

Features

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Notice to users

Fomtec certifies and guarantees (with a testing certificate) that all separation bladders have been subjected to a pneumatic test before and after inserting them in the tank. Fomtec guarantees the bladder for one year starting from the delivery date.

Fomtec guarantees the bladder against tearing or bursting only and exclusively if the filling operation is performed by Fomtec, or by personnel authorized by the company, who will validate the certificate of guarantee.

Seepage caused by micro porosities which produce a dilution of less than 10% water in the concentrate do not compromise the quality of the foam since they are within the mixing tolerance.

Once filling has been completed, and in any case before putting the unit into service, the functionality of the bladder tank must be tested through one or more branch-offs (Ø 1½" or Ø 2½") according to the minimum testing flow-rate. This flow-rate must not be lower than the one printed on the Fomtec data plate fixed to the tank.

Functional testing can be performed by the user, who must send us by fax a statement indicating the result of the test and the resulting percentage of mixing.

Important

The above described branch-offs must be provided along the line, downstream of the bladder tank, at a distance of not less than 7 times the diameter of the mixer.

Storage of unit: preferably, the unit should be stored in a sheltered area. The warehousing temperature range is: +5/+30°C; in case of open-air storage, with temperatures above 30° C, water must be introduced as follows: an amount equal to 20% of the capacity inside the bladder and an amount equal to 80% of the capacity outside the bladder. This must be done to avoid overheating (and therefore damage) of the bladder in its regions which make contact with the wall of the tank.

In case of operation at temperature less than 0°C, is necessary to mix glycol (or other anti-freeze liquid) in the compensation water, to avoid serious damages.

Do not perform welding on the tank body, otherwise the impermeable bladder inside will be damaged.

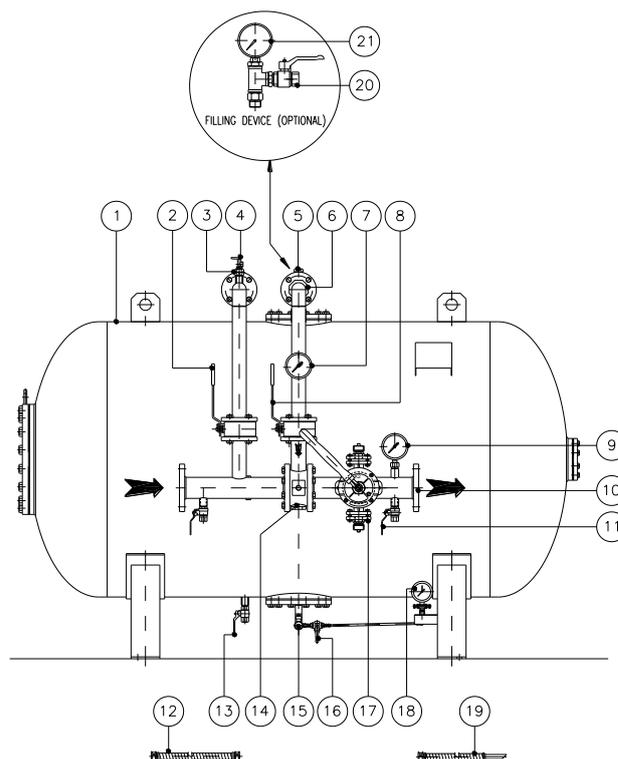
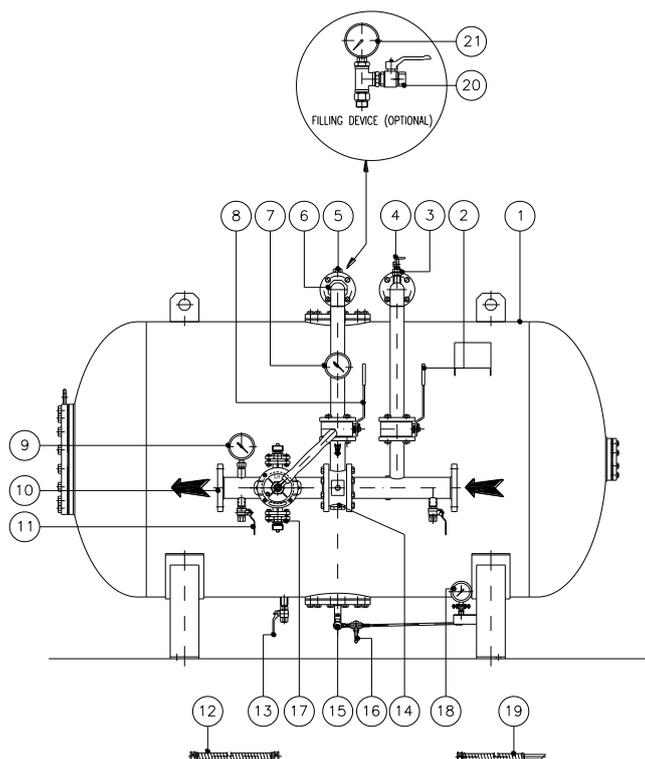
We strongly recommend that you carefully read and strictly follow the instructions given in the manual.

Consult always the toxicology form of foam concentrate provided by constructor.

WARNING:

The bladder, made in synthetic material having gummy consistency, needs to settle down his self during the tank starting, owing to the environmental conditions (temperature, vibrations, etc.); to avoid some little blow-by in the correspondence of the flanges, repeat again the bolts lock (with dynamometrical key : such as paragraph "E"). In the same time, for the foam treading see carefully the procedure showing in this manual.

General layout



1. TANK
2. WATER CUT-OFF VALVE
3. WATER VENT VALVE (AUTOMATIC)
4. SAFETY VALVE
5. CONCENTRATE VENT VALVE (AUTOMATIC)
6. CHECK VALVE
7. TANK PRESSURE GAUGE
8. CONCENTRATE CUT-OFF VALVE
9. LINE PRESSURE GAUGE
10. PROPORTIONER PIPE
11. PROPORTIONER DRAIN VALVE

12. FLEXIBLE HOSE (DELIVERY)
13. WATER FILLING/DRAIN VALVE
14. PROPORTIONER TYPE GB / WRP
15. CONCENTRATE FILLING / DRAIN VALVE
16. LEVEL INDICATOR DRAIN VALVE
17. FILLING PUMP
18. CONCENTRATE LEVEL INDICATOR
19. FLEXIBLE HOSE (PICK-UP)
20. FILLING VENT VALVE
21. FILLING PRESSURE GAUGE (scale $1 \div 10$ kPa)

Operation of Unit

The Ymer unit comprises a steel tank for storing the liquid concentrate and a mixer which allows to mix the liquid with water in the chosen percentage.

A bladder is installed inside the tank. During the operation of the unit, this bladder transfers the pressure of the water that enters in the tank to the concentrate, causing the concentrate to flow out. The liquid concentrate, after passing through a calibrated diaphragm which determines its percentage, is injected into the mixer, where it mixes with the water.

WARNING:

We suggest to pipe conveyor al drain connection to special discharge.

The technical data are indicate on name plate welded on tank shall.

Before operating take out all the plastic (or metal) caps used as threads protection during equipment transport.

Filling instructions

To make this operation, is necessary to have got at disposal:

- a) the filling device (fig a.1) (OPTIONAL)
- b) n° 1 appropriate hose Ø1"; (pick-up)
- c) n° 1 appropriate hose Ø1"; (delivery)
- d) n° 1 concentrate / water manual or electric pump (in this case the pump flow don't exceed the 100 liters/min.
- e) an air compressor or a compressed air plant.

Strictly follow the instructions when loading the liquid concentrate. This avoids damage to the bladder or to other parts of the unit.

1. Close valve (16) as shown in figure a.3, so to exclude connection between tank and instrument.
2. Assemble the filling device valve removing the valve (5) as shown in fig. a.1.
3. Closed the valves (2) and (8), open the valves (13) and (3) to drain the water (if there is) in the bladder tank. After this operation, the condition of the tank and the arrangement of the bladder are shown in figure a.2.

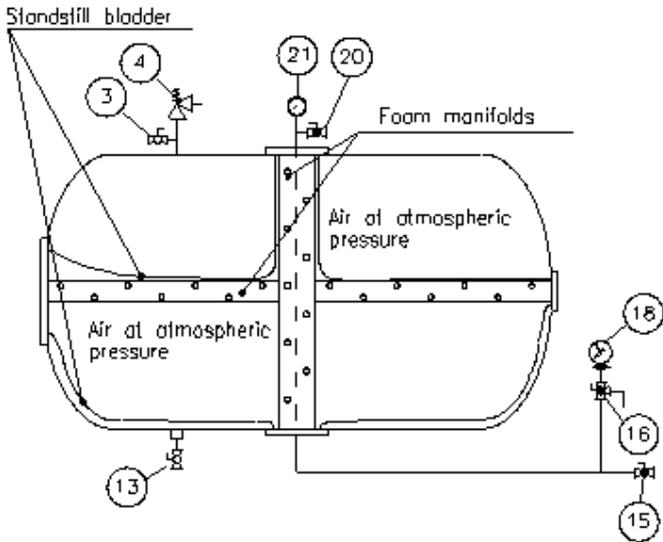


Figure a.2

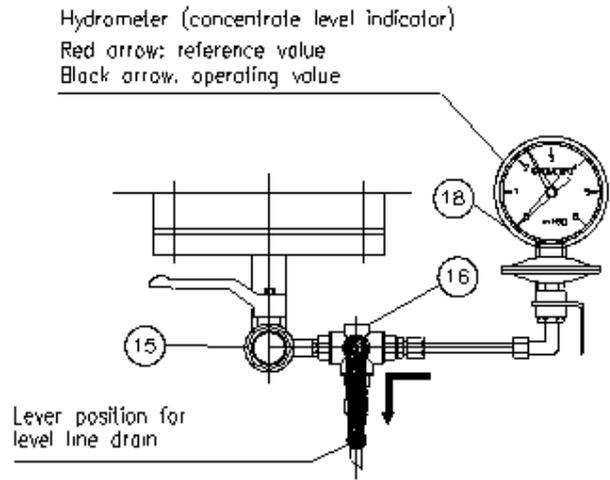


Figure a.3

4. Close the valve (13), and open the valve (15).
5. Connect the air compressor or compressed air plant to the valve (15) and inject air into the tank so as to reach a maximum pressure of 1 kPa (check the pressure by the pressure gauge (21), figure a.4).

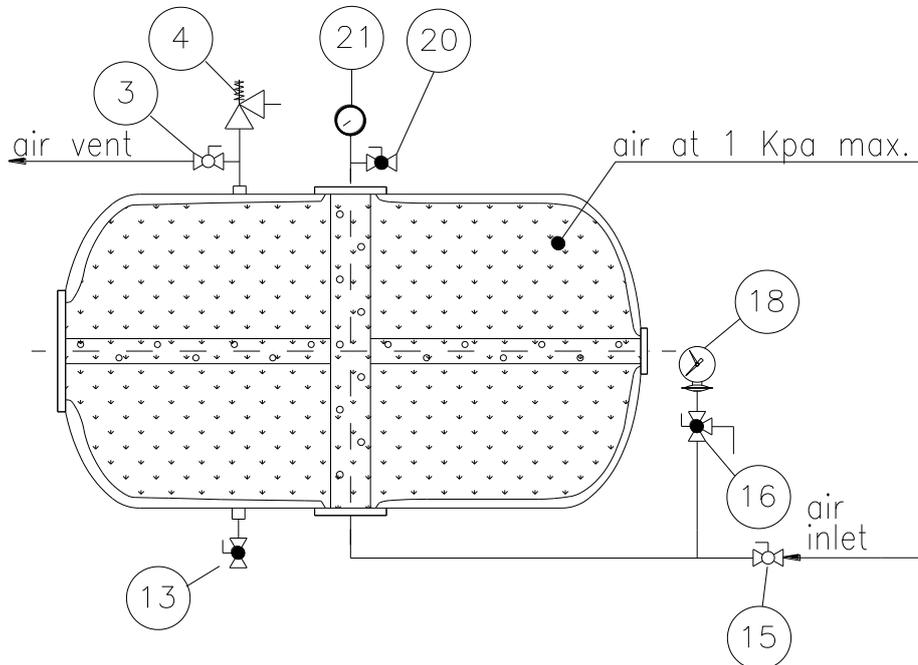


Figure a.4

6. Close valve (15) and disconnect the air compressor.
7. Open valve (13), connect it to the pump by the hose, open partially the valve (20) and slowly pump water into the tank, venting the air through the valves (3) and (20) in such a way to maintain always a pressure of maximum 1kPa checking the pressure gauge (21); stop when the water fed into the tank is approximately 10% of the total capacity of the tank (figure a.5).

Caution: in case of partial filling, it's necessary to introduce water in a quantity equal to the difference between the total capacity of the bladder tank and the quantity of concentrate that will fill plus 10% of the total capacity of the bladder tank.

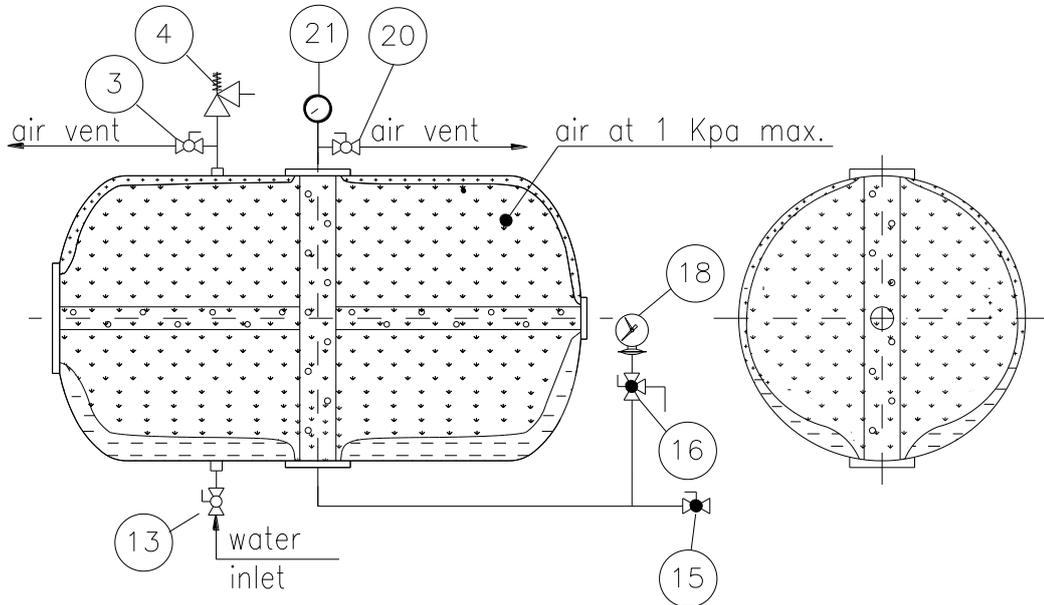


Figure a.5

8. Close the valve (13) and disconnect the pump.
9. Connect the pump to the filling valve (15) by the appropriate hose.
10. Connect the pickup tube to the filling pump and dip it in the concentrate drum.
11. Open the valve (15) and pump the liquid into the tank, always making sure that the pressure is discharged through the valve (20) so as to maintain a maximum pressure of 1 kPa checking the pressure gauge (21) (figure a.6, a.7).

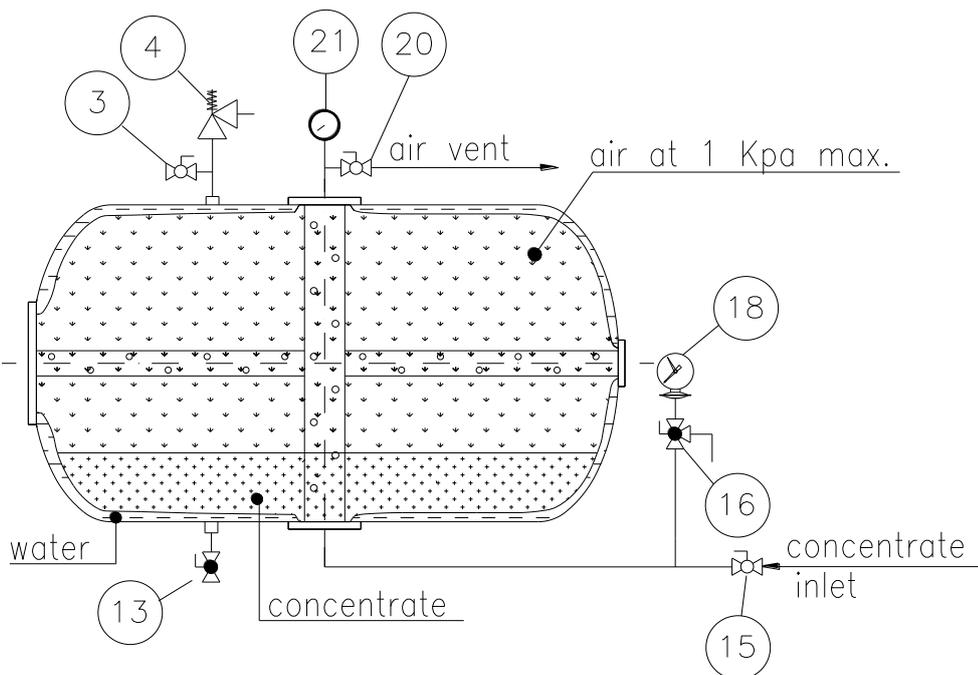


Figure a.6

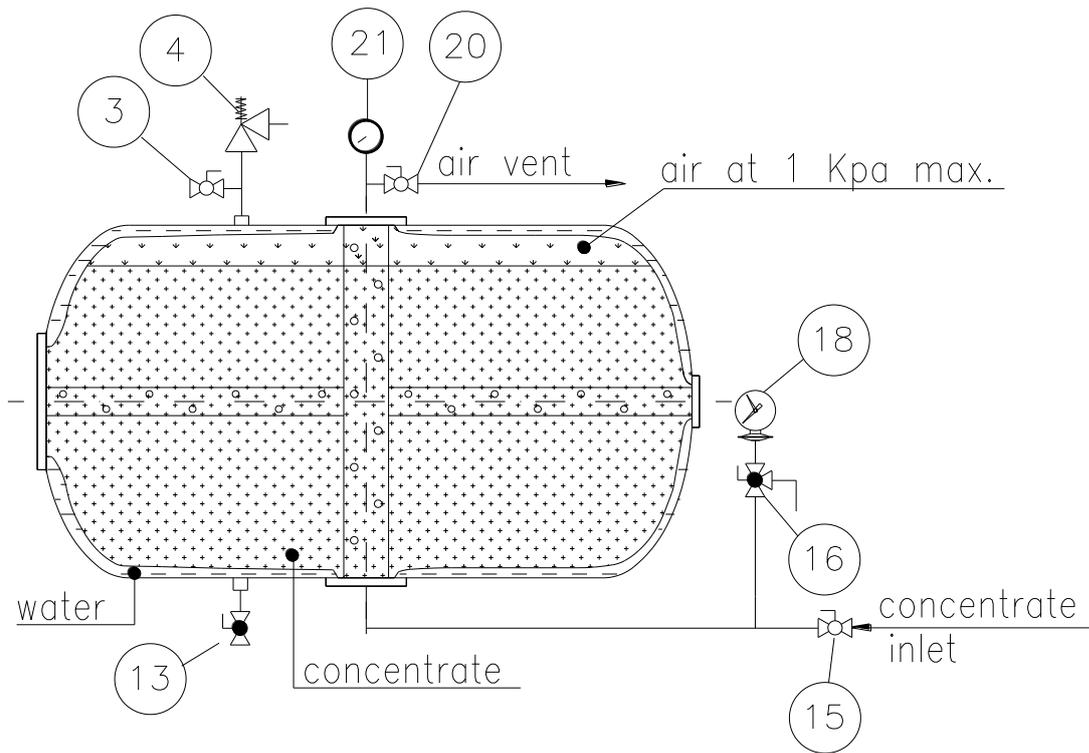


Figure a.7

12. In case of partial filling: (see fig. a.8) stop filling when the correct quantity of concentrate has been introduced always making sure that the pressure is less than 1 kPa at pressure gauge (21).
13. Connect the pump supply hose at valve (13), open it and slowly filling water, until the concentrate outlet trough the vent valve (20) and the water to the valve (3), close the valves (3) and (20).

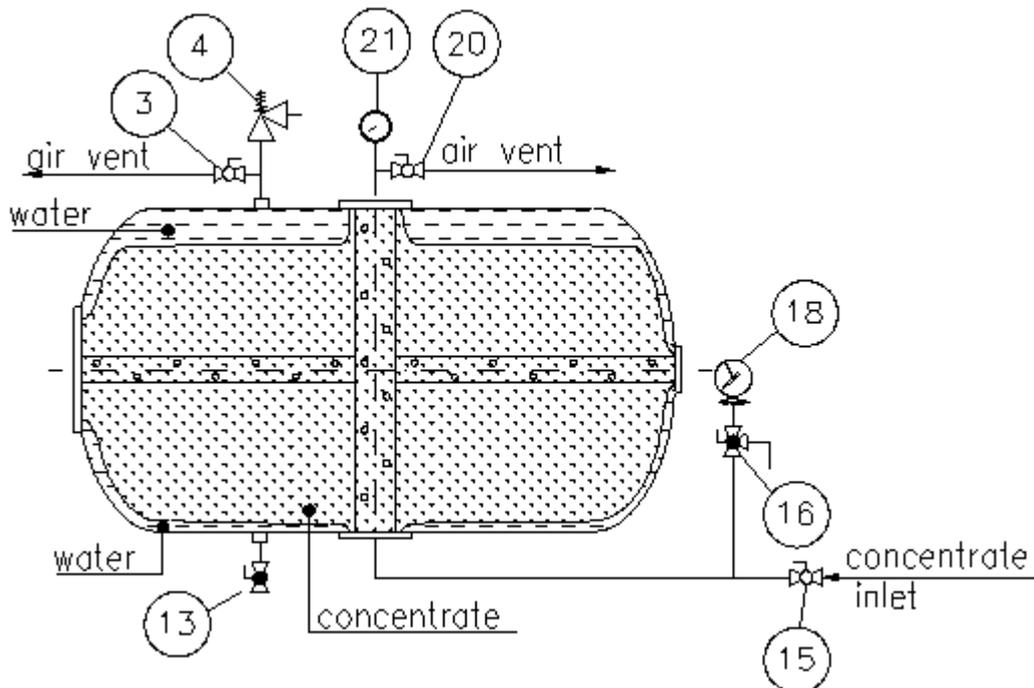


Figure a.8

14. In case of total capacity filling (see fig. a.9): continue pump the concentrate into the tank until the water is discharged through the valve (3) and the concentrate is discharged through the valve (20), always making sure that the pressure is less than 1 kPa. At this moment, close the valve (20) and slowly continue filling, discharge the water trough the valve (3) until the concentrate pressure reach the max value of 1 kPa.

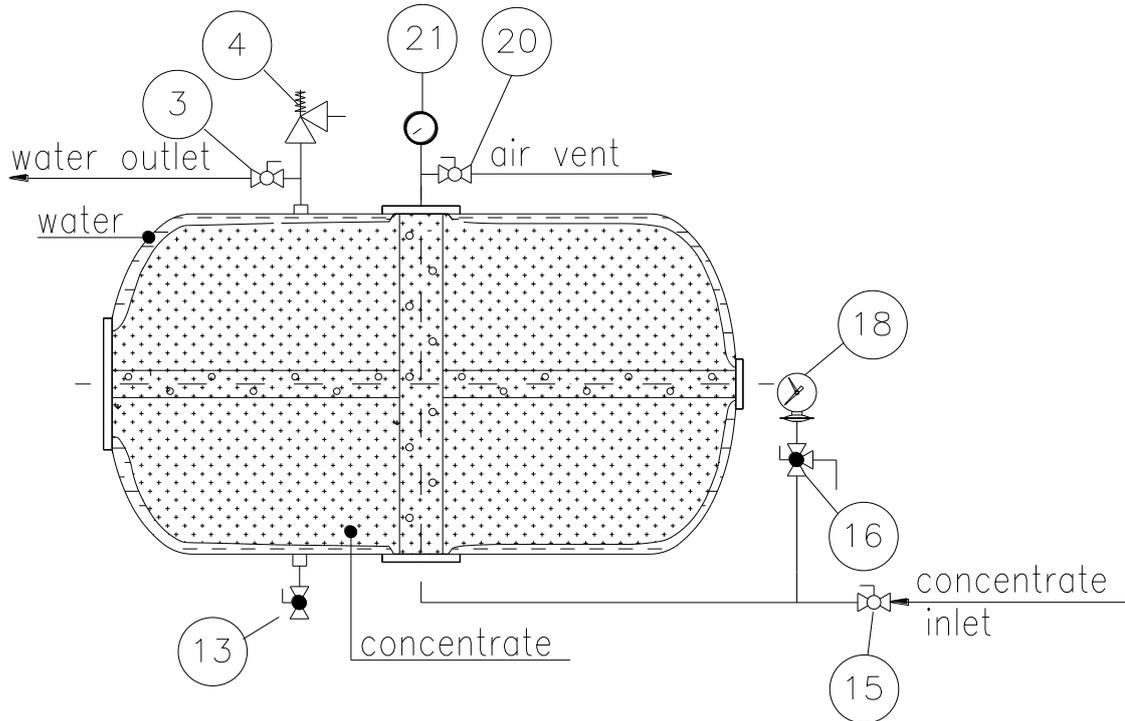


Figure a.9

15. Close the filling valve (15), and the vent valve (3). Disconnect the hose, the pick up tube and clean them.
16. Disassembly the filling device and replace it with the automatic vent valve (5), at this point, the unit is ready. (figure a.10)

WARNING: Open the cut-off valves (2) and (8); only if the equipment is always connect to the fire plant to made it's operative.

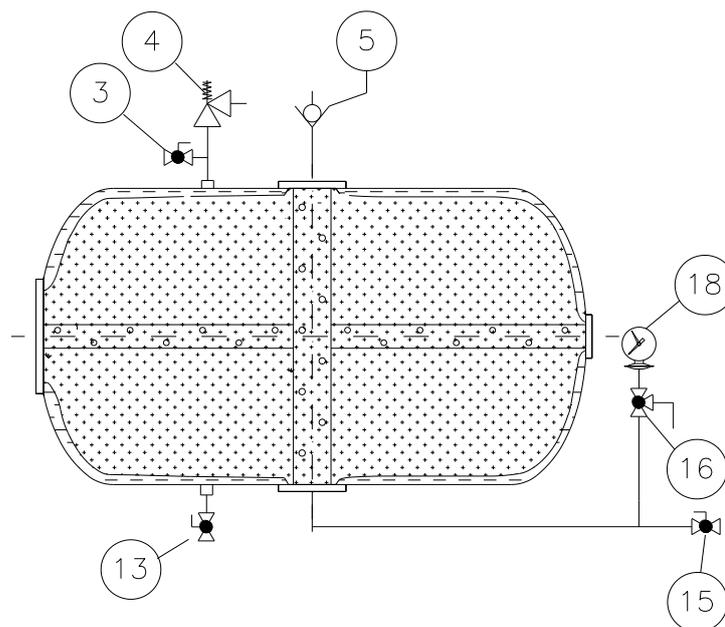


Figure a.10

17. To check the concentrate level, operate as follow:

- a. Close the water cut-off valve (2) and the concentrate cut-off valve (8) (figure a.1);
- b. Drain totally the water open the valve (13) and (3);
- c. Close the water drain valves (13) and (3), open the level indicator three ways valve (16) as shown in (figure a.11);
- d. The concentrate level is indicated on Hydrometer (18);
- e. After that, close the three ways valve (16) as indicated in figure a.12 allowing to drain the remained concentrate in the instrument pipe.

Hydrometer (concentrate level indicator)
 Red arrow: reference value
 Black arrow: operating value

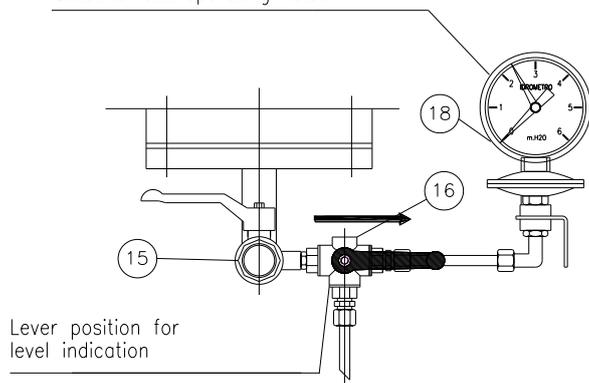


Figure a.11

Hydrometer (concentrate level indicator)
 Red arrow: reference value
 Black arrow: operating value

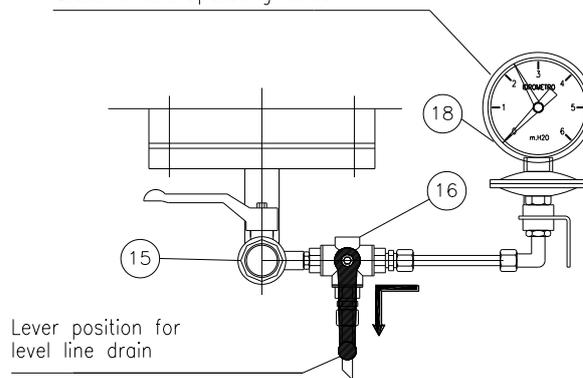


Figure a.12

PERIODIC MAINTENANCE

- MONTHLY OR AFTER EVERY EMERGENCY ACTIVATION; check the integrity of the bladder by opening the water drain valve (13); an abundant presence of concentrate means that the bladder is perforated and must be replaced.
- Do not perform welding on the tank body, otherwise the impermeable bladder inside will be damaged

Bladder replacement

BLADDER REMOVAL

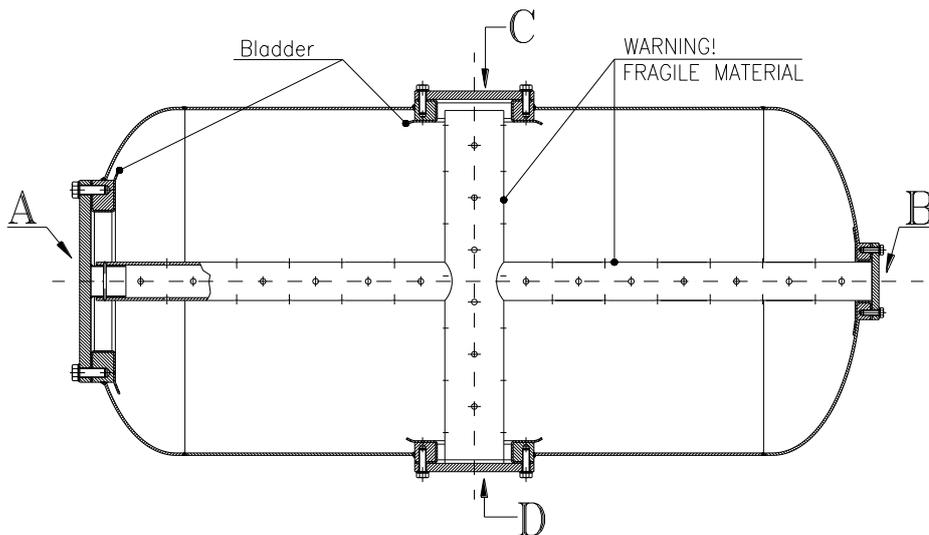
1. Close the cut-off valves (2) (8).
2. Open the foam and water drain valves (15) and (13) to drain totally the tank.
3. Unscrew the tightening bolt from flange pos. "A" and remove it.
4. Unscrew the tightening bolt from flange pos. "B" and remove it.
5. Unscrew the tightening bolt from flange pos. "C" and remove it.
6. Unscrew the tightening bolt from flange pos. "D" and remove it.
7. Remove the distribution pipes from pos. "A".
8. Remove the distribution pipes from pos. "C".
9. Put fix collar of the bladder from pos. "D" inside of the tank.
10. Put fix collar of the bladder from pos. "B" inside of the tank
11. Put fix collar of the bladder from pos. "C" inside of the tank
12. Extract from pos. "A" the bladder.
13. Accurate wash the inside of the tank.

WARNING:

All the operation must be execute to skilled workman, to don't have unpleasant accidents, owing to the inexpertly contact with the foam.

BLADDER INSERT

1. Drill all the fix collar of the bladder. (see the dimension of the ingot pos."A", "B", "C" "D")
2. Insert all the bladder from pos. "A", make sure that in this step the bladder don't undergo phase displacement to avoid kink that make wreck in filling phase or working phase (is necessary deploy the bladder and mark the drill axes with a pencil).
3. Pull out the fix collar of the bladder from pos. "B".
4. Pull out the fix collar of the bladder from pos. "C"
5. Pull out the fix collar of the bladder from pos. "D"
6. Pull out the fix collar of the bladder from pos. "A".
7. Reassemble first the lower flange pos."D" with only 1° bolt (don't lock it).
8. Insert the pick-up tube (bigger) from upper (pos. "C"), center to the lower flange (pos. "D").
9. Insert the pick-up tube (smaller) from left to right, from pos. "A" in the center of vertical pick-up tube and then, in the center of the ingot pos. "B".
10. Reassemble the flange pos. "B" make sure to lock the bolt with a dynamometrical key charge whit the value of figure a.13 (normally all the bolt must be lock at cross with a progressive up force on the key at every turn).



Flange $\varnothing 16''$ (bolts M27)	charge at: 18 Kgm
Flange $\varnothing 8''$ (bolts M20)	charge at: 13 Kgm
Flange $\varnothing 4''$ (bolts M16)	charge at: 8 Kgm

NOTE: LOCK AT CROSS WITH
DYNAMOMETRICAL KEY

Figure a.13

11. Reassemble the flange pos. "C" make sure to lock the bolt with a dynamometrical key charge whit the value of figure a.13 (normally all the bolt must be lock at cross with a progressive up force on the key at every turn).
12. Reassemble and lock the bolt of flange pos. "D", make sure to lock the bolt with a dynamometrical key charge whit the value of figure a.13 (normally all the bolt must be lock at cross with a progressive up force on the key at every turn).
13. Fix the pick-up tube with rod iron, than reassemble and lock the bolt of flange pos. "A", make sure to lock the bolt with a dynamometrical key charge whit the value of figure a.13 (normally all the bolt must be lock at cross with a progressive up force on the key at every turn).
14. Reassemble the pipes
15. Restore the proportioner as start state.

WARNING:

The bladder, made in synthetic material having gummy consistency, needs to settle down his self during the tank starting, owing to the environmental conditions (temperature, vibrations, etc.); to avoid some little blow-by in the correspondence of the flanges, repeat again the bolts lock (with dynamometrical key : such as point 4). In the same time, for the foam treading see carefully the procedure showing in this manual.