

# Dip-Tube Type Surge Vessels



## Description

Our Dip-Tube Type Surge Vessel is designed for optimal performance without the need for an air compressor or an internal bladder. This innovative system features precise air charge control facilitated by an advanced air admittance valve on top of the vessel and an internal dip tube that penetrates the tank to a carefully calibrated depth.

During normal operation, the liquid inside the vessel maintains a consistent level above the dip tube's bottom. However, in the event of a surge, the liquid level dynamically fluctuates within the length of the dip tube, ensuring an efficient response to sudden changes.

In cases of air charge absorption or loss due to leaks, a fail-safe mechanism protects the system. If the water level falls below the dip tube during the next surge event, the air admission valve promptly opens, restoring the air charge and maintaining optimal functionality. Our design also allows for reduced vessel size in certain configurations. During surge events, the liquid level intentionally falls below the dip tube's bottom. This triggers the air admission valve to open, infusing the system with air and sustaining the required pressure.

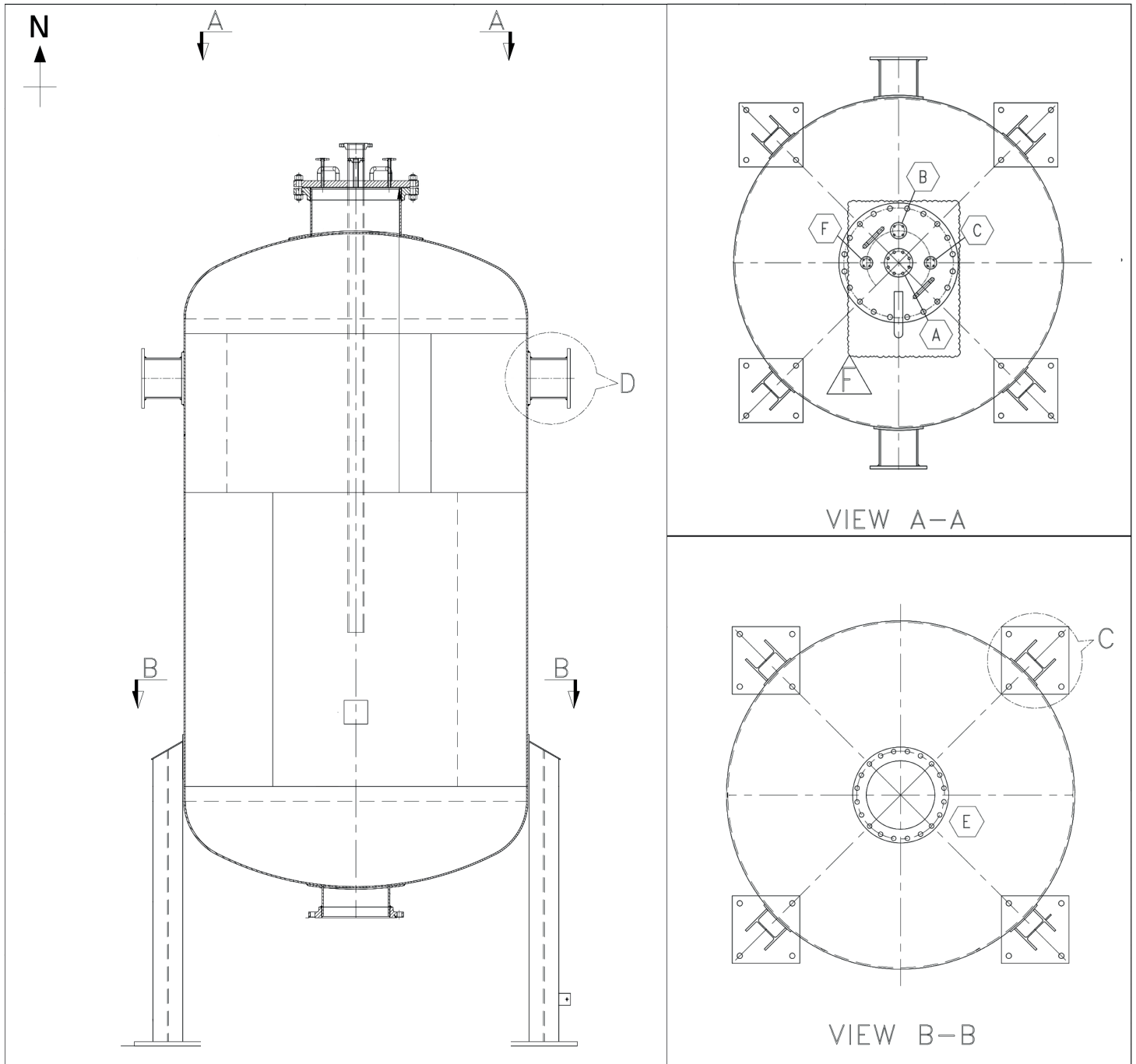
While dip tube vessels offer a more streamlined option in specific scenarios, their proper operation depends on precise piping geometry. They may be more sensitive to system changes and necessitate flawless performance of associated equipment such as air valves, check valves, and isolating valves. Each surge type has its advantages and disadvantages and should be chosen by professionals.



## Key Features

- 1. Bladder-Free Design:** Easy to install. Do not need a special tool or experience.
- 2. Compressor-Free Operation:** Offers a more economical solution by eliminating the need for an air compressor.
- 3. Advanced Air Charge Control:** Utilizes an air admittance valve for precise air charge management.
- 4. Dynamic Liquid Level Management:** Internal dip tube design ensures efficient response to surge events.
- 5. Fail-Safe Mechanism:** Automatically restores air charge in case of absorption or leaks, ensuring continuous operation.
- 6. Compact Design Option:** Allows for reduced vessel size while maintaining system pressure during surge events.
- 7. Precision Piping Requirement:** Requires precise piping geometry and flawless performance of associated equipment for optimal operation.
- 8. Professional Selection:** Surge type should be chosen by professionals to match specific system needs.

## Technical Drawing



## Technical Specifications:

- **Material:** High-grade steel, corrosion-resistant coating
- **Operating Pressure:** Up to 16 bar (depending on model)
- **Temperature Range:** -10°C to 100°C
- **Capacity Range:** 50 liters to 10,000 liters
- **Connection Type:** Flanged or threaded connections available
- **Dimensions:** Customizable based on application
- **Compliance:** ASME, PED, and other relevant standards
- **Maintenance:** Low maintenance design, periodic inspection recommended

## Applications:

- **Water Supply Systems:** Ensures stable pressure and prevents water hammer.
- **Irrigation Systems:** Provides consistent water flow and protects pumps.
- **Industrial Processes:** Maintains pressure stability in manufacturing and processing plants.
- **HVAC Systems:** Enhances efficiency and longevity of heating, ventilation, and air conditioning systems.



## Installation Guidelines:

- **Positioning:** Install vertically with the air admittance valve at the top.
- **Piping Geometry:** Ensure precise piping layout to prevent operational issues.
- **Support:** Securely mount the vessel to withstand dynamic forces during surge events.
- **Inspection:** Periodically check the air admittance valve and dip tube for blockages or wear.
- **Compatibility:** Verify compatibility with existing system components, including check valves and isolating valves.

## Maintenance Tips:

- **Regular Inspections:** Check the air admittance valve and internal dip tube for proper operation.
- **Leak Detection:** Monitor for signs of leaks and address promptly to maintain system integrity.
- **Cleaning:** Keep the air admittance valve and dip tube free from debris and buildup.
- **Professional Servicing:** Schedule regular maintenance by qualified personnel to ensure optimal performance.



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### data sheet series

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Surge Vessel

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