

M70i ISO Forged Stainless Steel Ball Valve for Sanitary Applications (up to 2")

Description

The M70i forged 316L stainless steel, three-piece body ball valve has ISO mounting as standard. It has been designed in accordance with ASME BPE for use as an isolating valve, not a control valve on clean steam and other high purity and aseptic processes where bacteria and media deposits can put product quality at risk. The low maintenance, clean design is suitable for steam, liquid and gas services ranging from vacuum to the higher temperatures and pressures. Applications include the pharmaceutical, biotech, food and beverage and cosmetics industries.

Principal features:

- **True port design** - The internal diameter of the end connections and ball precisely match that of the connecting tubing to guarantee drainability.
- **Forged material** - The M70i is manufactured from high integrity ASTM A182 F316L.
- **Low ferrite** - Body and end connections have <1% ferrite content to help prevent rouge.
- **Designed with orbital welding in mind** - ASME BPE compliant extended tube weld end connections means that automatic orbital welding can be performed without valve disassembly and low sulphur (0.005% to 0.017%) content helps a consistent and fully penetrated weld.
- **Designed for automation** - ISO 5211 mounting pad as standard enabling simple actuator mounting.
- **Lockable handle** - A spring loaded lockable handle allows the valve to be locked in the chosen position – ensuring system integrity.

Surface finish

Standard internal surface finish is 0.5 micron Ra (20 micro inch). Electro-polishing to 0.375 micron Ra (15 micro inch) is available to special order. External surface finishes are as forged / machined.

Available types

M70iV ISO	Virgin PTFE TFM 1600
M70iVEP ISO	Virgin PTFE TFM 1600 electro-polished to 0.375 micron Ra
M70iG ISO	Mineral filled RPTFE
M70iGEP ISO	Mineral filled RPTFE electro-polished to 0.375 micron Ra

Optional extras:

- Extended stem 4" (100 mm) to allow for insulation. (manual operation only)
- Cavity fillers are provided as standard. If cavity fillers are not required please specify when placing an order.

Standards

This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC.

Certification:

- Material Certification to EN 10204 3.1
- Elastomer FDA / USP compliance certificate.
- Surface finish certification.

Note: All certification / inspection requirements must be stated at the time of order placement.

Packaging

The M70i is finished and packaged in a segregated clean environment. Each valve is end capped and sealed in a plastic bag, in accordance with ASME BPE, to ensure the ingress of dirt is avoided.

Sizes and pipe connections

1/2", 3/4", 1", 1-1/2", 2" sanitary clamp (ASME BPE).

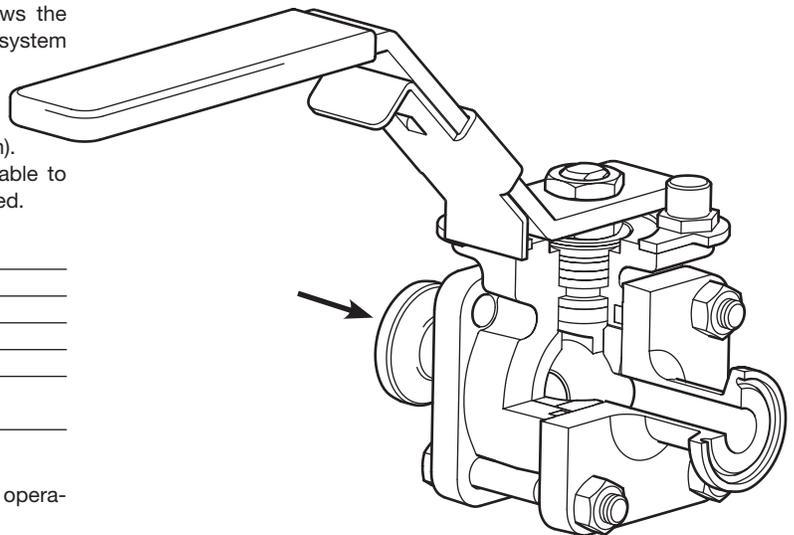
1/2", 3/4", 1", 1-1/2", 2" extended O/D tube weld ends (ETO) (ASME BPE).

Sanitary clamp / ETO combinations are also available.

2-1/2", 3" and 4" forged valves are also available to special order.

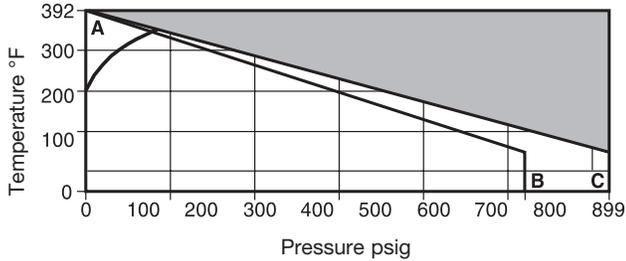
Alternatively: 2-1/2", 3" and 4" investment cast sanitary ball valves are available through our M80i range - see TI-P182-06-US.

Note: Other connection options are available on request. Please consult Spirax Sarco.



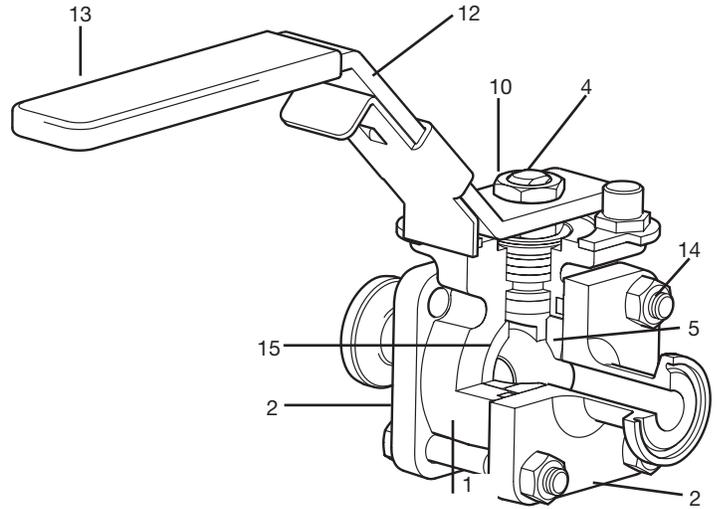
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Pressure / temperature limits

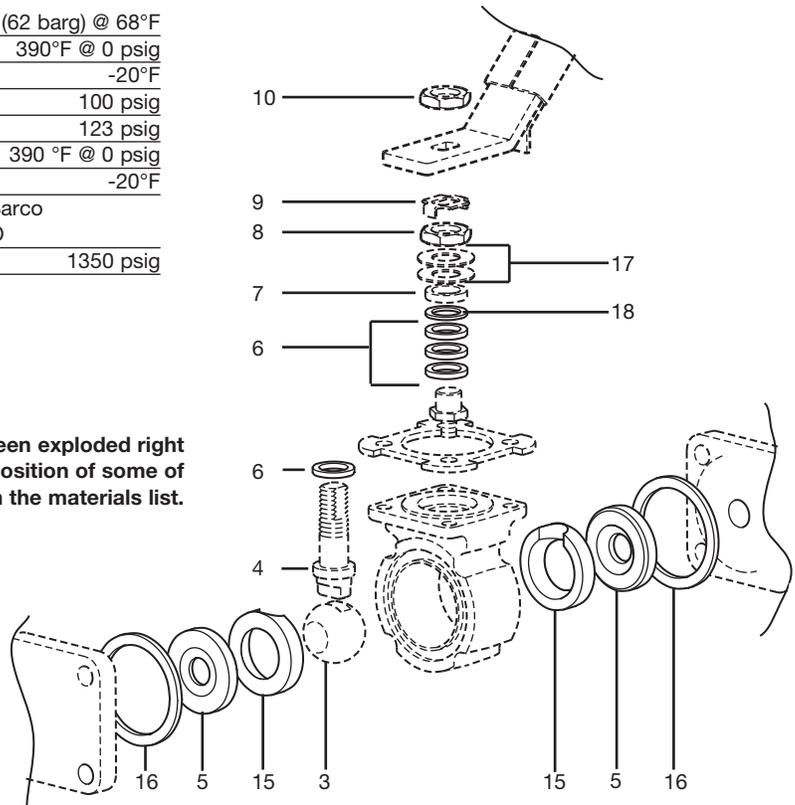


■ The product must not be used in this region.
 A - B Virgin PTFE TFM 1600.
 A - C Mineral filled PTFE

PMA	Maximum allowable pressure	900 psig (62 barg) @ 68°F
TMA	Maximum allowable temperature	390°F @ 0 psig
Minimum allowable temperature		-20°F
	Maximum operating pressure	Virgin PTFE 100 psig
	for saturated steam service	Mineral filled PTFE 123 psig
PMO	Maximum operating temperature	390 °F @ 0 psig
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		1350 psig



The internals have been exploded right to help identify the position of some of the parts in the materials list.



Materials

No.	Part	Material
1	Body	Stainless steel ASTM A 182 F316L
2	End connections	Stainless steel ASTM A 182 F316L
3	Ball	Stainless steel AISI 316L
4	Stem	Stainless steel AISI 316L
*5	Seat	M70iG Mineral filled RPTFE M70iV Virgin PTFE TFM 1600
*6	Stem seals	Virgin PTFE TFM 1600
7	Spacer	Stainless steel AISI 316
8	Compression nut	Stainless steel AISI 316
9	Lock washer	Stainless steel AISI 316

10	Stem nut	Stainless steel	AISI 316
11	Name-plate (not shown)	Stainless steel	AISI 430
12	Handle	Stainless steel	AISI 316
13	Cover	Vinyl	
14	Bolts and nuts	Stainless steel	AISI 316
*15	Cavity filler	Virgin PTFE TFM 1600	
*16	Body cap gasket	Virgin PTFE TFM 1600	
17	Bellville washer	Stainless steel	AISI 316
*18	Stem seal	PEEK	

*Note: Available spare parts sold as a kit.

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Technical data

Leakage	Test procedure to ISO 5208 (rateA)				
	Materials comply with:				
Stem seal and seat	—FDA CFR title 21 paragraph 177. section 1550. —USP23 Class VI				
Flow characteristic	Modified linear				
Port	True port design				

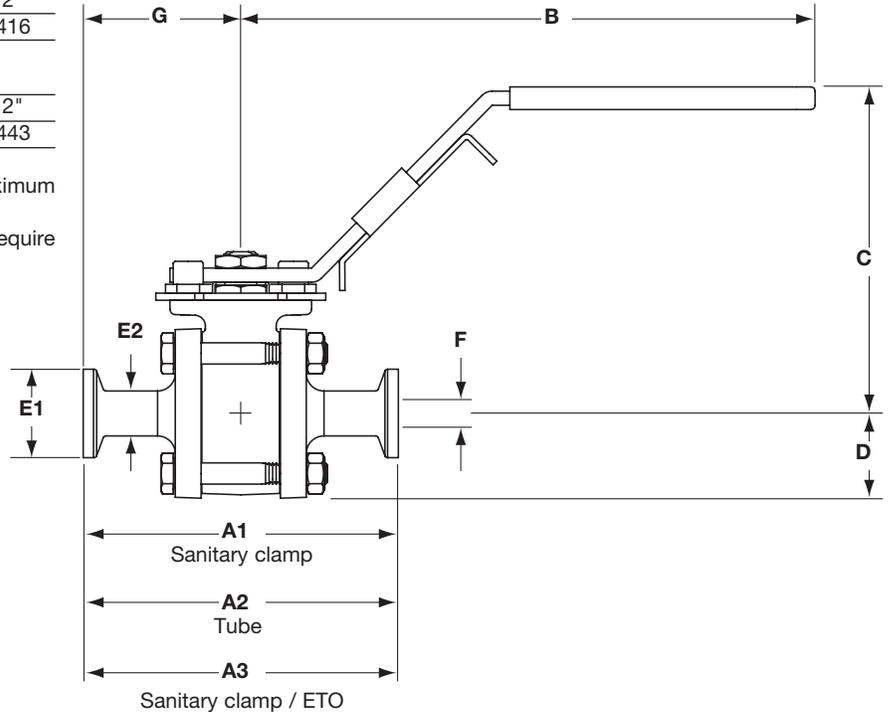
C_v values

Size	1/2"	3/4"	1"	1-1/2"	2"
C_v	8.1	29	65	190	416

Torque value

Size	1/2"	3/4"	1"	1-1/2"	2"
in lbs	62	80	133	195	443

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 at least 75% greater break out torque



Dimensions / weights approximate in inches and pounds.

Size	A1	A2	A3	B	C	D	E1	E2	F	G (Clamp)	G (ETO)	Weight
1/2"	3.51	5.52	4.51	6.34	3.62	0.95	0.99	0.50	0.37	1.75	2.76	1.8
3/4"	4.00	6.00	5.00	6.34	3.70	1.02	0.99	0.75	0.62	2.00	3.00	2.2
1"	4.50	6.50	5.50	6.34	3.98	1.22	1.99	1.00	0.87	2.25	3.25	3.5
1-1/2"	5.50	7.50	6.50	7.29	4.96	1.89	1.99	1.50	1.37	2.75	3.75	10.0
2"	6.25	8.00	7.13	9.85	5.56	2.25	2.52	2.00	1.87	3.13	4.00	17.0

Safety Information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P182-07-US) supplied with the product.

How to order

The M70i has a number of features that must be specified at the time of order placement; they are size, end connection, seat material, internal surface finish, and any certification that is required.

Note: Cavity fillers are provided as standard. If cavity fillers are not required, please specify so, when placing an order.

Example: 1 of Spirax Sarco M70iV ISO forged sanitary ball valve complete with sanitary clamp connections (ASME BPE) and an internal surface finish of 0.5 micron Ra (20 micro inch).
The unit is to be supplied complete with EN 10204 3.1 material certification.

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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 seal set with cavity filler.

5, 6, 15, 16, 18

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- Virgin PTFE-TFM 1600 seat and seal set with cavity filler for a Spirax Sarco 1/2" M70iV ISO forged stainless steel ball valve.

