



Flushometer Care & Service 101

Part 3: Top-mount Sensor Diaphragm Flushometers

Presenters



Dominick Pacione
Senior Field and Technical
Support Technician
Sloan Valve Company
Franklin Park, IL



Andrew Warnes
Technical Training Manager
Sloan Valve Company
Franklin Park, IL

Agenda

This presentation will cover:

- Overview of Sloan top-mount sensor diaphragm flushometers
- Most common field service issues and solutions
- Maintenance recommendations
- Summary
- Q&A

Understand how to extend the service life of Sloan products



Top-mount Sensor Diaphragm Flushometer Applications



Water Closets



Urinals



Utility (Service) Sinks



Bedpan Washers



Squat Toilets

Top-mount Sensor Diaphragm Flushometer Components



Sensor Assembly/RESS Kit Components



SLOAN



MC



G2



SOLIS



ECOS

Cover Ring Sensor Assembly

Cover Assembly

Button Cover Assembly with Screws (Single and Dual)



Lens Window Cover



Cover



Locking Ring



Sensor Module



Inside Cover Assembly

Cover Rest Plate



Solenoid



Inside Cover



Flex Tube Diaphragm Assembly

Flush Volume Regulator



Flex Tube Diaphragm



Top-mount Retrofit Kits

Just Added!
ECOS
1.28/1.1 DF



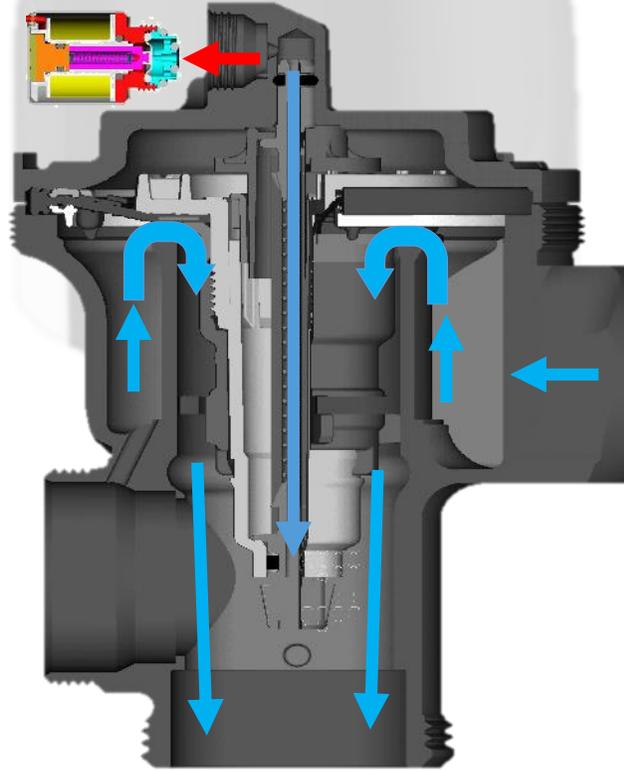
	SLOAN	MC	G2	ECOS	SOLIS
Flush volume – Closet (gpf)	1.28 to 4.5	1.28 to 1.6	1.6 to 4.5	1.28 & 1.6/1.1	1.28 to 3.5
Flush volume – Urinal (gpf)	0.125 to 1.5	0.125 to 1.0	0.25 to 1.5	0.125 to 0.5	0.125 to 1.5
“Stadium Flush” (urinals)				X	X
Cover Material	Plastic	Metal	Metal/Plastic		Metal/Plastic/Glass
Power					
4 AA Alkaline Batteries	X	X	X		X
Override Button	X	X	X		X
Diaphragm Bypass Filter	Linear	Dual	Dual		Dual
Battery Life	4 - 6 yrs	4 - 6 yrs	4 - 6 yrs		6 - 8 yrs

Average 5 – 7 minute installation time

How Top-mount Sensor Flushometers Function

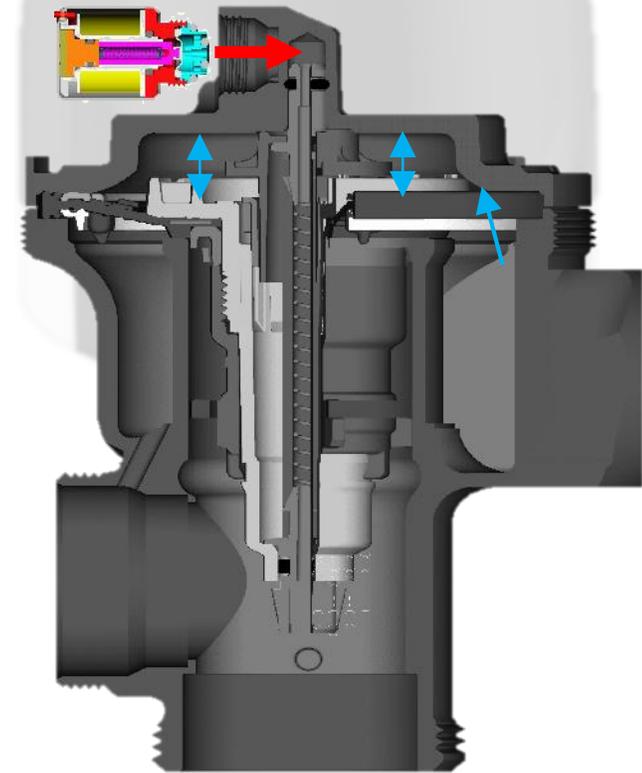


①



Activating the sensor sends a signal to the solenoid to open, creating a relief path for water from the upper chamber through the flex tube of the diaphragm and through the valve to the fixture. Water pressure below the diaphragm forces the diaphragm to lift, pushing water out of the upper chamber and through the lower chamber into the fixture.

②



The sensor sends a second signal to close the solenoid, sealing off the relief path in the upper chamber. The upper chamber gradually refills through the diaphragm bypass, forcing the flex tube diaphragm assembly back down onto the seat and shutting off the flush.

Field Issues & Solutions

from most common to least common



Images of uncommon “self-inflicted” issues

Dominick's General Troubleshooting Approach for Top-mount Sensor Units



Troubleshoot in order from the top to the bottom of the valve

Run-ons



Debris blocking diaphragm bypass



Debris under diaphragm



Degraded diaphragm assembly



Low pressure drop

Symptom	Cause	Solution
Continuous flush with no shut-off	Solenoid stuck open	Replace solenoid assembly EBV-136-A
	Debris blocking diaphragm bypass	Clean diaphragm to clear bypass orifice
	Debris under diaphragm	Remove debris
	Low pressure drop	Check facility or municipal line pressure
	Diaphragm assembly compromised O-ring, cracked plastic guide (due to age)	Replace diaphragm assembly with proper gpf kit

No Flush



Override button damaged



Batteries depleted



Sensor module compromised

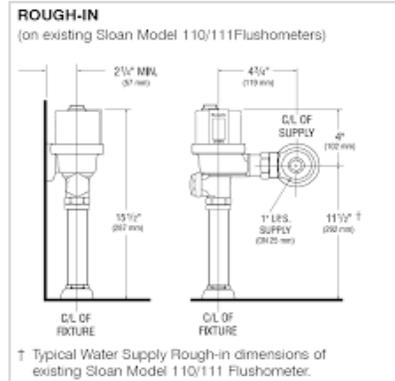


Solenoid stuck

Symptom	Cause	Solution
No activation when sensor is activated or override button depressed	Override button damaged	Replace override button (3 different types)
	Batteries are depleted	Replace batteries
	Sensor module compromised	Replace sensor module
	Solenoid stuck closed	Replace solenoid assembly EBV-136-A
Sensor does not activate, override button does activate	Sensor window scratched	Replace sensor window
	Sensing malfunction	Replace sensor module

Valve off indicates diaphragm is working properly

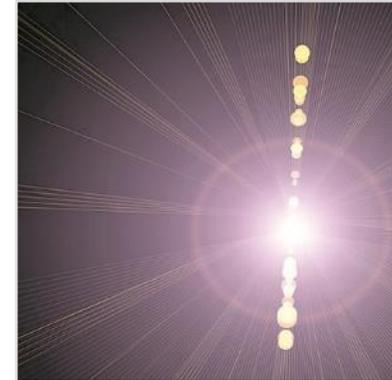
Sensor Activation Issues Due to Improper Installation



Rough-in too low



Sensor not centered



Reflection



Missing "wiper"

Symptom	Cause	Solution
Sensor does not activate, override button activates	Rough in too low, sensor is detecting front of toilet	Raise the supply or "elbow up" the stop Reduce sensor range (older units that cannot self-adapt only)
	Sensor not centered properly	Re-orient sensor until pointed straight forward
	Reflection issue	Reduce sensor range (older units that cannot self-adapt only)
	Rubber strip (wiper) missing from inside the cover	Contact Sloan Technical Support

Valve off indicates diaphragm is working properly

No Evacuation



Low pressure



Improper, low consumption, or urinal diaphragm



Perforated diaphragm



Locking ring not properly tightened

Symptom	Cause	Solution
No evacuation when flushed (either sensor or override button)	Low pressure (<25 psi / <1.7 bar)	Address plumbing system deficiencies
	Low consumption (LC) or urinal diaphragm installed in older closet	Install correct gpf diaphragm
	Short flushing (perforated diaphragm)	Replace diaphragm
	Locking ring not properly tightened (DFB - dual filter bypass diaphragm)	Tighten locking ring

Leaking from Top-mount Unit



Locking ring not properly tightened



Diaphragm assembly compromised

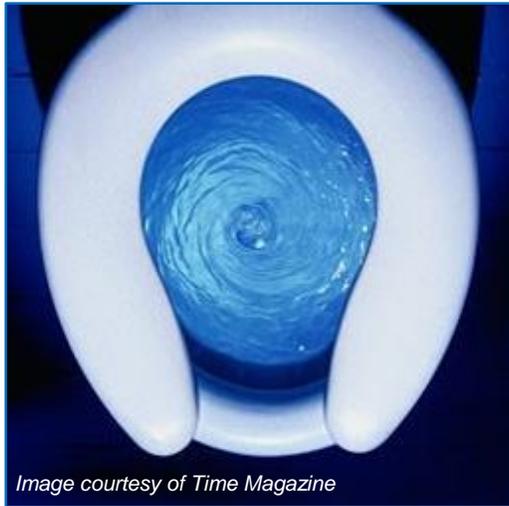


Solenoid leaking

Symptom	Cause	Solution
Water leaking from threads above or below the locking ring	Locking ring not properly tightened	Turn of water supply at stop, loosen and then re-tighten locking ring
	Diaphragm Assembly compromised	Replace diaphragm assembly
Water leaking from threads above the locking ring	Solenoid leaking	Turn of water supply at stop, hand tighten solenoid or replace solenoid

Always use a fixed smooth jaw wrench....

Inconsistent Flush



Symptom	Cause	Solution
Flush duration is randomly normal, long, or short	Pressure fluctuation within the facility	Check plumbing system pressure and flow capacity

Tailpiece Leak



Tailpiece with O-ring



Sloan H553 O-ring

Symptom	Cause	Solution
Leaking at tailpiece next to control stop	Worn or degraded O-ring	Replace H553 O-ring

Clean the tailpiece O-ring groove and the control stop bore before replacing the O-ring. Use 100% silicone grease (not petroleum-based).

Vacuum Breaker Leak



Worn vacuum breaker sack



Sloan V651A repair kit



Sloan V551A repair kit

Symptom	Cause	Solution
Dripping from above the vacuum breaker coupling during or after flush	Vacuum breaker sack damaged by over-tightening the vacuum breaker coupling	Clean vacuum breaker tube and replace vacuum breaker sack with V551A or V651A high backpressure VB repair kit
Dripping from below the vacuum breaker coupling during or after flush	Worn or degraded vacuum breaker sack	

Wet the gasket prior to installation and hand tighten then “snug” with wrench

Control Stop Leak



Control Stop Screw



Sloan H541ASD repair kit

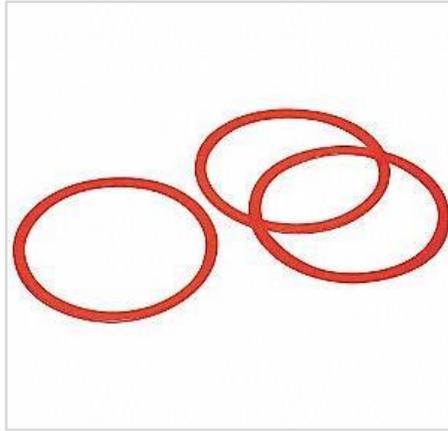


Sloan H543ASD repair kit

Symptom	Cause	Solution
Leaking from control stop adjustment screw	O-ring inside the control stop is worn	Replace with H541ASD control stop repair kit (for older urinals, use H543ASD control stop repair kit)

If unsure of which urinal control stop kit you have for units manufactured between 1964 and 1994, contact Sloan Tech Service

Spud Flange Coupling Leak



Sloan F3 friction ring



Sloan VBF5 gasket



Sloan F5 gasket

Symptom	Cause	Solution
Leaking from spud flange coupling	The spud flange coupling has loosened	Tighten spud flange coupling
	Spud flange coupling gaskets have become worn	Replace F3 friction ring and VBF5 gasket (1-1/4" or 1-1/2") or F5 gasket (3/4" or 1")

Clean the threads prior to installation, and never use pipe dope or grease!

Maintenance Recommendations

DOMINICK

SENIOR FIELD & TECHNICAL SUPPORT TECHNICIAN

Best Practices

- No pipe dope
- No Teflon tape
- Tighten couplings and covers by hand, then “snug” with a wrench
- Fixed smooth-jawed wrench
- Avoid compression wrenches
- Carry 100% silicone grease
- Clean threads with a brass bristle brush
- Wet the gaskets before installing
- Clean with soap and water only



Clean with soap and water



Use Genuine Sloan Parts



“Snug” – don’t over tighten

Maintenance Schedules



[Sloan Flushometer Maintenance Schedule Brochure](#)

		Life Expectancy Industry Standard / Sloan Standard	3/4+ years	3/6+* years	5/7+ years	20/25+ years
	Batteries-alkaline	Maintenance Indicator 1. Blinking LED 2. Unit will not flush		✓		
	Sensor ring cover assembly (includes solenoid)	Maintenance Indicator 1. Unit will not flush 2. Unit will continuously leak into fixture			✓	

Part Supply

- USA made
- Readily available
- No planned obsolescence
- Interchangeability of components
- Easy Sloan Connect upgrade
- Genuine Sloan Parts (how do you know?)
- Beware of knock-offs (what are the risks?)



Summary

- Sloan invented the diaphragm flushometer in 1906
- Made in the USA
- Easy access to Genuine Sloan Parts
- World class Tech Support team
- Vast network of reps to provide assistance
- Follow best practices



Next Sections in this Series

Part 4 – Side Mount Sensor

Part 5 – ESS Exposed

Part 6 – ESS Concealed

Part 7 – Hydraulic 900 Series

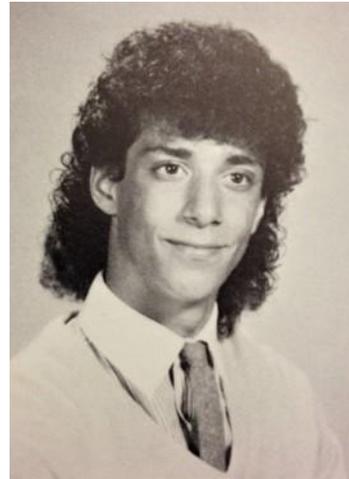
Part 8 – CX Sensor

Part 9 – CX Manual

Part 10 – Bedpan Washers

Companion Webinars

- [Piston vs Diaphragm](#)
- [Regal vs Sloan vs Royal](#)
- Flushometer Components 101
- [Converting Manual to Sensor](#)
- [Battery Truths and Myths](#)



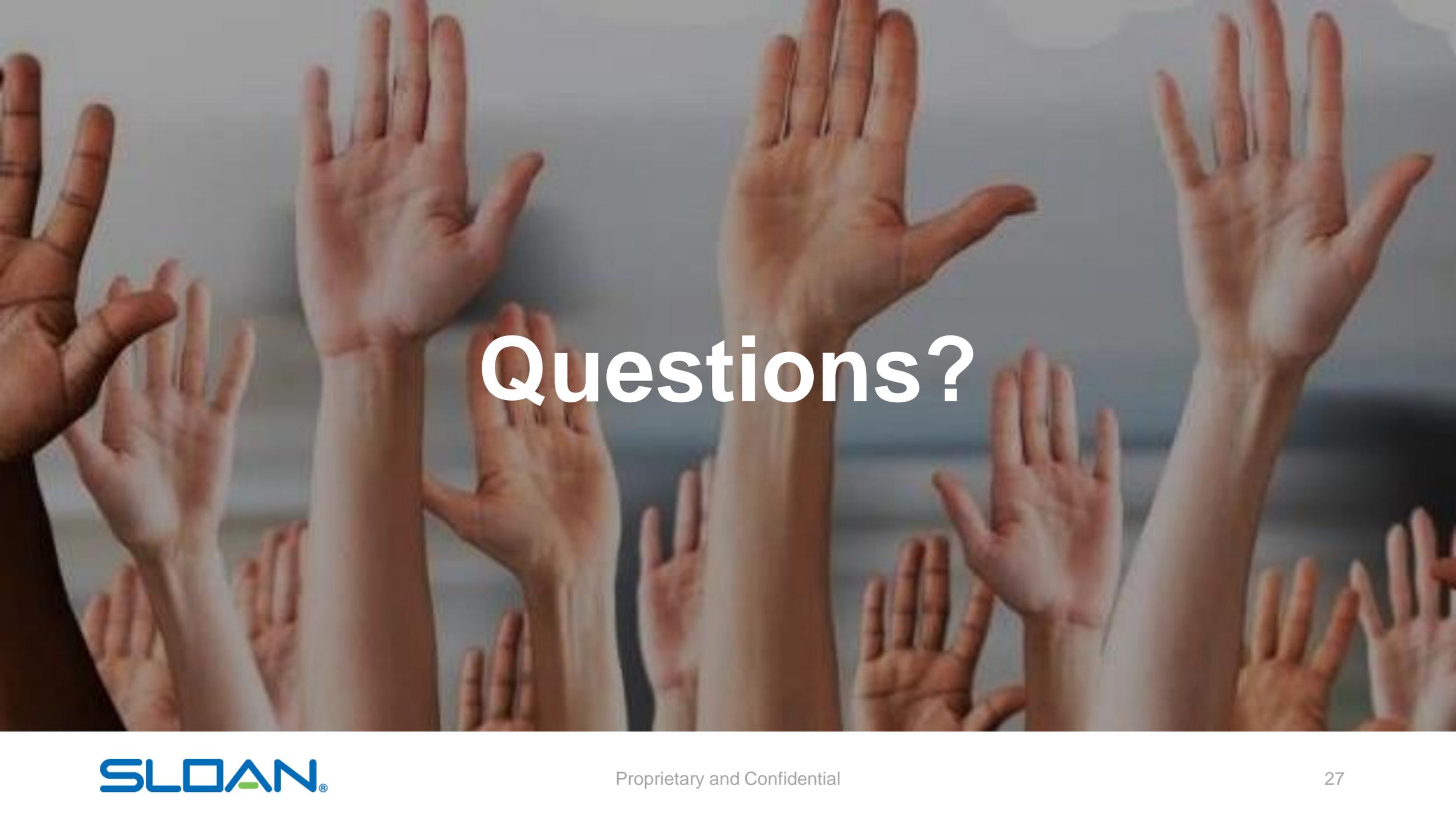
Dominick after
Part 1



Dominick after
Part 5



Dominick after
Part 10



Questions?

Find your local Sloan representative for more information

Sloan Rep Locator tool

- Local code knowledge
- Familiarity with existing sites
- Product knowledge
- Available for onsite consultation

Sloan Customer Care Center

Phone: 800.982.5839

Hours: 7:00 AM - 5:00 PM (CST) Monday – Friday

customer.service@sloan.com

Sloan Technical Support

P: 888.756.2614

F: 800.737.3061

techsupport@sloan.com



Product Installation & Maintenance Materials

Product Repair and Maintenance Guides

[Sloan Optima Plus Flushometers](#)

[Sloan Ecos Flushometers](#)

[Sloan Solis Flushometers](#)

Videos

[Flushometer Basic Maintenance](#)

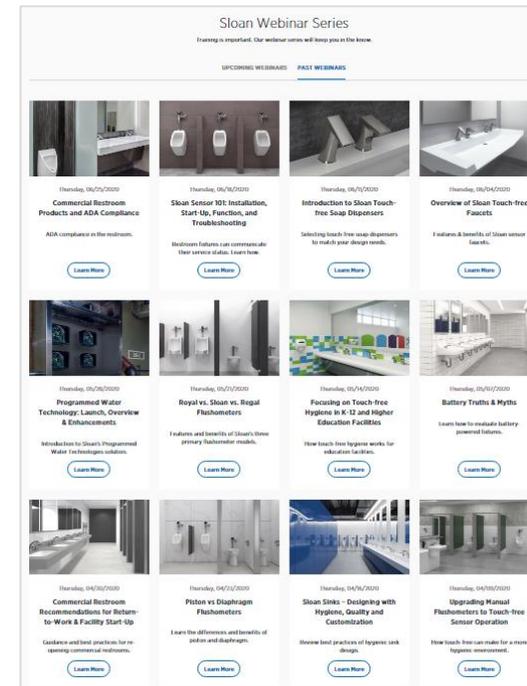
[Flushometer Tailpiece Removal Instructions](#)

[Control Stop Repair kit Installation](#)

[Ground Joint Control Stops and Adjustable Control Stops Explained](#)

[Sloan Online Training Materials Catalog](#)

[Sloan Webinar Series](#)



Upcoming Sloan Training Webinar



December 17th

Introducing the new
Sloan “Clark Street”
and “Rush Street”
Faucet Collections

Training Comments, Questions, or Suggestions?

Andrew Warnes
Manager – Technical Training
Sloan Valve Company
10500 Seymour Avenue
Franklin Park, IL USA 60131-1259

Office: +1-800-982-5839
E-mail: training@sloan.com
Web: sloan.com