M33V ISO Full Bore Ball Valve API 6D
2" to 8" ASME 150 and 300
(Low Pressure Application)

Description

Produced in accordance with API 6D the M33V ISO full bore two-piece body ball valve with floating ball, has been designed for use as an isolating valve, not a control valve, on applications at low temperatures which use natural gas and most of the hydrocarbon fluids in the OPC refinery sites.
The M33V ISO ASME has as standard an ISO mounting pad in accordance with ISO 5211.

Available types

M33V2 ISO	Zinc plated carbon steel body, PTFE seats and ISO mounting.
M33V3 ISO	Stainless steel body, PTFE seats and ISO mounting.

Standards
This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC and carries the CE mark when so required.

Certification
This product is available with certification to EN 10204 3.1.
Note: All certification / inspection requirements must be stated at the time of order placement.

Options

- Hollow ball for 6" and 8" sizes - Not API 6D rated.
- Self-venting ball.
- Ring joint flanges.
- Extended stems to allow full insulation for 3" and 4" sizes.*
- Operation by mechanical or pneumatic actuator URPA series for all sizes.
- Operation by pneumatic actuator URPA series and mechanical declutchable actuator.
- Lockable handle.*
- Materials according to NACE MR 0175.
- Surge valve.
- Drain plug.

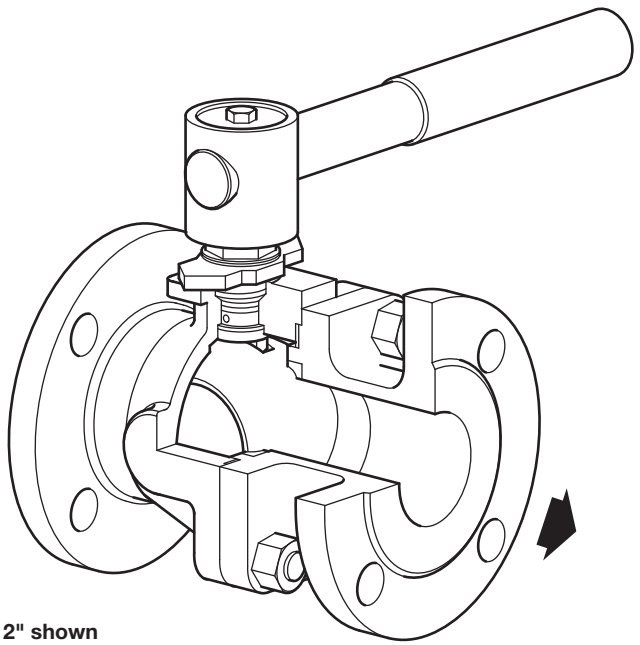
*manual operation only

Sizes and pipe connections

2", 2½", 3", 4", 6" and 8"
Standard flange ASME Class 150 and 300 with face-to-face dimensions according to B 16.10.

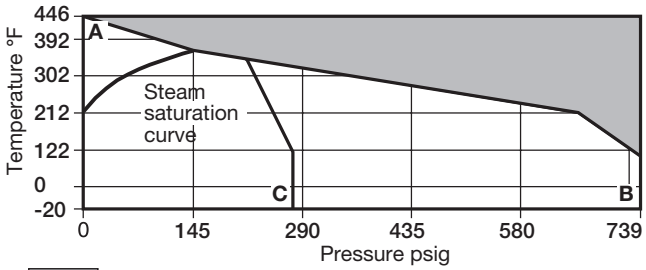
Technical data

Flow characteristic	Modified linear
Port	Full bore
Leakage test procedure to ISO 5208 (Rate A) / EN 12266-1 (Rate A) and BS 5351	
Antistatic device	Complies with ISO 7121 and BS 5351



2" shown

Pressure/temperature limits



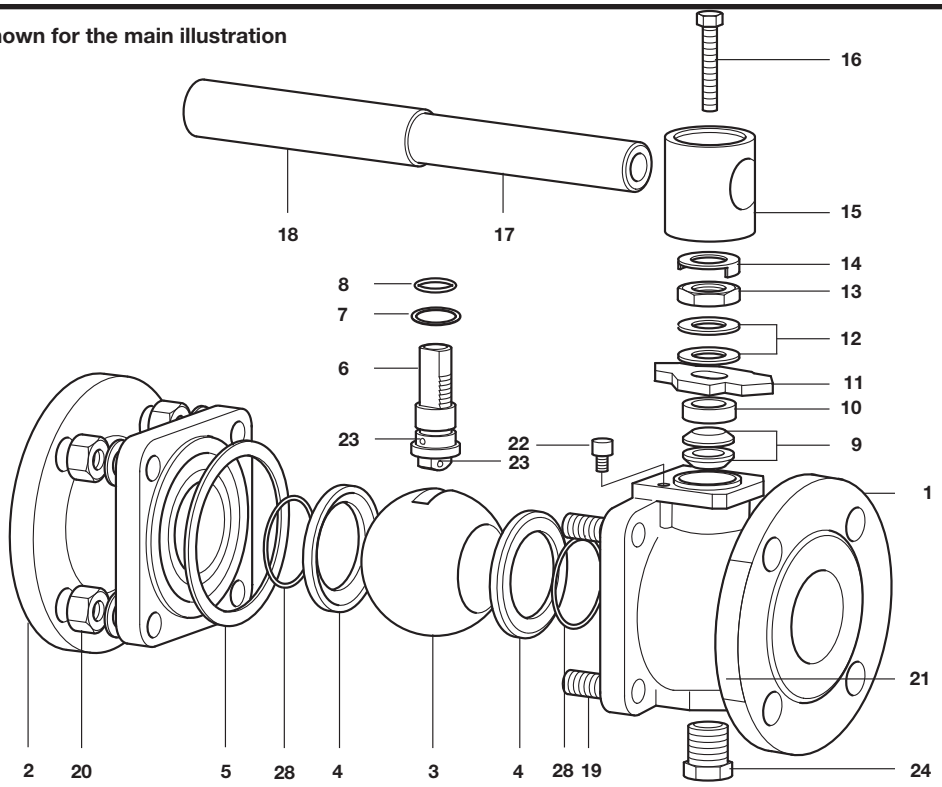
The product **must not** be used in this region.

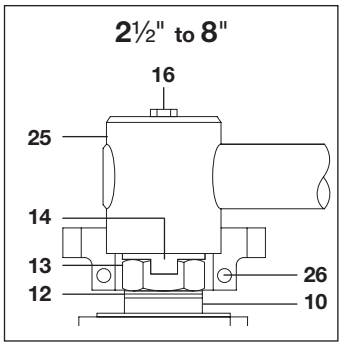
A - B Flanged ASME 300.
A - C Flanged ASME 150.

PMA	Maximum allowable pressure	ASME 150	290psig@100°F
		ASME 300	739psig@113°F
TMA	Maximum allowable temperature		446°F@0psig
Minimum allowable temperature			-20°F
PMO	Maximum operating pressure for saturated steam service		145 psig
TMO	Maximum operating temperature		446°F@0psig
Minimum operating temperature			-20°F
Note: For lower operating temperatures consult Spirax Sarco			
ΔPMX	Maximum differential pressure is limited to the PMO		
Designed for a maximum cold hydraulic test pressure of:		ASME 150	413psig
		ASME 300	1109psig

Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only.
In the interests of development and improvement of the product, we reserve the right to change the specification.

2"shown for the main illustration





Materials

No.	Part		Material	
1	Body	**M33V2 ISO**	Zinc plated carbon steel	ASTM A 216 WCB
		M33V3 ISO	Stainless steel	ASTM A 351 CF8M
2	Insert	**M33V2 ISO**	Zinc plated carbon steel	ASTM A 21 6 WCB
		M33V3 ISO	Stainless steel	ASTM A 351 CF8M
3	Solid ball		Stainless steel	AISI 316
***4**	Seats		PTFE	
***5**	Body gasket		Graphoil with metal insert	
6	Stem		Stainless steel	AISI 316 / AISI 420
***7**	Lower stem seal		Carbon and graphite R-PTFE	
***8**	'O' ring		Viton	
***9**	Upper stem packing		PTFE	
10	Separator		Zinc plated carbon steel	SAE 1010
11	Stop plate with indicator for 2"		Zinc plated carbon steel	SAE 1010
12	Belleville stem washer		Carbon steel / stainless steel	
13	Gland nut		Carbon steel	SAE 12L14
14	Locking plate		Stainless steel	AISI 304
15	Adaptor 2"		Zinc plated SG iron	
16	Screw		Carbon steel	Grade 5
17	Handle		Zinc plated carbon steel	SAE 1010
18	Grip		Vinyl (Orange)	
19	Stud		Carbon steel	A193-B7
20	Nut		Zinc plated carbon steel	A194-2H
21	Photochemical name-plate		Stainless steel	AISI 304
22	Stop screw		Zinc plated carbon steel	SAE 12L14
23	Antistatic device ball		Stainless steel	AISI 304
24	Drain plug (optional)		Carbon steel	
25	Adaptor with indicator for 2½" to 8"		Zinc plated SG iron	
26	Stop screw for 2½" to 8"		Carbon steel	
27	Lifting eye 8" - not shown		Zinc plated carbon steel	SAE 1010
***28**	'O' ring		Viton	

***Note:** Available spare parts sold as a kit.

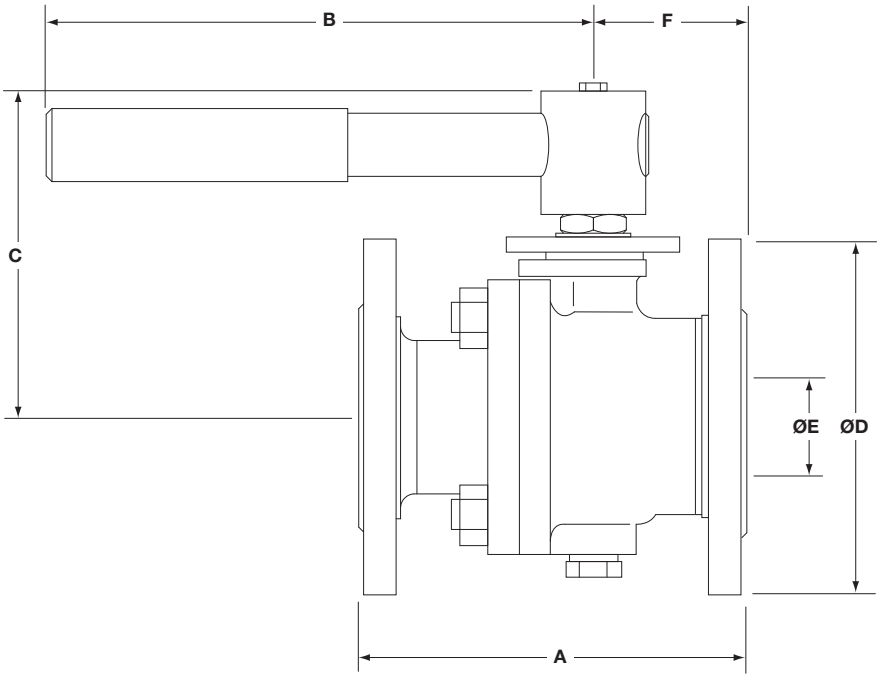
Dimensions / weights (approximate) in inches and lbs

Flanged ASME 150

Size	A	B	C	D	E	F	Weight
2"	7.0	10.8	5.5	6.0	2.0	2.8	24
2½"	7.5	16.3	6.3	7.0	2.5	3.2	36
3"	8.0	20.3	6.6	7.5	2.9	3.4	44
4"	9.0	27.5	8.0	9.0	3.9	4.2	78
6"	15.5	33.5	11.1	10.9	5.9	7.8	177
8"	18.0	37.4	12.5	13.5	7.9	9.0	309

Flanged ASME 300

Size	A	B	C	D	E	F	Weight
2"	8.5	10.8	5.5	6.5	2.0	3.4	33
2½"	9.5	16.3	6.3	7.5	2.5	3.6	50
3"	11.1	20.3	6.6	8.3	2.9	3.9	66
4"	12.0	27.5	8.0	10.0	3.9	4.8	110
6"	15.8	33.5	11.1	12.5	5.9	7.0	245
8"	19.7	37.4	12.5	15.0	7.9	8.4	409



C_V values

Inches	2"	2½"	3"	4"	6"	8"
Cv	346	497	867	1191	2786	5549

Operating torque lb/ft

Inches	2"	2½"	3"	4"	6"	8"
lb/ft	44	59	73	147	442	553

The torque figures shown are for a valve at maximum operating pressure that is operated frequently.
Valves that are subject to long static periods, may require greater break-out torque.

Safety information, installation and maintenance

Installation and Maintenance Instructions, IM-P133-65.

How to order

Specify:	**Size**	2", 2½", 3", 4", 6", 8"
	Model	M33V_ISO
	Body material	2 = Carbon steel
		3 = Stainless steel
	Flanges	ASME 150 or ASME 300

Example: 1 off Spirax Sarco 2" flanged ASME 150 M33V2 ISO ball valve.

Spare parts

The spare parts available are shown in solid outline. Parts drawn in broken line are not supplied as spares.

Available spares

Seats, body gasket, steam seals, stem 'O' ring set and seat 'O' ring set	**4, 5, 7, 8, 9, 28**

How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the size and type of ball valve.

Example: 1 - Seats, body gasket, stems seals and stem and seat 'O' ring set for a Spirax Sarco 3" flanged ASME M33V2 ISO ball valve