

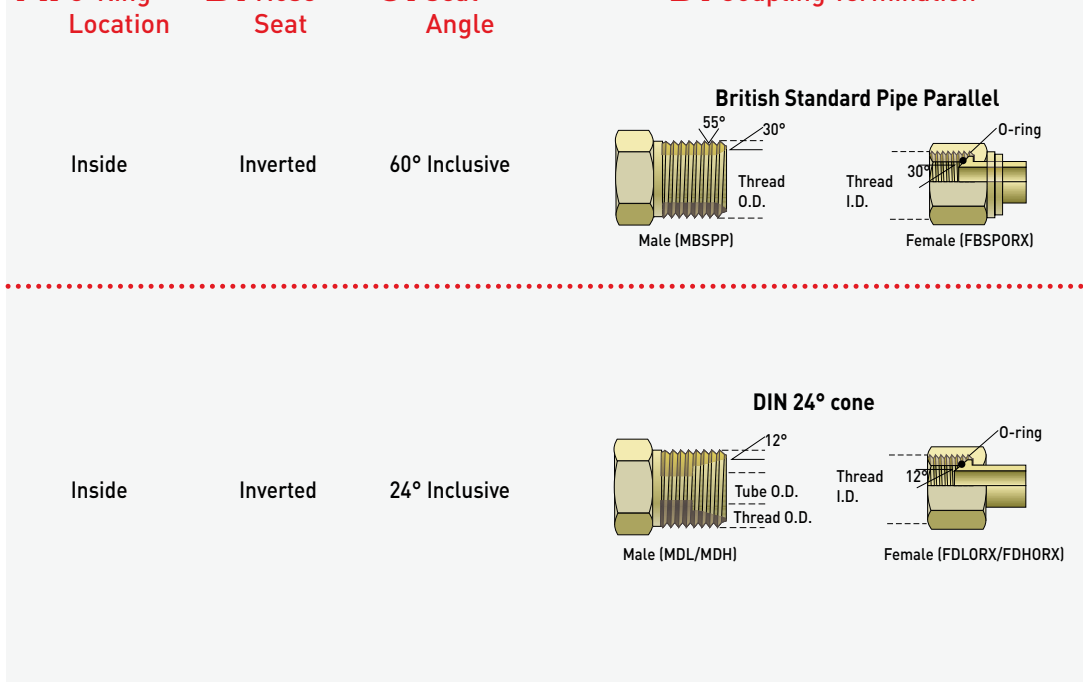
### 1 DETERMINE SEAL

## Mated angle seat with O-ring

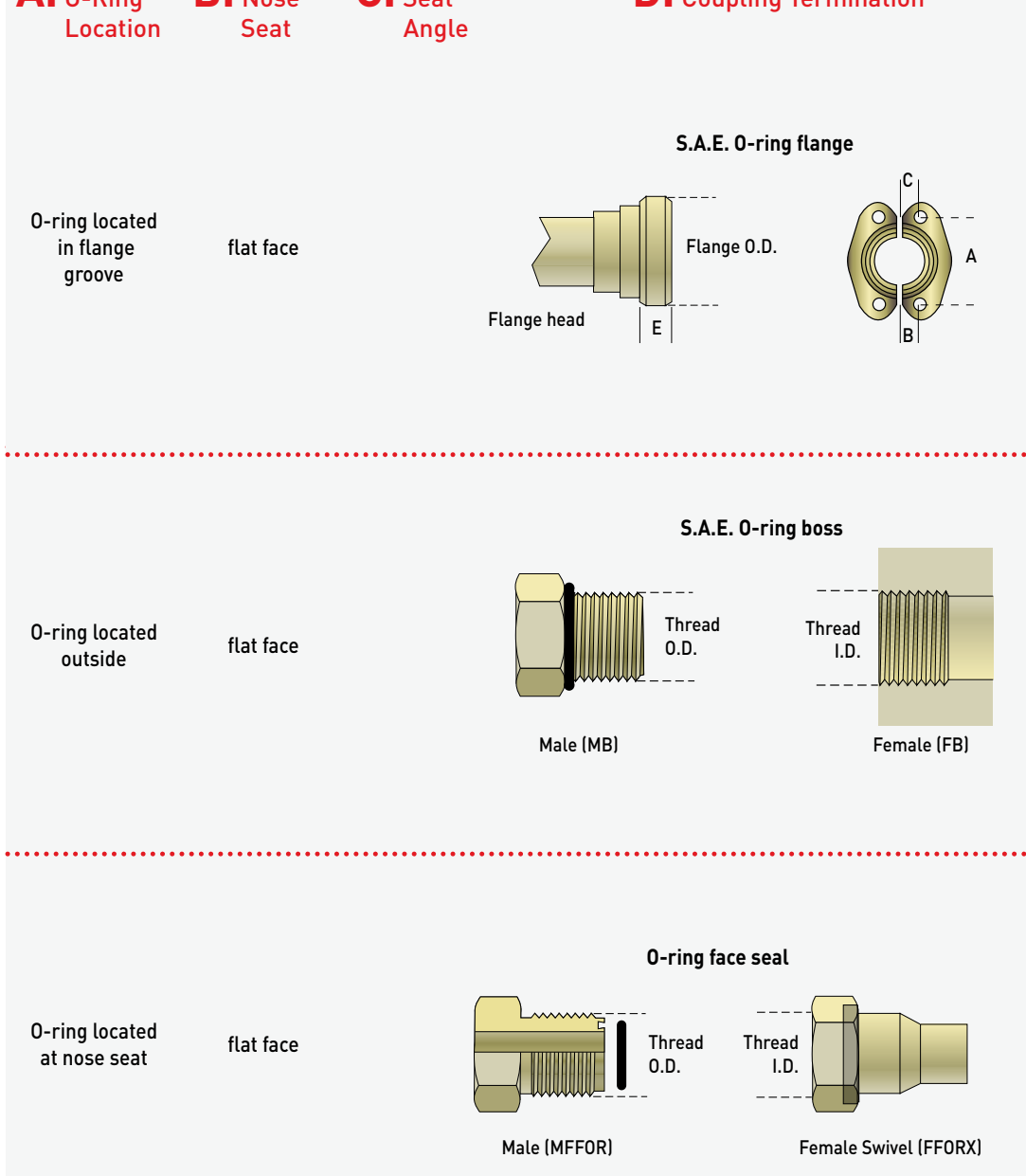
This type of seal is found on BSP and DIN terminations. It uses both the O-ring and the mated angle to make the seal.

### 2 VISUAL IDENTIFICATION

**A. O-Ring Location** **B. Nose Seat** **C. Seat Angle** **D. Coupling Termination**



**A. O-Ring Location** **B. Nose Seat** **C. Seat Angle** **D. Coupling Termination**



### 3 MEASURE

Dash Size	Nominal Size (ins)	No. Threads per Inch	Male Thread O.D. (mm) MBSPPT	Female Thread I.D. (mm) FBSPPRX
-4	1/4"	19	13.0	11.7
-6	3/8"	19	16.5	15.2
-8	1/2"	14	20.8	18.9
-10	5/8"	14	22.8	20.9
-12	3/4"	14	26.3	24.4
-16	1"	11	33.1	30.6
-20	1.1/4"	11	41.8	39.3
-24	1.1/2"	11	47.7	45.2
-32	2"	11	59.5	55.5

Metric Thread size	Tube O.D. Light Series	Tube O.D. Heavy Series	Male Thread O.D. (mm) MDLMDH	Female Thread I.D. (mm) FDLORX/FFHORX
M12 X 1.5	6	-	12.0	10.5
M14 X 1.5	8	-	14.0	12.5
M16 X 1.5	10	8	16.0	14.5
M18 X 1.5	12	10	18.0	16.5
M20 X 1.5	14	12	20.0	18.5
M22 X 1.5	15	14	22.0	20.5
M24 X 1.5	-	16	24.0	22.5
M26 X 1.5	18	-	26.0	24.5
M30 X 2.0	22	20	30.0	28.0
M36 X 2.0	28	25	36.0	34.0
M42 X 2.0	-	30	42.0	40.0
M45 X 2.0	35	-	45.0	43.0
M52 X 2.0	42	38	52.0	50.0

Dash Size	Nominal Size	Flange O.D. (mm)	Flange Head Thickness (mm) "e"	"A" (mm)	"B" (mm)	"C" (mm)
<b>Code 61 - FL</b>						
-8	1/2"	30.2	6.7	38.1	8.7	7.7
-12	3/4"	38.1	6.7	47.6	11.1	10.1
-16	1"	44.5	8.0	52.3	13.1	12.1
-20	1.1/4"	50.8	8.0	58.7	15.1	14.1
-24	1.1/2"	60.3	8.0	69.8	17.8	16.9
-32	2"	71.4	9.7	77.7	20.4	21.2

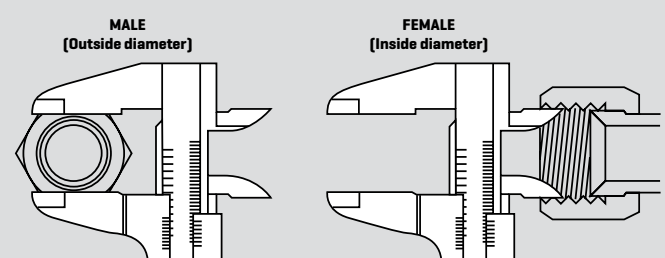
Flange O.D. (mm)	Flange Head Thickness (mm)	"A" (mm)	"B" (mm)	"C" (mm)	Flange O.D. (mm)	Flange Head Thickness (mm)	"A" (mm)	"B" (mm)	"C" (mm)
<b>Code 62 - FLH</b>									
31.8	7.7	40.5	9.1	8.1					
41.3	8.8	50.8	11.9	10.9	41.4	14.2	50.8	11.9	10.9
47.6	9.5	57.1	13.9	12.9	47.6	14.2	57.1	13.9	12.9
54.0	10.3	66.7	15.9	14.9	54.0	14.2	66.7	15.9	14.9
63.5	12.6	79.4	18.2	17.3	63.5	14.2	79.4	18.2	17.2
79.4	12.6	96.8	22.2	21.1	79.5	14.2	96.8	22.2	21.2

Dash Size	Nominal Size (ins)	No. Threads per Inch	Male Thread O.D. (mm) MB	Female Thread I.D. (mm) FB	O-Ring I.D. (mm)
-2	1/8"	24	7.9	6.8	6.0
-3	3/16"	24	9.5	8.3	7.6
-4	1/4"	20	11.0	9.9	8.9
-5	5/16"	20	12.5	11.5	10.5
-6	3/8"	18	14.1	12.9	11.9
-8	1/2"	16	18.9	17.5	16.3
-10	5/8"	14	22.1	20.5	19.2
-12	3/4"	12	26.9	24.4	23.5
-14	7/8"	12	30.0	28.2	26.6
-16	1"	12	33.2	31.3	29.7
-20	1.1/4"	12	41.2	39.2	37.5
-24	1.1/2"	12	47.6	45.5	43.7
-32	2"	12	63.5	61.4	59.4

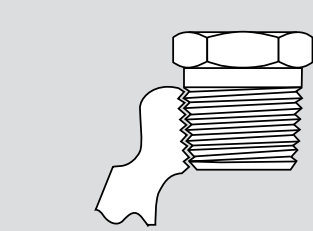
Dash Size	Nominal Size (ins)	No. Threads per Inch	Male Thread O.D. (mm) MFFOR	Female Thread I.D. (mm) FFORX
-4	1/4"	18	14.1	12.9
-6	3/8"	16	17.3	15.9
-8	1/2"	16	22.0	19.1
-10	5/8"	14	25.3	23.6
-12	3/4"	12	30.0	28.0
-16	1"	12	36.3	34.4
-20	1.1/4"	12	42.6	40.5
-24	1.1/2"	12	50.6	48.5

#### Measuring threads

With the calliper measure the thread diameter of the largest point. [Outside diameter (O.D.) of male threads. Inside diameter (I.D.) of female threads.]

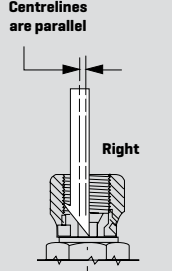


Using the thread gauge, determine the number of threads per inch. Comparison of gauge and coupling threads against a lighted background will ensure an accurate reading.



#### Measuring seat angles

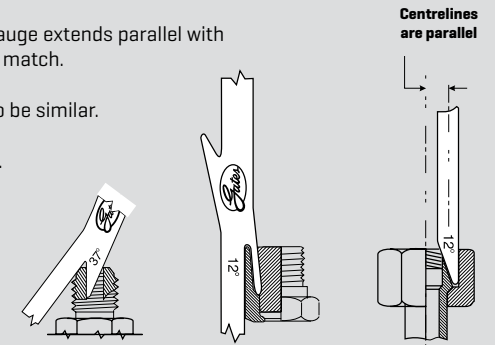
Using the seat gauge, determine the angle of the seat, as illustrated. When the centreline of the seat gauge extends parallel with the projected longitudinal axis of the coupling, then the angles of the gauge and seat match.



Compare the measurements taken to a coupling shown in the tables above that appear to be similar.

NOTE: Thread binding will occur when different thread configurations are used. DO NOT mix thread configurations.

Coupling thread identification kits containing reference charts, vernier, seat gauges and thread gauges are available. Order reference: 7359-4318.



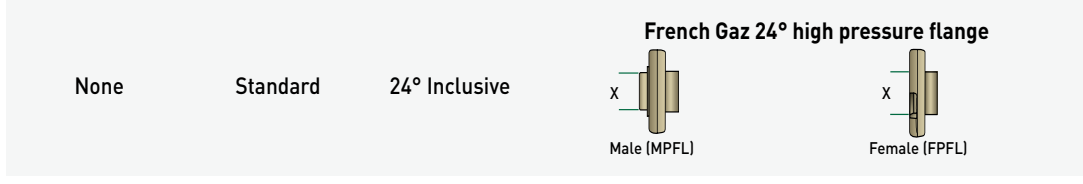
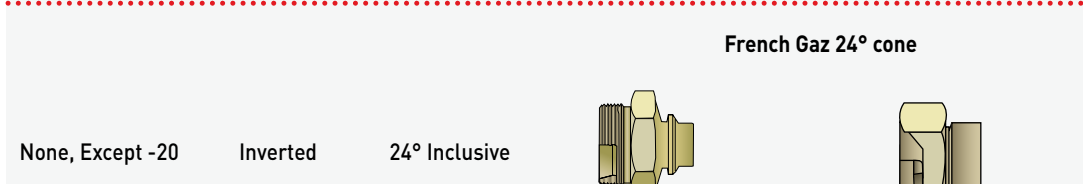
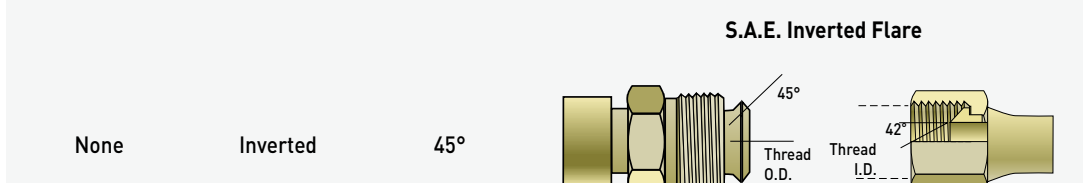
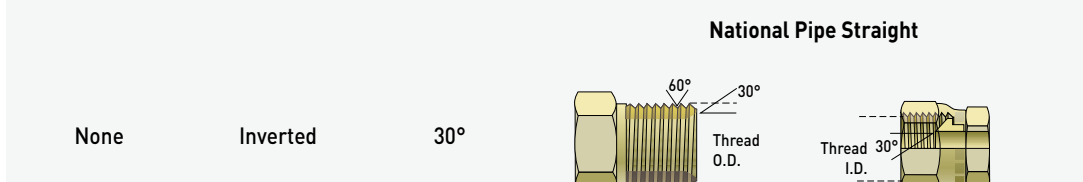
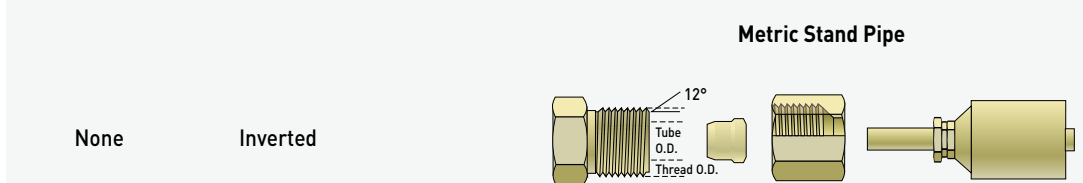
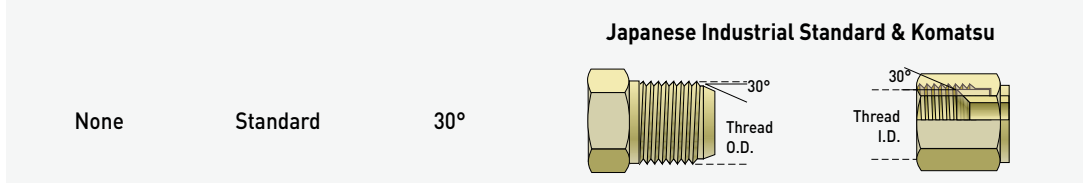
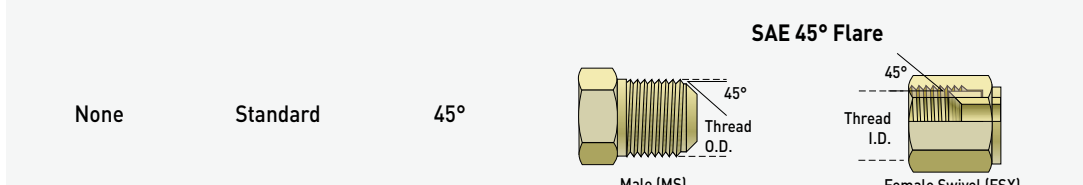
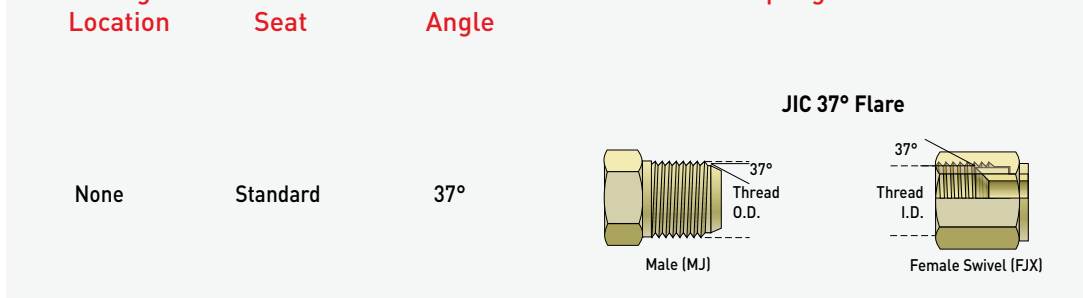
## Mechanical joint or mated angle

This type of seal is found on National Pipe Straight Mechanical (NPSM), British Standard Pipe Parallel (BSPP), JIC, SAE, JIS, Komatsu, DIN, North American Stand Pipe, Metric Stand Pipe, Inverted Flare and Kobelco. Different angles are used to create the seal, but the angles are cut two different ways, Standard and Inverted.

Standard seat couplings have the nose angle of the male on the outer surface of the coupling. These couplings are: JIC, SAE, JIS, Komatsu.

Inverted seat couplings contain the nose angle of the male on the inside bore of the coupling. These couplings are: [NPSM] National Pipe Straight Mechanical, [BSPP] British Standard Pipe Parallel, DIN, North American Stand Pipe, Metric Stand Pipe, Inverted Flare and Kobelco.

**A. O-Ring Location** **B. Nose Seat** **C. Seat Angle** **D. Coupling Termination**



Dash Size	Nominal Size	No. Threads per Inch	Male Thread O.D. (mm) MJ	Female Thread I.D. (mm) FX
-4	1/4"	20	11.0	9.9
-5	5/16"	20	12.5	11.5
-6	3/8"	18	14.1	12.9
-8	1/2"	16	18.9	17.5
-10	5/8"	14	22.1	20.5
-12	3/4"	12	26.9	25.0
-14	7/8"	12	30.0	28.2
-16	1"	12	33.2	31.3
-20	1.1/4"	12	41.2	39.2
-24	1.1/2"	12	47.6	45.5
-32	2"	12	63.5	61.4

Dash Size	Nominal Size	No. Threads per Inch	Male Thread O.D. (mm) MS	Female Thread I.D. (mm) FSX
-4	1/4"	20	11.0	9.9
-5	5/16"	20	12.5	11.5
-6	3/8"	18	15.9	14.3
-8	1/2"	16	19.1	17.5
-10	5/8"	14	22.1	20.5
-12	3/4"	14	26.9	25.0

Dash Size	Nominal Size	No. Threads per Inch	Male Thread O.D. (mm) MJIS	Female Thread I.D. (mm) FJISX	Nominal Size (mm)	Metric Thread Size	Male Thread O.D. (mm) MK	Female Thread I.D. (mm) FXK
-4	1/4"	19	13.5	11.7	6.3	M14x1.5	14.0	12.5
-6	3/8"	19	16.7	15.2	9.5	M18x1.5	18.0	16.5
-8	1/2"	14	20.5	18.9	13.0	M22x1.5	22.0	20.5
-10	5/8"	14	23.1	20.5	16.0	M24x1.5	24.0	22.5
-12	3/4"	14	26.3	24.4	19.0	M30x1.5	30.0	28.5
-16	1"	11	33.4	30.6	25.0	M33x1.5	33.0	31.5
-20	1.1/4"	11	42.1	38.9	32.0	M36x1.5	36.0	34.5
-24	1.1/2"	11	47.6	45.3	38.0	M42x1.5	42.0	40.5
-32	2"	11	59.6	56.4				

Dash Size	Nominal Size (ins)	No. Threads per Inch	Male Thread O.D. (mm) MSP	Female Thread O.D. (mm) MP	Female Thread I.D. (mm) FPX
			6.0	M12 x 1.5	
			8.0	M14 x 1.5	M16 x 1.5
			10.0	M16 x 1.5	M18 x 1.5
			12.0	M18 x 1.5	M20 x 1.5
			15.0	M22 x 1.5	
			16.0	M26 x 1.5	M24 x 1.5
			18.0	M26 x 1.5	-
			20.0	-	M30 x 2.0
			22.0	M30 x 2.0	-
			25.0	-	M36 x 2.0
			28.0	M36 x 2.0	-
			30.0	M45 x 2.0	M45 x 2.0
			38.0	-	M52 x 2.0
			42.0	M52 x 2.0	

Dash Size	Nominal Size (ins)	No. Threads per Inch	Male Thread O.D. (mm) MP	Female Thread I.D. (mm) FPX
-2	1/8"	27	10.3	9.1
-4	1/4"	18	13.9	11.9
-6	3/8"	18	17.3	15.1
-8	1/2"	14	21.6	19.0
-12	3/4"	14	27.0	24.2
-16	1"	11	33.7	30.6
-20	1.1/4"	11	42.5	38.9
-24	1.1/2"	11	48.6	45.2
-32	2"	11	60.7	57.2

Dash Size	Nominal Size (ins)	No. Threads per Inch	Male Thread O.D. (mm) MIX	Female Thread I.D. (mm) FI
-2	1/8"	28	7.9	7.1
-3	3/16"	24	9.5	8.3
-4	1/4"	24	11.0	9.9
-5	5/16"	20	12.5	11.5
-6	3/8"	18	15.7	14.7
-7	7/16"	18	17.4	15.9
-8	1/2"	18	18.9	17.9
-10	5/8"	18	22.1	20.6
-12	3/4"	16	26.8	25.4

Dash Size	Nominal Size (ins)	Metric Thread Size	Male Thread O.D. (mm) MFG	Female Thread I.D. (mm) FFGX
-4	1/4"	M20x1.5	20.0	18.5
-5	5/16"	M20x1.5	20.0	18.5
-6	3/8"	M20x1.5	20.0	18.5
-8	1/2"	M24x1.5	24.0	22.5
-10	5/8"	M30x1.5	30.0	28.5
-12	3/4"	M36x1.5	36.0	34.5
-16	1"	M45x1.5	45.0	43.5
-20	1.1/4"	M52x1.5	52.0	50.5

Dash Size	Nominal Size (ins)	"X" Dia (mm) MPFL	"X" Dia (mm) FPFL
-8	1/2"	17.0	17.0
-10	5/8"	21.0	21.0
-12	3/4"	27.0	27.0
-16	1"	34.0	34.0
-20	1.1/4"	42.0	42.0

Dash Size	Nominal Size	No. Threads per Inch	Male Thread O.D. (mm) MP	Female Thread I.D. (mm) FP
-2	1/8"	27	10.3	9.1
-4	1/4"	18	13.9	11.9
-6	3/8"	18	17.3	15.1
-8	1/2"	14	21.6	19.0
-12	3/4"	14	27.0	24.2
-16	1"	11	33.7	30.6
-20	1.1/4"	11	42.5	38.9
-24	1.1/2"	11	48.6	45.2
-32	2"	11	60.7	57.2

Dash Size	Nominal Size	No. Threads per Inch	Male Thread O.D. (mm) MBSPPT	Female Thread I.D. (mm)
-2	1/8"	28	10.1	17.0
-4	1/4"	19	13.6	
-6	3/8"	19	17.1	
-8	1/2"	14	21.5	
-10	5/8"	14	23.4	
-12	3/4"	14	27.0	
-16	1"	11	33.9	
-20	1.1/4"	11	42.6	
-24	1.1/2"	11	48.5	
-32	2"	11	60.5	

## Thread interface

This type of seal is found on the (NPTF) National Pipe