

METAL BELLOWS VALVE STEM SEALING



Reliable Sealing Performance for Zero Emissions Requirements

SMART IN FLOW CONTROL

DESIGN

Modular Design

Available in valve series 240, 250, 290, 590 and is easily retrofitted into existing valves that may have new stricter emissions requirements. Optionally available with full body heating jacket to prevent crystalline deposits in the folds of the metal bellows.

Downstream Packing:

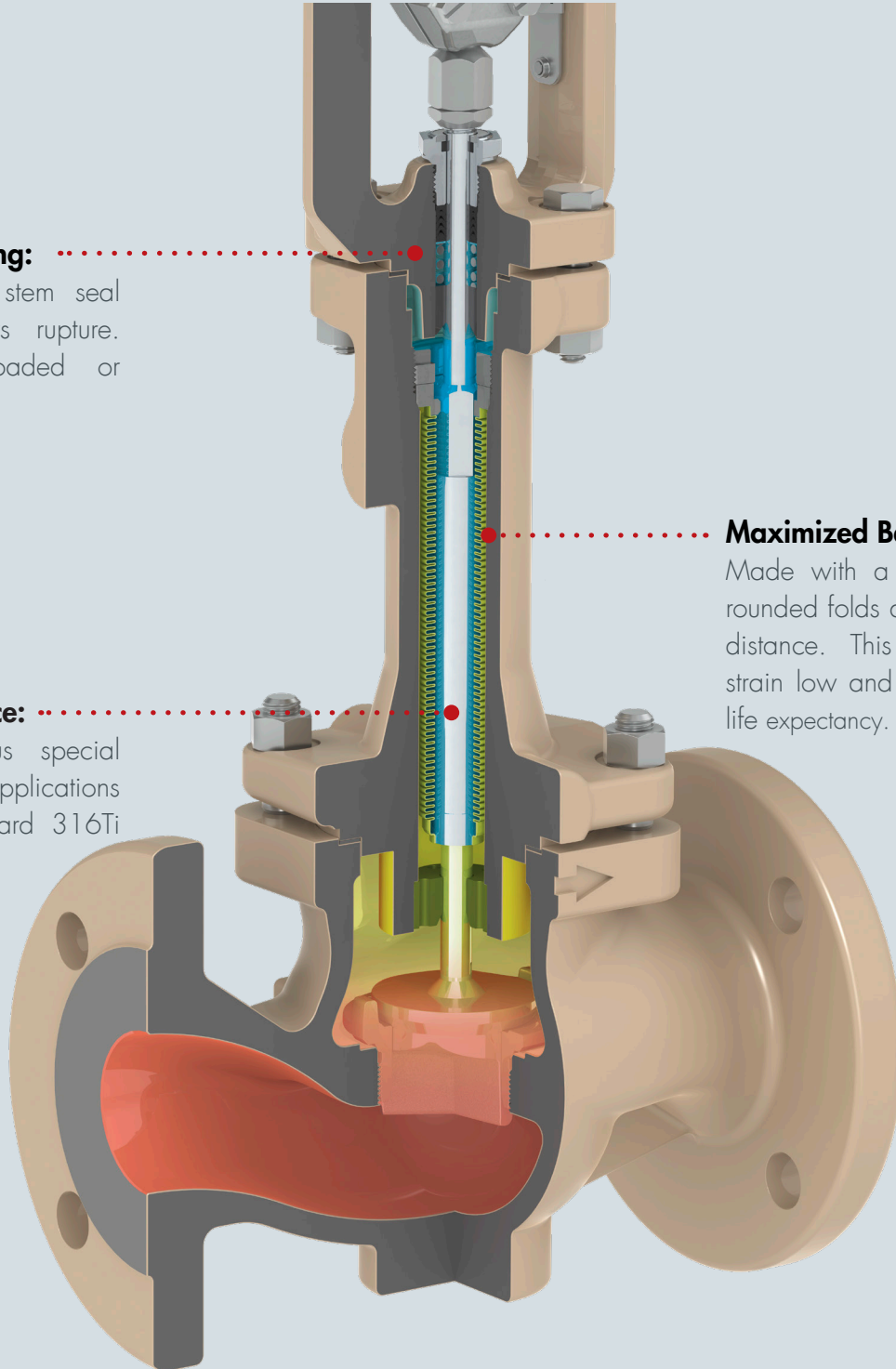
Provides a backup stem seal in case of bellows rupture. Available in live-loaded or adjustable style.

Corrosion Resistance:

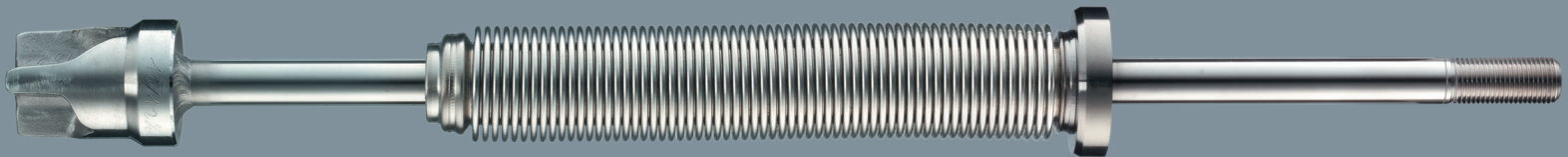
Available in various special alloys for corrosive applications in addition to standard 316Ti stainless steel.

Maximized Bellows Fold:

Made with a high number of rounded folds and a short stroke distance. This keeps material strain low and greatly improves life expectancy.



EXPERIENCE & EXPERTISE



In 1907 when the company was founded by Hermann Sandvoss, his first patent marked the beginning of a development that represents the company's main product line, bellows self-operated regulators. The past 100 years of in-house manufacturing of the metal bellows has resulted in an industry leading product forged from German Engineering and Manufacturing.

Metal bellows are used in self-operated regulators and globe valves to provide a zero-leakage seal of the process medium to the atmosphere. Modern control systems now use electro pneumatic controllers coupled with globe valves in leu self-operated regulators. The original design of the bellows from Mr. Sandvoss has adapted to this valve type and is the primary method for zero-leakage sealing.

No maintenance

- Designed to last the lifetime of the valve, offering significant maintenance savings compared to traditional packing

Reliable

- Successfully tested over 100,000 cycles according to ISO 15848

Excellent Sealing Performance

- Leakage rate of tightness class AH according to ISO 15848 (helium test)

Heavy Duty Construction

- Suitable for high pressures up to Class 2500

No Hysteresis

- No deviations from the characteristic

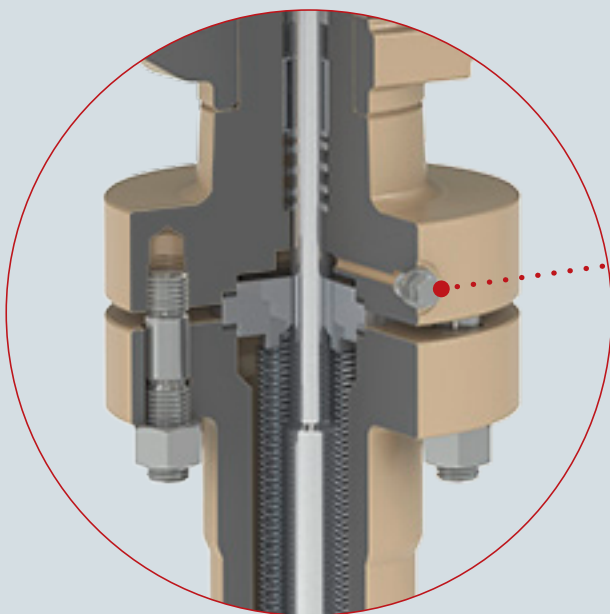
MONITORING



The EXPERTplus valve diagnostics integrated into the positioner provide reliable information on the condition of the metal bellows. The measured data are assessed based on a statistical analysis of the cycle heights that the valve moved through. The positioner issues a classified status message in compliance with NAMUR Recommendation NE 107 when a critical condition exists.

Positioners with Integrated EXPERTplus Valve Diagnostics:

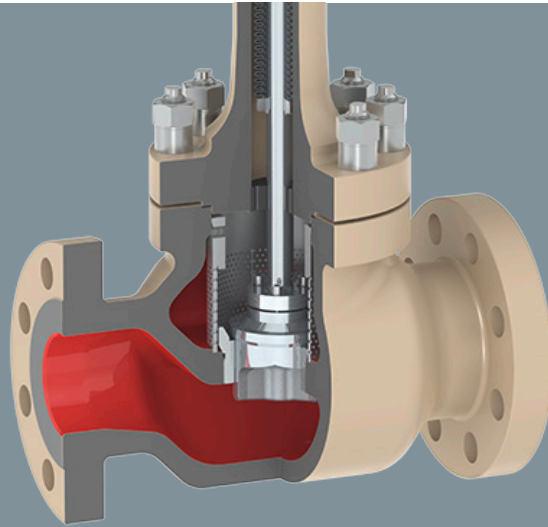
- Series 3730 (optionally with HART®, PROFIBUS-PA, or FOUNDATION™ fieldbus communication)
- Series 3731 with flameproof enclosure (optionally with HART® or FOUNDATION™ fieldbus communication)
- TROVIS 3793 with modular functions (HART® communication)



Test Connection:

A threaded test port between the bellows and packing allows for monitoring the integrity of the bellows. Use with an analog or digital pressure detection device to monitor cavity pressure before external leakage is seen.

QUALITY & DURABILITY



At A Glance

Metal bellows are primarily used to prevent external leakage. The metal bellows made by SAMSON comply with the emission limits specified in the following standards:

- TA Luft
- ISO 15848
- ANSI/FCI 91-1-2010

Life Cycle Expectations

Quality and durability are the key features of metal bellows and make the investment worthwhile. Several factors, including pressure, temperature, medium, and average stroke length, can influence the life of a bellows. Under standard control valve conditions the bellows life can commonly exceed 5,000,000 cycles

Specimen and Test Conditions

The test was performed on a Series 240 Valve fitted with a metal bellows. The calculation was based on travel motions between 0 and 50 %.

Product Life Cycle

The extra cost of fitting a valve with a metal bellows as the primary stem seal rather than a stuffing box packing to meet stricter emission requirements pays off: metal bellows are reliable, require no maintenance and last longer in service. When considering the entire product life cycle, metal bellows are the solution that offers the best cost-effectiveness.

Valve	240 Series
Valve Size	NPS 1/2 to 6
Pressure rating	Class 150 and 300
Material	1.4571/316Ti
Layers	2
Bellows pressure	10.3 bar (g)/150 psi (g)
Process Temperature	20 °C/68 °F

INTELLIGENT, COMPREHENSIVE SOLUTIONS

SAMSON

PFEIFFER · RINGO · SED · STARLINE · VETEC
AIR TORQUE · CERA SYSTEM · LEUSCH

SAMSON's technology has proven its value world-wide in a variety of industries. We are trusted in many of the world's most challenging applications to achieve precise control with a high level of safety and reliability.

We offer engineered solutions from a single source. With our extensive range of valves, actuators, and accessories we have the right products to suit your requirements.

Our linear and rotary control valves are equipped with SAMSON positioners that allow seamless integration into process control systems.

Continuous investment in research and development allows us to stay at the cutting edge of technology. With over 100 years of experience and expertise, you can count on SAMSON to provide a robust solution for your application.

SAMSON
PFEIFFER · RINGO · SED · STARLINE · VETEC
AIR TORQUE · CERA SYSTEM · LEUSCH

SAMSON Controls Inc.

4111 Cedar Blvd. Baytown, TX 77523-8588 USA
Phone: +1 281-383-3677 · Fax: 281-383-3690



usa.samsoncontrols.com



contact-us@samsongroup.com