

# Integral Block & Bleed Valves

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The best partner for value creation  
We support the innovations of customers



# 15

# SSB & SDB Series Block & Bleed Valves

S-LOK Block & Bleed Valves has the ultimate solutions for a compact range one-piece forged body primary isolation Valves, featuring a choice of end connections, body styles and valve technology.

## Product Information

### Design Standards

- ASME B 16.34 Valves-Flanged, Threaded, and Welding End.
- ASME B 16.5 Pipe Flanges and Flanged Fittings.
- ASME B 1.20.1 Pipe Threads, General Purpose.
- API 607 / BS 6755 part 2 Fire test for Quarter-turn Valves.
- ISO 15848-1 / 15848-2 Measurement, test and qualification procedures for fugitive emissions.
- NACE MR 0175 / ISO 15156 General principles for selection of cracking-resistant materials.

### Applications

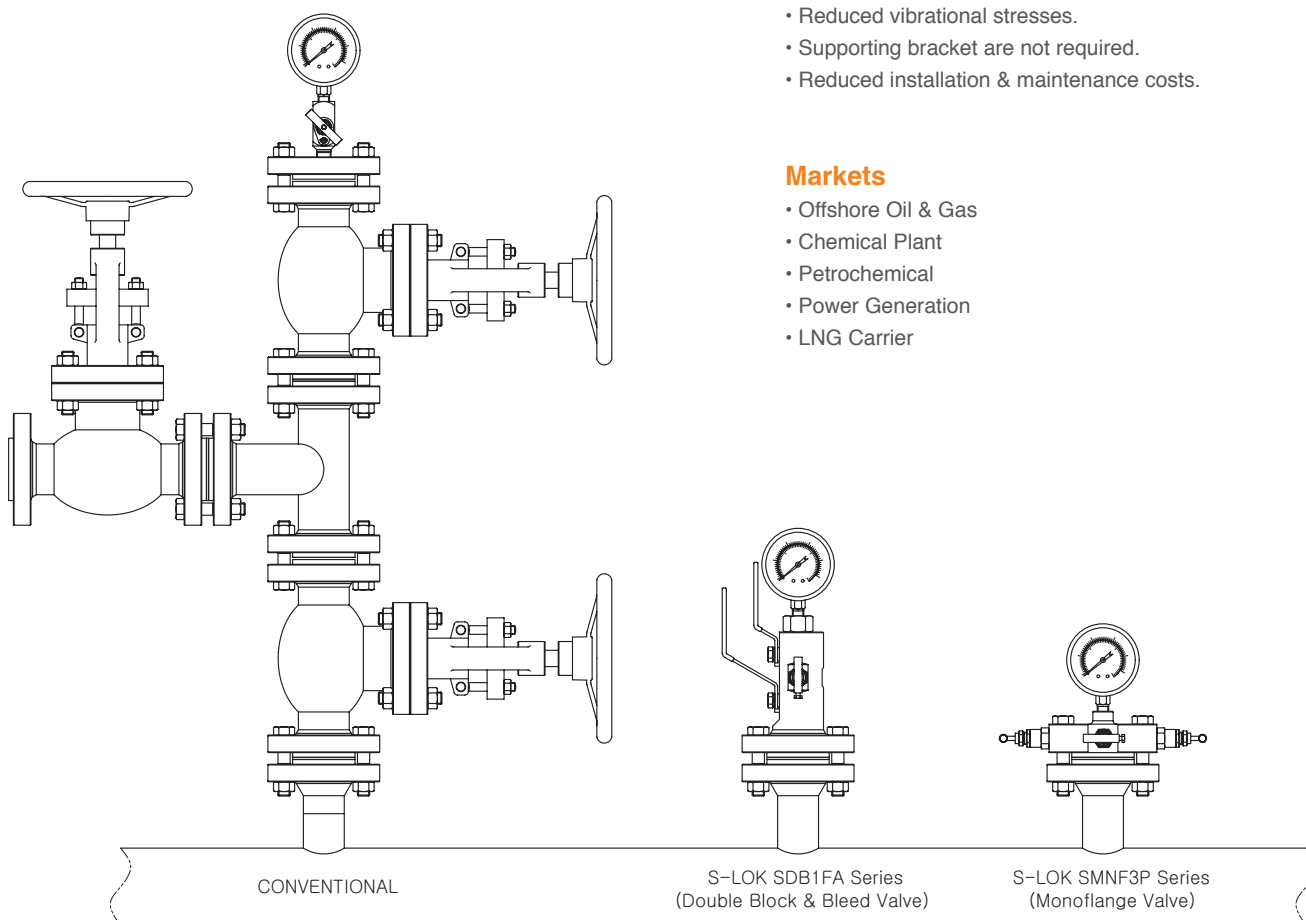
- Double block and bleed instrument isolation.
- Process piping isolation point.
- Chemical injection systems.
- Sampling systems.
- Instrument Vents & drain.
- Piping / instrument interface.
- Direct mounting of instruments.

### Installation Advantages

- Compact design.
- Provided weight & space savings.
- Reduced leakage points.
- Reduced vibrational stresses.
- Supporting bracket are not required.
- Reduced installation & maintenance costs.

### Markets

- Offshore Oil & Gas
- Chemical Plant
- Petrochemical
- Power Generation
- LNG Carrier



## Ball Valve Specification

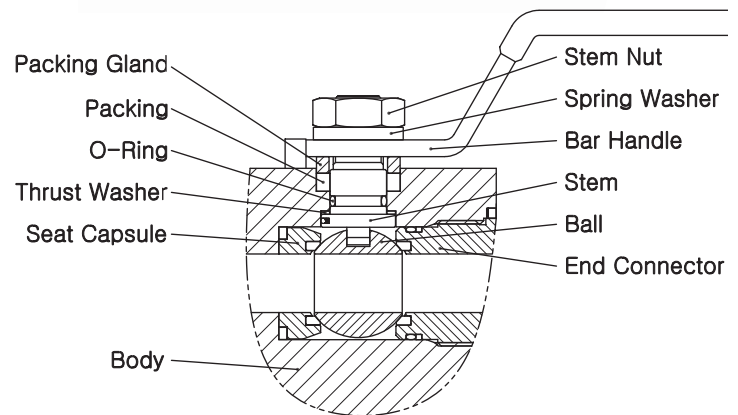
### Design Standards

- ASME B 16.5 flanged connections 1/2" to 2" sizes.
- Class150 rated to Class2500 rated.
- API flanged connections sizes to 2-1/16"
- 1/2" ~ 1" NPT threaded female outlet / vent to ASME B1.20.1.
- Material thickness to ASME B16.34.
- Bolted Body construction (Inlet or Outlet) is options.
- Pressure test is in accordance with API 598.
- Fire safe designed to API 607, BS6755 Part2.



### Features

- Blowout proof stem.
- Fully encapsulated allow high working pressure.
- Super finished ball for low operating torque and long life.
- End connector threads are fully isolated from process by primary and secondary static seals.
- Color coded and function identified handles.
- Bore size available 10mm (3/8"), ~ 50mm (2").
- Ball seats choice of materials : PTFE(virgin or filled), PEEK.
- Anti-static design as standard.
- Pressure rating up to 10,000psig (690bar).
- Temperature rating -70.6°F to 482°F (-57°C to 250°C).
- Optional : NACE Compliance, Locking Device Handle.



## Materials of Construction

| Description     | Material Grade       |              |                          |                        |
|-----------------|----------------------|--------------|--------------------------|------------------------|
|                 | Stainless Steel      | Carbon Steel | Lower Temp. Carbon Steel | Duplex Stainless Steel |
| Body, Connector | A182 F316            | A105         | A350 LF2                 | A182 F51               |
| Ball            | SS316 / A479 or A276 |              |                          | UNS S31803             |
| Stem            | SS316 / A479 or A276 |              |                          | UNS S31803             |
| Seat            | PTFE / PEEK          |              |                          |                        |
| Thrust Washer   | PEEK                 |              |                          |                        |
| O-Ring          | NBR / FKM (VITON)    |              |                          |                        |
| Packing, Seal   | GRAPHITE / PTFE      |              |                          |                        |
| Bolt            | A193 B8M             | A193 B7      | A320 L7                  | A453-660               |
| Nut             | A194 8M              | A194 2H      | A194 7                   | A453-660               |
| All other part  | Stainless steel      |              |                          |                        |

### NOTE

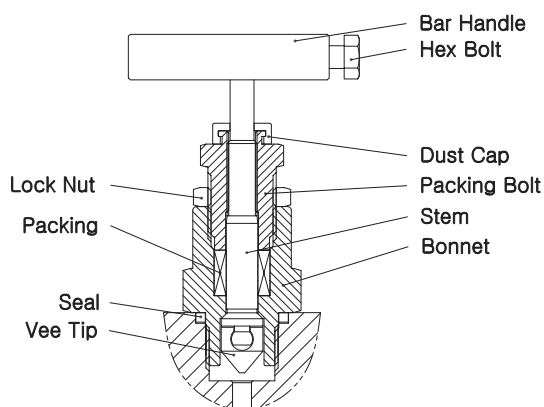
Stainless steel is standard body material but such a Monel, Super Duplex, Hastelloy, Inconel and other special material are available upon request.

## Needle Valve Specification

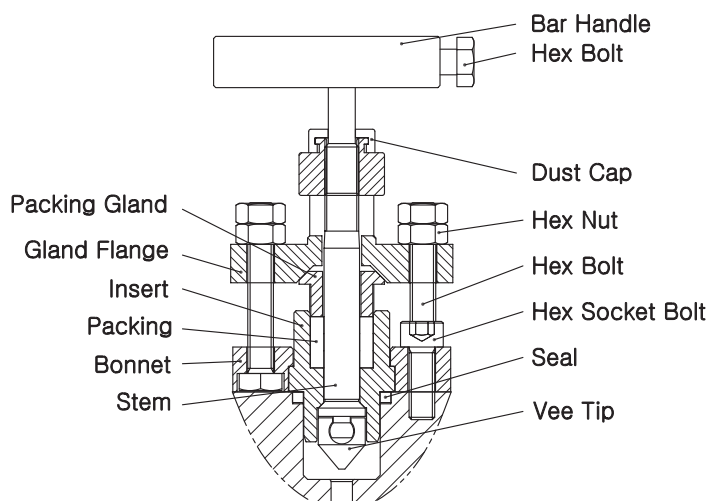
### Features

- Rolled stem threads prevent galling. Stem threads are completely isolated from the process.
- Stem packing with Graphite or PTFE rings for bubble-tight seal.
- Stem tip construction : non-rotating self-centering, Anti-galling tip positive bubble-tight and field interchangeable rip.
- Backseat design provides secondary stem sealing & prevents stem blowout.
- Packing bolt allows easy access to adjust the packing gland.
- Robust bar handle is standard.
- Color coded and function label for easy identification.
- Orifice size 0.2" (5mm).
- Pressure rating up to 10,000psig(690bar).
- Temperature rating -70.6°F to 1,022°F (-57°C to 550°C)
- Anti-Temper bonnets are available with a removable T-bar key to prevent unauthorized operation of vent valves.
- Standard valves are offered with Graphite. PTFE is also available as an option
- Stem threads are completely isolated from the process.
- Bolted bonnet for strength and reliability.
- Flange gasket seal ensures a bubble-tight between body & bonnet.
- Adjustable gland flange allows easy access to the packing gland and packing adjustment for an effective stem seal.
- Investment cast yoke is precision casted for strength and perfect stem alignment.

### Material of Construction



Bolted Bonnet



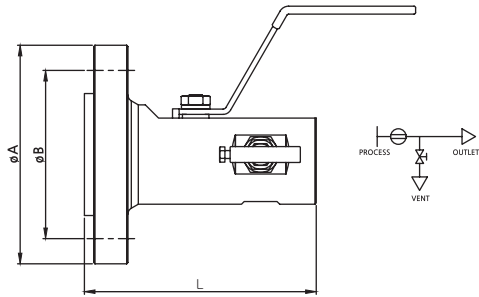
OS & Y Bonnet

| Description              |        | Material Grade       |              |                          |                        |
|--------------------------|--------|----------------------|--------------|--------------------------|------------------------|
|                          |        | Stainless Steel      | Carbon Steel | Lower Temp. Carbon Steel | Duplex Stainless Steel |
| Bonnet                   | Bolted | SS316 / A479 or A276 | A105         | A350 LF2                 | UNS S31803             |
|                          | OS & Y | A351 CF8M            | A216 WCB     | A352 LCC                 | UNS S31803             |
| Vee Tip                  |        | A564-630             |              |                          | UNS S31803             |
| Stem                     |        | SS316 / A479 or A276 |              |                          | UNS S31803             |
| Insert                   |        | SS316 / A479 or A276 |              |                          | UNS S31803             |
| Packing, Seal            |        | GRAPHITE / PTFE      |              |                          |                        |
| Hex Socket Bolt (OS & Y) |        | A193 B8M             | A194 B7      | A320 L7                  | A453-660               |
| All Other Part           |        | Stainless Steel      |              |                          |                        |

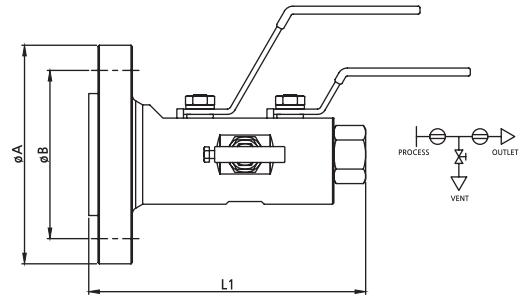
### NOTE

Stainless steel is standard body material but such a Monel, Super Duplex, Hastelloy, Inconel and other special material are available upon request.

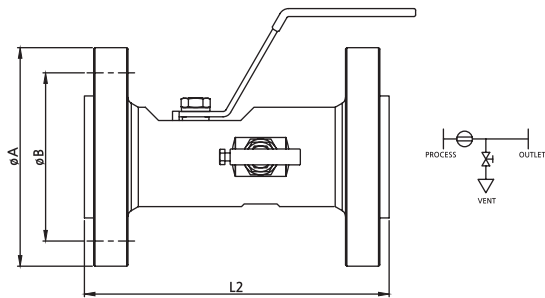
# SSB / SDB1F\* Series



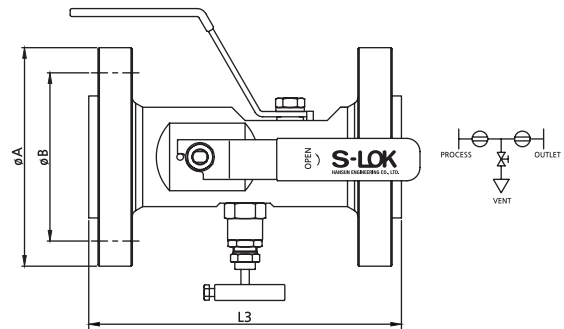
SSB1FA



SDB1FA



SSB1FB



SDB1FB

## ⚡ Dimensions (Bore-10)

| Size<br>(Inch) | Pressure Rating<br>(Class) | Dimension (mm) |         |         |         |          |          |
|----------------|----------------------------|----------------|---------|---------|---------|----------|----------|
|                |                            | L (RF)         | L1 (RF) | L2 (RF) | L3 (RF) | $\phi A$ | $\phi B$ |
| 1/2            | 150                        | 130            | 170     | 160     | 185     | 90       | 60.3     |
|                | 300                        | 135            | 170     | 165     | 190     | 95       | 66.7     |
|                | 600                        | 140            | 175     | 180     | 205     | 95       | 66.7     |
|                | 900/1500                   | 155            | 195     | 205     | 235     | 120      | 82.6     |
|                | 2500                       | 165            | 200     | 225     | 260     | 135      | 88.9     |
| 3/4            | 150                        | 135            | 170     | 160     | 190     | 100      | 69.9     |
|                | 300                        | 140            | 175     | 175     | 200     | 115      | 82.6     |
|                | 600                        | 145            | 180     | 190     | 215     | 115      | 82.6     |
|                | 900/1500                   | 160            | 200     | 215     | 240     | 130      | 88.9     |
|                | 2500                       | 165            | 205     | 225     | 255     | 140      | 95.2     |
| 1              | 150                        | 135            | 170     | 165     | 195     | 110      | 79.4     |
|                | 300                        | 140            | 180     | 180     | 205     | 125      | 88.9     |
|                | 600                        | 150            | 185     | 195     | 225     | 125      | 88.9     |
|                | 900/1500                   | 165            | 205     | 225     | 255     | 150      | 101.6    |
|                | 2500                       | 170            | 210     | 240     | 270     | 160      | 108.0    |
| 1-1/2          | 150                        | 140            | 175     | 170     | 200     | 125      | 98.4     |
|                | 300                        | 150            | 185     | 185     | 215     | 155      | 114.3    |
|                | 600                        | 155            | 195     | 205     | 235     | 155      | 114.3    |
|                | 900/1500                   | 175            | 215     | 245     | 275     | 180      | 123.8    |
|                | 2500                       | 190            | 230     | 285     | 310     | 205      | 146.0    |
| 2              | 150                        | 145            | 190     | 180     | 210     | 150      | 120.7    |
|                | 300                        | 150            | 195     | 185     | 215     | 165      | 127.0    |
|                | 600                        | 155            | 195     | 205     | 235     | 165      | 127.0    |
|                | 900/1500                   | 175            | 220     | 245     | 275     | 215      | 165.1    |
|                | 2500                       | 195            | 235     | 295     | 325     | 235      | 171.4    |

\* Dimensions are for reference only and are subject to change.

## ⚙ Dimensions (Bore-14)

| Size<br>(Inch) | Pressure Rating<br>(Class) | Dimension (mm) |         |         |         |     |       |
|----------------|----------------------------|----------------|---------|---------|---------|-----|-------|
|                |                            | L (RF)         | L1 (RF) | L2 (RF) | L3 (RF) | øA  | øB    |
| 3/4            | 150                        | 150            | 185     | 175     | 210     | 100 | 69.9  |
|                | 300                        | 155            | 195     | 185     | 225     | 115 | 82.6  |
|                | 600                        | 160            | 200     | 200     | 235     | 115 | 82.6  |
|                | 900/1500                   | 175            | 215     | 225     | 260     | 130 | 88.9  |
|                | 2500                       | 180            | 220     | 240     | 275     | 140 | 95.2  |
| 1              | 150                        | 150            | 185     | 175     | 215     | 110 | 79.4  |
|                | 300                        | 155            | 195     | 190     | 225     | 125 | 88.9  |
|                | 600                        | 165            | 205     | 205     | 245     | 125 | 88.9  |
|                | 900/1500                   | 180            | 220     | 240     | 265     | 150 | 101.6 |
|                | 2500                       | 185            | 225     | 250     | 290     | 160 | 108.0 |
| 1-1/2          | 150                        | 155            | 190     | 180     | 220     | 125 | 98.4  |
|                | 300                        | 160            | 200     | 200     | 235     | 155 | 114.3 |
|                | 600                        | 170            | 210     | 220     | 255     | 155 | 114.3 |
|                | 900/1500                   | 190            | 230     | 255     | 300     | 180 | 123.8 |
|                | 2500                       | 210            | 245     | 285     | 330     | 205 | 146.0 |
| 2              | 150                        | 160            | 195     | 190     | 230     | 150 | 120.7 |
|                | 300                        | 160            | 200     | 200     | 235     | 165 | 127.0 |
|                | 600                        | 170            | 210     | 220     | 255     | 165 | 127.0 |
|                | 900/1500                   | 190            | 230     | 265     | 305     | 215 | 165.1 |
|                | 2500                       | 210            | 250     | 300     | 345     | 235 | 171.4 |

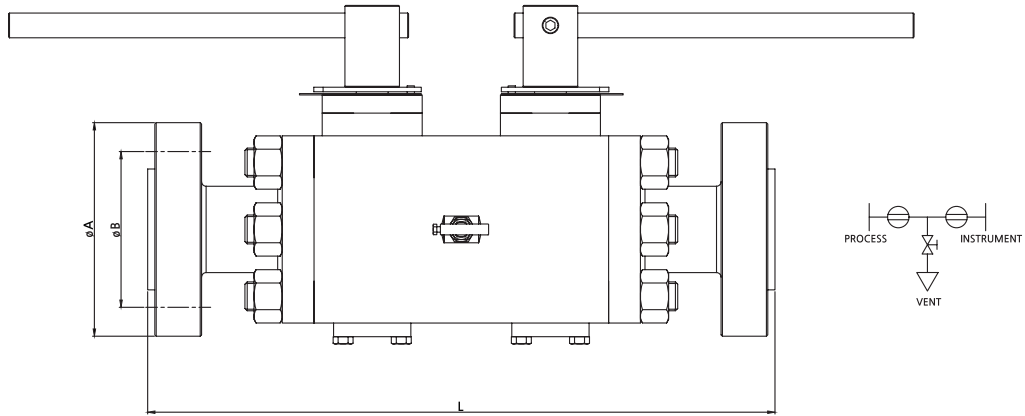
\* Dimensions are for reference only and are subject to change.

## ⚙ Dimensions (Bore-20)

| Size<br>(Inch) | Pressure Rating<br>(Class) | Dimension (mm) |         |     |       |
|----------------|----------------------------|----------------|---------|-----|-------|
|                |                            | L (RF)         | L3 (RF) | øA  | øB    |
| 1-1/2          | 150                        | 230            | 230     | 125 | 98.4  |
|                | 300                        | 235            | 250     | 155 | 114.3 |
|                | 600                        | 245            | 270     | 155 | 114.3 |
|                | 900/1500                   | 270            | 315     | 180 | 123.8 |
|                | 2500                       | 305            | 375     | 205 | 146.0 |
| 3/4            | 150                        | 230            | 245     | 150 | 120.7 |
|                | 300                        | 235            | 250     | 165 | 127.0 |
|                | 600                        | 245            | 270     | 165 | 127.0 |
|                | 900/1500                   | 270            | 315     | 215 | 165.1 |
|                | 2500                       | 310            | 380     | 235 | 171.4 |

\* Dimensions are for reference only and are subject to change.

# SDB3FB Series



## Dimensions (Reducing Bore)

| Size<br>(Inch) | Pressure Rating<br>(Class) | Dimension (mm) |     |       |
|----------------|----------------------------|----------------|-----|-------|
|                |                            | L (RF)         | øA  | øB    |
| 1              | 150                        | 260            | 110 | 79.4  |
|                | 300                        | 275            | 125 | 88.9  |
|                | 600                        | 295            | 125 | 88.9  |
|                | 900/1500                   | 365            | 150 | 101.6 |
|                | 2500                       | 430            | 160 | 108.0 |
| 1-1/2          | 150                        | 275            | 125 | 98.4  |
|                | 300                        | 290            | 155 | 114.3 |
|                | 600                        | 330            | 155 | 114.3 |
|                | 900/1500                   | 425            | 180 | 123.8 |
|                | 2500                       | 490            | 205 | 146.0 |
| 2              | 150                        | 320            | 150 | 120.7 |
|                | 300                        | 330            | 165 | 127.0 |
|                | 600                        | 380            | 165 | 127.0 |
|                | 900/1500                   | 475            | 215 | 165.1 |
|                | 2500                       | 550            | 235 | 171.4 |

\* Dimensions are for reference only and are subject to change.

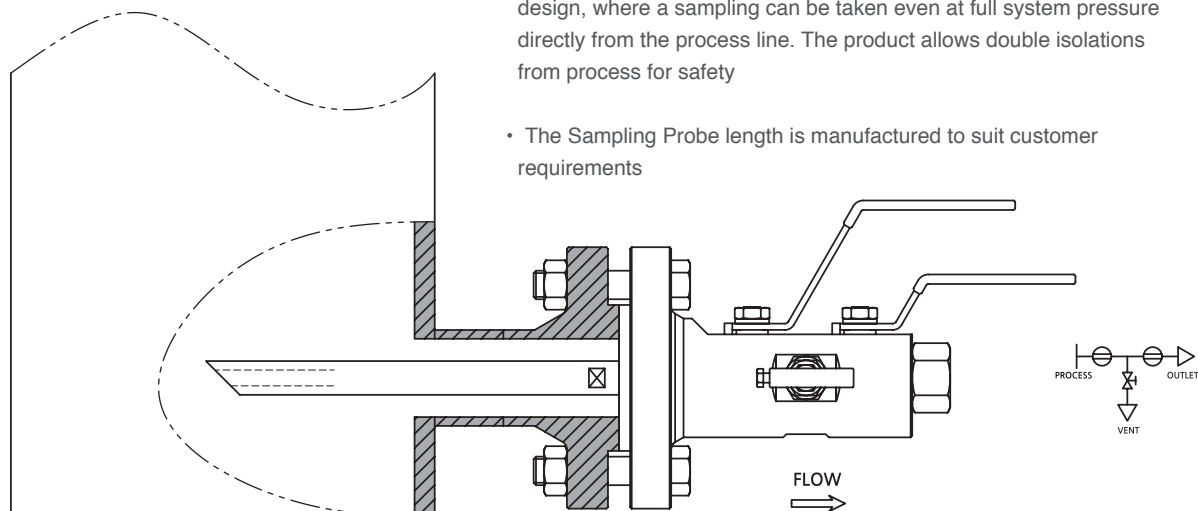
## Dimensions (Full Bore)

| Size<br>(Inch) | Pressure Rating<br>(Class) | Dimension (mm) |     |       |
|----------------|----------------------------|----------------|-----|-------|
|                |                            | L (RF)         | øA  | øB    |
| 1-1/2          | 150                        | 310            | 125 | 98.4  |
|                | 300                        | 330            | 155 | 114.3 |
|                | 600                        | 395            | 155 | 114.3 |
|                | 900/1500                   | 460            | 180 | 123.8 |
|                | 2500                       | 540            | 205 | 146.0 |
| 2              | 150                        | 335            | 125 | 98.4  |
|                | 300                        | 355            | 155 | 114.3 |
|                | 600                        | 420            | 155 | 114.3 |
|                | 900/1500                   | 520            | 180 | 123.8 |
|                | 2500                       | 690            | 205 | 146.0 |

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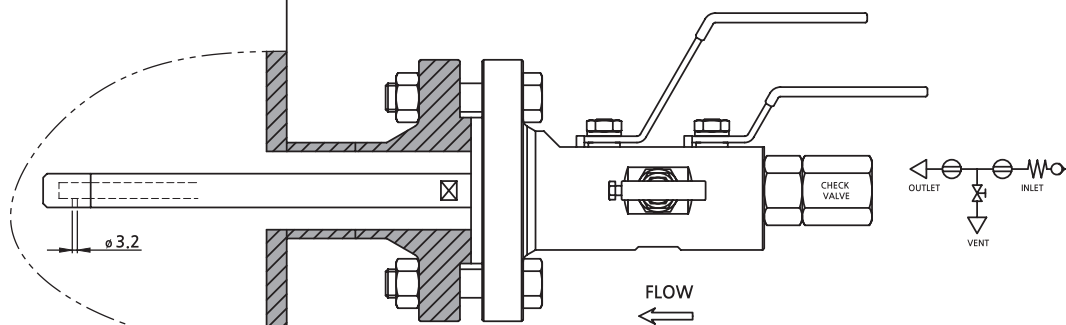
### Sampling Double Block & Bleed Valves

- Sampling the process stream can be accomplished with this valve design, where a sampling can be taken even at full system pressure directly from the process line. The product allows double isolations from process for safety
- The Sampling Probe length is manufactured to suit customer requirements



### Injection Double Block & Bleed Valves

- Injection of chemicals and other media into the process stream can be accomplished with this valve design.
- The valve inlet houses a one way check valve which opens for injection and goes normally closed to eliminate process fluid outflow.
- The Injection Quill length is manufactured to suit customer requirements.
- The Injection Nozzle is a 3.2mm diameter hole. (Standard)



- Integral Check Valve  
: This poppet type spring return valve has a Viton soft seal (Standard)

## Ordering Information



### (1) Valve Model & Body Type

**SSB** : Single Block & Bleed (Floating)  
**SDB** : Double Block & Bleed (Floating)  
**SSBT** : Single Block & Bleed (Trunnion)  
**SDBT** : Double Block & Bleed (Trunnion)

**1F** : 1-piece Forged  
**2F** : 2-piece Forged  
**3F** : 3-piece Forged

**A** : Flanged x Female NPT  
**B** : Flanged x Flanged  
**C** : Female NPT x Female NPT  
**D** : Male NPT x Female NPT  
**E** : Socket Weld x Socket Weld  
**F** : Socket Weld x Female NPT  
**G** : Butt Weld x Butt Weld  
**H** : Butt Weld x Female NPT

### (2) Bore & Valve Type (Primary – Secondary – Vent)

**10** : 10mm    **32** : 31.8mm  
**14** : 14mm    **38** : 38.1mm  
**20** : 19mm    **50** : 50mm  
**25** : 25mm

**B** : Ball Valve  
**N** : Needle Valve  
**O** : OS & Y Needle Valve  
**G** : Gate Valve

### (3) Connection Detail (Inlet – Pressure Class – Outlet)

**R-** : Raised Face  
**F-** : Flat Face  
**J-** : Ring Type Joint  
**BW-** : Butt Weld  
**SW-** : Socket Weld  
**PE-** : Plain End

**-R** : PT  
**-N** : NPT  
**-G** : PF

**8** : 1/2" (DN-15)  
**12** : 3/4" (DN-20)  
**16** : 1" (DN-25)  
**20** : 1-1/4" (DN-32)  
**24** : 1-1/2" (DN-40)  
**32** : 2" (DN-50)

**A** : CLASS 150  
**B** : CLASS 300  
**C** : CLASS 600  
**D** : CLASS 900  
**E** : CLASS 1500  
**F** : CLASS 2500  
**S** : CLASS 800

### (4)(8) Trim / Body Material

**S6** : SS316/316L  
**S6L** : SS316L  
**S4** : SS304  
**D** : UNS S31803  
**SD** : UNS S32750

**S630** : SS630  
**A400** : Monel 400  
**A625** : Inconel 625  
**A825** : Inconel 825  
**AB** : AL-Bronze

**LF2** : A350 LF2  
**105** : A105  
**15N** : A105N

### (5) Seat Material

**TE** : PTFE  
**T1** : GLASS 15% PTFE  
**T2** : GLASS 25% PTFE  
**T3** : CARBON 15% PTFE  
**T4** : CARBON 25% PTFE

**PK** : PEEK  
**PC** : PCTFE  
**DEV** : DEVLON  
**NY6** : NYLON-6  
**PM** : POM

**TCC** : METAL (SS316 + T.C.C)  
**STL** : METAL (SS316 + STELLITE)

### (6) O-Ring Material

**NBR** : NBR  
**HNB** : HNBR  
**VT** : VITON (FKM)

**EP** : EPDM  
**KA** : KALREZ (FFKM)

**-A** : AED

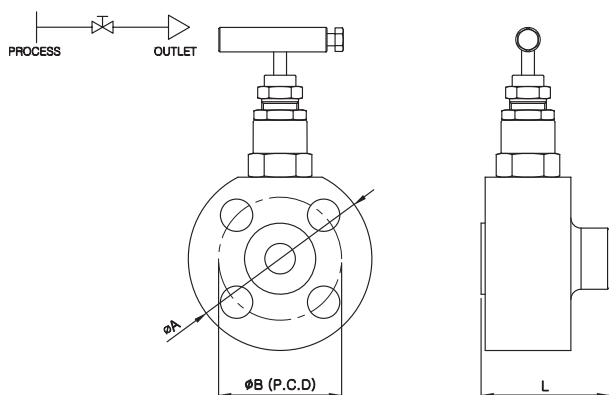
### (7) Option

**FS** : Fire Safety  
**LD** : Locking Device  
**AT** : Anti-Tamper Key  
**SP** : Sampling Probe  
**IQ** : Injection Quill

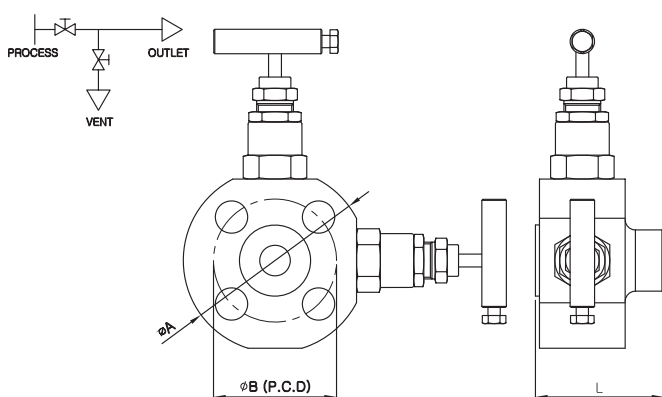
**FEA** : Fugitive Class-A  
**FEB** : Fugitive Class-B  
**WO** : Welding Overlay  
**WP** : Vent Plug  
**WF** : Vent Flange

**LBT** : Long Bonnet  
**V4N** : Vent 1/4" NPT  
**LT** : Low Temperature Service  
**CY** : Cryogenic Service

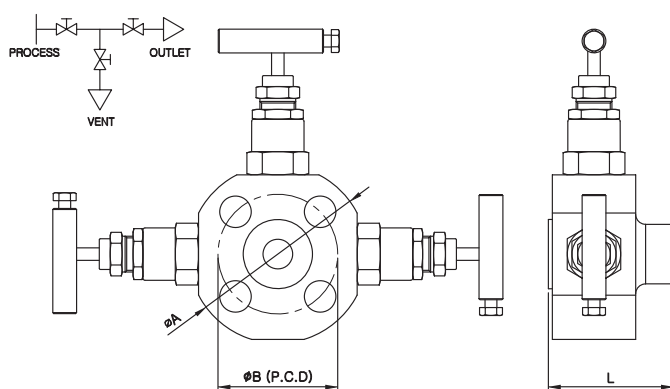
# SMNF Series Mono Flanged Valves



SMNF1P-A



SMNF2P-A



SMNF3P-A



## Dimensions

| Size<br>(Inch) | Pressure Rating<br>(Class) | Dimension (mm) |          |          |
|----------------|----------------------------|----------------|----------|----------|
|                |                            | L (RF)         | $\phi A$ | $\phi B$ |
| 1/2            | 150                        | 63             | 90       | 60.3     |
|                | 300                        | 63             | 95       | 66.7     |
|                | 600                        | 68             | 95       | 66.7     |
|                | 900/1500                   | 68             | 120      | 82.6     |
|                | 2500                       | 68             | 135      | 88.9     |
| 3/4            | 150                        | 63             | 100      | 69.9     |
|                | 300                        | 63             | 115      | 82.6     |
|                | 600                        | 68             | 115      | 82.6     |
|                | 900/1500                   | 68             | 130      | 88.9     |
|                | 2500                       | 72             | 140      | 95.2     |
| 1              | 150                        | 63             | 110      | 79.4     |
|                | 300                        | 63             | 125      | 88.9     |
|                | 600                        | 68             | 125      | 88.9     |
|                | 900/1500                   | 72             | 150      | 101.6    |
|                | 2500                       | 72             | 160      | 108.0    |
| 1-1/2          | 150                        | 63             | 125      | 98.4     |
|                | 300                        | 68             | 155      | 114.3    |
|                | 600                        | 72             | 155      | 114.3    |
|                | 900/1500                   | 72             | 180      | 123.8    |
|                | 2500                       | 78             | 205      | 146.0    |
| 2              | 150                        | 68             | 150      | 120.7    |
|                | 300                        | 68             | 165      | 127.0    |
|                | 600                        | 72             | 165      | 127.0    |
|                | 900/1500                   | 72             | 215      | 165.1    |
|                | 2500                       | 78             | 235      | 171.4    |

\* Dimensions are for reference only and are subject to change.

## Ordering Information



### (1) Valve Model & Body Type

**SMNF**: Mono Flange Valves

**1P** : Block Valve  
**2P** : Single Block & Bleed Valves  
**3P** : Double Block & Bleed Valves

### (2) Valve Type (Primary – Secondary – Vent)

| Valve type |   | Primary Valve | Secondary Valve | Bleed Valve   |
|------------|---|---------------|-----------------|---------------|
| <b>1P</b>  | A | Bolted Needle | -               | -             |
|            | B | OS&Y Needle   | -               | -             |
| <b>2P</b>  | A | Bolted Needle | -               | Bolted Needle |
|            | B | OS&Y Needle   | -               | Bolted Needle |
| <b>3P</b>  | A | Bolted Needle | Bolted Needle   | Bolted Needle |
|            | B | OS&Y Needle   | Bolted Needle   | Bolted Needle |
|            | C | OS&Y Needle   | OS&Y Needle     | Bolted Needle |

### (3) Connection Detail (Inlet – Pressure Class – Outlet)

|                             |                 |                            |                       |
|-----------------------------|-----------------|----------------------------|-----------------------|
| <b>R-</b> : Raised Face     | <b>-R</b> : PT  | <b>8</b> : 1/2" (DN-15)    | <b>A</b> : CLASS 150  |
| <b>F-</b> : Flat Face       | <b>-N</b> : NPT | <b>12</b> : 3/4" (DN-20)   | <b>B</b> : CLASS 300  |
| <b>J-</b> : Ring Type Joint | <b>-G</b> : PF  | <b>16</b> : 1" (DN-25)     | <b>C</b> : CLASS 600  |
|                             |                 | <b>20</b> : 1-1/4" (DN-32) | <b>D</b> : CLASS 900  |
|                             |                 | <b>24</b> : 1-1/2" (DN-40) | <b>E</b> : CLASS 1500 |
|                             |                 | <b>32</b> : 2" (DN-50)     | <b>F</b> : CLASS 2500 |

### (4) Packing Material

**TE** : PTFE  
**GF** : GRAPHITE

### (5) Option

|                             |                               |
|-----------------------------|-------------------------------|
| <b>FS</b> : Fire Safety     | <b>FEA</b> : Fugitive Class-A |
| <b>LD</b> : Locking Device  | <b>FEB</b> : Fugitive Class-B |
| <b>AT</b> : Anti-Tamper Key | <b>V4N</b> : Vent 1/4" NPT    |
| <b>WP</b> : Vent Plug       |                               |

### (6) Body Material

|                        |                            |                       |
|------------------------|----------------------------|-----------------------|
| <b>S6</b> : SS316/316L | <b>S630</b> : SS630        | <b>LF2</b> : A350 LF2 |
| <b>S6L</b> : SS316L    | <b>A400</b> : Monel 400    | <b>105</b> : A105     |
| <b>S4</b> : SS304      | <b>A625</b> : Inconel 625  | <b>15N</b> : A105N    |
| <b>D</b> : UNS S31803  | <b>A825</b> : Inconel 825c |                       |
| <b>SD</b> : UNS S32750 | <b>AB</b> : AL-Bronze      |                       |



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