

# Forbes Marshall Bimetallic Steam Traps

## FMBM54

### Description

The Forbes Marshall FMBM54 bimetallic steam traps are designed for draining high pressure, high temperature steam lines. These steam traps are specially designed for HP steam, have a reinforced stainless steel insert within the body and traps can be repaired inline. They operate with no loss of steam, and quickly drain air, non-condensable gases and large quantities of cold water on start-up. Normally open in the event of failure, they have a check valve, a built-in strainer screen and an external adjustment for adjusting the discharge temperature of the condensate.

### Sizes and pipe connections

Size: DN15 (½"), DN20 (¾") and DN25 (1")  
 End Connection: Socket weld to ASME (ANSI) B 16.11  
 Butt weld to (ANSI) B 16.25

FMBM54      Butt weld End are as per **SCH.80** Pipe

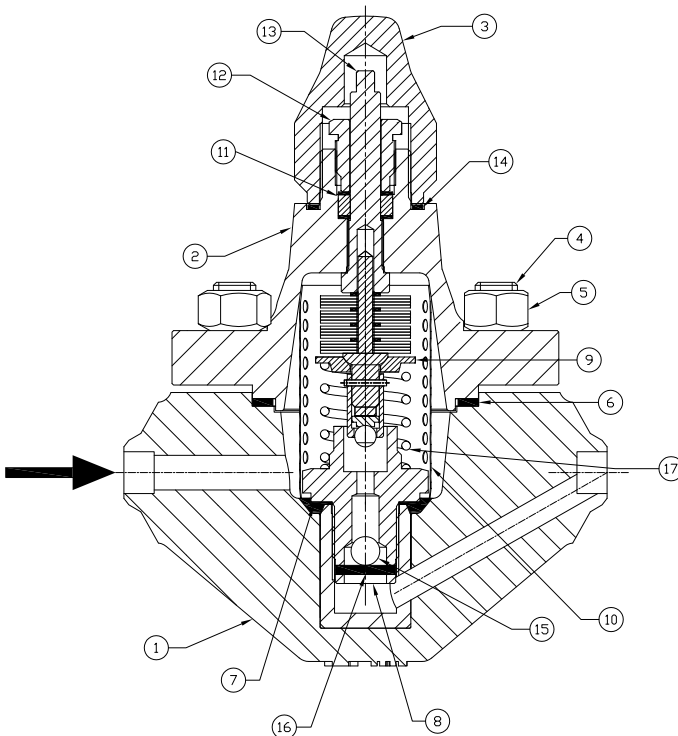


Fig. - 1

### Material

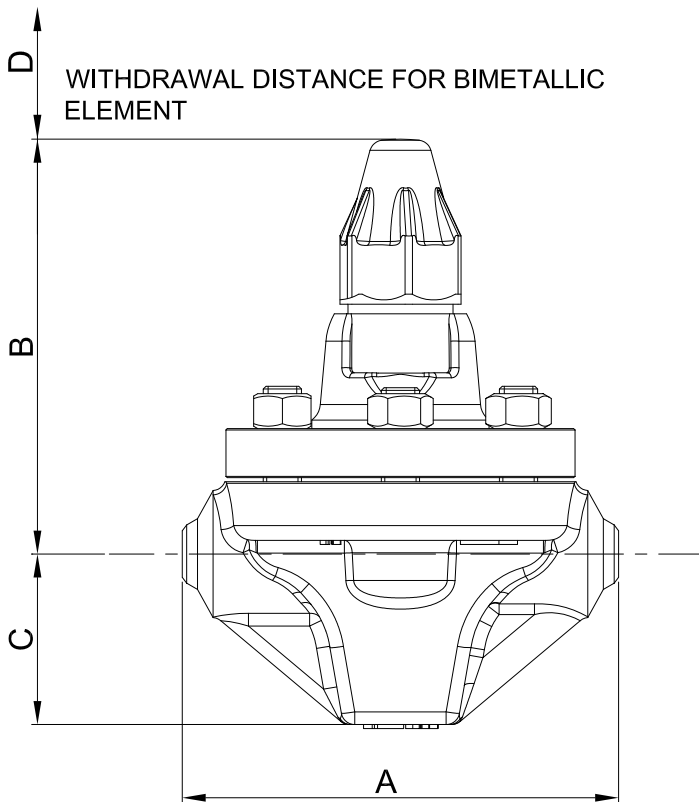
No.	Part	Material
1.	Body	Forged Carbon steel ASTM A105N
2.	Cover	Forged Carbon steel ASTM A105N
3.	Cover Cap Nut	Alloy steel ASTM A182Gr. F91
4.	Cover Stud	ASTM A193 Gr. B7
5.	Cover Nut	ASTM A194 Gr. 2H
6.	Cover gasket	Spiral wound stainless steel and graphite (asbestos-free)
7.	Valve seat gasket	Stainless steel
8.	Valve seat	Stainless steel
9.	Element assembly	Stainless steel
10.	Strainer screen	Stainless steel
11.	Gland packing	Graphite (asbestos-free)
12.	Gland nut	Stainless steel
13.	Adjustment Screw	Stainless steel
14.	Cover Cap Nut Gasket	Stainless steel/Graphite
15.	NRV Ball	Stainless steel
16.	Dowell Pin	Stainless steel
17.	Spring	Nickel Alloy

## Limiting Conditions

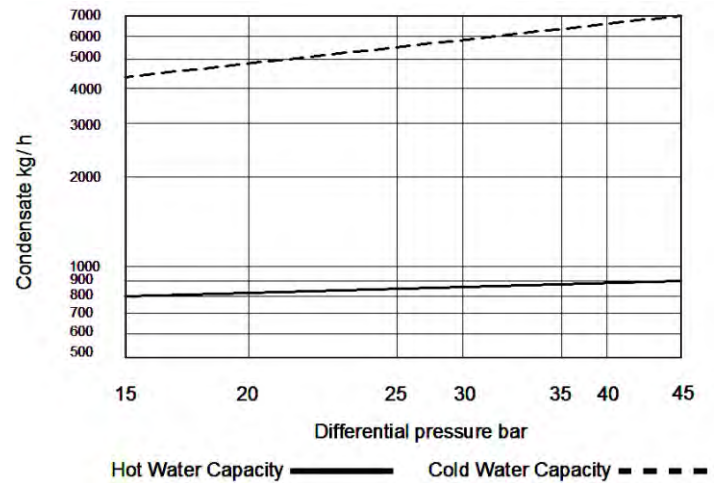
Body Design Conditions :	Class 900 to ASME (ANSI) B 16.34
PMA Maximum Allowable Pressure:	153 bar g @ 38°C
TMA Maximum Allowable Temperature:	425°C @ 86 bar g
Maximum Operating Conditions:	45 bar g @ 425°C
Minimum inlet pressure for satisfactory operation is:	15 bar g
Maximum cold hydraulic test pressure:	For IBR= 90 bar g For ASME= 229 bar g
Minimum operating temperature: 0°C	
ΔPMX The back pressure for correct operation must not exceed 90% of the upstream pressure	

## Dimensions / Weights (approximately) in mm and kg

Sr. No.	Model	Connection	A	B	C	D	Weight	
							Socket Weld End	Butt Weld End
1	FMBM54	Socket Weld to ANSI B 16.11	160	151	62.5	150	11.0	11.0
		Butt Weld to ANSI B 16.11						



## Capacities



## Available spares (Refer Fig.1) :

Bimetal assembly kit	8, 9, 15, 16
Strainer screen	10
Gasket set	6, 7 and 14

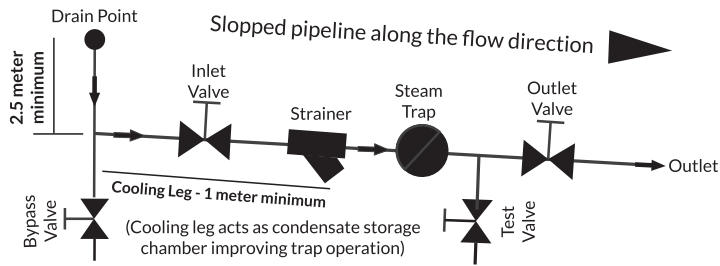
## Available Spare parts (Refer Fig.1)

The spare parts available are detailed below. No other parts are supplied as spares.

## How to Order

Order Spares as per the Code no. specified in the user manual.

## Bimetallic Steam Trap Installation Guidelines:

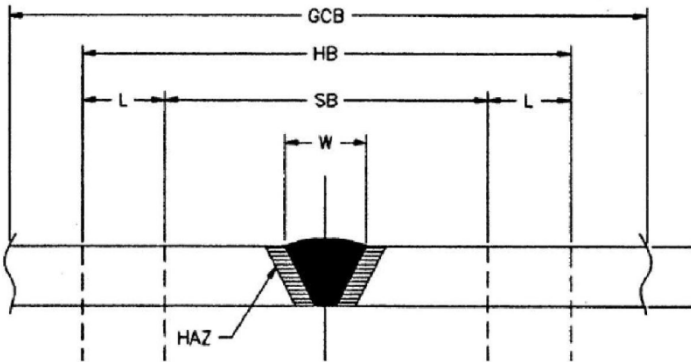


- Install the trap 2.5 meters from equipment drain point.
- DO NOT insulate the trap and the cooling leg of minimum 1.0 meter. As it affects trap performance.

- DO NOT use thermal blanket to wrap the entire steam trap during PWHT. welded unit should not furnace PWHT'd. (Heat generated by these methods destroy bimetal).
- Only localised Post Weld Heat Treatment of the weld is allowed.

## Welding & Post Weld Heat Treatment Instructions :

(Reference : ASME SEC IX)



**W** - Widest width of weld

**HAZ** - Heat Affected zone

**SB** - Soak band

**HB** - Heated band

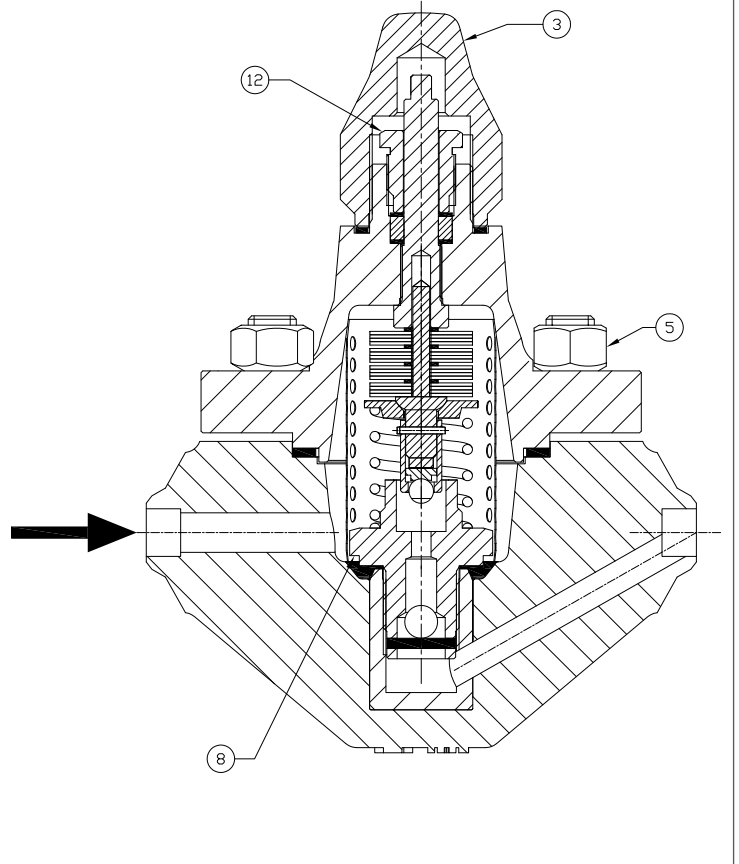
**GCB** - Gradient control band (Insulation Band)

Pipe Schedule	Pipe Material & Size	Soak Band (mm)	Heated Band (mm)	Gradient Control Band (Insulation Band)	Soaking Temp (°C)	Heating Rate	Cooling Rate	Soak rate												
XXS	15-P91	W + T	SB + 4√r T	HB + 4√r T	730-775	100°C/Hr		1 Hr/Inch t												
	20-P91				730-775															
	25-P91				730-775															
XXS	15-P22				675(min)															
	20-P22				675(min)															
	25-P22				675(min)															
160	15-P91				W + T				SB + 4√r T	HB + 4√r T	730-775	100°C/Hr		1 Hr/Inch t						
	20-P91										730-775									
	25-P91										730-775									
160	15-P22										675(min)									
	20-P22										675(min)									
	25-P22										675(min)									
80	15-P22										W + T				SB + 4√r T	HB + 4√r T	675(min)	100°C/Hr		1 Hr/Inch t
	20-P22																675(min)			
	25-P22																675(min)			


**M)** - The steam trap is factory set at 20C below seam saturation temperature.

**Note :** 1) If the trap is to discharge to atmosphere ensure it is to a safe place, the discharging fluid may be at a temperature of 100C.

2) For more details of welding & Post Weld Heat Treatment refer - ASME SEC IX .



## Recommended Tightning Torque :

Item part			N m
8	Valve Seat	36 A/F	120-132
12	Gland nut	21 A/F	25
5	Cover nut	FMBM54	120
			22 A/F
3	Cover Cap Nut	FMBM54	80-88



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