

PHB-35A TO PHB-60A

HIGH BACK PRESSURE FOAM MAKERS

NDD030

- Effective Storage Tank Subsurface Foam Injection Device
- Operates Effectively With Back Pressure Up To 40% Of Inlet Pressure
- Flow Range 350 - 600 GPM
- Corrosion Resistant Finish
- Dike Protection, Dock Protection



Description

The PHB Type High Back Pressure foam maker is designed to deliver fully aspirated foam for fire extinguishment through the product, directly onto the fuel surface. Fully aspirated foam provides the most effective performance, resulting in quick, efficient control of an incident. PHB Type High Back Pressure foam makers are classified as Type II discharge devices in accordance with NFPA Standard 11. When used with properly expanded fluoroprotein type low expansion foam, these foam makers can provide application of the foam through the product directly onto the fuel surface with a minimum of fuel pick-up and saturation of the foam bubble. Using PHB Type High Back Pressure foam makers with fixed discharge outlets has the added advantage of directing the entire flow to the hazard area, regardless of weather conditions, for the most effective utilization of foam resources.

The PHB Type High Back Pressure foam maker produces foam by introducing air into the foam solution stream. The solution inlet of the foam maker is fitted with a factory installed orifice, designed to control the flow rate and create a reduced pressure area to draw air into the foam solution stream. Air is drawn into the foam solution through an air inlet hole located on the foam maker. To prevent obstruction, the air inlet is protected with an air inlet strainer with a stainless steel screen. A turbulator

tube aids in the mixing of the air into the foam solution to provide the proper foam expansion. The aerated foam is discharged directly into the product at the base of the tank or the product supply pipeline to the tank.

The PHB Type High Back Pressure foam maker is designed for easy, low cost installation on Cone Roof storage tanks. The foam maker can be installed for injection of the foam directly into the base of the product storage tank(s) or for injection into the product pipeline supplying the tank(s). PHB foam makers can be located a greater distance from the hazard than most other types of foam makers because of its efficient design, which allows it to effectively operate against back pressures of up to 40% of the inlet pressure.

In addition to subsurface injection to cone roof tanks, PHB foam makers are often used for dike protection in the event of a product spill. The PHB foam maker is also suitable for use in marine applications for protection of specific areas and under docks. Applications where existing discharge devices, that do not incorporate foam makers, can also be supplied with expanded foam using PHB Type High Back Pressure foam makers. The foam makers can be supplied from a fixed foam proportioning system or from portable foam proportioning equipment, such as, mobile fire apparatus. Installation shall be made in accordance with applicable codes and standards. For applications using subsurface injection, fluoroprotein type

foam concentrates must be used. For all other applications they are compatible with all types of foam concentrate; protein, fluoroprotein, AFFF, and AR-AFFF.

Features

- Foam expansion designed for use with sub surface injection
- Compact, rugged construction
- Cast aluminum with Stainless Steel internals
- Maximum inlet pressure-300 PSI (20.7 Bar)
- Minimum inlet pressure-100 PSI (6.9 Bar)
- Maximum allowable back pressure 40% of inlet pressure
- Minimum allowable back pressure 5 PSI (0.3 Bar)
- Available in sizes to handle flows of 350-600 gpm (1325-2271 lpm)
- Air Inlet Strainer provided to keep animals, birds, insects and debris from entering the foam maker
- Corrosion Resistant Polyester Finish over hardcoat anodizing

Applications

- Subsurface injection to cone roof tanks
- Dike protection
- Under dock protection for marine system (fresh water)
- Replacement for intermediate back pressure foam makers
- Foam supply to existing discharge devices which do not incorporate a foam maker

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Specifications

The PHB Type High Back Pressure foam maker shall include the air aspirating foam maker with 4"-150# ANSI flat faced flanged inlet and 6"-150# ANSI flat faced flanged outlet connection, orifice plate, turbulator tube and air inlet strainer. The body shall incorporate a recovery section to minimize the pressure loss through the proportioner and increase the allowable back pressure of the device. The PHB foam maker shall provide aspirated foam, with an expansion ratio of 2-1 to 4-1, with an imposed back pressure of 5% to 40% of the inlet pressure. The foam maker shall include a stainless steel turbulator tube to aid in the proper mixing of air into the foam solution. Solution flow shall be controlled via an orifice sized to provide flow capacities from 350 GPM (1325 lpm) to 600 GPM (2271 lpm) @ 150 PSI (10.4 bar) in 50 GPM increments. The orifice plate shall be of stainless steel construction. Air to expand the foam shall be drawn into

the foam solution through a single air inlet located on the foam maker body. To prevent obstruction, the air inlet shall be protected by air inlet strainer, consisting of a cast aluminum body and a stainless steel screen with a minimum open area of 50% and a minimum hole diameter of 0.075". The air inlet screen shall have total open area of 4:1 in comparison with the air inlet opening. The foam maker body shall be investment cast aluminum, abrasive blasted and coated with a red fused polyester powder finish.

Technical Data

Material of Construction:

Foam Maker Body... Investment Cast Aluminum
 Turbulator Tube..... Stainless Steel
 Orifice..... Stainless Steel
 Air Strainer..... Cast Aluminum w/ Stainless Steel Screen
 Hardware Stainless Steel

Operating Pressure:.. 100 PSI (6.9 bar) to 300 PSI (20.7 bar)

Flow Capacity: 350 GPM (1325 lpm) to 600 (2271 lpm) @150 PSI (10.4 bar)

Allowable Back Pressure:
5% to 40% of Inlet Pressure

Finish:

Cast Aluminum Components:
 Abrasive Blast to SSPC-SP6.
 Chemical wash, rinse, and seal.
 Oven baked fusion coated polyester, 3 mils dry film thickness (DFT), red color.
 All Other Components Natural Finish

Weight:

40 lbs. (18.1 Kg.)

Options

- Stainless Steel
- Brass

PHB Inlet Pressure PSI (Bar)	Maximum Allowable Back Pressure PSI (Bar)
300 (20.7)	120 (8.2)
250 (17.2)	100 (6.9)
200 (13.8)	80 (5.5)
150 (10.3)	60 (4.1)
100 (6.9)	40 (2.7)

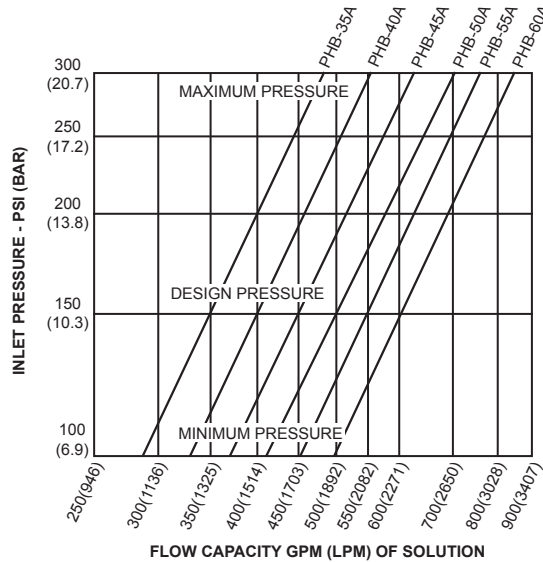
**MAXIMUM
ALLOWABLE BACK PRESSURE**

Foam Maker Model No.	Design Capacity @150 PSI (10.3 Bar)	
	GPM	LPM
PHB-35A	350	1325
PHB-40A	400	1514
PHB-45A	450	1703
PHB-50A	500	1892
PHB-55A	550	2082
PHB-60A	600	2271

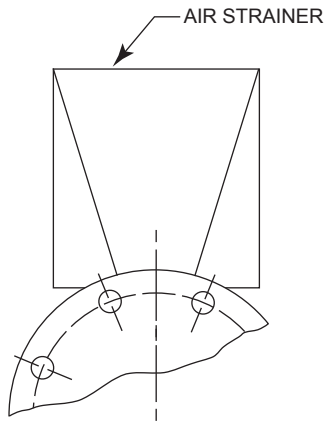
DESIGN CAPACITY

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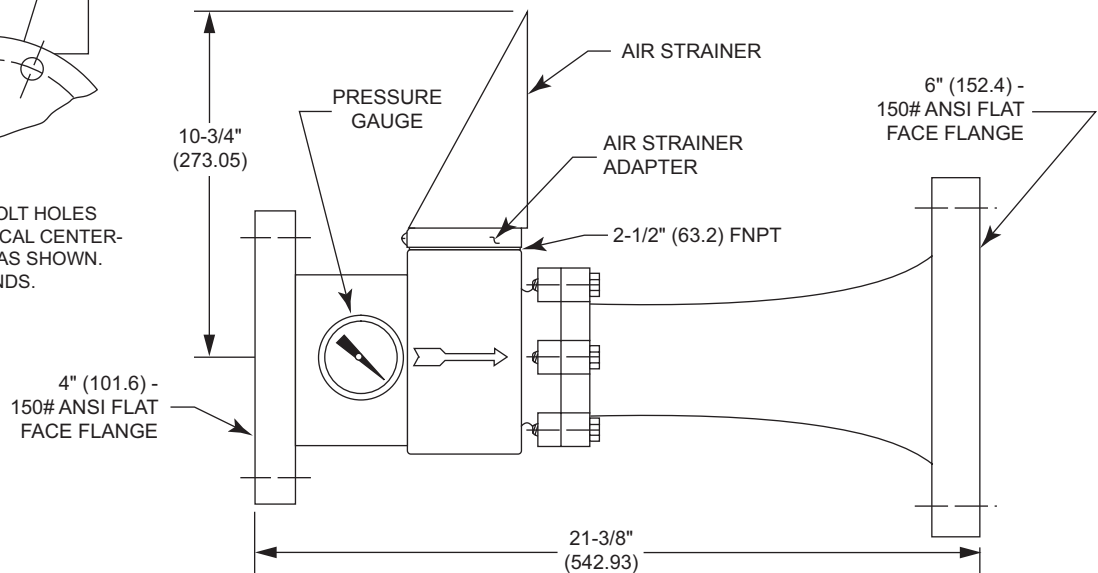


INLET PRESSURE VS. FLOW CAPACITY



NOTE: FLANGE BOLT HOLES STRADDLE VERTICAL CENTER-LINE OF FLANGE AS SHOWN. TYPICAL BOTH ENDS.

- NOTES:
1. Dimensions are in inches (mm).
 2. All dimensions are plus or minus 1/8" (3.18).



PHB-35A THRU PHB-60A HIGH BACK PRESSURE FOAM MAKER FIXED MODELS

PHB-35A TO PHB-60A

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ORDERING INFORMATION

Part Number:	Description:
1254-8160-5	PHB-35A Foam Maker, Aluminum w/ fused polyester finish
1254-8170-5	PHB-40A Foam Maker, Aluminum w/ fused polyester finish
1254-8180-5	PHB-45A Foam Maker, Aluminum w/ fused polyester finish
1254-8190-5	PHB-50A Foam Maker, Aluminum w/ fused polyester finish
1254-8200-5	PHB-55A Foam Maker, Aluminum w/ fused polyester finish
1254-8210-5	PHB-60A Foam Maker, Aluminum w/ fused polyester finish

When ordering please specify the following information:

Tank or hazard identification, tank or hazard size, product being stored, desired flow and inlet pressure.

National Foam

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