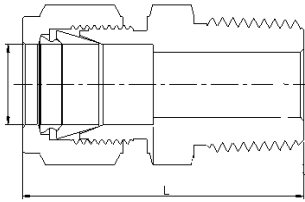


Tube Fittings

with double ferrules

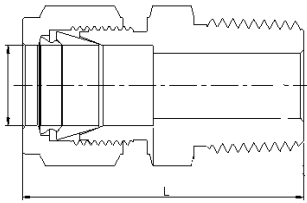
Male Connector

INCH Tube | NPT Thread



Tube O.D. ----IN	NPT Size	L	C	D	F	E	H
1/16	1/16	23.9	9.7	8.6	1.3	7.9	7.9
1/16	1/8	26.2	9.7	8.6	1.3	7.9	11.1
1/16	1/4	31.0	14.2	8.6	1.3	7.9	14.3
1/8	1/16	29.7	9.7	12.7	2.3	11.1	11.1
1/8	1/8	30.5	9.7	12.7	2.3	11.1	11.1
1/8	1/4	35.6	14.2	12.7	2.3	11.1	14.3
1/8	3/8	35.8	14.2	12.7	2.3	11.1	17.5
1/8	1/2	42.2	19.1	12.7	2.3	11.1	22.2
3/16	1/16	31.2	9.7	13.7	2.3	12.7	11.1
3/16	1/8	31.2	9.7	13.7	3.0	12.7	11.1
3/16	1/4	36.3	14.2	13.7	3.0	12.7	14.3
1/4	1/16	32.8	9.7	15.2	3.0	14.3	12.7
1/4	1/8	32.8	9.7	15.2	4.8	14.3	12.7
1/4	1/4	37.8	14.2	15.2	4.8	14.3	14.3
1/4	3/8	38.4	14.2	15.2	4.8	14.3	17.5
1/4	1/2	44.7	19.1	15.2	4.8	14.3	22.2
1/4	3/4	46.2	19.1	15.2	4.8	14.3	27.0
5/16	1/8	34.0	9.7	16.3	4.8	15.9	14.3
5/16	1/4	38.6	9.7	16.3	6.4	15.9	14.3
5/16	3/8	39.1	14.2	16.3	6.4	15.9	17.5
5/16	1/2	45.5	19.1	16.3	6.4	15.9	22.2
3/8	1/8	35.3	9.7	16.8	4.8	17.5	15.9
3/8	1/4	39.9	14.2	16.8	7.1	17.5	15.9
3/8	3/8	39.9	14.2	16.8	7.1	17.5	17.5
3/8	1/2	46.2	19.1	16.8	7.1	17.5	22.2
3/8	3/4	47.8	19.1	16.8	7.1	17.5	27.0
3/8	1	47.0	23.9	16.8	7.1	17.5	34.9
1/2	1/8	38.9	9.7	22.9	4.8	22.2	20.6
1/2	1/4	43.4	14.2	22.9	7.1	22.2	20.6
1/2	3/8	43.4	14.2	22.9	9.7	22.2	20.6
1/2	1/2	49.0	19.1	22.9	10.4	22.2	22.2
1/2	3/4	50.5	19.1	22.9	10.4	22.2	27.0
1/2	1	57.2	23.9	22.9	10.4	22.2	34.9
5/8	1/4	44.2	14.2	24.4	7.1	25.4	23.8
5/8	3/8	44.2	14.2	24.4	9.7	25.4	23.8
5/8	1/2	49.0	19.1	24.4	11.9	25.4	23.8
5/8	3/4	50.5	19.1	24.4	12.7	25.4	27.0
3/4	3/8	45.7	14.2	24.4	10.4	28.6	27.0
3/4	1/2	50.5	19.1	24.4	11.9	28.6	27.0
3/4	3/4	50.5	19.1	24.4	15.7	28.6	27.0
3/4	1	57.2	23.9	24.4	15.7	28.6	34.9
7/8	1/2	50.5	19.1	25.9	11.9	31.8	30.2
7/8	3/4	50.5	19.1	25.9	15.7	31.8	30.2
7/8	1	57.2	23.9	25.9	18.3	31.8	34.9
1	1/2	57.4	19.1	31.2	11.9	38.1	34.9
1	3/4	57.4	19.1	31.2	15.7	38.1	34.9
1	1	62.2	23.9	31.2	22.4	38.1	34.9

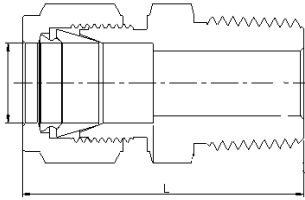
Male Connector



INCH Tube | BSPT Thread

Tube O.D. ----IN	BSPT Size	L	C	D	F	E	H
1/8	1/8	30.5	9.7	12.7	2.3	11.1	11.1
1/8	1/4	35.6	14.2	12.7	2.3	11.1	14.3
1/4	1/8	32.8	9.7	15.2	4.8	14.3	12.7
1/4	1/4	37.8	14.2	15.2	4.8	14.3	14.3
1/4	3/8	38.4	14.2	15.2	4.8	14.3	17.5
1/4	1/2	44.7	19.1	15.2	4.8	14.3	22.2
5/16	1/8	34.0	9.7	16.3	4.8	15.9	14.3
5/16	1/4	38.6	9.7	16.3	6.4	15.9	14.3
3/8	1/8	35.3	9.7	16.8	4.8	17.5	15.9
3/8	1/4	39.9	14.2	16.8	7.1	17.5	15.9
3/8	3/8	39.9	14.2	16.8	7.1	17.5	17.5
3/8	1/2	46.2	19.1	16.8	7.1	17.5	22.2
3/8	3/4	47.8	19.1	16.8	7.1	17.5	27.0
1/2	1/4	43.4	14.2	22.9	7.1	22.2	20.6
1/2	3/8	43.4	14.2	22.9	9.7	22.2	20.6
1/2	1/2	49.0	19.1	22.9	10.4	22.2	22.2
1/2	3/4	50.5	19.1	22.9	10.4	22.2	27.0
5/8	1/2	49.0	19.1	24.4	11.9	25.4	23.8
3/4	3/4	50.5	19.1	24.4	15.7	28.6	27.0
3/4	1	57.2	23.9	24.4	15.7	28.6	34.9
1	3/4	57.4	19.1	31.2	15.7	38.1	34.9
1	1	62.2	23.9	31.2	22.4	38.1	34.9

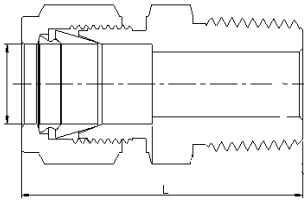
Male Connector



Metric Tube | NPT Thread

Tube O.D. ----MM	NPT Size	L	C	D	F	E	H
2	1/8	30.5	9.7	12.9	1.7	12	12
3	1/8	30.5	9.7	12.9	2.4	12	12
3	1/4	35.6	14.2	12.9	2.4	12	14
4	1/8	31.2	9.7	13.7	2.4	12	12
4	1/4	36.3	14.2	13.7	2.4	12	14
6	1/8	32.8	9.7	15.3	4.8	14	14
6	1/4	37.9	14.2	15.3	4.8	14	14
6	3/8	38.4	14.2	15.3	4.8	14	18
6	1/2	44.7	19.1	15.3	4.8	14	22
8	1/8	34.2	9.7	16.2	4.8	16	15
8	1/4	38.7	14.2	16.2	6.4	16	15
8	3/8	39.3	14.2	16.2	6.4	16	18
8	1/2	45.6	19.1	16.2	6.4	16	22
10	1/8	36.0	9.7	17.2	4.8	19	18
10	1/4	40.9	14.2	17.2	7.1	19	18
10	3/8	40.9	14.2	17.2	7.9	19	18
10	1/2	46.5	19.1	17.2	7.9	19	22
10	3/4	48.0	19.1	17.2	7.9	19	27
10	1	54.6	23.9	17.2	7.9	19	35
12	1/8	38.8	9.7	22.8	4.8	22	22
12	1/4	43.4	14.2	22.8	7.1	22	22
12	3/8	43.4	14.2	22.8	9.5	22	22
12	1/2	49.0	19.1	22.8	9.5	22	22
12	3/4	50.5	19.1	22.8	9.5	22	27
14	1/8	38.8	9.7	24.4	4.8	25	24
14	1/4	44.1	14.2	24.4	7.1	25	24
14	3/8	44.1	14.2	24.4	9.5	25	24
14	1/2	49.0	19.1	24.4	11.1	25	24
14	3/4	50.5	19.1	24.4	11.1	25	27
15	1/2	49.0	19.1	24.4	11.9	25	24
15	3/4	50.5	19.1	24.4	11.9	25	27
15	1	57.1	23.9	24.4	11.9	25	35
16	1/4	44.1	14.2	24.4	7.1	25	24
16	3/8	44.1	14.2	24.4	9.5	25	24
16	1/2	49.0	19.1	24.4	11.9	25	24
16	3/4	50.5	19.1	24.4	12.7	25	27
18	3/8	45.6	14.2	24.4	9.5	30	27
18	1/2	50.5	19.1	24.4	11.9	30	27
18	3/4	50.5	19.1	24.4	15.1	30	27
20	1/2	52.3	19.1	26.0	11.9	32	30
20	3/4	52.3	19.1	26.0	15.9	32	30
20	1	57.1	23.9	26.0	15.9	32	35

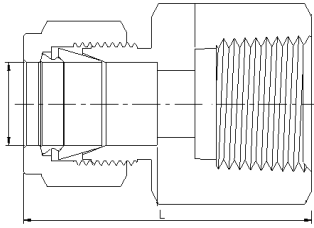
Male Connector



Metric Tube | BSPT Thread

Tube O.D. -----MM	BSPT Size	L	C	D	F	E	H
2	1/8	30.5	9.7	12.9	1.7	12	12
3	1/8	30.5	9.7	12.9	2.4	12	12
3	1/4	35.6	14.2	12.9	2.4	12	14
4	1/8	31.2	9.7	13.7	2.4	12	12
4	1/4	36.3	14.2	13.7	2.4	12	14
6	1/8	32.8	9.7	15.3	4.8	14	14
6	1/4	37.9	14.2	15.3	4.8	14	14
6	3/8	38.4	14.2	15.3	4.8	14	18
6	1/2	44.7	19.1	15.3	4.8	14	22
8	1/8	34.2	9.7	16.2	4.8	16	15
8	1/4	38.7	14.2	16.2	6.4	16	15
8	3/8	39.2	14.2	16.2	6.4	16	18
8	1/2	45.6	19.1	16.2	6.4	16	22
10	1/8	36.3	9.7	17.2	4.8	19	18
10	1/4	40.9	14.2	17.2	7.1	19	18
10	3/8	40.9	14.2	17.2	7.9	19	18
10	1/2	46.5	19.1	17.2	7.9	19	22
10	3/4	48.0	19.1	17.2	7.9	19	27
12	1/8	38.3	9.7	22.8	4.8	22	22
12	1/4	43.4	14.2	22.8	7.1	22	22
12	3/8	43.4	14.2	22.8	9.5	22	22
12	1/2	48.2	19.1	22.8	9.5	22	22
12	3/4	49.0	19.1	22.8	9.5	22	27
14	1/8	38.8	9.7	24.4	4.8	25	24
14	1/4	44.1	14.2	24.4	7.1	25	24
14	3/8	44.1	14.2	24.4	7.9	25	24
14	1/2	49.0	19.1	24.4	11.1	25	27
14	3/4	50.5	19.1	24.4	11.1	25	24
15	1/2	49.0	19.1	24.4	11.9	25	24
16	1/4	44.1	14.2	24.4	7.1	25	24
16	3/8	44.1	14.2	24.4	9.5	25	24
16	1/2	49.0	19.1	24.4	11.9	25	24
16	3/4	50.5	19.1	24.4	12.7	25	27
18	1/2	50.5	19.1	24.4	11.9	30	27
18	3/4	50.5	19.1	24.4	15.1	30	27
20	1/2	52.3	19.1	26.0	11.9	32	30
20	3/4	52.3	19.1	26.0	15.9	32	30
22	3/4	52.3	19.1	26.0	15.9	32	30
22	1	57.1	23.9	26.0	18.3	32	35

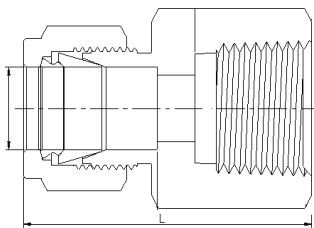
Female Connector



INCH Tube | NPT Thread

Tube O.D. ----IN	NPT Size	L	C	D	F	E	H
1/16	1/16	23.6	9.9	8.6	1.3	7.9	11.1
1/16	1/8	24.4	10.4	8.6	1.3	7.9	14.3
1/8	1/8	28.7	10.4	12.7	2.3	11.1	14.3
1/8	1/4	33.5	15.0	12.7	2.3	11.1	19.1
3/16	1/8	29.7	10.4	13.7	3.0	12.7	14.3
1/4	1/8	31.2	10.4	15.2	4.8	14.3	14.3
1/4	1/4	35.8	15.0	15.2	4.8	14.3	19.1
1/4	3/8	37.6	15.0	15.2	4.8	14.3	22.2
1/4	1/2	42.4	19.8	15.2	4.8	14.3	27.0
5/16	1/8	32.0	10.4	16.3	6.4	15.9	14.3
5/16	1/4	36.8	15.0	16.3	6.4	15.9	19.1
3/8	1/8	32.8	10.4	16.8	7.1	17.5	15.9
3/8	1/4	37.6	15.0	16.8	7.1	17.5	19.1
3/8	3/8	39.1	15.0	16.8	7.1	17.5	22.2
3/8	1/2	43.9	19.8	16.8	7.1	17.5	27.0
3/8	3/4	47.8	20.6	16.8	7.1	17.5	33.3
1/2	1/4	40.4	15.0	22.9	10.4	22.2	20.6
1/2	3/8	41.9	15.0	22.9	10.4	22.2	22.2
1/2	1/2	46.7	19.8	22.9	10.4	22.2	27.0
1/2	3/4	48.3	20.6	22.9	10.4	22.2	33.3
5/8	3/8	41.9	15.0	24.4	12.7	25.4	23.8
5/8	1/2	46.7	19.8	24.4	12.7	25.4	27.0
3/4	1/2	46.7	19.8	24.4	15.7	28.6	27.0
3/4	3/4	48.3	20.6	24.4	15.7	28.6	33.3
7/8	3/4	49.8	20.6	25.9	18.3	31.8	33.3
1	3/4	53.3	20.6	31.2	22.4	38.1	34.9
1	1	62.2	25.4	31.2	22.4	38.1	41.3
1 1/4	1 1/4	74.7	25.4	41.1	27.7	47.6	54.0
1 1/2	1 1/2	83.3	27.7	50.0	36.3	57.2	60.3

Female Connector

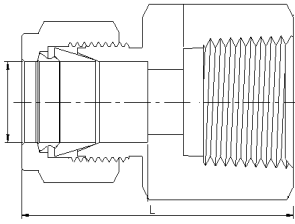


INCH Tube | BSPT Thread

Tube O.D. ----IN	BSPT Size	L	C	D	F	E	H
1/4	1/8	31.2	10.4	15.2	4.8	14.3	14.3
1/4	1/4	35.8	15.0	15.2	4.8	14.3	19.1
1/4	3/8	37.6	15.0	15.2	4.8	14.3	22.2
1/4	1/2	42.4	19.8	15.2	4.8	14.3	27.0
3/8	1/4	37.6	15.0	16.8	7.1	17.5	19.1
3/8	3/8	39.1	15.0	16.8	7.1	17.5	22.2
3/8	1/2	43.9	19.8	16.8	7.1	17.5	27.0
1/2	1/4	40.4	15.0	22.9	10.4	22.2	20.6
1/2	3/8	41.9	15.0	22.9	10.4	22.2	22.2
1/2	1/2	46.7	19.8	22.9	10.4	22.2	27.0

Female Connector

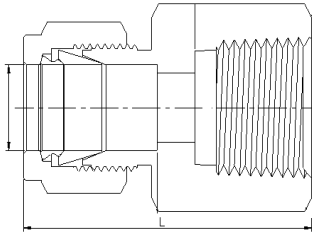
Metric Tube | NPT Thread



Tube O.D. ---- N	NPT Size	L	C	D	F	E	H
3	1/8	28.7	10.4	12.9	2.4	12	14
3	1/4	33.5	15.0	12.9	2.4	12	19
4	1/8	29.7	10.4	13.7	2.4	12	14
6	1/8	31.3	10.4	15.3	4.8	14	14
6	1/4	35.8	15.0	15.3	4.8	14	19
6	3/8	37.7	15.0	15.3	4.8	14	22
6	1/2	42.5	19.8	15.3	4.8	14	27
8	1/8	32.1	10.4	16.2	4.8	16	15
8	1/4	38.5	15.0	16.2	6.4	16	19
8	3/8	36.2	15.0	16.2	6.4	16	22
8	1/2	41.0	19.8	16.2	6.4	16	27
10	1/8	33.0	10.4	17.2	4.8	19	15
10	1/4	37.8	15.0	17.2	7.9	19	19
10	3/8	39.4	15.0	17.2	7.9	19	22
10	1/2	44.2	19.8	17.2	7.9	19	27
12	1/4	41.9	15.0	22.8	7.9	22	22
12	3/8	41.9	15.0	22.8	9.5	22	22
12	1/2	48.2	19.8	22.8	9.5	22	27
12	3/4	49.7	20.6	22.8	9.5	22	35
14	3/4	49.7	20.6	24.4	11.1	25	35
15	1/2	46.7	19.8	24.4	11.9	25	27
16	3/8	41.9	15.0	24.4	9.5	25	27
16	1/2	46.9	19.8	24.4	11.9	25	27
20	1/2	47.9	19.8	26.0	11.9	32	30
20	3/4	49.7	20.6	26.0	15.9	32	35
22	3/4	49.7	20.6	26.0	15.9	32	35
22	1	57.9	25.4	26.0	18.3	32	40
25	3/4	53.4	20.6	31.3	15.9	40	35
25	1	62.3	25.4	31.3	21.8	40	40

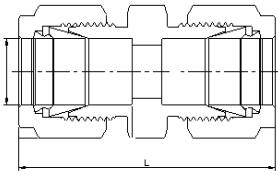
Female Connector

Metric Tube | BSPT Thread



Tube O.D. ----IN	BSPT Size	L	C	D	F	E	H
3	1/8	28.7	10.4	12.9	2.4	12	14
6	1/8	31.3	10.4	15.3	4.8	14	14
6	1/4	35.8	15.0	15.3	4.8	14	19
6	3/8	36.9	15.0	15.3	4.8	14	22
6	1/2	42.5	19.8	15.3	4.8	14	27
8	1/8	32.8	10.4	16.2	4.8	16	15
8	1/4	37.0	15.0	16.2	6.4	16	19
8	3/8	37.7	15.0	16.2	6.4	16	22
8	1/2	43.3	19.8	16.2	6.4	16	27
10	1/8	33.0	10.4	17.2	4.8	19	15
10	1/4	37.8	15.0	17.2	7.9	19	19
10	3/8	38.6	15.0	17.2	7.9	19	22
10	1/2	44.2	19.8	17.2	7.9	19	27
12	1/8	38.5	10.4	22.8	4.8	22	22
12	1/4	41.3	15.0	22.8	7.9	22	22
12	3/8	41.9	15.0	22.8	9.5	22	22
12	1/2	46.7	19.8	22.8	9.5	22	27
12	3/4	49.0	20.6	22.8	9.5	22	35
15	1/2	46.7	19.8	24.4	11.9	25	27
16	1/2	48.4	19.8	24.4	11.9	25	27
16	3/4	49.7	20.6	24.4	12.7	25	35
20	1/2	47.9	19.8	26.0	11.9	32	30
20	3/4	49.7	20.6	26.0	15.9	32	35
22	3/4	49.7	20.6	26.0	15.9	32	35
22	1	57.9	25.4	26.0	18.3	32	40
25	3/4	53.4	20.6	31.3	15.9	40	35
25	1	62.3	25.4	31.3	21.8	40	40

Union



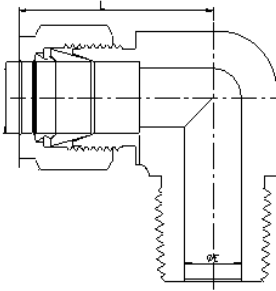
INCH Tube

Tube O.D. ----IN	L	D	H	E	F
1/16	25.1	8.6	7.9	11.1	1.3
1/8	35.6	12.7	11.1	11.1	2.3
3/16	37.3	13.7	12.7	12.7	3.0
1/4	40.9	15.2	14.3	12.7	4.8
5/16	42.9	16.2	15.9	14.3	6.4
3/8	45.0	16.8	17.5	15.9	7.1
1/2	51.3	22.9	22.2	20.6	10.4
5/8	52.1	24.4	25.4	23.9	12.7
3/4	53.6	24.4	28.6	27.0	15.7
7/8	55.4	25.9	31.8	34.9	18.3

METRIC Tube

Tube O.D. ----IN	L	D	H	E	F
2	35.3	12.9	12	12	1.7
3	35.6	12.9	12	12	2.4
4	37.3	13.7	12	12	2.4
6	41.0	15.3	14	14	4.8
8	43.2	16.2	16	15	6.4
10	46.2	17.2	19	18	7.9
12	51.2	22.8	22	22	9.5
14	52.0	24.4	25	24	11.1
15	52.0	24.4	25	24	11.9
16	52.0	24.4	25	24	12.7
18	53.5	24.4	30	27	15.1
20	55.0	26.0	32	30	15.9
22	55.0	26.0	32	30	18.3

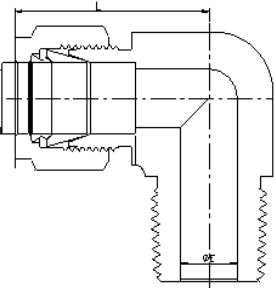
Male Elbow



INCH Tube | NPT Thread

Tube		L	D	E	H	F	C	L1
O.D. -----	NPT Size							
IN								
1/16	1/16	17.8	8.6	7.9	11.1	1.3	9.7	16.5
1/16	1/8	19.1	8.6	7.9	11.1	1.3	9.7	17.8
1/8	1/16	23.6	12.7	11.1	11.1	2.4	9.7	17.8
1/8	1/8	23.6	12.7	11.1	11.1	2.4	9.7	17.8
1/8	1/4	24.6	12.7	11.1	14.3	2.4	14.2	23.4
3/16	1/8	25.4	13.7	12.7	12.7	3.0	9.7	18.8
3/16	1/4	25.4	13.7	12.7	14.3	3.0	14.2	23.4
1/4	1/16	26.9	15.2	14.3	12.7	2.4	9.7	18.8
1/4	1/8	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	26.9	15.2	14.3	14.3	4.8	14.2	23.4
1/4	3/8	29.7	15.2	14.3	19.1	4.8	14.2	26.2
1/4	1/2	31.8	15.2	14.3	22.2	4.8	19.1	33.0
5/16	1/8	28.7	16.3	15.9	15.9	4.8	9.7	19.8
5/16	1/4	28.7	16.3	15.9	15.9	6.4	14.2	24.4
5/16	3/8	30.5	16.3	15.9	19.1	6.4	14.2	26.2
3/8	1/8	30.5	16.8	17.5	15.9	4.8	9.7	20.8
3/8	1/4	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	31.2	16.8	17.5	19.1	7.1	14.2	26.2
3/8	1/2	33.3	16.8	17.5	22.2	7.1	19.1	33.0
3/8	3/4	37.1	16.8	17.5	27.0	7.1	19.1	36.8
1/2	1/4	36.1	22.9	22.2	20.6	7.1	14.2	27.9
1/2	3/8	36.1	22.9	22.2	20.6	9.7	14.2	27.9
1/2	1/2	36.1	22.9	22.2	22.2	10.4	19.1	33.0
1/2	3/4	39.9	22.9	22.2	27.0	10.4	19.1	36.8
5/8	3/8	38.1	24.4	25.4	22.2	9.7	14.2	30.2
5/8	1/2	38.1	24.4	25.4	22.2	11.9	19.1	35.1
5/8	3/4	39.9	24.4	25.4	27.0	12.7	19.1	36.8
3/4	1/2	39.9	24.4	28.6	27.0	11.9	19.1	36.8
3/4	3/4	39.9	24.4	28.6	27.0	15.7	19.1	36.8
7/8	3/4	44.7	25.9	31.8	34.9	15.7	19.1	41.7
1	3/4	49.0	31.2	38.1	34.9	15.7	19.1	41.7
1	1	49.0	31.2	38.1	34.9	22.4	23.9	46.5
1 1/4	1 1/4	66.5	41.1	47.6	41.3	27.7	23.9	47.8
1 1/2	1 1/2	78.0	50.0	57.2	47.6	34.0	26.2	60.5

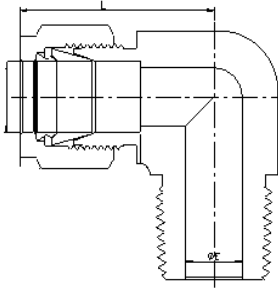
Male Elbow



INCH Tube | BSPT Thread

Tube		L	D	E	H	F	C	L1
O.D. -----	BSPT Size							
IN								
1/8	1/8	23.6	12.7	11.1	11.1	2.4	9.7	17.8
1/8	1/4	24.6	12.7	11.1	14.3	2.4	14.2	23.4
1/4	1/8	26.9	15.2	14.3	11.1	4.8	9.7	18.8
1/4	1/4	26.9	15.2	14.3	14.3	4.8	14.2	23.4
1/4	3/8	29.7	15.2	14.3	19.1	4.8	14.2	26.2
1/4	1/2	31.8	15.2	14.3	22.2	4.8	19.1	33.0
5/16	1/4	28.7	16.3	15.9	15.9	6.4	14.2	25.4
3/8	1/8	30.5	16.8	17.5	14.3	4.8	9.7	20.8
3/8	1/4	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	31.2	16.8	17.5	19.1	7.1	14.2	26.2
1/2	3/8	36.1	22.9	22.2	19.1	9.7	14.2	27.9
1/2	1/2	36.1	22.9	22.2	22.2	10.4	19.1	33.0
3/4	1/2	39.9	24.4	28.6	27.0	11.9	19.1	36.8
1	1	49.0	31.2	38.1	34.9	22.4	23.9	46.5

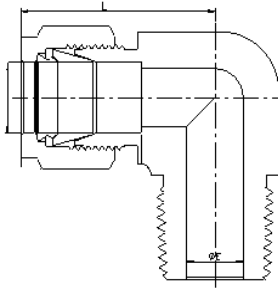
Male Elbow



Metric Tube | NPT Thread

Tube		L	D	E	H	F	C	L1
O.D. MM	NPT Size							
3	1/8	23.6	12.9	12	11.1	2.4	9.7	17.8
3	1/4	24.6	12.9	12	12.7	2.4	14.2	23.4
4	1/8	25.4	13.7	12	12.7	2.4	9.7	18.8
4	1/4	25.4	13.7	12	12.7	2.4	14.2	23.4
6	1/8	27.0	15.3	14	12.7	4.8	9.7	18.8
6	1/4	27.0	15.3	14	12.7	4.8	14.2	23.4
6	3/8	29.8	15.3	14	17.5	4.8	14.2	26.2
6	1/2	31.8	15.3	14	20.6	4.8	19.0	33.0
8	1/8	28.8	16.2	16	14.3	4.8	9.7	19.8
8	1/4	28.8	16.2	16	14.3	6.4	14.2	24.4
8	3/8	30.6	16.2	16	17.5	6.4	14.2	26.2
8	1/2	32.7	16.2	16	20.6	6.4	19.1	33.0
10	1/8	31.5	17.2	19	17.5	4.8	9.7	23.6
10	1/4	31.5	17.2	19	17.5	7.1	14.2	28.2
10	3/8	31.5	17.2	19	17.5	7.9	14.2	28.2
10	1/2	33.5	17.2	19	20.6	7.9	19.1	33.0
12	1/8	36.0	22.8	22	20.6	4.8	9.7	23.6
12	1/4	36.0	22.8	22	20.6	7.1	14.2	28.2
12	3/8	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	36.0	22.8	22	20.6	9.5	19.1	33.0
12	3/4	39.8	22.8	22	27.0	9.5	19.1	36.8
15	1/2	38.0	24.4	25	23.8	10.4	19.1	35.1
16	1/4	38.0	24.4	25	23.8	7.1	14.2	30.2
16	3/8	38.0	24.4	25	23.8	9.5	14.2	30.2
16	1/2	38.0	24.4	25	23.8	11.9	19.1	35.1
16	3/4	39.8	24.4	25	27.0	12.7	19.1	36.8
18	1/2	39.8	24.4	30	27.0	11.9	19.1	36.8
18	3/4	39.8	24.4	30	27.0	15.1	19.1	36.8
20	1/2	44.6	26.0	32	34.9	11.9	19.1	41.7
20	3/4	44.6	26.0	32	34.9	15.9	19.1	41.7
22	3/4	44.6	26.0	32	34.9	15.9	19.1	41.7
22	1	44.6	26.0	32	34.9	18.3	23.9	46.5
25	3/4	49.1	31.3	40	34.9	15.9	19.0	41.7
25	1	49.1	31.3	40	34.9	21.8	23.9	46.5
30	1 1/4	69.9	39.6	50	42.9	26.2	23.9	53.1
32	1 1/4	72.3	42.0	50	42.9	27.8	23.9	53.1
38	1 1/2	84.0	49.4	60	50.8	33.7	26.2	60.4

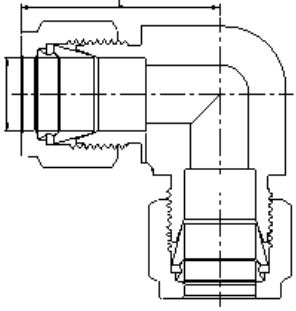
Male Elbow



Metric Tube | BSPT Thread

Tube		L	D	E	H	F	C	L1
O.D. IN	BSPT Size							
3	1/8	23.6	12.9	12	11.1	2.4	9.7	17.8
3	1/4	24.6	12.9	12	12.7	2.4	14.2	23.4
4	1/8	25.4	13.7	12	12.7	2.4	9.7	18.8
4	1/4	25.4	13.7	12	12.7	2.4	14.2	23.4
6	1/8	27.0	15.3	14	12.7	4.8	9.7	18.8
6	1/4	27.0	15.3	14	12.7	4.8	14.2	23.4
6	3/8	29.8	15.3	14	17.5	4.8	14.2	26.2
6	1/2	31.8	15.3	14	20.6	4.8	19.0	33.0
8	1/8	28.8	16.2	16	14.3	4.8	9.7	19.8
8	1/4	28.8	16.2	16	14.3	6.4	14.2	24.4
8	3/8	30.6	16.2	16	17.5	6.4	14.2	26.2
8	1/2	32.7	16.2	16	20.6	6.4	19.1	33.0
10	1/8	33.5	17.2	19	17.5	4.8	9.7	21.6
10	1/4	33.5	17.2	19	17.5	7.1	14.2	26.2
10	3/8	33.5	17.2	19	17.5	7.9	14.2	26.2
10	1/2	33.5	17.2	19	20.6	7.9	19.1	33.0
12	1/8	36.0	22.8	22	20.6	4.8	9.7	23.6
12	1/4	36.0	22.8	22	20.6	7.1	14.2	28.2
12	3/8	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	36.0	22.8	22	20.6	9.5	19.1	33.0
12	3/4	39.8	22.8	22	27.0	9.5	19.1	36.8
14	1/2	38.1	24.4	25	23.8	11.1	19.1	35.1
15	1/2	38.1	24.4	25	23.8	11.9	19.1	35.1
16	1/4	38.0	24.4	25	23.8	7.1	14.2	30.2
16	3/8	38.0	24.4	25	23.8	9.5	14.2	30.2
16	1/2	38.0	24.4	25	23.8	11.9	19.1	35.1
16	3/4	39.8	24.4	25	27.0	12.7	19.1	36.8
18	1/2	39.8	24.4	30	27.0	11.9	19.1	36.8
18	3/4	39.8	24.4	30	27.0	15.1	19.1	36.8
20	1/2	44.6	26.0	32	34.9	11.9	19.1	41.7
20	3/4	44.6	26.0	32	34.9	15.9	19.1	41.7
22	3/4	44.6	26.0	32	34.9	15.9	19.1	41.7
22	1	44.6	26.0	32	34.9	18.3	23.9	46.5
25	3/4	49.1	31.3	40	34.9	15.9	19.1	41.7
25	1	49.1	31.3	40	34.9	21.8	23.9	46.5
28	1	64.0	36.6	46	42.9	21.8	23.9	53.1

Union Elbow

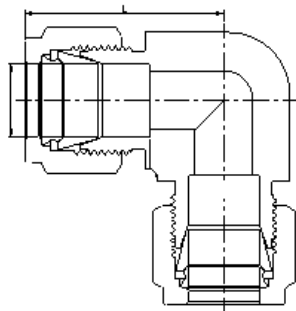


INCH Tube

Tube O.D. ---
--IN

	L	D	E	H	F
1/16	19.1	8.6	7.9	9.5	1.3
1/8	22.4	12.7	11.1	9.5	2.3
3/16	25.4	13.7	12.7	12.7	3.0
1/4	26.9	15.2	14.3	12.7	4.8
5/16	28.7	16.3	15.9	15.9	6.4
3/8	30.5	16.8	17.5	15.9	7.1
1/2	36.1	22.9	22.2	20.6	10.4
5/8	38.1	24.4	25.4	22.2	12.7
3/4	39.9	24.4	28.6	27.0	15.7
7/8	44.7	25.9	31.8	34.9	18.3
1	49.0	31.2	38.1	34.9	22.4
1 1/8	55.1	31.2	41.3	42.9	24.6
1 1/4	66.5	41.1	47.6	42.9	27.7
1 1/2	78.0	50.0	57.2	50.8	34.0

Union Elbow

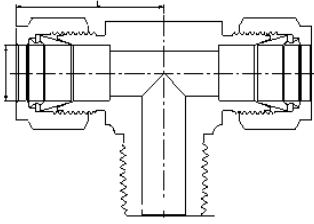


Metric Tube

Tube O.D. ---
--MM

	L	D	E	H	F
3	23.6	12.9	12	9.5	2.4
4	25.4	13.7	12	12.7	2.4
6	27.0	15.3	14	12.7	4.8
8	28.8	16.2	16	14.3	6.4
10	33.5	17.2	19	17.5	7.9
12	36.0	22.8	22	20.6	9.5
14	38.8	24.4	25	23.9	11.9
15	38.8	24.4	25	23.9	12.7
16	38.8	24.4	25	23.9	12.7
18	39.8	24.4	30	27.0	15.1
20	44.6	26.0	32	34.9	15.9
22	44.6	26.0	32	34.9	18.3
25	49.1	31.3	38	34.9	21.8
28	64.0	36.6	46	42.9	21.8
30	69.9	39.6	50	42.9	26.2
32	72.3	42.0	50	42.9	28.6
38	84.0	49.4	60	50.8	33.7

Male Branch Tee



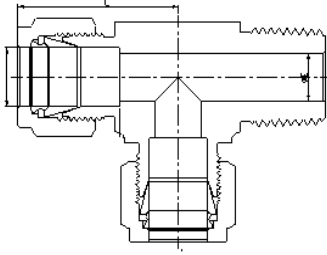
INCH Tube | NPT Thread

Tube O.D. ----IN	NPT Size	L	D	E	H	F	C	L1
1/8	1/8	23.6	12.7	11.1	11.1	2.3	9.7	17.8
1/8	1/4	24.6	12.7	11.1	14.3	2.3	14.2	23.4
3/16	1/8	24.4	13.7	12.7	12.7	3.0	9.7	17.8
1/4	1/8	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	26.9	15.2	14.3	14.3	4.8	14.2	23.4
5/16	1/8	29.7	16.3	15.9	15.9	4.8	9.7	20.8
5/16	1/4	29.7	16.3	15.9	15.9	6.4	14.2	25.7
3/8	1/4	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	33.3	16.8	17.5	20.6	7.1	14.2	28.2
1/2	3/8	36.1	22.9	22.2	20.6	9.7	14.2	28.2
1/2	1/2	36.1	22.9	22.2	22.2	10.4	19.1	33.0
5/8	1/2	38.9	24.4	25.4	25.4	11.9	19.1	35.8
3/4	3/4	39.9	24.4	28.6	27.0	15.7	19.1	36.8
7/8	3/4	44.7	25.9	31.8	33.3	15.7	19.1	38.1
1	3/4	49.3	31.2	38.1	33.3	15.7	19.1	42.2
1	1	49.3	31.2	38.1	34.9	22.4	23.9	46.7

Metric Tube | NPT Thread

Tube O.D. ----MM	NPT Size	L	D	E	H	F	C	L1
6	1/8	27.0	15.3	14	12.7	4.8	9.7	18.8
6	1/4	27.0	15.3	14	12.7	4.8	14.2	23.4
8	1/8	29.9	16.2	16	15.9	4.8	9.7	20.8
8	1/4	29.9	16.2	16	15.9	6.4	14.2	25.4
10	1/4	33.5	17.2	19	20.6	7.9	14.2	28.2
10	3/8	33.5	17.2	19	20.6	7.9	14.2	28.2
12	1/4	36.0	22.8	22	20.6	7.9	14.2	28.2
12	3/8	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	36.0	22.8	22	20.6	9.5	19.1	33.0
16	1/2	38.8	24.4	25	25.4	11.9	19.1	35.8

Male Run Tee



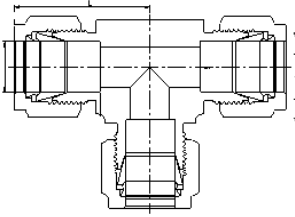
INCH Tube | NPT Thread

Tube O.D. ----IN	NPT Size	L	D	E	H	F	C	L1
1/8	1/8	23.6	12.7	11.1	11.1	2.3	9.7	17.8
1/8	1/4	24.6	12.7	11.1	14.3	2.3	14.2	23.4
3/16	1/8	24.4	13.7	12.7	12.7	3.0	9.7	17.8
1/4	1/8	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	26.9	15.2	14.3	14.3	4.8	14.2	23.4
5/16	1/8	29.7	16.3	15.9	15.9	4.8	9.7	20.8
5/16	1/4	29.7	16.3	15.9	15.9	6.4	14.2	25.7
3/8	1/4	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	33.3	16.8	17.5	20.6	7.1	14.2	28.2
1/2	3/8	36.1	22.9	22.2	20.6	9.7	14.2	28.2
1/2	1/2	36.1	22.9	22.2	22.2	10.4	19.1	33.0
5/8	1/2	38.9	24.4	25.4	25.4	11.9	19.1	35.8
3/4	3/4	39.9	24.4	28.6	27.0	15.7	19.1	36.8
7/8	3/4	44.7	25.9	31.8	33.3	15.7	19.1	38.1
1	3/4	49.3	31.2	38.1	33.3	15.7	19.1	42.2
1	1	49.3	31.2	38.1	34.9	22.4	23.9	46.7

Metric Tube | NPT Thread

Tube O.D. ----MM	NPT Size	L	D	E	H	F	C	L1
6	1/8	27.0	15.3	14	12.7	4.8	9.7	18.8
6	1/4	27.0	15.3	14	12.7	4.8	14.2	23.4
8	1/8	29.9	16.2	16	15.9	4.8	9.7	20.8
8	1/4	29.9	16.2	16	15.9	6.4	14.2	25.4
10	1/4	33.5	17.2	19	20.6	7.9	14.2	28.2
10	1/2	33.5	17.2	19	20.6	7.9	14.2	28.2
12	1/4	36.0	22.8	22	20.6	7.9	14.2	28.2
12	3/8	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	36.0	22.8	22	20.6	9.5	19.1	33.0
16	1/2	38.8	24.4	25	25.4	11.9	19.1	35.8

Union Tee



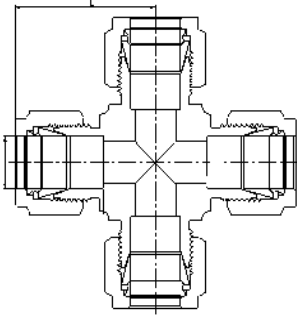
INCH Tube

Tube O.D. ----IN	L	D	E	H	F
1/16	17.8	8.6	7.9	9.5	1.3
1/8	22.4	12.7	11.1	9.5	2.3
3/16	24.4	13.7	12.7	11.1	3.0
1/4	26.9	15.2	14.3	12.7	4.8
5/16	29.7	16.2	15.9	15.9	6.4
3/8	30.5	16.8	17.5	15.9	7.1
1/2	36.1	22.9	22.2	20.6	10.4
5/8	36.3	24.4	25.4	25.4	12.7
3/4	38.4	24.4	28.6	27.0	15.7
7/8	44.7	25.9	31.8	34.9	18.3
1	49.0	31.2	38.1	34.9	22.4
1 1/8	55.1	31.2	46.0	42.9	24.6
1 1/4	66.5	41.1	47.6	41.3	27.7
1 1/2	78.0	50.0	57.2	47.6	34.0

Metric Tube

Tube O.D. ----MM	L	D	E	H	F
2	22.3	12.9	12	9.5	1.7
3	22.3	12.9	12	9.5	2.4
4	25.4	13.7	12	12.7	2.4
6	27.0	15.3	14	12.7	4.8
8	29.9	16.2	16	15.9	6.4
10	33.5	17.2	19	17.5	7.9
12	36.0	22.8	22	20.6	9.5
14	38.8	24.4	25	25.4	11.1
15	38.8	24.4	25	25.4	11.9
16	38.8	24.4	25	25.4	12.7
18	39.8	24.4	30	27.0	15.1
20	44.6	26.0	32	34.9	15.9
22	44.6	26.0	32	34.9	18.3
25	49.1	31.3	40	34.9	21.8
28	64.0	36.6	46	42.9	21.8
30	69.9	39.6	50	42.9	26.2
32	72.3	42.0	50	42.9	28.6
38	84.0	49.4	60	50.8	33.7

Union Cross



INCH Tube

Tube O.D. ----IN	L	D	E	H	F
1/8	22.4	12.7	11.1	11.1	2.3
3/16	24.4	13.7	12.7	11.1	3.0
1/4	26.9	15.2	14.3	12.7	4.8
5/16	29.7	16.2	15.9	14.3	6.4
3/8	30.5	16.8	17.5	15.9	7.1
1/2	36.1	22.9	22.2	19.1	10.4
5/8	36.3	24.4	25.4	27.0	12.7
3/4	38.4	24.4	28.6	27.0	15.7
7/8	44.7	25.9	31.8	34.9	18.3
1	49.0	31.2	38.1	34.9	22.4

Metric Tube

Tube O.D. ----MM	L	D	E	H	F
3	22.3	12.9	12	11.1	2.4
4	25.4	13.7	12	12.7	2.4
6	27.0	15.3	14	12.7	4.8
8	29.9	16.2	16	15.9	6.4
10	33.5	17.2	19	20.6	7.9
12	36.0	22.8	22	20.6	9.5
16	37.0	24.4	25	23.9	12.7
18	38.3	24.4	30	27.0	15.1
20	44.6	26.0	32	34.9	15.9
22	44.7	26.0	32	34.9	18.3
25	49.2	31.3	38	41.3	21.8