

 **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 Airflex<sup>®</sup> Model RTK Triple Passage Water Rotorseal (514449)

 **Caution:**

**Use Only Genuine Airflex<sup>®</sup> Replacement Parts**

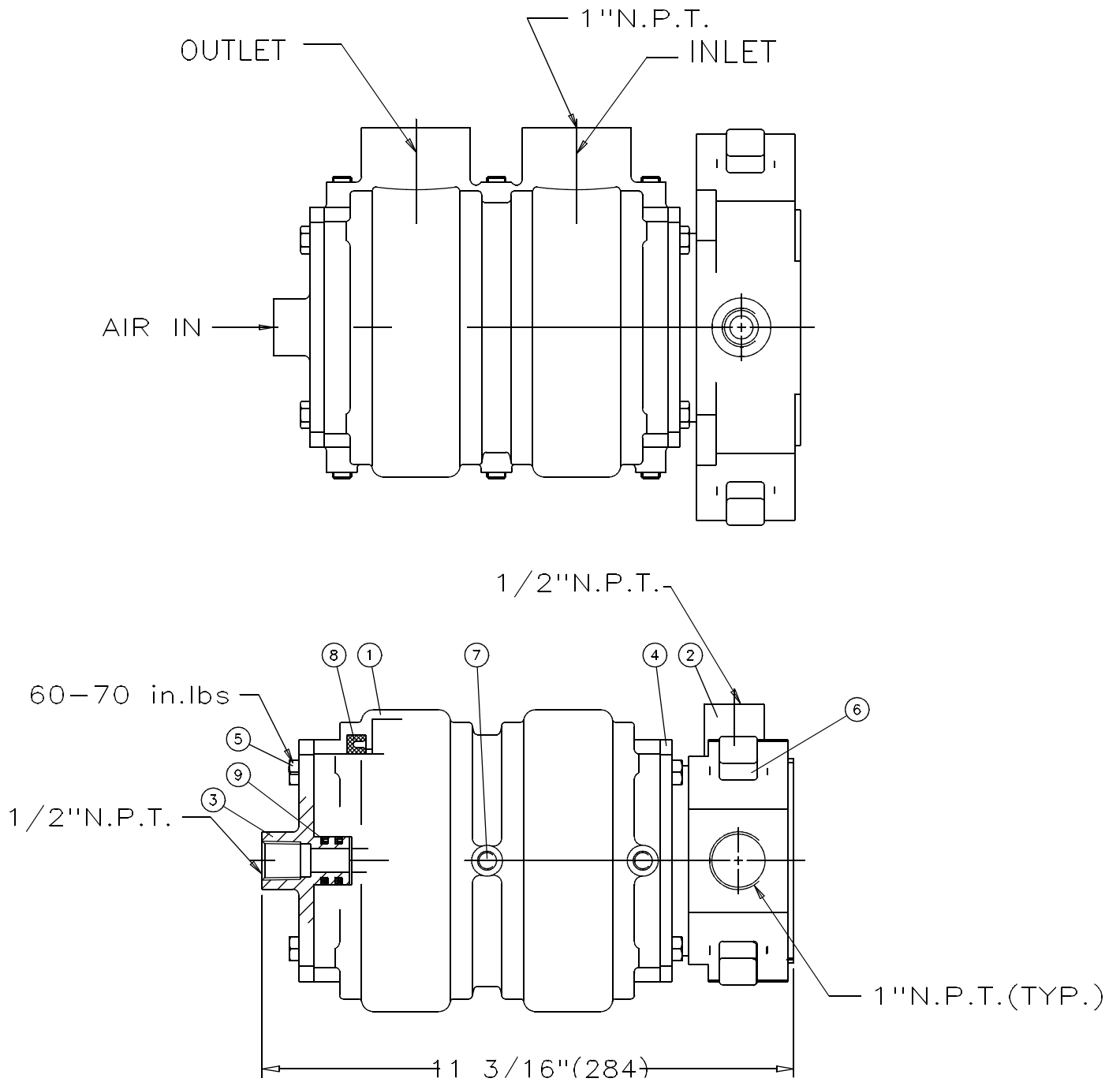
The Airflex Division of Eaton Corporation recommends the use of genuine Airflex replacement parts. The use of non-genuine Airflex replacement parts could result in substandard product performance, and may void your Eaton warranty. For optimum performance, contact Airflex:

In the U.S.A. and Canada: **(800) 233-5890**  
Outside the U.S.A. and Canada: **(216) 281-2211**  
Internet: **[www.airflex.com](http://www.airflex.com)**

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**204169**


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**Figure 1**



## 1.0 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 .

### **DANGER**

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

### **WARNING**

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

### **CAUTION**

**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:**  **Caution:** and  **Warning:**

procedures by which hazards are to be avoided.

## 1.1 Description

1.1.1 The Airflex<sup>®</sup> RTK Triple Passage Rotorseal was designed as a rotary connection for simultaneous transfer of fluids and air through three separate passages within the same rotating shaft.

1.1.2 A mounting flange simplifies installation to the end of the shaft and serves as a manifold for multiple passages.

1.1.3 Three of the pipe threaded ports provide access to the internal rotating shaft. The center port on the cover has been specified as the air inlet. The 1" NPT port farthest from the mounting flange is the water outlet and the 1" NPT port closest to the mounting flange is the water inlet.

1.1.4 Consult the factory when attempting to use the rotorseal with mediums other than water or air, or at excessive speeds. See Operation section for max. speed allowable.

1.1.5 The Airflex<sup>®</sup> RTK Triple Passage Rotorseal was especially designed for use in sea water service.

## 2.0 INSTALLATION

### 2.1 Mounting

NOTE: Rotorseal weight is 50.6 lb. [23Kg].

2.1.1 Ensure that the mounting surface is clean, flat, and free of any nicks or burrs which may effect proper sealing.

2.1.2 The rotorseal must be stud mounted. The use of stainless steel fasteners is recommended. The mounting flange is machined to accept 3/8" - 16NC3 studs. Use a threadlocking liquid to retain the studs into the mounting plate. Use locknuts or nuts and lockwashers to secure the rotorseal on the studs Tighten the nuts evenly to 28ft.-lb., using a crosswise sequence.

### **Caution:**

**Ensure that exposed studs do not interfere with hex head screws (5) in the housing during operation.**

### 2.2 Hose Connections

2.2.1 The rotorseal has three female pipe threaded ports. The port in the center of the rotorseal cover (3) is the air inlet. Two ports in the housing (1) are inlet and outlet for water. The port closest to the cover being water outlet. See Table 2 for port sizes.

2.2.2 The connections to the rotorseal housing must be through flexible hoses. Hoses should be aligned to prevent excessive loading to the rotorseal. All piping should be self supporting.

### **Caution:**

**Rigid piping or hoses connected to the rotorseal will damage the rotorseal components.**

<b>TABLE 2 Housing Port Sizes</b>	
Air In	1/2"-14 NPT
Water In	1"-11 1/2 NPT
Water Out	1"-11 1/2 NPT

2.2.3 The rotorseal mounting flange has seven female ports on the outside diameter of the flange. One port is air and six others are water inlet and outlet ports. All ports are clearly marked. See Table 3 for thread sizes.

NOTE: 2 each inlet and outlet ports are temporarily sealed with pipe plugs in the event they are not required.

2.2.4 A good pipe thread sealant should be used when connecting piping and hoses to the rotorseal.

2.2.5 Use of a hold back device may be desired to assist in preventing the hoses attached to the housing from kinking during operation/rotation.

### 3.0 OPERATION



**Warning:**  
Turn cooling supply on before operating unit. Failure to do so may result in water seal failure.

#### 3.1 Maximum Speed and Pressures

NOTE: Seal Drag  
(10 ft. lb., NEW, no pressure)

3.1.1 Maximum shaft speed is 120 RPM at or below approved pressure limits.



**Warning:**  
Do not exceed maximum speed of 120 RPM. Failure of all seals may result.

3.1.2 Maximum air pressure is 150PSI.



**Caution:**  
Do not exceed maximum air pressure of 150 PSI as it may result in air seal or cover (3) failure.

<b>TABLE 3 Flange Port Sizes</b>	
Air Out	1/2"-14 NPT
Water In	1"-11 1/2 NPT
Water Out	1"-11 1/2 NPT

3.1.3 Maximum water pressure is 75 PSIG.



**Caution:**  
Do not exceed maximum water pressure of 75 PSIG as it may result in water seal failure.

### 3.2 Periodic Checks

3.2.1 On a regular basis check for leaking or damaged hoses & seals. Repair or replace as required.

3.2.2 Excessive mis-alignment of hoses or piping may cause premature component wear or damage. Correct as required.

### 4.0 MAINTENANCE



**Warning:**  
Prior to performing any repairs to the rotorseal, carefully read the following instructions and make sure what is stated in each step is fully understood. Failure to follow these instructions may result in personal injury or equipment damage.



**Caution:**  
Use only genuine Airflex replacement parts. The use of non-genuine Airflex replacement parts could result in sub-standard product performance.

Airflex rotorseals are manufactured of quality materials to precision tolerances. These instructions must be followed carefully to ensure a properly repaired rotorseal.

All numbered references in Section 4.0 correspond with items shown on Figure 1.

## 4.1 Disassembly/Inspection

NOTE: Item numbers ( ) shown on Figure 1.

- 4.1.1 Remove the four screws (5) from the cover (3) and the four screws that retain the split ring (4). Remove the cover.
- 4.1.2 Remove the "J" Cups (9) from the cover.
- 4.1.3 Remove the housing (1) from the rotor (2).
- 4.1.4 Remove the "J" Cups (8) from the housing.
- 4.1.5 Thoroughly clean all parts using any commercial cleaning solvent.



### Caution:

**Follow manufacturers recommended safety precautions when using cleaning solvents.**

- 4.1.6 Inspect the machined surfaces of the housing and rotor for scratched or damaged surfaces.
- 4.1.7 Replace any worn parts.

## 4.2 Assembly Procedures

- 4.2.1 The following general assembly notes should be followed carefully to assure a properly repaired rotorseal. NOTE: Replace all "J" Cups when rebuilding the rotorseal.

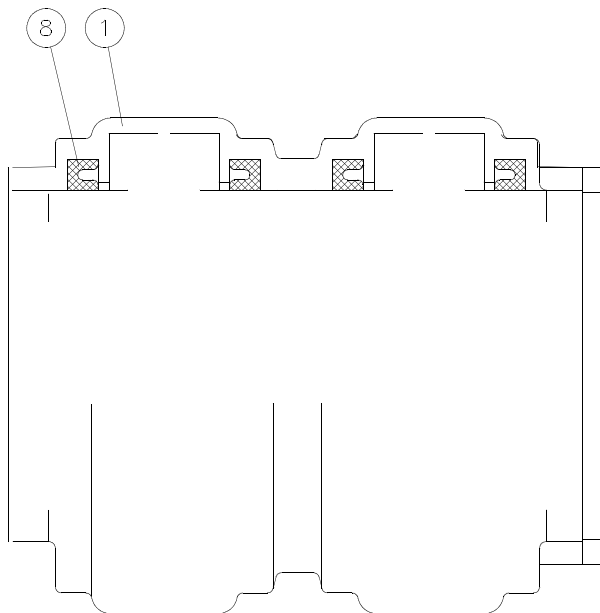


Figure 3

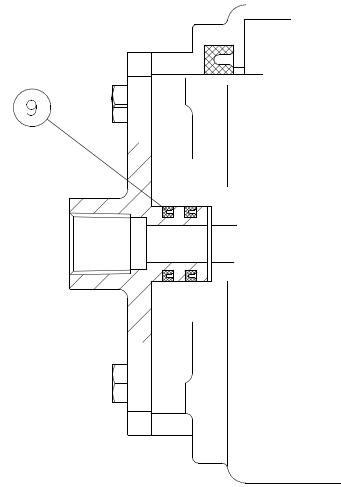


Figure 4

- 4.2.2 All repairs should be made in a clean, dust free environment.
- 4.2.3 Pack the "J" Cups (8) with synthetic base grease and install into the housing bore noting the orientation of the seal. See Figure 3.
- 4.2.4 Lightly lube the O.D. of the rotorseal, and slide the housing over the rotor (2) taking care not to damage the "J" Cups.
- 4.2.5 Install new "J" Cups (9) onto the cover boss. See Figure 4 for proper orientation.
- 4.2.6 Install the cover onto the housing, taking care not to damage the "J" Cups.
- 4.2.7 Using removable liquid threadlock, install the screws (5) and torque to 60-70 in.-lb..
- 4.2.8 Reinstall per section 2.0

## 5.0 ORDERING INFORMATION AND TECHNICAL ASSISTANCE

- 5.1 For further information or assistance, call or write:

Eaton Corporation  
Airflex Division  
9919 Clinton Road  
Cleveland, Ohio 44144

Ph: (216) 281-2211  
Toll free: (800) 233-5890  
FAX: (216) 281-3890



## EATON PRODUCT WARRANTY

Subject to the conditions stated herein, Eaton Corporation warrants to the Purchaser that each new Airflex Product manufactured by Eaton will be free from failures caused by defects in material and workmanship, and will deliver its rated capacity, for a period of twelve (12) months from the date of shipment to Purchaser, provided such Product is properly installed, properly maintained, operated under normal conditions and with competent supervision. Warranty claims shall be made in writing and the part or parts shall, if requested by Airflex Division, be returned prepaid to the Airflex Division for inspection. Upon a determination that a defect exists, Eaton shall thereupon correct any defect, at its option either by repairing any defective part or parts or by making available at Eaton's plant a repaired or replacement part. This warranty does not extend to normal wear parts or components of the Product, such as friction material and friction surfaces.

## LIMITATION OF WARRANTY

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