

# Needle Valve

NV1 Series



- ❖ 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

## Features

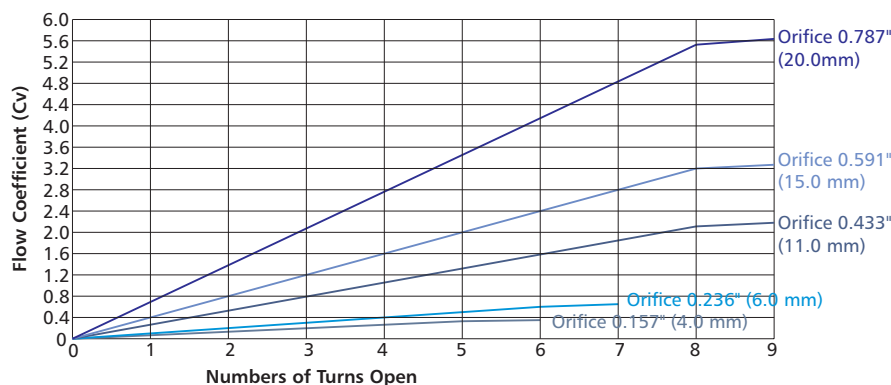
- ❖ Maximum working pressure up to 6000 psig (413 bar)
- ❖ Working temperature from -65°F to 1200°F (-53°C to 648°C)
- ❖ One-piece forged body
- ❖ Straight and angle patterns
- ❖ Upper stem and lower stem design, Stem threads above packing protected from system media
- ❖ Panel mounting available
- ❖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

## Pressure vs. Temperature

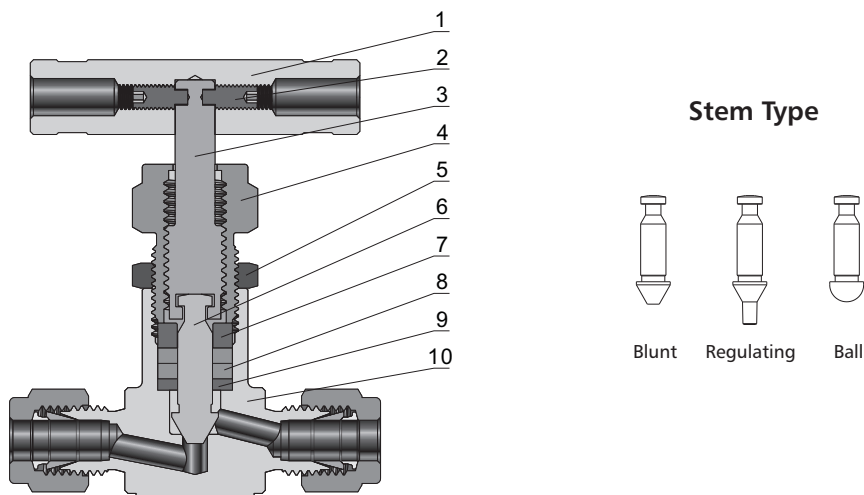
ASME Class	2500						N/A
Material Group	2. 2	2. 2	2. 8	3. 4	3. 1	3. 5	N/A
Material Name	316 S.S.	316H S.S.	F53 S.S.	Alloy 400	Alloy 20	Alloy 600	Alloy C-276
Temperature, °F (°C)	Working Pressure, psig (bar)						
-65 (-53) to 100 (37)	6000 (413)	6000 (413)	6000 (413)	5000 (344)	5000 (344)	6000 (413)	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)

## Flow Data at 100°F (38°C)

Regulating Stem



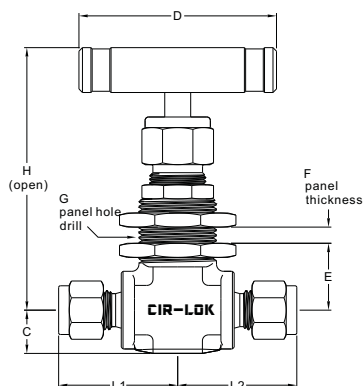
## Standard Materials of Construction



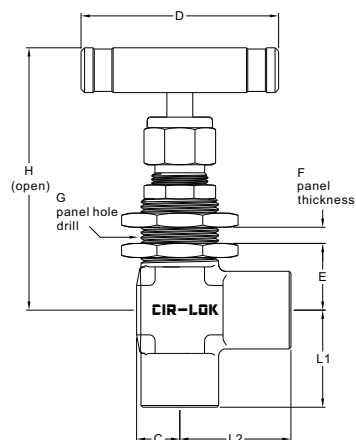
Component		Material Grade/ASTM Specification			
		316 S.S.	F91	F92	Brass
1	Handle	Anodized aluminum or stainless steel			
2	Screw	304 S.S.			
3	Upper Stem	316 S.S. /A276	F91/A182	F91/A182	Brass 360/B16
4	Packing Bolt	316 S.S. /A479			
5	Nut	316 S.S./B783			
6	Lower Stem	Chrome-plated 316 S.S. /A276	Chrome-plated F91/A182	Chrome-plated F91/A182	Chrome-plated 316 S.S. /A276
7	Gland	316 S.S. /A276	F91/A182	F91/A182	Brass 360/B16
8	Packing	PTFE or PEEK or graphite			
9	Packing Washer	316 S.S. /A276	F91/A182	F91/A182	Brass 360/B16
10	Body	316 S.S. /A182	F91/A182	F91/A182	Brass 377/B283

## 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			1.22 (30.9)	1.22 (30.9)						
NV1-M6-04-	6 mm CIR-LOK			1.25 (31.75)	1.25 (31.75)						
NV1-M8-04-	8 mm CIR-LOK			1.19 (30.2)	1.19 (30.2)						
NV1-NPT6-04-	3/8 Male NPT			1.13 (28.6)	1.13 (28.6)						
NV1-FNPT4-06-	1/4 Female NPT	0.236 (6.0)	0.85	1.44 (36.5)	1.44 (36.5)	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			1.13 (28.6)	1.13 (28.6)						
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			1.13 (28.6)	1.13 (28.6)						
NV1-F8-06-	1/2" CIR-LOK			1.50 (38.1)	1.50 (38.1)						
NV1-FSW6-06-	3/8" FSW			1.13 (28.6)	1.13 (28.6)						
NV1-FSW8-06-	1/2" FSW			1.50 (38.1)	1.50 (38.1)						
NV1-MSW12-06-	12 mm MSW			2.92 (74.1)	2.92 (74.1)						
NV1-MSW14-06-	14 mm MSW			1.50 (38.1)	1.50 (38.1)						
NV1-MSW16-06-	16 mm MSW			1.50 (38.1)	1.50 (38.1)						
NV1-MBW14-06-	14 mm MBW			1.50 (38.1)	1.50 (38.1)						
NV1-MBW16-06-	16 mm MBW	1.50 (38.1)	1.50 (38.1)								
NV1-UGM14-06-	14 mm UGM	1.50 (38.1)	1.50 (38.1)								
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	1.50 (38.1)	1.50 (38.1)								

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										
NV1-M14-11-	14 mm CIR-LOK										
NV1-M16-11-	16 mm CIR-LOK			1.97 (50.0)	1.97 (50.0)						
NV1-M18-11-	18 mm CIR-LOK										
NV1-M20-11-	20 mm CIR-LOK										
NV1-M25-11-	25 mm CIR-LOK										
NV1-MSW14-11-	14 mm MSW										
NV1-MSW16-11-	16 mm MSW										
NV1-MSW18-11-	18 mm MSW										
NV1-FSW12-11-	3/4" FSW			1.56 (39.7)	1.56 (39.7)						
NV1-FSW8-11-	1/2" FSW										
NV1-MBW14-11-	14 mm MBW										
NV1-MBW16-11-	16 mm MBW										
NV1-UGM14-11-	14 mm UGM			2.98 (75.7)	2.98 (75.7)						
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-FSW16-15-	1" FSW										
NV1-MSW25-15-	25 mm MSW										
NV1-MSW28-15-	28 mm MSW										
NV1-F12-15-	3/4" CIR-LOK										
NV1-F16-15-	1" CIR-LOK										
NV1-M20-15-	20 mm CIR-LOK			2.35 (59.7)	2.35 (59.7)						
NV1-M22-15-	22 mm CIR-LOK										
NV1-M25-15-	25 mm CIR-LOK										
NV1-FNPT16-20-	1 Female NPT			0.787 (20.0)	5.65						
NV1-FSW16-20-	1" FSW										
NV1-MSW25-20-	25 mm MSW										
NV1-MSW28-20-	28 mm MSW										

# How to Order

NV1— **MBW8** — **M12** — **S06S** — **GY** — **A** — **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 <b>S</b> Stellite	<b>04</b> 0.157 in. (4.0 mm) <b>06</b> 0.236 in. (6.0 mm) <b>11</b> 0.433 in. (11 mm) <b>15</b> 0.591 in. (15 mm) <b>20</b> 0.787 in. (20 mm)	Same as Body <b>S</b> Stellite	Blunt <b>R</b> Regulating <b>A</b> Ball	PTFE <b>G</b> Graphite	No <b>Y</b> Yes	Black Aluminum Bar <b>R</b> Red Aluminum Bar <b>G</b> Green Aluminum Bar <b>L</b> Blue Aluminum Bar <b>S</b> 304 Stainless Steel Bar	Straight <b>A</b> Angle	<b>316</b> 316 S.S. <b>316L</b> 316L S.S. <b>304</b> 304 S.S. <b>304L</b> 304L S.S. <b>321</b> 321 S.S. <b>F91</b> F91 <b>F91</b> F92 <b>A400</b> Alloy 400 <b>A20</b> Alloy 20 <b>A600</b> Alloy 600 <b>A825</b> Alloy 825 <b>A276</b> Alloy C276 <b>DU7</b> Duplex 2507 <b>BR</b> Brass
	NPT	Male NPT	4 1/4 in.										
	FBT	Female BSPT	6 3/8 in. or 6 mm										
	MBT	Male BSPT	8 1/2 in. or 8 mm										
	FMS	Female ISO 261	10 10 mm										
	MS	Male ISO 261	12 3/4 in. or 12 mm										
	FBP	Female BSPP	14 14 mm or M14 x 1.5										
	MBP	Male BSPP	16 1 in. or 16 mm										
	<b>F</b>	Fractional Tube Fitting	18 18 mm										
		Metric Tube Fitting	20 1 1/4 in. or 20 mm or M20 x 1.5										
	<b>M</b>	Nut + Gasket + Fractional Bulge Nipple	22 22 mm or M22 x 1.5										
	<b>UGF</b>	Nut + Gasket + Metric Bulge Nipple	24 M24 x 1.5										
	<b>UGM</b>	Fractional Tube Socket Weld	25 25 mm										
	<b>FSW</b>	Metric Tube Socket Weld	27 M27 x 2										
	<b>MSW</b>	Pipe Socket Weld	28 28 mm										
	<b>FBW</b>	Pipe Butt Weld											
<b>MBW</b>	Pipe Socket Weld												
<b>PSW</b>	Pipe Butt Weld												
<b>PBW</b>	Pipe Butt Weld												