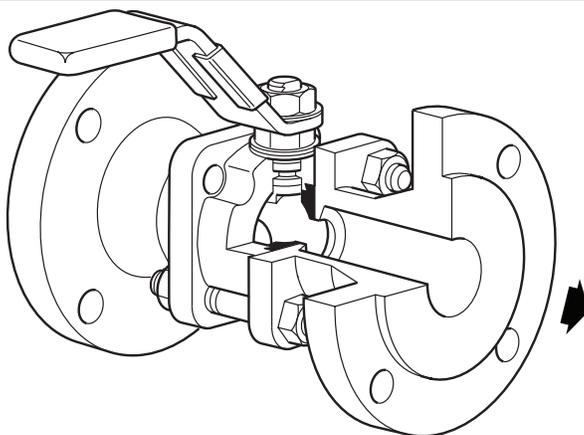




# M10S

## Manual Ball Valve 1/4" to 2 1/2"

### (Medium Pressure Applications)



#### Description

The M10S three-piece body ball valve has been designed for use as an isolating valve, not a control valve, and can be serviced without removal from the pipeline (screwed and welded versions only). It can be used with the majority of industrial fluids for services ranging from vacuum to the higher temperatures and pressures.

#### Available types

<b>M10S2</b>	Zinc plated carbon steel body, PDR 0.8 seats.
<b>M10S4</b>	Complete stainless steel, PDR 0.8 seats.

**Note:** The nomenclature will be followed with either **FB** (full bore) or **RB** (reduced bore).

#### 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.

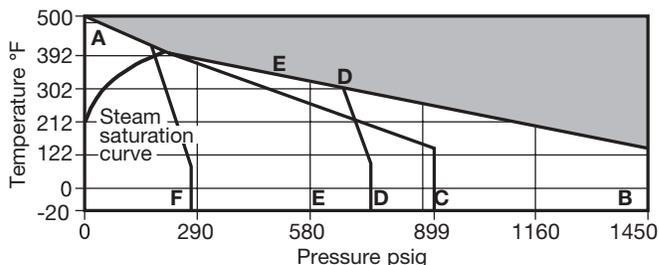
#### Sizes and pipe connections

Full bore	Flanged 1/2" to 2"
1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2" and 2"	ASME Class 150, ASME Class 300,
<b>Screwed and welded</b> NPT, BW, SW	
Reduced bore	Flanged 1/2" to 2 1/2"
1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2", 2" and 2 1/2"	ASME Class 150, ASME Class 300,
<b>Screwed and welded</b> NPT, BW, SW	

#### Technical data

Flow characteristic	Modified linear
Port	Full and reduced port versions
Leakage test procedure to ISO 5208 (Rate A)	
Antistatic device	Complies with ISO 7121

#### Pressure/temperature limits



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

- A - B** Screwed, SW and BW 1/4" - 1 1/2" FB, RB and 2" RB.
- A - C** Screwed, SW and BW 2" FB and 2 1/2" RB only.
- A - D** Flanged ASME 300.
- A - F** Flanged ASME 150.

**Note 1:** On the 2" FB and 2 1/2" RB a PTFE gasket is fitted between the body and cap.

**Note 2:** The flange standard may restrict the maximum operating pressure. Please check with Spirax Sarco.

#### Limiting Conditions

Body design conditions*		
PMA	Maximum allowable pressure	1450 psig @ 140°F
TMA	Maximum allowable temperature	500°F @ 0 psig
Minimum allowable temperature		-20°F
PMO	Maximum operating pressure for saturated steam service	254 psig
TMO	Maximum operating temperature	500°F @ 0 psig
Minimum operating temperature		-20°F

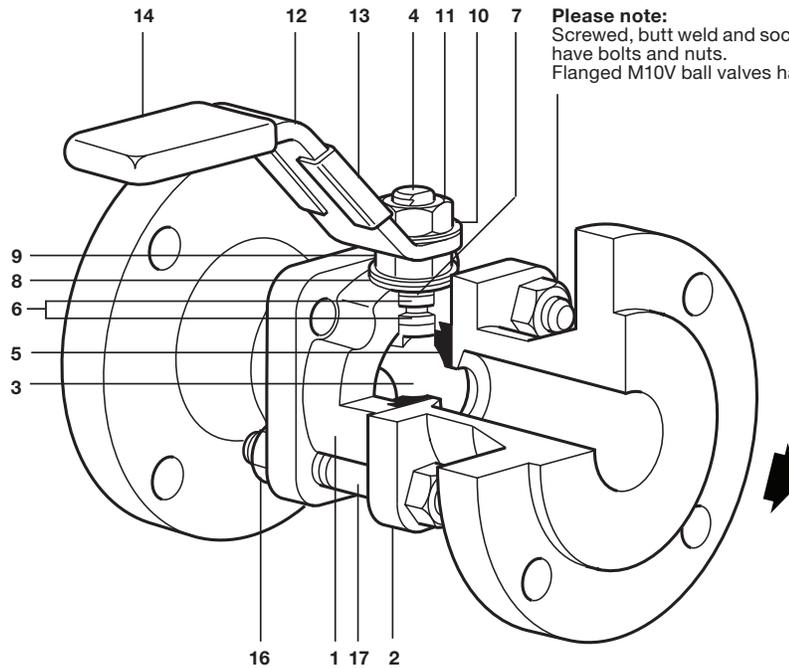
**Note:** For lower operating temperatures consult Spirax Sarco

$\Delta$ PMX Maximum differential pressure is limited to the PMO

Designed for a maximum cold hydraulic test pressure of 2175 psig

\***Note:** Do not exceed end connection design conditions.

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.



**Please note:**  
Screwed, butt weld and socket weld M10V ball valves have bolts and nuts.  
Flanged M10V ball valves have studs and nuts.

## Materials

No. Part		Material	
1 Body	<b>M10S2</b>	Zinc plated carbon steel	ASTM A105
	<b>M10S4</b>	Stainless steel	ASTM A 182 F 316L
2 Cap	<b>M10S2</b>	Zinc plated carbon steel	ASTM A105
	<b>M10S4</b>	Stainless steel	ASTM A 182 F 316L
3 Ball		Stainless steel	AISI 316
4 Stem		Stainless steel	AISI 316
**5 Seat		Carbon/graphite reinforced PTFE	PDR 0.8
**6 Stem seal		Reinforced PTFE antistatic	
7 Separator	<b>M10S2</b>	Zinc plated carbon steel	SAE 1010
	<b>M10S4</b>	Stainless steel	AISI 316
8 Spring washers		Stainless steel	AISI 301
9 Nut	<b>M10S2</b>	Zinc plated carbon steel	SAE 12L14
	<b>M10S4</b>	Stainless steel	AISI 304
10 Name-plate (DN)		Stainless steel	AISI 430
11 Stem nut	<b>M10S2</b>	Zinc plated carbon steel	SAE 12L14
	<b>M10S4</b>	Stainless steel	AISI 304
12 Lever	<b>M10S2</b>	Zinc plated carbon steel	SAE 1010
	<b>M10S4</b>	Stainless steel	AISI 316
13 Name-plate		Stainless steel	AISI 430
14 Grip		Vinyl	
*15 Bolts	<b>M10S2</b>	Zinc plated carbon steel	A 193 B7
	<b>M10S4</b>	Stainless steel	AISI 304
16 Nuts	<b>M10S2</b>	Zinc plated carbon steel	SAE 1010
	<b>M10S4</b>	Stainless steel	AISI 304
17 Studs	<b>M10S2</b>	Zinc plated carbon steel	Grade 5
	<b>M10S4</b>	Stainless steel	AISI 304

\*Note: Item 15 not shown - Screwed, butt weld and socket weld versions only.

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

## Dimensions (approximate) in inches

### Reduced bore

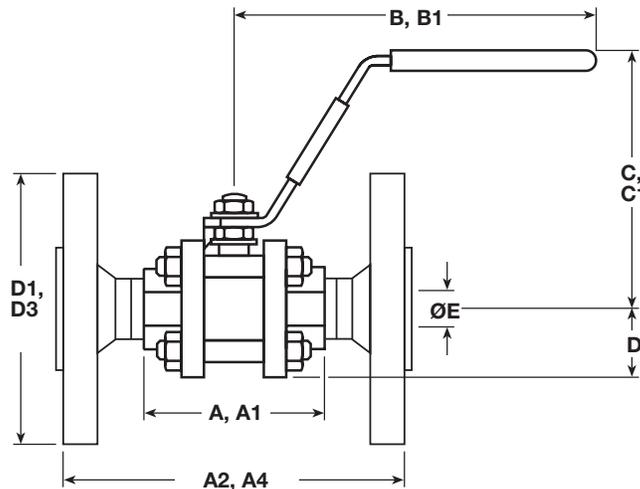
Size	A	A1	A2	A4	B	B1	C	C1	D	D1	D3	E
1/4"	2.2	2.1	-	-	4.7	-	2.4	-	0.9	-	-	0.4
3/8"	2.2	2.1	-	-	4.7	-	2.4	-	0.9	-	-	0.4
1/2"	2.5	2.1	4.3	5.5	4.7	4.7	2.4	3	0.9	3.5	3.7	0.4
3/4"	2.7	2.4	4.6	6.0	4.7	4.7	2.5	4	1.0	3.9	4.6	0.6
1"	3.4	3.3	5.0	6.5	6.2	6.2	3.6	3.6	1.2	4.3	4.9	0.8
1 1/4"	3.9	3.7	5.5	7.0	6.2	6.2	3.7	3.7	1.5	4.6	5.2	0.9
1 1/2"	4.3	4.0	6.5	7.5	7.1	7.1	4.3	4.3	1.6	5.0	6.1	1.2
2"	4.9	4.7	7.0	8.5	7.1	7.1	4.5	4.5	1.9	6.0	6.5	1.5
2 1/2"	5.9	5.9	7.5	9.5	9.6	-	5.2	5.2	2.2	-	7.5	2.0

### Full bore

Size	A	A1	A2	A4	B	B1	C	C1	D	D1	D3	E
1/4"	2.4	2	-	-	4.7	-	2.4	-	0.9	-	-	0.4
3/8"	2.4	2.4	-	-	4.7	-	2.4	-	0.9	-	-	0.4
1/2"	2.7	2.7	-	5.5	4.7	4.7	2.5	-	1.0	-	3.7	0.5
3/4"	3.4	3.4	-	6.0	6.2	6.2	3.6	3.6	1.2	-	4.6	0.8
1"	3.8	3.8	-	6.5	6.2	6.2	3.7	3.7	1.5	-	4.9	1.0
1 1/4"	4.2	4.2	-	7.0	7.1	7.1	4.3	4.3	1.6	-	5.2	1.2
1 1/2"	4.9	4.9	-	7.5	7.1	7.1	4.5	4.5	1.9	-	6.1	1.5
2"	6.0	6.0	-	8.5	9.6	9.6	5.2	5.2	2.2	-	6.5	2.0

## Weights (approximate) in lbs

Size	Scrd (NPT) / BW/SW	Reduced bore		Full bore	
		ASME 150	ASME 300	Scrd (NPT) / BW/SW	ASME 300
1/4"	1.3	-	-	1.3	-
3/8"	1.3	-	-	1.3	-
1/2"	1.3	3.6	4.8	1.5	5.5
3/4"	1.5	4.8	6.3	2.8	9.2
1"	2.8	7.5	9.9	3.9	11.2
1 1/4"	3.9	9.8	15.4	5.5	16.5
1 1/2"	5.5	12.8	18.4	7.7	22.0
2"	7.7	19.8	24.7	15.2	29.5
2 1/2"	15.2	-	38.6	-	-



- A** : Screwed and Butt weld
- A1** : Socket weld
- A2** : Flanged ASME 150
- A4** : Flanged ASME 300
- B** : Screwed, Butt weld and Socket weld
- B1** : Flanged ASME 150
- C** : Screwed, Butt weld and Socket weld
- C1** : Flanged ASME 150
- D** : Screwed, Butt weld and Socket weld
- D1** : Flanged ASME 150
- D3** : Flanged ASME 300

### C<sub>y</sub> values

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Reduced bore	3	8	7	12	31	57	81	119	194
Full bore	3	8	20	42	67	102	176	240	-

### Operating torque (ft / lbf)

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Reduced bore	1.5	1.5	1.5	3	10	15.5	23	29.5	33.5
Full bore	1.5	1.5	3	10	15.5	23	29.5	33	-

The indicated torque values are for valves frequently operated, that are submitted to a maximum differential pressure of 1500 psig. Valves that are subject to long static periods, may require greater break-out torque.

### Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions, IM-P133-16.

### How to order example:

1 off Spirax Sarco 1/2" screwed NPT M10S2FB ball valve.

### Optional extras:

- Self-venting ball.
- Extended stems 2" (50mm) and 4" (100mm) to allow full insulation.
- Lockable handle.
- Oval handle for confined spaces. Ideal for trap modules.

### Spare parts

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

### Available spares

Seat and stem seal set	<b>5, 6</b>
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### 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 - Seat and stem seal set for a 1/2" M10S2FB ball valve.

