

# FMPC53

## Forbes Marshall Pipeline Connector with (DV1, DV2 and DV3)

### Description

The Forbes Marshall Pipeline Connector with (DV1, DV2 and DV3), FMPC53, is designed for use with swivel connector steam traps. The FMPC53 is a pipeline connector with an integral stop valve which isolates upstream of the steam trap. The FMPC53 has trap bypass valve (DV1) for the draining of upstream pipe work, trap vent valve (DV2) for trap venting and trap test valve (DV3) to monitor trap performance. DV3 can be used when FMPC53 is connected to condensate return pipeline with outlet isolation valve. All valves in FMPC53 are of piston type.

### Sizes and Pipe Connections

Sizes DN 15 and 20

Inlet: Female – Screwed BSPT /NPT/ Female SWE

Outlet: Male SWE

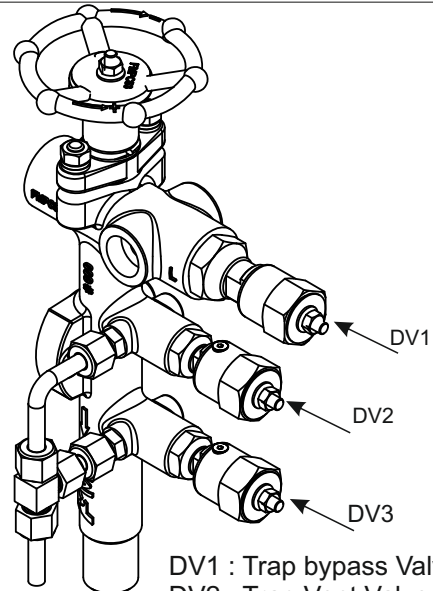
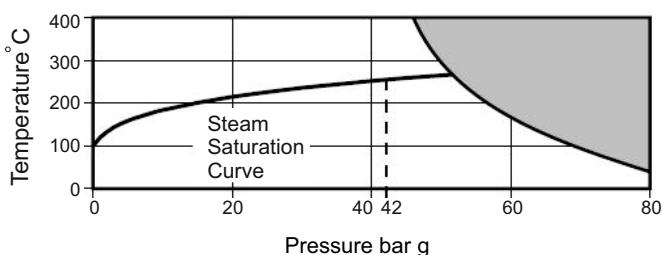
IBR approved FMPC53 available on request.

**Note:** All certification / inspection requirements must be stated at the time of order placement.

### Limiting Conditions

|                                      |                |
|--------------------------------------|----------------|
| PMA- Max allowable Pressure          | 42 bar (g)     |
| TMA- Max allowable Temperature       | 425 °C         |
| Body design condition                | ANSI class 600 |
| Maximum cold hydraulic test pressure | 63 bar g       |
| Minimum Operating temperature        | 0 °C           |

### Operating Range



DV1 : Trap bypass Valve  
DV2 : Trap Vent Valve  
DV3 : Trap Test Valve

### Materials

| No. | Part                    | Material              | Standard         |
|-----|-------------------------|-----------------------|------------------|
| 1   | Bod                     | Carbon                | SteelASTM A105 N |
| 2   | Bonnet                  | Carbon                | SteelASTM A105 N |
| 3   | Sealing ring            | Graphite and SS ring  |                  |
| 4   | Spacer                  | Stainless Steel       | ASTM A276 Gr.410 |
| 5   | Steam piston            | Stainless Steel       | ASTM A276 Gr.316 |
| 6   | Hand wheel              | SG Iron               | SG IRON 400/15A  |
| 7   | M6 Plain washer         | Stainless Steel       |                  |
| 8   | M6 LH nut               | Stainless Steel       |                  |
| 9   | M4 Allen screw          | Stainless Steel       |                  |
| 10  | M8 Stud                 | Carbon Steel          | ASTM A193 Gr.B 7 |
| 11  | M8 Nut                  | Spring Steel          | ASTM A194 Gr.2H  |
| 12  | Belleville washer       | 50 Cr V4              |                  |
| 13  | Plain washer            | Stainless Steel       |                  |
| 14  | DV1 Bonnet              | Stainless Steel       | ASTM A276 Gr.410 |
| 15  | DV1 Steam piston        | Stainless Steel       | ASTM A276 Gr.316 |
| 16  | Lock nut M 22x1.5       | Stainless Steel       | ASTM A276 Gr.410 |
| 17  | Lock nut M 15 x 1.5     | Stainless Steel       | ASTM A276 Gr.410 |
| 18  | DV2 / CV3 sealing rings | Graphite and SS rings |                  |
| 19  | DV2/DV3 steam piston    | Stainless Steel       | ASTM A276 Gr.316 |
| 20  | DV2/DV3 spacer          | Stainless Steel       | ASTM A276 Gr.410 |
| 21  | DV1 Hex knob            | S G Iron              | SG IRON 400/15A  |
| 22  | DV2/DV3 Hex knob        | S G Iron              | SG IRON 400/15A  |
| 23  | DV2/DV 3 Bonnet         | Stainless Steel       | ASTM A276 Gr.410 |
| 24  | Plain washer            | Stainless Steel       |                  |

## Installation

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 FMPC53 shall be installed with flow in the direction of the arrow. Flow can be horizontal, 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 main valve hand wheel and hex knob of drain valves provided to allow proper operation.

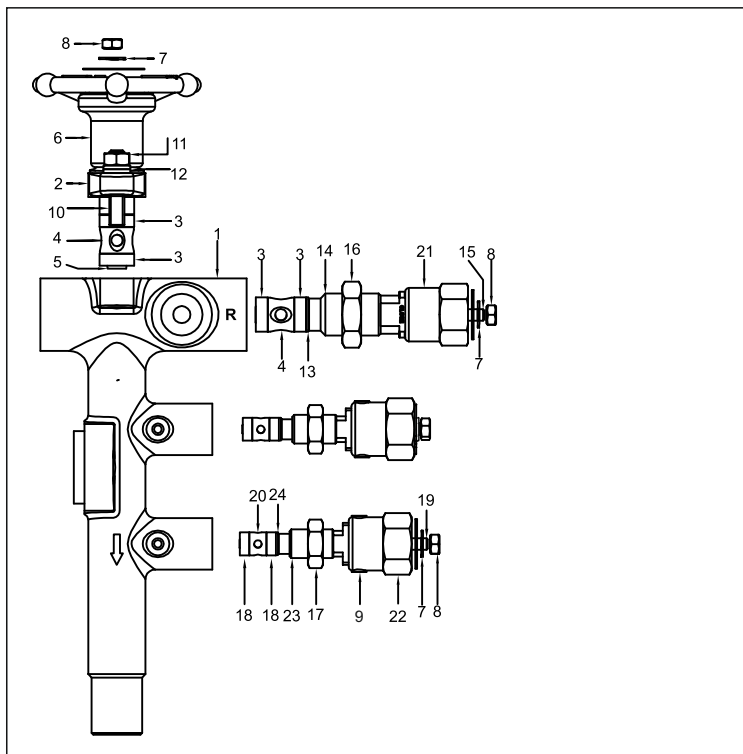
After installation it is recommended that the pipeline connector is insulated to minimize radiated heat losses and to protect personnel from burns risk. Please note, some steam trap types should not be insulated.

### DV1, DV2 and DV3 valves for FMPC53

DV1, DV2 and DV3 valves are fitted to FMPC53 pipeline connector to provide safe and reliable bypass, depressurizing and testing of steam trap installed. DV1, DV2 and DV3 valves are operated using standard socket or spanner of size 28.

**Note:** It is important to ensure that the discharge from DV1, DV2 and DV3 valves is directed to a safe position and that correct safety precautions are taken when operating the valves.

For full details refer the user manual supplied with the product.



## Spare Parts

The spare parts available are shown in the figure given below. For ease of replacement an extractor tool is available for removing the sealing rings.

### Available Spares



|  |                            |
|--|----------------------------|
| Trap inlet and trap bypass valve sealing ring set        | 3                          |
| Trap depressurizing and trap test valve sealing ring set | 18                         |
| Stem-piston for trap inlet valve                         | 5                          |
| Stem-piston for trap bypass valve                        | 15                         |
| Stem-piston for trap vent and test valve                 | 19                         |
| Trap inlet valve internals set                           | 3, 4, 5, 7, 8 and 9        |
| Trap bypass valve DV1 internals sets                     | 7, 8, 9, 18, 19, 20 and 24 |
| Extractor and inserter tools                             | Not shown                  |

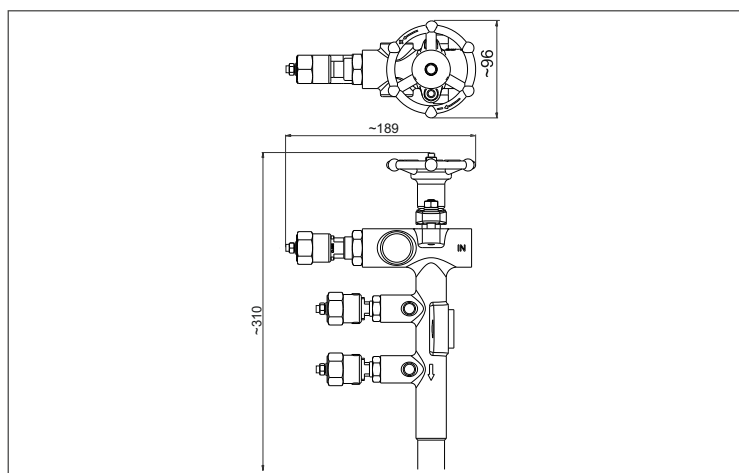
### How to Order Spares

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

**Example:** 1 No. sealing ring set for the inlet valve on a Forbes Marshall Pipeline Connector, FMPC53 having DN15 socket weld connections.

### Recommended Tightening Torque

| Item    | Part       |  Or  | Nm  |
|---------|------------|--|-----|
| 9, 7, 8 | M6 LH nut  | 10A/F  | 3.5 |
| 11      | Bonnet nut | 14A/F  | 10  |
| 16      | Lock nut   | 30A/F  | 100 |
| 17      | Lock nut   | 24A/F  | 70  |



www.forbesmarshall.com

Forbes Marshall Arca

Codel International

Krohne Marshall

Forbes Vyncke

Forbes Marshall Steam Systems

**A: Forbes Marshall Pvt. Ltd.**  
Opp. 106th Milestone, CTS 2220,  
Mumbai-Pune Road, Kasarwadi,  
Pune MH 411034 INDIA  
**P:** +91(0)20-68138555  
**F:** +91(0)20-68138402

**E:** ccmidc@forbesmarshall.com

© All rights reserved. Any reproduction or distribution in part or as a whole without written permission of Forbes Marshall Pvt Ltd, its associate companies or its subsidiaries ("FM Group") is prohibited.

Information, designs or specifications in this document are subject to change without notice. Responsibility for suitability, selection, installation, use, operation or maintenance of the product(s) rests solely with the purchaser and/or user. The contents of this document are presented for informational purposes only. FM Group disclaims liabilities or losses that may be incurred as a consequence of the use of this information.

**Forbes Marshall International Pte. Ltd.**  
16A, Tuas Avenue 1,  
#05-21, JTC Space @Tuas  
Singapore - 639533  
**P:** +65 6219 3890

**CIN No:** U28996PN1985PTC037806