

Integral Bonnet Needle Valves

NG Series: Working pressure up to 3000 psig

NGH Series: Working pressure up to 5000 psig

Features

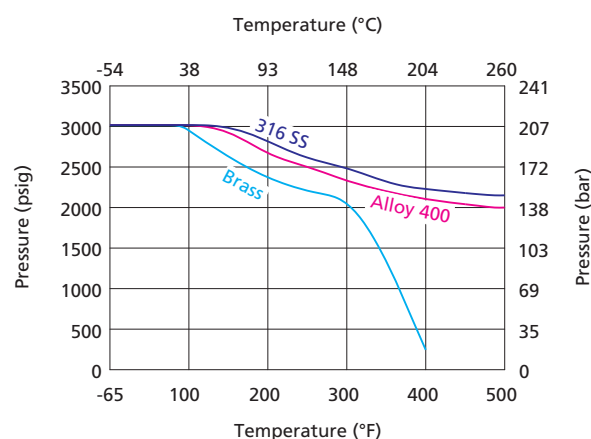
- ⦿ One-piece forged body
- ⦿ Easy external adjustments by packing nut
- ⦿ Live-loaded packing system
- ⦿ Handles of different colors available
- ⦿ Compact design
- ⦿ Panel mounting available
- ⦿ Every valve leak tested with nitrogen or compressed air at the maximum allowable working pressure
- ⦿ Working pressure up to:
 - NG Series—Stainless steel, Brass, Alloy 400: 3000 psig (207 bar)
 - NGH Series—Stainless steel: 5000 psig (345 bar)
- ⦿ Working temperature:
 - PTFE: -65°F to 450°F (-54°C to 232°C)
 - PEEK: -65°F to 500°F (-54°C to 260°C)



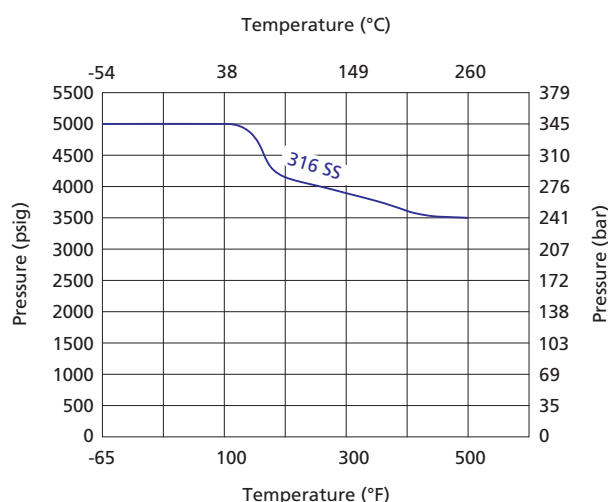
Needle Valves
Metering Valves

Pressure vs. Temperature

NG Series



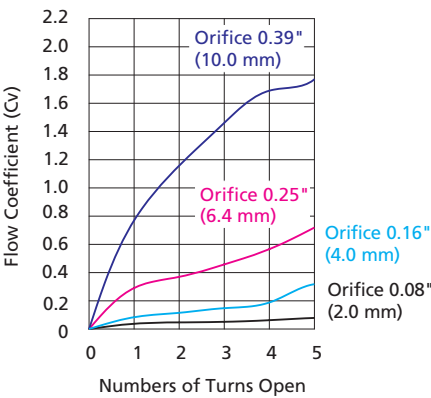
NGH Series



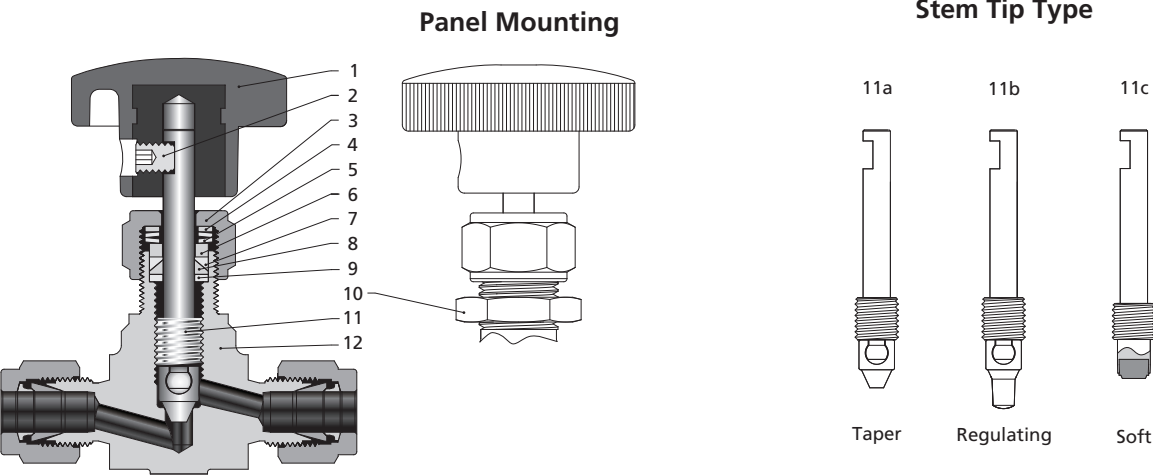
1. Graphs are based on PEEK packing.
2. Temperature rating is limited to 200°F (93°C) max with PCTFE stem tip (soft tip).
3. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Flow Data at 100°F (38°C)

Regulating Stem Tip



Standard Materials of Construction

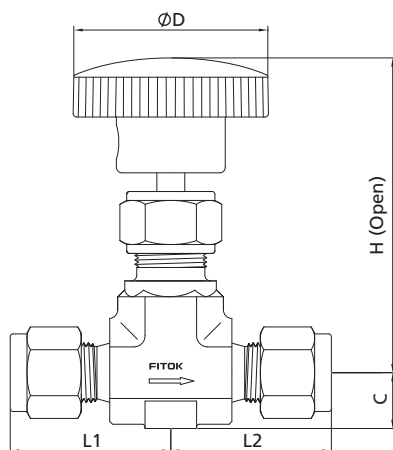


Item	Component	Valve Body Material		
		316 SS	Brass	Alloy 400
		Material Grade/ASTM Specification		
1	Handle	Black knob (aluminum or nylon with copper insert), aluminum alloy or stainless steel bar handle		
2	Set Screw	Zinc-plated carbon steel		
3	Packing Bolt	304 SS/A479	Brass C36000/B16	304 SS/A479
4	Washer	316 SS/A479		
5	Packing Spring	S17700/A693		
6	Washer	316 SS/A479		
7	Upper Packing	PTFE/PEEK		
8	Lower Packing			
9	Packing Washer	316 SS/A479		Alloy 400/B164
10	Panel Nut	Stainless steel	Brass C36000/B16	Stainless steel
11a	Stem	316 SS/A479		Alloy 400/B164
11b	Stem Tip	Hardened 316 SS/A479		Alloy 400/B164
11c	Stem	316 SS/A479		Alloy 400/B164
	Stem Tip	PCTFE or PEEK		
12	Body	316 SS/A182	Brass C37700/B283	Alloy 400/B564
Lubricant		Molybdenum disulfide-based		

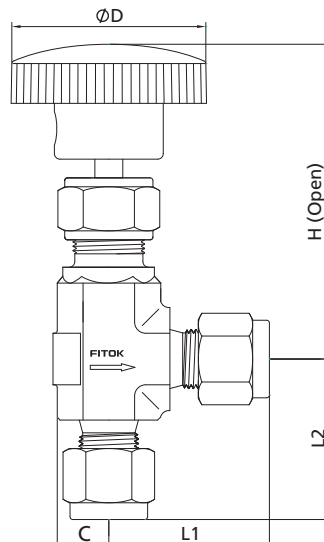
Note: Contact FITOK Group or our authorized distributors for other materials.

Dimensions

Straight Pattern



Angle Pattern



Dimensions of NG Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)					
	Inlet	Outlet			L1	L2	C	D	H	
NG□□-NS2-5	1/8 Male NPT	1/8 Male NPT	0.08 (2.0)	0.09	0.75 (19.05)	0.75 (19.05)	0.32 (8.2)	1.00 (25.4)	2.30 (58.4)	
NG□□-FNS2-5	1/8 Female NPT	1/8 Female NPT			0.81 (20.6)	0.81 (20.6)				
NG□□-FL2-5	1/8" FITOK	1/8" FITOK			0.98 (25.0)	0.98 (25.0)				
NG□□-ML3-5	3 mm FITOK	3 mm FITOK								
NG□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	0.81 (20.6)	0.81 (20.6)	0.39 (10.0)	1.38 (35.0)	2.46 (62.5)	
NG□□-NS4-7	1/4 Male NPT	1/4 Male NPT			0.98 (25.0)	0.98 (25.0)				
NG□□-FL4-7	1/4" FITOK	1/4" FITOK			1.13 (28.7)	1.13 (28.7)				
NG□□-ML6-7	6 mm FITOK	6 mm FITOK			1.17 (29.7)	1.17 (29.7)				
NG□□-ML8-7	8 mm FITOK	8 mm FITOK			2.24 (57.0)	2.24 (57.0)				
NG□□-UMB6-7	6×1.8 mm Rotatable Tube Butt Weld	6×1.8 mm Rotatable Tube Butt Weld								
NG□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)	0.49 (12.5)	1.88 (47.8)	2.85 (72.4)	
NG□□-FNS6-8	3/8 Female NPT	3/8 Female NPT					0.62 (15.8)		2.90 (73.7)	
NG□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.12 (28.4)	1.12 (28.4)	0.49 (12.5)		2.85 (72.4)	
NG□□-NS8-8	1/2 Male NPT	1/2 Male NPT			1.50 (38.1)	1.50 (38.1)	0.62 (15.8)		2.90 (73.7)	
NG□□-FL6-8	3/8" FITOK	3/8" FITOK			1.29 (32.8)	1.29 (32.8)	0.49 (12.5)		2.85 (72.4)	
NG□□-FL8-8	1/2" FITOK	1/2" FITOK			1.40 (35.6)	1.40 (35.6)				
NG□□-ML10-8	10 mm FITOK	10 mm FITOK			1.30 (33.0)	1.30 (33.0)				
NG□□-ML12-8	12 mm FITOK	12 mm FITOK			1.40 (35.6)	1.40 (35.6)				
NG□□-ML14-8	14 mm FITOK	14 mm FITOK			1.56 (39.7)	1.56 (39.7)	0.62 (15.8)		2.90 (73.7)	
NG□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric			1.50 (38.1)	1.50 (38.1)				
NG□□-UMB10-8	10×2.2 mm Rotatable Tube Butt Weld	10×2.2 mm Rotatable Tube Butt Weld			2.60 (66.0)	2.60 (66.0)	0.49 (12.5)	1.88 (47.8)	2.85 (72.4)	
NG□□-UMB14-8	14×2.5 mm Rotatable Tube Butt Weld	14×2.5 mm Rotatable Tube Butt Weld								

Dimensions of NG Series

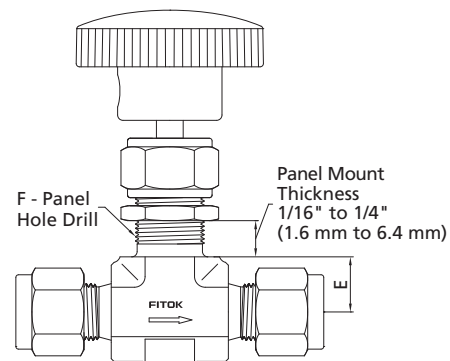
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)						
	Inlet	Outlet			L1	L2	C	D	H		
NG□□-FNS8-9-L	1/2 Female NPT	1/2 Female NPT	0.39 (10.0)	1.80	1.50 (38.1)	1.50 (38.1)	0.76 (19.4)	3.50 (88.9)	3.37 (85.7)		
NG□□-FNS12-9-L	3/4 Female NPT	3/4 Female NPT			1.56 (39.7)	1.56 (39.7)	0.80 (20.4)				
NG□□-NS12-9-L	3/4 Male NPT	3/4 Male NPT			1.56 (39.7)	1.56 (39.7)	0.76 (19.4)				
NG□□-FL8-9-L	1/2" FITOK	1/2" FITOK			1.90 (48.3)	1.90 (48.3)	0.76 (19.4)				
NG□□-FL12-9-L	3/4" FITOK	3/4" FITOK									
NG□□-ML14-9-L	14 mm FITOK	14 mm FITOK									

1. Connection type of "FITOK" means FITOK double ferrule tube fittings. When the connection type of valves is FITOK double ferrule tube fitting, the working pressures of the valves are related to the wall thickness of used tubing. For specific working pressure of the valves, please refer to the allowable working pressures in FITOK Catalog Tubing.
2. Sizes and types listed are standard. Other sizes and types are available upon request. For details, please contact FITOK Group or our authorized distributors.
3. Dimensions are shown with FITOK tube fitting nuts finger-tight. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

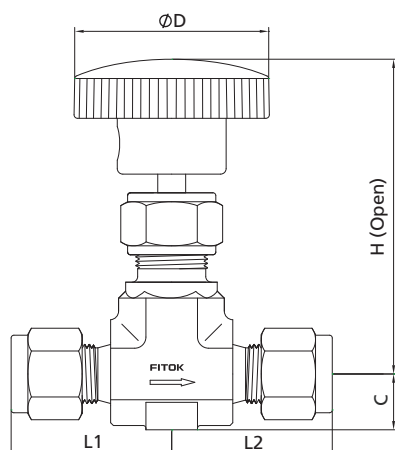
Panel Mount Dimensions of NG Series

Orifice in.(mm)	Dimensions, in.(mm)	
	E	F
0.08 (2.0)	0.44 (11.2)	0.47 (11.9)
0.16 (4.0)	0.44 (11.2)	0.53 (13.5)
0.25 (6.4)	0.50 (12.7)	0.78 (19.8)
0.39 (10.0)	0.75 (19.1)	1.03 (26.2)

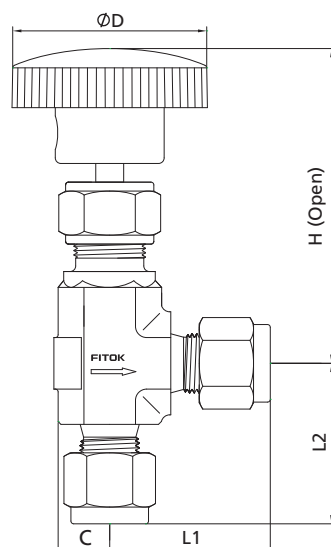
1. NG Series Needle Valves are standard without panel mounting.
2. To order needle valves with panel mounting as illustrated, add -Y to the ordering number. Example: NGSS-NS2-5-Y



Straight Pattern



Angle Pattern



Dimensions of NGH Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)				
	Inlet	Outlet			L1	L2	C	D	H
NGH□□-NS2-5	1/8 Male NPT	1/8 Male NPT	0.08 (2.0)	0.09	0.75 (19.0)	0.75 (19.0)	0.32 (8.2)	1.00 (25.4)	2.30 (58.4)
NGH□□-FNS2-5	1/8 Female NPT	1/8 Female NPT			0.81 (20.6)	0.81 (20.6)			
NGH□□-FL2-5	1/8" FITOK	1/8" FITOK			0.98 (25.0)	0.98 (25.0)			
NGH□□-ML3-5	3 mm FITOK	3 mm FITOK							
NGH□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	0.81 (20.6)	0.81 (20.6)	0.39 (10.0)	1.38 (35.0)	2.46 (62.5)
NGH□□-NS4-7	1/4 Male NPT	1/4 Male NPT			0.98 (25.0)	0.98 (25.0)			
NGH□□-FL4-7	1/4" FITOK	1/4" FITOK			1.13 (28.7)	1.13 (28.7)			
NGH□□-ML6-7	6 mm FITOK	6 mm FITOK			1.17 (29.7)	1.17 (29.7)			
NGH□□-ML8-7	8 mm FITOK	8 mm FITOK			2.24 (57.0)	2.24 (57.0)			
NGH□□-UMB6-7	6×1.8 mm Rotatable Tube Butt Weld	6×1.8 mm Rotatable Tube Butt Weld							
NGH□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)	0.49 (12.5)	1.88 (47.8)	2.85 (72.4)
NGH□□-FNS6-8	3/8 Female NPT	3/8 Female NPT					0.62 (15.8)		2.90 (73.7)
NGH□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.12 (28.4)	1.12 (28.4)	0.49 (12.5)		2.85 (72.4)
NGH□□-NS8-8	1/2 Male NPT	1/2 Male NPT			1.50 (38.1)	1.50 (38.1)	0.62 (15.8)		2.90 (73.7)
NGH□□-FL6-8	3/8" FITOK	3/8" FITOK			1.29 (32.8)	1.29 (32.8)	0.49 (12.5)		2.85 (72.4)
NGH□□-FL8-8	1/2" FITOK	1/2" FITOK			1.40 (35.6)	1.40 (35.6)			
NGH□□-ML10-8	10 mm FITOK	10 mm FITOK			1.30 (33.0)	1.30 (33.0)			
NGH□□-ML12-8	12 mm FITOK	12 mm FITOK			1.40 (35.6)	1.40 (35.6)			
NGH□□-ML14-8	14 mm FITOK	14 mm FITOK			1.56 (39.7)	1.56 (39.7)	0.62 (15.8)		2.90 (73.7)
NGH□□-MS20-8	M20×1.5 Male Metric	M20×1.5 Male Metric			1.50 (38.1)	1.50 (38.1)			
NGH□□-UMB10-8	10×2.2 mm Rotatable Tube Butt Weld	10×2.2 mm Rotatable Tube Butt Weld							
NGH□□-UMB14-8	14×2.5 mm Rotatable Tube Butt Weld	14×2.5 mm Rotatable Tube Butt Weld					2.60 (66.0)		2.60 (66.0)

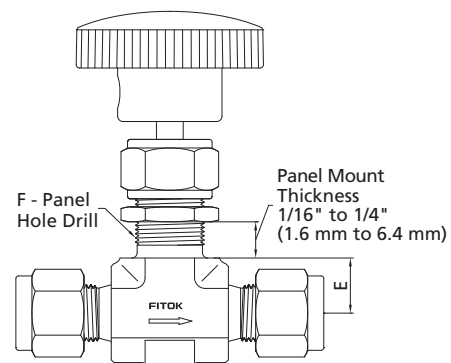
Dimensions of NGH Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)					
	Inlet	Outlet			L1	L2	C	D	H	
NGH□□-FNS8-9-L	1/2 Female NPT	1/2 Female NPT	0.39 (10.0)	1.80	1.50 (38.1)	1.50 (38.1)	0.76 (19.4)	3.50 (88.9)	3.37 (85.7)	
NGH□□-NS12-9-L	3/4 Male NPT	3/4 Male NPT			1.56 (39.7)	1.56 (39.7)	0.76 (19.4)			
NGH□□-FL8-9-L	1/2" FITOK	1/2" FITOK			1.90 (48.3)	1.90 (48.3)	0.76 (19.4)			
NGH□□-FL12-9-L	3/4" FITOK	3/4" FITOK								
NGH□□-ML14-9-L	14 mm FITOK	14 mm FITOK								

1. Connection type of "FITOK" means FITOK double ferrule tube fittings. When the connection type of valves is FITOK double ferrule tube fitting, the working pressures of the valves are related to the wall thickness of tubing applied. For specific working pressure of the valves, please refer to the allowable working pressures in FITOK Catalog Tubing.
2. Sizes and types listed are standard. Other sizes and types are available upon request. For details, please contact FITOK Group or our authorized distributors.
3. Dimensions are shown with FITOK tube fitting nuts finger-tight. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

Panel Mount Dimensions of NGH Series

Orifice in.(mm)	Dimensions, in.(mm)	
	E	F
0.08 (2.0)	0.44 (11.2)	0.47 (11.9)
0.16 (4.0)	0.44 (11.2)	0.53 (13.5)
0.25 (6.4)	0.50 (12.7)	0.78 (19.8)
0.39 (10.0)	0.75 (19.1)	1.03 (26.2)



1. NGH Series Needle Valves are standard without panel mounting.
2. To order needle valves with panel mounting as illustrated, add -Y to the ordering number. Example: NGH55-NS2-5-Y

Ordering Number Description

NGS4 - FNS8 - FL8 - 9P - PYM - ASF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Stem Tip Type	Packing Material	Panel Mounting	Handles	Flow Pattern	Special Application	Cleaning and Packaging
NG	SS 316 SS	FNS Female NPT	2 1/8"	Same as Inlet	5 0.08" (2.0 mm)	Taper		PTFE	No	Black Knob Not applicable to Orifice 0.39" (10mm)	Straight	No	FC-01
NGH	6L 316L SS	NS Male NPT	4 1/4"	Specified in the same way as inlet type and inlet size	7 0.16" (4.0 mm)	R Regulating		P PEEK	Y Yes		A Angle	S NACE MR0175	F2 FC-02
	S4 304 SS	FRT Female BSPT	6 3/8" or 6 mm or 6x1.8 mm		8 0.25" (6.4 mm)	K Soft Tip-PCTFE				I Red Aluminum Bar			
	4L 304L SS	RT Male BSPT	8 1/2" or 8 mm		9 0.39" (10 mm)	P Soft Tip-PEEK				GR Green Aluminum Bar			
	S1 321 SS	FMS Female Metric Thread (for RG-M)	10 10 mm or 10x2.2 mm							J Blue Aluminum Bar			
	A20 Alloy 20	MS Male Metric Thread (for RG-M)	12 3/4" or 12 mm							L Black Aluminum Bar			
	M Alloy 400	FRP Female BSPP (for RP)	14 14 mm or 14x2.5 mm or M14x1.5							M Stainless Steel Bar			
	INC Alloy 600	BP Male BSPP (for RG)	16 1" or 16 mm										
	HC Alloy C-276	FL Fractional Tube Fitting	18 18 mm										
	B Brass	ML Metric Tube Fitting	20 20 mm or M20 x 1.5										
	CS Carbon Steel	UMB Rotatable Metric Tube Butt Weld	22 22 mm or M22 x 1.5										
	904L 904L SS	UPB Rotatable Pipe Butt Weld											

Note: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

- Standard thread pitch for metric threads are as follows:
M10 and below: 1 mm
M12 to M24: 1.5 mm
M27 and above: 2 mm
Standard thread pitch should be omitted in the ordering number, others should be specified.
- For Orifice 0.39" (10 mm) needle valves, the option of black knob handle is unavailable.
If handle designator is void, a black anodized Aluminum bar handle should be equipped.
- Cleaning and Packaging:
FC-01: Standard cleaning and packaging for general industrial procedures.
FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement of ASTM G93 Level C.