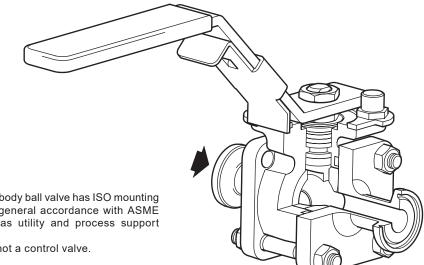
TI-P182-05 CMGT Issue 10



Forged Stainless Steel Ball Valve for Sanitary Applications



Description

The M70i forged 316L stainless steel, three-piece body ball valve has ISO mounting as standard. It has been designed and built in general accordance with ASME BPE for use on applications like liquid and gas utility and process support applications, such as clean steam*.

The M70i should be used as an isolation valve, not a control valve.

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 3% to 5% ferrite content to help prevent rouge.
- Designed with orbital welding in mind Extended tube weld end connections means that automatic orbital welding can be performed without valve disassembly.
- 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), ASME BPE SF1 compliant.

Electropolishing to 0.375 micron Ra (15 micro inch), ASME BPE SF4 compliant, 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 electropolished to 0.375 micron Ra					
M70iG ISO	Mineral filled PTFE					
M70iGEP ISO	Mineral filled PTFE electropolished to 0.375 micron Ra					
M70iV CF ISO	Virgin PTFE TFM 1600, with Cavity Fillers					
M70iVEP CF ISO Virgin PTFE TFM 1600 electropolished to 0.375 micron Ra, with Cavity Fillers						
M70iG CF ISO	Mineral filled PTFE, with Cavity Fillers					
M70iGEP CF ISO Mineral filled PTFE electropolished to 0.375 micron Ra, with Cavity Fillers						

Optional extras:

- Extended stem 100 mm (4") to allow for insulation.
- Cavity fillers are not provided as standard and are not recommended for steam service. If cavity fillers are required please specify
 when placing an order.
- Low ferrite < 1% under special request.

Standards

This product fully complies with the requirements of the Pressure Equipment Directive (PED).

Certification

This product is available with the following certification:

- EN 10204 3.1 material certificates (body and caps)
- EN 10204 3.1 material certificates (wetted parts, seat and seals) subject to additional cost.
- Typical Internal surface finish certificates.
- Specific internal surface finish certificates available at point of order request, and may be subject to additional cost.
- Certificate of compliance for ADI free (seats and seals)
- TSE/BSE Free Statement.
- Declaration of compliance EC1935:2004 Food Contact Materials.

The seal part is Compliant with:

- FDA CFR Title 21. Paragraph 177. 1550.
- USP Class VI.
- ADI Free (Animal Derived Ingredients) for materials used, manufacturing processes involved in producing the part.

Note: All certification/inspection requirements must be stated at the time of order placement, and may be subject to additional cost.

Packaging

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

Sizes and pipe connections

½", ¾", 1", 1½", 2" sanitary clamp (ASME BPE/BS 4825/DIN 32676-C).

1/2", 3/4", 1", 11/2", 2" extended O/D tube weld ends (ETO) (ASME BPE).

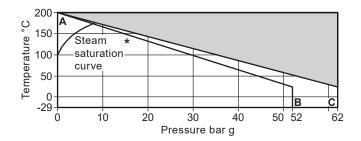
Sanitary clamp/ETO combinations are also available.

Alternatively: 21/2", 3" and 4" investment cast sanitary ball valves are available through our M80i range - see TI-P172-01-EN-ISS1.

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

*Steam Service: For steam applications cavity filler is not recommended.

Pressure/temperature limits



- * Steam Service: For steam applications cavity filler is not recommended.
- The product **must not** be used in this region.
- A B Virgin PTFE TFM 1600.
- A C Mineral filled PTFE.

For valves with clamp connections, the maximum operating conditions could be limited by the type of clamp selected. For further information, consult Spirax Sarco.

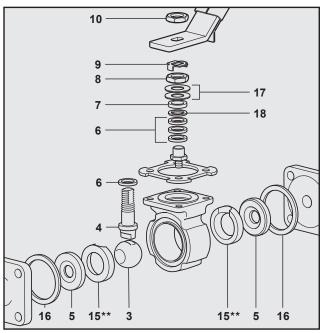
PN63
bar g @ 20 °C
0 °C @ 0 bar g
-29 °C
7.0 bar g
8.5 bar g
0 °C @ 0 bar g
-29 °C
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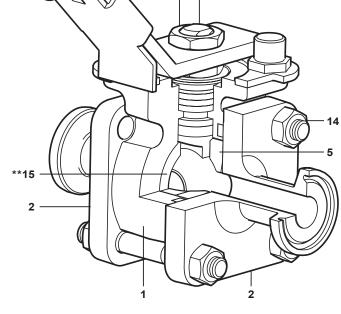
Materials

1 2	Body End connection		Stainless steel					
2	End connection		Stailliess steel	ASTM A 182 F 316L				
	End dominoution		Stainless steel	ASTM A 182 F 316L				
3	Ball		Stainless steel	AISI 316L				
4	Stem		Stainless steel	AISI 316L				
_	Cook	M70iG	Mineral filled PTFE					
5	Seat	M70iV	Virgin PTFE TFM 1600					
6	Stem seal		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	Nameplate (not shown)		Stainless steel	AISI 430				
12	Handle		Stainless steel	AISI 316				
13	Cover		Vinyl	Vinyl				
14	Stud and nut		Stainless steel	AISI 316				
15	Cavity filler (on request)		Virgin PTFE TFM 1600	Virgin PTFE TFM 1600				
16	Body cap gasket		Virgin PTFE TFM 1600					
17	Belleville washer		Stainless steel	AISI 316				
18	Stem seal		Stainless steel	Stainless steel				



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** Item 15 available under request

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Technical data

Leakage test procedure to ISO 5208 (Rate A)/EN 12266-1 (Rate A)

Stem seal and seat

Materials comply with: - FDA CFR title 21 part 177, section 1550.

- USP23 Class VI

Flow characteristic Modified linear

Port True port design

K_V values

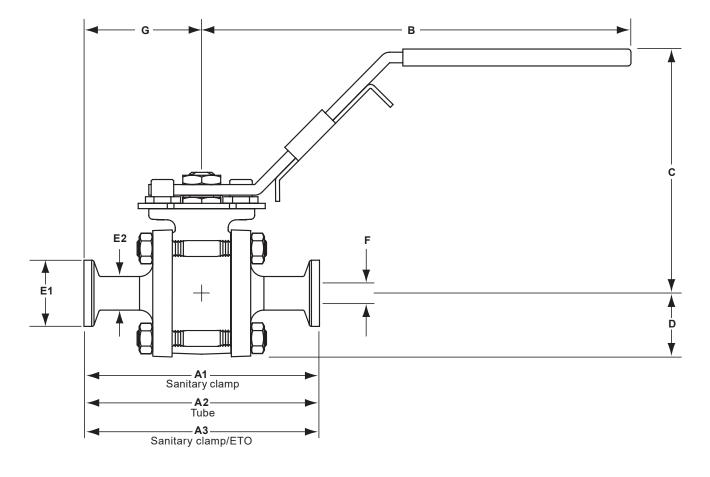
Size	1/2"	3/4"	1"	11/2"	2"	For conversion
K _V	7	25	56	164	360	$C_V (UK) = K_V \times 0.963$ $C_V (US) = K_V \times 1.156$

Torque value

Size	1/2"	3/4"	1"	1½"	2"	The torque figures shown are for a valve at maximum operating pressure that is operated frequently.
N m	13	15	19	70	100	Valves that are subject to long static periods, may require greater break-out torque.

Dimensions/weights (approximate) in mm and kg

Size	A1	A2	А3	В	С	D	E1	E2	F	G (Clamp)	G (ETO)	Weight
1/2"	89.0	140.0	114.5	161	92	24	25.0	12.70	9.4	44.5	70.0	0.80
3/4"	101.6	152.4	127.0	161	94	26	25.0	19.05	15.8	50.8	76.2	1.00
1"	114.2	165.0	139.6	161	101	31	50.5	25.40	22.2	57.1	82.5	1.55
11/2"	139.6	190.4	165.0	185	126	48	50.5	38.10	34.8	69.8	95.2	4.50
2"	158.7	203.1	180.9	250	141	57	64.0	50.80	47.5	79.4	101.6	7.70



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 (ETO) should be welded. Valves with clamp connections must not be welded to avoid damage to soft parts.

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 not provided as standard. If cavity fillers are required please specify so at the time of order placement.

Example: 1 off Spirax Sarco ½" 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.

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 seal set	5, 6, 16, 18
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.

