



TI-P167-03-EN-ISS2  
CMGT

# M10S Ball Valve DN $\frac{1}{4}$ " to DN $2\frac{1}{2}$ "

## Description

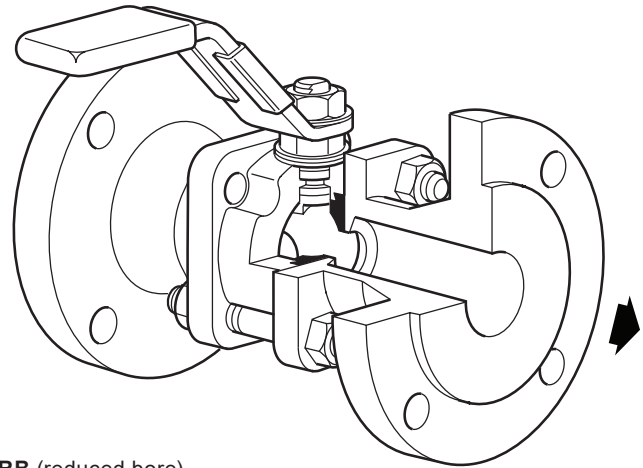
The M10S three-piece body ball valve has been designed for use as an isolating valve, not a control valve, and can be serviced without removal from the pipeline (screwed and welded versions only). It can be used with the majority of industrial fluids for services ranging from vacuum to the higher temperatures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

## Available types

**M10S2\_ \_** Zinc plated carbon steel body, PDR 0.8 seats.

**M10S3\_ \_** Stainless steel body, PDR 0.8 seats.

**M10S4\_ \_** 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 Pressure Equipment Directive (PED) and carries the  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.

## Technical data

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

## Sizes and pipe connections

### Full bore

$\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1",  $1\frac{1}{4}$ ",  $1\frac{1}{2}$ " and 2"

### Screwed and welded

BSP, BSPT, API/NPT, BW, SW

### Flanged

DN15 to DN50

ASME Class 150, ASME Class 300, and EN 1092 PN40.

### Reduced bore

$\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", 1",  $1\frac{1}{4}$ ",  $1\frac{1}{2}$ ", 2" and  $2\frac{1}{2}$ "

### Screwed and welded

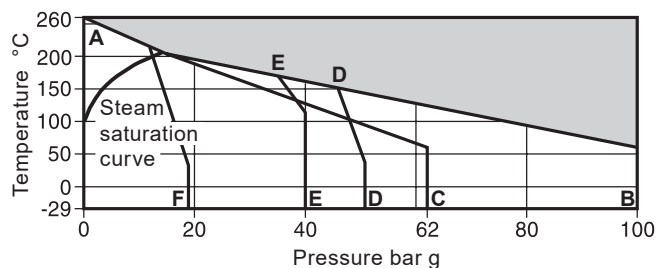
BSP, BSPT, API/NPT, BW, SW

### Flanged

DN15 to DN65

ASME Class 150, ASME Class 300, and EN 1092 PN40.

## Pressure/temperature limits



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

**A - B** Screwed, BW and SW ¼" - 1½" FB, RB and 2" RB.

**A - C** Screwed, BW and SW 2" FB and 2½" RB only.

**A - D** Flanged ASME (ANSI) 300.

**A - E** Flanged EN 1092 PN40.

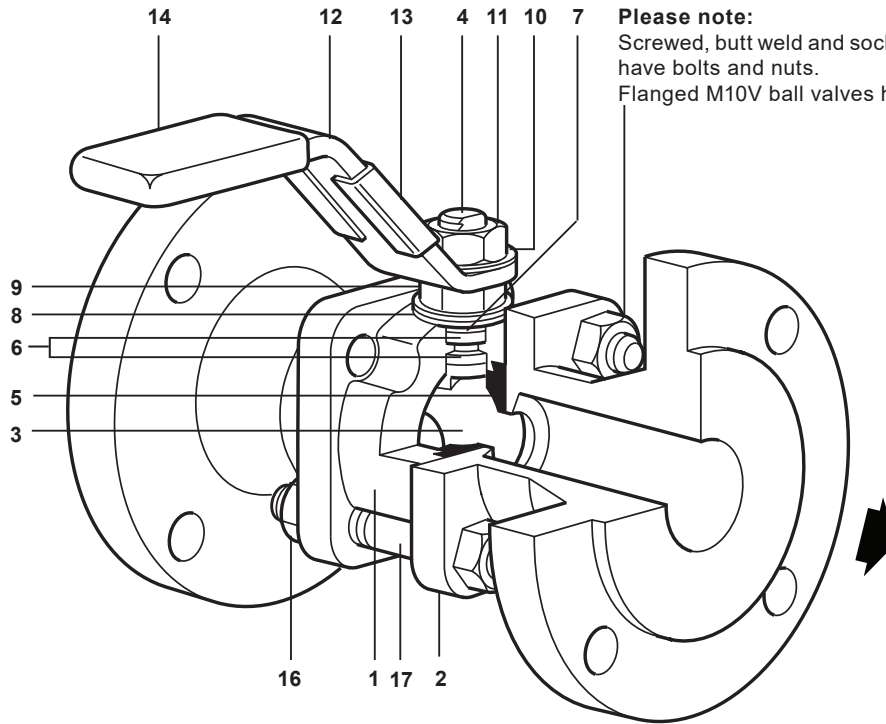
**A - E** Flanged ASME (ANSI) 150.

**Note 1:** On the 2" FB and 2½" 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.

**Note 3:** In gases applications, the maximum operating pressure is restricted to 40 bar g.

Body design conditions	PN100
PMA Maximum allowable pressure	100 bar g @ 60 °C
TMA Maximum allowable temperature	260 °C @ 0 bar g
Minimum allowable temperature	-29 °C
PMO Maximum operating pressure for saturated steam service	17.5 bar g
TMO Maximum operating temperature	260 °C @ 0 bar g
Minimum operating temperature	-29 °C
<b>Note:</b> 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:	150 bar g



**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	M10S2	Zinc plated carbon steel ASTM A105
		M10S3	Stainless steel ASTM A 182 F 316L
		M10S4	
2	Cap	M10S2	Zinc plated carbon steel ASTM A105
		M10S3	Stainless steel ASTM A 182 F 316L
		M10S4	
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	M10S2	Zinc plated carbon steel SAE 1010
		M10S3	
		M10S4	Stainless steel AISI 316
8	Spring washers	Stainless steel	AISI 301
9	Nut	M10S2	Zinc plated carbon steel SAE 12L14
		M10S3	
		M10S4	Stainless steel AISI 304
10	Name-plate (DN)	Stainless steel	AISI 430
11	Stem nut	M10S2	Zinc plated carbon steel SAE 12L14
		M10S3	
		M10S4	Stainless steel AISI 304
12	Lever	M10S2	Zinc plated carbon steel SAE 1010
		M10S3	
		M10S4	Stainless steel AISI 316
13	Name-plate	Stainless steel	AISI 430
14	Grip	Vinyl	
15 *	Bolts	M10S2	Zinc plated carbon steel A 193 B7
		M10S3	
		M10S4	Stainless steel AISI 304
16	Nuts	M10S2	Zinc plated carbon steel SAE 1010
		M10S3	
		M10S4	Stainless steel AISI 304
17	Studs	M10S2	Zinc plated carbon steel Grade 5
		M10S3	
		M10S4	Stainless steel AISI 304

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

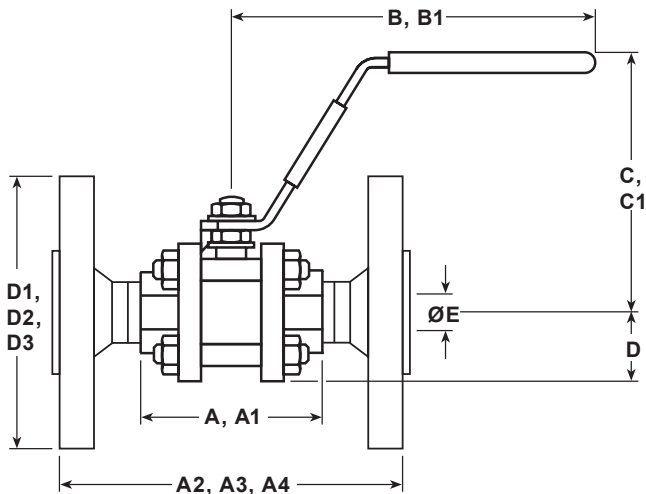
## Dimensions (approximate) in mm

### Reduced bore

Size	A	A1	A2	A3	A4	B	B1	C	C1	D	D1	D2	D3	E
1/4"	63	60	-	-	-	120	-	61	-	24	-	-	-	11
3/8"	63	63	-	-	-	120	-	61	-	24	-	-	-	11
1/2"	63	51	108	130	140	120	120	61	87	24	89	95	95	11
3/4"	68	59	117	150	152	120	120	63	89	26	98	105	117	14
1"	86	84	127	160	165	157	157	91	91	31	108	115	124	21
1 1/4"	97	93	140	180	178	157	157	95	95	37	118	140	133	25
1 1/2"	106	102	165	200	190	180	180	109	109	41	127	150	156	31
2"	124	118	178	230	216	180	180	115	115	48	152	165	165	38
2 1/2"	152	152	191	-	241	245	-	132	132	57	-	-	190	51

### Full bore

Size	A	A1	A2	A3	A4	B	B1	C	C1	D	D1	D2	D3	E
1/4"	63	60	-	-	-	120	-	61	-	24	-	-	-	11
3/8"	63	63	-	-	-	120	-	61	-	24	-	-	-	11
1/2"	68	68	-	130	140	120	120	63	89	26	-	95	95	14
3/4"	86	86	-	150	152	157	157	91	91	31	-	105	117	21
1"	97	97	-	160	165	157	157	95	95	37	-	115	124	25
1 1/4"	106	106	-	180	178	180	180	109	109	41	-	140	133	31
1 1/2"	124	124	-	200	190	180	180	115	115	48	-	150	156	38
2"	152	152	-	230	216	245	245	132	132	57	-	165	165	51



- A:** Screwed and Butt weld
- A1:** Socket weld
- A2:** Flanged ASME 150
- A3:** Flanged PN40
- A4:** Flanged ASME 300
- B:** Screwed, Butt weld and Socket weld
- B1:** Flanged ASME 150, PN40
- C:** Screwed, Butt weld and Socket weld
- C1:** Flanged ASME 150, Flanged PN40
- D:** Screwed, Butt weld and Socket weld
- D1:** Flanged ASME 150
- D2:** Flanged PN40
- D3:** Flanged ASME 300

## Weights (approximate) in kg

Size	Reduced bore				Full bore		
	Scrd/BW/SW	PN40	ASME 150	ASME 300	Scrd/BW/SW	PN40	ASME 300
1/4"	0.61	-	-	-	0.61	-	-
3/8"	0.61	-	-	-	0.61	-	-
1/2"	0.61	2.2	1.65	2.2	0.70	2.3	2.5
3/4"	0.70	2.9	2.20	2.9	1.27	3.5	4.2
1"	1.27	3.9	3.38	4.5	1.77	4.4	5.1
1 1/4"	1.77	5.4	4.44	7.0	2.50	6.2	7.5
1 1/2"	2.50	6.5	5.84	8.36	3.50	7.5	10.0
2"	3.50	8.8	8.99	11.2	6.90	12.2	13.4
2 1/2"	6.90	-	-	17.5	-	-	-

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

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
<b>Reduced bore</b>	2.5	6.8	6	10	27	49	70	103	168
<b>Full bore</b>	2.5	6.8	17	36	58	89	153	205	-

For conversion:

$$C_v \text{ (UK)} = K_v \times 0.963$$

$$C_v \text{ (US)} = K_v \times 1.156$$

## Operating torque (N m)

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
<b>Reduced bore</b>	2	2	2	3.5	13	21	30	40	45
<b>Full bore</b>	2	2	3.5	13	21	30	40	45	-

The indicated torque values are for valves frequently operated, that are submitted to a maximum differential pressure of 62 bar. 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 supplied with the product.

### Welding

Only the models that have connections designed for welding (SW, BW, Imperial Tube connections) should be welded. Valves with SW or BW welding connections must be disassembled before welding onto the pipeline, the ends should be welded separately and the valve should be reassembled when the ends are cool. Carbon steel valves with threaded (BSPT, BSP, NPT) or flanged connections must not be welded to avoid damages to the valve and/or injury to personnel.

### How to order example:

1 off Spirax Sarco ½" screwed BSP M10S2FB ball valve.

### Optional extras:

- Self-venting ball.
- Extended stems 50 mm (2") and 100 mm (4") to allow full insulation.
- Lockable handle.
- Fully degreased under request (ie: Oxygen application).

### Spare parts

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

#### Available spares

Seat and stem seal set	5, 6
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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 ½" M10S2FB ball valve.

