

HIKELOK



По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Россия (495)268-04-70

Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Киргизия (996)312-96-26-47

Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Казахстан (7172)727-132

Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

About Hikelok

Hike Fluid Equipment Co., Ltd. was established in 2011. We are located in industry concentration development Zone in Chongzhou. The registered capital of the company is RMB3 million and we cover an area of 4,000 square meters. The company is formerly known as the fluid business unit of Chengdu Haiwang Precision Equipment Co., Ltd. In order to satisfy the increasing needs of our business, we set up Hike Fluid Equipment Co., Ltd. The fluid business unit of Chengdu Haiwang Precision Equipment Co., Ltd. has focused on precision fluid fittings and valves for more than 10 years. For the accumulated experience, our products have achieved a good reputation in Chinese market, especially the instrumentation fittings and valves, which can be equal to the international well-known companies. We have impeccable management system in quality and strict product test program to ensure valves and fittings have excellent quality when they leave the factory.

Hike Fluid Equipment Co., Ltd. now has more than 100 staff members, 20% of them are professionals who have rich experience in this area. The rich experience in product development we accumulated ensures us to customize products for the practical application needs of customers. The fixed assets of our company is more than 10 million and we have more than 50 sets of precision CNC lathes, machining centers, slitting machines, cape cars, millings, sawing machines, washing, drying and testing equipment. Inspection center is equipped with a large number of test equipment and calibration standard parts, such as spectrometer, metallurgical microscope, quadratic element, projector, sclerometer, etc. We set up inspection test equipment calibration system and the maintenance management system.

The main products of Hike Fluid Equipment Co., Ltd. include needle valves, ball valves, instrument manifolds, bellows valves, check valves, twin ferrules series tube fittings, instrument pipe fittings, weld fittings and other kinds of instrumentation valves and fittings. We can provide stainless steel, alloy steel, brass, special alloy and carbon steel. The product executive standard of the company is ANSI, ASME, ASTM, API, MSS, ISO, EN, GB, JB, HG, etc. Our products are widely used in power generation, petroleum, petrochemical, natural gas, semiconductor, laboratory, shipbuilding, steel, chemical industry and other fields.

Table Of Contents

Twin ferrule Tube fittings	01
Tubing and Pipe	16
Instrumentation Pipe Fittings	20
Instrumentation Weld Fittings	29
Butt-Weld Fittings	33
Metal Gasket Face Seal Fittings	37
Vacuum Fittings	44
Vacuum Adapter Fittings	46
Other Fittings	49
Metal Flexible Hoses	50
Quick-Connects	54
Filter	59
Ball Valves	63
Plug Valves	77
Needle Valves	79
Bellows-Sealed Valves	97
Diaphragm Valves	103
Metering Valves	111
Check Valves	117
Proportional Relief Valves	126
Pressure Reducing Regulators	132
Gauge Valves	138
Instrumentation Manifolds	140
Bleed and Purge Valves	144
Block and Bleed Valves	146
Root Valves	150
Globe Valves	152
Air Headers	154
Sample Cylinders	156
Condensate Pots	157
Syphons	159
Tools	161

Twin ferrule Tube fittings



Hose

- ❖ MF1
- ❖ PH1



Instrumentation Pipe Fittings



Quick-Connects

- ❖ QC1
- ❖ QC2



Instrumentation Weld Fittings



Sample Cylinders

- ❖ SC1



Ball Valves

- ❖ BV1
- ❖ BV2
- ❖ BV3
- ❖ BV4
- ❖ BV5
- ❖ BV6
- ❖ BV7



Filters

- ❖ F1
- ❖ F2
- ❖ F3



Needle Valves

- ❖ NV1
- ❖ NV2
- ❖ NV3
- ❖ NV4
- ❖ NV5
- ❖ NV6
- ❖ NV7
- ❖ NV8
- ❖ CNV



Plug Valves

- ❖ PV1



Check Valves

- ❖ CV1
- ❖ CV2
- ❖ CV3
- ❖ CV4
- ❖ CV5
- ❖ CV6
- ❖ CV7



Bellows-Sealed Valves

- ❖ BS1
- ❖ BS2
- ❖ BS3



Proportional Relief Valves

- ❖ RV1
- ❖ RV2
- ❖ RV3
- ❖ RV4



Metering Valves

- ❖ MV1
- ❖ MV2
- ❖ MV3
- ❖ MV4



Instrumentation Manifolds

- ❖ 2M
- ❖ 3M
- ❖ 5M



Bleed and Purge Valves

- ❖ BP1
- ❖ BP2



Gauge Valves

- ❖ GV1
- ❖ GV2



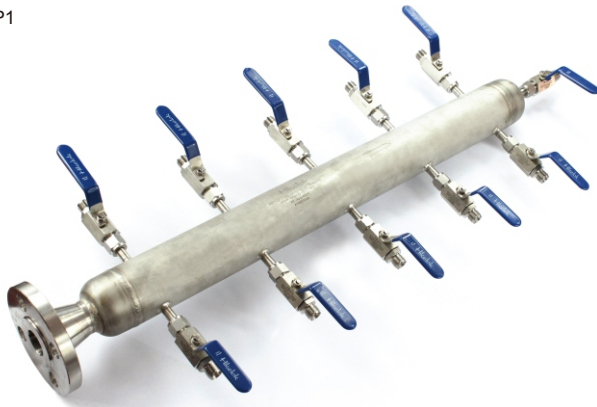
Block and Bleed Valves

- ❖ MB1
- ❖ BB1
- ❖ BB2
- ❖ BB3
- ❖ BB4
- ❖ DBB1
- ❖ DBB2
- ❖ DBB3
- ❖ DBB4
- ❖ RTV1



Air Headers

- ❖ AP1



Tubing and Pipe

- ❖ FT
- ❖ MT
- ❖ PI



Low, Medium and High Pressure Products



Ultrahigh-Purity Products



Globe Valves



Tools



Twin Ferrule Tube fittings

- ❖ Twin ferrule fittings provide metal-to-metal seal connections, non-elastomeric seals for leak-free connections
- ❖ Hikelok twin ferrule fittings is designed to have a maximum allowable working pressure that is higher than that of any tubing
- ❖ Industry standard design for all instrumentation grade tubing
- ❖ Stainless steel tube hardness: the hardness of the tube shall be not greater than 85 HRB
- ❖ Available in sizes from 1/16 to 2 in and 2 mm to 50 mm
- ❖ Hikelok fittings materials include 316 stainless steel, steel, brass, aluminum, nickel-copper, Hastelloy C, 6Mo, Incoloy 625 and 825
- ❖ Hikelok special treated back ferrule is to provide secure
- ❖ Silver coated threads to reduce galling
- ❖ Leak-proof joints capable of satisfying high pressure vacuum and vibration applications

Performance

- ❖ Hydraulic proof pressure test (1.5 times the maximum permissible working pressure): no leakage
- ❖ Dismantling and reassembly test (dismantle ten times): no leakage
- ❖ Minimum hydrostatic pressure test (4 times the maximum permissible ambient pressure rating): no leakage
- ❖ Vacuum test (1×10^{-4} mbar or greater): the leak rate less than 1×10^{-8} mbar/s
- ❖ Maximum static gas pressure test (with nitrogen gas to 150% of pressure rating): no visible bubbles
- ❖ Hydraulic impulse and vibration test (the pressure impulses at between 0.5 Hz and 1.7 Hz and the vibration at between 23 Hz and 47 Hz): no leakage
- ❖ Thermal cycle test (ambient to +80°C and then to -25°C with a hydrostatic pressure): no evidence of leakage
- ❖ Pneumatic pressure vibration test (The frequency of vibration shall be set at 45 Hz and complete 20×10^6 cycles): without failure
- ❖ Fire test (in accordance with BS ISO 19921): no leakage
- ❖ Corrosion resistance test (the duration of exposure at least 168 h): no visible evidence of corrosion
- ❖ Deep water submersion test (equivalent to 3048 m of sea water): no helium detected

Materials Standards

Material	Bar Stock	Forgings
316 stainless steel	ASTM A276 ASME SA479, EN 1.4401	ASTM A182 ASME SA182, EN 1.4401
Alloy 20	ASTM B473	ASTM B462
Alloy 400/R-405	ASTM B164, ASME SB164	ASTM B564, ASME SB564
Alloy 600	ASTM B166, ASME SB166	ASTM B564, ASME SB564
Alloy 625	ASTM B446	ASTM B564, ASME SB564
Alloy 825	ASTM B425	ASTM B564, ASME SB564
Alloy C-276	ASTM B574	ASTM B564
Aluminum	ASTM B211	ASTM B247
Brass	ASTM B16, ASTM B453	ASTM B283
Carbon steel	ASTM A108	—
Duplex 2507	ASTM A479	ASTM A182
Titanium (grade 4)	ASTM B348	ASTM B381
PFA	—	ASTM D3307 Type I
PTFE	ASTM D1710	ASTM D3294

Thread Specifications

Thread Type (End Connection)	Reference Specification
NPT	ASME B1.20.1, SAE AS71051
ISO/BSP (parallel) (Based on DIN 3852) (Hikelok PPT, BP, and BS fittings)	ISO 228, JIS B0202
ISO/BSP (tapered) (Based on DIN 3852) (Hikelok BT fittings)	ISO 7, BS EN 10226-1, JIS B0203
ISO/BSP (gauge) (Based on EN 837-1 and 837-3) (Hikelok BG)	ISO 228, JIS B0202
Unified (SAE) (Hikelok ST fittings)	ASME B1.1

NPT Thread Pressure Ratings

- Ratings are based on ASME Code for Pressure Piping B31.3, Process Piping, at ambient temperature.

NPT/ ISO Pipe Size	316 S.S. and Carbon Steel				Brass			
	Male		Female		Male		Female	
	psig	bar	psig	bar	psig	bar	psig	bar
1/16	11000	760	6700	460	5500	380	3300	230
1/8	10000	690	6500	440	5000	340	3200	220
1/4	8000	550	6600	450	4000	270	3300	220
3/8	7800	540	5300	360	3900	270	2600	180
1/2	7700	530	4900	330	3800	260	2400	160
3/4	7300	500	4600	320	3600	250	2300	160
1	5300	370	4400	300	2600	180	2200	150
1 1/4	6000	410	5000	350	3000	200	2500	170
1 1/2	5000	340	4600	310	2500	170	2300	150
2	3900	270	3900	270	1900	130	1900	130

To determine pressure ratings in accordance with ASME B31.1, Power Piping:
 stainless steel material-multiply by 0.94
 carbon steel material-multiply by 0.85
 Brass material ratings remain the same.

SAE/MS Thread Pressure Ratings

- Pressure ratings are based on SAE J1926/3 at ambient temperature.

SAE/MS Thread Size	316 S.S. and Carbon Steel			
	Nonpositionable		Positionable	
	psig	bar	psig	bar
5/16-24	4568	315	4568	315
7/16-20				
1/2-20			3626	250
9/16-18				
3/4-16				
7/8-14	3626	250	2900	200
1 1/16-12				
1 3/16-12	2900	200	2320	160
1 5/16-12				
1 5/8-12				
1 7/8-12	2320	160	1813	125
1 7/8-12				
2 1/2-12	1813	125	1450	100

Some fittings with O-seal and SAE/MS ends may have lower ratings.

Positionable, ISO/BSP Parallel Thread (PPT) Pressure Ratings

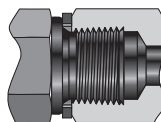
- Pressure ratings are at ambient temperature.

ISO/BSP Male Pipe Size	316 S.S. and Carbon Steel	
	psig	bar
1/8	4568	315
1/4		
3/8		
1/2	2320	160
3/4		
1		

Types of Sealing for parallel threads

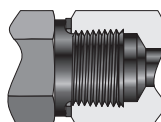
1. BS sealing: BS male thread end, BS gasket and BP female thread port

- ❖ BS male thread end complies with DIN 3852-2 type A
- ❖ BP female thread port complies with DIN 3852-2 type X



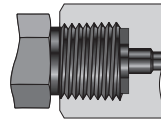
2. BP sealing: BP male thread end, BP gasket and BP female thread port

- ❖ BP male thread end complies with DIN 3852-2 type B
- ❖ BP female thread port complies with DIN 3852-2 type X
- ❖ The BP gasket can be used with a BS fitting



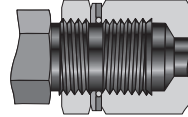
3. BG sealing: BG male thread end, BG gasket and BP female thread port

❖ BG female thread port complies with EN 837-1/3



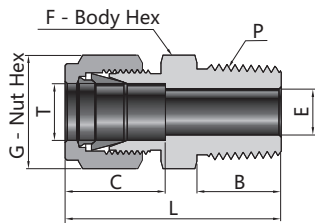
4. PPT sealing: PPT male thread end and BP female thread port

❖ BP female thread port complies with DIN 3852-2 type X



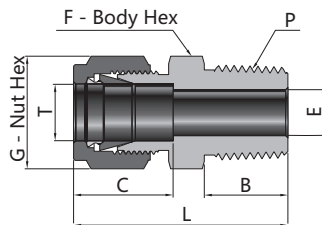
Dimensions

Male Connectors



T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/16	1/16	F1-MC-NPT1-	23.9	9.7	8.6	1.3	7.9	7.9
1/16	1/8	F1-MC-NPT2-	26.2	9.7	8.6	1.3	7.9	11.1
1/16	1/4	F1-MC-NPT4-	31.0	14.2	8.6	1.3	7.9	14.3
1/8	1/16	F2-MC-NPT1-	29.7	9.7	12.7	2.3	11.1	11.1
1/8	1/8	F2-MC-NPT2-	30.5	9.7	12.7	2.3	11.1	11.1
1/8	1/4	F2-MC-NPT4-	35.6	14.2	12.7	2.3	11.1	14.3
1/8	3/8	F2-MC-NPT6-	35.8	14.2	12.7	2.3	11.1	17.5
1/8	1/2	F2-MC-NPT8-	42.2	19.1	12.7	2.3	11.1	22.2
3/16	1/16	F3-MC-NPT1-	31.2	9.7	13.7	2.3	12.7	11.1
3/16	1/8	F3-MC-NPT2-	31.2	9.7	13.7	3.0	12.7	11.1
3/16	1/4	F3-MC-NPT4-	36.3	14.2	13.7	3.0	12.7	14.3
1/4	1/16	F4-MC-NPT1-	32.8	9.7	15.2	3.0	14.3	12.7
1/4	1/8	F4-MC-NPT2-	32.8	9.7	15.2	4.8	14.3	12.7
1/4	1/4	F4-MC-NPT4-	37.8	14.2	15.2	4.8	14.3	14.3
1/4	3/8	F4-MC-NPT6-	38.4	14.2	15.2	4.8	14.3	17.5
1/4	1/2	F4-MC-NPT8-	44.7	19.1	15.2	4.8	14.3	22.2
1/4	3/4	F4-MC-NPT12-	46.2	19.1	15.2	4.8	14.3	27.0
5/16	1/8	F5-MC-NPT2-	34.0	9.7	16.3	4.8	15.9	14.3
5/16	1/4	F5-MC-NPT4-	38.6	9.7	16.3	6.4	15.9	14.3
5/16	3/8	F5-MC-NPT6-	39.1	14.2	16.3	6.4	15.9	17.5
5/16	1/2	F5-MC-NPT8-	45.5	19.1	16.3	6.4	15.9	22.2
3/8	1/8	F6-MC-NPT2-	35.3	9.7	16.8	4.8	17.5	15.9
3/8	1/4	F6-MC-NPT4-	39.9	14.2	16.8	7.1	17.5	15.9
3/8	3/8	F6-MC-NPT6-	39.9	14.2	16.8	7.1	17.5	17.5
3/8	1/2	F6-MC-NPT8-	46.2	19.1	16.8	7.1	17.5	22.2
3/8	3/4	F6-MC-NPT12-	47.8	19.1	16.8	7.1	17.5	27.0
3/8	1	F6-MC-NPT16-	47.0	23.9	16.8	7.1	17.5	34.9
1/2	1/8	F8-MC-NPT2-	38.9	9.7	22.9	4.8	22.2	20.6
1/2	1/4	F8-MC-NPT4-	43.4	14.2	22.9	7.1	22.2	20.6
1/2	3/8	F8-MC-NPT6-	43.4	14.2	22.9	9.7	22.2	20.6
1/2	1/2	F8-MC-NPT8-	49.0	19.1	22.9	10.4	22.2	22.2
1/2	3/4	F8-MC-NPT12-	50.5	19.1	22.9	10.4	22.2	27.0
1/2	1	F8-MC-NPT16-	57.2	23.9	22.9	10.4	22.2	34.9
5/8	1/4	F10-MC-NPT4-	44.2	14.2	24.4	7.1	25.4	23.8
5/8	3/8	F10-MC-NPT6-	44.2	14.2	24.4	9.7	25.4	23.8
5/8	1/2	F10-MC-NPT8-	49.0	19.1	24.4	11.9	25.4	23.8
5/8	3/4	F10-MC-NPT12-	50.5	19.1	24.4	12.7	25.4	27.0
3/4	3/8	F12-MC-NPT6-	45.7	14.2	24.4	10.4	28.6	27.0
3/4	1/2	F12-MC-NPT8-	50.5	19.1	24.4	11.9	28.6	27.0
3/4	3/4	F12-MC-NPT12-	50.5	19.1	24.4	15.7	28.6	27.0
3/4	1	F12-MC-NPT16-	57.2	23.9	24.4	15.7	28.6	34.9
7/8	1/2	F14-MC-NPT8-	50.5	19.1	25.9	11.9	31.8	30.2
7/8	3/4	F14-MC-NPT12-	50.5	19.1	25.9	15.7	31.8	30.2
7/8	1	F14-MC-NPT16-	57.2	23.9	25.9	18.3	31.8	34.9

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1	1/2	F16-MC-NPT8-	57.4	19.1	31.2	11.9	38.1	34.9
1	3/4	F16-MC-NPT12-	57.4	19.1	31.2	15.7	38.1	34.9
1	1	F16-MC-NPT16-	62.2	23.9	31.2	22.4	38.1	34.9
1 1/8	1	F18-MC-NPT16-	62.2	23.9	31.2	22.4	46.0	41.3
1 1/4	1	F20-MC-NPT16-	77.2	23.9	41.1	22.4	47.6	44.5
1 1/4	1 1/4	F20-MC-NPT20-	77.2	23.9	41.1	27.7	47.6	44.5
1 1/2	1 1/2	F24-MC-NPT24-	88.9	26.2	50.0	34.0	57.2	54.0

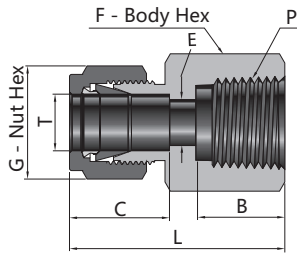


Metric Tube **NPT Thread**

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
2	1/8	M2-MC-NPT2-	30.5	9.7	12.9	1.7	12	12
3	1/8	M3-MC-NPT2-	30.5	9.7	12.9	2.4	12	12
3	1/4	M3-MC-NPT4-	35.6	14.2	12.9	2.4	12	14
4	1/8	M4-MC-NPT2-	31.2	9.7	13.7	2.4	12	12
4	1/4	M4-MC-NPT4-	36.3	14.2	13.7	2.4	12	14
6	1/8	M6-MC-NPT2-	32.8	9.7	15.3	4.8	14	14
6	1/4	M6-MC-NPT4-	37.9	14.2	15.3	4.8	14	14
6	3/8	M6-MC-NPT6-	38.4	14.2	15.3	4.8	14	18
6	1/2	M6-MC-NPT8-	44.7	19.1	15.3	4.8	14	22
8	1/8	M8-MC-NPT2-	34.2	9.7	16.2	4.8	16	15
8	1/4	M8-MC-NPT4-	38.7	14.2	16.2	6.4	16	15
8	3/8	M8-MC-NPT6-	39.3	14.2	16.2	6.4	16	18
8	1/2	M8-MC-NPT8-	45.6	19.1	16.2	6.4	16	22
10	1/8	M10-MC-NPT2-	36.3	9.7	17.2	4.8	19	18
10	1/4	M10-MC-NPT4-	40.9	14.2	17.2	7.1	19	18
10	3/8	M10-MC-NPT6-	40.9	14.2	17.2	7.9	19	18
10	1/2	M10-MC-NPT8-	46.5	19.1	17.2	7.9	19	22
10	3/4	M10-MC-NPT12-	48.0	19.1	17.2	7.9	19	27
10	1	M10-MC-NPT16-	54.6	23.9	17.2	7.9	19	35
12	1/8	M12-MC-NPT2-	38.8	9.7	22.8	4.8	22	22
12	1/4	M12-MC-NPT4-	43.4	14.2	22.8	7.1	22	22
12	3/8	M12-MC-NPT6-	43.4	14.2	22.8	9.5	22	22
12	1/2	M12-MC-NPT8-	49.0	19.1	22.8	9.5	22	22
12	3/4	M12-MC-NPT12-	50.5	19.1	22.8	9.5	22	27
14	1/8	M14-MC-NPT2-	38.8	9.7	24.4	4.8	25	24
14	1/4	M14-MC-NPT4-	44.1	14.2	24.4	7.1	25	24
14	3/8	M14-MC-NPT6-	44.1	14.2	24.4	9.5	25	24
14	1/2	M14-MC-NPT8-	49.0	19.1	24.4	11.1	25	24
14	3/4	M14-MC-NPT12-	50.5	19.1	24.4	11.1	25	27
15	1/2	M15-MC-NPT8-	49.0	19.1	24.4	11.9	25	24
15	3/4	M15-MC-NPT12-	50.5	19.1	24.4	11.9	25	27
15	1	M15-MC-NPT16-	57.1	23.9	24.4	11.9	25	35
16	1/4	M16-MC-NPT4-	44.1	14.2	24.4	7.1	25	24
16	3/8	M16-MC-NPT6-	44.1	14.2	24.4	9.5	25	24
16	1/2	M16-MC-NPT8-	49.0	19.1	24.4	11.9	25	24
16	3/4	M16-MC-NPT12-	50.5	19.1	24.4	12.7	25	27
18	3/8	M18-MC-NPT6-	45.6	14.2	24.4	9.5	30	27
18	1/2	M18-MC-NPT8-	50.5	19.1	24.4	11.9	30	27
18	3/4	M18-MC-NPT12-	50.5	19.1	24.4	15.1	30	27
20	1/2	M20-MC-NPT8-	52.3	19.1	26.0	11.9	32	30
20	3/4	M20-MC-NPT12-	52.3	19.1	26.0	15.9	32	30
20	1	M20-MC-NPT16-	57.1	23.9	26.0	15.9	32	35

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
22	1/2	M22-MC-NPT8-	52.3	19.1	26.0	11.9	32	30
22	3/4	M22-MC-NPT12-	52.3	19.1	26.0	15.9	32	30
22	1	M22-MC-NPT16-	57.1	23.9	26.0	18.3	32	35
25	1/2	M25-MC-NPT8-	57.5	19.1	31.3	11.9	38	35
25	3/4	M25-MC-NPT12-	57.5	19.1	31.3	15.9	38	35
25	1	M25-MC-NPT16-	62.3	23.9	31.3	21.8	38	35
28	1	M28-MC-NPT16-	72.4	23.9	36.6	21.8	46	41
28	1 1/4	M28-MC-NPT20-	73.1	23.9	36.6	21.8	46	46
30	1 1/4	M30-MC-NPT20-	77.2	23.9	39.6	26.2	50	46
32	1 1/4	M32-MC-NPT20-	79.6	23.9	42.0	28.6	50	46
38	1 1/2	M38-MC-NPT24-	91.6	26.2	49.4	33.7	60	55

Female Connectors

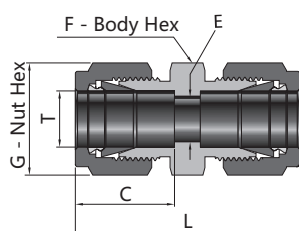


T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/16	1/16	F1-FC-FNPT1-	23.6	9.9	8.6	1.3	7.9	11.1
1/16	1/8	F1-FC-FNPT2-	24.4	10.4	8.6	1.3	7.9	14.3
1/8	1/8	F2-FC-FNPT2-	28.7	10.4	12.7	2.3	11.1	14.3
1/8	1/4	F2-FC-FNPT4-	33.5	15.0	12.7	2.3	11.1	19.1
3/16	1/8	F3-FC-FNPT2-	29.7	10.4	13.7	3.0	12.7	14.3
1/4	1/8	F4-FC-FNPT2-	31.2	10.4	15.2	4.8	14.3	14.3
1/4	1/4	F4-FC-FNPT4-	35.8	15.0	15.2	4.8	14.3	19.1
1/4	3/8	F4-FC-FNPT6-	37.6	15.0	15.2	4.8	14.3	22.2
1/4	1/2	F4-FC-FNPT8-	42.4	19.8	15.2	4.8	14.3	27.0
5/16	1/8	F5-FC-FNPT2-	32.0	10.4	16.3	6.4	15.9	14.3
5/16	1/4	F5-FC-FNPT4-	36.8	15.0	16.3	6.4	15.9	19.1
3/8	1/8	F6-FC-FNPT2-	32.8	10.4	16.8	7.1	17.5	15.9
3/8	1/4	F6-FC-FNPT4-	37.6	15.0	16.8	7.1	17.5	19.1
3/8	3/8	F6-FC-FNPT6-	39.1	15.0	16.8	7.1	17.5	22.2
3/8	1/2	F6-FC-FNPT8-	43.9	19.8	16.8	7.1	17.5	27.0
3/8	3/4	F6-FC-FNPT12-	47.8	20.6	16.8	7.1	17.5	33.3
1/2	1/4	F8-FC-FNPT4-	40.4	15.0	22.9	10.4	22.2	20.6
1/2	3/8	F8-FC-FNPT6-	41.9	15.0	22.9	10.4	22.2	22.2
1/2	1/2	F8-FC-FNPT8-	46.7	19.8	22.9	10.4	22.2	27.0
1/2	3/4	F8-FC-FNPT12-	48.3	20.6	22.9	10.4	22.2	33.3
5/8	3/8	F10-FC-FNPT6-	41.9	15.0	24.4	12.7	25.4	23.8
5/8	1/2	F10-FC-FNPT8-	46.7	19.8	24.4	12.7	25.4	27.0
3/4	1/2	F12-FC-FNPT8-	46.7	19.8	24.4	15.7	28.6	27.0
3/4	3/4	F12-FC-FNPT12-	48.3	20.6	24.4	15.7	28.6	33.3
7/8	3/4	F14-FC-FNPT12-	49.8	20.6	25.9	18.3	31.8	33.3
1	3/4	F16-FC-FNPT12-	53.3	20.6	31.2	22.4	38.1	34.9
1	1	F16-FC-FNPT16-	62.2	25.4	31.2	22.4	38.1	41.3
1 1/4	1 1/4	F20-FC-FNPT20-	74.7	25.4	41.1	27.7	47.6	54.0
1 1/2	1 1/2	F24-FC-FNPT24-	83.3	27.7	50.0	36.3	57.2	60.3

ISO Tapered Thread (BSPT)

T-Tube O.D. (in.)	P-BSPT Size	Basic Ordering Number	Dimension, mm					
			L	B	C	E	G	F
1/4	1/8	F4-FC-FBT2-	31.2	10.4	15.2	4.8	14.3	14.3
1/4	1/4	F4-FC-FBT4-	35.8	15.0	15.2	4.8	14.3	19.1
1/4	3/8	F4-FC-FBT6-	37.6	15.0	15.2	4.8	14.3	22.2
1/4	1/2	F4-FC-FBT8-	42.4	19.8	15.2	4.8	14.3	27.0
3/8	1/4	F6-FC-FBT4-	37.6	15.0	16.8	7.1	17.5	19.1
3/8	3/8	F6-FC-FBT6-	39.1	15.0	16.8	7.1	17.5	22.2
3/8	1/2	F6-FC-FBT8-	43.9	19.8	16.8	7.1	17.5	27.0
1/2	1/4	F8-FC-FBT4-	40.4	15.0	22.9	10.4	22.2	20.6
1/2	3/8	F8-FC-FBT6-	41.9	15.0	22.9	10.4	22.2	22.2
1/2	1/2	F8-FC-FBT8-	46.7	19.8	22.9	10.4	22.2	27.0

Unions



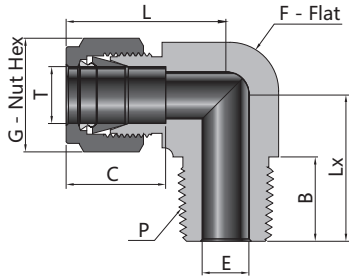
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/16	F1-U-F1-	25.1	8.6	7.9	11.1	1.3
1/8	F2-U-F2-	35.6	12.7	11.1	11.1	2.3
3/16	F3-U-F3-	37.3	13.7	12.7	12.7	3.0
1/4	F4-U-F4-	40.9	15.2	14.3	12.7	4.8
5/16	F5-U-F5-	42.9	16.2	15.9	14.3	6.4
3/8	F6-U-F6-	45.0	16.8	17.5	15.9	7.1
1/2	F8-U-F8-	51.3	22.9	22.2	20.6	10.4
5/8	F10-U-F10-	52.1	24.4	25.4	23.9	12.7
3/4	F12-U-F12-	53.6	24.4	28.6	27.0	15.7
7/8	F14-U-F14-	55.1	25.9	31.8	34.9	18.3
1	F16-U-F16-	64.8	31.2	38.1	34.9	22.4
1 1/8	F18-U-F18-	64.8	31.2	44.5	41.3	24.6
1 1/4	F20-U-F20-	92.2	41.1	47.6	44.5	27.7
1 1/2	F24-U-F24-	108	50.0	57.2	54.0	34.0

Metric Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
2	M2-U-M2-	35.6	12.9	12	12	1.7
3	M3-U-M3-	35.3	12.9	12	12	2.4
4	M4-U-M4-	37.3	13.7	12	12	2.4
6	M6-U-M6-	41.0	15.3	14	14	4.8
8	M8-U-M8-	43.2	16.2	16	15	6.4
10	M10-U-M10-	46.2	17.2	19	18	7.9
12	M12-U-M12-	51.2	22.8	22	22	9.5
14	M14-U-M14-	52.0	24.4	25	24	11.1
15	M15-U-M15-	52.0	24.4	25	24	11.9
16	M16-U-M16-	52.0	24.4	25	24	12.7
18	M18-U-M18-	53.5	24.4	30	27	15.1
20	M20-U-M20-	55.0	26.0	32	30	15.9
22	M22-U-M22-	55.0	26.0	32	30	18.3
25	M25-U-M25-	65.0	31.3	38	35	21.8
28	M28-U-M28-	85.0	36.6	46	41	21.8
30	M30-U-M30-	92.7	39.6	50	46	26.2
32	M32-U-M32-	97.3	42.0	50	46	28.6
38	M38-U-M38-	113.6	49.4	60	55	33.7

Male Elbows



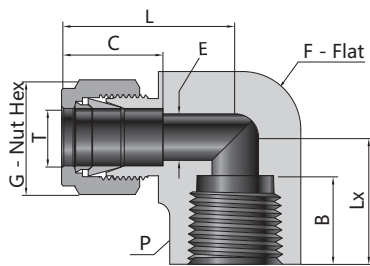
Fractional Tube NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/16	1/16	F1-ME-NPT1-	19.1	8.6	7.9	11.1	1.3	9.7	17.8
1/16	1/8	F1-ME-NPT2-	19.1	8.6	7.9	11.1	1.3	9.7	17.8
1/8	1/16	F2-ME-NPT1-	23.6	12.7	11.1	11.1	2.4	9.7	17.8
1/8	1/8	F2-ME-NPT2-	23.6	12.7	11.1	11.1	2.4	9.7	17.8
1/8	1/4	F2-ME-NPT4-	24.6	12.7	11.1	12.7	2.4	14.2	23.4
3/16	1/8	F3-ME-NPT2-	25.4	13.7	12.7	12.7	3.0	9.7	18.8
3/16	1/4	F3-ME-NPT4-	25.4	13.7	12.7	12.7	3.0	14.2	23.4
1/4	1/16	F4-ME-NPT1-	26.9	15.2	14.3	12.7	3.0	9.7	18.8
1/4	1/8	F4-ME-NPT2-	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	F4-ME-NPT4-	26.9	15.2	14.3	12.7	4.8	14.2	23.4
1/4	3/8	F4-ME-NPT6-	29.7	15.2	14.3	17.5	4.8	14.2	26.2
1/4	1/2	F4-ME-NPT8-	31.8	15.2	14.3	20.6	4.8	19.1	33.0
5/16	1/8	F5-ME-NPT2-	28.7	16.3	15.9	14.3	4.8	9.7	19.8
5/16	1/4	F5-ME-NPT4-	28.7	16.3	15.9	14.3	6.4	14.2	24.4
5/16	3/8	F5-ME-NPT6-	30.5	16.3	15.9	17.5	6.4	14.2	26.2
3/8	1/8	F6-ME-NPT2-	30.5	16.8	17.5	15.9	4.8	9.7	20.8
3/8	1/4	F6-ME-NPT4-	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	F6-ME-NPT6-	31.2	16.8	17.5	17.5	7.1	14.2	26.2
3/8	1/2	F6-ME-NPT8-	33.3	16.8	17.5	20.6	7.1	19.1	33.0
3/8	3/4	F6-ME-NPT12-	37.1	16.8	17.5	27.0	7.1	19.1	36.8
1/2	1/4	F8-ME-NPT4-	36.1	22.9	22.2	20.6	7.1	14.2	28.2
1/2	3/8	F8-ME-NPT6-	36.1	22.9	22.2	20.6	9.7	14.2	28.2
1/2	1/2	F8-ME-NPT8-	36.1	22.9	22.2	20.6	10.4	19.1	33.0
1/2	3/4	F8-ME-NPT12-	39.9	22.9	22.2	27.0	10.4	19.1	36.8
5/8	3/8	F10-ME-NPT6-	38.1	24.4	25.4	23.8	9.7	14.2	30.2
5/8	1/2	F10-ME-NPT8-	38.1	24.4	25.4	23.8	11.9	19.1	35.1
5/8	3/4	F10-ME-NPT12-	39.9	24.4	25.4	27.0	12.7	19.1	36.8
3/4	1/2	F12-ME-NPT8-	39.9	24.4	28.6	27.0	11.9	19.1	36.8
3/4	3/4	F12-ME-NPT12-	39.9	24.4	28.6	27.0	15.7	19.1	36.8
7/8	3/4	F14-ME-NPT12-	44.7	25.9	31.8	34.9	15.7	19.1	41.7
1	3/4	F16-ME-NPT12-	49.0	31.2	38.1	34.9	15.7	19.1	41.7
1	1	F16-ME-NPT16-	49.0	31.2	38.1	34.9	22.4	23.9	46.5
1 1/4	1 1/4	F20-ME-NPT20-	66.5	41.1	47.6	42.9	27.7	23.9	52.4
1 1/2	1 1/2	F24-ME-NPT24-	78.0	50.0	57.2	50.8	34.0	26.2	60.5

Fractional Tube ISO Tapered Thread (BSPT)

T-Tube O.D. (in.)	P-BSPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	F2-ME-MBT2-	23.6	12.7	11.1	11.1	2.4	9.7	17.8
1/8	1/4	F2-ME-MBT4-	24.6	12.7	11.1	12.7	2.4	14.2	23.4
1/4	1/8	F4-ME-MBT2-	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	F4-ME-MBT4-	26.9	15.2	14.3	12.7	4.8	14.2	23.4
1/4	3/8	F4-ME-MBT6-	29.7	15.2	14.3	17.5	4.8	14.2	26.2
1/4	1/2	F4-ME-MBT8-	31.8	15.2	14.3	20.6	4.8	19.1	33.0
5/16	1/4	F5-ME-MBT4-	28.7	16.3	15.9	14.3	6.4	14.2	24.4
3/8	1/8	F6-ME-MBT2-	30.5	16.8	17.5	15.9	4.8	9.7	20.8
3/8	1/4	F6-ME-MBT4-	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	F6-ME-MBT6-	31.2	16.8	17.5	17.5	7.1	14.2	26.2
1/2	3/8	F8-ME-MBT6-	36.1	22.9	22.2	20.6	9.7	14.2	27.9
1/2	1/2	F8-ME-MBT8-	36.1	22.9	22.2	20.6	10.4	19.1	33.0
3/4	1/2	F12-ME-MBT8-	39.9	24.4	28.6	27.0	11.9	19.1	36.8
1	1	F16-ME-MBT16-	49.0	31.2	38.1	34.9	22.4	23.9	46.5

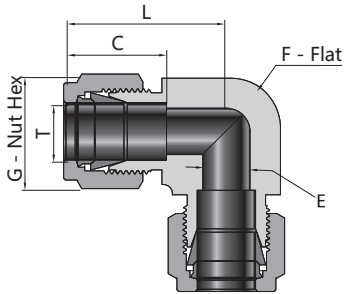
Female Elbows



Fractional Tube			NPT Thread							
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm							
			L	B	C	G	E	F	Lx	
1/16	1/16	F1-FE-FNPT1-	18.0	9.9	8.6	7.9	1.3	11.1	14.2	
1/16	1/8	F1-FE-FNPT2-	20.6	10.4	8.6	7.9	1.3	14.3	19.1	
1/8	1/8	F2-FE-FNPT2-	24.6	10.4	12.7	11.1	2.3	14.3	19.1	
1/8	1/4	F2-FE-FNPT4-	27.4	15.0	12.7	11.1	2.3	17.5	22.4	
3/16	1/8	F3-FE-FNPT2-	25.4	10.4	13.7	12.7	3.0	12.7	19.1	
1/4	1/8	F4-FE-FNPT2-	26.9	10.4	15.2	14.3	4.8	14.3	19.1	
1/4	1/4	F4-FE-FNPT4-	29.7	15.0	15.2	14.3	4.8	17.5	22.4	
1/4	3/8	F4-FE-FNPT6-	31.8	15.0	15.2	14.3	4.8	20.6	22.4	
1/4	1/2	F4-FE-FNPT8-	34.5	19.8	15.2	14.3	4.8	25.4	28.4	
5/16	1/8	F5-FE-FNPT2-	28.7	10.4	16.3	15.9	6.4	14.3	19.1	
5/16	1/4	F5-FE-FNPT4-	30.5	15.0	16.3	15.9	6.4	17.5	22.4	
3/8	1/8	F6-FE-FNPT2-	30.5	10.4	16.8	17.5	7.1	15.9	19.1	
3/8	1/4	F6-FE-FNPT4-	31.2	15.0	16.8	17.5	7.1	17.5	22.4	
3/8	3/8	F6-FE-FNPT6-	33.3	15.0	16.8	17.5	7.1	20.6	22.4	
3/8	1/2	F6-FE-FNPT8-	36.1	19.8	16.8	17.5	7.1	25.4	28.4	
1/2	1/4	F8-FE-FNPT4-	36.1	15.0	22.9	22.2	10.4	20.6	22.4	
1/2	3/8	F8-FE-FNPT6-	36.1	15.0	22.9	22.2	10.4	20.6	22.4	
1/2	1/2	F8-FE-FNPT8-	38.9	19.8	22.9	22.2	10.4	25.4	28.4	
5/8	3/8	F10-FE-FNPT6-	38.1	15.0	24.4	25.4	12.7	23.8	22.4	
5/8	1/2	F10-FE-FNPT8-	39.9	19.8	24.4	25.4	12.7	27.0	28.4	
3/4	1/2	F12-FE-FNPT8-	39.9	19.8	24.4	28.6	15.7	27.0	28.4	
3/4	3/4	F12-FE-FNPT12-	44.7	20.6	24.4	28.6	15.7	34.9	31.8	
7/8	3/4	F14-FE-FNPT12-	44.7	20.6	25.9	31.8	18.3	34.9	31.8	
1	3/4	F16-FE-FNPT12-	49.0	20.6	31.2	38.1	22.4	34.9	31.8	
1	1	F16-FE-FNPT16-	53.6	25.4	31.2	38.1	22.4	42.9	38.1	

Metric Tube			NPT Thread							
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm							
			L	B	C	G	E	F	Lx	
6	1/8	M6-FE-FNPT2-	27.0	10.4	15.3	14	4.8	12.7	19.0	
6	1/4	M6-FE-FNPT4-	29.8	15.0	15.3	14	4.8	17.5	22.4	
8	1/8	M8-FE-FNPT2-	28.8	10.4	16.2	16	4.8	14.3	19.1	
8	1/4	M8-FE-FNPT4-	30.6	15.0	16.2	16	6.4	17.5	22.4	
10	1/4	M10-FE-FNPT4-	33.5	15.0	17.2	19	7.9	20.6	22.4	
10	3/8	M10-FE-FNPT6-	33.5	15.0	17.2	19	7.9	20.6	22.4	
10	1/2	M10-FE-FNPT8-	36.6	19.8	17.2	19	7.9	25.4	28.5	
12	1/4	M12-FE-FNPT4-	36.0	15.0	22.8	22	7.9	20.6	22.4	
12	3/8	M12-FE-FNPT6-	36.0	15.0	22.8	22	9.5	20.6	22.4	
12	1/2	M12-FE-FNPT8-	38.8	19.8	22.8	22	9.5	25.4	28.4	
16	3/8	M16-FE-FNPT6-	39.5	15.0	24.4	25	9.5	27.0	23.6	
16	1/2	M16-FE-FNPT8-	39.5	19.8	24.4	25	12.7	27.0	28.5	

Union Elbows



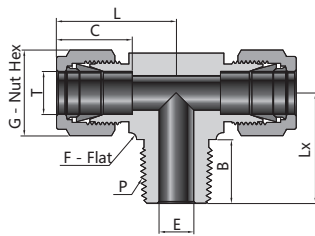
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/16	F1-UE-F1-	17.8	8.6	7.9	9.5	1.3
1/8	F2-UE-F2-	22.4	12.7	11.1	9.5	2.3
3/16	F3-UE-F3-	25.4	13.7	12.7	12.7	3.0
1/4	F4-UE-F4-	26.9	15.2	14.3	12.7	4.8
5/16	F5-UE-F5-	28.7	16.3	15.9	14.3	6.4
3/8	F6-UE-F6-	30.5	16.8	17.5	15.9	7.1
1/2	F8-UE-F8-	36.1	22.9	22.2	20.6	10.4
5/8	F10-UE-F10-	38.1	24.4	25.4	23.8	12.7
3/4	F12-UE-F12-	39.9	24.4	28.6	27.0	15.7
7/8	F14-UE-F14-	44.7	25.9	31.8	34.9	18.3
1	F16-UE-F16-	49.0	31.2	38.1	34.9	22.4
1 1/8	F18-UE-F18-	55.1	31.2	41.3	42.9	24.6
1 1/4	F20-UE-F20-	66.5	41.1	47.6	42.9	27.7
1 1/2	F24-UE-F24-	78.0	50.0	57.2	50.8	34.0

Metric Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
3	M3-UE-M3-	22.3	12.9	12	9.5	2.4
4	M4-UE-M4-	25.4	13.7	12	12.7	2.4
6	M6-UE-M6-	27.0	15.3	14	12.7	4.8
8	M8-UE-M8-	28.8	16.2	16	14.3	6.4
10	M10-UE-M10-	31.5	17.2	19	17.5	7.9
12	M12-UE-M12-	36.0	22.8	22	20.6	9.5
14	M14-UE-M14-	38.0	24.4	25	23.8	11.0
15	M15-UE-M15-	38.8	24.4	25	23.8	11.9
16	M16-UE-M16-	38.0	24.4	25	23.8	12.7
18	M18-UE-M18-	39.8	24.4	30	27.0	15.1
20	M20-UE-M20-	44.6	26.0	32	34.9	15.9
22	M22-UE-M22-	44.6	26.0	32	34.9	18.3
25	M25-UE-M25-	49.1	31.3	38	34.9	21.8
28	M28-UE-M28-	64.0	36.6	46	42.9	21.8
30	M30-UE-M30-	69.9	39.6	50	42.9	26.2
32	M32-UE-M32-	72.3	42.0	50	42.9	28.6
38	M38-UE-M38-	84.0	49.4	60	50.8	33.7

Male Branch Tees



Fractional Tube

NPT Thread

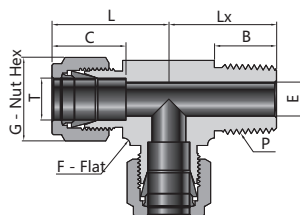
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	F2-MBT-F2-NPT2-	23.6	12.7	11.1	11.1	2.3	9.7	17.8
1/8	1/4	F2-MBT-F2-NPT4-	24.6	12.7	11.1	12.7	2.3	14.2	23.4
3/16	1/8	F3-MBT-F3-NPT2-	24.4	13.7	12.7	11.1	3.0	9.7	17.8
1/4	1/8	F4-MBT-F4-NPT2-	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	F4-MBT-F4-NPT4-	26.9	15.2	14.3	12.7	4.8	14.2	23.4
5/16	1/8	F5-MBT-F5-NPT2-	29.7	16.3	15.9	15.9	4.8	9.7	20.8
5/16	1/4	F5-MBT-F5-NPT4-	29.7	16.3	15.9	15.9	6.4	14.2	25.7
3/8	1/4	F6-MBT-F6-NPT4-	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	F6-MBT-F6-NPT6-	33.3	16.8	17.5	20.6	7.1	14.2	28.2
1/2	3/8	F8-MBT-F8-NPT6-	36.1	22.9	22.2	20.6	9.7	14.2	28.2
1/2	1/2	F8-MBT-F8-NPT8-	36.1	22.9	22.2	20.6	10.4	19.1	33.0
5/8	1/2	F10-MBT-F10-NPT8-	38.9	24.4	25.4	25.4	11.9	19.1	35.8
3/4	3/4	F12-MBT-F12-NPT12-	39.9	24.4	28.6	27.0	15.7	19.1	36.8
7/8	3/4	F14-MBT-F14-NPT12-	44.7	25.9	31.8	33.3	15.7	19.1	38.1
1	3/4	F16-MBT-F16-NPT12-	49.3	31.2	38.1	33.3	15.7	19.1	42.2
1	1	F16-MBT-F16-NPT16-	49.3	31.2	38.1	34.9	22.4	23.9	46.7

Metric Tube

NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
6	1/8	M6-MBT-M6-NPT2-	27.0	15.3	14	12.7	4.8	9.7	18.8
6	1/4	M6-MBT-M6-NPT4-	27.0	15.3	14	12.7	4.8	14.2	23.4
8	1/8	M8-MBT-M8-NPT2-	29.9	16.2	16	15.9	4.8	9.7	20.8
8	1/4	M8-MBT-M8-NPT4-	29.9	16.2	16	15.9	6.4	14.2	25.4
10	1/4	M10-MBT-M10-NPT4-	33.5	17.2	19	20.6	7.9	14.2	28.2
10	3/8	M10-MBT-M10-NPT6-	33.5	17.2	19	20.6	7.9	14.2	28.2
12	1/4	M12-MBT-M12-NPT4-	36.0	22.8	22	20.6	7.9	14.2	28.2
12	3/8	M12-MBT-M12-NPT6-	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	M12-MBT-M12-NPT8-	36.0	22.8	22	20.6	9.5	19.1	33.0
16	1/2	M16-MBT-M16-NPT8-	38.8	24.4	25	25.4	11.9	19.1	35.8

Male Run Tees



Fractional Tube

NPT Thread

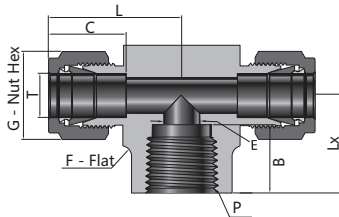
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	F2-MRT-NPT2-F2-	23.6	12.7	11.1	11.1	2.3	9.7	17.8
1/8	1/4	F2-MRT-NPT4-F2-	24.6	12.7	11.1	12.7	2.3	14.2	23.4
3/16	1/8	F3-MRT-NPT2-F3-	24.4	13.7	12.7	11.1	3.0	9.7	17.8
1/4	1/8	F4-MRT-NPT2-F4-	26.9	15.2	14.3	12.7	4.8	9.7	18.8
1/4	1/4	F4-MRT-NPT4-F4-	26.9	15.2	14.3	12.7	4.8	14.2	23.4
5/16	1/8	F5-MRT-NPT2-F5-	29.7	16.3	15.9	15.9	4.8	9.7	20.8
5/16	1/4	F5-MRT-NPT4-F5-	29.7	16.3	15.9	15.9	6.4	14.2	25.7
3/8	1/4	F6-MRT-NPT4-F6-	30.5	16.8	17.5	15.9	7.1	14.2	25.4
3/8	3/8	F6-MRT-NPT6-F6-	33.3	16.8	17.5	20.6	7.1	14.2	28.2
1/2	3/8	F8-MRT-NPT6-F8-	36.1	22.9	22.2	20.6	9.7	14.2	28.2
1/2	1/2	F8-MRT-NPT8-F8-	36.1	22.9	22.2	20.6	10.4	19.1	33.0
5/8	1/2	F10-MRT-NPT8-F10-	38.1	24.4	25.4	23.8	11.9	19.1	35.8
3/4	3/4	F12-MRT-NPT12-F12-	39.9	24.4	28.6	27.0	15.7	19.1	36.8
7/8	3/4	F14-MRT-NPT12-F14-	44.7	25.9	31.8	33.3	15.7	19.1	38.1
1	3/4	F16-MRT-NPT12-F16-	49.3	31.2	38.1	33.3	15.7	19.1	42.2
1	1	F16-MRT-NPT16-F16-	49.3	31.2	38.1	34.9	22.4	23.9	46.7

Metric Tube

NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
6	1/8	M6-MRT-NPT2-M6-	27.0	15.3	14	12.7	4.8	9.7	18.0
6	1/4	M6-MRT-NPT4-M6-	27.0	15.3	14	12.7	4.8	14.2	23.4
8	1/8	M8-MRT-NPT2-M8-	29.9	16.2	16	15.9	4.8	9.7	20.8
8	1/4	M8-MRT-NPT4-M8-	29.9	16.2	16	15.9	6.4	14.2	25.4
10	1/4	M10-MRT-NPT4-M10-	33.5	17.2	19	20.6	7.9	14.2	28.2
10	1/2	M10-MRT-NPT8-M10-	33.5	17.2	19	20.6	7.9	14.2	28.2
12	1/4	M12-MRT-NPT4-M12-	36.0	22.8	22	20.6	7.9	14.2	28.2
12	3/8	M12-MRT-NPT6-M12-	36.0	22.8	22	20.6	9.5	14.2	28.2
12	1/2	M12-MRT-NPT8-M12-	36.0	22.8	22	20.6	9.5	19.1	33.0
16	1/2	M16-MRT-NPT8-M16-	38.0	24.4	25	23.8	11.9	19.1	35.0

Female Branch Tees



Fractional Tube

NPT Thread

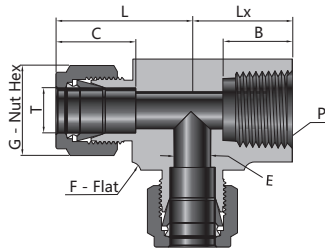
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	F2-FBT-F2-FNPT2-	24.6	12.7	11.1	12.7	2.3	10.4	19.1
3/16	1/8	F3-FBT-F3-FNPT2-	25.7	13.7	12.7	12.7	3.0	10.4	19.1
1/4	1/8	F4-FBT-F4-FNPT2-	26.9	15.2	14.3	12.7	4.8	10.4	19.1
1/4	1/4	F4-FBT-F4-FNPT4-	29.7	15.2	14.3	17.5	4.8	15.0	22.4
5/16	1/8	F5-FBT-F5-FNPT2-	29.7	16.2	15.9	15.9	6.4	10.4	19.1
3/8	1/4	F6-FBT-F6-FNPT4-	31.2	16.8	17.5	17.5	7.1	15.0	22.4
3/8	3/8	F6-FBT-F6-FNPT6-	33.3	16.8	17.5	20.6	7.1	15.0	22.4
3/8	1/2	F6-FBT-F6-FNPT8-	36.1	16.8	17.5	25.4	7.1	19.8	28.4
1/2	1/4	F8-FBT-F8-FNPT4-	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	3/8	F8-FBT-F8-FNPT6-	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	1/2	F8-FBT-F8-FNPT8-	38.9	22.9	22.2	25.4	10.4	19.8	28.4
5/8	1/2	F10-FBT-F10-FNPT8-	38.9	24.4	25.4	25.4	12.7	19.8	28.4
3/4	3/4	F12-FBT-F12-FNPT12-	44.7	24.4	28.6	34.9	15.7	20.6	31.8
7/8	3/4	F14-FBT-F14-FNPT12-	44.7	25.9	31.8	34.9	18.3	20.6	31.8
1	3/4	F16-FBT-F16-FNPT12-	49.0	31.2	38.1	34.9	22.4	20.6	31.8
1	1	F16-FBT-F16-FNPT16-	53.6	31.2	38.1	42.9	22.4	25.4	38.1

Metric Tube

NPT Thread

T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
6	1/8	M6-FBT-M6-FNPT2-	27.0	15.3	14	12.7	4.8	10.4	19.0
6	1/4	M6-FBT-M6-FNPT4-	29.8	15.3	14	17.5	4.8	15.0	22.4
8	1/8	M8-FBT-M8-FNPT2-	29.9	16.2	16	15.9	6.4	10.4	19.0
8	1/4	M8-FBT-M8-FNPT4-	30.6	16.2	16	17.5	6.4	15.0	22.4
10	1/4	M10-FBT-M10-FNPT4-	33.5	17.2	19	20.6	7.9	15.0	22.4
12	1/8	M12-FBT-M12-FNPT2-	36.0	22.8	22	20.6	6.4	10.4	22.3
12	1/4	M12-FBT-M12-FNPT4-	36.0	22.8	22	20.6	9.5	15.0	22.4
12	3/8	M12-FBT-M12-FNPT6-	36.0	22.8	22	20.6	9.5	15.0	22.4
12	1/2	M12-FBT-M12-FNPT8-	38.8	22.8	22	25.4	9.5	19.8	28.5
16	1/2	M16-FBT-M16-FNPT8-	38.8	24.4	25	25.4	12.7	19.8	28.4

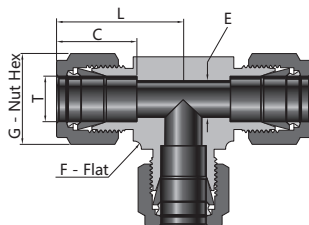
Female Run Tees



Fractional Tube			NPT Thread						
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
1/8	1/8	F2-FRT-FNPT2-F2-	24.6	12.7	11.1	12.7	2.3	10.4	19.1
3/16	1/8	F3-FRT-FNPT2-F3-	25.7	13.7	12.7	12.7	3.0	10.4	19.1
1/4	1/8	F4-FRT-FNPT2-F4-	26.9	15.2	14.3	12.7	4.8	10.4	19.1
1/4	1/4	F4-FRT-FNPT4-F4-	29.7	15.2	14.3	17.5	4.8	15.0	22.4
5/16	1/8	F5-FRT-FNPT2-F5-	29.7	16.2	15.9	15.9	6.4	10.4	19.1
3/8	1/4	F6-FRT-FNPT4-F6-	31.2	16.8	17.5	17.5	7.1	15.0	22.4
1/2	1/4	F8-FRT-FNPT4-F8-	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	3/8	F8-FRT-FNPT6-F8-	36.1	22.9	22.2	20.6	10.4	15.0	22.4
1/2	1/2	F8-FRT-FNPT8-F8-	39.9	22.9	22.2	27.0	10.4	19.8	28.4
5/8	1/2	F10-FRT-FNPT8-F10-	39.9	24.4	25.4	27.0	12.7	19.8	28.4
3/4	3/4	F12-FRT-FNPT12-F12-	44.7	24.4	28.6	34.9	15.7	20.6	31.8
7/8	1/2	F14-FRT-FNPT8-F14-	44.7	25.9	31.8	34.9	15.7	19.8	28.4
7/8	3/4	F14-FRT-FNPT12-F14-	44.7	25.9	31.8	34.9	18.3	20.6	31.8
1	3/4	F16-FRT-FNPT12-F16-	49.0	31.2	38.1	34.9	22.4	20.6	31.8
1	1	F16-FRT-FNPT16-F16-	53.6	31.2	38.1	42.9	22.4	25.4	38.1

Metric Tube			NPT Thread						
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						
			L	C	G	F	E	B	Lx
6	1/8	M6-FRT-FNPT2-M6-	27.0	15.3	14	12.7	4.8	10.4	19.0
6	1/4	M6-FRT-FNPT4-M6-	29.8	15.3	14	17.5	4.8	15.0	22.4
8	1/8	M8-FRT-FNPT2-M8-	29.9	16.2	16	15.9	4.8	10.4	19.0
8	1/4	M8-FRT-FNPT4-M8-	30.6	16.2	16	17.5	6.4	15.0	22.4
10	1/4	M10-FRT-FNPT4-M10-	33.5	17.2	19	20.6	7.9	15.0	22.4
12	1/4	M12-FRT-FNPT4-M12-	36.0	22.8	22	20.6	9.5	15.0	22.4
12	3/8	M12-FRT-FNPT6-M12-	36.0	22.8	22	20.6	9.5	15.0	23.1
12	1/2	M12-FRT-FNPT8-M12-	38.8	22.8	22	25.4	9.5	19.8	28.5
16	1/2	M16-FRT-FNPT8-M16-	39.8	24.4	25	27.0	11.9	19.8	28.4

Union Tees

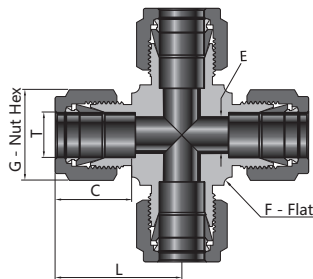


Fractional Tube		Dimension, mm				
T-Tube O.D. (in.)	Basic Ordering Number	L	C	G	F	E
1/16	F1-UT-F1-F1-	17.8	8.6	7.9	9.5	1.3
1/8	F2-UT-F2-F2-	22.4	12.7	11.1	9.5	2.3
3/16	F3-UT-F3-F3-	24.4	13.7	12.7	11.1	3.0
1/4	F4-UT-F4-F4-	26.9	15.2	14.3	12.7	4.8
5/16	F5-UT-F5-F5-	29.7	16.2	15.9	15.9	6.4
3/8	F6-UT-F6-F6-	30.5	16.8	17.5	15.9	7.1
1/2	F8-UT-F8-F8-	36.1	22.9	22.2	20.6	10.4
5/8	F10-UT-F10-F10-	38.9	24.4	25.4	25.4	12.7
3/4	F12-UT-F12-F12-	39.9	24.4	28.6	27.0	15.7
7/8	F14-UT-F14-F14-	44.7	25.9	31.8	34.9	18.3
1	F16-UT-F16-F16-	49.0	31.2	38.1	34.9	22.4
1 1/8	F18-UT-F18-F18-	55.1	31.2	46.0	42.9	24.6
1 1/4	F20-UT-F20-F20-	66.5	41.1	47.6	42.9	27.7
1 1/2	F24-UT-F24-F24-	78.0	50.0	57.2	50.8	34.0

Metric Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
2	M2-UT-M2-M2-M2-	22.3	12.9	12	9.5	1.7
3	M3-UT-M3-M3-M3-	22.3	12.9	12	9.5	2.4
4	M4-UT-M4-M4-M4-	25.4	13.7	12	12.7	2.4
6	M6-UT-M6-M6-M6-	27.0	15.3	14	12.7	4.8
8	M8-UT-M8-M8-M8-	29.9	16.2	16	15.9	6.4
10	M10-UT-M10-M10-M10-	31.5	17.2	19	17.5	7.9
12	M12-UT-M12-M12-M12-	36.0	22.8	22	20.6	9.5
14	M14-UT-M14-M14-M14-	38.8	24.4	25	25.4	11.1
15	M15-UT-M15-M15-M15-	38.8	24.4	25	25.4	11.9
16	M16-UT-M16-M16-M16-	38.8	24.4	25	25.4	12.7
18	M18-UT-M18-M18-M18-	38.8	24.4	30	27.0	15.1
20	M20-UT-M20-M20-M20-	44.6	26.0	32	34.9	15.9
22	M22-UT-M22-M22-M22-	44.6	26.0	32	34.9	18.3
25	M25-UT-M25-M25-M25-	49.1	31.3	38	34.9	21.8
28	M28-UT-M28-M28-M28-	64.0	36.6	46	42.9	21.8
30	M30-UT-M30-M30-M30-	69.9	39.6	50	42.9	26.2
32	M32-UT-M32-M32-M32-	72.3	42.0	50	42.9	28.6
38	M38-UT-M38-M38-M38-	84.0	49.4	60	50.8	33.7

Union Crosses



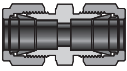
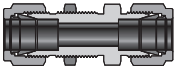
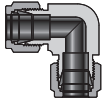
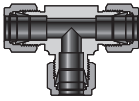
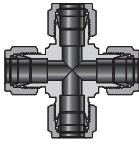
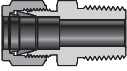
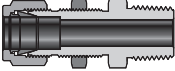
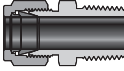
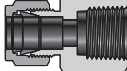
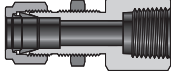
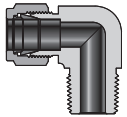
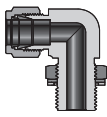
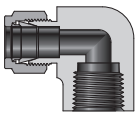
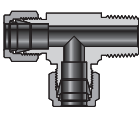
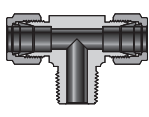
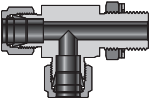
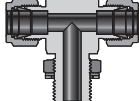
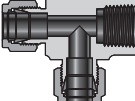
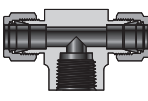
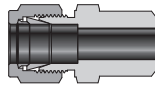
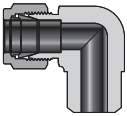
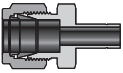
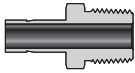
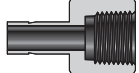
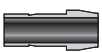




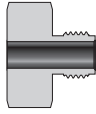


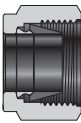




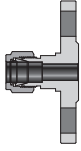
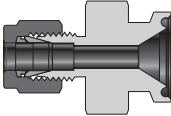
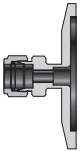
Fractional Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
1/8	F2-UC-F2-F2-F2-	22.4	12.7	11.1	9.5	2.3
3/16	F3-UC-F3-F3-F3-	24.4	13.7	12.7	11.1	3.0
1/4	F4-UC-F4-F4-F4-	26.9	15.2	14.3	12.7	4.8
5/16	F5-UC-F5-F5-F5-	29.7	16.2	15.9	15.9	6.4
3/8	F6-UC-F6-F6-F6-	30.5	16.8	17.5	15.9	7.1
1/2	F8-UC-F8-F8-F8-	36.1	22.9	22.2	20.6	10.4
5/8	F10-UC-F10-F10-F10-	36.3	24.4	25.4	27.0	12.7
3/4	F12-UC-F12-F12-F12-	39.9	24.4	28.6	27.0	15.7
7/8	F14-UC-F14-F14-F14-	44.7	25.9	31.8	34.9	18.3
1	F16-UC-F16-F16-F16-	49.0	31.2	38.1	34.9	22.4

Metric Tube

T-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm				
		L	C	G	F	E
3	M3-UC-M3-M3-M3-	22.3	12.9	12	9.5	2.4
4	M4-UC-M4-M4-M4-	25.4	13.7	12	12.7	2.4
6	M6-UC-M6-M6-M6-	27.0	15.3	14	12.7	4.8
8	M8-UC-M8-M8-M8-	29.9	16.2	16	15.9	6.4
10	M10-UC-M10-M10-M10-	33.5	17.2	19	20.6	7.9
12	M12-UC-M12-M12-M12-	36.0	22.8	22	20.6	9.5
16	M16-UC-M16-M16-M16-	37.0	24.4	25	23.8	12.7
18	M18-UC-M18-M18-M18-	38.3	24.4	30	27.0	15.1
20	M20-UC-M20-M20-M20-	44.6	26.0	32	34.9	15.9
22	M22-UC-M22-M22-M22-	44.7	26.0	32	34.9	18.3
25	M25-UC-M25-M25-M25-	49.2	31.3	38	34.9	21.8

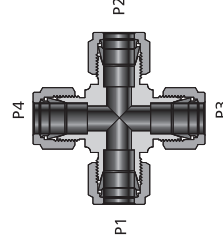
Configuration Designator

Union  Designator: U	Bulkhead Union  Designator: BU	Union Elbow  Designator: UE	Union Tee  Designator: UT	Union Cross  Designator: UC
Male Connector  Designator: MC	Bulkhead Male Connector  Designator: BMC	Thermocouple Connector  Designator: TC	Female Connector  Designator: FC	Bulkhead Female Connector  Designator: BFC
Male Elbow  Designator: ME	Positionable Male Elbow  Designator: PME	Female Elbow  Designator: FE	Male Run Tee  Designator: MRT	Male Branch Tee  Designator: MBT
Positionable Male Run Tee  Designator: PMRT	Positionable Male Branch Tee  Designator: PMBT	Female Run Tee  Designator: FRT	Female Branch Tee  Designator: FBT	Weld Connector  Designator: WC
Weld Elbow  Designator: WE	Reducer  Designator: R	Male Adapter  Designator: MA	Female Adapter  Designator: FA	Port Connector  Designator: PC
Cap  Designator: CA	Plug  Designator: PL	Insert for Soft Tubing  Designator: IN	Nut  Designator: N	Male Nut  Designator: MN
Rear Ferrule  Designator: RF	Front Ferrule  Designator: FF	Nut+ Ferrules  Designator: NFR	BS Gasket  Designator: BS	BP Gasket  Designator: BP
BG Gasket  Designator: BG	Union  Designator: FKM	Flange Adapter  Designator: FLA	Sanitary Flange Fitting  Designator: SFF	Vacuum Flange Fitting  Designator: VAF

How to Order

F8 — MBT — F8 — NPT8 — 316

Port 1 Type	Port 1 Size	Configuration Designator	Port 2 Type	Port 2 Size	Port 3 and Port 4	Material
M Metric Ferrule	1 1/16 in.	MC Male Connector	Same as the Port 1 or as follow :	Same as the Port 1 or as follow :	Same as the Port 1	316 316 S.S.
F Fractional Ferrule	2 1/8 in. or 2 mm	BMC Bulkhead Male Connector	FNPT Female NPT	5 M5 x 08 or 5/16-24		316L 316L S.S.
	3 3/16 in. or 3 mm	TC Thermocouple Connector	NPT Male NPT	6 M6 x 1 or 3/8-24		304L S.S.
	4 1/4 in. or 4 mm	FC Female Connector	NPTO O-ring with Male NPT	7 7/16-20		A20 Alloy 20
	5 5/16 in.	BFC Bulkhead Female Connector	FBT Female BSPT	8 M8 x 1 or 1/2-20		A400 Alloy 400
	6 3/8 in. or 6 mm	U Union	MBT Male BSPT	9 9/16-18		A600 Alloy 600
	8 1/2 in. or 8 mm	BU Bulkhead Union	MBTO O-ring with Male BSPT	10 M10 x 1		A825 Alloy 825
	10 5/8 in. or 10 mm	ME Male Elbow	FBP Female BSPP	12 M12 x 1.5 or 3/4-16		A276 Alloy C276
	12 3/4 in. or 12 mm	45ME 45° Male Elbow	PMBP Male BSPP(for BP)	14 M14 x 1.5 or 7/8-14		DU7 Duplex 2507
	14 7/8 in. or 14 mm	PME Positionable Male Elbow	MBS Male BSPP(for BS)	16 M16 x 1.5		BR Brass
	15 15 mm	FE Female Elbow	MBP Male BSPP(for BG)	17 1 1/16-12		CS Carbon steel
	16 1 in. or 16 mm	UE Union Elbow	FMS Female ISO	19 1 3/16-12		TI Titanium (grade4)
	18 1 1/8 in. or 18 mm	MRT Male Run Tee	MS Male ISO (for BG)	20 M20 x 1.5		
	20 1 1/4 in. or 20 mm	MBT Male Branch Tee	BPMS Male ISO (for BP)	21 1 5/16 -12		
	22 22 mm	PMRT Positionable Male Run Tee	BSMS Male ISO (for BS)	22 M22 x 1.5		
	24 1 1/2 in. or 24 mm	PMBT Positionable Male Branch Tee	OMS O-ring with Male ISO	24 M24 x 1.5		
	25 25 mm	FRT Female Run Tee	FST Female SAE	26 1 5/8 -12		
	28 28 mm	FBT Female Branch Tee	MST Male SAE (for BG)	27 M27 x 2		
	30 30 mm	UT Union Tee	BPST Male SAE (for BP)	30 1 7/8 -12		
	32 2 in. or 32 mm	UC Union Cross	BSST Male SAE (for BS)			
	38 38 mm	CA Cap	OST O-ring with Male SAE			
	50 50 mm	PL Plug	PPT Positionable BSP Parallel Thread			
		R Reducer	PMS Positionable ISO Parallel Thread			
		PC Port Connector	PST Positionable SAE Parallel Thread			
		MA Male Adapter	AN 37° Flare			
		FA Female Adapter	FSW Fractional Tube Socket Weld			
		WC Weld Connector	FBW Fractional Tube Butt Weld			
		WE Weld Elbow	MSW Metric Tube Socket Weld			
		FLA Flange Adapter	MBW Metric Tube Butt Weld			
		SFF Sanitary Flange Fitting				
		N Nut				
		MN Male Nut				
		RF Rear Ferrule				
		FF Front Ferrule				
		FR Ferrules				
		NFR Nut + Ferrules				



Tubing and Pipe

Tubing Standards

Grade	Standard specification
TP316L TP316 TP304L TP304	A269, A213, SA213

Pipe Standards

Grade	Standard specification
TP316L TP316 TP304L TP304	A312, SA312

Dimensions

Metric Sizes

T-Tube O.D. (mm.)	Nominal Wall Thickness mm	Basic Ordering Number	Nominal Length m	Weight kg/m
3	0.5	MT-3-0.5-6M-TP316	6	0.021
	0.7	MT-3-0.7-6M-TP316		0.027
6	1.0	MT-6-1.0-6M-TP316		0.125
	1.5	MT-6-1.5-6M-TP316		0.169
8	1.0	MT-8-1.0-6M-TP316		0.175
	1.5	MT-8-1.5-6M-TP316		0.244
10	1.0	MT-10-1.0-6M-TP316		0.225
	1.5	MT-10-1.5-6M-TP316		0.319
12	1.0	MT-12-1.0-6M-TP316		0.275
	1.5	MT-12-1.5-6M-TP316		0.394
	2.0	MT-12-2.0-6M-TP316		0.500
16	1.0	MT-16-1.0-6M-TP316		0.375
	1.5	MT-16-1.5-6M-TP316		0.507
	2.0	MT-16-2.0-6M-TP316		0.651
18	1.0	MT-18-1.0-6M-TP316		0.425
	1.5	MT-18-1.5-6M-TP316		0.619
	2.0	MT-18-2.0-6M-TP316		0.801
20	2.0	MT-20-2.0-6M-TP316		0.901
22	2.0	MT-22-2.0-6M-TP316		1.15
25	2.0	MT-25-2.0-6M-TP316		1.15
	2.5	MT-25-2.5-6M-TP316	1.41	

Fractional Sizes

T-Tube O.D. (in.)	Nominal Wall Thickness in.	Basic Ordering Number	Nominal Length ft	Weight lb/ft
1/8	0.028	FT-2-0.028-20F-TP316	20	0.029
1/4	0.035	FT-4-0.035-20F-TP316		0.080
	0.049	FT-4-0.049-20F-TP316		0.105
	0.065	FT-4-0.065-20F-TP316		0.128
3/8	0.035	FT-6-0.035-20F-TP316		0.127
	0.049	FT-6-0.049-20F-TP316		0.171
	0.065	FT-6-0.065-20F-TP316		0.215
1/2	0.035	FT-8-0.035-20F-TP316		0.174
	0.049	FT-8-0.049-20F-TP316		0.236
	0.065	FT-8-0.065-20F-TP316		0.302
5/8	0.065	FT-10-0.065-20F-TP316		0.389
3/4	0.065	FT-12-0.065-20F-TP316		0.476
1	0.083	FT-16-0.083-20F-TP316		0.813

Suggested Allowable Working Pressure for Stainless Steel Tubing

Fractional Stainless Steel Seamless Tubing

T-Tube O.D. (in.)	Nominal Wall Thickness in.															
	0.010	0.012	0.014	0.016	0.020	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120	0.134	0.156	0.188
	Working Pressure, psig															
Note: For gas service, select a tube thickness outside of the shaded area																
1/16	5600	6800	8100	9400	12000											
1/8						8500	10900									
3/16						5400	7090	10200								
1/4						4000	5190	7500	10200							
5/16							4090	5800	8000							
3/8							3390	4800	6500	7500						
1/2							2600	3700	5100	6700						
5/8								2900	4000	5200	6000					
3/4								2400	3300	4200	4900	5800				
7/8								2000	2800	3600	4200	4800				
1									2400	3100	3600	4200	4700			
1 1/4										2400	2800	3300	3600	4100	4900	
1 1/2											2300	2700	3000	3400	4000	4900
2												2000	2200	2500	2900	3600

Metric Stainless Steel Seamless Tubing

T-Tube O.D. (mm)	Nominal Wall Thickness mm															
	0.8	1.0	1.2	1.5	1.8	2.0	2.2	2.5	2.8	3.0	3.5	4.0	4.5	5.0		
	Working Pressure, bar															
Note: For gas service, select a tube thickness outside of the shaded area																
3	670															
6	310	420	540	710												
8		310	390	520												
10		240	300	400	510	580										
12		200	250	330	410	470										
14		160	200	270	340	380	430									
15		150	190	250	310	360	400									
16			170	230	290	330	370	400								
18			150	200	260	290	320	370								
20			140	180	230	260	290	330	380							
22			120	160	200	230	260	300	340							
25					180	200	230	260	290	320						
28						180	200	230	260	280	330					
30						170	180	210	240	260	310					
32						160	170	200	220	240	290	330				
38							140	160	190	200	240	270	310			
50										150	180	210	240	270		

Suggested Allowable Working Pressure for Stainless Steel Pipe

NPS	Schedule Number (ASME B36.19M)			
	5S	10S	40S	80S
	Working Pressure, psig (bar)			
1/8	—	3940 (272)	5750 (397)	8700 (600)
1/4	—	3960 (273)	5620 (387)	8130 (560)
3/8	—	3110 (215)	4540 (313)	6660 (459)
1/2	2470 (170)	3220 (222)	4370 (301)	6190 (427)
3/4	1960 (135)	2540 (175)	3550 (245)	5040 (348)
1	1550 (107)	2680 (185)	3330 (229)	4650 (320)
1 1/4	1230 (85)	2110 (146)	2760 (190)	3890 (268)
1 1/2	1070 (74)	1830 (126)	2460 (170)	3520 (243)
2	840 (58)	1430 (99)	2060 (142)	2990 (206)

Pipe Dimensions

NPS	Outside Diameter		Schedule Number																		
	In.	mm	5S	5	10S	10	20	30	40S	40	STD	60	80S	80	XS	100	120	140	160	XXS	
			Nominal Wall Thickness, mm																		
1/8	0.405	10.3			1.2	1.2		1.448	1.7	1.7	1.7		2.4	2.413	2.413						
1/4	0.540	13.7			1.7	1.7		2.2	2.2	2.2		3.0	3.0	3.0							
3/8	0.675	17.1			1.7	1.7		1.845	2.3	2.3		3.2	3.2	3.2							
1/2	0.840	21.3	1.7	1.7	2.1	2.1		2.413	2.8	2.8		3.7	3.7	3.7					4.8	7.5	
3/4	1.050	26.7	1.7	1.7	2.1	2.1		2.413	2.9	2.9		3.9	3.9	3.9					5.6	7.8	
1	1.315	33.4	1.7	1.7	2.8	2.8		2.900	3.4	3.4		4.5	4.5	4.5					6.4	9.1	
1 1/4	1.660	42.2	1.7	1.7	2.8	2.8		2.972	3.6	3.6		4.9	4.9	4.9					6.4	9.7	
1 1/2	1.900	48.3	1.7	1.7	2.8	2.8		3.175	3.7	3.7		5.1	5.1	5.1					7.1	10.2	
2	2.375	60.3	1.7	1.7	2.8	2.8		3.175	3.9	3.9		5.5	5.5	5.5					8.7	11.1	
2 1/2	2.875	73.0	2.1	2.1	3.1	3.0		4.775	5.2	5.2		7.0	7.0	7.0					9.5	14.0	
3	3.500	88.9	2.1	2.1	3.1	3.0		4.775	5.9	5.5		7.6	7.6	7.6					11.1	15.2	
3 1/2	4.000	101.6	2.1	2.1	3.1	3.0		4.775	5.7	5.7		8.1	8.1	8.1					13.5		
4	4.500	114.3	2.1	2.1	3.1	3.0		4.775	6.0	6.0		8.6	8.6	8.6		11.1			15.9	17.1	
5	5.563	141.3	2.8	2.8	3.4	3.4			6.6	6.6		9.5	9.5	9.5		12.7			18.3	19.1	
6	6.625	168.3	2.8	2.8	3.4	3.4			7.1	7.1		11.0	11.0	11.0		14.3			23.0	21.9	
8	8.625	219.1	2.8	2.8	3.8	3.8	6.4	7.0	8.2	8.2	10.3	12.7	12.7	12.7		15.1	18.3	20.6	28.6	22.2	
10	10.750	273.1	3.4	3.4	4.2	4.2	6.4	7.8	9.3	9.3	12.7	12.7	12.7	15.1	12.7	18.3	21.4	25.4	33.3	25.4	
12	12.750	323.9	4.0	4.0	4.6	4.6	6.4	8.4	9.5	10.3	9.5	14.3	12.7	17.5	12.7	21.4	25.4	28.6	35.7	25.4	
14	14.000	355.6	4.0	4.0	4.8	4.8	7.9	9.5	9.5	11.1	9.5	15.1	12.7	19.1	12.7	23.8	27.8	31.8	40.5		
16	16.000	406.4	4.2	4.2	4.8	4.8	7.9	9.5	9.5	12.7	9.5	16.7	12.7	21.4	12.7	26.2	31.0	36.5	45.2		
18	18.000	457.2	4.2	4.2	4.8	4.8	7.9	11.1	9.5	14.3	9.5	19.1	12.7	23.8	12.7	29.4	34.9	39.7	50.0		
20	20.000	508.0	4.8	4.8	5.5	6.4	9.5	12.7	9.5	15.1	9.5	20.6	12.7	26.2	12.7	32.5	38.1	44.5	54.0		
22	22.000	558.8	4.8	4.8	5.5	6.4	9.5	12.7			9.5	22.2		28.6	12.7	34.9	41.3	47.6	59.5		
24	24.000	609.6	5.5	5.5	6.4	6.4	9.5	14.3	9.5	17.5	9.5	24.6	12.7	31.0	12.7	38.9	46.0	52.4			
26	26.000	660.4			8.0	8.0	12.7				9.5				12.7						
28	28.000	711.2			8.0	8.0	12.7	15.9			9.5				12.7						
30	30.000	762.0	6.4	6.4	8.0	8.0	12.7	15.9			9.5				12.7						
32	32.000	812.8			8.0	8.0	12.7	15.9		17.5	9.5				12.7						
34	34.000	863.6			8.0	8.0	12.7	15.9		17.5	9.5				12.7						
36	36.000	914.4			8.0	8.0	12.7	15.9		19.1	9.5				12.7						

How to Order

MT — 16 — 2.0 — 6M — TP316L — EP

Tubing or Pipe	Tubing O.D. or Pipe NPS	Nominal Wall Thickness or Schedule Number	Nominal Length	Grade	Surface Condition
FT Fractional Tubing	2 1/8 in.	0.010	20F 20 feet	TP316L	Mechanically Polished
MT Metric Tubing	4 1/4 in.	0.012	10F 10 feet	TP316	BA Bright Annealed
PI Pipe	6 3/8 in. or 6 mm	0.014	6M 6 meter	TP304L	
	8 1/2 in. or 8 mm	0.016	3M 3 meter	TP304	EP Electropolishing
	10 10 mm	0.020			
	12 3/4 in. or 12 mm	0.028			
	14 14 mm	0.035			
	16 1 in. or 16 mm	0.049			
	18 18 mm	0.8			
	20 1 1/4 in. or 20 mm	1.0			
	22 22 mm	1.2			
	25 25mm	5S			
	.	80			
	.	160			
	.	.			
	.	.			

Instrumentation Pipe Fittings

- ❖ Available in sizes from 1/16 to 2 in. and 6 mm to 30 mm
- ❖ Hikelok pipe Fittings materials include stainless steel, alloy 400/R-405, brass, and carbon steel
- ❖ Hikelok provide NPT, ISO/BSP, SAE, and ISO threads configurations
- ❖ Burr-free smooth thread provide optimum sealing and minimize galling

Materials Standards

Material	Bar Stock	Forgings
316 Stainless Steel	ASTM A276 ASME SA479, EN 1.4401	ASTM A182 ASME SA182, EN 1.4401
Alloy 20	ASTM B473	ASTM B462
Alloy 400/R-405	ASTM B164 , ASME SB164	ASTM B564 , ASME SB564
Alloy 600	ASTM B166, ASME SB166	ASTM B564, ASME SB564
Alloy 625	ASTM B446	ASTM B564, ASME SB564
Alloy 825	ASTM B425	ASTM B564, ASME SB564
Alloy C-276	ASTM B574	ASTM B564
Aluminum	ASTM B211	ASTM B247
Brass	ASTM B16, ASTM	ASTM B283
Carbon Steel	B453 ASTM A108	—

Thread Specifications

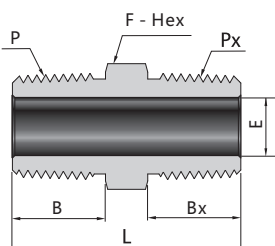
Thread Type (End Connection)	Reference Specification
NPT	ASME B1.20.1, SAE AS71051
ISO/BSP (Parallel) (Based on DIN 3852) (Hikelok PPT,BP,and BS fittings)	ISO 228, JIS B0202
ISO/BSP(tapered) (Based on DIN 3852) (Hikelok BT fittings)	ISO 7, BS EN 10226-1, JIS B0203
ISO/BSP(gauge) (Based on EN 837-1 and 837-3) (Hikelok BG)	ISO 228
Unified (SAE) (Hikelok SA fittings)	ASME B1.1

Working Temperature Rating

Material	Working Temperature Rating °F (°C)
316 Stainless Steel	-65 (-53) to 1000 (537)
Brass	-20 (-28) to 400 (204)
Carbon Steel	-65 (-53) to 375 (190)
BS Gaskets(FKM)	5 (-15) to 400 (204)
BG BP Gaskets (Copper)	5 (-15) to 400 (204)
SAE O-ring (FKM)	5 (-15) to 400 (204)

Dimensions

Hex Nipples

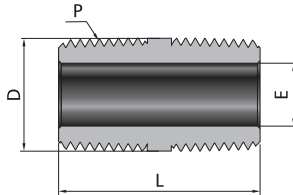


Male NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 s.s. steel	Brass
1/16	1/16	NPT1-THN-NPT1-	25.6	7.9	9.7	9.7	3.0	11000 (757)	5500 (378)
1/8	1/16	NPT2-THN-NPT1-	25.6	11.1	9.7	9.7	3.0	11000 (757)	5500 (378)
1/8	1/8	NPT2-THN-NPT2-	25.6	11.1	9.7	9.7	4.8	10000 (689)	5000 (344)
1/4	1/16	NPT4-THN-NPT1-	31.0	14.3	14.2	9.7	3.0	11000 (757)	5500 (378)
1/4	1/8	NPT4-THN-NPT2-	31.0	14.3	14.2	9.7	4.8	10000 (689)	5000 (344)
1/4	1/4	NPT4-THN-NPT4-	35.6	14.3	14.2	14.2	7.1	8000 (551)	4000 (275)
3/8	1/16	NPT6-THN-NPT1-	31.8	17.5	14.2	9.7	3.0	11000 (757)	5500 (378)
3/8	1/8	NPT6-THN-NPT2-	31.8	17.5	14.2	9.7	4.8	10000 (689)	5000 (344)
3/8	1/4	NPT6-THN-NPT4-	36.3	17.5	14.2	14.2	7.1	8000 (551)	4000 (275)
3/8	3/8	NPT6-THN-NPT6-	36.3	17.5	14.2	14.2	9.7	7800 (537)	3900 (268)
1/2	1/8	NPT8-THN-NPT2-	37.3	22.2	19.1	9.7	4.8	7700 (530)	3800 (261)
1/2	1/4	NPT8-THN-NPT4-	41.9	22.2	19.1	14.2	7.1	8000 (551)	4000 (275)
1/2	3/8	NPT8-THN-NPT6-	41.9	22.2	19.1	14.2	9.7	7800 (537)	3900 (268)

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 s.s. steel	Brass
1/2	1/2	NPT8-THN-NPT8-	46.7	22.2	19.1	19.1	11.9	7700 (530)	3800 (261)
3/4	1/8	NPT12-THN-NPT2-	40.4	27.0	19.1	9.7	4.8	10000 (689)	5000 (344)
3/4	1/4	NPT12-THN-NPT4-	41.9	27.0	19.1	14.2	7.1	8000 (551)	4000 (275)
3/4	3/8	NPT12-THN-NPT6-	45.2	27.0	19.1	14.2	9.7	7800 (537)	3900 (268)
3/4	1/2	NPT12-THN-NPT8-	46.7	27.0	19.1	19.1	11.9	7700 (530)	3800 (261)
3/4	3/4	NPT12-THN-NPT12-	46.7	27.0	19.1	19.1	15.7	7300 (502)	3600 (248)
1	1/8	NPT16-THN-NPT2-	45.2	34.9	23.9	9.7	4.8	10000 (689)	5000 (344)
1	1/4	NPT16-THN-NPT4-	49.3	34.9	23.9	14.2	7.1	5300 (365)	2600 (179)
1	3/8	NPT16-THN-NPT6-	50.0	34.9	23.9	14.2	9.7	7800 (537)	3900 (268)
1	1/2	NPT16-THN-NPT8-	54.1	34.9	23.9	19.1	11.9	7700 (530)	3800 (261)
1	3/4	NPT16-THN-NPT12-	54.1	34.9	23.9	19.1	15.7	7300 (502)	3600 (248)
1	1	NPT16-THN-NPT16-	58.9	34.9	23.9	23.9	22.4	5300 (365)	2600 (179)
1 1/4	1	NPT20-THN-NPT16-	62.2	44.5	23.9	23.9	22.4	5300 (365)	2600 (179)
1 1/4	1 1/4	NPT20-THN-NPT20-	62.9	44.5	23.9	23.9	28.6	6000 (410)	3000 (200)
1 1/2	1 1/2	NPT24-THN-NPT24-	66.3	50.8	26.2	26.2	34.0	5000 (344)	2500 (172)
2	2	NPT32-THN-NPT32-	77.7	69.9	26.2	26.2	45.0	3900 (268)	1900 (130)

Close Nipples



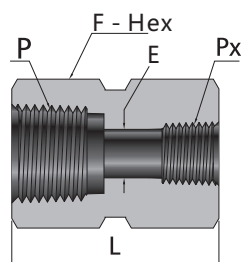
Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
		L	D	E	316 s.s. steel	Brass
1/16	NPT1-TCN-NPT1-	19.1	7.9	3.0	11000 (757)	5500 (378)
1/8	NPT2-TCN-NPT2-	19.1	10.3	4.8	10000 (689)	5000 (344)
1/4	NPT4-TCN-NPT4-	28.4	13.7	7.1	8000 (551)	4000 (275)
3/8	NPT6-TCN-NPT6-	28.4	17.1	9.6	7800 (537)	3900 (268)
1/2	NPT8-TCN-NPT8-	38.1	21.3	11.9	7700 (530)	3800 (261)
3/4	NPT12-TCN-NPT12-	38.1	26.7	15.7	7300 (502)	3600 (248)
1	NPT16-TCN-NPT16-	47.8	33.4	22.4	5300 (365)	2600 (179)

Male ISO Tapered Threads

P-BSPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
		L	D	E	316 s.s. steel	Brass
1/16	MBT1-TCN-MBT1-	19.1	7.9	3.0	11000 (757)	5500 (378)
1/8	MBT2-TCN-MBT2-	19.1	10.3	4.8	10000 (689)	5000 (344)
1/4	MBT4-TCN-MBT4-	28.4	13.7	7.1	8000 (551)	4000 (275)
3/8	MBT6-TCN-MBT6-	28.4	17.1	9.7	7800 (537)	3900 (268)
1/2	MBT8-TCN-MBT8-	38.1	21.3	11.9	7700 (530)	3800 (261)
3/4	MBT12-TCN-MBT12-	38.1	26.7	15.7	7300 (502)	3600 (248)
1	MBT16-TCN-MBT16-	47.8	33.4	22.4	5300 (365)	2600 (179)

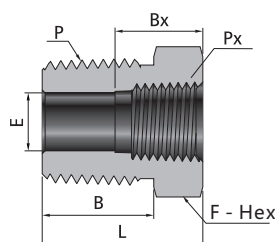
Hex Couplings



Female NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)	
			L	F	E	316 s.s. steel	Brass
1/16	1/16	FNPT1-THC-FNPT1-	19.8	11.1	4.8	6700 (460)	3300 (227)
1/8	1/8	FNPT2-THC-FNPT2-	20.6	14.3	8.6	6500 (447)	3200 (220)
1/4	1/8	FNPT4-THC-FNPT2-	31.0	19.1	8.6	6600 (454)	3300 (227)
1/4	1/4	FNPT4-THC-FNPT4-	30.2	19.1	11.4	6600 (454)	3300 (227)
3/8	1/4	FNPT6-THC-FNPT4-	35.1	22.2	11.4	5300 (365)	2600 (179)
3/8	3/8	FNPT6-THC-FNPT6-	33.3	22.2	15.0	5300 (365)	2600 (179)
1/2	1/8	FNPT8-THC-FNPT2-	39.6	27.0	8.6	4900 (337)	2400 (165)
1/2	1/4	FNPT8-THC-FNPT4-	44.4	27.0	11.4	4900 (337)	2400 (165)
1/2	3/8	FNPT8-THC-FNPT6-	45.2	27.0	15.0	4900 (337)	2400 (165)
1/2	1/2	FNPT8-THC-FNPT8-	39.6	27.0	18.5	4900 (337)	2400 (165)
3/4	1/4	FNPT12-THC-FNPT4-	46.0	33.3	11.4	4600 (316)	2300 (158)
3/4	1/2	FNPT12-THC-FNPT8-	52.3	33.3	18.5	4600 (316)	2300 (158)
3/4	3/4	FNPT12-THC-FNPT12-	41.1	33.3	23.9	4600 (316)	2300 (158)
1	1/2	FNPT16-THC-FNPT8-	55.6	41.3	18.5	4400 (303)	2200 (151)
1	3/4	FNPT16-THC-FNPT12-	57.2	41.3	23.9	4400 (303)	2200 (151)
1	1	FNPT16-THC-FNPT16-	50.8	41.3	29.7	4400 (303)	2200 (151)

Reducing Bushings

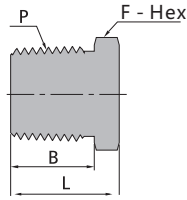


Male NPT Threads

Female NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 s.s. steel	Brass
1/8	1/16	NPT2-TRB-FNPT1-	26.2	11.1	9.7	9.9	4.8	6500 (447)	3200 (220)
1/4	1/16	NPT4-TRB-FNPT1-	21.8	14.3	14.2	9.9	4.8	8000 (551)	4000 (275)
1/4	1/8	NPT4-TRB-FNPT2-	26.9	14.3	14.2	10.4	7.1	6500 (447)	3300 (227)
3/8	1/16	NPT6-TRB-FNPT1-	21.8	17.5	14.2	9.9	4.8	13300 (971)	6600 (454)
3/8	1/8	NPT6-TRB-FNPT2-	21.8	17.5	14.2	10.4	8.6	9200 (633)	4700 (323)
3/8	1/4	NPT6-TRB-FNPT4-	30.2	19.1	14.2	15.0	9.6	6600 (454)	3300 (227)
1/2	1/8	NPT8-TRB-FNPT2-	27.4	22.2	19.1	10.4	8.6	12200 (840)	6200 (427)
1/2	1/4	NPT8-TRB-FNPT4-	27.4	22.2	19.1	15.0	11.4	8300 (571)	4400 (303)
1/2	3/8	NPT8-TRB-FNPT6-	35.8	22.2	19.1	15.0	11.9	5300 (365)	2600 (179)
3/4	1/8	NPT12-TRB-FNPT2-	27.4	27.0	19.1	10.4	7.1	20000(1378)	10000(689)
3/4	1/4	NPT12-TRB-FNPT4-	27.4	27.0	19.1	15.0	11.4	12000 (826)	6000 (410)
3/4	3/8	NPT12-TRB-FNPT6-	27.4	27.0	19.1	15.0	15.0	8200 (564)	4300 (296)
3/4	1/2	NPT12-TRB-FNPT8-	41.4	27.0	19.1	19.8	15.7	4900 (337)	2400 (165)
1	1/8	NPT16-TRB-FNPT2-	34.5	34.9	23.9	10.4	7.1	20000(1378)	10000(689)
1	1/4	NPT16-TRB-FNPT4-	34.8	34.9	23.9	15.0	11.4	14500 (999)	7400 (509)
1	3/8	NPT16-TRB-FNPT6-	34.8	34.9	23.9	15.0	15.0	11600 (799)	5900 (406)
1	1/2	NPT16-TRB-FNPT8-	34.8	34.9	23.9	19.8	18.5	8600 (592)	4300 (296)
1	3/4	NPT16-TRB-FNPT12-	47.0	34.9	23.9	20.6	22.4	5300 (365)	2600 (179)
1 1/4	3/4	NPT20-TRB-FNPT12-	37.3	44.5	23.9	20.6	22.4	7800 (537)	3900 (268)
1 1/4	1	NPT20-TRB-FNPT16-	37.3	44.5	23.9	25.4	22.4	3500 (241)	1750 (120)
1 1/2	1	NPT24-TRB-FNPT16-	40.1	50.8	26.2	25.4	22.4	6600 (454)	3300 (227)
1 1/2	1 1/4	NPT24-TRB-FNPT20-	56.0	54.0	26.2	25.4	34.0	5000 (344)	2500 (172)

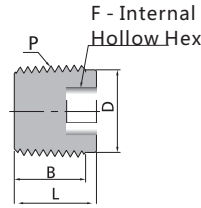
Pipe Plugs



Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm		
		L	F	B
1/16	TP-NPT1-	14.2	7.9	9.7
1/8	TP-NPT2-	14.2	11.1	9.7
1/4	TP-NPT4-	19.1	14.3	14.2
3/8	TP-NPT6-	19.8	17.5	14.2
1/2	TP-NPT8-	24.6	22.2	19.1
3/4	TP-NPT12-	30.7	27.0	19.1
1	TP-NPT16-	38.1	34.9	23.9
1 1/4	TP-NPT20-	38.4	44.5	23.9
1 1/2	TP-NPT24-	43.7	50.8	26.2
2	TP-NPT32-	50.8	69.9	26.2

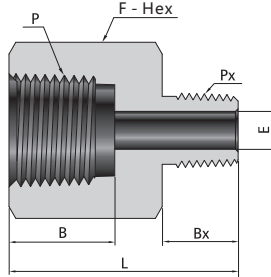
Hollow Hex Plugs



Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm			
		L	F	B	D
1/16	THP-NPT1-	7.6	4.0	7.4	7.4
1/8	THP-NPT2-	10.4	4.8	7.4	9.4
1/4	THP-NPT4-	15.5	6.4	12.4	12.1
3/8	THP-NPT6-	15.0	7.9	11.9	15.7
1/2	THP-NPT8-	19.3	9.5	16.2	19.3
3/4	THP-NPT12-	19.8	14.3	16.7	25.7
1	THP-NPT16-	20.8	15.9	17.7	31.8

Adapters

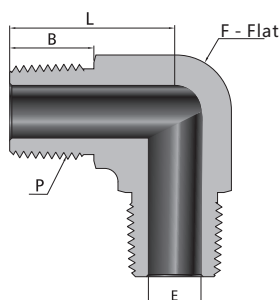


Male NPT Threads

Male ISO Tapered Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)	
			L	F	B	Bx	E	316 s.s. steel	Brass
1/8	1/16	FNPT2-TA-NPT1-	27.7	14.3	10.4	9.7	3.0	6500 (447)	3200 (220)
1/8	1/8	FNPT2-TA-NPT2-	27.9	14.3	10.4	9.7	4.8	6500 (447)	3200 (220)
1/4	1/16	FNPT4-TA-NPT1-	30.5	19.1	15.0	9.7	3.0	6600 (454)	3300 (227)
1/4	1/8	FNPT4-TA-NPT2-	32.0	19.1	15.0	9.7	4.8	6600 (454)	3300 (227)
1/4	1/4	FNPT4-TA-NPT4-	35.6	19.1	15.0	14.2	7.1	6600 (454)	3300 (227)
3/8	1/16	FNPT6-TA-NPT1-	31.8	22.2	15.0	9.7	3.0	5300 (365)	2600 (179)
3/8	1/8	FNPT6-TA-NPT2-	33.8	22.2	15.0	9.7	4.8	5300 (365)	2600 (179)
3/8	1/4	FNPT6-TA-NPT4-	38.1	22.2	15.0	14.2	7.1	5300 (365)	2600 (179)
3/8	3/8	FNPT6-TA-NPT6-	38.4	22.2	15.0	14.2	9.7	5300 (365)	2600 (179)
1/2	1/8	FNPT8-TA-NPT2-	40.1	27.0	19.8	9.7	4.8	4900 (337)	2400 (165)
1/2	1/4	FNPT8-TA-NPT4-	44.7	27.0	19.8	14.2	7.1	4900 (337)	2400 (165)
1/2	3/8	FNPT8-TA-NPT6-	44.4	27.0	19.8	14.2	9.6	4900 (337)	2400 (165)
1/2	1/2	FNPT8-TA-NPT8-	49.3	27.0	19.8	19.1	11.9	4900 (337)	2400 (165)
3/4	1/8	FNPT12-TA-NPT2-	39.6	33.3	20.6	9.7	4.8	4600 (316)	2300 (158)
3/4	1/4	FNPT12-TA-NPT4-	47.0	33.3	20.6	14.2	7.1	4600 (316)	2300 (158)
3/4	3/8	FNPT12-TA-NPT6-	46.2	33.3	20.6	14.2	9.7	4600 (316)	2300 (158)
3/4	1/2	FNPT12-TA-NPT8-	51.3	33.3	20.6	19.1	11.9	4600 (316)	2300 (158)
3/4	3/4	FNPT12-TA-NPT12-	51.3	33.3	20.6	19.1	15.7	4600 (316)	2300 (158)
1	1/8	FNPT16-TA-NPT2-	46.0	41.3	25.4	9.7	4.8	4400 (303)	2200 (151)
1	1/4	FNPT16-TA-NPT4-	49.8	41.3	25.4	14.2	7.1	4400 (303)	2200 (151)
1	3/8	FNPT16-TA-NPT6-	50.8	41.3	25.4	14.2	9.7	4400 (303)	2200 (151)
1	1/2	FNPT16-TA-NPT8-	54.9	41.3	25.4	19.1	11.9	4400 (303)	2200 (151)
1	3/4	FNPT16-TA-NPT12-	55.1	41.3	25.4	19.1	15.7	4400 (303)	2200 (151)
1	1	FNPT16-TA-NPT16-	57.9	41.3	25.4	23.9	22.4	4400 (303)	2200 (151)
1 1/4	1	FNPT20-TA-NPT16-	62.7	54.0	25.4	23.9	22.4	5000 (344)	2500 (172)

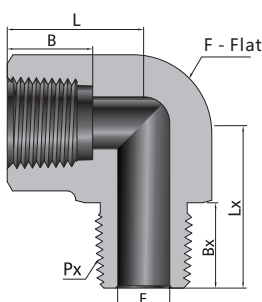
Male Elbows



Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	B	E	316 s.s. steel	Brass
1/16	NPT1-TME-NPT1-	18.3	9.5	9.7	3.0	11000 (757)	5500 (378)
1/8	NPT2-TME-NPT2-	22.4	11.1	9.7	4.8	10000 (689)	5000 (344)
1/4	NPT4-TME-NPT4-	26.7	12.7	14.2	7.1	8000 (551)	4000 (275)
3/8	NPT6-TME-NPT6-	29.7	17.5	14.2	9.6	7800 (537)	3900 (268)
1/2	NPT8-TME-NPT8-	36.8	20.6	19.1	11.9	7700 (530)	3800 (261)
3/4	NPT12-TME-NPT12-	40.4	27.0	19.1	15.7	7300 (502)	3600 (248)
1	NPT16-TME-NPT16-	50.0	34.9	23.9	22.4	5300 (365)	2600 (179)

Street Elbows

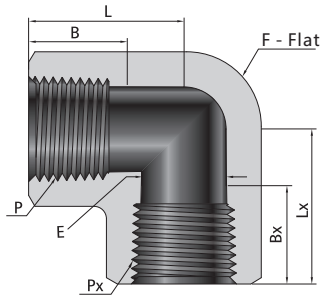


Female NPT Threads

Male NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 s.s. steel	Brass
1/16	1/16	FNPT1-TSE-NPT1-	21.8	11.1	9.9	3.0	22.4	9.7	9200 (633)	4600 (316)
1/16	1/8	FNPT1-TSE-NPT2-	21.8	11.1	9.9	4.8	22.4	9.7	9200 (633)	4600 (316)
1/16	1/4	FNPT1-TSE-NPT4-	22.4	14.3	9.9	4.8	27.7	14.2	8000 (551)	4000 (275)
1/16	3/8	FNPT1-TSE-NPT6-	22.4	17.5	9.9	4.8	29.7	14.2	7800 (537)	3900 (268)
1/8	1/16	FNPT2-TSE-NPT1-	26.4	12.7	10.4	3.0	22.1	9.7	6200 (426)	3100 (213)
1/8	1/8	FNPT2-TSE-NPT2-	26.4	12.7	10.4	4.8	22.1	9.7	6200 (426)	3100 (213)
1/8	1/4	FNPT2-TSE-NPT4-	22.4	14.3	10.4	7.1	27.7	14.2	6500 (447)	3200 (220)
1/8	3/8	FNPT2-TSE-NPT6-	22.4	17.5	10.4	7.1	29.7	14.2	7800 (537)	3900 (268)
1/8	1/2	FNPT2-TSE-NPT8-	24.1	20.6	10.4	7.1	36.8	19.1	7700 (530)	3800 (261)
1/8	3/4	FNPT2-TSE-NPT12-	25.4	27.0	10.4	7.1	40.4	19.1	7300 (502)	3600 (248)
1/8	1	FNPT2-TSE-NPT16-	26.4	34.9	10.4	7.1	50.0	23.9	5300 (365)	2600 (179)
1/4	1/8	FNPT4-TSE-NPT2-	29.7	17.5	15.0	4.8	25.4	9.7	7200 (496)	3600 (248)
1/4	1/4	FNPT4-TSE-NPT4-	29.7	17.5	15.0	7.1	29.7	14.2	7200 (496)	3600 (248)
1/4	3/8	FNPT4-TSE-NPT6-	29.7	17.5	15.0	8.6	29.7	14.2	7200 (496)	3600 (248)
1/4	1/2	FNPT4-TSE-NPT8-	25.4	20.6	15.0	8.6	36.8	19.1	7200 (496)	3600 (248)
1/4	3/4	FNPT4-TSE-NPT12-	25.4	27.0	15.0	8.6	40.4	19.1	7300 (502)	3600 (248)
1/4	1	FNPT4-TSE-NPT16-	41.4	34.9	15.0	8.6	50.0	23.9	5300 (365)	2600 (179)
3/8	1/4	FNPT6-TSE-NPT4-	36.1	20.6	15.0	7.1	32.0	14.2	5600 (385)	2800 (192)
3/8	3/8	FNPT6-TSE-NPT6-	36.1	20.6	15.0	9.6	32.0	14.2	5600 (385)	2800 (192)
3/8	1/2	FNPT6-TSE-NPT8-	36.1	20.6	15.0	11.9	36.8	19.1	5600 (385)	2800 (192)
3/8	3/4	FNPT6-TSE-NPT12-	31.2	27.0	15.0	11.9	40.4	19.1	7300 (502)	3600 (248)
3/8	1	FNPT6-TSE-NPT16-	41.4	34.9	15.0	11.9	50.0	23.9	5300 (365)	2600 (179)
1/2	1/4	FNPT8-TSE-NPT4-	39.6	25.4	19.8	7.1	35.1	14.2	5600 (385)	2800 (192)
1/2	3/8	FNPT8-TSE-NPT6-	39.6	25.4	19.8	9.6	35.1	14.2	5600 (385)	2800 (192)
1/2	1/2	FNPT8-TSE-NPT8-	39.6	25.4	19.8	11.9	39.6	19.1	5600 (385)	2800 (192)
1/2	3/4	FNPT8-TSE-NPT12-	31.2	27.0	19.8	15.7	40.4	19.1	5600 (385)	2800 (192)
1/2	1	FNPT8-TSE-NPT16-	41.4	34.9	19.8	15.7	50.0	23.9	5300 (365)	2600 (179)
3/4	3/4	FNPT12-TSE-NPT12-	48.8	31.8	20.6	15.7	42.4	19.1	5100 (351)	2500 (172)
3/4	1	FNPT12-TSE-NPT16-	41.4	34.9	20.6	22.4	50.0	23.9	5100 (351)	2500 (172)
1	1	FNPT16-TSE-NPT16-	48.5	42.9	25.4	22.4	49.3	23.9	5300 (365)	2600 (179)
1 1/4	1 1/4	FNPT20-TSE-NPT20-	60.5	50.8	25.4	31.8	60.5	23.9	3100 (213)	1600 (110)

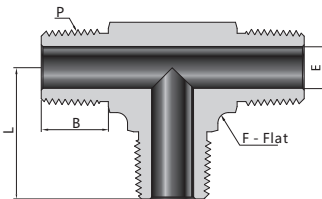
Female Elbows



Female NPT Threads

P-NPT Size	Px-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)	
			L	F	B	E	Lx	Bx	316 s.s. steel	Brass
1/16	1/16	FNPT1-TFE-FNPT1-	21.8	11.1	9.9	4.8	21.8	9.9	6700 (460)	3300 (227)
1/8	1/16	FNPT2-TFE-FNPT1-	26.4	12.7	10.4	4.8	26.4	9.9	6200 (427)	3100 (213)
1/8	1/8	FNPT2-TFE-FNPT2-	26.4	12.7	10.4	8.6	26.4	10.4	6200 (427)	3100 (213)
1/4	1/8	FNPT4-TFE-FNPT2-	29.7	17.5	15.0	7.1	29.7	10.4	7200 (496)	3600 (248)
1/4	1/4	FNPT4-TFE-FNPT4-	29.7	17.5	15.0	11.4	29.7	15.0	7200 (496)	3600 (248)
3/8	3/8	FNPT6-TFE-FNPT6-	36.1	20.6	15.0	15.0	36.1	15.0	5600 (385)	2800 (192)
1/2	1/2	FNPT8-TFE-FNPT8-	39.6	25.4	19.8	18.5	39.6	19.8	5600 (385)	2800 (192)
3/4	3/4	FNPT12-TFE-FNPT12-	48.8	31.8	20.6	23.9	48.8	20.6	5100 (351)	2500 (172)
1	1	FNPT16-TFE-FNPT16-	48.5	42.9	25.4	29.7	48.5	25.4	6400 (440)	3200 (220)
1 1/4	1 1/4	FNPT20-TFE-FNPT20-	59.8	50.8	25.4	27.7	50.8	25.4	3100 (213)	1600 (110)
1 1/2	1 1/2	FNPT24-TFE-FNPT24-	65.0	63.5	27.7	34.0	52.8	27.7	5100 (351)	2500 (172)

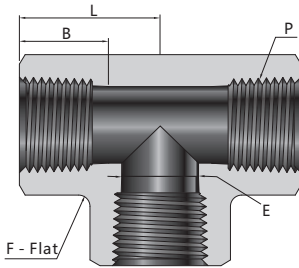
Male Tees



Male NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	B	E	316 s.s. steel	Brass
1/16	NPT1-TMT-NPT1-NPT1-	18.3	9.5	9.7	3.0	11000 (757)	5500 (378)
1/8	NPT2-TMT-NPT2-NPT2-	22.4	11.1	9.7	4.8	10000 (689)	5000 (344)
1/4	NPT4-TMT-NPT4-NPT4-	26.7	12.7	14.2	7.1	8000 (551)	4000 (275)
3/8	NPT6-TMT-NPT6-NPT6-	29.7	17.5	14.2	9.6	7800 (537)	3900 (268)
1/2	NPT8-TMT-NPT8-NPT8-	36.8	20.6	19.1	11.9	7700 (530)	3800 (261)
3/4	NPT12-TMT-NPT12-NPT12-	42.4	27.0	19.1	15.7	7300 (502)	3600 (248)
1	NPT16-TMT-NPT16-NPT16-	49.3	34.9	23.9	22.4	5300 (365)	2600 (179)
1 1/4	NPT20-TMT-NPT20-NPT20-	56.4	42.9	23.9	27.7	6000 (410)	3000 (200)
1 1/2	NPT24-TMT-NPT24-NPT24-	67.1	47.6	26.2	34.0	5000 (344)	2500 (172)

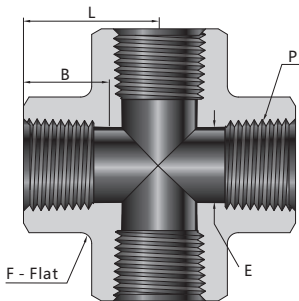
Female Tees



Female NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	E	B	316 s.s. steel	Brass
		1/16	FNPT1-TFT-FNPT1-FNPT1-	21.8	11.1	4.8	9.9
1/8	FNPT2-TFT-FNPT2-FNPT2-	26.4	12.7	8.6	10.4	6200 (427)	3100 (213)
1/4	FNPT4-TFT-FNPT4-FNPT4-	29.7	17.5	11.4	15.0	7200 (496)	3600 (248)
3/8	FNPT6-TFT-FNPT6-FNPT6-	36.1	20.6	15.0	15.0	5600 (385)	2800 (192)
1/2	FNPT8-TFT-FNPT8-FNPT8-	39.6	25.4	18.5	19.8	5600 (385)	2800 (192)
3/4	FNPT12-TFT-FNPT12-FNPT12-	48.8	31.8	23.9	20.6	5100 (351)	2500 (172)
1	FNPT16-TFT-FNPT16-FNPT16-	48.5	42.9	29.7	25.4	6400 (440)	3200 (220)
1 1/4	FNPT20-TFT-FNPT20-FNPT20-	59.8	50.8	37.2	25.4	3100 (213)	1600 (110)
1 1/2	FNPT24-TFT-FNPT24-FNPT24-	65.0	63.5	43.3	27.7	5100 (351)	2500 (172)


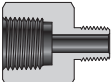
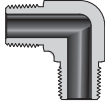
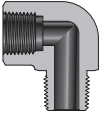

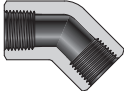
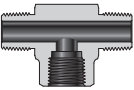
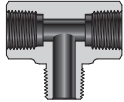
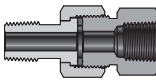
Female Crosses



Female NPT Threads

P-NPT Size	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)	
		L	F	E	B	316 s.s. steel	Brass
		1/16	FNPT1-TFC-FNPT1-FNPT1-FNPT1-	21.8	11.1	4.8	9.9
1/8	FNPT2-TFC-FNPT2-FNPT2-FNPT2-	26.4	12.7	8.6	10.4	6200 (427)	3100 (213)
1/4	FNPT4-TFC-FNPT4-FNPT4-FNPT4-	29.7	17.5	11.4	15.0	7200 (496)	3600 (248)
3/8	FNPT6-TFC-FNPT6-FNPT6-FNPT6-	36.1	20.6	15.0	15.0	5600 (385)	2800 (192)
1/2	FNPT8-TFC-FNPT8-FNPT8-FNPT8-	39.6	25.4	18.5	19.8	5600 (385)	2800 (192)
3/4	FNPT12-TFC-FNPT12-FNPT12-FNPT12-	48.8	31.8	23.9	20.6	5100 (351)	2500 (172)
1	FNPT16-TFC-FNPT16-FNPT16-FNPT16-	48.5	42.9	29.7	25.4	6400 (440)	3200 (220)

Configuration Designator

<p>Close Nipple</p> 	<p>Special Pipe Nipple</p> 	<p>Hex Nipple</p> 	<p>Hex Long Nipple</p> 	<p>Reducing Bushing</p> 
Designator: TCN	Designator: TPN	Designator: THN	Designator: TLN	Designator: TRB
<p>Pipe Cap</p> 	<p>Pipe Plug</p> 	<p>Hollow Pipe Plug</p> 	<p>Hex Coupling</p> 	<p>Adapter</p> 
Designator: PC	Designator: TP	Designator: THP	Designator: THC	Designator: TA
<p>Male Elbow</p> 	<p>Street Elbow</p> 	<p>45° Street Elbow</p> 	<p>Female Elbow</p> 	<p>45° Female Elbow</p> 
Designator: TME	Designator: TSE	Designator: T45E	Designator: TFE	Designator: T45FE
<p>Male Tee</p> 	<p>Female Branch Tee</p> 	<p>Female Run Tee</p> 	<p>Male Street Tee</p> 	<p>Male Branch Tee</p> 
Designator: TME	Designator: TFBT	Designator: TFRT	Designator: TMST	Designator: TMBT
<p>Female Tee</p> 	<p>Female Cross</p> 	<p>Union Ball Joint</p> 	<p>Union Gasket Joint</p> 	<p>Union O-ring Joint</p> 
Designator: TFT	Designator: TFC	Designator: UBJ	Designator: UGJ	Designator: UOJ

How to Order

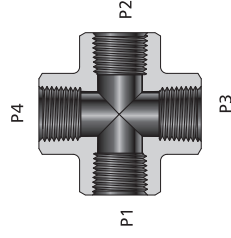
NPT8

THN

NPT4

316

Port 1 Type	Port 1 Size	Fitting Configuration	Port 2 Port 3 and Port 4	Material
FNPT Female NPT	2 1/8 in.	TP Pipe Plug	Same as the Port 1 or as follow :	316 316 S.S.
NPT Male NPT	4 1/4 in.	THP Hollow Hex Plug	FMS Female ISO	316L 316L S.S
NPTO O-ring with Male NPT	5 5/16-24	TCN Close Nipple	MS Male ISO (for BG)	304 304 S.S.
FBT Female BSPT	6 3/8 in. or 3/8-24	TPN Special Pipe Nipple	BPMS Male ISO (for BP)	304L 304L S.S.
MBT Male BSPT	7 7/16-20	THN Hex Nipple	BSMS Male ISO (for BS)	A20 Alloy 20
MBTO O-ring with Male BSPT	8 1/2 in or M8 x 1	TLN Hex Long Nipple	MSO O-ring with Male ISO	A400 Alloy 400
FBP Female BSPP	9 9/16-18	TRB Reducing Bushing	FST Female SAE	A600 Alloy 600
PMBP Male BSPP (for BP)	10 M10 x 1	PC Pipe Cap	MST Male SAE (for BG)	A825 Alloy 825
MBS Male BSPP (for BS)	12 3/4 in. or M12 x 1.5 or 3/4-16	THC Hex Coupling	BPST Male SAE (for BP)	A276 Alloy C276
MBP Male BSPP (for BG)	14 M14 x 1.5 or 7/8-14	UBJ Union Ball Joints	BSST Male SAE (for BS)	DU7 Duplex 2507
	16 1 in. or M16 x 1.5	UGJ Union Gasket Joints	OST O-ring with Male SAE	BR Brass
	17 1 1/16-12	UOJ Union O-Ring Joints	PPT Positionable BSP Parallel Thread	CS Carbon steel
	18 M18 x 1.5	TA Adapter	PMS Positionable ISO Parallel Thread	TI Titanium
	19 1 3/16 -12	TME Male Elbow	PST Positionable SAE Parallel Thread	
	20 1 1/4 in. or M20 x 1.5	TSE Street Elbow		
	21 1 5/16 -12	T45E 45° Street Elbow		
	22 M22 x 1.5	TFE Female Elbow		
	24 1 1/2 in. or M24 x 1.5	T45FE 45° Female Elbow		
	26 1 5/8 -12	TMT Male Tee		
	27 M27 x 2	TFBT Female Branch Tee		
	30 1 7/8-12 or M30 x 2	TFRT Female Run Tee		
	32 2 in.	TMST Male Street Tee		
		TMBT Male Branch Tee		
		TFT Female Tee		
		TFC Female Cross		



Instrumentation Weld Fittings

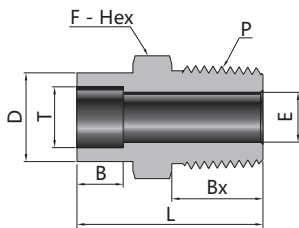
- ❖ Available in sizes from 1/8 to 2 in. and 6 mm to 38 mm
- ❖ Hikelok weld fittings materials include 316 316L stainless steel
- ❖ Quality machining of all ports ensures consistent welding
- ❖ Forcritical applications and high temperatures

Materials Standards

Material	Bar Stock	Forgings
316, 316L Stainless Steel	ASTM A276 ASME SA479, EN 1.4401	ASTM A182 ASME SA182, EN 1.4401
Alloy 20	ASTM B473	ASTM B462
Alloy 400/R-405	ASTM B164 , ASME SB164	ASTM B564 , ASME SB564
Alloy 600	ASTM B166, ASME SB166	ASTM B564, ASME SB564
Alloy 625	ASTM B446	ASTM B564, ASME SB564
Alloy 825	ASTM B425	ASTM B564, ASME SB564
Alloy C-276	ASTM B574	ASTM B564
Carbon Steel	ASTM A108	—
Duplex 2507	ASTM A479	ASTM A182

Dimensions

Tube Socket Weld Fittings



Fractional Sizes

NPT Threads

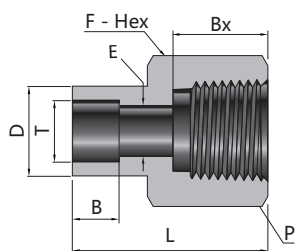
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/4	1/4	FSW4-WMC-NPT4-	29.2	12.2	7.1	14.2	14.3	4.8	8000 (551)
3/8	1/4	FSW6-WMC-NPT4-	31.8	15.2	7.9	14.2	15.9	7.1	8000 (551)
3/8	3/8	FSW6-WMC-NPT6-	31.8	15.2	7.9	14.2	17.5	7.1	7800 (537)
3/8	1/2	FSW6-WMC-NPT8-	37.3	15.2	7.9	19.1	22.2	7.1	7700 (530)
1/2	1/4	FSW8-WMC-NPT4-	33.3	18.5	9.7	14.2	19.1	7.1	6600 (454)
1/2	3/8	FSW8-WMC-NPT6-	33.3	18.5	9.7	14.2	19.1	9.6	6600 (454)
1/2	1/2	FSW8-WMC-NPT8-	38.9	18.5	9.7	19.1	22.2	10.4	6600 (454)
3/4	3/4	FSW12-WMC-NPT12-	45.1	26.4	11.2	19.1	27.0	15.7	5900 (406)
1	1	FSW16-WMC-NPT16-	53.6	34.5	15.7	23.9	34.9	22.4	5300 (365)

Metric Sizes

NPT Threads

T-Tube Size (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
6	1/4	MSW6-WMC-NPT4-	29.2	12.0	7.1	14.2	14	4.8	8000 (551)
12	1/2	MSW12-WMC-NPT8-	38.9	17.6	9.7	19.1	22	9.5	6820 (470)
14	1/4	MSW14-WMC-NPT4-	33.3	21.3	10.4	14.2	15	7.1	6930 (478)
14	3/8	MSW14-WMC-NPT6-	35.0	21.6	10.4	14.2	18	9.6	6930 (478)
14	1/2	MSW14-WMC-NPT8-	40.0	21.3	10.4	19.1	22	10.4	6930 (478)
16	1/4	MSW16-WMC-NPT4-	35.0	23.3	10.4	14.2	18	7.1	6190 (426)
16	1/2	MSW16-WMC-NPT8-	40.0	23.3	10.4	19.1	22	11.9	6190 (426)
18	1/4	MSW18-WMC-NPT4-	40.4	26.0	11.2	14.2	19	7.1	6050 (417)
28	3/4	MSW28-WMC-NPT12-	55.5	40.5	18.4	19.1	30	15.7	5040 (348)
38	1 1/4	MSW38-WMC-NPT20-	68.3	52.5	26.9	23.9	46	28.6	5000 (344)

Female Connectors



Fractional Sizes

NPT Threads

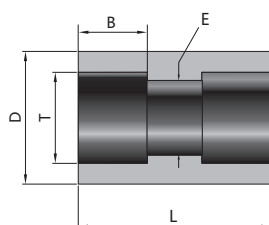
T-Tube Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
1/8	1/8	FSW2-WFC-FNPT2-	21.1	7.4	2.5	10.4	14.3	2.3	6500 (447)
1/4	1/8	FSW4-WFC-FNPT2-	26.7	12.2	7.1	10.4	14.3	4.8	6500 (447)
1/4	1/4	FSW4-WFC-FNPT4-	30.0	12.2	7.1	15.0	19.1	4.8	6600 (454)
3/8	1/4	FSW6-WFC-FNPT4-	31.5	15.2	7.9	15.0	19.1	7.1	6600 (454)
1/2	3/8	FSW8-WFC-FNPT6-	34.5	18.5	9.7	15.0	22.2	10.4	5300 (365)
1/2	1/2	FSW8-WFC-FNPT8-	40.4	18.5	9.7	19.8	27.0	10.4	4900 (337)
3/4	3/4	FSW12-WFC-FNPT12-	43.9	26.4	11.2	20.6	33.3	16.0	4600 (316)
1	1	FSW16-WFC-FNPT16-	54.1	34.5	15.7	25.4	41.3	22.4	4400 (303)

Metric Sizes

NPT Threads

T-Tube Size (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm						Working Pressure psig (bar)
			L	D	B	Bx	F	E	
8	1/4	MSW8-WFC-FNPT4-	27.0	13.7	7.5	15.0	19	4.8	6600 (454)
10	1/4	MSW10-WFC-FNPT4-	29.0	19.5	9.5	15.0	19	7.1	6600 (454)
14	1/4	MSW14-WFC-FNPT4-	32.0	22.1	10.4	15.0	22	9.5	6930 (478)
28	3/4	MSW28-WFC-FNPT12-	54.1	40.5	18.4	20.6	35	19.8	4600 (316)

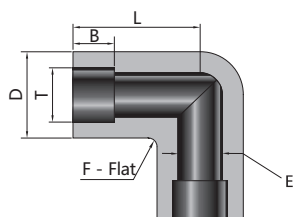
Unions



Fractional Sizes

T-Tube Size (in.)	Basic Ordering Number	Dimension, mm				Working Pressure psig (bar)
		L	D	B	E	
1/4	FSW4-WU-FSW4-	19.1	12.2	7.1	4.8	10700 (737)
3/8	FSW6-WU-FSW6-	22.4	15.2	7.9	7.1	8100 (558)
1/2	FSW8-WU-FSW8-	26.9	18.5	9.7	10.4	6600 (454)
5/8	FSW10-WU-FSW10-	30.2	23.4	10.4	12.7	6200 (427)
3/4	FSW12-WU-FSW12-	33.3	26.4	11.2	16.0	5900 (406)
7/8	FSW14-WU-FSW14-	35.5	31.5	12.7	18.8	5730 (395)
1	FSW16-WU-FSW16-	36.6	34.5	15.7	22.4	5600 (385)

Union Elbows



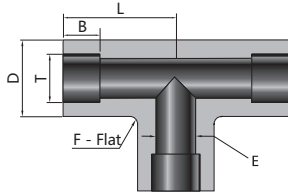
Fractional Sizes

T-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	FSW2-WUE-FSW2-	15.0	11.0	2.5	9.5	2.3	12600 (863)
1/4	FSW4-WUE-FSW4-	21.8	12.8	7.1	11.1	4.8	10700 (737)
3/8	FSW6-WUE-FSW6-	26.4	14.7	7.9	12.7	7.1	8100 (558)
1/2	FSW8-WUE-FSW8-	29.7	20.2	9.7	17.5	10.4	6600 (454)
5/8	FSW10-WUE-FSW10-	36.1	23.8	10.4	20.6	12.7	6200 (427)
3/4	FSW12-WUE-FSW12-	39.6	29.3	11.2	25.4	16.0	5900 (406)
1	FSW16-WUE-FSW16-	48.8	36.7	15.7	31.8	22.4	5600 (385)

Metric Sizes

T-Tube Size (mm)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
10	MSW10-WUE-MSW10-	24.6	16.5	7.9	14.3	7.4	8100 (558)
12	MSW12-WUE-MSW12-	29.7	20.2	9.7	17.5	9.5	6820 (470)
14	MSW14-WUE-MSW14-	36.0	23.8	10.0	20.6	10.4	6930 (478)
16	MSW16-WUE-MSW16-	36.0	23.8	10.4	20.6	12.7	6190 (426)

Union Tees



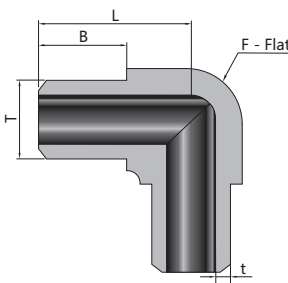
Fractional Sizes

T-Tube Size (in.)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
1/8	FSW2-WUT-FSW2-FSW2-	15.0	12.8	2.5	9.5	2.3	12600 (868)
1/4	FSW4-WUT-FSW4-FSW4-	21.8	12.8	7.1	11.1	4.8	10700 (737)
3/8	FSW6-WUT-FSW6-FSW6-	26.4	14.7	7.9	12.7	7.1	8100 (558)
1/2	FSW8-WUT-FSW8-FSW8-	29.7	20.2	9.7	17.5	10.4	6600 (454)
5/8	FSW10-WUT-FSW10-FSW10-	36.1	23.8	10.4	20.6	12.7	6200 (428)
3/4	FSW12-WUT-FSW12-FSW12-	39.6	29.3	11.2	25.4	16.0	5900 (406)
1	FSW16-WUT-FSW16-FSW16-	48.8	36.7	15.7	31.8	22.4	5600 (385)

Metric Sizes

T-Tube Size (mm)	Basic Ordering Number	Dimension, mm					Working Pressure psig (bar)
		L	D	B	F	E	
8	MSW8-WUT-MSW8-MSW8-	18.5	14.7	7.9	12.7	6.4	9790 (675)
10	MSW10-WUT-MSW10-MSW10-	24.6	16.5	7.9	14.3	7.4	8100 (558)
12	MSW12-WUT-MSW12-MSW12-	29.7	20.2	9.7	17.5	9.5	6820 (470)
14	MSW14-WUT-MSW14-MSW14-	36.0	23.8	10.0	20.6	10.4	6930 (478)
16	MSW16-WUT-MSW16-MSW16-	36.0	23.8	10.4	20.6	12.7	6190 (426)
20	MSW20-WUT-MSW20-MSW20-	39.6	29.3	11.2	25.4	17.0	5510 (380)
22	MSW22-WUT-MSW22-MSW22-	41.3	31.2	13.5	27.0	19.0	6850 (472)
25	MSW25-WUT-MSW25-MSW25-	48.8	36.7	15.7	31.8	22.0	5450 (376)

Union Elbows



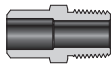

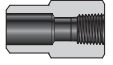



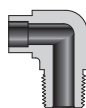


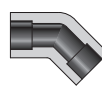

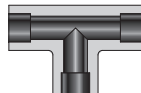

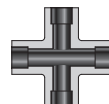
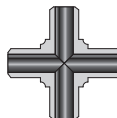
Fractional Sizes

T-Tube Size (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
			L	B	F	
1/4	0.065	FBW4-WUE-FBW4-	16.3	9.7	9.5	10320 (712)
3/8	0.095	FBW6-WUE-FBW6-	18.0	9.7	11.1	9930 (685)
1/2	0.095	FBW8-WUE-FBW8-	24.4	14.2	14.3	6780 (468)
3/4	0.120	FBW12-WUE-FBW12-	33.3	19.1	20.6	5530 (381)
1	0.134	FBW16-WUE-FBW16-	37.1	19.1	27.0	4480 (309)

Metric Sizes

T-Tube Size (in.)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm			Working Pressure psig (bar)
			L	B	F	
10	2.2	MBW10-WUE-MBW10-	18.0	9.7	11.1	8160 (563)
14	2.5	MBW14-WUE-MBW14-	25.4	14.2	15.9	6280 (433)
16	2.8	MBW16-WUE-MBW16-	26.2	14.2	17.5	6140 (423)
20	3.0	MBW20-WUE-MBW20-	33.3	19.1	20.6	5110 (352)
22	3.0	MBW22-WUE-MBW22-	35.3	19.1	23.8	4620 (319)
25	3.5	MBW25-WUE-MBW25-	37.1	19.1	27.0	4730 (326)

Configuration Designer

Butt Weld Male Connector 	Socket Weld Male Connector 	Weld Female Connector 	Socket Weld Female Connector 	Butt Weld Union 
Designator: WMC	Designator: WMC	Designator: WFC	Designator: WFC	Designator: WU
Socket Weld Union 	Socket Weld Male Elbow 	Socket Weld Female Connector 	Socket Weld Union Elbow 	Socket Weld 45° Union Elbow 
Designator: WU	Designator: WME	Designator: WFE	Designator: WUE	Designator: W45UE
Butt Weld Union Elbow 	Socket Weld Union Tee 	Butt Weld Union Tee 	Socket Weld Union Cross 	Butt Weld Union Cross 
Designator: WUE	Designator: WUT	Designator: WUT	Designator: WUC	Designator: WUC

How to Order

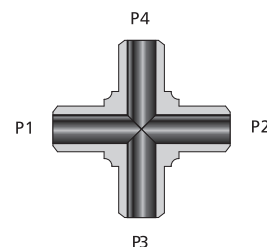
MBW6

WMC

NPT4

316

Port 1 Type	Port 1 Size	Fitting Configuration	Port 2, Port 3 and Port 4	Material
FSW Fractional Tube Socket Weld	2 1/8 in.	WMC Male Connector WFC Female Connector WU Union WUE Union Elbow WUT Union Tee WUC Union Cross WME Male Elbow WFE Female Elbow W45UE 45° Union Elbow	Same as port 1	316 316 S.S. 316L 316L S.S. 304 304 S.S. 304L 304L S.S.
FBW Fractional Tube Butt Weld	4 1/4 in.			
MSW Metric Tube Socket Weld	6 3/8 in. or 6 mm			
MBW Metric Tube Butt Weld	8 1/2 in. or 8 mm			
PBW Pipe Butt Weld	10 5/8 in. or 10 mm			
PSW Pipe Socket Weld	12 3/4 in. or 12 mm or M12 x 1.5			
FNPT Female NPT	14 7/8 in. or 14 mm or M14 x 1.5			
NPT Male NPT	16 1 in. or 16 mm or M16 x 1.5			
NPTO O-ring with Male NPT	18 18 mm or M18 x 1.5			
FBT Female BSPT	20 1 1/4 in. or 20 mm or M20 x 1.5			
MBT Male BSPT	22 22 mm or M22 x 1.5			
MBTO O-ring with Male BSPT	24 1 1/2 in. or M24 x 1.5			
FBP Female BSPP	25 25 mm			
PMBP Male BSPP (for BP)	27 M27 X 2			
MBS Male BSPP (for BS)	28 28 mm			
MBP Male BSPP (for BG)	30 30 mm or M30 x 2			
FMS Female ISO	32 2 in. or 32 mm			
MS Male ISO (for BG)	38 38 mm			
BPMS Male ISO (for BP)				
BSMS Male ISO (for BS)				



Butt-Weld Fittings

- ❖ 316, 316L, 316L VAR and 316L VIM-VAR (Vacuum Induction Melting/Vacuum Arc Remelting) stainless steel materials
- ❖ Each fitting is stamped with size, material and heat code

Material

Material	Bar Stock	Forgings	Designator
316 S.S.	ASTM A479/A276	ASTM A182/A314	316
316L S.S.			316L
316L VAR S.S.	ASTM A479/A276 SEMI F20	—	316LV
316L VIM-VAR S.S.			316LVV

Working Temperatures

Material	316 316L Bar Stock	316L Forgings
Specification	ASTM A276 A479	ASTM A182
Temperature °F (°C)	Factor	
-20 (-28) to 100 (37)	1.00	1.00
200 (93)	0.86	0.71
300 (93)	0.78	0.63
400 (121)	0.71	0.57
500 (148)	0.66	0.53
600 (176)	0.63	0.50
650 (176)	0.62	0.49
700 (204)	0.60	0.48
750 (232)	0.60	0.47
800 (148)	0.59	0.46
850 (176)	0.58	0.45
900 (204)	0.57	—
950 (232)	0.57	—
1000 (232)	0.56	—

❖ Catalog working pressures shown are for temperatures from -20°F to 100°F (-28°C to 37°C). Pressure derating factors for applications at temperatures greater than 100°F (37°C) are determined from this pressure code and are listed in the table

Wetted Surface Finish, Cleaning and Packaging

❖ Wetted Surface Finish

Standard surface finish is a roughness average of 10 µin. (0.25 µm) Ra

❖ Special Cleaning and Packaging

CP-02 special cleaning and packaging, following ASTM G93 level C, add -CP2 as a suffix to the ordering number

Example: **FBW4-MWE-FBW4-316L-CP2**

❖ Ultrahigh-purity Process Specification

CP-03 ultrahigh-purity cleaning and packaging, Wetted surfaces are finished to 5 µin. (0.13 µm) Ra. Do not need to add a suffix to the ordering number

Example: **FBW4-MWE-FBW4-316L**

How to Order

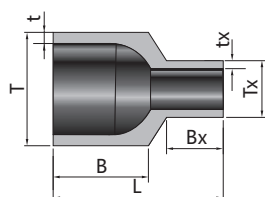
- ❖ To order Hikelok butt weld fittings, add the material designator to the ordering number

Mini Butt Weld Fittings

- ❖ Sizes range from 1/8" to 1/2" and 6 mm to 12 mm.
- ❖ Radius junction design with elbows provides smooth flow path.
- ❖ Compact design allows close component spacing.
- ❖ Square, sharp, burrfree tube weld ends enhance alignment, maintain tube wall uniformity, and promoteweld repeatability.

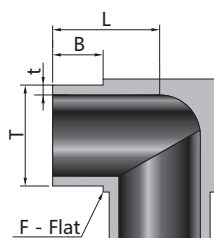
Dimensions

Reducing Unions



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Basic Ordering Number	Dimension, in.(mm)			Working Pressure psig (bar)
					L	B	Bx	
1/4	0.035	1/8	0.028	FBW4-MRWU-FBW2-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	5100 (351)
3/8	0.035	1/4	0.035	FBW6-MRWU-FBW4-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-MRWU-FBW4-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-MRWU-FBW6-	0.75 (19.1)	0.42 (10.7)	0.25 (6.4)	3300 (227)

90° Union Elbows



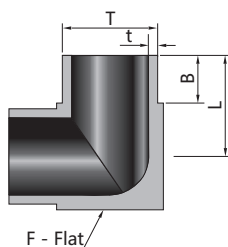
Fractional Sizes

T-Tube O.D. (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, in.(mm)			Working Pressure psig (bar)
			L	B	F	
1/8	0.028	FBW2-MWE-FBW2-	0.41 (10.4)	0.25 (6.4)	5/16(7.9)	8500 (585)
1/4	0.035	FBW4-MWE-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWE-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16(11.1)	3300 (227)
1/2	0.049	FBW8-MWE-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16(14.3)	3700 (254)

Metric Sizes

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
			L	B	F	
6	1.0	MBW6-MWE-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)
8	1.0	MBW8-MWE-MBW8-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-MWE-MBW10-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	MBW12-MWE-MBW12-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)

Tribows

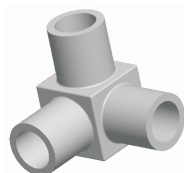


Fractional Sizes

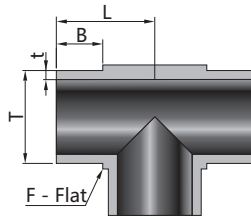
T-Tube O.D. (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, in.(mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-MWTB-FBW4-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWTB-FBW6-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWTB-FBW8-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

Metric Sizes

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
			L	B	F	
6	1.0	MBW6-MWTB-MBW6-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)



Union Tees



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, in.(mm)			Working Pressure psig (bar)
			L	B	F	
1/8	0.028	FBW2-MWUT-FBW2-FBW2-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	8500 (585)
1/4	0.035	FBW4-MWUT-FBW4-FBW4-	0.41 (10.4)	0.25 (6.4)	5/16 (7.9)	5100 (351)
3/8	0.035	FBW6-MWUT-FBW6-FBW6-	0.47 (11.9)	0.25 (6.4)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-MWUT-FBW8-FBW8-	0.53 (13.5)	0.25 (6.4)	9/16 (14.3)	3700 (254)

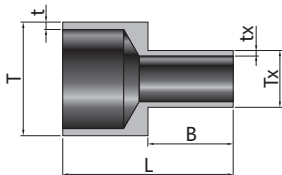
T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
			L	B	F	
6	1.0	MBW6-MWUT-MBW6-MBW6-	10.4 (0.41)	6.4 (0.25)	7.9 (5/16)	420 (6095)
8	1.0	MBW8-MWUT-MBW8-MBW8-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-MWUT-MBW10-MBW10-	11.9 (0.47)	6.4 (0.25)	11.1 (7/16)	240 (3483)
12	1.0	MBW12-MWUT-MBW12-MBW12-	13.5 (0.53)	6.4 (0.25)	14.3 (9/16)	200 (2902)

Long Arm Butt Weld Fittings

- ❖ Sizes range from 1/4" to 1" and 6 mm to 18 mm.
- ❖ Radius junction design with elbows provides smooth flow path.
- ❖ Precisely finished diameter matches tube diameter.

Dimensions

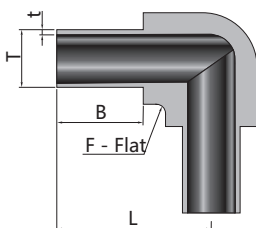
Reducing Unions



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Tx-Tube O.D. (in.)	tx-Wall Thickness (in.)	Basic Ordering Number	Dimension, in.(mm)		Working Pressure psig (bar)
					L	B	
3/8	0.035	1/4	0.035	FBW6-URWU-FBW4-	1.50 (38.1)	0.75 (19.1)	3300 (227)
1/2	0.049	1/4	0.035	FBW8-URWU-FBW4-	1.50 (38.1)	0.75 (19.1)	3700 (254)
1/2	0.049	3/8	0.035	FBW8-URWU-FBW6-	1.50 (38.1)	0.75 (19.1)	3300 (227)
3/4	0.049	1/2	0.049	FBW12-URWU-FBW8-	1.50 (38.1)	0.75 (19.1)	2400 (165)
1	0.065	1/2	0.049	FBW16-URWU-FBW8-	1.50 (38.1)	0.75 (19.1)	2400 (165)
1	0.065	3/4	0.049	FBW16-URWU-FBW12-	1.50 (38.1)	0.75 (19.1)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Tx-Tube O.D. (mm)	tx-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)		Working Pressure psig (bar)
					L	B	
10	1.0	6	1.0	MBW10-URWU-MBW6-	38.1 (1.50)	19.1 (0.75)	240 (3483)
10	1.0	8	1.0	MBW10-URWU-MBW8-	38.1 (1.50)	19.1 (0.75)	240 (3483)
12	1.0	6	1.0	MBW12-URWU-MBW6-	38.1 (1.50)	19.1 (0.75)	200 (2902)
12	1.0	8	1.0	MBW12-URWU-MBW8-	38.1 (1.50)	19.1 (0.75)	200 (2902)
12	1.0	10	1.0	MBW12-URWU-MBW10-	38.1 (1.50)	19.1 (0.75)	200 (2902)
18	1.5	6	1.5	MBW18-URWU-MBW6-	38.1 (1.50)	19.1 (0.75)	200 (2902)
18	1.5	12	1.5	MBW18-URWU-MBW12-	38.1 (1.50)	19.1 (0.75)	200 (2902)

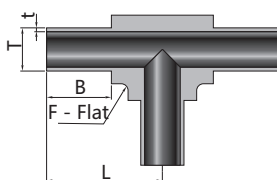
Union Elbows



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, in.(mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-UWE-FBW4-	1.23 (31.2)	0.75 (19.1)	7/16 (11.1)	5100 (351)
3/8	0.035	FBW6-UWE-FBW6-	1.20 (30.5)	0.75 (19.1)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-UWE-FBW8-	1.34 (34.0)	0.75 (19.1)	11/16 (17.5)	3700 (254)
3/4	0.049	FBW12-UWE-FBW12-	1.46 (37.1)	0.75 (19.1)	15/16 (23.8)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
			L	B	F	
6	1.0	MBW6-UWE-MBW6-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	420 (6095)
8	1.0	MBW8-UWE-MBW8-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-UWE-MBW10-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	240 (3483)
12	1.0	MBW12-UWE-MBW12-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	200 (2902)
18	1.5	MBW18-UWE-MBW18-	37.6 (1.48)	19.1 (0.75)	23.8 (15/16)	200 (2902)

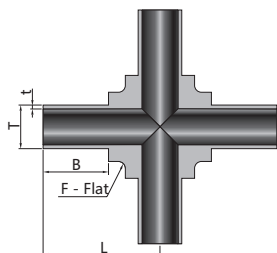
Union Tees



T-Tube O.D. (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, in.(mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-UWT-FBW4-FBW4-	1.23 (31.2)	0.75 (19.1)	7/16 (11.1)	5100 (351)
3/8	0.035	FBW6-UWT-FBW6-FBW6-	1.20 (30.5)	0.75 (19.1)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-UWT-FBW8-FBW8-	1.34 (34.0)	0.75 (19.1)	11/16 (17.5)	3700 (254)
3/4	0.049	FBW12-UWT-FBW12-FBW12-	1.46 (37.1)	0.75 (19.1)	15/16 (23.8)	2400 (165)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
			L	B	F	
6	1.0	MBW6-UWT-MBW6-MBW6-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	420 (6095)
8	1.0	MBW8-UWT-MBW8-MBW8-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-UWT-MBW10-MBW10-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	240 (3483)
12	1.0	MBW12-UWT-MBW12-MBW12-	34.0 (1.34)	19.1 (0.75)	17.5 (11/16)	200 (2902)
18	1.5	MBW18-UWT-MBW18-MBW18-	37.6 (1.48)	19.1 (0.75)	23.8 (15/16)	200 (2902)

Union Crosses

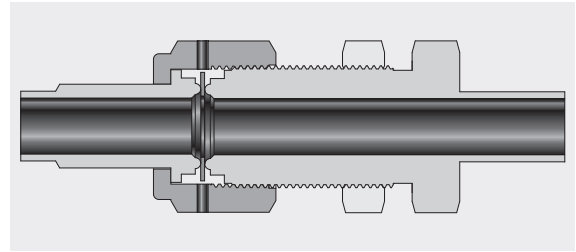


T-Tube O.D. (in.)	t-Wall Thickness (in.)	Basic Ordering Number	Dimension, in.(mm)			Working Pressure psig (bar)
			L	B	F	
1/4	0.035	FBW4-UWC-FBW4-FBW4-FBW4-	1.23 (31.2)	0.75 (19.1)	7/16 (11.1)	5100 (351)
3/8	0.035	FBW6-UWC-FBW6-FBW6-FBW6-	1.20 (30.5)	0.75 (19.1)	7/16 (11.1)	3300 (227)
1/2	0.049	FBW8-UWC-FBW8-FBW8-FBW8-	1.34 (34.0)	0.75 (19.1)	11/16 (17.5)	3700 (254)

T-Tube O.D. (mm)	t-Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure psig (bar)
			L	B	F	
6	1.0	MBW6-UWC-MBW6-MBW6-MBW6-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	420 (6095)
8	1.0	MBW8-UWC-MBW8-MBW8-MBW8-	31.2 (1.23)	19.1 (0.75)	11.1 (7/16)	310 (4499)
10	1.0	MBW10-UWC-MBW10-MBW10-MBW10-	34.0 (1.34)	19.1 (0.75)	15.9 (5/8)	240 (3483)
12	1.0	MBW12-UWC-MBW12-MBW12-MBW12-	34.0 (1.34)	19.1 (0.75)	15.9 (5/8)	200 (2902)

Metal Gasket Face Seal Fittings

- ❖ Metal-to-metal seal provides perfect leak-tight service from critical vacuum to high pressure
- ❖ Female threads are silver plated to prevent galling
- ❖ Two test port for easy leak testing
- ❖ Non-rotational female nut to prevent transmission of torque
- ❖ Smooth transition into the internal diameter minimizes entrapment areas
- ❖ Standard surface finish on glands and bodies is a roughness average of 10µin. (0.25µm) Ra
- ❖ Sizes from 1/16 to 1 in. and 6 to 18 mm
- ❖ 316, 316L, and 316L VAR (Vacuum Arc Remelt) stainless steel materials are available



Pressure Ratings

- ❖ Pressure ratings is calculated in accordance with ANSI/ASME B31.3. To determine working pressure in accordance with ANSI/ASME B31.1, multiply by 0.94.

Temperature ratings

Component	Material	Working Temperature
Fittings	316 stainless steel	-425°F to 1000°F (-254°C to 538°C)
	316L stainless steel	
	316L VAR stainless steel	
Gaskets	316L stainless steel	-425°F to 400°F (-269°C to 204°C)
	Copper	
	Nickel	

Standard Materials

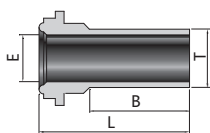
Material	Bar Stock	Forging
Fitting Material		
316 stainless steel	ASTM A276, ASME SA479	ASTM A182, ASME SA182
316L stainless steel		
316L VAR stainless steel		
Gasket Material		
316L stainless steel	ASTM A240, A167	
Copper	ASTM B152	
Nickel	ASTM B162	

Testing

- ❖ The GFS fitting has been helium leak tested to a maximum leak rate of 4×10^{-9} std cm³/s with silver-plated.

Pressure Ratings and Dimensions

Glands

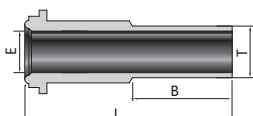


GFS Gland to Short Fractional Tube Butt Weld

GFS Size (in.)	Tube O.D. (in.)	Nominal Wall Thickness (in.)	Basic Ordering Number	Dimension, mm			Working Pressure, psig (bar)		
				L	B	E	6L	CU	NI
1/8	1/8	0.028	GFS2-SG-FBW2-	27.4	19.1	1.5	8500 (586)	6800 (468)	8500 (586)
1/4	1/8	0.028	GFS4-SG-FBW2-	27.9	19.1	1.5	5100 (351)	5100 (351)	5100 (351)
1/4	1/4	0.035	GFS4-SG-FBW4-	15.2	6.4	4.6	5100 (351)	5100 (351)	5100 (351)
1/4	1/4	0.035	GFS4-SG-FBW4-2-	18.3	9.7	4.6	5100 (351)	5100 (351)	5100 (351)
1/4	1/4	0.035	GFS4-SG-FBW4-4-	27.9	19.1	4.6	5100 (351)	5100 (351)	5100 (351)
1/2	1/4	0.035	GFS8-SG-FBW4-	28.4	19.1	4.6	4300 (296)	2800 (192)	3500 (241)
1/2	3/8	0.035	GFS8-SG-FBW6-	15.7	6.4	7.9	3300 (227)	2600 (179)	3300 (227)
1/2	3/8	0.035	GFS8-SG-FBW6-2-	28.4	19.1	7.9	3300 (227)	2600 (179)	3300 (227)
1/2	1/2	0.049	GFS8-SG-FBW8-	15.7	6.4	10.2	3500 (241)	2800 (192)	3500 (241)
1/2	1/2	0.049	GFS8-SG-FBW8-2-	18.8	9.7	10.2	3500 (241)	2800 (192)	3500 (241)
1/2	1/2	0.049	GFS8-SG-FBW8-4-	28.4	19.1	10.2	3500 (241)	2800 (192)	3500 (241)

GFS Gland to Short Metric Tube Butt Weld

GFS Size (in.)	T-Tube O.D. (mm)	Nominal Wall Thickness (mm)	Basic Ordering Number	Dimension, mm			Working Pressure, psig (bar)		
				L	B	E	6L	CU	NI
1/4	6	1.0	GFS4-SG-MBW6-	29.5	19.1	4.0	6800(468)	5400(372)	6800(468)
1/4	8	1.0	GFS4-SG-MBW8-	29.5	19.1	6.0	4900(337)	4900(337)	4900(337)
1/2	10	1.0	GFS8-SG-MBW10-	29.5	19.1	8.0	3500(241)	2800(192)	3500(241)
1/2	12	1.0	GFS8-SG-MBW12-	29.5	19.1	10.0	3100(213)	2400(165)	3100(213)
3/4	18	1.5	GFS12-SG-MBW18-	31.0	19.1	15.0	3000(206)	2400(165)	3000(206)



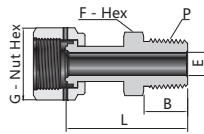
GFS Gland to Long Fractional Tube Butt Weld

GFS Size (in.)	Tube O.D. (in.)	Nominal Wall Thickness (in.)	Basic Ordering Number	Dimension, mm			Working Pressure, psig (bar)		
				L	B	E	6L	CU	NI
1/8	1/8	0.028	GFS2-G-FBW2-	36.1	19.1	1.5	8500(586)	6800(468)	8500(586)
1/4	1/4	0.035	GFS4-G-FBW4-	30.5	6.4	4.6	5100(351)	5100(351)	5100(351)
1/4	1/4	0.035	GFS4-G-FBW4-2-	33.3	9.1	4.6	5100(351)	5100(351)	5100(351)
1/4	1/4	0.035	GFS4-G-FBW4-4-	33.5	9.7	4.6	5100(351)	5100(351)	5100(351)
1/4	1/4	0.035	GFS4-G-FBW4-6-	43.2	19.1	4.6	5100(351)	5100(351)	5100(351)
1/2	1/4	0.035	GFS8-G-FBW4-	45.7	19.1	4.6	4300(296)	2800(192)	3500(241)
1/2	3/8	0.035	GFS8-G-FBW6-	32.8	6.4	7.9	3300(227)	2600(179)	3300(227)
1/2	3/8	0.035	GFS8-G-FBW6-2-	45.5	19.1	7.9	3300(227)	2600(179)	3300(227)
1/2	1/2	0.049	GFS8-G-FBW8-	32.8	6.4	10.2	3500(241)	2800(192)	3500(241)
1/2	1/2	0.049	GFS8-G-FBW8-2-	35.8	9.7	10.2	3500(241)	2800(192)	3500(241)
1/2	1/2	0.049	GFS8-G-FBW8-4-	45.5	19.1	10.2	3500(241)	1900(130)	3500(241)
3/4	3/4	0.049	GFS12-G-FBW12-	51.6	19.1	16.5	2400(165)	1900(130)	2400(165)
1	1	0.065	GFS16-G-FBW16-	58.9	19.1	22.1	2400(165)	2400(165)	2400(165)

GFS Gland to Long Metric Tube Butt Weld

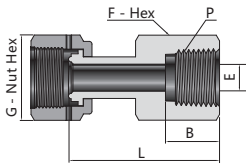
GFS Size (in.)	T-Tube O.D. (mm)	Nominal Wall Thickness (mm)	Basic Ordering Number	Dimension, mm			Working Pressure, psig (bar)		
				L	B	E	6L	CU	NI
1/4	6	1.0	GFS4-G-MBW6-	43.2	19.1	4.0	6800(468)	5400(372)	6800(468)
1/4	8	1.0	GFS4-G-MBW8-	43.2	19.1	6.0	4900(337)	4900(337)	4900(337)
1/2	10	1.0	GFS8-G-MBW10-	45.5	19.1	8.0	3500(241)	2800(192)	3500(241)
1/2	12	1.0	GFS8-G-MBW12-	45.5	19.1	10.0	3100(213)	2400(165)	3100(213)
3/4	18	1.5	GFS12-G-MBW18-	51.6	19.1	15.0	3000(207)	2400(165)	3000(207)

Welded Assemblies



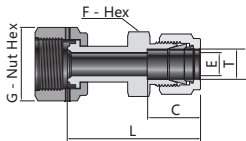
GFS Welded Assemblies to Male NPT

GFS Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure, psig (bar)		
			L	B	E	G	F	6L	CU	NI
1/4	1/8	FGFS4-WA-NPT2-	40.1	9.7	4.6	19.05	11.1	8000 (551)	6400 (446)	8000 (551)
1/4	1/4	FGFS4-WA-NPT4-	45.5	14.2	4.6	19.05	14.3	8000 (551)	6400 (446)	8000 (551)
1/2	3/8	FGFS8-WA-NPT6-	48.0	14.2	10.2	26.99	17.5	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	FGFS8-WA-NPT8-	53.1	19.1	10.2	26.99	22.2	4300 (296)	2800 (192)	3500 (241)



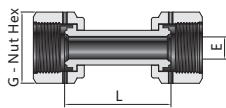
GFS Welded Assemblies to Female NPT

GFS Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure, psig (bar)		
			L	B	E	G	F	6L	CU	NI
1/4	1/4	FGFS4-WA-FNPT4-	45.0	15.0	4.6	19.1	19.1	6600 (454)	5200 (458)	6600 (454)
1/2	3/8	FGFS8-WA-FNPT6-	49.5	15.0	10.2	27.0	22.2	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	FGFS8-WA-FNPT8-	55.4	19.8	10.2	27.0	27.0	4300 (296)	2800 (192)	3500 (241)



GFS Welded Assemblies to Tube Fitting

GFS Size (in.)	T-tube O.D. (in.)	Basic Ordering Number	Dimension, mm					Working Pressure, psig (bar)		
			L	B	E	G	F	6L	CU	NI
1/4	1/4	FGFS4-WA-F4-	49.3	15.2	4.6	19.1	12.7	10000 (689)	6400 (440)	8000 (551)
1/4	3/8	FGFS4-WA-F6-	50.0	16.8	4.6	19.1	15.9	6500 (447)	5200 (358)	6500 (447)
1/2	1/2	FGFS8-WA-F8-	56.6	22.9	10.2	27.0	20.6	4300 (296)	2800 (192)	3500 (241)

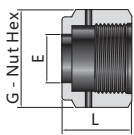


GFS Welded Assemblies Union

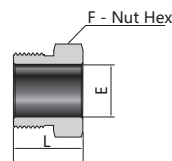
GFS Size (in.)	Basic Ordering Number	Dimension, mm			Working Pressure, psig (bar)		
		L	E	G	6L	CU	NI
1/4	FGFS4-WU-FGFS4-	43.4	4.6	19.1	10000 (689)	6400 (440)	8000 (551)
1/2	FGFS8-WU-FGFS8-	46.7	10.2	27.0	4300 (296)	2800 (192)	3500 (241)

Nuts

Female Nut

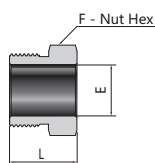


GFS Size (in.)	Basic Ordering Number	Dimension, mm		
		L	G	E
1/8	FN-FGFS2-	13.5	11.1	5.3
1/4	FN-FGFS4-	20.6	19.1	9.1
1/2	FN-FGFS8-	22.4	27.0	15.5
5/8	FN-FGFS10-	22.4	30.2	18.8
3/4	FN-FGFS12-	28.4	38.1	22.6
1	FN-FGFS16-	34.0	44.5	30.5



Male Nut

GFS Size (in.)	Basic Ordering Number	Dimension, mm		
		L	F	E
1/8	MN-GFS2-	12.7	9.5	5.3
1/4	MN-GFS4-	18.0	15.9	9.1
1/2	MN-GFS8-	20.6	23.8	15.5
5/8	MN-GFS10-	20.6	27.0	18.8
3/4	MN-GFS12-	25.4	33.3	22.6
1	MN-GFS16-	30.2	41.3	30.5



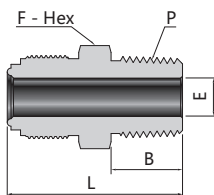
Short Male Nut

GFS Size (in.)	Basic Ordering Number	Dimension, mm		
		L	F	E
1/4	SMN-GFS4-0.54-	13.7	15.9	9.1
1/4	SMN-GFS4-0.65-	16.5	15.9	9.1

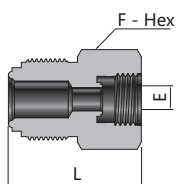
For use with short gland

Bodies

GFS Body to Male NPT

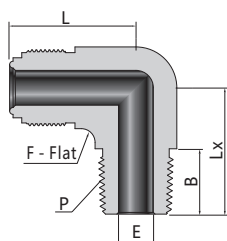


GFS Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, mm				Working Pressure, psig (bar)		
			L	F	B	E	6L	CU	NI
1/8	1/16	GFS2-MC-NPT1-	27.2	9.5	9.7	2.3	9000 (620)	7200 (496)	9000 (620)
1/8	1/8	GFS2-MC-NPT2-	27.2	11.1	9.7	2.3	9000 (620)	7200 (496)	9000 (620)
1/4	1/8	GFS4-MC-NPT2-	33.3	15.9	9.7	4.6	10000 (689)	6400 (440)	8000 (551)
1/4	1/4	GFS4-MC-NPT4-	37.9	15.9	14.2	4.6	10000 (689)	6400 (440)	8000 (551)
1/2	1/4	GFS8-MC-NPT4-	41.9	23.8	14.2	10.2	4300 (296)	2800 (196)	3500 (241)
1/2	3/8	GFS8-MC-NPT6-	41.9	23.8	19.1	9.7	4300 (296)	2800 (196)	3500 (241)
1/2	1/2	GFS8-MC-NPT8-	46.7	23.8	19.1	10.2	4300 (296)	2800 (196)	3500 (241)
3/4	3/4	GFS12-MC-NPT12-	55.6	33.3	19.1	15.8	3700 (254)	2400 (165)	3000 (206)
1	1	GFS16-MC-NPT16-	62.7	41.3	23.9	22.1	3000 (206)	1900 (130)	2400 (165)



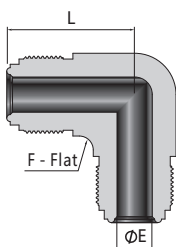
Reducing Bushing

GFS Size (in.)	NPT Size	Basic Ordering Number	Dimension, mm			Working Pressure, psig (bar)		
			L	F	E	6L	CU	NI
1/4	1/8	GFS4-RB-FGFS2-	26.9	15.9	3.3	10000 (689)	6400 (440)	8000 (551)
1/2	1/4	GFS8-RB-FGFS4-	35.8	23.8	6.4	4300 (296)	2800 (192)	3500 (241)



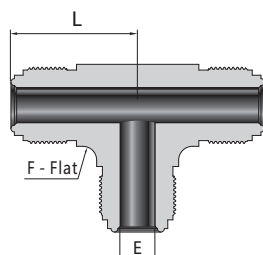
GFS Body to Male NPT Elbow

GFS Size (in.)	NPT Size	Basic Ordering Number	Dimension, mm					Working Pressure, psig (bar)		
			L	F	B	E	Lx	6L	CU	NI
1/4	1/8	GFS4-ME-NPT2-	27.2	12.7	9.6	4.6	22.1	10000 (689)	6400 (440)	8000 (551)
1/4	1/4	GFS4-ME-NPT4-	27.2	12.7	14.2	4.6	26.7	8000 (551)	8000 (551)	8000 (551)
1/2	3/8	GFS8-ME-NPT6-	36.8	20.6	14.2	10.2	32.0	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	GFS8-ME-NPT8-	36.8	20.6	19.1	10.2	36.8	4300 (296)	2800 (192)	3500 (241)



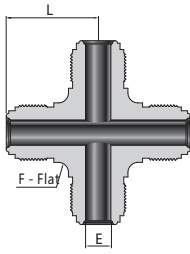
GFS Body Union Elbow

GFS Size (in.)	Basic Ordering Number	Dimension, mm			Working Pressure, psig (bar)		
		L	F	E	6L	CU	NI
1/8	GFS2-UE-GFS2-	22.6	11.1	2.3	11200 (772)	7200 (496)	9000 (620)
1/4	GFS4-UE-GFS4-	27.2	12.7	4.6	10000 (689)	6400 (440)	8000 (551)
1/2	GFS8-UE-GFS8-	36.8	20.6	10.2	4300 (296)	2800 (192)	3500 (241)
3/4	GFS12-UE-GFS12-	48.8	31.8	15.7	3700 (254)	2400 (165)	3000 (207)
1	GFS16-UE-GFS16-	50.8	42.9	22.1	3000 (207)	1900 (130)	2400 (165)



GFS Body Union Tee

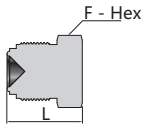
GFS Size (in.)	Basic Ordering Number	Dimension, mm			Working Pressure, psig (bar)		
		L	F	E	6L	CU	NI
1/8	GFS2-UT-GFS2-GFS2-	22.6	11.1	2.3	11200 (772)	7200 (496)	9000 (620)
1/4	GFS4-UT-GFS4-GFS4-	27.2	12.7	4.6	10000 (689)	6400 (440)	8000 (551)
1/2	GFS8-UT-GFS8-GFS8-	36.8	20.6	10.2	4300 (296)	2800 (192)	3500 (241)
3/4	GFS12-UT-GFS12-GFS12-	48.8	31.8	15.7	3700 (254)	2400 (165)	3000 (207)
1	GFS16-UT-GFS16-GFS16-	50.8	42.9	22.1	3000 (207)	1900 (130)	2400 (165)



GFS Body Union Cross

GFS Size (in.)	Basic Ordering Number	Dimension, mm			Working Pressure, psig (bar)		
		L	F	E	6L	CU	NI
1/8	GFS2-UC-GFS2-GFS2-GFS2-	22.6	11.1	2.3	11200 (772)	7200 (496)	9000 (620)
1/4	GFS4-UC-GFS4-GFS4-GFS4-	27.2	12.7	4.6	10000 (689)	6400 (440)	8000 (551)
1/2	GFS8-UC-GFS8-GFS8-GFS8-	36.8	20.6	10.2	4300 (296)	2800 (192)	3500 (241)
3/4	GFS12-UC-GFS12-GFS12-GFS12-	48.8	31.8	15.7	3700 (254)	2400 (165)	3000 (206)
1	GFS16-UC-GFS16-GFS16-GFS16-	50.8	42.9	22.1	3000 (206)	1900 (130)	2400 (165)

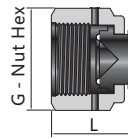
Plugs



Plug

GFS Size (in.)	Basic Ordering Number	Dimension mm	
		L	F
1/8	PL-GFS2-	17.3	9.5
1/4	PL-GFS4-	23.4	15.9
1/2	PL-GFS8-	27.4	23.8
3/4	PL-GFS12-	36.3	33.3
1	PL-GFS16-	38.6	41.3

Caps



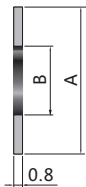
Cap

GFS Size (in.)	Basic Ordering Number	Dimension mm	
		L	F
1/8	CA-FGFS2-	16.0	11.1
1/4	CA-FGFS4-	23.9	19.1
1/2	CA-FGFS8-	25.6	27.0
3/4	CA-FGFS12-	32.8	38.1
1	CA-FGFS16-	39.1	44.5

Gaskets

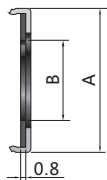
- ❖ Nickel and Copper gasket retainer assemblies use a 316L stainless steel retainer
- ❖ Copper and Nickel gaskets are unplated

Silver Plated



Nonretained

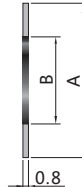
GFS Size (in.)	Basic Ordering Number	Dimension mm	
		A	B
1/8	GA-GFS2-	6.6	2.3
1/4	GA-GFS4-	11.9	5.6
1/2	GA-GFS8-	19.8	11.2
5/8	GA-GFS10-	23.1	14.7
3/4	GA-GFS12-	29.0	16.8
1	GA-GFS16-	35.6	22.6



Gasket Retainer Assembly

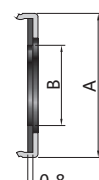
GFS Size (in.)	Basic Ordering Number	Dimension mm	
		A	B
1/4	GA-GFS4-A-	12.7	6.1
1/2	GA-GFS8-A-	20.1	11.2
3/4	GA-GFS12-A-	29.0	16.8
1	GA-GFS16-A-	35.6	22.6

Unplated



Nonretained


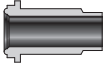
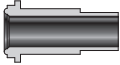
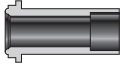



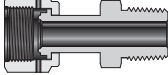
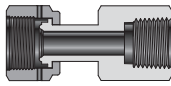
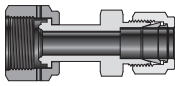
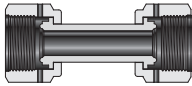
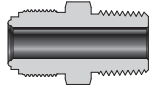
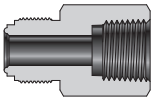
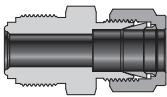
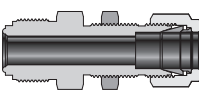
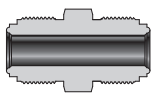
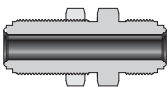
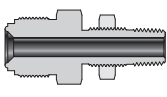
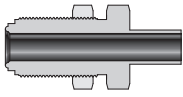
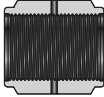
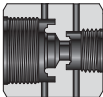
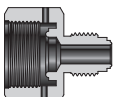
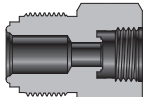

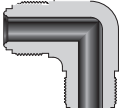
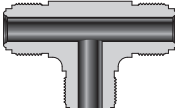
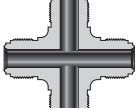





GFS Size (in.)	Basic Ordering Number	Dimension mm	
		A	B
1/8	GA-GFS2-UN-	6.6	2.3
1/4	GA-GFS4-UN-	11.9	5.6
1/2	GA-GFS8-UN-	19.8	11.2
5/8	GA-GFS10-UN-	23.1	14.7
3/4	GA-GFS12-UN-	29.0	16.8
1	GA-GFS16-UN-	35.6	22.6



Gasket Retainer Assembly

GFS Size (in.)	Basic Ordering Number	Dimension mm	
		A	B
1/4	GA-GFS4-A-UN-	12.7	6.1
1/2	GA-GFS8-A-UN-	20.1	11.2
3/4	GA-GFS12-A-UN-	29.0	16.8
1	GA-GFS16-A-UN-	35.6	22.6

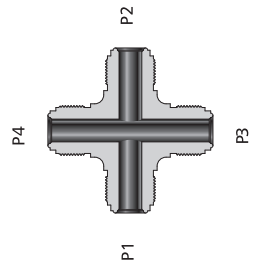
Configuration Designator

<p>Short Gland</p> 	<p>Gland</p> 	<p>Gland</p> 	<p>Gland</p> 
Designator: SG	Designator: G	Designator: G	Designator: G
<p>Gland</p> 	<p>Gland</p> 	<p>Blind Gland</p> 	<p>Welded Assemblies</p> 
Designator: G	Designator: G	Designator: BB	Designator: WA
<p>Welded Assemblies</p> 	<p>Welded Assemblies</p> 	<p>Welded Assemblies</p> 	<p>Body to Male NPT</p> 
Designator: WA	Designator: WA	Designator: WU	Designator: MC
<p>Body to Female NPT</p> 	<p>Body to Tube Fitting</p> 	<p>Body to Bulkhead Tube Fitting</p> 	<p>Union Body</p> 
Designator: FC	Designator: TF	Designator: BTF	Designator: U
<p>Bulkhead Union Body</p> 	<p>Bulkhead Male Connector</p> 	<p>Body to Tube Butt Weld</p> 	<p>Coupling</p> 
Designator: BU	Designator: BMC	Designator: BTB	Designator: C
<p>Female Reducing Union</p> 	<p>Reducing Adapter</p> 	<p>Reducing Bushing</p> 	<p>Body to Male NPT Elbow</p> 
Designator: FU	Designator: RA	Designator: RB	Designator: ME
<p>Body Union Elbow</p> 	<p>Body Union Tee</p> 	<p>Body Union Cross</p> 	<p>Female Nut</p> 
Designator: UE	Designator: UT	Designator: UC	Designator: FN
<p>Male Nut</p> 	<p>Plug</p> 	<p>Cap</p> 	<p>Gasket</p> 
Designator: MN	Designator: PL	Designator: CA	Designator: GA

How to Order

GFS8 — UT — GFS8 — 316L

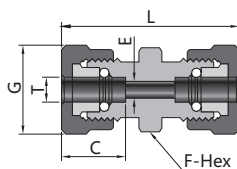
Port 1 Type	Port 1 Size	Fitting Type	Port 2 Type	Port 2 Size	Port 3 and Port 4	Material
GFS Metal Gasket Face Seal	2 1/8 in. 4 1/4 in.	SG Short Gland G Gland	GFS Metal Gasket Face Seal	Same as the Port 1 or follow :	Same as Port 2	316 316 S.S. 316L 316L S.S. 316LV 316L VAR
FGFS Fractional Gasket Face Seal	8 1/2 in. or 3/8 in. 12 3/4 in. 16 1 in.	WA Weld Assemblies FN Female Nut MN Male Nut SMN Short Male Nut MC Male Connector Body FC Female Connector Body U Union Body TF Body to Tube Fitting BTF Body to Bulkhead Tube Fitting BMC Body to Bulkhead Male Connector BB Blind Body BU Bulkhead Union Body BTB Bulkhead Body to Tube Butt Weld C Coupling BSW Body to Tube Socket Weld RA Reducing Adapter RB Reducing Bushing ME Male Elbow UE Union Elbow UT Union Tee UC Union Cross PL Plug CA Cap GA Gasket	FGFS Fractional Gasket Face Seal FBW Fractional Tube Butt Weld FSW Fractional Tube Socket Weld MSW Metric Tube Socket Weld MBW Metric Tube Butt Weld F Fractional Tube Fitting M Metric Tube Fitting FNPT Female NPT NPT Male NPT FBT Female BSPT MBT Male BSPT	1 1/16 in. 2 1/8 in. 4 1/4 in. 6 3/8 in. or 6 mm 7 7/16-20 8 8mm 9 9/16-18 10 10 mm 12 3/4 in. or 3/4-16 or 12 mm 17 1 1/16-12 18 18mm 21 1 5/16-12		



Vacuum Fittings

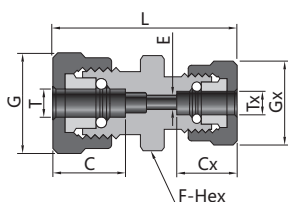
- ❖ O-ring seals to glass, metal, or plastic tubing
- ❖ Knurled nut for easy, finger-tight assembly
- ❖ Stainless steel and fluorocarbon FKM O-ring construction
- ❖ Reliable, repeatable sealing performance
- ❖ Available in tube sizes from 1/16 to 1 1/2 in.
- ❖ FKM O-ring working temperature from -25°F to 400°F (-31°C to 204°C)

Dimensions



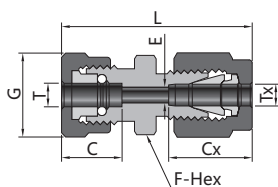
Unions

T-Tube O.D. (in.)	Dimension, mm	Working Pressure, psig (bar)				
		L	C	E	G	F
1/16	VF1-U-VF1-	1.23 (31.2)	0.43 (10.9)	0.05 (1.3)	3/8	3/8 (9.5)
1/8	VF2-U-VF2-	1.40 (35.6)	0.43 (10.9)	0.09 (2.3)	9/16	1/2 (12.7)
1/4	VF4-U-VF4-	1.63 (41.4)	0.62 (15.7)	0.18 (4.6)	11/16	5/8 (15.9)
3/8	VF6-U-VF6-	1.81 (46.0)	0.66 (16.8)	0.28 (7.1)	13/16	13/16 (20.6)
1/2	VF8-U-VF8-	1.84 (46.7)	0.80 (20.3)	0.40 (10.2)	15/16	7/8 (22.2)
5/8	VF10-U-VF10-	1.84 (46.7)	0.84 (21.3)	0.50 (12.7)	1 1/8	1 1/16 (27.0)
3/4	VF12-U-VF12-	2.05 (52.1)	0.94 (23.9)	0.62 (15.7)	1 1/4	1 3/16 (30.1)
1	VF16-U-VF16-	2.15 (54.6)	0.94 (23.9)	0.87 (22.1)	1 9/16	1 1/2 (38.1)
1 1/2	VF24-U-VF24-	2.27 (57.6)	0.94 (23.9)	1.38 (35.1)	2 1/16	2 1/8 (54.0)



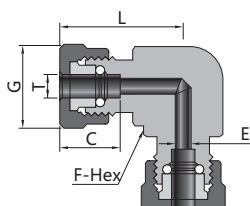
Reducing Unions

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Dimension mm	Working Pressure, psig (bar)						
			L	C	Cx	E	G	Gx	F
3/8	1/4	VF6-U-VF4-	1.72 (43.7)	0.66 (16.8)	0.62 (15.7)	0.18 (4.6)	13/16	11/16	13/16 (20.6)
1/2	1/4	VF8-U-VF4-	1.75 (44.4)	0.80 (20.3)	0.62 (15.7)	0.18 (4.6)	15/16	11/16	7/8 (22.2)



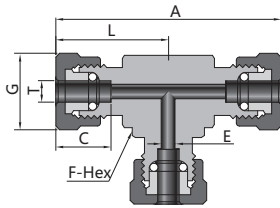
Tube Fitting Unions

T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Dimension mm	Working Pressure, psig (bar)					
			L	C	Cx	E	G	F
1/4	1/4	VF4-U-F4-	1.66 (42.2)	0.62 (15.7)	0.60 (15.2)	0.18 (4.6)	11/16	5/8 (15.9)
3/8	3/8	VF6-U-F6-	1.81 (46.0)	0.66 (16.8)	0.66 (16.8)	0.28 (7.1)	13/16	13/16 (20.6)
1/2	1/2	VF8-U-F8-	1.95 (49.5)	0.80 (20.3)	0.90 (22.9)	0.40 (10.2)	15/16	7/8 (22.2)



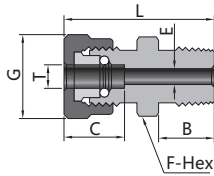
Union Elbows

T-Tube O.D. (in.)	Dimension, mm	Working Pressure, psig (bar)				
		L	C	E	G	F
1/4	VF4-UE-VF4-	1.14 (29.0)	0.62 (15.7)	0.18 (4.6)	11/16	1/2 (12.7)
3/8	VF6-UE-VF6-	1.36 (34.5)	0.66 (16.8)	0.28 (7.1)	13/16	11/16 (17.5)
1/2	VF8-UE-VF8-	1.36 (34.5)	0.80 (20.3)	0.40 (10.2)	15/16	13/16 (20.6)



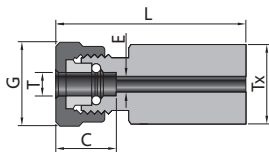
Union Tees

T-Tube O.D. (in.)	Dimension, mm	Working Pressure, psig (bar)					
		A	L	C	E	G	F
1/8	VF2-UT-VF2-VF2-	2.12 (53.8)	1.06 (26.9)	0.43 (10.9)	0.09 (2.3)	9/16	1/2 (12.7)
1/4	VF4-UT-VF4-VF4-	2.30 (58.4)	1.15 (29.2)	0.62 (15.7)	0.18 (4.6)	11/16	1/2 (12.7)
3/8	VF6-UT-VF6-VF6-	2.72 (69.1)	1.36 (34.5)	0.66 (16.8)	0.28 (7.1)	13/16	11/16 (17.5)
1/2	VF8-UT-VF8-VF8-	2.72 (69.1)	1.36 (34.5)	0.80 (20.3)	0.40 (10.2)	15/16	11/16 (17.5)
3/4	VF12-UT-VF12-VF12-	3.30 (83.8)	1.65 (41.9)	0.94 (23.9)	0.62 (15.7)	1 1/4	15/16 (23.8)
1	VF16-UT-VF16-VF16-	3.64 (92.4)	1.82 (46.2)	0.94 (23.9)	0.87 (22.1)	1 9/16	1 1/4 (31.8)



Male Connectors

T-Tube O.D. (in.)	NPT Size in.	Dimension, mm	Working Pressure, psig (bar)					
			L	C	B	E	G	F
1/16	1/8	VF1-MC-NPT2-	1.12 (28.4)	0.43 (10.9)	0.38 (9.6)	0.05 (1.3)	3/8	7/16 (11.1)
1/8	1/8	VF2-MC-NPT2-	1.22 (31.0)	0.43 (10.9)	0.38 (9.6)	0.09 (2.3)	9/16	1/2 (12.7)
1/4	1/8	VF4-MC-NPT2-	1.35 (34.3)	0.62 (15.7)	0.38 (9.6)	0.18 (4.6)	11/16	5/8 (15.9)
1/4	1/4	VF4-MC-NPT4-	1.53 (38.9)	0.62 (15.7)	0.56 (14.2)	0.18 (4.6)	11/16	5/8 (15.9)
3/8	1/8	VF6-MC-NPT2-	1.44 (36.6)	0.66 (16.8)	0.38 (9.6)	0.18 (4.6)	13/16	13/16 (20.6)
3/8	1/4	VF6-MC-NPT4-	1.62 (41.1)	0.66 (16.8)	0.56 (14.2)	0.28 (7.1)	13/16	13/16 (20.6)
1/2	3/8	VF8-MC-NPT6-	1.65 (41.9)	0.80 (20.3)	0.56 (14.2)	0.40 (10.2)	15/16	7/8 (22.2)
1/2	1/2	VF8-MC-NPT8-	1.84 (46.7)	0.80 (20.3)	0.75 (19.1)	0.40 (10.2)	15/16	7/8 (22.2)
3/4	3/4	VF12-MC-NPT12-	1.96 (49.8)	0.94 (23.9)	0.75 (19.1)	0.62 (15.7)	1 1/4	1 3/16 (30.1)
1	1	VF16-MC-NPT16-	2.25 (57.2)	0.94 (23.9)	0.94 (23.9)	0.87 (22.1)	1 9/16	1 1/2 (38.1)



Adapters

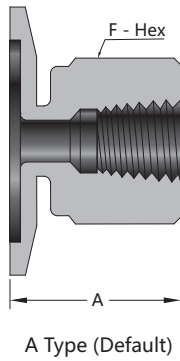
T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Dimension, mm	Working Pressure, psig (bar)			
			L	C	E	G
1/16	1/4	VF1-VA-VT4-	1.12 (28.4)	0.43 (10.9)	0.05 (1.3)	3/8
1/8	1/4	VF2-VA-VT4-	1.20 (30.5)	0.43 (10.9)	0.09 (2.3)	9/16
1/8	3/8	VF2-VA-VT6-	1.21 (30.7)	0.43 (10.9)	0.09 (2.3)	9/16
1/4	1/4	VF4-VA-VT4-	1.34 (34.0)	0.62 (15.7)	0.18 (4.6)	11/16
1/4	3/8	VF4-VA-VT6-	1.33 (33.8)	0.62 (15.7)	0.18 (4.6)	11/16
1/4	1/2	VF4-VA-VT8-	1.47 (37.3)	0.62 (15.7)	0.18 (4.6)	11/16
3/8	3/8	VF6-VA-VT6-	1.47 (37.3)	0.66 (16.8)	0.28 (7.1)	13/16
3/8	1/2	VF6-VA-VT8-	1.58 (40.1)	0.66 (16.8)	0.28 (7.1)	13/16
1/2	5/8	VF8-VA-VT10-	1.64 (41.7)	0.80 (20.3)	0.40 (10.2)	15/16
1/2	3/4	VF8-VA-VT12-	1.69 (42.9)	0.80 (20.3)	0.40 (10.2)	15/16
3/4	1	VF12-VA-VT16-	1.78 (45.2)	0.94 (23.9)	0.62 (15.7)	1 1/4
1	1 1/4	VF16-VA-VT20-	1.80 (45.7)	0.94 (23.9)	0.87 (22.1)	1 9/16
1 1/2	1 1/2	VF24-VA-VT24-	1.98 (50.3)	0.94 (23.9)	1.25 (31.8)	2 1/16

Vacuum Adapter Fittings

- ❖ KF, CF to NPT, BSPT, GFS, Hikelok tube fitting
- ❖ Copper seal vacuum range: $\geq 10^{-12}$ Torr
- ❖ Elastomeric seal vacuum range: $\geq 10^{-8}$ Torr
- ❖ Copper seal working temperature from -325°F to 842°F (-200°C to 450°C)
- ❖ Elastomeric seal working temperature from -4°F to 302°F (-20°C to 150°C)

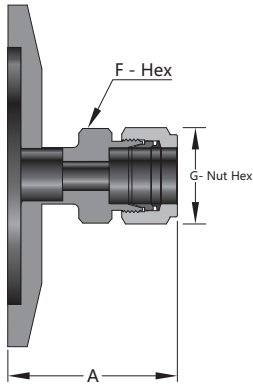
Dimensions

KF to Female NPT



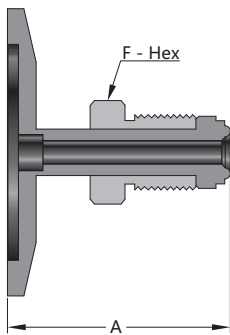
Pipe Size in.	Flange Size	Basic Ordering Number (For A Type)	A in. (mm)	F in. (mm)
1/8	KF10	KF10-KA-FNPT2-	0.92(23.4)	9/16(14.3)
	KF16	KF16-KA-FNPT2-		
	KF25	KF25-KA-FNPT2-		
	KF40	KF40-KA-FNPT2-		
	KF50	KF50-KA-FNPT2-		
1/4	KF10	KF10-KA-FNPT4-	1.07(27.2)	3/4(19.1)
	KF16	KF16-KA-FNPT4-		
	KF25	KF25-KA-FNPT4-		
	KF40	KF40-KA-FNPT4-		
	KF50	KF50-KA-FNPT4-		
1/2	KF16	KF16-KA-FNPT8-	1.44(36.6)	1 1/16(27.0)
	KF25	KF25-KA-FNPT8-	1.39(35.3)	
	KF40	KF40-KA-FNPT8-		
	KF50	KF50-KA-FNPT8-		
3/4	KF25	KF25-KA-FNPT12-	1.45(36.8)	1 5/16(33.3)
	KF40	KF40-KA-FNPT12-		
	KF50	KF50-KA-FNPT12-		
1	KF25	KF25-KA-FNPT16-	1.57(39.9)	1 5/8(41.3)
	KF40	KF40-KA-FNPT16-		
	KF50	KF50-KA-FNPT16-		

KF to Tube Fitting



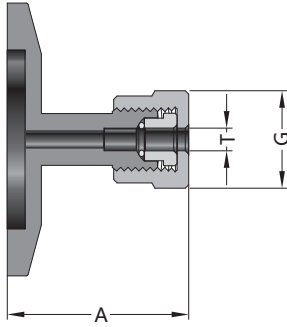
Tube O.D. (in.)	Flange Size	Basic Ordering Number	A in.(mm)	F in.(mm)	G in.(mm)
1/4	KF10	KF10-KA-F4-	1.47(37.3)	1/2(12.7)	9/16(14.3)
	KF16	KF16-KA-F4-			
	KF25	KF25-KA-F4-			
	KF40	KF40-KA-F4-			
	KF50	KF50-KA-F4-			
3/8	KF10	KF10-KA-F6-	1.63(41.4)	5/8(15.9)	11/16(17.5)
	KF16	KF16-KA-F6-			
	KF25	KF25-KA-F6-			
	KF40	KF40-KA-F6-			
	KF50	KF50-KA-F6-			
1/2	KF25	KF25-KA-F8-	1.77(45.0)	13/16(20.6)	7/8(22.2)
	KF40	KF40-KA-F8-			
	KF50	KF50-KA-F8-			
3/4	KF25	KF25-KA-F12-	2.14(54.4)	1 1/16(27.0)	1 1/8(28.6)
	KF40	KF40-KA-F12-			
	KF50	KF50-KA-F12-			
1	KF25	KF25-KA-F16-	2.60(66.0)	1 3/8(34.9)	1 1/2(38.1)
	KF40	KF40-KA-F16-			
	KF50	KF50-KA-F16-			

KF to Rotatable Male GFS Metal



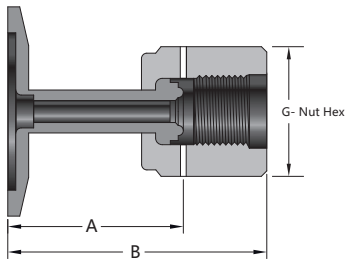
GFS Size (in.)	Flange Size	Basic Ordering Number	A in.(mm)	F in.(mm)
1/4	KF10	KF10-KA-RGFS4-	1.46(37.1)	5/8(15.9)
	KF16	KF16-KA-RGFS4-		
	KF25	KF25-KA-RGFS4-		
	KF40	KF40-KA-RGFS4-		
	KF50	KF50-KA-RGFS4-		
3/8	KF16	KF16-KA-RGFS6-	1.65(41.9)	11/16(17.5)
	KF25	KF25-KA-RGFS6-	1.55(39.4)	
	KF40	KF40-KA-RGFS6-		
	KF50	KF50-KA-RGFS6-		
1/2	KF16	KF16-KA-RGFS8-	1.65(41.9)	15/16(23.8)
	KF25	KF25-KA-RGFS8-	1.55(39.4)	
	KF40	KF40-KA-RGFS8-		
	KF50	KF50-KA-RGFS8-		
3/4	KF25	KF25-KA-RGFS12-	2.15(54.6)	1 5/16(33.3)
	KF40	KF40-KA-RGFS12-	2.05(52.1)	
	KF50	KF50-KA-RGFS12-		
1	KF25	KF25-KA-RGFS16-	2.26(57.4)	1 5/8(41.3)
	KF40	KF40-KA-RGFS16-		
	KF50	KF50-KA-RGFS16-		

KF to Vacuum Tube Fitting



Tube O.D. (in.)	Flange Size	Basic Ordering Number	A in.(mm)	G in.(mm)
1/4	KF10	KF10-KA-VF4-	1.48(37.6)	11/16(17.5)
3/8		KF10-KA-VF6-	1.62(41.1)	13/16(20.6)
1/4	KF16	KF16-KA-VF4-	1.48(37.6)	11/16(17.5)
3/8		KF16-KA-VF6-	1.62(41.1)	13/16(20.6)
1/2		KF16-KA-VF8-	1.79(45.5)	15/16(23.8)
1/4	KF25	KF25-KA-VF4-	1.48(37.6)	11/16(17.5)
3/8		KF25-KA-VF6-	1.62(41.1)	13/16(20.6)
1/2		KF25-KA-VF8-	1.79(45.5)	15/16(23.8)
3/4		KF25-KA-VF12-	1.93(49.0)	1 1/4(31.8)
1/4	KF40	KF40-KA-VF4-	1.48(37.6)	11/16(17.5)
3/8		KF40-KA-VF6-	1.62(41.1)	13/16(20.6)
1/2		KF40-KA-VF8-	1.79(45.5)	15/16(23.8)
3/4		KF40-KA-VF12-	1.93(49.0)	1 1/4(31.8)
1		KF40-KA-VF16-	1.95(49.5)	1 9/16(39.7)
1/4	KF50	KF50-KA-VF4-	1.48(37.6)	11/16(17.5)
3/8		KF50-KA-VF6-	1.62(41.1)	13/16(20.6)
1/2		KF50-KA-VF8-	1.79(45.5)	15/16(23.8)
3/4		KF50-KA-VF12-	1.93(49.0)	1 1/4(31.8)
1		KF50-KA-VF16-	1.95(49.5)	1 9/16(39.7)

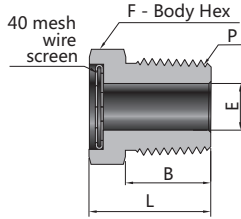
KF to Female GFS Metal Gasket



GFS Size in.	Flange Size	Basic Ordering Number	A in.(mm)	B in.(mm)	G in.(mm)
1/4	KF10	KF10-KA-FGFS4-	1.46(37.1)	1.96(49.8)	3/4(19.1)
	KF16	KF16-KA-FGFS4-			
	KF25	KF25-KA-FGFS4-			
	KF40	KF40-KA-FGFS4-			
	KF50	KF50-KA-FGFS4-			
1/2	KF16	KF16-KA-FGFS8-	1.65(41.9)	2.21(56.1)	1 1/16(27.0)
	KF25	KF25-KA-FGFS8-			
	KF40	KF40-KA-FGFS8-			
	KF50	KF50-KA-FGFS8-			

Other Fittings

Vent Protectors



40 mesh 316 series stainless steel wire screen assembly

NPT Thread

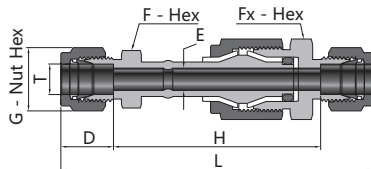
P-NPT Size	Basic Ordering Number	Dimension, in. (mm)			
		L	F	B	E
1/8	VP-NPT2-	0.56(14.2)	0.50(12.7)	0.38(9.7)	0.19(4.8)
1/4	VP-NPT4-	0.78(19.8)	0.56(14.3)	0.56(14.2)	0.28(7.1)
3/8	VP-NPT6-	0.81(20.6)	0.69(17.5)	0.56(14.2)	0.41(10.4)
1/2	VP-NPT8-	1.03(26.2)	0.87(22.2)	0.75(19.1)	0.50(12.7)
3/4	VP-NPT12	1.06(26.9)	1.06(27.0)	0.76(19.2)	0.72(18.3)
1	VP-NPT16-	1.37(34.8)	1.37(34.9)	0.94(23.9)	0.88(22.4)

Dielectric Fittings

- ❖ Electrical Resistance of Insulators at 70°F (20°C): $10 \times 10^6 \Omega$ at 10 V
- ❖ Maximum working pressure: 5000 psig (344 bar)
- ❖ Working temperature from -40°F to 200°F (-40°C to 93°C)

Materials

component	Material
Insulator	Polyamide-imide
O-Ring	70 Durometer FKM
Backup Ring	Virgin PTFE



Fractional Tube

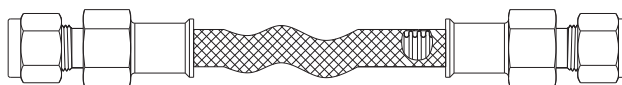
T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)						
		L	D	G	H	E	F	Fx
1/4	F4-DF-F4-	3.77(95.7)	0.60(15.2)	0.56(14.3)	2.57(65.3)	0.19(4.8)	0.50(12.7)	0.81(20.6)
3/8	F6-DF-F6-	3.92(99.6)	0.66(16.8)	0.69(17.5)	2.59(65.8)	0.28(7.1)	0.63(15.9)	0.81(20.6)
1/2	F8-DF-F8-	4.17(106.0)	0.90(22.9)	0.87(22.2)	2.37(60.2)	0.28(7.1)	0.81(20.6)	0.81(20.6)

Metric Tube

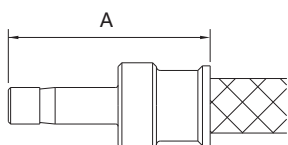
T-Tube O.D. (mm)	Basic Ordering Number	Dimension, in. (mm)						
		L	D	G	H	E	F	Fx
12	M12-DF-M12-	107.0(4.21)	22.8(0.90)	22.0(0.87)	61.7(2.43)	7.1(0.28)	22.0(0.87)	22.0(0.87)

Metal Flexible Hose-MF1 Series

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -325°F to 850°F (-200°C to 454°C)
- ❖ 316L core tube and 304 stainless steel overbraid
- ❖ Hose sizes from 1/4 to 2 in.
- ❖ Standard and custom-length assemblies

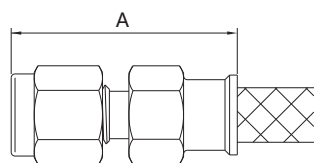


End Connections



Tube Adapters

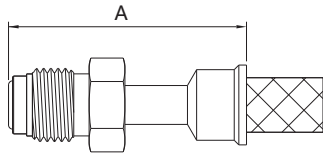
Tube Adapters Size	Nominal Hose Size	End connection Designator	Dimensions		
			A	Minimum Inside Diameter	Minimum Outside Diameter
in.	in.		in.(mm)		
1/4	1/4	FT4	1.76 (44.7)	0.16 (4.1)	0.81 (20.6)
3/8	3/8	FT6	1.82 (46.2)	0.27 (6.9)	1.01 (25.6)
1/2	1/2	FT8	2.22 (56.4)	0.37 (9.4)	1.23 (31.3)
3/4	3/4	FT12	2.35 (59.7)	0.58 (14.7)	1.53 (38.8)
1	1	FT16	2.69 (68.3)	0.80 (20.3)	1.82 (46.3)
mm	in.	—	mm(in.)		
6	1/4	MT6	44.4 (1.75)	4.1 (0.61)	20.6 (0.81)
10	3/8	MT10	47.0 (1.85)	7.1 (0.28)	25.6 (1.01)
12	1/2	MT12	57.2 (2.25)	8.9 (0.35)	21.3 (1.23)



Tube Fittings

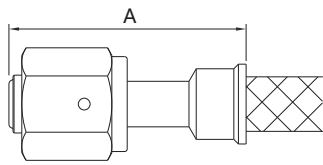
Tube Fitting Size	Nominal Hose Size	End connection Designator	Dimensions		
			A	Minimum Inside Diameter	Minimum Outside Diameter
in.	in.		in.(mm)		
1/4	1/4	F4	1.94 (49.3)	0.19 (4.8)	0.94 (23.8)
3/8	1/4	F6	2.00 (50.8)	0.28 (7.1)	0.94 (23.8)
3/8	3/8	F6	2.02 (51.3)	0.28 (7.1)	1.09 (27.7)
1/2	1/2	F8	2.24 (56.9)	0.41 (10.4)	1.23 (31.3)
5/8	1/2	F10	2.27 (57.7)	0.50 (12.7)	1.23 (31.3)
3/4	3/4	F12	2.35 (59.7)	0.63 (16.0)	1.74 (44.2)
1	1	F16	2.64 (67.1)	0.88 (22.4)	1.82 (46.3)
mm	in.	—	mm(in.)		
6	1/4	M6	62.2 (2.45)	4.8 (0.19)	20.6 (0.81)
8	1/4	M8	63.2 (2.49)	6.4 (0.25)	20.6 (0.81)
10	3/8	M10	51.6 (2.03)	7.9 (0.31)	31.3 (1.23)
12	1/2	M12	56.7(2.24)	9.7 (0.38)	38.8 (1.53)

Male GFS Metal Gasket Face Seal Fittings Swivel



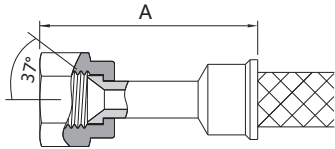
GFS Size	Nominal Hose Size	End connection Designator	Dimensions		
			A	Minimum Inside Diameter	Minimum Outside Diameter
in.	in.		in.(mm)		
1/4	1/4	RGFS4	2.6 (66.6)	0.18 (4.6)	0.81 (20.6)
1/2	1/2	RGFS8	2.83 (71.9)	0.40 (10.2)	1.23 (31.3)
3/4	3/4	RGFS12	4.19 (106)	0.65 (16.5)	1.52 (38.7)
1	1	RGFS16	4.80 (122)	0.87 (22.1)	1.53 (38.8)

Female GFS Metal Gasket Face Seal Fittings Swivel



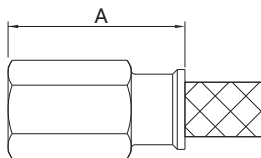
GFS Size	Nominal Hose Size	End connection Designator	Dimensions		
			A	Minimum Inside Diameter	Minimum Outside Diameter
in.	in.		in.(mm)		
1/4	1/4	FGFS4	2.00 (50.8)	0.18 (4.6)	0.87 (22.1)
1/2	1/2	FGFS8	2.16 (54.9)	0.40 (10.2)	1.23 (31.3)
3/4	3/4	FGFS12	4.19 (106)	0.65 (16.5)	1.74 (44.2)
1	1	FGFS16	4.80 (122)	0.87 (22.1)	2.03 (51.6)

SAE 37°(JIC) Female Swivel



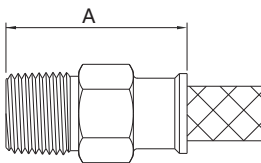
Swivel Size	Nominal Hose Size	End connection Designator	Dimensions		
			A	Minimum Inside Diameter	Minimum Outside Diameter
in.	in.		in.(mm)		
1/4	1/4	SAN4	1.87 (47.5)	0.17 (4.3)	0.81 (20.6)
3/8	3/8	SAN6	1.98 (50.3)	0.28 (7.1)	1.01 (25.6)
1/2	1/2	SAN8	2.25 (57.2)	0.42 (10.7)	1.23 (31.3)

Female Pipe Threads NPT



NPT Size	Nominal Hose Size	End connection Designator	Dimensions		
			A	Minimum Inside Diameter	Minimum Outside Diameter
in.	in.		in.(mm)		
1/4	1/4	FNPT4	1.81 (46.0)	0.28 (7.1)	0.94 (23.9)
3/8	3/8	FNPT6	1.87 (47.5)	0.38 (9.7)	1.09 (27.7)
1/2	1/2	FNPT8	2.18 (55.4)	0.47 (11.9)	1.23 (31.3)
3/4	3/4	FNPT12	2.21 (56.1)	0.72 (18.3)	1.74 (44.2)

Male Pipe Threads NPT



NPT Size	Nominal Hose Size	End connection Designator	Dimensions		
			A	Minimum Inside Diameter	Minimum Outside Diameter
in.	in.		in.(mm)		
1/4	1/4	NPT4	1.80 (45.7)	0.28 (7.1)	0.94 (23.9)
1/4	1/4	NPT4	1.81 (46.0)	0.28 (7.1)	1.09 (27.7)
3/8	3/8	NPT6	1.81 (46.0)	0.38 (9.7)	1.09 (27.7)
1/2	1/2	NPT8	1.99 (50.6)	0.47 (11.9)	1.02 (25.8)
1/2	1/2	NPT8	2.15 (54.6)	0.47 (11.9)	1.23 (31.3)
3/4	3/4	NPT12	2.22 (56.4)	0.63 (16.0)	1.74 (44.2)
1	1	NPT16	2.54 (64.5)	0.88 (22.4)	1.82 (46.3)

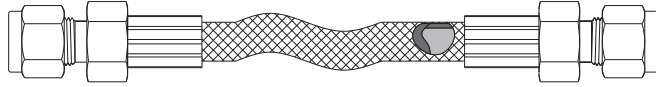
How to Order

MF1 — **6** — **M10** — **NPT4** — **F36** — **316**

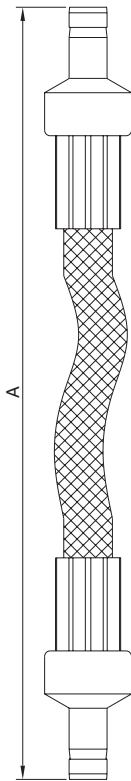
Hose Series	Nominal Hose Size	End Connection 1 Type	End Connection 1 Size	End Connection 2 Type and Size	Overall Length	End Connection Material		
MF1	4 1/4"	FNPT Female NPT	4 1/4 in.	Same as port 1 type and port 1 size If port 2 and port 1 are the same, eliminate the port 2 designator	F** ** in	316 316 S.S.		
	6 3/8"	NPT Male NPT	6 3/8 in. or 6 mm			M** ** mm	304 304 S.S.	
	8 1/2"	FBT Female BSPT	8 1/2 in. or 8 mm					
	12 3/4"	MBT Male BSPT	10 5/8 in. or 10 mm					
	16 1"	MS Male ISO			12 3/4 in. or 12 mm			
			F Fractional Tube Fitting		14 M14 x 1.5			
		M Metric Tube Fitting			16 1 in. or 16 mm			
			FT Fractional Tube Adapter		18 M18 x 1.5			
		MT Metric Tube Adapter			20 M20 x 1.5			
			SAN Swivel Female SAE 37° (JIC)					
		SFMS Female ISO Swivel						
		SBGS Female BSPP Swivel						
	RGFS Rotatable Male GFS Metal							
	FGFS Female GFS Metal							

PTFE-Lined Hose-PH1 Series

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -65°F to 400°F (-54°C to 204°C)
- ❖ PTFE core tube and woven 304 stainless steel wire mesh
- ❖ Hose sizes from 3/16 to 7/8 in.
- ❖ Standard and custom-length assemblies



PTFE-lined Hose Standard Assemblies



Tube Adapters

Tube OD in.	Nominal Hose Size	Min. ID in.(mm)	Max. OD in.(mm)	A	Ordering Number
				in. (mm)	
1/4	3/16	0.16 (4.1)	0.54 (13.7)	6.0 (153)	PH1-4-FT4-F6-
				12.0 (305)	PH1-4-FT4-F12-
				18.0 (458)	PH1-4-FT4-F18-
				24.0 (610)	PH1-4-FT4-F24-
				36.0 (915)	PH1-4-FT4-F36-
				48.0 (1220)	PH1-4-FT4-F48-
				60.0 (1530)	PH1-4-FT4-F60-
				72.0 (1829)	PH1-4-FT4-F72-
3/8	5/16	0.27 (6.9)	0.73 (18.5)	12.0 (305)	PH1-6-FT6-F12-
				18.0 (458)	PH1-6-FT6-F18-
				24.0 (610)	PH1-6-FT6-F24-
				36.0 (915)	PH1-6-FT6-F36-
				48.0 (1220)	PH1-6-FT6-F48-
				60.0 (1530)	PH1-6-FT6-F60-
				72.0 (1829)	PH1-6-FT6-F72-
				96.0 (2439)	PH1-6-FT6-F96-
1/2	13/32	0.36 (9.1)	0.86 (21.8)	12.0 (305)	PH1-8-FT8-F12-
				24.0 (610)	PH1-8-FT8-F24-
				36.0 (915)	PH1-8-FT8-F36-
				48.0 (1220)	PH1-8-FT8-F48-
				60.0 (1530)	PH1-8-FT8-F60-
3/4	5/8	0.53 (13.5)	1.04 (26.4)	24.0 (610)	PH1-12-FT12-F24-
				36.0 (915)	PH1-12-FT12-F36-
				1	7/8
48.0 (1220)	PH1-16-FT16-F48-				
mm — mm mm —					
6	3/16	0.16 (4.1)	0.54 (13.7)	12.0 (305)	PH1-4-MT6-F12-
				24.0 (610)	PH1-4-MT6-F24-
				36.0 (915)	PH1-4-MT6-F36-
12	13/32	0.36 (9.1)	0.86 (21.8)	24.0 (610)	PH1-8-MT12-F24-
				36.0 (915)	PH1-8-MT12-F36-

How to Order

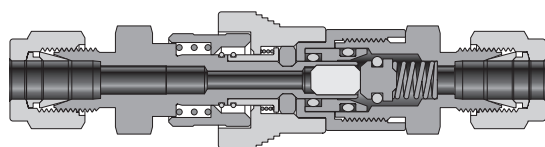
PH1 — 6 — M10 — NPT4 — F36 — 316

Hose Series	Nominal Hose Size	End Connection 1 Type	End Connection 1 Size	End Connection 2 Type and Size	Overall Length	End Connection Material
PH1	4 3/16"	FNPT Female NPT	4 1/4in.	Same as End 1	F** ** in	316 316 S.S.
	6 5/16"	NPT Male NPT	6 3/8in. or 6 mm		M** ** mm	304 304 S.S.
	8 13/32"	FBT Female BSPT	8 1/2in. or 8 mm			
	12 5/8"	MBT Male BSPT	10 5/8 in. or 10 mm			
	16 7/8"	MS Male ISO	12 3/4in. or 12 mm			
		F Fractional Tube Fitting	14 M14 x 1.5			
		M Metric Tube Fitting	16 1 in. or 16 mm			
		FT Fractional Tube Adapter	18 M18 x 1.5			
		MT Metric Tube Adapter	20 M20 x 1.5			
		SAN Swivel Female SAE 37° (JIC)				
		SFMS Female ISO Swivel				
		SBGS Female BSPP Swivel				
		RGFS Rotatable Male GFS Metal				
		FGFS Female GFS Metal				

Quick-Connects-QC1 Series

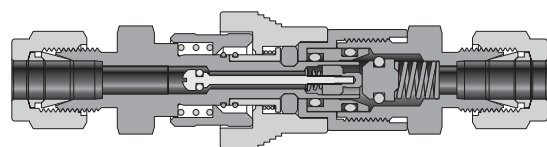
- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Push to connect and pull on knurled sleeve to disconnect enables easy operation
- ❖ Minimal spillage upon disconnect and minimal air inclusion upon connect
- ❖ Materials: stainless steel or brass
- ❖ Wide range of seal materials available
- ❖ Single-end shutoff and double-end shutoff stems
- ❖ Large number of Superior locking balls retains stem
- ❖ Interchangeable and intermixable with major

Single-end Shutoff (SESO)



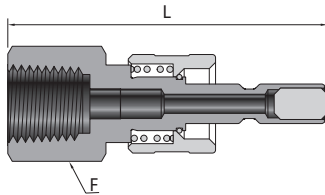
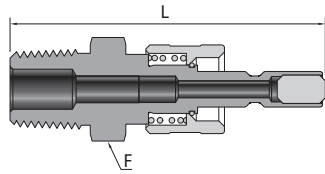
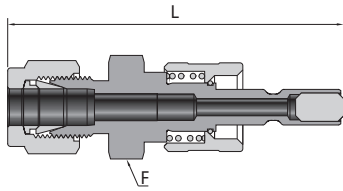
← Flow Direction ←

Double-end Shutoff (DESO)



← Flow Direction ←

Single-End Shutoff Stems (SESO)



Tube Fitting

Tube Size in.	Basic Ordering Number	Flow Coefficient (Cv)	F	L
			in.	in. (mm)
1/8	QC1-4-F2-S-	0.08	5/8	2.32 (58.9)
1/4	QC1-4-F4-S-	0.3	5/8	2.36 (59.9)
3/8	QC1-6-F6-S-	1.0	3/4	2.52 (64.0)
1/2	QC1-8-F8-S-	2.4	15/16	2.96 (75.2)
mm			mm	mm (in.)
6	QC1-4-M6-S-	0.3	16	59.9 (2.36)
10	QC1-6-M10-S-	1.0	19	67.3 (2.65)
12	QC1-8-M12-S-	2.4	24	75.2 (2.96)

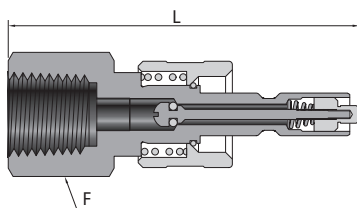
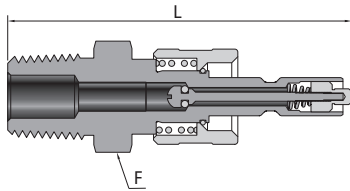
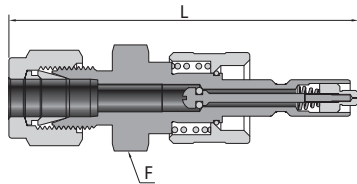
Male NPT

NPT Size	Basic Ordering Number	Flow Coefficient (Cv)	F	L
			in.	in. (mm)
1/8	QC1-4-NPT2-S-	0.3	5/8	2.07 (52.6)
1/4	QC1-4-NPT4-S-	0.3	5/8	2.22 (56.4)
1/4	QC1-6-NPT4-S-	0.8	3/4	2.32 (58.9)
3/8	QC1-6-NPT6-S-	0.8	3/4	2.35 (59.7)
1/2	QC1-8-NPT8-S-	2.0	15/16	2.84 (72.1)

Female NPT

NPT Size	Basic Ordering Number	Flow Coefficient (Cv)	F	L
			in.	in. (mm)
1/8	QC1-4-FNPT2-S-	0.3	5/8	2.01 (51.1)
1/4	QC1-4-FNPT4-S-	0.3	3/4	2.26 (57.4)
1/4	QC1-6-FNPT4-S-	0.8	3/4	2.35 (59.7)
3/8	QC1-6-FNPT6-S-	0.8	7/8	2.35 (59.7)
1/2	QC1-8-FNPT8-S-	2.0	1 1/16	2.82 (71.6)

Double-End Shutoff Stems (DESO)



Tube Fitting

Tube Size in.	Basic Ordering Number	Flow Coefficient (Cv)	F	L
			in.	in. (mm)
1/8	QC1-4-F2-D-	0.08	5/8	2.77 (70.4)
1/4	QC1-4-F4-D-	0.2	5/8	2.42 (61.5)
3/8	QC1-6-F6-D-	0.5	3/4	2.64 (67.1)
1/2	QC1-8-F8-D-	1.5	15/16	3.16 (80.3)
mm			mm	mm (in.)
6	QC1-4-M6-D-	0.2	16	61.5 (2.42)
10	QC1-6-M10-D-	0.5	19	70.4 (2.77)
12	QC1-8-M12-D-	1.5	24	80.3 (3.16)

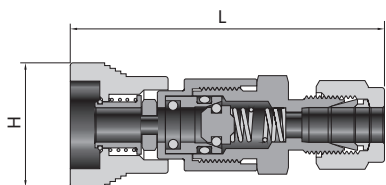
Male NPT

NPT Size	Basic Ordering Number	Flow Coefficient (Cv)	F	L
			in.	in. (mm)
1/8	QC1-4-NPT2-D-	0.2	5/8	2.13 (54.1)
1/4	QC1-4-NPT4-D-	0.2	5/8	2.28 (57.8)
1/4	QC1-6-NPT4-D-	0.5	3/4	2.44 (61.9)
3/8	QC1-6-NPT6-D-	0.5	3/4	2.47 (62.7)
1/2	QC1-8-NPT8-D-	1.3	15/16	3.04 (77.2)

Female NPT

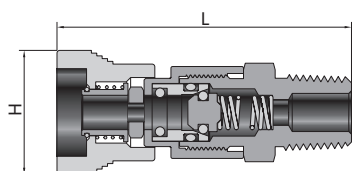
NPT Size	Basic Ordering Number	Flow Coefficient (Cv)	F	L
			in.	in. (mm)
1/8	QC1-4-FNPT2-D-	0.2	5/8	2.07 (52.6)
1/4	QC1-4-FNPT4-D-	0.2	3/4	2.32 (58.9)
1/4	QC1-6-FNPT4-D-	0.5	3/4	2.47 (62.7)
3/8	QC1-6-FNPT6-D-	0.5	7/8	2.47 (62.7)
1/2	QC1-8-FNPT8-D-	1.3	1 1/16	3.04 (77.2)

Bodies



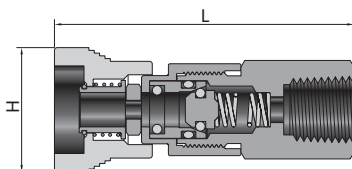
Tube Fitting

Tube Size in.	Basic Ordering Number	H in. (mm)	L in. (mm)
1/8	QC1-4-F2-B-	0.91 (23.1)	2.26 (57.4)
1/4	QC1-4-F4-B-	0.91 (23.1)	2.30 (58.4)
3/8	QC1-6-F6-B-	1.03 (26.2)	2.58 (65.5)
1/2	QC1-8-F8-B-	1.21 (30.7)	3.09 (78.5)
mm	—	mm (in.)	mm (in.)
6	QC1-4-M6-B-	23.1 (0.91)	58.4 (2.30)
10	QC1-6-M10-B-	26.2 (1.03)	68.1 (2.68)
12	QC1-8-M12-B-	30.7 (1.21)	78.5 (3.09)



Male NPT

NPT Size	Basic Ordering Number	H in. (mm)	L in. (mm)
1/8	QC1-4-NPT2-B-	0.91 (23.1)	2.01 (51.1)
1/4	QC1-4-NPT4-B-	0.91 (23.1)	2.16 (54.9)
1/4	QC1-6-NPT4-B-	1.03 (26.2)	2.38 (60.5)
3/8	QC1-6-NPT6-B-	1.03 (26.2)	2.38 (60.5)
1/2	QC1-8-NPT8-B-	1.21 (30.7)	2.97 (75.4)



Female NPT

NPT Size	Basic Ordering Number	H in. (mm)	L in. (mm)
1/8	QC1-4-FNPT2-B-	0.91 (23.1)	2.16 (54.9)
1/4	QC1-4-FNPT4-B-	0.91 (23.1)	2.42 (61.5)
1/4	QC1-6-FNPT4-B-	1.03 (26.2)	2.54 (65.4)
3/8	QC1-6-FNPT6-B-	1.03 (26.2)	2.57 (65.3)
1/2	QC1-8-FNPT8-B-	1.21 (30.7)	3.22 (81.8)

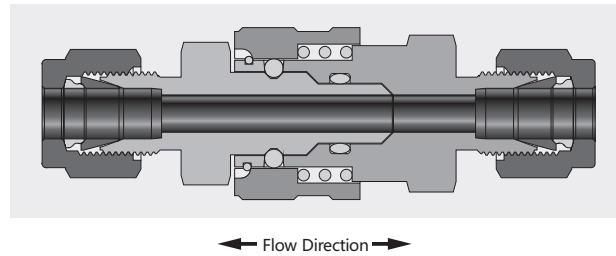
How to Order

QC1 — 6 — M10 — BD — 316

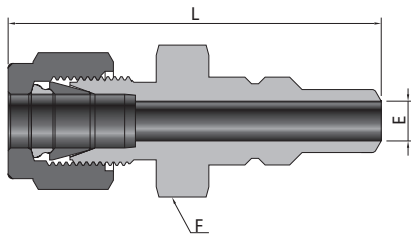
Series	Size	End Connection Type	End Connection Size	Stem or Body	Body Material	
QC1	4	FNPT	Female NPT	4 1/4 in.	S Stem without valve remains open when uncoupled	316 316 S.S.
		NPT	Male NPT	6 3/8 in. or 6 mm		316L 316L S.S.
	6	FBT	Female BSPT	8 1/2 in. or 8 mm	D Stem with valve shuts off when uncoupled	304 304 S.S.
		MBT	Male BSPT	10 5/8 in. or 10 mm		304L 304L S.S.
	8	MS	Male ISO 261	12 3/4 in. or 12 mm	B Body with valve	BR Brass
		F	Fractional Tube Fitting	14 M14 x 1.5		
		M	Metric Tube Fitting	16 1 in. or 16 mm		
		FT	Fractional Tube Adapter	18 M18 x 1.5		
		MT	Metric Tube Adapter	20 M20 x 1.5		
		BS	Stem without valve + Body with valve			
		BD	Stem with valve + Body with valve			

Quick-Connects-QC2 Series

- ❖ Full flow without orifice restrictions
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ O-ring is easily replaced without disassembling body
- ❖ Stainless steel and brass

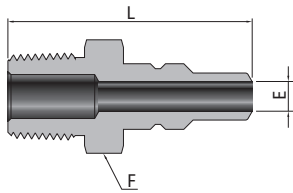


Stems



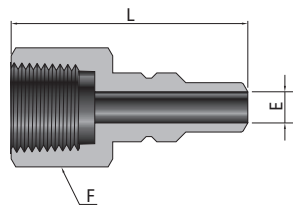
Tube Fitting

Tube Size in.	Basic Ordering Number	Flow Coefficient (Cv)	E	F	L
			in. (mm)	in.	in. (mm)
1/4	QC2-4-F4-S-	2.2	0.19 (4.8)	9/16	1.77 (45.0)
3/8	QC2-4-F6-S-	2.8	0.24 (6.1)	11/16	1.77 (45.0)
3/8	QC2-8-F6-S-	2.8	0.28 (7.1)	7/8	1.88 (47.8)
1/2	QC2-8-F8-S-	13.0	0.41 (10.4)	7/8	1.99 (50.5)
3/4	QC2-12-F12-S-	26.0	0.62 (15.7)	1 1/16	2.15 (54.6)
1	QC2-16-F16-S-	45.0	0.88 (22.4)	1 3/8	2.45 (62.2)
mm	Basic Ordering Number	Flow Coefficient (Cv)	(mm) in.	mm	(mm) in.
6	QC2-4-M6-S-	2.2	4.8 (0.19)	15	45.0 (1.77)
10	QC2-8-M10-S-	2.8	7.1 (0.28)	22	48.5 (1.91)
12	QC2-8-M12-S-	13.0	9.5 (0.37)	22	51.3 (2.02)
20	QC2-12-M20-S-	26.0	15.7 (0.62)	30	54.6 (2.15)
25	QC2-16-M25-S-	45.0	22.4 (0.88)	36	63.5 (2.50)



Male NPT

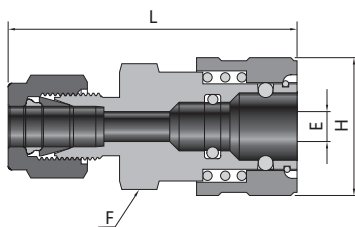
NPT Size	Basic Ordering Number	Flow Coefficient (Cv)	E	F	L
			in. (mm)	in.	in. (mm)
1/4	QC2-4-NPT4-S-	1.7	0.24 (6.1)	9/16	1.59 (40.4)
3/8	QC2-4-NPT6-S-	1.7	0.24 (6.1)	11/16	1.59 (40.4)
3/8	QC2-8-NPT6-S-	7.1	0.41 (10.4)	7/8	1.65 (41.9)
1/2	QC2-8-NPT8-S-	11.5	0.50 (12.7)	7/8	1.84 (46.7)
3/4	QC2-12-NPT12-S-	23.6	0.72 (18.3)	1 1/16	2.03 (51.6)
1	QC2-16-NPT16-S-	39.0	0.88 (22.4)	1 3/8	2.35 (59.7)



Female NPT

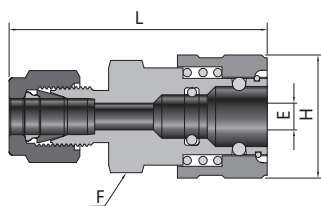
NPT Size	Basic Ordering Number	Flow Coefficient (Cv)	E	F	L
			in. (mm)	in.	in. (mm)
1/4	QC2-4-FNPT4-S-	1.7	0.24 (6.1)	3/4	1.60 (40.6)
3/8	QC2-4-FNPT6-S-	1.7	0.24 (6.1)	7/8	1.67 (42.4)
3/8	QC2-8-FNPT6-S-	7.1	0.41 (10.4)	1 1/16	1.59 (40.4)
1/2	QC2-8-FNPT8-S-	11.5	0.50 (12.7)	1 1/16	1.82 (46.2)
3/4	QC2-12-FNPT12-S-	23.6	0.72 (18.3)	1 5/16	2.08 (52.8)
1	QC2-16-FNPT16-S-	39.0	0.88 (22.4)	1 5/8	2.49 (63.2)

Bodies



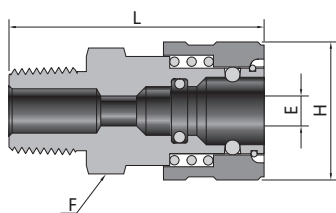
Tube Fitting

Tube Size in.	Basic Ordering Number	E	F	H	L
		in. (mm)	in.	in. (mm)	in. (mm)
1/4	QC2-4-F4-B-	0.19 (4.8)	11/16	0.87 (22.1)	1.80 (45.7)
3/8	QC2-4-F6-B-	0.28 (7.1)	11/16	0.87 (22.1)	1.81 (46.0)
3/8	QC2-8-F6-B-	0.28 (7.1)	1 1/16	1.30 (33.0)	2.17 (55.1)
1/2	QC2-8-F8-B-	0.47 (11.9)	1 1/16	1.30 (33.0)	2.23 (56.6)
3/4	QC2-12-F12-B-	0.62 (15.7)	1 1/2	1.66 (42.2)	2.45 (62.2)
1	QC2-16-F16-B-	0.88 (22.4)	1 11/16	1.88 (47.8)	2.75 (69.9)



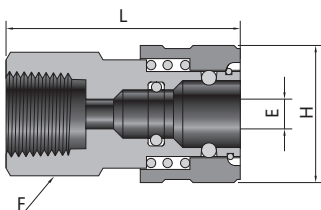
Tube Fitting

mm	Basic Ordering Number	E	F	H	L
		in. (mm)	in.	in. (mm)	in. (mm)
6	QC2-4-M6-B-	4.8 (0.19)	18	22.1 (0.87)	45.7 (1.80)
10	QC2-8-M10-B-	7.1 (0.28)	27	33.0 (1.30)	55.9 (2.20)
12	QC2-8-M12-B-	10.4 (0.41)	27	33.0 (1.30)	57.4 (2.26)
20	QC2-12-M20-B-	15.9 (0.63)	38	42.2 (1.66)	63.5 (2.50)
25	QC2-16-M25-B-	21.8 (0.86)	46	47.8 (1.88)	70.0 (2.76)



Male NPT

NPT Size	Basic Ordering Number	E	F	H	L
		in. (mm)	in.	in. (mm)	in. (mm)
1/4	QC2-4-NPT4-B-	0.25 (6.4)	11/16	0.87 (22.1)	1.57 (39.9)
3/8	QC2-4-NPT6-B-	0.37 (9.4)	11/16	0.87 (22.1)	1.57 (39.9)
3/8	QC2-8-NPT6-B-	0.41 (10.4)	1 1/16	1.30 (33.0)	1.83 (46.5)
1/2	QC2-8-NPT8-B-	0.50 (12.7)	1 1/16	1.30 (33.0)	2.08 (52.8)
3/4	QC2-12-NPT12-B-	0.72 (18.3)	1 1/2	1.66 (42.2)	2.33 (59.2)
1	QC2-16-NPT16-B-	0.88 (22.4)	1 11/16	1.88 (47.8)	2.65 (67.3)



Female NPT

NPT Size	Basic Ordering Number	E	F	H	L
		in. (mm)	in.	in. (mm)	in. (mm)
1/4	QC2-4-FNPT4-B-	0.38 (9.7)	3/4	0.87 (22.1)	1.50 (38.1)
3/8	QC2-4-FNPT6-B-	0.38 (9.7)	7/8	0.87 (22.1)	1.63 (41.4)
3/8	QC2-8-FNPT6-B-	0.59 (15.0)	1 1/16	1.30 (33.0)	1.73 (43.9)
1/2	QC2-8-FNPT8-B-	0.63 (16.0)	1 1/16	1.30 (33.0)	1.73 (43.9)
3/4	QC2-12-FNPT12-B-	0.88 (22.4)	1 1/2	1.66 (42.2)	1.89 (48.0)
1	QC2-16-FNPT16-B-	1.06 (26.9)	1 11/16	1.88 (47.8)	2.12 (53.8)

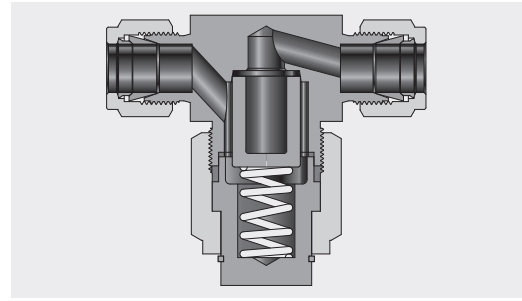
How to Order

QC2 — 8 — F8 — BS — 316

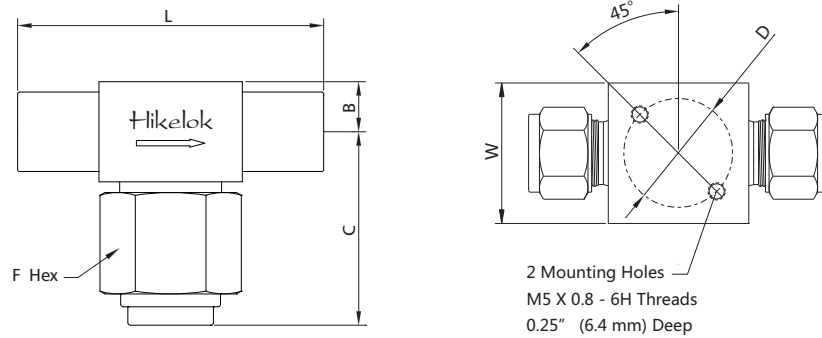
Series	Size	End Connection Type	End Connection Size	Stem or Body	Body Material
QC2	4	FNPT Female NPT	4 1/4 in.	S Stem	316 316 S.S.
	8	NPT Male NPT	6 3/8 in. or 6 mm	B Body	316L 316L S.S.
	12	FBT Female BSPT	8 1/2 in. or 8 mm	BS Stem + Body	304 304 S.S.
	16	MBT Male BSPT	10 5/8 in. or 10 mm		304L 304L S.S.
		MS Male ISO 261 (for BG)	12 3/4 in. or 12 mm		BR Brass
		F Fractional Tube Fitting	14 M14 x 1.5		
		M Metric Tube Fitting	16 1 in. or 16 mm		
		FT Fractional Tube Adapter			
		MT Metric Tube Adapter			

Filter-F1 Series

- ❖ Filter element replaceable without removing body filter from installation
- ❖ Optional bypass enables a continuous self cleaning flow around the element
- ❖ Nominal pore sizes for sintered element: 0.5, 2, 7, 15, 40, 60 and 90 µm
- ❖ Nominal pore sizes for strainer element: 100, 150, 250 and 450 µm
- ❖ Maximum working pressure up to 6000 psig (414 bar)
- ❖ Working temperature from -20°F to 900°F (-28°C to 482°C)
- ❖ Stainless steel and brass construction
- ❖ Variety of end connections



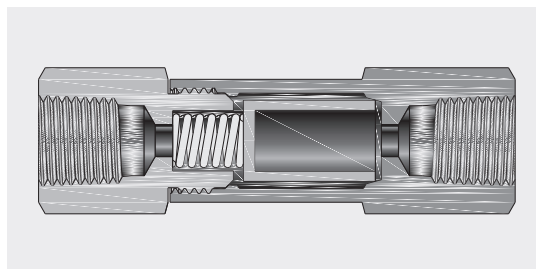
Dimensions



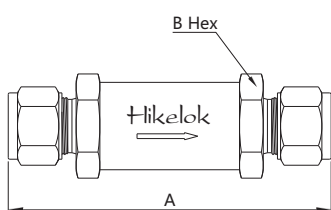
Basic Ordering Number	Connection Type and Size	Orifice in.(mm)	Filter Series	Dimension, in. (mm)					
				L	B	C	ΦD	W	F
F1-F2-	1/8" Hikelok	0.094 (2.39)	4	2.27 (57.7)	0.38 (9.7)	1.49 (37.8)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
F1-F4-	1/4" Hikelok	0.174 (4.41)	4	2.47 (62.7)					
F1-F6-	3/8" Hikelok	0.213 (5.41)	8	2.84 (72.1)	0.46 (11.7)	1.74 (44.2)	1.13 (28.7)	1.13 (28.7)	1 1/8 (28.6)
F1-F8-	1/2" Hikelok	0.250 (6.35)	8	3.04 (77.2)	0.53 (13.5)	1.81 (46.0)			
F1-M6-	6 mm Hikelok	0.174 (4.41)	4	2.46 (62.5)	0.38 (9.7)	1.49 (37.8)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
F1-M8-	8 mm Hikelok	0.213 (5.41)	8	2.84 (72.1)	0.46 (11.7)	1.74 (44.2)	1.13 (28.7)	1.13 (28.7)	1 1/8 (28.6)
F1-M10-	10 mm Hikelok	0.250 (6.35)	8	2.86 (72.6)					
F1-M12-	12 mm Hikelok	0.250 (6.35)	8	3.04 (77.2)	0.53 (13.5)	1.81 (46.0)			
F1-FSW4-	1/4" FSW	0.174 (4.41)	4	1.68 (42.7)	0.38 (9.7)	1.49 (37.8)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
F1-FSW6-	3/8" FSW	0.174 (4.41)	4						
F1-FBW4-	1/4" FBW	0.174 (4.41)	4						
F1-FBW6-	3/8" FBW	0.174 (4.41)	4						
F1-FNPT2-	1/8 Female NPT	0.094 (2.39)	4	2.00 (50.8)					
F1-FNPT4-	1/4 Female NPT	0.174 (4.41)	4	2.13 (54.1)					
F1-NPT4-	1/4 Male NPT	0.174 (4.41)	4		0.46 (11.7)	1.74 (44.2)			
F1-NPT6-	3/8 Male NPT	0.213 (5.41)	8	2.38 (60.5)	0.53 (13.5)	1.81 (46.0)	1.13 (28.7)	1.13 (28.7)	1 1/8 (28.6)
F1-NPT8-	1/2 Male NPT	0.250 (6.35)	8	2.75 (69.9)	0.63 (16.0)	1.91 (48.5)			
F1-GFS4-	1/4 Male GFS	0.174 (4.41)	4	2.30 (58.4)	0.38 (9.7)	1.49 (37.8)	1.00 (25.4)	1.00 (25.4)	1 (25.4)
F1-GFS8-	1/2 Male GFS	0.250 (6.35)	8	2.55 (64.8)	0.46 (11.7)	1.74 (44.2)	1.13 (28.7)	1.13 (28.7)	1 1/8 (28.6)

Filter-F2 Series

- ❖ Compact inline design
- ❖ Nominal pore sizes for sintered element: 0.5, 2, 7, 15, 40, 60 and 90 µm
- ❖ Nominal pore sizes for strainer element: 100, 150, 250 and 450 µm
- ❖ Maximum working pressure up to 3000 psig (207 bar)
- ❖ Working temperature from -20°F to 900°F (-28°C to 482°C)
- ❖ Body materials: 316 S.S. 316L S.S. 304 S.S. 304L S.S. 321 S.S. and Brass
- ❖ Variety of end connections



Dimensions



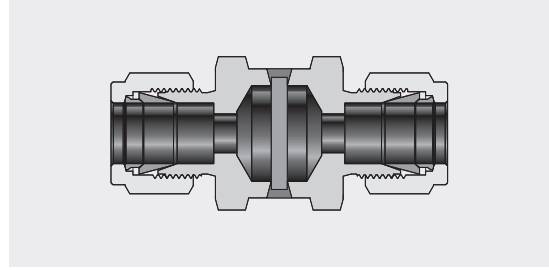
Basic Ordering Number	Connection Type and Size	Orifice in.(mm)	Filter Series	Dimension, in. (mm)	
				A	B
F2-F2-	1/8" Hikelok	0.094 (2.39)	2	2.35 (59.7)	9/16 (14.3)
F2-F4-	1/4" Hikelok	0.187 (4.75)	4	2.95 (74.9)	3/4 (19.0)
F2-F6-	3/8" Hikelok	0.281 (7.14)	8	3.21 (81.5)	1 (25.4)
F2-F8-	1/2" Hikelok	0.406 (10.3)	8	3.49 (88.6)	
F2-M3-	3 mm Hikelok	0.094 (2.39)	2	2.38 (60.5)	9/16 (14.3)
F2-M6-	6 mm Hikelok	0.187 (4.75)	4	2.96 (75.2)	3/4 (19.0)
F2-FNPT2-	1/8 Female NPT	0.094 (2.39)	2	2.16 (54.9)	9/16 (14.3)
F2-FNPT4-	1/4 Female NPT	0.187 (4.75)	4	2.87 (72.9)	3/4 (19.0)
F2-NPT2-	1/8 Male NPT	0.094 (2.39)	2	1.88 (47.7)	9/16 (14.3)
F2-NPT4-	1/4 Male NPT	0.187 (4.75)	4	2.69 (68.3)	3/4 (19.0)
F2-GFS2-	1/8 Male GFS	0.094 (2.39)	2	2.79 (70.8)	
F2-GFS4-	1/4 Male GFS	0.187 (4.75)	4		

How to Order

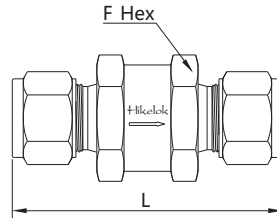
Filter Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Element Type	Element Nominal Pore Size	Bypass Port for F1	Body Material
F1	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		S Sintered	05 0.5µm	None	316 316 S.S.
F2	NPT Male NPT	4 1/4 in.			If outlet and inlet are the same, eliminate the outlet designator	T Strainer	2 2µm	B4 FNPT4
	FBT Female BSPT	6 3/8 in. or 6 mm	7 7µm	B8 FNPT8		304 304 S.S.		
	MBT Male BSPT	8 1/2 in. or 8 mm	15 15µm			304L 304L S.S.		
	FMS Female ISO 261	10 10 mm	40 40µm			BR Brass		
	MS Male ISO 261	12 3/4 in. or 12 mm	60 60µm					
	FBP Female BSPP	14 14 mm M14 x 1.5	90 90µm					
	MBP Male BSPP	16 1 in. or 16 mm	100 100µm					
	F Fractional Tube Fitting	18 18 mm	150 150µm					
	M Metric Tube Fitting	20 1 1/4 in. or 20 mm	250 250µm					
	FSW Fractional Tube Socket Weld	22 22 mm or M22 x 1.5	450 450µm					
	FBW Fractional Tube Butt Weld							
	GFS Male GFS Fitting	25 25 mm						

Filter-F3 Series

- ❖ All-welded construction prevents bypass flow
- ❖ Large filtration area
- ❖ Inline filters are for use where space is limited
- ❖ Filter is easily cleaned by backflushing
- ❖ Sintered element is available in 0.5, 2, 7, 15, 40, 60 and 90 µm
- ❖ Maximum working pressure: 6000 psig (414 bar)
- ❖ Working temperature from -40°F to 900°F (-40°C to 482°C)
- ❖ Body materials: 316 S.S. 316L S.S. 304 S.S. and 304L S.S.
- ❖ Variety of end connections available



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Dimension, in. (mm)	
			L	F
F3-F4-	1/4" Hikelok	0.187(4.75)	2.15(54.6)	1 (25.4)
F3-M6-	6 mm Hikelok			
F3-FNPT4-	1/4 Female NPT	0.453(11.5)	1.57(39.9)	
F3-NPT4-	1/4 Male NPT	0.281(7.14)	1.89(48.0)	
F3-GFS4-	1/4 Male GFS	0.187(4.75)	2.04(51.8)	
F3-F6-	3/8" Hikelok	0.187(4.75)	2.35(59.7)	1 1/4 (31.75)
F3-M8-	8 mm Hikelok			
F3-FNPT6-	3/8 Female NPT	0.453(11.5)	2.15(54.6)	
F3-NPT6-	3/8 Male NPT	0.281(7.14)	2.09(53.1)	
F3-GFS6-	3/8 Male GFS	0.187(4.75)	2.21(56.1)	
F3-F8-	1/2" Hikelok	0.187(4.75)	3.17(80.5)	1 3/8 (34.93)
F3-M10-	10 mm Hikelok			
F3-FNPT8-	1/2 Female NPT	0.453(11.5)	2.98(75.7)	
F3-NPT8-	1/2 Male NPT	0.281(7.14)	2.78(70.6)	
F3-GFS8-	1/2 Male GFS	0.187(4.75)	2.98(75.7)	
F3-F12-	3/4" Hikelok	0.187(4.75)	3.42(86.9)	1 5/8 (41.28)
F3-M18-	18 mm Hikelok			
F3-FNPT12-	3/4 Female NPT	0.453(11.5)	3.58(90.9)	
F3-NPT12-	3/4 Male NPT	0.281(7.14)	3.16(80.3)	
F3-F16-	1" Hikelok	0.453(11.5)	4.32(110)	
F3-FNPT16-	1 Female NPT	0.281(7.14)	4.08(104)	
F3-NPT16-	1 Male NPT			

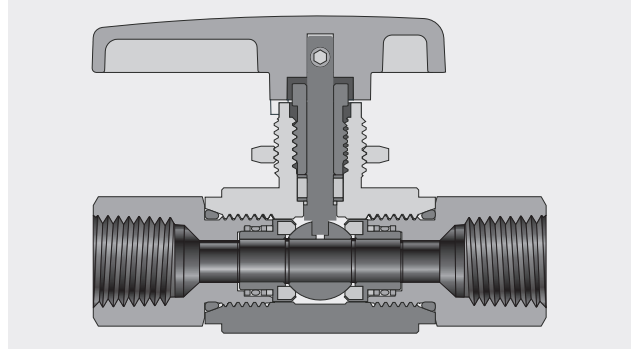
How to Order

F3 — F6 — M10 — S90 — 316

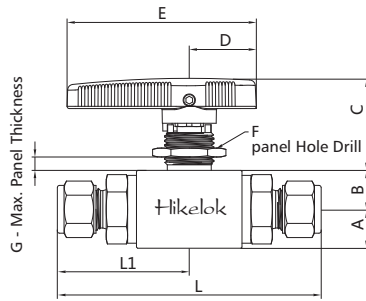
Filter Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Element Type	Element Nominal Pore Size	Body Material
F3	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		S Sintered	05 0.5µm	316 316 S.S.
	NPT Male NPT	4 1/4 in.				2 2µm	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator			7 7µm	304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm				15 15µm	304L 304L S.S.
	FMS Female ISO 261	10 10 mm				40 40µm	
	MS Male ISO 261	12 3/4 in. or 12 mm				60 60µm	
	FBP Female BSPP	14 14 mm M14 x 1.5				90 90µm	
	MBP Male BSPP	16 1 in. or 16 mm					
	F Fractional Tube Fitting	18 18 mm					
	M Metric Tube Fitting	20 1 1/4 in. or 20 mm					
	FSW Fractional Tube Socket Weld	22 22 mm or M22 x1.5					
	FBW Fractional Tube Butt Weld	25 25 mm					
	GFS Male GFS Fitting						

Ball Valves-BV1 Series

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 450°F (-54°C to 232°C)
- ❖ 2-way, 3-way and angle flow pattern
- ❖ Field repairable with seal kit
- ❖ Low operating torque
- ❖ Panel mountable
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections
- ❖ Color coded handles



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)																	
				L	L1	A	B	C	D	E	F	G									
BV1-F2-02-	1/8" Hikelok	0.093 (2.4)	0.21	2.72 (69.1)	1.36 (34.5)																
BV1-M3-02-	3 mm Hikelok			2.74 (69.6)	1.37 (34.8)																
BV1-FNPT2-04-	1/8 Female NPT	0.165 (4.2)	0.93	2.14 (54.4)	1.07 (27.2)	0.33 (8.4)	0.33 (8.4)	1.00 (25.4)	1.16 (29.5)	1.88 (47.8)	0.58 (14.7)	0.18 (4.6)									
BV1-NPT2-04-	1/8 Male NPT			2.36 (60.0)	1.18 (30.0)																
BV1-NPT4-04-	1/4 Male NPT			2.70 (68.6)	1.35 (34.3)																
BV1-F4-05-	1/4" Hikelok	0.187 (4.7)	1.05	3.48 (88.4)	1.74 (44.2)																
BV1-M6-05-	6 mm Hikelok			3.50 (89.0)	1.75 (44.5)																
BV1-F6-06-	3/8" Hikelok	0.250 (6.4)	2.34	3.60 (91.4)	1.80 (45.7)	0.42 (10.7)	0.47 (11.9)	1.48 (37.5)	0.75 (19.05)	2.52 (64.0)	0.77 (19.6)	0.25 (6.4)									
BV1-M8-06-	8 mm Hikelok			3.56 (90.4)	1.78 (45.2)																
BV1-M10-06-	10 mm Hikelok			3.62 (92.0)	1.81 (46.0)																
BV1-FNPT4-06	1/4 Female NPT			3.02 (76.8)	1.51 (38.4)																
BV1-NPT4-06	1/4 Male NPT			3.24 (82.2)	1.62 (41.1)																
BV1-NPT6-06-	3/8 Male NPT																				
BV1-F8-10-	1/2" Hikelok	0.406 (10.3)	6.42	4.68 (118.8)	2.34 (59.4)	0.69 (17.5)	0.70 (17.8)	1.71 (43.5)	1.42 (36.0)	4.0 (101.6)	0.90 (22.9)	0.38 (9.7)									
BV1-M12-10-	12 mm Hikelok			4.66 (118.4)	2.33 (59.2)																
BV1-M14-10-	14 mm Hikelok																				
BV1-M16-10-	16 mm Hikelok			3.90 (99.0)	1.95 (49.5)																
BV1-M18-10-	18 mm Hikelok																				
BV1-FNPT6-10-	3/8 Female NPT			4.30 (109.2)	2.15 (54.6)								0.69 (17.5)	0.70 (17.8)							
BV1-FNPT8-10-	1/2 Female NPT																				
BV1-NPT8-10-	1/2 Male NPT														4.44 (112.8)	2.22 (56.4)					
BV1-F12-13-	3/4" Hikelok			0.50 (12.7)	10.0								4.80 (122)	2.15 (61)	0.75 (19.0)	0.75 (19.0)	1.78 (45.2)	1.58 (40.0)	4.58 (116.2)	1.26 (32.0)	0.38 (9.7)
BV1-M20-13-	20 mm Hikelok												4.12 (105)	2.06 (52.3)							
BV1-M22-13-	22 mm Hikelok																				
BV1-FNPT12-13-	3/4 Female NPT	4.57 (116)	2.28 (58.0)																		
BV1-NPT12-13-	3/4 Male NPT																				

How to Order

Series	Port 1 Type	Port 1 Size	Port 2/3 Port 2/3 Type Size	Seat Material	Orifice Size	Handle	Flow pattern	Body Material
BV1	FNPT	Female NPT	2 1/8 in.	Same as port 1 type and port 2 size If port 2/3 and port 1 are the same, eliminate the port 2/3 designator	P PEEK K PCTFE T PTFE	02 0.093 in. (2.4 mm) 03 0.125 in. (3.2 mm) 04 0.165 in. (4.2 mm) 05 0.187 in. (4.7 mm) 06 0.250 in. (6.4 mm) 10 0.406 in. (10.3 mm) 13 0.5 in. (12.7 mm)	Straight A Angle 3 3-way	316 316 S.S. 316L 316L S.S. 304 304 S.S. 304L 304L S.S. A400 Alloy 400 BR Brass
	NPT	Male NPT	3 3 mm					
	FBT	Female BSPT	4 1/4 in.					
	MBT	Male BSPT	5 5/16 in.					
	FMS	Female ISO 261	6 3/8 in. or 6 mm					
	MS	Male ISO 261	8 1/2 in. or 8 mm					
	FBP	Female BSPP	10 10 mm					
	MBP	Male BSPP	12 3/4 in. or 12 mm					
	F	Fractional Tube Fitting	14 14 mm					
	M	Metric Tube Fitting	16 1 in. or 16 mm					
	UGF	Nut + Gasket + Bulge Fractional Tube Nipple	18 18 mm					
	UGM	Nut + Gasket + Metric Tube Bulge Nipple	20 20 mm					
			22 22 mm					

316

Y3

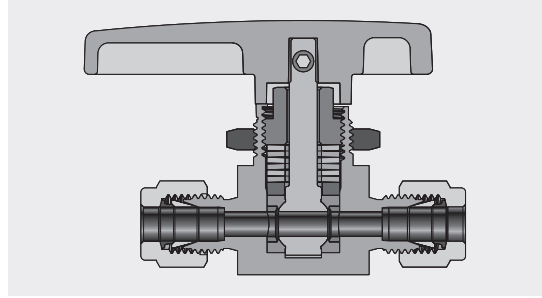
P10

FNPT8

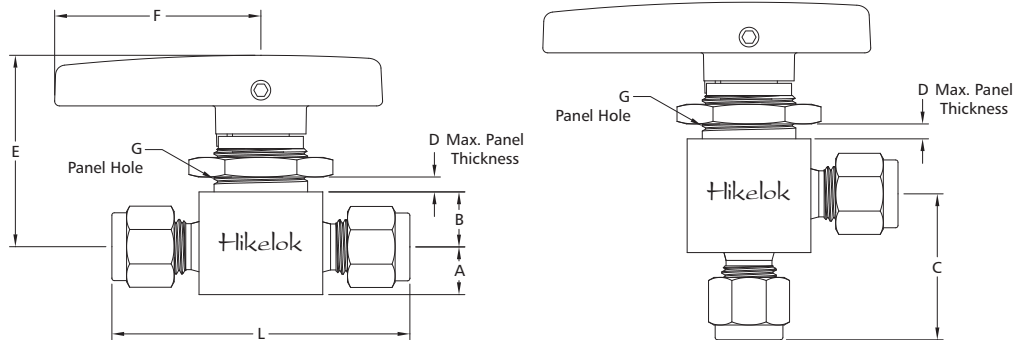
M12

Ball Valves-BV2 Series

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature: -65°F to 300°F (-54°C to 148°C)
- ❖ 2-way (On-Off), 3 5 7-way (Switching), 4 6-way (Crossover) models for service
- ❖ One-piece body and one piece seat and packing
- ❖ No dead space, easily cleaned and purged
- ❖ Live-loaded packing reduces adjustment
- ❖ Top-loaded design allows adjustment with the valve in-line
- ❖ Handle of different colors available
- ❖ 316 stainless steel, brass and alloy body material
- ❖ End connection size from 1/16" to 1/2" or 3 mm to 12 mm



Dimension



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv		Dimension, in. (mm)							
			Straight	Angle	L	A	B	C	D	E	F	G
BV2-F1-02-	1/16" Hikelok	0.093 (2.4)	0.20	0.15	1.68 (42.7)	0.28 (7.1)	0.34 (8.6)	—	1/4 (6.4)	1.36 (34.5)	1.12 (28.4)	19/32 (15.1)
BV2-F2-02-	1/8" Hikelok				2.01 (51.1)			0.97 (24.6)				
BV2-F4-03-	1/4" Hikelok	0.125 (3.2)	0.60	0.35	2.21 (56.1)	0.38 (9.7)	0.44 (11.2)	1.07 (27.2)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-F4-05-					2.39 (60.7)			1.17 (29.7)				
BV2-F6-05-	3/8" Hikelok	0.187 (4.8)	1.40	0.90	2.58 (65.5)	0.56 (14.2)	0.56 (14.2)	1.29 (32.8)	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	1 1/8 (28.6)
BV2-F6-07-					3.05 (77.5)			1.43 (36.3)				
BV2-F8-10-	1/2" Hikelok	0.406 (10.3)	12.00	4.60	3.92 (99.6)	0.69 (17.5)	0.69 (17.5)	1.74 (44.2)	3/8 (9.5)	2.43 (61.7)	3.00 (76.2)	1 1/2 (38.1)
BV2-F12-10-	3/4" Hikelok		6.40	3.80								
BV2-M3-02-	3 mm Hikelok	0.093 (2.4)	0.20	0.15	2.01 (51.1)	0.28 (7.1)	0.34 (8.6)	0.97 (24.6)	1/4 (6.4)	1.36 (34.5)	1.36 (34.5)	19/32 (15.1)
BV2-M6-03-	6 mm Hikelok	0.125 (3.2)	0.60	0.35	2.21 (56.1)			1.07 (27.2)				
BV2-M6-05-		8 mm Hikelok	0.187 (4.8)	1.40	0.90	2.39 (60.7)	0.38 (9.7)	0.44 (11.2)	1.17 (29.7)	3/16 (4.8)	1.47 (37.3)	1.47 (37.3)
BV2-M8-05-	2.46 (62.5)					1.20 (30.5)						
BV2-M10-07-	10 mm Hikelok	0.281 (7.1)	6.00	2.00	3.07 (78.0)	0.56 (14.2)	0.56 (14.2)	1.43 (36.3)	3/8 (9.5)	2.07 (52.6)	2.07 (52.6)	1 1/8 (28.6)
BV2-M12-10-	12 mm Hikelok	0.406 (10.3)	12.00	4.60	3.92 (99.6)			0.69 (17.5)		0.69 (17.5)	1.74 (44.2)	2.43 (61.7)

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv		Dimension, in. (mm)							
			Straight	Angle	L	A	B	C	D	E	F	G
BV2-FNPT2-03-	1/8 Female NPT	0.125 (3.2)	0.50	0.30	1.63 (41.4)	0.28 (7.1)	0.34 (8.6)	0.81 (20.6)	1/4 (6.4)	1.36 (34.5)	1.12 (28.4)	19/32 (15.1)
BV2-FNPT2-05-		0.187 (4.8)	1.20	0.70	2.0 (50.8)	0.38 (9.7)	0.44 (11.2)	1.0 (25.4)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-FNPT4-05-	1/4 Female NPT	0.187 (4.8)	0.90	0.75	2.06 (52.3)			1.03 (26.2)				
BV2-FNPT4-07-			3.00	1.70	2.50 (63.5)	0.56 (14.2)	0.56 (14.2)	1.25 (31.8)	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	11/8 (28.6)
BV2-FNPT6-07-	3/8 Female NPT	0.281 (7.1)	2.60	1.50						2.43 (61.7)	3.00 (76.2)	11/2 (38.1)
BV2-FNPT8-10-	1/2 Female NPT	0.406 (10.3)	6.30	3.50	3.12 (79.2)	0.69 (17.5)	0.69 (17.5)	1.56 (39.6)				
BV2-NPT4-05-	1/4 Male NPT	0.187 (4.8)	1.20	0.75	2.00 (50.8)	0.38 (9.7)	0.44 (11.2)	1.03 (26.2)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-FBT4-05-	1/4 Female ISO Tapered		0.90		2.06 (52.3)							
BV2-FBT6-07-	3/8 Female ISO Tapered	0.281 (7.1)	2.60	—	2.50 (63.5)	0.56 (14.2)	0.56 (14.2)	—	3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	11/8 (28.6)
BV2-FBT8-10-	1/2 Female ISO Tapered	0.406 (10.3)	6.30		3.12 (79.2)	0.69 (17.5)	0.69 (17.5)			2.43 (61.7)	3.00 (76.2)	11/2 (38.1)
BV2-NPT4-F4-05-	1/4 Male NPT to 1/4" Hikelok	0.187 (4.8)	1.60	0.75	2.20 (55.9)	0.38 (9.7)	0.44 (11.2)	1.03 (26.2)	3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-GFS4-03-	1/4" Male GFS	0.125 (3.2)	0.60	0.35	2.13 (54.1)	0.38 (9.7)	0.44 (11.2)	1.09 (27.7)	1/8 (3.2)	1.36 (34.5)	1.12 (28.4)	19/32 (15.1)
BV2-GFS4-05-		0.187 (4.8)	2.40	0.90					3/16 (4.8)	1.47 (37.3)	1.53 (38.9)	25/32 (19.8)
BV2-GFS8-07-	1/2" Male GFS	0.281 (7.1)	6.00	—	2.88 (73.2)	0.56 (14.2)			3/8 (9.5)	2.07 (52.6)	2.00 (50.8)	11/8 (28.6)
BV2-GFS8-10-		0.406 (10.3)	12.00		3.12 (79.2)	0.69 (17.5)				2.43 (61.7)	3.00 (76.2)	11/2 (38.1)

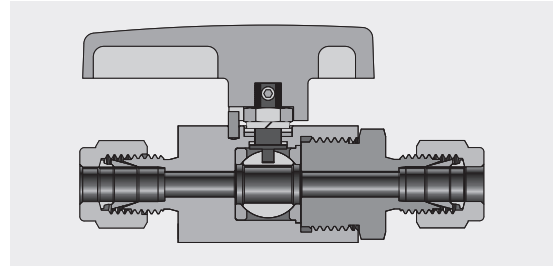
How to Order

BV2 — **M12** — **FNPT8** — **T10** — **Y3** — **316**

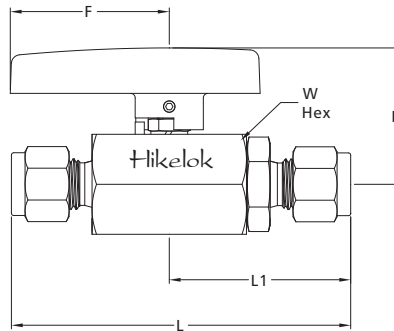
Series	Port 1 Type	Port 1 Size	Port 2/3 Type	Port 2/3 Size	Seat Material	Orifice Size	Handle	Flow Pattern	Body Material
BV2	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 1 size If port 2/3/4/5/6/7 and port 1 are the same, eliminate the port 2/3/4/5/6/7 designator		T PTFE	00 0.052in. (1.32 mm)	Black	Straight	316 316 S.S.
	NPT Male NPT	3 3 mm				01 0.062in. (1.57 mm)	R Red	A Angle	316L 316L S.S.
	FBT Female BSPT	4 1/4 in.				02 0.093 in. (2.4 mm)	G Green	3 3-way	304 304 S.S.
	MBT Male BSPT	5 5/16 in.				03 0.125 in. (3.2 mm)	L Blue	4 4-way	304L 304L S.S.
	FMS Female ISO 261	6 3/8 in. or 6 mm				04 0.165 in. (4.2 mm)	Y Yellow	5 5-way	A400 Alloy 400
	MS Male ISO 261	8 1/2 in. or 8 mm				05 0.187in. (4.7 mm)		6 6-way	BR Brass
	FBP Female BSPP	10 10 mm				06 0.250in. (6.4 mm)		7 7-way	
	MBP Male BSPP	12 3/4 in. or 12 mm				07 0.281in. (7.1 mm)			
	F Fractional Tube Fitting					10 0.406in. (10.3 mm)			
	M Metric Tube Fitting								
GFS Male GFS									

Ball Valves-BV3 Series

- ❖ Maximum working pressure: 1500 psig (103.4 bar)
- ❖ Working temperature: -20°F to 450°F (-28°C to 232°C)
- ❖ Compact and economical design
- ❖ Free floating ball design for seat wear compensation
- ❖ Bi-directional flow
- ❖ Blowout proof stem
- ❖ Options for handle color



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)			
				L	L1	W	H
BV3-M6-05-	6 mm Hikelok	0.187 (4.7)	1.0	2.63 (66.8)	1.50 (38.1)	3/4 (19.05)	1.18 (30)
BV3-M8-05-	8 mm Hikelok						
BV3-F4-05-	1/4" Hikelok						
BV3-F5-05-	5/16" Hikelok						
BV3-FNPT2-05-	1/8 Female NPT			1.85 (47.0)	1.08 (27.4)		
BV3-FBP2-05-	1/8 Female BSPP						
BV3-FBP4-05-	1/4 Female BSPP						
BV3-FNPT4-05-	1/4 Female NPT						
BV3-M10-06-	10 mm Hikelok	0.25 (6.4)	2.3	2.87 (72.9)	1.68 (42.7)	7/8 (22.23)	
BV3-F6-06-	3/8" Hikelok						
BV3-FBP6-06-	3/8 Female BSPP			2.03 (51.6)	1.18 (30.0)		
BV3-FNPT6-06-	3/8 Female NPT						
BV3-M12-10-	12 mm Hikelok	0.406 (10.3)	6.4	3.15 (80.0)	1.83 (46.5)	15/16 (24.0)	1.54 (39)
BV3-F8-10-	5/8" Hikelok						
BV3-F10-10-	5/8" Hikelok						
BV3-FBP8-10-	1/2 Female BSPP			2.05 (52.1)	1.12 (28.5)		
BV3-FNPT8-10-	1/2 Female NPT						

❖ If working pressure up to 6,000 psi, please refer to BV36 series.
If working pressure up to 10,000 psi, please refer to BV31 series.

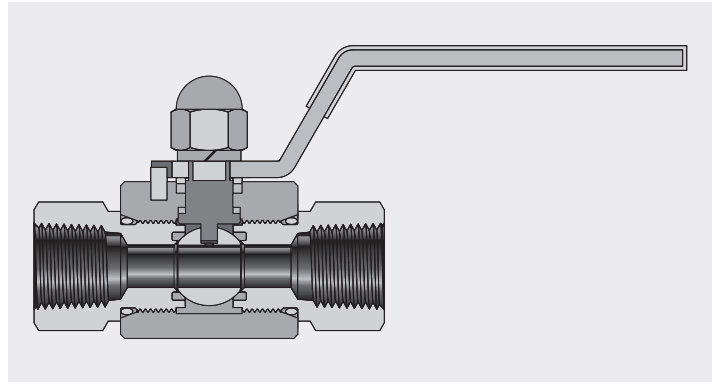
How to Order

BV3 — M12 — FNPT8 — T10 — Y — 316

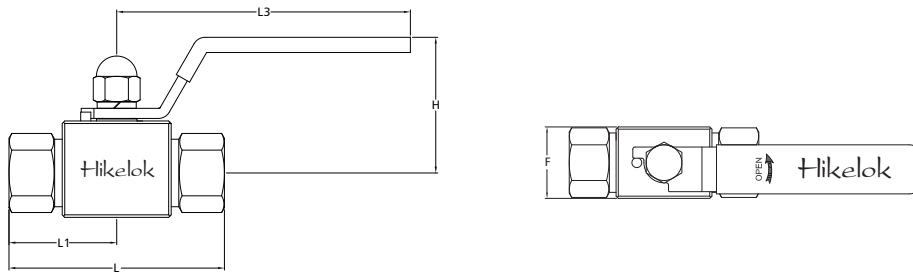
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Handle	Body Material
BV3	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		T PTFE	05 0.187 in. (4.7 mm)	Black Aluminium Directional Handle (ADH) R Red ADH G Green ADH L Blue ADH Y Yellow ADH BL Black Lever Handle RL Red Lever Handle GL Green Lever Handle LL Blue Lever Handle YL Yellow Lever Handle	316 316 S.S.
	NPT Male NPT	3 3 mm				06 0.250 in. (6.4 mm)		316L 316L S.S.
	FBT Female BSPT	4 1/4 in.	If outlet and inlet are the same, eliminate the outlet designator	10 0.406 in. (10.3 mm)		304 304 S.S.		
	MBT Male BSPT	5 5/16 in.		13 0.5 in. (12.7 mm)		304L 304L S.S.		
	FMS Female ISO 261	6 3/8 in. or 6 mm		19 0.75 in. (19.0 mm)				
	MS Male ISO 261	8 1/2 in. or 8 mm						
	FBP Female BSPP	10 10 mm						
	MBP Male BSPP	12 3/4 in. or 12 mm						
	F Fractional Tube Fitting	14 14 mm						
	M Metric Tube Fitting	16 1 in. or 16 mm						
	UGF Nut + Gasket + Bulge Fractional Tube Nipple	18 18 mm						
	UGM Nut + Gasket + Metric Tube Bulge Nipple	20 1 1/4 in. or 20 mm						
		22 22 mm						
		25 1 in. or 25 mm						

Ball Valves-BV4 Series

- ❖ Maximum working pressure: 10000 psig (689 bar)
- ❖ Working temperature: -40°F to 450°F (-40°C to 232°C)
- ❖ Bi-directional flow for 2-way valves
- ❖ Seat wear compensation by free floating ball
- ❖ Variety of end connections
- ❖ Blowout proof stem with self-sealing function
- ❖ Handle of different colors available for option
- ❖ Optional pneumatic and electric actuator
- ❖ All wetted components are compatible with hydrogen and compressed natural gas (CNG)



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)								
				L	L1	L3	H	F				
BV4-M6-10-	6 mm Hikelok	0.406 (10.3)	1.2	3.54 (90.0)	1.77 (45.0)	5.12 (130.0)	1.73 (44.0)	1.30 (32.0)				
BV4-M8-10-	8 mm Hikelok			3.60 (91.6)	1.80 (45.8)							
BV4-M10-10-	10 mm Hikelok		3.7	3.70 (94.0)	1.85 (47.0)							
BV4-M12-10-	12 mm Hikelok		7.5	3.94 (100.0)	1.97 (50.0)							
BV4-M14-10-	14 mm Hikelok		1.2	3.60 (91.6)	1.80 (45.8)							
BV4-F4-10-	1/4" Hikelok			3.72 (94.6)	1.86 (47.3)							
BV4-F6-10-	3/8" Hikelok		7.5	3.92 (99.6)	1.96 (49.8)							
BV4-F8-10-	1/2" Hikelok			2.52 (64.0)	1.26 (32.0)							
BV4-FNPT4-10-	1/4 Female NPT			2.80 (71.0)	1.40 (35.5)							
BV4-FNPT6-10-	3/8 Female NPT		3.7	3.11 (79.0)	1.56 (39.5)							
BV4-FNPT8-10-	1/2 Female NPT			3.36 (85.4)	1.68 (42.7)							
BV4-NPT4-10-	1/4 Male NPT		7.5	3.75 (95.2)	1.88 (47.6)							
BV4-NPT6-10-	3/8 Male NPT											
BV4-NPT8-10-	1/2 Male NPT		0.5 (12.7)	10.0	4.04 (102.6)				2.02 (51.3)	5.71 (145.0)	1.89 (48.0)	1.50 (38.0)
BV4-24C12-10-	24°O-ring (M18X1.5)				4.12 (104.6)				2.06 (52.3)			
BV4-M16-13-	16 mm Hikelok				4.43 (112.6)				2.22 (56.3)			
BV4-M18-13-	18 mm Hikelok	4.36 (110.6)			2.18 (55.3)							
BV4-M20-13-	20 mm Hikelok											
BV4-M22-13-	22 mm Hikelok	3.54 (90.0)			1.77 (45.0)							
BV4-F10-13-	5/8" Hikelok	4.14 (105.2)			2.07 (52.6)							
BV4-F12-13-	3/4" Hikelok											
BV4-FNPT8-13-	1/2 Female NPT											
BV4-FNPT12-13-	3/4 Female NPT											
BV4-NPT12-13-	3/4 Male NPT											
BV4-24C18-13-	24°O-ring (M26X1.5)											

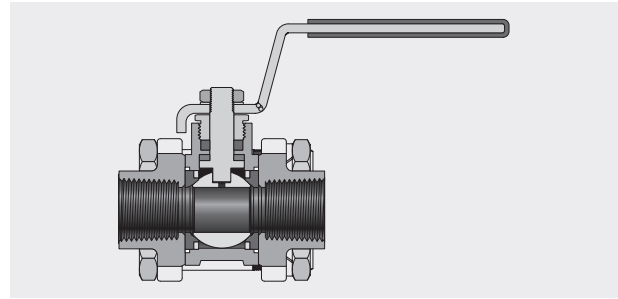
How to Order

BV4 — M12 — FNPT8 — P10 — Y3H — 316

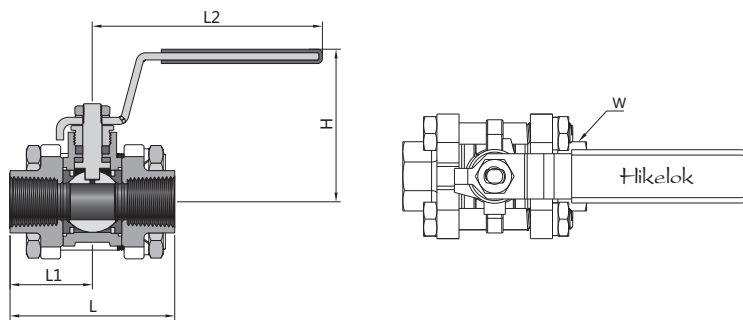
Series	Port 1 Type	Port 1 Size	Port 2/3 Port 2/3 Type Size	Seat Material	Orifice Size	Handle	Flow Pattern	Body Material	
BV4	FNPT	Female NPT	Same as port 1 type and port 1 size If Port 2/3 and port 1 are the same, eliminate the port 2/3 designator	P PEEK	0.406in. (10.3 mm)	Blue	Straight	316 316 S.S.	
	NPT	Male NPT		K PCTFE	10 (10.3 mm)	R Red	3-way Vertical Pattern	316L 316L S.S.	
	FBT	Female BSPT		T PTFE	13 (12.7 mm)	G Green	3H	3-way Horizontal Pattern	304 304 S.S.
	MBT	Male BSPT		R RPTFE	19 (19.0 mm)	B Black			304L 304L S.S.
	FMS	Female ISO 261				1 in. (25.4 mm)	Y Yellow		A400 Alloy 400
	MS	Male ISO 261				1.25 in. (31.8 mm)			CS Steel
	FBP	Female BSPP				1.5 in. (38.1 mm)			
	MBP	Male BSPP							
	F	Fractional Tube Fitting							
	M	Metric Tube Fitting							
	MSW	Metric Tube Socket Weld							
	FSW	Fractional Tube Socket Weld							
	MBW	Metric Tube Butt Weld							
	FBW	Fractional Tube Butt Weld							
	PSW	Pipe Socket Weld							
	PBW	Pipe Butt Weld							
	UGF	Nut + Gasket + Bulge Fractional Tube Nipple							
	UGM	Nut + Gasket + Metric Tube Bulge Nipple							
	24C	24°C Cone Connection							

Ball Valves-BV5 Series

- ❖ Maximum working pressure: 1000 psig (68.9 bar)
- ❖ Working temperature: -20°F to 450°F (-28°C to 232°C)
- ❖ Orifice sizes: 4.8 mm to 50 mm
- ❖ Blowout-proof stem
- ❖ Pneumatic and electric actuation are available



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)				
				L	L ₁	W	H	L ₂
BV5-FNPT2-05-	1/8 Female NPT	0.188 (4.8)	1.2	2.57 (65.2)	1.28 (32.6)			
BV5-F4-05-	1/4" Hikelok							
BV5-M6-05-	6 mm Hikelok							
BV5-M8-05-	8 mm Hikelok							
BV5-FNPT4-07-	1/4 Female NPT	0.281 (7.1)	3.8	2.57 (65.2)	1.28 (32.6)	0.93 (23.5)	3.94 (100.0)	2.15 (54.7)
BV5-F6-07-	3/8" Hikelok							
BV5-M10-07-	10 mm Hikelok							
BV5-F8-10-	1/2" Hikelok	0.417 (10.6)	7.5	4.04 (103.0)	2.02 (51.3)			
BV5-M12-10-	12 mm Hikelok							
BV5-M14-10-	14 mm Hikelok							
BV5-FNPT6-13-	3/8 Female NPT	0.50 (12.7)	11.3	2.57 (65.2)	1.28 (32.6)	0.88 (22.3)	3.94 (100.0)	2.26 (57.5)
BV5-F10-13-	5/8" Hikelok							
BV5-M16-13-	16 mm Hikelok							
BV5-FNPT8-15-	1/2 Female NPT	0.591 (15.0)	13.0	2.74 (69.5)	1.37 (34.8)	1.06 (27.0)		
BV5-F12-15-	3/4" Hikelok							
BV5-M18-15-	18 mm Hikelok							
BV5-M20-15-	20 mm Hikelok							
BV5-FNPT12-20-	3/4 Female NPT	0.787 (20.0)	50.0	3.15 (80.0)	1.57 (40.0)	1.34 (34.0)	5.08 (129.0)	2.48 (63.0)

How to Order

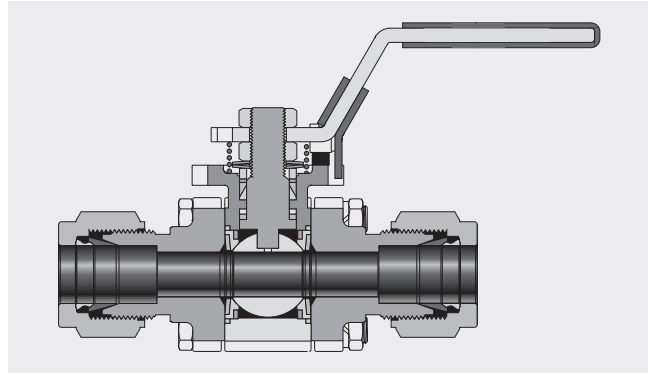
BV5 — M12 — FNPT8 — T10 — Y — 316

Series	Port 1 Type	Port 1 Size	Port 2 Type	Port 2 Size	Seat Material	Orifice Size	Handle	Body Material	
BV5	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 2 size If port2 and port 1 are the same, eliminate the port 2 designator		T PTFE	05 0.188 in. (4.8 mm)	Blue	316L CF3M	
	NPT Male NPT	3 3 mm						R Red	316 CF8M
	FBT Female BSPT	4 1/4 in.						G Green	304L CF3
	MBT Male BSPT	5 5/16 in.						B Black	304L CF8
	FMS Female ISO 261	6 3/8 in. or 6 mm						Y Yellow	
	MS Male ISO 261	8 1/2 in. or 8 mm							
	FBP Female BSPP	10 10 mm							
	MBP Male BSPP	12 3/4 in. or 12 mm							
	F Fractional Tube Fitting	14 14 mm							
	M Metric Tube Fitting	16 1 in. or 16 mm							
	MSW Metric Tube Socket Weld	18 18 mm							
	FSW Fractional Tube Socket Weld	20 1 1/4 in. or 20 mm							
	MBW Metric Tube Butt Weld	22 22 mm							
	FBW Fractional Tube Butt Weld	24 1 1/2 in.							
	PSW Pipe Socket Weld	25 25 mm							
	PBW Pipe Butt Weld	27 M27x 2							
		28 28 mm							
		32 2 in. or 32 mm							

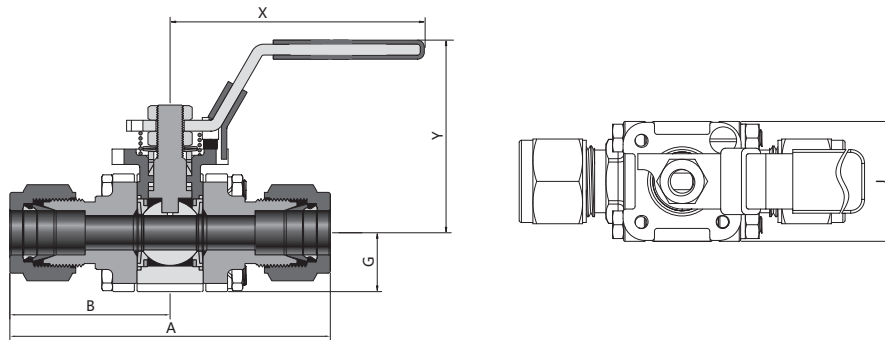
05 0.188 in. (4.8 mm)
07 0.281 in. (7.1 mm)
10 0.417 in. (10.6 mm)
13 0.5 in. (12.7 mm)
15 0.591 in. (15.0 mm)
25 1.00 in. (25.4 mm)
32 1.250 in. (31.75 mm)
38 1.5 in. (38.1 mm)
50 2.00 in. (50.8 mm)

Ball Valves-BV6 Series

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -20°F to 450°F (-28°C to 232°C)
- ❖ Orifice sizes: 4.8 mm to 38.1 mm
- ❖ Blowout-proof stem
- ❖ Coned-disc spring-loaded seat
- ❖ Live-loaded chevron stem packing
- ❖ Pneumatic and electric actuators
- ❖ Variety of end connections
- ❖ Lever, oval, extended oval, and locking handles



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)					
				A	B	G	J	X	Y
BV6-F4-05	1/4" Hikelok	0.188 (4.8)	1.2	3.17 (80.5)	1.59 (40.4)	0.68 (17.3)	1.35 (34.3)	2.37 (60.2)	1.66 (42.2)
BV6-M6-05	6 mm Hikelok								
BV6-M8-05	8 mm Hikelok								
BV6-FNPT2-07	1/8 Female NPT	0.281 (7.1)	3.8	2.16 (54.9)	1.08 (27.4)	0.68 (17.3)	1.35 (34.6)	2.37 (60.2)	1.66 (42.2)
BV6-FNPT4-07	1/4 Female NPT								
BV6-F5-07	5/16" Hikelok								
BV6-F6-07	3/8" Hikelok								
BV6-M10-07	10 mm Hikelok								
BV6-F8-10	1/2" Hikelok	0.476 (10.6)	7.5	4.04 (102.6)	2.02 (51.3)	0.89 (22.6)	1.78 (45.2)	4.50 (114.0)	2.35 (59.7)
BV6-M12-10	12 mm Hikelok								
BV6-FNPT6-13	3/8 Female NPT	0.50 (12.7)	12	2.70 (68.6)	1.35 (34.3)	0.89 (22.6)	1.78 (45.2)	4.50 (114.0)	2.35 (59.7)
BV6-FNPT8-13	1/2 Female NPT								
BV6-F12-13	3/4" Hikelok								
BV6-M16-13	16 mm Hikelok		13.6	4.04 (102.6)	2.02 (51.3)				
BV6-M18-13	18 mm Hikelok								

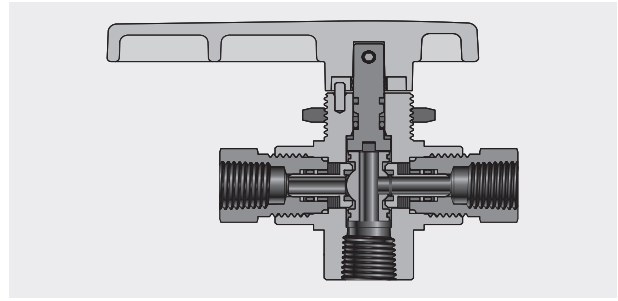
How to Order

BV6 — **M12** — **FNPT8** — **P10** — **Y3** — **316**

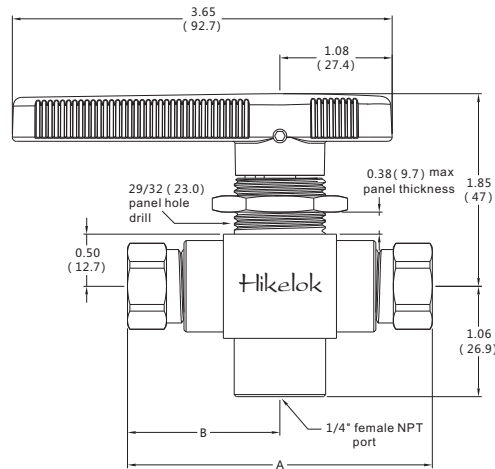
Series	Port 1 Type	Port 1 Size	Port 2/3 Type	Port 2/3 Size	Seat Material	Orifice Size	Handle	Flow Pattern	Body Material	
BV6	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 1 size If port 2/3 and port 1 are the same, eliminate the port 2/3 designator		P PEEK	05 0.188 in. (4.8 mm)	Blue	Straight	316L CF3M 316 CF8M 304L CF3 304L CF8	
	NPT Male NPT	3 3 mm				07 0.281 in. (7.1 mm)	R Red	3 3-way		
	FBT Female BSPT	4 1/4 in.				G PEEK with Grafoil weir ring	10 0.417 in. (10.6 mm)	G Green		F Fire series
	MBT Male BSPT	5 5/16 in.					13 0.5 in. (12.7 mm)	B Black		
	FMS Female ISO 261	6 3/8 in. or 6 mm					22 0.875 in. (22.2 mm)	Y Yellow		
	MS Male ISO 261	8 1/2 in. or 8 mm					28 1.125 in. (28.6 mm)			
	FBP Female BSPP	10 10 mm					32 1.250 in. (31.75 mm)			
	MBP Male BSPP	12 3/4 in. or 12 mm					38 1.5 in. (38.1 mm)			
	F Fractional Tube Fitting	14 14 mm								
	M Metric Tube Fitting	16 1 in. or 16 mm								
	MSW Metric Tube Socket Weld	18 18 mm								
	FSW Fractional Tube Socket Weld	20 1 1/4 in. or 20 mm								
	MBW Metric Tube Butt Weld	22 22 mm								
	FBW Fractional Tube Butt Weld	24 1 1/2 in.								
	PSW Pipe Socket Weld	25 25 mm								
	PBW Pipe Butt Weld	27 M27x2								
	28 28 mm									
	32 2 in. or 32 mm									

Ball Valves-BV7 Series

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 450°F (-54°C to 232°C)
- ❖ 2-way and 3-way pattern
- ❖ Spring-loaded seats reduce seat wear from pressure surges
- ❖ Field repairable with seal kits
- ❖ Trunnion-style ball and low operating torque
- ❖ Bottom-loaded stem prevents stem blowout
- ❖ Panel mountable
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections
- ❖ Color coded handles



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)	
				A	B
BV7-FNPT2-05-3	1/8 Female NPT	0.187 (4.75)	0.75	2.94 (74.7)	1.47 (37.3)
BV7-FNPT4-05-3	1/4 Female NPT				
BV7-F4-05-3	1/4" Hikelok			4.14 (105.2)	2.07 (52.6)
BV7-F6-05-3	3/8" Hikelok			4.39 (111.5)	2.19 (55.6)
BV7-F8-05-3	1/2" Hikelok			4.60 (116.8)	2.30 (58.4)
BV7-M6-05-3	6 mm Hikelok			4.14 (105.2)	2.07 (52.6)
BV7-M8-05-3	8 mm Hikelok			4.15 (105.4)	
BV7-M10-05-3	10 mm Hikelok			4.41 (112.0)	2.20 (55.9)
BV7-M12-05-3	12 mm Hikelok			4.60 (116.8)	2.30 (58.4)

❖ If working pressure up to 10,000 psi, please refer to BV71 series.

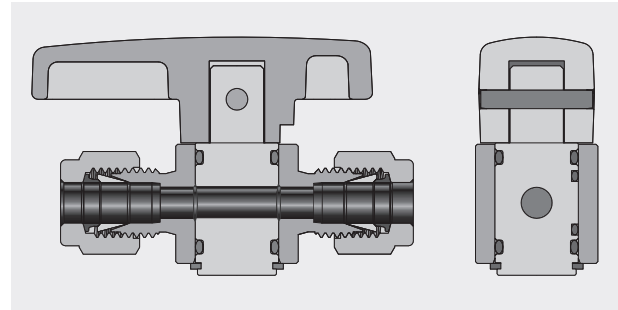
How to Order

BV7 — **M10** — **FNPT4** — **P05** — **L3** — **316**

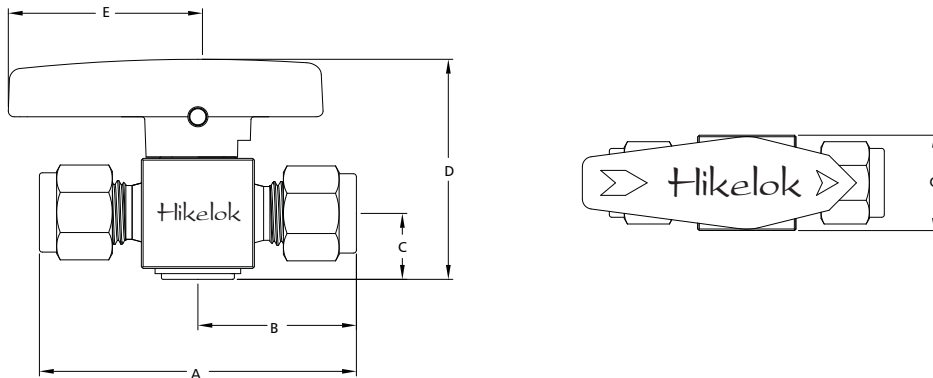
Series	Port 1 Type	Port 1 Size	Port 2/3 Port 2/3 Type Size	Seat Material	Orifice Size	Handle	Flow Pattern	Body Material
BV7	FNPT Female NPT NPT Male NPT FBT Female BSPT MBT Male BSPT FMS Female ISO 261 MS Male ISO 261 FBP Female BSPP MBP Male BSPP F Fractional Tube Fitting M Metric Tube Fitting	2 1/8 in. 3 3 mm 4 1/4 in. 5 5/16 in. 6 3/8 in. or 6 mm 8 1/2 in. or 8 mm 10 10 mm 12 12 mm	Same as port 1 type and port 2 size If port 2/3 and port 1 are the same, eliminate the port 2/3 designator	K PCTFE P PEEK T PTFE	05 0.187 in. (4.7 mm)	Black L Blue R Red G Green Y Yellow	Straight 3 3-way	316 316 S.S. 316L 316L S.S. 304 304 S.S. 304L 304L S.S. A400 Alloy 400

Plug Valves-PV1 Series

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Quarter turn operation
- ❖ O-ring seal
- ❖ Easy to maintain and clean
- ❖ Replaceable plug assembly
- ❖ 316 stainless steel and brass material
- ❖ Variety of end connections
- ❖ Color coded handles for option



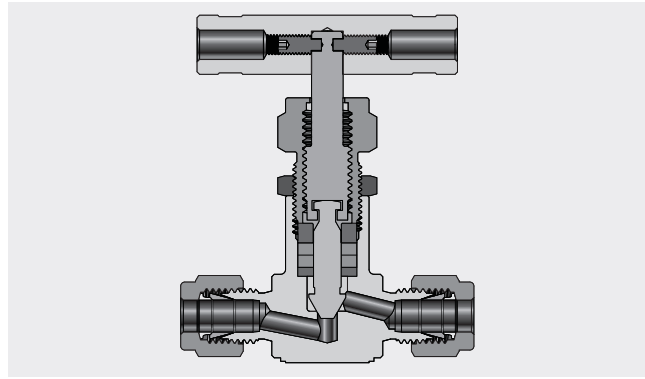
Dimensions



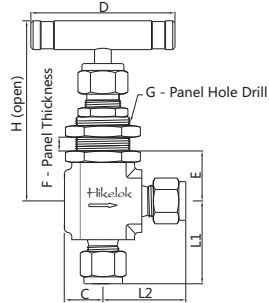
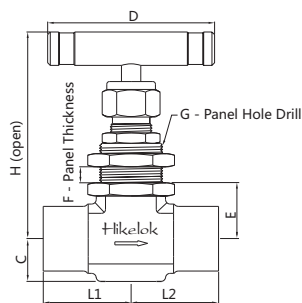
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)							
				A	B	C	D	E	F	G	
PV1-F2-02-	1/8" Hikelok	0.093 (2.4)	0.10	1.99 (50.5)	0.98 (24.9)						
PV1-F4-04-	1/4" Hikelok	0.172 (4.4)	1.6	2.17 (55.1)	1.08 (27.4)	0.46 (11.7)	1.54 (39.1)	1.14 (29.0)	1.89 (48.0)	0.75 (19.0)	
PV1-F6-04-	3/8" Hikelok		1.1	2.29 (58.2)	1.14 (29.0)						
PV1-F6-07-	3/8" Hikelok	0.283 (7.2)	6.4	2.66 (67.6)	1.33 (33.8)	0.66 (16.8)	2.14 (54.4)	1.50 (38.1)	2.47 (62.7)	1.12 (28.5)	
PV1-F8-07-	1/2" Hikelok		4.4	2.88 (73.2)	1.44 (36.6)						
PV1-M3-02-	3 mm Hikelok	0.093 (2.4)	0.10	1.99 (50.5)	0.98 (24.9)	0.46 (11.7)	1.54 (39.1)	1.14 (29.0)	1.89 (48.0)	0.75 (19.0)	
PV1-M6-04-	6 mm Hikelok	0.172 (4.4)	1.6	2.17 (55.1)	1.08 (27.4)						
PV1-M8-07-	8 mm Hikelok	0.283 (7.2)	6.4	2.66 (67.6)	1.30 (33.0)	0.66 (16.8)	2.14 (54.4)	1.50 (38.1)	2.47 (62.7)	1.12 (28.5)	
PV1-M10-07-	10 mm Hikelok		6.4	2.68 (68.1)	1.34 (34.0)						
PV1-M12-07-	12 mm Hikelok		4.8	2.96 (75.2)	1.44 (36.6)						
PV1-FNPT2-04-	1/8 Female NPT	0.172 (4.4)	1.2	1.78 (45.2)	0.89 (22.6)	0.46 (11.7)	1.54 (39.1)	1.14 (29.0)	1.89 (48.0)	0.75 (19.0)	
PV1-FNPT4-04-	1/4 Female NPT		0.9	2.09 (53.1)	1.05 (26.7)						
PV1-FNPT4-07-	1/4 Female NPT	0.283 (7.2)	4.3	2.38 (60.5)	1.19 (30.2)	0.66 (16.8)	2.14 (54.4)	1.50 (38.1)	2.47 (62.7)	1.12 (28.5)	
PV1-FNPT8-07-	1/2 Female NPT		2.7	2.88 (73.2)	1.44 (36.6)						
PV1-NPT2-04-	1/8 Male NPT	0.172 (4.4)	1.0	1.53 (38.9)	0.76 (19.3)	0.46 (11.7)	1.54 (39.1)	1.14 (29.0)	1.89 (48.0)	0.75 (19.0)	
PV1-NPT4-04-	1/4 Male NPT		1.0	1.90 (48.3)	0.95 (24.1)						

Needle Valves-NV1 Series

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ One-piece forged body
- ❖ Straight and angle patterns
- ❖ Upper stem and lower stem design, Stem threads above packing protected from system media
- ❖ Panel mounting available
- ❖ Optional handle colors available



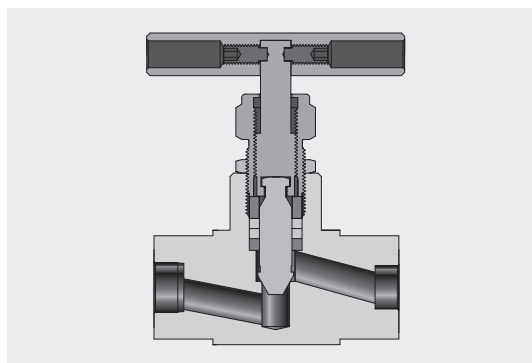
Dimensions



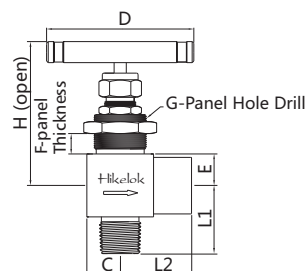
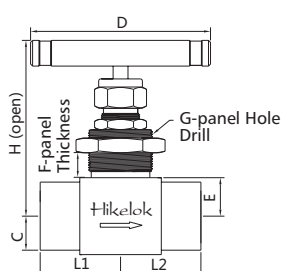
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)							
				L1	L2	H	D	C	E	F	G
NV1-FNPT2-04-	1/8 Female NPT	0.157 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	2.85 (72.5)	2.17 (55)	0.53 (13.5)	0.71 (18.0)	0.25 (6.4)	0.77 (19.6)
NV1-FNPT4-04-	1/4 Female NPT			1.03 (26.2)	1.03 (26.2)						
NV1-F4-04-	1/4" Hikelok			1.22 (30.9)	1.22 (30.9)						
NV1-M6-04-	6 mm Hikelok										
NV1-M8-04-	8 mm Hikelok			1.25 (31.75)	1.25 (31.75)						
NV1-NPT6-04-	3/8 Male NPT			1.19 (30.2)	1.19 (30.2)						
NV1-FNPT4-06-	1/4 Female NPT	0.236 (6.0)	0.85	1.13 (28.6)	1.13 (28.6)	3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)
NV1-FNPT6-06-	3/8 Female NPT										
NV1-NPT6-06-	3/8 Male NPT										
NV1-F6-06-	3/8" Hikelok			1.44 (36.5)	1.44 (36.5)						
NV1-M10-06-	10 mm Hikelok										
NV1-M12-06-	12 mm Hikelok			1.53 (38.9)	1.53 (38.9)						
NV1-M14-06-	14 mm Hikelok			1.56 (39.7)	1.56 (39.7)						
NV1-FNPT8-06-	1/2 Female NPT			1.26 (32.0)	1.26 (32.0)						
NV1-NPT8-06-	1/2 Male NPT			1.50 (38.1)	1.50 (38.1)						
NV1-F8-06-	1/2" Hikelok			1.53 (38.9)	1.53 (38.9)						
NV1-FSW6-06-	3/8" FSW										
NV1-FSW8-06-	1/2" FSW										
NV1-MSW12-06-	12 mm MSW			1.13 (28.6)	1.13 (28.6)						
NV1-MSW14-06-	14 mm MSW										
NV1-MSW16-06-	16 mm MSW										
NV1-MBW14-06-	14 mm MBW			1.50 (38.1)	1.50 (38.1)						
NV1-MBW16-06-	16 mm MBW										
NV1-UGM14-06-	14 mm UGM	2.92 (74.1)	2.92 (74.1)								
NV1-UGM16-06-	16 mm UGM										
NV1-MS20-06-	M20 x 1.5 Male ISO	1.50 (38.1)	1.50 (38.1)								
NV1-MS22-06-	M22 x 1.5 Male ISO										

Needle Valves-NV2 Series

- ❖ Maximum working pressure up to 10000 psig (689 bar)
- ❖ One-piece heavy wall forged body
- ❖ Straight and angle patterns
- ❖ Upper stem and lower stem design, Stem threads above packing protected from system media
- ❖ Safety back seating needle in fully open position
- ❖ Panel mounting available
- ❖ Optional handle colors available



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)																	
				L1	L2	C	D	E	F	G	H										
NV2-FNPT2-04-	1/8 Female NPT	0.157 (4.0)	0.35	1.13 (28.6)	1.13 (28.6)	0.53 (13.5)	2.17 (55)	0.53 (13.5)	0.25 (6.4)	0.96 (24.4)	2.85 (72.5)										
NV2-FNPT4-04-	1/4 Female NPT																				
NV2-FNPT4-NPT4-04-	1/4 Female to Male NPT																				
NV2-NPT4-04-	1/4 Male NPT																				
NV2-F4-04-	1/4" Hikelok																				
NV2-M6-04-	6 mm Hikelok																				
NV2-M8-04-	8 mm Hikelok																				
NV2-FSW4-04-	1/4" FSW																				
NV2-FNPT4-06-	1/4 Female NPT											0.236 (6.0)	0.85	1.31 (33.4)	1.31 (33.4)	0.625 (15.88)	2.50 (63.5)	0.625 (15.88)	0.38 (9.7)	1.09 (27.7)	3.5 (88.9)
NV2-FNPT6-06-	3/8 Female NPT																				
NV2-FNPT8-06-	1/2 Female NPT																				
NV2-F6-06-	3/8" Hikelok																				
NV2-F8-06-	1/2" Hikelok																				
NV2-M10-06-	10 mm Hikelok																				
NV2-M12-06-	12 mm Hikelok																				
NV2-M14-06-	14 mm Hikelok																				
NV2-FSW6-06-	3/8" FSW																				
NV2-FSW8-06-	1/2" FSW																				
NV2-MSW12-06-	12 mm MSW	0.433 (11.0)	2.18	1.56 (39.6)	1.56 (39.6)	0.875 (22.2)	3.5 (88.9)	0.875 (22.2)	0.38 (9.7)	1.28 (32.5)	4.17 (106)										
NV2-MSW14-06-	14 mm MSW																				
NV2-FNPT8-11-	1/2 Female NPT																				
NV2-FNPT12-11-	3/4 Female NPT																				
NV2-F12-11-	3/4" Hikelok																				
NV2-M14-11-	14 mm Hikelok																				
NV2-M16-11-	16 mm Hikelok																				
NV2-M18-11-	18 mm Hikelok																				
NV2-MSW14-11-	14 mm MSW																				
NV2-MSW16-11-	16 mm MSW																				

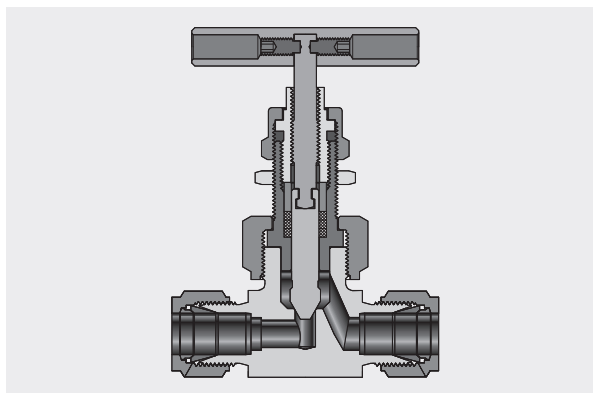
How to Order

NV2— MBW8 — FNPT8— S06S — GY — LA — 316

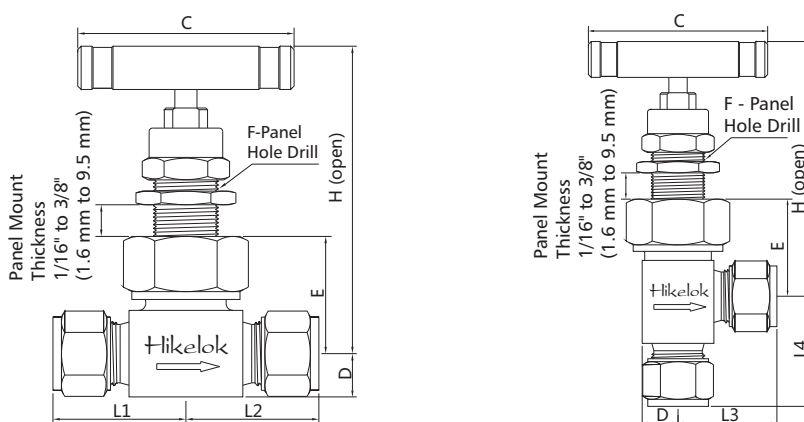
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Tip Material	Tip Type	Packing Material	Panel Mounting	Handle	Flow Pattern	Body Material
NV2	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size	Same as Body	Blunt	PTFE	No	Black Aluminum Bar	Straight	316 316 S.S.			
	NPT Male NPT	4 1/4 in.		S Same as Body	R Regulating	G Graphite	Y Yes	Red Aluminum Bar					
	FBT Female BSPT	3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator	S	A Ball			Green Aluminum Bar					
	MBT Male BSPT	1/2 in. or 8 mm						Blue Aluminum Bar					
	FMS Female ISO	10 mm						304 Stainless Steel Bar					
	MS Male ISO	3/4 in. or 12 mm											
	FBP Female BSPP	14 mm or M14 x 1.5											
	MBP Male BSPP	1 in. or 16 mm											
	F Fractional Tube Fitting	18 18 mm											
	M Metric Tube Fitting	Nut + Gasket + Fractional Bulge Nipple	1 1/4 in. or 20 mm or M20 x 1.5										
	UGF	Nut + Gasket + Metric Bulge Nipple	22 mm or M22 x 1.5										
	UGM	Fractional Tube Socket Weld	24 M24 x 1.5										
	FSW	Metric Tube Socket Weld	25 25mm										
	MSW	Fractional Tube Butt Weld	27 M27 x 2										
	FBW	Metric Tube Butt Weld	28 28 mm										
	MBW	Pipe Socket Weld											
PSW	Pipe Butt Weld												
PBW													

Needle Valves-NV3 Series

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Union-bonnet construction for safety
- ❖ Straight and angle patterns
- ❖ Upper stem and lower stem design, Stem threads above packing protected from system media
- ❖ Panel mounting available
- ❖ Optional handle colors available



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)																			
				L1	L2	L3	L4	C	D	E	F	H											
NV3-FNPT2-04-	1/8 Female NPT	0.157 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	0.89 (22.6)	1.00 (25.4)	1.75 (44.5)	0.39 (9.9)	1.09 (27.7)	19/32 (15.1)	3.04 (77.2)											
NV3-FNPT4-04-	1/4 Female NPT			1.03 (26.2)	1.03 (26.2)																		
NV3-NPT4-FNPT4-04-	1/4 Male NPT			1.00 (25.4)	1.03 (26.2)																		
NV3-NPT4-04-	1/4 Male NPT			1.00 (25.4)	1.00 (25.4)	1.00 (25.4)							1.16 (29.5)	1.48 (37.6)									
NV3-NPT6-04-	3/8 Male NPT			1.03 (26.2)	1.03 (26.2)	0.89 (22.6)																	
NV3-FBP4-04-	1/4 Female BSPP			1.00 (25.4)	1.22 (30.9)	1.19 (30.2)																	
NV3-NPT4-F4-04-	1/4 Male NPT			1.03 (26.2)	1.22 (30.9)																		
NV3-FNPT4-F4-04-	1/4 Female NPT			1.22 (30.9)	1.22 (30.9)																		
NV3-F4-04-	1/4" Hikelok			0.236 (6.0)	0.8										0.91 (23.1)	0.91 (23.1)	0.88 (22.4)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	25/32 (19.8)	3.70 (94)	
NV3-FNPT4-06-	1/4 Female NPT														1.13 (28.6)	1.13 (28.6)	1.0 (25.4)						
NV3-FNPT6-06-	3/8 Female NPT														1.13 (28.6)	1.13 (28.6)	1.06 (26.9)						
NV3-NPT6-06-	3/8 Male NPT														1.50 (38.1)	1.50 (38.1)	1.25 (31.8)						1.50 (38.1)
NV3-NPT8-06-	1/2 Male NPT														1.41 (35.9)	1.41 (35.9)	1.29 (32.8)						1.66 (42.2)
NV3-F6-06-	3/8" Hikelok	1.52 (38.6)	1.52 (38.6)				1.40 (35.6)	1.65 (41.9)															
NV3-F8-06-	1/2" Hikelok	1.42 (36.1)	1.42 (36.1)				1.30 (33.0)	1.55 (39.4)															
NV3-M10-06-	10 MM Hikelok																						

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)									
				L1	L2	L3	L4	C	D	E	F	H	
NV3-M12-06-	12 mm Hikelok	0.236 (6.0)	0.8	1.52 (38.6)	1.52 (38.6)	1.40 (35.6)	1.65 (41.9)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	25/32 (19.8)	3.70 (94)	
NV3-M14-06-	14 mm Hikelok												
NV3-M16-06-	16 mm Hikelok												
NV3-FSW6-06-	3/8" FSW			1.13 (28.6)	1.13 (28.6)	1.00 (25.4)	1.13 (28.6)						
NV3-FSW8-06-	1/2" FSW												
NV3-MSW12-06-	12 mm MSW												
NV3-MSW14-06-	14 mm MSW												
NV3-MSW16-06-	16 mm MSW												
NV3-MBW14-06-	14 mm MBW			1.50 (38.1)	1.50 (38.1)	1.25 (31.8)	1.50 (38.1)						
NV3-MBW16-06-	16 mm MBW												
NV3-UGM14-06-	14 mm UGM			2.92 (74.1)	2.92 (74.1)	2.55 (64.7)	2.92 (74.1)						
NV3-MS20-06-	M20 x 1.5 Male ISO			1.50 (38.1)	1.50 (38.1)	1.13 (28.6)	1.50 (38.1)						
NV3-MS22-06-	M22 x 1.5 Male ISO												
NV3-FNPT8-11-	1/2 Female NPT			0.433 (11.0)	1.8	1.56 (39.6)	1.56 (39.6)						1.31 (33.3)
NV3-FNPT12-11-	3/4 Female NPT	1.63 (41.3)	1.63 (41.3)										
NV3-FNPT16-11-	1 Female NPT	1.81 (46.0)	1.81 (46.0)										
NV3-NPT12-11-	3/4 Male NPT	1.63 (41.3)	1.63 (41.3)										
NV3-F8-11-	1/2" Hikelok												
NV3-F12-11-	3/4" Hikelok												
NV3-M14-11-	14 mm Hikelok	1.97 (50.0)	1.97 (50.0)			1.68 (42.7)	2.08 (52.8)						
NV3-M16-11-	16 mm Hikelok												
NV3-M18-11-	18 mm Hikelok												
NV3-M20-11-	20 mm Hikelok												
NV3-MSW14-11-	14 mm MSW												
NV3-MSW16-11-	16 mm MSW												
NV3-FSW8-11-	1/2" FSW	1.56 (39.7)	1.56 (39.7)			1.31 (33.3)	1.69 (42.9)						
NV3-FSW12-11-	3/4" FSW												
NV3-MBW14-11-	14 mm MBW												
NV3-MBW16-11-	16 mm MBW												
NV3-UGM14-11-	14 mm UGM	2.98 (75.7)	2.98 (75.7)										
NV3-MS27-11-	M27 x 2 Male ISO	1.56 (39.7)	1.56 (39.7)										

❖ If working pressure up to 10,000 psi, please refer to NV31 series.

How to Order

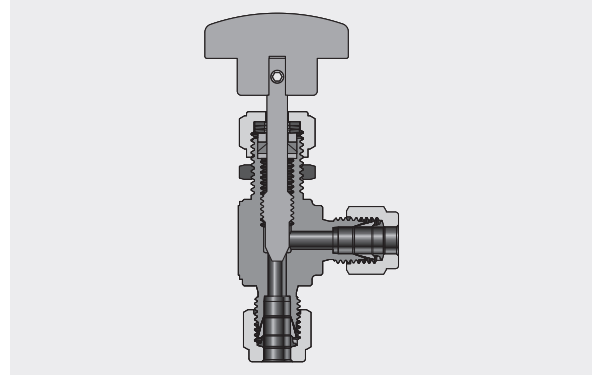
NV3 — **FNPT8** — **F8** — **GY** — **LA** — **316**

S06S

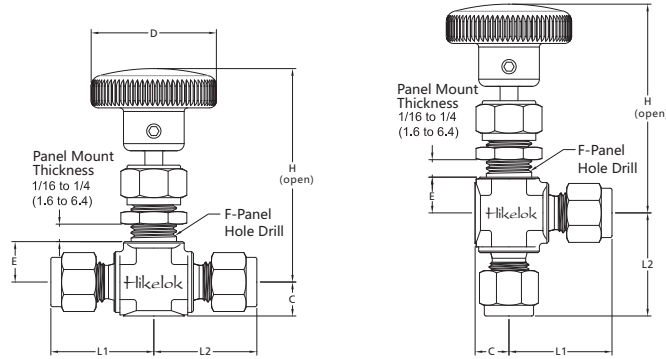
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Tip Material	Tip Type	Packing Material	Panel Mounting	Handle	Flow Pattern	Body Material	
NV3	FNPT	Female NPT	2 1/8 in.	Same as inlet type and inlet size	Same as Body	04	Same as Body	Blunt	PTFE	No	Black Aluminum Bar	Straight	316 316 S.S.	
	NPT	Male NPT	4 1/4 in.		S Stellite	06	S Stellite	R Regulating	G Graphite	Y Yes	Red Aluminum Bar	A Angle	316L 316L S.S.	
	FBT	Female BSPT	3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator		11		A Ball						304 304 S.S.
	MBT	Male BSPT	1/2 in. or 8 mm			15								304L 304L S.S.
	FMS	Female ISO	10 10 mm			20								321 321 S.S.
	MS	Male ISO	12 3/4 in. or 12 mm											F91 F91
	FBP	Female BSPP	14 14 mm or M14 x 1.5											F91 F92
	MBP	Male BSPP	16 1 in. or 16 mm											A400 Alloy 400
	F	Fractional Tube Fitting	18 18 mm											A20 Alloy 20
	M	Metric Tube Fitting	20 20 mm or M20 x 1.5											A600 Alloy 600
	UGF	Nut + Gasket + Fractional Bulge Nipple	22 22 mm or M22 x 1.5											A825 Alloy 825
	UGM	Nut + Gasket + Metric Bulge Nipple	24 M24 x 1.5											A276 Alloy C276
	FSW	Fractional Tube Socket Weld	25 25 mm											DU7 Duplex 2507
	MSW	Metric Tube Socket Weld	27 M27 x 2											BR Brass
	FBW	Fractional Tube Butt Weld	28 28 mm											
	MBW	Metric Tube Butt Weld												
PSW	Pipe Socket Weld													
PBW	Pipe Butt Weld													

Needle Valves-NV4 Series

- ❖ Maximum working pressure up to 5000 psig (344 bar)
- ❖ Live-Loaded Packing System
- ❖ Packing nut enables easy external adjustments
- ❖ Straight, angle and cross patterns
- ❖ Softseat stem with PCTFE tip available
- ❖ Panel mounting available
- ❖ Optional handle colors available



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)						
				L1	L2	C	D	E	F	H
NV4-FNPT2-02-	1/8 Female NPT	0.08 (2.0)	0.09	0.81 (20.6)	0.81 (20.6)	0.31 (7.9)	1.0 (25.4)	0.44 (11.2)	0.47 (11.9)	2.28 (57.9)
NV4-F2-02-	1/8" Hikelok			0.98 (25.0)	0.98 (25.0)					
NV4-M3-02-	3 mm Hikelok									
NV4-FNPT2-04-	1/8 Female NPT	0.157 (4.0)	0.35	0.81 (20.6)	0.81 (20.6)	0.39 (9.9)	1.38 (35.0)	0.44 (11.2)	0.53 (13.5)	2.50 (63.5)
NV4-NPT2-04-	1/8 Male NPT			0.98 (25.0)	0.98 (25.0)					
NV4-NPT4-04-	1/4 Male NPT			1.13 (28.7)	1.13 (28.7)					
NV4-F4-04-	1/4" Hikelok			1.17 (29.7)	1.17 (29.7)					
NV4-M6-04-	6 mm Hikelok	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)	0.5 (12.7)	1.88 (47.8)	0.5 (12.7)	0.78 (19.8)	2.97 (75.4)
NV4-FNPT4-06-	1/4 Female NPT			1.12 (28.4)	1.12 (28.4)					
NV4-FNPT6-06-	3/8" Female NPT			1.50 (38.1)	1.50 (38.1)					
NV4-NPT6-06-	3/8 Male NPT			1.29 (32.8)	1.29 (32.8)					
NV4-NPT8-06-	1/2 Male NPT			1.4 (35.6)	1.4 (35.6)					
NV4-F6-06-	3/8" Hikelok			1.3 (33.0)	1.3 (33.0)					
NV4-F8-06-	1/2" Hikelok			1.4 (35.6)	1.4 (35.6)					
NV4-M10-06-	10 mm Hikelok			1.56 (39.7)	1.56 (39.7)					
NV4-M12-06-	12 mm Hikelok			1.50 (38.1)	1.50 (38.1)					
NV4-M14-06-	14 mm Hikelok			1.50 (38.1)	1.50 (38.1)					
NV4-MS20-06-	M20 x 1.5 Male ISO	0.375 (9.5)	1.80	1.50 (38.1)	1.50 (38.1)	0.75 (19.1)	3.00 (76.2)	0.75 (19.1)	1.03 (26.2)	3.91 (99.3)
NV4-FNPT8-11-	1/2 Female NPT			1.63 (41.3)	1.63 (41.3)					
NV4-FNPT12-11-	3/4 Female NPT			1.90 (48.3)	1.90 (48.3)					
NV4-NPT12-11-	3/4 Male NPT									
NV4-F8-11-	1/2" Hikelok									
NV4-F12-11-	3/4" Hikelok									
NV4-M14-11-	14 mm Hikelok									

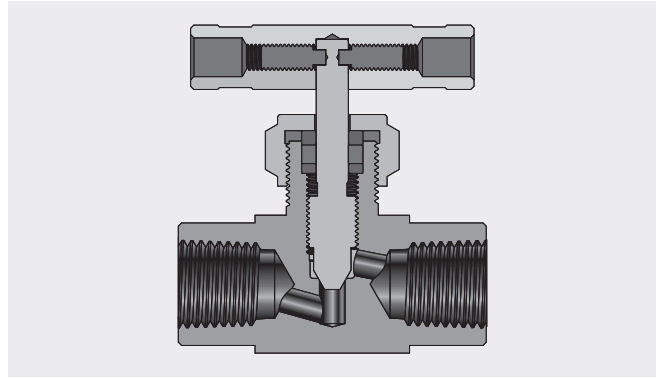
How to Order

NV4— FNPT8 — M12 — 06K — LA — 316

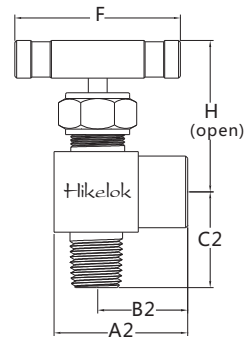
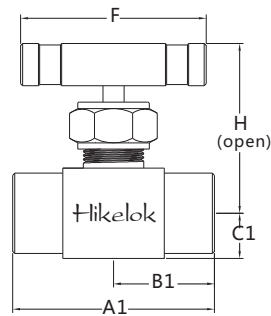
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	Tip Type	Handle	Flow Pattern	Body Material									
NV4	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size	02	0.093 in. (2.4 mm)	Same as Body	Blunt	Black Round	Straight	316 316 S.S.									
	NPT Male NPT	4 1/4 in.									K PCTFE	R Regulating	R Red Round	316L 316L S.S.					
	FBT Female BSPT	3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator	04	0.157 in. (4.0 mm)	A Ball	G Green Round	L Blue Round	A Angle	304 304 S.S.									
	MBT Male BSPT	1/2 in. or 8 mm		06	0.236 in. (6.0 mm)						T PTFE	304L 304L S.S.							
	FMS Female ISO	10 10 mm		11	0.433 in. (11 mm)						K PCTFE	A400 Alloy 400							
	MS Male ISO	3/4 in. or 12 mm	14 mm or M14 x 1.5								A20 Alloy 20								
	FBP Female BSPP	12 12 mm									P PEEK	A600 Alloy 600							
	MBP Male BSPP																		A825 Alloy 825
	F Fractional Tube Fitting										DU7 Duplex 2507								
	M Metric Tube Fitting										BR Brass								

Needle Valves-NV5 Series

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 600°F (-53°C to 315°C)
- ❖ Compact size design
- ❖ Packing nut enables easy external adjustments
- ❖ Straight and angle patterns
- ❖ Softseat stem with PCTFE tip available
- ❖ Optional handle colors available



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)							
				A1	A2	B1	B2	C1	C2	F	H
NV5 with soft-seat stem or PCTFE seat tip											
NV5-FNPT4-02-	1/4 Female Female NPT	0.08 (2.0)	0.09	1.88 (47.8)	—	0.94 (23.9)	—	0.42 (10.7)	—	1.75 (44.4)	1.66 (42.2)
NV5-NPT4-02-	1/4 Male Male NPT			1.94 (49.3)	—	0.97 (24.6)	—	—	—	—	
NV5-NPT4-FNPT4-02-	1/4 Male to Female NPT			1.91 (48.5)	1.44 (36.6)	0.94 (23.9)	1.00 (25.4)	—	1.03 (26.2)	—	
NV5 with vee stem											
NV5-F4-03-	1/4" Hikelok	0.125 (3.2)	0.21	2.46 (62.5)	1.57 (39.9)	1.23 (31.2)	1.13 (28.7)	0.42 (10.7)	1.16 (29.5)	1.75 (44.4)	1.66 (42.2)
NV5-F6-06-	3/8" Hikelok	0.25 (6.4)	0.73	3.08 (78.2)	—	1.54 (39.1)	—	0.66 (16.8)	—	2.50 (63.5)	2.31 (58.7)
NV5-F8-06-	1/2" Hikelok			3.30 (83.8)	—	1.65 (41.9)	—	—	—	—	
NV5-FNPT4-03-	1/4 Female NPT	0.125 (3.2)	0.21	1.88 (47.8)	1.44 (36.6)	0.94 (23.9)	1.00 (25.4)	0.42 (10.7)	1.00 (25.4)	1.75 (44.4)	1.66 (42.2)
NV5-FNPT6-06-	3/8 Female NPT	0.25 (6.4)	0.73	2.50 (63.5)	—	1.25 (31.8)	—	0.66 (16.8)	—	2.50 (63.5)	2.31 (58.7)
NV5-FNPT8-06-	1/2 Female NPT			2.06 (52.3)	—	1.41 (35.8)	—	1.41 (35.8)	—	—	
NV5-NPT4-03-	1/4 Male NPT	0.125 (3.2)	0.21	1.94 (49.3)	—	0.97 (24.6)	—	0.42 (10.7)	—	—	—
NV5-NPT4-F4-03-	1/4 Male NPT to 1/4" Hikelok			—	1.57 (39.9)	—	1.13 (28.7)	—	1.00 (25.4)	1.75 (44.4)	1.66 (42.2)
NV5-NPT4-FNPT4-03-	1/4 Male to Female NPT			1.91 (48.5)	1.44 (36.6)	0.94 (23.9)	1.00 (25.4)	0.42 (10.7)	1.03 (26.2)	—	—
NV5-NPT6-FNPT6-06-	3/8 Male to Female NPT	0.25 (6.4)	0.73	2.50 (63.5)	2.06 (52.3)	1.25 (31.8)	1.41 (35.8)	0.66 (16.8)	1.22 (31.0)	2.50 (63.5)	2.31 (58.7)
NV5-NPT8-FNPT8-06-	1/2 Male to Female NPT			2.55 (64.8)	—	—	—	1.41 (35.8)	—	—	
NV5-NPT12-FNPT8-06-	3/4 Male to 1/2 Female NPT			2.50 (63.5)	—	—	—	—	—	—	
NV5-FBT4-03-	1/4 Female BSPT	0.125 (3.2)	0.21	1.88 (47.8)	—	0.94 (23.9)	—	0.42 (10.7)	—	1.75 (44.4)	1.66 (42.2)
NV5-FBT8-06-	1/2 Female BSPT	0.25 (6.4)	0.73	2.50 (63.5)	—	1.25 (31.8)	—	0.66 (16.8)	—	2.50 (63.5)	2.31 (58.7)

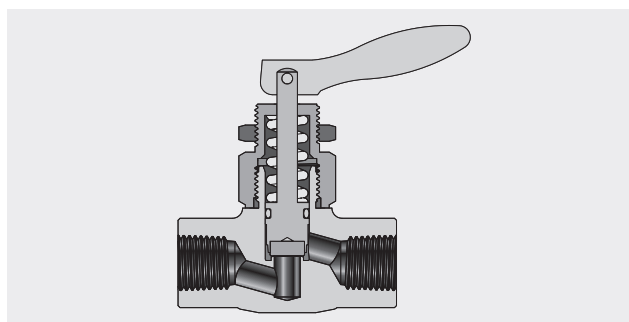
How to Order

NV5 — FNP4 — FNPT4 — 03R — LA — 316

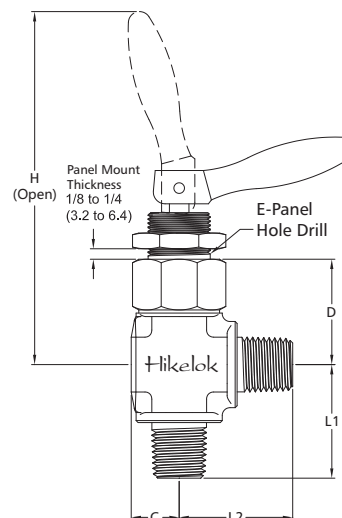
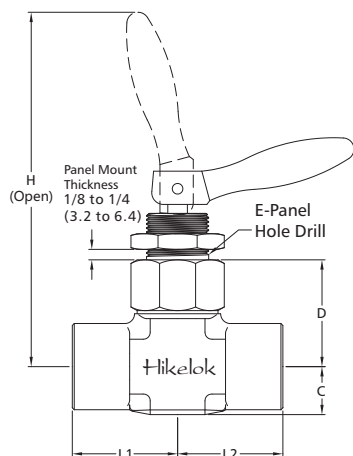
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Type	Handle	Flow Pattern	Body Material			
NV5	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		02 0.08 in. (2.0 mm)	Blunt	Black Aluminum Bar	Straight	316 316 S.S.			
	NPT Male NPT	4 1/4 in.								If outlet and inlet are the same, eliminate the outlet designator	03 0.125 in. (3.2 mm)	R Regulating
	FBT Female BSPT	6 3/8 in. or 6 mm	06 0.250 in. (6.4 mm)	T PTFE	G Green Aluminum Bar	304 304 S.S.						
	MBT Male BSPT	8 1/2 in. or 8 mm					K PCTFE	L Blue Aluminum Bar	304L 304L S.S.			
	FMS Female ISO	10 10 mm	P PEEK	S 304 Stainless Steel Bar								
	MS Male ISO	12 3/4 in. or 12 mm										
	FBP Female BSPP	14 14 mm or M14 x 1.5										
	MBP Male BSPP											
	F Fractional Tube Fitting											
	M Metric Tube Fitting											

Needle Valves-NV6 Series

- ❖ Maximum working pressure up to 300 psig (20.6 bar)
- ❖ One-piece forged body
- ❖ Straight and angle flow patterns
- ❖ Opens and closes quickly
- ❖ Soft-seat shutoff
- ❖ O-ring stem seal needs no adjustment



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)					
				L1	L2	C	D	E	H
NV6-NPT2-02-	1/8 Male NPT	0.08 (2.0)	0.11	0.75 (19.0)	0.75 (19.0)	0.31 (7.9)	0.92 (23.4)	0.53 (13.5)	2.87 (72.9)
NV6-NPT2-F2-02-	1/8 Male NPT			0.75 (19.0)	0.98 (25.0)				
NV6-F2-02-	1/8" Hikelok			0.98 (25.0)	0.98 (25.0)				
NV6-M3-02-	3 mm Hikelok								
NV6-FNPT2-03-	1/8 Female NPT	0.125 (3.2)	0.20	0.81 (20.6)	0.81 (20.6)	0.39 (9.9)	0.92 (23.4)	0.53 (13.5)	2.87 (72.9)
NV6-NPT2-03-	1/8 Male NPT			0.86 (21.8)	0.86 (21.8)				
NV6-NPT4-03-	1/4 Male NPT			25.0 (0.98)	25.0 (0.98)				
NV6-NPT4-F4-03-	1/4 Male NPT			25.0 (0.98)					
NV6-F4-03-	1/4" Hikelok				1.13 (28.7)				
NV6-M6-03-	6 mm Hikelok								
NV6-M8-03-	8 mm Hikelok								
NV6-FNPT4-06-	1/4 Female NPT								
NV6-FNPT6-06-	3/8 Female NPT	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)	0.5 (12.7)	1.06 (26.9)	0.66 (16.8)	3.56 (90.4)
NV6-NPT6-06-	3/8 Male NPT			1.12 (28.4)	1.12 (28.4)				
NV6-F6-06-	3/8" Hikelok			1.29 (32.8)	1.29 (32.8)				
NV6-F8-06-	1/2" Hikelok			1.4 (35.6)	1.4 (35.6)				
NV6-M10-06-	10 mm Hikelok			1.36 (34.5)	1.36 (34.5)				
NV6-M12-06-	12 mm Hikelok			1.46 (37.1)	1.46 (37.1)				
NV6-MS20-06-	M20 x 1.5 Male ISO			1.50 (38.1)	1.50 (38.1)				
NV6-MS22-06-	M22 x 1.5 Male ISO								

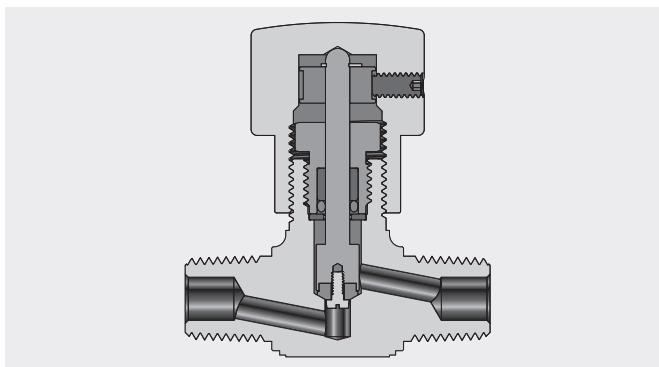
How to Order

NV6 — **NPT4** — **F4** — **03** — **Z** — **A** — **316**

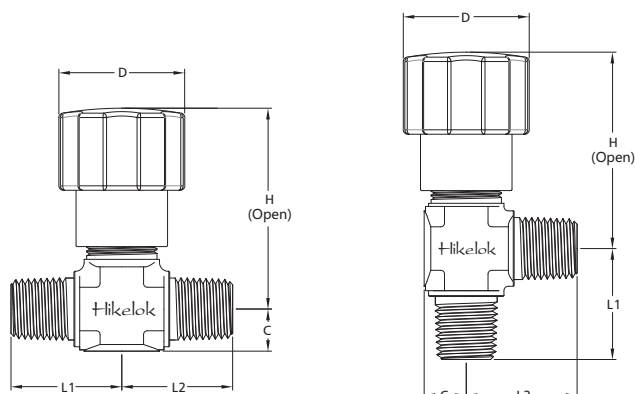
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	O-Ring Material	Flow Pattern	Body Material						
NV6	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		02 0.080 in. (2.0 mm)	Fluorocarbon FKM	Straight	316 316 S.S.						
	NPT Male NPT	4 1/4 in.							If outlet and inlet are the same, eliminate the outlet designator		03 0.125 in. (3.2 mm)	B Buna N	A Angle	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm	06 0.25 in. (6.4 mm)	E Ethylene Propylene	304 304 S.S.									
	MBT Male BSPT	8 1/2 in. or 8 mm				N Neoprene	304L 304L S.S.							
	FMS Female ISO	10 10 mm	Z Kalrez											
	MS Male ISO	12 3/4 in. or 12 mm												
	FBP Female BSPP													
	MBP Male BSPP													
	F Fractional Tube Fitting													
	M Metric Tube Fitting													

Needle Valves-NV7 Series

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ One-piece forged body
- ❖ Straight and angle patterns
- ❖ Nonrotating stem provides repetitive shutoff
- ❖ Protective handle prevents contaminants from entering
- ❖ Actuation threads isolated from system
- ❖ Optional handle colors available



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)				
				L1	L2	C	D	H
NV7-NPT2-02-	1/8 Male NPT	0.09 (2.4)	0.12	0.75 (19.0)	0.75 (19.0)	0.31 (7.9)	1.06 (26.9)	1.86 (47.2)
NV7-NPT2-F2-02-	1/8 Male NPT to 1/8" Hikelok			0.75 (19.0)	1.1 (27.9)			
NV7-F2-02-	1/8" Hikelok			1.1 (27.9)	1.1 (27.9)			
NV7-M3-02-	3 mm Hikelok							
NV7-FNPT2-04-	1/8 Female NPT	0.156 (4.0)	0.27	0.81 (20.6)	0.81 (20.6)	0.39 (9.9)	1.06 (26.9)	1.86 (47.2)
NV7-NPT2-04-	1/8 Male NPT			0.86 (21.8)	0.86 (21.8)			
NV7-NPT4-04-	1/4 Male NPT			25.0 (0.98)	25.0 (0.98)			
NV7-NPT4-F4-04-	1/4 Male NPT to 1/4" Hikelok			25.0 (0.98)				
NV7-F4-04-	1/4" Hikelok			1.13 (28.7)	1.13 (28.7)			
NV7-M6-04-	6 mm Hikelok							
NV7-M8-04-	8 mm Hikelok							
NV7-FNPT4-06-	1/4 Female NPT	0.218 (5.6)	0.53	1.06 (26.9)	1.06 (26.9)	0.5 (12.7)	1.12 (28.4)	2.02 (51.3)
NV7-FNPT6-06-	3/8 Female NPT			1.12 (28.6)	1.12 (28.6)			
NV7-NPT6-06-	3/8 Male NPT			1.29 (32.8)	1.29 (32.8)			
NV7-F6-06-	3/8" Hikelok			1.4 (35.6)	1.4 (35.6)			
NV7-F8-06-	1/2" Hikelok			1.3 (33.0)	1.3 (33.0)			
NV7-M10-06-	10 mm Hikelok			1.4 (35.6)	1.4 (35.6)			
NV7-M12-06-	12 mm Hikelok							
NV7-MS20-06-	M20 x 1.5 Male ISO			1.50 (38.1)	1.50 (38.1)			
NV7-MS22-06-	M22 x 1.5 Male ISO							

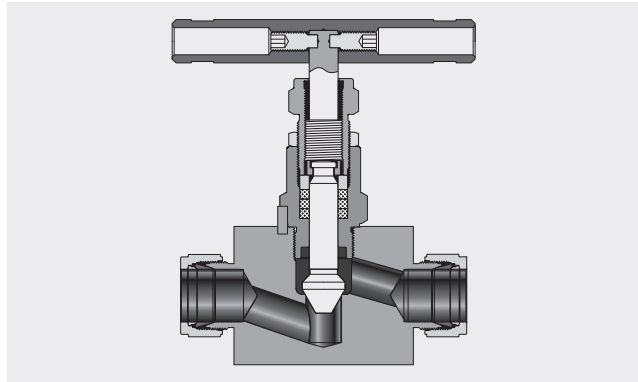
How to Order

NV7 — **NPT8** — **F6** — **06P** — **Z** — **LA** — **316**

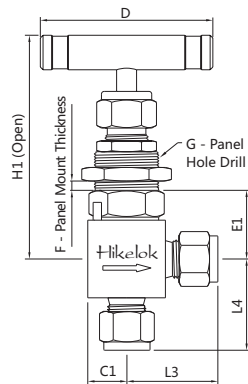
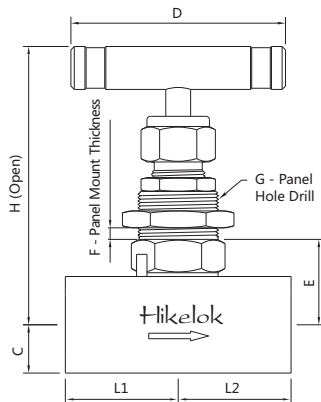
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	O-Ring Material	Handle	Flow Pattern	Body Material						
NV7	FNPT Female NPT	2 1/8in.	Same as inlet type and inlet size		02 0.093 in. (2.4 mm)	PCTFE	Fluorocarbon FKM	Black Round	Straight	316 316 S.S. 316L 316L S.S. 304 304 S.S. 304L 304L S.S. A400 Alloy 400 A20 Alloy 20 BR Brass						
	NPT Male NPT	4 1/4in.									If outlet and inlet are the same, eliminate the outlet designator	04 0.157 in. (4.0 mm)	P PEEK	B Buna N	R Red Round	A Angle
	FBT Female BSPT	6 3/8in. or 6 mm														
	MBT Male BSPT	8 1/2in. or 8 mm					G Green Round									
	FMS Female ISO	10 10 mm					L Blue Round									
	MS Male ISO	12 3/4in. or 12 mm														
	FBP Female BSPP															
	MBP Male BSPP															
	F Fractional Tube Fitting															
	M Metric Tube Fitting															
							Z Kalrez									

Needle Valves-NV8 Series

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Bar stock valve body
- ❖ Straight and angle patterns
- ❖ Upper stem and lower stem design, Stem threads above packing protected from system media
- ❖ Two-piece knuckle joint provides nonrotating needle feature
- ❖ Nonrotating, hardened needle for positive shutoff
- ❖ Safety back-seating in fully open position
- ❖ Optional handle colors available



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)														
				L1	L2	L3	L4	C	C1	D	E	E1	F	G	H	H1		
NV8-FNPT12-15-	3/4 Female NPT	0.591 (15.0)	3.27			1.75 (44.5)	1.14 (29.0)											
NV8-FSW16-15-	1" FSW																	
NV8-MSW25-15-	25 mm MSW			1.75 (44.5)	1.75 (44.5)	1.75 (44.5)	1.75 (44.5)	1.14 (29.0)	0.875 (22.2)	5.0 (127)	1.7 (43.2)	1.43 (36.4)	0.38 (9.7)	1.28 (32.5)	5.0 (127)	4.72 (120)		
NV8-MSW28-15-	28 mm MSW																	
NV8-PSW12-15-	3/4 PSW																	
NV8-M20-15-	20 mm Hikelok			2.35 (59.7)	2.35 (59.7)	2.35 (59.7)	2.0 (51.0)											
NV8-M22-15-	22 mm Hikelok																	
NV8-FNPT16-20-	1 Female NPT			0.787 (20.0)	5.65													
NV8-MSW25-20-	25 mm MSW																	
NV8-FSW16-20-	1" FSW	1.97 (50.0)	1.97 (50.0)					1.25 (31.75)		5.5 (140)							5.2 (132)	
NV8-MSW28-20-	28 mm MSW																	
NV8-PSW12-20-	3/4 PSW																	
NV8-PSW16-20-	1 PWS																	

❖ If working pressure up to 10,000 psi, please refer to NV81 series.

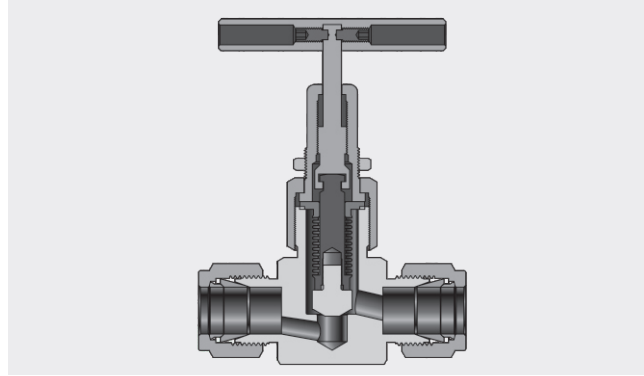
How to Order

NV8 — MBW8 — M12 — S06S — GY — LA — 316

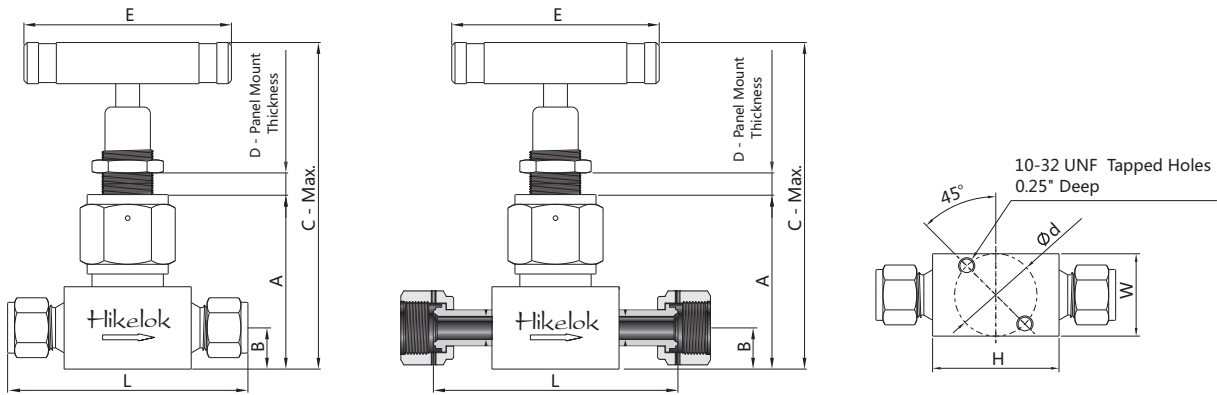
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Tip Material	Tip Type	Packing Material	Panel Mounting	Handle	Flow Pattern	Body Material
NV8	FNPT	Female NPT	2 1/8 in.	Same as inlet type and inlet size If outlet and inlet are the same, eliminate the outlet designator	Same as Body S Stellite	04 0.157 in. (4.0 mm) 06 0.236 in. (6.0 mm) 11 0.433 in. (11 mm) 15 0.591 in. (15 mm) 20 0.787 in. (20 mm)	Same as Body S Stellite	Blunt R Regulating A Ball T PTFE K PCTFE P PEEK	PTFE G Graphite	No Y Yes	Black Aluminum Bar R Red Aluminum Bar G Green Aluminum Bar L Blue Aluminum Bar S 304 Stainless Steel Bar	Straight A Angle	316 316 S.S. 316L 316L S.S. 304 304 S.S. 304L 304L S.S. 321 321 S.S. F91 F91 F91 F92 A400 Alloy 400 A20 Alloy 20 A600 Alloy 600 A825 Alloy 825 A276 Alloy C276 DU7 Duplex 2507 BR Brass
	NPT	Male NPT	4 1/4 in.										
	FBT	Female BSPT	3/8 in. or 6 mm										
	MBT	Male BSPT	1/2 in. or 8 mm										
	FMS	Female ISO	10 10 mm										
	MS	Male ISO	3/4 in. or 12 mm										
	FBP	Female BSPP	14 mm or M14 x 1.5										
	MBP	Male BSPP	14 mm or M14 x 1.5										
	F	Fractional Tube Fitting	1 in. or 16 mm										
	M	Metric Tube Fitting	18 18 mm										
	UGF	Nut + Gasket + Fractional Bulge Nipple	1 1/4 in. or 20 mm or M20 x 1.5										
	UGM	Nut + Gasket + Metric Bulge Nipple	22 mm or M22 x 1.5										
	FSW	Fractional Tube Socket Weld	24 M24 x 1.5										
	MSW	Metric Tube Socket Weld	25 25mm										
	FBW	Fractional Tube Butt Weld	27 M27 x 2										
	MBW	Metric Tube Butt Weld	28 28mm										
PSW	Pipe Socket Weld												
PBW	Pipe Butt Weld												

Bellows-Sealed Valves-BS1 Series

- ❖ Maximum working pressure up to 1000 psig (68.9 bar)
- ❖ Working temperature from -20°F to 900°F (-28°C to 482°C)
- ❖ Flow coefficients (Cv) from 0.12 to 1.2
- ❖ Variety of end connections
- ❖ 316S.S., brass and monel 400 materials
- ❖ Panel and bottom mounting
- ❖ Bar, round handle are available
- ❖ Precision-formed metal bellows provides reliable seal
- ❖ Nonrotating stem tip: spherical, conical and regulating
- ❖ Gasket body to bellows seal is standard, weld seal also available
- ❖ Replaceable bellows and stem assembly
- ❖ Every valve is tested with helium for 10s to a maximum leak rate of 4×10^{-9} std cm³/s



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)								
				A	B	C	D	E	L	W	H	Ød
BS1-F4-04-	1/4" Hikelok	0.16 (4.1)	0.36	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	2.46 (62.5)	1.00 (25.4)	1.06 (27.0)	1.00 (25.4)
BS1-F6-06-	3/8" Hikelok	0.26 (6.6)	0.80	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.52 (64.0)	3.09 (78.5)	1.00 (25.4)	1.57 (39.9)	1.00 (25.4)
BS1-F8-08-	1/2" Hikelok	0.30 (7.6)	1.20	2.24 (56.8)	0.56 (14.2)	4.13 (104.8)	0.39 (10.0)	2.52 (64.0)	3.30 (83.8)	1.13 (28.7)	1.57 (39.9)	1.13 (28.7)
BS1-M6-04-	6 mm Hikelok	0.16 (4.1)	0.36	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	2.46 (62.5)	1.00 (25.4)	1.06 (27)	1.00 (25.4)
BS1-M10-07-	10 mm Hikelok	0.28 (7.1)	1.00	2.24 (56.8)	0.56 (14.2)	4.13 (104.8)	0.39 (10.0)	2.52 (64.0)	3.11 (79.0)	1.13 (28.7)	1.57 (39.9)	1.13 (28.7)
BS1-M12-08-	12 mm Hikelok	0.30 (7.6)	1.20	2.24 (56.8)	0.56 (14.2)	4.13 (104.8)	0.39 (10.0)	2.52 (64.0)	3.30 (83.8)	1.13 (28.7)	1.57 (39.9)	1.13 (28.7)
BS1-FGFS4-04-	1/4" Female GFS	0.16 (4.1)	0.36	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.52 (64.0)	2.76 (70.1)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
BS1-FGFS8-08-	1/2" Female GFS	0.30 (7.6)	1.20	2.24 (56.8)	0.56 (14.2)	4.13 (104.8)	0.39 (10.0)	2.52 (64.0)	3.12 (79.2)	1.13 (28.7)	1.50 (38.1)	1.13 (28.7)
BS1-GFS4-04-	1/4" Male GFS	0.16 (4.1)	0.36	2.12 (53.8)	0.5 (12.7)	4.01 (101.8)	0.39 (10.0)	2.20 (56.0)	2.24 (56.9)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
BS1-GFS8-08-	1/2" Male GFS	0.30 (7.6)	1.20	2.24 (56.8)	0.56 (14.2)	4.13 (104.8)	0.39 (10.0)	2.52 (64.0)	3.00 (76.2)	1.13 (28.7)	1.50 (38.1)	1.13 (28.7)

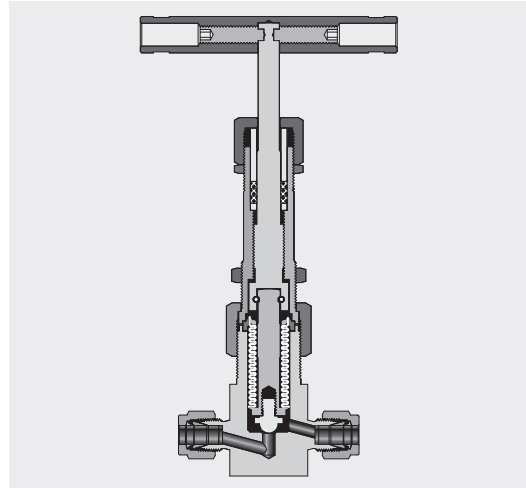
How to Order

BS1 — MBW10 — M10 — 07 — KR — G — 316

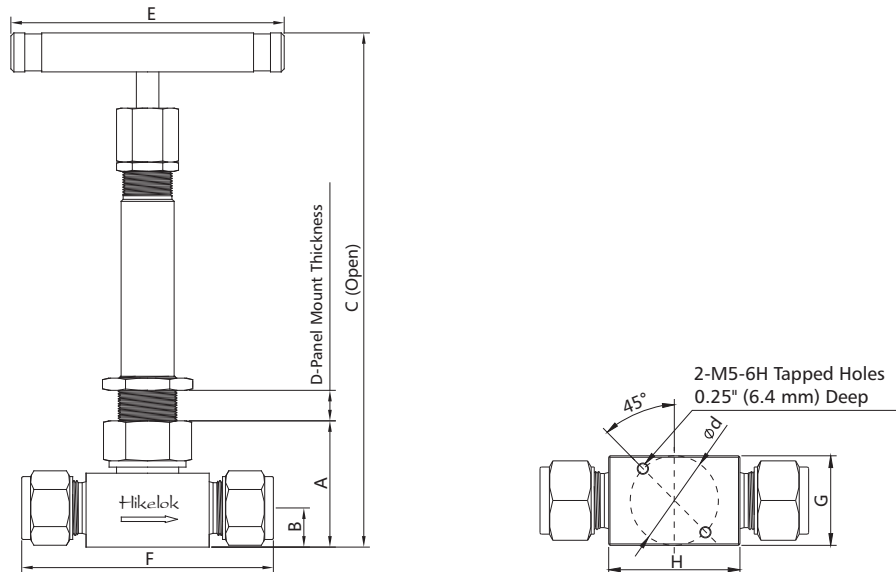
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	Tip Type	Handle	Body Material									
BS1	FBW Fractional Tube Butt Weld	2	Same as inlet type and inlet size	If outlet and inlet are the same, eliminate the outlet designator	04	Same as Body Material	Spherical	Blue Aluminum	316									
		4			06				316L									
	MBW Metric Tube Butt Weld	6			06				K PCTFE	R Regulating	B Black Aluminum	304						
		8			07							304L						
	F Fractional Tube Fitting	10			08							N Conical	R Red Aluminum	G Green Aluminum	304L			
		12			11										304			
	M Metric Tube Fitting	10 mm			11										S Stainless Steel	K Black Knob	S 304 Stainless Steel	304
	UGM Nut+Gasket+ Metric Bulge Nipple	15			20													304L
GFS Male GFS Fitting	15	20	304L															

Bellows-Sealed Valves-BS2 Series

- ❖ Upper packing provides secondary containment system above the bellows
- ❖ Hydraulic-formed multilayer bellows enhanced cycle life
- ❖ Nonrotating stem tip eliminates galling within the seat area
- ❖ Strictly controlled bellows stroke to improve safety and cycle life
- ❖ Replaceable bellows and stem assembly
- ❖ Regulating, conical, and spherical stem tips available
- ❖ Panel, bottom, and side mounting available
- ❖ Double lock-pins enable steady and durable fastening of the handle.
- ❖ Handle color options are available
- ❖ Every Hikelok bellows-sealed valve is factory tested with helium to a maximum leak rate of 4×10^{-9} std cm³/s at the seat, envelope and all seals



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)								
				A	B	C	D	E	F	G	H	d
BS2-F4-04-	1/4" Hikelok	0.16 (4.1)	0.36	2.69 (59.9)	0.56 (14.2)	6.48 (165)	0.38 (9.7)	2.50 (63.5)	2.46 (62.5)	1.00 (25.4)	1.06 (26.9)	1.00 (25.4)
BS2-F6-06-	3/8" Hikelok	0.26 (6.6)	0.85	1.61 (40.9)	0.50 (12.7)	6.59 (167)	0.38 (9.7)	2.50 (63.5)	3.09 (78.5)	1.13 (28.7)	1.57 (39.9)	1.13 (28.7)
BS2-F8-08-	1/2" Hikelok	0.30 (7.6)	1.20	1.61 (40.9)	0.50 (12.7)	6.59 (167)	0.38 (9.7)	2.50 (63.5)	3.30 (83.8)	1.13 (28.7)	1.57 (39.9)	1.13 (28.7)
BS2-M6-04-	6 mm Hikelok	0.16 (4.1)	0.36	1.49 (37.8)	0.56 (14.2)	6.48 (165)	0.38 (9.7)	2.50 (63.5)	2.46 (62.5)	1.00 (25.4)	1.06 (26.9)	1.00 (25.4)
BS2-M10-07-	10 mm Hikelok	0.28 (7.1)	1.00	1.61 (40.9)	0.50 (12.7)	6.59 (167)	0.38 (9.7)	2.50 (63.5)	3.11 (79.0)	1.13 (28.7)	1.57 (39.9)	1.13 (28.7)
BS2-M12-07-	12 mm Hikelok	0.28 (7.1)	1.00	1.61 (40.9)	0.50 (12.7)	6.59 (167)	0.38 (9.7)	2.50 (63.5)	3.30 (83.8)	1.13 (28.7)	1.57 (39.9)	1.13 (28.7)
BS2-FGFS4-04-	1/4" Female GFS	0.16 (4.1)	0.36	1.49 (37.8)	0.56 (14.2)	6.48 (165)	0.38 (9.7)	2.50 (63.5)	2.76 (70.1)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
BS2-FGFS8-08-	1/2" Female GFS	0.30 (7.6)	1.20	1.61 (40.9)	0.50 (12.7)	6.59 (167)	0.38 (9.7)	2.50 (63.5)	2.98 (75.7)	1.13 (28.7)	1.52 (38.6)	1.13 (28.7)
BS2-GFS4-04-	1/4" Male GFS	0.16 (4.1)	0.36	1.49 (37.8)	0.56 (14.2)	6.48 (165)	0.38 (9.7)	2.50 (63.5)	2.24 (56.9)	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)
BS2-GFS8-08-	1/2" Male GFS	0.30 (7.6)	1.20	1.61 (40.9)	0.50 (12.7)	6.59 (167)	0.38 (9.7)	2.50 (63.5)	3.00 (76.2)	1.13 (28.7)	1.52 (38.6)	1.13 (28.7)

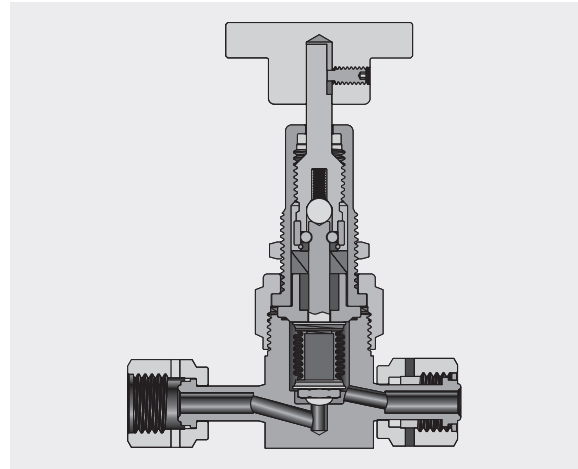
How to Order

BS2 — **MBW10** — **M10** — **07** — **KN** — **BA** — **316**

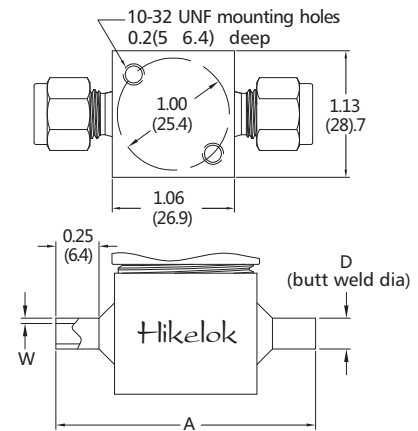
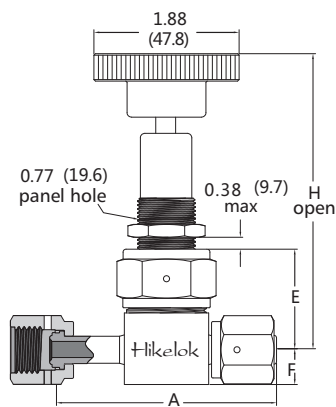
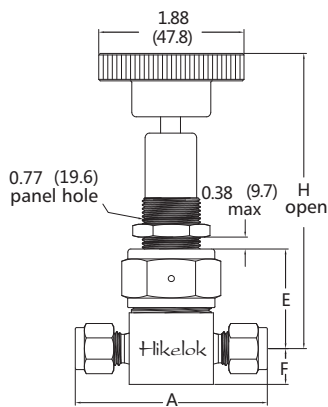
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	Tip Type	Handle	Flow Pattern	Body Material	
BS2	F Fractional Tube Socket Weld	2 1/8" 4 1/4"	Same as inlet type and inlet size		04 0.16 in. (4.1 mm)	Standard Material	Spherical	Blue Aluminum Bar	Straight	316 316 S.S.	
	M Metric Tube Socket Weld	6 3/8" or 6 mm	If outlet and inlet are the same, eliminate the outlet designator		06 0.26 in. (6.6 mm)	K PCTFE	Regulating	Black Aluminum Bar	A Angle	316L 316L S.S.	
	F Fractional Tube Butt Weld	8 1/2" or 8 mm			07 0.28 in. (7.1 mm)	W Stellite	Conical	Red Aluminum Bar		304 304 S.S.	
	M Metric Tube Butt Weld	10 10 mm			08 0.3 in. (7.6 mm)			Green Aluminum Bar		304L 304L S.S.	
	F Fractional Tube Fitting	12 3/4" or 12 mm			11 0.433 in. (11 mm)			Stainless Steel		A400 Alloy 400	
	M Metric Tube Fitting	14 14 mm or M14			15 0.591 in. (15 mm)						
	UGF Nut+Gasket+Fractional Bulge Nipple	16 1" or 16 mm			20 0.787 in. (20 mm)						
	UGM Nut+Gasket+Metric Bulge Nipple	18 18 mm									
	FGFS Female FR Fitting	20 1 1/4" or 20 mm or M20 x 1.5									
	GFS Male FR Fitting	22 22 mm or M22 x 1.5									
		25 25 mm									
		27 M27 x 2									
			28 28 mm								

Bellows-Sealed Valves-BS3 Series

- ❖ Maximum working pressure up to 500 psig (34.4 bar)
- ❖ Working temperature from -40°F to 200°F (-40°C to 93°C)
- ❖ Flow coefficients (Cv) : 0.3 and 0.7
- ❖ Variety of end connections
- ❖ 316S.S and 316L VAR S.S. materials
- ❖ Panel and bottom mounting
- ❖ Bar, round handle are available
- ❖ Precision-formed metal bellows provides reliable seal
- ❖ Nonrotating stem tip
- ❖ Bonnet seals to body without gasket
- ❖ Actuator-stem coupling design for smooth actuation
- ❖ Every valve is tested with helium for 10s to a maximum leak rate of 4×10^{-9} std cm³/s



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)												
				A	D	E	F	H	W							
BS3-F4-04-	1/4" Hikelok	0.157 (4.0)	0.30	2.46 (62.5)	—	1.27 (32.3)	0.45 (11.4)	3.88 (98.6)	0.035 (0.89)							
BS3-F6-04-	3/8" Hikelok			2.58 (65.5)												
BS3-M6-04-	6mm Hikelok			2.46 (62.5)												
BS3-M8-04-	8mm Hikelok			2.53 (64.3)												
BS3-FBW4-04-	1/4" FBW			0.25 (6.4)												
BS3-FBW6-04-	3/8" FBW			1.74 (44.2)						0.38 (9.6)	6.0					
BS3-MBW6-04-	6mm MBW			1.75 (44.4)						0.38 (9.6)						
BS3-FSW4-04-	1/4" FSW			2.30 (58.4)												
BS3-GFS4-04-	1/4" Male GFS			2.00 (50.8)												
BS3-OFS4-04-	1/4" Male OFS			2.76 (70.1)												
BS3-FGFS4-04-	1/4" Female GFS			2.54 (64.5)												
BS3-FGFS4-GFS4-04-	1/4" Female/Male GFS															
BS3-F6-08-	3/8" Hikelok			0.313 (8.0)						0.70	2.58 (65.5)	—	1.28 (32.5)	0.53 (13.5)	3.88 (98.5)	0.035 (0.89)
BS3-F8-08-	1/2" Hikelok										2.80 (71.1)					
BS3-M10-08-	10mm Hikelok	2.60 (66.0)														
BS3-M12-08-	12mm Hikelok	2.80 (71.1)														
BS3-FBW6-08-	3/8" FBW	1.74 (44.2)	0.38 (9.6)													
BS3-FBW8-08-	1/2" FBW	0.50 (12.7)														
BS3-FT8-08-	1/2" FT	3.40 (86.4)														
BS3-GFS8-08-	1/2" Male GFS	2.58 (65.5)			1.33 (33.7)											
BS3-FGFS8-08-	1/2" Female GFS	3.15 (80.0)			1.27 (32.2)											
					0.66 (16.8)	3.94 (100.2)										
						3.87 (98.2)										
							0.049 (1.2)									

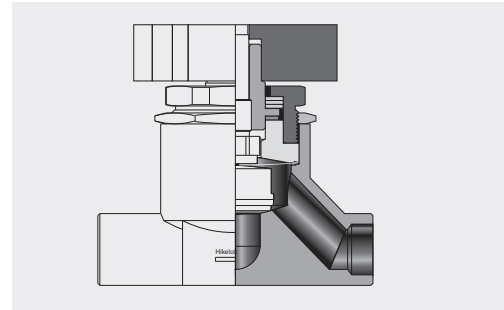
How to Order

BS3 — **MBW10** — **M10** — **04** — **BA** — **316**

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Handle	Flow Pattern	Body Material		
BS3	FBW	Fractional Tube Butt Weld	Same as inlet type and inlet size	Same as inlet type and inlet size	04 0.167 in. (4.0 mm)	Blue Aluminum	Straight	316 316 S.S.		
	MBW	Metric Tube Butt Weld							4	1/4 in.
	F	Fractional Tube Fitting							6	3/8 in. or 6 mm
	M	Metric Tube Fitting							8	1/2 in. or 8 mm
	FGFS	Female GFS Fitting							10	10 mm
	GFS	Male GFS Fitting							12	3/4 in. or 12 mm
			If outlet and inlet are the same, eliminate the outlet designator		08 0.313 in. (8.0 mm)	B Black Aluminum R Red Aluminum G Green Aluminum	See porting configurations for the following code A Angle 2L 2N 2R 3A 3B 3C 3F 3G 4D 4E	316L 316L S.S. 316LV 316L VAR		

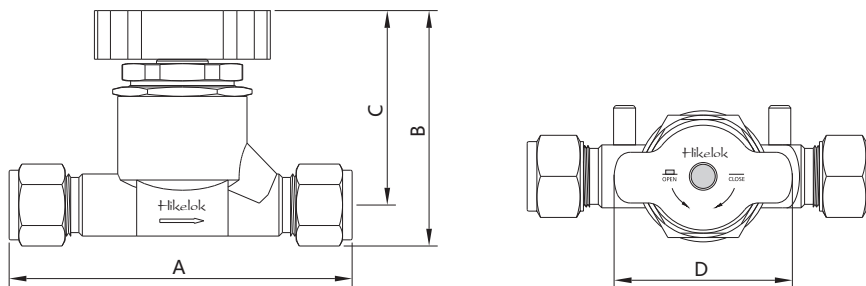
Diaphragm Valves-DV1, DV2, DV3 Series

- ❖ Maximum working pressure: 300 psig (20.7 bar)
- ❖ Working temperature: -20°F to 300°F (-28°C to 148°C)
- ❖ Variety of end connections
- ❖ Body material: Cast, forged and bar stock stainless steel
- ❖ No spring or thread within wetted area for cleaner operation
- ❖ Wetted surface finish machined to an average of 0.51 µm Ra for cast body, electropolished to 0.25 µm Ra for forged and bar stock body
- ❖ PCTFE stem tip insert for leak-tight shutoff
- ❖ Unique bonnet design for safety
- ❖ Diaphragms welded to the stem for leak-tight performance
- ❖ Optimum combination of strength, flexibility and cycle life by three diaphragms
- ❖ The upper stem as an indicator of the valve position-open or closed



Dimensions

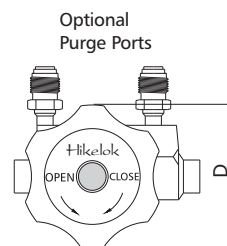
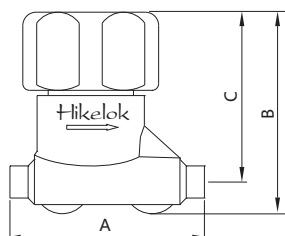
DV1 Series: Cast-body



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)			
				A	B	C	D
DV1-F8-13-	1/2" Hikelok	0.5 (12.7)	2.8	5.30 (135)	2.95 (74.9)	2.41 (61.2)	2.25 (57.2)
DV1-F12-25-	3/4" Hikelok	1.0 (25.4)	12.0	8.28 (210)	5.12 (130.0)	4.35 (110.0)	4.0 (102.0)
DV1-F16-25-	1" Hikelok	1.0 (25.4)	12.0	8.46 (215)	5.12 (130.0)	4.35 (110.0)	4.0 (102.0)
DV1-M12-13-	12 mm Hikelok	0.5 (12.7)	2.8	5.30 (135)	2.95 (74.9)	2.41 (61.2)	2.25 (57.2)
DV1-M25-25-	25 mm Hikelok	1.0 (25.4)	12.0	8.63 (219)	5.12 (130.0)	4.35 (110.0)	4.0 (102.0)
DV1-FNPT8-13-	1/2 Female NPT	0.5 (12.7)	2.8	5.61 (142)	2.95 (74.9)	2.41 (61.2)	2.25 (57.2)
DV1-FNPT16-25-	1 Female NPT	1.0 (25.4)	12.0	8.46 (215)	5.12 (130.0)	4.35 (110.0)	4.0 (102.0)
DV1-GFS8-13-	1/2" Male GFS	0.5 (12.7)	2.8	4.58 (116)	2.95 (74.9)	2.41 (61.2)	2.25 (57.2)
DV1-FBW8-13-	1/2" X 0.049 " Fractional Tube	0.5 (12.7)	2.8	8.82 (224)	2.95 (74.9)	2.41 (61.2)	2.25 (57.2)
DV1-FBW12-13-	3/4" X 0.065" Fractional Tube	0.5 (12.7)	2.8	8.79 (223)	2.95 (74.9)	2.41 (61.2)	2.25 (57.2)
DV1-FBW16-25-	1" X 0.065" Fractional Tube	1.0 (25.4)	12.0	10.87 (276)	5.12 (130.0)	4.35 (110.0)	4.0 (102.0)

Dimensions

DV2 Series: Forged-body



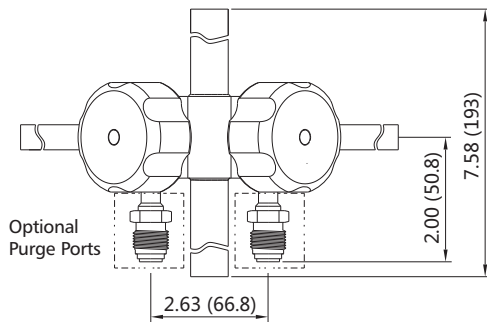
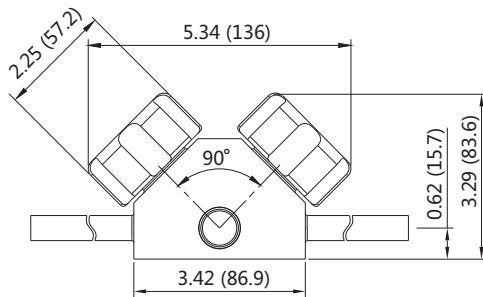
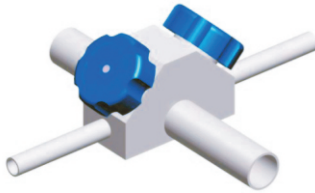
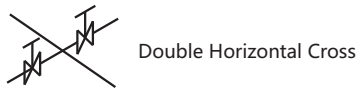
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)			
				A	B	C	D
DV2-F8-13-	1/2" Hikelok	0.5 (12.7)	2.8	5.30 (135)	3.03 (77.0)	2.54 (64.5)	2.25 (57.2)
DV2-M12-13-	12 mm Hikelok			5.30 (135)			
DV2-FGFS8-13-	1/2" Female GFS Fitting			4.09 (104)			
DV2-RGFS8-13-	1/2" Rotatable Male GFS Fitting			5.43 (138)			
DV2-FBW6-13-	3/8" X 0.049" Fractional Tube			8.86 (225)			
DV2-FBW8-13-	1/2" X 0.049" Fractional Tube			8.86 (225)			

How to Order

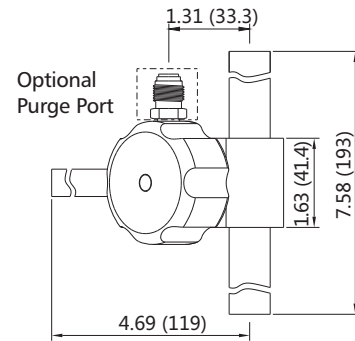
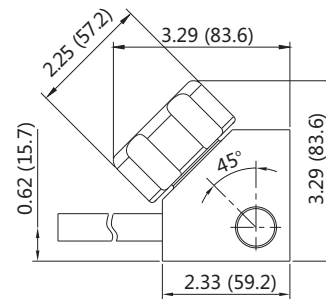
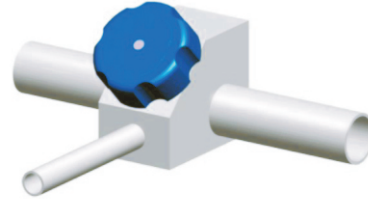
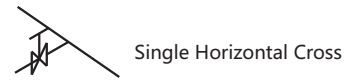
DV1— FGFS8 — FGFS4 — 13 — D — E — 316L

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Purge Port	Handle Color	Body Material
DV1	FNPT Female NPT	2 1/8 (in.)	Same as inlet type and inlet size		13 0.5 in. (12.7 mm)	None	Blue	316 316 S.S.
DV2	NPT Male NPT	4 1/4 (in.)				If outlet and inlet are the same, eliminate the outlet designator	25 1 in. (25.4 mm)	U Upstream
	FBT Female BSPT	6 3/8 (in.) or 6 mm	D Downstream	G Gold				
	FBP Female BSPP	8 1/2 (in.) or Ø1/2 x 0.049" or 8 mm	UD Upstream and Downstream	E Green				
	MBP Male BSPP	10 10 mm	B Black					
	FSW Fractional Tube Socket Weld	12 3/4 (in.) or Ø3/4 x 0.065" 12 mm or 12 x 1	P Purple					
	MSW Metric Tube Socket Weld	14 14 mm	O Orange					
	FBW Fractional Tube Butt Weld	16 1 (in.) or 16 mm	I Pink					
	MBW Metric Tube Butt Weld	18 18 mm or Ø18 x 1.5	R Brown					
	F Fractional Tube Fitting	20 1 1/4 (in.) or 20 mm or M20 x 1.5	S Silver					
	M Metric Tube Fitting	22 22 mm	W White					
	FGFS Female FR Fitting	25 25 mm	Y Yellow					
	GFS Male FR Fitting							
	RGFS Rotatable Male FR Fitting							
	FTE 3" Fractional Tube Extension							
	MTE 3" Metric Tube Extension							

DV3D Series: Bar Stock-body



DV3S Series: Bar Stock-body

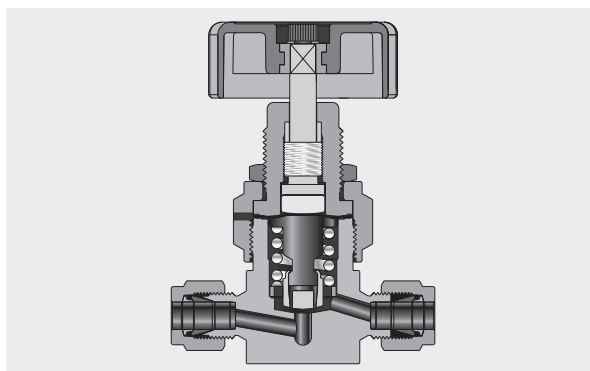


Basic Ordering Number	Tube Size		Orifice in.(mm)	Cv
	Main	Branch		
DV3D-8-8-	1/2" x 0.049"	1/2" x 0.049"	0.5 (12.7)	2.8
DV3D-8-RGFS8-	1/2" x 0.049"	1/2" rotatable male GFS fitting		
DV3D-12-8-	3/4" x 0.065"	1/2" x 0.049"		
DV3D-12-RGFS8-	3/4" x 0.065"	1/2" rotatable male GFS fitting		
DV3D-16-8-	1" x 0.065"	1/2" x 0.049"		
DV3D-16-RGFS8-	1" x 0.065"	1/2" rotatable male GFS fitting		

Basic Ordering Number	Tube Size		Orifice in.(mm)	Cv
	Main	Branch		
DV3S-8-4-	1/2" x 0.049"	1/4" x 0.035"	0.5 (12.7)	2.8
DV3S-8-8-	1/2" x 0.049"	1/2" x 0.049"		
DV3S-8-RGFS4-	1/2" x 0.049"	1/4" rotatable male GFS fitting		
DV3S-8-RGFS8-	1/2" x 0.049"	1/2" rotatable male GFS fitting		
DV3S-12-8-	3/4" x 0.065"	1/2" x 0.049"		
DV3S-12-RGFS8-	3/4" x 0.065"	1/2" rotatable male GFS fitting		
DV3S-16-8-	1" x 0.065"	1/2" x 0.049"		
DV3S-16-RGFS8-	1" x 0.065"	1/2" rotatable male GFS fitting		

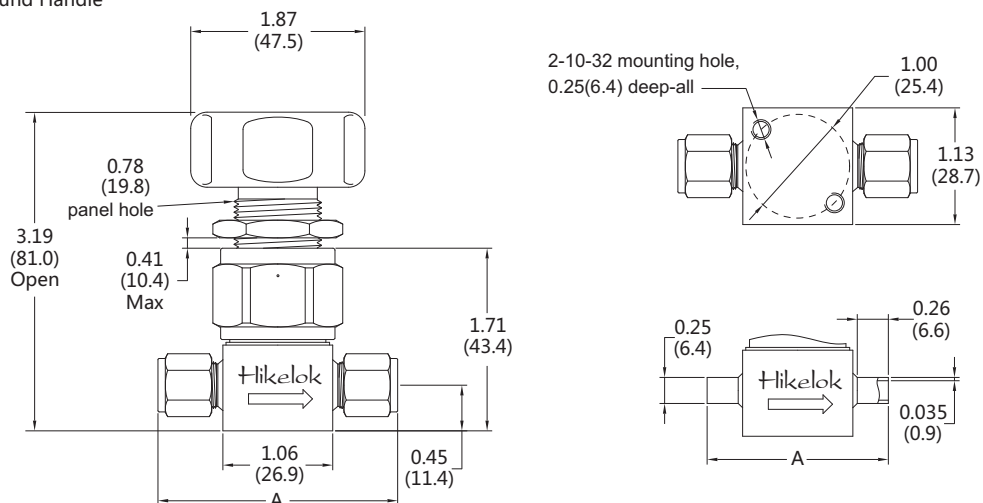
Diaphragm Valves-DV4 Series

- ❖ Maximum working pressure: 3500 psig (241 bar)
- ❖ Working temperature: -100°F to 250°F (-73°C to 121°C)
- ❖ Repetitive shutoff with fully contained softseat stem tip
- ❖ Position indicator ring for lever handle
- ❖ Manual or penumatic actuation
- ❖ Aluminum piston accelerated open/close speed
- ❖ Helium leak tested, maximum leak rate of 4×10^{-9} std cm³/s
- ❖ Different handle types and colors are available
- ❖ Can be used in vacuum applications



Dimensions

Round Handle



Basic Ordering Number	Connection Type and Size	Dimension, in. (mm)	Orifice in. (mm)
		A	
DV4-F4-	1/4" CIR-LOK	2.46 (62.5)	
DV4-F6-	3/8" CIR-LOK	2.58 (65.5)	
DV4-M6-	6 mm CIR-LOK	2.46 (62.5)	
DV4-M8-	8 mm CIR-LOK	2.53 (64.3)	
DV4-FBW4-	1/4" Tube butt weld	1.74 (44.2)	
DV4-FBW6-	3/8" Tube butt weld	1.74 (44.2)	
DV4-FBW6-FSW4-	3/8" Tube butt weld to 1/4" tube socket weld	1.75 (44.4)	0.156(4.0)
DV4-FBW8-FSW6-	1/2" Tube butt weld to 3/8" tube socket weld	1.81 (46.0)	
DV4-NPT4-	1/4" Male NPT	2.46 (62.5)	
DV4-FNPT4-	1/4" Female NPT	2.46 (62.5)	
DV4-GFS4-	1/4" Male GFS	2.30 (58.4)	
DV4-FGFS4-	1/4" Female GFS	2.76 (70.1)	
DV4-FGFS4-GFS4-	1/4" Female GFS to 1/4" Male GFS	2.54 (64.5)	
DV4-GFS4-FGFS4-	1/4" Male GFS to 1/4" Female GFS	2.54 (64.5)	

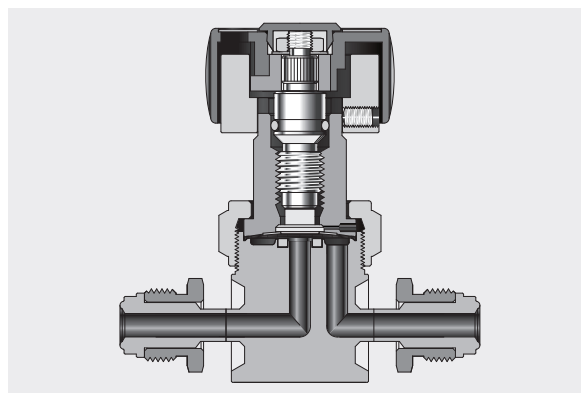
How to Order

DV4— FGFS4 — GFS4 — T — EA — NC — 316L

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Stem Tip Material	Handle Color	Flow Pattern	Actuator	Body Material
DV4	F Fractional Tube Fitting	2 1/8"	Same as inlet type and inlet size		PCTFE	Blue	Straight	Round Handle	316 316 S.S.
	M Metric Tube Fitting	4 1/4"				C Red			
	FBW Fractional Tube Butt Weld	6 6 mm	If outlet and inlet are the same, eliminate the outlet designator		V Polyimide	G Gold		Pneumatic, Normally Closed NO Normally Open	316L 316L S.S.
	MBW Metric Tube Butt Weld	8 1/2 "				E Green			
	GFS Male GFS Fitting					B Black			
	FGFS Female GFS Fitting					P Purple			
	NPT Male NPT					O Orange			
	FNPT Female NPT					I Pink			
						R Brown			
						S Silver			
					W White				
					Y Yellow				

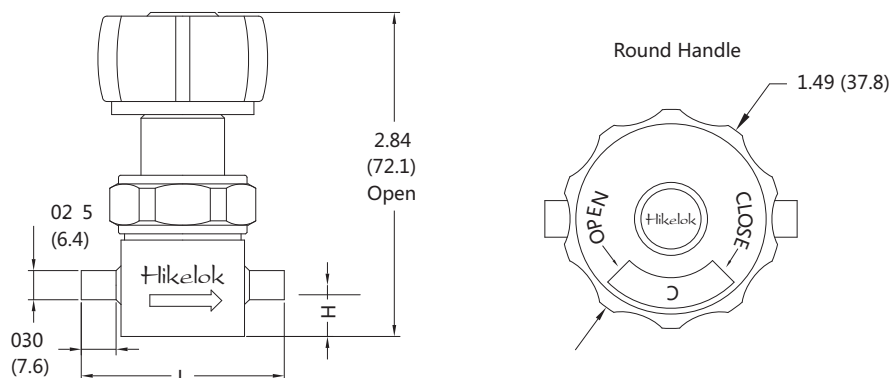
Diaphragm Valves-DV5 Series

- ❖ 316L VIM-VAR stainless steel body is available
- ❖ Suitable for ultrahigh-purity applications
- ❖ Elgiloy material for strength and corrosion resistance for long cycle life
- ❖ Fully contained PCTFE seat design provides excellent resistance to swelling and contamination
- ❖ Wetted Surface Electropolished, Roughness Ra finished to an average of Ra5 $\mu\text{in.}$ (0.13 μm)
- ❖ Helium leak tested, maximum leak rate of 1×10^{-9} std cm^3/s
- ❖ Low-pressure and high-pressure models
- ❖ Manual or pneumatic actuation
- ❖ Aluminum piston accelerated open/close speed
- ❖ Different handle types and colors are available
- ❖ Can be used in vacuum applications



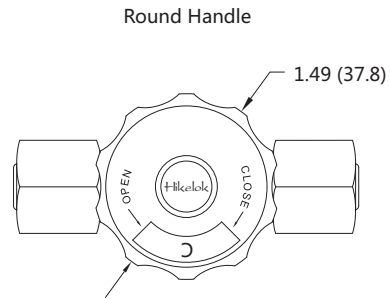
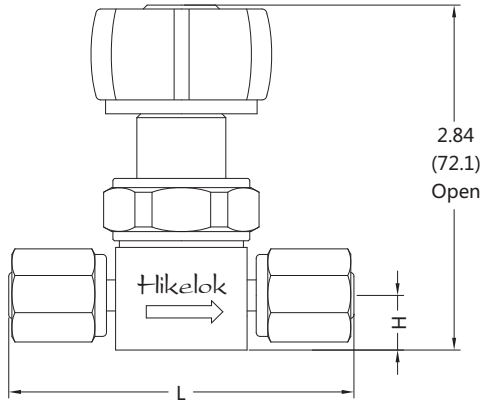
Dimensions

Low-Pressure Valves



Basic Ordering Number	Connection Type and Size	Dimension, in. (mm)		Orifice in. (mm)
		L	H	
DV5-FBW4-L-	1/4" tube butt weld 0.30"(7.6 mm) tube stub, 0.035"(0.89 mm) wall	1.74 (44.2)	0.44(11.2)	0.16(4.1)
DV5-FBW4S-L-	1/4" tube butt weld 0.26"(6.6 mm) tube stub, 0.035" (0.89 mm) wall	1.61 (40.9)	0.44 (11.2)	
DV5-MBW6-L-	6 mm tube butt weld, 1 mm wall	1.74 (44.2)	0.44 (11.2)	
DV5-FGFS4-L-	1/4" female GFS fitting	2.78 (70.6)	0.44 (11.2)	
DV5-RGFS4-L-	1/4" rotatable male GFS fitting			
DV5-GFS4-L-	1/4" integral male GFS fitting			
DV5-F4-L-	1/4" Hikelok tube fittings	2.46 (62.5)	0.44 (11.2)	
DV5-M6-L-	6 mm Hikelok tube fittings	2.45 (62.2)	0.44 (11.2)	

High-Pressure Valves



Basic Ordering Number	Connection Type and Size	Dimension, in. (mm)		Orifice in. (mm)
		L	H	
DV5-FBW4-H-	1/4" tube butt weld 0.30" (7.6mm) tube stub, 0.035" (0.89 mm) wall	1.74 (44.2)	0.44 (11.2)	0.16(4.1)
DV5-FBW4S-H-	1/4" tube butt weld 0.26" (6.6 mm) tube stub, 0.035" (0.89 mm) wall	1.61 (40.9)	0.44 (11.2)	
DV5-MBW6-H-	6 mm tube butt weld, 1 mm wall	1.74 (44.2)	0.44 (11.2)	
DV5-FGFS4-H-	1/4" female GFS fitting	2.78 (70.6)	0.44 (11.2)	
DV5-RGFS4-H-	1/4" rotatable holes are male GFS fitting			
DV5-GFS4-H-	1/4" integral male GFS fitting	2.30 (58.4)	0.44 (11.2)	
DV5-F4-H-	1/4" Hikelok tube fittings	2.46 (62.5)	0.44 (11.2)	
DV5-M6-H-	6 mm Hikelok tube fittings	2.45 (62.2)	0.44 (11.2)	

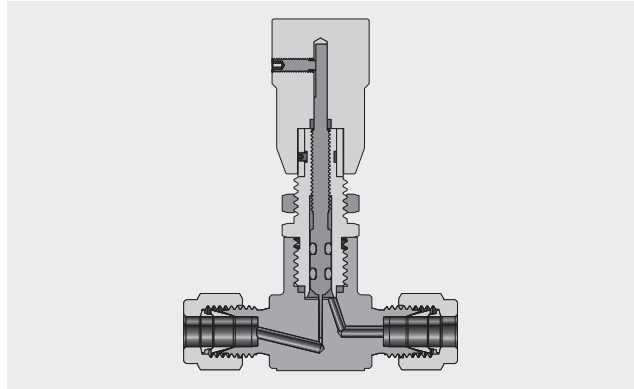
How to Order

Series	Port 1 Type	Port 1 Size	Port 2/3/4/5 Type	Port 2/3/4/5 Size	Pressure Type	Colour	Flow Path	Actuator/Handle	Body Material
DV5	F Fractional Tube Fitting M Metric Tube Fitting FBW Fractional Tube Butt Weld MBW Metric Tube Butt Weld GFS Male GFS Fitting FGFS Female GFS Fitting RGFS Rotatable Male GFS Fitting	2 1/8" 4 1/4" 6 6 mm	Same as port 1 Specify in the same way as port 1 type and port 1 size		H High-Pressure Valves L Low-Pressure Valves	Blue B Black W White Y Yellow G Green R Red	Straight 2L 2N 2R 3A 3B 3C 3F 3G 4D 4E M1V M2V M1D	Round Handle DH Directional Handle IH Integral Lockout Handle TH Toggle Handle NC Pneumatic, Normally closed NO Pneumatic, Normally open	316 316 S.S. 316L 316L S.S. 316LV 316 VAR S.S. 316LVV 316L VM-VARS S

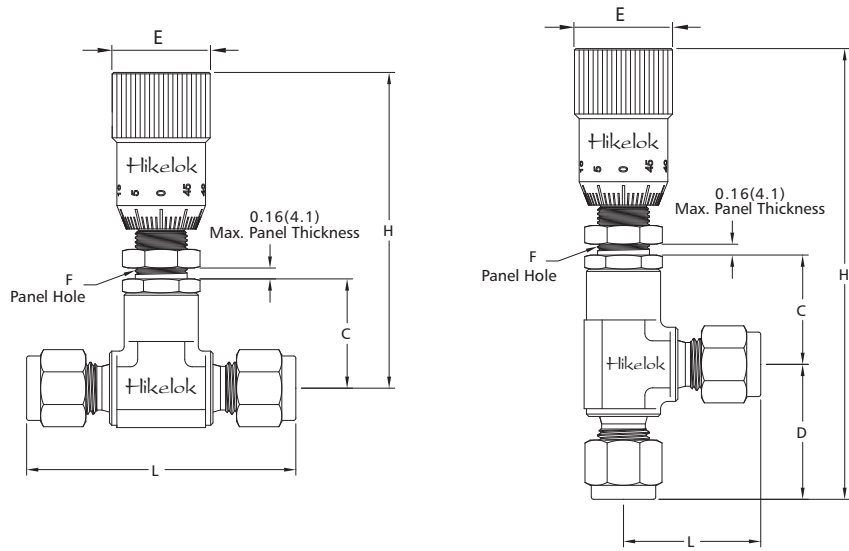
DV5 – FBW6 – H – R3A – NO – 316LVV

Metering Valves-MV1 Series

- ❖ Maximum working pressure up to 2000 psig (137 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Orifice size: 0.032" (0.81 mm)
- ❖ Stem taper: 1°
- ❖ Shutoff service: not available
- ❖ Panel mountable
- ❖ Straight, angle, cross and double pattern
- ❖ Knurled, vernier and slotted handle
- ❖ Variety of end connections



Dimensions



Basic Ordering Number	Connection Type and Size	Dimension, in. (mm)					
		H	L	C	D	E	F
Straight Pattern							
MV1-F1-	1/16" Hikelok	2.34 (59.4)	1.56 (39.6)	0.92 (23.4)	—	0.38 (9.6)	0.45 (11.4)
MV1-F2-	1/8" Hikelok		1.90 (48.3)				
MV1-F4-	1/4" Hikelok		2.04 (51.8)				
MV1-M3-	3 mm Hikelok		1.90 (48.3)				
MV1-M6-	6 mm Hikelok		2.04 (51.8)				
Angle Pattern							
MV1-F1-	1/16" Hikelok	3.22 (81.8)	0.81 (20.6)	0.92 (23.4)	0.88 (22.4)	0.38 (9.6)	0.45 (11.4)
MV1-F2-	1/8" Hikelok	3.32 (84.3)	0.98 (24.9)		0.98 (24.9)		
MV1-F4-	1/4" Hikelok	3.36 (85.3)	1.02 (25.9)		1.02 (25.9)		
MV1-M3-	3 mm Hikelok	3.32 (84.3)	0.98 (24.9)		0.99 (25.1)		
MV1-FNPT2-	1/8 Female NPT	3.07 (78.0)			0.98 (24.9)		

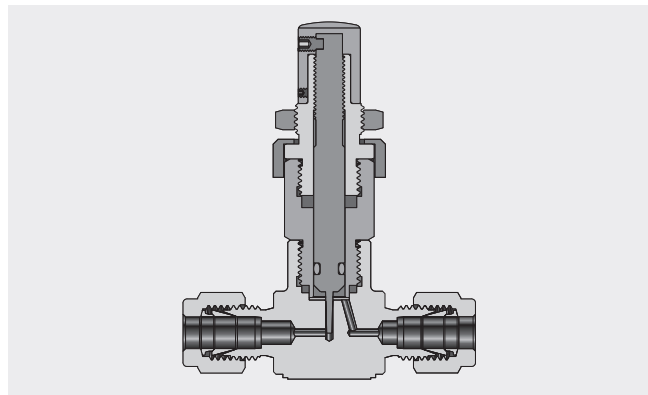
How to Order

MV1— NPT4 — M6 — EV — A — 316

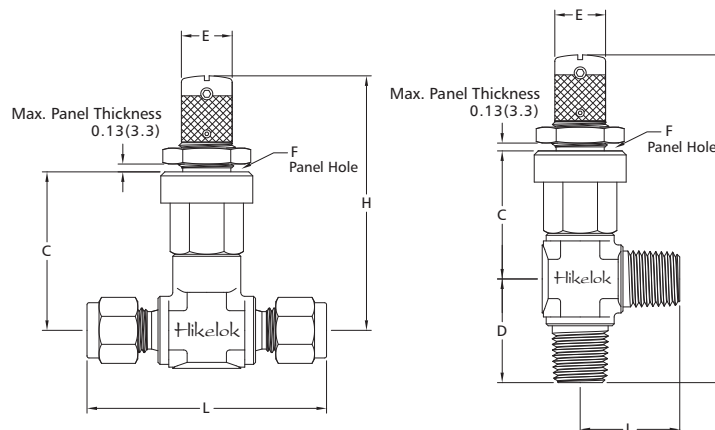
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	O-Ring Material	Handle Type	Flow Pattern	Material					
MV1	FNPT Female NPT	1 1/16 in.	Same as inlet type and inlet size		Fluorocarbon FKM B Buna N E Ethylene propylene N Neoprene Z Kalrez	Knurled, round	Straight	316 316 S.S.					
	NPT Male NPT	2 1/8 in.							If outlet and inlet are the same, eliminate the outlet designator		A Adjustable-Torque	A Angle	316L 316L
	FBT Female BSPT	3 3 mm	D Double	304 304									
	MBT Male BSPT	4 1/4 in.				C Cross	304L 304L						
	FMS Female ISO 261	6 3/8 in. or 6 mm						BR Brass					
	MS Male ISO 261	8 1/2 in. or 8 mm											
	FBP Female BSPP	10 10 mm											
	MBP Male BSPP	12 3/4 in. or 12 mm											
	F Fractional Tube Fitting												
	M Metric Tube Fitting												
	GFS Male GFS Fitting												

Metering Valves-MV2 Series

- ❖ Maximum working pressure: 1000 psig (68.9 bar)
- ❖ Working temperature: -10°F to 400°F (-23°C to 204°C)
- ❖ Orifice sizes: 0.056" (1.42 mm)
- ❖ Stem taper: 3°
- ❖ Shutoff service: not available
- ❖ Panel mountable
- ❖ Flow pattern: straight, angle, cross and double
- ❖ Handle type: knurled, vernier and slotted
- ❖ Variety of end connections



Dimensions



Basic Ordering Number	Connection Type and Size	Dimension, in. (mm)					
		H	L	C	D	E	F
Straight Pattern							
MV2-F2-	1/8" Hikelok	2.78 (70.6)	2.02 (51.3)	1.56 (39.6)	—	0.50 (12.7)	0.58 (14.7)
MV2-F4-	1/4" Hikelok		2.20 (55.9)				
MV2-M3-	3 mm Hikelok		2.02 (51.3)				
MV2-M6-	6 mm Hikelok		2.20 (55.9)				
MV2-NPT2-	1/8 Male NPT		1.50 (38.1)				
MV2-NPT4-	1/4 Male NPT		1.96 (49.8)				
MV2-FNPT2-	1/8 Female NPT		1.94 (49.3)				
Angle Pattern							
MV2-F2-	1/8" Hikelok	3.30 (83.8)	1.01 (25.7)	1.07 (27.2)	1.10 (27.9)	0.50 (12.7)	0.58 (14.7)
MV2-F4-	1/4" Hikelok	3.39 (86.1)	1.10 (27.9)				
MV2-M3-	3 mm Hikelok	3.30 (83.8)	1.01 (25.7)				
MV2-M6-	6 mm Hikelok	3.39 (86.1)	1.10 (27.9)				
MV2-NPT2-	1/8 Male NPT	3.04 (77.2)	0.75 (19.1)				
MV2-NPT4-	1/4 Male NPT	3.27 (83.1)	0.98 (24.9)				
MV2-FNPT2-	1/8 Female NPT	3.04 (77.2)	1.01 (25.7)				

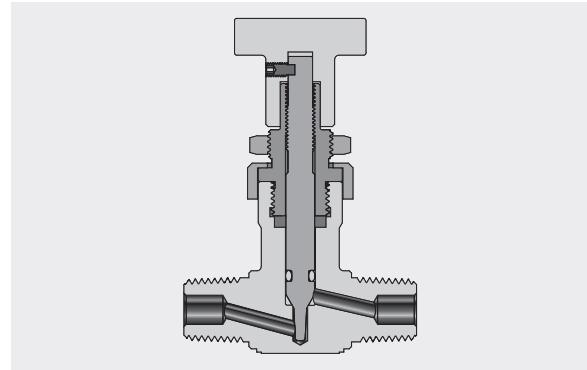
How to Order

MV2 — **NPT4** — **M6** — **EV** — **A** — **316**

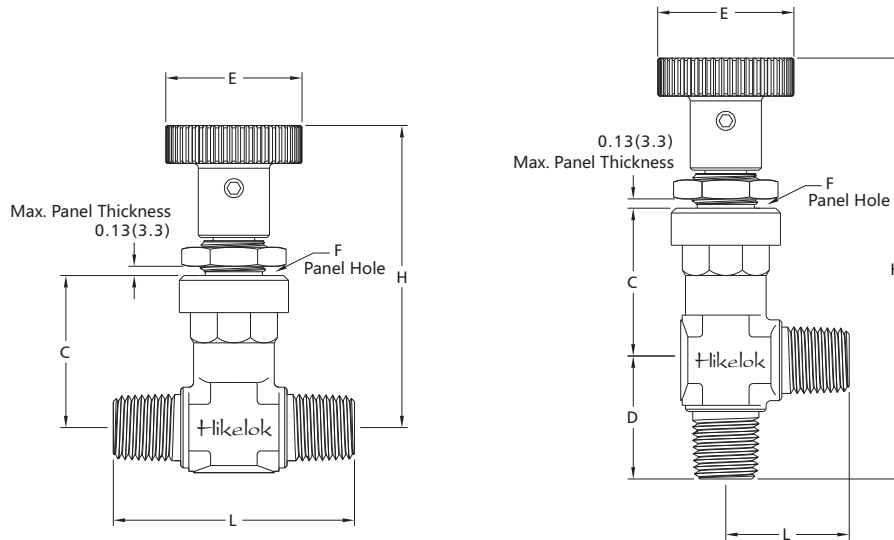
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	O-Ring Material	Handle Type	Flow Pattern	Material
MV2	FNPT Female NPT	1 1/16 in.	Same as inlet type and inlet size		Fluorocarbon FKM B Buna N E Ethylene propylene N Neoprene Z Kalrez	Knurled, round	Straight	316 316 S.S. 316L 316L 304 304 304L 304L BR Brass
	NPT Male NPT	2 1/8 in.						
	FBT Female BSPT	3 3 mm	If outlet and inlet are the same, eliminate the outlet designator			V Vernier	A Angle	
	MBT Male BSPT	4 1/4 in.						
	FMS Female ISO 261	6 3/8 in. or 6 mm				D Double		
	MS Male ISO 261	8 1/2 in. or 8 mm						
	FBP Female BSPP	10 10 mm				C Cross		
	MBP Male BSPP							
	F Fractional Tube Fitting							
	M Metric Tube Fitting							
GFS Male GFS Fitting								

Metering Valves-MV3 Series

- ❖ Maximum working pressure up to 1000 psig (68.9 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Orifice size: 0.128" (3.25 mm)
- ❖ Stem taper: 5°
- ❖ Shutoff service: yes
- ❖ Panel mountable
- ❖ Straight and angle pattern
- ❖ Knurled handle
- ❖ Variety of end connections



Dimensions



Basic Ordering Number	Connection Type and Size	Dimension, in. (mm)					
		H	L	C	D	E	F
Straight Pattern							
MV3-F4-	1/4" Hikelok	2.82 (71.6)	2.34 (59.4)	1.26 (32.0)	—	1.13 (28.7)	0.58 (14.7)
MV3-F6-	3/8" Hikelok		2.46 (62.5)				
MV3-M6-	6 mm Hikelok		2.34 (59.4)				
MV3-NPT4-	1/4 Male NPT		2.00 (50.8)				
Angle Pattern							
MV3-F4-	1/4" Hikelok	3.77 (95.8)	1.17 (29.7)	1.04 (26.4)	1.17 (29.7)	1.13 (28.7)	0.58 (14.7)
MV3-M6-	6 mm Hikelok						

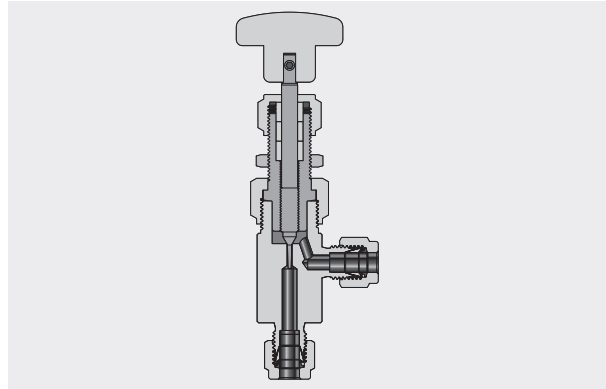
How to Order

MV3— NPT4 — M6 — E — A — 316

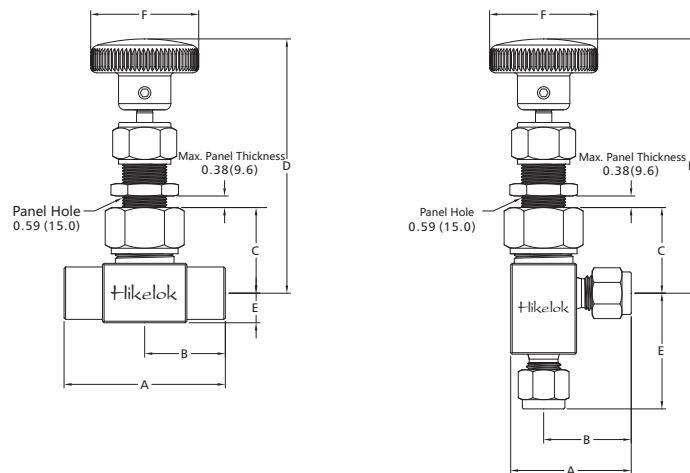
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	O-Ring Material	Flow Pattern	Material
MV3	FNPT Female NPT	1 1/16 in.	Same as inlet type and inlet size		Fluorocarbon FKM	Straight	316 316 S.S.
	NPT Male NPT	2 1/8 in.					
	FBT Female BSPT	3 3 mm	If outlet and inlet are the same, eliminate the outlet designator		B Buna N	A Angle	316L 316L
	MBT Male BSPT	4 1/4 in.					
	FMS Female ISO 261	6 3/8 in. or 6 mm			E Ethylene Propylene	304 304	
	MS Male ISO 261	8 1/2 in. or 8 mm					
	FBP Female BSPP	10 10 mm			N Neoprene	304L 304L	
	MBP Male BSPP	12 3/4 in. or 12 mm					
	F Fractional Tube Fitting				Z Kalrez	BR Brass	
	M Metric Tube Fitting						
	GFS Male GFS Fitting						

Metering Valves-MV4 Series

- ❖ Maximum working pressure: 5000 psig (344 bar)
- ❖ Working temperature: -65°F to 850°F (-54°C to 454°C)
- ❖ Orifice size: 0.062" (1.6 mm)
- ❖ Flow coefficient (Cv): 0.04
- ❖ Stem taper: 2°
- ❖ Shutoff service: available
- ❖ Variety of end connections
- ❖ Panel mountable
- ❖ Flow pattern: straight and angle
- ❖ Handle type: round



Dimensions



Basic Ordering Number	Connection Type and Size	Dimension, in. (mm)					
		A	B	C	D	E	F
Straight Pattern							
MV4-F4-	1/4" Hikelok	2.40 (61.0)	1.20 (30.5)	1.09 (27.7)	3.60 (91.4)	0.38 (9.6)	1.38 (35.1)
MV4-M6-	6 mm Hikelok						
MV4-FNPT2-	1/8 Female NPT						
MV4-FNPT4-	1/4 Female NPT	2.06 (52.3)	1.03 (26.2)				
Angle Pattern							
MV4-F4-	1/4" Hikelok	1.54 (39.1)	1.16 (29.5)	1.09 (27.7)	3.60 (91.4)	1.48 (37.6)	1.38 (35.1)
MV4-M6-	6 mm Hikelok						
MV4-FNPT2-	1/8 Female NPT						
MV4-FNPT4-	1/4 Female NPT	1.28 (32.5)	0.91 (23.1)	1.28 (32.5)	3.80 (96.5)	1.00 (25.4)	

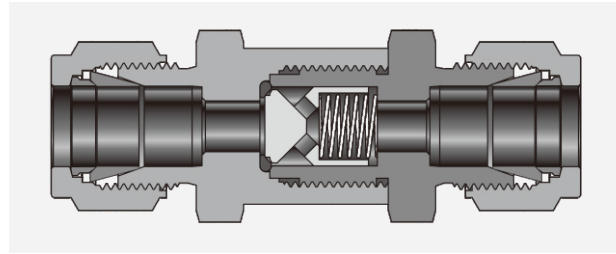
How to Order

MV4 — **NPT4** — **M6** — **G** — **A** — **316**

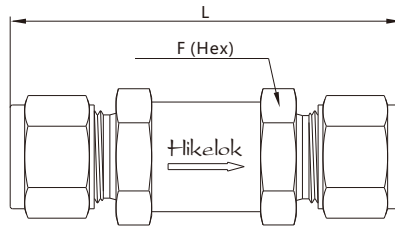
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Packing Material	Flow Pattern	Material
MV4	FNPT Female NPT	1 1/16 in.	Same as inlet type and inlet size		PTEE	Straight	316 316 S.S.
	NPT Male NPT	2 1/8 in.					
	FBT Female BSPT	3 3 mm	If outlet and inlet are the same, eliminate the outlet designator		G Graphite	A Angle	316L 316L
		4 1/4 in.					
	MBT Male BSPT	6 3/8 in. or 6 mm					
	FMS Female ISO 261	8 1/2 in. or 8 mm					
	MS Male ISO 261	10 10 mm					304 304
	FBP Female BSPP	12 3/4 in. or 12 mm					304L 304L
	MBP Male BSPP						BR Brass
	F Fractional Tube Fitting						
	M Metric Tube Fitting						
	GFS Male GFS Fitting						

Check Valves-CV1 Series

- ❖ Maximum working pressure: 3000 psig (207 bar)
- ❖ Working temperature: -10°F to 400°F (-23°C to 204°C)
- ❖ Cracking pressure: 1/3 to 25 psig (0.02 to 1.7 bar)
- ❖ Variety of end connections and materials available



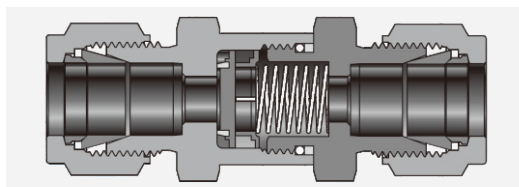
Dimensions



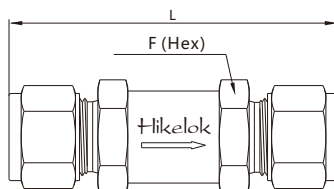
Basic Ordering Number	Connection Type and Size	CV	Dimension, in. (mm)	
			L	F
CV1-F2-	1/8" Hikelok	0.16	2.14 (54.3)	5/8 (15.88)
CV1-F4-	1/4" Hikelok	0.47	2.35 (59.7)	
CV1-F6-	3/8" Hikelok	1.47	3.17 (80.5)	7/8 (22.23)
CV1-F8-	1/2" Hikelok	1.68	3.42 (86.9)	
CV1-F12-	3/4" Hikelok	4.48	4.32 (110)	1 1/4 (31.75)
CV1-F16-	1" Hikelok		4.74 (120)	1 3/8 (34.93)
CV1-M6-	6 mm Hikelok	0.47	2.36 (59.9)	5/8 (15.88)
CV1-M10-	10 mm Hikelok	1.68	3.32 (84.3)	7/8 (22.23)
CV1-M12-	12 mm Hikelok		3.42 (86.9)	
CV1-FNPT2-	1/8 Female NPT	0.16	1.89 (48.0)	5/8 (15.88)
CV1-FNPT4-	1/4 Female NPT	0.47	2.15 (54.6)	3/4 (19.05)
CV1-FNPT6-	3/8 Female NPT	1.47	2.98 (75.7)	7/8 (22.23)
CV1-FNPT8-	1/2 Female NPT	1.68	3.58 (90.9)	1 1/16 (26.99)
CV1-FNPT12-	3/4 Female NPT	4.48	4.08 (104)	1 1/4 (31.75)
CV1-FNPT16-	1 Female NPT		4.84 (123)	1 5/8 (41.28)
CV1-NPT2-	1/8 Male NPT	0.16	1.71 (43.4)	5/8 (15.88)
CV1-NPT4-	1/4 Male NPT	0.47	2.09 (53.1)	
CV1-NPT6-	3/8 Male NPT	1.47	2.78 (70.6)	7/8 (22.23)
CV1-NPT8-	1/2 Male NPT	1.68	3.16 (80.3)	
CV1-NPT12-	3/4 Male NPT	4.48	4.08 (104)	1 1/4 (31.75)
CV1-NPT16-	1 Male NPT		4.52 (115)	1 5/8 (41.28)

Check Valves-CV2 Series

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ With bonded elastomer seal structure design
- ❖ Liquid or gas service
- ❖ Cracking pressure: 1/3 to 50 psig (0.02 to 0.34 bar)
- ❖ Variety of end connections and materials available



Dimensions



Basic Ordering Number	Connection Type and Size	CV	Dimension, in. (mm)	
			L	F
CV2-F2-	1/8" Hikelok	0.67	2.27 (57.7)	11/16 (17.46)
CV2-F4-	1/4" Hikelok		2.43 (61.7)	
CV2-F6-	3/8" Hikelok	1.8	2.75 (69.9)	1 (25.4)
CV2-F8-	1/2" Hikelok		2.96 (75.2)	
CV2-F12-	3/4" Hikelok	4.7	3.52 (89.4)	1 5/8 (41.28)
CV2-F16-	1" Hikelok		3.88 (98.6)	
CV2-M6-	6 mm Hikelok	0.67	2.43 (61.7)	11/16 (17.46)
CV2-M8-	8 mm Hikelok	1.8	2.70 (68.6)	1 (25.4)
CV2-M10-	10 mm Hikelok		2.80 (71.1)	
CV2-M12-	12 mm Hikelok		2.96 (75.2)	
CV2-M22-	22 mm Hikelok	4.7	3.48 (88.4)	1 5/8 (41.28)
CV2-M25-	25 mm Hikelok		3.88 (98.6)	
CV2-FNPT4-	1/4 Female NPT	0.67	2.13 (54.1)	11/16 (17.46)
CV2-FNPT6-	3/8 Female NPT	1.8	2.55 (64.8)	1 (25.4)
CV2-FNPT8-	1/2 Female NPT		3.03 (77.0)	1 1/16 (26.99)
CV2-FNPT12-	3/4 Female NPT	4.7	3.23 (82.0)	1 5/8 (41.28)
CV2-FNPT16-	1 Female NPT		3.83 (97.3)	
CV2-NPT2-	1/8 Male NPT	0.67	1.79 (45.4)	11/16 (17.46)
CV2-NPT4-	1/4 Male NPT		2.17 (55.1)	
CV2-NPT6-	3/8 Male NPT	1.8	2.36 (59.9)	1 (25.4)
CV2-NPT8-	1/2 Male NPT		2.73 (69.3)	
CV2-NPT12-	3/4 Male NPT	4.7	3.29 (83.6)	1 5/8 (41.28)
CV2-NPT16-	1 Male NPT		3.67 (93.2)	
CV2-FBT4-	1/4 Female BSPT	0.67	2.28 (57.9)	11/16 (17.46)
CV2-FBT8-	1/2 Female BSPT	1.8	3.29 (83.6)	1 1/16 (26.99)
CV2-FBT12-	3/4 Female BSPT	4.7	3.55 (90.2)	1 5/8 (41.28)
CV2-FBT16-	1 Female BSPT		3.83 (97.3)	
CV2-MBT4-	1/4 Male BSPT	0.67	2.17 (55.1)	11/16 (17.46)
CV2-MBT8-	1/2 Male BSPT	1.8	2.73 (69.3)	1 (25.4)
CV2-MBT12-	3/4 Male BSPT	4.7	3.35 (85.1)	1 5/8 (41.28)
CV2-MBT16-	1 Male BSPT		3.67 (93.2)	

How to Order

CV1 — F8 — M10 — N — 1 — 316

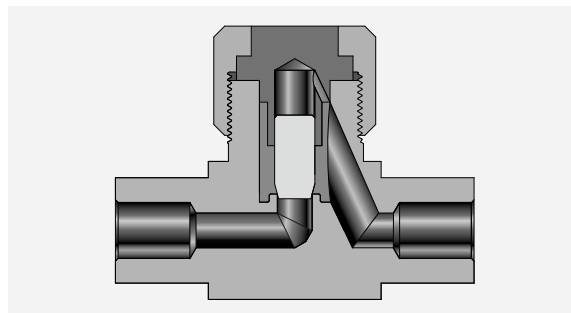
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Body Material
CV1	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size If outlet and inlet are the same, eliminate the outlet designator		V Fluorocarbon FKM B Buna N E Ethylene propylene N Neoprene Z Kalrez	1 1 psig	316 316 S.S.
	NPT Male NPT	4 1/4 in.				2 1/3 psig	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm				3 3 psig	304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm				10 10 psig	304L 304L S.S.
	FMS Female ISO 261	10 10 mm				25 25 psig	A400 Alloy 400
	MS Male ISO 261	12 3/4 in. or 12 mm					A20 Alloy 20
	FBP Female BSPP	14 14 mm					A600 Alloy 600
	MBP Male BSPP	16 1 in. or 16 mm					A825 Alloy 825
	F Fractional Tube Fitting	18 18 mm					A276 Alloy C276
	M Metric Tube Fitting	20 1 1/4 in. or 20 mm					DU7 Duplex 2507
	UGF Nut + Gasket+ Fractional Bulge Nipple	22 22 mm					BR Brass
	UGM Nut + Gasket+ Metric Bulge Nipple	25 25 mm					

CV2 — F8 — M10 — N — 1 — 316

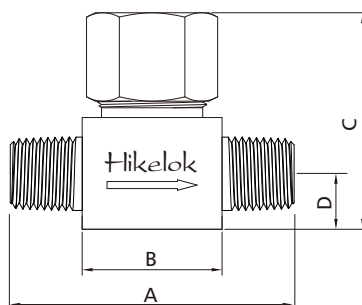
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Body Material
CV2	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size If outlet and inlet are the same, eliminate the outlet designator		V Fluorocarbon FKM B Buna N E Ethylene propylene N Neoprene	1 1 psig	316 316 S.S.
	NPT Male NPT	4 1/4 in.				2 1/3 psig	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm				3 3 psig	304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm				10 10 psig	304L 304L S.S.
	FMS Female ISO 261	10 10 mm				25 25 psig	A400 Alloy 400
	MS Male ISO 261	12 3/4 in. or 12 mm				50 50 psig	A20 Alloy 20
	FBP Female BSPP	14 14 mm					A600 Alloy 600
	MBP Male BSPP	16 1 in. or 16 mm					A825 Alloy 825
	F Fractional Tube Fitting	18 18 mm					A276 Alloy C276
	M Metric Tube Fitting	20 1 1/4 in. or 20 mm					DU7 Duplex 2507
	UGF Nut + Gasket+ Fractional Bulge Nipple	22 22 mm					BR Brass
	UGM Nut + Gasket+ Metric Bulge Nipple	25 25 mm					
	FGFS Female GFS Fitting						
	GFS Male GFS Fitting						
	RGFS Rotatable Male GFS Fitting						

Check Valves-CV3 Series

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 900°F (-53°C to 482°C)
- ❖ Metal to metal seal structure design
- ❖ Reverse flow coefficient less than 0.1% of forward flow coefficient
- ❖ No springs or elastomers
- ❖ Liquid or gas service
- ❖ Variety of end connections and materials



Dimensions



Basic Ordering Number	Connection Type and Size	Cv	Dimension, in. (mm)			
			A	B	C	D
CV3-F4-	1/4" Hikelok	0.30	2.40 (61.0)	1.01 (25.7)	1.47 (37.3)	0.39 (9.9)
CV3-F6-	3/8" Hikelok	0.64	2.83 (71.9)	1.31 (33.3)	1.85 (47.0)	0.50 (12.7)
CV3-F8-	1/2" Hikelok	2.20	3.92 (99.6)	2.19 (55.6)	2.44 (62.0)	0.62 (15.7)
CV3-F12-	3/4" Hikelok					
CV3-M6-	6 mm Hikelok	0.30	2.40 (61.0)	1.01 (25.7)	1.47 (37.3)	0.39 (9.9)
CV3-FNPT2-	1/8 Female NPT					
CV3-FNPT4-	1/4 Female NPT	0.64	2.25 (57.2)	1.25 (31.8)	1.85 (47.0)	0.50 (12.7)
CV3-FNPT6-	3/8 Female NPT	2.20	3.12 (79.2)	1.86 (47.2)	2.44 (62.0)	0.62 (15.7)
CV3-FNPT8-	1/2 Female NPT					
CV3-FSW4-	1/4" FSW	0.30	1.81 (46.0)	0.9 (22.9)	1.47 (37.3)	0.39 (9.9)
CV3-FSW6-	3/8" FSW	0.64	2.25 (57.2)	1.25 (31.8)	1.85 (47.0)	0.50 (12.7)
CV3-FSW8-	1/2" FSW	2.20	3.13 (79.5)	1.88 (47.8)	2.44 (47.0)	0.62 (15.7)
CV3-FBW4-	1/4" FBW	0.30	1.81 (46.0)	0.9 (22.9)	1.47 (37.3)	0.39 (9.9)
CV3-FBW6-	3/8" FBW	0.64	2.25 (57.2)	1.25 (31.8)	1.85 (47.0)	0.50 (12.7)
CV3-FBW8-	1/2" FBW	2.20	3.13 (79.5)	1.88 (47.8)	2.44 (62.0)	0.62 (15.7)

How to Order

CV3—

F8

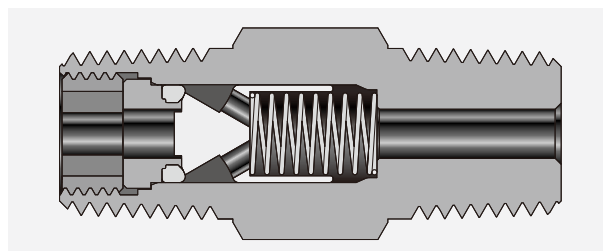
— M10 —

316

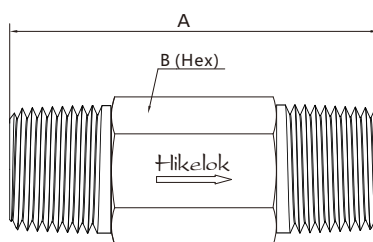
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Body Material
CV3	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size If outlet and inlet are the same, eliminate the outlet designator		316 316 S.S.
	NPT Male NPT	4 1/4 in.			316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm			304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm			304L 304L S.S.
	FMS Female ISO 261	10 10 mm			A400 Alloy 400
	MS Male ISO 261	12 3/4 in. or 12 mm			A20 Alloy 20
	FBP Female BSPP	14 14 mm			A600 Alloy 600
	MBP Male BSPP	16 1 in. or 16 mm			A825 Alloy 825
	MSW Metric Tube Socket Weld	18 18 mm			A276 Alloy C276
	FBW Fractional Tube Butt Weld	20 1 1/4 in. or 20 mm			DU7 Duplex 2507
	MBW Metric Tube Butt Weld	22 22 mm			CS Steel
	PSW Pipe Socket Weld	25 25 mm			
	PBW Pipe Butt Weld				
	F Fractional Tube Fitting				
	M Metric Tube Fitting				
	UGF Nut + Gasket+ Fractional Bulge Nipple				
	UGM Nut + Gasket+ Metric Bulge Nipple				

Check Valves-CV4 Series

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ One-piece body design
- ❖ Fully contained O-ring seal
- ❖ Cracking pressure: 1/3 to 25 psig (0.02 to 1.7 bar)
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections



Dimensions



Basic Ordering Number	Connection Type and Size	Cv	Dimension, in. (mm)	
			A	B
CV4-FNPT4-	1/4 Female NPT	0.35	2.41 (61.2)	3/4 (19.05)
CV4-FNPT8-	1/2 Female NPT	1.20	3.71 (94.2)	1 1/16 (26.99)
CV4-NPT4-	1/4 Male NPT	0.35	1.62 (41.1)	9/16 (14.29)
CV4-NPT8-	1/2 Male NPT	1.20	2.28 (57.9)	7/8 (22.23)
CV4-FBT4-	1/4 Female BSPT	0.35	2.54 (64.5)	3/4 (19.05)
CV4-MBT4-	1/4 Male BSPT	0.35	1.62 (41.1)	9/16 (14.29)

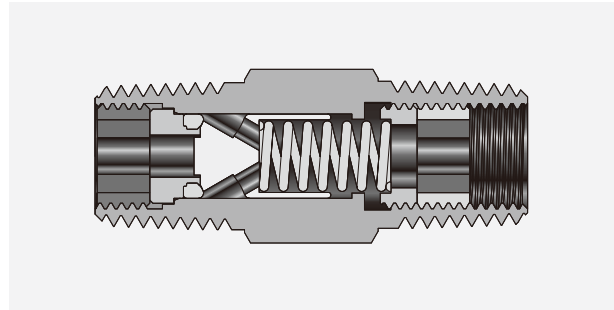
How to Order

CV4— NPT8 — MBT8 — V — 1 — 316

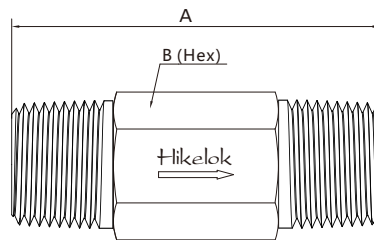
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Body Material
CV4	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		V Fluorocarbon FKM	1 1 psig	316 316 S.S.
	NPT Male NPT	4 1/4 in.			B Buna N	2 1/3 psig	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator	E Ethylene propylene	3 3 psig	304 304 S.S.	
	MBT Male BSPT	8 1/2 in. or 8 mm		N Neoprene	10 10 psig	304L 304L S.S.	
	FMS Female ISO 261			Z Kalrez	25 25 psig	A400 Alloy 400	
	MS Male ISO 261					A20 Alloy 20	
	FBP Female BSPP					A600 Alloy 600	
	MBP Male BSPP					A825 Alloy 825	
				A276 Alloy C276			
				DU7 Duplex 2507			
				BR Brass			

Check Valves-CV5 Series

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ One-piece body design
- ❖ Fully contained O-ring seal
- ❖ Adjustable spring sets cracking pressure
- ❖ Locking screw maintains setting
- ❖ Cracking pressure: 3 to 600 psig (0.21 to 41.3 bar)
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections



Dimensions



Basic Ordering Number	Connection Type and Size	CV	Dimension, in. (mm)	
			A	B
CV5-FNPT4-	1/4 Female NPT	0.35	2.98 (75.7)	3/4 (19.05)
CV5-NPT4-	1/4 Male NPT	0.35	1.62 (41.1)	9/16 (14.29)
CV5-NPT8-	1/2 Male NPT	1.20	2.56 (65.0)	7/8 (22.23)
CV5-MBT4-	1/4 Male BSPT	0.35	1.62 (41.1)	9/16 (14.29)
CV5-MBT8-	1/2 Male BSPT	1.20	2.56 (65.0)	7/8 (22.23)

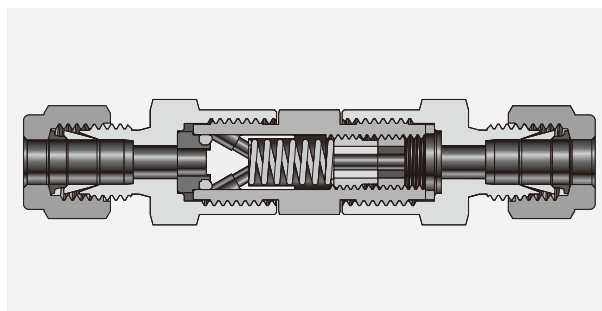
How to Order

CV5 — NPT8 — MBT8 — V — 50 — 316

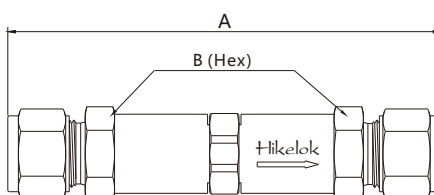
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Body Material
CV5	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		V Fluorocarbon FKM	50 3 to 50 psig	316 316 S.S.
	NPT Male NPT	4 1/4 in.				150 50 to 150 psig	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator		B Buna N E Ethylene propylene N Neoprene Z Kalrez	350 150 to 350 psig	304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm				600 350 to 600 psig	304L 304L S.S.
	FMS Female ISO 261					A400 Alloy 400	
	MS Male ISO 261					A20 Alloy 20	
	FBP Female BSPP					A600 Alloy 600	
	MBP Male BSPP					A825 Alloy 825	
		A276 Alloy C276					
		DU7 Duplex 2507					
		BR Brass					

Check Valves-CV6 Series

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ Fully contained O-ring seal
- ❖ Adjustable spring sets cracking pressure
- ❖ Locking screw maintains setting
- ❖ Cracking pressure: 3 to 600 psig (0.21 to 41.3 bar)
- ❖ 316 stainless steel, brass and alloy body material
- ❖ Variety of end connections



Dimensions



Basic Ordering Number	Connection Type and Size	CV	Dimension, in. (mm)	
			A	B
CV6-F4-	1/4" Hikelok	0.37	3.23 (82.0)	5/8 (15.88)
CV6-M6-	6 mm Hikelok			
CV6-M8-	8 mm Hikelok			
CV6-GFS4-	1/4" Male GFS		3.09 (78.5)	

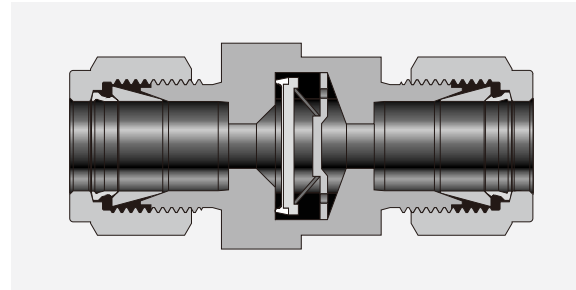
How to Order

CV6 — **F4** — **M6** — **V** — **50** — **316**

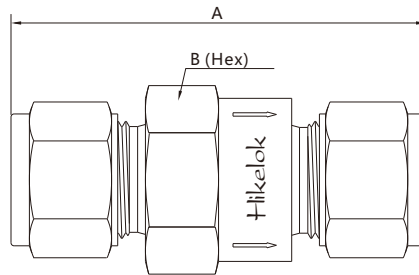
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Body Material			
CV6	F Fractional Tube Fitting	2 1/8 in.	Same as inlet type and inlet size		V Fluorocarbon FKM	50 3 to 50 psig	316 316 S.S.			
		4 1/4 in.				150 50 to 150 psig	316L 316L S.S.			
		6 3/8 in. or 6 mm				350 150 to 350 psig	304 304 S.S.			
		8 1/2 in. or 8 mm				600 350 to 600 psig	304L 304L S.S.			
	M Metric Tube Fitting	GFS Male GFS Fitting	If outlet and inlet are the same, eliminate the outlet designator		B Buna N	E Ethylene propylene	N Neoprene	Z Kalrez		
									A400 Alloy 400	
										A20 Alloy 20
	A825 Alloy 825									
		A276 Alloy C276								
			DU7 Duplex 2507							
				BR Brass						

Check Valves-CV7 Series

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -10°F to 400°F (-23°C to 204°C)
- ❖ All-Welded body design
- ❖ Standard or high-purity wetted surface finishes for choice
- ❖ Cracking pressure less than 2 psig (0.14 bar)
- ❖ 316L stainless steel body material
- ❖ Tube butt weld, female GFS fitting, integral male GFS fitting, rotatable male GFS fitting, and Hikelok tube fitting end connections are available



Dimensions



Basic Ordering Number	Connection Type and Size	Cv	Dimension, in. (mm)	
			A	B
CV7-FBW4-	1/4" FBW	0.55	1.24 (31.5)	7/8 (22.23)
CV7-FBW6-	3/8" FBW	0.70		
CV7-FBW8-	1/2" FBW	0.55		
CV7-MBW6-	6 mm MBW	0.55		
CV7-GFS4-	1/4" Male GFS	0.70	1.80 (45.7)	1 (25.4)
CV7-GFS8-	1/2" Male GFS	0.70	2.06 (53.8)	
CV7-F4-	1/4" Hikelok	0.55	1.96 (49.8)	7/8 (22.23)
CV7-M6-	6 mm Hikelok	0.70		

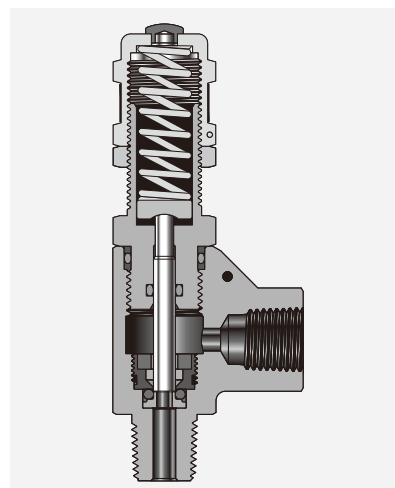
How to Order

CV7— F4 — M6 — V — 316L

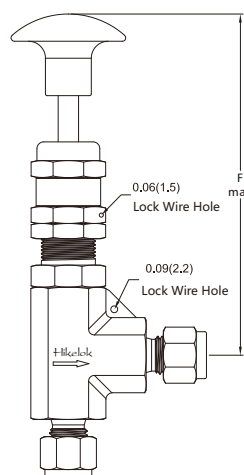
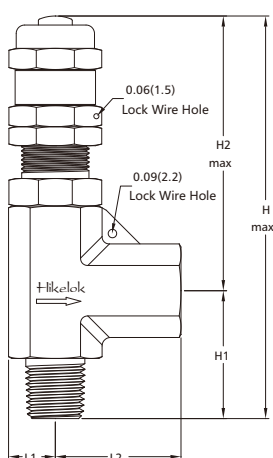
Series	Inlet Type	Inlet Size	Outlet Size	Seal Material	Cracking Pressure	Body Material
CV7	F Fractional Tube Fitting	2 1/8 in.	Same as inlet type and inlet size	If outlet and inlet are the same, eliminate the outlet designator	V Fluorocarbon FKM	316 316 S.S.
	M Metric Tube Fitting	4 1/4 in.			B Buna N	316L 316L S.S.
	FBW Fractional Tube Butt Weld	6 3/8 in. or 6 mm	E Ethylene propylene			
	MBW Metric Tube Butt Weld	8 1/2 in. or 8 mm	N Neoprene			
	GFS Male GFS Fitting					
	FGFS Female GFS Fitting					
	RGFS Rotatable Male GFS Fitting					

Proportional Relief Valves-RV1 Series

- ❖ Liquid or gas service
- ❖ Set pressure from 50 to 6000 psig (3.4 to 413 bar)
- ❖ Maximum outlet pressure up to 1500 psig (103 bar)
- ❖ Spring adjusts to provide desired set pressure
- ❖ The effect of system back pressure is minimized by the design of these valves
- ❖ 7 color-coded springs available for a wide range of set pressure



Dimensions



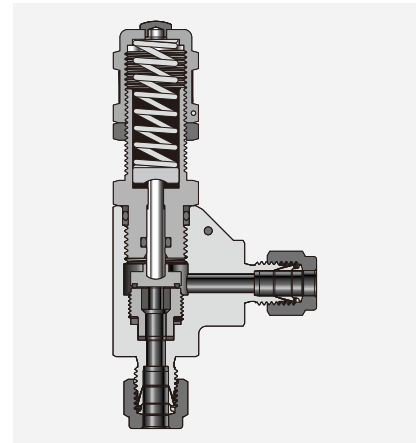
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Dimension, in. (mm)					
			L1	L2	H1	H2	H	F
RV1-F4-03-	1/4" Hikelok	0.14 (3.6)	0.43 (10.9)	1.60 (40.6)	1.44 (36.6)	2.70 (68.6)	4.14 (105.2)	4.09 (104)
RV1-F6-03-	3/8" Hikelok		0.50 (12.7)	1.72 (43.7)	1.72 (43.7)	4.09 (103.9)	5.81 (147.6)	5.37 (136)
RV1-F8-03-	1/2" Hikelok		0.43 (10.9)	1.60 (40.6)	1.44 (36.6)	2.70 (68.6)	4.14 (105.2)	4.09 (104)
RV1-M6-03-	6 mm Hikelok		0.50 (12.7)	1.83 (46.5)	1.83 (46.5)	4.09 (103.9)	5.92 (150.4)	5.37 (136)
RV1-M8-03-	8 mm Hikelok		0.43 (10.9)	1.38 (34.9)	1.38 (34.9)	2.70 (68.6)	4.08 (103.5)	4.09 (104)
RV1-M12-03-	12 mm Hikelok		0.50 (12.7)	1.43 (36.3)	1.43 (36.3)	4.09 (103.9)	5.52 (140.2)	5.37 (136)
RV1-FNPT4-03-	1/4 Female NPT		0.43 (10.9)	1.17 (29.7)	1.19 (30.2)	2.70 (68.6)	3.89 (98.8)	4.09 (104)
RV1-FNPT8-03-	1/2 Female NPT		0.50 (12.7)	1.43 (36.3)	1.43 (36.3)	4.09 (103.9)	5.52 (140.2)	5.37 (136)
RV1-NPT4-03-	1/4 Male NPT		0.43 (10.9)	1.17 (29.7)	1.19 (30.2)	2.70 (68.6)	3.89 (98.8)	4.09 (104)
RV1-NPT8-03-	1/2 Male NPT		0.50 (12.7)	1.43 (36.3)	1.43 (36.3)	4.09 (103.9)	5.52 (140.2)	5.37 (136)
RV1-FBT4-03-	1/4 Female BSPT		0.43 (10.9)	1.17 (29.7)	1.19 (30.2)	2.70 (68.6)	3.89 (98.8)	4.09 (104)
RV1-FBT8-03-	1/2 Female BSPT		0.50 (12.7)	1.43 (36.3)	1.43 (36.3)	4.09 (103.9)	5.52 (140.2)	5.37 (136)

How to Order

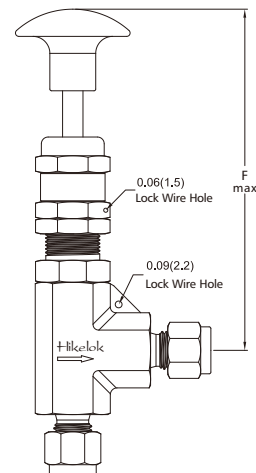
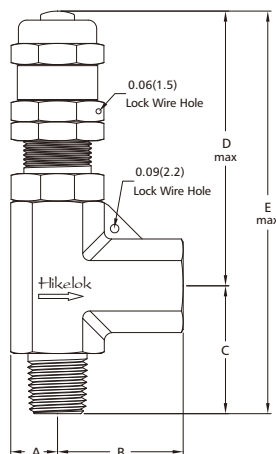
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice	Seal Material	Spring Kit Color	Manual Override Handle	Body Material
RV1	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		03 0.14 in. (3.6 mm)	V Fluorocarbon FKM	G Green 50~300 psig	None	316 316 S.S.
	NPT Male NPT	4 1/4 in.				B Buna N	O Orange 300~700 psig	M Manual Override Handle	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6mm				E Ethylene propylene	Y Yellow 700~1500 psig		304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8mm	N Neoprene	P Purple 1500~2500 psig			304L 304L S.S.		
	FMS Female ISO 261	10 10 mm	Z Kalrez	W White 2500~3500 psig					
	MS Male ISO 261	12 3/4 in. or 12mm		J Blue 3500~4500 psig					
	FBP Female BSPP			R Red 4500~6000 psig					
	MBP Male BSPP								
	F Fractional Tube Fitting								
	M Metric Tube Fitting								

Proportional Relief Valves-RV2 Series

- ❖ Liquid or gas service
- ❖ Set pressure from 10 to 300 psig (0.68 to 20.7bar)
- ❖ Maximum outlet pressure up to 1500 psig (103 bar)
- ❖ Spring adjusts to provide desired set pressure



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Dimension, in. (mm)					
			A	B	C	D	E	F
RV2-F4-04-	1/4" Hikelok	0.19 (4.8)	0.43 (10.9)	1.60 (40.6)	1.44 (36.6)	2.7 (68.8)	4.14 (105)	4.09 (104)
RV2-M6-04-	6 mm Hikelok			1.44 (36.6)	1.19 (30.2)		3.89 (98.8)	
RV2-NPT4-04-	1/4 Male NPT			1.17 (29.7)	1.19 (30.2)		3.89 (98.8)	
RV2-FNPT4-04-	1/4 Female NPT							
RV2-F8-06-	1/2" Hikelok	0.25 (6.4)	0.5 (12.7)	1.83 (46.5)	1.83 (46.5)	4.09 (104)	5.92 (150)	5.37 (136)
RV2-M12-06-	12 mm Hikelok			1.44 (36.6)	1.44 (36.6)		5.52 (140)	
RV2-NPT8-06-	1/2 Male NPT							
RV2-FNPT8-06-	1/2 Female NPT							

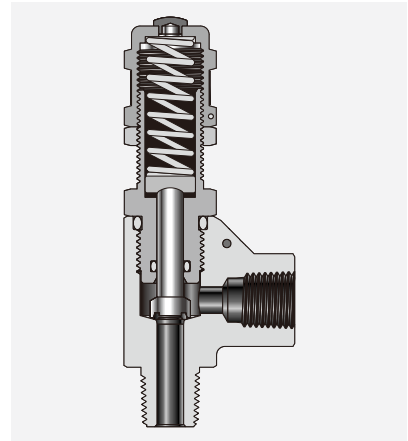
How to Order

RV2— FNPT8 — M8 — 06V — GM — 316

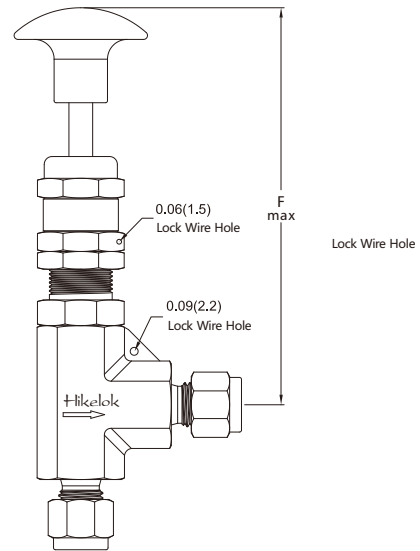
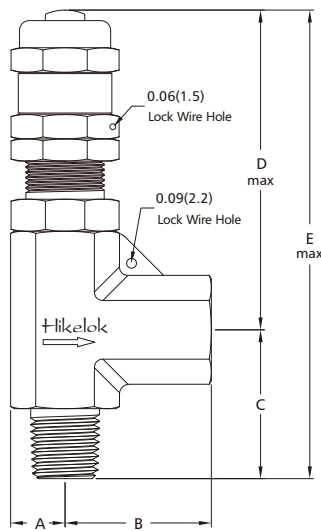
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice	Seal Material	Spring KitColor	Manual Override Handle	Body Material
RV2	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		04 0.19 in. (4.8 mm)	V Fluorocarbon FKM	G Green 10~225 psig	None	316 316 S.S.
	NPT Male NPT	4 1/4 in.				B Buna N		M Manual Override Handle	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6mm	If outlet and inlet are the same, eliminate the outlet designator		06 0.25 in. (6.4 mm)	E Ethylene propylene			304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8mm				N Neoprene		304L 304L S.S.	
	FMS Female ISO 261	10 10 mm							
	MS Male ISO 261	12 3/4 in. or 12mm							
	FBP Female BSPP								
	MBP Male BSPP								
F Fractional Tube Fitting									
M Metric Tube Fitting									

Proportional Relief Valves-RV3 Series

- ❖ Liquid or gas service
- ❖ Set pressure from 50 to 1500 psig (3.4 to 103 bar)
- ❖ Maximum outlet pressure up to 2500 psig (172 bar)
- ❖ Spring adjusts to provide desired set pressure



Dimensions



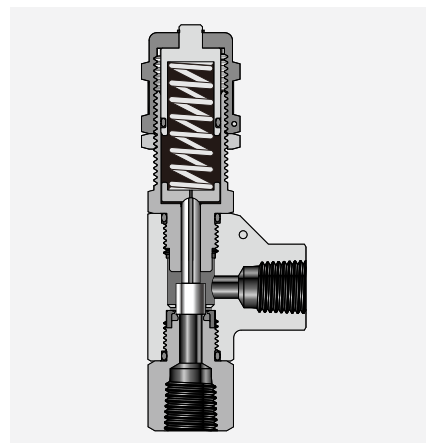
Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Dimension, in. (mm)					
			A	B	C	D	E	F
RV3-F8-06-	1/2" Hikelok	0.25 (6.4)	0.5 (12.7)	1.43 (36.3)	1.83 (46.5)	4.09 (104)	5.92 (150)	5.37 (136)
RV3-M12-06-	12 mm Hikelok							
RV3-NPT8-06-	1/2 Male NPT			1.43 (36.3)	1.44 (36.6)	5.52 (140)		
RV3-MBT8-06-	1/2 Male BSPT							
RV3-FNPT8-06-	1/2 Female NPT							
RV3-FBT8-06-	1/2 Female BSPT							

How to Order

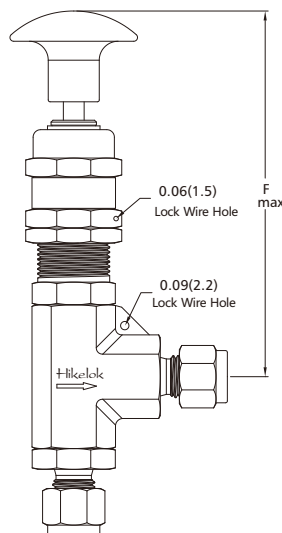
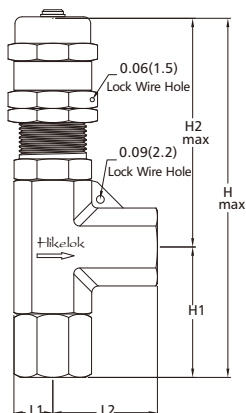
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice	Seal Material	Spring Kit Color	Manual Override Handle	Body Material			
RV3	FNPT Female NPT	8 1/2 in. or 8mm	Same as inlet type and inlet size		06 0.25 in. (6.4 mm)	V Fluorocarbon FKM	G Green 50~350 psig	None	316 316 S.S.			
	NPT Male NPT	10 10 mm	If outlet and inlet are the same, eliminate the outlet designator						B Buna N	O Orange 350~750 psig	M Manual Override Handle	316L 316L S.S.
	FBT Female BSPT	12 3/4 in. or 12mm							E Ethylene propylene	Y Yellow 750~1500 psig		304 304 S.S.
	MBT Male BSPT								N Neoprene		304L 304L S.S.	
	FMS Female ISO 261											
	MS Male ISO 261											
	FBP Female BSPP											
	MBP Male BSPP											
	F Fractional Tube Fitting											
	M Metric Tube Fitting											

Proportional Relief Valves-RV4 Series

- ❖ Liquid or gas service
- ❖ Set pressure from 5 to 550 psig (0.34 to 37.9 bar)
- ❖ Maximum outlet pressure up to 2800 psig (193 bar)
- ❖ Spring adjusts to provide desired set pressure
- ❖ Zero friction poppets increases accuracy of cracking pressure and reset pressure



Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Dimension, in. (mm)					
			L1	L2	H1	H2	H	F
RV4-F4-05-	1/4" Hikelok	0.23 (5.8)	0.43 (10.9)	1.60 (40.6)	1.60 (40.6)	2.70 (68.6)	4.30 (109.2)	4.09 (104)
RV4-F6-05-	3/8" Hikelok							
RV4-F8-05-	1/2" Hikelok		0.50 (12.7)	1.72 (43.7)	1.87 (47.7)	4.09 (103.9)	5.96 (151.6)	5.37 (136)
RV4-M6-05-	6 mm Hikelok		0.43 (10.9)	1.60 (40.6)	1.60 (40.6)	2.70 (68.6)	4.30 (109.2)	4.09 (104)
RV4-M8-05-	8 mm Hikelok							
RV4-M12-05-	12 mm Hikelok		0.50 (12.7)	1.83 (46.5)	2.00 (50.5)	4.09 (103.9)	6.07 (154.4)	5.37 (136)
RV4-FNPT4-05-	1/4 Female NPT		0.43 (10.9)	1.38 (34.9)	1.53 (38.9)	2.70 (68.6)	4.23 (107.5)	4.09 (104)
RV4-FNPT8-05-	1/2 Female NPT		0.50 (12.7)	1.43 (36.3)	1.58 (40.3)	4.09 (103.9)	5.67 (144.2)	5.37 (136)
RV4-NPT4-05-	1/4 Male NPT		0.43 (10.9)	1.17 (29.7)	1.34 (34.2)	2.70 (68.6)	4.04 (102.8)	4.09 (104)
RV4-NPT8-05-	1/2 Male NPT		0.50 (12.7)	1.43 (36.3)	1.58 (40.3)	4.09 (103.9)	5.67 (144.2)	5.37 (136)

How to Order

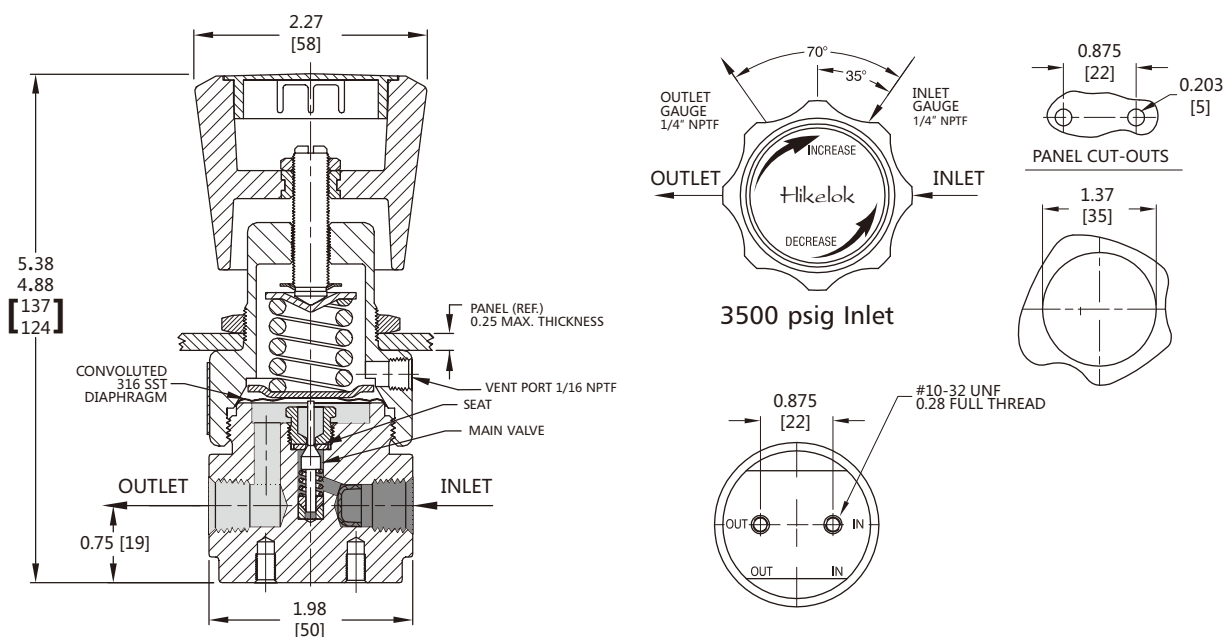
RV4— NPT8 — FNPT8 — 05V — GM — 316

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice	Seal Material	Spring KitColor	Manual Override Handle	Body Material					
RV4	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		05 0.23 in. (5.8 mm)	V Fluorocarbon FKM	G Green 5~300 psig	None	316 316 S.S.					
	NPT Male NPT	4 1/4 in.								316L 316L S.S.				
	FBT Female BSPT	6 3/8 in. or 6mm	If outlet and inlet are the same, eliminate the outlet designator							B Buna N	O Orange 300~550 psig	M Manual Override Handle	304 304 S.S.	
	MBT Male BSPT	8 1/2 in. or 8mm												304L 304L S.S.
	FMS Female ISO 261	10 10 mm												
	MS Male ISO 261	12 3/4 in. or 12mm												
	FBP Female BSPP													
	MBP Male BSPP													
	F Fractional Tube Fitting													
	M Metric Tube Fitting													

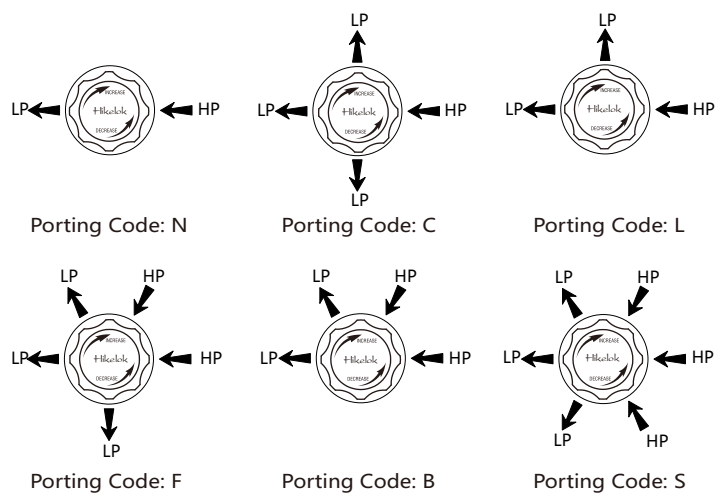
Pressure Reducing Regulators-PR1 Series

- ❖ Maximum Inlet Pressure 400 psig (27.6 bar), 3500 psig (241 bar)
- ❖ Outlet Pressure Ranges
0-25 psig (0-1.7 bar), 0-50 psig (0-3.4 bar), 0-100 psig (0-6.9 bar), 0-250 psig (0-17.2 bar), 0-500 psig (0-34.5 bar)
- ❖ Design Proof Pressure
150% maximum rated
- ❖ Leakage
Internal: bubble-tight
External: design to meet $\leq 2 \times 10^{-8}$ atm cc/sec He
- ❖ Operating Temperature
-40°F to 165°F (-40°C to 74°C)
- ❖ Flow Capacity
3500 psig (241 bar) Inlet: Cv = 0.06
400 psig (27.6 bar) Inlet: Cv = 0.15

Dimensions In. [millimeter]



Port Configurations Notes: HP=High Pressure; LP=Low Pressure

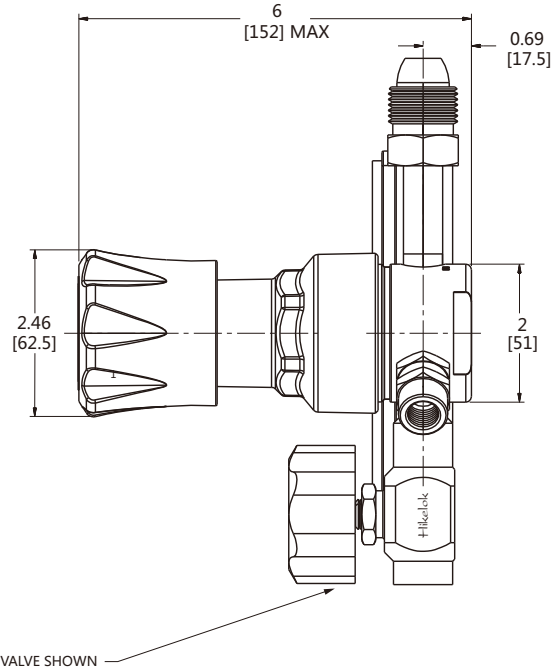
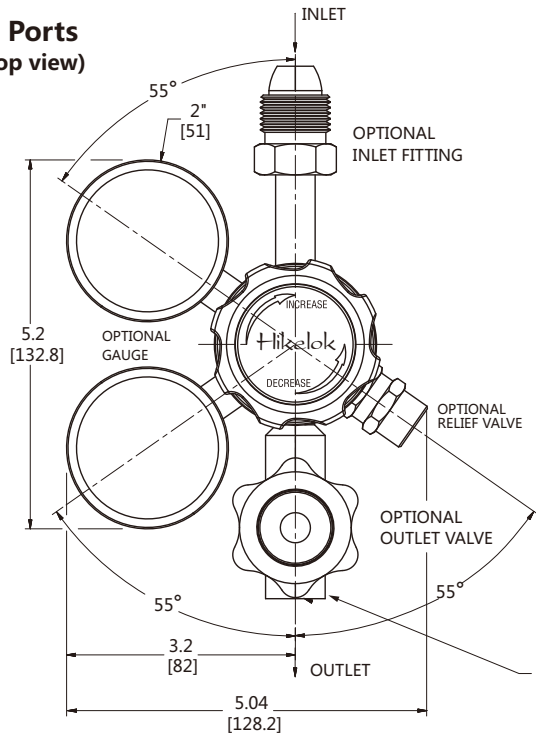


Pressure Reducing Regulators-PR2 Series

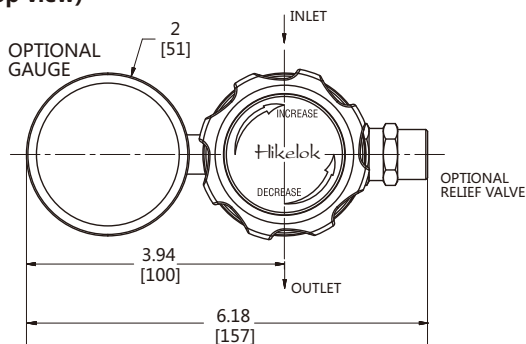
- ❖ Maximum Inlet Pressure
 3000 psig (207 bar), 4500 psig (310 bar)
- ❖ Outlet Pressure Ranges
 0-15 psig (0-1.0 bar), 0-25 psig (0-1.7 bar), 0-50 psig (0-3.4 bar), 0-125 psig (0-8.6 bar), 0-250 psig (0-17.2 bar)
- ❖ Design Proof Pressure
 150% maximum rated
- ❖ Leakage
 Internal: bubble-tight
 External: design to meet $\leq 2 \times 10^{-8}$ mbar l/sec He
- ❖ Operating Temperature
 PCTFE seat: -40°F to 140 °F (-40°C to 60°C)
 PI seat: -40°F to 250 °F (-40°C to 121°C)
- ❖ Flow Capacity
 3000 psig (207 bar) Inlet: Cv = 0.2
 4500 psig (310 bar) Inlet: Cv = 0.06

Dimensions In. [millimeter]

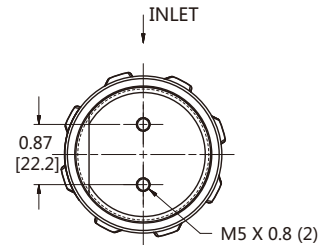
**5 Ports
 (Top view)**



**4 Ports
 (Top view)**



Bottom Mounting



How to Order

PR1 — **FNPT4** — **B** — **35G** — **316L**

Series	Inlet Type / Outlet Type	Inlet Size / Outlet Size	Porting	Intel Pressure	Out Pressure	Gauges	Body Material
PR1	FNPT Female NPT	2 1/8 in.	N No Gauge Ports	3 3500 psig	5 0-500 psig	No gauges	316 316 S.S.
	NPT Male NPT	4 1/4 in.	L One Gauge Ports	4 400 psig	2 0-250 psig	G with gauges	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm	C One Gauge Ports		1 0-100 psig		A400 Alloy 400
	MBT Male BSPT	8 1/2 in. or 8 mm	B Two Gauge Ports		H 0-50 psig		A276 Alloy C276
	F Fractional Tube Fitting	10 10 mm	F Two Gauge Ports		M 0-25 psig		BR Brass
	M Metric Tube Fitting	12 12 mm	S Two Gauge Ports				

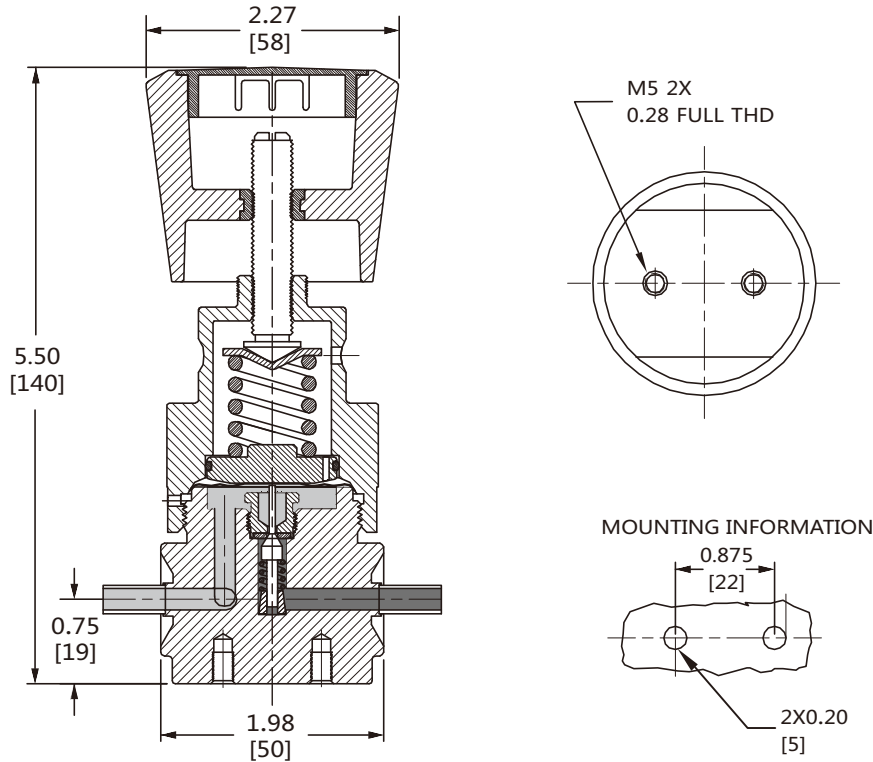
PR2 — **FNPT4** — **F** — **42G** — **316L**

Series	Inlet Type / Outlet Type	Inlet Size / Outlet Size	Porting	Intel Pressure	Out Pressure	Gauges	Body Material
PR2	FNPT Female NPT	2 1/8 in.	F 5 Ports	3 3000 psig	2 0-250 psig	No gauges	316 316 S.S.
	NPT Male NPT	4 1/4 in.	O 4 Ports	4 4500 psig	1 0-125 psig	G with gauges	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm			H 0-50 psig		BR Brass
	MBT Male BSPT	8 1/2 in. or 8 mm			M 0-25 psig		
	F Fractional Tube Fitting	10 10 mm			L 0-15 psig		
	M Metric Tube Fitting	12 12 mm					

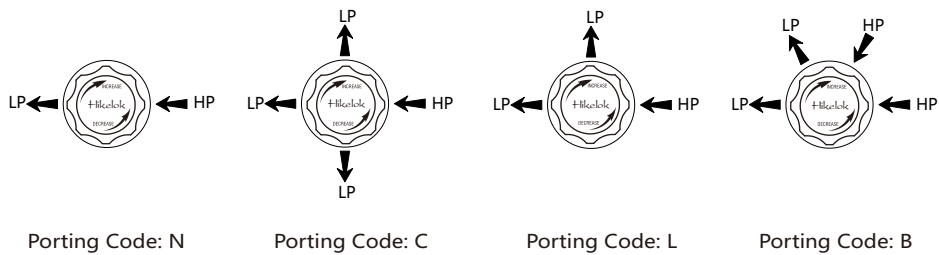
High Purity Pressure Reducing Regulators-PPR1 Series

- ❖ Maximum Inlet Pressure
 600psig (41.4 bar), 3500 psig (241 bar)
- ❖ Outlet Pressure Ranges
 0-30 psig (0-2.1 bar), 0-60 psig (0-4.1 bar), 0-100 psig (0-6.9bar), 0-150 psig (0-10.3 bar), 0-250 psig (0-17.2 bar)
- ❖ Design Proof Pressure
 150% maximum rated
- ❖ Leakage
 Internal: Bubble-tight
 External: Design to meet $\leq 2 \times 10^{-9}$ atm cc/sec He
- ❖ Operating Temperature
 PCTFE Seat: -40°F to 140°F (-40°C to 60°C)
 PTFE Seat: -40°F to 160°F (-40°C to 71°C)
 PI Seat: -40°F to 350°F (-40°C to 177°C)
- ❖ Flow Capacity
 3500 psig (241 bar) Inlet: Cv = 0.06
 400 psig (27.6 bar) Inlet: Cv = 0.15

Dimensions In. [millimeter]



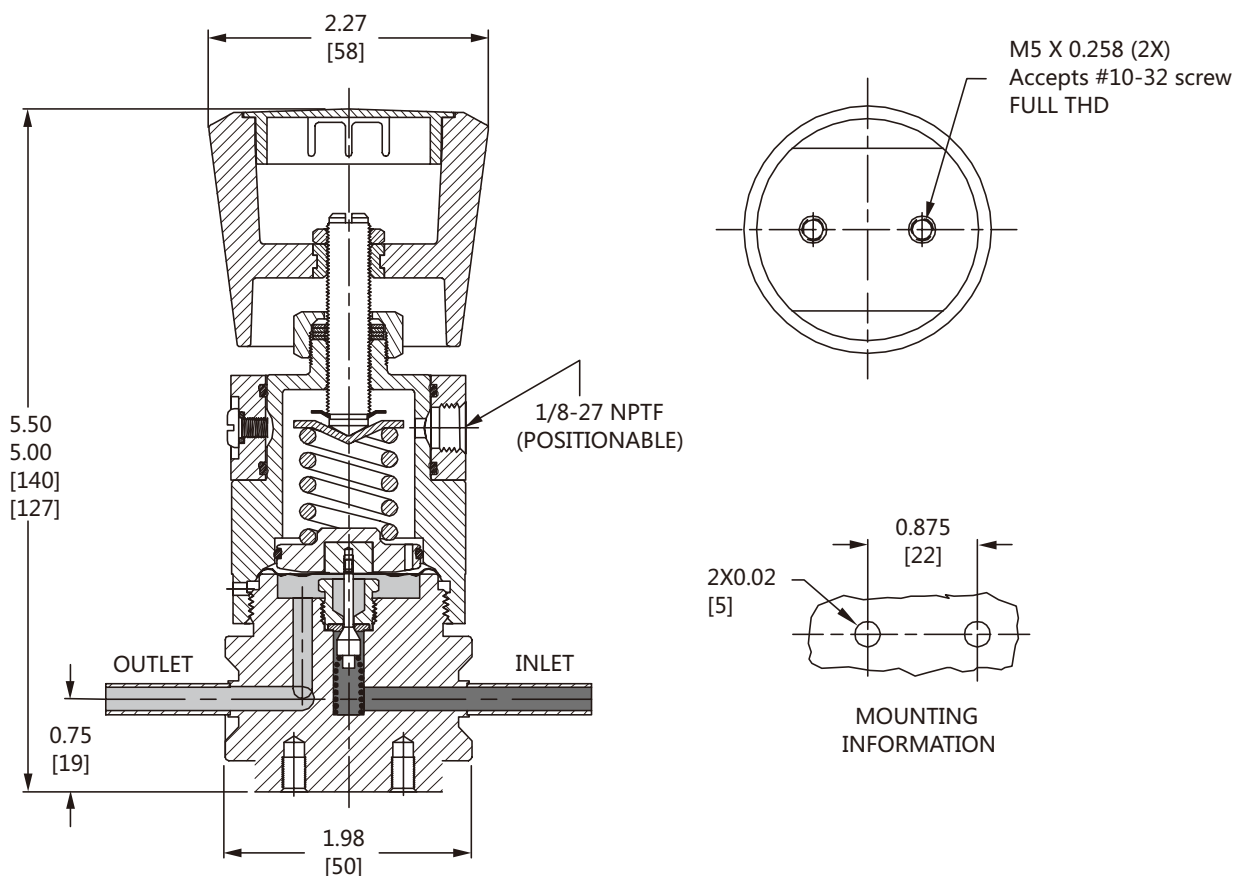
Port Configurations Notes: HP=High Pressure; LP=Low Pressure



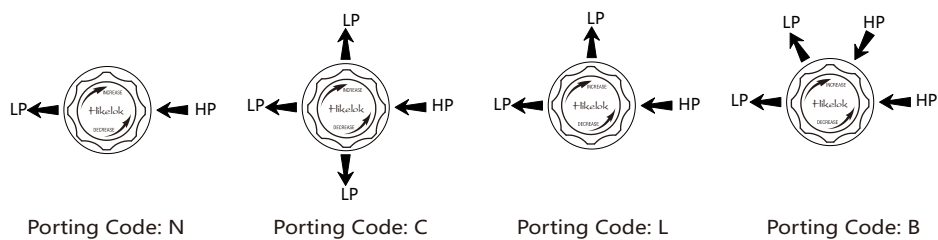
High Purity Pressure Reducing Regulators-PPR2 Series

- ❖ Maximum Inlet Pressure
1000psig (69.0 bar), 3500 psig (241 bar)
- ❖ Outlet Pressure Ranges
0-30 psig (0-2.1 bar), 0-60 psig (0-4.1 bar), 0-100 psig (0-6.9bar), 0-150 psig (0-10.3 bar)
- ❖ Design Proof Pressure
150% maximum rated
- ❖ Leakage
Internal: Bubble-tight
External: Design to meet $\leq 2 \times 10^{-9}$ atm cc/sec He
- ❖ Operating Temperature
PCTFE Seat: -40 °F to 140 °F (-40 °C to 60 °C)
PI Seat: -40 °F to 350 °F (-40 °C to 176 °C)
- ❖ Flow Capacity
3500 psig (241 bar) Inlet: Cv = 0.06
1000 psig (69.0 bar) Inlet: Cv = 0.15

Dimensions In. [millimeter]



Port Configurations Notes: HP=High Pressure; LP=Low Pressure



How to Order

PPR1 — FNPT4 — KB — 32G — 316L

Series	Inlet Type / Outlet Type	Inlet Size / Outlet Size	Seat Material	Porting	Intel Pressure	Out Pressure	Gauges	Body Material
PPR1	FNPT Female NPT	2 1/8 in.	k PCTFE	N No Gauge Ports	3 3500 psig	2 0-250 psig	W No Gauges	316L 316L S.S.
	NPT Male NPT	4 1/4 in.	T PTFE	L One Gauge Ports	6 600 psig	1 0-100 psig	G With Gauges	316LV 316L VAR S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm	I PI	C One Gauge Ports		H 0-50 psig		
	MBT Male BSPT	8 1/2 in. or 8 mm		B Two Gauge Ports		M 0-25 psig		
	F Fractional Tube Fitting							
	M Metric Tube Fitting	10 10 mm						
	GFS Male GFS Fitting	12 12 mm						
	FGFS Female GFS Fitting							
	FBW Fractional Tube Butt Weld							
	MBW Metric Tube Butt Weld							

PPR2 — FNPT4 — KB — 32G — 316L

Series	Inlet Type / Outlet Type	Inlet Size / Outlet Size	Seat Material	Porting	Intel Pressure	Out Pressure	Gauges	Body Material
PPR2	GFS Male GFS Fitting	2 1/8 in.	k PCTFE	N No Gauge Ports	3 3500 psig	2 0-150 psig	W No Gauges	316L 316L S.S.
	FGFS Female GFS Fitting	4 1/4 in.	I PI	L One Gauge Ports	1 1000 psig	1 0-100 psig	G With Gauges	316LV 316L VAR S.S.
	FBW Fractional Tube Butt Weld	6 3/8 in. or 6 mm		C One Gauge Ports		H 0-60 psig		A276 Alloy C276
	MBW Metric Tube Butt Weld	8 1/2 in. or 8 mm		B Two Gauge Ports		M 0-30 psig		
		10 10 mm						
		12 12 mm						

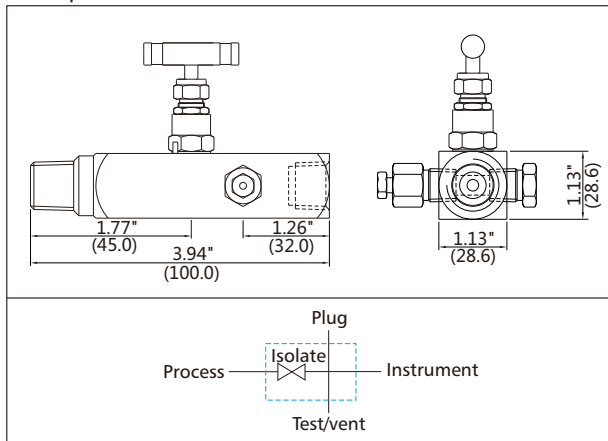
Gauge Valves-GV1, GV2 Series

- ❖ Maximum working pressures:
 GV1 up to 6000 psig (414 bar)
 GV2 up to 10000 psig (689 bar)
- ❖ Working temperature:
 PTFE packing: from -65°F to 450°F (-54°C to 232°C)
 Graphite packing: from -65°F to 1200°F (-54°C to 649°C)
- ❖ Orifice size: 0.16" (4.0 mm)
- ❖ Non-rotating lower stem, ball tip designs
- ❖ Safety back seating seals in fully open position
- ❖ Rolled spindle operating threads
- ❖ Lubricant for stem thread isolated from the media
- ❖ Bonnet locking pin fitted as standard
- ❖ Low torque operating T bar handle
- ❖ Handle of different colors available for option

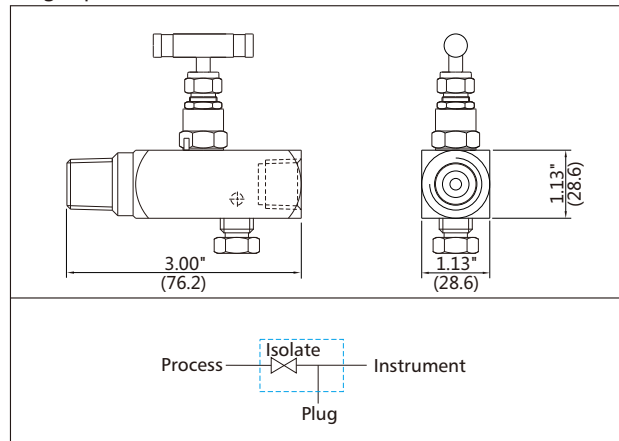
Dimensions

GV1 Series

Multi-port

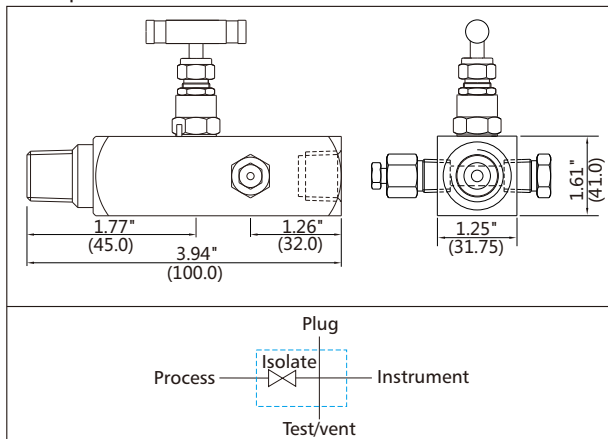


Single-port

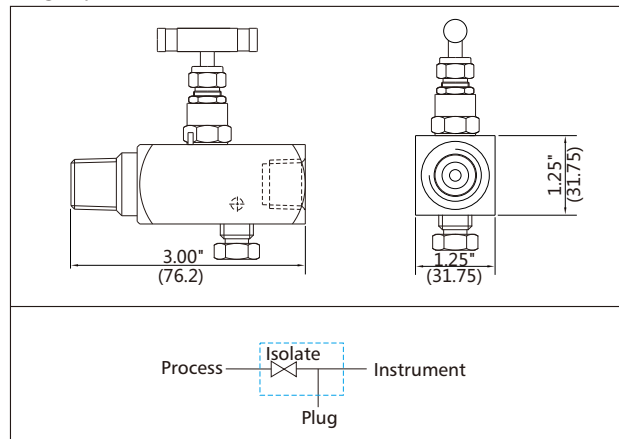


GV2 Series

Multi-port



Single-port



- ❖ Bleed valve and plug must be ordered separately

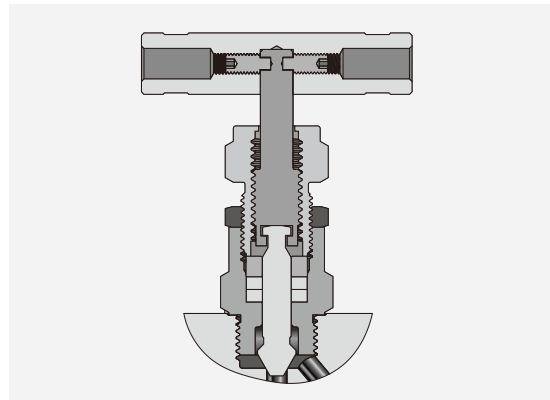
How to Order

GV2 — NPT8 — FNPT8 — SR — 316

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Body Type	Handle	Body Material
GV1	FNPT Female NPT	8 1/2	Same as inlet type and inlet size		M Multi-port	Black Aluminum	316 316 S.S.
GV2	NPT Male NPT	12 3/4 in.			S Single-port	R Red Aluminum	316L 316L S.S.
	FBT Female BSPT	20 M20 x 1.5	If outlet and inlet are the same, eliminate the outlet designator			S 304 Stainless Steel	304 304 S.S.
	MBT Male BSPT					S 304L Stainless Steel	304L 304L S.S.
	FMS Female Metric Thread (for BP)					A20 Alloy 20	
	MS Male Metric Thread (for BG)					A400 Alloy 400	
	FBP Female BSPP (for BP)					A600 Alloy 600	
	MBP Male BSPP (for BP)					A825 Alloy 825	
						A276 Alloy C276	
			DU7 Duplex 2507				

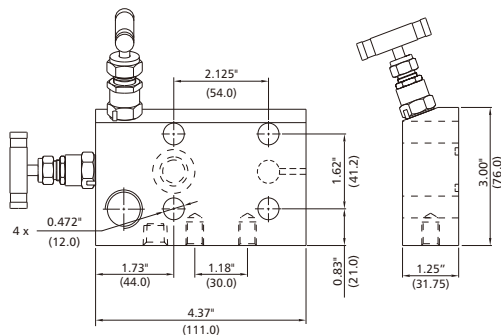
Instrumentation Manifolds

- ❖ working pressures:
 - Stainless steel up to 6000 psig (413 bar)
 - Alloy C-276 up to 6000 psig (413 bar)
 - Alloy 400 up to 5000 psig (345 bar)
- ❖ Working temperatures:
 - PTFE packing from -65°F to 450°F (-54°C to 232°C)
 - Graphite packing from -65°F to 1200°F (-54°C to 649°C)
- ❖ Orifice: 0.157 in. (4.0 mm), CV: 0.35
- ❖ Upper stem and lower stem design, Stem threads above packing protected from system media
- ❖ Safety back seating seals in fully open position
- ❖ Testing for every valve with nitrogen at the maximum working pressure

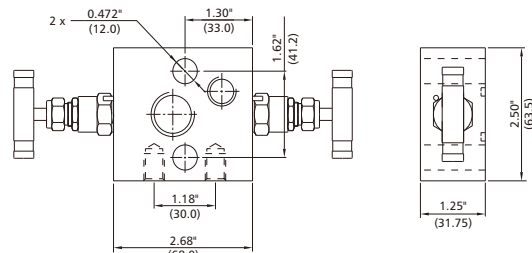


2-valve Manifolds

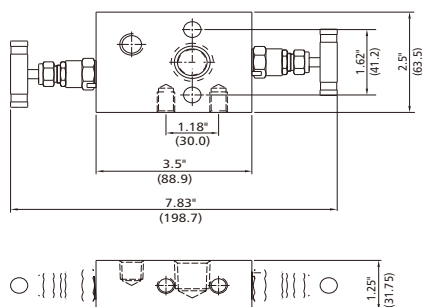
Ordering Number	2M-201-316	Instrument
Inlet / Process	1/2 Female NPT	
Outlet / Instrument	Flanged	
Test / Vent	1/4 Female NPT	



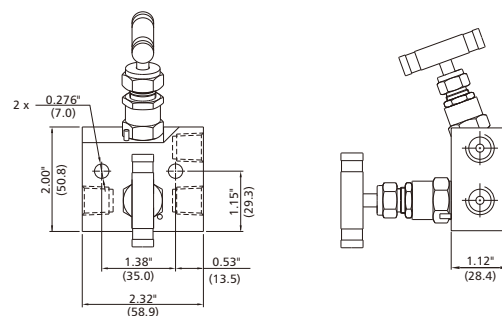
Ordering Number	2M-202-316	Instrument
Inlet / Process	1/2 Female NPT	
Outlet / Instrument	Flanged	
Test / Vent	1/4 Female NPT	



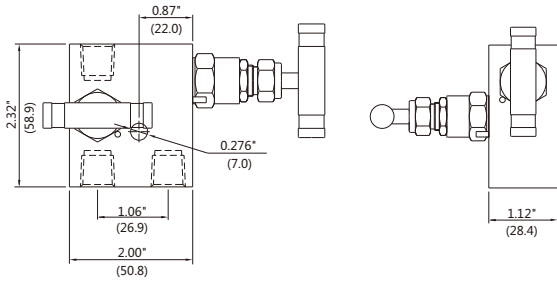
Ordering Number	2M-203-316	Instrument
Inlet / Process	1/2 Female NPT	
Outlet / Instrument	Flanged	
Test / Vent	1/4 Female NPT	



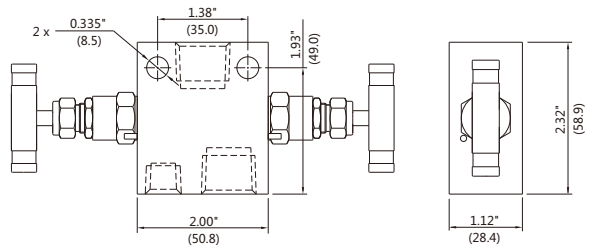
Ordering Number	2M-204-316	Instrument
Inlet / Process	1/4 Female NPT	
Outlet / Instrument	1/4 Female NPT	
Test / Vent	1/4 Female NPT	



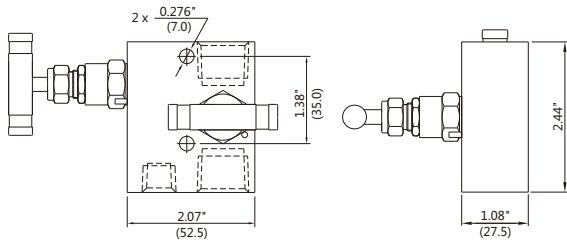
Ordering Number	2M-205-316	Instrument
Inlet / Process	1/4 Female NPT	
Outlet / Instrument	1/4 Female NPT	
Test / Vent	1/4 Female NPT	



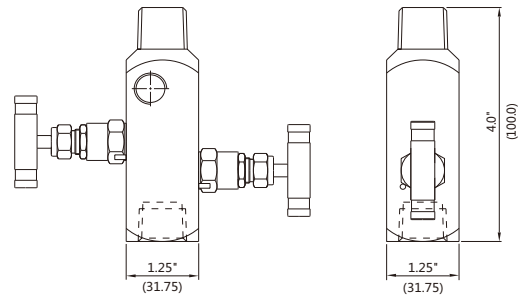
Ordering Number	2M-206-316	Instrument
Inlet / Process	1/2 Female NPT	
Outlet / Instrument	1/2 Female NPT	
Test / Vent	1/4 Female NPT	



Ordering Number	2M-207-316	Instrument
Inlet / Process	1/2 Female NPT	
Outlet / Instrument	1/2 Female NPT	
Test / Vent	1/4 Female NPT	

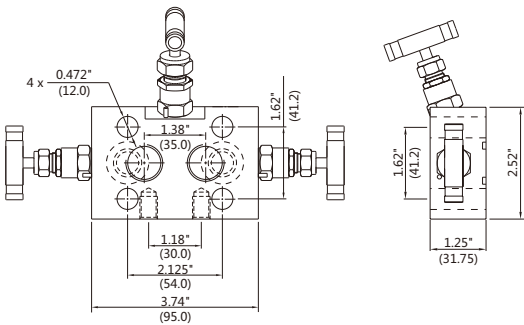


Ordering Number	2M-208-316	Instrument
Inlet / Process	1/2 Female NPT	
Outlet / Instrument	1/2 Male NPT	
Test / Vent	1/4 Female NPT	

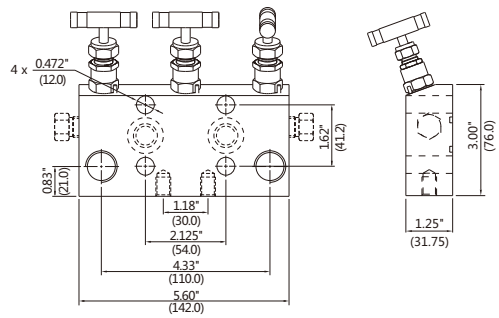


3-valve Manifolds

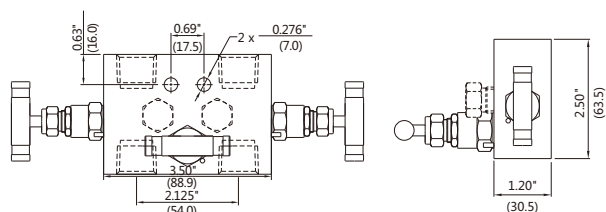
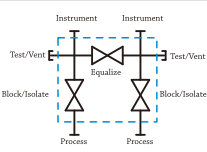
Ordering Number	3M-301-316	Instrument
Inlet / Process	1/2 Female NPT	
Outlet / Instrument	Flange	



Ordering Number	3M-302-316	Instrument
Inlet / Process	1/2 Female NPT	
Outlet / Instrument	Flange	
Test / Vent	Optional	

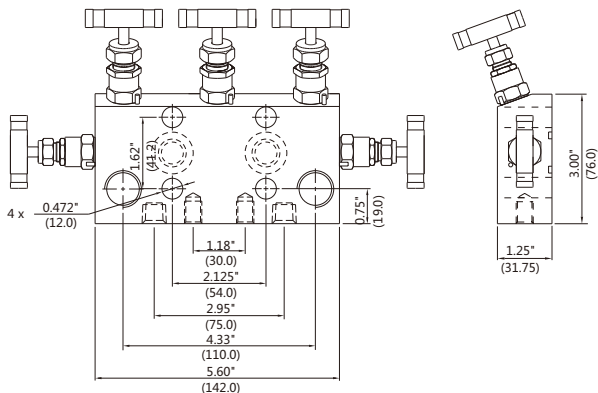
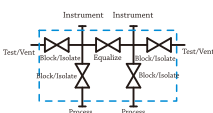


Ordering Number	3M-303-316
Inlet / Process	1/2 Female NPT
Outlet / Instrument	1/2 Female NPT
Test / Vent	Optional

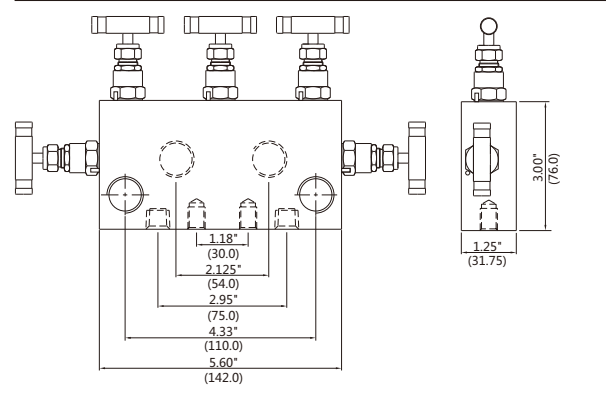
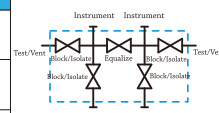


5-valve Manifolds

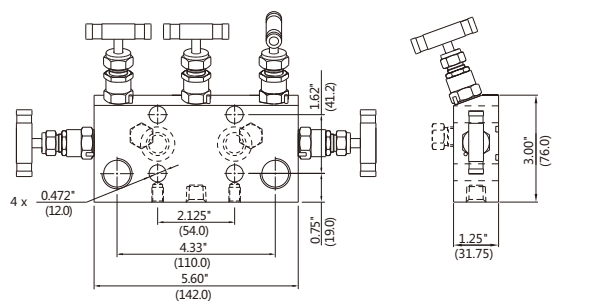
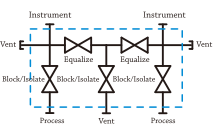
Ordering Number	5M-501-316
Inlet / Process	1/2 Female NPT
Outlet / Instrument	Flange
Test / Vent	1/4 Female NPT



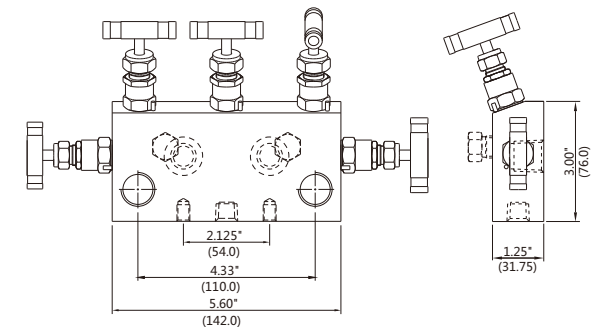
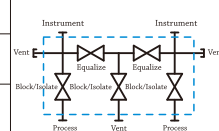
Ordering Number	5M-502-316
Inlet / Process	1/2 Female NPT
Outlet / Instrument	1/2 Female NPT
Test / Vent	1/4 Female NPT



Ordering Number	5M-503-316
Inlet / Process	1/2 Female NPT
Outlet / Instrument	Flanged
Vent	1/4 Female NPT
Test	Optional



Ordering Number	5M-504-316
Inlet / Process	1/2 Female NPT
Outlet / Instrument	1/2 Female NPT
Vent	1/4 Female NPT
Test	Optional

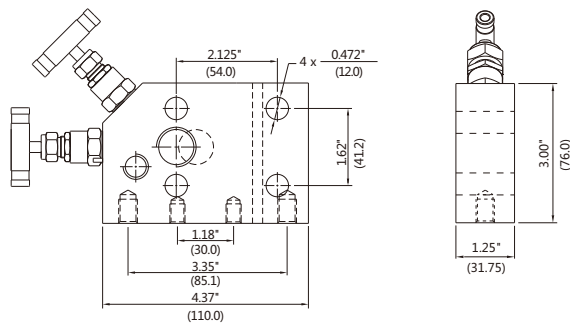
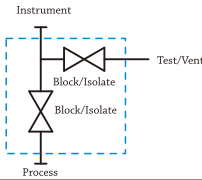


Integral Manifolds

❖ This section is presently characterized by manifold designed specifically for Rosemount[®] coplanar™ pressure transmitters including the model 3051C, model 3051P, model 2024 and the model 3095.

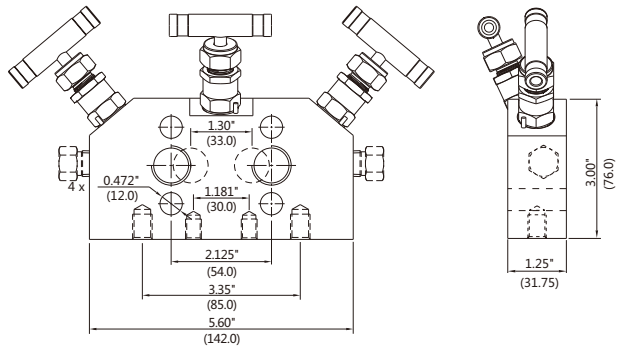
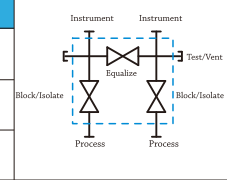
2-valve Manifolds

Ordering Number	2M-2013-316
Inlet / Process	1/2 Female NPT
Outlet / Instrument	Flanged
Test / Vent	1/4 Female NPT



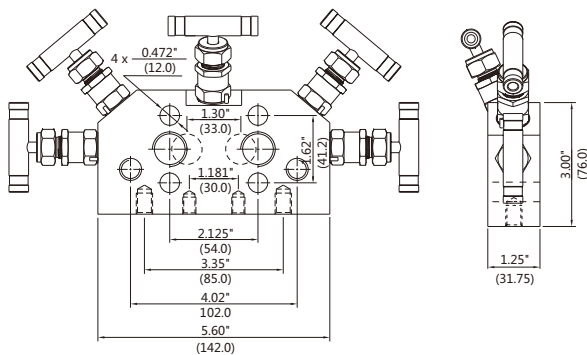
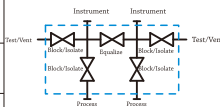
3-valve Manifolds

Ordering Number	2M-2013-316
Inlet / Process	1/2 Female NPT
Outlet / Instrument	Flanged
Test / Vent	Optional



5-valve Manifolds

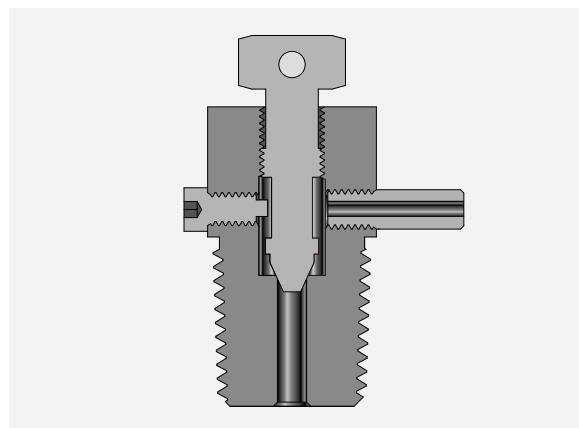
Ordering Number	5M-5013-316
Inlet / Process	1/2 Female NPT
Outlet / Instrument	Flanged
Test / Vent	1/4 Female NPT



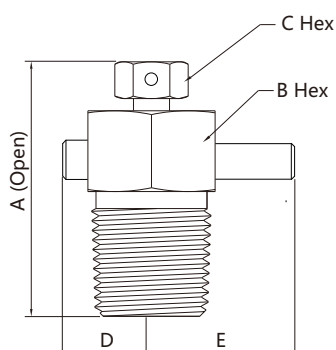
❖ All direct mount manifolds are provided with 4 off 7/16 UNF x 2" high tensile zinc plated carbon steel bolts and 2 off PTFE seal rings

Bleed Valves-BP1 Series

- ❖ Maximum working pressure up to 10 000 psig (689 bar)
- ❖ Working temperature from -65°F to 850°F (-53°C to 454°C)
- ❖ Compact design for easy installation
- ❖ Back stop screw prevents accidental stem disassembly
- ❖ Vent tube directs excess liquid or gas from system lines
- ❖ 316 stainless steel and alloy-405 material
- ❖ Variety of end connections



Dimensions



Basic Ordering Number	Connection Type and Size	Dimension, in. (mm)				
		A	B	C	D	E
BP1-NPT2-	1/8 Male NPT	1.56 (39.6)	5/8 (15.9)	7/16 (11.1)	0.41 (10.4)	0.94 (23.9)
BP1-NPT4-	1/4 Male NPT					
BP1-NPT6-	3/8 Male NPT	1.69 (42.9)	7/8 (22.2)		0.44 (11.2)	1.03 (26.2)
BP1-NPT8-	1/2 Male NPT					
BP1-MBT4-	1/4 Male BSPT	1.56 (39.6)	5/8 (15.9)		0.41 (10.4)	0.94 (23.9)
BP1-MBT6-	3/8 Male BSPT	1.69 (42.9)	7/8 (22.2)			
BP1-MBT8-	1/2 Male BSPT				0.44 (11.2)	1.03 (23.6)
BP1-MS14-	M14 x 1.5 Male ISO	1.56 (39.6)				
BP1-MS20-	M20 x 1.5 Male ISO	1.69 (42.9)				

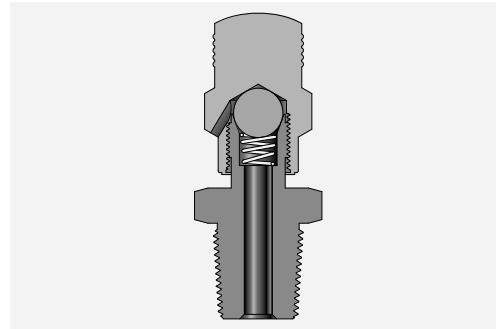
How to Order

BP1 — **NPT8** — **316**

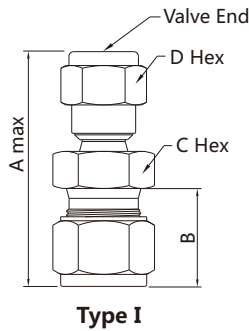
Series	Inlet Type	Inlet Size	Body Material
BP1	NPT Male NPT	2 1/8 in.	316 316 S.S.
	MBT Male BSPT	4 1/4 in.	316L 316L S.S.
	MS Male ISO 261	6 3/8 in.	304 304 S.S.
	MBP Male BSPP	8 1/2 in.	304L 304L S.S.
		14 14x1.5	A405 Alloy R-405
		20 20x1.5	

Purge Valves-BP2 Series

- ❖ Maximum working pressure: 4000 psig (276 bar)
- ❖ Working temperature: -65°F to 600°F (-53°C to 315°C)
- ❖ Compact design for easy installation
- ❖ Bonnet crimped to valve body to prevent accidental disassembly
- ❖ 316 stainless steel and brass material
- ❖ Variety of end connections



Dimensions



Basic Ordering Number	Connection Type and Size	Dimension, in. (mm)				
		A	B	C	D	
BP2-I	-F2-	1/8" Hikelok	1.84 (46.7)	0.59 (15.0)	5/8 (15.9)	1/2 (12.7)
	-F4-	1/4" Hikelok	1.94 (49.3)	0.69 (17.5)	5/8 (15.9)	1/2 (12.7)
	-F6-	3/8" Hikelok	2.03 (51.6)	0.75 (19.1)	3/4 (19.1)	5/8 (15.9)
	-F8-	1/2" Hikelok	2.19 (55.6)	0.88 (22.4)	7/8 (22.2)	3/4 (19.1)
	-M6-	6 mm Hikelok	1.94 (49.3)	0.69 (17.5)	5/8 (15.9)	1/2 (12.7)
	-M8-	8 mm Hikelok	2.00 (50.8)	0.72 (18.3)	5/8 (15.9)	1/2 (12.7)
	-M10-	10 mm Hikelok	1.05 (26.7)	0.75 (19.1)	3/4 (19.1)	5/8 (15.9)
	-M12-	12 mm Hikelok	1.05 (26.7)	0.88 (22.4)	7/8 (22.2)	3/4 (19.1)
	-NPT2-	1/8 Male NPT	1.62 (41.1)	0.38 (9.7)	5/8 (15.9)	1/2 (12.7)
	-NPT4-	1/4 Male NPT	1.81 (46.0)	0.56 (14.2)	5/8 (15.9)	5/8 (15.9)
	-NPT6-	3/8 Male NPT	1.84 (46.7)	0.56 (14.2)	3/4 (19.1)	3/4 (19.1)
	-NPT8-	1/2 Male NPT	2.09 (53.1)	0.75 (19.1)	7/8 (22.2)	7/8 (22.2)

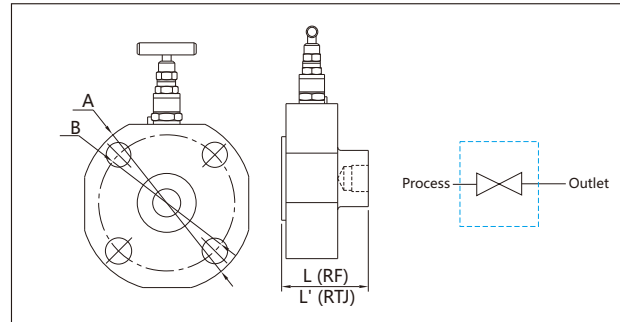
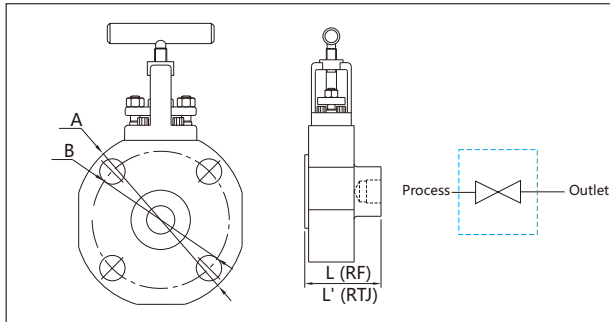
How to Order

BP2 — BT — M10 — FNPT4 — 316

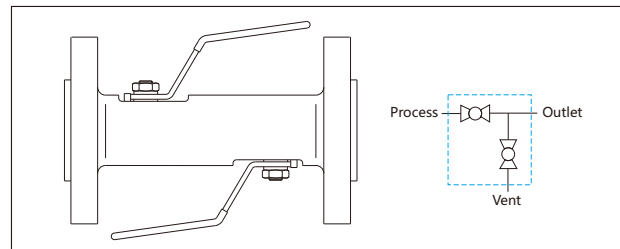
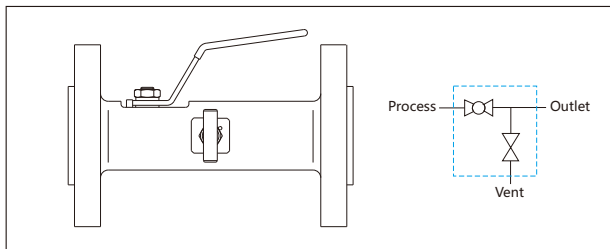
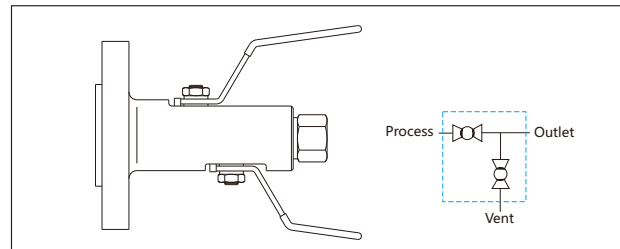
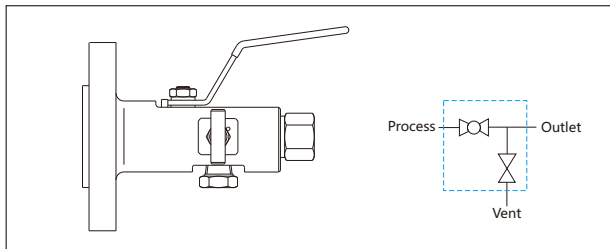
Series	Type	Port 1 Type	Port 1 Size	Port 2/3 /4 Type /4 Size		Body Material
				Port 2/3 /4 Type	Port 2/3 /4 Size	
BP2	I Inline	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 1 size If port 2/3/4 and port 1 are the same, eliminate the port 2/3/4 designator		316 316 S.S.
	BT Branch Tee	NPT Male NPT	3 3 mm			316L 316L S.S.
	RT Run Tee	FBT Female BSPT	4 1/4 in.			304 304 S.S.
	C Cross	MBT Male BSPT	5 5/16 in.			304L 304L S.S.
		FMS Female ISO 261	6 3/8 in. or 6 mm			BR Brass
		MS Male ISO 261	8 1/2 in. or 8 mm			
		FBP Female BSPP	10 10 mm			
		MBP Male BSPP	12 12 mm			
		F Fractional Tube Fitting				
		M Metric Tube Fitting				

Block and Bleed Valves

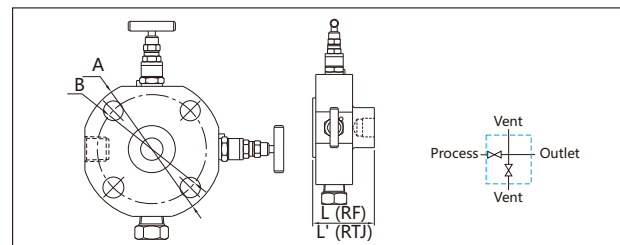
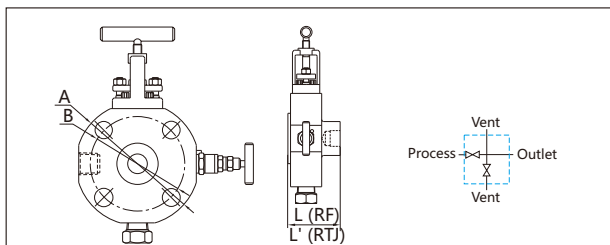
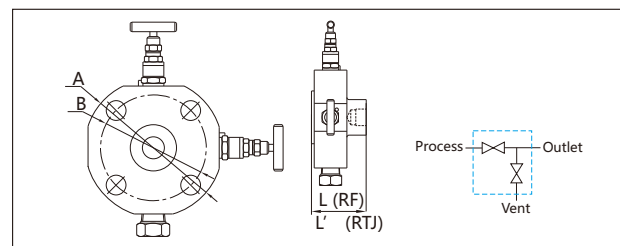
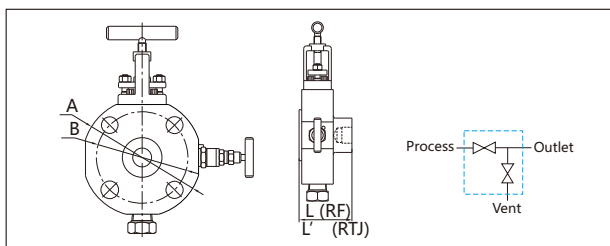
MB1 Series: Single Block Valve



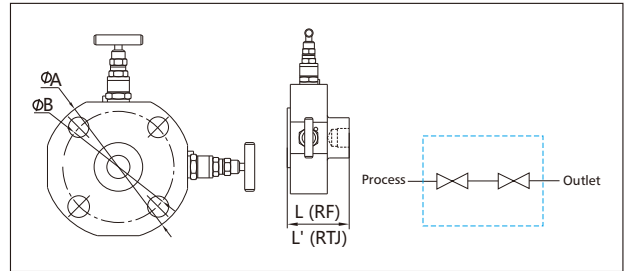
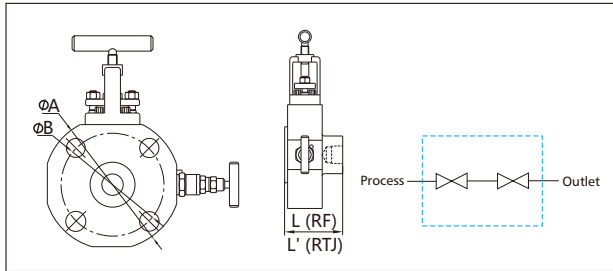
BB1 Series: Flange Block and Bleed Valves



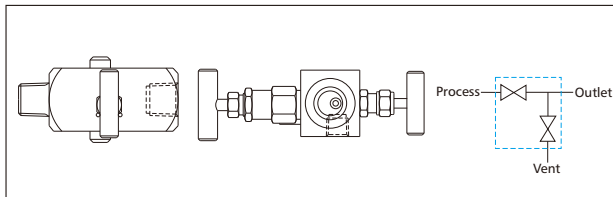
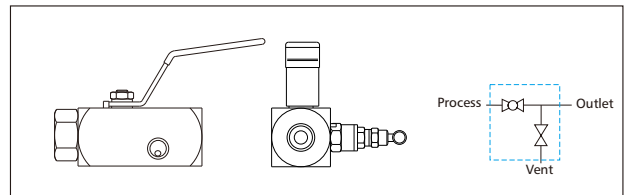
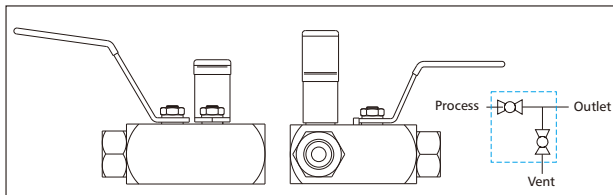
BB2 Series: Monoflange Single Block and Bleed Valves



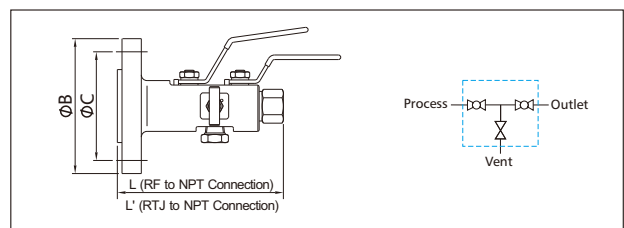
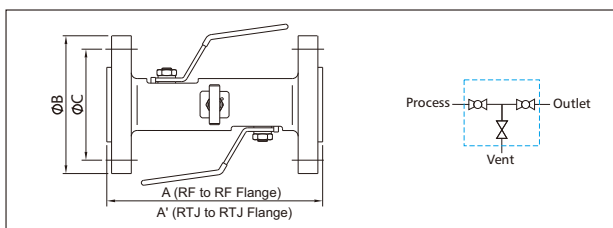
BB3 Series: Double Block Valves



BB4 Series: Single Block and Bleed Valves

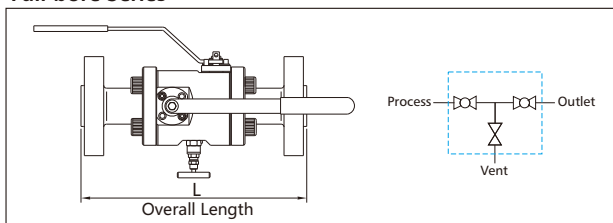


DBB1 Series: Flange Double Block and Bleed Valves

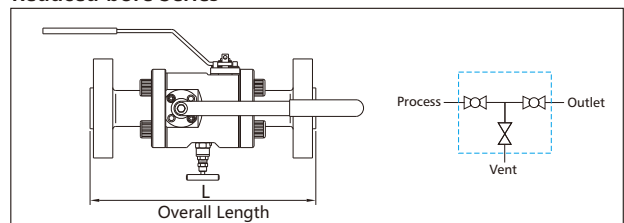


DBB2 Series: Large-bore Bolted Double Block and Bleed Valves

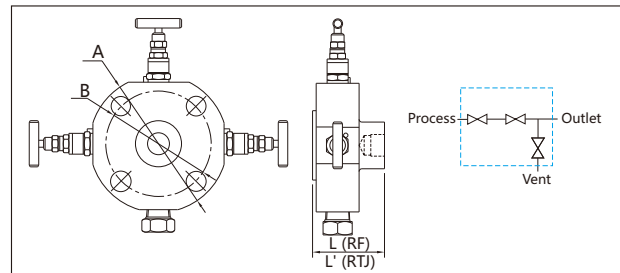
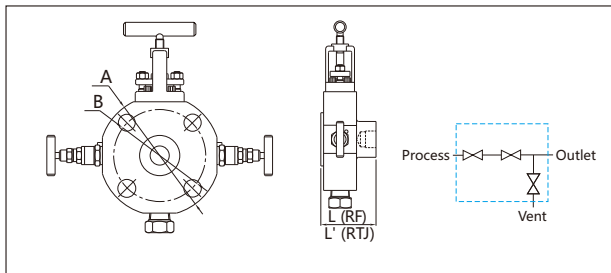
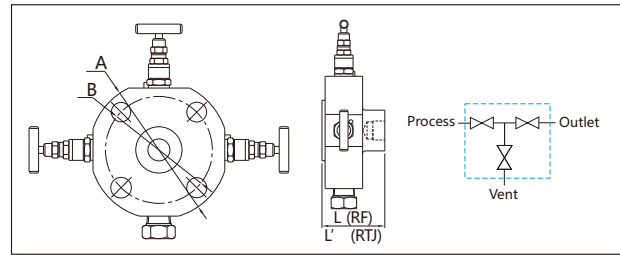
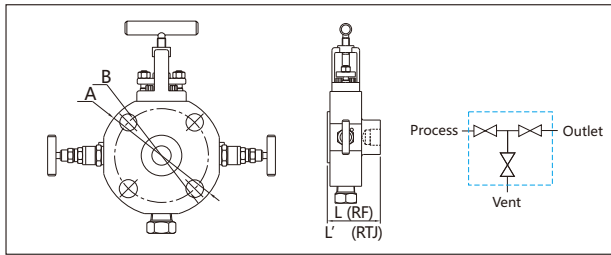
Full-bore Series



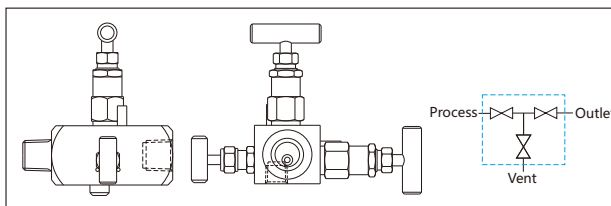
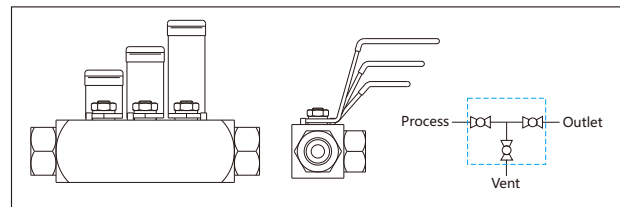
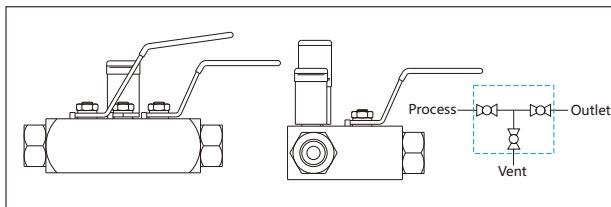
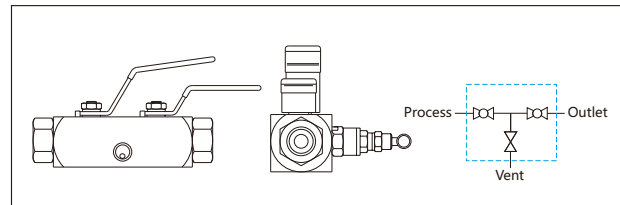
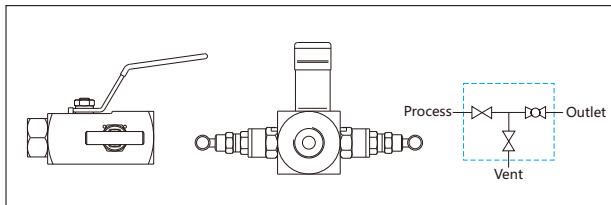
Reduced-bore Series



DBB3 Series: Monoflange Double Block & Bleed Valves



DBB4 Series: Double Block and Bleed Valves



❖ Bleed valve and plug must be ordered separately

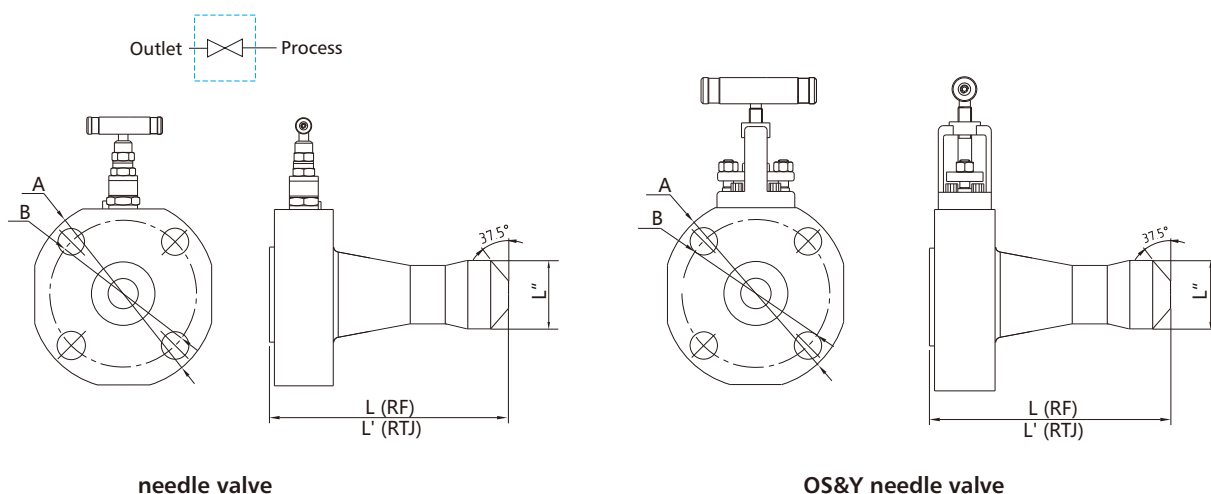
How to Order

DBB1—	BBN	G10	RF8300	FNPT8	8	316L				
Serialize	Configuration	Packing Material	Bore of ball valve	Port 1 Type	Inlet Size	ASME Class	Port 2 Type	Port 2 Size	Vent Type and Size	Body Material
MB1	Primary	PTFE	10 3/8 in. (9.5 mm)	FNPT Female NPT	2 1/8 in.	300 Class 300	Same as Port 1	4 1/4 Female NPT	316 316 S.S.	
BB1	Secondary	G Graphite	15 1/2 in. (14 mm)	NPT Male NPT	3 3 mm	600 Class 600		8 1/2 Female NPT	316L 316L S.S.	
BB2	Needle		20 3/4 in. (20 mm)	FBT Female BSPT	4 1/4 in.	900 Class 900		4P 1/4 Female NPT with Plug	304 304 S.S.	
BB3	Needle		25 1 in. (25 mm)	MBT Male BSPT	5 5/16 in.	1500 Class 1500		8P 1/2 Female NPT with Plug	304L 304L S.S.	
BB4	Ball			FMS Female ISO 216 (for BG)	6 3/8 in. or 6 mm	2500 Class 2500			A400 Alloy 400	
DBB1	OS&Y			MS Male ISO 216 (for BG)	8 1/2 in. or 8 mm				A20 Alloy 20	
DBB2	Ball			F Fractional Tube Fitting	10 10 mm				A600 Alloy 600	
DBB3	OS&Y			M Metric Tube Fitting	12 3/4 in. or 12 mm				A825 Alloy 825	
DBB4	Needle			RF RF Smooth Flange	14 14 mm				A276 Alloy C276	
	Ball			RTJ RTJ Flange	16 1 in. or 16 mm				Du7 Duplex 2507	
	Needle				18 18 mm				CS Steel	
	Needle				20 20 mm					
	Needle				24 1 1/2 in.					
	Needle				32 2 in.					
	Needle				48 3 in.					
	Needle				64 4 in.					

Root Valves-RTV1 Series

- ❖ Maximum working pressure up to 10000 psig (689 bar)
- ❖ Working temperature up to 1200°F(649°C) with Graphite packing
- ❖ Colour coded valve function identification
- ❖ Every valve is hydraulic pressure tested in accordance with EN 12266-1 and API 598. Every set is tested with nitrogen for leak-tight performance at 6000 psig
- ❖ Fire-tested design in accordance with BS 6755 part 2/API 607
- ❖ Flanged connections comply with ASME B16.5 RF and RTJ
- ❖ Pressure ratings in accordance with ASME B16.34

Dimensions



Flange Size	Orifice Size in. (mm)	ASME Class	L in. (mm)	L' in. (mm)	φA in. (mm)	φB in. (mm)	L''
1/2 (DN15)	0.157 (4.0) More Orifice Available	150	2.03 (51.6)	—	3.50 (88.9)	2.38 (60.5)	1.57 (40.0)
		300			2.03 (51.6)	3.75 (95.2)	
		600		4.75 (120.7)		3.25 (82.5)	
		900/1500		5.25 (133.4)		3.50 (88.9)	
		2500		—		3.88 (98.6)	
150		2.03 (51.6)	—	3.88 (98.6)		2.75 (69.8)	
300				2.03 (51.6)	4.62 (117.3)	3.25 (82.6)	
600			5.13 (130.3)		3.50 (88.9)		
900/1500			5.50 (139.7)		3.75 (95.2)		
2500			2.11 (53.5)		2.11 (53.5)	5.50 (139.7)	
1 (DN 25)	150	2.03 (51.6)	2.03 (51.6)		4.25 (108.0)	3.12 (79.2)	
	300			2.03 (51.6)	4.88 (124.0)	3.50 (88.9)	
	600		5.88 (149.4)		4.00 (101.6)		
	900/1500		2.11 (53.5)		2.11 (53.5)	6.25 (158.8)	4.25 (108.0)
	2500		—		—	6.25 (158.8)	4.25 (108.0)

How to Order

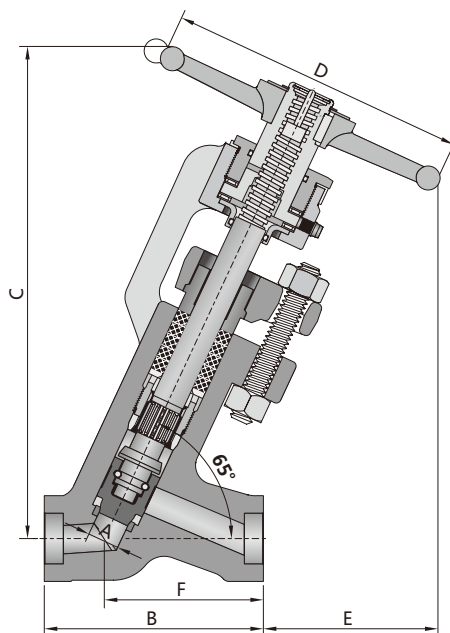
RTV1— O — PBW8 — RF8600 — TV8 — 316

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Flange Class	Packing Material	Vent Type and Size	Body Material		
RTV1	Needle O OS&Y	FBW Metric Tube Butt Weld PBW Pipe Butt Weld	8 1/2 in. or 8 mm	FNPT Female NPT	4 1/4 in.	Graphite T PTFE	No Vent	316 316 S.S.		
			12 3/4 in. or 12 mm	NPT Male NPT	6 3/8 in.		1/4 Female V4 NPT with Plug	316L 316L S.S.		
			14 14 mm	FBT Female BSPT	8 1/2 in.		1/2 Female V8 NPT with Plug	304 304 S.S.		
	O OS&Y	Metric Tube Butt Weld PBW Pipe Butt Weld	16 1 in. or 16 mm	MBT Male BSPT	12 3/4 in.	1500 Class 1500			304L 304L S.S.	
			18 18 mm	FMS Female ISO	14 M14 x 1.5	2500 Class 2500			A105 A105	
			20 1 1/4 in. or 20 mm	MS Male ISO	16 1 in.	4500 Class 4500			A400 Alloy 400	
			22 22 mm	FBP Female BSPP	20 1 1/2 in. M20 x 1.5				A20 Alloy 20	
			24 1 1/2 in.	RF RF Flange	22 M22 x 1.5				A600 Alloy 600	
			25 25mm	RTJ RTJ Flange	24 1 1/2 in. or M24 x 1.5				A825 Alloy 825	
			28 28mm		27 M27 x 2				A276 Alloy C276	
					32 2 in.					DU7 Duplex 2507

Globe Valves-GL1 Series

- ❖ One-piece forged body and bonnet, no joints to leak and no welds to cut for servicing
- ❖ 65° Y patterns design reduces pressure drop
- ❖ One step removal of all working parts for quick and easy maintenance
- ❖ Non rotating stem design ensures low torque and prevents torsional damage of the packing
- ❖ The top- and bottom-guided disc assures perfect seat and disc alignment in spite of side thrust caused by high velocity flow. This prevents stem from scoring and galling and provides longer disc seal and body life
- ❖ Solid Stellite disc, seat ring and backseat provide excellent long service life even in severe services
- ❖ Precision stem and packing chambers to 8 RMS finish
- ❖ Fully enclosed, lubricated stem drive system with needle bearings ensures low operating torque
- ❖ Rugged and knobbed handwheel make sure the grip when wearing gloves

Dimensions



NPS DN	A in _{mm}		B in _{mm}		C in _{mm}		D in _{mm}		E in _{mm}		F in _{mm}	
	Port		End to End		Center to top		Handwheel		Clearance Open		Center to End	
	1500 2500	4500	1500 2500	4500	1500 2500	4500	1500 2500	4500	1500 2500	4500	1500 2500	4500
1/2 15	0.559 14.2	0.375 9.5	4.88 124	5.75 146	9.63 245	11.75 298	6.00 152	6.00 152	3.63 92	3.25 83	3.20 81	4.19 106
3/4 20	0.559 14.2	0.559 14.2	4.88 124	7.00 178	9.63 245	14.20 361	6.00 152	8.00 203	3.63 92	6.00 152	3.20 81	3.88 99
1 25	0.833 21.2	0.559 14.2	5.75 146	7.00 178	13.19 335	14.20 361	8.00 203	8.00 203	5.13 130	6.00 152	4.19 106	3.88 99
1 1/4 32	1.125 28.6	0.833 21.2	7.25 184	10.13 257	16.63 422	18.88 480	12.00 305	12.00 305	7.57 192	7.00 178	4.94 125	6.57 167
1 1/2 40	1.125 28.6	1.125 28.6	7.25 184	12.00 305	16.63 422	20.75 527	12.00 305	18.00 457	7.57 192	8.00 203	4.94 125	8.00 203
2 50	1.688 42.9	1.50 38.1	10.13 257	12.00 305	19.86 505	20.75 527	12.00 305	18.00 457	7.50 190	8.00 203	6.57 167	8.00 203
2 1/2 65	1.688 42.9	1.50 38.1	12.00 305	12.00 305	20.69 526	20.75 527	16.00 406	16.00 406	7.25 184	7.25 184	8.00 203	8.00 203
3 50	1.688 42.9	1.50 38.1	12.00 305	12.00 305	20.69 526	20.75 527	16.00 406	16.00 406	7.25 184	7.25 184	8.00 203	8.00 203
4 100	1.688 42.9	1.50 38.1	12.00 305	12.00 305	20.69 526	20.75 527	16.00 406	16.00 406	7.25 184	7.25 184	8.00 203	8.00 203

How to Order

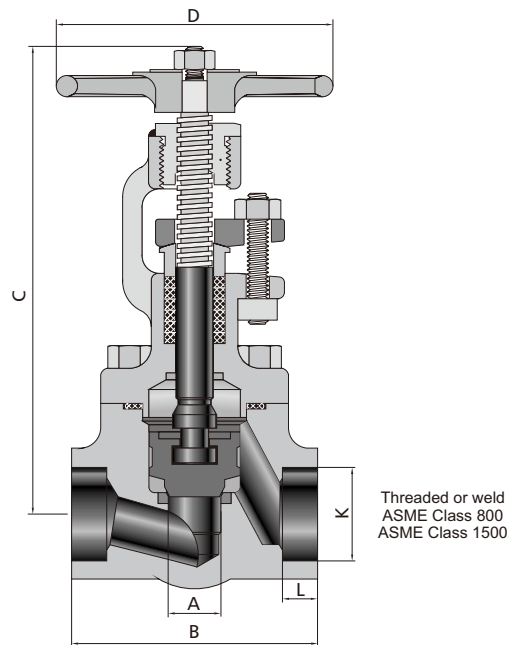
GL1 — PBW8 — CL45 — 316

Series	Type Of Connection	Size Of Connection	ASME Class	Body Material
GL1	FNPT Female NPT	6 3/8	CL15 Class 1500	316
	FBT Female BSPT	8 1/2	CL25 Class 2500	316L
	FSW Fractional Tube Socket Weld	12 3/4	CL45 Class 4500	316H
		16 1		304
	MSW Metric Tube Socket Weld	20 1 1/4		304L
		24 1 1/2		F91
	FBW Fractional Tube Butt Weld	32 2		F92
	MBW Metric Tube Butt Weld			A105
PSW Pipe Socket Weld			F11	
PBW Pipe Butt Weld			F22	
				WB36

Globe Valves-GL2 Series

- ❖ Three Bonnet designs: Bolted Bonnet, Outside Screw and Yoke (OS&Y).
- ❖ The top and bottom-guided disc assures perfect seat and disc alignment in spite of side thrust caused by high velocity flow. This prevents stem from scoring and galling and provides longer disc seal and body life.
- ❖ Large clearance between stem and disc allows disc to move freely.
- ❖ Precision stem and packing chambers, Packing rings individually pre-stressed for tight seal
- ❖ Two-piece self-aligning gland.

Dimensions



Size NPS DN	A in. mm		B in. mm		C in. mm		D in. mm		K in. mm	L in. mm	Weight lb kg		B			
	Port		End to End		Center to Top Open		Handwheel						Socket Weld Bore	Socket Weld Depth	Flanged Valves	
	800	1500	800	1500	800	1500	800	1500	800	1500	150	300			600	1500
1/4 8	0.31 8	0.50 13	3.00 76	4.00 102	4.80 122	8.10 206	2.50 64	6.0 152	0.555 14.10	0.38 10	3.00 1.4	8.00 3.6	4.00 102	6.00 152	6.50 165	8.50 216
3/8 10	0.31 8	0.50 13	3.00 76	4.00 102	4.80 122	8.10 206	2.50 64	6.0 152	0.690 17.53	0.38 10	3.00 1.4	8.00 3.6	4.00 102	6.00 152	6.50 165	8.50 216
1/2 15	0.31 8	0.50 13	3.00 76	4.00 102	4.80 122	8.10 206	2.50 64	6.0 152	0.855 21.72	0.38 10	3.00 1.4	8.00 3.6	4.25 108	6.00 152	6.50 165	8.50 216
3/4 20	0.50 13	0.50 13	3.25 83	5.00 127	7.10 180	8.40 213	4.0 102	6.0 152	1.065 27.05	0.50 13	5.00 2.3	11.00 5.0	4.62 117	7.00 178	7.50 190	9.00 229
1 25	0.75 19	0.75 19	3.50 89	6.00 152	7.30 185	10.0 254	4.0 102	8.0 203	1.330 33.78	0.50 13	6.00 2.7	21.00 9.5	5.00 127	8.00 203	8.50 216	10.00 254
1 1/4 32	1.25 32	1.25 32	5.00 127	7.00 178	8.90 226	11.0 279	6.0 152	8.0 203	1.675 42.55	0.50 13	14.00 6.4	31.00 14.0	5.50 140	8.50 216	9.00 229	11.00 279
1 1/2 40	1.25 32	1.25 32	5.00 127	7.00 178	8.90 226	11.0 279	6.0 152	8.0 203	1.915 48.64	0.50 13	14.00 6.4	31.00 14.0	6.50 165	9.00 229	9.50 241	12.00 305
2 50	1.5 38	1.5 38	8.00 203	9.00 229	11.2 285	12.3 312	8.0 203	12.0 305	2.406 61.11	0.63 16	27.00 12.2	49.00 22.2	8.00 203	10.50 266	11.50 292	14.50 368

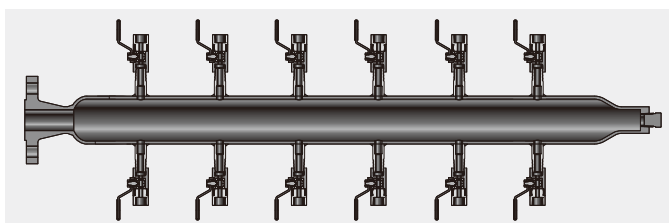
How to Order

GL2 — PBW8 — CL15 — 316

Series	Type Of Connection	Size Of Connection	ASME Class	Body Material
GL2	FNPT Female NPT	6 3/8	CL8 Class 800	316
	FBT Female BSPT	8 1/2	CL15 Class 1500	316L
	FSW Fractional Tube Socket Weld	12 3/4		316H
		16 1		304
	MSW Metric Tube Socket Weld	20 1 1/4		304L
	FBW Fractional Tube Butt Weld	24 1 1/2		F91
				F92
	MBW Metric Tube Butt Weld	32 2		A105
	PSW Pipe Socket Weld			F11
			F22	
PBW Pipe Butt Weld			WB36	

Air Headers-AP1 Series

- ❖ Working pressure up to 300 psig (20.6 bar)
- ❖ Working temperatures from -40°F to 450°F (-40°C to 232°C)
- ❖ Red, Yellow, and blue handles are available
- ❖ The standard main line is Sch 40 pipe
- ❖ Distribution ports are BV3 or BV5 Series ball valves



How to Order

Series	Inlet Type	Inlet Size	Inlet Valve	Outlet Quantity	Outlet Type	Outlet Size	Outlet Valve/Plug	Drain	Drain Type	Drain Size	Handle	Body Material	
AP1	FNPT Female NPT	12 3/4	N No	4	FNPT Female NPT	1/2in. or 8 mm	V Valve	A Valve with Plug	FNPT Female NPT	None	Blue	316 316 S.S.	
	FBT Female BSPT	16 1	Y Yes	6	NPT Male NPT	M10 x 1 or 10mm	P Plug	V Valve	NPT Male NPT	1/2 in. or 8 mm	Y Yellow	304 304 S.S.	
	FBP Female BSPP	24 1 1/2		8	FBT Female BSPT	3/4in. or 12 mm	N No	P Plug	FBT Female BSPT	M10 x 1 or 10mm	R Red		
	PSW Pipe Socket Weld			10	MBT Male BSPT	M14 x 1.5 or 14 mm			MBT Male BSPT	3/4 in. or 12 mm	L Black		
	PBW Pipe Butt Weld			12	FMS Female Metric				FMS Female Metric	M14 x 1.5 or 14 mm			
	RF1 Serrated Flange (ASME B 16.5)			.	MS Male Metric				MS Male Metric				
	RF3 Serrated Flange (ASME B 16.5)			.	FBP Female BSPP				FBP Female BSPP				
				.	MBP Male BSPP				MBP Male BSPP				
				.	F Fractional Tube Fitting					F Fractional Tube Fitting			
				.	M Metric Tube Fitting Handle					M Metric Tube Fitting Handle			
					UGM Nut + Gasket + Bulge Nipple								

AP1 — FNPT16N

16FNPT8V

AFNPT8

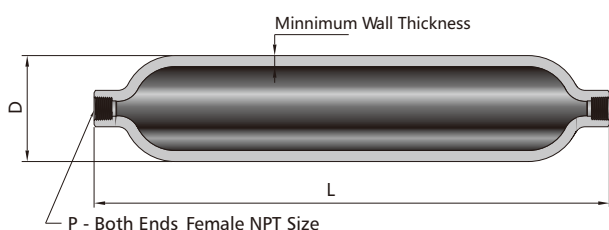
— Y — 316

Sample Cylinders-SC1 Series

- ❖ Working pressure up to 5000 psig (344 bar)
- ❖ Internal volume from 40 to 3785 cm³ (1 gal)
- ❖ Single-ended and double-ended
- ❖ Seamless tubing body provides consistent wall thickness, size and capacity
- ❖ Heavy wall end connections provide strength and resist flaring
- ❖ 316L and 304L and alloy 400 stainless steel materials available

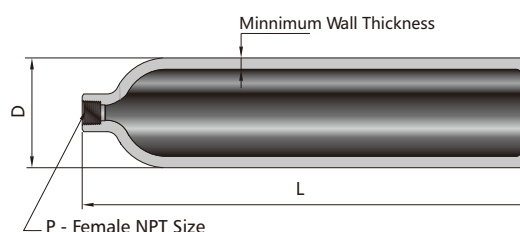
Double-ended Cylinders

- ❖ Volume from 40 to 3785 cm³(1 gal)



Single-ended Cylinders

- ❖ 150, 300 and 500 cm³ volume meet a variety of sampling needs



Technical Data and Dimensions

Materials Grade/Cylinder Specification	Working pressure, psig (bar)	Internal Volume cm ³ ± 5%	P-Female NPT	Dimension, in.(mm)				
				D	L	Minimum wall thickness	Weight lb(kg)	
Single-Ended								
304L S.S.	500 (34.4)	150	1/4	2.00 (50.8)	4.88 (124)	0.093 (2.4)	1.10 (0.50)	
		300			8.62 (219)		1.80 (0.82)	
		500			13.6 (330)		2.70 (1.23)	
Double-Ended								
304L S.S.	1800 (124)	40	1/8	1.25 (31.8)	3.88 (98.6)	0.070 (1.8)	0.31 (0.14)	
		50	1/4	1.50 (38.1)	3.75 (95.2)		0.38 (0.17)	
		75			4.94 (125)		0.62 (0.28)	
		150	1/4	2.00 (50.8)	5.25 (133)		0.093 (2.4)	0.94 (0.43)
		300			8.94 (227)			1.80 (0.82)
		400			11.4 (290)			2.10 (0.95)
		500			13.8 (351)			2.60 (1.18)
304L S.S.	1800 (124)	1000	1/4 or 1/2	3.50 (88.9)	10.9 (277)	0.180 (4.6)	6.50 (2.90)	
		2250		4.00 (102)	17.2 (437)		0.206 (5.2)	14.00 (6.40)
		3785 (1 gal)			26.7 (678)			21.00 (9.50)
316L S.S.	1800 (124)	150	1/4	2.00 (50.8)	5.25 (133)	0.093 (2.4)	0.94 (0.43)	
		300			8.94 (227)		1.80 (0.82)	
		500			13.8 (351)		2.60 (1.20)	
316L S.S.	5000 (344)	150	1/4 or 1/2	1.90 (48.2)	8.00 (203)	0.240 (6.1)	3.00 (1.40)	
		300			14.5 (368)		5.60 (2.50)	
		500			23.5 (597)		9.10 (4.10)	
Alloy 400	1800 (124)	150	1/4	2.00 (50.8)	5.25 (133)	0.093 (2.4)	0.94 (0.43)	
		300			8.94 (227)		1.80 (0.82)	
		500			13.8 (351)		2.90 (1.3)	

How to Order

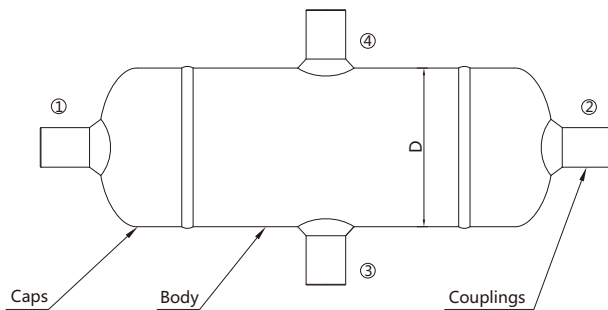
SC118 — DFNPT4 — 300 — 316L

Series	Working pressure	End Type	End Connection	Internal Volume	Material
SC1	5 500psig	D Double-Ended	FNPT2 1/8 Female NPT	40 40ml	316L 316L S.S
	18 1800psig		FNPT4 1/4 Female NPT	50 50ml	304L 304L S.S.
	50 5000psig	S Single-Ended	FNPT8 1/2 Female NPT	75 75ml	A400 Alloy 400
				150 150ml	
				300 300ml	
				400 400ml	
				500 500ml	
				1000 1000ml	
		2250 2250ml			
		3785 3785ml			

Condensate Pots-CP1 Series

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 850°F (-53°C to 454°C)
- ❖ 304 and 316 stainless steel material
- ❖ Socket weld connection according to ASME B16.11
- ❖ Butt welding ends according to ASME B16.9
- ❖ NPT according to ASME B1.20.1 taper pipe thread
- ❖ Variety of end connections

Standard Materials of Construction


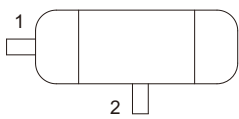
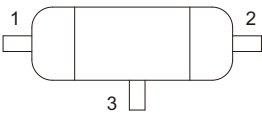
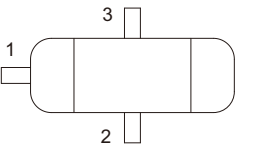
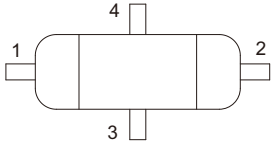
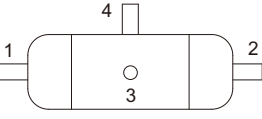


Material	Body	Cap
316 S.S.	A312	A182
316L S.S.	A312	A182
304 S.S.	A312	A182
304L S.S.	A312	A182
CS	A106	A105

Dimensions

Pipe	D (mm)	L (mm)	Capacity (L)
NPS 4	114.3	360	2.6

Configuration

Schematic	Designator	Schematic	Designator	Schematic	Designator
	2A		2B		3A
	3B		4A		4B

How to Order

CP1 — 3B — FNPT8 — MSW14 — CL1500 — 316

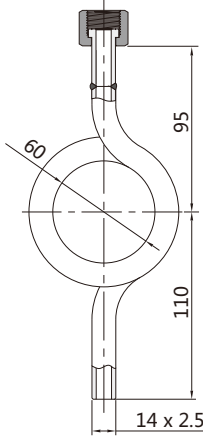
Series	Configuration	Port 1 Type	Port 1 Size	Port 2/3	Port 2/3	ASME Class	Body Material
				/4 Type	/4 Size		
CP1	2A	FNPT Female NPT	2 1/8 in.	Same as port 1 type and port 1 size	If port 2/3/4 and port 1 are the same, eliminate the port 2/3/4 designator	CL150	316 316 S.S.
	2B	NPT Male NPT	4 1/4 in.			CL300	316L 316L S.S.
	3A	FBT Female BSPT	8 1/2 in. or 8 mm			CL600	304 304 S.S.
	3B	MBT Male BSPT	10 10 mm			CL900	304L 304L S.S.
	4A	FBP Female BSPP	12 3/4 in. or 12 mm			CL1500	CS Steel
	4A	MBP Male BSPP	14 14 mm			CL2500	
	4B	FSW Fractional Tube Socket Weld	16 1 in. or 16 mm				
		MSW Metric Tube Socket Weld					
		FBW Fractional Tube Butt Weld					
		MBW Metric Tube Butt Weld					
		PSW Pipe Socket Weld					
		PBW Pipe Butt Weld					

Syphons-SY1, SY2 Series

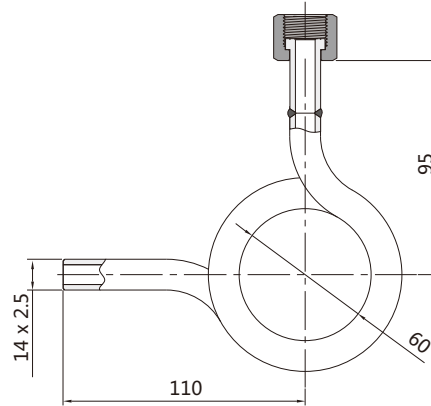
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -20°F to 900°F (-28°C to 482°C)
- ❖ Variety of end connections
- ❖ 304 S.S., 316 S.S. material

Dimensions

SY1 Series



SY2 Series



End Types and Size		Basic Ordering Number	
End 1	End 2	SY1 Series	SY2 Series
1/2 Female NPT	1/2 Female NPT	FNPT8-SY1-FNPT8-	FNPT8-SY2-FNPT8-
1/2 Female NPT	1/4 Female NPT	FNPT4-SY1-FNPT4-	FNPT4-SY2-FNPT4-
1/2 Female NPT	1/2 Female BSPP	FNPT8-SY1-FBP8-	FNPT8-SY2-FBP8-
1/2 Female NPT	1/4 Female ISO BSPP	FNPT8-SY1-FBP4-	FNPT8-SY2-FBP4-
1/2 Female NPT	M20 x 1.5 Female ISO	FNPT8-SY1-FMS20-	FNPT8-SY2-FMS20-
1/2 Female NPT	M14 x 1.5 Female ISO	FNPT8-SY1-FMS14-	FNPT8-SY2-FMS14-
1/2 Female NPT	1/2 Tube Socket Weld	FNPT8-SY1-FSW8-	FNPT8-SY2-FSW8-
1/2 Female NPT	14 mm Tube Socket Weld	FNPT8-SY1-MSW14-	FNPT8-SY2-MSW14-
M20 x 1.5 Female ISO	M20 x 1.5 Female ISO	FMS20-SY1-FMS20-	FMS20-SY2-FMS20-
M20 x 1.5 Female ISO	M14 x 1.5 Female ISO	FMS20-SY1-FMS14-	FMS20-SY2-FMS14-
M20 x 1.5 Female ISO	14 x 2.5	FMS20-SY1-MBW14-	FMS20-SY2-MBW14-
1/2 Female ISO BSPT	M20 x 1.5 Female ISO	FBP8-SY1-FMS20-	FBP8-SY2-FMS20-
1/2 Female ISO BSPP	M14 x 1.5 Female ISO	FBP8-SY1-FMS20-	FBP8-SY2-FMS20-
1/2 Female ISO BSPP	14 x 2.5	FBP8-SY1-MBW14-	FBP8-SY2-MBW14-
14 x 2.5	14 x 2.5	MBW14-SY1-MBW14-	MBW14-SY2-MBW14-
1/2 Male NPT	1/2 Male NPT	NPT8-SY1-NPT8-	NPT8-SY2-NPT8-
1/2 Male NPT	1/4 Female NPT	NPT8-SY1-FNPT4-	NPT8-SY2-FNPT4-
1/2 Male ISO BSPP	1/4 Male ISO BSPP	MBP8-SY1-MBP4-	MBP8-SY2-MBP4-
1/2 Male ISO BSPP	1/4 Female ISO BSPP	MBP8-SY1-MBP4-	MBP8-SY2-MBP4-
M20 x 1.5 Male ISO	M20 x 1.5 Female ISO	MS20-SY1-FMS20-	MS20-SY2-FMS20-
M20 x 1.5 Male ISO	M14 x 1.5 Female ISO	MS20-SY1-FMS14-	MS20-SY2-FMS14-
M14 x 1.5 Male ISO	M20 x 1.5 Female ISO	MS14-SY1-FMS20-	MS14-SY2-FMS20-
M14 x 1.5 Male ISO	M14 x 1.5 Female ISO	MS14-SY1-FMS14-	MS14-SY2-FMS14-

How to Order

FNPT8 — SY1 — FMS20 — 316L

Inlet Type		Inlet Size	Series	Outlet Type	Outlet Size	Body Material
FNPT	Female NPT	4 1/4in.	SY1	Same as inlet type and inlet size		316 316 S.S.
NPT	Male NPT	8 1/2in.	SY2			316L 316L S.S.
FBT	Female BSPT	14 14 mm or M14 x 1.5				304 304 S.S.
MBT	Male BSPT	20 M20 x 1.5				304L 304L S.S.
FMS	Female ISO					
MS	Male ISO					
FBP	Female BSPP					
MBP	Male BSPP					
FSW	Fractional Tube Socket Weld					
MSW	Metric Tube Socket Weld					
FBW	Fractional Tube Butt Weld					
MBW	Metric Tube Butt Weld					

Tools

Hand Tube Benders



HTB1 Series

HTB1 Series

Hikelok hand tube bender is available in 1/4, 5/16, 3/8, and 1/2 in., as well as 6, 8, 10, and 12 mm tubing sizes.

How to Order

HTB1— F4

Hand Tube Bender	Tubing O.D.
HTB1	F3 3/16"
	F4 1/4"
	F5 5/16"
	F6 3/8"
	F8 1/2"
	M6 6 mm
	M8 8 mm
	M10 10 mm
	M12 12 mm

Tube Cutter



Ordering Number: TC1

Hikelok tube cutter cuts stainless steel and copper from 3/16 to 1 in. and 4 to 25 mm outside diameter.

Tube Deburring Tool



Ordering Number: TD1

Hikelok deburring tools deburr stainless steel, steel, and hard alloy tube ends after use of the tube cutter.

По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231	Казань (843)206-01-48	Новокузнецк (3843)20-46-81	Смоленск (4812)29-41-54
Архангельск (8182)63-90-72	Калининград (4012)72-03-81	Новосибирск (383)227-86-73	Сочи (862)225-72-31
Астрахань (8512)99-46-04	Калуга (4842)92-23-67	Омск (3812)21-46-40	Ставрополь (8652)20-65-13
Барнаул (3852)73-04-60	Кемерово (3842)65-04-62	Орел (4862)44-53-42	Сургут (3462)77-98-35
Белгород (4722)40-23-64	Киров (8332)68-02-04	Оренбург (3532)37-68-04	Тверь (4822)63-31-35
Брянск (4832)59-03-52	Краснодар (861)203-40-90	Пенза (8412)22-31-16	Томск (3822)98-41-53
Владивосток (423)249-28-31	Красноярск (391)204-63-61	Пермь (342)205-81-47	Тула (4872)74-02-29
Волгоград (844)278-03-48	Курск (4712)77-13-04	Ростов-на-Дону (863)308-18-15	Тюмень (3452)66-21-18
Вологда (8172)26-41-59	Липецк (4742)52-20-81	Рязань (4912)46-61-64	Ульяновск (8422)24-23-59
Воронеж (473)204-51-73	Магнитогорск (3519)55-03-13	Самара (846)206-03-16	Уфа (347)229-48-12
Екатеринбург (343)384-55-89	Москва (495)268-04-70	Санкт-Петербург (812)309-46-40	Хабаровск (4212)92-98-04
Иваново (4932)77-34-06	Мурманск (8152)59-64-93	Саратов (845)249-38-78	Челябинск (351)202-03-61
Ижевск (3412)26-03-58	Набережные Челны (8552)20-53-41	Севастополь (8692)22-31-93	Череповец (8202)49-02-64
Иркутск (395)279-98-46	Нижний Новгород (831)429-08-12	Симферополь (3652)67-13-56	Ярославль (4852)69-52-93
Россия (495)268-04-70	Киргизия (996)312-96-26-47	Казахстан (7172)727-132	