

Needle Valves

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



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Bar Stock Needle Valves NB Series and NBH Series



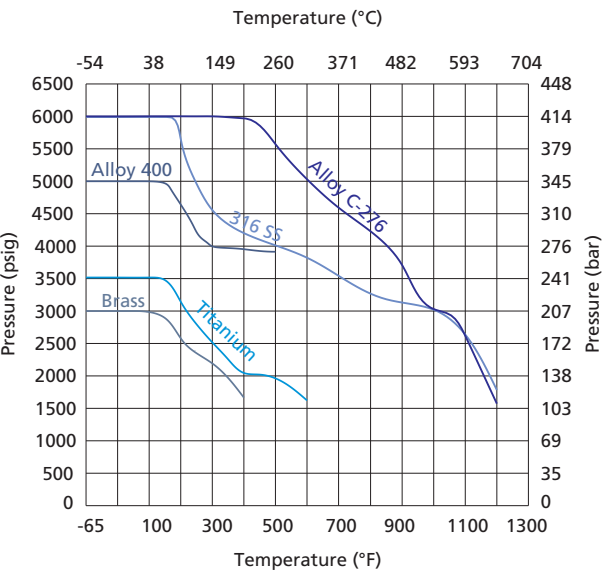
Features

- 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.

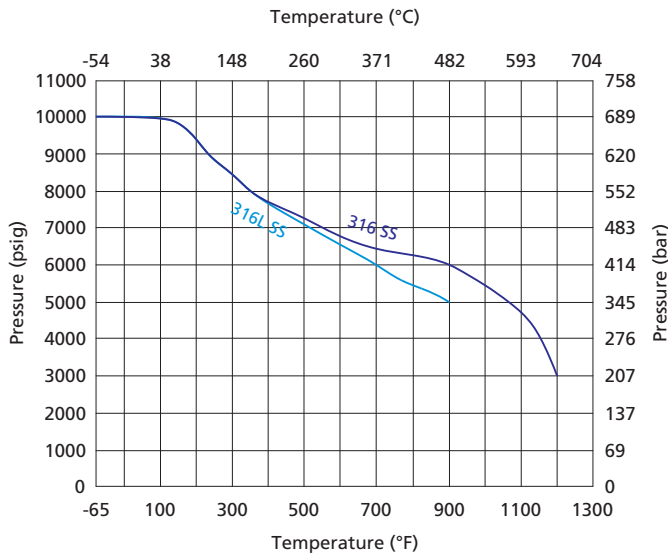
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure, but not higher than 6000 psig.
- Maximum working pressure:
 - NB Series—Stainless steel: 6000 psig (414 bar)
 - Alloy C-276: 6000 psig (414 bar)
 - Alloy 400: 5000 psig (345 bar)
 - Titanium: 3500 psig (241 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



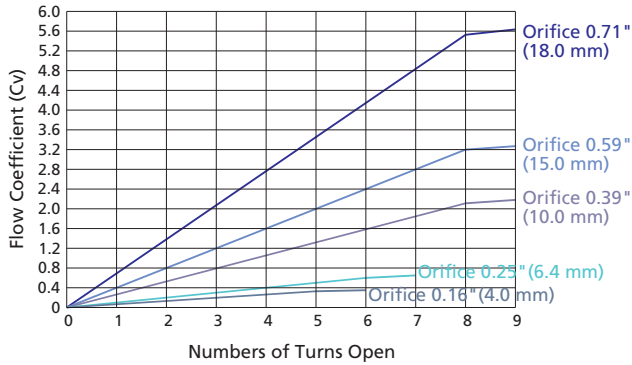
NBH Series



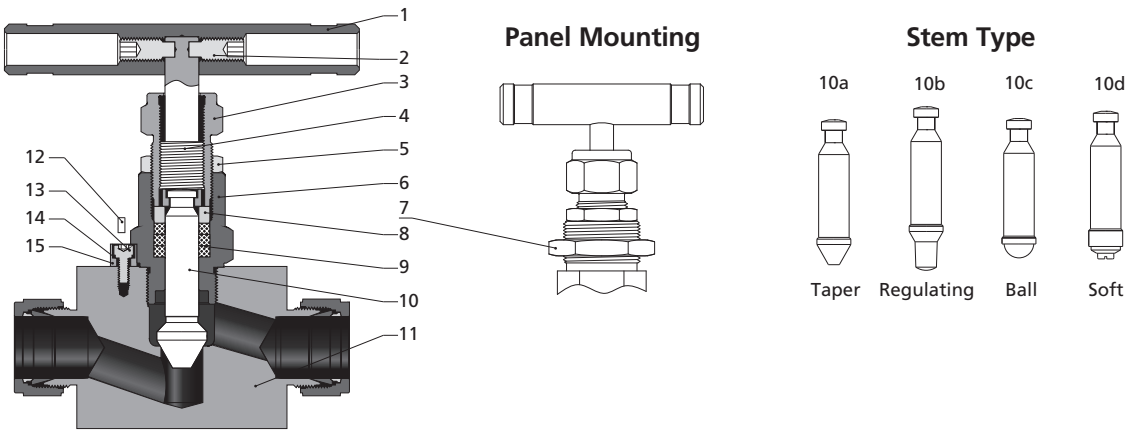
1. Graphs are based on graphite stem packing.
2. Suitable for NB series only, 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact the authorized representative or FITOK Group for curve graph of other materials.

Flow Data at 100°F (38°C)

Regulating Stem



Standard Materials of Construction

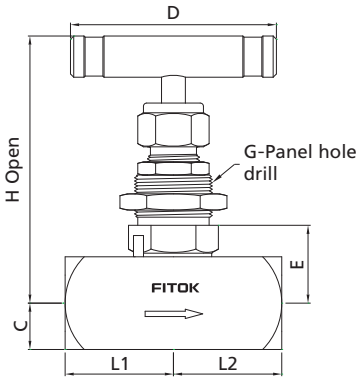


Valve Body Material						
Item	Component	316 SS	Alloy 400	Titanium	Alloy C-276	Brass
1	Handle	Anodized aluminum or stainless steel or black knob				
2	Set Screw	Stainless steel				
3	Packing Bolt	304 SS/A276				
4	Upper Stem	316 SS/A276				
5	Lock Nut	17-4PH				
6	Bonnet	316 SS/A479	Alloy R-405/B164	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
		Optional				
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				

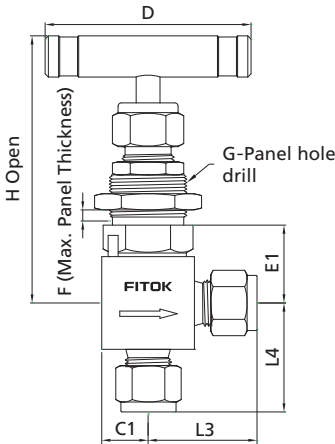
1. Item 12 is applied in valves with orifice size 4.0 & 6.0. For valves with orifice size 10.0, 15.0 & 18.0, item 13, 14 & 15 are used instead of item 12.
2. Contact the authorized representative or FITOK Group for valves of other materials.

Dimensions

Straight Pattern



Angle Pattern



Dimensions of NB Series

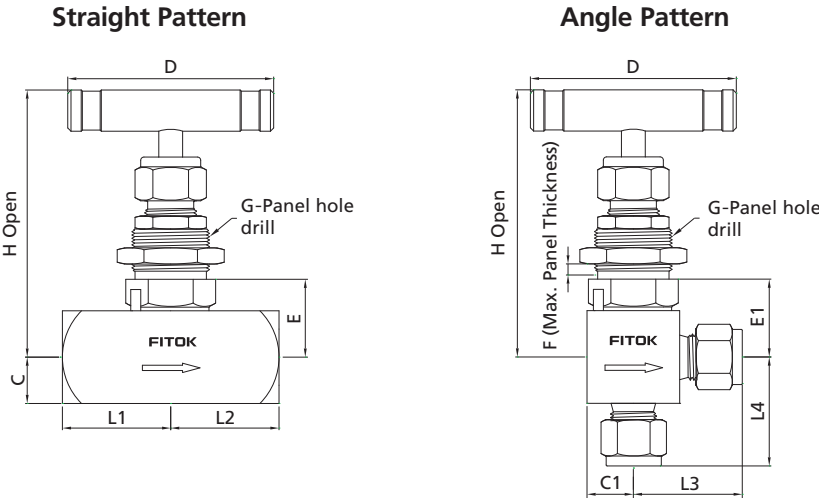
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)													
	Inlet	Outlet			L1	L2	L3	L4	C	C1	D	E	E1	F	G	H	H1	
NB□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	1.00 (25.4)	0.56 (14.3)	0.50 (12.7)	0.50 (12.7)	2.17 (55)	0.84 (21.4)	0.84 (21.4)	0.25 (6.4)	0.77 (19.6)	2.85 (72.4)	2.85 (72.4)	
NB□□-FNS4-7	1/4 Female NPT	1/4 Female NPT			1.06 (26.9)	1.06 (26.9)	1.06 (25.4)	1.06 (14.3)										
NB□□-NS4-7	1/4 Male NPT	1/4 Male NPT			1.03 (26.2)	1.03 (26.2)	1.06 (26.9)	1.06 (26.9)										
NB□□-NS6-7	3/8 Male NPT	3/8 Male NPT			1.19 (30.2)	1.19 (30.2)												
NB□□-FL4-7	1/4" FITOK	1/4" FITOK																
NB□□-ML6-7	6 mm FITOK	6 mm FITOK			1.20 (30.5)	1.20 (30.5)	1.20 (30.5)	1.20 (30.5)										
NB□□-ML8-7	8 mm FITOK	8 mm FITOK																
NB□□-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)	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□□-FNS6-8	3/8 Female NPT	3/8 Female NPT						1.12 (28.6)										
NB□□-NS6-8	3/8 Male NPT	3/8 Male NPT																
NB□□-FL6-8	3/8" FITOK	3/8" FITOK			1.41 (35.8)	1.41 (35.8)	1.32 (33.6)	1.32 (33.6)										
NB□□-FL8-8	1/2" FITOK	1/2" FITOK			1.52 (38.6)	1.52 (38.6)	1.42 (36.1)	1.42 (36.1)										
NB□□-ML10-8	10 mm FITOK	10 mm FITOK			1.42 (36.1)	1.42 (36.1)	1.33 (33.8)	1.33 (33.8)										
NB□□-ML12-8	12 mm FITOK	12 mm FITOK			1.52 (38.6)	1.52 (38.6)	1.42 (36.1)	1.42 (36.1)										
NB□□-ML14-8	14 mm FITOK	14 mm FITOK			1.56 (39.7)	1.56 (39.7)												
NB□□-TS6-8-G	3/8" TS	3/8" TS																
NB□□-TS8-8-G	1/2" TS	1/2" TS																
NB□□-MTS12-8-G	12 mm MTS	12 mm MTS			1.13 (28.6)	1.13 (28.6)	1.13 (28.6)	1.13 (28.6)										
NB□□-MTS14-8-G	14 mm MTS	14 mm MTS																
NB□□-MTS16-8-G	16 mm MTS	16 mm MTS																
NB□□-MTB14-8-G	14 mm MTB	14 mm MTB			1.50 (38.1)	1.50 (38.1)	1.50 (38.1)	1.50 (38.1)										
NB□□-MTB16-8-G	16 mm MTB	16 mm MTB																
NB□□-UMB14-8-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)																		
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			1.97 (50.0)	1.97 (50.0)	1.61 (41.0)	1.61 (41.0)																		
NB□□-ML14-9	14 mm FITOK	14 mm FITOK																								
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																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□□-MTS16-9-G	16 mm MTS	16 mm MTS																								
NB□□-TS12-9-G	3/4" TS	3/4" TS																								
NB□□-MTB14-9-G	14 mm MTB	14 mm MTB			1.75 (44.5)	1.75 (44.5)																				
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			1.56 (39.7)	1.56 (39.7)																				
NB□□-FR12-9	3/4" Male FR	3/4" Male FR																								
NB□□-MS27-9	M27 x 2 Male Metric	M27 x 2 Male Metric																								
NB□□-FNS12-6	3/4 Female NPT	3/4 Female NPT	0.59 (15.0)	3.27			1.75 (44.5)	1.14 (29.0)																		
NB□□-TS16-6-G	1" TS	1" TS					1.75 (44.5)	1.75 (44.5)										1.75 (44.5)	1.75 (44.5)							
NB□□-MTS25-6-G	25 mm MTS	25 mm MTS																								
NB□□-MTS28-6-G	28 mm MTS	28 mm MTS			2.35 (59.7)	2.35 (59.7)	2.35 (59.7)	2.00 (51.0)																		
NB□□-PS12-6-G	3/4 PS	3/4 PS																								
NB□□-ML20-6	20 mm FITOK	20 mm FITOK																								
NB□□-ML22-6	22 mm FITOK	22 mm FITOK	0.71 (18.0)	5.65	1.97 (50.0)	1.97 (50.0)			1.25 (31.75)		5.50 (140)					5.20 (132)										
NB□□-FNS16-0	1 Female NPT	1 Female NPT																								
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																								
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

NBSS – FL8 – ML12 – 18WB – GYM – ASF2



Series		Body Material		Inlet Type		Inlet Size	Outlet Type	Outlet Size	Seat Material	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"	Same as Inlet	Specify in the same way as inlet type and inlet size	7	0.16" (4.0 mm)	Same as Body	Same as Body	PTFE	No	Black Aluminum Bar	Straight	NO	FC-01
	NBH	316L SS	NS	Male NPT	4	1/4"			8	0.25" (6.4 mm)		W						
NBH	S4	304 SS	FRT	Female BSPT	6	3/8" or 6 mm	Same as Body	1	9	0.39" (10 mm)	D5	Duplex 2205	P	Y	Red Aluminum Bar	Angle	Classification for Nuclear Facility Application	F2
	4L	304L SS	RT	Male BSPT	8	1/2" or 8 mm			6	0.59" (15 mm)	TI	Titanium	G		Black Aluminum Bar			
	S1	321 SS	FMS	Female Metric Thread (for RP)	10	10 mm			0	0.71" (18 mm)	A20	Alloy 20			Red Aluminum Bar			
	91	F91	MS	Male Metric Thread (for RG)	12	3/4" or 12 mm			Taper	Only NB series	M	Alloy 400	R	Regulating	Green Aluminum Bar			
	92	F92	FRP	Female BSPP (for RP)	14	14 mm or M14 x 1.5					INC	Alloy 600			Blue Aluminum Bar			
	D5	Duplex 2205	BP	Male BSPP (for RG)	16	1" or 16 mm					HC	Alloy C-276			321 Stainless Steel Bar			
	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 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

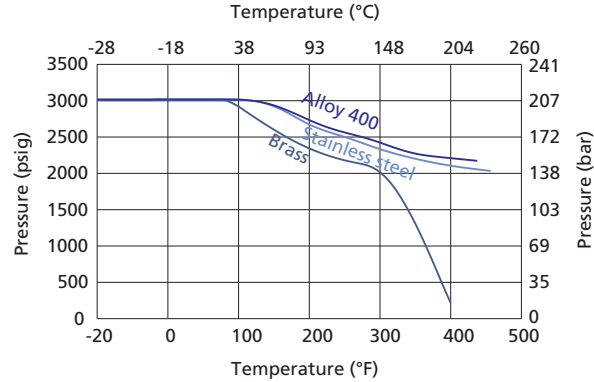
ND Series

Features

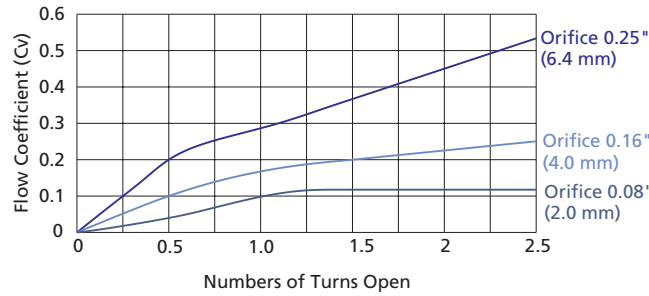
- One-piece forged body.
- Straight and angle pattern.
- Compact design.
- Nonrotating stem.
- Special designed handle to stop contamination entering into the valve.
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure.
- Maximum working pressure: 3000 psig (207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



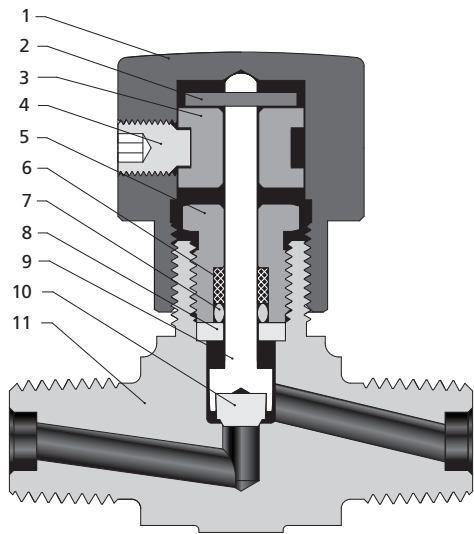
Flow Data at 100°F (38°C)



- 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.

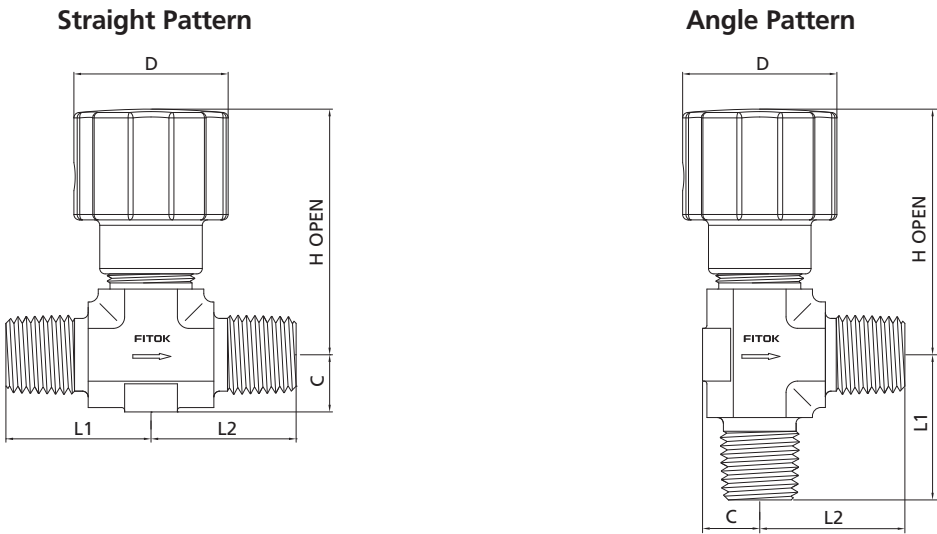


Standard Materials of Construction



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				

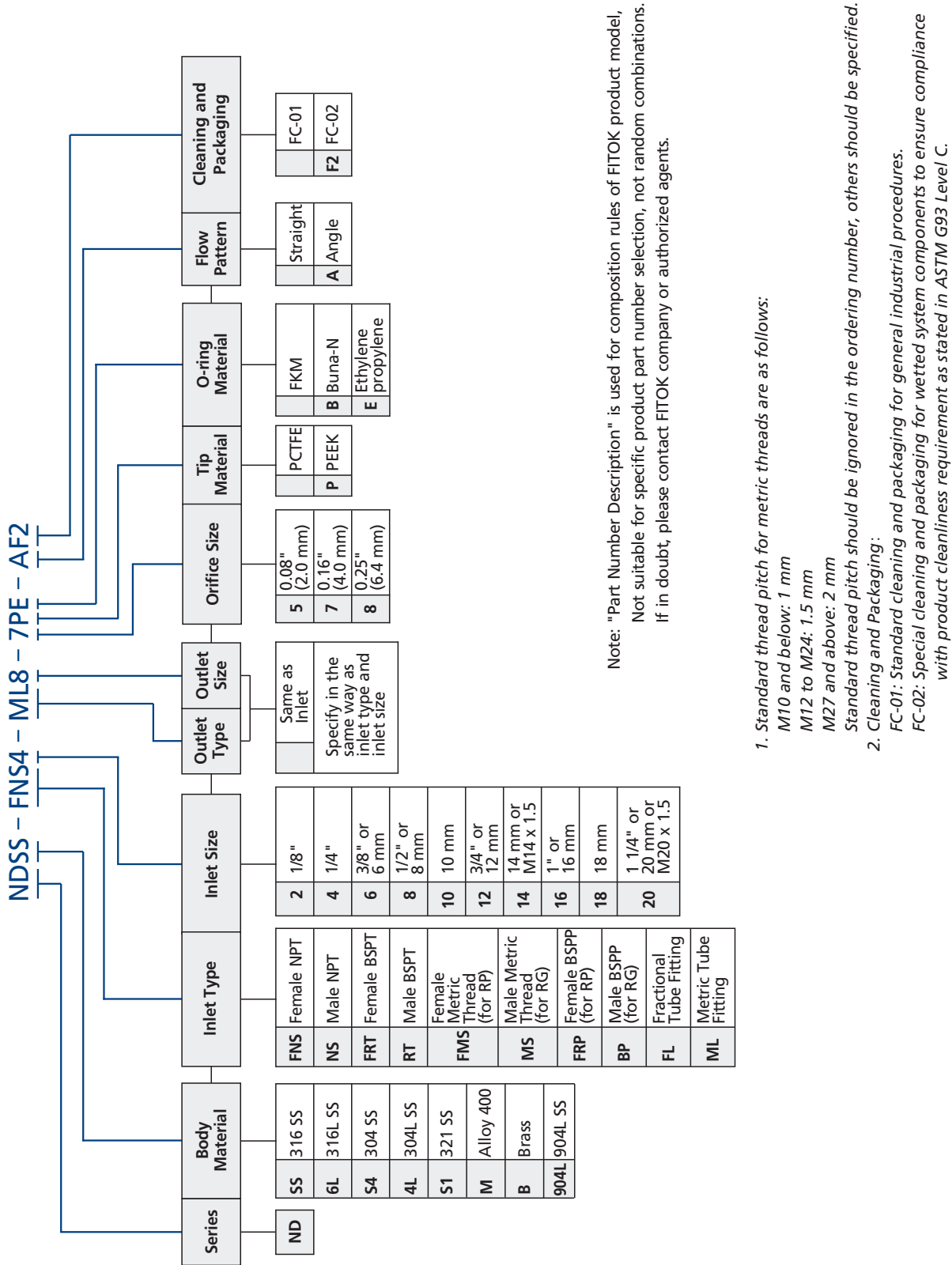
Dimensions



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			1.13 (28.7)				
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			1.50 (38.1)	1.50 (38.1)			
ND□□-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 orFITOK 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.

Forged Needle Valves

NF Series and NFH Series

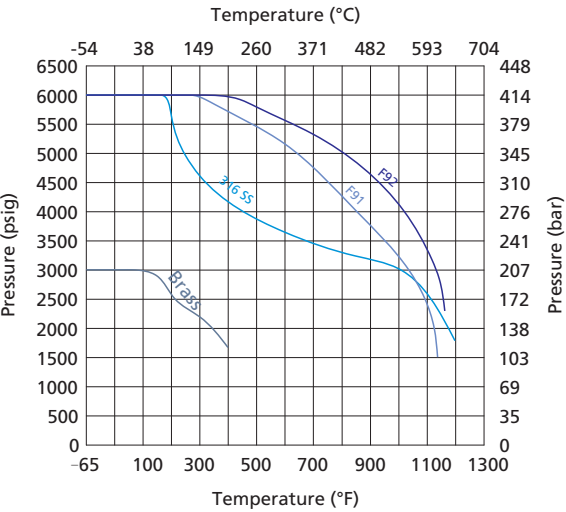
Features

- 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)

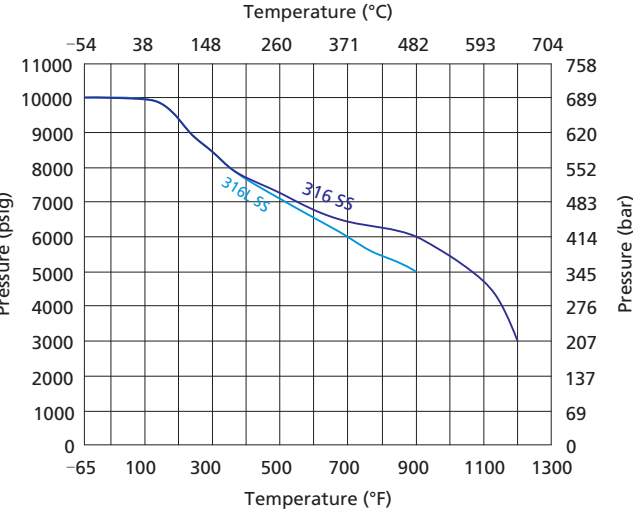


Pressure vs. Temperature

NF Series



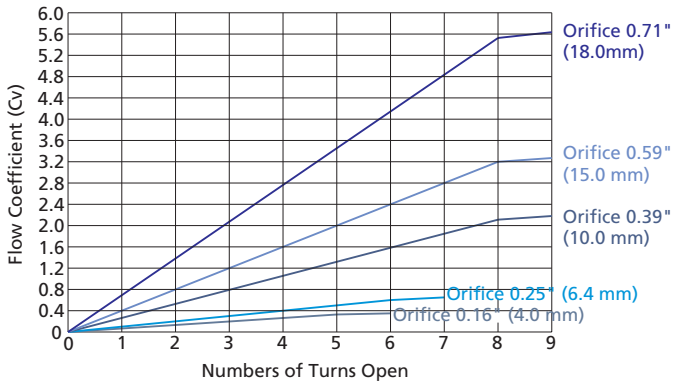
NFH Series



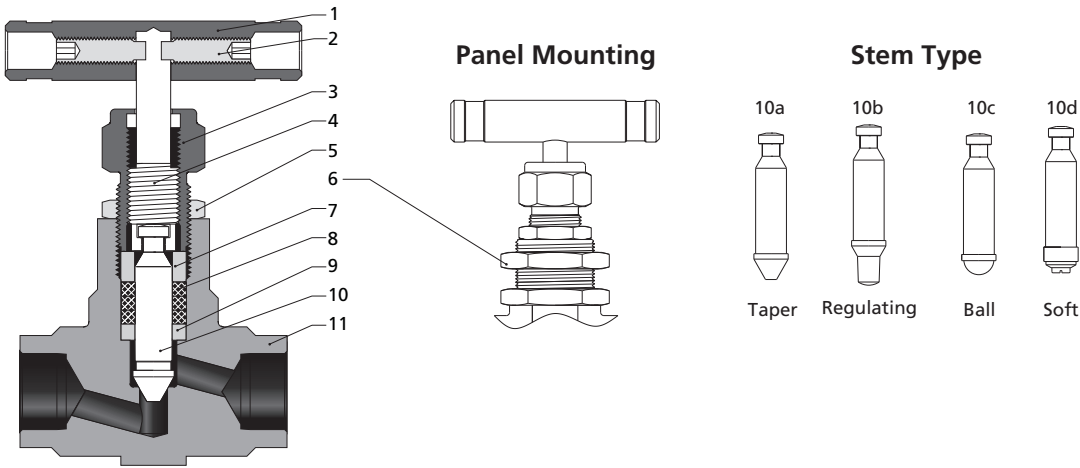
- Graphs are based on graphite stem packing.
- Suitable for NF series only, 200°F (93°C) max. with PCTFE stem tip (soft tip).
- Contact the authorized representative or FITOK Group for curve graph of other materials.

Flow Data at 100°F (38°C)

Regulating Stem

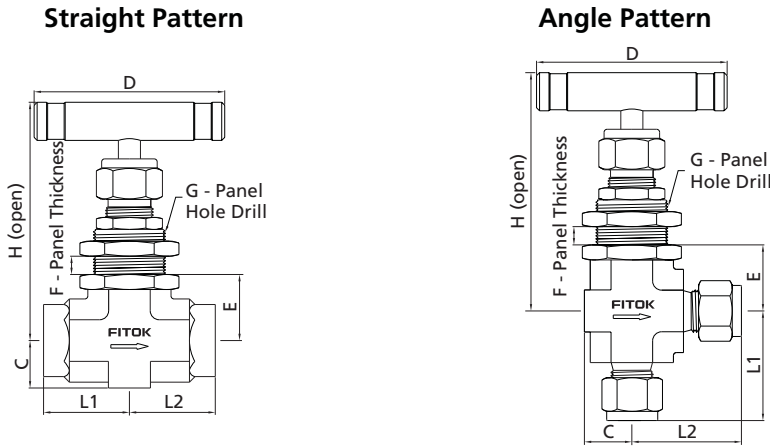


Standard Materials of Construction



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

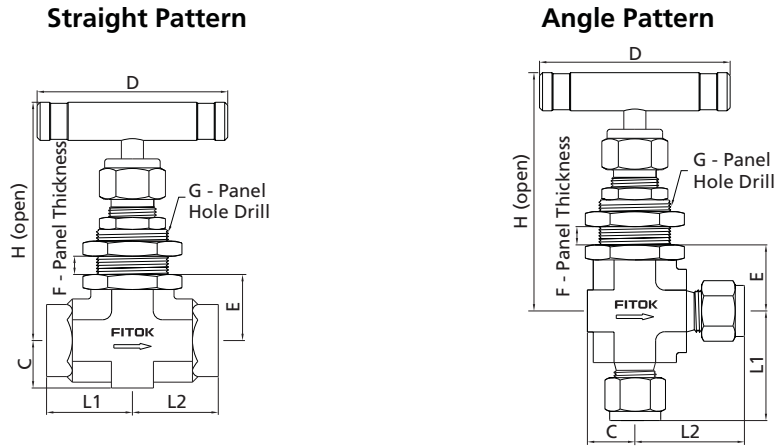
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)							
	Inlet	Outlet			L1	L2	H	D	C	E	F	G
NF□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	2.85 (72.5)	2.17 (55)	0.53 (13.5)	0.71 (18.0)	0.25 (6.4)	0.77 (19.6)
NF□□-FNS4-7	1/4 Female 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	0.25 (6.4)	0.85	1.13 (28.6)	1.13 (28.6)	3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)
NF□□-FNS6-8	3/8 Female NPT	3/8 Female NPT										
NF□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.44 (36.5)	1.44 (36.5)						
NF□□-FL6-8	3/8" FITOK	3/8" FITOK			1.53 (38.9)	1.53 (38.9)						
NF□□-ML10-8	10 mm FITOK	10 mm FITOK			1.56 (39.7)	1.56 (39.7)						
NF□□-ML12-8	12 mm FITOK	12 mm FITOK			1.26 (32.0)	1.26 (32.0)						
NF□□-ML14-8	14 mm FITOK	14 mm FITOK			1.50 (38.1)	1.50 (38.1)						
NF□□-FNS8-8	1/2 Female NPT	1/2 Female NPT			1.53 (38.9)	1.53 (38.9)						
NF□□-NS8-8	1/2 Male NPT	1/2 Male NPT										
NF□□-FL8-8	1/2" FITOK	1/2" FITOK										
NF□□-TS6-8-G	3/8" TS	3/8" TS			1.13 (28.6)	1.13 (28.6)						
NF□□-TS8-8-G	1/2" TS	1/2" TS										
NF□□-MTS12-8-G	12 mm MTS	12 mm MTS			1.50 (38.1)	1.50 (38.1)						
NF□□-MTS14-8-G	14 mm MTS	14 mm MTS										
NF□□-MTS16-8-G	16 mm MTS	16 mm MTS			2.92 (74.1)	2.92 (74.1)						
NF□□-MTB14-8-G	14 mm MTB	14 mm MTB			1.13 (28.6)	1.13 (28.6)						
NF□□-MTB16-8-G	16 mm MTB	16 mm MTB			1.56 (39.7)	1.56 (39.7)						
NF□□-UMB14-8-G	14 mm UMB	14 mm UMB			1.50 (38.1)	1.50 (38.1)						
NF□□-UMB16-8-G	16 mm UMB	16 mm UMB										
NF□□-FO8-8	1/2" Male FO	1/2" Male FO										
NF□□-FR8-8	1/2" Male FR	1/2" Male FR										
NF□□-MS20-8	M20 x 1.5 Male Metric	M20 x 1.5 Male Metric										
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			1.97 (50.0)	1.97 (50.0)								
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			1.56 (39.7)	1.56 (39.7)								
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			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	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			2.35 (59.7)	2.35 (59.7)								
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	1.97 (50.0)	1.97 (50.0)	6.50 (165)	5.50 (165)	1.30 (33.0)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)		
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 meansmetric 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 orFITOK 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)	0.77 (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

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Tip Material	Stem Type	Packing Material	Panel Mounting	Handle	Flow Pattern	Special Application	Cleaning and Packaging
NF	SS	FNS	Female NPT	2 1/8"	Same as Inlet	Same as Inlet	7 0.16" (4.0 mm)	Same as Body	Same as Body	Taper	No	No	Straight		FC-01
NFH	6L	NS	Male NPT	4 1/4"	Specify in the same way as inlet type and inlet size	Specify in the same way as inlet type and inlet size	8 0.25" (6.4 mm)	W	Stellite	Regulating	Y	Yes	Angle		F2 FC-02
	S4	FRT	Female BSPT	6 3/8" or 6 mm			9 0.39" (10 mm)	D5	Duplex 2205	Ball					
	4L	RT	Male BSPT	8 1/2" or 8 mm			6 0.59" (15 mm)	TI	Titanium	Soft Tip-PTFE					
	S1	FMS	Female Metric Thread (for RP)	10 10 mm			0 0.71" (18 mm)	A20	Alloy 20	Soft Tip-PCTFE					
	91	MS	Male Metric Thread (for RG)	12 3/4" or 12 mm				M	Alloy 400						
	92	FRP	Female BSPP (for RP)	14 14 mm or M14 x 1.5				INC	Alloy 600						
	92	BP	Male BSPP (for RG)	16 1" or 16 mm				HC	Alloy C-276						
	D5	TS	Fractional Tube Socket Weld	18 18 mm											
	TI	MTS	Metric Tube Socket Weld	1 1/4" or 20 mm or M20 x 1.5											
	A20	TB	Fractional Tube Butt Weld	22 22 mm or M22 x 1.5											
	M	MTB	Metric Tube Butt Weld	24 M24 x 1.5											
	INC	PS	Pipe Socket Weld	25 25 mm											
	HC	PB	Pipe Butt Weld	27 M27 x 2											
	B	FL	Fractional Tube Fitting	28 28 mm											
	CS	ML	Metric Tube Fitting												
904L	904L SS	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 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 and NGH Series

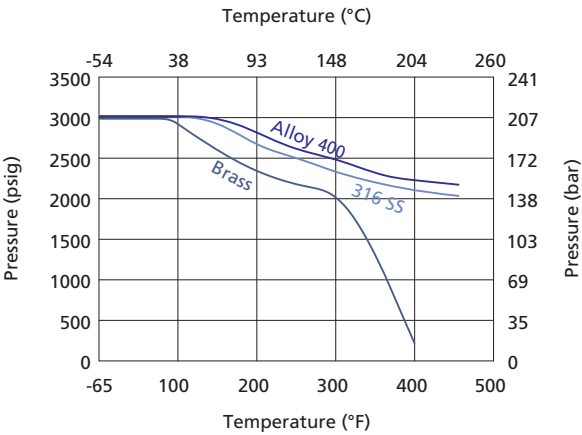
Features

- 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)
- Working temperature:
PTFE: -65°F to 450°F (-54°C to 232°C)
PEEK: -65°F to 600°F (-54°C to 315°C)

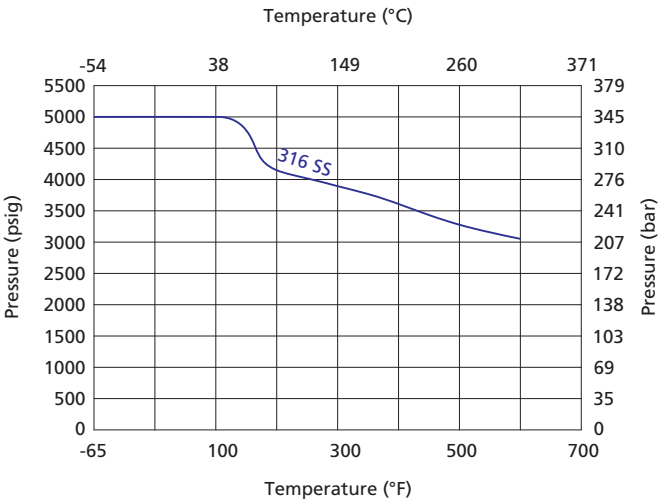


Pressure vs. Temperature

NG Series



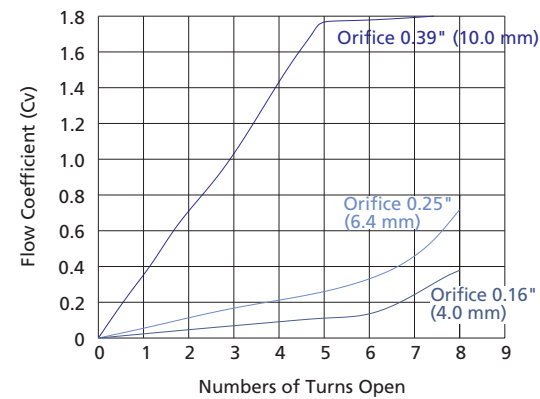
NGH Series



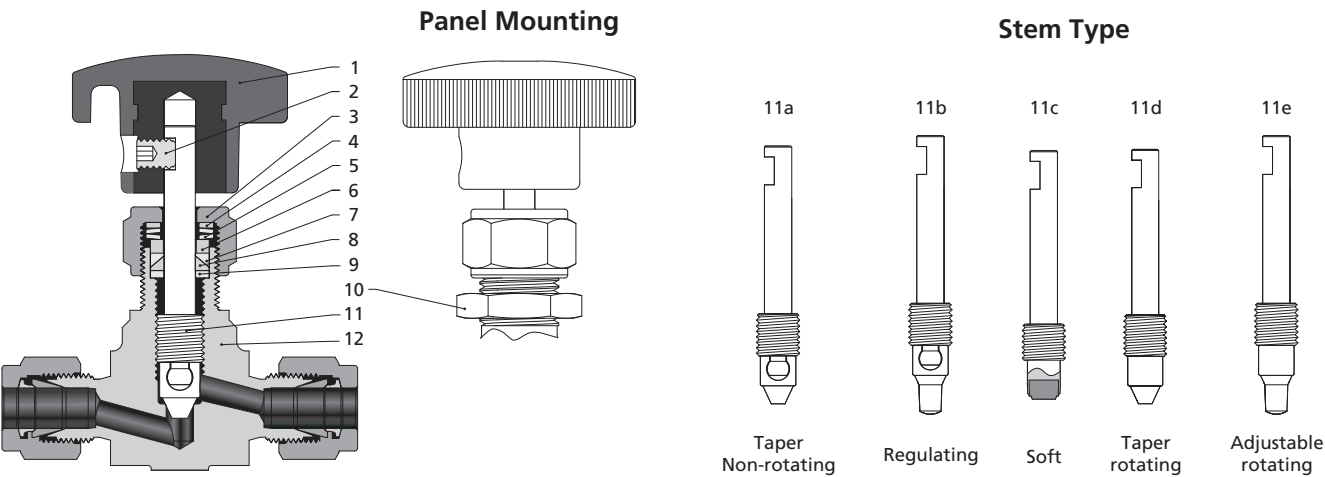
1. Graphs are based on PEEK stem packing.
2. 200°F (93°C) max with PCTFE stem tip (soft tip).
3. Contact the authorized representative or FITOK Group for curve graph of other materials.

Flow Data at 100°F (38°C)

Regulating Stem

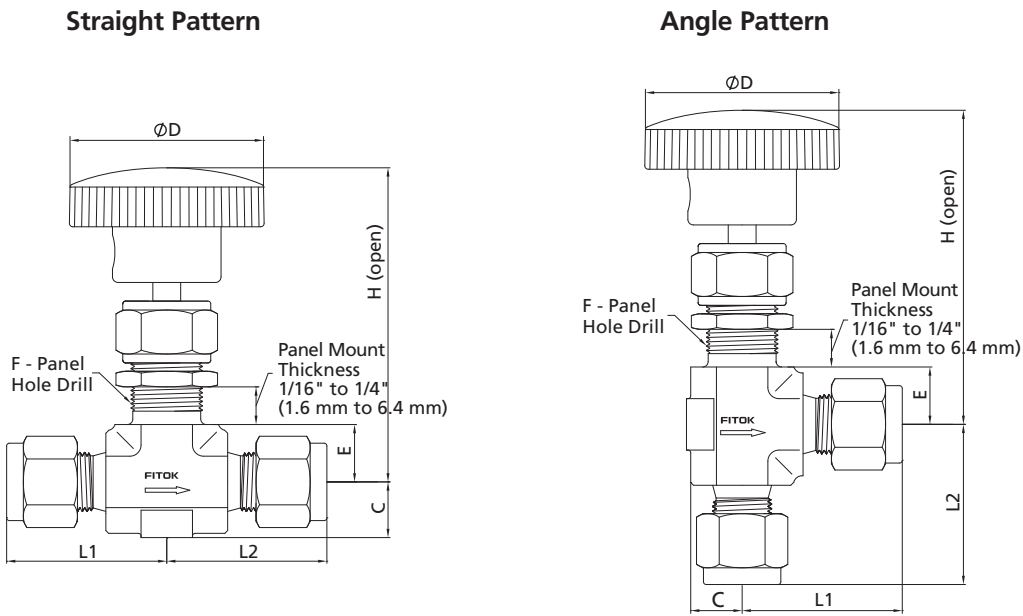


Standard Materials of Construction



Item	Component	Valve Body Material		
		316 SS	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



Dimensions of NG Series

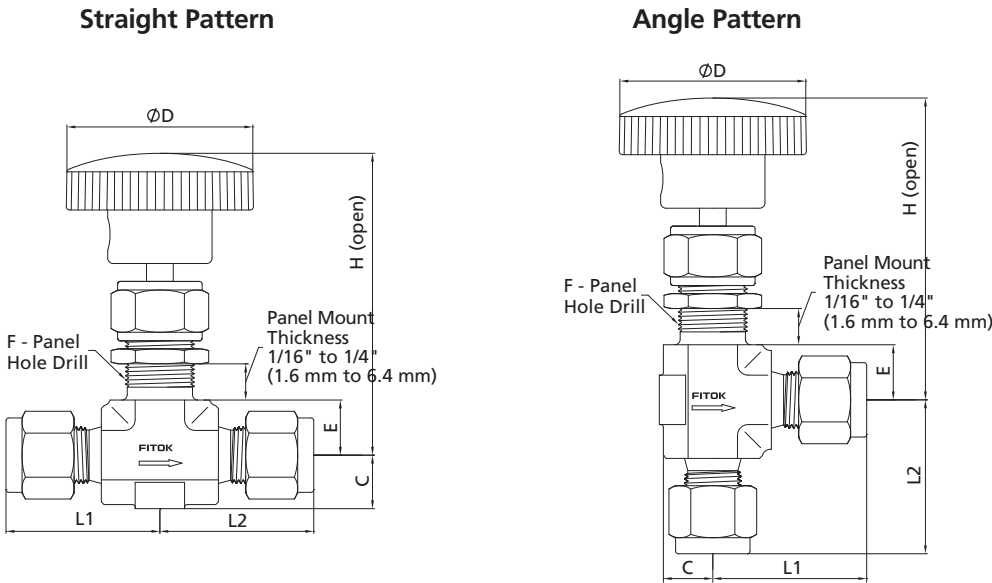
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)													
	Inlet	Outlet			L1	L2	C	D	E	F	H							
NG□□-NS2-5	1/8 Male NPT	1/8 Male NPT	0.08 (2.0)	0.09	0.75 (19)	0.75 (19)	0.31 (7.9)	1.00 (25.4)	0.44 (11.2)	0.47 (11.9)	2.28 (57.9)							
NG□□-FNS2-5	1/8 Female NPT	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																
NG□□-MTB8-5	8 mm MTB	6 mm MTB																
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□□-UMB6-7	6 mm UMB	6 mm UMB										1.12 (28.4)	1.12 (28.4)					
NG□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	1.50 (38.1)	1.50 (38.1)														
NG□□-FNS6-8	3/8" Female NPT	3/8 Female NPT	1.29 (32.8)	1.29 (32.8)														
NG□□-NS6-8	3/8 Male NPT	3/8 Male NPT	1.40 (35.6)	1.40 (35.6)														
NG□□-NS8-8	1/2 Male NPT	1/2 Male NPT	1.30 (33.0)	1.30 (33.0)														
NG□□-FL6-8	3/8" FITOK	3/8" FITOK	1.30 (33.0)	1.30 (33.0)														
NG□□-FL8-8	1/2" FITOK	1/2" FITOK																
NG□□-ML10-8	10 mm FITOK	10 mm FITOK																

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									
NG□□-UMB14-8	14 mm UMB	14 mm UMB			2.60 (66.0)	2.60 (66.0)					
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									
NG□□-FL12-9	3/4" FITOK	3/4" FITOK			1.90 (48.3)	1.90 (48.3)					
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 ofFITOK Group.

Dimensions



Dimensions of NGH Series

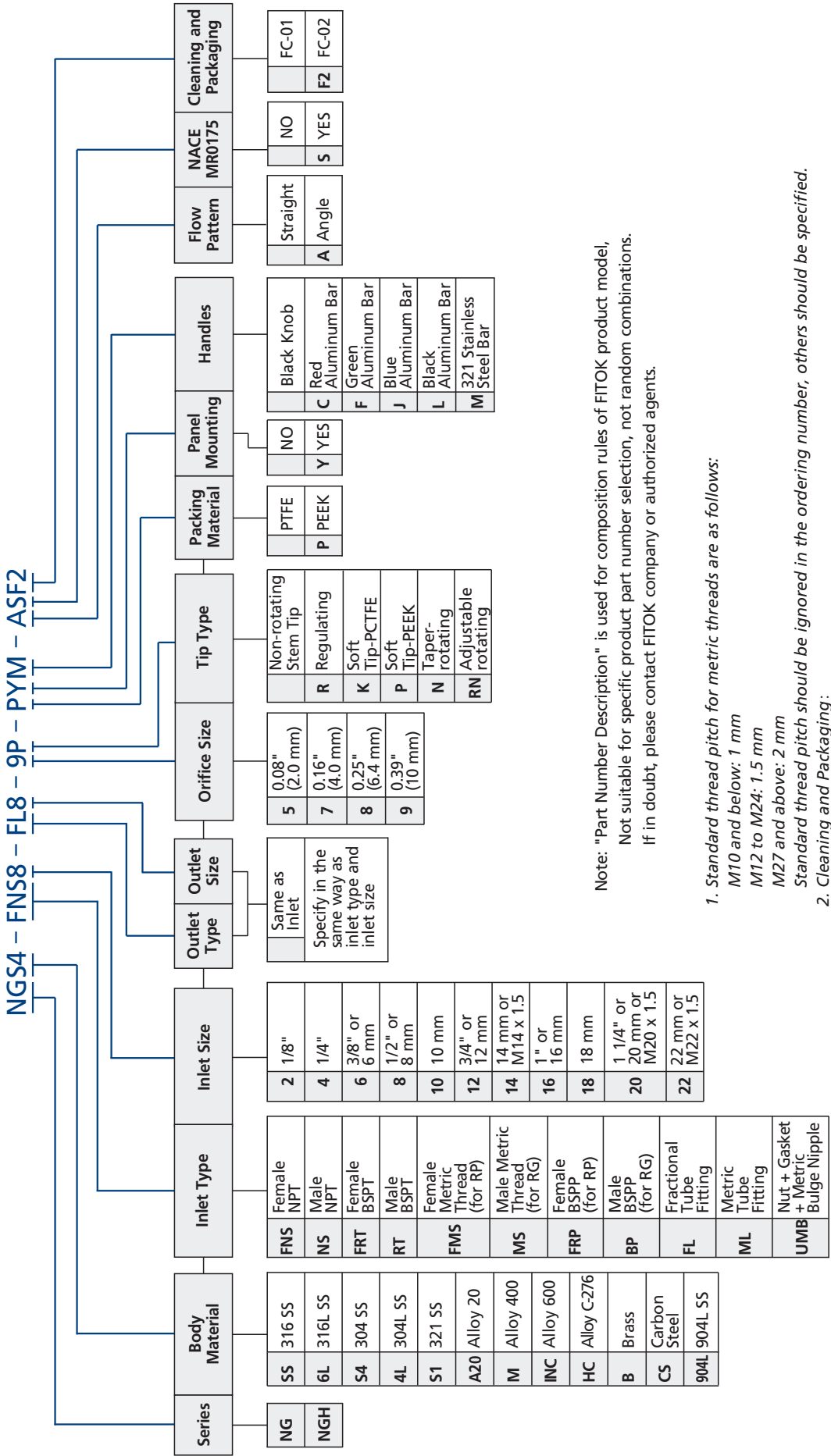
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)											
	Inlet	Outlet			L1	L2	C	D	E	F	H					
NGH□□-NS2-5	1/8 Male NPT	1/8 Male NPT	0.08 (2.0)	0.09	0.75 (19)	0.75 (19)	0.31 (7.9)	1.00 (25.4)	0.44 (11.2)	0.47 (11.9)	2.28 (57.9)					
NGH□□-FNS2-5	1/8 Female NPT	1/8 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			0.81 (20.6)	0.81 (20.6)										
NGH□□-MTS6-5	6 mm MTS	6 mm MTS														
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			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														
NGH□□-TS4-7	1/4" TS	1/4" TS			2.24 (57.0)	2.24 (57.0)										
NGH□□-UMB6-7	6 mm UMB	6 mm UMB														
NGH□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	0.25 (6.4)	0.70	1.06 (26.9)	1.06 (26.9)	0.50 (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			1.29 (32.8)	1.29 (32.8)										
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														

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									
NGH□□-ML14-9	14 mm FITOK	14 mm FITOK			1.56 (39.7)	1.56 (39.7)					
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 ofFITOK Group.

Part Number Description



Rising Plug Valves

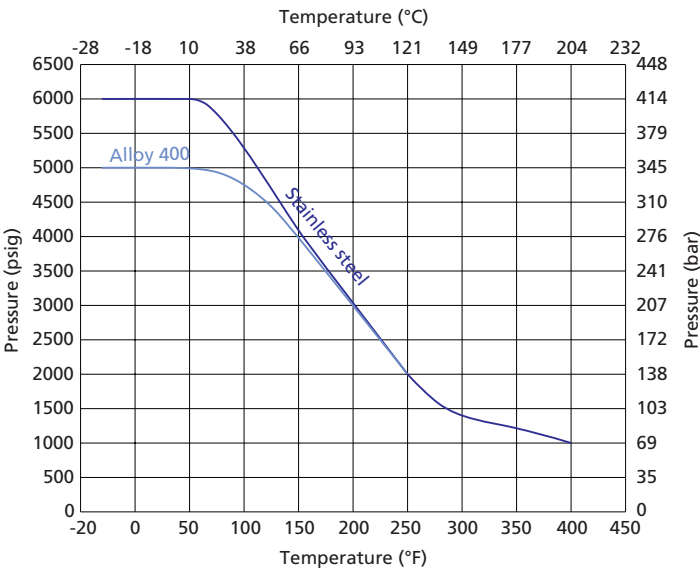
NR Series and NRG Series

Features

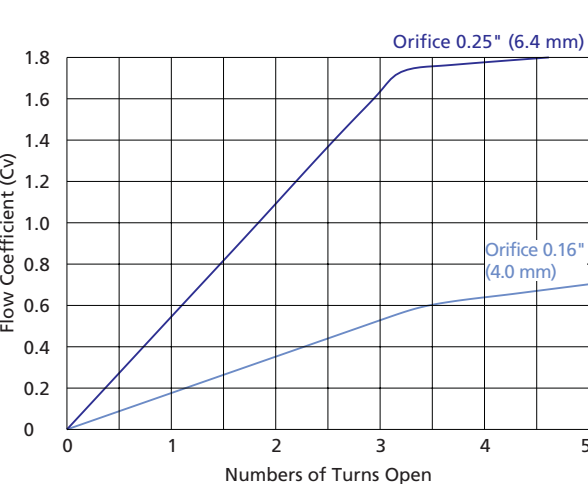
- Cold drawn square bar.
- Nonrotating stem for longer seat life.
- Roddable, straight through flow path for maximum flow with minimum pressure drop.
- Stem thread lubricant isolated from system media.
- Replaceable seat and stem tip design.
- Stem thread protected from outside contamination by PTFE 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)



Pressure vs. Temperature

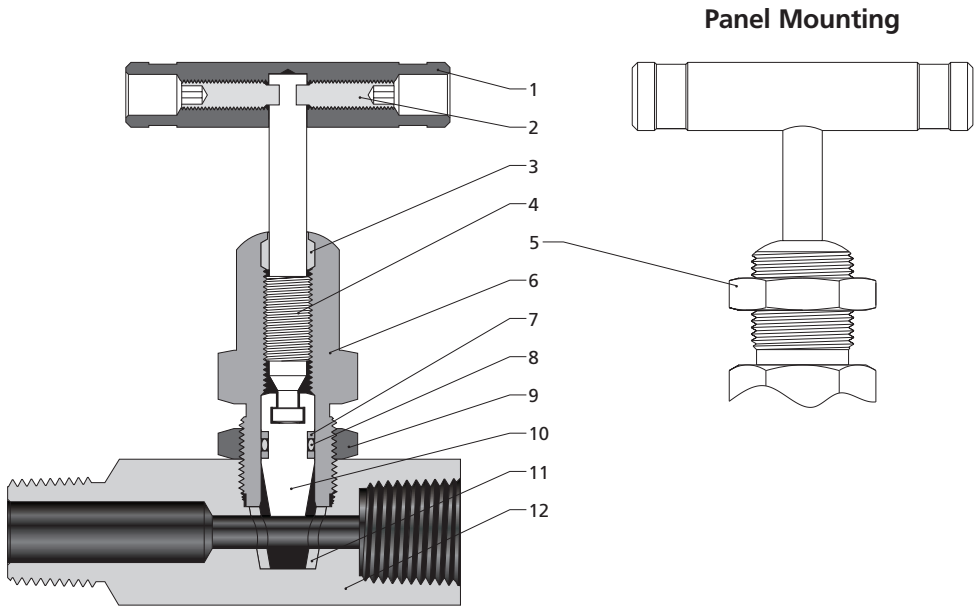


Flow Data at 100°F (38°C)



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

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			

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.

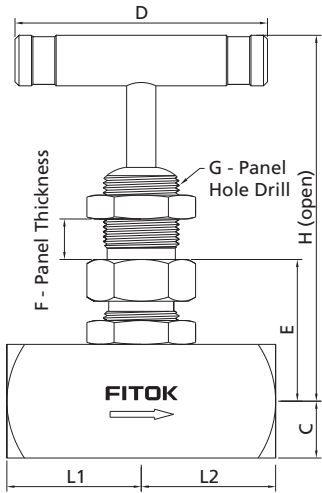
Materials

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

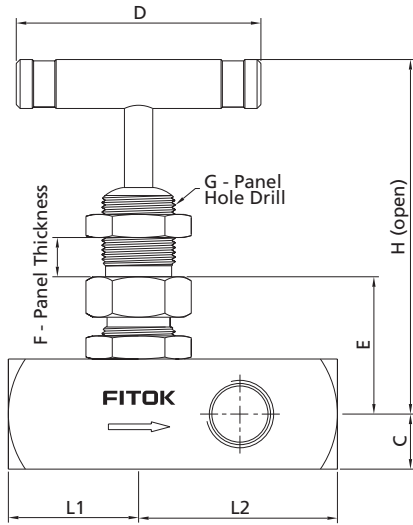
Standard Pattern

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)								
NR□□-FNS8-8	1/2 Female NPT	1/2 Female NPT			0.25 (6.4)	1.80	1.33 (33.8)						1.33 (33.8)
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											
NRG□□-NS12-FNS8-8	3/4 Male NPT	1/2 Female NPT											

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

Part Number Description

NRSS – NS8 – FNS8 – P8 – BYM – SF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	O-ring Material	Panel Mounting	Handle	NACE MR0175	Cleaning and Packaging
NR	316 SS	FNS Female NPT	2 1/8"	Same as Inlet	Specify in the same way as inlet type and inlet size	Acetal	7 0.16" (4.0 mm)	FKM	No	Black Aluminum Bar	No	FC-01
NRG	6L 316L SS	NS Male NPT	4 1/4"									
	S4 304 SS	FRT Female BSPT	6 3/8" or 6 mm	Specify in the same way as inlet type and inlet size	Specify in the same way as inlet type and inlet size	P PEEK	8 0.25" (6.4 mm)	B Buna N	Y Yes	Red Aluminum Bar	S Yes	F2 FC-02
	4L 304L SS	RT Male BSPT	8 1/2" or 8 mm									
	S1 321 SS	FMS Female Metric Thread (for RP)	10 10 mm	Specify in the same way as inlet type and inlet size	Specify in the same way as inlet type and inlet size	A PFA		E Ethylene propylene		Green Aluminum Bar		
	D5 Duplex 2205	MS Male Metric Thread (for RG)	12 12 mm									
	TI Titanium	FRP Female BSPP (for RP)	14 14 mm or M14 x 1.5	Specify in the same way as inlet type and inlet size	Specify in the same way as inlet type and inlet size					Blue Aluminum Bar		
	A20 Alloy 20	BP Male BSPP (for RG)	16 1" or 16 mm									
	M Alloy 400		18 18 mm	Specify in the same way as inlet type and inlet size	Specify in the same way as inlet type and inlet size					321 Stainless Steel Bar		
	INC Alloy 600		20 1 1/4" or 20 mm or M20 x 1.5									
	HC Alloy C -276		22 22 mm or M22 x 1.5	Specify in the same way as inlet type and inlet size	Specify in the same way as inlet type and inlet size					O Black Knob		
	B Brass		24 M24 x 1.5									
	CS Carbon Steel			Specify in the same way as inlet type and inlet size	Specify in the same way as inlet type and inlet size							
	904L SS											

- 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.

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)

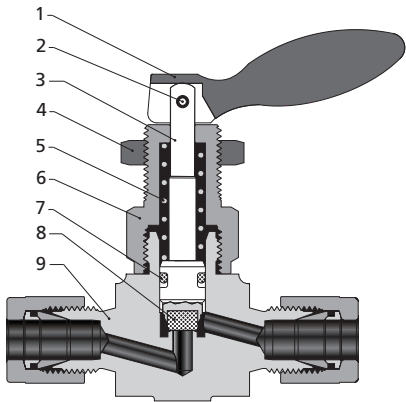


Technical Data

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)

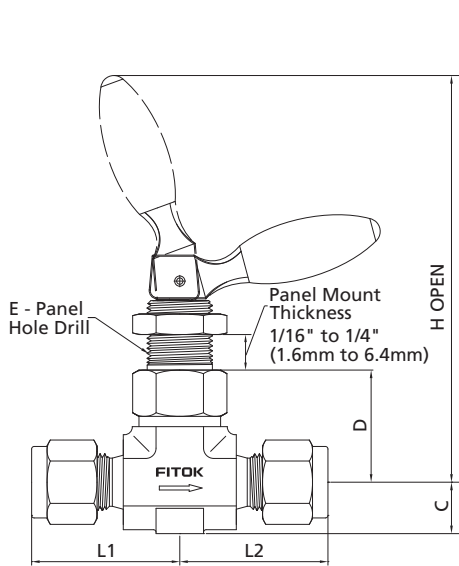
Standard Materials of Construction



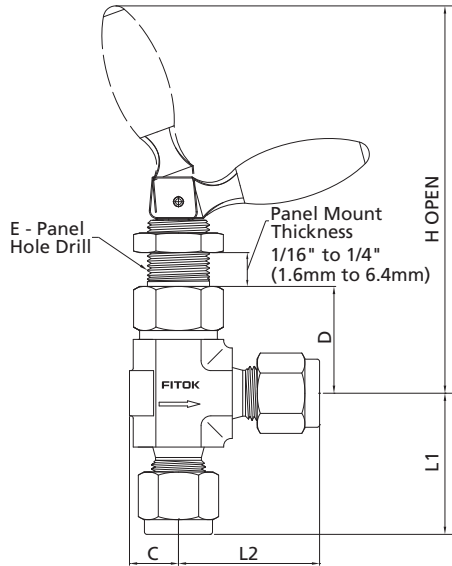
Item	Component	Valve Body Material			
		316 SS	304 SS	321 SS	Brass
1	Handle	Stainless steel			
2	Pin	Stainless steel			
3	Stem	316 SS/A276	304 SS/A276		
4	Panel Nut	17-4PH			Brass 360/B16
5	Spring	PTFE-plated S17700/A313			
6	Bonnet	316 SS/A276	304 SS/A276	321 SS/A276	Brass 360/B16
7	O-ring	Fluorocarbon 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

Straight Pattern



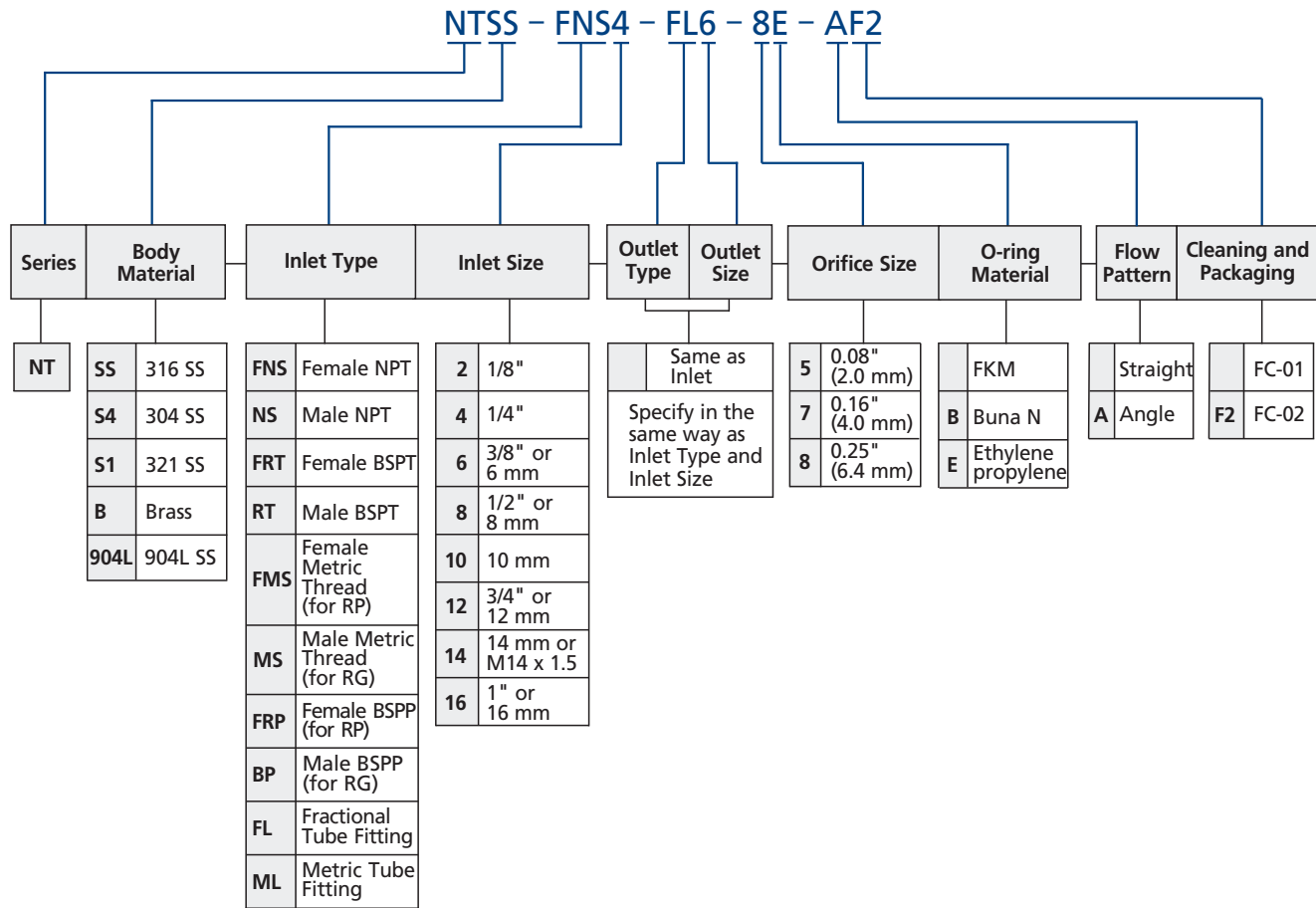
Angle Pattern



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	0.25 (6.4)	0.70	1.13 (28.7)	1.13 (28.7)	0.50 (12.7)	1.06 (26.9)	0.66 (16.8)	3.56 (90.4)
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			1.06 (26.9)	1.06 (26.9)				
NT□□-FNS6-8	3/8 Female NPT	3/8 Female NPT	0.25 (6.4)	0.70	1.12 (28.4)	1.12 (28.4)	0.50 (12.7)	1.06 (26.9)	0.66 (16.8)	3.56 (90.4)
NT□□-NS6-8	3/8 Male NPT	3/8 Male NPT			1.29 (32.8)	1.29 (32.8)				
NT□□-FL6-8	3/8" FITOK	3/8" FITOK			1.40 (35.6)	1.40 (35.6)				
NT□□-FL8-8	1/2" FITOK	1/2" FITOK			1.36 (34.5)	1.36 (34.5)				
NT□□-ML10-8	10 mm FITOK	10 mm FITOK	0.25 (6.4)	0.70	1.46 (37.1)	1.46 (37.1)	0.50 (12.7)	1.06 (26.9)	0.66 (16.8)	3.56 (90.4)
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 ofFITOK 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 and NUH Series

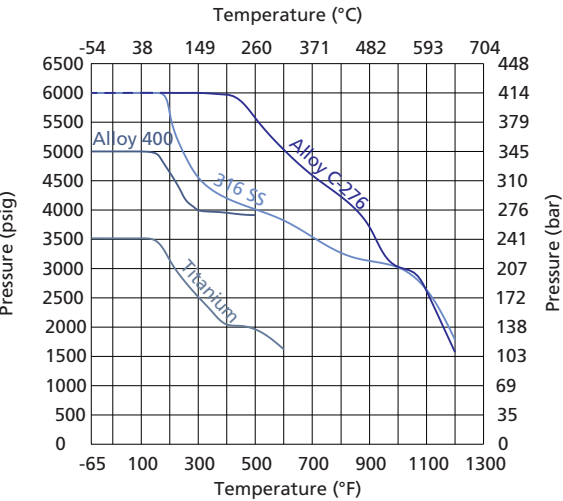
Features

- One-piece forged body
- Two-stem design: thread hardened upper stem and smooth surface hardened lower stem.
- Accidental valve disassembly disabled by union bonnetonstruction.
- 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 doublelock-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)

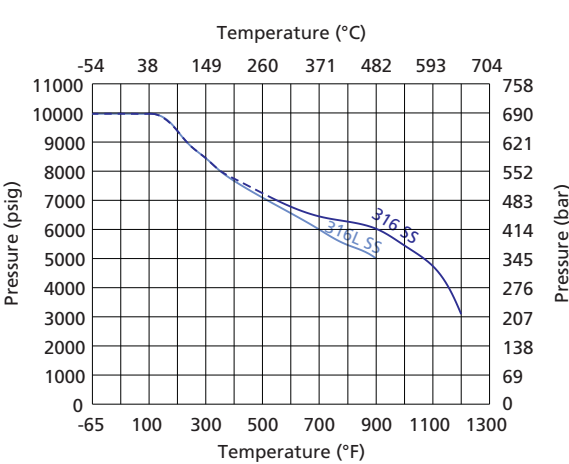


Pressure vs. Temperature

NU Series



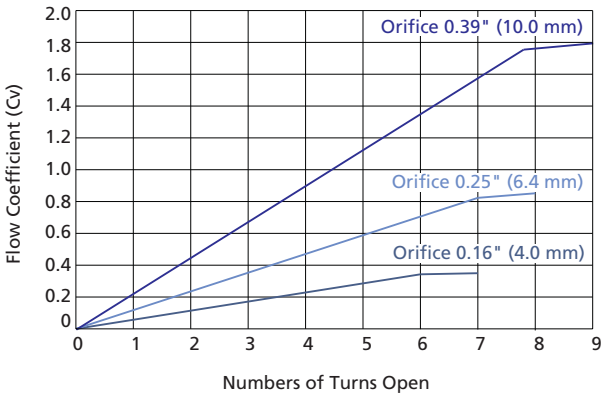
NUH Series



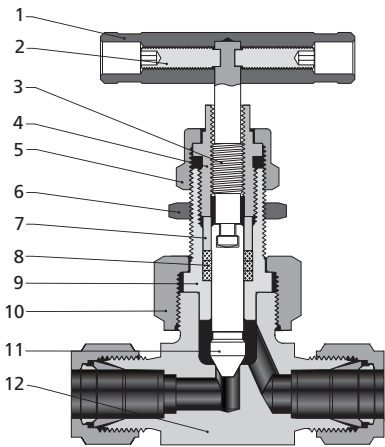
1. Graphs are based on graphite stem packing.
2. Suitable for NU series only, 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact the authorized representative or FITOK Group for curve graph of other materials.

Flow Data at 100°F (37°C)

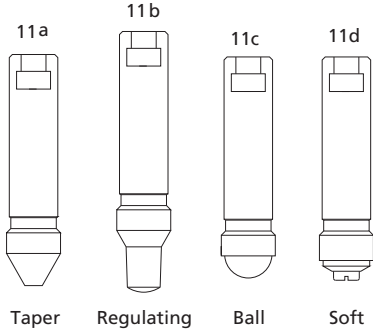
Regulating Stem



Standard Materials of Construction

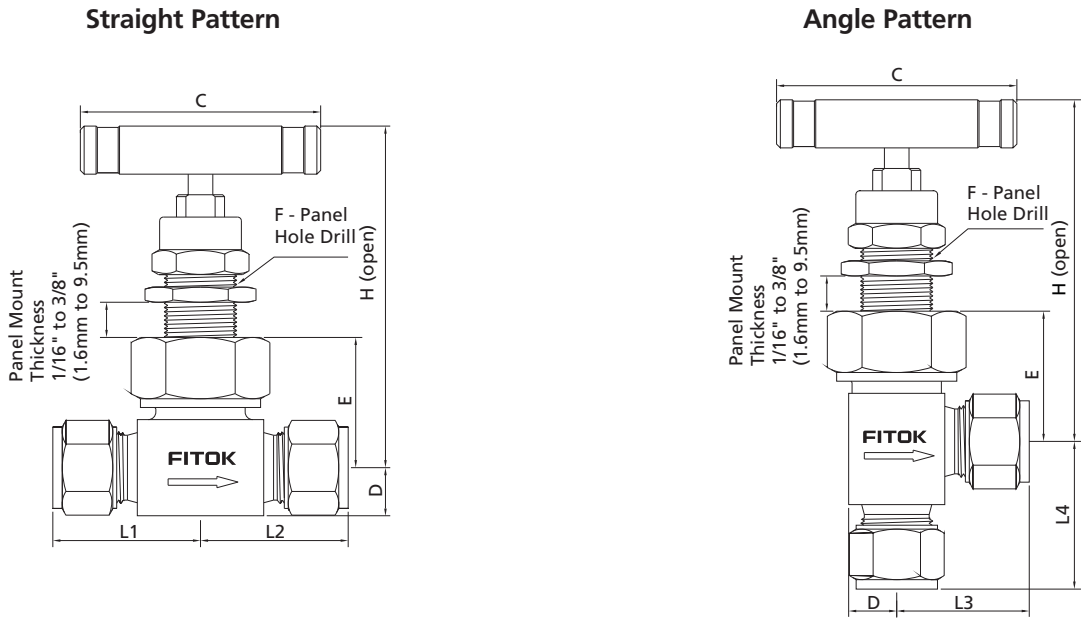


Stem Type



Valve Body Material					
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

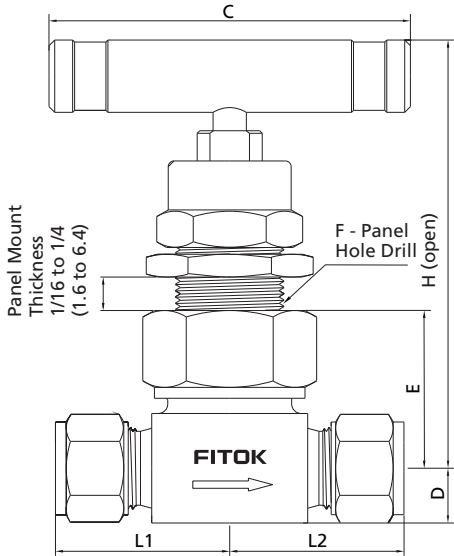


Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)																	
	Inlet	Outlet			L1	L2	L3	L4	C	D	E	F	H									
NU□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	0.89 (22.6)	1.00 (25.4)	1.75 (44.5)	0.39 (9.9)	1.09 (27.7)	0.59 (15.1)	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)	1.00 (25.4)															
NU□□-NS6-7	3/8 Male NPT	3/8 Male NPT			1.03 (26.2)	1.03 (26.2)	0.89 (22.6)															
NU□□-FRP4-7	1/4 Female BSPP	1/4 Female BSPP			1.00 (25.4)	1.22 (30.9)	1.16 (29.5)															
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			1.22 (30.9)	1.22 (30.9)																
NU□□-FL4-7	1/4" FITOK	1/4" FITOK			0.91 (23.1)	0.91 (23.1)	0.88 (22.4)	1.19 (30.2)														
NU□□-ML6-7	6 mm FITOK	6 mm FITOK																				
NU□□-ML8-7	8 mm FITOK	8 mm FITOK																				
NU□□-TS4-7-G	1/4" TS	1/4" TS	0.25 (6.4)	0.8	1.03 (26.2)	1.03 (26.2)	1.00 (25.4)	1.13 (28.6)	2.50 (63.5)	0.50 (12.7)	1.34 (34.0)	0.78 (19.8)	3.70 (94)									
NU□□-FO4-7	1/4" Male FO	1/4" Male FO			1.41 (35.9)																	
NU□□-FR4-7	1/4" Male FR	1/4" Male FR																				
NU□□-FNS4-8	1/4 Female NPT	1/4 Female NPT																				
NU□□-FNS6-8	3/8 Female NPT	3/8 Female NPT																				
NU□□-NS6-8	3/8 Male NPT	3/8 Male NPT																				
NU□□-FL6-8	3/8" FITOK	3/8" FITOK			1.41 (35.9)	1.41 (35.9)								1.29 (32.8)	1.66 (42.2)	1.40 (35.6)						
NU□□-FL8-8	1/2" FITOK	1/2" FITOK			1.52 (38.6)	1.52 (38.6)								1.40 (35.6)	1.65 (41.9)							
NU□□-ML10-8	10 mm FITOK	10 mm FITOK			1.42 (36.1)	1.42 (36.1)	1.30 (33.0)	1.55 (39.4)														

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)	3.50 (88.9)	0.78 (19.8)	1.91 (48.5)	1.03 (26.2)	4.85 (123)		
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)	1.97 (50.0)	1.97 (50.0)						1.68 (42.7)	2.08 (52.8)
NU □□-FL8-9	1/2" FITOK	1/2" FITOK													
NU □□-FL12-9	3/4" FITOK	3/4" FITOK													
NU □□-ML14-9	14 mm FITOK	14 mm FITOK													
NU □□-ML16-9	16 mm FITOK	16 mm FITOK													
NU □□-ML18-9	18 mm FITOK	18 mm FITOK													
NU □□-ML20-9	20 mm FITOK	20 mm FITOK													
NU □□-MTS14-9-G	14 mm MTS	14 mm MTS			1.56 (39.7)	1.56 (39.7)	1.31 (33.3)	1.69 (42.9)							
NU □□-MTS16-9-G	16 mm MTS	16 mm MTS													
NU □□-TS8-9-G	1/2" TS	1/2" TS													
NU □□-TS12-9-G	3/4" TS	3/4" TS													
NU □□-MTB14-9-G	14 mm MTB	14 mm MTB			2.98 (75.7)	2.98 (75.7)	—	—							
NU □□-MTB16-9-G	16 mm MTB	16 mm MTB													
NU □□-UMB14-9-G	14 mm UMB	14 mm UMB													
NU □□-FO12-9	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]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 meansmetric 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 orFITOK 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			1.13 (28.6)	1.41 (35.7)					
NUH□□-FNS4-FL4-7	1/4 Female NPT	1/4" FITOK									
NUH□□-FL4-7	1/4" FITOK	1/4" FITOK			1.13 (28.6)	1.13 (28.6)					
NUH□□-TS4-7-G	1/4" TS	1/4" TS									
NUH□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	0.25 (6.4)	0.86	1.56 (39.6)	1.56 (39.6)	3.50 (88.9)	0.63 (16.0)	1.81 (46.0)	1.03 (26.2)	4.13 (105)
NUH□□-NS8-8	1/2 Male NPT	1/2 Male NPT			1.63 (41.4)	1.63 (41.4)		0.78 (19.8)	1.94 (49.3)		4.25 (108)
NUH□□-FNS8-8	1/2 Female NPT	1/2 Female NPT									
NUH□□-NS8-FNS8-8	1/2 Male NPT	1/2 Female NPT			1.97 (50.0)	1.97 (50.0)					
NUH□□-FL8-8	1/2" FITOK	1/2" FITOK									
NUH□□-ML12-8	12 mm FITOK	12 mm FITOK			1.56 (39.7)	1.56 (39.7)					
NUH□□-TS8-8	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]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 ofFITOK Group.

Part Number Description

NUSS – FNS6 – FL6 – 18WB – GM – ASF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seat Material	Orifice Size	Lower Stem Material	Stem Type	Packing Material	Handle	Flow Pattern	Special Application	Cleaning and Packaging
NU	316 SS	FNS Female NPT	2 1/8"	Same as Inlet	7 0.16" (4.0 mm)	Same as Body	7 0.16" (4.0 mm)	Same as Body	Blunt	PTFE	PTFE	Straight		FC-01
NUH	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)	1 Stellite	8 0.25" (6.4 mm)	Stellite	R Regulating	P PEEK	P PEEK	Angle		F2 FC-02
	304 SS	FRT Female BSPT	6 3/8" or 6 mm		9 0.39" (10 mm)			Duplex 2205	B Ball	G Graphite				
	304L SS	RT Male BSPT	8 1/2" or 8 mm					Titanium	T Soft Tip-PTFE					
	321 SS	FMS Female Metric Thread (for RP)	10 10 mm					Alloy 20	K Soft Tip-PCTFE					
	F91	MS Male Metric Thread (for RG)	12 3/4" or 12 mm					Alloy 400	P Soft Tip-PEEK					
	F92	FRP Female BSPP (for RP)	14 14 mm or M14 x 1.5					Alloy 600						
	D5 Duplex 2205	BP Male BSPP (for RG)	16 1" or 16 mm					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 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 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 and NYH Series

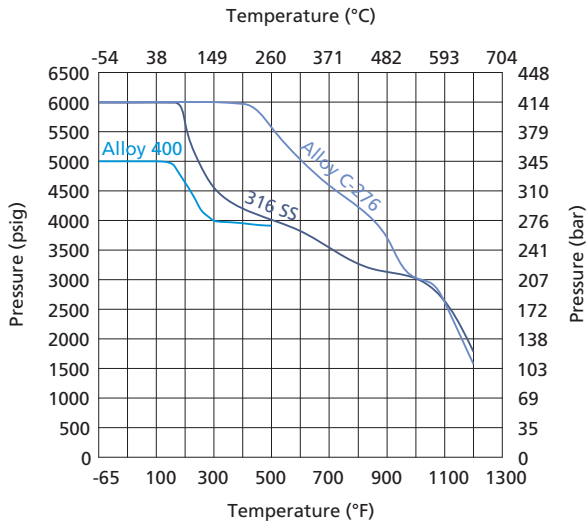
Features

- 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)

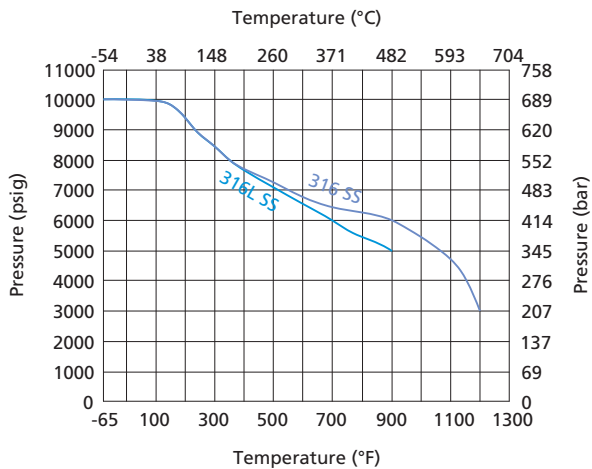


Pressure vs. Temperature

NY Series

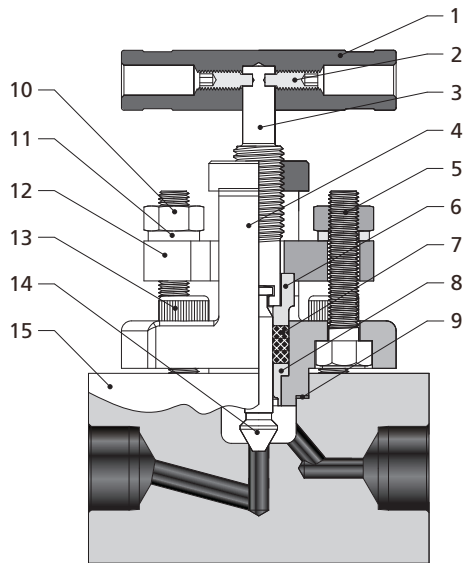


NYH Series



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.

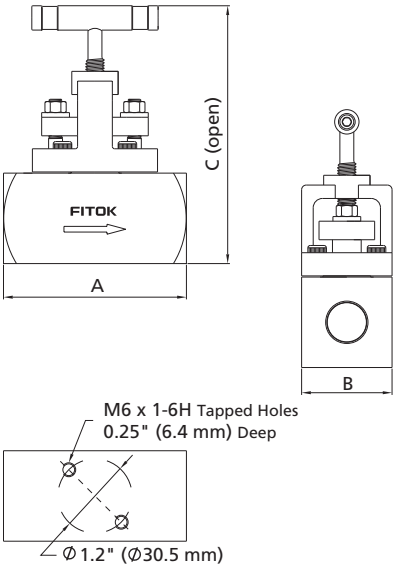
Standard Materials of Construction



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

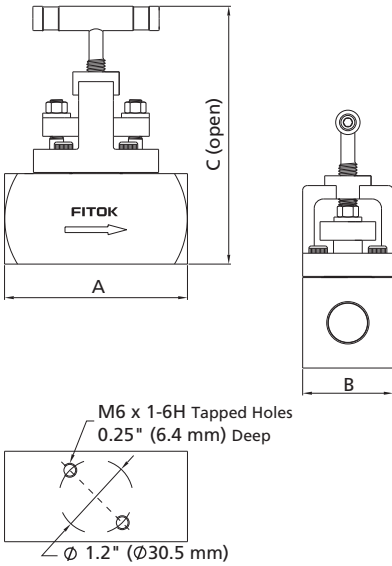
Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimension, in.(mm)		
	Inlet	Outlet			A	B	C
NY□□-FNS4	1/4 Female NPT	1/4 Female NPT	0.16 (4.0)	0.35	2.69 (68.2)	1.50 (38.1)	3.89 (98.9)
NY□□-NS4	1/4 Male NPT	1/4 Male NPT			2.95 (75.0)		
NY□□-NS4-FNS4	1/4 Male NPT	1/4 Female NPT			2.72 (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			3.44 (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)		



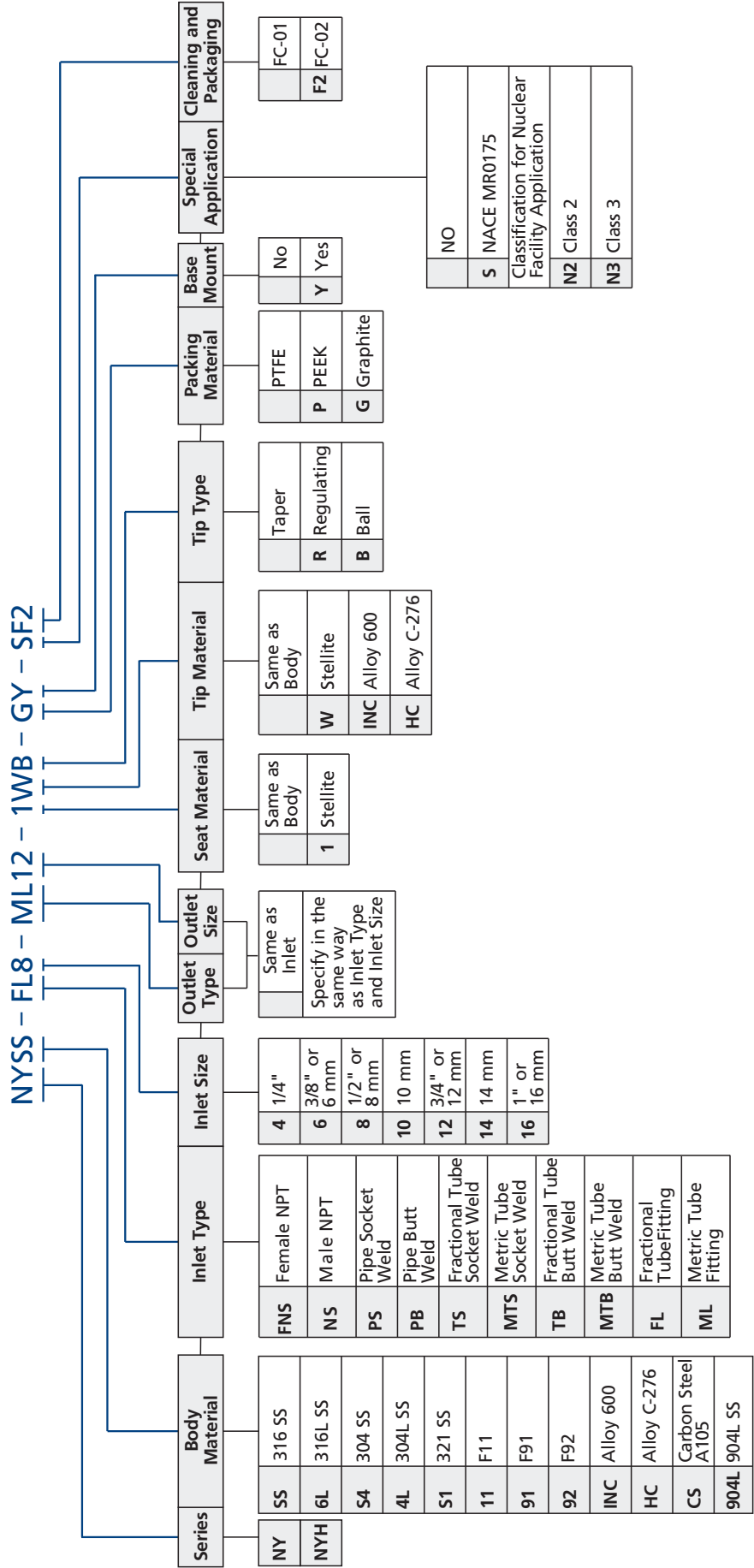
- 1. FITOK means FITOK double ferrule tube fittings, TS means fractional tube socket weld.
- 2. For Butt or Socket end connections, please prior to choose graphite as packing material, avoiding damage non graphite packing material due to the high temperature when welding.
- 3. Sizes and types listed 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	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.