

37 DEGREE FLARE FITTINGS



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SAE 37° FLARE FITTING DESCRIPTION

J.J. 37° Flare Fittings is manufactured as per SAE Standard J514 for ease of interchangeability. 37° Flare Fittings are available in various materials and pressure ranging from 70Bar to 690Bar depending on the type and size. Flare Fittings consist of 3 parts.

1. Body
2. Sleeve
3. Nut.

Tightening of the nut clamps the tube flare between the body nose (seat) producing a leak tight connection. This clamping on the 37° taper provides a measure of elasticity to the joint helping it to resist loosening under vibration. The clamping force results in a small radial load that tends to deform the fitting nose radially. The resistance of the nose to elastic deformation provides a constant preload (similar to a lock washer) keeping it tight.

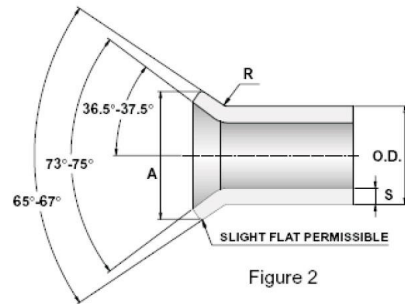
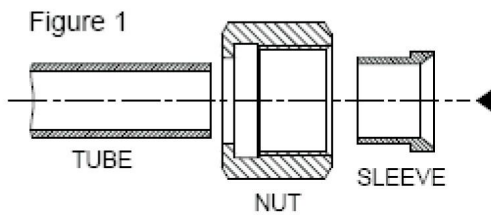
The clamping force provided by the nut resists the opposing force of the fluid under pressure. The joint remains leak tight as long as the clamping force is higher than the opposing pressure load. Properly assembled Flare Fittings with appropriate tube will seal consistently under pressure until tube bursts.

Sealing in Flare Fittings takes place between two smooth metal surfaces, the fitting nose and inside of the tube flare. Therefore, the sealing surfaces have to be smooth, free of any nicks, scratches, splits or weld beads. Seamless or welded and drawn fully annealed tube is recommended for ease in flaring and bending. Certain types of harder tubes that are not fully annealed may not be suitable for flaring due to the potential for immediate or long term cracking of the tube flare. For specific tube type and wall thickness recommendation, please see table 1.

Fitting Dash Size	Wall Thickness			Wall Thickness		
	OD (in)	min	max	OD (mm)	min	max
2	1/8	0.25	0.89	-	-	-
3	3/16	0.25	0.89	-	-	-
4	1/4	0.50	1.65	6.00	0.50	2.00
5	5/16	0.50	1.65	8.00	0.50	2.00
6	3/8	0.50	1.65	10.00	0.50	2.00
8	1/2	0.71	2.12	12.00	1.00	2.00
10	5/8	0.89	2.41	14.00	1.00	2.50
10	5/8	0.89	2.41	15.00	1.00	2.50
10	5/8	0.89	2.41	16.00	1.00	2.50
12	3/4	0.89	2.77	18.00	1.00	3.00
12	3/4	0.89	2.77	20.00	1.00	3.00
14	7/8	0.89	2.77	22.00	1.00	3.00
16	1	0.89	3.00	25.00	1.00	3.00
20	1 1/4	1.24	3.00	30.00	1.50	3.00
20	1 1/4	1.24	3.00	32.00	1.50	3.00
24	1 1/2	1.24	3.00	38.00	1.50	3.00
32	2	1.47	3.40	-	-	-

ASSEMBLY INSTRUCTION

1. Cut the tube to the proper length.
2. Slide the nut and sleeve onto the tube. (See Fig.1).
3. With a special flaring tool, form the flare to 37° dimension according to SAE STD. J533. (See Fig 2).
4. Screw the nut onto the body until finger tight.
5. From this position, tighten the nut with a wrench 1/4" turn in order to make a leak proof metal-to-metal connection.



TUBE ASSEMBLY

In order to ensure maximum fitting reliability and performance, please take great care when selecting the tube for each application. Tubing should be a fully annealed, seamless and drawn, suitable for bending and flaring, according to standard ASTM-269, A.I.S.I. 316 or 304. Lengths of finished tubing should be reasonably straight and have smooth ends, free from burrs. Tubing should be free from scale and injurious defects, and it should have a workmanlike finish. Surface imperfections such as handling marks, die marks, or shallow pits will not be considered injurious defects provided the imperfections are within the tolerances specified for diameter and wall thickness. The removal of such imperfections is not required. Perform Flaring as per SAE J533 standard, see figure 2 and table 2 for dimension

Table 2

Nominal Tube OD	A				R		S	
	Single Flare Diameter				in	mm	in	mm
	in		mm					
	Max	Min	Max	Min	± 0.02	± 0.5	Max	Min
1/8	0.20	0.18	5.08	4.58	0.03	0.80	0.04	0.88
3/16	0.28	0.26	5.11	6.61	0.03	0.80	0.04	0.88
1/4	0.36	0.34	9.14	8.64	0.03	0.80	0.07	1.65
5/16	0.43	0.40	10.92	10.16	0.03	0.80	0.07	1.65
3/8	0.49	0.46	12.44	11.69	0.04	1.00	0.07	1.65
1/2	0.66	0.63	16.76	16.01	0.06	1.50	0.08	2.10
5/8	0.79	0.76	20.06	19.31	0.06	1.50	0.10	2.41
3/4	0.95	0.92	24.13	23.37	0.08	2.00	0.11	2.76
7/8	1.07	1.04	27.17	26.42	0.08	2.00	0.11	2.76
1	1.20	1.17	30.48	29.72	0.09	2.30	0.12	3.04
1 1/8	1.38	1.35	35.05	34.29	0.09	2.30	0.12	3.04
1 1/4	1.51	1.48	38.35	37.60	0.09	2.30	0.12	3.04
1 1/2	1.73	1.70	43.94	43.18	0.11	2.80	0.12	3.04

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FEMALE BRANCH TEE



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FEMALE RUN TEE



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UNION REDUCER



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CLOSURE PLUG



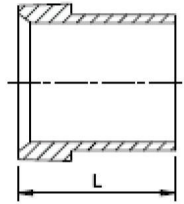
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CLOSURE CAP



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SLEEVE

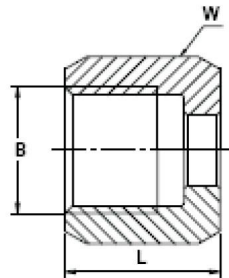


IMPERIAL		
J. J. Part No.	Tube OD	L
	in	mm
02 FLF	1/8	8.60
03 FLF	3/16	8.60
04 FLF	1/4	10.40
05 FLF	5/16	11.20
06 FLF	3/8	12.70
08 FLF	1/2	14.70
10 FLF	5/8	16.80
12 FLF	3/4	17.30
14 FLF	7/8	19.30
16 FLF	1	19.80
20 FLF	1 1/4	23.10
24 FLF	1 1/2	28.40
32 FLF	2	30.20

METRIC		
J. J. Part No.	Tube OD	L
	mm	mm
FLF 06	6	10.40
FLF 08	8	11.20
FLF 10	10	12.70
FLF 12	12	14.20
FLF 16	16	16.80
FLF 18	18	17.30
FLF 20	20	19.30
FLF 25	25	19.80
FLF 32	32	23.10
FLF 38	38	28.40

Note : Dimension are for reference only and are subject to change without notice

NUT

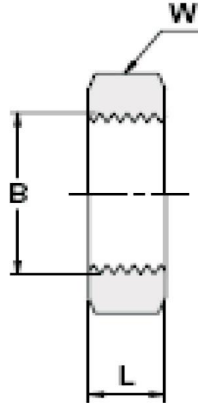


IMPERIAL				
J. J. Part No.	Tube OD	B UNF	W	L
	in		in	mm
02 FLN	1/8	5/16 -24	3/8	13.70
03 FLN	3/16	3/8 -24	7/16	15.20
04 FLN	1/4	7/16 -20	9/16	15.50
05 FLN	5/16	1/2 -20	5/8	17.00
06 FLN	3/8	9/16 -18	11/16	18.30
08 FLN	1/2	3/4 -16	7/8	21.30
10 FLN	5/8	7/8 -14	1	24.60
12 FLN	3/4	1 1/16 -12	1 1/4	25.90
14 FLN	7/8	1 3/16 -12	1 3/8	27.40
16 FLN	1	1 5/16 -12	1 1/2	28.40
20 FLN	1 1/4	1 5/8 -12	2	31.00
24 FLN	1 1/2	1 7/8 -12	2 1/4	35.80
32 FLN	2	2 1/2 -12	2 7/8	44.20

METRIC				
J. J. Part No.	Tube OD	B UNF	W	L
	in		in	mm
FLN 06	6	7/16 -20	9/16	15.50
FLN 08	8	1/2 -20	5/8	17.00
FLN 10	10	9/16 -18	11/16	18.30
FLN 12	12	3/4 -16	7/8	21.30
FLN 16	16	7/8 -14	1	24.60
FLN 18	18	1 1/16 -12	1 1/4	25.90
FLN 20	20	1 3/16 -12	1 3/8	27.40
FLN 25	25	1 5/16 -12	1 1/2	28.40
FLN 32	32	1 5/8 -12	2	31.00
FLN 38	38	1 7/8 -12	2 1/4	35.80

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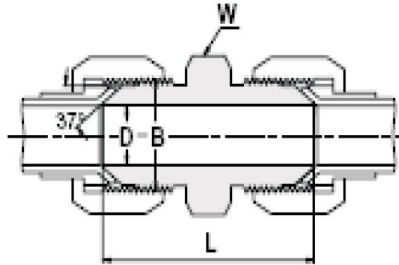
SAE 37° FLARE 3 PIECE TUBE ASSEMBLY



J. J. Part No.	Tube OD	B UN	W	L
	in		in	mm
03 FLCN	3/16	3/8 -24	5/8	5.60
04 FLCN	1/4	7/16 -20	11/16	6.40
05 FLCN	5/16	1/2 -20	3/4	6.40
06 FLCN	3/8	9/16 -18	13/16	6.90
08 FLCN	1/2	3/4 -16	1	7.90
10 FLCN	5/8	7/8 -14	1 1/8	9.10
12 FLCN	3/4	1 1/16 -12	1 3/8	10.40
14 FLCN	7/8	1 3/16 -12	1 1/2	10.40
16 FLCN	1	1 5/16 -12	1 5/8	10.40
20 FLCN	1 1/4	1 5/8 -12	1 7/8	10.40
24 FLCN	1 1/2	1 7/8 -12	2 1/8	10.40
32 FLCN	2	1 1/2 -12	2 3/4	10.40

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STRAIGHT UNION

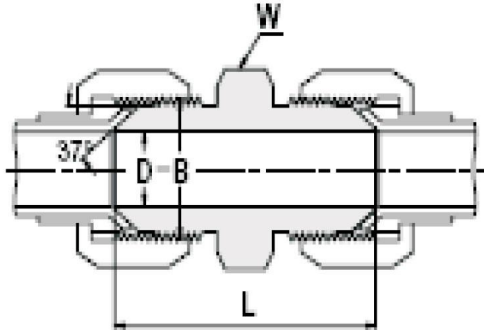


IMPERIAL					
J. J. Part No.	TUBE OD	B UN	D	W Hex.Flat	L
	in		mm	in	mm
02 FLG	1/8	5/16 -24	1.60	7/16	29.70
03 FLG	3/16	3/8 -24	3.20	7/16	31.20
04 FLG	1/4	7/16 -20	4.40	1/2	34.80
05 FLG	5/16	1/2 -20	6.00	9/16	34.80
06 FLG	3/8	9/16 -18	7.50	5/8	35.80
08 FLG	1/2	3/4 -16	9.90	13/16	41.10
10 FLG	5/8	7/8 -14	12.30	15/16	47.80
12 FLG	3/4	1 1/16 -12	15.50	1 1/8	54.90
14 FLG	7/8	1 3/16 -12	18.30	1 1/4	56.10
16 FLG	1	1 5/16 -12	21.50	1 3/8	57.20
20 FLG	1 1/4	1 5/8 -12	27.50	1 11/16	61.70
24 FLG	1 1/2	1 7/8 -12	33.00	2	69.80
32 FLG	2	2 1/2 -12	45.00	2 5/8	86.40

METRIC					
J. J. Part No.	TUBE OD	B UN	D	W	L
	mm		mm	in	mm
FLG 06	6	7/16 -20	4.40	1/2	34.80
FLG 08	8	1/2 -20	6.00	9/16	34.80
FLG 10	10	9/16 -18	7.50	5/8	35.80
FLG 12	12	3/4 -16	9.90	13/16	41.10
FLG 16	16	7/8 -14	12.30	15/16	47.80
FLG 18	18	1 1/16 -12	15.50	1 1/8	54.90
FLG 20	20	1 3/16 -12	18.30	1 1/4	56.10
FLG 25	25	1 5/16 -12	21.50	1 3/8	57.20
FLG 32	32	1 5/8 -12	27.50	1 11/16	61.70
FLG 38	38	1 7/8 -12	33.00	2	69.80

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LARGE HEX STRAIGHT UNION

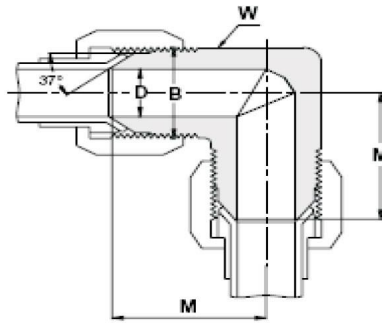


IMPERIAL					
J. J. Part No.	Tube OD	B UN	D	W	L
	in		mm	in	mm
02 FLLG	1/8	5/16 -24	1.60	9/16	29.70
03 FLLG	3/16	3/8 -24	3.20	5/8	31.20
04 FLLG	1/4	7/16 -20	4.40	11/16	34.80
05 FLLG	5/16	1/2 -20	6.00	3/4	34.80
06 FLLG	3/8	9/16 -18	7.50	13/16	35.80
08 FLLG	1/2	3/4 -16	9.90	1	41.10
10 FLLG	5/8	7/8 -14	12.30	1 1/8	47.80
12 FLLG	3/4	1 1/16 -12	15.50	1 3/8	54.90
14 FLLG	7/8	1 3/16 -12	18.30	1 1/2	56.10
16 FLLG	1	1 5/16 -12	21.50	1 5/8	57.20
20 FLLG	1 1/4	1 5/8 -12	27.50	1 7/8	61.70
24 FLLG	1 1/2	1 7/8 -12	33.00	2 1/8	69.80
32 FLLG	2	2 1/2 -12	45.00	2 3/4	86.40

METRIC					
J. J. Part No.	Tube OD	B UN	D	W	L
	in		mm	in	mm
FLLG 06	6	7/16 -20	4.40	11/16	34.80
FLLG 08	8	1/2 -20	6.00	3/4	34.80
FLLG 10	10	9/16 -18	7.50	13/16	35.80
FLLG 12	12	3/4 -16	9.90	1	41.10
FLLG 16	16	7/8 -14	12.30	1 1/8	47.80
FLLG 18	18	1 1/16 -12	15.50	1 3/8	54.90
FLLG 20	20	1 3/16 -12	18.30	1 1/2	56.10
FLLG 25	25	1 5/16 -12	21.50	1 5/8	57.20
FLLG 32	32	1 5/8 -12	27.50	1 7/8	61.70
FLLG 38	38	1 7/8 -12	33.00	2 1/8	69.80

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UNION ELBOW

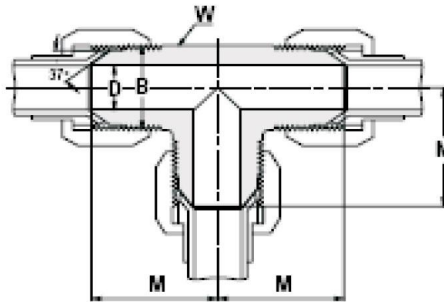


IMPERIAL					
J. J. Part No.	Tube OD	B UN	D	W	L
	in		mm	in	mm
02 FLW	1/8	5/16 -24	1.60	7/16	19.60
03 FLW	3/16	3/8 -24	3.20	1/2	21.10
04 FLW	1/4	7/16 -20	4.40	1/2	22.60
05 FLW	5/16	1/2 -20	6.00	5/8	24.10
06 FLW	3/8	9/16 -18	7.50	5/8	26.90
08 FLW	1/2	3/4 -16	9.90	15/16	31.80
10 FLW	5/8	7/8 -14	12.30	15/16	36.80
12 FLW	3/4	1 1/16 -12	15.50	1 3/8	42.20
14 FLW	7/8	1 3/16 -12	18.30	1 3/8	45.70
16 FLW	1	1 5/16 -12	21.50	1 3/8	46.00
20 FLW	1 1/4	1 5/8 -12	27.50	1 11/16	52.30
24 FLW	1 1/2	1 7/8 -12	33.00	2	59.20
32 FLW	2	2 1/2 -12	45.00	2 5/8	77.70

METRIC					
J. J. Part No.	Tube OD	B UN	D	W	L
	mm		mm	in	mm
FLW 06	6	7/16 -20	4.4	1/2	22.6
FLW 08	8	1/2 -20	6	5/8	24.1
FLW 10	10	9/16 -18	7.5	5/8	26.9
FLW 12	12	3/4 -16	9.9	15/16	31.8
FLW 16	16	7/8 -14	12.3	15/16	36.8
FLW 18	18	1 1/16 -12	15.5	1 3/8	42.2
FLW 20	20	1 3/16 -12	18.3	1 3/8	45.7
FLW 25	25	1 5/16 -12	21.5	1 3/8	46
FLW 32	32	1 5/8 -12	27.5	1 11/16	52.3
FLW 38	38	1 7/8 -12	33	2	59.2

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UNION TEE

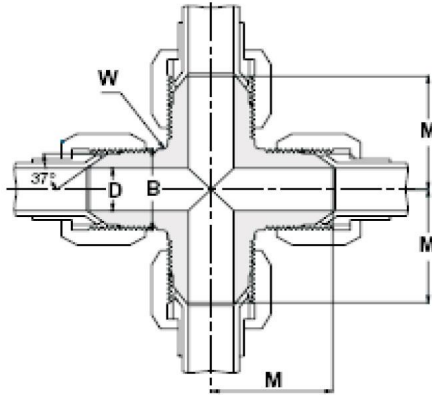


IMPERIAL					
J. J. Part No.	Tube OD	B UN	D	W	M
	in		mm	in	mm
02 FLT	1/8	5/16 -24	1.60	7/16	19.60
03 FLT	3/16	3/8 -24	3.20	1/2	21.10
04 FLT	1/4	7/16 -20	4.40	1/2	22.60
05 FLT	5/16	1/2 -20	6.00	5/8	24.10
06 FLT	3/8	9/16 -18	7.50	5/8	26.90
08 FLT	1/2	3/4 -16	9.90	15/16	31.80
10 FLT	5/8	7/8 -14	12.30	15/16	36.80
12 FLT	3/4	1 1/16 -12	15.50	1 3/8	42.20
14 FLT	7/8	1 3/16 -12	18.30	1 3/8	45.70
16 FLT	1	1 5/16 -12	21.50	1 3/8	46.00
20 FLT	1 1/4	1 5/8 -12	27.50	1 11/16	52.30
24 FLT	1 1/2	1 7/8 -12	33.00	2	59.20
32 FLT	2	2 1/2 -12	45.00	2 5/8	77.70

METRIC					
J. J. Part No.	Tube OD	B UN	D	W	M
	mm		mm	in	mm
FLT 06	6	7/16 -20	4.40	1/2	22.60
FLT 08	8	1/2 -20	6.00	5/8	24.10
FLT 10	10	9/16 -18	7.50	5/8	26.90
FLT 12	12	3/4 -16	9.90	15/16	31.80
FLT 16	16	7/8 -14	12.30	15/16	36.80
FLT 18	18	1 1/16 -12	15.50	1 3/8	42.20
FLT 20	20	1 3/16 -12	18.30	1 3/8	45.70
FLT 25	25	1 5/16 -12	21.50	1 3/8	46.00
FLT 32	32	1 5/8 -12	27.50	1 11/16	52.30
FLT 38	38	1 7/8 -12	33.00	2	59.20

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UNION CROSS

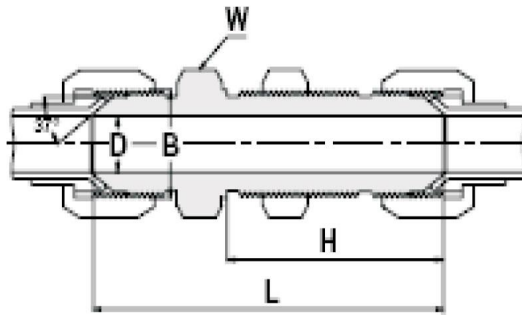


IMPERIAL					
J. J. Part no.	Tube OD	B UN	D	W	L
	in		mm	in	mm
02 FLK	1/8	5/16 -24	1.60	7/16	19.60
03 FLK	3/16	3/8 -24	3.20	1/2	21.10
04 FLK	1/4	7/16 -20	4.40	1/2	22.60
05 FLK	5/16	1/2 -20	6.00	5/8	24.10
06 FLK	3/8	9/16 -18	7.50	5/8	26.90
08 FLK	1/2	3/4 -16	9.90	15/16	31.80
10 FLK	5/8	7/8 -14	12.30	15/16	36.80
12 FLK	3/4	1 1/16 -12	15.50	1 1/8	42.20
14 FLK	7/8	1 3/16 -12	18.30	1 3/8	45.70
16 FLK	1	1 5/16 -12	21.50	1 3/8	46.00
20 FLK	1 1/4	1 5/8 -12	27.50	1 11/16	51.00
24 FLK	1 1/2	1 7/8 -12	33.00	2	59.20
32 FLK	2	2 1/2 -12	45.00	2 5/8	77.70

METRIC					
J. J. Part no.	Tube OD	B UN	D	W	L
	in		mm	in	mm
FLK 06	6	7/16 -20	4.40	1/2	22.60
FLK 08	8	1/2 -20	6.00	5/8	24.10
FLK 10	10	9/16 -18	7.50	5/8	26.90
FLK 12	12	3/4 -16	9.90	15/16	31.80
FLK 16	16	7/8 -14	12.30	15/16	36.80
FLK 18	18	1 1/16 -12	15.50	1 1/8	42.20
FLK 20	20	1 3/16 -12	18.30	1 3/8	45.70
FLK 25	25	1 5/16 -12	21.50	1 3/8	46.00
FLK 32	32	1 5/8 -12	27.50	1 11/16	51.00
FLK 38	38	1 7/8 -12	33.00	2	59.20

Note : Dimension are for reference only and are subject to change without notice

BULKHEAD UNION

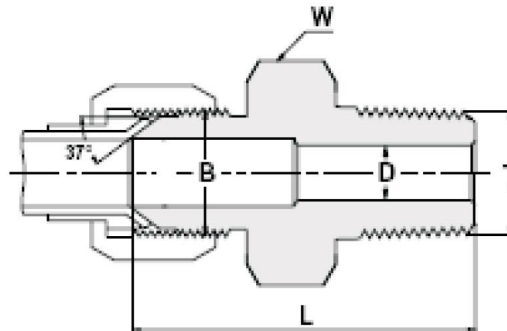


IMPERIAL						
J. J. Part No.	Tube OD	B UN	D	W	H	L
	in		mm	in	mm	mm
03 FLSV	3/16	3/8 -24	3.20	5/8	28.20	48.30
04 FLSV	1/4	7/16 -20	4.40	11/16	30.50	52.60
05 FLSV	5/16	1/2 -20	6.00	3/4	30.50	52.60
06 FLSV	3/8	9/16 -18	7.50	13/16	32.50	55.40
08 FLSV	1/2	3/4 -16	9.90	1	36.60	62.00
10 FLSV	5/8	7/8 -14	12.30	1 1/8	40.10	69.60
12 FLSV	3/4	1 1/16 -12	15.50	1 3/8	44.40	78.50
14 FLSV	7/8	1 3/16 -12	18.30	1 1/2	44.40	79.20
16 FLSV	1	1 5/16 -12	21.50	1 5/8	44.40	79.80
20 FLSV	1 1/4	1 5/8 -12	27.50	1 7/8	45.70	84.10
24 FLSV	1 1/2	1 7/8 -12	33.00	2 1/8	46.00	89.40
32 FLSV	2	2 1/2 -12	45.00	2 3/4	53.10	106.70

METRIC						
J. J. Part No.	Tube OD	B UN	D	W	H	L
	in		mm	in	mm	mm
FLSV 06	6	7/16 -20	4.40	11/16	30.50	52.60
FLSV 08	8	1/2 -20	6.00	3/4	30.50	52.60
FLSV 10	10	9/16 -18	7.50	13/16	32.50	55.40
FLSV 12	12	3/4 -16	9.90	1	36.60	62.00
FLSV 16	16	7/8 -14	12.30	1 1/8	40.10	69.60
FLSV 18	18	1 1/16 -12	15.50	1 3/8	44.40	78.50
FLSV 20	20	1 3/16 -12	18.30	1 1/2	44.40	79.20
FLSV 25	25	1 5/16 -12	21.50	1 5/8	44.40	79.80
FLSV 32	32	1 5/8 -12	27.50	1 7/8	45.70	84.10
FLSV 38	38	1 7/8 -12	33.00	2 1/8	46.00	89.40

Note : Dimension are for reference only and are subject to change without notice

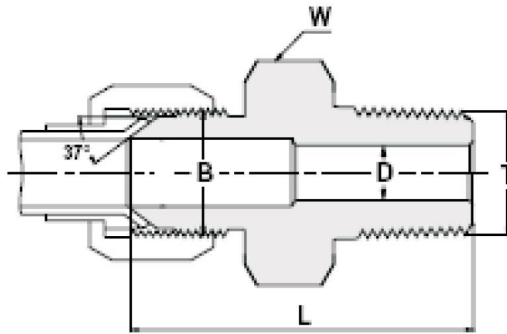
MALE CONECTOR



IMPERIAL						
J. J. Part No.	Tube OD	B UN	T NPT	D	W	L
	in			mm	in	mm
02 FLGN 1/8	1/8	5/16 - 24	1/8 - 27	1.60	7/16	28.20
03 FLGN 1/8	3/16	3/8 - 24	1/8 - 27	3.20	7/16	29.00
04 FLGN 1/8	1/4	7/16 - 20	1/8 - 27	4.40	1/2	31.00
04 FLGN 1/4	1/4	7/16 - 20	1/4 - 18	4.40	9/16	36.00
04 FLGN 1/2	1/4	7/16 - 20	1/2 - 14	4.40	7/8	42.70
05 FLGN 1/8	5/16	1/2 - 20	1/8 - 27	4.80	9/16	31.00
05 FLGN 1/4	5/16	1/2 - 20	1/4 - 18	6.00	9/16	36.10
06 FLGN 1/8	3/8	9/16 - 18	1/8 - 27	4.80	5/8	31.80
06 FLGN 1/4	3/8	9/16 - 18	1/4 - 18	7.10	5/8	36.30
06 FLGN 3/8	3/8	9/16 - 18	3/8 - 18	7.50	3/4	36.30
06 FLGN 1/2	3/8	9/16 - 18	1/2 - 14	7.50	7/8	42.50
08 FLGN 1/4	1/2	3/4 - 16	1/4 - 18	7.10	13/16	38.90
08 FLGN 3/8	1/2	3/4 - 16	3/8 - 18	9.50	13/16	38.90
08 FLGN 1/2	1/2	3/4 - 16	1/2 - 14	9.90	7/8	45.40
08 FLGN 3/4	1/2	3/4 - 16	3/4 - 14	9.90	1 1/8	47.00
10 FLGN 3/8	5/8	7/8 - 14	3/8 - 18	9.50	15/16	43.10
10 FLGN 1/2	5/8	7/8 - 14	1/2 - 14	11.90	15/16	48.00
10 FLGN 3/4	5/8	7/8 - 14	3/4 - 14	12.30	1 1/8	49.50
12 FLGN 3/4	3/4	1 1/16 - 12	3/4 - 14	15.50	1 1/8	52.30
12 FLGN 1	3/4	1 1/16 - 12	1 - 11.5	15.50	1 3/8	57.10
14 FLGN 3/4	7/8	1 3/16 - 12	3/4 - 14	18.30	1 1/4	53.10
16 FLGN 3/4	1	1 5/16 - 12	3/4 - 14	18.30	1 3/8	53.50
16 FLGN 1	1	1 5/16 - 12	1 - 11.5	21.50	1 3/8	58.40
20 FLGN 1	1 1/4	1 5/8 - 12	1 - 11.5	21.50	1 11/16	61.50
20 FLGN 1 1/4	1 1/4	1 5/8 - 12	1 1/4 - 11.5	27.50	1 11/16	62.20
24 FLGN 1 1/4	1 1/2	1 7/8 - 12	1 1/4 - 11.5	33.00	2	68.10
24 FLGN 1 1/2	1 1/2	1 7/8 - 12	1 1/2 - 11.5	33.00	2	68.10
32 FLGN 2	2	2 1/2 - 12	2 - 11.5	45.00	2 5/8	79.00

Note : Dimension are for reference only and are subject to change without notice

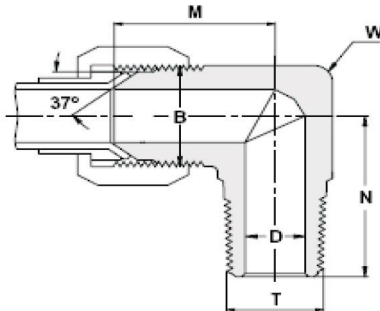
MALE CONECTOR



METRIC						
J. J. Part No.	Tube OD	B UN	T NPT	D	W	L
	in			mm	in	mm
FLGN 06 - 1/8	6	7/16 - 20	1/8 - 27	4.40	1/2	31.00
FLGN 06 - 1/4	6	7/16 - 20	1/4 - 18	4.40	9/16	36.00
FLGN 06 - 1/2	6	7/16 - 20	1/2 - 14	4.40	7/8	42.70
FLGN 08 - 1/8	8	1/2 - 20	1/8 - 27	4.80	9/16	31.00
FLGN 08 - 1/4	8	1/2 - 20	1/4 - 18	6.00	9/16	36.10
FLGN 10 - 1/8	10	9/16 - 18	1/8 - 27	4.80	5/8	31.80
FLGN 10 - 1/4	10	9/16 - 18	1/4 - 18	7.10	5/8	36.30
FLGN 10 - 3/8	10	9/16 - 18	3/8 - 18	7.50	3/4	36.30
FLGN 10 - 1/2	10	9/16 - 18	1/2 - 14	7.50	7/8	42.50
FLGN 12 - 1/4	12	3/4 - 16	1/4 - 18	7.10	13/16	38.90
FLGN 12 - 3/8	12	3/4 - 16	3/8 - 18	9.50	13/16	38.90
FLGN 12 - 1/2	12	3/4 - 16	1/2 - 14	9.90	7/8	45.40
FLGN 12 - 3/4	12	3/4 - 16	3/4 - 14	9.90	1 1/8	47.00
FLGN 16 - 3/8	16	7/8 - 14	3/8 - 18	9.50	15/16	43.10
FLGN 16 - 1/2	16	7/8 - 14	1/2 - 14	11.90	15/16	48.00
FLGN 16 - 3/4	16	7/8 - 14	3/4 - 14	12.30	1 1/8	49.50
FLGN 18 - 3/4	18	1 1/16 - 12	3/4 - 14	15.50	1 1/8	52.30
FLGN 18 - 1	18	1 1/16 - 12	1 - 11.5	15.50	1 3/8	57.10
FLGN 20 - 3/4	20	1 3/16 - 12	3/4 - 14	18.30	1 1/4	53.10
FLGN 25 - 3/4	25	1 5/16 - 12	3/4 - 14	18.30	1 3/8	53.50
FLGN 25 - 1	25	1 5/16 - 12	1 - 11.5	21.50	1 3/8	58.40
FLGN 32 - 1	32	1 5/8 - 12	1 - 11.5	21.50	1 11/16	61.50
FLGN 32 - 1 1/4	32	1 5/8 - 12	1 1/4 - 11.5	27.50	1 11/16	62.20
FLGN 38 - 1 1/4	38	1 7/8 - 12	1 1/4 - 11.5	33.00	2	68.10
FLGN 38 - 1 1/2	38	1 7/8 - 12	1 1/2 - 11.5	33.00	2	68.10

Note : Dimension are for reference only and are subject to change without notice

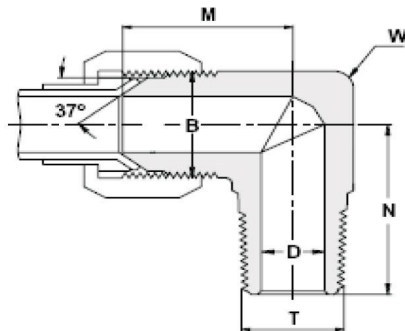
MALE ELBOW



IMPERIAL							
J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	in			mm	in	mm	mm
02 FLWN 1/8	1/8	5/16 - 24	1/8 - 27	1.60	7/16	19.60	18.30
03 FLWN 1/8	3/16	3/8 - 24	1/8 - 27	3.20	1/2	21.10	18.30
04 FLWN 1/8	1/4	7/16 - 20	1/8 - 27	4.40	1/2	22.60	19.80
04 FLWN 1/4	1/4	7/16 - 20	1/4 - 18	4.40	5/8	26.90	27.70
05 FLWN 1/8	5/16	1/2 - 20	1/8 - 27	4.80	5/8	24.10	19.80
05 FLWN 1/4	5/16	1/2 - 20	1/4 - 18	6.00	5/8	26.90	27.70
06 FLWN 1/8	3/8	9/16 - 18	1/8 - 27	4.80	5/8	26.90	22.80
06 FLWN 1/4	3/8	9/16 - 18	1/4 - 18	7.10	5/8	26.90	27.70
06 FLWN 3/8	3/8	9/16 - 18	3/8 - 18	7.50	13/16	29.00	31.00
06 FLWN 1/2	3/8	9/16 - 18	1/2 - 14	7.50	15/16	31.20	37.30
08 FLWN 1/4	1/2	3/4 - 16	1/4 - 18	7.10	15/16	31.80	31.00
08 FLWN 3/8	1/2	3/4 - 16	3/8 - 18	9.50	15/16	31.80	31.00
08 FLWN 1/2	1/2	3/4 - 16	1/2 - 14	9.90	15/16	33.70	37.30
08 FLWN 3/4	1/2	3/4 - 16	3/4 - 14	9.90	1 1/8	36.00	40.40
10 FLWN 3/8	5/8	7/8 - 14	3/8 - 18	9.50	15/16	36.80	33.00
10 FLWN 1/2	5/8	7/8 - 14	1/2 - 14	11.90	15/16	36.80	37.30
10 FLWN 3/4	5/8	7/8 - 14	3/4 - 14	12.30	1 1/8	38.90	40.40
12 FLWN 1/2	3/4	1 1/16 - 12	1/2 - 14	11.90	1 1/8	41.00	40.40
12 FLWN 3/4	3/4	1 1/16 - 12	3/4 - 14	15.50	1 1/8	41.00	40.40
14 FLWN 3/4	7/8	1 3/16 - 12	3/4 - 14	18.30	1 3/8	43.90	42.90
16 FLWN 3/4	1	1 5/16 - 12	3/4 - 14	18.30	1 3/8	46.00	45.20
16 FLWN 1	1	1 5/16 - 12	1-11.5	21.50	1 3/8	46.00	50.00
20 FLWN 1	1 1/4	1 5/8 - 12	1-11.5	21.50	1 11/16	52.30	59.60
20 FLWN 1 1/4	1 1/4	1 5/8 - 12	1 1/4 -11.5	27.50	1 11/16	52.30	60.50
24 FLWN 1 1/2	1 1/2	1 7/8 - 12	1 1/2 -11.5	33.00	2	59.20	67.10
32 FLWN 2	2	2 1/2 - 12	2 -11.5	45.00	2 5/8	77.70	76.20

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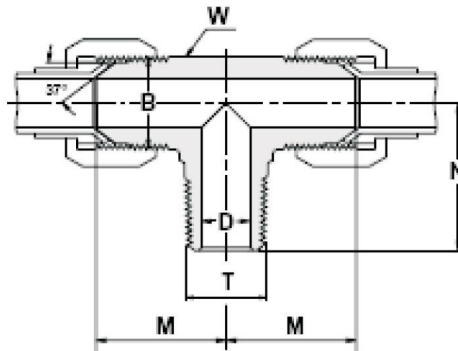
MALE ELBOW



METRIC							
J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	mm			mm	in	mm	mm
FLWN 06 - 1/8	6	7/16 - 20	1/8 - 27	4.40	1/2	22.60	19.80
FLWN 06 - 1/4	6	7/16 - 20	1/4 - 18	4.40	5/8	26.90	27.70
FLWN 08 - 1/8	8	1/2 - 20	1/8 - 27	4.80	5/8	24.10	19.80
FLWN 08 - 1/4	8	1/2 - 20	1/4 - 18	6.00	5/8	26.90	27.70
FLWN 10 - 1/8	10	9/16 - 18	1/8 - 27	4.80	5/8	26.90	22.80
FLWN 10 - 1/4	10	9/16 - 18	1/4 - 18	7.10	5/8	26.90	27.70
FLWN 10 - 3/8	10	9/16 - 18	3/8 - 18	7.50	13/16	29.00	31.00
FLWN 10 - 1/2	10	9/16 - 18	1/2 - 14	7.50	15/16	31.20	37.30
FLWN 12 - 1/4	12	3/4 - 16	1/4 - 18	7.10	15/16	31.80	31.00
FLWN 12 - 3/8	12	3/4 - 16	3/8 - 18	9.50	15/16	31.80	31.00
FLWN 12 - 1/2	12	3/4 - 16	1/2 - 14	9.90	15/16	33.70	37.30
FLWN 12 - 3/4	12	3/4 - 16	3/4 - 14	9.90	1 1/8	36.00	40.40
FLWN 16 - 3/8	16	7/8 - 14	3/8 - 18	9.50	15/16	36.80	33.00
FLWN 16 - 1/2	16	7/8 - 14	1/2 - 14	11.90	15/16	36.80	37.30
FLWN 16 - 3/4	16	7/8 - 14	3/4 - 14	12.30	1 1/8	38.90	40.40
FLWN 18 - 1/2	18	1 1/16 - 12	1/2 - 14	11.90	1 1/8	41.00	40.40
FLWN 18 - 3/4	18	1 1/16 - 12	3/4 - 14	15.50	1 1/8	41.00	40.40
FLWN 20 - 3/4	20	1 3/16 - 12	3/4 - 14	18.30	1 3/8	43.90	42.90
FLWN 25 - 3/4	25	1 5/16 - 12	3/4 - 14	18.30	1 3/8	46.00	45.20
FLWN 25 - 1	25	1 5/16 - 12	1-11.5	21.50	1 3/8	46.00	50.00
FLWN 32 - 1	32	1 5/8 - 12	1-11.5	21.50	1 11/16	52.30	59.60
FLWN 32 - 1 1/4	32	1 5/8 - 12	1 1/4 -11.5	27.50	1 11/16	52.30	60.50
FLWN 38 - 1 1/2	38	1 7/8 - 12	1 1/2 -11.5	33.00	2	59.20	67.10

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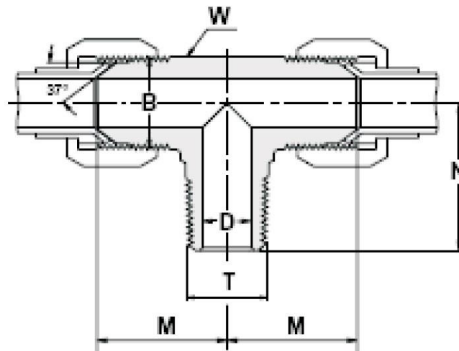
MALE BRANCH TEE



IMPERIAL							
J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	in			mm	in	mm	mm
02 FLTN 1/8	1/8	5/16 -24	1/8 -27	1.60	7/16	19.60	18.30
03 FLTN 1/8	3/16	3/8 -24	1/8 -27	3.20	1/2	21.10	18.30
04 FLTN 1/8	1/4	7/16 -20	1/8 -27	4.40	1/2	22.60	19.80
04 FLTN 1/4	1/4	7/16 -20	1/4 -18	4.40	5/8	26.90	27.70
05 FLTN 1/8	5/16	1/2 -20	1/8 -27	4.80	5/8	24.10	19.80
05 FLTN 1/4	5/16	1/2 -20	1/4 -18	6.00	5/8	26.90	27.70
06 FLTN 1/8	3/8	9/16 -18	1/8 -27	4.80	5/8	26.90	22.80
06 FLTN 1/4	3/8	9/16 -18	1/4 -18	7.10	5/8	26.90	27.70
06 FLTN 3/8	3/8	9/16 -18	3/8 -18	7.50	13/16	29.00	31.00
06 FLTN 1/2	3/8	9/16 -18	1/2 -14	7.50	15/16	31.20	37.30
08 FLTN 1/4	1/2	3/4 -16	1/4 -18	7.10	15/16	31.80	31.00
08 FLTN 3/8	1/2	3/4 -16	3/8 -18	9.50	15/16	31.80	31.00
08 FLTN 1/2	1/2	3/4 -16	1/2 -14	9.90	15/16	33.70	37.30
08 FLTN 3/4	1/2	3/4 -16	3/4 -14	9.90	1 1/8	36.00	40.40
10 FLTN 3/8	5/8	7/8 -14	3/8 -18	9.50	15/16	36.80	33.00
10 FLTN 1/2	5/8	7/8 -14	1/2 -14	11.90	15/16	36.80	37.30
10 FLTN 3/4	5/8	7/8 -14	3/4 -14	12.30	1 1/8	38.90	40.40
12 FLTN 1/2	3/4	1 1/16 -12	1/2 -14	11.90	1 1/8	41.00	40.40
12 FLTN 3/4	3/4	1 1/16 -12	3/4 -14	15.50	1 1/8	41.00	40.40
14 FLTN 3/4	7/8	1 3/16 -12	3/4 -14	18.30	1 3/8	43.90	42.90
16 FLTN 3/4	1	1 5/16 -12	3/4 -14	18.30	1 3/8	46.00	45.20
16 FLTN 1	1	1 5/16 -12	1-11.5	21.50	1 3/8	46.00	50.00
20 FLTN 1	1 1/4	1 5/8 -12	1-11.5	21.50	1 11/16	52.30	59.60
20 FLTN 1 1/4	1 1/4	1 5/8 -12	1 1/4 -11.5	27.50	1 11/16	52.30	60.50
24 FLTN 1 1/2	1 1/2	1 7/8 -12	1 1/2 -11.5	33.00	2	59.20	67.10
32 FLTN 2	2	1 7/8 -12	2-11.5	45.00	2 5/8	77.70	76.20

Note : Dimension are for reference only and are subject to change without notice

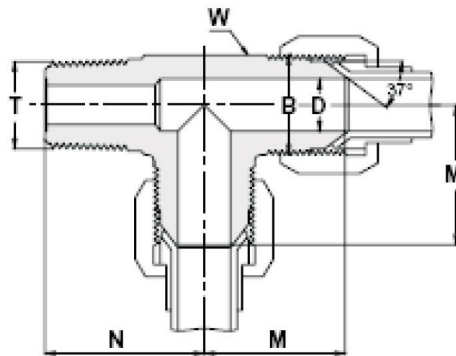
MALE BRANCH TEE



METRIC							
J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	mm			mm	in	mm	mm
FLTN 06 - 1/8	6	7/16 -20	1/8 -27	4.40	1/2	22.60	19.80
FLTN 06 - 1/4	6	7/16 -20	1/4 -18	4.40	5/8	26.90	27.70
FLTN 08 - 1/8	8	1/2 -20	1/8 -27	4.80	5/8	24.10	19.80
FLTN 08 - 1/4	8	1/2 -20	1/4 -18	6.00	5/8	26.90	27.70
FLTN 10 - 1/8	10	9/16 -18	1/8 -27	4.80	5/8	26.90	22.80
FLTN 10 - 1/4	10	9/16 -18	1/4 -18	7.10	5/8	26.90	27.70
FLTN 10 - 3/8	10	9/16 -18	3/8 -18	7.50	13/16	29.00	31.00
FLTN 10 - 1/2	10	9/16 -18	1/2 -14	7.50	15/16	31.20	37.30
FLTN 12 - 1/4	12	3/4 -16	1/4 -18	7.10	15/16	31.80	31.00
FLTN 12 - 3/8	12	3/4 -16	3/8 -18	9.50	15/16	31.80	31.00
FLTN 12 - 1/2	12	3/4 -16	1/2 -14	9.90	15/16	33.70	37.30
FLTN 12 - 3/4	12	3/4 -16	3/4 -14	9.90	1 1/8	36.00	40.40
FLTN 16 - 3/8	16	7/8 -14	3/8 -18	9.50	15/16	36.80	33.00
FLTN 16 - 1/2	16	7/8 -14	1/2 -14	11.90	15/16	36.80	37.30
FLTN 16 - 3/4	16	7/8 -14	3/4 -14	12.30	1 1/8	38.90	40.40
FLTN 18 - 1/2	18	1 1/16 -12	1/2 -14	11.90	1 1/8	41.00	40.40
FLTN 18 - 3/4	18	1 1/16 -12	3/4 -14	15.50	1 1/8	41.00	40.40
FLTN 20 - 3/4	20	1 3/16 -12	3/4 -14	18.30	1 3/8	43.90	42.90
FLTN 25 - 3/4	25	1 5/16 -12	3/4 -14	18.30	1 3/8	46.00	45.20
FLTN 25 - 1	25	1 5/16 -12	1-11.5	21.50	1 3/8	46.00	50.00
FLTN 32 - 1	32	1 5/8 -12	1-11.5	21.50	1 11/16	52.30	59.60
FLTN 32 - 1 1/4	32	1 5/8 -12	1 1/4 -11.5	27.50	1 11/16	52.30	60.50
FLTN 38 - 1 1/2	38	1 7/8 -12	1 1/2 -11.5	33.00	*2	59.20	67.10

Note : Dimension are for reference only and are subject to change without notice

MALE RUN TEE

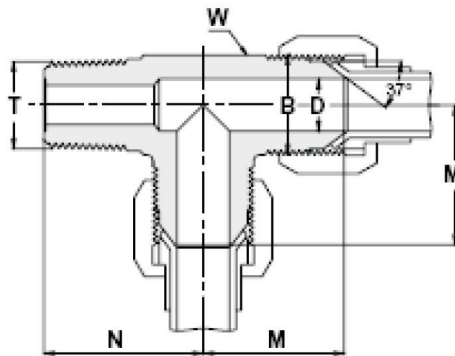


IMPERIAL

J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	in			mm	in	mm	mm
02 FLTL 1/8	1/8	5/16 - 24	1/8 - 27	1.60	7/16	19.60	18.30
03 FLTL 1/8	3/16	3/8 - 24	1/8 - 27	3.20	1/2	21.10	18.30
04 FLTL 1/8	1/4	7/16 - 20	1/8 - 27	4.40	1/2	22.60	19.80
04 FLTL 1/4	1/4	7/16 - 20	1/4 - 18	4.40	5/8	26.90	27.70
05 FLTL 1/8	5/16	1/2 - 20	1/8 - 27	4.80	5/8	24.10	19.80
05 FLTL 1/4	5/16	1/2 - 20	1/4 - 18	6.00	5/8	26.90	27.70
06 FLTL 1/8	3/8	9/16 - 18	1/8 - 27	4.80	5/8	26.90	22.80
06 FLTL 1/4	3/8	9/16 - 18	1/4 - 18	7.10	5/8	26.90	27.70
06 FLTL 3/8	3/8	9/16 - 18	3/8 - 18	7.50	13/16	29.00	31.00
06 FLTL 1/2	3/8	9/16 - 18	1/2 - 14	7.50	15/16	31.20	37.30
08 FLTL 1/4	1/2	3/4 - 16	1/4 - 18	7.10	15/16	31.80	31.00
08 FLTL 3/8	1/2	3/4 - 16	3/8 - 18	9.50	15/16	31.80	31.00
08 FLTL 1/2	1/2	3/4 - 16	1/2 - 14	9.90	15/16	33.70	37.30
08 FLTL 1/4	1/2	3/4 - 16	3/4 - 14	9.90	1 1/8	36.00	40.40
10 FLTL 3/8	5/8	7/8 - 14	3/8 - 18	9.50	15/16	36.80	33.00
10 FLTL 1/2	5/8	7/8 - 14	1/2 - 14	11.90	15/16	36.80	37.30
11 FLTL 3/4	5/8	7/8 - 14	3/4 - 14	12.30	1 1/8	38.90	40.40
12 FLTL 1/2	3/4	1 1/16 - 12	1/2 - 14	11.90	1 1/8	41.00	40.40
12 FLTL 3/4	3/4	1 1/16 - 12	3/4 - 14	15.50	1 1/8	41.00	40.40
14 FLTL 3/4	7/8	1 3/16 - 12	3/4 - 14	18.30	1 3/8	43.90	42.90
16 FLTL 3/4	1	1 5/16 - 12	3/4 - 14	18.30	1 3/8	46.00	45.20
16 FLTL 1	1	1 5/16 - 12	1 - 11.5	21.50	1 3/8	46.00	50.00
20 FLTL 1	1 1/4	1 5/8 - 12	1 - 11.5	21.50	1 11/16	52.30	59.60
20 FLTL 1 1/4	1 1/4	1 5/8 - 12	1 1/4 - 11.5	27.50	1 11/16	52.30	60.50
24 FLTL 1 1/2	1 1/2	1 7/8 - 12	1 1/2 - 11.5	33.00	2	59.20	67.10
32 FLTL 2	2	2 1/2 - 12	2 - 11.5	45.00	2 5/8	77.70	76.20

Note : Dimension are for reference only and are subject to change without notice

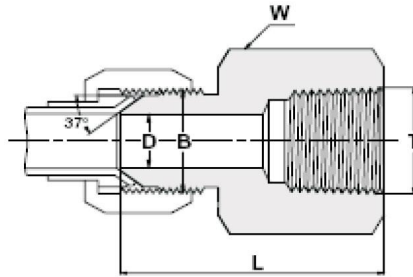
MALE RUN TEE



METRIC							
J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	mm			mm	in	mm	mm
FLTL 06 - 1/8	6	7/16 - 20	1/8 - 27	4.40	1/2	22.60	19.80
FLTL 06 - 1/4	6	7/16 - 20	1/4 - 18	4.40	5/8	26.90	27.70
FLTL 08 - 1/8	8	1/2 - 20	1/8 - 27	4.80	5/8	24.10	19.80
FLTL 08 - 1/4	8	1/2 - 20	1/4 - 18	6.00	5/8	26.90	27.70
FLTL 10 - 1/8	10	9/16 - 18	1/8 - 27	4.80	5/8	26.90	22.80
FLTL 10 - 1/4	10	9/16 - 18	1/4 - 18	7.10	5/8	26.90	27.70
FLTL 10 - 3/8	10	9/16 - 18	3/8 - 18	7.50	13/16	29.00	31.00
FLTL 10 - 1/2	10	9/16 - 18	1/2 - 14	7.50	15/16	31.20	37.30
FLTL 12 - 1/4	12	3/4 - 16	1/4 - 18	7.10	15/16	31.80	31.00
FLTL 12 - 3/8	12	3/4 - 16	3/8 - 18	9.50	15/16	31.80	31.00
FLTL 12 - 1/2	12	3/4 - 16	1/2 - 14	9.90	15/16	33.70	37.30
FLTL 12 - 3/4	12	3/4 - 16	3/4 - 14	9.90	1 1/8	36.00	40.40
FLTL 16 - 3/8	16	7/8 - 14	3/8 - 18	9.50	15/16	36.80	33.00
FLTL 16 - 1/2	16	7/8 - 14	1/2 - 14	11.90	15/16	36.80	37.30
FLTL 16 - 3/4	16	7/8 - 14	3/4 - 14	12.30	1 1/8	38.90	40.40
FLTL 18 - 1/2	18	1 1/16 - 12	1/2 - 14	11.90	1 1/8	41.00	40.40
FLTL 18 - 3/4	18	1 1/16 - 12	3/4 - 14	15.50	1 1/8	41.00	40.40
FLTL 20 - 3/4	20	1 3/16 - 12	3/4 - 14	18.30	1 3/8	43.90	42.90
FLTL 25 - 3/4	25	1 5/16 - 12	3/4 - 14	18.30	1 3/8	46.00	45.20
FLTL 25 - 1	25	1 5/16 - 12	1 - 11.5	21.50	1 3/8	46.00	50.00
FLTL 32 - 1	32	1 5/8 - 12	1 - 11.5	21.50	1 11/16	52.30	59.60
FLTL 32 - 1 1/4	32	1 5/8 - 12	1 1/4 - 11.5	27.50	1 11/16	52.30	60.50
FLTL 38 - 1 1/2	38	1 7/8 - 12	1 1/2 - 11.5	33.00	2	59.20	67.10

Note : Dimension are for reference only and are subject to change without notice

FEMALE CONNECTOR

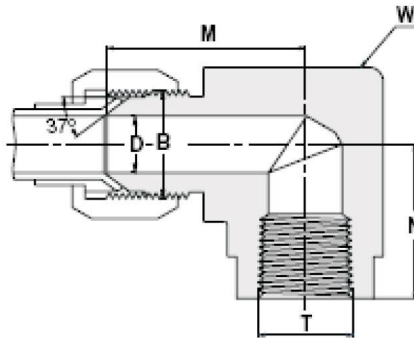


IMPERIAL						
J. J. Part No.	Tube OD	B UN	T NPT	D	W	L
	in			mm	in	mm
02 FLGAI 1/8	1/8"	5/16 - 24	1/8 - 27	1.60	9/16	28.40
03 FLGAI 1/8	3/16"	3/8 - 24	1/8 - 27	3.20	9/16	28.70
04 FLGAI 1/8	1/4"	7/16 - 20	1/8 - 27	4.40	9/16	30.20
04 FLGAI 1/4	1/4"	7/16 - 20	1/4 - 18	4.40	3/4	35.30
05 FLGAI 1/8	5/16"	1/2 - 20	1/8 - 27	6.00	9/16	29.70
05 FLGAI 1/4	5/16"	1/2 - 20	1/4 - 18	6.00	3/4	35.30
06 FLGAI 1/4	3/8"	9/16 - 18	1/4 - 18	7.50	3/4	35.60
06 FLGAI 3/8	3/8"	9/16 - 18	3/8 - 18	7.50	7/8	37.10
08 FLGAI 3/8	1/2"	3/4 - 16	3/8 - 18	9.90	7/8	39.60
08 FLGAI 1/2	1/2"	3/4 - 16	1/2 - 14	9.90	1 1/8	45.60
10 FLGAI 1/2	5/8"	7/8 - 14	1/2 - 14	12.30	1 1/8	48.00
12 FLGAI 1/2	3/4"	1 1/16 - 12	1/2 - 14	15.50	1 1/8	52.10
12 FLGAI 3/4	3/4"	1 1/16 - 12	3/4 - 14	15.50	1 3/8	52.30
14 FLGAI 3/4	7/8"	1 3/16 - 12	3/4 - 14	18.30	1 3/8	52.30
16 FLGAI 1	1	1 5/16 - 12	1 - 11.5	21.50	1 5/8	59.70
20 FLGAI 1 1/4	1 1/4"	1 5/8 - 12	1 1/4 - 11.5	27.50	2	63.20
24 FLGAI 1 1/2	1 1/2"	1 7/8 - 12	1 1/2 - 11.5	33.00	2 3/8	66.50
32 FLGAI 2	2	2 1/2 - 12	2 - 11.5	45.00	2 7/8	75.40

METRIC						
J. J. Part No.	Tube OD	B UN	T NPT	D	W	L
	mm			mm	in	mm
FLGAI 06 - 1/8	6	7/16 - 20	1/8 - 27	4.40	9/16	30.20
FLGAI 06 - 1/4	6	7/16 - 20	1/4 - 18	4.40	3/4	35.30
FLGAI 08 - 1/8	8	1/2 - 20	1/8 - 27	6.00	9/16	29.70
FLGAI 08 - 1/4	8	1/2 - 20	1/4 - 18	6.00	3/4	35.30
FLGAI 10 - 1/4	10	9/16 - 18	1/4 - 18	7.50	3/4	35.60
FLGAI 10 - 3/8	10	9/16 - 18	3/8 - 18	7.50	7/8	37.10
FLGAI 12 - 3/8	12	3/4 - 16	3/8 - 18	9.90	7/8	39.60
FLGAI 12 - 1/2	12	3/4 - 16	1/2 - 14	9.90	1 1/8	45.60
FLGAI 16 - 1/2	16	7/8 - 14	1/2 - 14	12.30	1 1/8	48.00
FLGAI 18 - 1/2	18	1 1/16 - 12	1/2 - 14	15.50	1 1/8	52.10
FLGAI 18 - 3/4	18	1 1/16 - 12	3/4 - 14	15.50	1 3/8	52.30
FLGAI 20 - 3/4	20	1 3/16 - 12	3/4 - 14	18.30	1 3/8	52.30
FLGAI 25 - 1	25	1 5/16 - 12	1 - 11.5	21.50	1 5/8	59.70
FLGAI 32 - 1 1/4	32	1 5/8 - 12	1 1/4 - 11.5	27.50	2	63.20
FLGAI 38 - 1 1/2	38	1 7/8 - 12	1 1/2 - 11.5	33.00	2 3/8	66.50

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FEMALE ELBOW

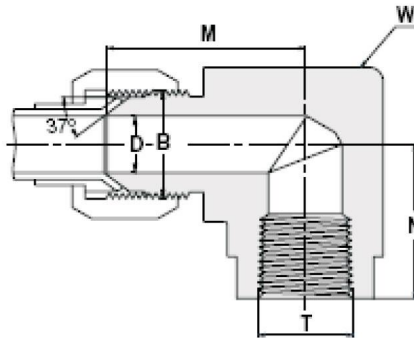


IMPERIAL

J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	in			mm	in	mm	mm
02 FLFWN 1/8	1/8	5/16 - 24	1/8 - 27	1.60	5/8	25.40	16.80
03 FLFWN 1/8	3/16	3/8 - 24	1/8 - 27	3.20	5/8	26.20	16.80
04 FLFWN 1/8	1/4	7/16 - 20	1/8 - 27	4.40	5/8	27.40	16.80
04 FLFWN 1/4	1/4	7/16 - 20	1/4 - 18	4.40	13/16	30.90	22.40
05 FLFWN 1/8	5/16	1/2 - 20	1/8 - 27	6.00	5/8	27.40	16.80
05 FLFWN 1/4	5/16	1/2 - 20	1/4 - 18	6.00	13/16	30.90	22.40
06 FLFWN 1/8	3/8	9/16 - 18	1/8 - 27	7.50	5/8	26.90	16.80
06 FLFWN 1/4	3/8	9/16 - 18	1/4 - 18	7.50	13/16	31.20	22.40
06 FLFWN 3/8	3/8	9/16 - 18	3/8 - 18	7.50	15/16	33.20	25.90
08 FLFWN 1/4	1/2	3/4 - 16	1/4 - 18	9.90	13/16	31.60	22.40
08 FLFWN 3/8	1/2	3/4 - 16	3/8 - 18	9.90	15/16	36.10	25.90
08 FLFWN 1/2	1/2	3/4 - 16	1/2 - 14	9.90	1 1/8	36.10	31.20
10 FLFWN 1/2	5/8	7/8 - 14	1/2 - 14	12.30	1 1/8	41.50	31.20
12 FLFWN 1/2	3/4	1 1/16 - 12	1/2 - 14	15.50	1 3/8	42.10	31.20
12 FLFWN 3/4	3/4	1 1/16 - 12	3/4 - 14	15.50	1 3/8	48.00	34.50
14 FLFWN 3/4	7/8	1 3/16 - 12	3/4 - 14	18.30	1 3/8	47.20	36.10
16 FLFWN 1	1	1 5/16 - 12	1 - 11.5	21.50	1 5/8	55.10	41.10
20 FLFWN 1 1/4	1 1/4	1 5/8 - 12	1 1/4 - 11.5	27.50	2 1/8	59.20	43.20
24 FLFWN 1 1/2	1 1/2	1 7/8 - 12	1 1/2 - 11.5	33.00	2 3/8	73.40	52.80
32 FLFWN 2	2	2 1/2 - 12	2 - 11.5	45.00	2 7/8	83.80	60.70

Note : Dimension are for reference only and are subject to change without notice

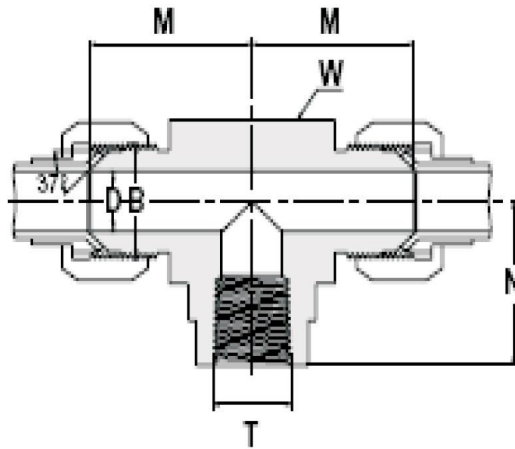
FEMALE ELBOW



METRIC							
J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	mm			mm	in	mm	mm
FLFWN 06 - 1/8	6	7/16 - 20	1/8 - 27	4.40	5/8	27.40	16.80
FLFWN 06 - 1/4	6	7/16 - 20	1/4 - 18	4.40	13/16	30.90	22.40
FLFWN 08 - 1/8	8	1/2 - 20	1/8 - 27	6.00	5/8	27.40	16.80
FLFWN 08 - 1/4	8	1/2 - 20	1/4 - 18	6.00	13/16	30.90	22.40
FLFWN 10 - 1/8	10	9/16 - 18	1/8 - 27	7.50	5/8	26.90	16.80
FLFWN 10 - 1/4	10	9/16 - 18	1/4 - 18	7.50	13/16	31.20	22.40
FLFWN 10 - 3/8	10	9/16 - 18	3/8 - 18	7.50	15/16	33.20	25.90
FLFWN 12 - 1/4	12	3/4 - 16	1/4 - 18	9.90	13/16	31.60	22.40
FLFWN 12 - 3/8	12	3/4 - 16	3/8 - 18	9.90	15/16	36.10	25.90
FLFWN 12 - 1/2	12	3/4 - 16	1/2 - 14	9.90	1 1/8	36.10	31.20
FLFWN 16 - 1/2	16	7/8 - 14	1/2 - 14	12.30	1 1/8	41.50	31.20
FLFWN 18 - 1/2	18	1 1/16 - 12	1/2 - 14	15.50	1 3/8	42.10	31.20
FLFWN 18 - 3/4	18	1 1/16 - 12	3/4 - 14	15.50	1 3/8	48.00	34.50
FLFWN 20 - 3/4	20	1 3/16 - 12	3/4 - 14	18.30	1 3/8	47.20	36.10
FLFWN 25 - 1	25	1 5/16 - 12	1 - 11.5	21.50	1 5/8	55.10	41.10
FLFWN 32 - 1 1/4	32	1 5/8 - 12	1 1/4 - 11.5	27.50	2 1/8	59.20	43.20
FLFWN 38 - 1 1/2	38	1 7/8 - 12	1 1/2 - 11.5	33.00	2 3/8	73.40	52.80

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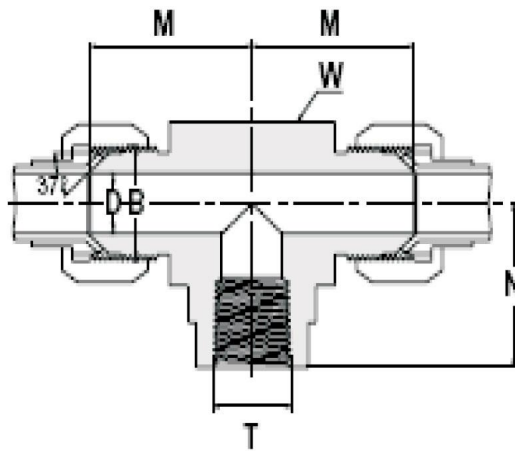
FEMALE BRANCH TEE



IMPERIAL							
J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	in			mm	in	mm	mm
02 FLFTBN 1/8	1/8	5/16 - 24	1/8 - 27	1.60	5/8	25.40	16.80
03 FLFTBN 1/8	3/16	3/8 - 24	1/8 - 27	3.20	5/8	26.20	16.80
04 FLFTBN 1/8	1/4	7/16 - 20	1/8 - 27	4.40	5/8	27.40	16.80
04 FLFTBN 1/4	1/4	7/16 - 20	1/4 - 18	4.40	13/16	30.90	22.40
05 FLFTBN 1/8	5/16	1/2 - 20	1/8 - 27	6.00	5/8	27.40	16.80
05 FLFTBN 1/4	5/16	1/2 - 20	1/4 - 18	6.00	13/16	30.90	22.40
06 FLFTBN 1/8	3/8	9/16 - 18	1/8 - 27	7.50	5/8	26.90	16.80
06 FLFTBN 1/4	3/8	9/16 - 18	1/4 - 18	7.50	13/16	31.20	22.40
06 FLFTBN 3/8	3/8	9/16 - 18	3/8 - 18	7.50	15/16	33.20	25.90
08 FLFTBN 1/4	1/2	3/4 - 16	1/4 - 18	9.90	13/16	31.60	22.40
08 FLFTBN 3/8	1/2	3/4 - 16	3/8 - 18	9.90	15/16	36.10	25.90
08 FLFTBN 1/2	1/2	3/4 - 16	1/2 - 14	9.90	1 1/8	36.10	31.20
10 FLFTBN 1/2	5/8	7/8 - 14	1/2 - 14	12.30	1 1/8	41.50	31.20
12 FLFTBN 1/2	3/4	1 1/16 - 12	1/2 - 14	15.50	1 3/8	42.10	31.20
12 FLFTBN 3/4	3/4	1 1/16 - 12	3/4 - 14	15.50	1 3/8	48.00	34.50
14 FLFTBN 3/4	7/8	1 3/16 - 12	3/4 - 14	18.30	1 3/8	47.20	36.10
16 FLFTBN 1	1	1 5/16 - 12	1 - 11.5	21.50	1 5/8	55.10	41.10
20 FLFTBN 1 1/4	1 1/4	1 5/8 - 12	1 1/4 - 11.5	27.50	2 1/8	59.20	43.20
24 FLFTBN 1 1/2	1 1/2	1 7/8 - 12	1 1/2 - 11.5	33.00	2 3/8	73.40	52.80
32 FLFTBN 2	2	2 1/2 - 12	2 - 11.5	45.00	2 7/8	83.80	60.70

Note : Dimension are for reference only and are subject to change without notice

FEMALE BRANCH TEE

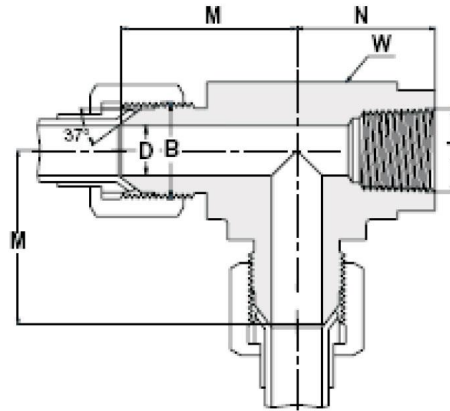


METRIC

J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	mm			mm	in	mm	mm
FLFTBN 06 - 1/8	6	7/16 - 20	1/8 - 27	4.40	5/8	27.40	16.80
FLFTBN 06 - 1/4	6	7/16 - 20	1/4 - 18	4.40	13/16	30.90	22.40
FLFTBN 08 - 1/8	8	1/2 - 20	1/8 - 27	6.00	5/8	27.40	16.80
FLFTBN 08 - 1/4	8	1/2 - 20	1/4 - 18	6.00	13/16	30.90	22.40
FLFTBN 10 - 1/8	10	9/16 - 18	1/8 - 27	7.50	5/8	26.90	16.80
FLFTBN 10 - 1/4	10	9/16 - 18	1/4 - 18	7.50	13/16	31.20	22.40
FLFTBN 10 - 3/8	10	9/16 - 18	3/8 - 18	7.50	15/16	33.20	25.90
FLFTBN 12 - 1/4	12	3/4 - 16	1/4 - 18	9.90	13/16	31.60	22.40
FLFTBN 12 - 3/8	12	3/4 - 16	3/8 - 18	9.90	15/16	36.10	25.90
FLFTBN 12 - 1/2	12	3/4 - 16	1/2 - 14	9.90	1 1/8	36.10	31.20
FLFTBN 16 - 1/2	16	7/8 - 14	1/2 - 14	12.30	1 1/8	41.50	31.20
FLFTBN 18 - 1/2	18	1 1/16 - 12	1/2 - 14	15.50	1 3/8	42.10	31.20
FLFTBN 18 - 3/4	18	1 1/16 - 12	3/4 - 14	15.50	1 3/8	48.00	34.50
FLFTBN 20 - 3/4	20	1 3/16 - 12	3/4 - 14	18.30	1 3/8	47.20	36.10
FLFTBN 25 - 1	25	1 5/16 - 12	1 - 11.5	21.50	1 5/8	55.10	41.10
FLFTBN 32 - 1 1/4	32	1 5/8 - 12	1 1/4 - 11.5	27.50	2 1/8	59.20	43.20
FLFTBN 38 - 1 1/2	38	1 7/8 - 12	1 1/2 - 11.5	33.00	2 3/8	73.40	52.80

Note : Dimension are for reference only and are subject to change without notice

FEMALE RUN TEE

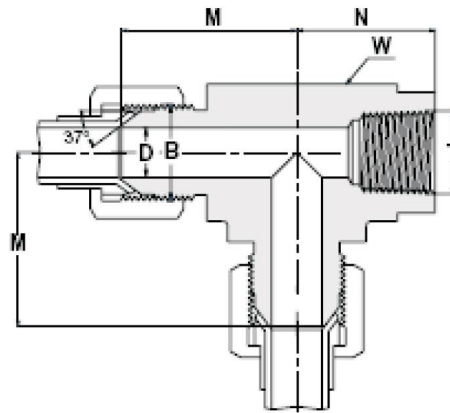


IMPERIAL

J. J. Part No.	Tube OD	B UN	T NPT	D	W	M	N
	in			mm	in	mm	mm
02 FLFTLN 1/8	1/8	5/16 - 24	1/8 - 27	1.60	5/8	25.40	16.80
03 FLFTLN 1/8	3/16	3/8 - 24	1/8 - 27	3.20	5/8	26.20	16.80
04 FLFTLN 1/8	1/4	7/16 - 20	1/8 - 27	4.40	5/8	27.40	16.80
04 FLFTLN 1/4	1/4	7/16 - 20	1/4 - 18	4.40	13/16	30.90	22.40
05 FLFTLN 1/8	5/16	1/2 - 20	1/8 - 27	6.00	5/8	27.40	16.80
05 FLFTLN 1/4	5/16	1/2 - 20	1/4 - 18	6.00	13/16	30.90	22.40
06 FLFTLN 1/8	3/8	9/16 - 18	1/8 - 27	7.50	5/8	26.90	16.80
06 FLFTLN 1/4	3/8	9/16 - 18	1/4 - 18	7.50	13/16	31.20	22.40
06 FLFTLN 3/8	3/8	9/16 - 18	3/8 - 18	7.50	15/16	33.20	25.90
08 FLFTLN 1/4	1/2	3/4 - 16	1/4 - 18	9.90	13/16	31.60	22.40
08 FLFTLN 3/8	1/2	3/4 - 16	3/8 - 18	9.90	15/16	36.10	25.90
08 FLFTLN 1/2	1/2	3/4 - 16	1/2 - 14	9.90	1 1/8	36.10	31.20
10 FLFTLN 1/2	5/8	7/8 - 14	1/2 - 14	12.30	1 1/8	41.50	31.20
12 FLFTLN 1/2	3/4	1 1/16 - 12	1/2 - 14	15.50	1 3/8	42.10	31.20
12 FLFTLN 3/4	3/4	1 1/16 - 12	3/4 - 14	15.50	1 3/8	48.00	34.50
14 FLFTLN 3/4	7/8	1 3/16 - 12	3/4 - 14	18.30	1 3/8	47.20	36.10
16 FLFTLN 1	1	1 5/16 - 12	1 - 11.5	21.50	1 5/8	55.10	41.10
20 FLFTLN 1 1/4	1 1/4	1 5/8 - 12	1 1/4 - 11.5	27.50	2 1/8	59.20	43.20
24 FLFTLN 1 1/2	1 1/2	1 7/8 - 12	1 1/2 - 11.5	33.00	2 3/8	73.40	52.80
32 FLFTLN 2	2	2 1/2 - 12	2 - 11.5	45.00	2 7/8	83.80	60.70

Note : Dimension are for reference only and are subject to change without notice

FEMALE RUN TEE

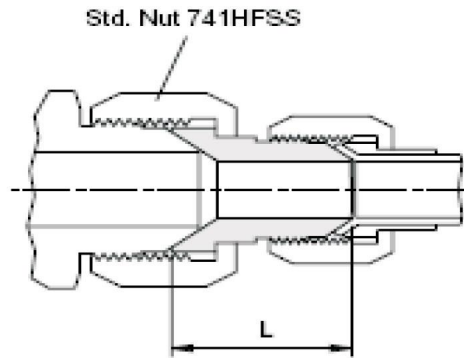


METRIC

J. J. Part No.	Tube OD mm	B UN	T NPT	D	W	M	N
				mm	in	mm	mm
FLFTLN 06 - 1/8	6	7/16 - 20	1/8 - 27	4.40	5/8	27.40	16.80
FLFTLN 06 - 1/4	6	7/16 - 20	1/4 - 18	4.40	13/16	30.90	22.40
FLFTLN 08 - 1/8	8	1/2 - 20	1/8 - 27	6.00	5/8	27.40	16.80
FLFTLN 08 - 1/4	8	1/2 - 20	1/4 - 18	6.00	13/16	30.90	22.40
FLFTLN 10 - 1/8	10	9/16 - 18	1/8 - 27	7.50	5/8	26.90	16.80
FLFTLN 10 - 1/4	10	9/16 - 18	1/4 - 18	7.50	13/16	31.20	22.40
FLFTLN 10 - 3/8	10	9/16 - 18	3/8 - 18	7.50	15/16	33.20	25.90
FLFTLN 12 - 1/4	12	3/4 - 16	1/4 - 18	9.90	13/16	31.60	22.40
FLFTLN 12 - 3/8	12	3/4 - 16	3/8 - 18	9.90	15/16	36.10	25.90
FLFTLN 12 - 1/2	12	3/4 - 16	1/2 - 14	9.90	1 1/8	36.10	31.20
FLFTLN 16 - 1/2	16	7/8 - 14	1/2 - 14	12.30	1 1/8	41.50	31.20
FLFTLN 18 - 1/2	18	1 1/16 - 12	1/2 - 14	15.50	1 3/8	42.10	31.20
FLFTLN 18 - 3/4	18	1 1/16 - 12	3/4 - 14	15.50	1 3/8	48.00	34.50
FLFTLN 20 - 3/4	20	1 3/16 - 12	3/4 - 14	18.30	1 3/8	47.20	36.10
FLFTLN 25 - 1	25	1 5/16 - 12	1 - 11.5	21.50	1 5/8	55.10	41.10
FLFTLN 32 - 1 1/4	32	1 5/8 - 12	1 1/4 - 11.5	27.50	2 1/8	59.20	43.20
FLFTLN 38 - 1 1/2	38	1 7/8 - 12	1 1/2 - 11.5	33.00	2 3/8	73.40	52.80

Note : Dimension are for reference only and are subject to change without notice

REDUCING ADAPTOR

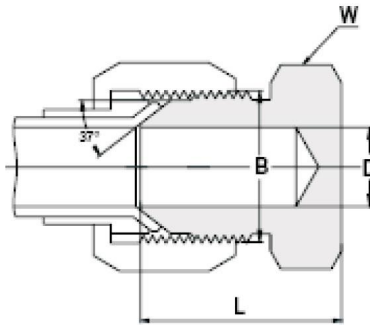


IMPERIAL TO IMPERIAL			
J. J. Part No.	Tube OD	B UN	L
	in		mm
06 - 04 FLR	3/8 to 1/4	7/16 -20	24.60
08 - 04 FLR	1/2 to 1/4	7/16 -20	25.40
08 - 06 FLR	1/2 to 3/8	9/16 -18	25.40
10 - 04 FLR	5/8 to 1/4	7/16 -20	26.20
10 - 06 FLR	5/8 to 3/8	9/16 -18	26.20
10 - 08 FLR	5/8 to 1/2	3/4 -16	36.50
12 - 04 FLR	3/4 to 1/4	7/16 -20	27.70
12 - 06 FLR	3/4 to 3/8	9/16 -18	27.70
12 - 08 FLR	3/4 to 1/2	3/4 -16	30.20
12 - 10 FLR	3/4 to 5/8	7/8 -14	42.10
14 - 06 FLR	7/8 to 3/8	9/16 -18	28.70
14 - 10 FLR	7/8 to 5/8	7/8 -14	33.70
14 - 12 FLR	7/8 to 3/4	1 1/16 -12	46.70
16 - 12 FLR	1 to 3/4	1 1/16 -12	37.30
16 - 14 FLR	1 to 7/8	1 3/16 -12	48.50
20 - 12 FLR	1 1/4 to 3/4	1 1/16 -12	38.80
20 - 16 FLR	1 1/4 to 1	1 5/16 -12	40.30
24 - 20 FLR	1 1/2 to 1 1/4	1 5/8 -12	42.90

IMPERIAL TO METRIC			
J. J. Part No.	Tube OD	B UN	L
	in		mm
06 FLR 06	3/8 to 06	7/16 -20	24.60
08 FLR 06	1/2 to 06	7/16 -20	25.40
08 FLR 10	1/2 to 10	9/16 -18	25.40
10 FLR 06	5/8 to 06	7/16 -20	26.20
10 FLR 10	5/8 to 10	9/16 -18	26.20
10 FLR 12	5/8 to 12	3/4 -16	36.50
12 FLR 06	3/4 to 06	7/16 -20	27.70
12 FLR 10	3/4 to 10	9/16 -18	27.70
12 FLR 12	3/4 to 12	3/4 -16	30.20
12 FLR 16	3/4 to 16	7/8 -14	42.10
14 FLR 10	7/8 to 10	9/16 -18	28.70
14 FLR 16	7/8 to 16	7/8 -14	33.70
14 FLR 18	7/8 to 18	1 1/16 -12	46.70
16 FLR 18	1 to 18	1 1/16 -12	37.30
16 FLR 20	1 to 20	1 3/16 -12	48.50
20 FLR 18	1 1/4 to 18	1 1/16 -12	38.80
20 FLR 25	1 1/4 to 25	1 5/16 -12	40.30
24 FLR 32	1 1/2 to 32	1 5/8 -12	42.90

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CLOSURE PLUG

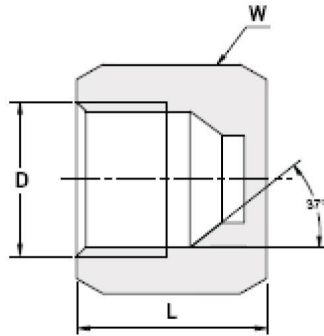


IMPERIAL					
J. J. Part No.	Tube OD	B UN	D	W	L
	in		mm	in	mm
02 FLPL	1/8	5/16 -24	1.60	7/16	17.80
03 FLPL	3/16	3/8 -24	3.20	7/16	18.50
04 FLPL	1/4	7/16 -20	4.40	1/2	20.30
05 FLPL	5/16	1/2 -20	6.00	9/16	20.30
06 FLPL	3/8	9/16 -18	7.50	5/8	21.30
08 FLPL	1/2	3/4 -16	9.90	13/16	23.90
10 FLPL	5/8	7/8 -14	12.30	15/16	27.90
12 FLPL	3/4	1 1/16 -12	15.50	1 1/8	32.50
14 FLPL	7/8	1 3/16 -12	18.30	1 1/4	33.30
16 FLPL	1	1 5/16 -12	21.50	1 3/8	33.80
20 FLPL	1 1/4	1 5/8 -12	27.50	1 11/16	36.80
24 FLPL	1 1/2	1 7/8 -12	33.00	2	41.90
32 FLPL	2	2 1/2 -12	45.00	2 5/8	52.10

METRIC					
J. J. Part No.	Tube OD	B UN	D	W	L
	mm		mm	in	mm
FLPL 06	6	7/16 -20	4.40	1/2	20.30
FLPL 08	8	1/2 -20	6.00	9/16	20.30
FLPL 10	10	9/16 -18	7.50	5/8	21.30
FLPL 12	12	3/4 -16	9.90	13/16	23.90
FLPL 16	16	7/8 -14	12.30	15/16	27.90
FLPL 18	18	1 1/16 -12	15.50	1 1/8	32.50
FLPL 20	20	1 3/16 -12	18.30	1 1/4	33.30
FLPL 25	25	1 5/16 -12	21.50	1 3/8	33.80
FLPL 32	32	1 5/8 -12	27.50	1 11/16	36.80
FLPL 38	38	1 7/8 -12	33.00	2	41.90

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CLOSURE CAP



J. J. Part No.	Tube OD	B UN	W	L
	in		in	mm
02 FLCP	1/8	5/16 -24	3/8	12.7
03 FLCP	3/16	3/8 -24	7/16	14.3
04 FLCP	1/4	7/16 -20	9/16	15.1
05 FLCP	5/16	1/2 -20	5/8	15.5
06 FLCP	3/8	9/16 -18	11/16	15.9
08 FLCP	1/2	3/4 -16	7/8	19
10 FLCP	5/8	7/8 -14	1	21.4
12 FLCP	3/4	1 1/16 -12	1 1/4	23
14 FLCP	7/8	1 3/16 -12	1 3/8	24.6
16 FLCP	1	1 5/16 -12	1 1/2	25.8
20 FLCP	1 1/4	1 5/8 -12	2	27
24 FLCP	1 1/2	1 7/8 -12	2 1/4	30.2
32 FLCP	2	1 1/2 -12	2 7/8	36.5

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OTHER PRODUCTS



**DIN 2353 FITTINGS /
ERMETO TYPE FITTINGS**



**TWIN FERRULE FITTINGS /
DOUBLE FERRULE FITTINGS**



PIPE FITTINGS



SOCKET WELD FITTINGS



FLANGES



VALVES

OTHER PRODUCTS



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HOSE END FITTINGS



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**Shop No. 5, Gokul Apartments, Kevni Pada, Off. S.V. Road,
Jogeshwari (West), Mumbai - 400102 INDIA**

PHONE : +91 (022) 26793194

EMAIL : sunil@pioneerfitting.com , sales@pioneerfitting.com

Fax : +91 (022) 26798824