C-LOK

C-LOK Instrument Valve Co.,Ltd.

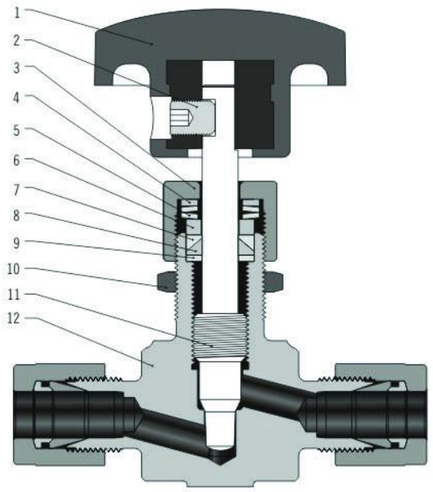
Needle Valves

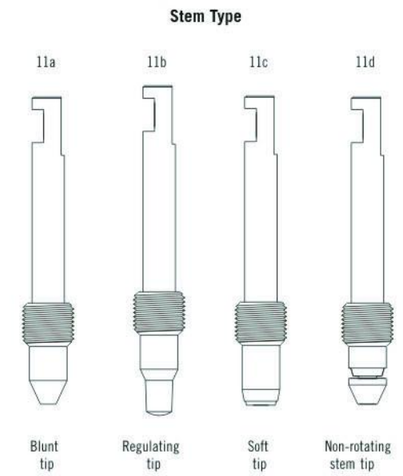
Contents

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℉ to 450℉ (-54℃ to 232℃)
- PEEK: -65℉ to 600℉ (-54℃ to 315℃)
- Panel mountable
- Packing nut permits stem packing adjustment
- Live-loaded packing system
- Compact design

General Purpose Needle Valves

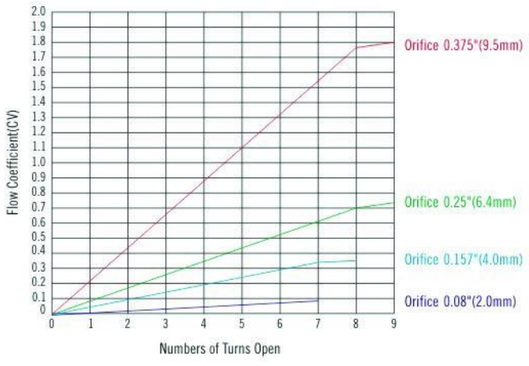




Technical Data

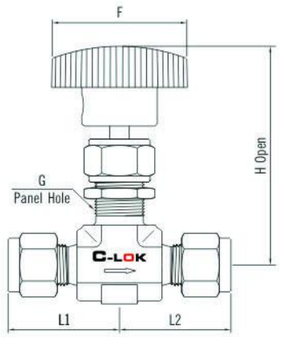
Temperature		Valve body material			
		316 SS	Carbon Steel	Alloy 400	Brass
℉	℃	Working pressure, psig (bar)			
-65~-20	-53~-28	5000(344)	—	3000(207)	3000(207)
-20~100	-28~37	5000(344)	3000(207)	3000(207)	3000(207)
200	93	4295(295)	2730(188)	2640(181)	2350(162)
250	121	4085(281)	2695(185)	2555(176)	2200(151)
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℉ (37℃)



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	Panle 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			



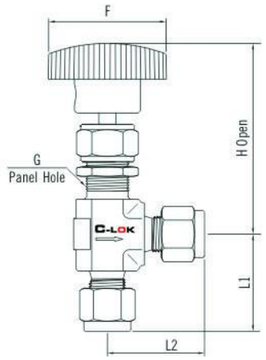


Table of Dimensions

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" OD	1/8" OD			0.98(25.0)	0.98(25.0)			
-V1-SM3-2	3mm	3mm							
-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							
-V1-M4-4	1/4 Male NPT	1/4 Male NPT			0.98(25.0)	0.98(25.0)			
-V1-S4-4	1/4" OD	1/4" OD			1.13(28.7)	1.13(28.7)			
-V1-SM6-4	6mm	6mm							
-V1-SM8-4	8mm	8mm			1.17(29.7)	1.17(29.7)			
-V1-F4-6	1/4 Female NPT	1/4 Female NPT	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-F6-6	3/8 Female NPT	3/8 Female NPT							
-V1-M6-6	3/8 Male NPT	3/8 Male NPT			1.12(28.4)	1.12(28.4)			
-V1-M8-6	1/2 Male NPT	1/2 Male NPT			1.50(38.1)	1.50(38.1)			
-V1-S6-6	3/8" OD	3/8" OD			1.29(32.8)	1.29(32.8)			
-V1-S8-6	1/2" OD	1/2" OD			1.4(35.6)	1.4(35.6)			
-V1-SM10-6	10mm	10mm			1.3(33.0)	1.3(33.0)			
-V1-SM12-6	12mm	12mm			1.4(35.6)	1.4(35.6)			
-V1-SM14-6	14mm	14mm			1.56(39.7)	1.56(39.7)			
-V1-MM20-6	M20 x1.5 Male ISO	M20 x1.5 Male ISO			1.50(38.1)	1.50(38.1)			
-V1-F8-10	1/2 Female NPT	1/2 Female NPT	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-F12-10	3/4 Female NPT	3/4 Female NPT			1.63(41.3)	1.63(41.3)			
-V1-M12-10	3/4 Male NPT	3/4 Male NPT							
-V1-S8-10	1/2" OD	1/2" OD			1.90(48.3)	1.90(48.3)			
-V1-S12-10	3/4" OD	3/4" OD							
-V1-SM14-10	14mm	14mm							

Ordering Information

SS - V1 - A - F12 - S8 - 10R - PM

Body Material	SS	316 SS	
	6L	316L SS	
	S4	304 SS	
	S1	321 SS	
	A20	Alloy 20	
	M	Alloy 400	
	INC	Alloy 600	
	HC	Alloy C-276	
	B	Brass	
	C	Carbon Steel	
Valve Series	V1		
Flow Pattern		Straight	
	A	Angle	
Inlet Type	F	Female NPT	
	M	Male NPT	
	FR	Female BSPT	
	MR	Male BSPT	
	FM	Female ISO (for RP)	
	MM	Male ISO (for RG)	
	FG	Female BSPP (for RP)	
	MG	Male BSPP (for RG)	
	SW	Fractional Tube Socket Weld	
	S	Fractional Tube Fitting	
	SM	Metric Tube Fitting	
	MU	Nut+Gasket+Metric Bulge Nipple	
Inlet Size	2	1/8"	
	3	3 mm	
	4	1/4"	
	6	3/8" or 6 mm	
	8	1/2" or 8 mm	
	10	10 mm	
	12	3/4" or 12 mm	
	14	14 mm or M14 x 1.5	
	16	1" or 16 mm	
	18	18 mm	
	20	1 1/4" or 20 mm or M20 x 1.5	
	22	22 mm or M22 x 1.5	
	24	M24 x 1.5	
	25	25 mm	
Outlet Type		Same as Inlet	
		Specify in the same way as Inlet Type and Inlet Size	
Outlet Size	2	0.08" (2.0 mm)	
	4	0.157" (4.0 mm)	
	6	0.25" (6.4 mm)	
	10	0.375" (9.5 mm)	
Orifice Size	2	0.08" (2.0 mm)	
	4	0.157" (4.0 mm)	
	6	0.25" (6.4 mm)	
	10	0.375" (9.5 mm)	
Tip Type		Blunt	
	R	Regulating	
	K	Soft Tip-PCTFE	
	P	Soft Tip-PEEK	
	N	Non-rotating stem tip	
Packing Material	K	PCTFE	
	P	PEEK	
		PTFE	
Handle		Black Knob	
	C	Red Aluminium Bar	
	F	Green Aluminium Bar	
	J	Blue Aluminium Bar	
	L	Black Aluminium Bar	
	M	Stainless Steel Bar	

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.

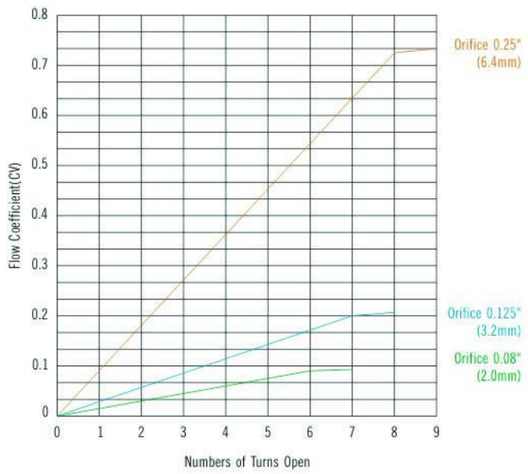
Features

- 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℉ to 450℉ (-54℃ to 232℃)
  PEEK: -65℉ to 600℉ (-54℃ to 315℃)
- Packing nut permits stem packing adjustment
- Live-loaded packing system
- Compact design
- 100% factory tested

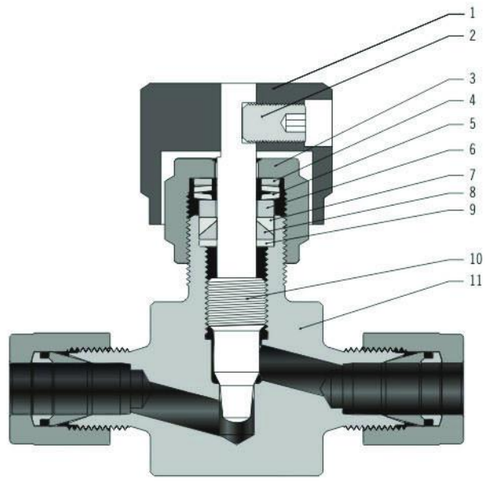
Technical Data

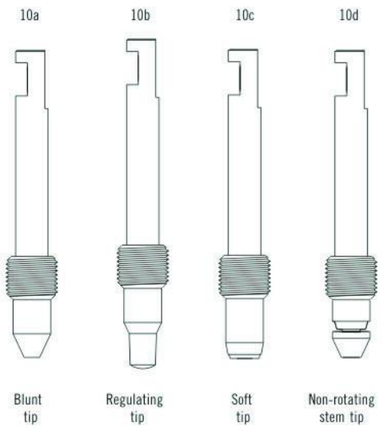
Temperature		Valve body material			
		316 SS	Carbon Steel	Alloy 400	Brass
℉	℃	Working pressure, psig (bar)			
-65~-20	-53~-28	6000(414)	—	3000(207)	3000(207)
-20~100	-28~37	6000(414)	3000(207)	3000(207)	3000(207)
200	93	5160(356)	2730(188)	2640(181)	2350(162)
250	121	4910(338)	2695(185)	2555(176)	2200(151)
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℉ (37℃)



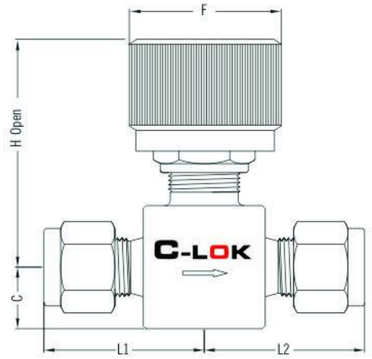
Materials of Construction

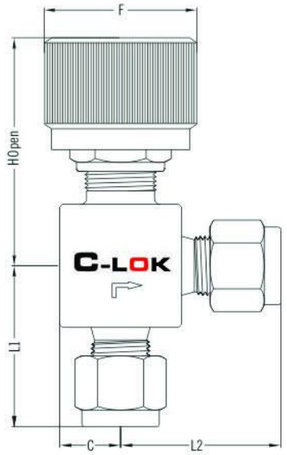




Item	Part	Valve Body Materials			
		316 SS	Brass	Steel	Alloy 400
1	Handle	Anodized aluminum/Stainless steel/Black knob			
2	Set screw	Nickel cadmium-plated steel			
3	Packing nut	316 SS/A276	Brass 360/B16	12L14/A108	Alloy R-405/B164
4	Gland	304 SS/A276			
5	Packing springs	S17700/A693			
6	Packing gland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

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				0.94(23.9)			
-V2-F4-3	1/4 Female NPT	1/4 Female NPT	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-M4-3	1/4 Male NPT	1/4 Male NPT			0.97(24.6)	0.97(24.6)			
-V2-F4-M4-3	1/4 Male NPT	1/4 Female NPT			0.97(24.6)	0.94(23.9)			
-V2-S4-3	1/4" OD	1/4" OD			1.23(31.2)	1.23(31.2)			
-V2-SM6-3	6mm	6mm			1.23(31.2)	1.23(31.2)			
-V2-SM8-3	8mm	8mm			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							
-V2-F6-M6-6	3/8 Female NPT	3/8 Male NPT							
-V2-S6-6	3/8" OD	3/8" OD			1.54(39.1)	1.54(39.1)			
-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			1.3(33.0)	1.3(33.0)			
-V2-FR8-6	1/2 Female BSPT	1/2 Female BSPT			1.25(31.8)	1.25(31.8)			
-V2-S8-6	1/2" OD	1/2" OD			1.65(41.9)	1.65(41.9)			
-V2-SM12-6	12mm	12mm							
-V2-SM14-6	14mm	14mm							

Ordering Information

SS - V2 - A - F6 - M6 - 6R - PM

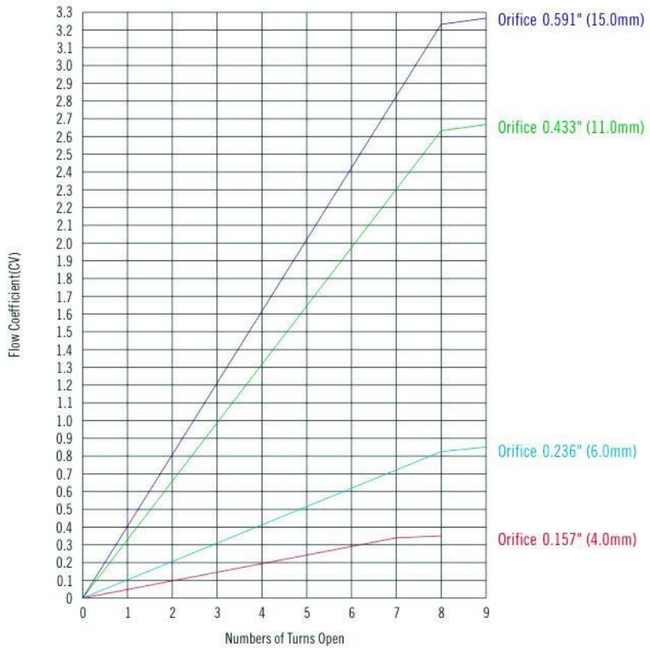
	Body Material	Valve Series	Flow Pattern	Inlet Type	Inlet Size	Tip Type	Orifice Size	Outlet Type	Outlet Size	Handle	Packing Material
		V2									
			Straight								
A			Angle								
F				Female NPT							
M				Male NPT							
FR				Female BSPT							
MR				Male BSPT							
FM				Female ISO (for RP)							
MM				Male ISO (for RG)							
FG				Female BSPP (for RP)							
MG				Male BSPP (for RG)							
SW				Fractional Tube Socket Weld							
S				Fractional Tube Fitting							
SM				Metric Tube Fitting							
MU				Nut+Gasket+Metric Bulge Nipple							
					2		2				
					3						
					4		3				
					6						
					8						
					10						
					12						
					14						
					16						
					18						
					20						
					22						
						Blunt					
R						Regulating					
K						Soft Tip-PCTFE					
P						Soft Tip-PEEK					
N						Non-rotating stem tip					
							0.08" (2.0 mm)				
3							0.125" (3.2 mm)				
6							0.25" (6.4 mm)				
								Same as Inlet			
								Specify in the same way as Inlet Type and Inlet Size			
										Black Knob	
R										Red Aluminium Bar	
G										Green Aluminium Bar	
J										Blue Aluminium Bar	
L										Black Aluminium Bar	
M										Stainless Steel Bar	
											PTFE
K											PCTFE
P											PEEK
SS	316 SS										
6L	316L SS										
S4	304 SS										
S1	321 SS										
A20	Alloy 20										
M	Alloy 400										
INC	Alloy 600										
HC	Alloy C-276										
B	Brass										
C	Carbon Steel										

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.

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℉ to 450℉ (-54℃ to 232℃)
  with PTFE packing,
  Temperature from -65℉ to 1200℉ (-54℃ to 649℃)
  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℉ (38℃)



Union Bonnet Needle Valves

Features

Technical Data

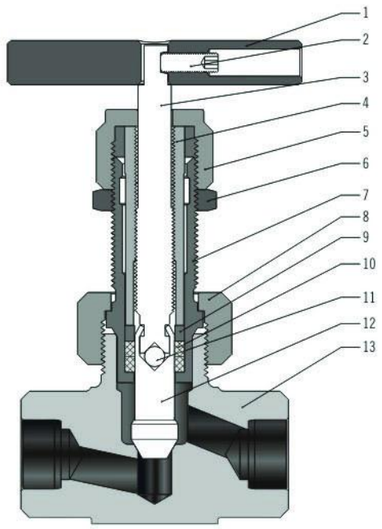
Standard pressure series(V3)

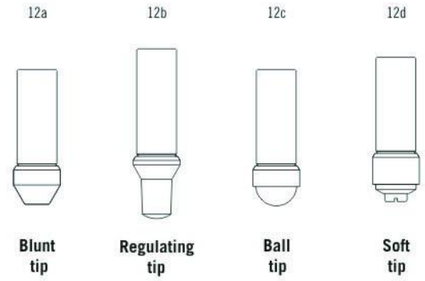
Temperature		Valve body material						
		316 SS	Alloy 20	Alloy 400	Alloy 600	Alloy C-276	Titanium	Brass
℉	℃	Working pressure, psig (bar)						
-65~100	-54~38	6000(414)	5000(344)	5000(344)	6000(414)	6000(414)	3570(245)	3000(207)
200	93	5160(356)	4640(319)	4400(303)	5600(385)	6000(414)	3110(214)	2350(162)
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
℉	℃	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

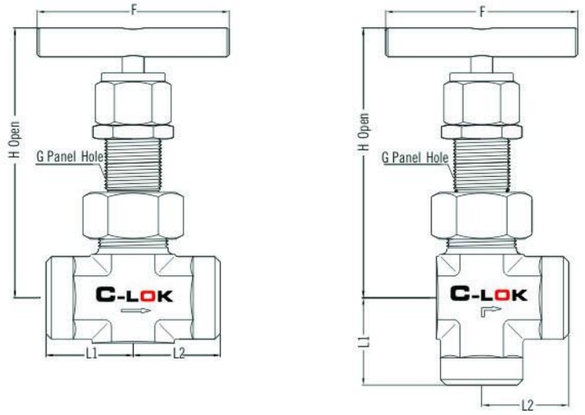




Item	Part	Valve Body Materials				
		316 SS	Alloy 400	Alloy C-276	Titanium	Brass
1	Handle	Stainless steel / Anodized aluminum / Black knob				
2	Set screw	Nickel cadmium-plated steel				
3	Upper stem	316 SS/A276				
4	Stem guide	416 SS/A581				
5	packing nut	316 SS/B783				Brass 360/B16
6	Lock nut	316 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				

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-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	6mm			1.22(30.9)	1.22(30.9)			
-V3-S4-4	1/4" OD	1/4" OD							
-V3-SM8-4	8mm	8mm							
-V3-SW4-4	1/4" Tube socket weld	1/4" Tube socket weld			0.91(23.1)	0.91(23.1)			
-V3-F4-6	1/4 Female NPT	1/4 Female NPT	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-F6-6	3/8 Female NPT	3/8 Female NPT							
-V3-M6-6	3/8 Male NPT	3/8 Male NPT			1.13(28.6)	1.13(28.6)			
-V3-S6-6	3/8" OD	3/8" OD			1.44(36.5)	1.44(36.5)			
-V3-SM12-6	12mm	12mm			1.53(38.9)	1.53(38.9)			
-V3-SM14-6	14mm	14mm			1.56(39.7)	1.56(39.7)			
-V3-SM16-6	16mm	16mm							
-V3-F8-6	1/2 Female NPT	1/2 Female NPT			1.26(32.0)	1.26(32.0)			
-V3-M8-6	1/2 Male NPT	1/2 Male NPT			1.50(38.1)	1.50(38.1)			
-V3-S8-6	1/2" OD	1/2" OD			1.53(38.9)	1.53(38.9)			
-V3-SW6-6	3/8" Tube socket weld	3/8" Tube socket weld							
-V3-SW8-6	1/2" Tube socket weld	1/2" Tube socket weld							
-V3-MS12-6	12mm Tube socket weld	12mm Tube socket weld			1.13(28.6)	1.13(28.6)			
-V3-MS14-6	12mm Tube socket weld	12mm Tube socket weld							
-V3-MS16-6	12mm Tube socket weld	12mm Tube socket weld							
-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							
-V3-MU14-6	14mm MU	14mm MU			2.92(74.1)	2.92(74.1)			
-V3-MU16-6	16mm MU	16mm MU							
-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							

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	14mm			1.97(50.0)	1.97(50.0)			
-V3-SM16-11	16mm	16mm							
-V3-S12-11	3/4" OD	3/4" OD							
-V3-SM20-11	20mm	20mm							
-V3-SM25-11	25mm	25mm							
-V3-MS14-11	14mm Tube socket weld	14mm Tube socket weld			1.56(39.7)	1.56(39.7)			
-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							
-V3-MB16-11	16mm Tube butt weld	16mm Tube butt weld							
-V3-MU14-11	14mm MU	14mm MU			2.98(75.7)	2.98(75.7)			
-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							
-V3-MS20-15	20mm Tube socket weld	20mm Tube socket weld			1.56(39.6)	1.56(39.6)			
-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							
-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							
-V3-PS12-15	3/4" Pipe socket weld	3/4" Pipe socket weld							

Ordering Information

SS - V3 - A - S8 - SM12 - Y6YB - GL

- Body Material: SS 316 SS; 6L 316L SS; S4 304 SS; S1 321 SS; DP Duplex 2205; Ti Titanium; A20 Alloy 20; M Alloy 400; INC Alloy 600; HC Alloy C-276; B Brass; C Carbon Steel
- Valve Series: V3 Standard Pressure (6000 psi); V3H High pressure (10000 psi)
- Flow Pattern: Straight; A Angle
- Inlet Type: F Female NPT; M Male NPT; FR Female BSPT; MR Male BSPT; FM Female ISO (for RP); MM Male ISO (for RG); FG Female BSPP (for RP); MG Male BSPP (for RG); SW Fractional Tube Socket Weld; MS Metric Tube Socket Weld; BW Fractional Tube Butt Weld; MB Metric Tube Butt Weld; PS Pipe Socket Weld; PB Pipe Butt Weld; S Fractional Tube Fitting; SM Metric Tube Fitting; UW Nut+Gasket+ Fractional Bulge Nipple; MU Nut+Gasket+Metric Bulge Nipple
- Inlet Size: 2 1/8"; 4 1/4"; 6 3/8" or 6 mm; 8 1/2" or 8 mm; 10 10 mm; 12 3/4" or 12 mm; 14 14 mm or M14 x 1.5; 16 1" or 16 mm; 18 18 mm; 20 1 1/4" or 20 mm or M20 x 1.5; 22 22 mm or M22 x 1.5; 24 M24 x 1.5; 25 25 mm; 27 M27 x 2; 28 28 mm
- Outlet Type: Same as Inlet
- Outlet Size: Specify in the same way as Inlet Type and Inlet Size
- Seat Material: Same as Body; Y Stellite; X Customer Specified
- Orifice Size: 4 0.157" (4.0 mm); 6 0.236" (6.0 mm); 11 0.433" (11 mm); 15 0.591" (15 mm)
- Tip Material: Same as Body; Y Stellite; DP Duplex 2205; TI Titanium; A20 Alloy 20; M Alloy 400; INC Alloy 600; HC Alloy C-276
- Tip Type: Blunt; R Regulating; B Ball; T Soft Tip-PTFE; K Soft Tip-PCTFE
- Packing Material: PTFE; K PCTFE; P PEEK; G Grafoil
- Handle: Stainless Steel Bar; C Red Aluminium Bar; F Green Aluminium Bar; J Blue Aluminium Bar; L Black Aluminium Bar; O Black Knob

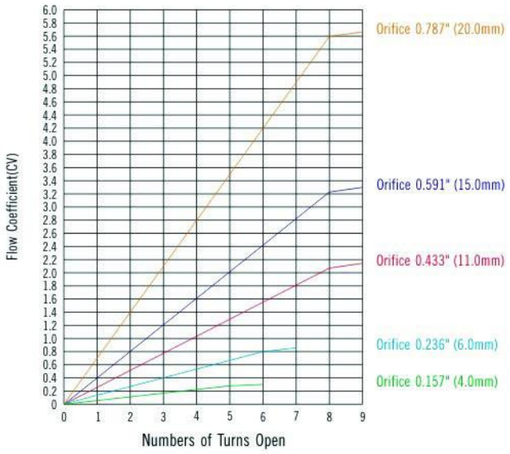
Remark:

*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.

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℉ to 450℉ (-54℃ to 232℃) with PTFE packing,
- Temperature from -65℉ to 1200℉ (-54℃ to 649℃) 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℉ (37℃)



Technical Data

Standard pressure series(V4)

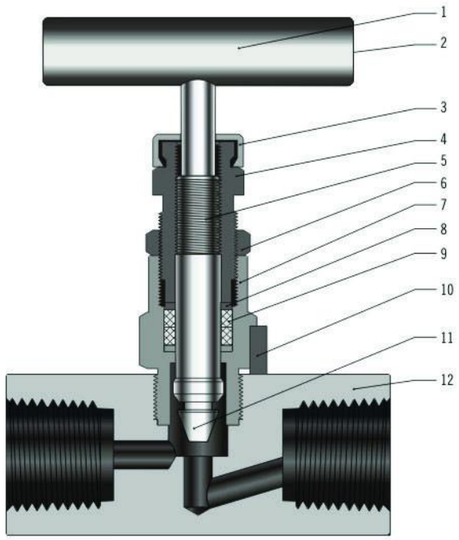
Temperature		Valve body material				
		316 SS	Alloy 400	Alloy C-276	Titanium	Brass
℉	℃	Working pressure, psig (bar)				
-65~100	-54~38	6000(414)	5000(344)	6000(414)	3570(245)	3000(207)
200	93	5160(356)	4400(303)	6000(414)	3110(214)	2350(162)
250	121	4910(338)	4260(293)	6000(414)	2840(195)	2200(151)
300	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
℉	℃	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

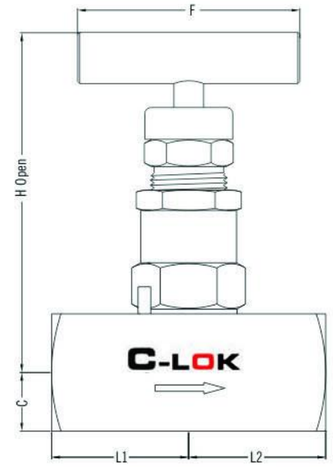
V4 Series



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

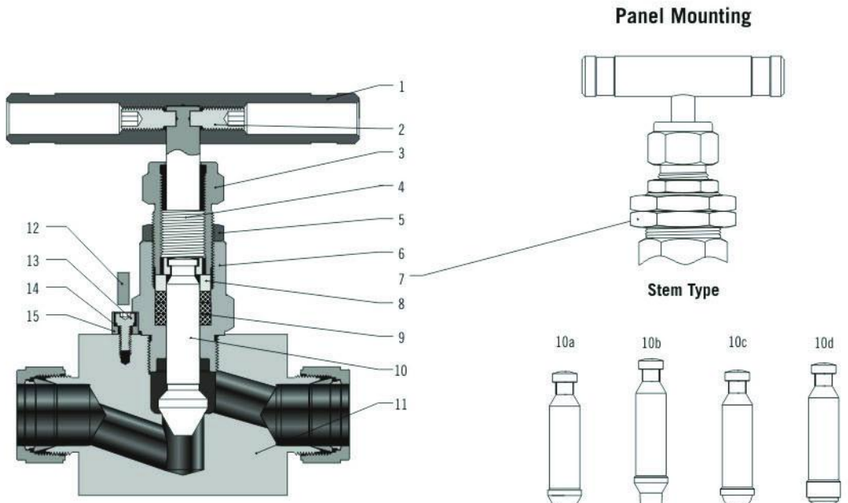
V4 Series

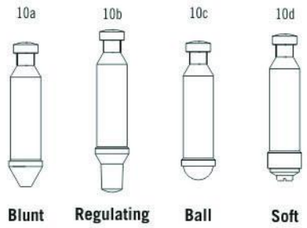


Basic Model Number	End Connection		Orifice in.(mm)	Cv	L1	L2	H	F	C
	Inlet	Outlet			in.(mm)				
-V4-F4-4	1/4 Female NPT	1/8 Female NPT	0.157(4.0)	0.35	1.20(30.5)	1.20(30.5)	3.04(77.3)	2.17(55)	0.5(12.7)
-V4-M4–F4-4	1/4 Male NPT	1/4 Female NPT			1.26(32)	1.26(32)			
-V4-M4-4	1/4 Male NPT	1/4Male NPT			1.26(32)	1.26(32)			
-V4-F6-4	3/8 Female NPT	3/8 Female NPT			1.20(30.5)	1.20(30.5)			
-V4-M6–F6-4	3/8 Male NPT	3/8 Female NPT			1.26(32)	1.26(32)			
-V4-M6-4	3/8 Male NPT	3/8 Male NPT							
-V4-F8-5	1/2 Female NPT	1/2 Female NPT	0.197(5.0)	0.73	1.34(34)	1.34(34)	3.06(77.7)	2.17(55)	0.563(14.3)
-V4-M8–F8-5	1/2 Male NPT	1/2 Female NPT			1.44(36.5)	1.44(36.5)			
-V4-M8-5	1/2 Male NPT	1/2 Male NPT			1.44(36.5)	1.44(36.5)			
-V4-F12-6	3/4 Female NPT	3/4Female NPT	0.236(6.0)	0.85	1.5(38)	1.5(38)	3.11(79)	2.17(55)	0.75(19.05)
-V4-M12–F12-6	3/4 Male NPT	3/4 Female NPT			1.57(40)	1.57(40)			
-V4-M12-6	3/4 Male NPT	3/4 Male NPT			1.57(40)	1.57(40)			
-V4-F16-8	1 Female NPT	1 Female NPT	0.315(8.0)	1.62	1.67(42.5)	1.67(42.5)	3.38(86)	2.17(55)	0.875(22.22)
-V4-M16–F16-8	1 Male NPT	1 Female NPT			1.77(45)	1.77(45))			
-V4-M16-8	1 Male NPT	1 Male NPT			1.77(45)	1.77(45)			

Materials of Construction

2V4 Series





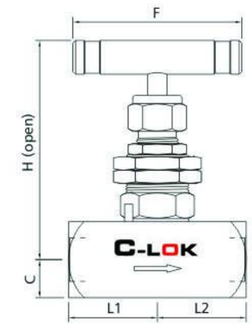
Item	Component	Valve Body Material				
		316 SS	Alloy 400	Titanium	Alloy C-276	Brass
1	Handle	Anodized aluminum or stainless steel or black knob				
2	Set Screw	Nickel cadmium-plated steel				
3	Packing Bolt	321 SS/A276				Brass 360/B16
4	Upper Stem	316 SS/A276				
5	Lock Nut	316 SS/B783				Brass 360/B16
6	Bonnet	316 SS/A479	Alloy R-405/B164	Titanium Gr 4/B348	Alloy C-276/B574	Brass 360/B16
7	Panel Nut	316 SS/B783				Brass 360/B16
8	Gland	316 SS/A276				
9	Packing	PTFE or PEEK or graphite				
10a 10b 10c 10d	Lower Stem	Chrome-plated 316 SS/A276	Alloy R-405/B164	Titanium Gr 4/B348	Alloy C-276/B574	Chrome-plated 316 SS/A276
		Optional				
11	Body	316 SS/A479 316 SS/A182	Alloy 400/B164, B127,B564	Titanium Gr 4/B348 or titanium Gr 4/B381	Alloy C-276/B564	Brass 360/B16
	Seat	Weld stellite optional				
12	Lock Pin	304 SS/A276				
13	Screw	304 SS/A276				
14	Spring Washer	304 SS/A276				
15	Bush	304 SS/A276				
Lubricant		Molybdenum disulfide-based				

Item 12 is applied in valves with orifice size 4.0 & 6.0. For valves with orifice size 11.0, 15.0 & 20.0, item 13, 14 & 15 are used instead of item 12.

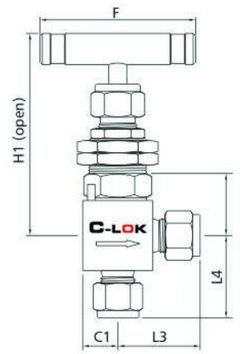
Table of Dimensions

2V4 Series

Straight Pattern



Angle Pattern



Basic Model Number	End Connection		Orifice in.(mm)	Cv	L1	L2	H	F	C
	Inlet	Outlet			in.(mm)				
-2V4-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)
-2V4-F4-4	1/4 Female NPT	1/4 Female NPT			1.06(26.9)	1.06(26.9)			
-2V4-M4-4	1/4Male NPT	1/4Male NPT			1.03(26.2)	1.03(26.2)			
-2V4-M6-4	3/8Male NPT	3/8Male NPT			1.19(30.2)	1.19(30.2)			
-2V4-S4-4	1/4" OD	1/4" OD			1.20(30.5)	1.20(30.5)			
-2V4-SM6-4	6 mm	6 mm							
-2V4-SM8-4	8 mm	8 mm							
-2V4-F4-6	1/4 Female NPT	1/4 Female NPT	0.236(6.0)	0.85	1.12(28.6)	1.12(28.6)	3.5(88.9)	2.5(63.5)	0.563(14.3)
-2V4-F6-6	3/8 Female NPT	3/8 Female NPT							
-2V4-M6-6	3/8Male NPT	3/8Male NPT							
-2V4-S6-6	3/8" OD	3/8" OD			1.41(35.8)	1.41(35.8)			
-2V4-S8-6	1/2" OD	1/2" OD			1.52(38.6)	1.52(38.6)			
-2V4-SM10-6	10 mm	10 mm			1.42(36.1)	1.42(36.1)			
-2V4-SM12-6	12 mm	12 mm			1.52(38.6)	1.52(38.6)			
-2V4-SM14-6	14 mm	14 mm			1.56(39.7)	1.56(39.7)			
-2V4-SW6-6	3/8" Tube socket weld	3/8" Tube socket weld			1.13(28.6)	1.13(28.6)			
-2V4-SW8-6	1/2" Tube socket weld	1/2" Tube socket weld							
-2V4-MS12-6	12 mm Tube socket weld	12 mm Tube socket weld							
-2V4-MS14-6	14 mm Tube socket weld	14 mm Tube socket weld							
-2V4-MS16-6	16 mm Tube socket weld	16 mm Tube socket weld							
-2V4-MB14-6	14 mm Tube butt weld	14 mm Tube butt weld			1.50(38.1)	1.50(38.1)			
-2V4-MB16-6	16 mm Tube butt weld	16 mm Tube butt weld							
-2V4-MU14-6	14 mm MU	14 mm MU			2.92(74.1)	2.92(74.1)			
-2V4-MU16-6	16 mm MU	16 mm MU							
-2V4-MM20-6	M20 x1.5 Male ISO	M20 x1.5 Male ISO			1.50(38.1)	1.50(38.1)			
-2V4-MM22-6	M22 x1.5 Male ISO	M22 x1.5 Male ISO							

Table of Dimensions

2V4 Series

Basic Model Number	End Connection		Orifice in.(mm)	Cv	L1	L2	H	F	G
	Inlet	Outlet			in.(mm)				
-2V4-F8-11	1/2 Female NPT	1/2 Female NPT	0.433(11.0)	2.18	1.56(39.6)	1.56(39.6)	4.12(104.8)	3.5(88.9)	0.875(22.2)
-2V4-F12-11	3/4 Female NPT	3/4 Female NPT			1.63(41.3)	1.63(41.3)			
-2V4-M12-11	3/4 Male NPT	3/4 Male NPT							
-2V4-S12-11	3/4" OD	3/4" OD			1.97(50.0)	1.97(50.0)			
-2V4-SM14-11	14 mm	14 mm							
-2V4-SM16-11	16 mm	16 mm							
-2V4-SM18-11	18 mm	18 mm							
-2V4-MS14-11	14 mm Tube socket weld	14 mm Tube socket weld			1.75(44.5)	1.75(44.5)			
-2V4-MS16-11	16 mm Tube socket weld	16 mm Tube socket weld							
-2V4-SW12-11	3/4" Tube socket weld	3/4" Tube socket weld							
-2V4-MB14-11	14 mm Tube butt weld	14 mm Tube butt weld							
-2V4-MB16-11	16 mm Tube butt weld	16 mm Tube butt weld							
-2V4-MU14-11	14 mm UMB	14 mm UMB			2.98(75.7)	2.98(75.7)			
-2V4-MM27-11	M27 x 2 Male ISO	M27 x 2 Male ISO			1.56(39.7)	1.56(39.7)			
-2V4-F12-15	3/4 Female NPT	3/4 Female NPT	0.591(15)	3.27	1.75(44.5)	1.75(44.5)	5.0(127)	5.0(127)	1.14(29.0)
-2V4-SW16-15	1" Tube socket weld	1" Tube socket weld							
-2V4-MS25-15	25 mm Tube socket weld	25 mm Tube socket weld							
-2V4-MS28-15	28 mm Tube socket weld	28 mm Tube socket weld							
-2V4-PS12-15	3/4" Pipe socket weld	3/4" Pipe socket weld							
-2V4-SM20-15	20 mm	20 mm			2.35(59.7)	2.35(59.7)			
-2V4-SM22-15	22 mm	22 mm							
-2V4-F16-18	1 Female NPT	1 Female NPT	0.708(18)	5.65	1.97(50.0)	1.97(50.0)	5.2(132)	5.5(140)	1.25(31.75)
-2V4-MS25-18	25 mm Tube socket weld	25 mm Tube socket weld							
-2V4-SW16-18	1" Tube socket weld	1" Tube socket weld							
-2V4-MS28-18	28 mm Tube socket weld	28 mm Tube socket weld							
-2V4-PS12-18	3/4" Pipe socket weld	3/4" Pipe socket weld							
-2V4-PS16-18	1" Pipe socket weld	1" Pipe socket weld							

Ordering Information

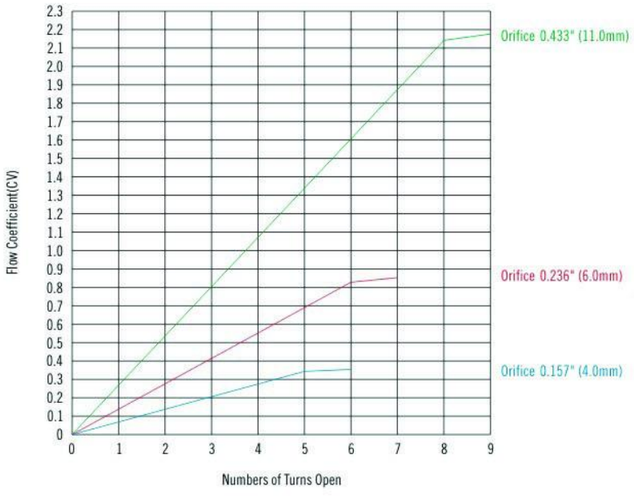
SS - V4 - F8 - S12 - Y11 Y - GL

| | | | | | | |

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℉ to 450℉ (-54℃ to 232℃)
- with PTFE packing,
- Temperature from -65℉ to 1200℉ (-54℃ to 649℃)
- 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 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℉ (38℃)



Hexagonal Bar Stock Needle Valves

Technical Data

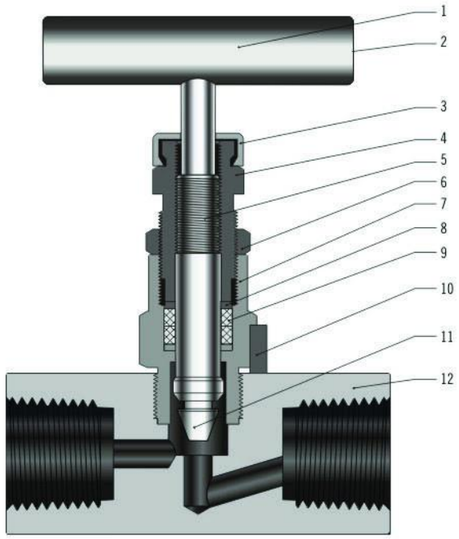
Standard pressure series(V5)

Temperature		Valve body material				
		316 SS	Alloy 400	Alloy C-276	Titanium	Brass
℉	℃	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
℉	℃	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)

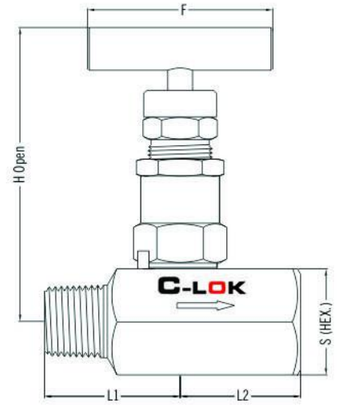
Materials of Construction



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	Cv	L1	L2	H	F	S
	Inlet	Outlet	in.(mm)		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" OD	1/4" OD			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" OD	3/8" OD			1.41(35.8)	1.41(35.8)			
-V5-SM8-4	8 mm	8 mm			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" OD	1/2" OD			1.52(38.6)	1.52(38.6)			
-V5-SM12-5	12 mm	12 mm			1.52(38.6)	1.52(38.6)			
-V5-SM14-5	14 mm	14 mm			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" OD	3/4" OD			1.97(50.0)	1.97(50.0)			
-V5-SM14-6	14 mm	14 mm							
-V5-SM16-6	16 mm	16 mm							
-V5-SW12-6	3/4" Tube socket weld	3/4" Tube socket weld			1.75(44.5)	1.75(44.5)			

Ordering Information

SS - V5 - M 8 - F 8 - Y 5 Y - G L

Body Material	SS	316 SS	
	6L	316L SS	
	S4	304 SS	
	S1	321 SS	
	DP	Duplex 2205	
	Ti	Titanium	
	A20	Alloy 20	
	M	Alloy 400	
	INC	Alloy 600	
	HC	Alloy C-276	
	B	Brass	
	C	Carbon Steel	
Valve Series	V5	Standard Pressure (6000 psi)	
	V5H	High pressure (10000 psi)	
Inlet Type	F	Female NPT	
	M	Male NPT	
	FR	Female BSPT	
	MR	Male BSPT	
	FM	Female ISO (for RP)	
	MM	Male ISO (for RG)	
	FG	Female BSPP (for RP)	
	MG	Male BSPP (for RG)	
	SW	Fractional Tube Socket Weld	
	MS	Metric Tube Socket Weld	
	BW	Fractional Tube Butt Weld	
	MB	Metric Tube Butt Weld	
	PS	Pipe Socket Weld	
	PB	Pipe Butt Weld	
	S	FractionalTube Fitting	
	SM	Metric Tube Fitting	
Inlet Size	2	1/8"	
	4	1/4"	
	6	3/8" or 6 mm	
	8	1/2" or 8 mm	
	10	10 mm	
	12	3/4" or 12 mm	
	14	14 mm or M14 x 1.5	
	16	1" or 16 mm	
	18	18 mm	
	20	1 1/4" or 20 mm or M20 x 1.5	
	22	22 mm or M22 x 1.5	
	24	M24 x 1.5	
	25	25 mm	
	27	M27 x 2	
	28	28 mm	
Outlet Type		Same as Inlet	
Outlet Size		Specify in the same way as Inlet Type and Inlet Size	
Seat Material		Same as Body	
	Y	Stellite	
	X	Customer Specified	
Orifice Size	4	0.157" (4.0 mm)	
	5	0.197" (5.0 mm)	
	6	0.236" (6 mm)	
Tip Material		Same as Body	
	Y	Stellite	
	DP	Duplex 2205	
	TI	Titanium	
	A20	Alloy 20	
	M	Alloy 400	
	INC	Alloy 600	
	HC	Alloy C-276	
Packing Material		PTFE	
	K	PCTFE	
	P	PEEK	
	G	Grafoil	
Handle		Stainless Steel Bar	
	C	Red Aluminium Bar	
	F	Green Aluminium Bar	
	J	Blue Aluminium Bar	
	L	Black Aluminium Bar	
	O	Black Knob	

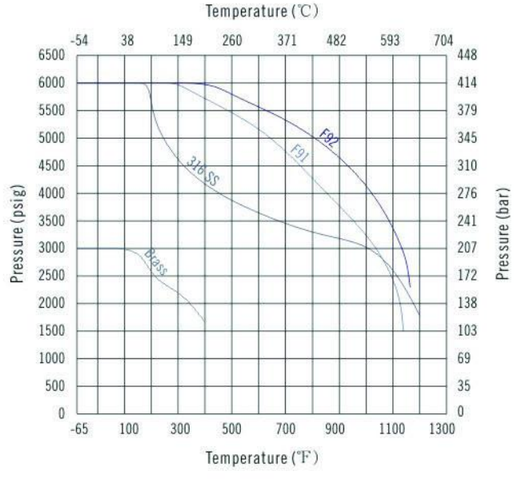
Remark:
*Standard thread pitch for metric threads are as follows:
M10 and below: 1 mm,
M12 ~ M24: 1.5 mm,
M27 and above: 2 mm,
Standard thread pitch should be ignored in the ordering number, others should be specified.

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 psog (207 bar)
- Working temperature:
  PTFE:-65℉ to 450℉ (-54℃ to 232℃)
  PEEK:-65℉ to 500℉ (-54℃ to 260℃)
  Graphite:-65℉ to 1200℉ (-54℃ to 649℃)
- TWO-stem design: thread hardened upper stem and smooth surface hardened lower stem
- Upper stem thread lubricant isolated from system media
- Linearly instead 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 woring pressure

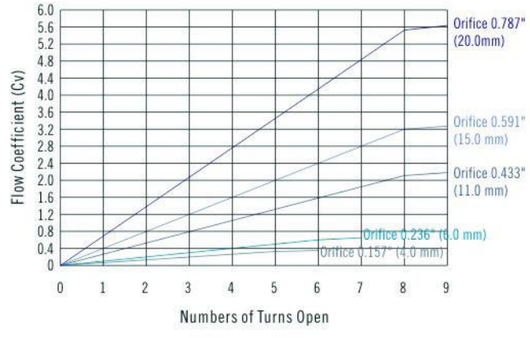
Pressure vs. Temperature



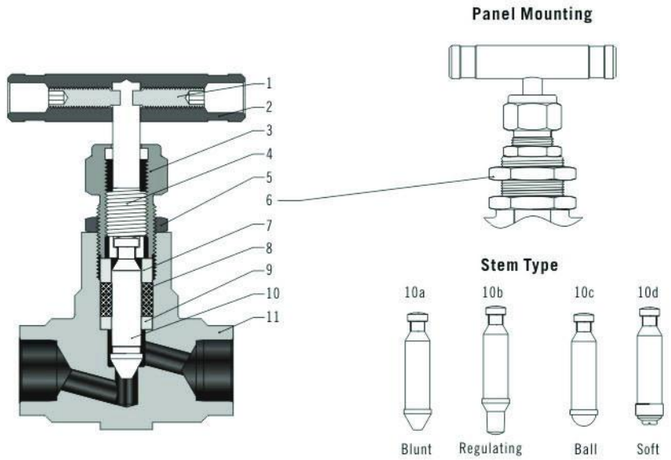
1.Graphs are based on graphite stem packing.
2.200℉ (93℃) max.with PCTFE stem tip (soft tip).

Flow Data at 100°F (37°C)

Regulating Stem



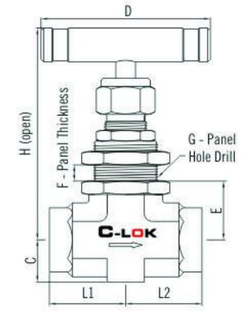
Stand ard Marerials of Construction



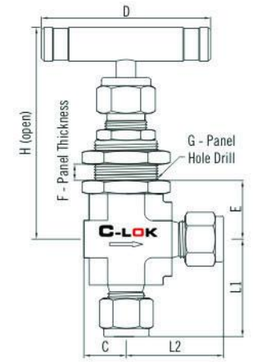
Item	Component	Valve Body Material			
		316 SS	F91	F92	Brass
1	Handle	Anodized aluminum or stainless steel or black knob			
2	Set Screw	Nickel cadmium-plated steel			
3	Packing Bolt	321 SS/A276			
4	Upper Stem	316 SS/A276	F91/A182	F92/A182	Brass 360/B16
5	Lock Nut	316 SS/B783			
6	Panel Nut	316 SS/B783			
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

Straight Pattern



Angle Pattern



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" OD	1/4" OD			1.22 (30.9)	1.22 (30.9)						
-V6-SM6-4	6 mm	6 mm										
-V6-SM8-4	8 mm	8 mm			1.25 (31.75)	1.25 (31.75)						
-V6-M6-4	3/8 Male NPT	3/8 Male NPT			1.19 (30.2)	1.19 (30.2)						
-V6-F04-4	1/4" Male FO	1/4" Male FO			1.03 (26.2)	1.03 (26.2)						
-V6-MFR4-4	1/4" Male MFR	1/4" Male MFR										
-V6-F4-6	1/4 Female NPT	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)
-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" OD	3/8" OD			1.44 (36.5)	1.44 (36.5)						
-V6-SM10-6	10 mm	10 mm										
-V6-SM12-6	12 mm	12 mm			1.53 (38.9)	1.53 (38.9)						
-V6-SM14-6	14 mm	14 mm			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" OD	1/2" OD			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			1.13 (28.6)	1.13 (28.6)						
-V6-MS12-6	12 mm MS	12 mm MS										
-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										
-V6-M12-10	3/4 Male NPT	3/4 Male NPT										
-V6-S12-10	3/4" OD	3/4" OD			1.97 (50.0)	1.97 (50.0)						
-V6-SM14-10	14 mm	14 mm										
-V6-SM16-10	16 mm	16 mm										
-V6-SM18-10	18 mm	18 mm										
-V6-SM20-10	20 mm	20 mm										
-V6-SM25-10	25 mm	25 mm										
-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										
-V6-SW12-10	3/4" SW	3/4" SW										
V6-PS8-10	1/2 PS	1/2 PS										
-V6-MB14-10	14 mm MB	14 mm MB										
-V6-MB16-10	16 mm MB	16 mm MB										
-V6-MU14-10	14 mm MU	14 mm MU			2.98 (75.7)	2.98 (75.7)						
-V6-MU16-10	16 mm MU	16 mm MU										
-V6-FO12-10	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										
-V6-PB12-15	3/4 PB	3/4 PB										
-V6-S12-15	3/4" OD	3/4" OD			2.35 (59.7)	2.35 (59.7)						
-V6-S16-15	1" OD	1" OD										
-V6-SM20-15	20 mm	20 mm										
-V6-SM22-15	22 mm	22 mm										
-V6-SM25-15	25 mm	25 mm										
-V6-F16-17	1 Female NPT	1 Female NPT	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-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										

Ordering Information

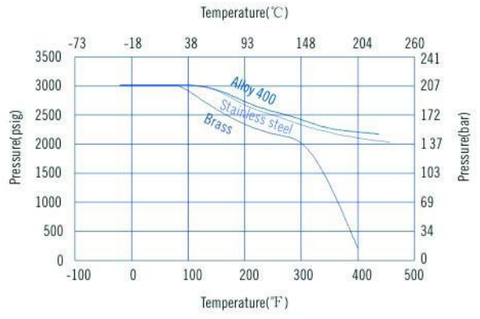
SS - V6 - S 8 - MB 12 - 16 WB - GYL - A S F2

- Body Material: SS 316 SS; 6L 316L SS; S4 304 SS; 4L 304L SS; S1 321 SS; 91 F91; 92 F92; D5 Duplex 2205; TI Titanium; A 20 Alloy 20; M Alloy 400; INC Alloy 600; HC Alloy C-276; B Brass; CS Carbon Steel
- Series: V6
- Inlet Type: F Female NPT; M Male NPT; FR Female B SPT; MR Male B SPT; FM Female ISO (for RP); MM Male ISO (for RG); FG Female BSPP (for RP); MG Male BSPP (for RG); SW Fractional Tube Socket Weld; MS Metric Tube Socket Weld; BW Fractional Tube Butt Weld; MB Metric Tube Butt Weld; PS Pipe Socket Weld; PB Pipe Butt Weld; S Fractional Tube Fitting; SM Metric Tube Fitting; UW Nut-Gasket +Fractional Bulge Nipple; MU Nut-Gasket +Metric Bulge Nipple; FO FOFitting; MFR MFR Fitting
- Inlet Size: 2 1/8 (in.); 4 1/4 (in.); 6 3/8 (in.) or 6 mm; 8 1/2 (in.) or 8 mm; 10 10 mm; 12 3/4 (in.) or 12 mm; 14 14 mm or M 14×1.5; 16 1 (in.) or 16 mm; 18 18 mm; 20 1 1/4 (in.) or 20 mm or M 20×1.5; 22 22 mm or M 22×1.5; 24 M 24×1.5; 25 25 mm; 27 M 27×2; 28 28 mm
- Outlet Type: Same as Inlet; Specify in the same way as inlet type and inlet size
- Outlet Size: Same as Inlet; Specify in the same way as inlet type and inlet size
- Seat Material: Same as Body; 1 Stellite; X Customer Specified
- Orifice Size: 4 0.157 (in.) (4.0 mm); 6 0.236 (in.) (6.0 mm); 10 0.394 (in.) (10 mm); 15 0.591 (in.) (15 mm); 17 0.670 (in.) (17 mm)
- Tip Material: Same as Body; W Stellite; D5 Duplex 2205; T1 Titanium; A20 Alloy 20; M Alloy 400; INC Alloy 600; HC Alloy C-276
- Stem Type: Blunt; R Regulating; B Ball; T Soft Tip-PTFE; K Soft Tip-PCTFE
- Packing Material: PTFE; P PEEK; G Graphite
- Panel Mounting: No; Y Yes
- Handle: Stainless Steel Bar; C Red Aluminum Bar; F Green Aluminum Bar; J Blue Aluminum Bar; L Black Aluminum Bar; 0 Black Knob
- Flow Pattern: Straight; A Angle
- NACE MR0175: No; S Yes
- Cleaning and Packaging: FC-01; F2 FC-02

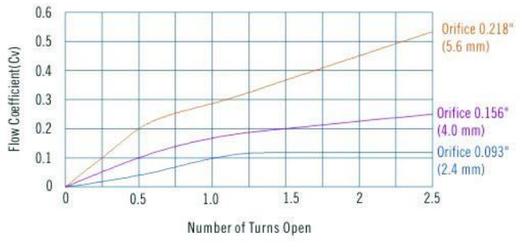
Features

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

Pressure vs. Tem Perature

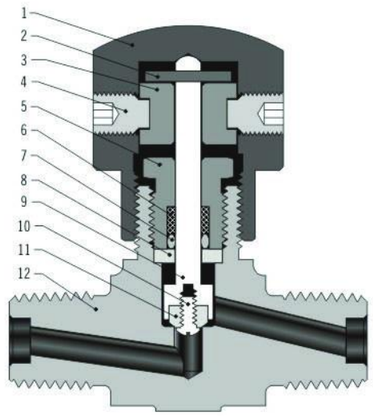


Flow Data at 100℉ (38℃)



1.Tem peratures and pressures shown in the graphs are based on PEEK stem tip

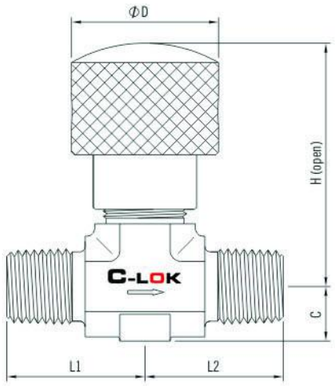
Standard Materials of Construction



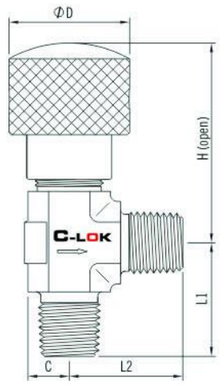
Item	Component	Valve Body Material				
		316 SS	304 SS	321 SS	Brass	Alloy 400
1	Handle	Anodized aluminum				
2	Stop Pin	Stainless steel				
3	Spool	Alum inum				
4	Set Screw	Nickel cadmium-plated steel				
5	Packing Bolt	316 SS/A276	304 SS/A276	321 SS/A276	Brass 360/B16	Alloy R-405/B164
6	Backup Ring	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

Straight Pattern



Angle Pattern



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" OD			0.75(19.0)	1.1(27.9)			
-V7-S2-2	1/8" OD	1/8" OD			1.1(27.9)	1.1(27.9)			
-V7-SM 3-2	3 mm	3 mm							
-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" OD			25.0(0.98)	1.13(28.7)			
-V7-S4-4	1/4" OD	1/4" OD			1.13(28.7)				
-V7-SM6-4	6 mm	6 mm							
-V7-SM8-4	8 mm	8 mm							
-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" OD	3/8" OD			1.4(35.6)	1.4(35.6)			
-V7-S8-6	1/2" OD	1/2" OD			1.3(33.0)	1.3(33.0)			
-V7-SM10-6	10 mm	10 mm			1.4(35.6)	1.4(35.6)			
-V7-SM12-6	12 mm	12 mm			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							

Ordering Information

SS - V7 -F4 - MR 8 - 6 P E - A F2

	Body Material	Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	O-ring Material	Flow Pattern	Cleaning and Packaging
	316 SS	V7	Female NPT	1/8 (in.)	Same as Inlet	Same as Inlet	0.093 (in.) (2.4m m)	PCTFE	FKM	Straight	FC-01
SS	316L SS		Male NPT	1/4 (in.)	Specify in the same way as inlet type and inlet size	Specify in the same way as inlet type and inlet size	0.157 (in.) (4.0 mm)	PEEK	Buna-N	Angle	FC-02
6L	304 SS		Female BSPT	3/8 (in.) or 6 mm			0.218 (in.) (5.6 mm)		Ethylene propylene		F2
S4	304L SS		Male BSPT	1/2 (in.) or 8 mm							
4L	321 SS		Female ISO (for RP)	10 mm							
S1	Alloy 400		Male ISO (for RG)	3/4 (in.) or 12 mm							
M	Brass		Female BSPP (for RP)	14 mm or M 14×1.5							
B			Male BSPP (for RG)	1 (in.) or 16 mm							
			Fractional Tube Fitting	18 mm							
			Metric Tube Fitting	1 1/4 (in.) or 20 mm or M 20×1.5							

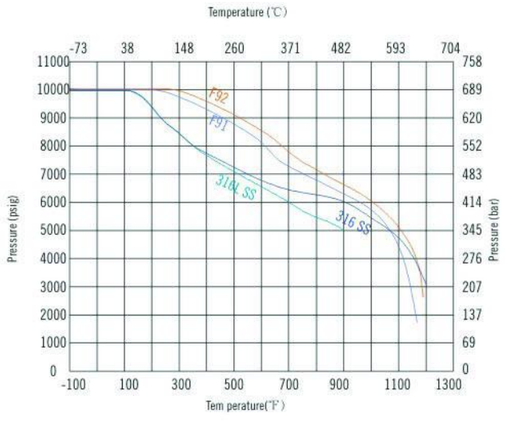
1.Standard thread pitch for metric threads are as follows:
M 10 and below: 1 mm
M 12 to M 24: 1.5 mm
M 27 and above:2 mm
Standard thread pitch should be ignored in the ordering number, others should be specified.

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.

Features

- Maximum working pressure: 10000 psig (689 bar)
- Working temperature:
  PTFE:-65℉ to 450℉ (-54℃ to 232 ℃)
  PEEK:-65℉ to 500℉ (-54℃ to 260℃)
  Graphite:-65℉ to 1200℉ (-54℃ to 649℃)
- One-piece body construction
- Two-stem design: thread hardened upper stem and smooth surface hardened lower stem
- Upper stem thread lubricant isolated from system media
- Linearly instead 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 6000 psig

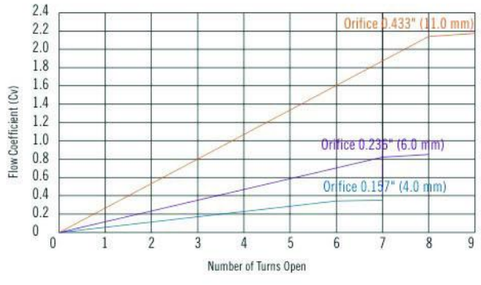
Pressure vs. Tem Perature



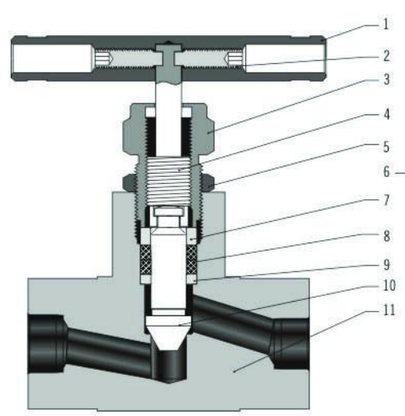
1.Graphs are based on graphite stem packing.
2.200℉ (93℃) max with PCTFE stem tip (soft tip).

Flow Data at 100℉ (38℃)

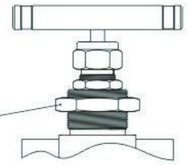
Regulating Stems



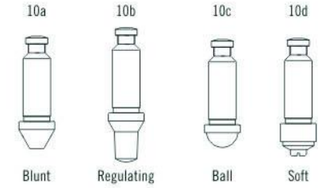
Standard Materials of Construction



Panel Mounting

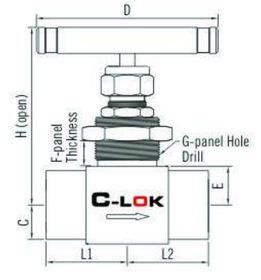


Stem Type

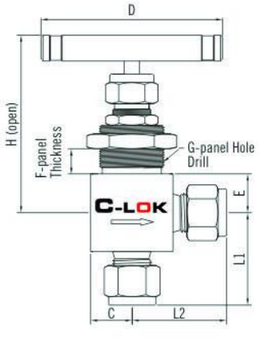


Item	Component	Valve Body Material			
		316 SS	316 SS	F91	F92
1	Handle	Anldized alum inum or stain less steel or black kn ob			
2	Set Screw	Nickel cadmium-plated steel			
3	Packing Bolt	321SS/A276			
4	Upper Stem	316SS/A276			
5	Lock Nut	316SS/A783			
6	Panel Nut	316SS/A783			
7	Gland	316SS/A276	316SS/A276	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			

Straight Pattern



Angle Pattern



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										
-V8-S4-4	1/4" OD	1/4" OD			1.41 (35.8)	1.41 (35.8)						
-V8-SM6-4	6 mm	6 mm										
-V8-SM8-4	8 mm	8 mm										
-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										
-V8-F8-6	1/2 Female NPT	1/2 Female NPT										
-V8-S6-6	3/8" OD	3/8" OD			1.41 (35.8)	1.41 (35.8)						
-V8-S8-6	1/2" OD	1/2" OD			1.52 (38.6)	1.52 (38.6)						
-V8-SM10-6	10 mm	10 mm			1.42 (36.1)	1.42 (36.1)						
-V8-SM12-6	12 mm	12 mm			1.52 (38.6)	1.52 (38.6)						
-V8-SM14-6	14 mm	14 mm			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										
-V8-F8-11	1/2 Female NPT	1/2 Female NPT	0.433 (11.0)	2.18	1.56 (39.60)	1.56 (39.60)	0.875 (22.2)	3.5 (88.9)	0.875 (22.2)	0.38 (9.7)	1.28 (32.5)	4.17 (106)
-V8-F12-11	3/4 Female NPT	3/4 Female NPT			0.63 (41.3)	0.63 (41.3)						
-V8-S12-11	3/4" OD	3/4" OD			1.97 (50.0)	1.97 (50.0)						
-V8-SM14-11	14 mm	14 mm										
-V8-SM16-11	16 mm	16 mm										
-V8-SM18-11	18 mm	18 mm										
-V8-MS14-11	14 mm MS	14 mm MS			1.56 (39.7)	1.56 (39.7)						
-V8-MS16-11	16 mm MS	16 mm MS										
-V8-MS16-MS14-11	16 mm MS	14 mm MS										

Ordering Information

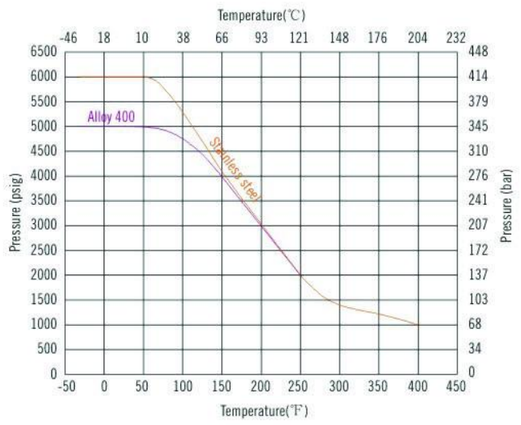
SS - V8 F6 - S6 - 16 WB - GYL - ASF2

| | | | | | | | | | |

Features

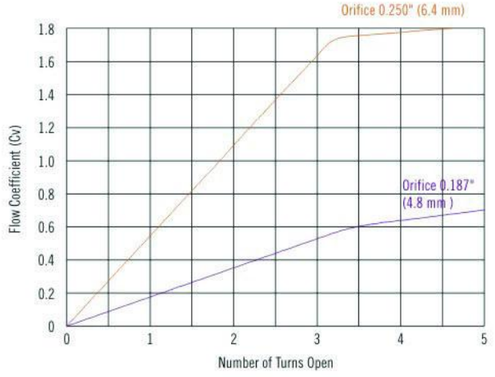
- Maximum working pressure:
  Stainless steel: 6000 psig (414 bar)
  Alloy 400: 5000 psig (345 bar)
- Working temperature:
  Acetal:-20℉ to 250℉ (-28℃ to 121 ℃)
  PEEK:-20℉ to 400℉ (-28℃ to 204℃)
  PFA:-20℉ to 400℉ (-28℃ to 204℃)
- Nonrotating stem for longer seat life
- Roddable, straight through flow path for maximum flow with minimum pressure drop
- Stem thread lubricant isolated from system media
- Replaceable seat and stem tip design
- Stem thread protected from outside contamination 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-tight performance testing for every valve with nitrogen at the maximum working pressure

Pressure vs. Tem Perature

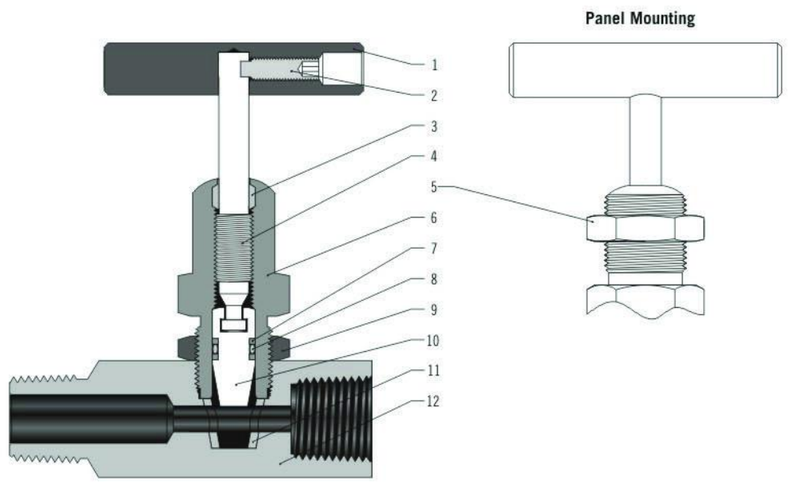


1.Graphs are based on PEEK seat.

Flow Data at 100℉(38℃)



Standard Materials of Construction



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

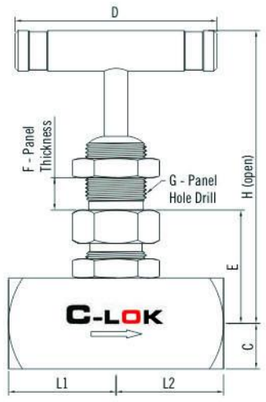
V9 series valves are available for sour gas application. Materials for wetted components are in accordance with NACE specification M R0175 for sulfide stresscracking-resistant materials.

Materials

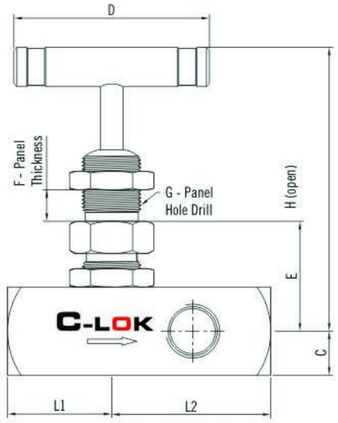
Body,bonnet: annealed 316 SS
O-ring: ethylene propylene
Stem tip: alloy R-405/ASTM B164
All other components are the same as standard product.

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										
-V9G-F8-6	1/2 Female NPT	1/2 Female NPT			3.33 (84.6)	2.25 (57.2)						
-V9G-M12-F8-6	3/4 Male NPT	1/2 Female NPT										

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 M R0175	Cleaning and Packaging
	SS 316 SS	V9	F Female NPT	2 1/8 (in.)	Same as Inlet		A Acetal	5 0.187 (in.) (4.8 mm)	B RKM	N No	Stainless Steel Bar	N No	FC-01
	6L 316L SS	V9G	M Male NPT	4 1/4 (in.)	Specify in the same way as inlet type and inlet size		P PEEK	6 0.250 (in.) (6.4 mm)	N Buna-N	Y Yes	C Red Aluminum Bar	S Yes	F2 FC-02
	S4 304 SS		FR Female BSPT	6 3/8 (in.) or 6 mm			PEA		E Ethylene propylene		F Green Aluminum Bar		
	4L 304L SS		MR Male BSPT	8 1/2 (in.) or 8 mm							J Blue Aluminum Bar		
	S1 321 SS		FM Female ISO (for RP)	10 10 mm							L Black Aluminum Bar		
	D5 Duplex 2205		MM Male ISO (for RG)	12 3/4 (in.) or 12 mm							O Black Knob		
	TI Titanium		FG Female BSPP (for RP)	14 14 mm or M 14×1.5									
	A 20 Alloy 20		MG Male BSPP (for RG)	16 1 (in.) or 16 mm									
	M Alloy 400			18 18 mm									
	INC Alloy 600			20 1 1/4 (in.) or 20 mm or M 20×1.5									
	HC Alloy C-276			22 22 mm or M 22×1.5									
	B Brass			24 M 24×1.5									
	CS Carbon Steel			25 25 mm									

Standard thread pitch should be ignored in the ordering number, others should be specified.

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

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.

Features

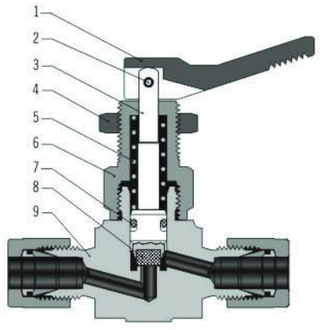
- Maximum working pressure: 300 psig (20.7 bar)
- Straight and angle pattern
- Compact design
- Quick opening or closing
- Nonrotating stemtip
- Leak-tight perform ance testing for every valve with nitrogen at the maximum working pressure

Technical Data

Orifice	Working Pressure at 100℉(37℃)
2.0 mm	300 psig
3.2 mm	
6.4 mm	200psig

O-ring Material	Tem perature Rating
FKM (Standard)	-20℉ to 200℉ (-28℃ to 93℃)
Buna N	-20℉ to 250℉ (-28℃ to 121℃)
Buna C	-20℉ to 250℉ (-53℃ to 121℃)
Ethylene Propylene	-20℉ to 250℉ (-28℃ to 121℃)

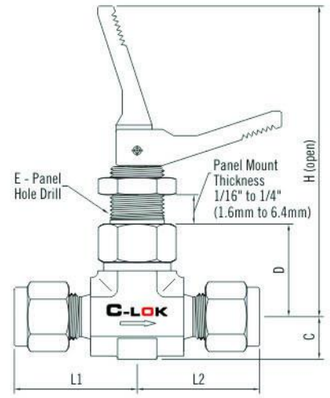
Standard Materials of Construction



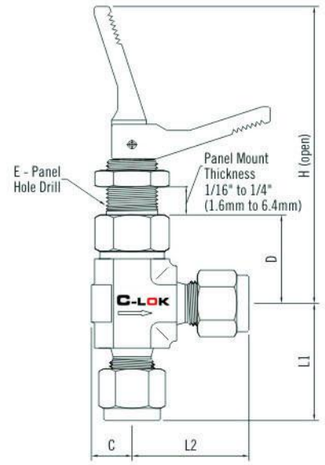
Item	Com ponent	Valve Body Material			
		316 SS	304 SS	321 SS	Brass
1	Handle	Stainless steel			
2	Pin	Stainless steel			
3	Stem	316 ss/A276	304 SS/A276		
4	Panel Nut	304 SS/A276			Brass 360/B16
5	Spring	PTFE-plated S17700/A313			
6	Bonnet	316 SS/A276	316 SS/B783	321 SS/A276	Brass 360/B16
7	O-ring	Fluorocarbon 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

Straight Pattern



Angle Pattern



Basic Ordering Num ber	Connection Type and Size		Orifice in.(mm)	Cv	Dim ension,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" OD			0.75 (19.0)	0.98 (25.0)				
-V10-S2-2	1/8" OD	1/8" OD			0.98 (25.0)	0.98 (25.0)				
-V10-SM 3-2	3 mm	3 mm								
-V10-F2-3	1/8 Female NPT	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)
-V10-M2-3	1/8 Male NPT	1/8 Male NPT			0.86 (21.8)	0.86 (21.8)				
-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" OD			0.98 (25.0)	1.13 (28.7)				
-V10-S4-3	1/4" OD	1/4" OD			1.13 (28.7)					
-V10-SM6-3	6 mm	6 mm								
-V10-SM8-3	8 mm	8 mm								
-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								
-V10-M6-6	3/8 Male NPT	3/8" Male NPT			1.12 (28.4)	1.12 (28.4)				
-V10-S6-6	3/8" OD	3/8" OD			1.29 (32.8)	1.29 (32.8)				
-V10-S8-6	1/2" OD	1/2" OD			1.4 (35.6)	1.4 (35.6)				
-V10-SM10-6	10 mm	10 mm			1.36 (34.5)	1.36 (34.5)				
-V10-SM12-6	12 mm	12 mm			1.46 (37.1)	1.46 (37.1)				
-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								

Toggle Valves

Ordering Information

SS - V10 - F 4 - S 6 - 6 E - A F2

Body Material	
SS	316 SS
S4	304 SS
S1	321 SS
B	Brass

Series	
V10	

Inlet Type	
F	Female NPT
M	Male NPT
FR	Female BSPT
MR	Male BSPT
FM	Female ISO (for RP)
MM	Male ISO (for RG)
FG	Female BSPP (for RP)
MG	Male BSPP (for RG)
S	Fractional Tube Fitting
SM	Metric Tube Fitting

Inlet Size	
2	1/8 (in.)
4	1/4 (in.)
6	3/8 (in.) or 6 mm
8	1/2 (in.) or 8 mm
10	10 mm
12	3/4 (in.) or 12 mm
14	14 mm or M 14×1.5
16	1 (in.) or 16 mm

Outlet Type / Outlet Size	
	Same as Inlet
	Specify in the same way as inlet type and inlet size

Orifice Size	
2	0.08 (in.) (2.0 mm)
3	0.125 (in.) (3.2 mm)
6	0.25 (in.) (6.4 mm)

O-ring Material	
	FKM
B	Buna N
C	Buna C
E	Ethylene propylene

Flow Pattern	
	Straight
A	Angle

Cleaning and Packaging	
	FC-01
F2	FC-02

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.