

Forged Body Needle Valves

NF Series: Working pressure up to 6000 psig

NFH Series: Working pressure up to 10000 psig

Features

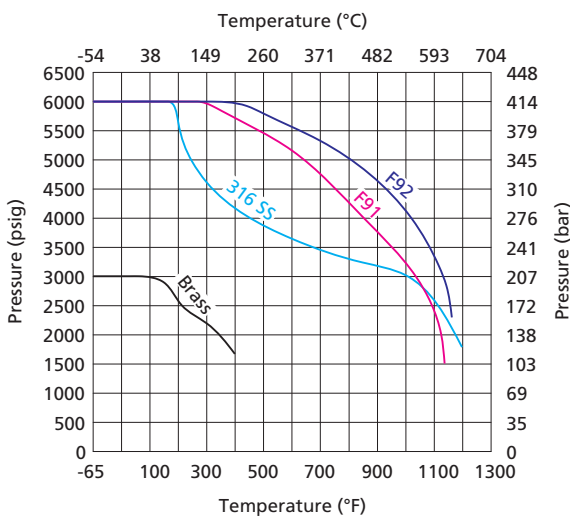
- ⦿ One-piece forged body
- ⦿ Two-piece stem design: Upper stem threads cold rolled and lower stem hardened for high strength and smooth operation
- ⦿ Upper stem thread lubricant isolated from system media
- ⦿ Linear instead of rotary motion of the rising, non-rotating stem minimizes packing abrasion and reduces the friction between the seat and the tip
- ⦿ Panel mounting available
- ⦿ Steady and durable fastening of the handle by double lock-pins
- ⦿ Handles of different colors available
- ⦿ Every valve leak tested with nitrogen or compressed air (NF Series) at the maximum allowable working pressure or with water (NFH Series) at 1.1 times the maximum allowable working pressure
- ⦿ Working pressure up to:
 - NF Series—Stainless steel: 6000 psig (414 bar)
 - Alloy C-276: 6000 psig (414 bar)
 - Alloy 400: 5000 psig (345 bar)
 - Titanium: 3500 psig (241 bar)
 - Brass: 3000 psig (207 bar)
- ⦿ NFH Series—Stainless steel: 10000 psig (690 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)
 - Graphite: -65°F to 1200°F (-54°C to 649°C)



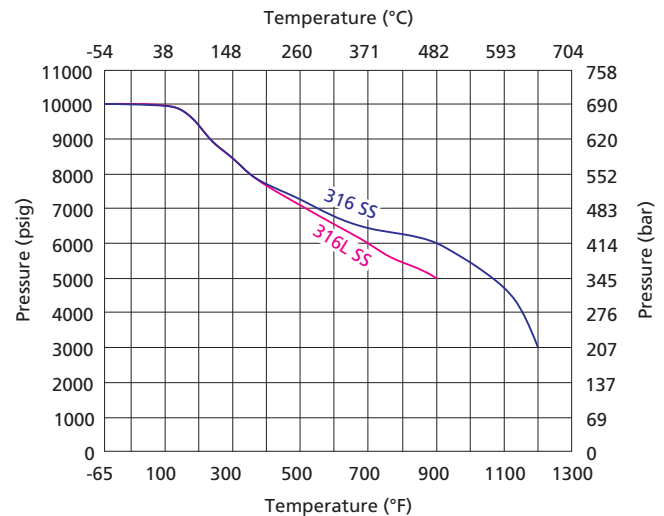
Needle Valves
Metering Valves

Pressure vs. Temperature

NF Series



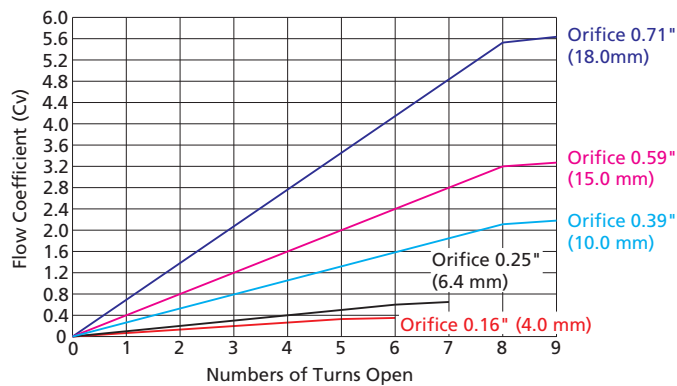
NFH Series



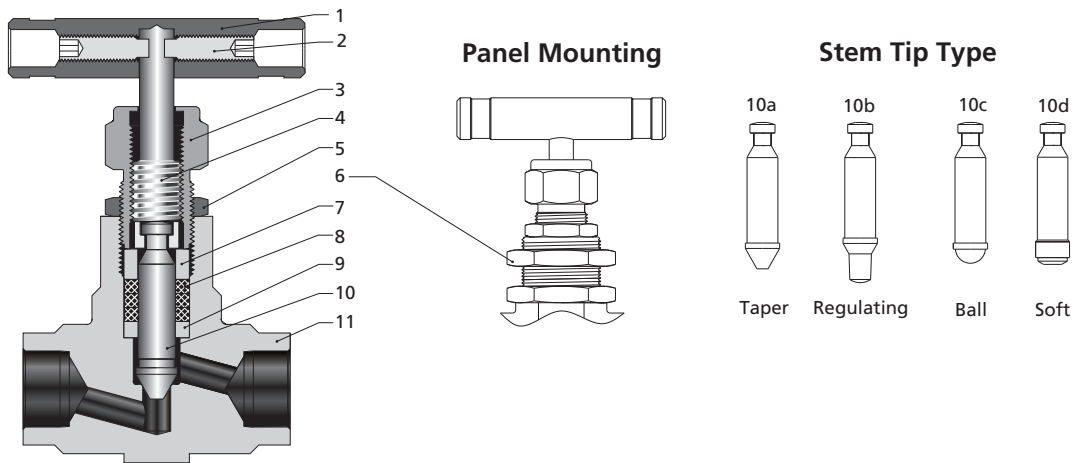
1. Graphs are based on graphite packing.
2. Soft tips are for NF Series only. Temperature rating is limited to 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Flow Data at 100°F (38°C)

Regulating Stem Tip



Standard Materials of Construction

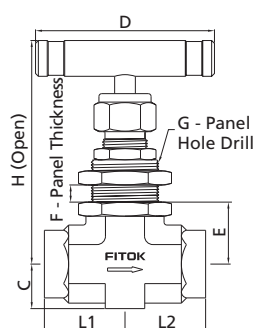


Item	Component	Valve Body Material		
		316 SS	F91	Brass
		Material Grade/ASTM Specification		
1	Handle	Anodized aluminum or stainless steel or black knob		
2	Set Screw	Zinc-plated carbon steel		
3	Packing Bolt	304 SS/A479	F91/A182	Brass C36000/B16
4	Upper Stem	316 SS/A479		
5	Lock Nut	Stainless steel	1020/A108	Brass C36000/B16
6	Panel Nut	Stainless steel	1020/A108	Brass C36000/B16
7	Gland	316 SS/A479		Brass C36000/B16
8	Packing	PTFE or PEEK or graphite		
9	Packing Washer	316 SS/A479		Brass C36000/B16
10a 10b 10c	Lower Stem	Hardened 316 SS/A479		
10d	Stem	316 SS/A479		
	Stem Tip	PTFE or PCTFE		
11	Body	316 SS/A182	F91/A182	Brass C37700/B283
	Seat	Same as body		
	Lubricant	Molybdenum disulfide-based		

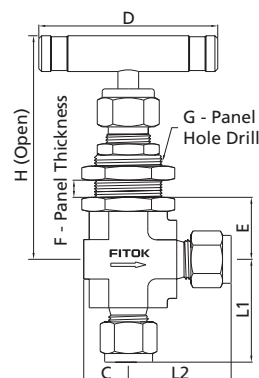
Note: Contact FITOK Group or our authorized distributors for other materials.

Dimensions

Straight Pattern



Angle Pattern



☉ NF Series Needle Valves are standard without panel mounting. To order needle valves with panel mounting as illustrated, add -Y to the ordering number. Example: NFSS-FNS2-7-Y

Dimensions of NF Series

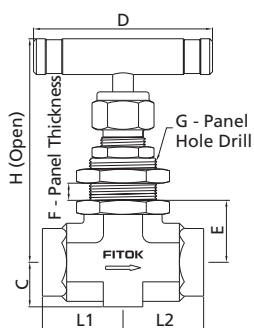
Basic Ordering Number	Connection Type and Size	Connection Pressure at 100°F (38°C) psig (bar)	Orifice in.(mm)	Cv	Dimensions, in.(mm)							
	Inlet/Outlet	316 SS			L1	L2	H	D	C	E	F	G
NF□□-FNS2-7	1/8 Female NPT	6000 (414)	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	2.85 (72.5)	2.17 (55)	0.49 (12.5)	0.71 (18.0)	0.25 (6.4)	0.77 (19.6)
NF□□-FNS4-7	1/4 Female NPT				1.03 (26.2)	1.03 (26.2)						
NF□□-FL4-7	1/4" FITOK				1.22 (30.9)	1.22 (30.9)						
NF□□-ML6-7	6 mm FITOK				1.25 (31.75)	1.25 (31.75)						
NF□□-ML8-7	8 mm FITOK				1.03 (26.2)	1.03 (26.2)						
NF□□-NS4-7	1/4 Male NPT				1.13 (28.6)	1.13 (28.6)						
NF□□-NS6-7	3/8 Male NPT											
NF□□-FO4-7	1/4" Male FO											
NF□□-FR4-7	1/4" Male FR											
NF□□-FNS4-8	1/4 Female NPT		0.25 (6.4)	0.85	1.13 (28.6)	1.13 (28.6)	3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)
NF□□-FNS6-8	3/8 Female NPT				1.42 (36.1)	1.42 (36.1)						
NF□□-NS6-8	3/8 Male NPT				1.44 (36.5)	1.44 (36.5)						
NF□□-FL6-8	3/8" FITOK				1.53 (38.9)	1.53 (38.9)						
NF□□-ML10-8	10 mm FITOK				1.56 (39.7)	1.56 (39.7)						
NF□□-ML12-8	12 mm FITOK				1.26 (32.0)	1.26 (32.0)						
NF□□-ML14-8	14 mm FITOK				1.50 (38.1)	1.50 (38.1)						
NF□□-FNS8-8	1/2 Female NPT				1.53 (38.9)	1.53 (38.9)						
NF□□-NS8-8	1/2 Male NPT											
NF□□-FL8-8	1/2" FITOK											
NF□□-TS6-8-G	3/8" Tube Socket Weld				1.13 (28.6)	1.13 (28.6)						
NF□□-TS8-8-G	1/2" Tube Socket Weld											
NF□□-MTS12-8-G	12 mm Tube Socket Weld											
NF□□-MTS14-8-G	14 mm Tube Socket Weld											
NF□□-MTS16-8-G	16 mm Tube Socket Weld											
NF□□-MTB14-8-G	14x2.5 mm Tube Butt Weld				1.50 (38.1)	1.50 (38.1)						
NF□□-MTB16-8-G	16x2.8 mm Tube Butt Weld				2.92 (74.1)	2.92 (74.1)						
NF□□-UMB14-8	14x2.5 mm Rotatable Tube Butt Weld				1.13 (28.6)	1.13 (28.6)						
NF□□-UMB16-8	16x2.8 mm Rotatable Tube Butt Weld				1.56 (39.7)	1.56 (39.7)						
NF□□-FO8-8	1/2" Male FO				1.50 (38.1)	1.50 (38.1)						
NF□□-FR8-8	1/2" Male FR											
NF□□-MS20-8	M20x1.5 Male Metric											

Dimensions of NF Series

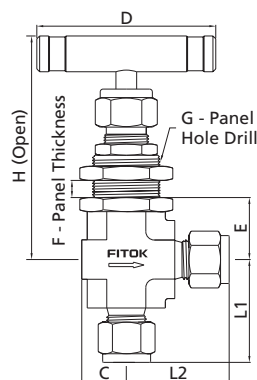
Basic Ordering Number	Connection Type and Size	Connection Pressure at 100°F (38°C) psig (bar)	Orifice in.(mm)	Cv	Dimensions, in.(mm)							
	Inlet/Outlet				316 SS	L1	L2	H	D	C	E	F
NF□□-MS22-8	M22 x 1.5 Male Metric	6000 (414)	0.25 (6.4)	0.85	1.50 (38.1)	1.50 (38.1)	3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)
NF□□-FNS8-9	1/2 Female NPT		1.56 (39.7)	1.56 (39.7)	3.86 (98.0)	3.50 (88.9)	0.80 (20.4)	1.10 (28.3)	0.38 (9.7)	1.08 (27.5)		
NF□□-NS12-9	3/4 Male NPT											
NF□□-FL12-9	3/4" FITOK		5800 (400)									
NF□□-ML14-9	14 mm FITOK	6000 (414)	0.39 (10.0)	2.18	1.97 (50.0)	1.97 (50.0)	3.86 (98.0)	3.50 (88.9)	0.76 (19.4)	1.10 (28.3)	0.38 (9.7)	1.08 (27.5)
NF□□-ML16-9	16 mm FITOK	5800 (400)										
NF□□-ML18-9	18 mm FITOK	5370 (370)										
NF□□-ML20-9	20 mm FITOK	5510 (380)										
NF□□-MTS14-9-G	14 mm Tube Socket Weld	6000 (414)	0.39 (10.0)	2.18	1.56 (39.7)	1.56 (39.7)	3.86 (98.0)	3.50 (88.9)	0.80 (20.4)	1.10 (28.3)	0.38 (9.7)	1.08 (27.5)
NF□□-MTS16-9-G	16 mm Tube Socket Weld											
NF□□-MTS18-9-G	18 mm Tube Socket Weld											
NF□□-TS12-9-G	3/4" Tube Socket Weld											
NF□□-PS8-9-G	1/2 Pipe Socket Weld											
NF□□-MTB16-9-G	16×2.25 mm Tube Butt Weld											
NF□□-UMB14-9	14×2.5 mm Rotatable Tube Butt Weld											
NF□□-UMB16-9	16×2.8 mm Rotatable Tube Butt Weld											
NF□□-MS27-9	M27 x 2 Male Metric											
NF□□-FNS12-6	3/4 Female NPT											
NF□□-TS16-6-G	1" Tube Socket Weld											
NF□□-MTS25-6-G	25 mm Tube Socket Weld											
NF□□-MTS28-6-G	28 mm Tube Socket Weld	5500 (379)	0.59 (15.0)	3.27	1.97 (50.0)	1.97 (50.0)	5.00 (127)	5.00 (127)	1.08 (27.5)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)
NF□□-PS12-6-G	3/4 Pipe Socket Weld	6000 (414)										
NF□□-PB12-6-G	3/4×SCH80 Pipe Butt Weld											
NF□□-FL12-6	3/4" FITOK	5800 (400)										
NF□□-ML20-6	20 mm FITOK	5510 (380)	0.71 (18.0)	5.65	1.97 (50.0)	1.97 (50.0)	5.33 (135.4)	5.00 (127)	1.08 (27.5)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)
NF□□-TS16-0-G	1" Tube Socket Weld	6000 (414)										
NF□□-MTS25-0-G	25 mm Tube Socket Weld	5500 (379)										
NF□□-MTS28-0-G	28 mm Tube Socket Weld	6000 (414)										
NF□□-PS12-0-G	3/4 Pipe Socket Weld	6000 (414)	0.71 (18.0)	5.65	1.97 (50.0)	1.97 (50.0)	5.33 (135.4)	5.00 (127)	1.08 (27.5)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)
NF□□-PB16-0-G	1×SCH80 Pipe Butt Weld	5720 (394)										

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. Connection type of "FO" means O-ring face seal fittings. "FR" means metal gasket face seal fittings.
3. Sizes and types listed are standard. Other sizes and types are available upon request. For details, please contact FITOK Group or our authorized distributors.
4. 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.

Straight Pattern



Angle Pattern



© NFH Series Needle Valves are standard without panel mounting. To order needle valves with panel mounting as illustrated, add -Y to the ordering number. Example: NFH5S-FNS2-7-Y

Dimensions of NFH Series

Basic Ordering Number	Connection Type and Size	Connection Pressure at 100°F (38°C) psig (bar)	Orifice in.(mm)	Cv	Dimensions, in.(mm)							
	Inlet/Outlet	316 SS			L1	L2	H	D	C	E	F	G
NFH□□-FL4-7	1/4" FITOK	10000 (690)	0.16 (4.0)	0.35	1.41 (35.8)	1.41 (35.8)	2.85 (72.5)	2.17 (55)	0.62 (15.8)	0.76 (19.4)	0.25 (6.4)	0.77 (19.6)
NFH□□-FNS2-7	1/8 Female NPT				1.00 (25.4)	1.00 (25.4)						
NFH□□-FNS4-7	1/4 Female NPT				1.06 (26.2)	1.06 (26.2)						
NFH□□-NS4-7	1/4 Male NPT				1.22 (30.9)	1.22 (30.9)						
NFH□□-FNS4-NS4-7	1/4 Female NPT/ 1/4 Male NPT				1.06 (26.2)	1.22 (30.9)						
NFH□□-TS4-7-G	1/4" Tube Socket Weld				1.06 (26.2)	1.06 (26.2)						
NFH□□-FNS4-8	1/4 Female NPT				9000 (620)	0.25 (6.4)						
NFH□□-FNS6-8	3/8 Female NPT	1.50 (38.1)	1.50 (38.1)									
NFH□□-NS6-8	3/8 Male NPT											
NFH□□-TS8-9-G	1/2" Tube Socket Weld	10000 (690)	0.39 (10.0)	2.18	1.56 (39.7)	1.56 (39.7)	3.86 (98.0)	3.50 (88.9)	0.76 (19.4)	1.10 (28.3)	0.38 (9.7)	1.08 (27.5)
NFH□□-MTS16-9-G	16 mm Tube Socket Weld								0.80 (20.4)			
NFH□□-MTB25-9-G	25x5.5 mm Tube Butt Weld											
NFH□□-FNS8-9	1/2 Female NPT						4.16 (105.7)	0.88 (22.2)				

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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.

Ordering Number Description

NFS4 - TS16 - MTS25 - 6WR - GYM - ASF2

Series	Body Material		Inlet Type		Inlet Size	Outlet Type	Outlet Size	Orifice Size	Stem Tip Material	Stem Tip Type	Packing Material	Panel Mounting	Handle	Flow Pattern	Special Application	Cleaning and Packaging		
NF	SS	316 SS	FNS	Female NPT	2	1/8"	Same as Inlet	7	0.16" (4.0 mm)	Same as Body	Taper	No	Straight	FC-01				
NFH	6L	316L SS	NS	Male NPT	4	1/4"		8	0.25" (6.4 mm)						W	Stellite	R	Regulating
	S4	304 SS	FRT	Female BSPT	6	3/8" or 6 mm	Specified in the same way as inlet type and inlet size	9	0.39" (10 mm)	D5	Duplex 2205	B	Ball	Black Aluminum Bar Red Aluminum Bar Green Aluminum Bar Blue Aluminum Bar Stainless Steel Bar Black Knob (only for NF Series Needle Valves with the orifice 0.16"/4.0mm and 0.25"/6.4mm)	No	NACE MR0175 SilcoNert® 2000 (Sulfinert®) Coating		
	4L	304L SS	RT	Male BSPT	8	1/2" or 8 mm		6	0.59" (15 mm)	TI	Titanium	T	Soft Tip-PTFE				I	Red Aluminum Bar
	S1	321 SS	FMS	Female Metric Thread (for RG-M)	10	10 mm		0	0.71" (18 mm)	A20	Alloy 20	K	Soft Tip-PCTFE				GR	Green Aluminum Bar
	91	F91	MS	Male Metric Thread (for RG-M)	12	3/4" or 3/4" xSCH80 or 12 mm		Only NF series	Soft stem tip only for NF Series Needle Valves with the orifice 0.16"/4.0mm, 0.25"/6.4mm and 0.39"/10mm	M	Alloy 400	Soft stem tip only for NF Series Needle Valves with the orifice 0.16"/4.0mm, 0.25"/6.4mm and 0.39"/10mm	J				Blue Aluminum Bar	
	92	F92	FRP	Female BSPP (for RP)	14	14 mm or 14x2.5 mm or M14x1.5				INC	Alloy 600		M				Stainless Steel Bar	
	D5	Duplex 2205	BP	Male BSPP (for RG)	16	1" or 1" xSCH80 or 16 mm or 16x2.25 mm or 16x2.8 mm				HC	Alloy C-276		B				Black Knob (only for NF Series Needle Valves with the orifice 0.16"/4.0mm and 0.25"/6.4mm)	
	TI	Titanium	TS	Fractional Tube Socket Weld	18	18 mm				PTFE PEEK Graphite	PTFE PEEK Graphite		PTFE PEEK Graphite					
	A20	Alloy 20	MTS	Metric Tube Socket Weld	20	20 mm or M20x1.5												
	M	Alloy 400	TB	Fractional Tube Butt Weld	22	22 mm or M22x1.5												
	INC	Alloy 600	MTB	Metric Tube Butt Weld	24	M24x1.5												
	HC	Alloy C -276	PS	Pipe Socket Weld	25	25 mm or 25x5.5 mm												
	B	Brass	PB	Pipe Butt Weld	27	M27x2												
	CS	Carbon Steel	FL	Fractional Tube Fitting	28	28 mm												
	904L	904L SS	ML	Metric Tube Fitting														
			UFB	Rotatable Fractional Tube Butt Weld														
			UMB	Rotatable Metric Tube Butt Weld														
			FO	Male FO Fitting														
			FR	Male FR Fitting														

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
- FO means FITOK O-ring face seal fittings.
- FR means FITOK metal gasket face seal fittings.
- 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.
- Special Application:
Plural special application designators available in one ordering number, example: NFSS-NS4-7-SSI.
SilcoNert® 2000 (Sulfinert®) coating: Wetted metal components SilcoNert® 2000 (Sulfinert®) coated.

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

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 - Plural special application designators available in one ordering number, example: NFSS-NS4-7-SSI.
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