INSTRUMENTATION
NEEDLE VALVES

High Pressure Needle Valves

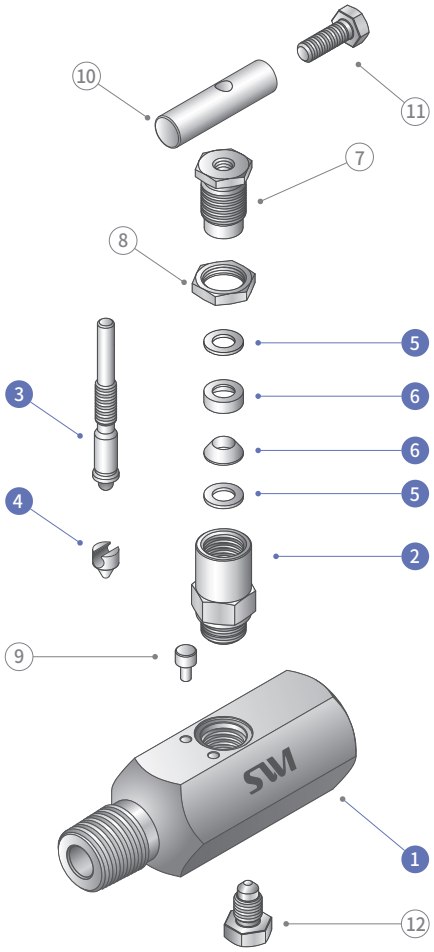
V09-VN6-01, JAN,2016

VN6 / VN6H Series

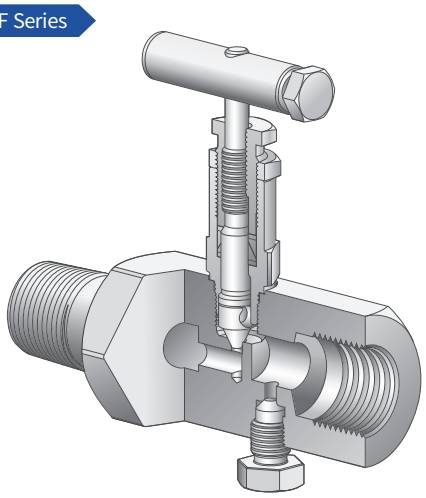
- Pressure rating up to 10,000 psig (690 barg) @ 100°F (38°C)
- Temperature rating from -65°F to 450°F (-54°C to 232°C) with standard PTFE packing and from -65°F to 1,200°F (-54°C to 649°C) with optional Grafoil packing
- Body materials available in 316 stainless steel, carbon steel, duplex and alloy 400
- 100% factory tested

Features

- **Interchangeable Disks** are non-rotating and self-centering, providing bubble tight shut-off. The tip is Stellite 6 hard faced.
- **Metal to Metal Body to Bonnet Contact** coupled with a secondary seal offers leak-free sealing.
- **Polished Stem** in packing area enables smooth stem operation and extends packing life.
- **Bonnet Stop Pin** prevents accidental separation of the bonnet from the body.
- **Cone Type Packing** gives low handle operating torque and increases cycle life.
- **Packing below Stem Thread** prevents removal of lubricant and thread corrosion, and keeps solids from entering the thread area, which can cause galling.
- **Safety Back Seating** prevents stem blowout or accidental removal while on operation and provides a metal to metal secondary stem seal while in the fully open position.



VN6H-MF Series



Specifications

Pressure Rating	VN6 - 6,000 psig (414 barg) @ 100°F (38°C) VN6H - 10,000 psig (690 barg) @ 100°F (38°C)
Temperature Rating	-65 to 450°F (-54 to 232°C) with PTFE packing up to 1200°F (649°C) with Grafoil packing
Body Material	316 stainless steel and carbon steel
Port Connections	1/4" to 1/2"
Orifice	3.2 mm to 5.0 mm

Materials of Construction

Component		Material	
		Carbon Steel	Stainless Steel
1	Body	Carbon Steel	A276 / 479 Type 316/L
2	Bonnet	Carbon Steel	A276 / 479 Type 316/L
3	Stem	A276 / 479 Type 316/L	
4	Disk (Tip)	A276 / 479 Type 316/L + Stellite No.6	
5	Packing Washer	A276 / 479 Type 316	
6	Packing	Standard : PTFE / Optional : PEEK, Graphite	
7	Packing Bolt	A276 / 479 Type 316	
8	Locking Nut	A276 / 479 Type 316	
9	Locking Pin	316 stainless steel	
10	Handle		
11	Handle Bolt	A193 B8	
12	Vent Plug	A276 / 479 Type 316	

• Wetted parts are listed in Navy
• Carbon steel is galvanized to prevent corrosion

Packing Adjustment

- Packing adjustment may be required peridically to prevent leakage and to increase service life.
- Valves that have not been operated for a prolonged period of time may have a higher initial operating torque.

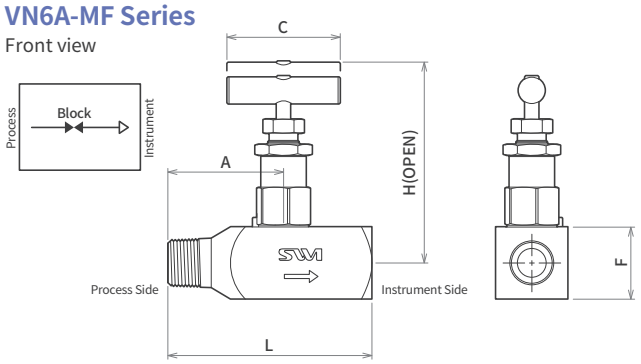
Testing

- Every gauge valve is factory tested with GN_2 at 1,000 psig. Seats have a maximum allowable leak rate of 0.1 std cm^3/min.
- Shell testing is performed to a requirement of no detectable leakage with a liquid leak detector.

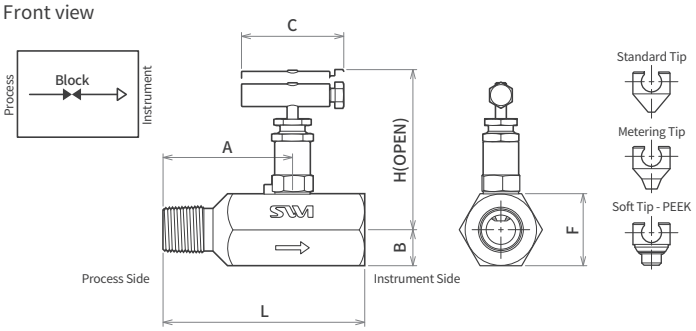
Dimensions

• VN6A-MF / VN6HA-MF Series

VN6A-MF Series
Front view



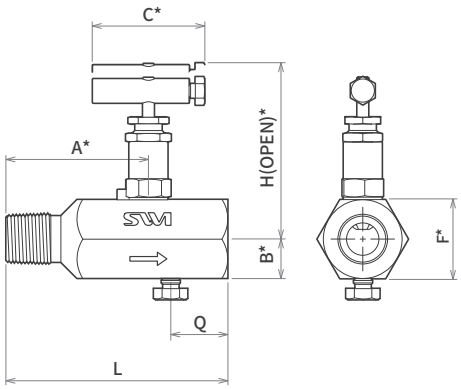
VN6HA-MF Series
Front view



Valve Series	End Connection		Orifice in. (mm)	Cv	Dimension in. (mm)					
	Inlet	Outlet			L	A	B	C	H	F
VN6A-F8N	1/2 F NPT	1/2 F NPT	0.2 (5.0)	0.5	2.82 (72.0)	1.41 (36.0)	0.63 (15.9)	1.97 (50.0)	3.50 (89.0)	1.26 (32.0)
VN6A-MF8N	1/2 M NPT	1/2 F NPT			3.54 (90.0)	2.12 (54.0)				
VN6A-MF128N	3/4 M NPT	1/2 F NPT			3.66 (93.1)	2.25 (57.1)				
VN6HA-F4N	1/4 F NPT	1/4 F NPT	0.126 (3.2)	0.31	2.50 (63.5)	1.25 (31.8)	0.63 (15.9)	1.77 (45.0)	2.76 (70.0)	1.26 (32.0)
VN6HA-F8N	1/2 F NPT	1/2 F NPT			3.00 (76.2)	1.50 (38.1)				
VN6HA-MF6N	3/8 M NPT	3/8 F NPT			3.14 (79.8)	1.89 (48.0)				
VN6HA-MF8N	1/2 M NPT	1/2 F NPT			3.50 (88.9)	2.25 (57.1)				

• All dimensions are for reference only and are subject to change.

• VN6HA-MF-VT Series



Valve Series	End Connection		Orifice in. (mm)	Cv	Dimension in. (mm)	
	Inlet	Outlet			L	Q
VN6HA-F4N-VT	1/4 F NPT	1/4 F NPT	0.126 (3.2)	0.31	2.70 (68.5)	0.99 (25.1)
VN6HA-F6N-VT	3/8 F NPT	3/8 F NPT			2.70 (68.5)	0.99 (25.1)
VN6HA-F8N-VT	1/2 F NPT	1/2 F NPT			3.20 (81.2)	1.07 (27.1)
VN6HA-MF4N-VT	1/4 M NPT	1/4 F NPT			3.34 (84.8)	1.07 (27.1)
VN6HA-MF6N-VT	3/8 M NPT	3/8 F NPT			3.34 (84.8)	1.07 (27.1)
VN6HA-MF8N-VT	1/2 M NPT	1/2 F NPT			3.70 (93.9)	1.07 (27.1)

• "*"marked dimensions are the same as of VN6A-F / VN6A-MF valve.
• All dimensions are for reference only and are subject to change.

Pressure-Temperature Ratings

Valve Series	Body Material	Packing Material	Temperature Material	Pressure Rating @ 100°F		Pressure Rating @ Max. Temperature
				VN6 Series	VN6H Series	
VN6	Stainless Steel	PTFE	-65°F to 450°F (-54°C to 232°C)	6,000 psig (414 barg)	10,000 psig (690 barg)	4,130 psig @ 450°F (285 barg @ 232°C)
		Graphite	-65°F to 1,200°F (-54°C to 648°C)			1,715 psig @ 1,200°F (118 barg @ 648°C)
	Carbon Steel	PTFE / Graphite	-20°F to 350°F (-29°C to 176°C)			5,230 psig @ 350°F (360 barg @ 176°C)

Ordering Information

Code Table :	VN6	1	2		3	4		5	6	7
Sample Valve Code :		H	A		MF	8N		GP	S	FS

Example : INSTRUMENTATION NEEDLE VALVE, ORIFICE-3.2 mm, VEE DISK TIP, MALE NPT 1/2 " x FEMALE NPT 1/2 ", GRAPHITE PACKING, 316/L STAINLESS STEEL BODY, TRIM, FIRE SAFETY DESIGN

1.

Orifice	
H	3.2 mm
Nil	5.0 mm

2.

Disk (Tip)	
A	Standard
M	Metering
S	Soft-PEEK

3.

End Connection		
	Inlet	Outlet
F	Female	Female
MF	Male	Female
BF	Butt Weld	Female
MS	Male	Socket Weld

4.

Inlet and Outlet Connection Size & Type							
NPT (ISO / BSP)	Thread (NPS)	1/8	1/4	3/8	1/2	3/4	1
	Designator	2N(R)	4N(R)	6N(R)	8N(R)	12N(R)	16N(R)
Fractional Tube	O.D. (in.)	1/8	1/4	3/8	1/2	3/4	1
	Designator	2	4	6	8	12	16
Metric Tube	O.D. (mm)	3	6	10	12	20	25
	Designator	3M	6M	10M	12M	20M	25M

5.

Packing	
Nil	PTFE-Cone
PK	PEEK-Chevron
GP	Graphite

6.

Material	
S	Stainless Steel 316 / 316L
C	Carbon Steel
M	Monel UNS N04400
276	Hastelloy UNS N10276
D51	Duplex Stainless Steel UNS S31803
625	Inconel UNS N06625
825	Inconel UNS N08825

7.

Option	
N	NACE MR 0175
Q	BS EN 10204 Type 3.2
FS	Fire safety design
AT	Anti Tamper
VT	Vent Plug

Selecting Valve

When selecting a product, the system design in its entirety must be considered to ensure safe performance.
Proper installation, operation and maintenance, as well as material compatibility, adequate ratings and function are the responsibilities of the system designer and user.

