



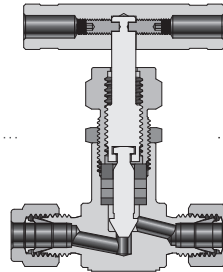
Needle Valves

NV Series

Contents

Forged-Body Needle Valves (NV1 Series)

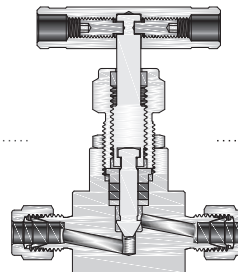
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ Orifice sizes from 0.157 to 0.787 in. (4 to 20 mm)
- ❖ One-piece forged body



6-4

High Pressure Needle Valves (NV2 Series)

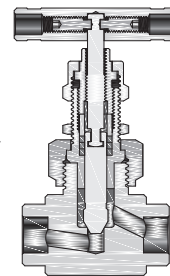
- ❖ Maximum working pressure up to 10000 psig (689 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ Orifice sizes from 0.157 to 0.433 in. (4 to 11 mm)
- ❖ One-piece forged body



6-9

Union-Bonnet Needle Valves (NV3 Series)

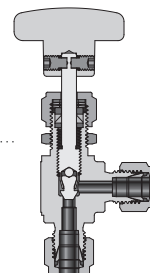
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ Orifice sizes from 0.157 to 0.433 in. (4 to 11 mm)
- ❖ One-piece forged body



6-13

Integral-Bonnet Needle Valves (NV4 Series)

- ❖ Maximum working pressure up to 5000 psig (344 bar)
- ❖ Working temperature from -65°F to 600°F (-53°C to 315°C)
- ❖ Orifice sizes from 0.079 to 0.433 in. (2 to 11 mm)
- ❖ One-piece forged body

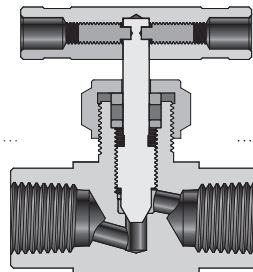


6-20

Contents

Compact Needle Valves (NV5 Series)

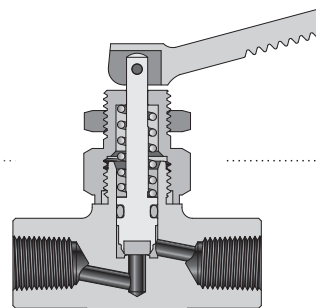
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 600°F (-53°C to 315°C)
- ❖ Orifice sizes from 0.079 to 0.236 in. (2 to 6 mm)
- ❖ One-piece forged body



6-24

Toggle Type Needle Valves (NV6 Series)

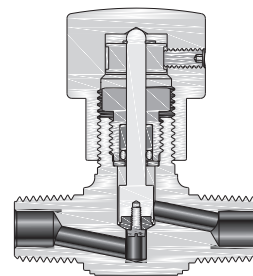
- ❖ Maximum working pressure up to 300 psig (20.6 bar)
- ❖ Working temperature from -20°F to 200°F (-28°C to 93°C)
- ❖ Orifice sizes from 0.079 to 0.236 in. (2 to 6 mm)
- ❖ One-piece forged body



6-27

Nonrotating-Stem Needle Valves (NV7 Series)

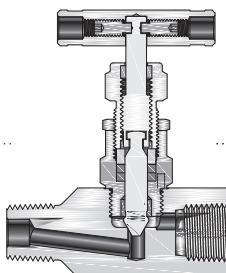
- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -20°F to 450°F (-28 °C to 232°C)
- ❖ Orifice sizes from 0.079 to 0.236 in. (2 to 6 mm)
- ❖ One-piece forged body



6-31

General-Purpose Needle Valves (NV8 Series)

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ Orifice sizes from 0.157 to 0.787 in. (4 to 20 mm)
- ❖ Bar stock valve body



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Forged-Body Needle Valves

NV1 Series

Features

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ One-piece forged body
- ❖ Straight and angle patterns
- ❖ Upper stem and lower stem design, Stem threads above packing protected from system media
- ❖ Panel mounting available
- ❖ Optional handle colors available



Pressure-Temperature Ratings

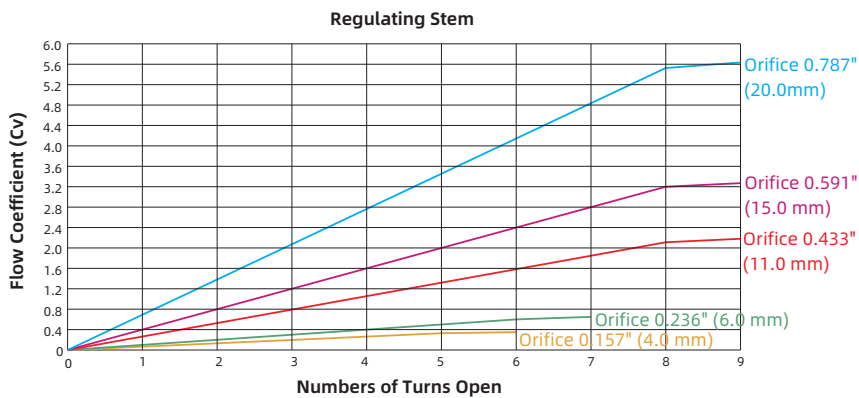
ASME Class	2500						N/A
Material Group	2.2	2.2	2.8	3.4	3.1	3.5	N/A
Material Name	316 S.S.	316H S.S.	F53 S.S.	Alloy 400	Alloy 20	Alloy 600	Alloy C-276
Temperature, °F (°C)	Working Pressure, psig (bar)						
-65 (-53) to 100 (37)	6000 (413)	6000 (413)	6000 (413)	5000 (344)	5000 (344)	6000 (413)	6000 (413)
200 (93)	5160 (355)	5160 (355)	5160 (355)	4400 (303)	4640 (319)	5600 (385)	6000 (413)
250 (121)	4910 (338)	4910 (338)	5350 (368)	4260 (293)	4500 (310)	5460 (376)	6000 (413)
300 (148)	4660 (321)	4660 (321)	5540 (382)	4120 (283)	4360 (300)	5320 (366)	6000 (413)
350 (176)	4470 (307)	4470 (307)	5330 (367)	4050 (279)	4185 (288)	5220 (359)	5975 (411)
400 (204)	4280 (294)	4280 (294)	5120 (353)	3980 (274)	4010 (276)	5120 (352)	5880 (405)
450 (232)	4130 (284)	4130 (284)	4960 (342)	3970 (273)	3955 (272)	5030 (346)	5710 (393)
500 (260)	3980 (274)	3980 (274)	4800 (331)	3960 (272)	3900 (268)	4940 (340)	5540 (381)
600 (315)	3760 (259)	3760 (259)	4640 (320)	—	3790 (261)	4780 (329)	5040 (347)
650 (343)	3700 (254)	3700 (254)	4580 (315)	—	3750 (258)	4700 (323)	4905 (337)
700 (371)	3600 (248)	3600 (248)	4520 (311)	—	3710 (255)	4640 (319)	4730 (325)
750 (398)	3520 (242)	3520 (242)	4430 (305)	—	3665 (252)	4430 (305)	4430 (305)
800 (426)	3460 (238)	3460 (238)	—	—	3600 (248)	4230 (291)	4230 (291)
850 (454)	3380 (232)	3380 (232)	—	—	—	4060 (279)	4060 (279)
900 (482)	3280 (225)	3280 (225)	—	—	—	3745 (258)	3745 (258)
950 (510)	3220 (221)	3220 (221)	—	—	—	2725 (187)	3220 (221)
1000 (537)	3030 (208)	3030 (208)	—	—	—	1800 (124)	3030 (208)
1050 (565)	3000 (206)	3000 (206)	—	—	—	1155 (79.5)	3000 (206)
1100 (593)	2685 (184)	2685 (184)	—	—	—	770 (53.0)	2685 (184)
1150 (621)	2285 (157)	2285 (157)	—	—	—	565 (38.9)	2285 (157)
1200 (648)	1715 (118)	1715 (118)	—	—	—	515 (35.4)	1545 (106)

❖ Based on graphite stem packing.

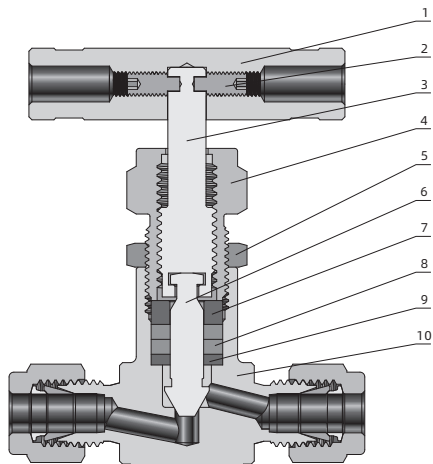
Temperature Ranges

Packing Materials	Temperature Range °F (°C)
PTFE	-65°F to 450°F (-53°C to 232°C)
Graphite	-65°F to 1200°F (-53°C to 648°C)
PEEK	-65°F to 600°F (-53°C to 315°C)

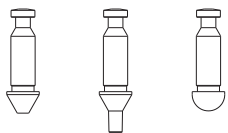
Flow Data at 100°F (37°C)



Standard Materials of Construction



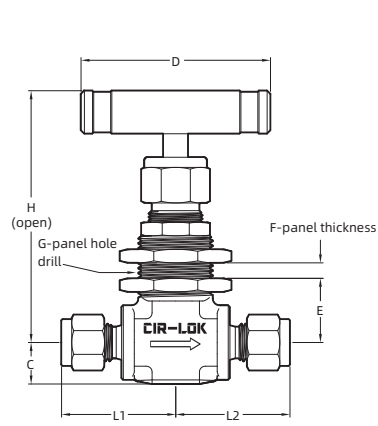
Stem Type



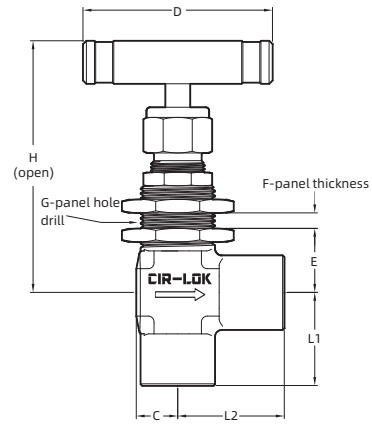
Blunt Regulating Ball

Component		Material Grade/ASTM Specification		
		316 S.S.	F91	F92
1	Handle	Anodized aluminum or stainless steel		
2	Screw	Galvanized steel		
3	Upper Stem	316 S.S. / A276	F91 / A182	F92 / A182
4	Packing Bolt	316 S.S. / A479		
5	Nut	630 S.S. / B783		
6	Lower Stem	Chrome-plated 316 S.S. / A276	Chrome-plated F91 / A182	Chrome-plated F92 / A182
7	Gland	316 S.S. / A276	F91 / A182	F92 / A182
8	Packing	PTFE or PEEK or graphite		
9	Packing Washer	316 S.S. / A276	F91 / A182	F92 / A182
10	Body	316 S.S. / A182	F91 / A182	F92 / A182

Dimensions



Straight Pattern



Angle Pattern

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)							
				L1	L2	H	D	C	E	F	G
NV1-FNPT2-04-	1/8" Female NPT	0.157 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	2.85 (72.5)	2.17 (55)	0.53 (13.5)	0.71 (18.0)	0.25 (6.4)	0.77 (19.6)
NV1-FNPT4-04-	1/4" Female NPT			1.03 (26.2)	1.03 (26.2)						
NV1-F4-04-	1/4" CIR-LOK			1.41 (29.0)	1.41 (29.0)						
NV1-M6-04-	6 mm CIR-LOK			1.25 (31.75)	1.25 (31.75)						
NV1-M8-04-	8 mm CIR-LOK										
NV1-FNPT4-06-	1/4" Female NPT	0.236 (6.0)	0.85	1.13 (28.6)	1.13 (28.6)	3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)
NV1-FNPT6-06-	3/8" Female NPT										
NV1-NPT6-06-	3/8" Male NPT			1.44 (36.5)	1.44 (36.5)						
NV1-F6-06-	3/8" CIR-LOK			1.53 (38.9)	1.53 (38.9)						
NV1-M10-06-	10 mm CIR-LOK			1.56 (39.7)	1.56 (39.7)						
NV1-M12-06-	12 mm CIR-LOK			1.26 (32.0)	1.26 (32.0)						
NV1-M14-06-	14 mm CIR-LOK			1.50 (38.1)	1.50 (38.1)						
NV1-FNPT8-06-	1/2" Female NPT			1.53 (38.9)	1.53 (38.9)						
NV1-NPT8-06-	1/2" Male NPT										
NV1-F8-06-	1/2" CIR-LOK			1.13 (28.6)	1.13 (28.6)						
NV1-FSW6-06-	3/8" FSW										
NV1-FSW8-06-	1/2" FSW										
NV1-MSW12-06-	12 mm MSW			1.50 (38.1)	1.50 (38.1)						
NV1-MSW14-06-	14 mm MSW										
NV1-MSW16-06-	16 mm MSW										
NV1-MBW14-06-	14 mm MBW			2.92 (74.1)	2.92 (74.1)						
NV1-MBW16-06-	16 mm MBW										
NV1-UGM14-06-	14 mm UGM										
NV1-UGM16-06-	16 mm UGM										
NV1-MS20-06-	M20 x 1.5 Male ISO			1.50 (38.1)	1.50 (38.1)						
NV1-MS22-06-	M22 x 1.5 Male ISO										

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)													
				L1	L2	H	D	C	E	F	G						
NV1-FNPT8-11-	1/2" Female NPT	0.433 (11.0)	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)						
NV1-FNPT12-11-	3/4" Female NPT																
NV1-NPT8-11-	1/2" Male NPT																
NV1-NPT12-11-	3/4" Male NPT																
NV1-F12-11-	3/4" CIR-LOK			1.97 (50.0)	1.97 (50.0)												
NV1-M14-11-	14 mm CIR-LOK																
NV1-M16-11-	16 mm CIR-LOK																
NV1-M18-11-	18 mm CIR-LOK																
NV1-MSW14-11-	14 mm MSW			1.56 (39.7)	1.56 (39.7)												
NV1-MSW16-11-	16 mm MSW																
NV1-MSW18-11-	18 mm MSW																
NV1-FSW8-11-	1/2" FSW																
NV1-MBW14-11-	14 mm MBW			2.98 (75.7)	2.98 (75.7)												
NV1-MBW16-11-	16 mm MBW																
NV1-UGM14-11-	14 mm UGM																
NV1-UGM16-11-	16 mm UGM																
NV1-MS27-11-	M27 x 2 Male ISO			1.56 (39.7)	1.56 (39.7)												
NV1-FNPT12-15-	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)						
NV1-F12-15-	3/4" CIR-LOK			2.35 (59.7)	2.35 (59.7)												
NV1-F16-15-	1" CIR-LOK																
NV1-M20-15-	20 mm CIR-LOK																
NV1-FSW16-20-	1" FSW	0.787 (20.0)	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)						
NV1-MSW25-20-	25 mm MSW																
NV1-MSW28-20-	28 mm MSW																

How to Order

NV1 —		MBW8		M12		S06S		GY		A1		316	
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Tip Material	Tip Type	Packing Material	Panel Mounting	Handle	Flow pattern	Body Material
NV1	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size	If outlet and inlet are the same, eliminate the outlet designator	Same as Body	04	Same as Body	Blunt	PTFE	No	Black Aluminum Bar	Straight	316 316 S.S.
	NPT Male NPT	4 1/4 in.				06	S	R	G	Y	Red Aluminum Bar	A1 Angle	316L 316L S.S.
	FBT Female BSPT	3/8 in. or 6 mm				11	P	A	P		Green Aluminum Bar		304 304 S.S.
	MBT Male BSPT	1/2 in. or 8 mm				15	K				Blue Aluminum Bar		304L 304L S.S.
	FMS Female Metric	10 10 mm				20					303 Stainless Steel Bar		321 321 S.S.
	MS Male Metric (for BG)	12 12 mm											F91 F91
	FBP Female BSPP	3/4 in. or 12 mm											F91 F92
	MBP Male BSPP (for BG)	14 14 mm or M14 x 1.5											A400 Alloy 400
	F Fractional Tube Fitting	16 1 in. or 16 mm											A20 Alloy 20
	M Metric Tube Fitting	18 18 mm											A600 Alloy 600
	UGF Nut + Gasket + Fractional Bulge Nipple	1 1/4 in. or 20 20 mm or M20 x 1.5											A825 Alloy 825
	UGM Nut + Gasket + Metric Bulge Nipple												A276 Alloy C276
	FSW Fractional Tube Socket Weld	22 22 mm or M22 x 1.5											DU7 Duplex 2507
	MSW Metric Tube Socket Weld	24 M24 x 1.5											
	FBW Fractional Tube Butt Weld	25 25 mm											
	MBW Metric Tube Butt Weld	27 M27 x 2											
		28 28 mm											
	PSW Pipe Socket Weld												
	PBW Pipe Butt Weld												

High Pressure Needle Valves

NV2 Series

Features

- ❖ Maximum working pressure up to 10000 psig (689 bar)
- ❖ One-piece heavy wall forged body
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ Straight and angle patterns
- ❖ Upper stem and lower stem design, Stem threads above packing protected from system media
- ❖ Panel mounting available
- ❖ Optional handle colors available



Pressure-Temperature Ratings

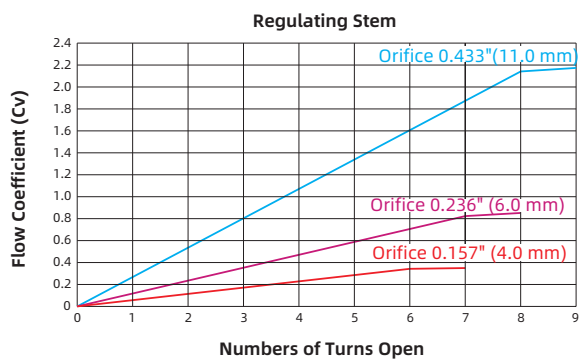
ASME Class	4500					N/A
Material Group	2.2	2.8	3.4	3.1	3.5	N/A
Material Name	316 S.S.	F53 S.S.	Alloy 400	Alloy 20	Alloy 600	Alloy C-276
Temperature, °F (°C)	Working Pressure, psig (bar)					
-65 (-53) to 100 (37)	10000 (689)	10000 (689)	10000 (689)	10000 (689)	10000 (689)	10000 (689)
200 (93)	9290 (640)	9607 (662)	7920 (546)	10000 (689)	10000 (689)	10000 (689)
250 (121)	8840 (609)	9509 (655)	7667 (528)	9711 (669)	9711 (669)	9711 (669)
300 (148)	8390 (578)	9411 (649)	7415 (511)	9408 (648)	9408 (648)	9408 (648)
350 (176)	8045 (554)	9313 (642)	7290 (502)	9323 (642)	9323 (642)	9323 (642)
400 (204)	7705 (530)	9215 (635)	7165 (494)	9239 (637)	9239 (637)	9239 (637)
450 (232)	7435 (512)	8927 (615)	7147 (492)	9144 (630)	9144 (630)	9144 (630)
500 (260)	7165 (493)	8640 (595)	7130 (491)	9060 (624)	9060 (624)	9060 (624)
600 (315)	6770 (466)	8350 (575)	7130 (491)	9070 (625)	9070 (625)	9070 (625)
650 (343)	6660 (458)	8245 (568)	—	8825 (608)	8825 (608)	8825 (608)
700 (371)	6480 (446)	8135 (561)	—	8515 (587)	8515 (587)	8515 (587)
750 (398)	6335 (436)	7970 (549)	—	7970 (549)	7970 (549)	7970 (549)
800 (426)	6230 (429)	—	—	7610 (524)	7610 (524)	7610 (524)
850 (454)	6085 (419)	—	—	—	7305 (503)	7305 (503)
900 (482)	5905 (406)	—	—	—	6740 (464)	6740 (464)
950 (510)	5795 (399)	—	—	—	4905 (338)	5795 (399)
1000 (537)	5450 (375)	—	—	—	3240 (223)	5450 (375)
1050 (565)	5400 (372)	—	—	—	2085 (143)	4835 (333)
1100 (593)	4835 (333)	—	—	—	1390 (95)	4115 (283)
1150 (621)	4115 (283)	—	—	—	1020 (70)	2775 (191)
1200 (648)	3085 (212)	—	—	—	925 (63)	1620 (111)

- ❖ Based on graphite stem packing.

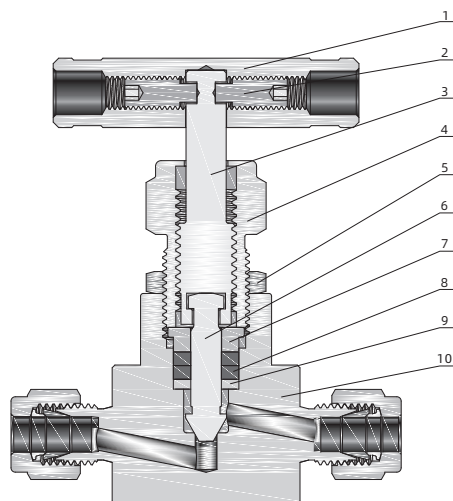
Temperature Ranges

Packing Materials	Temperature Range °F (°C)
PTFE	-65°F to 450°F (-53°C to 232°C)
Graphite	-65°F to 1200°F (-53°C to 648°C)
PEEK	-65°F to 600°F (-53°C to 315°C)

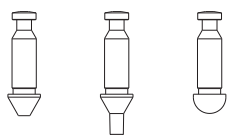
Flow Data at 100°F (37°C)



Standard Materials of Construction



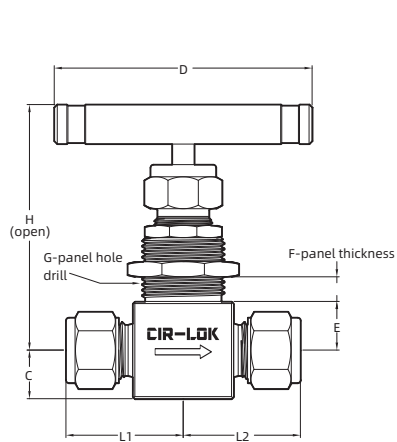
Stem Type



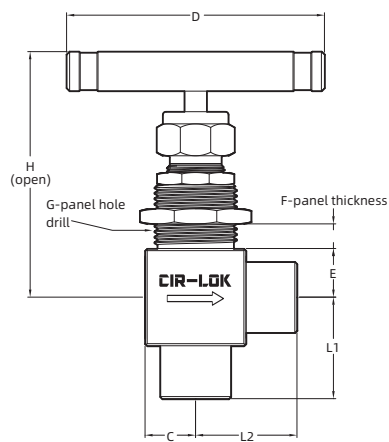
Blunt Regulating Ball

Component		Material Grade / ASTM Specification		
		316 S.S.	F91	F92
1	Handle	Anodized aluminum or stainless steel		
2	Screw	Galvanized steel		
3	Upper Stem	316 S.S. / A276		
4	Packing Bolt	316 S.S. / A276		
5	Nut	630 S.S. / B783		
6	Lower Stem	Chrome-plated 316 S.S. / A276	Chrome-plated F91 / A182	Chrome-plated F92 / A182
7	Gland	316 S.S. / A276	F91 / A182	F92 / A182
8	Packing	PTFE or PEEK or graphite		
9	Packing Washer	316 S.S. / A276	F91 / A182	F92 / A182
10	Body	316 S.S. / A182	F91 / A182	F92 / A182
11	Seat	Weld stellite saet optional		

Dimensions



Straight Pattern



Angle Pattern

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)							
				L1	L2	C	D	E	F	G	H
NV2-FNPT2-04-	1/8" Female NPT	0.157 (4.0)	0.35								
NV2-FNPT4-04-	1/4" Female NPT			1.13 (28.6)	1.13 (28.6)						
NV2-FNPT4-NPT4-04-	1/4" Female to Male NPT										
NV2-NPT4-04-	1/4" Male NPT					0.53 (13.5)	2.17 (55)	0.53 (13.5)	0.25 (6.4)	0.96 (24.4)	2.85 (72.5)
NV2-F4-04-	1/4" CIR-LOK			1.41 (35.8)	1.41 (35.8)						
NV2-M6-04-	6 mm CIR-LOK										
NV2-M8-04-	8 mm CIR-LOK										
NV2-FSW4-04-	1/4" FSW			1.13 (28.6)	1.13 (28.6)						
NV2-FNPT4-06-	1/4" Female NPT	0.236 (6.0)	0.85	1.31 (33.4)	1.31 (33.4)						
NV2-FNPT6-06-	3/8" Female NPT										
NV2-FNPT8-06-	1/2" Female NPT										
NV2-F6-06-	3/8" CIR-LOK			1.41 (35.8)	1.41 (35.8)						
NV2-F8-06-	1/2" CIR-LOK			1.52 (38.6)	1.52 (38.6)						
NV2-M10-06-	10 mm CIR-LOK			1.42 (36.1)	1.42 (36.1)	0.625 (15.88)	2.50 (63.5)	0.625 (15.88)	0.38 (9.7)	1.09 (27.7)	3.5 (88.9)
NV2-M12-06-	12 mm CIR-LOK			1.52 (38.6)	1.52 (38.6)						
NV2-M14-06-	14 mm CIR-LOK			1.56 (39.7)	1.56 (39.7)						
NV2-FSW6-06-	3/8" FSW										
NV2-FSW8-06-	1/2" FSW			1.31 (33.4)	1.31 (33.4)						
NV2-MSW12-06-	12 mm MSW										
NV2-MSW14-06-	14 mm MSW										
NV2-FNPT8-11-	1/2" Female NPT	0.433 (11.0)	2.18	1.56 (39.6)	1.56 (39.6)						
NV2-FNPT12-11-	3/4" Female NPT			1.63 (41.3)	1.63 (41.3)						
NV2-F12-11-	3/4" CIR-LOK										
NV2-M14-11-	14 mm CIR-LOK			1.97 (50.0)	1.97 (50.0)	0.875 (22.2)	3.5 (88.9)	0.875 (22.2)	0.38 (9.7)	1.28 (32.5)	4.17 (106)
NV2-M16-11-	16 mm CIR-LOK										
NV2-M18-11-	18 mm CIR-LOK										
NV2-MSW14-11-	14 mm MSW			1.56 (39.7)	1.56 (39.7)						
NV2-MSW16-11-	16 mm MSW										

How to Order

NV2 — MBW8 — FNPT8 — S06S — GY — L1A1 — 316

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Tip Material	Tip Type	Packing Material	Panel Mounting	Handle	Flow Pattern	Body Material
NV2	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		Same as Body	04	Same as Body	Blunt	PTFE	No	Black Aluminum Bar	Straight	316 316 S.S.
	NPT Male NPT	4 1/4 in.				06	S	R	G Graphite	Y	R1 Red Aluminum Bar	A1 Angle	316L 316L S.S.
	FBT Female BSPT	3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator		S	11		A	P PEEK		G1 Green Aluminum Bar		304 304 S.S.
	MBT Male BSPT	1/2 in. or 8 mm											304L 304L S.S.
	FMS Female Metric												321 321 S.S.
	MS Male Metric (for BG)	10 10 mm											F91 F91
	FBP Female BSPP	3/4 in. or 12 mm											F91 F92
	MBP Male BSPP (for BG)	14 mm or M14 x 1.5											A400 Alloy 400
	F Fractional Tube Fitting	1 in. or 16 mm											A20 Alloy 20
	M Metric Tube Fitting												A600 Alloy 600
	UGF + Gasket + Fractional Bulge Nipple	1 1/4 in. or 20 mm or M20 x 1.5											A825 Alloy 825
	UGM + Gasket + Metric Bulge Nipple	22 mm or M22 x 1.5											A276 Alloy C276
	FSW Fractional Tube Socket Weld	24 M24 x 1.5											DU7 Duplex 2507
	MSW Metric Tube Socket Weld	25 25 mm											
	FBW Fractional Tube Butt Weld	27 M27 x 2											
	MBW Metric Tube Butt Weld	28 28 mm											
	PSW Pipe Socket Weld												
	PBW Pipe Butt Weld												

Union-Bonnet Needle Valves

NV3 Series

Features

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ Union-bonnet construction for safety
- ❖ Straight and angle patterns
- ❖ Upper stem and lower stem design, Stem threads above packing protected from system media
- ❖ Fully open position back seal design
- ❖ optional handle colors available



Pressure-Temperature Ratings

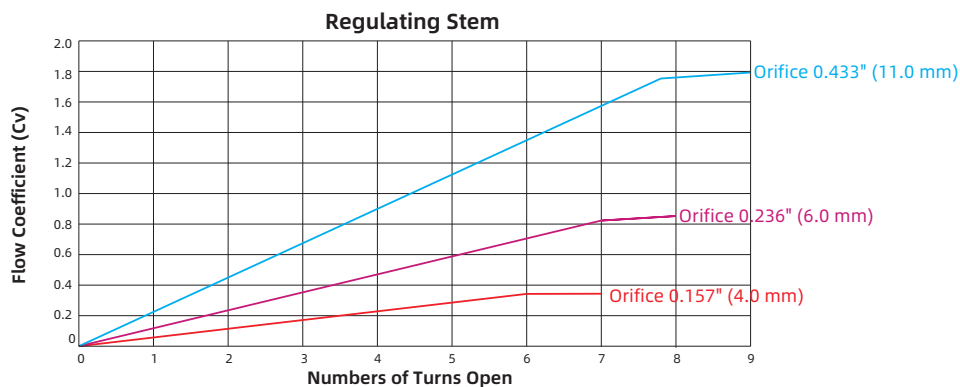
ASME Class	2500						N/A
Material Group	2.2	2.2	2.8	3.4	3.1	3.5	N/A
Material Name	316 S.S.	316H S.S.	F53 S.S.	Alloy 400	Alloy 20	Alloy 600	Alloy C-276
Temperature, °F (°C)	Working Pressure, psig (bar)						
-65 (-53) to 100 (37)	6000 (413)	6000 (413)	6000 (413)	5000 (344)	5000 (344)	6000 (413)	6000 (413)
200 (93)	5160 (355)	5160 (355)	5160 (355)	4400 (303)	4640 (319)	5600 (385)	6000 (413)
250 (121)	4910 (338)	4910 (338)	5350 (368)	4260 (293)	4500 (310)	5460 (376)	6000 (413)
300 (148)	4660 (321)	4660 (321)	5540 (382)	4120 (283)	4360 (300)	5320 (366)	6000 (413)
350 (176)	4470 (307)	4470 (307)	5330 (367)	4050 (279)	4185 (288)	5220 (359)	5975 (411)
400 (204)	4280 (294)	4280 (294)	5120 (353)	3980 (274)	4010 (276)	5120 (352)	5880 (405)
450 (232)	4130 (284)	4130 (284)	4960 (342)	3970 (273)	3955 (272)	5030 (346)	5710 (393)
500 (260)	3980 (274)	3980 (274)	4800 (331)	3960 (272)	3900 (268)	4940 (340)	5540 (381)
600 (315)	3760 (259)	3760 (259)	4640 (320)	—	3790 (261)	4780 (329)	5040 (347)
650 (343)	3700 (254)	3700 (254)	4580 (315)	—	3750 (258)	4700 (323)	4905 (337)
700 (371)	3600 (248)	3600 (248)	4520 (311)	—	3710 (255)	4640 (319)	4730 (325)
750 (398)	3520 (242)	3520 (242)	4430 (305)	—	3665 (252)	4430 (305)	4430 (305)
800 (426)	3460 (238)	3460 (238)	—	—	3600 (248)	4230 (291)	4230 (291)
850 (454)	3380 (232)	3380 (232)	—	—	—	4060 (279)	4060 (279)
900 (482)	3280 (225)	3280 (225)	—	—	—	3745 (258)	3745 (258)
950 (510)	3220 (221)	3220 (221)	—	—	—	2725 (187)	3220 (221)
1000 (537)	3030 (208)	3030 (208)	—	—	—	1800 (124)	3030 (208)
1050 (565)	3000 (206)	3000 (206)	—	—	—	1155 (79.5)	3000 (206)
1100 (593)	2685 (184)	2685 (184)	—	—	—	770 (53.0)	2685 (184)
1150 (621)	2285 (157)	2285 (157)	—	—	—	565 (38.9)	2285 (157)
1200 (648)	1715 (118)	1715 (118)	—	—	—	515 (35.4)	1545 (106)

v Based on graphite stem packing.

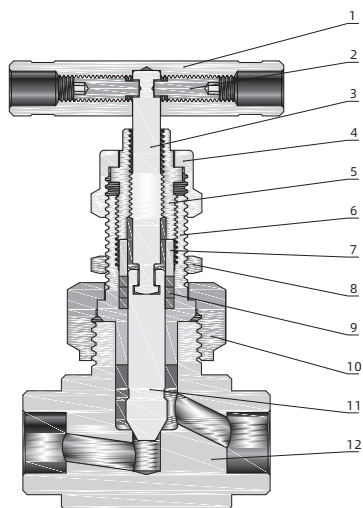
Temperature Ranges

Packing Materials	Temperature Range °F (°C)
PTFE	-65°F to 450°F (-53°C to 232°C)
Graphite	-65°F to 1200°F (-53°C to 648°C)
PEEK	-65°F to 600°F (-53°C to 315°C)

Flow Data at 100°F (37°C)



Standard Materials of Construction



Stem Type



Blunt



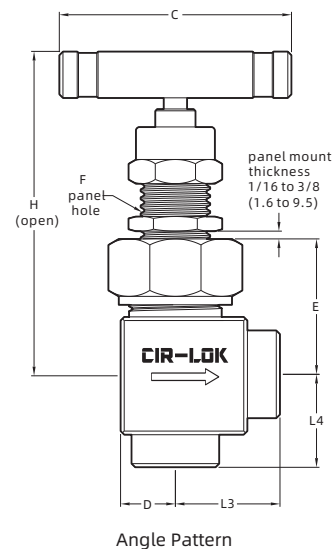
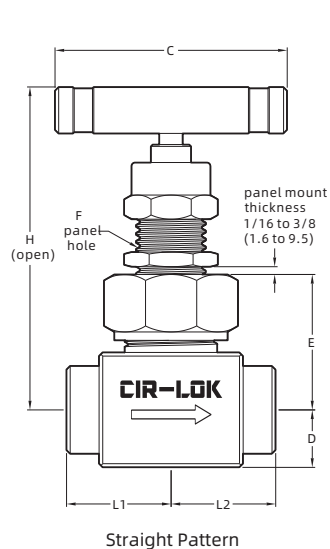
Regulating



Ball

Component		Material Grade/ASTM Specification			
		316 S.S.	Alloy 400	Titanium	Alloy C-276
1	Handle	Anodized aluminum or stainless steel			
2	Set Screw	Galvanized steel			
3	Upper Stem	316 S.S. / A276			
4	Nut	316 S.S. / A276			
5	Packing Bolt	316 S.S. / A276			
6	Bonnet	316 S.S. / A479	Alloy R-405 / B164	Titanium Gr 4 / B348	Alloy C-276 / B574
7	Gland	316 S.S. / A276	Alloy R-405 / B164	Titanium Gr 4 / B348	Alloy C-276 / B574
8	Nut	630 S.S. / B783			
9	Packing	PTFE or graphite			
10	Nut	316 S.S. / A276			
11	Lower Stem	Chrome-plated 316 S.S. / A276	Alloy R-405 / B164	Titanium Gr 4 / B348	Alloy C-276 / B574
12	Body	316 S.S. / A182	Alloy 400 / B164, B127, B564	Titanium Gr 4 / B348 or titanium Gr 4 / B381	Alloy C-276 / B564

Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)										
				L1	L2	L3	L4	C	D	E	F	H		
NV3 -FNPT2-04-	1/8" Female NPT	0.157 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	0.89 (22.6)	1.00 (25.4)	1.75 (44.5)	0.39 (9.9)	1.09 (27.7)	0.59 (15.1)	3.04 (77.2)		
NV3 -FNPT4-04-	1/4" Female NPT			1.03 (26.2)	1.03 (26.2)									
NV3 -NPT4-FNPT4-04-	1/4" Male NPT to 1/4" Female NPT			1.00 (25.4)	1.03 (26.2)									
NV3 -NPT4-04-	1/4" Male NPT			1.00 (25.4)	1.00 (25.4)	1.00 (25.4)								
NV3 -NPT6-04-	3/8" Male NPT			1.03 (26.2)	1.03 (26.2)	0.89 (22.6)								
NV3 -FBP4-04-	1/4" Female BSPP												1.00 (25.4)	1.22 (30.9)
NV3 -NPT4-F4-04-	1/4" Male NPT													
NV3 -FNPT4-F4-04-	1/4" Female NPT to 1/4" CIR-LOK			1.16 (29.5)										
NV3 -F4-04-	1/4" CIR-LOK				1.22 (30.9)	1.22 (30.9)							1.48 (37.6)	
NV3 -M6-04-	6 mm CIR-LOK													
NV3 -M8-04-	8 mm CIR-LOK													
NV3 -FSW4-04-	1/4" FSW	0.91 (23.1)	0.91 (23.1)	0.88 (22.4)	1.19 (30.2)									
NV3 -FNPT4-06-	1/4" Female NPT	0.236 (6.0)	0.8	1.13 (28.6)	1.13 (28.6)	1.0 (25.4)	1.13 (28.6)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	0.78 (19.8)	3.70 (94)		
NV3 -FNPT6-06-	3/8" Female NPT					1.06 (26.9)								
NV3 -NPT6-06-	3/8" Male NPT													
NV3 -NPT8-06-	1/2" Male NPT			1.50 (38.1)	1.50 (38.1)	1.25 (31.8)	1.50 (38.1)							
NV3 -F6-06-	3/8" CIR-LOK			1.41 (35.9)	1.41 (35.9)	1.29 (32.8)	1.66 (42.2)							
NV3 -F8-06-	1/2" CIR-LOK			1.52 (38.6)	1.52 (38.6)	1.40 (35.6)	1.65 (41.9)							
NV3 -M10-06-	10 mm CIR-LOK			1.42 (36.1)	1.42 (36.1)	1.30 (33.0)	1.55 (39.4)							

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)								
				L1	L2	L3	L4	C	D	E	F	H
NV3-M12-06-	12 mm CIR-LOK	0.236 (6.0)	0.8	1.52 (38.6)	1.52 (38.6)	1.40 (35.6)	1.65 (41.9)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	0.78 (19.8)	3.70 (94)
NV3-M14-06-	14 mm CIR-LOK											
NV3-M16-06-	16 mm CIR-LOK											
NV3-FSW6-06-	3/8" FSW											
NV3-FSW8-06-	1/2" FSW			1.13 (28.6)	1.13 (28.6)	1.00 (25.4)	1.13 (28.6)					
NV3-MSW12-06-	12 mm MSW											
NV3-MSW14-06-	14 mm MSW											
NV3-MSW16-06-	16 mm MSW											
NV3-MBW14-06-	14 mm MBW			1.50 (38.1)	1.50 (38.1)	1.25 (31.8)	1.50 (38.1)					
NV3-MBW16-06-	16 mm MBW											
NV3-UGM14-06-	14 mm UGM			2.92 (74.1)	2.92 (74.1)	2.55 (64.7)	2.92 (74.1)					
NV3-MS20-06-	M20 x 1.5 Male ISO			1.50 (38.1)	1.50 (38.1)	1.13 (28.6)	1.50 (38.1)					
NV3-MS22-06-	M22 x 1.5 Male ISO											
NV3-FNPT8-11-	1/2"Female NPT	0.433 (11.0)	1.8	1.56 (39.6)	1.56 (39.6)	1.31 (33.3)	1.56 (39.6)	3.50 (88.9)	0.78 (19.8)	1.91 (48.5)	1.03 (26.2)	4.85 (123)
NV3-FNPT12-11-	3/4" Female NPT			1.63 (41.3)	1.63 (41.3)							
NV3-FNPT16-11-	1" Female NPT			1.81 (46.0)	1.81 (46.0)	—	—					
NV3-NPT12-11-	3/4" Male NPT			1.63 (41.3)	1.63 (41.3)							
NV3-F8-11-	1/2" CIR-LOK											
NV3-F12-11-	3/4" CIR-LOK											
NV3-M14-11-	14 mm CIR-LOK			1.97 (50.0)	1.97 (50.0)	1.68 (42.7)	2.08 (52.8)					
NV3-M16-11-	16 mm CIR-LOK											
NV3-M18-11-	18 mm CIR-LOK											
NV3-M20-11-	20 mm CIR-LOK											
NV3-MSW14-11-	14" mm MSW											
NV3-MSW16-11-	16" mm MSW											
NV3-FSW8-11-	1/2" FSW			1.56 (39.7)	1.56 (39.7)	1.31 (33.3)	1.69 (42.9)					
NV3-FSW12-11-	3/4" FSW											
NV3-MBW14-11-	14 mm MBW											
NV3-MBW16-11-	16 mm MBW											
NV3-UGM14-11-	14 mm UGM			2.98 (75.7)	2.98 (75.7)							
NV3-MS27-11-	M27 x 2 Male ISO			1.56 (39.7)	1.56 (39.7)	—	—					

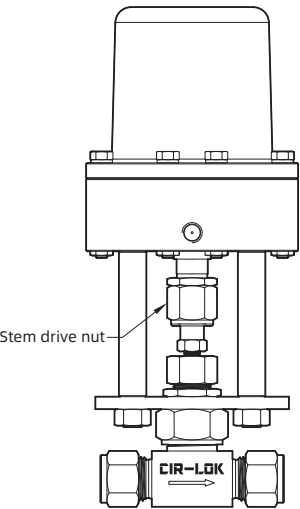
Pneumatic Actuators

Features

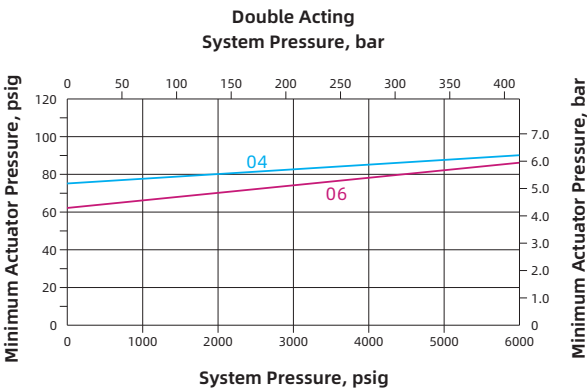
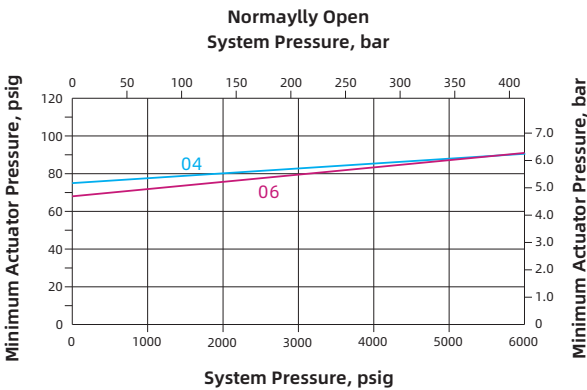
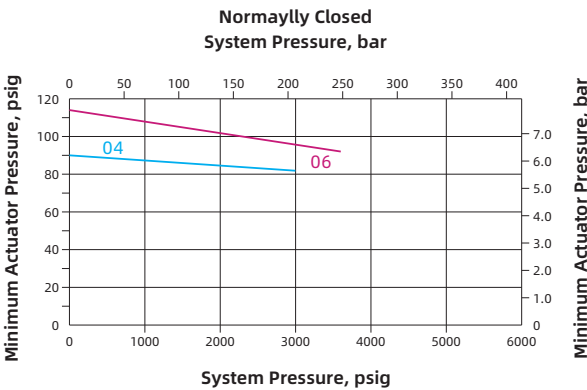
- ❖ Adjustment of the actuator stem drive nut affects actuator spring force, which in turn affects:
 - the maximum system pressure that can be shut off by the valve
 - the minimum actuator pressure required to open the valve

Actuation Modes

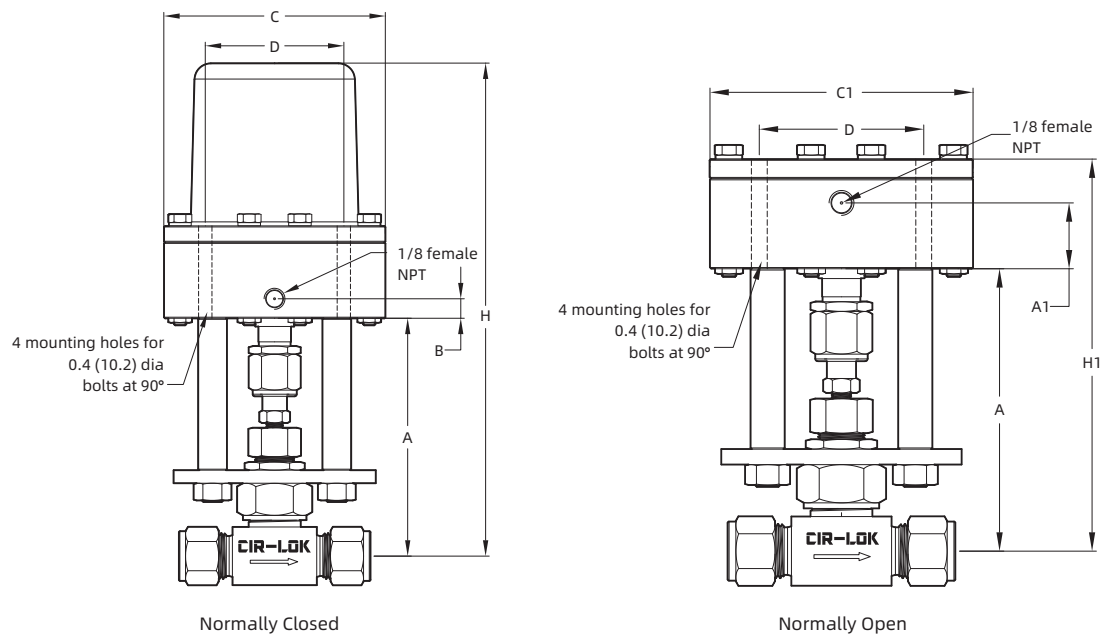
- ❖ Normally closed – air opens, spring closes
- ❖ Normally open – air close, spring opens
- ❖ Double acting – air opens and closes



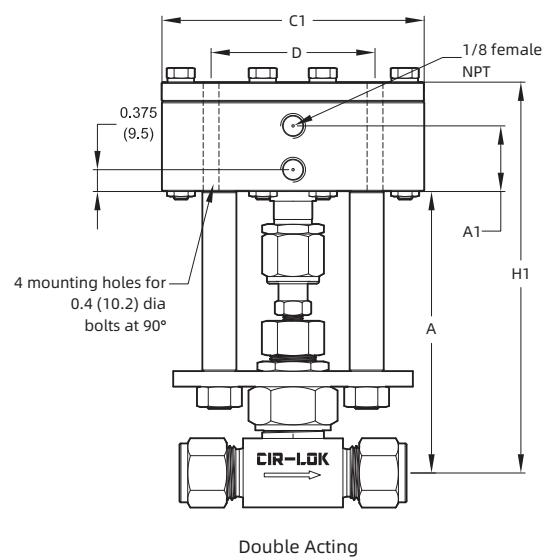
Pneumatic Actuators Performance



Dimensions



Orifice in. (mm)	Cv	Dimension, in. (mm)							
		A	A1	B	C	C1	D	H	H1
0.157 (4.0)	0.35	4.22 (107)	1.12 (28.4)	0.375 (9.5)	3.75 (95.3)	3.75 (95.3)	3.75 (95.3)	8.47 (215)	5.91 (150)
0.236 (6.0)	0.80	4.47 (114)	1.19 (30.2)	0.375 (9.5)	4.47 (114)	5.00 (127)	3.81 (96.8)	9.41 (239)	6.22 (158)



How to Order

NV3 — FNPT8 — F8 — S06S — G — L1A1 — Z — NC — 316

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Tip Material	Tip Type	Packing Material	Handle	Flow Pattern	O-Ring Material	Actuation Modes	Body Material
NV3	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size	Inlet size	Same as Body	04 0.157 in. (4.0 mm)	Same as Body	Blunt	PTFE	Black Aluminum Bar	Straight	Fluorocarbon FKM	Hand Movement	316 316 S.S.
	NPT Male NPT	4 1/4 in.												316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator		S Stainless	06 0.236 in. (6.0 mm)	S Stainless	R Regulating	G Graphite	Red Aluminum Bar	A1 Angle	B Buna N	NC Normally Closed	304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm												304L 304L S.S.
	FMS Female Metric	10 10 mm												321 321 S.S.
	MS Male Metric (for BG)	12 3/4 in. or 12 mm												F91 F91
	FBP Female BSPP	14 14 mm or M14 x 1.5												F91 F92
	MBP Male BSPP (for BG)	16 1 in. or 16 mm												A400 Alloy 400
	F Fractional Tube Fitting	18 18 mm												A20 Alloy 20
	M Metric Tube Fitting	20 1 1/4 in. or 20 mm or M20 x 1.5												A600 Alloy 600
	UGF + Gasket Nut + Gasket Bulge Nipple	22 22 mm or M22 x 1.5												A825 Alloy 825
	UGM + Metric Nut + Gasket Bulge Nipple	24 M24 x 1.5												A276 Alloy C276
	FSW Fractional Socket Weld Tube	25 25mm												DU7 Duplex 2507
	MSW Metric Tube Socket Weld	27 M27 x 2												
	FBW Fractional Tube Butt Weld	28 28mm												
	MBW Metric Tube Butt Weld													
	PSW Pipe Socket Weld													
	PBW Pipe Butt Weld													

Integral-Bonnet Needle Valves

NV4 Series

Features

- ❖ Maximum working pressure up to 5000 psig (344 bar)
- ❖ Working temperature from -65°F to 600°F (-53°C to 315°C)
- ❖ Live-Loaded Packing System
- ❖ Packing nut enables easy external adjustments
- ❖ Straight, angle and cross patterns
- ❖ Softseat stem with PCTFE tip available
- ❖ Optional handle colors available



Pressure-Temperature Ratings

Body Material	316 Stainless Steel
Temperaure, °F (°C)	Working Pressure,psig(bar)
-65 (-53) to 100 (37)	5000 (344)
200 (93)	4295 (295)
300 (148)	3875 (266)
400 (204)	3560 (245)
500 (260)	3310 (228)
600 (315)	3130 (215)

❖ Based on PEEK stem packing.

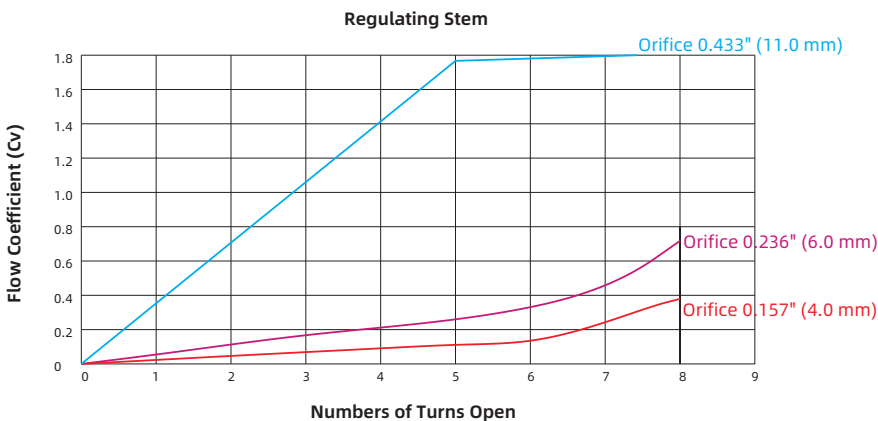
Working temperature with PCTFE stem tip:

-65°F(-53°C) to 200°F(93°C)

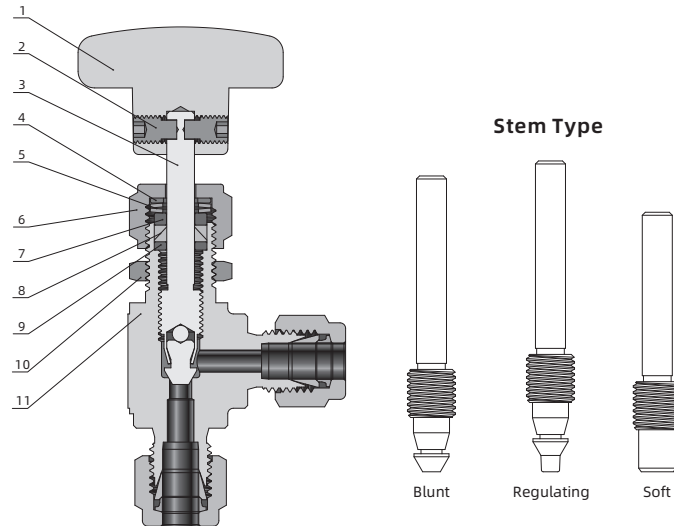
Temperature Ranges

Packing Materials	Temperature Range °F (°C)
PTFE	-65°F to 450°F (-53°C to 232°C)
PEEK	-65°F to 600°F (-53°C to 315°C)

Flow Data at 100°F (37°C)

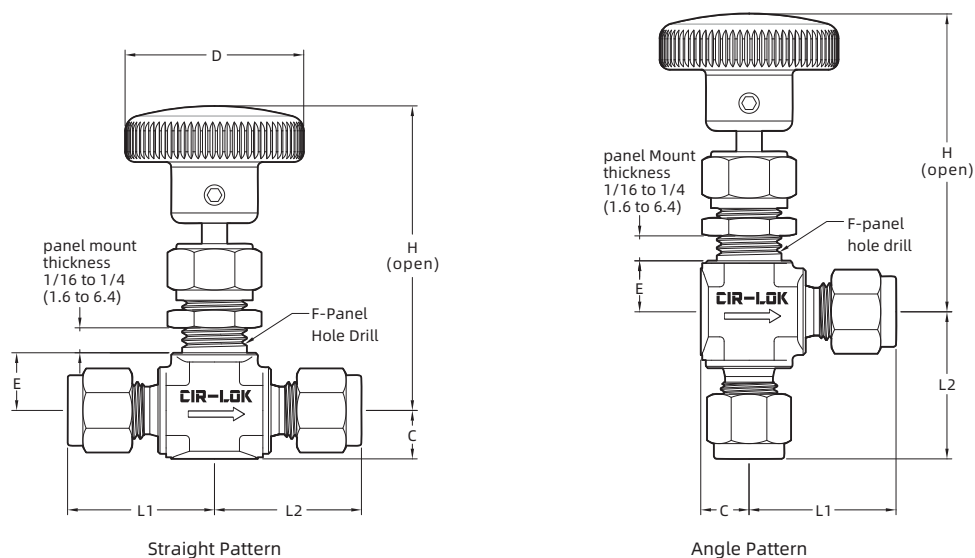


Standard Materials of Construction



Item	Component	Material Grade / ASTM Specification
		316 S.S.
1	Handle	Black Knob or aluminum alloy or stainless steel bar handle
2	Screw	Galvanized steel
3	Stem	Chrome-plated 316 S.S. / A276
4	Gland	304 S.S. / A276
5	Spring	631 S.S. / A693
6	Packing Nut	316 S.S. / A276
7	Gland	316 S.S. / A276
8	Packing	PTFE or PEEK
9	Gland	316 S.S. / A276
10	Nut	630 S.S. / B783
11	Body	316 S.S. / A182

Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)						
				L1	L2	C	D	E	F	H
NV4 -FNPT2-02-	1/8" Female NPT	0.08 (2.0)	0.09	0.81 (20.6)	0.81 (20.6)	0.31 (7.9)	1.0 (25.4)	0.44 (11.2)	0.53 (13.5)	2.28 (57.9)
NV4 -F2-02-	1/8" CIR-LOK			0.98 (25.0)	0.98 (25.0)					
NV4 -M3-02-	3 mm CIR-LOK									
NV4 -FNPT2-04-	1/8" Female NPT	0.157 (4.0)	0.35	0.81 (20.6)	0.81 (20.6)	0.39 (9.9)	1.38 (35.0)	0.44 (11.2)	0.53 (13.5)	2.50 (63.5)
NV4 -NPT2-04-	1/8" Male NPT			0.98 (25.0)	0.98 (25.0)					
NV4 -NPT4-04-	1/4" Male NPT			1.13 (28.7)	1.13 (28.7)					
NV4 -F4-04-	1/4" CIR-LOK			1.17 (29.7)	1.17 (29.7)					
NV4 -M6-04-	6 mm CIR-LOK									
NV4 -M8-04-	8 mm CIR-LOK	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)	0.5 (12.7)	1.88 (47.8)	0.5 (12.7)	0.78 (19.8)	2.97 (75.4)
NV4 -FNPT4-06-	1/4" Female NPT			1.12 (28.4)	1.12 (28.4)					
NV4 -FNPT6-06-	3/8" Female NPT			1.50 (38.1)	1.50 (38.1)					
NV4 -NPT6-06-	3/8" Male NPT			1.29 (32.8)	1.29 (32.8)					
NV4 -NPT8-06-	1/2" Male NPT			1.4 (35.6)	1.4 (35.6)					
NV4 -F6-06-	3/8" CIR-LOK			1.3 (33.0)	1.3 (33.0)					
NV4 -F8-06-	1/2" CIR-LOK			1.4 (35.6)	1.4 (35.6)					
NV4 -M10-06-	10 mm CIR-LOK			1.56 (39.7)	1.56 (39.7)					
NV4 -M12-06-	12 mm CIR-LOK			1.50 (38.1)	1.50 (38.1)					
NV4 -M14-06-	14 mm CIR-LOK			1.63 (41.3)	1.63 (41.3)					
NV4 -MS20-06-	M20 x 1.5 Male ISO	0.375 (9.5)	1.80	1.90 (48.3)	1.90 (48.3)	0.75 (19.1)	3.00 (76.2)	0.75 (19.1)	1.03 (26.2)	3.91 (99.3)
NV4 -FNPT8-11-	1/2" Female NPT									
NV4 -FNPT12-11-	3/4" Female NPT									
NV4 -NPT12-11-	3/4" Male NPT									
NV4 -F8-11-	1/2" CIR-LOK									
NV4 -F12-11-	3/4" CIR-LOK									
NV4 -M14-11-	14 mm CIR-LOK									

❖ Only bar handle is available for 9.5 orifice valve.

How to Order

NV4 — **FNPT8** — **M12** — **06K** — **P** — **L1A1** — **316**

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	Tip Type	Packing Material	Handle	Flow Pattern	Body Material
NV4	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		02 0.08 in. (2.0 mm)	Same as Body	Blunt	PTFE	Black Round	Straight	316 316 S.S.
	NPT Male NPT	4 1/4 in.				T PTFE	R Regulating	P PEEK	R1 Red Round	A1 Angle	316L 316L S.S.
	FBT Female BSPT	3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator		04 0.157 in. (4.0 mm)	K PCTFE			G1 Green Round		304 304 S.S.
	MBT Male BSPT	1/2 in. or 8 mm			06 0.25 in. (6.4 mm)	P PEEK			L1 Blue Round		304L 304L S.S.
	FMS Female Metric	10 10 mm			11 0.375 in. (9.5 mm)				HB Black Strip		A400 Alloy 400
	MS Male Metric (for BG)	3/4 in. or 12 mm									A20 Alloy 20
	FBP Female BSPP	14 mm or M14 x 1.5									A600 Alloy 600
	MBP Male BSPP (for BG)										A825 Alloy 825
	F Fractional Tube Fitting										A276 Alloy C276
	M Metric Tube Fitting										DU7 Duplex 2507

Notes: When the Orifice size is 11, the handle can only be selected as a black long strip handle(HB)

Compact Needle Valves

NV5 Series

Features

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

Pressure-Temperature Ratings

Body Material	316 Stainless steel
Temperature, °F(°C)	Working Pressure, psig(bar)
-65 (-53) to 100 (37)	6000 (413)
200 (93)	5160 (355)
300 (148)	4660 (321)
400 (204)	4280 (294)
500 (260)	3980 (274)
600 (315)	3760 (259)

❖ Based on PEEK stem packing.

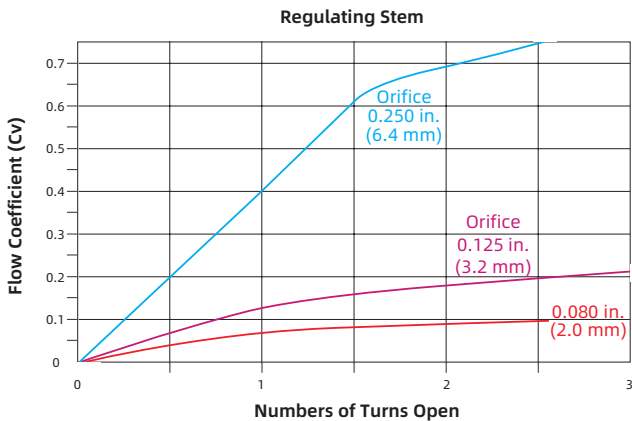
Working temperature with PCTFE stem tip:

-65°F(-53°C) to 200°F(93°C)

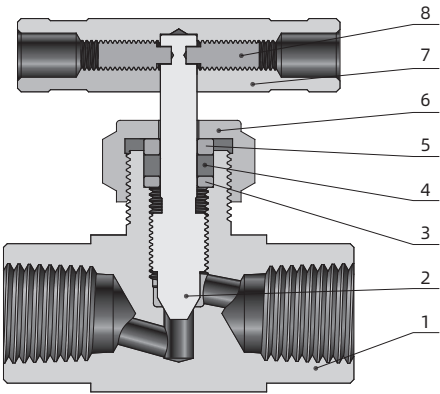
Temperature Ranges

Packing Materials	Temperature Range °F (°C)
PTFE	-65°F to 450°F (-53°C to 232°C)
PEEK	-65°F to 600°F (-53°C to 315°C)

Flow Data at 100°F (37°C)

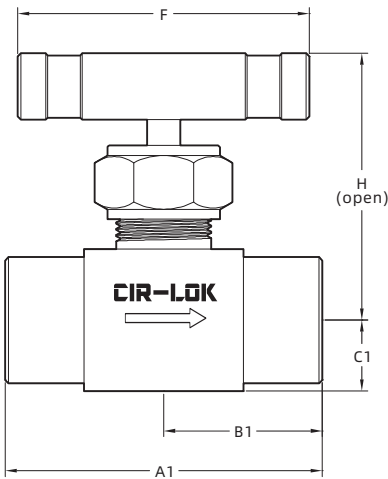


Standard Materials of Construction

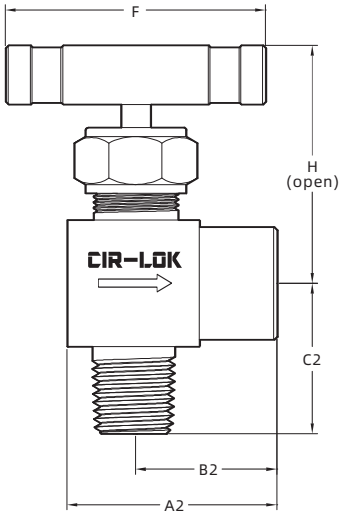


Component		Valve Body Material
		316 S.S.
1	Body	316 S.S. / A479
2	Stem	Chrome-plated 316 S.S. / A276
3	Gland	316 S.S. / A240
4	Packing	PTFE or PEEK
5	Gland	316 S.S. / A240
6	Nut	316 S.S. / A276
7	Handle	Anodized aluminum or stainless steel
8	Screw	Galvanized steel

Dimensions



Straight Pattern



Angle Pattern

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

How to Order

NV5 — FNP4 — FNPT4 — 03R — P — L1A1 — 316

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Type	Packing Material	Handle	Flow Pattern	Body Material
NV5	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		02 0.08 in. (2.0 mm)	Blunt	PTFE	Black Aluminum Bar	Straight	316 316 S.S.
	NPT Male NPT	4 1/4 in.			03 0.125 in. (3.2 mm)	R Regulating	P PEEK	R1 Red Aluminum Bar	A1 Angle	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator		06 0.250 in. (6.4 mm)	T PTFE		G1 Green Aluminum Bar		304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm				K PCTFE		L1 Blue Aluminum Bar		304L 304L S.S.
	FMS Female Metric	10 10 mm				P PEEK		S1 303 Stainless Steel Bar		
	MS Male Metric (for BG)	12 12 mm								
	FBP Female BSPP	14 3/4 in. or 12 mm								
	MBP Male BSPP (for BG)	14 14 mm or M14 x 1.5								
	F Fractional Tube Fitting									
	M Metric Tube Fitting									

Toggle Type Needle Valves

NV6 Series

Features

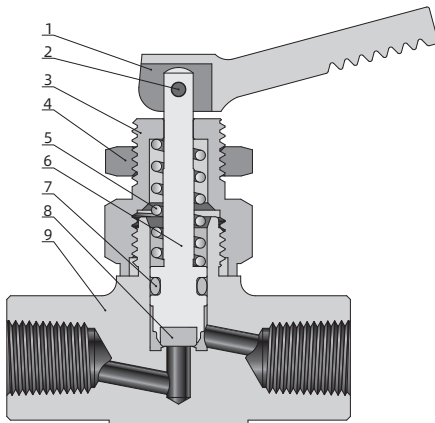
- ❖ Maximum working pressure up to 300 psig (20.6 bar)
- ❖ Working temperature from -20°F to 200°F (-28°C to 93°C)
- ❖ One-piece forged body
- ❖ Straight, angle and cross flow patterns
- ❖ Opens and closes quickly
- ❖ Soft-seat shutoff
- ❖ O-ring stem seal needs no adjustment



Pressure-Temperature Ratings

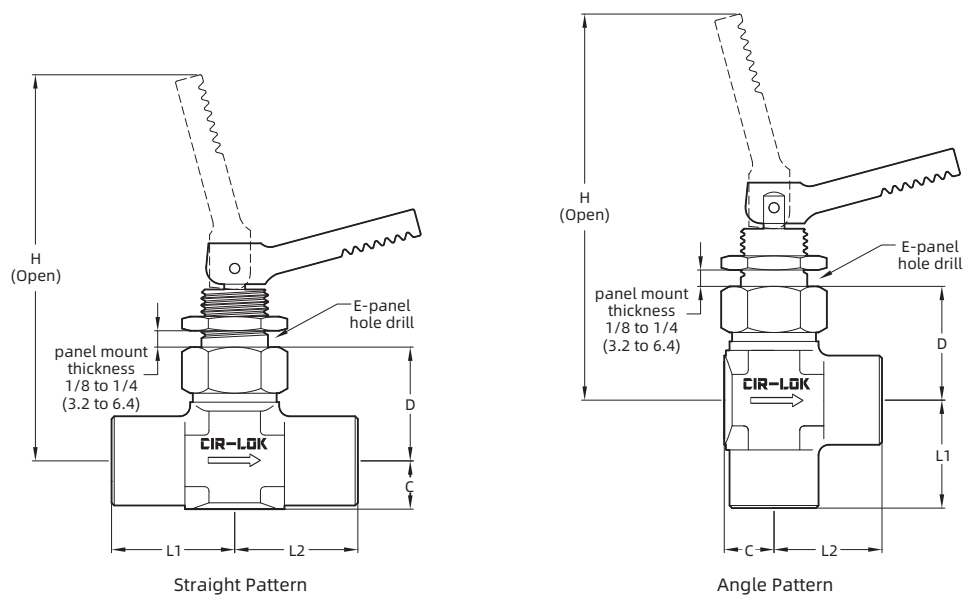
Orifice in. (mm)	Temperature °F(°C)	Working Pressure psig (bar)
0.080 (2.0)	-20 to 200 (-28 to 93)	300 psig
0.125 (3.2)		200 psig
0.250 (6.4)		

Standard Materials of Construction



Component		Material Grade / ASTM Specification	
		316 S.S.	304 S.S.
1	Handle	Stainless steel	
2	Pin	Stainless steel	
3	Bonnet	316 S.S. / A276	304 S.S. / A276
4	Nut	630 S.S. / B783	
5	Spring	PTFE-plated S17700 / A313	
6	Stem	316 S.S. / A276	304 S.S./A276
7	O-ring	Fluorocarbon FKM / Buna N / Ethylene Propylene / Neoprene / Kalrez	
8	Stem Tip	PTFE / D1710	
9	Body	316 S.S. / A276	304 S.S. / A276

Dimensions



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

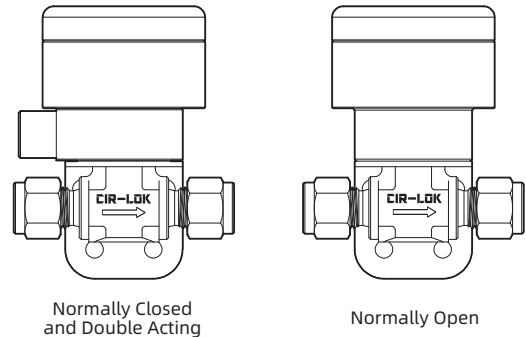
Pneumatic Actuators

Features

- ❖ Maximum working pressure up to 450 psig (31 bar)
- ❖ Working temperature from -20°F to 200°F (-28°C to 93°C)
- ❖ O-ring stem seal needs no adjustment
- ❖ Valve and actuator are fully assembled and factory tested

Actuation Modes

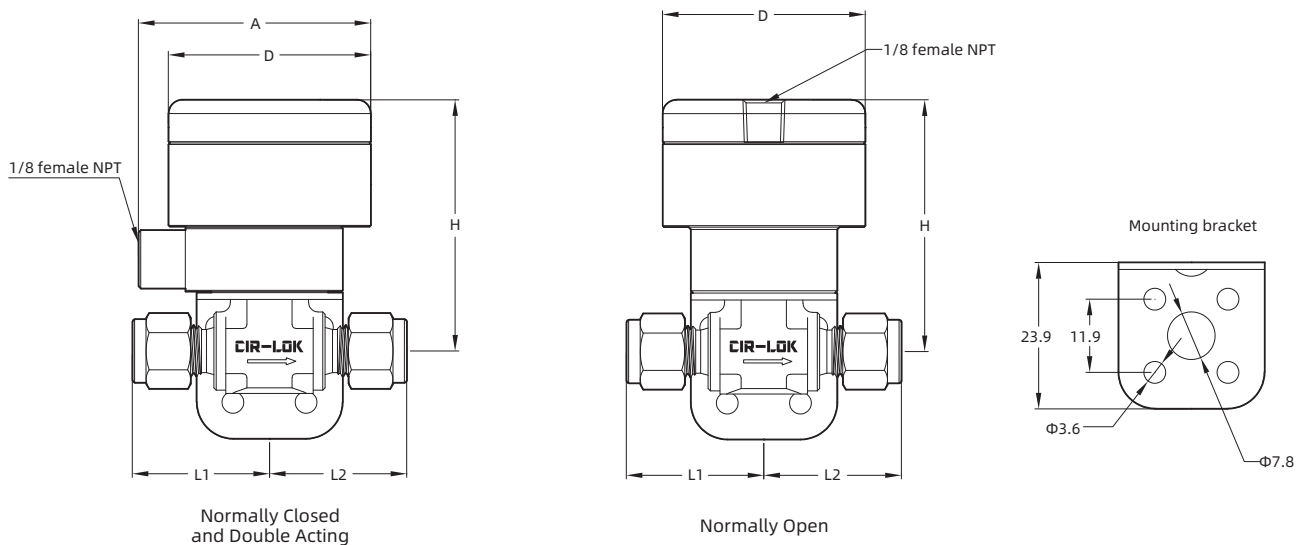
- ❖ Normally closed-air opens, spring closes
- ❖ Normally open-air close, spring opens
- ❖ Double acting-air opens and closes



Pressure-Temperature Ratings

Orifice in. (mm)	Temperature °F(°C)	Working Pressure psig (bar)		Actuator Pressure Rating
		Normally Closed	Normally Open and Double Acting	
0.080 (2.0)	-20°F to 200°F (-28°C to 93°C)	300 psig (20.6 bar)	450 psig (31 bar)	87 psig (6 bar)
0.125 (3.2)		200 psig (13.7 bar)	300 psig (20.6 bar)	

Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)				
				A	D	L1	L2	H
NV6-F2-02-NC-	1/8" CIR-LOK	0.08 (2.0)	0.11	1.99 (50.5)	1.73 (44)	1.06 (27.0)	1.06 (27.0)	2.90 (73.7)
NV6-F2-02-NO-	1/8" CIR-LOK			—				
NV6-NPT4-03-NC-	1/4" Male NPT	0.125 (3.2)	0.20	1.99 (50.5)		0.965 (24.5)	0.965 (24.5)	
NV6-F4-03-NO-	1/4" CIR-LOK			—		1.17 (29.9)	1.17 (29.9)	

How to Order

NV6 — NPT4 — F4 — 03 — Z — NC — A1 — 316

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	O-Ring Material	Actuation Modes	Flow Pattern	Body Material
NV6	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		02 0.080 in. (2.0 mm)	Fluorocarbon FKM	Hand Movement	Straight	316 316 S.S.
	NPT Male NPT	4 1/4 in.						A1 Angle	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator		03 0.125 in. (3.2 mm)	B Buna N	NC Normally Closed		304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm			06 0.25 in. (6.4 mm)	E Ethylene Propylene	NO Normally Open		304L 304L S.S.
	FMS Female Metric	10 10 mm				N Neoprene	PD Double Acting		
	MS Male Metric (for BG)	12 3/4 in. or 12 mm				Z Kalrez			
	FBP Female BSPP								
	MBP Male BSPP (for BG)								
	F Fractional Tube Fitting								
	M Metric Tube Fitting								

Nonrotating-Stem Needle Valves

NV7 Series

Features

- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -20°F to 450°F (-28°C to 232°C)
- ❖ One-piece forged body, nonrotating-Stem design
- ❖ Handle prevents contaminants from entering functional parts
- ❖ Replaceable stem tip facilitates maintenance
- ❖ Straight and angle patterns
- ❖ Stainless steel, and alloy 400 materials



Pressure-Temperature Ratings

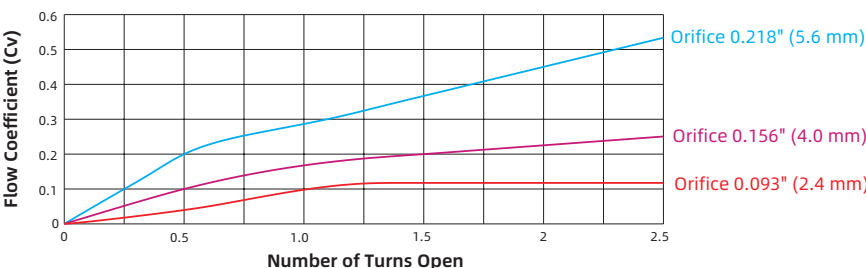
ASME Class	1500				N/A	
Material Group	2.2		3.4		N/A	
Material Name	316 S.S.		Alloy 400		Alloy C-276	
Stem Tip Material	PCTFE	PEEK	PCTFE	PEEK	PCTFE	PEEK
Temperature, °F (°C)	Working Pressure, psig (bar)					
-20 (-28) to 100 (37)	3000 (206)	3000 (206)	3000 (206)	3000 (206)	2000 (206)	3000 (206)
150 (65)	2790 (192)	2790 (192)	2675 (184)	2675 (184)	2820 (194)	2820 (194)
200 (93)	2580 (177)	2580 (177)	2350 (161)	2350 (161)	2640 (181)	2640 (181)
250 (121)	—	2455 (169)	—	2200 (151)	—	2555 (176)
300 (148)	—	2330 (160)	—	2050 (141)	—	2470 (170)
350 (176)	—	2235 (153)	—	1220 (84.0)	—	2430 (167)
400 (204)	—	2140 (147)	—	390 (26.8)	—	2390 (164)
450 (232)	—	2065 (142)	—	—	—	2380 (163)

- ❖ Based on PPTFE stem packing and Fluorocarbon FKM

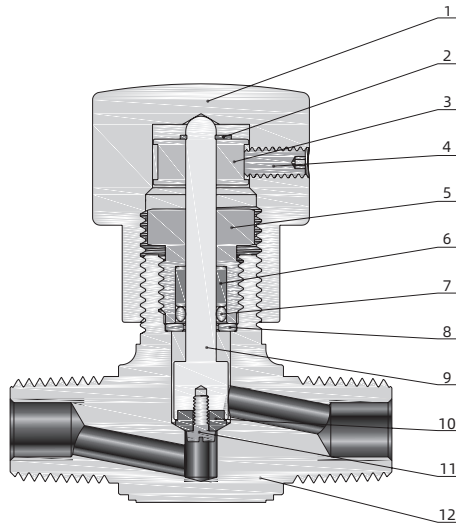
Temperature Ranges

O-ring Materials	Temperature Range °F (°C)
Fluorocarbon FKM	-20°F to 450°F (-28°C to 232°C)
Buna N	-20°F to 212°F (-28°C to 100°C)
Ethylene Propylene	-20°F to 300°F (-28°C to 148°C)
Neoprene	-20°F to 212°F (-28°C to 100°C)
Kalrez	-20°F to 450°F (-28°C to 232°C)

Flow Data at 100°F (37°C)

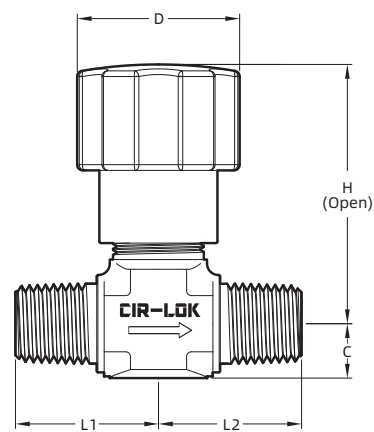


Standard Materials of Construction

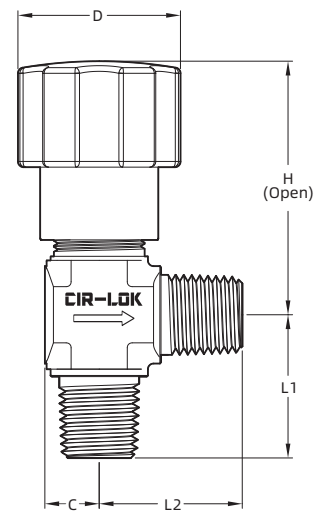


Component		Material Grade / ASTM Specification		
		316 S.S.	304 S.S.	Alloy 400
1	Handle	Anodized aluminum		
2	Pin	Stainless steel		
3	Spool	Aluminum		
4	Set Screw	Galvanized steel		
5	Packing Bolt	316 S.S. / A479	304 S.S. / A479	Alloy R-405 / B164
6	Backup Ring	PTFE/D1710		
7	O-ring	Fluorocarbon FKM / Buna N / Ethylene Propylene / Neoprene / Kalrez		
8	Washer	316 S.S. / A479		Alloy R-405 / B164
9	Stem	316 S.S. / A479		Alloy R-405 / B164
10	Stem Tip	PCTFE or PEEK		
11	Screw	316 S.S. / A479		Alloy R-405 / B164
12	Body	316 S.S. / A182	316 S.S. / A182	Alloy 400 / B564

Dimensions



Straight Pattern



Angle Pattern

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

How to Order

NV7 — **NPT8** — **F6** — **06P** — **Z** — **A1** — **316**

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	O-Ring Material	Handle	Flow Pattern	Body Material
NV7	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size		02 0.093 in. (2.4 mm)	PCTFE	Fluorocarbon FKM	Black Round	Straight	316 316 S.S.
	NPT Male NPT	4 1/4 in.			04 0.157 in. (4.0 mm)	P PEEK	B Buna N			316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm			06 0.218 in. (5.6 mm)		E Ethylene Propylene		A1 Angle	304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm					N Neoprene			304L 304L S.S.
	FMS Female Metric	10 10 mm	If outlet and inlet are the same, eliminate the outlet designator				Z Kalrez			A400 Alloy 400
	MS Male Metric (for BG)	12 3/4 in. or 12 mm								A20 Alloy 20
	FBP Female BSPP									
	MBP Male BSPP (for BG)									
	F Fractional Tube Fitting									
	M Metric Tube Fitting									

General-Purpose Needle Valves

NV8 Series

Features

- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ Bar stock valve body
- ❖ Straight and angle patterns
- ❖ Upper stem and lower stem design, Stem threads above packing protected from system media
- ❖ Two-piece knuckle joint provides nonrotating needle feature
- ❖ Nonrotating, hardened needle for positive shutoff
- ❖ Safety back-seating in fully open position
- ❖ Optional handle colors available
- ❖ Panel mounting available



Pressure-Temperature Ratings

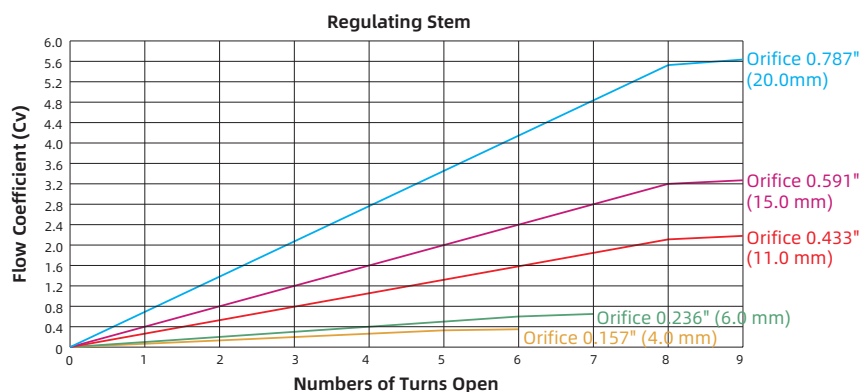
ASME Class	2500						N/A
Material Group	2.2	2.2	2.8	3.4	3.1	3.5	N/A
Material Name	316 S.S.	316H S.S.	F53 S.S.	Alloy 400	Alloy 20	Alloy 600	Alloy C-276
Temperature, °F (°C)	Working Pressure, psig (bar)						
-65 (-53) to 100 (37)	6000 (413)	6000 (413)	6000 (413)	5000 (344)	5000 (344)	6000 (413)	6000 (413)
200 (93)	5160 (355)	5160 (355)	5160 (355)	4400 (303)	4640 (319)	5600 (385)	6000 (413)
250 (121)	4910 (338)	4910 (338)	5350 (368)	4260 (293)	4500 (310)	5460 (376)	6000 (413)
300 (148)	4660 (321)	4660 (321)	5540 (382)	4120 (283)	4360 (300)	5320 (366)	6000 (413)
350 (176)	4470 (307)	4470 (307)	5330 (367)	4050 (279)	4185 (288)	5220 (359)	5975 (411)
400 (204)	4280 (294)	4280 (294)	5120 (353)	3980 (274)	4010 (276)	5120 (352)	5880 (405)
450 (232)	4130 (284)	4130 (284)	4960 (342)	3970 (273)	3955 (272)	5030 (346)	5710 (393)
500 (260)	3980 (274)	3980 (274)	4800 (331)	3960 (272)	3900 (268)	4940 (340)	5540 (381)
600 (315)	3760 (259)	3760 (259)	4640 (320)	—	3790 (261)	4780 (329)	5040 (347)
650 (343)	3700 (254)	3700 (254)	4580 (315)	—	3750 (258)	4700 (323)	4905 (337)
700 (371)	3600 (248)	3600 (248)	4520 (311)	—	3710 (255)	4640 (319)	4730 (325)
750 (398)	3520 (242)	3520 (242)	4430 (305)	—	3665 (252)	4430 (305)	4430 (305)
800 (426)	3460 (238)	3460 (238)	—	—	3600 (248)	4230 (291)	4230 (291)
850 (454)	3380 (232)	3380 (232)	—	—	—	4060 (279)	4060 (279)
900 (482)	3280 (225)	3280 (225)	—	—	—	3745 (258)	3745 (258)
950 (510)	3220 (221)	3220 (221)	—	—	—	2725 (187)	3220 (221)
1000 (537)	3030 (208)	3030 (208)	—	—	—	1800 (124)	3030 (208)
1050 (565)	3000 (206)	3000 (206)	—	—	—	1155 (79.5)	3000 (206)
1100 (593)	2685 (184)	2685 (184)	—	—	—	770 (53.0)	2685 (184)
1150 (621)	2285 (157)	2285 (157)	—	—	—	565 (38.9)	2285 (157)
1200 (648)	1715 (118)	1715 (118)	—	—	—	515 (35.4)	1545 (106)

❖ Based on graphite stem packing.

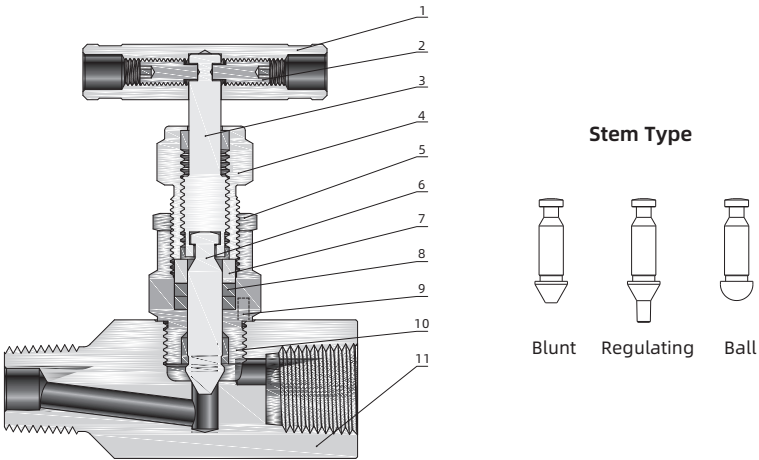
Temperature Ranges

Packing Materials	Temperature Range °F (°C)
PTFE	-65°F to 450°F (-53°C to 232°C)
Graphite	-65°F to 1200°F (-53°C to 648°C)

Flow Data at 100°F (37°C)

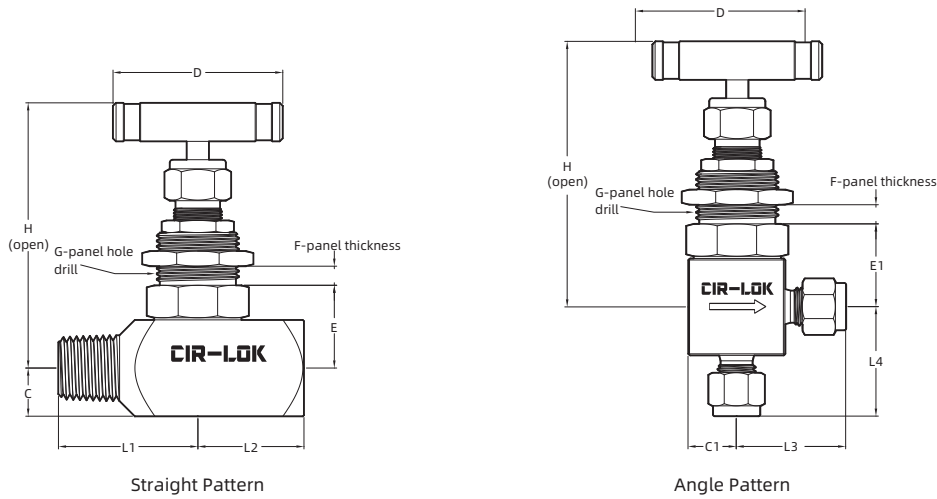


Standard Materials of Construction



Component		Material Grade / ASTM Specification			
		316 S.S.	Alloy 400	Titanium	Alloy C-276
1	Handle	Anodized aluminum or stainless steel			
2	Screw	Galvanized steel			
3	Upper Stem	316 S.S. / A276			
4	Packing Bolt	316 S.S. / A276			
5	Nut	630 S.S. / B783			
6	Lower Stem	Chrome-plated 316 S.S. / A276	Alloy R-405 / B164	Titanium Gr 4 / B348	Alloy C-276 / B574
7	Gland	316 S.S. / A276			
8	Packing	PTFE or Graphite			
9	Pin	304 S.S. / A276			
10	Bonnet	316 S.S. / A479	Alloy R-405 / B164	Titanium Gr 4 / B348	Alloy C-276 / B574
11	Body	316 S.S. / A479 316 S.S. / A182	Alloy 400 / B164, B127,B564	Titanium Gr 4 / B348 or Titanium Gr 4 / B381	Alloy C-276 / B564

Dimensions



Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)															
				L1	L2	L3	L4	C	C1	D	E	E1	F	G	H	H1			
NV8-FNPT2-04-	1/8" Female NPT	0.157 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	0.563 (14.3)	0.5 (12.7)	0.5 (12.7)	2.17 (55)	0.84 (21.4)	0.84 (21.4)	0.25 (6.4)	0.77 (19.6)	2.85 (72.4)	2.85 (72.4)			
NV8-FNPT4-04-	1/4" Female NPT			1.06 (26.9)	1.06 (26.9)														
NV8-NPT4-04-	1/4" Male NPT			1.03 (26.2)	1.03 (26.2)	1.06 (26.9)	1.06 (26.9)												
NV8-NPT6-04-	3/8" Male NPT			1.19 (30.2)	1.19 (30.2)														
NV8-F4-04-	1/4" CIR-LOK																		
NV8-M6-04-	6 mm CIR-LOK			1.20 (30.5)	1.20 (30.5)	1.20 (30.5)	1.20 (30.5)												
NV8-M8-04-	8 mm CIR-LOK																		
NV8-OFS4-04-	1/4" Male OFS			1.03 (26.2)	1.03 (26.2)	—	—												
NV8-GFS4-04-	1/4" Male GFS																		
NV8-FNPT4-06-	1/4" Female NPT	0.236 (6.0)	0.85	1.12 (28.6)	1.12 (28.6)	1.12 (28.6)	0.63 (15.9)	0.563 (14.3)	0.563 (14.3)	2.5 (63.5)	1.0 (25.4)	1.0 (25.4)	0.38 (9.7)	0.96 (24.4)	3.5 (88.9)	3.5 (88.9)			
NV8-FNPT6-06-	3/8" Female NPT						1.12 (28.6)												
NV8-NPT6-06-	3/8" Male NPT						1.12 (28.6)												
NV8-F6-06-	3/8" CIR-LOK			1.41 (35.8)	1.41 (35.8)	1.32 (33.6)	1.32 (33.6)												
NV8-F8-06-	1/2" CIR-LOK			1.52 (38.6)	1.52 (38.6)	1.42 (36.1)	1.42 (36.1)												
NV8-M10-06-	10 mm CIR-LOK			1.42 (36.1)	1.42 (36.1)	1.33 (33.8)	1.33 (33.8)												
NV8-M12-06-	12 mm CIR-LOK			1.52 (38.6)	1.52 (38.6)	1.42 (36.1)	1.42 (36.1)												
NV8-M14-06-	14 mm CIR-LOK			1.56 (39.7)	1.56 (39.7)														
NV8-FSW6-06-	3/8" FSW																		
NV8-FSW8-06-	1/2" FSW			1.13 (28.6)	1.13 (28.6)	1.13 (28.6)	1.13 (28.6)												
NV8-MSW12-06-	12 mm MSW																		
NV8-MSW14-06-	14 mm MSW																		
NV8-MSW16-06-	16 mm MSW																		
NV8-MBW14-06-	14 mm MBW			1.50 (38.1)	1.50 (38.1)	1.50 (38.1)	1.50 (38.1)												
NV8-MBW16-06-	16 mm MBW																		
NV8-UGM14-06-	14 mm UGM			2.92 (74.1)	2.92 (74.1)														
NV8-UGM16-06-	16 mm UGM																		
NV8-OFS8-06-	1/2" Male OFS			1.13 (28.6)	1.13 (28.6)	—	—												
NV8-GFS8-06-	1/2" Male GFS			1.56 (39.7)	1.56 (39.7)														
NV8-MS20-06-	M20 x 1.5 Male ISO			1.50 (38.1)	1.50 (38.1)														
NV8-MS22-06-	M22 x 1.5 Male ISO																		
NV8-FNPT8-11-	1/2" Female NPT	0.433 (11.0)	2.18			1.63 (41.3)	1.50 (38.1)	0.875 (22.2)	0.75 (19.05)	3.5 (88.9)	1.38 (34.9)	1.25 (31.75)	0.38 (9.7)	1.08 (27.5)	4.12 (104.8)	4.0 (101.6)			
NV8-FNPT12-11-	3/4" Female NPT			1.75 (44.5)	1.75 (44.5)														
NV8-NPT12-11-	3/4" Male NPT					1.50 (38.1)													
NV8-F12-11-	3/4" CIR-LOK																		
NV8-M14-11-	14 mm CIR-LOK			1.97 (50.0)	1.97 (50.0)	1.61 (41.0)	1.61 (41.0)												
NV8-M16-11-	16 mm CIR-LOK																		
NV8-M18-11-	18 mm CIR-LOK																		
NV8-MSW14-11-	14 mm MSW																		
NV8-MSW16-11-	16 mm MSW																		
NV8-FSW12-11-	3/4" FSW			1.75 (44.5)	1.75 (44.5)														
NV8-MBW14-11-	14 mm MBW																		
NV8-MBW16-11-	16 mm MBW					—	—												
NV8-UGM14-11-	14 mm UGM			2.98 (75.7)	2.98 (75.7)														
NV8-OFS12-11-	3/4" Male OFS																		
NV8-GFS8-11-	1/2" Male GFS			1.56 (39.7)	1.56 (39.7)														
NV8-MS27-11-	M27 x 2 Male ISO																		

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

How to Order

NV8 —		MBW8 —		M12 —		S06S —		GY —		L1A1 —		316 —	
Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Tip Material	Tip Type	Packing Material	Panel Mounting	Handle	Flow Pattern	Body Material
NV8	FNPT Female NPT	2 1/8 in.	Same as inlet type and inlet size If outlet and inlet are the same, eliminate the outlet designator		Same as Body S Stellite	04 0.157 in. (4.0 mm)	Same as Body S Stellite	Blunt	PTFE	No	Black Aluminum Bar R1 Red Aluminum Bar G1 Green Aluminum Bar L1 Blue Aluminum Bar S1 303 Stainless Steel Bar	Straight A1 Angle	316 316 S.S.
	NPT Male NPT	4 1/4 in.				06 0.236 in. (6.0 mm)		R Regulating	G Graphite	Yes			316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm						A Ball					304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm				11 0.433 in. (11 mm)		T PTFE					304L 304L S.S.
	FMS Female Metric	10 10 mm				15 0.591 in. (15 mm)		K PCTFE					321 321 S.S.
	MS Male Metric (for BG)	12 3/4 in. or 12 mm				20 0.787 in. (20 mm)		P PEEK					F91 F91
	FBP Female BSPP	14 14 mm or M14 x 1.5											F91 F92
	MBP Male BSPP (for BG)	16 1 in. or 16 mm											A400 Alloy 400
	F Fractional Tube Fitting	18 18 mm											A20 Alloy 20
	M Metric Tube Fitting												A600 Alloy 600
	UGF Nut + Gasket + Fractional Bulge Nipple	1 1/4 in. or 20 mm or M20 x 1.5											A825 Alloy 825
	UGM Nut + Gasket + Metric Bulge Nipple	22 22 mm or M22 x 1.5											A276 Alloy C276
	FSW Fractional Tube Socket Weld	24 M24 x 1.5											DU7 Duplex 2507
	MSW Metric Tube Socket Weld	25 25 mm											
	FBW Fractional Tube Butt Weld	27 M27 x 2											
	MBW Metric Tube Butt Weld	28 28 mm											
	PSW Pipe Socket Weld												
	PBW Pipe Butt Weld												