

# ENDURANCE TESTING PRESSURE SWING ADSORPTION (PSA VALVES)



**SMART IN FLOW CONTROL**

# ENDURANCE TEST: DOUBLE-ECCENTRIC SHUT-OFF BUTTERFLY VALVE

The butterfly valve was subjected to an endurance test to verify its seat leakage and fugitive emissions. The test results were as follows:

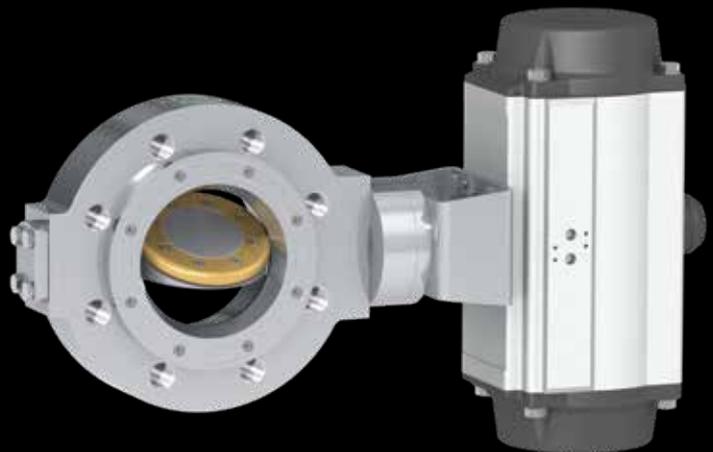
**Load cycles:** 1 million load cycles without having to replace any parts subject to wear

**Seat leakage:** tested according to IEC 60534-4:2006 in the FTO and FTC directions of flow at different test pressures. The butterfly valve was bubble tight in both directions after 1 million cycles.

**Fugitive emissions:** bubble tight after 1 million cycles

## Specimen

Type	Type 14p PSA
Valve size	NPS 6
Pressure rating	Class 300
Body/disk	A351 CF8M
Shafts	AISI 630 (PSA design)
Gasket	Elastomer (PSA design)
Seat ring on disk	A479 316 Ti/HSB14
Shaft seal	PTFE packing, loaded by spring washers with primary seal
Actuator	Type 31a SRP 900



# ENDURANCE TEST: GLOBE VALVE

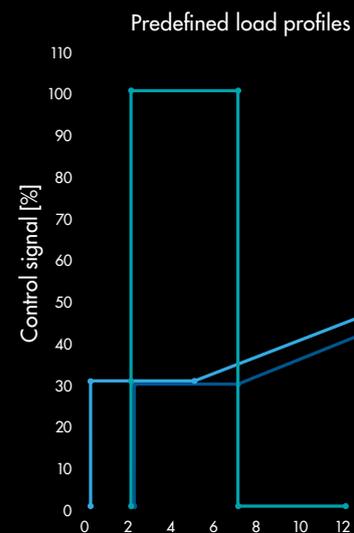
The globe valve was subjected to an endurance test to verify its seat leakage and fugitive emissions. The test results were as follows:

**Load cycles:** 1 million load cycles according to representative load profiles without having to replace any parts subject to wear

**Seat leakage:** tested according to IEC 60534-4:2006 in the FTO and FTC directions of flow. The target result (leakage class VI) was exceeded and bubble tightness was achieved.

**Fugitive emissions (valve):** bubble tight after 1 million cycles

**Actuator sealing ability:** basically bubble tight after 1 million cycles with an extremely low air consumption

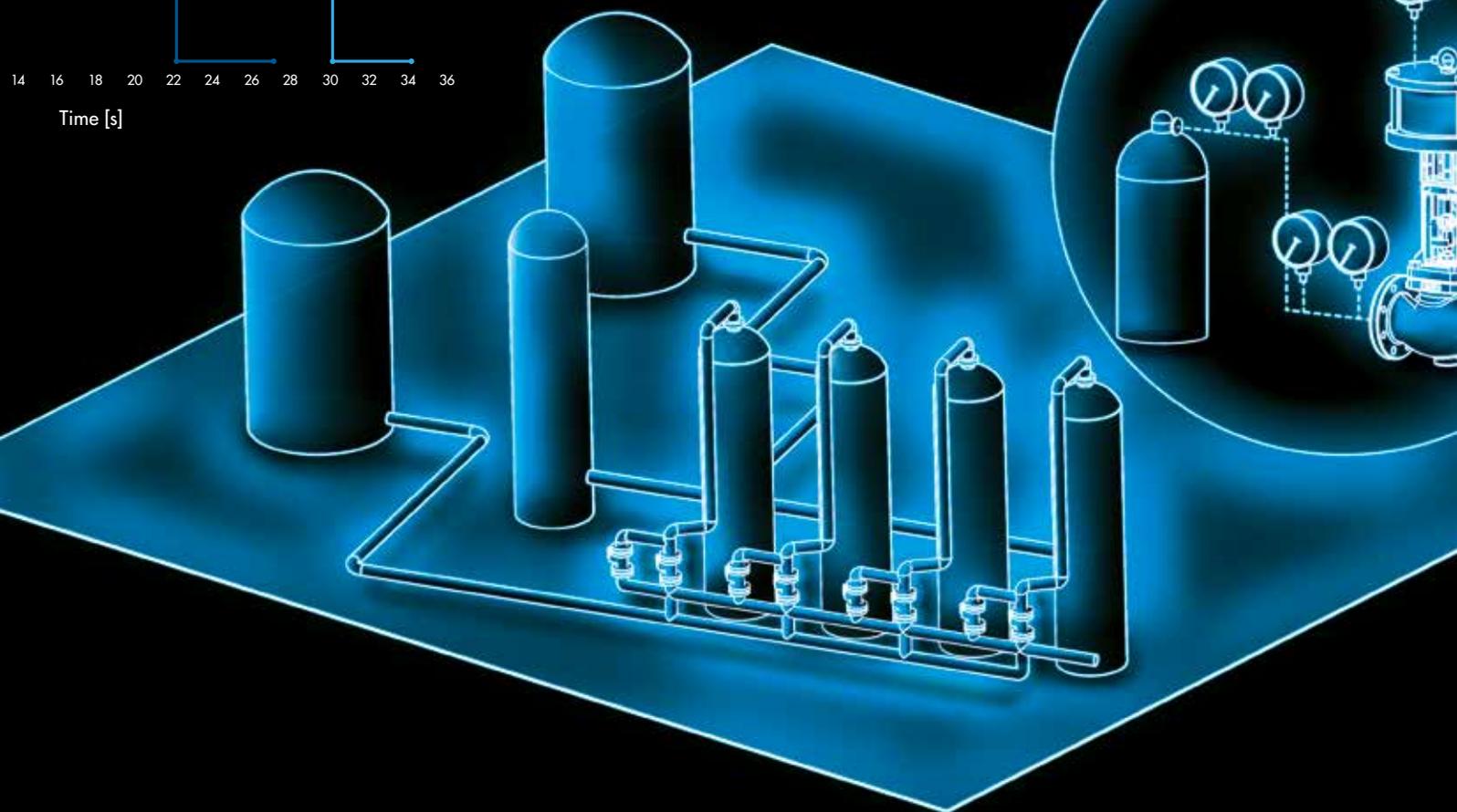
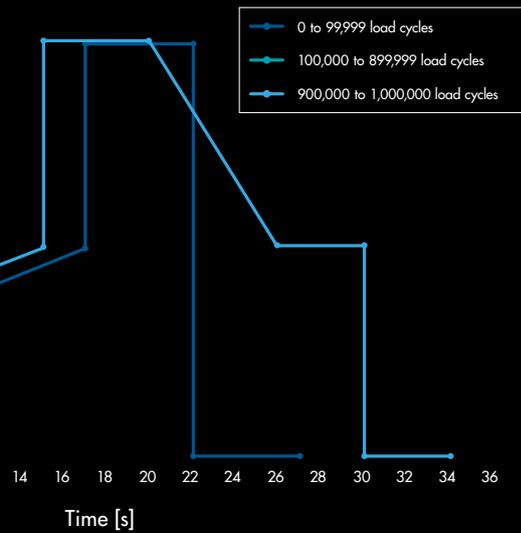


## Specimen

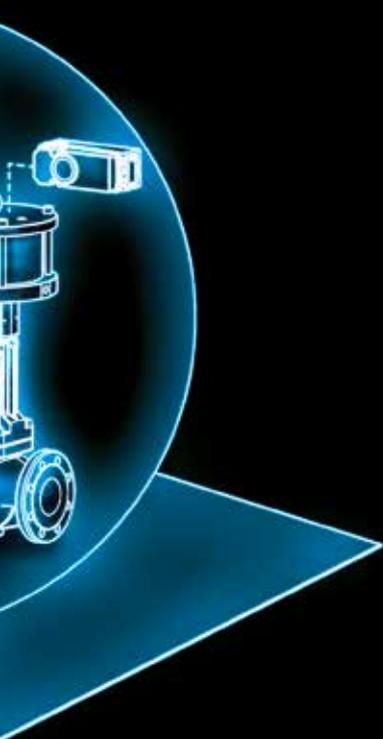
Type	Type 3241-9 PSA
Valve size	NPS 3
Pressure rating	Class 300
$K_{vs}/C_v$	80/95
Body	A216 WCC
Seat	1.4404/1.4409 kolsterized®
Plug	Stellite® 6/6B
Plug stem	1.4548
Body gasket	Graphite on metal core
Packing	1. PSA packing 2. PG packing
Actuator	Type 3275A 1. Aluminum version 2. Stainless steel version
Positioner	TROVIS 3793



# REPRESENTATIVE LOAD PROFILES NEAR-REAL-LIFE TEST CONDITIONS



# TESTED UNITS



## Actuator

- Double-acting Type 3275A Pneumatic Piston Actuator
- Diaphragm area: 314, 380, 490 or 804 cm<sup>2</sup>
- Low overall height
- High thrusts
- Low friction
- Extremely good sealing ability



## Positioner

- TROVIS 3793 Electropneumatic Positioner
- High air capacity to achieve challenging positioning times
- Modular design: easy retrofitting or exchange of pneumatic or option modules
- Non-contact position sensing
- Plain-text display with NAMUR Recommendation NE 107 states and messages on the device
- Integrated diagnostic functions
- HART<sup>®</sup> communication
- Suitable for SAM DIGITAL



## Valve

- Type 3241-9 PSA
- Very low seat leakage to achieve high plant efficiency
- Meets strict fugitive emission requirements
- Low wear
- Rugged design
- Optional: flow divider and pressure balancing



# SAMSON AT A GLANCE



## STAFF

- Worldwide 4,500
- Europe 3,700
- Asia 600
- Americas 200
- Frankfurt am Main, Germany 2,000

## MARKETS

- Chemicals and petrochemicals
- Power and energy
- District heating and cooling, building automation
- General industry
- Industrial gases
- Food and beverages
- Metallurgy and mining
- Oil and gas
- Pharmaceuticals and biotechnology
- Marine equipment
- Water and wastewater
- Pulp and paper

## PRODUCTS

- Valves
- Self-operated regulators
- Actuators
- Valve accessories
- Signal converters
- Controllers and automation systems
- Sensors and thermostats
- Digital solutions

## SALES SITES

- More than 50 subsidiaries in over 40 countries
- More than 200 representatives

## PRODUCTION SITES

- SAMSON Germany, Frankfurt, established 1916  
Total plot and production area: 150,000 m<sup>2</sup>
- SAMSON France, Lyon, established 1962  
Total plot and production area: 23,400 m<sup>2</sup>
- SAMSON Turkey, Istanbul established 1984  
Total plot and production area: 11,053 m<sup>2</sup>
- SAMSON USA, Baytown, TX, established 1992  
Total plot and production area: 9,200 m<sup>2</sup>
- SAMSON China, Beijing, established 1998  
Total plot and production area: 10,138 m<sup>2</sup>
- SAMSON India, Pune district, established 1999  
Total plot and production area: 18,000 m<sup>2</sup>
- SAMSON Russia, Rostov-on-Don, established 2015  
Total plot and production area: 5,000 m<sup>2</sup>
- SAMSON AIR TORQUE, Bergamo, Italy  
Total plot and production area: 27,684 m<sup>2</sup>
- SAMSON CERA SYSTEM, Hermsdorf, Germany  
Total plot and production area: 14,700 m<sup>2</sup>
- SAMSON KT-ELEKTRONIK, Berlin, Germany  
Total plot and production area: 1,060 m<sup>2</sup>
- SAMSON LEUSCH, Neuss, Germany  
Total plot and production area: 18,400 m<sup>2</sup>
- SAMSON PFEIFFER, Kempen, Germany  
Total plot and production area: 35,400 m<sup>2</sup>
- SAMSON RINGO, Zaragoza, Spain  
Total plot and production area: 18,270 m<sup>2</sup>
- SAMSON SED, Bad Rappenau, Germany  
Total plot and production area: 10,370 m<sup>2</sup>
- SAMSON STARLINE, Bergamo, Italy  
Total plot and production area: 26,409 m<sup>2</sup>
- SAMSON VDH PRODUCTS, the Netherlands
- SAMSON VETEC, Speyer, Germany  
Total plot and production area: 27,090 m<sup>2</sup>

## SAMSON AKTIENGESELLSCHAFT

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