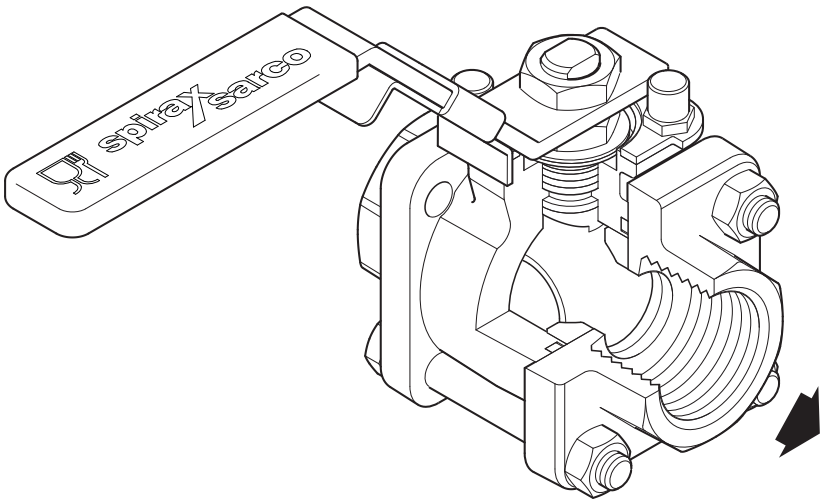
M10 ECFi4 Ball Valve ¼" to 2½"

Description

The M10 ECFi4 three-piece body ball valve has been designed for use as an isolating valve, not a control valve, has a lockable handle as standard and can be serviced without removal from the pipeline (screwed and welded versions only). It was designed and manufactured specially for Steam and Condensate applications. The valve complies with EC1935:2004 Food Contact Materials. It also complies with regulation EC2023:2006 on good manufacturing practice for materials and articles intended to come into contact with food.



ISO mounting

The integral ISO body mounting allows the valve to be automated without losing seal integrity, as the body does not require disassembly. Manual to remote control may therefore be easily accomplished by the ISO range of Spirax Sarco ball valves.

Nomenclature

After the name M10 ECFi4, the nomenclature will be followed with either FB (full bore) or RB (reduced bore).

Standards

This product fully complies with the requirements of the EU Pressure Equipment Directive/UK Pressure Equipment (Safety) Regulations and carries the CE mark when so required.

Certification

This product comes as standard with a certification package, which contains the following certificates:

- EN 10204 3.1 material certificates for all wetted parts (including seats and seals)
- EC1935:2004 Declaration of Compliance
- EC2023:2006 Declaration of Compliance

The material for the seals is compliant with:

- FDA CFR Title 21. Paragraph 177. 1550.

Note: All the valves are marked with a serial number and carry a certification pack with the same serial number in it.

Packaging

Each valve is end capped and sealed in a plastic bag to avoid the ingress of dirt and other contaminants and packed in a cardboard box.

Technical data

Flow characteristic	Modified linear
Port	Full and reduced bore versions
Leakage test procedure to ISO 5208 (Rate A)/EN 12266-1 (Rate A)	

Sizes and pipe connections

Full bore

Screwed and welded
¼", ⅜", ½", ¾", 1", 1¼", 1½" and 2"
BSP (BS21 Rp), BSP (ISO 228 G), BSPT, NPT, BW, SW

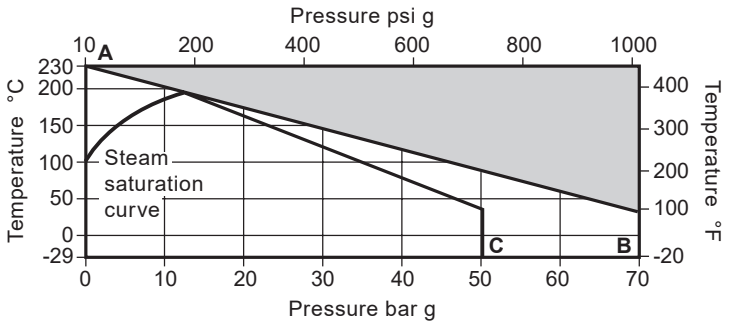
Flanged
DN15 to DN50
ASME Class 150, ASME Class 300, and EN 1092 PN40.

Reduced bore

Screwed and welded
½", ¾", 1", 1¼", 1½", 2" and 2½"
BSP (BS21 Rp), BSP (ISO 228 G), BSPT, NPT, BW, SW

Flanged
DN15 to DN65
ASME Class 150, ASME Class 300, and EN 1092 PN40.

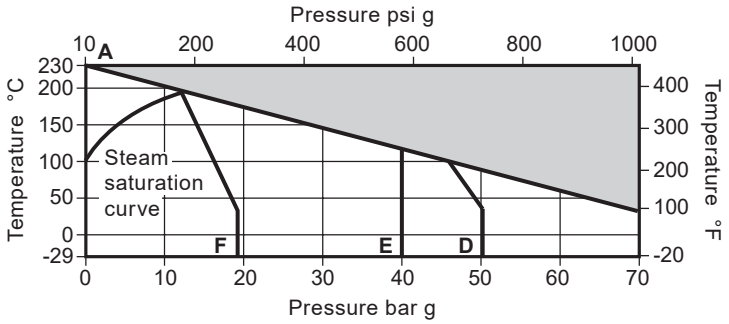
Pressure/temperature limits



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

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

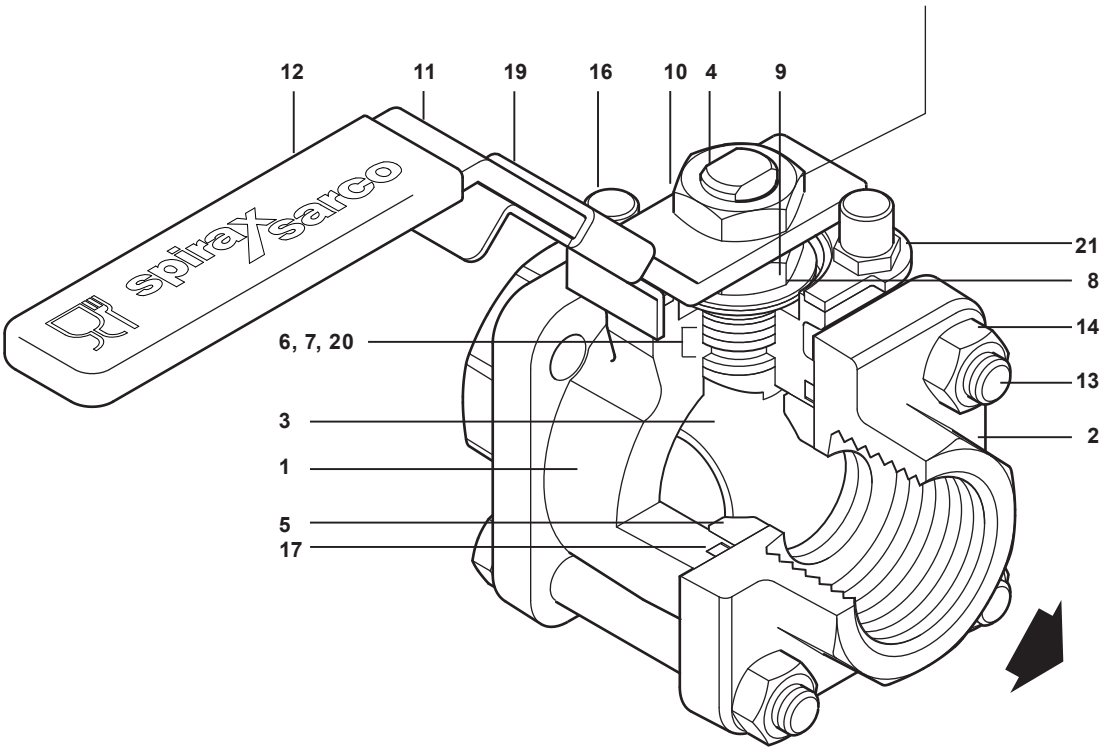
A - F Flanged ASME (ANSI) 150.

Body design conditions		PN100
PMA Maximum allowable pressure	70 bar g @ 40 °C	1015 psi g @ 105 °F
TMA Maximum allowable temperature	230 °C @ 0 bar g	446 °F @ 0 psi g
Minimum allowable temperature	-29 °C	-20 °F
PMO Maximum operating pressure for saturated steam service	12 bar g	174 psi g
TMO Maximum operating temperature	230 °C @ 0 bar g	446 °F @ 0 psi g
Minimum operating temperature **Note:** For lower operating temperatures consult Spirax Sarco	-29 °C	-20 °F
PMX Maximum differential pressure is limited to the PMO		
Designed for a maximum cold hydraulic test pressure of:	105 bar g	1523 psi g

Note 1:
In gases applications, the maximum operating pressure is restricted to 40 bar g (580 psi g).

Materials

Please note:
Screwed, butt weld and socket weld M10 ECFi4 ball valves have bolts and nuts.
Flanged M10 ECFi4 ball valves have studs and nuts.



No.	Part	Material	
1	Body	Stainless steel	ASTM A 182 F 316L
2	Cap	Stainless steel	ASTM A 182 F 316L
3	Ball	Stainless steel	AISI 316 L
4	Stem	Stainless steel	AISI 316 L
5	Seat	R-PTFE	
6	Stem seal	Virgin PTFE TFM 1600	
7	Separator	Stainless steel	AISI 316
8	Spring washers	Stainless steel	AISI 301
9	Stem nut	Stainless steel	AISI 304
10	Stem nut	Stainless steel	AISI 304
11	Lever	Stainless steel	AISI 316
12	Grip	Vinyl	
13	Bolts	Stainless steel	AISI 304
14	Nuts	Stainless steel	AISI 304
15	Studs - (not shown - Flanged versions only)	Stainless steel	AISI 304
16	Stop screw	Stainless steel	AISI 304
17	Body gasket	Virgin PTFE TFM 1600	
18	Nut locker	Stainless steel	AISI 304
19	Handle Lock	Stainless steel	AISI 304L
20	Stem seal	Stainless steel	
21	Lock-plate	Stainless steel	AISI 304L

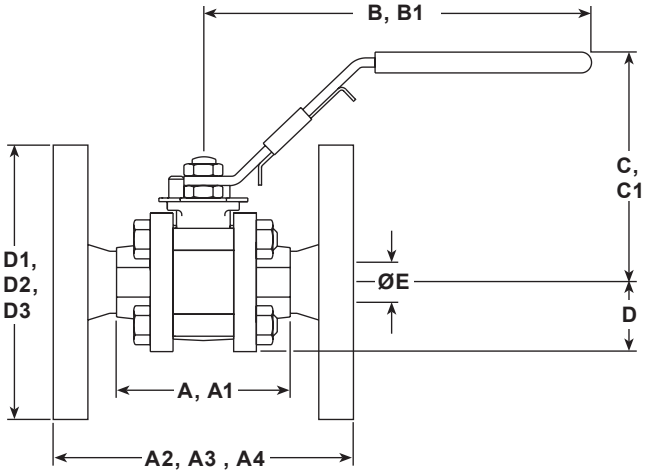
Dimensions (approximate) in mm

Reduced bore

Size	A	A1	A2	A3	A4	B	B1	C	C1	D	D1	D2	D3	E
½"	66	66	108	130	140	162	162	93	93	24	89	95	95	11
¾"	72	63	117	150	152	162	162	95	95	26	98	105	117	14
1"	87	84	127	160	165	162	162	101	101	31	108	115	124	21
1¼"	104	94	140	180	178	162	162	106	106	37	118	140	133	25
1½"	110	102	165	200	190	186	186	116	116	41	127	150	156	31
2"	125	118	178	230	216	186	186	123	123	48	152	165	165	38
2½"	153	152	191	290	241	251	251	142	142	57	178	185	190	50

Full bore

Size	A	A1	A2	A3	A4	B	B1	C	C1	D	D1	D2	D3	E
¼"	66	63	-	-	-	162	-	93	-	24	-	-	-	11
⅜"	66	63	-	-	-	162	-	93	-	24	-	-	-	11
½"	72	64	114	130	140	162	162	95	95	26	89	95	95	14
¾"	87	84	135	150	152	162	162	101	101	31	98	105	117	21
1"	104	98	148	160	165	162	162	106	106	37	108	115	124	25
1¼"	110	106	160	180	178	186	186	116	116	41	118	140	133	31
1½"	125	124	183	200	190	186	186	123	123	48	127	150	156	38
2"	153	152	215	230	216	251	251	142	142	57	152	165	165	50



A: Scrd and BW

A1: SW

A2: Flanged ASME 150

A3: Flanged PN40

A4: Flanged ASME 300

B: Scrd, BW, SW

B1: Flanged ASME 150, PN40

C: Scrd, BW, SW

C1: Flanged ASME 150, PN40

D: Scrd, BW, SW

D1: Flanged ASME 150

D2: Flanged PN40

D3: Flanged ASME 300

E: All versions

Weights (approximate) in kg

Size	Reduced bore				Full bore			
	Scrd/BW/SW	PN40	ASME 150	ASME 300	Scrd/BW/SW	PN40	ASME 150	ASME 300
¼"	-	-	-	-	0.8	-	-	-
⅜"	-	-	-	-	0.8	-	-	-
½"	0.8	2.4	1.7	2.2	1.0	2.6	1.9	2.4
¾"	1.0	3.2	2.3	3.4	1.6	3.8	2.7	4.7
1"	1.6	4.3	2.9	4.7	2.5	4.9	3.5	6.1
1¼"	2.5	6.1	4.1	6.1	3.1	6.9	4.8	8.8
1½"	3.1	7.4	6.0	8.5	4.8	9.2	5.8	10.8
2"	4.8	10.7	8.1	10.8	8.0	14.0	11.9	17.5
2½"	8.0	16.4	15.8	17.5	-	-	-	-

K_v values

Size	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"
Reduced bore	-	-	6	10	27	49	70	103	168
Full bore	2.5	6.8	17	36	58	89	153	205	-

For conversion:
C_v (UK) = K_v x 0.963
C_v (US) = K_v x 1.156

Operating torque (N m)

Size	¼"	⅜"	½"	¾"	1"	1¼"	1½"	2"	2½"
Reduced bore	-	-	3.25	5.50	13.25	20	50	60	75
Full bore	3.25	3.25	5.50	13.25	20	50	60	75	-

The indicated torque values are for valves frequently operated, that are submitted to a maximum differential pressure of 40 bar g (580 psi g). 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 (IM-P167-31).

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.

How to order example:
1 off Spirax Sarco ½" screwed NPT M10 ECFi4 FB ball valve

Optional extras:

- Self-venting ball.
- Extended stems 50 mm (2") and 100 mm (4") to allow full insulation (without lockable handle feature).
- Extended stem 100 mm (4") to allow full insulation (with lockable handle feature).

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, seals and body gasket set	**5, 6, 19, 22**

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, seals and body gasket set for a Spirax Sarco ½" M10 ECFi4 FB ball valve.