

HYDRO-GUARD[®]

a **MUELLER** brand

OPERATING INSTRUCTIONS MANUAL

300 Series Warm 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 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 WARM CLIMATE FLUSHING SYSTEM

Installation Instructions

GENERAL

Overview

The Hydro-Guard 300 Series Warm Climate Unit, is the industry's premier below-ground, Sub-Surface Discharge, programmable flushing apparatus. This Unit is suitable for year-round use in warm to moderate climates. This Automatic Flushing System has been designed, engineered, and manufactured to provide outstanding dependability

and performance.

Please read and retain this manual. It will be helpful 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 away from the Hydro-Guard Unit. Discharged water flushed from the Hydro-Guard Unit must be routed away from the device. (See Typical Installation illustration).

The recommended final discharge points may include a storm drain, drainage or retention pond, or a storm swale.

INSTALLATION

Hydro-Guard 300 Series Warm Climate Flushing Unit

The Hydro-Guard 300 Series Warm Climate Flushing System is housed in a Mueller Meter Box that is approximately 33 7/8" long x 23 3/8" wide x 24" deep. The wall thickness is 1/2". 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 brass inlet and outlet connections that will route water from the water utility's potable water distribution line 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.).

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

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

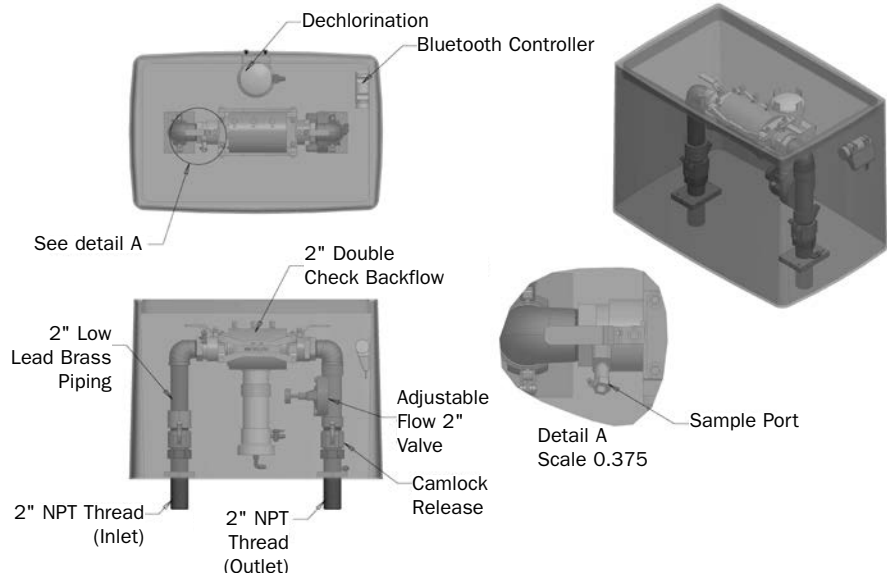
settling after installation. Place #57 stone. Then, place non-compacted clean bedding material within the bottom of the hole. Provide a bed of crushed gravel approximately 6 inches thick or place bricks or cement blocks below the pit to allow for drainage and provide support.

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

5. 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 "inlet" connection and plumb the discharge line to the discharge connection. 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 1/2" per foot.

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



300 SERIES WARM CLIMATE FLUSHING SYSTEM

Installation Instructions & Programming Unit

INSTALLATION - (CONTINUED)

7. Install the top of the meter box level with existing grade and ensure the meter lid is level with existing grade.

8. 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.

9. 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.

10. 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.

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

12. 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.

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



14. Once programming has been set, install 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

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.



- 1 The App will now search for devices in range.
- 2 **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.
- 3 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 WARM CLIMATE FLUSHING SYSTEM

Disassembly/Reassembly Instructions

300 SERIES WARM CLIMATE DISASSEMBLY AND REASSEMBLY INSTRUCTIONS



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

Although the Hydro-Guard 300 Series Warm Climate Sub-Surface 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 lid of 300 Series Warm Climate protective ground sleeve vault.
3. Backup to stress point then push down on the camlock release handles to disengage the camlocks prior to lifting the flushing components out of the device.
4. Raise and remove the flushing system assembly out of the meter box.
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 Warm Climate Unit out of in-ground protective vault.
2. Unscrew solenoid from valve – be careful to not drop the solenoid plunger and spring into in-ground housing.
3. Using the Bluetooth Controller, 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 diaphragm.

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 assembly below grade by slowly lowering the steel frame to the lower part of the in-ground protective housing (DO NOT apply excessive force to assembly). Use Guide in meter box to align internals.
3. Once lowered back into the protective vault, lock the internals in place by pulling up on camlock handles.
4. Turn water supply to the unit on. Using the controller, run a two minute manual flushing procedure to confirm all components are operational.
5. Return insulation pad and 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.
- Obstruction in double check valve.

Try this Correction

- Check if curb stop is open.
- Change batteries.
- Check connections for corrosion, breaks, or lack of connection.
- Check backflow preventer (follow manufacturer's instructions).

- 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. Check the pipes for obstructions. Check the valve for debris and/or damage.

The Hydro-Guard Unit will not shut off:

Possible Causes

- The solenoid is stuck in the open position or debris is interfering 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 2 minutes.
- 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 Warm Climate Sub-Surface Discharge Unit, features a Sample Port quick connect that allows the end user to collect a sample from the 300 Series Warm Climate Unit 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 Warm 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 Warm Climate Unit 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.

S.M.A.R.T. Monitoring and Flush Management

The Hydro-Guard 300 Series Warm Climate Unit can not be upgraded to S.M.A.R.T. technology. To monitor water quality, conditioned in real time, Mueller offers a variety of S.M.A.R.T monitoring and flushing systems.

The Hydro-Guard S.M.A.R.T. flushing system:

- Monitors chlorine levels (total or free).
- Flushes distribution line when residual disinfectant drops below acceptable levels.
- Monitoring of pH, flow, temperature or turbidity available.
- Two-way real-time communication via cellular, Wi-Fi, ethernet or Bluetooth® .

BATTERY REPLACEMENT

- 1.** Remove composite or cast iron lid and insulation pad.
- 2.** Locate the controller and its battery compartment.
- 3.** Be sure to tighten battery compartment cap securely before returning unit to service.
- 4.** Programming
 - a. 300 Series Warm Climate Bluetooth (BL)** – Unscrew the grey cap off the watertight housing of the integrated programming interface. Pull the battery box out of the watertight housing. Replace 9-volt battery with a 9-volt alkaline battery.

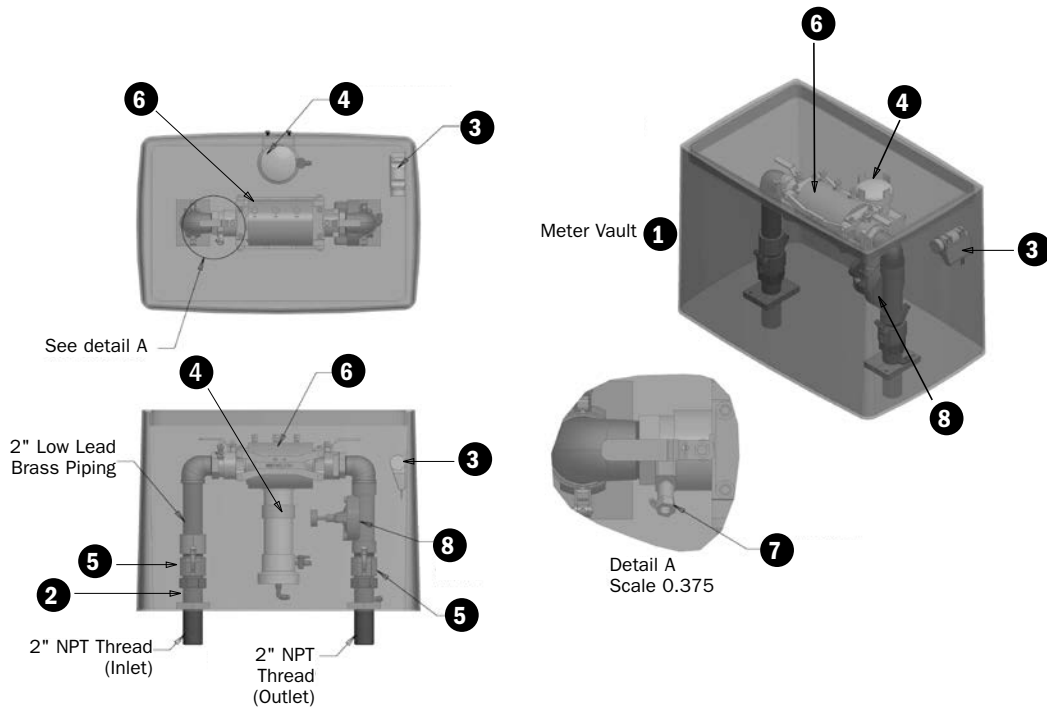
- 5.** Place the battery back into the watertight integrated Bluetooth programming interface making certain to tighten the screw-on lid until snug.
- 6.** Return the internals of the 300 Series Warm Climate Unit to its proper location.

300 SERIES WARM CLIMATE FLUSHING SYSTEM

Parts

REPLACEMENT PARTS

ID	DESCRIPTION
1	Meter Vault
2	Male Camlock
3	Bluetooth Controller Interface
4	Dechlorination System
5	Female Camlock
6	2" Double Check Valve
7	Sample Quick Connect
8	2" Control Valve



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