

Flushometer Care & Service 101

Part 1: Manual Diaphragm Flushometers

Presenters



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Agenda

This presentation will cover:

- Manual diaphragm flushometer overview
- Most common field service issues and solutions
- Maintenance recommendations

Understand how to extend the service life of Sloan products



Sloan manual diaphragm flushometer

Installed: 1909
Removed: 2015
In operation: 106 years

Location: Girard College, Philadelphia, PA

Manual Diaphragm Flushometer Applications



Water Closets



Urinals



Utility (Service) Sinks

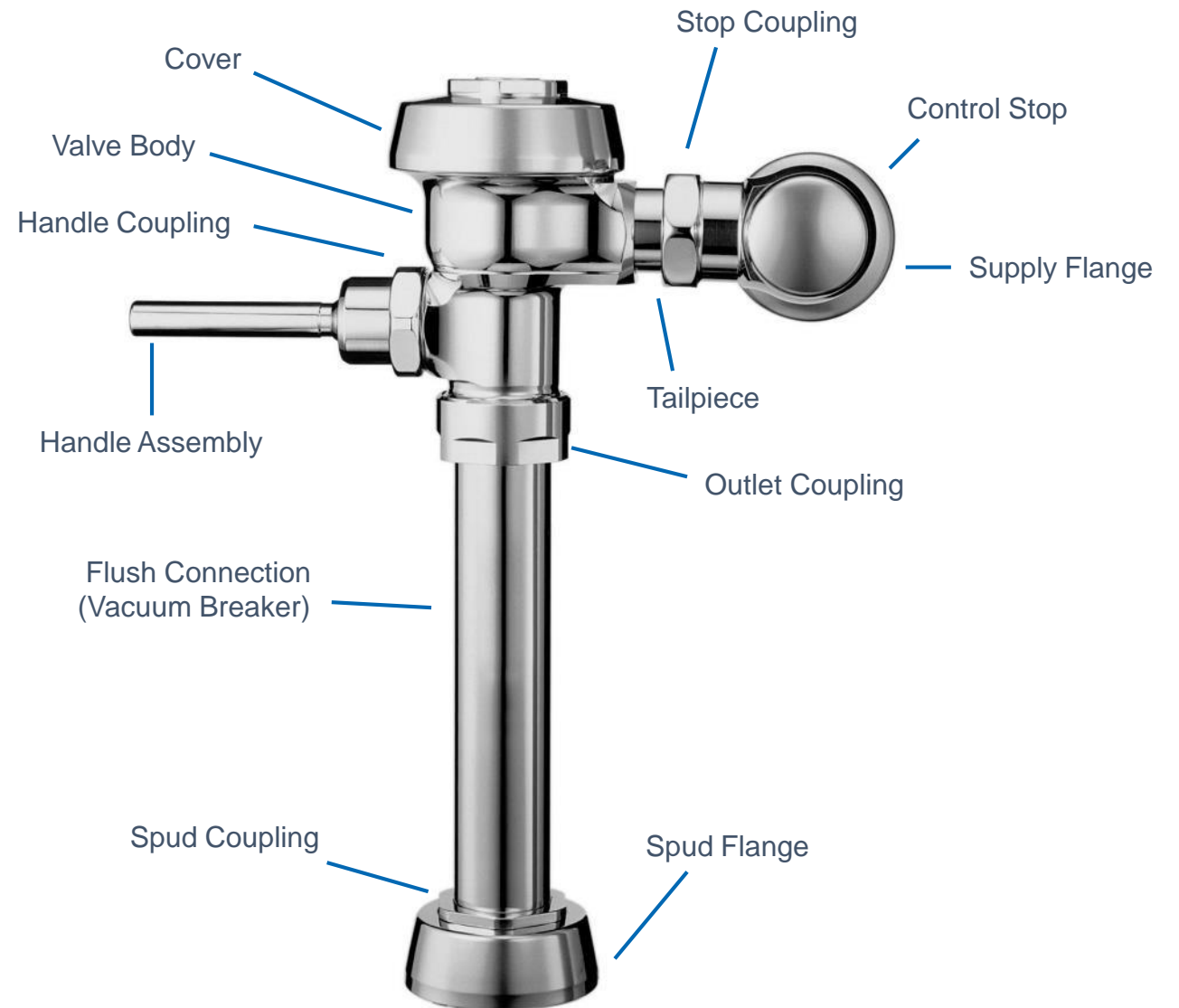


Bedpan Washers

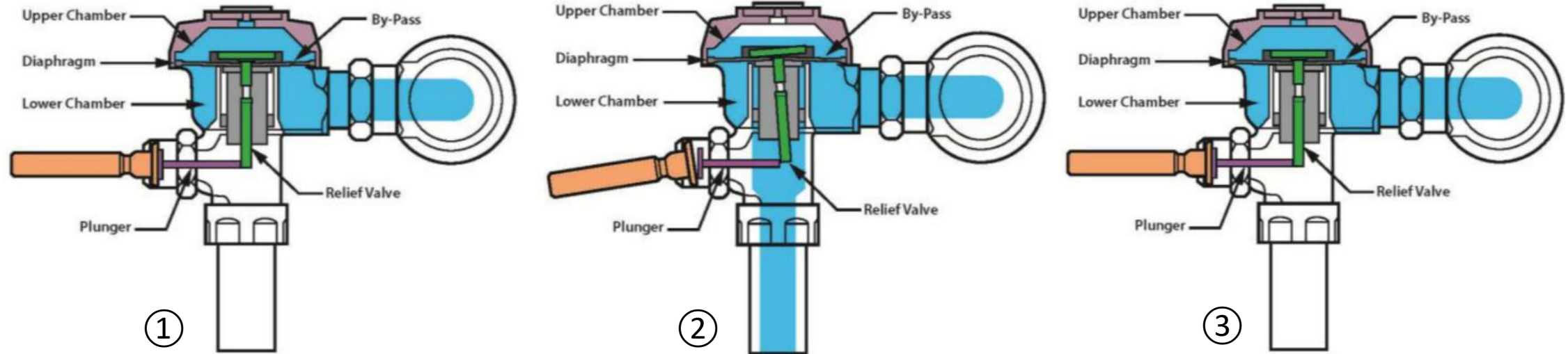


Squat Toilets

Manual Diaphragm Flushometer Components



Basic Diaphragm Function



1. Moving the handle causes pressure relief. The diaphragm flexes up, releasing water into the fixture
2. Diaphragm controls the flow rate, volume of water, and slow close
3. Resets quickly for the next flush

All Sloan diaphragm flushometers are “non-hold open” design

[Sloan Piston vs Diaphragm Flushometer Training Webinar](#)

Field Issues & Solutions

from most common to least common



These are pictures of uncommon "self-inflicted" issues

Run-ons



Image courtesy of Time Magazine



Debris blocking diaphragm



Debris under diaphragm



Degraded relief valve disc



Low pressure drop

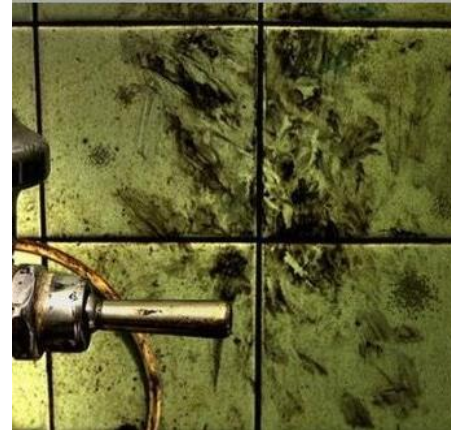
Symptom	Cause	Solution
Continuous flush with no shut-off	Debris blocking bypass	Clean diaphragm to clear bypass orifice
	Debris under diaphragm	Remove debris
	Degraded relief valve disc A15A	Replace the diaphragm assembly
	Low pressure drop	Check facility or municipal line pressure

In all cases, it's good to flush debris from the line

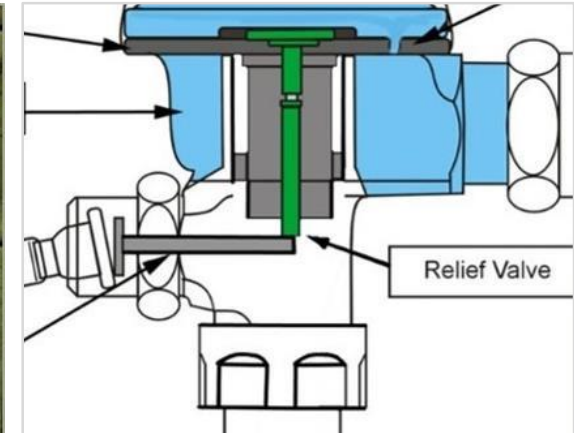
No Flush



High static pressure



Worn out handle



Frozen or stuck relief valve

Symptom	Cause	Solution
No activation when handle is depressed.	High Static Pressure (above 80 psi / 5.5 bar)	Adjust pressure regulator Consider a Sloan A19A brass relief valve
	Worn out handle	Repair or replace handle
	Frozen or stuck relief valve	Clean or replace relief valve

Contact Tech Support for information about brass relief valves

No Evacuation



Low pressure



Improper/low consumption
or urinal diaphragm

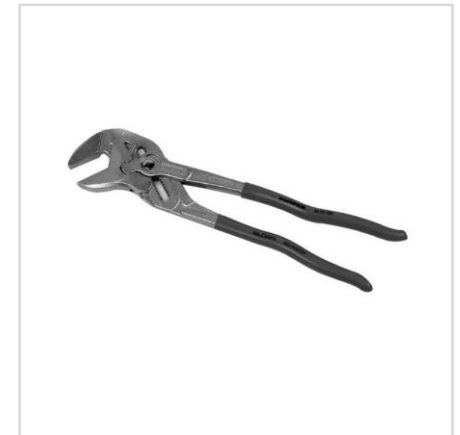


Perforated diaphragm

Symptom	Cause	Solution
No evacuation when handle is depressed	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

Contact Tech Service for a list of diaphragm kits

Cover Leak



Cover not tight enough

Cracked inside cover

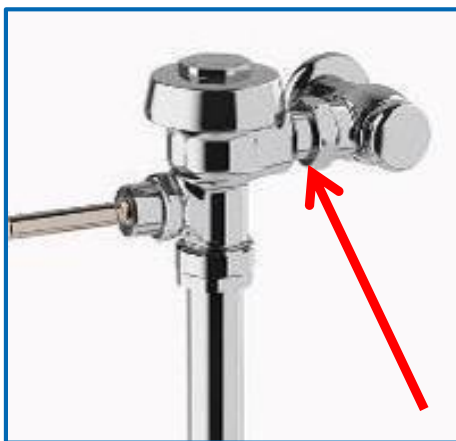
A50 "super wrench"

A109 plier wrench

Symptom	Cause	Solution
Water leaking from threads beneath flushometer cover	Cover not tight enough	Turn off water and tighten cover
	Cracked inside cover	Replace inside cover (A71 or A11)

Always use a fixed smooth jaw wrench....

Tailpiece Leak



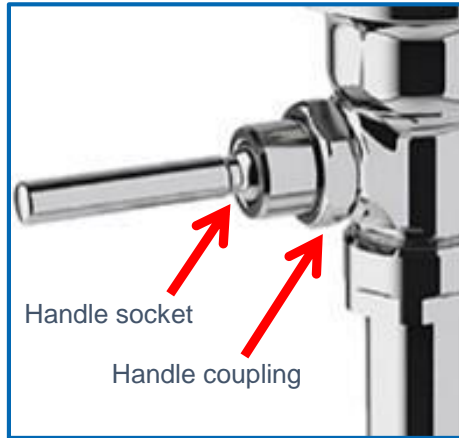
Tailpiece with O-ring

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).

Handle Socket or Handle Coupling Leaks



Worn handle seal

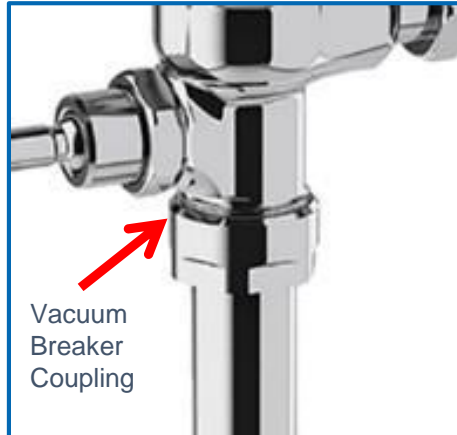


Sloan B51A repair kit

Symptom	Cause	Solution
Leak from handle socket	Worn handle seal	Replace with B51A handle repair kit
	Cracked handle bushing	Replace with B51A handle repair kit
Leak from handle coupling	Loosened handle coupling	Tighten handle coupling
	Worn handle gasket	Replace A31 handle gasket

Always use a fixed smooth jaw wrench....

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



Sloan H541ASD repair kit

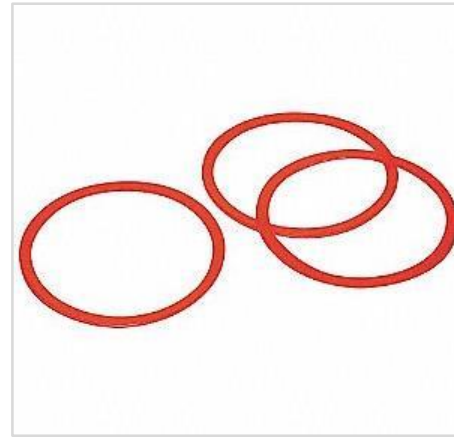
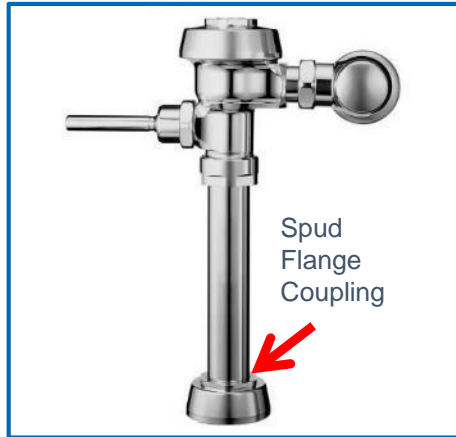


Sloan H543ASD repair kit

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!

Inconsistent Flush



Sloan B73A
Standard Handle



Sloan B73A-CV
CuVerro



Sloan WES212A
UPPERCUT



Sloan B73A-SG
Sani-Guard

Symptom	Cause	Solution
Flush duration is randomly normal, long, or short	Handle is worn out due to age or abuse	Replace handle using a B73A kit
	Relief valve is worn out due to age or high static water pressure	Replace relieve valve or diaphragm assembly
	Pressure fluctuation within the facility	Check plumbing system pressure and flow capacity

Always use a fixed smooth jaw wrench...

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











Maintenance Schedules



[Sloan Flushometer Maintenance Schedule Brochure](#)

Manual diaphragm flushometer

		Life Expectancy Industry Standard / Sloan Standard	3/4+ years	3/5+ years	15/20+ years
	Handle assembly Internal parts	Maintenance Indicator 1. Leaking around the handle 2. Drooping handle 3. Short erratic flush	✓		
	Vacuum breaker Internal (baffle and sack)	Maintenance Indicator 1. Leaking around the vacuum breaker vent holes during flush cycle	✓		
	Inside cover	Maintenance Indicator 1. Slow leaks into the fixture 2. Flush cycle too long or too short 3. Grooves cut into inner cover from diaphragm segments	✓		
	Diaphragm kit Regal	Maintenance Indicator 1. Slow leaks into the fixture 2. Flush cycle too long or too short	✓		
	Diaphragm kit Royal/Sloan	Maintenance Indicator 1. Slow leaks into the fixture. 2. Flush cycle too long or too short		✓	
	Stop assembly Internal parts	Maintenance Indicator 1. Leaking around the stop 2. Failure to completely shut off water 3. Excessive wrench marks on bonnet		✓	
	Brass parts Body, outside cover, stop and vacuum breaker tube	Maintenance Indicator 1. Compromised chrome finish 2. Missing or distorted threads			✓
	Flanges & connections	Maintenance Indicator 1. Compromised chrome finish 2. Missing or distorted threads 3. Excessive wrench marks on coupling 4. Leaking around connections			✓

Part Supply

- USA made
- Readily available
- No planned obsolescence
- Interchangeability of components
- Easy upgrade to sensor
- 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



Launched 2019



Installed 1914
Removed 2013

Next Sections in this Series

- Part 2 – Manual Piston
- Part 3 – Top Mount Sensor
- 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

Product Installation & Maintenance Materials

Product Repair and Maintenance Guides

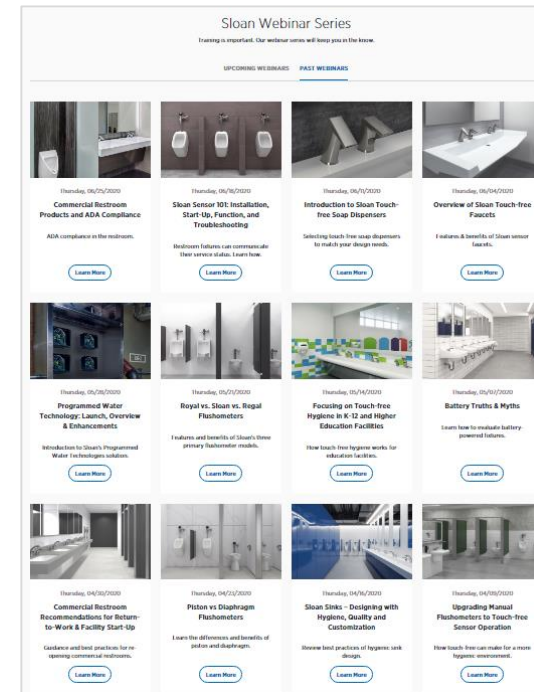
- [Regal Flushometer](#)
- [Sloan Flushometer](#)
- [Royal Flushometer](#)

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](#)



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Sloan Rep Locator tool

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

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Questions?

Upcoming Sloan Training Webinars



July 9th

Power Supply Options
and Installation
Recommendations for
Sloan Sensor Faucets



July 16th

Sustainability and Sloan
Commercial Restroom
Products



July 30th

WELL Building Standard
and Sloan Commercial
Restroom Products

Training Comments, Questions, or Suggestions?

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