



Pressure tanks are important components of pressurised booster supply systems where automatic pumped water supply is provided by means of pressure switch controlled pumps. The tanks have two functions; to cushion pressure surges as the pump starts and stops and also to provide a drainage supply into the system to control pump cycling.

VT pressure tanks have been specially designed for pressurised booster installations and are also suitable for fire fighting and irrigation systems. The design incorporates a replaceable butyl rubber membrane which offers the following features:-

- Suitable for all types, including corrosive and hard, waters as the water only comes into contact with the membrane.
- Membrane design eliminates the necessity for constant air recharging.
- Horizontally collapsing membranes (except KS model) avoids contact with tank sides and therefore increases life.
- Membrane is simply replaceable.
- Max Operating Pressure: 10Bar

VT pressure tanks are quality products approved by a number of international standards organizations. They are the ideal solution for all pressured water supply installations and if properly selected will provide many years of maintenance free operation.

## Pressure Tank Sizing Guide

Correct tank sizing is important and is determined by the system flow rate and pump start and stop pressure settings.

Sizing must be based upon the system flow at which the maximum cycle frequency occurs. As a rule of thumb this can be taken as 65% of the flow at pump stop pressure.

Required draining volume is then the maximum cycle frequency flow divided by twice the specified maximum number of cycles per hour. Generally 60 cycles per hour is considered acceptable. Tank size selected is then that nearest to the volume required. Drainage volume is as follows:-

Tank Pre-charge (Bar)	1.35	1.65	1.85	2.35	2.35	2.83	3.85	4.85			
Pump Start Pressure (Bar)	1.5	1.8	2.0	2.5	2.5	3.0	4.0	5.0			
Pump Stop Pressure (Bar)	2.5	3.0	3.5	4.0	4.5	4.5	6	7.5			
Drainage (%)	26	28	31	28	34	26	28	29			
Tank Model	Drainage Volume (Litres)								D	H	Weight
KS (24 Litres)	6	7	7	7	8	6	7	7	379	815	15
VT 60 (60 Litres)	15	17	19	17	21	16	17	17	450	910	20
VT 100 (100 Litres)	26	28	31	28	34	26	28	29	624	1373	53
VT 300 (300 Litres)	77	83	93	85	103	78	83	86	351	348	6

Note that when specifying pressure systems the following is important:

- Correct tank precharge is critical and must be 0.15 Bar below the pump start pressure. Efficiency is greatly reduced if precharge is either too high or too low.
- Ensure that the difference between start and stop pressure is as high as possible as the larger the differential the greater the tank drainage capacity.
- Ensure the pump start pressure is higher than the system static pressure or else the pump will not start.
- Adjust pump stop pressure to be about 90% of the pumps closed head pressure.

## Selection Example

System Parameters

Pump Stop Pressure = 4.5 Bar

Stop Flow = 11 m<sup>3</sup>/hr

Pump Start Pressure = 2.5 Bar

Start Flow = 16 m<sup>3</sup>/hr

System flow at maximum cycle frequency = 65% of Pump Stop Flow = 0.65x11 = 7.2m<sup>3</sup>/hr or 7200l/hr /Max Cycle frequency = 60cycles/hr therefore required drainage volume = 7200/60x2 = 60litres.

From table 100 litre tank has drainage volume of 34 litres at defined pressures. 300 litre tank has drainage volume of 103 litres at defined pressures, therefore select either 2x100litre tanks (68 litres drainage volume) or 1x300 litre tank (103 litres drainage volume).