Forbes Marshall Thermodynamic Trap
FMTD54

Description
The Forbes Marshall Thermodynamic Trap FMTD54, with inbuilt Strainer and full Forged carbon steel construction, is best suited for header and mainline drains. Also available with Flanges with Model FMTD54FL.

Sizes
DN 15, DN 20 and DN25
Screwed BSPT/BSP/NPT & Socket / Butt Weld Ends

Notes
1. Available with Class #150, #300 and #600 (weld on flanges)
2. Available with IBR certificate

Limiting Conditions of FMTD54
Body design conditions PN 63
PMA Maximum allowable pressure 63 bar g @ 100°C
TMA Maximum allowable temperature 425°C @ 42 bar g
Minimum allowable temperature 0°C
PMO Maximum operating pressure 42 bar g
TMO Maximum operating temperature 425°C @ 42 bar g
Minimum operating temperature 0°C
Minimum operating differential pressure for satisfactory operations 0.25 bar g
Designed for maximum cold hydraulic test pressure of 63 bar g

Note: For lower operating temperatures consult Forbes Marshall PMOB: Maximum back pressure should not exceed 80% of the inlet pressure under any conditions of operation otherwise the trap may not shut-off.

Operating Range
For FMTD54

Limiting Conditions of FMTD54FL
Flange to Flange Dimensions as per ASME B16.5.

For ANSI #150
PMO Maximum operating pressure = 14.0 bar g @ 197 Deg.C
TMO Maximum operating temperature = 425 Deg C @ 5.5 bar g
Cold hydraulic test pressure = 30.0 bar g

For ANSI #300
PMO Maximum operating pressure = 42.0 bar g @ 250 Deg.C
TMO Maximum operating temperature = 425 Deg C @ 28.8 bar g
Cold hydraulic test pressure = 63.0 bar g

For ANSI #600
PMO Maximum operating pressure = 42.0 bar g @ 425 Deg. C
TMO Maximum operating temperature = 425 Deg C @ 42.0 bar g
Cold hydraulic test pressure = 63.0 bar g

Material

<table>
<thead>
<tr>
<th>No.</th>
<th>Part</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Body</td>
<td>ASTM A105 N</td>
</tr>
<tr>
<td>2.</td>
<td>Outer Seat Gasket</td>
<td>SS304+Graphite</td>
</tr>
<tr>
<td>3.</td>
<td>Inner seat gasket</td>
<td>SS304+Graphite</td>
</tr>
<tr>
<td>4.</td>
<td>Disc</td>
<td>Tool Steel AISI D2</td>
</tr>
<tr>
<td>5.</td>
<td>Top Cover Gasket</td>
<td>SS304+Graphite</td>
</tr>
<tr>
<td>6*</td>
<td>Screen</td>
<td>SS304</td>
</tr>
<tr>
<td>7.</td>
<td>Strainer Cap</td>
<td>ASTM A105 N</td>
</tr>
<tr>
<td>8.</td>
<td>Stud</td>
<td>ASTM A193 B7</td>
</tr>
<tr>
<td>9.</td>
<td>Nut</td>
<td>ASTM A194 2H</td>
</tr>
<tr>
<td>10.</td>
<td>Seat</td>
<td>Tool Steel D2</td>
</tr>
<tr>
<td>11.</td>
<td>Top Cover</td>
<td>ASTM A105 N</td>
</tr>
<tr>
<td>12*</td>
<td>Nameplate</td>
<td>SS304</td>
</tr>
<tr>
<td>13*</td>
<td>Rivet</td>
<td>SS304</td>
</tr>
<tr>
<td>14.</td>
<td>Isotub</td>
<td>SS304</td>
</tr>
</tbody>
</table>

* Marked not shown in fig.1.

Figure 1: Forbes Marshall Thermodynamic Trap

Figure 2: Dimensional Drawing of FMTD54
Installation
Ensure the following for the FMTD54 to operate correctly and remove condensate effectively.
1. The FMTD54 is installed with flow in the direction of the arrow. Flow to be horizontal.
2. Ensure that there is sufficient access to the strainer to allow it to be cleaned periodically.
3. Ensure all the valves are either full opened or tightly shut, and never kept partially open / crack open.
After 24 hours in service the cover nuts should be checked for tightness. Separate user manual which comes along with the product gives full details.

Maintenance

To clean or replace strainer screen
Access to the strainer screen can be obtained by removing strainer cap. Remove strainer screen, fit new or cleaned strainer screen into recess of the cap. A new gasket should be fitted and the cap screwed into the body. The use of a thread lubricant is recommended.

To replace the cover studs
After removing old cover studs, fit new cover studs. The use of a thread lock (high temperature grade) is recommended.

To replace the disc and seat
Remove the isotub if fitted. If the disc and body seating faces are only slightly worn they can be refaced by lapping individually on a flat surface such as a surface plate. If the wear is too great to be rectified by simple lapping, then the disc and seat must be replaced by a new one.

Salient Features
1. Forged Carbon steel construction ensures better mechanical properties.
2. The disc and seat, hardened by induction hardening process to about 56 RC can withstand continuous water hammering conditions.
3. Condensate entry below the disc concentric to disc/seat ensures clean and parallel lift to disc with reference to seat, eliminating any localized wear and tear.
4. An inbuilt strainer screen of adequately large area ensures long and trouble free operation.

Optional extras
ISOTUB- An insulating cover which prevents the trap from being unduly influenced by excessive heat loss such as when subjected to low outside temperature, wind, rain etc.

How to Order
Example:
1) 1No. DN15 Forbes Marshall Thermodynamic Trap FMTD54 Screwed BSPT, IBR
2) 1No. DN15 Forbes Marshall Thermodynamic Trap FMTD54FL Flanged to ASA 150, IBR

Spares List

<table>
<thead>
<tr>
<th>S.no.</th>
<th>Description</th>
<th>Part No.</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>FMTD54 Top Cover Stud and Nut Set</td>
<td>8,9</td>
</tr>
<tr>
<td>2</td>
<td>15NB FMTD54 Seat, Disc</td>
<td>10,4</td>
</tr>
<tr>
<td>3</td>
<td>20/25NB FMTD54 Seat, Disc</td>
<td>10,4</td>
</tr>
<tr>
<td>4</td>
<td>FMTD54 Strainer Screen</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>FMTD54 Top Cover and Seat gasket</td>
<td>5,2,3</td>
</tr>
<tr>
<td>6</td>
<td>Isotub</td>
<td>14</td>
</tr>
</tbody>
</table>

Recommended Tightening Torques

<table>
<thead>
<tr>
<th>S.no.</th>
<th>Description</th>
<th>Part No.</th>
<th>Torque Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26mm A/F</td>
<td>7</td>
<td>142-158</td>
</tr>
<tr>
<td>2</td>
<td>M10x1.5 Studs</td>
<td>8</td>
<td>20-25</td>
</tr>
<tr>
<td>3</td>
<td>17mm A/F Nuts</td>
<td>9</td>
<td>45-50</td>
</tr>
</tbody>
</table>

How to Order Spares
Always order spares by using the description given in the column headed “Available Spare” and stating the size and type of trap.
Example: 1No. Disc for DN15 Forbes Marshall Thermodynamic Trap FMTD54