



# M33S ISO Full Bore Ball Valve API 6D 2" to 8" ASME 150 and ASME 300 (Medium Pressure Applications)

## Description

Produced in accordance with API 6D the M33S ISO full bore two-piece body ball valve with floating ball, has been designed for use as an isolating valve, not a control valve. It can be used with the majority of industrial fluids on applications, which include steam, condensate, water, oil, gases, and other fluids within its operating range.

The M33S ISO ASME has as standard an ISO mounting pad in accordance with ISO 5211.

## Available types

<b>M33S2 ISO</b>	Zinc plated carbon steel body, PDR 0.8 seats (for high temperatures) and ISO mounting.
<b>M33S3 ISO</b>	Stainless steel body, PDR 0.8 seats (for high temperatures) 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

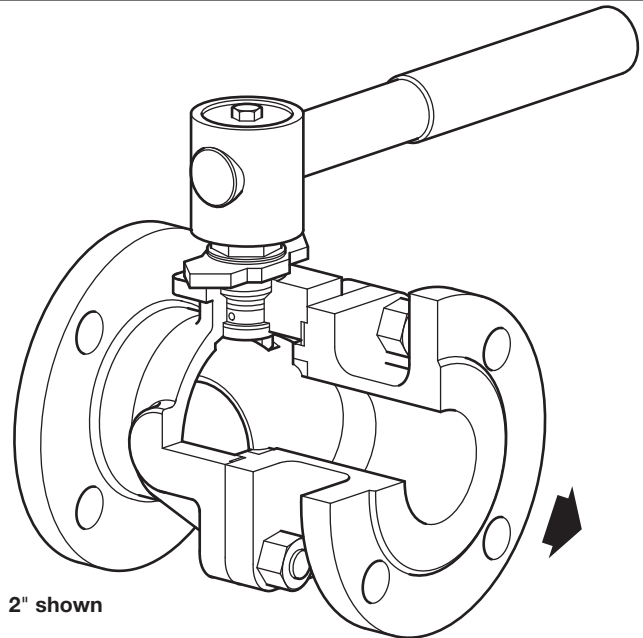
## Sizes and pipe connections

2", 2½", 3", 4", 6" and 8"

Standard flange ASME Class 150 and 300 with face-to-face dimensions according to B 16.10.

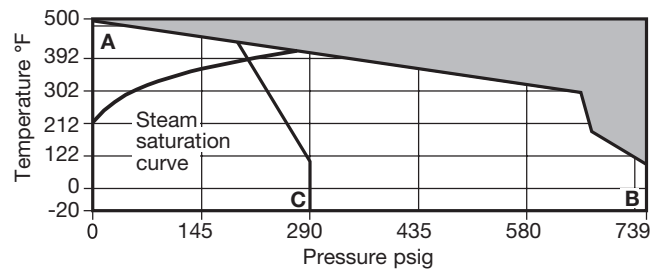
## Technical data

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.

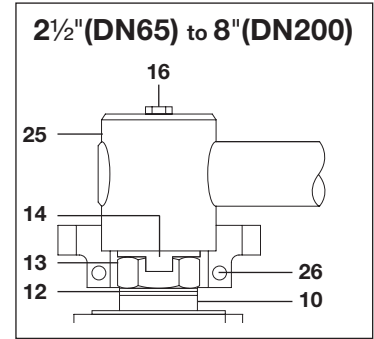
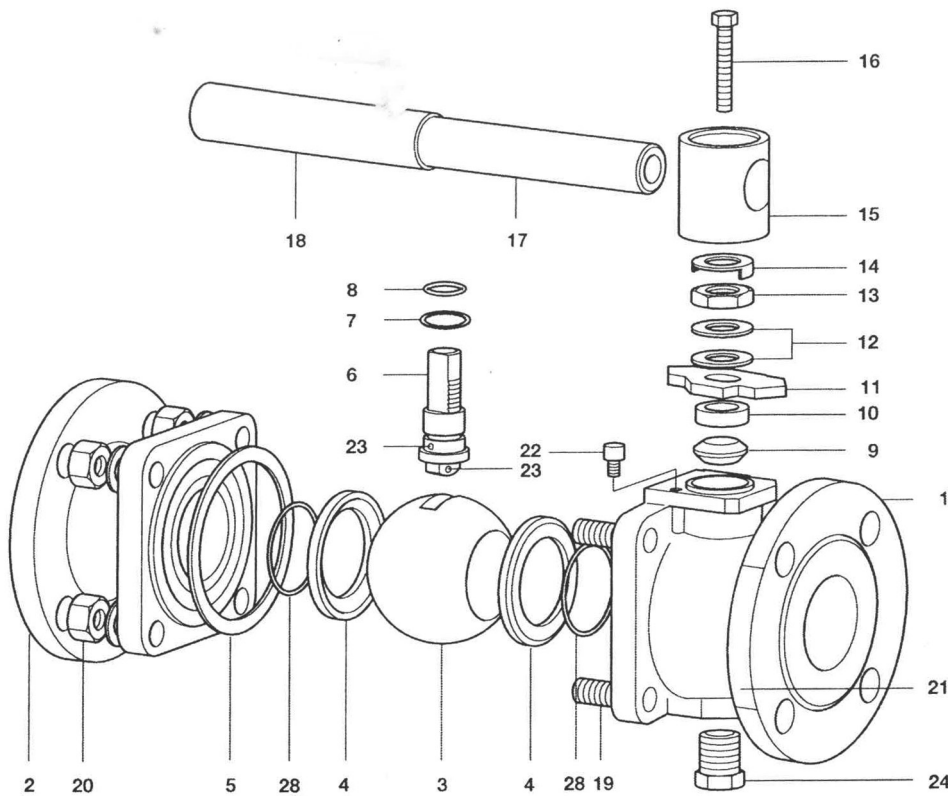
A - C Flanged ASME 150.

PMA	Maximum allowable ASME 150	290 psig@100°F
	pressure ASME 300	739 psig@100°F
TMA	Maximum allowable temperature	500°F@0psig
	Minimum allowable temperature	-20°F
PMO	Maximum operating pressure for saturated steam service	253 psig
TMO	Maximum operating temperature	500°F@0psig
	Minimum operating temperature	-20°F
<b>Note:</b> For lower operating temperatures consult Spirax Sarco		
ΔPMX Maximum differential pressure is limited to the PMO		
	Designed for a maximum ASME 150	413 psig
	cold hydraulic test pressure of: ASME 300	1109 psig

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.

TI-P133-63-US 12.14

2" (DN50) shown for the main illustration



## Materials

No.	Part	Material		
1	Body	M33S2 ISO	Zinc plated carbon steel	ASTM A 216 WCB
		M33S3 ISO	Stainless steel	ASTM A 351 CF8M
2	Insert	M33S2 ISO	Zinc plated carbon steel	ASTM A 21 6 WCB
		M33S3 ISO	Stainless steel	ASTM A 351 CF8M
3	Solid ball		Stainless steel	AISI 316
*4	Seats		Carbon and graphite R-PTFE	PDR 0.8
*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 (Blue)	
19	Stud		Carbon steel	A1 93-B7
20	Nut		Zinc plated carbon steel	A1 94-2H
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 2 1/2" to 8"		Zinc plated SG iron	
26	Stop screw for 2 1/2" to 8"		Carbon steel	
27	Lifting eye 8" not shown		Zinc plated carbon steel	SAE 1010
*28	'O' ring		EPDM	

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

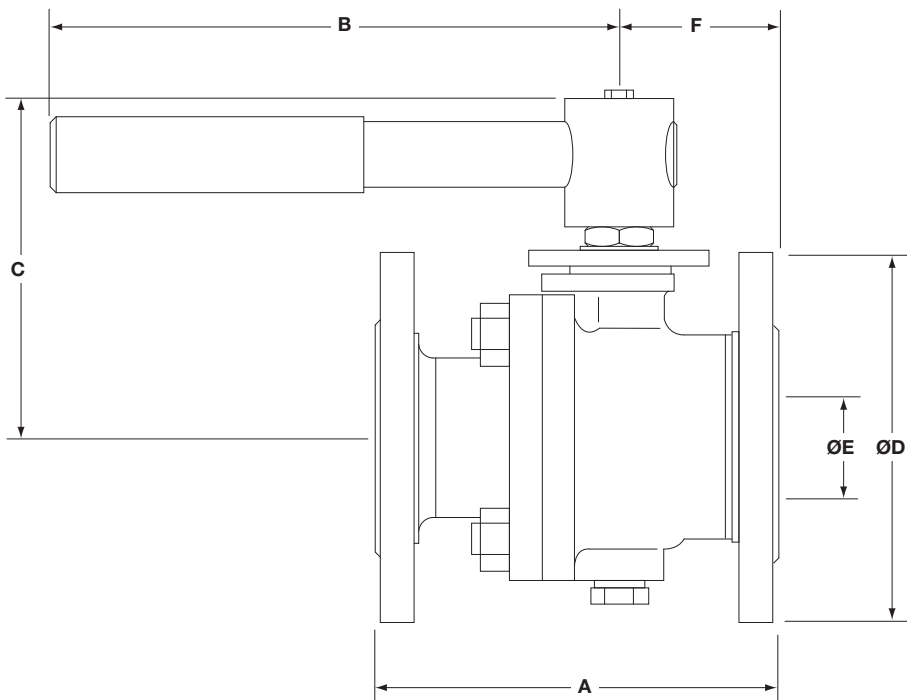
## Dimensions/weights (approximate) in inches and lbs

### 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<sub>v</sub> values

Inches	2"	2½"	3"	4"	6"	8"
C <sub>v</sub>	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	M33S_ISO
	Body material	2 = Carbon steel 3 = Stainless steel
	Flanges	ASME 150 or ASME 300

Example: 1 off Spirax Sarco 2" flanged ASME 150 M33S2 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

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 M33S2 ISO ball valve

