TRIDENT
ULTRA
Diaphragm Tanks
WATER SYSTEMS
AN A. O. SMITH COMPANY
www.wstanks.com
Diaphragm Tanks

- Pre-pressurized Diaphragm Tanks
- For installation by Professional Dealers
- Lightweight drawn-steel construction
- 125 maximum working pressure

Features and Benefits

Protective Air Valve Cap with Seal
- Seals after installation
- Tamper-proof

Ultra-UV exterior Powder Coat
- Rated to automotive standards
- High gloss exterior finish

Pure Butyl Rubber Parabolic Diaphragm
- Strong and Flexible for smooth operation, long life
- FDA approved
- Prevents rubbing on the tank wall or rolling over on itself.

Positive-Lock Diaphragm Seal
- Seals Diaphragm directly to shell
- Insures permanent separation of air and water

Virgin Polypropylene Liner
- Proven protection against corrosion
- No water to metal contact

100% 304 Stainless Steel Water Connection
- Stainless steel acceptance collar and stainless steel elbow
- Assures no dissimilar metal ionization

Corrosion-Resistant Polymer Base
- High-impact corrosion-resistant material
- Strong and stable for long life
- Base rotates for easy alignment to pipe connection
- Slotted and notched for air flow, reduces condensation build-up
The charts below allow you to easily select the right Trident tank for standard size pumps between 5 and 30 gallons in capacity and for 20-40 PSI, 30-50 PSI and 40-60 PSI pressure ranges. Minimum run times shown (from start up) are 1 minute, 1-1/2 minutes and 2 minutes. Example: for a system that delivers 10 GPM at 30-50 PSI, with a minimum run time of 1-1/2 minutes, Chart 1 indicates that the proper tank is the TDU-45.

If proper tank selection cannot be made using Chart 1, follow this procedure: First, find the “drawdown” multiplier by matching the pump start-up and shut-off pressures on Chart 2. For example, the multiplier for a 30-50 PSI pressure range is .31. Next, insert the pump GPM capacity and desired minimum run time into this formula:

\[
\text{Pump GPM} \times \text{Minimum Run Time} \times \text{Multiplier}
\]

To assume dependable drawdown volumes, and in keeping with present industry practice, drawdowns are based on Boyle’s Law. For example, using a 12 GPM pump, a one-minute minimum run time, and a 30-50 PSI pressure range, the formula is as follows: \(12 \times 1 = 38.70\) Minimum Tank Volume

Then, using Chart 3, select the tank that has a minimum volume that meets or exceeds your minimum volume requirement and supplies adequate drawdown at the required pressure range. Minimum drawdown equals Pump GPM x Minimum Run Time. Therefore, in the above example, select the TDU-45, 45.2-gallon tank. It provides adequate drawdown at 30-50 PSI.

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\text{Pump GPM} \times \text{Minimum Run Time} = \text{Minimum Tank Volume Required}
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# Diaphragm Tanks

## Specifications

<table>
<thead>
<tr>
<th>Tank Model</th>
<th>Tank Volume</th>
<th>Acceptance Volume*</th>
<th>Connection</th>
<th>Dimensions (inches)</th>
<th>Weight (lbs.)</th>
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<td></td>
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<td>A</td>
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<td>8-1/4</td>
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<td>+TDUI-2</td>
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<tr>
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</table>

*Acceptance volume is the actual amount of water the tank will hold when the diaphragm is at its uppermost position.

+Powder coated interior and acceptance fitting.

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## How Trident Tanks Work...

1. Tank is pre-charged with air at factory.
2. Water is pumped into tank, forces diaphragm upward into air chamber.
3. Pump reaches cut-off pressure, water is stored until needed.
4. Pump stays off as air pressure forces the diaphragm downward to deliver water.

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