Firesafe ball valves
Approved firesafe ball valve range

Spirax Sarco has developed a wide range of firesafe ball valves to meet the standards of the hydrocarbon process industries requiring tight shut-off valves for isolation of processes in hazardous areas.

Available certification
API Spec 6FA second edition
API standard 607 fourth edition
BS 6755: Part 2
ISO 9001 / 2000
European Pressure Equipment Directive 97/23/EC and
ATEX approval

Main applications

- Petrochemical plants
- Chemical industries
- Hazardous gases
- Water lines in fire network systems
- Refineries / Hydrocarbons
- Natural gas pipes
- Solvent extraction (edible oil industry)

Other standards meet:

- Antistatic to ISO 7121 - BS 5351
- Body design to BS 5351 - ANSI B 16.34 ISO 7121
- Actuator mounting flange to ISO 5211
- Flanged to EN 1092 PN16 and PN40
- Test procedure to ISO 5208 - API 598
- Flanged to ANSI B 16.5 Class 150 and 300
- Face-to-face dimension according to B 16.10
- Face-to-face EN 558-1

User benefits

- Fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC.
- Tight shut-off (VI class) - achieved by proper sealing methods and tolerances.
- Safety - blowout-proof stems are essential on firesafe valves.
- Special secondary metal seats machined on the valve body - provide a secondary seal in case of destruction of the main soft seats.
- Low operating torque at high pressures - smooth operation with no sticking.
- Graphite stem 'O' ring - to avoid leaks to the environment even against fire.
- Comprehensive ball valve range - to fit most customers requirements.
- Spirax Sarco’s guarantee of worldwide knowledge, service and technical support.
**Selection table**

<table>
<thead>
<tr>
<th>Model</th>
<th>M10F &amp; M10F ISO</th>
<th>M20S &amp; M20H</th>
<th>M40F ISO</th>
<th>M31F ISO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>¼&quot; to 2&quot; (RB only)</td>
<td>DN25 to DN150</td>
<td>DN25 to DN150</td>
<td>DN50 to DN200</td>
</tr>
<tr>
<td>Body</td>
<td>3 pieces</td>
<td>1 piece</td>
<td>1 piece</td>
<td>2 pieces</td>
</tr>
<tr>
<td>PMO Maximum operating pressure</td>
<td>62 bar g</td>
<td>ANSI 51 bar g</td>
<td>51 bar g</td>
<td>ANSI 51 bar g</td>
</tr>
<tr>
<td>TMO Maximum operating temperature</td>
<td>230°C</td>
<td>260°C</td>
<td>260°C</td>
<td>260°C</td>
</tr>
<tr>
<td>Connections</td>
<td>Screwed, welded, EN 1092 PN16 / PN40 ANSI 150, ANSI 300</td>
<td>EN 1092 PN40 ANSI 150 ANSI 300</td>
<td>ANSI 150 ANSI 300</td>
<td>EN 1092 PN16 ANSI 150 ANSI 300</td>
</tr>
<tr>
<td>Bore</td>
<td>RB = Reduced bore FB = Full bore</td>
<td>RB and FB</td>
<td>RB</td>
<td>FB</td>
</tr>
<tr>
<td>Body material 2 = Carbon steel 3 = Stainless steel</td>
<td>2 ASTM A105 3 ASTM A182</td>
<td>2 ASTM A216 3 ASTM A351 (PN40 only)</td>
<td>2 ASTM A216 3 ASTM A351</td>
<td>2 ASTM A216 DIN 17245 GS C25 3 ASTM A351</td>
</tr>
<tr>
<td>Internal material</td>
<td>Ball and stem</td>
<td>AISI 316L</td>
<td>AISI 316</td>
<td>AISI 316</td>
</tr>
<tr>
<td></td>
<td>Seats</td>
<td>R-PTFE</td>
<td>PDR 0.8 (S)</td>
<td>PEEK (H)</td>
</tr>
<tr>
<td></td>
<td>Stem seals</td>
<td>Antistatic R-PTFE and graphoil</td>
<td>Antistatic PTFE and graphoil (S)</td>
<td>Antistatic and graphoil</td>
</tr>
<tr>
<td></td>
<td>Lever, nuts and bolts</td>
<td>Zinc plated carbon steel</td>
<td>Zinc plated carbon steel</td>
<td>Zinc plated carbon steel</td>
</tr>
<tr>
<td>Options</td>
<td>E = Extended stem X = Self-venting ball L = Lockable handle O = Oval handle</td>
<td>E</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Actuation type</td>
<td>Manual</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Automatic actuators can be pneumatic or electric, single or double acting.
BVA200 actuators can operate with compressed air between 4 bar g and 10 bar g.

**Note:** For alternative materials or connections contact Spirax Sarco.

**How to order**

To select and order valves, use the information and short codes in the table above, see example below:

**How to order example:**

- **Valve size:** ¼"
- **Model:** M10F
- **Body material:** 3
- **Bore type:** FB
- **ISO mounting:** ISO
- **Options:** X
- **Connection type:** NPT

1 off Spirax Sarco ¼" M10F3 FB ISO X compatible for automatic actuation supplied with NPT connections.
Operating ranges for firesafe ball valves

### PN flanged versions

- **Pressure psi g**
- **Temperature °C**
- **Temperature °F**

![Graph showing pressure and temperature ranges for PN flanged versions.]

- The product must not be used in this region.
- The product should only be used for short periods of time in this region.

- **A-B-C M31F ISO:** PN16
- **A-D-E M20S:** PN40
- **H-J-E M20H:** PN40
- **F-G-C M10F** and **M10F ISO:** PN16

### Screwed, welded and ANSI flanged versions

- **Pressure psi g**
- **Temperature °C**
- **Temperature °F**

![Graph showing pressure and temperature ranges for screwed, welded, and ANSI flanged versions.]

- The product must not be used in this region.
- The product should only be used for short periods of time in this region.

- **A-B-C M31F ISO** and **M40F ISO:** ANSI 150
- **A-D-E M20S, M31F ISO** and **M40F ISO:** ANSI 300
- **F-G-H M10F** and **M10F ISO:** Screwed, SW and BW
- **F-J-C M10F** and **M10F ISO:** ANSI 150
- **F-G-E M10F** and **M10F ISO:** Screwed, SW and BW
- **K-L-C M20H:** ANSI 150
- **K-M-E M20H:** ANSI 300

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**How do Spirax Sarco firesafe ball valves work?**

1. **Graphoil stem seal**
   - **Stem**
   - **Antistatic stem seal**
   - **R-PTFE seats**
   - **Body gasket (graphoil)**
   - **Ball**

In normal working conditions, the ball rests against the R-PTFE seals ensuring total closure.

2. **Graphoil stem seal**
   - **Stem**
   - **Antistatic stem seal**
   - **R-PTFE seats**
   - **Body gasket (graphoil)**
   - **Ball**

When the valve is submitted to temperature above the limits R-PTFE can withstand, the seat becomes deformed and renders the R-PTFE to extrusion.

3. **Graphoil stem seal**
   - **Stem**
   - **Antistatic stem seal**
   - **R-PTFE seats**
   - **Body gasket (graphoil)**
   - **Ball**

Secondary metal surface

Once the R-PTFE has been totally destroyed, the ball will come to rest firmly against the metal seat in the cap, providing a metal-to-metal closure. This secondary seat in the cap, that has been machined with the same radius as the ball, ensures the valve will operate to international standards.

**Note:** Graphoil stem seals prevent any fluid emission through the stem to atmosphere in the event of fire.

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**Accessories**

A wide range of accessories are available to suit all applications; positioners, handwheels, limit switch boxes and solenoid valves.

Some of the products may not be available in certain markets.