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Needle Valves

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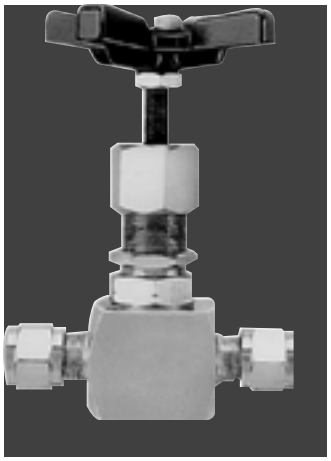
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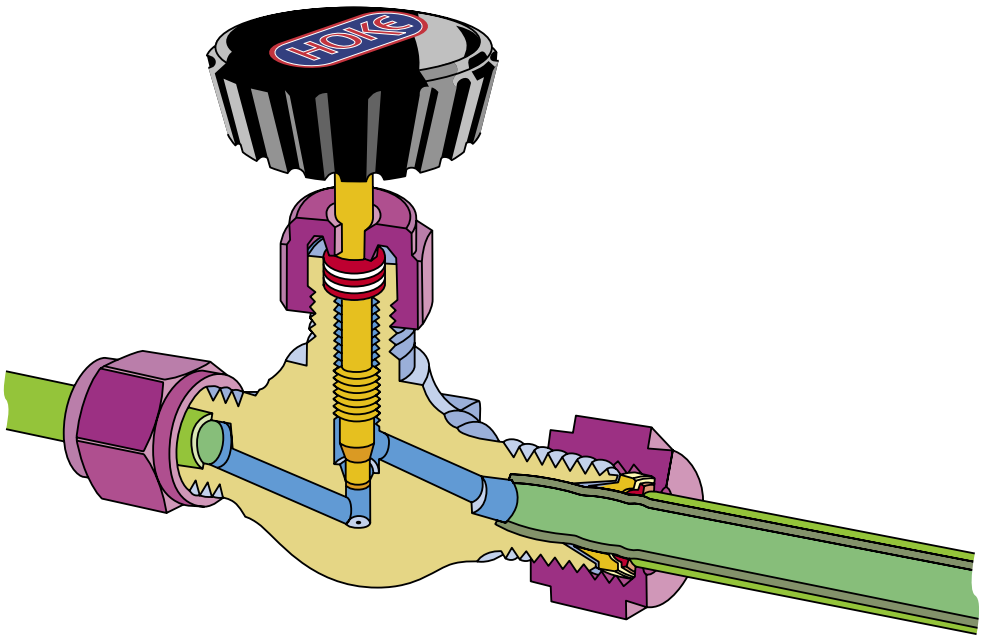




needle valves

HOKE Incorporated
405 Centura Court • PO Box 4866 (29305) • Spartanburg, SC 29303
Phone (864) 574-7966 Fax (864) 587-5608
www.hoke.com • sales@hoke.com

Needle Valves at a Glance



HOKE manufactures a complete line of precision needle valves. Before making your valve selection, be sure to consider the system pressure, operating temperature, required flow and materials of construction. If your application requires a valve not available in this catalog, please contact your HOKE stocking distributor or call HOKE at (864) 574-7966.

In addition to the needle valves in this catalog, HOKE manufacturers other lines of specialty needle valves:

- Cylinder valves provide safe flow control for filling and draining cylinders. Valves are available with burst disks, spring relief devices, and metal or PCTFE stem tips. For more information, refer to HOKE's Sampling Cylinders and Accessories catalog (PN 79008).
- Gauge valves are typically used for calibration, isolation, and bleeding of gauges and other instruments. They allow for safe installation and removal of instruments and provide multiple mounting positions. For more information, refer to HOKE's Fluid Control Component catalog (PN 79020).
- Plug valves are used in applications where instant on/off service is necessary. Hoke plug valves are available in quarter-turn (7300 series) or rising stem (7400 series) models. Both designs include a straight through bore, which provides maximum flow and rodability. For more information, refer to the 7300 series catalog (PN 79039) and the 7400 series Catalog (PN 78165).

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Needle Valves at a Glance

	SERIES	DESCRIPTION/APPLICATIONS	FEATURES	STANDARD BODY MATERIAL
	1700 Series (pg. 5)	• Panel board instrumentation • Pressure gauge valves • Sampling systems • Research laboratories • Oxygen service • Corrosive or high pressure service • Cylinder Valves	• Dyna-Pak® packing • Long cycle life • Broad selection of fitting connections	316 stainless steel Monel®
	2100 Series (pg. 8)	• Hydraulic systems • High temperature service • Gas sampling • Test stands	• Choice of Dyna-Pak® or Graph-Lock® high temperature packing • High pressure capability • Choice of all metal stem or metal stem with PCTFE stem tip	Brass 316 stainless steel Carbon steel
	2200 Series (pg. 12)	• Corrosive handling • Sampling systems • Metering service	• Long service life • Extended temperature range • Dyna-Pak® packing	316 stainless steel
	*NEW!* 2219 Series (pg. 16)	• Severe service applications • Steam service in power plants • Hot condensates	• Meets ANSI 900# specifications • High pressure/high temperature design • Bubble-tight leak testing at both seat and packing	316 stainless steel
	2700 Series (pg. 20)	• Sour gas service • Refineries • Chemical processing • Oil and gas drilling	• Dyna-Pak® packing • Corrosion resistance • Extended life cycle	316 stainless steel
	2800 Series (pg. 23)	• High temperature service • Corrosive handling • Reactive and hot condensates	• High temperature service • Extended life cycle • Choice of various connections	316 stainless steel
	3700, 3800 and 3900 Series (pg. 26)	• Instrument air lines • Sampling • Gas chromatography • Cylinder valves • Test stands	• Choice of stem tips • Dyna-Pak® packing • Broad selection of connection options • Optional color-coded handles for fluid identification	Brass 316 stainless steel Carbon steel Monel®

Needle Valves at a Glance

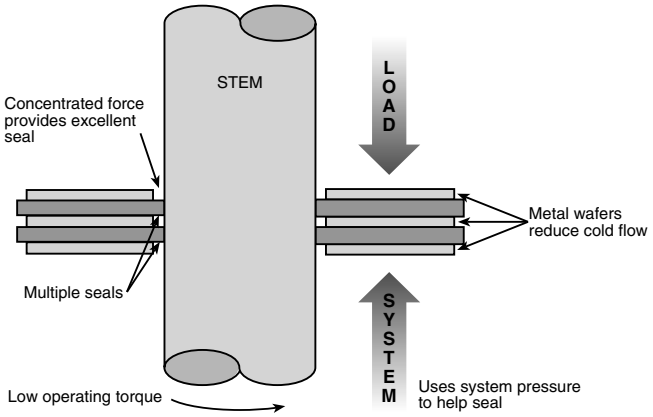
MAX. OPERATING PRESSURE @70° F (21° C)	OPERATING TEMP. RANGE	C_v FLOW RANGE (VARIES W/ END CONN.)	ORIFICE SIZES	STANDARD END CONNECTIONS
6000 psig (414 Bar)	**Metal stem tip:** -65° F to +450° F (-54° C to +232° C) **PCTFE stem tip:** -20° F to +250° F (-29° C to +121° C)	0.31	0.187˝ (4.8 mm)	¼˝, ⅜˝ Gyrolok® ¼˝ Male NPT ¼˝ Female NPT 8 mm Gyrolok®
Brass: 3000 psig (207 Bar) **Stainless steel:** 6000 psig (414 Bar) **Carbon steel:** 5000 psig (345 Bar)	**Dyna-Pak®/metal stem tip:** -65° F to +450° F (-54° C to +232° C) **Dyna-Pak®/PCTFE stem tip:** -20° F to +250° F (-29° C to +121° C) **Graph-Lock®/metal stem tip:** -60° F to +600° F (-51° C to +316° C)	0.40 to 1.20	0.188˝ to 0.313˝ (4.8 mm to 8.0 mm)	¼˝, ⅜˝, ½˝ Gyrolok® ½˝ Male NPT ¼˝, ⅜˝, ½˝ Female NPT
5000 psig (345 Bar)	-65° F to +450° F (-54° C to +232° C)	0.12 to 1.4	0.086˝ to 0.313˝ (2.2 mm to 8.0 mm)	¼˝, ⅜˝, ½˝ Gyrolok® ½˝ Male NPT ¼˝, ⅜˝, ½˝ Female NPT 10, and 12 mm Gyrolok®
6000 psig (414 bar)	-100 to +1000 (-75 to +538	0.47, 1.09, 1.20 (Cv factor for 0.437″ orifice not available at time of publication)	0.170″ (4.3 mm), 0.250″ (6.4 mm), 0.312″ (7.9 mm) 0.437″ (11.1 mm)	¼″, ½″, ¾″ 1″ Gyrolok ¼″, ½″, ¾″, 1″ Female NPT 3/8″, ½″, ¾″ 1″ Tube socket weld 3/8″, ½″, ¾″ 1″ NPS socket weld 12 mm, 22 mm, 25 mm Gyrolok
6000 psig (414 Bar)	-65° F to 450° F (-54° C to 232° C)	0.60	0.187˝ (4.8 mm)	½˝ Male NPT x ½˝ Female NPT ½˝ Female NPT x ½˝ Female NPT
Grafoil® packing: 2500 psig (172 Bar) **Dyna-Pak® packing:** 5000 psig (345 Bar)	**Grafoil® packing:** -100° F to +700° F (-75° C to +370° C) **Dyna-Pak® packing:** -40° F to +450° F (-40° C to +232° C)	1.10	0.312˝ (7.9 mm)	¼˝, ⅜˝, ½˝ Gyrolok® ½˝ Female NPT ½˝ Socket weld
316 SS, CS & Monel®: 5000 psig (345 Bar) **Brass:** 3000 psig (207 Bar)	**Metal stem tip:** -65° F to +450° F (-54° C to +232° C) **PCTFE stem tip:** -20° F to +250° F (-29° C to +121° C)	0.07 to 1.1	0.06˝ to 0.312˝ (1.5 mm to 7.9 mm)	⅛˝, ¼˝, ⅜˝, ½˝ Gyrolok® ⅛˝, ¼˝, ⅜˝ Male NPT ⅛˝, ¼˝, ½˝ Female NPT 3, 6, 8, 10, and 12 mm Gyrolok®

Needle Valves at a Glance

Dyna-Pak® Stem Packing System

Dyna-Pak® provides superior sealing performance while reducing maintenance costs. Consisting of alternate wafers of TFE and metal spacers, stem leakage is virtually eliminated while the problems associated with TFE cold flow are minimized.

As the packing nut is tightened, metal spacers squeeze the TFE wafers, driving the TFE against the stem. At the stem, forces are concentrated and the TFE wafers provide multiple line seals. In addition to squeezing the TFE wafers, the metal spacers help contain the TFE and drastically reduce its ability to creep.



Dyna-Pak® packing has the ability to:

- Utilize system pressure to increase effectiveness in eliminating leakage
- Provide reduced operating torque
- Help eliminate fugitive emissions
- Reduce the need for frequent packing adjustments
- Operate in temperatures from -65° to +450° F (-54° to +232° C)

HOKE Needle Valves are Offered With a Choice of Stem Tip Options to Provide Greater Flexibility



Blunt Vee-Point The blunt vee-point stem tip provides full flow with only a few turns of the valve handle



Regulating The regulating stem tip has a gradually tapered tip which allows for greater control of flow.



Non-rotating Metal Stem Tip A non-rotating stem tip is typically used in high cycle applications to extend the service life of the valve. Its purpose is to prevent galling in the seat and on the stem tip. As the valve is closed, the stem tip contacts the valve seat, and is driven straight into it without rotating.



Vee-Point The vee-point stem tip is used to provide leak-tight shutoff in small orifice valves.



PCTFE A PCTFE stem tip requires a lower seating torque than a metal stem tip. It will provide full flow through the valve with only a few handle turns. The PCTFE tip is replaceable and has a maximum temperature of +250° F (+121° C)



Non-rotating PCTFE Stem Tip A non-rotating PCTFE stem tip operates in the same fashion as the non-rotating metal stem tip but requires less seating torque.

Flow capacity of HOKE Needle Valves

The Cv factor is a flow coefficient expressing the rate of flow in gallons per minute of 60° F (16° C) water with a pressure drop of 1 psi across the valve. The flow is dependent on the inlet and outlet pressures, temperature, specific gravity and the Cv coefficient.

To determine the Cv or flow of a **liquid** @ 60° F (16° C):

$$\textbf{Cv} = \frac{\text{GPM}}{\sqrt{\frac{\Delta p}{\text{S.G.}}}} \quad \text{or} \quad \textbf{GPM} = \text{Cv}\sqrt{\frac{\Delta p}{\text{S.G.}}}$$

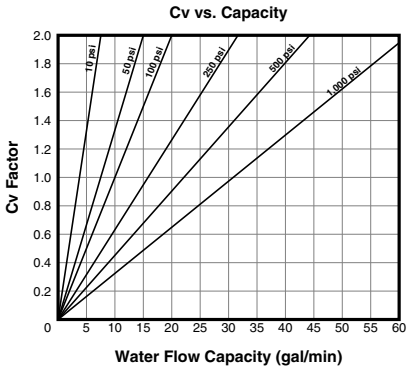
where: $\Delta p = p_1 - p_2$

p_1 = inlet pressure in psia

p_2 = outlet pressure in psia

GPM = flow in gallons per minute

S.G. = specific gravity of liquid where water = 1 @ 60° F (16° C)



To determine the Cv or flow of a **gas** @ 70° F (21° C):

$$\textbf{Cv} = \frac{\text{SCFH}}{1360\sqrt{\frac{(\Delta p)\,(p_1)}{(460 + T)\,(\text{S.G.})}}} \quad \text{or} \quad \textbf{SCFH} = 1360\,\text{Cv}\sqrt{\frac{(\Delta p)\,(p_1)}{(460 + T)\,(\text{S.G.})}}$$

where: $\Delta p = p_1 - p_2$

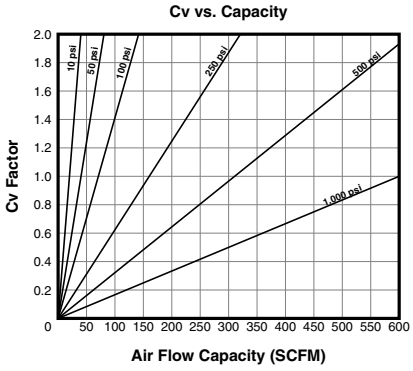
p_1 = inlet pressure in psia

p_2 = outlet pressure in psia

SCFH = flow in standard cubic feet per hour

S.G. = specific gravity of gas where air = 1 @ 70° F (21° C) and 14.7 psia

T = temperature in ° F



Note: Maximum effective Δp for compressible fluids is ½p_1.

1700 Series

Forged Body, Integral Bonnet Needle Valves

These affordable valves are suited for a wide variety of process control applications. Non-rotating stainless steel or replaceable PCTFE stem tips reduce galling. Dyna-Pak® packing below the stem threads prevents fugitive emissions.



Typical Applications

- Cylinder valves
- Panel board instrumentation
- Pressure gauge valves
- Sampling systems
- Research laboratories
- Oxygen service
- Corrosive or high pressure service

Technical Data

BODY*	316 stainless steel, Monel®
MAXIMUM OPERATING PRESSURE	6000 psig @ 70° F (414 Bar @ 21° C)
OPERATING TEMPERATURE RANGE	*Metal stem tip* -65° to +450° F (-54° to +232° C) *PCTFE stem tip* -20° to +250° F (-29° to +121° C)
ORIFICE	0.187˝ (4.8mm)
Cv FACTOR	0.31

** Consult factory for other materials*

Features & Benefits

Safety

- Lock nut secures packing nut to prohibit accidental removal

Long cycle life

- Packing below stem threads prevents fluid from contacting the stem threads
- Non-rotating hardened 17-4PH stainless steel, Monel® or replaceable PCTFE stem tip is combined with a hardened 450 stainless steel - or Monel® thread gland to reduce galling

Helps eliminate fugitive emissions

- Dyna-Pak® packing provides a leak-tight seal with low operating torque

Reliability

- All valves are tested for bubble-tight leakage at both seat and packing

Installation variety

- Broad selection of male NPT, female NPT, and HOKE Gyrolok® fractional or metric tube fitting connections

Panel mounting

- Panel mounting is standard on all models

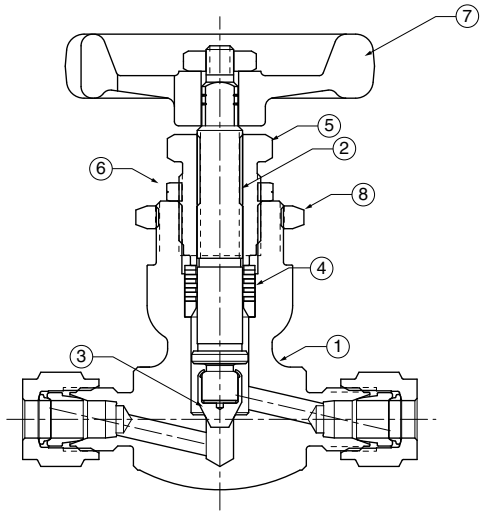
needle valves

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1700 Series

Materials of Construction

	DESCRIPTION	316 STAINLESS STEEL	MONEL®
1	Body	316 stainless steel	Monel®
2	Stem	316 stainless steel	Monel®
	Stem tip		
3	Soft	PCTFE	PCTFE
	Hard	17-4PH stainless steel	Monel®
4	Stem packing	TFE/316 stainless steel wafers	TFE/Monel® wafers
5	Thread gland	450 stainless steel	Monel®
6	Lock nut	316 stainless steel	316 stainless steel
	Handle		
7	1711 Series	Aluminum	Aluminum
	1751 Series	ABS	ABS
8	Panel mounting nut	Nickel-plated brass	Nickel-plated brass

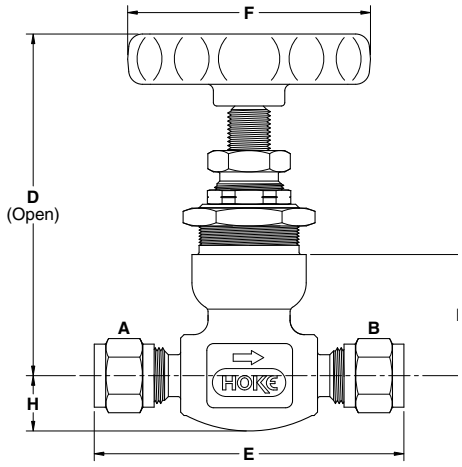


Dimensions

1700 Series: Globe Pattern

INLET A	OUTLET B		D	E	F	H	H[1]
¼″ Gyrolok®	¼″ Gyrolok®	inch	3	2 1/16	2 1/8	½	1 1/16
		mm	76	52	54	13	27
¼″ male NPT	¼″ male NPT	inch	3	2 3/16	2 1/8	½	1 1/16
		mm	76	56	54	13	27
¼″ male NPT	¼″ female NPT	inch	3	2 1/8	2 1/8	½	1 1/16
		mm	76	54	54	13	27
¼″ female NPT	¼″ female NPT	inch	3	2 1/16	2 1/8	½	1 1/16
		mm	76	52	54	13	27
⅜″ Gyrolok®	⅜″ Gyrolok®	inch	3	2 1/8	2 1/8	½	1 1/16
		mm	76	54	54	13	27
8mm Gyrolok®	8mm Gyrolok®	inch	3	2 11/16	2 1/8	½	1 1/16
		mm	76	68	54	13	27

Dimensions for reference only, subject to change.

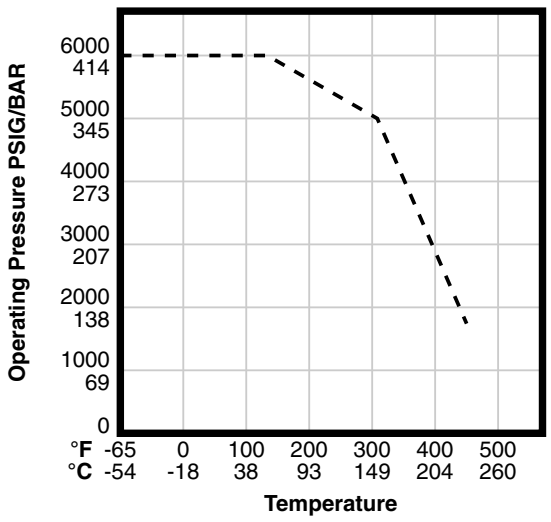


Panel mounting dimensions

Panel hole = 57/64″ (22.6 mm) diameter

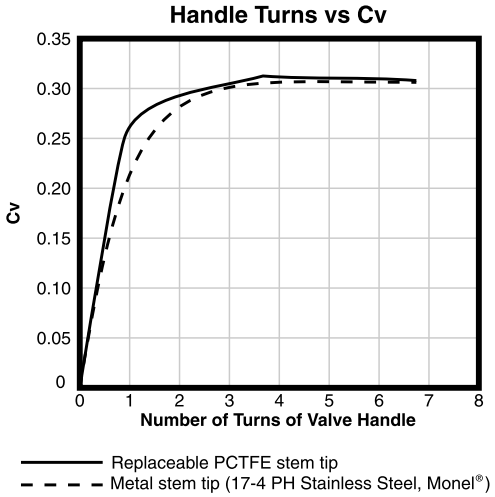
Panel thickness = ¼″ (6.4 mm) maximum

Pressure vs. Temperature Curve



1700 Series

Flow Curves



How to Order: Standard Valves



1711L4Y: Globe pattern

1700 Series: Globe Pattern
Metal stem tip for service to +450° F (+232° C)
0.187″ (4.7mm) orifice/0.31 Cv

END CONNECTIONS		ORDER BY PART NUMBER	
INLET	OUTLET	316 STAINLESS STEEL	MONEL®
¼″ Gyrolok®	¼″ Gyrolok®	1711G4Y	—
¼″ male NPT	¼″ male NPT	1711M4Y	1711M4M
¼″ male NPT	¼″ female NPT	1711L4Y	—
¼″ female NPT	¼″ female NPT	1711F4Y	1711F4M
⅜″ Gyrolok®	⅜″ Gyrolok®	1711G6Y	—
8mm Gyrolok®	8mm Gyrolok®	1711G8YMM	—



1751G4Y: Globe pattern

1700 Series: Globe Pattern
PCTFE stem tip for service to +250° F (+121° C)
0.187″ (4.7mm) orifice/0.31 Cv

END CONNECTIONS		ORDER BY PART NUMBER	
INLET	OUTLET	316 STAINLESS STEEL	MONEL®
¼″ Gyrolok®	¼″ Gyrolok®	1751G4Y	—
¼″ male NPT	¼″ male NPT	1751M4Y	1751M4M
¼″ male NPT	¼″ female NPT	1751L4Y	—
¼″ female NPT	¼″ female NPT	1751F4Y	1751F4M
⅜″ Gyrolok®	⅜″ Gyrolok®	1751G6Y	—
8mm Gyrolok®	8mm Gyrolok®	1751G8YMM	—

Ordering Options

Spare Parts
Spare parts and repair kits are available for all needle valves. Please contact your distributor for specific information.

Cleaning and Testing
When ordering, please specify if oxygen cleaning or helium leak testing is required.

Additional Sizes
Additional sizes and options are available on special request. Please consult your local HOKE distributor.

2100 Series

Bar Stock, Screwed Bonnet Needle Valves

This panel mountable, two-piece design is available in globe and angle patterns for flexibility of installation. Dyna-Pak® packing provides leak-tight sealing with low operating torque. Optional Graph-Lock® packing is available for high-temperature applications. The safety back-seating prevents accidental removal of the stem.



Typical Applications

- Hydraulic systems
- High temperature service to +600° F (+316° C)
- Gas sampling
- Test stands

Technical Data

BODY*	316 stainless steel, carbon steel, brass
MAXIMUM OPERATING PRESSURE	*Stainless steel* 6000 psig @ 70° F (414 Bar @ 21° C) *Carbon steel* 5000 psig @ 70° F (345 Bar @ 21° C) *Brass* 3000 psig @ 70° F (207 Bar @ 21° C)
OPERATING TEMPERATURE RANGE	*Dyna-Pak®/Metal stem tip* -65° to +450° F (-54° to +232° C) *Dyna-Pak®/PCTFE stem tip* -20° to +250° F (-29° to +121° C) *Graph-Lock®/Metal stem tip* -60° to 600° F (-51° to 316° C)
ORIFICE SIZES	0.188˝ (4.8mm), 0.250" (6.4mm), 0.313" (8.0mm)
Cv FACTORS	0.40 to 1.20

** Consult factory for other materials*

Features & Benefits

Safety

- Back seating provides added sealing protection
- Lock pin prevents accidental bonnet disengagement

High pressure capability

- 316 stainless steel valve maximum working pressure is 6000 psig (414 Bar)

Extended temperature range

- Choice of Dyna-Pak® packing or high temperature Graph-Lock® packing

Versatile

- Choice of regulating stem tip or metal stem with nonrotating replaceable PCTFE stem tip, with a variety of end connections

Reliability

- All valves are tested for bubble-tight leakage at both seat and packing

Panel mounting

- Panel mounting is standard on all models

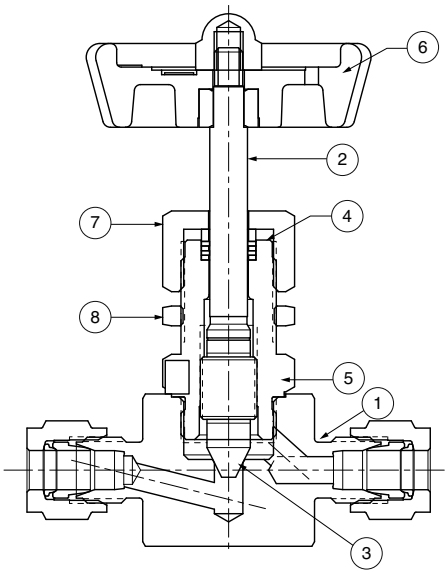
needle valves

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2100 Series

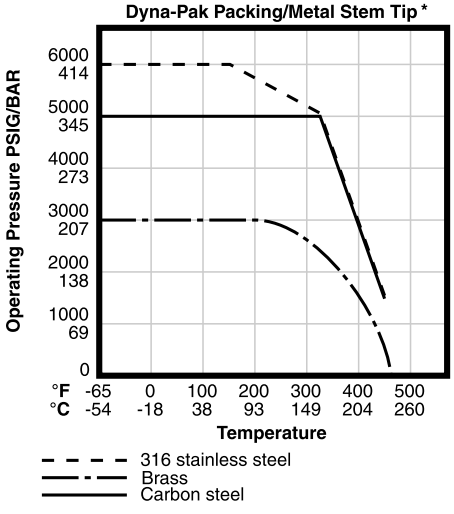
Materials of Construction

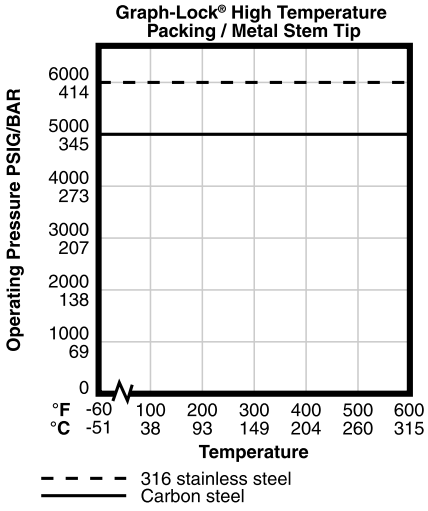
	DESCRIPTION	BRASS	316 STAINLESS STEEL	CARBON STEEL
1	Body	Brass	316 stainless steel	Carbon steel
2	Stem	316 stainless steel	316 stainless steel	Carbon steel
3	*Stem tip* soft hard	 PCTFE 17-4PH stainless steel	 PCTFE 17-4PH stainless steel	 PCTFE 17-4PH stainless steel
4	*Stem packing* Dyna-Pak® packing High temperature packing	 TFE/brass wafers —	 TFE/316 stainless steel wafers Graph-Lock® TFE wafers	 TFE/316 stainless steel wafers Graph-Lock® TFE wafers
5	Bonnet	Brass	316 stainless steel	Carbon steel
6	*Handle* Valve w/Dyna-Pak® packing Valve w/high temperature packing	 ABS wheel, black —	 ABS wheel, black Aluminum cross, red	 ABS wheel, black Aluminum cross, red
7	Packing nut	Brass	316 stainless steel	Carbon steel
8	Panel mounting nut	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass

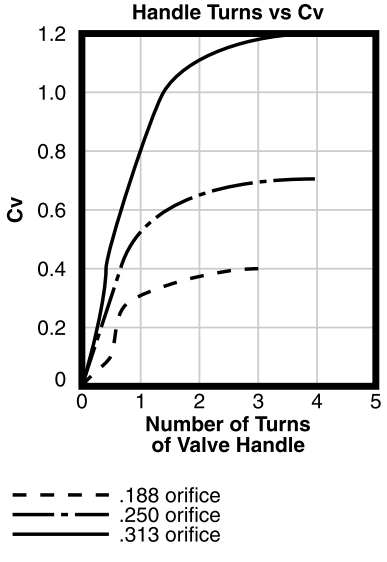


Regulating stem tip shown

Pressure vs. Temperature Curves







**Curves for PCTFE stem tip are the same as above but limited to -20° to +250°F (-29° to +121 °C)*

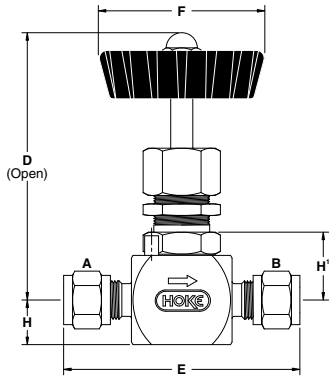
2100 Series

Dimensions

2100 Series: Globe Pattern

INLET A	OUTLET B		D	E	F HARD SEAT	F SOFT SEAT	F METAL HANDLE	H	H[1]
¼″ Gyrolok®	¼″ Gyrolok®	inch	3¼	2 11⁄16	1⅞	—	—	½	25⁄32
		mm	83	68	48	—	—	13	20
¼″ female NPT	¼″ female NPT	inch	3¼	2	1⅞	1⅜	2⅜	½	¾
		mm	83	51	48	35	60	13	19
⅜″ Gyrolok®	⅜″ Gyrolok®	inch	3 5⁄16	2 11⁄16	1⅞	1⅞	—	½	¾
		mm	84	68	48	48	—	13	19
½″ Gyrolok®	½″ Gyrolok®	inch	3 5⁄16	2 5⁄16	1⅞	—	—	½	¾
		mm	84	75	48	—	—	13	19
½″ male NPT	½″ female NPT	inch	3¾	2¾	1⅞	—	—	⅝	31⁄32
		mm	95	70	48	—	—	16	25
½″ female NPT	½″ female NPT	inch	3¾	2½	2⅜	1⅞	2⅜	⅝	15⁄16
		mm	95	64	60	48	60	16	24

Dimensions for reference only, subject to change.
** Use metal handle dimensions for high temperature, 2118 Series valves.*

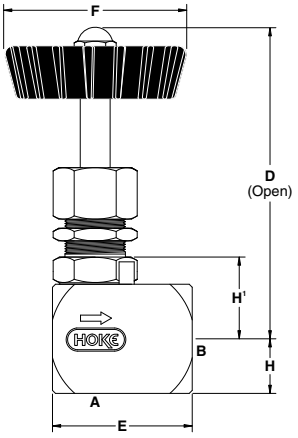


Globe pattern

2100 Series: Angle Pattern

INLET A	OUTLET B		D	E	F HARD SEAT	F SOFT SEAT	H	H[1]
¼″ female NPT	¼″ female NPT	inch	3 5⁄16	1 7⁄16	1⅞	1⅜	9⁄16	13⁄16
		mm	84	37	48	35	14	21
⅜″ female NPT	⅜″ female NPT	inch	3⅜	1½	1⅞	—	⅝	⅞
		mm	86	38	48	—	16	22

Dimensions for reference only, subject to change.



Angle pattern

Panel mounting dimensions

Panel hole for ½″ models = 49⁄64″ (19.4 mm) diameter
for all other models = 41⁄64″ (16.2 mm) diameter
Panel thickness = 3⁄16″ (4.7 mm) maximum

How to Order: Standard Valves


2118G4Y: Globe pattern

2100 Series: Globe Pattern

Metal stem tip; Dyna-Pak® packing for service to +450° F (+232° C)

END CONNECTIONS INLET	END CONNECTIONS OUTLET	ORDER BY PART NUMBER BRASS	ORDER BY PART NUMBER 316 STAINLESS STEEL	ORDER BY PART NUMBER CARBON STEEL	ORIFICE (IN INCHES)	Cv
¼″ Gyrolok®	¼″ Gyrolok®	2112G4B	2112G4Y	—	0.188	0.40
¼″ female NPT	¼″ female NPT	2112F4B	2112F4Y	2112F4E	0.188	0.40
⅜″ Gyrolok®	⅜″ Gyrolok®	—	2112G6Y	—	0.250	0.70
⅜″ female NPT	⅜″ female NPT	2112F6B	2112F6Y	—	0.250	0.70
½″ Gyrolok®	½″ Gyrolok®	—	2112G8Y	—	0.313	1.20
½″ male NPT	½″ female NPT	—	2112L8Y	—	0.313	1.20
½″ female NPT	½″ female NPT	2112F8B	2112F8Y	2112F8E	0.313	1.20

2100 Series: Globe Pattern

Metal stem tip; Graph-Lock® high temperature packing for service to +600° F (+316° C)

END CONNECTIONS INLET	END CONNECTIONS OUTLET	ORDER BY PART NUMBER 316 STAINLESS STEEL	ORDER BY PART NUMBER CARBON STEEL	ORIFICE (IN INCHES)	Cv
¼″ Gyrolok®	¼″ Gyrolok®	2118G4Y	—	0.188	0.40
¼″ female NPT	¼″ female NPT	2118F4Y	2118F4E	0.188	0.40
⅜″ female NPT	⅜″ female NPT	2118F6Y	—	0.250	0.70
½″ female NPT	½″ female NPT	2118F8Y	2118F8E	0.313	1.20

2100 Series



2122F4Y: Angle pattern

2100 Series: Globe Pattern

PCTFE stem tip; Dyna-Pak® packing for service to +250° F (+121° C)

END CONNECTIONS		ORDER BY PART NUMBER		ORIFICE	
INLET	OUTLET	BRASS	316 STAINLESS STEEL	(IN INCHES)	Cv
¼″ female NPT	¼″ female NPT	—	2152F4Y	0.188	0.40
½″ female NPT	½″ female NPT	2152F8B	2152F8Y	0.313	1.20

2100 Series: Angle Pattern

Metal stem tip; Dyna-Pak® packing for service to +450° F (+232° C)

END CONNECTIONS		ORDER BY PART NUMBER		ORIFICE	
INLET	OUTLET	BRASS	316 STAINLESS STEEL	(IN INCHES)	Cv
¼″ female NPT	¼″ female NPT	—	2122F4Y	0.188	0.40
⅜″ Gyrolok®	⅜″ female NPT	2122F6B	—	0.250	0.70

Ordering Options

Spare Parts

Spare parts and repair kits are available for all needle valves. Please contact your distributor for specific information.

Cleaning and Testing

When ordering, please specify if oxygen cleaning or helium leak testing is required.

Additional Sizes

Additional sizes and options are available upon special request. Please consult your local HOKE distributor.

2200 Series

Bar Stock, Screwed Bonnet Needle Valves

Dyna-Pak® packing below the stem threads, a hardened thread gland and a Hastelloy® C-276 stem tip keep valves leak-tight while providing long cycle life. A choice of two flow capabilities enables use in a variety of severe service applications.



Typical Applications

- Corrosive handling
- Sampling systems
- Metering service

Technical Data

BODY*	316 stainless steel
MAXIMUM OPERATING PRESSURE	5000 psig @ 70° F (345 Bar @ 21° C)
OPERATING TEMPERATURE RANGE	-65° to +450° F (-54° to +232° C)
ORIFICE SIZES	0.086˝ to 0.313˝ (2.2 mm to 8.0 mm)
Cv FACTORS	0.12 to 1.40

** Consult factory for other materials*

Features & Benefits

Safety

- Lock pin prevents accidental bonnet disengagement

Durability

- Hastelloy® C-276 stem tip provides long service life

Extended temperature range

- Dyna-Pak® packing

Reliability

- All valves are tested for bubble-tight leakage at both seat and packing

Extended cycle life

- Dyna-Pak® packing below stem threads prevents washing away of thread lubricant and contamination of process fluid

Installation variety

- Choose from a broad selection of male NPT, female NPT and HOKE Gyrolok® tube fitting connections in globe or angle patterns

Panel mounting

- Panel mounting is standard on all models

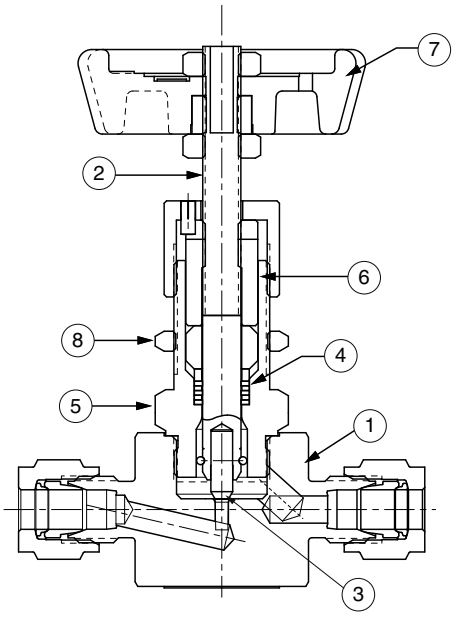
needle valves

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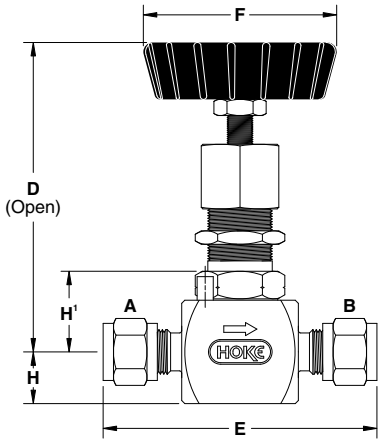
2200 Series

Materials of Construction

	DESCRIPTION	MATERIAL
1	Body	316 stainless steel
2	Stem	316 stainless steel
3	Stem tip	Hastelloy® C-276
4	Stem packing	TFE/316 stainless steel wafers
5	Bonnet	316 stainless steel
6	Thread gland	416 stainless steel
7	*Handle* 2210, 2220 Series 2230 Series	 Aluminum cross, red ABS
8	Panel mounting nut	Nickel-plated brass



Dimensions

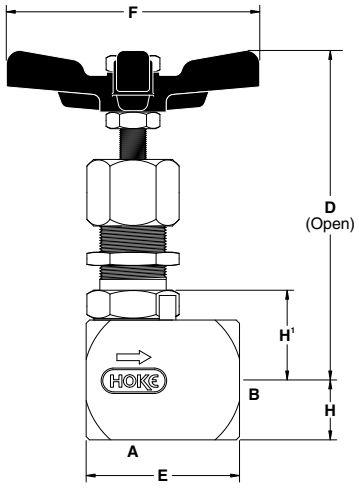


Globe pattern

2200 Series: Globe Pattern

INLET A	OUTLET B		D	E	F	H	H¹
¼″ Gyrolok®	¼″ Gyrolok®	inch	3 5/16	2 21/32	2 3/8	½	25/32
		mm	84	67	60	13	20
¼″ female NPT	¼″ female NPT	inch	3 5/16	2	2 3/8	½	13/16
		mm	84	51	60	13	21
⅜″ Gyrolok®	⅜″ Gyrolok®	inch	3¼	2 11/16	2 3/8	½	¾
		mm	83	68	60	13	19
⅜″ female NPT	⅜″ female NPT	inch	3 5/16	2	2 3/8	½	13/16
		mm	84	51	60	13	21
½″ Gyrolok®	½″ Gyrolok®	inch	3¼	2 15/16	2 3/8	½	25/32
		mm	83	75	60	13	20
½″ male NPT	¼″ female NPT	inch	3 5/16	2⅛	2 3/8	½	13/16
		mm	84	54	60	13	21
½″ female NPT	½″ female NPT	inch	3 11/16	2½	2 3/8	5/8	7/8
		mm	94	64	60	16	22
10mm Gyrolok®	10mm Gyrolok®	inch	3 5/16	2 11/16	2 3/8	½	25/32
		mm	84	68	60	13	20
12mm Gyrolok®	12mm Gyrolok®	inch	3 5/16	2 15/16	2 3/8	½	¾
		mm	84	75	60	13	19

Dimensions for reference only, subject to change.



Angle pattern

2200 Series: Angle Pattern

INLET A	OUTLET B		D	E	F	H	H¹
¼″ female NPT	¼″ female NPT	inch	3 9/16	1 7/16	2 3/8	9/16	7/8
		mm	90	37	60	14	22

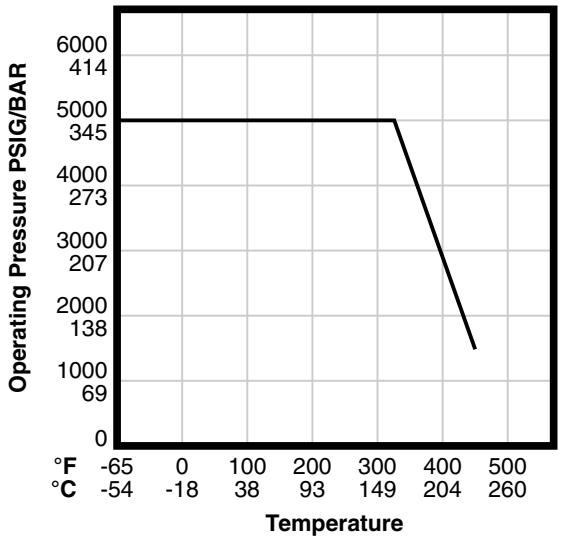
Dimensions for reference only, subject to change.

Panel mounting dimensions

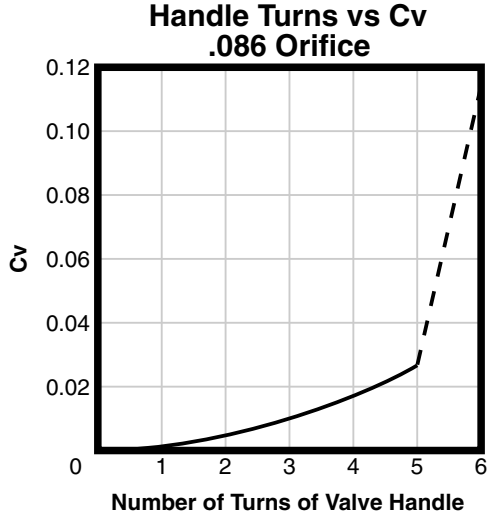
Panel hole: for ½″ models = 49/64″ (19.4 mm) diameter
for all other models = 41/64″ (16.2 mm) diameter
Panel thickness = 3/16″ (4.7 mm) maximum

2200 Series

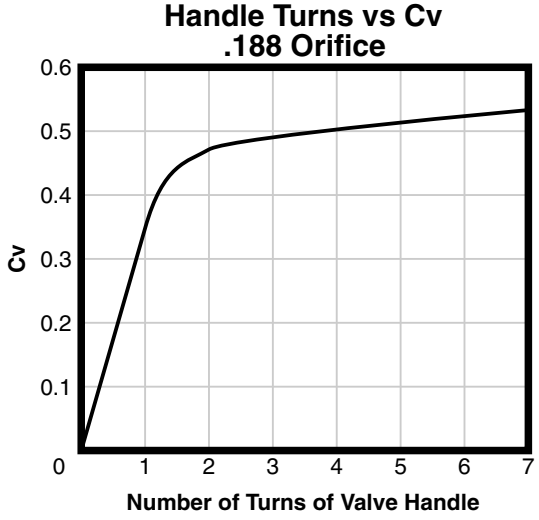
Pressure vs. Temperature Curve

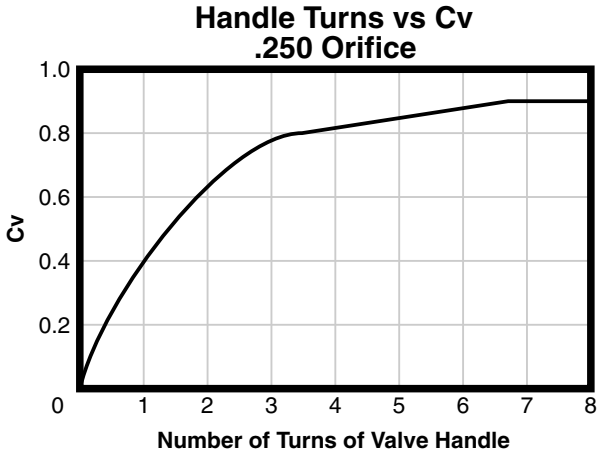


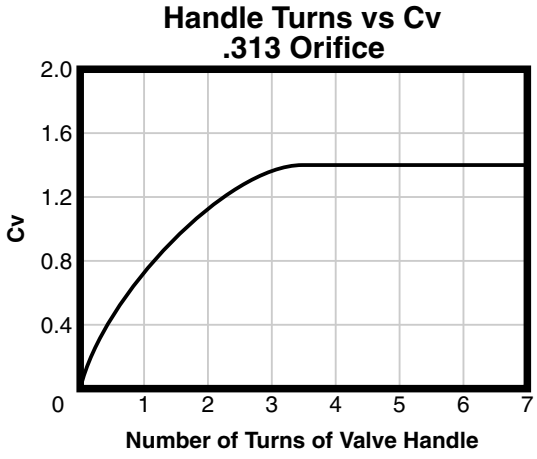
Flow Curves



Note: Metering range of valve is within the first 5 handle turns.







2200 Series

How to Order: Standard Valves



2215G6Y: Globe pattern



Regulating stem tip (for greater control of flow)



2225F4Y: Angle pattern



Blunt vee-point tip (full flow with only a few handle turns)

2200 Series: Globe Pattern
Blunt vee-point stem tip

END CONNECTIONS		ORDER BY PART NUMBER	ORIFICE	
INLET	OUTLET	316 STAINLESS STEEL	(INCHES)	Cv
¼″ Gyrolok®	¼″ Gyrolok®	2215G4Y	0.188	0.40
¼″ female NPT	¼″ female NPT	2215F4Y	0.188	0.50
⅜″ Gyrolok®	⅜″ Gyrolok®	2215G6Y	0.250	0.76
⅜″ female NPT	⅜″ female NPT	2215F6Y	0.250	0.90
½″ Gyrolok®	½″ Gyrolok®	2215G8Y	0.250	0.90
½″ male NPT	¼″ female NPT	2215L84Y	0.188	0.50
½″ female NPT	½″ female NPT	2215F8Y	0.313	1.40
10mm Gyrolok®	10mm Gyrolok®	2215G10YMM	0.250	0.90
12mm Gyrolok®	12mm Gyrolok®	2215G12YMM	0.250	0.90

2200 Series: Globe Pattern
Regulating stem tip

END CONNECTIONS		ORDER BY PART NUMBER	ORIFICE	
INLET	OUTLET	316 STAINLESS STEEL	(INCHES)	Cv
¼″ female NPT	¼″ female NPT	2232F4Y	0.086	0.12

2200 Series: Angle Pattern
Blunt vee-point stem tip

END CONNECTIONS		ORDER BY PART NUMBER	ORIFICE	
INLET	OUTLET	316 STAINLESS STEEL	(INCHES)	Cv
¼″ female NPT	¼″ female NPT	2225F4Y	0.188	0.55

Ordering Options

Spare Parts
Spare parts and repair kits are available for all needle valves. Please contact your distributor for specific information.

Cleaning and Testing
When ordering, please specify if oxygen cleaning or helium leak testing is required.

Additional Sizes
Additional sizes and options are available on special request. Please consult your local HOKE distributor.

NEW!

2219 Series

Severe Service Needle Valves

The new Hoke 2219 Needle Valve is an excellent choice for many steam- and severe service applications. Grafoil® packing below the stem threads provides exceptional service at temperatures up to +1000° F (+538° C). The non-rotating 316 stainless steel stem tip prevents galling.





Typical Applications

- Steam service in power plants
- Hot condensates

Technical Data

BODY MATERIAL	316 stainless steel, carbon steel, Hastelloy® C-276, and Monel®
MAXIMUM OPERATING PRESSURE	6000 psig @ 70° F (414 Bar @ 21° C)
PROOF PRESSURE SAFETY FACTOR	2:1
BURST PRESSURE	4:1
TEMPERATURE RANGE	-100° F to + 1000° F @ 1750 psig max. (-75° C to + 538° C @ 120 bar max.)
ORIFICE SIZES	0.170", 0.250", 0.312", and 0.437" (4.3 mm, 6.4 mm, 7.9 mm, and 11.1 mm)
C_V FACTORS*	0.47, 1.09, and 1.20

* C_V factor for 0.437" orifice not available at time of publication

Features & Benefits

- Meets ANSI 900# specifications
- Grafoil® packing below threads isolates threads from media.
- Non-rotating 316 stainless steel stem tip prevents galling
- High pressure / high temperature use
- All standard components are 316 stainless steel
- Standard 316 stainless steel cast handle
- Fractional end connections available up to 1"; metric end connections up to 25 mm
- Gyrolok®, female NPT, NPS-, or tube socket weld end connections
- Bubble-tight leak testing at both seat and packing

needle valves

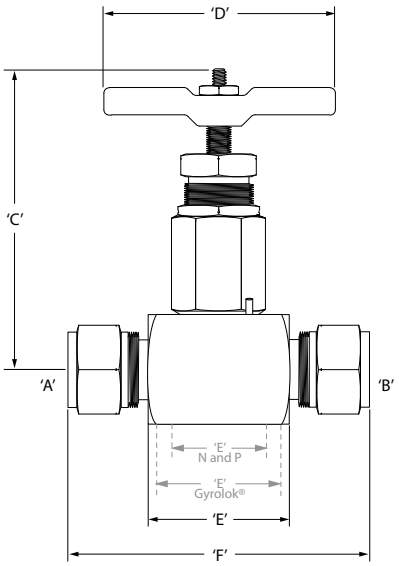
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2219 Series Severe Service Needle Valve

Dimensions

INLET A	OUTLET B	ORIFICE SIZE		C	D	E	F
¼″ female NPT	¼″ female NPT	0.250″ (6.4 mm)	inch	3.4	2.63	2.25	N/A
			mm	86.4	66.8	57.2	N/A
½″ female NPT	½″ female NPT	0.312″ (7.9 mm)	inch	3.4	2.63	2.51	N/A
			mm	86.4	66.8	63.8	N/A
¾″ female NPT	¾″ female NPT	0.437″ (11.1 mm)	inch	3.55	2.63	3.50	N/A
			mm	89.6	66.8	88.9	N/A
1″ female NPT	1″ female NPT	0.437″ (11.1 mm)	inch	3.59	2.63	4.25	N/A
			mm	91.3	66.8	108.0	N/A
¼″ Gyrolok®	¼″ Gyrolok®	0.170″ (4.3 mm)	inch	3.4	2.63	1.87	3.15
			mm	86.4	66.8	47.4	80.1
½″ Gyrolok®	½″ Gyrolok®	0.250″ (6.4 mm)	inch	3.4	2.63	1.50	3.43
			mm	86.4	66.8	38.1	87.1
¾″ Gyrolok®	¾″ Gyrolok®	0.437″ (11.1 mm)	inch	3.53	2.63	2.88	4.87
			mm	89.7	66.8	73.2	123.8
1″ Gyrolok®	1″ Gyrolok®	0.437″ (11.1 mm)	inch	3.53	2.63	2.51	5.00
			mm	89.7	66.8	63.8	120.9
12 mm Gyrolok®	12 mm Gyrolok®	0.250″ (6.4 mm)	inch	3.40	2.63	1.51	3.36
			mm	86.4	66.8	38.5	85.4
22 mm Gyrolok®	22 mm Gyrolok®	0.437″ (11.1 mm)	inch	3.53	2.63	2.76	4.86
			mm	89.7	66.8	70.1	123.3
25 mm Gyrolok®	25 mm Gyrolok®	0.437″ (11.1 mm)	inch	3.53	2.63	2.51	5.11
			mm	89.7	66.8	63.8	129.7
⅜″ tube socket weld	⅜″ tube socket weld	0.250″ (6.4 mm)	inch	3.4	2.63	1.94	2.44
			mm	86.4	66.8	49.3	62.0
½″ tube socket weld	½″ tube socket weld	0.250″ (6.4 mm)	inch	3.40	2.63	1.94	2.44
			mm	86.4	66.8	49.3	62.0
¾″ tube socket weld	¾″ tube socket weld	0.437″ (11.1 mm)	inch	3.53	2.63	2.50	3.50
			mm	89.7	66.8	63.5	88.9
1″ tube socket weld	1″ tube socket weld	0.437″ (11.1 mm)	inch	3.53	2.63	2.50	3.50
			mm	89.7	66.8	63.5	88.9
⅜ ″ NPS socket weld	⅜″ NPS socket weld	0.250″ (6.4 mm)	inch	3.4	2.63	2.01	2.51
			mm	56.4	66.8	51.05	63.8
½″ NPS socket weld	½″ NPS socket weld	0.312″ (7.9 mm)	inch	3.4	2.63	1.75	2.51
			mm	86.4	66.8	44.45	63.8
¾″ NPS socket weld	¾″ NPS socket weld	0.437″ (11.1 mm)	inch	3.53	2.63	2.50	3.50
			mm	89.7	66.8	63.5	88.9
1″ NPS socket weld	1″ NPS socket weld	0.437″ (11.1 mm)	inch	3.59	2.63	2.50	3.50
			mm	91.3	66.8	63.5	88.9

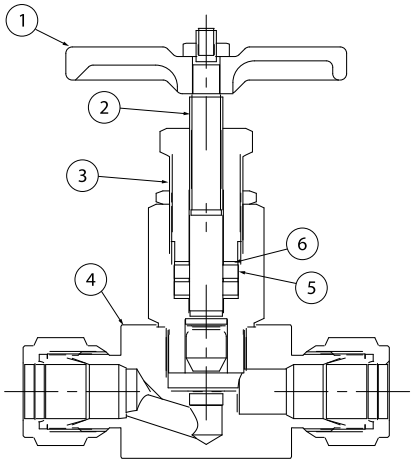
Dimensions for reference only, subject to change.



*Materials of Construction**

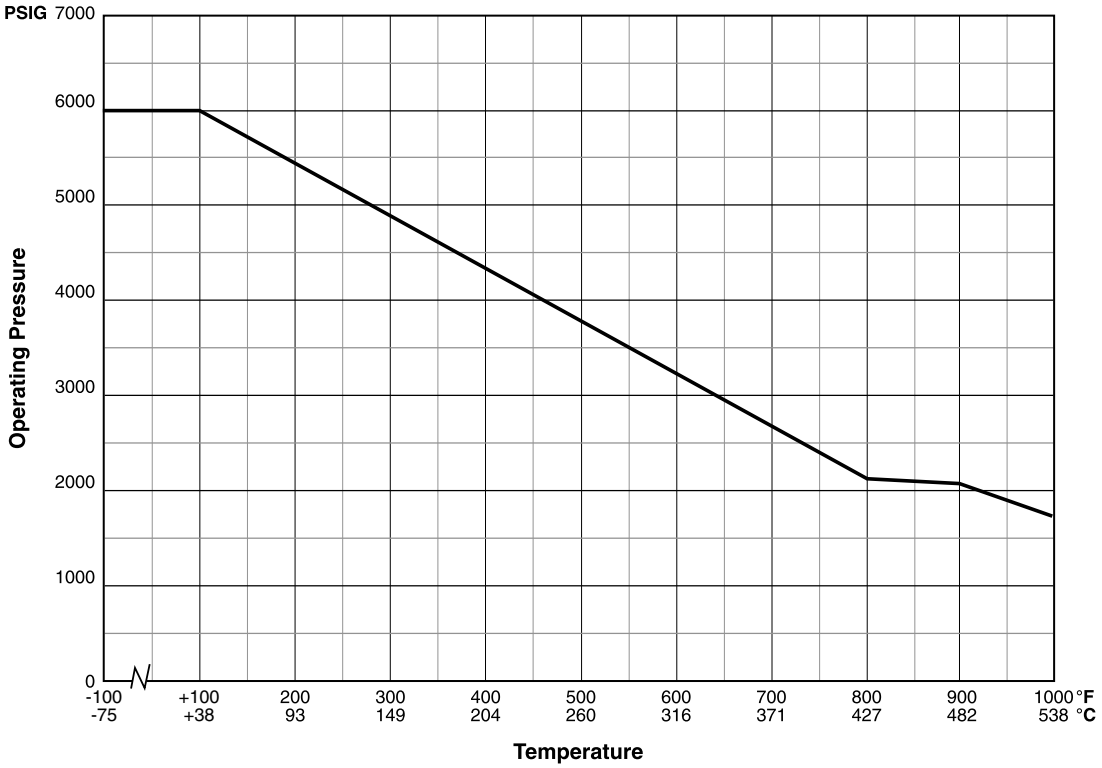
	DESCRIPTION	MATERIAL
1	Handle	316 stainless steel
2	Stem assembly	316 stainless steel
3	Packing nut	316 stainless steel
4	Body	316 stainless steel
5	Packing	Grafoil®
6	Packing washer	316 stainless steel

** This listing contains standard valve information only. See page 19 for a complete list of options.*



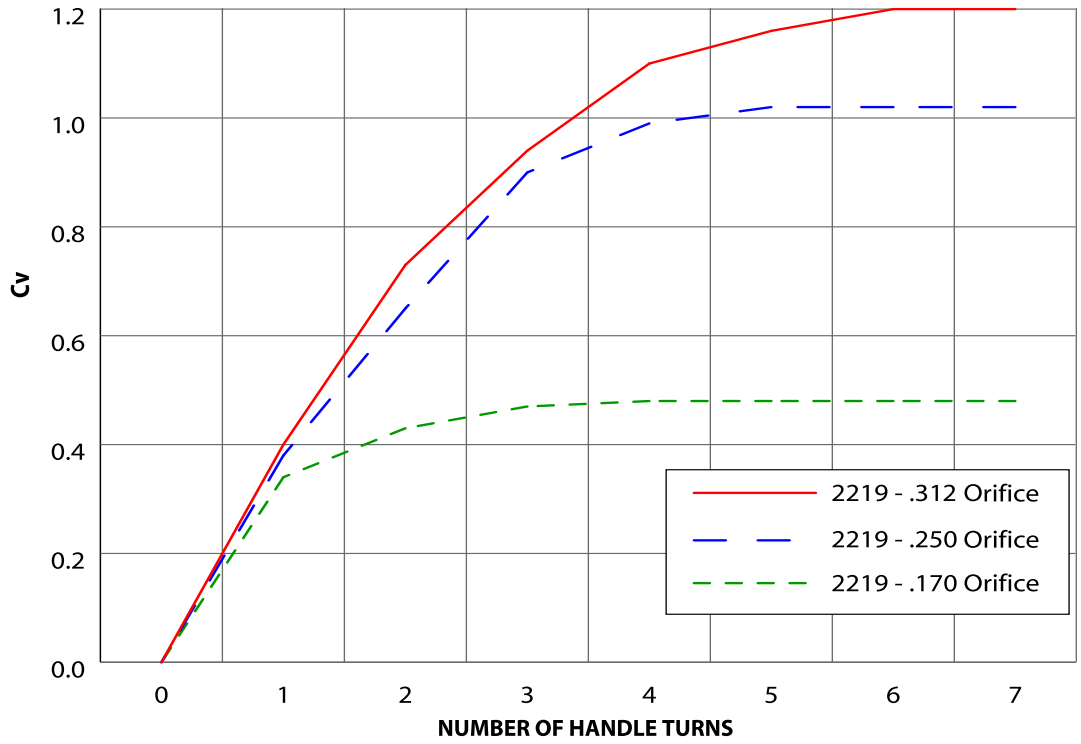
2219 Series Severe Service Needle Valve

Pressure vs. Temperature Curve



Flow Curves

Handle Turns vs. C_V



** Data for 0.437" orifice not available at time of publication*

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