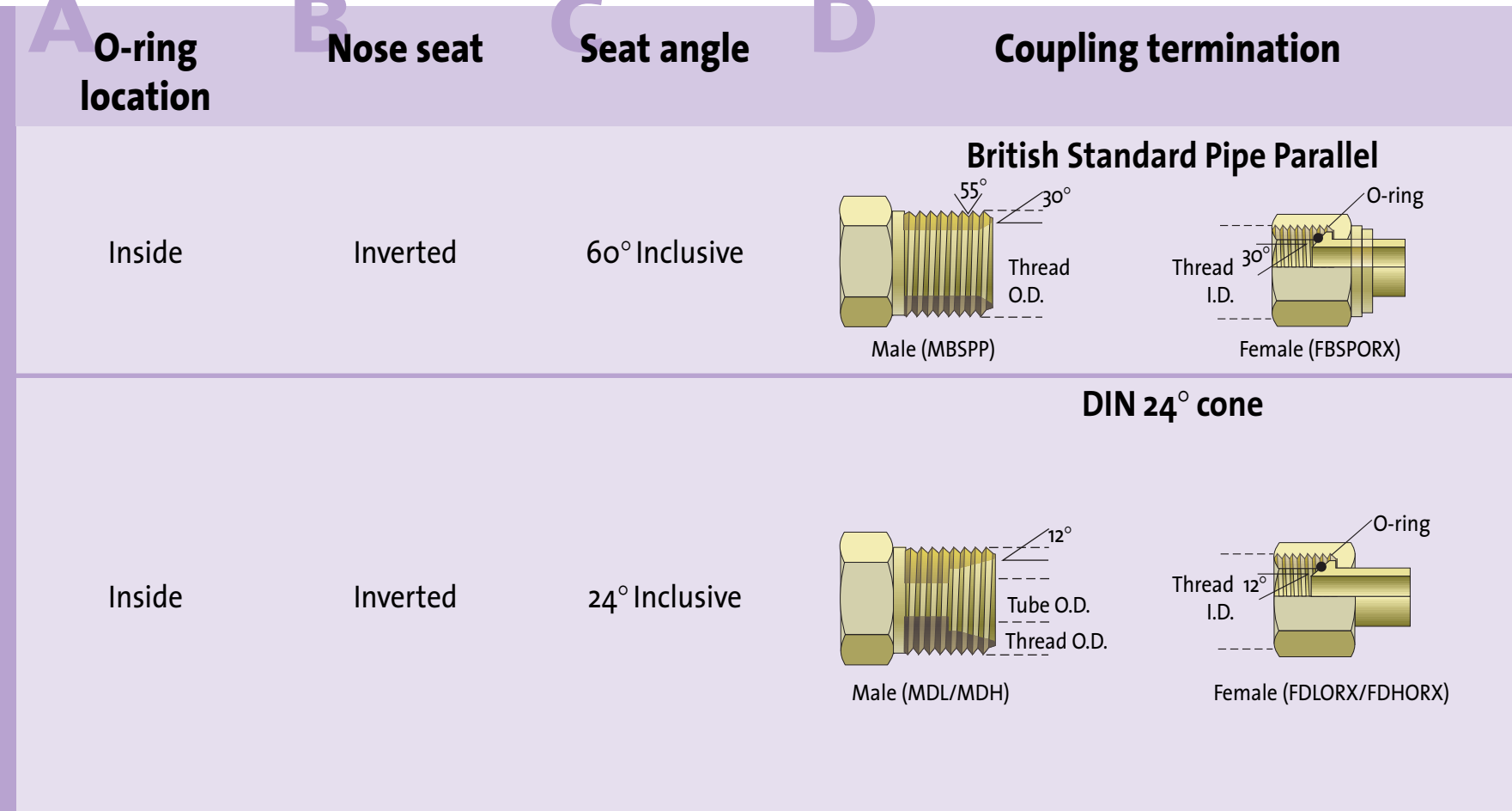


## 1 Determine seal 2 Visual identification 3 Measure

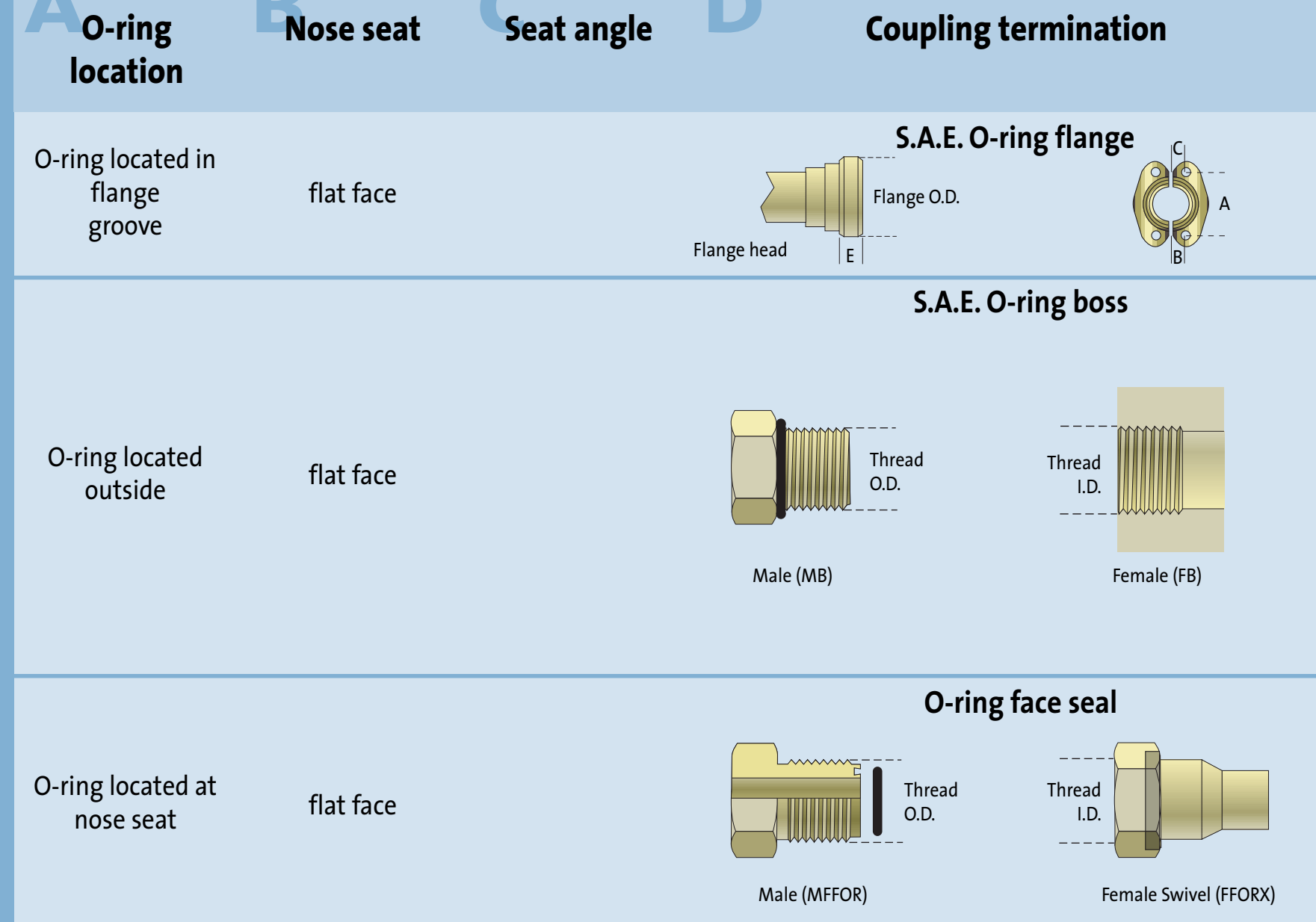
**Mated angle seat with O-ring**  
This type of seal is found on BSP and DIN terminations. It uses both the O-ring and the mated angle to make the seal.



Dash size	Nominal size	No. Threads per inch	Male thread O.D. (mm) MBSP	Female thread I.D. (mm) FBSPP
-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	55.9

Metric thread size	Tube O.D. Light Series (mm)	Tube O.D. Heavy Series (mm)	Male thread O.D. (mm) MDL/MDH	Female thread I.D. (mm) FDLORX/FDHORX
M12 x 1.5	6	-	12.0	-
M14 x 1.5	8	-	14.0	-
M16 x 1.5	10	-	16.0	-
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	-	-	45.0	43.0
M52 x 2.0	42	38	52.0	50.0

**O-ring face seal**  
This type of seal is found on O-ring boss, flat-face O-ring, British flat-face O-ring and O-ring flange couplings. O-ring boss couplings have straight threads with the O-ring on the outside of the threads next to the large hex nut. Generally the O-ring will not be present on a used coupling but the groove for the O-ring will be present. Flat-face and British flat-face O-ring couplings have straight threads. The female has a flat face; the male has a flat face with a groove to accept the O-ring. Differences between flat-face and British flat-face are determined when measuring thread size. O-ring flange couplings have no threads but do have a flat face with a groove to accept the O-ring. The connection is made with two flange half boots that go over the O-ring flange and are bolted to the port.

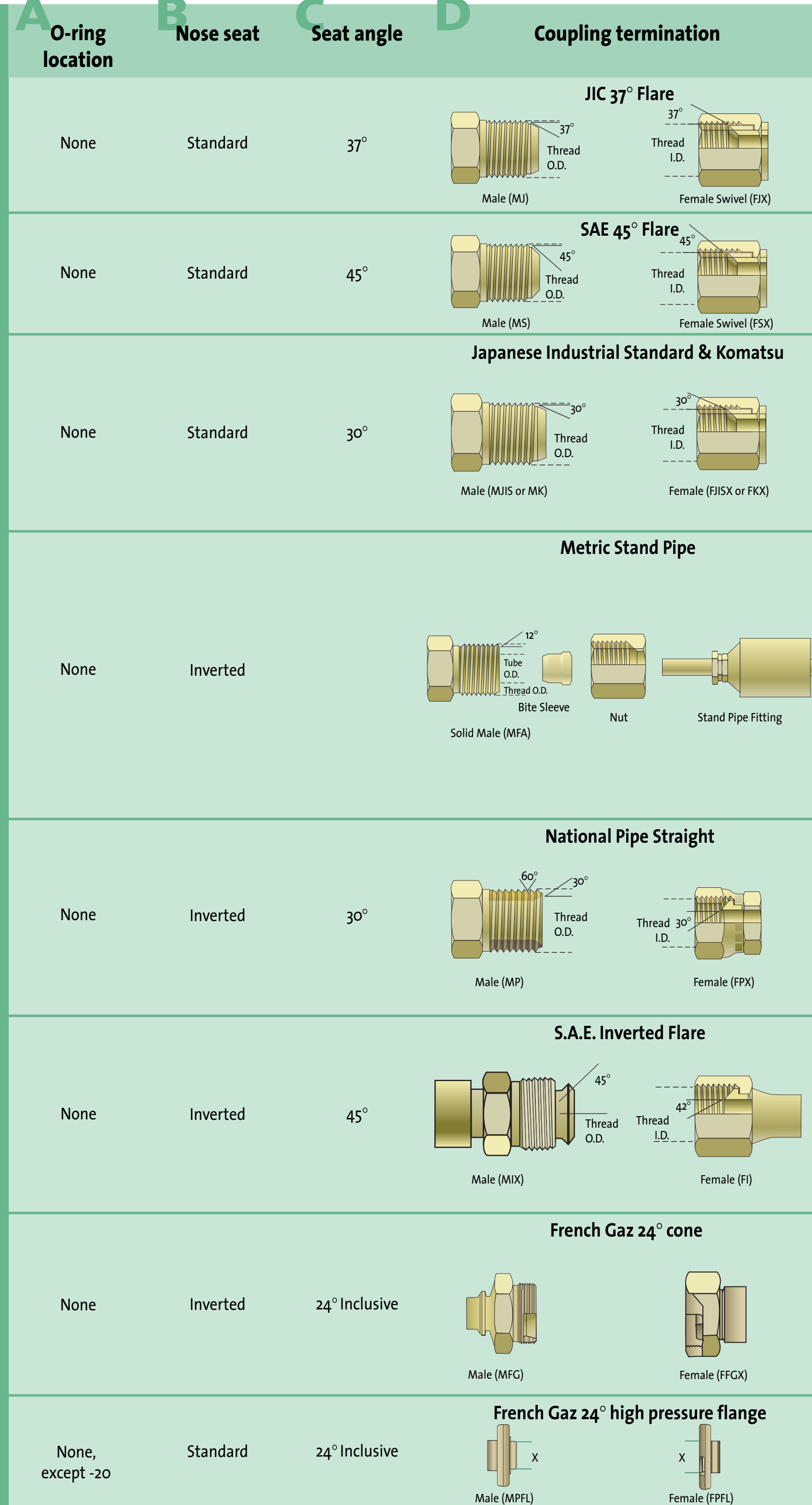


Dash size	Nominal size	Flange O.D. (mm)	Flange head thickness (mm) E	"A" (mm) Code 61-FL	"B" (mm)	"C" (mm)	Flange O.D. (mm)	Flange head thickness (mm) E	"A" (mm) Code 62-FLH	"B" (mm)	"C" (mm)	Flange O.D. (mm)	Flange head thickness (mm) E	"A" (mm) CATERPILLAR Code 62-FLC	"B" (mm)	"C" (mm)
-8	1/2"	30.2	6.7	38.1	8.7	7.7	31.8	7.7	40.5	9.1	8.1	41.4	14.2	50.8	11.9	10.9
-12	3/4"	38.1	6.7	47.6	11.1	10.1	41.3	8.8	50.8	11.9	10.9	47.6	14.2	57.1	13.9	12.9
-16	1"	44.5	8.0	52.3	13.1	12.1	47.6	9.5	57.1	13.9	12.9	47.6	14.2	66.7	15.9	14.9
-20	1.1/4"	60.8	8.0	58.7	15.1	14.1	54.0	10.3	66.7	15.9	14.9	54.0	14.2	73.4	18.2	17.2
-24	1.1/2"	69.3	8.0	69.8	17.8	16.9	63.5	12.6	79.4	18.2	17.3	63.5	14.2	81.8	20.5	19.5
-32	2"	71.4	9.7	77.7	20.4	20.4	79.4	12.6	96.8	22.2	21.1	79.5	14.2	96.8	22.2	21.2

Dash size	Nominal size	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	24.9	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	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

**Mechanical joint or mated angle**  
This type of seal is found on National Pipe Straight Mechanical (NPSM), British Standard Pipe Parallel (BSP), 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, (BSP) British Standard Pipe Parallel, DIN, North American Stand Pipe, Metric Stand Pipe, Inverted Flare and Kobelco.



Dash size	Nominal size	No. Threads per inch	Male thread O.D. (mm) MJ	Female thread I.D. (mm) FIX
-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	63.3	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) MJS	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	M14 x 1.5	14.0	12.5
-6	3/8"	19	16.7	15.2	9.5	M18 x 1.5	18.0	16.5
-8	1/2"	14	20.5	18.9	13.0	M22 x 1.5	22.0	20.5
-10	5/8"	14	23.1	20.5	16.0	M26 x 1.5	24.0	22.5
-12	3/4"	14	26.3	24.4	19.0	M30 x 1.5	30.0	28.5
-16	1"	11	33.4	30.6	25.0	M33 x 1.5	33.0	31.5
-20	1.1/4"	11	42.1	38.9	32.0	M36 x 1.5	36.0	34.5
-24	1.1/2"	11	47.6	45.3	38.0	M42 x 1.5	42.0	40.5
-32	2"	11	59.6	56.4	-	-	-	-

Dash size	Nominal size	No. Threads per inch	Metric Stand Pipe DIN Tube O.D. (mm) MSP	Metric Nut Thread - Light	Metric Nut Thread - Heavy
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	-	-	-	-	M24 x 1.5
18.0	-	-	-	M26 x 1.5	M30 x 2.0
20.0	-	-	-	-	M36 x 2.0
22.0	-	-	-	M30 x 2.0	-
25.0	-	-	-	M36 x 2.0	M45 x 2.0
28.0	-	-	-	M45 x 2.0	-
30.0	-	-	-	-	M45 x 2.0
35.0	-	-	-	M45 x 2.0	-
38.0	-	-	-	-	M52 x 2.0
42.0	-	-	-	M52 x 2.0	-

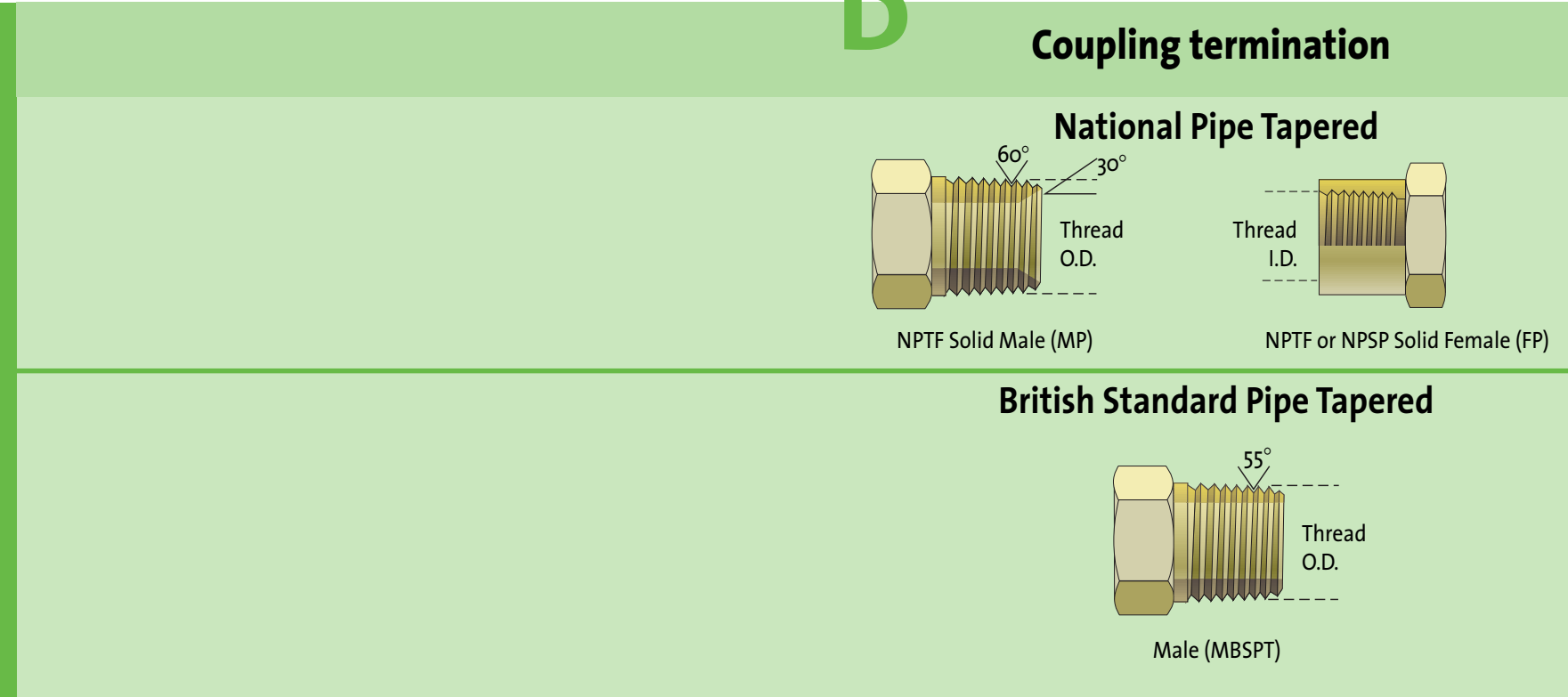
Dash size	Nominal size	No. Threads per inch	Male thread O.D. (mm) MP	Female thread I.D. (mm) FPX
-2	1/8"	27	10.3	9.1
-4	1/4"	18	13.9	11.9
-6	3/8"	18	17.3	15.1
-8	1/2"	14	21.6	19.0
-12	3/4"	14	27.0	24.2
-16	1"	11, 11/2	33.7	30.6
-20	1.1/4"	11, 11/2	42.5	38.9
-24	1.1/2"	11, 11/2	48.6	45.2
-32	2"	11, 11/2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

Dash size	Nominal size	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	19.9	17.9
-10	5/8"	18	22.1	20.6
-12	3/4"	16	26.8	25.4

Dash size	Nominal size	Metric thread size	Male thread O.D. (mm) MFG	Female thread I.D. (mm) FFGX
-4	1/4"	M20 x 1.5	20.0	18.5
-5	5/16"	M20 x 1.5	20.0	18.5
-6	3/8"	M20 x 1.5	20.0	18.5
-8	1/2"	M24 x 1.5	24.0	22.5
-10	5/8"	M30 x 1.5	30.0	28.5
-12	3/4"	M36 x 1.5	36.0	34.5
-16	1"	M45 x 1.5	45.0	43.5
-20	1.1/4"	M52 x 1.5	52.0	50.5

Dash size	Nominal size	"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

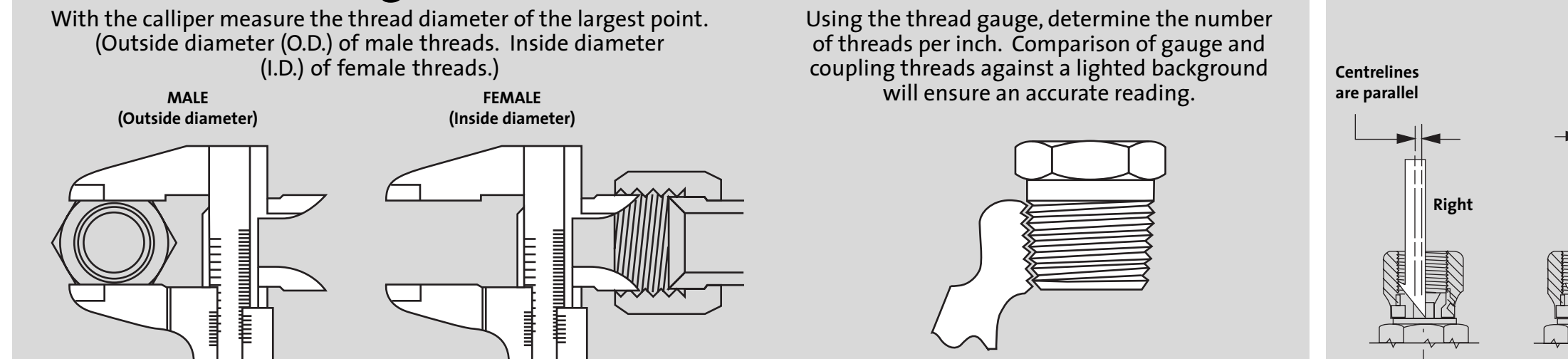
**Thread interface**  
This type of seal is found on the (NPTF) National Pipe Tapered for Fuel or the (BSPT) British Standard Pipe Taper. Characteristics of this thread is the male has a smaller diameter at the end, tapering to a larger diameter at the hexagon. When the male is screwed into the female the thread deforms, thus creating the seal.



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, 11/2	33.7	30.6
-20	1.1/4"	11, 11/2	42.5	38.9
-24	1.1/2"	11, 11/2	48.6	45.2
-32	2"	11, 11/2	60.7	57.2

Dash size	Nominal size	No. Threads per inch	Male thread O.D. (mm) MPFL	Female thread I.D. (mm) FPFL
-2	1/8"	28	10.1	9.1
-4	1/4"	19	13.9	11.9
-6	3/8"	19	17.1	15.1
-8	1/2"	14	21.6	19.0
-10	5/8"	14	23.4	21.5
-12	3/4"	14	27.0	24.2
-16	1"	11	33.9	31.9
-20	1.1/4"	11	42.6	40.6
-24	1.1/2"	11	48.5	46.5
-32	2"	11	60.5	58.5

**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.)



**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: 7369-04318.

