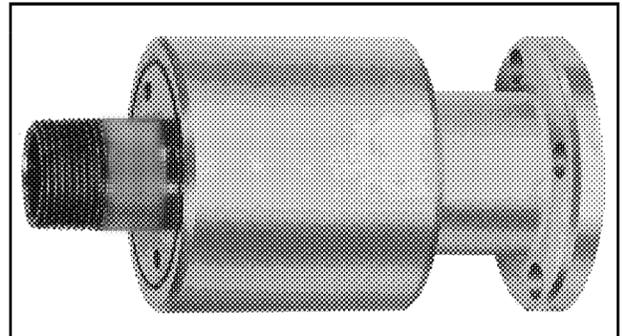


## Warning

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> RH Rotorseal Assemblies

**Note:** This manual pertains to the AIRFLEX ROTORSEAL that utilizes a lip seal, and this is identified by blue housing color. If your rotorseal is red in color, service it accordance with manual **RS 9030** or replace the entire assembly.



## 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) 233-5926**  
Outside the U.S.A. & Canada: **(216) 281-2211**  
Internet: [www.airflex.com](http://www.airflex.com)

联系方式：

信德迈科技（北京）有限公司 CNMEC Technology Company

地址：北京市朝阳区望京SOHO-T1-C座2115室 邮编：100102

\*Tel: 010-8428 2935 | \* Fax: 010-8428 8762

\*电子邮件：sales@cnmec.biz

主页：http://www.cnmec.biz

\*手机：139 1096 2635（微信同号）

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**EAT•N|Airflex<sup>®</sup>**

**December, 2006**

**204199**

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# AIRFLEX® RH Rotorseal Assemblies

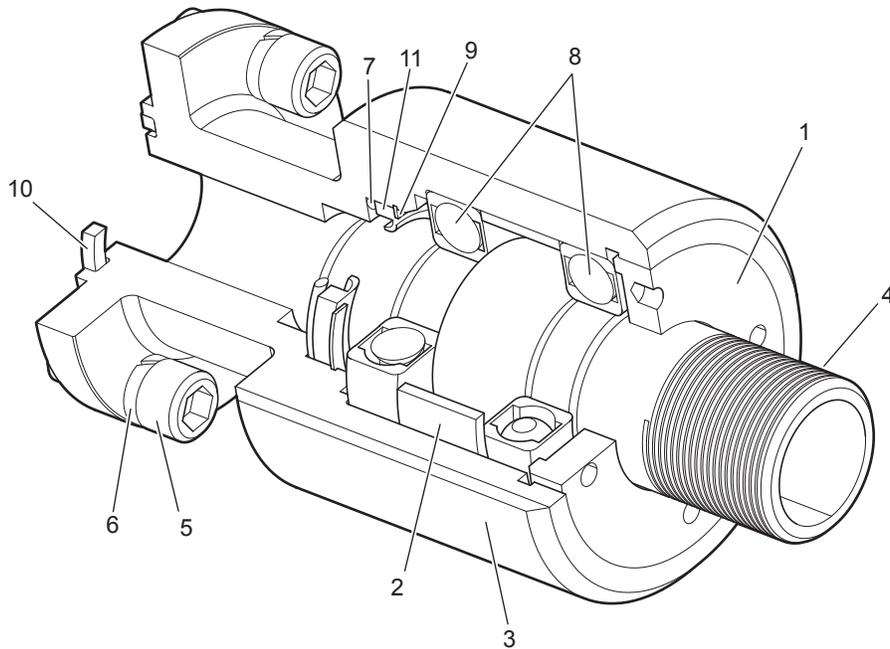


Figure 1

Component Part Numbers							
Item	Qty.	Description	3/4" RH	1" RH	1-1/4" RH	1-1/2" RH	2" RH
-	-	Assembly	145487AA	145488AB	145489AA	145461AA	146175AA
1	1	Cover	012068	012045	012055	010939	306912
2	1	Bearing Spacer	308446	308444	308442	308447	306913
3	1	Housing	417030	417020	416960	417033	417036
4	1	Shaft	417031	417021	416961	417034	417037
5	4	Socket Head Screw	30 X 0105	30 X 0207	30 X 0207	30 X 0207	30 X 0208
6	4	Lock Washer	31 X 0001	31 X 0006	31 X 0006	68 X 0008	68 X 0008
7	1	O-Ring	73 X 0426	73 X 0424	73 X 0422	73 X 0425	73 X 0427
8	2	Ball Bearing	159 X 0029	159 X 0082	159 X 0175	159 X 0078	159 X 0186
9	1	Retaining Ring	190 X 0109	190 X 0107	190 X 0106	190 X 0108	190 X 0110
10	1	Square Section Seal	350 X 0003	350 X 0004	350 X 0008	350 X 0009	350 X 0011
11	1	Lip Seal	435 X 0004	435 X 0002	435 X 0001	435 X 0003	435 X 0005
Replacement Kit (Includes Items 7, 9, 10, 11)			145487AX	145488AX	145489AX	145461AX	146175AX

# 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 equipment. Three signal words “**DANGER**”, “**WARNING**” and “**CAUTION**” are used to indicate the severity of a hazard, and are preceded by the safety alert symbol 

## **Danger**

Denotes the most serious 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 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**

## **Caution**

procedures by which hazards can be avoided.

# 2.0 OPERATION

## 2.1 Description

The Airflex single passage rotor seal is a positive seal for introducing air under pressure into a rotating shaft. The rotor seal operates continuously or intermittently at high speeds in either direction. The RH rotor seal has been designed for large air volume applications, available in

five sizes having inlet ports suitable for 3/4, 1, 1-1/4, 1-1/2 and 2 inch pipe.

**Note** : Consult the Factory when contemplating the use of Airflex rotor seals with mediums other than air.

## 2.2 How It Works

The rotating seal of the Airflex RH rotor seal is established by means of a lip seal (11) that rotates against a polished surface on the stationary shaft (4). Air can pass through the bore of the stationary shaft and that of the rotating housing and then into the machinery shaft or assembly.

## 2.3 Pressure and Speed Limits

Maximum operating pressure allowable in standard RH rotor seals is 150 psig (10,4 bar). Maximum speed limits are shown on Table 1. Operation at maximum pressure combined with maximum speed should be avoided. Consult the factory or your Airflex Distributor for specific application information.

SIZE	3/4	1	1-1/4	1-1/2	2
MAX. RPM	1500	1200	1000	800	600

# 3.0 INSTALLATION

## 3.1 Mounting

The Airflex type RH rotor seal is designed for flange mounting to the machinery shaft or assembly. Refer to Figure 2 and Table 3 for mounting dimensions.

- 3.1.1 Be sure the external rubber seal (12) is properly seated in the rotor seal flange groove before mounting.
- 3.1.2 Mount the rotor seal and torque the mounting screws to the lubed value indicated in Table 2, using an alternating crosswise pattern.

SIZE	3/4	1	1-1/4	1-1/2	2
Ft.-Lb.	11	25	25	25	25
Nm	15	34	34	34	34

## 3.2 Air Connection

- 3.2.1 The rotorseal shaft (4) has a pipe thread for the inlet air connection. The connection to the rotorseal must always be through a flexible hose, and the air supply piping must be self-supporting. Orientation of the hose in a horizontal position may help in reducing bearing loading. A good pipe thread sealant must be used when connecting the flexible hose to the rotorseal.

### **Caution**

**Rigid air connection will preload the rotorseal bearings, resulting in premature failure.**

## 4.0 MAINTENANCE

A replacement kit is available to allow the rebuilding of the type RH rotorseal (refer to the table under Figure 1 for part numbers and items included). Airflex rotorseals are manufactured with quality materials to precision tolerances. These instructions should be followed carefully to assure that the rotorseal is repaired properly. Only Airflex parts should be used. The rotorseal must be removed from its mounting, and repairs should only be made in a clean, dust-free environment.

### **Caution**

**When replacing components, use only Genuine Airflex replacement parts. Use of other materials may severely effect performance.**

### 4.1 Disassembly

- 4.1.1 The cover (1) is retained in the housing (3) with Loctite #242. It may be necessary to heat the housing slightly to soften the Loctite. Use an adjustable face spanner wrench to remove the cover. (Possible source: McMaster-Carr, part number 5643A47).
- 4.1.2 Remove the shaft (4) bearings (8) and bearing spacer (2) from the housing. To assist with removal of the shaft, assemble a pipe cap onto the end of the shaft and insert a length of round drift or bar stock (approx. 1/2" D x 12" long) through the center of the housing and against the end cap. Tap the drift to drive the shaft and bearings out of the housing. Rotate the shaft while striking the drift to reduce binding of the bearings in the housing.
- 4.1.3 Remove the internal snap ring (9) from the housing. Using a thin screwdriver or punch, drive the seal out of the housing bore, using care to prevent damage to the bore. Heating the housing slightly will allow for easier seal removal. Do not heat the housing over 150°F (65°C). After the seal has been removed, remove the O-ring (7) from the housing.

## 4.2 Cleaning and Inspection

- 4.2.1 After assembly, clean all parts thoroughly using a grease-cutting solvent.

### **Caution**

**Follow proper safety precautions when using solvents.**

- 4.2.2 Inspect and check the ball bearings (8). They should be free of rust and contamination, revolve smoothly without binding and show no signs of excessive looseness or wear. Bearings with damaged or leaking seals should also be replaced.
- 4.2.3 Inspect the seal contact surface of the shaft (7) for scoring, or pitting. Scoring or pitting will result in leakage or accelerated wear of the seal. If the shaft is to be re-used, remove any burrs or damage from the shaft.
- 4.2.4 If inspection indicates that the shaft or bearings are in poor condition, the shaft (7), bearings (8) and bearing spacer (9) must be replaced
- 4.2.5 Inspect the housing (3) and cover (1) for damage. Replace if necessary.
- 4.2.6 Clean the threads in the housing (3) with a wire brush, removing any residual Loctite

## 4.3 Assembly

- 4.3.1 Lubricate the O-ring (7) with o-ring lubricant (Dow 55 or equivalent) and seat it into the counterbore in the housing (3).
- 4.3.2 The seal repair kit includes a special seal and snap ring insertion tool. Noting the orientation of the seal lip (see Figure 1), assemble the seal (11) onto the installation tool and press the seal into the housing bore until it rests evenly against the o-ring. Remove the installation tool.
- 4.3.3 Place the retaining ring (9) into the housing and press it into position using the installation tool. Insure that the retaining ring is fully engaged in the groove in the housing. Remove the installation tool.
- 4.3.4 If the bearings and shaft are replaced, assemble the bearings and bearing spacer onto the shaft using proper bearing assembly procedures.
- 4.3.5 Make sure that the sealing surface on the shaft is free of contamination. Lubricate the sealing surface on the shaft using a light oil. Slide the shaft and bearing subassembly into the housing
- 4.3.6 Apply a bead of Loctite 242 (supplied with the repair kit) across the threads of the cover. Assemble the cover, tightening to 50 ft.-lb.

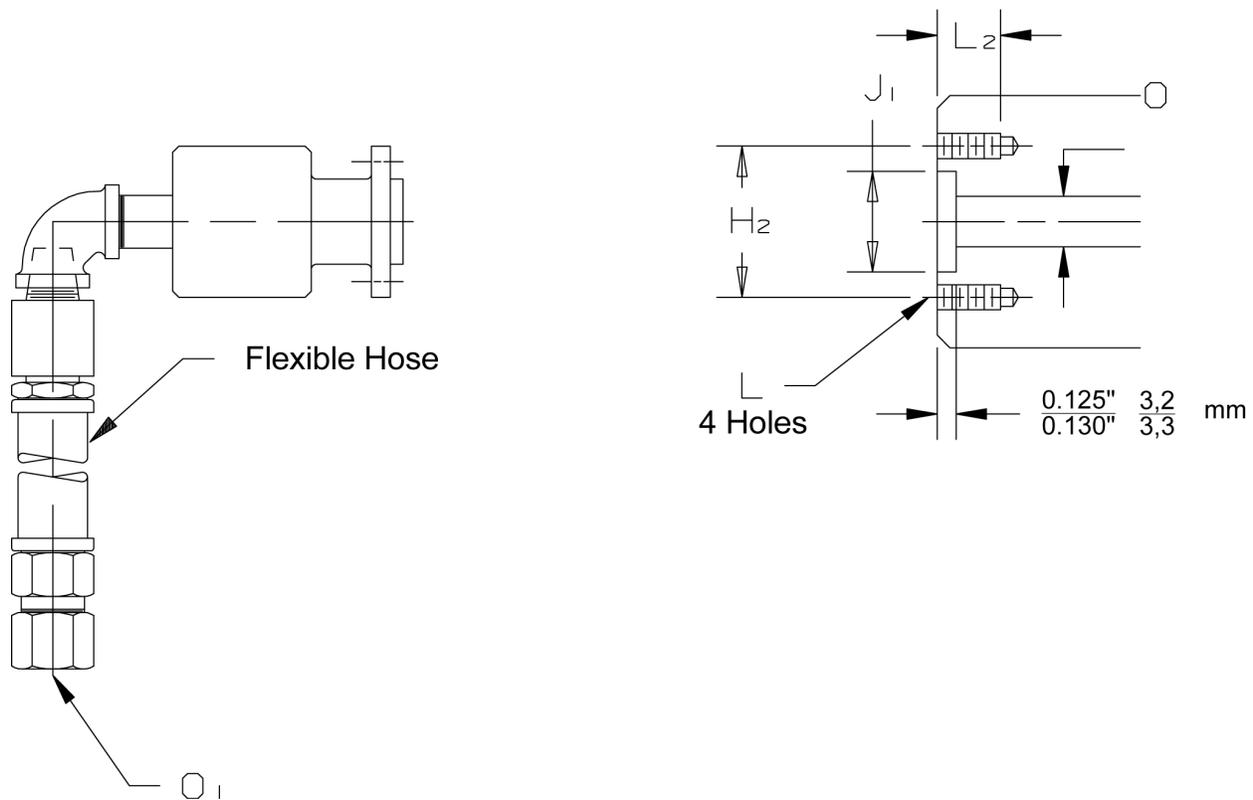


Figure 2

TABLE 3 : MOUNTING DIMENSIONS, INCHES (mm)						
Size	H <sub>2</sub>	J <sub>1</sub>	L(UNC)	L <sub>2</sub>	O	O <sub>1</sub> (NPT)
3/4	2.375 (60,3)	1.750 (44,5)	5/16-18	0.62 (16)	0.75 (19)	3/4 - 14
1	2.625 (66,7)	2.000 (50,8)	3/8-16	0.75 (19)	1.00 (25)	1-11 1/2
1-1/4	3.125 (79,4)	2.500 (63,5)	3/8-16	0.75 (19)	1.25 (32)	1 1/4 - 11 1/2
1-1/2	3.375 (85,7)	2.750 (69,9)	3/8-16	0.75 (19)	1.50 (38)	1 1/2 - 11 1/2
2	4.250 (108,0)	3,500 (88,9)	3/8-16	0.75 (19)	2.00 (51)	2 - 11 1/2

For additional information, note the part number and description on the housing and call or write:

Eaton Corporation

Airflex Division

9919 Clinton Road

Cleveland, OH 44144

Phone: (216) 281-2211

FAX: (216) 281-3890

Internet: [www.airflex.com](http://www.airflex.com)

Loctite is a trademark of the Henkle Corporation.

McMaster-Carr is a registered trademark of McMaster-Carr Company.

### **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**

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER WRITTEN, ORAL OR IMPLIED. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE SPECIFICALLY EXCLUDED.

In no event shall Eaton be liable for special, incidental or consequential damages. Eaton's liability arising out of the supplying of such Product, or its use, whether in warranty, contract or otherwise, shall in no case exceed the cost of correcting defects in the Products as herein provided. Upon expiration of the twelve (12) month period, all such liability shall terminate. **THE FOREGOING SHALL CONSTITUTE THE SOLE REMEDY OF PURCHASER AND THE SOLE LIABILITY OF EATON.**

联系方式：

信德迈科技（北京）有限公司 CNMEC Technology Company

地址：北京市朝阳区望京SOHO-T1-C座2115室 邮编：100102

\*Tel: 010-8428 2935 | \* Fax: 010-8428 8762

\*电子邮件：sales@cnmec.biz

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