

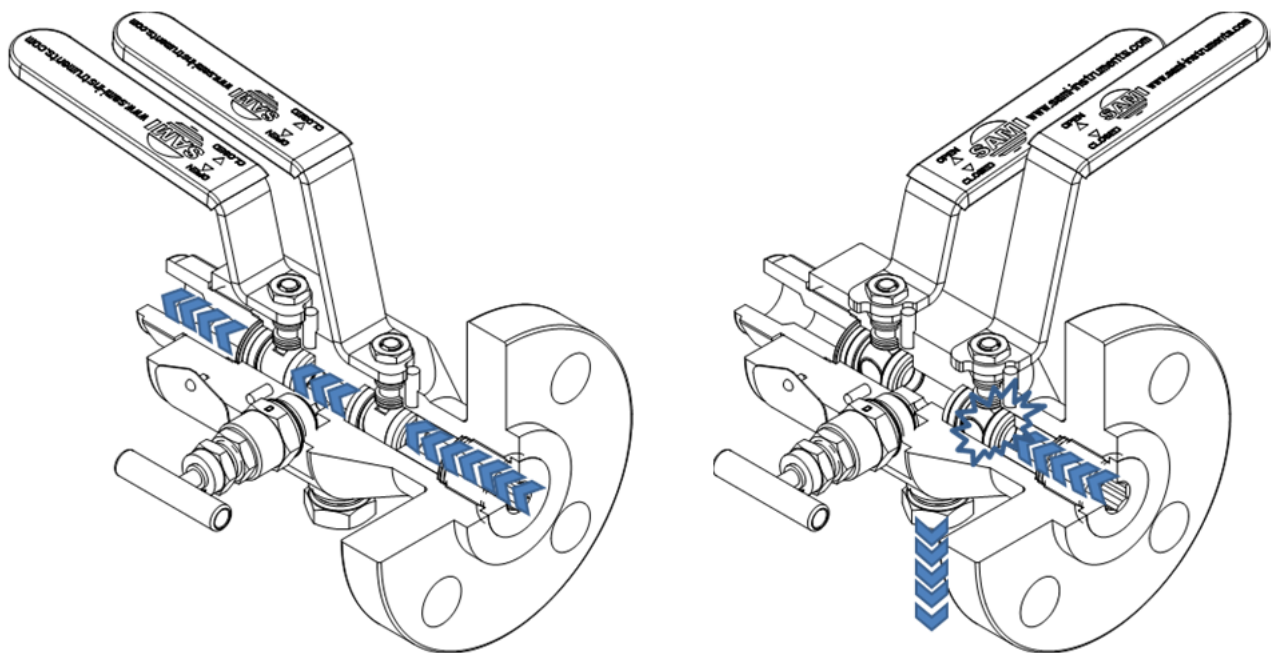
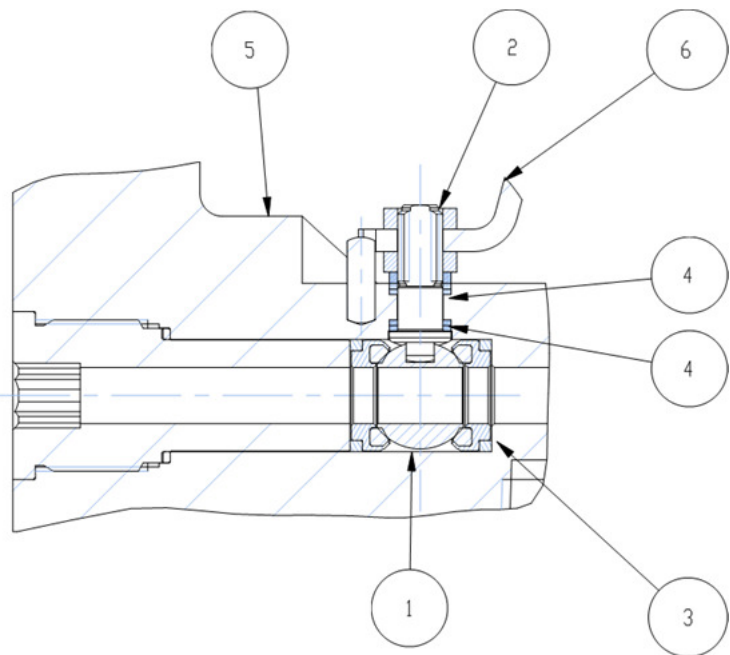
Instrumentation Ball Valves



Ball Valve

Main Components:

1. **Obturator or closure member:** part of the valve positioned in the flow stream to allow or prevent the flow (ball or tip);
2. **Stem:** part which connects the obturator to the operator. It can consist of one or more components;
3. **Seats:** parts of the valve which allow sealing against obturator;
4. **Gaskets:** parts which allow sealing between body and stem;
5. **Body and closures:** parts which contain the fluid and all the parts of the valve;
6. **Operator:** wrench or wheel which moves the obturator.

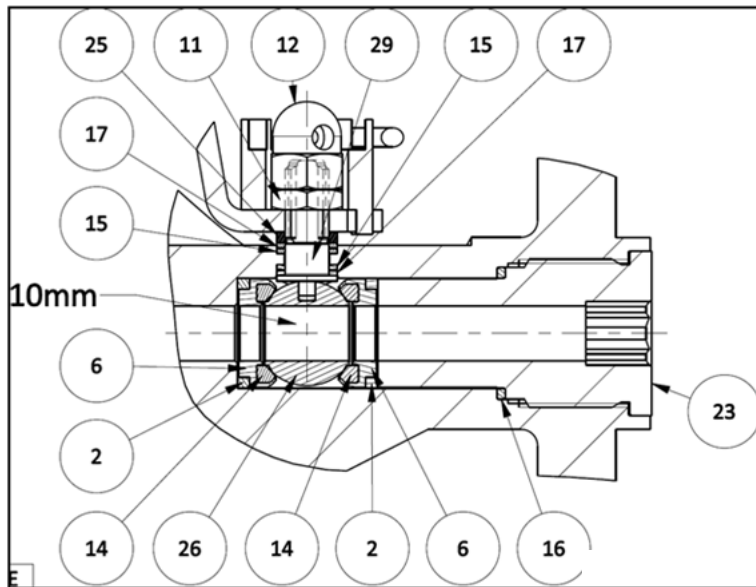


Working principle

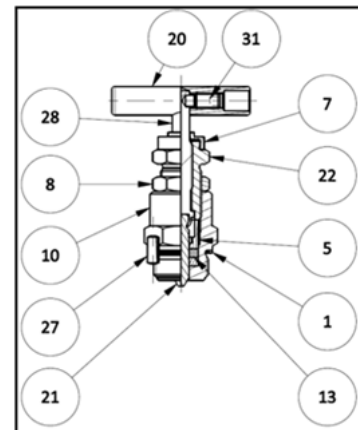
- During the normal work the cylindrical section of the balls is coaxial with the fluid passage;
- Vent valve is normally closed;
- The first wrench (operator) is rotated to the right up to 90°;
- The cylindrical section of ball is perpendicular to the flow so the fluid is stopped;
- Vent valve is open to vent the fluid from the cavity of the valve and from downstream;
- The second wrench is rotated to the right to close the second obturator.
- Flow is now completely stopped.

Ball and Needle

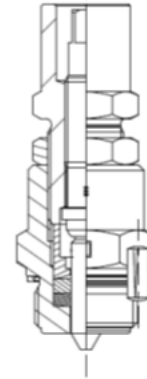
Ball bore size 10 mm



Vent (Needle)



Antitamper Bonnet
(optional)



NO	DESCRIPTION	MATERIAL	QTY
1	Seal ring 5.5	AISI 316L	1
2	Ring cap rear - PTFE	PTFE	4
3	Valve body FLG/FLG	ASTM A105N	1
4	Locking device	AISI 303	2
5	Seal bush 5.5 GRAPHOIL	AISI 316L	1
6	Seat base	AISI 316L	4
7	VENT Cap	Hytrel RED	1
8	Lock nut	AISI 316L	1
9	Handle cover SAMI	Vinile colore RAL 5012	2
10	Body Bonnet 5.5 STD	C50	1
11	Hexagonal nut M8 UNI EN 24035 A4	A4 - AISI 316L	2
12	EXAGONAL NUT UNI 5721 M8	A4	2
13	Bonnet seal - Graphoil	GRAPHOIL	2
14	Seat	PTFE	4
15	Graphoil gasket	GRAPHOIL d.1.75	4
16	Metal seal ring	AISI 316L	2
17	PTFE gasket	PTFE	4
18	Padlock Viro 551.24.0.69		2
19	Handle H=45mm	A350 LF2	2
20	Handle bar STD.	AISI 303	1
21	Plug 5.5 STD	AISI 316L	1
22	Gland Nut 5.5 STD	C50	1
23	Fastening fitting	A350 LF2	2
24	RIVET UNI 7346 2.5X6.5	C15	2
25	Stem pack press washer	AISI 316L	2
26	Ball bore 10mm	AISI 316L	2
27	PIN UNI 1474-S4 4X10	A2	3
28	Bonnet 5.5 stem STD	AISI 316L	1
29	Ball stem	AISI 316L	2
30	Plate features	AISI 316L	1
31	SCREW STEI UNI 5925 M6X12	A4	1

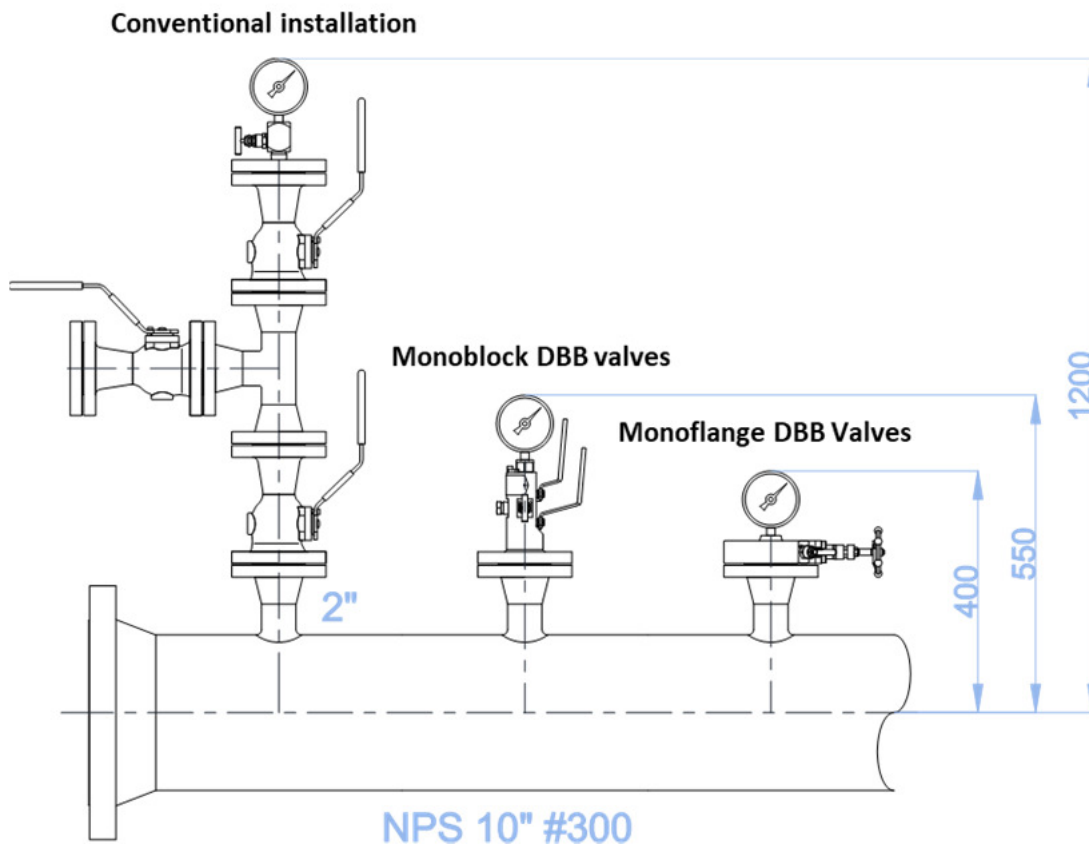
Non-rotating Metal Stem Tip (needle valve)

A non rotating stem tip is typically used in high cycle applications to extend the service life of the valve. Its purpose is to prevent galling of the valve seat in contact with the non-rotating stem, which is driven straight into it without rotating.

Main features:

- T-bar easy manoeuvrability with minimum effort
- PTFE packing standard, optional graphite
- Anti-static device
- Stainless steel construction as standard, optional: carbon steel LF2, Duplex, Super Duplex, Monel 400, Hastelloy C276, Inconel 625, etc.
- Colour coded functional identification
- Externally adjustable gland
- Variety of end connections
- Standard Drain/Vent connection: 1/2" NPT-F
- Dust cap to prevent contaminations on the operating thread.

DBB valves



Monoblock DBB Valves are designed to overcome the problems of traditional assemblies on primary isolation systems:

- Lighter: 60% less heavy;
- More compact: 70% space saved;
- Faster: installation and maintenance;
- Safer: less possible leakage points;
- Positive isolation: improved tightness;
- Low-cost: less quantity of piping for connections;
- Long life: less piping stress and vibrations.

Features

- AISI 316 handle and stop pin as standard for corrosion resistance
- Blowout proof one-piece stem spindle
- Fully encapsulated ball seats
- Super finished ball for low operating torque and long life
- 10 mm bore
- Firesafe to BS 6755 PART. 2
- Standard temperature with PEEK packing: $-54^{\circ}\text{C}/+260^{\circ}\text{C}$ ($-65^{\circ}\text{F}/+500^{\circ}\text{F}$)
- Standard temperature with PTFE Carbographite packing: $-46^{\circ}\text{C}/+180^{\circ}\text{C}$ ($-50^{\circ}\text{F}/+356^{\circ}\text{F}$)

Standard Ball Packing for 10 mm bore size:

- From rating 150 to 600 included: PTFE Carbographite.
- From rating 900 to rating 2500 included: PEEK.
- Other packing materials are available on demand.

Standards

Standards applicable to our Instrumentation ball valves

API 6D	Specification for Pipeline Valves (Gate, Plug, Ball and Check Valves)
API 6A	Specification for Wellhead and Christmas Tree Equipment
ASME B16.34	Steel Valves - Flanged & Butt welding Ends
ASME B16.10	Face-to-Face Dimensions of Ferrous Valves
API 598	Valve Inspection & Testing
EN ISO 10497 Ed. 2010 API 607 Ed. 2010	Firesafe

Flange sizes of Sami Instrumentation Ball Valves comply with ASME and API standards

API - ISO 10423

Size (in)	Class	Flange / Flangia					Rised face (in)	Prigioniero (in)	Rised face (mm)
		D (mm)	b ₁ (mm)	b ₂ (mm)	g (mm)	k (mm)			
1/2"	15	89,9	11,1	-	34,9	60,3	1/2"	1,6	
3/4"	20	98,4	12,7	-	42,9	69,8			
1"	25	107,9	14,3	-	50,8	79,4			
1 1/4"	32	117,5	15,9	-	63,5	88,9			
1 1/2"	40	127,0	17,5	-	73,0	98,4			
2"	50	152,4	19,05	-	92,1	120,6			
2 1/2"	60	190,5	22,9	-	114,3	152,4			

Size	DN	Class	Flange / Flangia			Risalto	Flange holes			Prigioniero	Rised face
			D (mm)	b ₁ (mm)	b ₂ (mm)	g (mm)	Numero	l (mm)	k (mm)		
1/2"	15	150 LB	89,9	11,1	-	34,9	4	15,9	60,3	1/2"	1,6
3/4"	20		98,4	12,7	-	42,9					
1"	25		107,9	14,3	-	50,8					
1 1/4"	32		117,5	15,9	-	63,5					
1 1/2"	40		127,0	17,5	-	73,0					
2"	50		152,4	19,05	-	92,1					
2 1/2"	60		190,5	22,9	-	114,3					

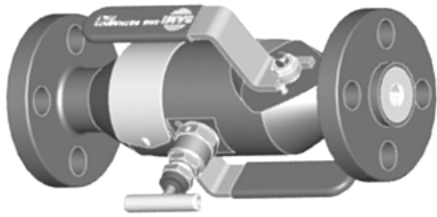
ANSI B16.5

Size (in)	Class	D (mm)	b ₁ (mm)	b ₂ (mm)	g (mm)	k (mm)	Prigioniero (in)	Rised face (mm)
1/2"	15	89,9	11,1	-	34,9	60,3	1/2"	1,6
3/4"	20	98,4	12,7	-	42,9	69,8	1/2"	1,6
1"	25	107,9	14,3	-	50,8	79,4	1/2"	1,6
1 1/4"	32	117,5	15,9	-	63,5	88,9	1/2"	1,6
1 1/2"	40	127,0	17,5	-	73,0	98,4	1/2"	1,6
2"	50	152,4	19,05	-	92,1	120,6	1/2"	1,6
2 1/2"	60	190,5	22,9	-	114,3	152,4	1/2"	1,6

Flange Finish
Our standard flange finish is RF Smooth Finish.
Other flange ends and finishes are also available upon request.

Configurations

Our instrumentation Ball range (10 mm bore size):



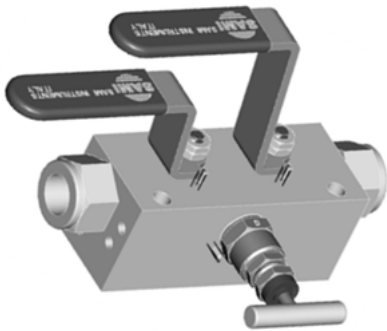
Flanged/Flanged

Our series: BB



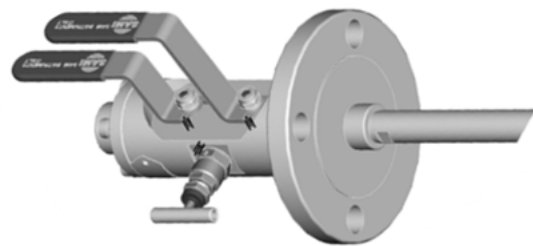
Flanged/Threaded

Our series: BA



Threaded/Threaded

Our series: BC



Injection and Sampling

Our series: JA and SF

How to order: Flanged Ball Valves

Flanged/Threaded - Flanged /Flanged

Model	Configuration	Trim	Rating	Inlet Size	End Type	Outlet Size	Material	Options
BA	1	A	1	A	B	2	A	A

Model		Configuration		Trim		Rating	
BA	DBB Flanged/Threaded	1	Block - Bleed - Block	A	BALL, NEEDLE, BALL	1	150 lbs
BB	DBB Flanged/Flanged	3	Block - Block - Bleed	B	BALL, NEEDLE, NEEDLE	2	300 lbs
NA	NEEDLE DBB Flanged/Threaded	5	Block - Bleed	C	BALL, BALL, NEEDLE	3	600 lbs
NB	NEEDLE DBB Flanged/Flanged	7	Block - Block	E	BALL, NEEDLE	4	900 lbs
		9	Block	F	BALL, BALL	5	1500 lbs
				H	NEEDLE, NEEDLE	6	2500 lbs
				I	NEEDLE,NEEDLE,NEEDLE		
				O	BALL		
				Q	NEEDLE		
				R	BALL, BALL, BALL		

Inlet Size		End Type		Outlet Size		Material		Options	
A	1/2"	A	RF Stock Finish	1	1/4" NPT	A	Aisi 316L	A	Drain / Vent 1/4"
B	3/4"	B	RF Smooth Finish	2	1/2" NPT	C	Aisi 316 Ti	B	Drain / Vent 3/4"
C	1"	E	RTJ Ring Joint	3	3/4" NPT	D	Monel 400	C	Locking Device on blocks
D	1 1/2"	G	FF Smooth Finish	4	1" NPT	E	Duplex F51	D	Drain/Vent Anti-Tamper
E	2"			5	Flanged = IN	G	Super Duplex F55	H	Ball Packing - Peek
F	3"					H	Hastelloy C276	M	Needle Tip in Stellite 6
						I	Inconel 625	O	Ball Packing PTFE
						J	Incolloy 825	X	100% 316L
						L	Titanium		
						M	A350-LF2		

Instrumentation Ball Valves

Sami Instruments monoblock valves provide a smooth transition from process to instrumentation systems in a single, compact assembly. Benefits include fewer leak points and reduced size and weight compared to traditional systems.

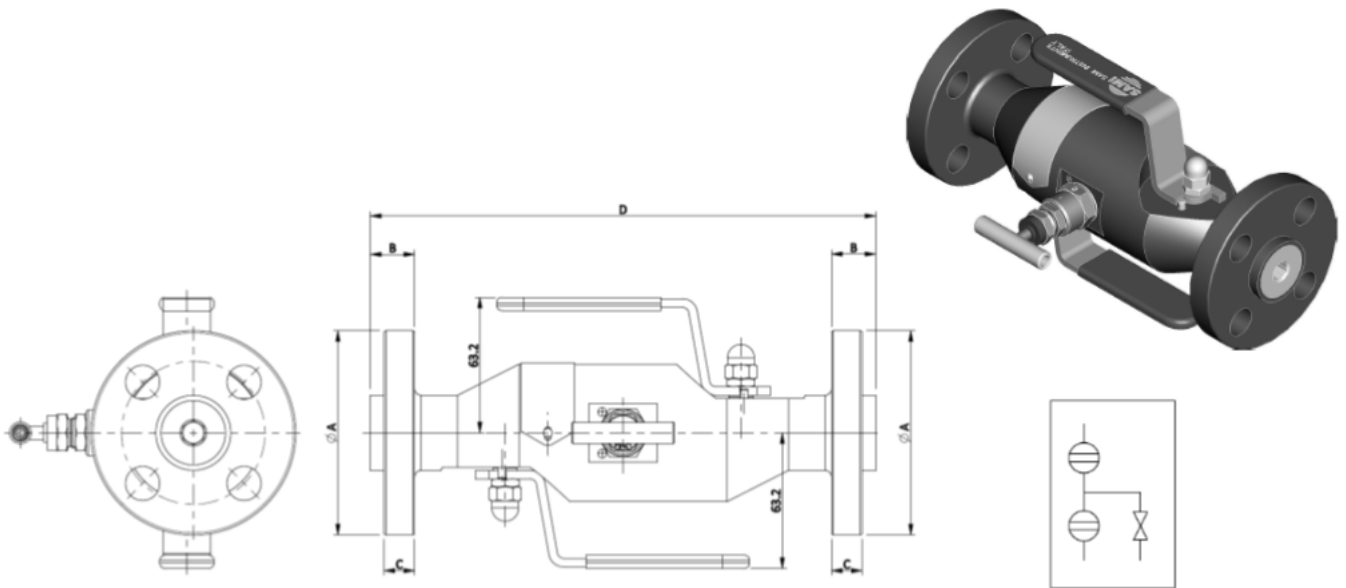


Features

- Process interface in one compact ball/needle/ball valve assembly
- One piece forged body
- Available configurations: compact block, block and bleed and double block and bleed
- Flange connections in compliance with ASME B16.5 RF and RTJ; NPT connections in compliance with ASME B1.20.1
- Anti-blowout valve stems and needles
- Rating from 150 up to 2500
- Stainless steel handle standard with full grip PVC sleeve
- Stop pin
- One-piece stem spindle
- Finished ball for low operating torque and long life
- Externally adjustable gland
- Bore size 10 mm



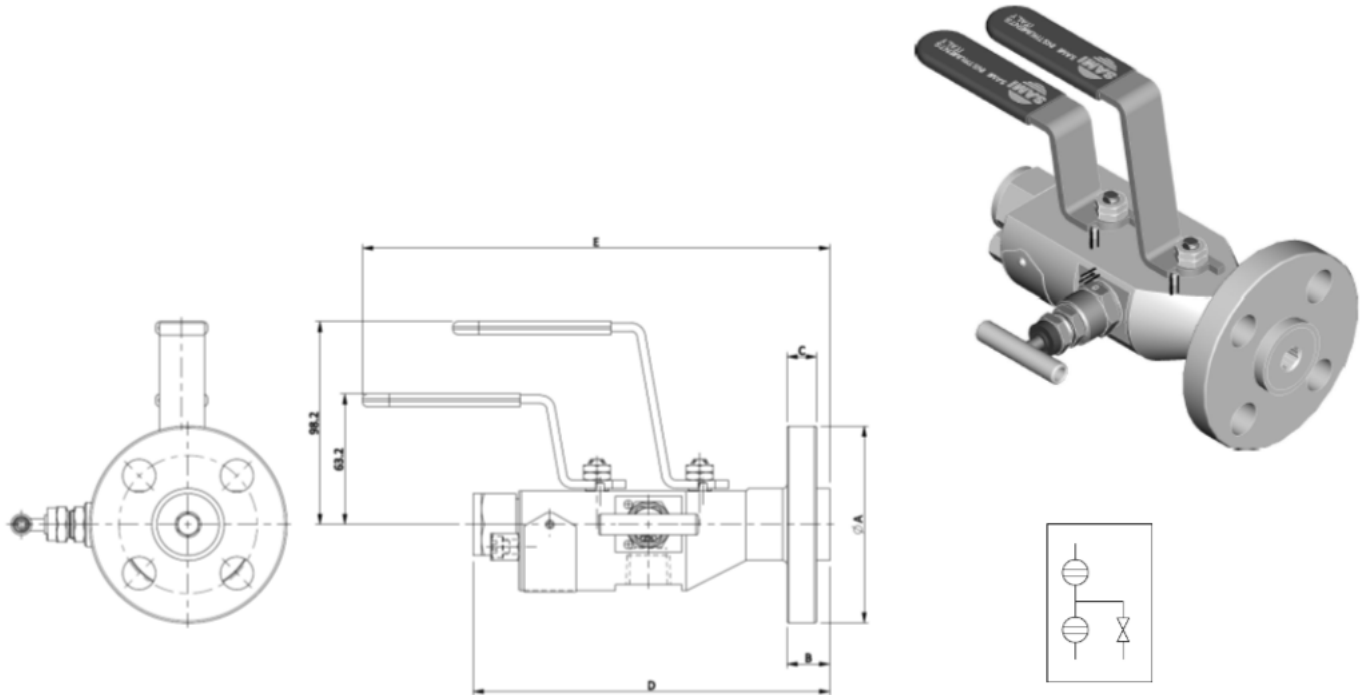
Flanged / Flanged configuration



PART NUMBER	FEATURES					
	RATING		A	B	C	D
BB1 A1AB5A	1/2"	150	88.9	11.1	9.5	235
BB1 A1BB5A	3/4"	150	98.4	12.7	11.1	235
BB1 A1CB5A	1"	150	107.9	14.3	12.7	235
BB1 A1DB5A	1-1/2"	150	127	17.5	15.9	235
BB1 A1EB5A	2"	150	152.4	19.05	17.45	254
BB1 A2AB5A	1/2"	300	95.2	14.3	12.7	235
BB1 A2BB5A	3/4"	300	117.5	15.9	14.3	235
BB1 A2CB5A	1"	300	123.8	17.5	15.9	235
BB1 A2DB5A	1-1/2"	300	155.6	20.6	19	254
BB1 A2EB5A	2"	300	165.1	22.2	20.6	254
BB1 A3AB5A	1/2"	600	95.2	20.6	14.3	235
BB1 A3BB5A	3/4"	600	117.5	22.2	15.9	235
BB1 A3CB5A	1"	600	123.8	23.8	17.5	254
BB1 A3DB5A	1-1/2"	600	155.6	28.5	22.2	254
BB1 A3EB5A	2"	600	165.1	31.7	25.4	267

PART NUMBER	FEATURES					
	RATING	RATING	A	B	C	D
BB1 A4AB5A	1/2"	900	120.6	28.5	22.2	254
BB1 A4BB5A	3/4"	900	130.2	31.7	25.4	254
BB1 A4CB5A	1"	900	149.2	34.9	28.6	267
BB1 A4DB5A	1-1/2"	900	177.8	38	31.7	267
BB1 A4EB5A	2"	900	215.9	44.4	38.1	314
BB1 A5AB5A	1/2"	1500	120.6	28.5	22.2	254
BB1 A5BB5A	3/4"	1500	130.2	31.7	25.4	254
BB1 A5CB5A	1"	1500	149.2	34.9	28.6	367
BB1 A5DB5A	1-1/2"	1500	177.8	38	31.7	267
BB1 A5EB5A	2"	1500	215.9	44.4	38.1	314
BB1 A6AB5A	1/2"	2500	133.35	36.5	30.2	267
BB1 A6BB5A	3/4"	2500	139.7	38	31.7	267
BB1 A6CB5A	1"	2500	158.75	41.2	34.9	267
BB1 A6DB5A	1-1/2"	2500	203.2	50.7	44.4	314
BB1 A6EB5A	2"	2500	234.95	57.1	50.8	334

Flanged / Threaded configuration



PART NUMBER	FEATURES						
	RATING		A	B	C	D	E
BA1 A1AB2A	1/2"	150	88.9	11.1	9.5	172	225.4
BA1 A1BB2A	3/4"	150	98.4	12.7	11.1	172	225.4
BA1 A1CB2A	1"	150	107.9	14.3	12.7	172	225.4
BA1 A1DB2A	1-1/2"	150	127	17.5	15.9	172	225.4
BA1 A1EB2A	2"	150	152.4	19.05	17.45	182	235.4
BA1 A2AB2A	1/2"	300	95.2	14.3	12.7	172	225.4
BA1 A2BB2A	3/4"	300	117.5	15.9	14.3	172	225.4
BA1 A2CB2A	1"	300	123.8	17.5	15.9	172	225.4
BA1 A2DB2A	1-1/2"	300	155.6	20.6	19	182	235.4
BA1 A2EB2A	2"	300	165.1	22.2	20.6	182	235.4
BA1 A3AB2A	1/2"	600	95.2	20.6	14.3	172	225.4
BA1 A3BB2A	3/4"	600	117.5	22.2	15.9	172	225.4
BA1 A3CB2A	1"	600	123.8	23.8	17.5	172	225.4
BA1 A3DB2A	1-1/2"	600	155.6	28.5	22.2	182	235.4
BA1 A3EB2A	2"	600	165.1	31.7	25.4	182	235.4

PART NUMBER	FEATURES						
	RATING	RATING	A	B	C	D	E
BA1 A4AB2A	1/2"	900	120.6	28.5	22.2	182	235.4
BA1 A4BB2A	3/4"	900	130.2	31.7	25.4	182	235.4
BA1 A4CB2A	1"	900	149.2	34.9	28.6	192	245.4
BA1 A4DB2A	1-1/2"	900	177.8	38	31.7	204	257.4
BA1 A4EB2A	2"	900	215.9	44.4	38.1	222	275.4
BA1 A5AB2A	1/2"	1500	120.6	28.5	22.2	182	235.4
BA1 A5BB2A	3/4"	1500	130.2	31.7	25.4	182	235.4
BA1 A5CB2A	1"	1500	149.2	34.9	28.6	192	245.4
BA1 A5DB2A	1-1/2"	1500	177.8	38	31.7	204	257.4
BA1 A5EB2A	2"	1500	215.9	44.4	38.1	222	275.4
BA1 A6AB2A	1/2"	2500	133.35	36.5	30.2	192	245.4
BA1 A6BB2A	3/4"	2500	139.7	38	31.7	192	245.4
BA1 A6CB2A	1"	2500	158.75	41.2	34.9	192	245.4
BA1 A6DB2A	1-1/2"	2500	203.2	50.7	44.4	222	275.4
BA1 A6EB2A	2"	2500	234.95	57.1	50.8	222	275.4

How to order: Threaded Ball Valves

Threaded/Threaded

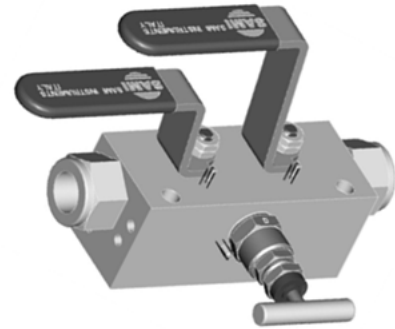
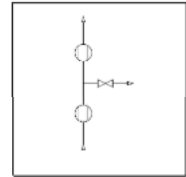
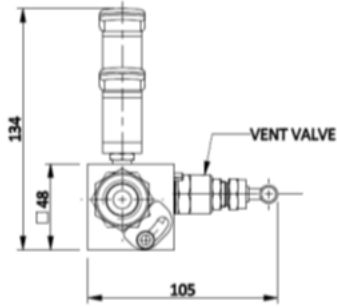
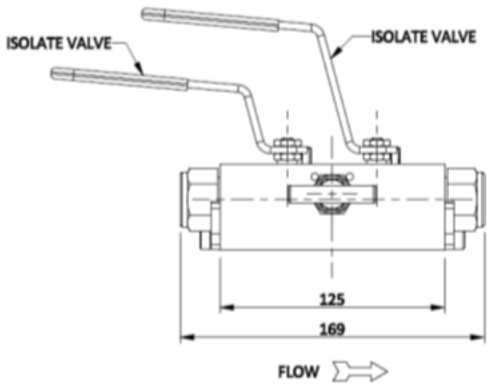
Model	Configuration	Trim	Rating	Inlet Size	End Type	Outlet Size	Material	Options
BC	1	A	7	A	J	2	A	A

Model		Configuration		Trim		Rating	
BC	DBB Threaded/Threaded	1	Block - Bleed - Block	A	BALL, NEEDLE, BALL	7	6.000 psi
		5	Block - Bleed	E	BALL, NEEDLE	8	10.000 psi
		7	Block - Block	F	BALL, BALL		
				R	BALL, BALL, BALL		

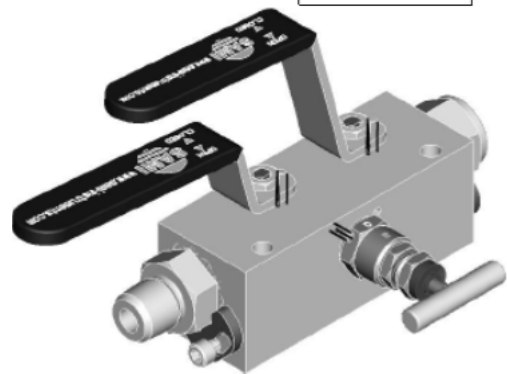
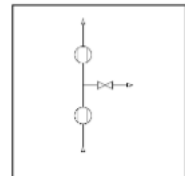
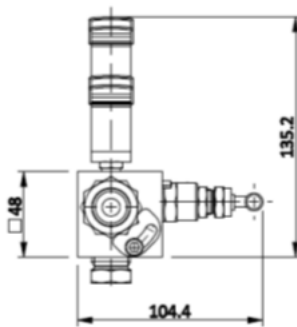
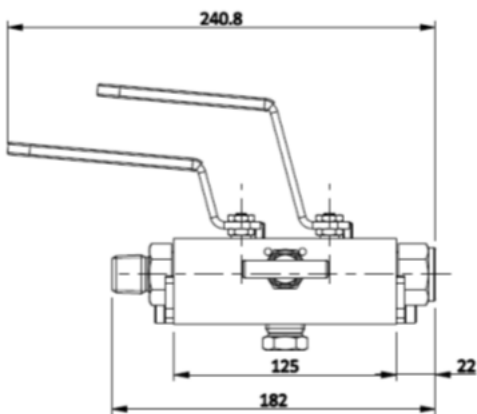
Inlet Size		End Type		Outlet Size		Material		Options	
A	1/2"	J	NPT	1	1/4" NPT	A	Aisi 316L	A	Drain / Vent 1/4"
B	3/4"	L	BSPP	2	1/2" NPT	C	Aisi 316 Ti	B	Drain / Vent 3/4"
C	1"	M	BSPT	3	3/4" NPT	D	Monel 400	C	Locking Device on blocks
		N	S.W.	4	1" NPT	E	Duplex F51	D	Drain/Vent Anti-Tamper
		O	B.W.			G	Super Duplex F55	O	Ball Packing PTFE
						H	Hastelloy C276	P	Connections Male/Male
						I	Inconel 625	Q	Connections Male/Female
						J	Incolloy 825	X	100% 316L
						L	Titanium		
						M	A350-LF2		
						N	F44		

Threaded / Threaded

Female/Female version



Male/Female version



How to order: Injection Ball Valves

Injection Ball Valves (10 mm bore)

Model	Configuration	Trim	Inlet Size	Outlet Size	Rating	End Type	Material	Quill	Options
JA	1	A	2	C	1	B	A	XXX	A

Model		Configuration		Trim		Inlet Size	
JA	Injection Threaded/Flanged Quill 45°	1	Block - Bleed - Block	A	BALL, NEEDLE, BALL	1	1/4" NPT
JB	Injection Flanged/Flanged Quill 45°	5	Block - Bleed	E	BALL, NEEDLE	2	1/2" NPT
JD	Injection Threaded/Flanged Quill Type "B"	9	Block	F	BALL	3	3/4" NPT
JE	Injection Flanged/Flanged Quill Type "B"					4	1" NPT
						5	Flanged = OUT

Outlet Size		Rating		End Type		Material		Quill Length		Options	
C	1"	1	150 lbs	A	RF Stock Finish	A	Aisi 316L	XXX	To Be Advised	A	Drain / Vent 1/4"
D	1 1/2"	2	300 lbs	B	RF Smooth Finish	C	Aisi 316 Ti			B	Drain / Vent 3/4"
E	2"	3	600 lbs	E	RTJ Ring Joint	D	Monel 400	000	N o t	C	Locking Device
F	3"	4	900 lbs	G	FF Smooth Finish	E	Duplex F51			D	Drain/Vent Anti-Tamper
		5	1500 lbs			G	Super Duplex F55			H	Ball Packing - Peek
		6	2500 lbs			H	Hastelloy C276			L	Antivibration Collar
						I	Inconel 625			M	Needle Tip in Stellite 6
						J	Incolloy 825			O	Ball Packing PTFE
						L	Titanium			T	Male Inlet
						M	A350-LF2			X	100% 316L

How to order: Sampling Ball Valves

Sampling Ball Valves (10 mm)

Model	Configuration	Trim	Rating	Inlet Size	End Type	Outlet Size	Material	Quill	Options
SF	1	A	1	A	B	2	A	XXX	A

Model		Configuration		Trim		Rating	
SF	Sampling Flanged/Threaded Quill 1/2"	1	Block - Bleed - Block	A	BALL, NEEDLE, BALL	1	150 lbs
SG	Sampling Flanged/Threaded Quill 3/4"	5	Block - Bleed	E	BALL, NEEDLE	2	300 lbs
		9	Block	F	BALL	3	600 lbs
						4	900 lbs
						5	1500 lbs
						6	2500 lbs

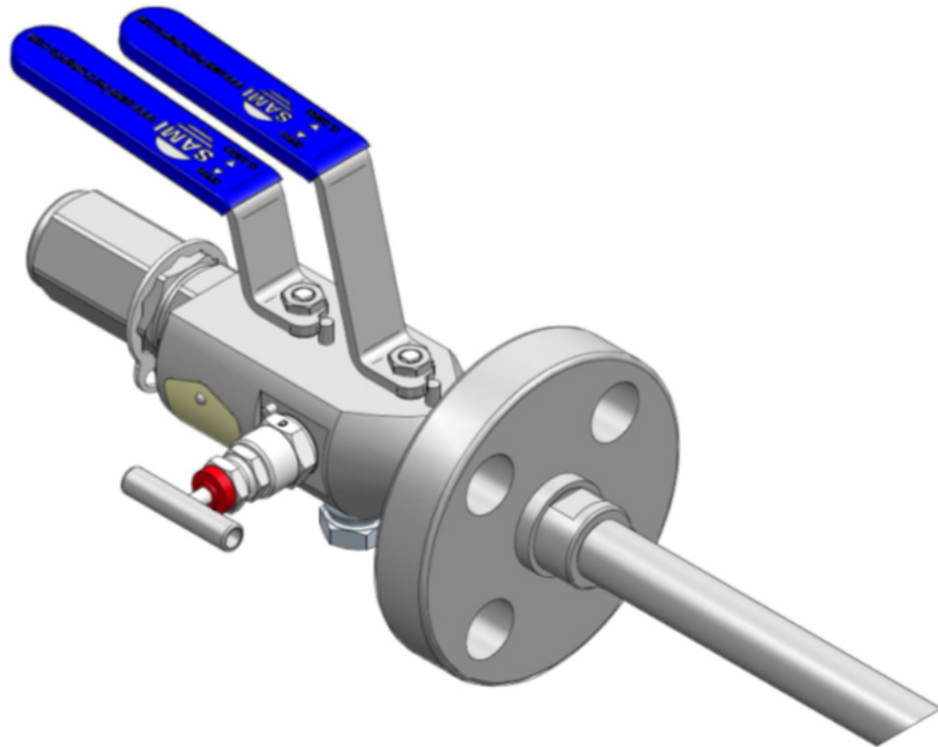
Inlet Size		End Type		Outlet Size		Material		Quill Length		Options	
B	3/4"	A	RF Stock Finish	1	1/4" NPT	A	Aisi 316L	XXX	To Be Advised	A	Drain / Vent 1/4"
C	1"	B	RF Smooth Finish	2	1/2" NPT	C	Aisi 316 Ti			B	Drain / Vent 3/4"
D	1 1/2"	E	RTJ Ring Joint	3	3/4" NPT	D	Monel 400	000	Not	C	Locking Device
E	2"	G	FF Smooth Finish	4	1" NPT	E	Duplex F51			D	Drain/Vent Anti-Tamper
F	3"			5	Flanged = IN	G	Super Duplex F55			H	Ball Packing - Peek
						H	Hastelloy C276			L	Antivibration Collar
						I	Inconel 825			M	Needle Tip in Stellite 6
						J	Incolloy 825			O	Ball Packing PTFE
						L	Titanium			S	Flanged Outlet
						M	A350-LF2			X	100% 316L

Injection and Sampling

Some applications require to extract a sample of the process fluid or to inject a particular chemical directly into the process stream at full operating pressure and temperature.

To meet this requirement our range of Instrumentation Ball Valves can be fitted with either an Injection Quill (plus an integral check valve to prevent back flow into the process stream) or a Sampling Probe designed to meet the individual needs.

If required, we can provide wake frequency calculations according to ASME PTC 19.3.

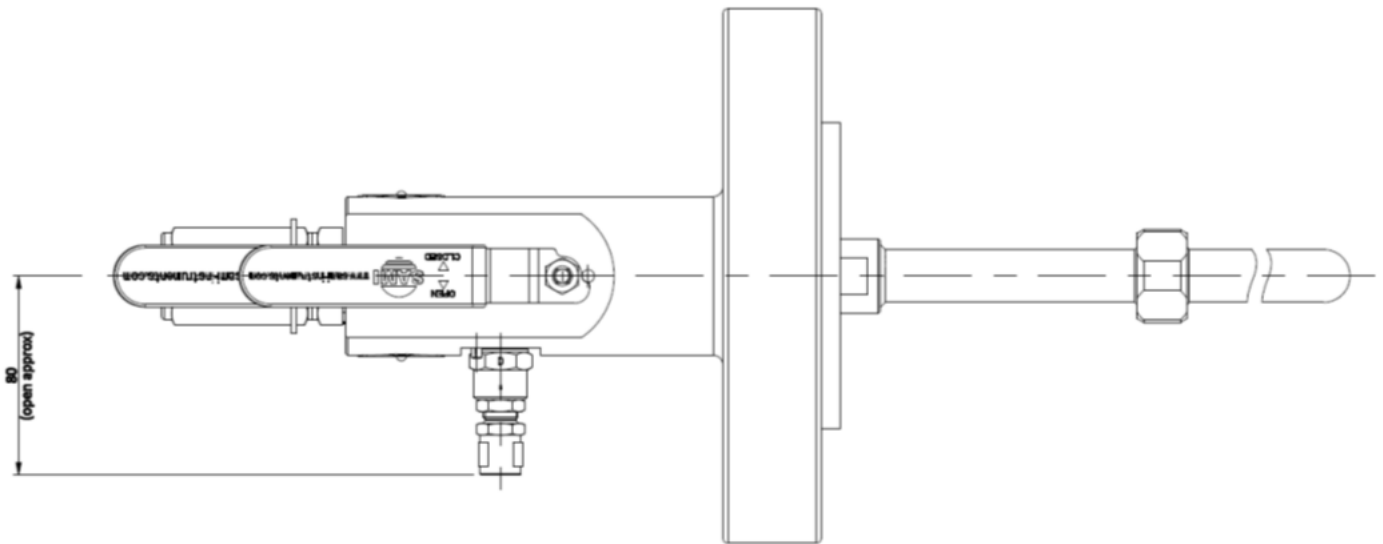


Features

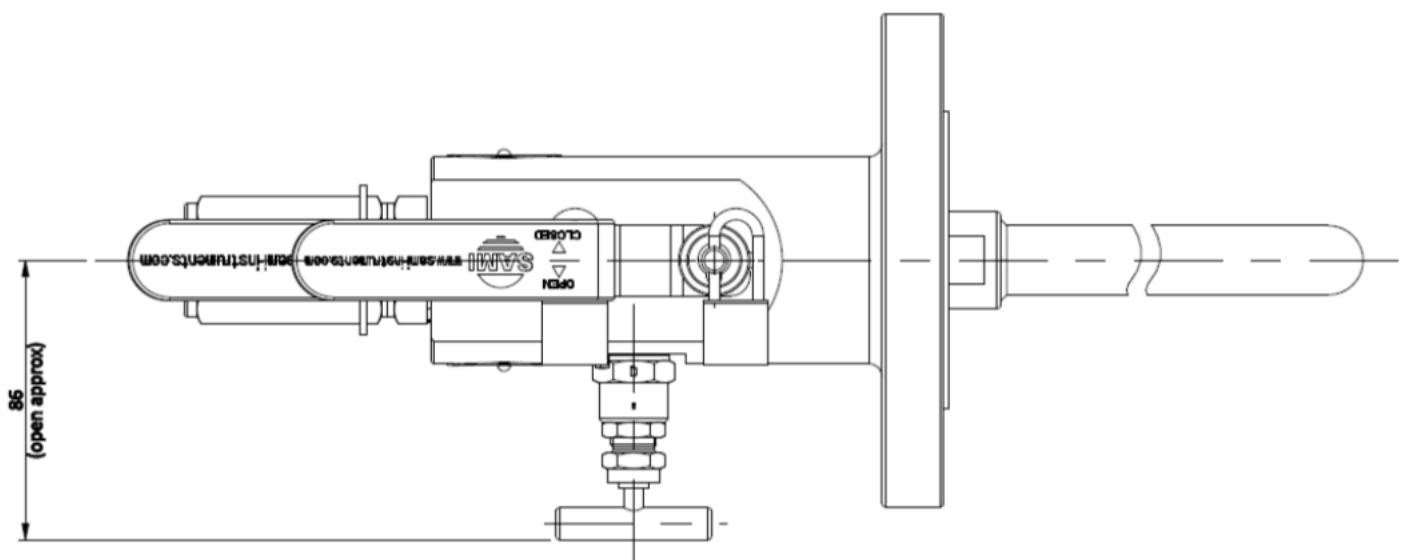
- Process interface in one compact ball/needle/ball valve assembly
- One piece forged body
- Available configurations: compact block, block and bleed and double block and bleed
- Flange connections in accordance with ASME B16.5 RF and RTJ; NPT connections in accordance with ASME B1.20.1
- Anti-blowout valve stems and needles
- Rating from 150 up to 2500 ANSI B16.5.
- Stainless steel handle standard with full grip PVC sleeve
- Stop pin
- One-piece stem spindle
- Finished ball for low operating torque and long life
- Externally adjustable gland
- Bore size 10 mm

Injection DBB

Injection DBB valve with Drain Anti-Tamper and Anti-Vibration Collar

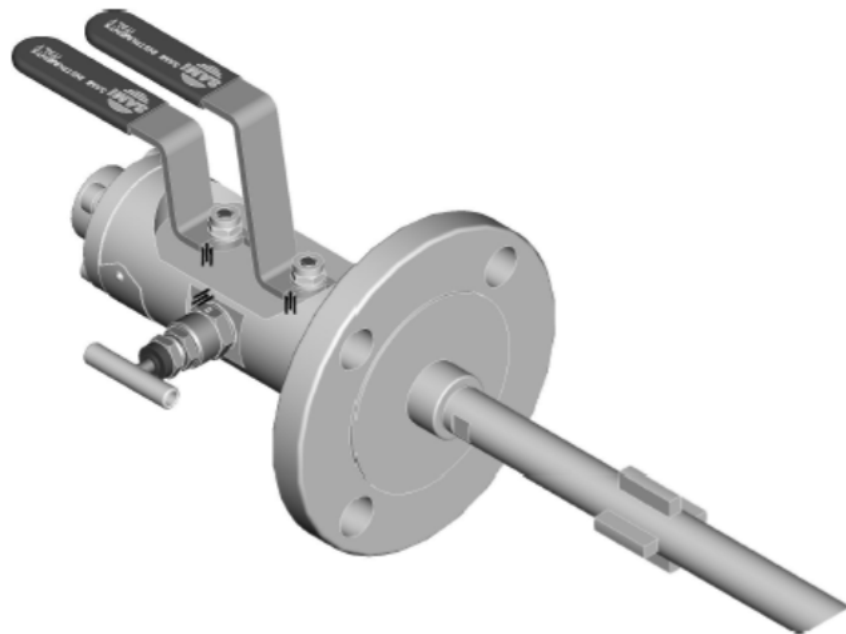
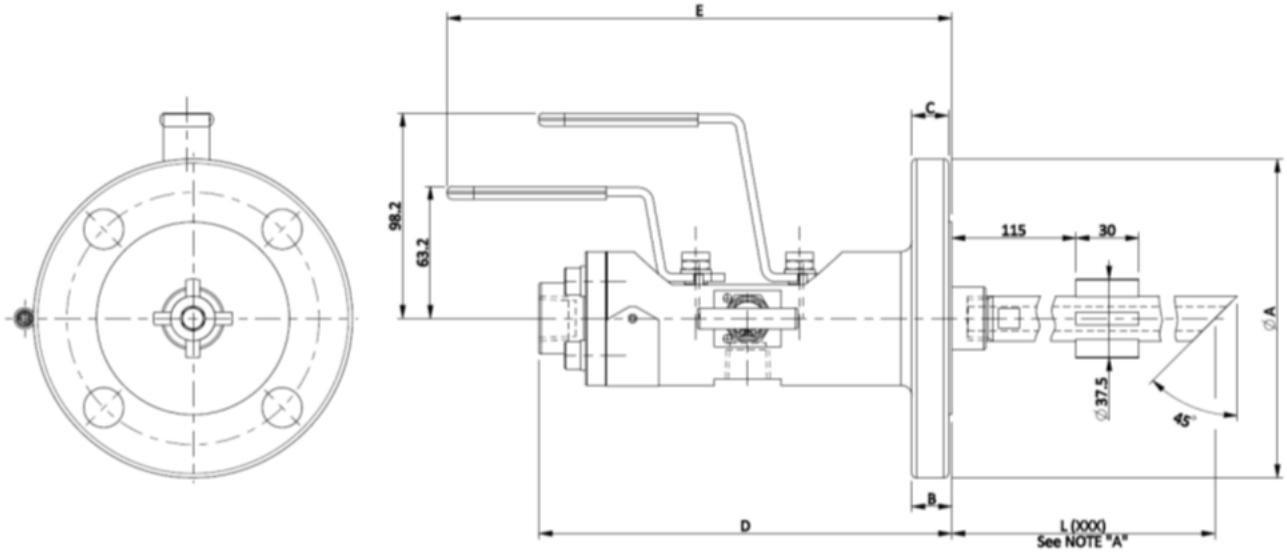


Injection DBB valve with Locking Device on Blocks

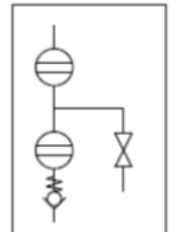


Injection DBB

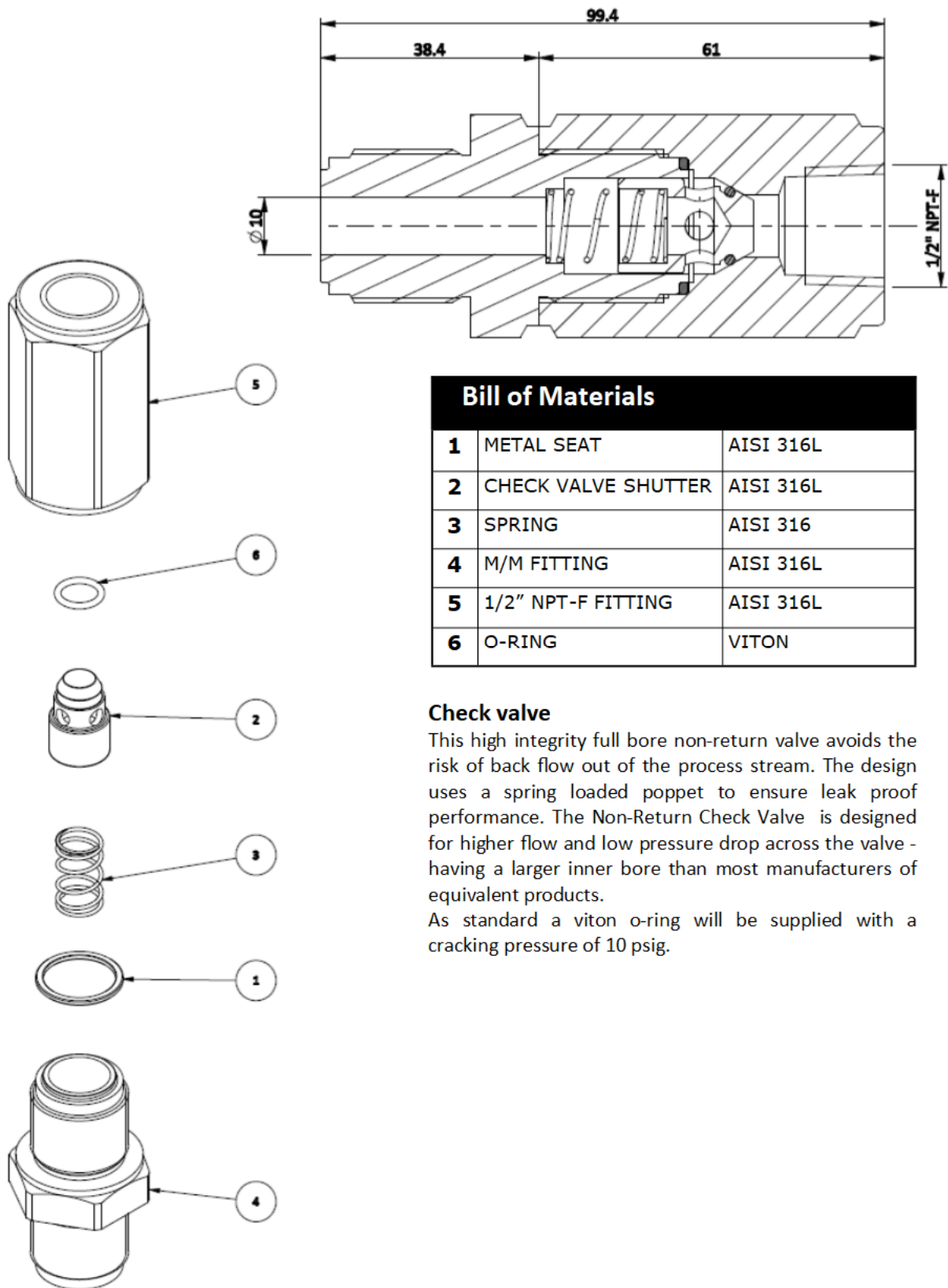
Injection DBB valve with anti-vibration collar



FLOW DIAGRAM



Check Valve



Bill of Materials

1	METAL SEAT	AISI 316L
2	CHECK VALVE SHUTTER	AISI 316L
3	SPRING	AISI 316
4	M/M FITTING	AISI 316L
5	1/2" NPT-F FITTING	AISI 316L
6	O-RING	VITON

Check valve

This high integrity full bore non-return valve avoids the risk of back flow out of the process stream. The design uses a spring loaded poppet to ensure leak proof performance. The Non-Return Check Valve is designed for higher flow and low pressure drop across the valve - having a larger inner bore than most manufacturers of equivalent products.

As standard a viton o-ring will be supplied with a cracking pressure of 10 psig.

Customized Projects



DBB - O.S.&Y./NEEDLE/NEEDLE
 API 10K
 Inlet: 1 13/16"
 Outlet: 1/2" NPT-F
 Material: DUPLEX F51
 Painted



SBB - BALL/NEEDLE
 Rating: ANSI 1500 RTJ
 Inlet: 1 1/2"
 Outlet: 1 1/2"
 Material: A305 LF2
 Painted



DBB - BALL/NEEDLE/BALL
 API 10K
 Inlet: 2 1/16"
 Outlet: 2 1/16"
 Material: DUPLEX F51
 Painted

SAMI INSTRUMENTS S.r.l.—A division of the WIKA group

Via Botte, 8 - 35011 Reschigliano di Campodarsego (PD) - Italy

Tel: (+39) 049 9201939

Fax: (+39) 049 9217549

E-mail: info@samivalves.com

Website: www.samivalves.com

