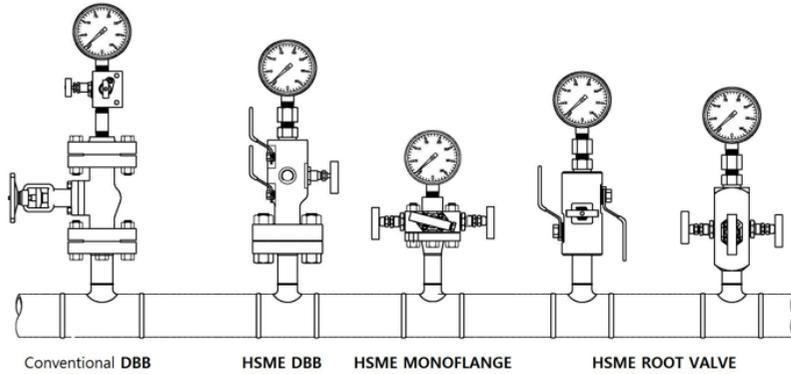


HSME primary isolation valves are designed to reduce potential leak paths for safer process to instrumentation hook-up in order to overcome the problem of conventional DBB design. VD Series is designed for primary insulation and interface with pressure measuring systems. The valve is directly mounted to the process pipe or vessel. Instruments may be directly mounted to the valve outlet or remotely mounted with gauge lines and impulse pipe work.



Advantages

By combining multiple valves into a single unit, the numbers of leak paths are reduced and the mass of the system is lowered, reducing the stresses from loading and vibration. HSME primary isolation valves function block valve, block and bleed valve, and double block and bleed valve in the sequence of Block – Bleed – Block.

Applicable Industries

- Offshore Oil and Gas Production
- Gas and Oil Terminals
- Chemical and Petrochemical
- Refining
- Metering Skid
- LNG Gas Carriers
- Compressor
- Power Generation

Design & Test

- ANSI/ASME B16.34 pressure – temperature rating.
- ANSI/ASME B16.5 flange dimensions.
- ANSI/ASME B1.20.1 NPT threads.
- API 607 fire test
- EN 12266-1 pressure test
- API 598 pressure test
- ISO 15848-1 type test
- ISO 15848-2 acceptance test

Pressure – Temperature Ratings for Flange Ends

HSME Monoflange and DBB meet ASME B16.5 pressure–temperature ratings for their flange end connections.

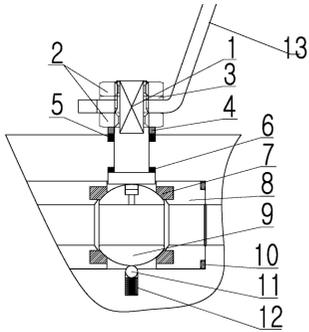
Ratings below are derived from ASME B16.5 table 2-2.2 and table II 2-2.2 for stainless steel F316.

Temp. °F	ASME Class					
	150	300	600	900	1500	2500
	Working Pressure, psig					
-20 to 100	275	720	1440	2160	3600	6000
200	235	620	1240	1860	3095	5160
300	215	560	1120	1680	2795	4660
400	195	515	1025	1540	2570	4280
500	170	480	955	1435	2390	3980
600	140	450	900	1355	2255	3760
650	125	440	885	1325	2210	3680
700	110	435	870	1305	2170	3620
750	95	425	855	1280	2135	3560
800	80	420	845	1265	2110	3520
850	65	420	835	1255	2090	3480
900	50	415	830	1245	2075	3460
950	35	385	775	1160	1930	3220

Temp. °C	ASME Class					
	150	300	600	900	1500	2500
	Working Pressure, bar					
-29 to 38	19.0	49.6	99.3	148.9	248.2	413.7
50	18.4	48.1	96.2	144.3	240.6	400.9
100	16.2	42.2	84.4	126.6	211.0	351.6
150	14.8	38.5	77.0	115.5	192.5	320.8
200	13.7	35.7	71.3	107.0	178.3	297.2
250	12.1	33.4	66.8	100.1	166.9	278.1
300	10.2	31.6	63.2	94.9	158.1	263.5
325	9.3	30.9	61.8	92.7	154.4	257.4
350	8.4	30.3	60.7	91.0	151.6	252.7
375	7.4	29.9	59.8	89.6	149.4	249.0
400	6.5	29.4	58.9	88.3	147.2	245.3
425	5.5	29.1	58.3	87.4	145.7	242.9
450	4.6	28.8	57.7	86.5	144.2	240.4
475	3.7	28.7	57.3	86.0	143.4	238.9
500	2.8	28.2	56.5	84.7	140.9	235.0

VD Series Primary Isolation Valves

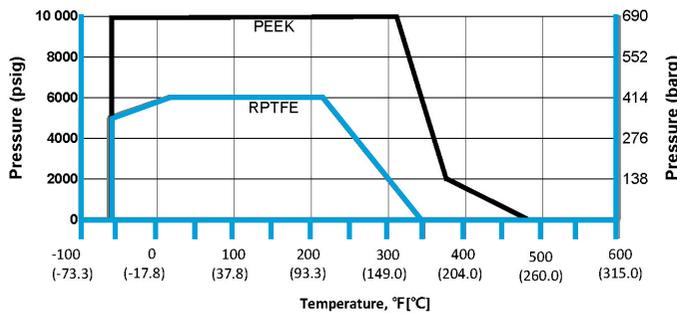
Quarter-Turn Ball Valve



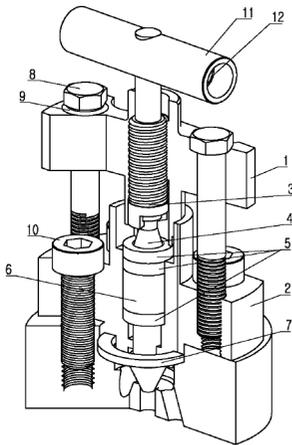
Working Temperature, °F (°C)

Seat Material	Body Material	
	Stainless Steel, Duplex	Carbon Steel
PEEK	-58 to 480 (-50 to 249)	-50 to 400 (-46 to 204)
RPTFE	-58 to 347 (-50 to 175)	-50 to 347 (-46 to 175)

Pressure-Temperature



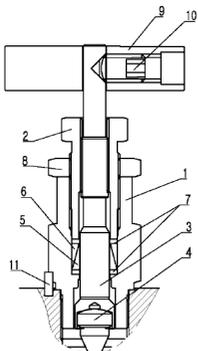
OS&Y Bolted Globe Needle Valve



Features

- Outside Screw & Yoke (OS&Y) Bolted Globe Needle valve for strength and reliability.
- 2-piece stem design provides non-rotating stem tip.
- Backseat design for secondary sealing in valve full open position.
- Packing adjustable bolt permits external packing adjustment.
- Firesafe tested to API 607.
- 5 mm (0.2 in.) bore.
- Pressure rating:
PTFE Seat up to 10 000 psig (690 bar).
Graphite Seat up to 6000 psig (414 bar)

Screwed Globe Needle Valve



Features

- Non-rotating stem tip design protects valve seat from damage.
- Backseat design for back sealing in valve full open position.
- Packing below stem threads isolates stem thread from system fluid.
- Rolled stem threads with hard-chrome plated for long cycle life.
- Packing bolt for external packing adjustment.
- Firesafe tested to API 607.
- 5 mm (0.2 in.) bore.
- Pressure rating:
PTFE Seat up to 10 000 psig (690 bar).
Graphite Seat up to 6000 psig (414 bar)

Features

- Blowout proof one-piece stem.
- Vented ball provides upstream cavity relief.
- Anti static spring loaded ball as standard.
- Firesafe tested to API 607
- Roddable 10mm (0.39 in.) bore ball.
- Pressure rating up to 10 000 psig (690 bar).

Materials of Construction

No.	Component	Stainless Steel	Duplex
1	Stem	ASTM A276 / A479 TYPE 316	ASTM A276/ A479 S31803
2	Nut (2)	Stainless Steel	
3	Washer	Stainless Steel	
4	Gland	ASTM A276 TYPE 316	
5	Stem Upper Packing	PTFE, Flexible Graphite	
6	Stem Lower Packing	PTFE, Flexible Graphite	
7	Seat	PEEK, RPTFE, Nylon 12	
8	Seat Housing	ASTM A276/ A479 TYPE 316	ASTM A276/ A479 S31803
9	Ball	ASTM A276/ A479 S31803	
10	Seat Housing Seal	FKM, Graphite	
11	Anti Static Ball	ASTM A276 TYPE 316	
12	Anti Static Spring	Inconel X750	
13	Lever Handle with Blue PVC Sleeve	Stainless Steel	

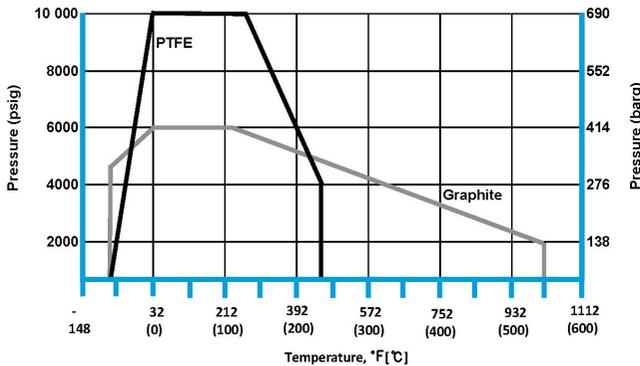
Materials of Construction

No.	Component	Stainless Steel	Duplex
1	Upper Yoke	ASTM A276/A479 TYPE 316	
2	Lower Yoke	ASTM A276/A479 TYPE 316	
3	Upper Stem	ASTM A276/A479 TYPE 316	
4	Lower Stem	ASTM A276/A479 TYPE 316	
5	Upper & Lower Gland (3)	ASTM A276/A479 TYPE 316	
6	Stem Packing	PTFE, Flexible Graphite	
7	Yoke Seal	PTFE, Flexible Graphite	
8	Packing Adjustable Bolt (2)	ASTM A193 Grade B8M	
9	Washer (2)	Stainless Steel	
10	Bonnet Bolt (4)	ASTM A193 Grade B8M	
11	Bar Handle	Stainless Steel 304	
12	Set Crew	Stainless Steel	

Materials of Construction

No.	Component	Stainless Steel	Duplex
1	Bonnet	ASTM A276/A479 TYPE 316	ASTM A276/A479 S31803
2	Packing Bolt	ASTM A276/A479 TYPE 316	
3	Stem	ASTM A564 TYPE 630	ASTM A276/A479 S31803
4	Stem Disc	ASTM A564 TYPE 630	
5	Lower packing	PTFE, Flexible Graphite	
6	Upper packing	PTFE, Flexible Graphite	
7	Packing Gland (2)	ASTM A276/A479 TYPE 316	ASTM A479 S31803
8	Locking Nut	ASTM A276/A479 TYPE 316	ASTM A276/A479 TYPE 316
9	Bar Handle	Stainless Steel	
10	Set Screw	Stainless Steel	
11	Locking Pin	Stainless Steel	

Pressure – Temperature OS&Y and Needle Valve



Working Temperature

Valve Body Material	Packing Material	
	PTFE	Graphite
Working Temperature, °F (°C)		
SS316	-58 to 400 (-50 to 204)	-58 to 850 (-55 to 454)
Carbon Steel	-50 to 400 (-46 to 204)	-50 to 850 (-46 to 454)
Duplex	-58 to 400 (-50 to 204)	-58 to 600 (-50 to 315)

Trim Combination		Bolt & Nut Materials		
Body	Trim	Body	Bolt	Nut
SS316	SS316	SS316, Duplex	B8M/A193, L7M/A320	7M/A194, 2HM/A194
LF2				
A105N		LF2, A105N		
Duplex				
Duplex	Duplex for Option			

VDM Series Monoflanges

VDM Series Monoflanges are designed for primary insulation and interface with pressure measuring systems. The valve is directly mounted to the process pipe or vessel. Instruments may be directly mounted to the valve outlet. Monoflanges function block valve, block and bleed valve, and double block and bleed valve in the sequence of Block – Bleed – Block.

Applications

- Isolation & pressure measurement
- Level measurement
- Sampling take-offs

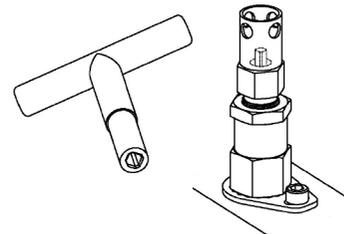
Standard Features

- Flange dimensions to ASME B16.5.
- Flange thickness to ASME B16.34.
- Flange size 1/2 to 2 in.
- Flange class 150 to 2500.
- Vent port 1/2 in. NPT female.
- Packing PTFE or Graphite.
- Material construction 316/316L.
- Fire safe tested to API 607
- Pressure tested to EN12266-1

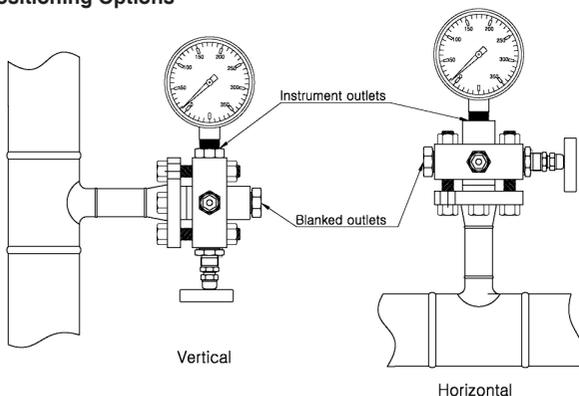
Optional Features

- Pressure tested to API 598.
- NACE MR0175 compliance materials
- Pressure test certificates
- Material traceability: body and end adapter only.
- Swivel gauge outlet connection.
- Type tested to ISO 15848-1
- Production acceptance tested to ISO 15848-2.
- Oxygen service.

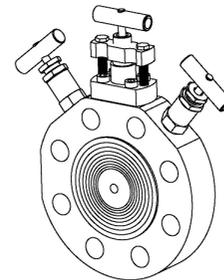
Anti-tamper Needle valve with T key



Positioning Options



45° Angled Monoflange



Starting from 1 1/2 in. Class 900/1500, the valve head units are 45° angled for convenient operation.

Instrument outlets can be positioned to suit horizontal or vertical process pipeline. Standard Monoflanges are supplied for horizontal installation. For vertical installation, add "V" to the valve ordering number.

Working Pressure

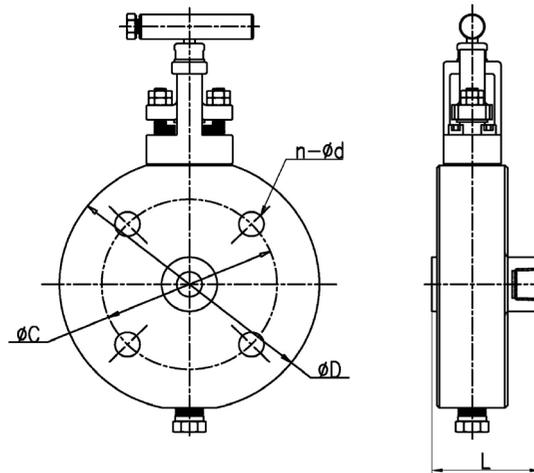
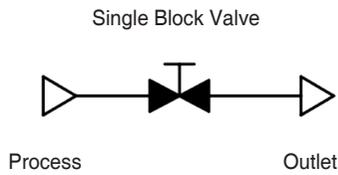
Class 150 to Class 2500 in accordance with ASME B16.5.

Testing

Every monoflange is factory tested hydrostatically to a requirement of no visible leakage. A Shell test is performed at 1.5 times working pressure and seat test is performed at 1.1 times working pressure in accordance with EN 12266-1.

VDM Series Monoflange

VDM10 & VDM20 Series

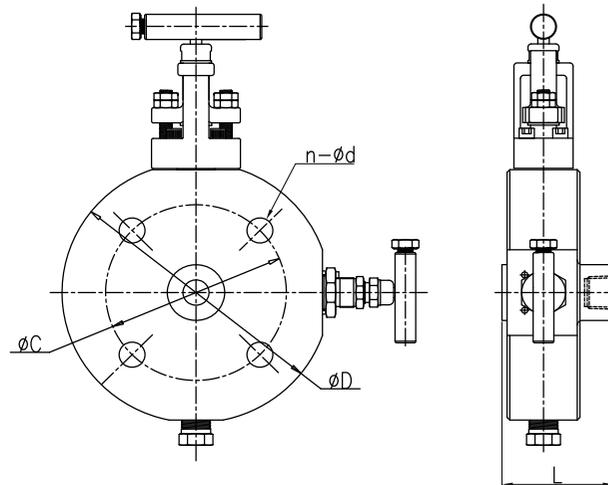
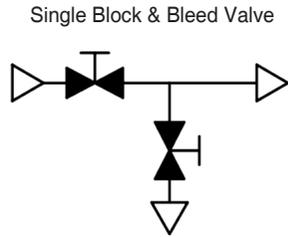


Needle Valve – Primary Block Type VDM10 Series	
1st Block	Needle
Bleed	W, see option
2nd Block	-

OS&Y – Primary Block Type VDM20 Series	
1st Block	Needle
Bleed	W, see option
2nd Block	-

Rating lb	Size in.	Dimensions, mm					Number n	Weight kg
		L		D	C	d		
		RF	RTJ					
150	1/2	64	-	90	60.3	16	4	2.0
	3/4	64	-	100	69.9	16	4	2.0
	1	64	68	110	79.4	16	4	2.4
	1 1/2	64	68	125	98.4	16	4	3.2
	2	69	73	150	120.7	19	4	5.5
300	1/2	64	68	95	66.7	16	4	2.0
	3/4	64	68	115	82.6	19	4	3.4
	1	64	68	125	88.9	19	4	3.4
	1 1/2	69	69	155	114.3	22	4	5.5
	2	69	75	165	127.0	19	8	7.8
600	1/2	68	68	95	66.7	16	4	2.0
	3/4	68	68	115	82.6	19	4	3.4
	1	68	68	125	88.9	19	4	3.4
	1 1/2	73	73	155	114.3	22	4	5.5
	2	73	75	165	127.0	19	8	7.8
900/ 1500	1/2	68	68	120	82.6	22	4	3.4
	3/4	68	68	130	88.9	22	4	3.4
	1	73	73	150	101.6	26	4	5.5
	1 1/2	73	73	180	123.8	29	4	7.8
	2	82	84	215	165.1	26	8	11.4
2500	1/2	68	68	135	88.9	22	4	3.4
	3/4	73	73	140	95.2	22	4	5.5
	1	73	73	160	108.0	26	4	5.5
	1 1/2	82	84	205	146.0	32	4	11.4

VDM11 & VDM21 Series

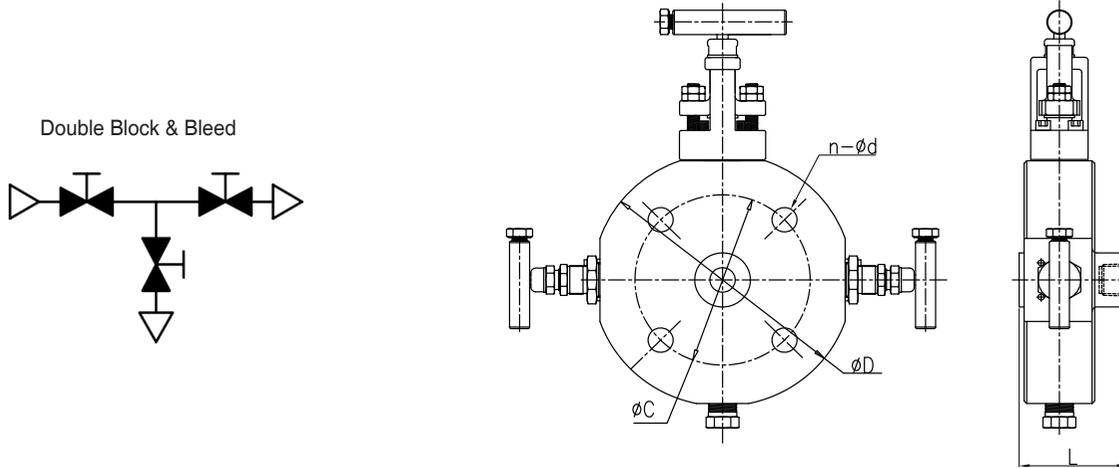


Needle Valve – Primary Block Type VDM11 Series	
1st Block	Needle
Bleed	Needle
2nd Block	-

OS&Y – Primary Block Type VDM21 Series	
1st Block	OS&Y
Bleed	Needle
2nd Block	-

Rating lb	Size in.	Dimensions, mm					Number n	Weight kg
		L		D	C	d		
		RF	RTJ					
150	1/2	64	-	90	60.3	16	4	2.0
	3/4	64	-	100	69.9	16	4	2.0
	1	64	68	110	79.4	16	4	2.4
	1 1/2	64	68	125	98.4	16	4	3.2
	2	69	73	150	120.7	19	4	5.5
300	1/2	64	68	95	66.7	16	4	2.0
	3/4	64	68	115	82.6	19	4	3.4
	1	64	68	125	88.9	19	4	3.4
	1 1/2	69	69	155	114.3	22	4	5.5
	2	69	75	165	127.0	19	8	7.8
600	1/2	68	68	95	66.7	16	4	2.0
	3/4	68	68	115	82.6	19	4	3.4
	1	68	68	125	88.9	19	4	3.4
	1 1/2	73	73	155	114.3	22	4	5.5
	2	73	75	165	127.0	19	8	7.8
900/ 1500	1/2	68	68	120	82.6	22	4	3.4
	3/4	68	68	130	88.9	22	4	3.4
	1	73	73	150	101.6	26	4	5.5
	1 1/2	73	73	180	123.8	29	4	7.8
	2	82	84	215	165.1	26	8	11.4
2500	1/2	68	68	135	88.9	22	4	3.4
	3/4	73	73	140	95.2	22	4	5.5
	1	73	73	160	108.0	26	4	5.5
	1 1/2	82	84	205	146.0	32	4	11.4

VDM13 & VDM23 Series



Needle Valve – Primary Block Type VDM13Series	
1st Block	Needle
Bleed	Needle
2nd Block	Needle

OS&Y – Primary Block Type VDM23 Series	
1st Block	OS&Y
Bleed	Needle
2nd Block	Needle

Rating lb	Size in.	Dimensions, mm					Number n	Weight kg
		L		D	C	d		
RF	RTJ							
150	1/2	64	-	90	60.3	16	4	2.0
	3/4	64	-	100	69.9	16	4	2.0
	1	64	68	110	79.4	16	4	2.4
	1 1/2	64	68	125	98.4	16	4	3.2
	2	69	73	150	120.7	19	4	5.5
300	1/2	64	68	95	66.7	16	4	2.0
	3/4	64	68	115	82.6	19	4	3.4
	1	64	68	125	88.9	19	4	3.4
	1 1/2	69	69	155	114.3	22	4	5.5
	2	69	75	165	127.0	19	8	7.8
600	1/2	68	68	95	66.7	16	4	2.0
	3/4	68	68	115	82.6	19	4	3.4
	1	68	68	125	88.9	19	4	3.4
	1 1/2	73	73	155	114.3	22	4	5.5
	2	73	75	165	127.0	19	8	7.8
900/ 1500	1/2	68	68	120	82.6	22	4	3.4
	3/4	68	68	130	88.9	22	4	3.4
	1	73	73	150	101.6	26	4	5.5
	1 1/2	73	73	180	123.8	29	4	7.8
	2	82	84	215	165.1	26	8	11.4
2500	1/2	68	68	135	88.9	22	4	3.4
	3/4	73	73	140	95.2	22	4	5.5
	1	73	73	160	108.0	26	4	5.5
	1 1/2	82	84	205	146.0	32	4	11.4

Monoflange Ordering Information

Legends: OS&Y- Y, Needle- N

Valve Configuration

OS&Y - Primary Block Type	Designator	Sequence		
		Block	Bleed	Block
Single Block Valve	VDM20-	Y	-	-
Single Block & Bleed Valve	VDM21-	Y	N	-
Double Block & Bleed	VDM23-	Y	N	N
Needle Valve - Primary Block Type				
Single Block Valves	VDM10-	N	-	-
Single Block & Bleed Valve	VDM11-	N	N	-
Double Block & Bleed Valve	VDM13-	N	N	N
Vertical Option	V-			

OSY and Needle Valve Packing Material

Graphite	1-
PTFE	2-

Forged or Barstock Body Material

SS316 ASTM A182 F316 or ASTM A276/A479 Type 316	SS-
Carbon Steel A105N	C-
ASTM A350 LF2	L-
Duplex ASTM A479 S31803 or A182 F51	D-
Super Duplex ASTM A479 S32750 or A182 F53	SD-

Trim Material

SS316 Trim material standard for SS,C,L, D, and SD body	SS-
Duplex UNS S31803 Trim optional	D-
Super Duplex S32770 Trim optional	SD-

Process Connection

ASME Flange Flange Facing Finish	Finish Designator	Size Designator	Size Designator	Class lb	Class Designator	Part No. Examples
RF-Spiral Finish	1R	1/2 in.	8	150	A-	1R8A-
RF-Smooth Finish	2R	3/4 in.	12	300	B-	2R12B-
RF-Stock Finish	3R	1 in.	16	600	C-	3R16C-
RTJ-Ring Type Joint	J	1 1/2 in.	24	900/1500	E-	J24E-
Flat Face-Stock Finish	F	2 in.	32	2500	F-	

Process Connection - continued

EN Flange	Designator	EN Flange	Designator	EN Flange	Designator
DN15 B1	DN15B	DN25 B1	DN25B	DN25 D (groove)	DN25D
DN15 C (Tongue)	DN15C	DN25 B2	DN25B2	DN50 B1	DN50B
DN20 B1	DN20B	DN25 C (Tongue)	DN25C	DN80 B1	DN80B

Outlet Connection

Thread	Thread Designator	Thread Size	Size Designator	Thread Standard	Thread Designator	Part No. Examples
Female	F	1/2 in.	8	NPT	N-	F8N-
				ISO Tapered	R-	F8GG-
				1/2 in. Integral Swivel Gauge Adapter	GG-	

Vent Connection

	Designator
1/2 in. NPT Female	E-
1/2 in. NPT Female Plugged	F-
No vent connection (Single block type only)	W-

Options

	Designator		Designator
Anti-Tamper vent valve with T key	AK	NACE MR0175	SG
Anti-Tamper vent valve with T key including padlok	AP	Oxygen Service	11
All needle valves for Anti-Tamper with keys.	AAK	Speical Requirement not covered	
All needle valves for Anti-Tamper with keys including padlock.	AAP	by our standard options.	SR

VD Series DBB Valves

DBB valves are designed for reduction in leakage paths with the integration of block and bleed valve into one compact manifold. The combination of piping and instrumentation valves into a single manifold functions double block and bleed valve in the sequence of Block- Bleed-Block with a standard 1/2 in. female vent port.

The standard DBB is supplied with a fire-safe ball, OS&Y, and bleed valve. Bleed valve can be supplied with anti-tamper needle valve.

Standard features

- Block-Bleed-Block design.
- Flange dimensions to ASME B16.5.
- Flange size 1/2 in. to 2 in. (DN15 to DN50).
- Flange class 150 to 2500.
- Ball bore 10.0mm (0.39 in.)
- Outlet connection 1/2 in. NPT female or flanged.
- Vent port 1/2 in. NPT female.
- Fire safe tested to API 607.
- Pressure tested to EN12266-1.
- Anti-static ball valve design as standard.
- Anti-blowout stem design.
- Ball valve seats RPTFE or PEEK.
- Material of construction 316/316L.

Optional Features

- Ball bore 20mm.
- Pressure tested to API 598.
- Anti-tamper needle valve.
- NACE MR0175 compliant materials.
- Pressure test certificates
- Material traceability: Body and end adapter only.
- Type tested to ISO 15848-1.
- Swivel gauge outlet connections.
- Oxygen service.

Working Pressure

Class 150 to Class 2500 in accordance with ASME B16.5.

Working Temperature

-58 to 400 °F (-50 to 204 °C) for Stainless steel and Duplex.
-50 to 400 °F (-46 to 204 °C) for Carbon steel.

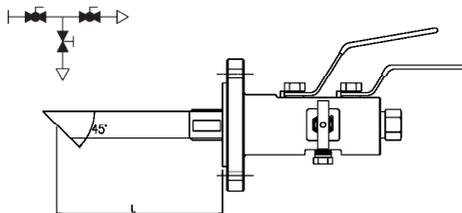
Testing

Every DBB valve is factory tested hydrostatically to a requirement of no visible leakage. A Shell test is performed at 1.5 times working pressure and a seat test is performed at 1.1 times working pressure in accordance with EN 12266-1.

A low-pressure gas seat test is performed in accordance with EN 12266-1.

Sampling and Injection Quill Assembly

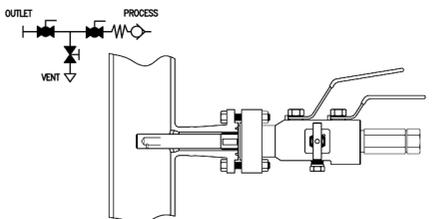
Sampling and Injection quill can be added on to DBB valves for 1 1/2 in. and larger flanges or to Root Valves. The standard quill OD is 25mm and the lengths are customer specified. The quill features a length of heavy wall with a screwed connection into the DBB valve body.



Quill for Sampling Application

The design has been developed to take a sample from the process stream at full system pressure, providing double block and bleed protection. The sampling valve quill draws process fluid from the flow stream at full pressure.

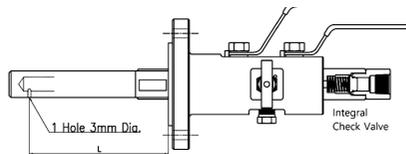
The quill is available in 45 degree as standard.



Quill for Injection Application

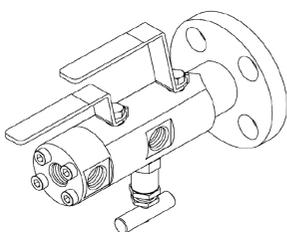
The design has been developed to inject directly liquids or gases into the optimum position of process stream at full system pressure, providing double block and bleed protection.

The integral check valve allows liquids or gases to be injected into the process stream while providing protection against back flow of process fluids. The poppet type spring return check valve is constructed with a standard FKM O-ring seal. The Injection orifice is built with a 3mm (0.125 in.) hole.

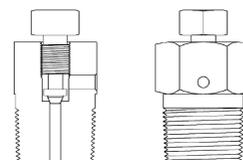


Bolted Outlet Options

Single flanged DBB valves (VD80, 81, 82, 83, 22, 23, and 13 Series) features optional bolted outlet connection where dual threaded 1/2 in. NPT female outlets or instrument kidney flange can be in place.

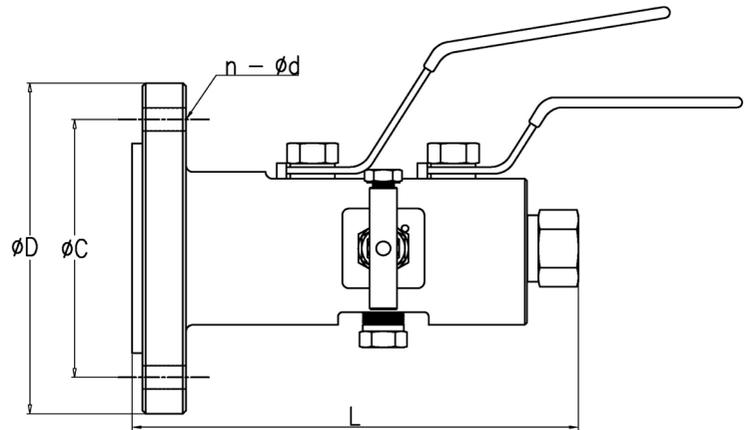
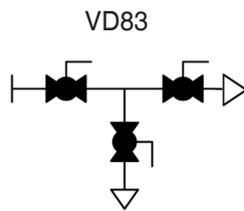
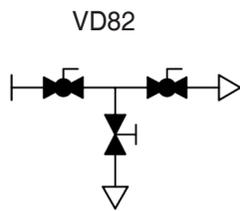
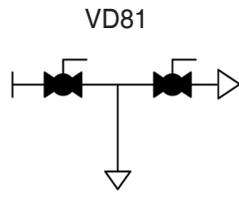
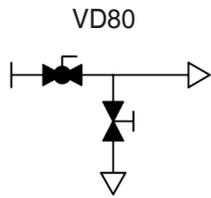


Vent Port Option



Other than standard 1/2 in. NPT female vent port, a bleed valve vent port can be supplied as an option.

VD80, VD81, VD82 & VD83 Series

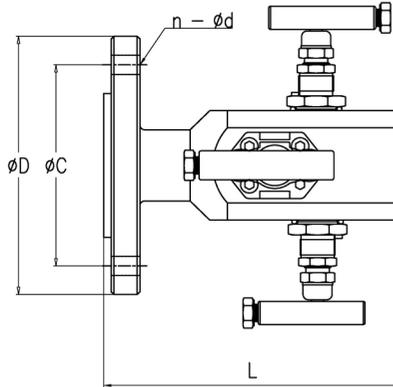
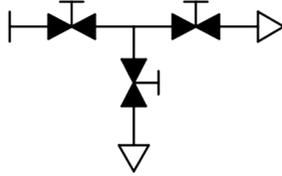


Ball Valve – Primary Block Type				
VD Series	VD80	VD81	VD82	VD83
End Connections	Flanged x Threaded			
1st Block	Ball	Ball	Ball	Ball
Bleed	Needle	-	Needle	Ball
2nd Block	-	Ball	Ball	Ball

Rating lb	Size in.	Dimensions, mm					Number n	Weight kg
		L		D	C	d		
		RF	RTJ					
150	1/2	188	-	90	60.3	16	4	3.6
	3/4	188	-	100	69.9	16	4	3.9
	1	178	183	110	79.4	16	4	4.0
	1 1/2	180	185	125	98.4	16	4	4.6
	2	183	188	150	120.7	19	4	6.6
300	1/2	188	193	95	66.7	16	4	3.9
	3/4	188	196	115	82.6	19	4	4.6
	1	180	185	125	88.9	19	4	4.6
	1 1/2	183	188	155	114.3	22	4	6.0
	2	185	192	165	127.0	19	8	8.0
600	1/2	188	196	95	66.7	16	4	4.0
	3/4	188	196	115	82.6	19	4	4.7
	1	180	188	125	88.9	19	4	4.7
	1 1/2	193	193	155	114.3	22	4	6.5
	2	196	197	165	127.0	19	8	8.3
900/ 1500	1/2	206	213	120	82.6	22	4	5.4
	3/4	206	213	130	88.9	22	4	6.3
	1	191	198	150	101.6	26	4	7.0
	1 1/2	203	203	180	123.8	29	4	9.4
	2	226	210	215	165.1	26	8	15.0
2500	1/2	206	213	135	88.9	22	4	6.9
	3/4	206	213	140	95.2	22	4	7.5
	1	206	206	160	108.0	26	4	8.6
	1 1/2	216	216	205	146.0	32	4	15.9
	2	221	223	235	171.4	29	8	22.0

VD Series DBB Valves

VD22, VD23 & VD13 Series

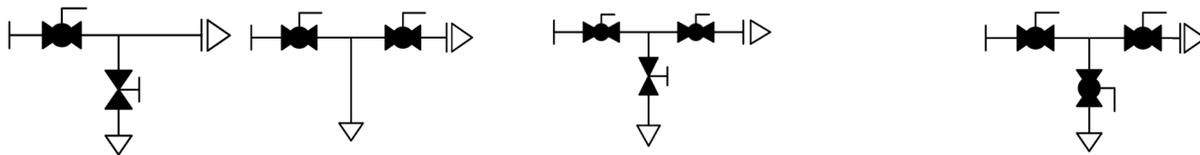
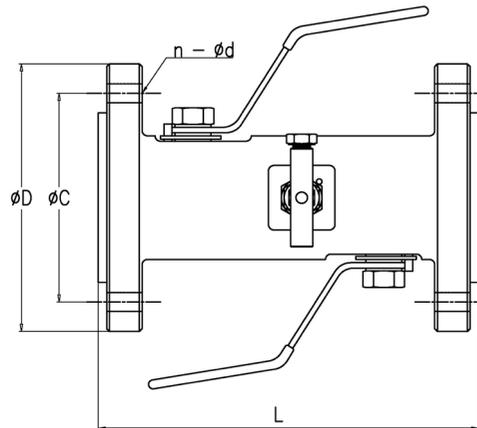


OS&Y – Primary Block Type		
VD Series	VD22	VD23
End Connections	Flanged x Threaded	
1st Block	OS&Y	OS&Y
Bleed	Needle	OS&Y
2nd Block	Needle	OS&Y

Needle Valve – Primary Block Type	
VD Series	VD13
End Connections	Flanged x Threaded
1st Block	Needle
Bleed	Needle
2nd Block	Needle

Rating lb	Size in.	Dimensions, mm					Number n	Weight kg
		L		D	C	d		
		RF	RTJ					
150	1/2	161	-	90	60.3	16	4	3.6
	3/4	161	-	100	69.9	16	4	3.9
	1	156	161	110	79.4	16	4	4.0
	1 1/2	159	164	125	98.4	16	4	4.6
	2	161	166	150	120.7	19	4	6.6
300	1/2	161	163	95	66.7	16	4	3.9
	3/4	161	165	115	82.6	19	4	4.6
	1	159	164	125	88.9	19	4	4.6
	1 1/2	162	167	155	114.3	22	4	6.0
	2	164	170	165	127.0	19	8	8.0
600	1/2	166	165	95	66.7	16	4	4.0
	3/4	166	165	115	82.6	19	4	4.7
	1	159	166	125	88.9	19	4	4.7
	1 1/2	170	170	155	114.3	22	4	6.5
	2	173	175	165	127.0	19	8	8.3
900/ 1500	1/2	184	184	120	82.6	22	4	5.4
	3/4	184	184	130	88.9	22	4	6.3
	1	169	177	150	101.6	26	4	7.0
	1 1/2	180	180	180	123.8	29	4	9.4
	2	186	188	215	165.1	26	8	15.0
2500	1/2	184	184	135	88.9	22	4	6.9
	3/4	184	184	140	95.2	22	4	7.5
	1	183	183	160	108.0	26	4	8.6
	1 1/2	193	194	205	146.0	32	4	15.9
	2	199	201	235	171.4	29	8	22.0

VD85, VD86, VD87 & VD88 Series



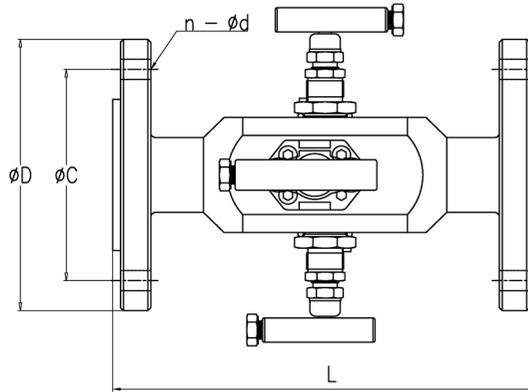
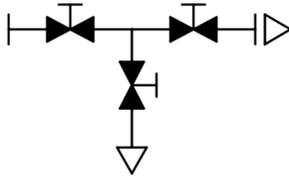
Ball Valve– Primary Block Type		
VD Series	VD85	VD86
End Connections	Flanged x Flanged	
1st Block	Ball	Ball
Bleed	Needle	-
2nd Block	-	Ball

Ball Valve – Primary Block Type	
VD Series	VD87
End Connections	Flanged x Flanged
1st Block	Ball
Bleed	Needle
2nd Block	Ball

Ball Valve – Primary Block Type	
VD Series	VD88
End Connections	Flanged x Flanged
1st Block	Ball
Bleed	Ball
2nd Block	Ball

Rating lb	Size in.	Dimensions, mm					Number n	Weight kg
		L		D	C	d		
		RF	RTJ					
150	1/2	208	-	90	60.3	16	4	4.3
	3/4	208	-	100	69.9	16	4	4.9
	1	180	189	110	79.4	16	4	5.0
	1 1/2	186	196	125	98.4	16	4	6.4
	2	189	199	150	120.7	19	4	9.9
300	1/2	208	221	95	66.7	16	4	5.0
	3/4	208	221	115	82.6	19	4	6.3
	1	186	196	125	88.9	19	4	6.3
	1 1/2	192	202	155	114.3	22	4	9.1
	2	196	208	165	127.0	19	8	11.9
600	1/2	208	221	95	66.7	16	4	5.2
	3/4	208	221	115	82.6	19	4	6.5
	1	199	199	125	88.9	19	4	6.5
	1 1/2	208	208	155	114.3	22	4	10.1
	2	215	218	165	127.0	19	8	13.4
900/ 1500	1/2	243	256	120	82.6	22	4	7.9
	3/4	243	256	130	88.9	22	4	9.5
	1	221	221	150	101.6	26	4	11.2
	1 1/2	227	227	180	123.8	29	4	16.0
	2	240	243	215	165.1	26	8	27.2
2500	1/2	243	256	135	88.9	22	4	10.8
	3/4	243	256	140	95.2	22	4	12.0
	1	234	234	160	108.0	26	4	14.3
	1 1/2	253	256	205	146.0	32	4	27.8
	2	265	268	235	171.4	29	8	40.0

VD18 & VD27 Series



Needle Valve – Primary Block Type VD18 Series	
End Connections	Flanged x Flanged
1st Block	Needle
Bleed	Needle
2nd Block	Needle

OS&Y – Primary Block Type VD27 Series	
End Connections	Flanged x Flanged
1st Block	OS&Y
Bleed	Needle
2nd Block	Needle

Rating lb	Size in.	Dimensions, mm					Number n	Weight kg
		L		D	C	d		
		RF	RTJ					
150	1/2	197	-	90	60.3	16	4	4.3
	3/4	197	-	100	69.9	16	4	4.9
	1	180	189	110	79.4	16	4	5.0
	1 1/2	186	196	125	98.4	16	4	6.4
	2	189	199	150	120.7	19	4	9.9
300	1/2	197	206	95	66.7	16	4	5.0
	3/4	197	206	115	82.6	19	4	6.3
	1	186	196	125	88.9	19	4	6.3
	1 1/2	192	202	155	114.3	22	4	9.1
	2	196	208	165	127.0	19	8	11.9
600	1/2	206	206	95	66.7	16	4	5.2
	3/4	206	206	115	82.6	19	4	6.5
	1	199	199	125	88.9	19	4	6.5
	1 1/2	208	208	155	114.3	22	4	10.1
	2	215	218	165	127.0	19	8	13.4
900/ 1500	1/2	243	243	120	82.6	22	4	7.9
	3/4	243	243	130	88.9	22	4	9.5
	1	221	221	150	101.6	26	4	11.2
	1 1/2	227	227	180	123.8	29	4	16.0
	2	240	243	215	165.1	26	8	27.2
2500	1/2	243	243	135	88.9	22	4	10.8
	3/4	243	243	140	95.2	22	4	12.0
	1	234	234	160	108.0	26	4	14.3
	1 1/2	253	256	205	146.0	32	4	27.8
	2	265	268	235	171.4	29	8	39.0

DBB Valve Ordering Information

Legends: Ball-B, OS&Y-Y, Needle-N

DBB Valve Configuration

10mm Bore Ball Valve - Primary Block
 Flanged x Threaded Single Block & Bleed
 Flanged x Threaded Double Block
 Flanged x Threaded Double Block & Bleed
 Flanged x Threaded Double Block & Bleed

Designator
 VD80-
 VD81-
 VD82-
 VD83-

Sequence		
Block	Bleed	Block
B	N	-
B	-	B
B	N	B
B	B	B

Flanged x Flanged Single Block & Bleed
 Flanged x Flanged Double Block
 Flanged x Flanged Double Block & Bleed
 Flanged x Flanged Double Block & Bleed

VD85-
 VD86-
 VD87-
 VD88-

B	N	-
B	-	B
B	N	B
B	B	B

Optional Ball Bore, Unit: mm

Bore Size	12.7	14.3	20	25
Designator	12M	14M	20M	25M

To order an optional bore ball, add the designator to the DBB type. i.e., VD80-25M

OS&Y - Primary Block Type

Flanged x Threaded Double Block & Bleed
 Flanged x Threaded Double Block & Bleed
 Flanged x Flanged Double Block & Bleed

Designator

VD22-
 VD23-
 VD27-

Y	N	N
Y	Y	Y
Y	N	N

Needle Valve - Primary Block Type

Flanged x Threaded Double Block & Bleed
 Flanged x Flanged Double Block & Bleed

VD13-
 VD18-

N	N	N
N	N	N

Sealing Materials

Needle Packing	Body Seal	Seat Housing Seal	Packing & Seal Combination Designator	Ball Seat	Seat Designator	Part No. Examples
PTFE	PTFE + FKM	PTFE	1	RPTFE	3	13-
Graphite	Graphite + FKM	Graphite	2	PEEK	4	24-
				Nylon 12	5	

Forged or Barstock Body Material

A182 F316 or A276/A479 Type 316
 Carbon Steel A105N
 ASTM A350 LF2
 Duplex ASTM A479 S31803 or A182 F51
 Super Duplex ASTM A479 S32750 or A182 F53

Designator
 SS-
 C-
 L-
 D-
 SD-

Trim Material

SS316 Trim material standard for SS,C,L, D, and SD body
 Duplex UNS S31803 Trim optional
 Super Duplex S32770 Trim optional

Designator
 SS-
 D-
 SD-

Process Connection

ASME Flange Flange Facing Finish	Finish Designator	Size	Size Designator	Class lb	Class Designator	Part No. Examples
RF-Spiral Finish	1R	1/2 in.	8	150	A-	1R8A-
RF-Smooth Finish	2R	3/4 in.	12	300	B-	2R12B-
RF-Stock Finish	3R	1 in.	16	600	C-	
RTJ-Ring Type Joint	J	1 1/2 in.	24	900/1500	E-	
Flat Face-Stock Finish	F	2 in.	32	2500	F-	

Outlet Connection

Thread	Thread Designator	Size	Size Designator	Thread Standard	Thread Designator	Part No. Examples
Female	F	1/2	8	NPT	N-	F8N-
Male	M			ISO Tapered	R-	F-
1/2 in. NPT Female Plugged	F-			Integral Swivel Gauge Adapter (1/2 in. only)	GG-	

Outlet Connection-continued

Instrument Kidney Flange (IEC 61518 type B) bolted on outlet
 Dual Outlet: Dual threaded G1/2 in. Female
 Dual threaded 1/2 in. NPT Female

Designator
 KF-
 DP8G-
 DP8N-

Note:
 For ASME Flange Connection, use the designators of process connection.

Vent Connection

Designator	Designator	Designator
1/4 in. NPT Female	C-	1/2 in. NPT Female
1/4 in. NPT Female Plugged	D-	1/2 in. NPT Female Plugged
	E-	M Tube Fitting 1/2 in. OD
	F-	Bleed Valve
		A8T-
		V-

Options

Anti-Tamper vent needle valve with T key
 Anti-Tamper vent needle valve with T key including padlock.
 All needle valves for Anti-Tamper with T Keys
 All needle valves for Anti-Tamper with Keys including padlock.
 Lockable Ball Valve Handle (specify number required)*
 * LD: for block ball valve only, LD2: for 1st & 2nd block ball valves.

Designator
 AK
 AP
 AAK
 AAP
 LD

NACE MR0175
 Sampling quill (available from 1 1/2 in. flange)
 Injection quill including check valve (available from 1 1/2 in flange)
 Special requirement not covered by our standard options.
Note: SQ & IQ quill length is customer specified.
 Example: SQ50L for length 50mm

Designator
 SG
 SQ
 IQ
 SR

VDR Series Root Valves

VDR Series Root Valves

VDR Series root valves can be screwed or welded directly into the process pipe or vessel without the need for a flanged connection. Instruments may be directly mounted to the valve outlet or remotely mounted with gauge lines and impulse pipe work.

Features

- Designed to Class 2500, ASME B16.34
- Outlet / Vent port 1/2 in. NPT female as standard.
- Fire safe tested to API 607
- Pressure tested to EN12266-1
- Standard material traceability: Body and end adapter only.
- Anti-Static spring loaded ball is optional.

Applications

- Block and bleed
- Pressure measurement
- Flow measurement

Working Temperature

- Stainless steel and Duplex: -58 to 480 °F (-50 to 249 °C)
- Carbon steel: -50 to 400 °F (-46 to 204 °C)

Cold working pressure

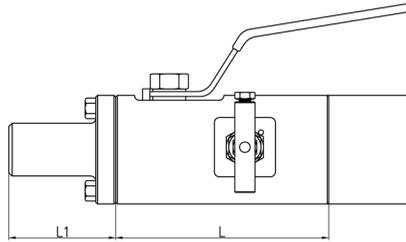
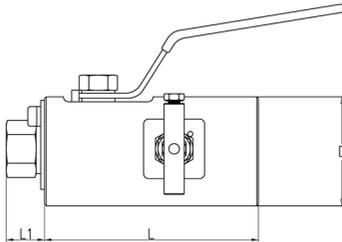
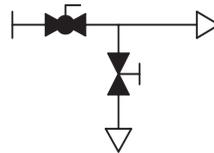
10 000 psig (690 bar) with PEEK seat ball valve and PTFE packing needle valve.

6000 psig (413 bar) with RPTFE seat ball valve and PTFE packing needle valve.

VDR80 Series

Features a 10mm (0.39 in.) bore ball valve for isolation with a 5mm (0.2 in.) bore screwed needle valve for vent.

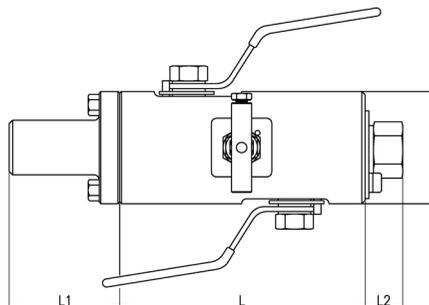
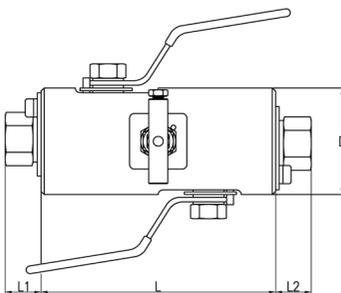
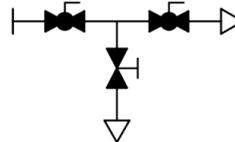
Ball Valve – Primary Block Type	
VDR Series	VDR80
End Connections	Threaded or Weld x Threaded
1st Block	Ball
Bleed	Needle
2nd Block	-



VDR82 Series

Features two 10mm bore (0.39 in.) ball valves for primary and secondary isolation individually with a 5mm (0.2 in.) bore screwed needle valve for vent.

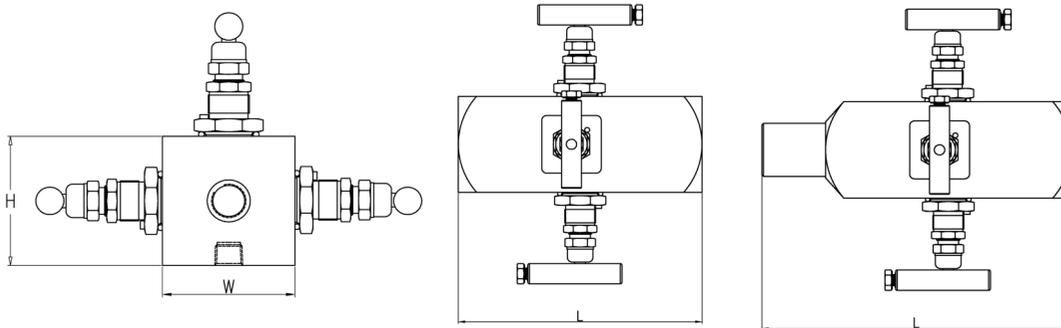
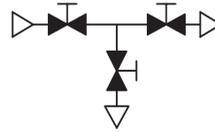
Ball Valve – Primary Block Type	
VDR Series	VDR82
End Connections	Threaded or Weld x Threaded
1st Block	Ball
Bleed	Needle
2nd Block	Ball



VDR13 Series

VDR13 Series double block and bleed root valves feature 5mm (0.2 in.) bore screwed needle valve for primary and secondary isolation and vent service.

Ball Valve – Primary Block Type	
VDR Series	VDR13
End Connections	Threaded or Weld x Threaded
1st Block	Needle
Bleed	Needle
2nd Block	Needle



Ordering Information and Dimensions

VDR Series	End Connection		Dimensions, mm					
	Inlet	Outlet	L	L1	L2	D	W	H
VDR80	1/2 in. Female NPT		115.0	21.6	-	69.0	-	-
	1/2 to 1 in. Socket weld male	1/2 in. Female NPT	115.0	100.0	-	69.0	-	-
VDR82	1/2 in. Female NPT		167.0	21.6	21.6	69.0	-	-
	1/2 to 1 in. Socket weld male	1/2 in. Female NPT	167.0	105.0	21.6	69.0	-	-
VDR13	1/2 in. Female NPT		146.0	-	-	-	63.5	63.5
	1/2 to 1 in. Socket weld male	1/2 in. Female NPT	146.0	-	-	-	63.5	63.5

VDR Series Root Valves

ROOT Valve Ordering Information

Legends: Ball-B, Needle-N

Root Valve Configuration				Sequence			VDR82-	24-	SS-	SS-	SW8-	F8N-	E-	SG-
				Block	Bleed	Block								
10mm Bore Ball Valve - Primary Block														
Threaded x Threaded Single Block & Bleed	Designator			B	N	-								
Threaded x Threaded Double Block & Bleed	VDR80-			B	N	B								
Single Block	VDR82- VDR86-			B	-	-								
Needle Valve - Primary Block Type														
Threaded x Threaded Single Block & Bleed	VDR10-			N	N	-								
Threaded x Threaded Double Block & Bleed	VDR13-			N	N	N								
Sealing Materials														
Needle Packing	Body Seal	Seat Housing Seal	Packing & Seal Combination	Designator	Ball Seat	Seat Designator	Part No. Examples							
PTFE	PTFE + FKM	PTFE	1		RPTFE	3	13-							
Graphite	Graphite + FKM	Graphite	2		PEEK	4	24-							
					Nylon12	5								
Barstock Body Material														
			Designator											
ASTM A276/A479 Type 316			SS-											
Carbon Steel A105N			C-											
ASTM A350 LF2			L-											
Duplex ASTM A479 S31803 or A182 F51			D-											
Trim Material														
SS316 Trim material standard for SS,C,L, and D			SS-											
body Duplex UNS S31803 Trim optional			D-											
Inlet Connection														
Weld & Threaded	Designator	Pipe Size	Designator	Thread Standard	Designator	Part No. Examples								
XXS Butt Weld Male	BW	1/2 in. NPS	8	NPT	N	BW12-								
XXS Socket Weld Male	SW	3/4 in. NPS	12	ISO Tapered	R	SW8-								
Male	M	1 in. NPS	16			M8N-								
Female	F													
Outlet Connection														
Thread	Designator	Thread Standard	Designator	Thread Standard	Designator	Part No. Examples								
Female	F	1/2 in.	8	NPT	N	F8N-								
1/2 in. NPT Female Plugged	F-			ISO Tapered	R	F-								
Vent Connection														
			Designator				Designator							
1/4 in. NPT Female			C-	1/2 in. NPT Female			E-							
1/4 in. NPT Female Plugged			D-	1/2 in. NPT Female Plugged			F-							
				Bleed Valve			V-							
Options														
			Designator											
Anti-Tamper vent needle valve with T key			AK											
Anti-Tamper vent needle valve with T key including padlock.			AP											
Anti-Static Ball			AS											
NACE MR0175			SG											
Lockable ball valve handle (specify number required)			LD											
Special requirement not covered by standard option.			SR											
Safe Valve Selection														
The selection of a valve for any application or system must be considered to ensure safe performance. Valve rating, valve function, material compatibility, proper installation, operation and maintenance remain the sole responsibility of the system designer and the user. HSME Corporation accepts no liability for any improper selection, compatibility, installation, operation or maintenance.														