

**SAMSON**

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## **Metal Bellows by SAMSON**

Reliable sealing performance to meet stricter emission requirements



**ISO 15848  
ANSI/FCI 91-1**

# RUGGED DESIGN



## ■ Modular design

Installation in Series 240, 250, 280, and 290 Valves (can also be retrofitted) as well as self-operated regulators

## ■ Heating jacket

(optional) to prevent crystalline deposits in the folds of the metal bellows

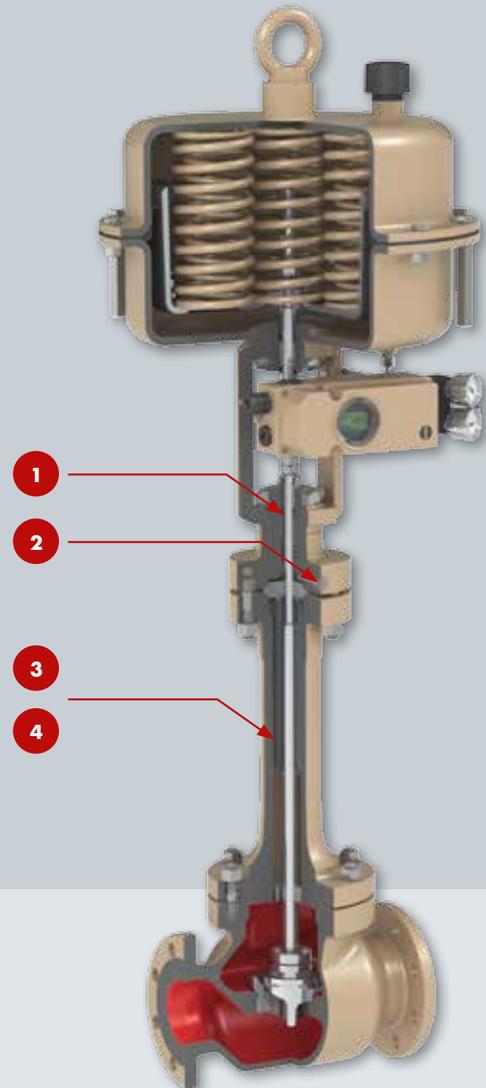
## ① Downstream packing

as backup seal

## ② Test connection for leakage monitoring

## ③ Corrosion resistance thanks to using stainless steel

## ④ High number of folds to achieve a long service life



# EXPERIENCE AND EXPERTISE



Metal bellows are used in globe valves to seal the plug stem to the atmosphere. The thin-walled corrugated cylinders are used as dynamic seals, particularly in applications where strict emission requirements apply. Metal bellows by SAMSON are made of corrosion-resistant materials. They are capable of withstanding high pressures and temperatures, which makes them ideally suited for use in high-performance service.

SAMSON's founding father, Mr. Hermann Sandvoss, had the metal bellows patented back in 1909. And valves fitted with metal bellows still continue to be the prime choice for challenging applications. This statement is backed up by the impressive sales figures: 20 % of all valves sold are equipped with metal bellows.

## **No maintenance**

Almost throughout an entire valve life

## **Reliable**

Successfully tested in over 100,000 cycles according to DIN EN ISO 15848

## **Excellent sealing performance**

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

## **Stricter requirements**

Suitable for high pressures up to PN 400/Class 2500

## **No hysteresis**

No deviations from the characteristic

# DIGITAL MONITORING

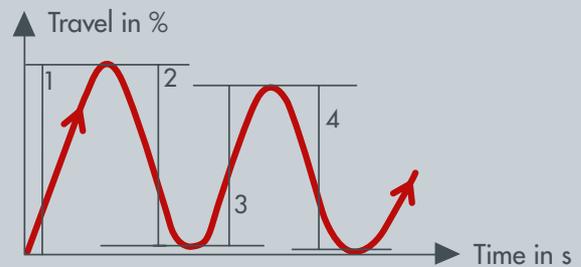
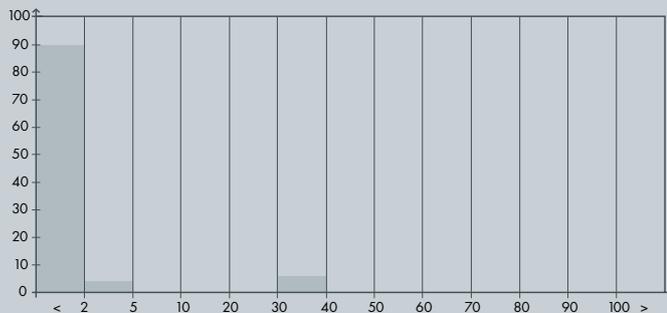


The EXPERTplus valve diagnostics integrated into the positioner provide reliable information on the condition of the metal bellows. The measured data are assessed based on a statistical analysis of the cycle heights that the valve moved through. The positioner issues a classified status message in compliance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

## Digital monitoring



# FOCUS ON QUALITY AND DURABILITY



## Product life cycle

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

## Life cycle considerations

Quality and durability are the key features of metal bellows and make the investment worthwhile. As a result, SAMSON examined the durability of a metal bellows as part of the life cycle calculations. These calculations showed that the bellows can reliably perform 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 %.

## 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

Valve	Series 240
Valve size	NPS ½ 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

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## Metal Bellows by SAMSON



● Production sites    ● Subsidiaries

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