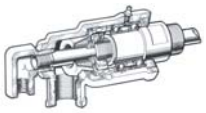
Nuraseal Co. Ltd.

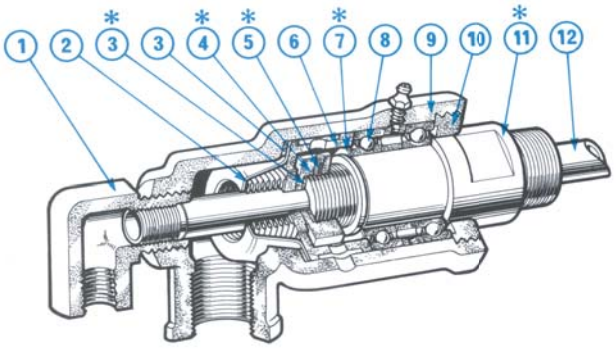
ROTARY P.B. UNION

FILTON FILTON LIMITED



ROTARY (P.B.) UNIONS

1/2″ to 1″



* Note: The components indicated by (*) rotate with the machine shaft.

Rotary (P.B.) Union - Type S.T. (Bellows Seal)

1. Elbow, brass
2. Bellows sub-assembly, brazed stainless steel
3. Gaskets
4. Seal ring sub-assembly, steel/carbon
5. Locking screw, h.t. steel
6. Spacer
7. Circlip
8. Ball bearings
9. Body, dzr brass
10. Locking ring
11. Rotary Spindle, steel
12. Centre tube (if ordered)

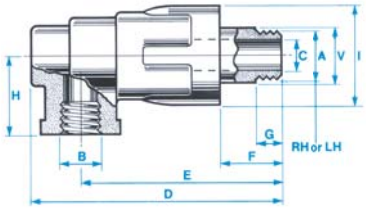
Mechanical seals also available (add MS to the Part Number)

Description

The rotary P.B. union has been developed from the rotary R.E. union and utilizes the same well-proven and highly successful bellows seal and bearing system. The body is manufactured from de-zincification resistant brass which has advantages over conventional brass and the cast iron adapter of the rotary R.E. union, especially for water cooling applications. There are three variations available (add MS to the part number to specify a mechanical seal):

1) Type B.E. - Single Flow

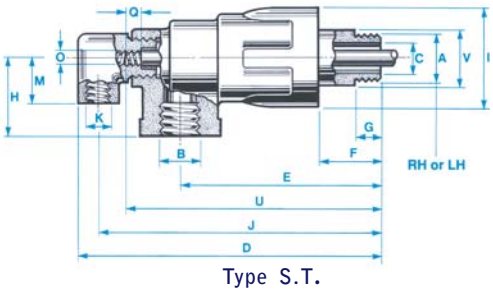
A single flow union suitable for transferring fluid in to or out of rotating machines. The body is fitted with a plug at the outboard end which allows this type to be converted to a type S.T. or R.S. by using the appropriate elbow.



Type B.E.

2) Type S.T. - Double Flow (Stationary Center Tube)

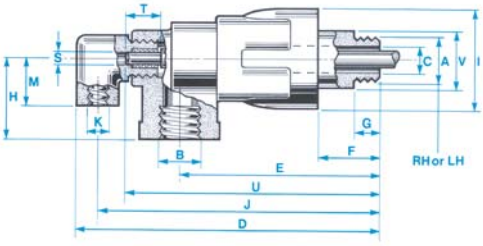
Fitted with an elbow suitable for double flow with a stationary center tube. This gives flow areas through the center tube and annulus. The center tube - provided only if ordered - is fixed to the union end by means of a screw thread (dimension "O"). Flow can pass in through the center tube and return through the annulus or be reversed. For steam applications, the center tube is curved to reach the condensate in the bottom of the cylinder. If the roll neck diameter to length ratio prevents the use of a curved tube, a syphon elbow can be specified instead. See the Accessory Section or contact us for more information about the options available.



Type S.T.

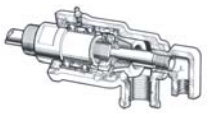
3) Type R.S. - Double Flow (Rotary Center Tube)

Fitted with an elbow suitable for a rotating center tube (which must be located and driven by the machine). The center tube - provided only if ordered - rotates in a labyrinth bush. Flow can pass in through the center tube and return through the annulus or be reversed. The center tube "sealing" system allows for a slight internal leakage between the supply and return lines. If these fluids must not mix, alternate designs are available. Please contact us for additional information.



Type R.S.

ROTARY (P.B.) UNIONS



Model and Dimensional Information

Nominal Size	Rotary (P.B.) Union Model Part Number [i]			Dimensions (mm unless specified otherwise)																			
				A[ii]	B	C	D		E	F	G	H	I	J	K	M	O	Q	S	T	U			V
	B.E. (R or L)	S.T. (R or L)	R.S. (R or L)				B.E.	S.T. / R.S.													B.E.	S.T.	R.S	
15 (1/2")	18466	18467	18468	G. 1/2"	G. 1/2"	13	159	193	130	29	16	44	68	181	G. 1/4"	30	G. 1/8"	12	9.52 / 9.50	20	--	173	166	38
	18466U	18467U	18468U	3/4" - 16UNF	G. 1/2"	13	159	193	130	29	16	44	68	181	G. 1/4"	30	G. 1/8"	12	9.52 / 9.50	20	--	173	166	38
	18466MB	18467MB	18468MB	M22 x 1.5	G. 1/2"	13	159	193	130	29	16	44	68	181	G. 1/4"	30	G. 1/8"	12	9.52 / 9.50	20	--	173	166	38
20 (3/4")	18469	18470	18471	G. 3/4"	G. 3/4"	18	162	196	133	32	19	44	68	184	G. 1/4"	30	G. 1/4"	12	12.70 / 12.67	20	--	176	169	38
	18469U	18470U	18471U	1" - 14UNS	G. 3/4"	18	162	196	133	32	19	44	68	184	G. 1/4"	30	G. 1/4"	12	12.70 / 12.67	20	--	176	169	38
	18469MB	18470MB	18471MB	M30 x 1.5	G. 3/4"	18	162	196	133	32	19	44	68	184	G. 1/4"	30	G. 1/4"	12	12.70 / 12.67	20	--	176	169	38
25 (1")	18472	18473	18474	G. 1"	G. 1"	22	180	210	148	43	22	52	88	197	G. 3/8"	25	G. 3/8"	9.5	15.87 / 15.85	25	--	185	185	42
	18472U	18473U	18474U	1-1/2" - 12UNF	G. 1"	22	180	210	148	43	22	52	88	197	G. 3/8"	25	G. 3/8"	9.5	15.87 / 15.85	25	--	185	185	42
	18472MB	18473MB	18474MB	M35 x 1.5	G. 1"	22	180	210	148	43	22	52	88	197	G. 3/8"	25	G. 3/8"	9.5	15.87 / 15.85	25	--	185	185	42

(i) Model part numbers shown are for units fitted with a bellows seal - add the suffix MS if mechanical seals are required.

(ii) "G" is the designation for parallel pipe threads to BS.2779 and ISO 228/1.

Flow Capacity

Nominal Size	Rotary (P.B.) Union - Model	Water [iii]		Steam [iv]	Air [v]
		m^3/h	l/min	kg/h	m^3/h
15 (1/2")	B.E.	1.7	28.3	61	58
	S.T. / R.S.	0.3	5	27	10
20 (3/4")	B.E.	2.7	45	101	96
	S.T. / R.S.	0.6	10	41	22
25 (1")	B.E.	4.1	68.3	151	144
	S.T. / R.S.	1.8	30	56	44

(iii) Flow measured in cubic metres/hour at a velocity of 3 metres/second. (Also applies to other liquids.)

(iv) Flow in kilograms/hour at a velocity of 30 metres/second and a pressure of 6 bar.

(v) Flow in cubic metres/hour free air at a velocity of 15 metres/second and a pressure of 6 bar.

Maximum Operating Recommendations

Fluids: Water, steam, mineral oils and compressed air (lubricated). All fluids should be clean and free from abrasive particles.

* Note: It is not advisable to exceed or combine maximums.

Pressure: 17 bar maximum.

Vacuum: 740mm Hg. maximum (specify vacuum and we will test for this).

Temperature: -20°C to 160°C .

Speed: 1000 r.p.m. maximum with the bellows seal, 1500 r.p.m. maximum with the mechanical seal.

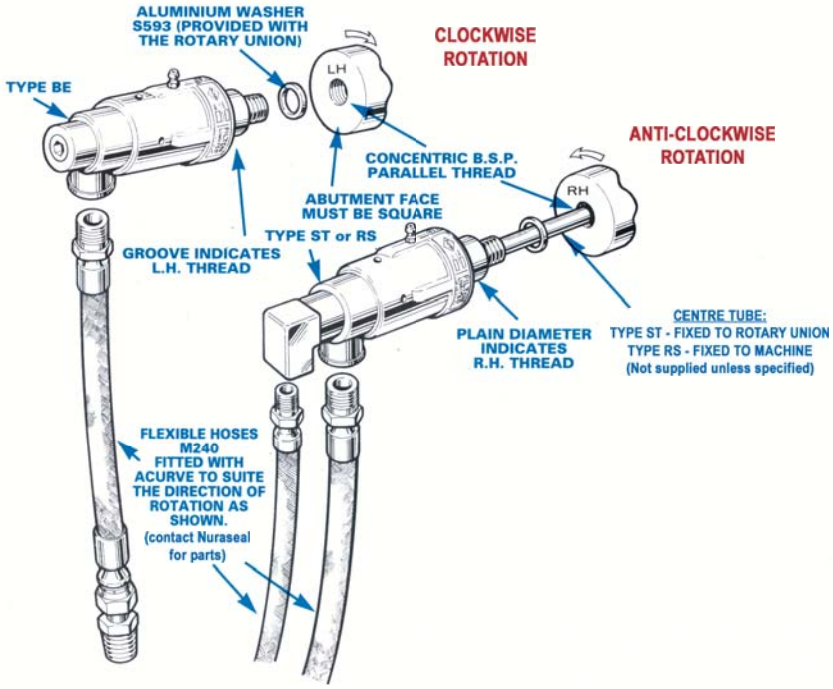
Storage: Store indoors in a dry area between the temperature ranges of -10°C to 30°C.

Installation Requirements

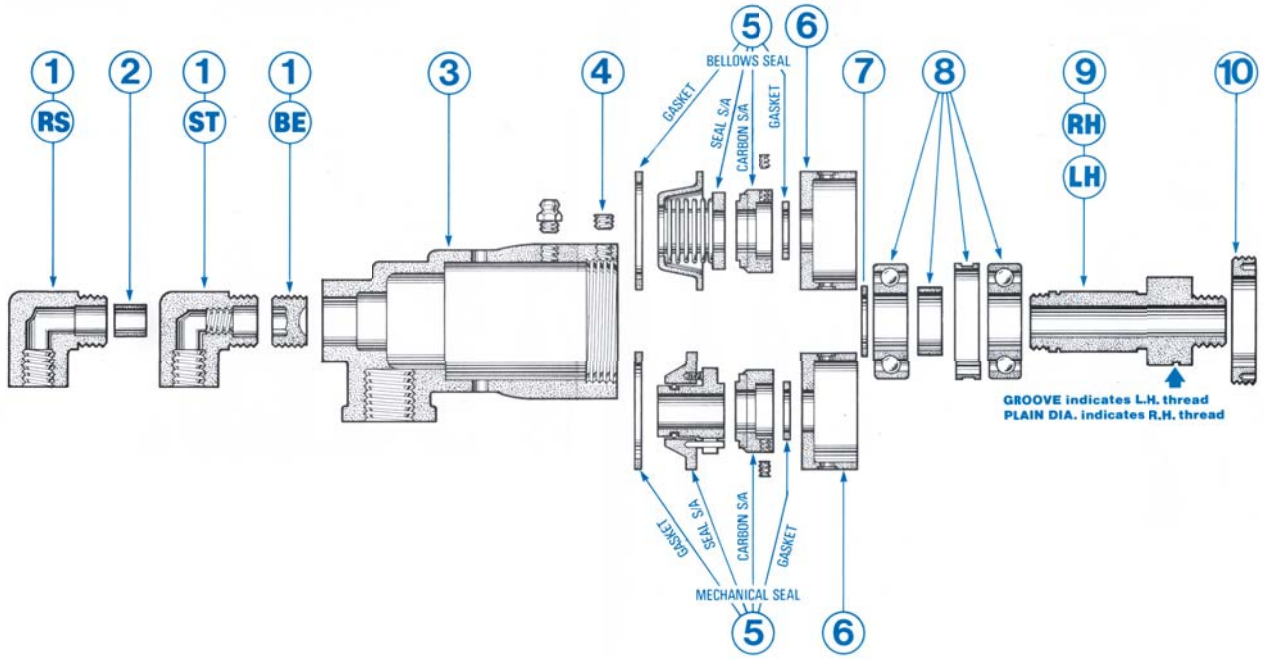
1) A suitable run-in period before fitting is recommended. Rotate the P.B. at 300 r.p.m. for 15 minutes.
2) Add system liquid if seals squeak.
3) A torque arrestor may be fitted, but this must not restrict the rotary union.
4) Ensure that the spindle thread is RH or LH to suit the direction of rotation of the machine shaft.
5) If the machine shaft reverses direction of rotation, securely lock the spindle or (preferably) use a flanged connection.
6) DO NOT fix valves etc. directly on to the rotary union.
7) DO NOT connect with rigid pipe.
8) DO NOT clamp the rotary union.

Installation (Continued)

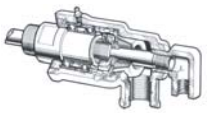
ALL TYPES ARE SUPPLIED WITH RH or LH SPINDLE THREADS



Part Identification



Nominal Size	Spindle Thread	1 - End Fitting			2 - C/T Bearing		3	4	5 - Seal Kit		6-Spacer		7	8	9	10
		B.E.	S.T.	R.S.	B.E. / S.T.	R.S.	Body	Locking Screw	Bellows	Mech.	Bellows	Mech.	Circlip	Bearing Kit	Spindle	Locking Ring
15 (1/2")	G. 1/2"	M244/4	18467/2	18468/1	--	14699/4	18467/1	M6 x 5	S1100/2	S1400/2	18467/2	15166/6A	M184/3	S1234/2	14535/1	18470/3
	3/4" - 16UNF	M244/4	18467/2	18468/1	--	14699/4	18467/1	M6 x 5	S1100/2	S1400/2	18467/2	15166/6A	M184/3	S1234/2	14535.U/1	18470/3
	M22 x 1.5	M244/4	18467/2	18468/1	--	14699/4	18467/1	M6 x 5	S1100/2	S1400/2	18467/2	15166/6A	M184/3	S1234/2	14535.M/1	18470/3
20 (3/4")	G. 3/4"	M244/4	18470/2	18471/1	--	14543/1	18470/1	M6 x 5	S1100/2	S1400/2	18467/2	15166/6A	M184/3	S1234/2	14534/2	18470/3
	1" - 14UNS	M244/4	18470/2	18471/1	--	14543/1	18470/1	M6 x 5	S1100/2	S1400/2	18467/2	15166/6A	M184/3	S1234/2	14534.U/2	18470/3
	M30 x 1.5	M244/4	18470/2	18471/1	--	14543/1	18470/1	M6 x 5	S1100/2	S1400/2	18467/2	15166/6A	M184/3	S1234/2	14535.M/2	18470/3
25 (1")	Please contact us for part number information on 25 (1").															



Maintenance and Overhaul

1) Remove the locking screw (4) which allows for the removal of locking ring (10).
2) Remove the spindle (9) complete with bearing kit (8), circlip (7) and carbon subassembly of seal kit (5).
3) Remove spacer (6), seal subassembly and gasket of seal kit (5) from the body (3).
4) If type R.S., unscrew end fitting (1-R.S.) from the body, remove and replace the C/T Bearing (2).
5) Hold spindle (9) in a vice, remove locking screws to enable carbon subassembly of seal kit (5) to be unscrewed, then remove gasket.
6) Remove circlip (7) and press off bearing kit (8) from spindle (9).
7) Discard and replace seal kit (5) and bearing kit (8). Handle seal kits with care to avoid damaging the precision lapped seal faces.
8) Thoroughly clean all parts before reassembly (which is virtually the reverse of the above steps).
9) After reassembly, follow the recommended installation procedures and allow for a suitable run-in period to ensure the seals are working correctly before refitting to the machine.

Minimum Length for Flexible Hose

Nominal Size	Length (mm)	Part Number
8 (1/4")	150	M.240/1
15 (1/2")	305	M.240/3
20 (3/4")	305	M.240/4

Lubrication

The bellows seal or mechanical seal fitted to the rotary P.B. union is self-adjusting within its working life. The ball bearings are lubricated prior to shipping with a Bentone-base grease and occasionally require re-lubrication with a compatible grease; generally once per shift on "hot" applications and once per month on "cold" applications. For more specific recommendations, contact the grease manufacturer. Recommended lubricants include:

ACHESON COLLOIDS COMPANY	
Multilube Bearing Grease	-25°C / +120°C
Hi-Temp Bearing Grease	-15°C / +160°C
BARDAHL	
Multipurpose Grease #2	-20°C / +160°C
Haute Temperature	-10°C / +180°C
BP	
Energrease LS2	-30°C / +130°C
Energrease HTB2	-20°C / +180°C
BURMAH-CASTROL	
Spheerol AP3	-30°C / +110°C
Spheerol BNS	-25°C / +180°C
CALTEX (UK) LTD.	
Regal Starfak Premium 2	-40°C / +120°C
RPM Indust. Grease Heavy	-25°C / +165°C
Thermatex EP	-20°C / +180°C
DOW CORNING	
Molykote 44M	-40°C / +180°C
ELF OIL	
Multi 2	-25°C / +130°C
HTB 3	-25°C / +180°C
ESSO	
Beacon 2	-25°C / +125°C
IL 2880	-20°C / +180°C
MOBIL	
Mobilplex 47	-25°C / +150°C
Mobiltemp 1	+10°C / +180°C
ROCOL LTD.	
Sapphire	-30°C / +150°C
BG.442	-40°C / +180°C
SHELL	
Alvania RA	-40°C / +145°C
Darina Grease R2	+10°C / +190°C
TEXACO	
Multifak AFB2	-40°C / +120°C
Starfak Ultratemp 2	-40°C / +175°C

* Note: For subzero temperatures, please contact Nuraseal to ensure the model is suitable for the conditions.

Nuraseal Co. Ltd.

SALES AND SERVICE

For nearly three decades, Nuraseal has been providing sales and service for all Filton® Rotary Union Products. Whether you require new or custom unions, replacement components, technical support or assistance with maintenance inquiries, Nuraseal will be able to help you solve your application requirements throughout North America and abroad. Contact us to find out how we can help you today!

Toll Free !
1-888-NURASEAL (687-2732)

Need Help? Here's what to do before you call. . .

In order to better serve your needs, it is helpful to collect some basic information prior to contacting us. Most of this information will be located on a plate fastened to the unit itself or easily identified by visual inspection.

- Rotary Union Model type i.e. Rotary R.E. Union
- Part number i.e. 16663.
- Serial number - generally identified either by a combination of two letters followed by four numbers or four numbers followed by a single letter i.e. ZN5631
- Nominal size
- Direction of rotation - if there is a groove in the spindle, it is a left-hand thread.

Other information that is helpful, especially when trying to select a suitable model or when troubleshooting during times of maintenance or unit failure, include:

- Type of fluid, flow rate, pressure, temperature
- Ambient temperature
- Rotational speed
- Working cycle
- Any unusual conditions i.e. exposure to harsh environments, etc.

Quick Selection and Reference Guide

Check the Application Requirement column below for the appropriate fluid and size range. Turn to the page for the model indicated and check the full working conditions and limitations. If more than one model is indicated, examine the application information on the appropriate pages. Contact us for more information.

Application Requirments								Rotary Union Model Type	Available Size Range [1]
Air	Gas[3]	Oil (Lubricating)	Oil (Hydraulic)	Oil (Heat Transfer)	Steam	Vacuum	Water		
Y [2]	Y	Y	--	Y	Y	Y	Y	R.E.	8 (1/4") - 32 (1 1/4")
Y [2]	Y	Y	--	--	--	Y	Y	P.B.	15 (1/2") - 25 (1")
Y [2]	Y	Y	--	Y	Y	Y	Y	R.E.B.	40 (1 1/2") - 150 (6") [5]
--	--	--	--	Y [4]	Y	--	Y	C.B.	8 (1/4") - 32 (1 1/4")
--	--	--	--	Y [4]	Y	--	Y	C.B.N.	40 (1 1/2") - 150 (6") [5]
Y [2]	--	Y	--	--	--	--	Y	L.C.	8 (1/4") - 20 (3/4")
Y	--	--	--	--	--	Y	--	P.N.	8 (1/4") - 20 (3/4")
Y [2]	Y	Y	Y	--	--	Y	--	M.C.T.	8 (1/4") - 25 (1")
Y [2]	--	Y	Y	--	--	Y	Y	I.N.T.	8 (1/4") - 25 (1")

Legend:

(Y) Suitable for your application, but check the working condition information
(1) Size range as measured at the rotary spindle connection end
(2) Lubricated air only (if air is dry and P.N. model is unsuitable, special seals are available)
(3) Depends on type of gas and working conditions
(4) Flanges may be required depending on the working conditions
(5) Flanges may be fitted to assist for removal and maintenance on sizes 100 (4") and larger.

ALSO AVAILABLE

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