Description
The Forbes Marshall Steam and Condensate Manifolds (FMSCM4X, FMSCM8X, FMSCM12X) are forged carbon steel compact manifolds with integral piston type stop valves. They can be used for either steam distribution or condensate collection depending on the way they are installed.

Available Types, Size and Pipe Connections
FMSCM manifolds are available with 4, 8 or 12 connections with ends,
- flanged to BS 1560 (ANSI) class 150/300 or
- socket weld to ANSI B 16.11 Class 3000 or
- screwed BSPT or NPT.
The steam main / condensate return connection is DN 40. The tracer line and drain connections are available as DN 15, DN 20 Screwed BSPT, NPT and socket weld to ANSI B 16.11

Optional Extras
The following are available at extra cost.
- Mounting kit comprising of studs, spacers and nuts
- Insulation jacket for body and flanges

Limiting Conditions

<table>
<thead>
<tr>
<th>Body design conditions</th>
<th>PMA max. allowable pressure</th>
<th>TMA max. allowable temperature</th>
<th>Min. allowable temperature</th>
<th>PMO Max. operating pressure</th>
<th>TMO Max. operating temperature</th>
<th>Max. cold hydraulic test pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI Class 300 (ISO PN 50)</td>
<td>51 bar g @ 38°C</td>
<td>425°C @ 28 bar g</td>
<td>-29°C</td>
<td>Class 150 14 bar g</td>
<td>Class 300, 41.5 bar g</td>
<td>76 bar g</td>
</tr>
</tbody>
</table>

Operating Range

| Pressure bar g | Temperature °C |
|----------------|----------------|----------------|
| 0              | 0              | 100            |
| 20             | 10             | 425            |
| 30             | 20             |

Alternatives
Flow direction when used for steam distribution duty
Flow direction when used for condensate collection duty

How to Order
Example: 1 No. Forbes Marshall steam distribution and condensate collection manifold FMSCM8X in forged carbon steel body with integral piston valves having 8 x DN 20 socket weld connections to ANSI B 16.11.
### General

The FMSCM has been designed for vertical installation. The back is provided with threaded connections M12 for ease of installation by attaching to a supporting structure. It is recommended that spacers are fitted to give the manifold a standoff of at least 50mm.

### Mounting Kits Available (optional extra)
- A single set comprising 2 of each stud, nut and spacer suitable for installing one FMSCM4X
- A single set comprising 4 of each stud, nut and spacer suitable for installing one FMSCM8X
- A multiple set comprising 12 of each stud, nut and spacer suitable for installing 6xFMSCM4X, 3xFMSCM8X, or 2xFMSCM12X
- After installing, it is recommended that the manifolds is insulated to minimize radiated heat losses and to protect personnel from burn risks. This is most easily done using the optional insulation jacket.

### Steam Distribution Duty

The recommended installation is with the steam inlet connection at the top of the manifold. A trap set should be fitted to the bottom. The discharge from this trap set should ideally be returned. If it is to be discharged to atmosphere we recommend that a diffuser is fitted.

### Condensate Collection Duty

The recommended installation is with the condensate outlet at the top. The bottom of the manifold should be fitted with a stop valve for blow down purposes. Again, we recommend that a diffuser is fitted.

### Operation

In operation the piston valve should be either full open or fully closed. It is not intended for throttling duties. As the piston valve has such a large sealing area it is not necessary to use a valve key to ensure dead tight shut-off.

### Spare Parts

The spares parts available are detailed above. For ease of replacement an extractor tool is available for removing the sealing rings. Refer User Manual for spare parts.

### Recommended Tightening Torques

<table>
<thead>
<tr>
<th>Item</th>
<th>Nut</th>
<th>Threading</th>
<th>Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>10</td>
<td>A/F</td>
<td>0.1</td>
</tr>
<tr>
<td>10</td>
<td>14</td>
<td>A/F</td>
<td>3-5</td>
</tr>
</tbody>
</table>

### How to Order Spares

Always order spares by using the description given in the column headed “Available Spares” and state the type and size of manifold.

**Example:** Sealing ring set for an integral piston valve on a forged manifold FMSCM DN 15 socket weld.

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### Dimensions (approx.) in mm

<table>
<thead>
<tr>
<th>Type</th>
<th>A</th>
<th>B</th>
<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>M</th>
<th>N</th>
<th>Wt (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMSCM4X</td>
<td>255</td>
<td>125</td>
<td>65</td>
<td>110</td>
<td>70</td>
<td>60</td>
<td>45</td>
<td>96</td>
<td>110</td>
<td>130</td>
<td>50</td>
<td>M12</td>
<td>55</td>
<td>8.5</td>
</tr>
<tr>
<td>FMSCM8X</td>
<td>505</td>
<td>125</td>
<td>65</td>
<td>110</td>
<td>70</td>
<td>60</td>
<td>45</td>
<td>96</td>
<td>110</td>
<td>130</td>
<td>50</td>
<td>M12</td>
<td>55</td>
<td>17</td>
</tr>
<tr>
<td>FMSCM12X</td>
<td>755</td>
<td>125</td>
<td>65</td>
<td>110</td>
<td>70</td>
<td>60</td>
<td>45</td>
<td>96</td>
<td>110</td>
<td>130</td>
<td>50</td>
<td>M12</td>
<td>55</td>
<td>25.5</td>
</tr>
</tbody>
</table>