

# Forged Needle Valves

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

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

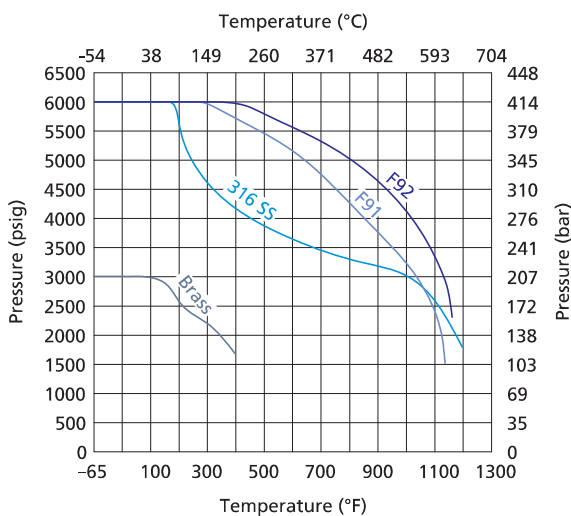
## Features

- ⦿ One-piece forged body
- ⦿ Two-piece stem design: Upper stem threads cold rolled and lower stem hardened for high strength and smooth operation
- ⦿ Upper stem thread lubricant isolated from system media
- ⦿ Linear instead of rotary motion of the rising, non-rotating stem minimizes packing abrasion and reduces the friction between the seat and the tip
- ⦿ Panel mounting available
- ⦿ Steady and durable fastening of the handle by double lock-pins
- ⦿ Handles of different colors available
- ⦿ Every valve leak tested with Nitrogen or compressed air (NF Series) at the maximum allowable working pressure or with water (NFH Series) at 1.1 times the maximum allowable working pressure
- ⦿ Working pressure up to:
  - NF Series—Stainless steel: 6000 psig (414 bar)
  - Alloy C-276: 6000 psig (414 bar)
  - Alloy 400: 5000 psig (345 bar)
  - Titanium: 3500 psig (241 bar)
  - Brass: 3000 psig (207 bar)
- ⦿ NFH Series—Stainless steel: 10000 psig (690 bar)
- ⦿ Working temperature:
  - PTFE: -65°F to 450°F (-54°C to 232°C)
  - PEEK: -65°F to 500°F (-54°C to 260°C)
  - Graphite: -65°F to 1200°F (-54°C to 649°C)

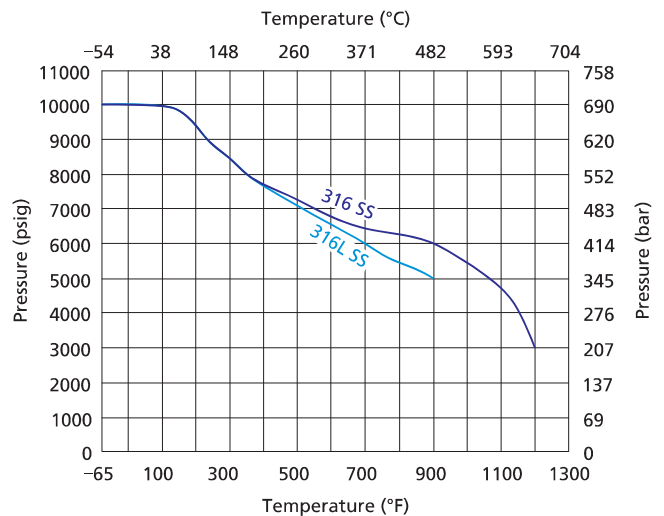


## Pressure vs. Temperature

NF Series



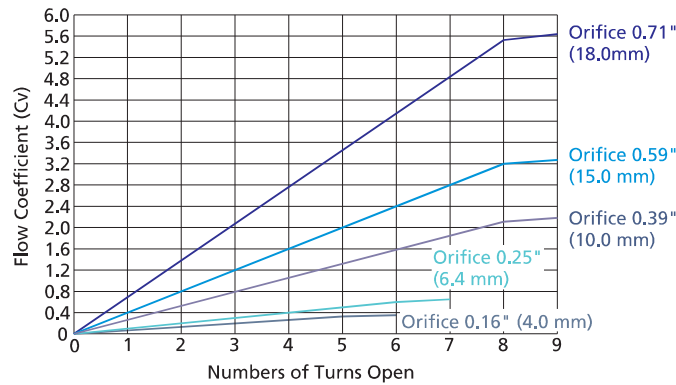
NFH Series



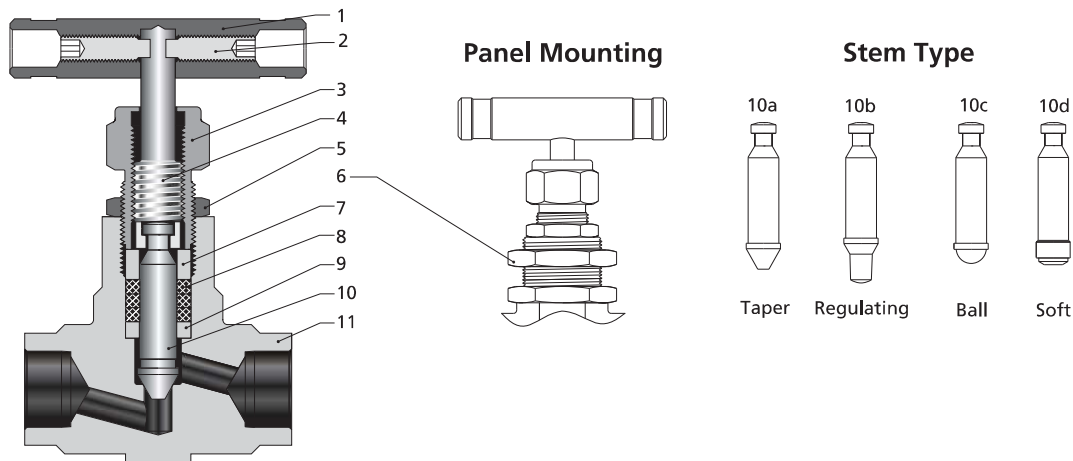
1. Graphs are based on graphite packing.
2. Soft tips are for NF Series only. Temperature rating is limited to 200°F (93°C) max. with PCTFE stem tip (soft tip).
3. Contact FITOK Group or our authorized distributors for curve graph of other materials.

## Flow Data at 100°F (38°C)

Regulating Stem



## Standard Materials of Construction

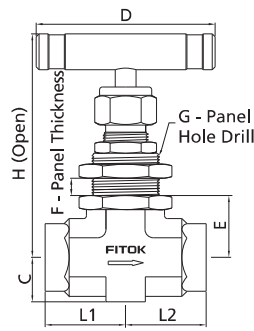


Item	Component	Valve Body Material		
		316 SS	F91	Brass
		Material Grade/ASTM Specification		
1	Handle	Anodized aluminum or stainless steel or black knob		
2	Set Screw	Galvanized carbon steel		
3	Packing Bolt	304 SS/A276	F91/A182	Brass C36000/B16
4	Upper Stem	316 SS/A276		
5	Lock Nut	Stainless steel	1020/A108	Brass C36000/B16
6	Panel Nut	Stainless steel	1020/A108	Brass C36000/B16
7	Gland	316 SS/A276		Brass C36000/B16
8	Packing	PTFE or PEEK or graphite		
9	Packing Washer	316 SS/A276		Brass C36000/B16
10a 10b 10c 10d	Lower Stem	Hardened 316 SS/A276		
11	Body	316 SS/A182	F91/A182	Brass C37700/B283
	Seat	Same as Body		
	Lubricant	Molybdenum disulfide-based		

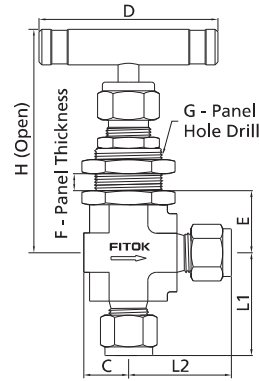
Note: Contact FITOK Group or our authorized distributors for other materials.

## Dimensions

Straight Pattern



Angle Pattern



© NF Series Needle Valves are standard without panel mounting. To order needle valves with panel mounting as illustrated, add -Y to the ordering number. Example: NF5S-FNS2-7-Y

## Dimensions of NF Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)								
	Inlet	Outlet			L1	L2	H	D	C	E	F	G	
NF□□-FNS2-7	1/8 Female NPT	1/8 Female NPT	0.16 (4.0)	0.35	1.00 (25.4)	1.00 (25.4)	2.85 (72.5)	2.17 (55)	0.53 (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											
NF□□-NS4-7	1/4 Male NPT	1/4 Male NPT			1.03 (26.2)	1.03 (26.2)							
NF□□-NS6-7	3/8 Male NPT	3/8 Male NPT			1.13 (28.6)	1.13 (28.6)							
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)
NF□□-FNS6-8	3/8 Female NPT	3/8 Female NPT	1.42 (36.1)	1.42 (36.1)									
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											
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											
NF□□-FNS8-8	1/2 Female NPT	1/2 Female NPT	1.26 (32.0)	1.26 (32.0)			0.76 (19.4)						
NF□□-NS8-8	1/2 Male NPT	1/2 Male NPT	1.50 (38.1)	1.50 (38.1)									
NF□□-FL8-8	1/2" FITOK	1/2" FITOK	1.53 (38.9)	1.53 (38.9)									
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	1.50 (38.1)	1.50 (38.1)									
NF□□-MTB14-8-G	14 mm MTB	14 mm MTB											
NF□□-MTB16-8-G	16 mm MTB	16 mm MTB	2.92 (74.1)	2.92 (74.1)									
NF□□-UMB14-8	14 mm UMB	14 mm UMB											
NF□□-UMB16-8	16 mm UMB	16 mm UMB	1.13 (28.6)	1.13 (28.6)									
NF□□-FO8-8	1/2" Male FO	1/2" Male FO											
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)									

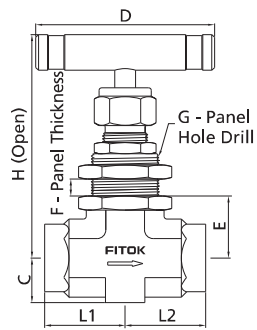
## Dimensions of NF Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)								
	Inlet	Outlet			L1	L2	H	D	C	E	F	G	
NF□□-MS22-8	M22 x 1.5 Male Metric	M22 x 1.5 Male Metric	0.25 (6.4)	0.85	1.50 (38.1)	1.50 (38.1)	3.38 (85.8)	2.50 (63.5)	0.62 (15.8)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)	
NF□□-FNS8-9	1/2 Female NPT	1/2 Female NPT	0.39 (10.0)	2.18	1.56 (39.7)	1.56 (39.7)	3.86 (98.0)	3.50 (88.9)	0.89 (22.5)	1.10 (28.3)	0.38 (9.7)	1.08 (27.5)	
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□□-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□□-MTB16-9-G	16 mm MTB	16 mm MTB											
NF□□-UMB14-9	14 mm UMB	14 mm UMB											
NF□□-UMB16-9	16 mm UMB	16 mm UMB											
NF□□-MS27-9	M27 x 2 Male Metric	M27 x 2 Male Metric	0.59 (15.0)	3.27	1.56 (39.7)	1.56 (39.7)	5.00 (127)	5.00 (127)	0.89 (22.5)	1.08 (27.5)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)
NF□□-FNS12-6	3/4 Female NPT	3/4 Female NPT											
NF□□-TS16-6-G	1" TS	1" TS											
NF□□-MTS25-6-G	25 mm MTS	25 mm MTS											
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□□-ML20-6	20 mm FITOK	20 mm FITOK											
NF□□-TS16-0-G	1" TS	1" TS	0.71 (18.0)	5.65	1.97 (50.0)	1.97 (50.0)	5.33 (135.4)	5.00 (127)	1.08 (27.5)	1.61 (41.0)	0.38 (9.7)	1.45 (36.8)	
NF□□-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											

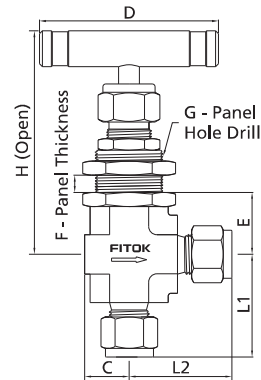
1. Connection type of "FITOK" means FITOK double ferrule tube fittings. When the connection type of valves is FITOK double ferrule tube fitting, the working pressures of the valves are related to the wall thickness of tubing applied. For specific working pressure of the valves, please refer to the allowable working pressures in FITOK Catalog Tubing.
2. Connection type of "FO" means O-ring face seal fittings. "FR" means metal gasket face seal fittings. "TS" means fractional tube socket weld. "MTS" means metric tube socket weld. "MTB" means metric tube butt weld. "UMB" means rotatable metric tube butt weld. "PS" means pipe socket weld. "PB" means pipe butt weld.
3. Sizes and types listed are standard. Other sizes and types are available upon request. For details, please contact FITOK Group or our authorized distributors.
4. Dimensions are shown with FITOK tube fitting nuts finger-tight. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

## B-76 Needle Valves

### Straight Pattern



### Angle Pattern



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

### Dimensions of NFH Series

Basic Ordering Number	Connection Type and Size		Orifice in.(mm)	Cv	Dimensions, in.(mm)							
	Inlet	Outlet			L1	L2	H	D	C	E	F	G
NFH□□-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)	0.62 (15.8)	0.76 (19.4)	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			1.22 (30.9)	1.22 (30.9)						
NFH□□-FNS4-NS4-7	1/4 Female NPT	1/4 Male NPT			1.06 (26.2)	1.22 (30.9)						
NFH□□-TS4-7-G	1/4" TS	1/4" TS			1.06 (26.2)	1.06 (26.2)						
NFH□□-FNS4-8	1/4 Female NPT	1/4 Female NPT	0.25 (6.4)	0.85	1.12 (28.6)	1.12 (28.6)	3.38 (85.8)	2.50 (63.5)	0.76 (19.4)	0.87 (22.0)	0.38 (9.7)	0.96 (24.4)
NFH□□-FNS6-8	3/8 Female NPT	3/8 Female NPT			1.50 (38.1)	1.50 (38.1)						
NFH□□-NS6-8	3/8 Male NPT	3/8 Female NPT			1.50 (38.1)	1.50 (38.1)						
NFH□□-TS8-9-G	1/2" TS	1/2" TS	0.39 (10.0)	2.18	1.56 (39.7)	1.56 (39.7)	3.86 (98.0)	3.50 (88.9)	0.76 (19.4)	1.10 (28.3)	0.38 (9.7)	1.08 (27.5)

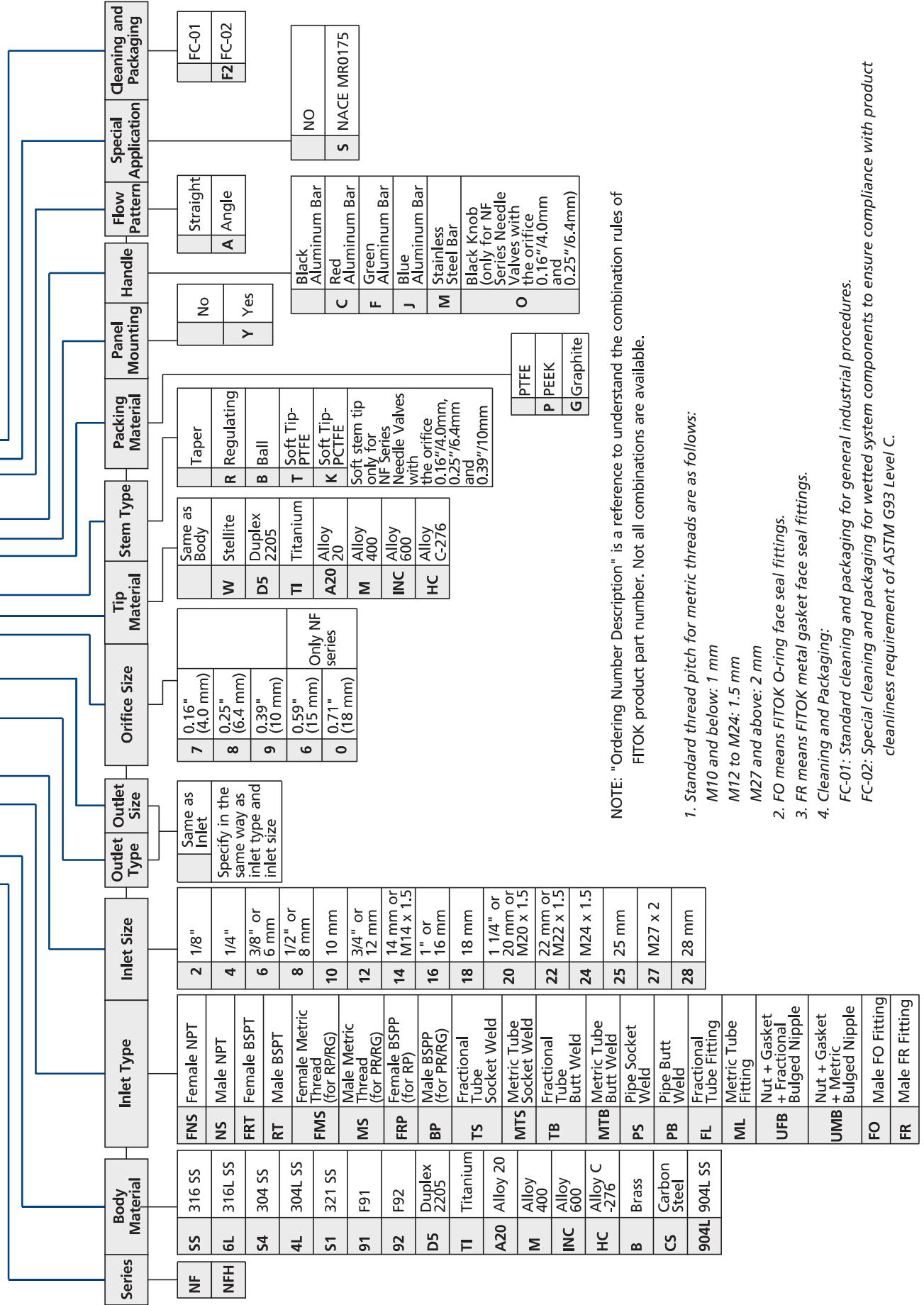
1. Connection type of "TS" means tube socket weld.

2. Sizes and types listed are standard. Other sizes and types are available upon request. For details, please contact FITOK Group or our authorized distributors.

3. All dimensions are for reference only and are subject to change. For dimensions not shown above, please contact FITOK Group or our authorized distributors.

# Ordering Number Description

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



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

1. Standard thread pitch for metric threads are as follows:

M10 and below: 1 mm

M12 to M24: 1.5 mm

M27 and above: 2 mm

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

3. FO means FITOK metal gasket face seal fittings.

4. Cleaning and Packaging:

FC-01: Standard cleaning and packaging for general industrial procedures.

FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement of ASTM G93 Level C.