

Sour Service Products

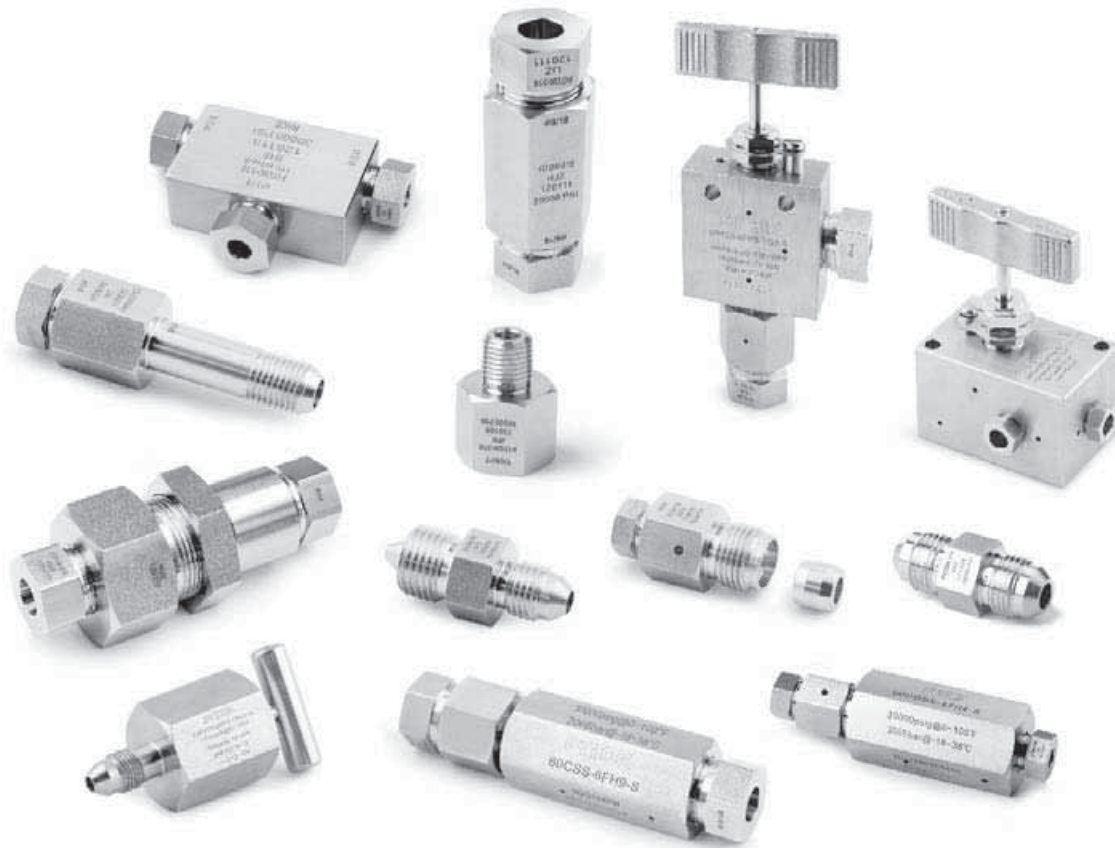
Fittings and Tubing, 30,000 psig (2068 bar)

Needle Valves, 30,000 psig (2068 bar)

Bleed Valves, 20,000 psig (1379 bar)

Gauge Valves, 20,000 psig (1379 bar)

Check Valves, 30,000 psig (2068 bar)



Medium & High Pressure
Fittings and Tubing

Quick Couplings

Medium & High Pressure
Valves

Line Filters

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FITOK designs and manufactures medium & high pressure valves, fittings and tubing for use with sour oil and gas (H₂S). These components, are also referred to as FITOK type "S" components.

Sour Oil and Gas Service (H₂S) or Standard Service

FITOK's oil field components are offered for standard oil field service where H₂S is not present and type "S" for service where H₂S is present. FITOK's S components are manufactured with materials and procedures specified for optimum resistance to H₂S. These material specifications and manufacturing procedures are continually updated to incorporate the latest advances and customer requirements.

Working Pressure/Temperature

Valves and fittings for standard service are rated for working pressure up to 60,000 psig (4137 bar) at 100°F (38°C). Type S components are rated up to 30,000 psig (2068 bar) at 100°F (38°C).

Sizes:

FITOK's type S valves and fittings are supplied with standard API test and gauge connections. Conned-and-threaded tubing connections in other sizes are available to meet individual requirement. FITOK stocks a wide selection of sizes for immediate shipment.

Materials:

FITOK standard series valves and fittings are type 316 stainless steel, cold worked material. Type S valves and fittings are 316 stainless steel annealed material. If required, complete material specifications are provided. All pressure-containing materials used are in accordance with NACE MR0175.

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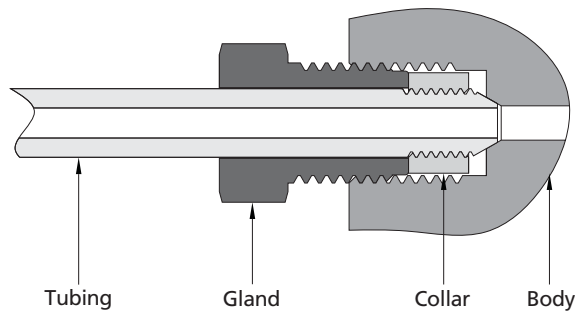
Medium Pressure Tube Fittings and Tubing

Tube Fittings

Features

- ⦿ Maximum working pressure: 10,000 psig (690 bar)
- ⦿ Coned-and-threaded connection
- ⦿ Tube sizes available in 1/4", 3/8", 9/16", 3/4" and 1"
- ⦿ Annealed 316 Stainless Steel as standard material, other materials available upon request
- ⦿ Anti-vibration connection components available
- ⦿ Easy to disconnect and retighten
- ⦿ Metal-to-metal seal to provide perfect leak-tight service for working conditions from critical vacuum to medium pressure
- ⦿ Every fitting marked with size, material and heat number

Construction



Ordering Information

The structure of FITOK's type S tube fittings are the same as standard medium pressure tube fittings. To get the complete ordering number of type S medium pressure tube fittings, add "-S" as a suffix to the ordering number of standard medium pressure tube fittings. If glands and collars are not needed, add "-SWO" as a suffix.

Examples:

1. 9/16" Union, the ordering number is SS-U-2FH9-S.
2. 3/8" Tee, glands and collars are not needed, the ordering number is SS-TTT-2FH6-SWO.

The sizes of type S tube fittings are the same as standard medium pressure tube fittings, please refer to the FITOK catalog *Medium Pressure Tube Fittings and Tubing* on A-16.

Tubing

Features

- Maximum working pressure: 10,000 psig (690 bar)
- Working temperature range: -423°F to 1200°F (-252°C to 649°C)
- Annealed 316/316L Stainless Steel as standard material, other materials available upon request
- Every tubing marked with material, size and heat number

Ordering Information

| T - Tube O.D. in. | Tx - Tube I.D. in. | Material | Basic Ordering Number | Tolerance O.D. in. (mm) |
|-------------------|--------------------|----------------------|-----------------------|---------------------------|
| 1/4 | 0.109 | Annealed 316/316L SS | SS-MT-2FH4- | 0.248/0.243 (6.30/6.17) |
| 3/8 | 0.203 | Annealed 316/316L SS | SS-MT-2FH6- | 0.370/0.365 (9.40/9.27) |
| 9/16 | 0.312 | Annealed 316/316L SS | SS-MT-2FH9- | 0.557/0.552 (14.15/14.02) |
| 3/4 | 0.438 | Annealed 316/316L SS | SS-MT-2FH12- | 0.745/0.740 (18.92/18.80) |
| 1 | 0.562 | Annealed 316/316L SS | SS-MT-2FH16- | 0.995/0.990 (25.27/25.14) |



To get the complete ordering number of type S tubing, add the length designator and "-S" as a suffix to the basic ordering number.

Examples:

- If 10 feet of 3/8" O.D. tubing is needed, the complete ordering number is SS-MT-2FH6-10-S.
- If 6 meters of 3/4" O.D. tubing is needed, the complete ordering number is SS-MT-2FH12-6M-S.

The tubing is available in random lengths but no more than 20 feet (6 meters).

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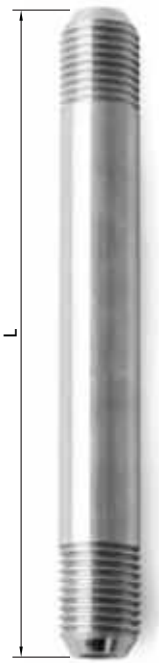
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Coned and Threaded Nipples



| T - Tube O.D. in. | Tx - Tube I.D. in. | Ordering Number | L in. (mm) |
|-------------------|--------------------|--------------------|-------------|
| 1/4 | 0.109 | SS-CTN-2FH4-2.75-S | 2.75 (69.9) |
| 1/4 | 0.109 | SS-CTN-2FH4-3-S | 3 (76.2) |
| 1/4 | 0.109 | SS-CTN-2FH4-4-S | 4 (101.6) |
| 1/4 | 0.109 | SS-CTN-2FH4-6-S | 6 (152.4) |
| 1/4 | 0.109 | SS-CTN-2FH4-8-S | 8 (203.2) |
| 1/4 | 0.109 | SS-CTN-2FH4-10-S | 10 (254.0) |
| 1/4 | 0.109 | SS-CTN-2FH4-12-S | 12 (304.8) |
| 3/8 | 0.203 | SS-CTN-2FH6-3-S | 3 (76.2) |
| 3/8 | 0.203 | SS-CTN-2FH6-4-S | 4 (101.6) |
| 3/8 | 0.203 | SS-CTN-2FH6-6-S | 6 (152.4) |
| 3/8 | 0.203 | SS-CTN-2FH6-8-S | 8 (203.2) |
| 3/8 | 0.203 | SS-CTN-2FH6-10-S | 10 (254.0) |
| 3/8 | 0.203 | SS-CTN-2FH6-12-S | 12 (304.8) |
| 9/16 | 0.312 | SS-CTN-2FH9-4-S | 4 (101.6) |
| 9/16 | 0.312 | SS-CTN-2FH9-6-S | 6 (152.4) |
| 9/16 | 0.312 | SS-CTN-2FH9-8-S | 8 (203.2) |
| 9/16 | 0.312 | SS-CTN-2FH9-10-S | 10 (254.0) |
| 9/16 | 0.312 | SS-CTN-2FH9-12-S | 12 (304.8) |
| 3/4 | 0.438 | SS-CTN-2FH12-4-S | 4 (101.6) |
| 3/4 | 0.438 | SS-CTN-2FH12-6-S | 6 (152.4) |
| 3/4 | 0.438 | SS-CTN-2FH12-8-S | 8 (203.2) |
| 3/4 | 0.438 | SS-CTN-2FH12-10-S | 10 (254.0) |
| 3/4 | 0.438 | SS-CTN-2FH12-12-S | 12 (304.8) |
| 1 | 0.562 | SS-CTN-2FH16-6-S | 6 (152.4) |
| 1 | 0.562 | SS-CTN-2FH16-8-S | 8 (203.2) |
| 1 | 0.562 | SS-CTN-2FH16-10-S | 10 (254.0) |
| 1 | 0.562 | SS-CTN-2FH16-12-S | 12 (304.8) |

NOTE: Do not recommend bending of tubing.

Installation Instructions

Please see G-07.

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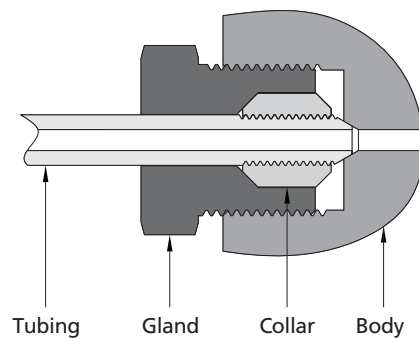
High Pressure Tube Fittings and Tubing

Tube Fittings

Features

- ⦿ Maximum working pressure: 30,000 psig (2068 bar)
- ⦿ Working temperature range: -423°F to 1200°F (-252°C to 649°C)
- ⦿ Coned-and-threaded connection
- ⦿ Annealed 316 Stainless Steel as standard material, other materials available upon request
- ⦿ Anti-vibration connection components available
- ⦿ Easy to disconnect and retighten
- ⦿ Metal-to-metal seal to provide perfect leak-tight service from critical vacuum to high pressure
- ⦿ Every fitting marked with size, material and heat number

Construction



Ordering Information

The structure of FITOK's type S tube fittings are the same as standard high pressure tube fittings. To get the complete ordering number of type S high pressure tube fittings, add "-S" as a suffix to the ordering number of standard high pressure tube fittings. If glands and collars are not needed, add "-SWO" as a suffix.

Examples:

1. 9/16" Union, the ordering number is SS-U-6FH9-S.
2. 3/8" Tee, glands and collars are not needed, the ordering number is SS-TTT-6FH6-SWO.

The sizes of type S tube fittings are the same as standard high pressure tube fittings, please refer to the FITOK catalog *High Pressure Tube Fittings and Tubing* on A-26.

Tubing

Features

- ⦿ Maximum working pressure: 30,000 psig (2068 bar)
- ⦿ Working temperature range: -423°F to 1200°F (-252°C to 649°C)
- ⦿ Annealed 316/316L Stainless Steel as standard material, other materials available upon request
- ⦿ Every tubing marked with material, size and heat number

Ordering Information

| T - Tube O.D. in. | Tx - Tube I.D. in. | Material | Basic Ordering Number | Tolerance O.D. in. (mm) |
|-------------------|--------------------|----------------------|-----------------------|---------------------------|
| 1/4 | 0.083 | Annealed 316/316L SS | SS-HT-6FH4- | 0.248/0.243 (6.30/6.17) |
| 3/8 | 0.125 | Annealed 316/316L SS | SS-HT-6FH6- | 0.370/0.365 (9.40/9.27) |
| 9/16 | 0.188 | Annealed 316/316L SS | SS-HT-6FH9- | 0.557/0.552 (14.15/14.02) |



To get the complete ordering number of type S tubing, add the length designator and "-S" as a suffix to the basic ordering number.

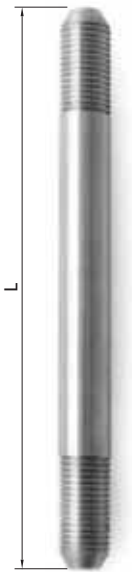
Examples:

1. If 10 feet of 1/4" O.D. tubing is needed, the complete ordering number is SS-HT-6FH4-10-S.
2. If 6 meters of 9/16" O.D. tubing is needed, the complete ordering number is SS-HT-6FH9-6M-S.

The tubing is available in random lengths but no more than 20 feet (6 meters).

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Coned and Threaded Nipples



| T - Tube O.D. in. | Tx - Tube I.D. in. | Ordering Number | L in. (mm) |
|-------------------------|--------------------------|--------------------|---------------|
| 1/4 | 0.083 | SS-CTN-6FH4-2.75-S | 2.75 (69.9) |
| 1/4 | 0.083 | SS-CTN-6FH4-3-S | 3 (76.2) |
| 1/4 | 0.083 | SS-CTN-6FH4-4-S | 4 (101.6) |
| 1/4 | 0.083 | SS-CTN-6FH4-6-S | 6 (152.4) |
| 1/4 | 0.083 | SS-CTN-6FH4-8-S | 8 (203.2) |
| 1/4 | 0.083 | SS-CTN-6FH4-10-S | 10 (254.0) |
| 1/4 | 0.083 | SS-CTN-6FH4-12-S | 12 (304.8) |
| 3/8 | 0.125 | SS-CTN-6FH6-3-S | 3 (76.2) |
| 3/8 | 0.125 | SS-CTN-6FH6-4-S | 4 (101.6) |
| 3/8 | 0.125 | SS-CTN-6FH6-6-S | 6 (152.4) |
| 3/8 | 0.125 | SS-CTN-6FH6-8-S | 8 (203.2) |
| 3/8 | 0.125 | SS-CTN-6FH6-10-S | 10 (254.0) |
| 3/8 | 0.125 | SS-CTN-6FH6-12-S | 12 (304.8) |
| 9/16 | 0.188 | SS-CTN-6FH9-4-S | 4 (101.6) |
| 9/16 | 0.188 | SS-CTN-6FH9-6-S | 6 (152.4) |
| 9/16 | 0.188 | SS-CTN-6FH9-8-S | 8 (203.2) |
| 9/16 | 0.188 | SS-CTN-6FH9-10-S | 10 (254.0) |
| 9/16 | 0.188 | SS-CTN-6FH9-12-S | 12 (304.8) |

NOTE: Do not recommend bending of tubing.

Installation Instructions

Please see G-07.

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Pipe Fittings

Features

- ⦿ Annealed 316 Stainless Steel as standard material, other materials available upon request
- ⦿ The hardened threads with smooth surface finishing avoid galling and help to extend the fitting service life
- ⦿ Radius junction design with elbows provides smooth flow path
- ⦿ Every fitting marked with size, material and heat number

Thread Specifications

| Connection Type | Code | Thread Type | Thread Specification |
|--------------------------------|------|-----------------|--|
| Male or Female NPT | NS | NPT | ASME B1.20.1, SAE AS71051 |
| Male or Female ISO/BSP Tapered | RT | ISO/BSP Tapered | ISO 7-1, BS EN 10226-1, DIN EN10226-1, JIS B0203 |
| Male or Female JIC (37° Flare) | AN | | |
| Female Swivel JIC (37° Flare) | AS | SAE/MS | ASME B1.1 |
| Male Type "M" | HM | | |

Working Pressure

- ⦿ The pressures of pipe fittings are dependent on the end connection with the lowest working pressure.
- ⦿ The pressures of the end connections are shown in the table below.

| End Connection | Working Pressure psig (bar) | End Connection | Working Pressure psig (bar) | End Connection | Working Pressure psig (bar) |
|----------------|-----------------------------|----------------|-----------------------------|----------------|-----------------------------|
| NS2 | 10,000 (690) | RT2 | 10,000 (690) | AN4/AS4 | 10,000 (690) |
| NS4 | 10,000 (690) | RT4 | 10,000 (690) | AN6/AS6 | 10,000 (690) |
| NS6 | 10,000 (690) | RT6 | 10,000 (690) | AN8/AS8 | 10,000 (690) |
| NS8 | 10,000 (690) | RT8 | 10,000 (690) | AN10/AS10 | 10,000 (690) |
| NS12 | 10,000 (690) | RT12 | 10,000 (690) | AN12/AS12 | 10,000 (690) |
| NS16 | 10,000 (690) | RT16 | 10,000 (690) | AN16/AS16 | 10,000 (690) |

| End Connection | Working Pressure psig (bar) |
|----------------|-----------------------------|
| HM9 | 30,000 (2068) |
| HM12 | 20,000 (1379) |
| HM14 | 30,000 (2068) |
| HM16 | 20,000 (1379) |
| HM21 | 10,000 (690) |

Working Temperature

| Connection Type | Temperature Range |
|--------------------------------|------------------------------------|
| Male or Female NPT | -325°F to 400°F (-198°C to 204°C) |
| Male or Female ISO/BSP Tapered | -325°F to 400°F (-198°C to 204°C) |
| Male or Female JIC (37° Flare) | -423°F to 1200°F (-252°C to 649°C) |
| Female Swivel JIC (37° Flare) | -423°F to 1200°F (-252°C to 649°C) |
| Male Type "M" | -423°F to 1200°F (-252°C to 649°C) |

Cautions:

- ⦿ Do not loosen or tighten fittings when the system is pressurized.
- ⦿ Always use proper thread sealants on tapered pipe threads.

Ordering Information

The structure of FITOK's type S pipe fittings are the same as standard pipe fittings. To get the complete ordering number of type S pipe fittings, add "-S" as a suffix to the ordering number of standard pipe fittings.

Examples: 3/8" NPT Hex Nipple, the ordering number is : SS-HPHN-NS6-S.

The sizes of type S pipe fittings are the same as standard pipe fittings, please refer to the FITOK catalog *Pipe Fittings* on A-35.

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Adapters and Couplings

Features

- ⦿ Annealed 316 Stainless Steel as standard material, other materials available upon request
- ⦿ Every fitting marked with size, material and heat number

Working Temperature

| Connection Type | Working Temperature Range |
|-----------------|------------------------------------|
| Male MP | -325°F to 1200°F (-198°C to 649°C) |
| Male HP | -325°F to 1200°F (-198°C to 649°C) |
| Female MP | -325°F to 1200°F (-198°C to 649°C) |
| Female HP | -325°F to 1200°F (-198°C to 649°C) |
| MP Nipples | -325°F to 1200°F (-198°C to 649°C) |
| Nipples | -325°F to 1200°F (-198°C to 649°C) |
| NPT Pipe Thread | -325°F to 400°F (-198°C to 204°C) |
| JIC (37°Flare) | -325°F to 1200°F (-198°C to 649°C) |
| Male Type "M" | -325°F to 1200°F (-198°C to 649°C) |

Working Pressure

- ⦿ The working pressures of Adapters and Couplings are dependent on the end connection with the lowest working pressure.
- ⦿ The working pressures of the end connections are shown in the table below .

| End Connection | Working Pressure psig (bar) | End Connection | Working Pressure psig (bar) | End Connection | Working Pressure psig (bar) |
|-------------------|-----------------------------|----------------|-----------------------------|----------------|-----------------------------|
| 2MP4/2CP4/2FH4 | 10,000 (690) | 2CT4 | 10,000 (690) | 6MP4/6CP4/6FH4 | 30,000 (2068) |
| 2MP6/2CP6/2FH6 | 10,000 (690) | 2CT6 | 10,000 (690) | 6MP6/6CP6/6FH6 | 30,000 (2068) |
| 2MP9/2CP9/2FH9 | 10,000 (690) | 2CT9 | 10,000 (690) | 6MP9/6CP9/6FH9 | 30,000 (2068) |
| 2MP12/2CP12/2FH12 | 10,000 (690) | 2CT12 | 10,000 (690) | — | — |
| 2MP16/2CP16/2FH16 | 10,000 (690) | 2CT16 | 10,000 (690) | — | — |

| End Connection | Working Pressure psig (bar) | End Connection | Working Pressure psig (bar) | End Connection | Working Pressure psig (bar) | End Connection | Working Pressure psig (bar) |
|----------------|-----------------------------|----------------|-----------------------------|----------------|-----------------------------|----------------|-----------------------------|
| 6CT4 | 30,000 (2068) | NS2 | 10,000 (690) | AN4 | 10,000 (690) | HM9 | 30,000 (2068) |
| 6CT6 | 30,000 (2068) | NS4 | 10,000 (690) | AN6 | 10,000 (690) | HM12 | 20,000 (1379) |
| 6CT9 | 30,000 (2068) | NS6 | 10,000 (690) | AN8 | 10,000 (690) | HM14 | 30,000 (2068) |
| — | — | NS8 | 10,000 (690) | AN10 | 10,000 (690) | HM16 | 20,000 (1379) |
| — | — | NS12 | 10,000 (690) | AN12 | 10,000 (690) | HM21 | 10,000 (690) |
| — | — | NS16 | 10,000 (690) | AN16 | 10,000 (690) | — | — |

Cautions:

- ⦿ Do not loosen or tighten fittings when the system is pressurized.
- ⦿ Always use proper thread sealants on tapered pipe threads.

Ordering Information

FITOK's type S adapters and couplings don't contain "DMP", "DCP" and "DHL" connection, the structure of which are the same as other types of standard adapters and couplings. Add "-S" as a suffix to the ordering number of standard adapters and couplings to get the complete ordering number of type S adapters and couplings. For adapters and couplings with "2FH" or "6FH" connection, if glands and collars are not needed, add "-SWO" as a suffix.

Examples:

1. Adapter, one connection is 2MP9, the other connection is NS8, the ordering number is SS-MMA-2MP9-NS8-S.
2. Coupling, one connection is 6FH6, the other connection is 2FH4, glands and collars are not needed, the ordering number is SS-FFC-6FH6-2FH4-SWO.

The sizes of type S adapters and couplings are the same as standard adapters and couplings, please refer to the FITOK catalog *Adapters and Couplings* on A-66.

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Needle Valves

Pressures to 30,000 psig (2068 bar)

Features

- ⦿ Annealed 316 Stainless Steel for valve body and Alloy 725 for lower stem
- ⦿ Selected materials of packing gland and upper stem for optimum thread cycle life and reduced handle torque
- ⦿ Metal-to-metal seating achieves ideal shutoff, longer stem/seat service lifetime for abrasive flow, excellent corrosion resistance and greater durability for repeated on/off cycles
- ⦿ Non-rotating stem and bar stock body design
- ⦿ Easy to assemble and replace packing
- ⦿ Packing located under stem threads
- ⦿ Reliable locking for packing gland
- ⦿ Options for Vee or Regulating stem tips
- ⦿ Five flow patterns available

Technical Data

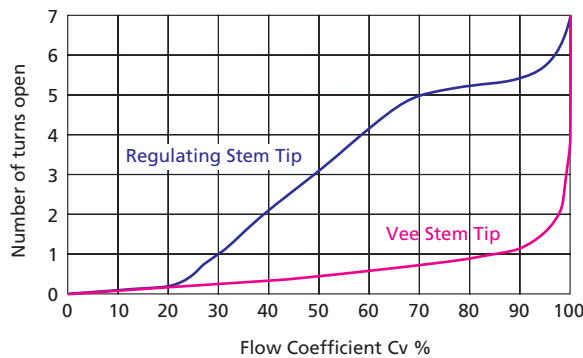
| 15N Series | | | | | | |
|-----------------------------|------------|------------------|------|-----------------------------|----------------------------|---------------------------|
| Connection Size | Connection | Orifice in. (mm) | Cv | Working Pressure psig (bar) | Working Temperature Range | |
| 1/8" Female NPT | FNS2 | 0.078 (1.98) | 0.11 | 10,000 (690) | -100°F~400°F (-73°C~204°C) | |
| 1/8" Female ISO/BSP Tapered | FRT2 | | | | | |
| 1/4" Female NPT | FNS4 | 0.203 (5.16) | 0.63 | 10,000 (690) | | |
| 1/4" Female ISO/BSP Tapered | FRT4 | | | | | |
| 3/8" Female NPT | FNS6 | 0.219 (5.56) | 0.75 | 10,000 (690) | | |
| 3/8" Female ISO/BSP Tapered | FRT6 | | | | | |
| 1/2" Female NPT | FNS8 | 0.312 (7.92) | 1.30 | 10,000 (690) | | |
| 1/2" Female ISO/BSP Tapered | FRT8 | | | | | |
| 20N Series | | | | | | |
| Tube O.D. in. | Connection | Orifice in. (mm) | Cv | Working Pressure psig (bar) | | Working Temperature Range |
| 1/4 | 2FH4 | 0.125 (3.18) | 0.31 | 10,000 (690) | -100°F~600°F (-73°C~316°C) | |
| 3/8 | 2FH6 | 0.204 (5.18) | 0.68 | 10,000 (690) | | |
| 9/16 | 2FH9 | 0.312 (7.92) | 1.30 | 10,000 (690) | | |
| 3/4 | 2FH12 | 0.438 (11.13) | 2.50 | 10,000 (690) | | |
| 1 | 2FH16 | 0.562 (14.27) | 4.40 | 10,000 (690) | | |

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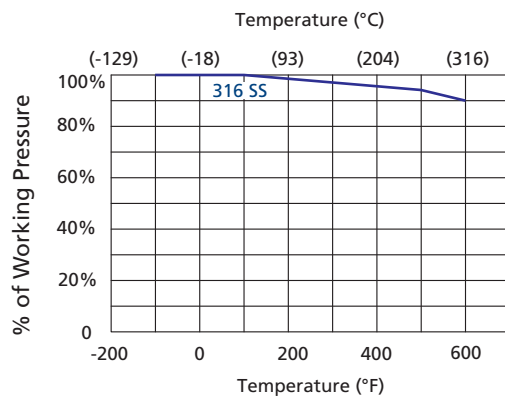
| 30N Series | | | | | |
|---------------|------------|------------------|------|-----------------------------|----------------------------|
| Tube O.D. in. | Connection | Orifice in. (mm) | Cv | Working Pressure psig (bar) | Working Temperature Range |
| 1/4 | 6FH4 | 0.094 (2.39) | 0.12 | 20,000 (1379) | -100°F~600°F (-73°C~316°C) |
| 3/8 | 6FH6 | 0.125 (3.18) | 0.23 | 20,000 (1379) | |
| 9/16 | 6FH9 | 0.125 (3.18) | 0.33 | 20,000 (1379) | |
| 60N Series | | | | | |
| Tube O.D. in. | Connection | Orifice in. (mm) | Cv | Working Pressure psig (bar) | Working Temperature Range |
| 1/4 | 6FH4 | 0.063 (1.59) | 0.08 | 30,000 (2068) | -100°F~600°F (-73°C~316°C) |
| 3/8 | 6FH6 | 0.063 (1.59) | 0.09 | 30,000 (2068) | |
| 9/16 | 6FH9 | 0.078 (1.98) | 0.14 | 30,000 (2068) | |

- NOTES: 1. The values of Cv shown are for 2-way straight valve pattern.
 2. The values of Cv for 2-way angle pattern will increase by about 50% (Based on water).
 3. Packing Options
 PTFE is the standard packing material for 15N, 20N and 30N series, RPTFE glass also available.
 Packing material for 60N Series is RPTFE only.
 PTFE: -100°F~450°F (-73°C~232°C)
 RPTFE glass: -100°F~600°F (-73°C~316°C)

Flow Data at 100°F (38°C)

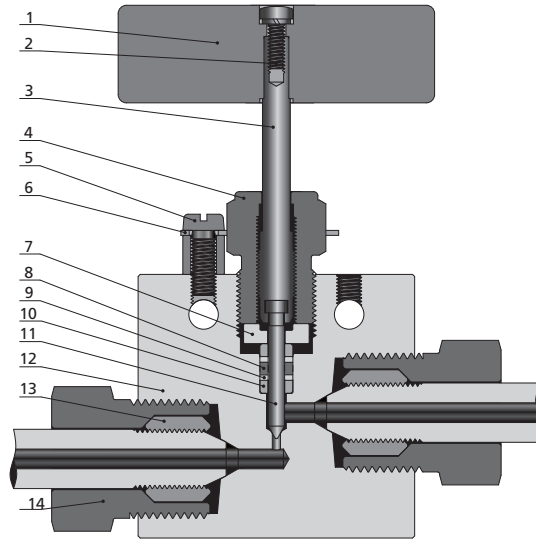


Pressure vs. Temperature Curve



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Standard Materials of Construction



| Item | Component | Material Grade/ASTM Specification |
|------|-----------------------|--|
| 1 | Handle | Stainless steel |
| 2 | Handle Screw | Stainless steel |
| 3 | Upper Stem | 316 SS/A479 |
| 4 | Packing Gland | 316 SS/A479 |
| 5 | Locking Screw | Stainless steel |
| 6 | Locking Plate | 304 SS/A240 |
| 7 | Packing Ring | 316 SS/A479 (For 15N, 20N and 30N Series), S17400/A564 (For 60N Series) |
| 8 | <i>Packing</i> | <i>PTFE/RPTFE</i> |
| 9 | <i>Retaining Ring</i> | <i>PEEK (For 60N Series Only)</i> |
| 10 | <i>Packing Washer</i> | <i>316 SS/A479 (For 15N, 20N and 30N Series), Alloy 725 (For 60N Series)</i> |
| 11 | <i>Lower Stem</i> | <i>Alloy 725</i> |
| 12 | <i>Body</i> | <i>Annealed 316 SS</i> |
| 13 | Collar | Annealed 316 SS/A479 (For tube connections) |
| 14 | Gland | Annealed 316 SS/A479 (For tube connections) |
| | Lubricant | Molybdenum disulfide |

Wetted components listed in italics.

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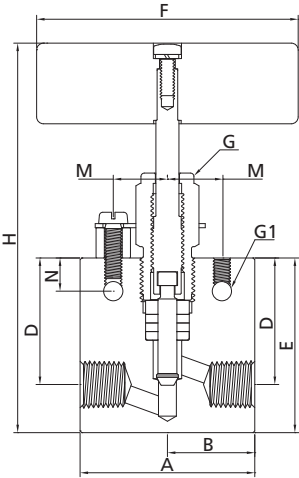
Subsea Valves

Tools and Installation Instructions

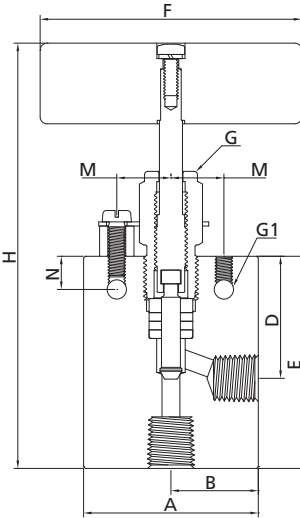
Technical Information

Ordering Information and Dimensions (Pipe Connection)

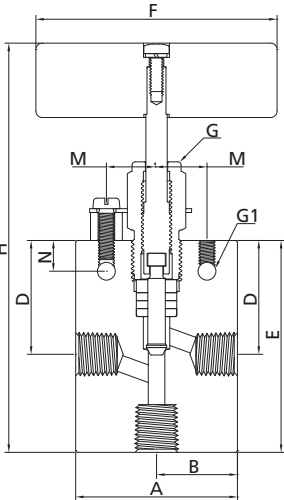
Straight



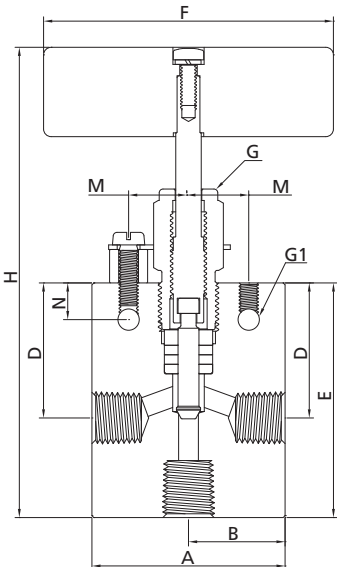
Angle



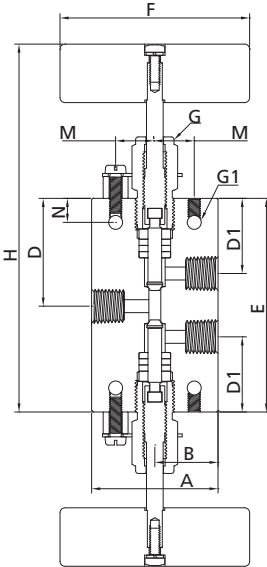
3-way/2 on pressure



3-way/1 on pressure



3-way/2 stem manifold



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Ordering Information and Dimensions (Pipe Connection)

| 15N Series (Straight) | | | | | | | | | | | | | | | |
|-----------------------|------------|------------------|----------------------|----------------|---|----------------|----|----------------|-----------------|----------------|---------------|-----------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 15NSS-FNS2-1-S | FNS2 | 0.078 (1.98) | 1.50 (38.1) | 0.75 (19.1) | / | 0.81 (20.6) | / | 1.25 (31.8) | 1.75 (44.5) | 0.62 (15.8) | 0.17 (4.3) | 3.00 (76.4) | 0.56 (14.2) | 0.31 (7.9) | 0.63 (15.9) |
| 15NSS-FRT2-1-S | FRT2 | | | | | | | | | | | | | | |
| 15NSS-FNS4-1-S | FNS4 | 0.203 (5.2) | 2.00 (50.8) | 1.00 (25.4) | / | 1.41 (35.8) | / | 2.00 (50.8) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 4.89 (124.1) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 15NSS-FRT4-1-S | FRT4 | | | | | | | | | | | | | | |
| 15NSS-FNS6-1-S | FNS6 | 0.219 (5.56) | 2.50 (63.5) | 1.25 (31.8) | / | 1.41 (35.8) | / | 2.00 (50.8) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 4.85 (123.1) | 0.62 (15.8) | 0.38 (9.7) | 1.00 (25.4) |
| 15NSS-FRT6-1-S | FRT6 | | | | | | | | | | | | | | |
| 15NSS-FNS8-1-S | FNS8 | 0.312 (7.92) | 3.00 (76.2) | 1.50 (38.1) | / | 2.06 (52.3) | / | 2.88 (73.2) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 6.18 (157.2) | 0.69 (17.5) | 0.50 (12.7) | 1.38 (35.1) |
| 15NSS-FRT8-1-S | FRT8 | | | | | | | | | | | | | | |

| 15N Series (Angle) | | | | | | | | | | | | | | | |
|--------------------|------------|------------------|----------------------|----------------|---|----------------|----|----------------|-----------------|----------------|---------------|-----------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 15NSS-FNS2-2-S | FNS2 | 0.078 (1.98) | 1.50 (38.1) | 0.75 (19.1) | / | 0.81 (20.6) | / | 1.38 (34.9) | 1.75 (44.5) | 0.62 (15.8) | 0.17 (4.3) | 3.13 (79.5) | 0.56 (14.2) | 0.31 (7.9) | 0.63 (15.9) |
| 15NSS-FRT2-2-S | FRT2 | | | | | | | | | | | | | | |
| 15NSS-FNS4-2-S | FNS4 | 0.203 (5.2) | 2.00 (50.8) | 1.00 (25.4) | / | 1.41 (35.8) | / | 2.44 (62.0) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.33 (135.4) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 15NSS-FRT4-2-S | FRT4 | | | | | | | | | | | | | | |
| 15NSS-FNS6-2-S | FNS6 | 0.219 (5.56) | 2.50 (63.5) | 1.25 (31.8) | / | 1.41 (35.8) | / | 2.44 (62.0) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.34 (135.7) | 0.62 (15.8) | 0.38 (9.7) | 1.00 (25.4) |
| 15NSS-FRT6-2-S | FRT6 | | | | | | | | | | | | | | |
| 15NSS-FNS8-2-S | FNS8 | 0.312 (7.92) | 3.00 (76.2) | 1.50 (38.1) | / | 2.06 (52.3) | / | 3.38 (85.9) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 6.69 (169.9) | 0.69 (17.5) | 0.50 (12.7) | 1.38 (35.1) |
| 15NSS-FRT8-2-S | FRT8 | | | | | | | | | | | | | | |

| 15N Series (3-way/2 on pressure) | | | | | | | | | | | | | | | |
|----------------------------------|------------|------------------|----------------------|----------------|---|----------------|----|----------------|-----------------|----------------|---------------|-----------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 15NSS-FNS2-4-S | FNS2 | 0.078 (1.98) | 1.50 (38.1) | 0.75 (19.1) | / | 0.81 (20.6) | / | 1.57 (40.0) | 1.75 (44.5) | 0.62 (15.8) | 0.17 (4.3) | 3.33 (84.6) | 0.56 (14.2) | 0.31 (7.9) | 0.63 (15.9) |
| 15NSS-FRT2-4-S | FRT2 | | | | | | | | | | | | | | |
| 15NSS-FNS4-4-S | FNS4 | 0.203 (5.2) | 2.00 (50.8) | 1.00 (25.4) | / | 1.41 (35.8) | / | 2.62 (66.6) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.51 (140.0) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 15NSS-FRT4-4-S | FRT4 | | | | | | | | | | | | | | |
| 15NSS-FNS6-4-S | FNS6 | 0.219 (5.56) | 2.50 (63.5) | 1.25 (31.8) | / | 1.41 (35.8) | / | 2.62 (66.6) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.47 (138.9) | 0.62 (15.8) | 0.38 (9.7) | 1.00 (25.4) |
| 15NSS-FRT6-4-S | FRT6 | | | | | | | | | | | | | | |
| 15NSS-FNS8-4-S | FNS8 | 0.312 (7.92) | 3.00 (76.2) | 1.50 (38.1) | / | 2.06 (52.3) | / | 3.62 (92.0) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 6.94 (176.2) | 0.69 (17.5) | 0.50 (12.7) | 1.38 (35.1) |
| 15NSS-FRT8-4-S | FRT8 | | | | | | | | | | | | | | |

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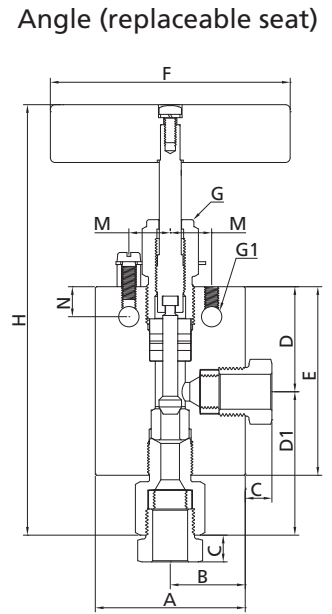
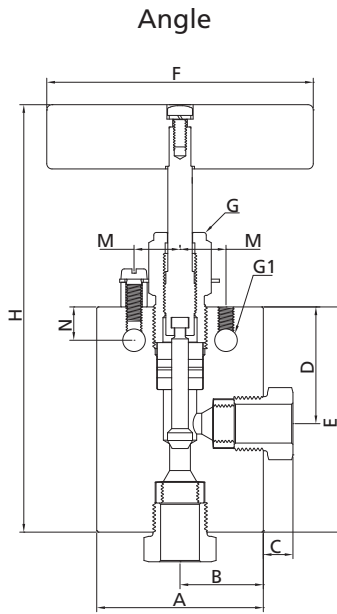
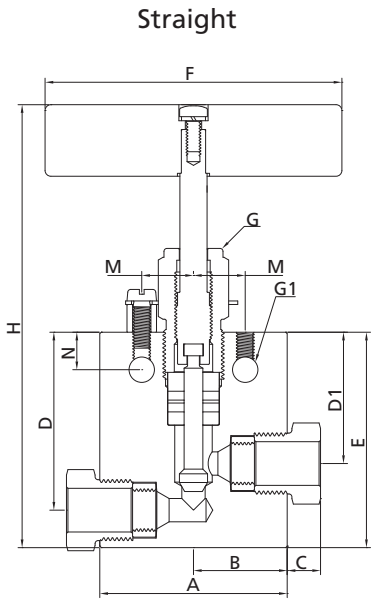
| 15N Series (3-way/1 on pressure) | | | | | | | | | | | | | | | |
|----------------------------------|------------|------------------|----------------------|----------------|---|----------------|----|----------------|-----------------|----------------|---------------|-----------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 15NSS-FNS2-5-S | FNS2 | 0.078 (1.98) | 1.50 (38.1) | 0.75 (19.1) | / | 0.81 (20.6) | / | 1.38 (35.0) | 1.75 (44.5) | 0.62 (15.8) | 0.17 (4.3) | 3.13 (79.5) | 0.56 (14.2) | 0.31 (7.9) | 0.63 (15.9) |
| 15NSS-FRT2-5-S | FRT2 | | | | | | | | | | | | | | |
| 15NSS-FNS4-5-S | FNS4 | 0.203 (5.2) | 2.00 (50.8) | 1.00 (25.4) | / | 1.41 (35.8) | / | 2.44 (62.0) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.33 (135.4) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 15NSS-FRT4-5-S | FRT4 | | | | | | | | | | | | | | |
| 15NSS-FNS6-5-S | FNS6 | 0.219 (5.56) | 2.50 (63.5) | 1.25 (31.8) | / | 1.41 (35.8) | / | 2.44 (62.0) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.34 (135.7) | 0.62 (15.8) | 0.38 (9.7) | 1.00 (25.4) |
| 15NSS-FRT6-5-S | FRT6 | | | | | | | | | | | | | | |
| 15NSS-FNS8-5-S | FNS8 | 0.312 (7.92) | 3.00 (76.2) | 1.50 (38.1) | / | 2.06 (52.3) | / | 3.38 (85.9) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 6.69 (169.9) | 0.69 (17.5) | 0.50 (12.7) | 1.38 (35.1) |
| 15NSS-FRT8-5-S | FRT8 | | | | | | | | | | | | | | |

| 15N Series (3-way/2 stem manifold) | | | | | | | | | | | | | | | |
|------------------------------------|------------|------------------|----------------------|----------------|---|----------------|----------------|-----------------|-----------------|----------------|---------------|-----------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 15NSS-FNS2-6-S | FNS2 | 0.078 (1.98) | 1.50 (38.1) | 0.75 (19.1) | / | 1.00 (25.6) | 0.68 (17.2) | 2.02 (51.2) | 1.75 (44.5) | 0.62 (15.8) | 0.17 (4.3) | 3.77 (95.8) | 0.56 (14.2) | 0.31 (7.9) | 0.63 (15.9) |
| 15NSS-FRT2-6-S | FRT2 | | | | | | | | | | | | | | |
| 15NSS-FNS4-6-S | FNS4 | 0.203 (5.2) | 2.00 (50.8) | 1.00 (25.4) | / | 1.69 (42.9) | 1.19 (30.2) | 3.38 (85.9) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 6.27 (159.2) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 15NSS-FRT4-6-S | FRT4 | | | | | | | | | | | | | | |
| 15NSS-FNS6-6-S | FNS6 | 0.219 (5.56) | 2.50 (63.5) | 1.25 (31.8) | / | 1.69 (42.9) | 1.19 (30.2) | 3.38 (85.9) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 6.22 (158.1) | 0.62 (15.8) | 0.38 (9.7) | 1.00 (25.4) |
| 15NSS-FRT6-6-S | FRT6 | | | | | | | | | | | | | | |
| 15NSS-FNS8-6-S | FNS8 | 0.312 (7.92) | 3.00 (76.2) | 1.50 (38.1) | / | 2.56 (65.1) | 1.75 (44.5) | 5.12 (130.1) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 8.43 (214.2) | 0.69 (17.5) | 0.50 (12.7) | 1.38 (35.1) |
| 15NSS-FRT8-6-S | FRT8 | | | | | | | | | | | | | | |

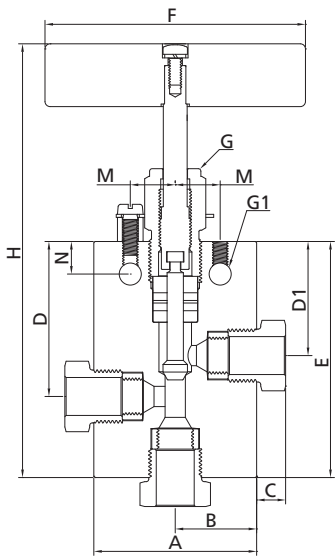
- NOTES: 1. G is the drill dimension of packing gland mounting hole.
 2. G1 is the dimension of bracket mounting hole.
 3. panel mounting drill size: 0.25" all valves.
 4. H is the dimension of stem in closed position.
 5. All dimensions for reference only and subject to change. For dimensions not shown above, please contact FITOK group or our authorized distributors.

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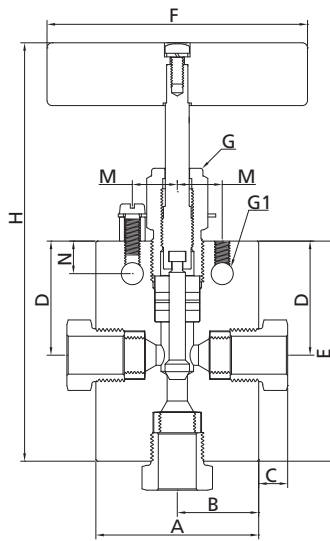
Ordering Information and Dimensions (Tubing Connection)



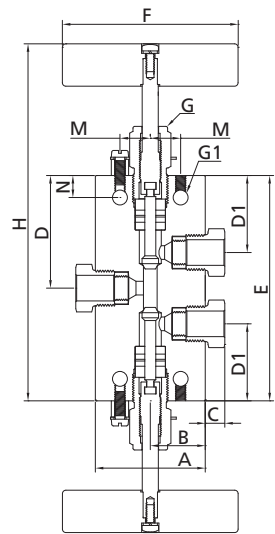
3-way/2 on pressure



3-way/1 on pressure



3-way/2 stem manifold



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Ordering Information and Dimensions (Tubing Connection)

| 20N Series (Straight) | | | | | | | | | | | | | | | |
|-----------------------|------------|------------------|----------------------|----------------|----------------|----------------|----------------|-----------------|------------------|----------------|----------------|-----------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 20NSS-2FH4-1-S | 2FH4 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.38 (9.7) | 1.62 (41.2) | 1.19 (30.2) | 2.00 (50.8) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 4.85 (123.1) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH6-1-S | 2FH6 | 0.204 (5.18) | 2.00 (50.8) | 1.00 (25.4) | 0.44 (11.2) | 1.62 (41.2) | 1.19 (30.2) | 2.00 (50.8) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 4.89 (124.2) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH9-1-S | 2FH9 | 0.312 (7.92) | 2.50 (63.5) | 1.25 (31.8) | 0.55 (14.0) | 2.37 (60.3) | 1.75 (44.5) | 2.88 (73.2) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 6.18 (157.2) | 0.69 (17.5) | 0.50 (12.7) | 1.00 (25.4) |
| 20NSS-2FH12-1-S | 2FH12 | 0.438 (11.13) | 3.00 (76.2) | 1.50 (38.1) | 0.60 (15.2) | 3.00 (76.2) | 2.25 (57.2) | 3.75 (95.3) | 10.25 (260.4) | 1.19 (30.2) | 0.44 (11.2) | 7.37 (187.2) | 0.88 (22.4) | 0.63 (16.0) | 1.38 (35.1) |
| 20NSS-2FH16-1-S | 2FH16 | 0.562 (14.27) | 4.12 (104.6) | 2.06 (52.3) | 0.74 (18.7) | 3.75 (95.3) | 2.81 (71.4) | 4.63 (117.6) | 10.25 (260.4) | 1.62 (41.2) | 0.56 (14.2) | 9.45 (240.1) | 1.25 (31.8) | 1.13 (28.7) | 1.75 (44.5) |

| 20N Series (Angle) | | | | | | | | | | | | | | | |
|--------------------|------------|------------------|----------------------|----------------|----------------|----------------|----|-----------------|------------------|----------------|----------------|-----------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 20NSS-2FH4-2-S | 2FH4 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.38 (9.7) | 1.19 (30.2) | / | 2.44 (61.9) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.28 (134.2) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH6-2-S | 2FH6 | 0.204 (5.18) | 2.00 (50.8) | 1.00 (25.4) | 0.44 (11.2) | 1.19 (30.2) | / | 2.44 (61.9) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.33 (135.4) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH9-2-S | 2FH9 | 0.312 (7.92) | 2.50 (63.5) | 1.25 (31.8) | 0.55 (14.0) | 1.75 (44.5) | / | 3.38 (85.9) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 6.69 (170.0) | 0.69 (17.5) | 0.50 (12.7) | 1.00 (25.4) |
| 20NSS-2FH12-2-S | 2FH12 | 0.438 (11.13) | 3.00 (76.2) | 1.50 (38.1) | 0.60 (15.2) | 2.25 (57.2) | / | 4.25 (108.0) | 10.25 (260.4) | 1.19 (30.2) | 0.44 (11.2) | 7.87 (199.9) | 0.88 (22.4) | 0.63 (16.0) | 1.38 (35.1) |
| 20NSS-2FH16-2-S | 2FH16 | 0.562 (14.27) | 4.12 (104.6) | 2.06 (52.3) | 0.74 (18.7) | 2.81 (71.4) | / | 5.12 (130.1) | 10.25 (260.4) | 1.62 (41.2) | 0.56 (14.2) | 9.94 (252.6) | 1.25 (31.8) | 1.13 (28.7) | 1.75 (44.5) |

| 20N Series (Angle/replaceable seat) | | | | | | | | | | | | | | | |
|-------------------------------------|------------|------------------|----------------------|----------------|----------------|----------------|-----------------|-----------------|------------------|----------------|----------------|------------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 20NSS-2FH4-3-S | 2FH4 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.38 (9.7) | 1.19 (30.2) | 2.13 (54.0) | 2.25 (57.2) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 6.10 (154.9) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH6-3-S | 2FH6 | 0.204 (5.18) | 2.00 (50.8) | 1.00 (25.4) | 0.44 (11.2) | 1.19 (30.2) | 2.13 (54.0) | 2.25 (57.2) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 6.16 (156.5) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH9-3-S | 2FH9 | 0.312 (7.92) | 2.50 (63.5) | 1.25 (31.8) | 0.55 (14.0) | 1.75 (44.5) | 2.50 (63.5) | 3.13 (79.4) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 7.58 (192.1) | 0.69 (17.5) | 0.50 (12.7) | 1.00 (25.4) |
| 20NSS-2FH12-3-S | 2FH12 | 0.438 (11.13) | 3.00 (76.2) | 1.50 (38.1) | 0.60 (15.2) | 2.25 (57.2) | 3.44 (87.4) | 4.25 (108.0) | 10.25 (260.4) | 1.19 (30.2) | 0.44 (11.2) | 9.30 (236.3) | 0.88 (22.4) | 0.63 (16.0) | 1.38 (35.1) |
| 20NSS-2FH16-3-S | 2FH16 | 0.562 (14.27) | 4.12 (104.6) | 2.06 (52.3) | 0.74 (18.7) | 2.81 (71.4) | 4.22 (107.4) | 5.25 (133.4) | 10.25 (260.4) | 1.62 (41.2) | 0.56 (14.2) | 11.86 (301.3) | 1.25 (31.8) | 1.13 (28.7) | 1.75 (44.5) |

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| 20N Series (3-way/2 on pressure) | | | | | | | | | | | | | | | |
|----------------------------------|------------|------------------|----------------------|----------------|----------------|----------------|----------------|-----------------|------------------|----------------|----------------|------------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 20NSS-2FH4-4-S | 2FH4 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.38 (9.7) | 1.63 (41.3) | 1.19 (30.2) | 2.63 (66.7) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.47 (139.0) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH6-4-S | 2FH6 | 0.204 (5.18) | 2.00 (50.8) | 1.00 (25.4) | 0.44 (11.2) | 1.63 (41.3) | 1.19 (30.2) | 2.63 (66.7) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.52 (140.1) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH9-4-S | 2FH9 | 0.312 (7.92) | 2.50 (63.5) | 1.25 (31.8) | 0.55 (14.0) | 2.37 (60.3) | 1.75 (44.5) | 3.63 (92.1) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 6.94 (176.3) | 0.69 (17.5) | 0.50 (12.7) | 1.00 (25.4) |
| 20NSS-2FH12-4-S | 2FH12 | 0.438 (11.13) | 3.00 (76.2) | 1.50 (38.1) | 0.60 (15.2) | 3.00 (76.2) | 2.25 (57.2) | 4.63 (117.5) | 10.25 (260.4) | 1.19 (30.2) | 0.44 (11.2) | 8.24 (209.4) | 0.88 (22.4) | 0.63 (16.0) | 1.38 (35.1) |
| 20NSS-2FH16-4-S | 2FH16 | 0.562 (14.27) | 4.12 (104.6) | 2.06 (52.3) | 0.74 (18.7) | 3.75 (95.3) | 2.81 (71.4) | 5.88 (149.4) | 10.25 (260.4) | 1.62 (41.2) | 0.56 (14.2) | 10.70 (271.9) | 1.25 (31.8) | 1.13 (28.7) | 1.75 (44.5) |

| 20N Series (3-way/1 on pressure) | | | | | | | | | | | | | | | |
|----------------------------------|------------|------------------|----------------------|----------------|----------------|----------------|----|-----------------|------------------|----------------|----------------|-----------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 20NSS-2FH4-5-S | 2FH4 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.38 (9.7) | 1.19 (30.2) | | 2.44 (61.9) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.28 (134.2) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH6-5-S | 2FH6 | 0.204 (5.18) | 2.00 (50.8) | 1.00 (25.4) | 0.44 (11.2) | 1.19 (30.2) | | 2.44 (61.9) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 5.33 (135.4) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH9-5-S | 2FH9 | 0.312 (7.92) | 2.50 (63.5) | 1.25 (31.8) | 0.55 (14.0) | 1.75 (44.5) | | 3.38 (85.9) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 6.69 (170.0) | 0.69 (17.5) | 0.50 (12.7) | 1.00 (25.4) |
| 20NSS-2FH12-5-S | 2FH12 | 0.438 (11.13) | 3.00 (76.2) | 1.50 (38.1) | 0.60 (15.2) | 2.25 (57.2) | | 4.25 (108.0) | 10.25 (260.4) | 1.19 (30.2) | 0.44 (11.2) | 7.87 (199.9) | 0.88 (22.4) | 0.63 (16.0) | 1.38 (35.1) |
| 20NSS-2FH16-5-S | 2FH16 | 0.562 (14.27) | 4.12 (104.6) | 2.06 (52.3) | 0.74 (18.7) | 2.81 (71.4) | | 5.12 (130.1) | 10.25 (260.4) | 1.62 (41.2) | 0.56 (14.2) | 9.94 (252.6) | 1.25 (31.8) | 1.13 (28.7) | 1.75 (44.5) |

| 20N Series (3-way/2 stem manifold) | | | | | | | | | | | | | | | |
|------------------------------------|------------|------------------|----------------------|----------------|----------------|----------------|----------------|-----------------|------------------|----------------|----------------|------------------|----------------|----------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 20NSS-2FH4-6-S | 2FH4 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.38 (9.7) | 1.69 (42.9) | 1.19 (30.2) | 3.38 (85.7) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 6.23 (158.1) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH6-6-S | 2FH6 | 0.204 (5.18) | 2.00 (50.8) | 1.00 (25.4) | 0.44 (11.2) | 1.69 (42.9) | 1.19 (30.2) | 3.38 (85.7) | 3.00 (76.2) | 0.75 (19.1) | 0.22 (5.6) | 6.24 (158.6) | 0.62 (15.8) | 0.38 (9.7) | 0.75 (19.1) |
| 20NSS-2FH9-6-S | 2FH9 | 0.312 (7.92) | 2.50 (63.5) | 1.25 (31.8) | 0.55 (14.0) | 2.56 (65.1) | 1.75 (44.5) | 5.13 (130.2) | 4.00 (101.6) | 1.00 (25.4) | 0.34 (8.6) | 8.44 (214.4) | 0.69 (17.5) | 0.50 (12.7) | 1.00 (25.4) |
| 20NSS-2FH12-6-S | 2FH12 | 0.438 (11.13) | 3.00 (76.2) | 1.50 (38.1) | 0.60 (15.2) | 3.00 (76.2) | 2.25 (57.2) | 6.50 (165.1) | 10.25 (260.4) | 1.19 (30.2) | 0.44 (11.2) | 10.11 (257.0) | 0.88 (22.4) | 0.63 (16.0) | 1.38 (35.1) |
| 20NSS-2FH16-6-S | 2FH16 | 0.562 (14.27) | 4.12 (104.6) | 2.06 (52.3) | 0.74 (18.7) | 3.75 (95.3) | 2.81 (71.4) | 7.50 (190.5) | 10.25 (260.4) | 1.62 (41.2) | 0.56 (14.2) | 12.32 (313.0) | 1.25 (31.8) | 1.13 (28.7) | 1.75 (44.5) |

Ordering Information and Dimensions (Tubing Connection)

| 30N Series (Straight) | | | | | | | | | | | | | | | |
|-----------------------|------------|------------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 30NSS-6FH4-1-S | 6FH4 | 0.094 (2.39) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.50 (38.1) | 1.12 (28.5) | 2.00 (50.8) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 4.69 (119.1) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH6-1-S | 6FH6 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.50 (38.1) | 1.12 (28.5) | 2.00 (50.8) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 4.69 (119.1) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH9-1-S | 6FH9 | 0.125 (3.18) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.56 (39.6) | 1.12 (28.5) | 2.44 (62.0) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 5.13 (130.3) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

| 30N Series (Angle) | | | | | | | | | | | | | | | |
|--------------------|------------|------------------|----------------------|----------------|----------------|----------------|----|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 30NSS-6FH4-2-S | 6FH4 | 0.094 (2.39) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.12 (28.5) | / | 2.00 (50.8) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 4.69 (119.1) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH6-2-S | 6FH6 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.12 (28.5) | / | 2.25 (57.2) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 4.95 (125.7) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH9-2-S | 6FH9 | 0.125 (3.18) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.12 (28.5) | / | 2.44 (62.0) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 5.13 (130.3) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

| 30N Series (Angle/replaceable seat) | | | | | | | | | | | | | | | |
|-------------------------------------|------------|------------------|----------------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 30NSS-6FH4-3-S | 6FH4 | 0.094 (2.39) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.12 (28.5) | 2.06 (52.3) | 2.38 (60.5) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 5.88 (149.2) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH6-3-S | 6FH6 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.12 (28.5) | 2.31 (58.67) | 2.38 (60.5) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 6.12 (155.4) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH9-3-S | 6FH9 | 0.125 (3.18) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.12 (28.6) | 2.55 (65.0) | 2.44 (62.0) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 6.39 (162.4) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

| 30N Series (3-way/2 on pressure) | | | | | | | | | | | | | | | |
|----------------------------------|------------|------------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 30NSS-6FH4-4-S | 6FH4 | 0.094 (2.39) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.50 (38.1) | 1.12 (28.5) | 2.12 (53.9) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 4.81 (122.1) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH6-4-S | 6FH6 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.50 (38.1) | 1.12 (28.5) | 2.50 (63.5) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 5.19 (131.9) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH9-4-S | 6FH9 | 0.125 (3.18) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.56 (39.6) | 1.12 (28.5) | 2.88 (73.2) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 5.57 (141.5) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

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30N Series (3-way/1 on pressure)

| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
|-----------------|------------|------------------|----------------------|----------------|----------------|----------------|----|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 30NSS-6FH4-5-S | 6FH4 | 0.094 (2.39) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.12 (28.5) | | 2.00 (50.8) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 4.69 (119.1) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH6-5-S | 6FH6 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.12 (28.5) | | 2.25 (57.2) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 4.95 (125.7) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH9-5-S | 6FH9 | 0.125 (3.18) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.12 (28.5) | | 2.44 (62.0) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 5.13 (130.3) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

30N Series (3-way/2 stem manifold)

| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
|-----------------|------------|------------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 30NSS-6FH4-6-S | 6FH4 | 0.094 (2.39) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.53 (38.9) | 1.12 (28.5) | 3.06 (77.7) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 5.75 (146.0) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH6-6-S | 6FH6 | 0.125 (3.18) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.62 (41.2) | 1.12 (28.5) | 3.25 (82.6) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 5.94 (150.9) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 30NSS-6FH9-6-S | 6FH9 | 0.125 (3.18) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.88 (47.8) | 1.12 (28.5) | 3.75 (95.3) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 6.44 (163.6) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

60N Series (Straight)

| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
|------------------|------------|------------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 60NSS-6FH4-TG1-S | 6FH4 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.69 (42.9) | 1.31 (33.3) | 2.13 (54.0) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 4.77 (121.1) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH6-TG1-S | 6FH6 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.69 (42.9) | 1.31 (33.3) | 2.25 (57.2) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 4.89 (124.3) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH9-TG1-S | 6FH9 | 0.078 (1.98) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.75 (44.5) | 1.31 (33.3) | 2.50 (63.5) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 5.14 (130.6) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

60N Series (Angle)

| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
|------------------|------------|------------------|----------------------|----------------|----------------|----------------|----|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 60NSS-6FH4-TG2-S | 6FH4 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.31 (33.3) | | 2.38 (60.5) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 5.02 (127.5) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH6-TG2-S | 6FH6 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.31 (33.3) | | 2.62 (66.6) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 5.26 (133.5) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH9-TG2-S | 6FH9 | 0.078 (1.98) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.31 (33.3) | | 2.81 (71.4) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 5.45 (138.5) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

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| 60N Series (Angle/replaceable seat) | | | | | | | | | | | | | | | |
|-------------------------------------|------------|------------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 60NSS-6FH4-TG3-S | 6FH4 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.31 (33.3) | 2.12 (53.9) | 2.62 (66.6) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 6.07 (154.1) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH6-TG3-S | 6FH6 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.31 (33.3) | 2.36 (59.9) | 2.62 (66.6) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 6.30 (160.1) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH9-TG3-S | 6FH9 | 0.078 (1.98) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.31 (33.3) | 2.68 (68.8) | 2.62 (66.6) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 6.65 (168.9) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

| 60N Series (3-way/2 on pressure) | | | | | | | | | | | | | | | |
|----------------------------------|------------|------------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 60NSS-6FH4-TG4-S | 6FH4 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.69 (42.9) | 1.31 (33.3) | 2.38 (60.5) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 5.26 (133.6) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH6-TG4-S | 6FH6 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.69 (42.9) | 1.31 (33.3) | 2.75 (68.9) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 5.34 (135.8) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH9-TG4-S | 6FH9 | 0.078 (1.98) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.75 (44.5) | 1.31 (33.3) | 3.03 (77.0) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 5.67 (143.9) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

| 60N Series (3-way/1 on pressure) | | | | | | | | | | | | | | | |
|----------------------------------|------------|------------------|----------------------|----------------|----------------|----------------|----|----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 60NSS-6FH4-TG5-S | 6FH4 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.31 (33.3) | / | 2.38 (60.5) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 5.02 (127.5) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH6-TG5-S | 6FH6 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.31 (33.3) | / | 2.62 (66.6) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 5.26 (133.5) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH9-TG5-S | 6FH9 | 0.078 (1.98) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 1.31 (33.3) | / | 2.81 (71.4) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 5.45 (138.5) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

| 60N Series (3-way/2 stem manifold) | | | | | | | | | | | | | | | |
|------------------------------------|------------|------------------|----------------------|----------------|----------------|-----------------|----------------|-----------------|----------------|----------------|---------------|-----------------|----------------|---------------|----------------|
| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | | | |
| | | | A | B | C | D | D1 | E | F | G | G1 | H | M | N | Thickness |
| 60NSS-6FH4-TG6-S | 6FH4 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.47 (11.9) | 1.72 (43.69) | 1.31 (33.3) | 3.44 (87.4) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 6.08 (154.5) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH6-TG6-S | 6FH6 | 0.063 (1.59) | 2.00 (50.8) | 1.00 (25.4) | 0.61 (15.6) | 1.88 (47.8) | 1.31 (33.3) | 3.75 (95.3) | 3.00 (76.2) | 1.00 (25.4) | 0.22 (5.6) | 6.39 (162.3) | 0.69 (17.5) | 0.38 (9.7) | 1.00 (25.4) |
| 60NSS-6FH9-TG6-S | 6FH9 | 0.078 (1.98) | 2.62 (66.6) | 1.31 (33.3) | 0.95 (24.1) | 2.06 (52.3) | 1.31 (33.3) | 4.12 (104.7) | 3.00 (76.2) | 1.00 (25.4) | 0.28 (7.1) | 6.76 (171.8) | 0.69 (17.5) | 0.38 (9.7) | 1.50 (38.1) |

NOTES: 1. G is the drill dimension of packing gland mounting hole.

2. G1 is the dimension of bracket mounting hole.

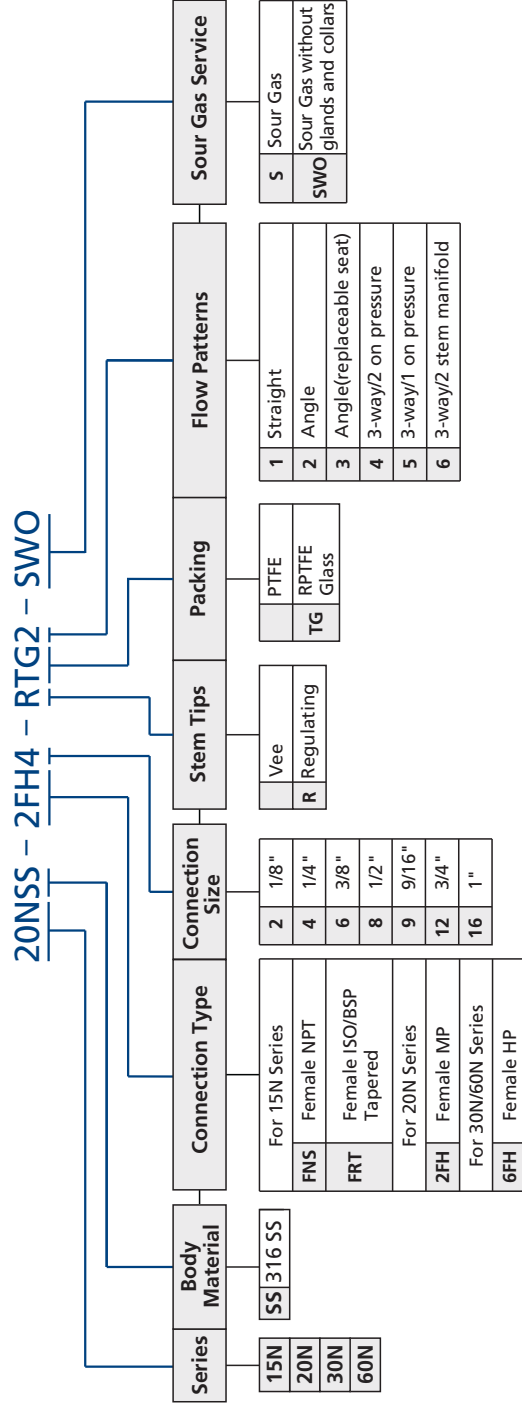
3. Panel mounting drill size: 0.25" all valves.

4. H is the dimension of stem in closed position.

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

| | | | | | | | |
|--|-----------------|-------------------------------|--------------|-----------------------|---------------|-------------------------------------|-----------------------|
| Medium & High Pressure Fittings and Tubing | Quick Couplings | Medium & High Pressure Valves | Line Filters | Sour Service Products | Subsea Valves | Tools and Installation Instructions | Technical Information |
|--|-----------------|-------------------------------|--------------|-----------------------|---------------|-------------------------------------|-----------------------|

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.

Bleed Valves

Pressures to 20,000 psig (1379 bar)

Features

- ⦿ One piece hex construction compact design allows easy installation
- ⦿ Working temperature range: -20°F to 400°F (-29°C to 204°C)
- ⦿ 1/8" Female NPT outlet connection
- ⦿ Easy to assemble and replace O-ring
- ⦿ Positive locking screw design prevents accidental removal of the stem
- ⦿ Tee handle for easy operation

Technical Data

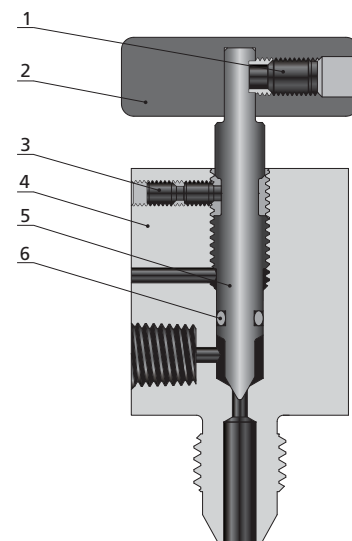
| Series | Inlet Connection | Orifice in. (mm) | Working Pressure psig (bar) |
|--------|------------------|------------------|-----------------------------|
| 20BV | 2MP6 | 0.094 (2.4) | 10,000 (690) |
| | 2MP9 | 0.094 (2.4) | 10,000 (690) |
| | 2CT6 | 0.094 (2.4) | 10,000 (690) |
| | 2CT9 | 0.094 (2.4) | 10,000 (690) |
| 30BV | 6MP6 | 0.094 (2.4) | 20,000 (1379) |
| | 6MP9 | 0.094 (2.4) | 20,000 (1379) |
| | 6CT6 | 0.094 (2.4) | 20,000 (1379) |
| | 6CT9 | 0.094 (2.4) | 20,000 (1379) |

- NOTES: 1. Working pressure shown is in closed position.
 2. Working pressure is 10,000 psig (690 bar) in open position.
 3. A variety of end connections available on request. For connections not shown above, please contact FITOK Group or our authorized distributors.

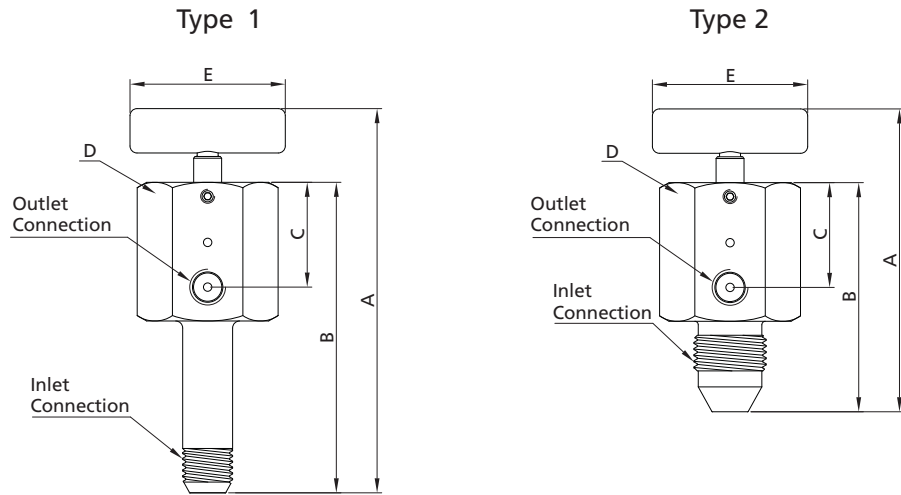
Standard Materials of Construction

| Item | Component | Material Grade/ASTM Specification |
|------|---------------|--|
| 1 | Handle Screw | Stainless steel |
| 2 | Handle | Stainless steel |
| 3 | Locking screw | Stainless steel |
| 4 | <i>Body</i> | <i>Annealed 316 SS</i> |
| 5 | <i>Stem</i> | <i>Alloys 725</i> |
| 6 | <i>O-Ring</i> | <i>FFKM</i> |
| | Lubricant | Molybdenum disulfide/Fluorinated-based |

Wetted components listed in italics.



Ordering Information and Dimensions

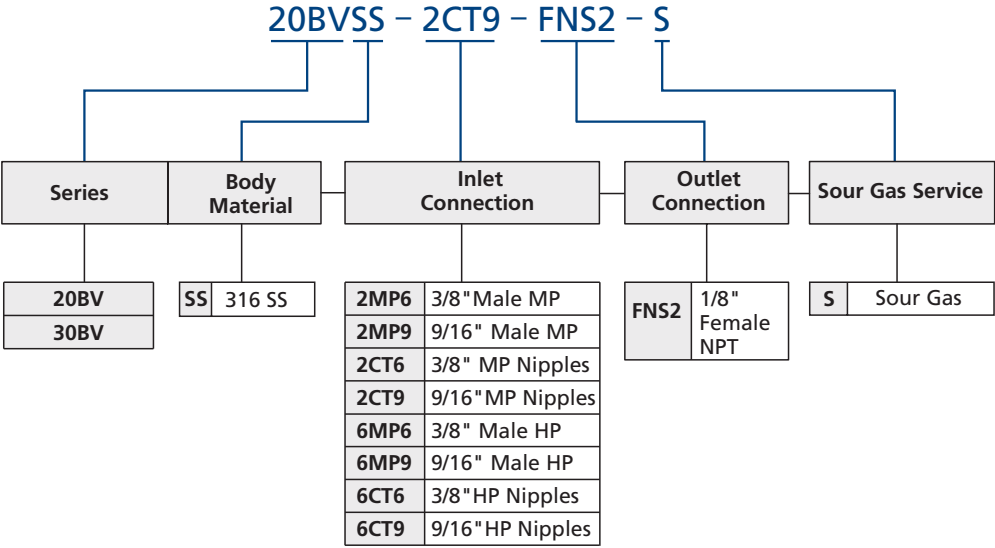


| Type 1 | | | | | | | | |
|--------------------|------------------|-------------------|------------------|----------------------|----------------|----------------|----------------|----------------|
| Ordering Number | Inlet Connection | Outlet Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | |
| | | | | A | B | C | D | E |
| 20BVSS-2CT6-FNS2-S | 2CT6 | FNS2 | 0.094 (2.4) | 3.65 (92.6) | 2.81 (71.5) | 1.18 (30.0) | 1.37 (34.9) | 1.75 (44.5) |
| 20BVSS-2CT9-FNS2-S | 2CT9 | FNS2 | 0.094 (2.4) | 3.93 (99.8) | 3.10 (78.7) | 1.18 (30.0) | 1.37 (34.9) | 1.75 (44.5) |
| 30BVSS-6CT6-FNS2-S | 6CT6 | FNS2 | 0.094 (2.4) | 3.93 (99.8) | 3.10 (78.7) | 1.18 (30.0) | 1.37 (34.9) | 1.75 (44.5) |
| 30BVSS-6CT9-FNS2-S | 6CT9 | FNS2 | 0.094 (2.4) | 4.38 (111.3) | 3.55 (90.2) | 1.18 (30.0) | 1.37 (34.9) | 1.75 (44.5) |

| Type 2 | | | | | | | | |
|--------------------|------------------|-------------------|------------------|----------------------|----------------|----------------|----------------|----------------|
| Ordering Number | Inlet Connection | Outlet Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | |
| | | | | A | B | C | D | E |
| 20BVSS-2MP6-FNS2-S | 2MP6 | FNS2 | 0.094 (2.4) | 3.41 (86.7) | 2.58 (65.6) | 1.18 (30.0) | 1.37 (34.9) | 1.75 (44.5) |
| 20BVSS-2MP9-FNS2-S | 2MP9 | FNS2 | 0.094 (2.4) | 3.41 (86.7) | 2.58 (65.6) | 1.18 (30.0) | 1.37 (34.9) | 1.75 (44.5) |
| 30BVSS-6MP6-FNS2-S | 6MP6 | FNS2 | 0.094 (2.4) | 3.41 (86.7) | 2.58 (65.6) | 1.18 (30.0) | 1.37 (34.9) | 1.75 (44.5) |
| 30BVSS-6MP9-FNS2-S | 6MP9 | FNS2 | 0.094 (2.4) | 3.41 (86.7) | 2.58 (65.6) | 1.18 (30.0) | 1.37 (34.9) | 1.75 (44.5) |

- NOTES: 1. D is the dimension of hex.
 2. A is the dimension of stem in closed position.
 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



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

| |
|--|
| Medium & High Pressure Fittings and Tubing |
| Quick Couplings |
| Medium & High Pressure Valves |
| Line Filters |
| Sour Service Products |
| Subsea Valves |
| Tools and Installation Instructions |
| Technical Information |

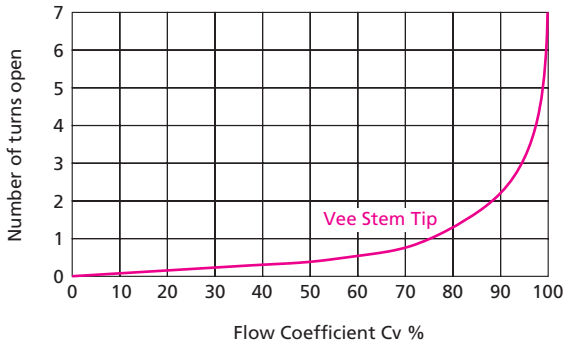
Gauge Valves

Pressures to 20,000 psig (1379 bar)

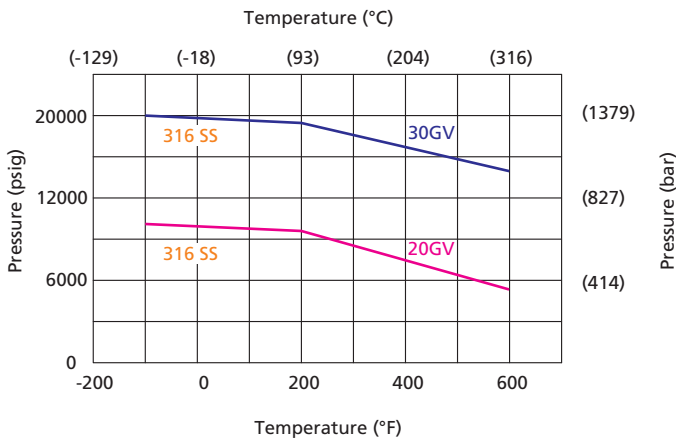
Features

- ⦿ One inlet, three outlet ports.
- ⦿ Metal-to-metal seating achieves ideal shutoff, longer stem/seat service lifetime for abrasive flow, excellent corrosion resistance and greater durability for repeated on/off cycles
- ⦿ Selected materials of packing gland and upper stem for reduced handle torque and extended thread cycle life
- ⦿ Packing located under stem threads
- ⦿ Reliable locking device for packing gland

Flow Data at 100°F (38°C)



Pressure vs. Temperature Curve



Medium & High Pressure Fittings and Tubing
 Quick Couplings
 Medium & High Pressure Valves
 Line Filters
 Sour Service Products
 Subsea Valves
 Tools and Installation Instructions
 Technical Information

Technical Data

| Series | Connection | Orifice in. (mm) | Cv | Working Pressure psig (bar) |
|--------|------------|------------------|------|-----------------------------|
| 20GV | 2FH6 | 0.125 (3.18) | 0.23 | 10,000 (690) |
| | 2FH9 | 0.125 (3.18) | 0.23 | 10,000 (690) |
| 30GV | 6FH6 | 0.125 (3.18) | 0.33 | 20,000 (1379) |
| | 6FH9 | 0.125 (3.18) | 0.33 | 20,000 (1379) |

NOTES: 1. Packing Options

PTFE is the standard packing material, RPTFE glass also available

PTFE: -100°F~450°F (-73°C~232°C).

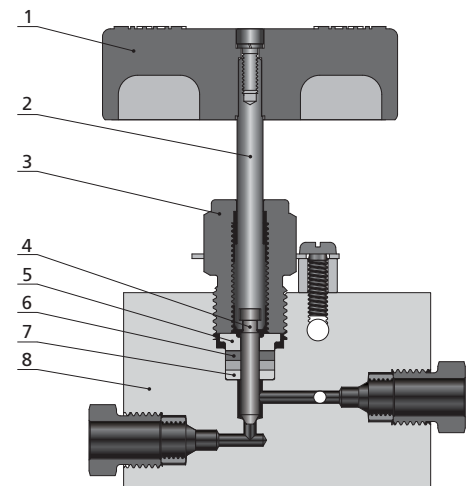
RPTFE glass: -100°F~600°F (-73°C~316°C).

2. A variety of end connections are available upon request. For connections not shown above, please contact FITOK Group or our authorized distributors.

Standard Materials of Construction

| Item | Component | Material Grade/ASTM Specification |
|------|-----------------------|-----------------------------------|
| 1 | Handle | Stainless steel |
| 2 | Upper stem | 316 SS/A479 |
| 3 | Packing Gland | 316 SS/A479 |
| 4 | <i>Lower Stem</i> | <i>Alloy 725</i> |
| 5 | Packing Ring | 316 SS/A479 |
| 6 | <i>Packing</i> | <i>PTFE/RPTFE</i> |
| 7 | <i>Packing washer</i> | <i>316 SS/A479</i> |
| 8 | <i>Body</i> | <i>Annealed 316 SS</i> |
| | Lubricant | Molybdenum disulfide |

Wetted components listed in italics.



Medium & High Pressure Fittings and Tubing

Quick Couplings

Medium & High Pressure Valves

Line Filters

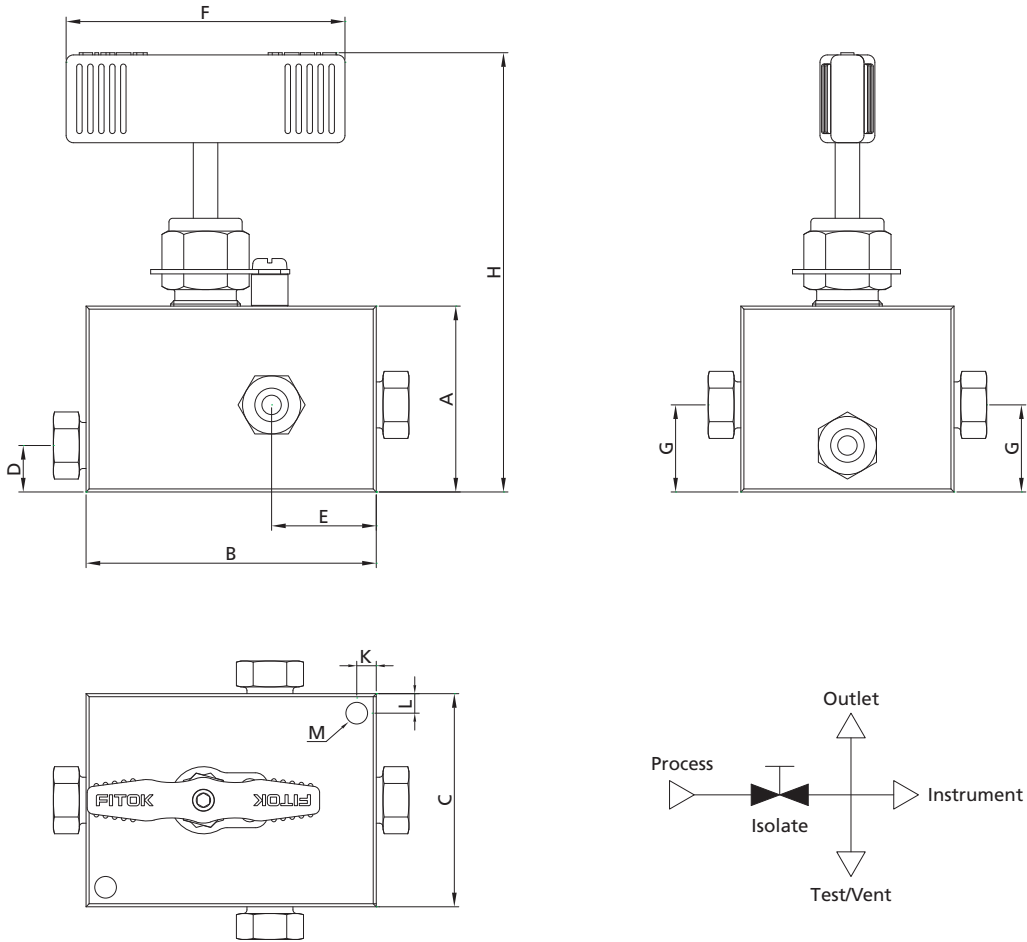
Sour Service Products

Subsea Valves

Tools and Installation Instructions

Technical Information

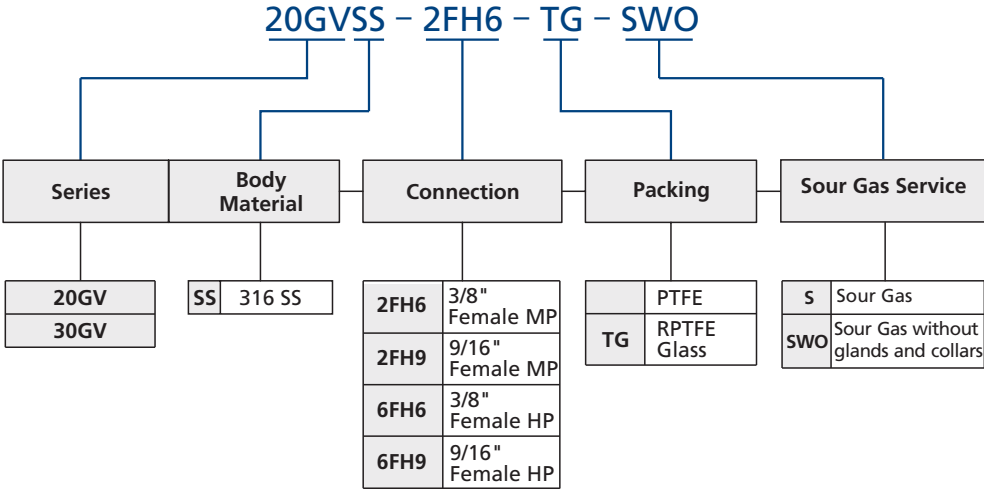
Ordering Information and Dimensions



| Ordering Number | Connection | Orifice in. (mm) | Dimensions, in. (mm) | | | | | | | | | | |
|-----------------|------------|------------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|------------|------------|------------|
| | | | A | B | C | D | E | F | G | H | K | L | M |
| 20GVSS-2FH6-S | 2FH6 | 0.125 (3.18) | 2.00 (50.8) | 3.12 (79.3) | 2.00 (50.8) | 0.50 (12.7) | 1.13 (28.6) | 3.00 (76.2) | 0.94 (23.8) | 4.68 (118.9) | 0.38 (9.7) | 0.25 (6.4) | 0.28 (7.1) |
| 20GVSS-2FH9-S | 2FH9 | 0.125 (3.18) | 2.00 (50.8) | 3.88 (98.6) | 2.75 (69.9) | 0.66 (16.8) | 1.38 (34.9) | 3.00 (76.2) | 0.94 (23.8) | 4.68 (118.9) | 0.38 (9.7) | 0.38 (9.7) | 0.28 (7.1) |
| 30GVSS-6FH6-S | 6FH6 | 0.125 (3.18) | 2.00 (50.8) | 3.12 (79.3) | 2.00 (50.8) | 0.50 (12.7) | 1.13 (28.6) | 3.00 (76.2) | 0.94 (23.8) | 4.68 (118.9) | 0.38 (9.7) | 0.38 (9.7) | 0.28 (7.1) |
| 30GVSS-6FH9-S | 6FH9 | 0.125 (3.18) | 2.00 (50.8) | 3.88 (98.6) | 2.75 (69.9) | 0.66 (16.8) | 1.38 (34.9) | 3.00 (76.2) | 0.94 (23.8) | 4.68 (118.9) | 0.38 (9.7) | 0.38 (9.7) | 0.28 (7.1) |

- NOTES: 1. M is the panel mounting drill size.
 2. H is the dimension of stem in closed position.
 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



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

| |
|--|
| Medium & High Pressure Fittings and Tubing |
| Quick Couplings |
| Medium & High Pressure Valves |
| Line Filters |
| Sour Service Products |
| Subsea Valves |
| Tools and Installation Instructions |
| Technical Information |

Check Valves

Pressures to 30,000 psig (2068 bar)

Features

(Pipe) O-ring Check Valves

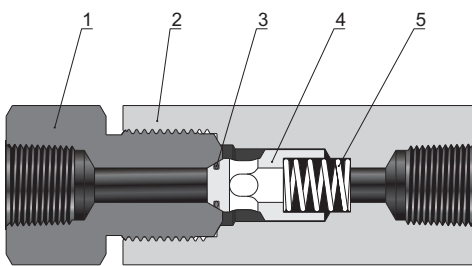
- ⦿ Provides unidirectional flow and tight shut-off for liquids and gases with high reliability (Not for use as relief valve)
- ⦿ Resilient O-ring seat design for noise-free closing and zero leakage
- ⦿ Cracking pressure: 14 psig~26 psig (0.966 bar~1.794 bar)

(Pipe) Ball Check Valves

- ⦿ Prevents reverse flow where leak-tight shut-off is not mandatory (Not for use as relief valve)
- ⦿ An integral design of the ball and poppet to assure positive, in-line seating without "chatter".
 Poppet designed essentially for axial flow with minimum pressure drop

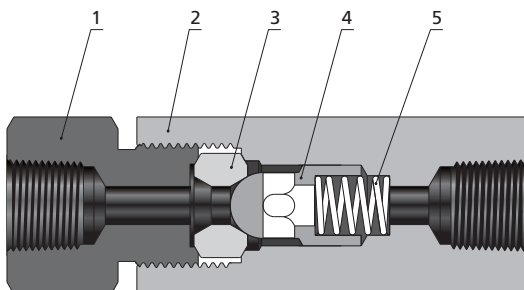
Standard Materials of Construction

15C Series Pipe O-ring Check Valves



| Item | Component | Material |
|------|-------------|--------------------------|
| 1 | Cover Gland | Annealed stainless steel |
| 2 | Valve Body | Annealed 316 SS |
| 3 | O-ring | FFKM |
| 4 | Poppet | Annealed 316 SS |
| 5 | Spring | High nickel alloy |
| | Lubricant | Molybdenum disulfide |

15CO Series Pipe Ball Check Valves



| Item | Component | Material |
|------|-------------|--------------------------|
| 1 | Cover Gland | Annealed stainless steel |
| 2 | Valve Body | Annealed 316 SS |
| 3 | Cover | Alloy 725 |
| 4 | Ball Poppet | Alloy 725 |
| 5 | Spring | High nickel alloy |
| | Lubricant | Molybdenum disulfide |

Medium & High Pressure Fittings and Tubing

Quick Couplings

Medium & High Pressure Valves

Line Filters

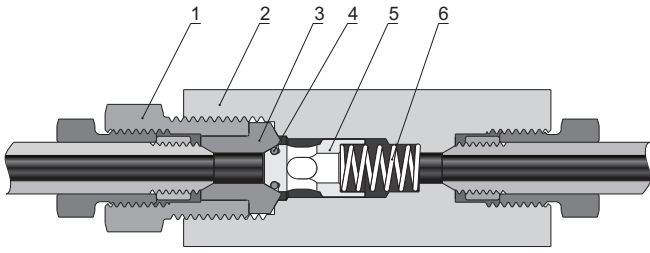
Sour Service Products

Subsea Valves

Tools and Installation Instructions

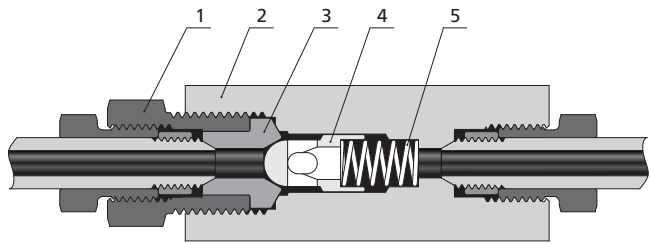
Technical Information

20C Series O-ring Check Valves



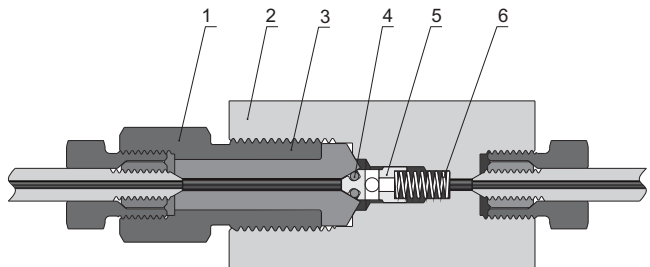
| Item | Component | Material |
|-----------|-------------|--------------------------|
| 1 | Cover Gland | Annealed stainless steel |
| 2 | Valve Body | <i>Annealed 316 SS</i> |
| 3 | Cover | <i>Annealed 316 SS</i> |
| 4 | O-ring | <i>FFKM</i> |
| 5 | Poppet | <i>Annealed 316 SS</i> |
| 6 | Spring | <i>High nickel alloy</i> |
| Lubricant | | Molybdenum disulfide |

20CO Series Ball Check Valves



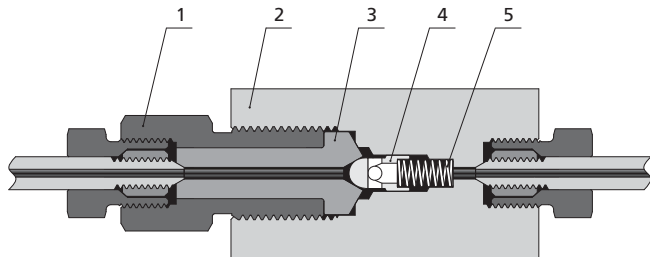
| Item | Component | Material |
|-----------|-------------|--------------------------|
| 1 | Cover Gland | Annealed stainless steel |
| 2 | Valve Body | <i>Annealed 316 SS</i> |
| 3 | Cover | <i>Alloy 725</i> |
| 4 | Ball Poppet | <i>Alloy 725</i> |
| 5 | Spring | <i>High nickel alloy</i> |
| Lubricant | | Molybdenum disulfide |

60C Series O-ring Check Valves



| Item | Component | Material |
|-----------|-------------|--------------------------|
| 1 | Cover Gland | Annealed stainless steel |
| 2 | Valve Body | <i>Annealed 316 SS</i> |
| 3 | Cover | <i>Annealed 316 SS</i> |
| 4 | O-ring | <i>FFKM</i> |
| 5 | Poppet | <i>Annealed 316 SS</i> |
| 6 | Spring | <i>High nickel alloy</i> |
| Lubricant | | Molybdenum disulfide |

60CO Series Ball Check Valves

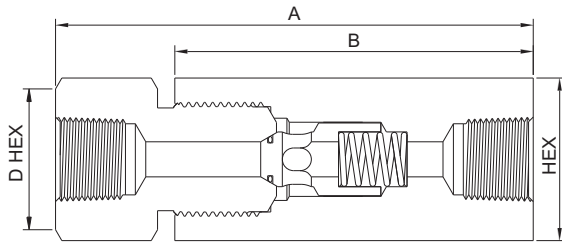


| Item | Component | Material |
|-----------|-------------|--------------------------|
| 1 | Cover Gland | Annealed stainless steel |
| 2 | Valve Body | <i>Annealed 316 SS</i> |
| 3 | Cover | <i>Alloy 725</i> |
| 4 | Ball Poppet | <i>Alloy 725</i> |
| 5 | Spring | <i>High nickel alloy</i> |
| Lubricant | | Molybdenum disulfide |

Wetted components listed in italics.

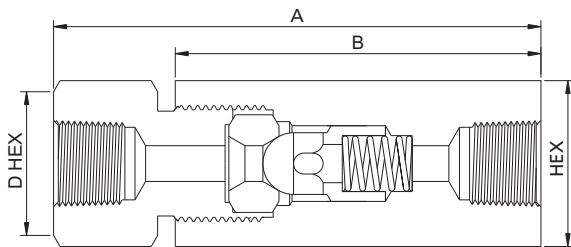
Ordering Information and Dimensions

15C Series Pipe O-ring Check Valves



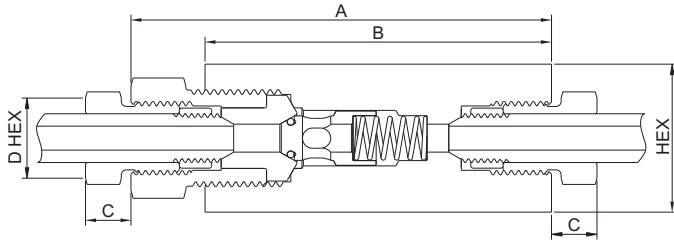
| Ordering Number | Connection | Orifice in. (mm) | Cv | Dimensions, in. (mm) | | | | Working Pressure psig (bar) | Working Temperature °F (°C) |
|-----------------|------------|------------------|------|----------------------|-------------|-------------|-------------|-----------------------------|---------------------------------|
| | | | | A | B | D - HEX | HEX | | |
| 15CSS-FNS4-S | FNS4 | 0.12 (3.05) | 0.28 | 3.30 (83.8) | 2.38 (60.3) | 0.94 (23.8) | 0.94 (23.8) | 10,000 (690) | -20°F to 400°F (-29°C to 204°C) |
| 15CSS-FNS6-S | FNS6 | 0.22 (5.59) | 0.84 | 3.95 (100.33) | 2.88 (73.2) | 1.13 (28.6) | 1.13 (28.6) | | |
| 15CSS-FNS8-S | FNS8 | 0.36 (9.12) | 2.30 | 5.07 (128.8) | 3.88 (98.6) | 1.38 (34.9) | 1.38 (34.9) | | |

15CO Series Pipe Ball Check Valves



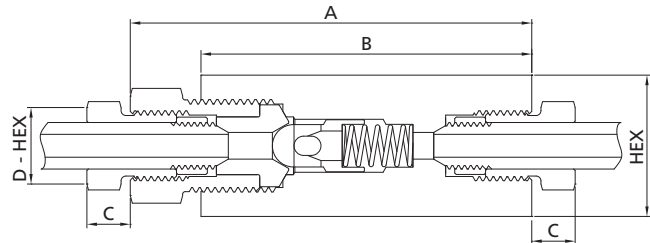
| Ordering Number | Connection | Orifice in. (mm) | Cv | Dimensions, in. (mm) | | | | Working Pressure psig (bar) | Working Temperature °F (°C) |
|-----------------|------------|------------------|------|----------------------|-------------|-------------|-------------|-----------------------------|---------------------------------|
| | | | | A | B | D - HEX | HEX | | |
| 15COSS-FNS4-S | FNS4 | 0.12 (3.05) | 0.28 | 3.30 (83.8) | 2.38 (60.3) | 0.94 (23.8) | 0.94 (23.8) | 10,000 (690) | -20°F to 400°F (-29°C to 204°C) |
| 15COSS-FNS6-S | FNS6 | 0.22 (5.59) | 0.84 | 3.95 (100.33) | 2.88 (73.2) | 1.13 (28.6) | 1.13 (28.6) | | |
| 15COSS-FNS8-S | FNS8 | 0.36 (9.12) | 2.30 | 5.07 (128.8) | 3.88 (98.6) | 1.38 (34.9) | 1.38 (34.9) | | |

20C Series O-ring Check Valves



| Ordering Number | Connection | Orifice in. (mm) | Cv | Dimensions, in. (mm) | | | | | Working Pressure psig (bar) | Working Temperature °F (°C) |
|-----------------|------------|------------------|------|----------------------|--------------|-------------|-------------|-------------|-----------------------------|---------------------------------|
| | | | | A | B | C | D - HEX | HEX | | |
| 20CSS-2FH4-S | 2FH4 | 0.125 (3.18) | 0.28 | 2.94 (74.7) | 2.50 (63.5) | 0.38 (9.65) | 0.50 (12.7) | 0.81 (20.6) | 10,000 (690) | -20°F to 550°F (-29°C to 288°C) |
| 20CSS-2FH6-S | 2FH6 | 0.218 (5.54) | 0.84 | 3.12 (79.3) | 2.62 (66.6) | 0.44 (11.2) | 0.62 (15.8) | 1.00 (25.4) | | |
| 20CSS-2FH9-S | 2FH9 | 0.359 (9.12) | 2.30 | 4.18 (106.2) | 3.50 (88.9) | 0.55 (14.0) | 0.94 (23.9) | 1.38 (35.1) | | |
| 20CSS-2FH12-S | 2FH12 | 0.516 (13.11) | 4.70 | 5.50 (139.7) | 4.75 (120.7) | 0.60 (15.2) | 1.19 (30.2) | 1.75 (44.5) | | |
| 20CSS-2FH16-S | 2FH16 | 0.688 (17.48) | 7.40 | 6.91 (175.6) | 5.75 (146.1) | 0.74 (18.8) | 1.38 (35.1) | 2.12 (53.9) | | |

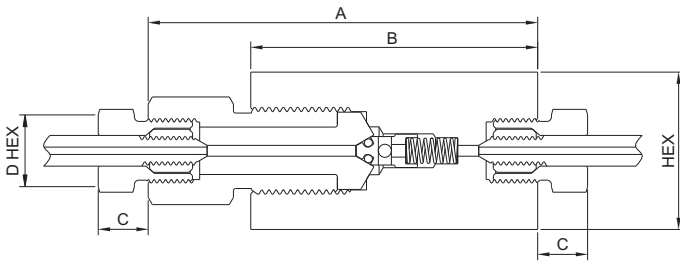
20CO Series Ball Check Valves



| Ordering Number | Connection | Orifice in. (mm) | Cv | Dimensions, in. (mm) | | | | | Working Pressure psig (bar) | Working Temperature °F (°C) |
|-----------------|------------|------------------|------|----------------------|--------------|-------------|-------------|-------------|-----------------------------|-----------------------------------|
| | | | | A | B | C | D - HEX | HEX | | |
| 20COSS-2FH4-S | 2FH4 | 0.125 (3.18) | 0.28 | 2.94 (74.7) | 2.50 (63.5) | 0.38 (9.65) | 0.50 (12.7) | 0.81 (20.6) | 10,000 (690) | -110°F to 1200°F (-79°C to 649°C) |
| 20COSS-2FH6-S | 2FH6 | 0.218 (5.54) | 0.84 | 3.12 (79.3) | 2.62 (66.6) | 0.44 (11.2) | 0.62 (15.8) | 1.00 (25.4) | | |
| 20COSS-2FH9-S | 2FH9 | 0.359 (9.12) | 2.30 | 4.18 (106.2) | 3.50 (88.9) | 0.55 (14.0) | 0.94 (23.9) | 1.38 (35.1) | | |
| 20COSS-2FH12-S | 2FH12 | 0.516 (13.11) | 4.70 | 5.50 (139.7) | 4.75 (120.7) | 0.60 (15.2) | 1.19 (30.2) | 1.75 (44.5) | | |
| 20COSS-2FH16-S | 2FH16 | 0.688 (17.48) | 7.40 | 6.91 (175.6) | 5.75 (146.1) | 0.74 (18.8) | 1.38 (35.1) | 2.12 (53.9) | | |

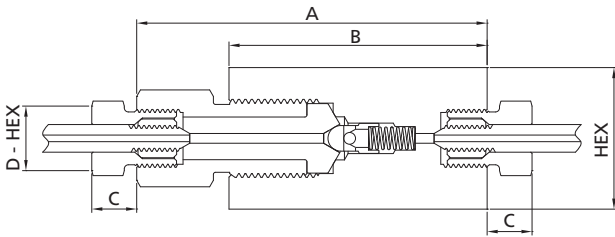
Medium & High Pressure Fittings and Tubing
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Sour Service Products
Subsea Valves
Tools and Installation Instructions
Technical Information

60C Series O-ring Check Valves



| Ordering Number | Connection | Orifice in. (mm) | Cv | Dimensions, in. (mm) | | | | | Working Pressure psig (bar) | Working Temperature °F (°C) |
|-----------------|------------|------------------|------|----------------------|--------------|-------------|-------------|-------------|-----------------------------|---------------------------------|
| | | | | A | B | C | D - HEX | HEX | | |
| 60CSS-6FH4-S | 6FH4 | 0.094 (2.39) | 0.15 | 3.38 (85.9) | 2.50 (63.5) | 0.47 (11.9) | 0.63 (16.0) | 1.18 (30.0) | 30,000 (2068) | -20°F to 550°F (-29°C to 288°C) |
| 60CSS-6FH6-S | 6FH6 | 0.125 (3.18) | 0.28 | 3.86 (98.1) | 2.80 (71.0) | 0.61 (15.5) | 0.81 (20.6) | 1.18 (30.0) | | |
| 60CSS-6FH9-S | 6FH9 | 0.187 (4.75) | 0.63 | 4.62 (117.4) | 3.38 (85.85) | 0.95 (24.1) | 1.12 (28.5) | 1.50 (38.1) | | |

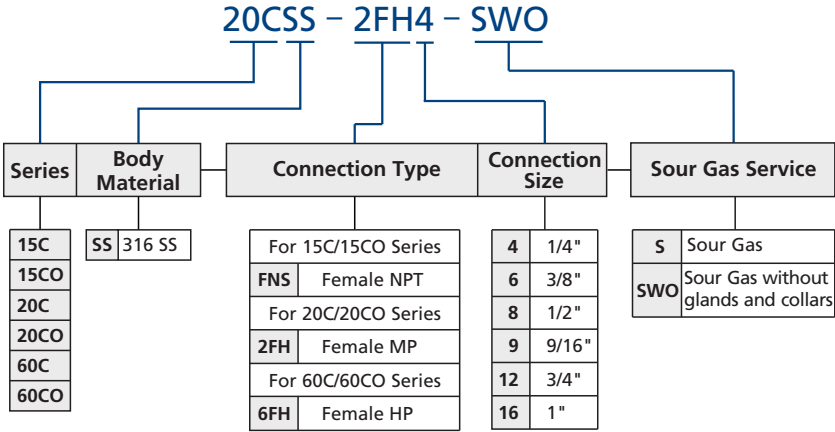
60CO Series Ball Check Valves



| Ordering Number | Connection | Orifice in. (mm) | Cv | Dimensions, in. (mm) | | | | | Working Pressure psig (bar) | Working Temperature °F (°C) |
|-----------------|------------|------------------|------|----------------------|--------------|-------------|-------------|-------------|-----------------------------|-----------------------------------|
| | | | | A | B | C | D - HEX | HEX | | |
| 60COSS-6FH4-S | 6FH4 | 0.094 (2.39) | 0.15 | 3.38 (85.9) | 2.50 (63.5) | 0.47 (11.9) | 0.63 (16.0) | 1.18 (30.0) | 30,000 (2068) | -110°F to 1200°F (-79°C to 649°C) |
| 60COSS-6FH6-S | 6FH6 | 0.125 (3.18) | 0.28 | 3.86 (98.1) | 2.80 (71.0) | 0.61 (15.5) | 0.81 (20.6) | 1.18 (30.0) | | |
| 60COSS-6FH9-S | 6FH9 | 0.187 (4.75) | 0.63 | 4.62 (117.4) | 3.38 (85.85) | 0.95 (24.1) | 1.12 (28.5) | 1.50 (38.1) | | |

NOTE: 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



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

| |
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