

BSPT, BSPP (DIN 3852-2) and Metric (DIN 3852-1) Adapter Specifications

BSPT and Metric tapered threads install and work in the same manner as NPT and NPTF.

Male BSPP fittings include an inverted 60° cone inside an internally threaded swivel union nut. (Figure 15) Male BSPP fittings that have a 30° internal chamfer that make a 60° inverted cone, will mate with Female BSPP swivel unions.

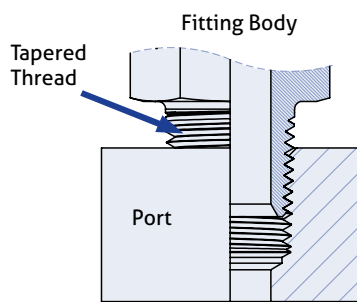


Figure 14: BSPT Assembly

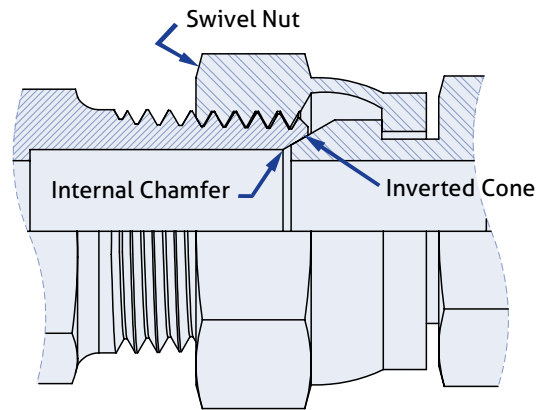


Figure 15: BSPP Union

NOTE: THE MATING MALE THREADS MUST INCLUDE AN INSIDE CHAMFER ON THE END OF THE FITTING THAT MATES WITH THE INVERTED CONE. THREADS ARE FOR CLAMPING FORCE ONLY AND THE SEALING OCCURS ON A SMALL RADIAL SECTION BETWEEN THE MALE FITTING INTERNAL CHAMFER AND THE SWIVEL UNION INVERTED CONE.

DIN swivel unions (Figure 16) have a 24° inverted cone and may be installed into DIN bite-ring compression fittings. To provide enhanced performance, an O-ring is sometimes included in the cone of some DIN swivel unions. (Figure 16 Detail A)

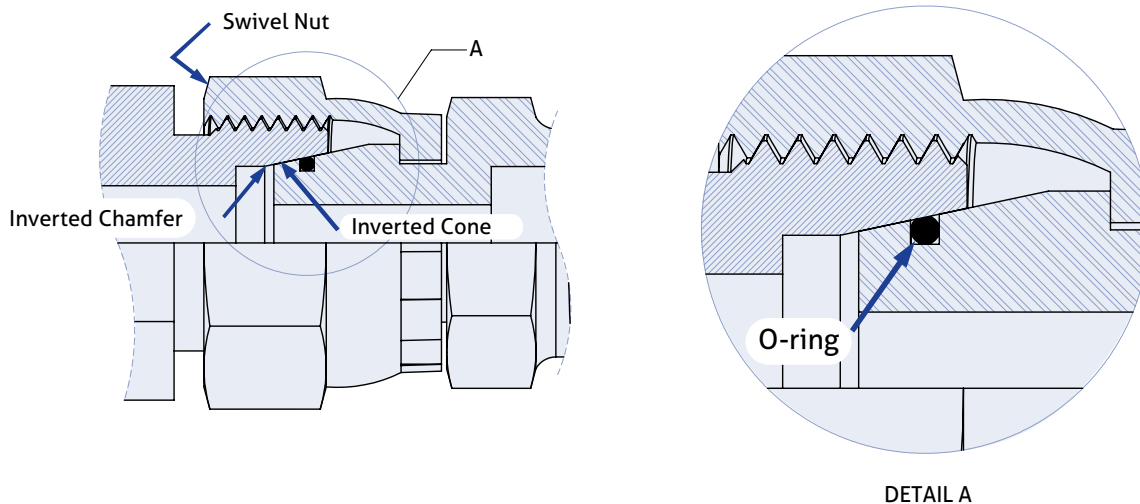


Figure 16: DIN Swivel Union

British Standard Pipe Parallel (BSPP, DIN 3852-2, ISO 1179-1) and Metric Parallel (DIN 3852-1, ISO 9974-1) threaded ports do not include a port cavity like the O-ring Boss or ISO 6149 port. Instead, an O-ring sits on top of the spot face or external surface and is surrounded by a metal retaining ring or other retaining component to trap the O-ring between the fitting hex, body, and spot face. (Figure 17)

Elbow and Tee fittings have a locknut, backup washer, O-ring and retaining washer to permit 360° orientation around the axis of the port. (Figure 18)

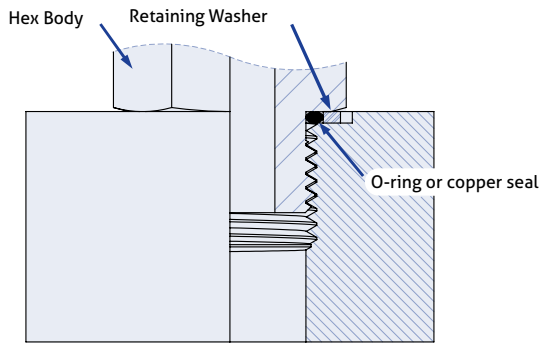


Figure 17: BSPP & Metric Straight (DIN 3852-1 & -2)

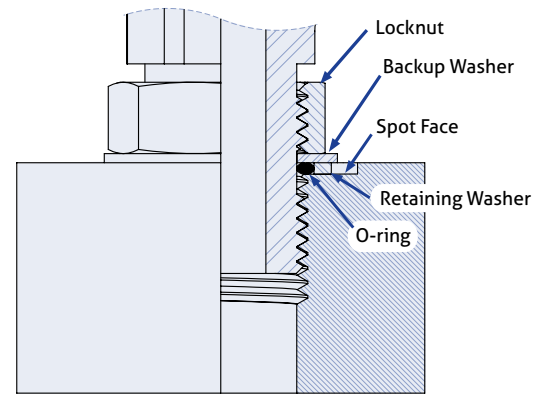


Figure 18: BSPP & Metric Adjustable (DIN 3852-1 & -2)

There are three sealing designs for either the BSPP or Metric parallel thread:

1. A retaining ring and O-ring. Some straight fittings may have a seal that is bonded into the inside edge of a washer. This is known as a bonded seal or a Dowty seal (not shown). For extreme heat applications, straight fittings may include a copper washer for a seal. (Figure 19)
2. Cutting face metal seal between the fitting and the spot face. (Figure 20)
3. Elastomeric (ED) seal or P-Flex seal. A precision groove is machined on the bottom of the fittings hex with a seal installed in this groove. For the parallel fittings, the threads are for holding power or clamping force only and the seal occurs on the spot face. For tapered BSPT fittings the holding and sealing is done in the threads with the help of a pipe sealant such as PTFE tape or an anaerobic liquid. (Figure 21)

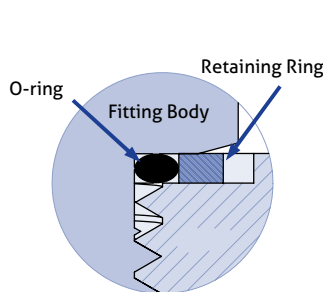


Figure 19:
Retaining Ring with O-ring Seal

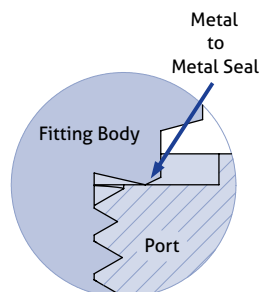


Figure 20:
Cutting Face Seal

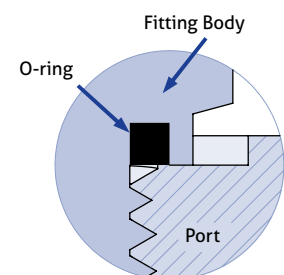


Figure 21:
Elastomeric Seal

The following table lists the specifications for BSPP & BSPT adapters.

BSPP & BSPT Specifications				
Dash Size	BSPT & BSPP		Torque	
	THREAD SIZE	MAJOR OD* (inch)	BSPP Swivel Union (FFWR)	BSPT (TFFT)
02	1/8-28	0.383	2	2-3
04	1/4-19	0.518	2	2-3
06	3/8-19	0.656	2	2-3
08	1/2-14	0.825	2	2-3
10	5/8-14	0.929	2	2-3
12	3/4-14	1.041	2	2-3
16	1-11	1.309	1 1/2	1 1/2 - 2 1/2
20	1 1/4-11	1.650	1 1/2	1 1/2 - 2 1/2
24	1 1/2-11	1.882	1 1/2	1 1/2 - 2 1/2
32	2-11	2.347	1 1/2	1 1/2 - 2 1/2

*Reference ISO-228-1, Table 1

Table 9: BSPP & BSPT Specifications

The following table lists the specifications for Metric adapters.

Metric DIN 3852-1 Threads	
Dash Size	THREAD SIZE
	(mm)
08	8 x 1.0
10	10 x 1.0
12	12 x 1.5
14	14 x 1.5
16	16 x 1.5
18	18 x 1.5
20	20 x 1.5
22	22 x 1.5
24	24 x 1.5
26	26 x 1.5
27	27 x 2.0
30	30 x 2.0
33	33 x 2.0
39	39 x 2.0
42	42 x 2.0
48	48 x 2.0
60	60 x 2.0

Values are from DIN 3852-1 & ISO 9974-1

Table 10: Metric DIN 3852-1 Threads