



Automatic Flushing Systems For Cold Climates

Presented by Carson Quigley

Who is Omnitech:



- Omnitech was started in 1987 led by the current Owner, who continues to direct the day-to-day activities
- Omnitech is ISO 9001:2015 Certified
Based in the Burnside Industrial Park in Dartmouth, NS

Service all 4 Atlantic Provinces

- Nova Scotia
- New Brunswick
- Newfoundland & Labrador
- Prince Edward Island

How do We Measure Success?



Success:

Omnitech provides its customers with quality products from a wide variety of suppliers and we measure our success by the number of satisfied repeat customers.

Our Mission:

Omnitech's mission is to be a dominant market leader by continually drawing upon, improving and developing the diverse personnel, products and services within our corporation.

Manufacturers We Represent



Process Instrumentation:

SIEMENS



OPTI-FLOAT®



ASHCROFT®

ZOOK®
USA • CANADA • EUROPE

SICK
Sensor Intelligence.

bürkert
FLUID CONTROL SYSTEMS

S::can
A Badger Meter® Brand

ATi
A Badger Meter® Brand

Manufacturers We Represent



Specialty Valves & Municipal Products:

HYDRO-GUARD®
a MUELLER brand

i20®
a MUELLER brand

ECHOLOGICS®
a MUELLER brand

SINGER™

Red Valve®

VAL-MATIC®

Slurryflo

Tideflex®
Technologies

Bray
Flow-Tek

DYNAMIC
WATER CONTROL GATES



Advanced Maintenance Flushing

- Reduce Customer Complaints
- Reduce Operational Costs Associated with Flushing
- Consistency with Water Age Management



Temporary / Emergency Flushing

- Deploy on Virtually Any Hydrant
- Supports Own Weight
- Reduces Potential for Erosion at Hydrant
- Reduces Reliance on Crews to Man Flushing After Hours



Bacteriological Sampling Stations

- Samples are a True Representation of Utility's WQ
- Sample from Dedicated Sample Points
- Accessible 24/7 from Utility's RoW
- No Appointments Necessary
- Lockable | Dependable | Durable



What is driving you to flush water lines today?

Customer Complaints

Safety and Integrity of the Water Delivered to Customers

Routine Maintenance

Ensuring Hydrants and Valves are Operating as Expected

Compliance with Local, Provincial and Federal Standards

Matter of Public Record...Water Quality Reporting

Continued



Water stagnates in a water line, much like water in a lake where there is little movement.

Water temperature can affect disinfectant levels in a water distribution system.

Biofilm builds up on the lining of the pipe walls and interacts with the chlorine disinfectant.

Disinfectant Byproducts occur when additional chlorine is added and it interacts with the biofilm—formation of TTHMs and HAA5...carcinogenics

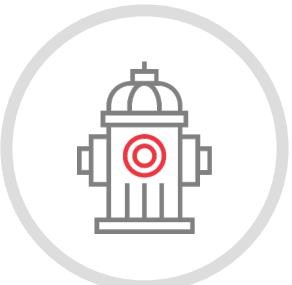
-Where chloramines are used as a disinfectant, nitrification can occur...breaks down in water leading to increased nitrite and nitrate issues



AUTOMATIC VS TRADITIONAL HYDRANT FLUSHING



Advanced
Flushing



Traditional
Flushing

How are your crews flushing water lines?

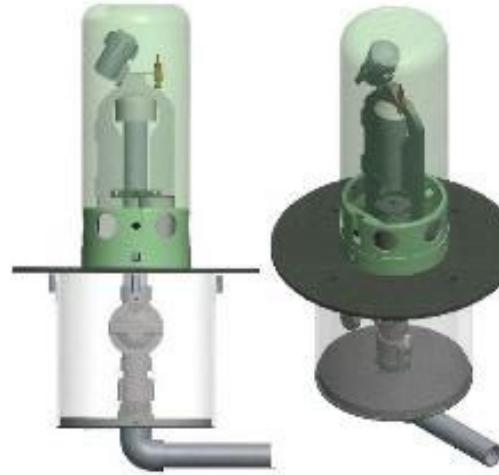
- From Hydrants?
- Using Automated Solutions?
- Combination of both?

What are the challenges presented by hydrant flushing?

- Crew time
- Water loss and lost revenue
- Public perception
- Inefficiency
- Ineffective in the long run
- Stirs up sediment and leads to issues with turbidity

Key reasons for automating the flushing process

- Cost effective... Conserve time, water and money... Flush less and Cut expenses
- Allows a utility to turn water over every 72 to 120 hours without having to dispatch a crew.
- Models available for every flushing scenario... Portable, permanent, all climate zones
- Flush distribution lines when demand is low and impact on customers' water pressure will be minimal



CONSISTENCY AND EFFICIENCY



THE CHALLENGE...	THE SOLUTION...
Reducing Customer Complaints	With Hydro-Guard® address the top 5 critical areas of concern.
Ensuring Safety and Integrity of Delivered Water	Where areas of aging water exist supplement the demand through automated flushing.
Routine Maintenance of Distribution Lines	Reduce tuberculation; enhance water quality; and reduce biofilm in distribution lines.
Hydrant and Valve Operation	Ensure hydrants and valves are operated as intended and reduce use for flushing.
Compliance with Regulatory Agencies	Exhibit to agencies a proactive approach to water quality maintenance.

FINDING THE RIGHT DEVICE



Select the Right Product for the Right Location so that it can operate at the Right Time in the Right Way.



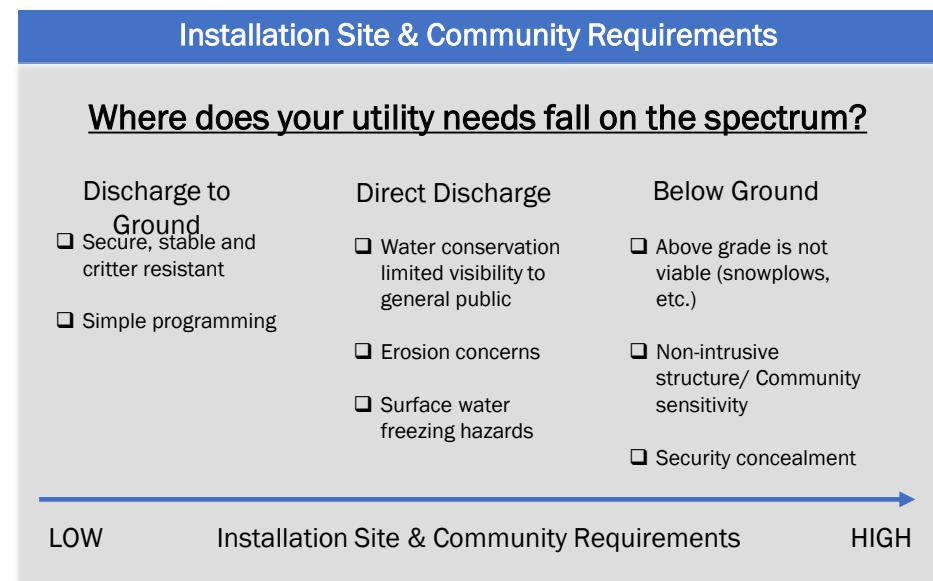
Installation Site Considerations



Community Concerns



Physical and Data Security



FW600 SERIES



Emergency / Temporary Hydrant Flushing

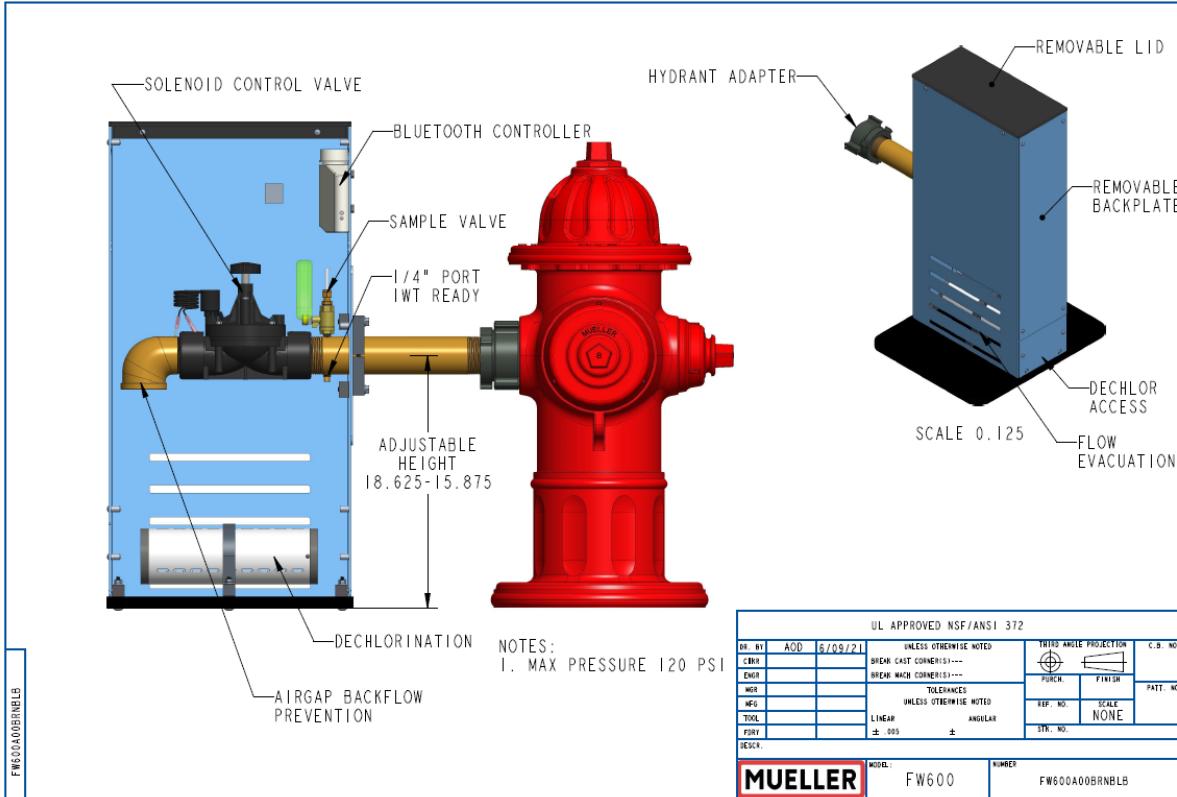
- FW600A00BRNBL
- FWS600A00BRNBL



Now Available with a
Singer Control Valve

Features	Benefits
Emergency / Temporary Use	Connects to Most Hydrants in Minutes
Atmospheric Discharge and Matches Up to Most Hydrant Heights (Adjustable Slide)	Below Ground Design Reduces Impact on Home or Business Owner's Property
Programming Options include BlueTooth and NODE Controllers	Assists in Controlling THMs and HAA5s
Self Supportive of Weight for Stability	Reduces Water Age by Creating a Demand and Reduces Customer Complaints
Erosion Control Splash Plate and Dechlor Chamber	Reduces Potential for being Out of Compliance
OEM Sampling System for Water Quality Sample Collection	Reduces Operational Expenses Related to Flushing and Saves Water
Upgradable for High Pressure Flushing...Singer Control Valve Option	Improves Chlorine Residual Levels Anywhere In Distribution Network

FW600A FWS600A



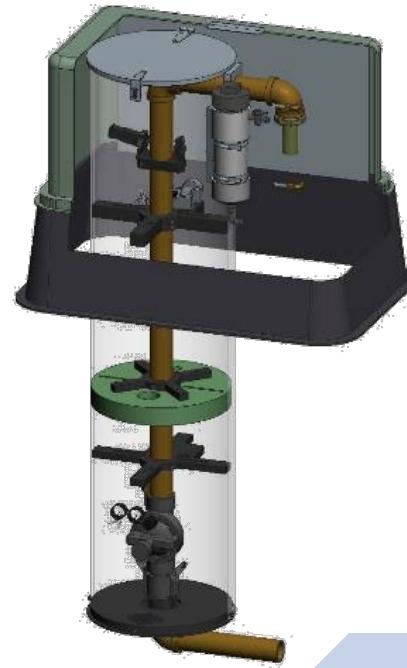
FW600A00BRNBLB

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Cold Climate Flushing Options



FC100 SERIES

Cold Climate Flushing Options



Specifiable Features

Flushes to Atmosphere and Housed in Composite Enclosure (Lockable)

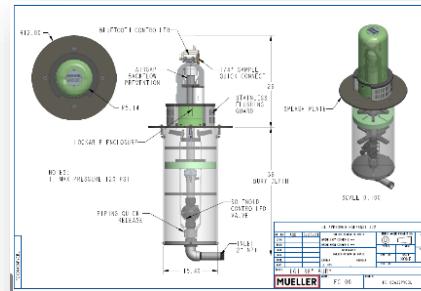
Programming Options include BlueTooth and NODE Controllers

Bury Depth Range: 18" to 60"

Stainless Steel Diffuser / Guard Diffuses Flow to Prevent Erosion and Prevents Pest Nesting

Patented Freeze Protection System

OEM Sampling System for Water Quality Sample Collection and Dechlor



Benefits

Reduces Water Age by Creating a Demand

Improves Chlorine Residual Levels at the Dead-End

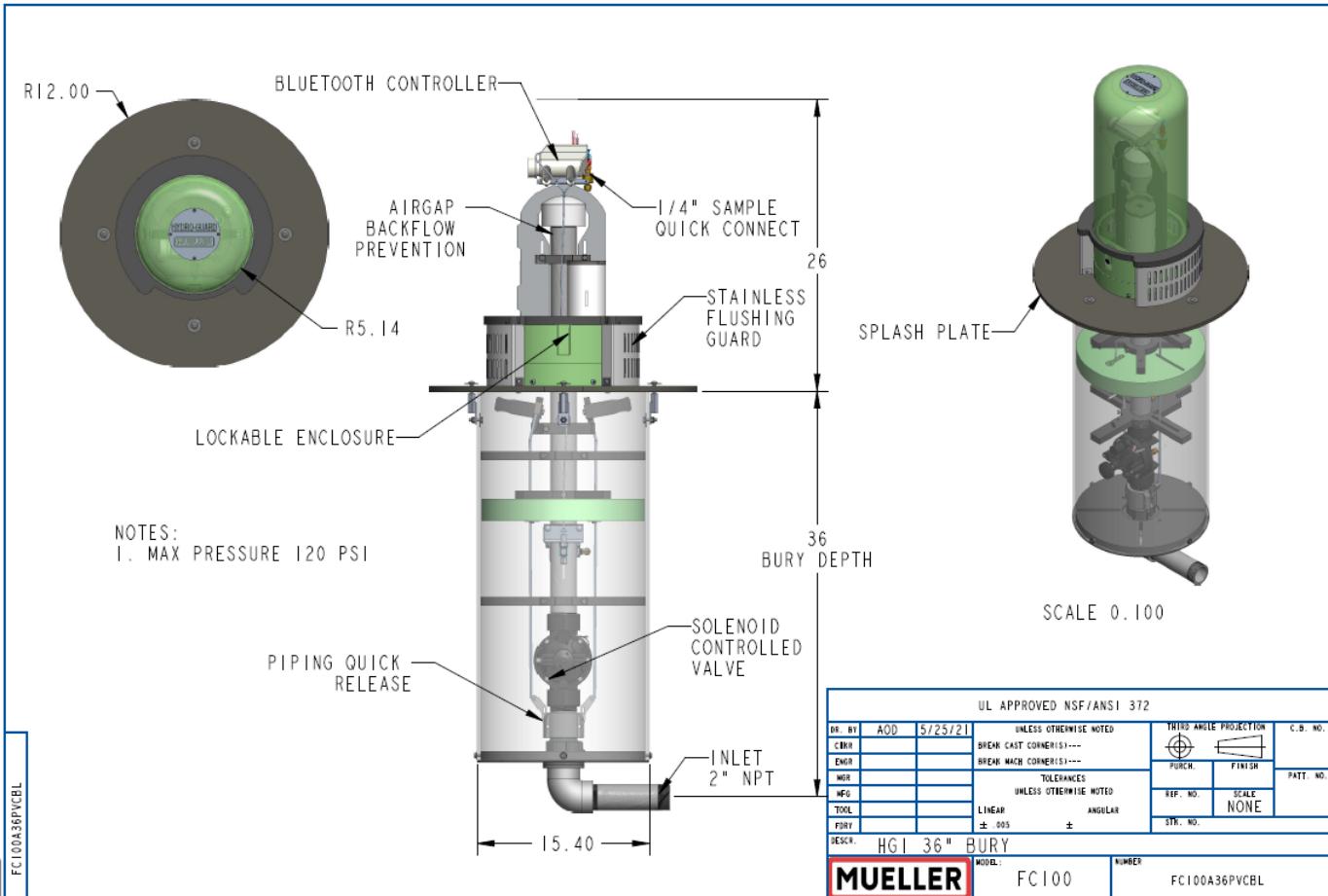
Assists in Controlling THMs and HAA5s

Reduces Customer Complaints

Reduces Potential for being Out of Compliance

Reduces Operational Expenses Related to Flushing and Saves Water

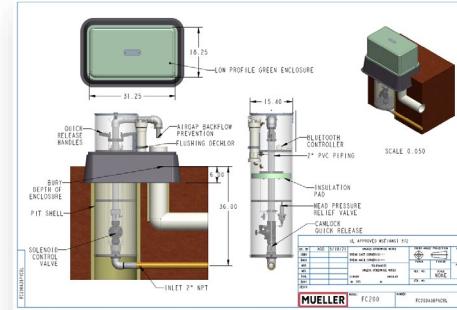
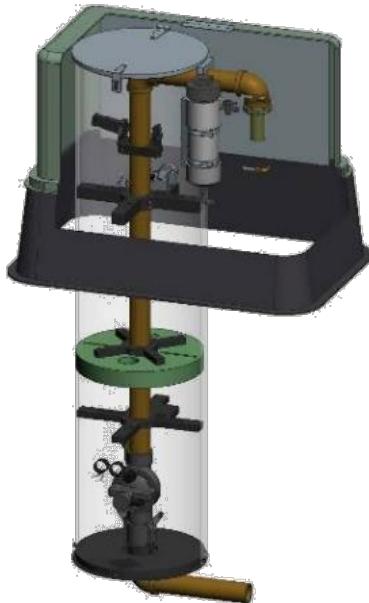






FC200 SERIES

Cold Climate Flushing Options



Specifiable Features

Flush can be Directed Away from Device and it is Housed in Composite Enclosure (Lockable)

Programming Options include BlueTooth and NODE Controllers

Bury Depth Range: 36" to 84"

Stainless Steel Diffuser / Guard Diffuses Flow to Prevent Erosion and Prevents Pest Nesting

Patented Freeze Protection System

OEM Sampling System for Water Quality Sample Collection and Dechlor

Benefits

Reduces Water Age by Creating a Demand

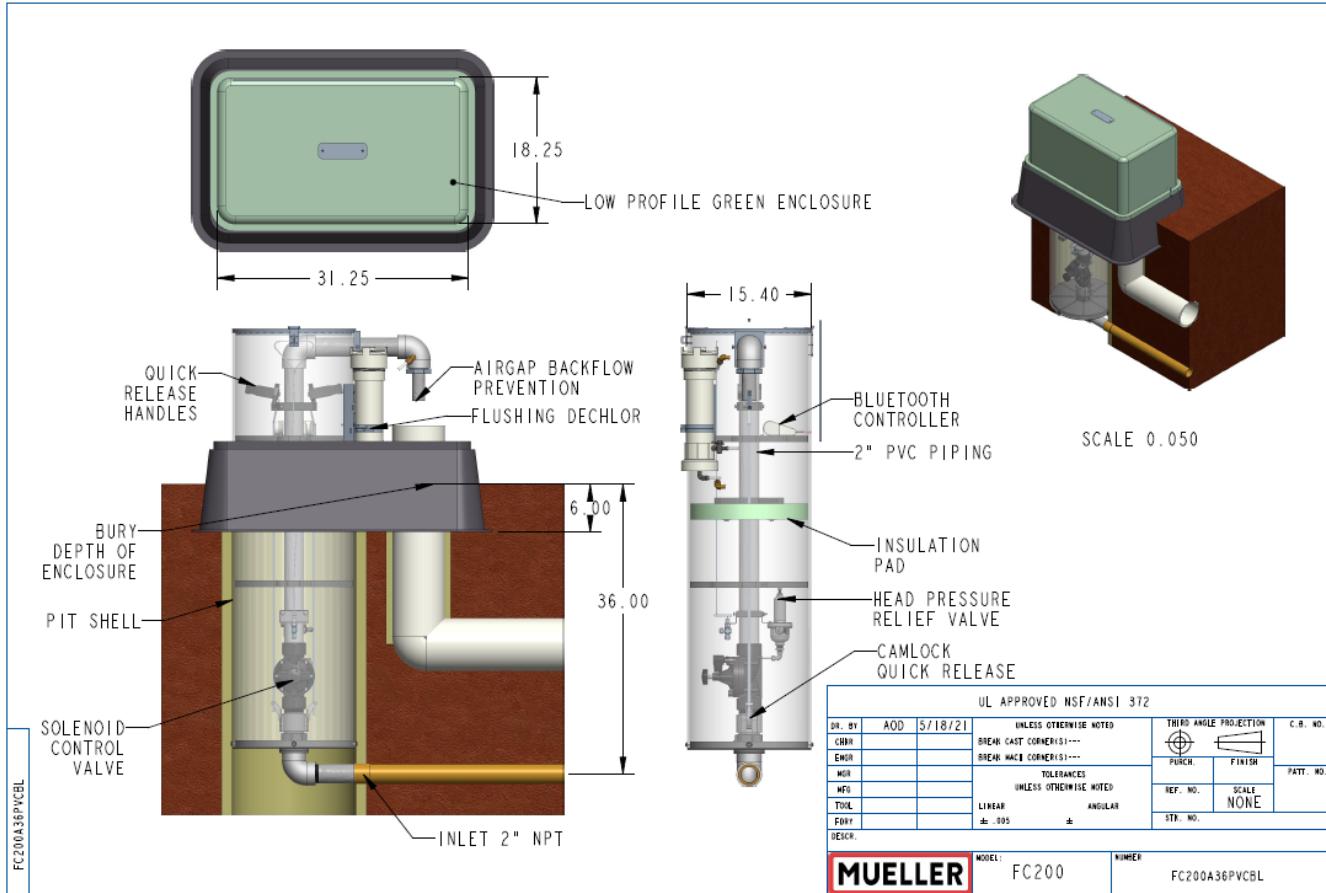
Improves Chlorine Residual Levels at the Dead-End

Assists in Controlling THMs and HAA5s

Reduces Customer Complaints

Reduces Potential for being Out of Compliance

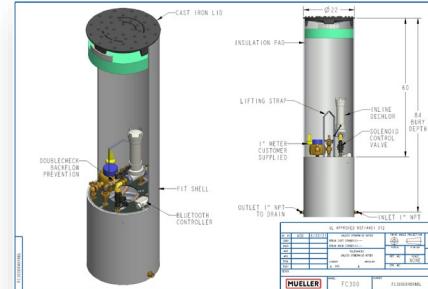
Reduces Operational Expenses Related to Flushing and Saves Water





FC300 SERIES

Cold Climate Flushing Options



Specifiable Features

Integrated into a Mueller Therma-Coil® meter box; Installs below grade; Composite or DI lid

Operated by BlueTooth Controller; and

Bury Depth Range: 48" to 120"

Flush can be Directed Away from Device;

Features a 1" meter yoke for metering of flow (meter sold separately)

OEM Sampling System for Water Quality Sample Collection and Dechlor

¹ Max recommended pressure of 110 psi

Benefits

Mounts completely below grade, with the exception of the lid

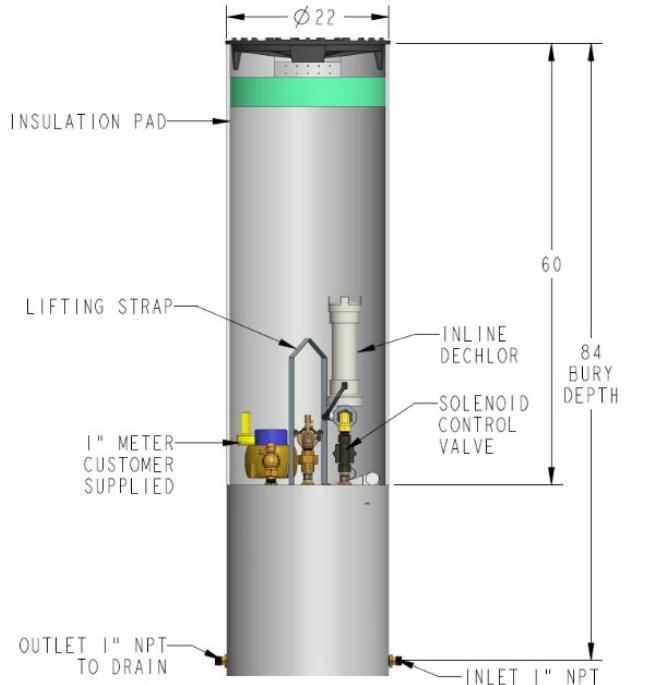
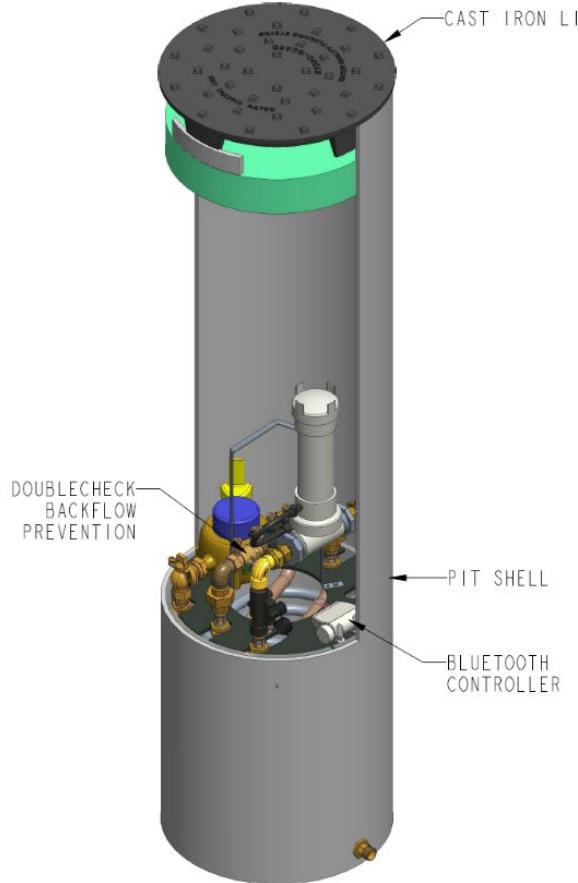
Improves Chlorine Residual Levels at the Dead-End

Assists in Controlling THMs and HAA5s

Reduces Customer Complaints

Reduces Water Age by Creating a Demand; Reduces Potential for being Out of Compliance

Reduces Operational Expenses Related to Flushing and Saves Water



UL APPROVED NSF/ANSI 372					
DR. ST	AOD	6/30/21	UNLESS OTHERWISE NOTED BREAK CAST CORNER(S)..... BREAK MACH CORNER(S).....	TRI-ANGLE PROJECTION	C.S. NO.
SHR			TOLERANCES UNLESS OTHERWISE NOTED	PERCH.	FINISH
ENR			LINEAR	REF. NO.	SCALE
MGR			$\pm .005$	STR. NO.	NONE
MFG			\pm		
TOOL					
FORY					
DESCR.					
MUELLER		MODEL: FC300	NUMBER: FC300D84BRNBL		



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SMART Flushing Station Options



S.M.A.R.T. Flushing Systems

- Capable of monitoring a wide range of water quality conditions...
 - Chlorine (Free or Total)
 - Temperature
 - pH
 - Turbidity
 - Flow
 - Pressure
 - Total Organic Compounds
- Automatically initiates a flush event to mitigate poor water quality conditions
- Allows for two Way communication
- SCADA compatible
- Capable of sending event notifications
- Ideal for remote locations or trouble points in a distribution system



NEMA 3R rated enclosure
with lighting protection

Secondary protective
enclosure

S.M.A.R.T. management
electronics

Heaters for cold
weather
protection

Chlorine probe for
constant water
quality monitoring

Double Check Valve
for protection against
possible cross
connections



Chlorine
Analyzer

Dechlorination
system

Directed Discharge
Device with 2" Brass
Control valve and
flushing assembly



Halifax Water Case Study



HYDRO-GUARD® CONTRIBUTES SUBSTANTIAL TIME AND MONEY SAVINGS, ENVIRONMENTAL SAFETY AND WATER QUALITY AT HALIFAX WATER

PROJECT:

Halifax Regional
Water Commission

LOCATION:

Cole Harbour Road,
Dartmouth, Nova Scotia

PRODUCTS:

Hydro-Guard 200 Series Cold
LongNeck™ Sub-Surface
Direct Discharge Automatic
Flushing System

SCOPE

Nova Scotia's Halifax Regional Water Commission (HRWC), also known as Halifax Water, provides potable water, wastewater and stormwater services to the Halifax Regional Municipality.



PROBLEM

One of the sampling stations is located in a park on Cole Harbour Road, serviced by the Lake Major Water Supply Plant. Until 2011, water flowed regularly through a 14-inch transit line with a 2-inch connection to a car wash located prior to the dead end of the line. Toward the end of 2011 the car wash closed resulting in a decrease in low chlorine residuals due to non-movement in the main. Stimulating water movement required two HRWC staff to show up on-site for up to two hours, sometimes twice a week, to partially open a hydrant. This method flushed up to 50 m³ at a cost of \$150.00 to \$175.00 per visit. Of course non-revenue water usage increased as well.

SOLUTION

To help solve the water quality issue economically, HRVCS's East Water Services Superintendent, Dave Hiscock, directed removal of the hydrant and installation of a Mueller HydroGuard 600 Series' Automatic Flushing System in its place. Subsequently, although the 600 Series' Flushing System resulted in fewer man-hours at the site, water continued running down the street during flushing. Contemplation of winter climate severity issues necessitated looking into the installation of the Mueller HydroGuard 200 Series' Cold LongNeck Sub-Surface Direct Discharge unit as the ultimate solution, as it has the capability of flushing, de-chlorinating and expelling the water into a storm sewer in an environmentally safe manner. Additionally, keeping water out of the street, enhances public perception.

Installation was completed in June 2013, after an experimentation program by Halifax Water's water quality section, using a portable unit to determine optimal flush times. Hiscock reports that HRWC has reduced man-hours down to one visit per month to

check the de-chlorination pucks and ensure battery strength. The Hydro-Guard 200 Series Cold® Automatic Flushing System's battery has provided three years of trouble-free automatic operation vs. manual flushing. HRCW programmed their Hydro-Guard 200 Series Cold® Automatic Flushing System to flush for one hour twice a day (at 10' per thirty minutes) vs. their former one-hour (at 10' flume) duration. Further reduction in flush times is anticipated since there has been no variation in chlorine residuals with the 200 Series Cold® Automatic Flushing System in place. Also, little maintenance has been required since installation. The only variances of this installation are extra insulation called for by HRCW, plus the appealing rock enclosure which helps the unit blend desirably with its park location.

Labor costs per flush remain at \$175.00; however, average visits to the flush site per month are down from eight to one—a savings of \$1225.00 per month. Water use per flush immediately fell from 52 m³ to 10 m³ which, when calculated over the two-year period, shows a decrease in non-revenue water use from 12,480 m³ to 9,000 m³, a 3,480 m³ savings. Aggregate costs have fallen from \$42,000 to \$24,750 within the past two years—a total savings of \$17,250 after installation.

CONCLUSION

Savings in the two years since installation of the Mueller Hydro-Guard 200 Series Cold[®] Automatic Flushing System have been substantial with over 51% in costs saved and over 32% less water loss. The cost of installation included the unit, labor and reinstatement. The cost of reinstatement comprised about half of the total cost; therefore, picking the optimal location is highly recommended. The investment has already been returned and installation of more Hydro-Guard 200 Series Cold Automatic Flushing System units is contemplated. Halifax Water's forward-looking Business

ABOUT MUELLER

Mueller (NYSE:MWA) is a leading manufacturer and marketer of products and services used in the transmission, distribution and measurement of water in North America. Our broad product and service portfolio includes engineered valves, fire hydrants, metering products and systems, leak detection and pipe condition assessment. We help municipalities increase operational efficiencies, improve customer service and prioritize capital spending.

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MUELLER

Halifax Water Case Study



Halifax Water Case Study



Case Study - Key Takeaways



Reduced man-hours down to one visit per month to check the de-chlorination pucks and battery strength – From 8 visits to 1.

Decreased NRW from 12,480 m³ to 9,000 m³ over a period of 2 years, a savings of 3,480 m³

~28% Water savings

They saw over 40% overall cost savings on flushing at this location in the first two years, including installation and remediation

These flushing stations have become part of their design standard and a requirement for new developments since 2023

Where Do I Install Automatic Flushing Stations?



- Areas prone to water stagnation
- New developments – large water infrastructure with very little use until the development becomes populated
- Dead ends of watermains
- Industrial plants or areas where periodic shutdowns affect chlorine residual/water quality
- Underutilized buildings



Questions?



Thank You!

Carson Quigley
Account Manager – Nova Scotia & Newfoundland
cquigley@omnitech.ca
(902) 817-5121