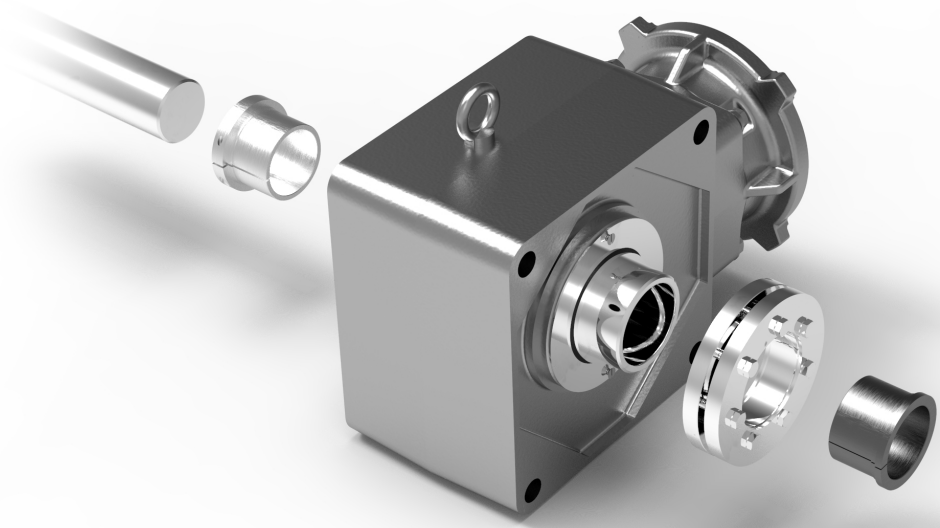
Sumitomo Drive Technologies

Installation Guide



Easy-Grip™

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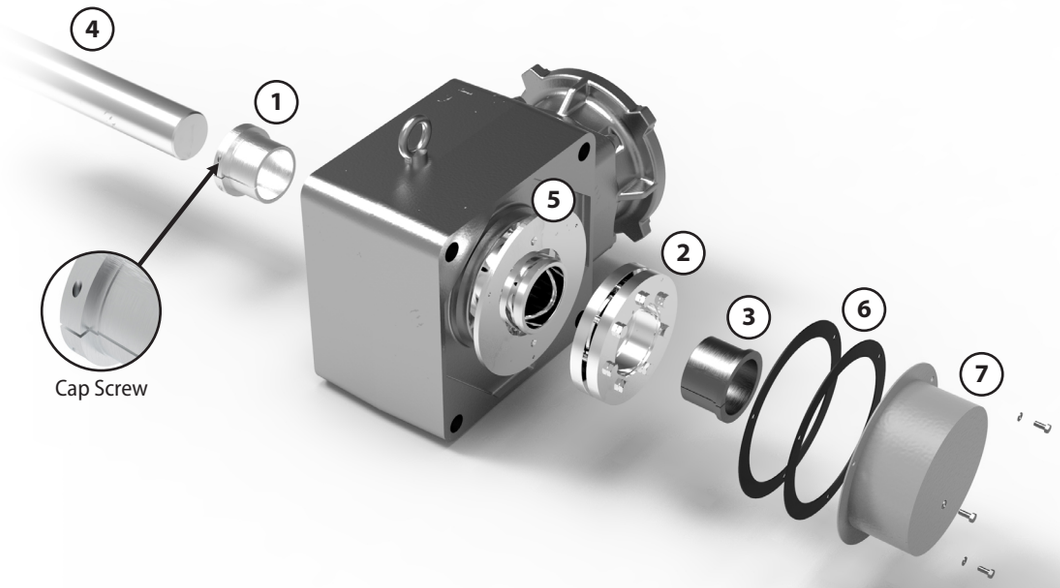
Easy-Grip Install Guide 2020

Sumitomo Machinery Corporation of America

Easy-Grip™ Installation and Removal

Figure 1. Easy-Grip™ and Related Components



Easy-Grip™ Kit:

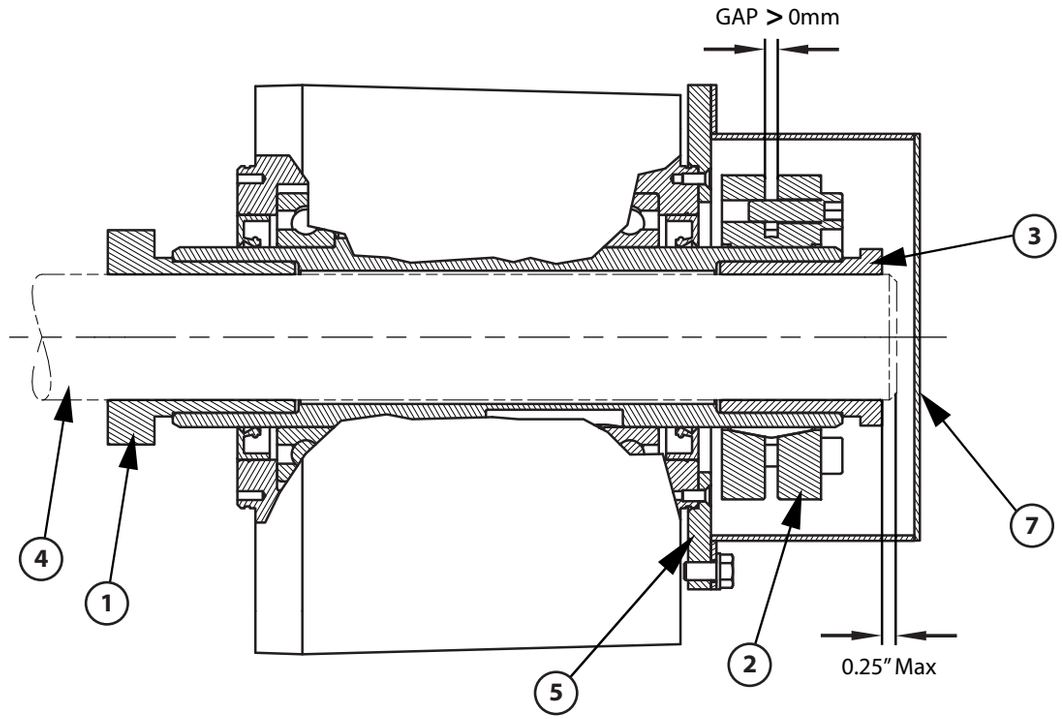
1. Support Bushing
2. Shrink Disc
3. Clamp Bushing

Related Components:

4. Solid Shaft
5. Safety Cover Backplate
6. Optional Washdown Duty Gaskets
7. Safety Cover

Note: In applications where liquid or moisture is a concern, a special package is offered which includes gaskets. The gasket between the gearbox casing and the safety cover back plate will have 2 holes for mounting screws. The cover gasket in between the back plate and safety cover will have 3 holes.

Figure 2. Easy-Grip™ Properly Installed



Required Tools and Materials

Torque wrench(s) with metric hex drivers and sockets, plastic or rubber dead blow hammer, metric Allen wrench set or T-handle hex set, screw drivers, caliper or micrometer, fine grit sandpaper, rags, gloves, degreaser, light weight machine oil, and possibly Molykote® G-Rapid Plus Grease or equivalent (if reusing Shrink Disc).

Surface Finish

Check the surface of the solid shaft. The finish should be between 32 and 125 RMS.

Check the shaft to be installed for accuracy

The length of the shaft to be installed in the gearbox hollow shaft should be long enough to allow for full engagement of the clamp bushing, hollow shaft, and shrink disc. The shaft length should not extend past ¼" of the outer edge of the clamping bushing as it may contact the safety cover (see **Figure 2**). The OD of the shaft tolerance should meet values provided in **Table 1**. Verify the shaft straightness is ≤ 0.0006 in/in (mm/mm).

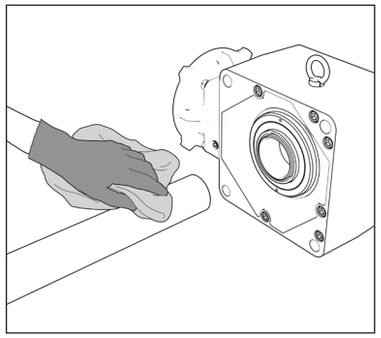
Table 1. The OD of the shaft to be installed in the gearbox is within h11 tolerance

Shaft Size (inches)	Shaft Size (inches)	h11 Min (inches)	h11 Max (inches)
1	1	0.9950	1.0000
1-1/8	1.125	1.1200	1.1250
1-3/16	1.1875	1.1815	1.1875
1-1/4	1.25	1.2440	1.2500
1-5/16	1.3125	1.3065	1.3125
1-3/8	1.375	1.3690	1.3750
1-7/16	1.4375	1.4315	1.4375
1-1/2	1.5	1.4940	1.5000
1-5/8	1.625	1.6190	1.6250
1-11/16	1.6875	1.6815	1.6875
1-3/4	1.75	1.7440	1.7500
1-7/8	1.875	1.8690	1.8750
1-15/16	1.9375	1.9315	1.9375
2	2	1.9930	2.0000
2-1/16	2.0625	2.0555	2.0625
2-1/8	2.125	2.1180	2.1250
2-3/16	2.1875	2.1805	2.1875
2-1/4	2.25	2.2430	2.2500
2-5/16	2.3125	2.3055	2.3125
2-3/8	2.375	2.3680	2.3750
2-7/16	2.4375	2.4305	2.4375

Shaft Size (mm)	h11 Min (mm)	h11 Max (mm)
25	24.870	25.000
28	27.870	28.000
30	29.870	30.000
32	31.840	32.000
35	34.840	35.000
38	37.840	38.000
40	39.840	40.000
42	41.840	42.000
45	44.840	45.000
48	47.840	48.000
50	49.840	50.000
55	54.810	55.000
60	59.810	60.000

Table 2. Torque values for the bushing support cap screw and the shrink disc bolts

Hyponic	Fortress	BBB-H	Gearbox Hollow Shaft OD	Support Bushing Cap Screw Size	Torque (Nm)	Std. (lb)	Shrink Disc Bolt Size	Torque (Nm)	Torque (lb)
1320	S320	-	44	M5	6	53	M6	12	106
1330/1340	-	-	44	M5	6	53	M6	12	106
1420	S420	-	50	M5	6	53	M6	12	106
1430	-	-	50	M5	6	53	M6	12	106
1440	-	-	50	M5	6	53	M6	12	106
1520	-	HZ522	62	M5	6	53	M6	12	106
1521	-	-	62	M5	6	53	M6	12	106
1522	-	-	62	M5	6	53	M6	12	106
1530	-	HZ523	62	M5	6	53	M6	12	106
1540	-	-	62	M5	6	53	M6	12	106
1531	-	HZ524	62	M5	6	53	M6	12	106
1630-34	-	-	80	M5	6	53	M8	30	266

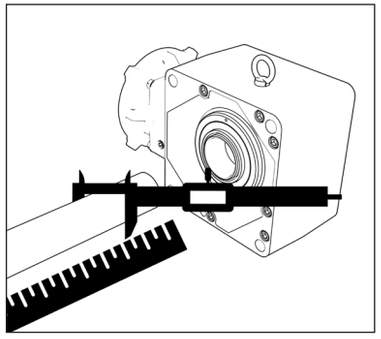


1

Use gloves as there may be burrs or sharp edge to a keyway, if present.

Hand dress any gouges or burrs with sandpaper. Use a degreaser and rags to wipe the gearbox hollow shaft OD and ID.

Clean the OD of the shaft to be installed. **Both the shaft and hollow shaft must be clean and dry—no grease or oil**.

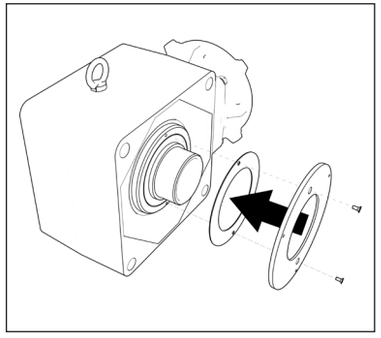


2

Check the surface finish of the shaft to be installed. The finish should be between 32 and 125 RMS.

The length of the shaft to be installed in the gearbox hollow shaft should be long enough to allow for full engagement of the clamp bushing, hollow shaft, and shrink disc. **The shaft length should not extend past ¼" of the outer edge of the clamping bushing** as it may contact the safety cover (see **Figure 2**).

The OD of the shaft tolerance should meet values provided in **Table 1**. Verify the shaft straightness is ≤ 0.0006 in/in (mm/mm).

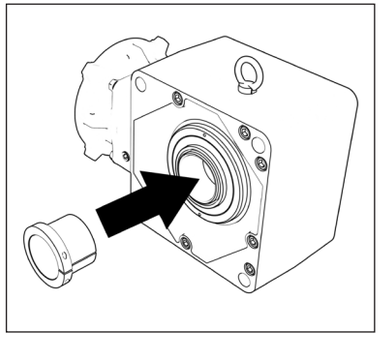


3

Install the Safety Cover Back Plate. **The back plate must be installed prior to installing the shrink disc**. Identify the side of the gearbox that the shrink disc will be installed on.

Install a gasket if applicable and then the back plate.

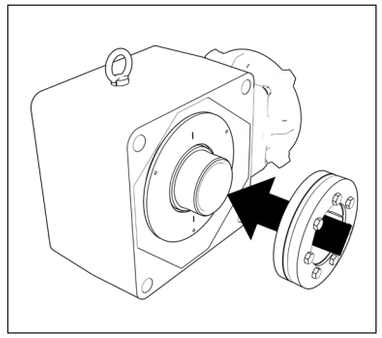
Install and tighten the two countersunk screws provided with the safety covers.



4

Insert the support bushing into the hollow shaft of the gearbox. Light oil may be added to the support bushing OD and ID only to assist with insertion into the hollow shaft and installation of the shaft.

Tap the support bushing until its lip is firmly against the edge of the hollow shaft.

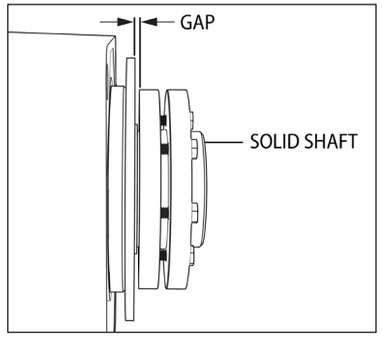


5

New Shrink Discs are properly lubricated. If you're reusing your Shrink Disc, first verify there is **Molykote G-Rapid Plus grease** is on the screws, under the screw heads and on the mating tapers (center inner tapered ring of shrink disc assembly).

Also verify the screw threads have not been stretched if previously installed.

Place the Shrink Disc onto the hollow shaft OD. You may need to loosen the Shrink Disc bolts first, but **DO NOT remove these bolts**.

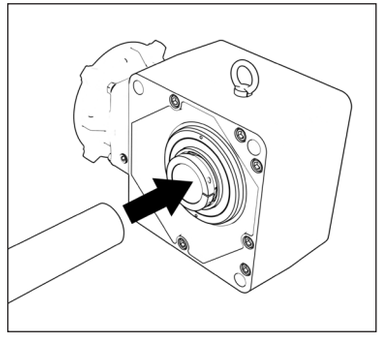


6

Position the shrink disc such that it will **not rub against the gearbox or safety cover back plate**.

The outer edge of the thrust ring should **not extend past the end of the gearbox hollow shaft**.

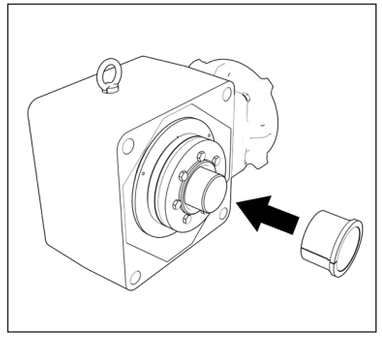
Hand tighten the shrink disc bolts.



7

Align the hollow gearbox shaft with the support bushing installed to the equipment shaft in order to prevent the shaft binding and damage during installation. Push the gearbox onto the equipment shaft.

Verify that the shaft position will have **full length engagement** between the shaft, hollow shaft, clamp bushing and Shrink Disc **or there may be permanent deformation of the hollow shaft**.

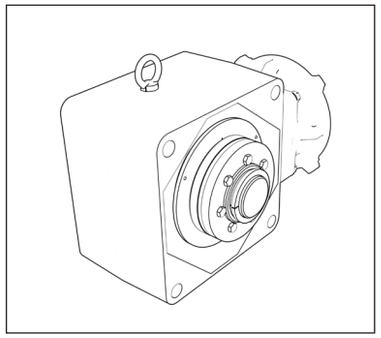


8

Do not apply rust preventive oils, anti-seize, or other lubricants to the clamp bushing. Insert the clamp bushing between the hollow shaft and the shaft. The clamp bushing should slide into position with minimal effort.

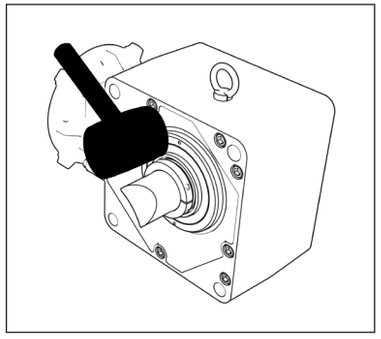
Push in the clamp bushing until its lip is firmly against the edge of the hollow shaft.

The clamp bushing is **NOT re-usable**.



9

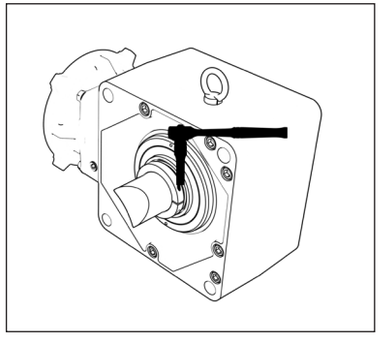
Clamp bushing shown in place.



10

Once the shaft is properly positioned, verify the support bushing lip remains seated against the edge of the hollow shaft.

Gently tap in place with a plastic or rubber hammer if necessary.

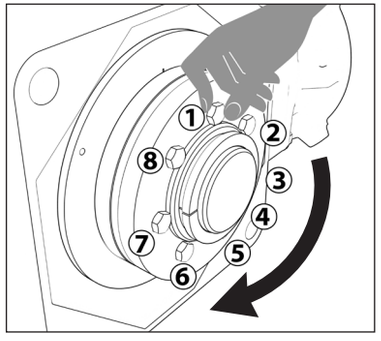


11

Use a calibrated torque wrench.

Tighten the support bushing cap screw to the recommended torque shown in **Table 2**.

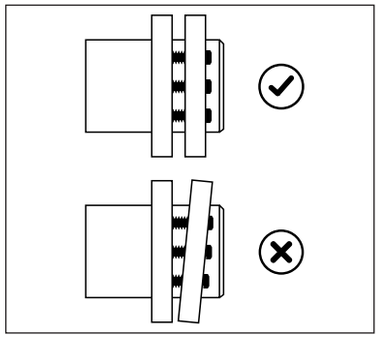
The support bushing is now fixed in place.



12

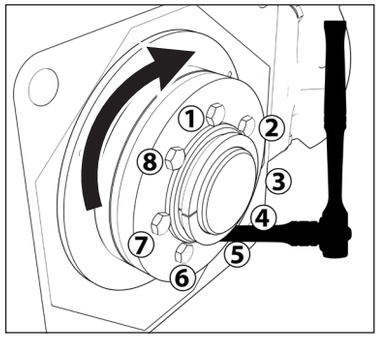
Position and align the shrink disc such that it is perpendicular and fully supported by the hollow shaft, shaft and clamp bushing.

Hand-tighten the Shrink Disc bolts.



13

Measure the gap between the Shrink Disc outer rings to verify they are parallel.



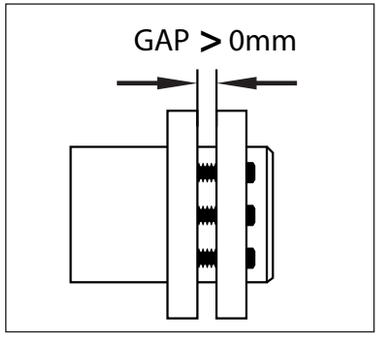
14

Set your torque wrench to **100 percent** of the recommended torque.

Tighten each Shrink Disc screw using the torque wrench. Use a **circular pattern** and work in **quarter turn increments** until the bolts reach 100 percent of the torque. See **Table 2** for torque values.

DO NOT tighten bolts in a star pattern.

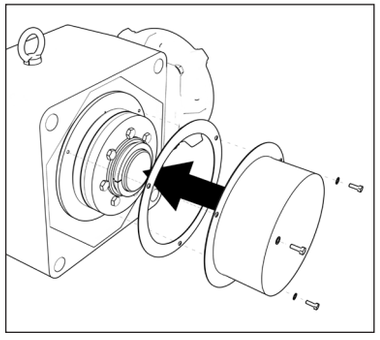
Only use a calibrated torque wrench for this step. DO NOT use impact tools or hand tools.



15

Use feeler gauge to verify that there is a gap **(gap>0mm)** between outer rings of the shrink disc.

Verify the Shrink Disc outer rings are parallel within **0.005 inches (0.127mm)**.



16

Install the safety cover and gasket if applicable to the back plate using the three hex bolts and washers provided.

Removal

1. Gradually release each Shrink Disc bolt. Use a circular pattern and work in quarter-turn increments.

DO NOT remove the screws completely, as the outer ring may spring off.

2. Loosen the support bushing cap screw.

3. Remove the Shrink Disc.

4. Once you verify the Shrink Disc is removed, remove the shaft and pull the clamp bushing out of the hollow shaft.
   The clamp bushing must be replaced with new at re-installation.

Notes

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