HYDRO-GUARD®

a **MUELLER** brand

OPERATING INSTRUCTIONS MANUAL

300 Series Cold Climate Flushing System

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⚠ WARNING:

1. Read and follow instructions carefully. Proper training and periodic review regarding the use of this equipment is essential to prevent possible serious injury and/or property damage. The instructions contained herein were developed for using this equipment on fittings manufactured by Mueller Co. only, and may not be applicable for any other use.
2. DO NOT exceed the pressure ratings of any components or equipment. Exceeding the rated pressure may result in serious injury and/or property damage.
3. Safety goggles and other appropriate protective gear should be used. Failure to do so could result in serious injury.

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300 SERIES COLD CLIMATE FLUSHING SYSTEM

Installation Instructions

GENERAL

Overview

The Hydro-Guard 300 Series Cold Climate Unit, is the industry's only Below-Ground programmable flushing apparatus. This Unit is suitable for year-round use in cold climates. This Automatic Flushing System has been designed, engineered, and manufactured to provide outstanding dependability and performance.

Please read and retain this manual for future reference, training, troubleshooting, and maintenance.

Site Evaluation

Each Hydro-Guard Unit installation is unique and will require a minimum of advance planning. Prior to the installation of the device, the drainage patterns for the intended installation location should be reviewed. The drainage pattern must permit discharged water to flow through a drain line away from the Hydro-Guard Unit. The 300 Series Flushing System features threaded brass 1" inlet and 1" outlet connections. Installation will require the contractor to plumb the inlet water service line to the connection marked "inlet" and plumb the discharge line to the connection marked "outlet". The inlet service and discharge water lines (by others) shall be installed at the same bury depth as the connections. The discharge line should allow water to flow away from the Unit. The recommended minimum slope for the discharge piping is ½" per foot. The recommended final discharge points may include a storm drain, drainage or retention pond, or a storm swale.

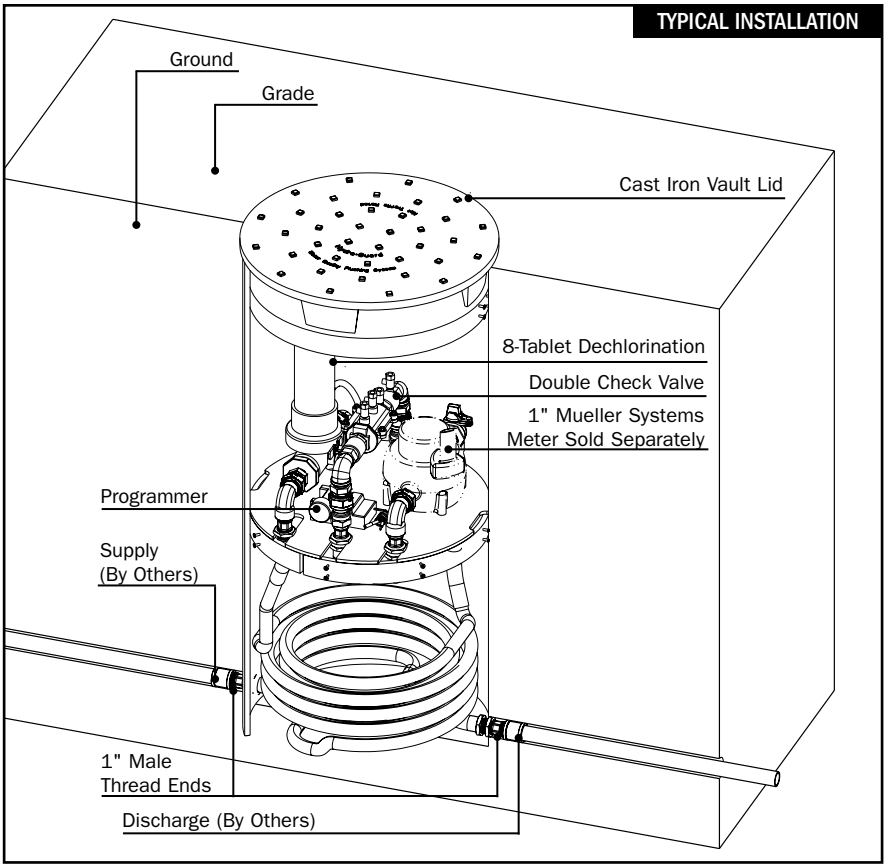
INSTALLATION

Hydro-Guard 300 Series Cold Climate Flushing Unit

The Hydro-Guard 300 Series Cold Climate Unit is housed in a Mueller Thermal-Coil Meter Box that is approximately 21 inches in diameter. The bury depth will vary depending upon the depth of the utility's water lines (Available Range: 48" to 120"). The box is constructed with low lead NTP male threads and is to be placed by the contractor at a location agreed upon by the end user. The box features coiled tubing that will route water from the water utility's potable water distribution line to the meter assembly, through the 300 Series' flushing components, and discharge through a discharge service routed to an acceptable point of discharge (i.e., a storm sewer, swale, storm pond, etc.). The meter and flushing assembly can be raised for maintenance and repair and then lowered back down into the box below the frost line. A medium density foam insulation pad, freeze protection system, and composite lid (an optional cast lid is available) help protect the flushing and meter assembly from freezing in the winter.

⚠ WARNING: Proper lifting, loading/unloading tools and techniques must be followed when handling this device. Damage to working components can occur if dropped.

TYPICAL INSTALLATION



1. Remove the Hydro-Guard Unit from its packaging and inspect for possible damage during shipping.

2. Turn off the service line feed.

3. Excavate a suitably sized ditch ensuring it is connected on one side to the utility's service line trench. Remove any debris that might create uneven pressure on the Unit. Compact the bottom of the hole in order to minimize settling after installation. Place #57 stone. Then, place non-compacted clean bedding material within the bottom of the hole. Provide a bed of crushed gravel approximately 6 inches thick or place bricks or cement blocks below the pit to allow for drainage and provide support.

INSTALLATION - (CONTINUED)

4. Slowly lower the Hydro-Guard 300 Series Cold Climate Flushing System into place, pressing it firmly into the non-compacted bedding material within the bottom of the hole.

5. Bury the pit so the top edge is at ground level.

6. Install the top approximately 1½" below existing grade and ensure the meter lid is level with existing grade.

7. Place the pit in the excavated area and connect the inlet piping. Hand-tighten the fitting to the pit, then turn two full turns with a wrench. This will result in a leak-tight connection, without placing undue stress on the pit piping.

8. We recommend installing approximately 10' of pipe to the outlet connection so the plumber that is completing the service installation does not have to disturb the connection to the pit and possibly overtightened the connection or otherwise affect the contractor's proper installation of the pit itself.

9. Backfill the hole around the flushing device with clean fill and/or #57 stone. Backfilling should be accomplished 12 inches at a time and hand-tamp each layer until the service grade is restored.

10. After installation is complete, sod the area around the Hydro-Guard Unit or take other steps in order to prevent erosion.

11. Disinfect the Hydro-Guard Automatic Flushing Device in accordance with the utility's policy. DO NOT exceed the dosage and contact times recommended by the American Water Works Association.

12. The Hydro-Guard Automatic Flushing Device may now be programmed.

13. Once programming has been set, slowly lower the flushing/meter assembly into the lower part of the protective, below-grade, meter box. Insert the foam pad insulator and install cast iron meter lid.

⚠ **WARNING: We do not recommend the following:**

1) Dumping fill material on top of the pit; 2) Using machinery to compact backfill.

PROGRAMMING HYDRO-GUARD UNIT FOR OPERATION

300 SERIES COLD CLIMATE (REQUIRES CONTROLLER)

Buetooth Programming Instructions

The BL-KR battery powered irrigation module communicates with the K-Rain BL Application on a Smartphone or Tablet by using Bluetooth SMART 4.0, (low energy) on an iPhone with iOS version 7 minimum or an Android phone/tablet with Marshmallow version 6.0 or higher.

Important:

⚠ For use only with 9V DC Latching Solenoids. As some solenoids will come from the manufacturer with the plunger already magnetically latched open, some zones will default to **OPEN.** ***Follow the start-up procedure for systems with DC Latching Solenoids.*** (Page 09)

⚠ For every change to the program in the Mobile App, you must exit back to the home screen and tap the blue **TRANSMIT** button (bottom right corner). The Application aggregates changes and transmits them to the controller when you have finished programming.

⚠ Programs A, B, and C are independent programs, including start times, run times, watering days, and water budget.

1. **Install the App:**
   From the App Store. or Google Play install the free K-RainBL App:
2. **Install a 9 Volt Battery in the Controller:**
   Unscrew the cap, remove the seal and fasten the battery to the correct terminals. Replace the seal and cap and hand-tighten the cap to ensure it seals.

NOTE: Before you launch the App, you will need to enable locations services on your phone/tablet in order for the App to geolocate your device during installation. On Android, location services must be enabled in order for the App to connect to the BL-KR device.

3. **Launch the application on your Smartphone or Tablet.**
4. **Associate the controller with your phone by tapping the Add a Controller button.**

5. The app will now ask what type of Bluetooth device you would like to add:

NOTE: The BL-KR V1.0 and BL-KR V2.0 have identical hardware and software configurations. The only distinction is the outside plastic housing.

6. The App will now search for devices in range.

7. **Choose the Controller.** The serial numbers that populate the device list can be found on the label located on the back of the controller housing with the designation "Default name." The App will indicate that it is in the process of connecting.

8. Once the device is connected, it will appear on the home screen when you launch the Application.

To add another controller, tap the plus sign in the upper right hand corner of the home screen.

Application Home Screen:

Device Home Screen:

NOTE: You can associate up to 400 devices with the K-Rain BL-KR App. The number of devices is limited to the internal memory on the Smartphone/Tablet.

300 SERIES COLD CLIMATE BUILT-IN: (INTEGRATED)

NODE Programming Instructions

Batteries

The NODE uses standard 9-volt alkaline batteries to operate the control valve and program the controller. The controller can operate with one or two batteries installed. Under normal conditions, expected life is 1 year for a single battery and two years when using two.

Battery Installation

1. Unscrew rear body of the NODE to gain access to battery compartment.
2. Insert battery/batteries into battery tray and connect the battery connector to controller.
3. Make sure no water is inside battery compartment.
4. Screw the NODE rear body back onto front half.

NOTE: Make sure that seal marker on rear half of the NODE lines up with front half, ensuring a proper seal is created. Also, The NODE has non-volatile memory, which allows battery replacement without losing program information.

Idle Mode – Waking Up

Normally the NODE display shows time and day, day of week, and battery life indicator. During a short period of inactivity the display will shut off to retain battery power Pressing any key will wake up the NODE to the Idle Mode.

Run Mode

When controller is operating a program, items shown on display will include station number (always "1"), program letter (A, B, or C), remaining runtime, and a blinking Rotor icon.

Programming

The NODE has the capability to hold 3 programs (A, B, C) and 4 start times per program. When programming, flashing portion of display can be changed by pressing **+** or **–** keys. To change something not flashing, press **LEFT** or **RIGHT ARROWS** until desired item is flashing.

Setting Date/Time

1. Press **RETURN/ENTER** key until **CLOCK** icon is displayed.
2. All 4 digits will be displayed representing the year. Use **+** or **–** keys to change year. Press **RIGHT ARROW** key to proceed to setting month.
3. All 4 digits will be displayed with two digits on left flashing representing the **MONTH.** Use **+** or **–** key to change month. Press **RIGHT ARROW** key to proceed to setting **DAY**.
4. Only two digits on right will be flashing, representing the **DAY**. Press **+** or **–** key to change day. Press **RIGHT ARROW** key to proceed to changing **TIME**.
5. The **AM/PM/24** time setting is shown flashing. Press **+** or **–** key to change to AM, PM, or 24-hour time. Press **RIGHT ARROW** key to proceed to setting the **HOUR**.
6. All 4 numbers are shown with two numbers on the left flashing, representing the **HOUR**. Press **+** or **–** key to change the hour. Press **RIGHT ARROW** key to proceed to setting **MINUTES**.
7. All 4 numbers are shown with two numbers on right flashing, representing **MINUTES**. Press **+** or **–** key to change minutes. (Pressing **RIGHT ARROW** key will return to YEAR setting at step #2.)
8. Press **RETURN/ENTER** key to proceed to next programming function, or allow controller to return to idle mode.

Setting Flush Sequence

Start Times

1. Press **RETURN/ENTER** key until **CLOCK** icon is displayed.
2. The **START TIME** will be displayed flashing, along with the program letter (A, B, or C) and start time number (1, 2, 3, or 4) in the upper left. Up to 4 different start times can be set for each program.
3. Use **+** or **–** key to change **START TIME** for program displayed. Each press of key will change start time in 15-minute increments.
4. Press **RIGHT ARROW** key to add an additional **START TIME** to program displayed. The start time number is shown in upper left corner of display.
5. Press **PRG** key to add **START TIME** to a different program.
6. Press **RETURN/ENTER** key to proceed to next programming function, or allow controller to return to idle mode.

Setting Flush Duration Times

1. Press **RETURN/ENTER** key until **HOURGLASS** icon is displayed. **RUN TIME** will be displayed flashing. Also shown is program letter (A, B, or C) and active station number (always #1– all other stations not used) on lower left side of display.
2. Press **+** or **–** key to change station **RUN TIME** from 1 minute to 6 hours.
3. Press **PRG** key to add a **RUN TIME** to another program.
4. Press **RETURN/ENTER** key to proceed to next programming function, or allow controller to return to idle mode.

Setting Flushing Days

1. Press **RETURN/ENTER** key until **CALENDAR** icon is displayed. The program letter (A, B, or C) will be displayed. Arrows point at specific days of week in which flushing will occur.
2. Press **LEFT** or **RIGHT ARROW** to scroll though days.
3. Press **+** key to activate that day for program displayed, or **–** key to cancel watering for that day. The arrow will show on flushing days for active program.
4. Press **PRG** key to set days to flush for a different program, if desired.
5. Press **RETURN/ENTER** key to proceed to next programming function, or allow controller to return to idle mode.

Manual Flushing

Manual flushing allows user to test the Hydro-Guard unit or a program for a specified run time.

Make sure controller is in Idle Mode.

1. Press and hold **RIGHT ARROW** until **HAND** icon is displayed. The station number (always #1) will be displayed in lower left side of display along with **RUN TIME**.
2. Use the **LEFT** or **RIGHT ARROW** to select #1 station if not already displayed, and + or – key to set manual flushing time.
3. To manually activate a program, press **PRG** key. Program letter (A, B, or C) will show on screen. If a different program is needed, press PRG key until desired program is displayed.
4. To stop **MANUAL FLUSHING** cycle press – key until time is reduced to zero.
5. Press **RETURN/ENTER** key to proceed to next programming function, or allow controller to return to idle mode.

NOTE:

– Pressing + or – key when running in MANUAL FLUSH mode will modify FLUSH TIME for that station.

– Pressing the button when a station is running in manual watering will stop irrigation on the current station and advance to the next station.

– Pressing the button when a station is running in manual watering will stop the irrigation on the current station and revert to the previous station.

Turn System Off

To turn off controller, press **RETURN/ENTER** key button until icon resembling water spray and **OFF** is displayed on screen. To return controller to auto programming mode, press **RETURN/ENTER** key. The controller will immediately return to auto programming mode and will display time and battery life indicator.

NODE Quick Check

This circuit diagnostic procedure can quickly identify “shorts” commonly caused by faulty solenoids or when bare common wire touches a bare station control wire. To initiate **NODE Quick Check** procedure:

1. From Idle Mode, press and hold **+**, **–**, **LEFT ARROW**, and **RIGHT ARROW** keys.
2. Display will show all segments. Release keys.
3. Press **+** key to initiate **NODE Quick Check** test.
4. Controller will then activate flushing unit for 1 second to verify operation.

300 SERIES COLD CLIMATE DISASSEMBLY AND REASSEMBLY INSTRUCTIONS

TOOLS NEEDED: Philips screwdriver, flat-head screwdriver, HG-20087 T-handle wrench

Although the Hydro-Guard 300 Series Cold Climate Below-Ground Unit was delivered completely assembled, it may be necessary and/or desirable to disassemble portions of the Unit, or the Unit in its entirety, in order to allow for required service and maintenance. If disassembly is necessary, please follow the directions below. Always close the curb stop before working on the unit.

Disassembly

1. Shut off water supply to the unit and remove the green housing cover.
2. Remove the composite or cast iron lid of 300 Series Cold Climate protective ground sleeve.
3. Remove foam insulation pad.
4. Using the lifting holes and/or lifting strap in the steel platform, raise the flushing system meter assembly to top of meter box and lock into place.
5. Modular design of valve and double check valve allow for service to be completed without removal of the devices' bodies from the piping assembly.

Electrical System Check

1. Pull internals of 300 Series Cold Climate to top of PVC in-ground protective housing and lock into place.
2. Unscrew solenoid from valve – be careful to not drop the solenoid plunger and spring into in-ground housing.
3. Using the KRBL app on a standard IOS or Android phone, run a 2 minute manual flush sequence.

NOTE: Plunger inside solenoid should be down when running and up when off.

4. To prevent the loss of the solenoid plunger and spring, place an object or have a finger over the plunger of the solenoid. Allow the plunger enough space to kick out of the solenoid body into the object or finger hovering over it.
5. If test is successful, return the flush/meter assembly to its operating position below grade.
6. Return insulation pad and cast iron meter lid to their proper positions.

If everything checks out, the electrical system is in working order.

Valve Disassembly and Check

1. Remove six (6) bolts from top cover.
2. Slowly pull cover off the valve.
3. Remove rubber diaphragm and inspect for holes or worn areas.
4. Be certain to avoid contacting the EPDM rubber diaphragm with pipe putty. Pipe putty can cause the rubber to thin out and leak.
5. Remove the valve screen plug on the lower half of the valve body. Be careful not to exert too much force when pulling plug out.
6. Check for debris in the valve screen on the inlet side with the lower half of the valve body by removing the valve screen plug.
7. Return valve plug to its proper location when debris screen is cleared.
8. Replace the top cover back onto the diaphragm – make sure to line up the openings in both.
9. Match up the top cover of the valve with the bottom portion. The arrows have to align on both portions.
10. Replace the bolts and tighten down.

WARNING: Avoid overuse of pipe sealant and never allow sealant to come into contact with EPDM rubber diaphram.

Reassembly

1. If any disassembly has been conducted of the control valve and/or double check valve, verify that all bolts are properly tightened. Check assemblies for leakage prior to lowering flushing/metering assembly back into position below grade.
2. Using lifting holes and/or lifting strap on steel plate, lower flushing/metering assembly below grade by slowly lowering the steel mounting plate to the lower part of the in-ground protective housing (DO NOT apply excessive force to assembly).
3. Turn water supply to the unit on. Using the KRBL BlueTooth app and a standard IOS or Android phone, run a two minute manual flushing procedure to confirm all components are operational.
4. Return insulation pad and cast iron lid to their proper location.

TROUBLESHOOTING THE PROGRAMMER

PROBLEM	CAUSE	SOLUTION
Controller does not flush as desired	Water at main water supply is shut off	Check main supply valve
	Battery dead	Replace battery
	Controller set to OFF	Set controller to desired program
	Controller improperly programmed	Check program and clock settings
Blank display	Battery dead	Replace battery
Water does not turn off	Overlapping programming	Review all programming and edit any program that is in conflict with desired off schedule Clear all programming in memory and reset
	Programmer not communicating	Check Programming Run Manual On/Off with solenoid removed from valve (hold finger or object over solenoid plunger to prevent plunger from dislodging from solenoid body) Check wiring for damage and connectors to ensure proper connection (red to red & black to black)

TROUBLESHOOTING THE UNIT

If your Hydro-Guard Unit does not activate:

Possible Causes

- Water pressure off or low.
- Batteries weak or dead.
- Connection loss from controller to solenoid.
- Solenoid not working properly.
- Obstruction in flow of water.

Try this Correction

- Check if curb stop is open.
- Change batteries.
- Check connections for corrosion, breaks, or lack of connection.
- Run a manual flush and confirm the solenoid plunger is kicking out and pulling back in by listening for a click.
- Check to make sure the flow control knob is open on the valve OR Check the pipes for obstructions OR Check the valve.

The Hydro-Guard Unit will not shut off:

Possible Causes

- The solenoid is stuck in the open position or debris is interferring with the plunger.
- Batteries weak or dead.
- Connection loss from battery box to solenoid.
- The solenoid is loose or there is debris in the adapter.
- There is a hole in or debris around the diaphragm.

Try this Correction

- Run a manual flush for 1 minute.
- Change batteries.
- Check connections for corrosion, breaks, or lack of connection.
- Check the adapters and solenoid for debris – Run the electrical systems check.
- Refer to valve troubleshooting for possible corrective measures.

HYDRO-GUARD FEATURES, UPGRADES AND SAMPLE COLLECTION

The following is a brief overview and introduction to our options.

Integrated Sample Station

The 300 Series Cold Climate Sub-Surface Discharge Unit, features a Sample Port quick connect that allows the end user to collect a sample from the 300 Series Cold Climate installation site. To collect a sample from the sample quick connect the HG-S116B Portable Sample Valve will be required. (Recommendation: one HG-S116B per every five 300 Series Cold Climate units) You may wish to run a brief manual-mode flush prior to the collection in order to ensure water indicative of the main-line water quality is being sampled.

Generally a two-minute flush is sufficient. Track your residual levels and alter flushing frequency and/or duration in order to maximize water conservation.

Dechlorination

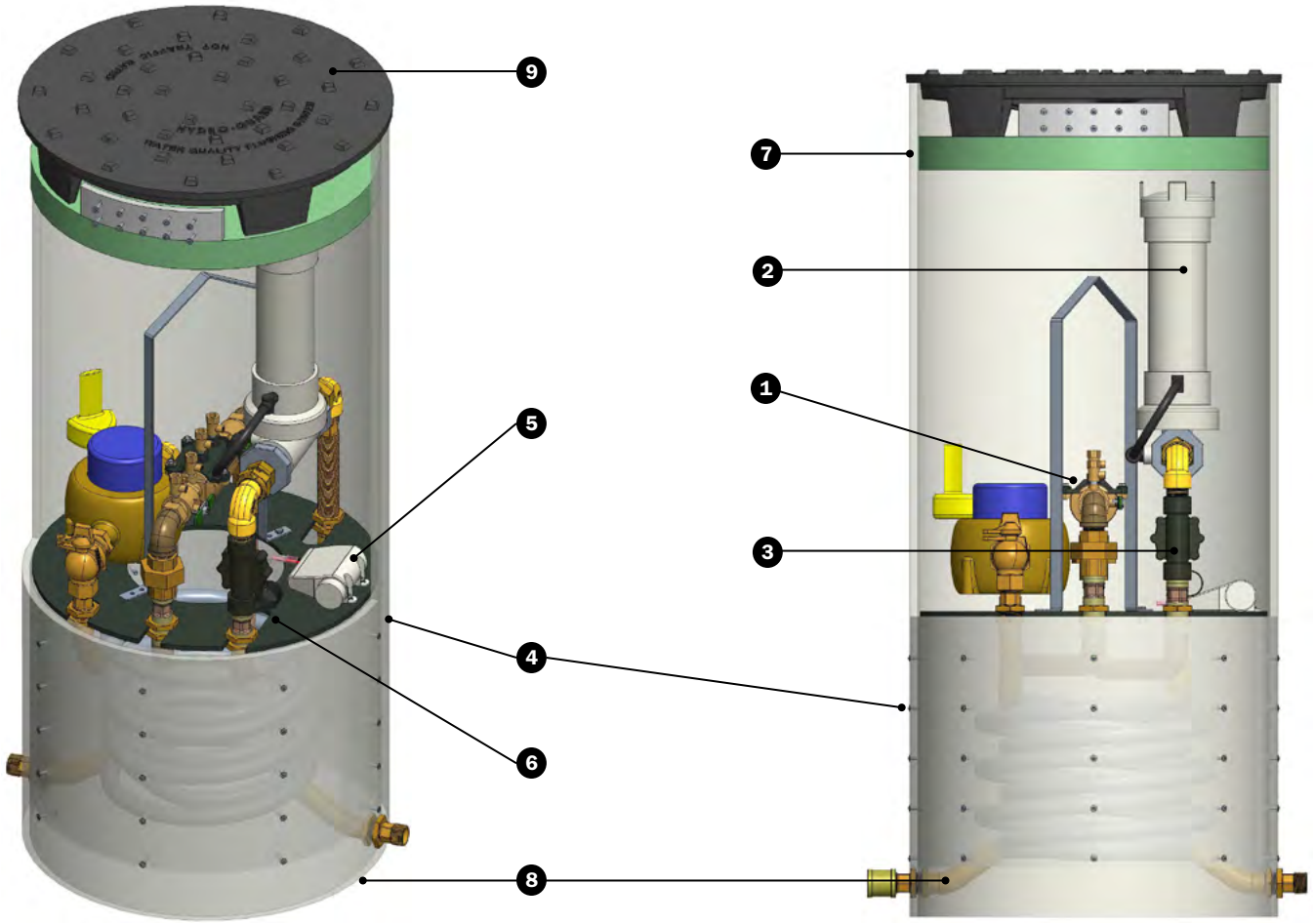
The Hydro-Guard 300 Series Cold Climate is equipped with a dechlorination system. Dechlorination takes place as a portion of the discharged water passes through a housing containing either sodium sulfite or ascorbic acid tablets. This action creates a concentrated dechlorination solution that then mixes with the non-directly treated portion of the discharge to effectively dechlorinate the entire discharge volume.

BATTERY REPLACEMENT

1. Remove composite or cast iron lid and insulation pad.
2. Using the lifting holes and/or lifting strap in the steel mounting platform, raise the internals of the 300 Series Cold Climate to the surface.

300 Series Cold Climate Built-In (NODE) Programming:

3. Unscrew cap from bottom of NODE programmer housing. Insert two 9-volt alkaline batteries. Tighten the cap completely to ensure a water tight fit.
4. Return the internals of the 300 Series Cold Climate to its proper location.
5. Return the insulation pad and cast iron lid to their proper locations.



REPLACEMENT PARTS

ID	PART NUMBER	DESCRIPTION
1	546138-100	1"WILKINS 350XL/BACK FLOW PREV
2	HG-A119	320 INLINE DECHLOR
3	HG-11010	1"HITVLVE/510-000/WITHOUT STEM
4	780029-2150	300 Series Cold 48 IN SHELL SUB ASSEMBLY
5	300Series-BL	BlueTooth Controller (Programming Option)
6	546784—HG8 CC	300 Series Cold CC PLATFORM ASSEMBLY
7	790119—21 IN	INSULATING PAD
8	780034-1848-HG8	300 Series Cold Coil Sub-Assembly
9	HG-2321	21IN STEEL PLATFORM HC 21-25A

Notes

Hydro-Guard Flushing & Monitoring Systems

Hydro-Guard Automatic Flushing and Monitoring Systems are used by utilities throughout North America to maintain water quality throughout their distribution systems. These systems can be programmed to flush on a scheduled sequence and to monitor a variety of water quality conditions, including chlorine residuals, temperature, pH, flow, turbidity, and pressure.

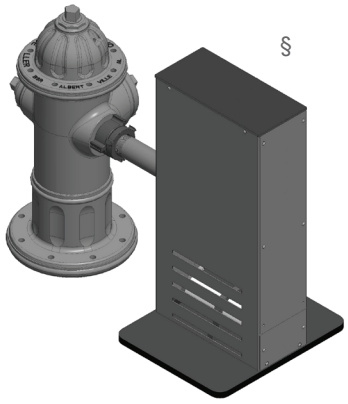
In areas within the distribution system where it is difficult to maintain an acceptable level of disinfectant residual, or where taste, color or odor issues are leading to customer complaints, Mueller provides automated flushing and water quality sampling solutions. The Hydro-Guard system can be programmed to flush a line and monitor water quality conditions in distribution piping. When conditions warrant, the device automatically initiates flushing and helps a utility to comply with USEPA Safe Drinking Water Standards. This system conserves water, reduces chlorine consumption, and improves customer satisfaction, while requiring minimal supervision by utility personnel.

- By maintaining water quality with a higher degree of consistency, Hydro-Guard helps utilities reduce complaints, improve compliance and lower operating costs.

Since pressure management in water distribution and transmission main networks is fundamental to providing safe drinking water, Mueller provides a user-friendly and cost-effective technology to continuously monitor pressure in potable water distribution systems. The pressure monitoring system, typically installed in DMAs or pressure zones; on PRVs; system interconnects; fire hydrants; transmission mains; and water storage tanks, reports at user-defined intervals via cellular service. Data is logged; made available for periodic upload; and stored for up to two years on a secure web server. When a pressure spike occurs, utility personnel can be notified within minutes by email and text messaging. This technology is currently available in North America only.

- By monitoring pressure, infrastructure failures can be avoided, non-revenue water can be reduced, energy costs can be reduced and public safety is improved.

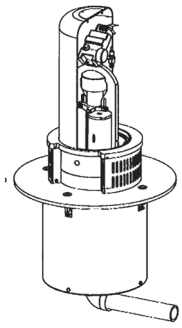
100 Series Cold Automatic Flushing System



600 Series Portable Flushing System

IW3 Wet Barrel Hydrant Pressure Monitoring

Part Numbering Example



Item Description:

Hydro-Guard® 100 Series Warm Flushing System utilizes a 12" air gap to prevent backflow. According to the associated part number, this device is to have 2" piping and valve; be constructed of Schedule 80 PVC; have an 18" bury depth; and be housed in a low-profile, above grade, light green enclosure.

FW100A18PVCBL	
FW	Ideal for this Climate Zonew
100	Level / Discharge Type
A	Air Gap Backflow
18	18” Bury Depth
PVC	SCH 80 PVC Pipe Material
BL	BlueTooth Controller

Components in contact with potable water will also comply with latest requirements of the Federal Safe Drinking Water Act. All Hydro-Guard flushing and sampling devices comply with NSF372.

Rev. 7-21 Shaded area indicates changes

Hydro-Guard Temporary (Portable) Flushing Systems

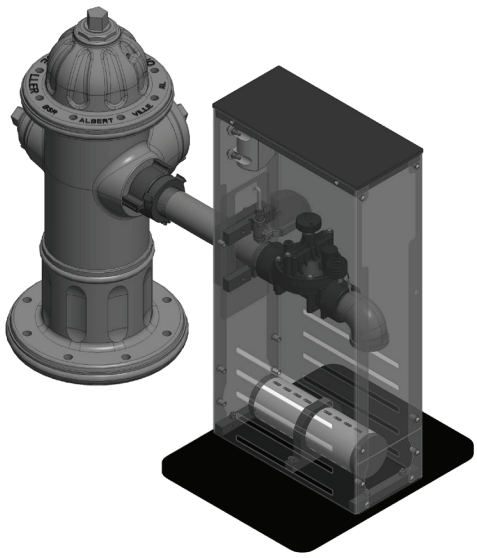
The Hydro-Guard Portable Automatic Flushing System takes automatic and programmable flushing capabilities anywhere in the water distribution system where a fire hydrant is available. The 600 Series Emergency/Temporary Hydrant Flushing System is portable and adjustable. Its lightweight design gives it portability. The device's integrated height adjustment allows it to match up to most hydrant heights on any brand of hydrant. And its flushing capabilities are identical to that offered by semi-permanent / permanent Hydro-Guard products.

The APP-based KR-BL Bluetooth controller allows operators to manage Hydro-Guard® Flushing Systems from up to 25-feet away (line of sight, no obstructions). The user-friendly KR-BL programming solution is now available with any model of Hydro-Guard. When placing your Hydro-Guard order, use option code BL in the Programming section of the order form to select the KR-BL Bluetooth option. Also, Mueller offers a KR-BL retrofit kit for use with all existing Hydro-Guard flushing systems. To order a retrofit kit please use one of the following part numbers (Hydro-Guard model is required; bury depth required for cold climate models).

Standard Features:

- 600 Series system with KR-BL BlueTooth (BL) programming: up to 24 different flush events managed from up to 25-feet away by BlueTooth. No need to exit the vehicle to set or modify programming. Programming managed by a a standard iOS and Android smartphone and free KR-BL app. Powered by one 9-volt battery.
- 600 Series system with Built-in (NODE) programming: multi-event integrated programmer (powered by one 9-volt Alkaline battery with the option to add a second battery for longer battery life)
- 20psi to 120psi recommended operating pressure*
- Adjustable mounting connection to accommodate varied hydrant heights with swivel adapter
- Durable, heavy-gauge stainless steel construction**
- Self-supporting, free-standing design (device does not hang on hydrant)
- 2" Composite (33% glass filled nylon construction) control valve with patented full open straight through pass
- Integrated Sampling System with accessible port allows for sample collection with unit on or off
- Splash plate for erosion control - reduces potential for ground erosion from under hydrant
- 2.5 inch NTP hydrant swivel adapter
- OEM integrated Dechlorination System dechlorination dispenser
- Security Kit (1 set included with purchase)

** Where line pressure exceeds 110psi use of a PRV is recommended*
*** Paint is optional*

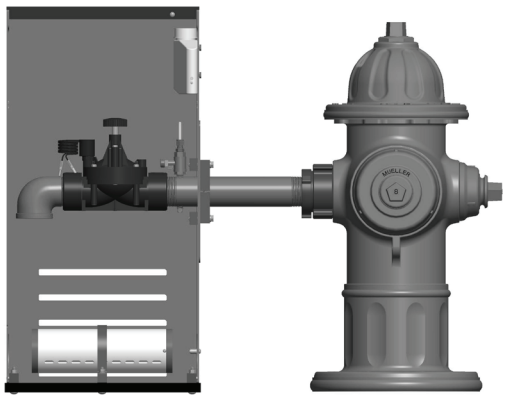


600 Series system with Bluetooth Programmer

Ordering Guide

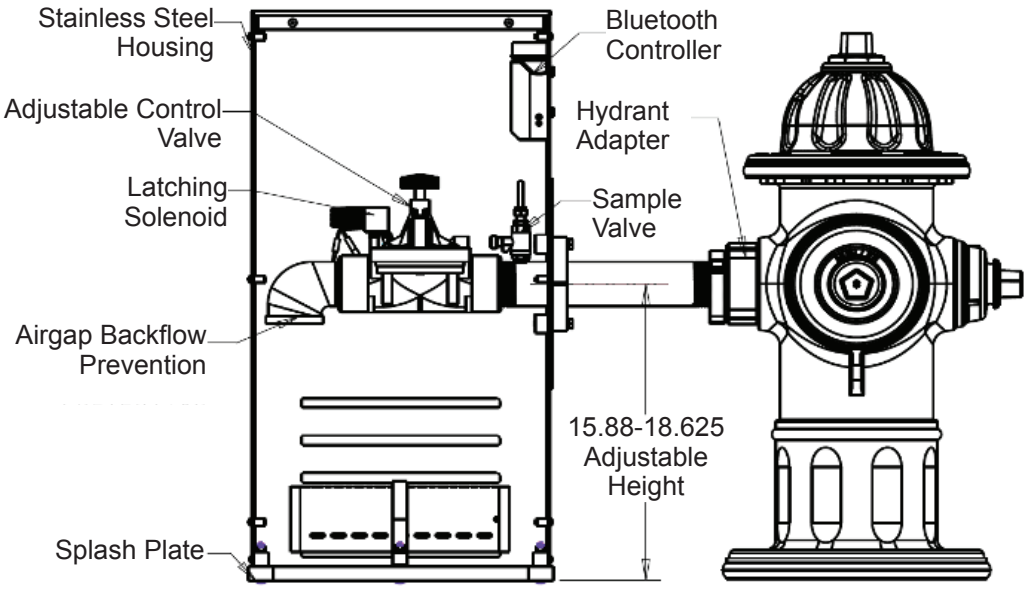
To order a Hydro-Guard automatic flushing and monitoring system, simply choose the desired options from the chart below and contact your Mueller Sales Representative for pricing. ■ indicates option is included with the unit.

Emergency / Temporary / Hydrant Mount		600 Series
	Description	Code
Climate Zone	Warm Climate	FW
Discharge	Discharge / Hydrant Mount	600
Backflow	Air Gap Backflow	A
Bury	Bury Depth (@ Hydrant)	00
Material	No Lead Brass	BRN
Programming	Bluetooth (iOS or Android Compatible)	BL
	Built-in NODE	ND
Enclosure Paint Color	No Paint (Stainless Finish)	N
	Mueller Red	R
	Mueller Yellow	Y
	Water Blue	B



600 Series Flushing System

Optional Equipment			
	Item	Used On	Code
Tools and Security Kits	Security Screwdriver (Torix)	600 Series Models	HG-A103
	600 Series Hydrant Defender (RED) with 600 Series Swivel Lock	600 Series Models	HSZ0060010/HG-134
	600 Series Hydrant Defender (YELLOW) with 600 Series Swivel Lock	600 Series Models	HSZ0060014/HG-134



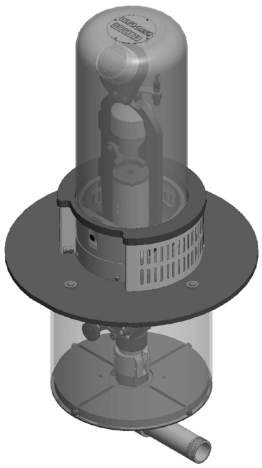
Rev. 7-21 Shaded area indicates changes

Hydro-Guard Permanent Flushing Systems

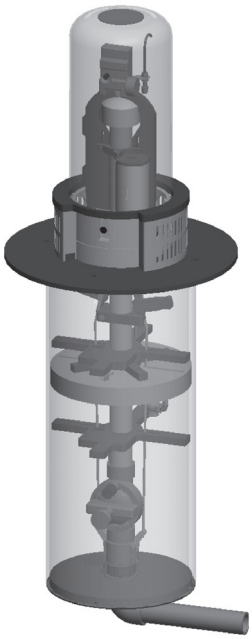
Hydro-Guard Permanent Flushing Systems provide a fully automated solution for flushing water distribution lines. The units can be designed to operate reliably in warm and cold climates. Designed for use with a built-in (NODE) or Bluetooth multi-event programmer, Hydro-Guard systems are programmed to flush a water line multiple times per day, seven days a week, with flush durations ranging from one minute to six hours per program. Water can be discharged atmospherically onto the system's splash plate or direct into a storm sewer, swale or pond.

Standard Features:

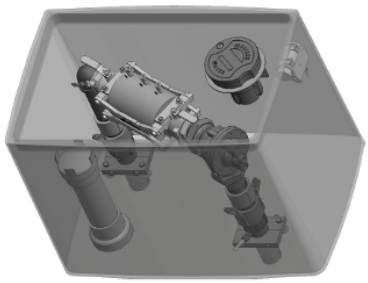
- BlueTooth Programming: up to 24 different flush events managed from up to 25-feet away by BlueTooth. No need to exit the vehicle to set or modify programming. Programming managed by a standard iOS and Android smartphone and free KR-BL app. Powered by one 9-volt battery.
- Battery and programming interface accessible from top of unit (9-volt Alkaline)
- 20psi to 120psi recommended operating pressure (valve rated to 200psi) (for pressures in excess of 110psi the use of a PRV is recommended).
- 100 and 200 Series devices are housed in free-standing, lockable, pedestal enclosures. 300 Series is housed in a below ground Mueller Thermal Coil Meter Box.
- Lockable, polyethylene housing provides durability, UV and impact resistance
- Cold climate units feature a patented freeze protection system features a self-draining dual check valve
- The 100 Series Warm and Cold Climate systems feature an energy dissipating stainless steel shield and integral heavy-duty UV protected splash plate (est. 155 gpm).
- OEM-installed Dechlorination System (8-tablet capacity)
- OEM-installed Sampling System (allows sample collection with unit on or off)
- Security Kit (1 set included with purchase)
- 100 Series Cold Climate & 200 Series Cold Climate units feature a patented Cam-Lock™ Release System
- 300 Series Cold Climate & 300 Series Warm Climate devices are below grade designs with only a lid at grade
- Certified to NSF/ANSI 372



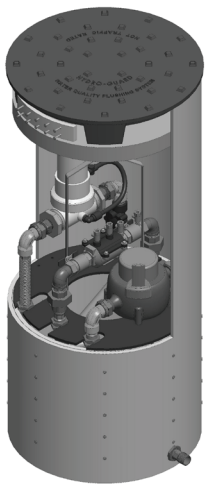
100 Series Warm Climate



100 Series Cold Climate



300 Series Warm Climate



300 Series Cold Climate

Ordering Instructions

To order a Hydro-Guard automatic flushing and monitoring system, simply choose the desired options from the chart below and contact your Mueller Sales Representative for pricing.

Warm Climate		50 Series	100 Series	200 Series	300 Series
	Description	Code	Code	Code	Code
Climate Zone	Warm Climate	FW	FW	FW	FW
Discharge	Atomspheric to Ground	50	100	—	—
	Direct to Storm Drain, Swale or Pond	—	—	200	300
Backflow	Air Gap Back-flow	A	A	A	—
	RPZ Backflow	—	—	R	—
	Double Check Backflow	—	—	D	D
Bury	18 Inches (100 Series FC only)	00	18	18	A
	24 Inches	—	—	—	24
	36 Inches	—	—	—	—
Material	PVC	PVC	PVC	PVC	—
	No Lead Brass	—	BRN	BRN	BRN
Programming	BlueTooth (IOS or Android compatible)	BL	BL	BL	BL
	Built-in NODE	IN	IN	IN	IN
Profile	Use suffix -HP only if selecting a High Profile FW200 Series model	—	—	-HP	—
Freeze Protection	Low pressure relief valve	—	—	—	—
	Thermal Control	—	—	-TCV	—

Cold Climate		100 Series	200 Series	300 Series
	Description	Code	Code	Code
Climate Zone	Warm Climate	FC	FC	FC
Discharge	Atomspheric to Ground	100	—	—
	Direct to Storm Drain, Swale or Pond	—	200	300
Backflow	Air Gap Backflow	A	A	—
	RPZ Backflow	—	—	—
	Double Check Backflow	—	—	D
Bury	18 Inches (100 Series FC only)	18	—	—
	24 Inches	—	—	—
	36 Inches	36	36	—
	48 Inches	—	—	48
	60 Inches	60	60	60
	84 Inches	—	84	84
	108 Inches	—	108	108
Material	PVC	PVC	PVC	—
	No Lead Brass	BRN[6]	BRN	BRN
Programming	BlueTooth (IOS or Android com-patible)	BL	BL	BL
	Built-in NODE	IN	IN	IN
Freeze Protection	Low pressure relief valve	Standard	Standard	Standard
	Thermal Control	—	—	—

Optional Equipment			
	Item	Used On	Code
Tools and Security Kits	TD Key	200 Series Low Profile	HG-A2006
	P Key	200 Series High Profile	HG-15113
	Hex/Shoulder Bolt Key	All 100 Series Models	HG-A2023
	Security Wrench (Torix)	All 100 Series Models	HG-A2023
	Security Key for DFW Vault	300 Series Warm Climate	HG-2421
	ID Tag *	Any Model	HG-20033

1 - Double Check or RPZ backflow prevention is only offered on devices with an 18" bury depth and low profile enclosure, with the exception of any device that is constructed using a Below Grade enclosure (I.E. 300 Series Warm Climate)

2 - 300 Series Cold Climate is only available with 1" poly-coil tubing and brass fittings

3 - Minimum bury depth for 300 Series Cold Climate flushing system with no above-grade enclosure is estimated to be 48"

4 - For cold climates the Low Pressure Relief Valve / Double Check freeze protection system is utilized to prevent freeze damage. When the flushing system ceases to flush the water in the service lines of the device are drained of water to reduce the possibility of freeze damage.

5 - TVC freeze protection is only available with the 200 Series Warm Climate brass model.

6 - 100 Series FC devices with bury depths greater than 36" are not currently available in No Lead Brass.

MUELLER

HYDRO-GUARD® 1200 SERIES S.M.A.R.T. FLUSH MANAGEMENT OPTIONS

Rev. 7-21 Shaded area indicates changes

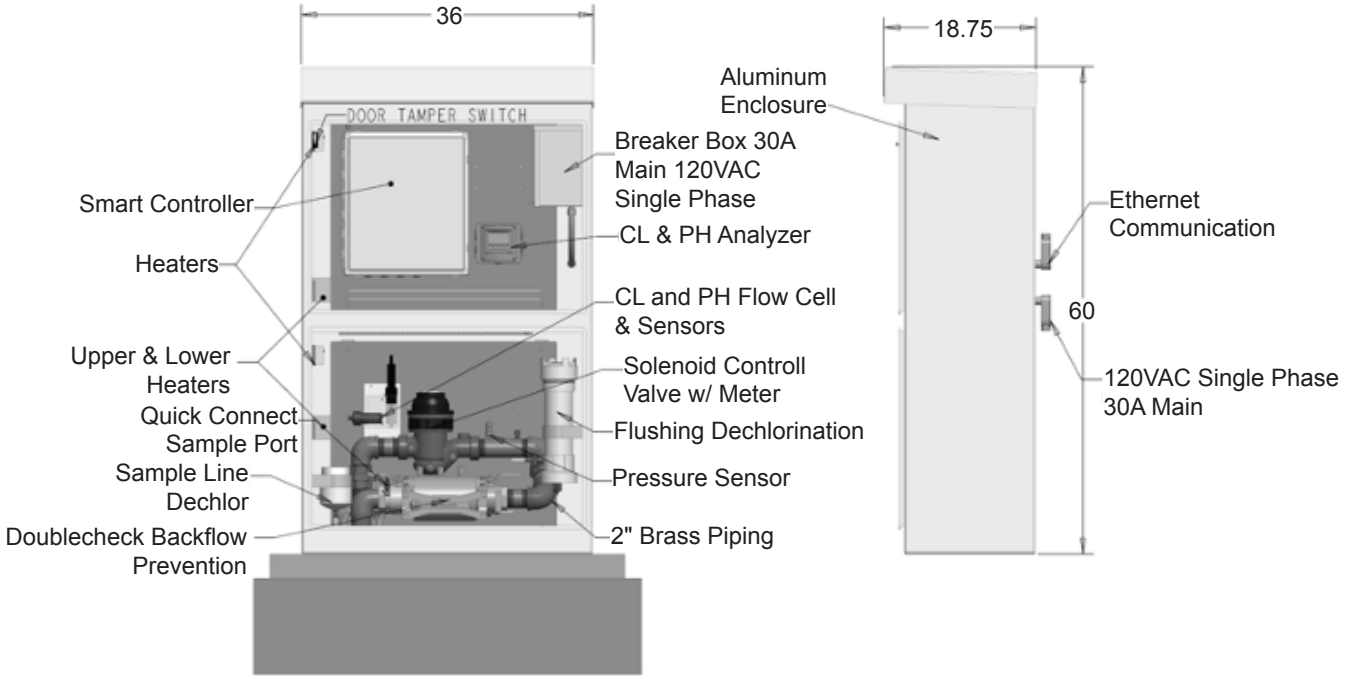
Hydro-Guard 1200 Series System Management and Remote Telemetry (S.M.A.R.T.) Flush Management Options

The Hydro-Guard S.M.A.R.T. Flushing System is the ultimate automated flush management system. 1200 Series S.M.A.R.T. enabled flushing can be set to occur either by scheduled flush times or in response to real-time analysis of local water quality. What's more it allows two-way communication and remote flush and water quality management via either a secure web portal or a secure interface with end-user's existing SCADA via MODBUS TCP protocol.

By way of this two-way communication, the utility can receive near-time updates from each Hydro-Guard Unit in the distribution system equipped with the 1200 Series S.M.A.R.T. controller. It is integrated with a residual analyzer and a variety of other water quality sensors. This integration will allow the Hydro-Guard 1200 Series S.M.A.R.T. Flushing System to flush only when the disinfectant residual drops below the parameters established by the end-user, as opposed to flushing on a set time based schedule. 1200 Series S.M.A.R.T. technology takes water conservation and cost management to a whole new level of potential savings.

Standard Features:

- Hydro-Guard 1200 Series S.M.A.R.T. Controller
- Hydro-Guard 1200 Series S.M.A.R.T. Management PLC with Ethernet port and onboard SD Card
- Premium grade analyzers and sensors
- Web-based two way management software
- MODBUS TCP for SCADA integration
- Monitor multiple water quality parameters (chlorine, temperature, pH, turbidity, etc.)
- System management assisted by remote telemetry
- Premium grade protective enclosure with tamper notification
- NEMA rated, weather-proof protective enclsoure with climate control.
- Hydro-Guard Flushing System (model to be determined through client/Hydro-Guard consultation)
- Complies with NSF372



1200 Series S.M.A.R.T. Flushing System

Ordering Instructions

To order a Hydro-Guard automatic flushing and monitoring system, simply choose the desired options from the chart below and contact your Mueller Sales Representative for pricing. ■ indicates option is included with the unit.

		Level One (FW 1201)	Level Two (FC1202)	Level Three (FC1203)
	Description	**Code**	**Code**	**Code**
Climate Zone	Warm Climate	FW1201	–	–
	All Climate		FC1202	FC1203
Sensors	Temperature + pH (Included with Cl Analyzer)	Standard	Standard	Standard
	Chlorine (Select One)	TC (Total Cl)	TC (Total Cl)	TC (Total Cl)
		FC (Free Cl)	FC (Free Cl)	FC (Free Cl)
		CC (Combined Cl)	CC (Combined Cl)	CC (Combined Cl)
	Turbidity	–	TU (optional)	TU (optional)
	Pressure Monitoring	–	Standard	Standard
	Flow Meter (Valve with Integrated Digital Meter)	–	–	FM (optional)
Flushing Components	Directed Discharge (Storm Drain, Swale or Storm Pond)	Standard	Standard	Standard
	Cast Control Valve (Singer except when Flow Meter is requested)	Standard	Standard	Standard
	Backflow Prevention	Air Gap	Air Gap	Double Check
Heating	Heat Tape		HT	HT
	Enclosure Heaters		Standard	Standard
Communication	Ethernet	Standard	Standard	Standard
	Cellular (Verizon)	CA	CA	CA
	Cellular (AT&T)	CG	CG	CG
	WiFi	WF	WF	WF
Enclosure & Security	Security Lock	Standard	Standard	Standard
	Enclosure Tamper Switch	Standard	Standard	Standard
	Manual On/Off Switch	Standard	Standard	Standard
	Dimensions	33" T x 25" W x 25" D	60" H x 36" W x 17" D	60" H x 36" W x 17" D

	New Part Number	Former Part Number	Part Description
50 Series (WARM)	FW50INT-BRN-18	HG1-INT-BRN-0	Internals for FW50 HIT Valve, BRN
	FW50INT-PVC-18	HG1-INT-PVC-0	Internals for FW50 HIT Valve, PVC
	FW50-ENC-0	HG1-ENC-0	FW50 Replacement Housing Assembly
	FW50-SOL-0	HG1-SOL-0	FW50 Replacement Solenoid; 30"
100 Series (WARM)	FWS100-INT	HG1-INT-SINGER	Internals for FWS100 Singer Valve, Brass
	FW100INT-BRN-18	HG1-INT-BRN-18	Internals for FW100 HIT Valve, Brass
	FW100INT-PVC-18	HG1-INT-PVC-18	Internals for FW100 HIT Valve, PVC
	FW100-BL	HG1-BL	FW100 Replacement BL Retrofit Kit
	FW100-IN	HG1-IN	FW100 Replacement NODE Retrofit Kit
	FW100-ENC-18	HG1-ENC-18	FW100 Replacement Housing Assembly
	FW100-DECHLOR	HG1-DECHLOR	FW100 Replacement DECHLOR Retrofit Kit
	FW100-SOL-18	HG1-SOL-18	FW100 Replacement Solenoid
	HG-S101	---	100 SERIES Control Valve Sub-Assembly (prior to 11/2015)
	HG-01144	---	100 SERIES Ground Plate Gasket (prior to 11/2015)
100 Series (COLD)	FC100-INT-36	HG3-INT-36	Internals for FC100; 36"
	FC100-INT-60	HG3-INT-60	Internals for FC100; 60"
	FC100-ENC	HG3-ENC	FC100 Replacement Enclosure
	FC100-SOL-36	HG3-SOL-36	FC100 Replacement Solenoid, 36"
	FC100-SOL-60	HG3-SOL-60	FC100 Replacement Solenoid, 60"
	FC100-BL	HG3-BL	FC100 Replacement BL Retrofit Kit
	FC100-IN	HG3-IN	FC100 Replacement NODE Retrofit Kit
	FC100-DECHLOR	HG3-DECHLOR	FC100 Replacement DECHLOR Retrofit Kit
	FC100-FRZ	HG3-FRZ	FC100 Replacement Freeze Protection Retrofit Kit
	HG-S120	---	100 AND 200 SERIES Low Pressure Relief Valve
	FC100-KEY	HG3-KEY	Key 7/16 Hex/SLTT2LB1

	New Part Number	Former Part Number	Part Description
200 Series (WARM)	FW200-LP-INT-A (INCLD DECK PLATE)	HG2-LP-INT-A (Include Deck plate)	Internals for FW200 Air Gap, PVC, Low
	FW200-HP-ENC (2010-N)	HG2-HP-ENC (2010-N)	Internals for FW200 Air Gap, PVC, High
	FW200-LP-ENC-DR (2010-N)	HG2-LP-ENC-DR (2010-N)	FW200 Replacement Enclosure DC or RPZ
	FW200-LP-ENC-A (2010-N)	HG2-LP-ENC-A (2010-N)	FW200 Replacement Enclosure Air Gap
	FW200-HP-SOL	HG2-HP-SOL	FW200 Replacement Solenoid; High
	FW200-LP-SOL	HG2-LP-SOL	FW200 Replacement Solenoid; Low
	FW200-TCV (Include HP and LP parts)	HG2-TCV (HP and LP)	FW200 Replacement TCV (Include HP and LP parts) Retrofit Kit
	FW200-DECHLOR-HP	HG2-DECHLOR-HP	FW200-DECHLOR Replacement HP Retrofit Kit
	FW200-DECHLOR-LP	HG2-DECHLOR-LP	FW200-DECHLOR Replacement LP Retrofit Kit
	FW200-LP-FRZ	HG2-LP-FRZ	Freeze Protection Assembly LOW PROFILE
	HG-FP108	---	200 SERIES Freeze Protection Adaptor
	546138	---	200 Series (HG-2) DOUBLECHECK*
200 Series (COLD)	FC200-INT36PVC	HG4-INT36PVC	FC200 Internal Replacement Kit, 36", PVC
	FC200-INT60PVC	HG4-INT60PVC	FC200 Internal Replacement Kit, 60", PVC
	FC200-INT84PVC	HG4-INT84PVC	FC200 Internal Replacement Kit, 84", PVC
	FC200-INT108PVC	HG4-INT108PVC	FC200 Internal Replacement Kit, 108", PVC
	FC200-INT36BRN	HG4-INT36BRN	FC200 Internal Replacement Kit, 36", Brass
	FC200-INT60BRN	HG4-INT60BRN	FC200 Internal Replacement Kit, 60", Brass
	FC200-INT84BRN	HG4-INT84BRN	FC200 Internal Replacement Kit, 84", Brass
	FC200-INT108BRN	HG4-INT108BRN	FC200 Internal Replacement Kit, 108", Brass
	FC200-SOL-36	HG4-SOL-36	FC200 Replacement Solenoid, 36"
	FC200-SOL-60	HG4-SOL-60	FC200 Replacement Solenoid, 60"
	FC200-SOL-84	HG4-SOL-84	FC200 Replacement Solenoid, 84"
	FC200-SOL-108	HG4-SOL-108	FC200 Replacement Solenoid, 108"
	FC200-ENC	HG4-ENC	FC200 Replacement Enclosure
	FC200-DECHLOR	HG4-DECHLOR	FC200 Replacement DECHLOR Retrofit Kit
	FC200-SOL	HG4-SOL	FC200 Replacement SOL Retrofit Kit
	HG-S120	---	100 AND 200 SERIES Low Pressure Relief Valve
	CAMLOCK-2IN	HG-S124	Latching Sub-Assembly
	FC200-FRZ	HG4-FRZ	Freeze Protection Sub-Assembly
	FC200-KEY	HG4-KEY	HG4 ENCLOSURE KEY

	New Part Number	Former Part Number	Part Description
300 Series (WARM)	FW300-SOL	HG8WC-SOL	FW300 Replacement Solenoid Retrofit Kit
	FW300-BL	HG8WC-BL	FW300 Replacement BL Retrofit Kit
	FW300-DECHLOR	HG8WC-DECHLOR	FW300 Replacement DECHLOR Retrofit Kit
	CAMLOCK-2IN	---	CAMLOCK ASM
	FW300-LID	HG8WC-LID	FW300 Replacement LID Retrofit Kit
300 Series (COLD)	FC300-SOL	HG8CC-SOL	FC300 Replacement Solenoid Retrofit Kit
	FC300-BL	HG8CC-BL	FC300 Replacement BL Retrofit Kit
	FC300-DECHLOR	HG8CC-DECHLOR	FC300 Replacement DECHLOR Retrofit Kit
	FW300-DC	HG8-DC	FW300 Replacement Double Check Kit
	780152-WF	---	Therma Coil Repair Kit
	FC300-INS	HG8CC-INS	21" Insulating Pad
	FC300-LID-C	HG8CC-LID-C	PIT LID COMPOSITE
	FC300-LID	HG8CC-LID	FC300 Replacement LID Retrofit Kit; CAST IRON
600 Series (Temporary/ Emergency)	FW600-SOL	HG6-SOL	FW600 Replacement Solenoid
	FW600-DECHLOR	HG6-DECHLOR	FW600 Replacement DECHLOR Retrofit Kit
	FW600-LID	HG6-LID	FW600 Replacement LID Retrofit Kit
	FW600-BL	HG6-BL	FW600 Replacement BL Retrofit Kit
	FW600-IN	HG6-IN	FW600 Replacement NODE Retrofit Kit
	FW600-LID-S	HG6-LID-S	FW600-LID Replacement Singer TAPS Retrofit Kit
	FW600-ENC-R	HG6-ENC-R	600 Series Housing Assy -- Red
	FW600-ENC-WB	HG6-ENC-WB	600 Series Housing Assy -- Water Blue
	FW600-ENC-R	HG6-ENC-Y	600 Series Housing Assy -- Yellow
	HG-A134	---	600 Series (HG-6) Locking Device
	HG-16018	---	Hydrant Swivel Adapter
1200 Series S.M.A.R.T.	FC1200-DC-INT	SMDC-INT	1200 Series S.M.A.R.T. Level 3 Internal Assembly
	FC1200-AG-INT	SMAG-INT	1200 Series S.M.A.R.T. Level 2 Internal Assembly
General Parts	HG-123100	---	2" Composite Control Valve
	QUICKSAMPLE-KIT	HG-S116B	Sample Quick Connect Replacement
	HG-DECHLOR-LP	---	HG-DECHLOR-LP (200 Series Models)
	HG-S116	---	Portable Sample Valve with Poly tip (Chemical Disinfect)
	HG-A107	---	Winterizing Vacuum Pump for VAC Sample Stations
	HG-16035	---	EPDM (HIT Valve) Diaphragm
	HG-V102	---	Banjo Connection Replacement Gasket
	CAMLOCK-2IN	HG-S125	Banjo Connection 2" ASSEMBLy
	CAMLOCK-1IN	---	BANJO CONNECTION ASEMBLY
	HG-16037	---	2" HIT Valve Top Sub-Assembly
	HG-FP100	---	Thermal Control Valve Replacement Kit

	New Part Number	Former Part Number	Part Description
Security Kits	HG-A2006	---	TD Key for use with 200 Series Low Profile and 200 Series Cold Climate
	HG-15113	---	P-Key for use with 200 Series High Profile
	HG-A2023	---	HEX / Shoulder Bolt Combo Key- BSS MUE/CHA ENCLOSURE
		---	HEX / Shoulder Bolt Combo Key- BSS MUELLER ENCLOSURE
	HG-A2023	---	HEX / Shoulder Bolt Combo Key-100 Series
	HG-A103104	---	Security Kit (Includes Screw Driver) for 100 Series (Warm) (pre NOV '15)
	HG-A103	---	Securing Screw Driver for former 100 Series (post NOV '15)
	HG-A104	---	Security Wrench
	HG-16018	---	Hydrant Swivel Adaptor
	HG-A2009	---	Hex Lock Replacement Kit
	HG-01126	---	600 Series Cover Security Screws
	HG-A134	---	Locking Device (HG6)
Replacement Programming Kits	HG-BL	---	KR-BL Controller Interface (only, no solenoid) Conversion Kit
	FW100-BL	HG1-BL	100 SERIES Retrofit Kit Conversion to KR-BL; 18" Bury
	FW200-BL	HG2-BL	200 SERIES Retrofit Kit Conversion to KR-BL; Low Profile
	FC300-BL18	HG3-BL18	100 SERIES Retrofit Kit Conversion to KR-BL; 18" Bury
	FC300-BL36	HG3-BL36	100 SERIES Retrofit Kit Conversion to KR-BL; 36" Bury
	FC300-BL60	HG3-BL60	100 SERIES Retrofit Kit Conversion to KR-BL; 60" Bury
	FC300-BL84	HG3-BL84	100 SERIES Retrofit Kit Conversion to KR-BL; 84" Bury
	FC300-BL108	HG3-BL108	100 SERIES Retrofit Kit Conversion to KR-BL; 108" Bury
	FC200-BL36	HG4-BL36	100 SERIES Retrofit Kit Conversion to KR-BL; 36" Bury
	FC200-BL60	HG4-BL60	200 SERIES Retrofit Kit Conversion to KR-BL; 60" Bury
	FC200-BL84	HG4-BL84	200 SERIES Retrofit Kit Conversion to KR-BL; 84" Bury
	FC200-BL108	HG4-BL108	200 SERIES Retrofit Kit Conversion to KR-BL; 108" Bury
	FW600-BL	HG6-BL	600 SERIES Retrofit Kit Conversion to KR-BL; No Bury
	FC300-BL	HG8-BL	300 SERIES Retrofit Kit Conversion to KR-BL; Bury Depth N/A
	HG-S292	HG-S292	Node Controller Interface (only, no solenoid) Conversion Kit
	FW100-NODE	HG1-NODE	100 SERIES Retrofit Kit Conversion to Node; 18" Bury
	FW200-NODE	HG2-NODE	200 SERIES Retrofit Kit Conversion to Node; 18" Bury
	FW600-NODE	HG6-NODE	600 SERIES Retrofit Kit Conversion to Node; No Bury

Rev. 4-19 Shaded area indicates changes

Hydro-Guard Sampling Stations

The Hydro-Guard Blow-Off Sampling Station provides a reliable and user-friendly method for taking water quality samples from a utility's own water distribution line. Using a permanent, dedicated sampling point allows utility personnel to access sample locations at their convenience—no appointment necessary. Hydro-Guard Sampling Stations are for use in warm or cold climates, with a variety of freeze protection options available for the protection of these devices in even the coldest of climates.

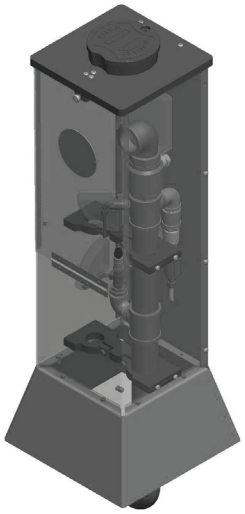
Above Ground Solutions

Standard Features:

- Bury depths of 12" to 72"
- No lead brass or stainless steel piping components
- Free standing, self-supporting needs no additional pad or post
- Self-locking enclosure
- HDPE or Powder-coated aluminum, lockable support frame with powder-coating for corrosion resistance

Optional Features:

- Mechanical thermal control valve freeze protection
- Internal curb stop and drain freeze protection
- Internal curb stop with VAC line freeze protection
- Remote Pressure Monitoring



Hydro-Guard® BSS-02 Sample Station with TCV style freeze protection

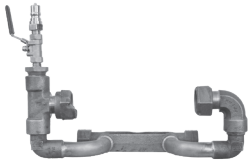
Typical installation of BSS05-CHA-00-SP Cold Climate Sample Station

Below Ground Solutions

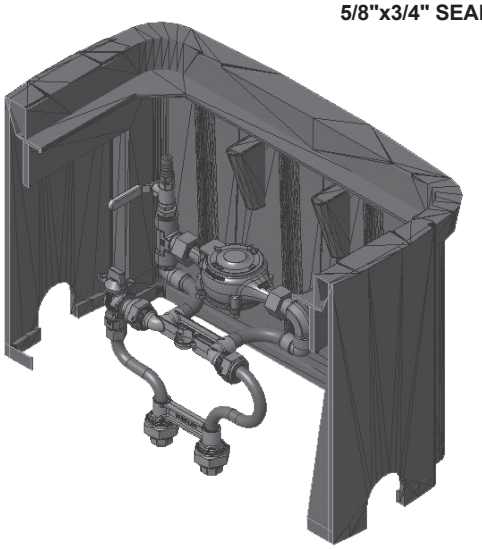
Standard Features:

- Incorporated into Mueller Relocator with horizontal inlet and outlet
- M.I.P. meter thread used to retrofit dual check with sampling into existing meter set
- Available for use with 5/8”; 5/8” x ¾”; ¾”; and 1” meter setters
- Sampling wand (sold separately)
- Easy access
- No above grade housing to maintain
- Sanitary cap included for protection of sample quick connect at meter setter
- No lead brass or stainless steel quick connect valve for sure-fit connection of sample wand and sample point
- No valve to open at meter setter connection
- Wand constructed of 3/8” stainless steel tubing with a ball valve

Sampling Wand: 547800 (for use with all samplers & relocators)



5/8" x 3/4" Relocator: 203H1445----02N (for use with 5/8"x3/4" SEAERS)



Typical installation of below ground solution

HYDRO-GUARD® SAMPLING STATIONS ORDERING INSTRUCTIONS

MUELLER **16.13**

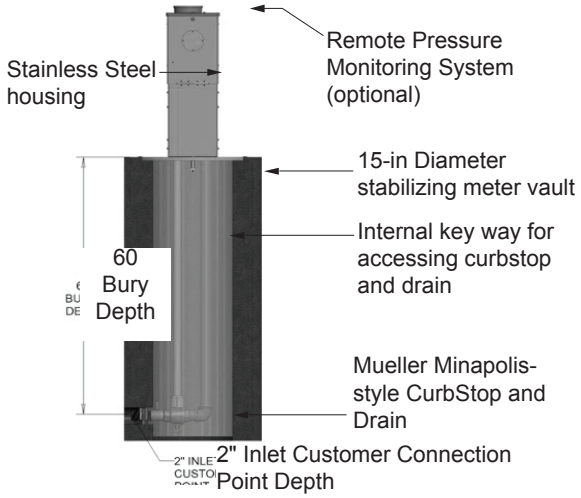
Shaded area indicates change Rev. 6-21

Ordering Instructions

To order a Hydro-Guard automatic flushing and monitoring system, simply choose the desired options from the chart below and contact your Mueller Sales Representative for pricing. ■ indicates option is included with the unit.

Hydro-Guard Sample Stations				
	Description	**Feature**	**Feature**	**Feature**
Base Part #	Base Part Number	BSS01	BSS02 (2"")	BSS05 (No Blow Off)
(Blow Off)	Diameter of Blow Off Valve	01 (1")	02 (2")	05 (No Blow Off)
Bury	18 inches	18	18	18
	36 inches	36	36	36
	48 Inches	48	48	---
	54 inches	54	54	---
	60 inches	60	60	---
	72 inches	72	72	---
Enclosure & Color	CHA Composite (Lockable Key Included)	CHADG (12"x12")	CHADG (12"x12")	CHADG (12"x12")
		CHABL (12"x12")	CHABL (12"x12")	CHABL (12"x12")
	Stainless Steel (Lockable, Shoulder Bolt, Key Included)	MUDG2 (10"x10")	MUDG2 (10"x10")	MUDG2 (10"x10")
		MUBL2 (10"x10")	MUBL2 (10"x10")	MUBL2 (10"x10")
Climate / Freeze Protection	No freeze protection; Warm Climates	000 (None)	000 (None)	000 (None)
	Vacuum line (requires hand pump); Moderate Climates	VAC (Vacuum Line)	VAC (Vacuum Line"	---
	Mechanical Thermal Control Valve; Moderate Climates	TCV (Thermal Control Valve)	TCV (Thermal Control Valve)	---
	Curbstop and Drain; internal guide for valve key and access to valve for operation	CSD (Curbstop + Drain)	CSD (Curbstop + Drain)	---
Pipe Material	No Lead Brass	NL	NL	NL
	Stainles Steel	SS	SS	SS
Threaded	Threaded for Hose Adaption	T	T	---
Pressure Monitoring (Optonal)	OEM installed Remote Pressure Monitoring Sysem, Accessible from lid of sample station *(Only available in MU style enclosures)*	-IWT	-IWT	-IWT

Optional Equipment			
	Item	**Used On**	**Code**
Tools and Security Kits	TD Key	All DIV	HG-A2006
	Hex/Shoulder Bolt Key	All CHA & MU	HG-A2023
	Curb Stop Key	CSR, CSD, VCS, CSL	HG-20087
	ID Tag *	Any Model	HG-20033
	Vacuum Pump	VAC & VCS	HG-A107
	2" MPT x 2.5" NST	2" BSS	HG-29011
	Pressure Monitoring	IWT1 Pressure Monitoring	-IWT

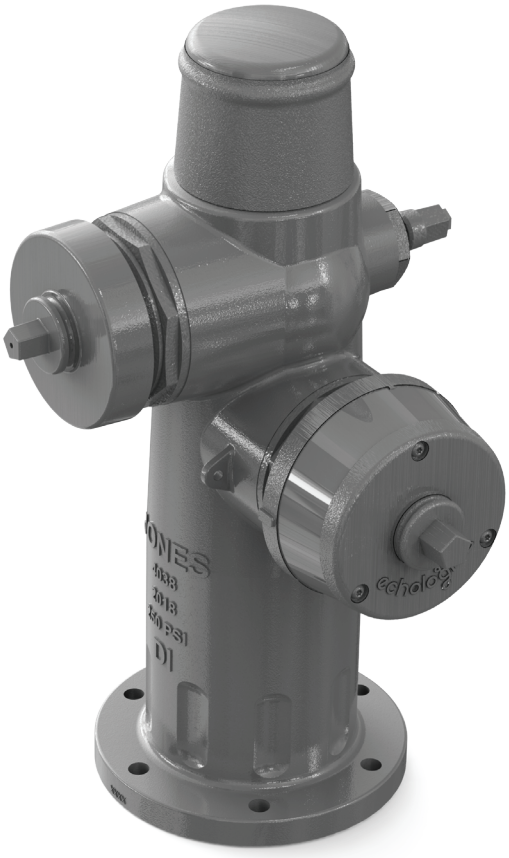


Hydro-Guard® Monitoring System

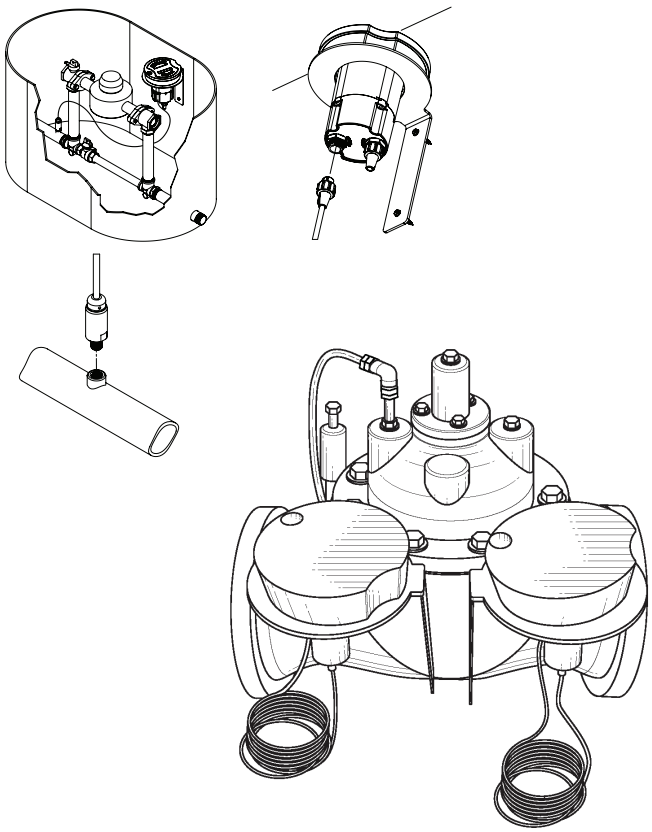
Hydro-Guard Remote Pressure Monitoring System is engineered to be deployed anywhere in a distribution system that has cell phone service. It can be installed by way of a saddle or direct tap into the distribution main; in a meter vault; in a control valve; on a hydrant; or onto a water tank. The system includes a Lithium battery and 1-year of cellualr service with a renewable annual contract.

Standard Features:

- Monitors pressure from a single installation point
- Flexible installation - Can be installed anywhere in the distribution system
- Data transmitted via celluar service - No need to deploy personnel to read devices
- Standard Mode: Readings taken every 15 seconds, logged and made available for periodic uploads
- Transient Mode: When scheduled, device will monitor up to 256 readings per second.
- Sampling Mode: Sample raw data points at frequencies of one reading per minute or one reading per 30 seconds.
- Sentryx™ enabled: Information stored on secure, cloud-based servers
- GIS map interface via any web browser - User-friendly and intuitive



Hydro-Guard IWT3



Singer Control Valve with IWT1 pressure monitoring system

Ordering Guide

Below is a simplified ordering guide to help select the options available. Please contact your Mueller sales representative for additional details and assistance.

STEP 1 - SELECT MODEL				
Selection		**Code**	**Other**	**Select One**
Pressure Monitoring System for installation in Vault or on Tank		IWT1		□
Pressure Monitoring Sytem for Installation in Roadway		IWT2		□
STEP 2 - SELECT TYPE of CELLULAR SERVICE				
Verizon 4G/ LTE/ CAT M		C	-	□
STEP 3 - SELECT CORPORATIONSTOP				
IWT1 - No Corp. Included		NC	None	■
IWT2 - Mueller 300 Ball Corp Included		45	3/4"	□
STEP 4 - SELECT SERVICE SADDLE				
IWT1 - No Saddle Included		NOSADDLE	None	■
BR2B (3/4" cc)	BR2B0474	4.74 - 5.32	-	□
For use on Ductile / Cast Iron	BR2B0684	6.84 - 7.45	-	□
	BR2B0899	8.99 - 9.67	-	□
	BR2B1104	11.04 - 12.12	-	□
	BR2B1314	13.14 - 14.58	-	□
	BR2B1522	15.22 - 16.88	-	□
	BR2B1732	17.32 - 19.19	-	□
BR2S (3/4" cc)	BR2S0474	4.74 - 5.32	-	□
For use on A-C, Cast Iron, & Ductile	BR2S0684	6.84 - 7.45	-	□
	BR2S0899	8.99 - 9.67	-	□
	BR2S1104	11.04 - 12.12	-	□
	BR2S1314	13.14 - 14.58	-	□
	BR2S1522	15.22 - 16.88	-	□
	BR2S1732	17.32 - 19.19	-	□
BR2W (3/4" cc)	BR2W1800	18.00 - 19.50	-	□
For use on A-C, Cast Iron, & Ductile	BR2W2000	20.00 - 24.60	-	□
	BR2W2400	24.00 - 25.00	-	□
STEP 5 - SELECT COMPOSITE VALVE BOX with 12" Cast Iron Upper Section				
IWT1 - No Valve Box Included		NOV	-	■
IWT2 - Mueller Valve Box 3'		03C	3-foot	□
IWT2 - Mueller Valve Box 5'		05C	5-foot	□
IWT2 - Mueller Valve Box 7'		07C	7-foot	□
IWT2 - Mueller Valve Box 9'		09C	9-foot	□
STEP 6 - SELECT SECURITY OPTION				
Locking Lid		LR	Locking Nut	□
OPTIONAL PARTS				
Cast Iron Valve Box		AJBV-4C	Roadway Install	□

Shaded area indicates change Rev. 1-19

Ordering Guide

Below is a simplified ordering guide to help select the options available. Please contact your Mueller sales representative for additional details and assistance.

STEP 1 - SELECT MODEL			
Selection	**Code**	**Other**	**Select One**
Pressure Monitoring System	IWT3		☐
STEP 2 - SELECT TYPE of CELLULAR SERVICE			
Selection	**Code**	**Other**	**Select One**
Verizon 4G/ LTE/ CAT M	C	-	☐
STEP 3 - SELECT MOUNT TYPE			
Selection	**Code**	**Other**	**Select One**
STRAIGHT THREADS	ST	-	☐
GLAND	GL	-	☐
STEP 4 - SELECT COLOR			
Selection	**Code**	**Other**	**Select One**
RED	R	-	☐
YELLOW	Y	-	☐
BLUE	B	-	☐

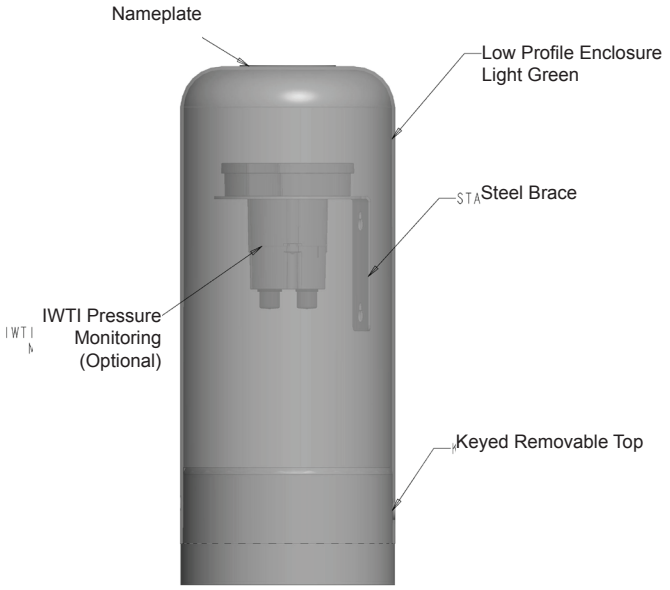
Enclosures

Enclosures are ideal for protecting valuable utility assets from the environment or vandalism.

Mueller offers a wide range of sizes, materials and options to meet a utility's need to cover a sample station, air release valve, or any other water or wastewater asset.

Standard Features:

- Plastic enclosures are UV and impact resistant polyethylene
- Metal enclosures are high-strength Aluminum, painted with Mueller® hydrant-quality finishes
- Powder-coated steel enclosures offer easy access to equipment and are available in a wide range of color options
- Below grade base for stability
- Most options offer 360° accessibility
- Corrosion resistant
- 1-year limited warranty



HG1-ENC-18

SGE140024CHA
(not available in CA, AZ, NV, OR, & WA)

SGE142435CHA00

Shaded area indicates change Rev. 10-16

Ordering Instructions

To order an Enclosure, simply choose the desired options from the chart below and contact your Mueller Sales Representative for pricing. ■ indicates option is included with the unit.

STEP 1 - SELECT MODEL		
Type	**Code**	**Select One**
Enclosure	SGE	■

STEP 2 - SELECT ENCLOSURE STYLE		
Part Number		**Select One**
ROUND		
SGE180034CHA[1]		□
SGE140024CHA[1]		□
SQUARE		
CHA / Standard		
SGE070739CHASP		□
SGE121247CHASP		□
MUE / Heavy Gauge Stainless Steel (Mueller Paint Quality)		
MUE101033PS		□
RECTANGLE		
CHA		
SGE142435CHA00	Standard Form	□
SGE142435CHA16	316 Stainless Steel	□
DIV		
SGE163125DIVWO	Without Insulation	□
SGE1633125DIVWI	With Insulation	□
SGE203426DIVWO	Without Insulation	□
SGE203426DIVWI	With Insulation	□
ROCK		
545781	200 Series Warm and Cold Climates	□
545782	200 Series Warm (High Profile)	□

STEP 3 - SELECT COLOR		
Color	**Code**	**Select One**
DIV & CHA		
Blue	BL	□
Dark Green	DG	□
MUE ONLY		
Dark Green	DG	□
Water Blue	BL	□

OPTIONS		
Item	**Code**	**Select One**
TD Key (All DIV)	HG-A2006	□
Hex & Shoulder Bolt Lock Key Combo (All CHA except 14x24x35)	HG-A2023	□
P Key (CHA 14x24x35)	HG-15113	□
Curb Stop Key	HG-20087	□
ID Tag * (Any Model)	HG-20033	□
Vacuum Pump	HG-A107	□

1 - Not available in CA, AZ, NV, OR, & WA)

Part Numbering Example

CHA Style Enclosures														
Shape	Width	Depth	Height	Part Number										
Square	07"	07"	39"	S	G	E	0	7	0	7	3	9	C	H	A		
	12"	12"	47"	S	G	E	1	2	1	2	4	7	C	H	A		
Rectangle	14"	24"	35"	S	G	E	1	4	2	4	3	5	C	H	A		

BL = Blue **LG** = Light Green **DG** = Dark Green

** Multi-colored faux stone appearance*

MUELLER