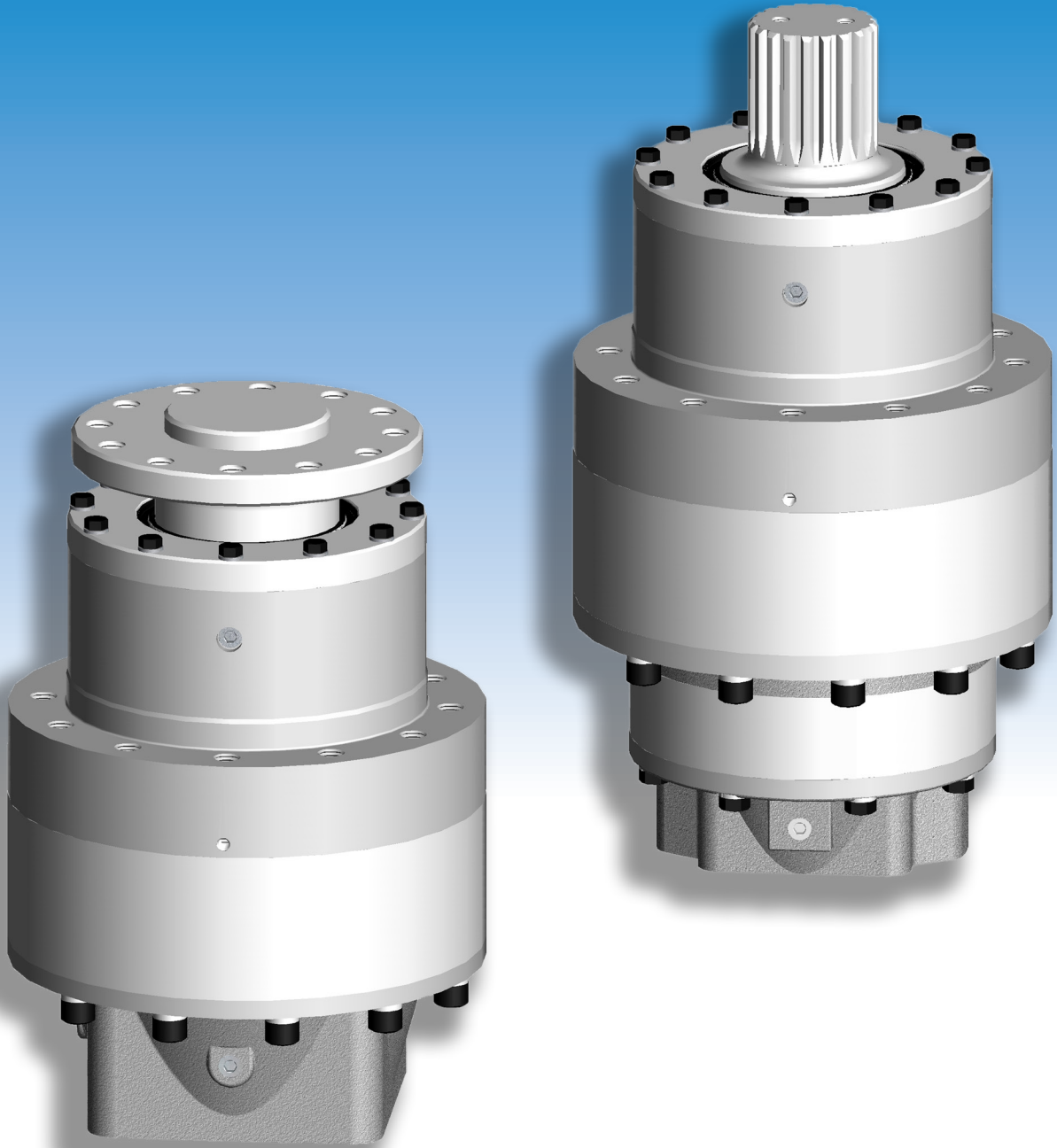


Model: 60 & 65D



HÉCO GEAR
Planetary Speed Reducers for Industry

P.O. Box 1388
West Sacramento, CA 95691
(916) 372-5411
Fax: (916) 373-0952
www.hecogear.com

Heco Gear Warranty

1. Heco Inc. (“Heco”), dba HECO GEAR, warrants its Products to be free from defects in material and workmanship for a period of twelve (12) months from the date of first use or eighteen (18) months from the date of manufacture, whichever occurs first.
2. Any Heco Product Buyer claims to be defective must be returned by Buyer to Heco for inspection by Heco factory personnel at Heco’s factory. Buyer’s sole remedy with respect to any defective Product shall be replacement or repair of the part or Product determined to be defective by Heco’s factory inspection, at Heco’s option.
3. Heco Warranty does not apply to any Product that has been disassembled or modified in any way outside of Heco’s factory or to failures due to reasons other than defects such as accidents or misuse.
4. Any alterations or modifications made to the Product (other than those made by Heco) shall render this Warranty null and void. No oral or written information or advice given by Heco, its dealers, distributors, agents or employees will create a warranty or in any way increase the scope of the limited warranty set forth herein, and Buyer may not rely on any such information or advice.

THIS IS THE SOLE AND ONLY WARRANTY OF HECO AND NO OTHER WARRANTY IS APPLICABLE, EITHER EXPRESSED OR IMPLIED, IN FACT OR BY LAW, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE, WHICH WARRANTIES ARE EXPRESSLY WAIVED BY BUYER.

Heco Terms and Conditions of Sale: www.hecogear.com/termsandconditions.pdf

Application Data Sheet

It is recommended that applications be submitted to Heco Engineering using the Application Data Sheet which can be found at www.hecogear.com/public/application_datasheet.asp Heco Engineers can estimate speed reducer life for your specific application, however, testing the speed reducer in the specific application by the customer will determine actual life.

*Specifications and dimensions contained in this brochure may be changed at any time. For the most up-to-date information consult the Heco Gear web site at www.hecogear.com.

Model 60 & 65D Performance data

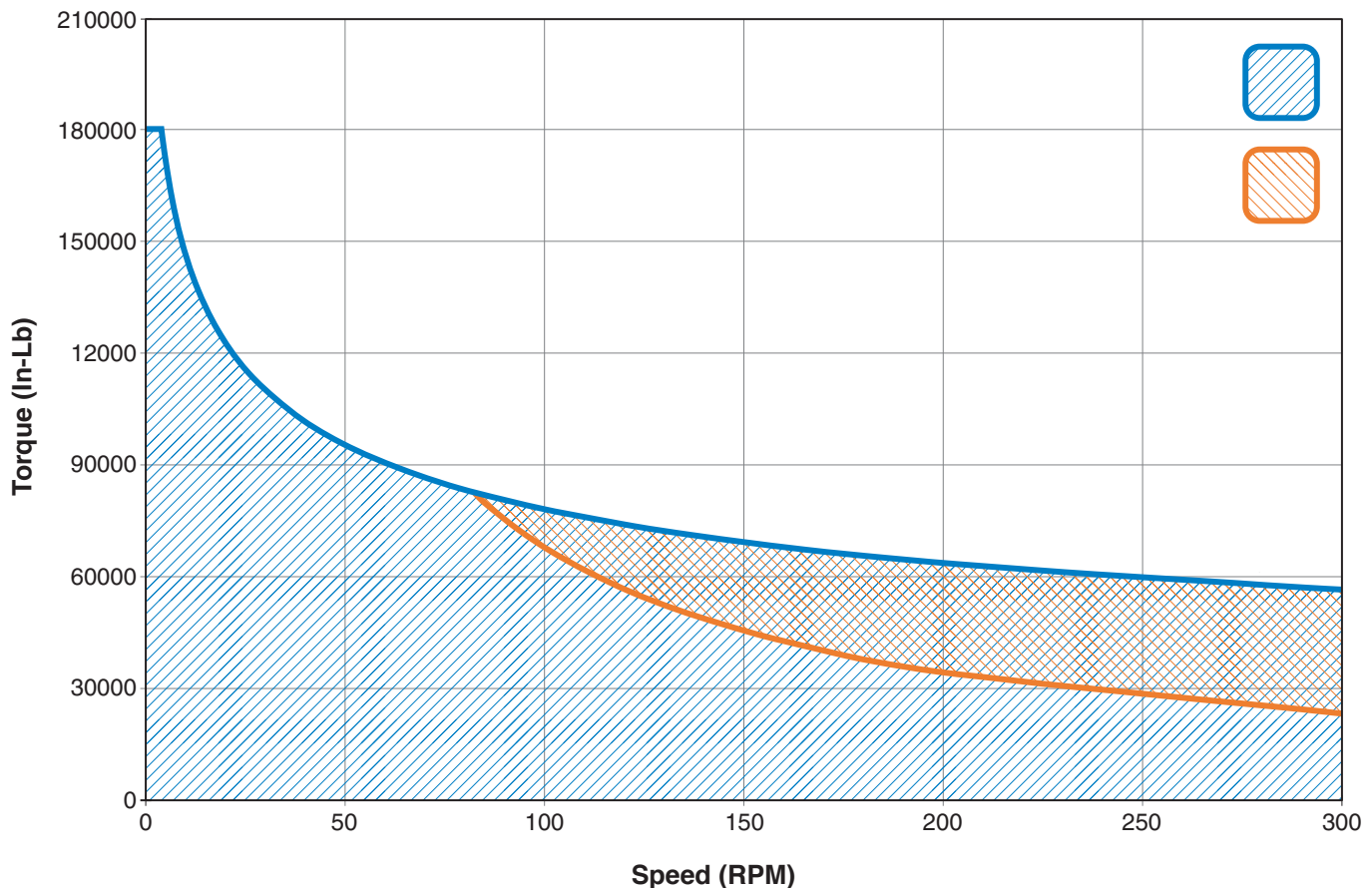
Peak Operating Torque: 180,000 In-Lb, 20,337 N·m

Output RPM: Up To 300 RPM Single Reduction, 60 RPM Double Reduction

Ratio: 6.0:1 Single Reduction, 28.8:1 or 36:1 Double Reduction

Radial Load: Up To 80,000 Lbs

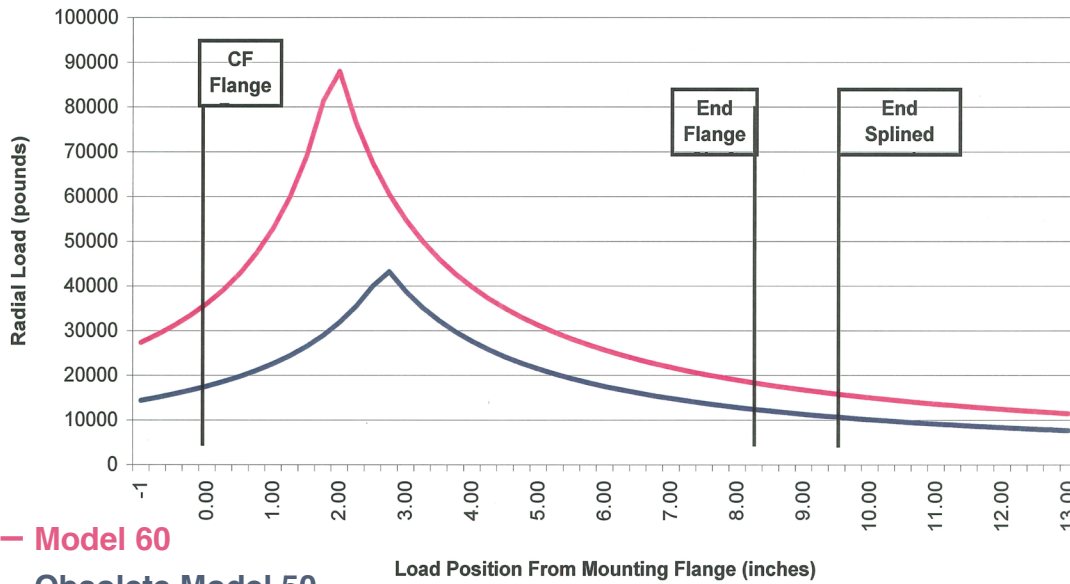
Operating Torque Vs. Speed Chart



1. The Load vs speed chart above was generated by HECO GEAR testing using AGMA 7S-EP Synthetic gear lubrication and is an indication of the capacity of the HECO Model 60 Speed Reducer.
2. Reducer life is dependent on the duty cycle of the specific customer application and may vary based on the application and proper lubrication. Actual reducer life can only be determined by testing the selected reducer in the specific customer application.
3. Consult Heco Engineering for applications where torques exceed the above torque curve for short durations.
4. Cooling may be required due to the operating horsepower of the application. Cooling can be achieved by adding external cooling or internal by adding an oil cooling loop or through the use of synthetic gear oils with specific heat dissipating properties.
5. When using brakes, it is recommended brakes be applied on the output shaft of the reducer. Dynamic braking on the input of the Heco gear reducer voids the warranty.

Output Shaft Bearing Radial Load Curve

Based on 18,000,000 revolution life (filled with 85W-140 oil)



- Simultaneous maximum torque and maximum speed NOT recommended.

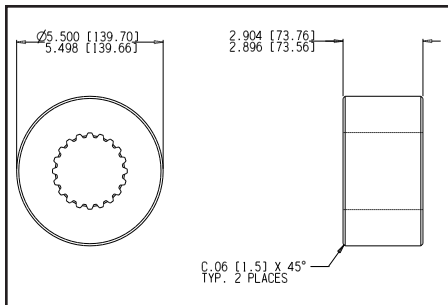
- Consult Heco if your application falls outside of recommended maximum RPM, torque, or radial load.

— Model 60

— Obsolete Model 50

Approximate Weight

Mounting Flange	Model 60	Model 65D	Model 65T
CF	338 lbs	397 lbs	420 lbs



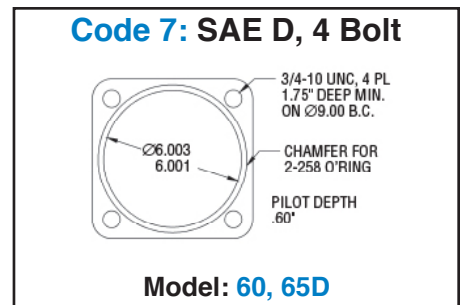
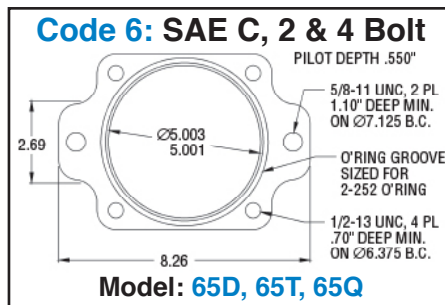
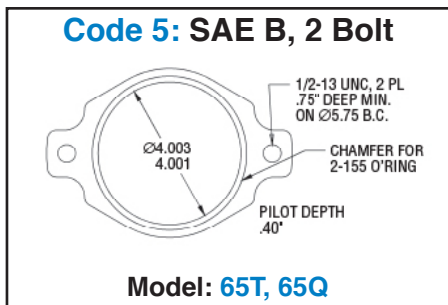
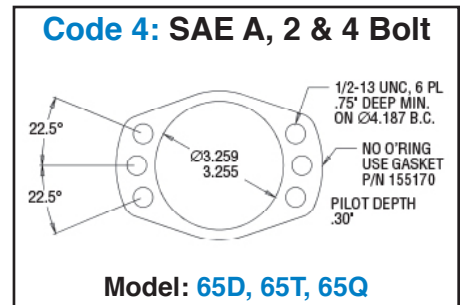
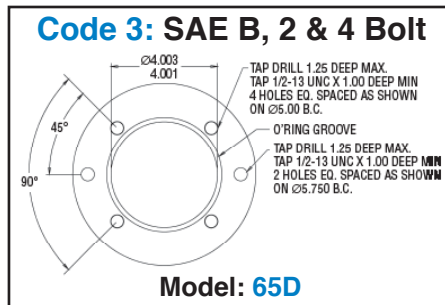
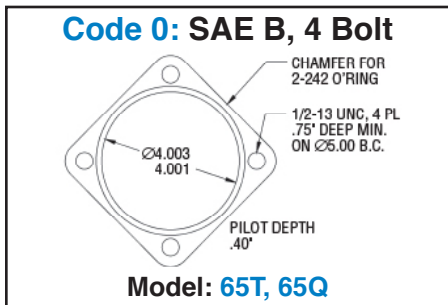
Spline Specifications

Number of Teeth: 20
 Pitch: 6/12
 Pitch Diameter: 3.333(84.667mm)
 Pressure Angle: 30 degrees
 Type of Fit: Flat Root Side Fit
 Material: 4140 NOT Heat Treated
 *Weldable Mount

Spline Billets

Adapter for the Code 4 Spline Output Shaft
 Part Number: 60SB1

Hydraulic Motor Adapter Options





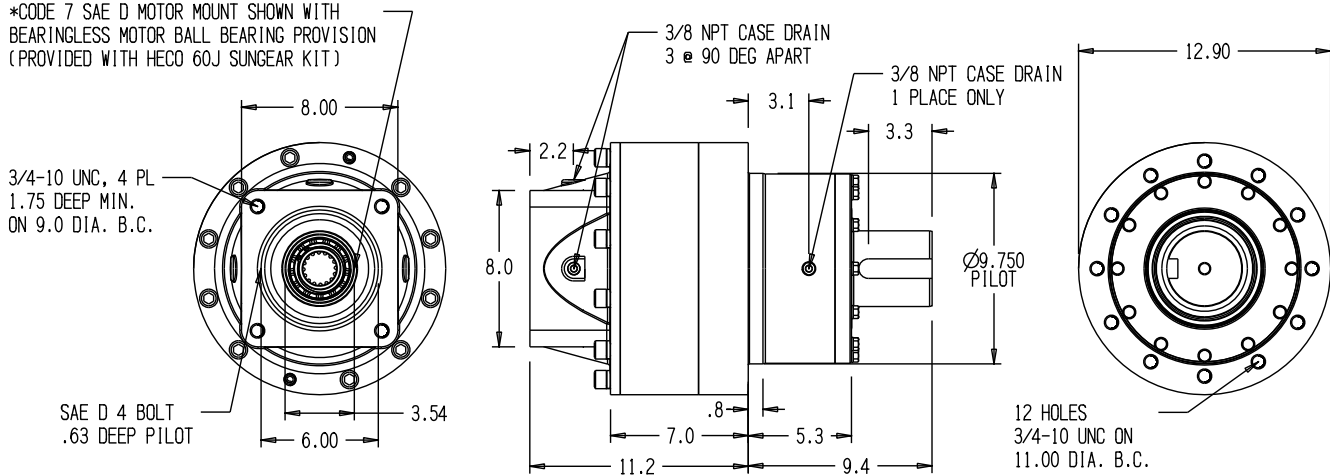
HECO GEAR

Model 60

180,000 in-lbs Continuous Torque Output
6.0 to 1 Ratio

80,000 lb. Maximum Radial Load
300 RPM Maximum Output Speed

*CODE 7 SAE D MOTOR MOUNT SHOWN WITH BEARINGLESS MOTOR BALL BEARING PROVISION (PROVIDED WITH HECO 60J SUNGEAR KIT)



Model 60CF1-76 Illustrated with Code 1 Keyed Output Shaft and Code 7 SAE D Motor Adaptor (6" pilot/4 bolt)

Model Codes and Ordering Information

Sample Model Code: 60CF1-76/X

	OUTPUT	MOTOR ADAPTER	RATIO	INPUT SHAFT/SUNGEAR*
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Model 60 Center Flange	1 – 3 7/8" Keyed 2 – Flange Shaft 12 - 3/4" Holes 4 – 20T 6/12 Splined 7 – Flange Shaft 12 - 3/4" Tapped Holes	6 – SAE C; 2 & 4 bolt 7 – SAE D; 4 bolt	6 – 6.0:1	60J – Charlynn 10000 Bearingless 60K – 1 3/4" 13T Spline 8/16 DP 60L – 1 1/2" 17T Spline 12/24 DP X – Gearbox only, without Input Shaft/Sungear*

* A sungear is required for **EACH** gearbox.

Common Options:

Nickel Plating (MIL-C-26074E; Class 2, Grade 0005): Nickel plated shaft, seal carrier, and stainless steel seal carrier bolts for corrosion prone environments.

Speed Pickup: Inductive sensor protected in housing for speed feedback.

Output Shafts: Quick turnaround on customized shafts for your application.

Delivery: Standard delivery on all Heco gearboxes is 4-6 weeks ARO.

24 Hour Quick Ship: Available for all gearboxes and components.

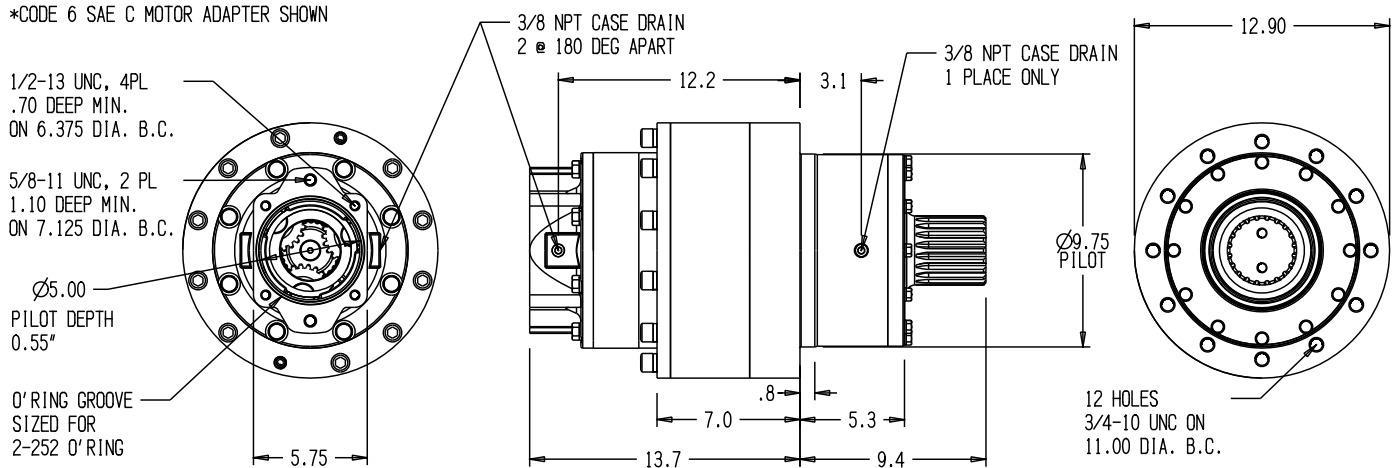


HĒCO GEAR

Model 65D

180,000 in-lbs Continuous Torque Output
28.5 / 28.8 / 36 to 1 Ratio

80,000 lb. Maximum Radial Load
100 RPM Maximum Output Speed



Illustrated with Code Keyed Output Shaft and Code SAE B Motor Adapter (4" pilot/4 bolt)

Model Codes and Ordering Information

Sample Model Code: 65DCF4-636/X

	OUTPUT	MOTOR ADAPTER	RATIO	INPUT SHAFT/SUNGEAR*
65DCF	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Model 65D	1 – 3 7/8" Keyed	3 – SAE B; 2 & 4 bolt	28 – 28.5:1	30G4 – C/L 6000 Bearingless 4.8:1
Center	2 – Flange Shaft 12 - 3/4" Holes	4 – SAE A; 2 & 4 bolt	28 – 28.8:1	30G6 – C/L 6000 Bearingless 6:1
Flange	4 – 20T 6/12 Splined	6 – SAE C; 2 & 4 bolt	36 – 36.0:1	30I4 – 1 1/4"-14T Spline 4.8:1
	7 – Flange Shaft 12 - 3/4" Tapped Holes	7 – SAE D; 4 bolt		30I6 – 1 1/4"-14T Spline 6:1
				40L4 – 1 1/2"-17T Spline 4.8:1
				40L6 – 1 1/2"-17T Spline 6:1
				40K6 – 1 3/4"-13T Spline 6:1
				X – Gearbox only, without Input Shaft/Sungear*

Common Options:

Nickel Plating (MIL-C-26074E; Class 2, Grade 0005): Nickel plated shaft, seal carrier, and stainless steel seal carrier bolts for corrosion prone environments.

Speed Pickup: Inductive sensor protected in housing for speed feedback.

Output Shafts: Quick turnaround on customized shafts for your application.

Delivery: Standard delivery on all Heco gearboxes is 4-6 weeks ARO.

24 Hour Quick Ship: Available for all gearboxes and components.

* A sungear is required for **EACH** gearbox.



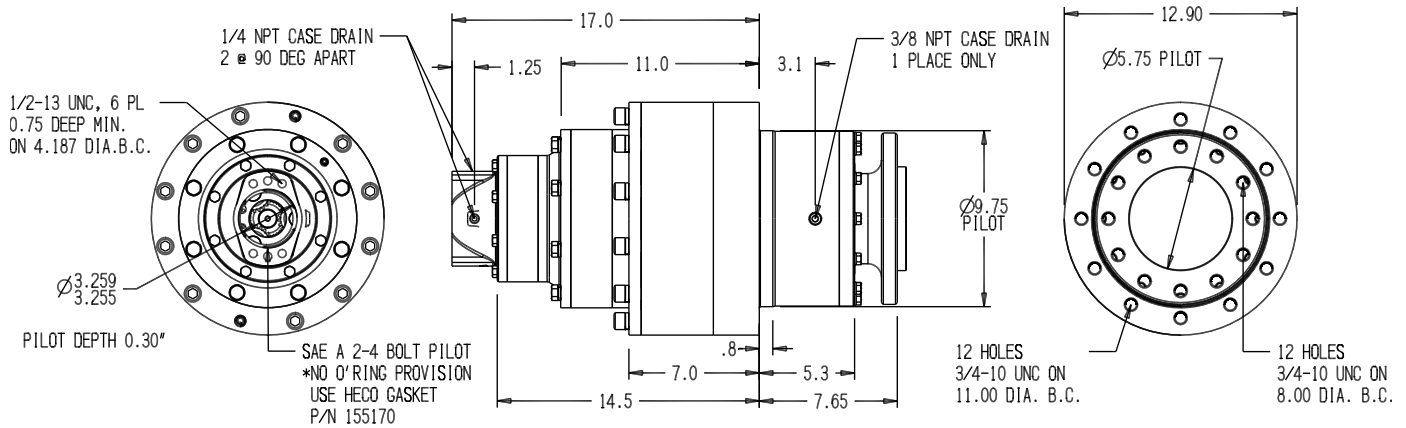
HECO GEAR

Model 65T

180,000 in-lbs Continuous Torque Output
148 / 149 / 187 to 1 Ratio

80,000 lb. Maximum Radial Load
30 RPM Maximum Output Speed

*CODE 4 SAE A MOTOR ADAPTER SHOWN



Model 65TCF7-4149 Illustrated with Code 7 Flanged Shaft and Code 4 SAE A Motor Adapter (3.25" pilot/2&4 bolt)

Model Codes and Ordering Information

Sample Model Code: 65TCF7-4149/X

	OUTPUT	MOTOR ADAPTER	RATIO	INPUT SHAFT/SUNGEAR*
65TCF	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Model 65T Center Flange	1 – 3 7/8" Keyed 2 – Flange Shaft 12 - 3/4" Holes 4 – 20T 6/12 Splined 7 – Flange Shaft 12 - 3/4" Tapped Holes	0 – SAE B; 4 bolt 4 – SAE A; 2 & 4 bolt 5 – SAE B; 2 bolt 6 – SAE C; 2 & 4	148 – 148.2:1 149 – 149.76:1 187 – 187.2:1	16E – Charlynn 2000 Bearingless 16F – Charlynn 4000 Bearingless 16S – Danfoss OMSS 16O – 7/8" Straight Keyed 16B – 7/8" 13T Spline 16/32 DP 16D – 1" Straight Keyed 16M – 1" SAE 6B Spline 16C – 1" 15T Spline 16/32 DP 16P – 1 1/8" Straight Keyed 16H – 1 1/4" Straight Keyed 16I – 1 1/4" 14T Spline 12/24 DP X – Gearbox only, without Input Shaft/Sungear*

Common Options:

Nickel Plating (MIL-C-26074E; Class 2, Grade 0005): Nickel plated shaft, seal carrier, and stainless steel seal carrier bolts for corrosion prone environments.

Speed Pickup: Inductive sensor protected in housing for speed feedback.

Output Shafts: Quick turnaround on customized shafts for your application.

Delivery: Standard delivery on all Heco gearboxes is 4-6 weeks ARO.

24 Hour Quick Ship: Available for all gearboxes and components.

* A sungear is required for **EACH**

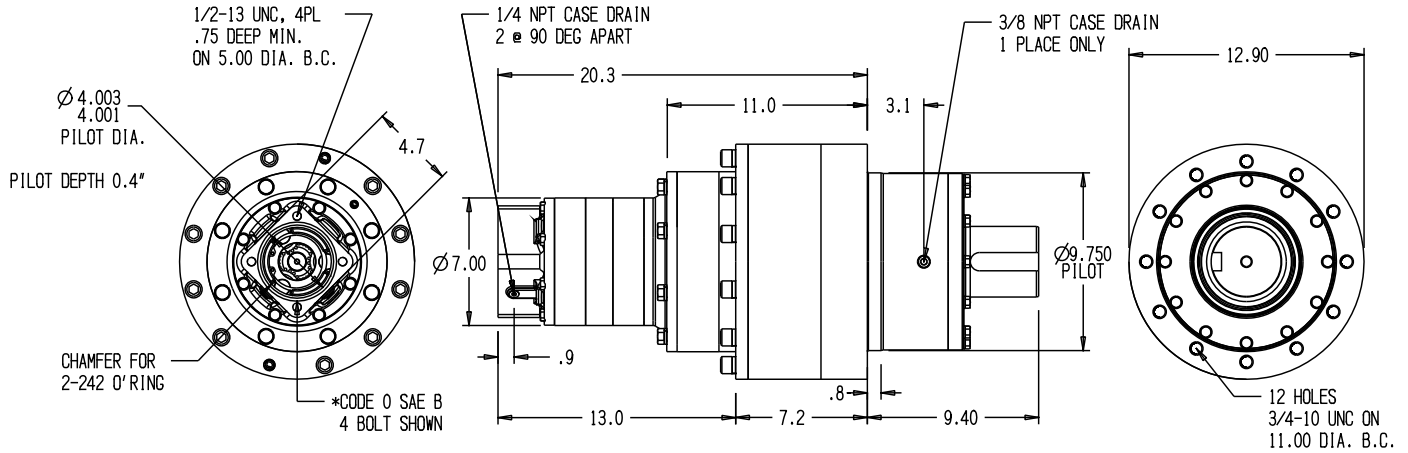


HĒCO GEAR

Model 65Q

180,000 in-lbs Continuous Torque Output
778 to 1 or 973 to 1 Ratio

80,000 lb. Maximum Radial Load
5 RPM Maximum Output Speed



Model 65TCF1-0973 Illustrated with Code 1 Keyed Output Shaft and Code 0 SAE A Motor Adapter (4" pilot/4 bolt)

Model Codes and Ordering Information

Sample Model Code: 65QCF1-0973/X

	OUTPUT	MOTOR ADAPTER	RATIO	INPUT SHAFT/SUNGEAR*
65QCF	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Model 65Q Center Flange	1 – 3 7/8" Keyed 2 – Flange Shaft 12 - 3/4" Holes 4 – 20T 6/12 Splined 7 – Flange Shaft 12 - 3/4" Tapped Holes	0 – SAE B; 4 bolt 4 – SAE A; 2 & 4 bolt 5 – SAE B; 2 bolt 6 – SAE C; 2 & 4	778 – 778:1 973 – 973:1	16E – Charlynn 2000 Bearingless 16F – Charlynn 4000 Bearingless 16S – Danfoss OMSS 16O – 7/8" Straight Keyed 16B – 7/8" 13T Spline 16/32 DP 16D – 1" Straight Keyed 16M – 1" SAE 6B Spline 16C – 1" 15T Spline 16/32 DP 16P – 1 1/8" Straight Keyed 16H – 1 1/4" Straight Keyed 16I – 1 1/4" 14T Spline 12/24 DP X – Gearbox only, without Input Shaft/Sungear*

Common Options:

Nickel Plating (MIL-C-26074E; Class 2, Grade 0005): Nickel plated shaft, seal carrier, and stainless steel seal carrier bolts for corrosion prone environments.

Speed Pickup: Inductive sensor protected in housing for speed feedback.

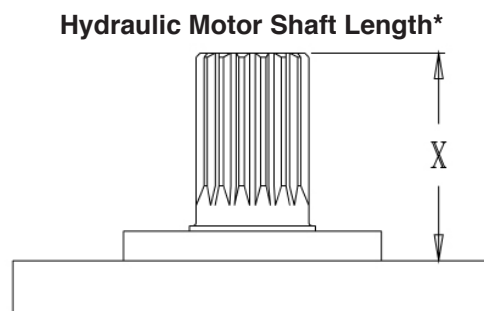
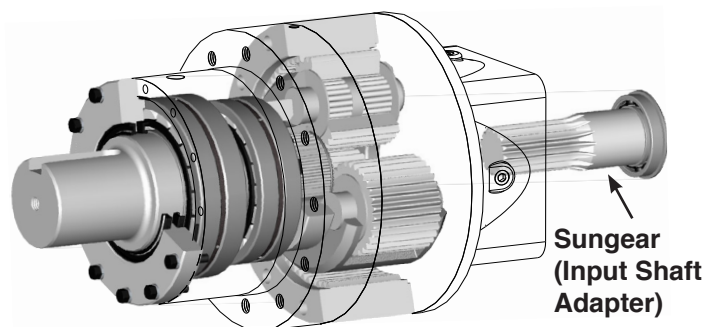
Output Shafts: Quick turnaround on customized shafts for your application.

Delivery: Standard delivery on all Heco gearboxes is 4-6 weeks ARO.

24 Hour Quick Ship: Available for all gearboxes and components.

* A sungear is required for **EACH**

Input Shaft / Sungear Options



Model 60

Part #	Hydraulic Motor Shaft Type	Minimum Length - in (mm)*	Maximum Length - in (mm)*
60J	Charlynn 10000 Bearingless	N/A	N/A
60K	1 3/4" 13T Spline 8/16 DP	2.72" (69.09)	2.97" (75.44)
60L1	1 1/2" 17T Spline 12/24 DP	2.56" (65.02)	2.96" (75.18)
60L2	1 1/2" 17T Spline 12/24 DP	2.97" (75.44)	3.22" (81.79)
60L3	1 1/2" 17T Spline 12/24 DP	3.23" (82.04)	3.48" (88.39)

Model 65D

Part #	Hydraulic Motor Shaft Type	Minimum Length - in (mm)*	Maximum Length - in (mm)*
30G4	Charlynn 6000 Bearingless (4.8:1)	N/A	N/A
30G6	Charlynn 6000 Bearingless (6:1)	N/A	N/A
30I4	1 1/4" 14T Spline 12/24 DP (4.8:1)	1.97" (50.04)	2.32" (58.93)
30I6	1 1/4" 14T Spline 12/24 DP (6:1)	1.97" (50.04)	2.32" (58.93)
40L4	1 1/2" 17T Spline 12/24 DP (4.8:1)	2.20" (55.88)	2.40" (60.96)
40L6	1 1/2" 17T Spline 12/24 DP (6:1)	2.20" (55.88)	2.40" (60.96)
40K6	1 3/4" 13T Spline 8/16 DP (6:1)	1.92" (48.77)	2.22" (56.39)

Model 65T, 65Q

Part #	Hydraulic Motor Shaft Type	Minimum Length - in (mm)*	Maximum Length - in (mm)*
16E	Charlynn 2000 Bearingless	N/A	N/A
16F	Charlynn 4000 Bearingless	N/A	N/A
16S	Danfoss OMSS Bearingless	N/A	N/A
16O	7/8" Straight Keyed	1.80" (45.72)	2.09" (53.09)
16B	7/8" 13T Spline 16/32 DP	1.40" (35.56)	1.75" (44.45)
16D	1" Straight Keyed	1.80" (45.72)	2.10" (53.34)
16M	1" SAE 6B Spline	1.95" (49.53)	2.30" (58.42)
16C	1" 15T Spline 16/32 DP	1.70" (43.18)	1.95" (49.53)
16P	1 1/8" Straight Keyed	1.85" (46.99)	2.15" (54.61)
16H	1 1/4" Straight Keyed	2.05" (52.07)	2.40" (60.96)
16I	1 1/4" 14T Spline 12/24 DP	2.00" (50.80)	2.32" (58.93)
151010	Required spacer for Charlynn 4000 standard motor shaft		

* Motor Shaft Length: Distance from hydraulic motor mounting flange to tip of motor output shaft (see above).

Heco Terms and Conditions of Sale: www.hecogear.com/termsandconditions.pdf

Heco Warranty: www.hecogear.com/warranty.pdf