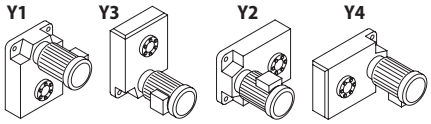


Dimensions on pages 3.52–3.57

20 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
83.3	14000	0.87	–	20	**C6140**	21
		1.01	I	20	**C6145**	21
		1.35	I	20	**D6160**	21
		1.61	II	20	**D6165**	21
		1.84	II	20	**E6170**	21
		2.01	III	20	**E6175**	21
62.5	18700	0.87	–	20	**C6140**	28
		1.01	I	20	**C6145**	28
		1.31	I	20	**D6160**	28
		1.61	II	20	**D6165**	28
		1.84	II	20	**E6170**	28
		2.01	III	20	**E6175**	28
45.5	25700	0.87	–	20	**C6140**	39
		1.01	I	20	**C6145**	39
		1.31	I	20	**D6160**	39
		1.61	II	20	**D6165**	39
		1.84	II	20	**E6170**	39
		2.01	III	20	**E6175**	39
38.5	30400	0.87	–	20	**C6140**	46
		1.01	I	20	**C6145**	46
		1.31	I	20	**D6160**	46
		1.51	II	20	**D6165**	46
		1.82	II	20	**E6170**	46
		2.01	III	20	**E6175**	46
33.3	35100	0.80	–	20	**C6140**	53
		0.89	–	20	**C6145**	53
		1.25	I	20	**D6160**	53
		1.51	II	20	**D6165**	53
		1.70	II	20	**E6170**	53
		2.01	III	20	**E6175**	53
29.4	39700	0.87	–	20	**D6160**	60
		1.25	I	20	**D6165**	60
		1.31	I	20	**E6170**	60
		1.61	II	20	**E6175**	60
23.8	49100	0.86	–	20	**D6160**	74
		1.07	I	20	**D6165**	74
		1.30	I	20	**E6170**	74
		1.54	II	20	**E6175**	74
20.0	58400	0.93	–	20	**D6165**	88
		1.05	I	20	**E6170**	88
		1.30	I	20	**E6175**	88
17.2	67800	0.95	–	20	**E6170**	102
		1.12	I	20	**E6175**	102
14.3	81800	0.80	–	20	**E6170**	123
		0.93	–	20	**E6175**	123

60 Hz, 1750 RPM, Single Reduction Selection Tables



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

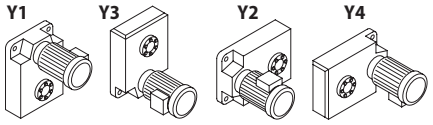
Dimensions on pages 3.52–3.57

25 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	8650	1.10	I	25	**D6160**	11
		1.30	I	25	**D6165**	11
		1.49	II	25	**E6170**	11
		1.63	II	25	**E6175**	11
100	14400	1.10	I	25	**D6160**	18
		1.30	I	25	**D6165**	18
		1.49	II	25	**E6170**	18
		1.63	II	25	**E6175**	18
83.3	17300	1.10	I	25	**D6160**	21
		1.30	I	25	**D6165**	21
		1.49	II	25	**E6170**	21
		1.63	II	25	**E6175**	21
62.5	23100	1.06	I	25	**D6160**	28
		1.30	I	25	**D6165**	28
		1.49	II	25	**E6170**	28
		1.63	II	25	**E6175**	28
45.5	31700	1.06	I	25	**D6160**	39
		1.30	I	25	**D6165**	39
		1.49	II	25	**E6170**	39
		1.63	II	25	**E6175**	39
38.5	37500	1.06	I	25	**D6160**	46
		1.22	I	25	**D6165**	46
		1.48	II	25	**E6170**	46
		1.63	II	25	**E6175**	46
33.3	43200	1.01	I	25	**D6160**	53
		1.22	I	25	**D6165**	53
		1.38	I	25	**E6170**	53
		1.63	II	25	**E6175**	53
29.4	49000	1.02	I	25	**D6165**	60
		1.06	I	25	**E6170**	60
		1.30	I	25	**E6175**	60
23.8	60500	0.87	–	25	**D6165**	74
		1.05	I	25	**E6170**	74
		1.25	I	25	**E6175**	74
20.0	72100	0.85	–	25	**E6170**	88
		1.05	I	25	**E6175**	88
17.2	83600	0.91	–	25	**E6175**	102

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

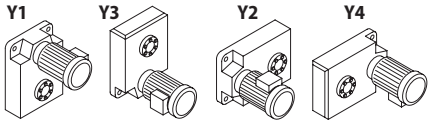


Dimensions on pages 3.52–3.57

30 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	10300	0.92	–	30	**D6160**	11
		1.10	I	30	**D6165**	11
		1.25	I	30	**E6170**	11
		1.37	I	30	**E6175**	11
100	17100	0.92	–	30	**D6160**	18
		1.10	I	30	**D6165**	18
		1.25	I	30	**E6170**	18
		1.37	I	30	**E6175**	18
83.3	20600	0.92	–	30	**D6160**	21
		1.10	I	30	**D6165**	21
		1.25	I	30	**E6170**	21
		1.37	I	30	**E6175**	21
62.5	27400	0.90	–	30	**D6160**	28
		1.10	I	30	**D6165**	28
		1.25	I	30	**E6170**	28
		1.37	I	30	**E6175**	28
45.5	37700	0.90	–	30	**D6160**	39
		1.10	I	30	**D6165**	39
		1.25	I	30	**E6170**	39
		1.37	I	30	**E6175**	39
38.5	44600	0.90	–	30	**D6160**	46
		1.03	I	30	**D6165**	46
		1.24	I	30	**E6170**	46
		1.37	I	30	**E6175**	46
33.3	51400	0.85	–	30	**D6160**	53
		1.03	I	30	**D6165**	53
		1.16	I	30	**E6170**	53
		1.37	I	30	**E6175**	53
29.4	58300	0.85	–	30	**D6165**	60
		0.90	–	30	**E6170**	60
		1.10	I	30	**E6175**	60
23.8	72000	0.89	–	30	**E6170**	74
		1.05	I	30	**E6175**	74
20.0	85700	0.88	–	30	**E6175**	88

60 Hz, 1750 RPM, Single Reduction Selection Tables



Horizontal Motor Shaft
Y1, Y3, Y2, Y4 Mounting Positions

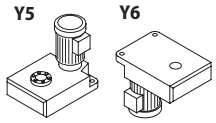
Dimensions on pages 3.52–3.57

40 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	14000	0.92	–	40	**E6170**	11
		1.00	I	40	**E6175**	11
100	23400	0.92	–	40	**E6170**	18
		1.00	I	40	**E6175**	18
83.3	28100	0.92	–	40	**E6170**	21
		1.00	I	40	**E6175**	21
62.5	37400	0.92	–	40	**E6170**	28
		1.00	I	40	**E6175**	28
45.5	51400	0.92	–	40	**E6170**	39
		1.00	I	40	**E6175**	39
38.5	60800	0.91	–	40	**E6170**	46
		1.00	I	40	**E6175**	46
33.3	70100	0.85	–	40	**E6170**	53
		1.00	I	40	**E6175**	53
29.4	79500	0.80	–	40	**E6175**	60

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Vertical Motor Shaft
Y5, Y6 Mounting Positions



Dimensions on pages 3.52–3.57

1/8 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
7.04	1110	2.52	III	01	**Z6090**	249
5.75	1360	2.11	III	01	**Z6090**	305
		2.85	III	01	**Z6095**	305
4.20	1850	1.25	I	01	**Z6090**	417
		1.51	II	01	**Z6095**	417

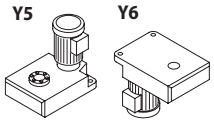
1/4 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
11.6	1340	2.18	III	02	**Z6090**	151
		2.89	III	02	**Z6095**	151
9.80	1590	1.66	II	02	**Z6090**	179
		2.11	III	02	**Z6095**	179
		2.80	III	02	**A6100**	179
8.47	1840	1.55	II	02	**Z6090**	207
		1.87	II	02	**Z6095**	207
		2.58	III	02	**A6100**	207
7.04	2210	1.26	I	02	**Z6090**	249
		1.51	II	02	**Z6095**	249
		2.18	III	02	**A6100**	249
		2.81	III	02	**A6105**	249
5.75	2710	1.06	I	02	**Z6090**	305
		1.43	II	02	**Z6095**	305
		2.17	III	02	**A6100**	305
		2.82	III	02	**A6105**	305
4.20	3710	1.05	I	02	**A6100**	417
		1.43	II	02	**A6105**	417

1/3 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
20.0	974	2.68	III	03	**Z6090**	88
17.2	1130	2.50	III	03	**Z6090**	102
14.3	1360	2.45	III	03	**Z6090**	123
		2.84	III	03	**Z6095**	123
11.6	1680	1.74	II	03	**Z6090**	151
		2.31	III	03	**Z6095**	151
9.80	1990	1.33	I	03	**Z6090**	179
		1.69	II	03	**Z6095**	179
		2.24	III	03	**A6100**	179

60 Hz, 1750 RPM, Single Reduction Selection Tables



Vertical Motor Shaft
Y5, Y6 Mounting Positions

Dimensions on pages 3.52–3.57

1/3 HP

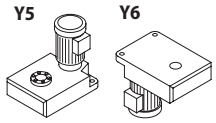
Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
8.47	2300	1.24	I	03	**Z6090**	207
		1.49	II	03	**Z6095**	207
		2.06	III	03	**A6100**	207
		2.83	III	03	**A6105**	207
7.04	2770	1.01	I	03	**Z6090**	249
		1.20	I	03	**Z6095**	249
		1.74	II	03	**A6100**	249
		2.24	III	03	**A6105**	249
5.75	3390	0.84	-	03	**Z6090**	305
		1.14	I	03	**Z6095**	305
		1.73	II	03	**A6100**	305
		2.26	III	03	**A6105**	305
4.20	4640	0.84	-	03	**A6100**	417
		1.14	I	03	**A6105**	417

1/2 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
83.3	374	2.88	III	05	**Z6090**	21
62.5	499	2.88	III	05	**Z6090**	28
45.5	686	2.88	III	05	**Z6090**	39
38.5	810	2.88	III	05	**Z6090**	46
33.3	935	2.88	III	05	**Z6090**	53
29.4	1060	2.88	III	05	**Z6090**	60
23.8	1310	1.90	II	05	**Z6090**	74
		2.95	III	05	**Z6095**	74
20.0	1560	1.68	II	05	**Z6090**	88
		2.16	III	05	**Z6095**	88
17.2	1810	1.56	II	05	**Z6090**	102
		1.96	II	05	**Z6095**	102
14.3	2180	1.53	II	05	**Z6090**	123
		1.77	II	05	**Z6095**	123
		2.44	III	05	**A6100**	123
11.6	2680	1.09	I	05	**Z6090**	151
		1.44	II	05	**Z6095**	151
		1.95	II	05	**A6100**	151
		2.70	III	05	**A6105**	151
9.80	3180	0.83	-	05	**Z6090**	179
		1.06	I	05	**Z6095**	179
		1.40	II	05	**A6100**	179
		1.94	II	05	**A6105**	179

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Vertical Motor Shaft
Y5, Y6 Mounting Positions



Dimensions on pages 3.52–3.57

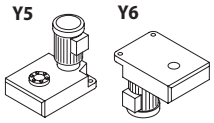
1/2 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	HP Symbol	SELECTION Frame Size	SELECTION Ratio
8.47	3680	0.93	–	05	**Z6095**	207
		1.29	I	05	**A6100**	207
		1.77	II	05	**A6105**	207
7.04	4430	1.09	I	05	**A6100**	249
		1.40	II	05	**A6105**	249
		2.39	III	05	**B6120**	249
5.75	5420	1.08	I	05	**A6100**	305
		1.41	II	05	**A6105**	305
		2.36	III	05	**B6120**	305
		2.82	III	05	**B6125**	305

3/4 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	HP Symbol	SELECTION Frame Size	SELECTION Ratio
83.3	514	2.09	III	08	**Z6090**	21
		2.76	III	08	**Z6095**	21
62.5	686	2.09	III	08	**Z6090**	28
		2.76	III	08	**Z6095**	28
45.5	943	2.09	III	08	**Z6090**	39
		2.76	III	08	**Z6095**	39
38.5	1110	2.09	III	08	**Z6090**	46
		2.76	III	08	**Z6095**	46
33.3	1290	2.09	III	08	**Z6090**	53
		2.76	III	08	**Z6095**	53
29.4	1460	2.09	III	08	**Z6090**	60
		2.65	III	08	**Z6095**	60
23.8	1800	1.38	I	08	**Z6090**	74
		2.15	III	08	**Z6095**	74
20.0	2140	1.22	I	08	**Z6090**	88
		1.57	II	08	**Z6095**	88
		2.31	III	08	**A6100**	88
17.2	2490	1.14	I	08	**Z6090**	102
		1.43	II	08	**Z6095**	102
		2.20	III	08	**A6100**	102
		2.89	III	08	**A6105**	102
14.3	3000	1.11	I	08	**Z6090**	123
		1.29	I	08	**Z6095**	123
		1.77	II	08	**A6100**	123
		2.18	III	08	**A6105**	123

60 Hz, 1750 RPM, Single Reduction Selection Tables



Vertical Motor Shaft
Y5, Y6 Mounting Positions

Dimensions on pages 3.52–3.57

3/4 HP

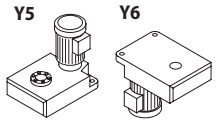
Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
11.6	3690	1.05	I	08	**Z6095**	151
		1.42	II	08	**A6100**	151
		1.96	II	08	**A6105**	151
9.80	4370	1.02	I	08	**A6100**	179
		1.41	II	08	**A6105**	179
8.47	5060	0.94	–	08	**A6100**	207
		1.29	I	08	**A6105**	207
		2.36	III	08	**B6120**	207
		2.95	III	08	**B6125**	207
7.04	6090	1.02	I	08	**A6105**	249
		1.74	II	08	**B6120**	249
		2.18	III	08	**B6125**	249
5.75	7460	1.03	I	08	**A6105**	305
		1.72	II	08	**B6120**	305
		2.05	III	08	**B6125**	305

1 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
83.3	701	1.53	II	1	**Z6090**	21
		2.03	III	1	**Z6095**	21
62.5	935	1.53	II	1	**Z6090**	28
		2.03	III	1	**Z6095**	28
45.5	1290	1.53	II	1	**Z6090**	39
		2.03	III	1	**Z6095**	39
38.5	1520	1.53	II	1	**Z6090**	46
		2.03	III	1	**Z6095**	46
33.3	1750	1.53	II	1	**Z6090**	53
		2.03	III	1	**Z6095**	53
29.4	1990	1.53	II	1	**Z6090**	60
		1.95	II	1	**Z6095**	60
		2.65	III	1	**A6100**	60
23.8	2450	1.01	I	1	**Z6090**	74
		1.58	II	1	**Z6095**	74
		2.57	III	1	**A6100**	74
20.0	2920	0.89	-	1	**Z6090**	88
		1.15	I	1	**Z6095**	88
		1.69	II	1	**A6100**	88
		2.23	III	1	**A6105**	88

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Vertical Motor Shaft
Y5, Y6 Mounting Positions



Dimensions on pages 3.52–3.57

1 HP

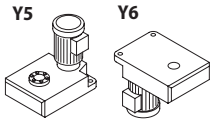
Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
17.2	3390	0.83	–	1	**Z6090**	102
		1.05	I	1	**Z6095**	102
		1.61	II	1	**A6100**	102
		2.12	III	1	**A6105**	102
14.3	4090	0.82	–	1	**Z6090**	123
		0.95	–	1	**Z6095**	123
		1.30	I	1	**A6100**	123
		1.60	II	1	**A6105**	123
11.6	5030	1.04	I	1	**A6100**	151
		1.44	II	1	**A6105**	151
		2.55	III	1	**B6120**	151
		2.96	III	1	**C6145**	151
9.80	5960	1.03	I	1	**A6105**	179
		2.29	III	1	**B6120**	179
		2.63	III	1	**B6125**	179
		2.96	III	1	**C6145**	179
8.47	6900	0.94	–	1	**A6105**	207
		1.73	II	1	**B6120**	207
		2.16	III	1	**B6125**	207
		2.96	III	1	**C6145**	207
7.04	8300	1.28	I	1	**B6120**	249
		1.60	II	1	**B6125**	249
		2.03	III	1	**C6145**	249
5.75	10200	1.26	I	1	**B6120**	305
		1.51	II	1	**B6125**	305
		2.03	III	1	**C6145**	305

1.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	514	2.14	III	1H	**A6100**	11[1]
		2.89	III	1H	**A6105**	11[1]
100	857	2.14	III	1H	**A6100**	18[1]
		2.89	III	1H	**A6105**	18[1]
83.3	1030	1.05	I	1H	**Z6090**	21
		1.38	I	1H	**Z6095**	21
		2.14	III	1H	**A6100**	21
		2.89	III	1H	**A6105**	21
62.5	1370	1.05	I	1H	**Z6090**	28
		1.38	I	1H	**Z6095**	28
		2.14	III	1H	**A6100**	28
		2.89	III	1H	**A6105**	28

Note: [1] Y6 position is not available for ratio 11 and 18.

60 Hz, 1750 RPM, Single Reduction Selection Tables



Vertical Motor Shaft
Y5, Y6 Mounting Positions

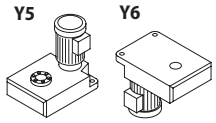
Dimensions on pages 3.52–3.57

1.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
45.5	1890	1.05	I	1H	**Z6090**	39
		1.38	I	1H	**Z6095**	39
		2.14	III	1H	**A6100**	39
		2.89	III	1H	**A6105**	39
38.5	2230	1.05	I	1H	**Z6090**	46
		1.38	I	1H	**Z6095**	46
		2.14	III	1H	**A6100**	46
		2.89	III	1H	**A6105**	46
33.3	2570	1.05	I	1H	**Z6090**	53
		1.38	I	1H	**Z6095**	53
		2.14	III	1H	**A6100**	53
		2.89	III	1H	**A6105**	53
29.4	2910	1.05	I	1H	**Z6090**	60
		1.33	I	1H	**Z6095**	60
		1.81	II	1H	**A6100**	60
		2.24	III	1H	**A6105**	60
23.8	3600	1.07	I	1H	**Z6095**	74
		1.75	II	1H	**A6100**	74
		2.13	III	1H	**A6105**	74
20.0	4290	1.15	I	1H	**A6100**	88
		1.52	II	1H	**A6105**	88
		2.81	III	1H	**B6120**	88
17.2	4970	1.10	I	1H	**A6100**	102
		1.45	II	1H	**A6105**	102
		2.72	III	1H	**B6120**	102
14.3	6000	0.89	-	1H	**A6100**	123
		1.09	I	1H	**A6105**	123
		2.26	III	1H	**B6120**	123
		2.61	III	1H	**B6125**	123
11.6	7370	0.98	-	1H	**A6105**	151
		1.74	II	1H	**B6120**	151
		2.02	III	1H	**C6145**	151
		2.12	III	1H	**B6125**	151
9.80	8740	1.56	II	1H	**B6120**	179
		1.79	II	1H	**B6125**	179
		2.02	III	1H	**C6145**	179
8.47	10100	1.18	I	1H	**B6120**	207
		1.47	II	1H	**B6125**	207
		2.02	III	1H	**C6145**	207
7.04	12200	0.87	-	1H	**B6120**	249
		1.09	I	1H	**B6125**	249
		1.38	I	1H	**C6145**	249
5.75	14900	0.86	-	1H	**B6120**	305
		1.03	I	1H	**B6125**	305
		1.38	I	1H	**C6145**	305

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Vertical Motor Shaft
Y5, Y6 Mounting Positions



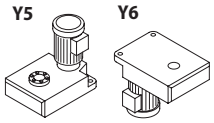
Dimensions on pages 3.52–3.57

2 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	701	1.57	II	2	**A6100**	11[1]
		2.12	III	2	**A6105**	11[1]
100	1170	1.57	II	2	**A6100**	18[1]
		2.12	III	2	**A6105**	18[1]
83.3	1400	1.01	I	2	**Z6095**	21
		1.57	II	2	**A6100**	21
		2.12	III	2	**A6105**	21
62.5	1870	1.01	I	2	**Z6095**	28
		1.57	II	2	**A6100**	28
		2.12	III	2	**A6105**	28
45.5	2570	1.01	I	2	**Z6095**	39
		1.57	II	2	**A6100**	39
		2.12	III	2	**A6105**	39
38.5	3040	1.01	I	2	**Z6095**	46
		1.57	II	2	**A6100**	46
		2.12	III	2	**A6105**	46
33.3	3510	1.01	I	2	**Z6095**	53
		1.57	II	2	**A6100**	53
		2.12	III	2	**A6105**	53
29.4	3970	0.97	–	2	**Z6095**	60
		1.33	I	2	**A6100**	60
		1.64	II	2	**A6105**	60
23.8	4910	1.29	I	2	**A6100**	74
		1.56	II	2	**A6105**	74
		2.64	III	2	**B6120**	74
20.0	5840	0.85	–	2	**A6100**	88
		1.11	I	2	**A6105**	88
		2.06	III	2	**B6120**	88
		2.64	III	2	**B6125**	88
17.2	6780	0.81	–	2	**A6100**	102
		1.06	I	2	**A6105**	102
		1.99	II	2	**B6120**	102
		2.31	III	2	**B6125**	102
		2.49	III	2	**C6145**	102
14.3	8180	0.80	–	2	**A6105**	123
		1.66	II	2	**B6120**	123
		1.91	II	2	**B6125**	123
		2.49	III	2	**C6145**	123
11.6	10100	1.27	I	2	**B6120**	151
		1.48	II	2	**C6145**	151
		1.56	II	2	**B6125**	151
		2.49	III	2	**D6165**	151

Note: [1] Y6 position is not available for ratio 11 and 18.

60 Hz, 1750 RPM, Single Reduction Selection Tables



Vertical Motor Shaft
Y5, Y6 Mounting Positions

Dimensions on pages 3.52–3.57

2 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
9.80	11900	1.15	I	2	**B6120**	179
		1.31	I	2	**B6125**	179
		1.48	II	2	**C6145**	179
		2.49	III	2	**D6165**	179
8.47	13800	0.87	–	2	**B6120**	207
		1.08	I	2	**B6125**	207
		1.48	II	2	**C6145**	207
		2.49	III	2	**D6165**	207
7.04	16600	0.80	–	2	**B6125**	249
		1.01	I	2	**C6145**	249
		1.48	II	2	**D6165**	249
5.75	20300	1.01	I	2	**C6145**	305
		1.48	II	2	**D6165**	305

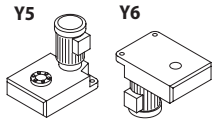
3 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	1030	1.07	I	3	**A6100**	11[1]
		1.45	II	3	**A6105**	11[1]
		2.30	III	3	**B6120**	11[1]
		2.64	III	3	**B6125**	11[1]
100	1710	1.07	I	3	**A6100**	18[1]
		1.45	II	3	**A6105**	18[1]
		2.30	III	3	**B6120**	18[1]
		2.64	III	3	**B6125**	18[1]
83.3	2060	1.07	I	3	**A6100**	21
		1.45	II	3	**A6105**	21
		2.30	III	3	**B6120**	21
		2.64	III	3	**B6125**	21
62.5	2740	1.07	I	3	**A6100**	28
		1.45	II	3	**A6105**	28
		2.30	III	3	**B6120**	28
45.5	3770	1.07	I	3	**A6100**	39
		1.45	II	3	**A6105**	39
		2.30	III	3	**B6120**	39
		2.69	III	3	**B6125**	39
38.5	4460	1.07	I	3	**A6100**	46
		1.45	II	3	**A6105**	46
		2.30	III	3	**B6120**	46
		2.69	III	3	**B6125**	46

Note: [1] Y6 position is not available for ratio 11 and 18.

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Vertical Motor Shaft
Y5, Y6 Mounting Positions



Dimensions on pages 3.52–3.57

3 HP

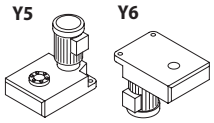
Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	HP Symbol	SELECTION Frame Size	SELECTION Ratio
33.3	5140	1.07	I	3	**A6100**	53
		1.45	II	3	**A6105**	53
		2.30	III	3	**B6120**	53
		2.69	III	3	**B6125**	53
29.4	5830	0.90	–	3	**A6100**	60
		1.12	I	3	**A6105**	60
		2.30	III	3	**B6120**	60
		2.53	III	3	**C6145**	60
		2.57	III	3	**B6125**	60
23.8	7200	0.88	–	3	**A6100**	74
		1.06	I	3	**A6105**	74
		1.80	II	3	**B6120**	74
		2.18	III	3	**B6125**	74
		2.53	III	3	**C6145**	74
20.0	8570	1.40	II	3	**B6120**	88
		1.80	II	3	**B6125**	88
		2.53	III	3	**C6145**	88
17.2	9940	1.36	I	3	**B6120**	102
		1.58	II	3	**B6125**	102
		1.70	II	3	**C6145**	102
14.3	12000	1.13	I	3	**B6120**	123
		1.31	I	3	**B6125**	123
		1.70	II	3	**C6145**	123
11.6	14700	0.87	–	3	**B6120**	151
		1.01	I	3	**C6145**	151
		1.06	I	3	**B6125**	151
		1.70	II	3	**D6165**	151
9.80	17500	0.90	–	3	**B6125**	179
		1.01	I	3	**C6145**	179
		1.70	II	3	**D6165**	179
8.47	20200	1.01	I	3	**C6145**	207
		1.70	II	3	**D6165**	207
7.04	24300	1.01	I	3	**D6165**	249
5.75	29800	1.01	I	3	**D6165**	305

5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	1730	1.37	I	5	**B6120**	11[1]
		1.57	II	5	**B6125**	11[1]
		2.56	III	5	**C6140**	11[1]
		2.97	III	5	**C6145**	11[1]

Note: [1] Y6 position is not available for ratio 11 and 18.

60 Hz, 1750 RPM, Single Reduction Selection Tables



Vertical Motor Shaft
Y5, Y6 Mounting Positions

Dimensions on pages 3.52–3.57

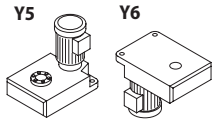
5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
100	2880	1.37	I	5	**B6120**	18[1]
		1.57	II	5	**B6125**	18[1]
		2.56	III	5	**C6140**	18[1]
		2.97	III	5	**C6145**	18[1]
83.3	3460	1.37	I	5	**B6120**	21
		1.57	II	5	**B6125**	21
62.5	4610	1.37	I	5	**B6120**	28
		1.88	II	5	**B6125**	28
45.5	6340	1.37	I	5	**B6120**	39
		1.60	II	5	**B6125**	39
38.5	7500	1.37	I	5	**B6120**	46
		1.60	II	5	**B6125**	46
		2.05	III	5	**C6145**	46
33.3	8650	1.37	I	5	**B6120**	53
		1.60	II	5	**B6125**	53
		2.05	III	5	**C6145**	53
29.4	9800	1.37	I	5	**B6120**	60
		1.50	II	5	**C6145**	60
		1.53	II	5	**B6125**	60
23.8	12100	1.07	I	5	**B6120**	74
		1.29	I	5	**B6125**	74
		1.50	II	5	**C6145**	74
		2.05	III	5	**D6165**	74
		2.62	III	5	**E6175**	74
20.0	14400	0.84	-	5	**B6120**	88
		1.07	I	5	**B6125**	88
		1.50	II	5	**C6145**	88
		2.05	III	5	**D6165**	88
17.2	16700	0.81	-	5	**B6120**	102
		0.94	-	5	**B6125**	102
		1.01	I	5	**C6145**	102
		2.05	III	5	**D6165**	102
14.3	20200	1.01	I	5	**C6145**	123
		2.05	III	5	**D6165**	123
11.6	24800	1.01	I	5	**D6165**	151
		2.05	III	5	**E6175**	151
9.80	29400	1.01	I	5	**D6165**	179
		1.50	II	5	**E6175**	179
8.47	34000	1.01	I	5	**D6165**	207
		1.50	II	5	**E6175**	207
7.04	40900	1.01	I	5	**E6175**	249
5.75	50200	1.01	I	5	**E6175**	305

Note: [1] Y6 position is not available for ratio 11 and 18.

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Vertical Motor Shaft
Y5, Y6 Mounting Positions



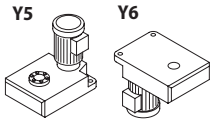
Dimensions on pages 3.52–3.57

7.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	2570	0.92	–	8	**B6120**	11[1]
		1.06	I	8	**B6125**	11[1]
		1.72	II	8	**C6140**	11[1]
		2.00	III	8	**C6145**	11[1]
		2.29	III	8	**D6160**	11[1]
		2.73	III	8	**D6165**	11[1]
100	4290	0.92	–	8	**B6120**	18[1]
		1.06	I	8	**B6125**	18[1]
		1.72	II	8	**C6140**	18[1]
		2.00	III	8	**C6145**	18[1]
		2.29	III	8	**D6160**	18[1]
		2.73	III	8	**D6165**	18[1]
83.3	5140	0.92	–	8	**B6120**	21
		1.06	I	8	**B6125**	21
		2.02	III	8	**C6145**	21
62.5	6860	0.92	–	8	**B6120**	28
		1.26	I	8	**B6125**	28
		2.02	III	8	**C6145**	28
		2.76	III	8	**D6165**	28
45.5	9430	0.92	–	8	**B6120**	39
		1.08	I	8	**B6125**	39
		2.02	III	8	**C6145**	39
		2.76	III	8	**D6165**	39
38.5	11100	0.92	–	8	**B6120**	46
		1.08	I	8	**B6125**	46
		1.38	I	8	**C6145**	46
		2.02	III	8	**D6165**	46
		2.58	III	8	**E6175**	46
33.3	12900	0.92	–	8	**B6120**	53
		1.08	I	8	**B6125**	53
		1.38	I	8	**C6145**	53
		2.02	III	8	**D6165**	53
		2.18	III	8	**E6175**	53
29.4	14600	0.92	–	8	**B6120**	60
		1.01	I	8	**C6145**	60
		1.03	I	8	**B6125**	60
		2.02	III	8	**D6165**	60
23.8	18000	0.87	–	8	**B6125**	74
		1.01	I	8	**C6145**	74
		1.38	I	8	**D6165**	74
		1.77	II	8	**E6175**	74
20.0	21400	1.01	I	8	**C6145**	88
		1.38	I	8	**D6165**	88
		2.02	III	8	**E6175**	88

Note: [1] Y6 position is not available for ratio 11 and 18.

60 Hz, 1750 RPM, Single Reduction Selection Tables



Vertical Motor Shaft
Y5, Y6 Mounting Positions

Dimensions on pages 3.52–3.57

7.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
17.2	24900	1.38	I	8	**D6165**	102
		2.02	III	8	**E6175**	102
14.3	30000	1.38	I	8	**D6165**	123
11.6	36900	1.38	I	8	**E6175**	151
9.80	43700	1.01	I	8	**E6175**	179
8.47	50600	1.01	I	8	**E6175**	207

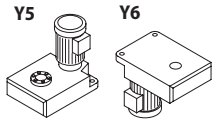
10 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	3510	1.26	I	10	**C6140**	11[1]
		1.47	II	10	**C6145**	11[1]
		1.68	II	10	**D6160**	11[1]
		2.00	III	10	**D6165**	11[1]
		2.69	III	10	**E6170**	11[1]
		2.93	III	10	**E6175**	11[1]
100	5840	1.26	I	10	**C6140**	18[1]
		1.47	II	10	**C6145**	18[1]
		1.68	II	10	**D6160**	18[1]
		2.00	III	10	**D6165**	18[1]
		2.69	III	10	**E6170**	18[1]
		2.93	III	10	**E6175**	18[1]
83.3	7010	1.48	II	10	**C6145**	21
62.5	9350	1.48	II	10	**C6145**	28
		2.03	III	10	**D6165**	28
45.5	12900	1.48	II	10	**C6145**	39
		2.03	III	10	**D6165**	39
38.5	15200	1.01	I	10	**C6145**	46
		1.48	II	10	**D6165**	46
		1.89	II	10	**E6175**	46
33.3	17500	1.01	I	10	**C6145**	53
		1.48	II	10	**D6165**	53
		1.60	II	10	**E6175**	53
29.4	19900	1.48	II	10	**D6165**	60
23.8	24500	1.01	I	10	**D6165**	74
		1.29	I	10	**E6175**	74
20.0	29200	1.01	I	10	**D6165**	88
		1.48	II	10	**E6175**	88
17.2	33900	1.01	I	10	**D6165**	102
		1.48	II	10	**E6175**	102
14.3	40900	1.01	I	10	**D6165**	123
11.6	50300	1.01	I	10	**E6175**	151

Note: [1] Y6 position is not available for ratio 11 and 18.

Selection Tables 60 Hz, 1750 RPM, Single Reduction

Vertical Motor Shaft
Y5, Y6 Mounting Positions



Dimensions on pages 3.52–3.57

15 HP

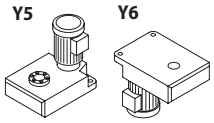
Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	5140	0.86	–	15	**C6140**	11[1]
		1.00	I	15	**C6145**	11[1]
		1.15	I	15	**D6160**	11[1]
		1.36	I	15	**D6165**	11[1]
		1.84	II	15	**E6170**	11[1]
		2.00	III	15	**E6175**	11[1]
100	8570	0.86	–	15	**C6140**	18[1]
		1.00	I	15	**C6145**	18[1]
		1.15	I	15	**D6160**	18[1]
		1.36	I	15	**D6165**	18[1]
		1.84	II	15	**E6170**	18[1]
		2.00	III	15	**E6175**	18[1]
83.3	10300	1.01	I	15	**C6145**	21
62.5	13700	1.01	I	15	**C6145**	28
		1.38	I	15	**D6165**	28
45.5	18900	1.01	I	15	**C6145**	39
		1.38	I	15	**D6165**	39
38.5	22300	1.01	I	15	**D6165**	46
		1.29	I	15	**E6175**	46
33.3	25700	1.01	I	15	**D6165**	53
		1.09	I	15	**E6175**	53
29.4	29100	1.01	I	15	**D6165**	60
23.8	36000	0.88	–	15	**E6175**	74
20.0	42900	1.01	I	15	**E6175**	88
17.2	49700	1.01	I	15	**E6175**	102

20 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	7010	0.84	–	20	**D6160**	11[1]
		1.00	I	20	**D6165**	11[1]
		1.35	I	20	**E6170**	11[1]
		1.47	II	20	**E6175**	11[1]
100	11700	0.84	–	20	**D6160**	18[1]
		1.00	I	20	**D6165**	18[1]
		1.35	I	20	**E6170**	18[1]
		1.47	II	20	**E6175**	18[1]
62.5	18700	1.01	I	20	**D6165**	28
45.5	25700	1.01	I	20	**D6165**	39
38.5	30400	0.95	–	20	**E6175**	46
33.3	35100	0.80	–	20	**E6175**	53

Note: [1] Y6 position is not available for ratio 11 and 18.

60 Hz, 1750 RPM, Single Reduction Selection Tables



Vertical Motor Shaft
Y5, Y6 Mounting Positions

Dimensions on pages 3.52–3.57

25 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	8650	0.81	–	25	**D6165**	11[1]
		1.09	I	25	**E6170**	11[1]
		1.19	I	25	**E6175**	11[1]
100	14400	0.81	–	25	**D6165**	18[1]
		1.09	I	25	**E6170**	18[1]
		1.19	I	25	**E6175**	18[1]
62.5	23100	0.82	–	25	**D6165**	28
45.5	31700	0.82	–	25	**D6165**	39

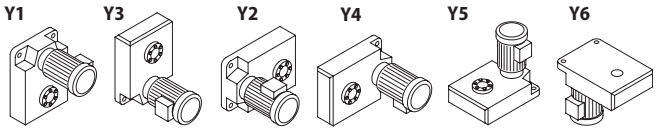
30 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
167	10300	0.92	–	30	**E6170**	11[1]
		1.00	I	30	**E6175**	11[1]
100	17100	0.92	–	30	**E6170**	18[1]
		1.00	I	30	**E6175**	18[1]

Note: [1] Y6 position is not available for ratio 11 and 18.

Selection Tables 60 Hz, 1750 RPM, Double Reduction

Horizontal or Vertical Motor Shaft
Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions



Dimensions on pages 3.58–3.63

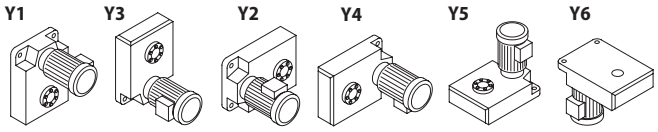
1/8 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	1540	2.51	III	01	**Z609DA**	364
4.13	1790	2.16	III	01	**Z609DA**	424
3.50	2120	1.83	II	01	**Z609DA**	501
3.03	2440	1.58	II	01	**Z609DA**	578
2.56	2880	1.34	I	01	**Z609DA**	683
		2.71	III	01	**A610DA**	683
2.16	3420	1.13	I	01	**Z609DA**	809
		2.29	III	01	**A610DA**	809
1.83	4040	0.96	–	01	**Z609DA**	956
		1.94	II	01	**A610DA**	956
1.57	4720	0.82	–	01	**Z609DA**	1117
		1.66	II	01	**A610DA**	1117
1.33	5580	1.40	II	01	**A610DA**	1320
		2.81	III	01	**B612DA**	1320
1.06	7000	1.12	I	01	**A610DA**	1656
		2.24	III	01	**B612DA**	1656
0.894	8270	0.95	–	01	**A610DA**	1957
		1.89	II	01	**B612DA**	1957
0.770	9600	0.82	–	01	**A610DA**	2272
		1.63	II	01	**B612DA**	2272
0.684	10800	1.45	II	01	**B612DA**	2559
		2.90	III	01	**C614DA**	2559
0.595	12400	1.26	I	01	**B612DA**	2944
		2.52	III	01	**C614DA**	2944
0.499	14800	1.06	I	01	**B612DA**	3511
		2.11	III	01	**C614DA**	3511
0.401	18400	0.85	–	01	**B612DA**	4365

1/4 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	3080	1.26	I	02	**Z609DA**	364
		2.15	III	02	**A610DA**	364
4.13	3580	1.08	I	02	**Z609DA**	424
		2.15	III	02	**A610DA**	424
3.50	4230	0.91	–	02	**Z609DA**	501
		1.85	II	02	**A610DA**	501
		2.15	III	02	**B612DA**	501
3.03	4880	1.60	II	02	**A610DA**	578
		2.15	III	02	**B612DA**	578
2.56	5770	1.36	I	02	**A610DA**	683
		2.15	III	02	**B612DA**	683
		2.72	III	02	**B612DB**	683

60 Hz, 1750 RPM, Double Reduction Selection Tables



Horizontal or Vertical Motor Shaft
Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions

Dimensions on pages 3.58–3.63

1/4 HP

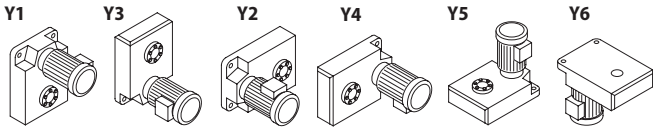
Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
2.16	6830	1.14	I	02	**A610DA**	809
		2.15	III	02	**B612DA**	809
		2.29	III	02	**B612DB**	809
1.83	8080	0.97	–	02	**A610DA**	956
		1.94	II	02	**B612DA**	956
		2.15	III	02	**C614DA**	956
1.57	9440	0.83	–	02	**A610DA**	1117
		1.66	II	02	**B612DA**	1117
		2.15	III	02	**C614DA**	1117
1.33	11200	1.40	II	02	**B612DA**	1320
		2.15	III	02	**C614DA**	1320
		2.81	III	02	**C614DB**	1320
1.06	14000	1.12	I	02	**B612DA**	1656
		2.15	III	02	**C614DA**	1656
		2.24	III	02	**C614DB**	1656
0.894	16500	0.95	–	02	**B612DA**	1957
		1.89	II	02	**C614DA**	1957
0.770	19200	0.82	–	02	**B612DA**	2272
		1.63	II	02	**C614DA**	2272
		2.83	III	02	**D616DA**	2272
0.684	21600	1.45	II	02	**C614DA**	2559
		2.51	III	02	**D616DA**	2559
0.595	24900	1.26	I	02	**C614DA**	2944
		2.18	III	02	**D616DA**	2944
0.499	29700	1.06	I	02	**C614DA**	3511
		2.56	III	02	**E617DA**	3511
0.401	36900	0.85	–	02	**C614DA**	4365
		2.06	III	02	**E617DA**	4365
0.242	61100	0.89	–	02	**D616DA**	7228
0.164	90100	0.84	–	02	**E617DA**	10658

1/3 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	3850	1.01	I	03	**Z609DA**	364
		1.72	II	03	**A610DA**	364
4.13	4470	0.86	–	03	**Z609DA**	424
		1.72	II	03	**A610DA**	424
3.50	5290	1.48	II	03	**A610DA**	501
		1.72	II	03	**B612DA**	501
		2.96	III	03	**B612DB**	501

Selection Tables 60 Hz, 1750 RPM, Double Reduction

Horizontal or Vertical Motor Shaft
Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions

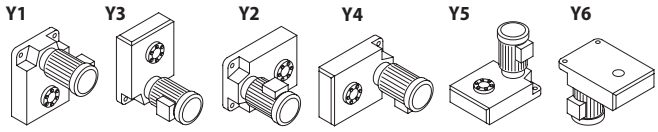


Dimensions on pages 3.58–3.63

1/3 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
3.03	6100	1.28	I	03	**A610DA**	578
		1.72	II	03	**B612DA**	578
		2.57	III	03	**B612DB**	578
2.56	7210	1.09	I	03	**A610DA**	683
		1.72	II	03	**B612DA**	683
		2.17	III	03	**B612DB**	683
2.16	8540	0.92	–	03	**A610DA**	809
		1.72	II	03	**B612DA**	809
		1.83	II	03	**B612DB**	809
1.83	10100	1.55	II	03	**B612DA**	956
		1.72	II	03	**C614DA**	956
1.57	11800	1.33	I	03	**B612DA**	1117
		1.72	II	03	**C614DA**	1117
		2.66	III	03	**C614DB**	1117
1.33	13900	1.12	I	03	**B612DA**	1320
		1.72	II	03	**C614DA**	1320
		2.25	III	03	**C614DB**	1320
1.06	17500	0.90	–	03	**B612DA**	1656
		1.72	II	03	**C614DA**	1656
		1.79	II	03	**C614DB**	1656
0.894	20700	1.52	II	03	**C614DA**	1957
		2.63	III	03	**D616DA**	1957
0.770	24000	1.31	I	03	**C614DA**	2272
		2.26	III	03	**D616DA**	2272
0.684	27000	1.16	I	03	**C614DA**	2559
		2.01	III	03	**D616DA**	2559
		2.81	III	03	**E617DA**	2559
0.595	31100	1.01	I	03	**C614DA**	2944
		1.75	II	03	**D616DA**	2944
		2.44	III	03	**E617DA**	2944
0.499	37100	0.84	–	03	**C614DA**	3511
		2.05	III	03	**E617DA**	3511
0.401	46100	1.64	II	03	**E617DA**	4365

60 Hz, 1750 RPM, Double Reduction Selection Tables



Horizontal or Vertical Motor Shaft
Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions

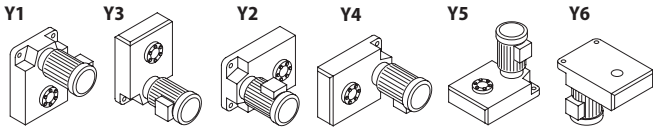
Dimensions on pages 3.58–3.63

1/2 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	6150	1.07	I	05	**A610DA**	364
		2.55	III	05	**B612DB**	364
4.13	7160	1.07	I	05	**A610DA**	424
		2.19	III	05	**B612DB**	424
3.50	8460	0.92	–	05	**A610DA**	501
		1.07	I	05	**B612DA**	501
		1.85	II	05	**B612DB**	501
3.03	9760	0.80	–	05	**A610DA**	578
		1.07	I	05	**B612DA**	578
		1.60	II	05	**B612DB**	578
2.56	11500	1.07	I	05	**B612DA**	683
		1.36	I	05	**B612DB**	683
		2.72	III	05	**C614DB**	683
2.16	13700	1.07	I	05	**B612DA**	809
		1.15	I	05	**B612DB**	809
		2.29	III	05	**C614DB**	809
1.83	16200	0.97	–	05	**B612DA**	956
		1.07	I	05	**C614DA**	956
		1.94	II	05	**C614DB**	956
1.57	18900	0.83	–	05	**B612DA**	1117
		1.07	I	05	**C614DA**	1117
		1.66	II	05	**C614DB**	1117
		2.88	III	05	**D616DA**	1117
1.33	22300	1.07	I	05	**C614DA**	1320
		1.40	II	05	**C614DB**	1320
		2.44	III	05	**D616DA**	1320
1.06	28000	1.07	I	05	**C614DA**	1656
		1.12	I	05	**C614DB**	1656
		1.94	II	05	**D616DA**	1656
		2.71	III	05	**E617DA**	1656
0.894	33100	0.95	–	05	**C614DA**	1957
		1.64	II	05	**D616DA**	1957
		2.29	III	05	**E617DA**	1957
0.770	38400	0.82	–	05	**C614DA**	2272
		1.42	II	05	**D616DA**	2272
		1.98	II	05	**E617DA**	2272
0.684	43200	1.26	I	05	**D616DA**	2559
		1.75	II	05	**E617DA**	2559
0.595	49800	1.09	I	05	**D616DA**	2944
		1.52	II	05	**E617DA**	2944
0.499	59300	0.92	–	05	**D616DA**	3511
		1.28	I	05	**E617DA**	3511
0.401	73800	1.03	I	05	**E617DA**	4365
0.338	87500	0.87	–	05	**E617DA**	5177

Selection Tables 60 Hz, 1750 RPM, Double Reduction

Horizontal or Vertical Motor Shaft
Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions

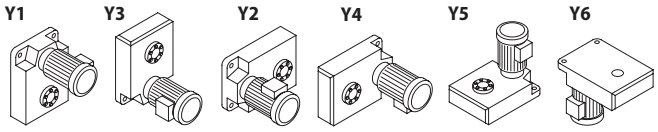


Dimensions on pages 3.58–3.63

3/4 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	8460	1.85	II	08	**B612DB**	364
		2.91	III	08	**C614DB**	364
4.13	9840	1.59	II	08	**B612DB**	424
		2.91	III	08	**C614DB**	424
3.50	11600	1.35	I	08	**B612DB**	501
		2.69	III	08	**C614DB**	501
		2.91	III	08	**D616DA**	501
3.03	13400	1.17	I	08	**B612DB**	578
		2.33	III	08	**C614DB**	578
		2.91	III	08	**D616DA**	578
2.56	15900	0.99	–	08	**B612DB**	683
		1.97	II	08	**C614DB**	683
		2.91	III	08	**D616DA**	683
2.16	18800	0.83	–	08	**B612DB**	809
		1.67	II	08	**C614DB**	809
		2.89	III	08	**D616DA**	809
1.83	22200	1.41	II	08	**C614DB**	956
		2.45	III	08	**D616DA**	956
		2.91	III	08	**E617DA**	956
1.57	26000	1.21	I	08	**C614DB**	1117
		2.09	III	08	**D616DA**	1117
		2.91	III	08	**E617DA**	1117
1.33	30700	1.02	I	08	**C614DB**	1320
		1.77	II	08	**D616DA**	1320
		2.47	III	08	**E617DA**	1320
1.06	38500	0.81	–	08	**C614DB**	1656
		1.41	II	08	**D616DA**	1656
		1.97	II	08	**E617DA**	1656
0.894	45500	1.19	I	08	**D616DA**	1957
		1.67	II	08	**E617DA**	1957
0.770	52800	1.03	I	08	**D616DA**	2272
		1.44	II	08	**E617DA**	2272
0.684	59500	0.91	–	08	**D616DA**	2559
		1.28	I	08	**E617DA**	2559
0.595	68400	1.11	I	08	**E617DA**	2944
0.499	81600	0.93	–	08	**E617DA**	3511

60 Hz, 1750 RPM, Double Reduction Selection Tables



Horizontal or Vertical Motor Shaft
Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions

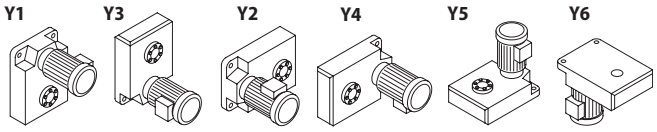
Dimensions on pages 3.58–3.63

1 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	11500	1.36	I	1	**B612DB**	364
		2.13	III	1	**C614DB**	364
		2.72	III	1	**C614DC**	364
4.13	13400	1.17	I	1	**B612DB**	424
		2.13	III	1	**C614DB**	424
		2.33	III	1	**C614DC**	424
3.50	15900	0.99	–	1	**B612DB**	501
		1.97	II	1	**C614DB**	501
		2.13	III	1	**D616DA**	501
3.03	18300	0.86	–	1	**B612DB**	578
		1.71	II	1	**C614DB**	578
		2.13	III	1	**D616DA**	578
		2.97	III	1	**D616DB**	578
2.56	21600	1.45	II	1	**C614DB**	683
		2.13	III	1	**D616DA**	683
		2.51	III	1	**D616DB**	683
2.16	25600	1.22	I	1	**C614DB**	809
		2.12	III	1	**D616DA**	809
		2.96	III	1	**E617DB**	809
1.83	30300	1.03	I	1	**C614DB**	956
		1.79	II	1	**D616DA**	956
		2.13	III	1	**E617DA**	956
		2.50	III	1	**E617DB**	956
1.57	35400	0.89	–	1	**C614DB**	1117
		1.54	II	1	**D616DA**	1117
		2.13	III	1	**E617DA**	1117
1.33	41800	1.30	I	1	**D616DA**	1320
		1.81	II	1	**E617DA**	1320
1.06	52500	1.04	I	1	**D616DA**	1656
		1.45	II	1	**E617DA**	1656
0.894	62000	0.88	–	1	**D616DA**	1957
		1.22	I	1	**E617DA**	1957
0.770	72000	1.05	I	1	**E617DA**	2272
0.684	81100	0.94	–	1	**E617DA**	2559
0.595	93300	0.81	–	1	**E617DA**	2944

Selection Tables 60 Hz, 1750 RPM, Double Reduction

Horizontal or Vertical Motor Shaft
Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions

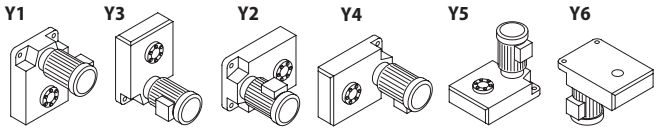


Dimensions on pages 3.58–3.63

1.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	16900	0.93	–	1H	**B612DB**	364
		1.45	II	1H	**C614DB**	364
		1.85	II	1H	**C614DC**	364
4.13	19700	1.45	II	1H	**C614DB**	424
		1.59	II	1H	**C614DC**	424
		2.76	III	1H	**D616DB**	424
3.50	23300	1.35	I	1H	**C614DB**	501
		1.45	II	1H	**D616DA**	501
		2.34	III	1H	**D616DB**	501
3.03	26800	1.17	I	1H	**C614DB**	578
		1.45	II	1H	**D616DA**	578
		2.02	III	1H	**D616DB**	578
		2.83	III	1H	**E617DB**	578
		2.83	III	1H	**E617DC**	578
2.56	31700	0.99	–	1H	**C614DB**	683
		1.45	II	1H	**D616DA**	683
		1.71	II	1H	**D616DB**	683
		2.39	III	1H	**E617DB**	683
2.16	37600	0.83	–	1H	**C614DB**	809
		1.45	II	1H	**D616DA**	809
		2.02	III	1H	**E617DB**	809
1.83	44400	1.22	I	1H	**D616DA**	956
		1.45	II	1H	**E617DA**	956
		1.71	II	1H	**E617DB**	956
1.57	51900	1.05	I	1H	**D616DA**	1117
		1.45	II	1H	**E617DA**	1117
1.33	61300	0.89	–	1H	**D616DA**	1320
		1.24	I	1H	**E617DA**	1320
1.06	77000	0.99	–	1H	**E617DA**	1656
0.894	90900	0.83	–	1H	**E617DA**	1957

60 Hz, 1750 RPM, Double Reduction Selection Tables



Horizontal or Vertical Motor Shaft
Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions

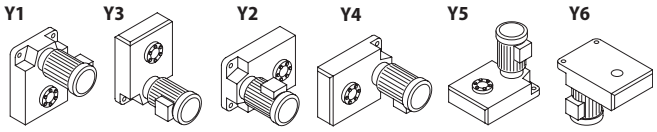
Dimensions on pages 3.58–3.63

2 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	23100	1.07	I	2	**C614DB**	364
		1.36	I	2	**C614DC**	364
		2.24	III	2	**D616DB**	364
		2.36	III	2	**D616DC**	364
4.13	26800	1.07	I	2	**C614DB**	424
		1.17	I	2	**C614DC**	424
		2.02	III	2	**D616DB**	424
		2.24	III	2	**E617DB**	424
		2.83	III	2	**E617DC**	424
3.50	31700	0.99	–	2	**C614DB**	501
		1.07	I	2	**D616DA**	501
		1.71	II	2	**D616DB**	501
		2.24	III	2	**E617DB**	501
		2.39	III	2	**E617DC**	501
3.03	36600	0.86	–	2	**C614DB**	578
		1.07	I	2	**D616DA**	578
		1.48	II	2	**D616DB**	578
		2.07	III	2	**E617DB**	578
		2.07	III	2	**E617DC**	578
2.56	43300	1.07	I	2	**D616DA**	683
		1.26	I	2	**D616DB**	683
		1.75	II	2	**E617DB**	683
2.16	51200	1.06	I	2	**D616DA**	809
		1.48	II	2	**E617DB**	809
1.83	60600	0.90	–	2	**D616DA**	956
		1.07	I	2	**E617DA**	956
		1.25	I	2	**E617DB**	956
1.57	70800	1.07	I	2	**E617DA**	1117
1.33	83600	0.91	–	2	**E617DA**	1320

Selection Tables 60 Hz, 1750 RPM, Double Reduction

Horizontal or Vertical Motor Shaft Y1, Y3, Y2, Y4, Y5, Y6 Mounting Positions



Dimensions on pages 3.58–3.63

3 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	33800	0.93	–	3	**C614DC**	364
		1.53	II	3	**D616DB**	364
		1.61	II	3	**D616DC**	364
		2.24	III	3	**E617DC**	364
4.13	39400	1.38	I	3	**D616DB**	424
		1.53	II	3	**E617DB**	424
		1.93	II	3	**E617DC**	424
3.50	46500	1.17	I	3	**D616DB**	501
		1.53	II	3	**E617DB**	501
		1.63	II	3	**E617DC**	501
3.03	53700	1.01	I	3	**D616DB**	578
		1.41	II	3	**E617DB**	578
		1.41	II	3	**E617DC**	578
2.56	63500	0.86	–	3	**D616DB**	683
		1.20	I	3	**E617DB**	683
2.16	75200	1.01	I	3	**E617DB**	809
1.83	88800	0.85	–	3	**E617DB**	956

5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	56900	0.95	–	5	**D616DC**	364
		1.33	I	5	**E617DC**	364
4.13	66200	1.15	I	5	**E617DC**	424
3.50	78300	0.97	–	5	**E617DC**	501
3.03	90300	0.84	–	5	**E617DC**	578

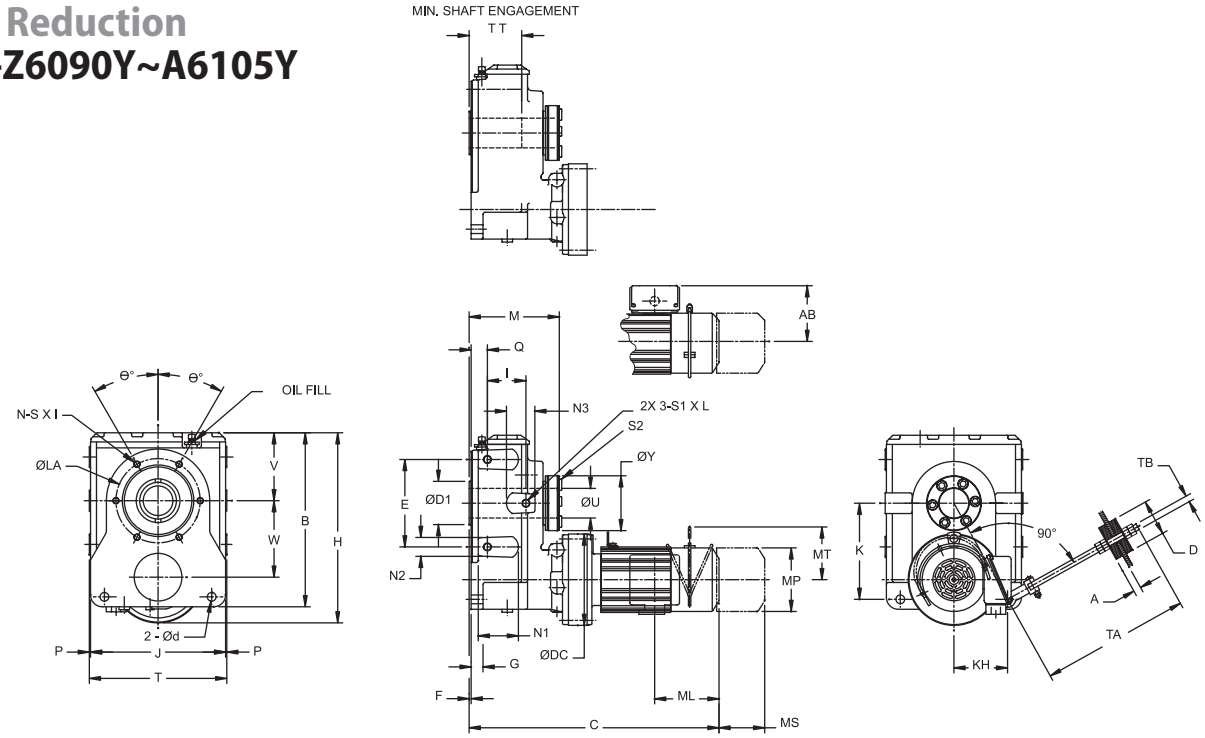
7.5 HP

Output Speed RPM	Output Torque in•lbs	Service Factor	AGMA Class	SELECTION HP Symbol	SELECTION Frame Size	SELECTION Ratio
4.81	84600	0.90	-	8	**E617DC**	364

This page intentionally left blank.

Dimensions

Single Reduction
EHYM-Z6090Y~A6105Y



All dimensions are in inches.

Model	Motor HP	B	E	F	G	H	I	J	K	M	P	Q	T	TT	ØU Max (Std)	ØU Min
Z6090 Z6095	1/8 1/4 1/3 1/2 3/4 1 1-1/2 2	11.02	5.51	0.20	0.79	11.89	2.20	8.30	6.18	6.06	0.12	1.06	8.54	3.96	1-7/16	1-3/16
A6100 A6105	1/4 1/3 1/2 3/4 1 1-1/2 2 3	11.83	5.91	0.2	0.79	12.7	2.60	9.17	6.44	6.61	0.12	1.14	9.41	4.57	2-3/16	1-11/16

Model	Motor HP	V	W	ØY	Ød	ØD1	ØDC	KH	N1	N2	N3	S2	TA	A	D	TB
Z6090 Z6095	1/8 1/4 1/3 1/2 3/4 1 1-1/2 2	4.25	4.69	3.23	0.55	2.56	5.91	3.54	1.02	1.02	N/A	M10	17.50	0.63	2.36	M20
A6100 A6105	1/4 1/3 1/2 3/4 1 1-1/2 2 3	4.61	5.14	4.09	0.71	3.35	5.91	3.74	1.10	1.10	N/A	M12	17.50	0.63	2.36	M20

Dimensions

Single Reduction
EHYM-Z6090Y~A6105Y (cont.)

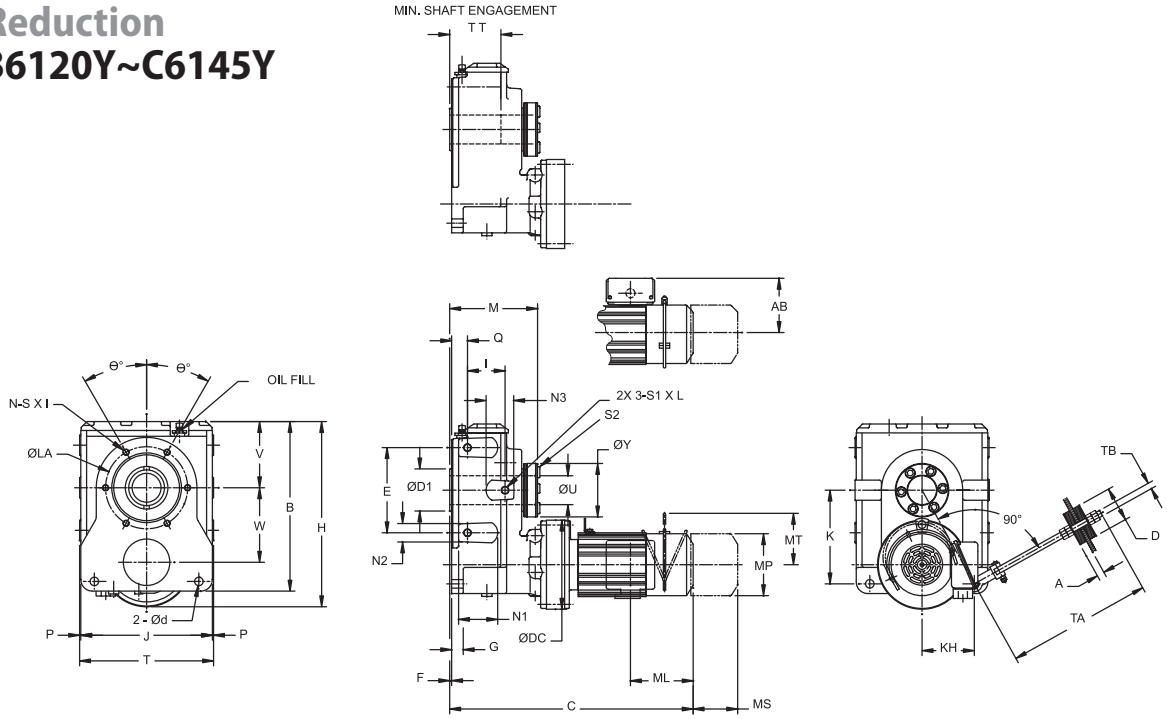
All dimensions are in inches.

Model	Motor HP	ØLA	ØÞ	N	S x L	S1 X L	With Standard Motor C	AB	ML	MP	Weight (lb)
Z6090 Z6095	1/8	4.72	0	4	M10x0.79	M10x0.79	12.01	5.04	1.48	4.15	64
	1/4						13.66	5.04	2.32	4.61	66
	1/3						13.66	5.04	2.32	4.61	66
	1/2						14.45	5.04	2.32	4.61	68
	3/4						16.06	5.32	3.23	5.98	77
	1						16.06	5.32	3.23	5.98	77
	1-1/2						17.36	5.52	3.35	6.49	86
	2						17.36	5.52	3.35	6.49	86
A6100 A6105	1/4	6.10	30	6	M12x0.79	M12x0.87	14.80	5.04	2.32	4.61	88
	1/3						14.80	5.04	2.32	4.61	88
	1/2						15.60	5.04	2.32	4.61	90
	3/4						17.20	5.32	3.23	5.98	99
	1						17.20	5.32	3.23	5.98	99
	1-1/2						18.50	5.52	3.35	6.49	108
	2						18.50	5.52	3.35	6.49	108
	3						19.29	5.79	4.17	6.99	117

Model	Motor HP	With Standard Motor & Brake C	AB	ML	MP	MS	MT	Weight (lb)
Z6090 Z6095	1/8	13.39	5.04	1.48	4.15	1.93	–	68
	1/4	14.92	5.04	2.32	4.61	2.40	–	71
	1/3	14.92	5.04	2.32	4.61	2.40	–	71
	1/2	15.71	5.04	2.32	4.61	2.40	–	73
	3/4	17.76	5.32	3.23	5.98	3.66	4.17	84
	1	17.76	5.32	3.23	5.98	3.66	4.17	84
	1-1/2	19.80	5.52	3.35	6.49	4.53	4.49	97
	2	19.80	5.52	3.35	6.49	4.53	4.49	97
A6100 A6105	1/4	16.06	5.04	2.32	4.61	2.40	–	90
	1/3	16.06	5.04	2.32	4.61	2.40	–	90
	1/2	16.85	5.04	2.32	4.61	2.40	–	93
	3/4	18.90	5.32	3.23	5.98	3.66	4.17	106
	1	18.90	5.32	3.23	5.98	3.66	4.17	106
	1-1/2	20.95	5.52	3.35	6.49	4.53	4.49	119
	2	20.95	5.52	3.35	6.49	4.53	4.49	119
	3	21.77	5.79	4.17	6.99	4.76	4.88	132

Dimensions

Single Reduction
EHYM-B6120Y~C6145Y



All dimensions are in inches.

Model	Motor HP	B	E	F	G	H	I	J	K	M	P	Q	T	TT	ØU Max (Std)	ØU Min
B6120 B6125	1/2 3/4 1 1.5 2 3 5 7-1/2	14.47	7.48	0.20	0.98	16.10	3.39	11.41	7.97	7.64	0.12	1.22	11.65	5.43	2-7/16	1-15/16
C6140 C6145	3/4 1 1-1/2 2 3 5 7-1/2 10	17.24	8.66	0.20	1.18	18.84	3.82	13.38	9.53	9.17	0.12	1.61	13.62	6.50	2-15/16	2-3/16

Model	Motor HP	V	W	ØY	Ød	ØD1	ØDC	KH	N1	N2	N3	S2	TA	A	D	TB
B6120 B6125	1/2 3/4 1 1.5 2 3 5 7-1/2	5.71	6.40	4.49	0.71	3.94	8.03	4.33	1.34	1.26	N/A	M12	17.87	0.63	2.36	M20
C6140 C6145	3/4 1 1-1/2 2 3 5 7-1/2 10 15 20	6.73	7.58	5.43	0.87	4.33	9.06	5.31	3.98	2.05	2.83	M16	18.37	0.75	3.54	M24

Dimensions

Single Reduction
EHYM-B6120Y~C6145Y (cont.)

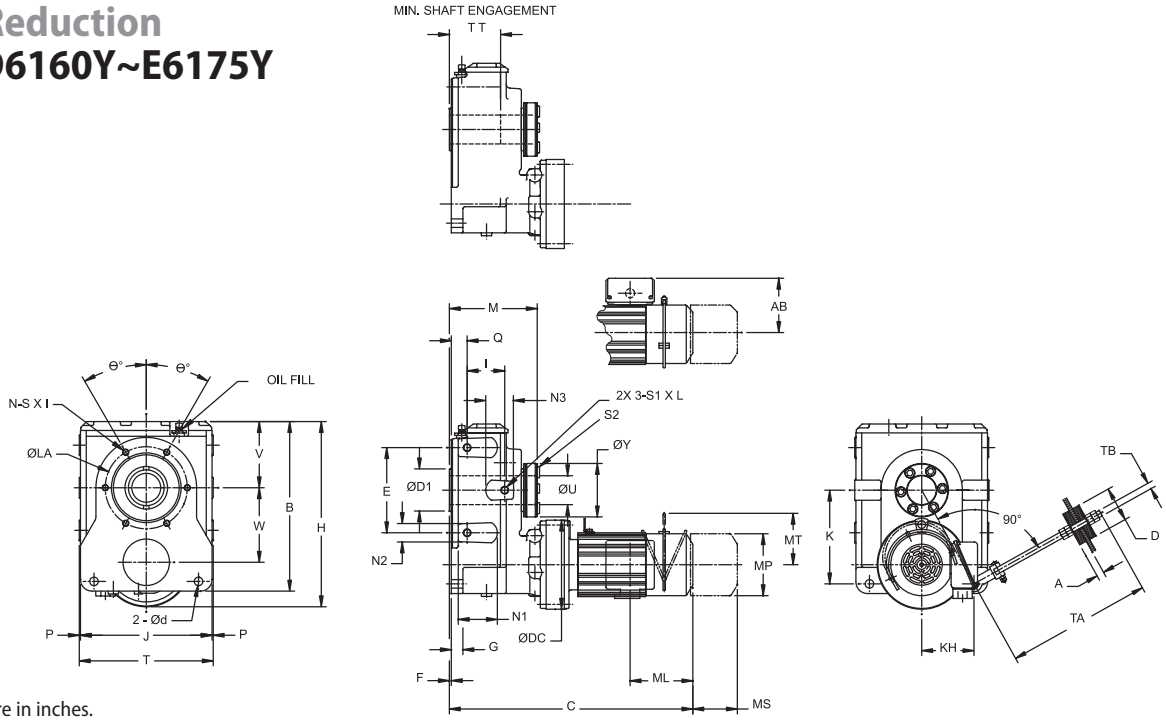
All dimensions are in inches.

Model	Motor HP	ØLA	ΘÞ	N	S x L	S1 X L	With Standard Motor				Weight (lb)
							C	AB	ML	MP	
B6120 B6125	1/2	6.89	30	6	M12x0.87	M16x1.02	17.09	5.04	2.32	4.61	159
	3/4						18.50	5.32	3.23	5.98	163
	1						18.50	5.32	3.23	5.98	163
	1-1/2						19.80	5.52	3.35	6.49	172
	2						19.80	5.52	3.35	6.49	172
	3						20.59	5.79	4.17	6.99	181
	5						21.50	6.46	5.00	8.73	203
	7-1/2						23.23	6.46	5.00	8.73	218
C6140 C6145	3/4	8.35	30	6	M16x1.18	M20x1.38	21.02	5.32	3.23	5.98	260
	1						21.02	5.32	3.23	5.98	260
	1-1/2						22.32	5.52	3.35	6.49	269
	2						22.32	5.52	3.35	6.49	269
	3						23.11	5.79	4.17	6.99	276
	5						24.02	6.46	5.00	8.73	298
	7-1/2						25.75	6.46	5.00	8.73	313
	10						26.65	8.11	5.63	10.23	344
	15						29.02	8.11	5.63	10.23	375
	20						32.56	9.13	11.61	12.76	496

Model	Motor HP	With Standard Motor & Brake						Weight (lb)
		C	AB	ML	MP	MS	MT	
B6120 B6125	1/2	18.35	5.04	2.32	4.61	2.40	–	161
	3/4	20.20	5.32	3.23	5.98	3.66	4.17	170
	1	20.20	5.32	3.23	5.98	3.66	4.17	170
	1-1/2	22.24	5.52	3.35	6.49	4.53	4.49	183
	2	22.24	5.52	3.35	6.49	4.53	4.49	183
	3	23.07	5.79	4.17	6.99	4.76	4.88	196
	5	24.33	6.46	5.00	8.73	5.20	6.18	225
	7-1/2	26.06	6.46	5.00	8.73	5.20	6.18	240
C6140 C6145	3/4	22.72	5.32	3.23	5.98	3.66	4.17	267
	1	22.72	5.32	3.23	5.98	3.66	4.17	267
	1-1/2	24.76	5.52	3.35	6.49	4.53	4.49	280
	2	24.76	5.52	3.35	6.49	4.53	4.49	280
	3	25.59	5.79	4.17	6.99	4.76	4.88	291
	5	26.85	6.46	5.00	8.73	5.20	6.18	320
	7-1/2	28.58	6.46	5.00	8.73	5.20	6.18	335
	10	30.39	8.11	5.63	10.23	6.69	7.17	384
	15	32.76	8.11	5.63	10.23	6.69	7.17	414
	20	36.10	9.13	11.61	12.76	8.66	–	571

Dimensions

Single Reduction
EHYM-D6160Y~E6175Y



All dimensions are in inches.

Model	Motor HP	B	E	F	G	H	I	J	K	M	P	Q	T	TT	ØU Max (Std)	ØU Min
D6160 D6165	1-1/2 2 3 5 7-1/2 10 15 20 25 30	21.22	9.84	0.28	1.38	23.94	4.49	16.77	11.54	10.2	0.20	1.77	17.17	7.01	3-7/16	2-7/16
E6170 E6175	5 7-1/2 10 15 20 25 30 40	24.02	11.81	0.28	1.77	26.85	5.00	18.89	13.07	10.98	0.20	1.97	19.29	8.62	3-15/16	2-15/16

Model	Motor HP	V	W	ØY	Ød	ØD1	ØDC	KH	N1	N2	N3	S2	TA	A	D	TB
D6160 D6165	1-1/2 2 3 5 7-1/2 10 15 20 25 30	8.43	9.61	5.98	1.02	5.12	11.81	6.38	3.62	2.36	3.62	M16	19.50	0.75	3.54	M24
E6170 E6175	5 7-1/2 10 15 20 25 30 40	9.45	10.71	6.69	1.30	5.91	13.39	7.09	3.82	2.44	3.94	M16	20.25	0.75	3.54	M24

Dimensions

Single Reduction
EHYM-D6160Y~E6175Y (cont.)

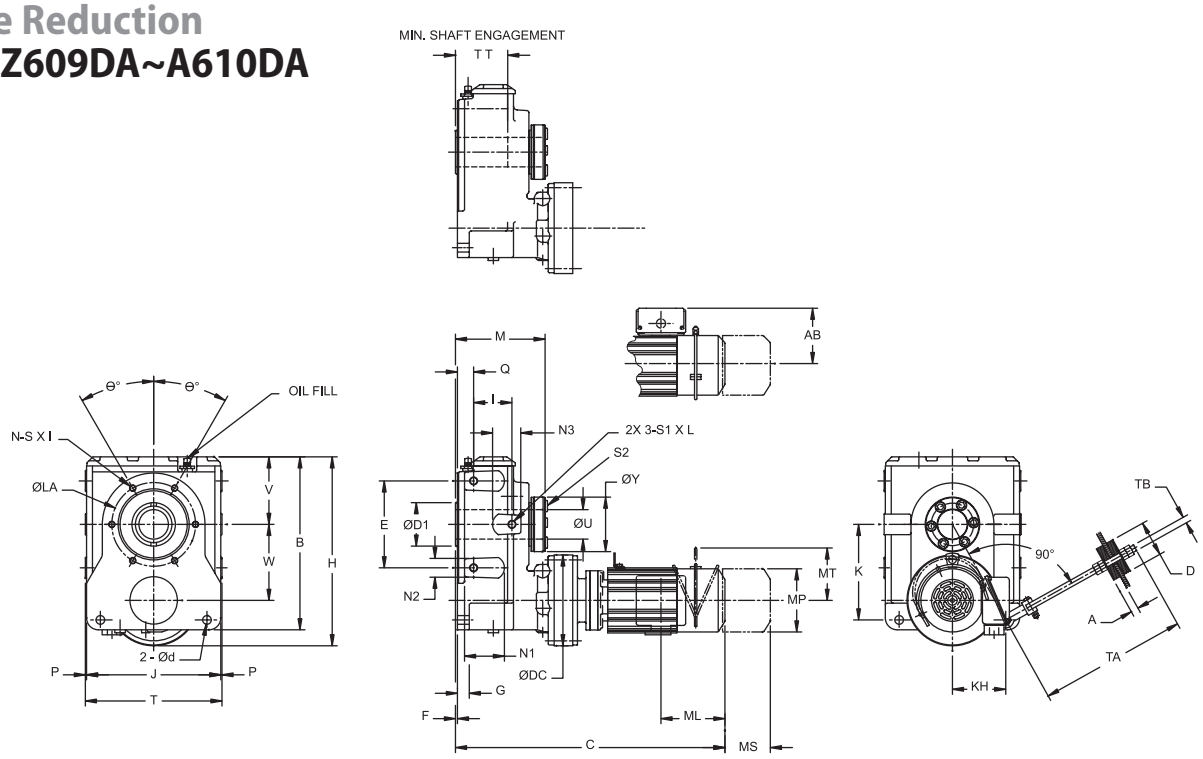
All dimensions are in inches.

Model	Motor HP	ØLA	ΘÞ	N	S x L	S1 X L	With Standard Motor C	AB	ML	MP	Weight (lb)
D6160 D6165	1-1/2	10.04	30	6	M20x1.38	M24x1.57	24.57	5.52	3.35	6.49	470
	2						24.57	5.52	3.35	6.49	470
	3						25.16	5.79	4.17	6.99	476
	5						26.06	6.46	5.00	8.73	496
	7-1/2						27.80	6.46	5.00	8.73	511
	10						28.90	8.11	5.63	10.23	545
	15						31.26	8.11	5.63	10.23	575
	20						34.61	9.13	11.61	12.76	694
	25						38.35	11.69	13.39	15.51	849
	30						38.35	11.69	13.39	15.51	849
E6170 E6175	5	11.02	22.5	8	M20x1.38	M24x1.57	27.99	6.46	5.00	8.73	661
	7-1/2						29.72	6.46	5.00	8.73	667
	10						30.43	8.11	5.63	10.23	710
	15						32.80	8.11	5.63	10.23	741
	20						35.94	9.13	11.61	12.76	860
	25						39.69	11.69	13.39	15.51	1010
	30						39.69	11.69	13.39	15.51	1010
	40						39.69	11.69	13.39	15.51	1060

Model	Motor HP	With Standard Motor & Brake C	AB	ML	MP	MS	MT	Weight (lb)
D6160 D6165	1-1/2	27.00	5.52	3.35	6.49	4.53	4.49	481
	2	27.00	5.52	3.35	6.49	4.53	4.49	481
	3	27.63	5.79	4.17	6.99	4.76	4.88	492
	5	30.63	6.46	5.00	8.73	5.20	6.18	518
	7-1/2	32.64	6.46	5.00	8.73	5.20	6.18	533
	10	35.00	8.11	5.63	10.23	6.69	7.17	584
	15	38.15	8.11	5.63	10.23	6.69	7.17	613
	20	46.61	9.13	11.61	12.76	8.66	–	549
	25	46.61	11.69	13.39	15.51	14.45	–	961
	30	30.83	11.69	13.39	15.51	14.45	–	961
E6170 E6175	5	32.56	6.46	5.00	8.73	5.20	6.18	683
	7-1/2	34.17	6.46	5.00	8.73	5.20	6.18	699
	10	36.54	8.11	5.63	10.23	6.69	7.17	750
	15	39.49	8.11	5.63	10.23	6.69	7.17	780
	20	47.95	9.13	11.61	12.76	8.66	–	935
	25	47.95	11.69	13.39	15.51	14.45	–	1122
	30	47.95	11.69	13.39	15.51	14.45	–	1122
	40	47.95	11.69	13.39	15.51	14.57	–	1155

Dimensions

Double Reduction
EHYM-Z609DA~A610DA



All dimensions are in inches.

Model	Motor HP	B	E	F	G	H	I	J	K	M	P	Q	T	TT	ØU Max (Std)	ØU Min
Z609DA	1/8 1/4 1/3	11.02	5.51	0.20	0.79	11.89	2.20	8.3	6.18	6.06	0.12	1.06	8.54	3.96	1-7/16	1-3/16
A610DA	1/8 1/4 1/3 1/2	11.85	5.91	0.2	0.79	12.7	2.60	9.17	6.44	6.61	0.12	1.14	9.41	4.57	2-3/16	1-11/16

Model	Motor HP	V	W	ØY	Ød	ØD1	ØDC	KH	N1	N2	N3	S2	TA	A	D	TB
Z609DA	1/8 1/4 1/3	4.25	4.69	3.23	0.55	2.56	5.91	3.54	1.02	1.02	N/A	M10	17.50	0.63	2.36	M20
A610DA	1/8 1/4 1/3 1/2	4.61	5.14	4.09	0.71	3.35	5.91	3.74	1.10	1.10	N/A	M12	17.50	0.63	2.36	M20

Dimensions

Double Reduction
EHYM-Z609DA~A610DA (cont.)

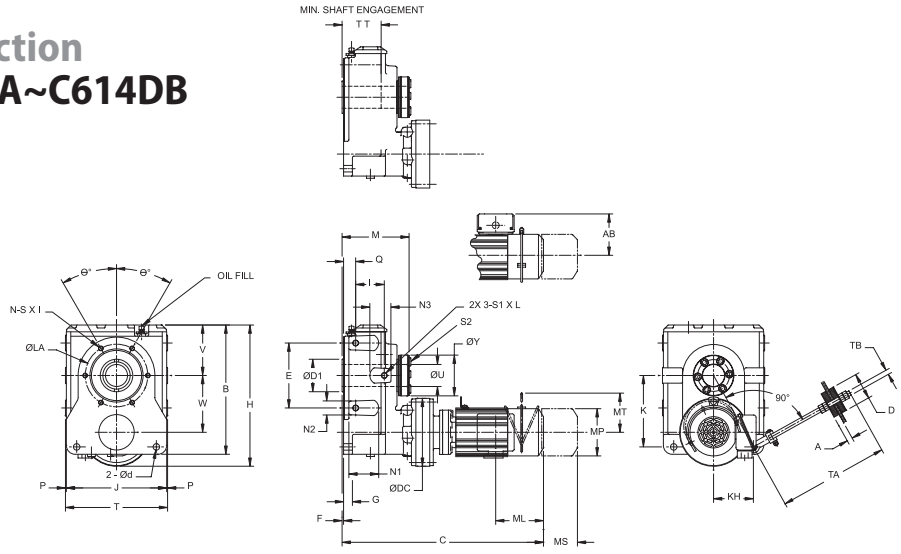
All dimensions are in inches.

Model	Motor HP	ØLA	ΘÞ	N	S x L	S1 X L	With Standard Motor				Weight (lb)
							C	AB	ML	MP	
Z609DA	1/8	4.72	0	4	M10x0.79	M10x0.79	13.88	5.04	1.48	4.15	75
	1/4						15.56	5.04	2.32	4.61	77
	1/3						15.56	5.04	2.32	4.61	77
A610DA	1/8	6.10	30	6	M12x0.79	M12x0.87	15.00	5.04	2.32	4.61	90
	1/4						16.70	5.04	2.32	4.61	93
	1/3						9.53	5.04	2.32	4.61	93
	1/2						17.48	5.32	3.23	5.98	203

Model	Motor HP	With Standard Motor & Brake						Weight (lb)
		C	AB	ML	MP	MS	MT	
Z609DA	1/8	15.28	5.04	1.48	4.15	1.93	–	77
	1/4	16.81	5.04	2.32	4.61	2.40	–	79
	1/3	16.81	5.04	2.32	4.61	2.40	–	79
A610DA	1/8	16.42	5.04	2.32	4.61	2.40	–	93
	1/4	17.95	5.04	2.32	4.61	2.40	–	95
	1/3	17.95	5.04	2.32	4.61	2.40	–	95
	1/2	18.74	5.32	3.23	5.98	3.66	–	97

Dimensions

Double Reduction
EHYM-B612DA~C614DB



All dimensions are in inches.

Model	Motor HP	B	E	F	G	H	I	J	K	M	P	Q	T	TT	ØU	
															Max (Std)	Min
B612DA	1/8 1/4 1/3 1/2	14.47	7.48	0.20	0.98	16.10	3.39	11.41	7.97	7.64	0.12	1.22	11.65	5.43	2-7/16	1-15/16
B612DB	1/3 1/2 3/4 1	14.47	7.48	0.20	0.98	16.10	3.39	11.41	7.97	7.64	0.12	1.22	11.65	5.43	2-7/16	1-15/16
C614DA	1/4 1/3 1/2	17.24	8.66	0.20	1.18	18.84	3.82	13.38	9.53	9.17	0.12	1.61	13.62	6.5	2-15/16	2-3/16
C614DB	1/3 1/2 3/4 1 1-1/2 2	17.24	8.66	0.20	1.18	18.84	3.82	13.38	9.53	9.17	0.12	1.61	13.62	6.5	2-15/16	2-3/16
C614DC	1/4 1/3 1/2 3/4 1 1-1/2 2	17.24	8.66	0.20	1.18	18.84	3.82	13.38	9.53	9.17	0.12	1.61	13.62	6.5	2-15/16	2-3/16

Model	Motor HP	V	W	ØY	Ød	ØD1	ØDC	KH	N1	N2	N3	S2	TA	A	D	TB
B612DA	1/8 1/4 1/3 1/2	5.71	6.40	4.49	0.71	3.94	8.03	4.33	1.34	1.26	N/A	M16	17.87	0.63	2.36	M20
B612DB	1/3 1/2 3/4 1	5.71	6.40	4.49	0.71	3.94	8.03	4.33	1.34	1.26	N/A	M16	17.87	0.63	2.36	M20
C614DA	1/4 1/3 1/2	6.73	7.58	5.43	0.87	4.33	9.06	5.31	3.98	2.05	2.83	M16	18.37	0.75	3.54	M24
C614DB	1/3 1/2 3/4 1 1-1/2 2	6.73	7.58	5.43	0.87	4.33	9.06	5.31	3.98	2.05	2.83	M16	18.37	0.75	3.54	M24
C614DC	1/4 1/3 1/2 3/4 1 1-1/2 2	6.73	7.58	5.43	0.87	4.33	9.06	5.31	3.98	2.05	2.83	M16	18.37	0.75	3.54	M24

Dimensions

Double Reduction
EHYM-B612DA~C614DB (cont.)

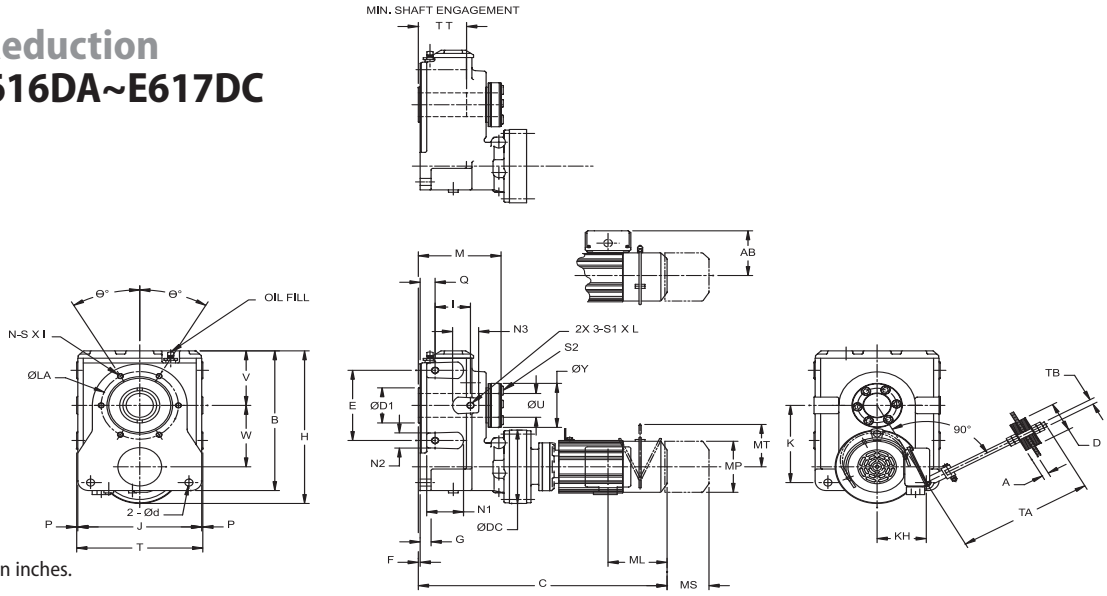
All dimensions are in inches.

Model	Motor HP	ØLA	OÞ	N	S x L	S1 X L	With Standard Motor				
							C	AB	ML	MP	Weight (lb)
B612DA	1/8	6.89	30	6	M12x0.87	M16x1.02	16.57	5.04	2.32	4.61	159
	1/4						18.23	5.32	3.23	5.98	161
	1/3						18.23	5.32	3.23	5.98	161
	1/2						19.01	5.52	3.35	6.49	163
B612DB	1/3	6.89	30	6	M12x0.87	M16x1.02	18.70	5.52	3.35	6.49	168
	1/2						19.49	5.79	4.17	6.99	170
	3/4						21.10	6.46	5.00	8.73	179
	1						21.10	6.46	5.00	8.73	179
C614DA	1/4	8.35	30	6	M16x1.18	M20x1.38	20.75	5.32	3.23	5.98	249
	1/3						20.75	5.32	3.23	5.98	249
	1/2						21.53	5.32	3.23	5.98	251
C614DB	1/3	8.35	30	6	M16x1.18	M20x1.38	21.10	5.79	4.17	6.99	254
	1/2						21.89	6.46	5.00	8.73	256
	3/4						23.50	6.46	5.00	8.73	265
	1						23.50	8.11	5.63	10.23	265
	1-1/2						24.80	8.11	5.63	10.23	271
	2						24.80	9.13	11.61	12.76	271
C614DC	1/4	8.35	30	6	M16X1.18	M20X1.38	21.80	5.04	2.32	4.61	258
	1/3						21.80	5.04	2.32	4.61	258
	1/2						22.43	5.04	2.32	4.61	260
	3/4						24.05	5.32	3.23	5.98	269
	1						24.05	5.32	3.23	5.98	269
	1-1/2						25.35	5.52	3.35	6.49	278
	2						25.35	5.52	3.35	6.49	278

Model	Motor HP	With Standard Motor & Brake						
		C	AB	ML	MP	MS	MT	Weight (lb)
B612DA	1/8	17.95	5.04	2.32	4.61	2.40	–	161
	1/4	19.49	5.32	3.23	5.98	3.66	–	163
	1/3	19.49	5.32	3.23	5.98	3.66	–	163
	1/2	20.28	5.52	3.35	6.49	4.53	–	165
B612DB	1/3	19.96	5.52	3.35	6.49	4.53	–	172
	1/2	20.75	5.79	4.17	6.99	4.76	–	174
	3/4	22.80	6.46	5.00	8.73	5.20	4.17	185
	1	22.80	6.46	5.00	8.73	5.20	4.17	185
C614DA	1/4	22.00	5.32	3.23	5.98	3.66	–	251
	1/3	22.00	5.32	3.23	5.98	3.66	–	251
	1/2	22.80	5.32	3.23	5.98	3.66	–	254
C614DB	1/3	22.36	5.79	4.17	6.99	4.76	–	258
	1/2	23.15	6.46	5.00	8.73	5.20	–	260
	3/4	25.20	6.46	5.00	8.73	5.20	4.17	271
	1	25.20	8.11	5.63	10.23	6.69	4.17	271
	1-1/2	27.24	8.11	5.63	10.23	6.69	4.49	282
	2	27.24	9.13	11.61	12.76	8.66	4.49	282
C614DC	1/4	22.91	5.04	2.32	4.61	2.4	–	262
	1/3	22.91	5.04	2.32	4.61	2.4	–	262
	1/2	23.70	5.04	2.32	4.61	2.4	–	264
	3/4	25.75	5.32	3.23	5.98	3.66	4.17	275
	1	25.75	5.32	3.23	5.98	3.66	4.17	275
	1-1/2	27.79	5.52	3.35	6.49	4.53	4.49	289
	2	27.79	5.52	3.35	6.49	4.53	4.49	289
	3	28.58	5.79	4.17	6.49	4.76	4.88	300

Dimensions

Double Reduction
EHYM-D616DA~E617DC



All dimensions are in inches.

Model	Motor HP	B	E	F	G	H	I	J	K	M	P	Q	T	TT	ØU	
															Max (Std)	Min
D616DA	1/2 3/4 1 1-1/2 2	21.22	9.84	0.28	1.38	23.94	4.49	16.77	11.54	10.20	0.20	1.77	17.17	7.01	3-7/16	2-7/16
D616DB	1-1/2 2 3	21.22	9.84	0.28	1.38	23.94	4.49	16.77	11.54	10.20	0.20	1.77	17.17	7.01	3-7/16	2-7/16
D616DC	1/2 3/4 1 1.5 2 3	21.22	9.84	0.28	1.38	23.94	4.49	16.77	11.54	10.20	0.20	1.77	17.17	7.01	3-7/16	2-7/16
E617DA	1/2 3/4 1 1-1/2 2	24.02	11.81	0.28	1.77	26.85	5.00	18.89	13.07	10.98	0.20	1.97	19.29	8.62	3-15/16	2-15/16
E617DB	1-1/2 2 3	24.02	11.81	0.28	1.77	26.85	5.00	18.89	13.07	10.98	0.20	1.97	19.29	8.62	3-15/16	2-15/16
E617DC	3 5	24.02	11.81	0.28	1.77	26.85	5.00	18.89	13.07	10.98	0.20	1.97	19.29	8.62	3-15/16	2-15/16

Model	Motor HP	V	W	ØY	Ød	ØD1	ØDC	KH	N1	N2	N3	S2	TA	A	D	TB
D616DA	1/2 3/4 1 1-1/2 2	8.43	9.61	5.98	1.02	5.12	11.81	6.38	3.62	2.36	3.62	M16	19.50	0.75	3.54	M24
D616DB	1-1/2 2 3	8.43	9.61	5.98	1.02	5.12	11.81	6.38	3.62	2.36	3.62	M16	19.50	0.75	3.54	M24
D616DC	1/2 3/4 1 1.5 2 3	8.43	9.61	5.98	1.02	5.12	11.81	6.38	3.62	2.36	3.62	M16	19.50	0.75	3.54	M24
E617DA	1/2 3/4 1 1-1/2 2	9.45	10.71	6.69	1.30	5.91	13.39	7.09	3.82	2.44	3.94	M16	20.25	0.75	3.54	M24
E617DB	1-1/2 2 3	9.45	10.71	6.69	1.30	5.91	13.39	7.09	3.82	2.44	3.94	M16	20.25	0.75	3.54	M24
E617DC	3 5	9.45	10.71	6.69	1.30	5.91	13.39	7.09	3.82	2.44	3.94	M16	20.25	0.75	3.54	M24

Dimensions

Double Reduction
EHYM-D616DA~E617DC (cont.)

All dimensions are in inches.

Model	Motor HP	ØLA	OÞ	N	S x L	S1 X L	With Standard Motor				
							C	AB	ML	MP	Weight (lb)
D616DA	1/2	10.04	30	6	M20x1.38	M24x1.57	24.01	5.52	3.35	6.49	463
	3/4						25.63	5.52	3.35	6.49	472
	1						25.63	5.79	4.17	6.99	472
	1-1/2						26.93	6.46	5.00	8.73	481
	2						26.93	6.46	5.00	8.73	481
D616DB	1-1/2	10.04	30	6	M20x1.38	M24x1.57	27.48	8.11	5.63	10.23	485
	2						27.48	8.11	5.63	10.23	485
	3						28.27	8.11	5.63	10.23	494
D616DC	1/2	10.04	30	6	M20x1.38	M24x1.57	24.81	5.04	2.32	4.61	480
	3/4						26.22	5.32	3.23	5.98	489
	1						26.22	5.32	3.23	5.98	489
	1.5						27.52	5.52	3.35	6.49	498
	2						27.52	5.52	3.35	6.49	498
	3						28.35	5.79	4.17	6.99	507
E617DA	1/2	11.02	22.5	8	M20x1.38	M24x1.57	25.39	6.46	5.00	8.73	615
	3/4						27.00	6.46	5.00	8.73	624
	1						27.00	8.11	5.63	10.23	624
	1-1/2						28.30	8.11	5.63	10.23	631
	2						28.30	9.13	11.61	12.76	631
E617DB	1-1/2	11.02	22.5	8	M20x1.38	M24x1.57	28.86	11.69	13.39	15.51	637
	2						28.86	11.69	13.39	15.51	637
	3						29.64	11.69	13.39	15.51	646
E617DC	3	11.02	22.5	8	M20x1.38	M24x1.57	29.80	11.69	13.39	15.51	657
	5						30.70	11.69	13.39	15.51	679

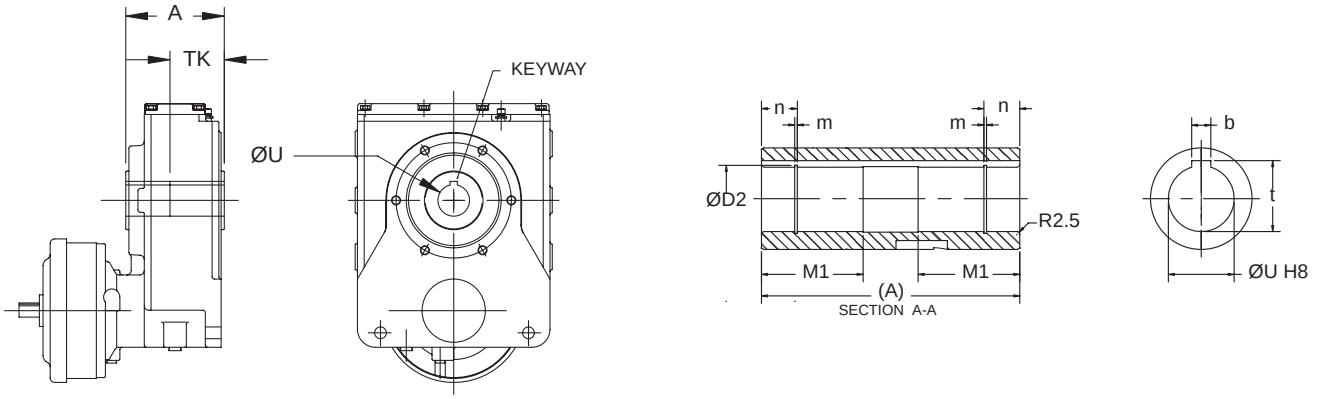
Model	Motor HP	With Standard Motor & Brake						
		C	AB	ML	MP	MS	MT	Weight (lb)
D616DA	1/2	25.28	5.52	3.35	6.49	4.53	–	467
	3/4	27.32	5.52	3.35	6.49	4.53	4.17	478
	1	27.32	5.79	4.17	6.99	4.76	4.17	478
	1-1/2	29.37	6.46	5.00	8.73	5.20	4.49	514
	2	29.37	6.46	5.00	8.73	5.20	4.49	514
D616DB	1-1/2	29.92	8.11	5.63	10.23	6.69	4.49	496
	2	29.92	8.11	5.63	10.23	6.69	4.49	496
	3	30.75	8.11	5.63	10.23	6.69	4.88	507
D616DC	1/2	26.06	5.04	2.32	4.61	2.40	–	485
	3/4	27.92	5.32	3.23	5.98	3.66	4.17	496
	1	27.92	5.32	3.23	5.98	3.66	4.17	496
	1.5	30.00	5.52	3.35	6.49	4.53	4.49	509
	2	30.00	5.52	3.35	6.49	4.53	4.49	509
	3	30.83	5.79	4.17	6.99	4.76	4.88	520
E617DA	1/2	26.65	6.46	5.00	8.73	5.20	–	619
	3/4	28.70	6.46	5.00	8.73	5.20	4.17	631
	1	28.70	8.11	5.63	10.23	6.69	4.17	631
	1-1/2	30.75	8.11	5.63	10.23	6.69	4.49	642
	2	30.75	9.13	11.61	12.76	8.66	4.49	642
E617DB	1-1/2	31.30	11.69	13.39	15.51	14.45	4.49	648
	2	31.30	11.69	13.39	15.51	14.45	4.49	648
	3	32.13	11.69	13.39	15.51	14.45	4.88	659
E617DC	3	32.28	11.69	13.39	15.51	14.45	4.88	672
	5	33.54	11.69	13.39	15.51	14.57	6.18	701

This page intentionally left blank.

4 Options

Options

Keyed Hollow Bore



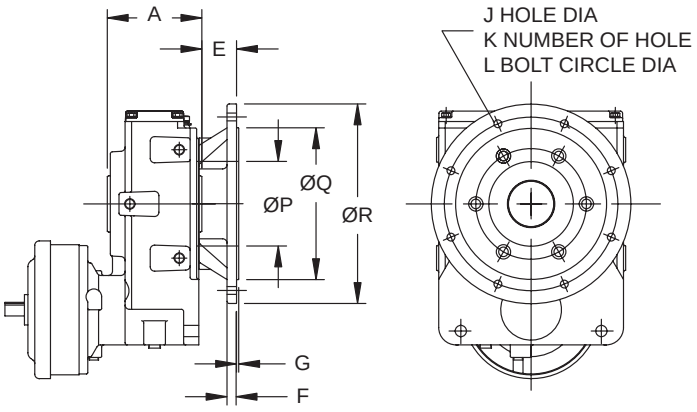
All dimensions are in millimeters.

Model	ØU	A	b	t	M1	Ø D2	n	m	TK*
Z	40	120	12	43.3	57	42.5	24	1.95	76
A	55	134	16	59.3	63	58	30	2.20	84
B	65	160	18	69.4	75	68	30	2.70	98
C	75	192	20	79.9	90	78	37	2.70	140
D	85	218	22	90.4	100	88.5	37	3.20	194
E	100	238	28	106.4	110	103.5	37	3.20	195

**Recommended minimum shaft engagement for shaft material 1045 steel with hardness Hb 225 - 265*

Model	Available Bore Sizes			
	Inch		Metric (mm)	
	Min.	Max.	Min.	Max.
Z	1-3/16	1-1/2	30	40
A	1-3/4	2-3/16	45	55
B	2-3/16	2-5/8	55	65
C	2-7/16	3	60	75
D	2-3/4	3-7/16	70	85
E	3-3/16	3-15/16	80	100

Output Flange



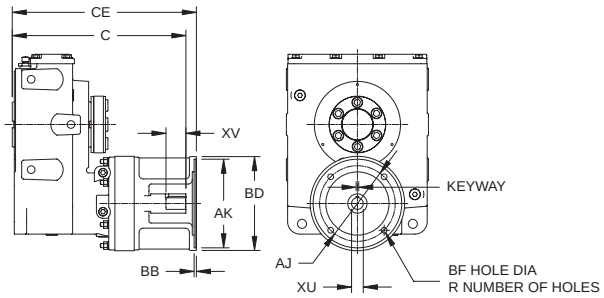
All dimensions are in inches.

Model	A	E	F	G	J	K	L	P	Q	R
Z	4.72	1.24	0.47	0.14	0.43	4	6.50	3.54	5.12	7.87
A	5.28	1.30	0.59	0.16	0.55	4	8.46	4.72	7.09	10.00
B	6.30	1.61	0.59	0.16	0.55	4	8.46	5.51	7.09	10.00
C	7.56	2.28	0.79	0.20	0.71	4	11.81	6.50	9.84	13.98
D	8.58	3.15	0.87	0.20	0.71	8	15.75	7.68	13.78	18.11
E	9.37	3.15	0.87	0.20	0.71	8	15.75	12.60	13.78	17.72

Dimensions shown are for reference only and are subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

Options

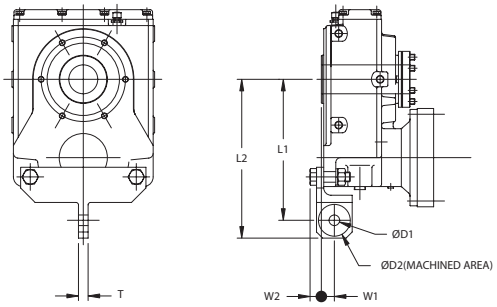
Hollow Input



All dimensions are in inches.

Model	NEMA C-FACE ADAPTOR	AJ	AK	BB	BD	BF	C	CE	R	XU		XV	Keyway
Z6090/5Y	56C	5.875	4.50	0.20	6.69	0.43	9.06	10.08	4	0.625	+0.0007 -0.0000	1.18	3/16 x 3/32
	143TC-145TC	5.875	4.50	0.20	6.69	0.43	9.45	10.08	4	0.875	+0.0008 -0.0000	1.57	3/16 x 3/32
A6100/5Y	56C	5.875	4.50	0.20	6.69	0.43	9.96	11.02	4	0.625	+0.0007 -0.0000	1.18	3/16 x 3/32
	143TC-145TC	5.875	4.50	0.20	6.69	0.43	10.43	11.02	4	0.875	+0.0008 -0.0000	1.65	3/16 x 3/32
B6120/5Y	56C	5.875	4.50	0.22	6.69	0.43	12.09	13.23	4	0.625	+0.0007 -0.0000	1.18	3/16 x 3/32
	143TC-145TC	5.875	4.50	0.22	6.69	0.43	12.28	13.23	4	0.875	+0.0016 -0.0008	1.50	3/16 x 3/32
	182TC-184TC	7.25	8.50	0.22	8.98	0.55	13.39	14.45	4	1.125	+0.0016 -0.0008	1.97	1/4 x 1/8
	213TC-215TC	7.25	8.50	0.22	8.98	0.55	13.50	14.45	4	1.375	+0.0020 -0.0010	2.64	5/16 x 5/32
C6140/5Y	143TC-145TC	5.875	4.50	0.20	6.69	0.43	15.20	15.75	4	0.875	+0.0008 -0.0000	1.61	3/16 x 3/32
	182TC-184TC	7.25	8.50	0.22	9.00	0.55	16.65	17.66	4	1.125	+0.0016 -0.0008	1.91	1/4 x 1/8
	213TC-215TC	7.25	8.50	0.22	9.00	0.55	16.30	17.66	4	1.375	+0.0020 -0.0010	2.68	5/16 x 5/32
	254TC-256TC	7.25	8.50	0.22	9.00	0.55	16.30	17.66	4	1.625	+0.0020 -0.0010	2.99	3/8 x 3/8
D6160/5Y	182TC-184TC	7.25	8.50	0.22	8.98	0.55	18.07	19.02	4	1.125	+0.0016 -0.0008	2.01	1/4 x 1/8
	213TC-215TC	7.25	8.50	0.22	8.98	0.55	18.07	19.02	4	1.375	+0.0020 -0.0010	2.48	5/16 x 5/32
	254TC-256TC	7.25	8.50	0.22	8.98	0.55	18.07	19.02	4	1.625	+0.0020 -0.0010	3.11	3/8 x 3/8
E6170/5Y	(Not Available in Hollow Input. See Pages 2.14 – 2.21 For C-face Dimensions.)												

"T" Type Torque Arm



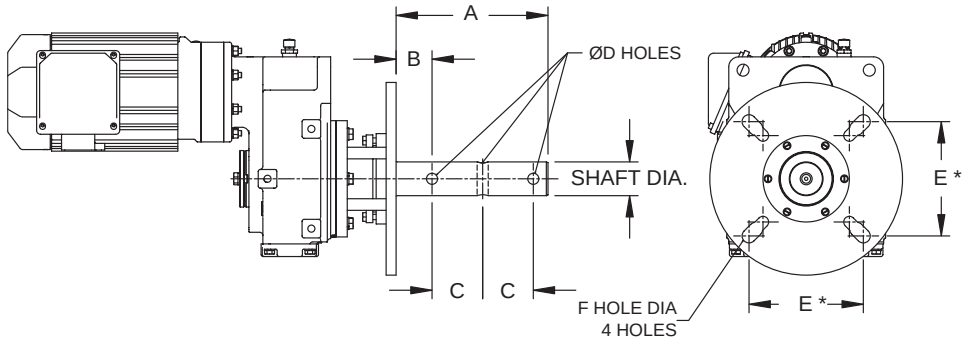
All dimensions are in inches.

Model	L1	L2	W1	W2	T	D1	D2	Bolt Size
Z	8.94	9.92	0.71	0.59	0.47	0.55	1.70	M12
A	9.39	10.57	0.91	0.67	0.63	0.71	2.09	M16
B	11.52	12.97	1.06	0.75	0.79	0.87	2.60	M20
C	14.06	15.83	1.26	1.02	1.02	1.02	3.27	M24
D	17.05	18.82	1.57	1.18	1.18	1.02	3.27	M24
E	18.98	21.14	2.20	1.50	1.42	1.30	4.06	M30

Dimensions shown are for reference only and are subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

Options

Screw Conveyor Drive



- Complete Cyclo® HBB screw conveyor drive consists of reducer, CEMA drive shaft assembly and mounting adapter kit. The CEMA drive shaft and mounting adapter kit require customer assembly.
- All Cyclo® HBB reducers used as screw conveyor drives require R1 high capacity bearings.
- CEMA drive shafts are three hole style.

All dimensions are in inches.

Model	Shaft Dia.	A	B	C	ØD	E	F
Z, A, B	1-1/2	9	2.13	3	17/32	4	0.531
	2	9	2.13	3	21/32	5.13	0.669
	2-7/16	9.69	2.75	3	21/32	5.63	0.669
	3	9.88	2.88	3	25/32	6	0.827
C, D, E	2	9	2.13	3	21/32	5.13	0.669
	2-7/16	9.69	2.75	3	21/32	5.63	0.669
	3	9.88	2.88	3	25/32	6	0.827
	3-7/16	13.13	3.88	4	29/32	6.75	0.827

HBB Reducer Model	Drive Shaft Diameter (in.)	To Fit Screw Diameter (in.)	CEMA Steel Drive Shaft Assembly P/N	CEMA Stainless Drive Shaft Assembly P/N	Mounting Adapter Kit P/N
Z	1-1/2	6, 9	117Z4108-C3	117Z4108-S3	117Z4040
	2	9, 12	117Z4200-C3	117Z4200-S3	117Z4040
	2-7/16	12, 14	117Z4207-C3	117Z4207-S3	117Z4040
	3	12-20	117Z4300-C3	117Z4300-S3	117Z4040
A	1-1/2	6, 9	116E4108-C3	116E4108-S3	117A4041
	2	9, 12	116E4200-C3	116E4200-S3	117A4040
	2-7/16	12, 14	116E4207-C3	116E4207-S3	117A4040
	3	12-20	116E4300-C3	116E4300-S3	117A4040
B	1-1/2	6, 9	116F4108-C3	116F4108-S3	117B4041
	2	9, 12	116F4200-C3	116F4200-S3	117B4040
	2-7/16	12, 14	116F4207-C3	116F4207-S3	117B4040
	3	12-20	116F4300-C3	116F4300-S3	117B4040
C	2	9, 12	116G4200-C3	116G4200-S3	117C4040
	2-7/16	12, 14	116G4207-C3	116G4207-S3	117C4040
	3	12-20	116G4300-C3	116G4300-S3	117C4040
	3-7/16	18-24	116G4307-C3	116G4307-S3	117C4040
D	2	9, 12	116H4200-C3	116H4200-S3	117D4040
	2-7/16	12, 14	116H4207-C3	116H4207-S3	117D4040
	3	12-20	116H4300-C3	116H4300-S3	117D4040
	3-7/16	18-24	116H4307-C3	116H4307-S3	117D4040
E	2-7/16	12, 14	116J4207-C3	116J4207-S3	117E4040
	3	12-20	116J4300-C3	116J4300-S3	117E4040
	3-7/16	18-24	116J4307-C3	116J4307-S3	117E4040

Dimensions shown are for reference only and are subject to change without notice, unless certified.
Certified prints are available after receipt of an order; consult factory.

5
Appendix

Special Load Guidelines Overhung Load

Reducer/Gearmotor Allowable Overhung Load

When a sprocket, sheave, or gear is mounted on the shaft of a reducer, an overhung load is applied on that shaft. It is necessary to check if the shaft of the Cyclo® HBB Speed Reducer will allow the overhung load. Calculate the overhung load using this formula:

$$\text{Overhung Load} = \frac{126{,}000 \times HP \times Cf \times Lf \times Sf}{D \times N}$$

LEGEND
- **HP:** Horsepower transmitted by shaft
- **Cf:** Load connection factor (Table. 5.1)
- **Lf:** Load location factor (Table 5.3 Input Shaft; Fig. 5.1 Input Shaft)
- **Sf:** Service factor (Determine from Table 5.2 and "How to Select," pages 2.2 and 3.2)
- **D:** Pitch diameter of sprocket, etc.
- **N:** Shaft speed (rpm)

Table 5.1 Load Connection Factor

Type of Connection	Cf
General Purpose Chain	1.0
Machined Gear, Pinion or Synchronous Belt	1.25
V–Belt	1.5
Flat Belt	2.5

Table 5.2 Service Factor

Shock Factor	Sf
No Shock	1.0
Moderate Shock	1.5
Heavy Shock	2.0

Table 5.3 Input Shaft Overhung Load Location Factor, Lf

Model	L (inches)									
	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00
Z6090, Z6095	0.90	1.09	1.52	2.03						
A6100, A6105	0.93	1.09	1.52	2.03						
B6120, B6125		0.87	1.10	1.43	1.77	2.12				
C6140, C6145		0.84	0.98	1.25	1.53	1.83	2.11			
D6160, D6165		0.94	0.97	1.06	1.22	1.36	1.51	1.66		
E6170, E6175			0.95	0.99	1.09	1.23	1.38	1.51	1.79	2.08

Figure 5.1

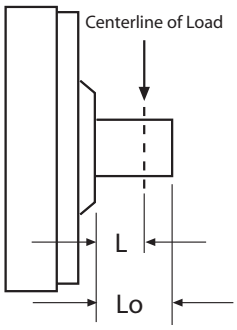


Table 5.4 Input Shaft Allowable Overhung Load (Lf, Cf, Fs =1) **Unit: lbs.**

Model	Ratio	Shaft Speed (RPM)						
		1750	1450	1165	980	870	720	580
Z6090, Z6095	6~17, 25~71, 119	66	66	66	66	66	66	66
	21, 87	44	44	44	44	55	55	66
A6100, A6105	6~11, 17~119	99	99	110	121	132	132	132
	13, 15	99	77	99	110	110	121	132
B6120, B6125	6~17	133	155	166	175	198	198	198
	21~87	121	99	110	121	133	198	198
C6140, C6145	6, 8	308	308	308	342	364	387	418
	11~21	277	220	243	265	277	297	330
	25	243	254	265	288	297	308	330
	29~87	121	133	133	155	155	155	243
D6160, D6165	8~25, 51, 59	398	398	441	463	486	486	486
	29~43, 71, 87	243	265	288	308	308	353	398
E6170, E6175	11~87	463	463	508	508	528	551	596

Special Load Guidelines **Inertia**

Table 5.6 Moment of Inertia on Motor Shaft of Gearmotor[1] Units: lbs•inch^2

Model	Reduction Ratio								
	11	18	21	28	39	46	53	60	74
Z6090, Z6095	–	–	0.475	0.337	0.247	0.245	0.231	0.200	0.150
A6100, A6105	1.737	0.711	0.513	0.331	0.191	0.173	0.149	0.108	0.108
B6120, B6125	5.609	2.213	17.408	1.245	0.735	0.728	0.660	0.496	0.530
C6140, C6145	14.638	5.711	5.130	3.263	2.124	1.662	1.443	1.245	1.019
D6160, D6165	41.724	16.382	13.441	8.721	5.369	4.617	4.036	3.379	2.965
E6170, E6175	87.210	35.226	32.866	22.640	16.142	14.159	12.244	11.457	10.328

Model	Reduction Ratio							
	88	102	123	151	179	207	249	305
Z6090, Z6095	0.142	0.118	0.091	0.088	0.085	0.063	0.083	0.062
A6100, A6105	0.095	0.066	0.059	0.054	0.071	0.048	0.067	0.045
B6120, B6125	0.482	0.340	0.316	0.295	0.400	0.276	0.386	0.263
C6140, C6145	0.913	0.821	0.770	0.708	0.681	0.674	0.650	0.643
D6160, D6165	2.698	2.370	2.226	2.090	2.035	2.028	1.925	1.888
E6170, E6175	9.747	9.166	8.858	8.550	8.413	8.276	8.208	8.140

Table 5.7 Moment of Inertia on Motor Shaft of 3-Phase Integral Motor Units: lbs•inch^2

1/8 HP x 4 Pole		1/4 HP x 4 Pole		1/3 HP x 4 pole		1/2 HP x 4 pole		3/4 HP x 4 pole		1 HP x 4 pole	
Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake
1.11	**1.20**	**1.71**	**1.88**	**1.71**	**1.88**	**2.22**	**2.31**	**3.45**	**3.79**	**4.10**	**4.44**
1/5 HP x 4 Pole		**2 HP x 4 Pole**		**3 HP x 4 pole**		**5 HP x 4 pole**		**7.5 HP x 4 pole**		**10 HP x 4 pole**	
Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake
6.32	**7.11**	**7.28**	**8.03**	**11.4**	**12.7**	**29.0**	**32.7**	**39.0**	**42.7**	**91.6**	**104**
15 HP x 4 Pole		**20 HP x 4 Pole**		**25 HP x 4 pole**		**30 HP x 4 pole**		**40 HP x 4 pole**		**50 HP x 4 pole**	
Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake
128	**140**	**307**	**455**	**769**	**793**	**769**	**793**	**855**	**878**	**1053**	**1097**

Table 5.8 Moment of Inertia on Motor Shaft of 3 Phase, Inverter Duty**, Integral Motor** Units: lbs•inch^2

1/8 HP x 4 Pole		1/4 HP x 4 Pole		1/2 HP x 4 pole		1 HP x 4 pole		2 HP x 4 pole		3 HP x 4 pole	
Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake
1.71	**1.88**	**2.22**	**2.31**	**4.10**	**4.44**	**7.28**	**8.03**	**11.4**	**12.7**	**29.0**	**32.7**
5 HP x 4 Pole		**7.5 HP x 4 Pole**		**10 HP x 4 pole**		**15 HP x 4 pole**		**20 HP x 4 pole**		**25 HP x 4 pole**	
Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake	Standard	w/ Brake
39.0	**42.7**	**91.6**	**104**	**128**	**140**	**307**	**455**	**769**	**-**	**769**	**793**
30 HP x 4 Pole		**40 HP x 4 Pole**									
Standard	w/ Brake	Standard	w/ Brake								
855	**878**	**1053**	**1097**								

Note: [1] Table 5.7 does not include the inertia of the integral motors. Total unit inertia is obtained by adding the reducer inertia to the motor inertia.

Special Load Guidelines **Misc.**

Table 5.9 Actual Reduction Ratio

Model	Nominal Reduction Ratio								
	11	18	21	28	39	46	53	60	74
Z6090, Z6095	–	–	21.80	27.73	38.13	45.07	52.00	58.93	72.80
A6100, A6105	10.50	16.80	21.00	28.00	38.50	45.50	52.50	59.50	73.50
B6120, B6125	10.50	17.12	21.00	28.00	38.50	45.50	52.50	59.50	73.50
C6140, C6145	10.89	17.50	21.00	28.00	38.50	45.50	52.50	59.50	73.50
D6160, D6165	10.75	17.61	20.80	27.73	38.13	45.07	52.00	58.93	72.80
E6170, E6175	10.75	17.51	20.80	27.73	38.13	45.07	52.00	58.93	72.80

Model	Nominal Reduction Ratio							
	88	102	123	151	179	207	249	305
Z6090, Z6095	86.67	100.5	121.3	149.1	176.8	204.5	246.1	301.6
A6100, A6105	87.50	101.5	122.5	150.5	178.5	206.5	248.5	304.5
B6120, B6125	87.50	101.5	122.5	150.5	178.5	206.5	248.5	304.5
C6140, C6145	87.50	101.5	122.5	150.5	178.5	206.5	248.5	304.5
D6160, D6165	86.67	100.5	121.3	149.1	176.8	204.5	246.1	301.6
E6170, E6175	86.67	100.5	121.3	149.1	176.8	204.5	246.1	301.6

Excessive Overloads

Cyclo® HBB Speed Reducers provide 300% momentary intermittent shock load capacity and are warranted for 2 years from date of shipment. Refer to our standard terms and conditions for our complete warranty.

Selection for Applications Involving Shock Loading

For applications involving frequent start-stop, braking or reversing, or quick starting of load having large inertia, consult factory for model selection or recommended modifications.

Taper Grip® Bushing

Introduction

The keyless Taper-Grip® bushing system provides simple and reliable shaft attachment for Sumitomo Speed reducers and gearmotors. This system allows bi-directional shaft rotation and stop-start operation with a powerful, slip-free grip. To assure peak performance of your equipment, please read, understand and follow these installation instructions.

Safety

Disconnect all power sources from the equipment before beginning this installation procedure. Handle the components with care and avoid all sharp or machined edges to prevent personal injury or damage to the components.

Before Installing Unit on Driven Shaft (Steps 1-5)

Carefully inspect the driven equipment shaft. Remove all burrs, corrosion, lubricants, and foreign matter from the shaft surface. Verify the shaft diameter is within the dimensional tolerances shown in this table:

Table 5.10 Driven Shaft Tolerances

Shaft Diameter (inches)	Shaft Tolerance (inches)
3/4" – 1 1/8"	+0" – 0.005"
1 3/16" – 2"	+0" – 0.006"
2 1/16" – 3 1/8"	+0" – 0.007"
3 3/16" – 4-3/4"	+0" – 0.008"
4 13/16" – 6-1/2"	+0" – 0.009"

Clean all surfaces of the shaft, the bushing, the thrust collar and the unit bore with solvent to remove all grease and oil. **Do not apply lubricants, corrosion preventatives, anti-sieze compounds or coatings to the mating surfaces of the shaft, bushing, thrust collar or unit bore.**

Step 1 – Remove the capscrews from the bushing. Lightly oil the threads of the capscrews and partially re-insert them into the threaded holes in the bushing flange. The ends of the capscrews should not extend beyond the rear face of the bushing flange.

Step 2 – Slide the thrust collar onto the Taper-Grip® bushing (see Fig. 5.3).

Step 3 – Carefully thread the Taper-Grip® bushing into the hub of the speed reducer or gearmotor until the thrust collar solidly engages the unit hub surface and the bushing flange (see Fig. 5.4). **Caution: Do not cross-thread. Bushing should thread easily into hub.**

Step 4 – Unscrew the Taper-Grip® bushing to create a 1mm (0.04") gap between the thrust collar and the bushing flange.

Step 5 – Hand-tighten the cap screws until they firmly press the thrust collar against the unit hub surface. The unit is ready for installation on the driven shaft.

Fig. 5.2 Taper-Grip® Bushing Parts

Fig. 5.3 Slide Thrust Collar on Bushing

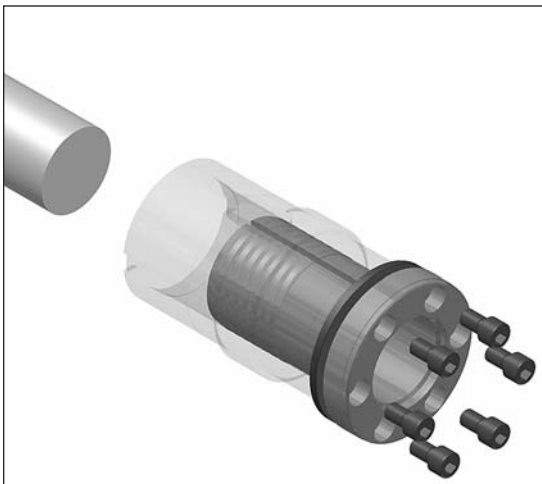


Fig. 5.4 Thread Bushing into Hub

Taper Grip® Bushing continued

Unit Installation

Step 6 – Position unit with the bushing flange located on the outboard side of the unit. Align the bushing with the driven shaft. Slide the unit onto the driven shaft as close to the driven shaft support bearing as possible. Ideally, the driven shaft should extend beyond the bushing flange face (see Fig. 5.6). Refer to Fig. 5.5 and Table 5.11 below for minimum shaft to engagement.

Table 5.11 Minimum Shaft to Bushing Engagement

HBB Model	Minimum Shaft Engagement	
	mm	inches
Z	112.5	4.43
A	126	4.96
B	143	5.63
C	186	7.32
D	204	8.03
E	224	8.82

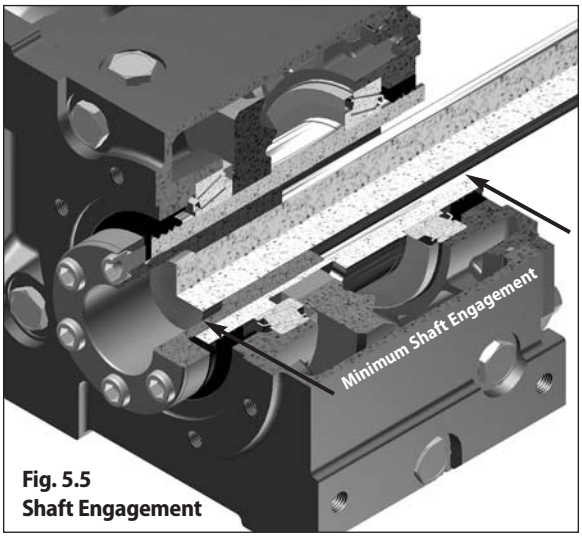


Fig. 5.5
Shaft Engagement

Step 7 – With a torque wrench, gradually tighten the capscrews to engage the bushing system. Use the appropriate tightening pattern ("star-pattern" see Fig. 5.6) to assure complete bushing engagement. Tighten each capscrew to the torque values shown in this Table 5.12.

Table 5.12 Capscrew Tightening Torques

HBB Model	Capscrews (JIS Grade 12.9)		CapscrewTorque	
	Qty.	Size	Nm	Lb.Ft.
Z	6	M10x14	50	37
A	6	M12x16	75	56
B	6	M12x16	140	104
C	6	M16x20	250	185
D	6	M16x20	250	185
E	8	M16x20	250	185

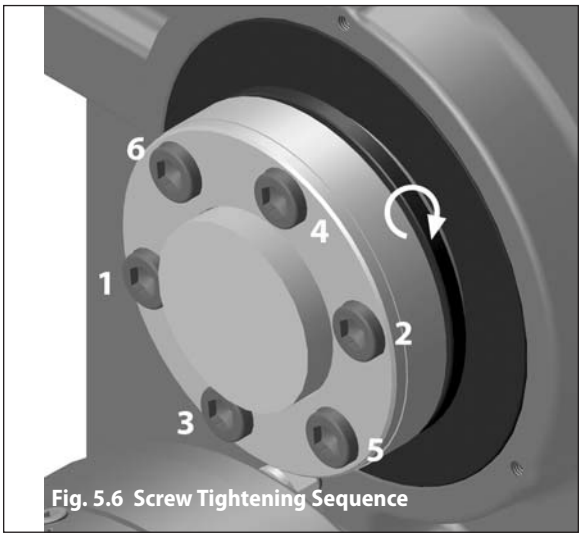


Fig. 5.6 Screw Tightening Sequence

If the shaft is recessed in the bushing, fill the void with grease to prevent corrosion and fouling.

Step 8 – Please read, understand and follow the instructions shown in the reducer/gearmotor installation and operating manual to complete the unit installation and attach the torque arm.

Taper Grip® Bushing continued

Removal Procedure

Step 1 – Before removing the reducer/gearmotor from the driven shaft, externally support the unit so that all its weight is removed from the driven shaft (see Fig. 5.7). **Caution: Do not raise the unit too high. It may cause the shaft to bind.**

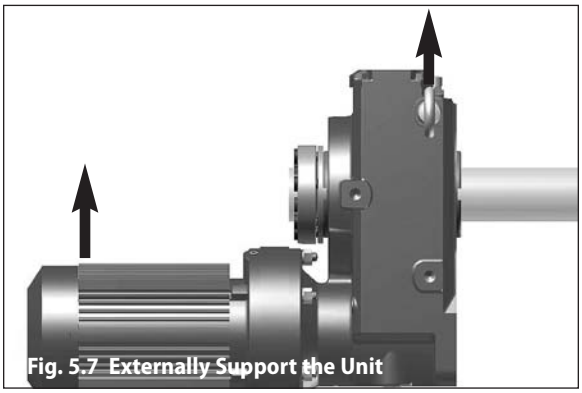


Fig. 5.7 Externally Support the Unit

Step 2 – Check the Taper-Grip® Bushing to assure that there is a gap between the thrust collar and the bushing flange. If no gap exists, unit removal may be difficult (see Fig 5.8).

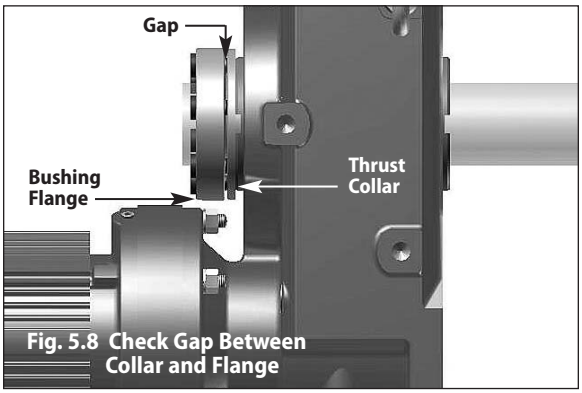


Fig. 5.8 Check Gap Between Collar and Flange

Step 3 – Spray a liquid penetrant onto each of the Taper-Grip® Bushing capscrews. Allow time for the penetrant to settle into the threads of the capscrews. (see Fig 5.9).

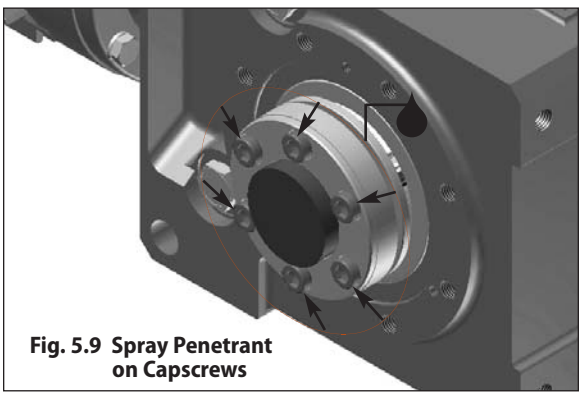


Fig. 5.9 Spray Penetrant on Capscrews

Step 4 – After the liquid penetrant has been allowed to settle, remove the capscrews one at a time (see Fig 5.10).

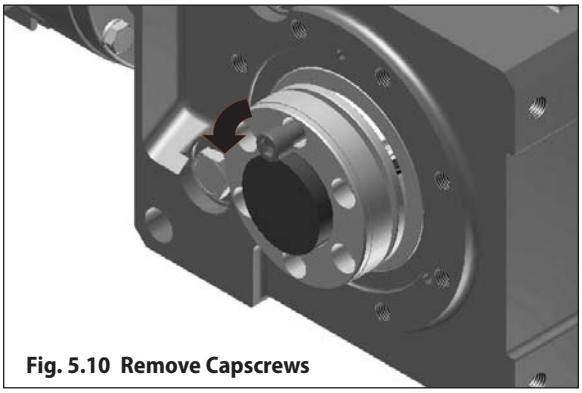


Fig. 5.10 Remove Capscrews

Step 5 – Place a copper or brass bar against the flange of the Taper-Grip® Bushing and carefully strike end of bar with a hammer to release bushing (see Fig 5.11).

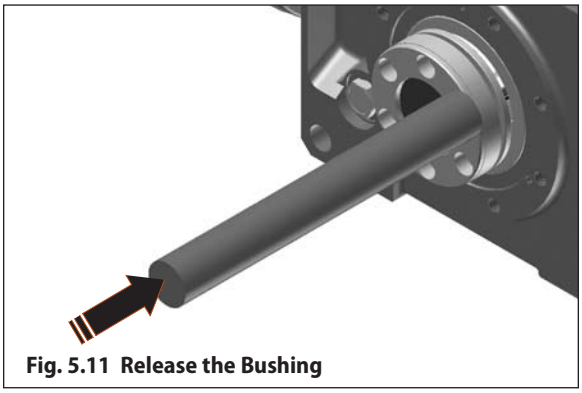


Fig. 5.11 Release the Bushing

Step 6 – After releasing the bushing, apply a liquid penetrant to the shaft where it contacts the bushing. Allow time for the liquid to penetrate between the bushing and the shaft, then carefully slide the unit off of the shaft. (see Fig 5.12). **Note: If the bushing releases, but the unit cannot be removed from the shaft, apply a puller to the bushing to push the shaft free.**

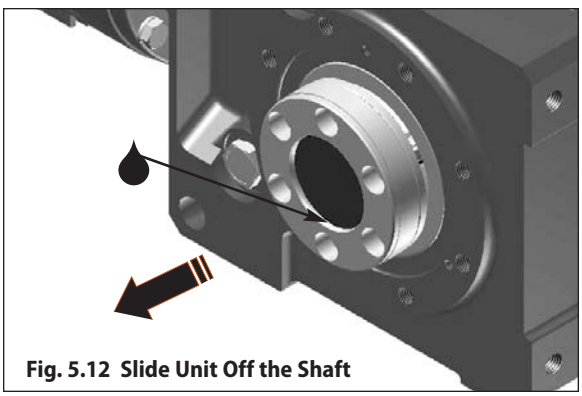


Fig. 5.12 Slide Unit Off the Shaft

Parts List

General Construction
Helical Gear Output Section

Figure 5.7 Helical Gear Output Section

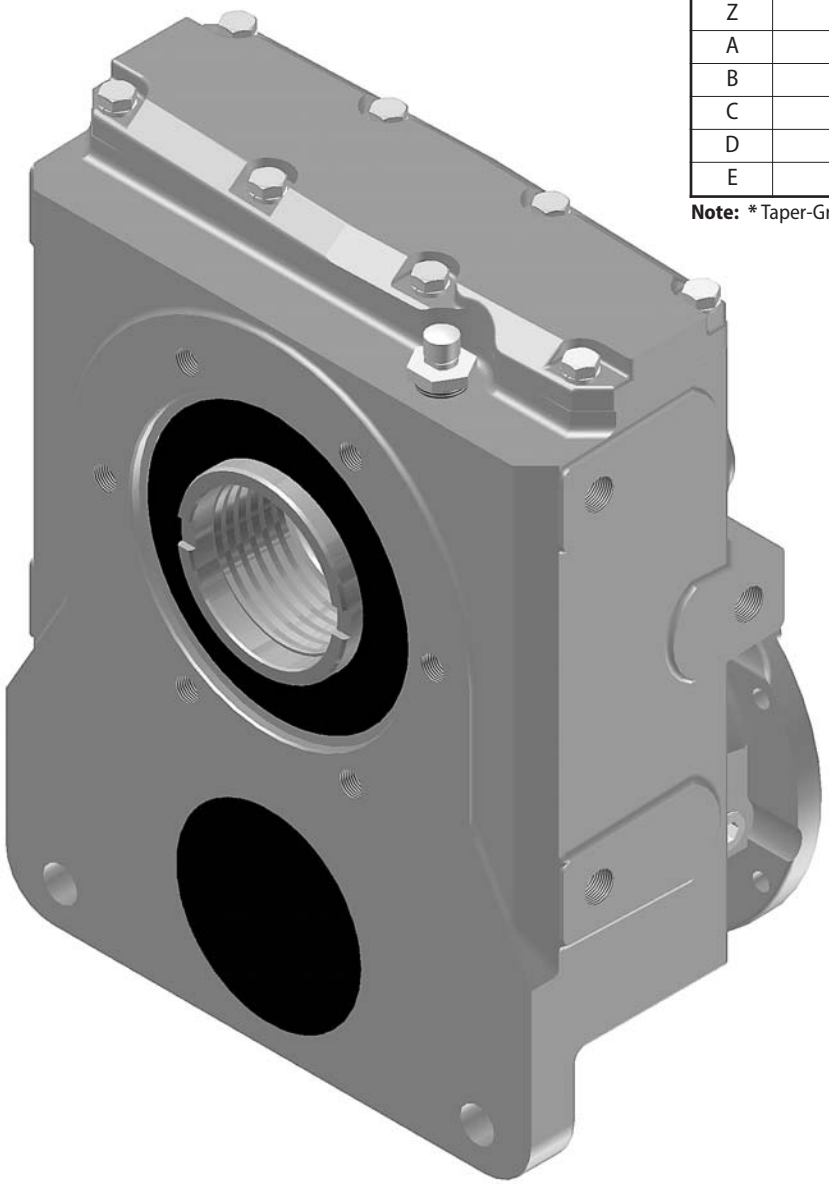


Table 5.13 Helical Gear Output Assembly Part Numbers

Unit Size	Output Assembly Part Number*
Z	037L0004
A	037A0004
B	037B0004
C	037C0004
D	037D0004
E	037E0004

Note: * Taper-Grip® Bushing not included.

Cyclo® Parts List

Cyclo® Reducer Input Section

Single Reduction

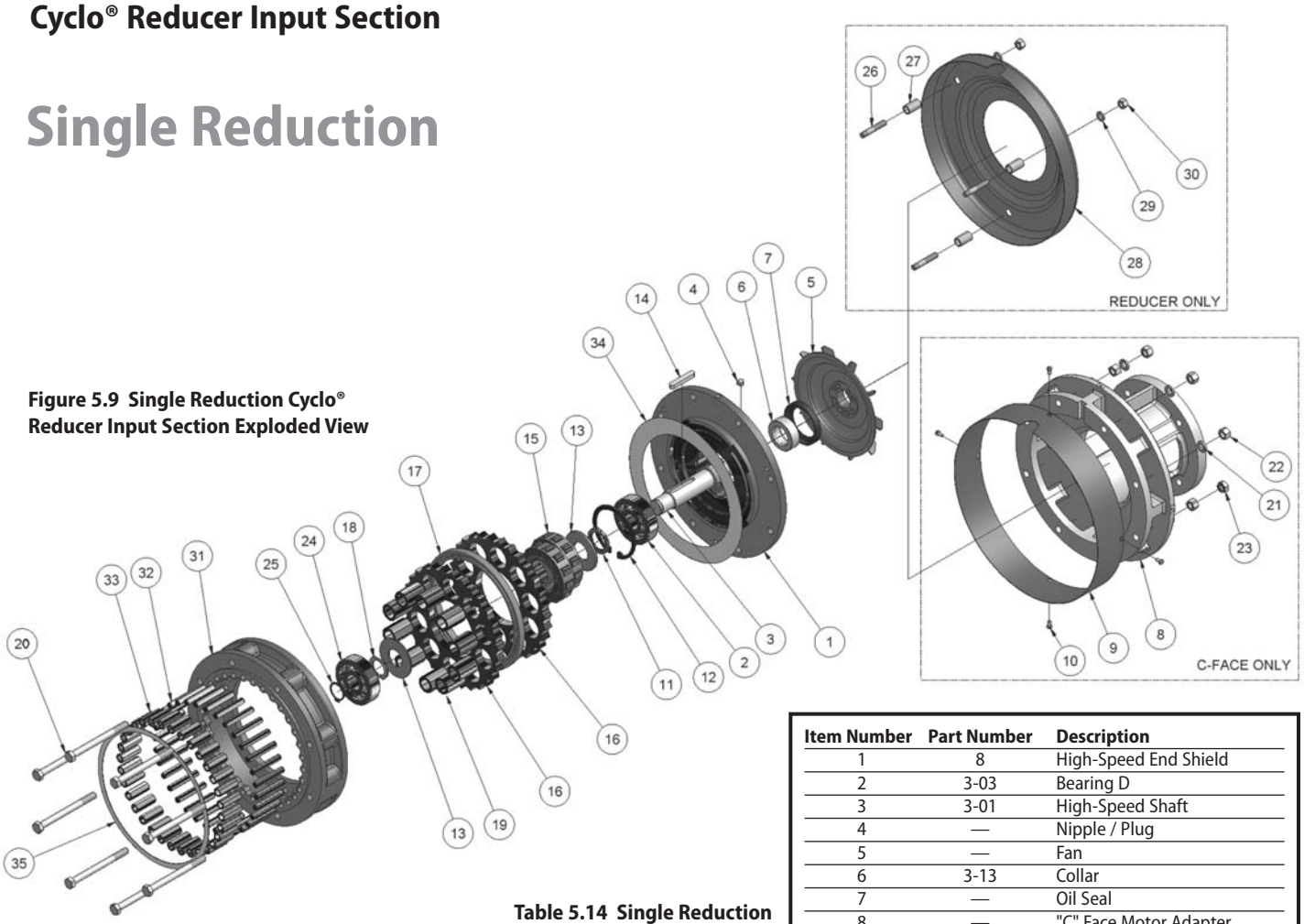


Figure 5.9 Single Reduction Cyclo® Reducer Input Section Exploded View

Table 5.14 Single Reduction Input Section Main Parts

Item Number	Part Number	Description
1	8	High-Speed End Shield
2	3-03	Bearing D
3	3-01	High-Speed Shaft
4	—	Nipple / Plug
5	—	Fan
6	3-13	Collar
7	—	Oil Seal
8	—	"C" Face Motor Adapter
9	—	Fan Shroud
10	—	Shroud Bolts/Screws
11	3-08	Spacer
12	3-11	Snap Ring
13	—	Endplate
14	3-05	Eccentric Key
15	3-04	Eccentric Cam Assembly
16	2-04	Cycloid Discs
17	2-05	Disc Spacer
18	3-09	Spacer
19	—	Slow Speed Shaft Rollers
20	—	Housing Bolts
21	—	Washers
22	—	Nuts
23	—	Locknut
24	3-02	Bearing C
25	3-10	Snap Ring
26	—	Tap-End Stud
27	—	Fan Spacer
28	—	Fan Cover
29	—	Washers
30	—	Nuts
31	2-01	Ring Gear Housing
32	2-02	Ring Gear Pins
33	2-03	Ring Gear Rollers
34	—	Gasket*
35	—	Gasket*
		*Supplied as a set only

Cyclo® Reducer Input Section

Double Reduction

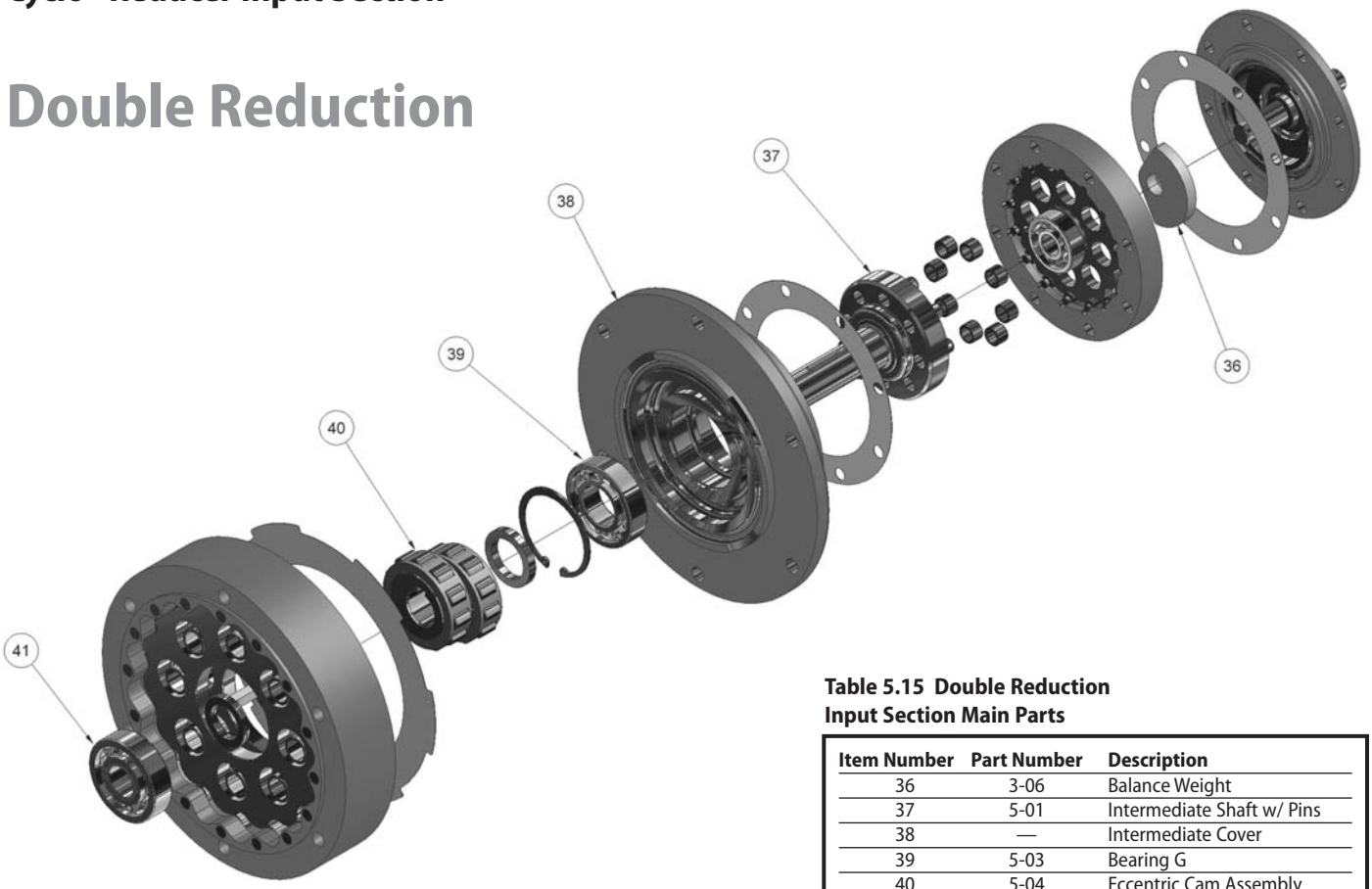


Table 5.15 Double Reduction Input Section Main Parts

Item Number	Part Number	Description
36	3-06	Balance Weight
37	5-01	Intermediate Shaft w/ Pins
38	—	Intermediate Cover
39	5-03	Bearing G
40	5-04	Eccentric Cam Assembly
41	5-02	Bearing F

Figure 5.10 Double Reduction Cyclo® Reducer Input Section Exploded View

Note: The parts listed are a general representation of the components found in a single and double reduction Cyclo®.

Specific units may or may not contain all shown here.

Please consult the factory for specific part questions.

Motor

Standard Motor Data

Table 5.16 Single Phase, 115/230V, Synchronous Speed, 1800 RPM, 60 Hz, TEFC

HP	RPM	Frame Size	Full Load Amp.		Inertia WR²
			115V	230V	lb•in²
1/8	1750	S-71S	3.8	1.9	5.13
1/4		S-71S	4.8	2.4	5.13
1/3		S-71	6.5	3.2	7.69
1/2		S-71	7.8	3.9	7.69
3/4		S-90	10.8	5.4	20.5
1		S-90	12.8	6.4	20.5

Table 5.17 230/460V, Synchronous Speed 1800 RPM, 60 Hz, Continuous Duty, TEFC

HP	Frame Size	Full Load		Current (A)			Starting Torque	Breakdown Torque	Efficiency	Power Factor	NEMA Code	Inertia WR²
		Rated RPM	Torque in•lbs	Full Load 230V	Full Load 460V	Starting % of FL	(% of FL)	(% of FL)	%	%	Letter	lb•in²
1/8**	F-63S	1730	4.54	0.66	0.33	424%	326%	329%	64.0%	59.5%	K	1.11
1/4	F-63M	1730	9.11	1.1	0.56	468%	300%	293%	69.7%	64.8%	K	1.71
1/3	F-63M	1710	12.2	1.2	0.61	433%	237%	232%	72.1%	70.9%	G	1.71
1/2	F-71M	1740	18.1	2.1	1.1	471%	295%	280%	72.8%	69.6%	J	2.22
3/4	F-80S	1730	27.4	2.5	1.2	500%	266%	245%	76.9%	73.0%	H	3.45
1	F-80M	1750	36.0	3.4	1.7	522%	278%	303%	77.3%	72.3%	H	4.10
1.5	F-90S	1730	54.7	4.6	2.3	611%	263%	281%	80.0%	74.4%	J	6.32
2	F-90L	1740	72.4	6.0	3.0	609%	263%	270%	82.4%	75.6%	J	7.28
3	F-100L	1730	109	8.4	4.2	643%	269%	262%	84.1%	77.8%	J	11.4
5	F-112M	1730	181	13.1	6.5	695%	283%	281%	86.6%	82.2%	J	29.0
7.5	F-132S	1710	276	18.1	9.0	661%	223%	221%	86.7%	88.2%	H	39.0
10	F-132M	1740	361	23.6	11.8	623%	212%	214%	89.6%	88.9%	G	91.6
15	F-160M	1740	541	34.3	17.2	673%	248%	221%	90.4%	89.0%	G	128
20	G-160L	1740	722	45.8	22.9	594%	222%	220%	91.6%	89.9%	F	307
25	F-180MG	1730	912	56.0	28.2	630%	230%	212%	90.7%	90.7%	G	769
30	F-180MG	1740	1088	67.0	33.7	793%	303%	275%	90.9%	89.5%	J	769
40	F-180L	1750	1440	93.0	46.3	757%	310%	274%	92.2%	88.3%	H	854

Note: ** 1/8 HP is TENV.

Table 5.18 230/460V, Synchronous Speed 1200 RPM, 60 Hz, Continuous Duty, TEFC

HP	Frame Size	Full Load		Current (A)			Starting Torque	Breakdown Torque	Efficiency	Power Factor	NEMA Code	Inertia WR²
		Rated RPM	Torque in•lbs	Full Load 230V	Full Load 460V	Starting % of FL	(% of FL)	(% of FL)	%	%	Letter	lb•in²
20	F-180MG	1160	1088	52	25.9	629%	263%	254%	91.3%	79.5%	H	1090
25	F-180L	1160	1360	59	29.7	698%	261%	286%	90.9%	86.0%	H	1240
30	F-180L	1170	1618	71	35.6	713%	273%	297%	92.4%	83.8%	H	1240
40	F-200L	1180	2138	95	47.6	740%	318%	305%	93.1%	85.0%	H	1620

CSA Approved Motor Data

Table 5.19 CSA Approved Motors
230/460V, Synchronous Speed 1800 RPM, 60 Hz, Continuous Duty, TEFC

HP	Frame Size	Full Load		Current (A)				Starting Torque	Breakdown Torque	Efficiency	Power Factor	NEMA Code	Inertia WR²
		Rated RPM	Torque in•lbs	Full Load 230V	Full Load 460V	No Load % of FL	Starting % of FL	(% of FL)	(% of FL)	%	%	Letter	lb•in²
1/8**	F-63S	1720	4.59	0.71	0.35	90%	451%	378%	393%	65.5%	54.1%	M	1.11
1/4	F-63M	1730	9.10	1.20	0.60	86%	450%	309%	343%	69.4%	60%	K	1.71
1/3	F-63M	1710	12.20	1.30	0.65	79%	415%	244%	272%	71.3%	67.4%	H	1.71
1/2	F-71M	1700	18.60	2.10	1.10	81%	481%	343%	331%	75.2%	63.1%	J	2.22
3/4	F-80S	1700	28.20	2.60	1.30	71%	512%	263%	272%	75.4%	71.4%	H	3.45
1	F-80M	1700	37.10	3.60	1.80	75%	572%	341%	315%	78.0%	66.8%	K	4.10

Note: ** 1/8 HP is TENV.

Dimensions for CSA units may be different than those specified in Section 3, please consult factory.

Table 5.20 EPACT/EEV Efficiency Motors, CSA Approved
230/460V, Synchronous Speed 1800 RPM, 60 Hz, Continuous Duty, TEFC

HP	Frame Size	Full Load		Current (A)				Starting Torque	Breakdown Torque	Efficiency	Power Factor	NEMA Code	Inertia WR²
		Rated RPM	Torque in•lbs	Full Load 230V	Full Load 460V	No Load % of FL	Starting % of FL	(% of FL)	(% of FL)	%	%	Letter	lb•in²
1	FA-80M	1740	36.3	3.24	1.62	67%	676%	331%	378%	84.5%	68.7%	K	7.28
1.5	FA-90S	1740	54.4	4.58	2.29	65%	679%	319%	364%	85.7%	71.1%	K	11.4
2	FA-90L	1730	72.8	5.81	2.91	60%	714%	271%	306%	86.6%	74.9%	K	11.4
3	FA-100L	1750	108	8.1	4.05	57%	879%	310%	406%	89.1%	76.4%	L	29.0
5	FA-112M	1740	181	12.7	6.35	45%	781%	302%	330%	89.5%	81.6%	J	39.0
7.5	FA-132S	1750	269	18.5	9.23	46%	795%	309%	345%	90.7%	82.5%	J	91.6
10	FA-132M	1750	359	24.5	12.2	39%	824%	284%	303%	90.4%	85.1%	K	128
15	G-160L	1770	532	35.9	18.0	42%	928%	335%	335%	92.9%	82.7%	K	307
20	G-160L	1770	710	48.7	24.3	41%	982%	351%	354%	92.8%	83.5%	L	307
25	F-180L	1780	884	60.8	30.4	40%	803%	336%	305%	92.4%	82.7%	J	854
30	F-180L	1780	1063	70.8	35.4	34%	689%	282%	256%	92.4%	84.5%	H	854
40	F-200L	1780	1415	98.1	49.1	38%	739%	288%	279%	93.4%	82.1%	J	1052

Motor continued

CSA Approved Motor Data continued

Table 5.21 CSA Approved Motors
575V, Synchronous Speed 1800 RPM, 60 Hz, Continuous Duty, TEFC

HP	Frame Size	Full Load		Current (A)			Starting Torque	Breakdown Torque	Efficiency	Power Factor	NEMA Code	Inertia WR^2
		Rated RPM	Torque in•lbs	Full Load	No Load % of FL	Starting % of FL	(% of FL)	(% of FL)	%	%	Letter	lb•in2
1/8**	F-63S	1720	4.59	0.28	90%	458%	376%	391%	65.3%	54.1%	M	1.11
1/4	F-63M	1720	9.17	0.48	86%	459%	316%	340%	69.4%	60.3%	K	1.71
1/3	F-63M	1710	12.20	0.52	79%	422%	250%	270%	71.3%	67.4%	H	1.71
1/2	F-71M	1700	18.60	0.79	76%	468%	309%	300%	75.8%	67.4%	J	2.22
3/4	F-80S	1700	28.20	1.00	74%	530%	260%	268%	75.1%	71.6%	H	3.45
1	F-80M	1680	37.60	1.30	65%	508%	252%	256%	78.1%	74.9%	H	4.10

Dimensions for 575 and CSA units may be different than those specified in Section 3, please consult factory.

Table 5.22 EPACT/EEV Efficiency Motors, CSA Approved
575V, Synchronous Speed 1800 RPM, 60 Hz, Continuous Duty, TEFC

HP	Frame Size	Full Load		Current (A)			Starting Torque	Breakdown Torque	Efficiency	Power Factor	NEMA Code	Inertia WR^2
		Rated RPM	Torque in•lbs	Full Load	No Load % of FL	Starting % of FL	(% of FL)	(% of FL)	%	%	Letter	lb•in2
1	FA-80M	1740	36.1	1.29	70%	690%	320%	379%	84.8%	68.2%	K	7.28
1.5	FA-90S	1740	54.4	1.84	63%	674%	319%	364%	85.7%	71.1%	K	11.4
2	FA-90L	1730	72.7	2.36	59%	703%	326%	371%	86.1%	73.6%	K	11.4
3	FA-100L	1750	108	3.26	50%	844%	354%	417%	87.9%	78.5%	L	29.0
5	FA-112M	1740	181	5.17	39%	774%	295%	346%	88.7%	81.7%	J	39.0
7.5	FA-132S	1750	269	7.47	47%	712%	288%	331%	89.9%	83.6%	H	91.6
10	FA-132M	1760	358	9.68	40%	851%	314%	340%	91.5%	84.5%	K	128
15	G-160L	1770	532	14.7	41%	925%	338%	338%	92.8%	82.7%	L	307
20	G-160L	1770	711	19.2	39%	927%	327%	330%	93.0%	84.5%	K	307
25	F-180L	1780	884	24.5	39%	776%	330%	285%	92.7%	82.9%	J	854
30	F-180L	1780	1063	28.9	33%	657%	275%	237%	92.5%	84.5%	H	854
40	F-200L	1780	1414	38.8	38%	714%	283%	274%	93.5%	83.0%	H	1052

Standard Wiring Diagrams

Illustrated below are the wiring diagrams for our standard motors, for additional information please refer to the motor name plate. Due to changes in design features, this diagram may not always agree with that on the motor. If different, the motor diagram found inside the conduit box cover is correct.

3-Phase Motors (230/460 V)

Figure 5.11 Y-Connected (5 HP and smaller)

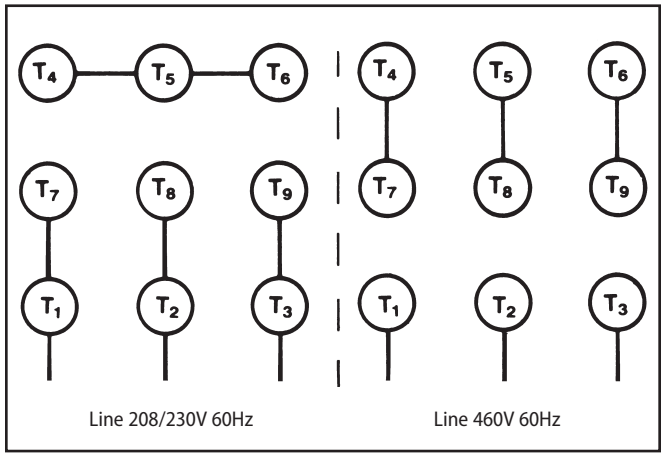
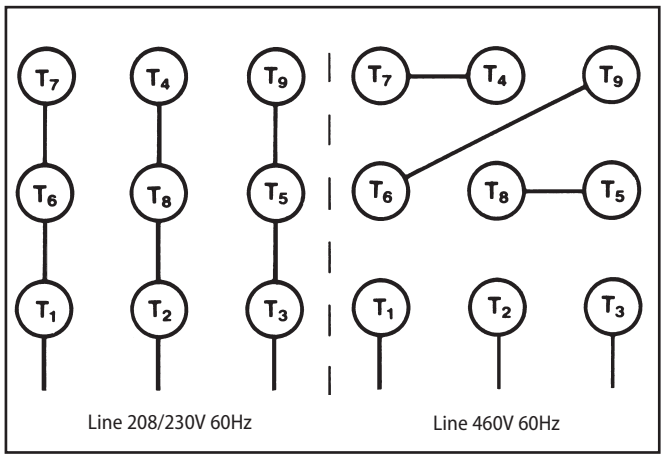
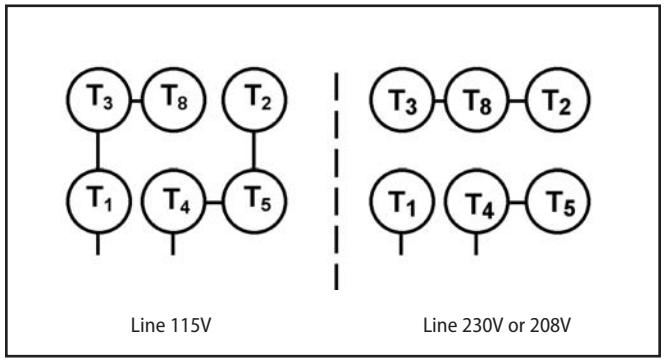


Figure 5.12 Delta-Connected (7.5 HP and larger)



Single Phase Motors

Figure 5.13 Single Phase Motor Wiring Diagram



Motor continued

Motor Thermal Rating (C x Z)

Table 5.23 Motor Thermal Rating (C x Z)

Motor Power HP	Allowable C x Z				Motor Moment of Inertia lb•in²	
	35% ED[1]	35%~50% ED[1]	50~80% ED[1]	80~100% ED[1]	Standard	with Brake
1/8	3200	3000	2000	1200	1.11	1.20
1/4	2200	2800	2800	2500	1.71	1.88
1/3	2200	2800	2800	2500	1.71	1.88
1/2	1800	2200	1500	1500	2.22	2.31)
3/4	1800	2200	1500	1500	3.45	3.79
1	1400	1400	800	500	4.10	4.44
1.5	1400	1400	800	500	6.32	7.11
2	1200	1200	500	400	7.28	8.03
3	1000	900	400	200	11.4	12.8
5	800	800	800	700	29.0	32.7
7.5	300	300	200	150	39.0	42.7
10	400	350	300	300	91.6	104
15	200	200	150	150	128	140

Note: [1] % ED = duty cycle.

The calculated C x Z value (steps 1 – 3 outlined below) should be less than the allowable value listed in Motor Thermal Rating table above.

1. **Obtain the C value:**

$$C = \frac{I_M + I_L}{I_M}$$

I_M = Moment of Inertia of Motor.
I_L = Total Moment of Inertia of Load as seen from the motor.

2. **Obtain the Z value (number of starts per hour):**

(a) Assume that one operating period consists of "on-time" ta (sec.), "off-time" tb (sec.) and the motor is started nr (times/sec.).

$$Zr = \frac{3600nr}{ta + tb} \text{ (times/hour)}$$

(b) When inching, ni (times/cycle) is included in 1 cycle (ta + tb), the number of inching times per hour Zi, is then included in the number of starts.

$$Zi = \frac{3600ni}{ta + tb} \text{ (times/hour)}$$

(c) Calculate Z by adding Zr to Zi.

$$Z = Zr + \frac{1}{2}\ Zi = \frac{3600}{ta + tb} \cdot \left(nr + \frac{1}{2}\ ni \right) \text{ (times/hour)}$$

3. **Calculate C multiplied by Z:**

Use the value of C obtained in step (1) and Z from step (2)

4. **Obtain the duty cycle %ED** and check with Motor Thermal Rating table above.

$$\%ED = \frac{ta}{ta + tb} \times 100$$

ta = on-time
tb = off-time

Brakemotor Characteristics

The brakemotor on Cyclo® HBB gearmotors operates with direct current supplied by a dual voltage rectifier mounted in the motor conduit box.

The standard brake input voltage is 208V OR 230V OR 460V at 60 Hz.

When used for outdoor installations, our standard brakemotor must be protected with some type of covering. Such type of coverings are available from the factory, please inquire when ordering.

Note: Advise the factory when ordering if you require larger or smaller brake torque than those shown as standard in the Brakemotor Characteristics table below.

Table 5.24 Brakemotor Characteristics

HP	Type		Brake Torque		Inertia WR2	Brake Delay Time (sec)		Coil Current (AC Amperage)		
			Standard	Maximum		Normal Braking Action	Fast Braking Action	208V	230V	460V
	Frame	Model	ft•lbs	ft•lbs	lb•in2					
1/8	F-63S	FB-01A	0.7	1.0	1.20	0.15~0.2	0.015~0.02	0.06	0.06	0.04
1/4	F-63M	FB-02A	1.5	2.0	1.88	0.15~0.2	0.015~0.02	0.1	0.1	0.06
1/3	F-63M	FB-02A	1.5	2.9	1.88	0.15~0.2	0.015~0.02	0.1	0.1	0.06
1/2	F-71M	FB-05A	3.0	2.9	2.31	0.1~0.15	0.01~0.015	0.1	0.1	0.06
3/4	F-80S	FB-1B	5.5	7.7	3.79	0.2~0.3	0.01~0.02	0.1	0.1	0.1
1	F-80M	FB-1B	5.5	7.7	4.44	0.2~0.3	0.01~0.02	0.1	0.1	0.1
1.5	F-90S	FB-2B	11	14.0	7.11	0.2~0.3	0.01~0.02	0.3	0.3	0.2
2	F-90L	FB-2B	11	14.0	8.03	0.2~0.3	0.01~0.02	0.3	0.3	0.2
3	F-100L	FB-3B	16	21.0	12.7	0.3~0.4	0.01~0.02	0.4	0.4	0.2
5	F-112M	FB-5B	27	36.0	32.7	0.4~0.5	0.01~0.02	0.4	0.5	0.3
7.5	F-132S	FB-8B	41	53.0	42.7	0.3~0.4	0.01~0.02	0.4	0.5	0.3
10	F-132M	FB-10B	55	72.0	104	0.7~0.8	0.03~0.04	0.7	0.8	0.5
15	F-160M	FB-15B	81	81.0	140	0.5~0.6	0.03~0.04	0.7	0.8	0.5
20	G-160L	CMB-20	74	80.0	455	0.6~0.8	0.1~0.15	1.5	1.7	1.9
25	F-180L	ESB220	92	—	793	0.075	—	—	0.947	—
30	F-180L	ESB220	111	—	793	0.075	—	—	0.947	—
40	F-180L	ESB220	148	—	878	0.075	—	—	0.947	—

Motor continued

Brakemotor Standard Wiring Connection, Dual Voltage

Models FB-01A through FB-15B

Figure 5.14 Normal Brake Action, 230V, 575V

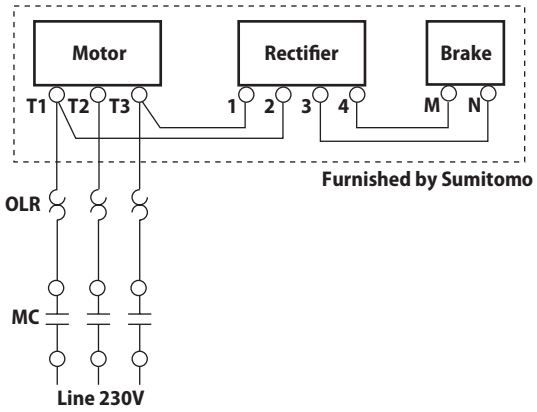


Figure 5.15 Fast Brake Action, 230V

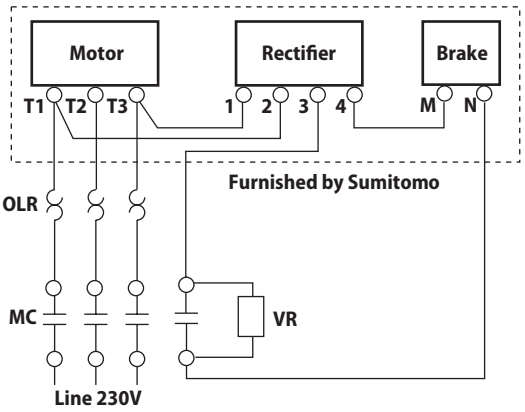


Figure 5.16 Normal Brake Action, 460V

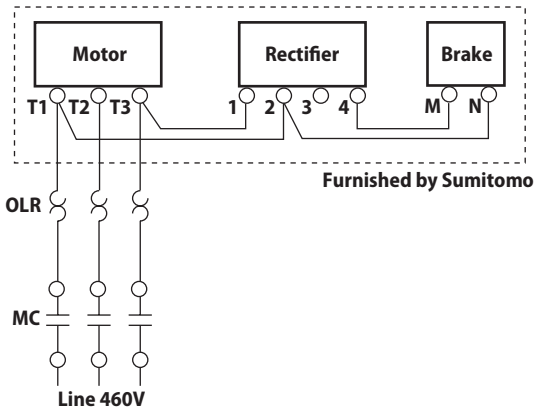
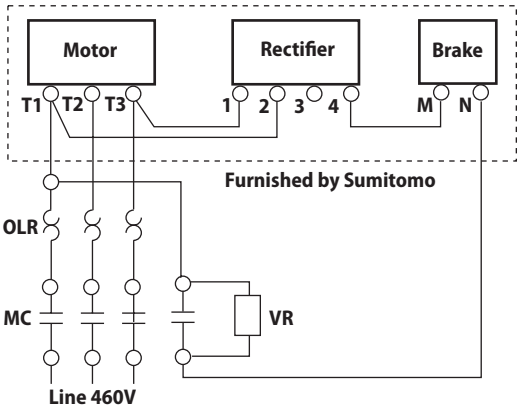


Figure 5.17 Fast Brake Action, 460V, 575V



MC: Electromagnetic Relay
MCB: Magnetic Circuit Breaker
OLR: Overload or Thermal Relay
VR: Varistor (protective device)[1]

Note: [1] Refer to Varistor Specifications Table

Table 5.25 Varistor Specifications Table

Operating Voltage		220-230V	380-460V	575V
Varistor Rated Voltage		AC260-300V	AC510V	AC604V
Varistor Voltage		430-470V	820V	1000V
Rated Watt	FB01A, 02A	Over 0.2W	Over 0.4W	Over 0.4W
	FB-05A	Over 0.2W	Over 0.4W	Over 0.4W
	FB-1B	Over 0.4W	Over 0.6W	Over 0.4W
	FB-2B, 3B	Over 0.6W	Over 1.5W	Over 0.6W
	FB-5B, 8B	Over 0.6W	Over 1.5W	Over 1.5W
	FB10B, 15B	Over 1.0 W	Over 1.5W	Over 1.5W

Brakemotor Standard Wiring Connection, Dual Voltage continued

Models CMB-20

Figure 5.18 Normal Brake Action, 230V, 575V

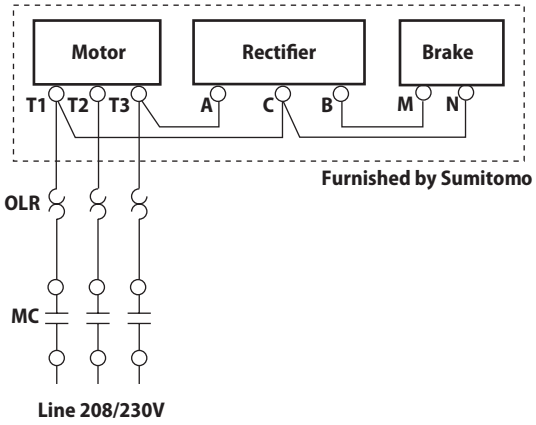


Figure 5.19 Fast Brake Action, 230V

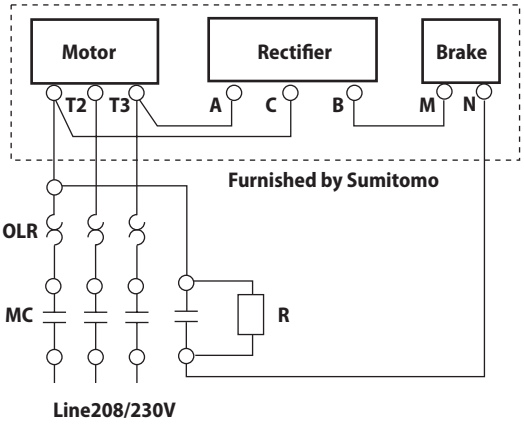


Figure 5.20 Normal Brake Action, 460V

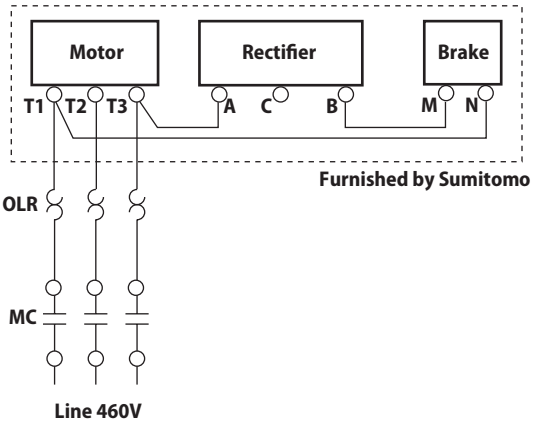
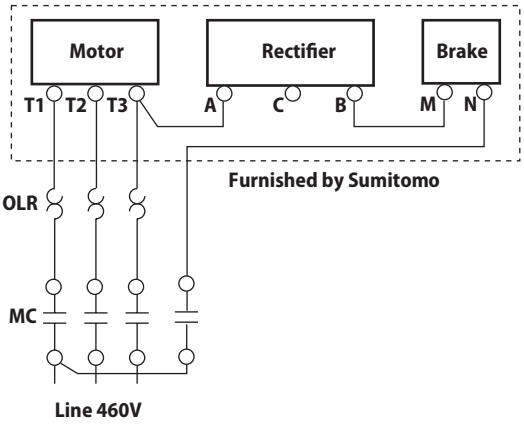


Figure 5.21 Fast Brake Action, 460V



Motor continued

Brakemotor Standard Wiring Connection, Dual Voltage continued

FB Brake (1/8 to 15 HP) with Inverter

Figure 5.22 Normal Brake Action, 230V, 575V

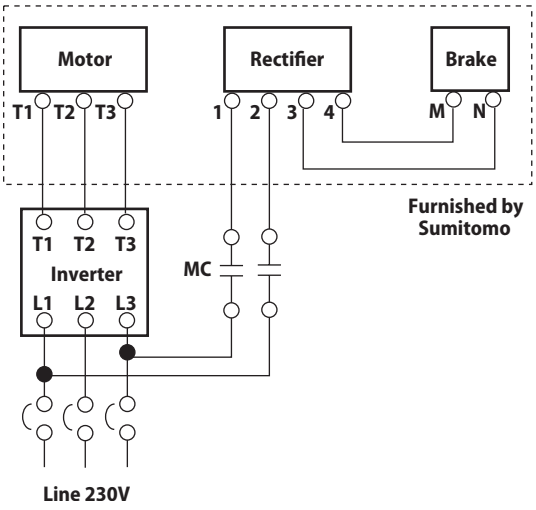


Figure 5.23 Fast Brake Action, 230V, 575V

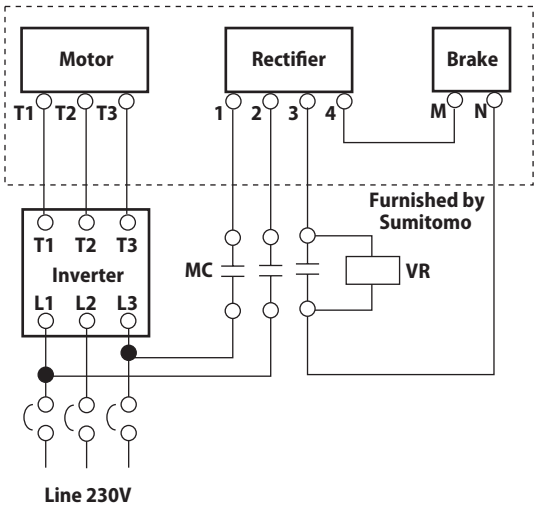


Figure 5.24 Normal Brake Action, 460V

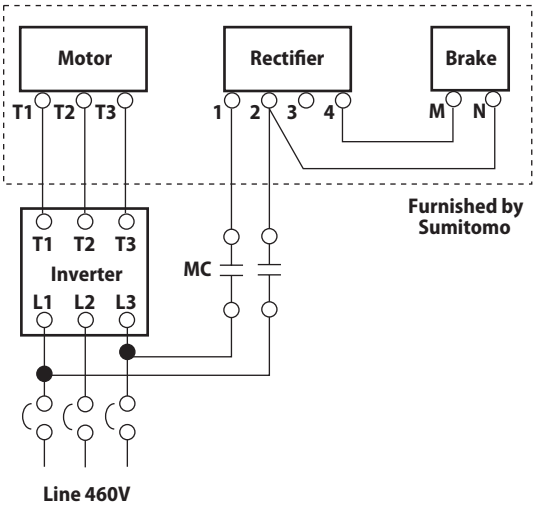
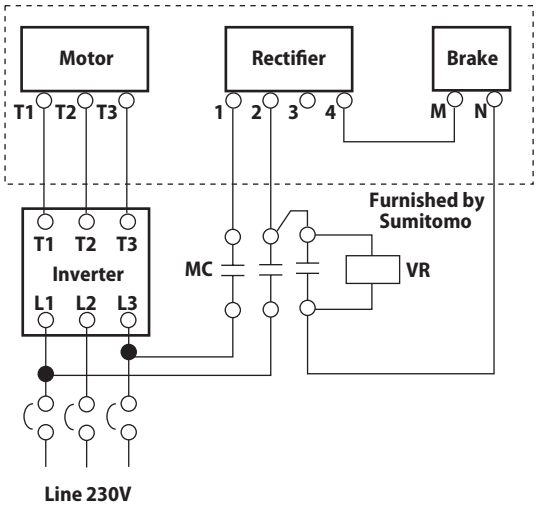


Figure 5.25 Fast Brake Action, 460V



MC: Electromagnetic Relay
MCB: Magnetic Circuit Breaker
VR: Varistor (protective device)[1]

Note: [1] Refer to Varistor Specifications Table on pg. 5.16

Motor continued

Table 5.26 Rectifier Data

Brake Type	Motor (HP X P)	Rectifier Model 230V/460V	Rectifier P. N. Number	Rectifier Model 575V	Rectifier P. N. Number
FB-01A	1/8 x 4	25FW - 4FB	EU986WW-01	05F-5U	EU459WW-01
FB-02A	1/4 x 4 1/3 x 4	25FW - 4FB	EU986WW-01	05F-5U	EU459WW-01
FB-05A	1/2 x 4	25FW - 4FB	EU986WW-01	05F-5U	EU459WW-01
FB-1B	3/4 x 4 1 x 4	25FW - 4FB	EU986WW-01	05F-5U	EU459WW-01
FB-2B	1.5 x 4 1 x 4	25FW - 4FB	EU986WW-01	05F-5U	EU459WW-01
FB-3B	3 x 4	25FW - 4FB	EU986WW-01	05F-5U	EU459WW-01
FB-5B	5 x 4	25FW - 4FB	EU986WW-01	05F-5U	EU459WW-01
FB-8B	7.5 x 4	25FW - 4FB	EU986WW-01	05F-5U	EU459WW-01
FB-10B	10 x 4	25FW - 4FB	EU986WW-01	10F-6FBU	EU452WW-01
FB-15B	15 x 4	25FW - 4FB	EU986WW-01	10F-6FBU	EU452WW-01
CMB-20	20 x 4	SB25F-3HS	DN937WW-G01	SB25-6H	DN934WW-G01

Lubrication

Oil lubricated models are not filled with oil prior to shipping.

Before operating, fill the unit with the appropriate amount of the correct lubricant for the mounting position (see Table 5.27 and 5.29). When operating in winter or other relatively low ambient temperatures, use the lower viscosity oil specified for each ambient temperature range. Please consult the factory if the unit will be operated consistently in ambient temperatures other than 32°F–104°F.

Table 5.27 Standard Oils

Ambient Temperature (°F)	ChevronTexaco	Exxon Oil	Mobil Oil	Shell Oil	BP Oil
14 to 41°	EP Gear Compound 68	Spartan EP 68	Mobilgear 626 (ISO VG 68)	Omala Oil 68	Energol GR-XP 68
32 to 95°	EP Gear Compound 100, 150	Spartan EP 100 EP 150	Mobilgear 627, 629 (ISO VG 100, 150)	Omala Oil 100, 150	Energol GR-XP 100 GR-XP 150
86 to 122°	EP Gear Compound 220, 320, 460	Spartan EP 220 EP 320 EP 460	Mobilgear 630, 632 633, 634 (ISO VG 220–460)	Omala Oil 220, 320 460	Energol GR-XP 220 GR-XP 320 GR-XP 460

Grease lubricated models are lubricated with grease prior to shipment from the factory.

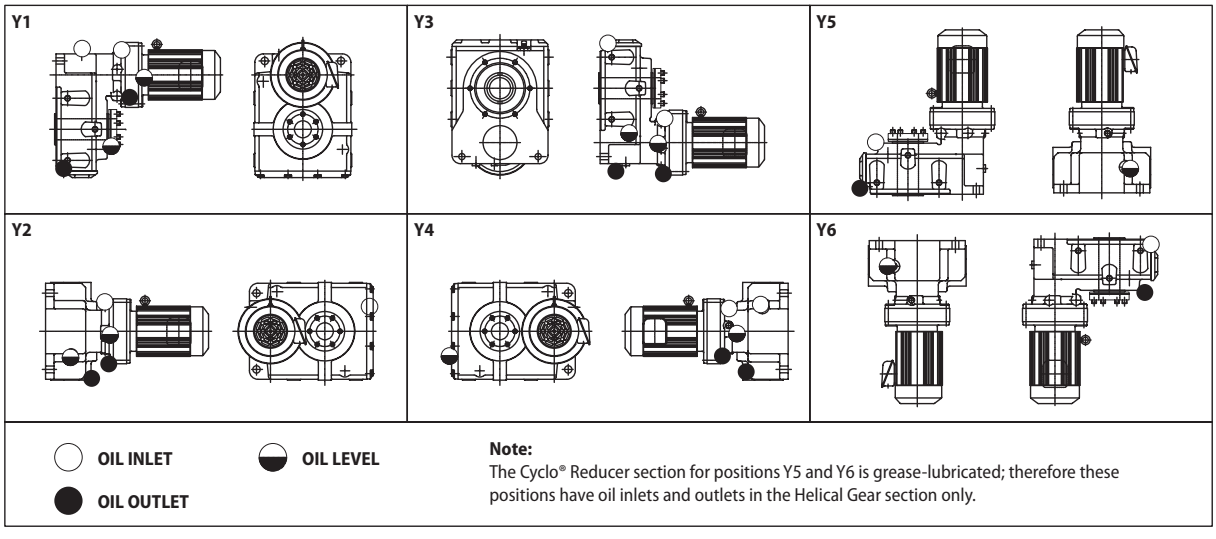
Adding grease prior to initial start-up is not required. If grease must be replenished or changed (see Grease Lubrication section), avoid using greases other than those shown in the Table 5.28. Please consult the factory when the units will be used in widely fluctuating temperatures, ambient temperatures other than those specified in Table 5.28, or when other special conditions exist for the application. When motors from another manufacturer will be used, please consult and adhere to the associated motor maintenance manual for the appropriate lubrication instructions.

Table 5.28 Standard Greases

Ambient Temperature (°F)	Reduction Ratio	Input (Cyclo Side)
14 to 122°	11, 18:1	Shell Alvania EP R0
	21:1 and higher	ExxonMobil Unirex N2 Grease

Figure 5.26

Oil Plug Locations



Note:
The Cyclo® Reducer section for positions Y5 and Y6 is grease-lubricated; therefore these positions have oil inlets and outlets in the Helical Gear section only.

Table 5.29 Oil Fill Quantities Unit: **U.S. Gallons** *G = Grease

Model	Y1		Y2		Y3		Y4		Y5		Y6	
	Output	Input*	Output	Input*	Output	Input*	Output	Input*	Output	Input*	Output	Input*
Z6090/95	0.16	G	0.16	G	0.13	G	0.16	G	0.29	G	0.26	G
A6100/05	0.21	G	0.24	G	0.18	G	0.24	G	0.40	G	0.37	G
B6120/25	0.26	G	0.40	G	0.26	G	0.40	G	0.53	G	0.48	G
C6140/45	0.45	0.11	0.55	0.11	0.34	0.11	0.55	0.11	1.24	G	0.92	G
D6160/65	0.71	0.18	0.92	0.18	0.53	0.18	0.92	0.18	1.85	G	1.45	G
E6170/75	0.92	0.24	1.11	0.24	0.66	0.24	1.11	0.24	2.38	G	1.85	G

Oil lubricated units are shipped without oil. Prior to initial start-up, the unit must be filled with the correct amount of oil (see Table 5.29). For those units where both the gear and Cyclo® portions are oil lubricated, the oil must be filled in two separate locations, one on the gear housing and one on the Cyclo® housing.

The geared (output) portion of all **double reduction units** is oil lubricated and must be filled by the customer with the correct amount of oil (see Table 5.29) prior to initial start-up.

Grease lubricated models are lubricated at the factory. Additional grease does not need to be added prior to initial start-up.

The Cyclo® (Input) portion of all **double reduction units** are grease lubricated at the factory. Additional grease does not need to be added prior to initial start-up.

Oil Replenishment and Change Interval

A. Maintain proper oil levels at all times.

B. An oil change after the first 500 hours of operation is highly recommended.

C. Sumitomo recommends an oil change every 2500 hours, or six months, whichever comes first. If a proper preventive maintenance program is implemented and maintained, a longer change period may be acceptable.

D. If the unit is running in a high ambient, high humidity, or corrosive environment, the lubricant will have to be changed more frequently. Consult the factory for recommendations.

E. Note: The Cyclo® portion and Helical portion, where applicable, must be filled with oil separately. Oil does not flow from one section to the other.

Grease Replenishment and Change Interval

A. On single reduction Cyclo® Helical Buddybox (Cyclo® HBB) sizes Z6090/95. A6100/05 and B6120/25, the Cyclo® portion is grease lubricated as standard and therefore maintenance free. Consult the operations and maintenance manual for the grease change interval.

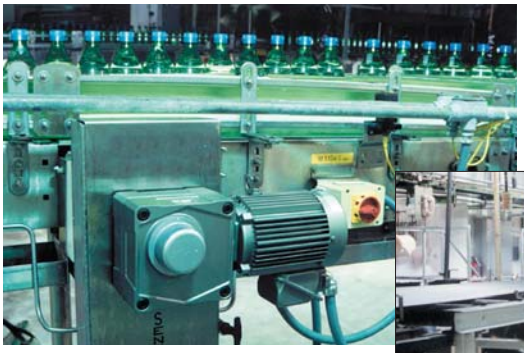
B. When mounting Cyclo® HBB sizes C6140/45, D6160/65 and E6170/75 in the Y5 and Y6 positions, please consult the maintenance and operations manual for the proper grease replenishment and change interval for the Cyclo® portion.

Warranty

Sumitomo warrants that its Cyclo® HBB Speed Reducers will deliver their continuous catalog ratings and up to 300% intermittent SHOCK LOAD CAPACITY, provided they are properly installed, maintained and operated within the limits of speed, torque or other load conditions under which they were sold. Sumitomo further states that Cyclo® HBB Speed Reducers are warranted to be free from defects in material or workmanship for a period of two years from the date of shipment. Sumitomo assumes no liability beyond product repair or replacement under this limited warranty.

For construction purposes, be sure to obtain certified dimension sheets or drawings. Although we take every precaution to include accurate data in our catalog, we cannot guarantee such accuracy. If performance guarantees are required, they should be obtained in writing from the factory. Full consideration will be given to such requests when complete details are given of the proposed installation.

Bottling/Baking



Steel hypoid gear technology, maintenance-free grease lubrication and a compact modular housing makes the Hyponic® an efficient performer in the food industry.

A 15-hp Beier mechanical variable speed drive with electric remote control provides an adjustable, steady speed range for this 350-ft. oven band conveyor.

Water Treatment

Each of these Sumitomo Paramax® speed reducers helps pump up to 13 million gallons a day at this state-of-the-art waste-water treatment facility in the City of Clearwater, Florida.

Cyclo® mixer drives are a key component of this award-winning water treatment facility in Hillsborough County, Florida.

Material Handling

Sumitomo Paramax® reducers provide quiet, reliable operation for both the hoist and trolley drive systems in this 35-ton capacity DC Trolley Hoist used for heavy-duty coil handling service.

Custom Designs

In less than 20 minutes, 96 Sumitomo Cyclo® Bevel Buddybox gearmotors help retract the 13,000-ton roof on Seattle's new Safeco Field .

The Sumitomo gearmotors, on eight travel truck assemblies, turn 128 36" wheels.

Wood Products

Sumitomo Cyclo® drives are an integral part of this manufacturing plant which produces 150,000 board feet of unfinished strip and plank hardwood flooring each week.

Once flooring is side-matched, it is inspected for defects. This conveyor, driven by Sumitomo Cyclo® drives, carries defective material to the hammer mill.

Steel

After molten steel is formed in the five-strand continuous caster at this steel mill, it is conveyed by Sumitomo Cyclo® drives on the auto-torch conveyors where the steel is cut into billets.

WORLDWIDE LOCATIONS

Sumitomo Machinery Corporation of America

Headquarters & Manufacturing

4200 Holland Boulevard
Chesapeake, VA 23323
Tel: 757-485-3355 • Fax: 757-485-3075

www.sumitomodrive.com
E-mail: customercare@suminet.com

U.S. Sales and Support

Mid-West
Sumitomo Machinery Corporation of America
175 West Lake Drive
Glendale Heights, IL 60139
Tel: 630-752-0200 • Fax: 630-752-0208

West
Sumitomo Machinery Corporation of America
2375 Railroad Street
Corona, CA 92880-5411
Tel: 951-340-4100 • Fax: 951-340-4108

Southwest
Sumitomo Machinery Corporation of America
1420 Halsey Way #130
Carrollton, TX 75007
Tel: 972-323-9600 • Fax: 972-323-9308

Canada

Toronto (East)
SM-Cyclo of Canada, Ltd.
870 Equestrian Court
Oakville, Ontario, Canada L6L 6L7
Tel: 905-469-1050 • Fax: 905-469-1055

Vancouver (West)
SM-Cyclo of Canada, Ltd.
740 Chester Road, Annacis Island, Delta
B.C., Canada V3M 6J1
Tel: 604-525-5403 • Fax: 604-525-0879

Montreal
SM-Cyclo of Canada, Ltd.
226 Migneron Street
St. Laurent, Quebec, Canada H4T 1Y7
Tel: 514-340-1300 • Fax: 514-340-1343

Mexico

Monterrey
SM-Cyclo de Mexico, S.A. de C.V.
Calle "C" No. 506A
Parque Industrial Almacentro
Apodaca, N.L., Mexico 66600
Tel: 011-52-81-8144-5130 • Fax: 011-52-81-8369-3699

Mexico City
SM-Cyclo de Mexico, S.A. de C.V.
Privada Ceylan No. 59-B Bis
Colonia Industrial Vallejo
Delegacion Azcapotzalco, DF Mexico 02300
Tel: 011-52-55-5368-7172 • Fax: 011-52-55-5368-6699

South America

Brazil
SM-Cyclo Redutores do Brasil Ltda.
Av. Fagundes Filho, 191
Ed. Houston Office Center–c j. H123
CEP: 04304-010–São Paulo, Brazil
Tel: 011-55-11-5585-3600 • Fax: 011-55-11-5585-9990

Chile
SM-Cyclo de Chile Ltda.
San Pablo 3507
Comuna de Quinta Normal - Santiago, Chile
Tel: 011-562-786-6963 • Fax: 011-562-786-6964

Argentina
SM-Cyclo de Argentina SA
Manuel Montes de Oca 6719
B1606 BMG, Munro
Buenos Aires, Argentina
Tel: 011-54-11-4765-5332 • Fax: 011-54-11-4765-5517

Europe

Austria
Belgium
France
Germany
Italy
Netherlands
Spain
Sweden
Switzerland

Asia

China
Hong Kong
Indonesia
Korea
Malaysia
Philippines
Taiwan
Thailand

Other Locations

Australia
India
New Zealand
South Africa

World Headquarters

Japan
Sumitomo Heavy Industries, Ltd.
Power Transmission & Controls Group
5-9-11, KITA-Shinagawa, Shinagawa-Ku
Tokyo 141-8686 Japan
Tel: 011-813-5488-8363 • Fax: 011-813-5488-8365

For Worldwide contact information:
www.sumitomodrive.com