

Needle Valves

NB, ND, NDH, NF, NFH, NG, NGH, NR, NRG,
NT, NU, NUH and NY Series

Needle Valves
Metering Valves



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Screwed Bonnet Needle Valves

NB Series



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NT Series



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NU Series and NUH Series



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Outside Screw and Yoke (OS&Y) Needle Valves

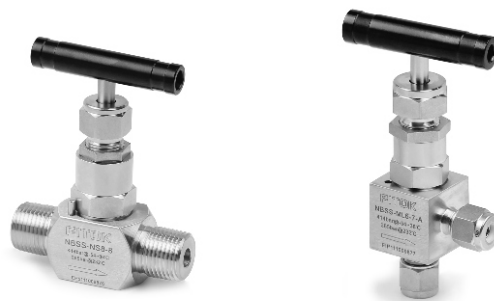
NY Series



B-108

Screwed Bonnet Needle Valves

NB Series: Working pressure up to 6000 psig

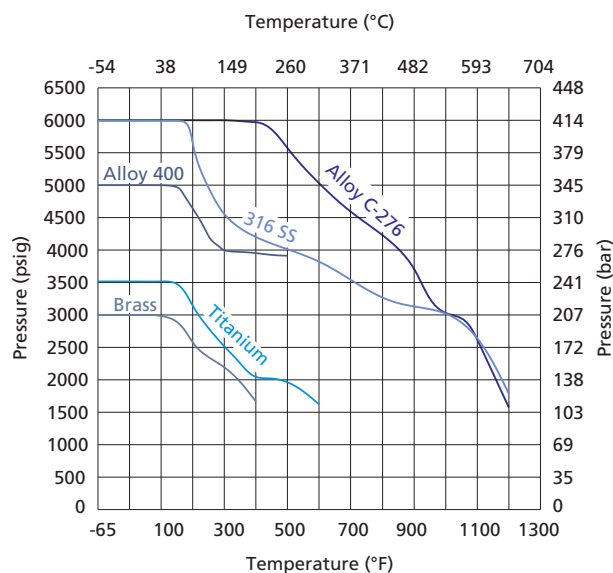


Features

- ⦿ Cold drawn bar as 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
- ⦿ Safety back seating seal in fully open position
- ⦿ 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 at the maximum allowable working pressure
- ⦿ Working pressure up to:
 - 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)
- ⦿ 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)

Pressure vs. Temperature

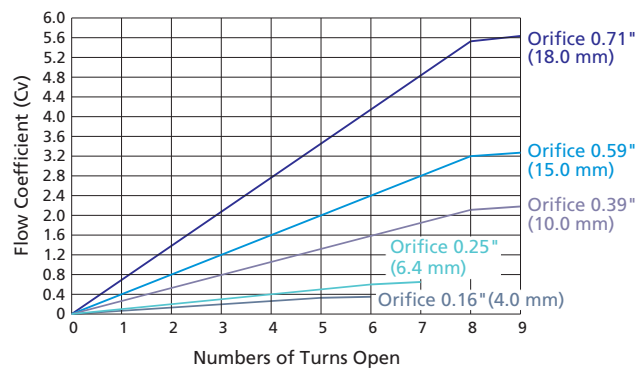
NB Series



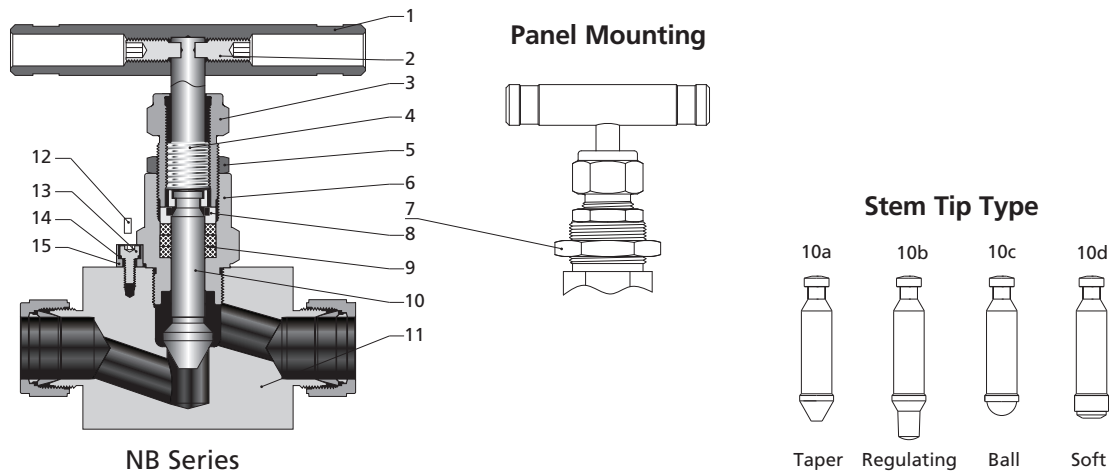
1. Graphs are based on graphite packing.
2. Temperature rating is limited to 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Flow Data at 100°F (38°C)

Regulating Stem Tip



Standard Materials of Construction



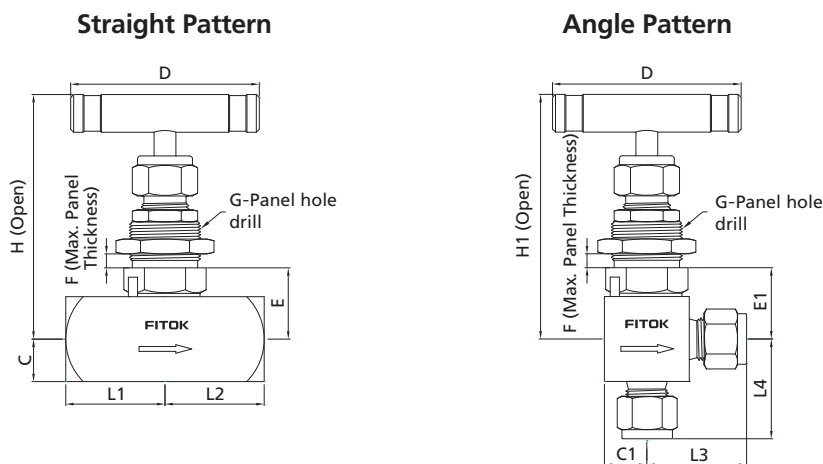
Item	Component	Valve Body Material				
		316 SS	Alloy 400	Titanium	Alloy C-276	Brass
		Material Grade/ASTM Specification				
1	Handle	Anodized aluminum or stainless steel or black knob				
2	Set Screw	Galvanized carbon steel				
3	Packing Bolt	304 SS/A479				Brass C36000/B16
4	Upper Stem	316 SS/A479				
5	Lock Nut	Stainless steel				Brass C36000/B16
6	Bonnet	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574	

Item	Component	Valve Body Material				
		316 SS	Alloy 400	Titanium	Alloy C-276	Brass
		Material Grade/ASTM Specification				
7	Panel Nut	Stainless steel				Brass C36000/B16
8	Gland	316 SS/A479				
9	Packing	PTFE or PEEK or graphite				
10a 10b 10c	Lower Stem	Hardened 316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574	Hardened 316 SS/A479
10d	Stem	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574	316 SS/A479
	Stem Tip	PTFE or PCTFE				
11	Body	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574	Brass C36000/B16
	Seat	Same as Body				
12	Lock Pin	Stainless steel				
13	Screw	Stainless steel				
14	Spring Washer	Stainless steel				
15	Bush	Stainless steel				
	Lubricant	Molybdenum disulfide-based				

1. Item 12 is applied in valves with orifice of 4.0 and 6.0mm. For valves with orifice of 10.0, 15.0 and 18.0mm, item 13, 14 and 15 are used instead of item 12.

2. Contact FITOK Group or our authorized distributors for other materials.

Dimensions



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

Dimensions of NB Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)												
	Inlet	Outlet			L1	L2	L3	L4	C	C1	D	E	E1	F	G	H	H1
NB□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	0.56 (14.3)	0.50 (12.7)	0.50 (12.7)	2.17 (55)	0.84 (21.4)	0.84 (21.4)	0.25 (6.4)	0.77 (19.6)	2.86 (72.7)	2.86 (72.7)
NB□□-FNS4-7	1/4 Female NPT	1/4 Female NPT			1.06 (26.9)	1.06 (26.9)											
NB□□-NS4-7	1/4 Male NPT	1/4 Male NPT			1.03 (26.2)	1.03 (26.2)	1.06 (26.9)	1.06 (26.9)									
NB□□-NS6-7	3/8 Male NPT	3/8 Male NPT			1.19 (30.2)	1.19 (30.2)											
NB□□-FL4-7	1/4" FITOK	1/4" FITOK															
NB□□-ML6-7	6 mm FITOK	6 mm FITOK			1.20 (30.5)	1.20 (30.5)	1.20 (30.5)	1.20 (30.5)									
NB□□-ML8-7	8 mm FITOK	8 mm FITOK															
NB□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	0.25 (6.4)	0.85	1.12 (28.6)	1.12 (28.6)	1.12 (28.6)	0.63 (15.9)	0.56 (14.3)	0.56 (14.3)	2.50 (63.5)	0.89 (22.5)	0.89 (22.5)	0.38 (9.7)	0.96 (24.4)	3.50 (88.9)	3.50 (88.9)
NB□□-FNS6-8	3/8 Female NPT	3/8 Female NPT															
NB□□-NS6-8	3/8 Male NPT	3/8 Male NPT															
NB□□-FL6-8	3/8" FITOK	3/8" FITOK			1.41 (35.8)	1.41 (35.8)	1.32 (33.6)	1.32 (33.6)									
NB□□-FL8-8	1/2" FITOK	1/2" FITOK			1.52 (38.6)	1.52 (38.6)	1.42 (36.1)	1.42 (36.1)									

Dimensions of NB Series

Fittings																		
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)													
	Inlet	Outlet			L1	L2	L3	L4	C	C1	D	E	E1	F	G	H	H1	
NB□□-ML10-8	10 mm FITOK	10 mm FITOK	0.25 (6.4)	0.85	1.42 (36.1)	1.42 (36.1)	1.33 (33.8)	1.33 (33.8)	0.56 (14.3)	0.56 (14.3)	2.50 (63.5)	0.89 (22.5)	0.89 (22.5)	0.38 (9.7)	0.96 (24.4)	3.50 (88.9)	3.50 (88.9)	
NB□□-ML12-8	12 mm FITOK	12 mm FITOK			1.52 (38.6)	1.52 (38.6)	1.42 (36.1)	1.42 (36.1)										
NB□□-ML14-8	14 mm FITOK	14 mm FITOK			1.56 (39.7)	1.56 (39.7)												
NB□□-TS6-8-G	3/8" TS	3/8" TS																
NB□□-TS8-8-G	1/2" TS	1/2" TS																
NB□□-MTS12-8-G	12 mm MTS	12 mm MTS			1.13 (28.6)	1.13 (28.6)	1.13 (28.6)	1.13 (28.6)										
NB□□-MTS14-8-G	14 mm MTS	14 mm MTS																
NB□□-MTS16-8-G	16 mm MTS	16 mm MTS																
NB□□-MTB14-8-G	14 mm MTB	14 mm MTB			1.50 (38.1)	1.50 (38.1)	1.50 (38.1)	1.50 (38.1)										
NB□□-MTB16-8-G	16 mm MTB	16 mm MTB																
NB□□-UMB14-8	14 mm UMB	14 mm UMB			2.92 (74.1)	2.92 (74.1)												
NB□□-UMB16-8	16 mm UMB	16 mm UMB																
NB□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric			1.50 (38.1)	1.50 (38.1)												
NB□□-MS22-8	M22 x 1.5 Male Metric	M22 x 1.5 Male Metric																
NB□□-FNS8-9	1/2 Female NPT	1/2 Female NPT	0.39 (10.0)	2.18	1.75 (44.5)	1.75 (44.5)	1.63 (41.3)	1.50 (38.1)	0.88 (22.2)	0.75 (19.05)	3.50 (88.9)	1.38 (34.9)	1.25 (31.75)	0.38 (9.7)	1.08 (27.5)	4.11 (104.5)	4.11 (104.5)	
NB□□-FNS12-9	3/4 Female NPT	3/4 Female NPT						1.50 (38.1)										
NB□□-NS12-9	3/4 Male NPT	3/4 Male NPT																
NB□□-FL12-9	3/4" FITOK	3/4" FITOK																
NB□□-ML14-9	14 mm FITOK	14 mm FITOK			1.97 (50.0)	1.97 (50.0)	1.61 (41.0)	1.61 (41.0)										
NB□□-ML16-9	16 mm FITOK	16 mm FITOK																
NB□□-ML18-9	18 mm FITOK	18 mm FITOK																
NB□□-MTS14-9-G	14 mm MTS	14 mm MTS			1.75 (44.5)	1.75 (44.5)												
NB□□-MTS16-9-G	16 mm MTS	16 mm MTS																
NB□□-TS12-9-G	3/4" TS	3/4" TS			2.98 (75.7)	2.98 (75.7)												
NB□□-UMB14-9	14 mm UMB	14 mm UMB			1.56 (39.7)	1.56 (39.7)												
NB□□-MS27-9	M27 x 2 Male Metric	M27 x 2 Male Metric																
NB□□-FNS12-6	3/4 Female NPT	3/4 Female NPT	0.59 (15.0)	3.27			1.75 (44.5)	1.14 (29.0)	1.14 (29.0)	0.88 (22.2)	5.00 (127)	1.70 (43.2)	1.43 (36.4)	0.38 (9.7)	1.28 (32.5)	5.00 (127)	4.72 (120)	
NB□□-TS16-6-G	1" TS	1" TS																
NB□□-MTS25-6-G	25 mm MTS	25 mm MTS			1.75 (44.5)	1.75 (44.5)	1.75 (44.5)	1.75 (44.5)										
NB□□-MTS28-6-G	28 mm MTS	28 mm MTS																
NB□□-PS12-6-G	3/4 PS	3/4 PS																
NB□□-FNS16-0	1 Female NPT	1 Female NPT	0.71 (18.0)	5.65					1.24 (31.5)		5.00 (127)					5.25 (133.3)		
NB□□-MTS25-0-G	25 mm MTS	25 mm MTS			1.97 (50.0)	1.97 (50.0)												
NB□□-TS16-0-G	1" TS	1" TS																
NB□□-MTS28-0-G	28 mm MTS	28 mm MTS																
NB□□-PS12-0-G	3/4 PS	3/4 PS																
NB□□-PS16-0-G	1 PS	1 PS																

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 "TS" means fractional tube socket weld. "MTS" means metric tube socket weld. "MTB" means metric tube butt weld. "UMB" means rotatable metric tube butt weld. "PS" means pipe socket weld.
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.

Ordering Number Description

NBSS - FL8 - ML12 - 8WB - 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
NB	SS	FNS	2 1/8"	Same as Inlet	7 0.16" (4.0 mm)	Same as Body	W		PTFE	No		Straight		FC-01
6L	316L SS	NS	4 1/4"	Specify in the same way as inlet Type and inlet Size	8 0.25" (6.4 mm)	Stellite	D5		P PEEK	Y Yes		Angle		FC-02
S4	304 SS	FRT	6 3/8" or 6 mm		9 0.39" (10 mm)	Duplex 2205			G Graphite					
4L	304L SS	RT	8 1/2" or 8 mm		6 0.59" (15 mm)	Titanium	TI							
S1	321 SS	FMS	10 10 mm		0 0.71" (18 mm)	Alloy 20	A20							
91	F91	MS	12 3/4" or 12 mm			Alloy 400	M							
92	F92	FRP	14 14 mm or M14 x 1.5			Alloy 600	INC							
D5	Duplex 2205	BP	16 1" or 16 mm			Alloy C-276	HC							
TI	Titanium	TS	18 18 mm											
A20	Alloy 20	MTS	20 1 1/4" or 20 mm or M20 x 1.5											
M	Alloy 400	TB	22 22 mm or M22 x 1.5											
INC	Alloy 600	MTB	24 M24 x 1.5											
HC	Alloy C-276	PS	25 25 mm											
B	Brass	PB	27 M27 x 2											
CS	Carbon Steel	FL	28 28 mm											
904L	904L SS	ML												
		UFB												
		UMB												

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

1. 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

2. 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.

Nonrotating-stem Needle Valves

ND Series: Working pressure up to 3000 psig

NDH Series: Working pressure up to 5000 psig

Features

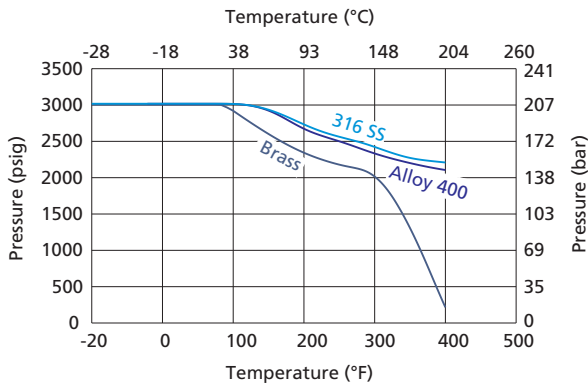
- ⊙ One-piece forged body
- ⊙ Straight and angle pattern
- ⊙ Compact design
- ⊙ Non-rotating stem
- ⊙ Specially designed handle to stop contamination from entering into the valve
- ⊙ Every valve leak tested with Nitrogen or compressed air at the maximum allowable working pressure
- ⊙ Working pressure up to:
 - ND Series—Stainless steel: 3000 psig (207 bar)
 - Brass: 3000 psig (207 bar)
 - NDH Series—Stainless steel: 5000 psig (345 bar)
- ⊙ Working temperature with stem tip:
 - PCTFE stem tip: -20°F to 200°F (-28°C to 93°C)
 - PEEK stem tip: -20°F to 400°F (-28°C to 204°C)
- ⊙ Working temperature with O-ring:
 - Fluorocarbon Rubber (FKM) : -20°F to 400°F (-28°C to 204°C)
 - Nitrile Butadiene Rubber (NBR) : -20°F to 212°F (-28°C to 100°C)
 - Ethylene Propylene Diene Rubber (EPDM): -20°F to 300°F (-28°C to 148°C)



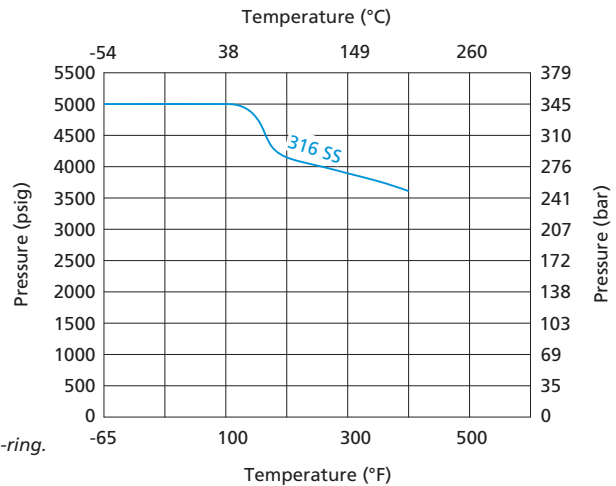
Needle Valves
Metering Valves

Pressure vs. Temperature

ND Series

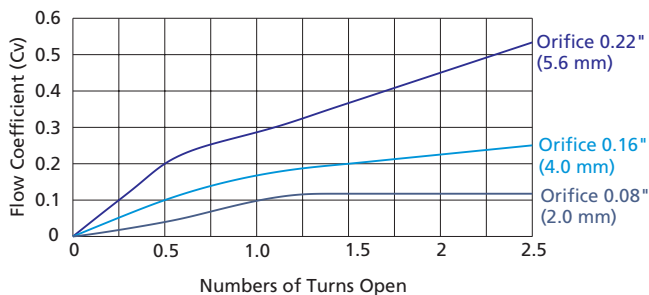


NDH Series

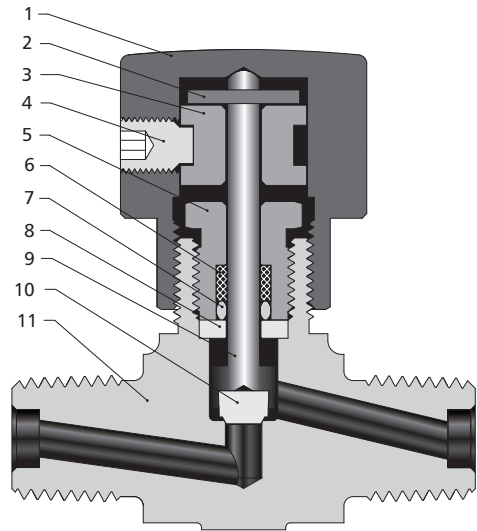


1. The graphs are based on PEEK stem tip and Fluorocarbon rubber (FKM) O-ring.
2. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Flow Data at 100°F (38°C)



Standard Materials of Construction

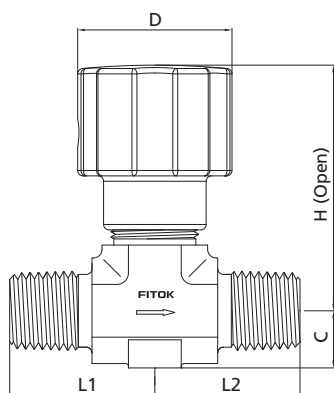


Item	Component	Valve Body Material				
		316 SS	304 SS	321 SS	Brass	Alloy 400
		Material Grade/ASTM Specification				
1	Handle	Anodized aluminum				
2	Stop Pin	Stainless steel				
3	Spool	Aluminum				
4	Set Screw	Stainless steel				
5	Packing Bolt	304 SS/A479			Brass C36000/B16	Alloy 400/B164
6	Backup Ring	PTFE/D1710				
7	O-ring	Fluorocarbon Rubber (FKM), Nitrile Butadiene Rubber (NBR) or Ethylene Propylene Diene Rubber (EPDM)				
8	Washer	316 SS/A479				Alloy 400/B164
9	Stem	316 SS/A479				Alloy 400/B164
10	Stem Tip	PCTFE or PEEK				
11	Body	316 SS/A182	304 SS/A182	321 SS/A182	Brass C37700/B283	Alloy 400/B564
	Lubricant	Molybdenum disulfide-based				

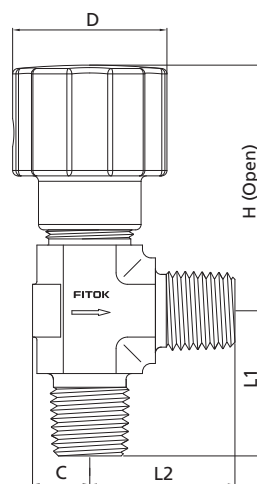
Note: Contact FITOK Group or our authorized distributors for other materials.

Dimensions

Straight Pattern



Angle Pattern



ND and NDH Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)				
	Inlet	Outlet			L1	L2	C	D	H
ND□□-NS2-5	1/8 Male NPT	1/8 Male NPT	0.08 (2.0)	0.12	0.81 (20.6)	0.81 (20.6)	0.32 (8.1)	1.06 (26.9)	1.86 (47.2)
ND□□-NS2-FL2-5	1/8 Male NPT	1/8 Male NPT			1.10 (27.9)	1.10 (27.9)			
ND□□-FL2-5	1/8" FITOK	1/8" FITOK							
ND□□-ML3-5	3 mm FITOK	3 mm FITOK							
ND□□-NS4-7	1/4 Male NPT	1/4 Male NPT	0.16 (4.0)	0.27	0.98 (25.0)	0.98 (25.0)	0.39 (10.0)	1.13 (28.7)	1.86 (47.2)
ND□□-NS4-FL4-7	1/4 Male NPT	1/4 FITOK			1.13 (28.7)	1.13 (28.7)			
ND□□-FL4-7	1/4" FITOK	1/4" FITOK							
ND□□-ML6-7	6 mm FITOK	6 mm FITOK							
ND□□-ML8-7	8 mm FITOK	8 mm FITOK	0.22 (5.6)	0.53	1.18 (30.0)	1.18 (30.0)	0.49 (12.5)	1.22 (31.0)	2.02 (51.3)
ND□□-FNS4-8	1/4 Female NPT	1/4 Female NPT			1.06 (26.9)	1.06 (26.9)			
ND□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.12 (28.6)	1.12 (28.6)			
ND□□-FL6-8	3/8" FITOK	3/8" FITOK			1.29 (32.8)	1.29 (32.8)			
ND□□-FL8-8	1/2" FITOK	1/2" FITOK			1.40 (35.6)	1.40 (35.6)			
ND□□-ML10-8	10 mm FITOK	10 mm FITOK			1.30 (33.0)	1.30 (33.0)			
ND□□-ML12-8	12 mm FITOK	12 mm FITOK	0.08 (2.0)	0.12	1.40 (35.6)	1.40 (35.6)	0.32 (8.1)	1.06 (26.9)	1.86 (47.2)
NDH□□-NS2-5	1/8 Male NPT	1/8 Male NPT			0.81 (20.6)	0.81 (20.6)			
NDH□□-FL2-5	1/8" FITOK	1/8" FITOK			1.10 (27.9)	1.10 (27.9)			
NDH□□-ML3-5	3 mm FITOK	3 mm FITOK							
NDH□□-NS4-7	1/4 Male NPT	1/4 Male NPT	0.16 (4.0)	0.27	0.98 (25.0)	0.95 (25.0)	0.39 (10.0)	1.13 (28.7)	1.98 (50.2)
NDH□□-FL4-7	1/4" FITOK	1/4" FITOK			1.13 (28.7)	1.13 (28.7)			
NDH□□-ML6-7	6 mm FITOK	6 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 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.

Ordering Number Description

NDSS - FNS4 - ML8 - 7PE - ASF2

Series		Body Material	Inlet Type		Inlet Size	Outlet Type	Outlet Size	Orifice Size	Stem Tip Material	O-ring Material	Flow Pattern	NACE MR0175	Cleaning and Packaging
ND	NDH	SS	FNS	Female NPT	2	1/8"	Same as Inlet	5	PCTFE	Fluorocarbon Rubber (FKM)	Straight	No	FC-01
		6L	NS	Male NPT	4	1/4"		7	P PEEK				
S4		304 SS	FRT	Female BSPT	6	3/8" or 6 mm	Specify in the same way as inlet type and inlet size	0.08" (2.0 mm)	B	Nitrile Butadiene Rubber (NBR)	A Angle	Yes	F2
		4L	RT	Male BSPT	8	1/2" or 8 mm		0.16" (4.0 mm)					
		S1	FL	Fractional Tube Fitting	10	10 mm		0.22" (5.6 mm)					
		M	ML	Metric Tube Fitting	12	12 mm		Only for ND Series					
		Alloy 400								E			
		Brass											

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

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.

Forged Body Needle Valves

NF Series: Working pressure up to 6000 psig

NFH Series: Working pressure up to 10000 psig

Features

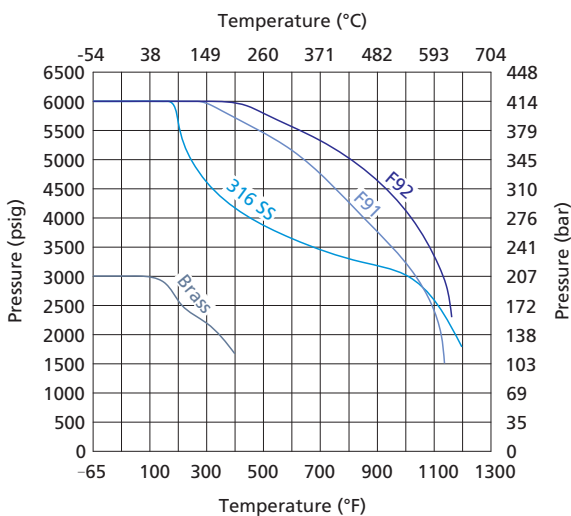
- ⦿ One-piece forged body
- ⦿ Two-piece stem design: Upper stem threads cold rolled and lower stem hardened for high strength and smooth operation
- ⦿ Upper stem thread lubricant isolated from system media
- ⦿ Linear instead of rotary motion of the rising, non-rotating stem minimizes packing abrasion 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)
- ⦿ 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)



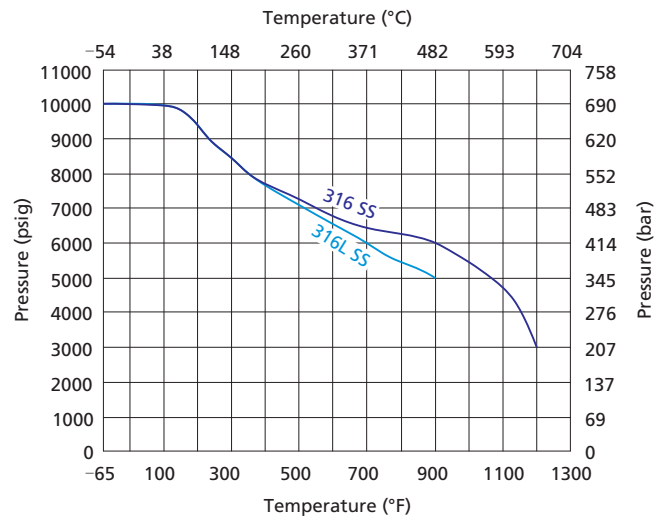
Needle Valves
Metering Valves

Pressure vs. Temperature

NF Series



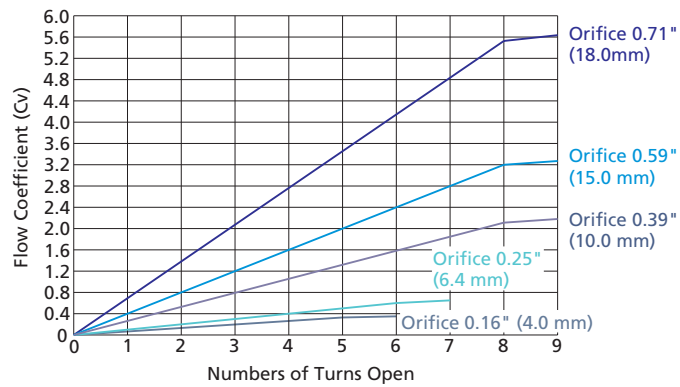
NFH Series



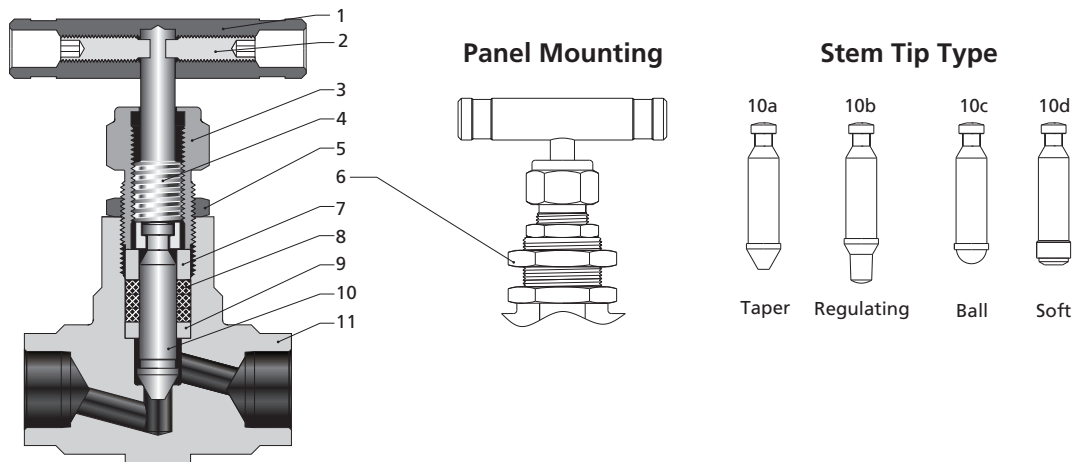
1. Graphs are based on graphite packing.
2. Soft tips are for NF Series only. Temperature rating is limited to 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Flow Data at 100°F (38°C)

Regulating Stem Tip



Standard Materials of Construction

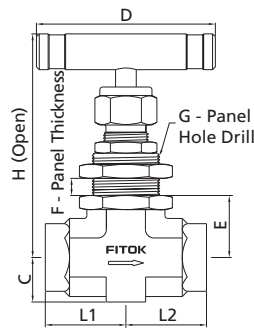


Item	Component	Valve Body Material		
		316 SS	F91	Brass
		Material Grade/ASTM Specification		
1	Handle	Anodized aluminum or stainless steel or black knob		
2	Set Screw	Galvanized carbon steel		
3	Packing Bolt	304 SS/A479	F91/A182	Brass C36000/B16
4	Upper Stem	316 SS/A479		
5	Lock Nut	Stainless steel	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		

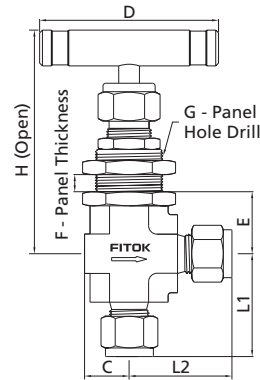
Note: Contact FITOK Group or our authorized distributors for other materials.

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: NF55-FNS2-7-Y

Dimensions of NF Series

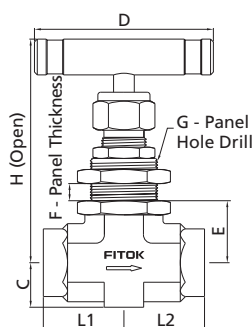
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)							
	Inlet	Outlet			L1	L2	H	D	C	E	F	G
NF□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	2.85 (72.5)	2.17 (55)	0.49 (12.5)	0.71 (18.0)	0.25 (6.4)	0.77 (19.6)
NF□□-FNS4-7	1/4 Female NPT	1/4 Female NPT			1.03 (26.2)	1.03 (26.2)						
NF□□-FL4-7	1/4" FITOK	1/4" FITOK			1.22 (30.9)	1.22 (30.9)						
NF□□-ML6-7	6 mm FITOK	6 mm FITOK			1.25 (31.75)	1.25 (31.75)						
NF□□-ML8-7	8 mm FITOK	8 mm FITOK			1.03 (26.2)	1.03 (26.2)						
NF□□-NS4-7	1/4 Male NPT	1/4 Male NPT			1.13 (28.6)	1.13 (28.6)						
NF□□-NS6-7	3/8 Male NPT	3/8 Male NPT										
NF□□-FO4-7	1/4" Male FO	1/4" Male FO										
NF□□-FR4-7	1/4" Male FR	1/4" Male FR	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□□-FNS4-8	1/4 Female NPT	1/4 Female NPT			1.42 (36.1)	1.42 (36.1)						
NF□□-FNS6-8	3/8 Female NPT	3/8 Female NPT			1.44 (36.5)	1.44 (36.5)						
NF□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.53 (38.9)	1.53 (38.9)						
NF□□-FL6-8	3/8" FITOK	3/8" FITOK			1.56 (39.7)	1.56 (39.7)						
NF□□-ML10-8	10 mm FITOK	10 mm FITOK			1.26 (32.0)	1.26 (32.0)						
NF□□-ML12-8	12 mm FITOK	12 mm FITOK			1.50 (38.1)	1.50 (38.1)						
NF□□-ML14-8	14 mm FITOK	14 mm FITOK			1.53 (38.9)	1.53 (38.9)						
NF□□-FNS8-8	1/2 Female NPT	1/2 Female NPT			1.13 (28.6)	1.13 (28.6)						
NF□□-NS8-8	1/2 Male NPT	1/2 Male NPT			1.50 (38.1)	1.50 (38.1)						
NF□□-FL8-8	1/2" FITOK	1/2" FITOK			2.92 (74.1)	2.92 (74.1)						
NF□□-TS6-8-G	3/8" TS	3/8" TS			1.13 (28.6)	1.13 (28.6)						
NF□□-TS8-8-G	1/2" TS	1/2" TS			1.50 (38.1)	1.50 (38.1)						
NF□□-MTS12-8-G	12 mm MTS	12 mm MTS			1.56 (39.7)	1.56 (39.7)						
NF□□-MTS14-8-G	14 mm MTS	14 mm MTS			1.50 (38.1)	1.50 (38.1)						
NF□□-MTS16-8-G	16 mm MTS	16 mm MTS			2.92 (74.1)	2.92 (74.1)						
NF□□-MTB14-8-G	14 mm MTB	14 mm MTB			1.13 (28.6)	1.13 (28.6)						
NF□□-MTB16-8-G	16 mm MTB	16 mm MTB			1.56 (39.7)	1.56 (39.7)						
NF□□-UMB14-8	14 mm UMB	14 mm UMB			1.50 (38.1)	1.50 (38.1)						
NF□□-UMB16-8	16 mm UMB	16 mm UMB			1.53 (38.9)	1.53 (38.9)						
NF□□-FO8-8	1/2" Male FO	1/2" Male FO			1.56 (39.7)	1.56 (39.7)						
NF□□-FR8-8	1/2" Male FR	1/2" Male FR			1.50 (38.1)	1.50 (38.1)						
NF□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric										

Dimensions of NF Series

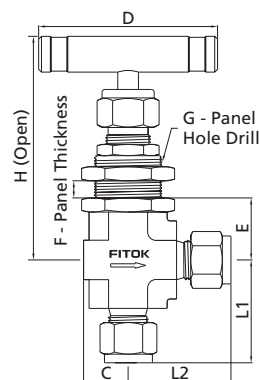
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)										
	Inlet	Outlet			L1	L2	H	D	C	E	F	G			
NF□□-MS22-8	M22 x 1.5 Male Metric	M22 x 1.5 Male Metric	0.25 (6.4)	0.85	1.50 (38.1)	1.50 (38.1)	3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)			
NF□□-FNS8-9	1/2 Female NPT	1/2 Female NPT	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□□-NS12-9	3/4 Male NPT	3/4 Male NPT			1.97 (50.0)	1.97 (50.0)			0.76 (19.4)						
NF□□-FL12-9	3/4" FITOK	3/4" FITOK													
NF□□-ML14-9	14 mm FITOK	14 mm FITOK													
NF□□-ML16-9	16 mm FITOK	16 mm FITOK			1.56 (39.7)	1.56 (39.7)							0.80 (20.4)		
NF□□-ML18-9	18 mm FITOK	18 mm FITOK													
NF□□-ML20-9	20 mm FITOK	20 mm FITOK													
NF□□-MTS14-9-G	14 mm MTS	14 mm MTS			2.98 (75.7)	2.98 (75.7)							0.76 (19.4)		
NF□□-MTS16-9-G	16 mm MTS	16 mm MTS													
NF□□-MTS18-9-G	18 mm MTS	18 mm MTS													
NF□□-TS12-9-G	3/4" TS	3/4" TS			1.56 (39.7)	1.56 (39.7)							0.76 (19.4)		
NF□□-PS8-9-G	1/2 PS	1/2 PS													
NF□□-MTB16-9-G	16 mm MTB	16 mm MTB													
NF□□-UMB14-9	14 mm UMB	14 mm UMB			1.97 (50.0)	1.97 (50.0)							1.08 (27.5)	1.61 (41.0)	0.38 (9.7)
NF□□-UMB16-9	16 mm UMB	16 mm UMB													
NF□□-MS27-9	M27 x 2 Male Metric	M27 x 2 Male Metric													
NF□□-FNS12-6	3/4 Female NPT	3/4 Female NPT	0.59 (15.0)	3.27	2.35 (59.7)	2.35 (59.7)	5.00 (127)	5.00 (127)	1.08 (27.5)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)			
NF□□-TS16-6-G	1" TS	1" TS													
NF□□-MTS25-6-G	25 mm MTS	25 mm MTS													
NF□□-MTS28-6-G	28 mm MTS	28 mm MTS													
NF□□-PS12-6-G	3/4 PS	3/4 PS													
NF□□-PB12-6-G	3/4 PB	3/4 PB													
NF□□-FL12-6	3/4" FITOK	3/4" FITOK	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□□-ML20-6	20 mm FITOK	20 mm FITOK													
NF□□-TS16-0-G	1" TS	1" TS													
NF□□-MTS25-0-G	25 mm MTS	25 mm MTS													
NF□□-MTS28-0-G	28 mm MTS	28 mm MTS													
NF□□-PS12-0-G	3/4 PS	3/4 PS	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 PB	1 PB													

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. "TS" means fractional tube socket weld. "MTS" means metric tube socket weld. "MTB" means metric tube butt weld. "UMB" means rotatable metric tube butt weld. "PS" means pipe socket weld. "PB" means pipe butt weld.
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: NFH55-FNS2-7-Y

Dimensions of NFH Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)									
	Inlet	Outlet			L1	L2	H	D	C	E	F	G		
NFH□□-FL4-7	1/4" FITOK	1/4" FITOK	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	1/8 Female NPT			1.00 (25.4)	1.00 (25.4)								
NFH□□-FNS4-7	1/4 Female NPT	1/4 Female NPT			1.06 (26.2)	1.06 (26.2)								
NFH□□-NS4-7	1/4 Male NPT	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" TS	1/4" TS			1.06 (26.2)	1.06 (26.2)								
NFH□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	0.25 (6.4)	0.85	1.12 (28.6)	1.12 (28.6)	3.38 (85.8)	2.50 (63.5)	0.76 (19.4)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)		
NFH□□-FNS6-8	3/8 Female NPT	3/8 Female NPT			1.50 (38.1)	1.50 (38.1)								
NFH□□-NS6-8	3/8 Male NPT	3/8 Male NPT												
NFH□□-TS8-9-G	1/2" TS	1/2" TS	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 MTS	16 mm MTS							0.80 (20.4)					
NFH□□-MTB25-9-G	25 mm MTB	25 mm MTB							0.88 (22.2)					
NFH□□-FNS8-9	1/2 Female NPT	1/2 Female NPT					4.16 (105.7)							

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 Tubing catalog.
2. Connection type of "TS" means fractional tube socket weld. "MTS" means metric tube socket weld. "MTB" means metric tube butt weld. "
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.

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"	7	0.16" (4.0 mm)	Same as Body	Taper		No	Straight		FC-01
	NFH	316L SS	NS	Male NPT	4	1/4"	8	0.25" (6.4 mm)	W	R	Regulating	Y	Angle		F2 FC-02
S4	SS	304 SS	FRT	Female BSPT	6	3/8" or 6 mm	9	0.39" (10 mm)	D5	B	Ball				
	4L	304L SS	RT	Male BSPT	8	1/2" or 8 mm	6	0.59" (15 mm)	TI	T	Soft Tip-PTFE				
S1	SS	321 SS	FMS	Female Metric Thread (for RP/RG)	10	10 mm	0	0.71" (18 mm)	A20	K	Soft Tip-PTFE				
	91	F91	MS	Male Metric Thread (for RP/RG)	12	3/4" or 12 mm		Only NF series	M		Soft stem tip only for NF Series Needle Valves with the orifice 0.16"/4.0mm, 0.25"/6.4mm and 0.39"/10mm				
92		F92	FRP	Female BSPP (for RP)	14	14 mm or M14 x 1.5			INC						
	D5	Duplex 2205	BP	Male BSPP (for RP/RG)	16	1" or 16 mm			HC						
TI		Titanium	TS	Fractional Tube Socket Weld	18	18 mm									
	A20	Alloy 20	MTS	Metric Tube Socket Weld	20	1 1/4" or 20 mm or M20 x 1.5									
M		Alloy 400	TB	Fractional Tube Butt Weld	22	22 mm or M22 x 1.5									
	INC	Alloy 600	MTB	Metric Tube Butt Weld	24	M24 x 1.5									
HC		Alloy C-276	PS	Pipe Socket Weld	25	25 mm									
	B	Brass	PB	Pipe Butt Weld	27	M27 x 2									
CS		Carbon Steel	FL	Fractional Tube Fitting	28	28 mm									
	904L	904L SS	ML	Metric Tube Fitting											
UFB			UFB	Nut + Gasket + Fractional Bulged Nipple											
	UMB		UMB	Nut + Gasket + Metric Bulged Nipple											
FO			FO	Male FO Fitting											
	FR		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.

1. 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

2. FO means FITOK O-ring face seal fittings.

3. FR means FITOK metal gasket face seal fittings.

4. 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.

Integral Bonnet Needle Valves

NG Series: Working pressure up to 3000 psig

NGH Series: Working pressure up to 5000 psig

Features

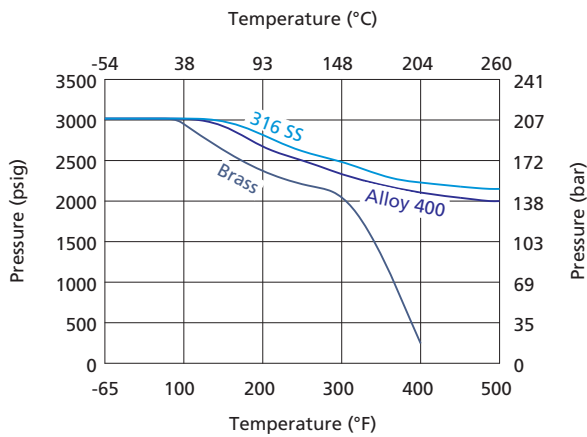
- ⦿ One-piece forged body
- ⦿ Easy external adjustments by packing nut
- ⦿ Live-loaded packing system
- ⦿ Handles of different colors available
- ⦿ Compact design
- ⦿ Panel mounting available
- ⦿ Every valve leak tested with Nitrogen or compressed air at the maximum allowable working pressure
- ⦿ Working 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)



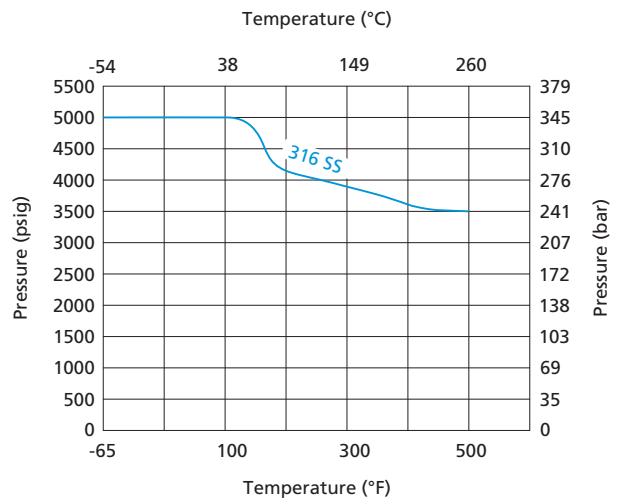
Needle Valves
Metering Valves

Pressure vs. Temperature

NG Series



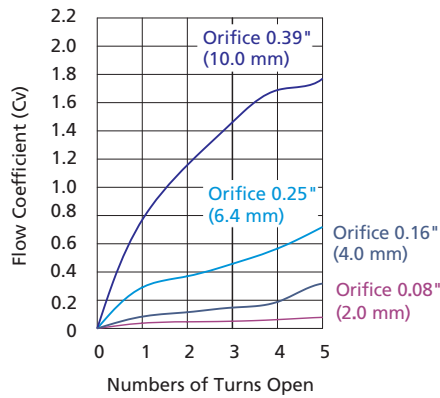
NGH Series



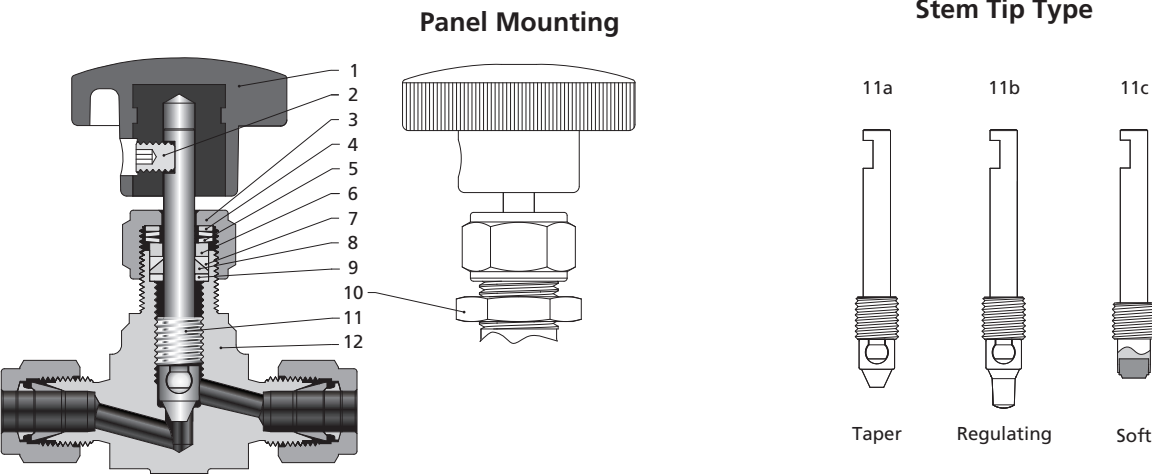
1. Graphs are based on PEEK packing.
2. Temperature rating is limited to 200°F (93°C) max with PCTFE stem tip (soft tip).
3. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Flow Data at 100°F (38°C)

Regulating Stem Tip



Standard Materials of Construction

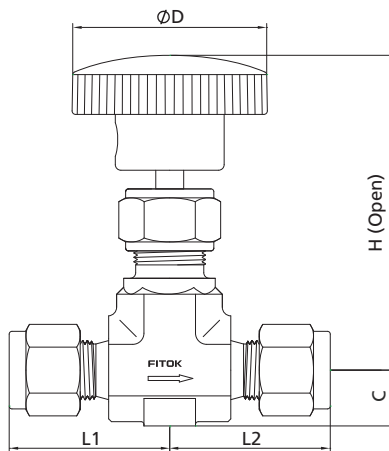


Item	Component	Valve Body Material		
		316 SS	Brass	Alloy 400
		Material Grade/ASTM Specification		
1	Handle	Black knob (aluminum or nylon with copper insert), aluminum alloy or stainless steel bar handle		
2	Set Screw	Galvanized carbon steel		
3	Packing Bolt	304 SS/A479	Brass C36000/B16	304 SS/A479
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		

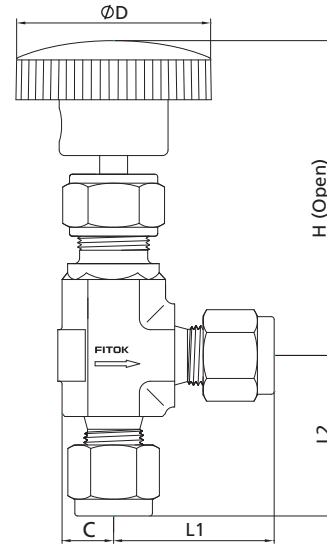
Note: Contact FITOK Group or our authorized distributors for other materials.

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 mm UMB	6 mm UMB								
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 mm UMB	10 mm UMB			2.60 (66.0)	2.60 (66.0)	0.49 (12.5)		1.88 (47.8)	2.85 (72.4)
NG□□-UMB14-8	14 mm UMB	14 mm UMB								

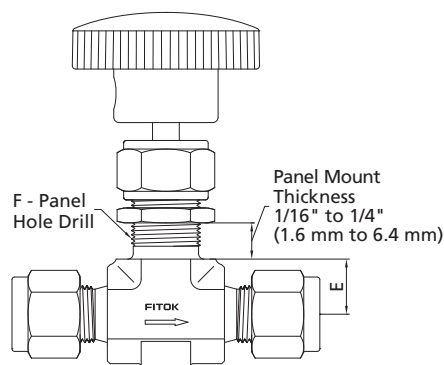
Dimensions of NG Series

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. Connection type of "UMB" means rotatable metric tube butt weld.
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.

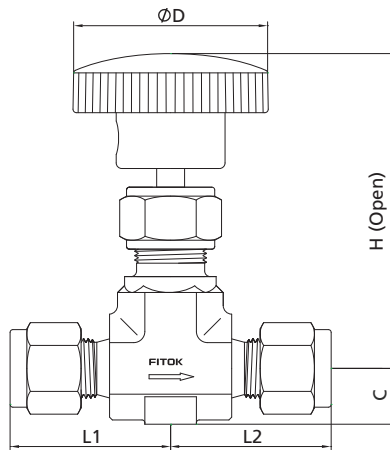
Panel Mount Dimensions of NG Series

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)

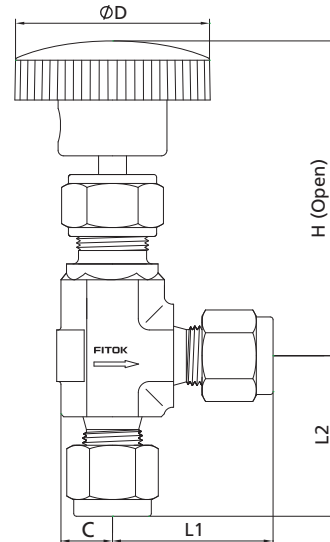


1. NG Series Needle Valves are standard without panel mounting.
2. To order needle valves with panel mounting as illustrated, add -Y to the ordering number. Example: NGSS-NS2-5-Y

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 mm UMB	6 mm UMB										
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)	0.62 (15.8)		2.90 (73.7)			
NGH□□-ML14-8	14 mm FITOK	14 mm FITOK			1.56 (39.7)	1.56 (39.7)						
NGH□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric			1.50 (38.1)	1.50 (38.1)						
NGH□□-UMB10-8	10 mm UMB	10 mm UMB					2.60 (66.0)		2.60 (66.0)	0.49 (12.5)		2.85 (72.4)
NGH□□-UMB14-8	14 mm UMB	14 mm UMB										

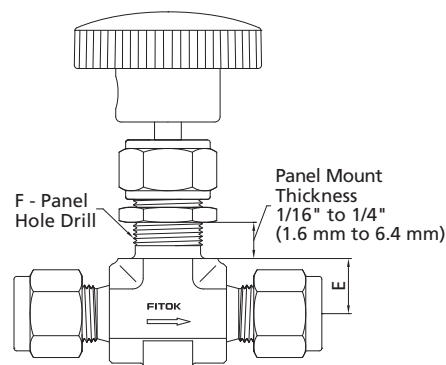
Dimensions of NGH Series

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							
NGH□□-FL12-9-L	3/4" FITOK	3/4" FITOK			1.90 (48.3)	1.90 (48.3)	0.76 (19.4)		
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. Connection type of "UMB" means rotatable metric tube butt weld.
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.

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: NGHSS-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	NACE MR0175	Cleaning and Packaging
NG	SS 316 SS	FNS Female NPT	2 1/8"	Same as Inlet	Specify in the same way as inlet type and inlet size	5 0.08" (2.0 mm)	Taper	PTFE	NO	Black Knob Not applicable to Orifice 0.39" (10mm)	Straight	NO	FC-01
	NGH	NS Male NPT	4 1/4"			7 0.16" (4.0 mm)	R Regulating	P PEEK	Y YES	F2 FC-02			
	S4 304 SS	FRT Female BSPT	6 3/8" or 6 mm			8 0.25" (6.4 mm)	Soft Tip-PCTFE			Red Aluminum Bar			
	4L 304L SS	RT Male BSPT	8 1/2" or 8 mm			9 0.39" (10 mm)	Soft Tip-PEEK			Green Aluminum Bar	Angle	S YES	
	S1 321 SS	FMS Female Metric Thread (for RP/RG)	10 10 mm							Blue Aluminum Bar			
	A20 Alloy 20		12 3/4" or 12 mm							Black Aluminum Bar			
	M Alloy 400	MS Male Metric Thread (for RP/RG)	14 14 mm or M14 x 1.5							Stainless Steel Bar			

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.
2. 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.

Rising Plug Valves

NR Series

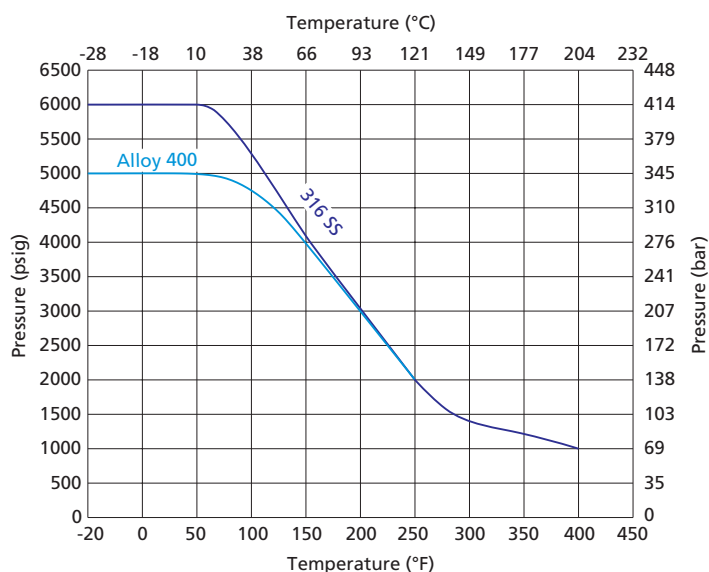
NRG (with gauge port) Series

Features

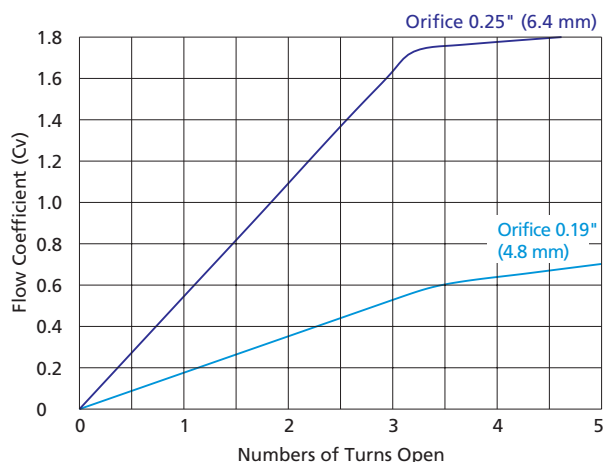
- ⦿ Cold drawn square bar as body material
- ⦿ Nonrotating stem for longer seat life
- ⦿ Roddable, straight through flow path for maximum flow with minimum pressure drop
- ⦿ Stem thread lubricant isolated from system media
- ⦿ Replaceable seat and stem tip design
- ⦿ Stem thread protected from outside contamination by PTFE ring in the gland
- ⦿ Panel mounting available
- ⦿ Handles of different colors available
- ⦿ Every valve leak tested with Nitrogen or compressed air at the maximum allowable working pressure
- ⦿ Working pressure up to:
 - Stainless steel: 6000 psig (414 bar)
 - Alloy 400: 5000 psig (345 bar)
- ⦿ Working temperature with seat:
 - Acetal: -20°F to 250°F (-28°C to 121°C)
 - PEEK: -20°F to 450°F (-28°C to 232°C)
- ⦿ Working temperature with O-ring:
 - Fluorocarbon Rubber (FKM): -20°F to 400°F (-28°C to 204°C)
 - Nitrile Butadiene Rubber (NBR): -20°F to 212°F (-28°C to 100°C)
 - Ethylene Propylene Diene Rubber (EPDM): -20°F to 300°F (-28°C to 148°C)



Pressure vs. Temperature

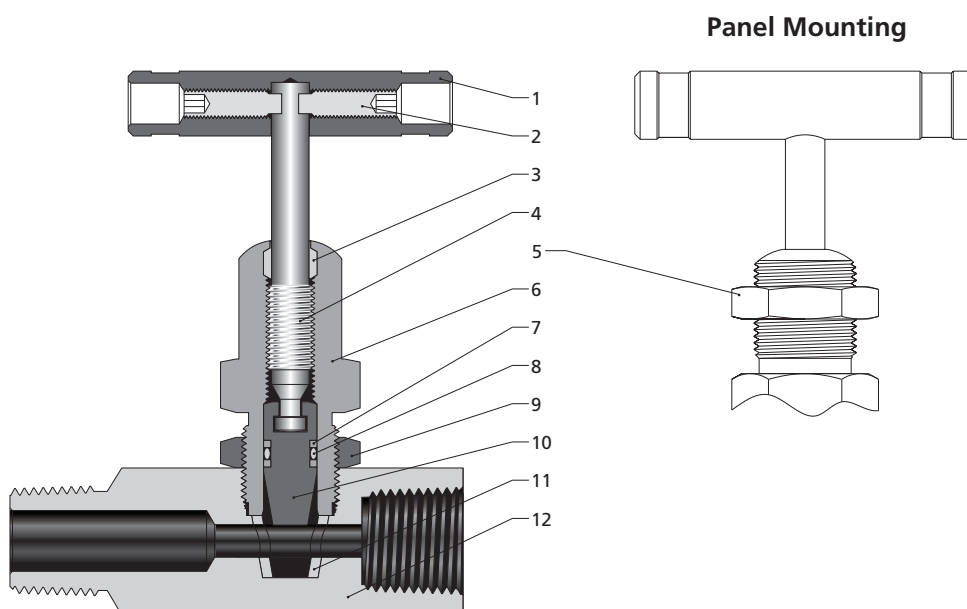


Flow Data at 100°F (38°C)



1. Graphs are based on PEEK seat and Fluorocarbon(FKM) O-ring.
2. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Standard Materials of Construction

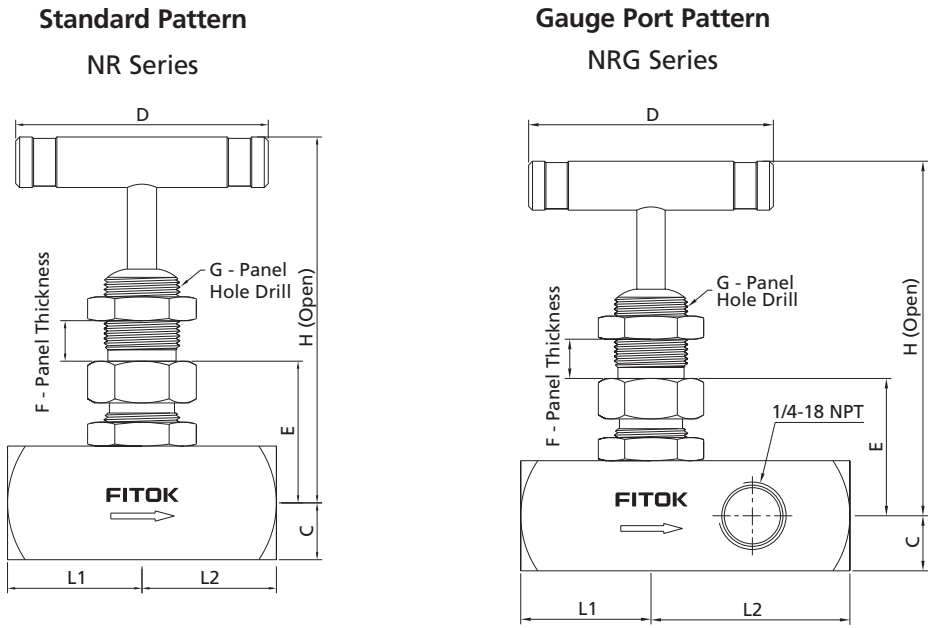


Item	Component	Valve Body Material			
		316 SS	304 SS	321 SS	Alloy 400
		Material Grade/ASTM Specification			
1	Handle	Anodized aluminum or stainless steel or black knob			
2	Set Screw	Galvanized carbon steel			
3	Wiper Ring	PTFE/D1710			
4	Upper Stem	316 SS/A479			Alloy 400/B164
5	Panel Nut	Stainless steel			
6	Bonnet	316 SS/A479	304 SS/A479	321 SS/A479	Alloy 400/B164
7	Backup Ring	PTFE/D1710			
8	O-ring	Fluorocarbon Rubber (FKM), Nitrile Butadiene Rubber (NBR) or Ethylene Propylene Diene Rubber (EPDM)			
9	Lock Nut	Stainless steel			
10	Stem Tip	316 SS/A479	304 SS/A479	321 SS/A479	Alloy 400/B164
11	Seat	Acetal or PEEK			
12	Body	316 SS/A479	304 SS/A479	321 SS/A479	Alloy 400/B164
	Lubricant	Molybdenum disulfide-based			

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

Dimensions

Needle Valves
Metering Valves



© NR Series Needle Valves are standard without panel mounting. To order needle valves with panel mounting as illustrated, add -Y to the ordering number. Example: NR55-FNS4-7-Y

Dimensions of NR and NRG Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)							
	Inlet	Outlet			L1	L2	C	D	E	F	G	H
NR □□ -FNS4-7	1/4 Female NPT	1/4 Female NPT	0.19 (4.8)	0.63	1.12 (28.4)	1.12 (28.4)	0.44 (11.1)	2.17 (55.0)	1.28 (32.5)	0.38 (9.7)	0.77 (19.6)	3.77 (95.8)
NR □□ -NS4-FNS4-7	1/4 Male NPT	1/4 Female NPT			1.78 (45.2)		0.50 (12.7)		1.34 (34.0)			
NR □□ -NS8-FNS4-7	1/2 Male NPT	1/4 Female NPT			1.89 (48.0)							
NRG □□ -FNS4-7	1/4 Female NPT	1/4 Female NPT			1.12 (28.4)	1.75 (44.4)						
NRG □□ -NS8-FNS4-7	1/2 Male NPT	1/4 Female NPT			3.12 (79.2)							
NR □□ -FNS8-8	1/2 Female NPT	1/2 Female NPT	0.25 (6.4)	1.80	1.33 (33.8)	1.33 (33.8)	0.56 (14.3)	2.50 (63.5)	1.40 (35.5)	0.38 (9.7)	0.77 (19.6)	3.83 (97.3)
NR □□ -NS8-FNS8-8	1/2 Male NPT	1/2 Female NPT			2.16 (54.9)							
NR □□ -NS12-FNS8-8	3/4 Male NPT	1/2 Female NPT										
NRG □□ -FNS8-8	1/2 Female NPT	1/2 Female NPT			3.33 (84.6)	2.25 (57.2)						
NRG □□ -NS12-FNS8-8	3/4 Male NPT	1/2 Female NPT										

1. Sizes and types listed are standard. Other sizes and types are available upon request.
2. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

Ordering Number Description

NRSS - NS8 - FNS8 - P8 - BYM - SF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	O-ring Material	Panel Mounting	Handle	NACE MR0175	Cleaning and Packaging
NR	SS 316 SS	FNS Female NPT	2 1/8"	Same as Inlet	7 0.19" (4.8 mm)	Acetal	7 0.19" (4.8 mm)	Fluorocarbon Rubber (FKM)	No	Black Aluminum Bar	No	FC-01
NRG	6L 316L SS	NS Male NPT	4 1/4"	Specify in the same way as inlet type and inlet size	8 0.25" (6.4 mm)	P PEEK	8 0.25" (6.4 mm)	Nitrile Butadiene Rubber (NBR)	Y Yes	Red Aluminum Bar	S Yes	F2 FC-02
	S4 304 SS	FRT Female BSPT	6 3/8" or 6 mm					Ethylene Propylene Diene Rubber (EPDM)		Green Aluminum Bar		
	4L 304L SS	RT Male BSPT	8 1/2" or 8 mm							Blue Aluminum Bar		
	S1 321 SS	FMS Female Metric Thread (for RP/RG)	10 10 mm							Stainless Steel Bar		
	D5 Duplex 2205	MS Male Metric Thread (for RP/RG)	12 3/4" or 12 mm									
	TI Titanium											
	A20 Alloy 20	FRP Female BSPP (for RP)										
	M Alloy 400	BP Male BSPP (for RP/RG)										
	INC Alloy 600											
	HC Alloy C -276											
	B Brass											
	CS Carbon Steel											
	904L 904L SS											

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

1. 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.

Toggle Valves

NT Series

Features

- One piece forged body
- Straight and angle patterns
- Compact design
- Quick opening or closing
- Nonrotating stem
- Panel mounting available
- Every valve leak tested with Nitrogen or compressed air at the maximum allowable working pressure
- Working pressure up to: 300 psig (20.7 bar)

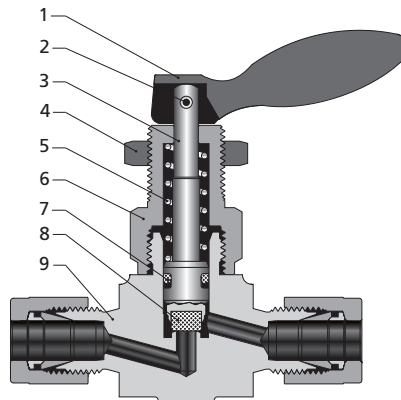


Technical Data

Orifice in. (mm)	Working Pressure at 100°F (38°C) psig (bar)
0.08 (2.0)	300 (20.7)
0.125 (3.2)	
0.25 (6.4)	200 (13.8)

O-ring Material	Temperature Rating
Fluorocarbon Rubber (FKM)	-20°F to 400°F (-28°C to 204°C)
Nitrile Butadiene Rubber (NBR)	-20°F to 212°F (-28°C to 100°C)
Ethylene Propylene Diene Rubber (EPDM)	-20°F to 300°F (-28°C to 148°C)

Standard Materials of Construction

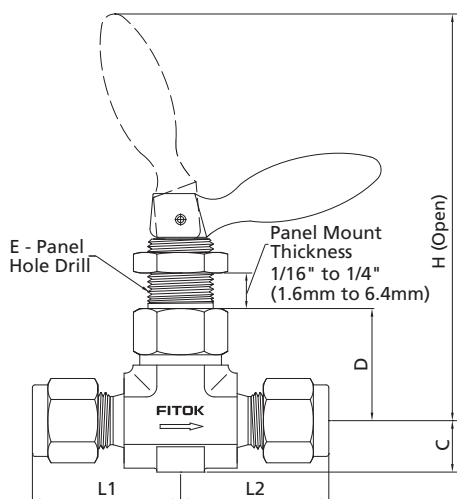


Valve Body Material					
Item	Component	Valve Body Material			
		316 SS	304 SS	321 SS	Brass
		Material Grade/ASTM Specification			
1	Handle	Stainless steel			
2	Pin	Stainless steel			
3	Stem	316 SS/A479	304 SS/A479		316 SS/A479
4	Panel Nut	Stainless steel			Brass C36000/B16
5	Spring	S17700/A313			
6	Bonnet	304 SS/A479			Brass C36000/B16
7	O-ring	Fluorocarbon Rubber (FKM), Nitrile Butadiene Rubber (NBR) or Ethylene Propylene Diene Rubber (EPDM)			
8	Stem Tip	PTFE/D1710			
9	Body	316 SS/A182	304 SS/A182	321 SS/A182	Brass C37700/B283
	Lubricant	Molybdenum disulfide-based			

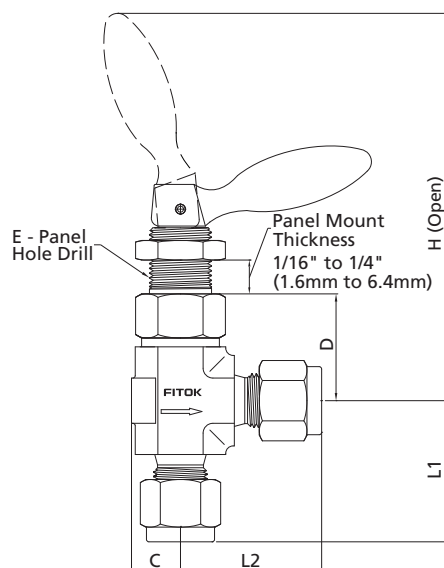
Note: Contact FITOK Group or our authorized distributors for other materials.

Dimensions

Straight Pattern



Angle Pattern



Dimensions of NT series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)					
	Inlet	Outlet			L1	L2	C	D	E	H
NT□□-NS2-5	1/8 Male NPT	1/8 Male NPT	0.08 (2.0)	0.11	0.75 (19.05)	0.75 (19.05)	0.32 (8.2)	0.85 (21.7)	0.53 (13.5)	2.83 (71.9)
NT□□-NS2-FL2-5	1/8 Male NPT	1/8" FITOK			0.75 (19.05)	0.98 (25.0)				
NT□□-FL2-5	1/8" FITOK	1/8" FITOK			0.98 (25.0)	0.98 (25.0)				
NT□□-ML3-5	3 mm FITOK	3 mm FITOK								
NT□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.125 (3.2)	0.20	0.81 (20.6)	0.81 (20.6)	0.39 (10.0)	0.85 (21.7)	0.53 (13.5)	2.83 (71.9)
NT□□-NS2-7	1/8 Male NPT	1/8 Male NPT			0.86 (21.8)	0.86 (21.8)				
NT□□-NS4-7	1/4 Male NPT	1/4 Male NPT			0.98 (25.0)	0.98 (25.0)				
NT□□-NS4-FL4-7	1/4 Male NPT	1/4" FITOK			0.98 (25.0)	1.13 (28.7)				
NT□□-FL4-7	1/4" FITOK	1/4" FITOK								
NT□□-ML6-7	6 mm FITOK	6 mm FITOK			1.13 (28.7)					
NT□□-ML8-7	8 mm FITOK	8 mm FITOK								
NT□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)	0.53 (13.5)	1.06 (26.9)	0.66 (16.8)	3.59 (91.2)
NT□□-FNS6-8	3/8 Female NPT	3/8 Female NPT			1.12 (28.4)	1.12 (28.4)				
NT□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.29 (32.8)	1.29 (32.8)				
NT□□-FL6-8	3/8" FITOK	3/8" FITOK			1.40 (35.6)	1.40 (35.6)				
NT□□-FL8-8	1/2" FITOK	1/2" FITOK			1.36 (34.5)	1.36 (34.5)				
NT□□-ML10-8	10 mm FITOK	10 mm FITOK			1.46 (37.1)	1.46 (37.1)				
NT□□-ML12-8	12 mm FITOK	12 mm FITOK								

1. Connection type of "FITOK" means FITOK double ferrule tube fittings.
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.

Pneumatic Actuators

Features

- Valve and actuator are fully assembled and every valve leak tested with Nitrogen or compressed air at the maximum allowable working pressure
- Opens and closes quickly and reliably
- Rotatable actuator port allows easy installation

Actuation Modes

- Normally closed—air opens, spring closes
- Normally open—air closes, spring opens
- Double acting—air opens and closes

Normally Closed and
Double Acting



Normally Open



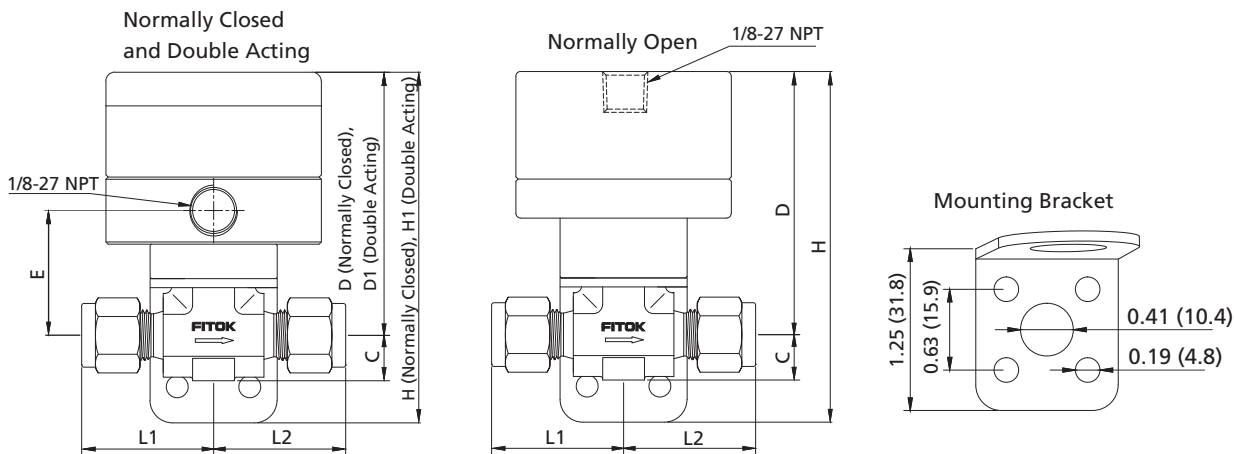
Technical Data

Actuator Type	Working Pressure at 100°F (38°C) psig (bar)	Actuator Pressure Rating psig (bar)
Normally closed	300 (20.7)	87 (6)
Normally open	450 (31.0)	
Double acting		

Component	Material
	Material Grade/ASTM Specification
Housing	Anodized aluminum
Spring	S17700/A313
Mounting Bracket	304SS/A240
Stem Tip	Normally open, normally closed—PTFE/D1710, double acting—PCTFE/D1430

Please refer to NT Series "Standard Materials of Construction" for other materials.

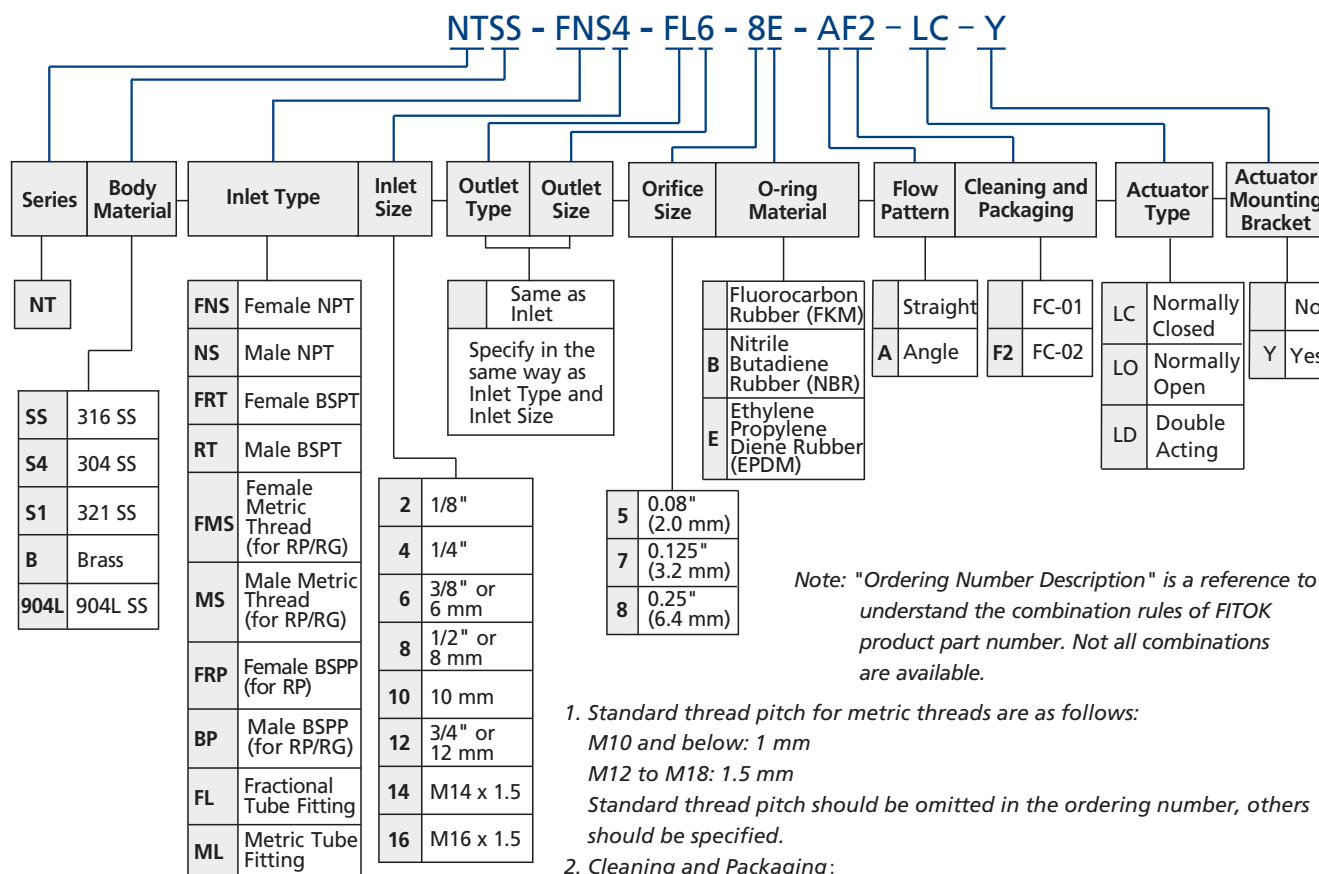
Dimensions



Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)							
	Inlet	Outlet			L1	L2	C	D	D1	H	H1	E
NT□□-NS2-5-LC-Y	1/8 Male NPT	1/8 Male NPT	0.08 (2.0)	0.11	0.86 (21.8)	0.86 (21.8)	0.39 (10.0)	2.28 (58)	2.46 (62.5)	3.04 (77.3)	3.22 (81.8)	1.08 (27.5)
NT□□-NS2-FL2-5-LC-Y	1/8 Male NPT	1/8" FITOK			0.86 (21.8)	1.03 (26.2)						
NT□□-FL2-5-LC-Y	1/8" FITOK	1/8" FITOK			1.03 (26.2)	1.03 (26.2)						
NT□□-ML3-5-LC-Y	3 mm FITOK	3 mm FITOK										
NT□□-FNS2-7-LC-Y	1/8 Female NPT	1/8 Female NPT	0.125 (3.2)	0.20	0.81 (20.6)	0.81 (20.6)	0.39 (10.0)	2.28 (58)	2.46 (62.5)	3.04 (77.3)	3.22 (81.8)	1.08 (27.5)
NT□□-NS2-7-LC-Y	1/8 Male NPT	1/8 Male NPT			0.86 (21.8)	0.86 (21.8)						
NT□□-NS4-7-LC-Y	1/4 Male NPT	1/4 Male NPT			0.98 (25.0)	0.98 (25.0)						
NT□□-NS4-FL4-7-LC-Y	1/4 Male NPT	1/4" FITOK			0.98 (25.0)	1.13 (28.7)						
NT□□-FL4-7-LC-Y	1/4" FITOK	1/4" FITOK										
NT□□-ML6-7-LC-Y	6 mm FITOK	6 mm FITOK			1.13 (28.7)							
NT□□-ML8-7-LC-Y	8 mm FITOK	8 mm FITOK										

1. Connection type of "FITOK" means FITOK double ferrule tube fittings.
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



1. Standard thread pitch for metric threads are as follows:
M10 and below: 1 mm
M12 to M18: 1.5 mm
Standard thread pitch should be omitted in the ordering number, others should be specified.
2. 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.

Union Bonnet Needle Valves

NU Series: Working pressure up to 6000 psig

NUH Series: Working pressure up to 10000 psig

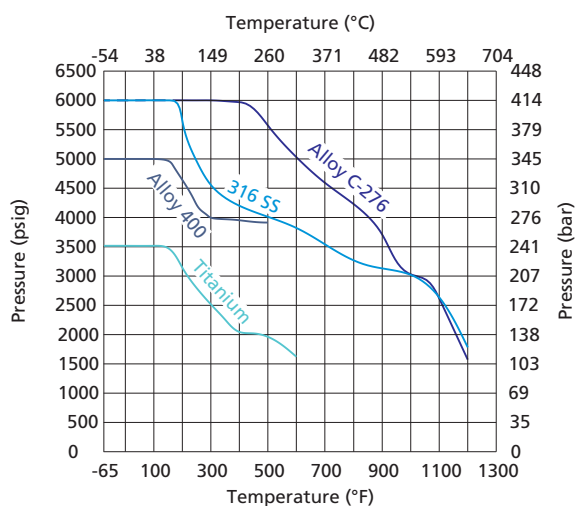
Features

- ⦿ One-piece forged body
- ⦿ Two-piece stem design: Upper stem threads cold rolled and lower stem hardened for high strength and smooth operation
- ⦿ Accidental valve disassembly disabled by union bonnet construction
- ⦿ Upper stem thread lubricant isolated from system media
- ⦿ Linear instead of rotary movement of the rising, non-rotating stem minimizes packing abrasion and reduces the friction between the seat and the tip
- ⦿ Safety back seating seal in fully open position
- ⦿ 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 (NU Series) at the maximum allowable working pressure or with water (NUH Series) at 1.1 times the maximum allowable pressure
- ⦿ Working pressure up to:
 - NU 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)
 - NUH 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)

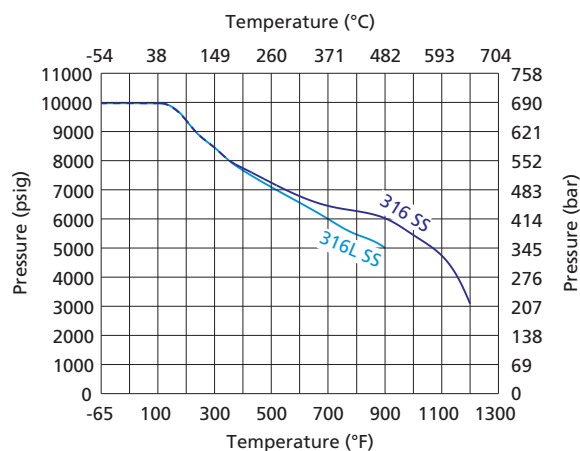


Pressure vs. Temperature

NU Series



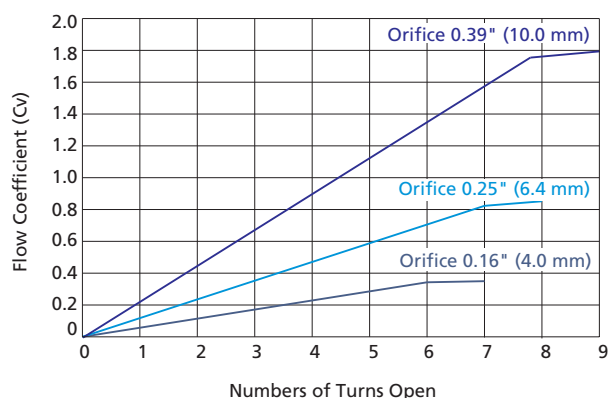
NUH Series



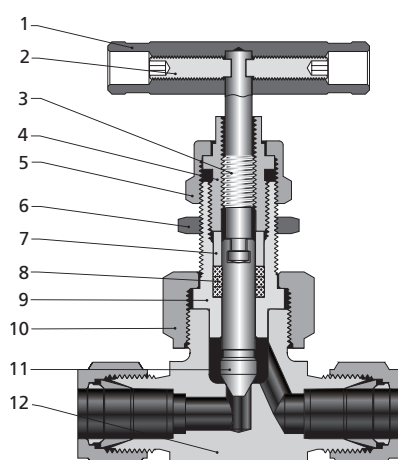
1. Graphs are based on graphite packing.
2. Soft tips are for NU Series only. Temperature rating is limited to 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Flow Data at 100°F (37°C)

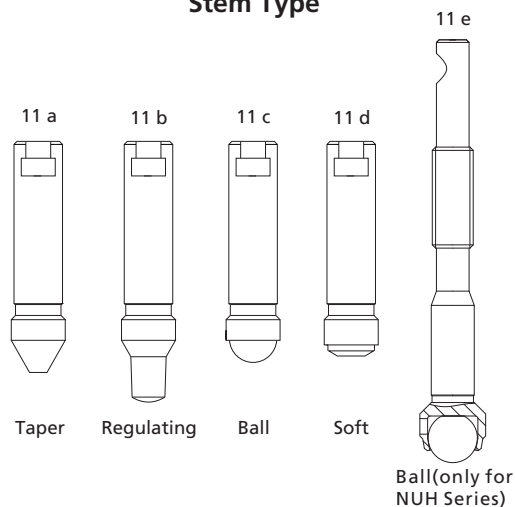
Regulating Stem



Standard Materials of Construction



Stem Type

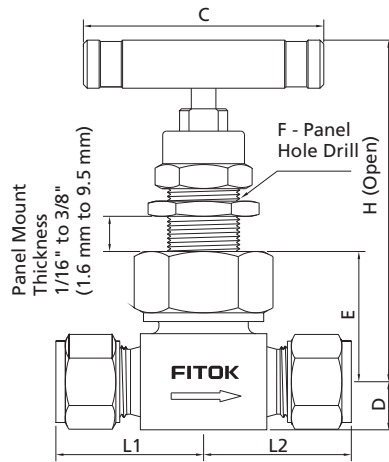


Valve Body Material					
Item	Component	316 SS	Alloy 400	Titanium	Alloy C-276
		Material Grade/ASTM Specification			
1	Handle	Anodized aluminium or stainless steel or black knob			
2	Set Screw	Galvanized carbon steel			
3	Upper Stem	316 SS/A479			
4	Packing Bolt	304 SS/A479			
5	Lock Nut	316 SS/A479			
6	Panel Nut	Stainless steel			
7	Gland	316 SS/A479			
8	Packing	PTFE or PEEK or graphite			
9	Bonnet	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574
10	Union Nut	316 SS/A479			
11a 11b 11c	Lower Stem	Hardened 316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574
11d	Stem	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574
	Stem Tip	PTFE or PCTFE or PEEK			
11e	Stem	316 SS/A479	Not Applicable		Alloy C-276/B574
	Stem Tip	Stellite			
12	Body	316 SS/A182	Alloy 400/B164, B127, B564	Titanium Gr 4/B348 or titanium Gr 4/B381	Alloy C-276/B564
	Seat	Same as Body			
Lubricant		Molybdenum disulfide-based			

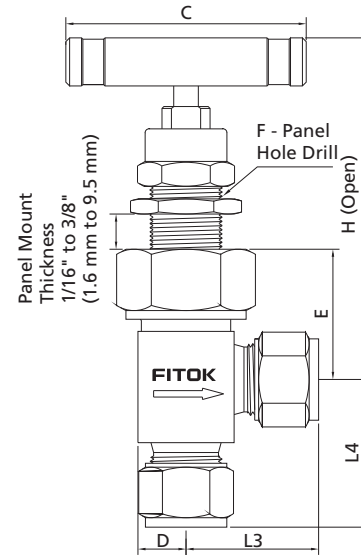
Note: Contact FITOK Group or our authorized distributors for other materials.

Dimensions

Straight Pattern



Angle Pattern



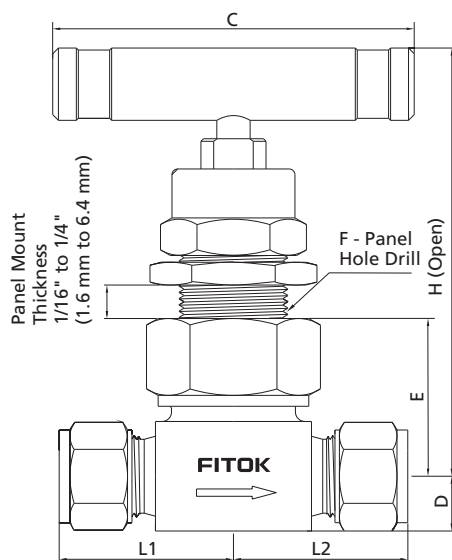
Dimensions of NU Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)										
	Inlet	Outlet			L1	L2	L3	L4	C	D	E	F	H		
NU□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	0.89 (22.6)	1.00 (25.4)	1.75 (44.5)	0.39 (9.9)	1.09 (27.7)	0.59 (15.0)	3.06 (77.7)		
NU□□-FNS4-7	1/4 Female NPT	1/4 Female NPT			1.03 (26.2)	1.03 (26.2)									
NU□□-NS4-FNS4-7	1/4 Male NPT	1/4 Female NPT			1.00 (25.4)	1.03 (26.2)									
NU□□-NS4-7	1/4 Male NPT	1/4 Male NPT			1.00 (25.4)	1.00 (25.4)	1.00 (25.4)								
NU□□-NS6-7	3/8 Male NPT	3/8 Male NPT			1.03 (26.2)	1.03 (26.2)	0.89 (22.6)								
NU□□-FRP4-7	1/4 Female BSPP	1/4 Female BSPP												1.00 (25.4)	1.22 (30.9)
NU□□-NS4-FL4-7	1/4 Male NPT	1/4" FITOK													
NU□□-FNS4-FL4-7	1/4 Female NPT	1/4" FITOK			1.03 (26.2)	1.22 (30.9)	1.14 (29.0)								
NU□□-FL4-7	1/4" FITOK	1/4" FITOK			1.22 (30.9)	1.22 (30.9)	1.15 (29.2)	1.22 (30.9)							
NU□□-ML6-7	6 mm FITOK	6 mm FITOK													
NU□□-ML8-7	8 mm FITOK	8 mm FITOK			1.00 (25.4)	1.00 (25.4)	0.85 (21.6)	1.00 (25.4)							
NU□□-TS4-7-G	1/4" TS	1/4" TS													
NU□□-FO4-7	1/4" Male FO	1/4" Male FO													
NU□□-FR4-7	1/4" Male FR	1/4" Male FR	1.03 (26.2)	1.03 (26.2)	1.10 (28.0)	1.10 (28.0)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	0.78 (19.8)	3.78 (96.0)				
NU□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	1.13 (28.6)	1.13 (28.6)	1.00 (25.4)	1.13 (28.6)									
NU□□-FNS6-8	3/8 Female NPT	3/8 Female NPT										1.06 (26.9)	1.47 (37.3)		
NU□□-NS6-8	3/8 Male NPT	3/8 Male NPT	1.41 (35.9)	1.41 (35.9)	1.28 (32.5)										
NU□□-FL6-8	3/8" FITOK	3/8" FITOK	1.52 (38.6)	1.52 (38.6)	1.40 (35.6)	1.58 (40.1)									
NU□□-FL8-8	1/2" FITOK	1/2" FITOK	1.42 (36.1)	1.42 (36.1)	1.30 (33.0)	1.48 (37.6)									
NU□□-ML10-8	10 mm FITOK	10 mm FITOK													

Dimensions of NU Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)								
	Inlet	Outlet			L1	L2	L3	L4	C	D	E	F	H
NU □□-ML12-8	12 mm FITOK	12 mm FITOK	0.25 (6.4)	0.86	1.52 (38.6)	1.52 (38.6)	1.40 (35.6)	1.58 (40.1)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	0.78 (19.8)	3.78 (96.0)
NU □□-ML14-8	14 mm FITOK	14 mm FITOK											
NU □□-ML16-8	16 mm FITOK	16 mm FITOK											
NU □□-TS6-8-G	3/8" TS	3/8" TS											
NU □□-TS8-8-G	1/2" TS	1/2" TS											
NU □□-PS4-8-G	1/4 PS	1/4 PS											
NU □□-MTS12-8-G	12 mm MTS	12 mm MTS			1.13 (28.6)	1.13 (28.6)	1.00 (25.4)	1.13 (28.6)					
NU □□-MTS14-8-G	14 mm MTS	14 mm MTS											
NU □□-MTS16-8-G	16 mm MTS	16 mm MTS											
NU □□-MTB14-8-G	14 mm MTB	14 mm MTB											
NU □□-MTB16-8-G	16 mm MTB	16 mm MTB											
NU □□-UMB14-8	14 mm UMB	14 mm UMB											
NU □□-FO8-8	1/2" Male FO	1/2" Male FO			2.92 (74.1)	2.92 (74.1)	2.55 (64.7)	2.92 (74.1)					
NU □□-FR8-8	1/2" Male FR	1/2" Male FR			1.13 (28.6)	1.13 (28.6)	—	—					
NU □□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric			1.56 (39.6)	1.56 (39.6)	—	—					
NU □□-MS22-8	M22 x 1.5 Male Metric	M22 x 1.5 Male Metric			0.63 (16.0)	1.46 (37.1)	—	3.90 (99.0)					
NU □□-NS8-9	1/2 Male NPT	1/2 Male NPT	1.50 (38.1)	1.50 (38.1)	1.13 (28.6)	1.50 (38.1)							
NU □□-FNS8-9	1/2 Female NPT	1/2 Female NPT	0.50 (12.7)	1.34 (34.0)	—	3.78 (96.0)							
NU □□-FNS12-9	3/4 Female NPT	3/4 Female NPT	—	—	—	—							
NU □□-NS12-9	3/4 Male NPT	3/4 Male NPT	—	—	—	—							
NU □□-FL8-9	1/2" FITOK	1/2" FITOK	—	—	—	—							
NU □□-FL12-9	3/4" FITOK	3/4" FITOK	—	—	—	—							
NU □□-ML14-9	14 mm FITOK	14 mm FITOK	—	—	—	—							
NU □□-ML16-9	16 mm FITOK	16 mm FITOK	—	—	—	—							
NU □□-ML18-9	18 mm FITOK	18 mm FITOK	—	—	—	—							
NU □□-ML20-9	20 mm FITOK	20 mm FITOK	—	—	—	—							
NU □□-MTS14-9-G	14 mm MTS	14 mm MTS	—	—	—	—							
NU □□-MTS16-9-G	16 mm MTS	16 mm MTS	—	—	—	—							
NU □□-TS8-9-G	1/2" TS	1/2" TS	—	—	—	—							
NU □□-TS12-9-G	3/4" TS	3/4" TS	—	—	—	—							
NU □□-MTB16-9-G	16 mm MTB	16 mm MTB	—	—	—	—							
NU □□-UMB14-9	14 mm UMB	14 mm UMB	—	—	—	—							
NU □□-FR8-9	1/2" Male FR	1/2" Male FR	—	—	—	—							
NU □□-MS27-9	M27 x 2 Male Metric	M27 x 2 Male Metric	—	—	—	—							

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 "TS" means fractional tube socket weld. "MTS" means metric tube socket weld. "MTB" means metric tube butt weld. "UMB" means rotatable metric tube butt weld. "PS" means pipe socket weld.
4. Sizes and types listed are standard. Other sizes and types are available upon request. For details, please contact FITOK Group or our authorized distributors.
5. 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.



Dimensions of NUH Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)						
	Inlet	Outlet			L1	L2	C	D	E	F	H
NUH□□-FL4-7	1/4" FITOK	1/4" FITOK	0.16 (4.0)	0.35	1.41 (35.8)	1.41 (35.8)	2.50 (63.5)	0.50 (12.7)	1.34 (34.1)	0.78 (19.8)	3.42 (86.9)
NUH□□-FNS2-7	1/8 Female NPT	1/8 Female NPT			1.13 (28.6)	1.13 (28.6)					
NUH□□-FNS4-7	1/4 Female NPT	1/4 Female NPT									
NUH□□-NS4-FNS4-7	1/4 Male NPT	1/4 Female NPT									
NUH□□-NS4-7	1/4 Male NPT	1/4 Male NPT									
NUH□□-TS4-7-G	1/4" TS	1/4" TS									
NUH□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	0.25 (6.4)	0.86	1.56 (39.7)	1.56 (39.7)	3.50 (88.9)	0.63 (16.0)	1.81 (46.0)	1.03 (26.2)	4.09 (104)
NUH□□-NS8-8	1/2 Male NPT	1/2 Male NPT									
NUH□□-TS8-8-G	1/2" TS	1/2" TS									
NUH□□-MTS12-8-G	12 mm MTS	12 mm MTS									
NUH□□-MTS16-9-G	16 mm MTS	16 mm MTS	0.39 (10.0)	1.8	1.75 (44.5)	1.75 (44.5)	3.50 (88.9)	0.91 (23.0)	2.29 (58.2)	1.14 (28.9)	5.28 (134.1)
NUH□□-MTB22-9-G	22 mm MTB	22 mm MTB			1.56 (39.7)	1.56 (39.7)					
NUH□□-FNS8-9	1/2 Female NPT	1/2 Female NPT									

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 Tubing catalog.

2. Connection type of "TS" means fractional tube socket weld. "MTS" means metric tube socket weld. "MTB" means metric tube butt weld. "

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.

Ordering Number Description

NUSS - FNS6 - FL6 - 8WB - GM - ASF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Stem Tip Material	Stem Tip Type	Packing Material	Handle	Flow Pattern	Special Application	Cleaning and Packaging
NU	SS	FNS	2 1/8"	Same as Inlet	7	0.16" (4.0 mm)	Same as Body	Taper	PTFE		Straight		FC-01
NUH	6L	NS	4 1/4"	Specify in the same way as inlet type and inlet size	8	0.25" (6.4 mm)	W	R Regulating	P PEEK		Angle		F2 FC-02
	S4	FRT	6 3/8" or 6 mm		9	0.39" (10 mm)	D5	B Ball	G Graphite				
	4L	RT	8 1/2" or 8 mm				TI	T Soft Tip-PTFE					
	S1	FMS	10 10 mm				A20	K Soft Tip-PCTFE					
	91	MS	12 3/4" or 12 mm				M	P Soft Tip-PEEK					
	92	FRP	14 14 mm or M14 x 1.5				INC						
	D5	BP	16 1" or 16 mm				HC						
	TI		18 18 mm										
	A20	TS	20 1 1/4" or 20 mm or M20 x 1.5										
	M	MTS	22 22 mm or M22 x 1.5										
	INC	TB	24 M24 x 1.5										
	HC	MTB	25 25 mm										
	B	PS	27 M27 x 2										
	CS	PB	28 28 mm										
	904L	FL											
		ML											
		UFB											
		UMB											
		FO											
		FR											

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

1. 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.

2. FO means FITOK O-ring face seal fittings.

3. FR means FITOK metal gasket face seal fittings.

4. 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.

Outside Screw and Yoke (OS&Y) Needle Valves

NY Series: Working pressure up to 6000 psig

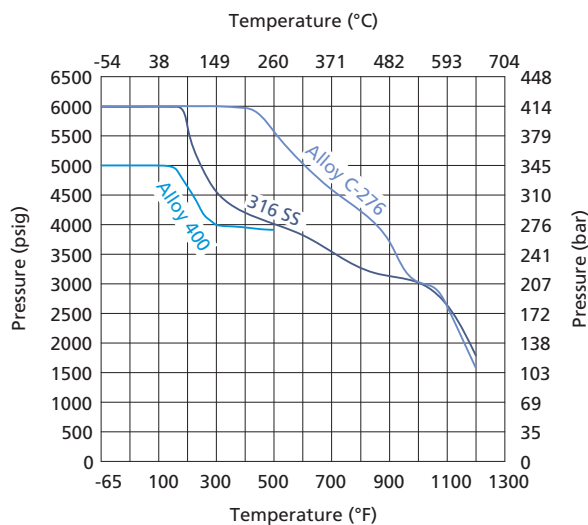
Features

- ⦿ Cold drawn bar as body
- ⦿ Standard seat diameter 0.16" (4mm). Cv: 0.35 standard
- ⦿ Hardened stem threads prevent galling
- ⦿ Stem threads completely 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
- ⦿ Externally adjustable gland, independent of spindle thread
- ⦿ Steady and durable fastening of the handle by double lock-pins
- ⦿ Bottom mounting available
- ⦿ Every valve leak tested with Nitrogen or compressed air at maximum allowable working pressure
- ⦿ Working pressure up to:
 - Stainless steel: 6000 psig (414 bar)
 - Alloy C-276: 6000 psig (414 bar)
 - Alloy 400: 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)
 - Graphite: -65°F to 1200°F (-54°C to 649°C)



Pressure vs. Temperature

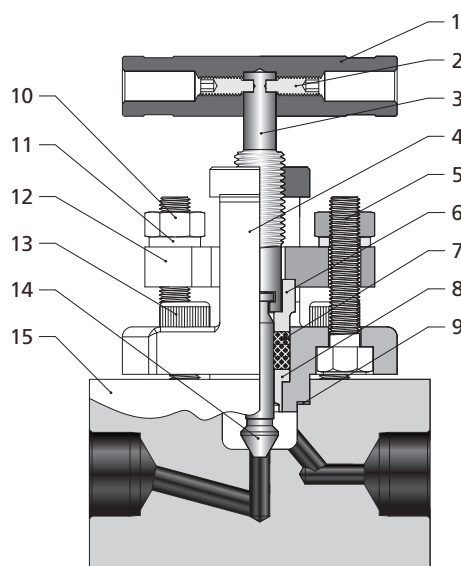
NY Series



1. Graphs are based on graphite packing.

2. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Standard Materials of Construction

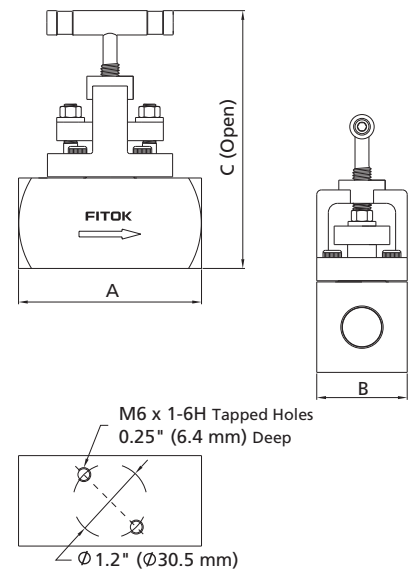


Item	Component	Valve Body Material
		316 SS
		Material Grade/ASTM Specification
1	Handle	Anodized aluminum or stainless steel
2	Set Screw	Galvanized carbon steel
3	Upper Stem	316 SS/A479
4	Yoke	316 SS/A182
5	Bolts	Stainless steel
6	Packing Washer	316 SS/A479
7	Packing	PTFE or PEEK or graphite
8	Packing Washer	316 SS/A479
9	Joint Seal	316 SS/A479
10	Nuts	Stainless steel
11	Gaskets	Stainless steel
12	Gland bridge	316 SS/A182
13	Bolts	Stainless steel
14	Lower Stem	Hardened 316 SS/A479
15	Body	316 SS/A479
	Lubricant	Molybdenum disulfide-based

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

Dimensions of NY Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)		
	Inlet	Outlet			A	B	C
NY□□-FNS4	1/4 Female NPT	1/4 Female NPT	0.16 (4.0)	0.35	2.69 (68.2)	1.50 (38.1)	4.04 (102.7)
NY□□-NS4	1/4 Male NPT	1/4 Male NPT			2.95 (75.0)		
NY□□-NS4-FNS4	1/4 Male NPT	1/4 Female NPT			2.72 (69.2)		
NY□□-FNS6	3/8 Female NPT	3/8 Female NPT			2.93 (75.0)		
NY□□-NS6	3/8 Male NPT	3/8 Male NPT			3.00 (76.2)		
NY□□-FNS8	1/2 Female NPT	1/2 Female NPT			3.27 (82.0)		
NY□□-NS8	1/2 Male NPT	1/2 Male NPT			3.00 (76.2)		
NY□□-NS8-FNS8	1/2 Male NPT	1/2 Female NPT			3.54 (89.8)		
NY□□-PS8-G	1/2 PS	1/2 PS			3.44 (87.4)		
NY□□-PB8-G	1/2 PB	1/2 PB			3.50 (88.9)		
NY□□-FL4	1/4" FITOK	1/4" FITOK			3.78 (96.0)		
NY□□-FL6	3/8" FITOK	3/8" FITOK			3.44 (87.4)		
NY□□-FL8	1/2" FITOK	1/2" FITOK			3.78 (96.0)		
NY□□-ML6	6 mm FITOK	6 mm FITOK			3.44 (87.4)		
NY□□-ML8	8 mm FITOK	8 mm FITOK			3.78 (96.0)		
NY□□-ML12	12 mm FITOK	12 mm FITOK			3.78 (96.0)		



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 "PS" means pipe socket weld. "PB" means pipe butt weld.
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 not shown above, please contact FITOK Group or our authorized distributors.

Ordering Number Description

NYSS - FL8 - ML12 - WB - GY - SF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Stem Tip Material	Stem Tip Type	Packing Material	Base Mount	Special Application	Cleaning and Packaging
NY	SS	FNS	4		Same as Inlet	Same as Body	Taper	PTFE	No	NO	FC-01
6L	316L SS	NS	6		Specify in the same way as Inlet Type and Inlet Size	W	B	P	Y	S	F2 FC-02
S4	304 SS	PS	8			INC		G			
4L	304L SS	PB	10			Alloy 600					
S1	321 SS	TS	12			Alloy C-276					
11	F11	MTS									
91	F91	TB									
92	F92	MTB									
INC	Alloy 600	FL									
HC	Alloy C-276	ML									
CS	Carbon Steel A105										
904L	904L SS										

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

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.