



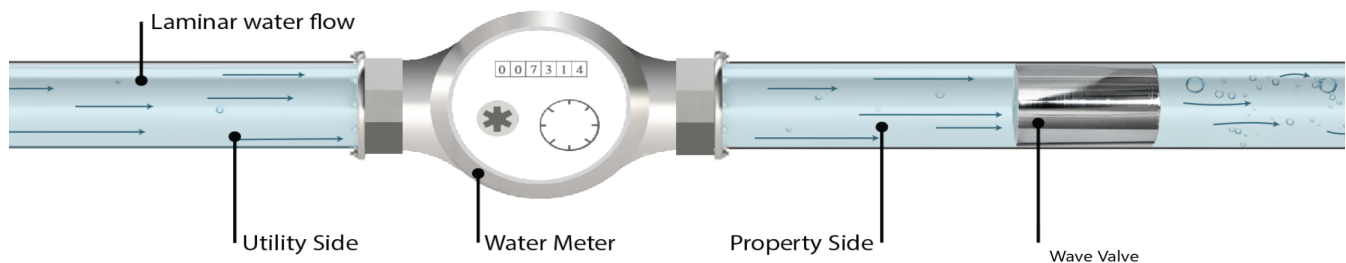
Water Air Volume Efficiency

Benefits & Advantages of The WAVE Valve

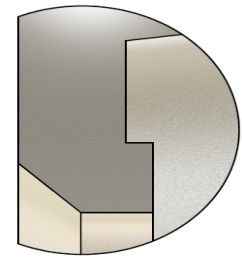
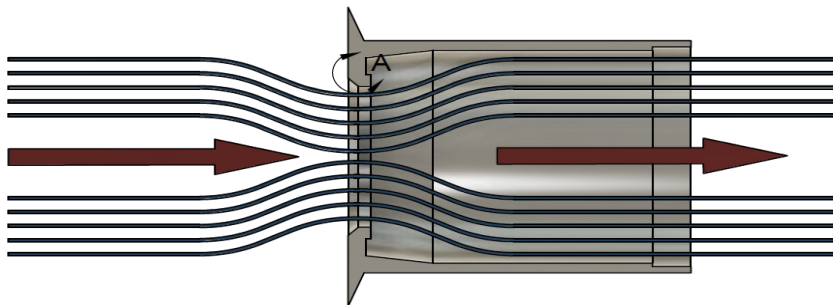
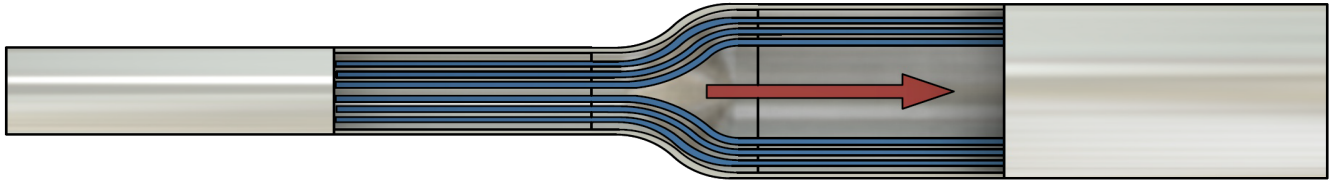
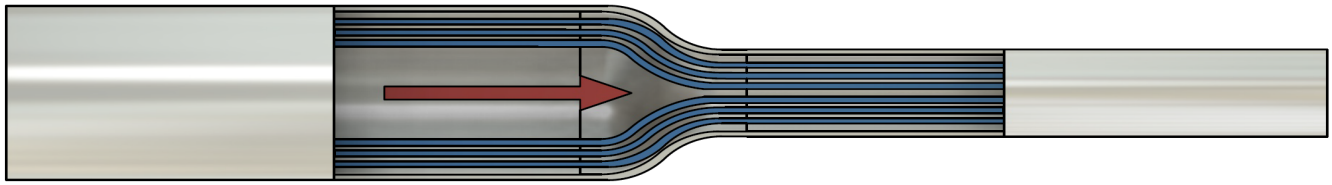
How The WAVE Valve Works:

Most water meters use a method called positive displacement which measures volume and cannot distinguish between air and water. As a result, you pay for air at the same rate as water. The air and water combination generates turbulence which creates irregular fluctuations in pressure and velocity. This turbulence also produces bubbles that occupy volume as seen in the diagram below.

The Wave Valve installation occurs on the owner's side of the water meter. The valve creates a back pressure that results in a compression zone on the utility side of the water meter. Within this zone, the volume of air is compressed, so it does not take up volume. This process maintains consistent water pressure and smooth Laminar flow leading to the meter, which also normalizes vibrations and limits meter reading error. The water returns to its normal state shortly after the Wave valve.



The WAVE Valve acts as a restrictor with a minimum reduction of 5%. The system reduces from a certain diameter to a smaller diameter, running for just 3mm before opening to a full port (95%). On the other side (proprietary), there is no significant effect on flow or pressure. This process is very similar to the Venturi effect.



DETAIL A
SCALE 6

The Venturi Effect:

Flow Acceleration: When a fluid enters a narrower section of a pipe, its velocity must increase to conserve mass flow rate. This principle is based on the continuity equation, which states that for an incompressible fluid, the product of the cross-sectional area and the velocity of flow remains constant along a streamline.

Pressure Drop: As the velocity of the fluid increases in the constricted section, its static pressure decreases. This inverse relationship between fluid velocity and pressure is explained by Bernoulli's principle, which states that an increase in the speed of a fluid occurs simultaneously with a decrease in pressure or a decrease in the fluid's potential energy.

Where the savings comes from:

The savings from the WAVE Valve come from its ability to address various issues within water pipelines, such as turbulence, trapped gases or air bubbles, and high pressure. It also manages the effects of frequently opening and closing devices on the property, like showers, toilets, faucets, and laundry machines. By effectively managing these actions, the WAVE Valve ensures smoother water flow and reduces waste, which ultimately results in significant water savings. Our Smart

Water Savings Valve Technology optimizes these processes, ensuring efficient water use and addressing common water problems that can lead to higher costs and reduced efficiency.

WAVE Valve vs Pressure Reducing Valve (PRV)

WAVE Valve

1. **Functionality:** The WAVE Valve is designed to manage and optimize water flow within pipelines by reducing turbulence, eliminating trapped gases or air bubbles, and controlling high pressure. It also addresses the effects of frequent use of water fixtures such as showers, toilets, faucets, and laundry machines.
2. **Technology:** Equipped with a SMART SYSTEM, the WAVE Valve continuously monitors and adjusts the water flow in real-time. This system helps in maintaining optimal water pressure and flow, improving overall water efficiency, and reducing waste.
3. **Benefits:**
 - Reduces water waste by managing flow turbulence and air bubbles.
 - Maintains stable water pressure, which can extend the lifespan of plumbing and reduce water hammer.
 - Can lower water bills by optimizing water use across various appliances and fixtures.
 - Offers a proactive approach to water management by using smart technology.
4. **Ideal For:** Properties looking for a comprehensive water management system that does more than just reduce pressure. It is particularly beneficial for large properties or buildings with multiple water usage points.

Pressure Reducing Valve

1. **Functionality:** A pressure reducer, or pressure reducing valve (PRV), is designed to reduce the incoming water pressure from the main supply to a lower, more manageable pressure. This helps to protect plumbing fixtures and appliances from damage caused by excessive pressure.
2. **Technology:** Pressure reducers operate mechanically by using a spring-loaded diaphragm or piston that adjusts to maintain a set downstream pressure. They do not typically have smart technology or real-time monitoring capabilities.
3. **Benefits:**
 - Protects plumbing systems and appliances from damage due to high pressure.
 - Reduces water consumption by lowering the flow rate, which can help to decrease water bills.
 - Simple to install and maintain, with fewer moving parts and no need for electronic components.
4. **Ideal For:** Homes or buildings that experience high water pressure from the main supply and are looking to protect their plumbing system from damage. It's a straightforward solution for pressure control but does not address other water flow issues like turbulence or air bubbles.

Conclusion

While both the WAVE Valve and a pressure reducer aim to improve water flow efficiency and reduce water consumption, they serve different purposes. The WAVE Valve offers a more advanced, comprehensive solution for managing various aspects of water flow using smart technology. In contrast, a pressure reducer focuses solely on lowering water pressure to protect plumbing systems. Depending on your specific needs, you might choose one over the other or even use them together for maximum efficiency and protection.

WAVE Valve vs Check Valve

□ WAVE Valve:

- **Function:** Often used to control the flow of fluids or gases, particularly in applications where smooth, controlled flow is required. The term "wave valve" is not as commonly used as "check valve," so it might refer to a specific type of valve or technology in certain industries.

□ Check Valve:

- **Function:** A check valve allows fluid to flow in only one direction. It prevents backflow, which can be crucial for protecting equipment and maintaining proper flow direction in a system.

WAVE Valve vs Backflow Preventer

□ WAVE Valve:

- **Function:** To regulate the flow of fluids or gases smoothly, often in a wave-like or modulated pattern. This can be crucial for applications requiring fine control over flow rates or pressures.
- **Mechanism:** Might use advanced internal geometries, materials, or actuators to modulate flow in a controlled manner.

□ Backflow Preventer:

- **Function:** To ensure that fluid does not flow backward through the valve, which could cause damage, contamination, or inefficiencies.
- **Mechanism:** Typically involves a one-way valve component, such as a check valve, integrated into or alongside the WAVE Valve design.