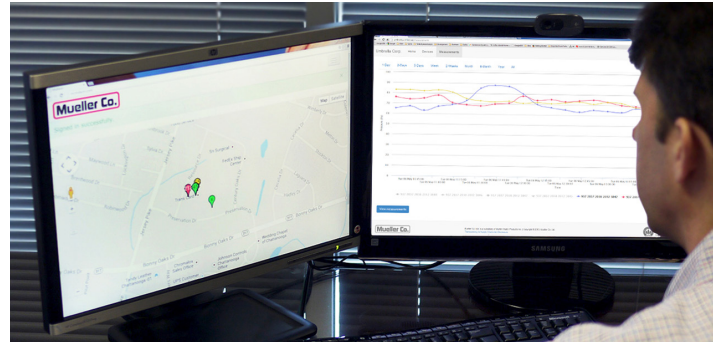


HYDRO-GUARD®

Hydro-Guard® Monitoring and Flushing Systems

Stop water quality complaints.



Why Flush Distribution Lines?

Most water distribution systems have areas with insufficient demands to keep the detention time short enough to maintain minimum disinfectant residuals. Failure to maintain a minimum disinfectant residual in water lines, in addition to being a violation of State and Federal standards, contributes to the conditions that favor growth of biofilms within the distribution lines.

Long-term exposure to low disinfectant residual conditions within a water pipeline not only favors the potential for biofilm growth, it increases the demand for disinfectant and makes it more difficult for operators to maintain desired minimum disinfectant residual levels.

A recognized solution for water age and water quality related problems is periodic flushing of the pipelines. This process allows for the turnover of water in the line; flushing the water that has a low disinfectant residual and the biofilm from the inside surface of the pipe.

Hydrant and unidirectional flushing are the conventional methods used for controlling biofilm. However, automated flushing systems have become a widely accepted method, and in many cases the preferred method, to unidirectional flushing.

Maintain Water Quality & Consistency

By way of automatic and programmable flushing systems such as the Hydro-Guard® line of products, the process of automatic flushing has proven to be a far more economical alternative to traditional flushing processes that have included the use of fire hydrants.

- Reduce Complaints
 - Increase customer satisfaction
 - Reduce costs associated with fielding and solving complaints
- Improve Compliance
 - Monitor remotely
 - Respond immediately to issues
 - Improve consistency of water quality
 - Improved management of DBP's (Disinfectant Byproducts) and compliance with USEPA DPB Stage 2
- Lower Operational Costs
 - Conserve water
 - Save time
 - Reassign field crews
 - Monitor remotely and interface with SCADA

Why Monitor Pressure in the Distribution System?

Several years ago, Mueller began a journey to develop a user friendly and cost-effective technology to continuously and remotely monitor pressure at any point within a potable water distribution system. The technology involves threading a sensor onto a corporation valve to transmit pressure readings. The pressure sensor, typically installed two (2) per District Metering Area (DMA), reports at user-defined intervals via cellular service and a Mueller Co.-hosted secure web server. Beginning with pressure monitoring, Mueller Co. has created a communications backbone that utilities can integrate into its monitoring systems or use as a stand-alone monitoring platform.

The loss of pressure can allow ground water to contaminate the distribution system. Fluctuations in pressure can affect the physical integrity of pipes. Surges in pressure have been known to create additional leaks, main breaks and/or dramatically reduce infrastructure life. Pressure management can also save money. Accurate pressure data allows system operators to reduce leakage volumes, energy costs, system maintenance costs, customer complaints, and water quality problems.





Overview

Hydro-Guard® revolutionized the water distribution industry in 1998 with the introduction of the automated programmable flushing systems. No longer was it necessary to send field crews to hydrants to flush for water quality issues. Today, Mueller Co.'s Hydro-Guard brand has advanced water quality monitoring and condition management to a state-of-the-art level while maintaining affordability.

S.M.A.R.T. Monitoring and Water Quality Management

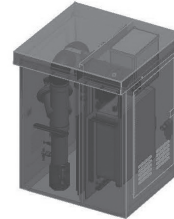
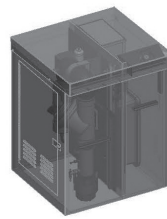
Using industry-leading analyzers and sensors, Mueller Co.'s Hydro-Guard S.M.A.R.T. Monitoring and Flushing Systems are being deployed in critical areas within the distribution network to provide real-time condition monitoring of a variety of water quality conditions. When conditions warrant, the S.M.A.R.T. Monitoring and Flushing System can initiate a flush event to help improve the water quality conditions at the installation site and adjacent lines. With Hydro-Guard S.M.A.R.T. Monitoring and Flushing Systems utilities can now monitor chlorine disinfectant levels, pH, temperature, flow, pressure, and turbidity. What's more, the S.M.A.R.T. Monitoring and Flushing System offers two-way communication giving operators the data they need, when they need it most. The S.M.A.R.T. system can be accessed by both a secure web portal and SCADA (ModBus-TCP protocol). With the Hydro-Guard S.M.A.R.T. Monitoring and Flushing System water lines are only flushed when necessary.



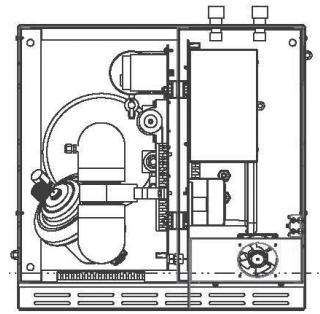
Remote Pressure Monitoring System
(Meter pit installation)



HG-8 Cold Climate
Flushing Systems



S.M.A.R.T. Flushing System



S.M.A.R.T. Flushing Product Selection Guide

Installation Parameters	Temporary			Permanent			
	HG-6	HG-1	HG-2	HG-3	HG-4	HG-7	HG-8
Climate	Temporary/Portable	Warm	Warm	Cold	Cold	All	Cold

Monitoring Product Selection Guide

METER VAULT INSTALLATION		VALVE BOX INSTALLATION	
Selection	Code	Selection	Code
Meter Vault Installation	IWT 1	Valve Box Installation	IWT 2
Cellular Service: (1st Year Included) GSM (AT&T) CDMA (Verizon)	<input type="checkbox"/> G <input type="checkbox"/> C	Cellular Service: (1st Year Included) GSM (AT&T) CDMA (Verizon)	<input type="checkbox"/> G <input type="checkbox"/> C



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