

# Needle Valves

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



## FITOK Group

### FITOK GmbH (Headquarter)

Sprendlinger Landstr. 115, 63069 Offenbach, Germany  
Tel.: +49 69 8900 4498  
Fax: +49 69 8900 4495

### FITOK INC.

13000 Murphy Road, Suite 116, Stafford, TX 77477, USA  
Tel.: +1 281 888 0077  
Fax: +1 281 888 0033

### FITOK INCORPORATED

Yingtailong Industrial Park, Shenzhen, 518109, China  
Tel.: +86 755 2803 2500  
Fax: +86 755 2803 2619

info@fitokgroup.com  
www.fitokgroup.com

FI08040813

**FITOK**  
Valves and Fittings

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## Bar Stock Needle Valves

**NB Series: Maximum working pressure 6000 psig**  
**NBH Series: Maximum working pressure 10000 psig**

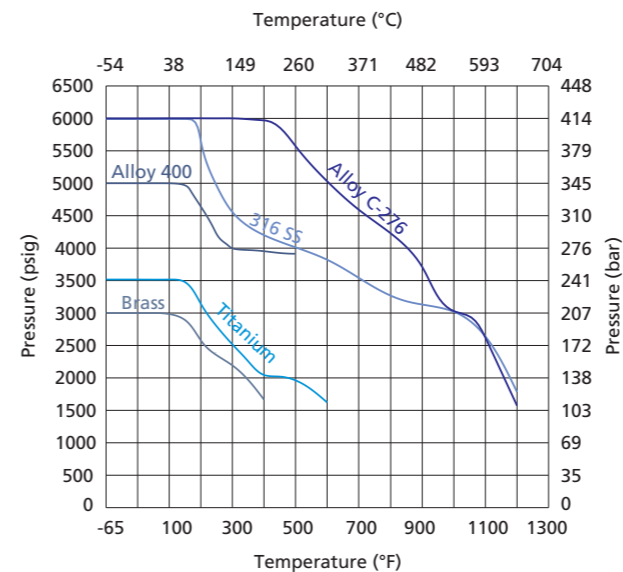


### Features

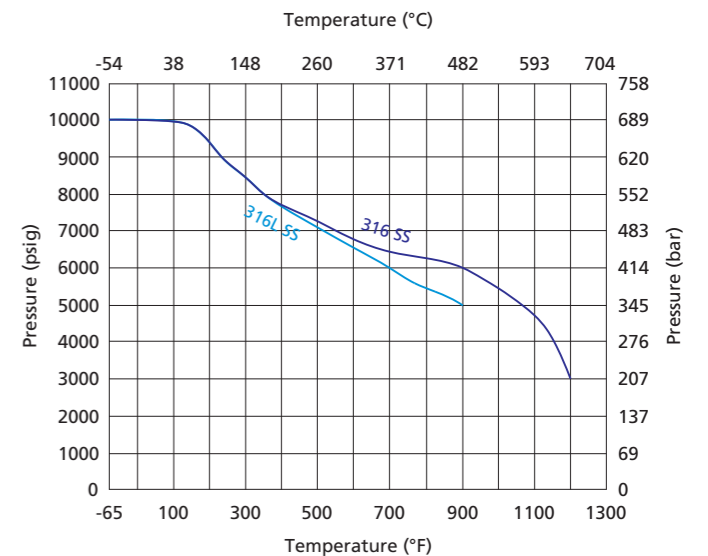
- ⦿ Cold drawn bar.
- ⦿ Two-stem design: thread hardened upper stem and smooth surface hardened lower stem.
- ⦿ Upper stem thread lubricant isolated from system media.
- ⦿ Linearly instead of helical movement of the nonrotating lower stem, avoiding galling damage to the seat and tip, as well as reducing 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.
- ⦿ Leak-tight performance testing for every valve with nitrogen at the maximum working pressure, but not higher than 6000 psig.
- ⦿ Maximum working pressure:
  - NB 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)
  - NBH Series—Stainless steel: 10000 psig (689 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



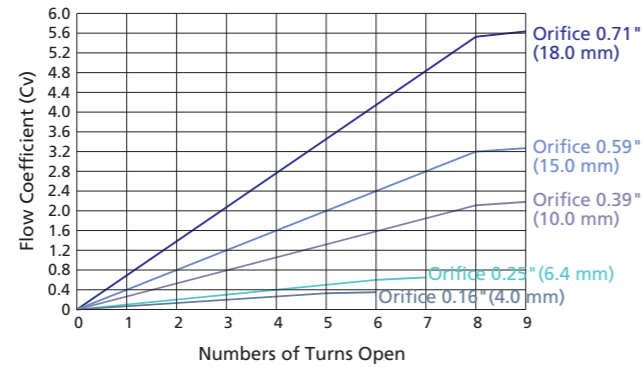
NBH Series



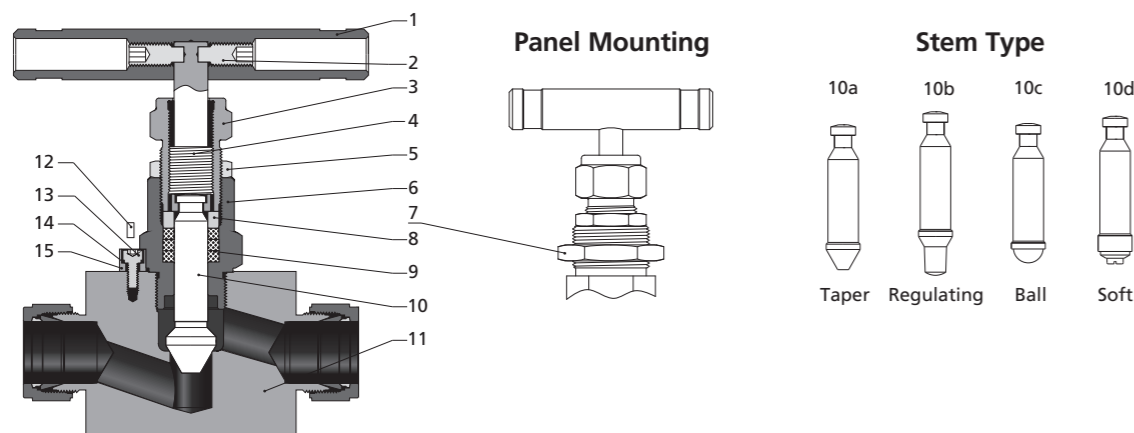
1. Graphs are based on graphite stem packing.
2. Suitable for NB series only, 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact the authorized representative or FITOK Group for curve graph of other materials.

### Flow Data at 100°F (38°C)

Regulating Stem



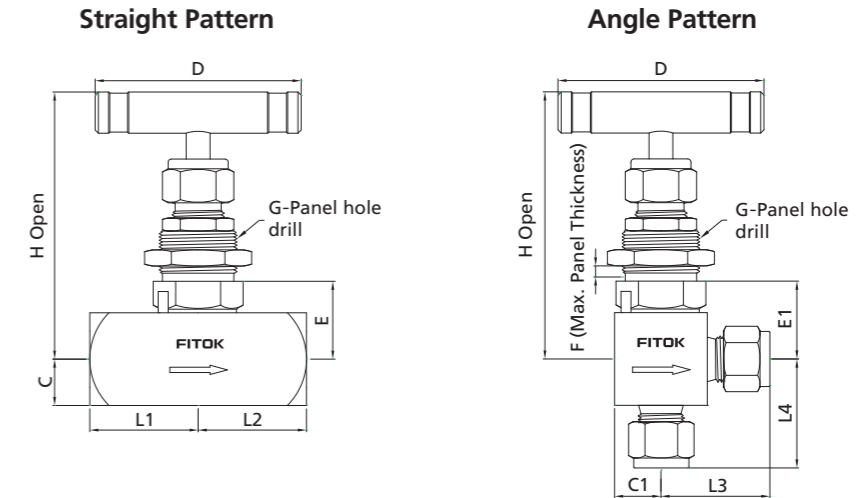
### Standard Materials of Construction



Item	Component	Valve Body Material				
		316 SS	Alloy 400	Titanium	Alloy C-276	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	316 SS/A276				
5	Lock Nut	17-4PH				
6	Bonnet	316 SS/A479	Alloy R-405/B164	Titanium Gr 4/B348	Alloy C-276/B574	Brass 360/B16
7	Panel Nut	316 SS/B783				
8	Gland	316 SS/A276				
9	Packing	PTFE or PEEK or graphite				
10a 10b 10c 10d	Lower Stem	Chrome-plated 316 SS/A276	Alloy R-405/B164	Titanium Gr 4/B348	Alloy C-276/B574	Chrome-plated 316 SS/A276
11	Body	316 SS/A479	Alloy 400/B164	Titanium Gr 4/B348	Alloy C-276/B574	Brass 360/B16
	Seat	Same as Body or Weld stellite optional				
12	Lock Pin	304 SS/A276				
13	Screw	304 SS/A276				
14	Spring Washer	304 SS/A276				
15	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 valves of other materials.

### Dimensions



### Dimensions of NB Series

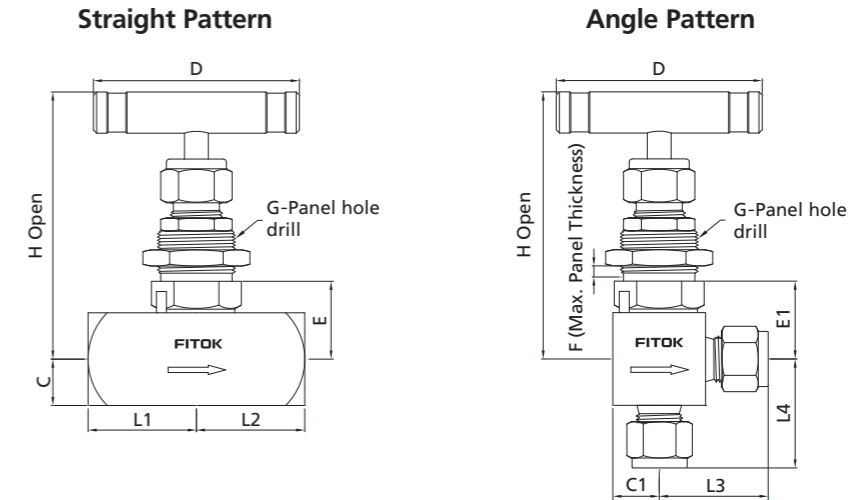
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)															
	Inlet	Outlet			L1	L2	L3	L4	C	C1	D	E	E1	F	G	H	H1			
NB□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	0.56 (14.3)												
NB□□-FNS4-7	1/4 Female NPT	1/4 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)				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)	2.85 (72.4)	2.85 (72.4)		
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□□-FO4-7	1/4" Male FO	1/4" Male FO					1.03 (26.2)	1.03 (26.2)												
NB□□-FR4-7	1/4" Male FR	1/4" Male FR																		
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)										
NB□□-FNS6-8	3/8 Female NPT	3/8 Female NPT	1.41 (35.8)	1.41 (35.8)			1.32 (33.6)	1.32 (33.6)	1.12 (28.6)											
NB□□-FL6-8	3/8" FITOK	3/8" FITOK	1.52 (38.6)	1.52 (38.6)			1.42 (36.1)	1.42 (36.1)												
NB□□-FL8-8	1/2" FITOK	1/2" FITOK	1.42 (36.1)	1.42 (36.1)			1.33 (33.8)	1.33 (33.8)												
NB□□-ML10-8	10 mm FITOK	10 mm FITOK	1.52 (38.6)	1.52 (38.6)			1.42 (36.1)	1.42 (36.1)												
NB□□-ML12-8	12 mm FITOK	12 mm FITOK	1.56 (39.7)	1.56 (39.7)																
NB□□-ML14-8	14 mm FITOK	14 mm FITOK																		
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)	0.56 (14.3)	0.56 (14.3)	2.50 (63.5)	1.00 (25.4)	0.88 (22.8)	0.38 (9.7)	0.96 (24.4)	3.50 (88.9)	3.50 (88.9)	
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-G	14 mm UMB	14 mm UMB			2.92 (74.1)	2.92 (74.1)														
NB□□-UMB16-8-G	16 mm UMB	16 mm UMB																		
NB□□-FO8-8	1/2" Male FO	1/2" Male FO			1.13 (28.6)	1.13 (28.6)														
NB□□-FR8-8	1/2" Male FR	1/2" Male FR			1.56 (39.7)	1.56 (39.7)														
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																		

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	H1	
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 (31.8)	0.38 (9.7)	1.08 (27.5)	4.12 (104.8)	4.00 (101.6)	
NB□□-FNS12-9	3/4 Female NPT	3/4 Female NPT																
NB□□-NS12-9	3/4 Male NPT	3/4 Male NPT			1.50 (38.1)													
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																
NB□□-MTS16-9-G	16 mm MTS	16 mm MTS																
NB□□-TS12-9-G	3/4" TS	3/4" TS			1.75 (44.5)	1.75 (44.5)												
NB□□-MTB14-9-G	14 mm MTB	14 mm MTB																
NB□□-MTB16-9-G	16 mm MTB	16 mm MTB																
NB□□-UMB14-9-G	14 mm UMB	14 mm UMB			2.98 (75.7)	2.98 (75.7)												
NB□□-FO12-9	3/4" Male FO	3/4" Male FO																
NB□□-FR12-9	3/4" Male FR	3/4" Male FR	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)	1.75 (44.5)	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																
NB□□-MTS28-6-G	28 mm MTS	28 mm MTS																
NB□□-PS12-6-G	3/4 PS	3/4 PS																
NB□□-ML20-6	20 mm FITOK	20 mm FITOK			2.35 (59.7)	2.35 (59.7)	2.35 (59.7)	2.00 (51.0)										
NB□□-ML22-6	22 mm FITOK	22 mm FITOK																
NB□□-FNS16-0	1 Female NPT	1 Female NPT	0.71 (18.0)	5.65	1.97 (50.0)	1.97 (50.0)	1.25 (31.75)	5.50 (140)	1.25 (31.75)	5.50 (140)	5.20 (132)	5.20 (132)	5.20 (132)	5.20 (132)	5.20 (132)	5.20 (132)	5.20 (132)	
NB□□-MTS25-0-G	25 mm MTS	25 mm MTS																
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. 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, ISO means metric thread, PS means pipe 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

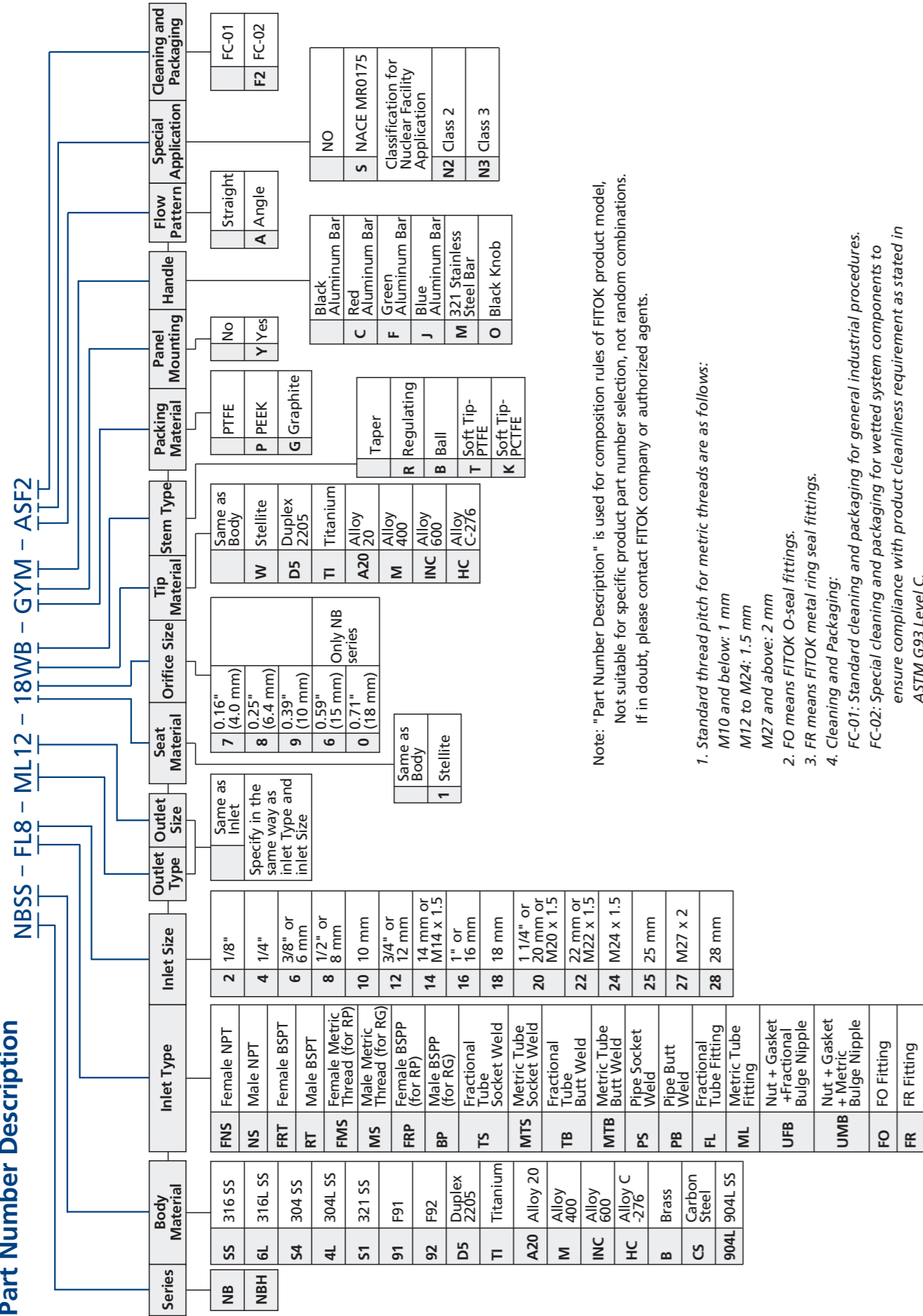


Dimensions of NBH Series

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	H1	
NBH□□-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)	2.85 (72.4)	2.85 (72.4)	
NBH□□-FNS4-7	1/4 Female NPT	1/4 Female NPT			1.06 (26.9)	1.06 (26.9)												
NBH□□-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)										
NBH□□-FNS4-NS4-7	1/4 Female NPT	1/4 Male NPT			1.06 (26.9)	1.03 (26.2)												
NBH□□-FL4-7	1/4" FITOK	1/4" FITOK			1.20 (30.5)	1.20 (30.5)	1.20 (30.5)	1.20 (30.5)										
NBH□□-TS4-7-G	1/4" TS	1/4" TS			0.91 (23)	0.91 (23)	0.91 (23)	0.91 (23)										
NBH□□-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)	1.00 (25.4)	0.88 (22.5)	0.38 (9.7)	0.96 (24.4)	3.50 (88.9)	3.50 (88.9)	
NBH□□-FNS6-8	3/8 Female NPT	3/8 Female NPT																
NBH□□-NS6-8	3/8 Male NPT	3/8 Male NPT						1.12 (28.6)										
NBH□□-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)	4.12 (104.8)	4.00 (101.6)	
NBH□□-NS8-9	1/2 Male NPT	1/2 Male NPT																

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

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 company or authorized agents.

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

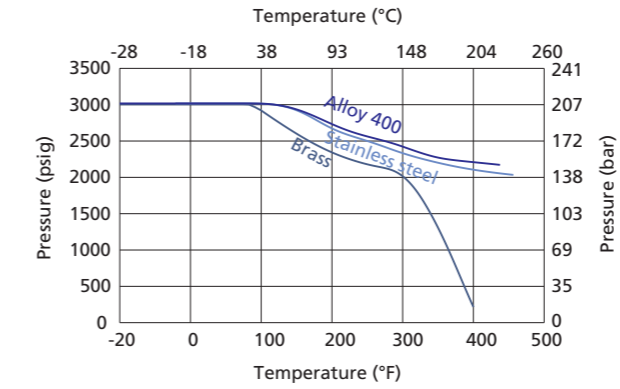
## ND Series

### Features

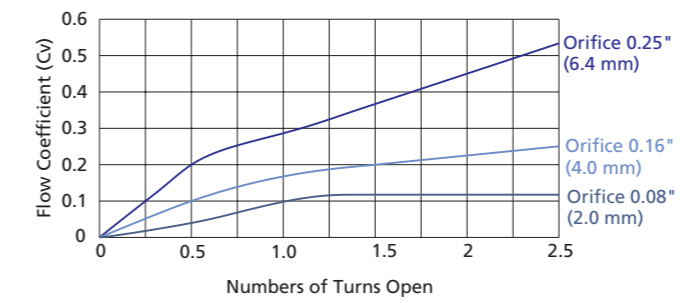
- One-piece forged body.
- Straight and angle pattern.
- Compact design.
- Nonrotating stem.
- Special designed handle to stop contamination entering into the valve.
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure.
- Maximum working pressure: 3000 psig (207 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

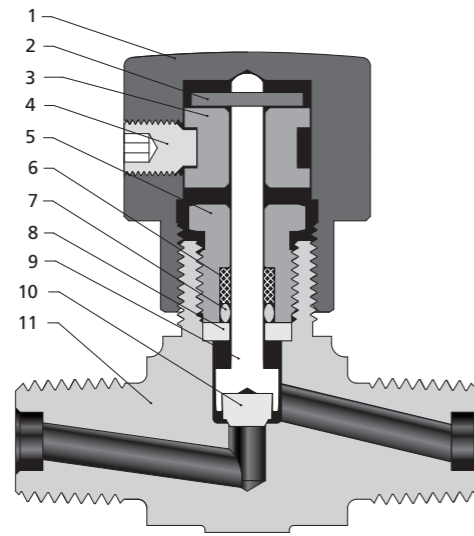


### Flow Data at 100°F (38°C)



- 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.

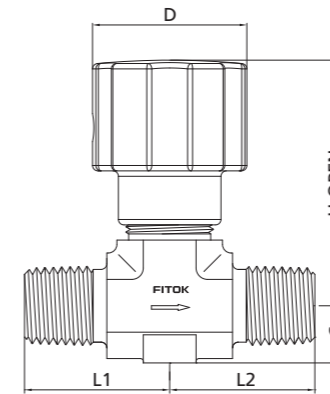
### Standard Materials of Construction



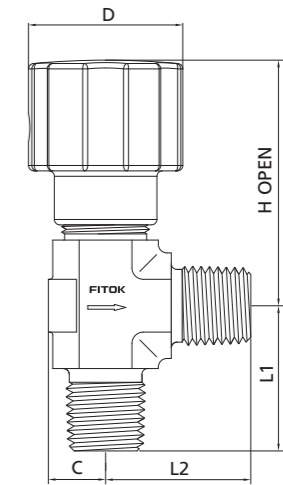
Item	Component	Valve Body Material				
		316 SS	304 SS	321 SS	Brass	Alloy 400
1	Handle	Anodized aluminum				
2	Stop Pin	Stainless steel				
3	Spool	Aluminum				
4	Set Screw	Stainless steel				
5	Packing Bolt	316 SS/A276	304 SS/A276	321 SS/A276	Brass 360/B16	Alloy R-405/B164
6	Backup Ring	PTFE/D1710				
7	O-ring	Fluorocarbon FKM	Buna-N		Ethylene propylene	
8	Washer	316 SS/A276				Alloy R-405/B164
9	Stem	316 SS/A276				Alloy R-405/B164
10	Stem Tip	PCTFE or PEEK				
11	Body	316 SS/A182	316 SS/A182	316 SS/A182	Brass 377/B283	Alloy 400/B564
Lubricant		Molybdenum disulfide-based				

### Dimensions

Straight Pattern



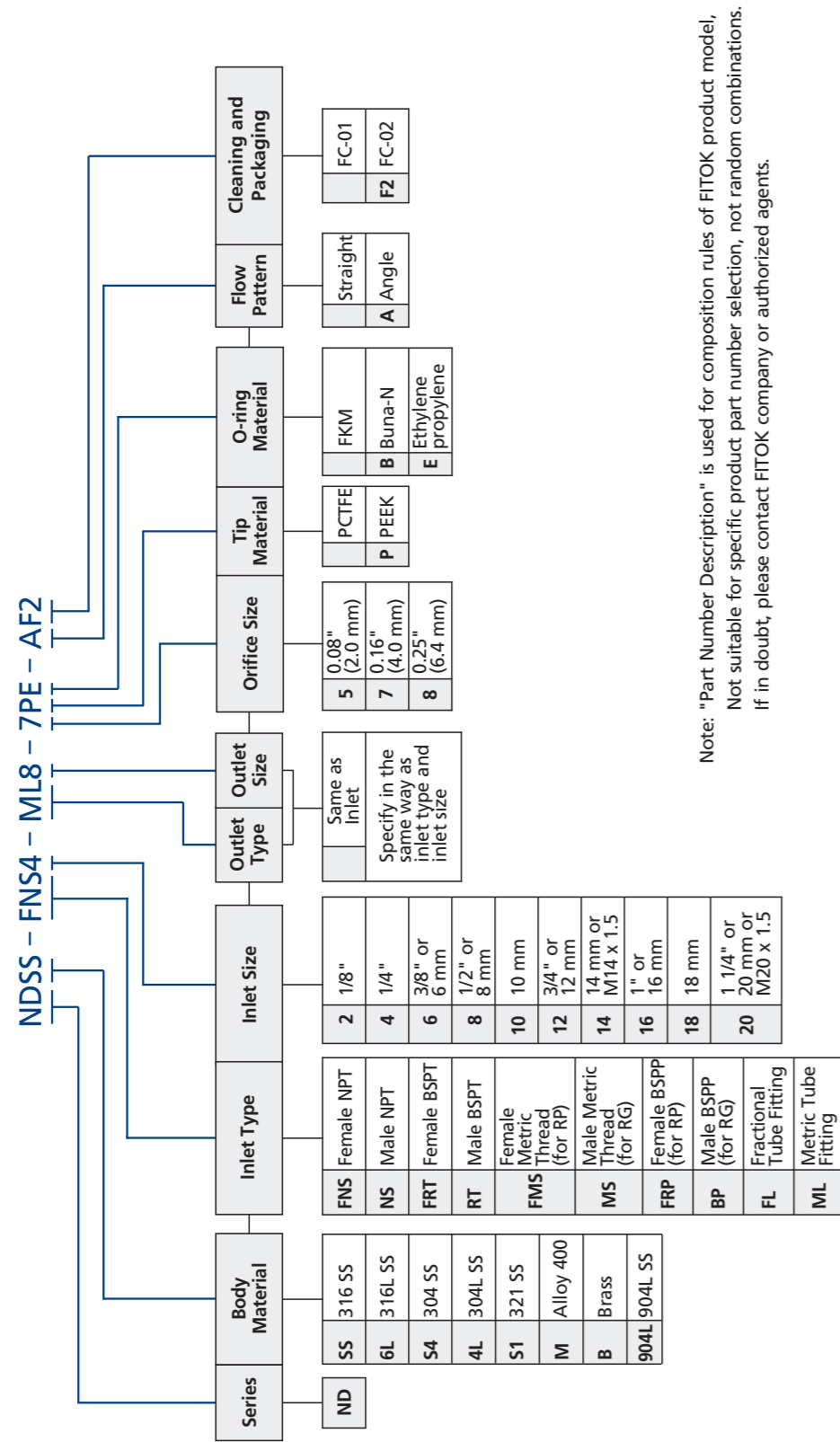
Angle Pattern



Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, 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	0.75 (19.0)	0.75 (19.0)	0.31 (7.9)	1.06 (26.9)	1.86 (47.2)
ND□□-NS2-FL2-5	1/8" Male NPT	1/8" FITOK			0.75 (19.0)	1.10 (27.9)			
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							
ND□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.27	0.81 (20.6)	0.81 (20.6)	0.39 (9.9)	1.06 (26.9)	1.86 (47.2)
ND□□-NS2-7	1/8 Male NPT	1/8 Male NPT			0.86 (21.8)	0.86 (21.8)			
ND□□-NS4-7	1/4 Male NPT	1/4 Male NPT			25.00 (0.98)	25.00 (0.98)			
ND□□-NS4-FL4-7	1/4" Male NPT	1/4" FITOK			25.00 (0.98)				
ND□□-FL4-7	1/4" FITOK	1/4" FITOK				1.13 (28.7)			
ND□□-ML6-7	6 mm FITOK	6 mm FITOK							
ND□□-ML8-7	8 mm FITOK	8 mm FITOK							
ND□□-FNS4-8	1/4 Female NPT	1/4 Female NPT							
ND□□-FNS6-8	3/8 Female NPT	3/8 Female NPT	0.25 (6.4)	0.53	1.06 (26.9)	1.06 (26.9)	0.50 (12.7)	1.12 (28.4)	2.02 (51.3)
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			1.40 (35.6)	1.40 (35.6)			
ND□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric							
ND□□-MS22-8	M22 x 1.5 Male Metric	M22 x 1.5 Male Metric			1.50 (38.1)	1.50 (38.1)			

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 company or authorized agents.

- 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: Maximum working pressure 6000 psig

NFH Series: Maximum working pressure 10000 psig

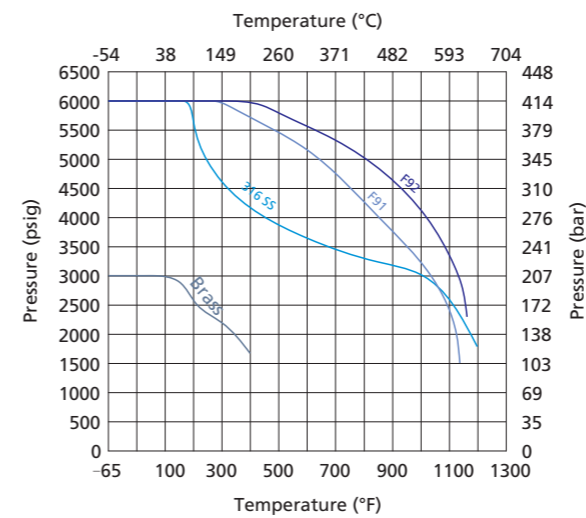
## Features

- 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.
- Maximum working pressure:
  - 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 (689 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)

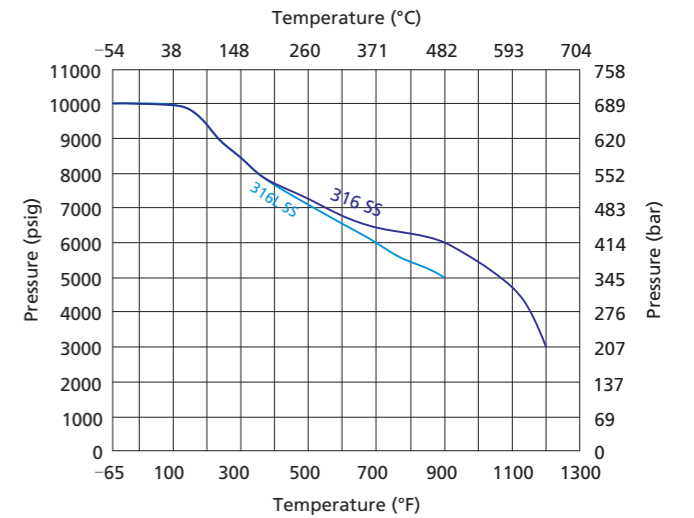


## Pressure vs. Temperature

NF Series



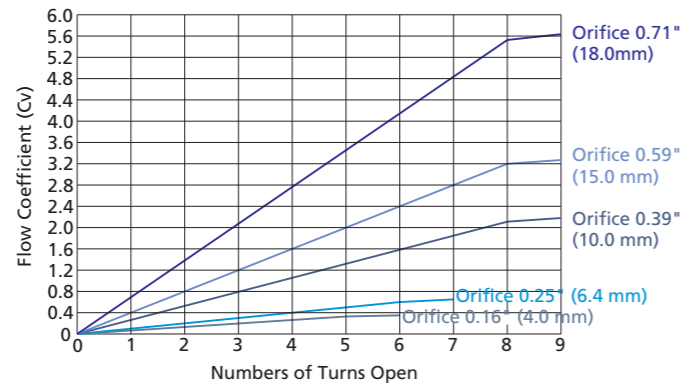
NFH Series



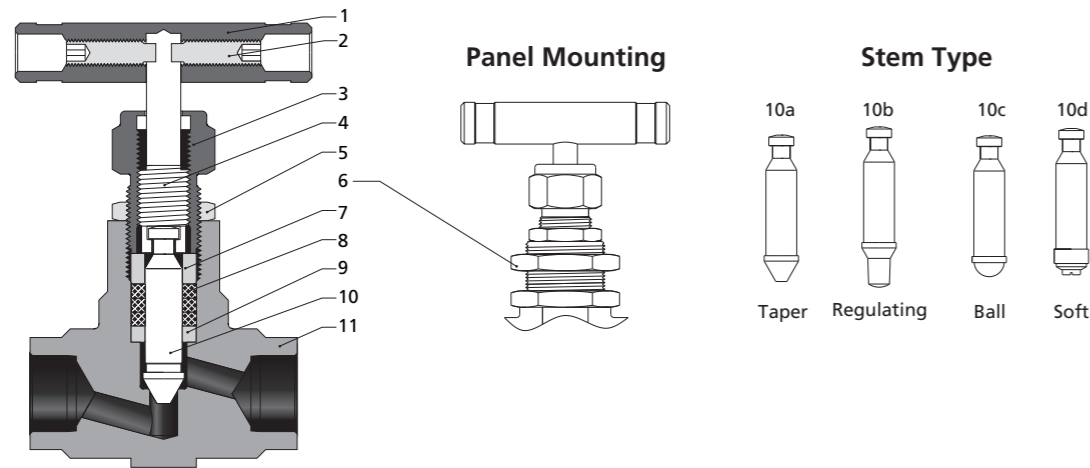
- Graphs are based on graphite stem packing.
- Suitable for NF series only, 200°F (93°C) max. with PCTFE stem tip (soft tip).
- Contact the authorized representative or FITOK Group for curve graph of other materials.

### Flow Data at 100°F (38°C)

Regulating Stem

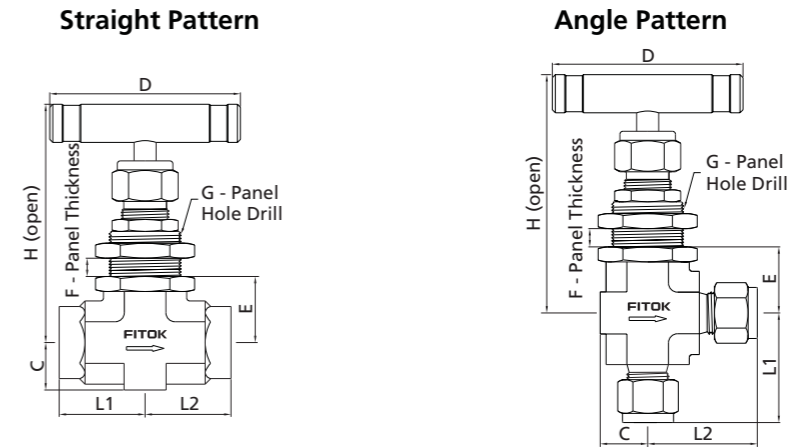


### Standard Materials of Construction



Item	Component	Valve Body Material			
		316 SS	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	316 SS/A276	F91/A182	F92/A182	Brass 360/B16
5	Lock Nut	316 SS/B783			
6	Panel Nut	17-4PH			
7	Gland	316 SS/A276	F91/A182	F92/A182	Brass 360/B16
8	Packing	PTFE or PEEK or graphite			
9	Packing Washer	316 SS/A276	F91/A182	F92/A182	Brass 360/B16
10a 10b 10c 10d	Lower Stem	Chrome-plated 316 SS/A276	Chrome-plated F91/A182	Chrome-plated F92/A182	Chrome-plated 316 SS/A276
		Optional			
11	Body	316 SS/A182	F91/A182	F92/A182	Brass 377/B283
	Seat	Same as Body or weld stellite seat optional			
	Lubricant	Molybdenum disulfide-based			

### Dimensions



### Dimensions of NF Series

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)	0.35	1.00 (25.4)	1.00 (25.4)	2.85 (72.5)	2.17 (55)	0.53 (13.5)	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			1.19 (30.2)	1.19 (30.2)						
NF□□-NS6-7	3/8 Male NPT	3/8 Male NPT			1.03 (26.2)	1.03 (26.2)						
NF□□-FO4-7	1/4" Male FO	1/4" Male FO										
NF□□-FR4-7	1/4" Male FR	1/4" Male FR										
NF□□-FNS4-8	1/4 Female NPT	1/4 Female NPT										
NF□□-FNS6-8	3/8 Female NPT	3/8 Female NPT										
NF□□-NS6-8	3/8 Male NPT	3/8 Male NPT	0.25 (6.4)	0.85	1.13 (28.6)	1.13 (28.6)	3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)
NF□□-FL6-8	3/8" FITOK	3/8" FITOK			1.44 (36.5)	1.44 (36.5)						
NF□□-ML10-8	10 mm FITOK	10 mm FITOK			1.53 (38.9)	1.53 (38.9)						
NF□□-ML12-8	12 mm FITOK	12 mm FITOK			1.56 (39.7)	1.56 (39.7)						
NF□□-ML14-8	14 mm FITOK	14 mm FITOK			1.26 (32.0)	1.26 (32.0)						
NF□□-FNS8-8	1/2 Female NPT	1/2 Female NPT			1.50 (38.1)	1.50 (38.1)						
NF□□-NS8-8	1/2 Male NPT	1/2 Male NPT			1.53 (38.9)	1.53 (38.9)						
NF□□-TS6-8-G	3/8" TS	3/8" TS										
NF□□-TS8-8-G	1/2" TS	1/2" TS										
NF□□-MTS12-8-G	12 mm MTS	12 mm MTS			1.13 (28.6)	1.13 (28.6)						
NF□□-MTS14-8-G	14 mm MTS	14 mm MTS										
NF□□-MTS16-8-G	16 mm MTS	16 mm MTS										
NF□□-MTB14-8-G	14 mm MTB	14 mm MTB	1.50 (38.1)	1.50 (38.1)								
NF□□-MTB16-8-G	16 mm MTB	16 mm MTB										
NF□□-UMB14-8-G	14 mm UMB	14 mm UMB	2.92 (74.1)	2.92 (74.1)								
NF□□-UMB16-8-G	16 mm UMB	16 mm UMB										
NF□□-FO8-8	1/2" Male FO	1/2" Male FO	1.13 (28.6)	1.13 (28.6)								
NF□□-FR8-8	1/2" Male FR	1/2" Male FR	1.56 (39.7)	1.56 (39.7)								
NF□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric	1.50 (38.1)	1.50 (38.1)								
NF□□-MS22-8	M22 x 1.5 Male Metric	M22 x 1.5 Male Metric										

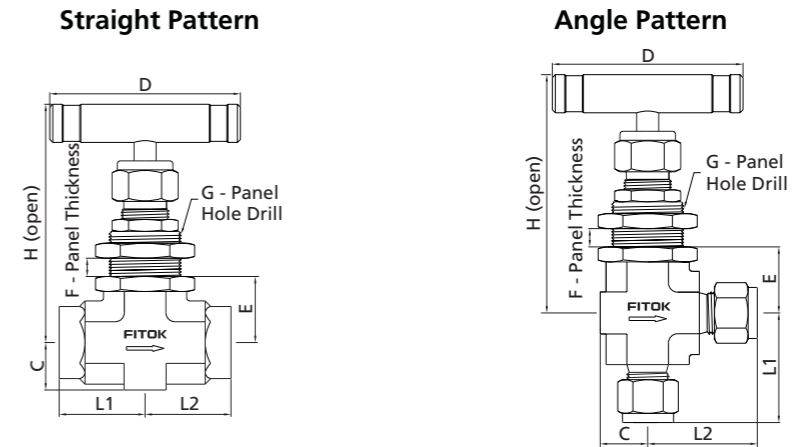


Dimensions of NF Series

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□□-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 (20.2)	1.10 (28.3)	0.38 (9.7)	1.08 (27.5)
NF□□-FNS12-9	3/4 Female NPT	3/4 Female NPT										
NF□□-NS8-9	1/2 Male NPT	1/2 Male NPT										
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										
NF□□-ML20-9	20 mm FITOK	20 mm FITOK										
NF□□-ML25-9	25 mm FITOK	25 mm FITOK										
NF□□-MTS14-9-G	14 mm MTS	14 mm MTS										
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										
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										
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	1.97 (50.0)	1.97 (50.0)	6.50 (165)	5.00 (127)	1.30 (33.0)	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										
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			0.71 (18.0)	5.65						
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										
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 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



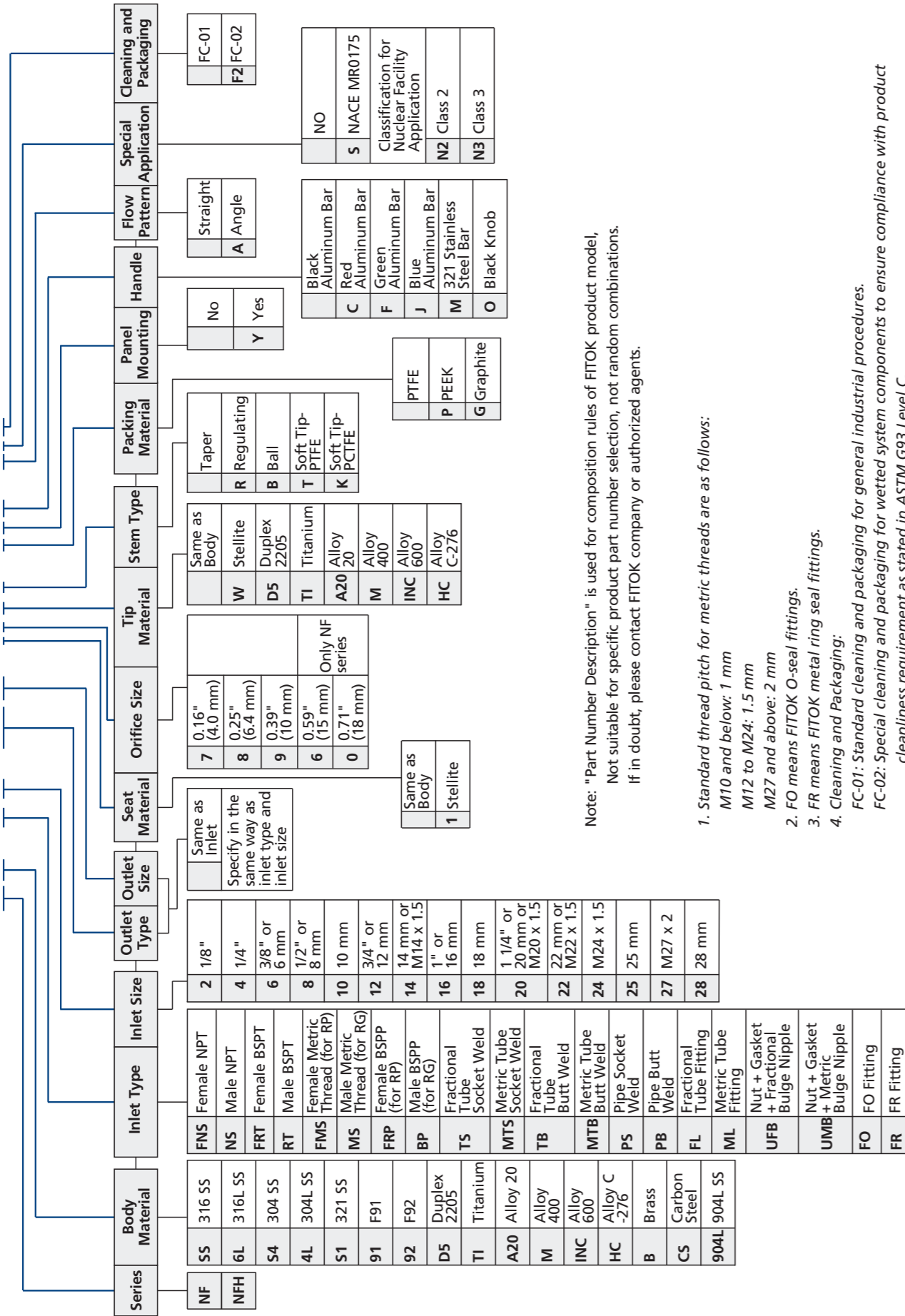
Dimensions of NFH Series

Basic Ordering Number	Connection Type and Size		Orifice 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	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	2.85 (72.5)	2.17 (55)	0.53 (13.5)	0.71 (18.0)	0.25 (6.4)	0.38 (9.7)	0.77 (19.6)								
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			1.03 (26.2)	1.03 (26.2)															
NFH□□-FNS4-NS4-7	1/4 Female NPT	1/4 Male NPT			1.06 (26.2)	1.03 (26.2)															
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			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□□-FNS6-8	3/8 Female NPT	3/8 Female NPT																			
NFH□□-NS6-8	3/8 Male NPT	3/8 Female NPT																			
NFH□□-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 (20.2)	1.10 (28.3)	0.38 (9.7)	1.08 (27.5)									
NFH□□-NS8-9	1/2 Male NPT	1/2 Female NPT																			

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.

Part Number Description

NFS4 – TS16 – MTS25 – 16WR – GYM – ASF2



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 company or authorized agents.

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.

# General Purpose Needle Valves

**NG Series: Maximum working pressure 3000 psig**  
**NGH Series: Maximum working pressure 5000 psig**

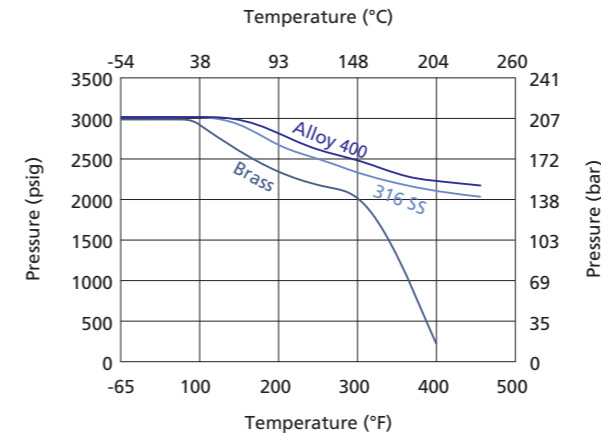
## Features

- One-piece forged body.
- Easy external adjustments by packing nut.
- Live-loaded packing system.
- Handle of different colors available for option.
- Compact design.
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure.
- Maximum working pressure:
  - 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 600°F (-54°C to 315°C)

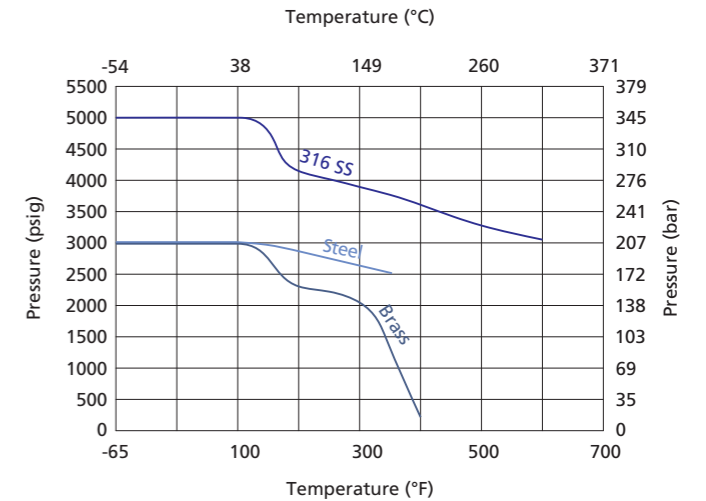


## Pressure vs. Temperature

NG Series



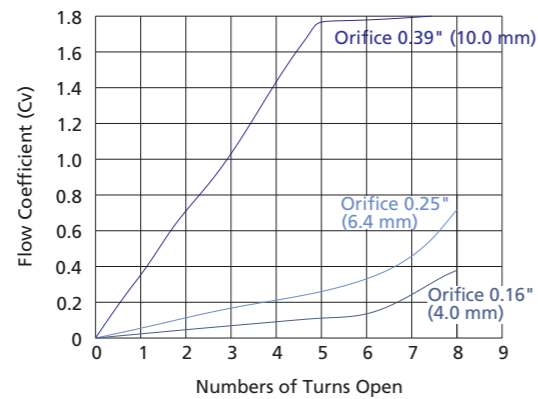
NGH Series



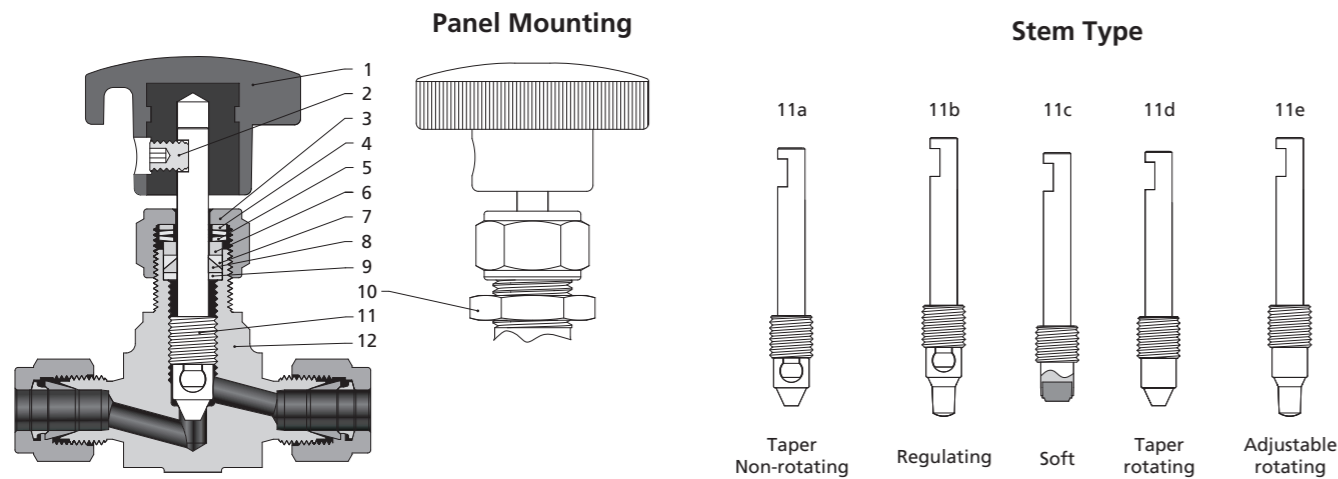
- Graphs are based on PEEK stem packing.
- 200°F (93°C) max with PCTFE stem tip (soft tip).
- Contact the authorized representative or FITOK Group for curve graph of other materials.

### Flow Data at 100°F (38°C)

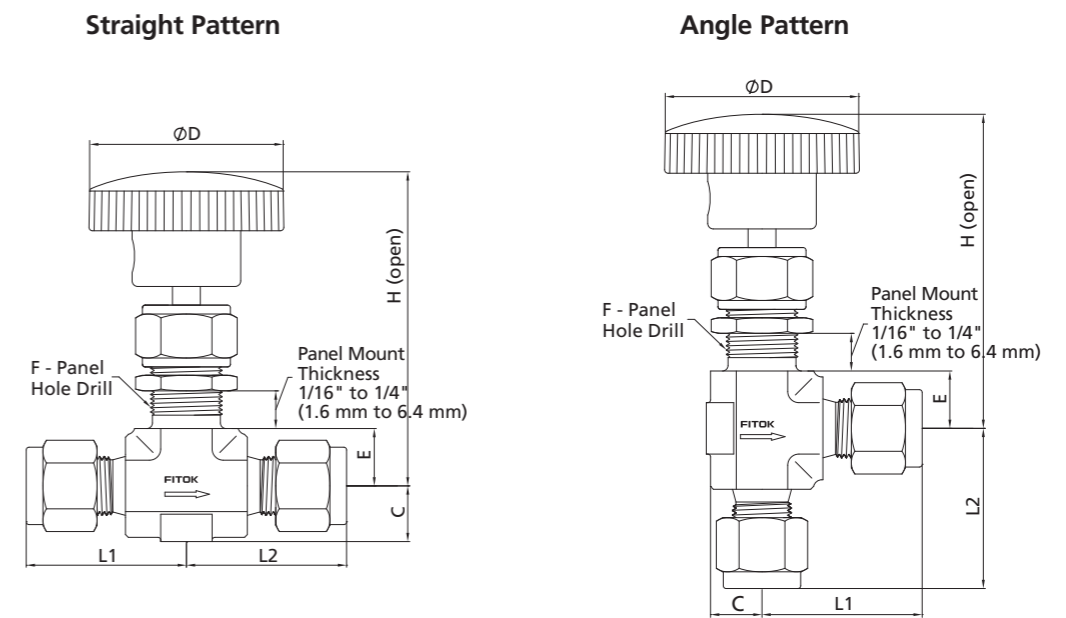
Regulating Stem



### Standard Materials of Construction



### Dimensions



### Dimensions of NG Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)						
	Inlet	Outlet			L1	L2	C	D	E	F	H
NG□□-NS2-5	1/8 Male NPT	1/8 Male NPT	0.08 (2.0)	0.09	0.75 (19)	0.75 (19)	0.31 (7.9)	1.00 (25.4)	0.44 (11.2)	0.47 (11.9)	2.28 (57.9)
NG□□-FNS2-5	1/8 Female NPT	1/8 Female NPT			0.98 (25.0)	0.98 (25.0)					
NG□□-FL2-5	1/8" FITOK	1/8" FITOK			25.0 (0.98)	25.0 (0.98)					
NG□□-ML3-5	3 mm FITOK	3 mm FITOK			0.81 (20.6)	0.81 (20.6)					
NG□□-MTS6-5	6 mm MTS	6 mm MTS			0.81 (20.6)	0.81 (20.6)					
NG□□-MTB8-5	8 mm MTB	6 mm MTB			0.81 (20.6)	0.81 (20.6)					
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 (9.9)	1.38 (35.0)	0.44 (11.2)	0.53 (13.5)	2.50 (63.5)
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			0.98 (25.0)	0.98 (25.0)					
NG□□-MTS8-7	8 mm MTS	8 mm MTS			2.24 (57.0)	2.24 (57.0)					
NG□□-TS4-7	1/4" TS	1/4" TS	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)	0.50 (12.7)	1.88 (47.8)	0.50 (12.7)	0.78 (19.8)	2.97 (75.4)
NG□□-FNS4-8	1/4 Female NPT	1/4 Female NPT			1.12 (28.4)	1.12 (28.4)					
NG□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.50 (38.1)	1.50 (38.1)					
NG□□-NS8-8	1/2 Male NPT	1/2 Male NPT			1.29 (32.8)	1.29 (32.8)					
NG□□-FL6-8	3/8" FITOK	3/8" FITOK			1.40 (35.6)	1.40 (35.6)					
NG□□-FL8-8	1/2" FITOK	1/2" FITOK			1.30 (33.0)	1.30 (33.0)					
NG□□-ML10-8	10 mm FITOK	10 mm FITOK									

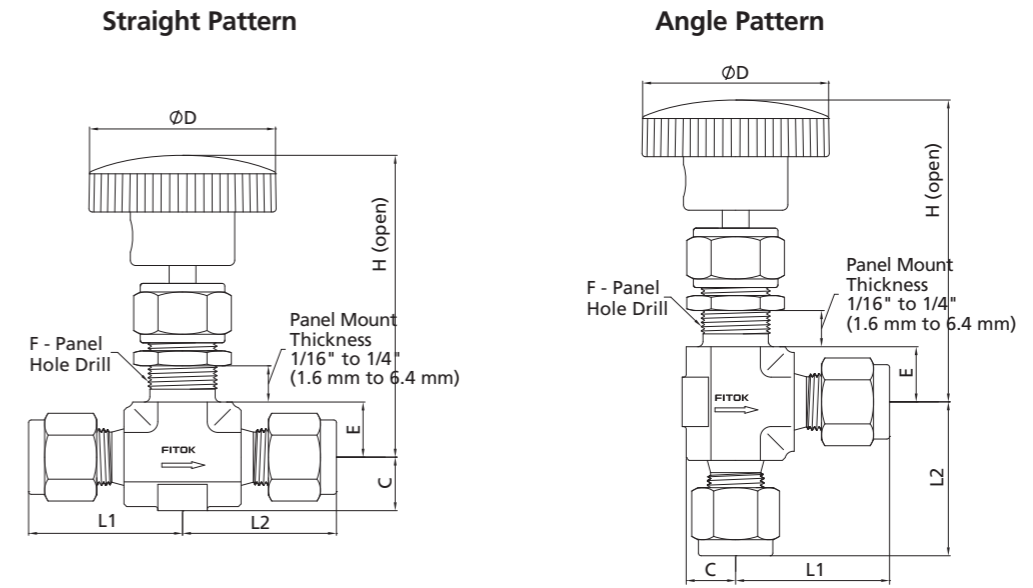
Item	Component	Valve Body Material		
		316 SS	Brass	Steel
1	Handle	Anodized aluminum or stainless steel or black knob		
2	Set Screw	Stainless steel		
3	Packing Bolt	304 SS/A276	Brass C36000/B16	Alloy 400/B164
4	Washer	316 SS/A276		
5	Packing Spring	S17700/A693		
6	Washer	316 SS/A276		
7	Upper Packing	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		
	Stem Tip	PCTFE/D1430	PEEK	
11d	Stem	Chrome-plated 316 SS/A276		
11e	Stem	Chrome-plated 316 SS/A276		
12	Body	316 SS/A182	Brass C37700/B283	Alloy
	Lubricant	Molybdenum disulfide-based and silicone-based		

Dimensions of NG Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)						
	Inlet	Outlet			L1	L2	C	D	E	F	H
NG□□-ML12-8	12 mm FITOK	12 mm FITOK	0.25 (6.4)	0.70	1.40 (35.6)	1.40 (35.6)	0.50 (12.7)	1.88 (47.8)	0.50 (12.7)	0.78 (19.8)	2.97 (75.4)
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			1.14 (29.0)	1.14 (29.0)					
NG□□-MTS14-8	14 mm MTS	14 mm MTS									
NG□□-UMB10-8	10 mm MTS	10 mm MTS			2.60 (66.0)	2.60 (66.0)					
NG□□-UMB14-8	14 mm UMB	14 mm UMB									
NG□□-FNS8-9	1/2 Female NPT	1/2 Female NPT	0.39 (10.0)	1.80	1.50 (38.1)	1.50 (38.1)	0.75 (19.1)	3.00 (76.2)	0.75 (19.1)	1.03 (26.2)	3.91 (99.3)
NG□□-FNS12-9	3/4 Female NPT	3/4 Female NPT			1.63 (41.3)	1.63 (41.3)					
NG□□-NS12-9	3/4 Male NPT	3/4 Male NPT									
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									
NG□□-ML14-9	14 mm FITOK	14 mm FITOK									
NG□□-MTS14-9	14 mm MTS	14 mm MTS									
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 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 of FITOK Group.

Dimensions



Dimensions of NGH Series

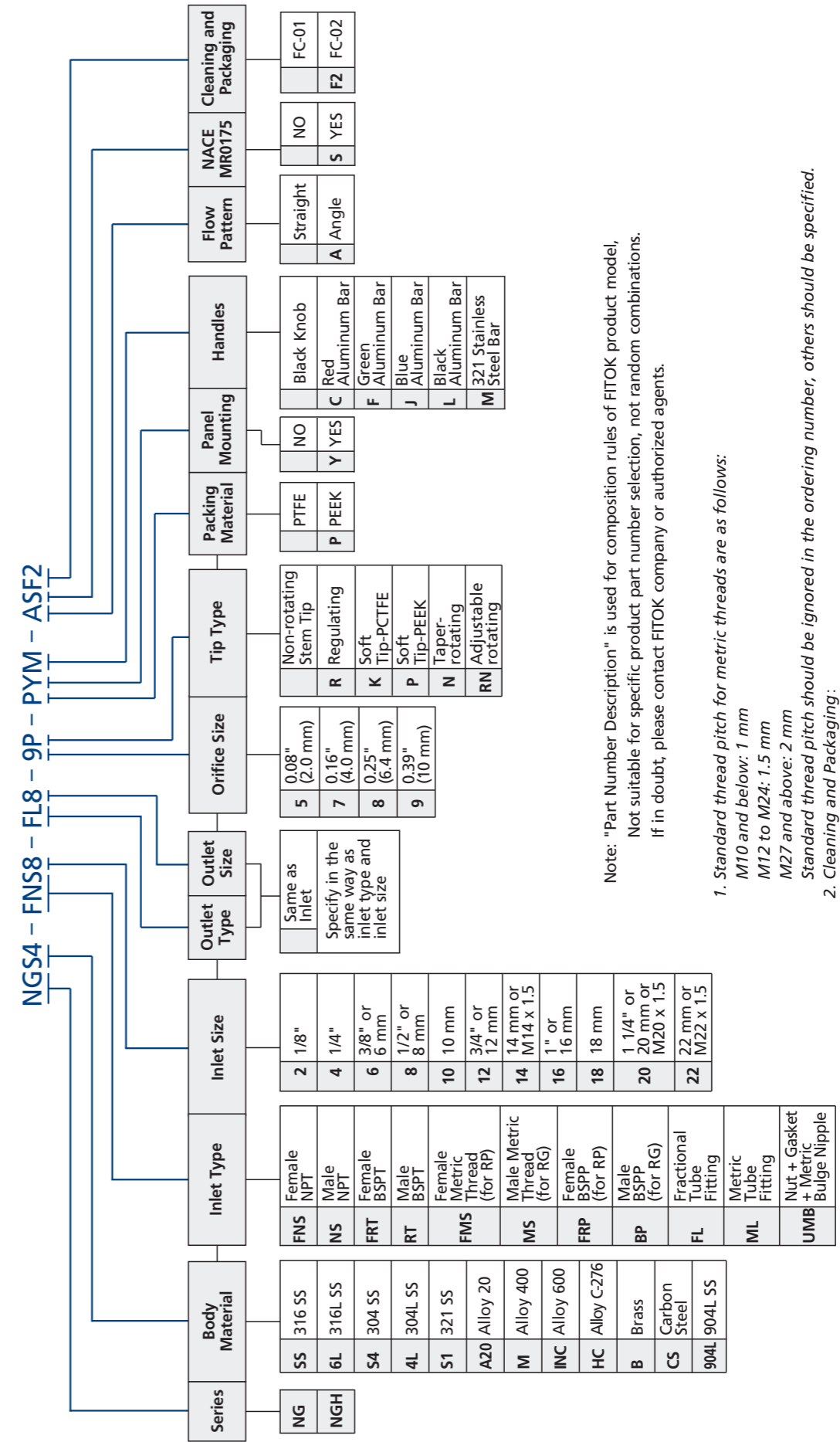
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)						
	Inlet	Outlet			L1	L2	C	D	E	F	H
NGH□□-NS2-5	1/8 Male NPT	1/8 Male NPT	0.08 (2.0)	0.09	0.75 (19)	0.75 (19)	0.31 (7.9)	1.00 (25.4)	0.44 (11.2)	0.47 (11.9)	2.28 (57.9)
NGH□□-FNS2-5	1/8 Female NPT	1/8 Female NPT			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□□-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									
NGH□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.15 (4.0)	0.35	0.81 (20.6)	0.81 (20.6)	0.39 (9.9)	1.38 (35.0)	0.44 (11.2)	0.53 (13.5)	2.50 (63.5)
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									
NGH□□-ML8-7	8 mm FITOK	8 mm FITOK			1.17 (29.7)	1.17 (29.7)					
NGH□□-MTS8-7	8 mm MTS	8 mm MTS			0.98 (25.0)	0.98 (25.0)					
NGH□□-TS4-7	1/4" TS	1/4" TS									
NGH□□-UMB6-7	6 mm UMB	6 mm UMB			2.24 (57.0)	2.24 (57.0)					
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)	0.50 (12.7)	1.88 (47.8)	0.50 (12.7)	0.78 (19.8)	2.97 (75.4)
NGH□□-FNS6-8	3/8" Female NPT	3/8" Female NPT			1.12 (28.4)	1.12 (28.4)					
NGH□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.50 (38.1)	1.50 (38.1)					
NGH□□-NS8-8	1/2 Male NPT	1/2 Male NPT									
NGH□□-FL6-8	3/8" FITOK	3/8" FITOK			1.29 (32.8)	1.29 (32.8)					
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	E	F	H
NGH□□-ML10-8	10 mm FITOK	10 mm FITOK	0.25 (6.4)	0.70	1.30 (33.0)	1.30 (33.0)	0.50 (12.7)	1.88 (47.8)	0.50 (12.7)	0.78 (19.8)	2.97 (75.4)
NGH□□-ML12-8	12 mm FITOK	12 mm FITOK			1.40 (35.6)	1.40 (35.6)					
NGH□□-ML14-8	14 mm FITOK	14 mm FITOK			1.56 (39.7)	1.56 (39.7)					
NGH□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric			1.50 (38.1)	1.50 (38.1)					
NGH□□-MTS10-8	10 mm MTS	10 mm MTS			1.14 (29.0)	1.14 (29.0)					
NGH□□-MTS14-8	14 mm MTS	14 mm MTS			2.60 (66.0)	2.60 (66.0)					
NGH□□-UMB10-8	10 mm MTS	10 mm MTS									
NGH□□-UMB14-8	14 mm UMB	14 mm UMB									
NGH□□-FNS8-9	1/2 Female NPT	1/2 Female NPT	0.39 (10.0)	1.80	1.50 (38.1)	1.50 (38.1)	0.75 (19.1)	3.00 (76.2)	0.75 (19.1)	1.03 (26.2)	3.91 (99.3)
NGH□□-NS12-9	3/4 Male NPT	3/4 Male NPT			1.63 (41.3)	1.63 (41.3)					
NGH□□-FL8-9	1/2" FITOK	1/2" FITOK			1.90 (48.3)	1.90 (48.3)					
NGH□□-FL12-9	3/4" FITOK	3/4" FITOK			1.56 (39.7)	1.56 (39.7)					
NGH□□-ML14-9	14 mm FITOK	14 mm FITOK									
NGH□□-MTS14-9	14 mm MTS	14 mm MTS									
NGH□□-MTS16-9	14 mm MTS	14 mm MTS									
NGH□□-MTB16-9	16 mm MTB	16 mm MTB									

1. FITOK 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 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 company or authorized agents.

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.
3. 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

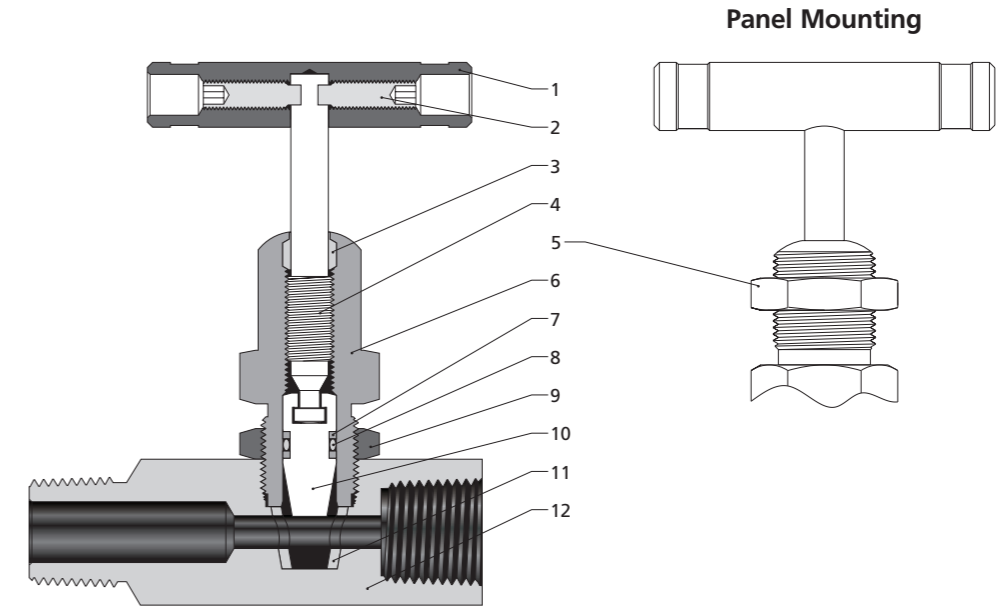
## NR Series NRG (With gauge port) Series

### 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.
- Maximum working pressure:  
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)

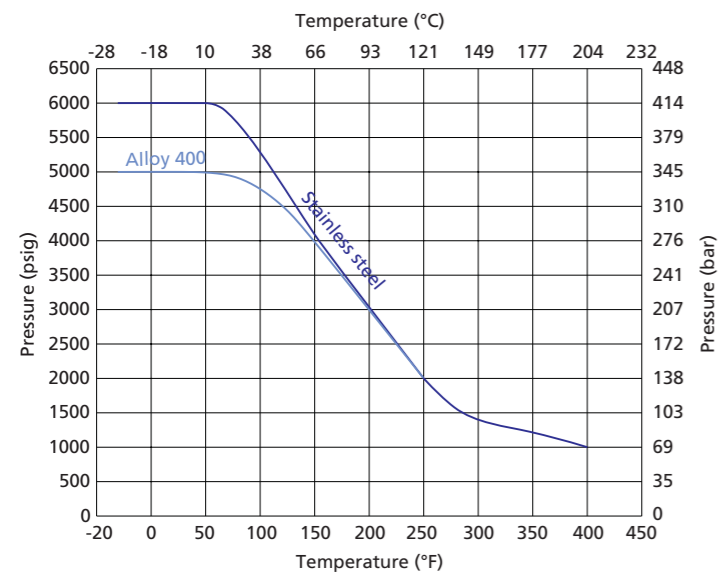


### Standard Materials of Construction

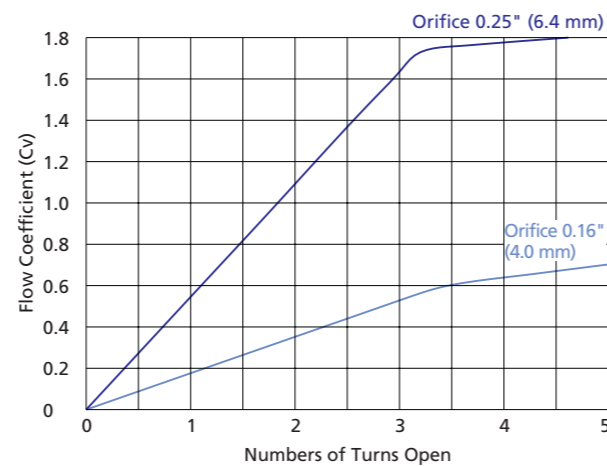


Item	Component	Valve Body Material			
		316 SS	304 SS	321 SS	Alloy R-405
1	Handle	Anodized aluminum or stainless steel or black knob			
2	Set Screw	stainless steel			
3	Wiper Ring	PTFE/D1710			
4	Upper Stem	316 SS/A276	304 SS/A276	321 SS/A276	Alloy R-405/B164
5	Panel Nut	17-4PH			
6	Bonnet	316 SS/A479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

### Pressure vs. Temperature



### Flow Data at 100°F (38°C)



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

### Sour Gas Application

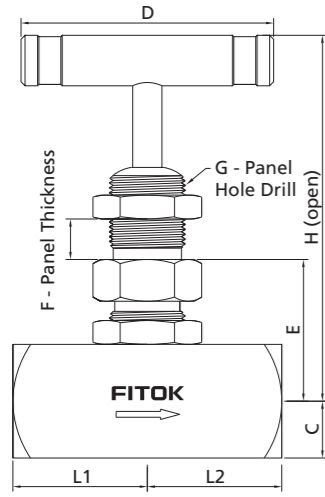
NR series valves are available for sour gas application. Materials for wetted components are in accordance with NACE specification MR0175 for sulfide stress cracking-resistant materials.

### Materials

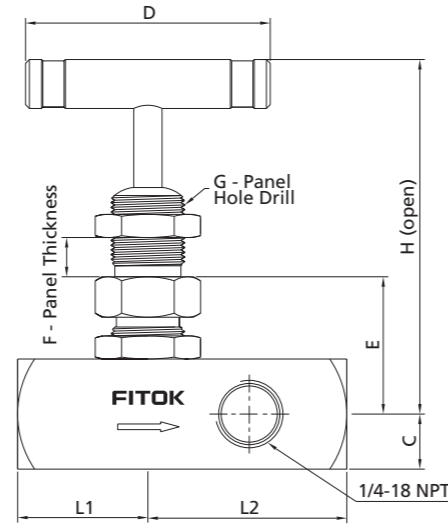
Body, bonnet: annealed 316 SS  
O-ring: ethylene propylene  
Stem tip: alloy R-405/ASTM B164  
All other components are the same as standard product.

Dimensions

Standard Pattern  
NR Series



Gauge Port Pattern  
NRG Series



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	0.16 (4.0)	0.63	1.12 (28.4)	1.12 (28.4)	0.44 (11.1)	2.17 (55)	1.08 (27.5)	0.25 (6.4)	0.65 (16.1)	3.77 (95.8)
NR □□ -NS4-FNS4-7	1/4 Male NPT	1/4 Female NPT			1.78 (45.2)							
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)	0.50 (12.7)					
NRG □□ -NS8-FNS4-7	1/2 Male NPT	1/4 Female NPT	3.12 (79.2)	1.80	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 □□ -FNS8-8	1/2 Female NPT	1/2 Female NPT	1.33 (33.8)									
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	3.33 (84.6)									2.25 (57.2)
NRG □□ -FNS8-8	1/2 Female NPT	1/2 Female NPT	0.25 (6.4)	1.80	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)	
NRG □□ -NS12-FNS8-8	3/4 Male NPT	1/2 Female NPT										3.33 (84.6)

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

**NRSS – NS8 – FNS8 – P8 – BYM – SF2**

Series	NR	NRG													
Body Material	SS 316 SS	6L 316L SS	S4 304 SS	4L 304L SS	S1 321 SS	D5 Duplex 2205	TI Titanium	A20 Alloy 20	M Alloy 400	INC Alloy 600	HC Alloy C-276	B Brass	CS Carbon Steel	904L 904L SS	
Inlet Type	FNS Female NPT	NS Male NPT	FRT Female BSPT	RT Male BSPT	FMS Female Metric Thread (for RP)	MS Male Metric Thread (for RG)	FRP Female BSPP (for RP)	BP Male BSPP (for RG)							
Inlet Size	2 1/8"	4 1/4"	6 3/8" or 6 mm	8 1/2" or 8 mm	10 10 mm	12 3/4" or 12 mm	14 14 mm or M14 x 1.5	16 1" or 16 mm	18 18 mm	20 1 1/4" or 20 mm or M20 x 1.5	22 22 mm or M22 x 1.5	24 M24 x 1.5			
Outlet Type	Same as Inlet	Specify in the same way as inlet type and inlet size													
Seat Material	Acetal	P PEEK	A PFA												
Orifice Size	7 0.16" (4.0 mm)	8 0.25" (6.4 mm)													
O-ring Material	FKM	B Buna N	E Ethylene propylene												
Panel Mounting	No	Y Yes													
Handle	Black Aluminum Bar	C Red Aluminum Bar	F Green Aluminum Bar	J Blue Aluminum Bar	M 321 Stainless Steel Bar	O Black Knob									
Cleaning and Packaging	FC-01	FC-02													
NACE MR0175	No	S Yes													

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 company or authorized agents.

- 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.

# Toggle Valves

## NT Series

### Features

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

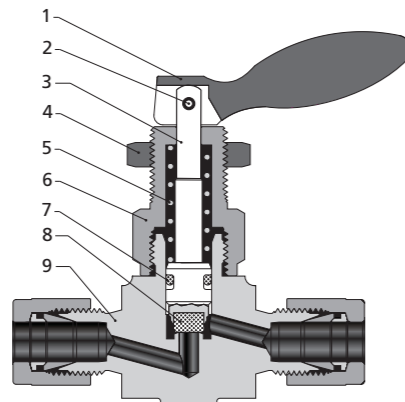


### Technical Data

Orifice	Working Pressure at 100°F (37°C)
2.0 mm	300 psig
4.0 mm	
6.4 mm	200 psig

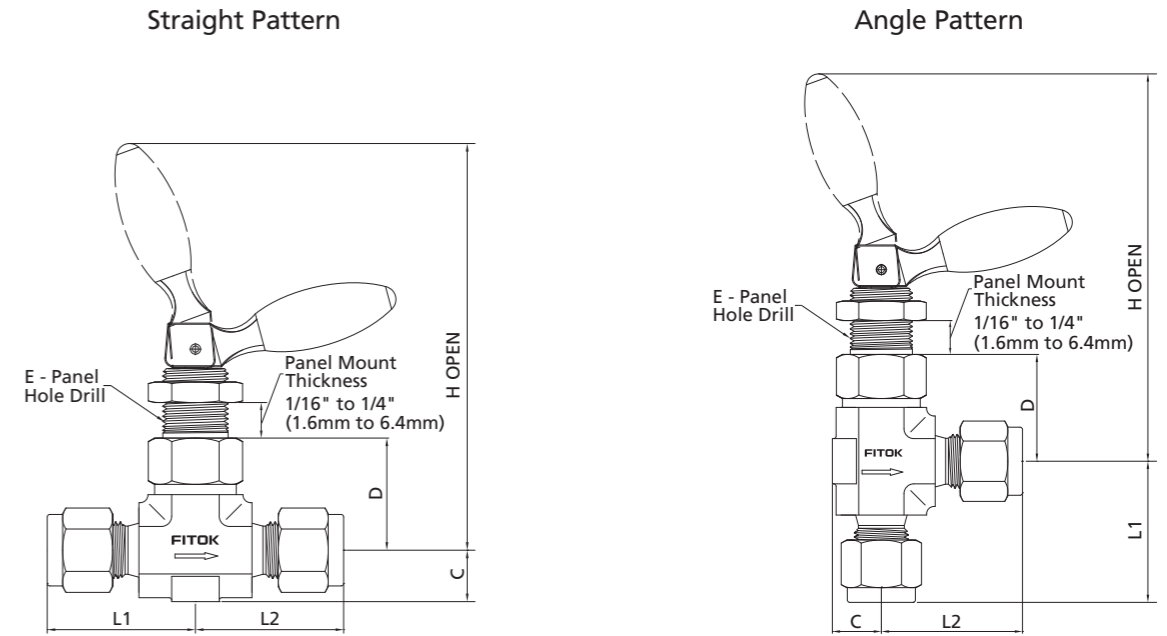
O-ring Material	Temperature Rating
FKM(Standard)	-20°F to 200°F (-28°C to 93°C)
Buna N	-20°F to 250°F (-28°C to 121°C)
Ethylene Propylene	-20°F to 250°F (-28°C to 121°C)

### 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/B16
5	Spring	PTFE-plated S17700/A313			
6	Bonnet	316 SS/A276	304 SS/A276	321 SS/A276	Brass 360/B16
7	O-ring	Fluorocarbon FKM	Buna	Ethylene propylene	
8	Stem Tip	PTFE/D1710			
9	Body	316 SS/A182	304 SS/A182	321 SS/A182	Brass 377/B283
Lubricant		Molybdenum disulfide-based and silicone-based			

### Dimensions

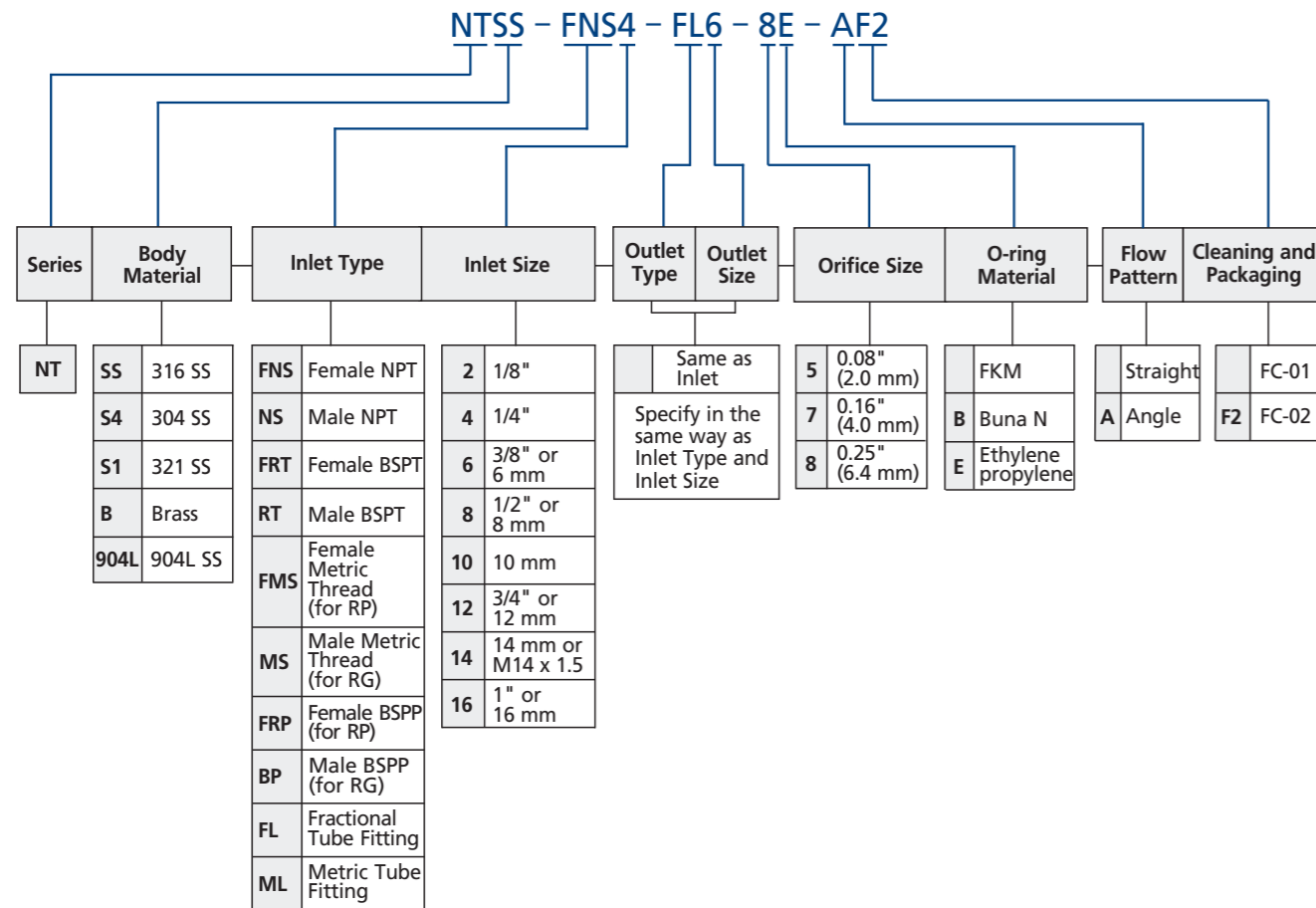


Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)					
	Inlet	Outlet			L1	L2	C	D	E	H
NT□□-NS2-5	1/8 Male NPT	1/8 Male NPT	0.08 (2.0)	0.11	0.75 (19.0)	0.75 (19.0)	0.31 (7.9)	0.92 (23.4)	0.53 (13.5)	2.87 (72.9)
NT□□-NS2-FL2-5	1/8 Male NPT	1/8" FITOK			0.75 (19.0)	0.98 (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	0.16 (4.0)	0.20	0.81 (20.6)	0.81 (20.6)	0.39 (9.9)	0.92 (23.4)	0.53 (13.5)	2.87 (72.9)
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			25.00 (0.98)	25.00 (0.98)				
NT□□-NS4-FL4-7	1/4 Male NPT	1/4" FITOK	25.00 (0.98)							
NT□□-FL4-7	1/4" FITOK	1/4" FITOK			1.13 (28.7)					
NT□□-ML6-7	6 mm FITOK	6 mm FITOK								
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)	0.50 (12.7)	1.06 (26.9)	0.66 (16.8)	3.56 (90.4)
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								
NT□□-FL8-8	1/2" FITOK	1/2" FITOK			1.40 (35.6)	1.40 (35.6)				
NT□□-ML10-8	10 mm FITOK	10 mm FITOK			1.36 (34.5)	1.36 (34.5)				
NT□□-ML12-8	12 mm FITOK	12 mm FITOK			1.46 (37.1)	1.46 (37.1)				
NT□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric			1.50 (38.1)	1.50 (38.1)				
NT□□-MS22-8	M22 x 1.5 Male Metric	M22 x 1.5 Male Metric								

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 company or authorized agents.

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.

## Union Bonnet Needle Valves

**NU Series: Maximum working pressure 6000 psig**  
**NUH Series: Maximum working pressure 10000 psig**

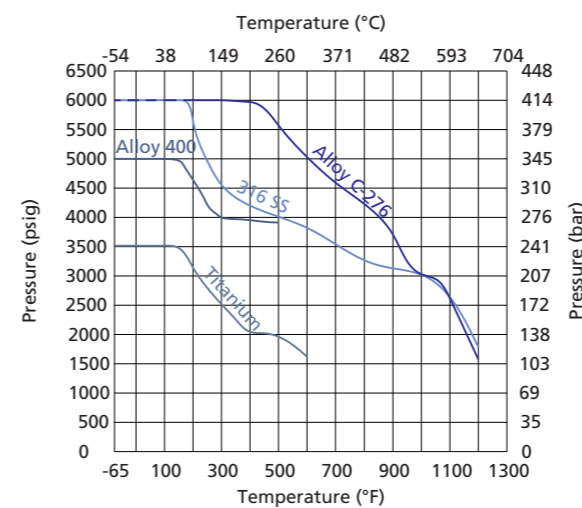
### Features

- 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.
- Maximum working pressure:
  - 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 (689 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)

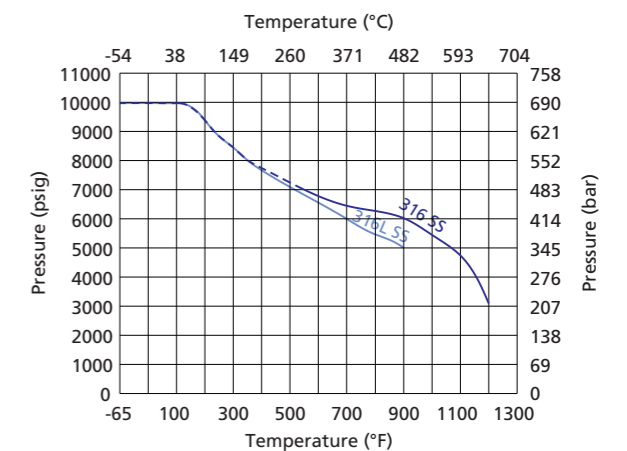


### Pressure vs. Temperature

NU Series



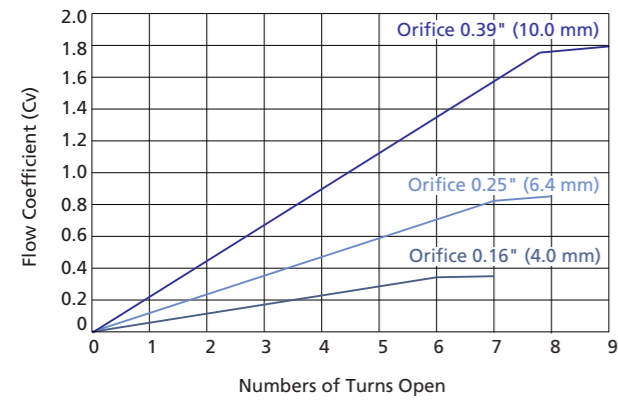
NUH Series



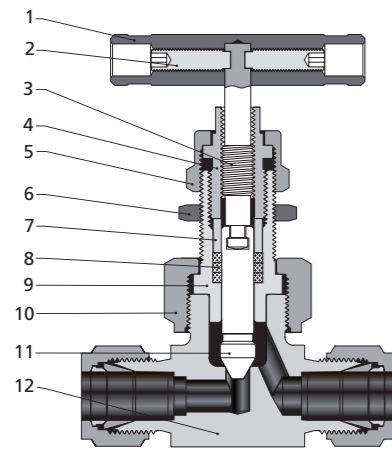
- Graphs are based on graphite stem packing.
- Suitable for NU series only, 200°F (93°C) max. with PCTFE stem tip (soft tip).
- Contact the authorized representative or FITOK Group for curve graph of other materials.

### Flow Data at 100°F (37°C)

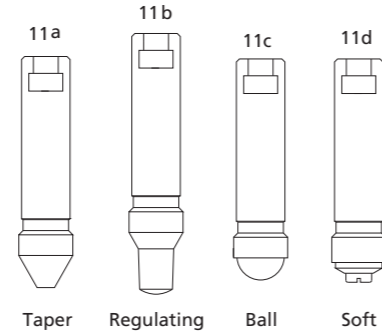
Regulating Stem



### Standard Materials of Construction

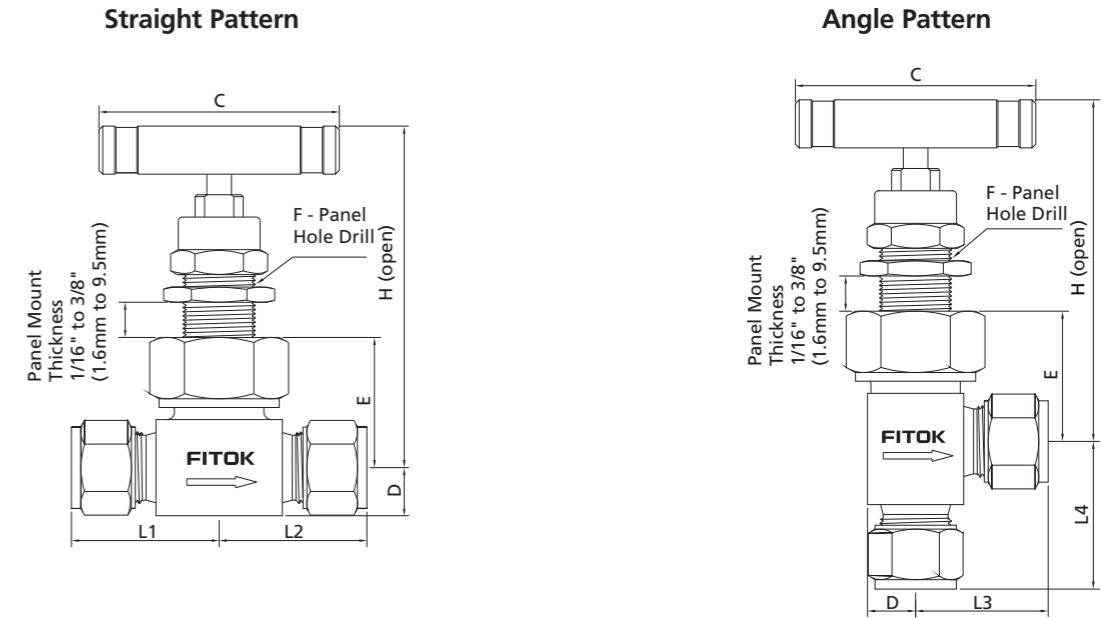


#### Stem Type



Item	Component	Valve Body Material			
		316 SS	Alloy 400	Titanium	Alloy C-276
1	Handle	Anodized aluminium or stainless steel or black knob			
2	Set Screw	Stainless steel			
3	Upper Stem	316 SS/A276			
4	Packing Bolt	321 SS/A276			
5	Lock Nut	316 SS/A276			
6	Panel Nut	316 SS/B783			
7	Gland	316 SS/A276	Alloy R-405/B164	Titanium Gr 4/B348	Alloy C-276/B574
8	Packing	PTFE or PEEK or graphite			
9	Bonnet	316 SS/A479	Alloy R-405/B164	Titanium Gr 4/B348	Alloy C-276/B574
10	Union Nut	316 SS/A276			
11a 11b 11c 11d	Lower Stem	Chrome-plated 316 SS/A276	Alloy R-405/B164	Titanium Gr 4/B348	Alloy C-276/B574
		Optional			
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 or Weld stellite optional			
	Lubricant	Molybdenum disulfide-based			

### Dimensions of NU Series

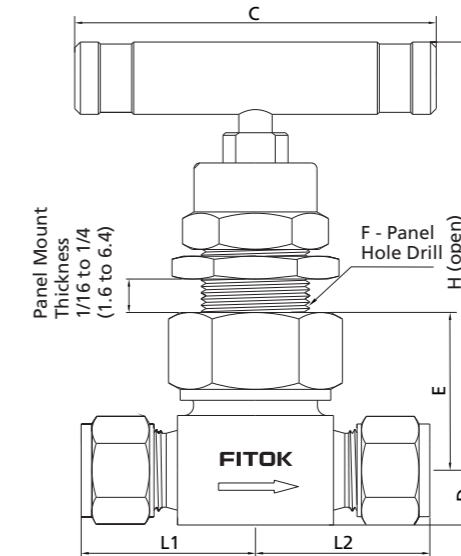


Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)										
	Inlet	Outlet			L1	L2	L3	L4	C	D	E	F	H		
NU□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	0.89 (22.6)	1.00 (25.4)	1.75 (44.5)	0.39 (9.9)	1.09 (27.7)	0.59 (15.1)	3.04 (77.2)		
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)									
NU□□-NS6-7	3/8 Male NPT	3/8 Male NPT			1.03 (26.2)	1.03 (26.2)									
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			1.03 (26.2)	1.22 (30.9)									
NU□□-FNS4-FL4-7	1/4 Female NPT	1/4" FITOK			1.00 (25.4)	1.00 (25.4)									
NU□□-FL4-7	1/4" FITOK	1/4" FITOK			1.22 (30.9)	1.22 (30.9)									
NU□□-ML6-7	6 mm FITOK	6 mm FITOK			0.91 (23.1)	0.91 (23.1)									
NU□□-ML8-7	8 mm FITOK	8 mm FITOK			1.03 (26.2)	1.03 (26.2)									
NU□□-TS4-7-G	1/4" TS	1/4" TS			0.88 (22.4)	1.19 (30.2)									
NU□□-FO4-7	1/4" Male FO	1/4" Male FO	1.13 (28.6)	1.13 (28.6)											
NU□□-FR4-7	1/4" Male FR	1/4" Male FR	1.06 (26.9)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	0.78 (19.8)	3.70 (94)							
NU□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	1.13 (28.6)						1.13 (28.6)						
NU□□-FNS6-8	3/8 Female NPT	3/8 Female NPT	1.41 (35.9)						1.41 (35.9)						
NU□□-NS6-8	3/8 Male NPT	3/8 Male NPT	1.29 (32.8)						1.66 (42.2)						
NU□□-FL6-8	3/8" FITOK	3/8" FITOK	1.52 (38.6)						1.40 (35.6)						
NU□□-FL8-8	1/2" FITOK	1/2" FITOK	1.42 (36.1)						1.55 (39.4)						
NU□□-ML10-8	10 mm FITOK	10 mm FITOK	1.30 (33.0)	1.40 (35.6)											

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 FITOK	12 mm FITOK	0.25 (6.4)	0.8	1.52 (38.6)	1.52 (38.6)	1.40 (35.6)	1.65 (41.9)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	0.78 (19.8)	3.70 (94)
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											
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-G	14 mm UMB	14 mm UMB											
NU □□-FO8-8	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	0.39 (10.0)	1.8	1.56 (39.6)	1.56 (39.6)	1.56 (33.3)	1.56 (39.6)					
NU □□-FNS8-9	1/2 Female NPT	1/2 Female NPT			1.56 (39.6)	1.56 (39.6)	1.31 (33.3)	1.56 (39.6)					
NU □□-FNS12-9	3/4 Female NPT	3/4 Female NPT			1.63 (41.3)	1.63 (41.3)							
NU □□-FNS16-9	1 Female NPT	1 Female NPT			1.81 (46.0)	1.81 (46.0)							
NU □□-NS12-9	3/4 Male NPT	3/4 Male NPT			1.63 (41.3)	1.63 (41.3)							
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			1.97 (50.0)	1.97 (50.0)	1.68 (42.7)	2.08 (52.8)					
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			1.56 (39.7)	1.56 (39.7)	1.31 (33.3)	1.69 (42.9)					
NU □□-TS12-9-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	2.98 (75.7)	2.98 (75.7)									
NU □□-FO12-9	3/4" Male FO	3/4" Male FO											
NU □□-FR8-9	1/2" Male FR	1/2" Male FR	1.56 (39.7)	1.56 (39.7)									
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, 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, 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.

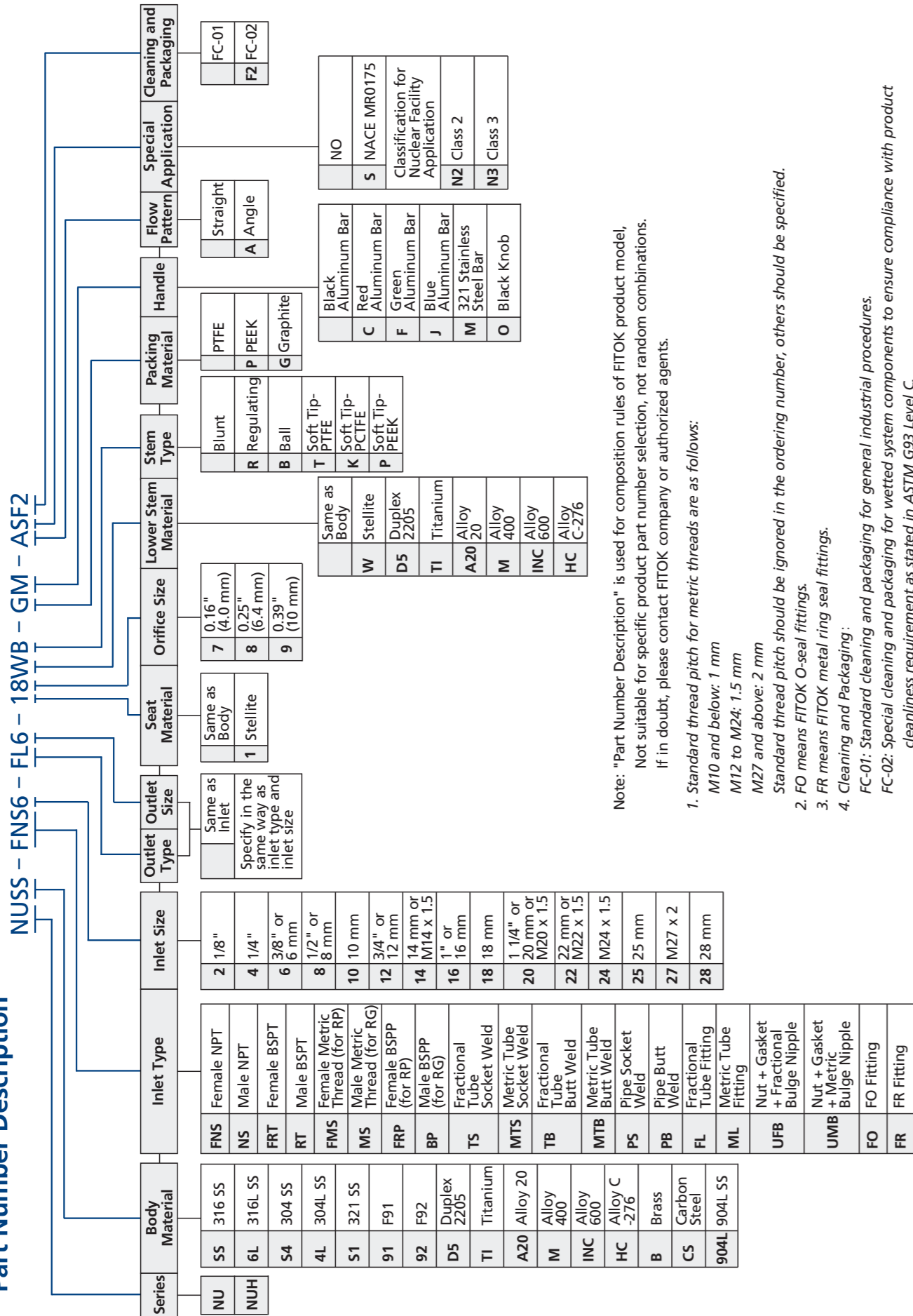
### Dimensions of NUH Series



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	0.16 (4.0)	0.35	1.13 (28.6)	1.13 (28.6)	2.50 (63.5)	0.50 (12.7)	1.34 (34.1)	0.78 (19.8)	3.31 (84.1)		
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 □□-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 □□-TS4-7-G	1/4" TS	1/4" TS											
NUH □□-FNS4-8	1/4 Female NPT	1/4 Female NPT											
NUH □□-NS8-8	1/2 Male NPT	1/2 Male NPT			0.25 (6.4)	0.86						1.56 (39.6)	1.56 (39.6)
NUH □□-FNS8-8	1/2 Female NPT	1/2 Female NPT	1.63 (41.4)	1.63 (41.4)			4.13 (105)						
NUH □□-NS8-FNS8-8	1/2 Male NPT	1/2 Female NPT											
NUH □□-FL8-8	1/2" FITOK	1/2" FITOK	1.97 (50.0)	1.97 (50.0)									
NUH □□-ML12-8	12 mm FITOK	12 mm FITOK					0.63 (16.0)	1.81 (46.0)	4.25 (108)				
NUH □□-TS8-8	1/2" TS	1/2" TS											
NUH □□-ML14-9-G	14 mm FITOK	14 mm FITOK											
NUH □□-MTS12-8	12 mm MTS	12 mm MTS	1.56 (39.7)	1.56 (39.7)									

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, 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



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 company or authorized agents.

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. 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.

# Outside Screw and Yoke Globe Pattern Needle Valves

**NY Series: Maximum working pressure 6000 psig**

**NYH Series: Maximum working pressure 10000 psig**

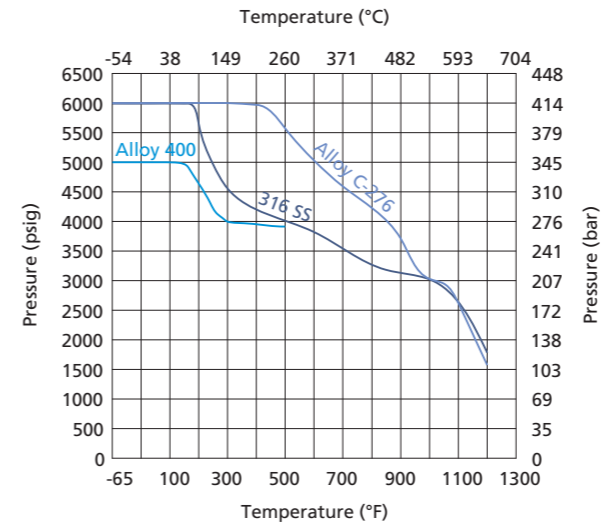
## Features

- 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.
- Maximum working pressure:
  - NY Series—Stainless steel: 6000 psig (414 bar)
  - Alloy C-276: 6000 psig (414 bar)
  - Alloy 400: 5000 psig (345 bar)
  - NYH Series-Stainless steel: 10000 psig (689 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)

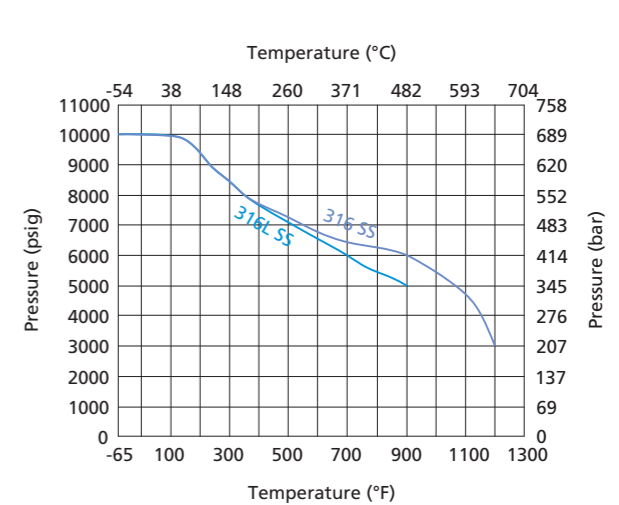


## Pressure vs. Temperature

NY Series

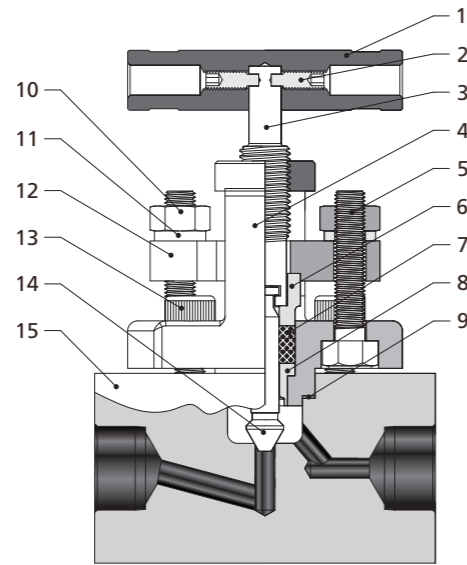


NYH Series



1. Graphs are based on graphite stem packing.
2. Suitable for NY 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.

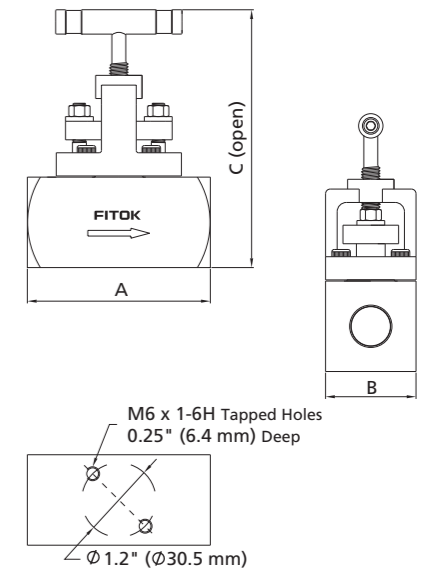
### Standard Materials of Construction



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

### Dimensions of NY Series

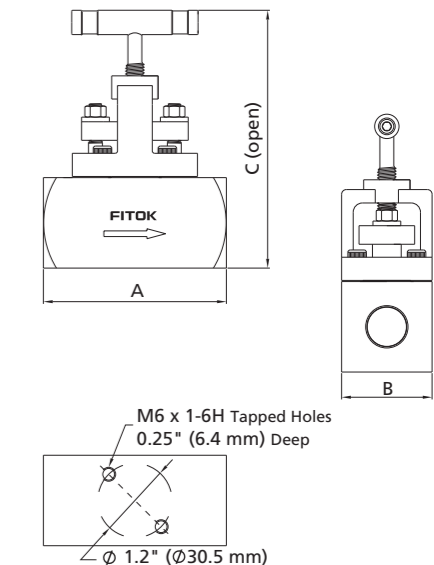
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)		
	Inlet	Outlet			A	B	C
NY□□-FNS4	1/4 Female NPT	1/4 Female NPT	0.16 (4.0)	0.35	2.69 (68.2)	1.50 (38.1)	3.89 (98.9)
NY□□-NS4	1/4 Male NPT	1/4 Male NPT			2.95 (75.0)		
NY□□-NS4-FNS4	1/4 Male NPT	1/4 Female NPT			2.72 (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			3.78 (96.0)		
NY□□-ML8	8 mm FITOK	8 mm FITOK					
NY□□-ML12	12 mm FITOK	12 mm FITOK					



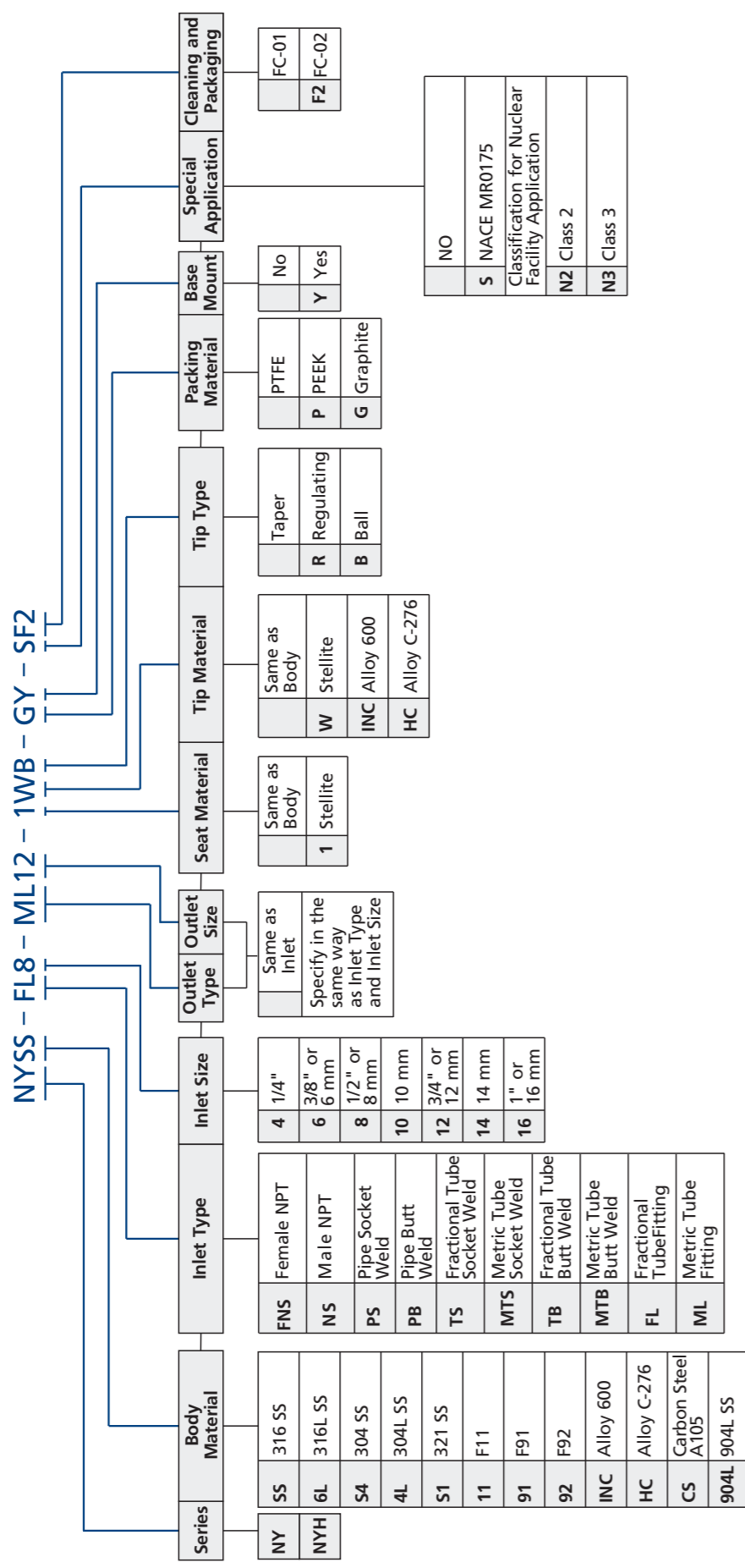
1. FITOK means FITOK double ferrule tube fittings, TS means fractional tube socket weld.
2. For Butt or Socket end connections, please prior to choose graphite as packing material, avoiding damage non graphite packing material due to the high temperature when welding.
3. Sizes and types listed are standard. 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	0.16 (4.0)	0.35	2.69 (68.2)	1.50 (38.1)	3.89 (98.9)
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			2.69 (68.2)		
NYH□□-FNS6	3/8 Female NPT	3/8 Female NPT			3.00 (76.2)		
NYH□□-NS6	3/8 Male NPT	3/8 Male NPT					
NYH□□-FNS8	1/2 Female NPT	1/2 Female NPT					
NYH□□-NS8	1/2 Male NPT	1/2 Male NPT					



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 company or authorized agents.

**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.