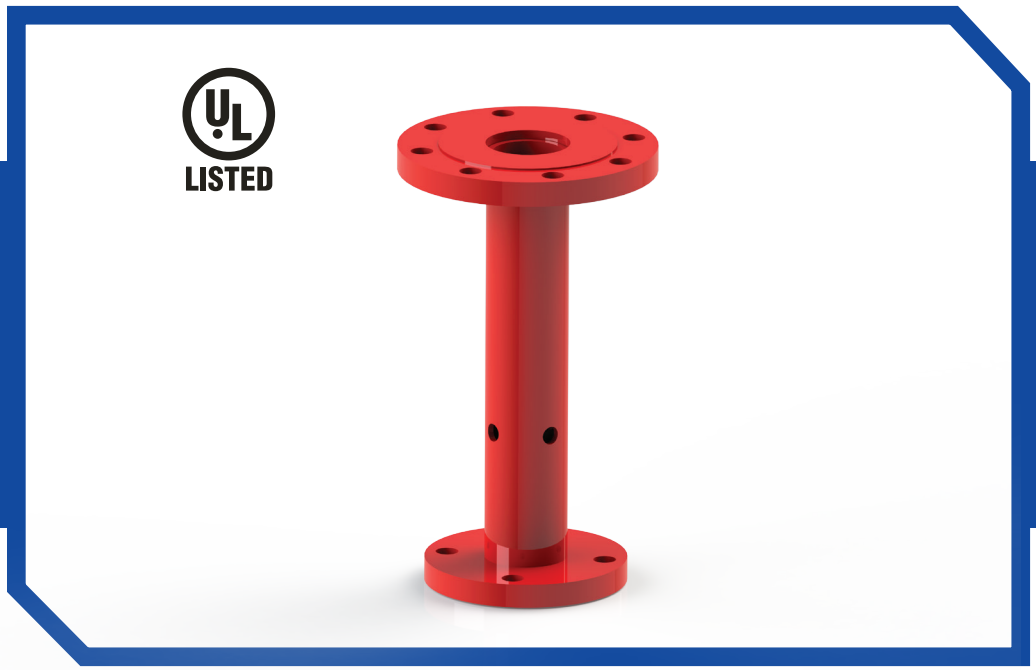
FIRETECH
Transforming Challenges with Expertise

Document No.: FPC-630-MKT-FM
Revision: 0
Product Number: 630



FIRETECH FOAM MAKER – UL LISTED

SPECIAL FEATURES

- Wide Flow Range Capacity : 66 to 1476 LPM
- Effective for operation at low inlet pressure ranging 2.1 Bar to 7 Bar
- Compact Sizes : 50 NB, 65 NB & 80 NB
- UL Listed for MOCs : Carbon Steel, Stainless Steel 304/L & 316/L
- Listed with AFFF 3% & AR-AFFF 3 x 3% Foam Concentrates

DESCRIPTION

FIRETECH Foam Maker is an air aspirating foam discharge device designed to produce low expansion foam employed for fire suppression and/or vapor suppression.

The general arrangement of FIRETECH Foam Maker – UL listed shall be as per fig. 630-1. Orifice plate supplied with Foam Maker is field replaceable so as to meet design changes if any. Orifice plate is factory calibrated to the required flow rate and pressure at Foam Maker inlet. Refer table 630-2 for appropriate selection of Foam Maker as per design calculation to meet required flow rate, pressure and K-Factor for mentioned model of Foam Maker. Please refer fig. 630-3 for typical arrangement of FIRETECH UL listed Foam Maker with Foam Pourer installation on open top floating roof storage tank.

FIRETECH EQUIPMENT & SYSTEMS PVT. LTD.
F- 302/303, 3rd Floor, Eastern Business District, Neptune Mall,
L. B. S. Marg, Bhandup(W) - 400 078, Mumbai, India.
www.firetechindia.com ☎ +91 22 68265570 +91 22 25660285
Email: sales@firetechindia.com

OPERATION

When foam solution is supplied to the Foam Maker at required flow rate within working pressure range (i.e. 2.1 Bar to 7 Bar), a ventury effect is created at the outlet of orifice plate, which results in entrapment of air into the foam solution stream via the air strainer. The entrapment of air causes the aspiration and expansion of foam. Foam Maker is designed to produce low expansion foam and should be used only with low expansion foam concentrates.

FIRETECH Foam Pourer – UL listed, fitted to the foam nozzle, directs the foam along the tank shell (Refer fig.630-3). This allows for application of foam with less submergence of foam and agitation of fuel surface.

SELECTION OF FIRETECH FOAM MAKER

The basis for estimating the number of Foam Makers and size of Foam Maker required to protect a risk depends primarily on code used for designing the fixed foam system. Generally the codes used are NFPA-11 or OISD 117.

The number of Foam Makers and size of Foam Maker depends upon,

- Risk to be protected (Classification of product stored in storage tank)
- Diameter of tank
- Width of foam dam
- Foam solution application density
- Pressure at the Foam Maker inlet
- K-Factor as per flow rate & pressure combination (Refer table 630-2)

EXAMPLE CALCULATION

Below is an example calculation as per NFPA-11 for protection of open top floating roof flammable liquid storage tanks by top of seal application. It does not cover all types of risks and necessary supplementary protection. Refer to respective code for more details.

Product Classification: IB (Hydrocarbon liquid)

Diameter of Tank (D_1): 32 M

Width of Foam Dam: 0.8 M

Diameter of Foam Dam (D_2): 30.4 M

Height of Foam Dam: 0.610 M

Min. Foam Application Density: 12.2 LPM/Sq.M

Pressure at Foam Maker Inlet: 3 Bar

1. Area to be Protected:

In an open top floating roof flammable liquid storage tank, the area to be protected is the annular seal area (A):

$A = 0.785 \times D_1^2 - 0.785 \times D_2^2$

$A = 0.785 \times (32)^2 - 0.785 \times (30.4)^2$

$= 78.374$ Sq/M

2. Foam Solution Application Rate:

Foam Solution Application Rate = Area to be Protected x Min. Foam Solution Application Density

= 78.374 x 12.2

= 956.16 LPM

3. Number of Foam Makers:

It depends on the circumference of the tank to be protected and height of foam dam. As per NFPA-11 for foam dam of 0.610 M Width, the foam discharge outlets shall be spaced and placed at 24 M while for a foam dam of 0.305 M Width, the foam discharge outlets shall be spaced and placed at 12.2 M along the periphery of the tank.

= Circumference of the tank / 24.4

= (π x D1) / 24.4

= (π x 32) / 24.4

= 4.13 Nos = 5 Nos

Note: Foam Makers shall be spaced equally along the tank periphery

4. Capacity of Foam Maker:

= Foam Solution Application Rate / Number of Foam Makers

= 956.163 / 5

= 191.23 LPM

Note: All the Foam Makers shall be sized to deliver foam at approximately same rate.

5. Foam Maker Size & Model:

Selection of Foam Maker depends upon the K-Factor (Discharge coefficient) of Foam Maker. K-Factor can be calculated by using formula;

$Q = K \times \sqrt{P}$

$K = Q / \sqrt{P}$

Where, Q Foam Solution Flow Rate in LPM

K = Discharge coefficient (Constant)

$K = 191.23 / \sqrt{3}$

K = 110.41

FIRETECH EQUIPMENT & SYSTEMS PVT. LTD.

F- 302/303, 3rd Floor, Eastern Business District, Neptune Mall,
L. B. S. Marg, Bhandup(W) - 400 078, Mumbai, India.
www.firetechindia.com ☎ +91 22 68265570 +91 22 25660285

Please refer the table 630-2 for selection of FIRETECH Foam Maker. The calculated K-Factor lies within the K-Factor range 45.5 -137 that refers to Foam Maker model FMA. Hence, 5 Nos of FIRETECH Foam Makers are required for protecting the above risk.

Note: When calculated K-Factor of Foam Maker is nearly equal to its maximum value of K-Factor range, it is recommended to choose next higher size and model of FIRETECH Foam Maker. To achieve satisfactory performance, minimum operating pressure at FIRETECH Foam Maker inlet shall be 2.1 (30) Bar or more.

ORDERING INFORMATION

While Ordering a FIRETECH Foam Maker, please specify following;

1. Item Code
2. Pressure at Foam Maker Inlet
3. Foam Solution Flow Rate
4. K-Factor
5. Quantity
6. Type of Flange
7. Flange Drilling

Refer to table 630-2 for dimensional details for accurate fitment of device as per site conditions.

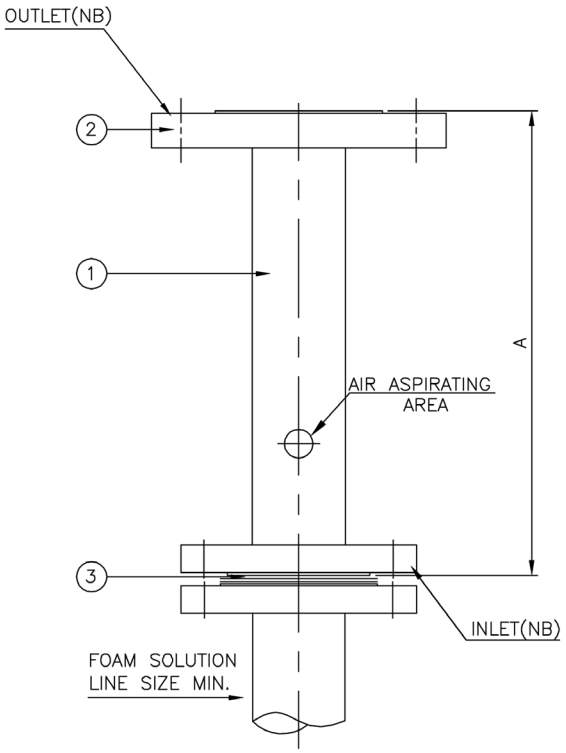


Fig No. 630-1

UL LISTED

MATERIAL OF CONSTRUCTION

SR.NO.	DESCRIPTION	MATERIAL
1	PIPE	CARBON STEEL
2	FLANGES	CARBON STEEL
3	ORIFICE PLATE	STAINLESS STEEL

TECHNICAL DETAILS

1	WORKING PRESSURE:–2.1 BAR(30 PSI) TO 7 BAR(100 PSI)
2	FLANGES DRILLING– ANSI.B.16.5,150#,RF/FF
3	FINISH:–PAINTED FIRE–RED TO SHADE RAL 3000
4	UL FILE NO: EX27295

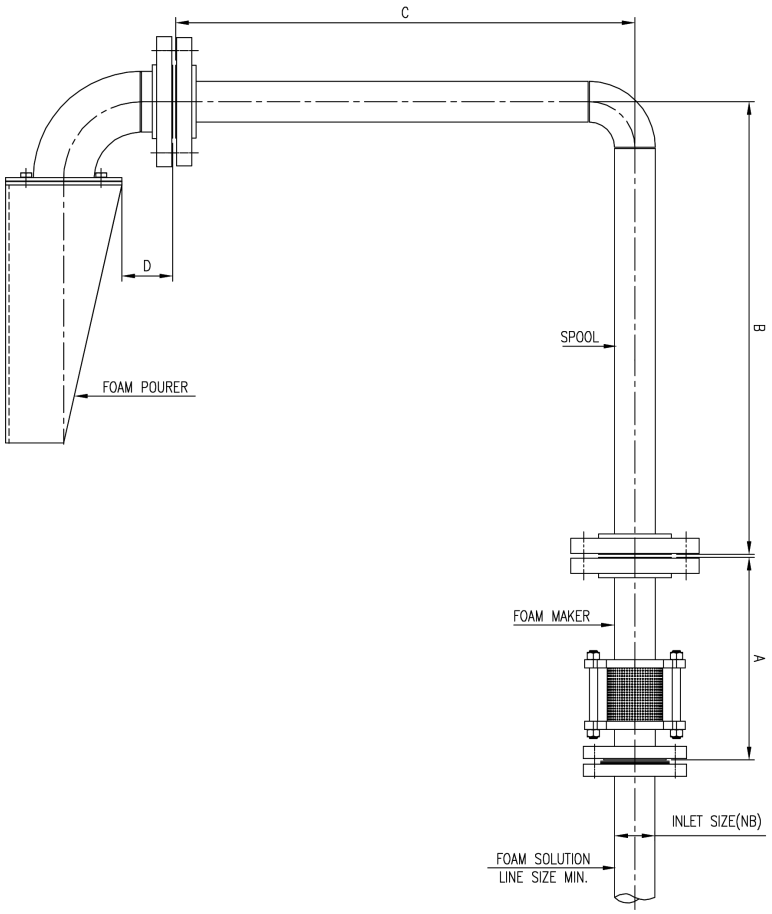
PERFORMANCE & DIMENSIONAL DETAILS

MODEL	INLET (NB)	OUTLET (NB)	INLET PRESSURE RANGE BAR(PSI)	FLOW RANGE		K–FACTOR RANGE(LPM/√BAR)	A
				GPM	LPM		
FMA	50	80	2.1(30)–7(100)	17.5–96	66–363	45.5–137	300±10
FMB	65	100	2.1(30)–7(100)	51–190	193–719	133–271	400±10
FMC	80	150	2.1(30)–7(100)	100–390	378–1476	261–558	500±10

NOTES:– 1] WORKING PRESSURE SPECIFIED IS AT INLET OF FOAM MAKER.
2] ALL DIMENSIONS ARE IN MM,UNLESS OTHERWISE SPECIFIED.
3] FOAM MAKER IS OPEN TO ATMOSPHERE HENCE HYDRO TEST IS NOT APPLICABLE AS PER UL–162
4] HIGHER SIZE FLANGE MAY BE USED AT INLET & OUTLET,IF REQUIRED BY CUSTOMER.
5] K–FACTOR MENTIONED IN THE TABLE IS METRIC UNITS (LPM/√BAR)

Fig No. 630-2

FIRETECH EQUIPMENT & SYSTEMS PVT. LTD.
F- 302/303, 3rd Floor, Eastern Business District, Neptune Mall,
L. B. S. Marg, Bhandup(W) - 400 078, Mumbai, India.
www.firetechindia.com ☎ +91 22 68265570 +91 22 25660285



TECHNICAL DATA–

1. WORKING PRESSURE – 2.1 BAR (30 PSI) TO 7 BAR (100 PSI).
2. FLANGE DRILLING – ANSI.B.16.5,150#, RF/FF.
3. FINISH – CORROSION RESISTANT COATING.

NOTE–

1. WORKING PRESSURE SPECIFIED IS AT INLET OF FOAM MAKER.
2. ALL DIMENSIONS ARE IN mm,UNLESS OTHERWISE SPECIFIED.
3. FOAM MAKER IS OPEN TO ATMOSPHERE HENCE HYDRO TEST IS NOT APPLICABLE AS PER UL–162.
4. HIGHER SIZE FLANGE MAY BE USED AT INLET & OUTLET, IF REQUIRED BY CUSTOMER.
5. PIPES USED SHALL BE OF ERW CONSTRUCTION HOWEVER SEAMLESS PIPE MAY ALSO BE USED.

DIMENSIONS OF FOAM MAKER WITH FOAM POURER TEST SET UP

MODEL (FOAM MAKER)	MODEL (FOAM POURER)	INLET SIZE (NB)	SPOOL (NB)	A	B	C	D
FMA/FMA–S	FPA/FPA–S	50	80	300	675	600	75
FMB/FMB–S	FPB/FPB–S	65	100	400	700	600	100
FMC/FMC–S	FPC/FPC–S	80	150	500	685	565	160

Fig No. 630-3

FIRETECH EQUIPMENT & SYSTEMS PVT. LTD.
F- 302/303, 3rd Floor, Eastern Business District, Neptune Mall,
L. B. S. Marg, Bhandup(W) - 400 078, Mumbai, India.
www.firetechindia.com ☎ +91 22 68265570 +91 22 25660285

FIRETECH
Transforming Challenges with Expertise

Document No.: FPC-630-MKT-FM
Revision: 0
Product Number: 988

FIRETECH FOAM POURER – UL LISTED

DESCRIPTION

FIRETECH Foam Pourer is a part of foam discharge device arrangement used typically in open top floating roof flammable liquid storage tanks. The primary purpose of Foam Pourer is to deflect the foam on inside circumferential surface of storage tank so that foam will poured and slides down along the tank to fill the foam dam and its protection. Please refer the fig. 988-1 for typical general arrangement of FIRETECH Foam Pourer and table 988-2 for its dimensional details.

FIRETECH Foam Pourers shall be manufactured in various materials that includes Carbon steel, Stainless steel 304/L, and Stainless steel 316/L. The selection of Foam Pourer model shall be done with its respective model of Foam Maker.

FIRETECH EQUIPMENT & SYSTEMS PVT. LTD.
F- 302/303, 3rd Floor, Eastern Business District, Neptune Mall,
L. B. S. Marg, Bhandup(W) - 400 078, Mumbai, India.
www.firetechindia.com ☎ +91 22 68265570 +91 22 25660285
Email: sales@firetechindia.com

LISTED

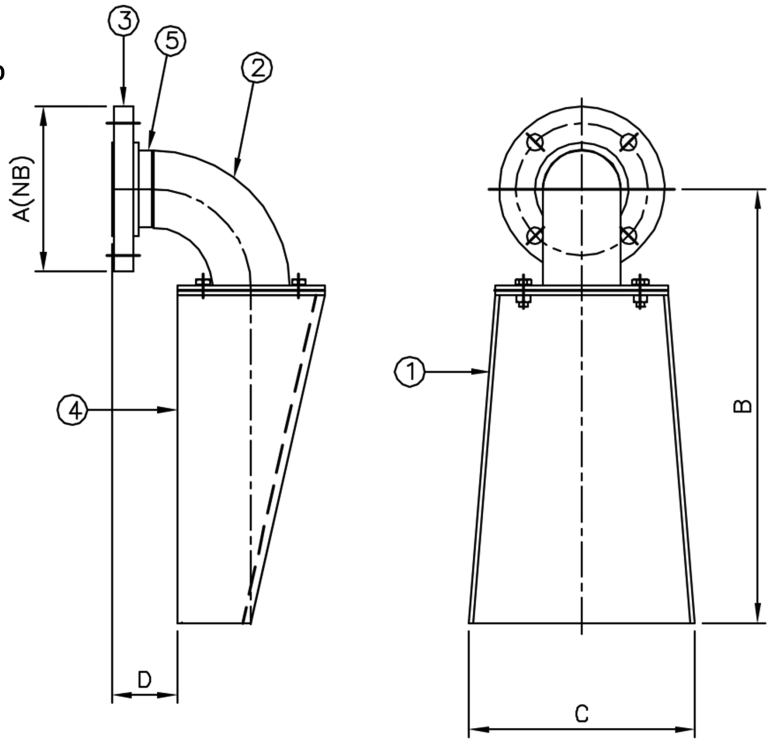


Fig No. 988-1

MATERIAL OF CONSTRUCTION

SR.NO.	DESCRIPTION	MATERIAL
1	BODY	CARBON STEEL
2	BEND	CARBON STEEL
3	MOUNTING FLANGE	CARBON STEEL
4	PROTECTION SCREEN	CARBON STEEL
5	PIPE	CARBON STEEL

TECHNICAL DETAILS

1	FLANGES DRILLING– ANSI.B.16.5,150#
2	FINISH:–PAINTED FIRE–RED TO SHADE RAL 3000

DIMENSIONAL DETAILS

MODEL	A(NB)	B	C	D
FPA	80	500±10	260±5	75±5
FPB	100	600±10	300±5	100±5
FPC	150	800±10	450±5	160±5

NOTES:– 1] ALL DIMENSIONS ARE IN MM,UNLESS OTHERWISE SPECIFIED.

Fig No. 988-2

FIRETECH EQUIPMENT & SYSTEMS PVT. LTD.

F- 302/303, 3rd Floor, Eastern Business District, Neptune Mall,
L. B. S. Marg, Bhandup(W) - 400 078, Mumbai, India.
www.firetechindia.com ☎ +91 22 68265570 +91 22 25660285