

GC 15100

 **Warning**

Forward this manual to the person responsible for Installation, Operation and Maintenance of the product described herein. Without access to this information, faulty Installation, Operation or Maintenance may result in personal injury or equipment damage.

# Installation, Operation and Maintenance of Eaton/Geislinger® Damping Torsional Flexible Coupling



 **Caution:**

**Use Only Genuine Airflex® Replacement Parts**

The Airflex Division of Eaton Corporation recommends the use of genuine Airflex replacement parts. The use of non-genuine Airflex replacement parts could result in substandard product performance, and may void your Eaton warranty. For optimum performance, contact Airflex:

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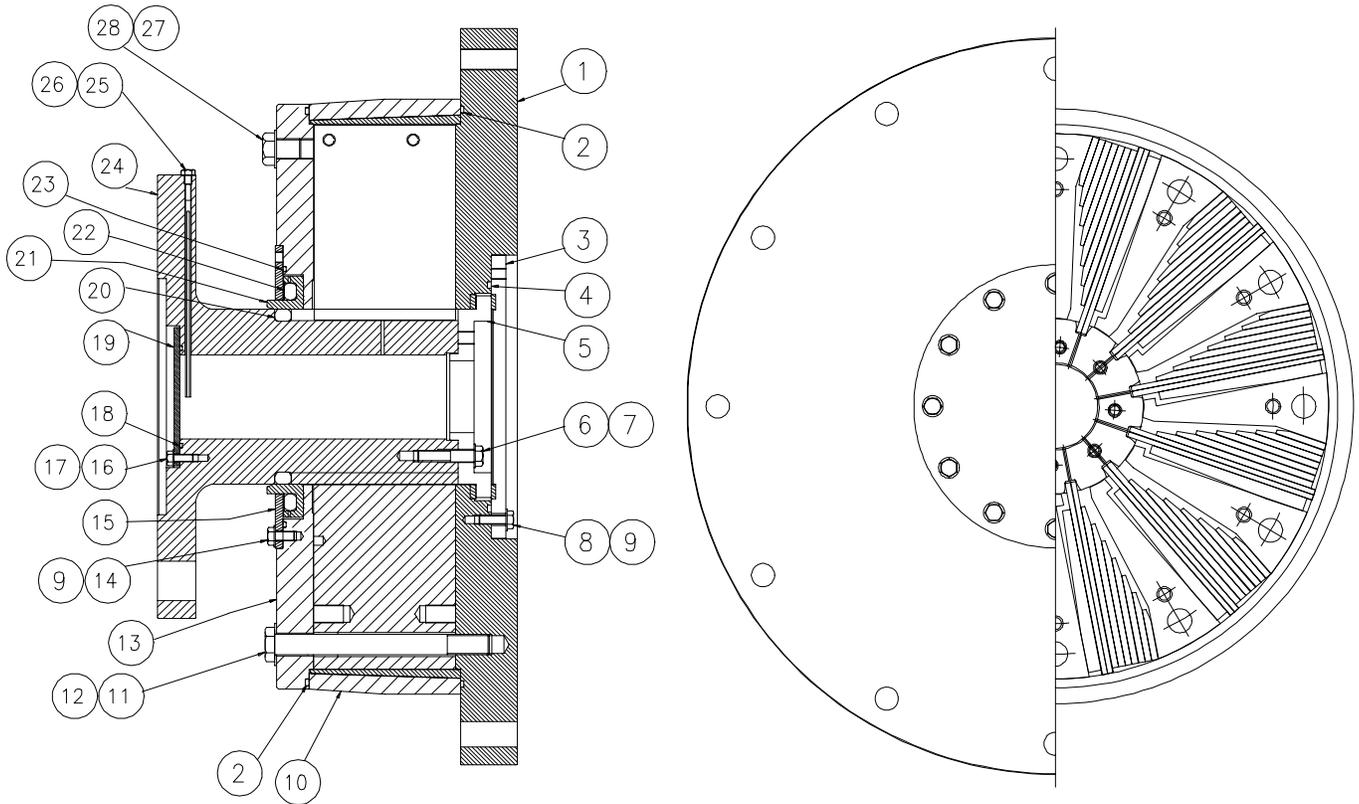
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Eaton® Airflex® Clutches & Brakes

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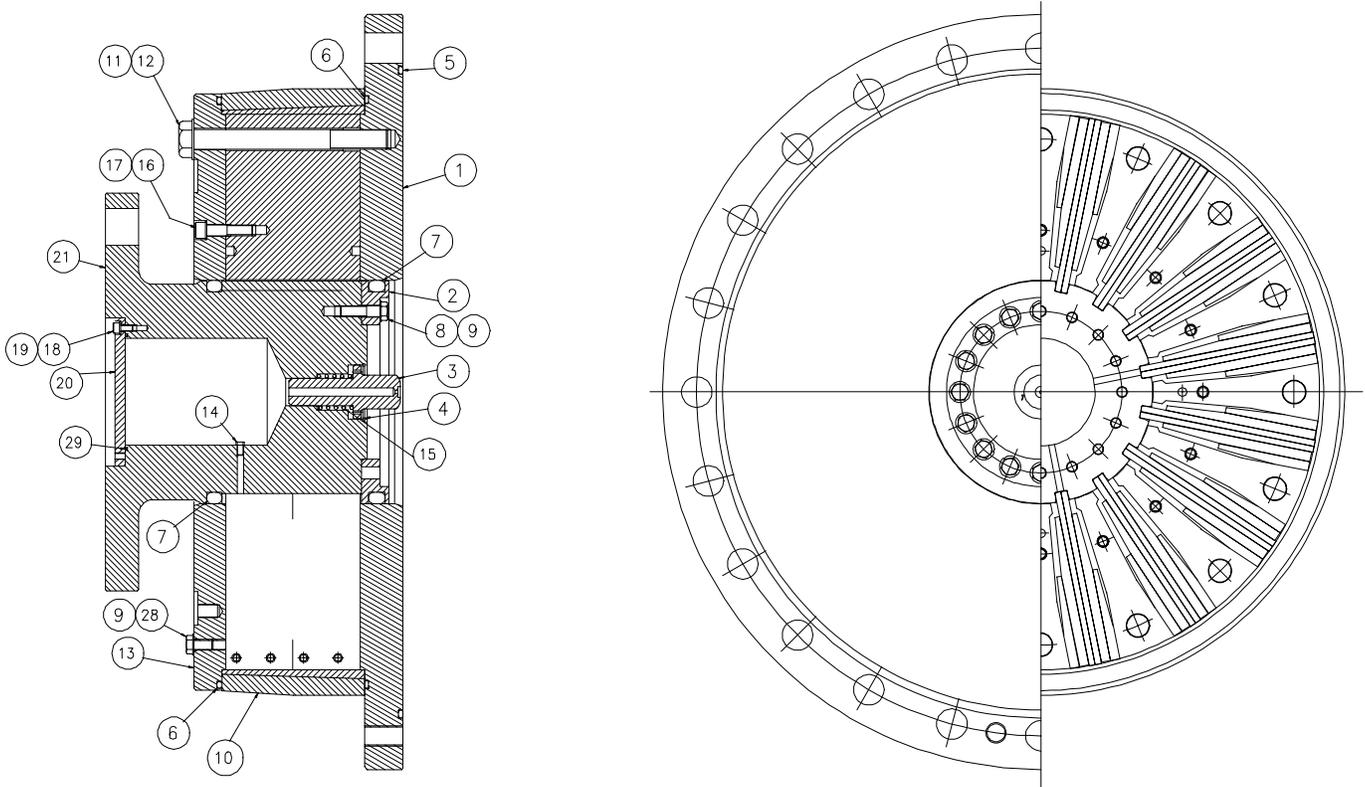
# Prefilled Geislinger Torsional Coupling



Item	Description	Item	Description	Item	Description
1	Mounting Flange	11	Hex Head Screw	20	"O" Ring
2	"O" Ring	12	Belleville Washer	21	"O" Ring Carrier
3	Cover	13	Side Plate	22	"O" Ring
4	"O" Ring	14	Hex Head Screw	23	"O" Ring
5	End Cover	15	Retainer Ring	24	Splined Hub
6	Hex Head Screw	16	Hex Head Screw	25	Dip Stick
7	Belleville Washer	17	Belleville Washer	26	Copper Washer
8	Hex Head Screw	18	"O" Ring	27	Hex Head Screw
9	Belleville Washer	19	End Plate	28	Belleville Washer
10	Tensioning Ring Sub-assembly				

Figure 1

# Pressurized Geislinger Torsional Coupling



Item	Description	Item	Description	Item	Description
1	Mounting Flange	9	Belleville Washer	17	Washer
2	End Cover	10	Tensioning Ring S/A	18	Socket Head Screw
3	Oil Inlet	11	Hex Head Screw	19	Washer
4	Snap Ring	12	Belleville Washer	20	Cover
5	"O" Ring	13	Side Plate	21	Splined Hub
6	"O" Ring	14	Oil Pipe	22	Side Plate
7	"O" Ring	15	Compression Spring	28	Hex Head Screw
8	Hex Head Screw	16	Socket Head Screw	29	"O" -Ring

Figure 2

# INTRODUCTION

Throughout this manual there are a number of **HAZARD WARNINGS** that must be read and adhered to in order to prevent possible personal injury and/or damage to the equipment. Three signal words "**DANGER**", "**WARNING**", and "**CAUTION**" are used to indicate the severity of the hazard, and are preceded by the safety alert symbol .



**Denotes the most serious injury hazard, and is used when serious injury or death WILL result from misuse or failure to follow specific instructions.**



**Used when serious injury or death MAY result from misuse or failure to follow specific instructions.**



**Used when injury or product/equipment damage may result from misuse or failure to follow specific instructions.**

It is the responsibility and the duty of all personnel involved in the installation, operation and maintenance of the equipment on which this device is used to fully understand the

 **Danger:**,  **Warning:** and  **Caution:** procedures by which hazards are to be avoided.

## 1.1 Description

- 1.1.1 The Eaton/Geislinger Torsional Coupling has been designed to economically solve torsional vibration problems in engine drives. The combination of highly elastic leaf springs with viscous damping by oil displacement ensures that critical speeds are moved outside of the engine speed range and that remaining torsional vibrations are effectively damped. The widest engine speed range free of vibration periods and dangerous resonances is thus obtained. Furthermore, use of these couplings with their high damping characteristics result in lower stresses in the engine driven shafts and gears as well as in the crankshaft.

- 1.1.2 Eaton/Geislinger Couplings meet the demands not only of the internal combustion engines but other machinery such as pumps, compressors and turbines.
- 1.1.3 The characteristics of the coupling, with respect to damping and elasticity, can be adapted to meet the needs of most installations. The coupling has axial clearance up to the limits shown on the drawing. Axial vibrations are not transmitted from the prime mover to the driven machine. The coupling also permits parallel and angular misalignments within specified limits.
- 1.1.4 Currently there are three different coupling designs. They are designated Type "N", "H", "U". Type "N" is the design type used with non reversible engines. Type "H" is the semi reversible type, capable of continuously transmitting one half of the coupling's rated torque in the reverse direction. Type "U" is the reversible type, capable of transmitting the coupling's rated torque in either direction of rotation.

## 1.2 How It Works

- 1.2.1 The coupling is designed so that a wide variety of adaptations can be provided to both a power source, such as a diesel engine, and to the load, such as a gear reducer. In all cases, the functioning of the coupling remains the same.
- 1.2.2 The entire coupling is made of steel except for the o-rings which seal the oil. Refer to Figures 1 and 2 for the major components of a standard design. Figure 2 is a pressurized oil type. Figure 1 a pre-filled oil coupling. NOTE: The following number references are from Figure 1. The mounting flange (1) and the splined hub (24) serve as the interface members between a power source and a load. The orientation of these items in reference to "input" and "output" can vary with the specific application.
- 1.2.3 The heart of the coupling is the spring pack (10). This elastic component consists of two or more springs, which can be designed to yield various stiffness. The spring packs are arranged radially within the torsion ring subassembly. The outer ends of the pack are clamped between the spring spacers. Clamping force is provided by pressing a tensioning ring over the assembly of spring packs and spring spacers.

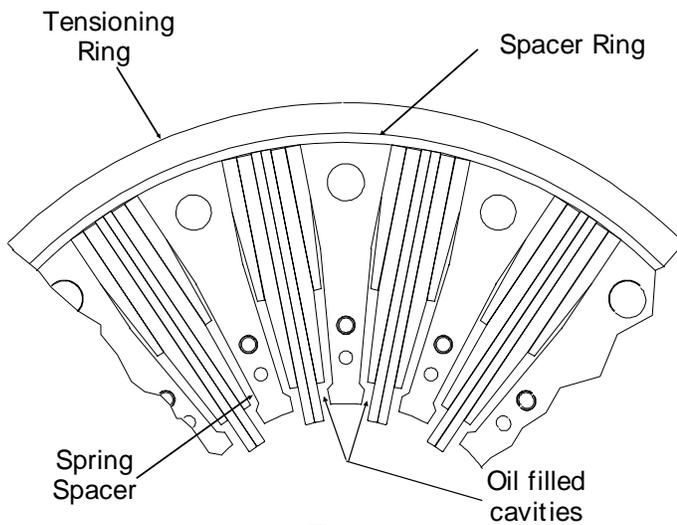


Figure 3

1.2.3.1 The tension ring subassembly(10), consisting of the spring packs, spring spacers, side plate, spacer ring and tensioning ring, is bolted to the mounting flange (1). The tips of the spring packs' longest leaves are retained in the spline grooves of the splined hub (24). Between the spring packs, spring spacers, and splined hub, cavities exist which are filled with oil See Figure 3.

1.2.4 When the tensioning ring subassembly is rotated relative to the splined hub, the leaf springs in the spring packs will flex, forcing the oil to flow. By this action, the relative movement is "braked" and the movement (such as vibration) is damped. The spring spacers also serve as stops to prevent overstress of the leaf springs. Therefore the couplings can be approved for ice class certification for marine applications without any modification.

1.2.5 The Eaton/Geislinger coupling is manufactured in the categories of "prefilled" Fig. 1, and "pressurized" Fig. 2. This description refers to the type of oil supply that is used in the operation of the coupling. It is important to note the style of the unit for a specific application, because of the different installation and maintenance procedures that may be required.

1.2.6 A pressurized oil supply at the coupling inlet is required to provide proper lubrication and function of the coupling. The oil supply can come from either an "input" or "output" connection, according to the design requirement. Any engine or gearbox oil grade SAE30 or SAE40 can be used. See Fig. 2.

1.2.7 If no continuous oil supply is available, a prefilled type coupling Fig. 1, can be used.

### 1.3 ALIGNMENT

1.3.1 Axial changes in length caused by thermal expansion of adjoining machinery are absorbed by the amount of allowable axial movement that is shown on the couplings assembly drawing.



**Ambient operating temperature limits are: -4°F to + 212°F (-20°C to + 100°C)**

1.3.2 The coupling can also withstand parallel and angular misalignment. Maximum angular misalignment for the standard coupling is + /- .200 degrees (3,5 mrad), however refer to the specific drawing to verify the actual angular misalignment for that particular coupling. If both parallel and angular misalignment exist between adjoining shafts, capabilities will be reduced proportionally to one another.

1.3.3 If extreme misalignment capacities are required or if the corresponding reaction forces should be a minimum, the coupling can be combined with a Geislinger flexible link. Contact Eaton/Airflex for exact details.

1.3.4 The drawing for a typical coupling shows maximum parallel misalignment (shown as radial misalignment), maximum angular misalignment. See Figure 4 for a typical drawing example, however, actual misalignment capabilities are shown each particular drawing for individual applications.

1.3.5 A combination of vertical and horizontal parallel alignment readings and maximum angular alignment readings are used to plot a specific location on a triangle graph. See Figure 5. These readings must fall within the triangle to be within the capability a that particular coupling.

1.3.6 The following formula applies for maximum parallel (radial) misalignment:

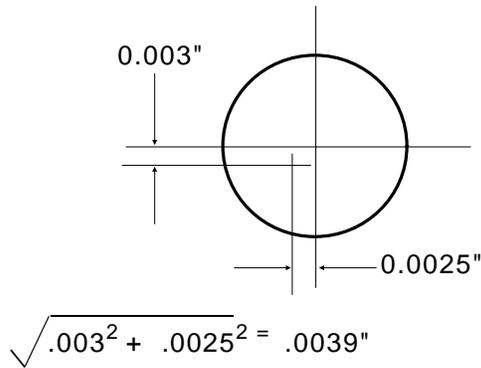
$$\text{Max. offset} = .020" = \sqrt{V^2 + H^2}$$

Example: (Reference Fig.4.)

Max. offset = .020"

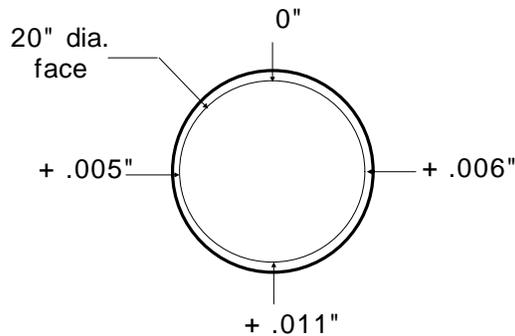
Horizontal offset reading 0.0025" (0.005)TIR

Vertical offset reading 0.003" (0.006)TIR



Plot .0039" on parallel side of triangle(Fig.5).

1.3.7 The typical maximum angular misalignment capability is  $\pm 0.2^\circ$  or  $1" \times \tan 0.2^\circ = .0035"/\text{inch} \times \text{dia. measured}$ .  
 Example: Maximum gap  $.0035 \times 20" \text{ dia.} = .070" \text{ max.}$



Maximum gap is .011", plot on triangle.

**! CAUTION**

**Airflex/Geislinger Couplings are not designed for intentional misalignment. The above examples are for checking existing installations only. For new application it is imperative to achieve the best alignment possible for maximum coupling service life and performance.**

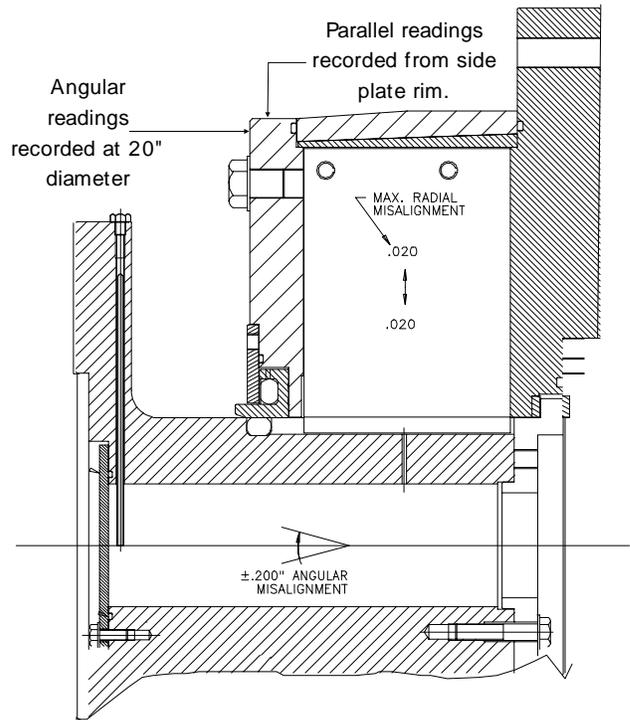


Figure 4

**! CAUTION**

**Use misalignment tolerances from drawing for that individual coupling only.**

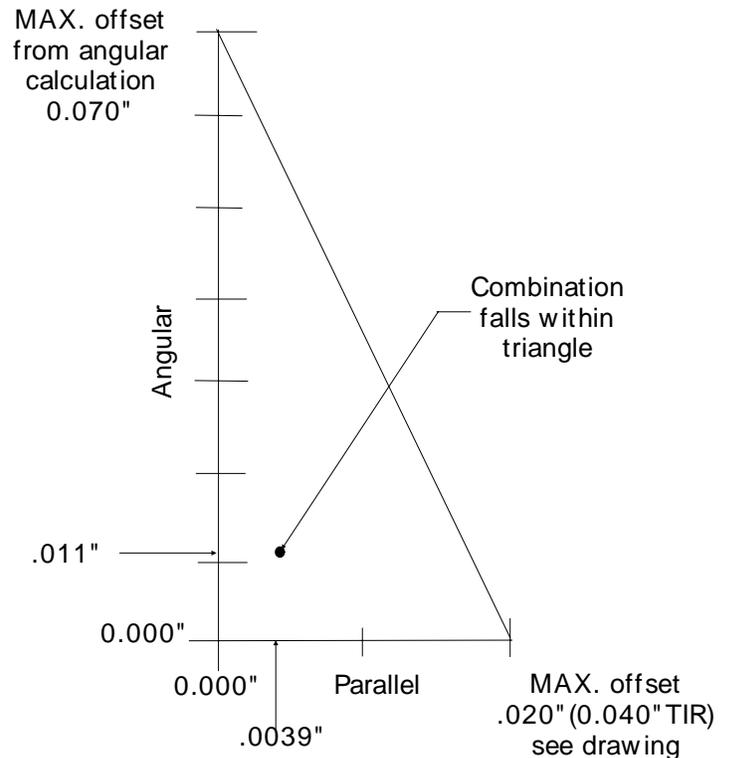


Figure 5

## 2.0 INSTALLATION



Only qualified maintenance personnel should install, adjust or repair these couplings. Faulty workmanship will result in unreasonable exposure to hazardous conditions, injury or severe damage to the mechanism.



Before performing any work, study this manual and assembly drawings pertaining to your specific model. **DO NOT RISK INJURY - FOLLOW THE INSTRUCTIONS.**

### 2.1 Preparation



The coupling must not be operated without being oil filled to avoid damage to the components.



Water, especially seawater, must not be mixed with oil to avoid damage to the coupling.

- 2.1.1.1 Check all oil feed and return holes in the components of pressurized couplings. These holes must be free of dirt or any foreign material to ensure free oil flow.
- 2.1.1.2 Grade SAE 15W-40 oil should be used in all prefilled units, filled to the level on dipstick.
- 2.1.2 Check the rubber seals to be used in mating flanges if used. These seals must not be damaged to ensure that there will be no oil leakage. For ease of assembly, these seals should be coated with grade SAE30 or SAE40 engine or gearbox oil.
- 2.1.3 Check the mating hub and mounting flanges for match marks that may be used. These marks must be matched when the flanges are assembled to each other. Remove all nicks and burrs and clean mating surfaces.

## 2.2 Machinery Alignment

Note: Refer to section 1.3 for alignment instruction.

- 2.2.1 The misalignment of the adjoining shafts (parallel, axial, or angular) must not, at any operating condition, exceed the values shown on the assembly drawing, for the specific coupling. It is VERY desirable to keep misalignment to a minimum under all operating conditions and temperatures.
- 2.2.2 Thermal growth of the driving and driven machinery and the foundations to which they are mounted, should be considered in the running condition. The suppliers' of these components should be consulted for recommended alignment procedures. Compensation should be made so that the shafts run true to each other under operating conditions within the capacities of the coupling which are shown on the assembly drawing.
  - 2.2.1.1 In most cases, parallel and angular misalignment are present. This requires that two sets of measurements must be obtained (see section 1.3). One for parallel and the other for angular. The combination of these readings must fall within the triangle (see figure 4).
  - 2.2.1.2 One shaft will be considered fixed or anchored, and will not be moved or shifted for alignment. The shaft to be adjusted or aligned is called the moveable shaft. Check for any axial movement of both shafts before starting the alignment procedure.
  - 2.2.1.3 Fabricate a rigid bracket for supporting a dial indicator and attach to the shaft which is easiest to rotate.
  - 2.2.1.4 Thoroughly clean the O.D. and flange face of the side plate of the coupling. Alignment readings will be taken on these surfaces.
  - 2.2.1.5 Parallel Alignment: Rotate the shaft with the mounted indicator assembly and take parallel alignment readings off the O.D. of the movable shaft. If both shafts can be match-marked and rotated together, the alignment readings are less influenced by any surface irregularities or hub eccentricity.

Angular Alignment: Measure the gap between the face of the flange on the fixed shaft and the face of the flange on the movable shaft with an inside micrometer. The readings should be taken at an approximately equal distance from the shaft center, measuring as close to the outside of the flanges as possible. Take 4 readings minimum 90° apart.

Axial positioning: The actual dimension of the gap measured between the flanges in the angular alignment procedure must match the length over the coupling flanges as specified on the assembly drawing. This specification must be verified to a tolerance of + .039" (+ 1mm) -.000. An out of tolerance dimension could cause damage to the "O" ring (20) or End Cover (5). Note: A machined spacer may be included to compensate for axial differences

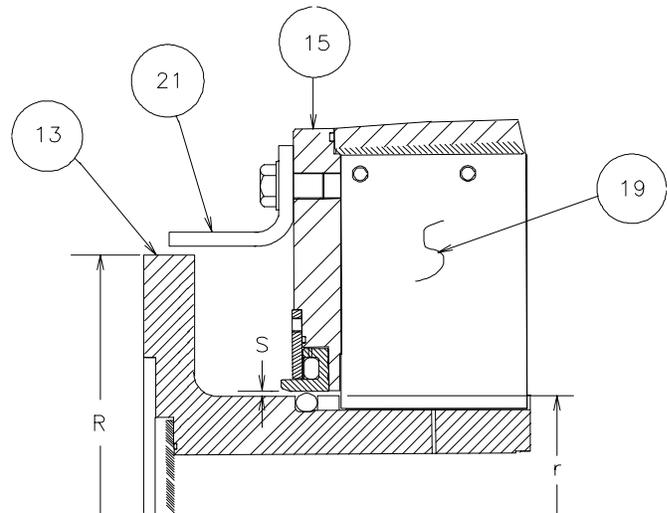


Figure 6

- 2.2.2 Shim and shift the base of the moveable shaft to correct the misalignment. After tightening the base, recheck the alignment and correct if necessary. Dowel the base into position after satisfactory alignment has been achieved.

## 2.3 Coupling Installation

- 2.3.1 To accommodate lifting devices (eye bolts, slings) threaded holes are provided in the mounting flange (1), and splined hub (24). The oil vent holes in the side plate may be used to aid lifting for couplings up to size "72".
- 2.3.2 To gain additional clearance for installation and removal of the coupling between adjoining shafts, the hub may be pushed inward. This must be done carefully to avoid damage to the "O" rings (20) on the splined hub (24).
- 2.3.3 Check the initial alignment accuracy by measuring the radial clearance "S" between the splined hub (24), and the side plate (13). Several readings should be taken around the entire circumference of the hub, see Figure 6. The specific coupling assembly drawing shows the upper and lower limits of the clearance.

Note: O-ring carriers (21) if applicable, should be concentric with retainer ring (15) prior to checking clearance "S".



**The coupling must not be operated without being filled with oil or damage or excessive wear to the internal parts will occur.**

## 2.4 Oil Filling/Venting/Pressurized

- 2.4.1 A pressurized oil supply at the coupling inlet is required to provide proper lubrication and function of the coupling. The oil supply can come from either an "input" or "output" connection, according to the design requirement. Any engine or gearbox oil grade SAE30 or SAE40 can be used. See Fig. 2.



**A minimum oil supply pressure is required to transmit the maximum damping torque in the coupling without cavitation. This is a calculated value for an individual coupling. Refer to the exact Airflex drawing for this value.**



**Oil inlet temperature should not exceed + 140°F (+ 60°C) to avoid coupling overheating and damage to seals.**

- 2.4.2 To fill the coupling with oil, rotate the coupling until one of the vent screws (27) in the side plate (13) is in the up position. Remove the screw and washer.
- 2.4.3 Use the engine or gearbox lubrication pump to pump oil into the coupling. The coupling is properly vented and filled when oil begins to flow from the vent hole.
- 2.4.4 Reinstall the vent screw with the Belleville washer (4) with Loctite® #680 applied to both sides of the washer for sealing. Check the coupling for any oil leaks.

## 2.5 Oil Filling/Prefilled

- 2.5.1 Prefilled couplings are furnished with an initial charge of oil by the factory. The proper oil level must be verified before the coupling is put into service.
- 2.5.2 To check the oil level, bring the oil dip stick, (25) on Figure 1, rod into the top position. The correct reading is obtained by placing the rod into the oil reading cavity without engaging the screw threads.
- 2.5.3 The dip stick maximum oil level mark is the line which represents 90% of the full capacity. A minimum oil level mark is the line which represents 75% of full capacity.



### CAUTION

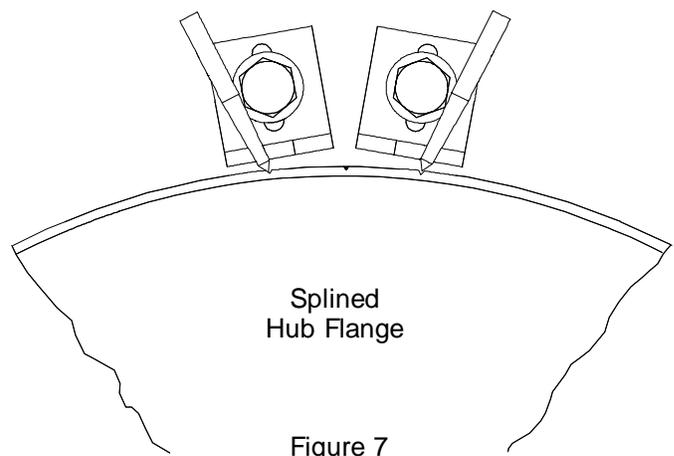
**Do not overfill prefilled couplings.**

- 2.5.4 Add SAE 15W-40 oil as necessary until the maximum mark is reached. Remove the vent screw (27) to assist in this process. Screw the oil rod with sealing washer into the threaded hole to form an oil tight fit. Check the coupling for any oil leaks.

## 2.6 Basic Mark

- 2.6.1 Whenever a coupling is being installed, whether new, repaired or reconditioned, it must be marked with a "basic mark" which represents the torsional amplitude. The "basic mark" is used as a reference point for determining wear of the springs and/or spline grooves. See Figures 7 and 8.

- 2.6.2 For the purpose of marking and later measuring, a marking bracket (21) is mounted to the side plate (15) and reaches over the splined hub flange. See Figure 7. The two parallel faces of the tip of the bracket are the marking and measuring edges.
- 2.6.3 Bring the system into a slow rotation by using the turning gear and mark the splined hub flange with a marking tool (see Figure 7), using the tip of the bracket (21) as a guide, while the coupling is turning.



- 2.6.3.1 Stop the rotation and reverse. Mark the splined hub flange using the opposite side of the tip of the bracket as a guide, while the coupling is turning. This effectively measures the backlash or clearance between the spring tips and hub grooves.
- 2.6.4 These marks must be especially durable, as every mark obtained later is to be compared with the first or "basic mark". Check the "basic mark" by repeating the above procedure of Sections 2.6.3 and 2.6.3.1.
- 2.6.5 Eventual wear at the ends of the long spring leaves or at the splined hub groove flanks will likely appear in the forward direction. The angular amplitudes in this direction can, therefore, increase after hours of service. The difference between the latest mark obtained and the "basic mark" is proportional to the existing wear. Refer to Figure 8.

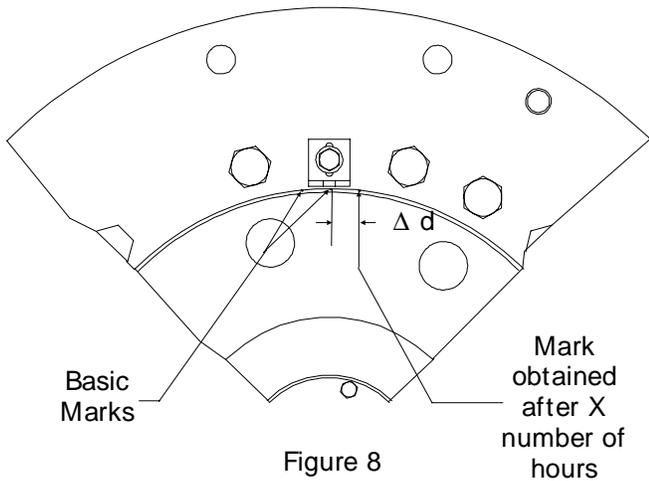


Figure 8

2.6.5.1 The actual amount of the wear can be calculated by the following formula:

$$"a" \text{ existing} = \Delta d \cdot r/R$$

R = Radius of the mark

r = Radius of the spring contact

$\Delta d$  = Difference of marks between the "basic mark" and the latest measurement. See Figure 8.

The values for "r/R", in addition to "a<sub>max</sub>" are stamped on the marking bracket (21).

2.6.6 As the general conditions can be different for every measurement taken, the above mentioned method is not very exact. However, taken every 1,000-2,000 hours of service (per table 1) and recorded, a wear trend will be noticed about the clearance at the spring ends.

2.6.7 Couplings which have already been in service can be fitted with a wear gauge (21) if not currently installed. However, the coupling must be dismantled and furnished with new spring packs (19) The groove flanks of the splined hub (13) must not show any wear for the "a<sub>max</sub>" value to be accurate.

2.6.8 Note that whenever the hub and spring packs have been replaced, the "basic mark" must be obtained again.

## 3.0 OPERATION

### 3.1 Start Up

3.1.1 After initial installation or after installation of any reworked coupling, the coupling is to be operated through a run-in period. Rated or operating torque should not be applied before or during the run-in period. The coupling should be run-in for approximately 30 minutes under no load and at engine idle speed.

3.1.2 After the run-in period, the load should be gradually increased up to the operating torque conditions.

### 3.2 Post Trial Checks

3.2.1 After the first run under operating torque conditions, make the following checks.

3.2.1.1 Check for the evidence of oil leakage. Radial traces of oil on the side plate for example, would indicate possible damage to the Spline Shaft "O" ring (7) Figure 1 or (20) Figure 2.

TABLE 1				
Kind of inspection	Intervals in hours of service			
	500-1000	1000-2000	18-20000	40-60000
Check oil level of prefilled coupling. See sec. 2.2.7.	X		†	
Visual inspection for oil leakage. Ventilate pressurized couplings. Check for wear increase.		X		
Disassemble coupling, clean all parts, replace all "O"-rings.			X	
Service or replacement of spring packs, if required by wear limit.				X

† Oil should be changed in prefilled couplings.

3.2.1.2 Check the alignment of the adjoining shafts at working temperatures to ensure that the values for the specific coupling are not exceeded. The misalignment capacities are shown on the assembly drawing for the unit. See section 2.2 Machinery Alignment.

### 3.3 Inspection

3.3.1 Table 1 indicates intervals of recommended inspections. Regular inspection allow for planning and procurement of spare parts. Only genuine Airflex or Geislinger replacement parts should be used.

3.3.2 A visual inspection of the coupling for oil leaks should be performed every 1,000-2,000 hours of service. Radial oil traces on the side plate indicates "O" ring seal leakage. Check oil level on prefilled couplings or ventilate prefilled coupling by performing step 2.2.6. Check for wear increase as indicated in section 2.3.6

3.3.2.1 The oil level for prefilled type couplings should be checked with every 500-1,000 hours of service and changed every 18-20,000 hours of service. Add oil as necessary to maintain the fluid level to a maximum reading. Refer to section 2.2.7.

3.3.3 A full inspection of the coupling, as well as service, is recommended to be carried out after every 18,000-20,000 hours of service. Note: ABS or other local agencies or classification societies may require more frequent inspection intervals of driveline or main propulsion components. Contact local agency for verification.



**Genuine Airflex or Geislinger parts must be used in the service of the coupling.**

3.3.4 A full inspection of the coupling requires disassembly of the coupling. To perform this operation, the coupling must be removed from service.

## 4.0 DISASSEMBLY



**Only qualified maintenance personnel should disassemble or assemble the coupling. Faulty workmanship will result in unreasonable exposure to hazardous conditions or injury.**

Note: The regular inspection intervals of the coupling are imperative. All maintenance plans must allow a sufficient amount of time to secure spare parts from the factory. For example, as a minimum, splined hub "O" rings, (20) on figures 1 and 2, should be on hand.

### 4.1 Preparation

4.1.1 To perform any repair or full inspection it is necessary to drain the oil from the coupling and remove the coupling from service.

4.1.1.1 Provide a tray or pan for oil that will remain in the cavities of the coupling.



**Even though the coupling is drained of oil, some oil will remain in the coupling. Take precautions to avoid any spillage.**



**Any disassembly and assembly must be done in a clean work place. Coupling operation depends on cleanliness.**

### 4.2 Splined Hub Removal and Inspection

NOTE: Number references are for Figure 1 only. Refer to your drawing for exact component locations.

4.2.1 Turn the coupling so that the cover (3) is accessible and remove screws (8) and washers (9). Remove the cover.

- 4.2.2 Remove the screws (6) and washers (7) from the end cover (5). Install two screws in the two threaded holes in the seal ring or end cover and tighten to gradually and evenly back the seal ring or end cover (5) out of the inner diameter of the mounting flange (1).
- 4.2.3 Position the coupling with the mounting flange facing down. Carefully withdraw the splined hub (24) from the outer assembly.
- 4.2.4 Inspect the spline grooves. These grooves are surface hardened. Wear must not exceed .020" (0,5mm) measured as shown in Figure 9. Record the specific amount of wear from each of the spline grooves.

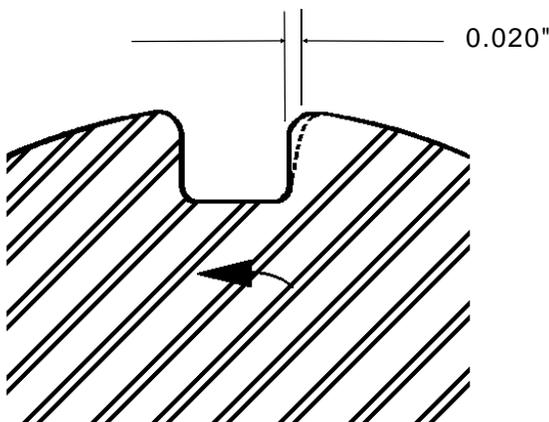


Figure 9

- 4.2.5 Wear traces on the O.D. of the splined portion of the hub (24) indicate that it has been contacting the spring spacers or the side plate. This indicates excessive misalignment of the coupling and the connecting shaft. The alignment should be checked and corrected.
- 4.2.6 Total wear of the "O" rings (20) must not exceed 5% of the as new cord diameter, see Figure 10. However, the "O" rings should be replaced whenever the coupling is disassembled. Use Airflex or Geislinger genuine replacement parts only.

### 4.3 Spring Packs

- 4.3.1 With the splined hub removed, wear of the spring packs' long leaves may be observed. The maximum wear of the tips of the long leaves must not exceed 1/2 the thickness of a single spring leaf. See Figure 11.

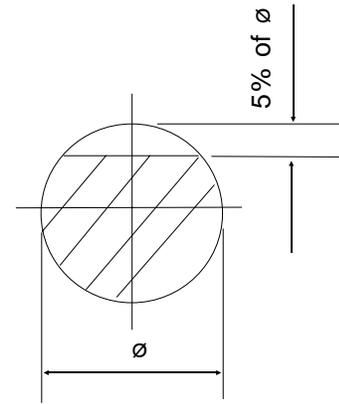


Figure 10

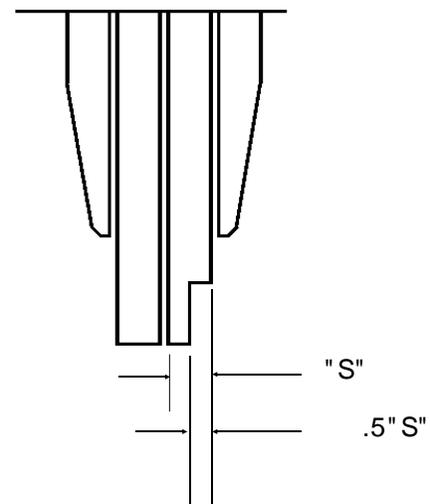


Figure 11

- 4.3.1.1 If the spring packs of the specific unit are symmetrical, it is possible to reverse the tensioning ring subassembly (10), bringing the less used "reverse" side of the long leaves into contact with the splined hub (24) groove flanks in the "forward direction". To do this, the outer assembly must be disassembled. Refer to section 4.5.
- 4.3.1.2 Wear or deformation of the bronze shims between the spring leaves is normal. Spring pack replacement is not necessary due to this condition.



**WARNING**

Spring pack assembly removal is not recommended for field repair. Contact Airflex factory for further instructions.

**4.4 Mounting Flange and Side Plate**

- 4.4.1 With the splined hub removed, wear of the inner diameter of both the side plate (13) and the mounting flange (1) may be observed. Wear of either diameter must not exceed 5% of the "O" ring cord diameter. Polish these surfaces prior to reassembly.
- 4.4.2 Note: Loosen the main screws (11) only if absolutely necessary! The tension ring sub-assembly (10) will lose the concentricity relationship that is required between the mounting flange (1) and the side plate (13) when the main screws (11) are relaxed.

**4.5 Disassembly of the Outer Assembly**

- 4.5.1 Turn the coupling so that the main screws (11) are accessible and remove the screws and washers (12).
- 4.5.2 Remove the side plate (15). To aid in removal, the threaded vent holes may be used to back the plate off. These holes also may be used for lifting devices (eye bolts).
- 4.5.3 Remove the tensioning ring subassembly (10) from the mounting plate. There are threaded holes in the spring spacer located approximately 180° from each other. These may be used to lift the subassembly.



**CAUTION**

Identify the type and size of the threaded holes in the spring spacer before threading any lifting aid into the holes. American National Course and ISO Metric Standard are the thread types that are used.

- 4.5.4 Inspect the spring pack long leaves as indicated in Section 4.3, if not already done. Inspect the side plate and mounting plate I.D. as outlined in Section 4.4 if not already done.
- 4.5.5 All "O" rings and rubber sealing rings should be replaced. Refer to the assembly drawing of the specific coupling part number information.



**CAUTION**

Genuine Airflex or Geislinger Parts must be used in the service of the coupling.



**CAUTION**

At this point a complete inspection of the coupling can be done. Further disassembly of the tension ring subassembly (10) requires special equipment, and therefore should be carried out at the factory or by an Airflex service specialist.

**4.6 Circularity of Tension Ring S/A(10)**

- 4.6.1 The variance is measured between opposed spring ends or opposed spring spacers. The difference between the high and low measurements must be corrected to less than the values shown in Table 2.

TABLE 2	
Coupling Size Outer Dia. (cm)	Maximum Difference
41 to 56	* .004" (0,1mm)
63 to 140	* .008" (0,2mm)
above 140	* .012" (0,3mm)

\* Total Indicator Reading for concentricity

- 4.6.1.1 Adjustment can be achieved on larger couplings by using a hydraulic cylinder placed at the ends of opposed spring spacers. Smaller couplings can be corrected with radial strikes onto the outside of the tensioning ring using a SOFT FACED HAMMER. See Figure 12.



**CAUTION**

Hydraulic cylinder pressures should be kept at a minimum to avoid damage to the coupling.

**4.7 Coupling Assembly**

- 4.7.1 The assembly procedure is the reverse sequence of the disassembly as given in Section 4.2 and 4.5. In addition, the following points must be accomplished.

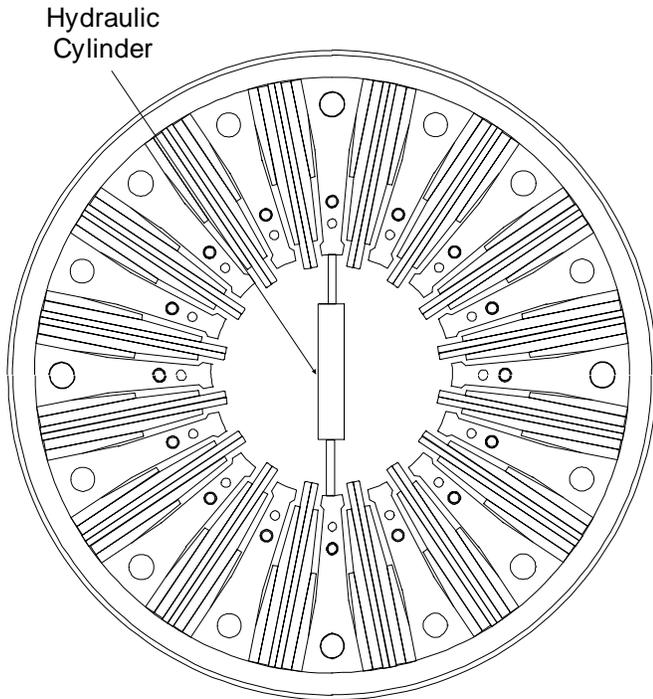


Figure 12

- 4.7.2 Clean all parts carefully. Cleanliness is important to the proper coupling operation.
- 4.7.3 The inside diameters of the side plate (13), mounting flange (1) and the outside diameter of the splined portion of the splined hub (24), including the grooves, are to be coated with Molykote<sup>®</sup> or equivalent.
- 4.7.4 Use new "O" rings. Replace with Genuine Airflex or Geislinger Parts. Using a grade SAE30 or SAE40 engine or gearbox oil, lubricate all "O" rings carefully and make sure they are undamaged.



**WARNING**  
**Splined hub o-rings must be of molded construction. Use of spliced o-rings may result in severe oil loss and result in coupling failure.**

- 4.7.5 Make sure that all oil feed and return holes are clean and free of any obstruction.
- 4.7.6 Position the end cover (5) such that the oil return holes in the cover (when present) are positioned between the radial oil holes in the splined hub bore.

4.7.7 All couplings require that the concentricity relationship of the mounting flange (1), and side plate (13), to the tension ring sub-assembly (10) be held within the specified limit shown in Table 2 (\*). A turn table used on a vertical turret lathe or boring mill will assist in doing this.

4.7.7.1 The mounting flange (1) should be used as a Datum. This means that a stationary indicator will have a reading of zero as the Datum is rotated 360 degrees. The side plate (13) and tension ring sub-assembly (10), must comply with the values in Table 2 (\*).

4.7.8 Main screws (11) torque values are based on lubricated screw threads.

4.7.8.1 Lubricate the screw threads with Never-Seez<sup>®</sup>. Apply Loctite<sup>®</sup> #680 (green) under all screw heads and spring washers.

4.7.8.2 Torque the main screws (11) in increments of about 20% of the full value specification shown on the assembly drawing. Tighten in a crosswise manner.



**WARNING**  
**Tighten the main screws (11) properly, or the coupling may fail resulting in damage to equipment or personnel injury.**

#### 4.7.9 Recharge of prefilled couplings

4.7.9.1 Grade SAE 15W-40 engine or gear box oil should be used in prefilled units.

4.7.9.2 Locate the spline hub (24) in a vertical position with the flange face "down". Position the assembled combination of the side plate (13), tension ring sub-assembly (10), and mounting flange (1), over the splined hub. Align the tips of the spring packs' with the grooves in the splined hub and lower the assembly over the splined hub. Place wooden spacer blocks between the side plate and the splined hub flange face to protect the "O" ring (20) from being damaged by the tips of the spring packs. Make sure that the tips of the spring packs' are positioned below the top face of the splined hub.

- 4.7.9.3 Fill the coupling with the maximum amount of oil that is shown on the assembly drawing not shown in this orientation. This level is shown on the dipstick. Only checked when mounting flange is orientated vertically. Allow the oil to distribute into the passages of the coupling.
- 4.7.9.4 Tighten the hex. head screws (8) to fasten the cover (3) to the splined hub (24). The torque values for screws (8) are found on the coupling's specific assembly drawing.
- 4.7.9.5 Carefully orient the coupling into the mounting position with the oil dip stick rod in the top location. Check the oil level, see section 2.2.7.

## **5.0 ORDERING INFORMATION/ TECHNICAL ASSISTANCE**

- 5.1.1 In any correspondence regarding Airflex Equipment, refer to the Part Number shown on the coupling.

Eaton Corporation  
**Airflex Division**  
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Cleveland, Ohio 44144  
Tel.: 800-233-5926  
Fax: (216)281-3890

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