



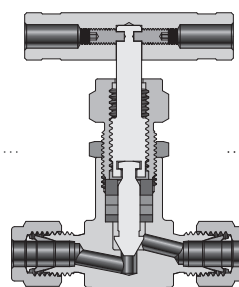
Needle Valves

NV Series

Contents

Forged-Body Needle Valves (NV1 Series)

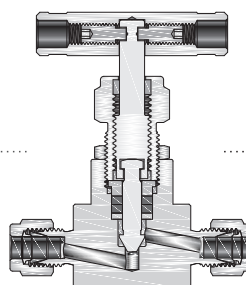
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ Orifice sizes from 0.157 to 0.787 in. (4 to 20 mm)
- ❖ One-piece forged body



6-4

High Pressure Needle Valves (NV2 Series)

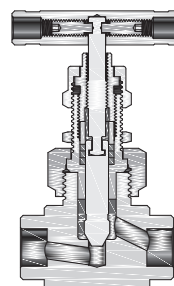
- ❖ Maximum working pressure up to 10000 psig (689 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ Orifice sizes from 0.157 to 0.433 in. (4 to 11 mm)
- ❖ One-piece forged body



6-9

Union-Bonnet Needle Valves (NV3 Series)

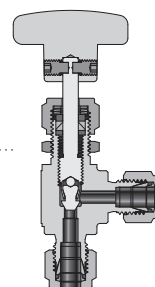
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ Orifice sizes from 0.157 to 0.433 in. (4 to 11 mm)
- ❖ One-piece forged body



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

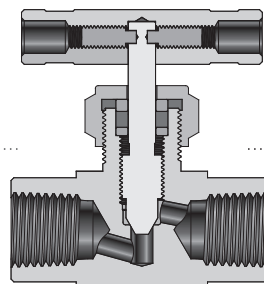


6-20

Contents

Compact Needle Valves (NV5 Series)

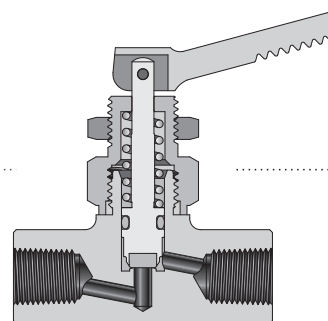
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 600°F (-53°C to 315°C)
- ❖ Orifice sizes from 0.079 to 0.236 in. (2 to 6 mm)
- ❖ One-piece forged body



6-24

Toggle Type Needle Valves (NV6 Series)

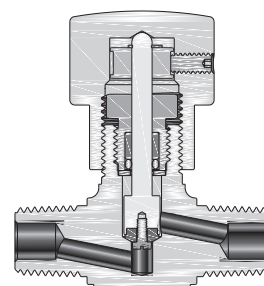
- ❖ Maximum working pressure up to 300 psig (20.6 bar)
- ❖ Working temperature from -20°F to 200°F (-28°C to 93°C)
- ❖ Orifice sizes from 0.079 to 0.236 in. (2 to 6 mm)
- ❖ One-piece forged body



6-27

Nonrotating-Stem Needle Valves (NV7 Series)

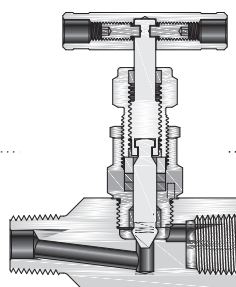
- ❖ Maximum working pressure up to 3000 psig (206 bar)
- ❖ Working temperature from -20°F to 450°F (-28 °C to 232°C)
- ❖ Orifice sizes from 0.079 to 0.236 in. (2 to 6 mm)
- ❖ One-piece forged body



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



6-34

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
- ❖ Panel mounting available
- ❖ Optional handle colors available



Pressure-Temperature Ratings

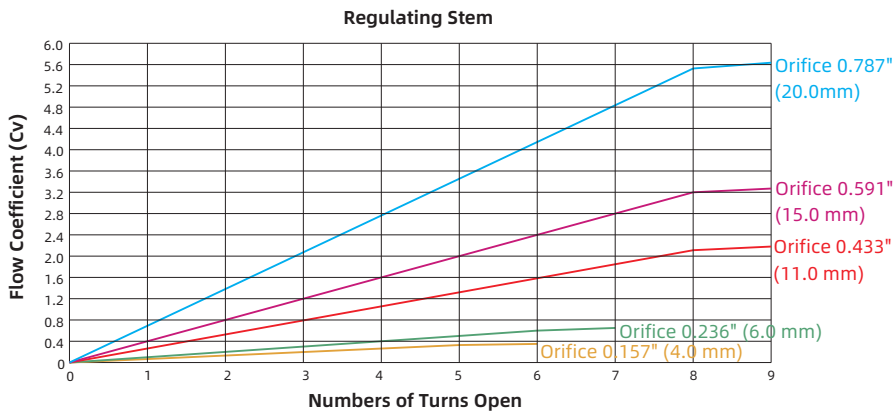
ASME Class	2500						N/A
Material Group	2.2	2.2	2.8	3.4	3.1	3.5	N/A
Material Name	316 S.S.	316H S.S.	F53 S.S.	Alloy 400	Alloy 20	Alloy 600	Alloy C-276
Temperature, °F (°C)	Working Pressure, psig (bar)						
-65 (-53) to 100 (37)	6000 (413)	6000 (413)	6000 (413)	5000 (344)	5000 (344)	6000 (413)	6000 (413)
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.

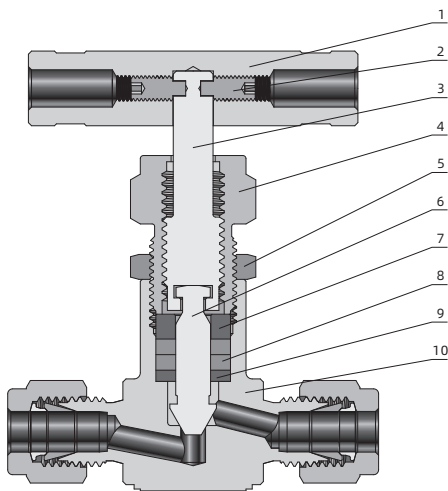
Temperature Ranges

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)

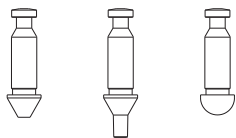
Flow Data at 100°F (37°C)



Standard Materials of Construction



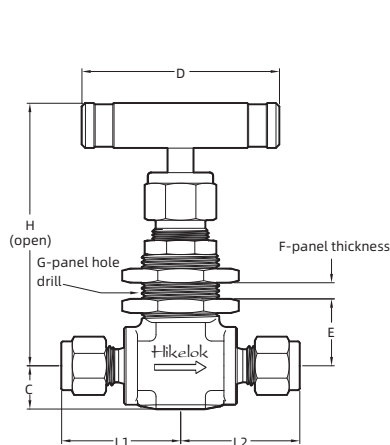
Stem Type



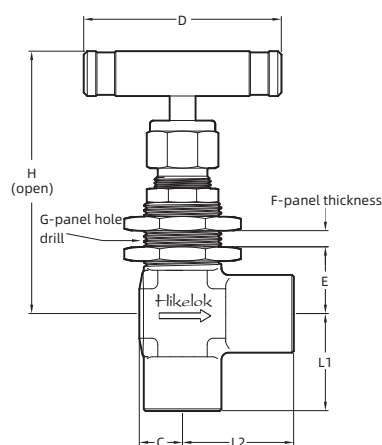
Blunt Regulating Ball

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" Hikelok			1.41 (29.0)	1.41 (29.0)												
NV1-M6-04-	6 mm Hikelok			1.25 (31.75)	1.25 (31.75)												
NV1-M8-04-	8 mm Hikelok																
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			1.44 (36.5)	1.44 (36.5)												
NV1-NPT6-06-	3/8" Male NPT																
NV1-F6-06-	3/8" Hikelok			1.53 (38.9)	1.53 (38.9)												
NV1-M10-06-	10 mm Hikelok			1.56 (39.7)	1.56 (39.7)												
NV1-M12-06-	12 mm Hikelok			1.26 (32.0)	1.26 (32.0)												
NV1-M14-06-	14 mm Hikelok			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			1.13 (28.6)	1.13 (28.6)												
NV1-F8-06-	1/2" Hikelok																
NV1-FSW6-06-	3/8" FSW			1.50 (38.1)	1.50 (38.1)												
NV1-FSW8-06-	1/2" FSW																
NV1-MSW12-06-	12 mm MSW			2.92 (74.1)	2.92 (74.1)												
NV1-MSW14-06-	14 mm MSW																
NV1-MSW16-06-	16 mm MSW			1.50 (38.1)	1.50 (38.1)												
NV1-MBW14-06-	14 mm MBW																
NV1-MBW16-06-	16 mm MBW			1.50 (38.1)	1.50 (38.1)												
NV1-UGM14-06-	14 mm UGM																
NV1-UGM16-06-	16 mm UGM			1.50 (38.1)	1.50 (38.1)												
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			1.97 (50.0)	1.97 (50.0)						
NV1-NPT12-11-	3/4" Male NPT										
NV1-F12-11-	3/4" Hikelok			1.56 (39.7)	1.56 (39.7)						
NV1-M14-11-	14 mm Hikelok										
NV1-M16-11-	16 mm Hikelok										
NV1-M18-11-	18 mm Hikelok										
NV1-MSW14-11-	14 mm MSW			2.98 (75.7)	2.98 (75.7)						
NV1-MSW16-11-	16 mm MSW										
NV1-MSW18-11-	18 mm MSW										
NV1-FSW8-11-	1/2" FSW										
NV1-MBW14-11-	14 mm MBW			1.56 (39.7)	1.56 (39.7)						
NV1-MBW16-11-	16 mm MBW										
NV1-UGM14-11-	14 mm UGM			1.97 (50.0)	1.97 (50.0)						
NV1-UGM16-11-	16 mm UGM										
NV1-MS27-11-	M27 x 2 Male ISO										
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" Hikelok			2.35 (59.7)	2.35 (59.7)						
NV1-F16-15-	1" Hikelok										
NV1-M20-15-	20 mm Hikelok										
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			1.97 (50.0)	1.97 (50.0)						
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	04	Same as Body	Blunt	PTFE	No	Black Aluminum Bar	Straight	316 316 S.S.	
	NPT	Male NPT	4	1/4 in.		06	S Stellite	R Regulating	G Graphite	Y Yes	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	11	P PEEK	A Ball	P PEEK		Green Aluminum Bar		304 304 S.S.	
	MBT	Male BSPT	8	1/2 in. or 8 mm		15	K PCTFE				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	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	Nut + Gasket + Fractional Bulge Nipple	22	22 mm or M22 x 1.5										A825 Alloy 825	
UGM	Nut + Gasket + Metric Bulge Nipple	24	M24 x 1.5										A276 Alloy C276	
FSW	Fractional Tube Socket Weld	25	25 mm										DU7 Duplex 2507	
MSW	Metric Tube Socket Weld	27	M27 x 2											
FBW	Fractional Tube Butt Weld	28	28 mm											
MBW	Metric Tube Butt Weld													
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

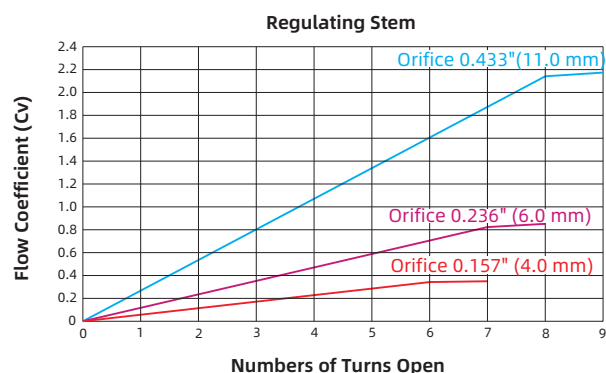
ASME Class	4500					N/A
Material Group	2.2	2.8	3.4	3.1	3.5	N/A
Material Name	316 S.S.	F53 S.S.	Alloy 400	Alloy 20	Alloy 600	Alloy C-276
Temperature, °F (°C)	Working Pressure, psig (bar)					
-65 (-53) to 100 (37)	10000 (689)	10000 (689)	10000 (689)	10000 (689)	10000 (689)	10000 (689)
200 (93)	9290 (640)	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.

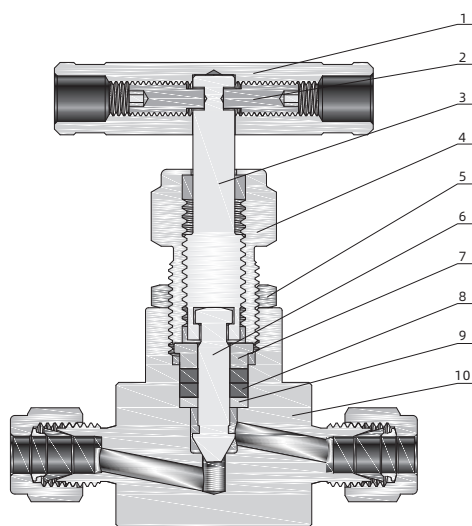
Temperature Ranges

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)

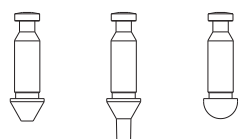
Flow Data at 100°F (37°C)



Standard Materials of Construction



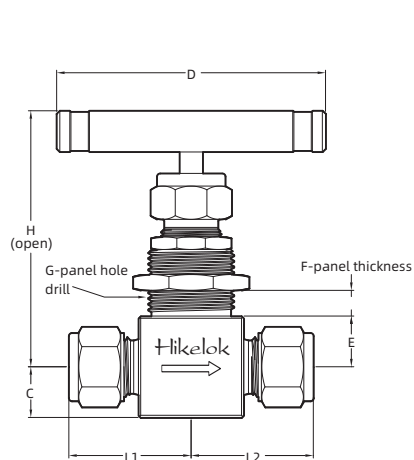
Stem Type



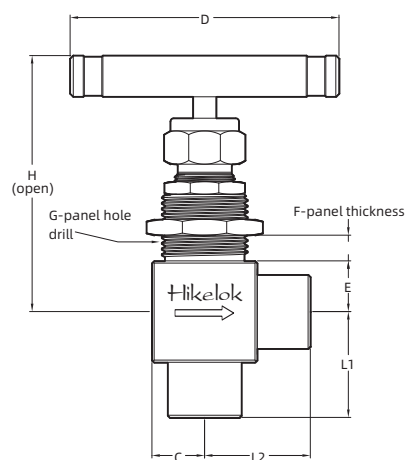
Blunt Regulating Ball

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 seat 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	1.13 (28.6)	1.13 (28.6)	0.53 (13.5)	2.17 (55)	0.53 (13.5)	0.25 (6.4)	0.96 (24.4)	2.85 (72.5)
NV2-FNPT4-04-	1/4" Female NPT										
NV2-FNPT4-NPT4-04-	1/4" Female to Male NPT										
NV2-NPT4-04-	1/4" Male NPT										
NV2-F4-04-	1/4" Hikelok										
NV2-M6-04-	6 mm Hikelok										
NV2-M8-04-	8 mm Hikelok										
NV2-FSW4-04-	1/4" FSW	0.236 (6.0)	0.85	1.13 (28.6)	1.13 (28.6)	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-FNPT4-06-	1/4" Female NPT			1.31 (33.4)	1.31 (33.4)						
NV2-FNPT6-06-	3/8" Female NPT			1.41 (35.8)	1.41 (35.8)						
NV2-FNPT8-06-	1/2" Female NPT			1.52 (38.6)	1.52 (38.6)						
NV2-F6-06-	3/8" Hikelok			1.42 (36.1)	1.42 (36.1)						
NV2-F8-06-	1/2" Hikelok			1.52 (38.6)	1.52 (38.6)						
NV2-M10-06-	10 mm Hikelok			1.42 (36.1)	1.42 (36.1)						
NV2-M12-06-	12 mm Hikelok			1.52 (38.6)	1.52 (38.6)						
NV2-M14-06-	14 mm Hikelok			1.56 (39.7)	1.56 (39.7)						
NV2-FSW6-06-	3/8" FSW			1.31 (33.4)	1.31 (33.4)						
NV2-FSW8-06-	1/2" FSW			1.31 (33.4)	1.31 (33.4)						
NV2-MSW12-06-	12 mm MSW			1.56 (39.7)	1.56 (39.7)						
NV2-MSW14-06-	14 mm MSW			1.56 (39.7)	1.56 (39.7)						
NV2-FNPT8-11-	1/2" Female NPT	0.433 (11.0)	2.18	1.56 (39.6)	1.56 (39.6)	0.875 (22.2)	3.5 (88.9)	0.875 (22.2)	0.38 (9.7)	1.28 (32.5)	4.17 (106)
NV2-FNPT12-11-	3/4" Female NPT			1.63 (41.3)	1.63 (41.3)						
NV2-F12-11-	3/4" Hikelok			1.97 (50.0)	1.97 (50.0)						
NV2-M14-11-	14 mm Hikelok			1.97 (50.0)	1.97 (50.0)						
NV2-M16-11-	16 mm Hikelok			1.97 (50.0)	1.97 (50.0)						
NV2-M18-11-	18 mm Hikelok			1.97 (50.0)	1.97 (50.0)						
NV2-MSW14-11-	14 mm MSW			1.56 (39.7)	1.56 (39.7)						
NV2-MSW16-11-	16 mm MSW			1.56 (39.7)	1.56 (39.7)						

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							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 Stellite	11 0.433 in. (11 mm)		R Regulating	G Graphite	Y Yes	Red Aluminum Bar	A1 Angle	304 304 S.S.
	MBT Male BSPT	8 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	12 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 Budge Nipple	20 1 1/4 in. or 20 mm or M20 x 1.5											A825 Alloy 825
	UGM Nut + Gasket + Metric Budge Nipple	22 22 mm or M22 x 1.5											A276 Alloy C276
	F5W Fractional Tube Socket Weld	24 M24 x 1.5											DU7 Duplex 2507
	MSW Metric Tube Socket Weld	25 25mm											
	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

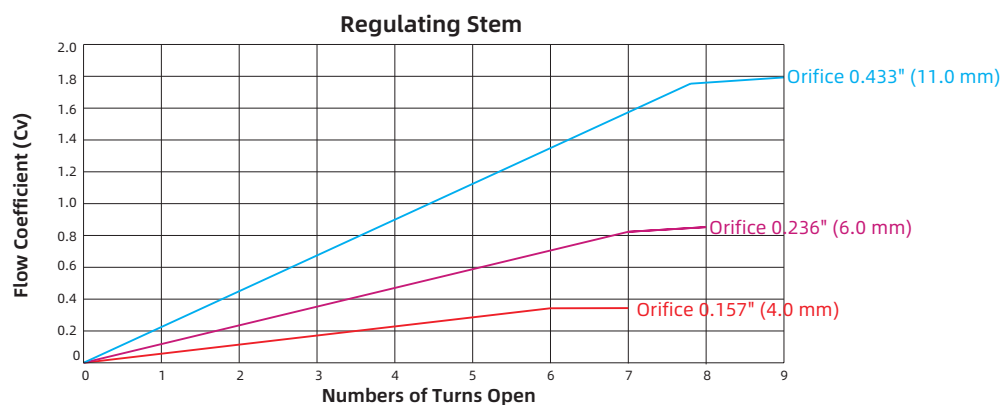
ASME Class	2500						N/A
Material Group	2.2	2.2	2.8	3.4	3.1	3.5	N/A
Material Name	316 S.S.	316H S.S.	F53 S.S.	Alloy 400	Alloy 20	Alloy 600	Alloy C-276
Temperature, °F (°C)	Working Pressure, psig (bar)						
-65 (-53) to 100 (37)	6000 (413)	6000 (413)	6000 (413)	5000 (344)	5000 (344)	6000 (413)	6000 (413)
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)

∇ Based on graphite stem packing.

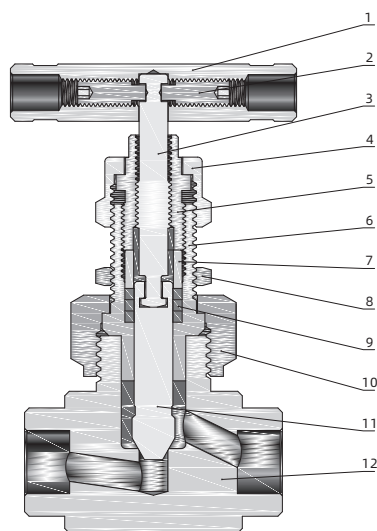
Temperature Ranges

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)

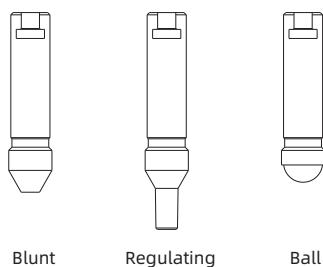
Flow Data at 100°F (37°C)



Standard Materials of Construction

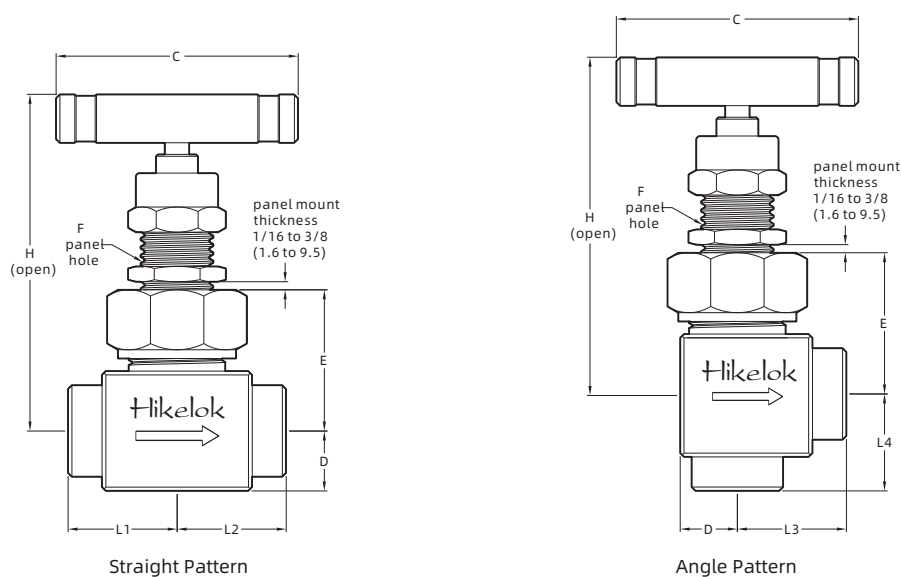


Stem Type



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)	1.16 (29.5)	1.48 (37.6)						
NV3 -NPT4-F4-04-	1/4" Male NPT			1.03 (26.2)	1.22 (30.9)								
NV3 -FNPT4-F4-04-	1/4" Female NPT to 1/4" Hikelok			1.03 (26.2)	1.22 (30.9)								
NV3 -F4-04-	1/4" Hikelok			1.22 (30.9)	1.22 (30.9)	0.88 (22.4)	1.19 (30.2)						
NV3 -M6-04-	6 mm Hikelok			0.91 (23.1)	0.91 (23.1)								
NV3 -M8-04-	8 mm Hikelok												
NV3 -FSW4-04-	1/4" FSW												
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			1.50 (38.1)	1.50 (38.1)	1.25 (31.8)	1.50 (38.1)						
NV3 -NPT8-06-	1/2" Male NPT			1.41 (35.9)	1.41 (35.9)	1.29 (32.8)	1.66 (42.2)						
NV3 -F6-06-	3/8" Hikelok			1.52 (38.6)	1.52 (38.6)	1.40 (35.6)	1.65 (41.9)						
NV3 -F8-06-	1/2" Hikelok			1.42 (36.1)	1.42 (36.1)	1.30 (33.0)	1.55 (39.4)						
NV3 -M10-06-	10 mm Hikelok												

Basic Ordering Number	Connection Type and Size	Orifice in. (mm)	Cv	Dimension, in. (mm)								
				L1	L2	L3	L4	C	D	E	F	H
NV3 -M12-06-	12 mm Hikelok	0.236 (6.0)	0.8	1.52 (38.6)	1.52 (38.6)	1.40 (35.6)	1.65 (41.9)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	0.78 (19.8)	3.70 (94)
NV3 -M14-06-	14 mm Hikelok											
NV3 -M16-06-	16 mm Hikelok											
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			2.92 (74.1)	2.92 (74.1)	2.55 (64.7)	2.92 (74.1)					
NV3 -UGM14-06-	14 mm UGM			1.50 (38.1)	1.50 (38.1)	1.13 (28.6)	1.50 (38.1)					
NV3 -MS20-06-	M20 x 1.5 Male ISO											
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" Hikelok											
NV3 -F12-11-	3/4" Hikelok											
NV3 -M14-11-	14 mm Hikelok			1.97 (50.0)	1.97 (50.0)	1.68 (42.7)	2.08 (52.8)					
NV3 -M16-11-	16 mm Hikelok											
NV3 -M18-11-	18 mm Hikelok											
NV3 -M20-11-	20 mm Hikelok											
NV3 -MSW14-11-	14" mm MSW											
NV3 -MSW16-11-	16" mm MSW											
NV3 -FSW8-11-	1/2" FSW			1.56 (39.7)	1.56 (39.7)	1.31 (33.3)	1.69 (42.9)					
NV3 -FSW12-11-	3/4" FSW											
NV3 -MBW14-11-	14 mm MBW											
NV3 -MBW16-11-	16 mm MBW											
NV3 -UGM14-11-	14 mm UGM			2.98 (75.7)	2.98 (75.7)	—	—					
NV3 -MS27-11-	M27 x 2 Male ISO			1.56 (39.7)	1.56 (39.7)							

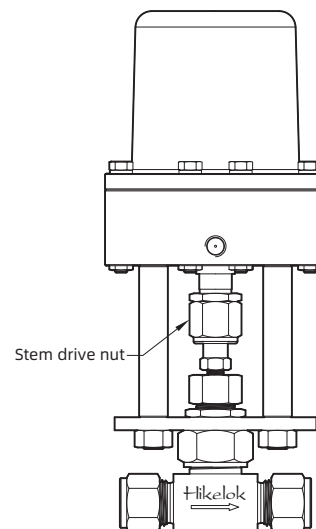
Pneumatic Actuators

Features

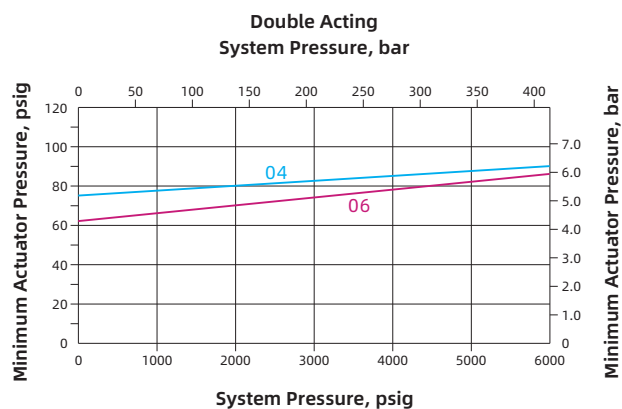
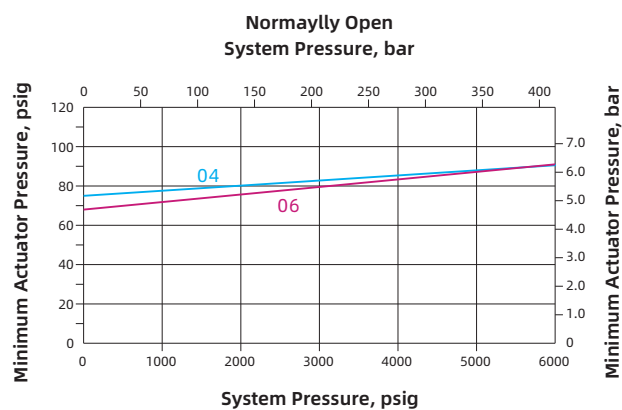
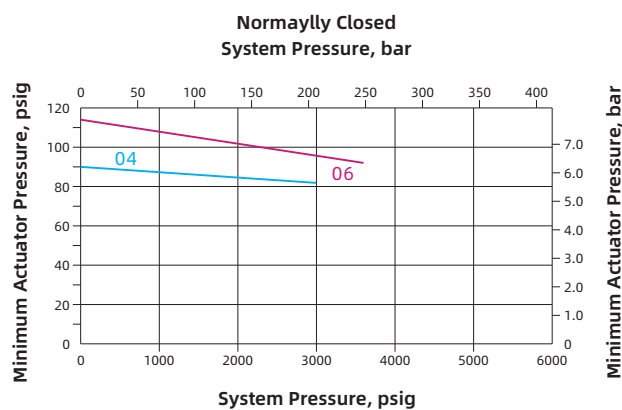
- ❖ Adjustment of the actuator stem drive nut affects actuator spring force, which in turn affects:
the maximum system pressure that can be shut off by the valve
the minimum actuator pressure required to open the valve

Actuation Modes

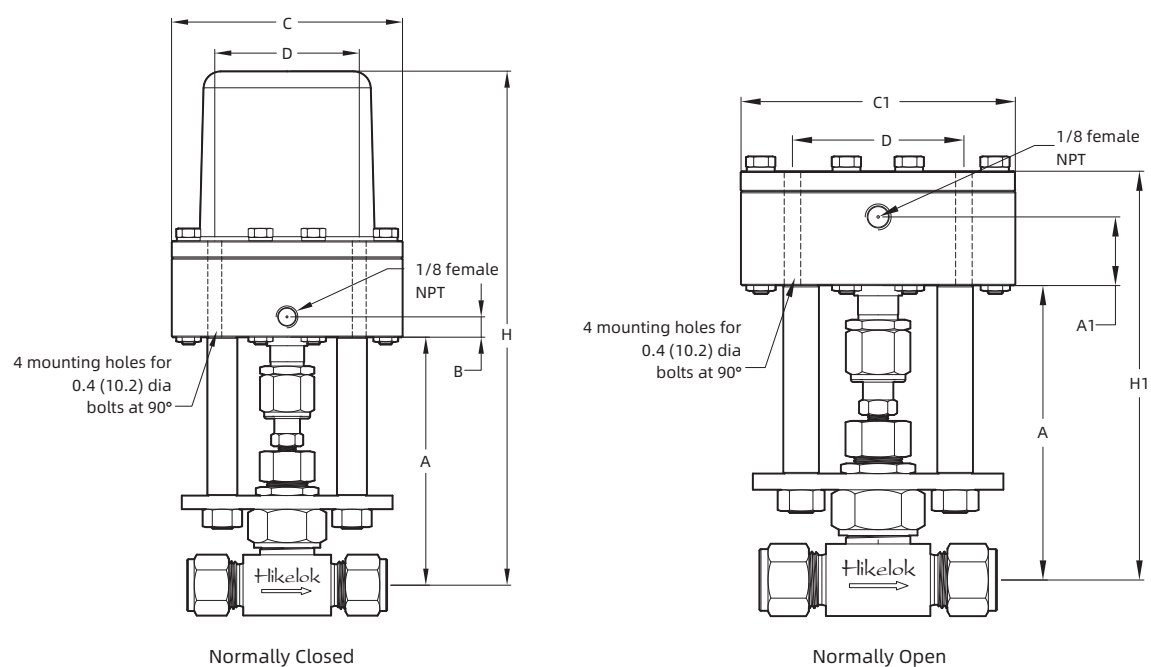
- ❖ Normally closed – air opens, spring closes
- ❖ Normally open – air close, spring opens
- ❖ Double acting – air opens and closes



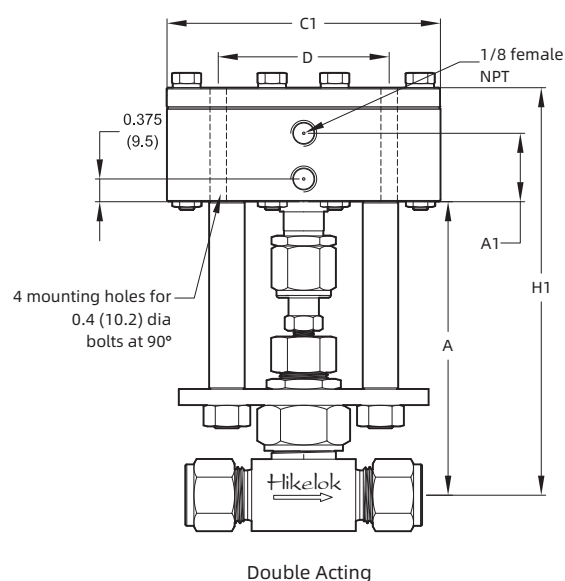
Pneumatic Actuators Performance



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 Outlet Type 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	Same as Body	04 (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	3/8 in. or 6 mm	If outlet and inlet are the same, eliminate the outlet designator	S Stellite	06 (6.0 mm)	S Stellite	R Regulating	G Graphite	Red Aluminum Bar R1	A1 Angle	B Buna N	NC Normally Closed	304 304 S.S.
	MBT Male BSPT	1/2 in. or 8 mm							Green Aluminum Bar G1		E Ethylene Propylene	NO Normally Open	304L 304L S.S.
	FMS Female Metric	10 10 mm							Blue Aluminum Bar L1		N Neoprene	PD Double Acting	321 321 S.S.
	MS Male Metric (for BG)	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	1 1/4 in. or 20 mm or M20 x 1.5											A600 Alloy 600
	Nut + Gasket	22 22 mm or M22 x 1.5							303 Stainless Steel Bar S1				A825 Alloy 825
	UGF + Fractional Bulge Nipple												A276 Alloy C276
	Nut + Gasket	24 M24 x 1.5											DU7 Duplex 2507
	UGM + Metric Bulge Nipple												
	FSW Fractional Tube Socket Weld	25 25mm											
	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

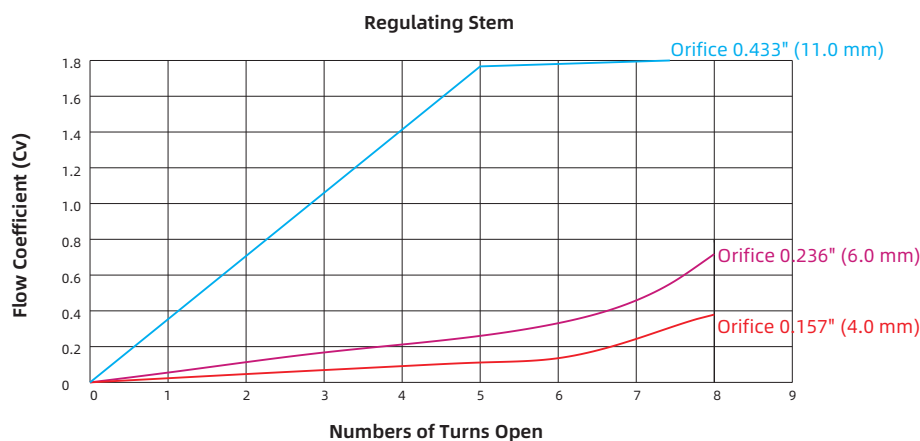
Body Material	316 Stainless Steel
Temperature, °F (°C)	Working Pressure, psig(bar)
-65 (-53) to 100 (37)	5000 (344)
200 (93)	4295 (295)
300 (148)	3875 (266)
400 (204)	3560 (245)
500 (260)	3310 (228)
600 (315)	3130 (215)

- ❖ Based on PEEK stem packing.
- Working temperature with PCTFE stem tip:
-65°F(-53°C) to 200°F(93°C)

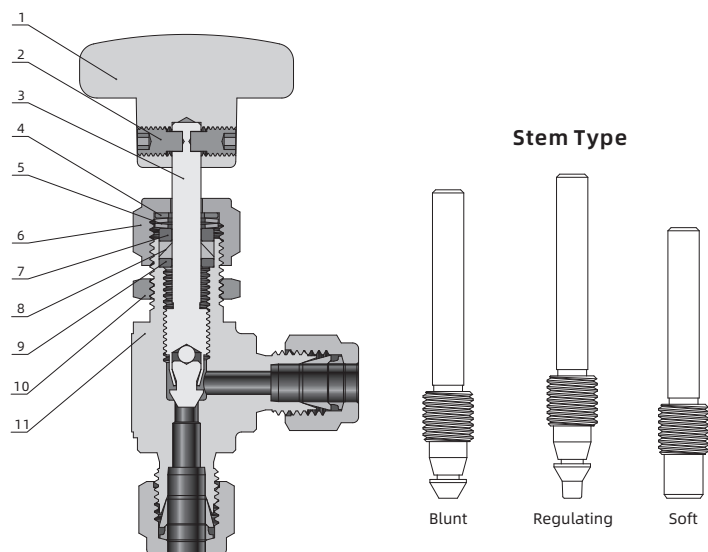
Temperature Ranges

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)

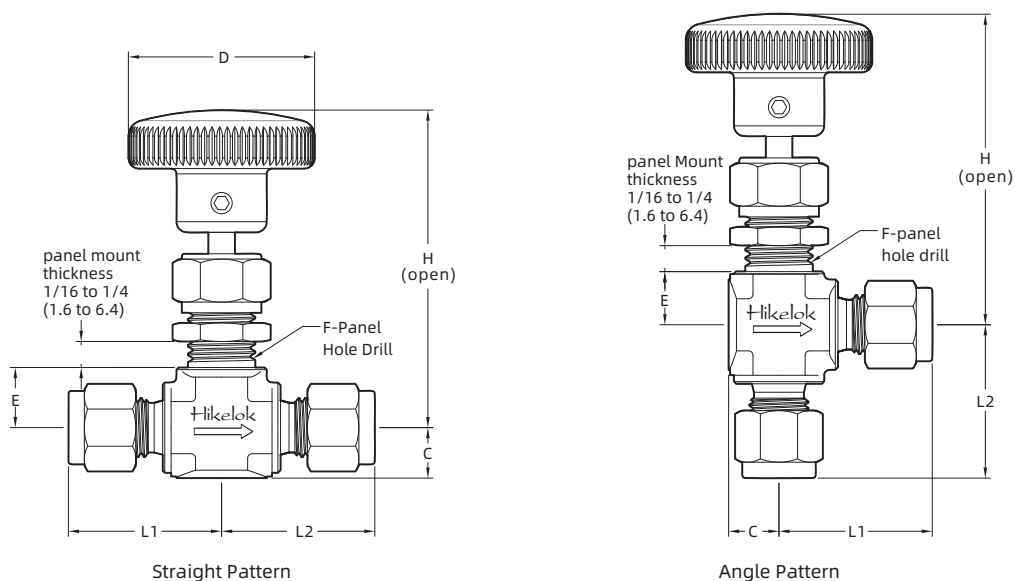


Standard Materials of Construction



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)					
NV4-F2-02-	1/8" Hikelok			0.98 (25.0)	0.98 (25.0)	0.31 (7.9)	1.0 (25.4)	0.44 (11.2)	0.53 (13.5)	2.28 (57.9)
NV4-M3-02-	3 mm Hikelok									
NV4-FNPT2-04-	1/8" Female NPT	0.157 (4.0)	0.35	0.81 (20.6)	0.81 (20.6)					
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)	0.39 (9.9)	1.38 (35.0)	0.44 (11.2)	0.53 (13.5)	2.50 (63.5)
NV4-F4-04-	1/4" Hikelok			1.17 (29.7)	1.17 (29.7)					
NV4-M6-04-	6 mm Hikelok									
NV4-M8-04-	8 mm Hikelok									
NV4-FNPT4-06-	1/4" Female NPT	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)					
NV4-FNPT6-06-	3/8" Female NPT			1.12 (28.4)	1.12 (28.4)					
NV4-NPT6-06-	3/8" Male NPT			1.50 (38.1)	1.50 (38.1)					
NV4-NPT8-06-	1/2" Male NPT			1.29 (32.8)	1.29 (32.8)	0.5 (12.7)	1.88 (47.8)	0.5 (12.7)	0.78 (19.8)	2.97 (75.4)
NV4-F6-06-	3/8" Hikelok			1.4 (35.6)	1.4 (35.6)					
NV4-F8-06-	1/2" Hikelok			1.3 (33.0)	1.3 (33.0)					
NV4-M10-06-	10 mm Hikelok			1.4 (35.6)	1.4 (35.6)					
NV4-M12-06-	12 mm Hikelok			1.56 (39.7)	1.56 (39.7)					
NV4-M14-06-	14 mm Hikelok			1.50 (38.1)	1.50 (38.1)					
NV4-MS20-06-	M20 x 1.5 Male ISO			1.50 (38.1)	1.50 (38.1)					
NV4-FNPT8-11-	1/2" Female NPT	0.375 (9.5)	1.80	1.50 (38.1)	1.50 (38.1)					
NV4-FNPT12-11-	3/4" Female NPT			1.63 (41.3)	1.63 (41.3)	0.75 (19.1)	3.00 (76.2)	0.75 (19.1)	1.03 (26.2)	3.91 (99.3)
NV4-NPT12-11-	3/4" Male NPT									
NV4-F8-11-	1/2" Hikelok			1.90 (48.3)	1.90 (48.3)					
NV4-F12-11-	3/4" Hikelok									
NV4-M14-11-	14 mm Hikelok									

❖ 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.			04 0.157 in. (4.0 mm)	T PTFE	R Regulating	P PEEK	R1 Red Round	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 0.25 in. (6.4 mm)	K PCTFE			G1 Green Round		304 304 S.S.
	MBT Male BSPT	8 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)	12 3/4 in. or 12 mm									A20 Alloy 20
	FBP Female BSPP	14 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.

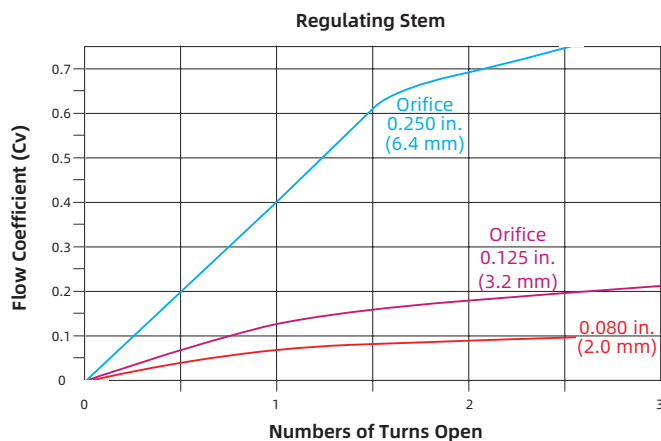
Working temperature with PCTFE stem tip:

-65°F(-53°C) to 200°F(93°C)

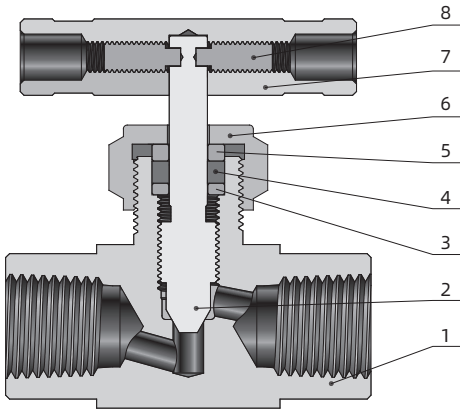
Temperature Ranges

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)

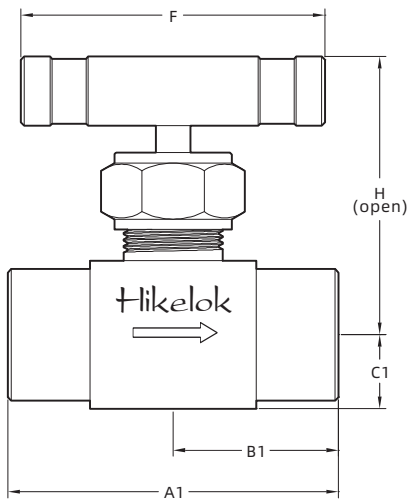


Standard Materials of Construction

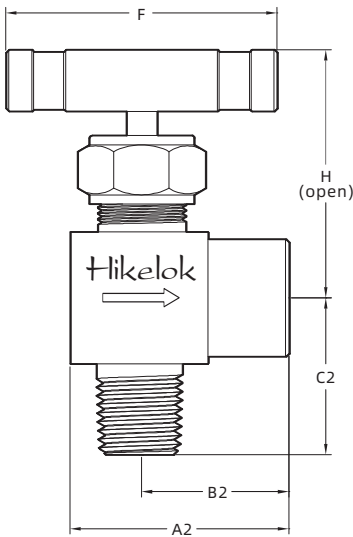


Component		Valve Body Material
		316 S.S.
1	Body	316 S.S. / A479
2	Stem	Chrome-plated 316 S.S. / A276
3	Gland	316 S.S. / A240
4	Packing	PTFE or PEEK
5	Gland	316 S.S. / A240
6	Nut	316 S.S. / A276
7	Handle	Anodized aluminum or stainless steel
8	Screw	Galvanized steel

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)					
NV5 with vee stem											
NV5-F4-03-	1/4" Hikelok	0.125 (3.2)	0.21	2.46 (62.5)	1.57 (39.9)	1.23 (31.2)	1.13 (28.7)	0.42 (10.7)	1.16 (29.5)	1.75 (44.4)	1.66 (42.2)
NV5-F6-06-	3/8" Hikelok	0.25 (6.4)	0.73	3.08 (78.2)	—	1.54 (39.1)	—	0.66 (16.8)	—	2.50 (63.5)	2.31 (58.7)
NV5-F8-06-	1/2" Hikelok			3.30 (83.8)		1.65 (41.9)					
NV5-FNPT4-03-	1/4" Female NPT	0.125 (3.2)	0.21	1.88 (47.8)	1.44 (36.6)	0.94 (23.9)	1.00 (25.4)	0.42 (10.7)	1.00 (25.4)	1.75 (44.4)	1.66 (42.2)
NV5-FNPT6-06-	3/8" Female NPT	0.25 (6.4)	0.73	2.50 (63.5)	—	1.25 (31.8)	—	0.66 (16.8)	—	2.50 (63.5)	2.31 (58.7)
NV5-FNPT8-06-	1/2" Female NPT			2.06 (52.3)	1.41 (35.8)	1.41 (35.8)					
NV5-NPT4-03-	1/4" Male NPT	0.125 (3.2)	0.21	1.94 (49.3)	—	0.97 (24.6)	—	0.42 (10.7)	—	1.75 (44.4)	1.66 (42.2)
NV5-NPT4-F4-03-	1/4" Male NPT to 1/4"Hikelok			—	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)	0.66 (16.8)	1.22 (31.0)	2.50 (63.5)	2.31 (58.7)
NV5-NPT8-FNPT8-06-	1/2" Male to Female NPT			2.55 (64.8)					1.41 (35.8)		
NV5-NPT12-FNPT8-06-	3/4" Male to 1/2" Female NPT			2.50 (63.5)	—		—		—		
NV5-FBT4-03-	1/4" Female BSPT	0.125 (3.2)	0.21	1.88 (47.8)	—	0.94 (23.9)	—	0.42 (10.7)	—	1.75 (44.4)	1.66 (42.2)
NV5-FBT8-06-	1/2" Female BSPT	0.25 (6.4)	0.73	2.50 (63.5)		1.25 (31.8)		0.66 (16.8)		2.50 (63.5)	2.31 (58.7)

How to Order

NV5 — FNP4 — FNPT4 — 03R — 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 14 mm or M14 x 1.5								
	MBP Male BSPP (for BG)									
	F Fractional Tube Fitting									
	M Metric Tube Fitting									

Toggle Type Needle Valves

NV6 Series

Features

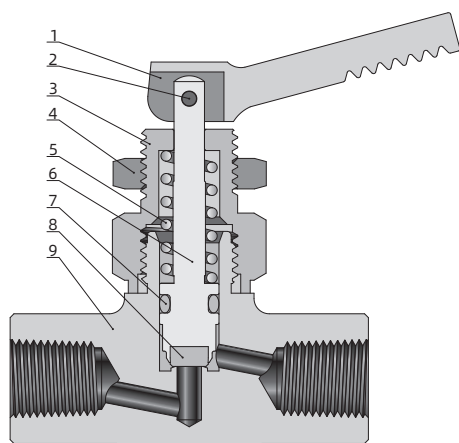
- ❖ Maximum working pressure up to 300 psig (20.6 bar)
- ❖ Working temperature from -20°F to 200°F (-28°C to 93°C)
- ❖ One-piece forged body
- ❖ Straight, angle and cross flow patterns
- ❖ Opens and closes quickly
- ❖ Soft-seat shutoff
- ❖ O-ring stem seal needs no adjustment

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)		

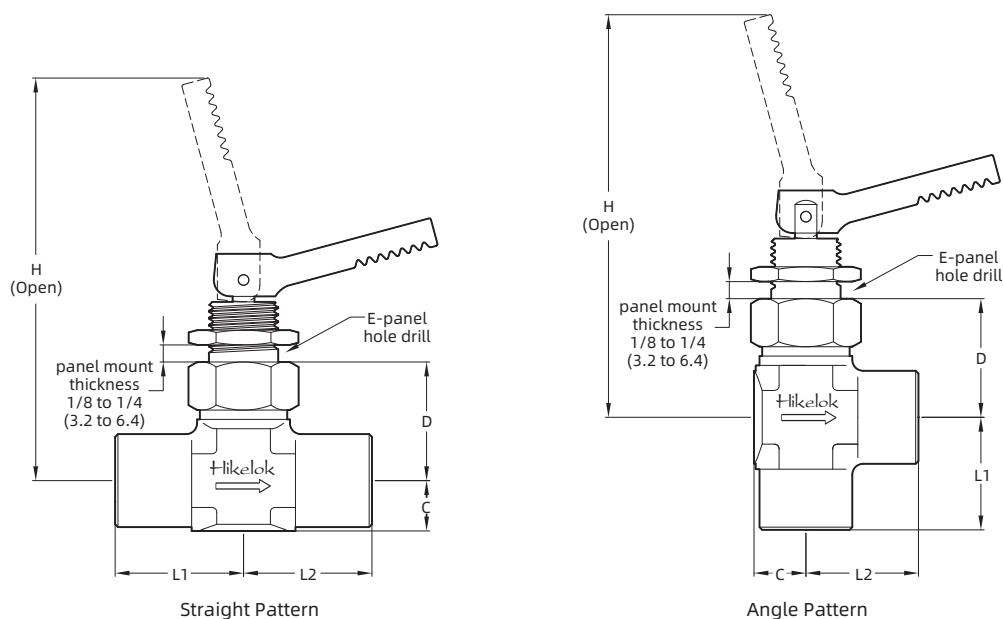


Standard Materials of Construction



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" Hikelok			0.75 (19.0)	0.98 (25.0)				
NV6-F2-02-	1/8" Hikelok			0.98 (25.0)	0.98 (25.0)				
NV6-M3-02-	3 mm Hikelok								
NV6-FNPT2-03-	1/8" Female NPT	0.125 (3.2)	0.20	0.81 (20.6)	0.81 (20.6)	0.39 (9.9)	0.92 (23.4)	0.53 (13.5)	2.87 (72.9)
NV6-NPT2-03-	1/8" Male NPT			0.86 (21.8)	0.86 (21.8)				
NV6-NPT4-03-	1/4" Male NPT			25.0 (0.98)	25.0 (0.98)				
NV6-NPT4-F4-03-	1/4" Male NPT to 1/4" Hikelok			25.0 (0.98)					
NV6-F4-03-	1/4" Hikelok			1.13 (28.7)	1.13 (28.7)				
NV6-M6-03-	6 mm Hikelok								
NV6-M8-03-	8 mm Hikelok								
NV6-FNPT4-06-	1/4" Female NPT	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)	0.5 (12.7)	1.06 (26.9)	0.66 (16.8)	3.56 (90.4)
NV6-FNPT6-06-	3/8" Female NPT			1.12 (28.4)	1.12 (28.4)				
NV6-NPT6-06-	3/8" Male NPT			1.29 (32.8)	1.29 (32.8)				
NV6-F6-06-	3/8" Hikelok			1.4 (35.6)	1.4 (35.6)				
NV6-F8-06-	1/2" Hikelok			1.36 (34.5)	1.36 (34.5)				
NV6-M10-06-	10 mm Hikelok			1.46 (37.1)	1.46 (37.1)				
NV6-M12-06-	12 mm Hikelok								
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								

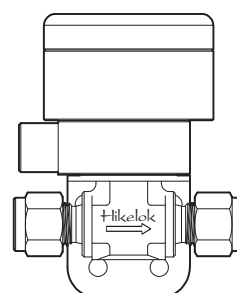
Pneumatic Actuators

Features

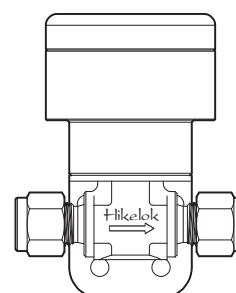
- ❖ Maximum working pressure up to 450 psig (31 bar)
- ❖ Working temperature from -20°F to 200°F (-28°C to 93°C)
- ❖ O-ring stem seal needs no adjustment
- ❖ Valve and actuator are fully assembled and factory tested

Actuation Modes

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



Normally Closed
and Double Acting

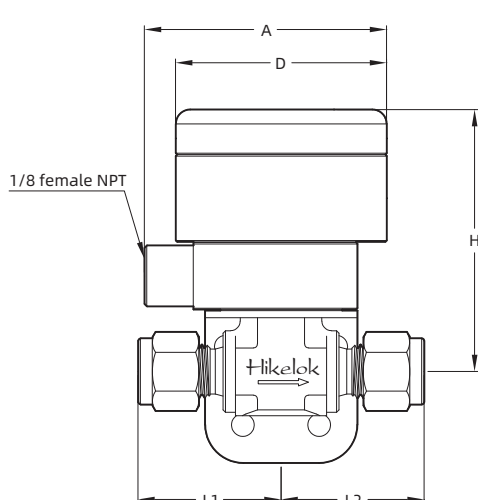


Normally Open

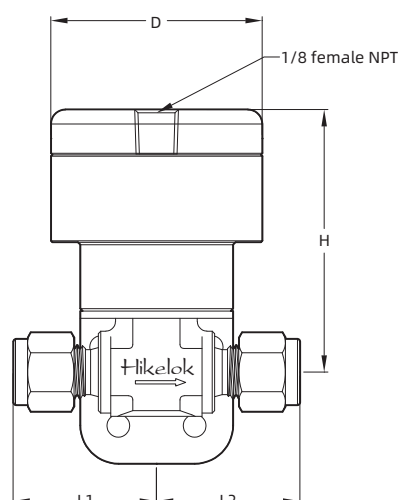
Pressure-Temperature Ratings

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)	

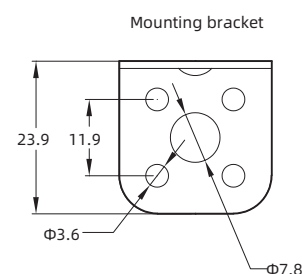
Dimensions



Normally Closed
and Double Acting



Normally Open



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" Hikelok	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" Hikelok			—		—	—	
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" Hikelok			—		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.				B Buna N	NC Normally Closed	A1 Angle	316L 316L S.S.
	FBT Female BSPT	6 3/8 in. or 6 mm			03 0.125 in. (3.2 mm)	E Ethylene Propylene			304 304 S.S.
	MBT Male BSPT	8 1/2 in. or 8 mm	If outlet and inlet are the same, eliminate the outlet designator		06 0.25 in. (6.4 mm)	N Neoprene	NO Normally Open		304L 304L S.S.
	FMS Female Metric	10 10 mm				Z Kalrez	PD Double Acting		
	MS Male Metric (for BG)	12 3/4 in. or 12 mm							
	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

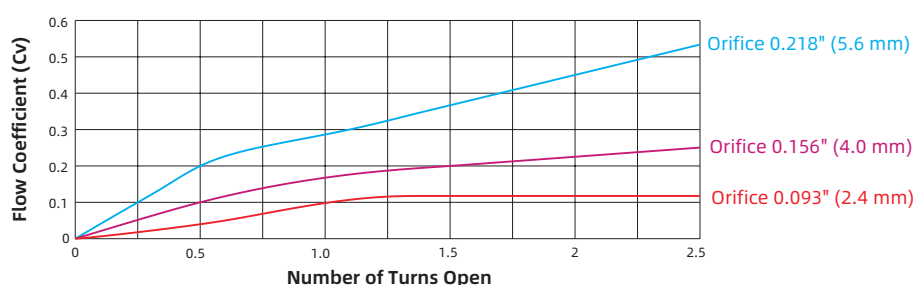
ASME Class	1500				N/A	
Material Group	2.2		3.4		N/A	
Material Name	316 S.S.		Alloy 400		Alloy C-276	
Stem Tip Material	PCTFE	PEEK	PCTFE	PEEK	PCTFE	PEEK
Temperature, °F (°C)	Working Pressure, psig (bar)					
-20 (-28) to 100 (37)	3000 (206)	3000 (206)	3000 (206)	3000 (206)	2000 (206)	3000 (206)
150 (65)	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

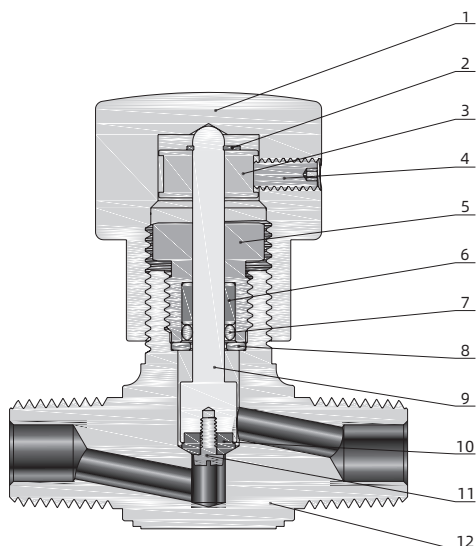
Temperature Ranges

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)

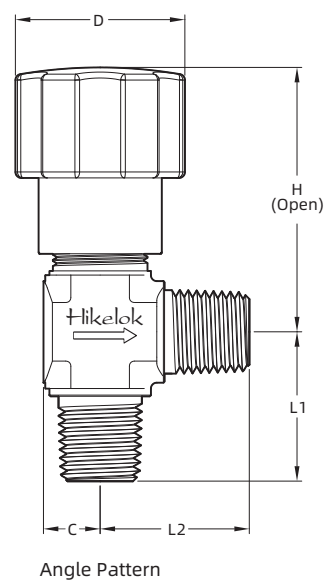
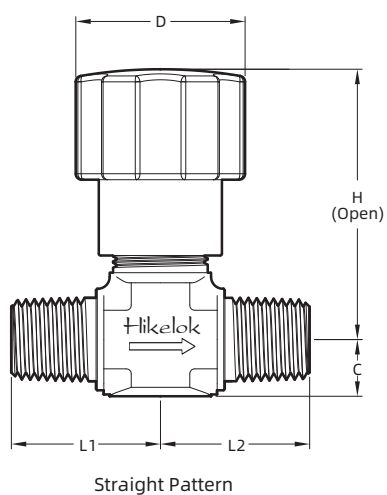


Standard Materials of Construction



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



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

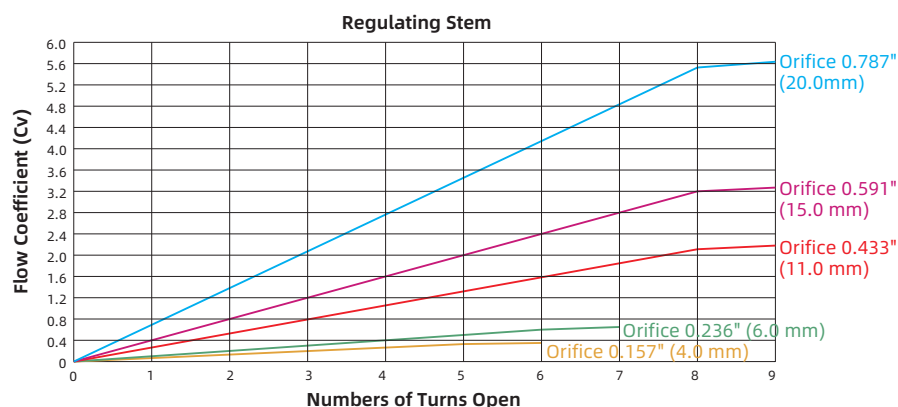
ASME Class	2500						N/A
Material Group	2.2	2.2	2.8	3.4	3.1	3.5	N/A
Material Name	316 S.S.	316H S.S.	F53 S.S.	Alloy 400	Alloy 20	Alloy 600	Alloy C-276
Temperature, °F (°C)	Working Pressure, psig (bar)						
-65 (-53) to 100 (37)	6000 (413)	6000 (413)	6000 (413)	5000 (344)	5000 (344)	6000 (413)	6000 (413)
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.

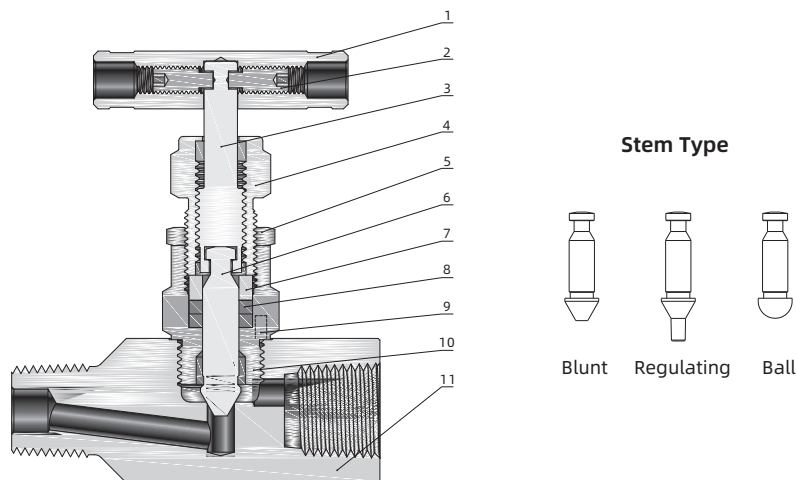
Temperature Ranges

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)

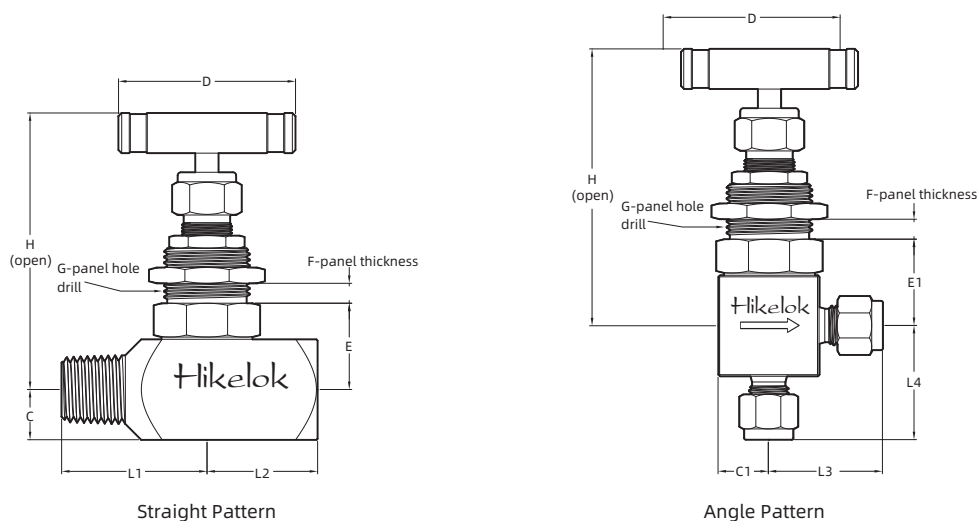


Standard Materials of Construction



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)														0.9 (23.0)							
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" Hikelok																									
NV8-M6-04-	6 mm Hikelok			1.20 (30.5)	1.20 (30.5)	1.20 (30.5)	1.20 (30.5)																			
NV8-M8-04-	8 mm Hikelok																									
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				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)	1.12 (28.6)	1.12 (28.6)													1.06 (27.0)							
NV8-NPT6-06-	3/8" Male NPT						1.12 (28.6)																			
NV8-F6-06-	3/8" Hikelok			1.41 (35.8)	1.41 (35.8)	1.32 (33.6)	1.32 (33.6)																			
NV8-F8-06-	1/2" Hikelok			1.52 (38.6)	1.52 (38.6)	1.42 (36.1)	1.42 (36.1)																			
NV8-M10-06-	10 mm Hikelok			1.42 (36.1)	1.42 (36.1)	1.33 (33.8)	1.33 (33.8)																			
NV8-M12-06-	12 mm Hikelok			1.52 (38.6)	1.52 (38.6)																					
NV8-M14-06-	14 mm Hikelok			1.56 (39.7)	1.56 (39.7)	1.42 (36.1)	1.42 (36.1)																			
NV8-FSW6-06-	3/8" FSW																									
NV8-FSW8-06-	1/2" FSW																									
NV8-MSW12-06-	12 mm MSW			1.13 (28.6)	1.13 (28.6)	1.13 (28.6)	1.13 (28.6)																			
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					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)	1.63 (41.3)	1.50 (38.1)																			
NV8-NPT12-11-	3/4" Male NPT						1.50 (38.1)																			
NV8-F12-11-	3/4" Hikelok																									
NV8-M14-11-	14 mm Hikelok			1.97 (50.0)	1.97 (50.0)	1.61 (41.0)	1.61 (41.0)																			
NV8-M16-11-	16 mm Hikelok																									
NV8-M18-11-	18 mm Hikelok																									
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			1.56 (39.7)	1.56 (39.7)																					
NV8-GFS8-11-	1/2" Male GFS																									
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 Hikelok																
NV8-M22-15-	22 mm Hikelok					2.35 (59.7)	2.35 (59.7)	2.35 (59.7)	2.0 (51.0)								
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	Same as Body	04 0.157 in. (4.0 mm)	Same as Body	Blunt	PTFE	No	Black Aluminum Bar	Straight	316 316 S.S.
	NPT	Male NPT	4 1/4 in.		S Stellite	06 0.236 in. (6.0 mm)	S Stellite	R Regulating	G Graphite	Y Yes	Red R1 Aluminum Bar	A1 Angle	316L 316L S.S.
	FBT	Female BSPT	3/8 in. or 6 mm					A Ball			Green G1 Aluminum Bar		304 304 S.S.
	MBT	Male BSPT	1/2 in. or 8 mm	If outlet and inlet are the same, eliminate the outlet designator		11 0.433 in. (11 mm)		T PTFE			Blue L1 Aluminum Bar		304L 304L S.S.
	FMS	Female Metric	10 10 mm			15 0.591 in. (15 mm)		K PCTFE			303 Stainless S1 Steel Bar		321 321 S.S.
	MS	Male Metric (for BG)	3/4 in. or 12 mm			20 0.787 in. (20 mm)		P PEEK					F91 F91
	FBP	Female BSPP	12 12 mm										F92 F92
	MBP	Male BSPP (for BG)	14 14 mm or M14 x 1.5										A400 Alloy 400
	F	Fractional Tube Fitting	1 in. or 16 mm										A20 Alloy 20
		Metric Tube Fitting	18 18 mm										A600 Alloy 600
	UGF	Nut + Gasket + Fractional Bulge Nipple	1 1/4 in. or 20 mm or M20 x 1.5										A825 Alloy 825
		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											