Foamax®
Fire fighting systems & equipment

Product name	**Bladder Tank BTV**
Description	**Membrane Pressure Tank - Vertical**
Manufacturer	**ANSUL**
Revision	**1.0/2024**

ASK ABOUT THE PRODUCT

1. Features

- UL Listed and FM Approved for use with various ANSUL® proportioners and foam concentrates
- 175 psi (12.1 bar) maximum allowable working pressure (design pressure)
- Nominal capacities up to 2,000 gallons with larger tanks available on special request
- Tanks up to 800 gallons meet the requirements for Seismic Zone 4 earthquake resistant design
- Available with brass or 316 stainless steel trim piping and valves
- Options for grooved, NPT, and flanged connections
- Choice of Standard or Corrosion-Resistant Epoxy exterior paint, available in a variety of colors
- Optional sight gauge and thermal pressure relief valves available

2. Application

The ANSUL Bladder Tank is one component of a balanced pressure proportioning system. ANSUL Bladder Tanks require only a pressurized water supply for operation. No other external power is required. They can be used with one or more ANSUL proportioners and any suitable discharge device to create a complete the foam system. ANSUL Bladder Tanks can be used with most ANSUL foam concentrates.

ANSUL bladder tanks have numerous applications including aircraft hangars, foam-water sprinkler systems, truck loading racks,
and helipads.

3. General Description

The ANSUL bladder tank is a steel pressure vessel, which stores a foam concentrate within an elastomeric bladder. The concentrate is discharged from the tank by incoming water applying pressure to the bladder. This applied energy is transferred to the concentrate, supplying pressurized concentrate to the proportioner (Proportioners are separate items described on a separate data sheet).

Trim Piping Connections

ANSUL bladder tanks are available in vertical models up to 2,000 gallons. All models feature top discharge foam concentrate connections and the option to pipe using either grooved or NPT threaded connections. Adapters for flanged connections are available separately. Trim piping is available in brass or stainless steel. All valves are clearly identified by permanently attached nameplates and can be secured in position with included ring pins and tamper seals.

Protective Cotings

All ANSUL bladder tanks feature a high-build epoxy internal coating. Exterior paint is available in two grades: Standard and Corrosion-Resistant Epoxy (Epoxy CR). Paint systems used on ANSUL bladder tanks have been subjected to and passed salt spray corrosion testing per ASTM B117-90. Standard paint has been tested to a minimum of 240 hours in accordance with UL 162, UL Subject 139, and FM 5130. Epoxy CR paint has been tested to a minimum of 3,000 hours and is suitable for marine and offshore use.

Support and Mounting

Vertical tanks are supported on four legs with foot plates and slotted holes for mounting. Refer to dimensional drawings for mounting hole spacing.

Each tank is fitted with two lifting lugs designed to lift the empty weight of the tank with a minimum safety factory of 2 when utilizing appropriate slings rigged at a lifting angle of not less than 30 degrees from horizontal. All lifting lugs have a minimum clear hole size of 2 in. (50 mm).

Internal Components

ANSUL bladder tanks contain an elastomeric bladder that has been approved for use by Underwriter's Laboratory and FM Approvals for use with ANSUL foam concentrates. All ANSUL bladder tanks utilize a center tube(s) to facilitate agent

discharge. Center tubes are constructed of materials compatible with ANSUL foam concentrates. Vertical tanks utilize a single center tube.

Sight gauge

A sight gauge is available as an optional accessory for ANSUL bladder tanks for estimation of the fill level in the tank. The sight gauge is equipped with a clear 1 in. PVC tube. The sight gauge is shipped as a loose item and must be assembled on the tank during installation.

Thermal Relief Valve

A thermal relief valve is available as an option for ANSUL bladder tanks. A thermal relief valve should be used when the bladder tank will be stored in an isolated/hydraulically locked condition in order to relieve pressure due to thermal expansion. This valve is factory set to 175 psi (12.1 bar) and it is recommended that the design pressure of the system be maintained at least 5 psi (0.34 bar) or 10% below the set pressure of the valve to avoid seat leakage and early valve maintenance. This valve is NOT a substitute for a properly sized ASME pressure relief valve to protect the entire system from overpressure.

ASME Information

The ANSUL Vertical Bladder Tank is designed and constructed in accordance with the latest revisions to ASME Code Section VIII, Division 1 for unfired pressure vessels with a maximum allowable working pressure (MAWP) of 175 psi (12.1 bar) and tested to the pressure specified by the applicable codes and standards. Tanks designed to ASME code are tested to at least 230 psi (15.9 bar). CE marked tanks are tested to at least 255 psi (17.6 bar). All ANSUL bladder tanks are constructed of steel complying with ASME specifications. Tank heads are 2:1 elliptical unless otherwise specified. All ANSUL bladder tanks include a permanently affixed stainless steel ASME data plate. At a minimum, the data plate includes the following information: year of manufacture, maximum allowable working pressure (MAWP), nominal volume, part number, National Board number, minimum material thickness, minimum design metal temperature (MDMT), and type of head used.

4. Approvals and Certifications

- ANSUL bladder tanks are UL Listed and FM Approved for use with various ANSUL foam concentrates and proportioners. The UL mark and FM Approval diamond are applied at the factory along with a label identifying the ANSUL foam concentrate for use in the tank.
- Every tank bears a permanently affixed ASME data plate showing the National Board number which identifies the tank as compliant with ASME code Section VIII, Division 1 for unfired pressure vessels.
- ANSUL bladder tanks 200 gal (757 L) and larger are CE marked in conformance with the European Pressure Equipment Directive, 2014/68/EU. Under European Pressure Equipment Directive 2014/68/EU, tanks smaller than 200 gallons are acceptable based on sound engineering practices of ASME code and cannot be CE marked.
- ANSUL bladder tanks up to 800 gal (3,028 L) meet the minimum requirements for Seismic Zone 4 Earthquake Resistant Design as calculated according to the 1997 Uniform Building Code.
- **CNBOP National Certificate of Constancy of Performance No. 063-UWB-0513**
- **National Technical Assessment CNBOP-PIB-KOT-2023/0372-1005 rev. 2**
- **National Declaration of Performance**

CNBOP-PIB

LISTED

FM APPROVED

5. Operation and Maintenance

Refer to the ANSUL Horizontal and Vertical Bladder Tank Operation and Maintenance Manual for detailed procedures on installation, operation, inspection, and maintenance. A printed copy of this manual is included with every tank.

6. Valve Position Information

Valve Description		Normal Valve Position	
Valve * No.	Description	Manual system	Automatic system
1	Manual Foam Concentrate Shutoff (not shown)	N.C.**	N.O. ***
2	Water Supply Shut-Off (not shown)	N.C.	N.O.
3	Sight gauge Shut-Off (not shown)	N.C.	N.C.
4	Tank shell vent valve	N.C.	N.C.
5	Bladder vent valve	N.C.	N.C.
6	Tank shell drain valve	N.C.	N.C.
7	Bladder Drain / Fill Valve	M.C.	N.C.
8	Automatic Foam Concentrate Isolation (not shown)	-	N.C.
9	Isolation valve	N.C.	N.C.

* Reference Figure 1 for Valve location
** N.C. – Normaly Closed
*** N.O. – Normaly Open

In this arrangment, valves listed as (not shown) are either supplied as loose item or supplied others.

7. Ordering Information

Please specify as part of your order:

- Part No. for required bladder tank size and orientation (see Ordering Part Numbers Table)
- Foam concentrate type to be used
- One option from each of the following categories:

Exterior paint	Option 1: Standard Option 2: CR Epoxy
Exterior paint color[3]	Option 1: RED (RAL 3000) Option 2: Blue (RAL 5019) Option 3: Yellow (RAL 1021) Option 4: Other*
Trim Piping / Valve Material	Option 1: Brass Piping/Brass Valves Option 2: 136 SS Piping/SS Valves
Sight gauge	Option 1: Sight gauge included Option 2: No sight gauge
Thermal Relief Valve[5]	Option 1: No thermal relief Valve Option 2: Thermal relief Valve included
Packing	Option 1: Domestic packaging Option 2: Export Crating

Ordering Notes::

1. Tanks will be marked as UL Listed and/or FM Approved based on the foam concentrate type specified. If foam concentrate type is not specified, the tank will not be marked as UL Listed or FM Approved.
2. If an option is not specified from a category, Option 1 will be used as the default.
3. UL Listing of paint systems is color-specific. The Red, Blue and Yellow color shade options shown above are UL Listed. Contact TFPP Technical Services to determine if other color shades are UL Listed.
4. If “Other” is selected, the specific paint shade required must be supplied. Availability of the paint shade selected may impact lead time.
5. Set pressure is 175 psi (12.1 bar). Set pressure cannot exceed the design pressure of the tank per ASME code.

Expediting Service

Selected sizes of ANSUL bladder tanks, including most of the standard options listed above, are available for optional expediting service. These tanks can be shipped in two weeks or less after order confirmation. See the Ordering Part Numbers Table for the specific sizes eligible for this service. Note: Expedited tanks are only available in RAL 3001 Red. Contact FOAMAX for additional information and limitations on this service

Ordering Part Numbers Table:

Nominal capacity [liters]	Part No..	Expediting Available
189	444067	✓
379	444068	✓
568	444069	✓
757	444070	
1136	444071	✓
1514	444072	
1893	444073	✓
2271	444074	
2650	444075	
3028	444076	
3407	444077	
3785	444078	
4542	444079	
5300	444080	
6057	444081	
6814	444082	
7571	444083	

8. Dimension Information (reference figure 1)

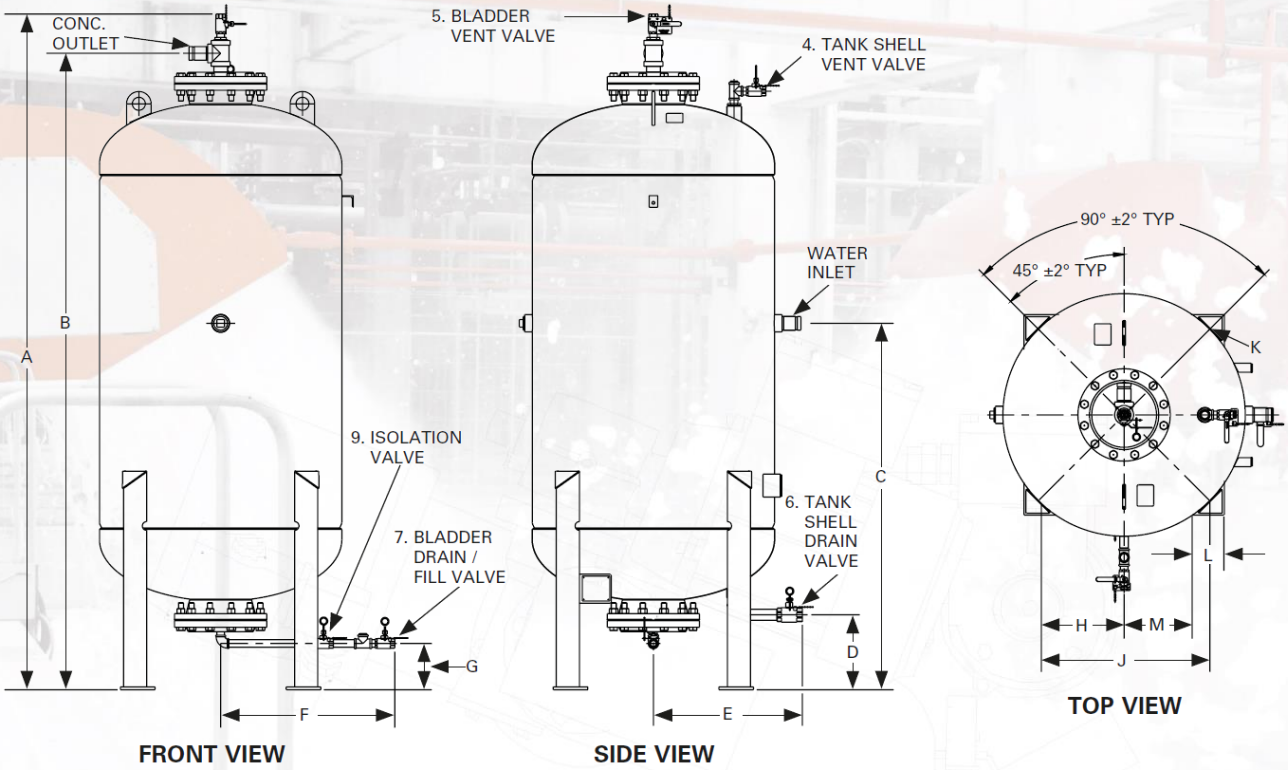

FIGURE 1

Dimensions [mm]															Connections		Weight
Part Number	Model [Litr]	Ø [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	J [mm]	K [mm]	L [mm]	M [mm]	Water	Foam	[kg]
444067	189	610	1657	1480	984	234	381	540	216	213	422	19x32	76	175	2	2	208
444068	379	610	2419	2248	1416	234	381	540	216	213	422	19x32	76	175	2	2	261
444069	568	762	2394	2223	1613	298	514	616	210	270	538	19x32	102	219	2	2	347
444070	757	762	2889	2724	1613	298	533	616	210	270	538	19x32	102	219	2	2	396
444071	1136	1067	2464	2292	1613	330	654	768	203	365	730	19x32	152	289	2	2	639
444072	1514	1067	2972	2800	1613	330	654	768	203	365	730	19x32	152	289	2	2	748
444073	1893	1219	2946	2750	1613	318	730	845	203	421	840	25x32	152	344	3	3	880
444074	2271	1219	3302	3131	1613	318	730	845	203	421	840	25x32	152	344	3	3	973
444075	2650	1219	3702	3505	1613	318	730	845	203	421	840	25x32	152	344	3	3	1066
444076	3028	1219	4108	39187	1613	318	730	845	203	421	840	25x32	152	344	3	3	1173
444077	3407	1524	3308	3112	1778	311	883	997	203	538	1078	25x32	152	462	3	3	1314
444078	3785	1524	3556	3359	1778	311	883	997	203	538	1078	25x32	152	462	3	3	1405
444079	4542	1524	3918	3721	1778	311	883	997	203	538	1078	25x32	152	462	3	3	1539
444080	5300	1524	4401	4204	1778	311	883	997	203	538	1078	25x32	152	462	3	3	1728
444081	6057	1854	3677	3480	1778	292	1048	1162	203	538	1305	25x32	152	576	3	3	2178
444082	6814	1854	3981	3791	1778	292	1048	1162	203	652	1305	25x32	152	576	3	3	2361
444083	7571	1854	4445	4255	1778	292	1048	1162	203	652	1305	25x32	152	576	3	3	2644

Dimension and Installation Notes:

1. Dimensions listed are approximate and subject to change without notice.
2. Foam Concentrate Discharge Pipe
 – Tank sizes 100 gal to 400 gal (379 L to 1,514 L): 2 in. Female NPT or Grooved
 – Tank sizes 500 gal to 2,000 gal (1,893 L to 7,571 L): 3 in. Female NPT or Grooved
3. Water Inlet Pipe
 – Tank sizes 100 gal to 400 gal (379 L to 1,514 L): 2 in. Female NPT or Grooved
 – Tank sizes 500 gal to 3,000 gal (1,893 L to 7,571 L): 3 in. Female NPT or Grooved
4. Rooms or buildings intended to house a bladder tank should have accommodations for the removal of the internal center tube(s). Center tubes are approximately the full height and width of the bladder tank