








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## Tube Fittings

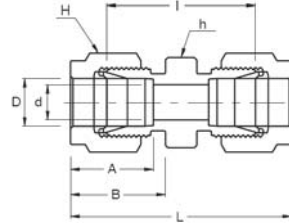


Type	Figure	Type	Figure
Union <i>U</i>		Union Elbow <i>UE</i>	
Reducing Union <i>RU</i>		Male Elbow <i>ME</i>	
Bulkhead Union <i>BU</i>		Female Elbow <i>FE</i>	
Bulkhead Reducing Union <i>BRU</i>		45° Male Elbow <i>HME</i>	
Male Connector <i>MC</i>		Union Tee <i>UT</i>	
Female Connector <i>FC</i>		Reducing Union Tee <i>RUT</i>	
Bulkhead Male Connector <i>BMC</i>		Male Branch Tee <i>MBT</i>	
Bulkhead Female Connector <i>BFC</i>		Female Branch Tee <i>FBT</i>	

Type	Figure	Type	Figure
Male Run Tee <i>MRT</i>		Pipe Weld Connector <i>PWC</i>	
Female Run Tee <i>FRT</i>		Pipe Weld Elbow <i>PWE</i>	
Union Cross <i>UC</i>		Plug <i>P</i>	
Reducer <i>R</i>		Cap <i>C</i>	
Bulkhead Reducer <i>BR</i>		Nut <i>N</i>	
Male Adapter <i>MA</i>		Front Ferrule <i>FF</i>	
Female Adapter <i>FA</i>		Back Ferrule <i>BF</i>	
Port Connector <i>PC</i>		Ferrule Set <i>FS</i>	

## Union

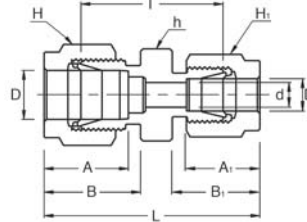
### U



ITEM	Tube O.D. D	d	Width Across Flat		A	B	I	L
			h	H				
D1-U	1/16	1.3	5/16	5/16	8.6	10.9	17.52	25.15
D2-U	1/8	2.3	7/16	7/16	12.70	15.24	22.35	35.56
D3-U	3/16	3.0	7/16	1/2	13.71	16.00	24.13	37.33
D4-U	1/4	4.8	1/2	9/16	15.24	17.78	16.16	40.89
D5-U	5/16	6.4	9/16	5/8	16.25	18.54	18.19	42.92
D6-U	3/8	7.1	5/8	11/16	16.76	19.30	30.22	44.95
D8-U	1/2	10.4	13/16	7/8	22.86	21.84	30.98	51.30
D10-U	5/8	12.7	15/16	1	24.38	21.84	31.75	52.07
D12-U	3/4	15.74	1-1/16	1-1/8	24.38	21.84	33.27	53.59
D14-U	7/8	18.28	1-3/16	1-1/4	25.90	21.84	34.79	55.11
D16-U	1	22.35	1-3/8	1-1/2	31.24	26.41	40.38	64.77
D20-U	1-1/4	27.69	1-3/4	1-7/8	41.15	38.86	48.00	92.20
D24-U	1-1/2	34.04	2-1/8	2-1/4	50.04	45.21	53.59	107.95
D32-U	2	45.97	2-3/4	3	67.56	62.74	74.68	149.35

# Reducing Union

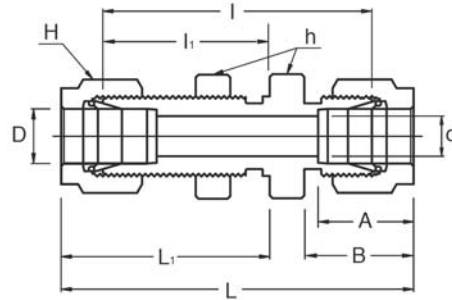
**RU**



ITEM	Tube O.D.		d	Width Across Flat			A	A <sub>1</sub>	B	B <sub>1</sub>	I	L
	D <sub>1</sub>	D <sub>2</sub>		h	H	H <sub>1</sub>						
D2-1-RU	1/8	1/16	1.3	7/16	7/16	5/16	12.7	8.6	15.2	10.9	20.6	31.0
D3-2-RU	3/16	1/8	2.3	7/16	1/2	7/16	13.7	12.7	16.0	15.2	23.4	36.6
D4-2-RU	1/4	1/8	2.3	1/2	9/16	7/16	15.2	12.7	17.8	15.2	24.6	38.6
D4-3-RU	1/4	3/16	3.0	1/2	9/16	1/2	15.2	13.7	17.8	16.0	25.4	39.4
D5-2-RU	5/16	1/8	2.3	9/16	5/8	7/16	16.3	12.7	18.5	15.2	25.9	39.9
D5-4-RU	5/16	1/4	4.8	9/16	5/8	9/16	16.3	15.2	18.5	17.8	27.4	42.2
D6-2-RU	3/8	1/8	2.3	5/8	11/16	7/16	16.8	12.7	19.3	15.2	26.9	40.9
D6-4-RU	3/8	1/4	4.8	5/8	11/16	9/16	16.8	15.2	19.3	17.8	28.4	43.2
D6-5-RU	3/8	5/16	6.4	5/8	11/16	5/8	16.8	16.3	19.3	18.5	29.5	44.2
D8-2-RU	1/2	1/8	2.3	13/16	7/8	7/16	22.9	12.7	21.8	15.2	28.4	45.2
D8-4-RU	1/2	1/4	4.8	13/16	7/8	9/16	22.9	15.2	21.8	17.8	29.5	47.0
D8-6-RU	1/2	3/8	7.1	13/16	7/8	11/16	22.9	16.8	21.8	19.3	31.0	48.5
D10-6-RU	5/8	3/8	7.1	15/16	1	11/16	24.4	16.8	21.8	19.3	31.8	49.3
D10-8-RU	5/8	1/2	10.4	15/16	1	7/8	24.4	22.9	21.8	21.8	31.8	52.1
D12-4-RU	3/4	1/4	4.8	1-1/16	1-1/8	9/16	24.4	15.2	21.8	17.8	31.8	49.3
D12-6-RU	3/4	3/8	7.1	1-1/16	1-1/8	11/16	24.4	16.8	21.8	19.3	33.3	50.8
D12-8-RU	3/4	1/2	10.4	1-1/16	1-1/8	7/8	24.4	22.9	21.8	21.8	33.3	53.6
D12-10-RU	3/4	5/8	12.7	1-1/16	1-1/8	1	24.4	24.4	21.8	21.8	33.3	53.6
D16-8-RU	1	1/2	10.4	1-3/8	1-1/2	7/8	31.2	22.9	26.4	21.8	39.5	63.2
D16-12-RU	1	3/4	15.7	1-3/8	1-1/2	1-1/8	31.2	24.4	26.4	21.8	39.0	62.7

## Bulkhead Union

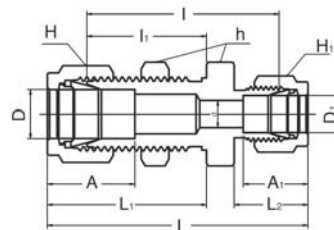
### BU



ITEM	Tube O.D. D	d	Width Across Flat			A	B	I	h	L	L <sub>1</sub>
			h	H							
D1-BU	1/16	1.3	5/16	5/16	8.6	10.9	23.9	13.5	31.5	17.2	
D2-BU	1/8	2.3	1/2	7/16	12.7	15.2	38.1	24.6	51.3	31.2	
D3-BU	3/16	3.0	9/16	1/2	13.7	16.0	40.4	25.4	53.6	32.0	
D4-BU	1/4	4.8	5/8	9/16	15.2	17.8	42.9	26.3	57.7	33.5	
D5-BU	5/16	6.4	11/16	5/8	16.3	18.5	46.0	28.4	60.7	35.8	
D6-BU	3/8	7.1	3/4	11/16	16.8	19.3	47.5	29.5	62.2	36.8	
D8-BU	1/2	10.4	15/16	7/8	22.9	21.8	50.8	31.8	71.1	41.9	
D10-BU	5/8	12.7	1-1/16	1	24.4	21.8	52.3	32.5	72.6	42.7	
D12-BU	3/4	15.7	1-3/16	1-1/8	24.4	21.8	58.7	37.3	79.0	47.5	
D14-BU	7/8	18.3	1-3/8	1-1/4	25.9	21.8	64.3	42.9	84.6	53.1	
D16-BU	1	22.4	1-5/8	1-1/2	31.2	26.4	71.4	45.2	95.8	57.4	

## Bulkhead Reducing Union

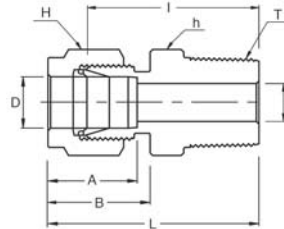
### BRU



ITEM	Tube O.D.		d	Width Across Flat			A	A <sub>1</sub>	I	h	L	L <sub>1</sub>	L <sub>2</sub>
	D <sub>1</sub>	D <sub>2</sub>		h	H	H <sub>1</sub>							
D4-2-BRU	1/4	1/8	2.3	5/8	9/16	7/16	15.2	12.7	41.1	26.2	55.1	33.5	15.2
D6-4-BRU	3/8	1/4	4.8	3/4	11/16	9/16	16.8	15.2	46.0	29.5	60.7	36.6	17.8
D8-4-BRU	1/2	1/4	4.8	15/16	7/8	9/16	22.9	15.2	49.3	31.8	66.8	41.9	17.8

Male Connector

MC(1)

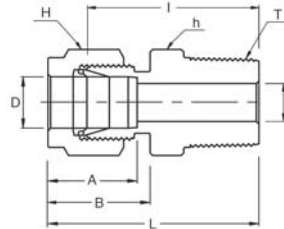


ITEM	Tube O.D. D	T (NPT)	d	Width Across Flat		A	B	I	L
				h	H				
D1-1N-MC	1/16	1/16	1.3	5/16	5/16	8.6	10.9	20.0	23.8
D1-2N-MC	1/16	1/8	1.3	7/16	7/16	8.6	10.9	22.4	26.2
D2-2N-MC	1/8	1/8	2.3	7/16	7/16	12.7	15.2	23.9	30.5
D2-4N-MC	1/8	1/4	2.3	9/16	7/16	12.7	15.2	29.0	35.6
D2-6N-MC	1/8	3/8	2.3	11/16	7/16	12.7	15.2	29.2	35.8
D2-8N-MC	1/8	1/2	2.3	7/8	7/16	12.7	15.2	35.6	42.2
D3-2N-MC	3/16	1/8	3.0	7/16	1/2	13.7	16.0	24.6	31.2
D3-4N-MC	3/16	1/4	3.0	9/16	1/2	13.7	16.0	29.7	36.3
D4-2N-MC	1/4	1/8	4.8	1/2	9/16	15.2	17.8	25.4	32.8
D4-4N-MC	1/4	1/4	4.8	9/16	9/16	15.2	17.8	30.7	37.8
D4-6N-MC	1/4	3/8	4.8	11/16	9/16	15.2	17.8	31.0	38.4
D4-8N-MC	1/4	1/2	4.8	7/8	9/16	15.2	17.8	37.3	44.7
D4-12N-MC	1/4	3/4	4.8	1-1/16	9/16	15.2	17.8	38.9	46.2
D5-2N-MC	5/16	1/8	4.8	9/16	5/8	16.3	18.5	26.7	34.0
D5-4N-MC	5/16	1/4	6.4	9/16	5/8	16.3	18.5	31.2	38.6
D5-6N-MC	5/16	3/8	6.4	11/16	5/8	16.3	18.5	31.8	39.1
D6-2N-MC	3/8	1/8	4.8	5/8	11/16	16.8	19.3	27.9	35.3
D6-4N-MC	3/8	1/4	7.1	5/8	11/16	16.8	19.3	32.5	39.9
D6-6N-MC	3/8	3/8	7.1	11/16	11/16	16.8	19.3	32.5	39.9
D6-8N-MC	3/8	1/2	7.1	7/8	11/16	16.8	19.3	38.9	46.2



## Male Connector

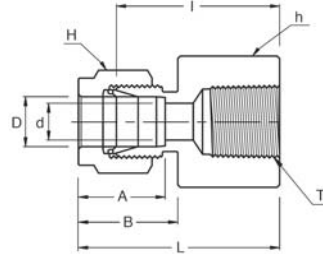
### MC (2)



ITEM	Tube O.D. D	T (NPT)	d	Width Across Flat		A	B	I	L
				h	H				
D6-12N-MC	3/8	3/4	7.1	1-1/16	11/16	16.8	19.3	40.4	47.8
D8-2N-MC	1/2	1/8	4.8	13/16	7/8	22.9	21.8	28.7	38.9
D8-4N-MC	1/2	1/4	7.1	13/16	7/8	22.9	21.8	33.3	43.4
D8-6N-MC	1/2	3/8	9.7	13/16	7/8	22.9	21.8	33.3	43.4
D8-8N-MC	1/2	1/2	10.4	7/8	7/8	22.9	21.8	38.9	49.0
D8-12N-MC	1/2	3/4	10.4	1-1/16	7/8	22.9	21.8	40.4	50.5
D8-16N-MC	1/2	1	10.4	1-3/16	7/8	22.9	21.8	47.0	57.2
D10-6N-MC	5/8	3/8	9.7	15/16	1	24.4	21.8	34.0	44.2
D10-8N-MC	5/8	1/2	11.9	15/16	1	24.4	21.8	38.9	49.0
D10-12N-MC	5/8	3/4	12.7	1-1/16	1	24.4	21.8	40.4	50.5
D12-8N-MC	3/4	1/2	11.9	1-1/16	1-1/8	24.4	21.8	40.4	50.5
D12-12N-MC	3/4	3/4	15.7	1-1/16	1-1/8	24.4	21.8	40.4	50.5
D12-16N-MC	3/4	1	15.7	1-3/8	1-1/8	24.4	21.8	47.0	57.2
D14-12N-MC	7/8	3/4	15.7	1-3/16	1-1/4	25.9	21.8	40.4	50.5
D14-16N-MC	7/8	1	18.3	1-3/8	1-1/4	25.9	21.8	47.0	57.2
D16-8N-MC	1	1/2	11.9	1-3/8	1-1/2	31.2	26.4	45.2	57.4
D16-12N-MC	1	3/4	15.7	1-3/8	1-1/2	31.2	26.4	45.2	57.4
D16-16N-MC	1	1	22.4	1-3/8	1-1/2	31.2	26.4	50.0	62.2
D20-16N-MC	1-1/4	1	22.4	1-3/4	1-7/8	41.2	38.9	51.1	77.2
D20-20N-MC	1-1/4	1-1/4	27.7	1-3/4	1-7/8	41.2	38.9	51.1	77.2
D24-24N-MC	1-1/2	1-1/2	34.0	2-1/8	2-1/4	50.0	45.2	61.7	88.9
D32-32N-MC	2	2	46.0	2-3/4	3	67.6	62.7	76.2	113.5

## Female Connector

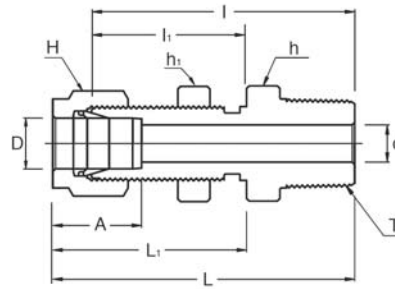
### FC



ITEM	Tube O.D. D	T (NPT)	d	Width Across Flat		A	B	I	L
				h	H				
D2-2N-FC	1/8	1/8	2.3	9/16	7/16	12.7	15.2	22.1	28.7
D2-4N-FC	1/8	1/4	2.3	3/4	7/16	12.7	15.2	16.9	33.5
D3-2N-FC	3/16	1/8	3.0	9/16	1/2	13.7	16.0	23.1	29.7
D4-2N-FC	1/4	1/8	4.8	9/16	9/16	15.2	17.8	23.9	31.2
D4-4N-FC	1/4	1/4	4.8	3/4	9/16	15.2	17.8	28.4	35.8
D4-6N-FC	1/4	3/8	4.8	7/8	9/16	15.2	17.8	20.2	37.6
D4-8N-FC	1/4	1/2	4.8	1-1/16	9/16	15.2	17.8	25.1	42.4
D5-2N-FC	5/16	1/8	6.4	9/16	5/8	16.3	18.5	24.6	32.0
D5-4N-FC	5/16	1/4	6.4	3/4	5/8	16.3	18.5	29.5	26.8
D6-2N-FC	3/8	1/8	7.1	5/8	11/16	16.8	19.3	25.4	32.8
D6-4N-FC	3/8	1/4	7.1	3/4	11/16	16.8	19.3	30.2	37.6
D6-6N-FC	3/8	3/8	7.1	7/8	11/16	16.8	19.3	31.8	39.1
D6-8N-FC	3/8	1/2	7.1	1-1/16	11/16	16.8	19.3	36.6	43.9
D6-12N-FC	3/8	3/4	7.1	1-5/16	11/16	16.8	19.3	40.4	47.8
D8-4N-FC	1/2	1/4	10.4	13/16	7/8	22.9	21.8	30.2	40.4
D8-6N-FC	1/2	3/8	10.4	7/8	7/8	22.9	21.8	31.8	41.9
D8-8N-FC	1/2	1/2	10.4	1-1/16	7/8	22.9	21.8	36.6	46.7
D8-12N-FC	1/2	3/4	10.4	1-5/16	7/8	22.9	21.8	38.1	48.3
D10-6N-FC	5/8	3/8	12.7	15/16	1	24.4	21.8	31.8	41.9
D10-8N-FC	5/8	1/2	12.7	1-1/16	1	24.4	21.8	36.6	46.7
D12-8N-FC	3/4	1/2	15.7	1-1/16	1-1/8	24.4	21.8	36.6	46.7
D12-12N-FC	3/4	3/4	15.7	1-5/16	1-1/8	24.4	21.8	38.1	48.3
D14-12N-FC	7/8	3/4	18.3	1-5/16	1-1/4	25.9	21.8	39.6	49.8
D16-12N-FC	1	3/4	22.4	1-3/8	1-1/2	31.2	26.4	41.1	53.3
D16-16N-FC	1	1	22.4	1-5/8	1-1/2	31.2	26.4	50.0	62.2

## Bulkhead Male Connector

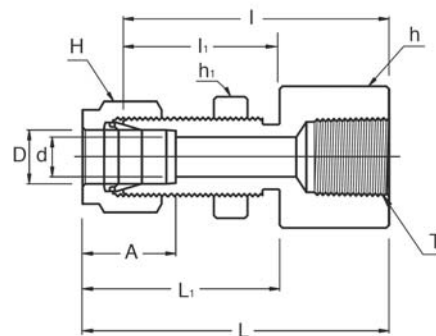
### BMC



ITEM	Tube O.D. D	T NPT	d	Width Across Flat			A	I	I <sub>1</sub>	L	L <sub>1</sub>	Panel hole drill size	Panel Max. thickness
				h	h <sub>1</sub>	H							
D2-2N-BMC	1/8	1/8	2.3	1/2	1/2	7/16	12.7	39.9	24.6	46.5	31.2	8.3	12.7
D4-2N-BMC	1/4	1/8	4.8	5/8	5/8	9/16	15.2	42.2	26.2	49.5	33.5	11.5	10.2
D4-4N-BMC	1/4	1/4	4.8	5/8	5/8	9/16	15.2	46.7	26.2	54.1	33.5	11.5	10.2
D6-4N-BMC	3/8	1/4	7.1	3/4	3/4	11/16	16.8	50.0	29.5	57.4	36.8	14.7	11.2
D6-6N-BMC	3/8	3/8	7.1	3/4	3/4	11/16	16.8	50.0	29.5	57.4	36.8	14.7	11.2
D6-8N-BMC	3/8	1/2	7.1	7/8	7/8	11/16	16.8	56.4	29.5	63.8	36.8	14.7	11.2
D8-6N-BMC	1/2	3/8	10.4	15/16	15/16	7/8	22.9	53.1	31.8	63.2	41.9	19.4	12.7
D8-8N-BMC	1/2	1/2	10.4	15/16	15/16	7/8	22.9	58.7	31.8	68.8	41.9	19.4	12.7
D12-12N-BMC	3/4	3/4	15.7	1-3/16	1-3/16	1-1/8	24.4	66.0	37.3	76.2	47.5	25.8	16.8
D16-16N-BMC	1	1	22.4	1-5/8	1-5/8	1-1/2	31.2	81.0	45.2	93.2	57.4	33.7	19.1

## Bulkhead Female Connector

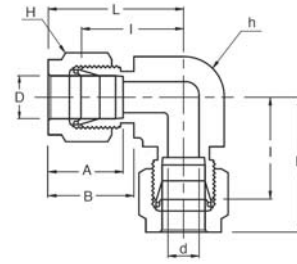
### BFC



ITEM	Tube O.D. D	T NPT	d	Width Across Flat			A	I	I <sub>1</sub>	L	L <sub>1</sub>	Panel hole drill size	Panel Max. thickness
				h	h <sub>1</sub>	H							
D2-2N-BFC	1/8	1/8	2.3	9/16	1/2	7/16	12.7	38.1	24.6	44.7	31.2	8.3	12.7
D4-2N-BFC	1/4	1/8	4.8	5/8	5/8	9/16	15.2	39.6	26.2	47.0	33.5	11.5	10.2
D4-4N-BFC	1/4	1/4	4.8	3/4	5/8	9/16	15.2	44.5	26.2	51.8	33.5	11.5	10.2
D6-4N-BFC	3/8	1/4	7.1	3/4	3/4	11/16	16.8	47.8	29.5	55.1	36.8	14.7	11.2
D8-6N-BFC	1/2	3/8	10.4	15/16	15/16	7/8	22.9	51.6	31.8	61.7	41.9	19.4	12.7
D8-8N-BFC	1/2	1/2	10.4	1-1/16	15/16	7/8	22.9	56.4	31.8	66.5	41.9	19.4	12.7
D12-12N-BFC	3/4	3/4	15.7	1-1/4	1-3/16	1-1/8	24.4	63.6	37.3	73.5	47.8	25.8	16.8

## Union Elbow

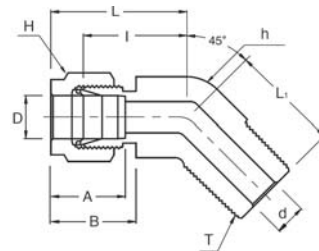
**UE**



ITEM	Tube O.D. D	d	Width Across Flat		A	B	I	L
			h	H				
D1-UE	1/16	1.3	3/8	5/16	8.6	10.9	14.0	18.0
D2-UE	1/8	2.3	3/8	7/16	12.7	15.2	15.8	22.4
D3-UE	3/16	3.0	1/2	1/2	13.7	16.0	18.5	25.1
D4-UE	1/4	4.8	1/2	9/16	15.2	17.8	20.1	27.4
D5-UE	5/16	6.4	5/8	5/8	16.3	18.5	22.4	29.7
D6-UE	3/8	7.1	5/8	11/16	16.8	19.3	23.1	30.5
D8-UE	1/2	10.4	13/16	7/8	22.9	21.8	25.9	36.1
D10-UE	5/8	12.7	1	1	24.4	21.8	28.7	38.9
D12-UE	3/4	15.7	1-1/16	1-1/8	24.4	21.8	29.7	39.9
D14-UE	7/8	18.3	1-3/8	1-1/4	25.9	21.8	34.5	44.7
D16-UE	1	22.4	1-3/8	1-1/2	31.2	26.4	36.8	49.0
D20-UE	1-1/4	27.7	1-11/16	1-7/8	41.2	38.9	44.5	66.6
D24-UE	1-1/2	34.0	2	2-1/4	50.0	42.2	50.8	78.0
D32-UE	2	46.0	2-3/4	3	67.6	62.7	69.9	107.2

## 45° Male Elbow

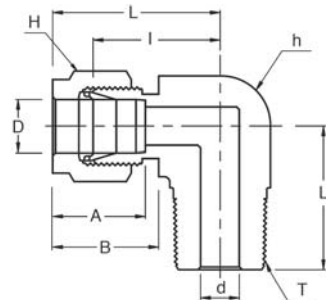
**HME**



ITEM	Tube O.D. D	T (NPT)	d	Width Across Flat		A	B	I	L	L <sub>1</sub>
				h	H					
D4-2N-HME	1/4	1/8	4.8	1/2	9/16	15.2	17.8	17.3	24.6	16.5
D4-4N-HME	1/4	1/4	4.8	1/2	9/16	15.2	17.8	17.3	24.6	21.1
D6-2N-HME	3/8	1/8	4.8	5/8	11/16	16.8	19.3	20.6	27.9	18.3
D6-4N-HME	3/8	1/4	7.1	5/8	11/16	16.8	19.3	20.6	27.9	22.9
D6-6N-HME	3/8	3/8	7.1	13/16	11/16	16.8	19.3	21.8	29.2	24.1
D8-6N-HME	1/2	3/8	9.7	13/16	7/8	22.9	21.8	21.8	32.0	24.1
D8-8N-HME	1/2	1/2	10.4	13/16	7/8	22.9	21.8	21.8	32.0	29.0

## Male Elbow

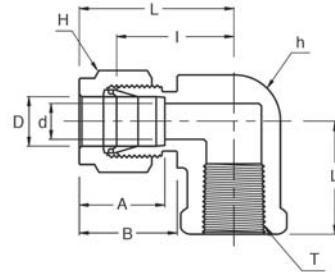
**ME**



ITEM	Tube O.D. D	T (NPT)	d	Width Across Flat		A	B	I	L	L <sub>1</sub>
				h	H					
D2-2N-ME	1/8	1/8	2.3	1/2	7/16	12.7	15.2	18.0	24.3	18.8
D2-4N-ME	1/8	1/4	2.3	1/2	7/16	12.7	15.2	18.0	24.3	23.4
D3-2N-ME	3/16	1/8	3.0	1/2	1/2	13.7	16.0	18.8	25.4	18.8
D3-4N-ME	3/16	1/4	3.0	1/2	1/2	13.7	16.0	18.8	25.4	23.4
D4-2N-ME	1/4	1/8	4.8	1/2	9/16	15.2	17.8	19.6	26.9	18.8
D4-4N-ME	1/4	1/4	4.8	1/2	9/16	15.2	17.8	19.6	26.9	23.4
D4-6N-ME	1/4	3/8	4.8	5/8	9/16	15.2	17.8	22.4	29.7	26.2
D4-8N-ME	1/4	1/2	4.8	13/16	9/16	15.2	17.8	24.4	31.8	33.0
D5-2N-ME	5/16	1/8	4.8	9/16	5/8	16.3	18.5	21.3	28.7	19.8
D5-4N-ME	5/16	1/4	6.4	9/16	5/8	16.3	18.5	21.3	28.7	24.4
D5-6N-ME	5/16	3/8	6.4	11/16	5/8	16.3	18.5	23.1	30.5	26.2
D6-2N-ME	3/8	1/8	4.8	5/8	11/16	16.8	19.3	23.1	30.5	20.8
D6-4N-ME	3/8	1/4	7.1	5/8	11/16	16.8	19.3	23.1	30.5	25.4
D6-6N-ME	3/8	3/8	7.1	5/8	11/16	16.8	19.3	23.9	31.2	26.2
D6-8N-ME	3/8	1/2	7.1	13/16	11/16	16.8	19.3	25.9	33.3	33.0
D6-12N-ME	3/8	3/4	7.1	1-1/16	11/16	16.8	19.3	29.7	37.1	36.8
D8-4N-ME	1/2	1/4	7.1	13/16	7/8	22.9	21.8	25.9	36.1	28.2
D8-6N-ME	1/2	3/8	9.7	13/16	7/8	22.9	21.8	25.9	36.1	28.2
D8-8N-ME	1/2	1/2	10.4	13/16	7/8	22.9	21.8	25.9	36.1	33.0
D8-12N-ME	1/2	3/4	10.4	1-1/16	7/8	22.9	21.8	29.7	39.9	36.8
D10-6N-ME	5/8	3/8	9.7	15/16	1	24.4	21.8	27.9	38.1	30.2
D10-8N-ME	5/8	1/2	11.9	15/16	1	24.4	21.8	27.9	38.1	35.1
D10-12N-ME	5/8	3/4	12.7	1-1/16	1	24.4	21.8	29.7	39.9	36.8
D12-8N-ME	3/4	1/2	11.9	1-1/16	1-1/8	24.4	21.8	29.7	39.9	36.8
D12-12N-ME	3/4	3/4	15.7	1-1/16	1-1/8	24.4	21.8	29.7	39.9	36.8
D14-12N-ME	7/8	3/4	15.7	1-3/8	1-1/4	25.9	21.8	34.5	44.7	41.7
D16-12N-ME	1	3/4	15.7	1-3/8	1-1/2	31.2	26.4	36.8	49.0	41.7
D16-16N-ME	1	1	22.4	1-3/8	1-1/2	31.2	26.4	36.8	49.0	46.5
D20-20N-ME	1-1/4	1-1/4	27.7	1-11/16	1-7/8	41.2	38.9	44.5	66.6	47.8
D24-24N-ME	1-1/2	1-1/2	34.0	2	2-1/4	50.0	45.2	50.8	78.0	60.5
D32-32N-ME	2	2	46.0	2-3/4	3	67.6	62.7	69.9	107.2	70.6

## Female Elbow

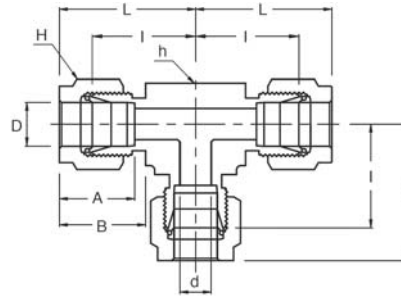
**FE**



ITEM	Tube O.D. D	T (NPT)	d	Width Across Flat		A	B	I	L	L <sub>1</sub>
				h	H					
D2-2N-FE	1/8	1/8	2.3	1/2	7/16	12.7	15.2	18.0	24.6	19.1
D2-4N-FE	1/8	1/4	2.3	11/16	7/16	12.7	15.2	20.8	27.4	22.4
D3-2N-FE	3/16	1/8	3.0	1/2	1/2	13.7	16.0	18.8	25.4	19.1
D4-2N-FE	1/4	1/8	4.8	1/2	9/16	15.2	17.8	19.6	26.9	19.1
D4-4N-FE	1/4	1/4	4.8	11/16	9/16	15.2	17.8	22.4	29.7	22.4
D4-6N-FE	1/4	3/8	4.8	13/16	9/16	15.2	17.8	24.4	31.8	22.4
D4-8N-FE	1/4	1/2	4.8	1	9/16	15.2	17.8	27.2	34.5	28.4
D5-2N-FE	5/16	1/8	6.4	9/16	5/8	16.3	18.5	21.3	28.7	19.1
D5-4N-FE	5/16	1/4	6.4	11/16	5/8	16.3	18.5	23.1	30.5	22.4
D6-2N-FE	3/8	1/8	7.1	5/8	11/16	16.8	19.3	23.1	30.5	19.1
D6-4N-FE	3/8	1/4	7.1	11/16	11/16	16.8	19.3	23.9	31.2	22.4
D6-6N-FE	3/8	3/8	7.1	13/16	11/16	16.8	19.3	25.9	33.3	22.4
D6-8N-FE	3/8	1/2	7.1	1	11/16	16.8	19.3	28.7	36.1	28.4
D8-4N-FE	1/2	1/4	10.4	13/16	7/8	22.9	21.8	25.9	36.1	22.4
D8-6N-FE	1/2	3/8	10.4	13/16	7/8	22.9	21.8	25.9	36.1	22.4
D8-8N-FE	1/2	1/2	10.4	1	7/8	22.9	21.8	28.7	38.9	37.0
D10-6N-FE	5/8	3/8	12.7	15/16	1	24.4	21.8	27.9	38.1	22.4
D10-8N-FE	5/8	1/2	12.7	1-1/16	1	24.4	21.8	29.7	39.9	28.4
D12-8N-FE	3/4	1/2	15.7	1-1/16	1-1/8	24.4	21.8	29.7	39.9	28.4
D12-12N-FE	3/4	3/4	15.7	1-3/8	1-1/8	24.4	21.8	34.5	44.7	31.8
D14-12N-FE	7/8	3/4	18.3	1-3/8	1-1/4	25.9	21.8	34.5	44.7	31.8
D16-12N-FE	1	3/4	22.4	1-3/8	1-1/2	31.2	26.4	36.8	49.0	31.8
D16-16N-FE	1	1	22.4	1-11/16	1-1/2	31.2	26.4	41.4	53.6	38.1

## Union Tee

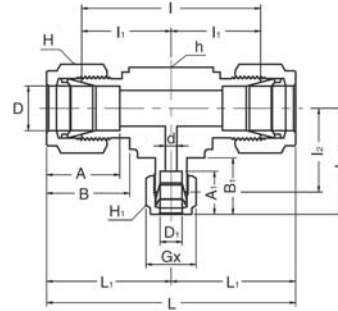
**UT**



ITEM	Tube O.D. D	d	Width Across Flat		A	B	I	L
			h	H				
D1-UT	1/16	1.3	3/8	5/16	8.6	10.9	14.0	18.0
D2-UT	1/8	2.3	3/8	7/16	12.7	15.2	15.8	22.4
D3-UT	3/16	3.0	1/2	1/2	13.7	16.0	18.5	25.1
D4-UT	1/4	4.8	1/2	9/16	15.2	17.8	20.1	27.4
D5-UT	5/16	6.4	5/8	5/8	16.3	18.5	22.4	29.7
D6-UT	3/8	7.1	5/8	11/16	16.8	19.3	23.1	30.5
D8-UT	1/2	10.4	13/16	7/8	22.9	21.8	25.9	36.1
D10-UT	5/8	12.7	1	1	24.4	21.8	28.7	38.9
D12-UT	3/4	15.7	1-1/16	1-1/8	24.4	21.8	29.7	39.9
D14-UT	7/8	18.3	1-3/8	1-1/4	25.9	21.8	34.5	44.7
D16-UT	1	22.4	1-3/8	1-1/2	31.2	26.4	36.8	49.0
D20-UT	1-1/4	27.7	1-11/16	1-7/8	41.2	38.9	44.5	66.6
D24-UT	1-1/2	34.0	2	2-1/4	50.0	45.2	50.8	78.0
D32-UT	2	46.0	2-3/4	3	67.6	62.7	69.9	107.2

## Reducing Union Tee

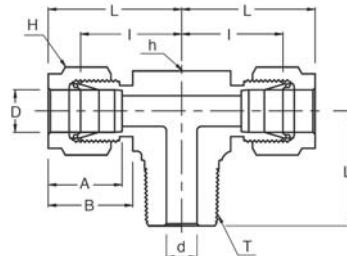
**RUT**



ITEM	Tube O.D.		d	Width Across Flat			A	A <sub>1</sub>	B	B <sub>1</sub>	I	I <sub>1</sub>	I <sub>2</sub>	L	L <sub>1</sub>	L <sub>2</sub>
	D <sub>1</sub>	D <sub>2</sub>		h	h <sub>1</sub>	H										
D6-4-RUT	3/8	1/4	4.8	5/8	11/16	9/16	16.8	15.2	19.3	17.8	46.2	23.1	21.6	61.0	30.5	29.0
D8-4-RUT	1/2	1/4	4.8	13/16	7/8	9/16	22.9	15.2	21.8	17.8	51.8	25.9	24.4	72.1	36.1	31.8
D8-6-RUT	1/2	3/8	7.1	13/16	7/8	11/16	22.9	16.8	21.8	19.3	51.8	25.9	25.9	72.1	36.1	33.3
D10-6-RUT	5/8	3/8	7.1	1	1	11/16	24.4	16.8	21.8	19.3	57.4	28.7	28.7	77.7	38.9	36.1
D12-6-RUT	3/4	3/8	7.1	1-1/16	1-1/8	11/16	24.4	16.8	21.8	19.3	59.4	29.7	29.7	79.8	39.9	37.1
D12-8-RUT	3/4	1/2	10.4	1-1/16	1-1/8	7/8	24.4	22.9	21.8	21.8	59.4	29.7	29.7	79.8	39.9	39.9
D16-6-RUT	1	3/8	7.1	1-3/8	1-1/2	1-1/16	31.2	16.8	26.4	19.3	73.7	36.8	34.5	98.0	49.0	41.9
D16-8-RUT	1	1/2	10.4	1-3/8	1-1/2	7/8	31.2	21.8	26.4	22.9	73.7	36.8	36.8	98.0	49.0	44.7
D16-12-RUT	1	3/4	15.7	1-3/8	1-1/2	1-1/8	31.2	24.4	26.4	21.8	73.7	36.8	36.8	98.0	49.0	44.7

## Male Branch Tee

**MBT**

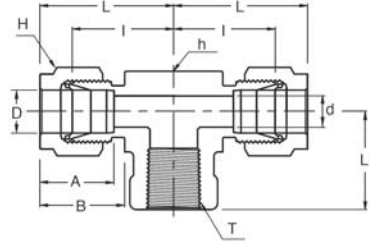


ITEM	Tube O.D. D	T (NPT)	d	Width Across Flat		A	B	I	L	L <sub>1</sub>
				h	H					
D2-2N-MBT	1/8	1/8	2.3	1/2	7/16	12.7	15.2	18.3	24.9	18.9
D2-4N-MBT	1/8	1/4	2.3	1/2	7/16	12.7	15.2	18.0	24.6	23.4
D3-2N-MBT	3/16	1/8	3.0	1/2	1/2	13.7	16.0	17.8	25.3	18.8
D4-2N-MBT	1/4	1/8	4.8	1/2	9/16	15.2	17.8	19.6	26.9	18.8
D4-4N-MBT	1/4	1/4	4.8	1/2	9/16	15.2	17.8	19.6	26.9	23.4
D5-2N-MBT	5/16	1/8	4.8	5/8	5/8	16.3	18.5	22.4	29.7	20.8
D6-4N-MBT	3/8	1/4	7.1	5/8	11/16	16.8	19.3	23.1	30.5	25.4
D6-6N-MBT	3/8	3/8	7.1	5/8	11/16	16.8	19.3	13.1	30.5	28.2
D8-6N-MBT	1/2	3/8	9.7	13/16	7/8	22.9	21.8	25.9	36.1	28.2
D8-8N-MBT	1/2	1/2	10.4	13/16	7/8	22.9	21.8	25.9	36.1	33.0
D10-8N-MBT	5/8	1/2	11.9	1	1	24.4	21.8	28.7	38.9	35.8
D12-12N-MBT	3/4	3/4	15.7	1-1/16	1-1/8	24.4	21.8	29.7	39.9	36.8



## Female Branch Tee

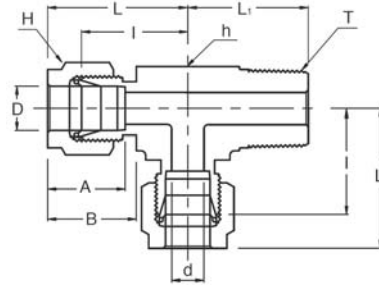
### FBT



ITEM	Tube O.D. D	T (NPT)	d	Width Across Flat		A	B	I	L	L <sub>1</sub>
				h	H					
D2-2N-FBT	1/8	1/8	2.3	1/2	7/16	12.7	15.2	18.0	24.6	19.1
D4-2N-FBT	1/4	1/8	4.8	1/2	9/16	15.2	17.8	19.6	26.9	19.1
D4-4N-FBT	1/4	1/4	4.8	11/16	9/16	15.2	17.8	22.4	29.7	22.4
D6-4N-FBT	3/8	1/4	7.1	11/16	11/16	16.8	19.3	23.9	31.2	22.4
D6-6N-FBT	3/8	3/8	7.1	13/16	11/16	16.8	19.3	25.9	33.3	22.4
D6-8N-FBT	3/8	1/2	7.1	1	11/16	16.8	19.3	28.7	36.1	28.5
D8-4N-FBT	1/2	1/4	10.4	13/16	7/8	22.9	21.8	25.9	36.1	22.4
D8-6N-FBT	1/2	3/8	10.4	13/16	7/8	22.9	21.8	25.9	36.1	22.4
D8-8N-FBT	1/2	1/2	10.4	1	7/8	22.9	21.8	28.7	38.9	28.4
D10-8N-FBT	5/8	1/2	12.7	1	1	24.4	21.8	28.7	38.9	28.4
D12-12N-FBT	3/4	3/4	15.7	1-3/8	1-1/8	24.4	21.8	34.5	44.7	31.8
D16-12N-FBT	1	3/4	22.4	1-3/8	1-1/2	31.2	26.4	36.8	49.0	31.8
D16-16N-FBT	1	1	22.4	1-11/16	1-1/2	31.2	26.4	41.4	53.6	38.1

## Male Run Tee

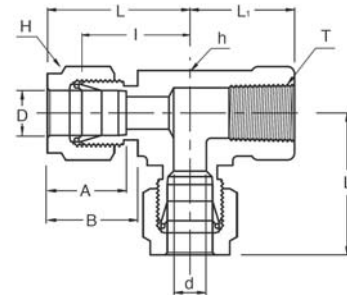
**MRT**



ITEM	Tube O.D. D	T (NPT)	d	Width Across Flat		A	B	I	L	L <sub>1</sub>
				h	H					
D2-2N-MRT	1/8	1/8	2.3	1/2	7/16	12.7	15.2	18.3	24.9	18.9
D2-4N-MRT	1/8	1/4	2.3	1/2	7/16	12.7	15.2	18.0	24.6	23.4
D3-2N-MRT	3/16	1/8	3.0	1/2	1/2	13.7	16.0	17.8	25.3	18.8
D4-2N-MRT	1/4	1/8	4.8	1/2	9/16	15.2	17.8	19.6	26.9	18.8
D4-4N-MRT	1/4	1/4	4.8	1/2	9/16	15.2	17.8	19.6	26.9	23.4
D5-2N-MRT	5/16	1/8	4.8	5/8	5/8	16.3	18.5	22.4	29.7	20.8
D6-4N-MRT	3/8	1/4	7.1	5/8	11/16	16.8	19.3	23.1	30.5	25.4
D6-6N-MRT	3/8	3/8	7.1	5/8	11/16	16.8	19.3	13.1	30.5	28.2
D8-6N-MRT	1/2	3/8	9.7	13/16	7/8	22.9	21.8	25.9	36.1	28.2
D8-8N-MRT	1/2	1/2	10.4	13/16	7/8	22.9	21.8	25.9	36.1	33.0
D10-8N-MRT	5/8	1/2	11.9	1	1	24.4	21.8	28.7	38.9	35.8
D12-12N-MRT	3/4	3/4	15.7	1-1/16	1-1/8	24.4	21.8	29.7	39.9	36.8

## Female Run Tee

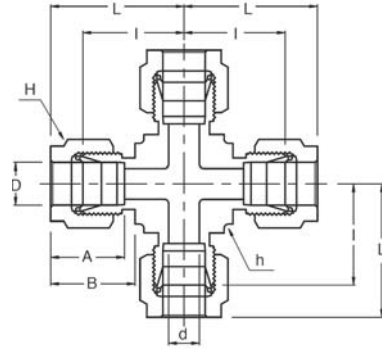
**FRT**



ITEM	Tube O.D. D	T (NPT)	d	Width Across Flat		A	B	I	L	L <sub>1</sub>
				h	H					
D2-2N-FRT	1/8	1/8	2.3	1/2	7/16	12.7	15.2	18.0	24.6	19.1
D4-2N-FRT	1/4	1/8	4.8	1/2	9/16	15.2	17.8	19.6	26.9	19.1
D4-4N-FRT	1/4	1/4	4.8	11/16	9/16	15.2	17.8	22.4	29.7	22.4
D6-4N-FRT	3/8	1/4	7.1	11/16	11/16	16.8	19.3	23.9	31.2	22.4
D8-6N-FRT	1/2	3/8	10.4	13/16	7/8	22.9	21.8	25.9	36.1	22.4
D8-8N-FRT	1/2	1/2	10.4	1	7/8	22.9	21.8	28.7	38.9	28.4
D12-12N-FRT	3/4	3/4	15.7	1-3/8	1-1/8	24.4	21.8	34.5	44.7	31.8
D16-12N-FRT	1	3/4	22.4	1-3/8	1-1/2	31.2	26.4	36.8	49.0	31.8
D16-16N-FRT	1	1	22.4	1-11/16	1-1/2	31.2	26.4	41.4	53.6	38.1

## Union Cross

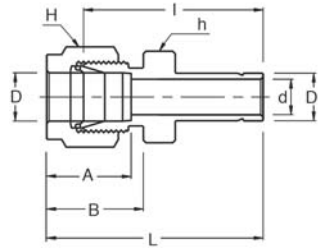
**UC**



ITEM	Tube O.D. D	d	Width Across Flat		A	B	I	L
			h	H				
D1-UC	1/16	1.3	3/8	5/16	8.6	10.9	14.0	18.0
D2-UC	1/8	2.3	3/8	7/16	12.7	15.2	15.8	22.4
D3-UC	3/16	3.0	1/2	1/2	13.7	16.0	18.5	25.1
D4-UC	1/4	4.8	1/2	9/16	15.2	17.8	20.1	27.4
D5-UC	5/16	6.4	5/8	5/8	16.3	18.5	22.4	29.7
D6-UC	3/8	7.1	5/8	11/16	16.8	19.3	23.1	30.5
D8-UC	1/2	10.4	13/16	7/8	22.9	21.8	25.9	36.1
D10-UC	5/8	12.7	1	1	24.4	21.8	28.7	38.9
D12-UC	3/4	15.7	1-1/16	1-1/8	24.4	21.8	29.7	39.9
D14-UC	7/8	18.3	1-3/8	1-1/4	25.9	21.8	34.5	44.7
D16-UC	1	22.4	1-3/8	1-1/2	31.2	26.4	36.8	49.0

## Reducer

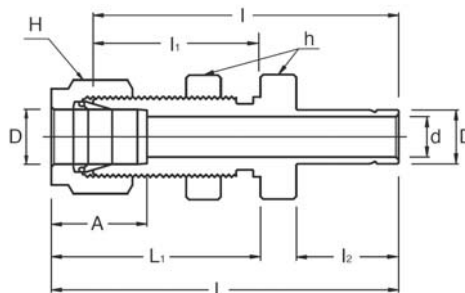
R



ITEM	Tube O.D.		d	Width Across Flat		A	B	I	L
	D	D <sub>1</sub>		h	H				
D2-1-R	1/8	1/16	0.8	7/16	7/16	12.7	15.2	22.4	29.0
D2-2-R	1/8	1/8	2.0	7/16	7/16	12.7	15.2	26.9	33.5
D2-3-R	1/8	3/16	2.3	7/16	7/16	12.7	15.2	27.7	34.3
D2-4-R	1/8	1/4	2.3	7/16	7/16	12.7	15.2	29.5	36.1
D2-6-R	1/8	3/8	2.3	7/16	7/16	12.7	15.2	31.0	37.6
D2-8-R	1/8	1/2	2.3	9/16	7/16	12.7	15.2	37.6	44.2
D3-2-R	3/16	1/8	2.0	7/16	1/2	13.7	16.0	28.2	34.8
D3-4-R	3/16	1/4	3.0	7/16	1/2	13.7	16.0	30.5	37.1
D4-2-R	1/4	1/8	4.8	1/2	9/16	15.2	17.8	29.5	36.8
D4-3-R	1/4	3/16	4.8	1/2	9/16	15.2	17.8	30.2	37.6
D4-4-R	1/4	1/4	4.8	1/2	9/16	15.2	17.8	31.8	39.1
D4-5-R	1/4	5/16	4.8	1/2	9/16	15.2	17.8	32.5	39.9
D4-6-R	1/4	3/8	4.8	1/2	9/16	15.2	17.8	33.3	40.6
D4-8-R	1/4	1/2	4.8	9/16	9/16	15.2	17.8	38.9	46.2
D4-10-R	1/4	5/8	4.8	11/16	9/16	15.2	17.8	40.6	48.0
D4-12-R	1/4	3/4	4.8	13/16	9/16	15.2	17.8	42.4	47.8
D5-6-R	5/16	3/8	6.4	9/16	5/8	16.3	18.5	34.5	41.9
D5-8-R	5/16	1/2	6.4	9/16	5/8	16.3	18.5	40.1	47.5
D6-4-R	3/8	1/4	4.8	5/8	11/16	16.8	19.3	34.0	41.4
D6-6-R	3/8	3/8	7.1	5/8	11/16	16.8	19.3	35.8	43.3
D6-8-R	3/8	1/2	7.1	5/8	11/16	16.8	19.3	41.1	48.5
D6-10-R	3/8	5/8	7.1	11/16	11/16	16.8	19.3	42.9	50.3
D6-12-R	3/8	3/4	7.1	13/16	11/16	16.8	19.3	42.9	50.3
D8-4-R	1/2	1/4	4.8	13/16	7/8	22.9	21.8	34.8	45.0
D8-6-R	1/2	3/8	7.1	13/16	7/8	22.9	21.8	36.6	46.7
D8-8-R	1/2	1/2	9.9	13/16	7/8	22.9	21.8	42.2	52.3
D8-10-R	1/2	5/8	10.4	13/16	7/8	22.9	21.8	43.7	53.8
D8-12-R	1/2	3/4	10.4	13/16	7/8	22.9	21.8	43.7	53.8
D8-16-R	1/2	1	10.4	1-1/16	7/8	22.9	21.8	50.0	60.2
D10-12-R	5/8	3/4	12.7	15/16	1	24.4	21.8	44.5	54.6
D10-14-R	5/8	7/8	12.7	15/16	1	24.4	21.8	35.0	56.1
D10-16-R	5/8	1	12.7	1-1/16	1	24.4	21.8	50.8	61.0
D12-8-R	3/4	1/2	9.9	1-1/16	1-1/8	24.4	21.8	44.5	54.6
D12-16-R	3/4	1	15.7	1-1/16	1-1/8	24.4	21.8	52.3	62.5

## Bulkhead Reducer

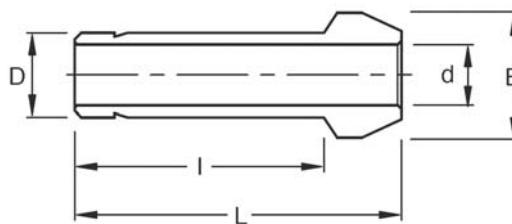
**BR**



ITEM	Tube O.D. D	d	Width Across Flat		A	I	I <sub>1</sub>	I <sub>2</sub>	L	L <sub>1</sub>	Panel hole drill size	Panel Max. thickness
			h	H								
D2-2-BR	1/8	2.0	1/2	7/16	12.7	42.9	24.6	13.3	49.5	31.2	8.3	12.7
D4-4-BR	1/4	4.8	5/8	9/16	15.2	48.5	26.2	15.7	55.9	33.5	11.5	10.2
D6-6-BR	3/8	7.1	3/4	11/16	16.8	53.8	29.5	17.5	61.2	36.8	14.7	11.2
D8-8-BR	1/2	10.4	15/16	7/8	22.9	62.7	31.8	23.1	72.9	41.9	19.4	12.7
D10-10-BR	5/8	12.7	1-1/16	1	24.4	65.0	32.5	24.7	75.2	42.7	22.6	12.7
D16-16-BR	1	20.3	1-5/8	1-1/2	31.2	88.1	45.2	31.7	100.3	57.4	33.7	19.1

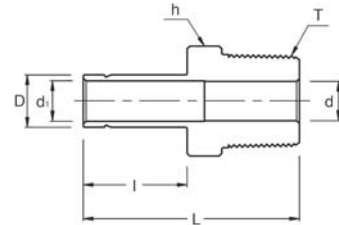
## Port Connector

**PC**



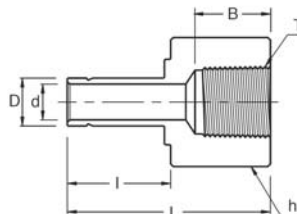
ITEM	Tube O.D. D	d	E	I	L
D2-PC	1/8	2.3	6.1	15.8	22.4
D4-PC	1/4	4.8	9.4	18.8	24.6
D5-PC	5/16	6.4	10.9	20.1	25.9
D6-PC	3/8	7.1	12.7	20.3	26.2
D8-PC	1/2	9.9	15.7	26.9	35.8
D12-PC	3/4	15.0	22.1	27.7	37.3
D16-PC	1	20.3	28.4	34.5	48.0

## Male Adapter

**MA**

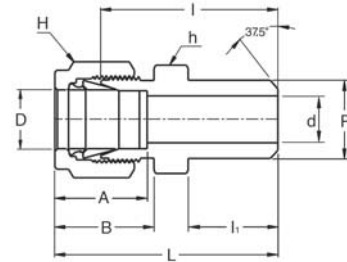
ITEM	Tube O.D. D	T (NPT)	d <sub>1</sub>	d	Width Across Flat h	l	L
D2-2N-MA	1/8	1/8	2.3	4.8	7/16	13.5	29.5
D2-4N-MA	1/8	1/4	2.3	7.1	9/16	13.5	34.8
D3-2N-MA	3/16	1/8	3.0	4.8	7/16	14.2	30.2
D3-4N-MA	3/16	1/4	3.0	7.1	9/16	14.2	35.6
D4-2N-MA	1/4	1/8	4.8	4.8	7/16	15.8	31.8
D4-4N-MA	1/4	1/4	4.8	4.8	9/16	15.8	37.1
D4-6N-MA	1/4	3/8	4.8	4.8	11/16	15.8	37.8
D4-8N-MA	1/4	1/2	4.8	4.8	7/8	15.8	43.4
D5-2N-MA	5/16	1/8	6.4	4.8	7/16	16.8	32.8
D5-4N-MA	5/16	1/4	6.4	6.4	9/16	16.8	38.1
D6-2N-MA	3/8	1/8	7.1	4.8	7/16	17.5	33.5
D6-4N-MA	3/8	1/4	7.1	7.1	9/16	17.5	38.9
D6-6N-MA	3/8	3/8	7.1	7.1	11/16	17.5	39.6
D6-8N-MA	3/8	1/2	7.1	7.1	7/8	17.5	45.2
D8-4N-MA	1/2	1/4	9.9	7.1	9/16	23.2	44.5
D8-6N-MA	1/2	3/8	9.9	9.9	11/16	23.2	45.2
D8-8N-MA	1/2	1/2	9.9	9.9	7/8	23.2	50.8
D10-6N-MA	5/8	3/8	12.7	9.9	11/16	24.7	47.4
D10-8N-MA	5/8	1/2	12.7	11.9	7/8	24.7	52.3
D10-12N-MA	5/8	3/4	12.7	15.0	1-1/16	24.7	52.3
D12-8N-MA	3/4	1/2	15.0	11.9	7/8	24.7	52.3
D12-12N-MA	3/4	3/4	15.0	15.0	1-1/16	24.7	52.3
D12-16N-MA	3/4	1	15.0	20.3	1-3/8	24.7	57.9
D14-12N-MA	7/8	3/4	17.3	15.0	1-1/16	26.7	54.3
D16-12N-MA	1	3/4	20.3	15.7	1-1/16	31.7	58.7
D16-16N-MA	1	1	20.3	20.3	1-3/8	31.7	66.0

## Female Adapter

**FA**

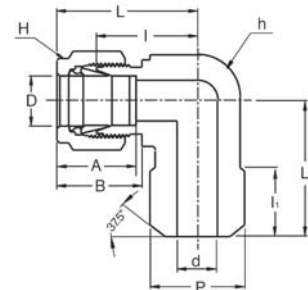
ITEM	Tube O.D. D	T NPT	d	Width Across Flat h	I	L
D2-2N-FA	1/8	1/8	2.3	9/16	13.5	31.5
D2-4N-FA	1/8	1/4	2.3	3/4	13.5	35.3
D3-2N-FA	3/16	1/8	3.0	9/16	14.2	32.0
D3-4N-FA	3/16	1/4	3.0	3/4	14.2	35.8
D4-2N-FA	1/4	1/8	4.8	9/16	15.8	33.0
D4-4N-FA	1/4	1/4	4.8	3/4	15.8	37.1
D4-6N-FA	1/4	3/8	4.8	7/8	15.8	39.4
D4-8N-FA	1/4	1/2	4.8	1-1/16	15.8	45.5
D5-2N-FA	5/16	1/8	6.4	9/16	16.8	34.3
D5-4N-FA	5/16	1/4	6.4	3/4	16.8	37.6
D6-2N-FA	3/8	1/8	7.1	9/16	17.5	34.3
D6-4N-FA	3/8	1/4	7.1	3/4	17.5	38.1
D6-6N-FA	3/8	3/8	7.1	7/8	17.5	40.4
D6-8N-FA	3/8	1/2	7.1	1-1/16	17.5	46.7
D8-4N-FA	1/2	1/4	9.9	3/4	23.2	43.4
D8-6N-FA	1/2	3/8	9.9	7/8	23.2	45.5
D8-8N-FA	1/2	1/2	9.9	1-1/16	23.2	51.8
D10-6N-FA	5/8	3/8	12.7	7/8	24.7	48.3
D10-8N-FA	5/8	1/2	12.7	1-1/16	24.7	53.1
D12-8N-FA	3/4	1/2	15.0	1-1/16	24.7	52.8
D12-12N-FA	3/4	3/4	15.0	1-5/16	24.7	54.9
D12-16N-FA	3/4	1	15.0	1-5/8	24.7	58.4
D14-12N-FA	7/8	3/4	17.3	1-5/16	26.7	57.2
D16-12N-FA	1	3/4	20.3	1-5/16	31.7	60.7
D16-16N-FA	1	1	20.3	1-5/8	31.7	64.3

## Pipe Weld Connector

**PWC**

ITEM	Tube O.D. D	Male pipe size		d	Width Across Flat		A	B	I	I <sub>1</sub>	L
		Nom.	O.D.		h	H					
D2-2P-PWC	1/8	1/8	10.3	2.3	7/16	7/16	12.7	15.2	23.9	9.7	30.5
D3-2P-PWC	3/16	1/8	10.3	3.0	7/16	1/2	13.7	16.0	24.6	9.7	31.2
D4-2P-PWC	1/4	1/8	10.3	4.8	1/2	9/16	15.2	17.8	25.4	9.7	32.8
D4-4P-PWC	1/4	1/4	13.7	4.8	9/16	9/16	15.2	17.8	30.5	14.2	37.8
D5-2P-PWC	5/16	1/8	10.3	5.1	9/16	5/8	16.3	18.5	26.7	9.7	34.0
D5-4P-PWC	5/16	1/4	13.7	6.4	9/16	5/8	16.3	18.5	31.2	14.2	38.6
D6-4P-PWC	3/8	1/4	13.7	7.1	5/8	11/16	16.8	19.3	32.5	14.2	39.9
D6-6P-PWC	3/8	3/8	17.1	7.1	11/16	11/16	16.8	19.3	32.5	14.2	39.9
D6-8P-PWC	3/8	1/2	21.3	7.1	7/8	11/16	16.8	19.3	38.9	19.1	46.2
D8-6P-PWC	1/2	3/8	17.1	10.4	13/16	7/8	22.9	21.8	33.3	14.2	43.4
D8-8P-PWC	1/2	1/2	21.3	10.4	7/8	7/8	22.9	21.8	38.9	19.1	49.0
D8-12P-PWC	1/2	3/4	26.7	10.4	1-1/16	7/8	22.9	21.8	40.4	19.1	50.5
D10-8P-PWC	5/8	1/2	21.3	12.7	15/16	1	24.4	21.8	38.9	19.1	49.0
D12-12P-PWC	3/4	3/4	26.7	15.7	1-1/16	1-1/8	24.4	21.8	40.4	19.1	50.5
D16-16P-PWC	1	1	33.4	22.4	1-3/8	1-1/2	31.2	26.4	50.0	23.9	62.2

## Pipe Weld Elbow

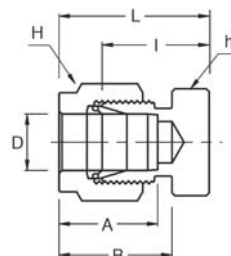
**PWE**

ITEM	Tube O.D. D	Male pipe size		d	Width Across Flat		A	B	I	I <sub>1</sub>	L	L <sub>1</sub>
		Nom.	O.D.		h	H						
D4-4P-PWE	1/4	1/4	13.7	4.8	1/2	9/16	15.2	17.8	19.6	14.2	26.9	23.4
D6-6P-PWE	3/8	3/8	13.7	7.1	5/8	11/16	16.8	19.3	23.1	14.2	30.5	25.4
D8-8P-PWE	1/2	1/2	21.3	10.4	13/16	7/8	22.9	21.8	25.9	19.1	46.1	33.0



## Cap

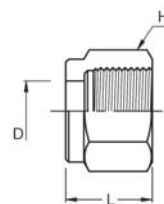
### C



ITEM	Tube O.D. D	Width Across Flat		A	B	I	L
		h	H				
D1-C	1/16	5/16	5/16	8.6	10.9	11.2	15.0
D2-C	1/8	7/16	7/16	12.7	15.2	13.5	20.1
D3-C	3/16	7/16	1/2	13.7	16.0	14.7	21.3
D4-C	1/4	1/2	9/16	15.2	17.8	16.0	23.4
D5-C	5/16	9/16	5/8	16.3	18.5	17.0	24.4
D6-C	3/8	5/8	11/16	16.8	19.3	18.3	25.7
D8-C	1/2	13/16	7/8	22.9	21.8	19.1	29.2
D10-C	5/8	15/16	1	24.4	21.8	19.8	30.0
D12-C	3/4	1-1/16	1-1/8	24.4	21.8	21.3	31.5
D14-C	7/8	1-3/16	1-1/4	25.9	21.8	23.9	34.0
D16-C	1	1-3/8	1-1/2	31.2	26.4	26.2	38.4

## Nut

### N



ITEM	Tube O.D. D	Width Across Flat h	L	Model	Tube O.D. D	Width Across Flat h	L
D1-N	1/16	5/16	7.9	D8-N	1/2	7/8	17.5
D2-N	1/8	7/16	11.9	D10-N	5/8	1	17.5
D3-N	3/16	1/2	11.9	D12-N	3/4	1-1/8	17.5
D4-N	1/4	9/16	12.7	D14-N	7/8	1-1/4	17.5
D5-N	5/16	5/8	13.5	D16-N	1	1-1/2	20.6
D6-N	3/8	11/16	14.2				

Plug

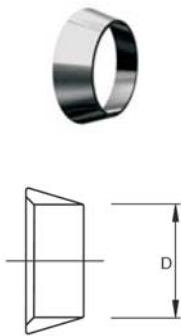
**P**



ITEM	Tube O.D. D	Width Across Flat h	Model	Tube O.D. D	Width Across Flat h
D2-P	1/8	7/16	D8-P	1/2	7/8
D3-P	3/16	1/2	D10-P	5/8	1
D4-P	1/4	9/16	D12-P	3/4	1-1/8
D5-P	5/16	5/8	D14-P	7/8	1-1/4
D6-P	3/8	11/16	D16-P	1	1-1/2

Front Ferrule

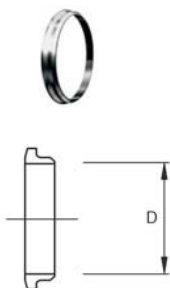
**FF**



ITEM	Tube O.D. D	Model	Tube O.D. D
D1-FF	1/16	D8-FF	1/2
D2-FF	1/8	D10-FF	5/8
D3-FF	3/16	D12-FF	3/4
D4-FF	1/4	D14-FF	7/8
D5-FF	5/16	D16-FF	1
D6-FF	3/8		

Back Ferrule

**BF**



ITEM	Tube O.D. D	Model	Tube O.D. D
D1-BF	1/16	D8-BF	1/2
D2-BF	1/8	D10-BF	5/8
D3-BF	3/16	D12-BF	3/4
D4-BF	1/4	D14-BF	7/8
D5-BF	5/16	D16-BF	1
D6-BF	3/8		

Ferrule Set




















**FS**



ITEM	Tube O.D. D	Model	Tube O.D. D	Model	Tube O.D. D
D1-FS	1/16	D5-FS	5/16	D12-FS	3/4
D2-FS	1/8	D6-FS	3/8	D14-FS	7/8
D3-FS	3/16	D8-FS	1/2	D16-FS	1
D4-FS	1/4	D10-FS	5/8		

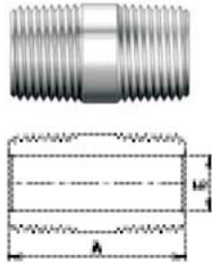
## Thread Fittings



Type	Figure	Type	Figure
Close Nipple <b>CN</b>		Female Elbow <b>FE</b>	
Hex Nipple <b>HN</b>		Street Elbow <b>SE</b>	
Hex Long Nipple <b>HLN</b>		Reducing Street Elbow <b>RSE</b>	
Hex Reducing Nipple <b>HRN</b>		Male Elbow <b>ME</b>	
Adapter <b>A</b>		Male Tee <b>MT</b>	
Reducing Adapter <b>RA</b>		Female Tee <b>FT</b>	
Hex Connector <b>HC</b>		Branch Tee <b>BT</b>	
Hex Reducing Connector <b>HRC</b>		Run Tee <b>RT</b>	
Pipe Plug <b>PP</b>		Female Cross <b>FC</b>	
Pipe Cap <b>PC</b>			

## Close Nipple

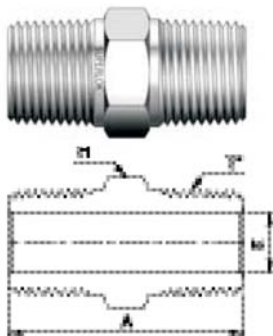
### CN



ITEM	Thread Size	Dimension (mm)	
		A	E
D2N-CN	1/8	19.1	4.8
D4N-CN	1/4	28.4	7.1
D6N-CN	3/8	28.4	9.6
D8N-CN	1/2	38.1	11.9
D12N-CN	3/4	38.1	15.7
D16N-CN	1	47.8	22.4

## Hex Nipple

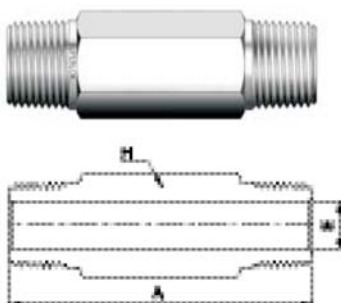
### HN



ITEM	Thread Size	Dimension (mm)		
		A	E	H
D2N-HN	1/8	25.6	4.8	11.1
D4N-HN	1/4	35.6	7.1	14.2
D6N-HN	3/8	36.3	9.6	17.4
D8N-HN	1/2	46.7	11.9	22.2
D12N-HN	3/4	46.7	15.7	26.9
D16N-HN	1	58.9	22.4	34.9

## Hex Long Nipple

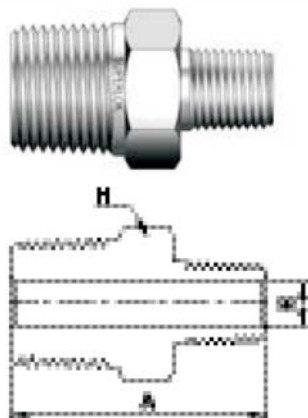
### HLN



ITEM	Thread Size	Dimension (mm)		
		A	E	H
D2N-HLN	1/8	*	4.8	11.1
D4N-HLN	1/4	*	7.1	14.2
D6N-HLN	3/8	*	9.6	17.4
D8N-HLN	1/2	*	11.9	22.2
D12N-HLN	3/4	*	15.7	26.9
D16N-HLN	1	*	22.8	34.9

## Hex Reducing Nipple

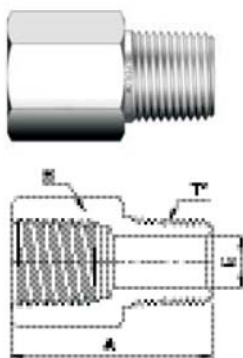
### HRN



ITEM	Thread Size		Dimension (mm)		
	L	S	A	E	H
D2-1N-HRN	1/8	1/16	25.6	3.0	11.1
D4-2N-HRN	1/4	1/8	31.0	4.8	14.2
D6-2N-HRN	3/8	1/8	31.8	4.8	17.4
D6-4N-HRN	3/8	1/4	36.3	7.1	17.4
D8-2N-HRN	1/2	1/8	37.3	4.8	22.2
D8-4N-HRN	1/2	1/4	41.9	7.1	22.2
D8-6N-HRN	1/2	3/8	41.9	9.6	22.2
D12-4N-HRN	3/4	1/4	41.9	7.1	26.9
D12-8N-HRN	3/4	1/2	46.7	11.9	26.9
D16-4N-HRN	1	1/4	49.3	7.1	34.9
D16-8N-HRN	1	1/2	54.1	11.9	34.9
D16-12N-HRN	1	3/4	54.1	15.7	34.9

## Adapter

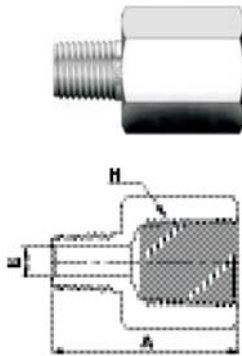
### A



ITEM	Thread Size	Dimension (mm)		
		A	E	H
D2N-A	1/8	27.9	4.8	14.2
D4N-A	1/4	35.6	7.1	19.1
D6N-A	3/8	38.4	9.6	22.2
D8N-A	1/2	49.3	11.9	26.9
D12N-A	3/4	51.3	15.7	33.3
D16N-A	1	57.9	22.4	41.2

## Reducing Adapter

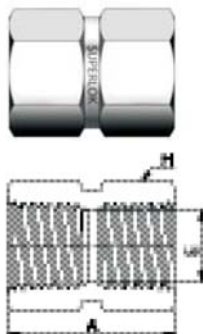
### RA



ITEM	Thread Size		Dimension (mm)		
	Male	Female	A	E	H
D2-4N-RA	1/8	1/4	32.0	4.8	19.1
D2-6N-RA	1/8	3/8	33.8	4.8	22.2
D2-8N-RA	1/8	1/2	40.1	4.8	26.9
D4-6N-RA	1/4	3/8	38.1	7.1	22.2
D4-8N-RA	1/4	1/2	44.7	7.1	26.9
D4-12N-RA	1/4	3/4	47.0	7.1	33.3
D4-16N-RA	1/4	1	49.8	7.1	41.2
D6-8N-RA	3/8	1/2	44.4	9.6	26.9
D6-12N-RA	3/8	3/4	46.2	9.6	33.3
D8-12N-RA	1/2	3/4	51.3	11.9	33.3
D8-16N-RA	1/2	1	54.9	11.9	41.2
D12-16N-RA	3/4	1	55.1	15.7	41.2

## Hex Connector

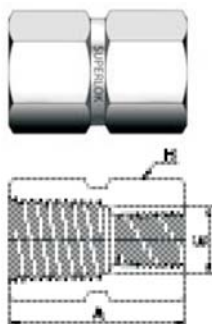
### HC



ITEM	Thread Size	Dimension (mm)		
		A	E	H
D2N-HC	1/8	20.6	8.6	14.2
D4N-HC	1/4	30.2	11.4	19.1
D6N-HC	3/8	33.3	15.0	22.2
D8N-HC	1/2	39.6	18.5	26.9
D12N-HC	3/4	41.1	23.9	33.3
D16N-HC	1	50.8	29.7	41.2

## Hex Reducing Connector

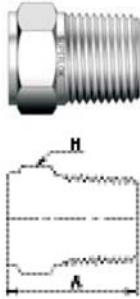
### HRC



ITEM	Thread Size		Dimension (mm)		
	L	S	A	E	H
D4-2N-HRC	1/4	1/8	31.0	8.6	19.1
D6-4N-HRC	3/8	1/4	35.1	11.4	22.2
D8-2N-HRC	1/2	1/8	39.6	8.6	26.9
D8-4N-HRC	1/2	1/4	44.4	11.4	26.9
D8-6N-HRC	1/2	3/8	45.2	15.0	26.9
D12-4N-HRC	3/4	1/4	46.0	11.4	33.3
D12-8N-HRC	3/4	1/2	52.3	18.5	33.3
D16-8N-HRC	1	1/2	55.6	18.5	41.2
D16-12N-HRC	1	3/4	57.2	23.9	41.2

## Pipe Plug

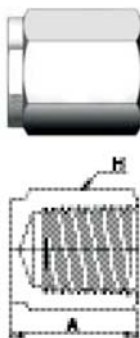
**PP**



ITEM	Thread Size	Dimension (mm)	
		A	H
D2N-PP	1/8	19.1	11.1
D4N-PP	1/4	24.4	14.2
D6N-PP	3/8	25.1	17.4
D8N-PP	1/2	30.7	22.2
D12N-PP	3/4	30.7	26.9
D16N-PP	1	38.1	34.9

## Pipe Cap

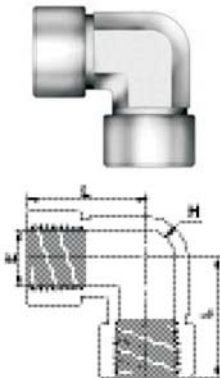
**PC**



ITEM	Thread Size	Dimension (mm)	
		A	H
D2N-PC	1/8	19.1	14.2
D4N-PC	1/4	23.1	19.1
D6N-PC	3/8	26.2	22.2
D8N-PC	1/2	34.0	26.9
D12N-PC	3/4	36.6	33.3
D16N-PC	1	41.1	41.2

## Female Elbow

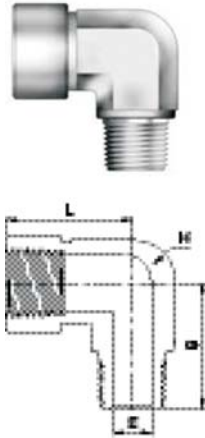
**FE**



ITEM	Thread Size	Dimension (mm)		
		E	L	H
D2N-FE	1/8	8.6	24.0	12.7
D4N-FE	1/4	11.4	29.0	17.5
D6N-FE	3/8	15.0	34.5	20.6
D8N-FE	1/2	18.5	37.0	25.4
D12N-FE	3/4	23.9	46.5	31.8
D16N-FE	1	29.7	48.8	42.9

## Street Elbow

### SE



ITEM	Thread Size	Dimension (mm)			
		E	L	S	H
D2N-SE	1/8	4.8	24.0	19.6	12.7
D4N-SE	1/4	7.1	29.0	26.5	17.5
D6N-SE	3/8	9.6	34.5	28.2	20.6
D8N-SE	1/2	11.9	37.0	35.3	25.4
D12N-SE	3/4	15.7	46.5	39.6	31.8
D16N-SE	1	22.4	48.8	49.2	42.9

## Reducing Street Elbow

### RSE



ITEM	Thread Size		Dimension (mm)			
	Male	Female	E	L	S	H
D2-1N-RSE	1/8	1/16	3.0	26.4	22.1	12.7
D4-2N-RSE	1/4	1/8	4.8	29.0	22.4	17.5
D6-4N-RSE	3/8	1/4	7.1	34.5	28.2	20.6
D8-4N-RSE	1/2	1/4	7.1	37.0	30.5	25.4
D8-6N-RSE	1/2	3/8	9.6	37.0	30.5	25.4
D12-8N-RSE	3/4	1/2	11.9	46.5	39.6	31.8
D16-8N-RSE	1	1/2	11.9	48.8	44.5	42.9

## Male Elbow

### ME

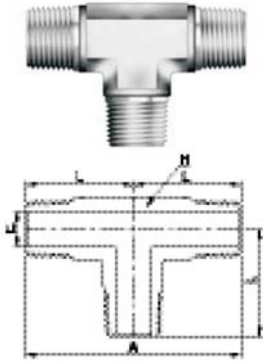


ITEM	Thread Size	Dimension (mm)		
		E	L	H
D2N-ME	1/8	4.8	19.1	12.7
D4N-ME	1/4	7.1	24.5	12.7
D6N-ME	3/8	9.6	26.9	17.5
D8N-ME	1/2	11.9	33.2	20.6
D12N-ME	3/4	15.7	35.3	25.4
D16N-ME	1	22.4	44.5	31.8



## Male Tee

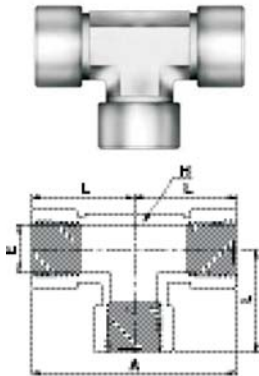
### MT



ITEM	Thread Size	Dimension (mm)			
		A	E	L	H
D2N-MT	1/8	38.2	4.8	19.1	12.7
D4N-MT	1/4	49.0	7.1	24.5	12.7
D6N-MT	3/8	53.8	9.6	26.9	17.5
D8N-MT	1/2	66.4	11.9	33.2	20.6
D12N-MT	3/4	70.6	15.7	35.3	25.4
D16N-MT	1	89.0	22.4	44.5	31.8

## Female Tee

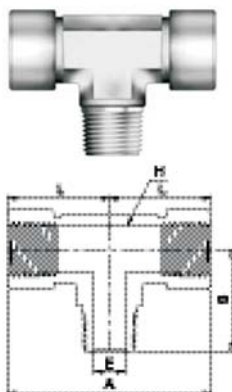
### FT



ITEM	Thread Size	Dimension (mm)			
		A	E	L	H
D2N-FT	1/8	48.0	8.6	24.0	12.7
D4N-FT	1/4	58.0	11.4	29.0	17.5
D6N-FT	3/8	69.0	15.0	34.5	20.6
D8N-FT	1/2	74.0	18.5	37.0	25.4
D12N-FT	3/4	93.0	23.9	46.5	31.8
D16N-FT	1	97.0	29.7	48.5	42.9

## Branch Tee

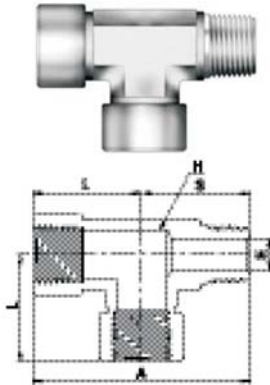
### BT



ITEM	Thread Size	Dimension (mm)				
		A	E	L	S	H
D2N-BT	1/8	48.0	4.8	24.0	19.6	12.7
D4N-BT	1/4	58.0	7.1	29.0	26.5	17.5
D6N-BT	3/8	69.0	9.6	34.5	28.2	20.6
D8N-BT	1/2	74.0	11.9	37.0	35.3	25.4
D12N-BT	3/4	93.0	15.7	46.5	39.6	31.8
D16N-BT	1	97.0	22.4	48.5	49.2	42.9

## Run Tee

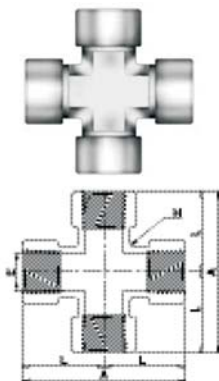
**RT**



ITEM	Thread Size	Dimension (mm)				
		A	E	L	S	H
D2N-RT	1/8	43.6	4.8	24.0	19.6	12.7
D4N-RT	1/4	56.2	7.1	29.0	26.5	17.5
D6N-RT	3/8	62.7	9.6	34.5	28.2	20.6
D8N-RT	1/2	72.3	11.9	37.0	35.3	25.4
D12N-RT	3/4	86.1	15.7	46.5	39.6	31.8
D16N-RT	1	97.7	22.4	48.5	49.2	42.9

## Female Cross



























**FC**



ITEM	Thread Size	Dimension (mm)			
		A	E	L	H
D2N-FC	1/8	48.0	8.6	24.0	12.7
D4N-FC	1/4	58.0	11.4	29.0	17.5
D6N-FC	3/8	69.0	15.0	34.5	20.6
D8N-FC	1/2	74.0	18.5	37.0	25.4
D12N-FC	3/4	93.0	23.9	46.5	31.8
D16N-FC	1	97.0	29.7	48.5	42.9

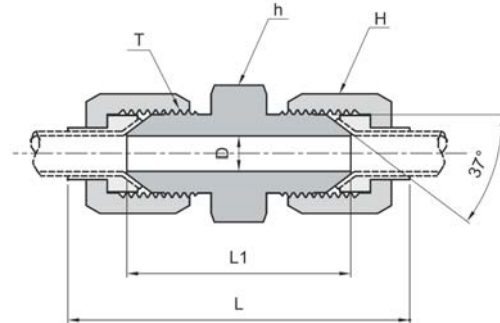
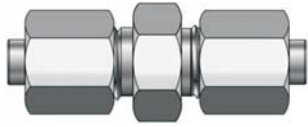
## 37° Flared Tube Fitting



Type	Figure	Type	Figure
Union <b>JU</b>		Female Connector <b>JFC</b>	
Union Elbow <b>JUE</b>		Female Elbow <b>JFE</b>	
Union Tee <b>JUT</b>		Female Run Tee <b>JFRT</b>	
Union Cross <b>JUC</b>		Female Branch Tee <b>JFBT</b>	
Bulkhead Union <b>JBU</b>		O-Ring Seal Male Connector <b>JOMC</b>	
Weld Bulkhead Union <b>JBUW</b>		O-Ring Seal Male Elbow <b>JOME</b>	
Female Bulkhead Union <b>JFBU</b>		O-Ring Seal 45° Male Elbow <b>JOHME</b>	
Bulkhead Union Elbow <b>JBUE</b>		O-Ring Seal Branch Tee <b>JOBT</b>	
Male Connector <b>JMC</b>		O-Ring Seal Run Tee <b>JORT</b>	
Male Elbow <b>JME</b>		Plug/Cap <b>JP/JC</b>	
Male Reducing Tee <b>JMRT</b>		Lock Nut <b>JLN</b>	
Male Branch Tee <b>JMBT</b>		Nut <b>JN</b>	
45° Male Elbow <b>JHME</b>		Reducer Adapter <b>JRA</b>	

## Union

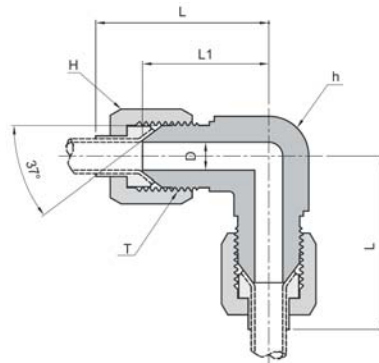
### JU



ITEM	Tube O.D.		T (UNF/UN)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>
	Inch	Metric						
D2T-JU	1/8	3	5/16-24	1.6	11.1	9.5	45.3	29.7
D3T-JU	3/16	4	3/8-24	3.2	11.1	11.1	50.0	31.2
D4T-JU	1/4	6	7/16-20	4.4	12.7	14.3	53.0	34.8
D5T-JU	5/16	8	1/2-20	6.0	14.3	25.9	55.6	34.8
D6T-JU	3/8	10	9/16-18	7.5	25.9	17.5	59.6	35.8
D8T-JU	1/2	12	3/4-16	9.9	20.2	22.2	66.5	41.1
D10T-JU	5/8	16	7/8-14	12.3	23.8	22.2	81.0	47.8
D12T-JU	3/4	18	1 1/16-12	15.5	28.5	31.8	85.9	54.9
D14T-JU	7/8	22	1 3/16-12	18.3	31.7	34.9	91.3	56.1
D16T-JU	1	25	1 5/16-12	21.4	34.9	38.1	95.2	57.2
D20T-JU	1-1/4	32	1 5/8-12	27.4	42.9	50.8	98.7	61.7
D24T-JU	1-1/2	38	1 7/8-12	33.3	50.4	57.2	123.2	69.8
D32T-JU	2	50	2 1/2-12	45.2	66.7	73.0	141.4	86.4

## Union Elbow

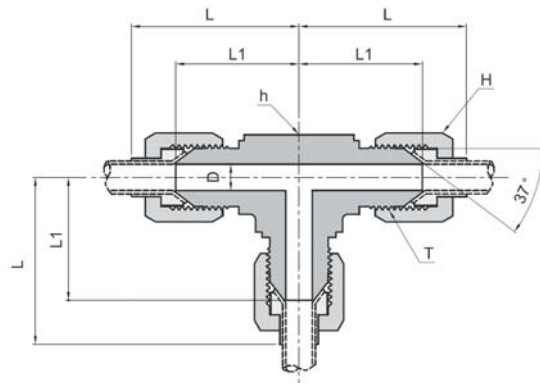
### JUE



ITEM	Tube O.D.		T (UNF/UN)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>
	Inch	Metric						
D2T-JUE	1/8	3	5/16-24	1.6	11.1	9.5	27.4	19.6
D3T-JUE	3/16	4	3/8-24	3.2	11.1	11.1	30.5	21.1
D4T-JUE	1/4	6	7/16-20	4.4	11.1	14.3	31.7	22.6
D5T-JUE	5/16	8	1/2-20	6.0	14.3	25.9	34.5	24.1
D6T-JUE	3/8	10	9/16-18	7.5	14.3	17.5	38.8	26.9
D8T-JUE	1/2	12	3/4-16	9.9	19.0	22.2	44.5	31.8
D10T-JUE	5/8	16	7/8-14	12.3	22.2	22.2	53.4	36.8
D12T-JUE	3/4	18	1 1/16-12	15.5	27.0	31.8	57.7	42.2
D14T-JUE	7/8	22	1 3/16-12	18.3	33.3	34.9	63.3	45.7
D16T-JUE	1	25	1 5/16-12	21.4	33.3	38.1	65.0	46.0
D20T-JUE	1-1/4	32	1 5/8-12	27.4	41.3	50.8	70.8	52.3
D24T-JUE	1-1/2	38	1 7/8-12	33.3	47.6	57.2	85.9	59.2
D32T-JUE	2	50	2 1/2-12	45.2	63.5	73.0	105.2	77.7

Union Tee

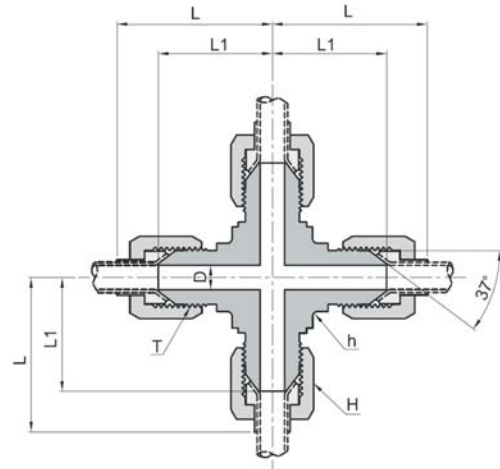
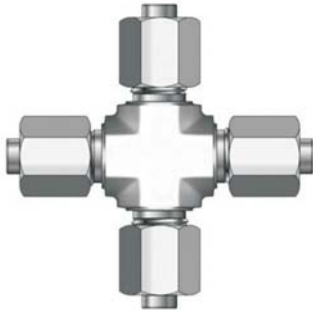
**JUT**



ITEM	Tube O.D.		T (UNF/UN)	D	h (HEX)	H (HEX)	L	L1
	Inch	Metric						
D2T-JUT	1/8	3	5/16-24	1.6	11.1	9.5	27.4	19.6
D3T-JUT	3/16	4	3/8-24	3.2	11.1	11.1	30.5	21.1
D4T-JUT	1/4	6	7/16-20	4.4	11.1	14.3	31.7	22.6
D5T-JUT	5/16	8	1/2-20	6.0	14.3	25.9	34.5	24.1
D6T-JUT	3/8	10	9/16-18	7.5	14.3	17.5	38.8	26.9
D8T-JUT	1/2	12	3/4-16	9.9	19.0	22.2	44.5	31.8
D10T-JUT	5/8	16	7/8-14	12.3	22.2	22.2	53.4	36.8
D12T-JUT	3/4	18	1 1/16-12	15.5	27.0	31.8	57.7	42.2
D14T-JUT	7/8	22	1 3/16-12	18.3	33.3	34.9	63.3	45.7
D16T-JUT	1	25	1 5/16-12	21.4	33.3	38.1	65.0	46.0
D20T-JUT	1-1/4	32	1 5/8-12	27.4	41.3	50.8	70.8	52.3
D24T-JUT	1-1/2	38	1 7/8-12	33.3	47.6	57.2	85.9	59.2
D32T-JUT	2	50	2 1/2-12	45.2	63.5	73.0	105.2	77.7

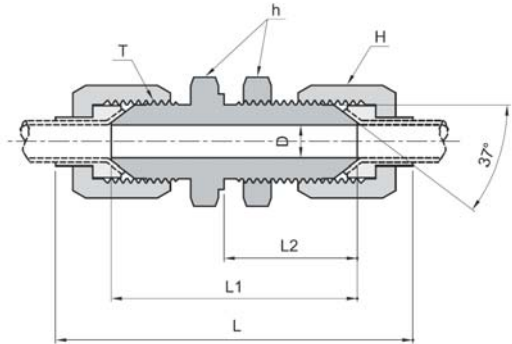
## Union Cross

### JUC



ITEM	Tube O.D.		T (UNF/UN)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>
	Inch	Metric						
D2T-JUC	1/8	3	5/16-24	1.6	11.1	9.5	27.4	19.6
D3T-JUC	3/16	4	3/8-24	3.2	11.1	11.1	30.5	21.1
D4T-JUC	1/4	6	7/16-20	4.4	11.1	14.3	31.7	22.6
D5T-JUC	5/16	8	1/2-20	6.0	14.3	25.9	34.5	24.1
D6T-JUC	3/8	10	9/16-18	7.5	14.3	17.5	38.8	26.9
D8T-JUC	1/2	12	3/4-16	9.9	19.0	22.2	44.5	31.8
D10T-JUC	5/8	16	7/8-14	12.3	22.2	22.2	53.4	36.8
D12T-JUC	3/4	18	1 1/16-12	15.5	27.0	31.8	57.7	42.2
D14T-JUC	7/8	22	1 3/16-12	18.3	33.3	34.9	63.3	45.7
D16T-JUC	1	25	1 5/16-12	21.4	33.3	38.1	65.0	46.0
D20T-JUC	1-1/4	32	1 5/8-12	27.4	41.3	50.8	70.8	52.3
D24T-JUC	1-1/2	38	1 7/8-12	33.3	47.6	57.2	85.9	59.2
D32T-JUC	2	50	2 1/2-12	45.2	63.5	73.0	105.2	77.7

## Bulkhead Union

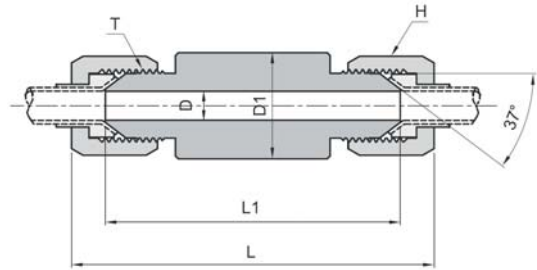
**JBU**

ITEM	Tube O.D.		T (UNF/UN)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>
	Inch	Metric							
D2T-JBU	1/8	3	5/16-24	1.6	14.3	9.5	63.1	47.5	28.2
D3T-JBU	3/16	4	3/8-24	3.2	15.9	11.1	67.1	48.3	28.2
D4T-JBU	1/4	6	7/16-20	4.4	17.5	14.3	70.8	52.6	30.5
D5T-JBU	5/16	8	1/2-20	6.0	19.1	25.9	73.4	52.6	30.5
D6T-JBU	3/8	10	9/16-18	7.5	20.6	17.5	79.2	55.4	32.5
D8T-JBU	1/2	12	3/4-16	9.9	25.4	22.2	87.4	62.0	36.6
D10T-JBU	5/8	16	7/8-14	12.3	28.6	22.2	102.8	69.6	40.1
D12T-JBU	3/4	18	1 1/16-12	15.5	34.9	31.8	109.5	78.5	44.4
D14T-JBU	7/8	22	1 3/16-12	18.3	38.1	34.9	114.4	79.2	44.4
D16T-JBU	1	25	1 5/16-12	21.4	41.3	38.1	117.8	79.8	44.4
D20T-JBU	1-1/4	32	1 5/8-12	27.4	47.6	50.8	121.1	84.1	45.7
D24T-JBU	1-1/2	38	1 7/8-12	33.3	54.0	57.2	142.8	89.4	46.0
D32T-JBU	2	50	2 1/2-12	45.2	69.9	73.0	161.7	106.7	53.1



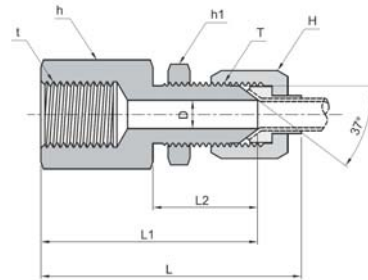
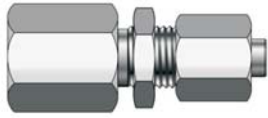
## Weld Bulkhead Union

### JBUW



ITEM	Tube O.D.		T (UNF/UN)	D	D <sub>1</sub>	H (HEX)	L	L <sub>1</sub>
	Inch	Metric						
D2T-JBUW	1/8	3	5/16-24	1.6	11.0	9.5	85.6	70.0
D3T-JBUW	3/16	4	3/8-24	3.2	11.0	11.1	88.8	70.0
D4T-JBUW	1/4	6	7/16-20	4.4	14.0	14.3	98.2	80.0
D5T-JBUW	5/16	8	1/2-20	6.0	16.0	25.9	120.8	100.0
D6T-JBUW	3/8	10	9/16-18	7.5	17.0	17.5	123.8	100.0
D8T-JBUW	1/2	12	3/4-16	9.9	22.0	22.2	125.4	100.0
D10T-JBUW	5/8	16	7/8-14	12.3	25.0	22.2	143.2	110.0
D12T-JBUW	3/4	18	1 1/16-12	15.5	30.0	31.8	151.0	120.0
D14T-JBUW	7/8	22	1 3/16-12	18.3	32.0	34.9	165.0	130.0
D16T-JBUW	1	25	1 5/16-12	21.4	40.0	38.1	168.0	130.0
D20T-JBUW	1-1/4	32	1 5/8-12	27.4	46.0	50.8	177.0	140.0
D24T-JBUW	1-1/2	38	1 7/8-12	33.3	50.0	57.2	193.4	140.0
D32T-JBUW	2	50	2 1/2-12	45.2	70.0	73.0	205.0	150.0

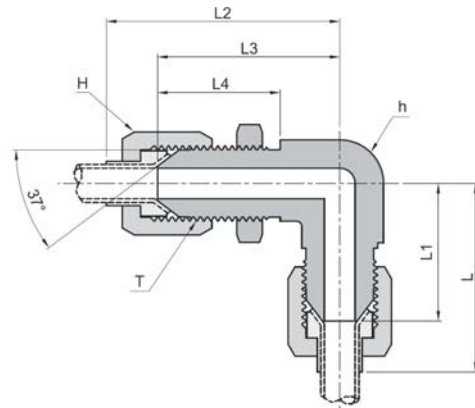
## Female Bulkhead Union

**JFBU**

ITEM	Tube O.D.		T (UNF/UN)	t (NPT)	D	h (HEX)	h <sub>1</sub> (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>
	Inch	Metric									
D2T-01N-JFBU	1/8	3	5/16-24	1/8	1.6	14.3	14.3	9.5	49.0	41.2	28.2
D3T-01N-JFBU	3/16	4	3/8-24	1/8	3.2	14.3	15.9	11.1	50.6	41.2	28.2
D4T-01N-JFBU	1/4	6	7/16-20	1/8	4.4	14.3	17.5	14.3	52.6	43.5	30.5
D5T-01N-JFBU	5/16	8	1/2-20	1/8	6.0	14.3	19.1	25.9	53.9	43.5	30.5
D6T-02N-JFBU	3/8	10	9/16-18	1/4	7.5	19.1	20.6	17.5	62.5	50.5	32.5
D8T-03N-JFBU	1/2	12	3/4-16	3/8	9.9	22.2	25.4	22.2	69.3	56.6	36.6
D10T-04N-JFBU	5/8	16	7/8-14	1/2	12.3	28.6	28.6	22.2	82.7	66.1	40.1
D12T-06N-JFBU	3/4	18	1 1/16-12	3/4	15.5	34.9	34.9	31.8	86.0	71.4	44.4
D14T-06N-JFBU	7/8	22	1 3/16-12	3/4	18.3	34.9	38.1	34.9	89.0	71.4	44.4
D16T-08N-JFBU	1	25	1 5/16-12	1	21.4	41.3	41.3	38.1	94.4	75.4	44.4
D20T-10N-JFBU	1-1/4	32	1 5/8-12	1-1/4	27.4	50.8	47.6	50.8	99.2	80.7	45.7
D24T-12N-JFBU	1-1/2	38	1 7/8-12	1-1/2	33.3	60.3	54.0	57.2	107.7	81.0	46.0
D32T-16N-JFBU	2	50	2 1/2-12	2	45.2	73.0	69.9	73.0	120.6	93.1	53.1

## Bulkhead Union Elbow

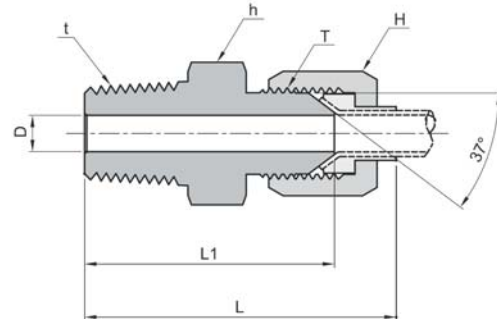
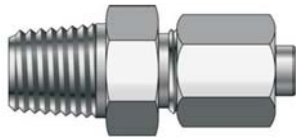
### JBUE



ITEM	Tube O.D.		T (UNF/UN)	h (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>
	Inch	Metric								
D2T-JBUE	1/8	3	5/16-24	11.1	9.5	30.2	22.4	45.9	38.1	23.4
D3T-JBUE	3/16	4	3/8-24	11.1	11.1	33.3	23.9	47.5	38.1	23.4
D4T-JBUE	1/4	6	7/16-20	11.1	14.3	33.7	34.6	49.5	40.4	25.9
D5T-JBUE	5/16	8	1/2-20	14.3	25.9	37.3	26.9	54.1	43.7	25.9
D6T-JBUE	3/8	10	9/16-18	14.3	17.5	39.6	27.7	57.9	46.0	27.7
D8T-JBUE	1/2	12	3/4-16	19.0	22.2	47.2	34.5	66.3	53.6	31.8
D10T-JBUE	5/8	16	7/8-14	22.2	22.2	56.2	39.6	77.3	60.7	35.8
D12T-JBUE	3/4	18	1 1/16-12	27.0	31.8	60.7	45.2	83.1	67.6	39.6
D14T-JBUE	7/8	22	1 3/16-12	33.3	34.9	66.4	48.8	88.7	71.1	39.6
D16T-JBUE	1	25	1 5/16-12	33.3	38.1	68.3	49.3	90.1	71.1	39.6
D20T-JBUE	1-1/4	32	1 5/8-12	41.3	50.8	73.6	55.1	97.7	79.2	40.9
D24T-JBUE	1-1/2	38	1 7/8-12	47.6	57.2	86.1	59.4	113.6	86.9	41.1
D32T-JBUE	2	50	2 1/2-12	63.5	73.0	100.9	73.4	131.9	104.4	48.5

Male Connector

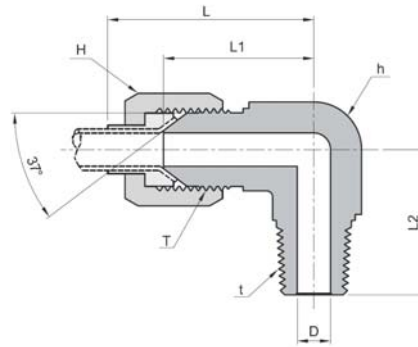
**JMC**



ITEM	Tube O.D.		T (UNF/UN)	t (NPT)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>
	Inch	Metric							
D2T-01N-JMC	1/8	3	5/16-24	1/8	1.6	11.1	9.5	36.0	28.2
D3T-01N-JMC	3/16	4	3/8-24	1/8	3.2	11.1	11.1	38.4	28.2
D4T-01N-JMC	1/4	6	7/16-20	1/8	4.4	12.7	14.3	40.1	30.5
D5T-01N-JMC	5/16	8	1/2-20	1/8	6.0	14.3	25.9	41.4	30.5
D6T-02N-JMC	3/8	10	9/16-18	1/4	7.5	25.9	17.5	48.2	32.5
D8T-03N-JMC	1/2	12	3/4-16	3/8	9.9	20.2	22.2	51.6	36.6
D10T-04N-JMC	5/8	16	7/8-14	1/2	12.3	23.8	22.2	64.6	40.1
D12T-06N-JMC	3/4	18	1 1/16-12	3/4	15.5	28.5	31.8	67.8	44.4
D14T-06N-JMC	7/8	22	1 3/16-12	3/4	18.3	31.7	34.9	70.7	44.4
D16T-08N-JMC	1	25	1 5/16-12	1	21.4	34.9	38.1	77.4	44.4
D20T-10N-JMC	1-1/4	32	1 5/8-12	1-1/4	27.4	42.9	50.8	80.7	45.7
D24T-12N-JMC	1-1/2	38	1 7/8-12	1-1/2	33.3	50.4	57.2	94.8	46.0
D32T-16N-JMC	2	50	2 1/2-12	2	45.2	66.7	73.0	106.5	53.1

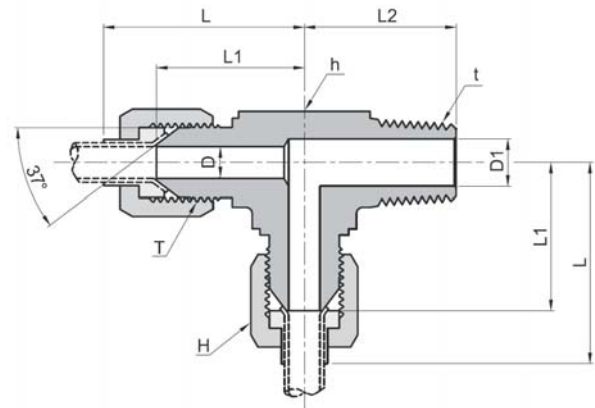
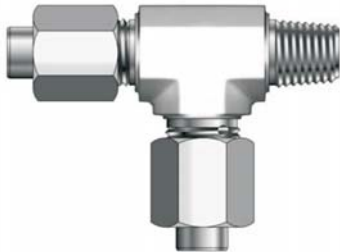
## Male Elbow

**JME**



ITEM	Tube O.D.		T (UNF/UN)	t (NPT)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>
	Inch	Metric								
D2T-01N-JME	1/8	3	5/16-24	1/8	1.6	11.1	9.5	27.4	19.6	18.3
D3T-01N-JME	3/16	4	3/8-24	1/8	3.2	11.1	11.1	30.5	21.1	18.3
D4T-01N-JME	1/4	6	7/16-20	1/8	4.4	11.1	14.3	31.7	22.6	19.8
D5T-01N-JME	5/16	8	1/2-20	1/8	6.0	14.3	25.9	34.5	24.1	19.8
D6T-02N-JME	3/8	10	9/16-18	1/4	7.5	14.3	17.5	38.8	26.9	27.7
D8T-03N-JME	1/2	12	3/4-16	3/8	9.9	19.0	22.2	44.5	31.8	31.0
D10T-04N-JME	5/8	16	7/8-14	1/2	12.3	22.2	22.2	53.4	36.8	37.3
D12T-06N-JME	3/4	18	1 1/16-12	3/4	15.5	27.0	31.8	57.7	42.2	40.4
D14T-06N-JME	7/8	22	1 3/16-12	3/4	18.3	33.3	34.9	63.3	45.7	42.9
D16T-08N-JME	1	25	1 5/16-12	1	21.4	33.3	38.1	65.0	46.0	50.0
D20T-10N-JME	1-1/4	32	1 5/8-12	1-1/4	27.4	41.3	50.8	70.8	52.3	60.5
D24T-12N-JME	1-1/2	38	1 7/8-12	1-1/2	33.3	47.6	57.2	85.9	59.2	67.1
D32T-16N-JME	2	50	2 1/2-12	2	45.2	63.5	73.0	105.2	77.7	76.2

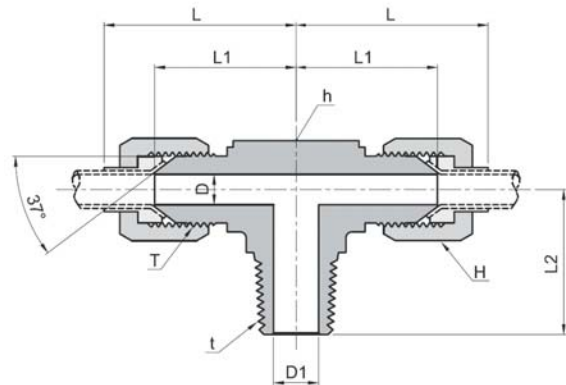
## Male Run Tee

**JMRT**

ITEM	Tube O.D.		T (UNF/UN)	t (NPT)	D	D <sub>1</sub>	h (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>
	Inch	Metric									
D2T-01N-JMRT	1/8	3	5/16-24	1/8	1.6	4.8	11.1	9.5	27.4	19.6	18.3
D3T-01N-JMRT	3/16	4	3/8-24	1/8	3.2	4.8	11.1	11.1	30.5	21.1	18.3
D4T-01N-JMRT	1/4	6	7/16-20	1/8	4.4	4.8	11.1	14.3	31.7	22.6	19.8
D5T-01N-JMRT	5/16	8	1/2-20	1/8	6.0	4.8	14.3	25.9	34.5	24.1	19.8
D6T-02N-JMRT	3/8	10	9/16-18	1/4	7.5	7.0	14.3	17.5	38.8	26.9	27.7
D8T-03N-JMRT	1/2	12	3/4-16	3/8	9.9	10.3	19.0	22.2	44.5	31.8	31.0
D10T-04N-JMRT	5/8	16	7/8-14	1/2	12.3	13.5	22.2	22.2	53.4	36.8	37.3
D12T-06N-JMRT	3/4	18	1 1/16-12	3/4	15.5	18.3	27.0	31.8	57.7	42.2	40.4
D14T-06N-JMRT	7/8	22	1 3/16-12	3/4	18.3	18.3	33.3	34.9	63.3	45.7	42.9
D16T-08N-JMRT	1	25	1 5/16-12	1	21.4	23.8	33.3	38.1	65.0	46.0	50.0
D20T-10N-JMRT	1-1/4	32	1 5/8-12	1-1/4	27.4	31.7	41.3	50.8	70.8	52.3	60.5
D24T-12N-JMRT	1-1/2	38	1 7/8-12	1-1/2	33.3	38.0	47.6	57.2	85.9	59.2	67.1
D32T-16N-JMRT	2	50	2 1/2-12	2	45.2	49.0	63.5	73.0	105.2	77.7	76.2

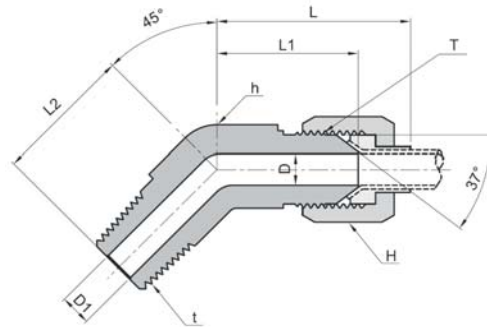
## Male Branch Tee

### JMBT



ITEM	Tube O.D.		T (UNF/UN)	t (NPT)	D	D <sub>1</sub>	h (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>
	Inch	Metric									
D2T-01N-JMBT	1/8	3	5/16-24	1/8	1.6	4.8	11.1	9.5	27.4	19.6	18.3
D3T-01N-JMBT	3/16	4	3/8-24	1/8	3.2	4.8	11.1	11.1	30.5	21.1	18.3
D4T-01N-JMBT	1/4	6	7/16-20	1/8	4.4	4.8	11.1	14.3	31.7	22.6	19.8
D5T-01N-JMBT	5/16	8	1/2-20	1/8	6.0	4.8	14.3	25.9	34.5	24.1	19.8
D6T-02N-JMBT	3/8	10	9/16-18	1/4	7.5	7.0	14.3	17.5	38.8	26.9	27.7
D8T-03N-JMBT	1/2	12	3/4-16	3/8	9.9	10.3	19.0	22.2	44.5	31.8	31.0
D10T-04N-JMBT	5/8	16	7/8-14	1/2	12.3	13.5	22.2	22.2	53.4	36.8	37.3
D12T-06N-JMBT	3/4	18	1 1/16-12	3/4	15.5	18.3	27.0	31.8	57.7	42.2	40.4
D14T-06N-JMBT	7/8	22	1 3/16-12	3/4	18.3	18.3	33.3	34.9	63.3	45.7	42.9
D16T-08N-JMBT	1	25	1 5/16-12	1	21.4	23.8	33.3	38.1	65.0	46.0	50.0
D20T-10N-JMBT	1-1/4	32	1 5/8-12	1-1/4	27.4	31.7	41.3	50.8	70.8	52.3	60.5
D24T-12N-JMBT	1-1/2	38	1 7/8-12	1-1/2	33.3	38.0	47.6	57.2	85.9	59.2	67.1
D32T-16N-JMBT	2	50	2 1/2-12	2	45.2	49.0	63.5	73.0	105.2	77.7	76.2

## 45° Male Elbow

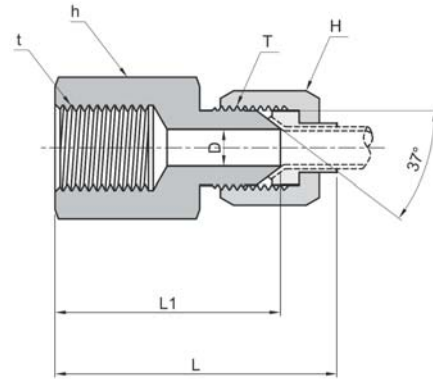
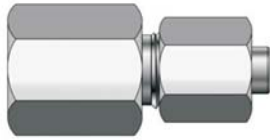
**JHME**

ITEM	Tube O.D.		T (UNF/UN)	t (NPT)	D	D <sub>1</sub>	h (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>
	Inch	Metric									
D2T-01N-JHME	1/8	3	5/16-24	1/8	1.6	4.8	11.1	9.5	25.3	17.5	13.2
D3T-01N-JHME	3/16	4	3/8-24	1/8	3.2	4.8	11.1	11.1	26.9	17.5	13.2
D4T-01N-JHME	1/4	6	7/16-20	1/8	4.4	4.8	11.1	14.3	27.4	28.3	16.3
D5T-01N-JHME	5/16	8	1/2-20	1/8	6.0	4.8	14.3	25.9	30.0	19.6	16.3
D6T-02N-JHME	3/8	10	9/16-18	1/4	7.5	7.0	14.3	17.5	33.0	21.1	21.8
D8T-03N-JHME	1/2	12	3/4-16	3/8	9.9	10.3	19.0	22.2	37.6	24.9	24.1
D10T-04N-JHME	5/8	16	7/8-14	1/2	12.3	13.5	22.2	22.2	44.8	28.2	29.7
D12T-06N-JHME	3/4	18	1 1/16-12	3/4	15.5	18.3	27.0	31.8	48.0	32.5	30.5
D14T-06N-JHME	7/8	22	1 3/16-12	3/4	18.3	18.3	33.3	34.9	54.4	36.8	33.0
D16T-08N-JHME	1	25	1 5/16-12	1	21.4	23.8	33.3	38.1	56.3	37.3	37.6
D20T-10N-JHME	1-1/4	32	1 5/8-12	1-1/4	27.4	31.7	41.3	50.8	58.9	40.4	52.4
D24T-12N-JHME	1-1/2	38	1 7/8-12	1-1/2	33.3	38.0	47.6	57.2	71.9	45.2	45.0
D32T-16N-JHME	2	50	2 1/2-12	2	45.2	49.0	63.5	73.0	83.9	56.4	53.6



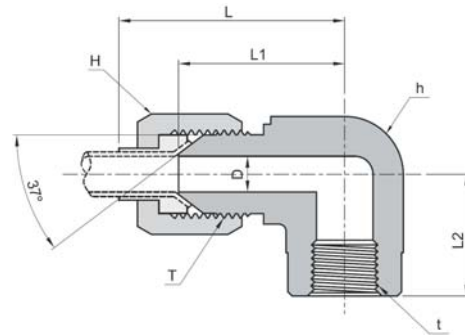
## Female Connector

### JFC



ITEM	Tube O.D.		T (UNF/UN)	t (NPT)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>
	Inch	Metric							
D2T-01N-JFC	1/8	3	5/16-24	1/8	1.6	14.3	9.5	36.2	28.4
D3T-01N-JFC	3/16	4	3/8-24	1/8	3.2	14.3	11.1	38.1	28.7
D4T-01N-JFC	1/4	6	7/16-20	1/8	4.4	14.3	14.3	39.3	30.2
D5T-01N-JFC	5/16	8	1/2-20	1/8	6.0	14.3	25.9	40.1	29.7
D6T-02N-JFC	3/8	10	9/16-18	1/4	7.5	19.1	17.5	47.5	35.6
D8T-03N-JFC	1/2	12	3/4-16	3/8	9.9	22.2	22.2	52.3	39.6
D10T-04N-JFC	5/8	16	7/8-14	1/2	12.3	28.6	22.2	64.6	48.0
D12T-06N-JFC	3/4	18	1 1/16-12	3/4	15.5	34.9	31.8	67.8	52.3
D14T-06N-JFC	7/8	22	1 3/16-12	3/4	18.3	34.9	34.9	69.9	52.3
D16T-08N-JFC	1	25	1 5/16-12	1	21.4	41.3	38.1	78.7	59.7
D20T-10N-JFC	1-1/4	32	1 5/8-12	1-1/4	27.4	50.8	50.8	81.7	63.2
D24T-12N-JFC	1-1/2	38	1 7/8-12	1-1/2	33.3	60.3	57.2	93.2	66.5
D32T-16N-JFC	2	50	2 1/2-12	2	45.2	73.0	73.0	102.9	75.4

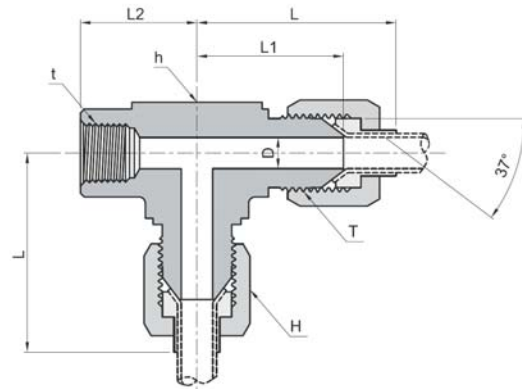
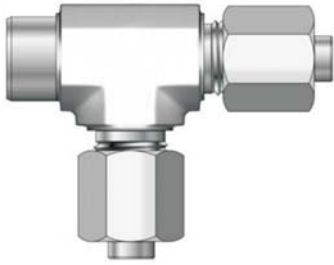
## Female Elbow

**JFE**

ITEM	Tube O.D.		T (UNF/UN)	t (NPT)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>
	Inch	Metric								
D2T-01N-JFE	1/8	3	5/16-24	1/8	1.6	14.3	9.5	33.2	25.4	16.8
D3T-01N-JFE	3/16	4	3/8-24	1/8	3.2	14.3	11.1	35.6	26.2	16.8
D4T-01N-JFE	1/4	6	7/16-20	1/8	4.4	14.3	14.3	36.5	27.4	16.8
D5T-01N-JFE	5/16	8	1/2-20	1/8	6.0	14.3	25.9	37.8	27.4	16.8
D6T-02N-JFE	3/8	10	9/16-18	1/4	7.5	19.0	17.5	43.1	31.2	22.4
D8T-03N-JFE	1/2	12	3/4-16	3/8	9.9	22.2	22.2	48.8	36.1	25.9
D10T-04N-JFE	5/8	16	7/8-14	1/2	12.3	27.0	22.2	58.3	41.7	31.2
D12T-06N-JFE	3/4	18	1 1/16-12	3/4	15.5	33.3	31.8	63.5	48.0	34.5
D14T-06N-JFE	7/8	22	1 3/16-12	3/4	18.3	33.3	34.9	64.8	47.2	36.1
D16T-08N-JFE	1	25	1 5/16-12	1	21.4	41.3	38.1	74.1	55.1	41.1
D20T-10N-JFE	1-1/4	32	1 5/8-12	1-1/4	27.4	47.6	50.8	77.7	59.2	43.2
D24T-12N-JFE	1-1/2	38	1 7/8-12	1-1/2	33.3	65.1	57.2	100.1	73.4	52.8
D32T-16N-JFE	2	50	2 1/2-12	2	45.2	71.4	73.0	111.3	83.8	60.7

## Female Run Tee

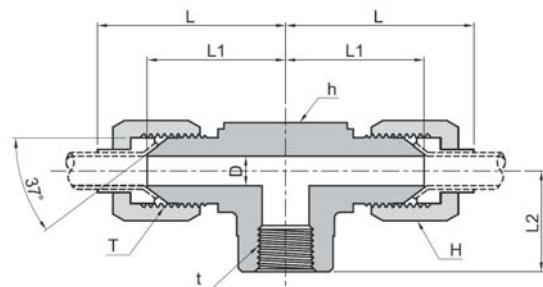
### JFRT



ITEM	Tube O.D.		T (UNF/UN)	t (NPT)	D	h (HEX)	H (HEX)	L	L1	L2
	Inch	Metric								
D2T-01N-JFRT	1/8	3	5/16-24	1/8	1.6	14.3	9.5	33.2	25.4	16.8
D3T-01N-JFRT	3/16	4	3/8-24	1/8	3.2	14.3	11.1	35.6	26.2	16.8
D4T-01N-JFRT	1/4	6	7/16-20	1/8	4.4	14.3	14.3	36.5	27.4	16.8
D5T-01N-JFRT	5/16	8	1/2-20	1/8	6.0	14.3	25.9	37.8	27.4	16.8
D6T-02N-JFRT	3/8	10	9/16-18	1/4	7.5	19.0	17.5	43.1	31.2	22.4
D8T-03N-JFRT	1/2	12	3/4-16	3/8	9.9	22.2	22.2	48.8	36.1	25.9
D10T-04N-JFRT	5/8	16	7/8-14	1/2	12.3	27.0	22.2	58.3	41.7	31.2
D12T-06N-JFRT	3/4	18	1 1/16-12	3/4	15.5	33.3	31.8	63.5	48.0	34.5
D14T-06N-JFRT	7/8	22	1 3/16-12	3/4	18.3	33.3	34.9	64.8	47.2	36.1
D16T-08N-JFRT	1	25	1 5/16-12	1	21.4	41.3	38.1	74.1	55.1	41.1
D20T-10N-JFRT	1-1/4	32	1 5/8-12	1-1/4	27.4	47.6	50.8	77.7	59.2	43.2
D24T-12N-JFRT	1-1/2	38	1 7/8-12	1-1/2	33.3	65.1	57.2	100.1	73.4	52.8
D32T-16N-JFRT	2	50	2 1/2-12	2	45.2	71.4	73.0	111.3	83.8	60.7

Female Branch Tee

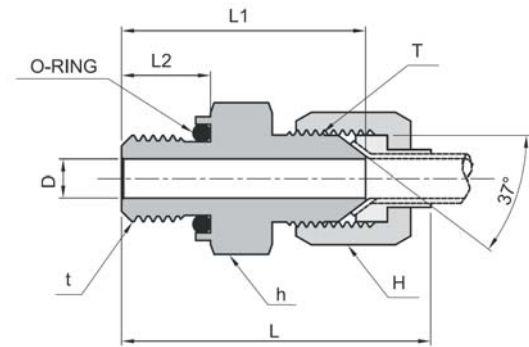
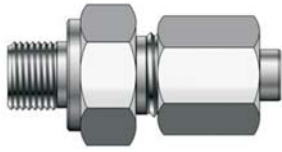
**JFBT**



ITEM	Tube O.D.		T (UNF/UN)	t (NPT)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>
	Inch	Metric								
D2T-01N-JFBT	1/8	3	5/16-24	1/8	1.6	14.3	9.5	33.2	25.4	16.8
D3T-01N-JFBT	3/16	4	3/8-24	1/8	3.2	14.3	11.1	35.6	26.2	16.8
D4T-01N-JFBT	1/4	6	7/16-20	1/8	4.4	14.3	14.3	36.5	27.4	16.8
D5T-01N-JFBT	5/16	8	1/2-20	1/8	6.0	14.3	25.9	37.8	27.4	16.8
D6T-02N-JFBT	3/8	10	9/16-18	1/4	7.5	19.0	17.5	43.1	31.2	22.4
D8T-03N-JFBT	1/2	12	3/4-16	3/8	9.9	22.2	22.2	48.8	36.1	25.9
D10T-04N-JFBT	5/8	16	7/8-14	1/2	12.3	27.0	22.2	58.3	41.7	31.2
D12T-06N-JFBT	3/4	18	1 1/16-12	3/4	15.5	33.3	31.8	63.5	48.0	34.5
D14T-06N-JFBT	7/8	22	1 3/16-12	3/4	18.3	33.3	34.9	64.8	47.2	36.1
D16T-08N-JFBT	1	25	1 5/16-12	1	21.4	41.3	38.1	74.1	55.1	41.1
D20T-10N-JFBT	1-1/4	32	1 5/8-12	1-1/4	27.4	47.6	50.8	77.7	59.2	43.2
D24T-12N-JFBT	1-1/2	38	1 7/8-12	1-1/2	33.3	65.1	57.2	100.1	73.4	52.8
D32T-16N-JFBT	2	50	2 1/2-12	2	45.2	71.4	73.0	111.3	83.8	60.7

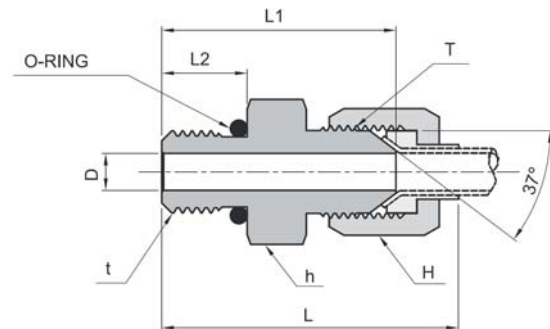
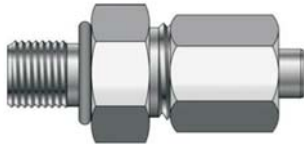
## O-Ring Seal Male Connector

### JOMC(1)



ITEM	Tube O.D.		T (UNF/UN)	t (PT)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>
	Inch	Metric								
D2T-01G-JOMC	1/8	3	5/16-24	1/8	1.6	11.1	9.5	35.3	27.5	8.0
D3T-01G-JOMC	3/16	4	3/8-24	1/8	3.2	12.7	11.1	37.9	28.5	8.0
D4T-01G-JOMC	1/4	6	7/16-20	1/8	4.4	14.2	14.3	39.3	30.2	8.0
D5T-01G-JOMC	5/16	8	1/2-20	1/8	6.0	15.8	25.9	40.6	30.2	8.0
D6T-02G-JOMC	3/8	10	9/16-18	1/4	7.5	17.4	17.5	46.9	35.0	12.0
D8T-03G-JOMC	1/2	12	3/4-16	3/8	9.9	22.2	22.2	51.4	38.7	12.0
D10T-04G-JOMC	5/8	16	7/8-14	1/2	12.3	25.4	22.2	61.1	44.5	14.0
D12T-06G-JOMC	3/4	18	1 1/16-12	3/4	15.5	31.7	31.8	66.4	50.9	16.0
D14T-06G-JOMC	7/8	22	1 3/16-12	3/4	18.3	34.9	34.9	69.0	51.4	16.0
D16T-08G-JOMC	1	25	1 5/16-12	1	21.4	38.0	38.1	71.7	52.7	18.0
D20T-10G-JOMC	1-1/4	32	1 5/8-12	1-1/4	27.4	42.8	50.8	78.5	60.0	20.0
D24T-12G-JOMC	1-1/2	38	1 7/8-12	1-1/2	33.3	55.0	57.2	92.8	66.1	21.0
D32T-16G-JOMC	2	50	2 1/2-12	2	45.2	70.0	73.0	108.0	80.5	25.0

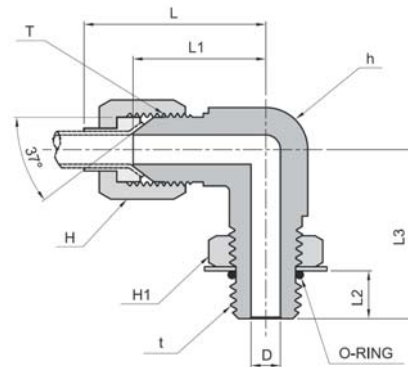
## O-Ring Seal Male Connector

**JOMC** (2)

ITEM	Tube O.D.		T (UNF/UN)	t (UNF/UN)	D	h (HEX)	H (HEX)	L	L <sub>1</sub>	L <sub>2</sub>
	Inch	Metric								
D2T-02U-JOMC	1/8	3	5/16-24	5/16-24	1.6	11.1	9.5	34.7	26.5	7.5
D3T-03U-JOMC	3/16	4	3/8-24	3/8-24	3.2	12.7	11.1	37.4	27.9	7.5
D4T-04U-JOMC	1/4	6	7/16-20	7/16-20	4.4	14.2	14.3	40.3	31.2	9.1
D5T-05U-JOMC	5/16	8	1/2-20	1/2-20	6.0	15.8	25.9	41.6	31.2	9.1
D6T-06U-JOMC	3/8	10	9/16-18	9/16-18	7.5	17.4	17.5	44.9	33.0	9.9
D8T-08U-JOMC	1/2	12	3/4-16	3/4-16	9.9	22.2	22.2	50.3	37.6	11.1
D10T-10U-JOMC	5/8	16	7/8-14	7/8-14	12.3	25.4	22.2	59.8	43.2	12.7
D12T-12U-JOMC	3/4	18	1 1/16-12	1 1/16-12	15.5	31.7	31.8	65.5	50.0	15.1
D14T-14U-JOMC	7/8	22	1 3/16-12	1 3/16-12	18.3	34.9	34.9	68.1	50.5	15.1
D16T-16U-JOMC	1	25	1 5/16-12	1 5/16-12	21.4	38.0	38.1	70.8	51.8	15.1
D20T-20U-JOMC	1-1/4	32	1 5/8-12	1 5/8-12	27.4	42.8	50.8	73.6	55.1	15.1
D24T-24U-JOMC	1-1/2	38	1 7/8-12	1 7/8-12	33.3	55.0	57.2	86.9	60.2	15.1
D32T-32U-JOMC	2	50	2 1/2-12	2 1/2-12	45.2	70.0	73.0	98.1	70.6	15.1

## O-Ring Seal Male Elbow

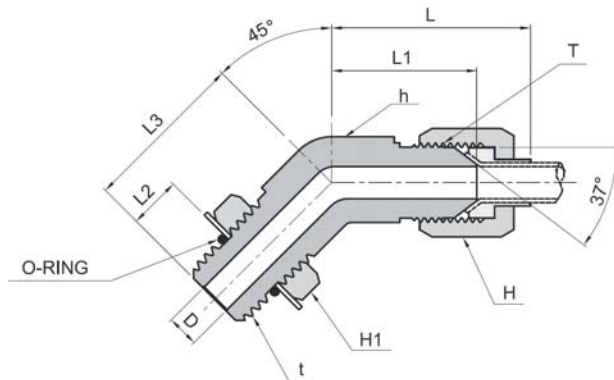
**JOME**



ITEM	Tube O.D.		T (UNF/UN)	t (UNF/UN)	D	h (HEX)	H (HEX)	H1 (HEX)	L	L1	L2	L3
	Inch	Metric										
D2T-02U-JOME	1/8	3	5/16-24	5/16-24	1.6	11.1	9.5	14.2	27.4	19.6	8.4	23.9
D3T-03U-JOME	3/16	4	3/8-24	3/8-24	3.2	11.1	11.1	15.8	30.5	21.1	8.4	23.9
D4T-04U-JOME	1/4	6	7/16-20	7/16-20	4.4	11.1	14.3	17.4	31.7	22.6	9.8	26.2
D5T-05U-JOME	5/16	8	1/2-20	1/2-20	6.0	14.3	25.9	19.0	34.5	24.1	9.8	28.7
D6T-06U-JOME	3/8	10	9/16-18	9/16-18	7.5	14.3	17.5	20.6	38.8	26.9	9.9	31.8
D8T-08U-JOME	1/2	12	3/4-16	3/4-16	9.9	19.0	22.2	25.4	44.5	31.8	11.0	36.8
D10T-10U-JOME	5/8	16	7/8-14	7/8-14	12.3	22.2	22.2	28.5	53.4	36.8	12.5	43.2
D12T-12U-JOME	3/4	18	1 1/16-12	1 1/16-12	15.5	27.0	31.8	34.9	57.7	42.2	16.5	49.3
D14T-14U-JOME	7/8	22	1 3/16-12	1 3/16-12	18.3	33.3	34.9	38.1	63.3	45.7	16.5	50.8
D16T-16U-JOME	1	25	1 5/16-12	1 5/16-12	21.4	33.3	38.1	41.2	65.0	46.0	16.5	52.1
D20T-20U-JOME	1-1/4	32	1 5/8-12	1 5/8-12	27.4	41.3	50.8	47.5	70.8	52.3	16.5	57.2
D24T-24U-JOME	1-1/2	38	1 7/8-12	1 7/8-12	33.3	47.6	57.2	53.9	85.9	59.2	16.5	60.7
D32T-32U-JOME	2	50	2 1/2-12	2 1/2-12	45.2	63.5	73.0	69.8	105.2	77.7	16.5	73.4

O-Ring Seal 45° Male Elbow

**JOHME**

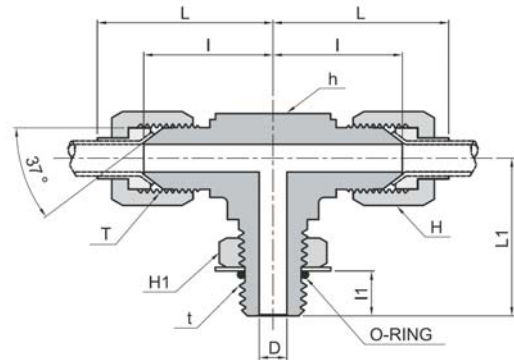


ITEM	Tube O.D.		T (UNF/UN)	t (UNF/UN)	D	h (HEX)	H (HEX)	H <sub>1</sub> (HEX)	L	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>
	Inch	Metric										
D2T-02U-JOHME	1/8	3	5/16-24	5/16-24	1.6	11.1	9.5	14.2	25.3	17.5	8.4	23.9
D3T-03U-JOHME	3/16	4	3/8-24	3/8-24	3.2	11.1	11.1	15.8	26.9	17.5	8.4	23.9
D4T-04U-JOHME	1/4	6	7/16-20	7/16-20	4.4	11.1	14.3	17.4	27.4	18.3	9.8	26.2
D5T-05U-JOHME	5/16	8	1/2-20	1/2-20	6.0	14.3	25.9	19.0	30.3	19.6	9.8	28.7
D6T-06U-JOHME	3/8	10	9/16-18	9/16-18	7.5	14.3	17.5	20.6	33.0	21.1	9.9	31.8
D8T-08U-JOHME	1/2	12	3/4-16	3/4-16	9.9	19.0	22.2	25.4	37.6	24.9	11.0	36.8
D10T-10U-JOHME	5/8	16	7/8-14	7/8-14	12.3	22.2	22.2	28.5	44.8	28.2	12.5	43.2
D12T-12U-JOHME	3/4	18	1 1/16-12	1 1/16-12	15.5	27.0	31.8	34.9	48.0	32.5	16.5	49.3
D14T-14U-JOHME	7/8	22	1 3/16-12	1 3/16-12	18.3	33.3	34.9	38.1	54.4	36.8	16.5	50.8
D16T-16U-JOHME	1	25	1 5/16-12	1 5/16-12	21.4	33.3	38.1	41.2	56.3	37.3	16.5	52.1
D20T-20U-JOHME	1-1/4	32	1 5/8-12	1 5/8-12	27.4	41.3	50.8	47.5	58.9	40.4	16.5	57.2
D24T-24U-JOHME	1-1/2	38	1 7/8-12	1 7/8-12	33.3	47.6	57.2	53.9	71.9	45.2	16.5	60.7
D32T-32U-JOHME	2	50	2 1/2-12	2 1/2-12	45.2	63.5	73.0	69.8	83.9	56.4	16.5	73.4



## O-Ring Seal Branch Tee

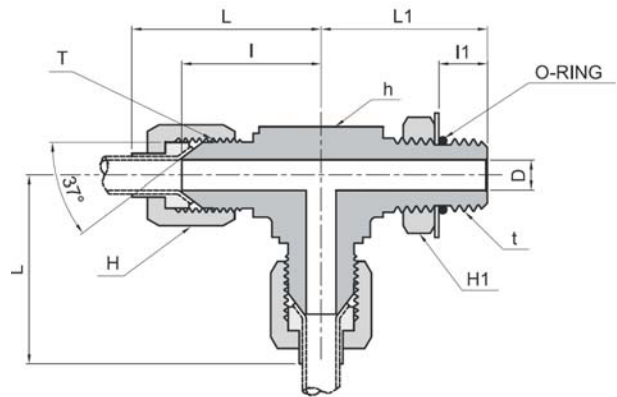
### **JOBT**



ITEM	Tube O.D.		T (UNF/UN)	t (UNF/UN)	D	h (HEX)	H (HEX)	H <sub>1</sub> (HEX)	L	L <sub>1</sub>	l	l <sub>1</sub>
	Inch	Metric										
D2T-02U-JOBT	1/8	3	5/16-24	5/16-24	1.6	11.1	9.5	14.2	27.4	23.9	19.6	8.4
D3T-03U-JOBT	3/16	4	3/8-24	3/8-24	3.2	11.1	11.1	15.8	30.5	23.9	21.1	8.4
D4T-04U-JOBT	1/4	6	7/16-20	7/16-20	4.4	11.1	14.3	17.4	31.7	26.2	22.6	9.8
D5T-05U-JOBT	5/16	8	1/2-20	1/2-20	6.0	14.3	25.9	19.0	34.5	28.7	24.1	9.8
D6T-06U-JOBT	3/8	10	9/16-18	9/16-18	7.5	14.3	17.5	20.6	38.8	31.8	26.9	9.9
D8T-08U-JOBT	1/2	12	3/4-16	3/4-16	9.9	19.0	22.2	25.4	44.5	36.8	31.8	11.0
D10T-10U-JOBT	5/8	16	7/8-14	7/8-14	12.3	22.2	22.2	28.5	53.4	43.2	36.8	12.5
D12T-12U-JOBT	3/4	18	1 1/16-12	1 1/16-12	15.5	27.0	31.8	34.9	57.7	49.3	42.2	16.5
D14T-14U-JOBT	7/8	22	1 3/16-12	1 3/16-12	18.3	33.3	34.9	38.1	63.3	50.8	45.7	16.5
D16T-16U-JOBT	1	25	1 5/16-12	1 5/16-12	21.4	33.3	38.1	41.2	65.0	52.1	46.0	16.5
D20T-20U-JOBT	1-1/4	32	1 5/8-12	1 5/8-12	27.4	41.3	50.8	47.5	70.8	57.2	52.3	16.5
D24T-24U-JOBT	1-1/2	38	1 7/8-12	1 7/8-12	33.3	47.6	57.2	53.9	85.9	60.7	59.2	16.5
D32T-32U-JOBT	2	50	2 1/2-12	2 1/2-12	45.2	63.5	73.0	69.8	105.2	73.4	77.7	16.5

O-Ring Seal Run Tee

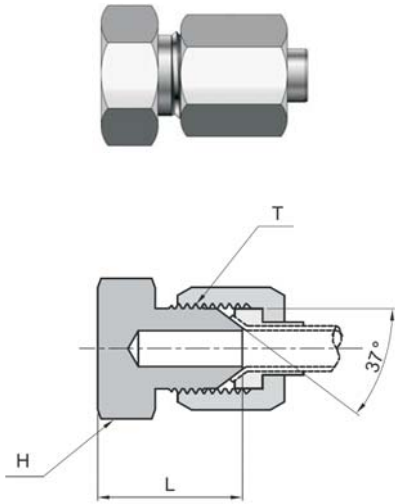
**JORT**



ITEM	Tube O.D.		T (UNF/UN)	t (UNF/UN)	D	h (HEX)	H (HEX)	H <sub>1</sub> (HEX)	L	L <sub>1</sub>	I	I <sub>1</sub>
	Inch	Metric										
D2T-02U-JORT	1/8	3	5/16-24	5/16-24	1.6	11.1	9.5	14.2	27.4	23.9	19.6	8.4
D3T-03U-JORT	3/16	4	3/8-24	3/8-24	3.2	11.1	11.1	15.8	30.5	23.9	21.1	8.4
D4T-04U-JORT	1/4	6	7/16-20	7/16-20	4.4	11.1	14.3	17.4	31.7	26.2	22.6	9.8
D5T-05U-JORT	5/16	8	1/2-20	1/2-20	6.0	14.3	25.9	19.0	34.5	28.7	24.1	9.8
D6T-06U-JORT	3/8	10	9/16-18	9/16-18	7.5	14.3	17.5	20.6	38.8	31.8	26.9	9.9
D8T-08U-JORT	1/2	12	3/4-16	3/4-16	9.9	19.0	22.2	25.4	44.5	36.8	31.8	11.0
D10T-10U-JORT	5/8	16	7/8-14	7/8-14	12.3	22.2	22.2	28.5	53.4	43.2	36.8	12.5
D12T-12U-JORT	3/4	18	1 1/16-12	1 1/16-12	15.5	27.0	31.8	34.9	57.7	49.3	42.2	16.5
D14T-14U-JORT	7/8	22	1 3/16-12	1 3/16-12	18.3	33.3	34.9	38.1	63.3	50.8	45.7	16.5
D16T-16U-JORT	1	25	1 5/16-12	1 5/16-12	21.4	33.3	38.1	41.2	65.0	52.1	46.0	16.5
D20T-20U-JORT	1-1/4	32	1 5/8-12	1 5/8-12	27.4	41.3	50.8	47.5	70.8	57.2	52.3	16.5
D24T-24U-JORT	1-1/2	38	1 7/8-12	1 7/8-12	33.3	47.6	57.2	53.9	85.9	60.7	59.2	16.5
D32T-32U-JORT	2	50	2 1/2-12	2 1/2-12	45.2	63.5	73.0	69.8	105.2	73.4	77.7	16.5

## Plug

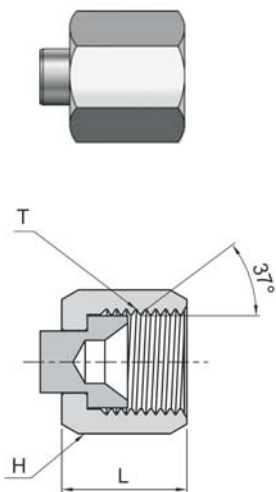
### JP



ITEM	Tube O.D.		T (UNF/UN)	H (HEX)	L
	Inch	Metric			
D2T-JP	1/8	3	5/16-24	11.1	17.8
D3T-JP	3/16	4	3/8-24	11.1	18.5
D4T-JP	1/4	6	7/16-20	12.7	20.3
D5T-JP	5/16	8	1/2-20	14.3	20.3
D6T-JP	3/8	10	9/16-18	25.9	21.3
D8T-JP	1/2	12	3/4-16	20.2	23.9
D10T-JP	5/8	16	7/8-14	23.8	27.9
D12T-JP	3/4	18	1 1/16-12	28.5	32.5
D14T-JP	7/8	22	1 3/16-12	31.7	33.3
D16T-JP	1	25	1 5/16-12	34.9	33.8
D20T-JP	1-1/4	32	1 5/8-12	42.9	36.8
D24T-JP	1-1/2	38	1 7/8-12	50.4	41.9
D32T-JP	2	50	2 1/2-12	66.7	52.1

## Cap

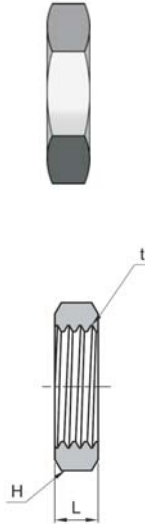
### JC



ITEM	Tube O.D.		T (UNF/UN)	H (HEX)	L
	Inch	Metric			
D2T-JC	1/8	3	5/16-24	9.5	13.7
D3T-JC	3/16	4	3/8-24	11.1	15.2
D4T-JC	1/4	6	7/16-20	14.3	15.5
D5T-JC	5/16	8	1/2-20	25.9	17.0
D6T-JC	3/8	10	9/16-18	17.5	18.3
D8T-JC	1/2	12	3/4-16	22.2	21.3
D10T-JC	5/8	16	7/8-14	22.2	24.6
D12T-JC	3/4	18	1 1/16-12	31.8	25.9
D14T-JC	7/8	22	1 3/16-12	34.9	27.4
D16T-JC	1	25	1 5/16-12	38.1	28.4
D20T-JC	1-1/4	32	1 5/8-12	50.8	31.0
D24T-JC	1-1/2	38	1 7/8-12	57.2	35.8
D32T-JC	2	50	2 1/2-12	73.0	44.2

## Bulkhead Lock Nut

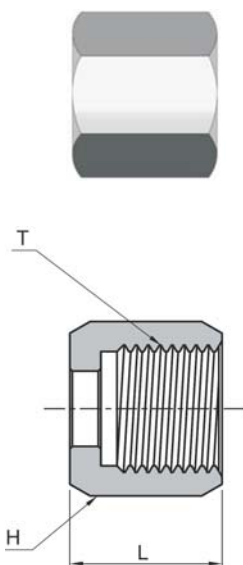
### JLN



ITEM	Tube O.D.		T (UNF/UN)	H (HEX)	L
	Inch	Metric			
D2T-JLN	1/8	3	5/16-24	14.3	5.6
D3T-JLN	3/16	4	3/8-24	15.9	5.6
D4T-JLN	1/4	6	7/16-20	17.5	7.1
D5T-JLN	5/16	8	1/2-20	19.1	7.1
D6T-JLN	3/8	10	9/16-18	20.6	6.9
D8T-JLN	1/2	12	3/4-16	25.4	7.9
D10T-JLN	5/8	16	7/8-14	28.6	9.1
D12T-JLN	3/4	18	1 1/16-12	34.9	10.4
D14T-JLN	7/8	22	1 3/16-12	38.1	10.4
D16T-JLN	1	25	1 5/16-12	41.3	10.4
D20T-JLN	1-1/4	32	1 5/8-12	47.6	10.4
D24T-JLN	1-1/2	38	1 7/8-12	54.0	10.4
D32T-JLN	2	50	2 1/2-12	69.9	10.4

## NUT

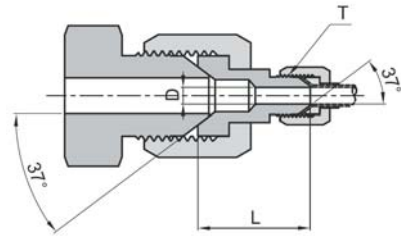
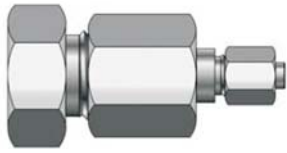
### JN



ITEM	Tube O.D.		T (UNF/UN)	H (HEX)	L
	Inch	Metric			
D2T-JN	1/8	3	5/16-24	9.5	14.0
D3T-JN	3/16	4	3/8-24	11.1	15.5
D4T-JN	1/4	6	7/16-20	14.3	15.8
D5T-JN	5/16	8	1/2-20	25.9	17.3
D6T-JN	3/8	10	9/16-18	17.5	18.6
D8T-JN	1/2	12	3/4-16	22.2	21.6
D10T-JN	5/8	16	7/8-14	22.2	24.9
D12T-JN	3/4	18	1 1/16-12	31.8	26.2
D14T-JN	7/8	22	1 3/16-12	34.9	27.7
D16T-JN	1	25	1 5/16-12	38.1	28.7
D20T-JN	1-1/4	32	1 5/8-12	50.8	31.3
D24T-JN	1-1/2	38	1 7/8-12	57.2	36.1
D32T-JN	2	50	2 1/2-12	73.0	44.5

## Reducer Adapter

### JRA



ITEM	Tube O.D.		T (UNF/UN)	D	L
	F	B			
D6T-4N-JRA	3/8	1/4	7/16-20	4.4	24.6
D8T-4N-JRA	3/16	1/4	7/16-20	4.4	25.4
D8T-6N-JRA	1/2	3/8	9/16-18	7.5	25.4
D10T-4N-JRA	5/16	1/4	7/16-20	4.4	26.2
D10T-6N-JRA	5/16	3/8	9/16-18	7.5	26.2
D12T-4N-JRA	3/4	1/4	7/16-20	4.4	27.7
D12T-6N-JRA	3/4	3/8	9/16-18	7.5	27.7
D12T-8N-JRA	3/4	1/2	3/4-16	10.0	30.2
D16T-12N-JRA	1	3/4	1 1/16-12	15.5	37.3
D20T-12N-JRA	1	3/4	1 1/16-12	15.5	38.3
D20T-16N-JRA	1-1/4	1	1 5/16-12	21.5	40.3
D24T-20N-JRA	1-1/2	1-1/4	1 5/8-12	27.5	42.9

## One Piece Type Ball Valve

### Features:

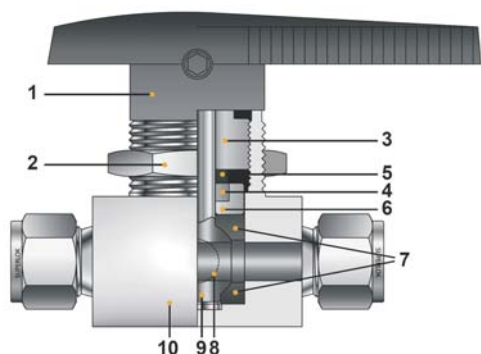
- Simple design with one piece body
- Tight and smooth
- Low torque and easy operation
- One-piece ball stem
- Panel mountable
- Variety of end connections
- Straight, Angle and 3-way flow patterns
- Each and every valve is tested at the factory



### Specifications:

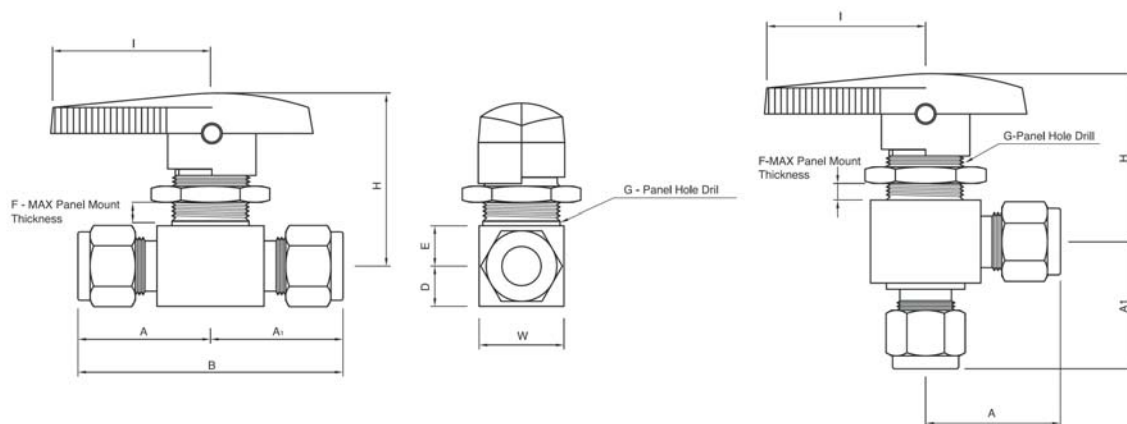
- Pressure Rating:3000psig(206bar)@70°F (21°C)
- Temperature Rating:50-150°F (10-65°C)
- Body Material:SS316 and Brass
- Packing Seal:PTFE
- Port Connections:1/16"-3/4"
- Orifice:0.052"-0.406"

### Construction:



No.	Component	No.	Component
1	Handle	6	Low Packing Gland
2	Panel Nut		
3	Packing Bolt	7	Seal
4	Packing	8	Side Ring
5	Up Packing Gland	9	Ball Stem
		10	Body

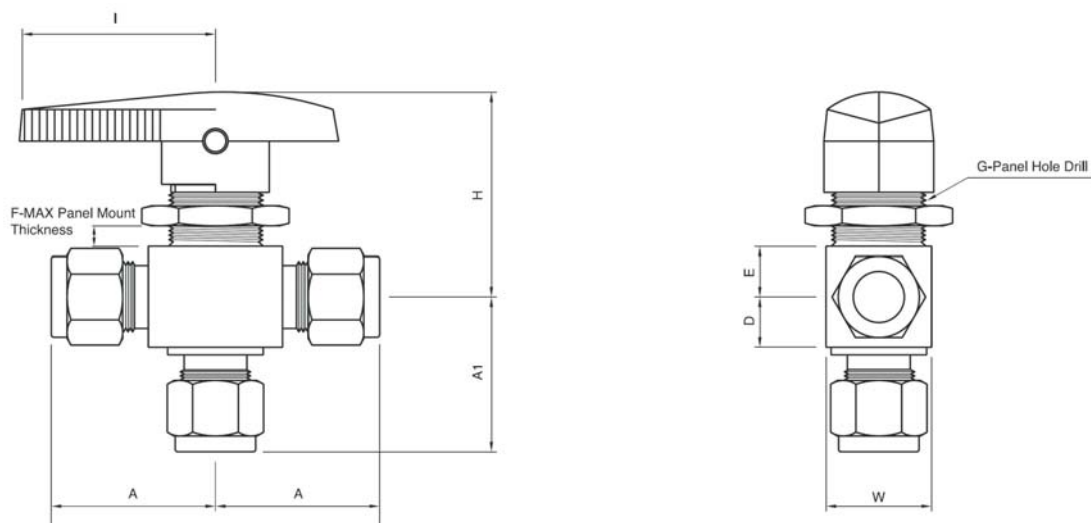
## DBV120 Series:2-way (on-off valve)



Order NO.		Orifice	Cv	End connections	Dimensions (mm)										
Series	ITEM				A	A <sub>1</sub>	B	D	E	F	G	H	I	W	
DBV120 -H1	D	1	1.3	0.1	1/16" TF	21.3	21.3	42.6	7.1	8.7	6.4	15.0	36.0	29.0	15.0
	D	2	2.4	0.2	1/8" TF	25.4	25.4	50.8							
	F	2N	3.2	0.5	1/8" Female NPT	20.6	20.6	41.2							
	D	4		0.6	1/4" TF	27.7	27.7	55.4							
DBV120 -H2	F	2N	4.8	1.2	1/8" Female NPT	25.4	25.4	50.8	9.4	11.2	4.8	19.8	43.7	38.5	19.8
	F	4N		0.9	1/4" Female NPT	26.2	26.2	52.4							
	M	4N		1.2	1/4" Male NPT	25.4	25.4	50.8							
	MD	4N-4		1.6	1/4" Male NPT -1/4" TF	25.4	30.2	55.6							
	D	4		2.4	1/4" TF	30.2	30.2	60.4							
	D	6		1.5	3/8" TF	32.5	32.5	65.0							
DBV120 -H3	F	4N	7.1	3	1/4" Femal NPT	31.8	31.8	63.6	14.2	14.2	9.4	28.5	56.1	51.0	28.5
	F	6N		2.6	3/8" Femal NPT	31.8	31.8	63.6							
	D	6		6	3/8" TF	38.9	38.9	77.8							
DBV120 -H4	F	8N	10.3	6.3	1/2" Female NPT	39.6	39.6	77.8	17.5	17.5	9.4	38.1	71.8	75.0	75.0
	D	8		12	1/2" TF	50.0	50.0	100.0							
	D	12		6.4	3/4" TF	50.0	50.0	100.0							

**Remark** :TF=Tube Fitting

DBV120 series:3-way (switching valve)



Order NO.		Orifice	Cv	End connections	Dimensions (mm)										
Series	ITEM				A	A <sub>1</sub>	B	D	E	F	G	H	I	W	
DBV120 -H13	D	1	1.3	0.1	1/16" TF	21.3	20.6	42.6	7.1	8.7	6.4	15.0	36.0	29.0	15.0
	D	2	2.4	0.2	1/8" TF	25.4	24.6	50.8							
	F	2N	3.2	0.3	1/8" Female NPT	20.6	20.6	41.2							
	D	4		0.4	1/4" TF	27.7	26.9	55.4							
DBV120 -H23	F	4N	4.8	0.8	1/4" Female NPT	26.2	26.2	52.4	9.4	11.2	4.8	19.8	43.7	38.5	19.8
	MD	4N-4		0.8	1/4"NPT Male -1/4" TF	25.4	30.2	55.6							
	D	4		0.9	1/4" TF	30.2	30.2	60.4							
DBV120 -H33	F	4N	7.1	1.7	1/4" Female NPT	31.8	31.8	63.6	14.2	14.2	9.4	28.5	56.1	51.0	28.5
	F	6N		1.5	1/4" Female NPT	31.8	31.8	63.6							
	D	6		2	3/8" TF	38.9	38.9	77.8							
DBV120 -H43	F	8N	10.3	3.5	1/2" Femal NPT	39.6	39.6	77.8	17.5	17.5	9.4	38.1	71.8	75.0	75.0
	D	8		4.6	1/2" TF	50.0	50.0	100.0							
	D	12		3.8	3/4" TF	50.0	50.0	100.0							

Remark :TF=Tube Fitting



## Pressure Rating:

Valve	2-Way Straight (psi/bar)	2-Way Angle (psi/bar)	3-Way (psi/bar)
DBV120H1	2500/172	2500/172	2500/172
DBV120H2	3000/206	2500/172	2500/172
DBV120H3	2500/172	1500/103	1500/103
DBV120H4	2500/172	1500/103	1500/103

## Ordering Information:

**DBV120-H1 S-D-4-SS**  
 |            |    |    |    |  
           1        2    3    4    5

### 1. Valve Series

- DBV120-H1                      • DBV120-H2
- DBV120-H3                      • DBV120-H4

### 2. Pattern Designator:

- S: Straight                      • A: Angle                      • T: 3-way

### 3. End Connections Type:

- D: Tube Fitting                      • F: Female Thread                      • M: Male Thread

### 4. End Connections Size:

- 1: 1/16"                      • 2: 1/8"                      • 4: 1/4"
- 6: 3/8"                      • 8: 1/2"                      • 12: 3/4"
- 16: 1"                      • N: NPT

### 5. Body Material:

- S: SS 316                      • B: Brass

## Two Piece Type Ball Valve

### Features :

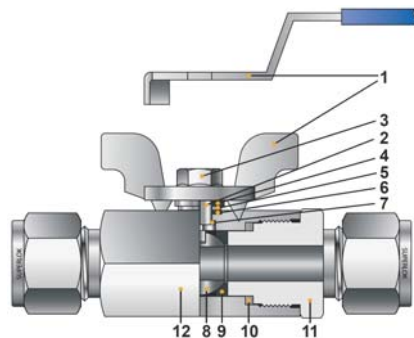
- Simple design with one piece body
- Tight and smooth
- Low torque and easy operation
- One-piece ball stem
- Panel mountable
- Variety of end connections
- Butterfly and lever handle available
- Each and every valve is tested at the factory



### Specifications :

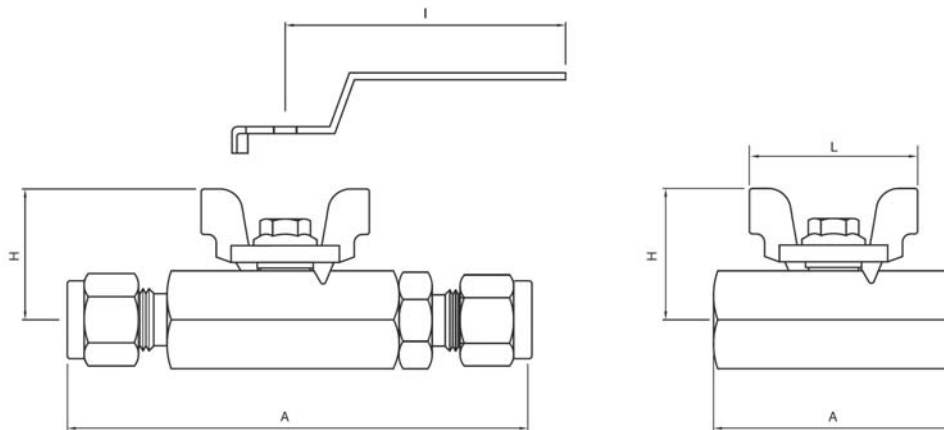
- Pressure Rating:1000psig(69bar)@100°F(38°C)
- Body Material:SS316 and Brass
- Packing Seal:PTFE
- Port Connections:1/4"-1"
- Orifice:5-16mm

### Construction :



No.	Component	No.	Component
1	Handle	7	Low Stem Seal
2	Stem	8	Ball
3	Lock Nut	9	Seat
4	Up Stem Washer	10	Connector Seal
5	Low Stem Washer	11	End Connector
6	Up Stem Seal	12	Body

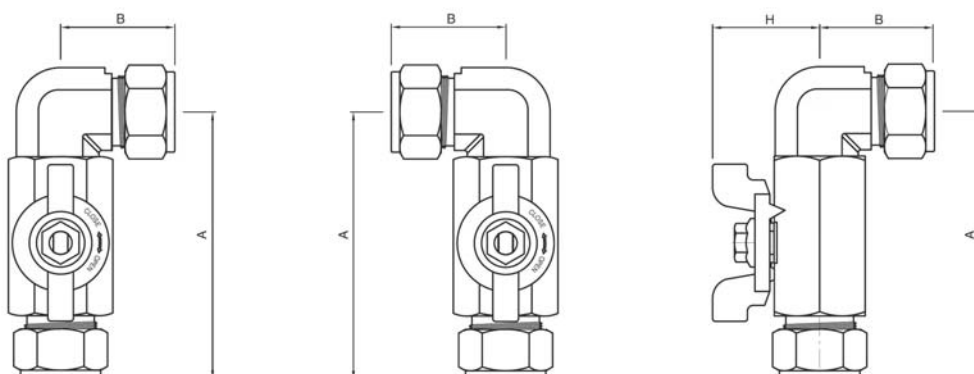
## DBV210 Series : Straight



Order NO.		Orifice	Cv	End connections	Dimensions (mm)				
Series	ITEM				A	H	I	L	
DBV210	D	4	5	1.25	1/4" TF	78.9	23.0	60.0	30.0
	F	4N		1.4	1/4" Femal NPT	42.8			
	D	6	7.5	2.5	3/8" TF	91.5	31.0	90.0	48.0
	F	6N		2.6	3/8" Femal NPT	46.6			
	D	8	9	9.5	1/2" TF	101.4	34.0	90.0	50.0
	F	8N		9.5	1/2" Femal NPT	55.0			
	D	10	12.5	10.6	5/8"	107.6	39.0	100.0	55.0
	D	12		12.7	3/4"	107.6			
	F	12N		12.7	3/4" Femal NPT	61.3			
	D	16	16	17.5	1" TF	131.0	45.0	100.0	68.0
F	16N	17.5		1" Femal NPT	76.0				

**Remark** :TF=Tube Fitting

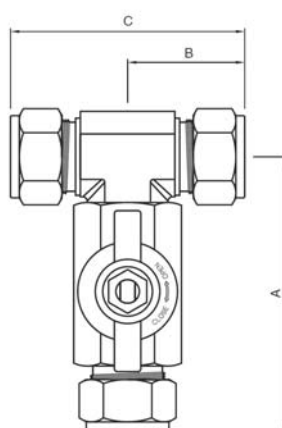
## DBV210 Series : Angle



Order NO.		Orifice	End connections	Dimensions (mm)			
Series	ITEM			A	B	H	
DBVA210	D	4	5.0	1/4" TF	65.3	30.5	23.0
	D	6	7.5	3/8" TF	77.5	36.1	31.0
	D	8	9.0	1/2" TF	87.9	36.1	34.0
	D	12	12.5	3/4" TF	93.8	39.9	39.0
	D	16	16.0	1" TF	115.3	49.0	45.0

**Remark** : TF=Tube Fitting

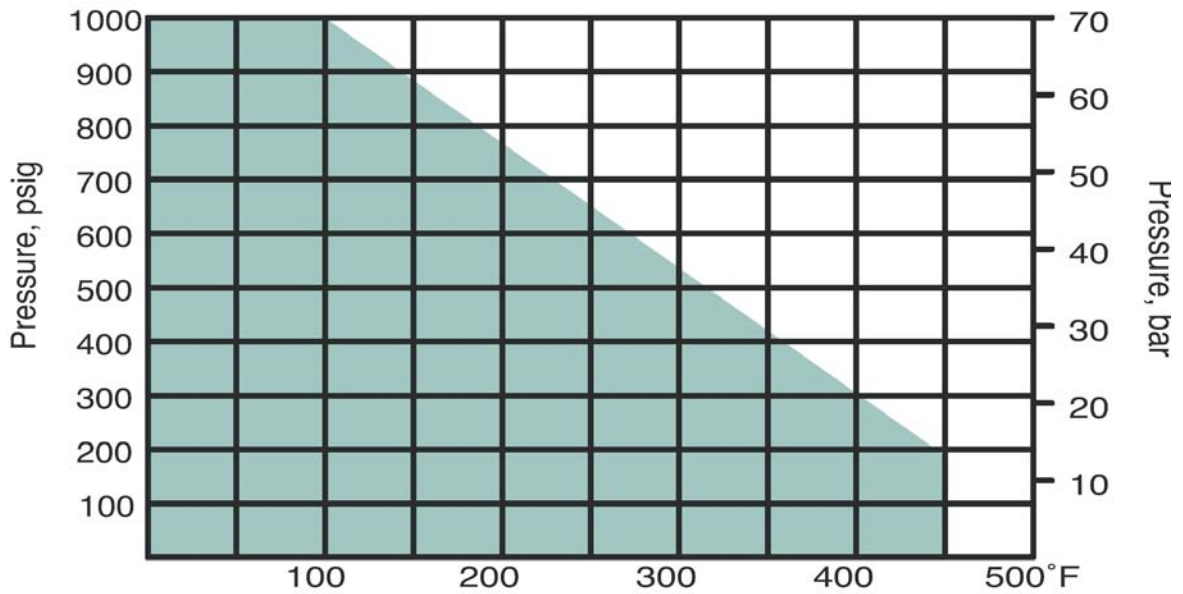
## DBV210 Series : 3-way



Order NO.		Orifice	End connections	Dimensions (mm)			
Series	ITEM			A	B	H	
DBVT210	D	4	5.0	1/4" TF	65.3	30.5	61.0
	D	6	7.5	3/8" TF	77.5	36.1	72.2
	D	8	9.0	1/2" TF	87.9	36.1	76.2
	D	12	12.5	3/4" TF	93.8	39.9	79.8
	D	16	16.0	1" TF	115.3	49.0	98.0

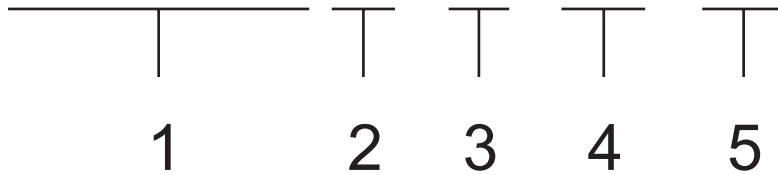
**Remark** : TF=Tube Fitting

## Pressure-Temperature:



## Ordering Information:

**DBV210A D-4N-BH-SS**



### 1. Valve Series

- DBV210-H1: Straight
- DBVA210-H2: Angle
- DBVT120-H3: 3-way

### 2. End Connections Type

- D: Tube Fitting
- F: Female Thread
- M: Male Thread

### 3. End Connections Size

- 1: 1/16"
- 2: 1/8"
- 4: 1/4"
- 6: 3/8"
- 8: 1/2"
- 12: 3/4"
- 16: 1"
- N: NPT

### 4. Handle Designator

- BH: Butterfly Handle
- LH: Bar Handle

### 5. Body Material

- S: SS316
- B: Brass

## Three Piece Type Ball Valve

### Features :

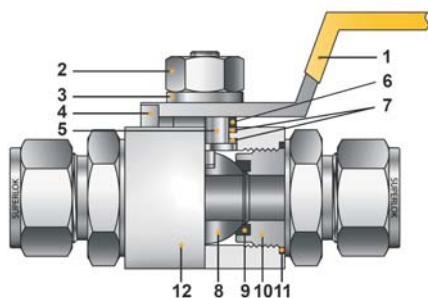
- Simple design with one piece body
- High flow rate with maximum orifice
- Three piece type
- Anti blow-out stem design
- Variety of end connections
- Each and every valve is tested at the factory



### Specifications:

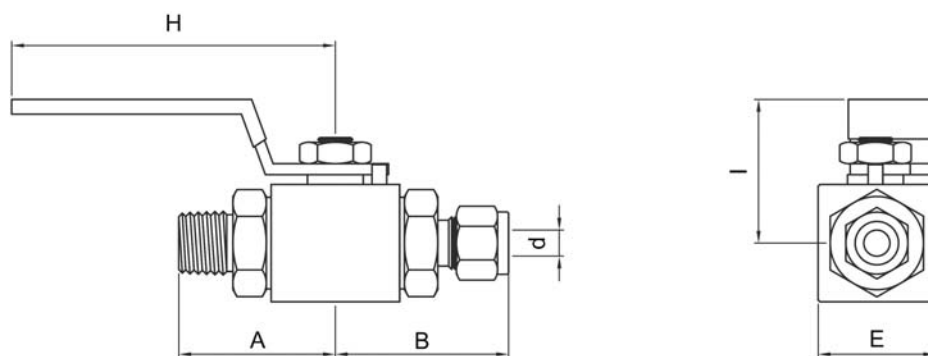
- Pressure Rating:6000psig(69bar)@70°F(21°C)
- Body Material:SS316 and Brass
- Packing Seal:PTFE
- Port Connections:1/4"-1"
- Orifice:10-19mm

### Construction:



No.	Component	No.	Component
1	Handle	7	Stem Packing
2	Lock Nut	8	Ball
3	Spring Washer	9	Seat
4	Pin	10	Connector Seal
5	Stem	11	End Connector
6	Stem Washer	12	Body

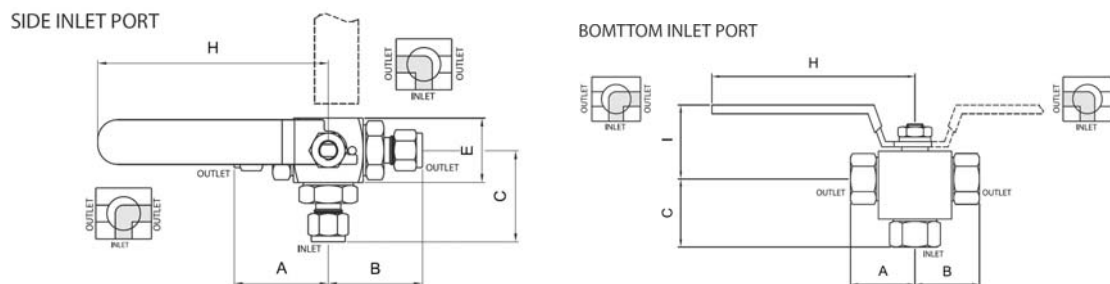
## DBV360 Series:2-way



Order NO.		Orifice	Cv	End connections	Dimensions (mm)					
Series	ITEM				A	B	I	H	d	
DBV3601	D	4	1.2	1/4" TF	45.7	45.7	91.4	105.0	4.8	
	D	6	3.7	3/8" TF	47.5	47.5	95.0		7.1	
	D	8	7.5	1/2" TF	49.8	49.8	99.6		10.0	
	F	4N	7.5	1/4" Female NPT	37.0	37.0	74.0		10.0	
	F	6N	7.5	3/8" Female NPT	38.0	38.0	76.0		10.0	
	F	8N	7.5	1/2" Female NPT	41.5	41.5	83.0		10.0	
	M	4N	3.7	1/4" Male NPT	42.1	42.1	84.2		7.1	
	M	6N	7.2	3/8" Male NPT	42.1	42.1	84.2		9.7	
	M	8N	7.5	1/2" Male NPT	47.0	47.0	94.0		10.0	
DBV3602	F	8N	12.7	100	1/2" TF	45.5	45.5	91.0	125.0	12.7
	F	12N		3/4" Female NPT	51.0	51.0	102.0	12.7		
	M	12N		3/4" Male NPT	52.5	52.5	105.0	12.7		
	D	10		1/2" TF	54.0	54.0	108.0	12.7		
	D	12		3/4" TF	54.0	54.0	108.0	12.7		
DBV3603	F	12N	19	30	3/4" Female NPT	54.0	54.0	108.0	149.0	20.0
	F	16N		30	1" Female NPT	62.5	62.5	125.0		20.0
	D	12		19	3/4" TF	61.9	61.9	123.8		15.7
	D	16		30	1" TF	66.4	66.4	132.8		20.0
	M	12N		19	3/4" Male NPT	59.0	59.0	118.0		15.7
	M	16N		30	1" Male NPT	63.8	63.8	127.6		20.0

**Remark** :TF=Tube Fitting

### DBV360 Series:3-way



Order NO.		Orifice	End connections	Dimensions (mm)					
Series	ITEM			A	B	I	H	C	
DBV3601-3B & DBV3601-3S	D	4	100	1/4" TF	45.7	45.7	91.4	105.0	53.3
	D	6		3/8" TF	47.2	47.2	94.4		54.8
	D	8		1/2" TF	49.8	49.8	99.6		54.0
	F	4N		1/4"Female NPT	37.0	37.0	74.0		36.5
	F	6N		3/8"Female NPT	38.0	38.0	76.0		40.0
	F	8N		1/2"Female NPT	41.5	41.5	83.0		44.0
DBV3602-3B & DBV3602-3S	D	10	12.7	1/2" TF	54.0	54.0	108.0	125.0	65.3
	D	12		3/4" TF	54.0	54.0	108.0		65.3
	F	8N		1/2" TF	45.5	45.5	91.0		49.5
	F	12N		3/4"Female NPT	51.0	51.0	102.0		55.0
DBV3603-3B & DBV3603-3S	D	12	19	3/4" TF	61.9	61.9	123.8	149.0	69.8
	D	16		1" TF	66.4	66.4	132.8		69.8
	F	12N		3/4"Female NPT	59.0	59.0	118.0		56.5
	F	16N		1"Female NPT	63.8	63.8	127.6		60.6

**Remark** :TF=Tube Fitting



Pressure-Temperature:

2-way:straight

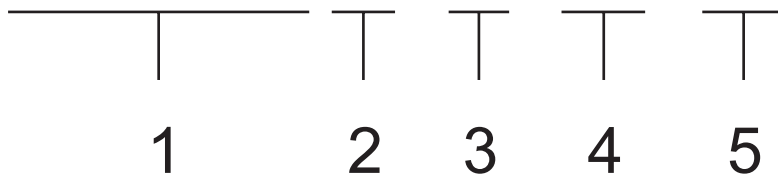
2-way:Angle&3-way

Valve	Materials		Pressure (psi) -54-21°C	Temperature (°C)
	Seat	Packing		
3601	PVDF	PTFE	6000	-30-130
	PCTFE		6000	-30-150
	PEEK		10000	-54-230
3602 & 3603	PVDF	PTFE	5000	-23-191
	PCTFE		5000	
	PEEK		6000	

Valve	Materials		Pressure (psi) -54-21°C	Temperature (°C)
	Seat	Packing		
3601	PVDF	PTFE	4000	-30-130
	PCTFE		4000	-30-150
	PEEK		6000	-54-230
3602 & 3603	PVDF	PTFE	3000	-23-191
	PCTFE		3000	
	PEEK		4000	

Ordering Information:

## DBV3602-F-4N-PE-SS



1.Valve series

- |                  |               |                           |                         |
|------------------|---------------|---------------------------|-------------------------|
| ● 2-way:straight | ● 2-way:angle | ● 3-way:bottom inlet port | ● 3-way:side inlet port |
| DVBH3601         | DVBH3601-A    | DVBH3601-3B               | DVBH3601-3S             |
| DVBH2602         | DVBH3602-A    | DVBH3602-3B               | DVBH3602-3S             |
| DVBH3603         | DVBH3603-A    | DVBH3603-3B               | DVBH3603-3S             |

2.End Connections Type

- |                  |                   |                 |
|------------------|-------------------|-----------------|
| ● D:Tube Fitting | ● F:Female Thread | ● M:Male Thread |
|------------------|-------------------|-----------------|

3.End Connections Size

- |           |          |           |
|-----------|----------|-----------|
| ● 1:1/16" | ● 2:1/8" | ● 4:1/4"  |
| ● 6:3/8"  | ● 8:1/2" | ● 12:3/4" |
| ● 16:1"   | ● N:NPT  |           |

4.Seat Material

- |                 |            |           |
|-----------------|------------|-----------|
| ● Standard:PVDF | ● PC:PCTFE | ● PE:PEEK |
|-----------------|------------|-----------|

5.Body Material

- S:SS316

## Integral Bonnet Bar Stock Needle Valves

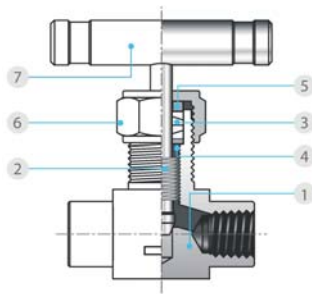
### DB-NV

#### Specifications:

- Pressure Rating: 6000psig (413bar)
- Temperature: -54-232°C (PTFE)
- Straight and angle pattern body style
- Vee tip and soft tip available

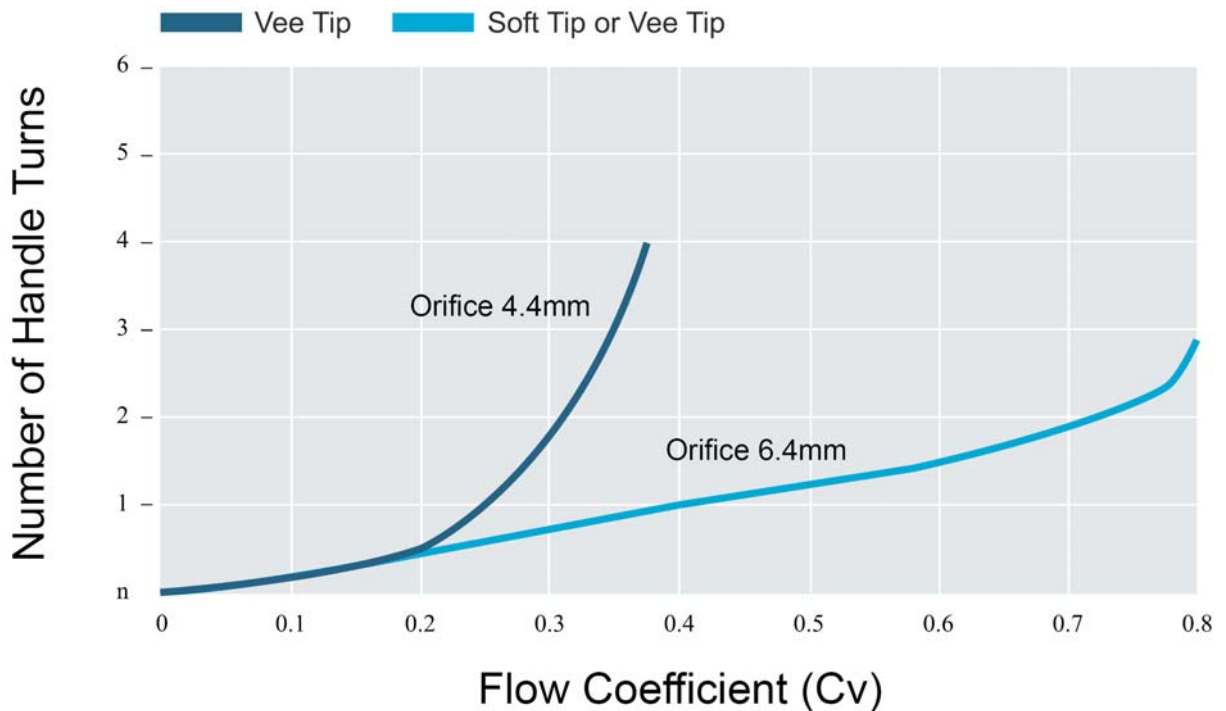


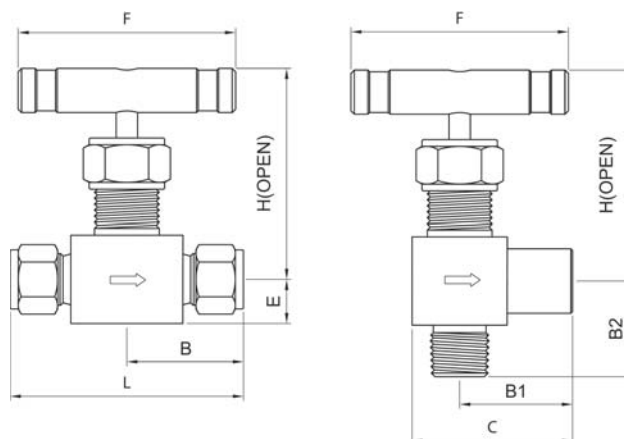
#### Construction:



No.	Component	Materials	
1	Body	SS316	
2	Stem	Soft TIP	PCTFE
		Vee Tip	SS316
3	Packing	SS316	
4	Packing Support	PTFE	
5	Packing Gland	SS316	
6	Packing Nut	SS316	
7	Handle	Bar Handle	SS316
		Knob Handle	Phenolic

#### Flow Characteristics:





Order NO.		Orifice	Cv	End connections		Dimensions (mm)								
Series	ITEM			Inlet	Outlet	L	B	B <sub>1</sub>	B <sub>2</sub>	C	E	F	H	
DB-NV1	F	4N	4.4	0.37	1/4" Female NPT		47.6	23.8	25.4	25.4	36.5	11.1	45.0	51.0
	M	4N			1/4" Male NPT		49.2	24.6	-	-	-	-	45.0	51.0
	MF	4N			1/4" Male NPT	1/4" Female NPT	48.4	23.8	25.4	26.2	36.5	11.1	45.0	51.0
	MD	4N-4			1/4" Male NPT	1/4" TF	53.3	28.7	28.7	26.2	39.8	11.1	45.0	51.0
	D	4			1/4" TF		62.4	31.2	28.7	29.7	39.8	11.1	45.0	51.0
DB-NV2	F	6N	6.3	0.73	3/8" Female NPT		64.0	32.0	31.8	31.8	48.6	16.8	64.0	63.0
	F	8N			1/2" Female NPT		64.0	32.0	31.8	35.8	48.6	16.8	64.0	63.0
	MF	6N			3/8" Male NPT	3/8" Female NPT	64.0	32.0	31.8	31.0	48.6	16.8	64.0	63.0
	MF	8N			1/2" Male NPT	1/2" Female NPT	64.3	32.0	31.8	35.8	48.6	16.8	64.0	63.0
	MF	12N-8N			3/4" Male NPT	1/2" Female NPT	63.6	32.0	-	-	-	-	64.0	63.0
	MD	6N-8			3/8" Male NPT	1/2" TF	73.7	41.9	-	-	-	-	64.0	63.0
	D	6			3/8" TF		78.2	39.1	-	-	-	-	64.0	63.0
	D	8			1/2" TF		83.3	41.9	-	-	-	-	64.0	63.0

**Remark** :TF=Tube Fitting

## Integral Bonnet Needle Valve

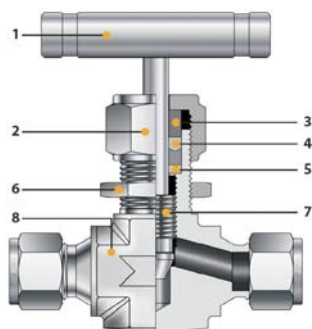
### DI-NV

#### Specifications:

- Pressure Rating:5000psig(345bar)
- Temperature:-54-232°C(PTFE)  
-54-315°C(PEEK)
- Port Connections:1/8"-3/4"
- Orifice:2.0-9.5mm
- Body Material:SS316 and Brass



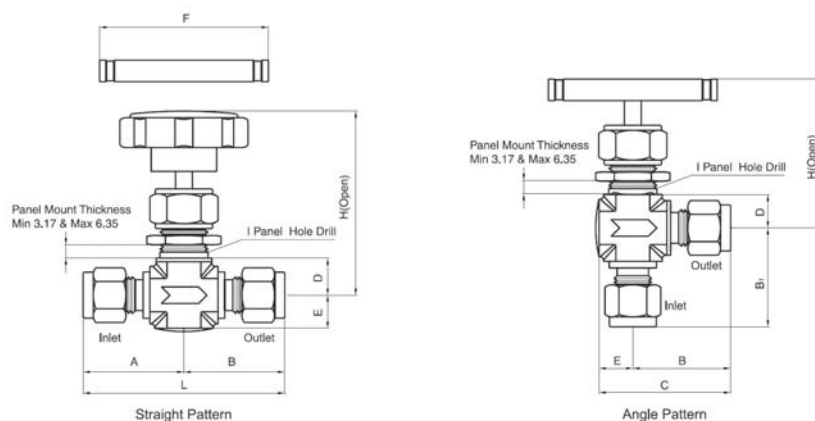
#### Construction:



No.	Component		Materials	
1	Handle	Bar Handle	SS316	
		Knob Handle	Phenolic	
2	Packing Nut		SS316	Brass
3	Packing Gland		SS316	Brass
4	Packing		PTFE/PEEK	
5	Packing Support		SS316	Brass
6	Panel Nut		SS316	Brass
7	Stem	Vee Tip	SS316	
		Regulating		
		Soft tip		
8	Body		SS316	Brass

#### Pressure-Temperature:

Body Material	Stem	Temperature (°C)	Pressure (psi) -54-38°C
SS316	Vee/Regulating	-54-232	5000
	Soft	-54-93	3000
Brass	Vee/Regulating	-54-204	3000
	Soft	-54-93	3000



Order NO.		Orifice	Cv	End connections		Dimensions(mm)										
Series	ITEM			Inlet	Outlet	L	A	B	B <sub>1</sub>	C	D	E	F	I	H	
DI-NV1	F	2N	2	0.09	1/8" Female NPT		47.8	23.9	23.9	23.9	31.8	11.2	7.9	32.0	11.9	55.0
	M	2N			1/8" Male NPT		38.1	19.1	19.1	19.1	27.0					
	MD	2N-2			1/8" Male NPT	1/8" TF	43.8	19.1	24.7	19.1	32.6					
	D	2			1/8" TF		49.4	24.7	24.7	24.7	32.6					
DI-NV2	F	2N	4.4	0.37	1/8" Female NPT		41.2	20.6	20.6	20.6	30.3	11.2	9.7	45.0	13.5	51.5
	M	2N			1/8" Male NPT		41.2	20.6	20.6	20.6	30.3					
	M	4N			1/4" Male NPT		49.8	24.9	24.9	24.9	34.6					
	MD	4N-4			1/4" Male NPT	1/4" TF	53.6	24.9	28.7	24.9	38.4					
	D	4			1/4" TF		57.4	28.7	28.7	28.7	38.4					
DI-NV3	F	4N	6.3	0.73	1/4" Female NPT		53.8	26.9	26.9	26.9	39.6	12.7	12.7	64.0	20.0	63.5
	MF	4N			1/4" Male NPT	1/4" Female NPT	55.6	28.7	26.9	28.7	39.6	12.7				
	MD	4N-6			1/4" Male NPT	3/8" TF	61.5	28.7	32.8	28.7	45.5	12.7				
	M	6N			3/8" Male NPT		57.4	28.7	28.7	28.7	41.4	12.7				
	MD	6N-6			3/8" Male NPT	3/8" TF	61.5	28.7	32.8	28.7	45.5	12.7				
	MD	6N-8			3/8" Male NPT	1/2" TF	64.3	28.7	35.6	28.7	48.3	14.2				
	D	6			3/8" TF		65.6	32.8	32.8	32.8	45.5	12.7				
	D	8			1/2" TF		71.2	35.6	35.6	35.6	48.3	14.0				
DI-NV4	F	6N	9.5	1.8	3/8" Female NPT		76.2	38.1	38.1	38.1	57.2	19.1	19.1	76.0	26.2	99.5
	F	8N			1/2" Female NPT		76.2	38.1	38.1	38.1	57.2					
	M	8N			1/2" Male NPT		76.2	38.1	38.1	38.1	57.2					
	MF	8N			1/2" Male NPT	1/2" Female NPT	76.2	38.1	38.1	38.1	57.2					
	D	8			1/2" TF		96.6	48.3	48.3	48.3	67.4					
	D	12			3/4" TF		96.6	48.3	48.3	48.3	67.4					

**Remark** :TF=Tube Fitting

## Union Bonnet Needle Valve

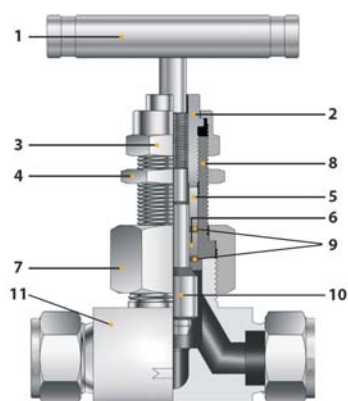
### DU-NV

#### Specifications:

- Panel mountable
- Non-rotating stem tips
- Variety of stem tips
- Stright and angle flow pattern
- Pressure rating:6000psig(413bar)
- Temperature:-54-232°C(PTFE)
- Orifice:4.0-11.1mm
- Body Material:SS316

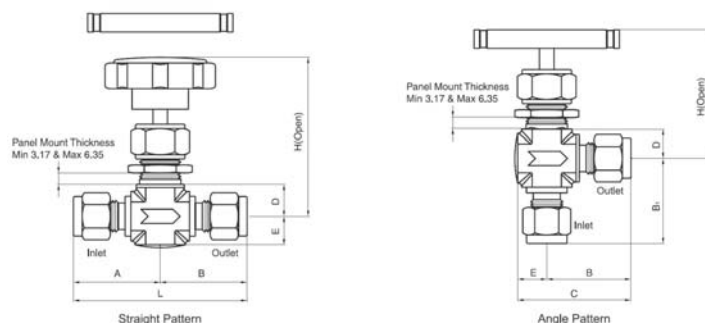


#### Construction:



No.	Component	Materials	
1	Bar Handle	SS316	
	Set Screw	PCTFE	
2	Lock Bolt	SS316	
3	Lock Nut	SS316	
4	Panel Nut	PTFE	
5	Packing Gland	SS316	
6	Packing	SS316	
7	Nut	SS316	
8	Bonnet	PTFE	
9	Packing Support	PTFE	
10	Stem	Vee Tip	SS316
		Ball Tip	
		Soft tip	
		Regulating	
11	Body	SS316	

# Needle Valve



Order NO.		Orifice	Cv	End connections		Dimensions (mm)										
Series	ITEM			Inlet	Outlet	L	A	B1	B2	C	D1	D2	E1	E2	H Straight	H Angle
DU-NV1	F 2N	4	0.35	1/8" Female NPT		50.8	25.4	23.0	25.4	32.9	27.8	32.6	9.9	9.9	77.8	82.6
	F 4N			1/4" Female NPT		52.4	26.2	23.0	25.4	32.9		32.6				
	M 4N			1/4" Male NPT		50.8	25.4	25.4	25.4	35.3		32.6				
	MF 4N			1/4" Male NPT	1/4" Female NPT	52.4	26.2	23.0	25.4	32.9		32.6				
	D 4			1/4" TF		62.0	31.0	29.4	37.3	39.3		27.8				
DU-NV2	F 4N	6.4	0.86	1/4" Female NPT		57.2	28.6	25.4	28.6	38.1	34.1	37.3	12.7	12.7	93.7	96.9
	F 6N			3/8" Female NPT		57.2	28.6	25.4	28.6	38.1		37.3				96.9
	D 6			3/8" TF		73.0	36.5	32.5	42.9	45.3		31.0				90.5
	D 8			1/2" TF		77.8	38.9	34.9	42.1	47.6		34.2				93.7
DU-NV3	F 8N	11	2.2	1/2" Female NPT		79.4	39.7	33.0	39.7	50.8	46.0	50.8	15.9	17.5	121.5	126.2
	F 12N			3/4" Female NPT		82.6	41.3	-	-	-	48.4	-	19.9	-	123.9	-
	F 16N			1" Female NPT		92.0	46.0	-	-	-	54.0	-	25.4	-	129.4	-
	MF 8N			1/2" Male NPT	1/2" Female NPT	79.4	39.7	33.0	39.7	50.8	46.0	50.8	15.9	17.5	121.5	126.2
	MF 12N			3/4" Male NPT	3/4" Female NPT	82.6	41.3	-	-	-	48.4	-	19.9	-	123.9	-
	MF 16N			1" Male NPT	1" Female NPT	92.0	46.0	-	-	-	54.0	-	25.4	-	129.4	-
	D 8			1/2" TF		100.0	50.0	43.7	53.2	61.2	46.0	47.6	15.9	17.5	121.5	126.2
	D 12			3/4" TF		100.0	50.0	43.7	53.2	61.2	46.0	47.6	15.9	17.5	121.5	126.2
	D 16			1" TF		100.0	50.0	-	-	-	47.6	-	17.5	-	123.1	-

Remark :TF=Tube Fitting

# Check Valve

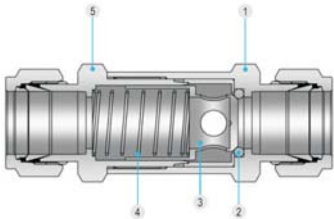
## DP-CV

### Specifications:

- Pressure Rating: 3000psig(207bar)@21°C
- Temperature: -23-191°C
- Fixed cracking pressure
- Variety of end connections
- Body material: SS316
- Each and every valve is tested at the factory

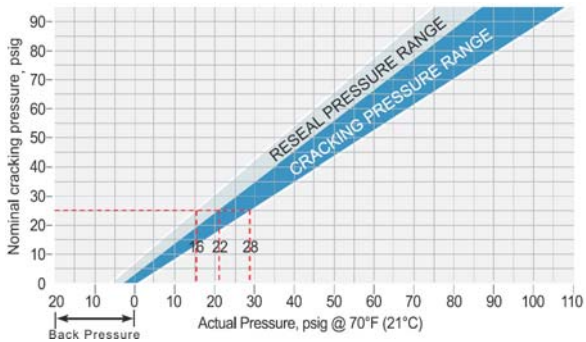


### Construction:



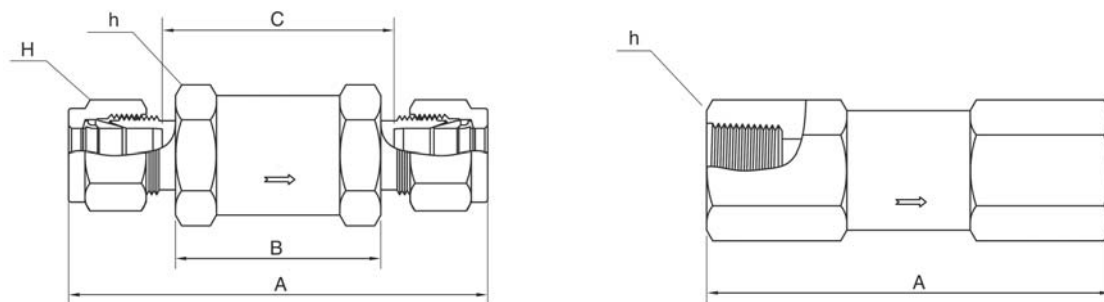
No.	Component	Materials
1	Inlet Body	SS316
2	O-Ring	VITON
3	Poppet	SS316
4	Spring	SS304
5	Outlet Body	SS316

### Pressure-Temperature:



O-Ring Material	Temperature (°C)	Designator
NBR	-54-121	-N
DPEM	-57-121	-D
VITON	-23-191	-V
Kalrez	-26-260	-K
CR	-37-107	-C





Order NO.		End connections	Dimensions (mm)					
Series	ITEM		A	B	C	h	H	
DP-CV	D	2	1/8" TF	57.2	26.6	31.2	15.9	11.1
	F	2N	1/8" Female NPT	50.0	-	-	15.9	-
	D	4	1/4" TF	62.2	26.6	31.4	15.9	14.3
	F	4N	1/4" Female NPT	57.1	-	-	19.1	-
	D	6	3/8" TF	76.2	37.6	42.4	22.2	17.5
	F	6N	3/8" Female NPT	73.9	-	-	22.2	-
	D	8	1/2" TF	86.6	42.9	40.8	25.4	22.2
	F	8N	1/2" Female NPT	90.6	-	-	27.0	-
	D	10	5/8" TF	91.7	48.0	42.8	28.5	25.4
	D	12	3/4" TF	100.0	56.1	51.1	31.8	28.6
	F	12N	3/4" Female NPT	100.0	-	-	31.8	-
	D	16	1" TF	111.0	58.4	48.9	38.1	38.1
	F	16N	1" Female NPT	114.0	-	-	41.3	-

**Remark** :TF=Tube Fitting

**DP-CV-F-4N-0.5P**

1
2
3
4

1. Valve Series

2. End Connections Type

- D: Tube fittings
- F: Female

3. End Connections Type Size

- 1: 1/16"
- 2: 1/8"
- 4: 1/4"
- 6: 3/8"
- 8: 1/2"
- 12: 3/4"
- 16: 1"
- N: NPT

4. Cracking Pressure

- Standard: PVDF
- PC: PCTFE
- PE: PEEK

# Relief Valve

## Features:

- Compact design
- Cracking pressure adjustable externally
- Lock wire feature secures a given pressure setting
- Each and every valve is tested at the factory



## Set Pressure:

- Set pressure is the upstream pressure at which the first indication of flow occurs.
- Set pressure of each valve after initial relief is repeatable within 5% at room temperature.

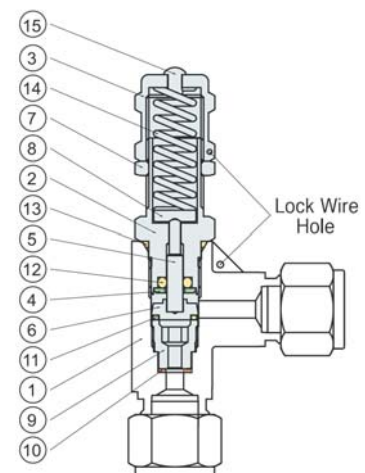
## DRVL Series

### Specifications:

- Maximum work pressure:300psig(20.6bar)
- Cracking pressure:10-250psi
- Orifice:4.8mm
- One spring for the full set pressure range
- Spring kit available

### Construction:

No.	Component	Materials	No.	Component	Materials
1	Body	SS316	9	Seat Retainer	SS316
2	Bonnet	SS316	10	Seat	PTFE
3	Adjust Nut	SS316	11	O-Ring	VITON
4	Retainer	SS316	12	O-Ring	VITON
5	Stem Shart	SS316	13	O-Ring	VITON
6	Stem	SS316	14	Spring	SS 304
7	Lock Nut	SS316	15	Cap	PP
8	Spring Support	SS316			



## DRVH Series

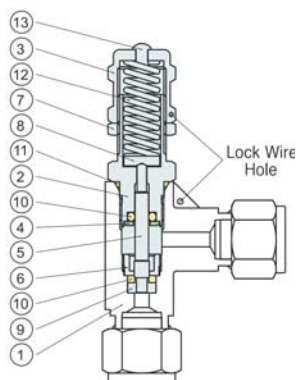
### Specifications:

- Maximum work pressure:6000psig(413bar)
- Cracking pressure:1225-6000psi
- Orifice:4.8mm
- Pressure can be setted
- Multiple springs for a selection of set pressure ranges

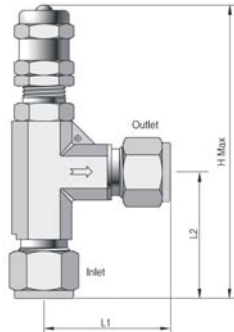
### Spring:

Spring Designator	Spring Color	Cracking Pressure (psi)
Y	Yellow	225-750
P	Purple	750-1500
O	Orange	1500-2250
B	Blue	2250-3000
W	White	3000-4000
R	Red	4000-5000
G	Green	5000-6000

### Construction:



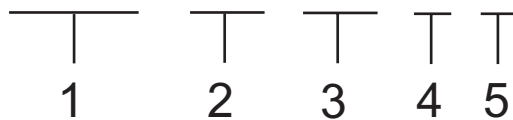
No.	Component	Materials	No.	Component	Materials
1	Body	SS316	8	Spring Support	SS316
2	Bonnet	SS316	9	Stem Retainer	SS316
3	Adjust Nut	SS316	10	O-Ring	VITON
4	Retainer	SS316	11	O-Ring	VITON
5	Stem Shart	SS316	12	Spring	SS 304
6	Stem Guide	SS316	13	Cap	PP
7	Lock Nut	SS316			



Order NO.		Orifice	End connections		Dimensions (mm)		
Series	ITEM		Inlet	Outlet	L1	L2	H
DRVL & DRVH	D	4	1/4" Female NPT		38.7	37.3	104.6
	D	6	3/8" Female NPT		44.4	46.7	111.7
	D	8	1/2" Female NPT		44.4	46.7	114.0
	MD	8N-8	1/2" Male NPT	1/2" TF	46.7	35.7	103.0
	MF	4N	1/4" Male NPT	1/4" Female NPT	30.0	32.2	99.5
	MF	6N	3/8" Male NPT	3/8" Female NPT	34.5	32.2	99.5
	MF	8N	1/2" Male NPT	1/2" Female NPT	38.0	35.7	103.0

**Remark :** TF=Tube Fitting

## DRVL-MF-4N-Y-S



### 1. Valve Series

- DRVL:Low-Pressure
- DRVH:High-Pressure

### 2. End Connections Type

- D:Tube fittings
- F:Female
- M:Male

### 3. End Connections Size

- 1:1/16"
- 2:1/8"
- 4:1/4"
- 6:3/8"
- 8:1/2"
- 12:3/4"
- 16:1"
- N:NPT

### 4. Spring Designator

### 5. Body Material

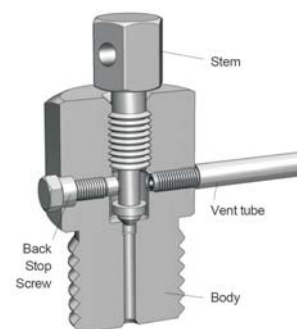
- S:SS316

## Bleed Valve

### DBV

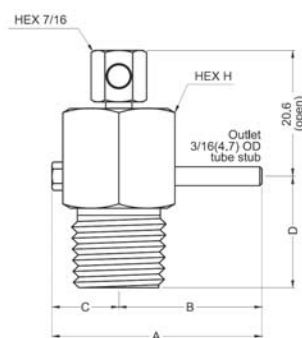
#### Features:

- Compact for convenient installation
- Chrome-plated stem threads and tip improves valve life
- Back stop screw prevents accidental remove of stem
- Maximum work pressure:10000psi
- Cv:0.25
- Temperature:-54-454°C
- Body Material:SS316



#### Application:

Be used on instrumentation devices such as multivalve manifolds or gauge valves to vent signal line pressure to atmosphere before removal of an instrument ro to assist in calibration of control devices.



ITEM	Cv	End connections	Dimensions (mm)				
			A	B	C	D	H
DBV-M-2N	0.25	1/8" Male NPT	34.0	23.9	10.4	19.1	15.9
DBV-M-4N		1/4" Male NPT	34.0	23.9	10.4	19.1	15.9
DBV-M-6N		3/8" Male NPT	37.3	26.3	11.2	22.3	22.2
DBV-M-8N		1/2" Male NPT	37.3	26.3	11.2	22.3	22.2

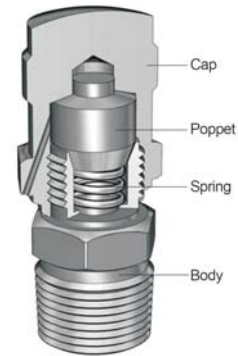
Remark: If require 316ss bar handle,add-BH to the end of part number,ex),DBV-M-2N-BH

# Purge Valve

## DPV

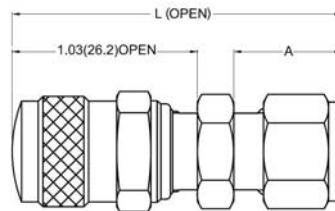
### Features:

- Compact for convenient installation
- Vent hole is bled excessive liquid or gas from system lines
- Cap is crimped to valve body to prevent accidental disassembly
- Maximum work pressure:4000psi
- Temperature:-53-315°C
- Body Material:SS316
- Variety of end connections



### Application:

**Purge Valves** are manual bleed valve, vent or drain vales. One-quarter turn with a wrench from finger-tight obtains leaklight closure on first makeup. Snugging with a wrench ensures closure to the rated pressure with subsequent makeups.



Order NO.			End connections	Dlmsions (mm)	
Series	ITEM			L	A
DPV	D	2	1/8" TF	39.6	13.5
	D	4	1/4" TF	44.4	18.3
	D	6	3/8" TF	46.0	19.8
	D	8	1/2" TF	50.3	24.6
	M	2N	1/8" Male NPT	41.1	9.7
	M	4N	1/4" Male NPT	46.0	14.2
	M	6N	3/8" Male NPT	46.7	14.2
	M	8N	1/2" Male NPT	53.1	19.1
	F	2N	1/8" Female NPT	46.7	15.0
	F	4N	1/4" Female NPT	49.3	17.5
	F	6N	3/8" Female NPT	51.6	19.1
	F	8N	1/2" Female NPT	55.6	22.4

**Remark** :TF=Tube Fitting

## Micron Inline Filter

### Features:

- Remove system particulate contaminants
- Replaceable filter element
- Filter Elements Nominal Pore Size:  
0.5,2,7,15,60,90µm
- Maximum work pressure:3000psi@21°C
- Temperature:-28-282°C
- 1/8"-1/2" end Connections

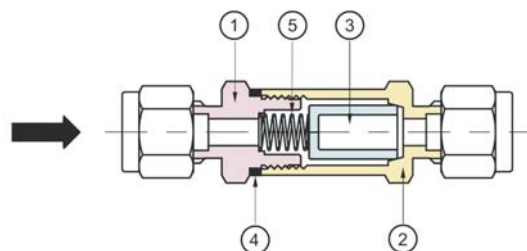


### Pressure-Temperature:

Filter Series	DIF1&DIF2	DIF3&DIF4
Material	SS316	
Temperature(°C)	Work Pressure (psi)	
-28-37	3000	2500
-28-93	2580	2150
-28-148	2330	1940
-28-204	2140	1780
-28-260	1990	1660
-28-315	1880	1560
-28-343	1845	1540
-28-371	1800	1500
-28-398	1760	1460
-28-426	1725	1440
-28-454	1690	1410
-28-482	1640	1360

### Construction:

No.	Component	Materials
1	Inlet Body	SS316
2	Outlet Body	SS316
3	Filter Element	SS316 Sintered
4	Gasket	Silver Plate SS316
5	Spring	SS304



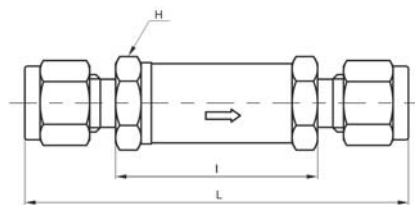
## Effective Filtration Area

Nominal Pore Size ( $\mu\text{m}$ )	Pore Size Range ( $\mu\text{m}$ )
0.5	0.5-2
2	1-4
7	5-10
15	11-25
60	50-70
90	75-100

## Filter Elements

Filter Series	Effective Filtration Area ( $\text{mm}^2$ )
DIF1	350
DIF2	830
DIF3&DIF4	1280

## Table of Dimensions



Order NO.			Orifice	End connections	Dimensions (mm)		
Series	ITEM				H	I	L
DIF1	M	2N	2.4	1/8" Male NPT	14.3	29.2	48.6
	F	2N		1/8" Female NPT			54.9
	D	2		3/8" TF			59.7
DIF1	M	4N	4.7	1/4" Male NPT	19.0	39.7	68.3
	F	4N		1/4" Female NPT			72.9
	D	4		1/4" TF			75.2
DIF1	M	6N	7.1	3/8" Male NPT	25.4	43.2	71.6
	F	6N		3/8" Female NPT			77.2
	D	6		3/8" TF			81.8
DIF4	D	8	10.4	1/2" TF			86.9

**Remark** :TF=Tube Fitting



## Valve Manifold

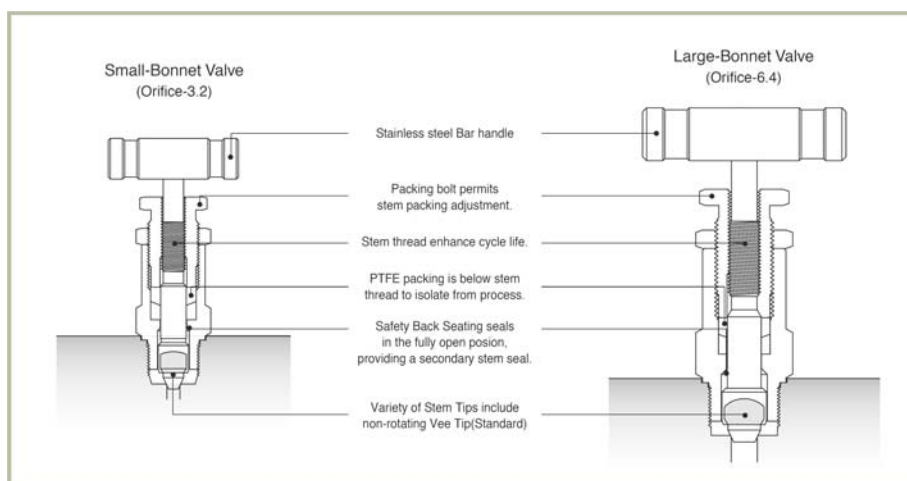
### Features:

- Maximum work pressure: 6000psi @ 37°C
- 2/3/5-valve manifold available
- Temperature:
  - PTFE: -54-232°C
  - Grafoil: -54-648°C

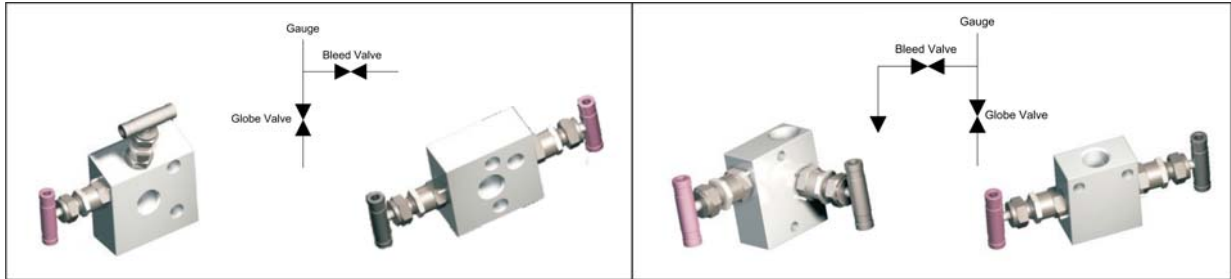


### Pressure-Temperature:

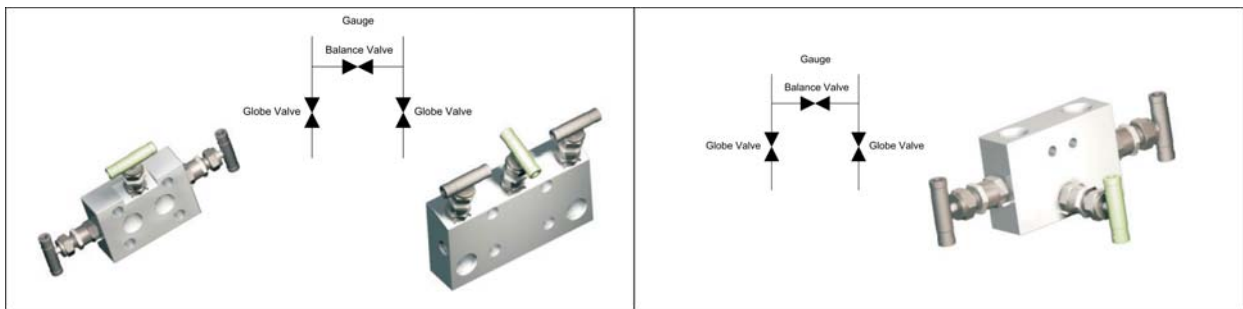
Packing Material	Body Material	Temperature (°C)	Pressure (psi)
PTFE	SS316	-53-232	6000
Grafoil		-53-648	



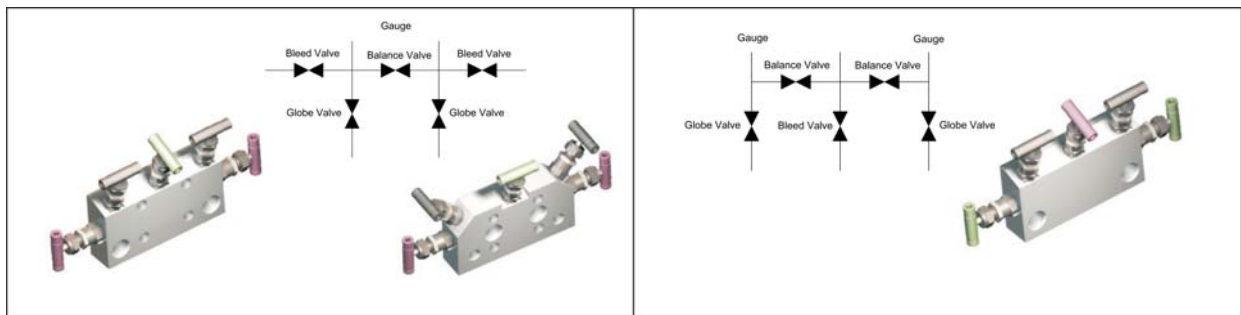
### 2-Valve Manifold



### 3-Valve Manifold

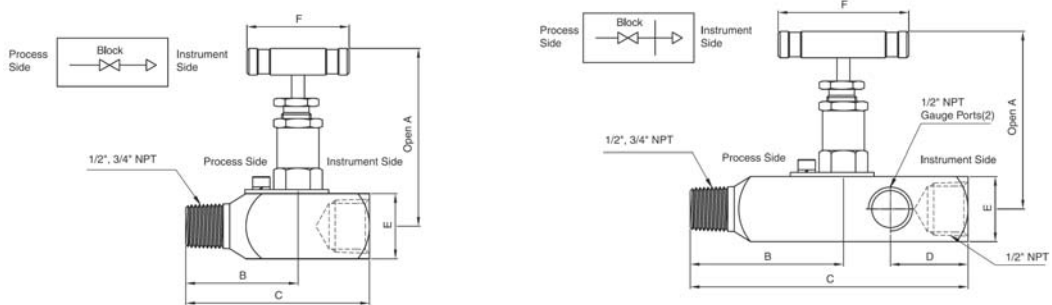


### 5-Valve Manifold



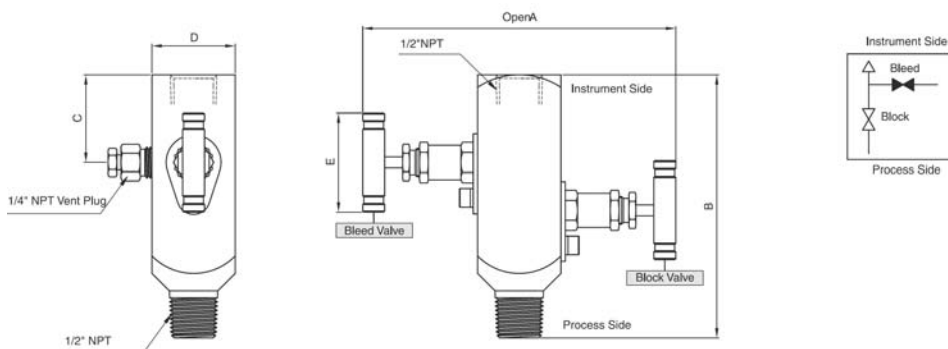
## Gauge/Valve Manifold

### GBV&GRV



ITEM	End connections		Dimensions (mm)					
	Process	Instrument	A	B	C	D	E	F
DMF-8N-GBV	1/2" Male NPT	1/2" Female NPT	87.0	75.0	136.0	38.0	32.0	64.0
DMF-12N8N-GBV	3/4" Male NPT	1/2" Female NPT						
DMF-8N-GRV	1/2" Male NPT	1/2" Female NPT	87.0	123.0	184.0	38.0	32.0	64.0
DMF-12N8N-GRV	3/4" Male NPT	1/2" Female NPT						

### GBV2



ITEM	End connections		Dimensions (mm)					
	Process	Instrument	A	B	C	D	E	F
DMF-8N-GBV2	1/2" Male NPT	1/2" Female NPT	142.0	120.0	136.0	40.0	38.0	45.0

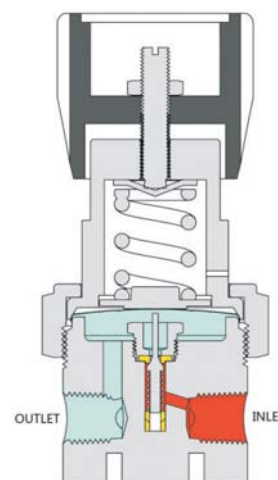
## Diaphragm Regulator



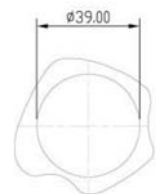
### RDA Series

#### Features:

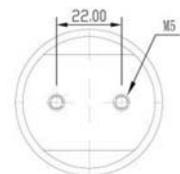
- Max.inlet pressure:500,3500psi
- Outlet pressure:  
0~25,0~50,0~100,0~150,0~250,0~500psi
- Cv:  
Inlet(3500psi):0.06  
Outlet(500psi):0.15
- Work temperature:-40-70°C
- Leak rate:  
Inside:Leakless  
Outside: $2 \times 10^{-8}$  atm.ml/s (max. leak rate)
- Corrugated metal diaphragm
- Metal to metal diaphragm seal
- Internal filter
- End connection size:1/4"NPT
- Panel mounted and bottom mounted available



Panel mounted



Bottom mounted

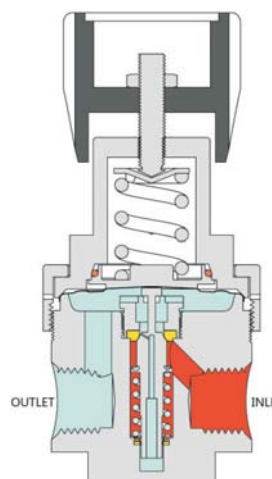


## RDB Series

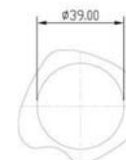
### Features:

RDB metal diaphragm regulator, high flow (1.0 and 2.0 Cv), High sensitivity and Accuracy.

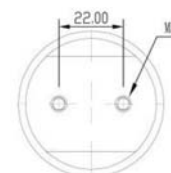
- Max.inlet pressure: 500, 3500psi
- Outlet pressure :  
0~25, 0~50, 0~100, 0~150, 0~200psi
- Cv: 1.0 (1/2") and 2.0 (3/4")
- Work temperature: -40-70°C
- Leak rate:  
Inside: leakless  
Outside:  $2 \times 10^{-8}$  atm ml/s (max.leak rate)
- large diameter corrugated metal diaphragm
- Metal to metal diaphragm seal
- Internal filter
- End connection size: 1/2" FNPT and 3/4" FNPT
- Panel mounted and bottom mounted available



Panel mounted



Bottom mounted

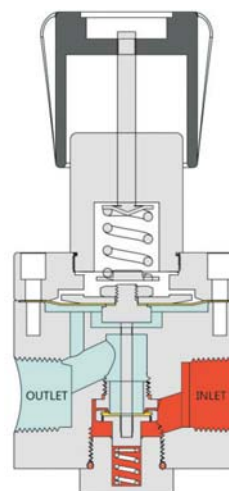


## RDD Series

### Features:

RDD plastic diaphragm regulator

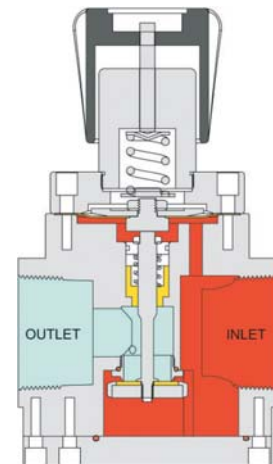
- Max.inlet pressure: 500psi
- Outlet pressure:  
0~25, 0~50, 0~100, 0~150psi
- Cv: 5.0
- Work temperature: -40-70°C
- Leak rate:  
Inside: leakless
- large diameter Corrugated metal diaphragm
- Internal filter
- End connection size: 1" thread and 1" welded



**RDE Series****Features:**

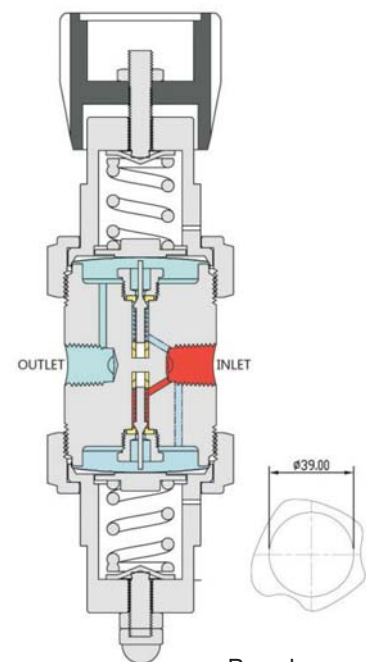
RDB plastic diaphragm regulator.

- Max.inlet pressure:300psi
- Outlet pressure:  
0~25,0~50,0~100,0~150psi
- Cv:10
- Work temperature:-23-70°C
- Leak rate:  
Inside:leakless
- large diameter corrugated metal diaphragm
- End connection size:1.5",2",2.5",3"Welding

**RDF Series****Features:**

RDD dual-stage metal diaphragm regulator.

- Max.inlet pressure:3500psi
- Outlet pressure:  
0~25,0~50,0~100,0~150,0~250psi
- Cv:0.06
- Work temperature:-40-70°C
- Leak rate:  
Inside:leakless  
Outside: $2 \times 10^{-8}$  atm.ml/s (max. leak rate)
- Corrugated metal diaphragm
- Metal to metal diaphragm seal
- Internal filter
- End connection size:1/4"NPT
- Panel mounted



Panel mounted

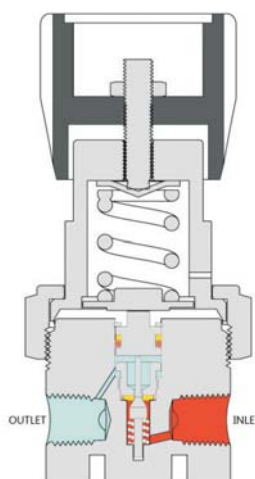
## Piston Regulator



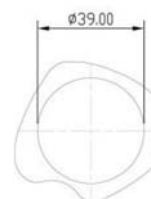
### RPA Series

#### Features:

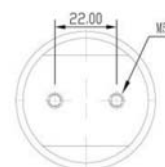
- Max.inlet pressure:6000psi
- Outlet pressure:  
0~800,0~1500,0~2500psi
- Cv:0.06
- Wok temperature:-26-70°C
- Leak rate:  
Inside:leakless
- safety piston pressure sensor design
- Internal filter
- End connection size:1/4"FNPT
- Panel mounted and bottom mounted available



Panel mounted

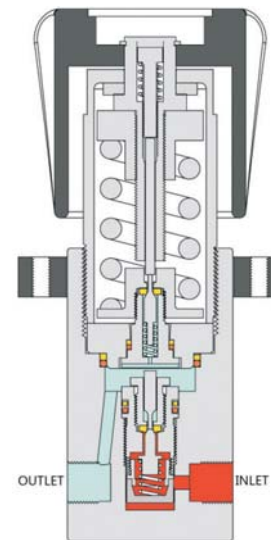


Bottom mounted

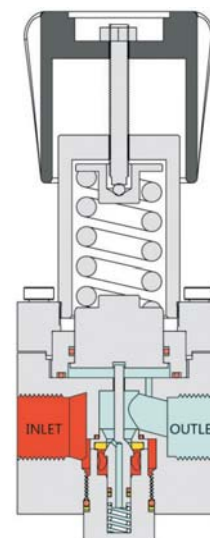


**RPB Series****Features:**

- Max.inlet pressure:  
SS:10000psi  
Brass:6000psi
- Outlet pressure:0~4000,0~6000psi
- Cv:0.06
- Work temperature:-26-70°C
- Leak rate:  
Inside:leakless
- Self-discharge function
- safety piston pressure sensor design
- Thrust roller bearing design
- Internal filter
- End connection size:1/4"FNPT
- Panel mounted

**RPC Series****Features:**

- Max.inlet pressure:6000psi
- Outlet pressure:  
0~400,0~4000psi
- Cv:2.0
- Work temperature:-26-70°C
- Leak rate:  
Inside:leakless
- Safety piston pressure sensor design
- Internal filter
- End connection size:3/4"FNPT





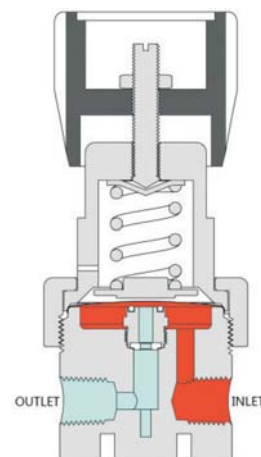
## Back Pressure Valve



### **BRA** Low pressure diaphragm back pressure valve

#### Features:

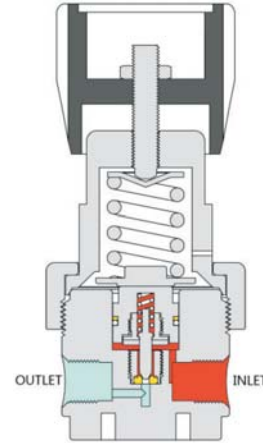
- Max.inlet pressure:2500psi
- Outlet pressure:  
0~25,0~50,0~100,0~150,0~250psi
- Cv:0.3
- Work temperature:-26-74°C
- Leak rate:  
Inside:Leakless  
Outside: $2 \times 10^{-8}$  atm.ml/s (max. leak rate)
- Corrugated steel stainless diaphragm
- Metal to metal diaphragm seal
- Panel mounted and bottom mounted available



## BRB Middle pressure piston back pressure valve

### Features:

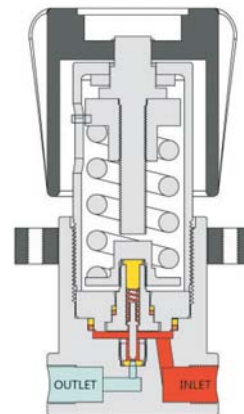
- Max.inlet pressure:1500psi
- Outlet pressure:0~250,0~500,0~800,0~1500psi
- Cv:0.3
- Work temperature:-26-93°C
- Leak rate:  
Inside:Leakless
- Safety piston pressure sensor design
- Low handle torque
- Panel mounted and bottom mounted available



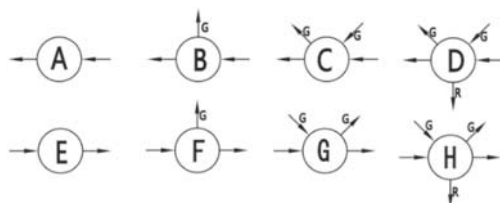
## BRC High pressure piston back pressure valve

### Features:

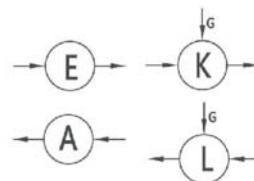
- Max.inlet pressure:10000psi
- Outlet pressure:  
10~1500,15~2500,25~4000,50~6000psi
- Cv:0.1
- Work temperature:-40-74°C
- Thrust roller bearing design
- Panel mounted



## Inlet and outlet-regulator/back pressure valve



Regulator



Back pressure valve



**Our aim is integrity.innovation.fast and detailed**



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