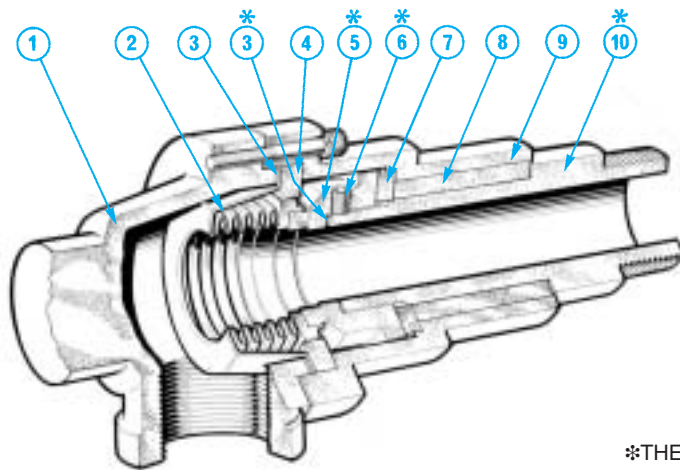




ROTARY (C.B.N.) UNIONS



Rotary (C.B.N.) Union type B.E.

1. Adaptor, s.g. iron.
2. Bellows sub-assembly brazed stainless steel/carbon.
3. Gaskets.
4. Spacer, plated steel.
5. Seal ring, hardened stainless steel.
6. Locking screw, h.t. steel.
7. Thrust bearing, carbon.
8. Journal bearing, carbon.
9. Body, s.g. iron.
10. Rotary spindle, steel.

*THESE COMPONENTS ROTATE WITH THE SHAFT

The Rotary (C.B.N.) Union is a self contained, self supporting rotary seal for the leak proof transfer of fluids (such as steam, hot water or oil) to and from rotating machine shafts.

The type of Rotary Seal fitted to the Rotary (C.B.N.) Union is a "FILTON BELLOWS SEAL" containing a flexible stainless steel bellows which is self adjusting, eliminating the maintenance common with conventional packed glands.

Rotary sealing is created by relative rotation between extremely flat sealing faces (items 2 and 5) held in contact by the spring characteristic of the bellows with an additional sealing force created by pressure of the fluid passing through the Rotary (C.B.N.) Union.

The bearings fitted to the Rotary (C.B.N.) Union are separate carbon thrust and journal bearings in which a hard chromed and ground spindle rotates.

There are 3 variations of the stationary Adaptor end, diagrams on page 13 and described below:—

TYPE C.B.N./B.E.

This is a single flow unit and is suitable for transferring fluid in to or out of rotating machines shafts. A typical application for this type is shown on page 3.

TYPE C.B.N./S.T.

This Rotary (C.B.N.) Union is fitted with an Adaptor suitable for double flow with a stationary centre tube. This gives flow areas through the centre tube and annulus. Centre tubes are only provided if ordered. The centre tube is fixed to the Rotary (C.B.N.) Union end by means of a screw thread shown as dimension 'O'. Flow can pass in through the centre tube and return through the annulus or be reversed.

For steam applications, a typical example of which is shown on page 3, the centre tube is curved to reach the condensate in the bottom of the cylinder. At times the roll neck diameter to length ratio prevents a curved tube being used, in such cases we can provide a Syphon Elbow, details of which are on page 20.

TYPE C.B.N./R.S.

The Adaptor fitted to this Rotary (C.B.N.) Union is suitable for a rotating centre tube, which must be located and driven by the machine. Centre tubes are only provided if ordered. The centre tube rotates in a carbon bush. The centre tube "sealing" system allows a slight internal leakage between the supply and return lines. If these fluids must not mix then an alternative design can be provided. Please ask our Technical Department. Flow can pass in through the centre tube with the return through the annulus or be reversed. A typical application is shown on page 3.

Operational Guidelines (For other conditions contact Filton Limited)

FLUIDS

Hot water, steam, mineral oils, heat transfer fluids (but use flanged connections when the temperature exceeds 180°C).
All fluids should be clean and free from abrasive particles.

PRESSURE

Water, steam and mineral oil - 17 bar maximum.
Heat transfer fluid - 17 bar maximum (5" and 6" 13 bar maximum.)

TEMPERATURE

100°C to 300°C (lower temperatures dependant on other conditions).

SPEED

300 r.p.m. maximum up to 50 (2") size, 250 r.p.m. for 65 (2½") and 80 (3"), 200 r.p.m. 90 (3½") and 100 (4"), and 150 r.p.m. for 125 (5") and 150 (6").

* Flow in cubic metres/hour at a velocity of 3 metres/second. Applies also to other liquids.

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

FLOW CAPACITY

Nominal Size	Type	Water*		Steam†
		m³/h	l/min	
40 (1½")	B.E.	10.4	173	381
	S.T. & R.S.	3.8	63	151
50 (2")	B.E.	19.5	325	717
	S.T. & R.S.	6.3	105	357
65 (2½")	B.E.	30.5	508	1120
	S.T. & R.S.	10.8	180	547
80 (3")	B.E.	41.6	693	1524
	S.T. & R.S.	14.9	248	807
90 (3½")	B.E.	57.0	950	2091
	S.T. & R.S.	23.4	390	942
100 (4")	B.E.	76.6	1277	2807
	S.T. & R.S.	27.6	460	982
125 (5")	B.E.	112.2	1870	4859
	S.T. & R.S.	45.3	755	1617
150 (6")	B.E.	166.3	2772	6997
	S.T. & R.S.	73.7	1228	2892

IT IS NOT ADVISABLE TO COMBINE MAXIMUMS

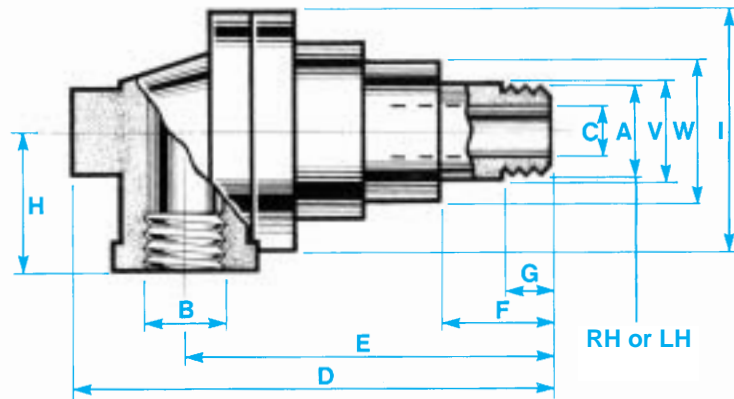
ROTARY (C.B.N.) UNIONS



Specify R or L with the part No to suit thread 'A' and the direction of rotation

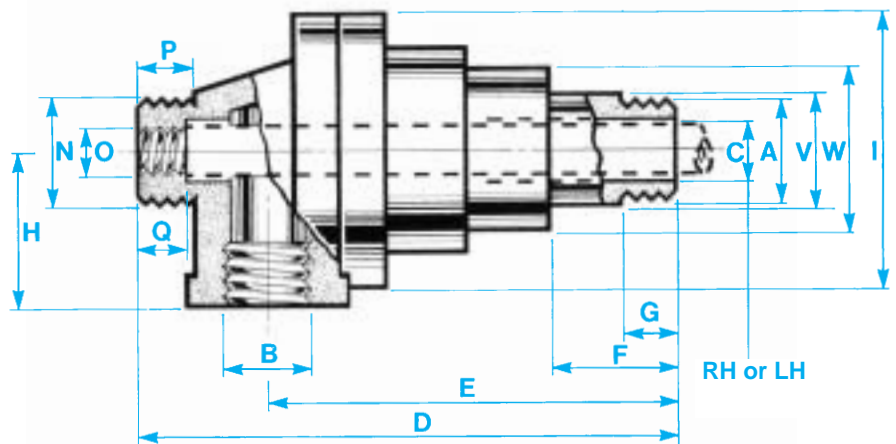
For single flow type C.B.N./B.E.

Nominal Size	Part No.	
40 (1½")	18101	R or L
50 (2")	15471	R or L
65 (2½")	18240	R or L
80 (3")	15477	R or L
90 (3½")	16171	R or L
100 (4")	16174	R or L
125 (5")	15486.SF	R or L
150 (6")	16704.SF	R or L



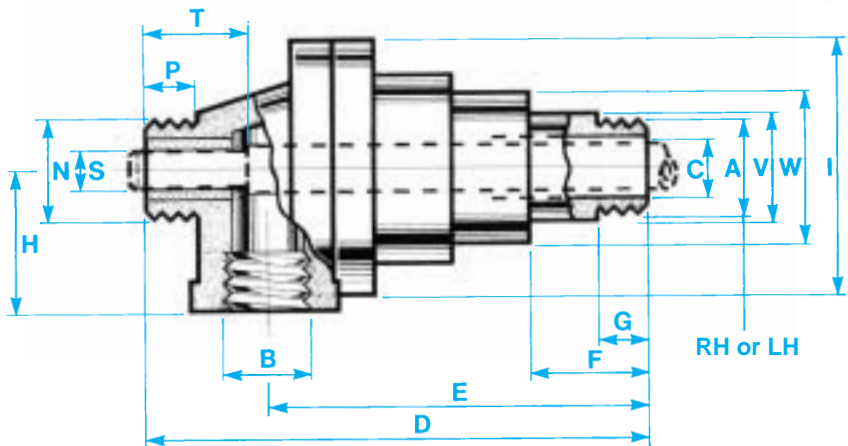
For double flow (stationary centre tube) type C.B.N./S.T.

Nominal Size	Part No.	
40 (1½")	18102	R or L
50 (2")	15472	R or L
65 (2½")	18241	R or L
80 (3")	15478	R or L
90 (3½")	16172	R or L
100 (4")	16175	R or L
125 (5")	15487.SF	R or L
150 (6")	16703.SF	R or L



For double flow (rotary centre tube) type C.B.N./R.S.

Nominal Size	Part No.	
40 (1½")	18103	R or L
50 (2")	15473	R or L
65 (2½")	18242	R or L
80 (3")	15479	R or L
90 (3½")	16173	R or L
100 (4")	16176	R or L
125 (5")	15488.SF	R or L
150 (6")	16702.SF	R or L



Dimensions in millimetres

Nominal Size	A	B & N	C	D	E	F	G & P	H	I	O	Q	S*	T	V	W
40 (1½")	G.1½"	G.1½"	35	263	207	56	25	72	128	G.¾"	14	25.4,f8	50	64	78
50 (2")	G.2"	G.2"	48	293	226	64	28	83	137	G.1"	19	31.8,f8	60	76	94
65 (2½")	G.2½"	G.2½"	57	356	278	75	30	102	186	G.1¼"	25	40,f8	55	90	112
80 (3")	G.3"	G.3"	70	407	323	80	30	120	200	G.1½"	25	45,f8	70	110	130
90 (3½")	G.3½"	G.4"	82	518	405	110	40	130	250	G2"	30	60,f8	60	140	160
100 (4")	G.4"	G.4"	95	518	405	110	40	130	250	G.2½"	30	75,f8	60	140	160
125 (5")	•	G.5"	115	688	513	115	45	167	325	G.3"	40	88,f8	70	192	220
150 (6")	•	G.6"	140	688	513	115	45	167	325	G.3½"	40	100,f8	70	192	220

● Flanged, see page 23.

*The tolerance f8 is to I.S.O 286-2 and BS.EN 20286-2

"G" is the designation for parallel pipe threads to B.S.2779 & I.S.O. 228/1.

SEE PAGE 28 FOR INSTALLATION INSTRUCTIONS