

● VN5 Series Integral-Bonnet Needle Valves	5000 psig (345 bar)	Stainless Steel, Steel, and Brass	1-3
● VN6 Series Bar-Stock Needle Valves	6000 psig (413 bar)	Stainless Steel	4-5
● VNS6 & VNS10 Series Severe Service Union Bonnet Valves	6000 psig (413 bar)	Stainless Steel	6-8
● VNH10 Series Bonnet Needle Valves	10 000 psig (689 bar)	Stainless Steel, Steel	9-10

VN5 Series Integral-Bonnet Needle Valves

Working Pressure: 5000 psig (345 bar) @ 100° F (37° C)

Features

Complete Flow Pattern

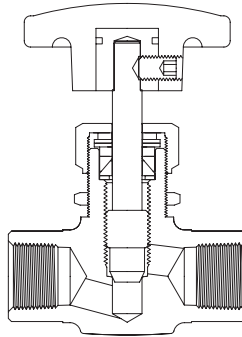
- 2-Way Straight / Angle Pattern
- 3-Way Cross-Pattern, providing continuous flow through two side ports and bottom port. Regulating stem is standard to regulate flow and on-off through the bottom port.

Live-Loaded Disc Springs

- Maintains load on packing for sealing and compensation for thermal cycling.
- Reduces the need for packing adjustment

Chevron Packing

2 -Piece packing on stem improves sealing integrity.



Integral Bonnet Body

Reduces potential leak path.

Packing Nut

Allows external packing adjustment maintaining the valve in-line.

Rolled Stem Threads with Hard-Chrome Plating

Ensure extended cycle life.

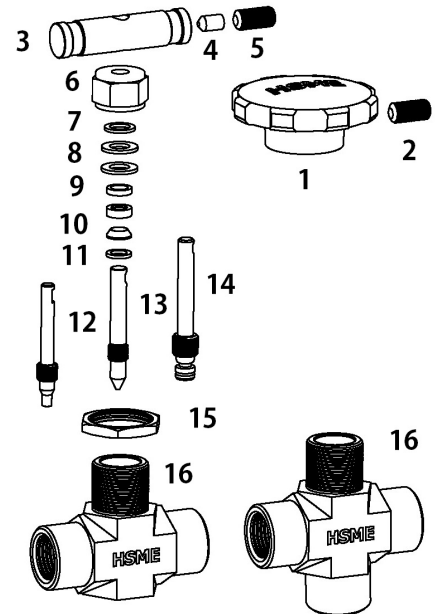
Choices of Stem Tips

- Standard Regulating Stem
- Soft-Seat Stem
- Vee Stem

Materials of Construction

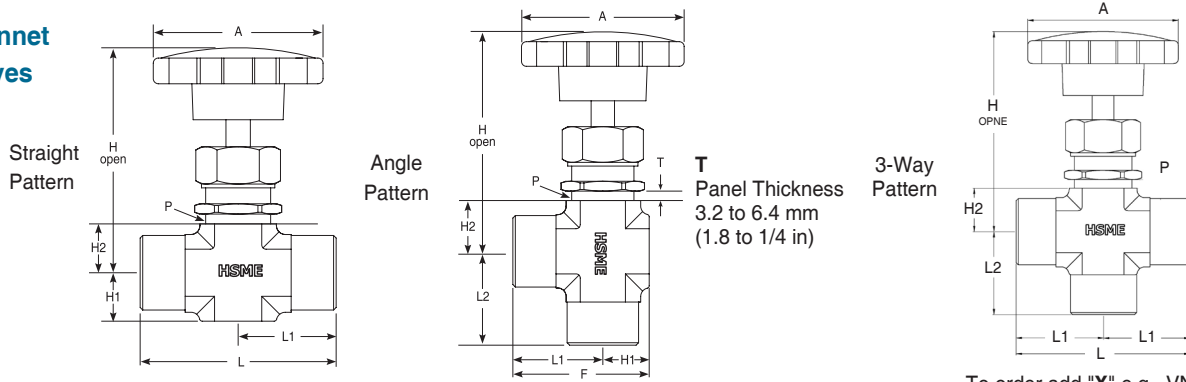
Components	Valve Body Material		
	Stainless Steel	Steel	Brass
	Material Grade / ASTM Standard		
1	Round Handle Glass Nylon with Brass insert		
2	Set Screw Stainless Steel		
3	Optional Bar Handle Black-Anodized Aluminum 2024 / B221		
4	Handle Pin Steel / A108		
5	Set Screw Stainless Steel		
6	SS316 / A276	White Zinc Plated Steel S45C / JIS G4051	C36000/B16 C3604/JIS H3250
7	Upper Gland SS316 / A276		
8	Disc Spring (2)(3) SUS 304 CP / JIS G4305 2 Springs:VN5A, VN5B Series 3 Springs:VN5C, VN5D Series		
9	Packing Gland SS316 / A276		
10	Chevron Packing (2) PTFE / D1710		
11	Lower Gland SS316 / A276		
12	Regulating Stem Hard Chrome-plated SS316/A276		
13	Vee Stem SS316 / A276		
14	Soft-Seat Stem PCTFE/D1430		
14	Non-rotating Stem Tip, PCTFE/D1430		
15	Panel Nut SS316 / A276		C36000/B16 C3604/JIS H3250
16	F316 / A182	White Zinc Plated SF440A / JIS G3201	C37700/B283 C3771/JIS H3250

- Wetted parts listed in **BOLD** letters
- **Wetted parts** are lubricated with Fluorocarbon-based lubricant.



VN5 Series Needle Valves

VN5 Series Integral-Bonnet Needle Valves



To order add "X" e.g., VN5DX

Ordering Information and Dimensions

Basic Ordering Number	End Connections		CV	Orifice mm (in.)	Dimensions mm (in.)									
	Inlet	Outlet			L	L1	L2	F	H	H1	H2	A	P	
VN5A-	A2T-	1/8 in. OD	0.09	2.0 (.080)	49.3 (1.94)	24.9 (0.98)		32.8 (1.29)	63.5 (2.50)	9.7 (0.38)	11.2 (0.44)	35.1 (1.38)	11.9 (0.47)	
	A3M-	3 mm OD						12.2 (0.48)						
	F2N-	1/8 in. Female NPT												
	M2N-	1/8 in. Male NPT												
	MA2N2T-	1/8 in. Male NPT/ 1/8 in. OD												11.9 (0.47)
VN5B-	A4T-	1/4 in. OD	0.37	4.4 (.172)	57.6 (2.27)	28.7 (1.13)		38.4 (1.51)	63.5 (2.50)	9.7 (0.38)	11.2 (0.44)	35.1 (1.38)	13.5 (0.53)	
	A6M-	6 mm OD												
	A8M-	8 mm OD												
	F2N-	1/8 in. Female NPT												
	M2N-	1/8 in. Male NPT												
	M4N-	1/4 in. Male NPT												
	MA4N4T-	1/4 in. Male NPT/ 1/4 in. OD												
VN5C-	A6T-	3/8 in. OD	0.73	6.4 (.250)	65.5 (2.58)	32.8 (1.29)		45.5 (1.79)	75.4 (2.97)	12.7 (0.50)	14.0 (0.55)	47.5 (1.87)	19.8 (0.78)	
	A8T-	1/2 in. OD												
	A10M-	10 mm OD												
	A12M-	12 mm OD												
	F4N-	1/4 in. Female NPT												
	F4R-	1/4 in. Female ISO Tapered												
	M6N-	3/8 in. Male NPT												
	MA4N6T-	1/4 in. Male NPT/ 3/8 in. OD												
	MA6N6T-	3/8 in. Male NPT/ 3/8 in. OD												
	MA6N8T-	3/8 in. Male / 1/2 in. OD												
	MF4N-	1/4 in. Male / Female NPT												
VN5D-	A8T-	1/2 in. OD	1.8	9.5 (.375)	96.5 (3.80)	48.3 (1.90)		67.3 (2.65)	99.3 (3.91)					
	A12T-	3/4 in. OD												
	A12M-	12 mm OD												
	A18M-	18 mm OD												
	F6N-	3/8 in. Female NPT												
	F6R-	3/8 in. Female ISO Tapered												
	F8N-	1/2 in. Female NPT			76.2 (3.00)	38.1 (1.50)	57.2 (2.25)	98.6 (3.88)						
	F8R-	1/2 in. Female ISO Tapered												
	M8N-	1/2 in. Male NPT												
	MF8N-	1/2 in. Male/Female NPT												
VN5DX	F8N-	1/2 in. Female NPT												

Pressure-Temperature Ratings

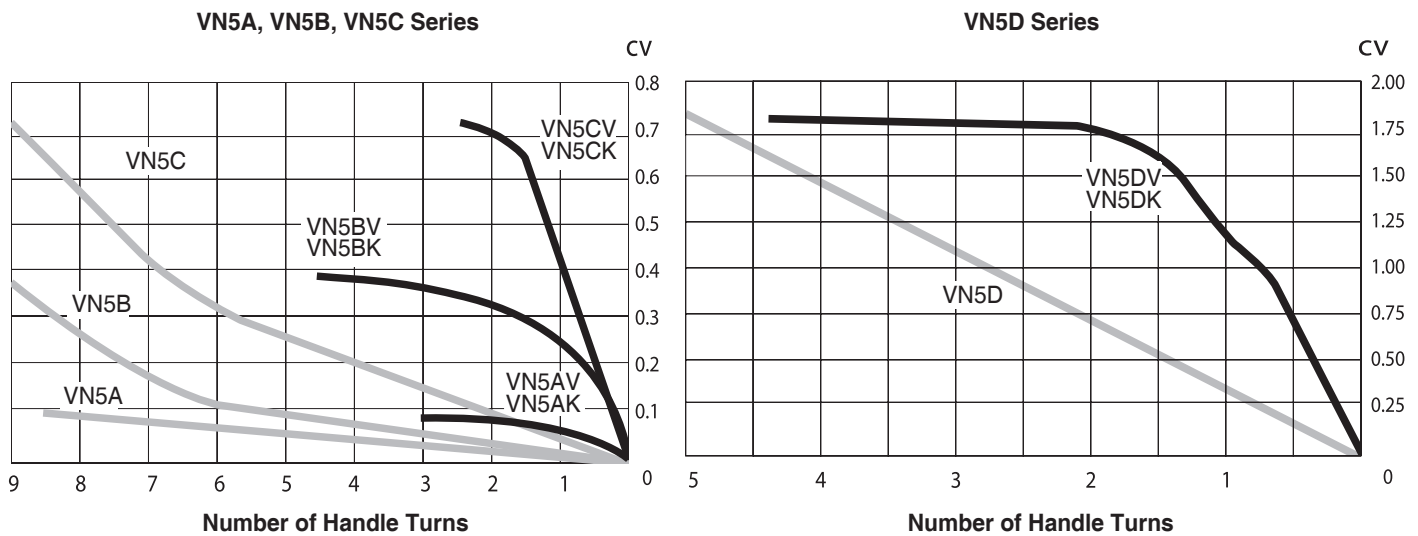
Ratings are based on valve with standard "PTFE" packing, regulating or Vee stem.

- Valves with PCTFE Soft-Seat Stem reduce the maximum temperature rating to 200 °F (93 °C).

Material		SS316	Steel	Brass
ASME Material Group		TABLE 2-2.2	N/A	N/A
ASME CLASS Rating		2080	N/A	N/A
Temperature		Working Pressure, psig (bar)		
°F	°C			
- 65 to -20	-53 to -28	5000 (344)	-	3000 (206)
-20 to 100	-28 to 37	5000 (344)	3000 (206)	3000 (206)
200	93	4293 (296)	2730 (188)	2350 (161)
250	121	4085 (281)	2695 (185)	2200 (151)
300	148	3877 (267)	2660 (183)	2050 (141)
350	176	3719 (256)	2615 (180)	1470 (101)
400	204	3562 (246)	2615 (180)	392 (27)
450	232	3437 (237)	-	-

Number of Handle Turns - Cv

@100 °F (37 °C)



Ordering Information

Select an applicable valve pattern, options and body material from the designator table below.

Step 1. Select the desired valve basic ordering number: Example. **VN5B-A4T-**

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
VN5B-A4T-	VN5BV-A4T- VN5BK-A4T-	- VN5BK-A4T-A-	- -	VN5BV-A4T-SG- -	VN5BV-A4T-SG-SS VN5BK-A4T-A-SS

Designator Table

Step 2. Stem Tip	Step 3. Flow Pattern	
<ul style="list-style-type: none"> Nil: Standard Regulating Stem V-: Vee Stem K-: PCTFE Soft-Seat Stem <p>Insert the designator after the valve Series number.</p>	<ul style="list-style-type: none"> Nil: Straight Pattern A-: Angle Pattern <p>3-Way Cross Pattern Valves Limited sizes are available. Contact factory for ordering information. .</p>	
Step 4. Handle	Step 5. Sour Gas Service	Step 6. Body Material
<ul style="list-style-type: none"> Nil: Standard Round Handle AH-: Aluminum Bar Handle, black anodized. 	<ul style="list-style-type: none"> SG- 	<ul style="list-style-type: none"> SS: Stainless Steel 316 C: Steel B: Brass

VN6 Series Bar-Stock Needle Valves

Working Pressure: 6000 psig (413 bar) @ 100° F (37° C)

Features

Integral Bonnet Body

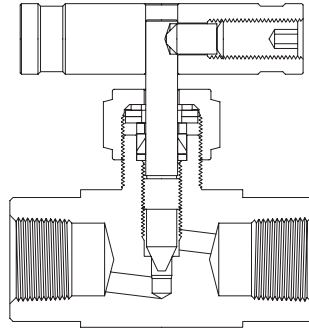
- One-Piece construction out of cold drawn bar.
- Compact design.
- High pressure application.

Live-Loaded Disc Springs

- Maintains load on packing for sealing and compensates for thermal cycling.
- Reduces the need for packing adjustment.

Chevron Packing

- 2-Piece packing on stem improves sealing integrity.



Flow Patterns

- 2-Way Straight Pattern.
- 2-Way Angle Pattern.

Packing Nut

Allows external packing adjustment.

Choices of Stem Tips

- Standard Vee Stem.
- Soft-Seat Stem.

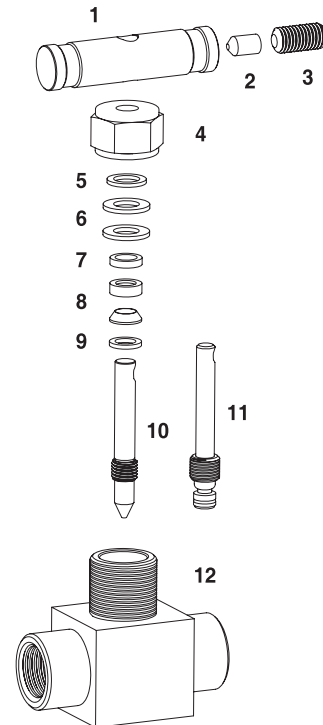
Roll Stem Threads and Hard-Chrome plating

Ensure extended cycle life.

Materials of Construction

Components		Valve Body Material
		Stainless Steel
		Material Grade / ASTM Standard
1	Bar Handle	SS316 / A276
2	Handle Pin	Stainless Steel
3	Set Screw	Stainless Steel
4	Packing Nut	SS316 / A276
5	Gland	SS316 / A276
6	Disc Spring (2)(3)	SK5ML/JIS G3311 N6A Series: 2 Springs N6B Series: 3 Springs
7	Upper Gland	SS316 / A276
8	Chevron Packing (2)	PTFE / D1710
9	Lower Gland	SS316 / A276
10	Vee Stem	Hard Chrome-plated SS316/A276
11	Soft-Seat Stem	
11	Non-rotating Stem Tip	PCTFE/D1430
12	Body	SS316 / A276

- Wetted parts listed in **bold** letters
- **Wetted parts** are lubricated with Fluorocarbon-based.



Pressure-Temperature Ratings

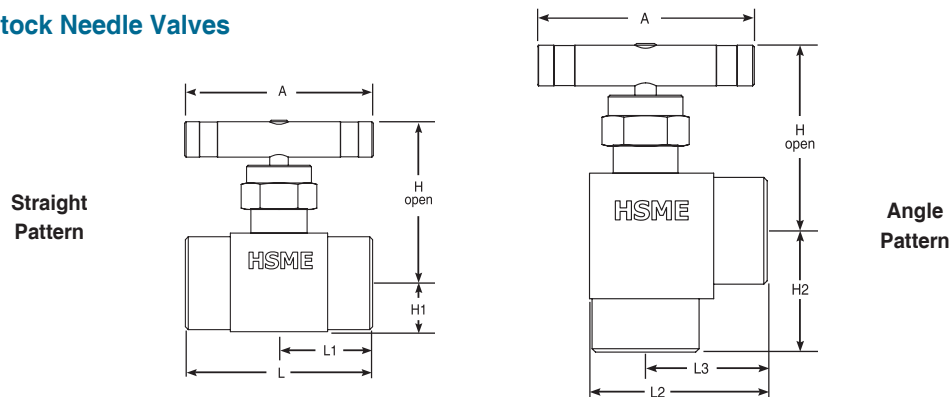
Ratings are based on valve with standard "PTFE" packing and Vee stem.

- Valves with PCTFE Stem Tip reduce the maximum temperature rating to 200° F (93° C).

Material		SS316
ASME Material Group		TABLE 2-2.2
ASME CLASS Rating		2500
Temperature		Working Pressure, psig (bar)
°F	°C	
- 65 to 100	-53 to 37	6000 (413)
200	93	5160 (355)
300	148	4660 (321)
350	176	4470 (307)
400	204	4280 (294)
450	232	4130 (284)

VN6 Series Needle Valves

VN6 Series Bar-Stock Needle Valves



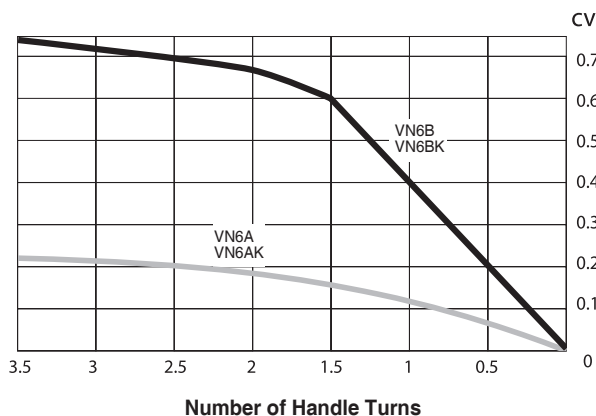
Ordering Information and Dimensions

Complete Ordering Number		End Connections		CV	Orifice mm (in.)	Dimensions mm (in.)							
		Inlet	Outlet			L	L1	L2	L3	H	H1	H2	A
VN6A-	A4T-SS	1/4 in. OD M Tube Fitting		0.21	3.2 (.125)	62.5 (2.46)	31.2 (1.23)	39.9 (1.57)	28.7 (1.13)	42.2 (1.66)	10.7 (0.42)	29.5 (1.16)	44.4 (1.75)
	F4N-SS	1/4 in. Female NPT				47.8 (1.88)	23.9 (1.25)	36.6 (1.44)	25.4 (1.00)			25.4 (1.00)	
	F4R-SS	1/4 in. ISO Female Tapered				-	-	-	-			-	
	M4N-SS	1/4 in. Male NPT				49.3 (1.94)	24.6 (0.97)	-	-			-	
	MF4N-SS	1/4 in. Male NPT to Female NPT				48.5 (1.91)	23.9 (0.94)	36.6 (1.44)	25.4 (1.00)			26.2 (1.03)	
	MA4N4T-SS	1/4 in. Male NPT to 1/4 in. OD M Tube Fitting				-	-	39.9 (1.57)	28.7 (1.13)			25.4 (1.00)	
VN6B-	A6T-SS	3/8 in. OD M Tube Fitting		0.73	6.4 (.250)	78.2 (3.08)	39.1 (1.54)	-	-	58.7 (2.31)	16.8 (0.66)	-	63.5 (2.50)
	A8T-SS	1/2 in. OD M Tube Fitting				83.8 (3.30)	41.9 (1.65)	-	-			-	
	F6N-SS	3/8 in. Female NPT				63.5 (2.50)	31.8 (1.25)	-	-			-	
	F8N-SS	1.2 in. Female NPT						52.3 (2.06)	35.8 (1.41)			35.8 (1.41)	
	F8R-SS	1/2 in. ISO Female Tapered						-	-			-	
	MF6N-SS	3/8 in. Male NPT to Female NPT						52.3 (2.06)	35.8 (1.41)			31.0 (1.22)	
	MF8N-SS	1/2 in. Male NPT to Female NPT				64.8 (2.55)	-	-	35.8 (1.41)				
	MF12N8N-SS	3/4 in. Male NPT to 1/2 in. Female NPT				63.5 (2.50)	-	-	-				

Number of Handle Turns - Cv

@ 100 °F (37 °C)

VN6A, VN6B Series



Ordering Information

Select an applicable valve pattern, options from the designator table below.

Step 1. Select the desired valve complete ordering number: **VN6A-A4T-SS**

Step 1	Step 2	Step 3	Step 4
VN6A-A4T-SS	VN6AK-A4T-SS	-	-
	-	VN6A-A4T-A-SS	VN6A-A4T-A-SG-SS

Designator Table

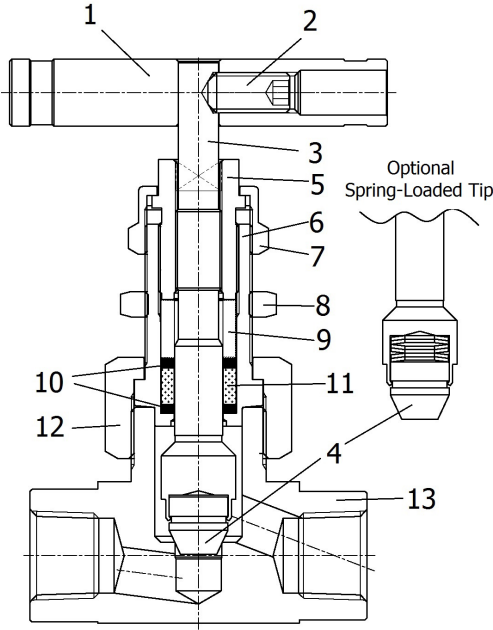
Step 2. Stem
• Nil: Standard Vee Stem
• K-: PCTFE Soft-Seat Stem
Step 3. Flow Pattern
• Nil: Straight Pattern
• A-: Angle Pattern
Step 4. Sour Gas Service
• SG-

VNS6 & VNS10 Series Severe Service Needle Valves

Working Pressure: 10 000 psig (689 bar) @100° F (37° C)

Features

- High temperature up to 450 °F (232 °C) with PTFE packing; up to 1200 °F (648 °C) with Graphite packing.
- Back seating in the valve in full open position prevents a leakage through the bonnet if the packing fails.
- Packing bolt permits external packing adjustment, maintaining the valve in line.
- Optional Inconel 718 disc spring-loaded stem tip ensures excellent compensation on high temperature and high impulse application.



Materials of Construction

Components		Valve Body Material	
		Stainless Steel	Alloy C276
		Material Grade/ASTM Specification	
1	Bar handle	SS316/A276, optional black-anodized aluminum handle	
2	Set screw	Stainless Steel	
3	Stem	SS316/A276 or A479 hard chrome-plated	C276/B574
4	Non-Rotating Tip	Standard Type 630/A564 Optional Inconel 718 disc spring-loaded alloy 80A/B637 tip applicable to VNS6B & VNS6C Series	
5	Packing bolt	SS316/A276 or A479	
6	Bonnet	SS316/A276 or A479	C276/B574
7	Cap nut	SS316/A276 or A479	
8	Panel nut		
9	Gland	SS316/A276 or A479	C276/B574
10	Packing supports (2)	PTFE/D1710, optional Graphite	
11	Packing	PTFE/D1710, optional Graphite	
12	Union nut	SS316/A276 or A479	
13	Body	SS316/A276 or A479	C276/B574

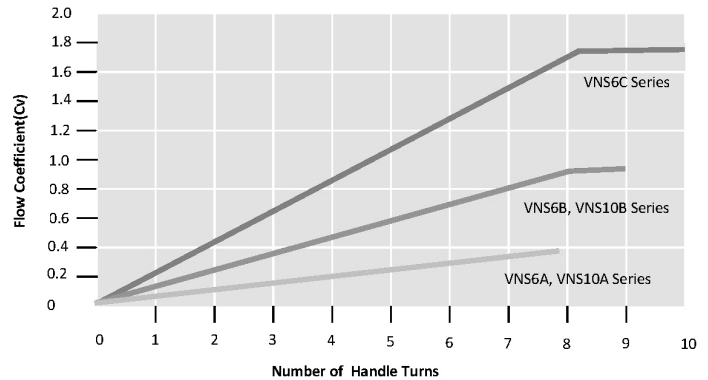
- Wetted parts listed in **BOLD** letters.
- **Wetted parts** are lubricated with Nickel anti-seize lubricant.

Pressure – Temperature Ratings

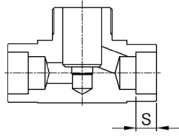
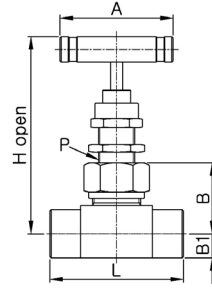
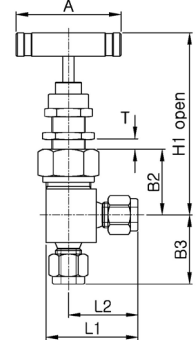
- Ratings are based on graphite packing.
- Max. 450 °F (232 °C) for valve with standard PTFE packing.

VNS6 Series		VNS10 Series	
ASME Class	2500		N/A
Material Group	2.2	3.8	N/A
Material Name	SS316	C276	SS316
Temperature, °F (°C)	Working pressure, psig (bar)		
-65 to 100 (-53 to 37)	6000 (413)	6000 (413)	10 000 (689)
200 (93)	5160 (355)	6000 (413)	9290 (640)
300 (148)	4660 (321)	6000 (413)	8390 (578)
400 (204)	4280 (294)	5820 (401)	7705 (530)
500 (260)	3980 (274)	5540 (381)	7165 (493)
600 (315)	3760 (259)	5040 (347)	6770 (466)
700 (371)	3620 (249)	4730 (326)	6480 (446)
800 (426)	3520 (242)	4230 (291)	6230 (429)
900 (482)	3460 (238)	3745 (258)	5905 (406)
1000 (537)	3030 (208)	3030 (208)	5450 (375)
1100 (593)	2545 (175)	2685 (185)	4835 (333)
1200 (648)	1545 (106)	1715 (118)	3085 (212)

Number of Handle Turns - Cv



VNS6 & VNS10 Series Ordering Information and Dimensions

Socket weld end 	Straight pattern 	Angle pattern 	Handle length "A", mm (in.) <table border="1"> <thead> <tr> <th colspan="2">Valve Series</th> <th>A</th> </tr> </thead> <tbody> <tr> <td>VNS6</td> <td>VNS10</td> <td></td> </tr> <tr> <td>VNS6A</td> <td>-</td> <td>44.4 (1.75)</td> </tr> <tr> <td>VNS6B</td> <td>VNS10A</td> <td>63.5 (2.50)</td> </tr> <tr> <td>VNS6C</td> <td>VNS10B</td> <td>88.9 (3.50)</td> </tr> </tbody> </table>	Valve Series		A	VNS6	VNS10		VNS6A	-	44.4 (1.75)	VNS6B	VNS10A	63.5 (2.50)	VNS6C	VNS10B	88.9 (3.50)							
Valve Series		A																							
VNS6	VNS10																								
VNS6A	-	44.4 (1.75)																							
VNS6B	VNS10A	63.5 (2.50)																							
VNS6C	VNS10B	88.9 (3.50)																							
<table border="1"> <thead> <tr> <th>Socket Weld End</th> <th>S mm (in.)</th> </tr> </thead> <tbody> <tr> <td>SW4T</td> <td>7.1 (0.28)</td> </tr> <tr> <td>SW6T</td> <td>7.9 (0.31)</td> </tr> <tr> <td>SW8T</td> <td>9.7 (0.38)</td> </tr> <tr> <td>SW4P</td> <td>9.7 (0.38)</td> </tr> </tbody> </table>	Socket Weld End	S mm (in.)	SW4T	7.1 (0.28)	SW6T	7.9 (0.31)	SW8T	9.7 (0.38)	SW4P	9.7 (0.38)			Panel Mount, mm (in.) <table border="1"> <thead> <tr> <th rowspan="2">Valve Series</th> <th>P</th> <th>T</th> </tr> <tr> <th>Panel Hole Drill</th> <th>Panel Thickness</th> </tr> </thead> <tbody> <tr> <td>VNS6A</td> <td>15.1 (19/32)</td> <td rowspan="3">Min. 1.6 (1/16) Max. 9.5 (3/8)</td> </tr> <tr> <td>VNS6B</td> <td>19.8 (25/32)</td> </tr> <tr> <td>VNS6C</td> <td>26.2 (1 1/32)</td> </tr> </tbody> </table>	Valve Series	P	T	Panel Hole Drill	Panel Thickness	VNS6A	15.1 (19/32)	Min. 1.6 (1/16) Max. 9.5 (3/8)	VNS6B	19.8 (25/32)	VNS6C	26.2 (1 1/32)
Socket Weld End	S mm (in.)																								
SW4T	7.1 (0.28)																								
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Valve Series	P	T																							
	Panel Hole Drill	Panel Thickness																							
VNS6A	15.1 (19/32)	Min. 1.6 (1/16) Max. 9.5 (3/8)																							
VNS6B	19.8 (25/32)																								
VNS6C	26.2 (1 1/32)																								

VNS6 Series

Complete Ordering Number	End connections		Cv	Dimensions, mm (in.)						
	Inlet / Outlet			L	L1	L2	B	B1	B2	B3
Orifice 4.0 (0.156)										
VNS6A-	A4T-SS	1/4 OD M Tube Fitting	0.35	61.0(2.40)	39.1(1.54)	29.5(1.16)	27.7(1.09)	9.7(0.38)	27.7(1.09)	37.6(1.48)
	A6M-SS	6mm OD M Tube Fitting		61.0(2.40)	39.1(1.54)	29.5(1.16)			27.7(1.09)	37.6(1.48)
	A8M-SS	8mm OD M Tube Fitting		61.0(2.40)	-	-			-	-
	F2N-SS	1/8 Female NPT		50.8(2.00)	32.3(1.27)	22.6(0.89)			32.5(1.28)	25.4(1.00)
	F4N-SS	1/4 Female NPT		52.3(2.06)	32.3(1.27)	22.6(0.89)			32.5(1.28)	25.4(1.00)
	M4N-SS	1/4 Male NPT		50.8(2.00)	35.1(1.38)	25.4(1.00)			27.7(1.09)	25.4(1.00)
	MF4N-SS	1/4 Male to Female NPT		51.6(2.03)	32.3(1.27)	22.6(0.89)			32.5(1.28)	25.4(1.00)
	SW4T-SS	1/4 Tube SW		46.2(1.82)	31.8(1.25)	22.4(0.88)			27.7(1.09)	30.2(1.19)
Orifice 6.4 (0.25)										
VNS6B-	A6T-SS	3/8 OD M Tube Fitting	0.86	71.9(2.83)	45.5(1.79)	32.8(1.29)	34.0(1.34)	12.7(0.50)	31.0(1.22)	42.2(1.66)
	A8T-SS	1/2 OD M Tube Fitting		77.2(3.04)	48.3(1.90)	35.6(1.40)			34.0(1.34)	41.9(1.65)
	A10M-SS	10mm OD M Tube Fitting		72.4(2.85)	45.7(1.80)	33.0(1.30)			34.3(1.35)	39.4(1.55)
	A12M-SS	12mm OD M Tube Fitting		77.2(3.04)	48.3(1.90)	35.6(1.40)			34.0(1.34)	41.9(1.65)
	F4N-SS	1/4 Female NPT		-	-	-			37.3(1.47)	28.4(1.12)
	F6N-SS	3/8 Female NPT		-	-	-			37.3(1.47)	28.4(1.12)
	SW6T-SS	3/8 Tube SW		57.2(2.25)	38.1(1.50)	25.4(1.00)			34.0(1.34)	31.8(1.25)
	SW8T-SS	1/2 Tube SW		-	-	-			35.6(1.40)	25.4(1.00)
	SW4P-SS	1/4 Pipe SW		-	-	-			37.3(1.47)	28.4(1.12)
Orifice 11.1 (0.437)										
VNS6C-	A8T-SS	1/2 OD M Tube Fitting	2.1	99.6(3.92)	60.2(2.37)	42.7(1.68)	46.2(1.82)	15.7(0.62)	47.8(1.88)	52.8(2.08)
	A12T-SS	3/4 OD M Tube Fitting	2.4	99.6(3.92)	60.2(2.37)	42.7(1.68)	46.2(1.82)	15.7(0.62)	47.8(1.88)	52.8(2.08)
	A16T-SS	1 OD M Tube Fitting		104.0(4.09)	-	-	47.8(1.88)	17.5(0.69)	-	-
	A12M-SS	12mm OD M Tube Fitting	1.9	99.6(3.92)	60.2(2.37)	42.7(1.68)	46.2(1.82)	15.7(0.62)	47.8(1.88)	52.8(2.08)
	F8N-SS	1/2 Female NPT	2.4	79.2(3.12)	50.8(2.00)	33.3(1.31)	46.2(1.82)	15.7(0.62)	50.8(2.00)	39.6(1.56)
	F12N-SS	3/4 Female NPT		82.6(3.25)	-	-	48.5(1.91)	19.8(0.78)	-	-
	F16N-SS	1 Female NPT		91.9(3.62)	-	-	54.1(2.13)	25.4(1.00)	-	-
	MF8N-SS	1/2 Male to Female NPT	1.9	79.2(3.12)	50.8(2.00)	33.3(1.31)	46.2(1.82)	15.7(0.62)	50.8(2.00)	39.6(1.56)
	MF12N-SS	3/4 Male to Female NPT		82.6(3.25)	-	-	48.5(1.91)	19.8(0.78)	-	-
	MF16N-SS	1 Male to Female NPT		91.9(3.62)	-	-	54.1(2.13)	25.4(1.00)	-	-
	SW8T-SS	1/2 Tube SW		2.2	79.2(3.12)	50.8(2.00)	33.3(1.31)	46.2(1.82)	15.7(0.62)	47.8(1.88)
	SW12T-SS	3/4 Tube SW	-		-	-	46.2(1.82)	15.7(0.62)	-	-
	SW8P-SS	1/2 Pipe SW	50.8(2.00)		33.3(1.31)	47.8(1.88)	17.5(0.69)	50.8(2.00)	39.6(1.56)	

VNS10 Series

Complete Ordering Number	End connections		Orifice	Cv	Dimensions, mm (in.)					
	Inlet / Outlet				L	B	B1	P	T	H
VNS10A-	A4T-SS	1/4 OD M Tube Fitting	4.0 (0.156)	0.35	71.6 (2.82)	34.0 (1.34)	12.7 (0.50)	20.6 (0.81)	Max. 6.4 (1/4)	78.1 (3.43)
	F2N-SS	1/8 Female NPT								
	F4N-SS	1/4 Female NPT								
	M4N-SS	1/4 Male NPT								
	MF4N-SS	1/4 Male to Female NPT								
VNS10B-	F4N-SS	1/4 Female NPT	4.0 (0.156)	0.86	79.5 (3.13)	46.0 (1.81)	16.0 (0.63)	26.9 (1.06)	108 (4.27)	
	M8N-SS	1/2 Male NPT								
	F8N-SS	1/2 Female NPT								
	MF8N-SS	1/2 Male NPT								

VNS Series Needle Valves

Ordering Information

Select an applicable valve pattern, options and body material from the designator table below.

Step 1. Select the desired valve complete ordering number.

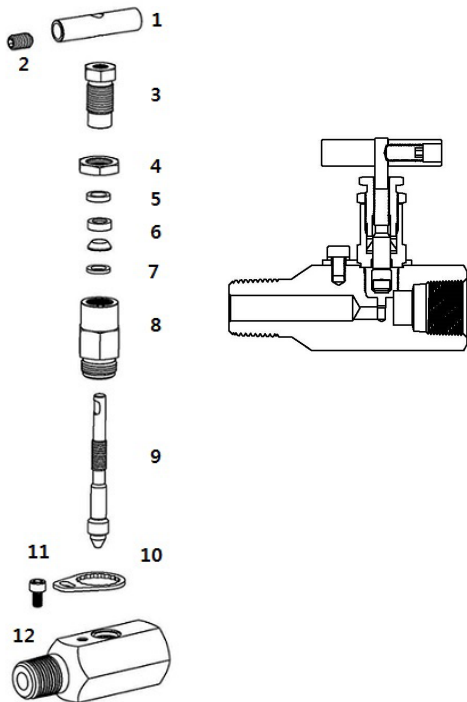
Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
VNS6B-A6T-SS	-	-	VNS6B-A6T-GF-SS	-	VNS6B-A6T-GF-SG-SS	VNS6B-A6T-GF-SG-C276
VNS6C-F8N-SS	VNS6CS-F8N-SS	VNS6CS-F8N-A-SS	-	VNS6CS-F8N-A-AH-SS	-	-

Designator Table

Step 2 Optional Stem Tip	Step 3 Flow Pattern	Step 4 Packing Material
<ul style="list-style-type: none"> Nil: Standard Vee Tip S: Optional Spring-Loaded Alloy Tip Applicable to VNS6B & VNS6C Series 	<ul style="list-style-type: none"> Nil: Straight Pattern A: Angle Pattern 	<ul style="list-style-type: none"> Nil: Standard PTFE GF: Optional Graphite
Step 5 Handle Option	Step 6 Sour Gas Service	Step 7 Body Material
<ul style="list-style-type: none"> Nil: Standard Stainless Bar Handle AH: Black-anodized aluminum Handle 	<ul style="list-style-type: none"> SG 	<ul style="list-style-type: none"> SS: Stainless Steel L 316 C276: Hastelloy C276

VNH10 Series Bonnet Needle Valves

Working Pressure 10 000psig (689 bar) @100° F (37° C)

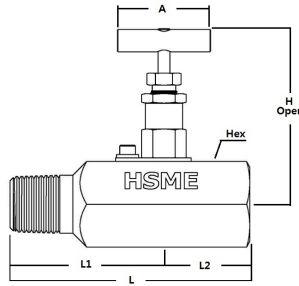


Materials of Construction

Components	Valve Body Material	
	Stainless Steel	Steel
	Material Grade / ASTM Standard	
1 Bar Handle	SS316 / A276	
2 Set Screw	Phosphated Steel	
3 Packing Bolt	SS316 / A276	Steel S45C/ JIS G4051 White Zinc plated
4 Locking Nut	SS316/A276	
5 Upper Gland	SS316/A276	
6 Packing	Standard Chevron PTFE / D1710 Optional Grafoil®	
7 Lower Gland	SS316/A276	
8 Bonnet	SS316/A276	Steel S45C/ JIS G4051 White Zinc plated
9 Non-Rotating Stem Tip	Hard Chrome-plate SS316/A276	SS316/A276
10 Locking Plate	Stainless Steel	
11 Locking Bolt	Stainless Steel	
12 Hex Body	SS316 / A276	White Zinc plated Steel Gr.60-90/A675 Steel S45C/ JIS G4051

Features

Stem Back Seating Design <ul style="list-style-type: none"> Provides positive back stop and back sealing in valve full open position. Prevents stem blowout. In valve in full open position, prevents a leakage through the bonnet when packing fails. 	Roll Stem Threads and hard-chrome plated <ul style="list-style-type: none"> Enhances cycle life. Low torque actuation. Non-Rotating Vee Stem <ul style="list-style-type: none"> Ensures repetitive leak-tight shutoff. Protects the valve seat from damage.
Packing Below Stem Threads Isolates stem threads from system fluid and lubricant washout.	Packing Bolt Permits external packing adjustment ,maintaining the valve in-line.
Two-Piece Chevron PTFE Packing Provides maximum sealing over stem.	Sturdy Locking Plate Holds the bonnet valve to the body at the factory-fastened level.



Ordering Information and Dimensions

Complete Ordering Number		End connections Inlet / Outlet	Orifice	Cv	Dimensions, mm (in.)					
					L	L1	L2	Hex	A	H
VNH10A-	A4T-SS	1/4 in. OD M Tube Fitting	3.2 (.126)	0.21	83.0 (3.27)	41.5 (1.63)		31.75 (1.25)	45.0 (1.77)	67.2 (2.65)
	A6T-SS	3/8 in. OD M Tube Fitting			86.2 (3.39)	43.1 (1.70)				
	A8T-SS	1/2 in. OD M Tube Fitting			92.0 (3.62)	46.0 (1.81)				
	F4N-SS	1/4 in. Female NPT		0.43	62.0 (2.44)	31.0 (1.22)				
	F6N-SS	3/8 in. Female NPT			70.0 (2.76)	35.0 (1.38)				
	F8N-SS	1/2 in. Female NPT			76.2 (3.00)	38.1 (1.50)	35.0 (1.38)			
	MF8N-SS	1/2 in. Male to 1/2 in. Female NPT			88.9 (3.50)	44.45 (1.75)				
	MF12N8N-SS	3/4 in. Male to 1/2 in. Female NPT								
VNH10B-	F12N-SS	3/4 in. Female NPT	5.0 (.196)	0.6	93.9 (3.70)	46.95 (1.85)		41.0 (1.62)	50.0	83.9 (3.30)
VNH10C-	F16N-SS	1 in. Female NPT					46.0 (1.81)	(1.97)	92.9 (3.66)	

Pressure-Temperature Ratings

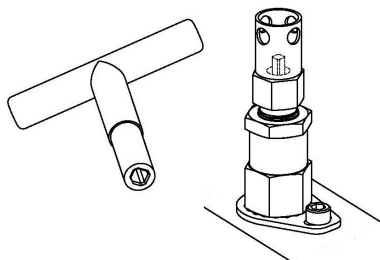
Body Material		SS316		Steel
Packing Material		Graphite	PTFE	PTFE
Temperature		Working Pressure,		
°F	°C	psig (bar)		
-65 to -20	-53 to -28	10000 (689)	10000 (689)	-
-20 to 100	-28 to 37	10000 (689)	10000 (689)	10000 (689)
200	93	9290 (640)	9290 (640)	9290 (640)
300	148	8390 (578)	8390 (578)	8390 (578)
350	176	8045 (554)	8045 (554)	8045 (554)
400	204	7705 (530)	7705 (530)	-
450	232	7435(512)	7435(512)	-
500	260	7165 (493)	-	-
600	315	6770 (466)	-	-
700	371	6480 (446)	-	-
800	426	6230 (429)	-	-
900	482	5905 (406)	-	-
1000	537	5450 (375)	-	-
1100	593	4835 (333)	-	-
1200	648	3085 (212)	-	-

Ordering Information

Select the desired valve complete ordering number.
Example: VNH10A-A4T-SS

To order carbon steel valve, replace "SS" in the ordering number with "C".
Example: VNH10A-A4T-C

To order valve with Anti-Tamper option, add the designator "AK" to the valve ordering number.
Example: VNH10A-A4T-AK-SS



Anti-Tamper Bonnet Valve and Key

With the removal key design in the valve, for the valve to be functional, the operator must obtain the separate key.

For additional security, valve is designed to enable padlocking in open or closed position to the 6mm (0.236 in.) holes drilled on the bonnet valve.

The **anti-tamper bonnet valve** prevents unauthorized actuation of the valve. Alternatively the key can be chained to the valve.

To order, add "AK" to the valve ordering number.

VN5, VN6, VNS6, VNS10, and VNH10 Series Needle Valves

Dimensions

All dimensions in this catalog are reference only, subject to change. Dimensions with M Tube Fitting nuts are in finger-tight position.

Factory Test and Cleaning

- Every valve is factory tested with nitrogen @ 1000 psig (69 bar) for leakage at the seat to a max. allowable leak rate of 0.1 std cm³/min.
- Packing seal is tested to no detectable leakage with a liquid leak detector.
- Every valve is cleaned and packaged in accordance with HSME's cleaning standard CS-01.

Operation

- Valves that have not been cycled for a period of time may have a higher initial actuation torque.
- Packing adjustment may be required in service, especially for soft-seat stem to compensate its physical compression.
- Soft-seat stem is recommended for gaseous and low density fluids, the shut-off torque should not exceed 7.90 Nm (70lb.in.).

Options

Graphite Packing

- Graphite is a high temperature packing material that requires a load to seal.
- Graphite is rated to the maximum of 973 °F (523 °C) for air service. In steam, it is rated to the maximum temperature of 1200 °F (648 °C)
- Graphite packing is not for use with pneumatic actuating valves.

Sour Gas Service

The materials of wetted components are selected in accordance with NACE MR0175/ISO 15156-2/3 or NACE MR0103 depending on the application. To order, add "SG" to the valve ordering number.

Safe Valve Selection

The selection of a valve for any application or system must be considered to ensure safe performance. Valve rating, valve function, material compatibility, proper installation, operation and maintenance remain the sole responsibility of the system designer and the user. HSME Corporation accepts no liability for any improper selection, compatibility, installation, operation or maintenance.

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