



# Pressure Management Solutions



patent pending



Water Conservation  
Pipe Break Prevention  
Leakage Reduction  
System Efficiency  
Energy Savings

# Defining Pressure Management

Water shortages are looming worldwide while scientists and utilities work around the clock to find a viable solution. Many industry experts believe that one of the simplest and most cost effective water conservation measures is managing distribution system pressures to reduce avoidable losses, help prevent pipe breaks and minimize leakage.

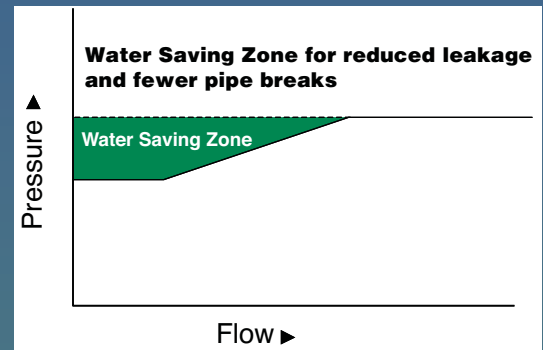
When Cla-Val Advanced Pressure Management Valves are integrated into a distribution system, these water conservation goals can be quickly achieved.

Available in standard hydraulic, advanced hydraulic or electronic configurations, pressure management control systems can also be retrofitted to existing, installed Cla-Val control valves. Additional benefits can be derived from using metering in conjunction with pressure management to identify areas where immediate improvements can be made.

## ***Water savings begins when normal operating pressure is reduced in periods of low demand.***

The solid line in the chart illustrates a desired pressure profile to reduce pressure during low demand periods. At low flows, a minimum pressure is maintained. As flow demand increases, the set point pressure automatically begins to increase. The pressure ramps up to a maximum pressure set point at a maximum flow. The zone below the maximum pressure is where benefits are realized in reduced water loss and pipeline breakage.

Pilot system adjustments allow changes to where the ramping pressure begins and ends to customize performance based on system demand.



## ***The pressure management premise***

- Reducing pressure reduces consumption across the board
- Off-peak periods, such as late night, are the ideal times to lower pressure because reduced demand leaves the pipeline over-pressurized and subject to increased background leakage and pipe breaks
- Even a small reduction in pressure can significantly minimize pipe breaks and leakage
- Reducing pressure lowers pumping costs and saves energy
- Managing pressure with standard hydraulic, advanced hydraulic or electronic control valves can help achieve operational objectives without impacting the ability to deliver adequate pressure, even in periods of extreme demand such as fire flow

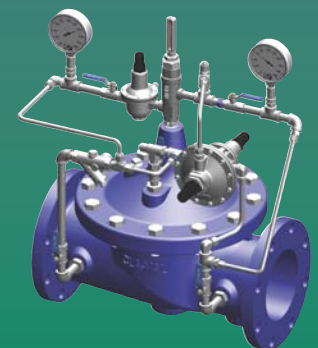
# Advanced Hydraulic Pressure Management

The Cla-Val 98 Series Advanced Hydraulic Pressure Management Valve employs cutting edge design with top quality workmanship to provide two-stage hydraulic pressure management for water distribution systems.

The unique design of the hydraulic pilot system automatically senses flow demand changes through the X78 Adjustable Stem Valve rather than restrictive devices such as orifice plates in the pipeline. The CRD2S pilot control works in conjunction with the X78 to automatically ramp the outlet pressure, taking hydraulic pressure control to the next level.

The valve's hydraulic control system adjusts pressure based on demand, lowering downstream pressure when demand falls and increasing it as demand climbs. This is done automatically without the need for outside intervention, electronic communication, or battery power of any sort throughout the system.

The 98 Series is designed to be simple to adjust and yet flexible enough to tailor valve performance to system pressure requirements. If system flow demands change in the future, the 98 Series valve may easily be adjusted to meet the new zone pressures, while still saving water. Available on Cla-Val Hytrol sizes 2 through 16 inch and 600 Series sizes 3 through 24 inch, pressure management controls can also be retrofitted to existing Cla-Val Pressure Reducing Valves without removal of the valve or adding orifice plates.



98 Series  
patent pending

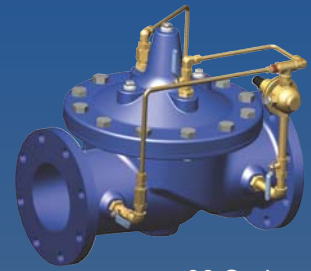
# Standard Hydraulic Pressure Management

The Cla-Val 90 Series Pressure Reducing Valve is an excellent option for water distribution systems where active, hydraulic pressure management is desired.

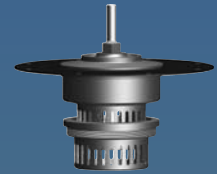
For example, pipelines in hilly areas are often over-pressurized in order to deliver adequate pressure at higher elevations. At lower elevations in the same system, however, delivery pressure can exceed what is actually necessary. This condition leaves the pipeline vulnerable to pipe breaks, background leakage, surges and cavitation.

Regardless of the terrain, the 90 Series Pressure Reducing Valve can control pressure at certain points within a system to a fixed outlet pressure while maintaining the pipeline's flow requirements. It provides sensitive and accurate pressure control and is easily adjusted to respond to changing system requirements.

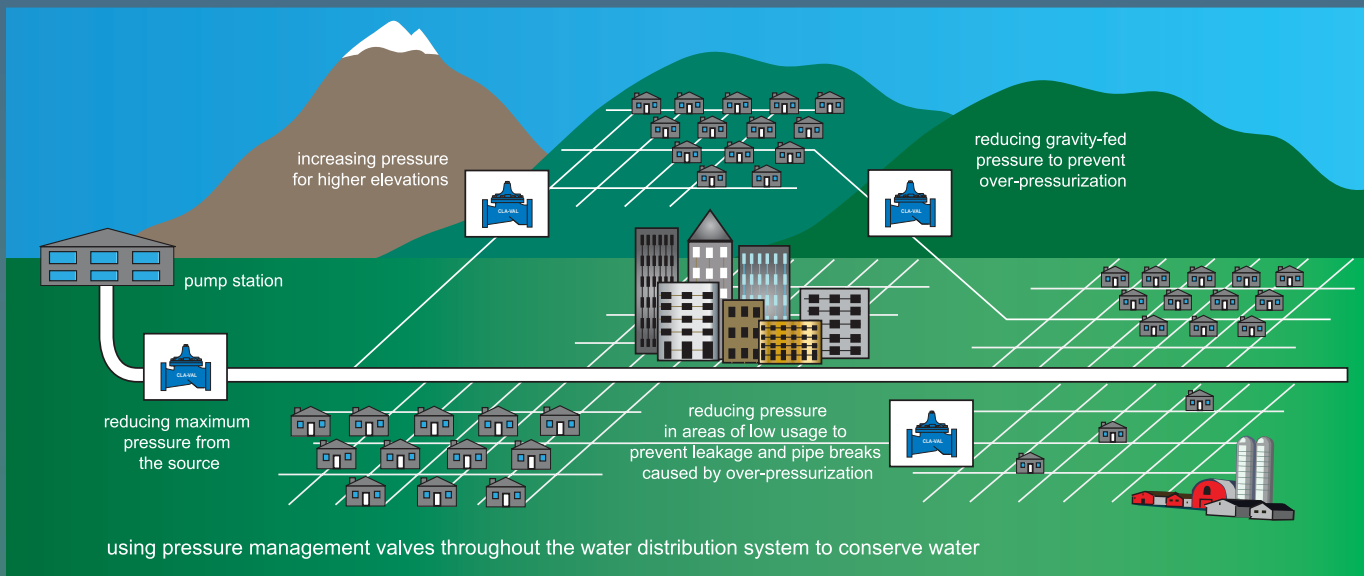
To further enhance performance, 90 Series valves can be provided with Cla-Val's patented KO anti-cavitation trim to eliminate the potential for damage caused by extreme pressure differentials. An electronic metering kit can also be added for applications where flow measurement is desired.



90 Series



KO Anti-Cavitation Trim



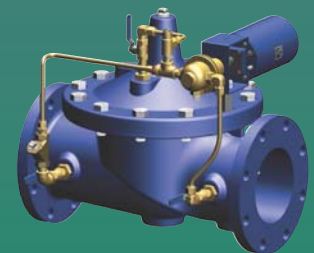
# Electronic Pressure Management

The 300 Series valve is ideal for pressure management. It can be easily integrated into SCADA systems and can be programmed to deliver minimum night time and optimum daytime pressures, helping to reduce pipe breaks and minimize background leakage.

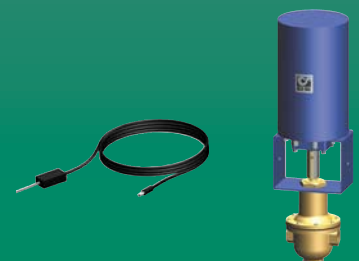
The Cla-Val 300 Series Electronic Actuated Pressure Reducing Control Valve combines the precise control of field proven hydraulic pilots and remote control functionality of the 33 Series Electronic Actuator. Designed and manufactured by Cla-Val, the submersible 33 Series actuator maintains constant system pressure or flow rates with a set point that can be changed remotely.

The 33 Series actuator, which operates off 12VDC or 24VDC, is well suited for solar power. It is available with any new Cla-Val control valve and can be field retrofitted to existing, installed Cla-Val automatic control valves.

Because pressure can be changed from a remote location, it is also an effective solution for lowering costs and eliminating safety hazards associated with "confined space" entry.



390 Series



33 Series Electronic Actuator

visit [www.cla-val.com/savewater](http://www.cla-val.com/savewater) to calculate your savings using  
Advanced Pressure Management Valves

# Global Capabilities. Local Expertise.



Cla-Val manufactures superior quality automatic control valves in production facilities located around the world. These facilities, coupled with sales offices and distribution centers in the US, Canada, Switzerland, United Kingdom and France, enable Cla-Val to provide world-class product support to our customers wherever they are, whenever they need it.

In addition to our state-of-the-art manufacturing and foundry facilities in the US, Cla-Val Canada also supports North American customers in a diverse array of industries with superior quality products and services and is one of the continent's leading high volume OEM suppliers.

Our manufacturing operation in Lausanne, Switzerland, backed by an expert team of engineers and customer service professionals, provides outstanding product and technical support to customers throughout Europe and the Middle East.

Cla-Val UK Ltd. serves the United Kingdom with an unparalleled level of customer service and technical expertise. Primary markets include waterworks, fire protection, aviation fueling and industrial processing facilities. Cla-Val products can be found in nearly every waterworks distribution system throughout the UK.

Cla-Val France, with headquarters in Lyon, is one of the leading suppliers of automatic control valves in France. Serving diverse markets ranging from aviation fuel truck manufacturing to water utility companies, Cla-Val France brings a unique combination of industry experience, technical expertise and product know-how to customers in the French marketplace.

## A World of Applications

In addition to serving the waterworks industry for more than seventy years, Cla-Val has significant experience in the following industries.

**Industrial/Wastewater:** Our extremely versatile automatic control valve, so prevalent in the waterworks industry, can also be customized to meet the demands of virtually any industrial fluid handling or wastewater application.

**Fire Protection:** Cla-Val fire protection products are specified by engineers and architects around the world and perform with reliability and precision in fire suppression systems on offshore oil platforms, and in high-rise structures and industrial facilities.

**Aviation Ground Fueling:** Cla-Val ground fueling products are installed in commercial airports and military facilities around the world. Our products, originally introduced to meet the demands of military aircraft in World War II, have become the standard in present-day aviation.

**Marine:** Cla-Val's marine products are designed to meet the exacting requirements of military and commercial shipboard applications including fire protection systems, aircraft fueling and seawater service. Their rugged construction and top quality materials help to ensure long life, minimal maintenance and precision performance.



## CLA-VAL

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