Airflex® Rotorseal Description

Section I

Description

The Airflex rotorseal is a rotary union (rotary joint) which permits the transfer of gases or liquids, under pressure or vacuum, into or out of the exposed end of a rotating shaft or body. It was designed primarily for the passage of compressed air or hydraulic fluid to control clutches or brakes. Other applications include the transmittal of cutting fluid to machine tools, lubrication of shaft-mounted components and circulation of oil for cooling systems.

The rotating seal is established by a non-metallic sealing ring, held against the rotorseal shaft by a light spring force. The sealing ring is designed so that media pressure acts on both of its ends to minimize the force on the sealing surface.

This design gives positive protection against leakage and compensates for seal wear. Ball bearings are used between the stationary and rotating ports to provide rigidity to the rotorseal assembly and to minimize the running torque.

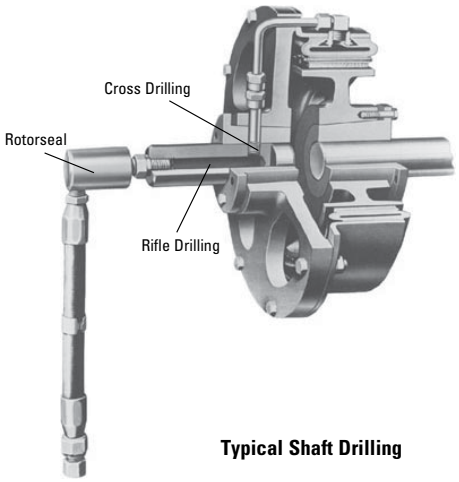
Rotorseals are available with single, dual and triple passages, in a variety of sizes and designs, to provide the versatility needed to handle most requirements. Single passage rotorseals, in pneumatic installation, can be plumbed with a quick release valve at its inlet port to provide a convenient exhaust.

In most applications, the rotorseal is mounted to the end of a shaft. The shaft is rifle and cross drilled to provide a passageway for the media transmitted. It is important that the rotorseal's axis of rotation be concentric with the rotating member's axis of rotation to minimize rotorseal wobble.

Rotorseal Type	No. of Passages	Inlet Port(s) ❶
AA2	1	1/8-27
B3	1	3/8-18 ❷
C2	1	1/2-14
3/4 RH	1	3/4-14
1 RH	1	1-11 1/2
1 1/4 RH	1	1 1/4-11 1/2
1 1/2 RH	1	1 1/2-11 1/2
2 RH	1	2-11 1/2
AD	2	1/4-18
ADP	2	1/4-18
BD	2	1/4-18
FDA	2	1/2-14
BTA	3	1/2-14 .

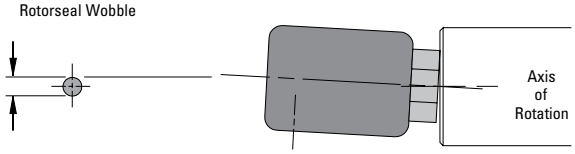
❶ American National Pipe Thread

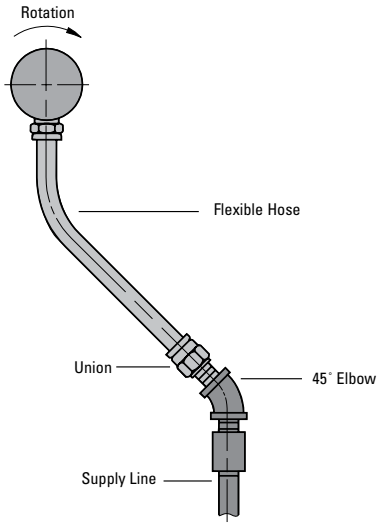
❷ Furnished with 3/8-18 NPT to 1/4-18 NPT reducer bushing



Typical Shaft Drilling

To accommodate eccentricities, a flexible connection must be used between the rotorseal and supply. A rigid connection will tend to preload the rotorseal bearings. The flexible connection should not be installed taut and should include a union and 45⁰ elbow as shown.



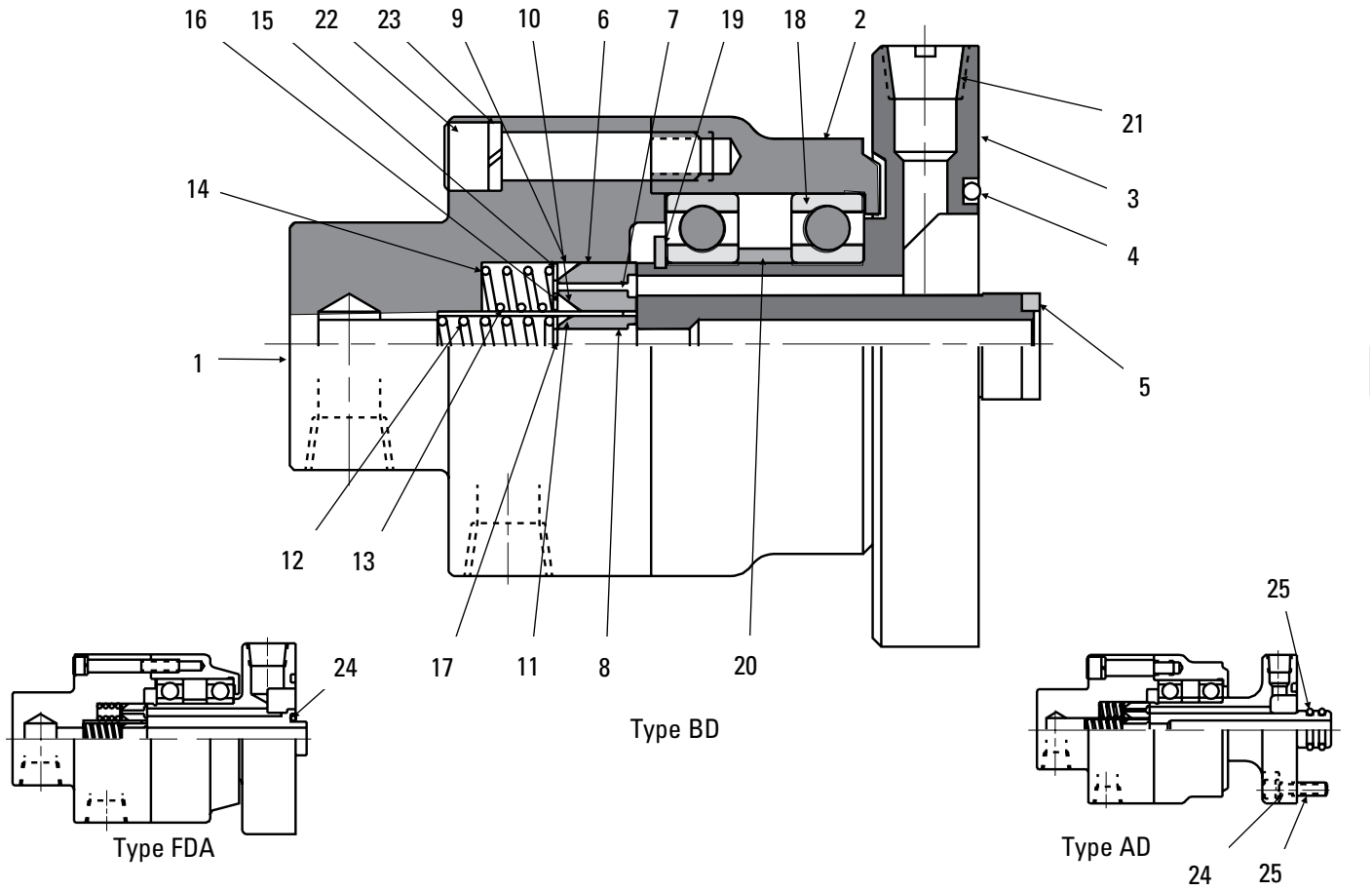


The flexible connection should be attached to the rotorseal prior to fastening the rotorseal to the rotating body to avoid seal or bearing damage. The union connection to the supply line is made last.

Airflex® Dual Passage Rotorseals

Component Part Descriptions

Section I



Item	Description
1	Rear Housing and Spring Retainer Assembly
2	Front Housing
3	Shaft
4*	Grommet
5*	Grommet
6*	Outer Carbon
7*	Intermediate Carbon
8*	Inner Carbon
9*	Outer “O” Ring
10*	Intermediate “O” Ring
11*	Inner “O” Ring
12*	Inner Seal Spring
13*	Intermediate Seal Spring
14*	Outer Seal Spring

Item	Description
15*	Outer Spring Retainer Ring
16*	Intermediate Spring Retainer Ring
17*	Inner Spring Retainer Ring
18	Bearing
19	Snap Ring
20	Bearing Spacer
21	Pipe Plug
22	Socket Head Cap Screw
23	Lockwasher
24*	Grommet
25*	Grommet
26	Hex or Socket Head Cap Screw
27	Lockwasher
*	Seal Kit (includes items marked *)

Airflex® Component Part Descriptions

Dimensional and Technical Data — Types AD, ADP, BD & FDA
Section I

Dual Passage Rotorseals

Dual passage rotorseals allow the transfer of media through two separate shaft passages located on the same shaft end. Each passage can be used for a different medium; for instance, air for clutch actuation and oil for bearing lubrication. Inlet and outlet ports have American National Pipe Threads.

Type AD

The AD rotorseal has 1/4-18 inlet ports for each of the passages. Both passage outlets can discharge directly into the shaft end. An optional 1/4-18 outlet port in the mounting flange could be used for the outer passage. The inner passage nose is sealed on its outside diameter by a pair of "O" rings. The outer passage is sealed to the shaft end with a compression grommet.

Type ADP

The type ADP rotorseal attaches to the shaft end with a 1-11 1/2 thread outlet instead of a mounting flange. The outer passage outlet feeds into the end of the machine shaft. The inner passage is a 1/4-18 port located on a flat of the hex mounting nut.

Type BD

The type BD is similar to the AD, except for a larger diameter mounting flange. The inner passage is sealed with a flat rubber washer which compresses on the bottom of a counterbore in the shaft end. A compression grommet is used between the shaft end and mounting flange to seal the outer passage.

Type FDA

The FDA type rotorseal has larger passages than the BD rotorseal. The two inlet ports and the two flange outlet ports for the outer passage are 1/2-14. Compression grommets are used between the shaft end and mounting flange to seal the inner and outer passages.

English		in²	in²	rpm	psi	lb
AD	145785C	0.049	0.155 ❷	1200	150	4.3
ADP	145785B	0.049	0.124 ❸	1200	150	4.0
BD	145405T	0.049	0.171 ❹	1200	150	5.8
FDA	145583AJ	0.196	0.221 ❺	1000	150	9.4
Size	**Part Number**	**Passage Area**		**❶ Maximum Speed**	**❶ Maximum Pressure**	**Weight / Mass**
		Inner	**Outer**			
AD	145785C	0,32	1,00 ❷	1200	10,4	1,9
ADP	145785B	0,32	0,80 ❸	1200	10,4	1,8
BD	145405T	0,32	1,10 ❹	1200	10,4	2,6
FDA	145583AJ	1,26	1,43 ❺	1000	10,4	4,3
SI		**cm_2**	**cm_2**	**rpm**	**bar**	**kg**

English	Dimensions in inches																
AD	5.69	4.56	0.75	0.75	4.14	1.13	3.25	1.75	2.562	3.250	2.17	1.50	0.34	0.38	1/4-18	0.38	0.798
ADP	5.28	4.16	1.00	1.00	3.73	1.13	3.25	1.75	N/A	N/A	N/A	N/A	N/A	0.50	1/4-18	❸	N/A
BD	4.88	3.75	0.393 ❾	0.75	3.34	1.13	3.25	1.75	3.562	4.250	2.78	1.88	0.40	0.38	1/4-18	0.38	0.750
FDA	6.31	4.94	0.25	1.19	4.22	1.47	3.75	2.06	3.562	4.250	3.22	2.25	0.40	0.63	1/2-14	0.50	0.750
Size	**D**	**D_1**	**D_{30}**	**D_{31}**	**D_{48}**	**D_{49}**	**H**	**H_1**	**H_2**	**H_{11} ❻**	**H_{13}**	**H_{16}**	**L**	**M**	**O_1 ❼**	**O_3**	**S ❽**
AD	145	116	19	19	105	29	83	44	65,1	82,6	55	38	9	10	1/4-18	10	20,3
ADP	134	106	25 o	25	95	29	83	44	N/A	N/A	N/A	N/A	N/A	13	1/4-18	❸	N/A
BD	124	95	10,0	19	85	29	83	44	90,5	108,0	71	48	10	10	1/4-18	10	19,1
FDA	160	125	6	30	107	37	95	52	90,5	108,0	82	57	10	16	1/2-14	13	19,1
SI	**Dimensions in millimeters**																

Notes:

❶ Operation at maximum pressure and speed should be avoided. Refer to K-14 for operation parameters.

❷ Passage consists of ten 0.14 in (3,6 mm) diameter holes.

❸ Passage consists of eight 0.14 in (3,6 mm) diameter holes.

❹ Passage consists of eleven 0.14 in (3,6 mm) diameter holes.

❺ Passage consists of eight 0.18 in (4,8 mm) diameter holes.

❻ Tolerance +0.000/-0.001 in (+0,00/-0,03 mm)

❼ American National Pipe Thread

❽ Tolerance +0.000/-0.002 in (+0,00/-0,05 mm)

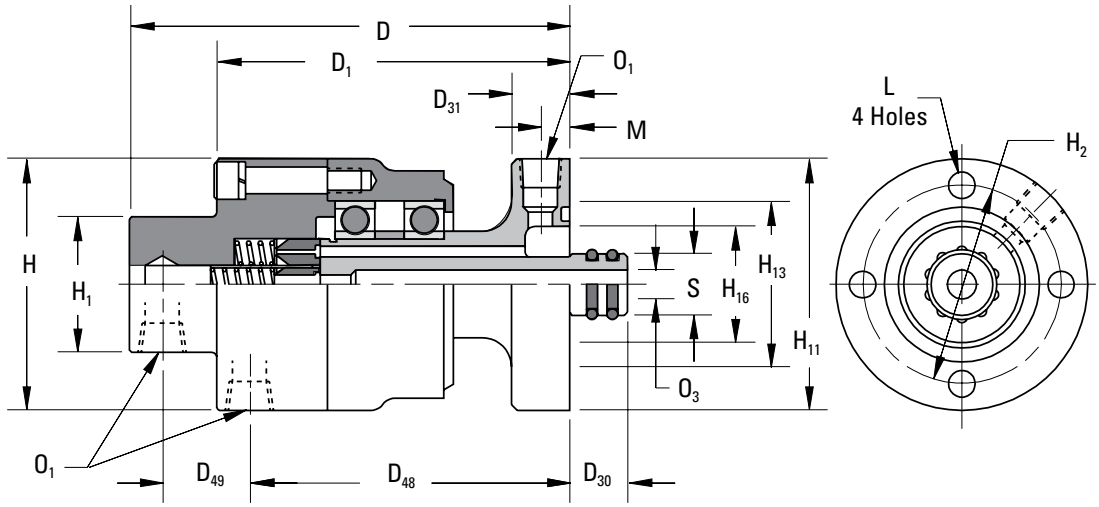
❾ Tolerance +0.000/-0.003 in (+0,00/-0,08 mm)

Airflex® Component Part Descriptions

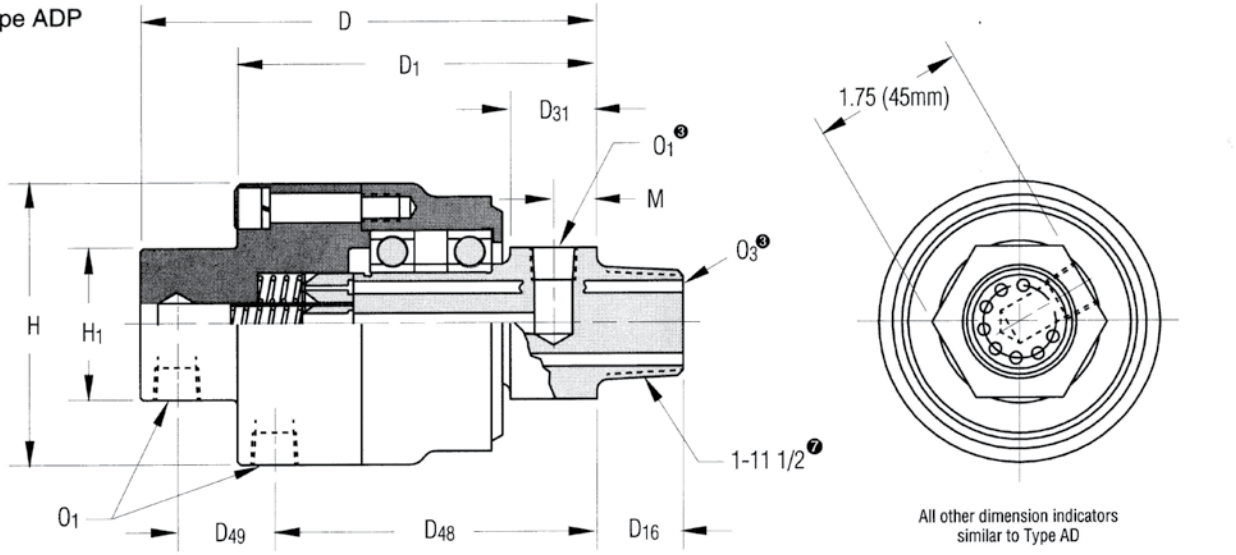
Forms RS905 & RS906 Dimensional Data — Types AD, ADP, BD & FDA

Section I

Type AD



Type ADP



Type BD & FDA