



## M80i ISO

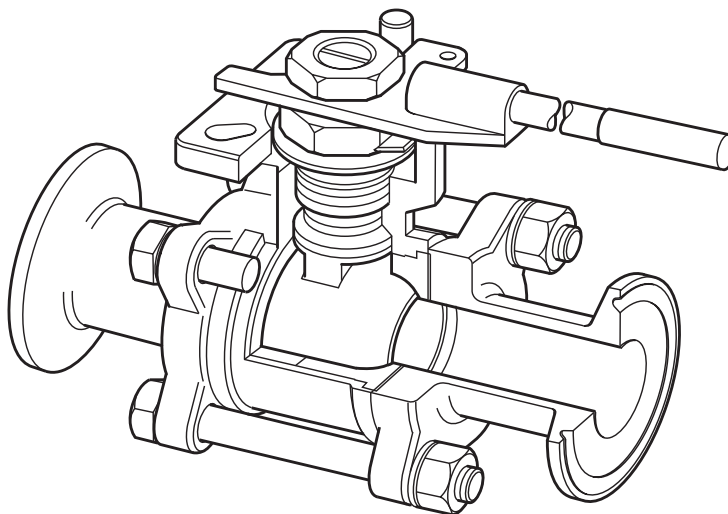
# Stainless Steel Ball Valve for Sanitary Applications

### Description

The M80i investment cast 316L stainless steel, three-piece body ball valve has ISO mounting as standard. It has been designed in accordance with ASME BPE for use on applications like liquid and gas utility and process support applications, such as clean steam\*. The M80i 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.
- **Low ferrite** - The M80i has <3% ferrite content on all wetted parts helping to 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 lockable handle allows the valve to be locked in the open or closed position – ensuring system integrity.



### Surface finish

The M80i standard internal surface finish is electropolished to 0.375 micron Ra (15 micro inch), ASME BPE SF4 compliant. External surface finishes are as cast/machined.

### Available types

**M80iVEP ISO** Virgin PTFE TFM 1600 electropolished to 0.375 micron Ra

**M80iVEP CF ISO** Virgin PTFE TFM 1600 electropolished to 0.375 micron Ra with **Cavity Fillers**

### Standards

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

### 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

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

### Sizes and pipe connections

2½", 3" and 4" Sanitary clamp (ASME BPE)  
2½", 3" and 4" extended O/D tube weld ends (ETO) (ASME BPE).  
**Alternatively:** ½", ¾", 1", 1½" and 2" sanitary ball valves are available through our M70i range - see TI-P182-05.

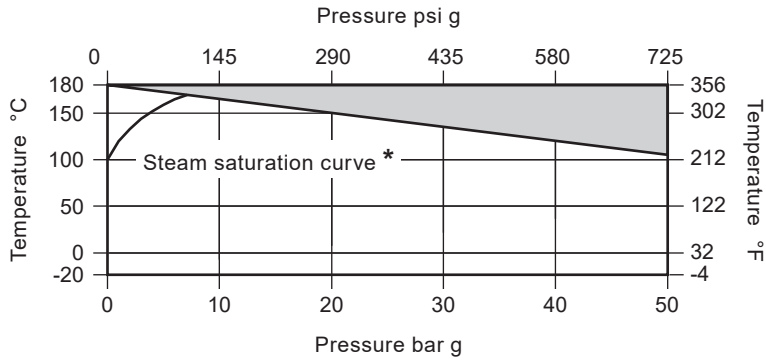
**Note:** Other connection options are available on request. Please consult Spirax Sarco.

### Optional extras:

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

**\*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

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

Body design conditions	49.6 bar	720 psi
PMA Maximum allowable pressure	50 bar g @ 109 °C	725 psi g @ 228 °F
TMA Maximum allowable temperature	180 °C @ 0 bar g	356 °F @ 0 psi g
Minimum allowable temperature	-20 °C	-4 °F
PMO Maximum operating pressure for saturated steam service *	7 bar g	102 psi
TMO Maximum operating temperature	180 °C @ 0 bar g	356 °F @ 0 psi g
Minimum operating temperature	-20 °C	-4 °F
$\Delta$ PMX Maximum differential pressure is limited to the PMO		
Designed for a maximum cold hydraulic test pressure of	75 bar g	1088 psi g

## Technical data

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

	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

### Kv values

Size	2½"	3"	4"
Kv	680	860	1950

For conversion:

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

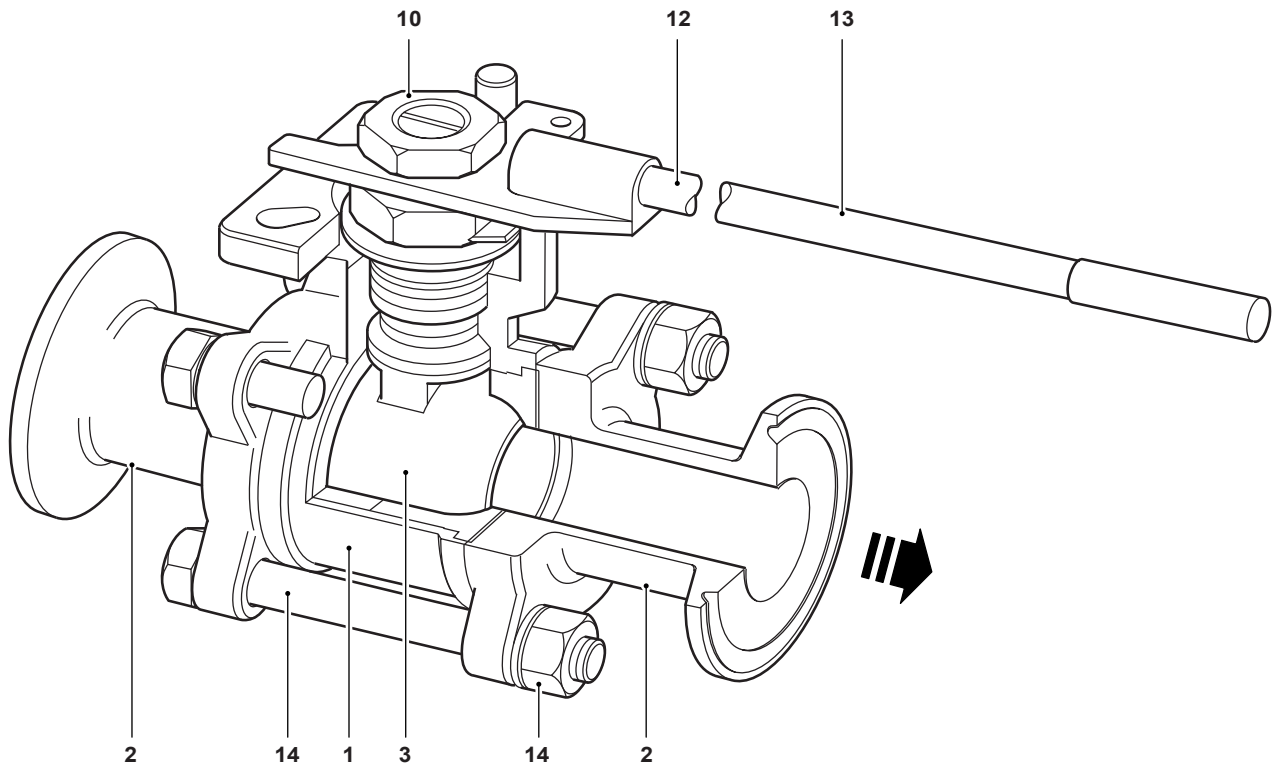
$$C_v \text{ (US)} = K_v \times 1.156$$

### Torque value

Size	2½"	3"	4"
N m	110	130	145

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 greater break-out torque.

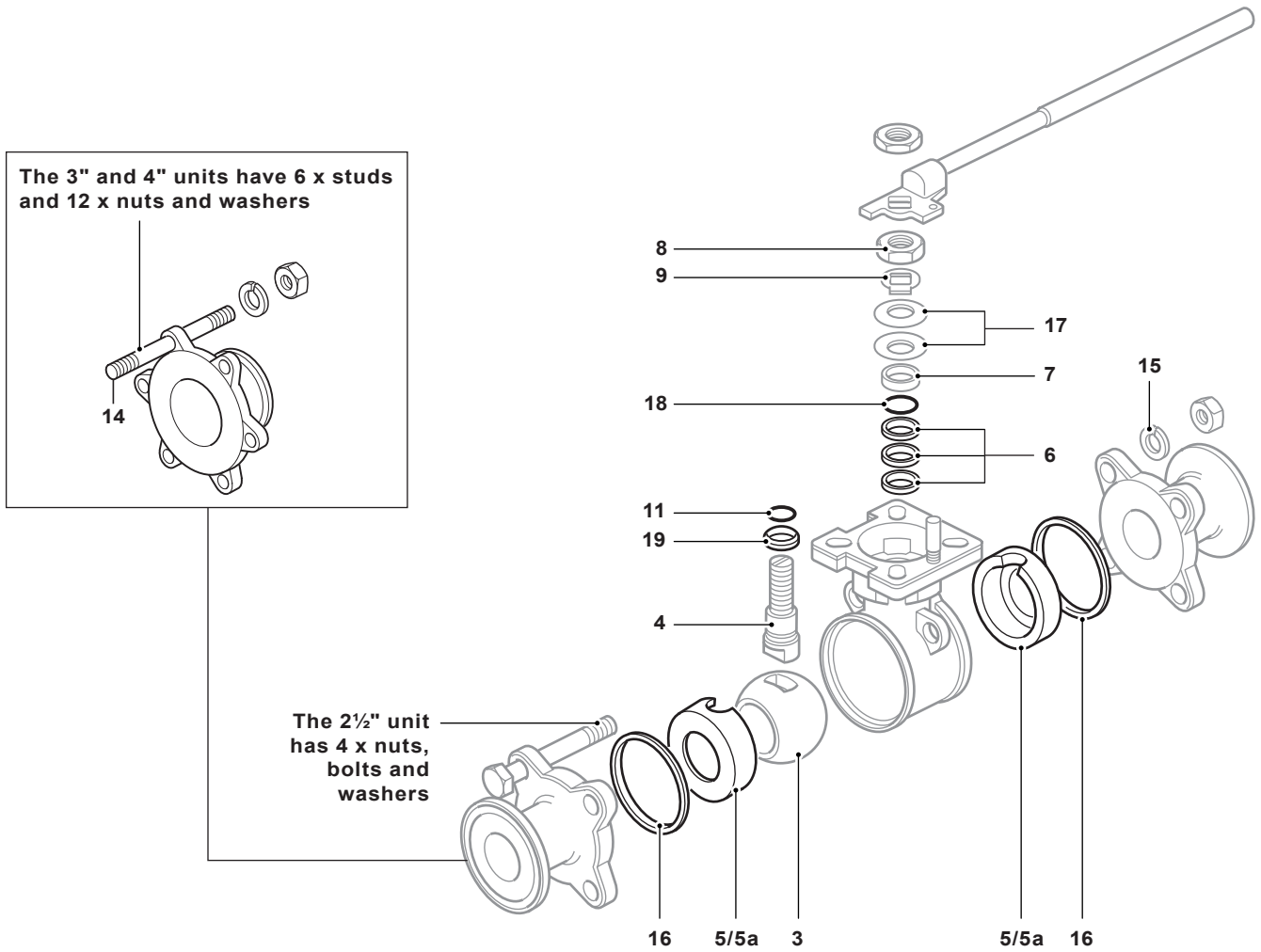
## Materials



No.	Part	Material	
1	Body	Stainless steel	ASTM A351 Gr. CF3M (316L)
2	End connections	Stainless steel	
3	Ball	Stainless steel	
10	Stem nut	Stainless steel	AISI 304
12	Handle	Stainless steel	AISI 304
13	Cover	Vinyl	
14	Nuts and bolts	Stainless steel	AISI 304

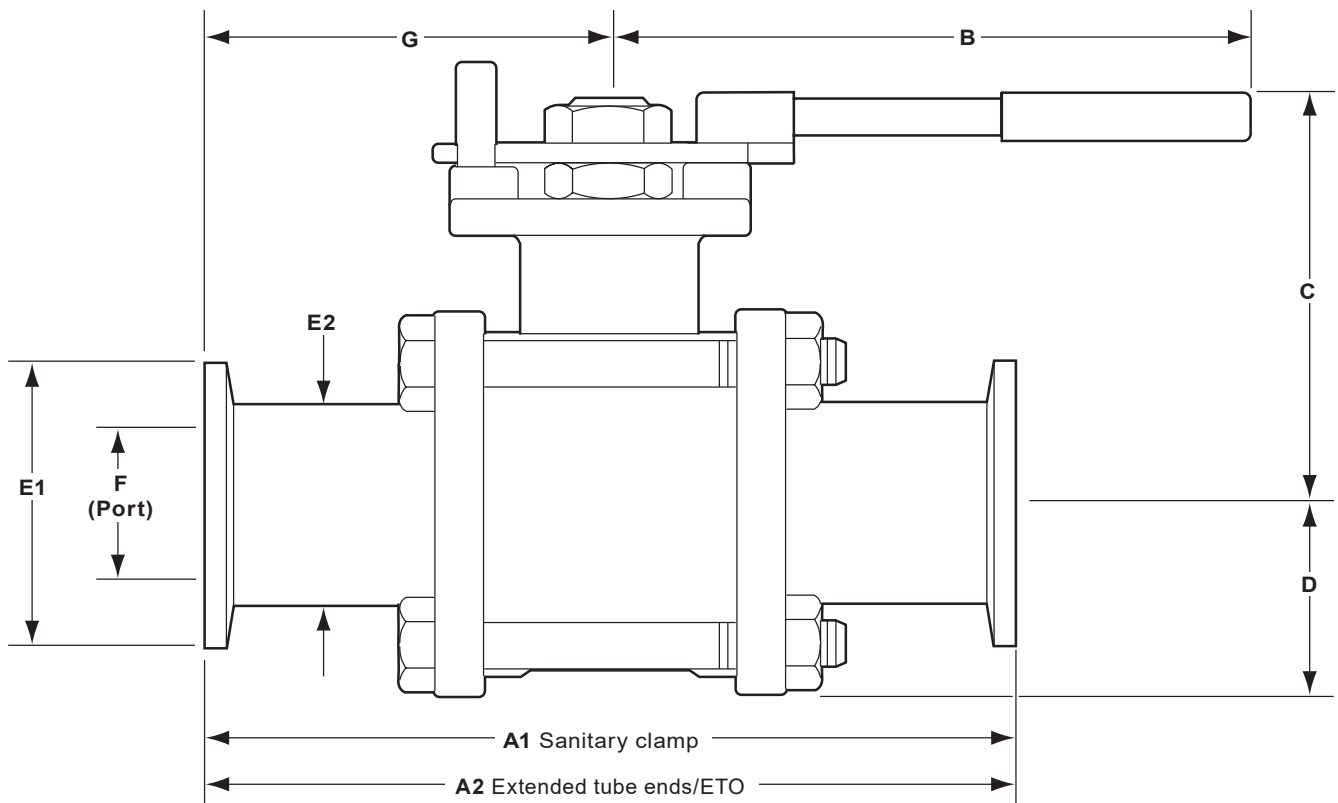
## Materials (continued)

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



No.	Part	Material	
3	Ball	Stainless steel	
4	Stem	Stainless steel	AISI 316L
5	Seat	Virgin PTFE TFM 1600	
5a	Seat and cavity filler	Virgin PTFE TFM 1600	
6	Stem seals	Virgin PTFE TFM 1600	
7	Spacer	Stainless steel	AISI 304
8	Compression nut	Stainless steel	AISI 304
9	Lock washer	Stainless steel	AISI 304
11	Stem 'O'ring	Viton	
15	Bolt washer		AISI 304
16	Body seal	Virgin PTFE TFM 1600	
17	Beleville washer		AISI 301
18	Packing follower	Virgin PTFE TFM 1600	
19	Thrust washer	Virgin PTFE TFM 1600	

**Dimensions/weights (approximate) in mm (inches) and kg (lbs)**



Size	A1	A2	B	C	D	E1 (Clamp)	E2 (ETO)	F	G (Clamp)	G (ETO)	Weight
2½"	203.0 (7.99)	222.0 (8.74)	363.5 (14.3)	145.0 (5.71)	62.0 (2.44)	77.5 (3.05)	63.4 (2.50)	60.3 (2.37)	101.5 (4.0)	111.0 (4.37)	9.0 (19.8)
3"	232.8 (9.17)	234.2 (9.22)		153.0 (6.02)	82.0 (3.23)	90.9 (3.58)	76.2 (3)	73.0 (2.87)	116.4 (4.58)	117.1 (4.61)	12.2 (26.9)
4"	259.5 (10.2)	258.9 (10.2)	399.0 (15.7)	194.6 (7.66)	102.0 (4.02)	118.9 (4.68)	101.6 (4)	97.4 (3.83)	129.2 (5.09)	129.4 (5.09)	23.0 (50.7)

**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 damages to the soft parts.

**How to order**

The size, end connections and certification requirements must be specified at the time of order placement.

**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 4" M80iV ISO sanitary ball valve complete with, sanitary clamp (ASME BPE) end connections, electropolished to 0.375 micron Ra (15 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

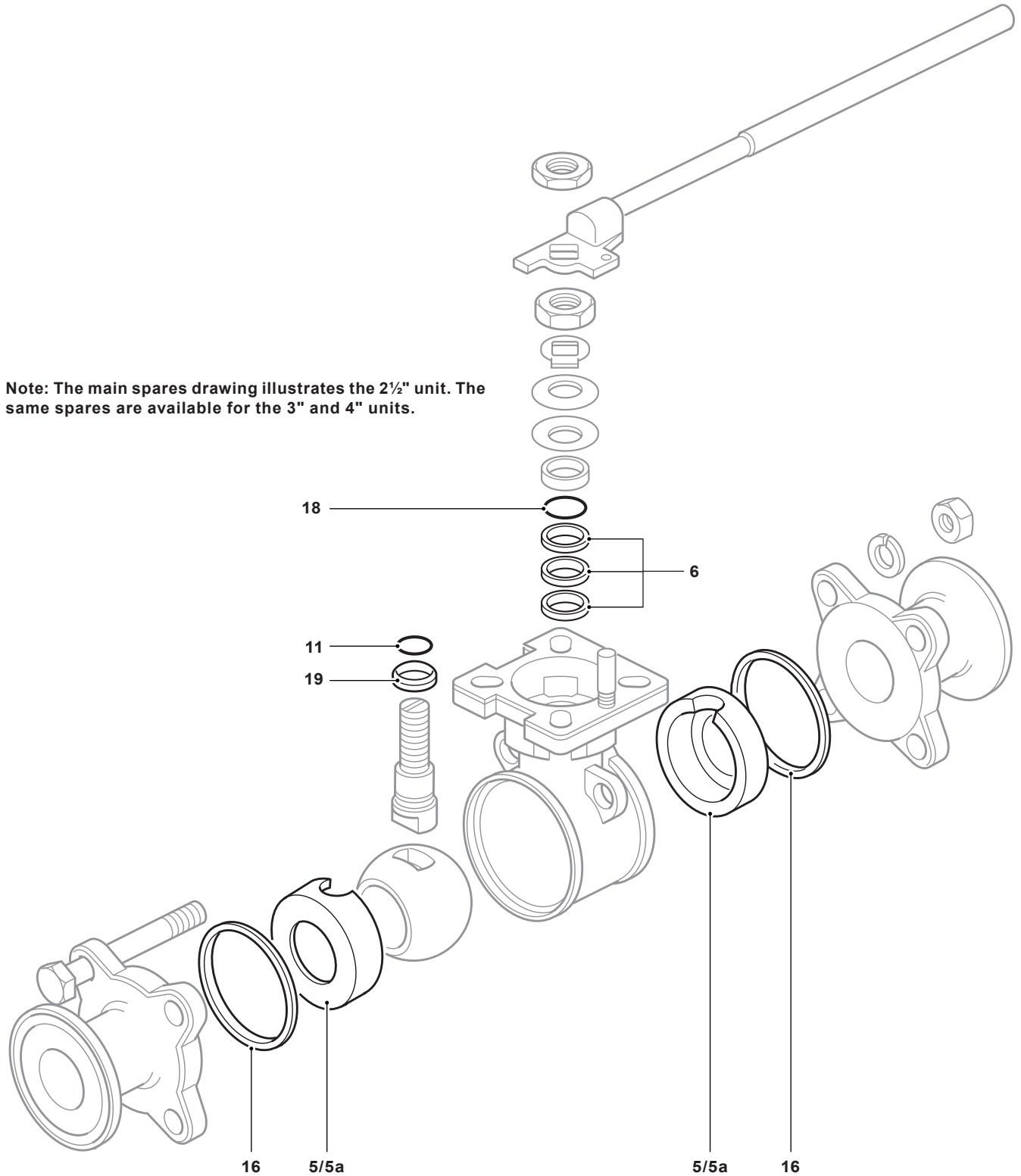
Seats, stem seals, stem 'O' ring, body seals kit, packing follower and thrust washer	<b>5, 6, 11, 16, 18, 19</b>
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Integrated seat and cavity filler, stem seals, stem 'O' ring, body seals kit, packing follower and thrust washer	<b>5a, 6, 11, 16, 18, 19</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 - Integrated seat and cavity filler, stem seals, stem 'O' ring, body seals kit, packing follower and thrust washer for a Spirax Sarco 4" M80iV ISO cast stainless steel ball valve.



**Note:** The main spares drawing illustrates the 2 1/2" unit. The same spares are available for the 3" and 4" units.