



- **VN5 Series Integral-Bonnet Needle Valves** 5000 psig (345 bar) Stainless Steel, Steel, and Brass
- **VN6 Series Bar-Stock Needle Valves** 6000 psig (413 bar) Stainless Steel
- **VNS6 & VNS10 Series Severe Service Union Bonnet Valves** 6000 psig (413 bar) 10 000 psig (689 bar) Stainless Steel
- **VNH10 Series Bonnet Needle Valves** 10 000 psig (689 bar) Stainless Steel, Steel

## VN5 Series Integral-Bonnet Needle Valves

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

### Features

#### Complete Flow Pattern

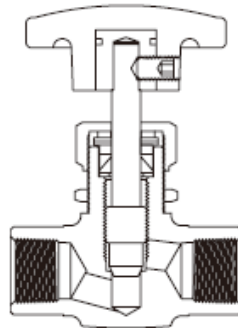
- 2-Way Straight / Angle Pattern
- 3-Way Cross-Pattern, providing continues flow through two side ports and bottom port. Regulating stem is standard to regulate flow and on-off through the bottom port.

#### 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.

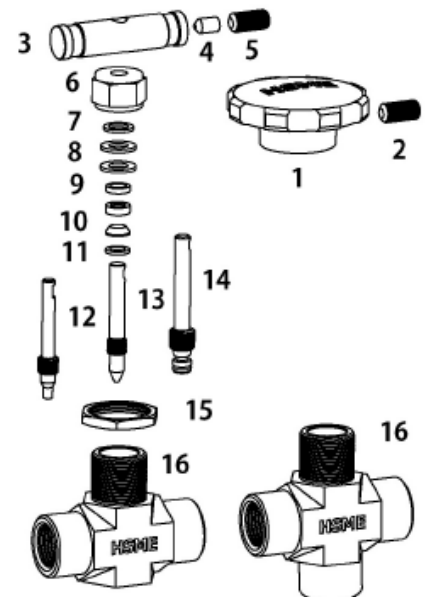
#### Choices of Stem Tips

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

### Materials of Construction

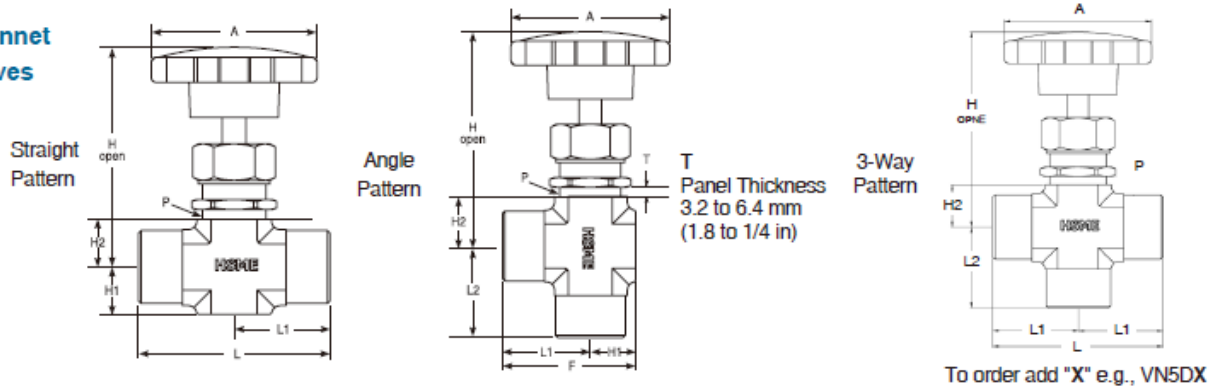
Components	Valve Body Material		
	Stainless Steel	Steel	Brass
	Material Grade / ASTM Standard		
1 Round Handle	Glass Nylon with Brass insert		
2 Set Screw	Stainless Steel		
3 Optional Bar Handle	Black-Anodized Aluminum 2024 / B221		
4 Handle Pin	Steel / A108		
5 Set Screw	Stainless Steel		
6 Packing Nut	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	SS316 / A276	
13 Vee Stem			
14 Soft-Seat Stem			
14 Non-rotating Stem Tip,	PCTFE/D1430		
15 Panel Nut	SS316 / A276		C36000/B16 C3604/JIS H3250
16 Body	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)	36.1 (1.38)	11.9 (0.47)	
	A3M-	3 mm OD						12.2 (0.48)						
	F2N-	1/8 in. Female NPT			47.8 (1.88)	23.9 (0.94)		31.8 (1.25)					11.9 (0.47)	
	M2N-	1/8 in. Male NPT			38.1 (1.50)	19.1 (0.75)		26.9 (1.06)						
	MA2N2T-	1/8 in. Male NPT / 1/8 in. OD			43.9 (1.73)	24.9 (0.98)	19.1 (0.75)	32.8 (1.29)						
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)	36.1 (1.38)	13.5 (0.53)	
	A6M-	6 mm OD												
	A8M-	8 mm OD			59.4 (2.34)	29.7 (1.17)		39.1 (1.54)						
	F2N-	1/8 in. Female NPT			41.1 (1.62)	20.6 (0.81)		30.2 (1.19)						
	M2N-	1/8 in. Male NPT			50.0 (1.97)	24.9 (0.98)		34.5 (1.36)						
	MA4N4T-	1/4 in. Male NPT / 1/4 in. OD			53.6 (2.11)	28.7 (1.13)	24.9 (0.98)	38.4 (1.51)						
VN5C-	A6T-	3/8 in. OD	0.73	6.4 (.250)	65.5 (2.58)	32.8 (1.29)		46.5 (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			71.1 (2.80)	35.6 (1.40)		48.3 (1.90)						
	A10M-	10 mm OD			66.0 (2.60)	33.0 (1.30)		46.7 (1.80)						
	A12M-	12 mm OD			71.1 (2.80)	35.6 (1.40)		48.3 (1.90)						
	F4N-	1/4 in. Female NPT			53.8 (2.12)	26.9 (1.06)		39.6 (1.56)						
	F4R-	1/4 in. Female ISO Tapered												
	M6N-	3/8 in. Male NPT			62.5 (2.25)	28.4 (1.12)		41.1 (1.62)						
	MA4N6T-	1/4 in. Male NPT / 3/8 in. OD			61.5 (2.42)	32.8 (1.29)		46.5 (1.79)						
	MA6N6T-	3/8 in. Male NPT / 3/8 in. OD					28.4 (1.12)	48.3 (1.90)						
	MA6N8T-	3/8 in. Male / 1/2 in. OD			64.0 (2.52)	35.6 (1.40)		48.3 (1.90)						
	MF4N-	1/4 in. Male / Female NPT			55.6 (2.19)	26.9 (1.06)		39.6 (1.56)						
VN5D-	A8T-	1 1/2 in. OD	1.8	9.5 (.375)	96.5 (3.80)	48.3 (1.90)		67.3 (2.66)	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			19.1 (0.75)	19.1 (0.75)	76.2 (3.00)	38.1 (1.50)	57.2 (2.25)	98.6 (3.88)				
	F8N-	1/2 in. Female NPT												
	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												

## VN5 Series Needle Valves

### Pressure-Temperature Ratings

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

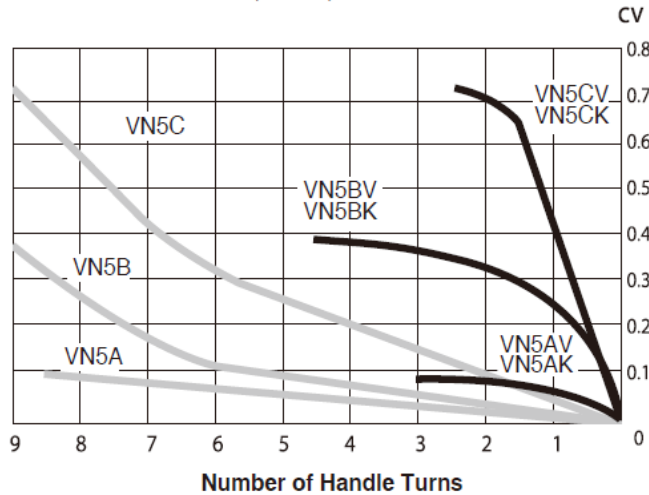
- Valves with PCTFE Soft-Seat Stem reduce the maximum temperature rating to 200 °F (93 °C).

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)	-	-

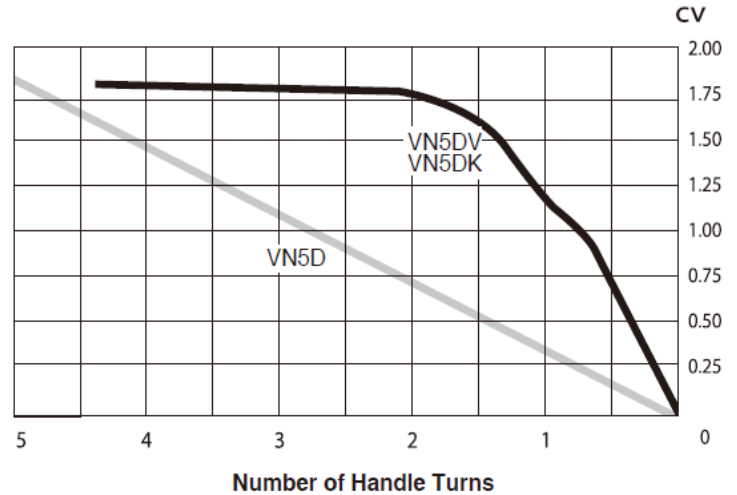
### Number of Handle Turns - Cv

@ 100 °F (37 °C)

VN5A, VN5B, VN5C Series



VN5D Series



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

## VN6 Series Needle Valves

### VN6 Series Bar-Stock Needle Valves

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

#### Features

##### Integral Bonnet Body

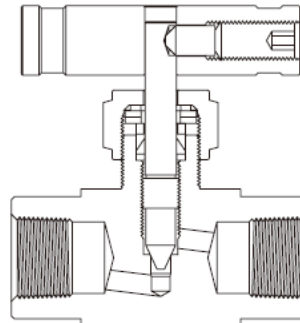
- One-Piece construction out of cold drawn bar.
- Compact design.
- High pressure application.

##### 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.

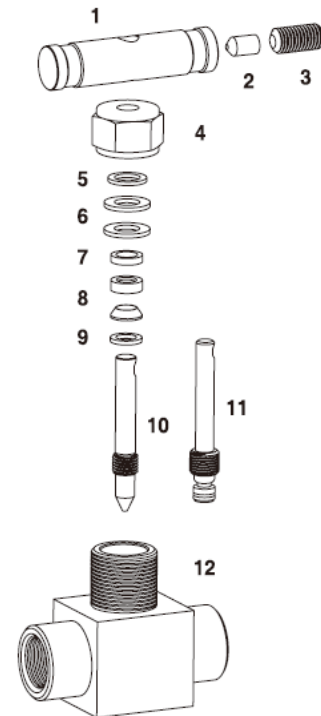
##### Roll Stem Threads and Hard-Chrome plating

Ensure extended cycle life.

#### Materials of Construction

Components		Valve Body Material
		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	<b>Chevron Packing (2)</b>	PTFE / D1710
9	Lower Gland	SS316 / A276
10	<b>Vee Stem</b>	Hard Chrome-plated SS316/A276
11	<b>Soft-Seat Stem</b>	
11	<b>Non-rotating Stem Tip</b>	PCTFE/D1430
12	<b>Body</b>	SS316 / A276

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



#### Pressure-Temperature Ratings

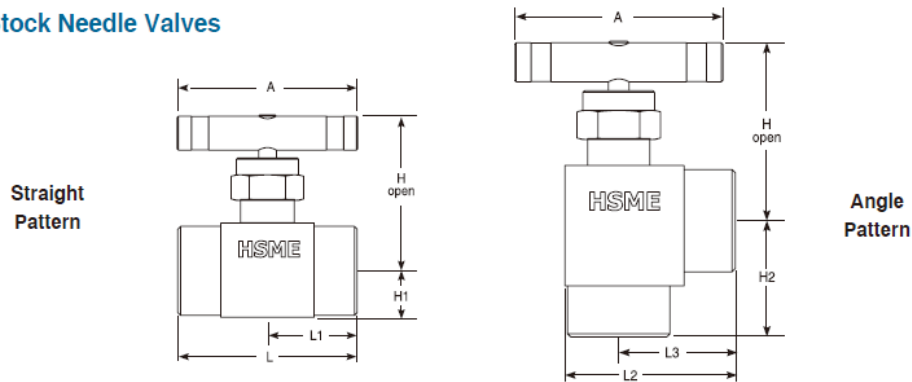
Ratings are based on valve with standard "PTFE" packing and Vee stem.

- 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,
°F	°C	psig (bar)
- 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



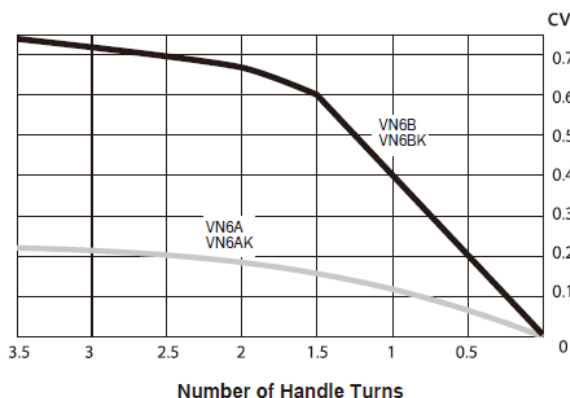
### Ordering Information and Dimensions

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			49.3 (1.94)	24.6 (0.97)	-	-			-	
	M4N-SS	1/4 in. Male NPT			48.5 (1.91)	23.9 (0.94)	36.6 (1.44)	25.4 (1.00)			26.2 (1.03)	
	MF4N-SS	1/4 in. Male NPT to Female NPT			-	-	39.9 (1.57)	28.7 (1.13)			25.4 (1.00)	
	MA4N4T-SS	1/4 in. OD M Tube Fitting			-	-	-	-			-	
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)	52.3 (2.06)	35.8 (1.41)			36.8 (1.41)	
	F8N-SS	1.2 in. Female NPT			-		-	-				
	F8R-SS	1/2 in. ISO Female Tapered			64.8 (2.55)		52.3 (2.06)	35.8 (1.41)			31.0 (1.22)	
	MF6N-SS	3/8 in. Male NPT to Female NPT			63.5 (2.50)		-	-			36.8 (1.41)	
	MF8N-SS	1/2 in. Male NPT to Female NPT			-	-	-	-			-	
	MF12N8N-SS	3/4 in. Male NPT to 1/2 in. Female NPT			-	-	-	-			-	

### 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

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