



precise

innovative

## **Precision - Made in Germany**

Schubert & Salzer Control Systems GmbH is a medium-sized company in the Schubert & Salzer Group with its headquarters in Ingolstadt. Our core business lies in developing and selling innovative solutions in control technology for liquid and gaseous media flows.

Our subsidiaries in Belgium, France, India, the UK and the USA as well as more than 40 international partners offer you and your customers quality products from Schubert & Salzer with the "Made in Germany" cachet, worldwide.

The background of the page is a close-up, high-angle photograph of industrial valve components. The image shows various parts of a valve, including a large circular flange, a central stem, and internal seals, all rendered in a soft, slightly blurred light gray and white color palette. The lighting creates subtle gradients and highlights the metallic textures of the parts.

fast

target-oriented

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reliable

## Seat valves by Schubert & Salzer

Seat valves are the extremely reliable all-rounders in the valve world. Our range includes on/off and control valves in stainless steel or bronze, with an actuator either made of stainless steel or lightweight plastic. They are available with a threaded or Tri-clamp connection as well as with welding ends. Actuation is either pneumatically or motor-driven and they can be supplied with a flanged body.

consistent

### Angle seat valves

Angle seat valves in the form of stop and control units offer a particularly compact construction and stand up to very many switch cycles. In its many versions, the construction of the valve gives a highly efficient flow rate and can be even used to effect in lightly contaminated media.

### Flange valves

In the larger sizes, flange valves are easier to remove from pipelines than screwed valves. This range is supplied to various connection standards as angle and straight flanged seat valves.

### Three-way valves

Depending on its design, the three-way valve can perform a variety of functions: it can mix and distribute media flows or charge and discharge an operating component (e.g. a pressure cylinder). It is coupled into a pipeline by threaded connections.

high quality

Position indicator

Bonnet

Piston spring

Piston

Flange

Seal

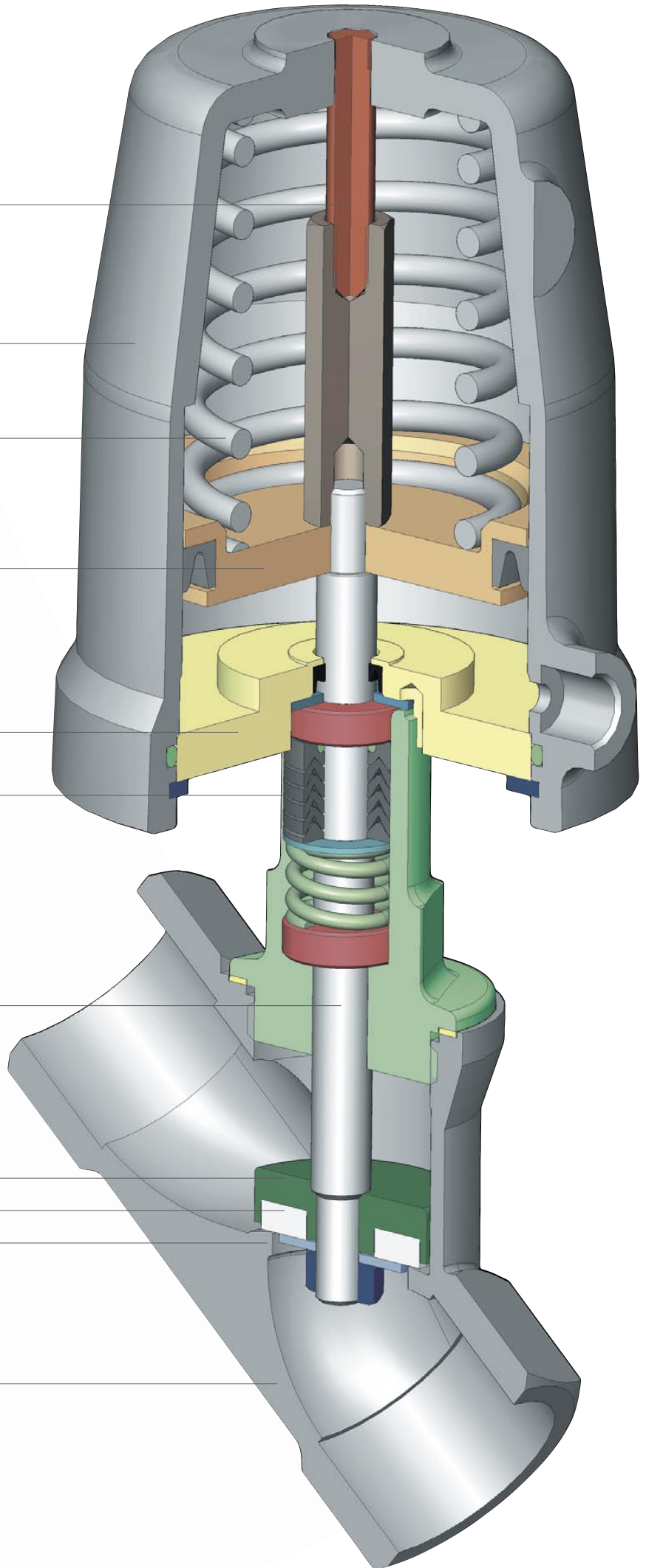
Valve stem

Disc

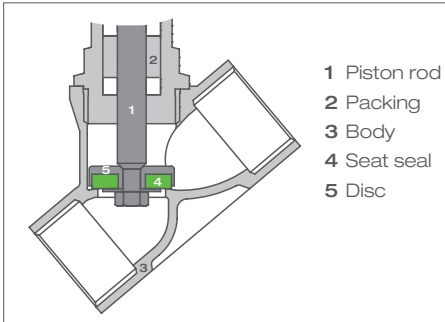
Seat seal

Body seat

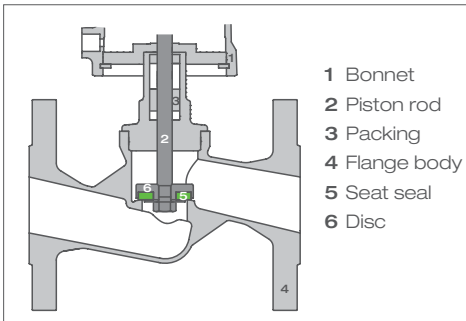
Body



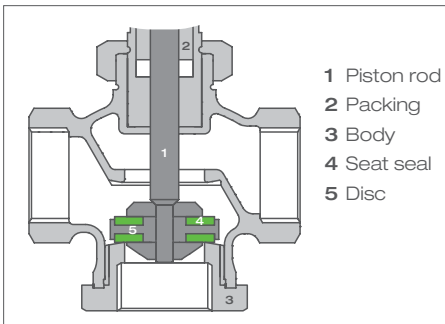
## Angle seat valves (1) (2) (3)



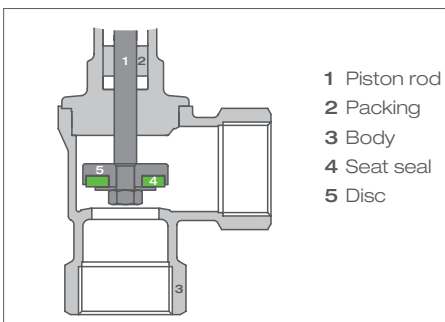
## Flange valves (4)



## Three-way valves (5)



## Right-angled valves (6)





**(1) Angle seat stop valve 7010**

Nominal size: DN 8 - 80  
 Nominal pressure: PN 40  
 Media temperature:  
 -30°C to +220°C,  
 optional -100°C to +220°C  
 Material: Bronze and stainless steel



**(2) Angle seat control valve 7020**

Nominal size: DN 15 - 80  
 Nominal pressure: PN 40  
 Media temperature:  
 -30°C to +220°C,  
 optional -100°C to +220°C  
 Material: Stainless steel  
 Positioner: pneumatic,  
 analogue electro-pneumatic,  
 digital electro-pneumatic,  
 Ex-i version, AS-i bus connection



**(3) Angle seat motor valve 7210**

Nominal size: DN 8 - 50  
 Nominal pressure: PN 16, 40  
 Media temperature: -30°C to +200°C,  
 optional -100°C to +220°C  
 Material: Bronze and stainless steel  
 Actuation: stop and control actuation,  
 optional position control and  
 position feedback plus  
 limit switch



**(4) Flange valve 7032**

Nominal size: DN 15 - 50  
 Nominal pressure: PN 40, also in  
 ANSI # 150  
 Media temperature:  
 -30°C to +200°C,  
 optional -100°C to +220°C  
 Material: Stainless steel



**(5) Three-way control valve 7082**

Nominal size: DN 15 - 50  
 Nominal pressure: PN 40  
 Media temperature: -30°C to +200°C  
 Material: Stainless steel  
 Positioner:  
 digital electro-pneumatic,  
 Ex-i version, AS-i bus connection



**(6) Motorised right-angle valve 7250**

Nominal size: DN 15 - 50  
 Nominal pressure: PN 40  
 Media temperature: -30°C to +200°C  
 Material: Stainless steel  
 Actuation: stop and control actuation,  
 optional position control and  
 position feedback plus limit switch

# Sterile valves by Schubert & Salzer

In many industries, purity commands top priority. Sterile valves from Schubert & Salzer operate to the highest requirements for purity with maximum efficiency: The bodies are CIP and SIP capable, to avoid contamination by bacteria. In addition, these aseptic valves have no dead spaces.

## reliable

### Right angle valves

Very good control and ideal hygienic conditions are often a contradiction in terms. 6020 and 6021 sterile control valves from Schubert & Salzer Control Systems satisfy both tasks perfectly. These right angle valves offer ideal prerequisites above all for the food and drinks industries, but also for pharmaceutical, biotechnology and chemicals.

### Pinch valves

The 7077 control valve for endless tubes offers a modern alternative to conventional pinch or diaphragm valves. The pinch valve can be used at any position on an endless tube for on/off and control operations. With no dead space, the highest hygienic demands can be met. For those applications where flexibility is not a priority, the 7070 pinch control valve offers an alternative and is integrated permanently in pipelines. Here also, the entire design can be used without any problems in food-related and sterile processes. Sterile valves can also be operated as control valves by fitting a positioner.

## efficient



Positioner

Sensing pin

Supporting bolt

Piston spring

Pilot line

Piston

Flange

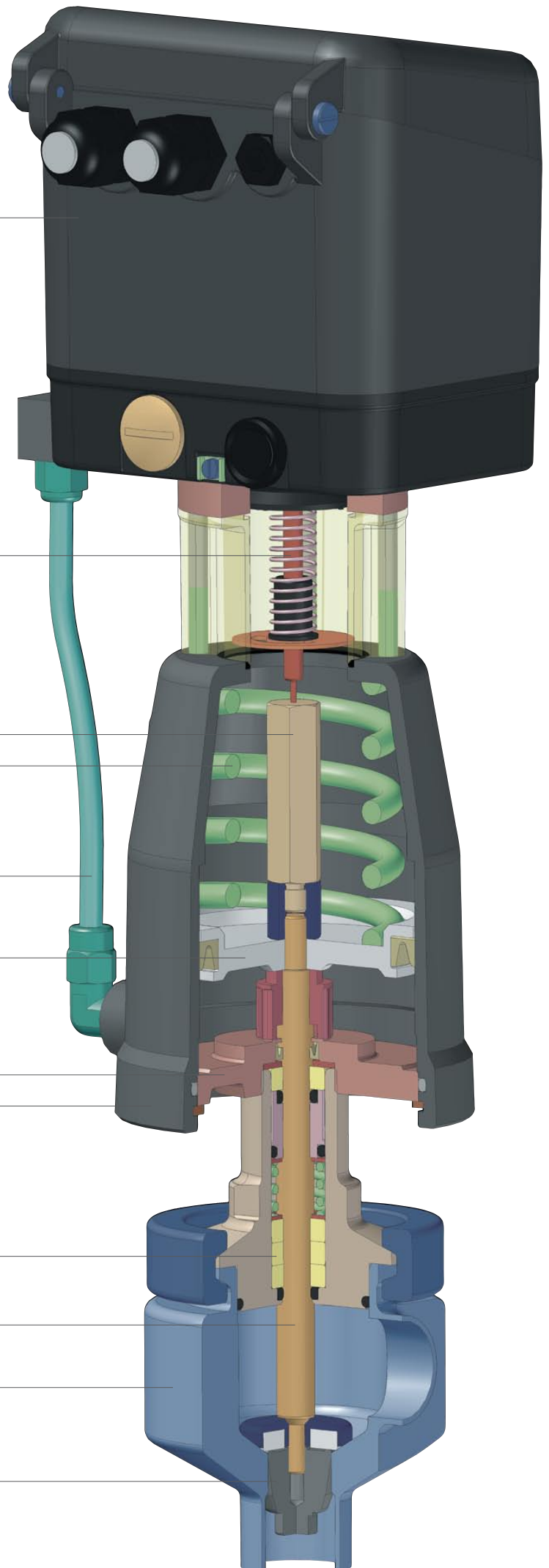
Bonnet

Guide rings

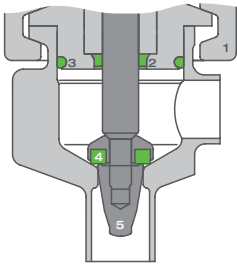
Valve stem

Body

Control cone

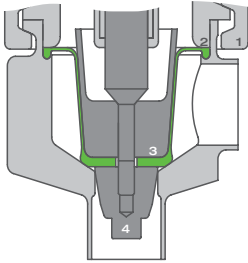


## Hygienic right angle valves (1)



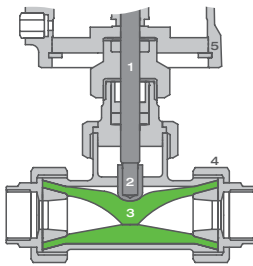
- 1 Clamp connection
- 2 Rod seal
- 3 Body seal
- 4 Seat seal
- 5 Control cone

## Aseptic right angle valves (2)



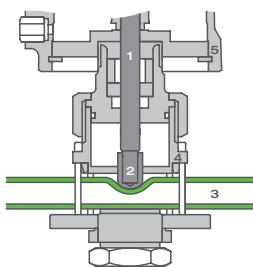
- 1 Clamp connection
- 2 Body seal with diaphragm
- 3 Seat seal with diaphragm
- 4 Control cone

## Pinch valves (3)



- 1 Piston rod
- 2 Actuating pin
- 3 Tube
- 4 Body
- 5 Bonnet

## Endless tube pinch valve (4)



- 1 Piston rod
- 2 Actuating pin
- 3 Endless tube
- 4 Body
- 5 Bonnet





**(1) Hygienic right angle control valve 6020**

Nominal size: DN 15 - 40  
Nominal pressure: PN 16  
Media temperature: -20°C to +200°C  
Material: Stainless steel  
Positioner: pneumatic, analogue electro-pneumatic, digital electro-pneumatic,  
Ex-i version, AS-i bus connection



**(2) Aseptic right angle control valve 6021**

Nominal size: DN 15 - 40  
Nominal pressure: PN 16  
Media temperature: -20°C to +135°C optional to +160°C  
Material: Stainless steel  
Positioner: digital electro-pneumatic, Ex-i version, AS-i bus connection  
EHEDG certified, USP class VI



**(3) Pinch control valve 7073**

Nominal size: DN 15 - 50  
Operating pressure: to 3 bar  
Media temperature: -10°C to +130°C  
Tube material: NBR, EPDM (conforming to FDA), FKM  
Positioner: pneumatic, analogue electro-pneumatic, digital electro-pneumatic,  
Ex-i version, AS-i bus connection



**(4) Endless tube control valve 7077**

Tube diameter: 10 - 18 mm  
Operating pressure: to 4 bar (depending on tube)  
Media temperature: -30°C to +170°C (depending on tube)  
Material: Stainless steel  
Positioner: pneumatic, analogue electro-pneumatic, digital electro-pneumatic,  
Ex-i version, AS-i bus connection

# The sliding gate valve principle by Schubert & Salzer

This is how easy control can be. Over 25 years ago, Schubert & Salzer Control Systems took a new approach in control valves. We developed the sliding gate control valve: a handy, light and highly accurate valve. It operates based on a principle that had already excited Leonardo Da Vinci. Even today, it satisfies the most exacting requirements that are placed on a control valve.

## The alternative when the demands are high

The sliding gate valve series controls liquid, vapour and gaseous media precisely, quickly and economically. A sealing plate (2) fixed in the body (1) at right angles to the flow direction has a certain number of crossways slots (3) of equal height. A rotationally fixed disc (4) with the same arrangement of slots is moved at right angles to this, thereby changing the flow cross section. The prevailing differential pressure presses the moving disc (4) against the fixed disc (2) and seals it.

## Sliding gate valves are used to control gases, vapours and liquids

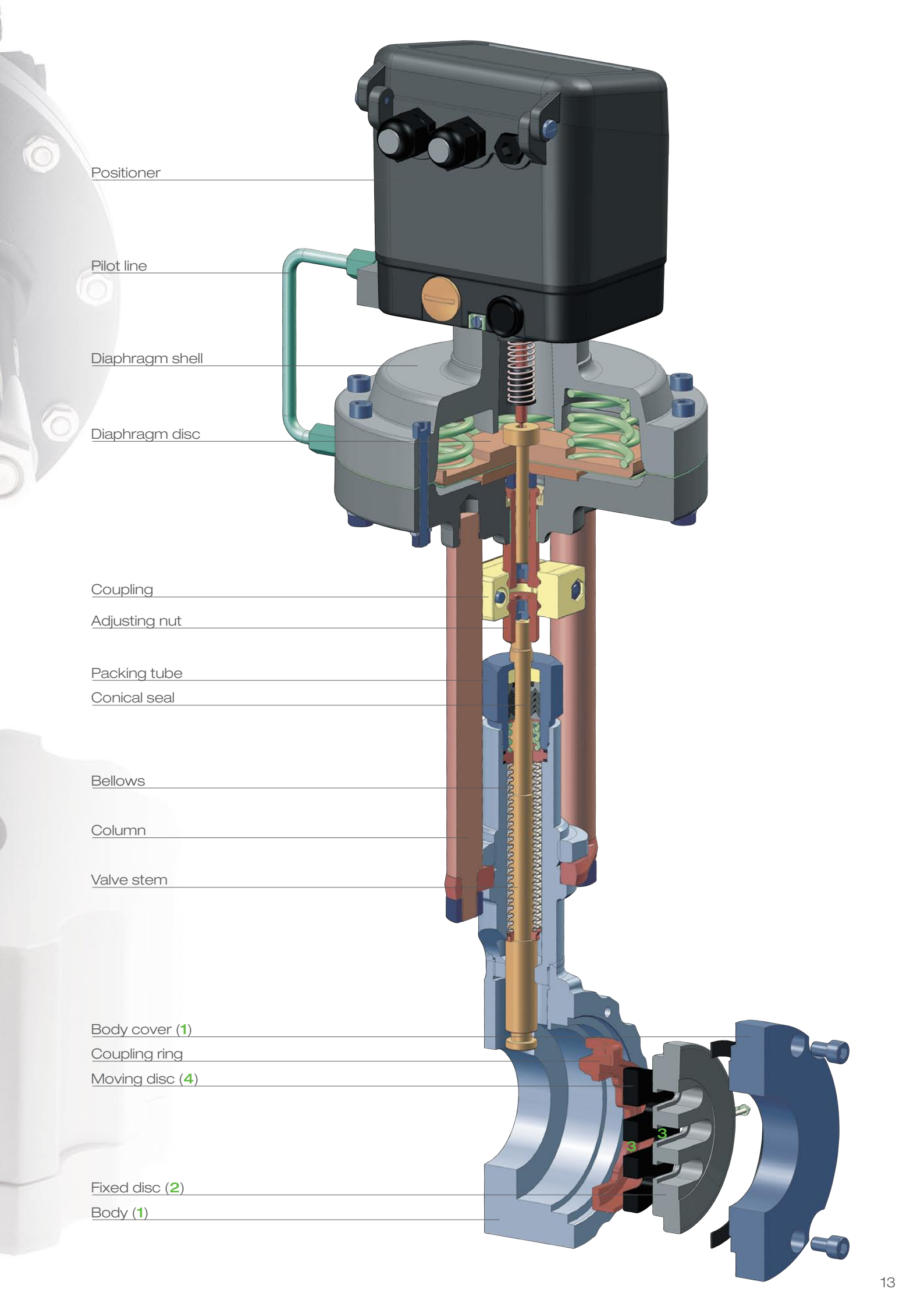
- Chemical and pharmaceutical industries
- Steel and aluminium plants
- Food and drinks industries
- Brewery fittings
- Textile manufacturing
- Tyre production
- Plastics production
- Test bench technology
- Polysilicon production
- etc.

fast

accurate

innovative





Positioner

Pilot line

Diaphragm shell

Diaphragm disc

Coupling

Adjusting nut

Packing tube

Conical seal

Bellows

Column

Valve stem

Body cover (1)

Coupling ring

Moving disc (4)

Fixed disc (2)

Body (1)

# The advantages of sliding gate valves

## Fits into tight spaces

Compact construction for minimum use of space and ease of installation

## Variable $K_{VS}$ values

A simple exchange of the operating unit is all that's needed to change the  $K_{VS}$  value at any time - Possible range of  $K_{VS} = 0.04$  to 910

## Excellent leak tightness

due to pressure from the media against the sealing disc, even as temperatures  $> 200^{\circ}\text{C}$ , using a surface seal instead of an annular seal

## Extremely low leakage rate

$< 0.0001\%$  of the  $K_{VS}$  value due to the self-lapping action of the moving disc

## Outstanding positioning ratio

40:1 to 80:1

## Significantly reduced energy consumption

Short stroke requires very little actuation energy

## Optimal flow control

Avoids cavitation problems in the valve and operates quietly by lowering turbulence

## Easy to install and maintain

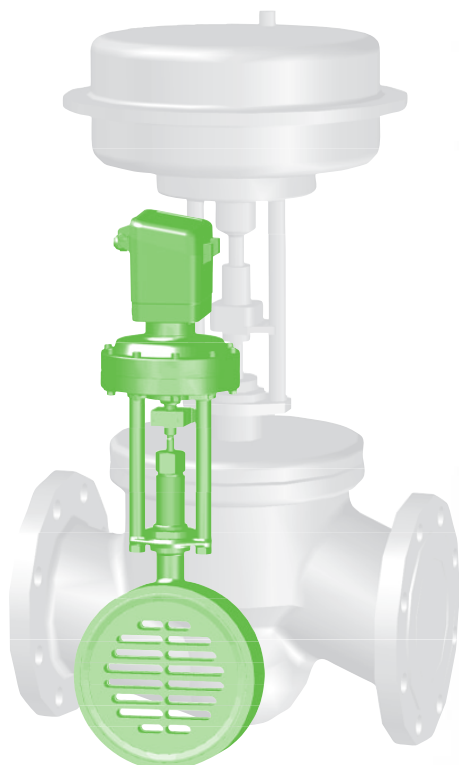
Thanks to the compact construction, the low weight (e.g. DN 150 with actuation a mere 14.2kg) and the clever seal disc design make light work of installation and maintenance

## Minimal wear

Related to the effect of the force which is applied at  $90^{\circ}$  to the direction of flow and minimised by the highly effective pairing of the materials used for the moving and fixed discs

## Maximum differential pressures

Using its unique compact design and low energy consumption, the GS valve gives accurate control of high differential pressures up to 160 bar



Size comparison between a normal seat valve and a **Schubert & Salzer sliding gate valve**.

In the example, the nominal size of both is identical.

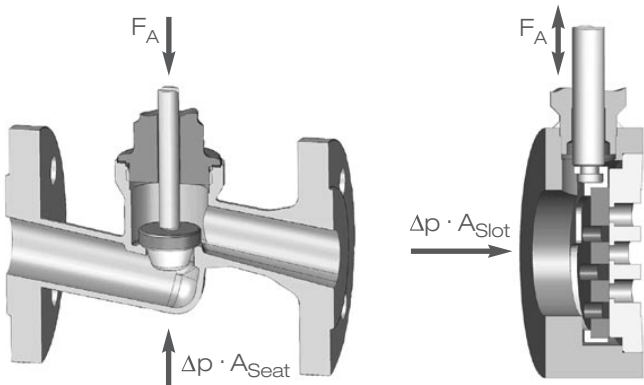
A close-up photograph of a metal component, possibly a valve or a part of a machine. The component has a circular opening with a textured, ribbed interior. The lighting is soft and directional, highlighting the metallic sheen and the intricate details of the part's design. The background is a plain, light-colored surface.

fast

precise

individual

$$\frac{F_{a, \text{Sliding gate valve}}}{F_{a, \text{Seat valve}}} = \frac{\Delta p \cdot \mu \cdot A_{\text{Slot}}}{\Delta p \cdot A_{\text{Seat}}} \approx 10\%$$



$$F_A = \Delta p \cdot A_{\text{Seat}}$$

$$F_A = \Delta p \cdot \mu \cdot A_{\text{Slot}}$$

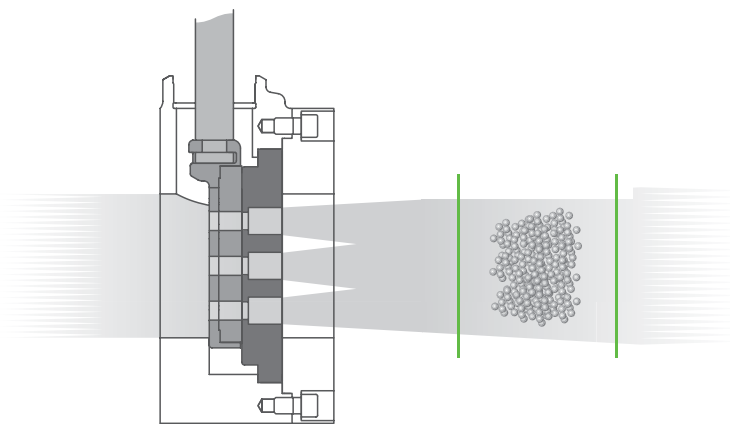
## Efficiency

The outstanding feature of the sliding gate valve is the actuating force which is about just 10% of that needed to actuate a seat globe valve of the same nominal size and the same differential pressure. This permits the use of much smaller actuators even though both designs of the same nominal size have about the same flow rate!

This beneficial feature stems from the fact that, in the sliding gate valve, closure is transverse to the direction of flow and not against it, as with the seat globe unit.

## Cavitation

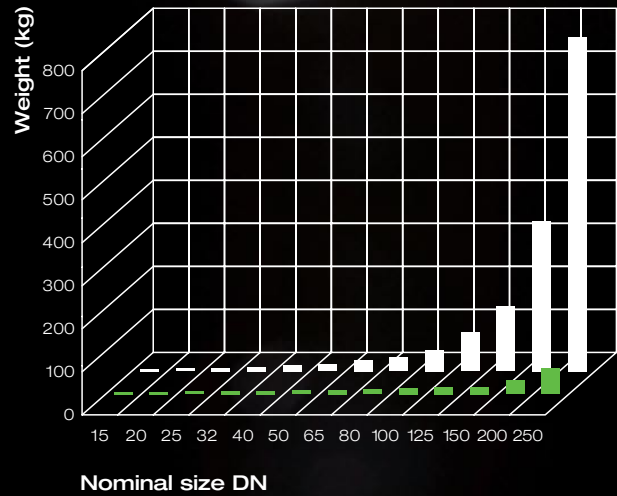
A high rate of flow through the narrowest cross section of a valve will lower the local pressure below the vapour pressure of the liquid. Vapour bubbles form which then break in the regions of higher pressure. When they come into contact with solid boundaries (valve body), the imploding bubbles can cause damage. In the case of a sliding gate valve, these dangerous cavitation zones are external, or more accurately, they are located about **1-2 m** beyond the valve. The cavitation bubbles then collapse around the centre of the pipeline where they can cause no harm.





## Weight

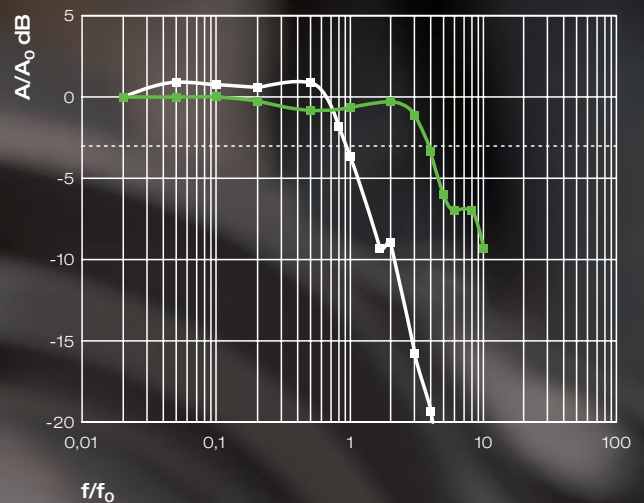
The low actuating force and short stroke allow the use of smaller actuation drives. Coupled with the space-saving by installing between flanges, weight and installation dimensions are minimised, particularly in the mid to large nominal sizes. This translates into about 150 kg for a seat globe valve, whereas a sliding gate valve of the same nominal size weighs a mere 14 kg!



■ Sliding gate valve ■ Seat valve

## Vitality

Sliding gate valves are significantly "faster" than conventional control valves. This can be shown using the frequency response when the set point value to an installed positioner is taken as the input value and the resulting stroke amplitude as the output value. The progression of the frequency response affects the standard of control of the entire control circuit.



■ Sliding gate valve ■ Seat valve



**Sliding gate control valve 8021**

Nominal size: DN 15 - 250  
 Nominal pressure: PN 10 - 100,  
 ANSI # 150 - 600  
 Media temperature: -60°C to +350°C,  
 optional -196°C to +530°C  
 Material: carbon steel, stainless steel,  
 Hastelloy  
 Positioner: pneumatic, analogue electro-  
 pneumatic, digital electro-pneumatic,  
 Ex-i version, AS-i bus connection



**Sliding gate control valve 8020**

Nominal size: DN 15 - 250  
 Nominal pressure: PN 10 - 100,  
 ANSI # 150 - 600  
 Media temperature: -60°C to +350°C,  
 optional -60°C to +530°C  
 Material: carbon steel, stainless steel  
 Obtainable with or without positioner  
 Positioner: pneumatic,  
 analogue electro-pneumatic,  
 digital electro-pneumatic,  
 Ex-Version  
 Special versions available!



**Sliding gate motor valve 8230**

Nominal size: DN 15 - 50  
 Nominal pressure: PN 10 - 40,  
 ANSI # 150 - 300  
 Media temperature: -60°C to +350°C,  
 optional -196°C to +530°C  
 Material: carbon steel, stainless steel  
 Actuation: On/off and control actuation,  
 optional positioning control and  
 position feedback plus limit switch



**Sliding gate control valve 8043/44**

Nominal size: DN 15 - 100  
 Nominal pressure: PN 10 - 40,  
 ANSI # 150 - 300  
 Media temperature: -60°C to +350°C  
 Material: carbon steel, stainless steel  
 Positioner: pneumatic,  
 analogue electro-pneumatic,  
 digital electro-pneumatic,  
 Ex-i version, AS-i bus connection



**Sliding gate motor valve 8036**

Nominal size: DN 15 - 250  
 Nominal pressure: PN 10 - 100,  
 ANSI # 150 - 600  
 Media temperature: -60°C to +350°C  
 Material: carbon steel, stainless steel  
 Actuation: On/off and control actuation,  
 optional positioning control and  
 position feedback plus limit switch



**Sliding gate pressure controller 8011**

Nominal size: DN 15 - 150  
 Nominal pressure: PN 10 - 40  
 Media temperature: -60°C to +300°C  
 Pressure ranges: 0.5 to 10 bar  
 Material: Stainless steel  
 Self-operated pressure controller  
 Enclosed spring housing



**Sliding gate motor valve 8037**

Nominal size: DN 15 - 250  
 Nominal pressure: PN 10 - 100,  
 ANSI # 150 - 600  
 Media temperature: -60°C to +350°C  
 Power supply: 24 ... 230 V AC/DC  
 (Multi-zone power pack)  
 Explosion-protected (gas version):  
 II 2G Ex de [ia] IIC T6/T5  
 Protection class: IP 66  
 Actuation optionally also with 3-point  
 control + position electronics obtainable



**Sliding gate stop valve 8040/41**

Nominal size: DN 15 - 200  
 Nominal pressure: PN 10 - 40  
 Media temperature: -60°C to +350°C  
 Control pressure: maximal 10 bar  
 Material: carbon steel, stainless steel  
 Accessories: metal bellows, pilot valve,  
 limit switch, stroke limit

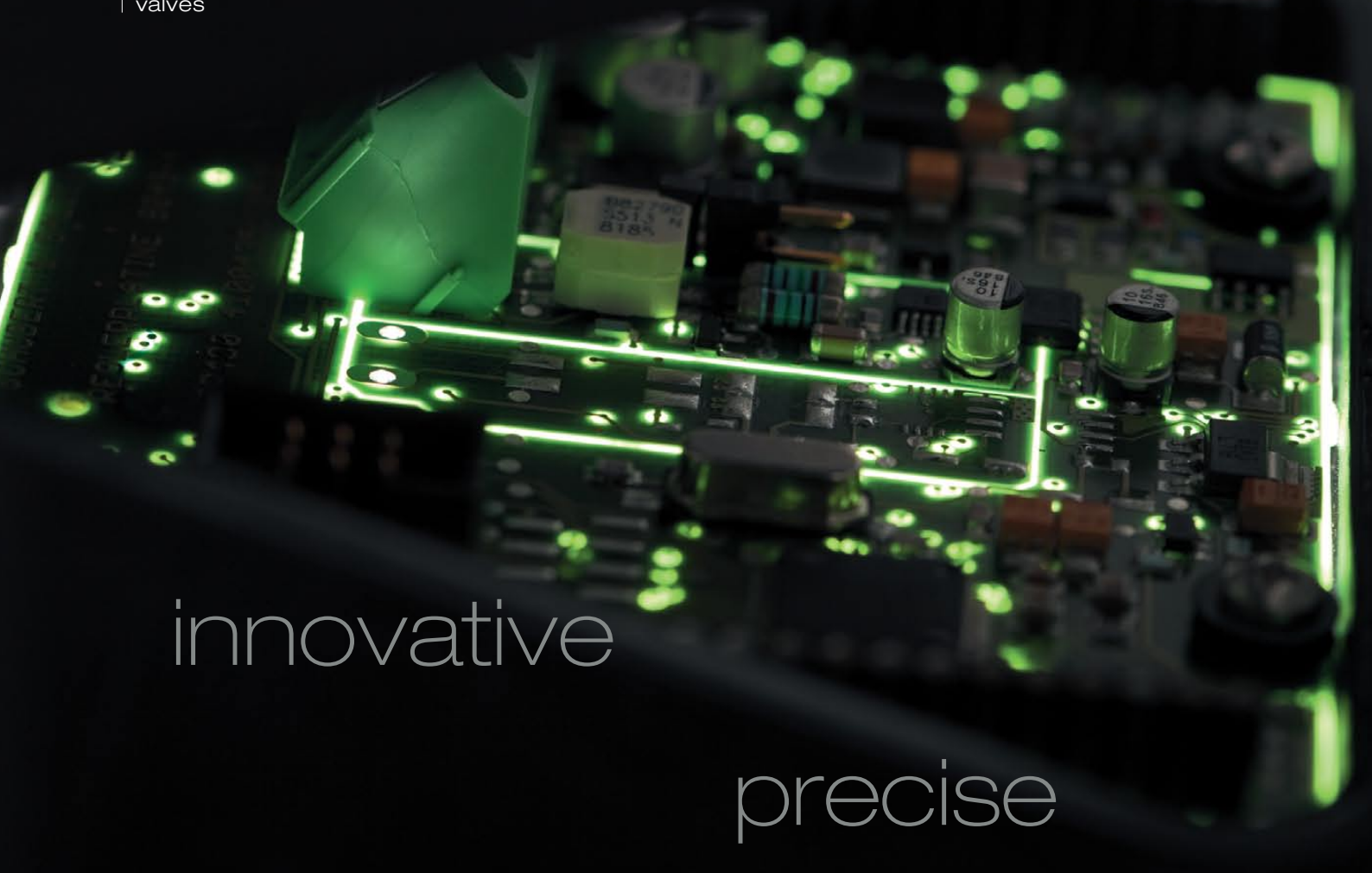


digital

## Positioners by Schubert & Salzer

Compact positioners in analogue and digital versions for fitting to pneumatic control valves

- By incorporating the positioner into the valve actuation, no moving parts (stroke return) are accessible from the outside. This increases operating efficiency, eliminating the risk of accidents
- Compact dimensions, saving space when integrating into systems
- Suitable even for short strokes
- Visual display of position possible between positioner and valve actuation



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precise

### Digital Positioner 8049

Connections: G 1/8", NPT 1/8"

Input signal: 0/4 - 20 mA,  
optional 0/2 - 10 V

Adaptation to actuator:

self-learning

Adaptability:

3 - 28 mm (sliding stem),  
max. 270° (rotary stem)

Versions: 2- and 4-wire

Configuration: via PC software

Ambient temperature:

-20°C to +75°C

Also in ATEX version

Optional feedback module available

Version for rotational actuation  
available

Accessories: Set point signal

AS-i profile



### Digital Positioner 8049

(Stainless steel)

Entirely in stainless steel

Connections: G 1/8", NPT 1/8"

Accessories: Set point signal  
AS-i profile

Input signal: 0/4 - 20 mA,  
optional 0/2 - 10 V

Adaptation to actuator:

self-learning

Stroke range: 3 - 28 mm

Versions: 2- and 4-wire

Configuration: via PC software

Ambient temperature:

-20°C to +75°C

Also in ATEX version



### Digital Positioner 8049 IPC

Positioner with

process controller integrated

Input signal: 0/4 - 20 mA,  
PT-100

Sampling rate: ca. 50 ms

Set point setting: external/internal

Configuration: via PC software

Ambient temperature:

-20°C to +75°C



### Positioner 8047 i/p

Input signal range:

electro-pneumatic 0/4 - 20 mA

Stroke range: 5 - 22 mm

(depending on stroke return spring)

Pilot energy: 3 - 6 bar

Hysteresis: < +/- 1%

Air consumption: 400 - 600 NI/h

(depending on air supply)

Also in ATEX version



### Positioner 8047 p/p

Input signal range:

pneumatic 0.2 - 1 bar

Stroke range: 5 - 22 mm

(depending on stroke return spring)

Pilot energy: 3 - 6 bar

Hysteresis: < +/- 1%

Air consumption: 400 - 600 NI/h

(depending on air supply)



### System controller 2600

Freely programmable control and

measuring device with 32 bit

floating point signal processor

Digital interfaces:

8 digital outputs. 24 V SPC-comp.

8 digital inputs. 24 V SPC-comp.

Expandable with slot cards

Power supply: 24 VDC, approx. 8 W





robust

## Ball Sector Valves

The Ball Sector Valve especially designed to handle arduous duties, slurries and viscous fluids is suitable for control and isolation.

With pneumatic and electrical actuators, it is the best choice for very precise control in for example the paper, steel, chemical, food and effluent industries.

precise

efficient



**Ball Sector Valve 4040**

Nominal size: DN 25 - 300  
 Nominal pressure: PN 10 - 40,  
 ANSI # 150 - 300  
 Media temperature: -60°C to +230°C  
 Material: stainless steel 1.4408 and 1.4404  
 Various seat material combinations  
 Positioner: pneumatic,  
 Analogue electro-pneumatic,  
 Digital electro-pneumatic



**On/Off Ball Sector Valve 4040**

Nominal size: DN 25 - 300  
 Nominal pressure: PN 10 - 40,  
 ANSI # 150 - 300  
 Media temperature: -60°C to +230°C  
 Material: stainless steel 1.4408 and 1.4404  
 Various seat material combinations  
 Single or double acting on/off actuators  
 Various switch boxes available  
 Other versions: manual actuation



**Motorized Ball Sector Valve 4030**

Nominal size: DN 25 - 300  
 Nominal pressure: PN 10 - 40,  
 ANSI # 150 - 300  
 Media temperature: -60°C to +230°C  
 Material: stainless steel 1.4408 and 1.4404  
 Various seat material combinations  
 Actuator: various electric actuators



**Highly Precise**

**Ball Sector Valve 4032**

Nominal size: DN 80 - 250  
 Nominal pressure: PN 10 - 40,  
 ANSI # 150 - 300  
 Media temperature: -60°C to +230°C  
 Material: stainless steel 1.4408 and 1.4404  
 Various seat material combinations  
 Actuator: electric actuator, highly  
 precise (8000 steps)  
 Incl. control cabinet



**Ex-Motorized**

**Ball Sector Valve 4037**

Nominal size: DN 25 - 100 (others on  
 request)  
 DN 25 - 80 also available with spring  
 return  
 Nominal pressure: PN 10 - 40,  
 ANSI # 150 - 300  
 Media temperature: -60°C to +230°C  
 Material: stainless steel 1.4408 and 1.4404  
 Various seat material combinations  
 Actuator: Ex-certified motor actuator  
 IIC2G/D EEx ia IIC T6/T5 and IEC Ex

