

# Block and Bleed Valves

BB, DB, SB and DBB Series



Manifolds

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## Overview

### Features

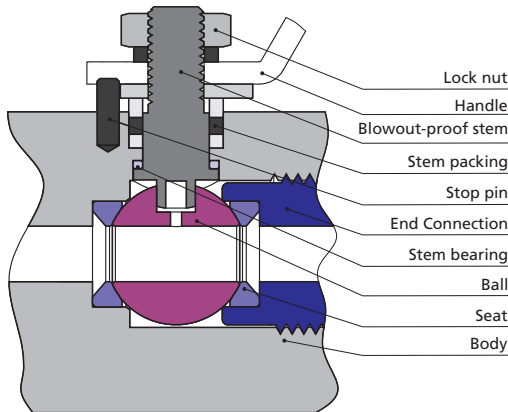
- ⦿ Integral type, split type or wafer type body construction available
- ⦿ Multiple functions available: double block and bleed, single block and bleed, double block, single block, injection and sampling
- ⦿ Compact design, weight, space and cost savings
- ⦿ Each valve is leak tested to a requirement in accordance with API 598
- ⦿ Optional fire-safe design to API-607, anti-static design to EN 12266-2 and NACE MR0175 compliance

### Design Codes

ASME B16.34	Valves-Flanged, Threaded and Welding End
ASME B16.5	Pipe Flanges and Flanged Fittings
ASME B1.20.1	Pipe Threads, General Purpose
ASME B16.25	Buttwelding Ends
NACE MR 0175/ ISO 15156	Petroleum and Natural Gas Industries-Materials for use in H <sub>2</sub> S-containing Environments in Oil and Gas Production
API 598	Valve Inspection and Testing
API 607	Fire Test for Soft-Seated Quarter Turn Valves Testing of Valves
MSS SP-25	Standard Marking System for Valves, Fittings, Flanges and Unions
EN 12266-2	Industrial valves - Testing of metallic valves - Part 2: Tests, test procedures and acceptance criteria - Supplementary requirements.
EN 1092-1	Flanges and their joints - Circular flanges for pipes, valves, fittings and accessories, PN designated - Part 1: Steel flanges
MSS SP-97	Integrally Reinforced Forged Branch outlet Fittings-Socket Welding, Threaded, and Buttwelding Ends
ISO 17292	Metal ball valves for petroleum petrochemical and allied industries

## Module Structures and Features

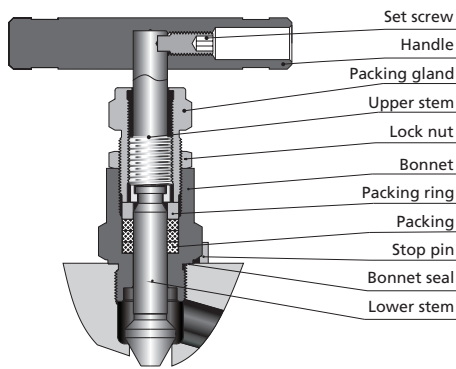
### Ball Valve



### Designator: B

- ⊙ Pressure rating up to Class 2500
- ⊙ Bore sizes: NPS 3/8~NPS 2 (DN10~DN50)
- ⊙ Working temperature: -65°F to 450°F (-54°C to 232°C)
- ⊙ Side-loaded stem prevents stem blowout and enhances system safety
- ⊙ High-strength stem bearing provides smooth actuation and eliminates galling between valve stem and body
- ⊙ Packing adjustment may be required during the service life of the valves
- ⊙ Designed to be used in the fully open or fully closed position
- ⊙ Floating ball design to ensure the tightness under high pressure

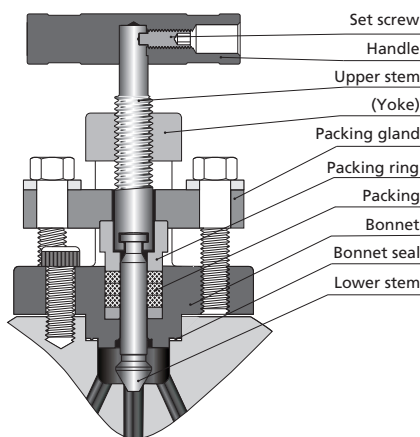
### Screwed Bonnet Needle Valve



### Designator: N

- ⊙ Pressure rating up to Class 4500
- ⊙ Bore sizes: 4 mm, 6.4 mm, 9.5 mm
- ⊙ Working temperature:
  - PTFE packing: -65°F to 450°F (-54 °C to 232°C)
  - Graphite packing: -65°F to 1200°F (-54°C to 649°C)
- ⊙ Upper stem threads cold rolled and lower stem surface hardened for high strength and smooth operation
- ⊙ Upper stem thread lubricant isolated from system media
- ⊙ Two-piece stem design: Linear instead of rotary motion of the rising, non-rotating stem minimizes packing abrasion and reduces the friction between the seat and the tip
- ⊙ Safety back seating seal in fully open position

### Outside Screw and Yoke (OS&Y) Needle Valve



### Designator: O

- ⊙ Pressure rating up to Class 2500
- ⊙ Bore Size: 4 mm
- ⊙ Working temperature:
  - PTFE packing: -65°F to 450°F (-54°C to 232°C)
  - Graphite packing: -65°F to 1200°F (-54°C to 649°C)
- ⊙ Upper stem threads cold rolled and lower stem surface hardened for high strength and smooth operation
- ⊙ Upper stem thread lubricant isolated from system media
- ⊙ Two-piece stem design: Linear instead of rotary motion of the rising, non-rotating stem minimizes packing abrasion and reduces the friction between the seat and the tip
- ⊙ Bolted bonnet enhances strength and reliability
- ⊙ Adjustable gland flange allows easy access to the packing gland and packing adjustment for an effective stem seal
- ⊙ Investment case yoke is formed by precision casting which enhances strength and perfect stem alignment

### ⊙ Handle colors indicate functions:

Ball Valves:

YELLOW=Isolation/Block    RED=Bleed/Vent

Screwed Bonnet Needle Valves:

BLACK=Isolation/Block    RED=Bleed/Vent

Bolted OS&Y Needle Valves:

BLACK=Isolation/Block    RED=Bleed/Vent

## Standard Materials of Construction

Material		316 SS	316L SS	Carbon Steel	Low Alloy Steel	Duplex Steel
Component	Body	F316 / A182	F316L / A182	A105	LF2 / A350	F53 / A182
	Ball	316 / A479	316L / A479	316 / A479	316 / A479	S32750 / A479
Ball Valve	Stem	316 / A479	316L / A479	316 / A479	316 / A479	S32750 / A479
	End connection	316 / A479	316L / A479	316 / A479	316 / A479	S32750 / A479
	Seat	PEEK				
	Body Seal	Graphite or PTFE				
	Stem Packing	Graphite or PTFE				
	Screwed Bonnet Needle Valves	Lower Stem	316 / A479	316L / A479	316 / A479	316 / A479
Screwed Bonnet Needle Valves	Bonnet	316 / A479	316L / A479	316 / A479	316 / A479	S32750 / A479
	Bonnet Seal	316L / A269	316L / A269	316L / A269	316L / A269	S32750 / A790
	Stem Packing	Graphite or PTFE				
	OS&Y Needle Valves	Lower Stem	316 / A479	316L / A479	316 / A479	316 / A479
OS&Y Needle Valves	Bonnet	F316 / A182	F316L / A182	A105	LF2 / A350	F53 / A182
	Bonnet Seal	316L / A269	316L / A269	316L / A269	316L / A269	S32750 / A790
	Stem Packing	Graphite or PTFE				

## Pressure - Temperature Ratings

© Ratings are taken from ASME B16.34, Table 2-2.2 and Table VII-2-2.2. The rating data are based on stainless steel F316.

Temp. (°C)	ASME Rating							Temp. (°F)	ASME Rating						
	150	300	600	900	1500	2500	4500		150	300	600	900	1500	2500	4500
	Working Pressure (bar)								Working Pressure (psig)						
-29~38	19.0	49.6	99.3	148.9	248.2	413.7	744.6	-20~100	275	720	1440	2160	3600	6000	10800
50	18.4	48.1	96.2	144.3	240.6	400.9	721.7	200	235	620	1240	1860	3095	5160	9290
100	16.2	42.2	84.4	126.6	211.0	351.6	632.9	300	215	560	1120	1680	2795	4660	8390
150	14.8	38.5	77.0	115.5	192.5	320.8	577.4	400	195	515	1025	1540	2570	4280	7705
200	13.7	35.7	71.3	107.0	178.3	297.2	534.9	500	170	480	955	1435	2390	3980	7165
250	12.1	33.4	66.8	100.1	166.9	278.1	500.6	600	140	450	900	1355	2255	3760	6770
300	10.2	31.6	63.2	94.9	158.1	263.5	474.3	650	125	440	885	1325	2210	3680	6625
325	9.3	30.9	61.8	92.7	154.4	257.4	463.3	700	110	435	870	1305	2170	3620	6515
350	8.4	30.3	60.7	91.0	151.6	252.7	454.9	750	95	425	855	1280	2135	3560	6410
375	7.4	29.9	59.8	89.6	149.4	249.0	448.2	800	80	420	845	1265	2110	3520	6335
400	6.5	29.4	58.9	88.3	147.2	245.3	441.6	850	65	420	835	1255	2090	3480	6365
425	5.5	29.1	58.3	87.4	145.7	242.9	437.1	900	50	415	830	1245	2075	3460	6230
450	4.6	28.8	57.7	86.5	144.2	240.4	432.7	950	35	385	775	1160	1930	3220	5795
475	3.7	28.7	57.3	86.0	143.4	238.9	430.1	1000	20	365	725	1090	1820	3030	5450
500	2.8	28.2	56.5	84.7	140.9	235.0	423.0								
538	1.4	25.2	50.0	75.2	125.5	208.9	375.8								

## C-32 Block and Bleed Valves

⊙ Ratings are taken from ASME B16.34, Table 2-2.3 and Table VII-2-2.3. The rating data are based on F316L stainless steel.

Temp. (°C)	ASME Rating							Temp. (°F)	ASME Rating						
	150	300	600	900	1500	2500	4500		150	300	600	900	1500	2500	4500
	Working Pressure (bar)								Working Pressure (psig)						
-29~38	15.9	41.4	82.7	124.1	206.8	344.7	620.5	-20~100	230	600	1200	1800	3000	5000	9000
50	15.3	40.0	80.0	120.1	200.1	333.5	600.3	200	195	510	1020	1535	2555	4260	7670
100	13.3	34.8	69.6	104.4	173.9	289.9	521.8	300	175	455	910	1370	2280	3800	6840
150	12.0	31.4	62.8	94.2	157.0	261.6	470.9	400	160	420	840	1260	2100	3500	6300
200	11.2	29.2	58.3	87.5	145.8	243.0	437.3	500	150	395	785	1180	1970	3280	5905
250	10.5	27.5	54.9	82.4	137.3	228.9	412.0	600	140	370	745	1115	1860	3100	5580
300	10.0	26.1	52.1	78.2	130.3	217.2	391.0	650	125	365	730	1095	1825	3040	5470
325	9.3	25.5	51.0	76.4	127.4	212.3	382.2	700	110	360	720	1080	1800	3000	5400
350	8.4	25.1	50.1	75.2	125.4	208.9	376.1	750	110	355	705	1060	1765	2940	5290
375	7.4	24.8	49.5	74.3	123.8	206.3	371.3	800	80	345	690	1035	1730	2880	5185
400	6.5	24.3	48.6	72.9	121.5	202.5	364.6	850	65	340	675	1015	1690	2820	5075
425	5.5	23.9	47.7	71.6	119.3	198.8	357.9								
450	4.6	23.4	46.8	70.2	117.1	195.1	351.2								

⊙ Ratings are taken from ASME B16.34, Table 2-1.1 and Table VII-2-1.1. The rating data are based on A105/A350 LF2  
(Not recommended for use above 425°C).

Temp. (°C)	ASME Rating							Temp. (°F)	ASME Rating						
	150	300	600	900	1500	2500	4500		150	300	600	900	1500	2500	4500
	Working Pressure (bar)								Working Pressure (psig)						
-29~38	19.6	51.1	102.1	153.2	255.3	425.5	765.9	-20~100	285	740	1480	2220	3705	6170	11110
50	19.2	50.1	100.2	150.4	250.6	417.7	751.9	200	260	680	1360	2035	3395	5655	10185
100	17.7	46.6	93.2	139.8	233.0	388.3	699.0	300	230	655	1310	1965	3270	5450	9815
150	15.8	45.1	90.2	135.2	225.4	375.6	676.1	400	200	635	1265	1900	3170	5280	9505
200	13.8	43.8	87.6	131.4	219.0	365.0	657.0	500	170	605	1205	1810	3015	5025	9040
250	12.1	41.9	83.9	125.8	209.7	349.5	629.1	600	140	570	1135	1705	2840	4730	8515
300	10.2	39.8	79.6	119.5	199.1	331.8	597.3	650	125	550	1100	1650	2745	4575	8240
325	9.3	38.7	77.4	116.1	193.6	322.6	580.7	700	110	530	1065	1590	2665	4425	7960
350	8.4	37.6	75.1	112.7	187.8	313.0	563.5	750	95	505	1015	1520	2535	4230	7610
375	7.4	36.4	72.7	109.1	181.8	303.1	545.5	800	80	410	825	1235	2055	3430	6170
400	6.5	34.7	69.4	104.2	173.6	289.3	520.8	850	65	320	640	955	1595	2655	4785
425	5.5	28.8	57.5	86.3	143.8	239.7	431.5	900	50	230	460	690	1150	1915	3455
450	4.6	23.0	46.0	69.0	115.0	191.7	345.1	950	35	135	275	410	685	1145	2055
475	3.7	17.4	34.9	52.3	87.2	145.3	261.5	1000	20	85	170	255	430	715	1285
500	2.8	11.8	23.5	35.3	58.8	97.9	176.3								
538	1.4	5.9	11.8	17.7	29.5	49.2	88.6								

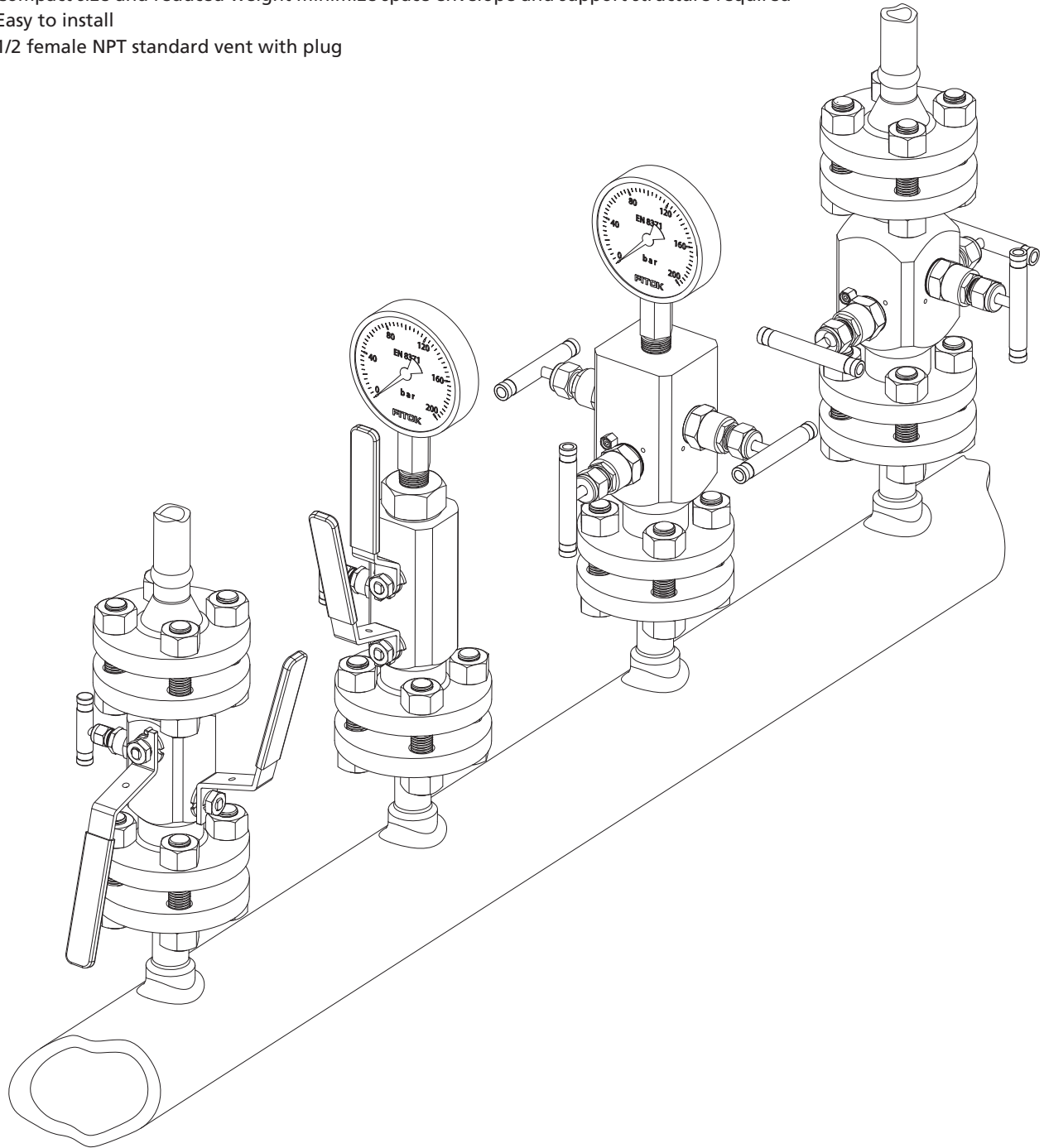
© Ratings are taken from ASME B16.34, Table 2-2.8 and Table VII-2-2.8. The rating data are based on F51  
 (Not recommended for use above 315 °C).

Temp. (°C)	ASME Rating							Temp. (°F)	ASME Rating						
	150	300	600	900	1500	2500	4500		150	300	600	900	1500	2500	4500
	Working Pressure (bar)								Working Pressure (psig)						
-29~38	20.0	51.7	103.4	155.1	258.6	430.9	775.7	-20~100	290	750	1500	2250	3750	6250	11250
50	19.5	51.7	103.4	155.1	258.6	430.9	775.7	200	260	745	1490	2230	3720	6200	11160
100	17.7	50.7	101.3	152.0	253.3	422.2	759.9	300	230	665	1335	2000	3335	5560	10010
150	15.8	45.9	91.9	137.8	229.6	382.7	688.9	400	200	615	1230	1845	3070	5120	9215
200	13.8	42.7	85.3	128.0	213.3	355.4	639.8	500	170	580	1160	1740	2905	4840	8710
250	12.1	40.5	80.9	121.4	202.3	337.2	606.9	600	140	555	1115	1670	2785	4640	8350
300	10.2	38.9	77.7	116.6	194.3	323.8	582.8	650	125	545	1095	1640	2735	4560	8210
325	9.3	38.2	76.3	114.5	190.8	318.0	572.5	700	110	540	1085	1625	2710	4520	8135
350	8.4	37.6	75.3	112.9	188.2	313.7	564.7	750	95	530	1065	1595	2660	4430	7970
375	7.4	37.4	74.7	112.1	186.8	311.3	560.3								
400	6.5	36.5	73.3	109.8	183.1	304.9	548.5								

# Integral Type Flange Block and Bleed Valves

## Features

- ⦿ Bore sizes: NPS 3/8~NPS 3/4 (DN10~DN20)
- ⦿ Flanges are forged integrally with the body
- ⦿ Smooth transition from the process piping system to instrumentation in a single configuration
- ⦿ Compact size and reduced weight minimize space envelope and support structure required
- ⦿ Easy to install
- ⦿ 1/2 female NPT standard vent with plug




Manifolds

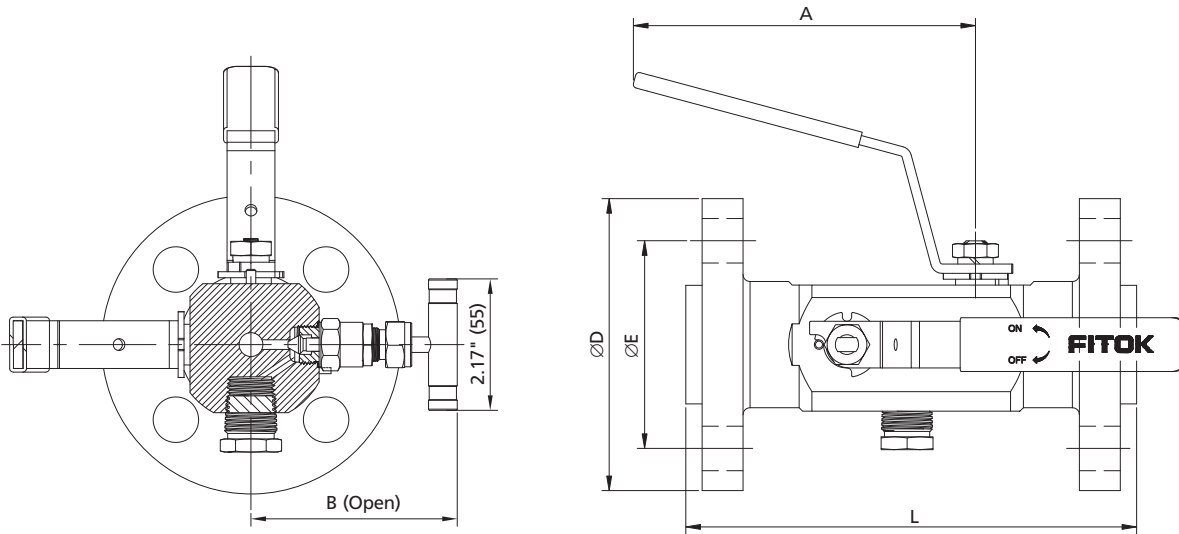



## Valve Types and Dimensions

### Double Block and Bleed Valves (DBB)

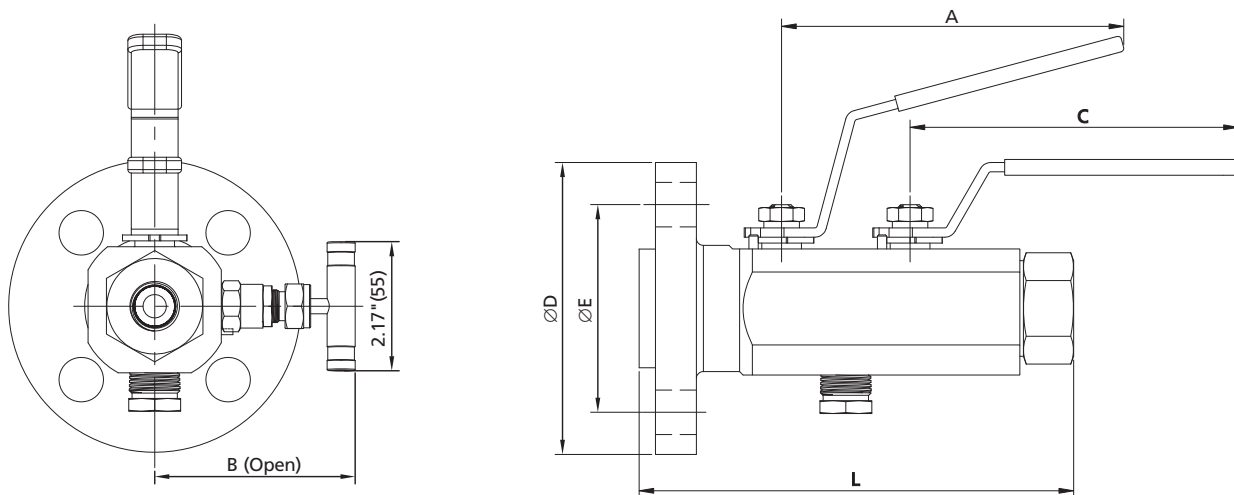
☉ Configuration (BBN): ball isolate, ball isolate, needle vent  Connection: Flange+Flange

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DBB□□-□BBN□-FM□□□□-V8	RF Flange	RF Flange	1/2 Female NPT	See Tables 1-3
DBB□□-□BBN□-FJ□□□□-V8	RJ Flange	RJ Flange	1/2 Female NPT	




☉ Configuration (BBN): ball isolate, ball isolate, needle vent  Connection: Flange+Thread

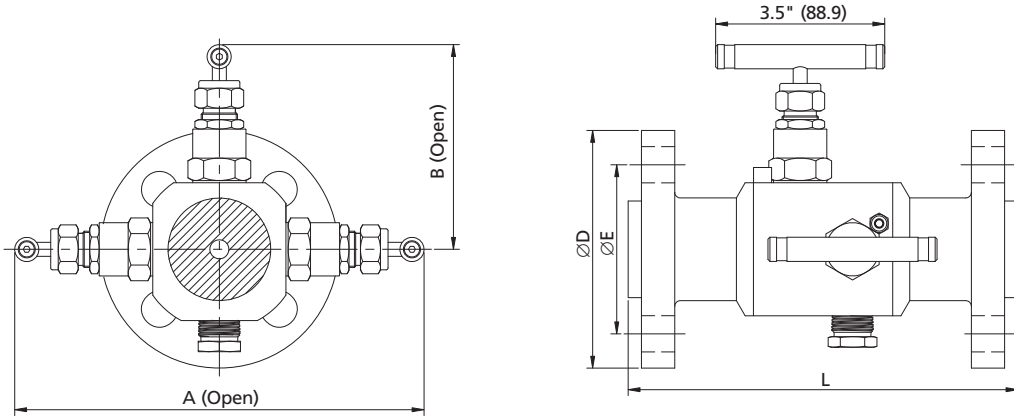
Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DBB□□-□BBN□-FM□□□□-FNS□-V8	RF Flange	Female NPT	1/2 Female NPT	See Tables 1-3
DBB□□-□BBN□-FJ□□□□-FNS□-V8	RJ Flange	Female NPT	1/2 Female NPT	




## C-36 Block and Bleed Valves

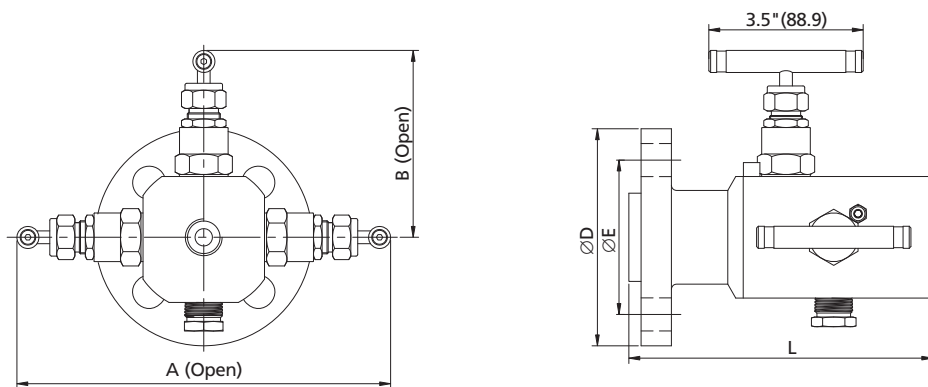
⊙ Configuration (NNN): needle isolate, needle isolate, needle vent  Connection: Flange+Flange

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DBB□□-2NNN-FM□□□□-V8	RF Flange	RF Flange	1/2 Female NPT	See Table 4
DBB□□-2NNN-FJ□□□□-V8	RJ Flange	RJ Flange	1/2 Female NPT	



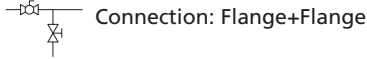
⊙ Configuration (NNN): needle isolate, needle isolate, needle vent  Connection: Flange+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DBB□□-2NNN-FM□□□□-FNS□-V8	RF Flange	Female NPT	1/2 Female NPT	See Table 4
DBB□□-2NNN-FJ□□□□-FNS□-V8	RJ Flange	Female NPT	1/2 Female NPT	

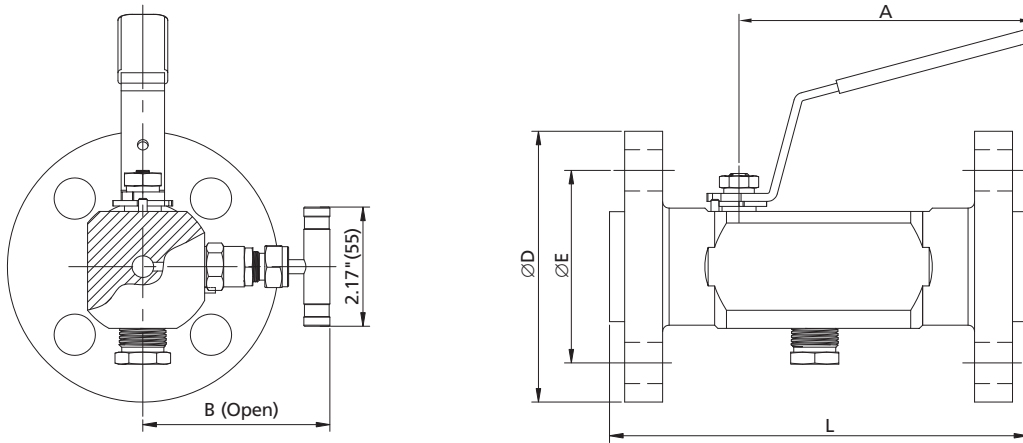


Single Block and Bleed Valves (BB)

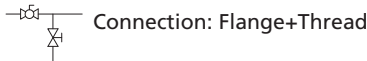
☉ Configuration (BN): ball isolate, needle vent



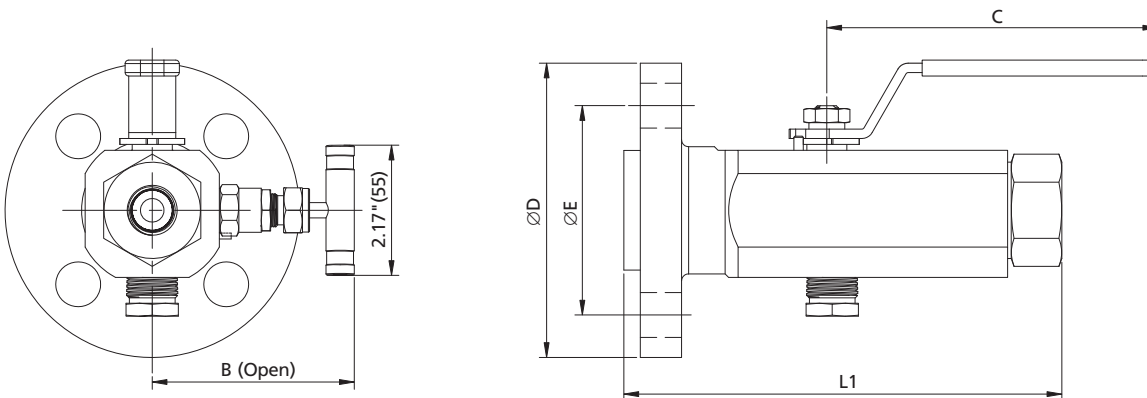
Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
BB□□-□BN□-FM□□□□-V8	RF Flange	RF Flange	1/2 Female NPT	See Tables 1-3
BB□□-□BN□-FJ□□□□-V8	RJ Flange	RJ Flange	1/2 Female NPT	



☉ Configuration (BN): ball isolate, needle vent



Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
BB□□-□BN□-FM□□□□-FNS□-V8	RF Flange	Female NPT	1/2 Female NPT	See Tables 1-3
BB□□-□BN□-FJ□□□□-FNS□-V8	RJ Flange	Female NPT	1/2 Female NPT	



Manifolds

## C-38 Block and Bleed Valves

Table 1: Flange Options and Dimensions for 3/8 in. (9.5 mm) Bore Size (Ball/Needle)

Flange Size	ASME Class	Dimensions, in. (mm)								
		A	B	C	L			L1	ØD	ØE
					RF Flange	RJ Flange	Flange/NPT	Flange/NPT		
NPS1/2 (DN15)	150	5.75 (146)	3.48 (88.5)	5.51 (140)	6.41 (163)	6.41 (163)	6.61 (168)	4.72 (120)	3.54 (90)	2.37 (60.3)
	300				6.81 (173)	6.81 (173)	7.09 (180)	5.12 (130)	3.74 (95)	2.63 (66.7)
	600				7.32 (186)	5.35 (136)	4.72 (120)	3.25 (82.6)		
	900/1500						7.99 (203)	7.99 (203)	7.87 (200)	5.91 (150)
	2500				7.99 (203)	7.99 (203)	7.99 (203)	6.22 (158)	5.31 (135)	3.50 (88.9)
NPS3/4 (DN20)	150				6.41 (163)	6.41 (163)	6.89 (175)	5.04 (128)	3.94 (100)	2.75 (69.9)
	300				6.81 (173)	6.81 (173)	7.20 (183)	5.24 (133)	4.53 (115)	3.25 (82.6)
	600						7.40 (188)	5.43 (138)		
	900/1500				7.99 (203)	7.99 (203)	7.95 (202)	5.98 (152)	5.12 (130)	3.50 (88.9)
	2500				7.99 (203)	7.99 (203)	8.19 (208)	6.22 (158)	5.51 (140)	3.75 (95.2)
NPS1 (DN25)	150				6.41 (163)	6.41 (163)	6.89 (175)	5.12 (130)	4.33 (110)	3.13 (79.4)
	300				7.01 (178)	7.01 (178)	7.09 (180)			
	600				7.60 (193)	7.60 (193)	7.32 (186)	5.35 (136)	4.92 (125)	3.50 (88.9)
	900/1500				10.3 (261)	10.3 (261)	8.07 (205)	6.10 (155)	5.91 (150)	4.00 (101.6)
	2500				10.6 (273)	10.6 (273)	8.35 (212)	6.38 (162)	6.30 (160)	4.25 (108.0)
NPS1-1/2 (DN40)	150				8.90 (226)	8.90 (226)	7.01 (178)	4.96 (126)	4.92 (125)	3.87 (98.4)
	300				9.89 (251)	9.89 (251)	7.28 (185)	5.31 (135)	6.10 (155)	4.50 (114.3)
	600						7.60 (193)	5.63 (143)		
	900/1500				11.5 (291)	11.5 (291)	8.31 (211)	6.34 (161)	7.09 (180)	4.87 (123.8)
	2500				12.4 (316)	12.4 (316)	8.86 (225)	6.89 (175)	8.07 (205)	5.75 (146)
NPS2 (DN50)	150				9.09 (231)	9.09 (231)	7.01 (178)	5.24 (133)	5.91 (150)	4.75 (120.7)
	300				10.1 (256)	10.1 (256)	7.48 (190)	5.51 (140)	6.49 (165)	5.00 (127.0)
	600						7.83 (199)	5.87 (149)		
	900/1500				12.0 (306)	12.0 (306)	8.78 (223)	6.81 (173)	8.46 (215)	6.50 (165.1)
	2500				13.6 (346)	13.6 (346)	9.06 (230)	7.09 (180)	9.25 (235)	6.75 (171.4)

Table 2: Flange Options and Dimensions for 1/2 in. (14 mm) Bore Size (Ball/Needle)

Flange Size	ASME Class	Dimensions, in. (mm)								
		A	B	C	L			L1	ØD	ØE
					RF Flange	RJ Flange	Flange/NPT	Flange/NPT		
NPS1 (DN25)	150	6.73 (171)	3.68 (93.5)	6.5 (165)	9.10 (231)	9.10 (231)	8.54 (217)	5.87 (149)	4.33 (110)	3.13 (79.4)
	300				9.49 (241)	9.49 (241)	8.66 (220)	5.98 (152)	4.92 (125)	3.50 (88.9)
	600						8.74 (222)	6.06 (154)		
	900/1500				10.3 (261)	10.3 (261)	9.53 (242)	6.85 (174)	5.91 (150)	4.00 (101.6)
	2500				10.7 (273)	10.7 (273)	9.80 (249)	7.13 (181)	6.30 (160)	4.25 (108.0)
NPS1-1/2 (DN40)	150				9.49 (241)	9.49 (241)	8.07 (205)	5.87 (149)	4.92 (125)	3.87 (98.4)
	300				9.89 (251)	9.89 (251)	8.74 (222)	6.06 (154)	6.10 (155)	4.50 (114.3)
	600						9.02 (229)	6.34 (161)		
	900/1500				11.5 (291)	11.5 (291)	9.61 (244)	6.93 (176)	7.09 (180)	4.87 (123.8)
	2500				12.4 (316)	12.4 (316)	10.2 (259)	7.52 (191)	8.07 (205)	5.75 (146)
NPS2 (DN50)	150				9.49 (241)	9.49 (241)	8.15 (207)	5.91 (150)	5.91 (150)	4.75 (120.7)
	300				10.3 (261)	10.3 (261)	8.46 (215)	6.06 (154)	6.49 (165)	5.00 (127.0)
	600						8.86 (225)	6.93 (176)		
	900/1500				12.0 (306)	12.0 (306)	9.61 (244)	7.09 (180)	8.46 (215)	6.50 (165.1)
	2500				13.6 (346)	13.6 (346)	10.1 (256)	7.60 (193)	9.25 (235)	6.75 (171.4)

Table 3: Flange Options and Dimensions for 3/4 in. (20 mm) Bore Size (Ball/Needle)

Flange Size	ASME Class	Dimensions, in. (mm)								
		A	B	C	L			L1	ØD	ØE
					RF Flange	RJ Flange	Flange/NPT	Flange/NPT		
NPS1-1/2 (DN40)	150	6.73 (171)	3.88 (98.5)	6.5 (165)	8.94 (227)	8.94 (227)	9.13 (232)	6.3 (160)	4.92 (125)	3.87 (98.4)
	300				9.41 (239)	9.41 (239)	9.41 (239)	6.57 (167)	6.10 (155)	4.50 (114.3)
	600				10.04 (255)	10.04 (255)	9.69 (246)	6.85 (174)		
	900/1500				12.05 (306)	12.05 (306)	10.39 (264)	7.56 (192)	7.09 (180)	4.87 (123.8)
	2500				12.99 (330)	12.99 (330)	10.87 (276)	8.03 (204)	8.07 (205)	5.75 (146)
NPS2 (DN50)	150				8.86 (225)	8.86 (225)	9.06 (230)	6.22 (158)	5.91 (150)	4.75 (120.7)
	300				9.37 (238)	9.37 (238)	9.33 (237)	6.49 (165)	6.49 (165)	5.00 (127.0)
	600						10.24 (260)	10.24 (260)		
	900/1500				12.60 (320)	12.60 (320)	11.02 (280)	7.64 (194)	8.46 (215)	6.50 (165.1)
	2500				13.7 (348)	13.7 (348)	11.42 (290)	8.27 (210)	9.25 (235)	6.75 (171.4)

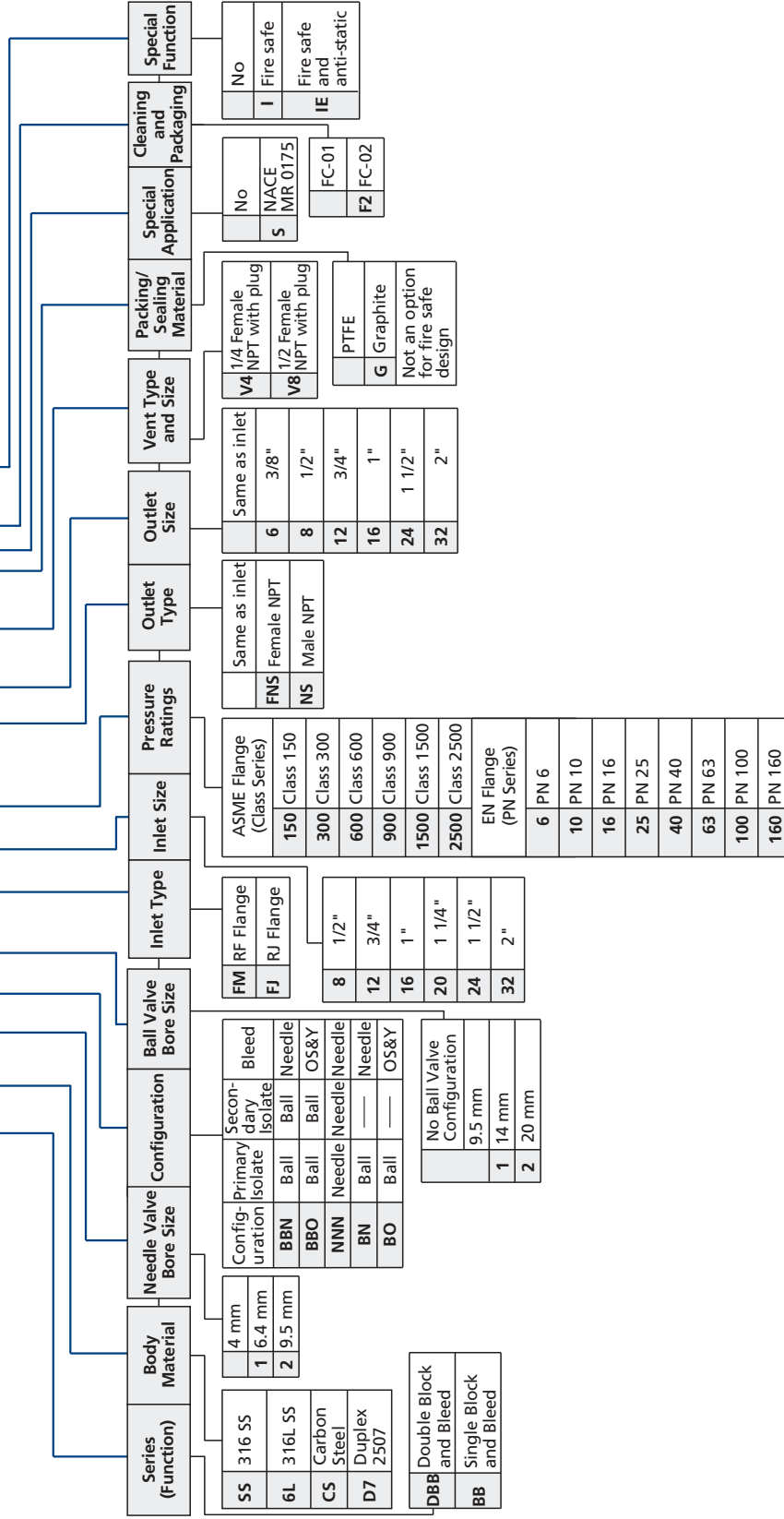
## C-40 Block and Bleed Valves

Table 4: Flange Options and Dimensions for 3/8 in. (9.5 mm) Bore Size (Needle)

Flange Size	ASME Class	Dimensions, in. (mm)								
		A	B	L			ØD	ØE		
				RF Flange	RJ Flange	Flange/NPT				
NPS1/2 (DN15)	150	9.17 (233)	4.59 (116.5)	6.89 (175)	6.89 (175)	6.10 (155)	3.54 (90)	2.37 (60.3)		
	300			7.28 (185)	7.28 (185)	6.30 (160)	3.74 (95)	2.63 (66.7)		
	600			8.46 (215)	8.46 (215)	6.89 (175)	4.72 (120)	3.25 (82.6)		
	900/1500			9.25 (235)	9.25 (235)	7.28 (185)	5.31 (135)	3.50 (88.9)		
	2500			6.89 (175)	6.89 (175)	6.10 (155)	3.94 (100)	2.75 (69.9)		
NPS3/4 (DN20)	150					7.28 (185)	7.28 (185)	6.30 (160)	4.53 (115)	3.25 (82.6)
	300					7.87 (200)	7.87 (200)	6.69 (170)		
	600					8.66 (225)	8.66 (225)	7.09 (180)	5.12 (130)	3.50 (88.9)
	900/1500					9.45 (240)	9.45 (240)	7.48 (190)	5.51 (140)	3.75 (95.2)
	2500					6.89 (175)	6.89 (175)	6.10 (155)	4.33 (110)	3.13 (79.4)
NPS1 (DN25)	150					7.28 (185)	7.28 (185)	6.30 (160)	4.92 (125)	3.50 (88.9)
	300					8.07 (205)	8.07 (205)	6.89 (175)		
	600					10.04 (255)	10.04 (255)	7.68 (195)	5.91 (150)	4.00 (101.6)
	900/1500					10.24 (260)	10.24 (260)	7.87 (200)	6.30 (160)	4.25 (108.0)
	2500					7.09 (180)	7.09 (180)	6.30 (160)	4.92 (125)	3.87 (98.4)
NPS1-1/2 (DN40)	150					8.67 (220)	8.67 (220)	6.89 (175)	6.10 (155)	4.50 (114.3)
	300					8.86 (225)	8.86 (225)	7.28 (185)		
	600					10.43 (265)	10.43 (265)	7.87 (200)	7.09 (180)	4.87 (123.8)
	900/1500					12.20 (310)	12.20 (310)	8.86 (225)	8.07 (205)	5.75 (146)
	2500					7.68 (195)	7.68 (195)	6.69 (170)	5.91 (150)	4.75 (120.7)
NPS2 (DN50)	150					8.67 (220)	8.67 (220)	7.09 (180)	6.49 (165)	5.00 (127.0)
	300					9.06 (230)	9.06 (230)	7.48 (190)		
	600					11.42 (290)	11.42 (290)	8.67 (220)	8.46 (215)	6.50 (165.1)
	900/1500					12.60 (320)	12.60 (320)	9.06 (230)	9.25 (235)	6.75 (171.4)
	2500									

# Ordering Number Description

DBBSS - 1BBN1 - FM16300 - FNS8 - V8 - GSF2 - IE

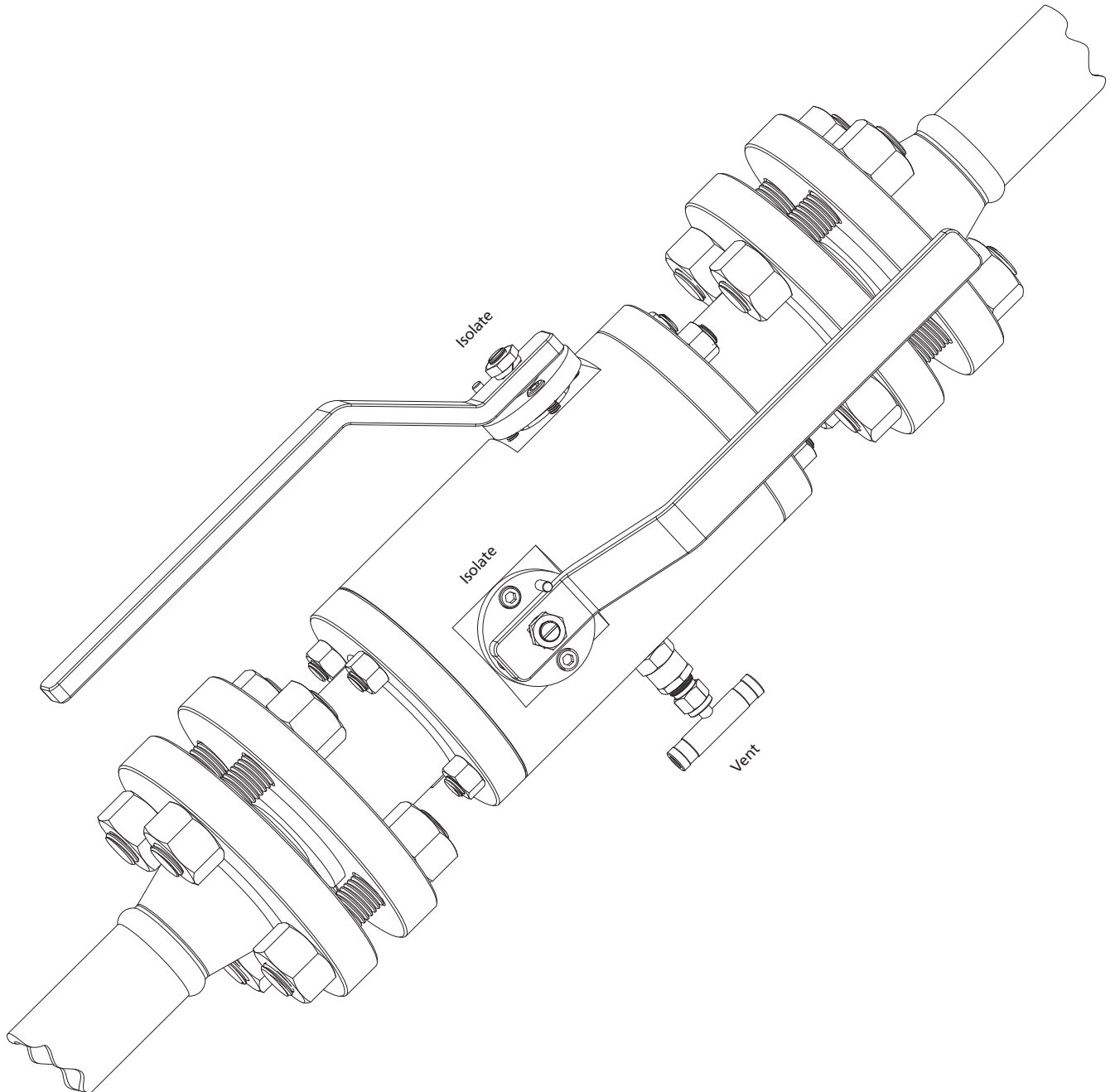


- For more information about hazards and risks of oxygen-enriched system, please contact FITOK Group or our authorized distributors.
- Cleaning and Packaging:
  - FC-01: Standard cleaning and packaging for general industrial procedures.
  - FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C.

# Split Type Flang Block and Bleed Valves

## Features

- ⦿ Bore size: NPS 3/8~NPS 2 (DN10~DN50)
- ⦿ 3-piece, bolted body construction
- ⦿ Optional fire-safe and anti-static design
- ⦿ 1/2 female NPT standard vent with plug



Manifolds



## Valve Types and Dimensions

Double Block and Bleed Valves (DBB)

© Configuration (BBN): ball isolate, ball isolate, needle vent



Connection: Flange+Flange

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DBB□□-□BBN□-FM□□□□-V8-FS-I	RF Flange	RF Flange	1/2 Female NPT	See Tables 8-12
DBB□□-□BBN□-FJ□□□□-V8-FS-I	RJ Flange	RJ Flange	1/2 Female NPT	

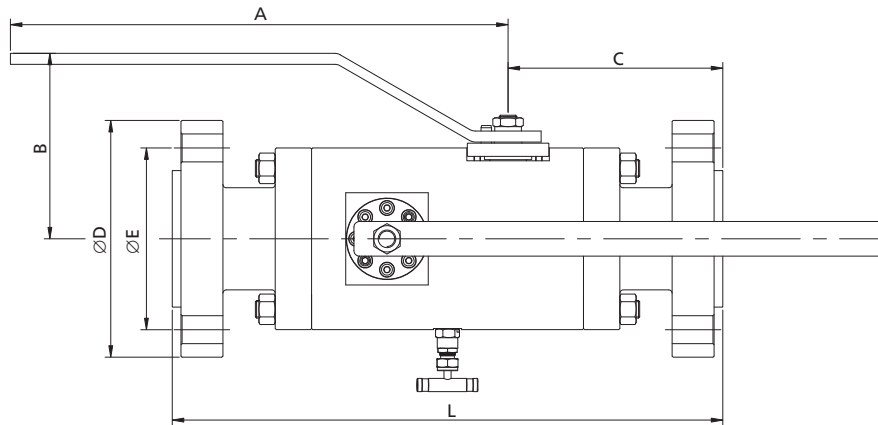


Table 8: Flange Options and Dimensions for 3/8 in. (9.5 mm) Bore Size (Ball/Needle)

Flange Size	ASME Class	Dimensions, in. (mm)										
		A	B	C	L		ØD	ØE				
					RF Flange	RJ Flange						
NPS1/2 (DN15)	150	8.62 (219)	4.37 (134)	4.37 (111)	11.10 (282)	-	3.54 (90)	2.37 (60.3)				
	300			4.49 (114)	11.34 (288)	11.57 (294)	3.74 (95)	2.63 (66.7)				
	600			4.76 (121)	11.89 (302)	11.89 (302)	4.72 (120)	3.25 (82.6)				
	900/1500			5.31 (135)	12.99 (330)	12.99 (330)						
	2500			5.63 (143)	13.62 (346)	13.62 (346)			5.31 (135)	3.50 (88.9)		
NPS3/4 (DN20)	150			8.62 (219)	4.37 (134)	4.45 (113)	11.26 (286)	-	3.94 (100)	2.75 (69.9)		
	300					4.65 (118)	11.65 (296)	11.65 (296)	4.53 (115)	3.25 (82.6)		
	600					4.92 (125)	12.20 (310)	12.20 (310)				
	900/1500					5.43 (138)	13.23 (336)	13.23 (336)			5.12 (130)	3.50 (88.9)
	2500					5.71 (145)	13.78 (350)	13.78 (350)	5.51 (140)	3.75 (95.2)		
NPS1 (DN25)	150					8.62 (219)	4.37 (134)	4.49 (114)	11.34 (288)	11.34 (288)	4.33 (110)	3.13 (79.4)
	300							4.72 (120)	11.81 (300)	11.81 (300)	4.92 (125)	3.50 (88.9)
	600							4.96 (126)	12.28 (312)	12.28 (312)		
	900/1500							5.71 (145)	13.78 (350)	13.78 (350)		
	2500							5.98 (152)	14.33 (364)	14.33 (364)	6.30 (160)	4.25 (108.0)
NPS1-1/2 (DN40)	150	8.62 (219)	4.37 (134)					4.65 (118)	11.65 (296)	11.65 (296)	4.92 (125)	3.87 (98.4)
	300							5.0 (127)	12.36 (314)	12.36 (314)	6.10 (155)	4.50 (114.3)
	600							5.31 (135)	12.99 (330)	12.99 (330)		
	900/1500							5.98 (152)	14.33 (364)	14.33 (364)		
	2500							6.57 (167)	15.51 (394)	15.67 (398)	8.07 (205)	5.75 (146)
NPS2 (DN50)	150			8.62 (219)	4.37 (134)			4.76 (121)	11.89 (302)	11.89 (302)	5.91 (150)	4.75 (120.7)
	300							4.88 (124)	12.13 (308)	12.28 (312)	6.49 (165)	5.00 (127.0)
	600							5.28 (134)	12.91 (328)	13.07 (332)		
	900/1500							6.22 (155)	14.57 (370)	14.72 (374)		
	2500							6.69 (170)	15.75 (400)	15.91 (404)	9.25 (235)	6.75 (171.4)

Manifolds

## C-44 Block and Bleed Valves

Table 9: Flange Options and Dimensions for 1/2 in. (14 mm) Bore Size (Ball/Needle)

Flange Size	ASME Class	Dimensions, in. (mm)								
		A	B	C	L		ØD	ØE		
					RF Flange	RJ Flange				
NPS1/2 (DN15)	150	8.62 (219)	4.37 (134)	4.37 (111)	11.10 (282)	-	3.54 (90)	2.37 (60.3)		
	300			4.49 (114)	11.34 (288)	11.57 (294)	3.74 (95)	2.63 (66.7)		
	600			4.76 (121)	11.89 (302)	11.89 (302)				
	900/1500			5.31 (135)	12.99 (330)	12.99 (330)	4.72 (120)	3.25 (82.6)		
	2500			5.63 (143)	13.62 (346)	13.62 (346)	5.31 (135)	3.50 (88.9)		
NPS3/4 (DN20)	150					4.45 (113)	11.26 (286)	-	3.94 (100)	2.75 (69.9)
	300					4.65 (118)	11.65 (296)	11.65 (296)	4.53 (115)	3.25 (82.6)
	600					4.92 (125)	12.20 (310)	12.20 (310)		
	900/1500					5.43 (138)	13.23 (336)	13.23 (336)	5.12 (130)	3.50 (88.9)
	2500					5.71 (145)	13.78 (350)	13.78 (350)	5.51 (140)	3.75 (95.2)
NPS1 (DN25)	150			4.49 (114)	11.34 (288)	11.34 (288)	4.33 (110)	3.13 (79.4)		
	300			4.72 (120)	11.81 (300)	11.81 (300)	4.92 (125)	3.50 (88.9)		
	600			4.96 (126)	12.28 (312)	12.28 (312)				
	900/1500			5.71 (145)	13.78 (350)	13.78 (350)	5.91 (150)	4.00 (101.6)		
	2500			5.98 (152)	14.33 (364)	14.33 (364)	6.30 (160)	4.25 (108.0)		
NPS1-1/2 (DN40)	150			4.65 (118)	11.65 (296)	11.65 (296)	4.92 (125)	3.87 (98.4)		
	300			5.0 (127)	12.36 (314)	12.36 (314)	6.10 (155)	4.50 (114.3)		
	600			5.31 (135)	12.99 (330)	12.99 (330)				
	900/1500	7.44 (189)	7.05 (179)	5.98 (152)	14.33 (364)	14.33 (364)	7.09 (180)	4.87 (123.8)		
	2500			6.57 (167)	15.51 (394)	15.67 (398)	8.07 (205)	5.75 (146)		
NPS2 (DN50)	150	8.62 (219)	4.37 (134)	4.76 (121)	11.89 (302)	11.89 (302)	5.91 (150)	4.75 (120.7)		
	300			4.88 (124)	12.13 (308)	12.28 (312)	6.49 (165)	5.00 (127.0)		
	600			5.28 (134)	12.91 (328)	13.07 (332)				
	900/1500			6.22 (155)	14.57 (370)	14.72 (374)	8.46 (215)	6.50 (165.1)		
	2500	7.44 (189)	7.05 (179)	6.69 (170)	15.75 (400)	15.91 (404)	9.25 (235)	6.75 (171.4)		

Table 10: Flange Options and Dimensions for 3/4 in. (20 mm) Bore Size (Ball/Needle)

Flange Size	ASME Class	Dimensions, in. (mm)						
		A	B	C	L		ØD	ØE
					RF Flange	RJ Flange		
NPS3/4 (DN20)	150	9.53 (242)	4.37 (111)	4.53 (115)	11.42 (290)	-	3.94 (100)	2.75 (69.9)
	300			4.72 (120)	11.81 (300)	12.20 (310)	4.53 (115)	3.25 (82.6)
	600			5.0 (127)	12.36 (314)	12.36 (314)		
	900/1500			5.51 (140)	13.39 (340)	13.39 (340)	5.12 (130)	3.50 (88.9)
	2500			5.79 (147)	13.94 (354)	13.94 (354)	5.51 (140)	3.75 (95.2)
NPS1 (DN25)	150			4.61 (117)	11.57 (294)	11.57 (294)	4.33 (110)	3.13 (79.4)
	300			4.80 (122)	11.97 (304)	11.97 (304)	4.92 (125)	3.50 (88.9)
	600			5.08 (129)	12.52 (318)	12.52 (318)		
	900/1500			5.83 (148)	14.02 (356)	14.02 (356)	5.91 (150)	4.00 (101.6)
	2500			6.1 (155)	14.57 (370)	14.57 (370)	6.30 (160)	4.25 (108.0)
NPS1-1/2 (DN40)	150		4.72 (120)	11.81 (300)	11.81 (300)	4.92 (125)	3.87 (98.4)	
	300		5.12 (130)	12.6 (320)	12.6 (320)	6.10 (155)	4.50 (114.3)	
	600		5.43 (138)	13.31 (338)	13.31 (338)			
	900/1500		6.06 (154)	14.49 (368)	14.49 (368)	7.09 (180)	4.87 (123.8)	
	2500		6.70 (170)	15.75 (400)	15.87 (403)	8.07 (205)	5.75 (146)	
NPS2 (DN50)	150	4.37 (111)	4.88 (124)	12.13 (308)	12.13 (308)	5.91 (150)	4.75 (120.7)	
	300		5.0 (127)	12.36 (314)	12.52 (318)	6.49 (165)	5.00 (127.0)	
	600		5.39 (137)	13.15 (334)	13.31 (338)			
	900/1500	6.22 (158)	14.8 (376)	14.96 (380)	8.46 (215)	6.50 (165.1)		
	2500	6.81 (173)	15.98 (406)	16.14 (410)	9.25 (235)	6.75 (171.4)		

## C-46 Block and Bleed Valves

Table 11: Flange Options and Dimensions for 1-1/2 in. (38.1 mm) Bore Size (Ball/Needle)

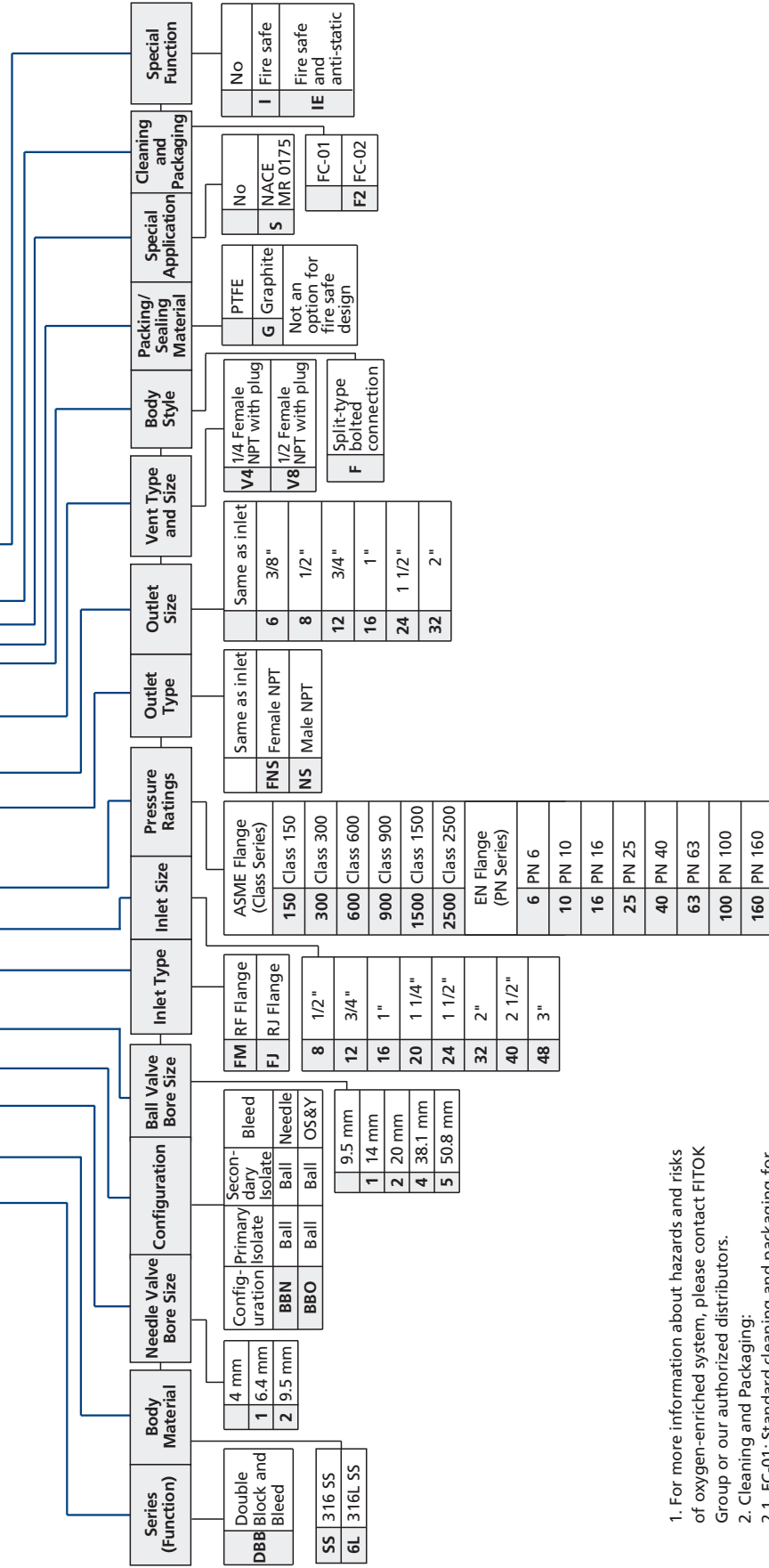
Flange Size	ASME Class	Dimensions, in. (mm)						
		A	B	C	L		ØD	ØE
					RF Flange	RJ Flange		
NPS1-1/2 (DN40)	150	10.7 (272)	5.28 (134)	5.43 (138)	14.2 (361)	14.7 (374)	4.92 (125)	3.87 (98.4)
	300			5.55 (141)	14.4 (367)	14.88 (378)	6.10 (155)	4.50 (114.3)
	600			5.87 (149)	15.12 (384)	15.12 (384)		
	900/1500		6.61 (168)	6.22 (158)	16.8 (402)	16.14 (410)	7.09 (180)	4.87 (123.8)
NPS2 (DN50)	150		5.28 (134)	5.47 (139)	14.3 (364)	14.8 (377)	5.91 (150)	4.75 (120.7)
	300			5.63 (143)	14.6 (372)	15.04 (382)	6.49 (165)	5.00 (127.0)
	600			5.98 (132)	15.4 (390)	15.5 (393)		
	900/1500			6.61 (168)	6.50 (165)	16.3 (415)	16.5 (418)	8.46 (215)

Table 12: Flange Options and Dimensions for 2 in. (50.8 mm) Bore Size (Ball/Needle)

Flange Size	ASME Class	Dimensions, in. (mm)											
		A	B	C	L		ØD	ØE					
					RF Flange	RJ Flange							
NPS2 (DN50)	150	17.80 (452)	6.63 (169)	5.94 (151)	15.35 (390)	15.8 (403)	5.91 (150)	4.75 (120.7)					
	300			6.10 (155)	15.67 (398)	15.67 (398)	6.49 (165)	5.00 (127.0)					
	600			6.38 (162)	16.38 (416)	16.5 (419)							
	900/1500			7.68 (195)	19.69 (500)	19.69 (500)	8.46 (215)	6.50 (165.1)					
NPS3 (DN80)	150			6.14 (156)	15.7 (400)	16.3 (413)	7.48 (190)	6.0 (152.4)					
	300								6.34 (161)	16.1 (410)	16.1 (410)	8.27 (210)	6.63 (168.3)
	600								6.61 (168)	16.9 (428)	17.0 (431)		
	900								7.68 (195)	19.69 (500)	19.69 (500)	9.45 (240)	7.50 (190.5)
	1500	8.27 (210)	20.87 (530)						20.87 (530)	10.43 (265)	8.0 (203.2)		

# Ordering Number Description

## DBBSS - 1BBN1 - FM16300 - FNS8 - V8 - FGSF2 - IE

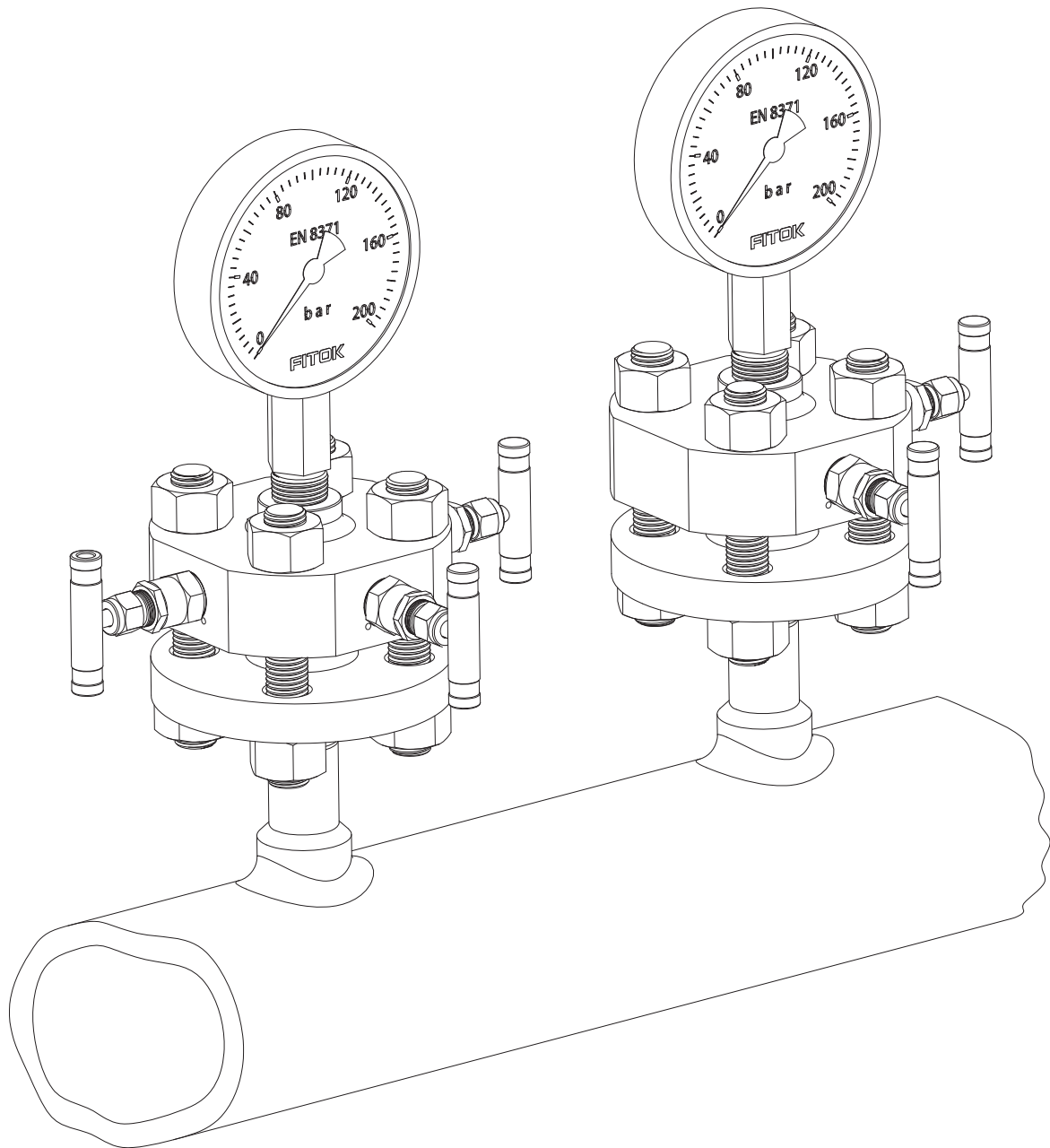


- For more information about hazards and risks of oxygen-enriched system, please contact FITOK Group or our authorized distributors.
- Cleaning and Packaging:
  - FC-01: Standard cleaning and packaging for general industrial procedures.
  - FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C.

# Wafer Type Flange Block and Bleed Valves

## Features

- ⊙ Smooth transition from the process piping system to instrumentation in a single configuration
- ⊙ 1/2 female NPT standard outlet
- ⊙ 1/2 female NPT standard vent with plug



## Types and Dimensions

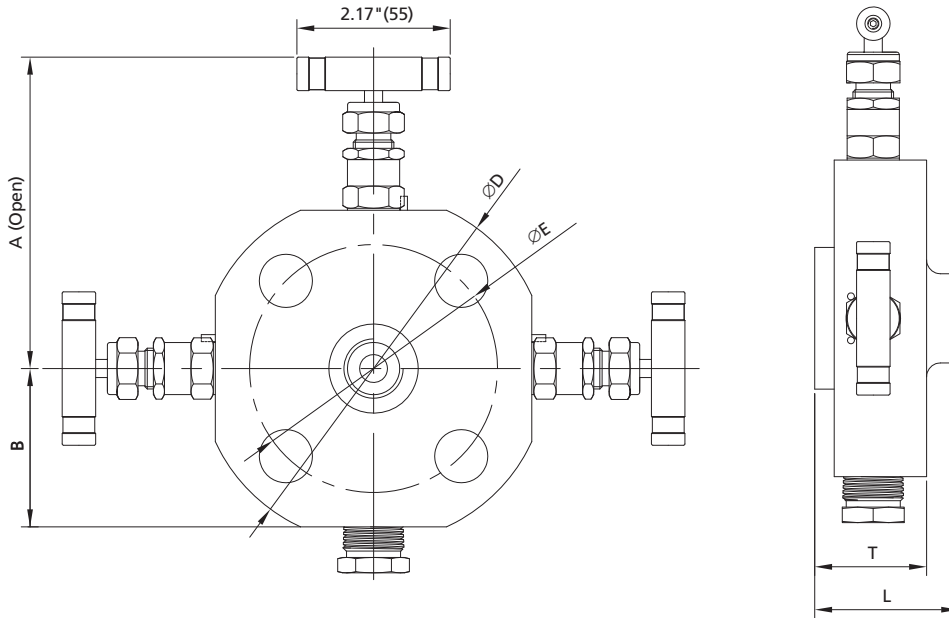
### Double Block and Bleed Valves (DBB)

☉ Configuration (NNN): needle isolate, needle isolate, needle vent



Connection: Flange+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DBB□□-NNN-MM□□□□-FNS8-V8	RF Flange	1/2 Female NPT	1/2 Female NPT	See Table 13
DBB□□-NNN-MJ□□□□-FNS8-V8	RJ Flange	1/2 Female NPT	1/2 Female NPT	

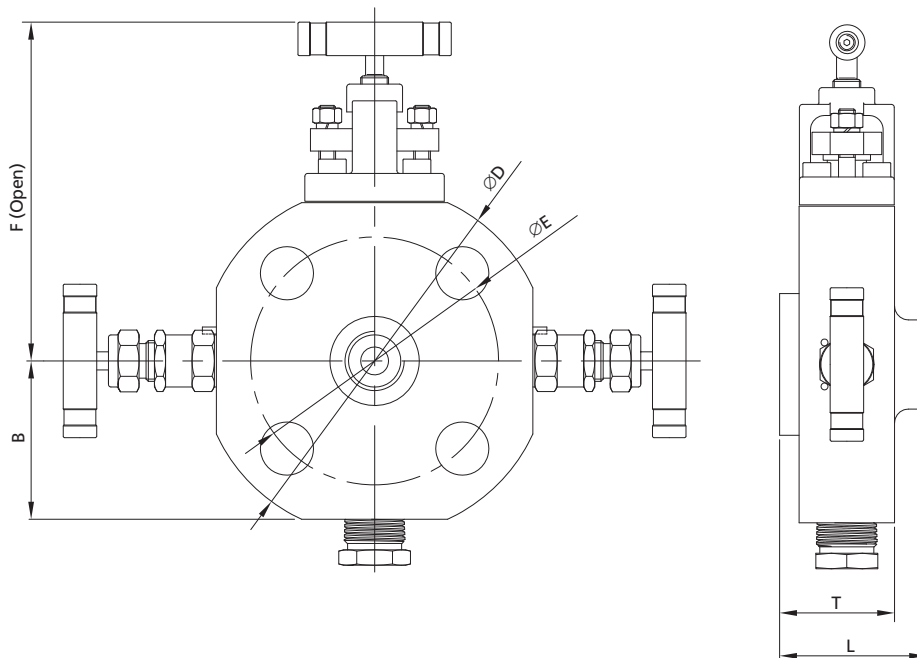


☉ Configuration (ONN): OS&Y isolate, needle isolate, needle vent




Connection: Flange+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DBB□□-ONN-MM□□□□-FNS8-V8	RF Flange	1/2 Female NPT	1/2 Female NPT	See Table 14
DBB□□-ONN-MJ□□□□-FNS8-V8	RJ Flange	1/2 Female NPT	1/2 Female NPT	

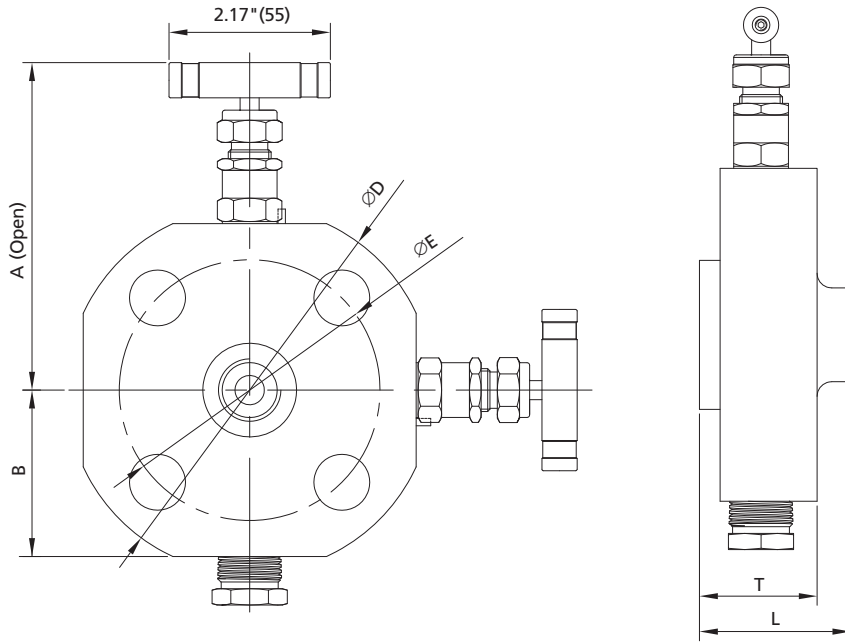



# C-50 Block and Bleed Valves

## Single Block and Bleed Valves (BB)

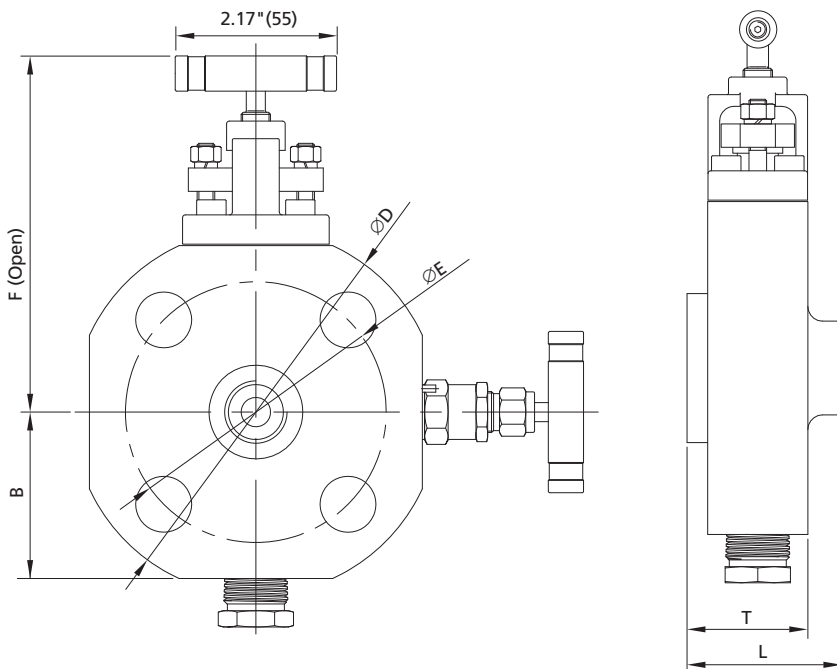
Configuration (NN): needle isolate, needle vent  Connection: Flange+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
BB□□-NN-MM□□□□-FNS8-V8	RF Flange	1/2 Female NPT	1/2 Female NPT	See Table 13
BB□□-NN-MJ□□□□-FNS8-V8	RJ Flange	1/2 Female NPT	1/2 Female NPT	



Configuration (ON): OS&Y isolate, needle vent  Connection: Flange+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
BB□□-ON-MM□□□□-FNS8-V8	RF Flange	1/2 Female NPT	1/2 Female NPT	See Table 14
BB□□-ON-MJ□□□□-FNS8-V8	RJ Flange	1/2 Female NPT	1/2 Female NPT	

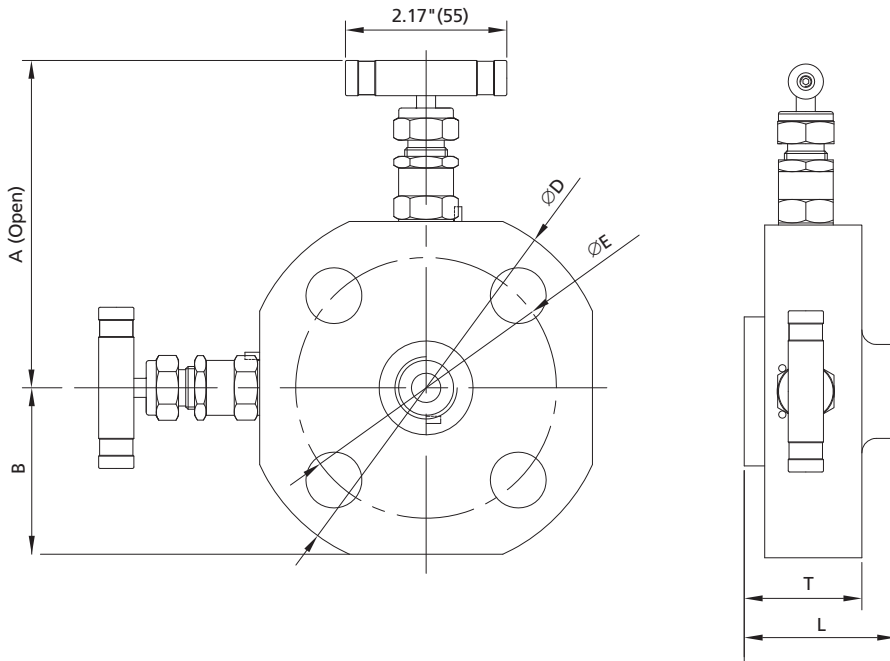




**Double Block Valves (DB)**

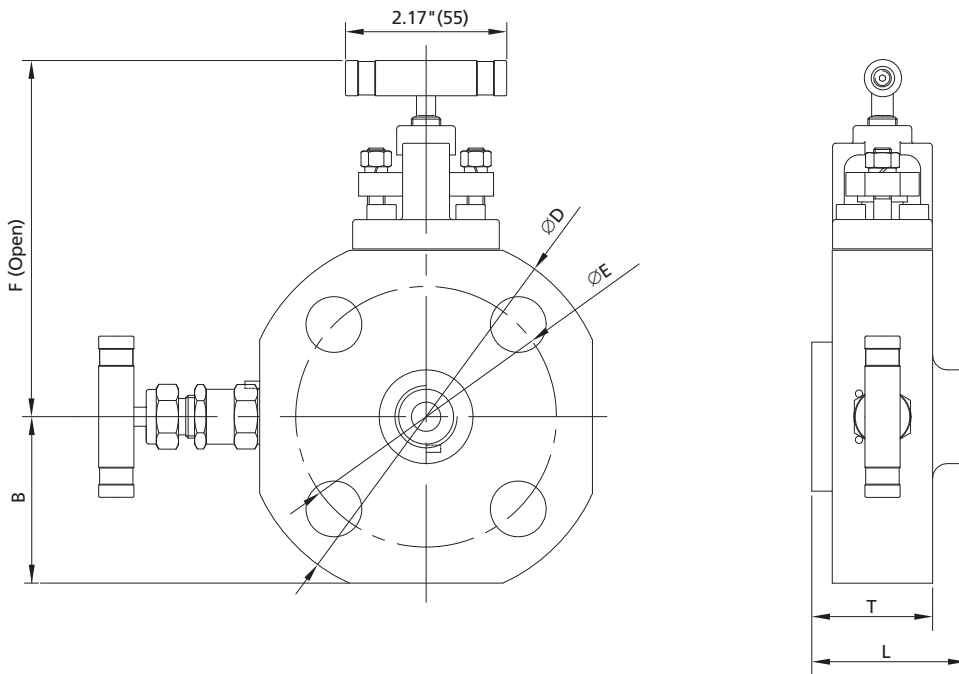
⊙ Configuration (NN): needle primary, needle secondary  Connection: Flange+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DB□□-NN-MM□□□□-FNS8	RF Flange	1/2 Female NPT	/	See Table 13
DB□□-NN-MJ□□□□-FNS8	RJ Flange	1/2 Female NPT	/	



⊙ Configuration (ON): OS&Y primary, needle secondary  Connection: Flange+Thread


Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DB□□-ON-MM□□□□-FNS8	RF Flange	1/2 Female NPT	/	See Table 14
DB□□-ON-MJ□□□□-FNS8	RJ Flange	1/2 Female NPT	/	



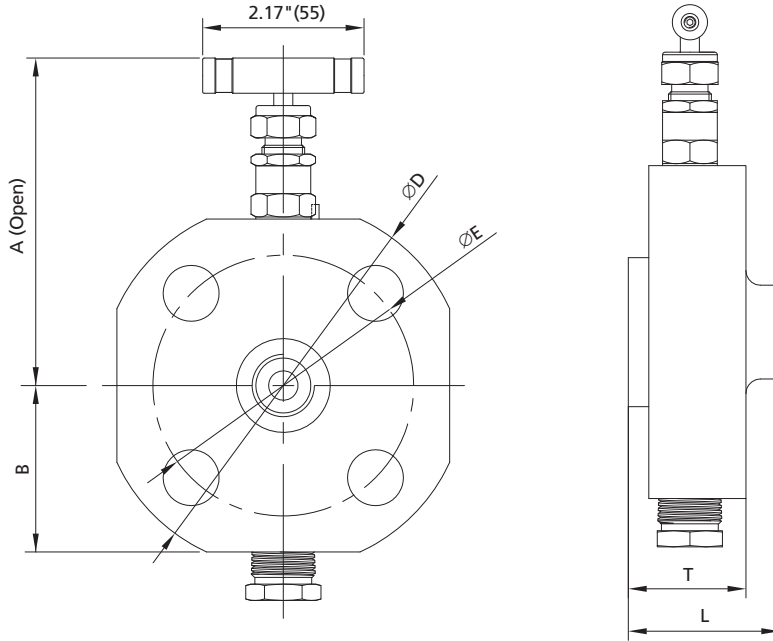
Manifolds

## C-52 Block and Bleed Valves

### Single Block Valves (SB)

⊙ Configuration (N): needle isolate, with vent port  Connection: Flange+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
SB□□-N-MM□□□□-FNS8-V8	RF Flange	1/2 Female NPT	1/2 Female NPT	See Table 13
SB□□-N-MJ□□□□-FNS8-V8	RJ Flange	1/2 Female NPT	1/2 Female NPT	



⊙ Configuration (O): OS&Y isolate, with vent port  Connection: Flange+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
SB□□-O-MM□□□□-FNS8-V8	RF Flange	1/2 Female NPT	1/2 Female NPT	See Table 14
SB□□-O-MJ□□□□-FNS8-V8	RJ Flange	1/2 Female NPT	1/2 Female NPT	

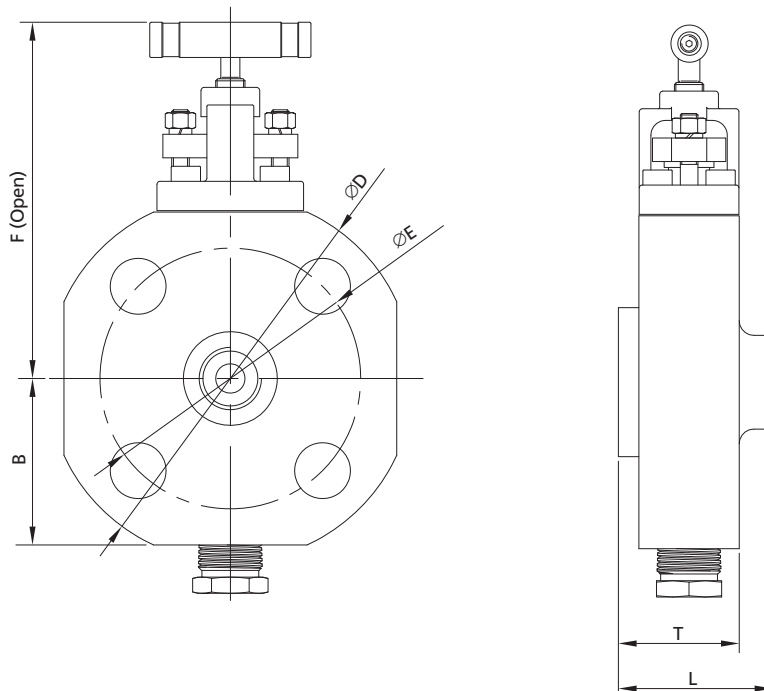


Table 13: Flange Options and Dimensions for 1/8 in. (4mm) Bore Size (Ball/Needle), configuration: N

Flange Size	ASME Class	Dimensions, in. (mm)							
		A	B	RF Flange		RJ Flange		ØD	ØE
				L	T	L	T		
NPS1/2 (DN15)	150	3.94 (100.0)	1.57 (40.0)	1.73 (44.0)	1.24 (31.5)	—	—	3.54 (90)	2.37 (60.3)
	300	4.04 (102.5)	1.67 (42.5)		1.79 (45.5)	1.30 (33.0)	3.74 (95)	2.63 (66.7)	
	600			1.32 (33.5)	1.79 (45.5)	1.30 (33.0)	4.72 (120)	3.25 (82.6)	
	900/1500	4.53 (115.0)	2.17 (55.0)	1.73 (44.0)	1.32 (33.5)	1.79 (45.5)	1.30 (33.0)	4.72 (120)	3.25 (82.6)
	2500	4.82 (122.5)	2.46 (62.5)	1.93 (48.9)	1.51 (38.4)	1.93 (48.9)	1.51 (38.4)	5.31 (135)	3.50 (88.9)
NPS3/4 (DN20)	150	4.13 (105.0)	1.77 (45.0)	1.73 (44.0)	1.24 (31.5)	—	—	3.94 (100)	2.75 (69.9)
	300	4.43 (112.5)	2.07 (52.5)		1.79 (45.5)	1.30 (33.0)	4.53 (115)	3.25 (82.6)	
	600			1.32 (33.5)	1.79 (45.5)	1.38 (35.0)	5.12 (130)	3.50 (88.9)	
	900/1500	4.72 (120.0)	2.36 (60.0)	1.73 (44.0)	1.32 (33.5)	1.79 (45.5)	1.38 (35.0)	5.12 (130)	3.50 (88.9)
	2500	4.92 (125.0)	2.56 (65.0)	2.00 (50.9)	1.59 (40.4)	2.00 (50.9)	1.59 (40.4)	5.51 (140)	3.75 (95.2)
NPS1 (DN25)	150	4.33 (110.0)	1.97 (50.0)	1.73 (44.0)	1.24 (31.5)	1.79 (45.5)	1.30 (33.0)	4.33 (110)	3.13 (79.4)
	300	4.63 (117.5)	2.26 (57.5)		1.32 (33.5)			4.92 (125)	3.50 (88.9)
	600			2.00 (50.9)	1.51 (38.4)	2.00 (50.9)	1.51 (38.4)	5.91 (150)	4.00 (101.6)
	900/1500	5.12 (130.0)	2.76 (70.0)	2.00 (50.9)	1.51 (38.4)	2.00 (50.9)	1.51 (38.4)	5.91 (150)	4.00 (101.6)
	2500	5.31 (135.0)	2.95 (75.0)	2.00 (50.9)	1.71 (43.4)	2.00 (50.9)	1.71 (43.4)	6.30 (160)	4.25 (108.0)
NPS1-1/2 (DN40)	150	4.63 (117.5)	2.26 (57.5)	1.73 (44.0)	1.24 (31.5)	1.79 (45.5)	1.30 (33.0)	4.92 (125)	3.87 (98.4)
	300	5.22 (132.5)	2.85 (72.5)	1.81 (46.0)	1.32 (33.5)	1.87 (47.5)	1.38 (35.0)	6.10 (155)	4.50 (114.3)
	600								
	900/1500	5.71 (145.0)	3.37 (85.0)	2.08 (52.9)	1.59 (40.4)	2.08 (52.9)	1.59 (40.4)	7.09 (180)	4.87 (123.8)
	2500	6.20 (157.5)	3.84 (97.5)	2.38 (60.4)	2.16 (54.9)	2.38 (60.4)	2.16 (54.9)	8.07 (205)	5.75 (146)
900/1500	5.12 (130.0)	2.76 (70.0)	1.81 (46.0)	1.24 (31.5)	1.87 (47.5)	1.30 (33.0)	5.91 (150)	4.75 (120.7)	
NPS2 (DN50)	150	5.12 (130.0)	2.76 (70.0)	1.81 (46.0)	1.24 (31.5)	1.87 (47.5)	1.30 (33.0)	5.91 (150)	4.75 (120.7)
	300	5.41 (137.5)	3.05 (77.5)	1.89 (48.0)	1.32 (33.5)	1.95 (49.5)	1.38 (35.0)	6.49 (165)	5.00 (127.0)
	600								
	900/1500	6.30 (160.0)	3.94 (100.0)	2.38 (60.4)	1.89 (47.9)	2.38 (60.4)	1.89 (47.9)	8.46 (215)	6.50 (165.1)
	2500	6.50 (165.0)	4.13 (105.0)	2.59 (65.9)	2.44 (61.9)	2.59 (65.9)	2.44 (61.9)	9.25 (235)	6.75 (171.4)

Note: For wafer-type flange block and bleed valves with 1/4 in. (6.35 mm), 3/8 in. (9.5 mm) bore, please contact FITOK Group or our authorized distributors.

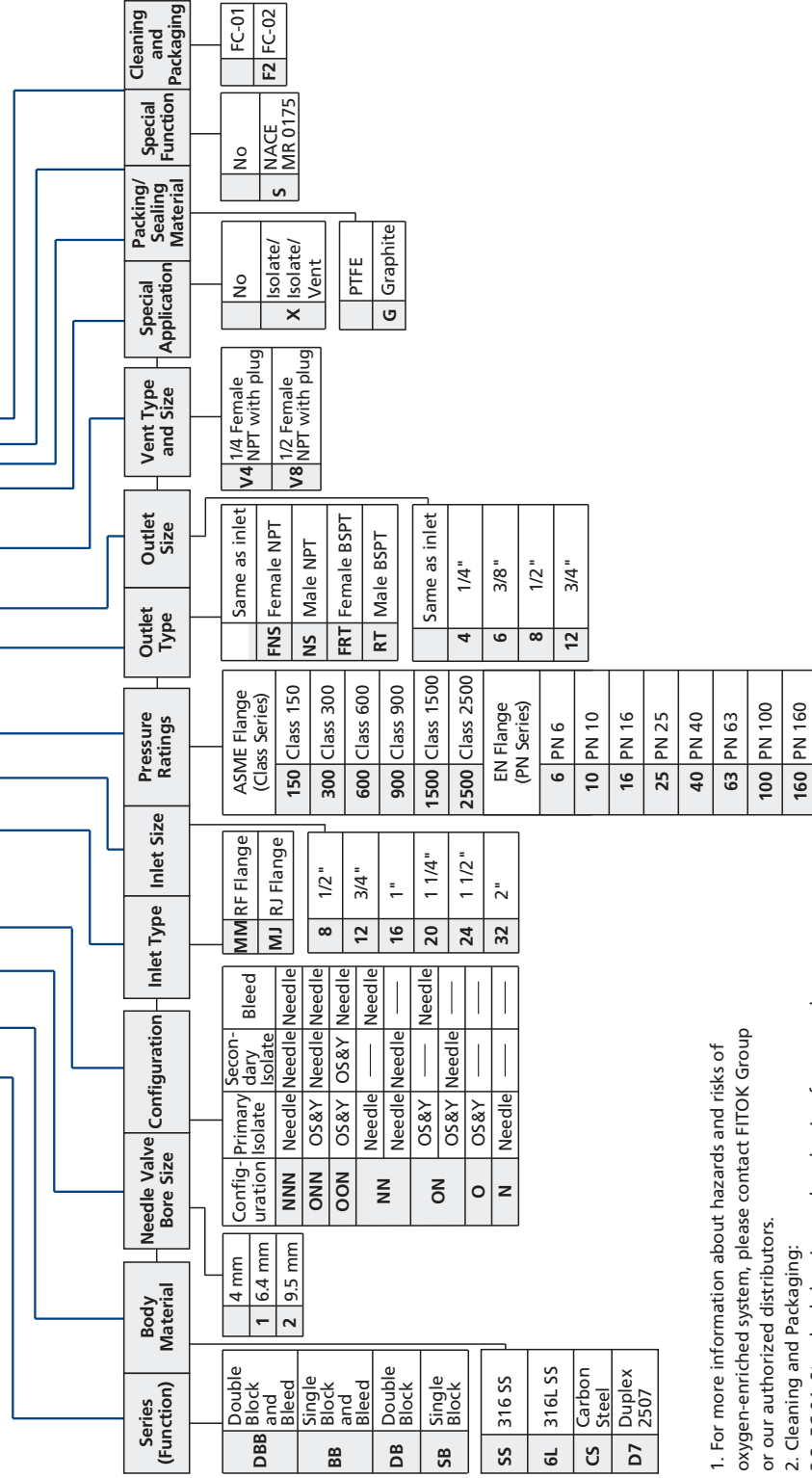
## C-54 Block and Bleed Valves

Table 14: Flange Options and Dimensions for 1/8 in. (4mm) Bore Size (Needle), configuration: O

Flange Size	ASME Class	Dimensions, in. (mm)											
		F	B	RF Flange		RJ Flange		ØD	ØE				
				L	T	L	T						
NPS1/2 (DN15)	150	4.33 (110.0)	1.57 (40.0)	2.03 (51.6)	1.58 (40.1)	—	—	3.54 (90)	2.37 (60.3)				
	300	4.43 (112.5)	1.67 (42.5)			2.03 (51.6)	1.58 (40.1)	2.03 (51.6)	1.58 (40.1)	3.74 (95)	2.63 (66.7)		
	600	4.92 (125.0)	2.17 (55.0)							4.72 (120)	3.25 (82.6)		
	900/1500	5.22 (132.5)	2.46 (62.5)							5.31 (135)	3.50 (88.9)		
	2500	5.22 (132.5)	2.46 (62.5)							5.31 (135)	3.50 (88.9)		
NPS3/4 (DN20)	150	4.53 (115.0)	1.77 (45.0)	2.03 (51.6)	1.58 (40.1)	—	—	3.94 (100)	2.75 (69.9)				
	300	4.82 (122.5)	2.07 (52.5)			2.03 (51.6)	1.58 (40.1)	2.03 (51.6)	1.58 (40.1)	4.53 (115)	3.25 (82.6)		
	600	5.12 (130.0)	2.36 (60.0)							5.12 (130)	3.50 (88.9)		
	900/1500	5.31 (135.0)	2.56 (65.0)							5.51 (140)	3.75 (95.2)		
	2500	5.31 (135.0)	2.56 (65.0)							5.51 (140)	3.75 (95.2)		
NPS1 (DN25)	150	4.72 (120.0)	1.97 (50.0)	2.03 (51.6)	1.58 (40.1)	2.03 (51.6)	1.58 (40.1)	4.33 (110)	3.13 (79.4)				
	300	5.02 (127.5)	2.26 (57.5)					2.11 (53.5)	1.65 (42.0)	2.11 (53.5)	1.65 (42.0)	4.92 (125)	3.50 (88.9)
	600	5.51 (140.0)	2.76 (70.0)									5.91 (150)	4.00 (101.6)
	900/1500	5.71 (145.0)	2.95 (75.0)									6.30 (160)	4.25 (108.0)
	2500	5.71 (145.0)	2.95 (75.0)									6.30 (160)	4.25 (108.0)
NPS1-1/2 (DN40)	150	5.02 (127.5)	2.26 (57.5)	2.03 (51.6)	1.58 (40.1)	2.03 (51.6)	1.58 (40.1)	4.92 (125)	3.87 (98.4)				
	300	5.61 (142.5)	2.85 (72.5)	2.19 (55.5)	1.59 (44.0)	2.19 (55.5)	1.59 (44.0)	6.10 (155)	4.50 (114.3)				
	600	6.10 (155.0)	3.37 (85.0)					7.09 (180)	4.87 (123.8)				
	900/1500	6.59 (167.5)	3.84 (97.5)					8.07 (205)	5.75 (146)				
	2500	6.59 (167.5)	3.84 (97.5)					8.07 (205)	5.75 (146)				
NPS2 (DN50)	150	5.51 (140.0)	2.76 (70.0)	2.11 (53.5)	1.65 (42.0)	2.11 (53.5)	1.65 (42.0)	5.91 (150)	4.75 (120.7)				
	300	5.81 (147.5)	3.05 (77.5)	2.42 (61.5)	1.97 (50.0)	2.42 (61.5)	1.97 (50.0)	6.49 (165)	5.00 (127.0)				
	600	6.69 (170.0)	3.94 (100.0)					8.46 (215)	6.50 (165.1)				
	900/1500	6.89 (175.0)	4.13 (105.0)					9.25 (235)	6.75 (171.4)				
	2500	6.89 (175.0)	4.13 (105.0)					9.25 (235)	6.75 (171.4)				

# Ordering Number Description

## DBBSS - 1NNN - MM16300 - FNS8 - V8 - XGSF2

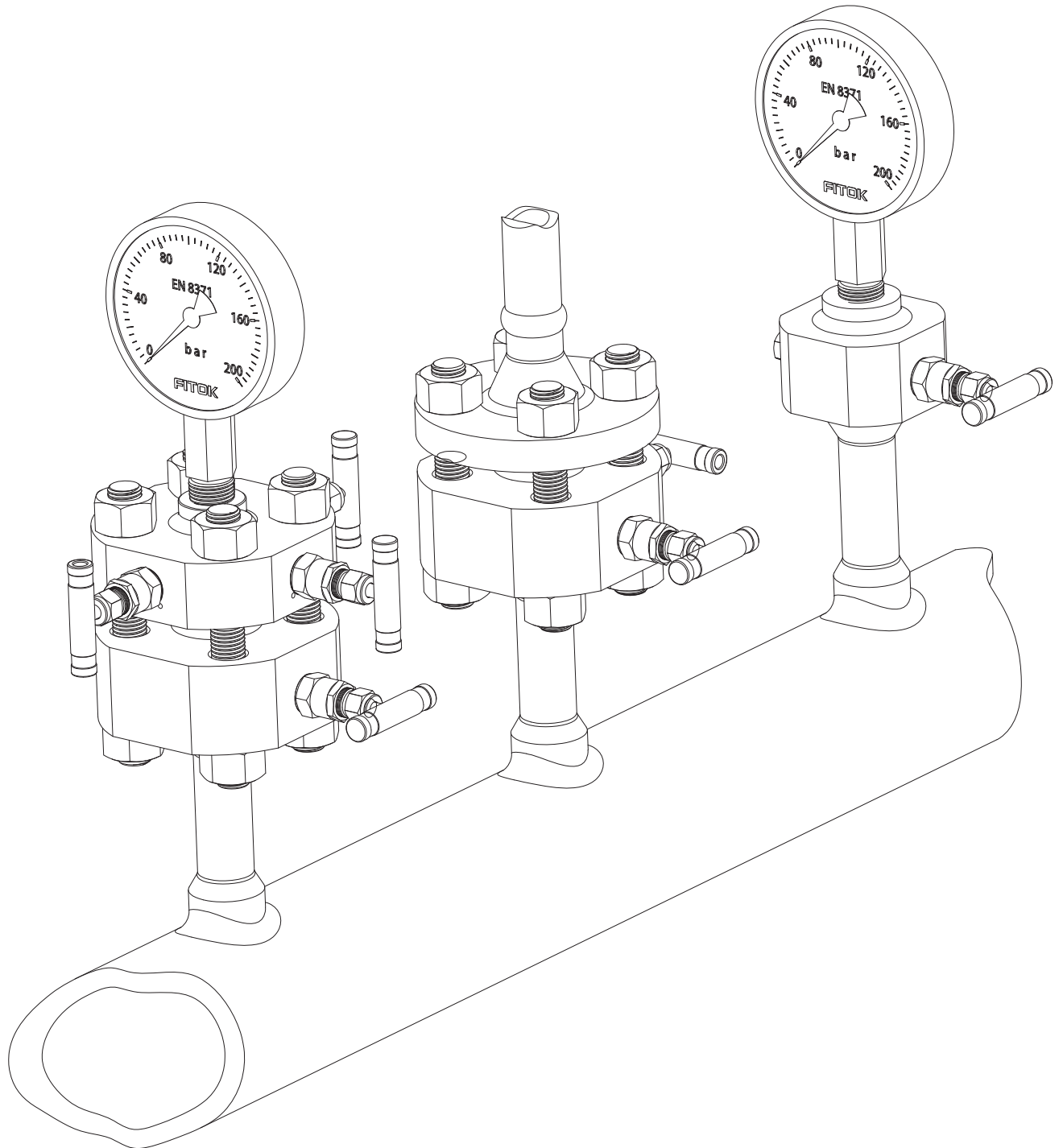


- For more information about hazards and risks of oxygen-enriched system, please contact FITOK Group or our authorized distributors.
- Cleaning and Packaging:
  - FC-01: Standard cleaning and packaging for general industrial procedures.
  - FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C.
- If there is a bypass outlet in addition to the vent port (with valve), the following designators apply:
  - V4V8: V8 for 1/2 Female NPT vent, V4 for 1/4 Female NPT bypass outlet.
  - V8V4: V4 for 1/4 Female NPT vent, V8 for 1/2 Female NPT bypass outlet.
  - 2V4: 1/4 Female NPT vent and 1/4 Female NPT bypass outlet.
  - 2V8: 1/2 Female NPT vent and 1/2 Female NPT bypass outlet.

## Butt-welded Type Block and Bleed Valves


### Features

- ⦿ Available directly welded to the vessel or process pipe
- ⦿ Weld inlet connection sizes from NPS 1/2 to NPS 2
- ⦿ 1/2 female NPT standard vent with plug



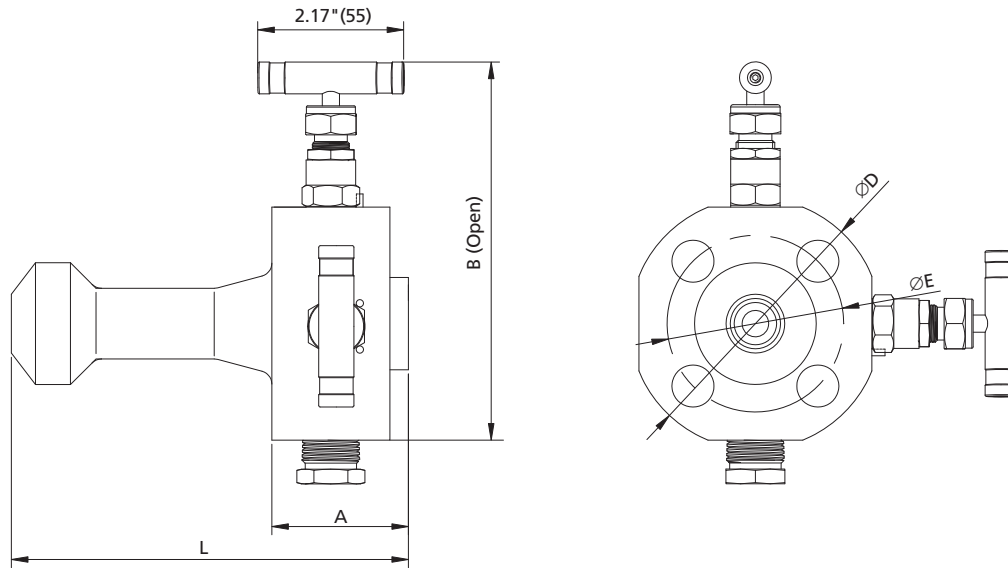
## Valve Types and Dimensions


### Single Block Valves (BB Series)

Configuration (NN): needle isolate, needle vent 

Connection: BWE+Flange

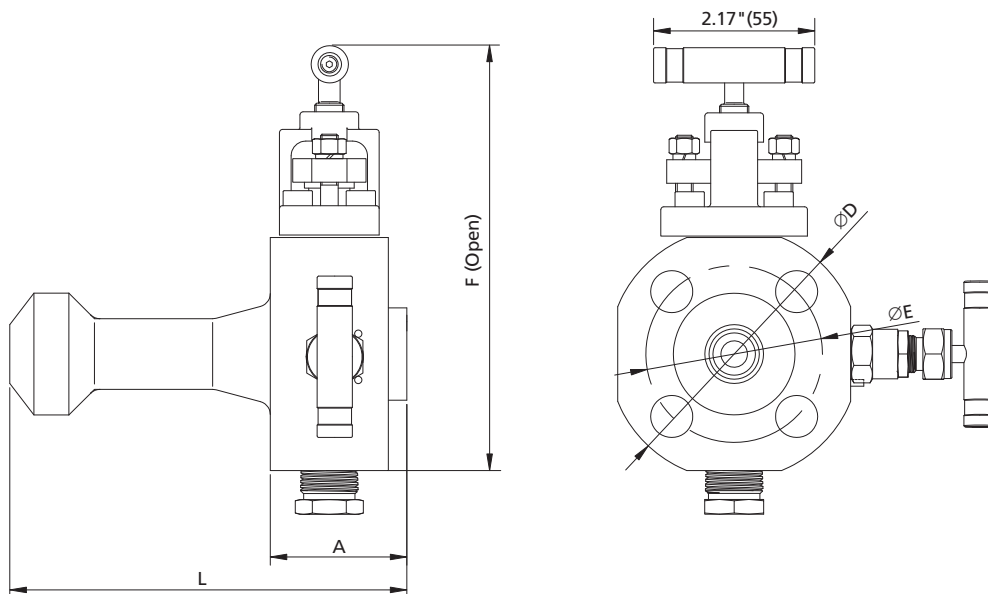
Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
BB□□-NN-BWE□-MM□□□□-V8	Butt Welding Branch	RF Flange	1/2 Female NPT	See Table 15
BB□□-NN-BWE□-MJ□□□□-V8	Butt Welding Branch	RJ Flange	1/2 Female NPT	



Configuration (ON): OS&Y isolate, needle vent 


Connection: BWE+Flange

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
BB□□-ON-BWE□-MM□□□□-V8	Butt Welding Branch	RF Flange	1/2 Female NPT	See Table 15
BB□□-ON-BWE□-MJ□□□□-V8	Butt Welding Branch	RJ Flange	1/2 Female NPT	



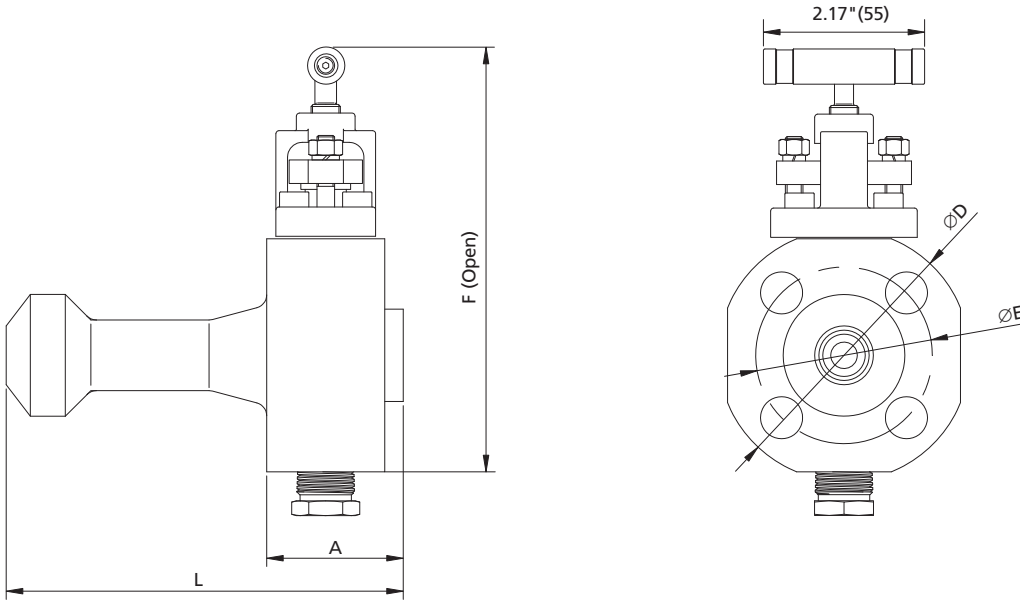
C-58 Block and Bleed Valves


Single Block Valves (SB)

Configuration (O): OS&Y isolate, with vent port 

Connection: BWE+Flange

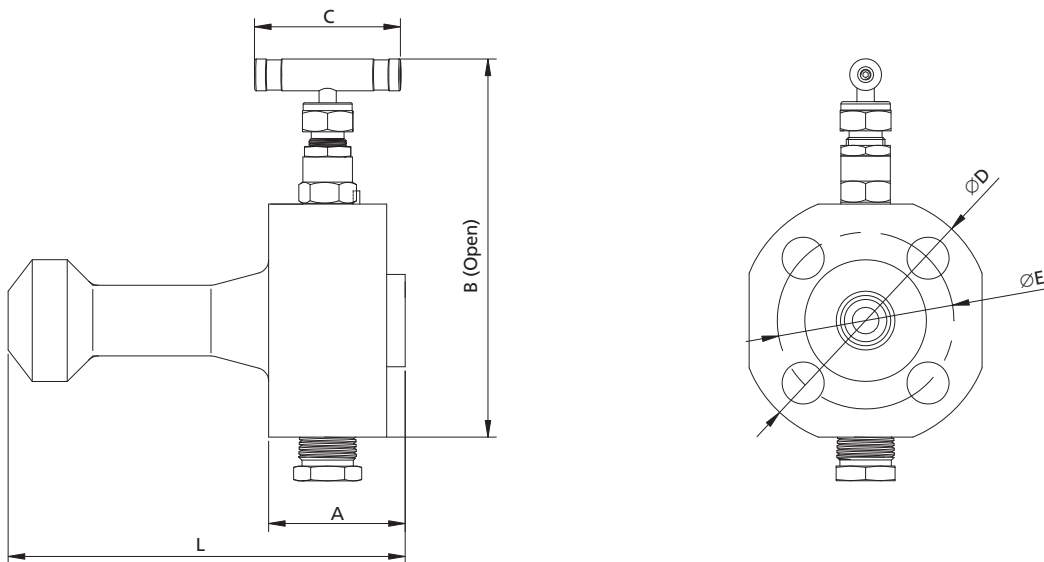
Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
SB□□-O-BWE□-MM□□□□-V8	Butt Welding Branch	RF Flange	1/2 Female NPT	See Table 15
SB□□-O-BWE□-MJ□□□□-V8	Butt Welding Branch	RJ Flange	1/2 Female NPT	




Configuration (N): needle isolate, with vent port 

Connection: BWE+Flange

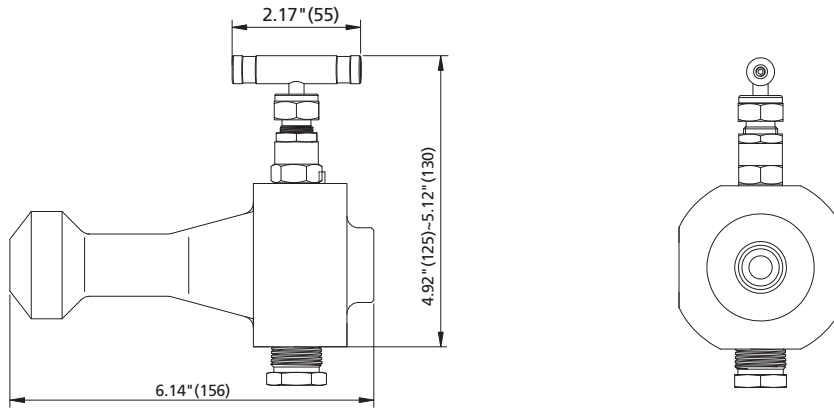
Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
SB□□-□N-BWE□-MM□□□□-V8	Butt Welding Branch	RF Flange	1/2 Female NPT	See Tables 15-17
SB□□-□N-BWE□-MJ□□□□-V8	Butt Welding Branch	RJ Flange	1/2 Female NPT	



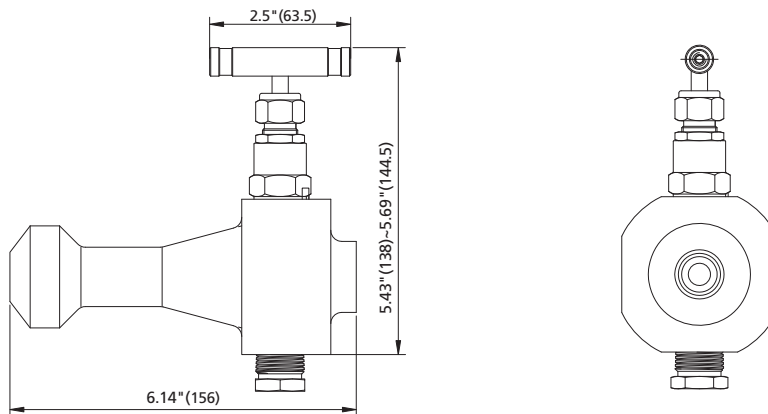


© Configuration (N): needle isolate, with vent port  Connection: BWE+Thread

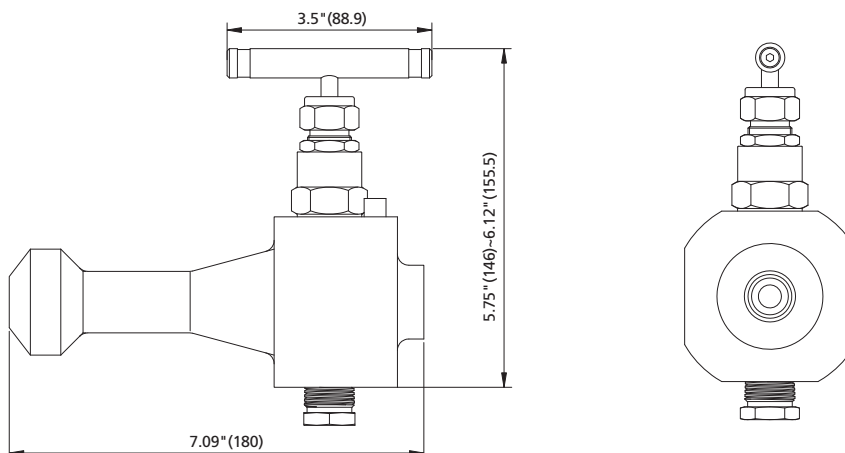
Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent
SB□□-N-BWE12-FNS8-V8	Butt Welding Branch	1/2 Female NPT	1/2 Female NPT



Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent
SB□□-1N-BWE12-FNS8-V8	Butt Welding Branch	1/2 Female NPT	1/2 Female NPT



Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent
SB□□-2N-BWE12-FNS8-V8	Butt Welding Branch	1/2 Female NPT	1/2 Female NPT



Manifolds

## C-60 Block and Bleed Valves

Table 15: Flange Options and Dimensions for 1/8 in. (4 mm) Bore Size (Needle)

Flange Size	ASME Class	Dimensions, in. (mm)								
		A	B	F	C	L	ØD	ØE		
						RF/RJ Flange				
NPS1/2 (DN15)	150	2.0 (50.8)	5.51 (140)	5.91 (150)	2.17 (55)	6.14 (156)	3.54 (90)	2.37 (60.3)		
	300		5.71 (145)	6.10 (155)			5.91 (150)	3.74 (95)	2.63 (66.7)	
	600	2.03 (51.6)				6.14 (156)		4.72 (120)	3.25 (82.6)	
	900/1500	1.85 (47)	6.69 (170)	7.09 (180)			5.31 (135)	3.50 (88.9)		
	2500	2.07 (52.6)	7.28 (185)	7.68 (195)			3.94 (100)	2.75 (69.9)		
NPS3/4 (DN20)	150	2.03 (51.6)	5.91 (150)	6.30 (160)		2.17 (55)	6.14 (156)	4.53 (115)	3.25 (82.6)	
	300		6.50 (165)	6.89 (175)				5.12 (130)	3.50 (88.9)	
	600		7.09 (180)	7.48 (190)				5.51 (140)	3.75 (95.2)	
	900/1500		7.48 (190)	7.87 (200)				4.33 (110)	3.13 (79.4)	
	2500		7.87 (200)	8.27 (210)				4.92 (125)	3.50 (88.9)	
NPS1 (DN25)	150	2.11 (53.6)	6.30 (160)	6.69 (170)	2.17 (55)		6.14 (156)	5.91 (150)	4.00 (101.6)	
	300		6.89 (175)	7.28 (185)				6.30 (160)	4.25 (108.0)	
	600		7.87 (200)	8.27 (210)				4.92 (125)	3.50 (88.9)	
	900/1500		8.27 (210)	8.66 (220)				6.30 (160)	4.25 (108.0)	
	2500		8.66 (220)	9.05 (230)				4.92 (125)	3.87 (98.4)	
NPS1-1/2 (DN40)	150	2.03 (51.6)	8.07 (205)	8.46 (215)		2.17 (55)	6.93 (176)	6.10 (155)	4.50 (114.3)	
	300		9.06 (230)	9.45 (240)				7.09 (180)	4.87 (123.8)	
	600	2.23 (56.5)					9.06 (230)			9.45 (240)
	900/1500	2.23 (56.5)	9.06 (230)	9.45 (240)			7.09 (180)	4.87 (123.8)		
	2500	2.46 (62.6)	9.84 (250)	10.24 (260)			8.07 (205)	5.75 (146)		
NPS2 (DN50)	150	2.03 (51.6)	8.46 (215)	8.86 (225)	2.17 (55)		7.32 (186)	5.91 (150)	4.75 (120.7)	
	300		10.24 (260)	10.63 (270)				6.49 (165)	5.00 (127.0)	
	600									2.27 (57.6)
	900/1500		2.27 (57.6)	10.24 (260)				10.63 (270)	8.46 (215)	6.50 (165.1)
	2500		2.50 (63.6)	10.63 (270)				11.02 (280)	9.25 (235)	6.75 (171.4)

Table 16: Flange Options and Dimensions for 1/4 in. (6.4 mm) Bore Size (Needle)

Flange Size	ASME Class	Dimensions, in. (mm)					
		A	B	C	L	ØD	ØE
					RF/RJ Flange		
NPS1/2 (DN15)	150	2.03 (51.6)	6.08 (154.5)	2.5 (63.5)	6.14 (156)	3.54 (90)	2.37 (60.3)
	300	2.0 (50.8)	6.28 (159.5)			3.74 (95)	2.63 (66.7)
	600					4.72 (120)	3.25 (82.6)
	900/1500	2.17 (55)	7.26 (184.5)			5.31 (135)	3.50 (88.9)
	2500	2.31 (58.6)	7.85 (199.5)			5.31 (135)	3.50 (88.9)
NPS3/4 (DN20)	150	2.03 (51.6)	6.48 (164.5)		6.34 (161)	3.94 (100)	2.75 (69.9)
	300	2.23 (56.6)	7.07 (179.5)			4.53 (115)	3.25 (82.6)
	600	2.23 (56.6)				5.12 (130)	3.50 (88.9)
	900/1500	2.31 (58.6)	7.66 (194.5)			5.51 (140)	3.75 (95.2)
	2500	2.39 (60.6)	8.05 (204.5)			5.51 (140)	3.75 (95.2)
NPS1 (DN25)	150	2.03 (51.6)	6.87 (174.5)		6.54 (166)	4.33 (110)	3.13 (79.4)
	300	2.23 (56.6)	7.46 (189.5)			4.92 (125)	3.50 (88.9)
	600	2.23 (56.6)				5.91 (150)	4.00 (101.6)
	900/1500	2.43 (61.6)	8.44 (214.5)			6.30 (160)	4.25 (108.0)
	2500	2.50 (63.6)	8.84 (224.5)			6.30 (160)	4.25 (108.0)
NPS1-1/2 (DN40)	150	1.91 (48.6)	7.46 (189.5)		6.93 (176)	4.92 (125)	3.87 (98.4)
	300	2.15 (54.6)	8.64 (219.5)			6.10 (155)	4.50 (114.3)
	600	2.15 (54.6)				7.09 (180)	4.87 (123.8)
	900/1500	2.46 (62.6)	9.63 (244.5)			8.07 (205)	5.75 (146)
	2500	2.70 (68.6)	10.41 (264.5)			8.07 (205)	5.75 (146)
NPS2 (DN50)	150	1.95 (49.6)	8.44 (214.5)	7.32 (186)	5.91 (150)	4.75 (120.7)	
	300	2.15 (54.6)	9.04 (229.5)		6.49 (165)	5.00 (127.0)	
	600	2.15 (54.6)			8.46 (215)	6.50 (165.1)	
	900/1500	2.66 (67.6)	10.81 (274.5)		9.25 (235)	6.75 (171.4)	
	2500	2.82 (71.6)	11.20 (284.5)		9.25 (235)	6.75 (171.4)	

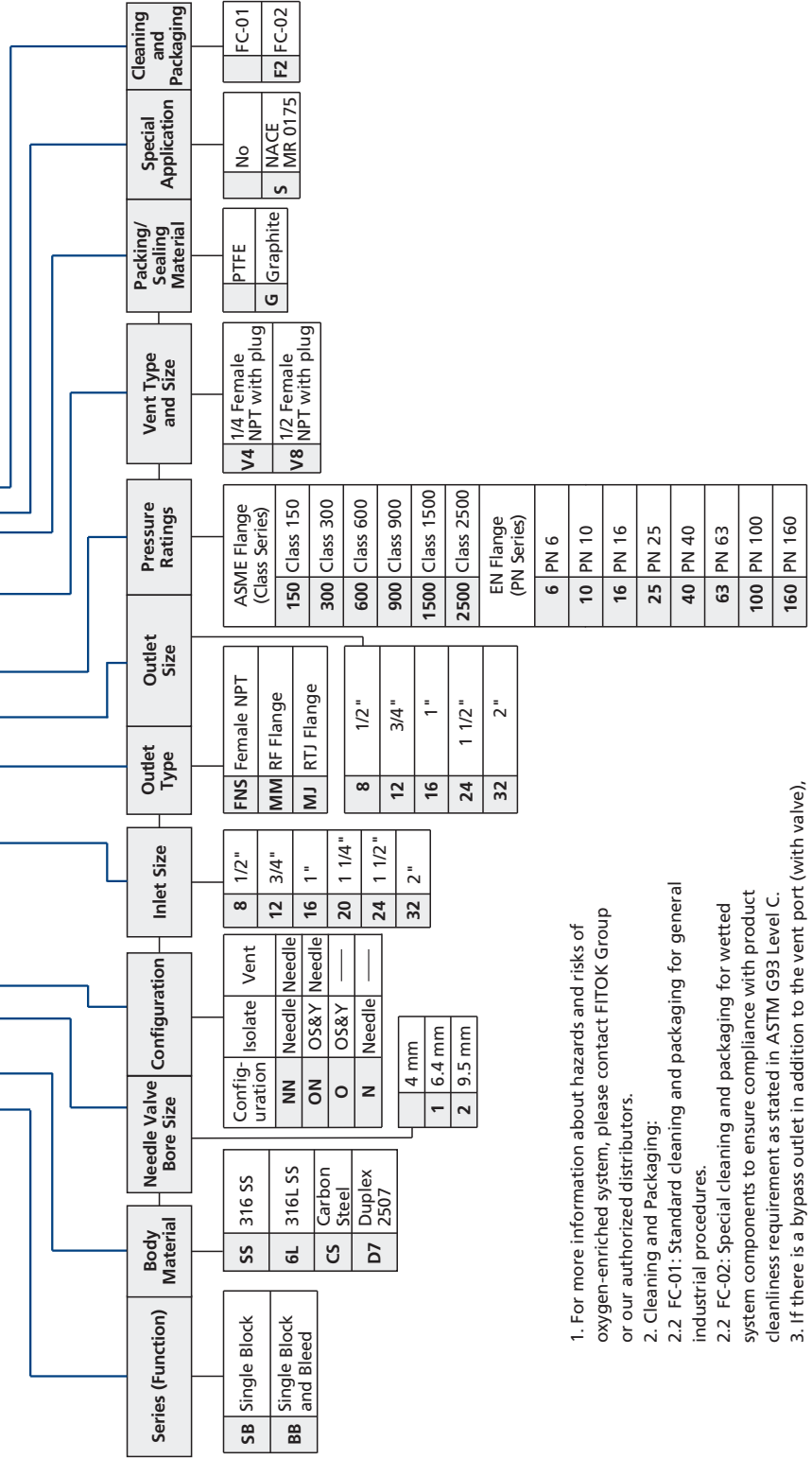
## C-62 Block and Bleed Valves

Table 17: Flange Options and Dimensions for 3/8 in. (9.5 mm) Bore Size (Needle)

Flange Size	ASME Class	Dimensions, in. (mm)					
		A	B	C	L	ØD	ØE
					RF/RJ Flange		
NPS1/2 (DN15)	150	2.36 (60)	7.09 (161.5)	3.5 (88.9)	7.09 (180)	3.54 (90)	2.37 (60.3)
	300		7.20 (166.5)			3.74 (95)	2.63 (66.7)
	600	2.80 (71)	8.19 (191.5)			4.72 (120)	3.25 (82.6)
	900/1500	2.83 (72)	8.78 (206.5)			5.31 (135)	3.50 (88.9)
	2500	2.40 (61)	7.40 (171.5)			3.94 (100)	2.75 (69.9)
NPS3/4 (DN20)	150	2.68 (68)	7.99 (186.5)	3.5 (88.9)	7.09 (180)	4.53 (115)	3.25 (82.6)
	300		8.58 (201.5)			5.12 (130)	3.50 (88.9)
	600	3.03 (77)	8.98 (211.5)			5.51 (140)	3.75 (95.2)
	900/1500	3.19 (81)	7.80 (181.5)			4.33 (110)	3.13 (79.4)
	2500	2.60 (66)	8.39 (196.5)			4.92 (125)	3.50 (88.9)
NPS1 (DN25)	150	2.83 (72)	9.37 (221.5)	3.5 (88.9)	7.09 (180)	5.91 (150)	4.00 (101.6)
	300		9.76 (231.5)			6.30 (160)	4.25 (108.0)
	600	3.23 (82)	9.37 (221.5)			5.91 (150)	4.00 (101.6)
	900/1500	3.50 (89)	9.76 (231.5)			6.30 (160)	4.25 (108.0)
	2500	2.60 (66)	7.80 (181.5)			4.33 (110)	3.13 (79.4)

# Ordering Number Description

SBSS - 1NN - BWE12 - MM16300 - V8 - GSF2

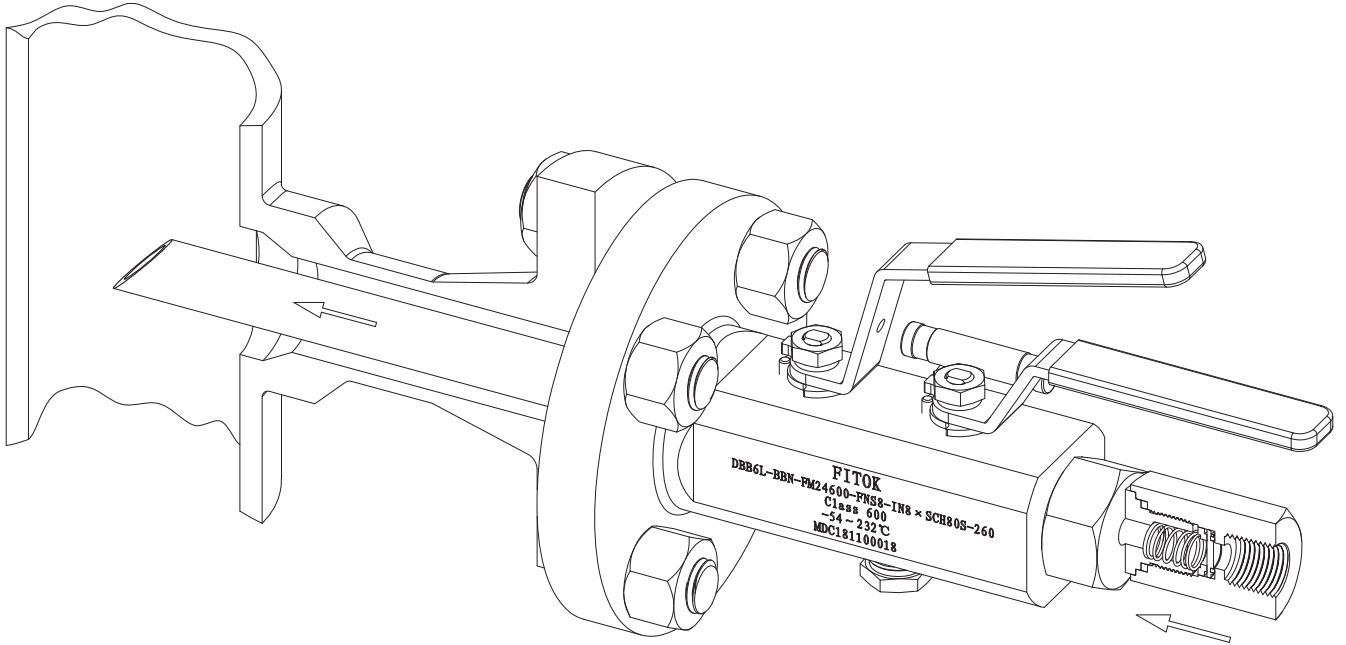


- For more information about hazards and risks of oxygen-enriched system, please contact FITOK Group or our authorized distributors.
- Cleaning and Packaging:
  - 2.2 FC-01: Standard cleaning and packaging for general industrial procedures.
  - 2.2 FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C.
- If there is a bypass outlet in addition to the vent port (with valve), the following designators apply:
  - V4V8: V8 for 1/2 Female NPT vent, V4 for 1/4 Female NPT bypass outlet.
  - V8V4: V4 for 1/4 Female NPT vent, V8 for 1/2 Female NPT bypass outlet.
  - 2V4: 1/4 Female NPT vent and 1/4 Female NPT bypass outlet.
  - 2V8: 1/2 Female NPT vent and 1/2 Female NPT bypass outlet.

# Injection Type Block and Bleed Valves

## Features

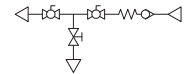
- ⦿ Injection of chemicals and other media into the process stream
- ⦿ A check valve is installed to prevent process fluid from reaching the inlet injection position
- ⦿ The length of the injection nozzle orifice can be manufactured to meet customer requirements



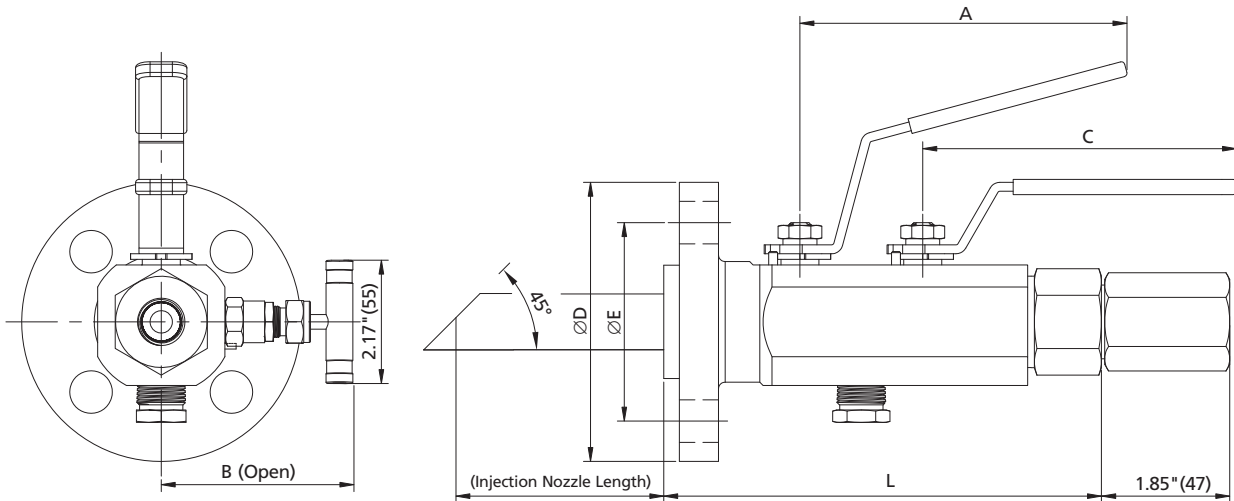
## Valve Types and Dimensions

### Double Block and Bleed Valves (DBB)

- ⦿ Configuration (BBN): ball isolate, ball isolate, needle vent, check valve at inlet, injection nozzle at outlet  
Connection: Flange+Thread

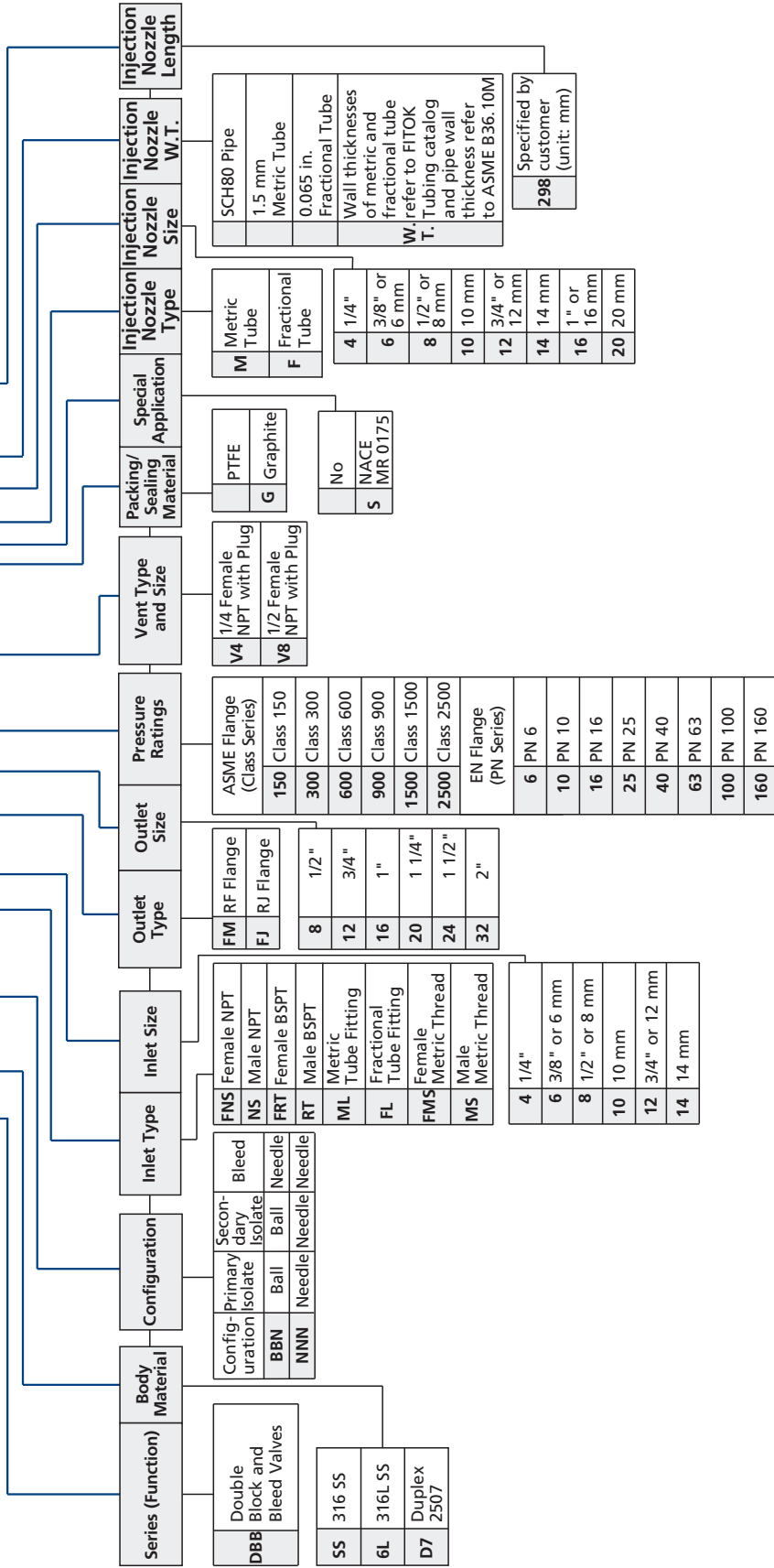


Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DBB□□-BBN-FNS□-FM□□□□-V□-IN□□-□	RF Flange	Female NPT	Female NPT	See Tables 1-3
DBB□□-BBN-FNS□-FJ□□□□-V□-IN□□-□	RJ Flange	Female NPT	Female NPT	



# Ordering Number Description

**DBBSS - BBN - FNS8 - FM16300 - V8 - INGS**  
**M12x2 - 298**

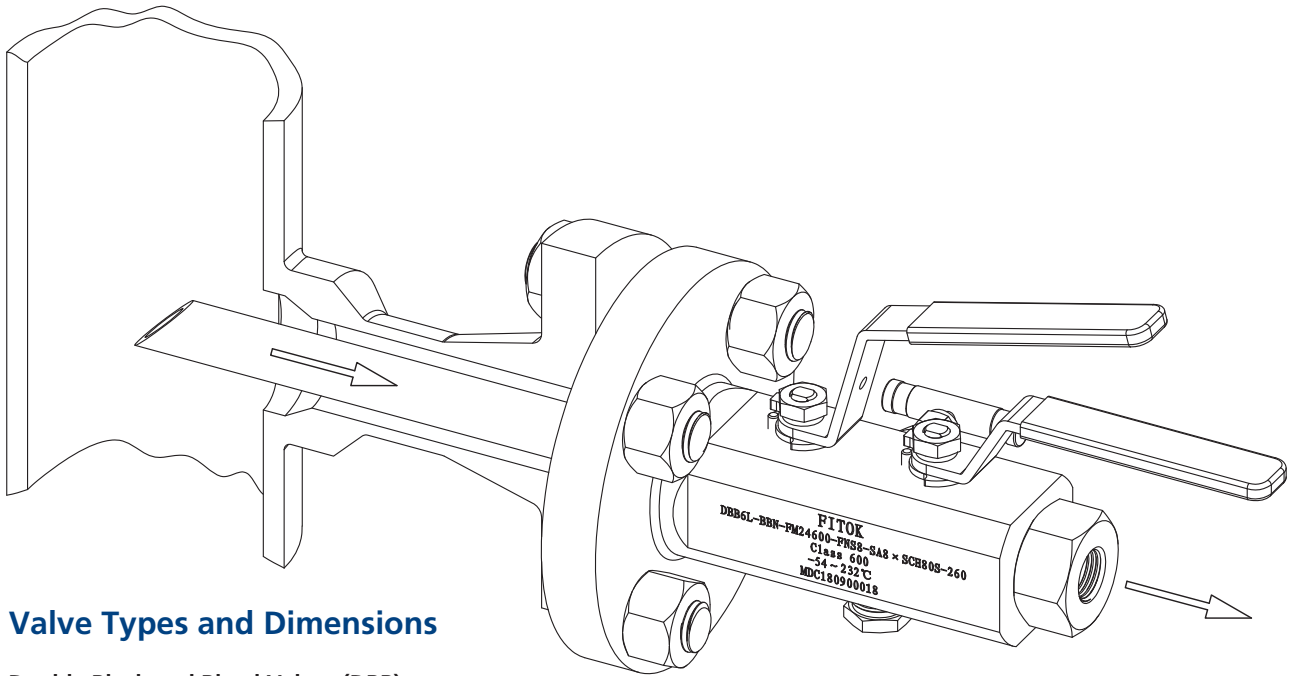


Note: For more information about hazards and risks of oxygen-enriched system, please contact FITOK Group or our authorized distributors.

# Sampling Type Block and Bleed Valves

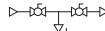
## Features

- Developed to remove a sample directly from process stream at full system pressure
- Customized sampling probe extends from the pipe flange connection for correct sample removal
- Sampling probe length is manufactured to meet customer requirements

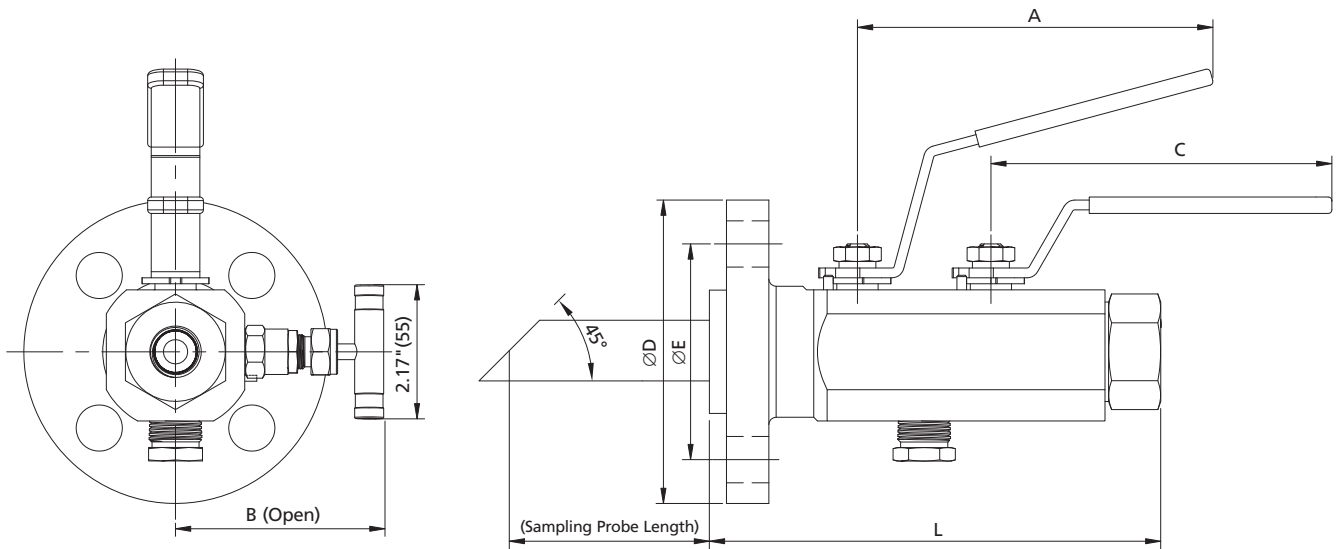


## Valve Types and Dimensions

### Double Block and Bleed Valves (DBB)

- Configuration (BBN): ball isolate, ball isolate, needle vent, sampling probe at inlet  Connection: Thread+Flange

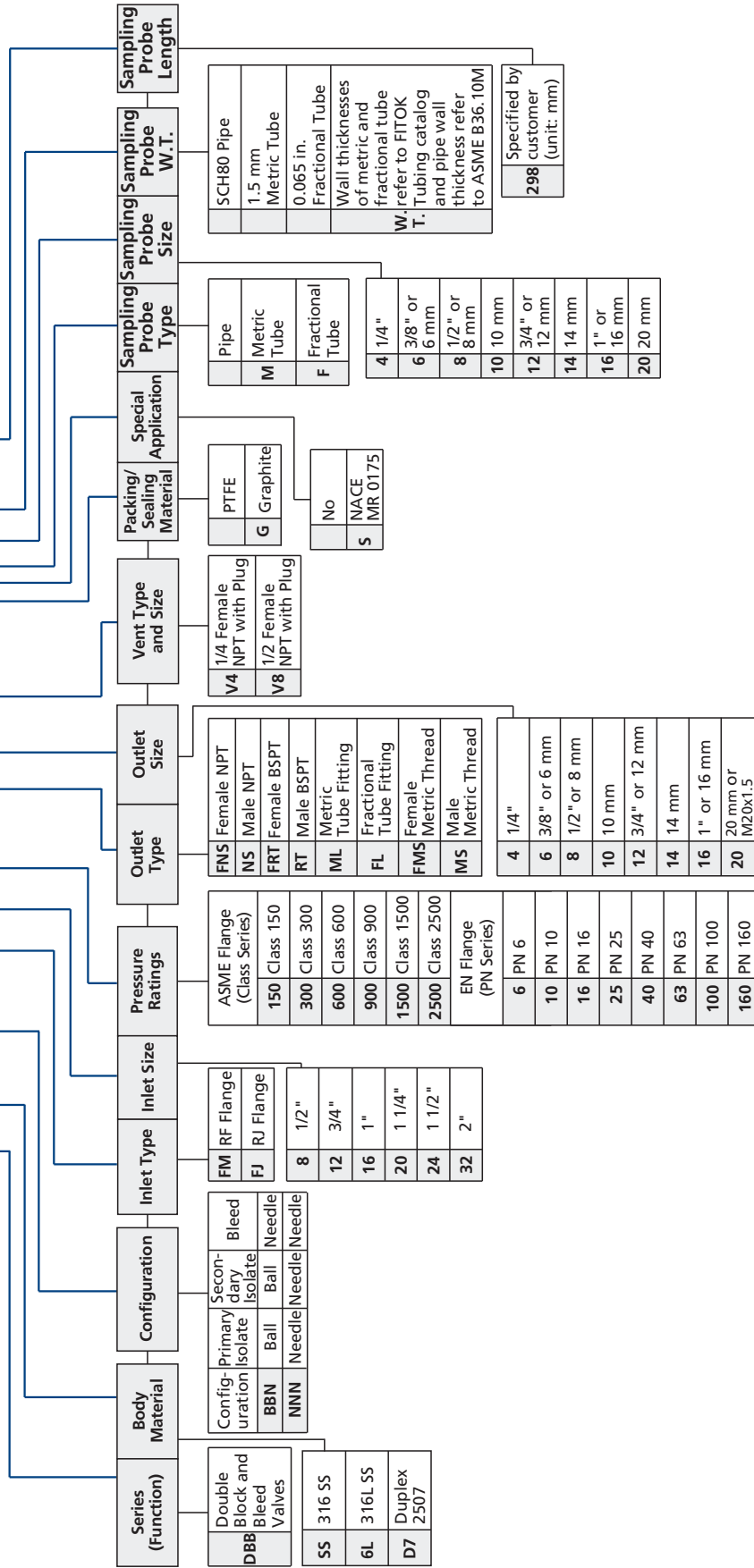
Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent	Dimensions
DBB□□-BBN-FM□□□□-FNS□-V□-SA□-□	RF Flange	Female NPT	Female NPT	See Tables 1-3
DBB□□-BBN-FJ□□□□-FNS□-V□-SA□-□	RJ Flange	Female NPT	Female NPT	





# Ordering Number Description

DBBSS - BBN - FM16300 - FNS8 - V8 - SAGSF12x2 - 298

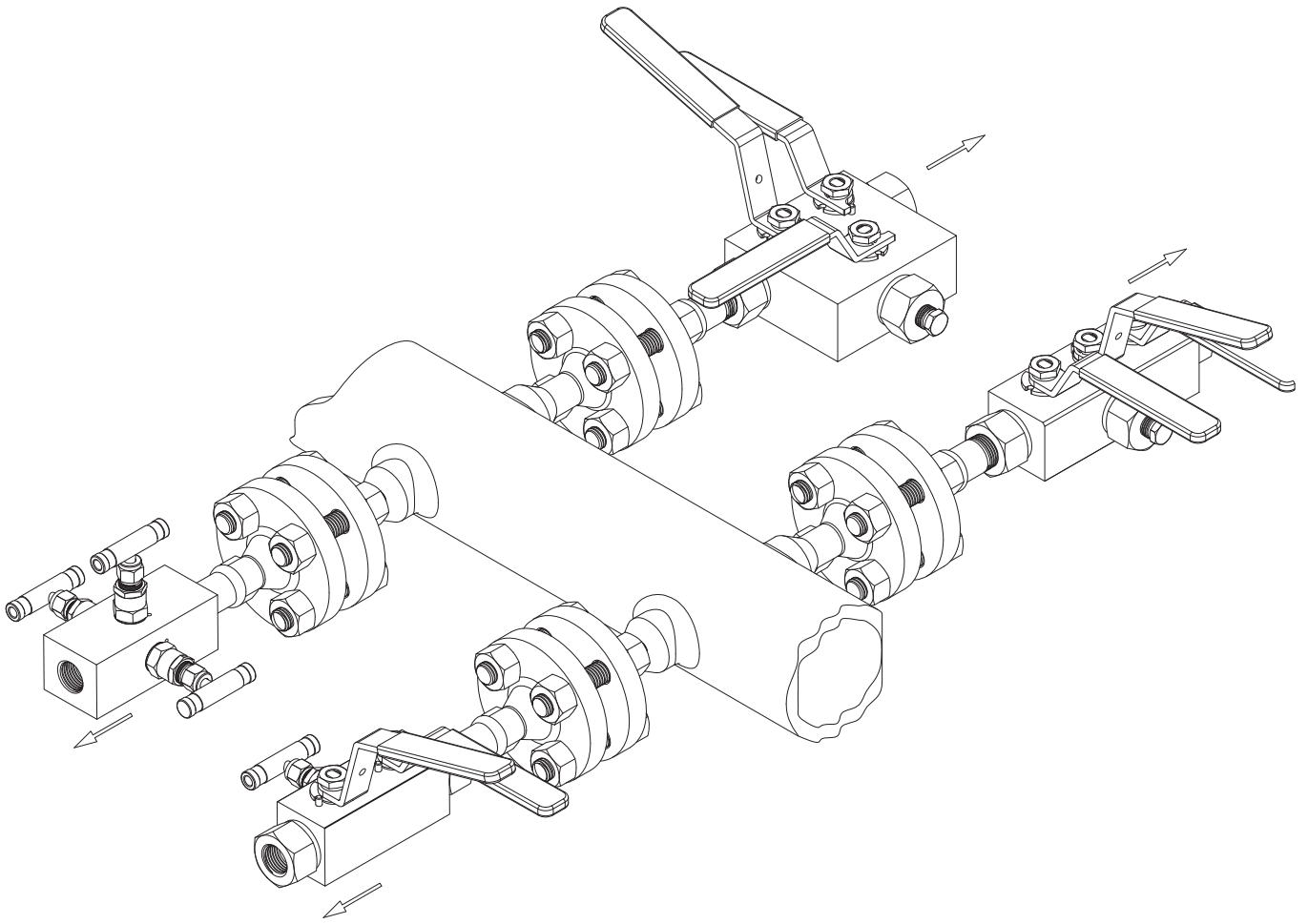


Note: For more information about hazards and risks of oxygen-enriched system, please contact FITOK Group or our authorized distributors.

# Instrument Block and Bleed Valves


## Features

- ⦿ Integrally forged body
- ⦿ A variety of instrument connections available
- ⦿ 1/4 female NPT standard vent with plug

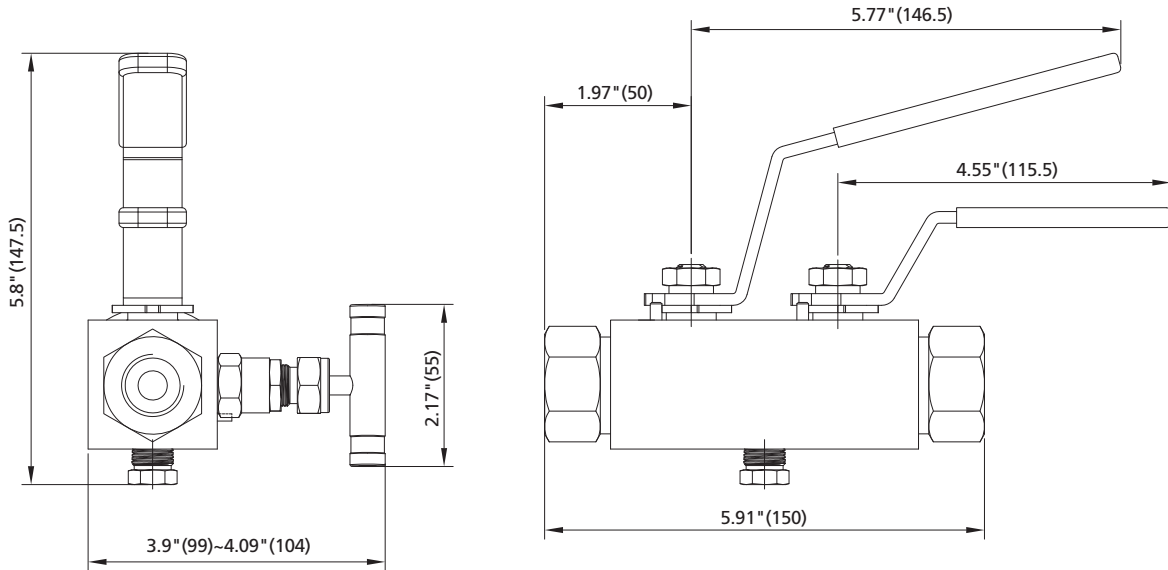



## Valve Types and Dimensions

### Double Block and Bleed Valves (BBN)

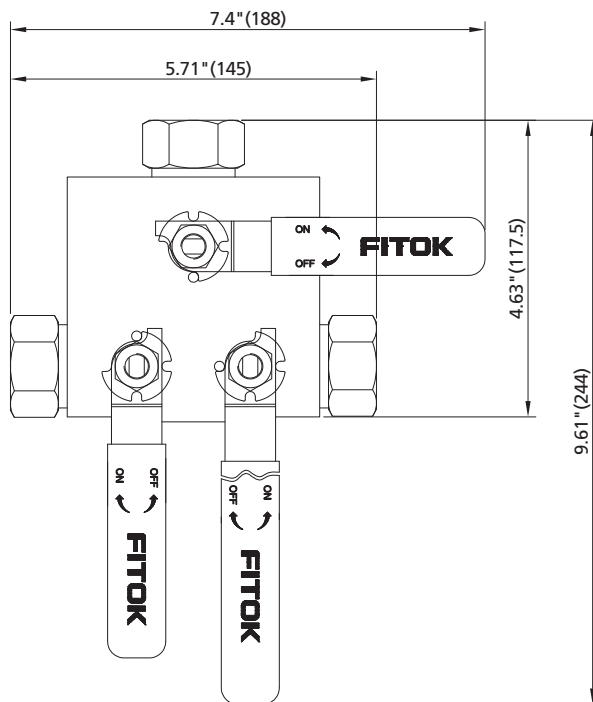
© Configuration (BBN): ball isolate, ball isolate, needle vent  Connection: Thread+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent
DBB□□-□BBN□-FNS□-V4-V	Female NPT	Female NPT	1/4 Female NPT




© Configuration (BBB): ball isolate, ball isolate, ball vent  Connection: Thread+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent
DBB□□-BBB□-FNS□-V4-C	Female NPT	Female NPT	1/4 Female NPT

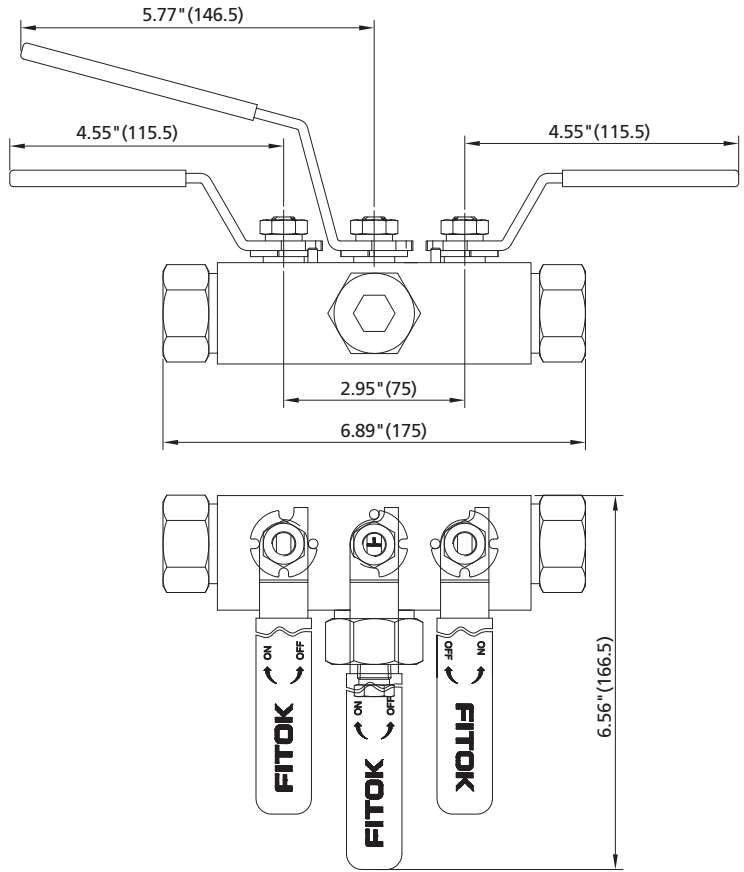



Manifolds

# C-70 Block and Bleed Valves

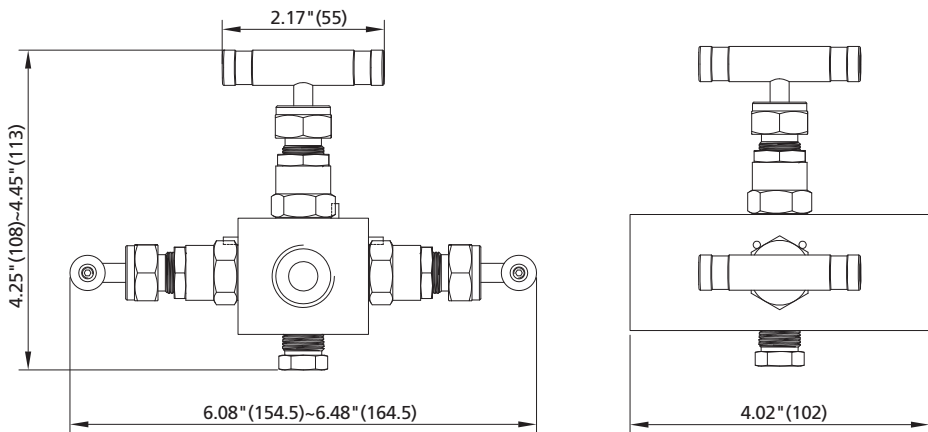
⊙ Configuration (BBB): ball isolate, ball isolate, ball vent  Connection: Thread+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent
DBB□□-BBB□-FNS□-V4-L	Female NPT	Female NPT	1/4 Female NPT




⊙ Configuration (NNN): needle isolate, needle isolate, needle vent  Connection: Thread+Thread

Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent
DBB□□-□NNN-FNS□-V4-V	Female NPT	Female NPT	1/4 Female NPT

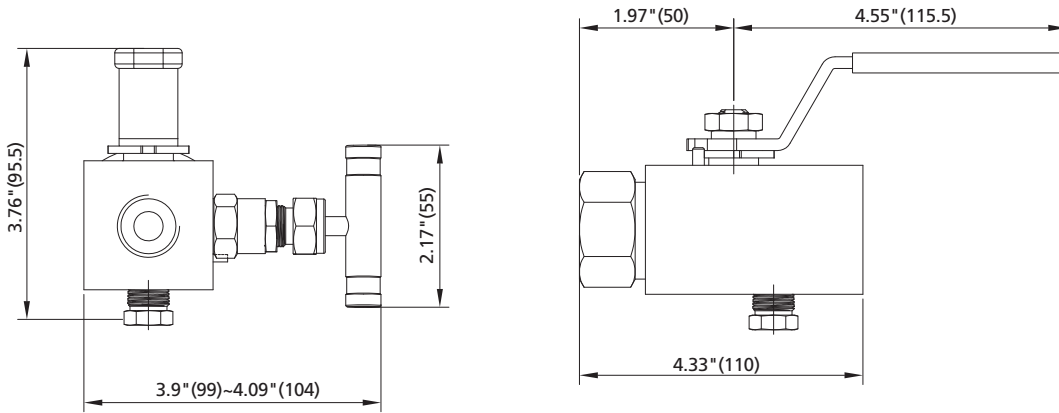



Single Block and Bleed Valves (BB)

⊙ Configuration (BN): ball isolate, needle vent 

Connection: Thread+Thread

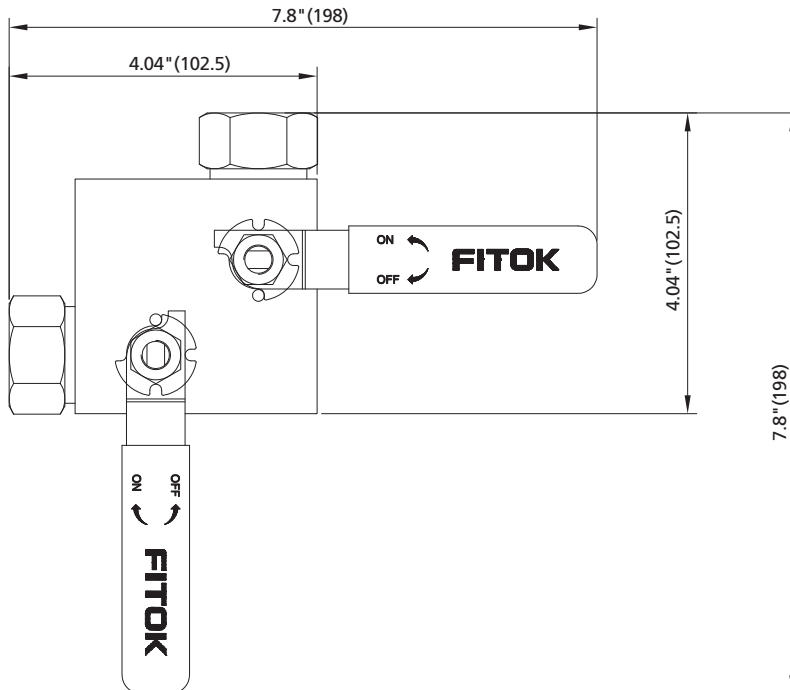
Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent
BB□□-□BN□-FNS□-V4-V	Female NPT	Female NPT	1/4 Female NPT



⊙ Configuration (BB): ball isolate, ball vent 

Connection: Thread+Thread

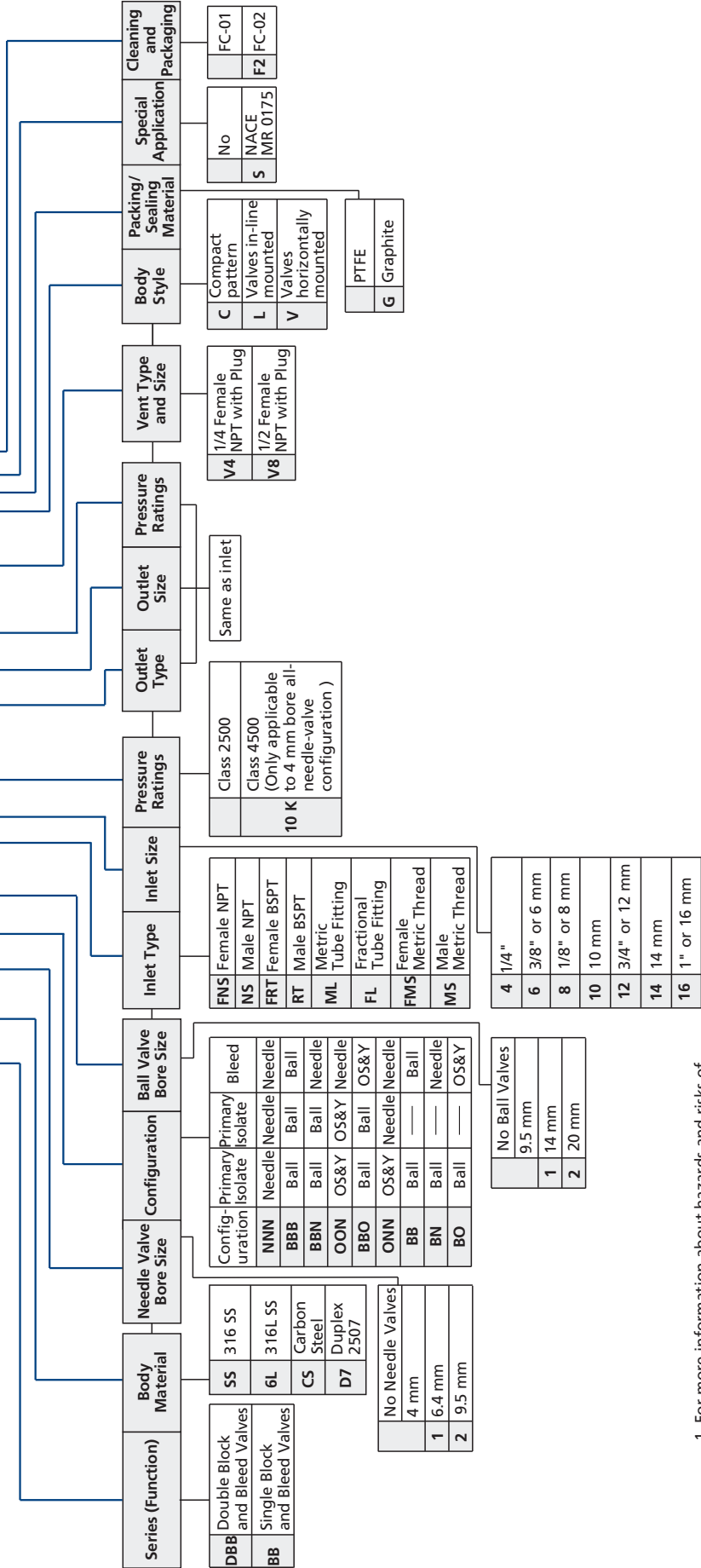
Basic Ordering Information	Inlet/Process Connection	Outlet/Instrument Connection	Bleed/Vent
BB□□-□BB□-FNS□-V4-C	Female NPT	Female NPT	1/4 Female NPT



Manifolds

# Ordering Number Description

DBBSS - 1BBN1 - NS810K - FNS810K - V4 - CGSF2



- For more information about hazards and risks of oxygen-enriched system, please contact FITOK Group or our authorized distributors.
- Cleaning and Packaging:
  - FC-01: Standard cleaning and packaging for general industrial procedures.
  - FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C.

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FK-IC-GV-13-EN-21V1