

# Needle Valves

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



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# Bar Stock Needle Valves

**NB Series:** Working pressure up to 6000 psig

**NBH Series:** Working pressure up to 10000 psig

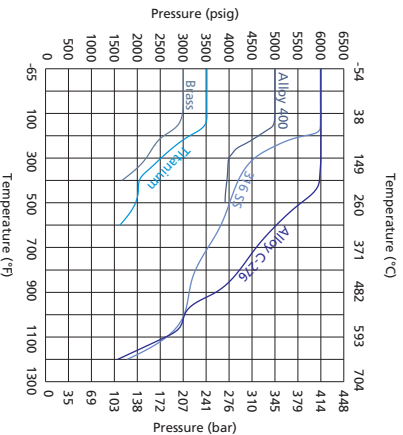


## Features

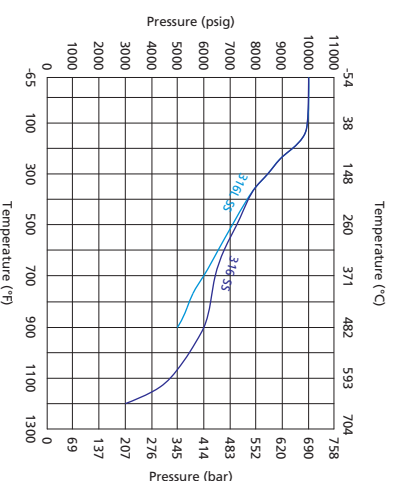
- Cold drawn bar.
- Two-stem design: thread hardened upper stem and smooth surface hardened lower stem.
- Upper stem thread lubricant isolated from system media.
- Linearly instead of helical movement of the nonrotating lower stem, avoiding galling damage to the seat and tip, as well as reducing the total friction area between the packing and the lower stem.
- Safety back seating seal in fully open position.
- Panel mounting available.
- Steady and durable fastening of the handle by double lock-pins.
- Handle color options are available.

## Pressure vs. Temperature

NB Series



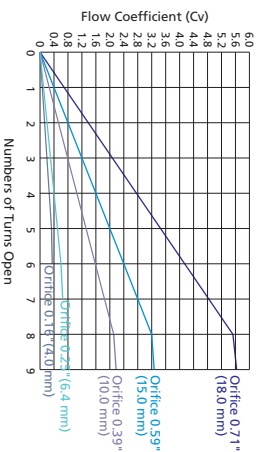
NBH Series



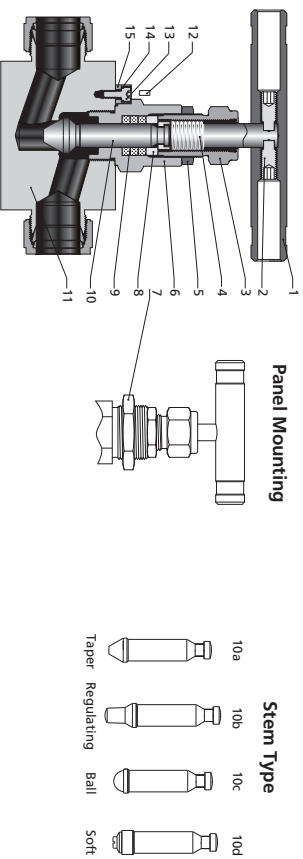
1. Graphs are based on graphite stem packing.  
2. Suitable for NB series only, 200°F (93°C) max. with PCTFE stem tip (soft tip).  
3. Contact the authorized representative or FITOK Group for curve graph of other materials.

**Flow Data at 100°F (38°C)**

Regulating Stem



**Standard Materials of Construction**



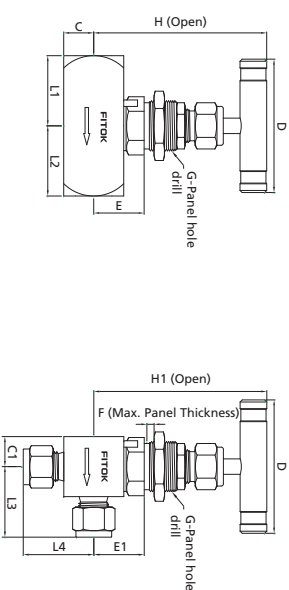
Item	Component	Valve Body Material		
		316 SS	Alloy 400	Alloy C-276
1	Handle	Anodized aluminum or stainless steel or black knob		
2	Set Screw	Stainless steel		
3	Packing Bolt	304 SS/A276		
4	Upper Stem	316 SS/A276		
5	Lock Nut	17-4PH		
6	Bonnet	316 SS/A479	Alloy R-405/B164	Alloy C-276/B574
7	Panel Nut	316 SS/B783		
8	Gland	316 SS/A276		
9	Packing	PTFE or PEEK or graphite		
10a	Lower Stem	Chrome-plated 316 SS/A276	Alloy R-405/B164	Alloy C-276/B574
10b	Lower Stem	Optional	Titanium Gr 4B/348	
10c			Titanium Gr 4B/348	
10d	Lower Stem	Optional	Alloy C-276/B574	
11			Brass 360/B16	
12	Seat	316 SS/A479	Alloy 400/B164	Alloy C-276/B574
13	Lock Pin	Same as Body		
14	Screw	304 SS/A276		
15	Spring Washer	304 SS/A276		
	Bush	304 SS/A276		
	Lubricant	Molybdenum disulfide-based		

1. Item 12 is applied in valves with orifice size 4.0 & 6.0. For valves with orifice size 10.0, 15.0 & 18.0, item 13, 14 & 15 are used instead of item 12.  
2. Contact the authorized representative or FITOK Group for values of other materials.

**Dimensions**

Straight Pattern

Angle Pattern



● NB series valves are standard without panel mounting. To order 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	Dimension, in.(mm)											
	Inlet	Outlet			L1	L2	L3	L4	C	C1	D	E	E1	F	G	H
NB□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16	1.00	1.00	1.00	1.00	0.56	0.56	1.00	0.88	0.38	3.50	3.50		
NB□□-FNS4-7	1/4 Female NPT	1/4 Female NPT	0.16	1.06	1.06	1.06	1.00	0.56	0.56	1.06	0.88	0.38	3.50	3.50		
NB□□-NS4-7	1/4 Male NPT	1/4 Male NPT	0.16	1.03	1.03	1.03	1.00	0.56	0.56	1.03	0.88	0.38	3.50	3.50		
NB□□-NS5-7	3/8 Male NPT	3/8 Male NPT	0.16	1.19	1.19	1.19	1.06	0.56	0.56	1.19	0.88	0.38	3.50	3.50		
NB□□-FL4-7	1/4" FITOK	1/4" FITOK	0.16	1.20	1.20	1.20	1.00	0.50	0.50	1.20	0.88	0.38	3.50	3.50		
NB□□-ML6-7	6 mm FITOK	6 mm FITOK	0.16	1.20	1.20	1.20	1.00	0.50	0.50	1.20	0.88	0.38	3.50	3.50		
NB□□-ML8-7	8 mm FITOK	8 mm FITOK	0.16	1.20	1.20	1.20	1.00	0.50	0.50	1.20	0.88	0.38	3.50	3.50		
NB□□-FO4-7	1/4" Male FO	1/4" Male FO	0.16	1.03	1.03	1.03	1.00	0.56	0.56	1.03	0.88	0.38	3.50	3.50		
NB□□-FR4-7	1/4" Male FR	1/4" Male FR	0.16	1.03	1.03	1.03	1.00	0.56	0.56	1.03	0.88	0.38	3.50	3.50		
NB□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	0.25	1.12	1.12	1.12	1.00	0.56	0.56	1.12	0.88	0.38	3.50	3.50		
NB□□-FNS6-8	3/8 Female NPT	3/8 Female NPT	0.25	1.12	1.12	1.12	1.00	0.56	0.56	1.12	0.88	0.38	3.50	3.50		
NB□□-MS6-8	3/8 Male NPT	3/8 Male NPT	0.25	1.12	1.12	1.12	1.00	0.56	0.56	1.12	0.88	0.38	3.50	3.50		
NB□□-FL6-8	3/8" FITOK	3/8" FITOK	0.25	1.41	1.41	1.32	1.20	0.56	0.56	1.41	0.88	0.38	3.50	3.50		
NB□□-FL8-8	1/2" FITOK	1/2" FITOK	0.25	1.52	1.52	1.42	1.30	0.56	0.56	1.52	0.88	0.38	3.50	3.50		
NB□□-ML10-8	10 mm FITOK	10 mm FITOK	0.25	1.52	1.52	1.42	1.30	0.56	0.56	1.52	0.88	0.38	3.50	3.50		
NB□□-ML12-8	12 mm FITOK	12 mm FITOK	0.25	1.52	1.52	1.42	1.30	0.56	0.56	1.52	0.88	0.38	3.50	3.50		
NB□□-ML14-8	14 mm FITOK	14 mm FITOK	0.25	1.52	1.52	1.42	1.30	0.56	0.56	1.52	0.88	0.38	3.50	3.50		
NB□□-FS8-8-G	3/8" TS	3/8" TS	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-FS8-8-G	1/2" TS	1/2" TS	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-MTS12-8-G	12 mm MTS	12 mm MTS	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-MTS14-8-G	14 mm MTS	14 mm MTS	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-MTS16-8-G	16 mm MTS	16 mm MTS	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-MTB14-8-G	14 mm MTB	14 mm MTB	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-MTB16-8-G	16 mm MTB	16 mm MTB	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-UMB14-8-G	14 mm UMB	14 mm UMB	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-UMB16-8-G	16 mm UMB	16 mm UMB	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-FO8-8	1/2" Male FO	1/2" Male FO	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-FR8-8	1/2" Male FR	1/2" Male FR	0.25	1.13	1.13	1.13	1.00	0.56	0.56	1.13	0.88	0.38	3.50	3.50		
NB□□-MS20-8	M20 X 1.5 Male Metric	M20 X 1.5 Male Metric	0.25	1.50	1.50	1.50	1.00	0.56	0.56	1.50	0.88	0.38	3.50	3.50		
NB□□-MS22-8	M22 X 1.5 Male Metric	M22 X 1.5 Male Metric	0.25	1.50	1.50	1.50	1.00	0.56	0.56	1.50	0.88	0.38	3.50	3.50		



**FITOK** Part Number Description

NBSS - FL8 - ML12 - 8WB - GYM - ASF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	Stem Type	Packing Material	Panel Mounting	Handle	Flow Pattern	Special Application	Cleaning and Packaging
NB	SS	316 SS	FNS Female NPT	2	1/8"	7	0.16" (4.0 mm)	Same as Body	PTFE	No		Straight		FC-01
NBH	6L	316L SS	NS Male NPT	4	1/4"	8	0.25" (6.4 mm)	W Stellite	P PEEK	Y Yes		A Angle		F2 FC-02
	S4	304 SS	FRT Female BSPT	6	3/8" or 6 mm	9	0.39" (10 mm)	D5 Duplex 2205	G Graphite					
	4L	304L SS	RT Male BSPT	8	1/2" or 8 mm	6	0.59" (15 mm)	TI Titanium						
	S1	321 SS	FMS Female Metric Thread (for RP)	10	10 mm	0	0.71" (18 mm)	A20 Alloy 20						
	91	F91	MS Male Metric Thread (for RG)	12	3/4" or 12 mm			M Alloy 400						
	92	F92	FRP Female BSPP (for RP)	14	14 mm or M14 x 1.5			INC Alloy 600						
	D5	Duplex 2205	BP Male BSPP (for RG)	16	1" or 16 mm			HC Alloy C-276						
	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 Nut + Gasket + Fractional Bulge Nipple											
			UMB Nut + Gasket + Metric Bulge Nipple											
			FO FO Fitting											
			FR FR Fitting											

Note: "Part Number Description" is used for composition rules of FITOK product model, Not suitable for specific product part number selection, not random combinations. If in doubt, please contact FITOK group or authorized agent.

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-seal fittings.

3. FR means FITOK metal ring 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 as stated in ASTM G93 Level C.

# Nonrotating-stem Needle Valves

**ND Series:** Working pressure up to 3000 psig

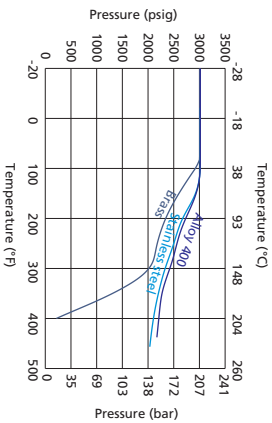
**NDH Series:** Working pressure up to 5000 psig

## Features

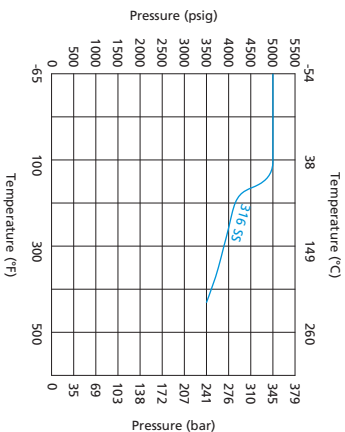
- One-piece forged body.
- Straight and angle pattern.
- Compact design.
- Nonrotating stem.
- Special designed handle to stop contamination entering into the valve.
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure.
- Working pressure up to:
  - ND Series—Stainless steel: 3000 psig (207 bar)
  - Brass: 3000 psig (207 bar)
  - NDH Series—Stainless steel: 5000 psig(345 bar)
- Working temperature:
  - PCTFE stem tip: -20°F to 200°F (-28°C to 93°C)
  - PEEK stem tip: -20°F to 450°F (-28°C to 232°C)

## Pressure vs. Temperature

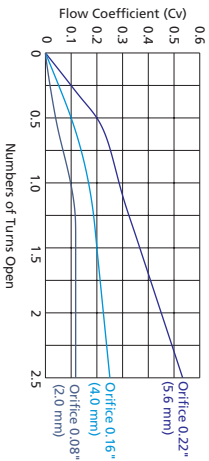
ND Series



NDH Series



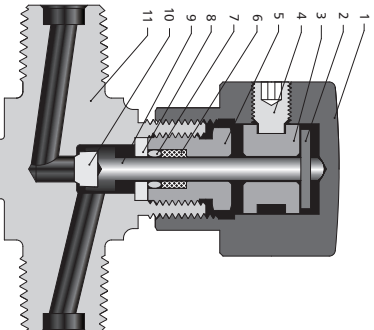
## Flow Data at 100°F (38°C)



- Temperature and pressure shown in the graphs are based on PEEK stem tip
- Contact the authorized representative or FITOK Group for curve graph of other materials.



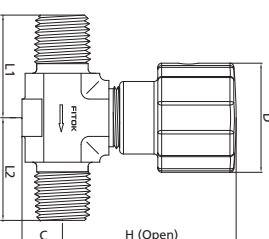
## Standard Materials of Construction



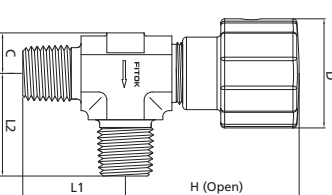
Item	Component	Valve Body Material			
		316 SS	304 SS	321 SS	Brass
1	Handle	Anodized aluminum			
2	Stop Pin	Stainless steel			
3	Spool	Aluminum			
4	Set Screw	Stainless steel			
5	Packing Bolt	316 SS/A276	304 SS/A276	321 SS/A276	Brass 360/B16
6	Backup Ring	PTFE/D1710			
7	O-ring	Fluorocarbon FKM	Buna-N	Ethylene propylene	
8	Washer	316 SS/A276		Alloy R-405/B164	
9	Stem	316 SS/A276			
10	Stem Tip	PCFE or PEEK		Alloy R-405/B164	
11	Body	316 SS/A182	316 SS/A182	316 SS/A182	Brass 377/B283
Lubricant		Molybdenum disulfide-based			

## Dimensions

Straight Pattern



Angle Pattern



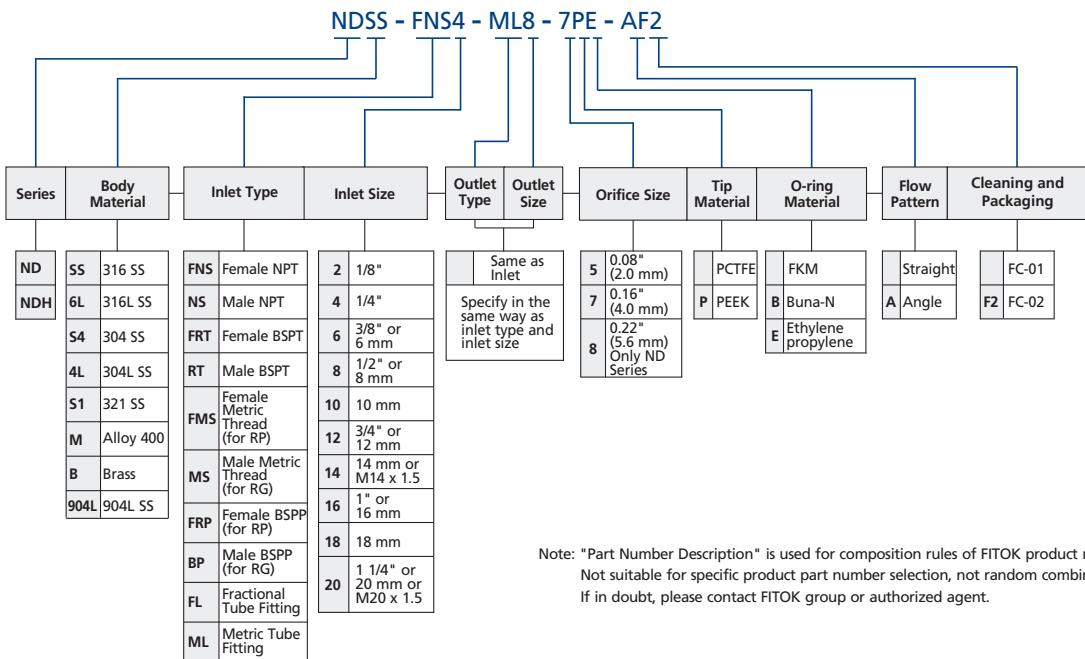
Basic Ordering Number	Connection Type and Size		Office In.(mm)	CV	Dimension, in.(mm)		C	D	H
	Inlet	Outlet			L1	L2			
ND□□-NS2-5	1/8 Male NPT	1/8 Male NPT			0.81 (20.6)	0.81 (20.6)			
ND□□-NS2-FL2-5	1/8" Male NPT	1/8" Male NPT	0.08 (2.0)	0.12	0.81 (20.6)	1.10 (27.9)	0.32 (8.1)	1.06 (26.9)	1.86 (47.2)
ND□□-FL2-5	1/8" FITOK	1/8" FITOK			1.10 (27.9)	1.10 (27.9)			
ND□□-ML3-5	3 mm FITOK	3 mm FITOK			0.98 (25.0)	0.98 (25.0)			
ND□□-FNS2-7	1/8 Female NPT	1/8 Female NPT			0.98 (25.0)	1.18 (30.0)			
ND□□-NS4-7	1/4 Male NPT	1/4 Male NPT	0.16 (4.0)	0.27	0.98 (25.0)	1.13 (28.7)	0.39 (10.0)	1.06 (26.9)	1.86 (47.2)
ND□□-NS4-FL4-7	1/4" Male NPT	1/4" Male NPT			1.13 (28.7)	1.13 (28.7)			
ND□□-FL4-7	1/4" FITOK	1/4" FITOK			1.13 (28.7)	1.13 (28.7)			
ND□□-ML6-7	6 mm FITOK	6 mm FITOK			1.18 (30.0)	1.18 (30.0)			
ND□□-ML8-7	8 mm FITOK	8 mm FITOK			1.06 (26.9)	1.06 (26.9)			
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			1.29 (32.8)	1.29 (32.8)			
ND□□-FL6-8	3/8" FITOK	3/8" FITOK	0.22 (5.6)	0.53	1.29 (32.8)	1.40 (35.6)	0.53 (13.5)	1.12 (28.4)	2.02 (51.3)
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			1.40 (35.6)	1.40 (35.6)			
ND□□-NS2-5	1/8 Male NPT	1/8 Male NPT			0.81 (20.6)	0.81 (20.6)			
ND□□-FL2-5	1/8" FITOK	1/8" FITOK	0.08 (2.0)	0.12	1.10 (27.9)	1.10 (27.9)	0.32 (8.1)	1.06 (26.9)	1.86 (47.2)
ND□□-ML3-5	3 mm FITOK	3 mm FITOK			0.98 (25.0)	0.95 (25.0)			
ND□□-NS4-7	1/4" Male NPT	1/4" Male NPT			1.13 (28.7)	1.13 (28.7)	0.39 (10.0)	1.06 (26.9)	1.86 (47.2)
ND□□-FL4-7	1/4" FITOK	1/4" FITOK			1.13 (28.7)	1.13 (28.7)			
ND□□-ML6-7	6 mm FITOK	6 mm FITOK			1.13 (28.7)	1.13 (28.7)			

1. FITOK means FITOK double ferrule tube fittings,ISO means metric thread.

2. Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.

3. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative of FITOK Group.

Part Number Description



Note: "Part Number Description" is used for composition rules of FITOK product model, Not suitable for specific product part number selection, not random combinations. If in doubt, please contact FITOK group or authorized agent.

- 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 ignored in the ordering number, others should be specified.
- 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 as stated in ASTM G93 Level C.

## Forged Needle Valves

**NF Series:** Working pressure up to 6000 psig

**NFH Series:** Working pressure up to 10000 psig

### Features

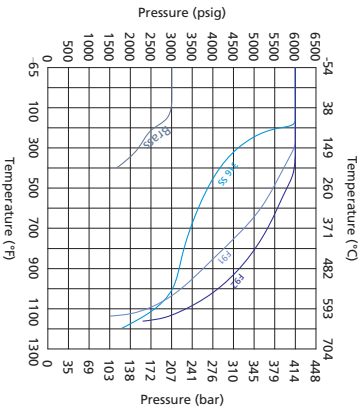
- One-piece forged body.
- Two-stem design: thread hardened upper stem and smooth surface hardened lower stem.
- Upper stem thread lubricant isolated from system media.
- Linearly instead of helical movement of the nonrotating lower stem, avoiding galling damage to the seat and tip, as well as reducing the total friction area between the packing and the lower stem.
- Panel mounting available as an option.
- Steady and durable fastening of the handle by double lock-pins.
- Handle color options are available
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure, but not higher than 6000 psig.
- 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)



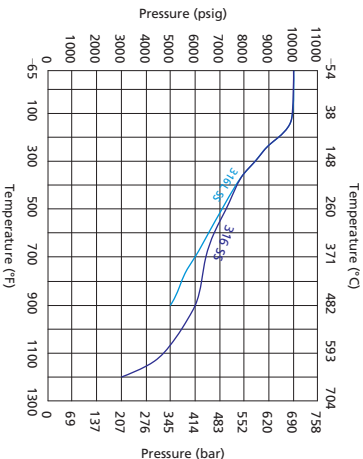
- NFH Series—Stainless steel: 10000 psig (690 bar)
- Working temperature:
  - PTFE: -65°F to 450°F (-54°C to 232°C)
  - PEEK: -65°F to 500°F (-54°C to 260°C)
  - Graphite: -65°F to 1200°F (-54°C to 649°C)

### Pressure vs. Temperature

NF Series



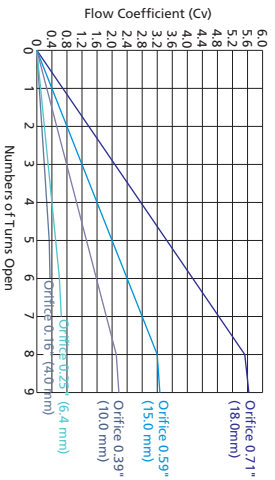
NFH Series



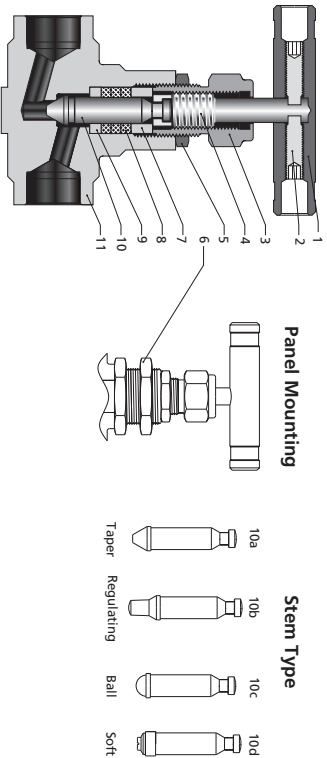
- Graphs are based on graphite stem packing.
- Suitable for NF series only, 2000°F (93°C) max. with PCTFE stem tip (soft tip).
- Contact the authorized representative or FITOK Group for curve graph of other materials.



**Flow Data at 100°F (38°C)**  
Regulating Stem



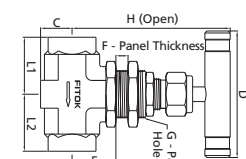
**Standard Materials of Construction**



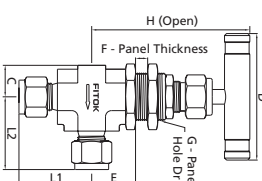
Item	Component	Valve Body Material			
		316 SS	F91	F92	Brass
1	Handle	Anodized aluminum or stainless steel or black knob			
2	Set Screw	Stainless steel			
3	Packing Bolt	304 SS/A276			
4	Upper Stem	F91/A182	F92/A182	Brass 360/B16	
5	Lock Nut	316 SS/B783			
6	Panel Nut	17-4PH			
7	Gland	F91/A182	F92/A182	Brass 360/B16	
8	Packing	PTFE or PEEK or graphite			
9	Packing Washer	F91/A182	F92/A182	Brass 360/B16	
10a	Lower Stem	Chrome-plated	Chrome-plated	Chrome-plated	
10b		316 SS/A276	F91/A182		316 SS/A276
10c		Optional			316 SS/A276
10d					316 SS/A276
11	Body	316 SS/A182	F92/A182	Brass 377/B283	
	Seat	Same as Body			
	Lubricant	Molybdenum disulfide-based			

**Dimensions**

**Straight Pattern**



**Angle Pattern**



**Dimensions of NF Series**

☞ NF series valves are standard without panel mounting. To order valves with panel mounting as illustrated, add -Y to the ordering number. Example: NFSS-FNS2-7-Y

Basic Ordering Number	Connection Type and Size		Orifice In.(mm)	Cv	Dimension, 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)	0.85	1.00 (25.4)	1.00 (25.4)	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□□-FNS4-7	1/4 Female NPT	1/4 Female NPT	0.16 (4.0)	0.35	1.03 (26.2)	1.03 (26.2)	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□□-FL4-7	1/4" FITOK	1/4" FITOK	0.16 (4.0)	0.35	1.03 (26.2)	1.03 (26.2)	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□□-ML6-7	6 mm FITOK	6 mm FITOK	0.16 (4.0)	0.35	1.22 (30.9)	1.22 (30.9)	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□□-ML8-7	8 mm FITOK	8 mm FITOK	0.16 (4.0)	0.35	1.25 (31.75)	1.25 (31.75)	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□□-NS5-7	3/8 Male NPT	3/8 Male NPT	0.16 (4.0)	0.35	1.19 (30.2)	1.19 (30.2)	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□□-FO4-7	1/4" Male FO	1/4" Male FO	0.16 (4.0)	0.35	1.03 (26.2)	1.03 (26.2)	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□□-FR4-7	1/4" Male FR	1/4" Male FR	0.16 (4.0)	0.35	1.03 (26.2)	1.03 (26.2)	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	0.16 (4.0)	0.35	1.13 (28.6)	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	3/8 Female NPT	0.16 (4.0)	0.35	1.13 (28.6)	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□□-NS6-8	3/8 Male NPT	3/8 Male NPT	0.16 (4.0)	0.35	1.13 (28.6)	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□□-FL6-8	3/8" FITOK	3/8" FITOK	0.16 (4.0)	0.35	1.44 (36.5)	1.44 (36.5)	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□□-ML10-8	10 mm FITOK	10 mm FITOK	0.16 (4.0)	0.35	1.53 (38.9)	1.53 (38.9)	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□□-ML12-8	12 mm FITOK	12 mm FITOK	0.16 (4.0)	0.35	1.56 (39.7)	1.56 (39.7)	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□□-ML14-8	14 mm FITOK	14 mm FITOK	0.16 (4.0)	0.35	1.56 (39.7)	1.56 (39.7)	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□□-FNS8-8	1/2 Female NPT	1/2 Female NPT	0.25 (6.4)	0.85	1.26 (32.0)	1.26 (32.0)	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□□-FR8-8	1/2 Male NPT	1/2 Male NPT	0.25 (6.4)	0.85	1.50 (38.1)	1.50 (38.1)	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□□-TS6-8-G	3/8" TS	3/8" TS	0.25 (6.4)	0.85	1.50 (38.1)	1.50 (38.1)	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□□-TS8-8-G	1/2" TS	1/2" TS	0.25 (6.4)	0.85	1.50 (38.1)	1.50 (38.1)	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□□-MTS12-8-G	12 mm MTS	12 mm MTS	0.25 (6.4)	0.85	1.13 (28.6)	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□□-MTS14-8-G	14 mm MTS	14 mm MTS	0.25 (6.4)	0.85	1.13 (28.6)	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□□-MTS16-8-G	16 mm MTS	16 mm MTS	0.25 (6.4)	0.85	1.13 (28.6)	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□□-MTB14-8-G	14 mm MTB	14 mm MTB	0.25 (6.4)	0.85	1.50 (38.1)	1.50 (38.1)	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□□-MTB16-8-G	16 mm MTB	16 mm MTB	0.25 (6.4)	0.85	1.50 (38.1)	1.50 (38.1)	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□□-UMB14-8-G	14 mm UMB	14 mm UMB	0.25 (6.4)	0.85	2.92 (74.1)	2.92 (74.1)	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□□-UMB16-8-G	16 mm UMB	16 mm UMB	0.25 (6.4)	0.85	2.92 (74.1)	2.92 (74.1)	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□□-FO8-8	1/2" Male FO	1/2" Male FO	0.25 (6.4)	0.85	1.13 (28.6)	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□□-FR8-8	1/2" Male FR	1/2" Male FR	0.25 (6.4)	0.85	1.56 (39.7)	1.56 (39.7)	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□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric	0.25 (6.4)	0.85	1.50 (38.1)	1.50 (38.1)	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□□-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)	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)



Dimensions of NF Series

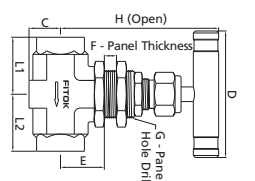
Basic Ordering Number	Connection Type and Size		Office In.(mm)	Cv	Dimension, in.(mm)													
	Inlet	Outlet			L1	L2	H	D	C	E	F	G						
NF□□-FNS8-9	1/2 Female NPT	1/2 Female NPT																
NF□□-FNS12-9	3/4 Female NPT	3/4 Female NPT																
NF□□-NS8-9	1/2 Male NPT	1/2 Male NPT		1.56 (39.7)	1.56 (39.7)													
NF□□-NS12-9	3/4 Male NPT	3/4 Male NPT																
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																
NF□□-ML18-9	18 mm FITOK	18 mm FITOK		1.97 (50.0)	1.97 (50.0)													
NF□□-ML20-9	20 mm FITOK	20 mm FITOK																
NF□□-ML25-9	25 mm FITOK	25 mm FITOK	0.39 (10.0)	2.18														
NF□□-MTS14-9-G	14 mm MTS	14 mm MTS				3.86 (98.0)	3.50 (88.9)	0.80 (20.2)	1.10 (28.3)	0.38 (9.7)	1.08 (27.5)							
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																
NF□□-PS8-9-G	1/2 PS	1/2 PS																
NF□□-MTB14-9-G	14 mm MTB	14 mm MTB																
NF□□-MTB16-9-G	16 mm MTB	16 mm MTB																
NF□□-UMB14-9-G	14 mm UMB	14 mm UMB		2.98 (75.7)	2.98 (75.7)													
NF□□-UMB16-9-G	16 mm UMB	16 mm UMB																
NF□□-FO12-9	3/4" Male FO	3/4" Male FO																
NF□□-FR12-9	3/4" Male FR	3/4" Male FR		1.56 (39.7)	1.56 (39.7)													
NF□□-MS27-9	M27 x 2 Male Metric	M27 x 2 Male Metric																
NF□□-FNS12-6	3/4 Female NPT	3/4 Female NPT																
NF□□-TS16-6-G	1" TS	1" TS																
NF□□-MTS25-6-G	25 mm MTS	25 mm MTS		1.97 (50.0)	1.97 (50.0)													
NF□□-MTS28-6-G	28 mm MTS	28 mm MTS																
NF□□-PS12-6-G	3/4 PS	3/4 PS	0.59 (15.0)	3.27		6.50 (165)	5.00 (127)	1.30 (33.0)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)							
NF□□-PB12-6-G	3/4 PB	3/4 PB																
NF□□-FL12-6	3/4" FITOK	3/4" FITOK																
NF□□-FL16-6	1" FITOK	1" FITOK																
NF□□-ML20-6	20 mm FITOK	20 mm FITOK																
NF□□-ML22-6	22 mm FITOK	22 mm FITOK																
NF□□-ML25-6	25 mm FITOK	25 mm FITOK																
NF□□-FNS16-0	1 Female NPT	1 Female NPT																
NF□□-TS16-0-G	1" TS	1" TS																
NF□□-MTS25-0-G	25 mm MTS	25 mm MTS		0.71 (18.0)	1.97 (50.0)	6.50 (165)	5.50 (140)	1.30 (33.0)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)							
NF□□-MTS28-0-G	28 mm MTS	28 mm MTS																
NF□□-PS12-0-G	3/4 PS	3/4 PS																
NF□□-PB16-0-G	1 PB	1 PB																

1. FITOK means FITOK double ferrule tube fittings. FO means O-ring seal fittings. FR means metal gasket seal fittings. TS means fractional tube socket weld. MTS means metric tube socket weld. MTB means metric tube butt weld. UMB means nut + gasket + metric bulge nipple. PS means pipe socket weld. ISO means metric thread. PB means pipe butt weld.
2. For Butt or Socket end connections, please refer to those graphite as packing material, avoiding damage non graphite packing material due to the high temperature when welding.
3. Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.
4. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative of FITOK Group.

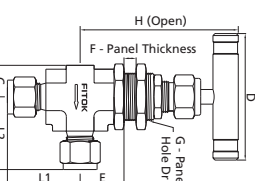


Dimensions

Straight Pattern



Angle Pattern



NFH series valves are standard without panel mounting. To order valves with panel mounting as illustrated, add 'Y' to the ordering number. Example: NFHS-FNS2-7-Y

Dimensions of NFH Series

Basic Ordering Number	Connection Type and Size		Office In.(mm)	Cv	Dimension, in.(mm)													
	Inlet	Outlet			L1	L2	H	D	C	E	F	G						
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	0.16 (4.0)	0.35	1.03 (26.2)	1.02 (26.2)	2.85 (72.5)	2.17 (55)	0.53 (13.5)	0.71 (18.0)	0.25 (6.4)	0.27 (6.9)						
NFH□□-FNS4-NS4-7	1/4 Female NPT	1/4 Male NPT			1.06 (26.2)	1.03 (26.2)	2.85 (72.5)	2.17 (55)	0.53 (13.5)	0.71 (18.0)	0.25 (6.4)	0.27 (6.9)						
NFH□□-FL4-7	1/4" FITOK	1/4" FITOK			1.22 (30.9)	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																
NFH□□-FNS6-8	3/8 Female NPT	3/8 Female NPT	0.25 (6.4)	0.85	1.12 (28.6)	1.12 (28.6)	3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)						
NFH□□-NS6-8	3/8 Male NPT	3/8 Female NPT																
NFH□□-FNS8-9	1/2 Female NPT	1/2 Female NPT																
NFH□□-NS8-9	1/2 Male 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 (20.2)	1.10 (28.3)	0.38 (9.7)	1.08 (27.5)						

1. FITOK means FITOK double ferrule tube fittings. TS means fractional tube socket weld.
2. For Butt or Socket end connections, please refer to those graphite as packing material, avoiding damage non graphite packing material due to the high temperature when welding.
3. Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.
4. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative of FITOK Group.



Part Number Description

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

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Tip Material	Stem 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)	Only NF series	Same as Body	Taper	R Regulating	No	Straight	FC-01	FC-02		
NFH	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)		W Stellite							Y Yes	A Angle
S4	304 SS	FRT Female BSPT	6 3/8" or 6 mm		9 0.39" (10 mm)		D5 Duplex 2205							P PEEK	
4L	304L SS	RT Male BSPT	8 1/2" or 8 mm	10 10 mm	6 0.59" (15 mm)	TI Titanium	PTFE	B Ball	T Soft Tip-PTFE	K Soft Tip-PCTFE	NO	S NACE MR0175			
S1	321 SS	FMS Female Metric Thread (for RP)	10 10 mm	12 3/4" or 12 mm	0 0.71" (18 mm)	A20 Alloy 20							C Red Aluminum Bar	Classification for Nuclear Facility Application	
91	F91	MS Male Metric Thread (for RG)	12 14 mm or M14 x 1.5	14 1" or 16 mm	22 mm or M22 x 1.5	M Alloy 400	G Graphite	M 321 Stainless Steel Bar	N2 Class 2						
92	F92	FRP Female B5PP (for RP)	16 1" or 16 mm	18 18 mm		24 M24 x 1.5				INC Alloy 600	J Blue Aluminum Bar	N3 Class 3			
D5	Duplex 2205	BP Male B5PP (for RG)	18 18 mm	20 1 1/4" or 20 mm or M20 x 1.5	25 25 mm	HC Alloy C-276	O Black Knob	M 321 Stainless Steel Bar							
TI	Titanium	TS Fractional Tube Socket Weld	22 22 mm or M22 x 1.5	24 M24 x 1.5		27 M27 x 2									
A20	Alloy 20	MTS Metric Tube Socket Weld	28 28 mm	28 28 mm											
M	Alloy 400	TB Fractional Tube Butt Weld													
INC	Alloy 600	MTB Metric Tube Butt Weld													
HC	Alloy C-276	PS Pipe Socket Weld													
B	Brass	PB Pipe Butt Weld													
CS	Carbon Steel	FL Fractional Tube Fitting													
904L	904L SS	ML Metric Tube Fitting													
		UFB Nut + Gasket + Fractional Bulge Nipple													
		UMB Nut + Gasket + Metric Bulge Nipple													
		FO FO Fitting													
		FR FR Fitting													

Note: "Part Number Description" is used for composition rules of FITOK product model, Not suitable for specific product part number selection, not random combinations. If in doubt, please contact FITOK group or authorized agent.

- 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-seal fittings.
- FR means FITOK metal ring 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 as stated in ASTM G93 Level C.

# General Purpose Needle Valves

NG Series: Working pressure up to 3000 psig

NGH Series: Working pressure up to 5000 psig

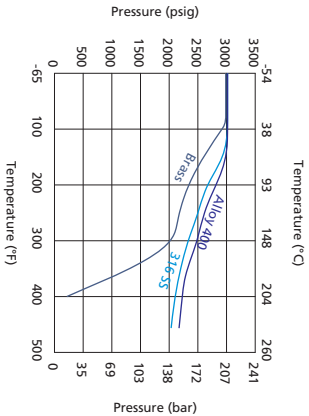
## Features

- One-piece forged body.
- Easy external adjustments by packing nut.
- Live-loaded packing system.
- Handle of different colors available for option.
- Compact design.
- Panel mounting available.
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure.
- Working pressure up to:
  - NG Series—Stainless steel: 3000 psig (207 bar)
  - Steel, Brass: 3000 psig (207 bar)
  - NGH Series—Stainless steel: 5000 psig (345 bar)
  - Steel, 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)

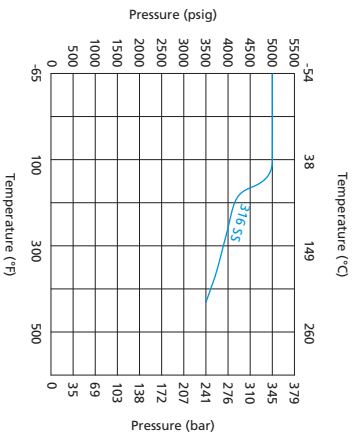


## Pressure vs. Temperature

NG Series

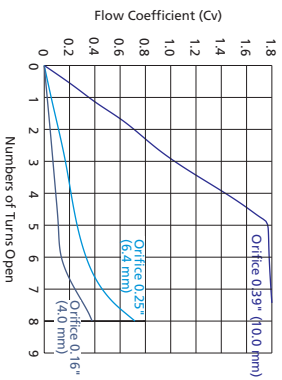


NGH Series

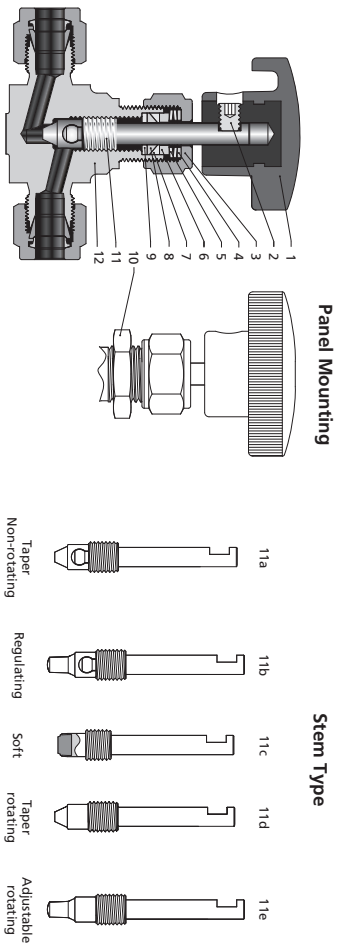


- Graphs are based on PEEK stem packing.
- 200°F (93°C) max with PCTFE stem tip (soft tip).
- Contact the authorized representative or FITOK Group for curve graph of other materials.

**Flow Data at 100°F (38°C)**  
Regulating Stem



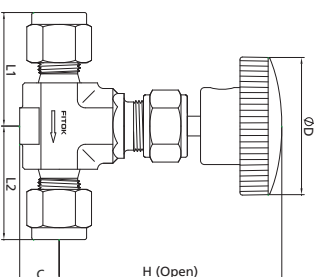
**Standard Materials of Construction**



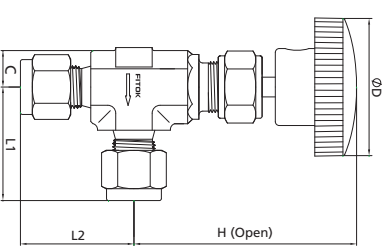
Item	Component	Valve Body Material	
		316 SS	Steel
1	Handle	Anodized aluminum or stainless steel or black knob	
2	Set Screw	Stainless steel	
3	Packing Bolt	304 SS/A276	Alloy 400/B164
4	Washer	316 SS/A276	
5	Packing Spring	517700/A693	
6	Washer	316 SS/A276	
7	Upper Packing	PTFE/PEEK	
8	Lower Packing		
9	Packing Washer	316 SS/A276	
10	Panel Nut	17-4PH	
11a	Stem	Chrome-plated 316 SS/A276	
11b	Stem	Chrome-plated 316 SS/A276	
11c	Stem	Chrome-plated 316 SS/A276	PEEK
11d	Stem	Chrome-plated 316 SS/A276	
11e	Stem	Chrome-plated 316 SS/A276	
12	Body	316 SS/A182	Alloy
	Lubricant	Molybdenum disulfide-based and silicone-based	

**Dimensions**

**Straight Pattern**



**Angle Pattern**



**Dimensions of NG Series**

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)						
	Inlet	Outlet			L1	L2	C	D	H		
NG□□-NS2-5	1/8 Male NPT	1/8 Male NPT			0.75 (19)	0.75 (19)	0.98 (25.0)	0.98 (25.0)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-FNS2-5	1/8 Female NPT	1/8 Female NPT			0.98 (25.0)	0.98 (25.0)	0.98 (25.0)	0.98 (25.0)	0.31 (7.9)	1.00 (25.4)	2.28 (57.9)
NG□□-FL2-5	1/8" FITOK	1/8" FITOK	0.08 (2.0)	0.09	0.98 (25.0)	0.98 (25.0)	0.98 (25.0)	0.98 (25.0)	0.31 (7.9)	1.00 (25.4)	2.28 (57.9)
NG□□-ML3-5	3 mm FITOK	3 mm FITOK			0.81 (20.6)	0.81 (20.6)	0.98 (25.0)	0.98 (25.0)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-MTS6-5	6 mm MTS	6 mm MTS			0.81 (20.6)	0.81 (20.6)	0.98 (25.0)	0.98 (25.0)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-MTB8-5	8 mm MTB	6 mm MTB			0.81 (20.6)	0.81 (20.6)	0.98 (25.0)	0.98 (25.0)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-FNS2-7	1/8 Female NPT	1/8 Female NPT			0.81 (20.6)	0.81 (20.6)	0.98 (25.0)	0.98 (25.0)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-NS4-7	1/4 Male NPT	1/4 Male NPT			1.13 (28.7)	1.13 (28.7)	1.17 (29.7)	1.17 (29.7)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-FL4-7	1/4" FITOK	1/4" FITOK			1.13 (28.7)	1.13 (28.7)	1.17 (29.7)	1.17 (29.7)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-ML6-7	6 mm FITOK	6 mm FITOK	0.16 (4.0)	0.35	1.17 (29.7)	1.17 (29.7)	0.98 (25.0)	0.98 (25.0)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-ML8-7	8 mm FITOK	8 mm FITOK			1.17 (29.7)	1.17 (29.7)	0.98 (25.0)	0.98 (25.0)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-MTS8-7	8 mm MTS	8 mm MTS			0.98 (25.0)	0.98 (25.0)	0.98 (25.0)	0.98 (25.0)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-TS4-7	1/4" TS	1/4" TS			2.24 (57.0)	2.24 (57.0)	2.24 (57.0)	2.24 (57.0)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-UMB6-7	6 mm UMB	6 mm UMB			1.06 (26.9)	1.06 (26.9)	1.12 (28.4)	1.12 (28.4)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-FNS4-8	1/4 Female NPT	1/4 Female NPT			1.12 (28.4)	1.12 (28.4)	1.17 (29.7)	1.17 (29.7)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-FNS6-8	3/8" Female NPT	3/8 Female NPT			1.12 (28.4)	1.12 (28.4)	1.17 (29.7)	1.17 (29.7)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.12 (28.4)	1.12 (28.4)	1.17 (29.7)	1.17 (29.7)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)
NG□□-NS8-8	1/2 Male NPT	1/2 Male NPT	0.25 (6.4)	0.70	1.50 (38.1)	1.50 (38.1)	1.50 (38.1)	1.50 (38.1)	0.50 (12.7)	1.88 (47.8)	2.97 (75.4)
NG□□-FL6-8	3/8" FITOK	3/8" FITOK			1.29 (32.8)	1.29 (32.8)	1.29 (32.8)	1.29 (32.8)	0.50 (12.7)	1.88 (47.8)	2.97 (75.4)
NG□□-FL8-8	1/2" FITOK	1/2" FITOK			1.30 (33.0)	1.30 (33.0)	1.30 (33.0)	1.30 (33.0)	0.50 (12.7)	1.88 (47.8)	2.97 (75.4)
NG□□-ML10-8	10 mm FITOK	10 mm FITOK			1.30 (33.0)	1.30 (33.0)	1.30 (33.0)	1.30 (33.0)	0.50 (12.7)	1.88 (47.8)	2.97 (75.4)

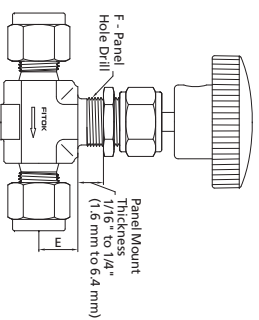
Dimensions of NG Series

Basic Ordering Number	Connection Type and Size		Orifice In.(mm)	CV	Dimension, in.(mm)						
	Inlet	Outlet			L1	L2	C	D	H		
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)					
NG□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric			1.50 (38.1)	1.50 (38.1)					
NG□□-MTS10-8	10 mm MTS	10 mm MTS	0.25 (6.4)	0.70	1.14 (29.0)	1.14 (29.0)	0.50 (12.7)	1.88 (47.8)	2.97 (75.4)		
NG□□-MTS14-8	14 mm MTS	14 mm MTS			2.60 (66.0)	2.60 (66.0)					
NG□□-UMB10-8	10 mm UMB	10 mm UMB			1.50 (38.1)	1.50 (38.1)					
NG□□-UMB14-8	14 mm UMB	14 mm UMB			1.56 (39.7)	1.56 (39.7)					
NG□□-FNS8-9	1/2 Female NPT	1/2 Female NPT			1.90 (48.3)	1.90 (48.3)	0.75 (19.1)	3.00 (76.2)	3.91 (99.3)		
NG□□-FNS12-9	3/4 Female NPT	3/4 Female NPT			1.90 (48.3)	1.90 (48.3)					
NG□□-NS12-9	3/4 Male NPT	3/4 Male NPT			1.56 (39.7)	1.56 (39.7)					
NG□□-FL8-9	1/2" FITOK	1/2" FITOK			1.90 (48.3)	1.90 (48.3)					
NG□□-FL12-9	3/4" FITOK	3/4" FITOK	0.39 (10.0)	1.80	1.90 (48.3)	1.90 (48.3)	0.75 (19.1)	3.00 (76.2)	3.91 (99.3)		
NG□□-ML14-9	14 mm MTS	14 mm MTS			1.56 (39.7)	1.56 (39.7)					
NG□□-MTS14-9	14 mm MTS	14 mm MTS			1.56 (39.7)	1.56 (39.7)					
NG□□-MTS16-9	16 mm MTS	16 mm MTS			1.56 (39.7)	1.56 (39.7)					
NG□□-MTB16-9	16 mm MTB	16 mm MTB									

1. FITOK means FITOK double ferrule tube fittings, ISO means metric thread, TS means fractional tube socket weld, MTS means metric tube socket weld, MTB means metric tube butt weld, UMB means nut + gasket + metric budge nipple.
2. Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.
3. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or FITOK Group.

Panel Mount Dimensions of NG Series

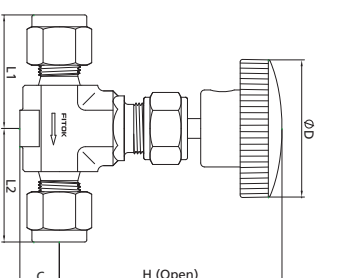
Orifice In.(mm)	Dimension, In.(mm)	
	E	F
0.08 (2.0)	0.44 (11.2)	0.47 (11.9)
0.16 (4.0)	0.44 (11.2)	0.53 (13.5)
0.25 (6.4)	0.50 (12.7)	0.78 (19.8)
0.39 (10.0)	0.75 (19.1)	1.03 (26.2)



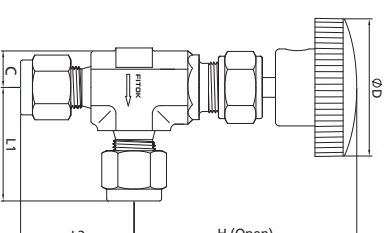
1. NG series valves are standard without panel mounting.
2. To order valves with panel mounting as illustrated, add -Y to the ordering number. Example: NGS5-NS2-5-Y

Dimensions

Straight Pattern



Angle Pattern



Dimensions of NGH Series

Basic Ordering Number	Connection Type and Size		Orifice In.(mm)	CV	Dimension, in.(mm)						
	Inlet	Outlet			L1	L2	C	D	H		
NGH□□-NS2-5	1/8 Male NPT	1/8 Male NPT			0.75 (19)	0.75 (19)					
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	0.08 (2.0)	0.09	0.96 (24.3)	0.96 (24.3)	0.31 (7.9)	1.00 (25.4)	2.38 (57.9)		
NGH□□-ML3-5	3 mm FITOK	3 mm FITOK			0.81 (20.6)	0.81 (20.6)					
NGH□□-MTS6-5	6 mm MTS	6 mm MTS			0.81 (20.6)	0.81 (20.6)					
NGH□□-MTB8-5	8 mm MTB	6 mm MTB			0.81 (20.6)	0.81 (20.6)					
NGH□□-FNS2-7	1/8 Female NPT	1/8 Female NPT			0.98 (25.0)	0.98 (25.0)					
NGH□□-NS4-7	1/4 Male NPT	1/4 Male NPT			1.13 (28.7)	1.13 (28.7)					
NGH□□-FL4-7	1/4" FITOK	1/4" FITOK			1.17 (29.7)	1.17 (29.7)	0.39 (9.9)	1.38 (35.0)	2.50 (63.5)		
NGH□□-ML6-7	6 mm FITOK	6 mm FITOK	0.16 (4.0)	0.35	1.17 (29.7)	1.17 (29.7)					
NGH□□-ML8-7	8 mm FITOK	8 mm FITOK			0.98 (25.0)	0.98 (25.0)					
NGH□□-MTS8-7	8 mm MTS	8 mm MTS			2.24 (57.0)	2.24 (57.0)					
NGH□□-T5A-7	1/4" TS	1/4" TS			1.06 (26.9)	1.06 (26.9)					
NGH□□-UMB6-7	6 mm UMB	6 mm UMB			1.12 (28.4)	1.12 (28.4)	0.50 (12.7)	1.88 (47.8)	2.97 (75.4)		
NGH□□-FNS4-8	1/4 Female NPT	1/4 Female NPT			1.29 (32.8)	1.29 (32.8)					
NGH□□-FNS6-8	3/8 Female NPT	3/8 Female NPT			1.40 (35.6)	1.40 (35.6)					
NGH□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.40 (35.6)	1.40 (35.6)					
NGH□□-NS8-8	1/2 Male NPT	1/2 Male NPT	0.25 (6.4)	0.70	1.40 (35.6)	1.40 (35.6)					
NGH□□-FL6-8	3/8" FITOK	3/8" FITOK			1.40 (35.6)	1.40 (35.6)					
NGH□□-FL8-8	1/2" FITOK	1/2" FITOK			1.40 (35.6)	1.40 (35.6)					

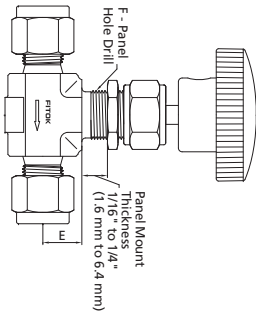
Dimensions of NGH Series

Basic Ordering Number	Connection Type and Size		Orifice In.(mm)	Cv	Dimension, in.(mm)					
	Inlet	Outlet			L1	L2	C	D	H	
NGH□□-ML10-8	10 mm FTOK	10 mm FTOK			1.30 (33.0)	1.30 (33.0)				
NGH□□-ML12-8	12 mm FTOK	12 mm FTOK			1.40 (35.6)	1.40 (35.6)				
NGH□□-ML14-8	14 mm FTOK	14 mm FTOK			1.56 (39.7)	1.56 (39.7)				
NGH□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric	0.25 (6.4)	0.70 (17.8)	1.50 (38.1)	1.50 (38.1)	0.50 (12.7)	1.88 (47.8)	2.97 (75.4)	
NGH□□-MTS10-8	10 mm MTS	10 mm MTS			1.14 (29.0)	1.14 (29.0)				
NGH□□-UM10-8	10 mm UMB	10 mm MTS			2.60 (66.0)	2.60 (66.0)				
NGH□□-FNS8-9	1/2 Female NPT	1/2 Female NPT			1.50 (38.1)	1.50 (38.1)				
NGH□□-NS12-9	3/4 Male NPT	3/4 Male NPT			1.63 (41.3)	1.63 (41.3)				
NGH□□-FL8-9	1/2" FTOK	1/2" FTOK			1.80 (45.7)	1.80 (45.7)				
NGH□□-FL12-9	3/4" FTOK	3/4" FTOK	0.39 (10.0)	1.80 (45.7)	1.90 (48.3)	1.90 (48.3)	0.75 (19.1)	3.00 (76.2)	3.91 (99.3)	
NGH□□-ML14-9	14 mm FTOK	14 mm FTOK			1.80 (45.7)	1.80 (45.7)				
NGH□□-MTS14-9	14 mm MTS	14 mm MTS			1.56 (39.7)	1.56 (39.7)				
NGH□□-MTS16-9	14 mm MTS	14 mm MTS			1.56 (39.7)	1.56 (39.7)				
NGH□□-MTB16-9	16 mm MTB	16 mm MTB			1.56 (39.7)	1.56 (39.7)				

1. FTOK means FITOK double ferrule tube fittings, ISO means metric thread, MTS means metric tube socket weld, MTB means metric tube butt weld, TS means fractional tube socket weld, UMB means nut + gasket + metric bulge nipple.  
 2. Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.  
 3. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change.  
 For dimensions not shown above, please contact the authorized representative or FITOK Group.

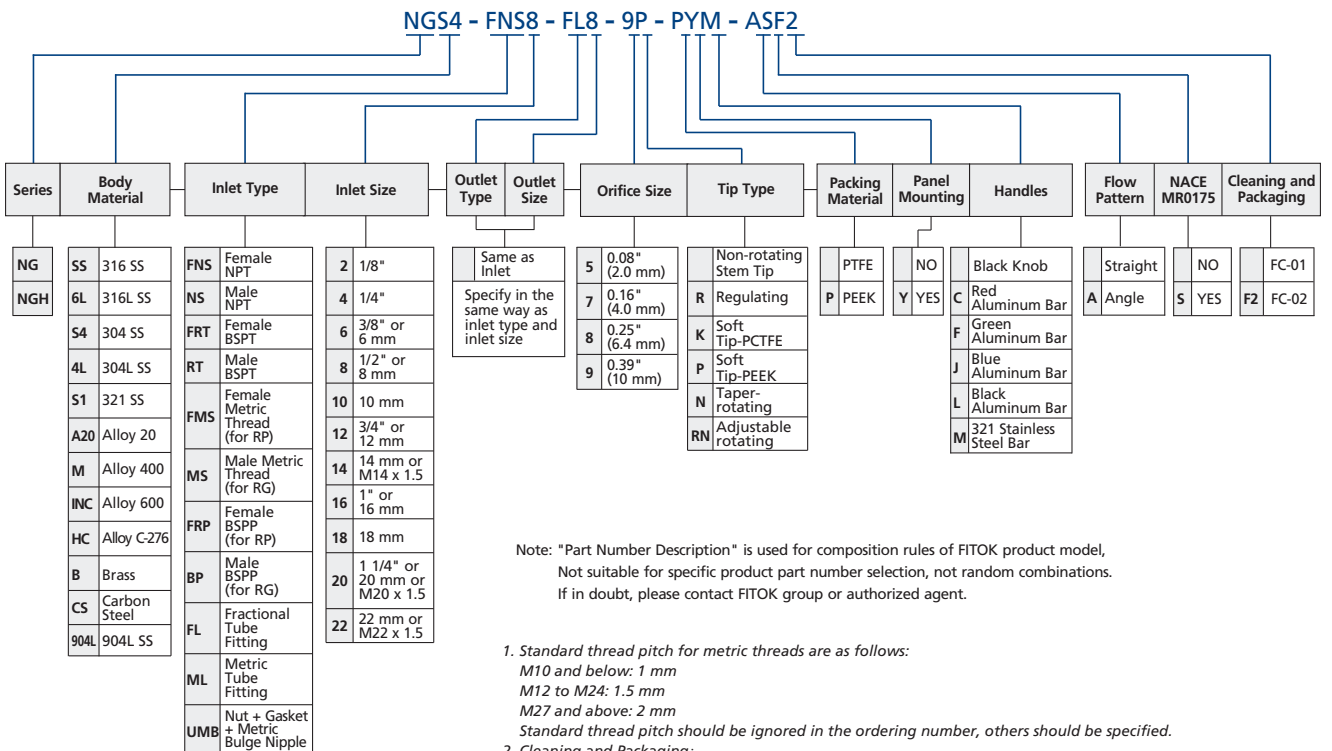
Panel Mount Dimensions of NGH Series

Orifice In.(mm)	Dimension, 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 valves are standard without panel mounting.  
 2. To order valves with panel mounting as illustrated, add -Y to the ordering number. Example: NGHSS-NS2-5-Y

Part Number Description



- 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 ignored in the ordering number, others should be specified.
- 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 as stated in ASTM G93 Level C.
- NG-9, NGH-9 series standard handle is black anodized aluminum bar handle, stainless steel bar handle and round phenolic handle are optional.

# Rising Plug Valves

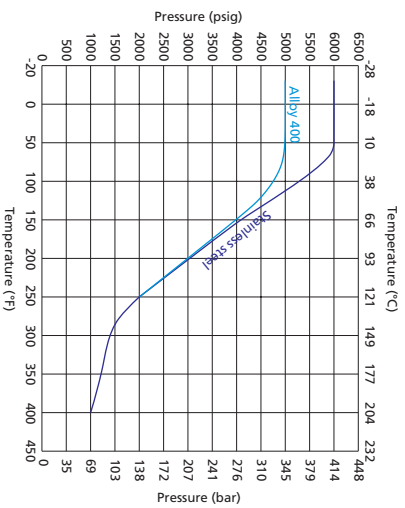
## NRG Series (With gauge port) Series

### Features

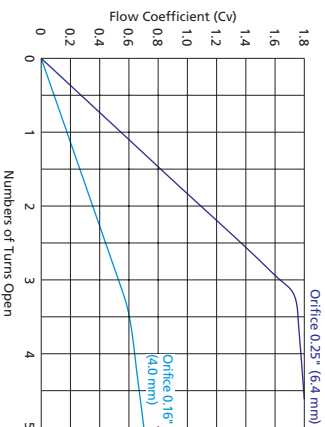
- Cold drawn square bar.
- Nonrotating stem for longer seat life.
- Roddable, straight through flow path for maximum flow with minimum pressure drop.
- Stem thread lubricant isolated from system media.
- Replaceable seat and stem tip design.
- Stem thread protected from outside contamination by PTFE ring in the gland.
- Panel mounting available as an option.
- Steady and durable fastening of the handle by double lock-pins.
- Handle color options are available.
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure.
- Working pressure up to:
  - Stainless steel: 6000 psig (414 bar)
  - Alloy 400: 5000 psig (345 bar)
- Working temperature:
  - Acetal: -20°F to 250°F (-28°C to 121°C)
  - PEEK: -20°F to 400°F (-28°C to 204°C)
  - PFA: -20°F to 400°F (-28°C to 204°C)



### Pressure vs. Temperature

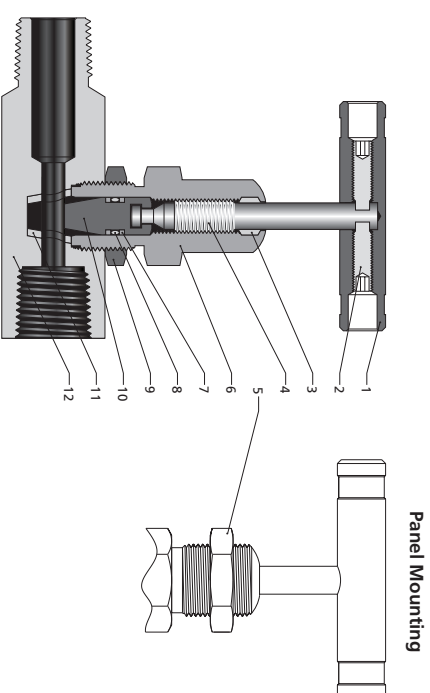


### Flow Data at 100°F (38°C)



1. Graphs are based on PEEK seat
2. Contact the authorized representative of FITOK Group for curve graph of other materials.

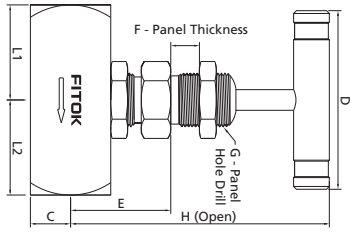
### Standard Materials of Construction



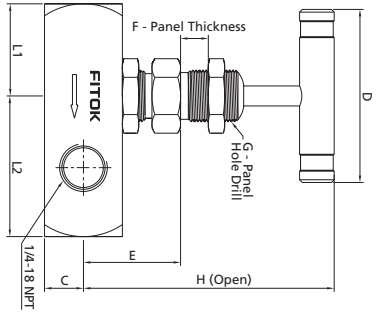
Item	Component	Valve Body Material		
		316 SS	304 SS	321 SS
1	Handle	Anodized aluminum or stainless steel or black knob		Alloy R-405
2	Set Screw		stainless steel	
3	Wiper Ring	316 SS/A276	304 SS/A276	321 SS/A276
4	Upper Stem		PTFE/D1710	Alloy R-405/B164
5	Panel Nut		17-4PH	
6	Bonnet	316 SS/A479	304 SS/A479	321 SS/A479
7	Backup Ring		PTFE/D1710	Alloy R-405/B164
8	O-ring	Fluorocarbon FKM	Buna-N	Ethylene propylene
9	Lock Nut		17-4PH	
10	Stem Tip	316 SS/A276	304 SS/A276	321 SS/A276
11	Seat		Acetal or PEEK or PFA	Alloy R-405/B164
12	Body	316 SS/A479	304 SS/A479	321 SS/A479
	Lubricant	Molybdenum disulfide-based and fluorocarbon-based		

Dimensions

Standard Pattern  
NR Series



Gauge Port Pattern  
NRG Series

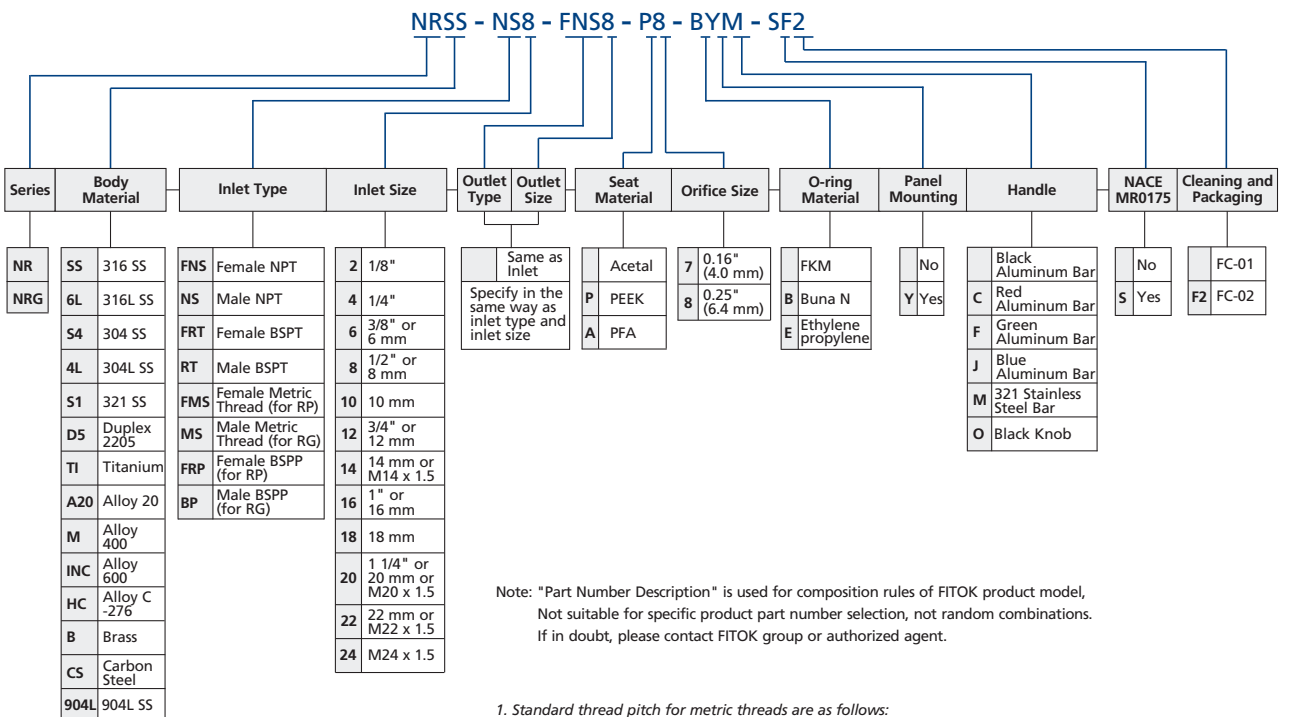


NR series valves are standard without panel mounting. To order valves with panel mounting as illustrated, add 'Y' to the ordering number. Example: NRSS-FNS4-7-Y

Basic Ordering Number	Connection Type and Size		Orifice In.(mm)	CV	Dimension, In.(mm)											
	Inlet	Outlet			L1	L2	C	D	E	F	G	H				
NR □□-FNS4-7	1/4 Female NPT	1/4 Female NPT			1.12 (28.4)	1.42 (36.1)	0.44 (11.1)									
NR □□-NS4-FNS4-7	1/4 Male NPT	1/4 Female NPT			1.78 (45.2)	1.89 (48.0)	0.50 (12.7)									
NR □□-NS8-FNS4-7	1/2 Male NPT	1/4 Female NPT	0.16 (4.0)	0.63 (16.0)	2.15 (54.9)	2.15 (54.9)	0.56 (14.3)									
NRG □□-FNS4-7	1/4 Female NPT	1/4 Female NPT			3.12 (79.2)	3.12 (79.2)	1.75 (44.4)									
NRG □□-NS8-FNS4-7	1/2 Male NPT	1/4 Female NPT			4.33 (110.3)	4.33 (110.3)	1.33 (33.8)									
NR □□-FNS8-8	1/2 Female NPT	1/2 Female NPT			2.15 (54.9)	2.15 (54.9)	0.56 (14.3)									
NR □□-NS8-FNS8-8	1/2 Male NPT	1/2 Female NPT	0.25 (6.4)	1.80 (45.7)	3.33 (84.6)	3.33 (84.6)	2.25 (57.2)									
NR □□-NS12-FNS8-8	3/4 Male NPT	1/2 Female NPT			4.33 (110.3)	4.33 (110.3)	1.33 (33.8)									
NRG □□-FNS8-8	1/2 Female NPT	1/2 Female NPT			5.72 (145.3)	5.72 (145.3)	2.25 (57.2)									
NRG □□-NS12-FNS8-8	3/4 Male NPT	1/2 Female NPT			7.92 (201.1)	7.92 (201.1)	2.25 (57.2)									

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

Part Number Description



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 ignored 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 as stated in ASTM G93 Level C.



# Toggle Valves

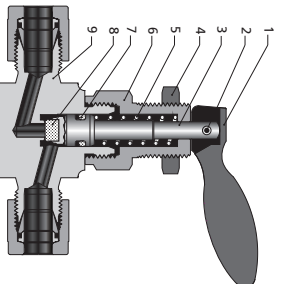
## NT Series

### Features

- One piece forged body.
- Straight and angle pattern.
- Compact design.
- Quick opening or closing.
- Nonrotating stem tip.
- Panel mounting available.
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure.
- Working pressure up to: 300 psig (20.7 bar)

### Technical Data

Office	Working Pressure at 100°F (37°C)	O-ring Material	Temperature Rating
2.0 mm	300 psig	FKM(Standard)	-20°F to 200°F (-28°C to 93°C)
4.0 mm		Buna N	-20°F to 250°F (-28°C to 121°C)
6.4 mm	200 psig	Ethylene Propylene	-20°F to 250°F (-28°C to 121°C)



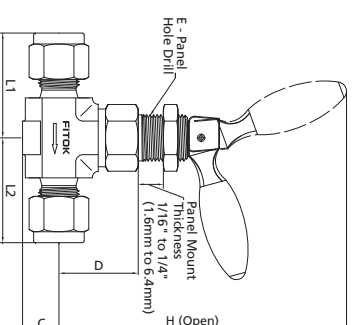
### Standard Materials of Construction

Item	Component	Valve Body Material			
		316 SS	304 SS	321 SS	Brass
1	Handle		Stainless steel		
2	Pin		Stainless steel		
3	Stem	316 SS/A276		304 SS/A276	
4	Panel Nut		17-4PH		Brass 360/816
5	Spring		PTFE-plated S17700/A313		
6	Bonnet	316 SS/A276	304 SS/A276	321 SS/A276	Brass 360/816
7	O-ring	Fluorocarbon RKM	Buna		Ethylene propylene
8	Stem Tip		PTFE/D1710		
9	Body	316 SS/A182	304 SS/A182	321 SS/A182	Brass 377/8283
	Lubricant	Molybdenum disulfide-based and silicone-based			

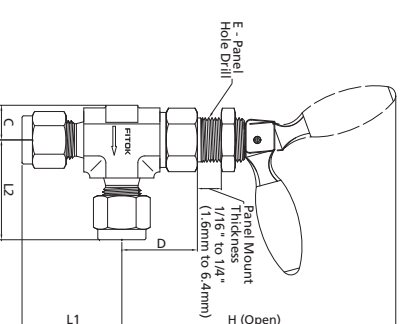
**FITOK**

### Dimensions

Straight Pattern



Angle Pattern

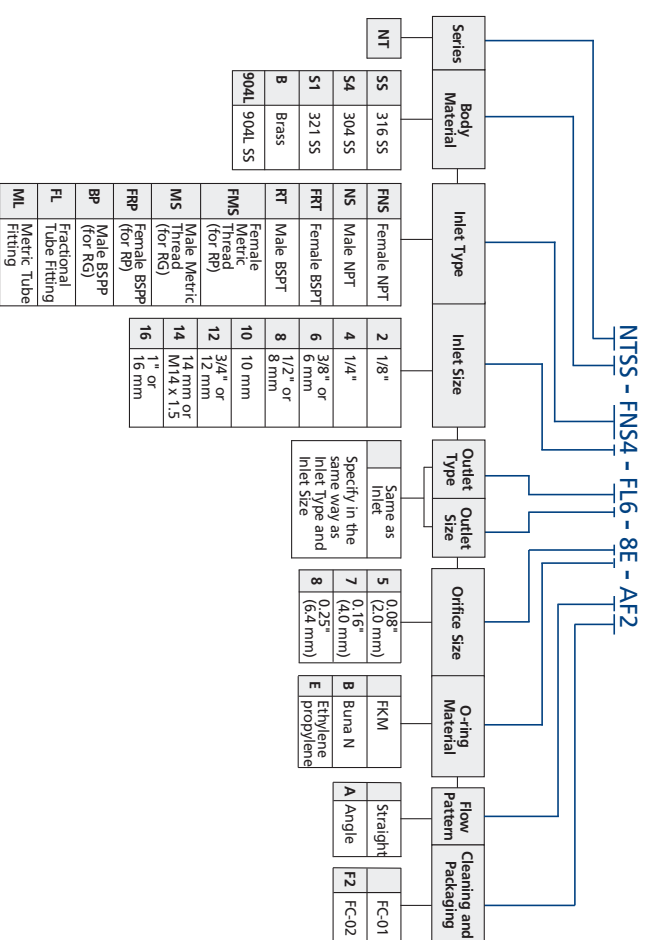


Basic Ordering Number	Connection Type and Size		Office In.(mm)	CV	Dimension, in.(mm)						
	Inlet	Outlet			L1	L2	C	D	E	H	
NT□□-NS2-5	1/8 Male NPT	1/8 Male NPT			0.75 (19.0)	0.75 (19.0)					
NT□□-NS2-FL2-5	1/8 Male NPT	1/8" FITOK	0.08 (2.0)	0.11	0.75 (19.0)	0.98 (25.0)			0.31 (7.9)	0.92 (23.4)	0.53 (13.5)
NT□□-FL2-5	1/8" FITOK	1/8" FITOK			0.98 (25.0)	0.98 (25.0)					2.87 (72.9)
NT□□-ML3-5	3 mm FITOK	3 mm FITOK			0.81 (20.6)	0.81 (20.6)					
NT□□-FNS2-7	1/8 Female NPT	1/8 Female NPT			0.86 (21.8)	0.86 (21.8)					
NT□□-NS2-7	1/8 Male NPT	1/8 Male NPT			0.98 (25.0)	0.98 (25.0)					
NT□□-NS4-7	1/4 Male NPT	1/4 Male NPT	0.16 (4.0)	0.20	0.98 (25.0)	0.98 (25.0)			0.39 (9.9)	0.92 (23.4)	0.53 (13.5)
NT□□-NS4-FL4-7	1/4 Male NPT	1/4" FITOK			1.13 (28.7)	1.13 (28.7)					2.87 (72.9)
NT□□-FL4-7	1/4" FITOK	1/4" FITOK			1.06 (26.9)	1.06 (26.9)					
NT□□-ML6-7	6 mm FITOK	6 mm FITOK			1.12 (28.4)	1.12 (28.4)					
NT□□-ML8-7	8 mm FITOK	8 mm FITOK			1.29 (32.8)	1.29 (32.8)					
NT□□-FNS4-8	1/4 Female NPT	1/4 Female NPT			1.06 (26.9)	1.06 (26.9)					
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	0.25 (6.4)	0.70	1.40 (35.6)	1.40 (35.6)			0.50 (12.7)	1.06 (26.9)	0.66 (16.8)
NT□□-FL8-8	1/2" FITOK	1/2" FITOK			1.36 (34.5)	1.36 (34.5)					3.55 (90.4)
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			1.50 (38.1)	1.50 (38.1)					
NT□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric									
NT□□-MS22-8	M22 x 1.5 Male Metric	M22 x 1.5 Male Metric									

- FITOK means FITOK double ferrule tube fittings, ISO means metric thread.
- Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.
- Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative of FITOK Group.

**FITOK**

## Part Number Description



Note: "Part Number Description" is used for composition rules of FITOK product model. Not suitable for specific product part number selection, not random combinations. If in doubt, please contact FITOK group or authorized agent.

- 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 ignored in the ordering number, others should be specified.
- 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 as stated in ASTM G93 Level C.

## Union Bonnet Needle Valves

**NU Series: Working pressure up to 6000 psig**

**NUH Series: Working pressure up to 10000 psig**

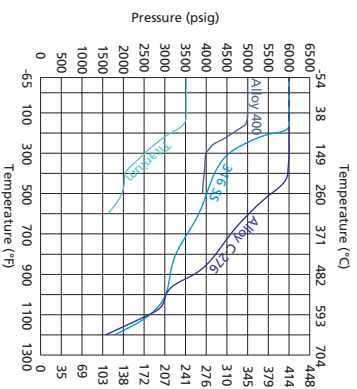
### Features

- One-piece forged body
- Two-stem design: thread hardened upper stem and smooth surface hardened lower stem.
- Accidental valve disassembly disabled by union bonnet construction.
- Upper stem thread lubricant isolated from system media.
- Linearly instead of helical movement of the nonrotating lower stem, avoiding galling damage to the seat and tip, as well as reducing the total friction area between the packing and the lower stem.
- Safety back seating seal in fully open position.
- Panel mounting available as an option.
- Steady and durable fastening of the handle by double lock-pins.
- Handle color options are available.
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure, but not higher than 6000 psig.
- 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: 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)

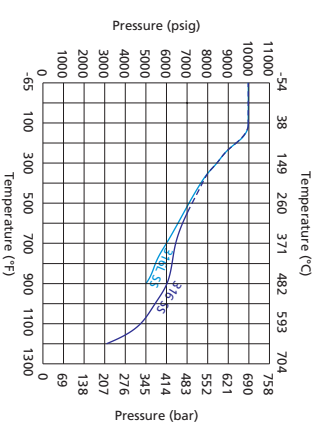


### Pressure vs. Temperature

NU Series



NUH Series



- Graphs are based on graphite stem packing.
- Suitable for NU series only, 200°F (93°C) max. with PTFE stem tip (soft tip).
- Contact the authorized representative or FITOK Group for curve graph of other materials.



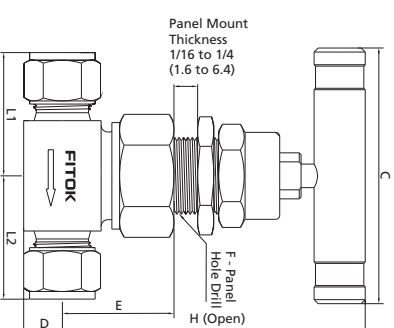
Basic Ordering Number	Connection Type and Size		Orifice In.(mm)	CV	Dimension, In.(mm)												
	Inlet	Outlet			L1	L2	L3	L4	C	D	E	F	H				
NU□□-ML12-8	12 mm FTOK	12 mm FTOK															
NU□□-ML14-8	14 mm FTOK	14 mm FTOK															
NU□□-ML16-8	16 mm FTOK	16 mm FTOK															
NU□□-T56-8-G	3/8" TS	3/8" TS															
NU□□-T58-8-G	1/2" TS	1/2" TS															
NU□□-P54-8-G	1/4 PS	1/4 PS															
NU□□-MTS12-8-G	12 mm MTS	12 mm MTS	0.25 (6.4)														
NU□□-MTS14-8-G	14 mm MTS	14 mm MTS		0.8													
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-G	14 mm UMB	14 mm UMB															
NU□□-F08-8	1/2" Male FO	1/2" Male FO															
NU□□-FR8-8	1/2" Male FR	1/2" Male FR															
NU□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric															
NU□□-MS22-8	M22 x 1.5 Male Metric	M22 x 1.5 Male Metric															
NU□□-NS8-9	1/2 Male NPT	1/2 Male NPT															
NU□□-FNS8-9	1/2 Female NPT	1/2 Female NPT															
NU□□-FNS12-9	3/4 Female NPT	3/4 Female NPT															
NU□□-FNS16-9	1 Female NPT	1 Female NPT															
NU□□-MS12-9	3/4 Male NPT	3/4 Male NPT															
NU□□-H8-9	1/2" FTOK	1/2" FTOK															
NU□□-H12-9	3/4" FTOK	3/4" FTOK															
NU□□-ML14-9	14 mm FTOK	14 mm FTOK															
NU□□-ML16-9	16 mm FTOK	16 mm FTOK															
NU□□-ML18-9	18 mm FTOK	18 mm FTOK															
NU□□-ML20-9	20 mm FTOK	20 mm FTOK	0.39 (10.0)	1.8													
NU□□-MTS14-9-G	14 mm MTS	14 mm MTS															
NU□□-MTS16-9-G	16 mm MTS	16 mm MTS															
NU□□-T58-9-G	1/2" TS	1/2" TS															
NU□□-T512-9-G	3/4" TS	3/4" TS															
NU□□-MTB14-9-G	14 mm MTB	14 mm MTB															
NU□□-MTB16-9-G	16 mm MTB	16 mm MTB															
NU□□-UMB14-9-G	14 mm UMB	14 mm UMB															
NU□□-F012-9	3/4" Male FO	3/4" Male FO															
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. FITOK means FITOK double ferrule tube fittings, FO means O-ring seal fittings, FR means metal gasket seal fittings, MS means fractional tube socket weld, MTS means metric tube socket weld, MTB means metric tube butt weld, UMB means nut + gasket + metric bulge nipple, ISO means metric thread, PB means pipe butt weld
2. For Butt or Socket end connections, please prior to choose graphite as packing material, avoiding damage non graphite packing material due to the high temperature when welding.
3. Sizes and types listed are standard. Other sizes and types are available upon request.
4. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative of FITOK Group.

**FITOK**

**FITOK**

**Dimensions of NUH Series**



Basic Ordering Number	Connection Type and Size		Orifice In.(mm)	CV	Dimension, In.(mm)												
	Inlet	Outlet			L1	L2	C	D	E	F	H						
NUH□□-FNS2-7	1/8 Female NPT	1/8 Female NPT															
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	0.16 (4.0)	0.35													
NUH□□-NS4-FL4-7	1/4 Male NPT	1/4" FITOK															
NUH□□-FNS4-FL4-7	1/4 Female NPT	1/4" FITOK															
NUH□□-FL4-7	1/4" FITOK	1/4" FITOK															
NUH□□-T54-7-G	1/4" TS	1/4" TS															
NUH□□-NS4-8	1/4 Female NPT	1/4 Female NPT															
NUH□□-NS8-8	1/2 Male NPT	1/2 Male NPT															
NUH□□-FNS8-8	1/2 Female NPT	1/2 Female NPT	0.25 (6.4)	0.86													
NUH□□-NS8-FNS8-8	1/2 Male NPT	1/2 Female NPT															
NUH□□-T58-8	1/2" TS	1/2" TS															
NUH□□-MTS12-8	12 mm MTS	12 mm MTS															

1. FITOK means FITOK double ferrule tube fittings, FO means O-ring seal fittings, FR means metal gasket seal fittings, MS means fractional tube socket weld, MTS means metric tube socket weld, MTB means metric tube butt weld, UMB means nut + gasket + metric bulge nipple, PB means pipe butt weld
2. For Butt or Socket end connections, please prior to choose graphite as packing material, avoiding damage non graphite packing material due to the high temperature when welding.
3. Sizes and types listed are standard. Other sizes and types are available upon request.
4. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative of FITOK Group.

**Part Number Description**

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

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Orifice Size	Lower Stem Material	Stem Type	Packing Material	Handle	Flow Pattern	Special Application	Cleaning and Packaging
NU	SS 316 SS	FNS Female NPT	2 1/8"	Same as Inlet Specify in the same way as inlet type and inlet size	7 0.16" (4.0 mm) 8 0.25" (6.4 mm) 9 0.39" (10 mm)	7 0.16" (4.0 mm) 8 0.25" (6.4 mm) 9 0.39" (10 mm)	Same as Body W Stellite D5 Duplex 2205 TI Titanium A20 Alloy 20 M Alloy 400 INC Alloy 600 HC Alloy C-276	Blunt R Regulating B Ball T Soft Tip-PTFE K Soft Tip-PCTFE P Soft Tip-PEEK	PTFE P PEEK G Graphite	Black Aluminum Bar C Red Aluminum Bar F Green Aluminum Bar J Blue Aluminum Bar M 321 Stainless Steel Bar O Black Knob	Straight A Angle	NO S NACE MR0175 Classification for Nuclear Facility Application N2 Class 2 N3 Class 3	FC-01 F2 FC-02
NUH	6L 316L SS	NS Male NPT	4 1/4"										
	S4 304 SS	FRT Female BSPT	6 3/8" or 6 mm										
	4L 304L SS	RT Male BSPT	8 1/2" or 8 mm										
	S1 321 SS	FMS Female Metric Thread (for RP)	10 10 mm										
	91 F91	MS Male Metric Thread (for RG)	12 3/4" or 12 mm										
	92 F92	FRP Female BSPP (for RP)	14 14 mm or M14 x 1.5										
	D5 Duplex 2205	BP Male BSPP (for RG)	16 1" or 16 mm										
	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 Nut + Gasket + Fractional Bulge Nipple											
		UMB Nut + Gasket + Metric Bulge Nipple											
		FO FO Fitting											
		FR FR Fitting											

Note: "Part Number Description" is used for composition rules of FITOK product model, Not suitable for specific product part number selection, not random combinations. If in doubt, please contact FITOK group or authorized agent.

- 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 ignored in the ordering number, others should be specified.
- FO means FITOK O-seal fittings.
- FR means FITOK metal ring 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 as stated in ASTM G93 Level C.

# Outside Screw and Yoke (OS&Y) Needle Valves

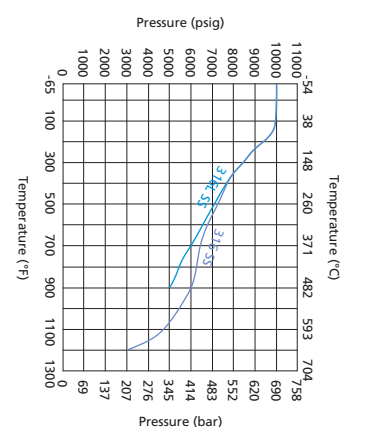
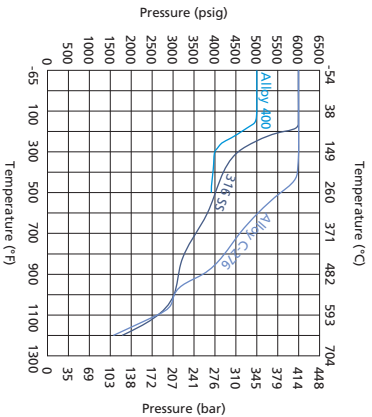
**NY Series: Working pressure up to 6000 psig**  
**NYH Series: Working pressure up to 10000 psig**

## Features

- Cold drawn bar.
- Standard seat diameter 4mm (0.16"), Cv: 0.35 standard.
- Hardened stem threads prevent galling.
- Stem threads completely isolated from system media.
- Linearly instead of helical movement of the nonrotating lower stem, avoiding galling damage to the seat and tip, as well as reducing the total friction area between the packing and the lower stem.
- Externally adjustable gland, independent of spindle thread.
- Self centering nonrotating spindle tip for bubble tight shut off.
- Steady and durable fastening of the handle by double lock-pins.
- Base mount option.
- Leak-tight performance testing for every valve with nitrogen at 6000 psig.

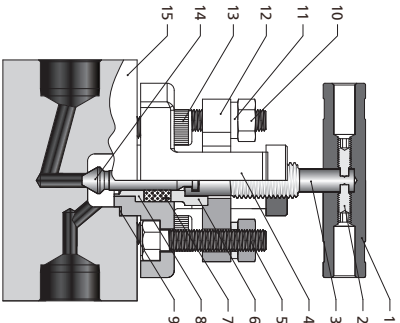


## Pressure vs. Temperature



- Graphs are based on graphite stem packing.
- Suitable for NY series only, 200°F (93°C) max. with PCTFE stem tip (soft tip).
- Contact the authorized representative or FITOK Group for curve graph of other materials.

Standard Materials of Construction



Item	Component	Valve Body Material	
		316 SS	F91
1	Handle	Anodized aluminum or stainless steel	
2	Set Screw	Stainless steel	
3	Upper Stem	316 SSA276	F91/A182
4	Yoke	316 S5/A182	F91/A182
5	Bolts	Stainless steel	
6	Packing Washer	316 S5/A276	
7	Packing	PTFE or PEEK or graphite	
8	Packing Washer	316 S5/A276	
9	Joint Seal	316 S5/A276	
10	Nuts	Stainless steel	
11	Gaskets	Stainless steel	
12	Gland bridge	316 S5/A182	
13	Bolts	Stainless steel	
14	Lower Stem	Chrome-plated 316 S5/A276	
15	Body	316 S5/A479	F91/A182
	Lubricant	Molybdenum disulfide based	

Dimensions of NY Series

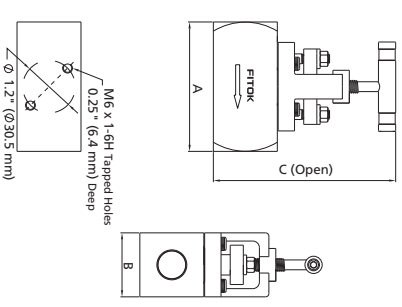
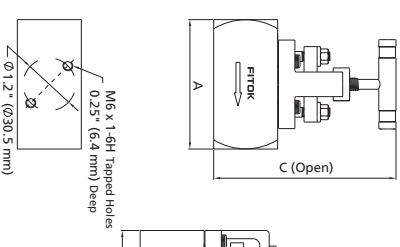
Basic Ordering Number	Connection Type and Size Inlet	Connection Type and Size Outlet	Orifice in.(mm)	CV	Dimension, in.(mm)		
					A	B	C
NY□□-FNS4	1/4 Female NPT	1/4 Female NPT		2.69 (68.2)			
NY□□-NS4	1/4 Male NPT	1/4 Male NPT		2.95 (75.0)			
NY□□-NS4-FNS4	1/4 Male NPT	1/4 Female NPT		2.72 (69.2)			
NY□□-FNS6	3/8 Female NPT	3/8 Female NPT		2.93 (75.0)			
NY□□-NS6	3/8 Male NPT	3/8 Male NPT		2.93 (75.0)			
NY□□-FNS8	1/2 Female NPT	1/2 Female NPT		3.00 (76.2)			
NY□□-NS8	1/2 Male NPT	1/2 Male NPT	0.16 (4.0)	3.27 (82.0)	1.50 (38.1)	3.89 (98.9)	
NY□□-NS8-FNS8	1/2 Male NPT	1/2 Female NPT	0.35 (8.9)	3.27 (82.0)	1.50 (38.1)	3.89 (98.9)	
NY□□-PS8-G	1/2 PS	1/2 PS		3.54 (89.9)			
NY□□-PB8-G	1/2 PB	1/2 PB		3.54 (89.9)			
NY□□-FL4	1/4" FITOK	1/4" FITOK		3.44 (87.4)			
NY□□-FL6	3/8" FITOK	3/8" FITOK		3.78 (96.0)			
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)			

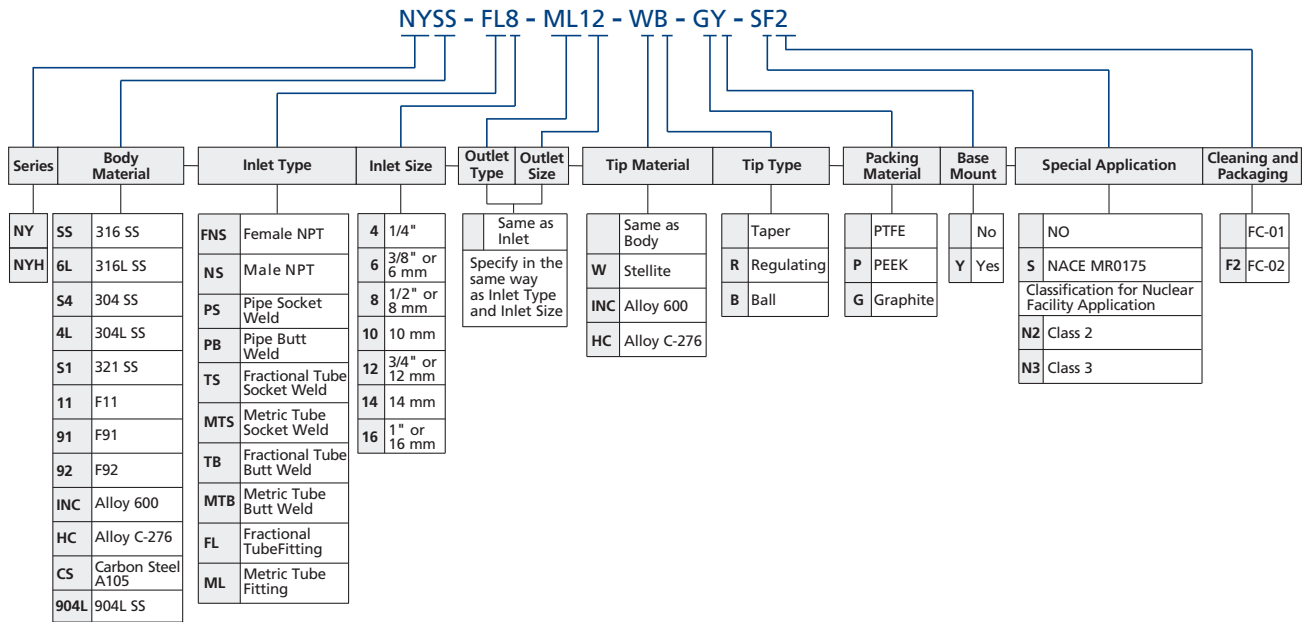
1. FITOK means FITOK double ferrule tube fittings. TS means fractional tube socket weld.
2. For Butt or Socket end connections, please prior to choose graphite as packing material, avoiding damage non graphite packing material due to the high temperature when welding.
3. Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.
4. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or FITOK Group.

Dimensions of NYH Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	CV	Dimension, in.(mm)		
	Inlet	Outlet			A	B	C
NYH□□-FNS4	1/4 Female NPT	1/4 Female NPT		2.69 (68.2)			
NYH□□-NS4	1/4 Male NPT	1/4 Male NPT		2.95 (75.0)			
NYH□□-FNS4-NS4	1/4 Female NPT	1/4 Male NPT		2.72 (69.2)			
NYH□□-FL4	1/4" FITOK	1/4" FITOK		3.44 (87.4)			
NYH□□-TS4-G	1/4" TS	1/4" TS	0.16 (4.0)	2.69 (68.2)	1.50 (38.1)	3.89 (98.9)	
NYH□□-FNS6	3/8 Female NPT	3/8 Female NPT		2.93 (75.0)			
NYH□□-NS6	3/8 Male NPT	3/8 Male NPT		2.93 (75.0)			
NYH□□-FNS8	1/2 Female NPT	1/2 Female NPT		3.00 (76.2)			
NYH□□-NS8	1/2 Male NPT	1/2 Male NPT		3.00 (76.2)			

1. FITOK means FITOK double ferrule tube fittings. TS means fractional tube socket weld.
2. For Butt or Socket end connections, please prior to choose graphite as packing material, avoiding damage non graphite packing material due to the high temperature when welding.
3. Sizes and types listed are standard. Other sizes and types are available upon request, refer to the ordering information.
4. Dimensions are shown with FITOK nuts finger-tightened. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact the authorized representative or FITOK Group.





Note: "Part Number Description" is used for composition rules of FITOK product model, Not suitable for specific product part number selection, not random combinations. If in doubt, please contact FITOK group or authorized agent.

*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 as stated in ASTM G93 Level C.*