**PC4_ Pipeline Connectors**

**Description**
The PC4_ range of pipeline connectors have been designed for use with swivel connector steam traps. The PC4_ is a pipeline connector with two integral stop valves which isolate upstream and downstream of the steam trap. The stop valves are piston type. The PC4_ is available with optional connections (BDV1 and/or BDV2) for the draining of upstream pipework and trap venting upstream and trap testing downstream of the steam trap - See 'Optional extras'.

**Optional extras** (see TI-P600-01 for further details)

BDV1 blowdown valve is available for the draining of upstream pipework and trap testing downstream of the steam trap during operation. Care should be taken when using the BDV1 blowdown valve as the discharge may be hot.

BDV2 depressurisation valve is available to provide side connection discharge, generally to be used as a vent for top pipe mounting or for line depressurisation, to ensure discharge is piped to grade/atmosphere.

**Standards**
These products fully comply with the requirements of the European Pressure Equipment Directive 97/23/EC.

**Certification**
These products are available with certification to EN 10204 3.1. 

**Sizes and pipe connections**
DN15 and DN20 condensate inlet/outlet connections are available in screwed BSP or NPT and socket weld ends to ASME B16.11 class 3000. Drainage and venting connections are available in DN15 screwed BSP or NPT and socket weld connections for use with BDV1 or BDV2 valves.

Flanged versions are also available upon request. Please contact Spirax Sarco for further details.

**Pressure/temperature limits**
![Diagram of pressure/temperature limits]

**Notes:**
1. If flange connections are fitted then these will limit the maximum design conditions of the pipeline connector.
2. The maximum operating limits of the complete assembly will be dictated by the steam trap of choice. Reference the specific steam trap technical information sheet for its ‘Pressure/temperature limits’.

**Body design conditions**

<table>
<thead>
<tr>
<th>Material</th>
<th>No.</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austenitic stainless steel</td>
<td>1</td>
<td>Body</td>
</tr>
<tr>
<td>Graphite and stainless steel</td>
<td>2</td>
<td>Lower ring</td>
</tr>
<tr>
<td>Graphite and stainless steel</td>
<td>3</td>
<td>Upper ring</td>
</tr>
<tr>
<td>Steel (ENP) ASTM A193-B7</td>
<td>4</td>
<td>Studs</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>5</td>
<td>Piston</td>
</tr>
<tr>
<td>Steel</td>
<td>6</td>
<td>Spindle</td>
</tr>
<tr>
<td>Carbon steel</td>
<td>7</td>
<td>Handwheel</td>
</tr>
<tr>
<td>Stainless steel and nylon insert</td>
<td>8</td>
<td>Handwheel nut</td>
</tr>
<tr>
<td>Carbon steel</td>
<td>9</td>
<td>Bonnet</td>
</tr>
<tr>
<td>Steel</td>
<td>10</td>
<td>Nuts</td>
</tr>
<tr>
<td>Steel</td>
<td>11</td>
<td>Washers</td>
</tr>
<tr>
<td>Steel</td>
<td>12</td>
<td>Washers</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>13</td>
<td>Name-plate</td>
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</table>

**Kv value:** Both the DN15 and DN20 have a Kv value of 1.8

For conversion:

- Cv (UK) = Kv x 0.963
- Cv (US) = Kv x 1.156
### Dimensions / weight (approximate) in mm and kg

<table>
<thead>
<tr>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>N</th>
<th>Weight</th>
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<tbody>
<tr>
<td>36</td>
<td>125</td>
<td>25</td>
<td>50</td>
<td>35</td>
<td>90</td>
<td>99</td>
<td>115</td>
<td>22</td>
<td>50</td>
<td>3</td>
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</table>

**Installation**

**General**

There are two criteria which must be satisfied to ensure that the swivel connector trap will operate correctly and ensure effective condensate removal:

1. The PC4 shall be installed with flow in the direction of the arrow. Flow can be horizontal (left to right or right to left), vertical or inclined.

2. The connection face for the swivel connector steam trap must be in the vertical plane.

Ensure that there is sufficient access to the handwheel to allow proper operation.

After installation it is recommended that the pipeline connector is insulated to minimise radiated heat losses and to protect personnel from burns risk: **Please note** that some steam trap types should not be insulated.

**Optional BDV1 and/or BDV2**

If the optional BDV1 and/or BDV2 is being fitted to your application for line drain, trap vent or trap testing, consideration must be given to the position of the discharge - See TI-P600-01 for further information. The discharge must be directed or piped to a safe place where it will not injure personnel nor damage plant.

The BDV1 provides straight through discharge, generally used as a line drain or trap test valve where discharge is directed to grade.

The BDV2 provides a side connection discharge, generally used as a trap vent or to ensure discharge is piped to grade.

**Maintenance**

For detailed Installation and Maintenance Instructions see IM-P128-06, which is supplied with the product.

**Disposal**

This product is recyclable. No ecological hazard is anticipated with the disposal of this product, providing due care is taken.

**How to order**

**Example:** 1 off Spirax Sarco PC40 pipeline connector having a forged austenitic stainless steel body with two integral piston valves and DN15 socket weld connections to ASME B 16.11 Class 3000.

**Note:** Where BDV1 or BDV2 valves are to be fitted they must be ordered separately - See TI-P600-01.

**Spare parts**

The spare parts available are shown in heavy outline. Parts drawn in broken line are not supplied as spares. For ease of replacement an extractor tool is available for removing the sealing rings.

**Available spares**

- Sealing ring set
- Valve internals set
- Extractor tool

**How to order spares**

Always order spares by using the description given in the column headed 'Available spares' and state type and size of equipment.

**Example:** 1 off Sealing ring set for integral piston valve on a PC4 pipeline connector having DN15 socket weld connections.

**Recommended tightening torques**

<table>
<thead>
<tr>
<th>Item</th>
<th>or mm</th>
<th>N m</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>14</td>
<td>5/16 x 18 UNC 10.0</td>
</tr>
<tr>
<td>8</td>
<td>10</td>
<td>M6 0.1</td>
</tr>
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</table>

**Safety information**

**Pressure**

Before attempting any maintenance, consider what is or may have been in the pipeline. Ensure that any pressure is isolated and safely vented to atmospheric pressure before attempting to maintain the steam trap. This is easily achieved by fitting Spirax Sarco depressurisation valves types BDV1 and BDV2 (see separate literature for details). Do not assume that the system is depressurised even when a pressure gauge indicates zero.

**Temperature**

Allow time for temperature to normalise after isolation to avoid the danger of burns and consider whether protective clothing (including safety glasses) is required.

**Isolation**

Consider whether closing isolating valves will put any other part of the system or personnel at risk. Dangers might include: isolation of vents, protective devices or alarms. Ensure isolation valves are turned off in a gradual way to avoid system shocks.