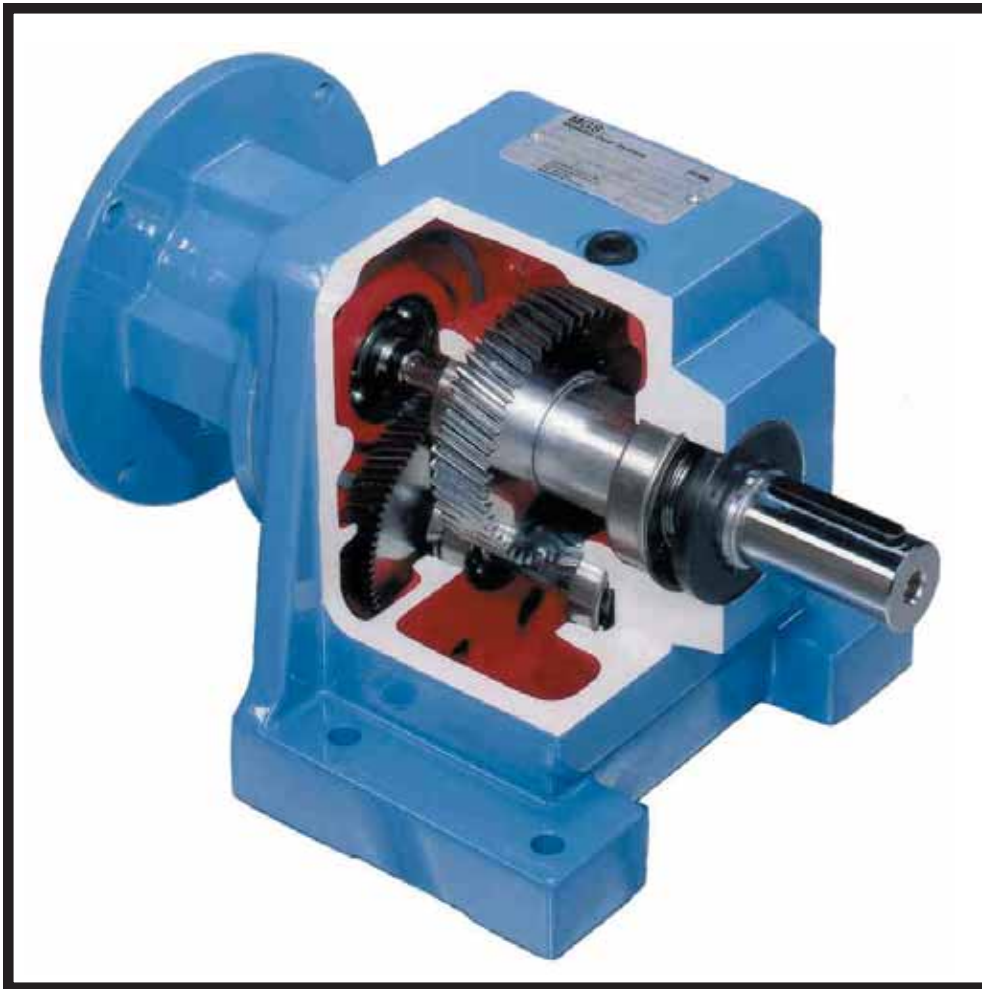


MGS Speed Reducers



**"C" Series
Maintenance
Manual**





"C" Series – Concentric Helical MGS Reducer Installation Instructions

Thank you for purchasing a STOBER drive. In order to obtain long life and trouble-free operation from your MGS speed reducer, it is essential that the installation and operating procedures outlined in this manual be followed.

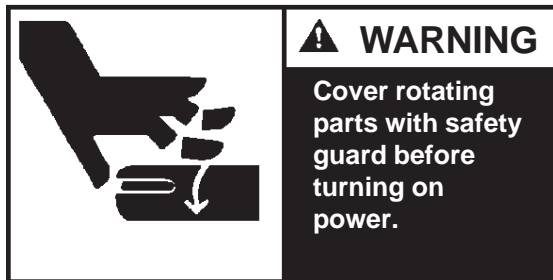
This manual includes directions for mounting and start-up of the MGS unit, as well as lubrication and maintenance instructions. Failure to follow these instructions will void the drive's warranty.

The torque required by the application must not exceed the reducer torque capacity shown on the nameplate. For safety purposes a safety coupling should be installed between the reducer and the driven load. Otherwise, overload may cause damage to the interior parts of the reducer which may result in breaking the reducer housing. As a result, persons could be injured by flying parts or splashing hot gear oil.

If you have questions about the installation, operation or maintenance of your MGS unit, please contact your local STOBER distributor for assistance.

WARNING:

Safety is the most important consideration when operating any type of drive. Through proper application, safe handling methods, and wearing appropriate clothing, you can prevent accidents and injury to



yourself and fellow workers.

The shafts of MGS speed reducers and gearmotors rotate at very high speeds and can cut off or severely injure hands, fingers, and arms. Use appropriate guards for shafts and other rotating parts at all times. Follow all directions in the service instruction manual. Obey all federal, state and local safety regulations when operating the drive.

- Always be sure electrical power is off while making electrical connections and during installation and maintenance of the unit.
- Keep clothing, hands, and tools away from ventilation openings on motors and from all rotating parts during operation.

- Lift drive with a double rope sling or other proper lifting equipment of adequate strength. Make sure load is secured and balanced to prevent shifting when unit is being moved. Lifting drives by hand may be dangerous and should be avoided.
- The intended use of lifting lugs is to handle the weight of the unit only. Never use a lifting lug to lift attached assemblies.
- Never operate drive at speeds higher than those shown on the nameplate, or personal injury may result. Contact STOBER Drives Inc., if there is any change of operating conditions from those for which the unit was originally sold (as stamped on the nameplate). Failure to comply could result in personal injury and or machinery damage.
- Always follow good safety practices at all times.

Each drive is tested before delivery. Before installation however, it is advisable to examine the unit for possible damage which might have occurred during transit. If damage is discovered, it should be immediately reported to the transport agent.

If installation is delayed after receipt of the MGS speed reducer, the drive should be stored in a clean, dry place until put into service. Long term storage requires special procedures. If not kept in a heated, dry area, consult STOBER Drives, Inc. for storage instructions.

NOTE: If it is necessary to clean drive shafts, take care to protect the oil seals.

IMPORTANT: Do not use any device to hammer the unit onto the output shaft during installation since the bearing races could be damaged.

"C" Series – Concentric Helical MGS Reducer Lubrication and Mounting Data



Maintenance

With STÖBER reducers, very little maintenance is required under normal operating conditions.

We recommend that the lubrication be changed in sizes C6 to C9 after 5000 working hours or after 2000 working hours if the reducer is in a moist environment.

In the event an oil change is needed, completely drain the reducer and replace with a compatible 5EP rated lubricant. Check your lubrication supplier for a comparable lubricant.

CAUTION – KNOW YOUR APPLICATION: If synthetic oil is required for high temperatures, replacing with mineral oil may prematurely fail the reducer.

Lubrication and Mounting Position

All STÖBER units are shipped filled with the required amount of lubrication (Mobilgear 630) unless otherwise specified.

The mounting positions and the required amount of lubricant for each position is shown on the following page.

In order to provide the proper lubrication quantity the position required should be specified at the time of order.

No unit will be shipped without the mounting position specified by the customer.

Positions, such as EL5 or EL6, may require different seals, bearings, etc. so it is very important to mount the unit in the position for which it was assembled.

Breathers are provided on units C612 through C913 in the locations shown.

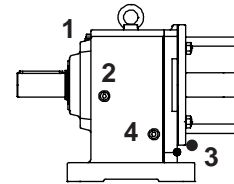


Table No. 2 C612– C912 Plug Locations

Mounting Position	Drain Plug and Vent Location					
	1	2	2a	3	4	4a
EL1	Vent			Drain		
EL2	Drain			Vent		
EL3		Vent	Drain			
EL4		Drain	Vent			
EL5	Drain			Vent		
EL6	Vent			Drain		

Position 2a and 4a are on the opposite side.

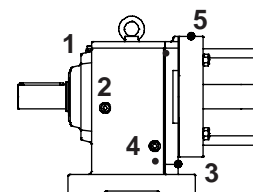


Table No. 3 C613—C913 Plug Locations

Mounting Position	Drain Plug and Vent Location							
	1	2	2a	3	4	4a	5	
EL1	Vent			Drain				
EL2	Drain			Vent				
EL3		Vent	Drain					
EL4		Drain	Vent					
EL5	Drain						Vent	
EL6	Vent			Drain				

Position 2a and 4a are on the opposite side.



"C" Series – Concentric Helical MGS Reducer

Lubrication and Mounting Data

Position EL1

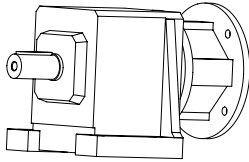


Table No. 1 Quantity of Lubricant

Module	Quantity		Module	Quantity	
	ozs.	liters		ozs.	liters
C002	10	.3	C612	135	4.0
C102	20	.6	C613	145	4.3
C103	27	.8	C712	223	6.6
C202	27	.8	C713	220	6.5
C203	34	1.0	C812	422	12.5
C302	41	1.2	C813	456	13.5
C303	47	1.4	C912	642	19.0
C402	61	1.8	C913	692	20.5
C403	68	2.0			
C502	95	2.8			
C503	101	3.0			

Position EL2

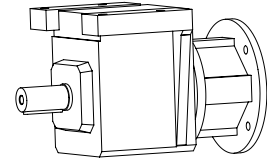


Table No. 2 Quantity of Lubricant

Module	Quantity		Module	Quantity	
	ozs.	liters		ozs.	liters
C002	14	.4	C612	169	5.0
C102	27	.8	C613	186	5.5
C103	34	1.0	C712	270	8.0
C202	41	1.2	C713	291	8.6
C203	51	1.5	C812	524	15.5
C302	54	1.6	C813	558	16.5
C303	61	1.8	C912	794	23.5
C402	91	2.7	C913	845	25.0
C403	101	3.0			
C502	135	4.0			
C503	152	4.5			

Position EL3

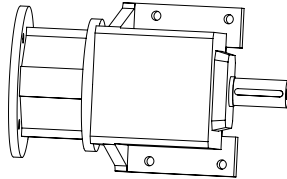


Table No. 3 Quantity of Lubricant

Module	Quantity		Module	Quantity	
	ozs.	liters		ozs.	liters
C002	10	.3	C612	142	4.2
C102	20	.6	C613	152	4.5
C103	30	.9	C712	216	6.4
C202	34	1.0	C713	230	6.8
C203	37	1.1	C812	456	13.5
C302	47	1.4	C813	490	14.5
C303	51	1.5	C912	693	20.5
C402	74	2.2	C913	743	22.0
C403	78	2.3			
C502	115	3.4			
C503	122	3.6			

Position EL4

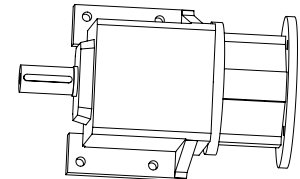


Table No. 4 Quantity of Lubricant

Module	Quantity		Module	Quantity	
	ozs.	liters		ozs.	liters
C002	10	.3	C612	142	4.2
C102	20	.6	C613	152	4.5
C103	30	.9	C712	216	6.4
C202	34	1.0	C713	230	6.8
C203	37	1.1	C812	456	13.5
C302	47	1.4	C813	490	14.5
C303	51	1.5	C912	693	20.5
C402	74	2.2	C913	743	22.0
C403	78	2.3			
C502	115	3.4			
C503	122	3.6			

Position EL5

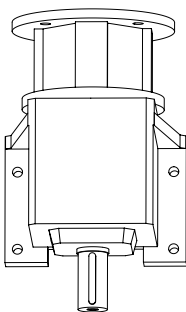


Table No. 5 Quantity of Lubricant

Module	Quantity	
	ozs.	liters
C002	17	.50
C102	39	1.16
C103	49	1.45
C202	53	1.58
C203	66	1.95
C302	79	2.34
C303	90	2.65
C402	127	3.75
C403	145	4.30
C502	196	5.80
C503	216	6.40
C612	223	6.60
C613	254	7.50
C712	348	10.30
C713	372	11.00
C812	642	19.00
C813	727	21.50
C912	1081	32.00
C913	1183	35.00

Position EL6

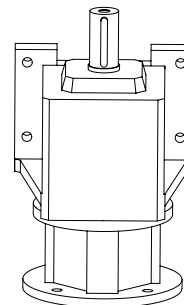


Table No. 6 Quantity of Lubricant

Module	Quantity	
	ozs.	liters
C002	17	.5
C102	37	1.1
C103	47	1.4
C202	61	1.8
C203	68	2.0
C302	74	2.2
C303	84	2.5
C402	112	3.3
C403	125	3.7
C502	169	5.0
C503	182	5.4
C612	210	6.2
C613	223	6.6
C712	318	9.4
C713	338	10.0
C812	558	16.5
C813	642	19.0
C912	1031	30.5
C913	1081	32.0



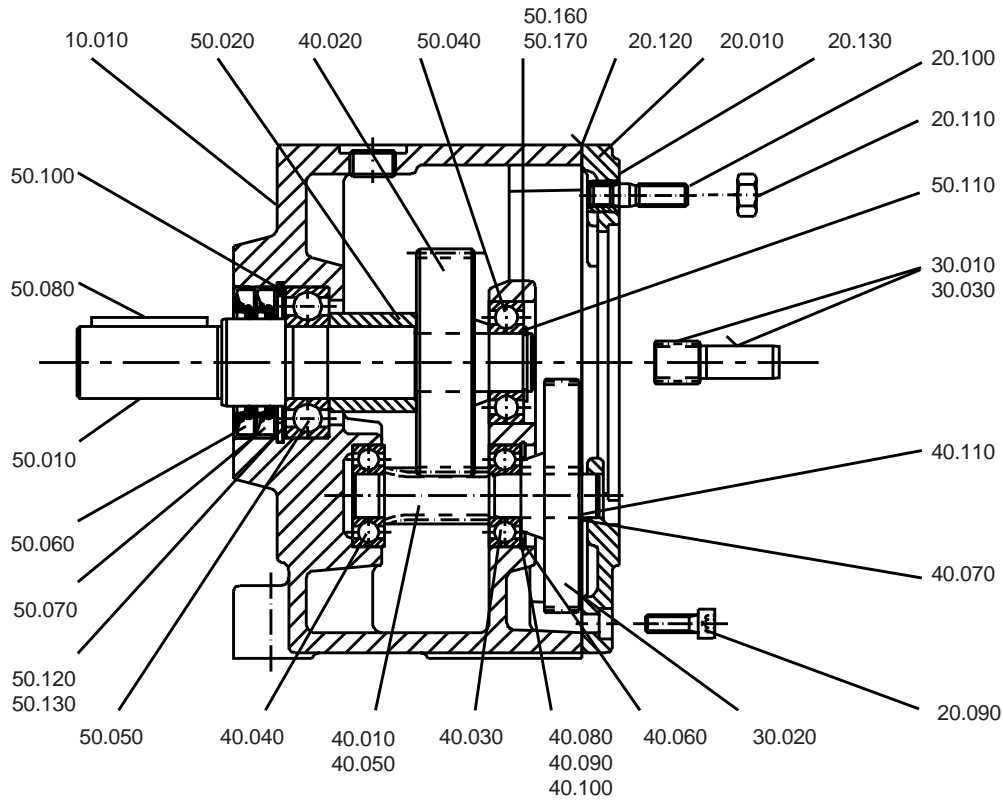
INDUSTRIAL MAGZA
DIST. AUTORIZADO

MEX (55) 53 63 23 31 MTY (81) 83 54 10 18
QRO (442) 1 95 72 60 ventas@industrialmagza.com

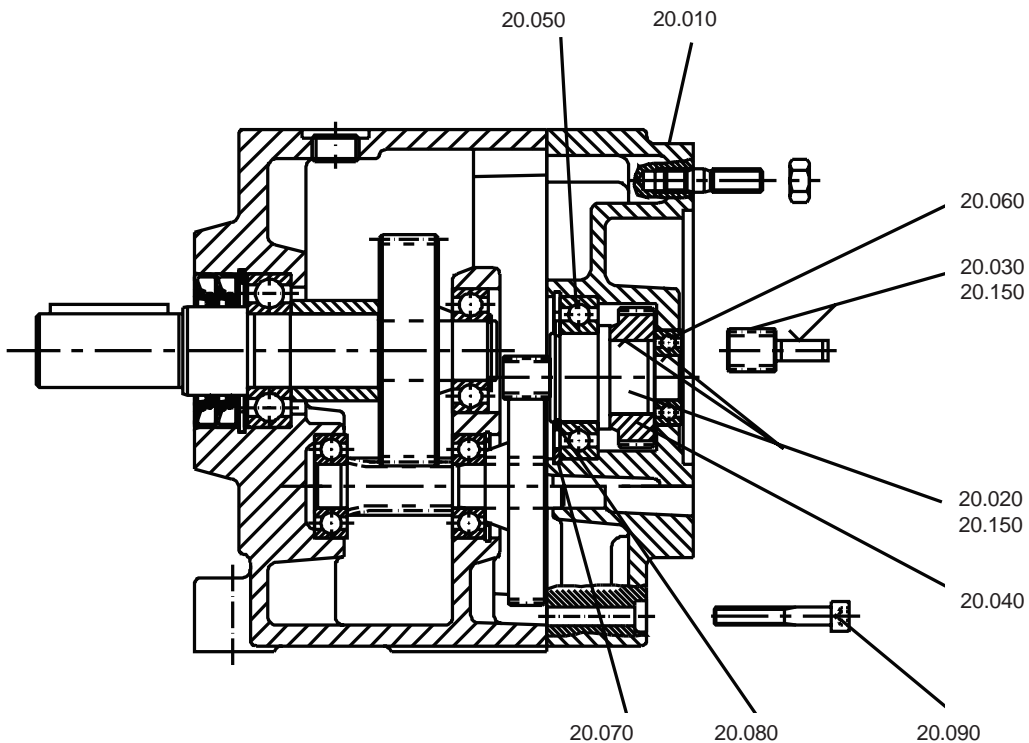
"C" Series – Concentric Helical MGS Reducer "N" Housing Style — Foot Mounting



C002N to C502N

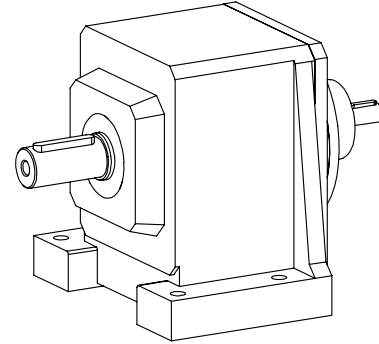
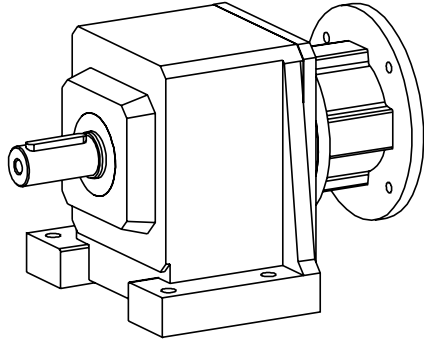


C003 to C503N





"C" Series – Concentric Helical MGS Reducer "N" Housing Style — Foot Mounting



See Page 14 for Parts List of an MR Motor Adapter or Page 16 for an AW Input to fit these units.

Parts List for Double and Triple Reduction — "N" Housing Style

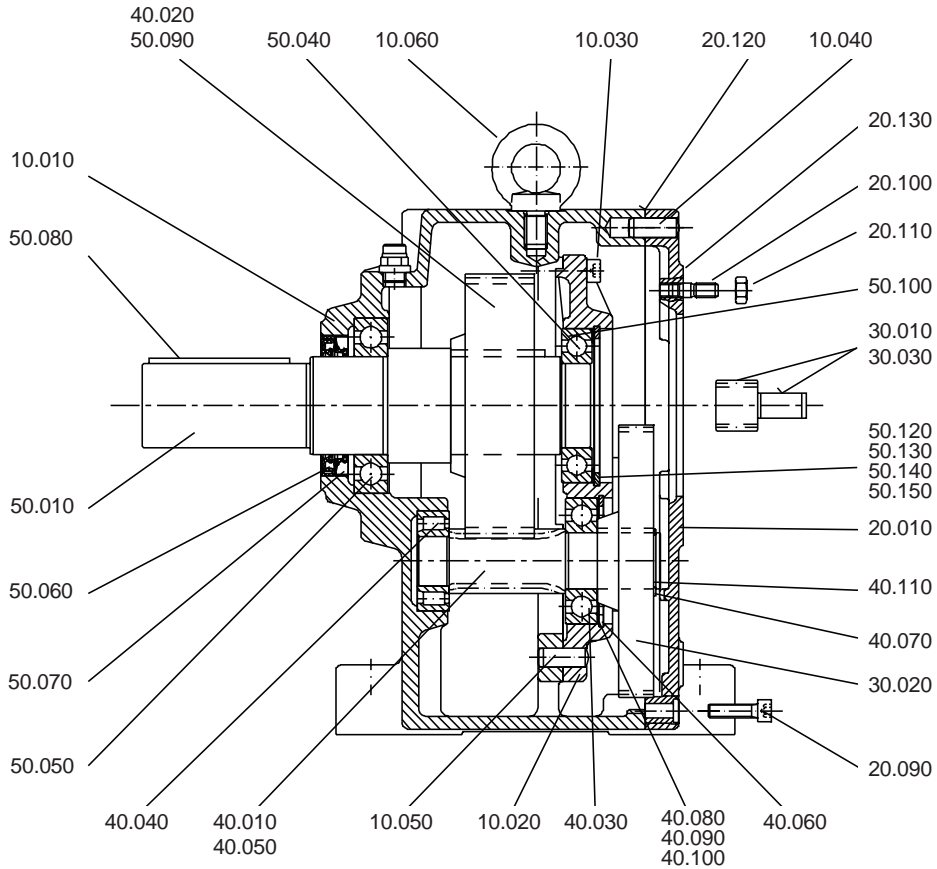
10.010	Housing	20.150	Adhesive	40.110	Shim
20.010	Cover	30.010	Stem Pinion	50.010	Output Shaft
20.020	Shaft	30.020	Gear	50.020	Spacer
20.030	Stem Pinion	30.030	Adhesive	50.040	Deep Groove Ball Bearing
20.040	Gear	40.010	Pinion	50.050	Deep Groove Ball Bearing
20.050	Deep Groove Ball Bearing	40.020	Gear	50.060	Oil Seal
20.060	Deep Groove Ball Bearing	40.030	Deep Groove Ball Bearing	50.070	Oil Seal
20.070	Snap Ring	40.040	Deep Groove Ball Bearing	50.080	Key
20.080	Snap Ring	40.050	Key	50.100	Snap Ring
20.090	Hollow Head Capscrew	40.060	Snap Ring	50.110	Snap Ring
20.100	Stud	40.070	Snap Ring	50.120	Shim
20.110	Nut	40.080	Shim / Support Ring	50.130	Shim
20.120	Joint Compound	40.090	Shim	50.160	Shim
20.130	Gasket	40.100	Shim	50.170	Shim

When ordering replacement parts, specify the Part No. and Serial No. from the nameplate and the Location No. shown on the drawing.

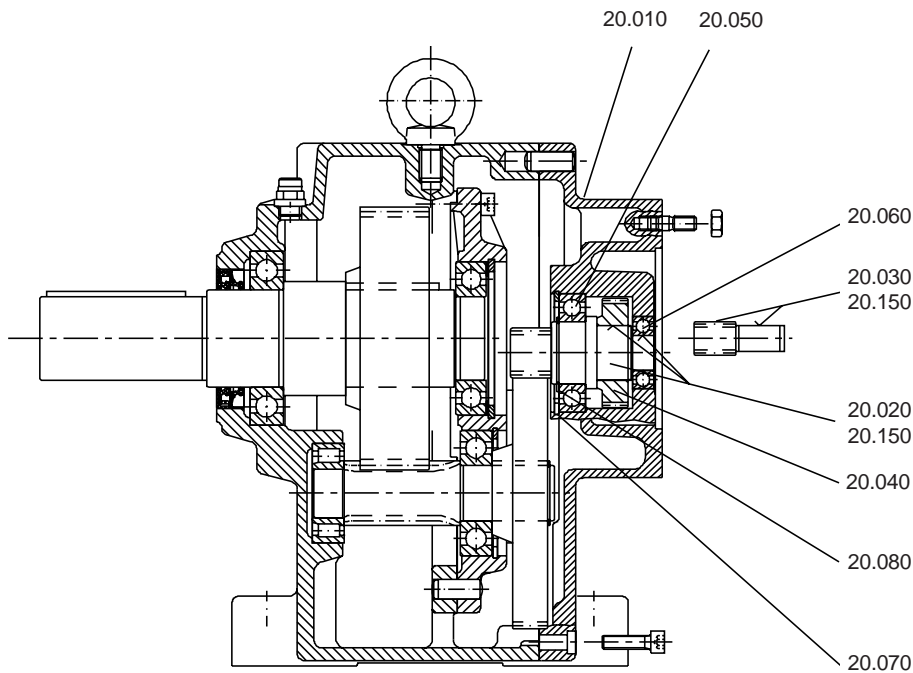
"C" Series – Concentric Helical MGS Reducer "N" Housing Style — Foot Mounting



C612N to C912N

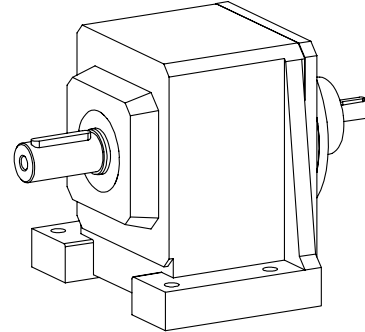
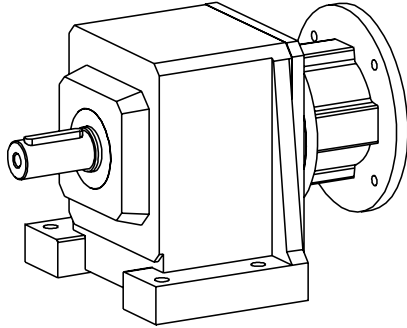


C613N to C913N





"C" Series – Concentric Helical MGS Reducer "N" Housing Style — Foot Mounting



See Page 14 for Parts List of an MR Motor Adapter or Page 16 for an AW Input to fit these units.

Parts List for Double and Triple Reduction — "N" Housing Style

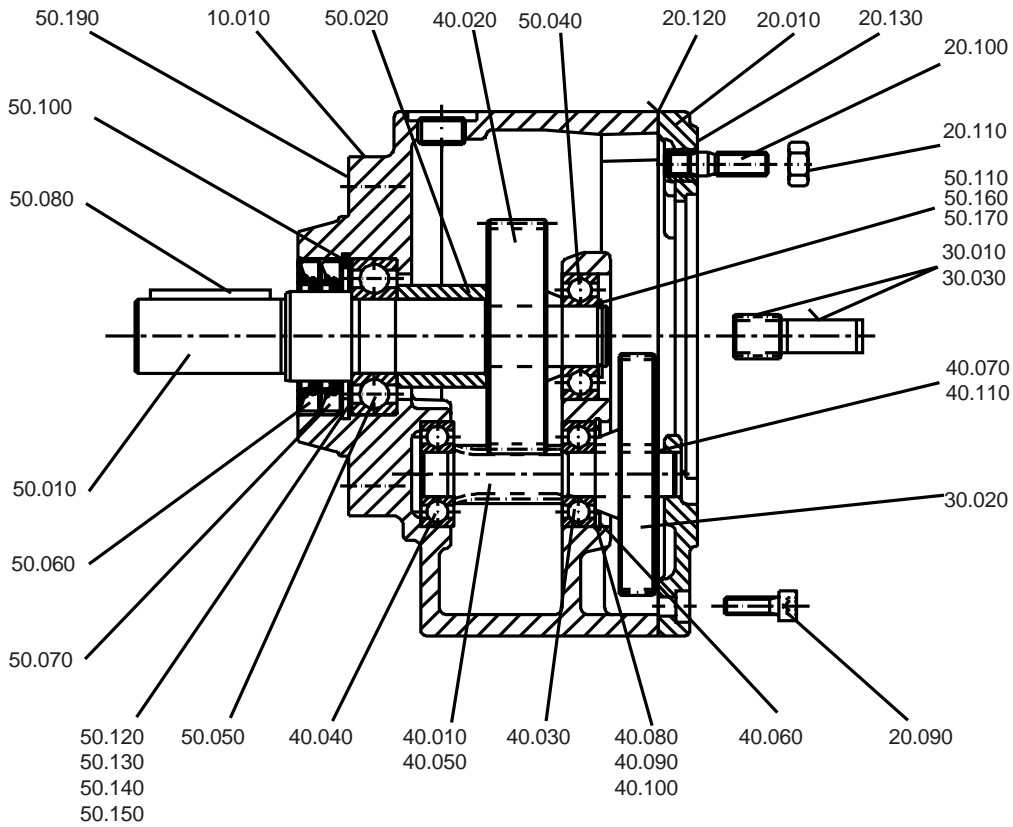
10.010	Housing	20.110	Nut	40.090	Shim
10.020	Bearing Housing	20.120	Joint Compound	40.100	Shim
10.030	Hollow Head Capscrew	20.130	Gasket	40.110	Shim
10.040	Dowel Pin	20.150	Adhesive	50.010	Output Shaft
10.050	Dowel Pin	30.010	Stem Pinion	50.040	Deep Groove Ball Bearing
10.060	Lifting Eyebolt	30.020	Gear	50.050	Deep Groove Ball Bearing
20.010	Cover	30.030	Adhesive	50.060	Oil Seal
20.020	Pinion	40.010	Pinion	50.070	Oil Seal
20.030	Stem Pinion	40.020	Gear	50.080	Key
20.040	Gear	40.030	Deep Groove Ball Bearing	50.090	Key
20.050	Deep Groove Ball Bearing	40.040	Cylindrical Roller Bearing	50.100	Snap Ring
20.060	Deep Groove Ball Bearing	40.050	Key	50.120	Shim
20.070	Snap Ring	40.060	Snap Ring	50.130	Shim
20.080	Snap Ring	40.070	Snap Ring	50.140	Shim
20.090	Hollow Head Capscrew	40.080	Shim / Support Ring	50.150	Shim
20.100	Stud				

When ordering replacement parts, specify the Part No. and Serial No. from the nameplate and the Location No. shown on the drawing.

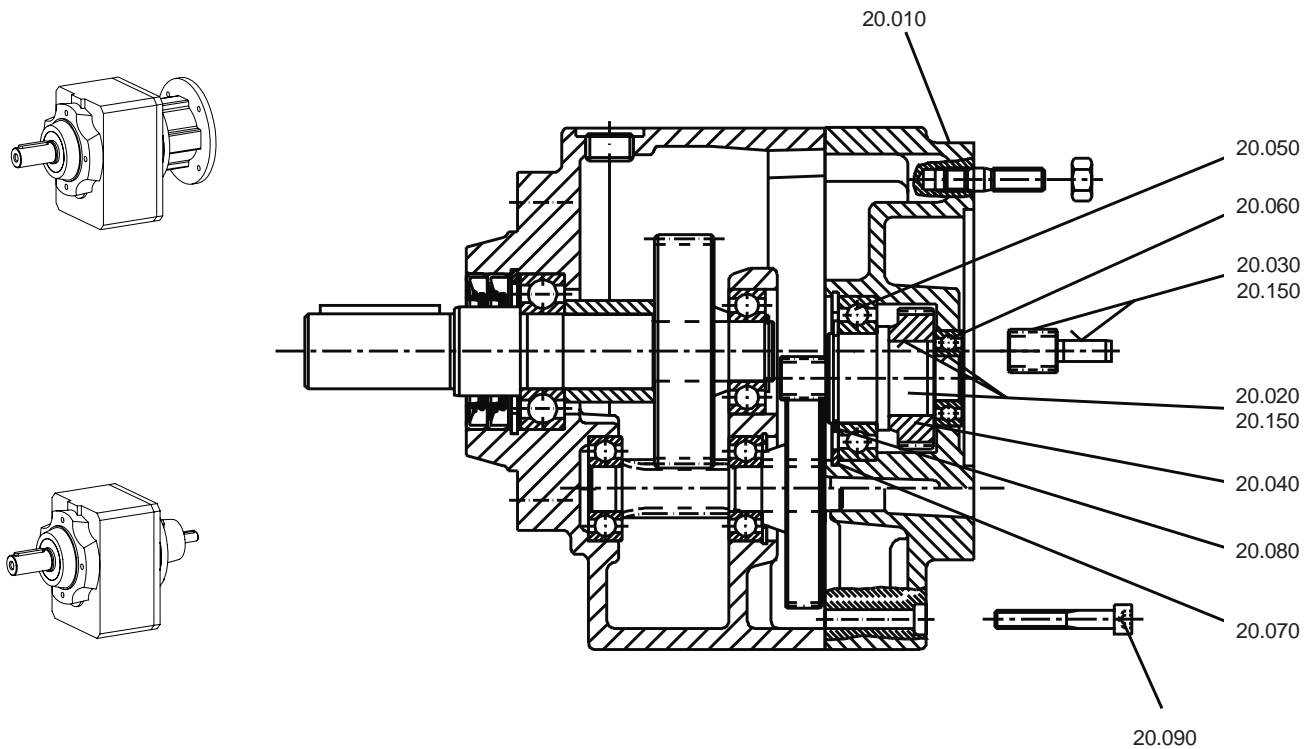
"C" Series – Concentric Helical MGS Reducer "G" Housing Style — Tapped Holes



C002G to C502G



C003G to C503G

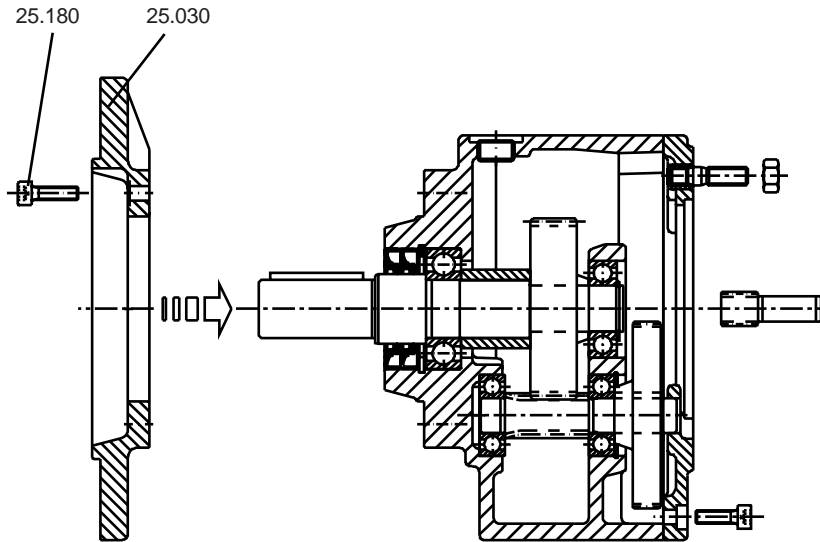
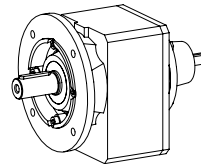
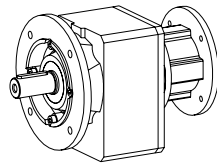




"C" Series – Concentric Helical MGS Reducer

"F" Housing Style — Round Flange Mounting

C002F to C503F



The "F" Housing Style is made by adding a flange to the "G" housing.

See Page 14 for Parts List of an MR Motor Adapter or Page 16 for an AW Input to fit these units.

Parts List for Double and Triple Reduction — "G" and "F" Housing Style

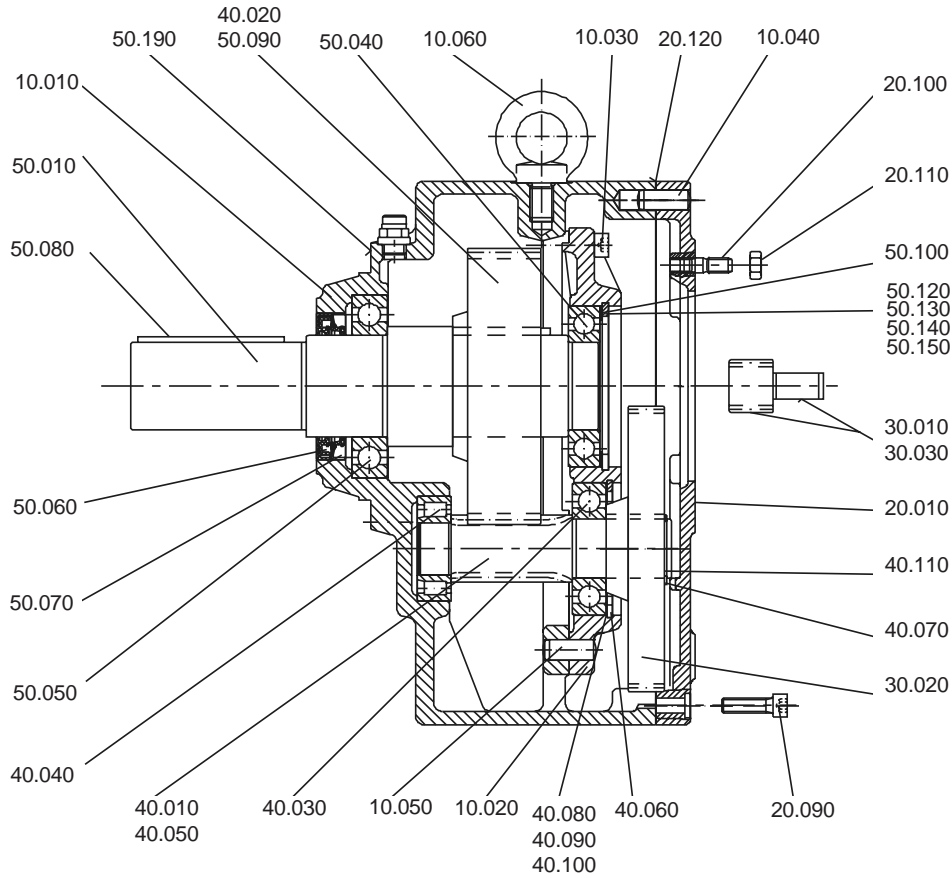
10.010	Housing	30.020	Gear	50.040	Deep Groove Ball Bearing
20.010	Cover	30.030	Adhesive	50.050	Deep Groove Ball Bearing
20.020	Pinion	40.010	Pinion	50.060	Oil Seal
20.030	Stem Pinion	40.020	Gear	50.070	Oil Seal
20.040	Gear	40.030	Deep Groove Ball Bearing	50.080	Key
20.050	Deep Groove Ball Bearing	40.040	Deep Groove Ball Bearing	50.100	Snap Ring
20.060	Deep Groove Ball Bearing	40.050	Key	50.110	Snap Ring
20.070	Snap Ring	40.060	Snap Ring	50.120	Shim
20.080	Snap Ring	40.070	Snap Ring	50.130	Shim
20.090	Hollow Head Capscrew	40.080	Shim / Support Ring	50.140	Shim
20.100	Stud	40.090	Shim	50.150	Shim
20.110	Nut	40.100	Shim	50.160	Shim
20.120	Joint Compound	40.110	Shim	50.170	Shim
20.130	Gasket	50.010	Output Shaft	50.180	Hollow Head Capscrew
20.150	Adhesive	50.020	Spacer	50.190	Gasket/Joint Compound
30.010	Stem Pinion	50.030	Output Flange		

When ordering replacement parts, specify the Part No. and Serial No. from the nameplate and the Location No. shown on the drawing.

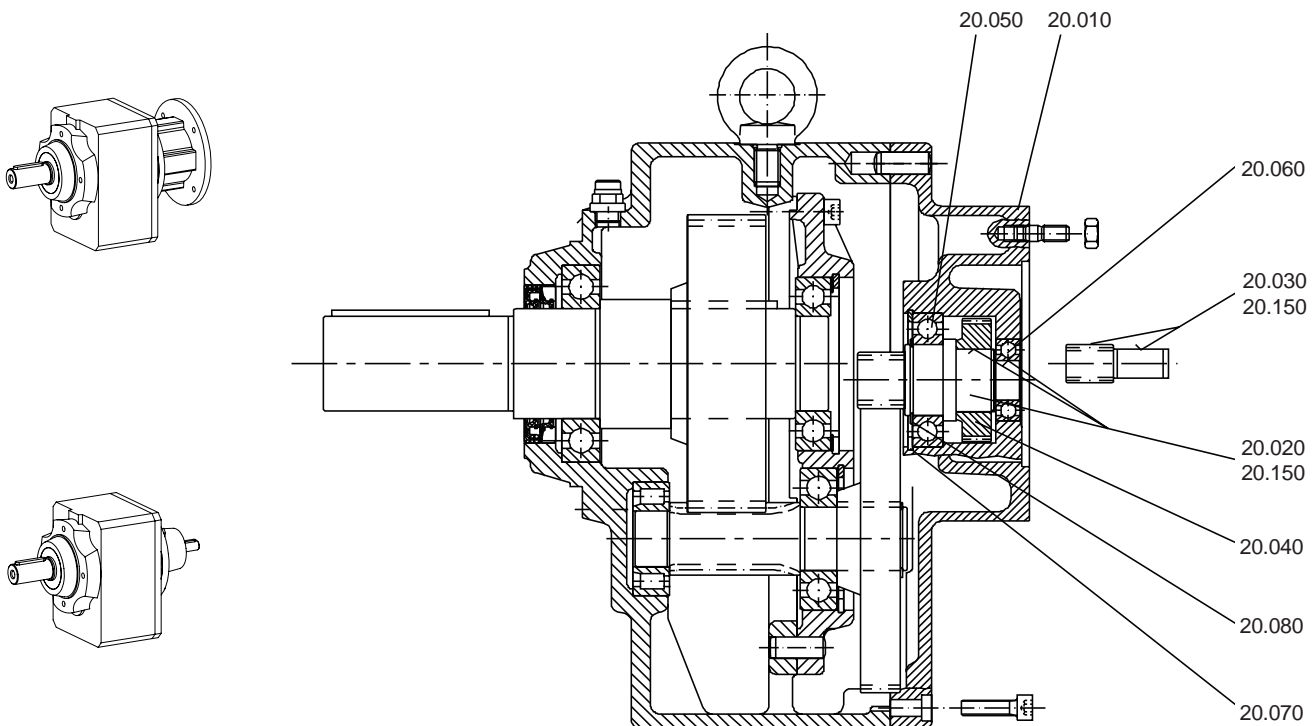
"C" Series – Concentric Helical MGS Reducer "G" Housing Style — Tapped Holes



C612G to C912G



C613G to C913G

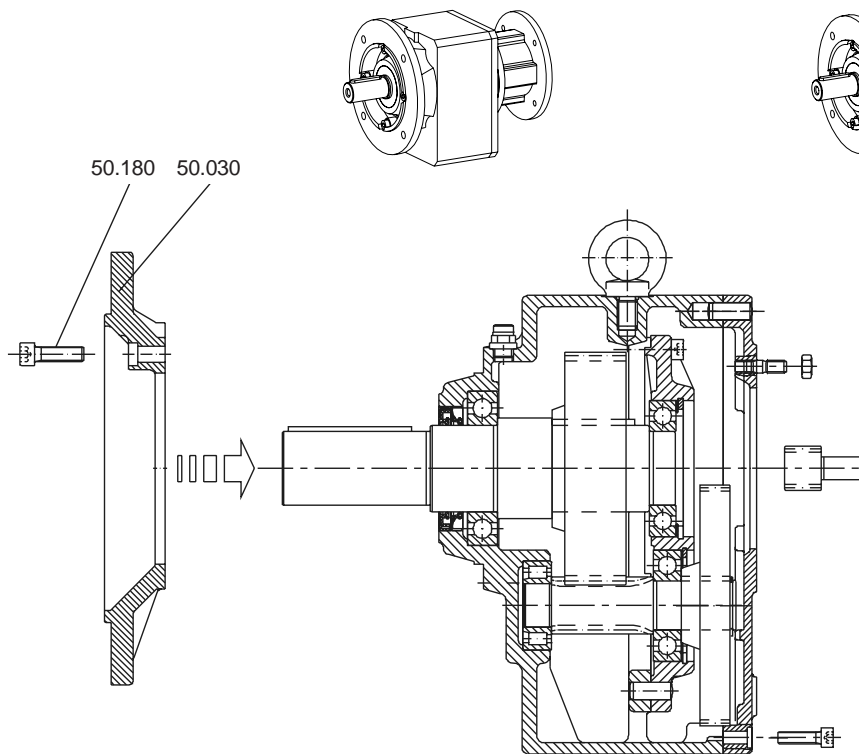




"C" Series – Concentric Helical MGS Reducer

"F" Housing Style — Round Flange Mounting

C613F to C913F



The "F" Housing Style is made by adding a flange to the "G" housing.

See Page 14 for Parts List of an MR Motor Adapter or Page 16 for an AW Input to fit these units.

Parts List for Double and Triple Reduction — "G" and "F" Housing Style

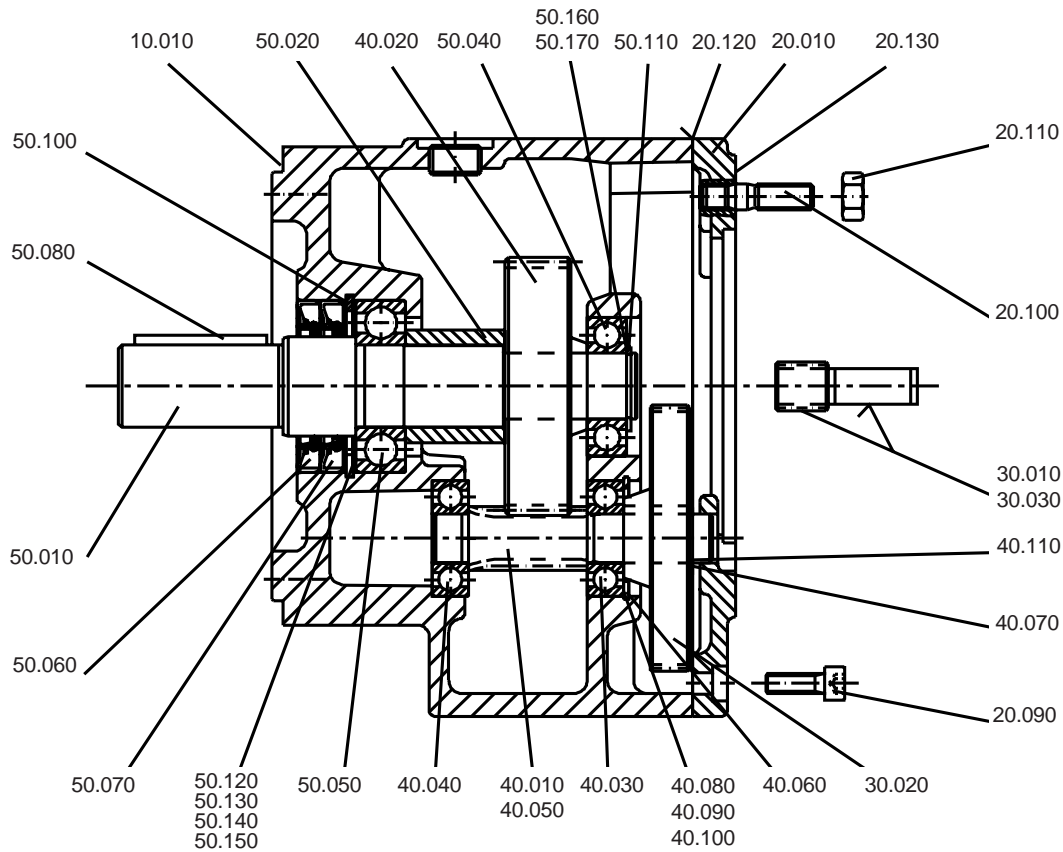
10.010	Housing	20.120	Joint Compound	50.010	Output Shaft
10.020	Bearing Housing	20.130	Gasket	50.030	Output Flange
10.030	Hollow Head Capscrew	20.150	Adhesive	50.040	Deep Groove Ball Bearing
10.040	Dowel Pin	30.010	Stem Pinion	50.050	Deep Groove Ball Bearing
10.050	Dowel Pin	30.020	Gear	50.060	Oil Seal
10.060	Lifting Eyebolt	30.030	Adhesive	50.070	Oil Seal
20.010	Cover	40.010	Pinion	50.080	Key
20.020	Pinion	40.020	Gear	50.090	Key
20.030	Stem Pinion	40.030	Deep Groove Ball Bearing	50.100	Snap Ring
20.040	Gear	40.040	Cylindrical Roller Bearing	50.120	Shim
20.050	Deep Groove Ball Bearing	40.050	Key	50.130	Shim
20.060	Deep Groove Ball Bearing	40.060	Snap Ring	50.140	Shim
20.070	Snap Ring	40.070	Snap Ring	50.150	Shim
20.080	Snap Ring	40.080	Shim / Supporting Ring	50.180	Hollow Head Capscrew
20.090	Hollow Head Capscrew	40.090	Shim	50.190	Gasket/Joint Compound
20.100	Stud	40.100	Shim		
20.110	Nut	40.110	Shim		

When ordering replacement parts, specify the Part No. and Serial No. from the nameplate and the Location No. shown on the drawing.

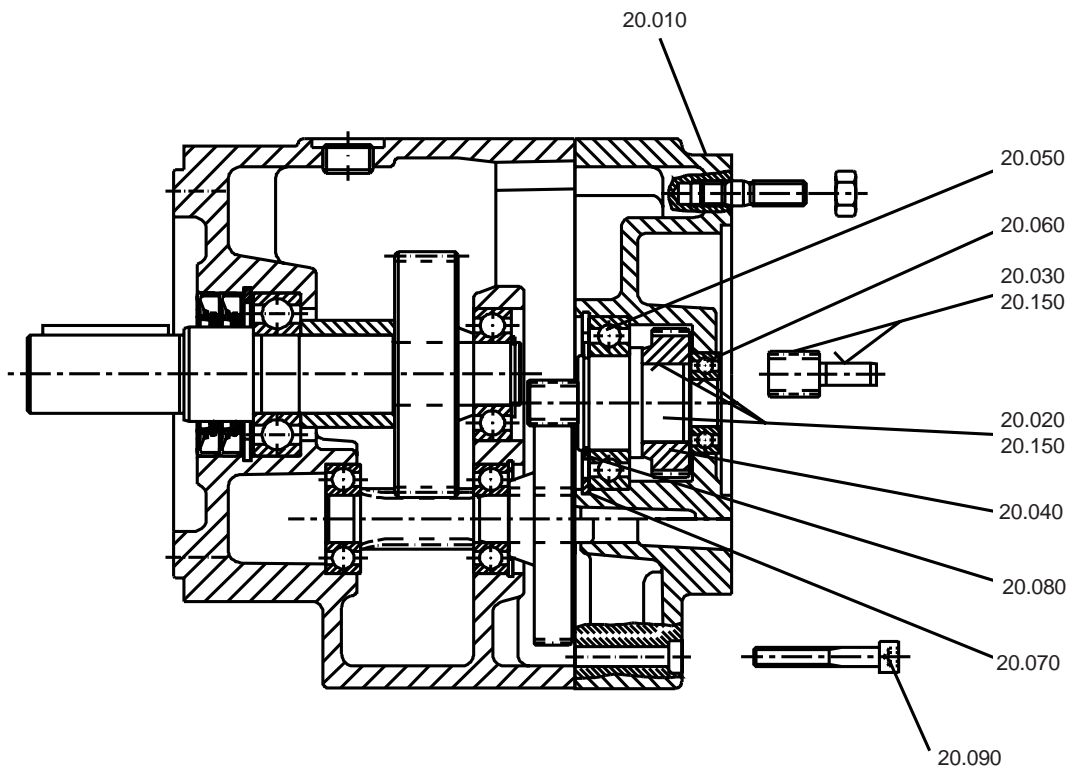
"C" Series – Concentric Helical MGS Reducer "Q" Housing Style — Square Flange Mounting



C002Q — C502Q



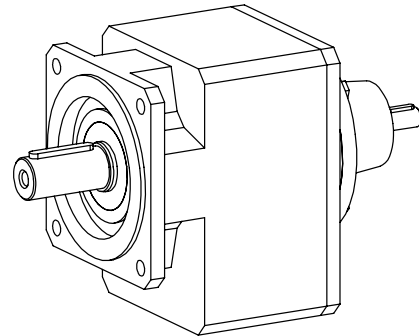
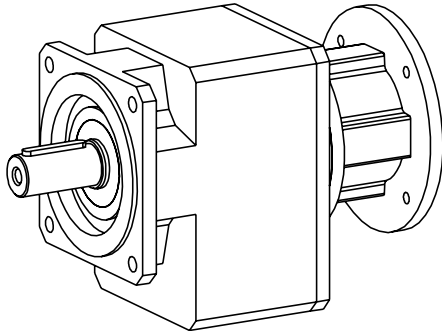
C003 to C503Q





"C" Series – Concentric Helical MGS Reducer

"Q" Housing Style — Square Flange Mounting



See Page 14 for Parts List of an MR Motor Adapter or Page 16 for an AW Input to fit these units.

Parts List for Double and Triple Reduction — "Q" Housing Style

10.010	Housing	30.010	Stem Pinion	50.020	Spacer
20.010	Cover	30.020	Gear	50.040	Deep Groove Ball Bearing
20.020	Shaft	30.030	Adhesive	50.050	Deep Groove Ball Bearing
20.030	Stem Pinion	40.010	Pinion	50.060	Oil Seal
20.040	Gear	40.020	Gear	50.070	Oil Seal
20.050	Deep Groove Ball Bearing	40.030	Deep Groove Ball Bearing	50.080	Key
20.060	Deep Groove Ball Bearing	40.040	Deep Groove Ball Bearing	50.100	Snap Ring
20.070	Snap Ring	40.050	Key	50.110	Snap Ring
20.080	Snap Ring	40.060	Snap Ring	50.120	Shim
20.090	Hollow Head Capscrew	40.070	Snap Ring	50.130	Shim
20.100	Stud	40.080	Shim / Support Ring	50.140	Shim
20.110	Nut	40.090	Shim	50.150	Shim
20.120	Joint Compound	40.100	Shim	50.160	Shim
20.130	Gasket	40.110	Shim	50.170	Shim
20.150	Adhesive	50.010	Output Shaft		

When ordering replacement parts, specify the Part No. and Serial No. from the nameplate and the Location No. shown on the drawing.

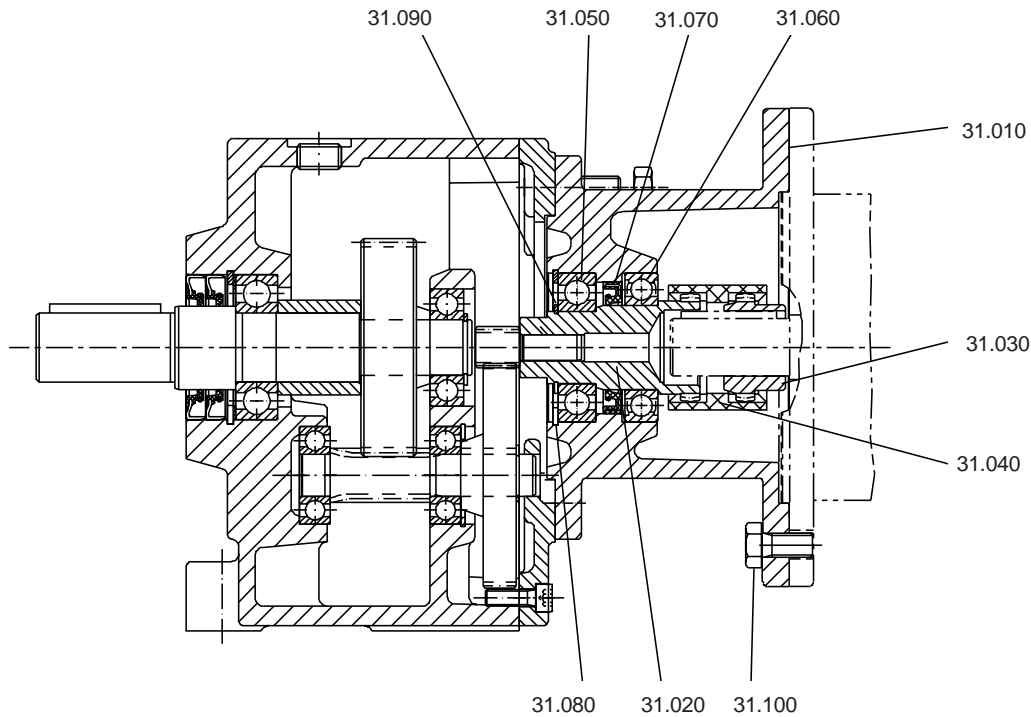
"C" Series – Concentric Helical MGS Reducer

MR — Motor Adapter

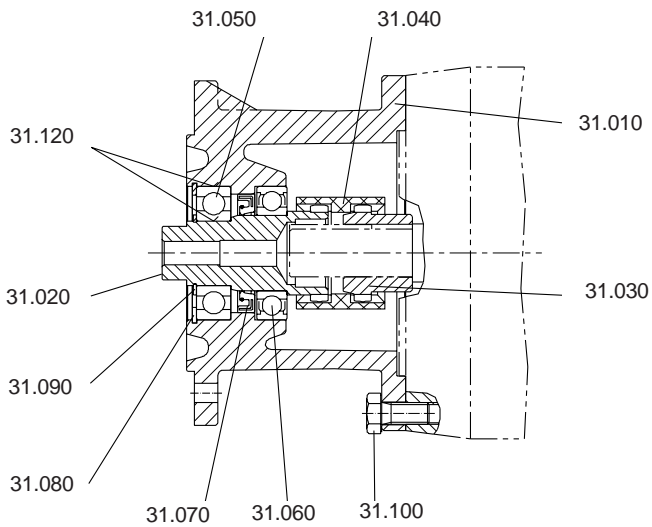
MRB — Motor Adapter with Backstop



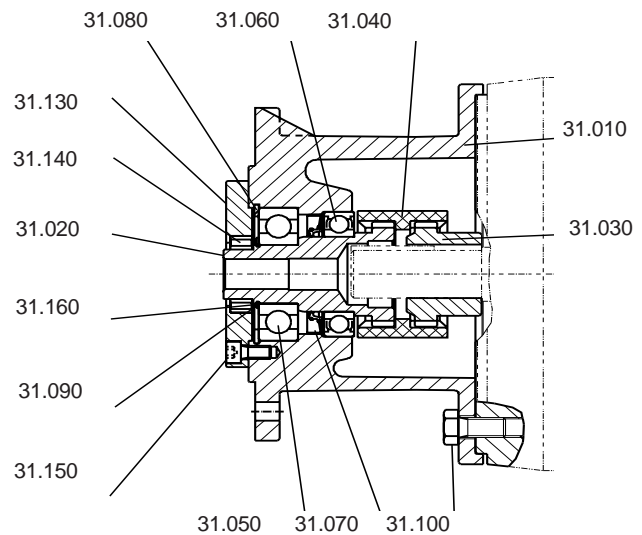
C002 to C913



MRB for flange diameter 140-160



MRB for flange diameter 200 to 350 (Double Reduction Only)



The direction of rotation of the backstop **MUST** be specified when ordered. See Page 20.

NOTE: Backstop must be flooded with oil.





"C" Series – Concentric Helical MGS Reducer

MR — Motor Adapter

MRB — Motor Adapter with Backstop

Parts List for MR and MRB Motor Adapters

31.010	Motor Adapter Housing	31.080	Snap Ring	31.160	Shim
31.020	Coupling Hub/Shaft	31.090	Snap Ring	31.170	Key
31.030	Motor Coupling Hub	31.100	Capscrew	31.180	Snap Ring
31.040	Coupling Sleeve	31.120	Adhesive		
31.050	Ball Bearing *	31.130	Backstop Cover		
31.060	Ball Bearing	31.140	Backstop		
31.070	Seal	31.150	Capscrew		

* This is a combination Bearing/Backstop in the MRB for flange diameters 140 to 160.

See Page 18 for installation of motor coupling.

When ordering replacement parts, specify the Part No. and Serial No. from the nameplate and the Location No. shown on the drawing.



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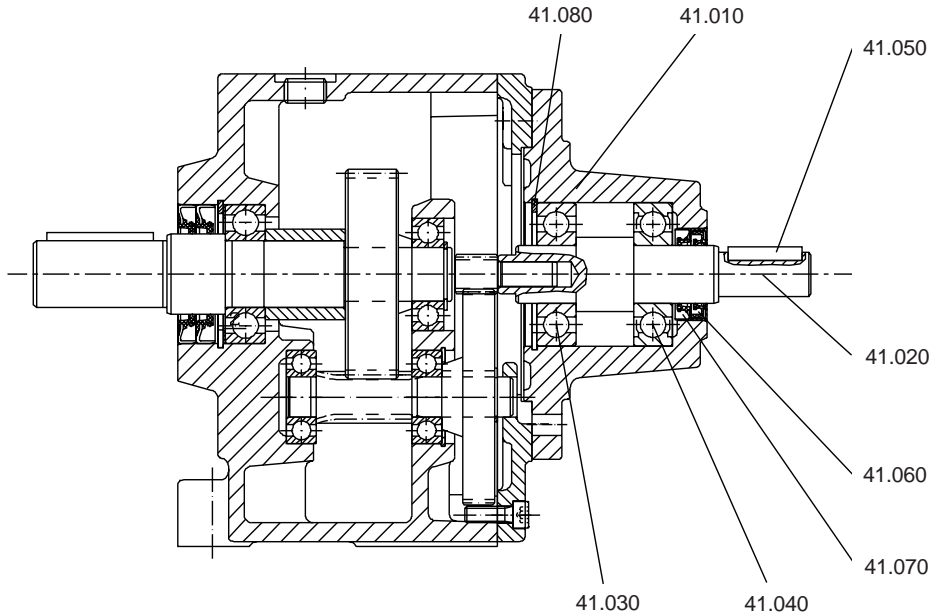
"C" Series – Concentric Helical MGS Reducer

AW — Input Shaft

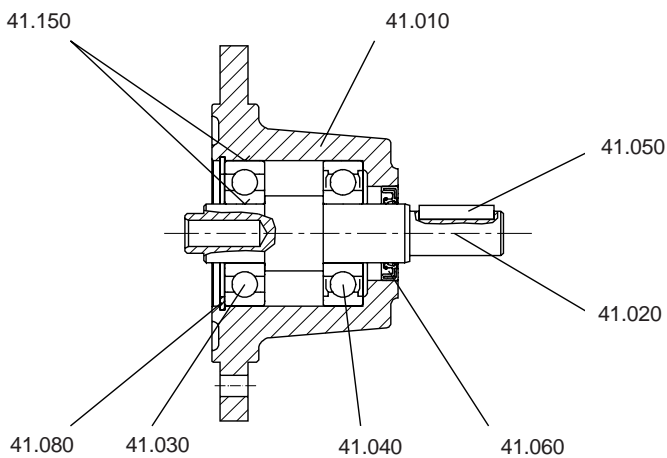
AWB — Input Shaft with Backstop



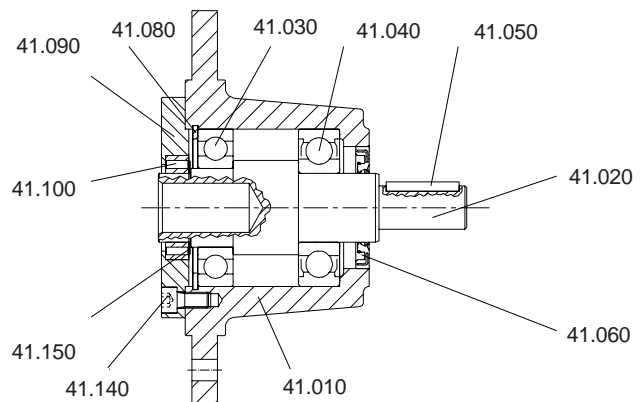
C002 to C913



AWB for flange diameter 140-160



AWB for flange diameter 200 to 350 (Double Reduction Only)



The direction of rotation of the backstop **MUST** be specified when ordered. See Page 20.

NOTE: Backstop must be flooded with oil.





"C" Series – Concentric Helical MGS Reducer

AW — Input Shaft

AWB — Input Shaft with Backstop

Parts List for AW and AWB Input Shaft

41.010	Input Housing			41.060	Seal	
41.020	Shaft			41.070	Seal	
41.030	Ball Bearing *			41.080	Snap Ring	
41.040	Ball Bearing			41.090	Backstop Cover	
41.050	Key			41.100	Backstop	

* This is a combination Bearing/Backstop in the AWB for flange diameters 140 to 160.

When ordering replacement parts, specify the Part No. and Serial No. from the nameplate and the Location No. shown on the drawing.



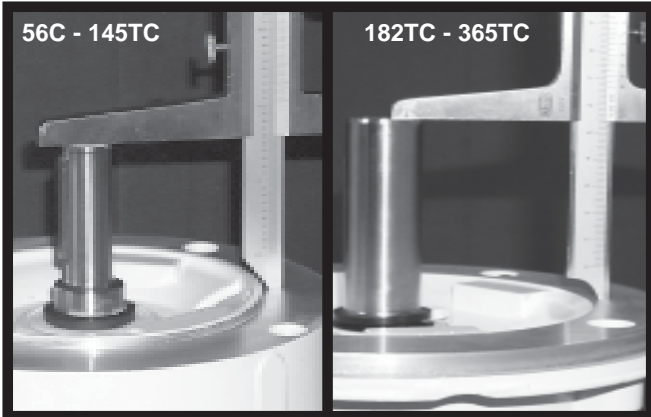
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MGS Reducer Motor Adapter Installation



Step 1. Measure the Motor Shaft



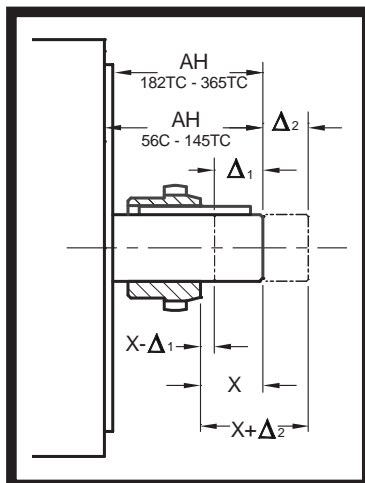
Accurate measurement of the motor shaft is vital to mounting the motor coupling correctly. The measurement must be taken from the face of the motor or pilot surface (see above) to the end of the motor shaft. If this dimension is the same as the NEMA standard "AH" dimension shown in Table No. 1, proceed with the motor mounting in Step 2.

Table No. 1 NEMA Motor Shaft Dimensions

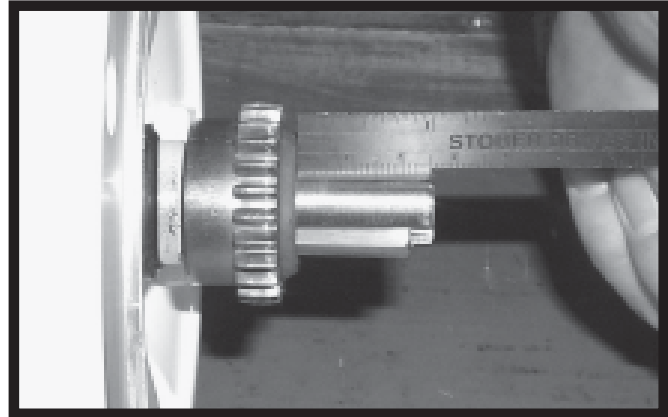
Motor Frame	"AH"	Shaft Dia.	Motor Frame	"AH"	Shaft Dia.
56C	2 ¹ / ₁₆	5/8	254/256TC	3 ³ / ₄	1 ⁵ / ₈
143/145TC	2 ¹ / ₈	7/8	284/286TC	4 ³ / ₈	1 ⁷ / ₈
182/184TC	2 ⁵ / ₈	1 ¹ / ₈	324/326TC	5	2 ¹ / ₈
213/215TC	3 ¹ / ₈	1 ³ / ₈	364/365TC	5 ⁵ / ₈	2 ³ / ₈

If the motor shaft length measurement is less than "AH", **subtract** the difference (Δ_1) from the "X" dimension shown in Table No. 2.

If the motor shaft length measurement is greater than "AH", **add** the difference (Δ_2) to the "X" dimension shown in Table No. 2.



Step 2. Locate the Motor Coupling on the Motor Shaft



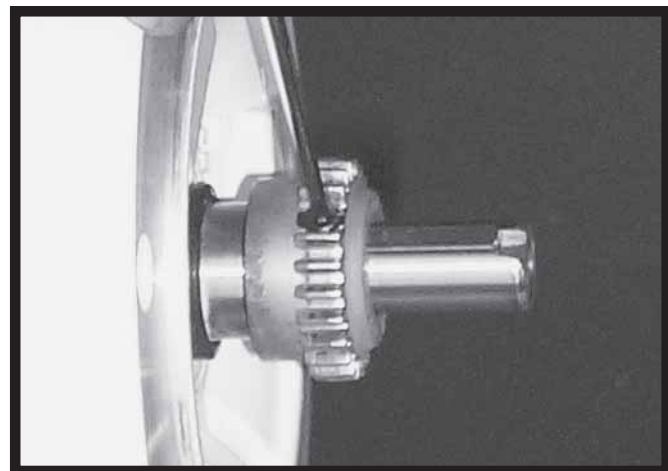
Mount the coupling with the hub projection toward the step or shoulder of the motor. The motor shaft should project through the coupling by the "X" dimension (or the value determined using the previous measurement).

Table No. 2 Location of Motor Coupling

Adapter Part No.	"X" mm	"X" inches	Adapter Part No.	"X" mm	"X" inches
MR140/050	28	1.1	MR250/210	46	1.8
MR160/050	22	.9	MR300/180	10	.4
MR160/140	25	1.0	MR300/210	26	1.0
MR200/050	12	.5	MR300/250	42	1.7
MR200/140	12	.5	MR300/280	58	2.3
MR200/180	30	1.2	MR350/320	64	2.5
MR250/180	30	1.2	MR350/360	80	3.1

"X" Tolerance – +1mm / -0mm (+0.040 / -0.000 inches)

Step 3. Tighten the Setscrew

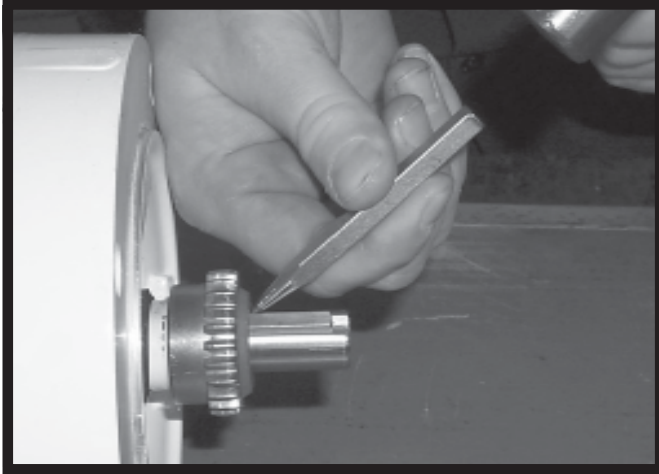


With the coupling hub located at the correct distance, tighten the setscrew in the coupling.



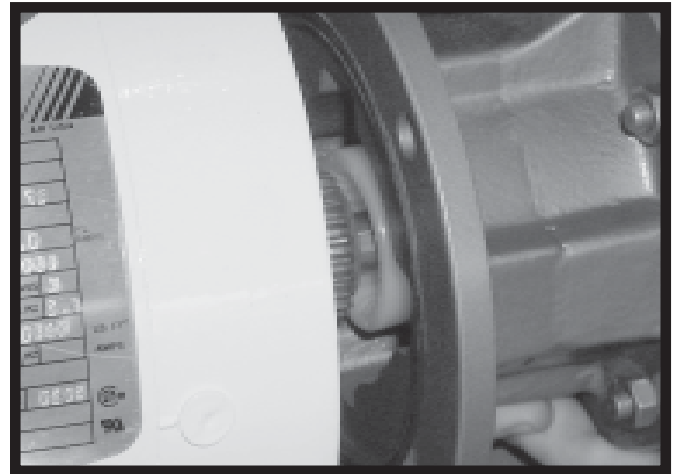
MGS Reducer Motor Adapter Installation

Step 4. Secure the Motor Shaft Key



For ease of installation, secure the motor shaft key. Staking near the end of the keyway, on the sides of the key, or a temporary adhesive works well.

Step 5. Mount the Motor



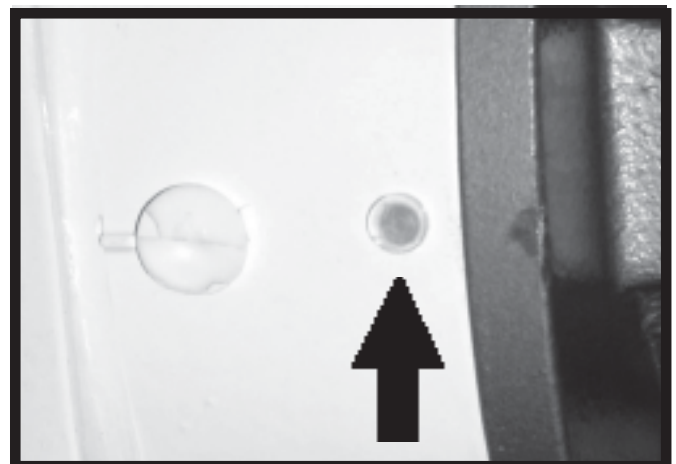
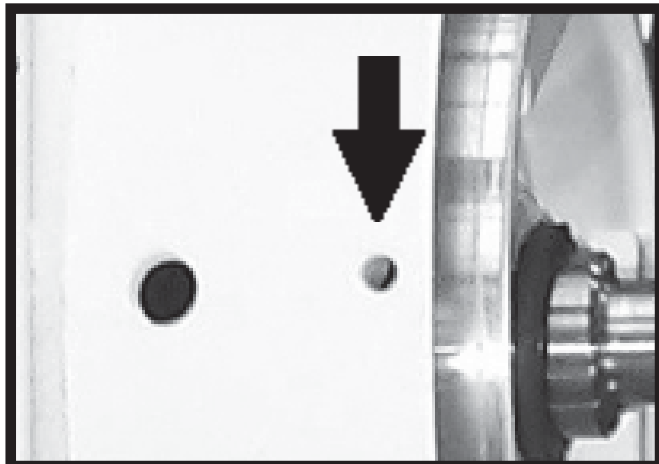
With the coupling secure, insert the motor shaft into the motor adapter. The coupling sleeve is already installed on the mating reducer coupling hub inside the motor adapter. **The sleeve should move freely in an axial direction.** (Axial displacement ± 0.040 inches.)

With the motor in place, tighten the motor bolts.

Caution: If the motor coupling is not installed correctly, the input bearing may fail due to pre-load. This will void the warranty of the reducer and possibly fail the motor.

Some motor manufacturers provide a drain hole in the mounting face of washdown motors. In some mounting positions, water or other material can enter the motor adapter and fail the bearing.

Be sure this hole is covered during washing or when the unit is in a wet environment. The illustration shows the method that Stober assembly personnel use to plug the hole.



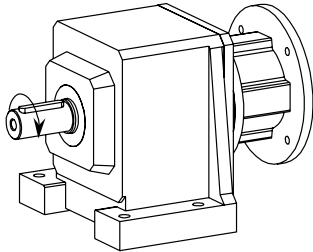
"C" Series – Concentric Helical MGS Reducer

Output Shaft Rotation with Backstop Installed

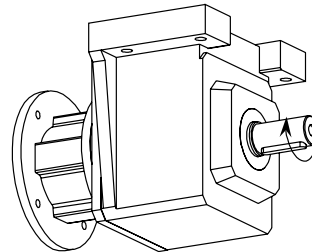


DIRECTION OF ROTATION MUST BE SPECIFIED WHEN UNIT IS ORDERED!

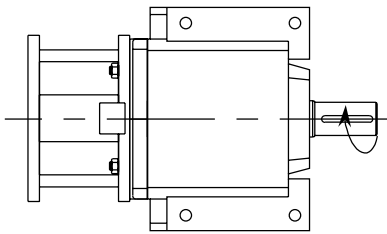
EL1 - Shaft Rotating CLOCKWISE



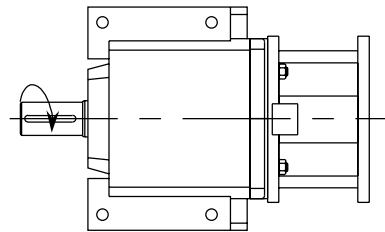
EL2 - Shaft Rotating CLOCKWISE



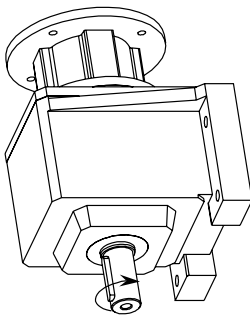
EL3 - Shaft Rotating CLOCKWISE



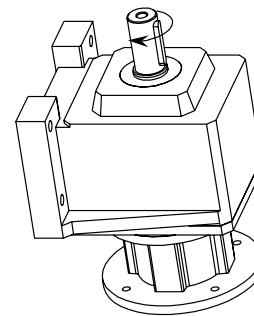
EL4 - Shaft Rotating CLOCKWISE



EL5 - Shaft Rotating CLOCKWISE



EL6 - Shaft Rotating CLOCKWISE



WARNING!

All the above units are shown with the backstop installed allowing the output shaft to rotate in a **CLOCKWISE** direction when viewing from the output shaft side.

Before installing the motor, check the output rotation by turning the input by hand. The motor should then be wired for the correct input rotation direction, otherwise the backstop will be irreparably damaged at start-up.



Terms and Conditions of Sale

1. **GENERAL.** All orders for products supplied by STOBER DRIVES INC. ("STOBER") shall be subject to these terms and conditions of sales. All transactions shall be governed by the laws of the Commonwealth of Kentucky. No modifications hereto will be binding unless agreed to in writing by STOBER.

2. **CUSTOMER.** The term "Customer," as used herein, means the distributor, resale dealer, original equipment manufacturer or first end-user customer that purchases the STOBER products.

3. **WARRANTY.** STOBER products shall be free from defects in material and workmanship for a maximum of 5-years (single shift operation or 30 months multiple shift operation) for ServoFit products; 3-years (single shift operation or 18 months multiple shift operation) for MGS products; 2-years (single shift operation or 12 months multiple shift operation) for TD products, from the date of shipment to the Customer. For ServoFit products, all normal wear items, including oil seals and bearings, shall be covered for a period of 2-years (single shift operation or 12 months multiple shift operation). In the event that a product proves to be defective, STOBER's sole obligation shall be, at its option, to repair or replace the product. The repaired or replacement product will be shipped F.O.B. STOBER's facilities, freight prepaid by STOBER.

No employee, agent or representative of STOBER has the authority to waive, alter, vary or add to the terms hereof without the prior written approval of an officer of STOBER. It is expressly agreed that (a) this section constitutes the final expression of the parties' understanding with respect to the warranty and (b) this section is a complete and exclusive statement of the terms of the warranty.

STOBER shall have no obligation under the warranty set forth above in the event that:

- (a) The Customer fails, within the warranty period to notify STOBER in writing and provide STOBER with evidence satisfactory to STOBER of the alleged defect within five (5) days after it becomes known to the customer;
- (b) After inspection of a product, STOBER determines, in its sole discretion, that it is not defective in material or workmanship;
- (c) Repair or replacement of a product is required through normal wear and tear;
- (d) Any part in a product or any ingredient contained in a product requires replacement or repair through routine usage or normal wear and tear;
- (e) A product is not maintained or used in accordance with STOBER's applicable operating and/or maintenance manuals, whether by the Customer or any third party;
- (f) A product has been subject to misuse, misapplication, negligence, neglect (including, but not limited to, improper maintenance or storage), accident, catastrophe, improper installation, modification, adjustment, repair or lubrication, whether by the Customer or any third party, without the prior written consent of STOBER. Misuse shall include, but not be limited to, deterioration in a product due to chemical action and wear caused by the presence of abrasive materials;
- (g) The system of connected rotating parts into which the product becomes incorporated is not compatible with the product, or it is not free from critical speed or torsional or other type of vibration within the specified operating range, no matter how induced; or
- (h) The transmitted load and imposed torsional thrust and overhung loads are not within the published capacity limits for the unit sold.

Items manufactured by other parties but installed on or affixed to STOBER's products are not warranted by STOBER and bear only those warranties, express or implied, which are given by the manufacturer of such items, if any.

THE WARRANTY SET FORTH ABOVE IS INTENDED SOLELY FOR THE BENEFIT OF THE Customer AND DOES NOT APPLY TO ANY THIRD PARTY. ALL CLAIMS MUST BE MADE BY THE Customer AND MAY NOT BE MADE BY ANY THIRD PARTY. THIS WARRANTY MAY NOT BE TRANSFERRED OR ASSIGNED, IN WHOLE OR IN PART, BY THE Customer FOR ANY REASON WHATSOEVER. ANY SUCH ATTEMPTED TRANSFER OR ASSIGNMENT SHALL BE NULL AND VOID.

THIS WARRANTY TAKES THE PLACE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHICH ARE HEREBY DISCLAIMED AND EXCLUDED BY STOBER, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF USE AND ALL OBLIGATIONS OR LIABILITIES ON THE PART OF STOBER FOR DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE, REPAIR OR PERFORMANCE OF THE PRODUCTS.

4. **MODIFICATIONS.** STOBER reserves the right, without notice to the Customer, to (a) change the specifications of any product, (b) improve a product in any manner that STOBER deems necessary or appropriate and (c) discontinue the manufacture of any product.

5. **PURCHASE ORDERS.** The Customer will submit purchase orders for the products to STOBER in writing, whether by mail or telefax, which shall set forth, at a minimum: (a) an identification of the products ordered, (b) prices for such products, (c) quantities, (d) requested delivery dates and (e) shipping instructions and shipping addresses.

6. **ACCEPTANCE OF ORDERS.** All purchase orders received from the Customer are subject to acceptance by STOBER in writing.

7. **MODIFICATION OF ORDERS.** No accepted purchase order shall be modified or canceled except upon the written agreement of STOBER and the Customer. Mutually agreed cancellations shall be subject to reasonable charges based upon expenses already incurred by STOBER and commitments made by STOBER. Mutually agreed change orders shall be subject to all provisions of these Terms and Conditions of Sale.

8. **PRICE INCREASES.** STOBER may increase its prices for the products by providing the original purchaser of the products with at least thirty (30) days' prior written notice. Increased prices for products shall not apply to purchase orders accepted prior to the effective date of the price increase unless such orders provide for delivery more than thirty (30) days after the date of acceptance of the order.

9. **PRICING AND DELIVERY TERMS.** In accordance with KRS 355.2-319(1)(b), all products are delivered F.O.B. STOBER's warehouse facility in Maysville, Kentucky, or such other facility as STOBER may designate. Orders are then shipped per Customer's shipping instructions as set forth in Customer's purchase order. **CATALOG PRICING DOES NOT INCLUDE SHIPPING, HANDLING AND TAXES.** Once delivered to a common carrier of the Customer's choosing [or of STOBER's choosing if Customer has failed to specify a common carrier on or before five (5) days prior to the requested delivery date] STOBER shall have no further responsibility for the products and all risk of damage, loss or delay shall pass to the Customer. A handling fee is added to freight costs by STOBER to cover the cost of having to pay the carrier within seven (7) days when the terms with the Customer are net 30. The Customer has the option of shipping collect with our carrier or the carrier of choice.

10. **PAYMENT TERMS.** Net 30 days. All orders will be shipped either prepaid by the Customer or C.O.D., at STOBER's option, unless the Customer has established a previously approved credit line. If STOBER approves a credit line for the Customer, all payments shall be due within thirty (30) days of the date of the invoice. If any invoice is not paid in full within such thirty (30) day

period, then finance charges shall be assessed at the rate of one and one-half percent (1½%) per month (eighteen percent (18%) per year). If such rate is deemed to be usurious at any time, it shall be reduced to the maximum rate permitted by applicable law. STOBER may stop or withhold shipment of products if the Customer does not fulfill its payment obligations. If STOBER is insecure about payment for any reason, STOBER may require full or partial payment in advance and as a condition to the continuation of its delivery of products.

11. **SECURITY INTEREST.** Unless and until the products are paid for in full, STOBER reserves a security interest in them to secure the unpaid balance of the purchase price. The Customer hereby grants to STOBER a power of attorney, coupled with an interest, to execute and file on behalf of the Customer all necessary financing statements and other documents required or appropriate to protect the security interest granted herein.

12. **ACCEPTANCE OF PRODUCTS.** The Customer will conduct any incoming inspection tests as soon as possible upon arrival of the products, but in no event later than ten (10) days after the date of receipt. Any products not rejected by written notice to STOBER within such period shall be deemed accepted by the Customer. STOBER shall not be liable for any additional costs, expenses or damages incurred by the Customer, directly or indirectly, as a result of any shortage, damage or discrepancy in a shipment.

13. LIMITATION OF REMEDIES.

- (a) STOBER SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE CAUSED BY DELAY IN FURNISHING THE CUSTOMER WITH PRODUCTS.
- (b) IN NO EVENT SHALL STOBER'S LIABILITY INCLUDE ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL LOSSES OR DAMAGES, EVEN IF STOBER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH POTENTIAL LOSS OR DAMAGE.

14. **MADE-TO-ORDER PRODUCTS.** STOBER reserves the right to revoke and amend any price quotations offered to the Customer for made-to-order products, provided that such price quotations have not been accepted by the Customer prior to the date of revocation or amendment.

15. **DIES, TOOLS AND EQUIPMENT.** Charges incurred by the Customer for dies, tools and other equipment shall not confer ownership or the right to possession therein by the Customer. All such dies, tools and equipment shall remain the property of STOBER, and STOBER shall have the exclusive right to possession thereof. STOBER shall maintain such tools and equipment in good working order.

16. **REGULATORY LAWS AND STANDARDS.** STOBER makes no representation that its products conform to state or local laws, ordinances, regulations, codes or standards except as may be otherwise agreed to in writing by STOBER.

17. **SIZES AND WEIGHTS.** STOBER's products are made only in the sizes and to the specifications set forth in its catalogs and other literature. If any alteration is requested, such altered product will be treated as a made-to-order item. STOBER assumes no responsibility for typographical errors which may appear in its catalogs or literature, and cannot accept alteration charges caused by such errors. Since weights shown in STOBER's catalogs are approximate, they cannot be used in determining freight allowances set forth in its catalogs and other literature. Freight allowances will be determined at the time of shipment and shall be based on actual shipping weight.

18. **SYSTEM DESIGN.** Responsibility for system design to ensure proper use and application of STOBER's products within their published specifications and ratings rests solely with the Customer. This includes, but is not limited to, an analysis of loads created by torsional vibrations within the entire system, regardless of how induced.



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Company Name: _____
Address: _____
City: _____
State: _____ Zip Code: _____
Telephone: _____ FAX: _____
Contact: _____

Nameplate Data:

Part No.		
Serial No.		Date Code
Oil Capacity in Ozs./Liters	Output Torque in./lb.	
Input HP/kW	Input RPM	Output RPM
Customer Information		Ratio : 1
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