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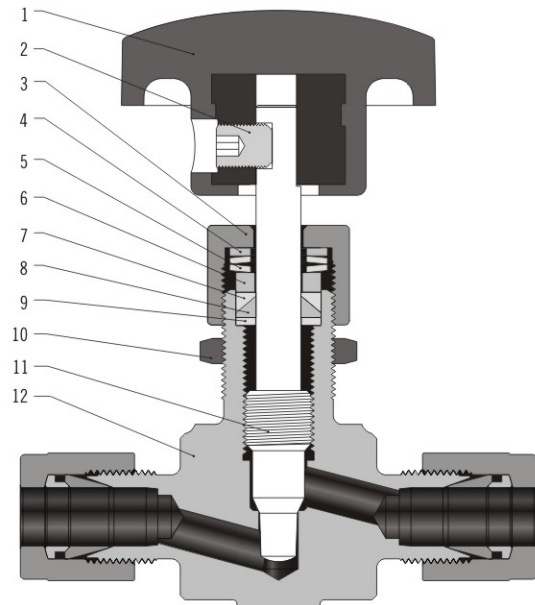
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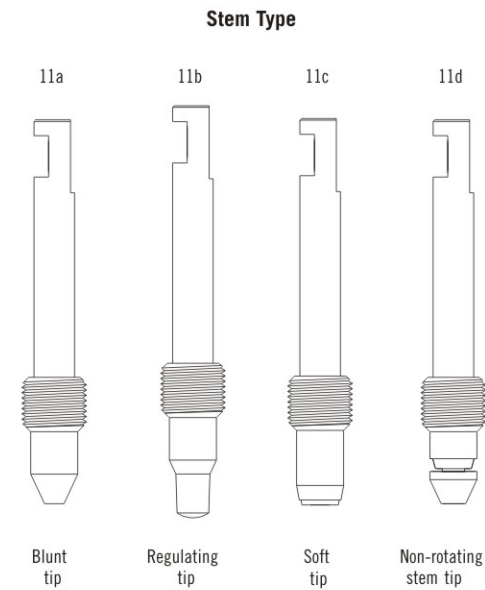
General Purpose Needle Valves

Features

- Working pressure:
 - Stainless steel: up to 5000 psig (345 bar)
 - Steel: up to 3000 psig (207 bar)
 - Brass: up to 3000 psig (207 bar)
- Working temperature:
 - PTFE: -65°F to 450°F (-54°C to 232°C)
 - PEEK: -65°F to 600°F (-54°C to 315°C)
- Panel mountable
- Packing nut permits stem packing adjustment
- Live-loaded packing system
- Compact design



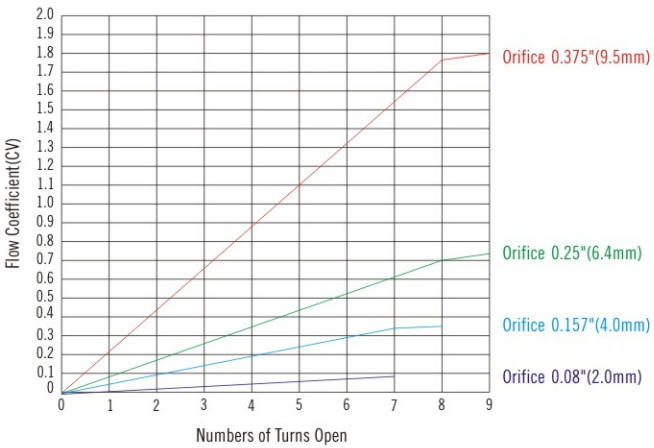
General Purpose Needle Valves



Technical Data

Temperature		Valve body material			
		316 SS	Carbon Steel	Alloy 400	Brass
°F	°C	Working pressure, psig (bar)			
-65~-20	-53~-28	5000(344)	—	3000(207)	3000(207)
-20~100	-28~37	5000(344)	3000(207)	3000(207)	3000(207)
200	93	4295(295)	2730(188)	2640(181)	2350(162)
250	121	4085(281)	2695(185)	2555(176)	2200(151)
300	148	3875(266)	2660(183)	2470(170)	2050(141)
350	176	3715(255)	2615(180)	2430(167)	1470(101)
400	204	3560(245)		2390(164)	390(27)
450	232	3435(236)		2380(163)	
500	260	3310(228)		2375(163)	
600	315	3130(215)			

Flow Data at 100°F (37°C)



Materials of Construction

Item	Part	Valve Body Materials			
		316 SS	Brass	Steel	Alloy 400
1	Handle	Anodized aluminum/Stainless steel/Black knob			
2	Set screw	Nickel cadmium-plated steel			
3	Packing nut	316 SS/A276	Brass 360/B16	12L14/A108	Alloy R-405/B164
4	Gland	304 SS/A276			
5	Packing springs	S17700/A693			
6	Packing gland	304 SS/A276			
7	Upper packing	PTFE / PCTFE / PEEK			
8	Lower packing				
9	Lower gland	316 SS/A276			Alloy 400/B127
10	Panel nut	316 SS/B783			
11	Stem	Chrome-plated 316 SS/A276			Alloy R-405/B164
12	Body	316 SS/A182	Brass 377/B283	Chrome-plated 11L17/A108	Alloy 400/B564
Lubricant		Molybdenum disulfide-based and silicone-based			

General Purpose Needle Valves

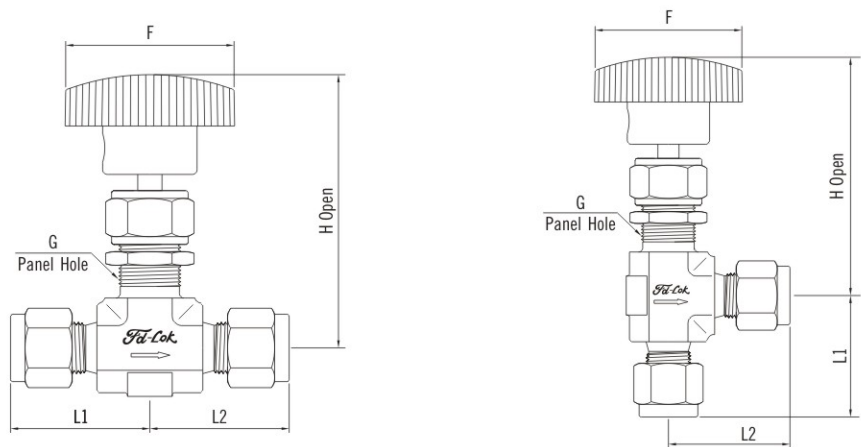


Table of Dimensions

Basic Model Number	End Connection		Orifice in.(mm)	Cv	L1	L2	H	F	G
	Inlet	Outlet			in.(mm)				
-V1-F2-2	1/8 Female NPT	1/8 Female NPT	0.08(2.0)	0.09	0.81(20.6)	0.81(20.6)	2.28(57.9)	1.0(25.4)	0.47(11.9)
-V1-S2-2	1/8" FD-LOK	1/8" FD-LOK			0.98(25.0)	0.98(25.0)			
-V1-SM3-2	3mm FD-LOK	3mm FD-LOK							
-V1-F2-4	1/8 Female NPT	1/8 Female NPT	0.157(4.0)	0.35	0.81(20.6)	0.81(20.6)	2.50(63.5)	1.38(35.0)	0.53(13.5)
-V1-M2-4	1/8 Male NPT	1/8 Male NPT			0.98(25.0)	0.98(25.0)			
-V1-M4-4	1/4 Male NPT	1/4 Male NPT			1.13(28.7)	1.13(28.7)			
-V1-S4-4	1/4" FD-LOK	1/4" FD-LOK			1.17(29.7)	1.17(29.7)			
-V1-SM6-4	6mm FD-LOK	6mm FD-LOK							
-V1-SM8-4	8mm FD-LOK	8mm FD-LOK	0.25(6.4)	0.73	1.06(26.9)	1.06(26.9)	2.97(75.4)	1.88(47.8)	0.78(19.8)
-V1-F4-6	1/4 Female NPT	1/4 Female NPT			1.12(28.4)	1.12(28.4)			
-V1-F6-6	3/8 Female NPT	3/8 Female NPT			1.50(38.1)	1.50(38.1)			
-V1-M6-6	3/8 Male NPT	3/8 Male NPT			1.29(32.8)	1.29(32.8)			
-V1-M8-6	1/2 Male NPT	1/2 Male NPT			1.4(35.6)	1.4(35.6)			
-V1-S6-6	3/8" FD-LOK	3/8" FD-LOK			1.3(33.0)	1.3(33.0)			
-V1-S8-6	1/2" FD-LOK	1/2" FD-LOK			1.4(35.6)	1.4(35.6)			
-V1-SM10-6	10mm FD-LOK	10mm FD-LOK			1.56(39.7)	1.56(39.7)			
-V1-SM12-6	12mm FD-LOK	12mm FD-LOK			1.50(38.1)	1.50(38.1)			
-V1-SM14-6	14mm FD-LOK	14mm FD-LOK							
-V1-MM20-6	M20 x1.5 Male ISO	M20 x1.5 Male ISO	0.375(9.5)	1.80	1.50(38.1)	1.50(38.1)	3.91(99.3)	3.00(76.2)	1.03(26.2)
-V1-F8-10	1/2 Female NPT	1/2 Female NPT			1.63(41.3)	1.63(41.3)			
-V1-F12-10	3/4 Female NPT	3/4 Female NPT			1.90(48.3)	1.90(48.3)			
-V1-M12-10	3/4 Male NPT	3/4 Male NPT							
-V1-S8-10	1/2" FD-LOK	1/2" FD-LOK							
-V1-S12-10	3/4" FD-LOK	3/4" FD-LOK							
-V1-SM14-10	14mm FD-LOK	14mm FD-LOK							

Remarks:

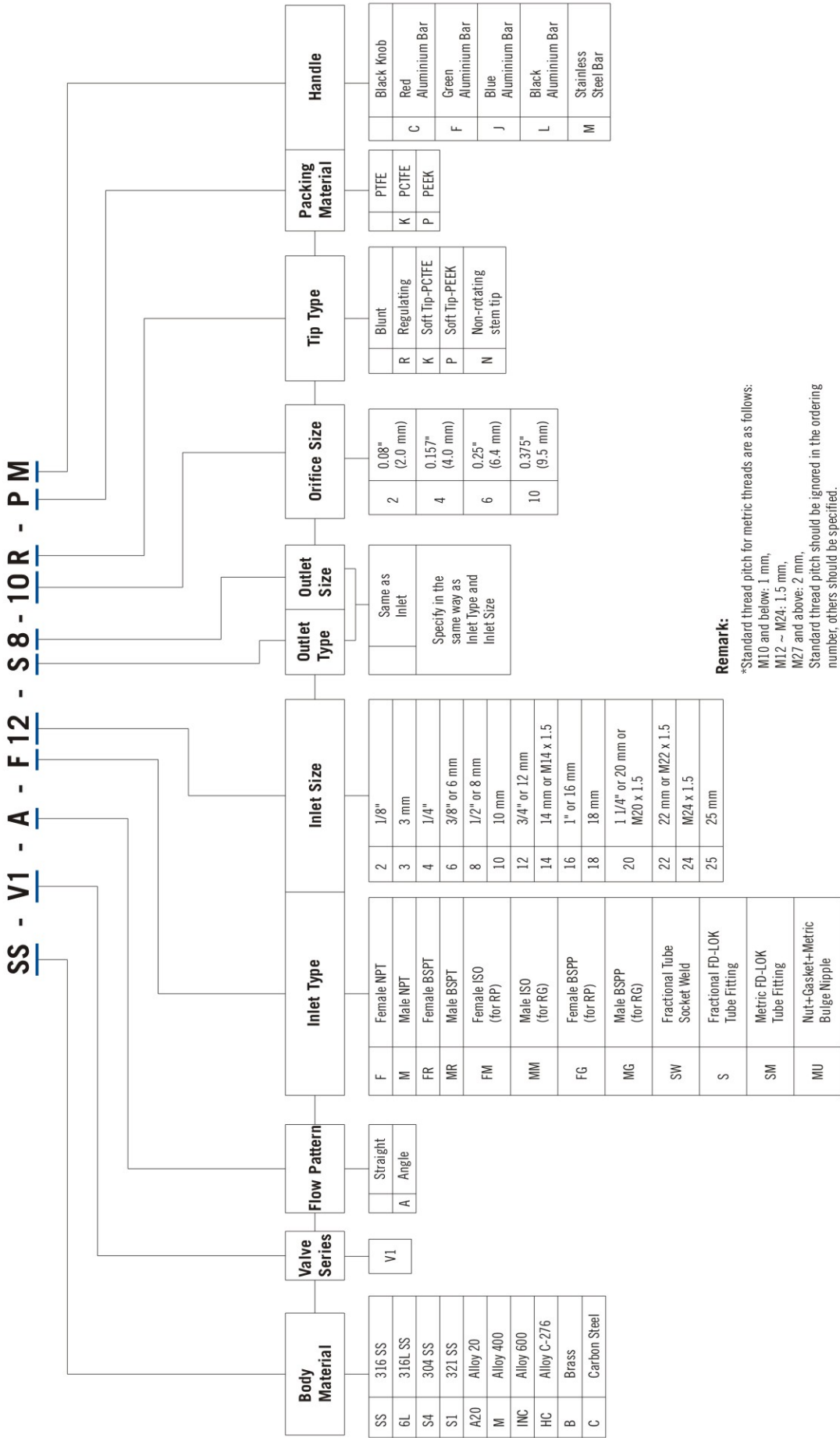
a. FD-LOK means FD-LOK double ferrule tube fittings.

b. Dimensions shown with FD-LOK nuts finger-tight. All dimensions are for reference only, subject to change. For dimensions not shown above, consult the factory please.

c. The sizes and types listed are standard. Other sizes and types are available upon request.

General Purpose Needle Valves

Ordering Information



Integral Bonnet Barstock Needle Valves

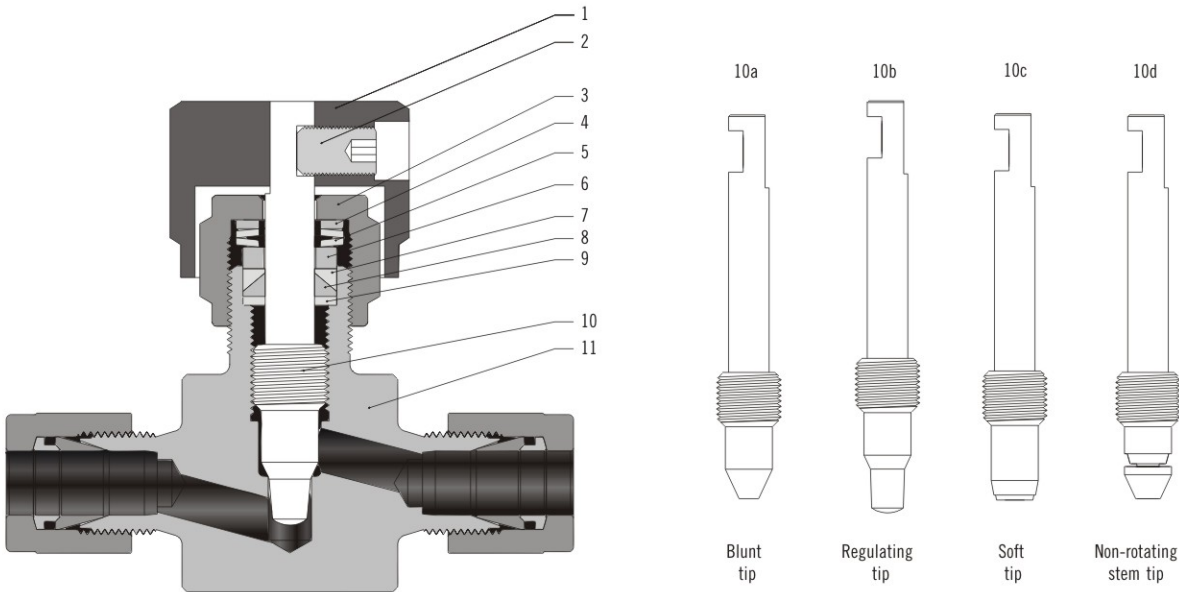
Features

- Working pressure:
 - Stainless steel: up to 6000 psig (414 bar)
 - Steel: up to 3000 psig (207 bar)
 - Brass: up to 3000 psig (207 bar)
- Working temperature:
 - PTFE: -65°F to 450°F (-54°C to 232°C)
 - PEEK: -65°F to 600°F (-54°C to 315°C)
- Packing nut permits stem packing adjustment
- Live-loaded packing system
- Compact design
- 100% factory tested



Integral Bonnet Barstock Needle Valves

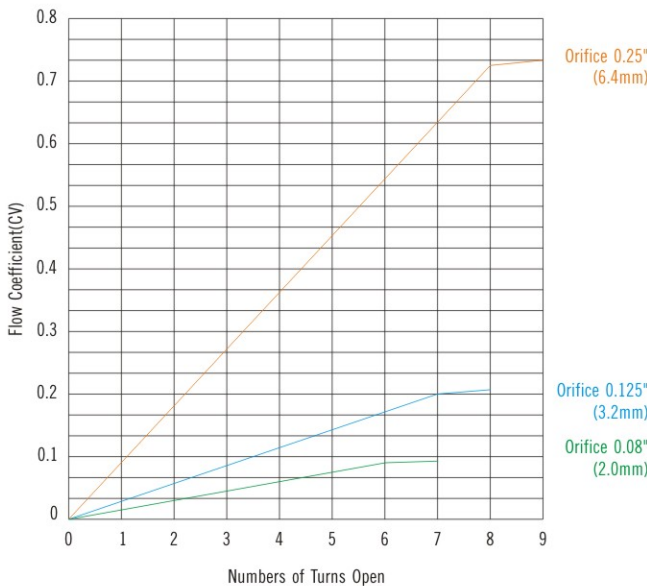
Materials of Construction



Technical Data

Temperature		Valve body material			
		316 SS	Carbon Steel	Alloy 400	Brass
°F	°C	Working pressure, psig (bar)			
-65~-20	-53~-28	6000(414)	—	3000(207)	3000(207)
-20~100	-28~37	6000(414)	3000(207)	3000(207)	3000(207)
200	93	5160(356)	2730(188)	2640(181)	2350(162)
250	121	4910(338)	2695(185)	2555(176)	2200(151)
300	148	4660(321)	2660(183)	2470(170)	2050(141)
350	176	4470(307)	2615(180)	2430(167)	1470(101)
400	204	4280(295)		2390(164)	390(27)
450	232	4130(285)		2380(163)	
500	260	3980(274)		2375(163)	
600	315	3760(259)			

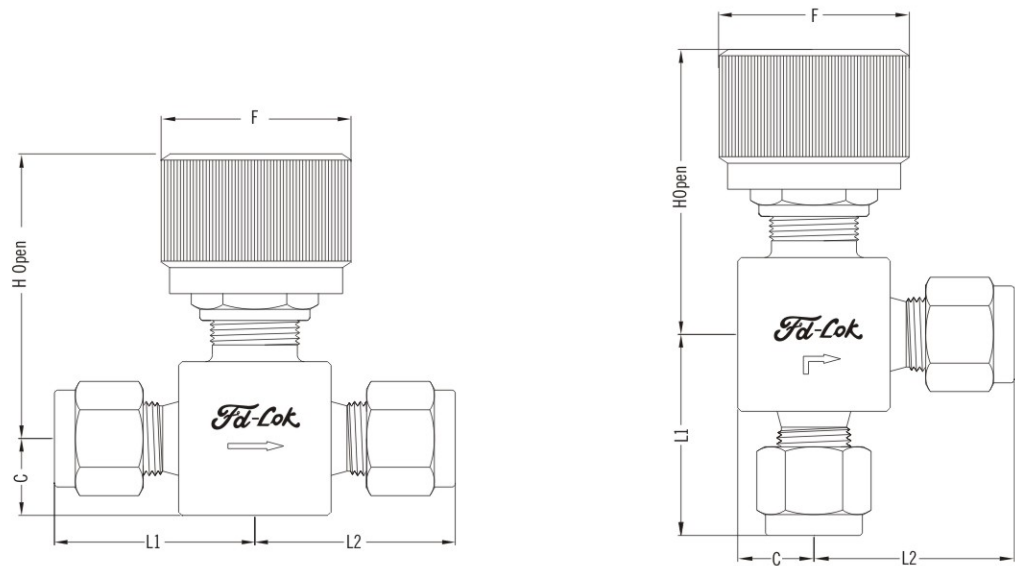
Flow Data at 100°F (37°C)



Item	Part	Valve Body Materials			
		316 SS	Brass	Steel	Alloy 400
1	Handle	Anodized aluminum/Stainless steel/Black knob			
2	Set screw	Nickel cadmium-plated steel			
3	Packing nut	316 SS/A276	Brass 360/B16	12L14/A108	Alloy R-405/B164
4	Gland	304 SS/A276			
5	Packing springs	S17700/A693			
6	Packing gland	304 SS/A276			
7	Upper packing	PTFE / PCTFE / PEEK			
8	Lower packing				
9	Lower gland	316 SS/A276			Alloy 400/B127
10	Stem	Chrome-plated 316 SS/A276			Alloy R-405/B164
11	Body	316 SS/A479	Brass 360/B16	Chrome-plated 11L17/A108	Alloy 400/B564
Lubricant		Molybdenum disulfide-based and silicone-based			

Integral Bonnet Barstock Needle Valves

Table of Dimensions

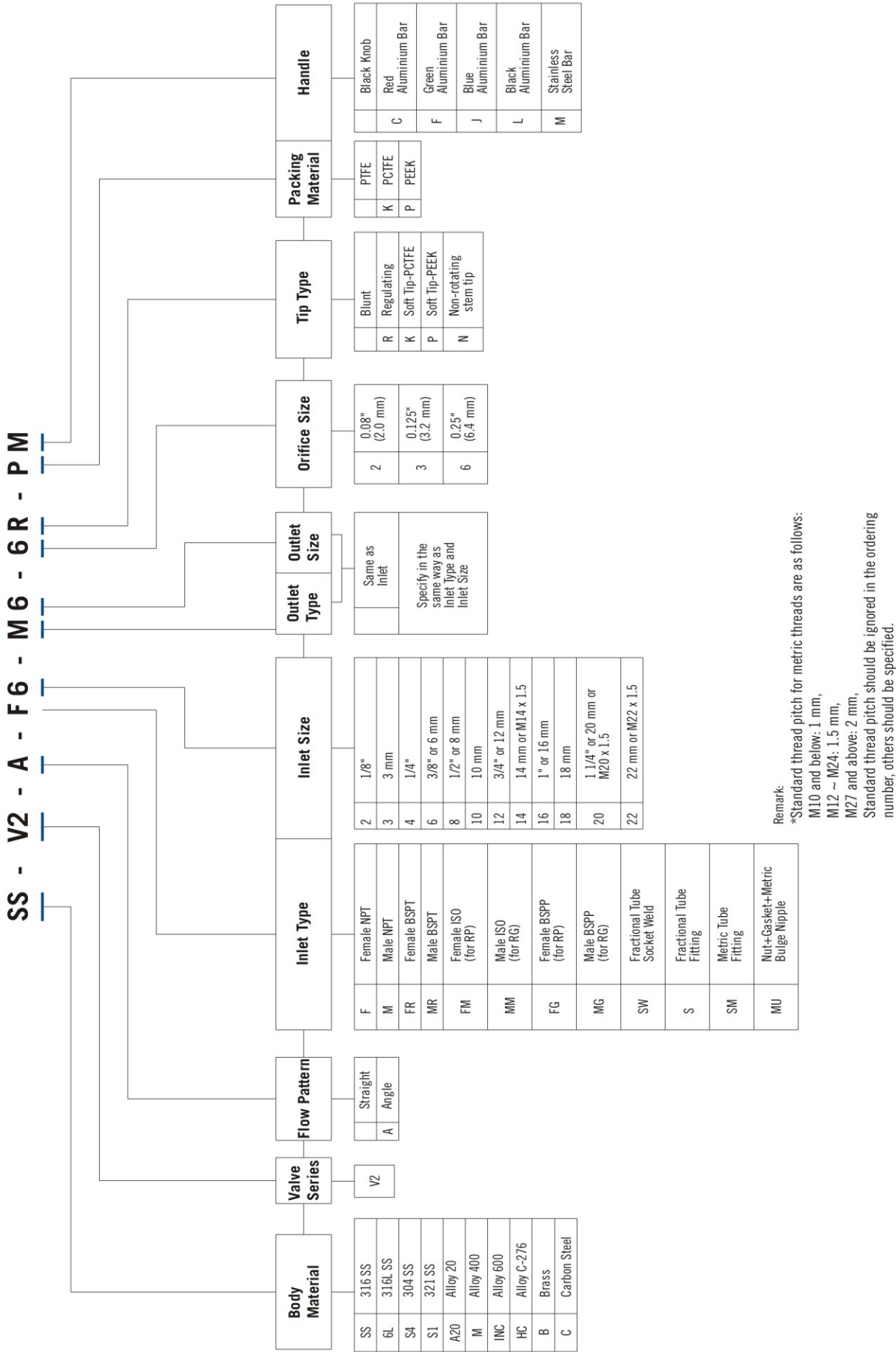


Basic Model Number	End Connection		Orifice in.(mm)	Cv	L1	L2	H	F	C
	Inlet	Outlet			in.(mm)				
-V2-F4-2	1/4 Female NPT	1/4 Female NPT	0.08(2.0)	0.09	0.94(23.9)	0.94(23.9)	1.66(42.2)	1.12(28.4)	0.42(10.7)
-V2-M4-2	1/4 Male NPT	1/4 Male NPT			0.97(24.6)	0.97(24.6)			
-V2-F4-M4-2	1/4 Female NPT	1/4 Male NPT			0.94(23.9)	0.97(24.6)			
-V2-FR4-2	1/4 Female BSPT	1/4 Female BSPT	0.125(3.2)	0.21	0.94(23.9)	0.94(23.9)	1.66(42.2)	1.75(44.4)	0.42(10.7)
-V2-F4-3	1/4 Female NPT	1/4 Female NPT			0.97(24.6)	0.97(24.6)			
-V2-M4-3	1/4 Male NPT	1/4 Male NPT			0.97(24.6)	0.94(23.9)			
-V2-F4-M4-3	1/4 Male NPT	1/4 Female NPT			1.23(31.2)	1.23(31.2)			
-V2-S4-3	1/4" FD-LOK	1/4" FD-LOK			1.23(31.2)	1.23(31.2)			
-V2-SM6-3	6mm FD-LOK	6mm FD-LOK			1.23(31.2)	1.23(31.2)			
-V2-SM8-3	8mm FD-LOK	8mm FD-LOK			1.23(31.2)	1.23(31.2)			
-V2-F6-6	3/8 Female NPT	3/8 Female NPT	0.25(6.4)	0.73	1.25(31.8)	1.25(31.8)	2.31(58.7)	2.50(63.5)	0.66(16.8)
-V2-M6-6	3/8 Male NPT	3/8 Male NPT			1.54(39.1)	1.54(39.1)			
-V2-F6-M6-6	3/8 Female NPT	3/8 Male NPT			1.25(31.8)	1.25(31.8)			
-V2-S6-6	3/8" FD-LOK	3/8" FD-LOK			1.3(33.0)	1.3(33.0)			
-V2-F8-6	1/2 Female NPT	1/2 Female NPT			1.25(31.8)	1.25(31.8)			
-V2-M8-6	1/2 Male NPT	1/2 Male NPT			1.65(41.9)	1.65(41.9)			
-V2-FR8-6	1/2 Female BSPT	1/2 Female BSPT							
-V2-S8-6	1/2" FD-LOK	1/2" FD-LOK							
-V1-SM12-6	12mm FD-LOK	12mm FD-LOK							
-V1-SM14-6	14mm FD-LOK	14mm FD-LOK							

Remarks:
a. FD-LOK means FD-LOK double ferrule tube fittings.
b. Dimensions shown with FD-LOK nuts finger-tight. All dimensions are for reference only, subject to change.
For dimensions not shown above, consult the factory please.
c. The sizes and types listed are standard. Other sizes and types are available upon request.

Integral Bonnet Barstock Needle Valves

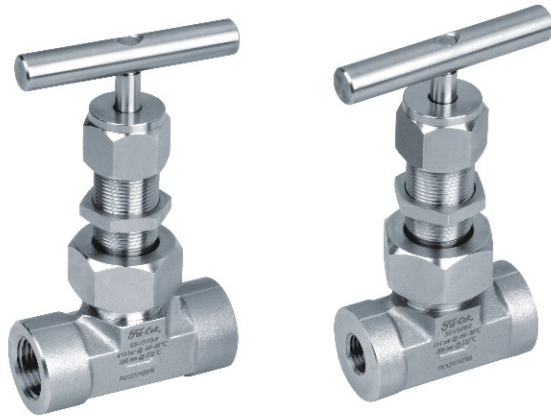
Ordering Information



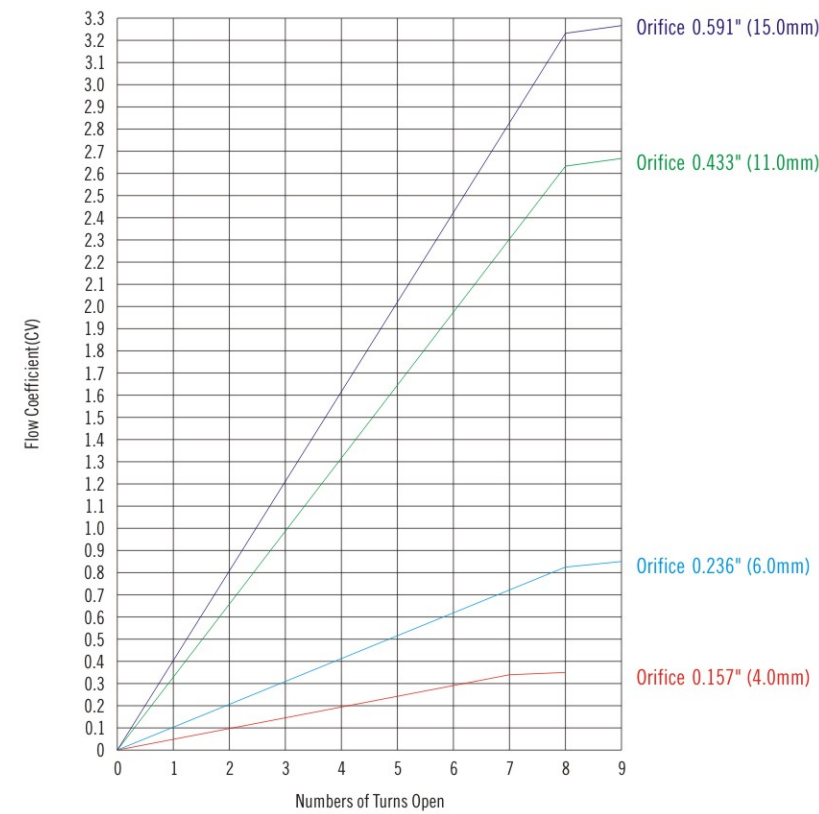
Union Bonnet Needle Valves

Features

- Pressure up to 6000 psig(414 bar) for standard series
Pressure up to 10000 psig(689 bar) for high pressure series
- Temperature from -65°F to 450°F (-54°C to 232°C) with PTFE packing,
Temperature from -65°F to 1200°F (-54°C to 649°C) with Grafoil packing
- Safe union-bonnet construction
- Back seating design protects the packing in fully open position
- Panel mountable
- Packing below stem thread isolates the thread lubricants from the media
- Non-rotating stem tip
- 100% factory tested



Flow Data at 100°F (38°C)



Integral Bonnet Barstock Needle Valves

Features

Technical Data

Standard pressure series(V3)

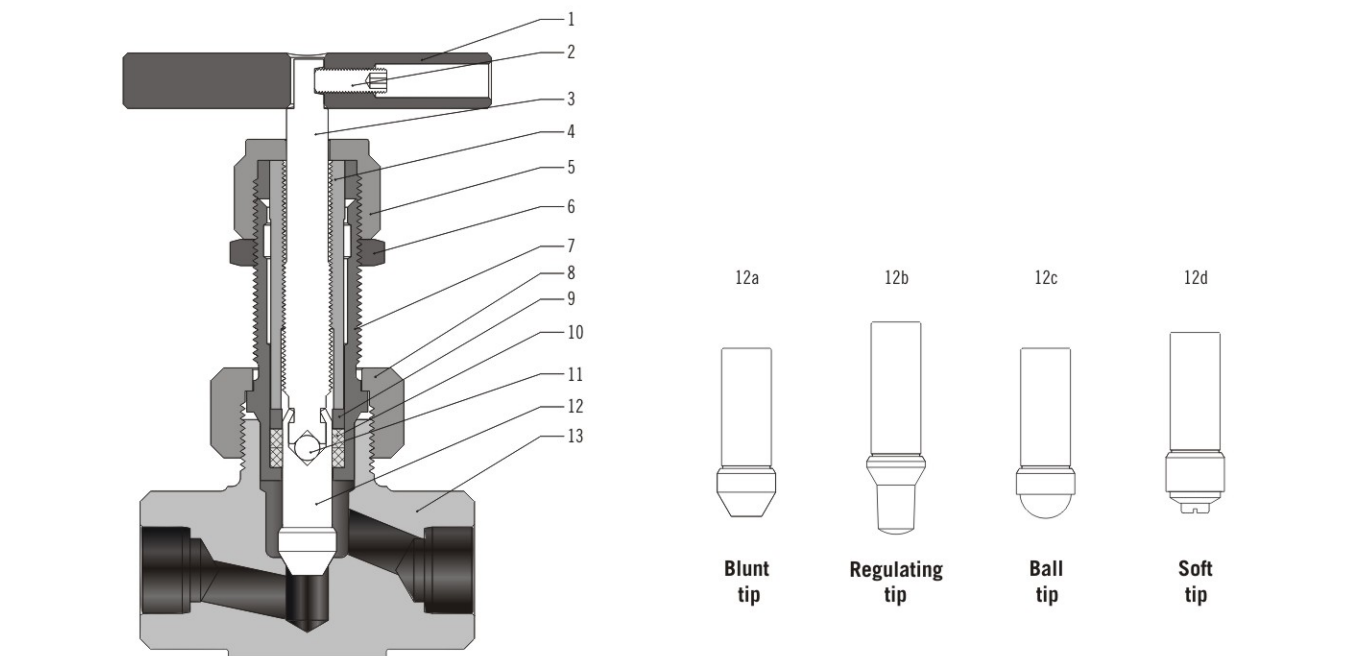
Temperature		Valve body material						
		316 SS	Alloy 20	Alloy 400	Alloy 600	Alloy C-276	Titanium	Brass
°F	°C	Working pressure, psig (bar)						
-65~100	-54~38	6000(414)	5000(344)	5000(344)	6000(414)	6000(414)	3570(245)	3000(207)
200	93	5160(356)	4640(319)	4400(303)	5600(385)	6000(414)	3110(214)	2350(162)
250	121	4910(338)	4500(310)	4260(293)	5460(376)	6000(414)	2840(195)	2200(151)
300	148	4660(321)	4360(300)	4120(283)	5320(366)	6000(414)	2570(177)	2050(141)
350	176	4470(307)	4185(288)	4050(279)	5220(359)	5975(411)	2385(164)	1470(101)
400	204	4280(295)	4010(276)	3980(274)	5120(352)	5880(405)	2200(151)	390(27)
450	232	4130(285)	3955(272)	3970(273)	5030(346)	5710(393)	2055(141)	
500	260	3980(274)	3900(268)	3960(272)	4940(340)	5540(381)	1885(129)	
600	315	3760(259)	3790(261)		4780(329)	5040(347)	1625(111)	
650	343	3690(254)	3750(258)		4700(323)	4905(337)		
700	371	3600(248)	3710(255)		4640(319)	4730(325)		
750	399	3510(242)	3665(252)		4430(305)	4430(305)		
800	426	3460(238)	3600(248)		4230(291)	4230(291)		
850	454	3380(232)			4060(279)	4060(279)		
900	482	3280(225)			3745(258)	3745(258)		
950	510	3220(221)			2725(187)	3220(221)		
1000	538	3030(208)			1800(124)	3030(208)		
1050	566	3000(207)			1155(79.5)	3000(207)		
1100	593	2685(184)			770(53.0)	2685(184)		
1150	621	2285(157)			565(38.9)	2285(157)		
1200	649	1715(118)			515(35.4)	1545(106)		

High pressure series(V3H)

Temperature		Valve body material
		316 SS
°F	°C	Working pressure, psig (bar)
-65~100	-54~38	10000(689)
200	93	9290(640)
250	121	8840(609)
300	148	8390(578)
350	176	8045(554)
400	204	7705(530)
450	232	7435(512)
500	260	7165(493)
600	315	6770(466)
650	343	6660(458)
700	371	6480(446)
750	399	6335(436)
800	426	6230(429)
850	454	6085(419)
900	482	5905(406)
950	510	5795(399)
1000	538	5450(375)
1050	566	5400(372)
1100	593	4835(333)
1150	621	4115(283)
1200	649	3085(212)

Union Bonnet Needle Valves

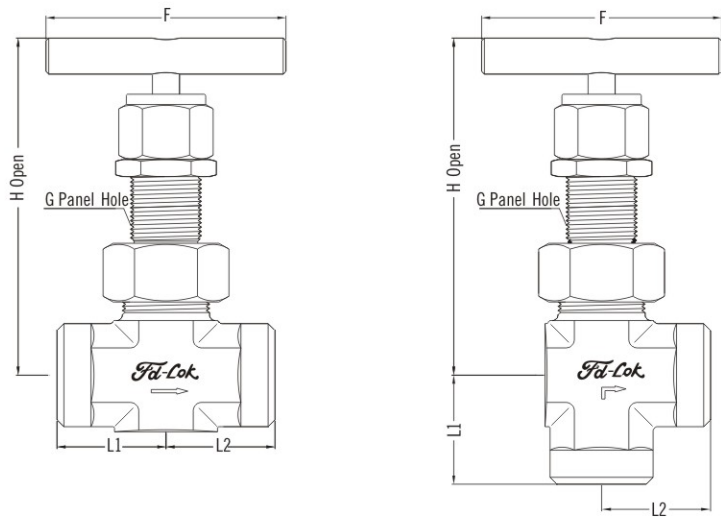
Materials of Construction



Item	Part	Valve Body Materials				
		316 SS	Alloy 400	Alloy C-276	Titanium	Brass
1	Handle	Stainless steel / Anodized aluminum / Black knob				
2	Set screw	Nickel cadmium-plated steel				
3	Upper stem	316 SS/A276				
4	Stem guide	416 SS/A581				
5	packing nut	316 SS/B783				Brass 360/B16
6	Lock nut	316 SS/B783				Brass 360/B16
7	Bonnet	316 SS/A479	Alloy R-405/B164	Alloy C-276/B574	Titanium Gr 4/B348	Brass 360/B16
8	Bonnet nut	316SS/A276				
9	Washer	316SS/A276				
10	Packing	PTFE / PCTFE / PEEK / Grafoil				
11	Ball	440-C				
12	Lower stem	Chrome-plated 316 SS/A276	Alloy R-405/B164	Alloy C-276/B574	t84.8373;Titanium Gr 4/B348	Chrome-plated 316 SS/A276
		Different tips optional				
13	Body	316 SS/A479 316 SS/A182	Alloy 400/B164, B127,B564	Alloy C-276/B564	Titanium Gr 4/B348 or Titanium Gr 4/B381	Brass 360/B16
	Seat	Weld stellite optional				
Lubricant		Molybdenum disulfide-based				

Integral Bonnet Barstock Needle Valves

Table of Dimensions



Basic Model Number	End Connection		Orifice in.(mm)	Cv	L1	L2	H	F	G
	Inlet	Outlet			in.(mm)				
-V3-F4-4	1/4 Female NPT	1/4 Female NPT	0.157(4.0)	0.35	1.03(26.2)	1.03(26.2)	3.00(76.2)	2.00(50.8)	0.59(15.1)
-V3-M4-4	1/4 Male NPT	1/4 Male NPT			1.00(25.4)	1.00(25.4)			
-V3-SM6-4	6mm FD-LOK	6mm FD-LOK			1.22(30.9)	1.22(30.9)			
-V3-S4-4	1/4" FD-LOK	1/4" FD-LOK			1.22(30.9)	1.22(30.9)			
-V3-SM8-4	8mm FD-LOK	8mm FD-LOK			0.91(23.1)	0.91(23.1)			
-V3-SW4-4	1/4" Tube socket weld	1/4" Tube socket weld	0.236(6.0)	0.85	1.03(26.2)	1.03(26.2)	3.53(89.6)	2.50(63.5)	0.65(16.5)
-V3-F4-6	1/4 Female NPT	1/4 Female NPT			1.13(28.6)	1.13(28.6)			
-V3-F6-6	3/8 Female NPT	3/8 Female NPT			1.44(36.5)	1.44(36.5)			
-V3-M6-6	3/8 Male NPT	3/8 Male NPT			1.53(38.9)	1.53(38.9)			
-V3-S6-6	3/8" FD-LOK	3/8" FD-LOK			1.56(39.7)	1.56(39.7)			
-V3-SM12-6	12mm FD-LOK	12mm FD-LOK			1.26(32.0)	1.26(32.0)			
-V3-SM14-6	14mm FD-LOK	14mm FD-LOK			1.50(38.1)	1.50(38.1)			
-V3-SM16-6	16mm FD-LOK	16mm FD-LOK			1.53(38.9)	1.53(38.9)			
-V3-F8-6	1/2 Female NPT	1/2 Female NPT			1.13(28.6)	1.13(28.6)			
-V3-M8-6	1/2 Male NPT	1/2 Male NPT			1.50(38.1)	1.50(38.1)			
-V3-S8-6	1/2" FD-LOK	1/2" FD-LOK			1.50(38.1)	1.50(38.1)			
-V3-SW6-6	3/8" Tube socket weld	3/8" Tube socket weld			2.92(74.1)	2.92(74.1)			
-V3-SW8-6	1/2" Tube socket weld	1/2" Tube socket weld			1.50(38.1)	1.50(38.1)			
-V3-MS12-6	12mm Tube socket weld	12mm Tube socket weld			1.50(38.1)	1.50(38.1)			
-V3-MS14-6	12mm Tube socket weld	12mm Tube socket weld			1.50(38.1)	1.50(38.1)			
-V3-MS16-6	12mm Tube socket weld	12mm Tube socket weld			1.50(38.1)	1.50(38.1)			
-V3-MB14-6	14mm Tube butt weld	14mm Tube butt weld			1.50(38.1)	1.50(38.1)			
-V3-MB16-6	16mm Tube butt weld	16mm Tube butt weld			1.50(38.1)	1.50(38.1)			
-V3-MU14-6	14mm MU	14mm MU			1.50(38.1)	1.50(38.1)			
-V3-MU16-6	16mm MU	16mm MU			1.50(38.1)	1.50(38.1)			
-V3-MM20-6	M20x1.5 Male ISO	M20x1.5 Male ISO			1.50(38.1)	1.50(38.1)			
-V3-MM22-6	M22x1.5 Male ISO	M22x1.5 Male ISO			1.50(38.1)	1.50(38.1)			

Union Bonnet Needle Valves

Table of Dimensions

Basic Model Number	End Connection		Orifice in.(mm)	Cv	L1	L2	H	F	G
	Inlet	Outlet			in.(mm)				
-V3-F8-11	1/2 Female NPT	1/2 Female NPT	0.433(11.0)	2.67	1.56(39.7)	1.56(39.7)	3.68(93.5)	3.50(88.9)	0.83(21.1)
-V3-F12-11	3/4 Female NPT	3/4 Female NPT			1.63(41.3)	1.63(41.3)			
-V3-M8-11	1/2 Male NPT	1/2 Male NPT			1.56(39.7)	1.56(39.7)			
-V3-M12-11	3/4 Male NPT	3/4 Male NPT			1.63(41.3)	1.63(41.3)			
-V3-SM14-11	14mm FD-LOK	14mm FD-LOK			1.97(50.0)	1.97(50.0)			
-V3-SM16-11	16mm FD-LOK	16mm FD-LOK							
-V3-S12-11	3/4" FD-LOK	3/4" FD-LOK							
-V3-SM20-11	20mm FD-LOK	20mm FD-LOK							
-V3-SM25-11	25mm FD-LOK	25mm FD-LOK			1.56(39.7)	1.56(39.7)			
-V3-MS14-11	14mm Tube socket weld	14mm Tube socket weld							
-V3-MS16-11	16mm Tube socket weld	16mm Tube socket weld							
-V3-SW12-11	3/4" Tube socket weld	3/4" Tube socket weld							
-V3-MB14-11	14mm Tube butt weld	14mm Tube butt weld			2.98(75.7)	2.98(75.7)			
-V3-MB16-11	16mm Tube butt weld	16mm Tube butt weld							
-V3-MU14-11	14mm MU	14mm MU							
-V3-MU16-11	16mm MU	16mm MU							
-V3-MM27-11	M27x2 Male ISO	M27x2 Male ISO			1.56(39.7)	1.56(39.7)			
-V3-F12-15	3/4 Female NPT	3/4 Female NPT	0.591(15.0)	3.27	1.63(41.4)	1.63(41.4)	5.04(128)	5.12(130)	1.03(26.2)
-V3-F16-15	1 Female NPT	1 Female NPT			1.56(39.6)	1.56(39.6)			
-V3-MS20-15	20mm Tube socket weld	20mm Tube socket weld							
-V3-MS22-15	22mm Tube socket weld	22mm Tube socket weld							
-V3-MS25-15	25mm Tube socket weld	25mm Tube socket weld							
-V3-MS28-15	28mm Tube socket weld	28mm Tube socket weld							
-V3-SW12-15	3/4" Tube socket weld	3/4" Tube socket weld			1.56(39.6)	1.56(39.6)			
-V3-SW16-15	1" Tube socket weld	1" Tube socket weld							
-V3-MB28-15	28mm Tube butt weld	28mm Tube butt weld							
-V3-MB32-15	32mm Tube butt weld	32mm Tube butt weld							
-V3-PS8-15	1/2" Pipe socket weld	1/2" Pipe socket weld			1.56(39.6)	1.56(39.6)			
-V3-PS12-15	3/4" Pipe socket weld	3/4" Pipe socket weld							

Remarks:

a. FD-LOK means FD-LOK double ferrule tube fittings.

b. Dimensions shown with FD-LOK nuts finger-tight. All dimensions are for reference only, subject to change. For dimensions not shown above, consult the factory please.

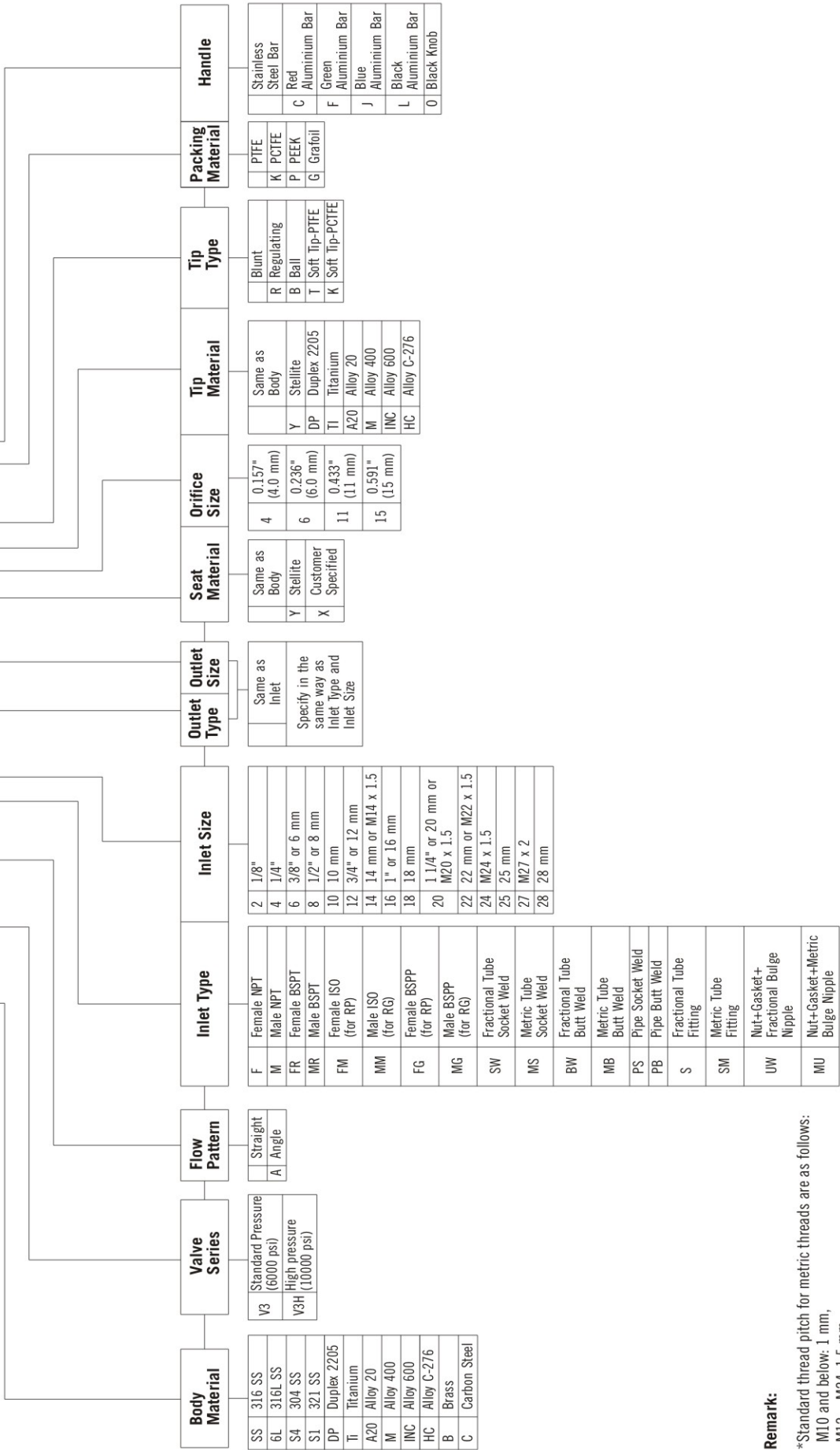
c. The sizes and types listed are standard. Other sizes and types are available upon request.

d. Dimensions of high pressure (10000 psi) V3H valves are not listed.If needed,consult the factory please.

Integral Bonnet Barstock Needle Valves

Ordering Information

SS - V3 - A - S 8 - SM 12 - Y 6 Y B - G L



Remark:

*Standard thread pitch for metric threads are as follows:
M10 and below: 1 mm,
M12 ~ M24: 1.5 mm,
M27 and above: 2 mm,
Standard thread pitch should be ignored in the ordering number, others should be specified.

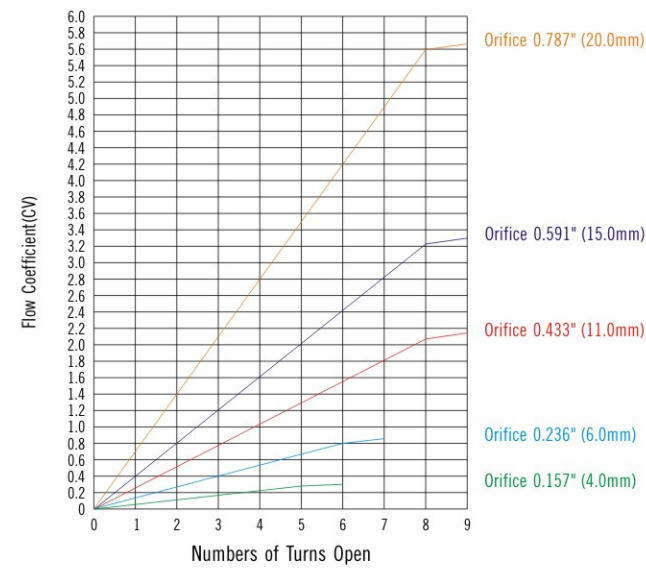
Bar Stock Needle Valves

Features

- Pressure up to 6000 psig(414 bar) for standard series
- Pressure up to 10000 psig(689 bar) for high pressure series
- Temperature from -65°F to 450°F (-54°C to 232°C) with PTFE packing,
- Temperature from -65°F to 1200°F (-54°C to 649°C) with Grafoil packing
- Non-rotating stem tip
- Packing below stem thread isolates the thread lubricants from the media
- Body to bonnet seal with metal to metal constant compression, isolates bonnet thread from the media
- Back seating design protects the packing in fully open position
- Panel mountable
- 100% factory tested



Flow Data at 100°F (37°C)



Bar Stock Needle Valves

Technical Data

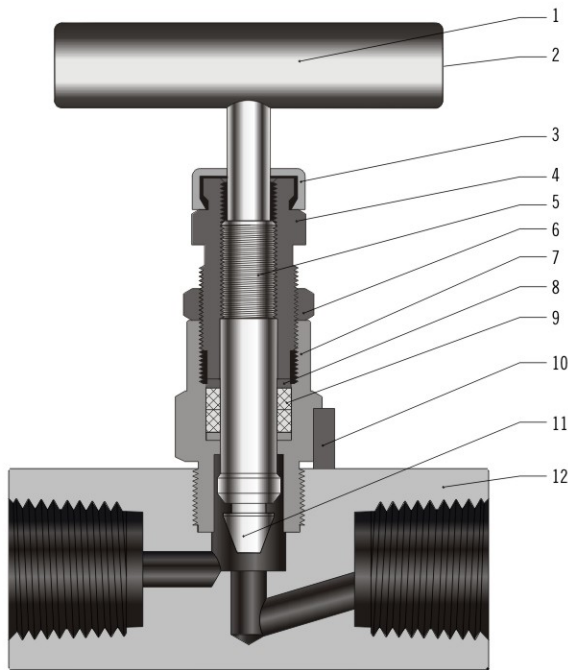
Standard pressure series(V4)

Temperature		Valve body material				
		316 SS	Alloy 400	Alloy C-276	Titanium	Brass
°F	°C	Working pressure, psig (bar)				
-65~100	-54~38	6000(414)	5000(344)	6000(414)	3570(245)	3000(207)
200	93	5160(356)	4400(303)	6000(414)	3110(214)	2350(162)
250	121	4910(338)	4260(293)	6000(414)	2840(195)	2200(151)
300	148	4660(321)	4120(283)	6000(414)	2570(177)	2050(141)
350	176	4470(307)	4050(279)	5975(411)	2385(164)	1470(101)
400	204	4280(295)	3980(274)	5880(405)	2200(151)	390(27)
450	232	4130(285)	3970(273)	5710(393)	2055(141)	
500	260	3980(274)	3960(272)	5540(381)	1885(129)	
600	315	3760(259)		5040(347)	1625(111)	
650	343	3690(254)		4905(337)		
700	371	3600(248)		4730(325)		
750	399	3510(242)		4430(305)		
800	426	3460(238)		4230(291)		
850	454	3380(232)		4060(279)		
900	482	3280(225)		3745(258)		
950	510	3220(221)		3220(221)		
1000	538	3030(208)		3030(208)		
1050	566	3000(207)		3000(207)		
1100	593	2685(184)		2685(184)		
1150	621	2285(157)		2285(157)		
1200	649	1715(118)		1545(106)		

High pressure series(V4H)

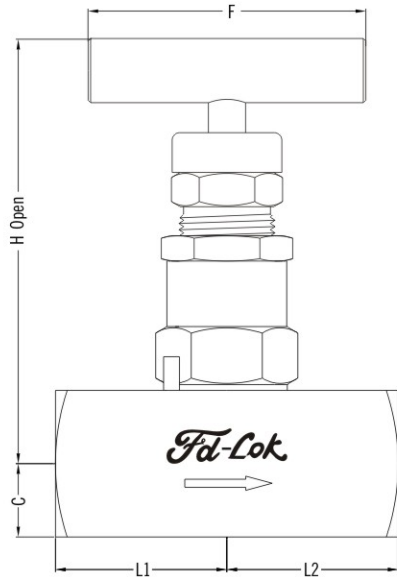
Temperature		Valve body material
		316 SS
°F	°C	Working pressure, psig (bar)
-65~100	-54~38	10000(689)
200	93	9290(640)
250	121	8840(609)
300	148	8390(578)
350	176	8045(554)
400	204	7705(530)
450	232	7435(512)
500	260	7165(493)
600	315	6770(466)
650	343	6660(458)
700	371	6480(446)
750	399	6335(436)
800	426	6230(429)
850	454	6085(419)
900	482	5905(406)
950	510	5795(399)
1000	538	5450(375)
1050	566	5400(372)
1100	593	4835(333)
1150	621	4115(283)
1200	649	3085(212)

Materials of Construction



Item	Part	Valve Body Materials				
		316 SS	Alloy 400	Alloy C-276	Titanium	Brass
1	Handle	Stainless steel / Anodized aluminum / Black knob				
2	Set screw	Nickel cadmium-plated steel				
3	Dust cap	Plastic				
4	Gland	316 SS/A276				Brass 360/B16
5	Stem	Chrome-plated 316 SS/A276	Alloy R-405/B164	Alloy C-276/B574	t84.8373;Titanium Gr 4/B348	Chrome-plated 316 SS/A276
6	Lock nut	316 SS/B783				Brass 360/B16
7	Bonnet	316 SS/A479	Alloy R-405/B164	Alloy C-276/B574	Titanium Gr 4/B348	Brass 360/B16
8	Packing washer	316 SS/A276				
9	Packing	PTFE / PCTFE / PEEK / Grafoil				
10	Lock pin	304 SS/A276				
11	Stem tip	Chrome-plated 316 SS/A276	Alloy R-405/B164	Alloy C-276/B574	t84.8373;Titanium Gr 4/B348	Chrome-plated 316 SS/A276
		Different tips optional				
12	Body	316 SS/A479 316 SS/A182	Alloy 400/B164, B127, B564	Alloy C-276/B564	Titanium Gr 4/B348 or Titanium Gr 4/B381	Brass 360/B16
	Seat	Weld stellite optional				
Lubricant		Molybdenum disulfide-based				

Table of Dimensions



Basic Model Number	End Connection		Orifice in.(mm)	Cv	L1	L2	H	F	C
	Inlet	Outlet			in.(mm)				
-V4-F2-4	1/8 Female NPT	1/8 Female NPT	0.157(4.0)	0.35	1.00(25.4)	1.00(25.4)	2.85(72.4)	2.17(55)	0.5(12.7)
-V4-F4-4	1/4 Female NPT	1/4 Female NPT			1.06(26.9)	1.06(26.9)			
-V4-M4-4	1/4Male NPT	1/4Male NPT			1.03(26.2)	1.03(26.2)			
-V4-M6-4	3/8Male NPT	3/8Male NPT			1.19(30.2)	1.19(30.2)			
-V4-S4-4	1/4" FD-LOK	1/4" FD-LOK			1.20(30.5)	1.20(30.5)			
-V4-SM6-4	6 mm FD-LOK	6 mm FD-LOK			1.20(30.5)	1.20(30.5)			
-V4-SM8-4	8 mm FD-LOK	8 mm FD-LOK	0.197(5.0)	0.73	1.12(28.6)	1.12(28.6)	3.5(88.9)	2.5(63.5)	0.563(14.3)
-V4-F4-5	1/4 Female NPT	1/4 Female NPT			1.41(35.8)	1.41(35.8)			
-V4-F6-5	3/8 Female NPT	3/8 Female NPT			1.52(38.6)	1.52(38.6)			
-V4-M6-5	3/8Male NPT	3/8Male NPT			1.42(36.1)	1.42(36.1)			
-V4-S6-5	3/8" FD-LOK	3/8" FD-LOK			1.52(38.6)	1.52(38.6)			
-V4-S8-5	1/2" FD-LOK	1/2" FD-LOK			1.56(39.7)	1.56(39.7)			
-V4-SM10-5	10 mm FD-LOK	10 mm FD-LOK			1.13(28.6)	1.13(28.6)			
-V4-SM12-5	12 mm FD-LOK	12 mm FD-LOK			1.50(38.1)	1.50(38.1)			
-V4-SM14-5	14 mm FD-LOK	14 mm FD-LOK			2.92(74.1)	2.92(74.1)			
-V4-SW6-5	3/8" Tube socket weld	3/8" Tube socket weld			1.50(38.1)	1.50(38.1)			
-V4-SW8-5	1/2" Tube socket weld	1/2" Tube socket weld			1.50(38.1)	1.50(38.1)			
-V4-MS12-5	12 mm Tube socket weld	12 mm Tube socket weld			1.50(38.1)	1.50(38.1)			
-V4-MS14-5	14 mm Tube socket weld	14 mm Tube socket weld			1.50(38.1)	1.50(38.1)			
-V4-MS16-5	16 mm Tube socket weld	16 mm Tube socket weld			1.50(38.1)	1.50(38.1)			
-V4-MB14-5	14 mm Tube butt weld	14 mm Tube butt weld			1.50(38.1)	1.50(38.1)			
-V4-MB16-5	16 mm Tube butt weld	16 mm Tube butt weld			1.50(38.1)	1.50(38.1)			
-V4-MU14-5	14 mm MU	14 mm MU			1.50(38.1)	1.50(38.1)			
-V4-MU16-5	16 mm MU	16 mm MU			1.50(38.1)	1.50(38.1)			
-V4-MM20-5	M20 x1.5 Male ISO	M20 x1.5 Male ISO			1.50(38.1)	1.50(38.1)			
-V4-MM22-5	M22 x1.5 Male ISO	M22 x1.5 Male ISO			1.50(38.1)	1.50(38.1)			

Table of Dimensions

Basic Model Number	End Connection		Orifice in.(mm)	Cv	L1	L2	H	F	G
	Inlet	Outlet			in.(mm)				
-V4-F8-6	1/2 Female NPT	1/2 Female NPT	0.236(6.0)	0.85	1.56(39.6)	1.56(39.6)	4.12(104.8)	3.5(88.9)	0.875(22.2)
-V4-F12-6	3/4 Female NPT	3/4 Female NPT			1.63(41.3)	1.63(41.3)			
-V4-M12-6	3/4 Male NPT	3/4 Male NPT							
-V4-S12-6	3/4" FD-LOK	3/4" FD-LOK							
-V4-SM14-6	14 mm FD-LOK	14 mm FD-LOK			1.97(50.0)	1.97(50.0)			
-V4-SM16-6	16 mm FD-LOK	16 mm FD-LOK							
-V4-SM18-6	18 mm FD-LOK	18 mm FD-LOK							
-V4-MS14-6	14 mm Tube socket weld	14 mm Tube socket weld			1.75(44.5)	1.75(44.5)			
-V4-MS16-6	16 mm Tube socket weld	16 mm Tube socket weld							
-V4-SW12-6	3/4" Tube socket weld	3/4" Tube socket weld							
-V4-MB14-6	14 mm Tube butt weld	14 mm Tube butt weld							
-V4-MB16-6	16 mm Tube butt weld	16 mm Tube butt weld							
-V4-MU14-6	14 mm UMB	14 mm UMB			2.98(75.7)	2.98(75.7)			
-V4-MM27-6	M27 x 2 Male ISO	M27 x 2 Male ISO			1.56(39.7)	1.56(39.7)			
-V4-F12-8	3/4 Female NPT	3/4 Female NPT	0.315(8.0)	1.62			5.0(127)	5.0(127)	1.14(29.0)
-V4-SW16-8	1" Tube socket weld	1" Tube socket weld			1.75(44.5)	1.75(44.5)			
-V4-MS25-8	25 mm Tube socket weld	25 mm Tube socket weld							
-V4-MS28-8	28 mm Tube socket weld	28 mm Tube socket weld							
-V4-PS12-8	3/4" Pipe socket weld	3/4" Pipe socket weld			2.35(59.7)	2.35(59.7)			
-V4-SM20-8	20 mm FD-LOK	20 mm FD-LOK							
-V4-SM22-8	22 mm FD-LOK	22 mm FD-LOK							
-V4-F16-8	1 Female NPT	1 Female NPT			1.97(50.0)	1.97(50.0)			
-V4-MS25-8	25 mm Tube socket weld	25 mm Tube socket weld							
-V4-SW16-8	1" Tube socket weld	1" Tube socket weld							
-V4-MS28-8	28 mm Tube socket weld	28 mm Tube socket weld							
-V4-PS12-8	3/4" Pipe socket weld	3/4" Pipe socket weld							
-V4-PS16-8	1" Pipe socket weld	1" Pipe socket weld							

Remarks:

a. FD-LOK means FD-LOK double ferrule tube fittings.

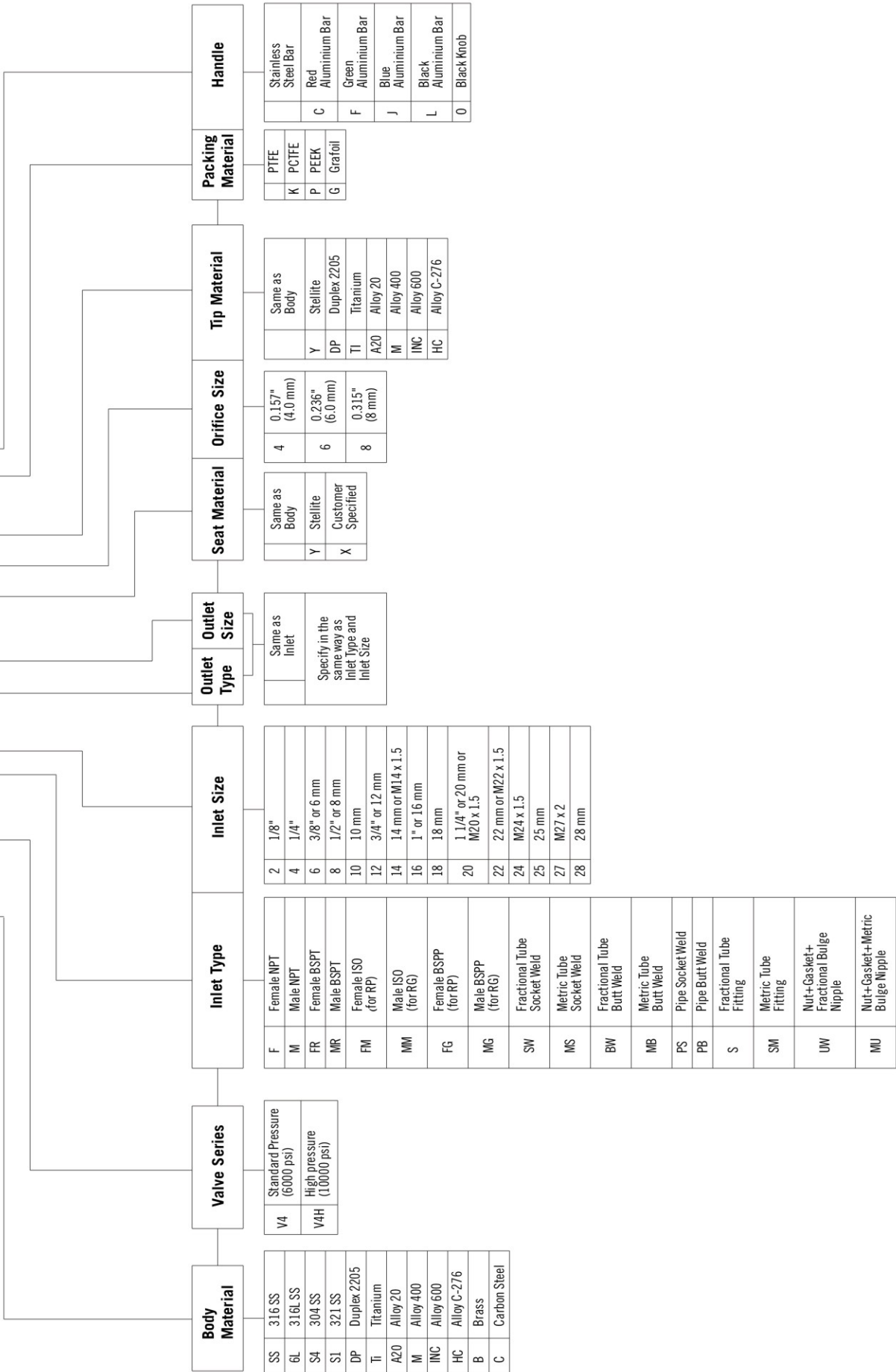
b. Dimensions shown with FD-LOK nuts finger-tight. All dimensions are for reference only, subject to change. For dimensions not shown above, consult the factory please.

c. The sizes and types listed are standard. Other sizes and types are available upon request.

d. Dimensions of high pressure (10000 psi) V3H valves are not listed.If needed,consult the factory please.

Ordering Information

SS - V4 - F 8 - S 12 - Y 11 Y - GL



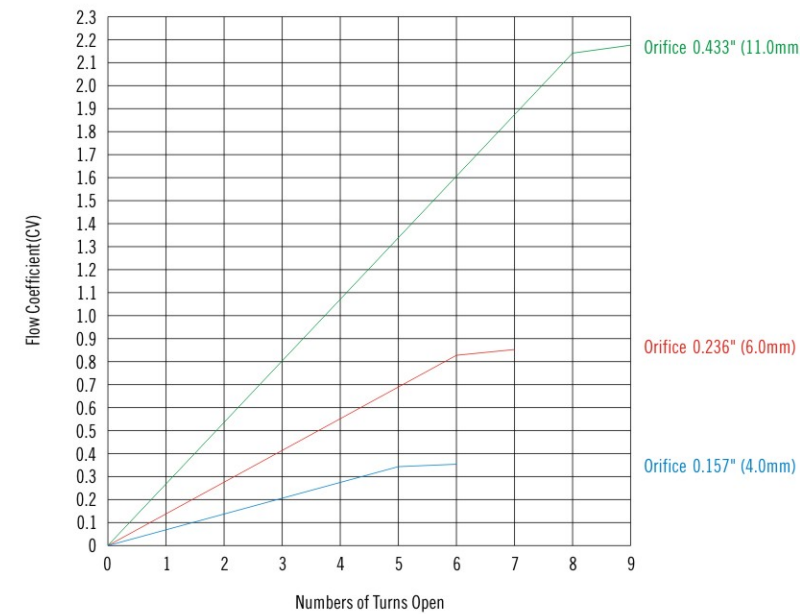
Hexagonal Bar Stock Needle Valves

Features

- Pressure up to 6000 psig(414 bar) for standard series
- Pressure up to 10000 psig(689 bar) for high pressure series
- Temperature from -65°F to 450°F (-54°C to 232°C)
- with PTFE packing,
- Temperature from -65°F to 1200°F (-54°C to 649°C)
- with Grafoil packing
- Hexagonal valve body
- Non-rotating stem tip
- Packing below stem thread isolates the thread
- lubricants from the media
- Body to bonnet seal with metal to metal constant compressiong,
- isolates bonnet thread from the media
- Back seating design protects the packing in fully open position
- Panel mountable
- 100% factory tested



Flow Data at 100°F (38°C)



Hexagonal Bar Stock Needle Valves

Technical Data

Standard pressure series(V5)

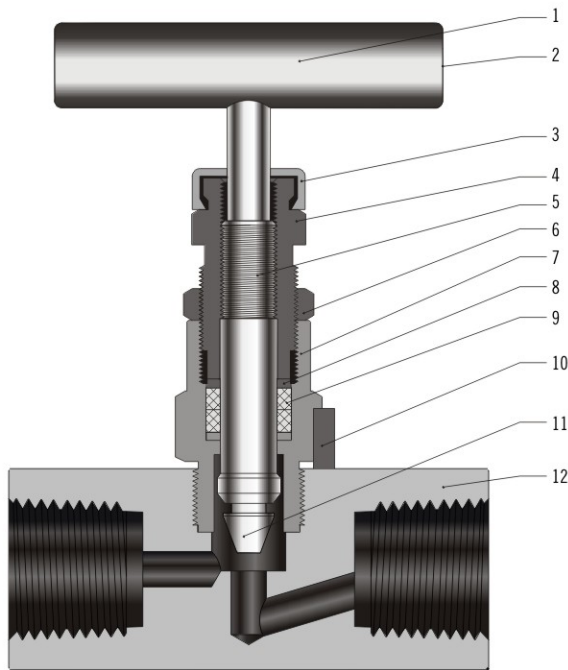
Temperature		Valve body material				
		316 SS	Alloy 400	Alloy C-276	Titanium	Brass
°F	°C	Working pressure, psig (bar)				
-65~100	-53~37	6000(414)	5000(344)	6000(414)	3570(245)	3000(207)
200	93	5160(356)	4400(303)	6000(414)	3110(214)	2350(162)
250	121	4910(338)	4260(293)	6000(414)	2840(195)	2200(151)
300	148	4660(321)	4120(283)	6000(414)	2570(177)	2050(141)
350	176	4470(307)	4050(279)	5975(411)	2385(164)	1470(101)
400	204	4280(295)	3980(274)	5880(405)	2200(151)	390(27)
450	232	4130(285)	3970(273)	5710(393)	2055(141)	
500	260	3980(274)	3960(272)	5540(381)	1885(129)	
600	315	3760(259)		5040(347)	1625(111)	
650	343	3690(254)		4905(337)		
700	371	3600(248)		4730(325)		
750	399	3510(242)		4430(305)		
800	426	3460(238)		4230(291)		
850	454	3380(232)		4060(279)		
900	482	3280(225)		3745(258)		
950	510	3220(221)		3220(221)		
1000	538	3030(208)		3030(208)		
1050	566	3000(207)		3000(207)		
1100	593	2685(184)		2685(184)		
1150	621	2285(157)		2285(157)		
1200	649	1715(118)		1545(106)		

High pressure series(V5H)

Temperature		Valve body material
		316 SS
°F	°C	Working pressure, psig (bar)
-65~100	-53~37	10000(689)
200	93	9290(640)
250	121	8840(609)
300	148	8390(578)
350	176	8045(554)
400	204	7705(530)
450	232	7435(512)
500	260	7165(493)
600	315	6770(466)
650	343	6660(458)
700	371	6480(446)
750	399	6335(436)
800	426	6230(429)
850	454	6085(419)
900	482	5905(406)
950	510	5795(399)
1000	538	5450(375)
1050	566	5400(372)
1100	593	4835(333)
1150	621	4115(283)
1200	649	3085(212)

Hexagonal Bar Stock Needle Valves

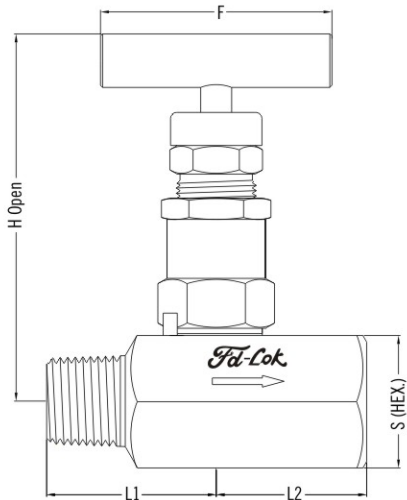
Materials of Construction



Item	Part	Valve Body Materials				
		316 SS	Alloy 400	Alloy C-276	Titanium	Brass
1	Handle	Stainless steel / Anodized aluminum / Black knob				
2	Set screw	Nickel cadmium-plated steel				
3	Dust cap	Plastic				
4	Gland	316 SS/A276				Brass 360/B16
5	Stem	Chrome-plated 316 SS/A276	Alloy R-405/B164	Alloy C-276/B574	t84.8373;Titanium Gr 4/B348	Chrome-plated 316 SS/A276
6	Lock nut	316 SS/B783				Brass 360/B16
7	Bonnet	316 SS/A479	Alloy R-405/B164	Alloy C-276/B574	Titanium Gr 4/B348	Brass 360/B16
8	Packing washer	316 SS/A276				
9	Packing	PTFE / PCTFE / PEEK / Grafoil				
10	Lock pin	304 SS/A276				
11	Stem tip	Chrome-plated 316 SS/A276	Alloy R-405/B164	Alloy C-276/B574	t84.8373;Titanium Gr 4/B348	Chrome-plated 316 SS/A276
		Different tips optional				
12	Body	316 SS/A479 316 SS/A182	Alloy 400/B164, B127, B564	Alloy C-276/B564	Titanium Gr 4/B348 or Titanium Gr 4/B381	Brass 360/B16
	Seat	Weld stellite optional				
Lubricant		Molybdenum disulfide-based				

Hexagonal Bar Stock Needle Valves

Table of Dimensions

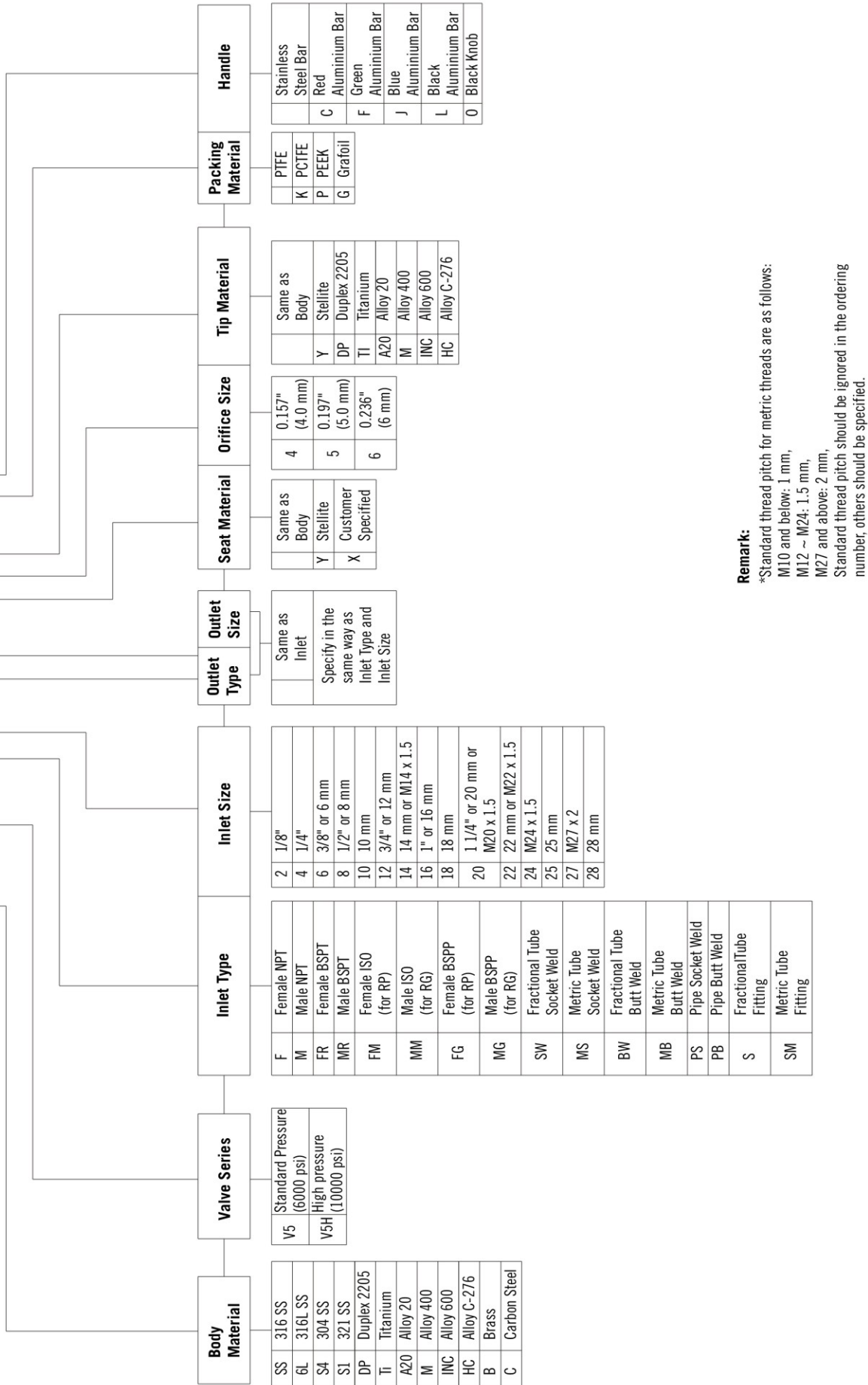


Basic Model Number	End Connection		Orifice in.(mm)	Cv	L1	L2	H	F	S
	Inlet	Outlet			in.(mm)				
-V5-F4-4	1/4 Female NPT	1/4 Female NPT	0.157 (4.0)	0.35	1.06(26.9)	1.06(26.9)	3.02 (76.7)	2.17 (55)	0.5 (12.7)
-V5-M4-F4-4	1/4 Male NPT	1/4 Female NPT			1.12(28.6)	1.06(26.9)			
-V5-S4-4	1/4" FD-LOK	1/4" FD-LOK			1.34(34.0)	1.34(34.0)			
-V5-F6-4	3/8 Female NPT	3/8 Female NPT			1.12(28.6)	1.12(28.6)			
-V5-S6-4	3/8" FD-LOK	3/8" FD-LOK			1.41(35.8)	1.41(35.8)			
-V5-SM8-4	8 mm FD-LOK	8 mm FD-LOK			1.41(35.8)	1.41(35.8)			
-V5-F8-4	1/2 Female NPT	1/2 Female NPT			1.34(34.0)	1.34(34.0)			
-V5-M8-F8-4	1/2 Male NPT	1/2 Female NPT			1.81(46.0)	1.34(34.0)			
-V5-F6-5	1/2 Female NPT	1/2 Female NPT	0.197 (5.0)	0.73	1.50(38.1)	1.50(38.1)	3.27 (83.1)	2.17 (55)	0.625 (15.9)
-V5-M8-F8-5	1/2 Male NPT	1/2 Female NPT			2.00(50.8)	1.50(38.1)			
-V5-S8-5	1/2" FD-LOK	1/2" FD-LOK			1.52(38.6)	1.52(38.6)			
-V5-SM12-5	12 mm FD-LOK	12 mm FD-LOK			1.52(38.6)	1.52(38.6)			
-V5-SM14-5	14 mm FD-LOK	14 mm FD-LOK			1.56(39.6)	1.56(39.6)			
-V5-SW8-5	1/2" Tube socket weld	1/2" Tube socket weld			1.28(32.5)	1.28(32.5)			
-V5-F12-5	3/4 Female NPT	3/4 Female NPT			1.50(38.1)	1.50(38.1)			
-V5-M12-F12-5	3/4 Male NPT	3/4 Female NPT			2.00(50.8)	1.50(38.1)			
-V5-F6-6	1/2 Female NPT	1/2 Female NPT	0.236 (6.0)	0.85	1.56(39.6)	1.56(39.6)	4.12 (104.8)	3.0 (76.2)	0.75 (19.1)
-V5-M8-F8-6	1/2 Male NPT	1/2 Female NPT			2.00(50.8)	1.56(39.6)			
-V5-F12-6	3/4 Female NPT	3/4 Female NPT			2.00(50.8)	1.63(41.3)			
-V5-M12-F12-6	3/4 Male NPT	3/4 Female NPT			2.00(50.8)	1.63(41.3)			
-V5-S12-6	3/4" FD-LOK	3/4" FD-LOK			1.97(50.0)	1.97(50.0)			
-V5-SM14-6	14 mm FD-LOK	14 mm FD-LOK			1.97(50.0)	1.97(50.0)			
-V5-SM16-6	16 mm FD-LOK	16 mm FD-LOK			1.75(44.5)	1.75(44.5)			
-V5-SW12-6	3/4" Tube socket weld	3/4" Tube socket weld			1.75(44.5)	1.75(44.5)			

Remarks:
a. FD-LOK means FD-LOK double ferrule tube fittings.
b. Dimensions shown with FD-LOK nuts finger-tight. All dimensions are for reference only, subject to change.
For dimensions not shown above, consult the factory please.
c. The sizes and types listed are standard. Other sizes and types are available upon request.
d. Dimensions of high pressure (10000 psi) V5H valves are not listed.If needed,consult the factory please.

Hexagonal Bar Stock Needle Valves

SS - V5 - M8 - F8 - Y5Y - GL



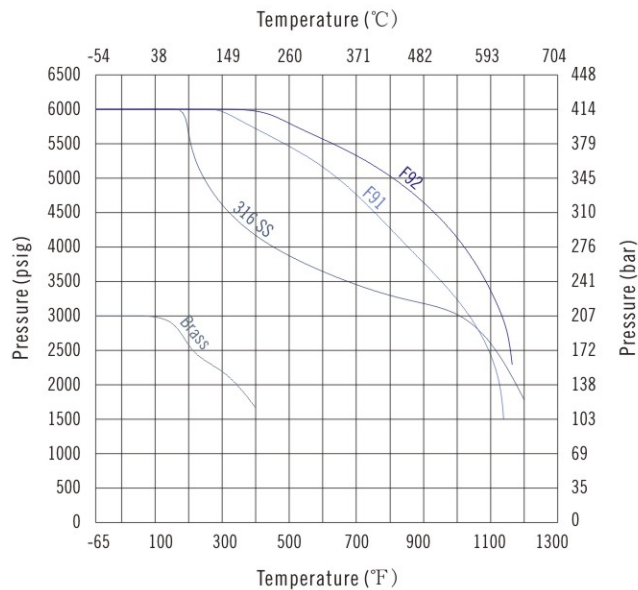
Forged Needle Valves

Features

- V6 Series**
- Maximum working pressures:
Stainless steel: 6000 psig (414 bar)
Alloy C-276: 6000 psig (414 bar)
Alloy 400: 5000 psig (345 bar)
Titanium: 3500 psig (241 bar)
Brass: 3000 psig (207 bar)
 - Working temperature:
PTFE: -65°F to 450°F (-54°C to 232°C)
PEEK: -65°F to 500°F (-54°C to 260°C)
Graphite: -65°F to 1200°F (-54°C to 649°C)
 - TWO-stem design: thread hardened upper stem and smooth surface hardened lower stem
 - Upper stem thread lubricant isolated from system media
 - Linearly in stead of helical movement of the nonrotating lower stem, avoiding galling damage to the seat and tip, as well as reducing the total friction area between the packing and the lower stem
 - Safety back seating seal in fully open position
 - Panel mounting available as an option
 - Steady and durable fastening of the handle by double lock-pins
 - Handle of different colors available for option
 - Leak-tight performance testing for every valve with nitrogen at the maximum working pressure

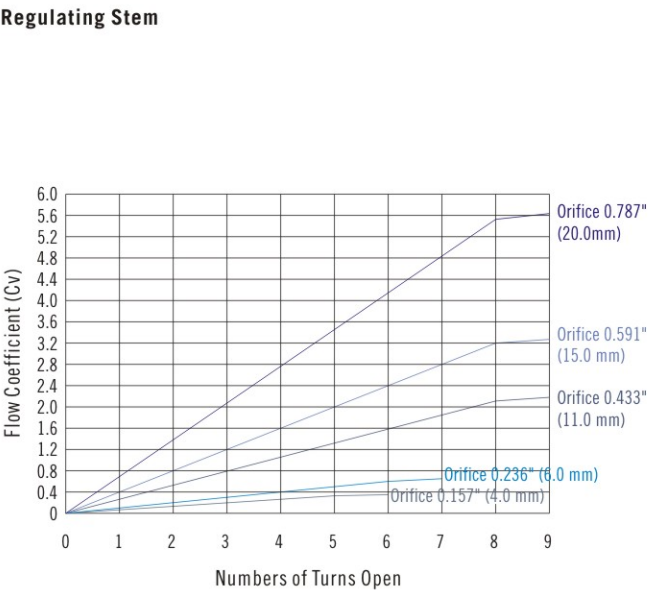


Pressure vs. Temperature

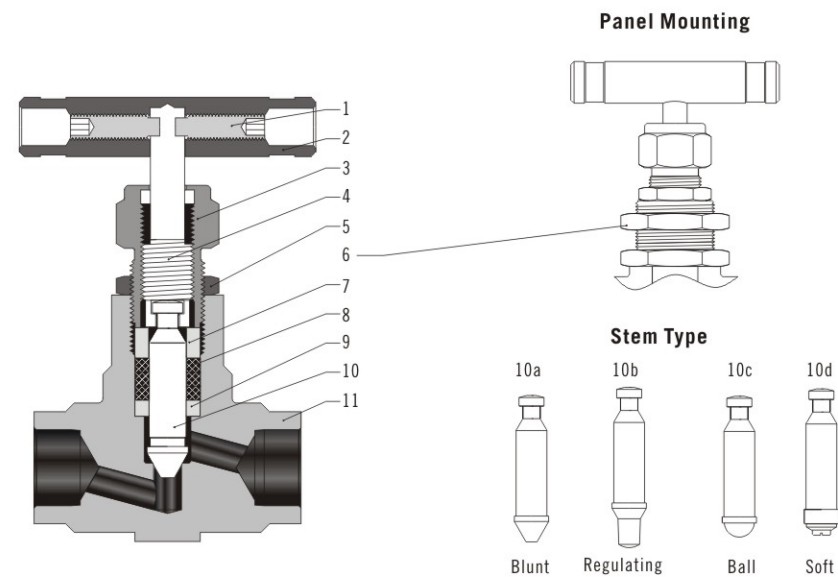


1. Graphs are based on graphite stem packing.
2. 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact the authorized representative or FD-LOK for curve graph of other materials.

Flow Data at 100°F (37°C)

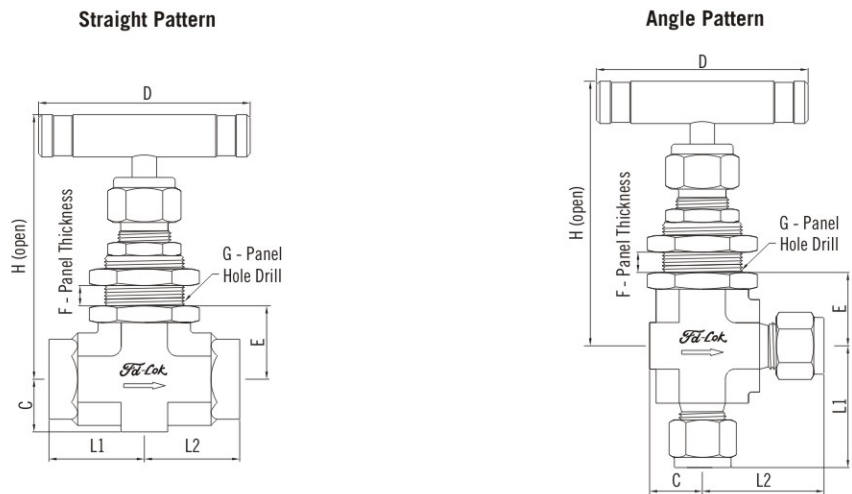


Stand ard Marerials of Construction



Item	Component	Valve Body Material			
		316 SS	F91	F92	Brass
1	Handle	Anodized aluminum or stainless steel or black knob			
2	Set Screw	Nickel cadmium-plated steel			
3	Packing Bolt	321 SS/A276			
4	Upper Stem	316 SS/A276	F91/A182	F92/A182	Brass 360/B16
5	Lock Nut	316 SS/B783			
6	Panel Nut	316 SS/B783			
7	Gland	316 SS/A276	F91/A182	F92/A182	Brass 360/B16
8	Packing	PTFE or PEEK or graphite			
9	Packing Washer	316 SS/A276	F91/A182	F92/A182	Brass 360/B16
10a 10b 10c 10d	Lower Stem	Chrome-plated 316 SS/A276	Chrome-plated F91/A182	Chrome-plated F92/A182	Chrome-plated 316 SS/A276
Optional					
11	Body	316 SS/A182	F91/A182	F92/A182	Brass 377/B283
	Seat	Weld stellite seat optional			
Lubricant		Molybdenum disulfide-based			

Dimensions



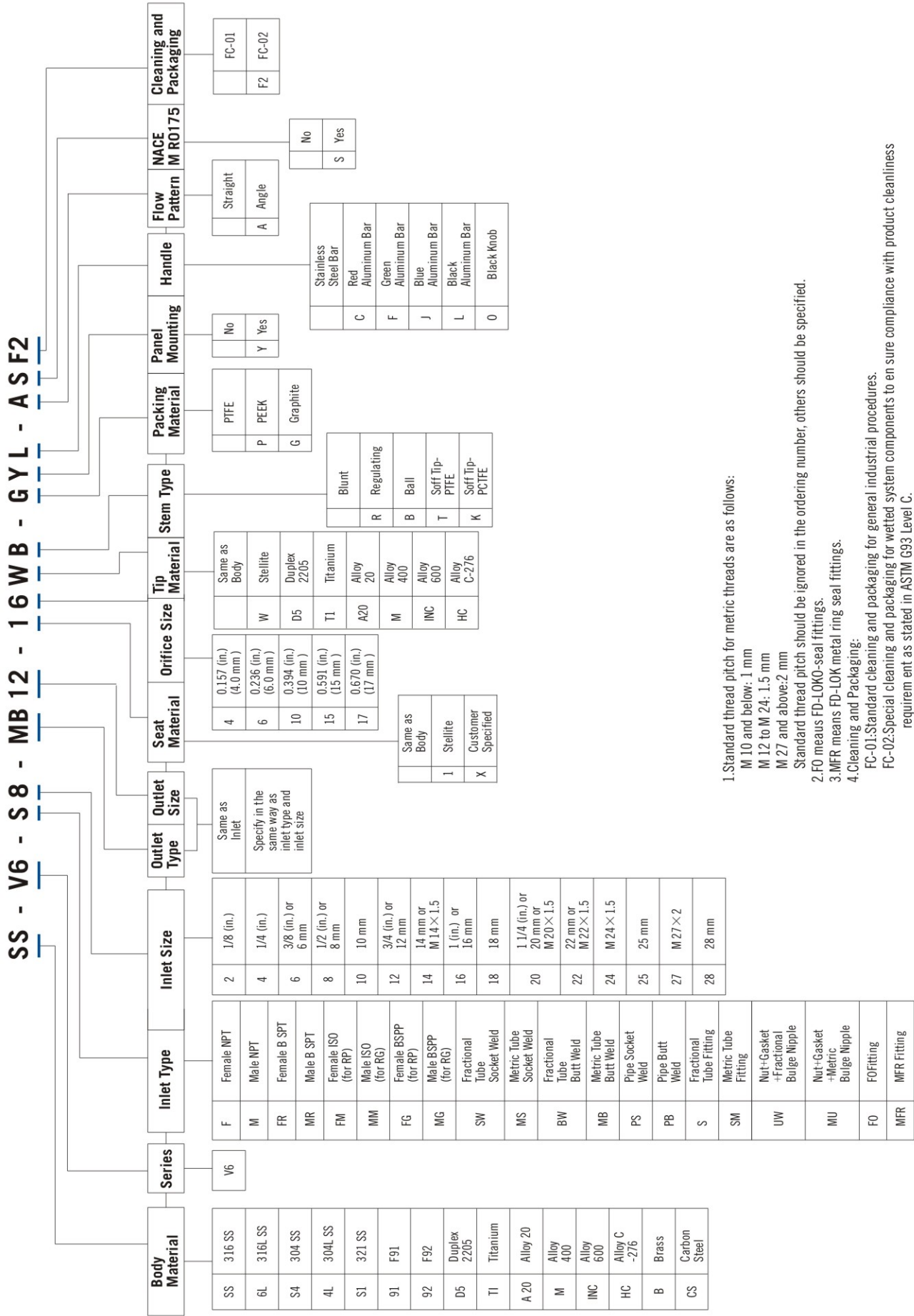
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)							
	Inlet	Outlet			L1	L2	H	D	C	E	F	G
-V6-F2-4	1/8 Female NPT	1/8 Female NPT	0.157 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	2.85 (72.5)	2.17 (55)	0.53 (13.5)	0.71 (18.0)	0.25 (6.4)	0.77 (19.6)
-V6-F4-4	1/4 Female NPT	1/4 Female NPT			1.03 (26.2)	1.03 (26.2)						
-V6-S4-4	1/4" FD-LOK	1/4" FD-LOK			1.22 (30.9)	1.22 (30.9)						
-V6-SM6-4	6 mm FD-LOK	6 mm FD-LOK			1.25 (31.75)	1.25 (31.75)						
-V6-SM8-4	8 mm FD-LOK	8 mm FD-LOK			1.19 (30.2)	1.19 (30.2)						
-V6-M6-4	3/8 Male NPT	3/8 Male NPT			1.03 (26.2)	1.03 (26.2)						
-V6-F04-4	1/4" Male FO	1/4" Male FO										
-V6-MFR4-4	1/4" Male MFR	1/4" Male MFR	0.236 (6.0)	0.85			3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)
-V6-F4-6	1/4 Female NPT	1/4 Female NPT			1.13 (28.6)	1.13 (28.6)						
-V6-F6-6	3/8 Female NPT	3/8 Female NPT										
-V6-M6-6	3/8 Male NPT	3/8 Male NPT										
-V6-S6-6	3/8" FD-LOK	3/8" FD-LOK			1.44 (36.5)	1.44 (36.5)						
-V6-SM10-6	10 mm FD-LOK	10 mm FD-LOK										
-V6-SM12-6	12 mm FD-LOK	12 mm FD-LOK			1.53 (38.9)	1.53 (38.9)						
-V6-SM14-6	14 mm FD-LOK	14 mm FD-LOK			1.56 (39.7)	1.56 (39.7)						
-V6-F8-6	1/2 Female NPT	1/2 Female NPT			1.26 (32.0)	1.26 (32.0)						
-V6-M8-6	1/2 Male NPT	1/2 Male NPT			1.50 (38.1)	1.50 (38.1)						
-V6-S8-6	1/2" FD-LOK	1/2" FD-LOK			1.53 (38.9)	1.53 (38.9)						
-V6-SW6-6	3/8" SW	3/8" SW										
-V6-SW8-6	1/2" SW	1/2" SW										
-V6-MS12-6	12 mm MS	12 mm MS			1.13 (28.6)	1.13 (28.6)						
-V6-MS14-6	14 mm MS	14 mm MS										
-V6-MS16-6	16 mm MS	16 mm MS										
-V6-MB14-6	14 mm MB	14 mm MB			1.50 (38.1)	1.50 (38.1)						
-V6-MB16-6	16 mm MB	16 mm MB										
-V6-MU14-6	14 mm MU	14 mm MU			2.92 (74.1)	2.92 (74.1)						
-V6-MU16-6	16 mm MU	16 mm MU										
-V6-F08-6	1/2" Male FO	1/2" Male FO			1.13 (28.6)	1.13 (28.6)						
-V6-MFR8-6	1/2" Male MFR	1/2" Male MFR			1.56 (39.7)	1.56 (39.7)						
-V6-MM20-6	M20 x 1.5 Male ISO	M20 x 1.5 Male ISO			1.50 (38.1)	1.50 (38.1)						
-V6-MM22-6	M22 x 1.5 Male ISO	M22 x 1.5 Male ISO										

Dimensions

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)							
	Inlet	Outlet			L1	L2	H	D	C	E	F	G
-V6-F8-10	1/2 Female NPT	1/2 Female NPT	0.394 (10.0)	2.18	1.56 (39.7)	1.56 (39.7)	3.86 (98.0)	3.5 (88.9)	0.8 (20.2)	1.1 (28.3)	0.38 (9.7)	1.08 (27.5)
-V6-F12-10	3/4 Female NPT	3/4 Female NPT										
-V6-M8-10	1/2 Male NPT	1/2 Male NPT			1.97 (50.0)	1.97 (50.0)						
-V6-M12-10	3/4 Male NPT	3/4 Male NPT										
-V6-S12-10	3/4" FD-LOK	3/4" FD-LOK			1.56 (39.7)	1.56 (39.7)						
-V6-SM14-10	14 mm FD-LOK	14 mm FD-LOK										
-V6-SM16-10	16 mm FD-LOK	16 mm FD-LOK			2.98 (75.7)	2.98 (75.7)						
-V6-SM18-10	18 mm FD-LOK	18 mm FD-LOK										
-V6-SM20-10	20 mm FD-LOK	20 mm FD-LOK			1.56 (39.7)	1.56 (39.7)						
-V6-SM25-10	25 mm FD-LOK	25 mm FD-LOK										
-V6-MS14-10	14 mm MS	14 mm MS			1.56 (39.7)	1.56 (39.7)						
-V6-MS16-10	16 mm MS	16 mm MS										
-V6-MS18-10	18 mm MS	18 mm MS			2.98 (75.7)	2.98 (75.7)						
-V6-SW12-10	3/4" SW	3/4" SW										
V6-PS8-10	1/2 PS	1/2 PS			1.56 (39.7)	1.56 (39.7)						
-V6-MB14-10	14 mm MB	14 mm MB										
-V6-MB16-10	16 mm MB	16 mm MB			1.56 (39.7)	1.56 (39.7)						
-V6-MU14-10	14 mm MU	14 mm MU										
-V6-MU16-10	16 mm MU	16 mm MU			1.56 (39.7)	1.56 (39.7)						
-V6-F012-10	3/4" Male FO	3/4" Male FO										
-V6-MFR8-10	1/2" Male MFR	1/2" Male MFR			1.56 (39.7)	1.56 (39.7)						
-V6-MS27-10	M27 x 2 Male ISO	M27 x 2 Male ISO										
-V6-F12-15	3/4 Female NPT	3/4 Female NPT	0.591 (15.0)	3.27	1.97 (50.0)	1.97 (50.0)	6.5 (165)	5.0 (127)	1.3 (33.0)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)
-V6-SW16-15	1" SW	1" SW										
-V6-MS25-15	25 mm MS	25 mm MS										
-V6-MS28-15	28 mm MS	28 mm MS										
-V6-PS12-15	3/4 PS	3/4 PS			2.35 (59.7)	2.35 (59.7)						
-V6-PB12-15	3/4 PB	3/4 PB										
-V6-S12-15	3/4" FD-LOK	3/4" FD-LOK										
-V6-S16-15	1" FD-LOK	1" FD-LOK										
-V6-SM20-15	20 mm FD-LOK	20 mm FD-LOK										
-V6-SM22-15	22 mm FD-LOK	22 mm FD-LOK										
-V6-SM25-15	25 mm FD-LOK	25 mm FD-LOK	0.670 (17.0)	5.65	1.97 (50.0)	1.97 (50.0)	6.5 (165)	5.5 (165)	1.3 (33.0)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)
-V6-F16-17	1 Female NPT	1 Female NPT										
-V6-SW16-17	1" SW	1" SW										
-V6-MS25-17	25 mm MS	25 mm MS										
-V6-MS28-17	28 mm MS	28 mm MS										
-V6-PS12-17	3/4 PS	3/4 PS										
-V6-PB16-17	1 PB	1 PB										

1. FD-LOK means FD-LOK double ferrule tube fittings, FO means O-ring seal fittings, MFR means metal gasket seal fittings, SW means fractional tube socket weld, MS means metric tube socket weld, MB means metric tube butt weld, MU means nut + gasket + metric bulge nipple, PS means pipe socket weld, ISO means metric thread, PB means pipe butt weld
2. Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.
3. Dimensions are shown with FD-LOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or FD-LOK.

Ordering Information



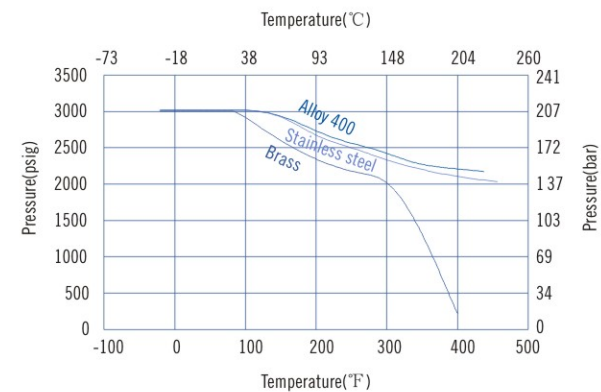
Nonrotating-stem Needle Valves

Features

- Maximum working pressure: 3000 psig (207 bar)
- Working temperature:
PCTFE stem tip: -20°F to 200°F (-28°C to 93°C)
PEEK stem tip: -20°F to 450°F (-28°C to 232°C)
- Straight and angle pattern
- Compact design
- Nonrotating stem
- Special designed handle to stop contamination entering into the valve
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure

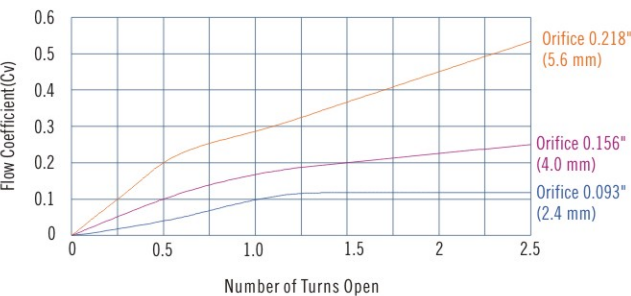


Pressure vs. Temperature



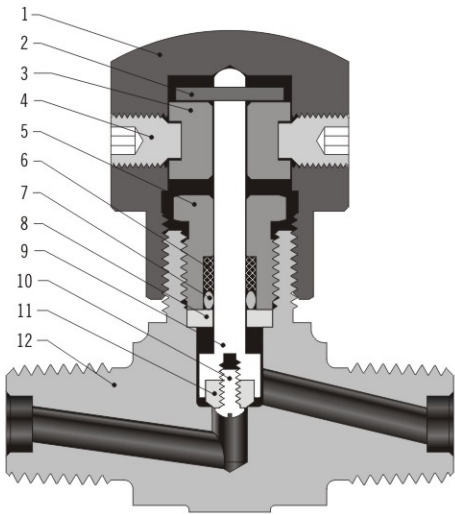
1. Temperatures and pressures shown in the graphs are based on PEEK stem tip
2. Contact the authorized representative or FD-LOK for curve graph of other materials.

Flow Data at 100°F (38°C)



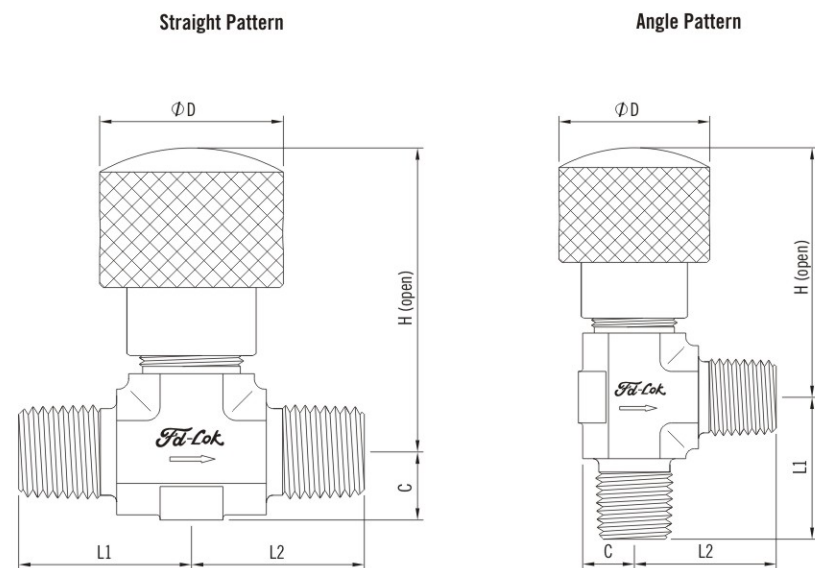
Nonrotating-stem Needle Valves

Standard Materials of Construction



Item	Component	Valve Body Material				
		316 SS	304 SS	321 SS	Brass	Alloy 400
1	Handle	Anodized aluminum				
2	Stop Pin	Stainless steel				
3	Spool	Aluminum				
4	Set Screw	Nickel cadmium-plated steel				
5	Packing Bolt	316 SS/A276	304 SS/A276	321 SS/A276	Brass 360/B16	Alloy R-405/B164
6	Backup Ring	PTFE/D1710				
7	O-ring	Fluorocarbon FKM				
8	Washer	316 SS/A276				Alloy R-405/B164
9	Stem	316 SS/A276				Alloy R-405/B164
10	Machine Screw	316 SS/A276				Alloy R-405/B164
11	Stem Tip	PCTFE or PEEK				
12	Body	316 SS/A182	316 SS/A182	316 SS/A182	Brass 377/B283	Alloy 400/B564
Lubricant		Molybdenum disulfide-based				

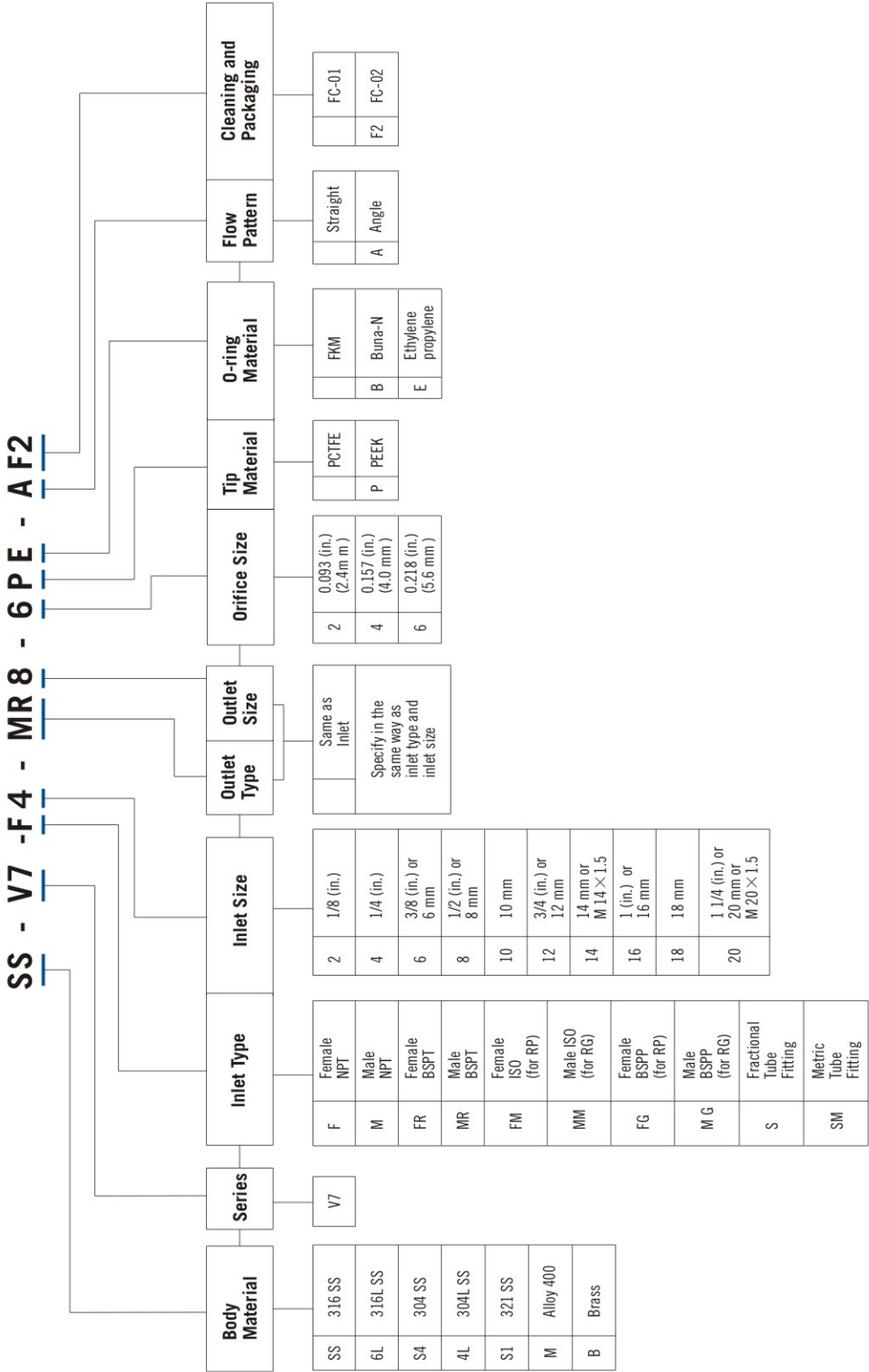
Dimensions



Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dim ension, in.(mm)				
	Inlet	Outlet			L1	L2	C	D	H
-V7-M2-2	1/8 Male NPT	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)
-V7-M2-S2-2	1/8Male NPT	1/8"FD-LOK			0.75(19.0)	1.1(27.9)			
-V7-S2-2	1/8"FD-LOK	1/8"FD-LOK			1.1(27.9)	1.1(27.9)			
-V7-SM 3-2	3 mm FD-LOK	3 mm FD-LOK							
-V7-F2-4	1/8 Female NPT	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)
-V7-M2-4	1/8 Male NPT	1/8 Male NPT			0.86(21.8)	0.86(21.8)			
-V7-M4-4	1/4 Male NPT	1/4 Male NPT			25.0(0.98)	25.0(0.98)			
-V7-M4-S4-4	1/4 Male NPT	1/4"FD-LOK			25.0(0.98)	1.13(28.7)			
-V7-S4-4	1/4"FD-LOK	1/4"FD-LOK			1.13(28.7)				
-V7-SM6-4	6 mm FD-LOK	6 mm FD-LOK							
-V7-SM8-4	8 mm FD-LOK	8 mm FD-LOK							
-V7-F4-6	1/4 Female NPT	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)
-V7-F6-6	3/8 Female NPT	3/8 Female NPT			1.12(28.6)	1.12(28.6)			
-V7-M6-6	3/8 Male NPT	3/8 Male NPT			1.29(32.8)	1.29(32.8)			
-V7-S6-6	3/8" FD-LOK	3/8" FD-LOK			1.4(35.6)	1.4(35.6)			
-V7-S8-6	1/2" FD-LOK	1/2" FD-LOK			1.3(33.0)	1.3(33.0)			
-V7-SM10-6	10 mm FD-LOK	10 mm FD-LOK			1.4(35.6)	1.4(35.6)			
-V7-SM12-6	12 mm FD-LOK	12 mm FD-LOK			1.50(38.1)	1.50(38.1)			
-V7-MM20-6	M20×1.5 Male ISO	M20×1.5 Male ISO							
-V7-MM22-6	M22×1.5 Male ISO	M22×1.5 Male ISO							

1.FD-LOK means FD-LOK double ferrule tube fittings.
2.Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.
3.Dimensions are shown with FD-LOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or FD-LOK.

Ordering Information



1. Standard thread pitch for metric threads are as follows:
M 10 and below: 1 mm
M 12 to M 24: 1.5 mm
M 27 and above: 2 mm
Standard thread pitch should be ignored in the ordering number, others should be specified.
2. Cleaning and Packaging:
FC-01: Standard cleaning and packaging for general industrial procedures.
FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C.

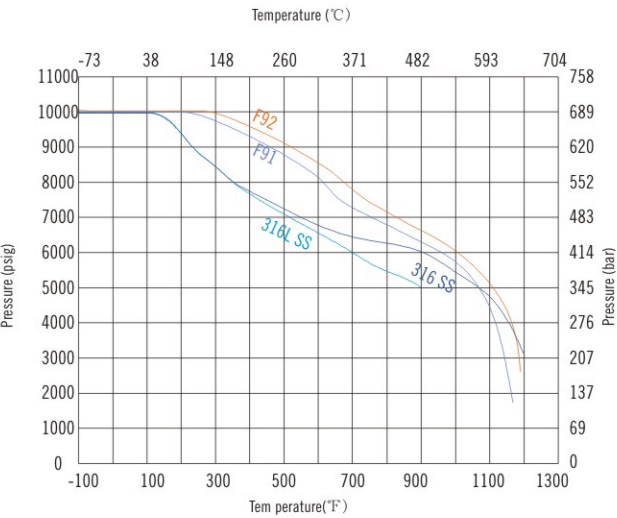
High-pressure Needle Valves

Features

- Maximum working pressure: 10000 psig (689 bar)
- Working temperature:
PTFE:-65°F to 450°F (-54°C to 232 °C)
PEEK:-65°F to 500°F (-54°C to 260°C)
Graphite:-65°F to 1200°F (-54°C to 649°C)
- One-piece body construction
- Two-stem design: thread hardende upper stem and smooth surface hardened low er stem
- Upper stem thread lubricant isolated from system media
- Linearly in stead of helical movem ent of the nonrotating lower stem, avoiding galling damage to the seat and tip,as well as reducing the total friction area between the packing and the lower stem
- Safety back seating seal in fully open position
- Panel mounting available as an option
- Steady and durable fastening of the handle by double lock-pins
- Handle of different colors available for option
- Leak-tightperform ance testing for every valve with nitrogen at 6000 psig



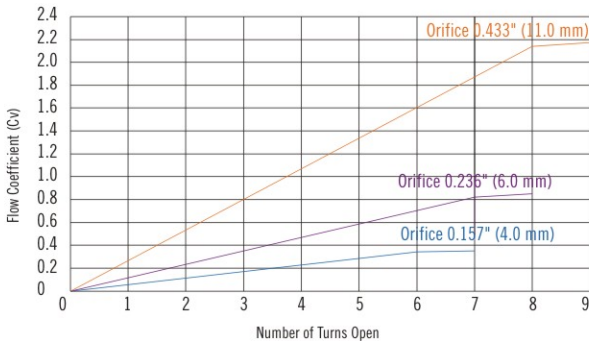
Pressure vs. Tem Perature



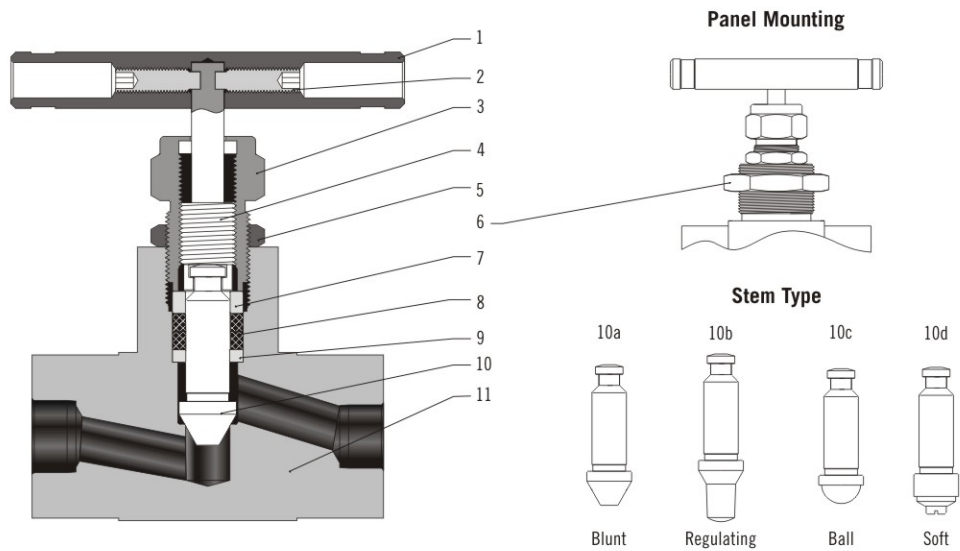
1. Graphs are based on graphite stem packing.
2. 200°F (93°C) max with PCTFE stem tip (soft tip).
3. Contact the authorized representative or FD-LOK for curve graph of other materials.

Flow Data at 100°F (38°C)

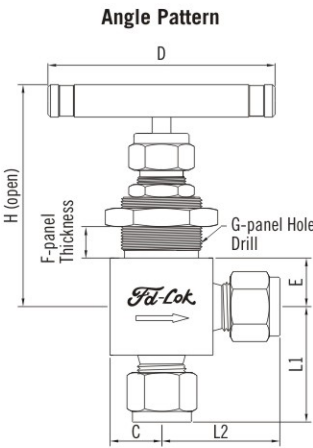
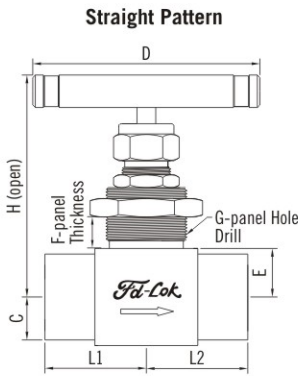
Regulating Stems



Standard Materials of Construction



Item	Component	Valve Body Material			
		316 SS	316 SS	F91	F92
1	Handle	Anldized alum inum or stain less steel or black kn ob			
2	Set Screw	Nickel cadmium-plated steel			
3	Packing Bolt	321SS/A276			
4	Upper Stem	316SS/A276			
5	Lock Nut	316SS/A783			
6	Panel Nut	316SS/A783			
7	Gland	316SS/A276	316SS/A276	F92/A182	F92/A182
8	Packing	PTFE or PEEK or graphite			
9	Packing Washer	316 SS/A276	316 SS/A276	F92/A182	F92/A182
10a 10b 10c 10d	Lower stem	Chrome-plated 316SS/A276	Chrome-plated 316SS/A276	Chrome-plated F92/A182	Chrome-plated F92/A182
		Optional			
11	Body	316L SS/A479 316L SS/A182	316L SS/A479 316L SS/A182	F92/A182	F92/A182
	Seat	Weld stellite seat optional			
Lubricant		Molybdenum disulfide-based			

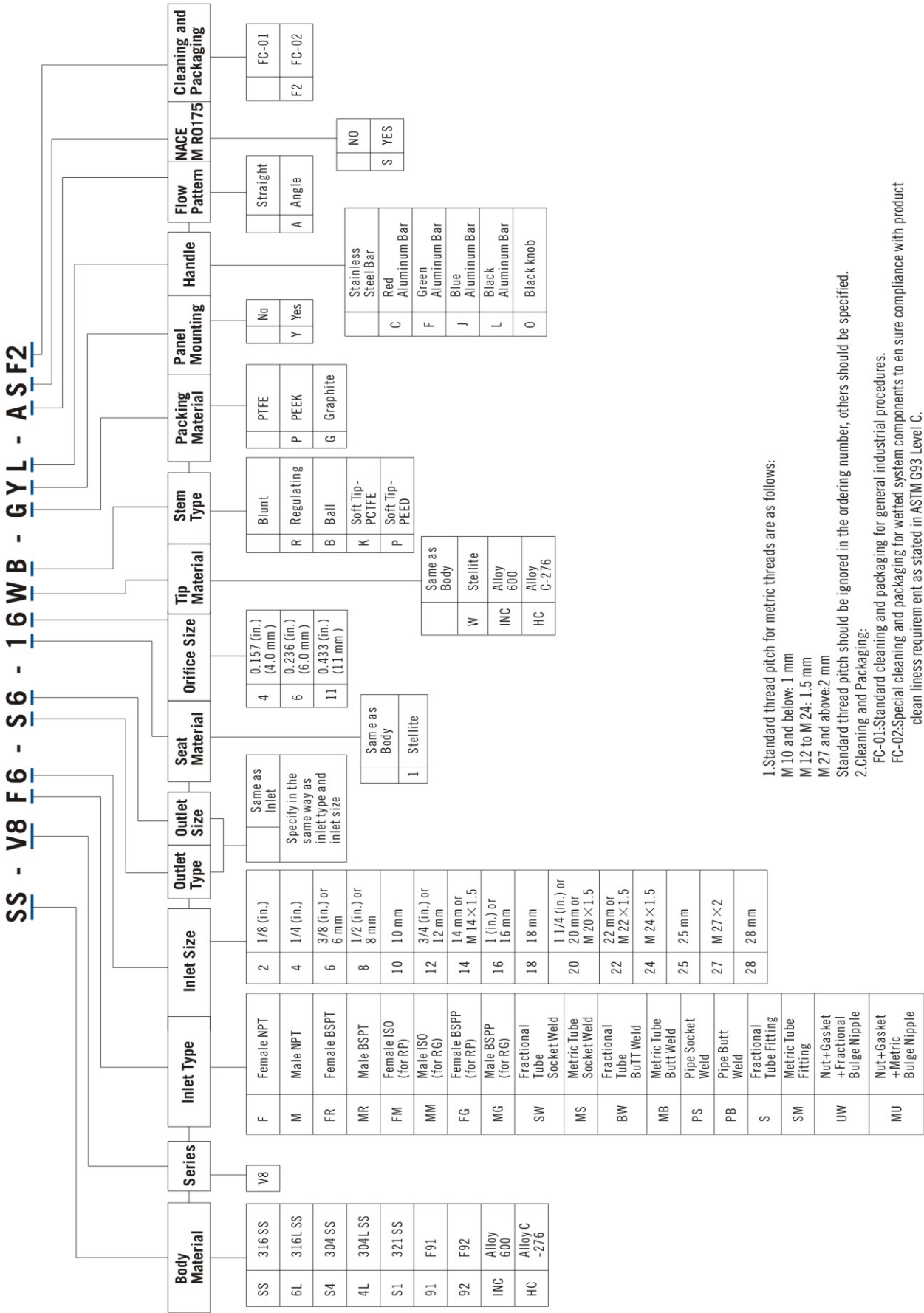


Dimensions

Basic Ordering Num ber	Connection Type and Size		Orifice in.(mm)	Cv	Dim ension,in.(mm)							
	Inlet	Outlet			L1	L2	C	D	E	F	G	H
-V8-F2-4	1/8 Female NPT	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)
-V8-F4-4	1/4 Female NPT	1/4 Female NPT										
-V8-F4-M4-4	1/4 Female NPT	1/4 Male NPT										
-V8-M4-4	1/4 Male NPT	1/4 Male NPT			1.41 (35.8)	1.41 (35.8)						
-V8-S4-4	1/4" FD-LOK	1/4" FD-LOK										
-V8-SM6-4	6 mm FD-LOK	6 mm FD-LOK										
-V8-SM8-4	8 mm FD-LOK	8 mm FD-LOK										
-V8-SW4-4	1/4" SW	1/4" SW	1.13 (28.6)	1.13 (28.6)								
-V8-F4-6	1/4 Female NPT	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)
-V8-F6-6	3/8 Female NPT	3/8 Female NPT			1.41 (35.8)	1.41 (35.8)						
-V8-F8-6	1/2 Female NPT	1/2 Female NPT										
-V8-S6-6	3/8" FD-LOK	3/8" FD-LOK										
-V8-S8-6	1/2" FD-LOK	1/2" FD-LOK			1.52 (38.6)	1.52 (38.6)						
-V8-SM10-6	10 mm FD-LOK	10 mm FD-LOK			1.42 (36.1)	1.42 (36.1)						
-V8-SM12-6	12 mm FD-LOK	12 mm FD-LOK			1.52 (38.6)	1.52 (38.6)						
-V8-SM14-6	14 mm FD-LOK	14 mm FD-LOK			1.56 (39.7)	1.56 (39.7)						
-V8-SW6-6	3/8" SW	3/8" SW			1.31 (33.4)	1.31 (33.4)						
-V8-SW8-6	1/2" SW	1/2" SW										
-V8-MS12-6	12 mm MS	12 mm MS										
-V8-MS14-6	14 mm MS	14 mm MS			0.433 (11.0)	2.18						
-V8-F8-11	1/2 Female NPT	1/2 Female NPT	0.63 (41.3)	0.63 (41.3)								
-V8-F12-11	3/4 Female NPT	3/4 Female NPT	1.97 (50.0)	1.97 (50.0)								
-V8-S12-11	3/4" FD-LOK	3/4" FD-LOK										
-V8-SM14-11	14 mm FD-LOK	14 mm FD-LOK										
-V8-SM16-11	16 mm FD-LOK	16 mm FD-LOK	1.56 (39.7)	1.56 (39.7)								
-V8-SM18-11	18 mm FD-LOK	18 mm FD-LOK										
-V8-MS14-11	14 mm MS	14 mm MS										
-V8-MS16-11	16 mm MS	16 mm MS										
-V8-MS16-MS14-11	16 mm MS	14 mm MS										

- 1.FD-LOK means FD-LOK double ferrule tube fittings, SW means fractional tube socket weld, MS means metric tube socket weld.
- 2.Sizeds and types listed are standard. Other sizes and types are available upon request, refer to the nitrogen inform ation.
- 3.Dim ensions are shown with FD-LOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or FD-LOK.

Ordering Information



1. Standard thread pitch for metric threads are as follows:
M 10 and below: 1 mm
M 12 to M 24: 1.5 mm
M 27 and above: 2 mm
Standard thread pitch should be ignored in the ordering number, others should be specified.

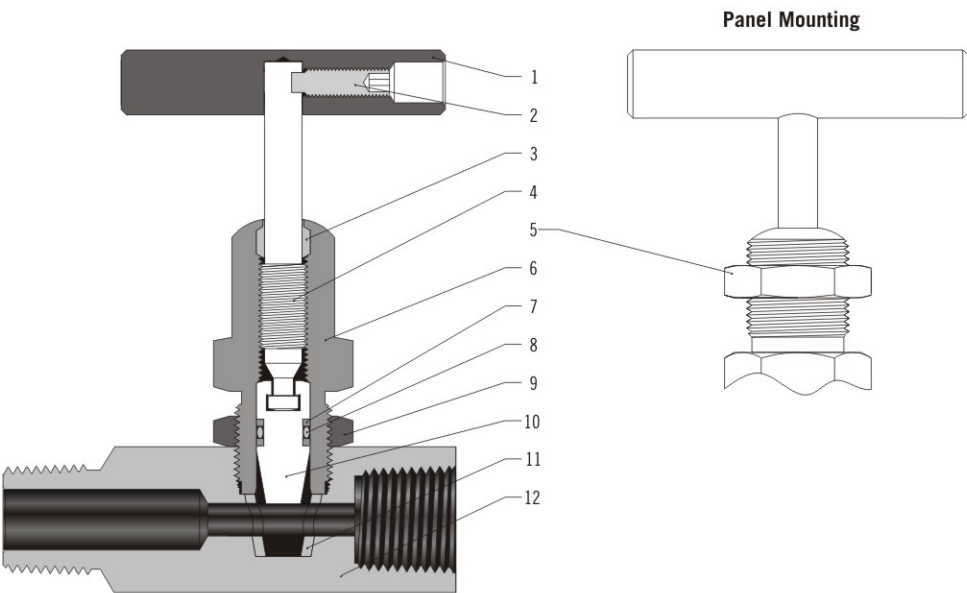
2. Cleaning and Packaging:
FC-01: Standard cleaning and packaging for general industrial procedures.
FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product clean lines requirement as stated in ASTM G93 Level C.

Features

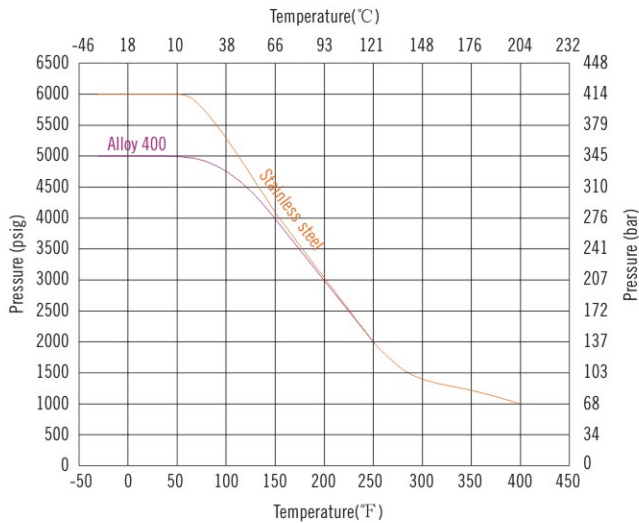
- Maximum working pressure:
Stainless steel: 6000 psig (414 bar)
Alloy 400: 5000 psig (345 bar)
- Working temperature:
Acetal:-20°F to 250°F (-28°C to 121 °C)
PEEK:-20°F to 400°F (-28°C to 204°C)
PFA:-20°F to 400°F (-28°C to 204°C)
- Nonrotating stem for longer seat life
- Roddable, straight through flow path for maximum flow with minimum pressure drop
- Stem thread lu bricant isolated from system media
- Replaceable seat and stem tip design
- Stem thread protected from outside contam ination by PTFE ring in the gland
- Panel mounting available as an option
- Steady and durable fastening of the handle by double lock-pins
- Handle of different colors available for option
- Leak-tightperform ance testing for every valve with nitrogen at the maximum working pressure



Standard Materials of Construction

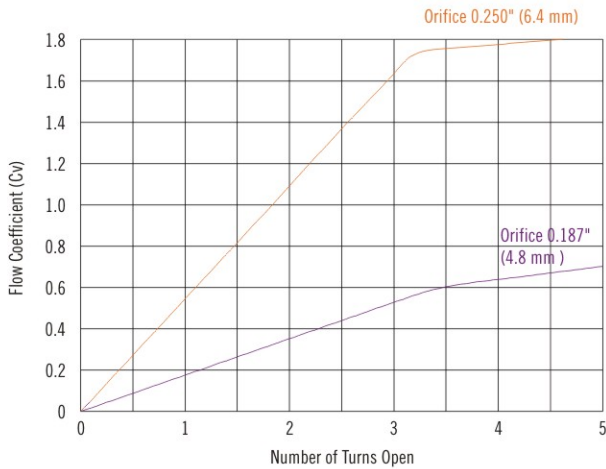


Pressure vs. Tem Perature



1. Graphs are based on PEEK seat.
2. Contact the authorized representative or FD-LOK for curve graph of other materials.

Flow Data at 100°F (38°C)



Item	Component	Valve Body Material			
		316 SS	304 SS	321 SS	Alloy R-405
1	Handle	Anldized alum inum or stain less steel or black kn ob			
2	Set Screw	Nickel cadmium-plated steel			
3	Wiper Ring	PTFE/D1710			
4	Upper Stem	316 SS/A276	304 SS/A276	321 SS/A276	Alloy R-405/B164
5	Panel Nut	316 SS/B783			
6	Bonnet	316 SS/A479	304 SS/A479	321 SS/A479	Alloy R-405/B164
7	Backup Ring	PTFE/D1710			
8	O-ring	Fluorocarbon FKM			
9	Lock Nut	316 SS/B783			
10	Stem Tip	316 SS/A276	304 SS/A276	321 SS/A276	Alloy R-405/B164
11	Seat	Acetal or PEEK or PFA			
12	Body	316 SS/A479	304 SS/A479	321 SS/A479	Alloy R-405/B164
Lubricants		Molybdenum disulfide-based and fluorocarbon-based			

Sour Gas Application

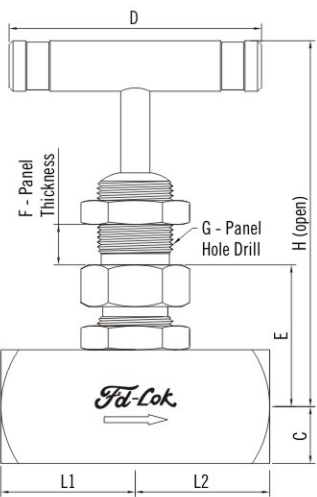
V9 series valves are available for sour gas application. Materials for wetted components are in accordance with NACE specification M R0175 for sulfide stresscracking-resistant materials.

Materials

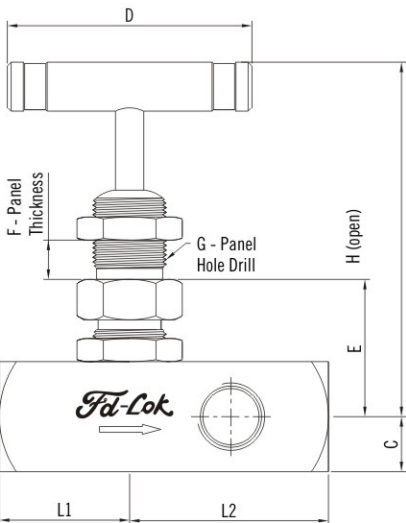
Body,bonnet: annealed 316 SS
O-ring: ethylene propylene
Stem tip: alloy R-405/ASTM B164
All other components are the same as standard product.

Dimensions

Standard Pattern
V9 Series



Gauge Port Pattern
V9G Series



Basic Ordering Number	Connection Type and Size		Orifice in.(m m)	Cv								
	Inlet	Outlet			L1	L2	C	D	E	F	G	H
-V9-F4-5	1/4 Female NPT	1/4 Female NPT	0.187 (4.8)	0.63	1.12 (28.4)	1.12 (28.4)	0.44 (11.1)	2.17 (55)	1.08 (27.5)	0.25 (6.4)	0.65 (16.1)	3.77 (95.8)
-V9-M4-F4-5	1/4 Male NPT	1/4 Female NPT			1.78 (45.2)							
-V9-M8-F4-5	1/2 Male NPT	1/4 Female NPT			1.89 (48.0)							
-V9G-F4-5	1/4 Female NPT	1/4 Female NPT			1.12 (28.4)	1.75 (44.4)	0.50 (12.7)					
-V9G-M8-F4-5	1/2 Male NPT	1/4 Female NPT										
-V9-F8-6	1/2 Female NPT	1/2 Female NPT	0.25 (6.4)	1.80	1.33 (33.8)	1.33 (33.8)	0.56 (14.3)	2.5 (63.5)	1.4 (35.5)	0.38 (9.7)	0.77 (19.6)	3.83 (97.3)
-V9-M8-F8-6	1/2 Male NPT	1/2 Female NPT			2.16 (54.9)							
-V9-M12-F8-6	3/4 Male NPT	1/2 Female NPT			3.33 (84.6)							
-V9G-F8-6	1/2 Female NPT	1/2 Female NPT										
-V9G-M12-F8-6	3/4 Male NPT	1/2 Female NPT										

1.Sizes and types listed are standard. Other sizes and types are available upon request.
2.For dimensions not shown above, please contact the authorized representative or FD-LOK.

Ordering Information

SS - V9 - M8 - F8 - P6 - BYL - SF2

Body Material	Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	O-ring Material	Panel Mounting	Handle	NACE MRO175	Cleaning and Packaging
SS	V9	F	2	Same as Inlet	Specify in the same way as inlet type and inlet size	Acetal	5	FKM	No	Stainless Steel Bar	No	FC-01
6L	V9G	M	4			PEEK	6	Buna-N	Y	Red Aluminum Bar	Yes	F2
S4		FR	6			PEA		Ethylene propylene		Green Aluminum Bar		
4L		MR	8							Blue Aluminum Bar		
S1		FM	10							Black Aluminum Bar		
D5		MM	12							Black Aluminum Bar		
TI		FG	14							Black Knob		
A 20		MG	16									
M			18									
INC			20									
HC			22									
B			24									
CS			25									

1.Standard thread pitch for metric threads are as follows:
M 10 and below: 1 mm
M 12 to M 24: 1.5 mm
M 27 and above: 2 mm
Standard thread pitch should be ignored in the ordering number, others should be specified.
2.Cleaning and Packaging:
FC-01:Standard cleaning and packaging for general industrial procedures.
FC-02:Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirements as stated in ASTM G93 Level C.

Features

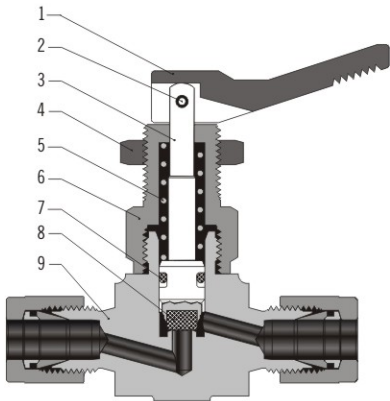
- Maximum working pressure: 300 psig (20.7 bar)
- Straight and angle pattern
- Compact design
- Quick opening or closing
- Nonrotating stem tip
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure



Technical Data

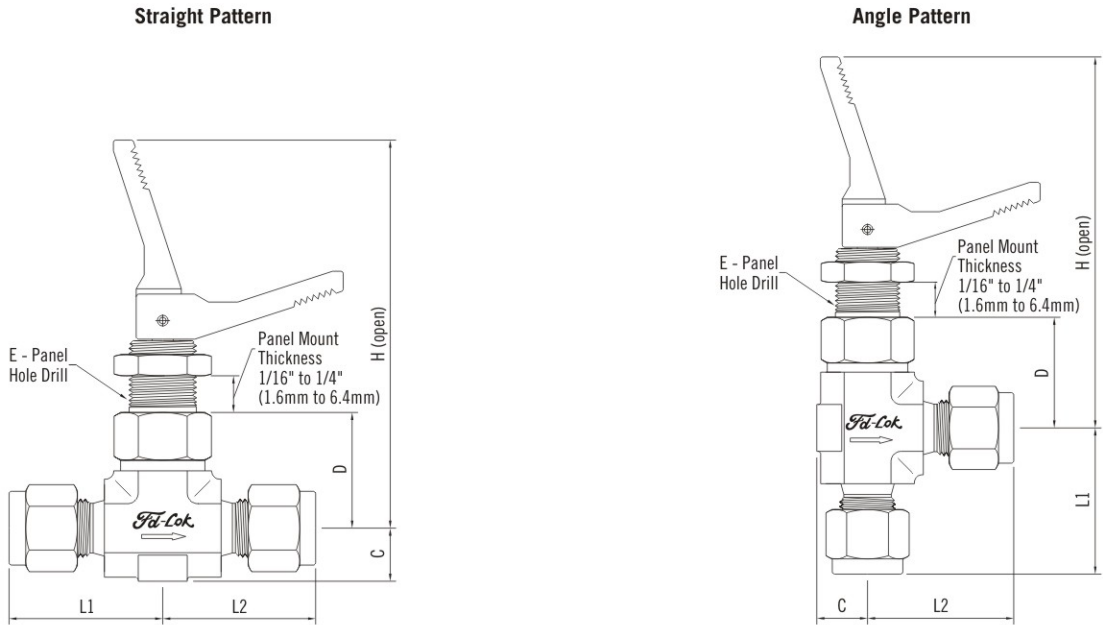
Orifice	Working Pressure at 100°F(37°C)	O-ring Material	Temperature Rating
2.0 mm	300 psig	FKM (Standard)	-20°F to 200°F (-28°C to 93°C)
3.2 mm		Buna N	-20°F to 250°F (-28°C to 121°C)
6.4 mm	200psig	Buna C	-20°F to 250°F (-53°C to 121°C)
		Ethylene Propylene	-20°F to 250°F (-28°C to 121°C)

Standard Materials of Construction



Item	Component	Valve Body Material			
		316 SS	304 SS	321 SS	Brass
1	Handle	Stainless steel			
2	Pin	Stainless steel			
3	Stem	316 ss/A276	304 SS/A276		
4	Panel Nut	304 SS/A276			Brass 360/B16
5	Spring	PTFE-plated S17700/A313			
6	Bonnet	316 SS/A276	316 SS/B783	321 SS/A276	Brass 360/B16
7	O-ring	Fluorocarbon FKM			
8	Stem Tip	PTFE/D1710			
9	Body	316 SS/A182	304 SS/A182	321 SS/A182	Brass 377/B283
Lubricant		Molybdenum disulfide-based and silicone-based			

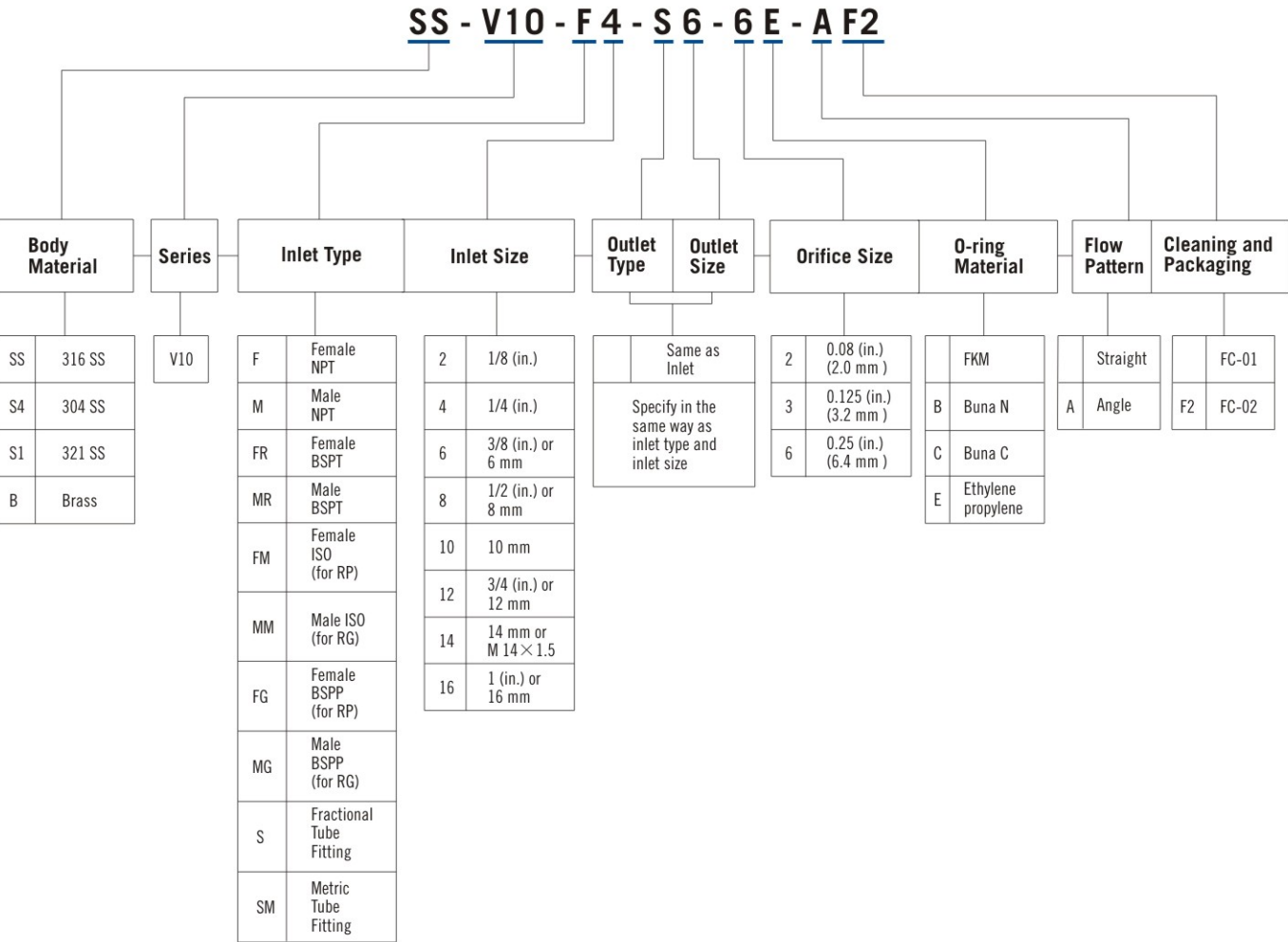
Dimensions



Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension,in.(mm)					
	Inlet	Outlet			L1	L2	C	D	E	H
-V10-F2-2	1/8 Male NPT	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)
-V10-M2-S2-2	1/8 Male NPT	1/8" FD-LOK			0.75 (19.0)	0.98 (25.0)				
-V10-S2-2	1/8" FD-LOK	1/8" FD-LOK			0.98 (25.0)	0.98 (25.0)				
-V10-SM 3-2	3 mm FD-LOK	3 mm FD-LOK	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)
-V10-F2-3	1/8 Female NPT	1/8 Female NPT			0.86 (21.8)	0.86 (21.8)				
-V10-M2-3	1/8 Male NPT	1/8 Male NPT			0.98 (25.0)	0.98 (25.0)				
-V10-M4-3	1/4 Male NPT	1/4 Male NPT			0.98 (25.0)	0.98 (25.0)				
-V10-M4-S4-3	1/4 Male NPT	1/4" FD-LOK			1.13 (28.7)	1.13 (28.7)				
-V10-S4-3	1/4" FD-LOK	1/4" FD-LOK			1.13 (28.7)	1.13 (28.7)				
-V10-SM6-3	6 mm FD-LOK	6 mm FD-LOK			1.13 (28.7)	1.13 (28.7)				
-V10-SM8-3	8 mm FD-LOK	8 mm FD-LOK			1.13 (28.7)	1.13 (28.7)				
-V10-F4-6	1/4 Female NPT	1/4 Female NPT	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)	0.5 (12.7)	0.06 (26.9)	0.66 (16.8)	3.56 (90.4)
-V10-F6-6	3/8 Female NPT	3/8 Female NPT			1.12 (28.4)	1.12 (28.4)				
-V10-M6-6	3/8 Male NPT	3/8" Male NPT			1.29 (32.8)	1.29 (32.8)				
-V10-S6-6	3/8" FD-LOK	3/8" FD-LOK			1.4 (35.6)	1.4 (35.6)				
-V10-S8-6	1/2" FD-LOK	1/2" FD-LOK			1.36 (34.5)	1.36 (34.5)				
-V10-SM10-6	10 mm FD-LOK	10 mm FD-LOK			1.46 (37.1)	1.46 (37.1)				
-V10-SM12-6	12 mm FD-LOK	12 mm FD-LOK			1.50 (38.1)	1.50 (38.1)				
-V10-MM20-6	M20×1.5 Male ISO	M20×1.5 Male ISO			1.50 (38.1)	1.50 (38.1)				
-V10-MM22-6	M22×1.5 Male ISO	M22×1.5 Male ISO			1.50 (38.1)	1.50 (38.1)				

1.FD-LOK means FD-LOK double ferrule tube fittings.
2.Sizes and types listed are standard. Other sizes and types are available upon request, refer to the nitrogen information.
3.Dimensions are shown with FD-LOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or FD-LOK.

Ordering Information



1.Standard thread pitch for metric threads are as follows:
M 10 and below: 1 mm
M 12 to M 24: 1.5 mm
M 27 and above:2 mm
Standard thread pitch should be ignored in the ordering number, others should be specified.

2.Cleaning and Packaging:
FC-01:Standard cleaning and packaging for general industrial procedures.
FC-02:Special cleaning and packaging for wetted system components to en sure compliance with product cleanliness requirem ent as stated in ASTM G93 Level C.

