

forede®



BLADDER FOAM TANK



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01 / PRODUCT INTRODUCTION

Bladder tanks are positive displacement pro-portioning systems made of a tank and an in-line mixer. The tank is equipped with an elastomeric bladder that is used to hold the foam concentrate and it is normally kept unpressurized. The mixer is directly piped to the bladder tank via two lines, the water inlet line and the foam outlet line. When in operation, water flows into the mixer passing through a water orifice that creates a pressure differential across the disc in the area of the mixer where the foam concentrate is injected.

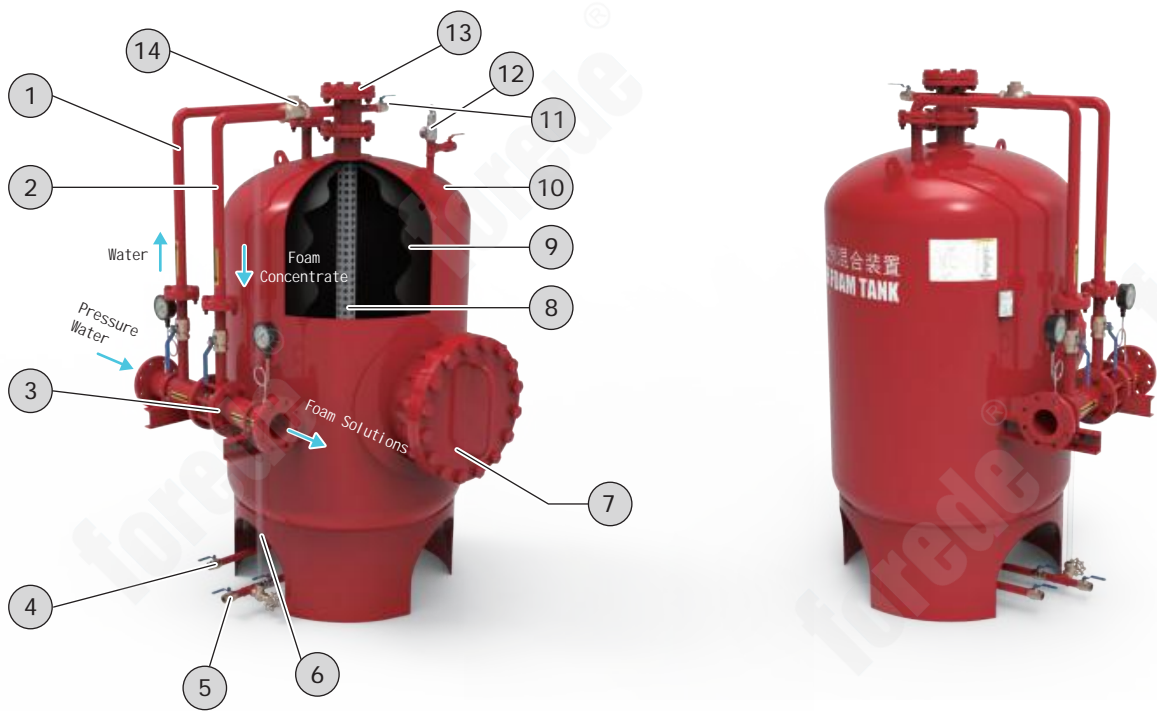
Some water from the main supply is deviated and enters the tank surrounding the bladder, increasing the tank pressure. This squeezes the bladder and forces the foam concentrate to leave the tank and enter the foam line. The concentrate is then delivered to the mixer injection point, where another orifice plate is located to meter its flow in the low-pressure water stream zone. The system works till the concentrate in the bladder has been consumed and the tank is full of water. Every unit is available in a horizontal or vertical configuration and is customized according to client requirements including accessories such as: double tank system (only for verticals), ladders for easy access to manhole(s), deluge or remote controlled valves for system automation, manual filling pump, base plates, special metal treatments or painting procedures. The Bladder tank can be manufactured also with foam concentrate to be Contained inside or outside the bladder.

02 / PERFORMANCE PARAMETERS

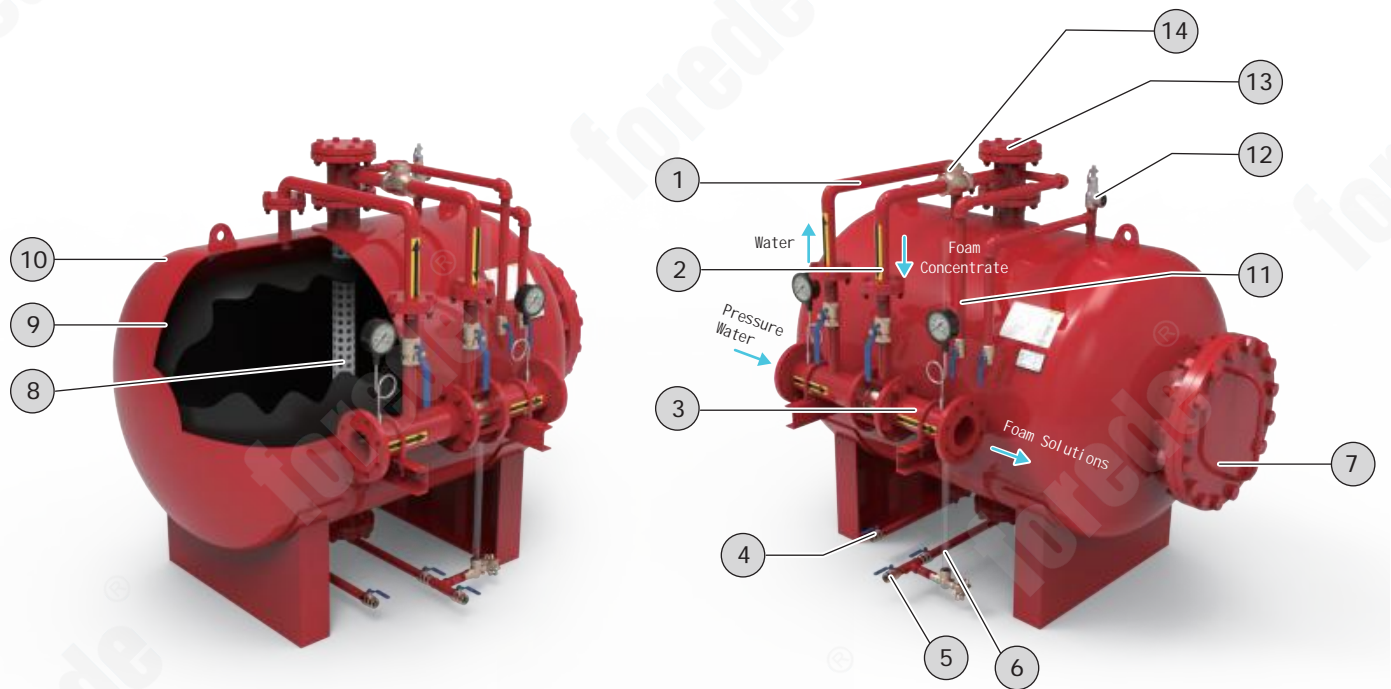
FIG.1 PHYM Parameters

Type	Rated inlet pressure (Mpa)	Inlet pressure range (Mpa)	Solution flow rate (L/S)	Solution flow range (L/S)	Ratio (%)	Volume (L)	N.W (T)		
PHYM24/300	1.6	0.6—1.2	24	4/24	3&6	300	0.2		
PHYM24/500						500	0.3		
PHYM24/600						600	0.3		
PHYM32/800						800	0.4		
PHYM32/1000						1000	0.4		
PHYM32/1200						1200	0.5		
PHYM32/1500			1500	0.6					
PHYM32/2000			2000	0.8					
PHYM48/3000			48	12/48		3000	1.2		
PHYM48/4000						4000	1.3		
PHYM48/5000						5000	1.5		
PHYM64/6000						64	16/64	6000	1.5
PHYM64/8000								8000	2
PHYM64/10000								10000	2.3

03 / STRUCTURE & WORKING PRINCIPLE



Pic.1 Vertical Bladder Tank Structure Principle



Pic.2 Horizontal Bladder Tank Structure Principle

1 BALL VALVE	5 FOAM DISCHARGE VALVE	9 BLADDER	13 FILLING HOLE
2 OUTLET VALVE	6 LEVEL GAUGE	10 TANK SHELL	14 CHECK VALVE
3 PROPORTIONER	7 MAN HOLE	11 EVACUATION VALVE	
4 DRAIN VALVE	8 TUBE	12 SAFETY VALVE	

04 / STRUCTURE SIZE

Fig.2 PHYM Vertical Bladder Tank Outline Dimensions

Type	DN	L	L1	L2	H	H1	B	B1	Inlet Flange
									DN
PHYML/24/300	600	800	380	820	1700	950	800	520	65
PHYML/24/500	700	900			1950		900	570	
PHYML/24/600					2200				
PHYML/32/800	900	1100		1900	1100		680		
PHYML/32/1000	1000	1235	900	2150	1300	800	100		
PHYML/32/1200				2200					
PHYML/32/1500	1200	1400		2100	680				
PHYML/32/2000	1400	1600	2150	2000	930	150			
PHYML/48/3000	1600	1800	2200	2150	1060				

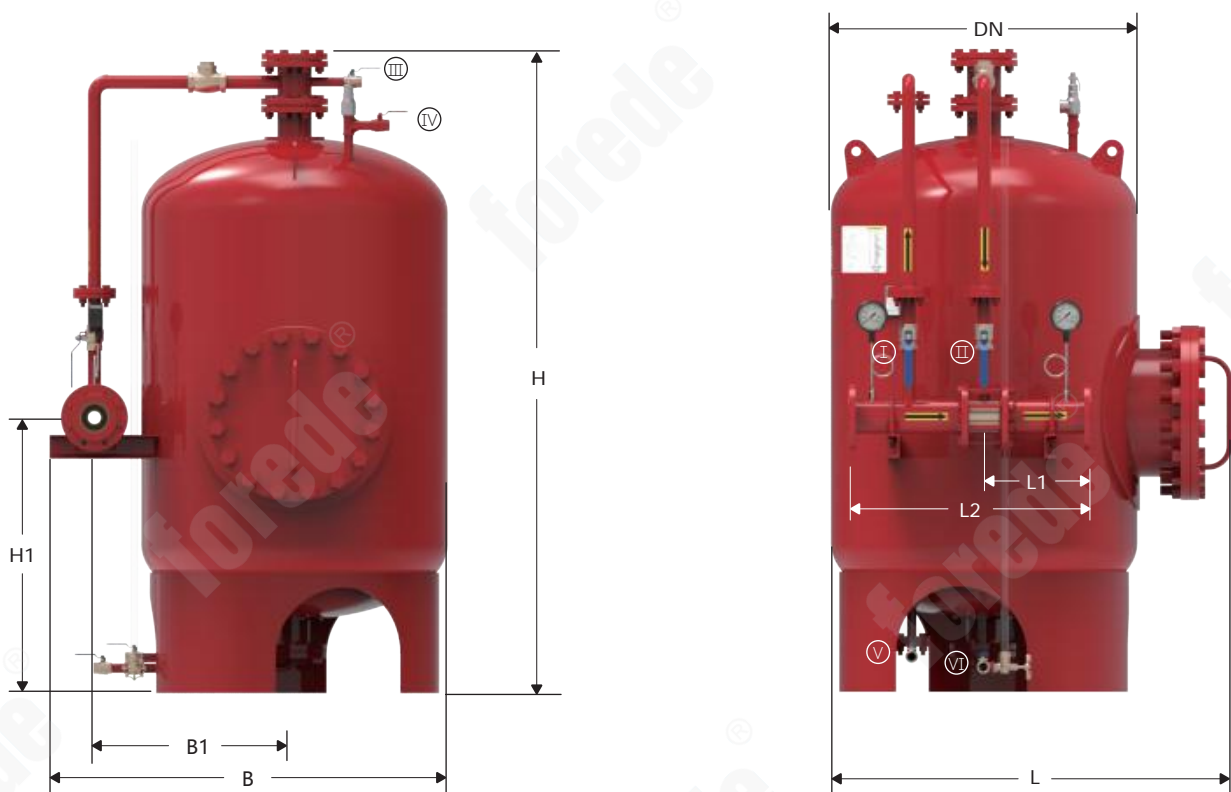


Fig.4 Valve Description

Valve No.	I	II	III	IV	V	VI
Description	BALL VALVE	OUTLET VALVE	EVACUATION VALVE	SAFETY VALVE	DRAIN VALVE	FOAM DISCHARGE VALVE
Normal Position	Open	Open	Closed	Closed	Closed	Closed

04 / STRUCTURE SIZE

Fig.5 PHYM Horizontal Bladder Tank Outline Dimensions

Type	DN	L	L1	L2	L3	H	H1	B	B1	B2	Inlet Flange	
											DN	
PHYM32/1000	1000	1700	800	370	900	1600	1000	1250	760	650	100	
PHYM32/1500	1100		1650			1350		880	675			
PHYM32/2000	1200		1750			1450		800				
PHYM48/3000	1400	2450	1450	400	1000	1950	1950	1750	1120	900	150	
PHYM48/4000		3000				2250				1000		
PHYM48/5000	1600	3200	1700	400	1000	2150	2350	2350	1420	1100	200	
PHYM64/6000		3350				2350				1100		
PHYM64/8000		3700				2800				1250		
PHYM64/10000	1800	4700										250

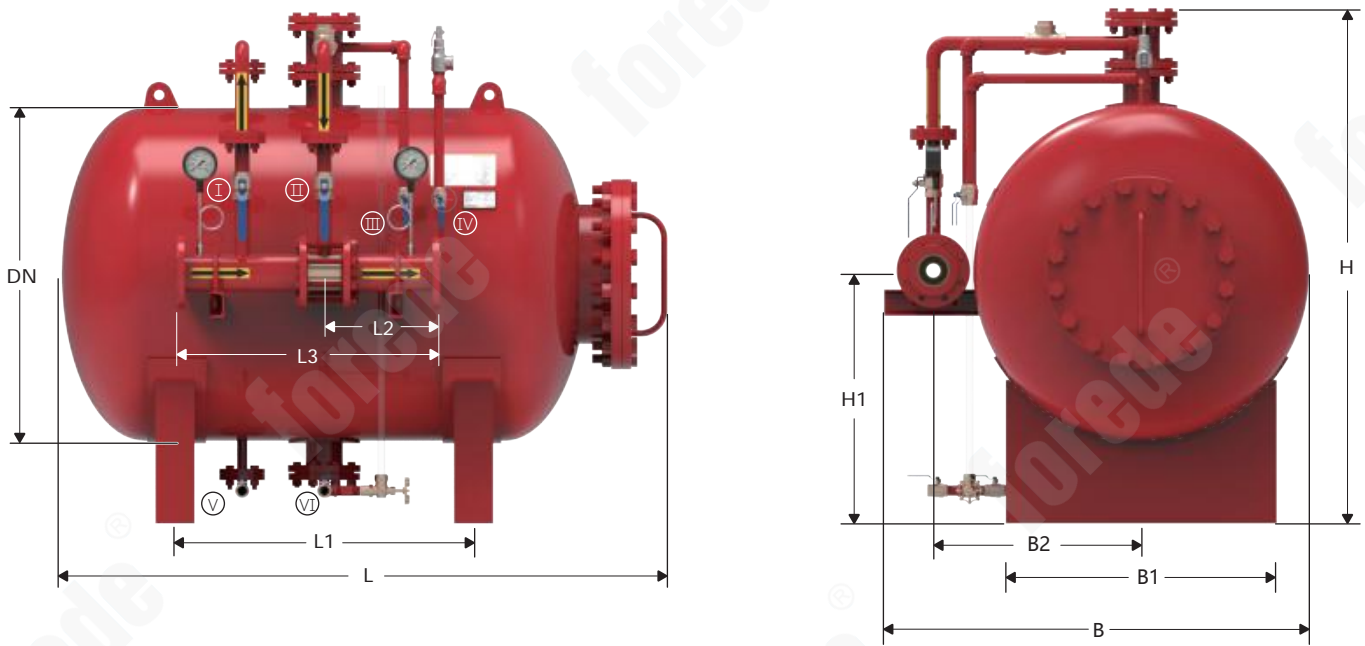


Fig.6 Valve Description

Valve No.	I	II	III	IV	V	VI
Description	BALL VALVE	OUTLET VALVE	EVACUATION VALVE	SAFETY VALVE	DRAIN VALVE	FOAM DISCHARGE VALVE
Normal Position	Open	Open	Closed	Closed	Closed	Closed

05 / INSTRUCTIONS

(→) Condition

1. The pressure of the fire-fighting water pump matched with our device must meet the requirements of the working pressure at the inlet of the mixer.
2. The working pressure range of this device is 0.6-1.2Mpa, and it cannot be used beyond the specified range, otherwise it will affect the mixing ratio and reduce the foam quality.
3. The pressure used by the device within the calibrated working pressure range depends on the working pressure of the foam fire extinguishing equipment and the friction loss of the equivalent length of the pipeline.
4. In the standby state, all valves in the mixer should be closed.

(⇒) Use Method

1. After starting the fire water pump and there is pressurized water in the pipeline, first open the water inlet valve () and exhaust valve ().
2. Adjust the pressure gauge to display the calibrated working pressure of the foam ratio mixing device and stabilize it at a certain value.
3. When the pressure water enters the storage tank and the pressure rises to the working pressure, the outlet valve (II) can be opened, the foam mixture is automatically adjusted to 6% or 3%, and the foam mixture starts to be output to the system.
4. When the liquid supply is stopped, the outlet valve (II) should be closed first (to prevent the pressure water from pouring the liquid into the foam liquid rubber bag) and then close other valves. At the same time, the pump should be terminated.
5. Method of first filling foam liquid:
 - a. Close the drain valve () and drain valve ();
 - b. Open the flange cover of the foam liquid filling port, and the foam liquid can be manually filled into the capsule, or the electric liquid filling pump can be used to inject the foam liquid from the drain valve (VI);
 - c. When the foam liquid overflows from the filling port, it can be considered that the foam liquid has been filled.
6. When testing the water, open the water inlet valve () and exhaust valve (), close other valves, and pass in pressure water. When the exhaust valve () sprays water, it can be closed to make the storage tank in Standing status.

06 / MAINTENANCE

1. Before use, you must first check whether the upper flange cover of the "foam filling port" and the connecting pipe flange are sealed, and whether the various valves are closed.
2. After each use, the storage tank and pipeline must be rinsed with clean water, and the internal and external surfaces must be painted with anti-corrosion treatment.
3. When filling the foam liquid, the capsule should be kept clean. It should not be mixed with oil or other foam liquids, and should not be mixed with the aging foam liquid. The foam liquid type cannot be used wrongly.
4. The foam liquid should be kept away from direct sunlight and stored in a place with a small temperature difference, as little as possible in direct contact with the air. Any foam liquid stored for more than two years should be sampled and inspected before use.

It can be used after the grid, and the invalid foam liquid should be replaced in time.
5. Tanks equipped with diaphragms should be tested for leaks every six months. The test method is to open the drain valve (). If there is any foam leakage, the capsule is damaged and should be repaired or replaced in time.
6. When replacing the foam liquid, a simulation test should be performed on the fire extinguishing system to check whether the working conditions of the proportional mixing device and the foam generator are normal and reliable.

It should be overhauled in time.
7. When replacing the failed foam liquid, the device should be thoroughly cleaned. The way to clean the capsule is:

First, open the bottom drain valve (VI) to drain the foam liquid that has failed.

Close the drain valve (VI), fill the capsule with clean water from the filling port to clean the inner surface of the capsule; then open the drain valve (VI), connect the compressed air from the drain valve () to Squeeze out the foam liquid and continue to blow the capsule with compressed air for 30 minutes to completely dry the water in the capsule and refill the foam liquid.
8. In actual use, the storage tank must be filled with foam liquid.