SURE SEAL®

a brand of NIBCO®

NIBCO® Sure Seal® SV Series Sampling System Valves

NIBCO offers a comprehensive selection of butterfly valves for industrial and commercial applications that are available in a broad range of materials, sizes, and pressures. Sure Seal valves will exceed your application expectations and, like all NIBCO products, guarantee superior quality, performance, and service.

SURE SEAL®

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Sure Seal specializes in the design and manufacture of industrial process valves and components for applications requiring the safe and efficient processing, movement, control and storage of liquid materials.

Sure Seal products include sampling valves, butterfly valves, lined ball valves, actuators, and high-purity butterfly valves. Uses include, among others: pneumatic tank trailers, chemical, food processing, pulp and paper, waste water, high-purity liquids, breweries, steel processing, dry bulk transportation and pharmaceutical industries.

Why Sampling System Valves?

Businesses today sample process liquids in process piping systems for a variety of reasons, including to:

- Assess the quality of the process being measured (metrics typically measured include purity, temperature, color, density and clarity)
- Refine or verify the process procedures
- Capture a true, clean, representative sample
- Provide operator safety and limit operator exposure
- Reduces fugitive emissions

Process sampling has been done for many years, but only within the last decade or sohave valve manufacturers designed improved process systems to the point where they are able to meet increasingly sophisticated sampling requirements.

Advancements made to today's modern sampling devices are due to requirements of the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA), as well as in response to increasing plant efficiencies and environmental and worker safety concerns.

As you consider which sampling method best meets your specific sampling requirements – ask yourself the following:

- Why is the media being sampled?
- What type of media is being sampled (e.g., liquid, powder, slurry)?
- What are the properties of the media (i.e., corrosive, hazardous, flammable, carcinogenic)?
- Where in the process is the sample being taken?
- How often are samples taken?
- What is the viscosity of the media? Are solids present?
- Does the media crystallize?
- Will the sample be taken from a pipeline or a vessel?

KNOB HANDLE

- Ideal for applications requiring tight/concise liquid control
- Ergonomic, non-slip grip
- Durable, lightweight nylon-encased stainless steel knob handle

SAFETY SPRING-TO-CLOSE HANDLE

- Ideal for applications where the safety assurance of an automatic shut-off is desired
- Release of safety "spring-to-close" handle shuts-off flow automatically
- Lock-out handle comes standard

PNEUMATIC ACTUATOR

- Provides automated control and allows for sampling at designated, regularly scheduled times
- Isolates operator from sample process liquid to ensure worker safety

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Primitive Method: Spigot-and-Bucket

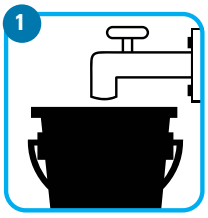
- Excess waste product
- Potential environmental hazard
- Hazmat waste removal costs
- Transport costs related to removal and replacement of drums

Modern Method: Sampling System Valve

- ***Safer:*** Reduces risk of liquid splash back, temperature burn and/or harmful vapor inhalation and slip-and-fall accidents by operators
- ***Cleaner:*** Minimizes process liquid exposure to atmosphere for a true, clean, representative sample
- ***Greener:*** Minimizes release of process fugitive emissions; minimizes liquid and vapor leaks that could cause potential environmental contamination

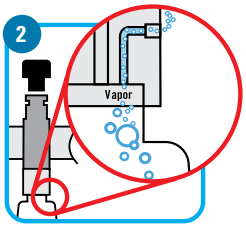
Existing Liquid Sampling Methods

Existing methods of obtaining representative samples of process liquids range from the primitive spigot-and-bucket method to modern sampling system valve methods with bottles and septum to dry-disconnect processes.



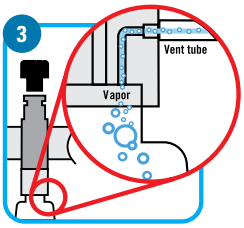
1 Spigot and Bucket

- Most common and primitive method
- Maximum process liquid exposure to atmosphere; quality and integrity of sample may be compromised
- Least Safe: Personnel may be exposed to safety hazards due to direct contact with process liquid and vapors
- Least Clean: Liquid spills and leaks create potential work site hazards (e.g., wet floors can cause slippage; environmental contamination)
- Least Green: Does not capture fugitive emissions; vapors released into atmosphere; could also cause additional environmental contamination



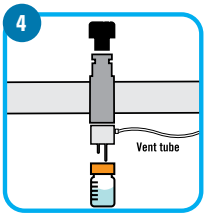
2 Sample Bottle (for non-toxic applications)

- Ideal method of sampling non-toxic process liquids (e.g., milk, shampoo and tomato juice) where vapor venting location is not critical
- Minimizes process liquid exposure to atmosphere; preserves quality/integrity of sample



3 Sample Bottle (for toxic applications)

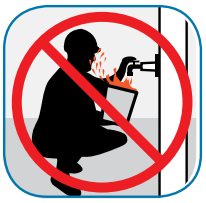
- Ideal for venting process liquids with some level of toxicity or fugitive emissions
- Venting potentially harmful vapors away from people and operators back into process, scrubbers or flares
- Minimizes process liquid exposure to atmosphere; preserves quality/integrity of sample



4 Sample Bottle with Septum

- Ideal for handling hazardous/toxic process liquids in facilities or work site environments where the release of fugitive emissions or liquid leakage is unacceptable

SAMPLING VALVE ADVANTAGES VERSUS SPIGOT AND BUCKET



Reduces risk of liquid splash-back or temperature burn from sudden pressure release

Reduces risk of potentially harmful vapor inhalation by operator

Minimizes leaks that can cause potential environmental contamination or slip-and-fall accidents

SAFER.

CLEANER.

GREENER.

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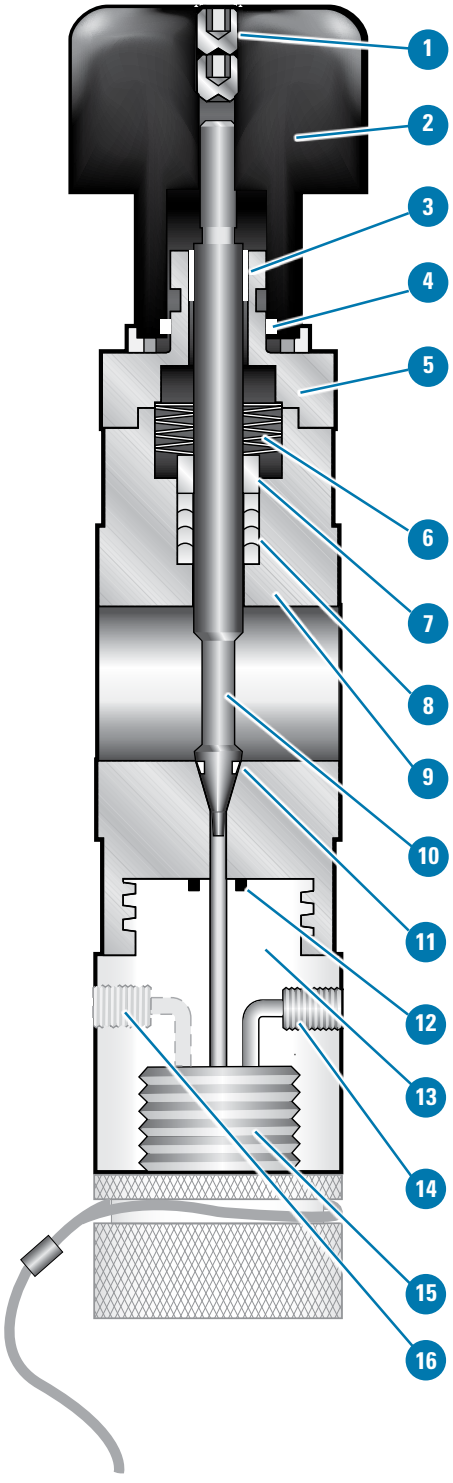
Sample Bottles

Capable of accommodating any bottle requirement.

Threads manufactured to fit your specific bottle requirement.

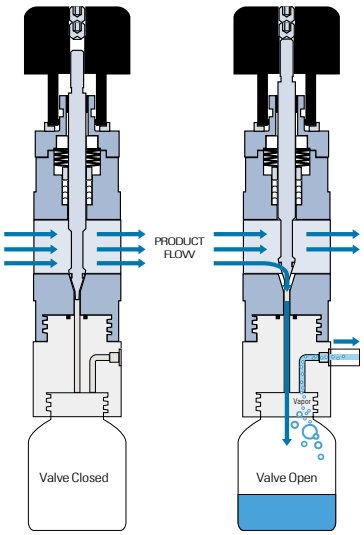
Sample Valve

Standard Stainless Steel shown below
(Style, design and configuration may change based on materials of construction)



PRINCIPLES OF OPERATION: The SV/SB series in-line sampling system valve is engineered to effectively collect representative sample of hazardous process media. The dead space free design can be installed in both horizontal and vertical piping, thereby allowing the media to constantly flow through the valve and around the conical spindle. Sample bottles – either open top or sealed with septum, can be directly attached beneath the valve to facilitate the sampling process.

- Direct representative samples from the process piping without requiring flushing
- Size range 1" to 6" (DN 25 to DN 150)
- 100% bubble-tight shut-off and zero stem leakage tested per the API 598 specifications
- Economical, field-replaceable components
- Available with knob handle, safety spring-to-close handle or pneumatic actuator
- Temperature rating: -4°F to 400° F (Soft Seated)
- Valves available to mount in ANSI 150# and 300# flanges
- Bottle adapters can be machined to fit customer-supplied bottles or supplied with bottles



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Features/Benefits

1 Dual Stainless Steel Set Screws

- Locks knob handle into place against vibration in process lines
- Limits travel of valve stem; controls sample speed
- Preset from factory – allows user to adjust sample speed

2 Nylon-Encased Stainless Steel Knob

- Durable
- Corrosion-resistant
- Non-slip grip
- Lighter weight versus solid stainless steel
- Safety spring-to-close handle and pneumatic actuators also available

3 Stem Bearing

- Self-lubricating (no maintenance required)
- Provides for smooth, easy stem operation
- Chemically resistant
- Durable

4 Fluorocarbon Rubber O-rings

- Protects the stem and bearing from external forces (water, moisture, and debris)
- Provides secondary level of protection against emissions and leaks from the process flow
- Promotes long service life

5 Bonnet Assembly

- Corrosion-resistant
- With fluorocarbon gasket

6 Belleville Springs (Washers)

- Provides level/live loading for the packing gland; a better alternative than coil springs
- More compact than coil springs; provides better sealing protection by keeping load evenly distributed on packing glands
- Continues to provide seal load integrity even if washer breaks (something coil springs cannot do)
- Black Oxide Coated Steel (standard) – improves corrosion resistance, lubricity, anti-galling properties
- Inconel® Alloy – for highly corrosive and high-temperature applications

7 Packing Gland Bushing

- Keeps pressure evenly distributed on packing gland
- Corrosion-resistant

8 Live-Loaded Packing Gland with PTFE Packing

- Provides maximum protection against fugitive emissions and liquid leakage
- Optional graphite packing available for higher temperatures
- Optional bellows stem seal also available

9 Body

- Superior durability
- Corrosion-resistant

10 Stem

- Superior durability
- Corrosion-resistant

11 Stem Seal with Molecular Enhanced PTFE

- Molecular-enhanced for greater durability
- Provides better resistance against corrosion

12 PTFE Encapsulated Fluorocarbon O-ring

- Primary seal for bottle adapter to body
- Chemically resistant

13 PTFE Bottle Adapter

- Can be machined to any bottle thread configuration
- Chemically resistant

14 FNPT Vent Connection

- Vents vapors away from operator
- ⅛" or ¼" FNPT standard; can be machined to other thread configurations

15 Adapter Plug (optional)

- Protects bottle adapter threads; can be used for double-block applications

16 Purge Port (optional)

- For purging sample bottle of moisture or air to ensure purity of sample

Testing: Each individual valve is tested for zero stem leakage and bubble-tight shut-off in accordance with the API 598 testing specifications. All PFA (PTFE) lined valves are spark tested to 20,000 volts to assure the integrity of the lining. Factory supplied mill test certificates are available upon request.

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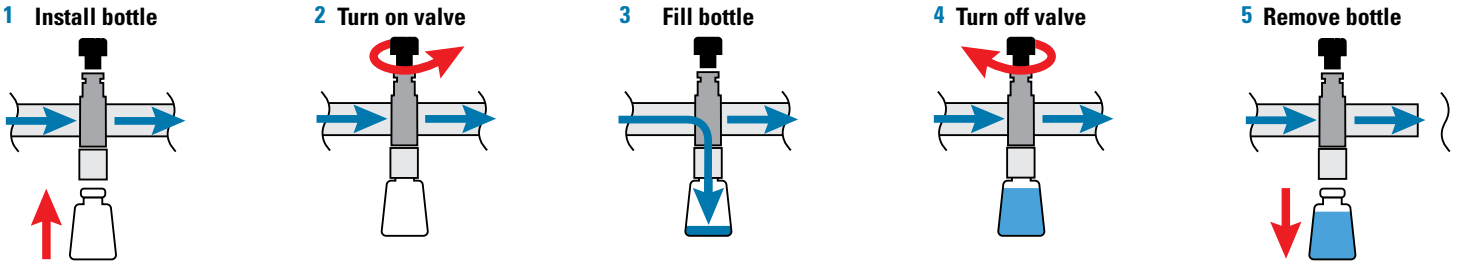
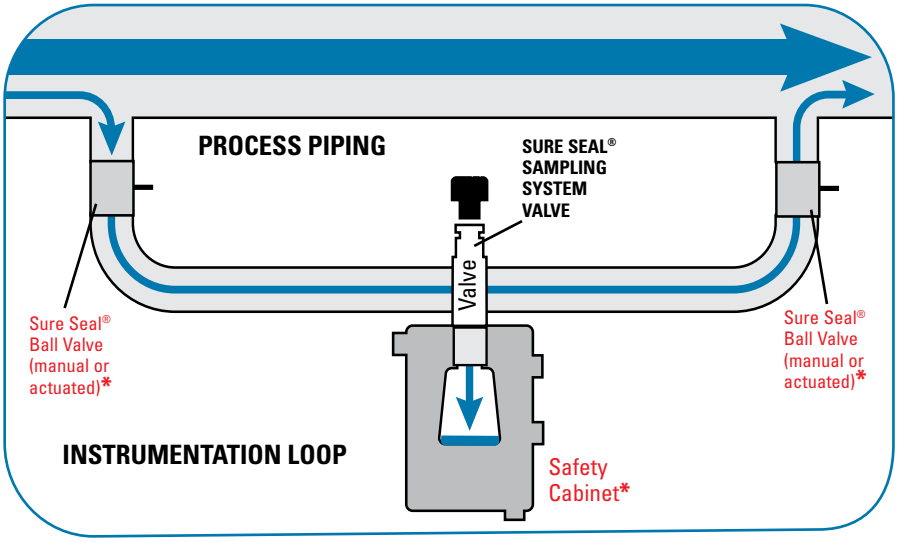


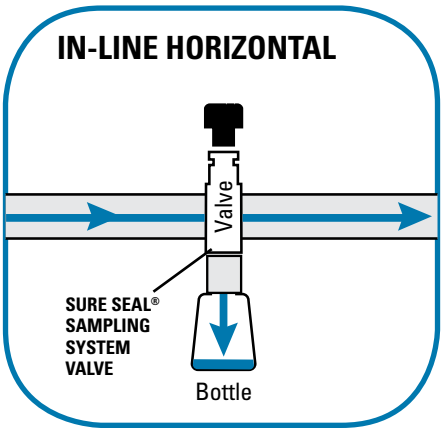


Typical Configurations

Instrumentation Loop

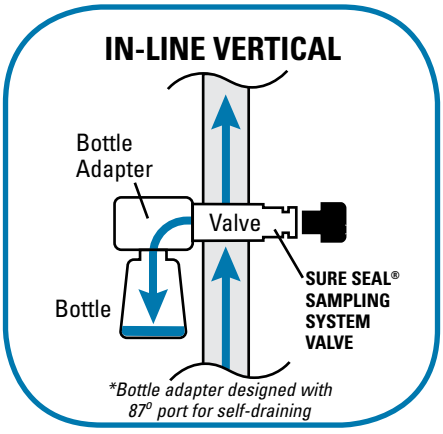
- Can be an integral part of a continuous process or throttle-valve controlled as needed
- Ideal for large process piping applications
- Enables liquids to be taken directly from the instrumentation loop for a true, clean, representative sample

NOTE: Equipment indicated in red represents optional equipment that can improve overall safety and efficiency of your sampling process



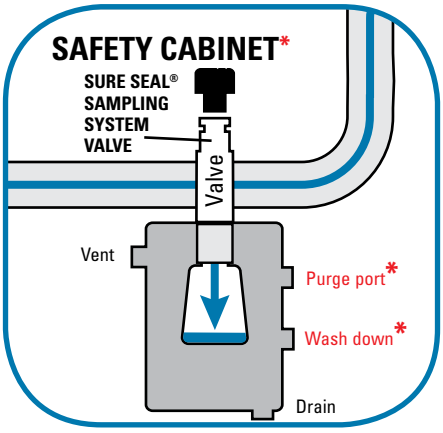
In-Line Horizontal

- Allows for collection of representative samples directly from a 1" to 6" pipe into a sample container without requiring flushing



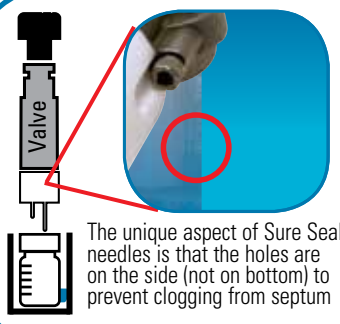
In-Line Vertical

- Allows for the collection of representative samples directly from a 1" to 6" pipe into a sample container without requiring flushing



Safety Cabinet

- Helps protect operator from hazardous and/or toxic liquids as well as helps shield process liquid from potential atmospheric contamination



The unique aspect of Sure Seal needles is that the holes are on the side (not on bottom) to prevent clogging from septum

Septum System

- Representative samples are captured in a jar (no threading) through a pair of needles puncturing the septum top
- One needle allows liquid sample to fill jar; the other needle is used for venting
- Field-replaceable needles made of standard stainless steel; other materials available

- Bottle basket made of polypropylene ; permits smooth rotation of bottle for quick, easy, secure twist-and-lock
- Supports bottle during sample collection

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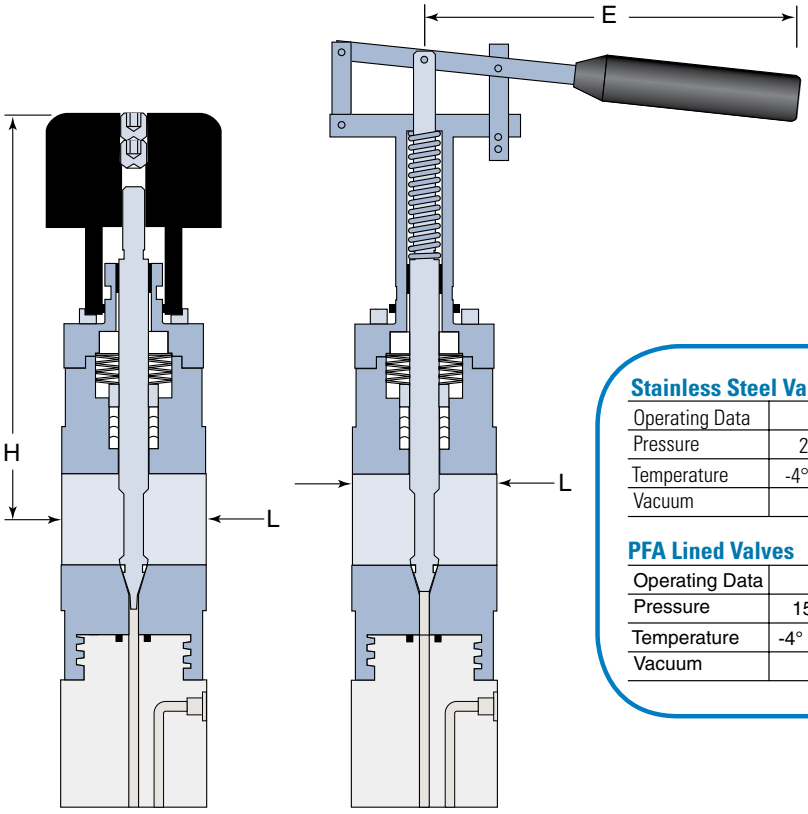


Dimensional Data

	150# Wafer		"Spring-to-Close" Handle
Size	L	H	E
1"	2.36	6.30	9.50
1.5"	2.36	6.50	9.50
2"	2.36	6.70	9.50
3"	2.36	7.00	9.50
4"	2.36	7.20	10.50
6"	2.36	7.50	10.50

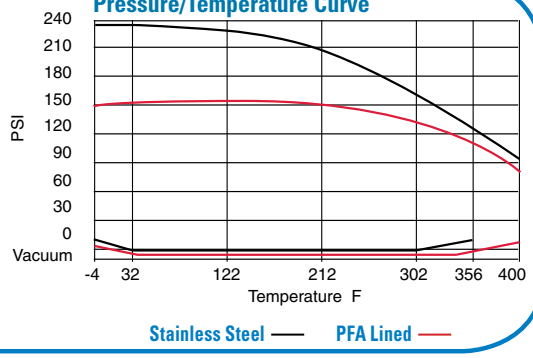
Stainless Steel Valves

Operating Data	Valve
Pressure	240 PSI G
Temperature	-4° F to 400° F
Vacuum	Full

PFA Lined Valves

Operating Data	Valve
Pressure	150 PSI G
Temperature	-4° F to 350° F
Vacuum	Full

Pressure/Temperature Curve



Sure Seal® SV Series Sampling System Valve Ordering Information

SERIES	SIZE	BODY STYLE	BODY MATERIAL	STEM SEAL	OPERATOR	ACCESSORIES
SVSB	6	W1	M	10	H	BA

Series: SVSB – Sample Bottle

Size: 1" to 6"

Body Style:
F1 - 150# Flanged (*)
F3 - 300# Flanged (*)
W1 - 150# Wafer
W3 - 300# Wafer

Body Material:
S - 316L/CF8M
M - Monel®
C - Hastelloy®
A - Alloy 20
P - PFA Lined/316 SS (**)
K - PVDF

Stem Seal:
10 - PTFE Packing
15 - Graphite Packing
20 - Bellows Stem Seal

Operator:
H - Knob Handle
S - Safety "Spring-to-Close" Handle
P - Fail-Closed Pneumatic Actuator

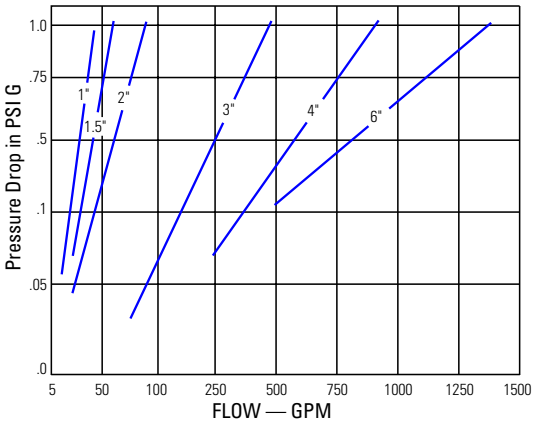
Accessories:
SC - Safety Cabinet
BA - Horizontal Bottle Adapter
VBA - Vertical Bottle Adapter
HJ - Heating Jacket
ABS - Spring Loaded Adjustable Bottle Support
NA - Needle Adapter
VNA - Vertical Needle Adapter
AP - Adapter Plug

NOTE: (*) Available only for stainless steel or alloy valves
(**) Additional configurations, materials, sizes and options available upon request

Sure Seal® Sample Valves Flow Coefficients

(Flow of water at 60˚F for Cv or 20˚F for Kv)

Valve Size	Flow Factor Kv (m^3/hr per bar)	Flow Coefficient Cv (GPM per psi)
1"	36	42
1.5"	50	58
2"	85	99
3"	420	487
4"	800	928
6"	1160	1350



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SAFER. CLEANER. GREENER.

All Sure Seal® process control and measurement products are designed and engineered to maximize the safety and well-being of people when handling hazardous liquids as well as to minimize impact on the environment. Our goal is to invest in the products, systems, materials and operational infrastructure to align with the social responsibilities of today's businesses and with our own charter to be a good corporate citizen.

Providing SAFER, CLEANER, GREENER Process Control & Measurement Solutions Worldwide

Lined Ball Valves

Sure Seal LBV Series are full port, lined ball valves. Designed to minimize pressure loss and maximize flow capacity.

They are deployed:

- Throughout process piping wherever reliable flow control is required.

Providing bubble-tight shut-off and requiring minimal maintenance, the LBV series helps lower energy and pumping costs. A separate lined ball and stem allows the ball to float, which prevents side loading, a common source of stem leaks.

Capable of withstanding high-pressure situations, the LBV series also provides the peace-of-mind assurance of a blowout-proof stem.

All Sure Seal LBV Series lined ball valves are subjected to a rigid statistical quality assurance process to assure defect-free product quality. Each valve is individually tested in accordance with API 598 specifications and are spark-tested with 30,000 volts to ensure lining integrity. Each valve is serialized for quick identification and traceability. Mill Test Certifications are available upon request.

Lined Butterfly Valves

Sure Seal LBF lined butterfly valves feature a superior encapsulated valve design non-wetted, 360-degree, radially loaded, elastometric energizer to ensure absolute bubble-tight shut-off, as well as a state-of-the-art mechanical shaft-sealing mechanism featuring Belleville spring technology.

They are deployed:

- In demanding applications that require control and isolation of corrosive, high-purity and abrasive process media.

Ideally suited for chlorine service, the LBF series:

- Offers disc swing clearance compatible with PTFE and other fluoropolymer-lined piping systems as well as other metallic, lined and non-metallic piping systems. No need for spacers during installation.

Sure Seal lined butterfly valves feature a superior encapsulated valve design. The liner is made from molecular enhanced PTFE to ensure the densest seat possible. Then, it is machined to strict tolerances. The one-piece disc/stem has a 3 mm thick precision-molded PFA locked in liner, encapsulating the wetted surfaces of the duplex stainless steel core. This eliminates the permeation and delamination commonly found in lined butterfly valves.

Sure Torque® Series ST Actuators

The Sure Torque Series ST is compact and uncomplicated in its design. With over 14 sizes and 90, 120, 135, 180, 240 and 270 rotation, these actuators can accommodate any situation.

They are deployed:

- Throughout process piping on valves requiring actuated flow control

The Sure Torque Series ST can be field-converted from double acting to single return by inserting the correct number of spring cartridges into the double-acting unit. This remarkably easy conversion eliminates bulky housing extensions, resulting in a savings of both weight and space.

Preloaded self-contained spring cartridges are completely contained before release of end cap screws, ensuring safe installation and removal. Internal porting eliminates costly external tubing. Accessory mounting aligns with NAMUR standards; variety of accessories available. Direct-mount solenoids available in NEMA 4, 7 and 9. Positioners supplied to receive 3-5 psi (.207-1.034 bar) or 4-20 mA input control signals. Declutchable manual-gear overrides available for actuators of all sizes.

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FREQUENTLY ASKED QUESTIONS

Why choose Sure Seal® sampling system valves?

Sure Seal sampling system valves are safer, cleaner and greener. They feature a direct in-line closed loop design engineered to collect representative samples direct from process piping or instrumentation loop without requiring flushing.

The design allows for the valves to be installed in both horizontal and vertical piping systems. The Sure Seal system offers open bottle sampling, needle adapters for sealed septum bottles. Safety cabinets and specially designed 90-degree bottle adapters can be used in horizontal or vertical piping.

What is the size range of Sure Seal sampling system valves?

Standard sizes range from 1" to 6" in both wafer and flanged-style valves. Special connections and larger sizes may be available upon request.

In what materials of construction are Sure Seal sampling system valves available?

Valve bodies are available in these materials of construction:

- Stainless Steel
- Hastelloy®
- Alloy 20
- Monel®
- PVDF
- PFA lined (Stainless Steel)*

* PFA-lined valves are supplied with PFA-lined stainless steel body and stem; bonnet and bushings are stainless steel but are not PFA lined.

PFA-lined valves are supplied with a fluoroelastomer stem seal.

How do you operate the Sure Seal sampling system valve?

All valves are available with several methods of operation: knob handles, safety "spring-to-close" handles and fail-closed pneumatic actuators.

What design and testing criteria are applicable to Sure Seal sampling system valves?

All sampling systems are specifically designed per ASME/ANSI B 16.10 and ASME/ANSI B 16.5.

All sampling system valves are individually tested for absolute bubble-tight shut-off and zero stem leakage in accordance with the API 598 testing specifications. Most sample valves are rated from full vacuum to 150 psi. The minimum/maximum temperature ratings depend on the materials of construction. Each PFA lined sample valve is spark-tested to 20,000 volts to ensure the integrity of the lining.

Can we rely on the environmental integrity of the Sure Seal sampling system valve?

Sure Seal sampling system valves are available with spring-loaded mechanical shaft seals (PTFE packing or graphite) or a bellow seal with a secondary sealing system. PFA lined valves are also available with (TFM) PTFE bellows seal and a secondary O-ring seal.

Can we use the Sure Seal sampling system valve if our process polymerizes?

Heating and cooling jackets can be made available for any temperature related process. Special orifices and bottle adapters are also available.

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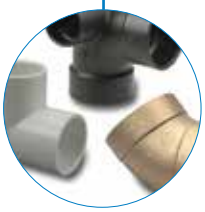
FITTINGS



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*Weighted average lead content ≤0.25%

VALVES & ACTUATION

Pressure-rated bronze, iron and alloy-iron gate, globe and check valves • Pressure-rated bronze ball valves • Boiler specialty valves • Commercial and industrial butterfly valves • Circuit balancing valves • Carbon and stainless steel ball valves • ANSI flanged steel ball valves • Pneumatic and electric actuators and controls • Grooved ball and butterfly valves • High performance butterfly valves • UL/FM fire protection valves • MSS specification valves • Bronze specialty valves • Low pressure gate, globe, check and ball valves • Frostproof sillcocks • Quarter–turn supply stops • Quarter-turn low pressure valves • PVC ball valves • CPVC CTS ball valves • Bronze & Iron Y-Strainers • Lead-Free* valves • Coil-Connect® Kits

*Weighted average lead content ≤0.25%

CHEMTROL®

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AHEAD OF THE FLOW®

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