

B

Related Products



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Purge Assemblies

FPV-1 Series

Technical Data

- Maximum working pressure: 4500 psig
- Material of the main components:
 - Seat: PCTFE (diaphragm valve)
 - Diaphragm: cobalt alloy (diaphragm valve)
 - O-ring: EPDM (check valve)
- Temperature: -10 °F ~ 150 °F (-23 °C ~ 65 °C)
- Diaphragm valve leak rates (helium):
 - Internal: $\leq 1 \times 10^{-9}$ std-cm³/s
 - External: $\leq 1 \times 10^{-9}$ std-cm³/s
- Diaphragm valve Cv: 0.17

Product Types

○ Straight Purge Assemblies

Consisting of a diaphragm valve and a check valve (see Fig. 1-1).

Connecting the auxiliary inlet port (see Fig. 1-2) of the regulator or in between the regulator and the cylinder (see Fig. 1-3) to allow the corrosive or toxic gas to be vented through to a safe location.

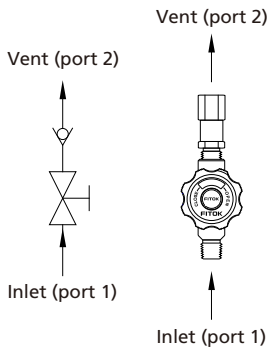


Fig. 1-1

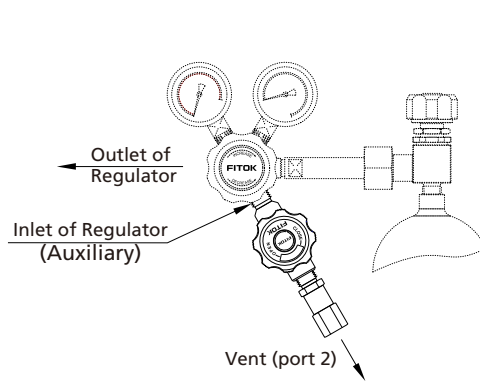


Fig. 1-2

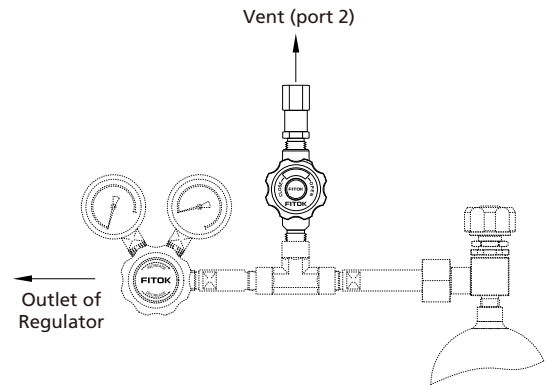


Fig. 1-3

○ Tee Purge Assemblies

Consisting of a diaphragm valve, check valve, tee, and cylinder connections (see Fig. 2-1).

Connecting the cylinder with the regulator. Before installing a new cylinder, open the diaphragm valve, and the remaining gas is vented safely; or after a new cylinder is installed, close the regulator and open the diaphragm valve, enabling the process gas inside the cylinder to purge the atmospheric contamination between the cylinder and the regulator (see Fig. 2-2).

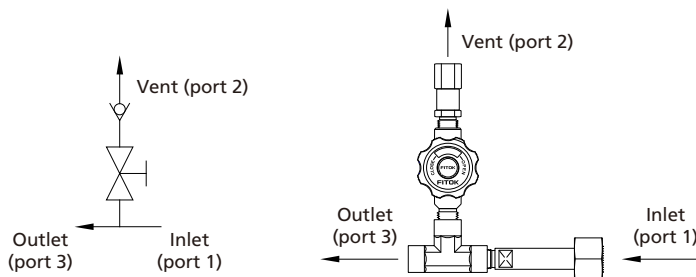


Fig. 2-1

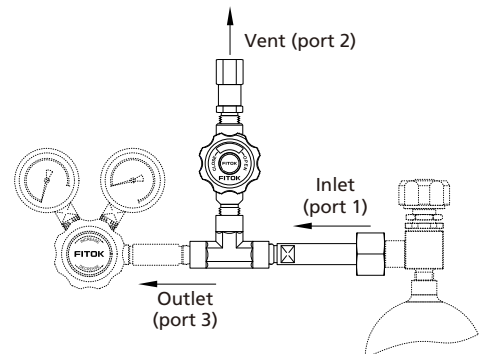


Fig. 2-2

© Cross Purge Assemblies

Consisting of a tee purge assembly and two additional diaphragm valves (see Fig. 3-1).

Except for process gas, purging is also made possible with inert gas from outside (see Fig. 3-2). The steps are as follows: Before installing a new cylinder, close the diaphragm valve beside the regulator, and open the shutoff diaphragm valve on the vent line to release the residual pressure.

After installing a new cylinder, open the diaphragm valve on the bottom, allowing the inert gas from outside to purge the atmospheric contaminations between the cylinder and the diaphragm valve.

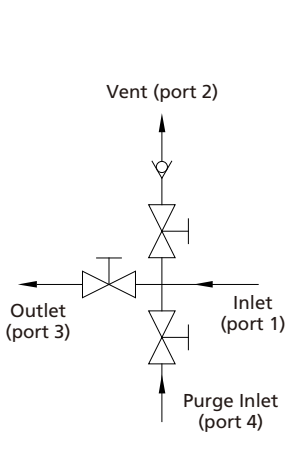


Fig. 3-1

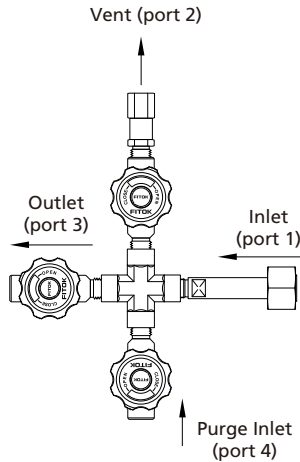


Fig. 3-2

Part Number Description

FPV – 1C6L – DIN6 – FNS4D – FNS4D – FNS4D – F2

Product Type		Body Material		Port 1		Port 2/3/4		Port 2/3/4 Valve		Process Specification
S	Straight Purge Assemblies	6L	316L SS	FNS4	1/4 Female NPT	FNS4	1/4 Female NPT		None (only for product types "T" and "C")	
T	Tee Purge Assemblies	SS	316 SS	Ns4	1/4 Male NPT	NS4	1/4 Male NPT	DC	Diaphragm Valve DS Series + Check Valve CH Series	
C	Cross Purge Assemblies			DIN_	DIN Number (Germany)	FL4	1/4" Tube Fitting	D	Diaphragm Valve DS Series (only for product types "T" and "C")	
				CGA_	CGA Number (USA)	Other connections are available upon request				
Refer to page B-43 for cylinder connections based on specific gas type. Cylinder connections compliant to other standards are available upon request. Please contact FITOK Group for details.										

High Pressure Compact Diaphragm Valves

DS Series



Features

- ⦿ Reduced inner volume
- ⦿ Packless diaphragm seal to ensure high purity
- ⦿ Minimized number of components
- ⦿ Manual and pneumatic actuators available
- ⦿ Aluminum piston to increase operation speed

Technical Data

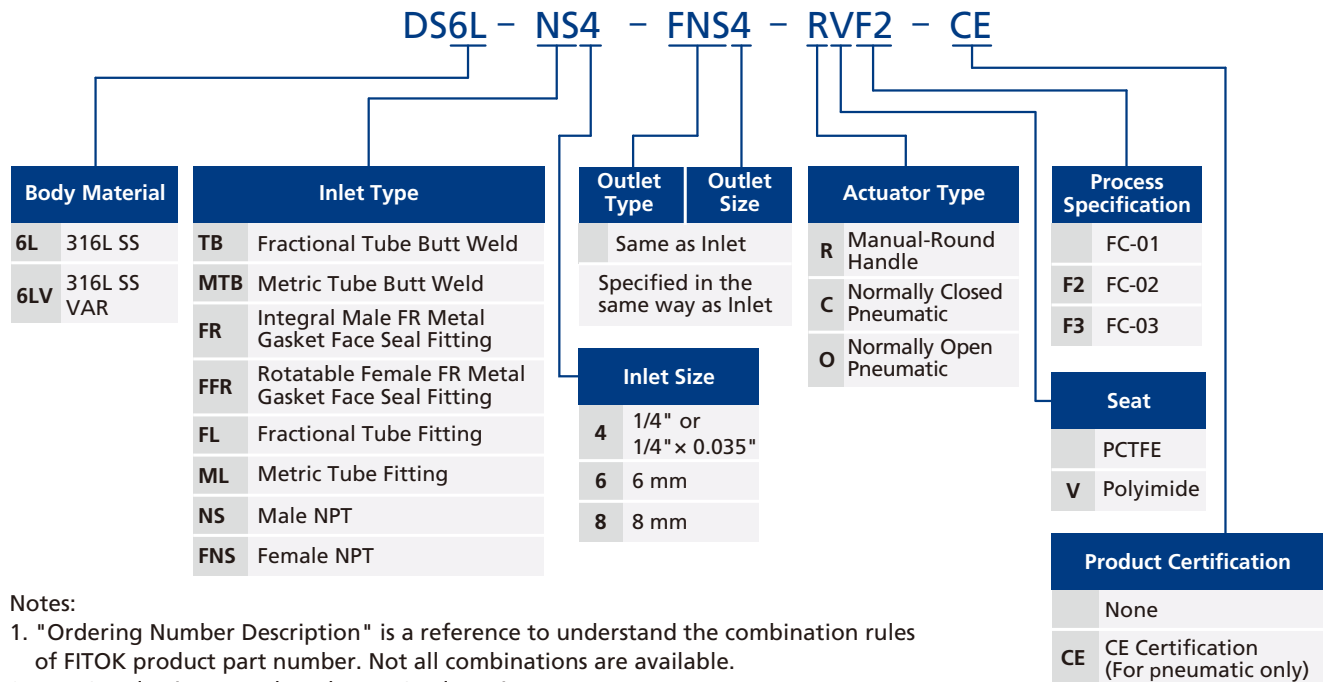
Port Size		1/4" to 3/8" or 6 mm to 8 mm
Flow Coefficient (Cv)		0.17
Orifice Size		0.12 in. (3.0 mm)
Max. Working Pressure	Manual	4500 psig (310 bar)
	Pneumatic	3000 psig (207 bar)
Pneumatic Actuator Operating Pressure		60 to 90 psig (4.2 to 6.2 bar)
Temperature		PCTFE: -10 ~ 150 °F (-23 ~ 65 °C) Polyimide: -10 ~ 250 °F (-23 ~ 121 °C)
Leak Rate (Helium)	Internal	≤ 1×10 ⁻⁹ std·cm ³ /s
	External	≤ 1×10 ⁻⁹ std·cm ³ /s

Flow Data

Air @ 70 °F (21 °C)
Water @ 60 °F (16 °C)

Pressure Drop to Atmosphere psig (bar)	Air (l/min)	Water (l/min)
10 (0.68)	55	1.9
50 (3.4)	150	4.5
100 (6.8)	260	6.4

Ordering Number Description



One-Piece Instrumentation Ball Valves

BO Series

Features

- ⦿ Working pressure up to: 3000 psig (207 bar)
- ⦿ Working temperature: -65°F to 300°F (-54°C to 148°C)
- ⦿ End connections:
1/4 to 1/2 thread
1/16" to 3/4" and 3 mm to 18 mm tube fitting
- ⦿ 2-, 3-, 4-, 5-, 6- and 7-way models for on-off, switching and crossover service available
- ⦿ One-piece body and one-piece ball stem
- ⦿ No dead space
- ⦿ Top-loaded design to allow adjustment with the valve in-line
- ⦿ Thermal cycle performance improved and wear compensated by live-loaded design
- ⦿ Any reasonable connections available
- ⦿ Pneumatic and electric actuator available
- ⦿ Handle color options available
- ⦿ Full operating pressure at any port
- ⦿ Leak-tight performance testing with nitrogen or compressed air for every valve at the rated pressure to meet the requirement of no visible leak
- ⦿ The inlet can be any port except for valves with vent ports



Notes:

1. To prevent seat leakage, packing adjustment may be required periodically during the service life of the valve.
2. A higher initial actuation torque may happen to the valves that have not been actuated for a period of time.
3. Before installation, instrumentation ball valves exposed to dynamic temperature conditions may lose their initial packing load. Stem packing adjustment should be required.

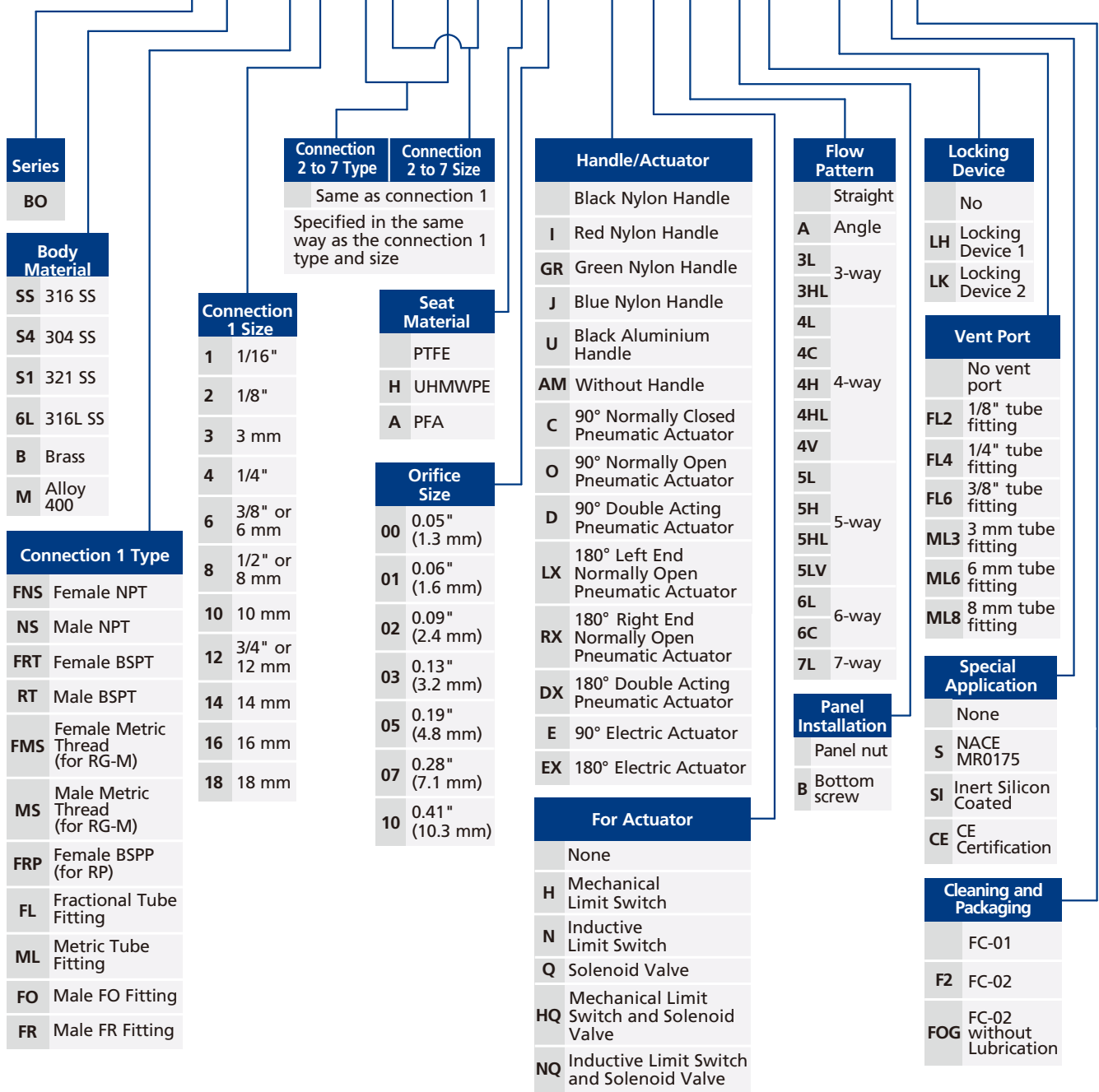
Ordering Number Description

Gas Control Equipment

Related Products

Technical References

BOSS - ML6 - FL4 - ML8 - H05 - DXHQ3L - BLH - FL4 - SF2



Series
BO
Body Material
SS 316 SS
S4 304 SS
S1 321 SS
6L 316L SS
B Brass
M Alloy 400

Connection 1 Type
FNS Female NPT
NS Male NPT
FRT Female BSPT
RT Male BSPT
FMS Female Metric Thread (for RG-M)
MS Male Metric Thread (for RG-M)
FRP Female BSPP (for RP)
FL Fractional Tube Fitting
ML Metric Tube Fitting
FO Male FO Fitting
FR Male FR Fitting

Connection 1 Size
1 1/16"
2 1/8"
3 3 mm
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
16 16 mm
18 18 mm

Connection 2 to 7 Type
Same as connection 1
Specified in the same way as the connection 1 type and size

Seat Material
PTFE
H UHMWPE
A PFA

Orifice Size
00 0.05" (1.3 mm)
01 0.06" (1.6 mm)
02 0.09" (2.4 mm)
03 0.13" (3.2 mm)
05 0.19" (4.8 mm)
07 0.28" (7.1 mm)
10 0.41" (10.3 mm)

Handle/Actuator
Black Nylon Handle
I Red Nylon Handle
GR Green Nylon Handle
J Blue Nylon Handle
U Black Aluminium Handle
AM Without Handle
C 90° Normally Closed Pneumatic Actuator
O 90° Normally Open Pneumatic Actuator
D 90° Double Acting Pneumatic Actuator
LX 180° Left End Normally Open Pneumatic Actuator
RX 180° Right End Normally Open Pneumatic Actuator
DX 180° Double Acting Pneumatic Actuator
E 90° Electric Actuator
EX 180° Electric Actuator

For Actuator
None
H Mechanical Limit Switch
N Inductive Limit Switch
Q Solenoid Valve
HQ Mechanical Limit Switch and Solenoid Valve
NQ Inductive Limit Switch and Solenoid Valve

Flow Pattern
Straight
A Angle
3L 3-way
3HL
4L
4C
4H 4-way
4HL
4V
5L 5-way
5H
5HL
5LV
6L 6-way
6C
7L 7-way

Panel Installation
Panel nut
B Bottom screw

Locking Device
No
LH Locking Device 1
LK Locking Device 2

Vent Port
No vent port
FL2 1/8" tube fitting
FL4 1/4" tube fitting
FL6 3/8" tube fitting
ML3 3 mm tube fitting
ML6 6 mm tube fitting
ML8 8 mm tube fitting

Special Application
None
S NACE MR0175
SI Inert Silicon Coated
CE CE Certification

Cleaning and Packaging
FC-01
F2 FC-02
FOG FC-02 without Lubrication

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

- For oxygen-enriched atmosphere or hazardous media service, contact FITOK Group or our authorized distributors.
- 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.
- For more information about pneumatic actuator ball valves, please refer to the catalog **Automatic Control Ball Valves**.
- Inert Silicon Coating: For wetted metal components.
- CE certification is available. For more information, please contact FITOK group or our authorized distributors.

Nonrotating-Stem Needle Valves

ND Series: Working pressure up to 3000 psig

NDH Series: Working pressure up to 5000 psig

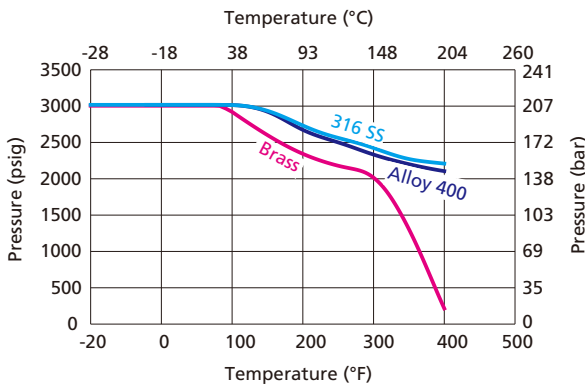
Features

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

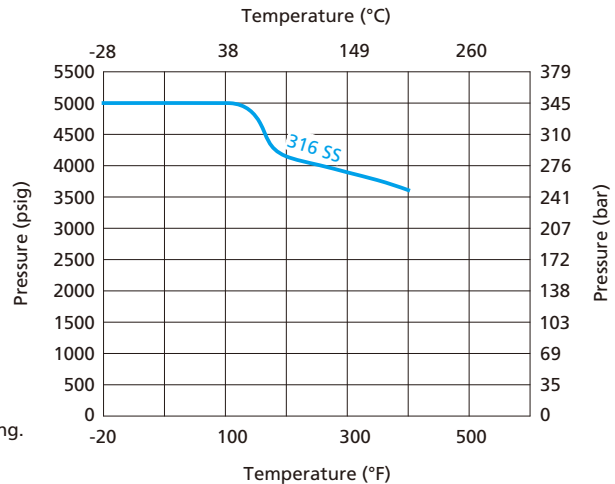


Pressure vs. Temperature

ND Series

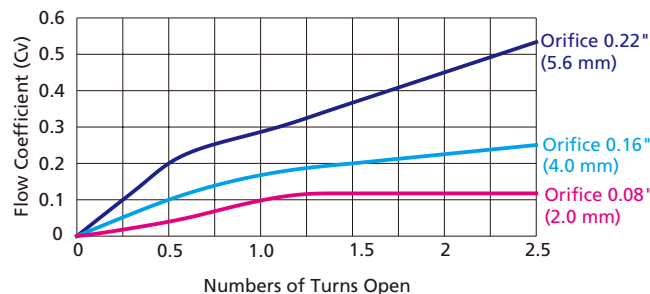


NDH Series

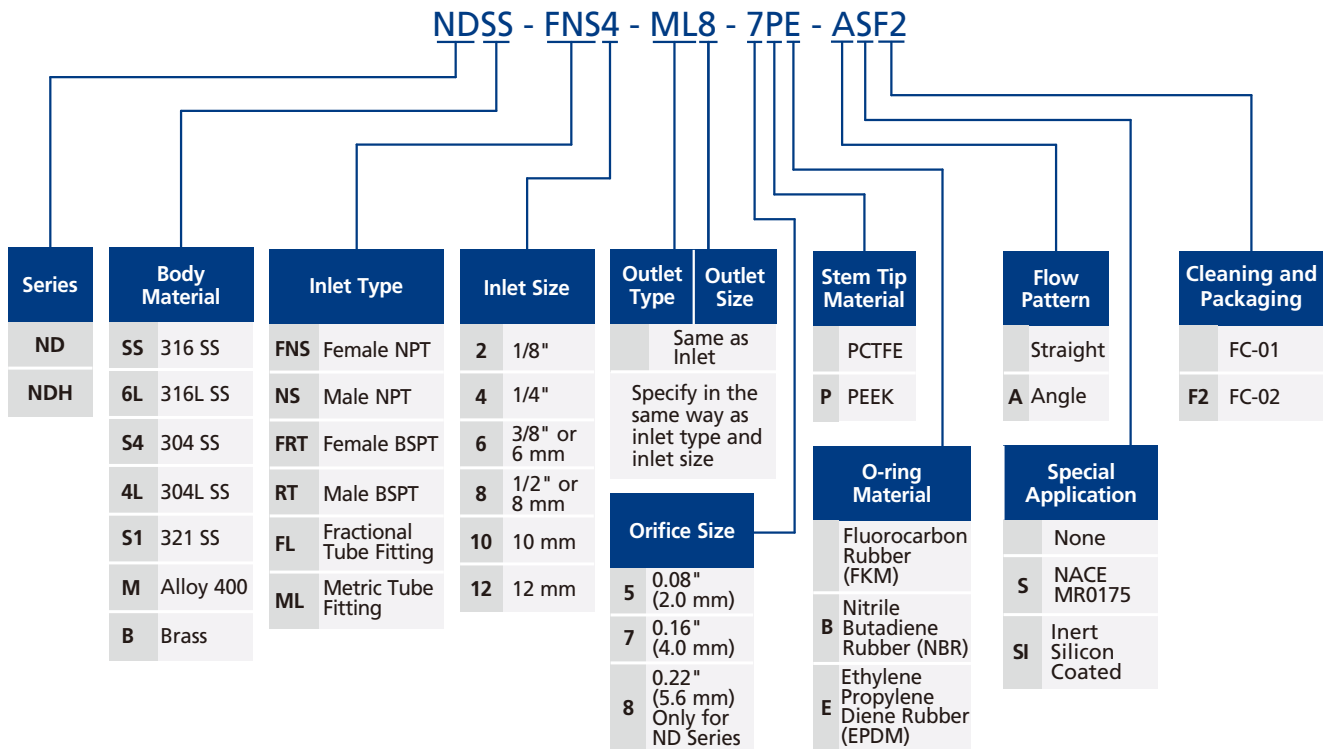


1. The graphs are based on PEEK stem tip and Fluorocarbon rubber (FKM) O-ring.
2. Contact FITOK Group or our authorized distributors for curve graph of other materials.

Flow Data at 100 °F (38 °C)



Ordering Number Description



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

1. Cleaning and Packaging:

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

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

2. Special Application:

Plural special application designators available in one ordering number, example: NDSS-NS4-7-SSI.

Inert Silicon Coating: For wetted metal components.

Check Valves

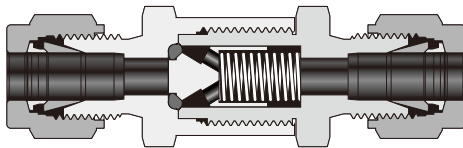
CV, CO and COA Series



Features

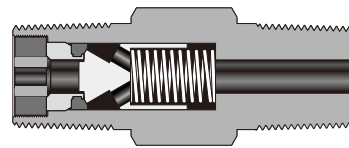
CV Series

- ⦿ Resilient O-ring seat design for leak free sealing
- ⦿ Working pressure up to: 3000 psig (207 bar)
- ⦿ Working temperature: -10°F to 375°F (-23°C to 190°C)
- ⦿ Cracking pressure: 1/3 to 25 psig (0.02 to 1.7 bar)
- ⦿ Variety of end connections and materials available
- ⦿ Non-adjustable cracking pressure, mountable in any directions



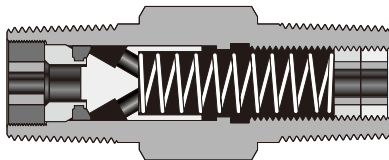
CO Series

- ⦿ Compact design, one-piece body
- ⦿ Working pressure up to: 3000 psig (207 bar)
- ⦿ Working temperature: -10°F to 375°F (-23°C to 190°C)
- ⦿ Cracking pressure: 1/3 to 25 psig (0.02 to 1.7 bar)
- ⦿ Variety of end connections and materials available
- ⦿ Non-adjustable cracking pressure, mountable in any directions



COA Series

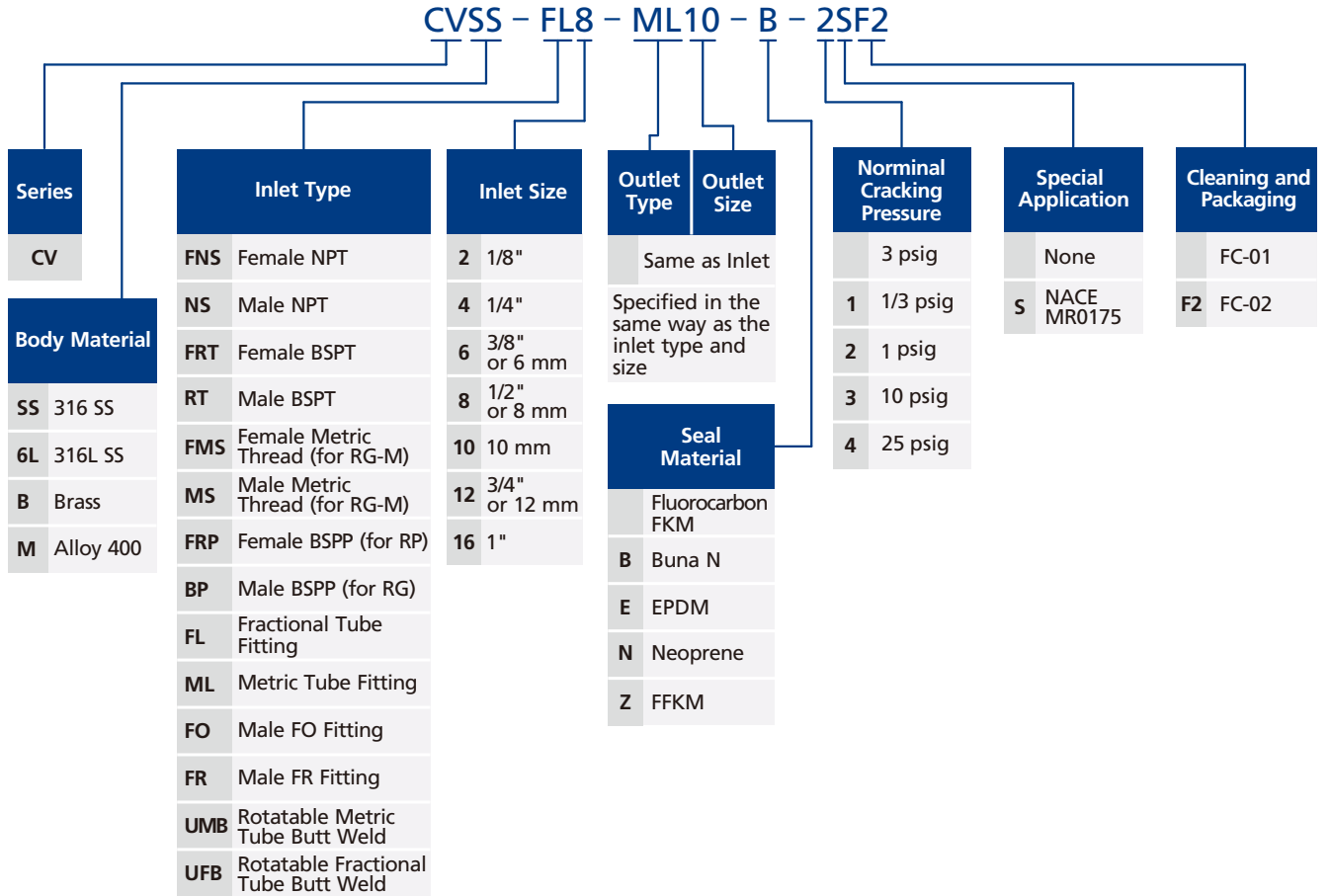
- ⦿ Compact design, one-piece body
- ⦿ Working pressure up to: 3000 psig (207 bar)
- ⦿ Working temperature: -10°F to 375°F (-23°C to 190°C)
- ⦿ Cracking pressure: 3 to 600 psig (0.21 to 41.4 bar)
- ⦿ Variety of end connections and materials available
- ⦿ Various springs available
- ⦿ Adjustable cracking pressure, mountable in any directions



Notes:

1. Check valves are all coated with lubricants like silicone base and molybdenum disulfide base.
2. Please contact FITOK Group or our authorized distributors for other materials.
3. PTFE-coated spring is an option for CV, CO and COA series check valves. For more details, please contact FITOK Group or our authorized distributors.
4. Every valve is tested with nitrogen for leak-tight performance at its maximum working pressure.

Ordering Number Description



- Standard thread pitch for metric threads are as follows:
 M10 and below: 1 mm
 M12 to M24: 1.5 mm
 M27 and above: 2 mm
 Standard thread pitch should be omitted in the ordering number, others should be specified.
- For oxygen-enriched atmosphere or hazardous media service, please contact FITOK Group or our authorized distributors.
- 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.
- The materials, connection types and sizes listed in the "Ordering Number Description" are standard. For other materials and end connections, please contact FITOK Group or our authorized distributors.
- PTFE-coated gasket can be chosen to reduce the possibility of O-ring's moving in system caused by the pressure fluctuations, vibration or pulsating. For more details, please contact FITOK Group or our authorized distributors.
- Check valve is designed with unidirectional flow path, it can't be used as safety relief valve.
- If the check valve is not opened for a period of time, its initial cracking pressure may be higher than set cracking pressure.

Ordering Number Description

COSS – FNS8 – NS8 – B – 2SF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Normal Cracking Pressure	Special Application	Cleaning and Packaging
CO	SS 316 SS	FNS Female NPT	2 1/8"	Same as Inlet	Specified in the same way as the inlet type and size	Fluorocarbon FKM	3 psig	None	FC-01
	6L 316L SS	NS Male NPT	4 1/4"			B Buna N	1 1/3 psig	S NACE MR0175	F2 FC-02
	B Brass	FRT Female BSPT	6 3/8"			E EPDM	2 1 psig		
	M Alloy 400	RT Male BSPT	8 1/2"			N Neoprene	3 10 psig		
					Z FFKM	4 25 psig			

- For oxygen-enriched atmosphere or hazardous media service, please contact FITOK Group or our authorized distributors.
- 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.
- The materials, connection types and sizes listed in the "Ordering Number Description" are standard. For other materials and end connections, please contact FITOK Group or our authorized distributors.
- Check valve is designed with unidirectional flow path, it can't be used as safety relief valve.
- If the check valve is not opened for a period of time, its initial cracking pressure may be higher than set cracking pressure.

Ordering Number Description

COASS – FNS8 – FNS4 – B – 5SF2 – T

Series	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Seal Material	Cracking Pressure	Special Application	Specified Cracking Pressure	
COA	FNS Female NPT	4 1/4"	Same as Inlet	Specified in the same way as the inlet type and size	Fluorocarbon FKM	3 to 50 psig	None	None	
Body Material	NS Male NPT	8 1/2"			B Buna N	5 50 to 150 psig	S NACE MR0175	Cleaning and Packaging	T Valves are set and tested as per the specified cracking pressure
	RT Male BSPT				E EPDM	6 150 to 350 psig			
SS 316 SS			N Neoprene	7 350 to 600 psig		FC-01			
6L 316L SS			Z FFKM			F2 FC-02			
B Brass									
M Alloy 400									

- For oxygen-enriched atmosphere or hazardous media service, please contact FITOK Group or our authorized distributors.
- 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.
- The materials, connection types and sizes listed in the "Ordering Number Description" are standard. For other materials and end connections, please contact FITOK Group or our authorized distributors.
- Check valve is designed with unidirectional flow path, it can't be used as safety relief valve.
- If the check valve is not opened for a period of time, its initial cracking pressure may be higher than set cracking pressure.
- For the specified cracking pressure of check valve, please indicate its value to be set when ordering.

Relief Valves

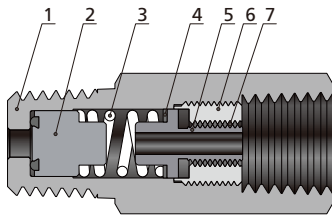
RUV and RV Series

Introduction

Relief valve opens when system pressure exceeds the set pressure, allowing the medium to flow out to relieve the system pressure, and closes when the system pressure decreases to the resealing pressure.

RUV Series

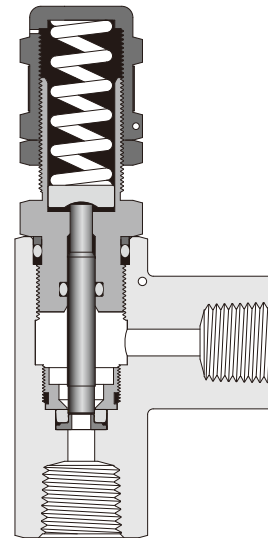
- ⦿ Compact design with one-piece body
- ⦿ Standard seat: FKM
- ⦿ Temperature: -10 °F to 300 °F (-23 °C to 148 °C)
- ⦿ Cracking pressure: 25 to 500 psig (1.7 to 34.5 bar)
- ⦿ Set pressure by nut adjustment and spring replacement



Item	Component	Material/Specification
1	Body	316L SS
2	Seal Assembly	316L SS + FKM or NBR or EPDM or FFKM
3	Spring	302 SS
4	Spring Gasket	PTFE
5	Adjusting Nut	316L SS
6	Lock Nut	316L SS
7	Prevailing Torque Type Wire Thread Insert	304 SS

RV Series

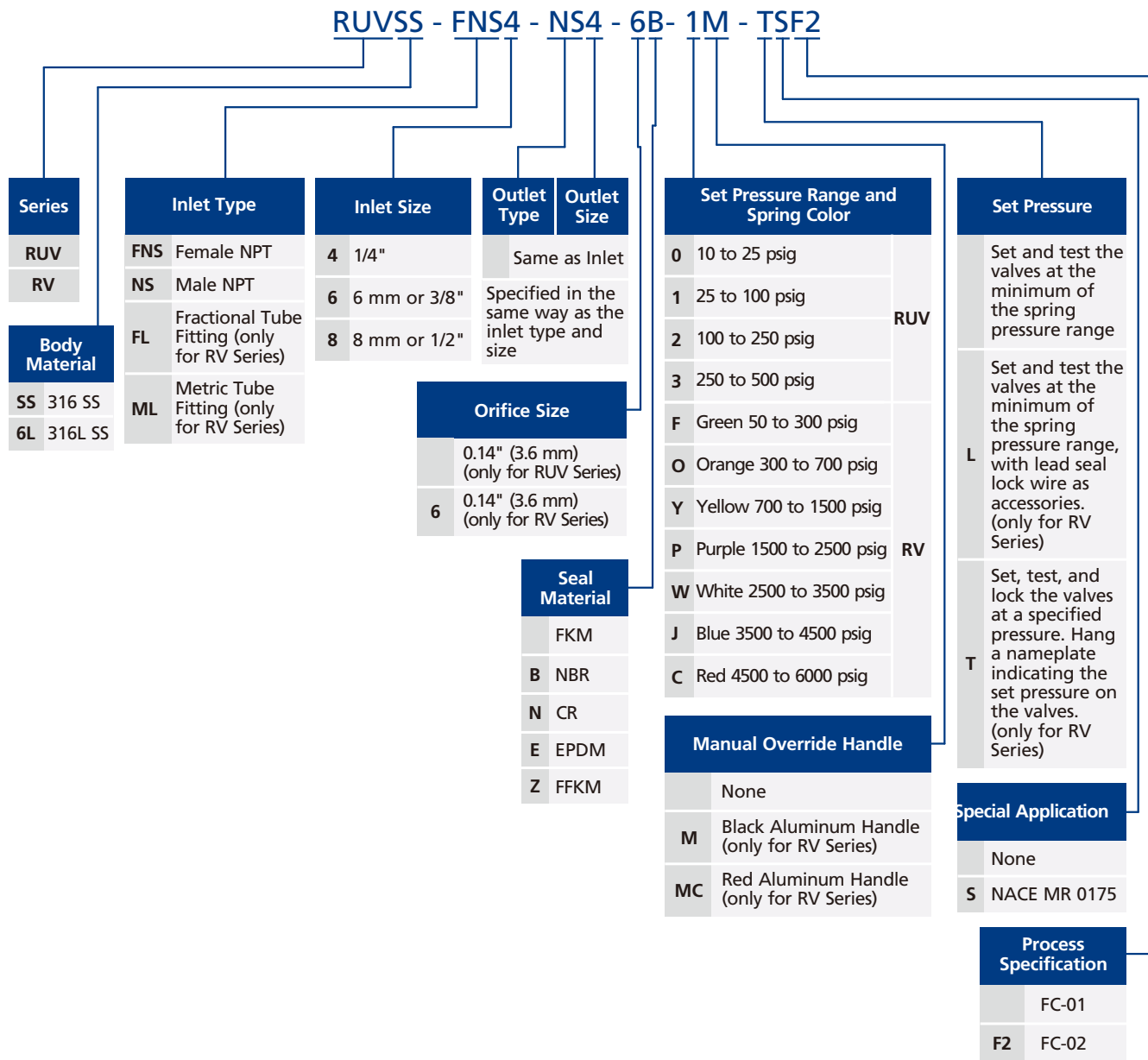
- ⦿ Set pressure: 7 color-coded springs available for a wide range of set pressures, 50 to 6000 psig @ 70°F (3.4 to 414 bar @ 20°C)
- ⦿ Maximum outlet pressure:RV series: 1500 psig (103 bar)
- ⦿ Orifice size: RV series: 0.14" (3.6 mm)
- ⦿ Back pressure:
 - Back pressure is the pressure of the outlet of valves. It increases the set pressure of proportional relief valves.
 - RV series: Balanced stem design to eliminate the effect of system back pressure
- ⦿ Working temperature: -40 °F to 300 °F (-40 °C to 148 °C)
- ⦿ Variety of end connections
- ⦿ Liquid or gas service
- ⦿ Adjustable bonnet cap and adjustable set pressure
- ⦿ Lead seal lock wire through lock wire holes to lock proportional relief valve so as to secure a set pressure effectively
- ⦿ Variety of seal materials
- ⦿ Label identifies the set pressure range



Temperature Range of Sealing Material

O-ring Material	Temperature Range °F (°C)
FKM	25 to 250 (-4 to 121)
NBR	0 to 212 (-17 to 100)
CR	-10 to 300 (-23 to 148)
EPDM	30 to 250 (-1 to 121)

Ordering Number Description



Notes:

- "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.
- Set pressure can be factory set upon request, please leave a note of desired set pressure when ordering.

Tee-Type Filters

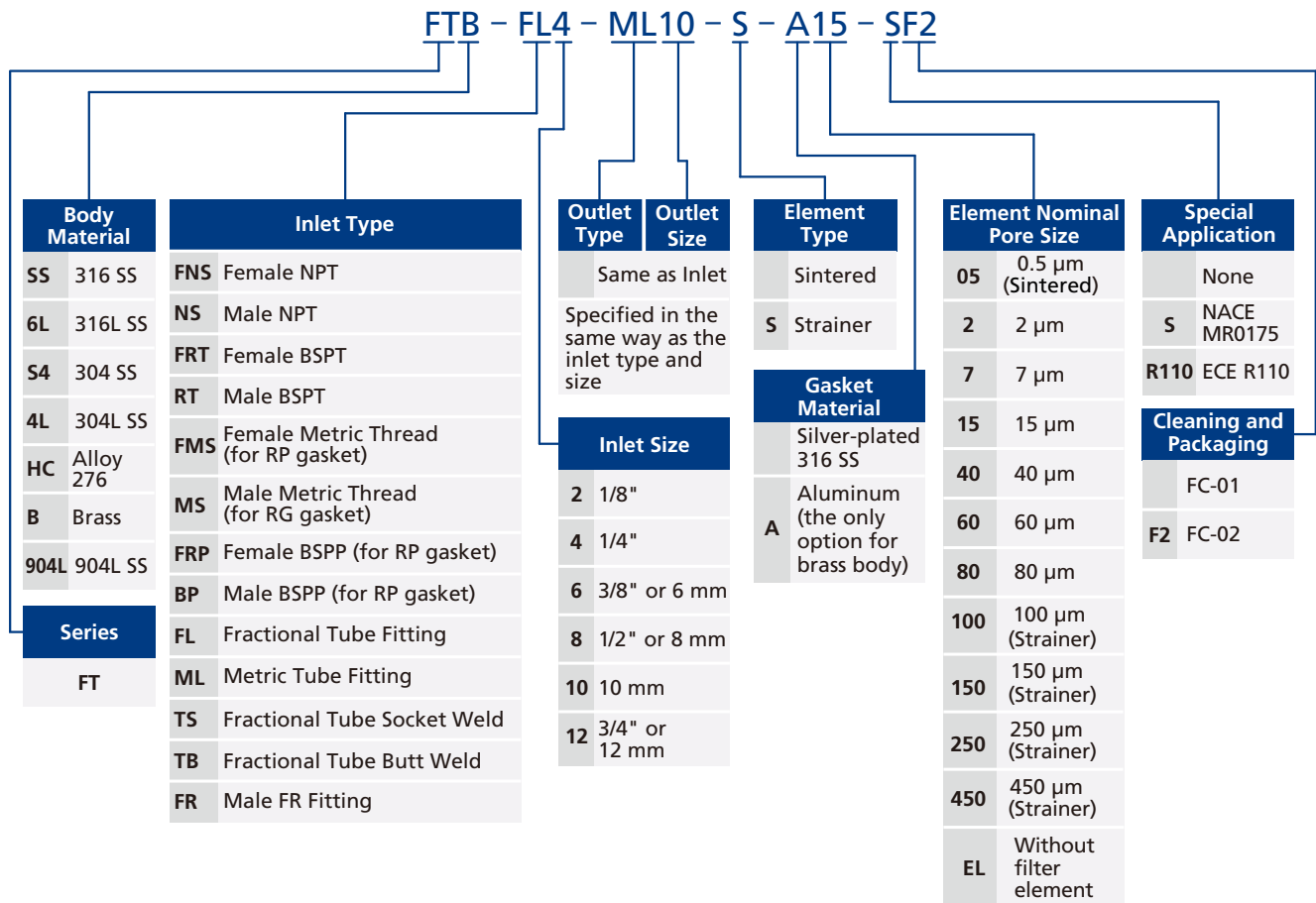
FT Series

Features

- Filtration area type: 4 and 8
- Union bonnet design to prevent lock nut from falling off and offer added safety
- Working pressure up to: 6000 psig (414 bar)
- Working temperature: -20 °F to 900 °F (-28 °C to 482 °C)
- Variety of end connections available



Filters Ordering Number Description

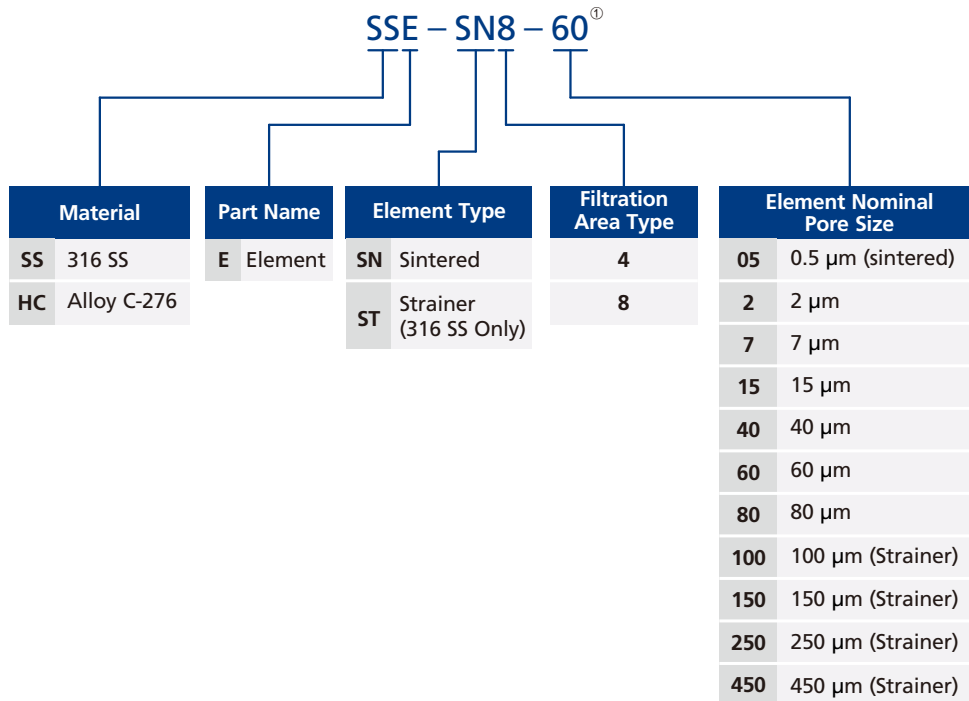


Note: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

- Cleaning and Packaging:
 - FC-01: Standard cleaning and packaging for basic industrial procedures.
 - FC-02: Special cleaning and packaging for wetted system components to ensure compliance requirement as stated in ASTM G93 Level C.
- 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.

Elements Ordering Number Description



① The FT and FB series filters share identical filter element models, while some filter element models for the FI series filters are also same with the FT and FB series. A filter element model represents a single, consistent filter product, meaning one filter element can be used across multiple filter series.

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

Bypass Filters

FB Series

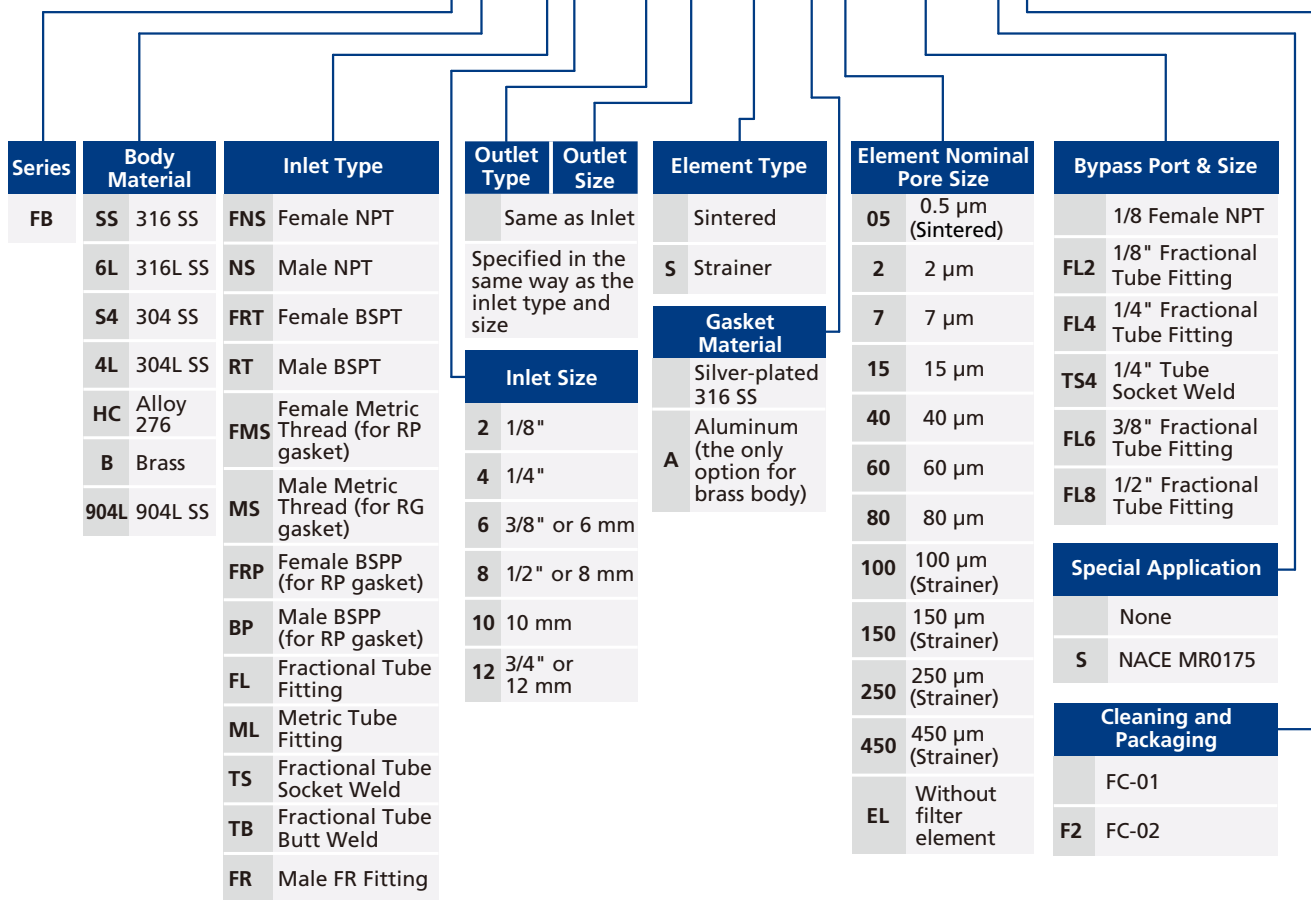
Features

- Filtration area type: 4 and 8
- Union bonnet design to prevent lock nut from falling off and offer added safety
- Working pressure up to: 6000 psig (414 bar)
- Working temperature: -20 °F to 900 °F (-28 °C to 482 °C)
- Variety of end connections available



Filters Ordering Number Description

FBB - FL8 - ML10 - S - A15 - FL4 - SF2

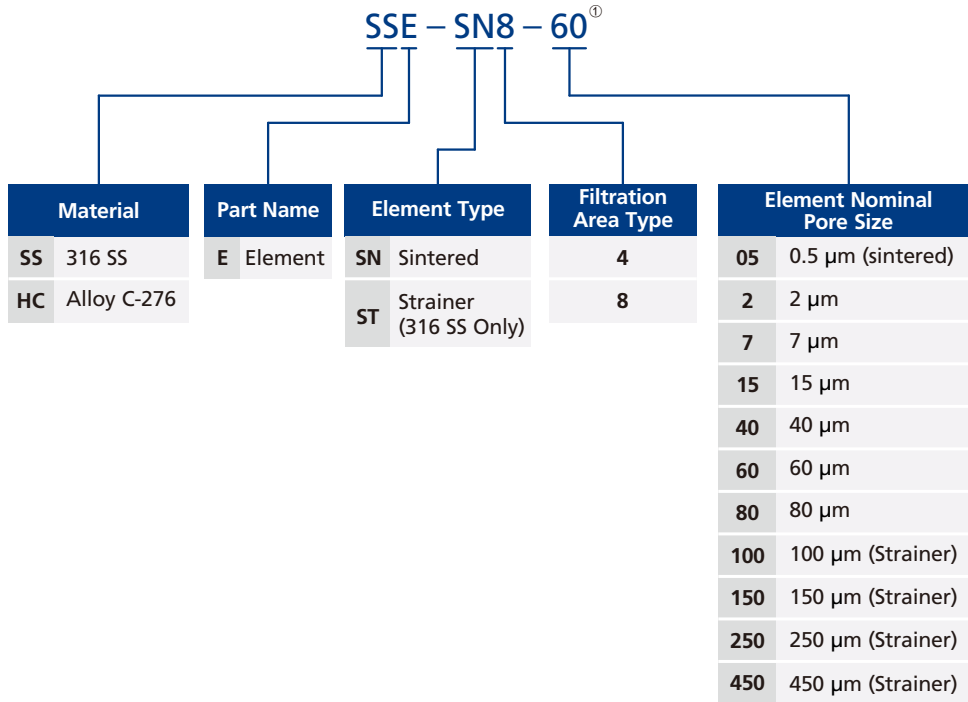


Note: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

- Cleaning and Packaging:
 - FC-01: Standard cleaning and packaging for basic industrial procedures.
 - FC-02: Special cleaning and packaging for wetted system components to ensure compliance requirement as stated in ASTM G93 Level C.
- 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.

Elements Ordering Number Description



① The FT and FB series filters share identical filter element models, while some filter element models for the FI series filters are also same with the FT and FB series. A filter element model represents a single, consistent filter product, meaning one filter element can be used across multiple filter series.

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

In-Line Filters

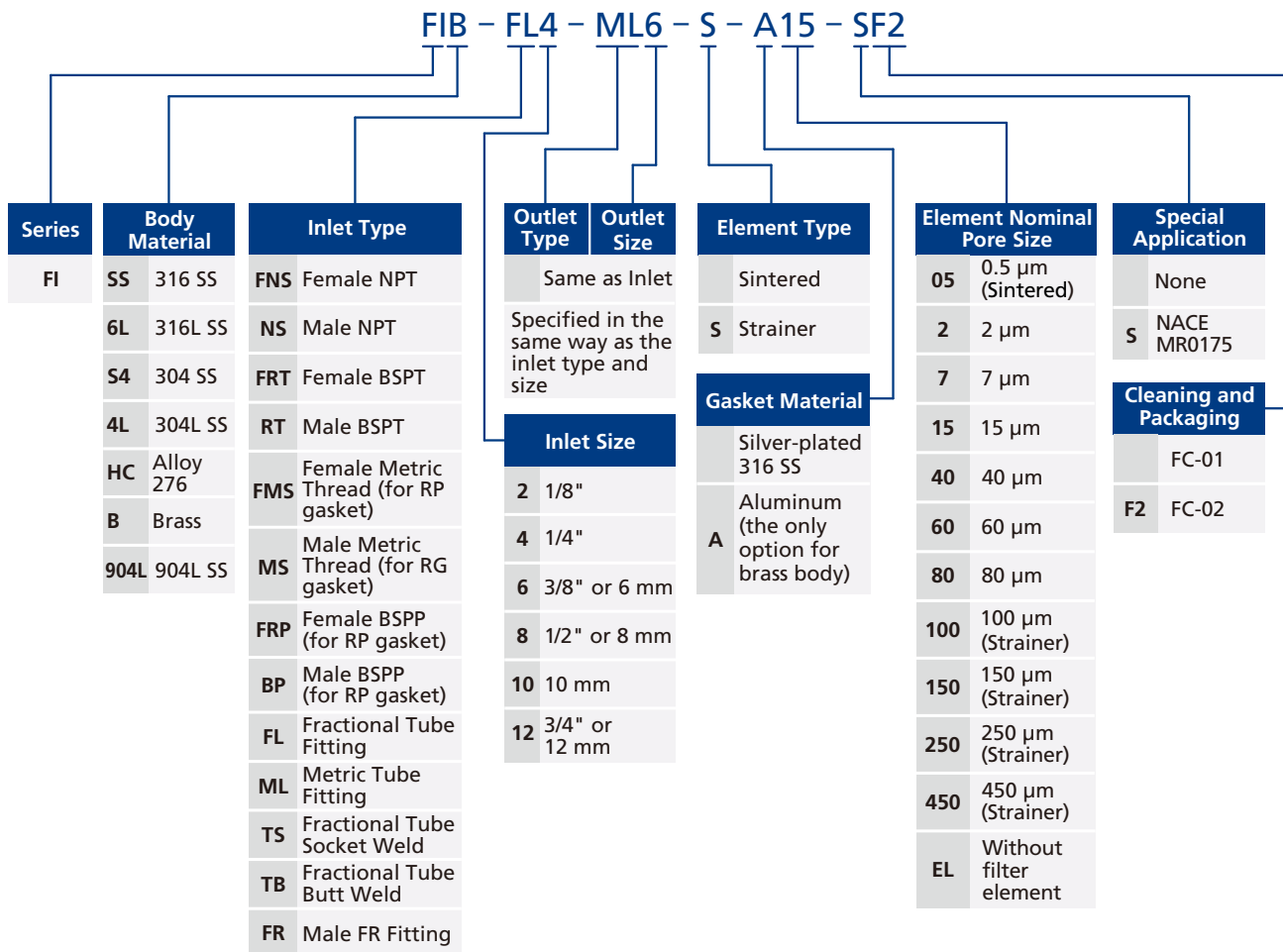
FI Series

Features

- Filtration area type: 2, 4 and 8
- Compact and space-saving design
- Working pressure up to: 3000 psig (207 bar)
- Working temperature: -20 °F to 900 °F (-28 °C to 482 °C)
- Variety of end connections available



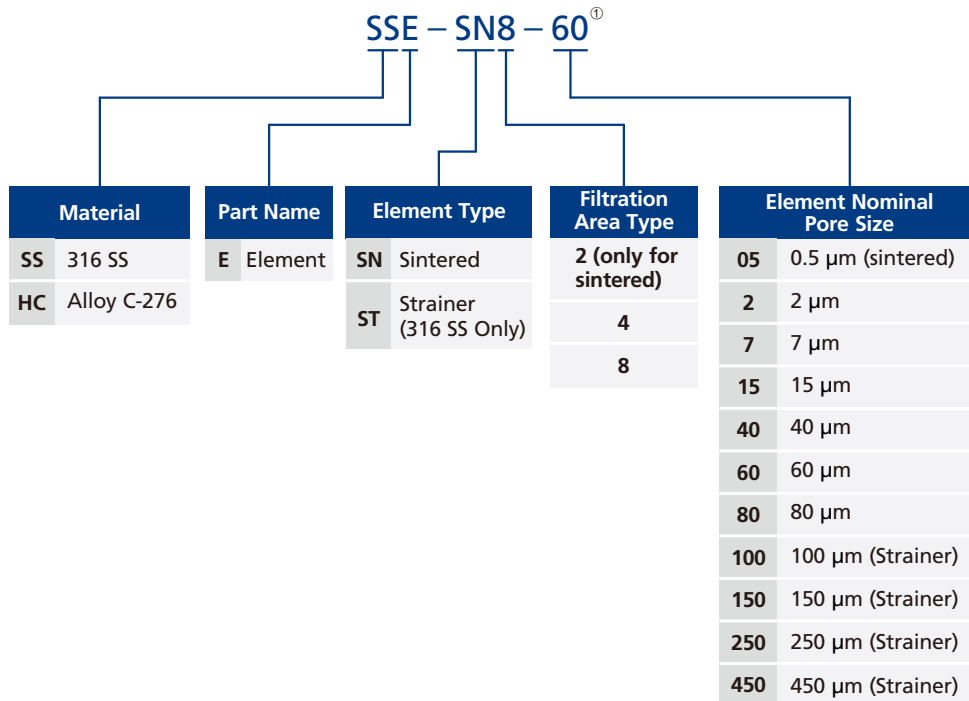
Filters Ordering Number Description



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

- Cleaning and Packaging:
 - FC-01: Standard cleaning and packaging for basic industrial procedures.
 - FC-02: Special cleaning and packaging for wetted system components to ensure compliance requirement as stated in ASTM G93 Level C.
- 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.

Elements Ordering Number Description



① The FT and FB series filters share identical filter element models, while some filter element models for the FI series filters are also same with the FT and FB series. A filter element model represents a single, consistent filter product, meaning one filter element can be used across multiple filter series.

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

All-Welded In-Line Filters

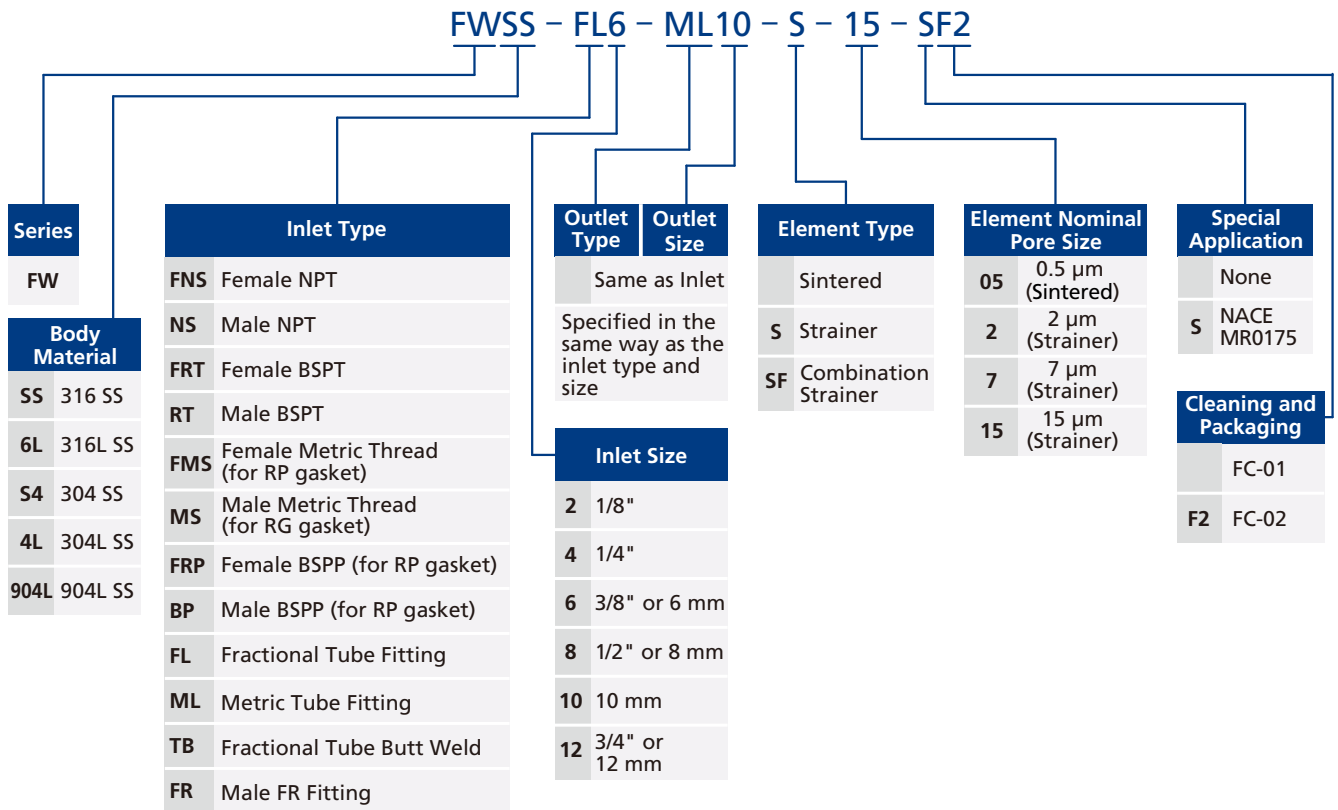
FW Series

Features

- Full-penetration weld between body and filter element
- Working pressure up to: 6000 psig (414 bar)
- Working temperature: -20 °F to 900 °F (-28 °C to 482 °C)
- Variety of end connections available



Filters Ordering Number Description



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

1. Cleaning and Packaging:

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

FC-02: Special cleaning and packaging for wetted system components to ensure compliance requirement as stated in ASTM G93 Level C.

2. 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.

High-Capacity Filters

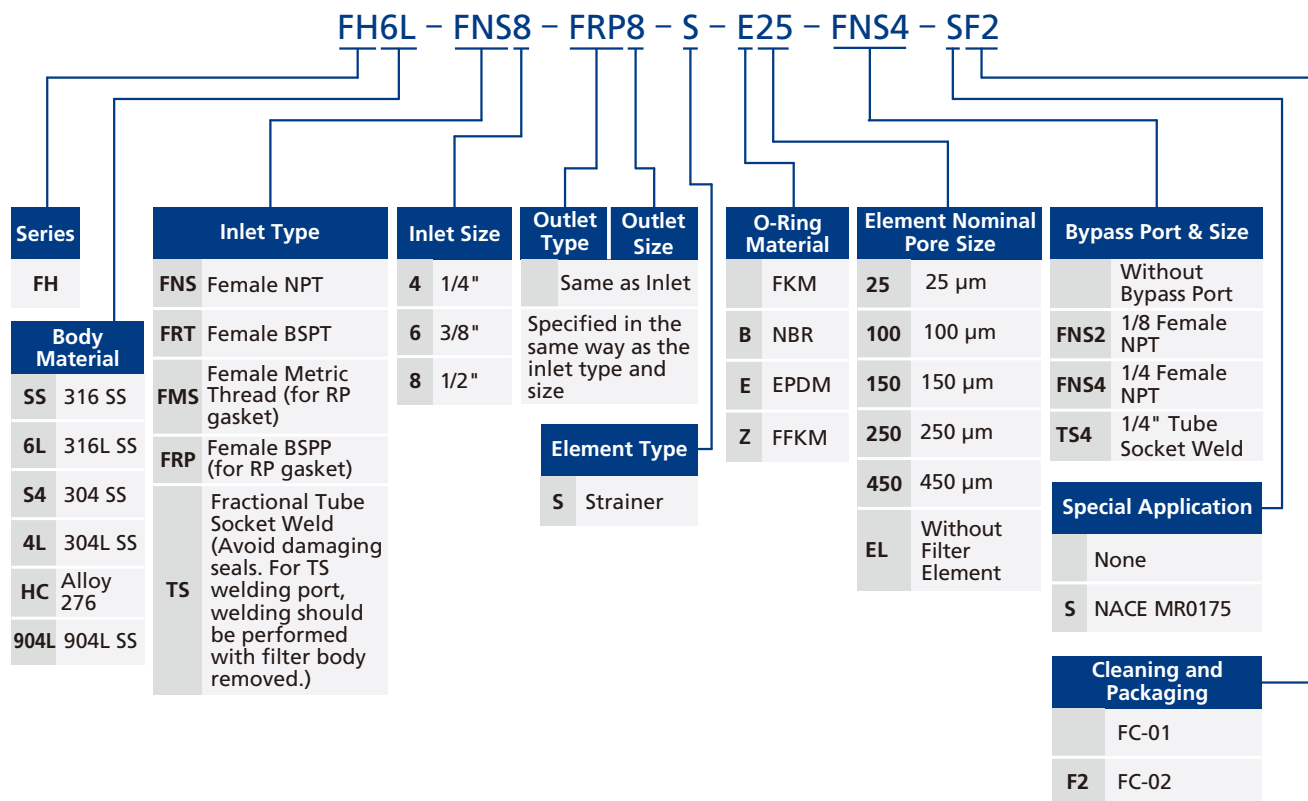
FH Series



Features

- Filtration area type: 4H and 8H
- Bypass port at filter bottom optional for the ease of sampling or purging
- Elements equipped with retention levers for easy disassembling, cleaning and replacement
- Standard seal materials: FKM and PTFE
- Working pressure up to 5000 psig
- Variety of end connections optional

Filters Ordering Number Description



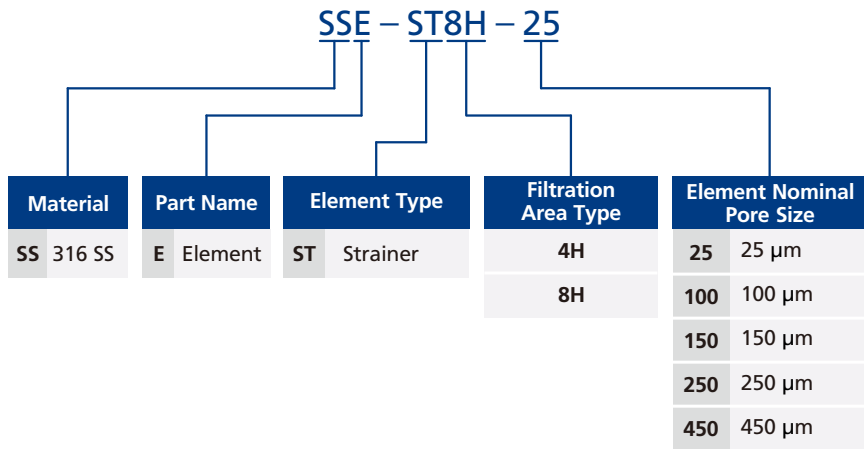
Note: "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.

1. Cleaning and Packaging:

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

FC-02: Special cleaning and packaging for wetted system components to ensure compliance requirement as stated in ASTM G93 Level C.

Elements Ordering Number Description



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

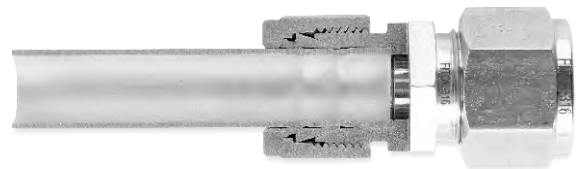
Tube Fittings

6D Series



Features

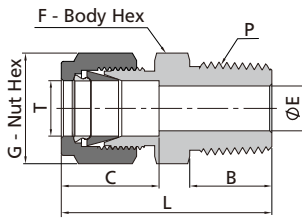
- ⦿ Sizes range from 1/16" to 2" and 2 mm to 50 mm
- ⦿ Diverse materials and configurations are available
- ⦿ Precision machined components ensure perfect deformation of the ferrules and tubing
- ⦿ Hardened threads with smooth surface finish avoid galling and help to extend the fitting service life
- ⦿ Female nut threads are silver-plated to reduce the friction against the body threads
- ⦿ Radius junction design for elbows provides smooth flow path
- ⦿ Every fitting is marked with size, material and heat number
- ⦿ Fittings are easy to disconnect and retighten
- ⦿ 1/8" to 5/8", 3 mm to 16 mm fittings available with EC-79 certification



Ordering Information and Dimensions

Dimensions are for reference only and are subject to change; Dimensions are shown with FITOK nuts finger-tight.

Male Connectors

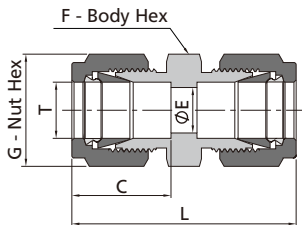


The E dimension refers to the smallest nominal orifice. It might be larger at tapered thread end, straight thread end.

Fractional Tube			NPT Thread					
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					
			L	B	C	E	G	F
1/4	1/4	-CM-FL4-NS4	1.49(37.8)	0.56(14.2)	0.60(15.2)	0.19(4.8)	0.56(14.3)	0.56(14.3)
3/8	3/8	-CM-FL6-NS6	1.57(39.9)	0.56(14.2)	0.66(16.8)	0.28(7.1)	0.69(17.5)	0.69(17.5)
1/2	1/2	-CM-FL8-NS8	1.93(49.0)	0.75(19.1)	0.90(22.9)	0.41(10.4)	0.87(22.2)	0.87(22.2)

Metric Tube			NPT Thread					
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)					
			L	B	C	E	G	F
6	1/4	-CM-ML6-NS4	37.9(1.49)	14.2(0.56)	15.3(0.60)	4.8(0.19)	14.0(0.55)	14.0(0.55)
8	3/8	-CM-ML8-NS6	39.3(1.55)	14.2(0.56)	16.2(0.64)	6.4(0.25)	16.0(0.63)	18.0(0.71)
10	3/8	-CM-ML10-NS6	40.9(1.61)	14.2(0.56)	17.2(0.68)	7.9(0.31)	19.0(0.75)	18.0(0.71)
12	1/2	-CM-ML12-NS8	49.0(1.93)	19.1(0.75)	22.8(0.90)	9.5(0.37)	22.0(0.87)	22.0(0.87)

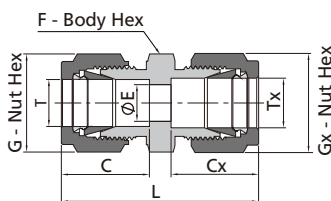
Unions



Fractional Tube		Dimension, in. (mm)				
T-Tube O.D. (in.)	Basic Ordering Number	L	C	G	F	E
1/4	-U-FL4	1.61(40.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)
3/8	-U-FL6	1.77(45.0)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.28(7.1)
1/2	-U-FL8	2.02(51.3)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)

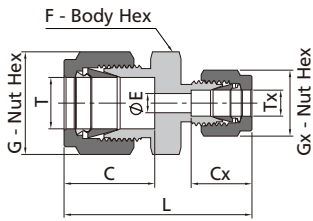
Metric Tube		Dimension, mm (in.)				
T-Tube O.D. (mm)	Basic Ordering Number	L	C	G	F	E
6	-U-ML6	41.0(1.61)	15.3(0.60)	14.0(0.55)	14.0(0.55)	4.8(0.19)
8	-U-ML8	43.2(1.70)	16.2(0.64)	16.0(0.63)	15.0(0.59)	6.4(0.25)
10	-U-ML10	46.2(1.82)	17.2(0.68)	19.0(0.75)	18.0(0.71)	7.9(0.31)
12	-U-ML12	51.2(2.02)	22.8(0.90)	22.0(0.87)	22.0(0.87)	9.5(0.37)

Conversion Unions



Metric Tube			Fractional Tube						
T-Tube O.D. (mm)	Tx-Tube O.D. (in.)	Basic Ordering Number	Dimension, mm (in.)						
			L	C	G	F	E	Cx	Gx
6	1/8	-U-ML6-FL2	38.5(1.52)	15.3(0.60)	14.0(0.55)	14.0(0.55)	2.4(0.09)	12.7(0.50)	11.1(0.44)
8	1/4	-U-ML8-FL4	42.3(1.67)	16.2(0.64)	16.0(0.63)	15.0(0.59)	4.8(0.19)	15.2(0.60)	14.3(0.56)
10	1/4	-U-ML10-FL4	44.5(1.75)	17.2(0.68)	19.0(0.75)	18.0(0.71)	4.8(0.19)	15.2(0.60)	14.3(0.56)
10	3/8	-U-ML10-FL6	45.9(1.81)	17.2(0.68)	19.0(0.75)	18.0(0.71)	7.1(0.28)	16.8(0.66)	17.5(0.69)
12	3/8	-U-ML12-FL6	48.4(1.91)	22.8(0.90)	22.0(0.87)	22.0(0.87)	7.1(0.28)	16.8(0.66)	17.5(0.69)
16	5/8	-U-ML16-FL10	52.0(2.05)	24.4(0.96)	25.0(0.98)	24.0(0.94)	12.7(0.50)	24.4(0.96)	25.4(1.00)
20	1/2	-U-ML20-FL8	55.0(2.17)	26.0(1.02)	32.0(1.26)	30.0(1.18)	10.4(0.41)	22.9(0.90)	22.2(0.87)

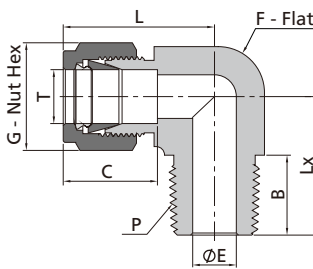
Reducing Unions



Fractional Tube			Dimension, in. (mm)							
T-Tube O.D. (in.)	Tx-Tube O.D. (in.)	Basic Ordering Number	L	C	G	F	E	Cx	Gx	
3/8	1/4	-U-FL6-FL4	1.70(43.2)	0.66(16.8)	0.69(17.5)	0.63(15.9)	0.19(4.8)	0.60(15.2)	0.56(14.3)	
1/2	1/4	-U-FL8-FL4	1.85(47.0)	0.90(22.8)	0.87(22.2)	0.81(20.6)	0.19(4.8)	0.60(15.2)	0.56(14.3)	
1/2	3/8	-U-FL8-FL6	1.91(48.5)	0.90(22.8)	0.87(22.2)	0.81(20.6)	0.28(7.1)	0.66(16.8)	0.69(17.5)	

Metric Tube			Dimension, mm (in.)							
T-Tube O.D. (mm)	Tx-Tube O.D. (mm)	Basic Ordering Number	L	C	G	F	E	Cx	Gx	
8	6	-U-ML8-ML6	42.3(1.67)	16.3(0.64)	16.0(0.63)	15.0(0.59)	4.8(0.19)	15.3(0.60)	14.0(0.55)	
10	8	-U-ML10-ML8	45.1(1.78)	17.2(0.68)	19.0(0.75)	18.0(0.71)	6.4(0.25)	16.3(0.64)	16.0(0.63)	
12	10	-U-ML12-ML10	48.7(1.92)	22.8(0.90)	22.0(0.87)	22.0(0.87)	7.9(0.31)	17.2(0.68)	19.0(0.75)	

Male Elbows



Fractional Tube			NPT Thread							
T-Tube O.D. (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)							
			L	C	G	F	E	B	Lx	
1/4	1/4	-LM-FL4-NS4	1.06(26.9)	0.60(15.2)	0.56(14.3)	0.50(12.7)	0.19(4.8)	0.56(14.2)	0.92(23.4)	
3/8	3/8	-LM-FL6-NS6	1.23(31.2)	0.66(16.8)	0.69(17.5)	0.69(17.5)	0.28(7.1)	0.56(14.2)	1.03(26.2)	
1/2	1/2	-LM-FL8-NS8	1.42(36.1)	0.90(22.9)	0.87(22.2)	0.81(20.6)	0.41(10.4)	0.75(19.1)	1.30(33.0)	

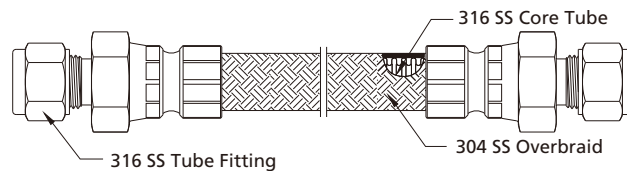
Metric Tube			NPT Thread							
T-Tube O.D. (mm)	P-NPT Size	Basic Ordering Number	Dimension, mm (in.)							
			L	C	G	F	E	B	Lx	
6	1/4	-LM-ML6-NS4	27.0(1.06)	15.3(0.60)	14.0(0.55)	12.7(0.50)	4.8(0.19)	14.2(0.56)	23.4(0.92)	
8	3/8	-LM-ML8-NS6	30.6(1.20)	16.2(0.64)	16.0(0.63)	17.5(0.69)	6.4(0.25)	14.2(0.56)	26.2(1.03)	
10	3/8	-LM-ML10-NS6	31.5(1.24)	17.2(0.68)	19.0(0.75)	17.5(0.69)	7.9(0.31)	14.2(0.56)	26.2(1.03)	
12	1/2	-LM-ML12-NS8	36.0(1.42)	22.8(0.90)	22.0(0.87)	20.6(0.81)	9.5(0.37)	19.1(0.75)	33.0(1.30)	

Metal Flexible Hoses

MH, MM Series

Features

- Core tube and fitting material: 316, 316L stainless steel
- Overbraid material: 304 stainless steel (316 SS available)
- Vacuum and positive pressure applications
- Working pressure up to: 3100 psig (213 bar)
- Nominal hose size: 1/4" to 2"
- End connections:
 - 1/4" to 2" pipe thread
 - 1/4" to 2" and 6 mm to 50 mm tube fitting
- Working temperature: -325 °F to 800 °F (-200 °C to 426 °C)
- Welded fitting-to-hose construction to ensure reliable seal
- Standard and custom length available



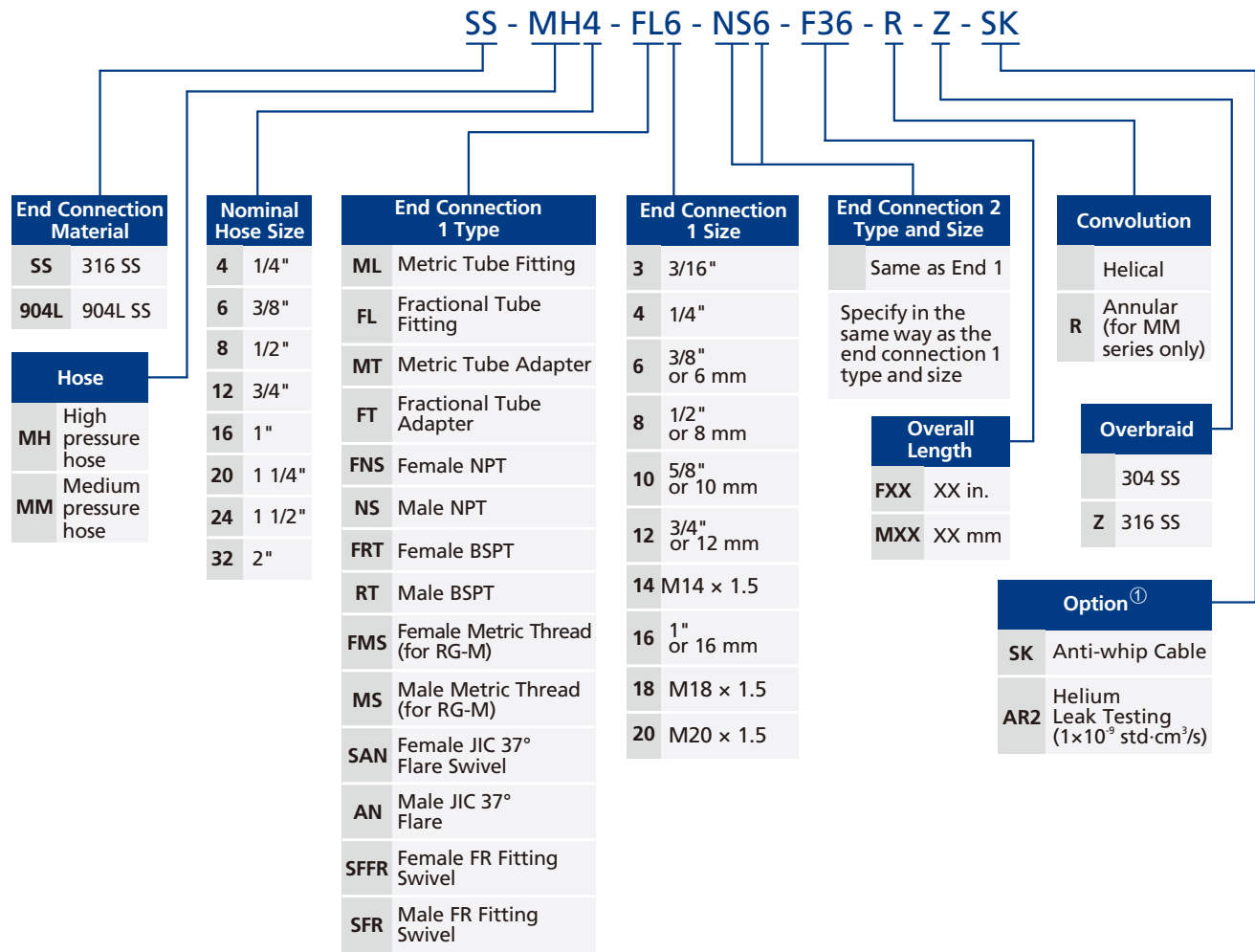
Hose Technical Data (MH Series)

Nominal Hose Size	Inside Diameter	Min. Bend Radius		Temperature Range	Working Pressure at 70°F (20°C)	Min. Burst Pressure at 70°F (20°C)
		Static	Dynamic			
in. (mm)	in. (mm)	in. (mm)	in. (mm)	°F (°C)	psig (bar)	psig (bar)
1/4 (6.4)	0.28 (7.1)	2.25 (57.2)	10.0 (254)	-325 to 800 (-200 to 426)	3100 (213)	12400 (854)
3/8 (9.7)	0.42 (10.6)	3.00 (76.2)	12.0 (305)		2000 (137)	8000 (551)
1/2 (12.7)	0.53 (13.5)	4.50 (114)	16.0 (406)		1800 (124)	7200 (496)
3/4 (19.0)	0.80 (20.3)	6.00 (152)	17.0 (432)		1500 (103)	6000 (413)
1 (25.4)	1.03 (26.0)	6.75 (171)	20.0 (508)		1200 (82.6)	4800 (330)
1 1/4 (31.8)	1.30 (33.0)	8.86 (225)	23.0 (584)		950 (65.4)	3800 (261)
1 1/2 (38.1)	1.53 (38.9)	11.0 (280)	26.0 (660)		900 (62.0)	3600 (248)
2 (50.8)	2.05 (52.1)	13.8 (350)	32.0 (813)		500 (34.4)	2000 (137)

Hose Technical Data (MM Series)

Nominal Hose Size	Inside Diameter	Min. Bend Radius				Temperature Range	Working Pressure at 70°F (20°C)	Min. Burst Pressure at 70°F (20°C)
		Helical Convoluted Core		Annular Convoluted Core				
		Static	Dynamic	Static	Dynamic			
in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	°F (°C)	psig (bar)	psig (bar)
1/4 (6.4)	0.25 (6.4)	1.38 (35)	8.66 (220)	0.79 (20)	4.33 (110)	-325 to 800 (-200 to 426)	1600 (110)	6400 (440)
3/8 (9.7)	0.38 (9.5)	2.36 (60)	10.40 (264)	0.98 (25)	5.91 (150)		1470 (101)	6000 (413)
1/2 (12.7)	0.50 (12.7)	2.95 (75)	11.89 (302)	1.18 (30)	4.88 (124)		1110 (76.4)	4500 (310)
3/4 (19.0)	0.75 (19.0)	3.54 (90)	13.58 (345)	1.50 (38)	6.65 (169)		860 (59.2)	3500 (241)
1 (25.4)	1.00 (25.4)	4.13 (105)	15.00 (381)	1.77 (45)	7.68 (195)		680 (46.8)	2680 (184)
1 1/4 (31.8)	1.25 (31.8)	4.72 (120)	16.22 (412)	/			680 (46.8)	2600 (179)
1 1/2 (38.1)	1.50 (38.1)	5.51 (140)	16.89 (429)				520 (35.8)	2200 (151)
2 (50.8)	2.00 (50.8)	6.30 (160)	18.43 (468)				450 (31.0)	1800 (124)

Ordering Number Description



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

① To order multiple options, please add designators in alphabetical order and separate them with dashes.

Example: SS-MH4-FT6-M710

SS: End connection material is 316 stainless steel.

MH4: MH series, nominal hose size is 1/4".

FT6: End connection 1 is 3/8" tube adapter.

End connection 2 is 3/8" tube adapter.

M710: Overall length is 710 mm.

Connections are described based on the following rules:

1. Metric Tube Fitting - Fractional Tube Fitting - Metric Tube Adapters - Fractional Tube Adapters - NPT Threads - BSPT Threads - BSPP Threads - SAE/MS Parallel ° Threads - 37 Flare - Others
2. Put the sizes from the biggest down to the smallest if they are of the same type.
3. Put the female before male if they are of the same type and size.

Cylinder Connections



CGA DISS Series

B-31

CGA Series

B-35

DIN Series

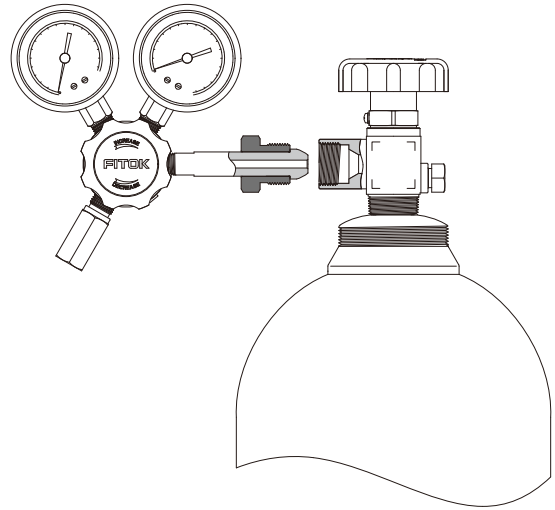
B-42

Gas Connection Assignment Table

B-43

Features

- ⦿ 100% visual inspection of critical surfaces
- ⦿ Diverse material and configurations available
- ⦿ Silver-plated nut threads to reduce installation torque
- ⦿ Every fitting marked with size, material and heat number
- ⦿ Customized solutions available



Material

Series	Component	Material	Designator
CGA DISS	Nipples	316L SS	6L
	Nuts	304 SS	S4
	Gaskets	Nickel 200	NI
		PCTFE	K
		Aluminum	AL
	Plugs	316L SS	6L
	Adapters	316L SS	6L
Caps	316L SS	6L	
CGA DIN	Nipples	316L SS	6L
	Nuts	304 SS	S4
	Gaskets	PTFE	T
		PCTFE	K
	Plugs, Caps	316L SS	6L
Adapters	316L SS	6L	

Notes:

1. Nickel gasket heat treated; surface hardness < HB 100
2. 316L SS in compliance with SEMI F20

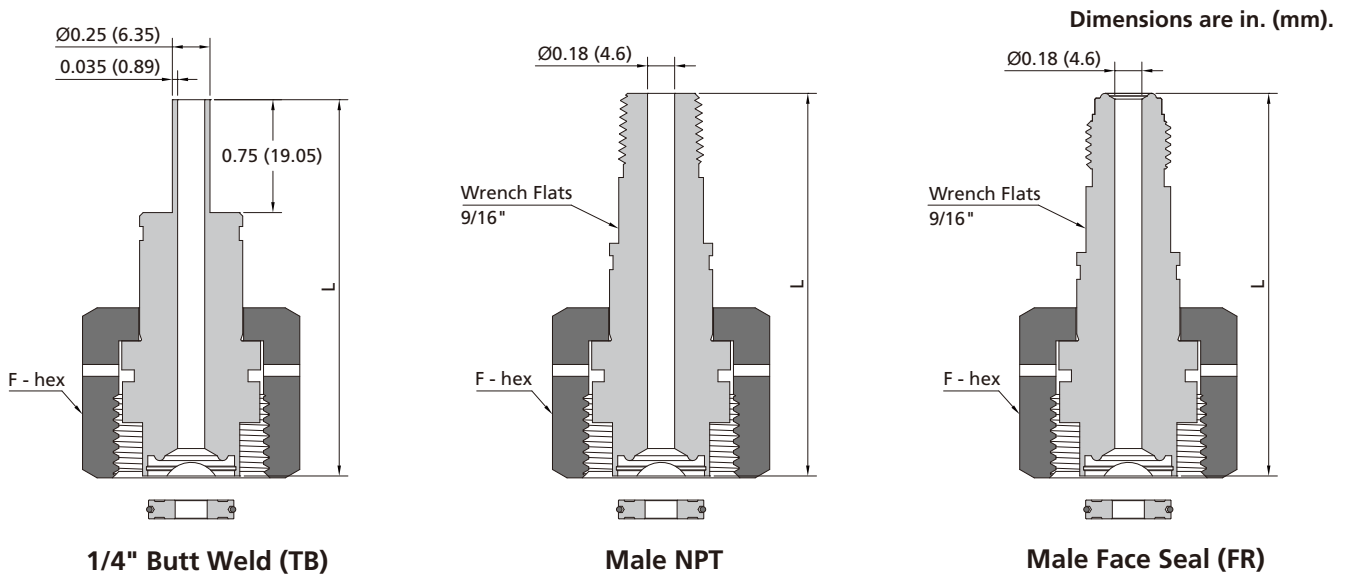
Ordering information

- ⦿ Add material designator as a prefix to the basic ordering number to get the complete ordering number.
Example: 6L-C634-L-FR4
- ⦿ CGA, DIN Series
PTFE is standard material for gasket. If PCTFE is required, please add a suffix of "-k" to the ordering number.
Example: 6L-C350-NS4-K
- ⦿ CGA DISS Series
Nickel is standard material for gasket. If PCTFE is required, please add a suffix of "-k" to the ordering number.
Example: 6L-C632-FR4-K

CGA DISS Series

- Designed and verified in compliance with the CGA V-1-2005 standard
- For nipples with TB or FR connections, inner surface electropolished to an average of Ra 9 µin. (0.23 µm), products comply with high purity process specification
- For nipples with NPT connections, inner surface electropolished to an average of Ra 16 µin. (0.4 µm), products comply with special cleaning and packaging, applicable to oxygen-enriched atmospheres
- Maximum allowable leak rate: 1×10^{-9} std-cm³/s
- CGA DISS series cylinder connections are available with a variety of end connection types, such as 1/4" TB, 3/8" TB, 1/2" TB, 1/8 NPT, 1/4 NPT, 3/8 NPT, 1/2 NPT, 1/4" FR, and 1/2" FR. The maximum working pressures for cylinder connections with these end connection types meet the requirements of the CGA V-1-2005 standard
- Maximum working pressures for cylinder connections are calculated at room temperature in accordance with CGA V-1-2005, ASME B31.3, and ASME B31.1 standards
- For other end connection types, please contact FITOK Group or our authorized distributors

Cylinder Connections (Including Nipples, Nuts and Gaskets)



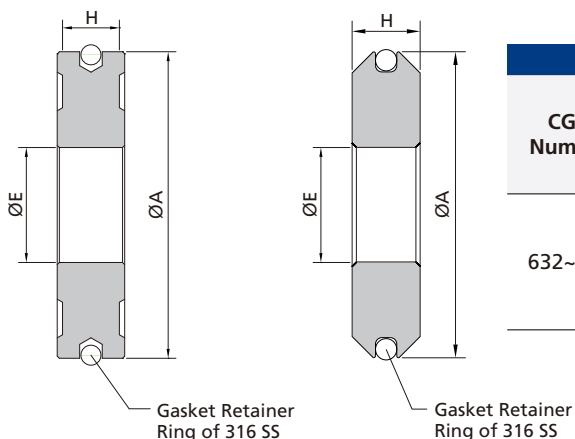
CGA Number	End Connection	Assembly Basic Ordering Number	Nipple Basic Ordering Number	Nut Basic Ordering Number	Gasket Basic Ordering Number	Dimensions, in. (mm)	
						L	F
632	1/4" TB	-C632-TB4	-C632-L-TB4	-C630-N	-C630-GT	2.5 (63.5)	1 1/4 (31.8)
	1/4" FR	-C632-FR4	-C632-L-FR4			3 (76.2)	
	1/4 NPT	-C632-NS4	-C632-L-NS4			3 (76.2)	
634	1/4" TB	-C634-TB4	-C634-L-TB4	-C630-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C634-FR4	-C634-L-FR4			3 (76.2)	
	1/4 NPT	-C634-NS4	-C634-L-NS4			3 (76.2)	
636	1/4" TB	-C636-TB4	-C636-L-TB4	-C630-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C636-FR4	-C636-L-FR4			3 (76.2)	
	1/4 NPT	-C636-NS4	-C636-L-NS4			3 (76.2)	
638	1/4" TB	-C638-TB4	-C638-L-TB4	-C630-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C638-FR4	-C638-L-FR4			3 (76.2)	
	1/4 NPT	-C638-NS4	-C638-L-NS4			3 (76.2)	

CGA Number	End Connection	Assembly Basic Ordering Number	Nipple Basic Ordering Number	Nut Basic Ordering Number	Gasket Basic Ordering Number	Dimensions, in. (mm)	
						L	F
640	1/4" TB	-C640-TB4	-C640-L-TB4	-C630-N	-C630-GT	2.5 (63.5)	1 1/4 (31.8)
	1/4" FR	-C640-FR4	-C640-L-FR4			3 (76.2)	
	1/4" NPT	-C640-NS4	-C640-L-NS4			3 (76.2)	
642	1/4" TB	-C642-TB4	-C642-L-TB4	-C630-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C642-FR4	-C642-L-FR4			3 (76.2)	
	1/4" NPT	-C642-NS4	-C642-L-NS4			3 (76.2)	
712	1/4" TB	-C712-TB4	-C712-L-TB4	-C710-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C712-FR4	-C712-L-FR4			3 (76.2)	
	1/4" NPT	-C712-NS4	-C712-L-NS4			3 (76.2)	
714	1/4" TB	-C714-TB4	-C714-L-TB4	-C710-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C714-FR4	-C714-L-FR4			3 (76.2)	
	1/4" NPT	-C714-NS4	-C714-L-NS4			3 (76.2)	
716	1/4" TB	-C716-TB4	-C716-L-TB4	-C710-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C716-FR4	-C716-L-FR4			3 (76.2)	
	1/4" NPT	-C716-NS4	-C716-L-NS4			3 (76.2)	
718	1/4" TB	-C718-TB4	-C718-L-TB4	-C710-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C718-FR4	-C718-L-FR4			3 (76.2)	
	1/4" NPT	-C718-NS4	-C718-L-NS4			3 (76.2)	
720	1/4" TB	-C720-TB4	-C720-L-TB4	-C720-N	-C630-GT	2.5 (63.5)	1 3/8 (34.9)
	1/4" FR	-C720-FR4	-C720-L-FR4			3 (76.2)	
	1/4" NPT	-C720-NS4	-C720-L-NS4			3 (76.2)	
722	1/4" TB	-C722-TB4	-C722-L-TB4	-C720-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C722-FR4	-C722-L-FR4			3 (76.2)	
	1/4" NPT	-C722-NS4	-C722-L-NS4			3 (76.2)	
724	1/4" TB	-C724-TB4	-C724-L-TB4	-C720-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C724-FR4	-C724-L-FR4			3 (76.2)	
	1/4" NPT	-C724-NS4	-C724-L-NS4			3 (76.2)	
726	1/4" TB	-C726-TB4	-C726-L-TB4	-C720-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C726-FR4	-C726-L-FR4			3 (76.2)	
	1/4" NPT	-C726-NS4	-C726-L-NS4			3 (76.2)	
728	1/4" TB	-C728-TB4	-C728-L-TB4	-C720-N	-C630-GT	2.5 (63.5)	
	1/4" FR	-C728-FR4	-C728-L-FR4			3 (76.2)	
	1/4" NPT	-C728-NS4	-C728-L-NS4			3 (76.2)	

Note:
 Nickel is standard material for gasket. If PCTFE is required, please add a suffix of "-k" to the ordering number.
 Example: 6L-C638-TB4-K

Gaskets

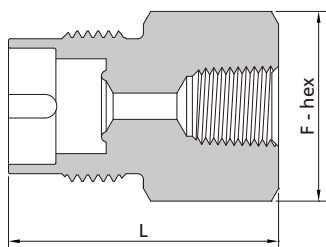
NI-C630-GT / AL-C630-GT K-C630-GT



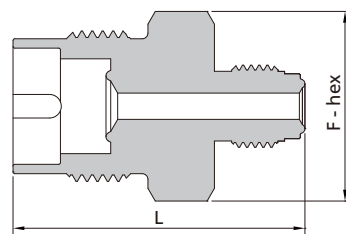
CGA Number	Gasket Ordering Number	Material	Dimensions					
			A		E		H	
			in.	mm	in.	mm	in.	mm
632~728	NI-C630-GT	Nickel 200	0.56	14.3	0.21	5.4	0.105	2.7
	K-C630-GT	PCTFE					0.125	3.2
	AL-C630-GT	Aluminum					0.105	2.7

Outlet Adaptors

Female NPT



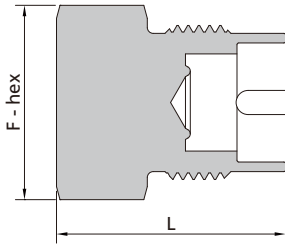
Male Face Seal (FR)



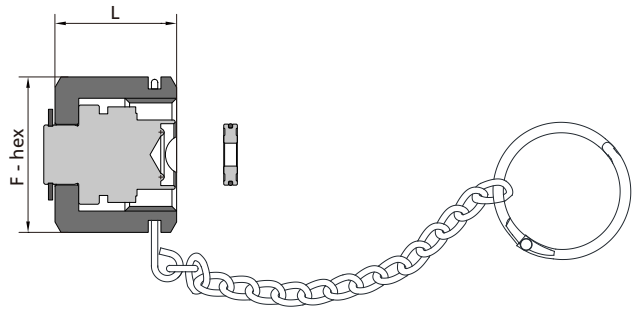
CGA Number	Basic Ordering Number	Dimensions, in. (mm)	
		L	F
632	-C632-A-FNS4	1.85 (47.0)	1 1/8 (28.6)
634	-C634-A-FNS4		
636	-C636-A-FNS4		
638	-C638-A-FNS4		
640	-C640-A-FNS4		
642	-C642-A-FNS4		
712	-C712-A-FNS4	1.85 (47.0)	1 1/4 (31.8)
714	-C714-A-FNS4		
716	-C716-A-FNS4		
718	-C718-A-FNS4		
720	-C720-A-FNS4		
722	-C722-A-FNS4		
724	-C724-A-FNS4		
726	-C726-A-FNS4		
728	-C728-A-FNS4		

CGA Number	Basic Ordering Number	Dimensions, in. (mm)	
		L	F
632	-C632-A-FR4	2.0 (50.8)	1 1/8 (28.6)
634	-C634-A-FR4		
636	-C636-A-FR4		
638	-C638-A-FR4		
640	-C640-A-FR4		
642	-C642-A-FR4		
712	-C712-A-FR4	2.0 (50.8)	1 1/4 (31.8)
714	-C714-A-FR4		
716	-C716-A-FR4		
718	-C718-A-FR4		
720	-C720-A-FR4		
722	-C722-A-FR4		
724	-C724-A-FR4		
726	-C726-A-FR4		
728	-C728-A-FR4		

Blank Plugs



Valve Outlet Caps (Including Chains, Rings and Gaskets)



CGA Number	Basic Ordering Number	Dimensions, in. (mm)	
		L	F
632	-C632-BP	1.53 (38.9)	1 1/8 (28.6)
634	-C634-BP		
636	-C636-BP		
638	-C638-BP		
640	-C640-BP		
642	-C642-BP		
712	-C712-BP		1 1/4 (31.8)
714	-C714-BP		
716	-C716-BP		
718	-C718-BP		
720	-C720-BP		
722	-C722-BP		
724	-C724-BP		
726	-C726-BP		
728	-C728-BP		

CGA Number	Basic Ordering Number	Dimensions, in. (mm)	
		L	F
632	-C632-CP	1.13 (28.7)	1 1/4 (31.8)
634	-C634-CP		
636	-C636-CP		
638	-C638-CP		
640	-C640-CP		
642	-C642-CP		
712	-C712-CP		1 3/8 (34.9)
714	-C714-CP		
716	-C716-CP		
718	-C718-CP		
720	-C720-CP		
722	-C722-CP		
724	-C724-CP		
726	-C726-CP		
728	-C728-CP		

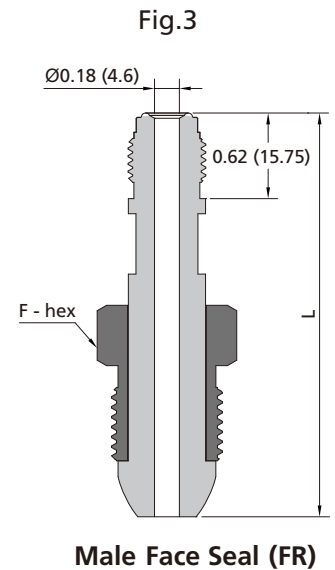
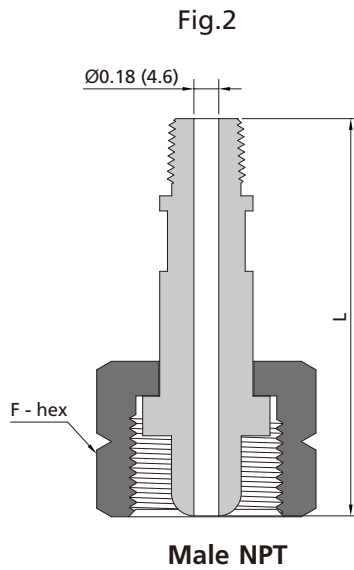
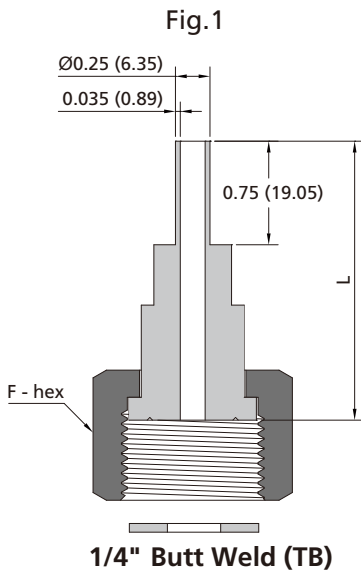
Note:
 Nickel is standard material for gasket. If PCTFE is required, please add a suffix of "-k" to the ordering number.
 Example: 6L-C632-CP-K

CGA Series

- ⦿ Designed and verified in compliance with the CGA V-1-2005 standard
- ⦿ For nipples with TB or FR connections, inner surface electropolished to an average of Ra 9 µin. (0.23 µm); Ra 32 µin. (0.8 µm) for nipples with NPT connections
- ⦿ With special cleaning and packaging, applicable to oxygen-enriched atmospheres
- ⦿ Maximum allowable leak rate: 1×10^{-9} std-cm³/s
- ⦿ CGA series cylinder connections are available with a variety of end connection types, such as 1/4" TB, 3/8" TB, 1/2" TB, 1/8" NPT, 1/4" NPT, 3/8" NPT, 1/2" NPT, 1/4" FR, and 1/2" FR. The maximum working pressures for cylinder connections with these end connection types meet the requirements of the CGA V-1-2005 standard
- ⦿ Maximum working pressures for cylinder connections are calculated at room temperature in accordance with CGA V-1-2005, ASME B31.3, and ASME B31.1 standards
- ⦿ For other end connection types, please contact FITOK Group or our authorized distributors

Cylinder Connections (Including Nipples, Nuts and Gaskets)

Dimensions are in. (mm).



CGA Number	Ref. Fig.	End Connection	Assembly Basic Ordering Number	Nipple Basic Ordering Number	Nut Basic Ordering Number	Gasket Basic Ordering Number	Dimensions, in. (mm)	
							L	F
170	Fig.1	1/4" TB	-C170-TB4	-C170-L-TB4	-C170-N	-C170-GT	1.25 (31.8)	11/16 (17.5)
		1/8 NPT	-C170-NS2	-C170-L-NS2				
180	Fig.1	1/4" TB	-C180-TB4	-C180-L-TB4	-C180-N	-C180-GT	1.25 (31.8)	3/4 (19.1)
		1/8 NPT	-C180-NS2	-C180-L-NS2				
290	Fig.2	1/4" TB	-C290-TB4	-C290-L-TB4	-C290-N	---	2.63 (66.7)	1 (25.4)
		1/4 NPT	-C290-NS4	-C290-L-NS4				
296	Fig.3	1/4" TB	-C296-TB4	-C296-L-TB4	-C296-N	---	2.63 (66.7)	7/8 (22.3)
		1/4 NPT	-C296-NS4	-C296-L-NS4				
		1/4" FR	-C296-FR4	-C296-L-FR4				
320	Fig.1	1/4" TB	-C320-TB4	-C320-L-TB4	-C320-N	-C320-GT	1.75 (44.5)	1 1/8 (28.6)
		1/4 NPT	-C320-NS4	-C320-L-NS4				
		1/4" FR	-C320-FR4	-C320-L-FR4				

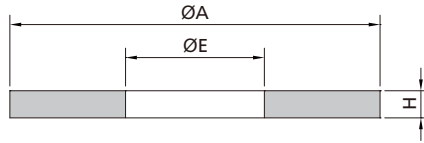
CGA Number	Ref. Fig.	End Connection	Assembly Basic Ordering Number	Nipple Basic Ordering Number	Nut Basic Ordering Number	Gasket Basic Ordering Number	Dimensions, in. (mm)	
							L	F
326	Fig.2	1/4" TB	-C326-TB4	-C326-L-TB4	-C326-N	—	2.25 (57.2)	1 1/8 (28.6)
		1/4" NPT	-C326-NS4	-C326-L-NS4			3.0 (76.2)	
		1/4" FR	-C326-FR4	-C326-L-FR4			2.25 (57.2)	
330	Fig.1	1/4" TB	-C330-TB4	-C320-L-TB4	-C330-N	-C320-GT	1.75 (44.5)	
		1/4" NPT	-C330-NS4	-C320-L-NS4			2.5 (63.5)	
		1/4" FR	-C330-FR4	-C320-L-FR4			1.75 (44.5)	
346	Fig.2	1/4" TB	-C346-TB4	-C346-L-TB4	-C346-N	—	2.31 (58.7)	
		1/4" NPT	-C346-NS4	-C346-L-NS4			3.0 (76.2)	
		1/4" FR	-C346-FR4	-C346-L-FR4			2.25 (57.2)	
350	Fig.2	1/4" TB	-C350-TB4	-C350-L-TB4	-C350-N	—	2.31 (58.7)	
		1/4" NPT	-C350-NS4	-C350-L-NS4			3.0 (76.2)	
		1/4" FR	-C350-FR4	-C350-L-FR4			2.25 (57.2)	
510	Fig.3	1/4" TB	-C510-TB4	-C510-L-TB4	-C510-N	—	2.63 (66.7)	
		1/4" NPT	-C510-NS4	-C510-L-NS4			3.5 (88.9)	
		1/4" FR	-C510-FR4	-C510-L-FR4			2.75 (69.9)	
540 [Ⓞ]	Fig.2	1/4" TB	-C540-TB4	-C540-L-TB4	-C540-N	—	2.25 (57.2)	
		1/4" NPT	-C540-NS4	-C540-L-NS4			3.0 (76.2)	
		1/4" FR	-C540-FR4	-C540-L-FR4			2.25 (57.2)	
580	Fig.3	1/4" TB	-C580-TB4	-C510-L-TB4	-C580-N	—	2.63 (66.7)	
		1/4" NPT	-C580-NS4	-C510-L-NS4			3.5 (88.9)	
		1/4" FR	-C580-FR4	-C510-L-FR4			2.75 (69.9)	
590	Fig.3	1/4" TB	-C590-TB4	-C510-L-TB4	-C590-N	—	2.63 (66.7)	
		1/4" NPT	-C590-NS4	-C510-L-NS4			3.5 (88.9)	
		1/4" FR	-C590-FR4	-C510-L-FR4			2.75 (69.9)	
660	Fig.1	1/4" TB	-C660-TB4	-C660-L-TB4	-C660-N	-C660-GT	2.19 (55.6)	
		1/4" NPT	-C660-NS4	-C660-L-NS4			2.5 (63.5)	
		1/4" FR	-C660-FR4	-C660-L-FR4			1.88 (47.6)	
670	Fig.1	1/4" TB	-C670-TB4	-C660-L-TB4	-C670-N	-C660-GT	2.19 (55.6)	
		1/4" NPT	-C670-NS4	-C660-L-NS4			2.5 (63.5)	
		1/4" FR	-C670-FR4	-C660-L-FR4			1.88 (47.6)	
678	Fig.1	1/4" TB	-C678-TB4	-C678-L-TB4	-C678-N	-C678-GT	2.5 (63.5)	
		1/4" NPT	-C678-NS4	-C678-L-NS4			2.5 (63.5)	
		1/4" FR	-C678-FR4	-C678-L-FR4			2.0 (50.8)	
679	Fig.1	1/4" TB	-C679-TB4	-C679-L-TB4	-C679-N	-C679-GT	2.5 (63.5)	
		1/4" NPT	-C679-NS4	-C679-L-NS4			3.0 (76.2)	
		1/4" FR	-C679-FR4	-C679-L-FR4			2.0 (50.8)	

Note: PTFE is standard material for gasket. If PCTFE is required, please add a suffix of "-k" to the ordering number.

Example: 6L-C170-FR4-K

Ⓞ Cleaned and packaged for Oxygen Service.

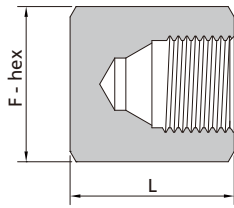
Gaskets



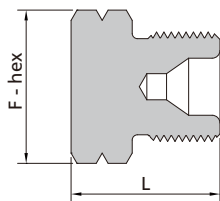
CGA Number	Gasket Basic Ordering Number	Dimensions					
		A		E		H	
		in.	mm	in.	mm	in.	mm
170	-C170-GT	0.43	11.0	0.19	4.8	0.10	2.5
180	-C180-GT	0.44	11.2	0.32	8.1	0.09	2.3
320, 330	-C320-GT	0.72	18.3	0.26	6.6	0.09	2.3
660, 670	-C660-GT	0.94	23.9	0.38	9.7	0.06	1.6
678	-C678-GT	0.61	15.5	0.30	7.6	0.06	1.6
679	-C679-GT	0.53	13.5	0.31	7.9	0.06	1.6

Outlet Adaptors, Blank Caps and Plugs

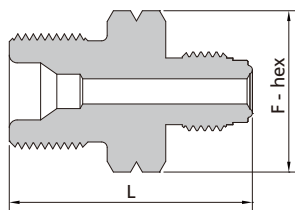
Blank Caps CGA 580



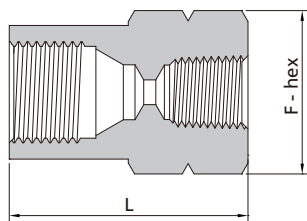
Blank Plugs CGA 350



Male Face Seal (FR) CGA 350



Female NPT CGA 590

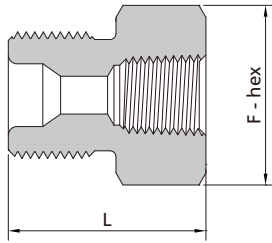


CGA Number	End Connection	Assembly Basic Ordering Number	Dimensions, in. (mm)	
			L	F
180	1/4 Female NPT	-C180-A-FNS4	1.38 (35.0)	3/4 (19.1)
296	Blank Cap	-C296-BC	1.37 (34.8)	1 1/8 (28.6)
	1/4 Female NPT	-C296-A-FNS4	2.0 (50.8)	
320	1/4" FR	-C296-A-FR4	2.0 (50.8)	1 (25.4)
	Blank Plug	-C320-BP	1.12 (28.4)	
	1/4 Female NPT	-C320-A-FNS4	1.12 (28.4)	
326	1/4" FR	-C320-A-FR4	1.74 (44.2)	1 (25.4)
	Blank Plug	-C326-BP	1.12 (28.4)	
330	1/4 Female NPT	-C326-A-FNS4	1.31 (33.3)	1 (25.4)
	1/4" FR	-C326-A-FR4	1.74 (44.2)	
	Blank Plug	-C330-BP	1.12 (28.4)	
346	1/4" Female NPT	-C330-A-FNS4	1.31 (33.3)	1 (25.4)
	1/4" FR	-C330-A-FR4	1.74 (44.2)	
	Blank Plug	-C346-BP	1.12 (28.4)	
350	1/4" Female NPT	-C346-A-FNS4	1.31 (33.3)	1 (25.4)
	1/4" FR	-C346-A-FR4	1.88 (47.8)	
	Blank Plug	-C350-BP	1.12 (28.4)	
510	1/4" Female NPT	-C350-A-FNS4	1.31 (33.3)	1 (25.4)
	1/4" FR	-C350-A-FR4	1.88 (47.8)	
	Blank Cap	-C510-BC	1.37 (34.8)	
540 [Ⓞ]	1/4" Female NPT	-C510-A-FNS4	2.0 (50.8)	1 1/4 (31.8)
	1/4" FR	-C510-A-FR4	2.0 (50.8)	
	Blank Plug	-C540-BP	1.12 (28.4)	
580	1/4" Female NPT	-C540-A-FNS4	1.25 (31.8)	1 (25.4)
	1/4" FR	-C540-A-FR4	1.87 (47.5)	
	Blank Cap	-C580-BC	1.37 (34.8)	
580	1/4" Female NPT	-C580-A-FNS4	2.0 (50.8)	1 1/4 (31.8)
	1/4" FR	-C580-A-FR4	2.0 (50.8)	

Ⓞ Cleaned and packaged for Oxygen Service.

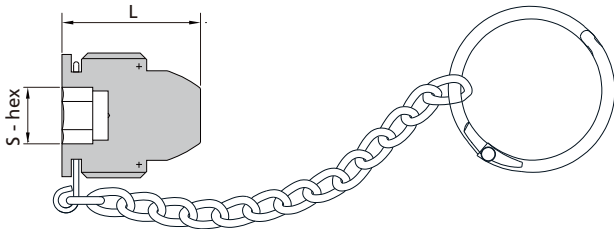
Female NPT

CGA 350

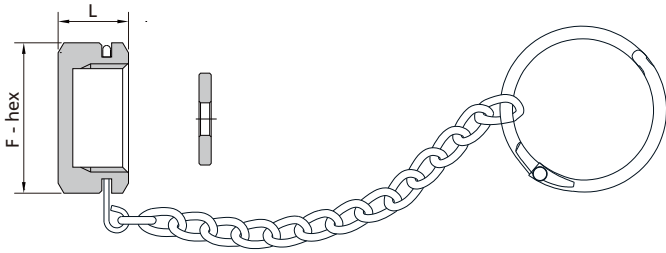


CGA Number	End Connection	Assembly Basic Ordering Number	Dimensions, in. (mm)	
			L	F
590	Blank Cap	-C590-BC	1.37 (34.8)	1 1/4 (31.8)
	1/4 Female NPT	-C590-A-FNS4	2.0 (50.8)	
	1/4" FR	-C590-A-FR4	2.0 (50.8)	
660	Blank Plug	-C660-BP	0.88 (22.4)	1 1/8 (28.6)
	1/4 Female NPT	-C660-A-FNS4	1.25 (31.8)	
	1/4" FR	-C660-A-FR4	1.5 (38.1)	
670	Blank Plug	-C670-BP	0.88 (22.4)	
	1/4 Female NPT	-C670-A-FNS4	1.25 (31.8)	
	1/4" FR	-C670-A-FR4	1.5 (38.1)	
678	Blank Plug	-C678-BP	1.0 (25.4)	
	1/4 Female NPT	-C678-A-FNS4	1.38 (35.1)	
	1/4" FR	-C678-A-FR4	1.5 (38.1)	
679	Blank Plug	-C679-BP	0.88 (22.4)	
	1/4 Female NPT	-C679-A-FNS4	1.25 (31.8)	
	1/4" FR	-C679-A-FR4	1.75 (44.5)	

Cylinder Valve Outlet Plugs



CGA Number	Basic Ordering Number	Dimensions, in. (mm)	
		L	S
510	-C510-PG	1.0 (25.4)	3/8 (9.5)
580	-C580-PG		
590	-C590-PG		

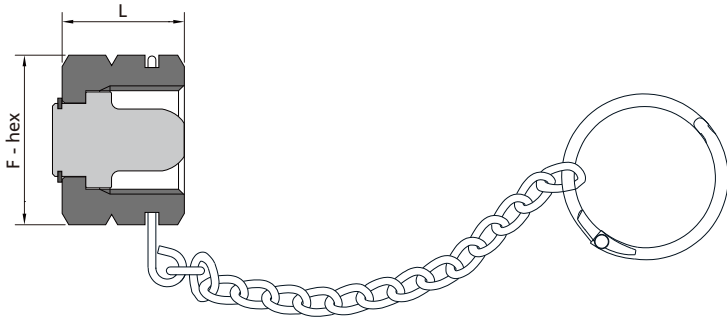


CGA Number	Basic Ordering Number	Dimensions, in. (mm)	
		L	F
320	-C320-CP	0.54 (13.7)	1 (25.4)
326	-C320-CP		
330	-C330-CP		
346	-C320-CP		
660	-C660-CP	1 1/4 (31.8)	
670	-C670-CP		
678	-C670-CP		
679	-C670-CP		

Notes:

1. PTFE is standard material for gasket. If PCTFE is required, please add a suffix of "-k" to the ordering number.
Example: S4-C330-CP-K
2. The caps listed above are only intended to keep valve outlets clean and protect its threads. They shouldn't be used to contain pressure if the valve leaks or is opened by mistake.

CGA Number	Basic Ordering Number	Dimensions, in. (mm)	
		L	F
350	-C350-CP	0.82 (20.8)	1 1/8 (28.6)



Complete Pigtail Connections (Including Nipples, Nuts, Gaskets and Blank Plugs or Caps)

Dimensions are in. (mm).

Fig.1

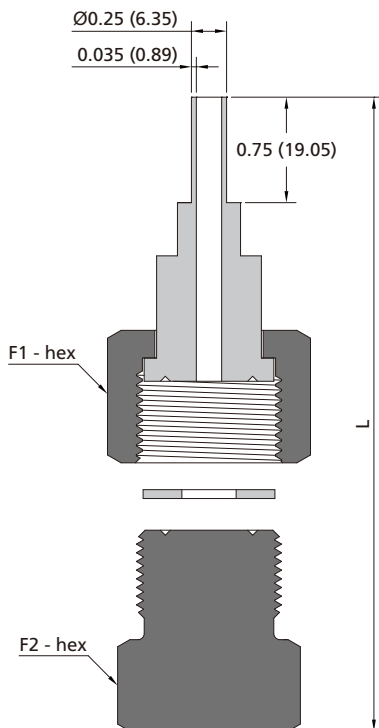
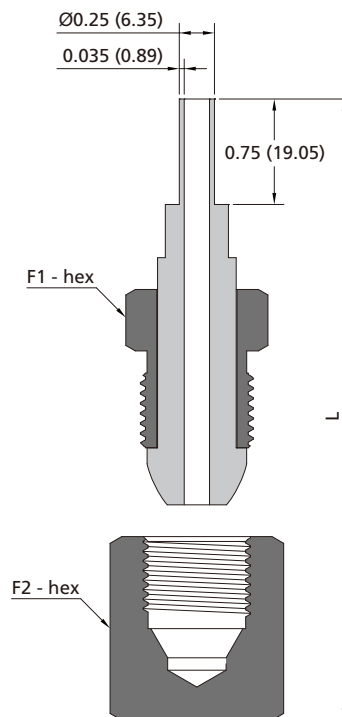


Fig.2



B-41 Related Products

CGA Number	Ref. Fig.	Assembly Basic Ordering Number	Gasket Basic Ordering Number	Dimensions, in. (mm)			
				L	F1	F2	
296	Fig.2	-C296-TB4-A	—	3.03 (77.0)	7/8 (22.3)	1 1/8 (28.6)	
320	Fig.1	-C320-TB4-A	-C320-GT	2.96 (75.2)	1 1/8 (28.6)	1 (25.4)	
326	Fig.1	-C326-TB4-A	—	3.01 (76.5)			
330	Fig.1	-C330-TB4-A	-C320-GT	2.96 (75.2)			
346	Fig.1	-C346-TB4-A	—	2.97 (75.4)			
350	Fig.1	-C350-TB4-A	—	2.96 (75.2)			
510	Fig.2	-C510-TB4-A	—	3.03 (77.0)			1 1/4 (31.8)
540 [Ⓞ]	Fig.1	-C540-TB4-A	—	2.96 (75.2)			1 (25.4)
580	Fig.2	-C580-TB4-A	—	3.03 (77.0)			1 1/4 (31.8)
590	Fig.2	-C590-TB4-A	—	3.03 (77.0)			
660	Fig.1	-C660-TB4-A	-C660-GT	2.96 (75.2)			1 1/4 (31.8)
670	Fig.1	-C670-TB4-A	-C660-GT	2.96 (75.2)			
678	Fig.1	-C678-TB4-A	-C678-GT	3.08 (78.2)			
679	Fig.1	-C679-TB4-A	-C679-GT	2.96 (75.2)			

Note:

PTFE is standard material for gasket. If PCTFE is required, please add a suffix of "-k" to the ordering number.

Example: 6L-C330-TB4-A-K

Ⓞ Cleaned and packaged for Oxygen Service.

Assembly Torque For CGA Cylinder Connections

CGA NO.	Recommended Torque		CGA NO.	Recommended Torque	
	ft-lb	N·m		ft-lb	N·m
170 [Ⓞ]	10~15	14~20	510	35~50	47~68
180 [Ⓞ]	10~15	14~20	540	40~60	54~81
290	30~45	41~61	580	40~60	54~81
296	35~50	47~68	590	40~60	54~81
320 [Ⓞ]	20~30	27~41	660 [Ⓞ]	30~45	41~61
326	25~35	34~47	670 [Ⓞ]	30~45	41~61
330 [Ⓞ]	20~30	27~41	678 [Ⓞ]	25~35	34~47
346	35~50	47~68	679 [Ⓞ]	25~35	34~47
350	35~50	47~68			

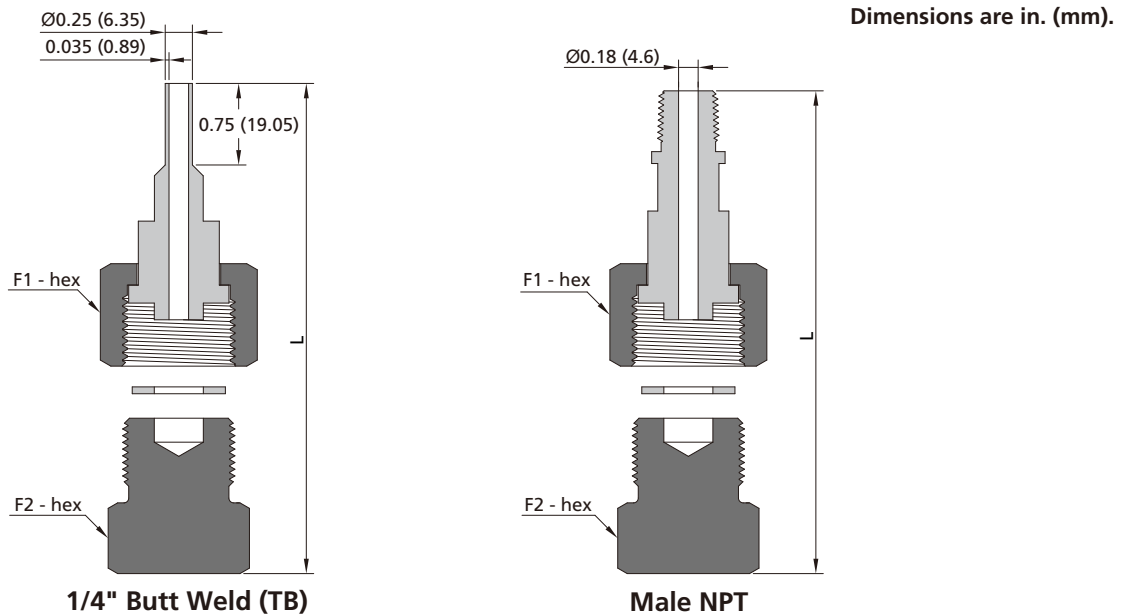
CGA DISS NO.	Recommended Torque		Gasket Material
	ft-lb	N·m	
632-728	35~40	47~53.8	Nickel
	12~15	16~20.1	PCTFE

Ⓞ Gasket for seal: PTFE or PCTFE.

DIN Series

- ⦿ Designed and verified in compliance with the DIN477-1 standard
- ⦿ For nipples with TB or FR connections, inner surface electropolished to an average of Ra 9 µin. (0.23 µm); Ra 32 µin. (0.8 µm) for nipples with NPT connections
- ⦿ With special cleaning and packaging, applicable to oxygen-enriched atmospheres
- ⦿ Maximum allowable leak rate: 1×10^{-9} std-cm³/s
- ⦿ DIN series cylinder connections are available with a variety of end connection types, such as 1/4" TB, 3/8" TB, 1/2" TB, 1/8 NPT, 1/4 NPT, 3/8 NPT, 1/2 NPT, 1/4" FR, and 1/2" FR. Please note that the maximum working pressures for cylinder connections with 3/8" TB and 1/2" TB end connections do not comply with the requirements of the DIN 477-1 standard. However, all other end connection types meet the standard's requirements.
Maximum working pressure for cylinder connection with 3/8" TB end connection is 3300 psig
Maximum working pressure for cylinder connection with 1/2" TB end connection is 3700 psig
- ⦿ Maximum working pressures for cylinder connections are calculated at room temperature in accordance with DIN477-1, ASME B31.3, and ASME B31.1 standards
- ⦿ For other end connection types, please contact FITOK Group or our authorized distributors

Complete Pigtail Connections (Including Nipples, Nuts, Gaskets and Blank Plugs)



DIN Number	Assembly Basic Ordering Number	Gasket Basic Ordering Number	Dimensions, in.(mm)		
			L	F1	F2
1	-DIN1-TB4-A	-DIN1-GT	2.96 (75.2)	1 1/4 (31.8)	1 1/4 (31.8)
	-DIN1-NS4-A		4.25 (108)		
5	-DIN5-TB4-A	-DIN5-GT	3.09 (78.5)		
	-DIN5-NS4-A		4.41 (112)		
6	-DIN6-TB4-A	-DIN1-GT	2.96 (75.2)		
	-DIN6-NS4-A		4.25 (108)		
8	-DIN8-TB4-A	-DIN5-GT	3.09 (78.5)		
	-DIN8-NS4-A		4.41 (112)		
11	-DIN11-TB4-A	-DIN11-GT	2.88 (73.2)	7/8 (22.3)	11/16 (17.5)
	-DIN11-NS4-A		4.14 (105.2)		
14	-DIN14-TB4-A		2.88 (73.2)	1 1/16 (27.0)	7/8 (22.3)
	-DIN14-NS4-A		4.15 (105.5)		

Notes: 1. Above components can be ordered separately.
 2. PTFE is standard material for gasket. If PCTFE is required, please add a suffix of "-k" to the ordering number.
 Example: 6L-D1N1-TB4-A-K

Gas Connection Assignment Table^①

GAS	Formula	CGA DISS	CGA	DIN	JIS
Ammonia	NH ₃	720	705	DIN6	22-R
Argon	Ar	718	580	DIN6	22-R or 23-R
Arsenic Pentafluoride	AsF ₅	642	—	—	—
Arsine	AsH ₃	632	350	—	22-L
Boron Trichloride	BCl ₃	634	660	DIN8	—
Boron Trifluoride	BF ₃	642	330	DIN8	22-L
Carbon Dioxide	CO ₂	716	320	DIN6	—
Carbon Monoxide	CO	724	350	DIN5	22-L
Chlorine	Cl ₂	728	—	DIN8	26-R
Diborane	B ₂ H ₆	632	350	—	22-L
Dichlorosilane	SiH ₂ Cl ₂	636	678 ^②	DIN5	—
Diethylzinc	Zn(C ₂ H ₅) ₂	726	510 ^②	—	—
Diethyltelluride	(C ₂ H ₅) ₂ Te	726	—	—	—
Dimethylzinc	(CH ₃) ₂ Zn	726	—	—	—
Disilane	Si ₂ H ₆	632	—	—	—
Germane	GeH ₄	632	350 or 660	—	—
Halocarbon 11	CCl ₃ F	716	660	—	—
Halocarbon 115	ClCF ₂ CF ₃	716	660	DIN6	—
Halocarbon 12	CCl ₂ F ₂	716	660	DIN6	—
Halocarbon 13	ClCF ₃	716	660	DIN6	—
Halocarbon 14	CF ₄	716	320 or 580	DIN6	—
Halocarbon 23	CHF ₃	716	660	DIN6	—
Halocarbon 116	F ₃ CCF ₃	716	660	—	—
Helium	He	718	580	DIN6	22-R or 23-R
Hydrogen	H ₂	724	350	DIN1	22-L
Hydrogen Bromide	HBr	634	330	DIN8	26-R
Hydrogen Chloride	HCl	634	330	DIN8	26-R
Hydrogen Fluoride	HF	638	660 or 670	—	26-R
Hydrogen Sulfide	H ₂ S	722	330	DIN5	—
Krypton	Kr	718	580	DIN6	22-R or 23-R
Neon	Ne	718	580	DIN6	22-R or 23-R
Nitrogen	N ₂	718	580	DIN10	22-R or 23-R
Nitrogen Trifluoride	NF ₃	640	330 or 670	DIN8	—
Nitrous Oxide	N ₂ O	712	326	DIN8	—
Oxygen	O ₂	714	540	DIN9	22-R or 23-R
Perfluoropropane	CF ₂ (CF ₃) ₂	716	660	—	—
Phosphine	PH ₃	632	350 or 660	DIN1	—
Phosphorus Pentafluoride	PF ₅	642	330 or 660	—	—
Silane	SiH ₄	632	350	—	—
Silicon Tetrachloride	SiCl ₄	636	—	—	—
Silicon Tetrafluoride	SiF ₄	642	330	—	22-L
Sulphur Hexafluoride	SF ₆	716	590	DIN6	26-R
Trichlorosilane	SiHCl ₃	636	—	—	—
Triethylaluminum	(C ₂ H ₅) ₃ Al	726	510 ^②	—	—
Tungsten Hexafluoride	WF ₆	638	670	DIN8	—
Xenon	Xe	718	580	DIN6	22-R

① Consult CGA, DIN, JIS, or ISO organization specifications for information on working pressure.

② Information in this table is for reference only.