

Salt Saturators



FORBES



PLASTICS TANKS AND
ENVIRONMENTAL TECHNOLOGIES

Salt Saturators

A CONTINUOUS SUPPLY OF SATURATED BRINE

Brine is necessary for many applications in the food and chemical industries and for water treatment. **Forbes salt saturators provide a constant, controllable supply of saturated brine solution.** They are fabricated on advanced, largely automatic, machinery using GRP materials fully approved to the stringent requirements of the Water Regulations Advisory Scheme (WRAS).

The saturator vessel contains layers of graded gravel on which rests a bed of salt covered by a constant head of water. The water dissolves the salt and, filtering through the gravel, emerges as clean, saturated brine in an automatic process needing only a water supply and refilling with salt from time to time.

The saturator accepts bulk deliveries of PVD salt, avoiding the need for separate storage of dry salt. If bagged deliveries are required for smaller capacity saturators, cones/hoppers and grids can be supplied.

Forbes standard range of salt saturators has been designed to incorporate additional wall height for an optimal operating water head pressure to give a high efficiency, constant feed without the necessity for pumping, and also allowing for the normal increase in the water level after a full recharge of salt. Custom-designed 'low head' models are available as dictated by customer's site limitations, but the implications for managing such units should be discussed with our technical sales staff.

The extensive range of sizes listed is further complimented by a new small range fabricated from natural or black pigmented polypropylene materials with capacities of 100, 300, 550 and 1800 kilogrammes. These small units are designed for manual recharge with 25kg bags of PVD salt.

All units are built from corrosion free materials and can be sited outdoors where it is most convenient for delivery vehicles. Maintenance is limited to checking the operation of the water level control system, visual monitoring of the salt stock level through a translucent strip (GRP and natural PP models) and very occasional thorough cleaning. All steel parts, including nuts, bolts and washers are protected from corrosion by hot dip galvanising. The water inlet control float valve is housed within a protective chamber to avoid obstruction by salt & allow easy removal for maintenance.

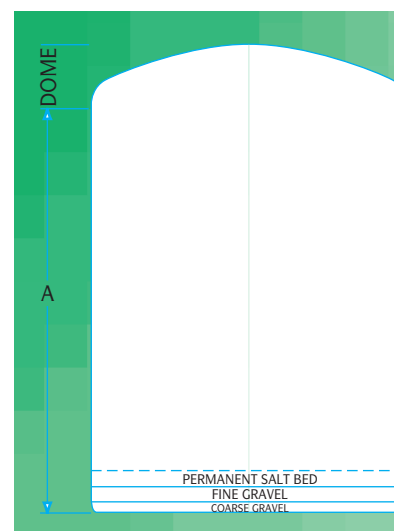
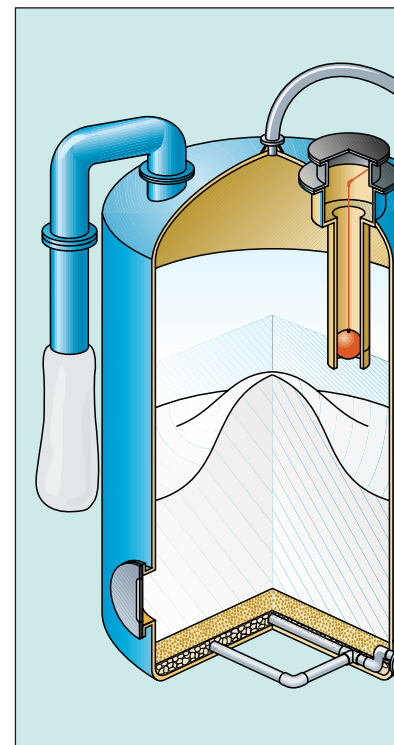
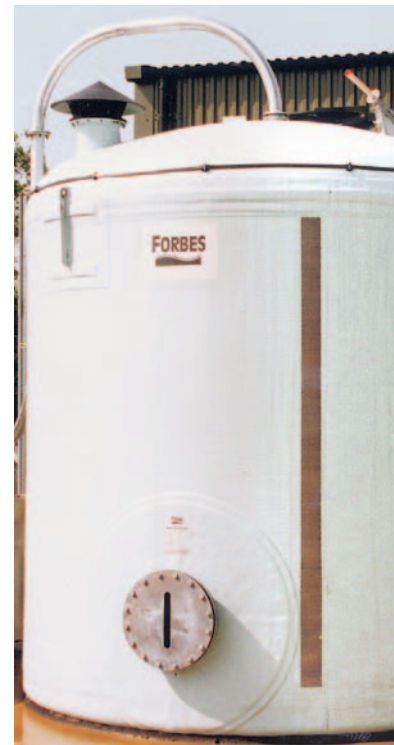
Salt Dust Control

Forbes salt saturators can be supplied with a simple cowled air vent only, however in most cases, we recommend that some form of dust control should be considered.

For an outdoor installation, the dust expelled during deliveries may present no hazard or nuisance, alternatively, a salt dust arrestor vessel can be used. This will trap much of the dust expelled during a high volume air discharge and may be acceptable if a moderate escape of dust can be tolerated.

When located indoors, a pair of filter socks or bag filters mounted in a branched configuration at the end of the vent pipe will reduce the dust emissions. These filter socks must be kept dry at all times, cleaned of salt and stored in a dry place between deliveries.

For the highest level of protection, a mechanical filter unit should be considered.



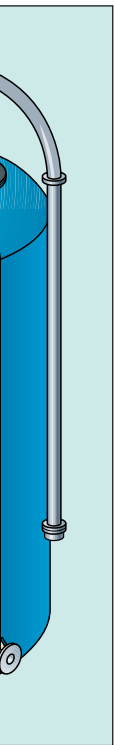


STANDARD FEATURES INCLUDE:

- Side access manway • Top access manway
- Salt inlet flange with aluminium fill pipe and tanker connection • Brine outlet with internal collector pipe system • Water inlet with ball float valve • Air vent with weather cowl
- Visual salt level indication • Flange for overflow
- Lifting lugs • Two layer gravel bed

OPTIONS INCLUDE:

- Dust control • Level alarm
- Overflow pipework • Access steelwork
- Installation



	2.4 SERIES	3.0 SERIES	3.5 SERIES	4.0 SERIES
Nominal internal diameter (mm)	2400	3050	3500	4100
Nominal dome height (mm)	600	600	700	800
12-20mm gravel (tonnes)	0.6	1.0	1.3	1.8
3-6mm gravel (tonnes)	1.2	2.0	2.6	3.6
Continuous output (litres/hr)	2400	3700	4900	6800
Short term high demand (litres/hr)	3500	5500	7200	9500

2.4 Series

3.0 Series

3.5 Series

4.0 Series

MODEL NUMBER	MAXIMUM SALT CAPACITY	SALT RECHARGE	MAXIMUM BEFORE RECHARGE	NOMINAL HEIGHT 'A'(mm)
7/5	7	5	2	2100
8/6	8	6	2	2400
10/8	10	8	2	3000
12/10	12	10	2	3600
15/12	15	12	3	4500
18/15	18	15	3	5400
20/17	20	17	3	6000
10/7	10	7	3	2000
17/14	17	14	3	3250
21/18	21	18	3	4000
23/18	23	18	5	4250
25/20	25	20	5	4600
27/20	27	20	7	4850
30/20	30	20	10	5200
38/28	38	28	10	6600
40/28	40	28	12	6750
30/20	30	20	10	4200
40/30	40	30	10	5050
50/40	50	40	10	5900
60/50	60	50	10	6800
70/60	70	60	10	7650
80/70	80	70	10	8500
90/80	90	80	10	9400
100/90	100	90	10	10250
40/30	40	30	10	3900
50/40	50	40	10	4550
60/50	60	50	10	5200
70/60	70	60	10	5800
80/70	80	70	10	6450
90/80	90	80	10	7050
100/90	100	90	10	7700
110/100	110	100	10	8300
120/110	120	110	10	8950
130/120	130	120	10	9600
140/130	140	130	10	10200

ALL ABOVE IN TONNES



PLASTICS TANKS AND ENVIRONMENTAL TECHNOLOGIES

Operation Notes

A permanent bed of salt at least 150mm thick must be maintained to ensure that fully saturated brine is produced. This bed acts as an efficient filter removing dirt or dust which may have arrived with the water supply or from the atmosphere. If the permanent salt bed becomes very dirty - indicated by discoloured brine or reduced flow - the installation must be thoroughly cleaned.

The constant head pressure behind the brine discharge is created by a higher than normal water level in the saturator. Brine should not be pumped at a rate exceeding the nominal continuous output of the unit (see table) as 'tracking' may occur through the salt bed, allowing partially saturated brine to pass. If larger flow rates of brine are required, above the normal output of the saturator, a separate collection tank or 'break tank' should be employed. This allows the saturator to operate within its design parameters to produce a constant flow of saturated brine solution.

Deliveries

Road deliveries of PVD salt by air discharge through 4"NB pipe are most common. The pipework is normally NT3 or NT4 grade aluminium and, as corrosion can take place under wet conditions the pipes should be examined regularly. Plastic pipes are not recommended in view of the potential for static electricity build up.

Forbes saturators are normally provided with a fill pipe terminating, complete with tanker coupling, against its vertical wall to within 1.3 metres of ground level. If the standard fill pipe is not required, care should be taken in the design of the fill line and reference should be made to the salt supplier's recommendations regarding radius of bends and other considerations.

In determining the correct specification for your salt saturator it will be important to consider the bulk delivery quantities available from your supplier - commonly 7, 10, 14, 18, 22 or 24 tonnes.

Considerations When Specifying

- Salt usage, including predicted brine draw-off rate
- Available bulk delivery quantities from salt suppliers
- Location of saturator (indoors or outdoors)
- Vehicle access and salt fill line configuration
- Orientation of all nozzles
- Type of dust control

Important

Each Forbes Salt Saturator is provided as standard with a detailed manual including offloading and general handling instructions, installation and commissioning instructions and assembly drawings.

All tanks and salt saturators need a firm, flat and level concrete base.

Useful Data

- The density of PVD salt (either in air or submerged) is 1,200 kg per cubic metre - 75 lbs per cubic foot
- The specific gravity of saturated brine is 1.26
- Saturated brine at 20 degrees centigrade contains 26.45% salt by weight

PRODUCT RANGE

- ◆ Thermoplastics Tanks
- ◆ Tanks, Vessels & Fabrications
GRP/THERMOPLASTICS DUAL LAMINATES
- ◆ Tanks, Vessels & Silos
GRP COMPOSITES
- ◆ MINIBULK® Chemical Storage Systems
- ◆ Sectional Tanks
- ◆ Silos FOR SOLIDS & LIQUIDS
- ◆ Salt Saturators
- ◆ Pressure and Vacuum Vessels

- ◆ Fume and Odour Scrubbing Systems
- ◆ Vent Scrubbers
- ◆ CO₂ Degassers
- ◆ Stripping Towers
- ◆ Carbon Adsorption Units
- ◆ Bio Treatment Systems

- ◆ Ancillary Steelwork
- ◆ Skid Mounted Modules
- ◆ Turnkey Projects

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