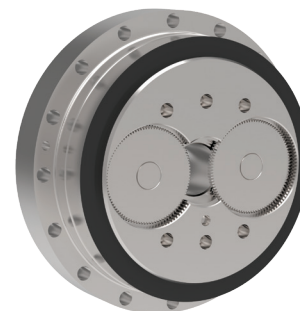


GCL Cycloidal Gear Reducer - User Manual

Introduction

Receiving Inspection

Before opening the package, please confirm whether the package is in good condition. If you have any problems, please contact GAM as soon as possible.



Environment

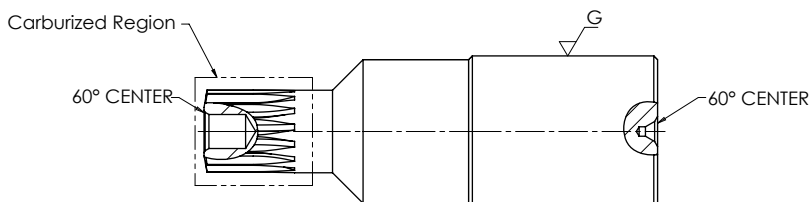
- The operating temperature of the reducer is -10°C–40°C (14°F–104°F), the temperature of the reducer housing should not exceed 60°C (140°F) during normal use.
- The operating humidity of the reducer is 20–80%.
- The operating environment of the reducer must be free from corrosive or explosive gas, steam, metal particles, water spray, and oil. Use in a well ventilated area.

Handling and Lifting

- While handling the package, do not drop, crush, or expose to severe vibration.
- When lifting the reducer, use the threaded hole on the housing to prevent twisting, dropping or bumping the reducer.
- Do not open the packaging until installation to prevent dust and foreign matter from entering the reducer.

Gear Reducer Input Pinion

General Pinion Information	
Material Specification	20CrMnTi
Hardness, carburized region	HRC 58-62
Hardness, non-carburized region	HRC 35



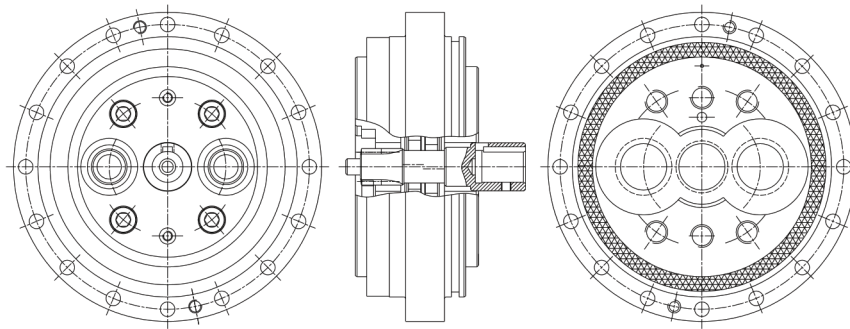
The above drawing is generalized for all pinions. For individual pinion dimensions please refer to the catalog. All input pinions have center holes and a ground outer diameter which can be used for machining.

TYPE CODES FOR GCL SERIES

Example: GCL - F - 080 - 121C - M0000 - H0000 - C0000

<p>Gearbox Series</p> <p>GCL = Inline with cover & integrated input (-F only) GCLC = Inline component with loose input pinion</p> <p>Gearbox Style</p> <p>F = Solid Flange Output H = Hollow Flange Output</p> <p>Gearbox Size</p> <p>F: 020, 040, 080, 110, 160, 320, 450 H: 050, 120, 200, 320, 400, 500</p> <p>Ratio</p> <p>F: 057 to 192 H: 033 to 037</p>	<p>Configuration Code Assigned by GAM</p> <p>Output Code Assigned by GAM</p> <p>Motor Code Assigned by GAM</p> <p>Input Option (GCL-F Only) C = Clamp</p>
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Installation



General Installation Instructions:

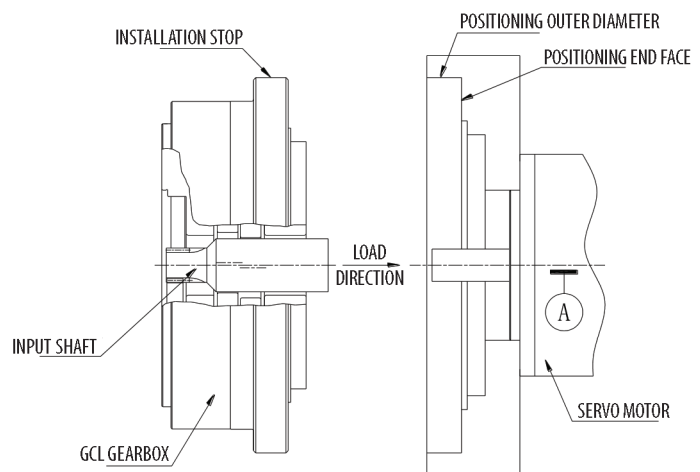
- This reducer is a precision mechanical transmission product, take care not to drop it during installation.
- Install the reducer in a dust-free, clean, indoor area.
- The reducer should be adequately supported.
- Ensure that the mating components are free from burrs and dust.
- When the reducer is installed, the unit must be sealed to prevent foreign matter from entering the unit.
- Runout of the outer diameter must be within $\varnothing 0.045$ mm and perpendicularity within 0.04 mm of the positioning end face. Otherwise, vibration and noise will be generated, which will affect the accuracy and life of the reducer. In severe cases, the gear reducer may become damaged.
- When mounting the reducer, use class 12.9 screws. Tighten the screws using a star pattern according to the specified tightening torque in the following table:

Bolt	M6×1	M8×1.25	M10×1.5	M12×1.75	M14×2	M16×2	M18×2.5
Torque (Nm)	12.5	30	58	102	164	258	352

Installation of Component-Type GCLC Gear Reducers

- This section does not apply to GCL Gear Reducers supplied with a cover and motor mount on the input.
- The installation diagram is as shown on the right. The installation requirements are as follows:

- Measure the runout value of the outer diameter and the perpendicularity of the positioning end face with respect to the motor shaft. The TIR of the positioning outer diameter must be within 0.02 mm and the TIR of the end face must be within 0.04 mm.
 - The clearance between the outer diameter of the reducer and the locating diameter of the housing should be less than 0.015 mm.
- When installing the O-ring, apply grease to the groove and O-ring to adhere the O-ring to the groove and install the O-ring. Please allow adequate chamfer so as to not damage the O-ring.



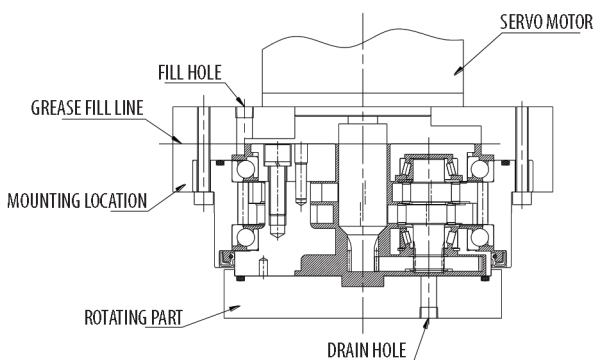
Lubrication

CAUTION: Before the reducer is operated, a sufficient amount of grease must be added. Without lubrication, the internal gears and bearings of the reducer will wear out quickly causing abnormalities such as noise, vibration and heat; reducing the accuracy of the reducer and life; and, in severe cases, cause permanent damage the reducer.

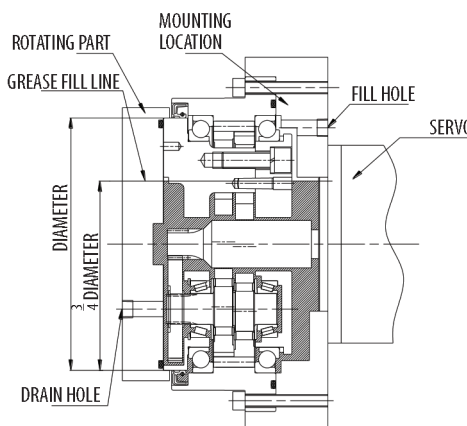
1. Grease should not be contaminated before filling and during filling.
2. Include reasonable lubrication ports and breather ports in the reducer mount.
3. Fill the reducer with Multitemp FZ 00 grease. See the chart below for the amount of the grease for each type of reducer. This amount does not include any additional for the reducer support.

Model GCL-F / GCLC-F	Grease injection amount (g)		Model GCL-H / GCLC-H	Grease injection amount (g)	
	Horizontal Installation	Vertical Installation		Horizontal Installation	Vertical Installation
GCL-F-020	75	85	GCL-H-050	435	495
GCL-F-040	170	180	GCL-H-120	<i>Consult GAM</i>	
GCL-F-080	335	380	GCL-H-200	1595	1805
GCL-F-110	375	430	GCL-H-320	3075	3520
GCL-F-160	550	605	GCL-H-400	<i>Consult GAM</i>	
GCL-F-320	905	1040	GCL-H-500	5165	6005
GCL-F-450	1390	1595			

Grease Injection Diagram:



Horizontal Installation



Vertical Installation

4. Grease replacement steps:
 - a. Turn off all power, air pressure, and hydraulic sources connected to the application.
 - b. Open the drain hole and use a manual oil pump to inject the grease from the oil injection hole. Allow 2 to 3 seconds between pumps.
 - c. Stop pumping when the newly injected grease starts to flow out from the drain hole.
 - d. Slowly rotate the output by 60 degrees and, after 10 minutes, repeat the process.
5. Oil change interval: replace the grease every 20,000 hours under normal use.

Operation

- Do not exceed the output torque and output speed of the gear unit during normal operation.
- Do not disassemble the reducer. Doing so will void the warranty
- Do not run the reducer continuously in one direction for a long time.

Inspection and troubleshooting

Observation	Malfunction	Cause	Action
Noise	Abnormal noise or sudden change in sound	Reducer damage	Replace the reducer
		Poor installation	Check per Installation Instructions
Vibration	Increased vibration or vibration changes dramatically	Reducer damage	Replace the reducer
		Poor installation	Check per Installation Instructions
Surface Temp	Surface temperature rises sharply	Oil shortage or grease deterioration	Add or replace grease
		Load or speed exceeds rated value	Reduce torque or speed to within rated value
Bolt	Loose fastening bolt	Insufficient bolt tightening torque	Tighten the bolts to the required torque
Grease Leakage	Grease leakage at the mounting surface	Foreign matter at the mounting surface	Clean the mounting surface and assemble
		O-ring damage	Replace the O-ring
Precision	Reducer backlash increases	Tooth wear	System compensation or replace the reducer

Warranty

- Warranty period: Under normal use, the GCL gear reducer will be guaranteed for one year from the date of delivery.
- The user must install and use the gear reducer according to the instructions in this manual. The warranty will not cover any problems resulting from not installing or using the gear reducer according to these instructions.
- Contact GAM at 847-649-2500 or info@gamweb.com for assistance in installing or using your GCL gearbox.



GAM, a U.S. company, is your complete source for Gear Reducers, Servo Couplings, and other precision mechanical drive solutions used in automation technology.

With one of the largest product offerings in the motion control industry as well as the engineering expertise and manufacturing capabilities to develop customized solutions, GAM can help with your application.

U.S. manufacturing, being flexible to meet the needs of customer requests, and great service are what set us apart from the rest.

GAM Can.

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