

Union



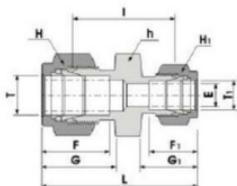
UNIT : mm

TubeO.D T(inch)	E Min.	h	H	F	G	I	L
1/8	2.5	12.0	12.0	12.7	15.2	22.4	35.6
1/4	5.0	12.0	14.0	15.2	17.8	26.2	40.9
3/8	8.0	16.0	17.0	16.8	19.3	30.2	45.0
1/2	10.0	20.0	22.0	22.9	21.8	31.0	51.3
3/4	16.0	27.0	30.0	24.4	21.8	35.0	53.6
1	22.0	35.0	38.0	31.2	26.4	40.4	64.8

UNIT : mm

TubeO.D T(mm)	E Min.	h	H	F	G	I	L
4	2.5	12.0	12.0	13.7	16.1	24.1	37.3
6	5.0	12.0	14.0	15.3	17.7	26.2	41.0
8	6.0	14.0	16.0	16.2	18.6	28.2	43.2
10	8.0	17.0	19.0	15.3	19.5	31.0	46.2
12	10.0	20.0	22.0	22.8	22.0	31.0	51.2
15	12.0	24.0	27.0	24.4	22.0	31.8	52.0
16	12.0	24.0	27.0	24.4	22.0	31.8	52.0

Reducing Union



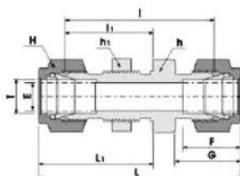
UNIT : mm

TubeO.D		E Min.	h	H	H1	F	F1	G	G1	I	L
T(inch)	T(inch)										
1/4	1/8	2.5	12.0	14.0	12.0	15.2	12.7	17.8	15.2	24.6	38.6
3/8	1/8	2.5	16.0	17.0	12.0	16.8	12.7	19.3	15.2	26.9	40.9
3/8	1/4	5.0	16.0	17.0	14.0	16.8	15.2	19.3	17.8	28.4	43.2
1/2	1/8	2.5	20.0	22.0	12.0	22.9	12.7	21.8	15.2	28.4	45.2
1/2	1/4	5.0	20.0	22.0	14.0	22.9	15.2	21.8	17.8	29.5	47.0
1/2	3/8	8.0	20.0	22.0	17.0	22.9	16.8	21.8	19.3	31.0	48.5
5/8	3/8	8.0	24.0	27.0	17.0	24.4	16.8	21.8	19.3	31.8	49.3
5/8	1/2	10.0	24.0	27.0	22.0	24.4	22.9	21.8	21.8	31.8	52.1
3/4	1/4	5.0	27.0	30.0	14.0	24.4	15.2	21.8	17.8	31.8	49.3
3/4	3/8	8.0	27.0	30.0	17.0	24.4	16.8	21.8	19.3	33.3	50.8
3/4	1/2	10.0	27.0	30.0	22.0	24.4	22.9	21.8	21.8	33.3	53.6
3/4	5/8	12.0	27.0	30.0	27.0	24.4	24.4	21.8	21.8	33.3	53.6
1	1/2	10.0	35.0	38.0	22.0	31.2	22.9	26.4	21.8	40.9	62.7
1	3/4	16.0	35.0	38.0	30.0	31.2	24.4	26.4	21.8	40.9	63.2

UNIT : mm

TubeO.D		E Min.	h	H	H1	F	F1	G	G1	I	L
T(mm)	T(mm)										
6	4	2.5	12.0	14.0	12.0	15.3	13.7	17.7	16.1	25.4	39.4
8	6	5.0	14.0	16.0	14.0	16.2	15.3	18.6	17.7	27.4	42.3
10	6	5.0	17.0	19.0	14.0	17.2	15.3	19.5	17.7	29.5	44.5
10	8	6.0	17.0	19.0	16.0	17.2	16.2	19.5	18.3	30.0	45.1
12	6	5.0	20.0	22.0	14.0	22.8	15.3	22.0	17.7	29.5	17.0
12	8	6.0	20.0	22.0	16.0	22.8	16.2	22.0	18.6	30.2	17.8
12	10	8.0	20.0	22.0	19.0	22.8	17.2	22.0	19.5	31.0	48.7
16	12	10.0	24.0	27.0	22.0	24.4	22.8	22.0	22.0	31.8	52.0

Bulkhead Union



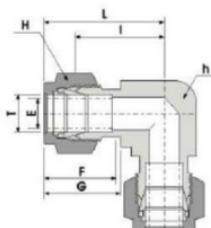
UNIT : mm

TubeOD T(inch)	E Min.	h	h1	H	F	G	I1	I	L1	L	Panel hole Deill Size	Max Panel
1/8	2.5	12.0	12.0	11.0	12.7	15.2	24.6	38.1	31.2	51.3	8.3	112.7
1/4	5.0	16.0	16.0	14.0	15.2	17.8	26.2	42.9	33.5	57.7	11.5	10.2
3/8	8.0	19.0	19.0	17.0	16.8	19.3	28.0	47.5	36.8	62.2	14.7	11.2
1/2	10.0	24.0	24.0	22.0	22.9	21.8	31.8	50.8	41.9	71.1	19.4	12.7
5/8	12.0	27.0	27.0	27.0	24.4	21.8	32.5	52.3	42.7	72.6	22.6	12.7
3/4	16.0	30.0	30.0	30.0	24.4	21.8	37.3	59.7	47.5	79.0	25.8	16.8
1	22.0	38.0	38.0	38.0	31.2	26.4	45.2	71.4	57.4	95.8	33.7	19.1

UNIT : mm

TubeOD T(mm)	E Min.	h	h1	H	F	G	I1	I	L1	L	Panel hole Deill Size	Max Panel
4	2.5	14.0	14.0	12.0	13.7	16.1	25.4	40.4	32.0	53.6	9.9	12.7
6	5.0	16.0	16.0	14.0	15.3	17.7	26.2	42.9	33.6	57.7	11.5	10.2
8	6.0	17.0	17.0	17.0	16.2	18.6	28.6	46.0	36.1	61.0	13.1	11.2
10	8.0	22.0	22.0	19.0	17.2	19.5	29.4	48.5	37.0	63.7	16.2	11.2
12	10.0	24.0	24.0	22.0	22.8	22.0	31.8	50.8	41.9	71.0	19.2	12.7
15	12.0	27.0	27.0	27.0	24.4	22.0	32.5	52.3	42.6	72.5	22.8	12.7
16	12.0	27.0	27.0	27.0	24.4	22.0	32.5	52.3	42.6	72.5	22.8	12.7

Union Elbow



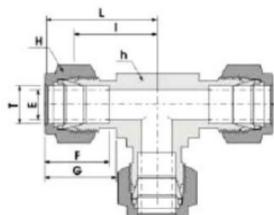
UNIT : mm

Tube O D T (inch)	E Min.	h	H	F	G	I	L
1/8	2.5	12.0	11.0	12.7	15.2	15.7	22.4
1/4	5.0	12.0	14.0	15.2	17.8	19.6	26.9
3/8	7.0	14.0	17.0	16.8	19.3	23.1	30.5
1/2	10.0	20.0	22.0	22.9	21.8	27.5	36.1
5/8	12.0	23.0	27.0	24.4	21.8	28.7	38.9
3/4	16.0	27.0	30.0	24.4	21.8	32.0	39.9
1	22.0	35.0	38.0	31.2	26.4	36.8	49.0

UNIT : mm

Tube O D T (mm)	E Min.	h	H	F	G	I	L
4	2.5	12.0	12.0	13.7	16.1	18.8	25.4
6	5.0	12.0	14.0	15.3	17.7	19.6	27.0
8	6.0	14.0	16.0	16.2	18.6	21.3	28.8
10	8.0	17.0	19.0	17.2	19.5	23.9	31.5
12	10.0	20.0	22.0	22.8	22.0	27.5	36.0
15	12.0	23.0	27.0	24.4	22.0	28.7	38.8
16	12.0	23.0	27.0	24.4	22.0	28.7	38.8

Union Tee



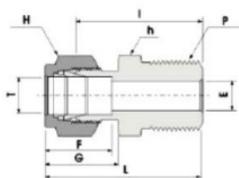
UNIT : mm

TubeOD T(inch)	E Min.	h	H	F	G	I	L
1/8	2.5	12.0	11.0	12.7	15.2	15.7	22.4
1/4	5.0	12.0	14.0	15.2	17.8	21.0	26.9
3/8	8.0	14.0	17.0	16.8	19.3	23.1	30.5
1/2	10.0	20.0	22.0	22.9	21.8	27.5	36.1
5/8	12.0	23.0	27.0	24.4	21.8	28.7	38.9
3/4	16.0	27.0	30.0	24.4	21.8	32.0	39.9
1	22.0	35.0	38.0	31.2	26.4	36.8	49.0

UNIT : mm

TubeOD T(mm)	E Min.	h	H	F	G	I	L
4	2.5	12.0	12.0	13.7	16.1	18.8	25.4
6	5.0	12.0	14.0	15.3	17.7	19.6	27.0
8	6.0	14.0	16.0	16.2	18.6	21.3	28.8
10	8.0	17.0	19.0	17.2	19.5	23.9	31.5
12	10.0	20.0	22.0	22.8	22.0	27.5	36.0
15	12.0	23.0	27.0	24.4	22.0	28.7	38.8
16	12.0	23.0	27.0	24.4	22.0	28.7	38.8

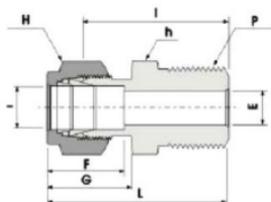
Union Tee



UNIT : mm

Tube O.D T (inch)	P	E Min.	h	H	F	G	I	L
1/8	1/8	2.5	12.0	12.0	12.7	15.2	23.9	30.5
1/8	1/4	2.5	14.0	12.0	12.7	15.2	28.0	34.6
1/4	1/8	5.0	12.0	14.0	15.2	17.8	25.4	32.8
1/4	1/4	5.0	14.0	14.0	15.2	17.8	29.5	36.8
1/4	3/8	5.0	17.0	14.0	15.2	17.8	30.0	38.4
1/4	1/2	5.0	22.0	14.0	15.2	17.8	34.0	42.7
3/8	1/8	6.0	16.0	17.0	16.8	19.3	28.0	35.3
3/8	1/4	7.0	16.0	17.0	16.8	19.3	31.5	38.9
3/8	3/8	8.0	17.0	17.0	16.8	19.3	32.5	39.9
3/8	1/2	8.0	22.0	17.0	16.8	19.3	36.9	44.2
3/8	3/4	8.0	27.0	17.0	16.8	19.3	40.4	47.8
1/2	1/8	6.0	20.0	22.0	22.9	21.8	28.7	38.9
1/2	1/4	7.0	20.0	22.0	22.9	21.8	32.3	42.4
1/2	3/8	10.0	20.0	22.0	22.9	21.8	33.3	43.4
1/2	1/2	10.0	22.0	22.0	22.9	21.8	36.9	47.0
1/2	3/4	10.0	27.0	22.0	22.9	21.8	40.4	50.5
1/2	1	10.0	35.0	22.0	22.9	21.8	44.0	56.2
5/8	3/8	10.0	24.0	27.0	24.4	21.8	34.0	44.2
5/8	1/2	12.0	24.0	27.0	24.4	21.8	36.9	27.0
5/8	3/4	12.0	27.0	27.0	24.4	21.8	40.4	50.5
3/4	1/2	12.0	27.0	30.0	24.4	21.8	38.4	48.5
3/4	3/4	16.0	27.0	30.0	24.4	21.8	41.0	50.5
3/4	1	16.0	35.0	30.0	24.4	21.8	15.0	55.2
1	1/2	12.0	35.0	38.0	31.2	26.4	42.0	55.4
1	3/4	16.0	35.0	38.0	31.2	26.4	44.0	57.4
1	1	22.0	35.0	38.0	31.2	26.4	47.0	60.2

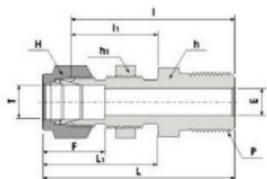
Male Connector



UNIT : mm

Tube O D T(mm)	P	E Min.	h	H	F	G	I	L
4	1/8	2.5	12.0	12.0	13.7	16.1	24.6	31.2
4	1/4	2.5	14.0	12.0	13.7	16.1	28.7	35.3
6	1/8	5.0	12.0	14.0	15.3	17.7	25.4	32.8
6	1/4	5.0	14.0	14.0	15.3	17.7	29.2	36.6
6	3/8	5.0	17.0	14.0	15.3	17.7	30.0	38.4
6	1/2	5.0	22.0	14.0	15.3	17.7	34.6	42.0
8	1/8	6.0	14.0	16.0	16.2	18.6	26.7	34.2
8	1/4	6.0	14.0	16.0	16.2	18.6	30.2	37.7
8	3/8	6.0	17.0	16.0	16.2	18.6	31.8	39.2
8	1/2	6.0	22.0	16.0	16.2	18.6	35.3	43.8
10	1/8	6.0	17.0	19.0	17.2	19.5	28.7	36.3
10	1/4	7.0	17.0	19.0	17.2	19.5	32.3	39.9
10	3/8	8.0	17.0	19.0	17.2	19.5	33.3	40.9
10	1/2	8.0	22.0	19.0	17.2	19.5	36.1	43.7
12	1/8	6.0	20.0	22.0	22.8	22.0	28.7	39.0
12	1/4	7.0	20.0	22.0	22.8	22.0	32.3	42.4
12	3/8	10.0	20.0	22.0	22.8	22.0	33.3	43.4
12	1/2	10.0	22.0	22.0	22.8	22.0	36.1	46.2
12	3/4	10.0	27.0	22.0	22.8	22.0	40.0	49.0
15	1/2	12.0	24.0	27.0	24.4	22.0	36.9	47.0
16	1/4	7.0	24.0	27.0	24.4	22.0	33.0	43.1
16	3/8	10.0	24.0	27.0	24.4	22.0	34.0	44.1
16	1/2	12.0	24.0	27.0	24.4	22.0	36.9	47.0
16	3/4	12.0	27.0	27.0	24.4	22.0	38.9	49.0

Bulkhead Male Connector



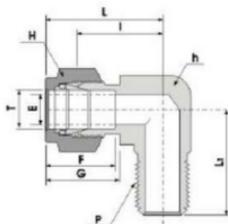
UNIT : mm

TubeOD T(inch)	P	E Min.	h	h1	H	F	I1	I	L1	L	Panel hole Drill Size	Max Panel
1/8	1/8	2.5	12.0	12.0	11.0	12.7	24.6	39.9	31.2	46.5	8.3	12.7
1/4	1/8	5.0	16.0	16.0	14.0	15.2	26.2	42.2	33.5	49.5	11.5	10.2
1/4	1/4	5.0	16.0	16.0	14.0	15.2	26.2	45.0	33.5	52.3	11.5	10.2
3/8	1/4	8.0	19.0	19.0	17.0	16.8	28.0	48.0	36.8	55.4	14.7	11.2
1/2	3/8	10.0	24.0	24.0	22.0	22.9	31.8	53.1	41.9	63.2	19.4	12.7
1/2	1/2	10.0	24.0	24.0	22.0	22.9	31.8	56.7	41.9	66.8	19.4	12.7

UNIT : mm

TubeOD T(mm)	P	E Min.	h	h1	H	F	I1	I	L1	L	Panel hole Drill Size	Max Panel
6	1/8	5.0	16.0	16.0	14.0	15.3	26.2	42.2	33.6	49.5	11.5	10.2
6	1/4	5.0	16.0	16.0	14.0	15.3	26.2	45.0	33.6	52.3	11.5	10.2
8	1/4	6.0	17.0	17.0	16.0	16.2	28.6	48.0	36.1	55.4	13.1	11.2
12	3/8	10.0	24.0	24.0	22.0	22.9	31.8	53.1	41.9	63.2	19.5	12.7
12	1/2	10.0	24.0	24.0	22.0	22.9	31.8	56.7	41.9	66.8	19.5	12.7

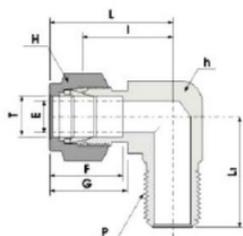
Male Elbow



UNIT : mm

Tube O.D. T(mm)	P	E Min.	h	H	F	G	I	L	L1
1/8	1/8	2.5	12.0	12.0	12.7	15.2	17.0	23.6	17.8
1/8	1/4	2.5	14.0	12.0	12.7	15.2	18.0	24.6	22.4
1/4	1/8	5.0	12.0	14.0	15.2	17.8	19.6	26.9	18.8
1/4	1/4	5.0	14.0	14.0	15.2	17.8	19.6	26.9	22.4
1/4	3/8	5.0	17.0	14.0	15.2	17.8	22.4	29.7	26.2
1/4	1/2	5.0	23.0	14.0	15.2	17.8	24.4	31.8	31.0
3/8	1/8	6.0	14.0	17.0	16.8	19.3	23.1	30.5	20.8
3/8	1/4	7.0	14.0	17.0	16.8	19.3	23.1	30.5	24.4
3/8	3/8	8.0	17.0	17.0	16.8	19.3	23.9	31.2	26.2
3/8	1/2	8.0	23.0	17.0	16.8	19.3	25.9	33.5	31.0
3/8	3/4	8.0	27.0	17.0	16.8	19.3	29.7	37.1	36.8
1/2	1/4	7.0	20.0	22.0	22.9	21.8	27.5	36.1	27.2
1/2	3/8	8.0	20.0	22.0	22.9	21.8	27.5	36.1	28.2
1/2	1/2	10.0	23.0	22.0	22.9	21.8	27.5	36.1	31.0
1/2	3/4	10.0	27.0	22.0	22.9	21.8	29.7	39.9	36.8
5/8	3/8	12.0	23.0	27.0	24.4	21.8	27.9	38.1	30.2
5/8	1/2	12.0	23.0	27.0	24.4	21.8	27.9	38.1	33.1
5/8	3/4	12.0	27.0	27.0	24.4	21.8	29.7	39.9	36.8
3/4	1/2	16.0	27.0	30.0	24.4	21.8	32.0	39.9	34.8
3/4	3/4	16.0	27.0	30.0	24.4	21.8	32.0	39.9	36.8
1	3/4	22.0	35.0	38.0	31.2	26.4	36.8	49.0	41.7
1	1	22.0	35.0	38.0	31.2	26.4	36.8	49.0	44.5

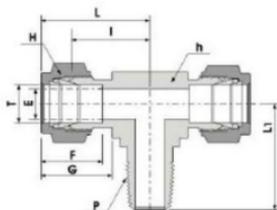
Male Elbow



UNIT : mm

Tube O.D. T(mm)	P	E Min.	h	H	F	G	I	L	L1
4	1/8	2.5	12.0	12.0	13.7	16.1	18.8	25.4	18.8
4	1/4	2.5	14.0	12.0	13.7	16.1	18.8	25.4	22.4
6	1/8	5.0	12.0	14.0	15.3	17.7	21.5	27.0	18.8
6	1/4	5.0	14.0	14.0	15.3	17.7	21.5	27.0	23.0
6	3/8	5.0	17.0	14.0	15.3	17.7	22.4	29.8	26.2
6	1/2	5.0	23.0	14.0	15.3	17.7	24.4	31.8	31.0
8	1/8	6.0	14.0	16.0	16.2	18.6	22.9	28.8	19.8
8	1/4	6.0	14.0	16.0	16.2	18.6	22.9	28.8	23.4
8	3/8	6.0	17.0	16.0	16.2	18.6	23.9	31.4	26.2
8	1/2	6.0	22.0	16.0	16.2	18.6	25.1	32.6	31.0
10	1/8	6.0	17.0	19.0	17.2	19.5	23.9	31.5	23.6
10	1/4	7.0	17.0	19.0	17.2	19.5	23.9	31.5	25.2
10	3/8	8.0	17.0	19.0	17.2	19.5	23.9	31.5	26.2
10	1/2	8.0	23.0	19.0	17.2	19.5	25.8	33.5	31.0
12	1/8	6.0	20.0	22.0	22.8	22.0	27.5	36.0	23.6
12	1/4	7.0	20.0	22.0	22.8	22.0	27.5	36.0	28.0
12	3/8	10.0	20.0	22.0	22.8	22.0	27.5	36.0	29.5
12	1/2	10.0	23.0	22.0	22.8	22.0	27.5	36.0	31.0
12	3/4	10.0	27.0	22.0	22.8	22.0	29.7	39.8	36.8
16	3/8	12.0	23.0	27.0	24.4	22.0	27.9	38.0	30.2
16	1/2	12.0	23.0	27.0	24.4	22.0	27.9	38.0	33.1
16	1	12.0	27.0	27.0	24.4	22.0	29.7	39.8	36.8

Male Branch Tee



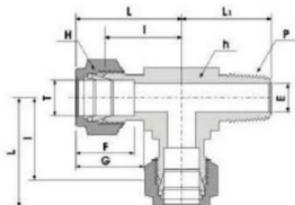
UNIT : mm

TubeO.D T(inch)	P	E Min.	h	H	F	G	I	L	L1
1/8	1/8	2.5	12.0	12.0	12.7	15.2	17.0	23.6	17.8
1/8	1/4	2.5	14.0	12.0	12.7	15.2	18.0	24.6	22.4
1/4	1/8	5.0	12.0	14.0	15.2	17.8	19.6	26.9	18.8
1/4	1/4	5.0	14.0	14.0	15.2	17.8	19.6	26.9	22.4
3/8	1/4	8.0	14.0	17.0	16.8	19.3	23.1	30.5	22.4
3/8	3/8	8.0	17.0	17.0	16.8	19.3	25.9	33.3	26.0
1/2	3/8	10.0	20.0	22.0	22.9	21.8	27.5	36.1	28.2
1/2	1/2	10.0	23.0	22.0	22.9	21.8	27.5	36.1	31.0
5/8	1/2	12.0	23.0	27.0	24.4	21.8	27.9	38.1	33.1
3/4	3/4	16.0	27.0	30.0	24.4	21.8	32.0	38.4	37.0

UNIT : mm

TubeO.D T(mm)	P	E Min.	h	H	F	G	I	L	L1
4	1/8	2.5	12.0	12.0	13.7	16.1	18.8	25.4	18.8
6	1/8	5.0	12.0	14.0	15.3	17.7	19.6	27.0	18.8
6	1/4	5.0	14.0	14.0	15.3	17.7	19.6	27.0	22.4
8	1/8	6.0	14.0	16.0	16.2	18.6	21.3	28.8	19.8
8	1/4	6.0	14.0	16.0	16.2	18.6	21.3	28.8	23.4
10	1/4	8.0	17.0	19.0	17.2	19.5	23.9	31.5	25.5
10	3/8	8.0	17.0	19.0	17.2	19.5	23.9	31.5	26.0
12	1/4	7.0	20.0	22.0	22.8	22.0	27.5	36.0	28.5
12	3/8	8.0	20.0	22.0	22.8	22.0	27.5	36.0	29.5
12	1/2	10.0	23.0	22.0	22.8	22.0	27.5	36.0	31.0
16	3/8	8.0	23.0	27.0	24.4	22.0	27.9	38.0	30.2
16	1/2	12.0	23.0	27.0	24.4	22.0	27.9	38.0	33.1

Male Run Tee



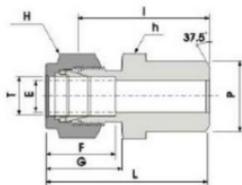
UNIT : mm

TubeO.D T(inch)	P	E Min.	h	H	F	G	I	L	L1
1/8	1/8	2.5	12.0	12.0	12.7	15.2	17.0	23.6	17.8
1/8	1/4	2.5	14.0	12.0	12.7	15.2	18.0	24.6	22.4
1/4	1/8	5.0	12.0	14.0	15.2	17.8	19.6	26.9	18.8
1/4	1/4	5.0	14.0	14.0	15.2	17.8	19.6	26.9	22.4
3/8	1/4	7.0	14.0	17.0	16.8	19.3	23.1	30.5	22.4
3/8	3/8	8.0	17.0	17.0	16.8	19.3	25.9	33.3	26.0
1/2	3/8	8.0	20.0	22.0	22.9	21.8	27.5	36.1	28.2
1/2	1/2	10.0	23.0	22.0	22.9	21.8	27.5	36.1	31.0
5/8	1/2	12.0	23.0	27.0	24.4	21.8	27.9	38.1	33.1
3/4	3/4	16.0	27.0	30.0	24.4	21.8	32.0	38.4	37.0

UNIT : mm

TubeO.D T(mm)	P	E Min.	h	H	F	G	I	L	L1
4	1/8	2.5	12.0	12.0	13.7	16.1	18.8	25.4	18.8
6	1/8	5.0	12.0	14.0	15.3	17.7	19.6	27.0	18.8
6	1/4	5.0	14.0	14.0	15.3	17.7	19.6	27.0	22.4
8	1/8	6.0	14.0	16.0	16.2	18.6	21.3	28.8	19.8
8	1/4	6.0	14.0	16.0	16.2	18.6	21.3	28.8	23.4
10	1/4	7.0	17.0	19.0	17.2	19.5	23.9	31.5	25.5
10	3/8	8.0	17.0	19.0	17.2	19.5	23.9	31.5	26.0
12	1/4	7.0	20.0	22.0	22.8	22.0	27.5	36.0	28.5
12	3/8	8.0	20.0	22.0	22.8	22.0	27.5	36.0	29.5
12	1/2	10.0	23.0	22.0	22.8	22.0	27.5	36.0	31.0
16	3/8	10.0	23.0	27.0	24.4	22.0	27.9	38.0	30.2
16	1/2	12.0	23.0	27.0	24.4	22.0	27.9	38.0	33.1

Male Pipe Weld Connector



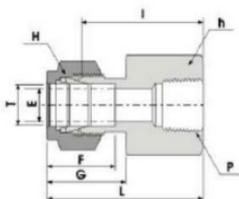
UNIT : mm

Tube O.D T (inch)	Pipe Weld Size P		E Min.	h	H	F	G	I	L
	NoM	O.D							
1/8	1/8	10.3	2.5	12.0	12.0	12.7	15.2	23.9	30.5
1/4	1/8	10.3	5.0	14.0	14.0	15.2	17.8	25.4	32.8
1/4	1/4	13.7	5.0	14.0	14.0	15.2	17.8	29.5	36.8
3/8	1/4	13.7	7.0	17.0	17.0	16.8	19.3	31.5	38.9
3/8	3/8	17.1	8.0	17.0	17.0	16.8	19.3	32.5	39.9
3/8	1/2	21.3	8.0	22.0	17.0	16.8	19.3	36.9	44.2
1/2	3/8	17.1	10.0	22.0	22.0	22.9	21.8	33.3	43.4
1/2	1/2	21.3	10.0	22.0	22.0	22.9	21.8	36.9	47.0
1/2	3/4	26.7	10.0	27.0	22.0	22.9	21.8	40.4	50.5
5/8	1/2	21.3	12.0	24.0	27.0	24.4	21.8	36.9	47.0
3/4	3/4	26.7	16.0	27.0	30.0	24.4	21.8	40.4	50.0
1	1	33.4	22.0	35.0	38.0	31.2	26.4	48.0	60.2

UNIT : mm

Tube O.D T (mm)	Pipe Weld Size P		E Min.	h	H	F	G	I	L
	NoM	O.D							
4	1/8	10.3	2.5	12.0	12.0	13.7	16.1	24.1	30.7
6	1/8	10.3	5.0	14.0	14.0	15.3	17.7	25.4	32.8
6	1/4	13.7	5.0	14.0	14.0	15.3	17.7	29.2	36.6
8	1/8	10.3	6.0	14.0	16.0	16.2	18.6	26.7	34.2
8	1/4	13.7	6.0	14.0	16.0	16.2	18.6	30.2	37.7
8	1/2	21.3	6.0	22.0	16.0	16.2	18.6	35.3	42.8
10	1/4	13.7	7.0	17.0	19.0	17.2	19.5	32.3	39.9
10	3/8	17.1	8.0	19.0	19.0	17.2	19.5	32.5	40.1
10	1/2	21.3	8.0	22.0	19.0	17.2	19.5	36.1	43.7
12	1/4	13.7	7.0	22.0	22.0	22.8	22.0	32.3	42.4
12	3/8	17.1	10.0	22.0	22.0	22.8	22.0	33.3	43.4
12	1/2	21.3	10.0	22.0	22.0	22.8	22.0	36.1	46.2
15	1/2	21.3	12	24	27	24.4	22.0	36.9	47
16	1/2	21.3	12	24	27	24.4	22.0	36.9	47

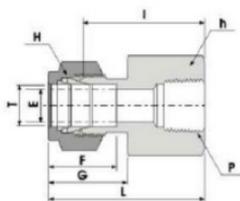
Female Connector



UNIT : mm

TubeO.D T(inch)	P	E Min.	h	H	F	G	I	L
1/8	1/8	2.5	12.0	12.0	12.7	15.2	23.6	28.7
1/8	1/4	2.5	17.0	12.0	12.7	15.2	27.9	33.5
1/4	1/8	5.0	14.0	14.0	15.2	17.8	24.8	31.2
1/4	1/4	5.0	17.0	14.0	15.2	17.8	28.4	35.8
1/4	3/8	5.0	22.0	14.0	15.2	17.8	29.2	37.6
1/4	1/2	5.0	27.0	14.0	15.2	17.8	34.1	42.4
3/8	1/8	8.0	16.0	17.0	16.8	19.3	25.4	32.8
3/8	1/4	8.0	17.0	17.0	16.8	19.3	30.2	37.6
3/8	3/8	8.0	22.0	17.0	16.8	19.3	31.8	39.1
3/8	1/2	8.0	27.0	17.0	16.8	19.3	36.6	43.9
3/8	3/4	8.0	32.0	17.0	16.8	19.3	37.4	47.8
1/2	1/4	10.0	20.0	22.0	22.9	21.8	30.2	40.4
1/2	3/8	10.0	22.0	22.0	22.9	21.8	31.8	41.9
1/2	1/2	10.0	27.0	22.0	22.9	21.8	36.6	46.7
1/2	3/4	10.0	32.0	22.0	22.9	21.8	37.1	48.3
3/4	1/2	12.0	27.0	30.0	24.4	21.8	37.6	46.7
3/4	3/4	16.0	32.0	30.0	24.4	21.8	39.1	48.3
1	3/4	22.0	35.0	38.0	31.2	26.4	41.1	53.3
1	1	22.0	41.0	38.0	31.2	26.4	44.0	62.2

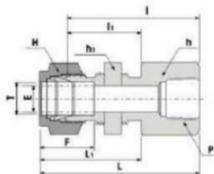
Female Connector



UNIT : mm

Tube O.D	P	E Min.	h	H	F	G	I	L
4	1/8	2.5	12.0	12.0	13.7	16.1	24.1	29.7
6	1/8	5.0	14.0	14.0	15.3	17.7	24.9	31.3
6	1/4	5.0	17.0	14.0	15.3	17.7	28.4	35.8
6	3/8	5.0	22.0	14.0	15.3	17.7	29.5	36.9
6	1/2	5.0	27.0	14.0	15.3	17.7	34.1	42.5
8	1/8	6.0	14.0	16.0	16.2	18.6	24.6	32.1
8	1/4	6.0	17.0	16.0	16.2	18.6	29.5	37.0
8	3/8	6.0	22.0	16.0	16.2	18.6	29.5	37.0
8	1/2	6.0	27.0	16.0	16.2	18.6	35.8	43.3
10	1/8	8.0	17.0	19.0	17.2	19.5	25.4	33.0
10	1/4	8.0	17.0	19.0	17.2	19.5	30.2	37.8
10	3/8	8.0	22.0	19.0	17.2	19.5	31.0	38.6
10	1/2	8.0	27.0	19.0	17.2	19.5	36.6	44.2
12	1/8	8.0	20.0	22.0	22.8	22.0	28.4	38.5
12	1/4	10.0	20.0	22.0	22.8	22.0	30.2	40.3
12	3/8	10.0	22.0	22.0	22.8	22.0	31.0	41.1
12	1/2	10.0	27.0	22.0	22.8	22.0	36.6	46.7
12	3/4	10.0	32.0	22.0	22.8	22.0	37.9	49.0
15	1/2	12.0	24.0	27.0	24.4	22.0	36.6	46.7
16	1/2	12.0	24.0	27.0	24.4	22.0	36.8	46.9

Bulkhead Female Connector



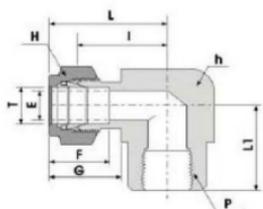
UNIT : mm

TubeO.D T(inch)	P	E Min.	h	h1	H	F	I1	I	L1	L	Panel hole Drill Size	Max Panel
1/8	1/8	2.5	14.0	14.0	11.0	12.7	24.6	38.1	31.2	44.7	8.3	12.7
1/4	1/8	5.0	16.0	16.0	14.0	15.2	26.2	39.6	33.5	47.0	11.5	10.2
1/4	1/4	5.0	17.0	17.0	14.0	15.2	26.2	44.5	33.5	51.8	11.5	10.2
3/8	1/4	8.0	17.0	19.0	17.0	16.8	28.0	47.8	36.8	55.1	14.7	11.2
1/2	3/8	10.0	24.0	24.0	22.0	22.9	31.8	51.6	41.9	61.7	19.4	12.7
1/2	1/2	10.0	27.0	24.0	22.0	22.9	31.8	56.4	41.9	66.5	19.4	12.7

UNIT : mm

TubeO.D T(inch)	P	E Min.	h	h1	H	F	I1	I	L1	L	Panel hole Drill Size	Max Panel
6	1/8	5.0	16.0	16.0	14.0	15.3	26.2	39.6	33.6	27.0	11.5	10.2
6	1/4	5.0	17.0	17.0	14.0	15.3	26.2	44.5	33.6	51.8	11.5	10.2
8	1/4	8.0	17.0	17.0	16.0	16.2	28.4	49.0	36.1	54.2	13.1	11.2
12	3/8	10.0	24.0	24.0	22.0	22.8	31.8	51.6	41.9	61.7	19.5	12.7
12	1/2	10.0	27.0	24.0	22.0	22.8	31.8	56.4	41.9	66.5	19.5	12.7

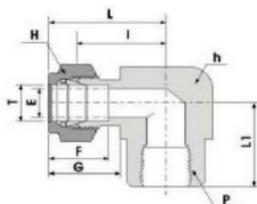
Bulkhead Female Connector



UNIT : mm

Tube O.D T (inch)	P	E Min.	h	H	F	G	I	L	L1
1/8	1/8	2.5	14.0	12.0	12.7	15.2	18.0	24.6	19.1
1/8	1/4	2.5	17.0	12.0	12.7	15.2	20.8	27.4	22.4
1/4	1/8	5.0	14.0	14.0	15.2	17.8	19.6	26.9	19.1
1/4	1/4	5.0	17.0	14.0	15.2	17.8	22.4	29.7	22.4
1/4	3/8	5.0	23.0	14.0	15.2	17.8	24.4	31.8	22.4
1/4	1/2	5.0	27.0	14.0	15.2	17.8	27.2	34.5	28.4
3/8	1/8	8.0	14.0	17.0	16.8	19.3	23.1	30.5	19.1
3/8	1/4	8.0	17.0	17.0	16.8	19.3	23.9	31.2	22.4
3/8	3/8	8.0	23.0	17.0	16.8	19.3	25.9	33.3	22.4
3/8	1/2	8.0	27.0	17.0	16.8	19.3	28.7	36.1	28.4
1/2	1/4	10.0	20.0	22.0	22.9	21.8	27.3	36.1	22.4
1/2	3/8	10.0	23.0	22.0	22.9	21.8	27.3	36.1	22.4
1/2	1/2	10.0	27.0	22.0	22.9	21.8	28.7	38.9	28.4
5/8	3/8	12.0	23.0	27.0	24.4	21.8	27.9	38.1	22.4
5/8	1/2	12.0	27.0	27.0	24.4	21.8	29.7	39.9	28.4
3/4	1/2	16.0	27.0	30.0	24.4	21.8	29.7	39.9	28.4
3/4	3/4	16.0	35.0	30.0	24.4	21.8	34.5	44.7	31.8
1	3/4	22.0	35.0	38.0	31.2	26.4	36.8	49.0	31.8

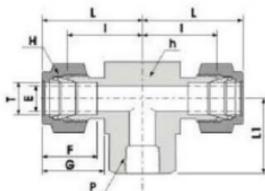
Bulkhead Female Connector



UNIT : mm

Tube O.D	P	E Min.	h	H	F	G	I	L	L1
4	1/8	2.5	14.0	12.0	13.7	16.1	18.8	25.4	19.1
6	1/8	5.0	14.0	14.0	15.3	17.7	19.6	26.9	19.1
6	1/4	5.0	17.0	14.0	15.3	17.7	22.4	29.7	22.4
6	3/8	5.0	23.0	14.0	15.3	17.7	24.4	31.8	22.4
6	1/2	5.0	27.0	14.0	15.3	17.7	27.2	34.5	28.4
8	1/8	6.0	14.0	17.0	16.2	18.6	21.3	28.7	19.1
8	1/4	6.0	17.0	17.0	16.2	18.6	23.1	30.5	22.4
12	1/4	10.0	20.0	22.0	22.8	22.0	27.3	36.1	22.4
12	3/8	10.0	23.0	22.0	22.8	22.0	27.3	36.1	22.4
12	1/2	10.0	27.0	22.0	22.8	22.0	28.7	38.9	28.4
15	3/8	12.0	27.0	27.0	24.4	22.0	27.9	38.1	22.4
15	1/2	12.0	27.0	27.0	24.4	22.0	32.0	39.9	28.4

Female Branch Tee



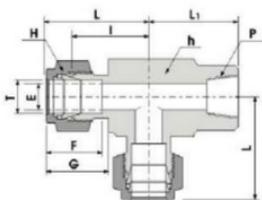
UNIT : mm

TubeO.D T(inch)	P	E Min.	h	H	F	G	I	L	L1
1/8	1/8	2.5	14.0	11.0	12.7	15.2	18.0	24.4	19.1
1/4	1/8	5.0	14.0	14.0	15.2	17.8	19.6	26.9	19.1
1/4	1/4	5.0	17.0	14.0	15.2	17.8	22.4	29.7	22.4
3/8	1/8	8.0	14.0	17.0	16.8	19.3	23.0	30.5	19.1
3/8	1/4	8.0	17.0	17.0	16.8	19.3	23.9	31.2	22.4
3/8	3/8	8.0	23.0	17.0	16.8	19.3	5.9	33.3	22.4
3/8	1/2	8.0	27.0	17.0	16.8	19.3	28.7	36.0	28.5
1/2	1/4	10.0	20.0	22.0	22.9	21.8	27.5	36.1	22.4
1/2	3/8	10.0	23.0	22.0	22.9	21.8	27.5	36.1	22.4
1/2	1/2	10.0	27.0	22.0	22.9	21.8	28.7	38.9	28.4
5/8	1/2	12.0	27.0	27.0	24.4	21.8	28.7	38.9	28.4
3/4	3/4	16.0	35.0	30.0	24.4	21.8	34.5	44.7	31.8
1	3/4	22.0	35.0	38.0	31.2	26.4	36.8	49.0	31.8

UNIT : mm

TubeO.D T(inch)	P	E Min.	h	H	F	G	I	L	L1
6	1/8	5.0	14.0	14.0	15.3	17.7	19.6	26.9	19.1
6	1/4	5.0	17.0	14.0	15.3	17.7	22.4	29.7	22.4
8	1/8	6.0	14.0	16.0	16.2	18.5	23.0	30.0	19.0
8	1/4	6.0	17.0	16.0	16.2	18.5	23.0	30.0	22.5
8	3/8	6.0	23.0	16.0	16.2	18.5	25.0	32.5	22.5
10	1/8	8.0	17.0	149.0	17.2	19.5	24.0	31.5	19.0
10	1/4	8.0	17.0	19.0	17.2	19.5	26.0	33.5	22.5
10	3/8	8.0	23.0	19.0	17.2	19.5	26.0	33.5	22.5
12	1/4	10.0	20.0	22.0	22.8	22.0	27.5	36.1	22.4
12	3/8	10.0	23.0	22.0	22.8	22.0	27.5	36.1	22.4
12	1/2	10.0	27.0	22.0	22.8	22.0	28.7	38.9	28.4
15	1/2	12.0	27.0	27.0	24.4	22.0	28.7	38.9	28.4
16	1/2	12.5	27.0	27.0	24.5	22.0	30.0	40.0	28.0

Female Run Tee



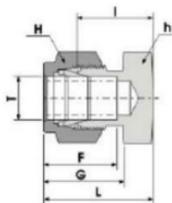
UNIT : mm

TubeO.D T(inch)	P	E Min.	h	H	F	G	I	L	L1
1/8	1/8	2.5	14.0	11.0	12.7	15.2	18.0	24.6	19.1
1/4	1/8	5.0	14.0	14.0	15.2	17.8	19.6	26.9	19.1
1/4	1/4	5.0	17.0	14.0	15.2	17.8	22.9	29.7	22.4
3/8	1/8	8.0	14.0	17.0	16.8	19.3	23.0	30.5	19
3/8	1/4	8.0	17.0	17.0	16.8	19.3	23.9	31.2	22.4
3/8	3/8	8.0	23.0	17.0	16.8	19.3	26.0	33.0	22.4
1/2	1/4	10.0	20.0	22.0	22.9	21.8	26.0	36.0	22.4
1/2	3/8	10.0	23.0	22.0	22.9	21.8	27.5	36.1	22.4
1/2	1/2	10.0	27.0	22.0	22.9	21.8	29.7	39.9	28.4
3/4	3/4	16.0	35.0	30.0	24.4	21.8	34.5	44.7	31.8

UNIT : mm

TubeO.D T(mm)	P	E Min.	h	H	F	G	I	L	L1
6	1/8	5.0	14.0	14.0	15.3	17.7	19.6	26.9	19.1
6	1/4	5.0	17.0	14.0	15.3	17.7	22.4	29.7	22.4
8	1/8	6.0	14.0	16.0	16.2	18.5	23.0	30.0	19.0
8	1/4	6.0	17.0	16.0	16.2	18.5	23.0	30.0	22.5
8	3/8	6.0	23.0	16.0	16.2	18.5	25.0	32.5	22.5
10	1/8	8.0	17.0	19.0	17.2	19.5	24.0	31.5	19.0
10	1/4	8.0	17.0	19.0	17.2	19.5	26.0	33.5	22.5
10	3/8	8.0	23.0	19.0	17.2	19.5	26.0	33.5	22.5
12	1/4	10.0	20.0	22.0	22.8	22.0	27.5	36.1	22.4
12	3/8	10.0	23.0	22.0	22.8	22.0	27.5	36.1	22.4
12	1/2	10.0	27.0	22.0	22.8	22.0	28.7	38.9	28.4
15	1/2	12.0	27.0	27.0	24.4	22.0	28.7	38.9	28.4
16	1/2	12.5	27.0	27.0	24.5	22.0	30.0	40.0	28.0

Tube Cap



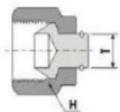
UNIT : mm

TubeO.D T(inch)	h	H	F	G	I	L
1/8	12.0	11.0	12.7	15.2	13.5	20.1
1/4	12.0	14.0	15.2	17.8	16.0	23.4
3/8	16.0	17.0	16.8	19.3	18.3	25.7
1/2	20.0	22.0	22.9	21.8	19.1	29.2
5/8	24.0	27.0	24.4	21.8	19.8	30.0
3/4	27.0	30.0	24.4	21.8	21.3	31.5
1	35.0	38.0	31.2	26.4	26.2	38.4

UNIT : mm

TubeO.D T(mm)	h	H	F	G	I	L
4	12.0	12.0	13.7	16.1	14.7	21.3
6	12.0	14.0	15.3	17.7	15.7	23.1
8	14.0	16.0	16.2	18.6	17.0	24.5
10	17.0	19.0	17.2	19.5	19.0	26.6
12	20.0	22.0	22.8	22.0	19.0	29.1
15	24.0	27.0	24.4	22.0	19.8	29.9
16	24.0	27.0	24.4	22.0	19.8	31.9

Tube Plug



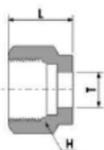
UNIT : mm

TubeO.D T(inch)	H
1/8	11
1/4	14
3/8	17
1/2	22
5/8	27
3/4	30
1	38

UNIT : mm

TubeO.D T(mm)	H
4	12
6	14
8	16
10	19
12	22
15	27
16	27

Nut



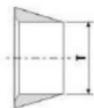
UNIT : mm

TubeO.D T(inch)	H	L
1/8	12	11.9
1/4	14	12.7
3/8	16	14.2
1/2	19	17.5
5/8	22	17.5
3/4	27	17.5
1	27	20.3

UNIT : mm

TubeO.D T(mm)	H	L
4	12.0	12.0
6	14.0	12.7
8	16.0	15.3
10	19.0	15.0
12	22.0	17.5
15	27.0	17.5
16	27.0	17.5

Front Ferrule



UNIT : mm

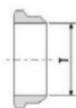
TubeO.D
T(inch)
1/8
1/4
3/8
1/2
5/8
3/4
1



UNIT : mm

TubeO.D
T(mm)
4
6
8
10
12
15
16

Back Ferrule



UNIT : mm

TubeO.D
T(inch)
1/8
1/4
3/8
1/2
5/8
3/4
1



UNIT : mm

TubeO.D
T(mm)
4
6
8
10
12
15
16