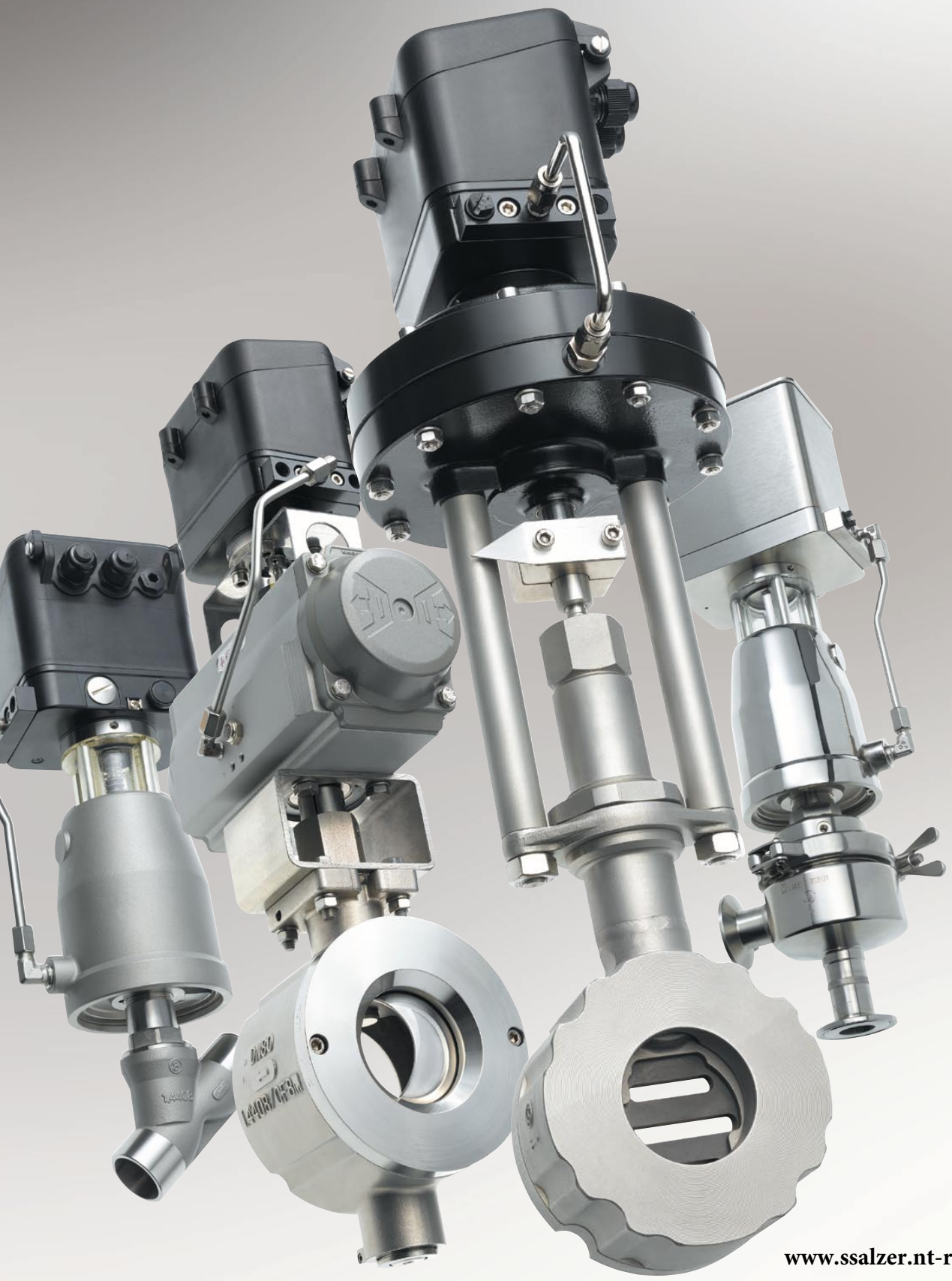
SCHUBERT & SALZER
CONTROL SYSTEMS



Product overview valve technology

www.ssalzer.nt-rt.ru

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.

Contents

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.

reliable

consistent

high quality

Angle seat valves

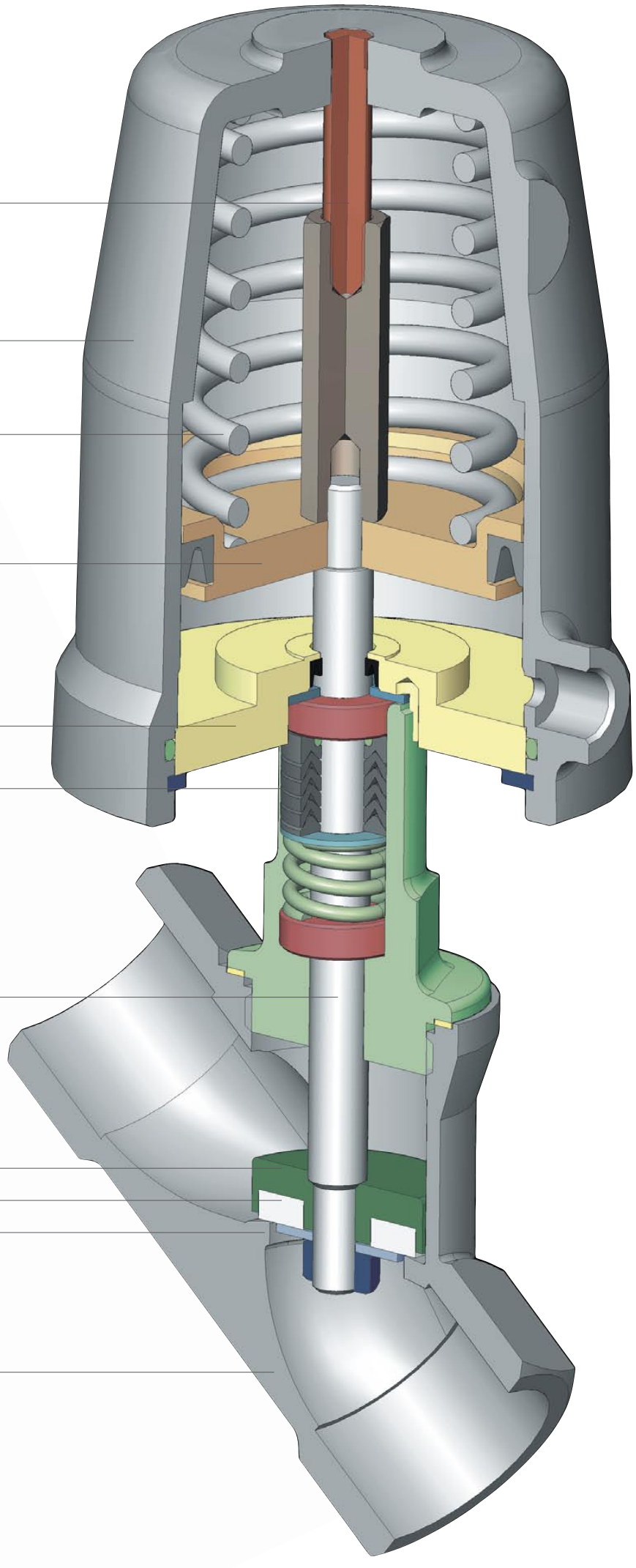
Angle seat valves in the form of stop and control units offer a particularly compact construction and stand up to very many switch cycles. In its many versions, the construction of the valve gives a highly efficient flow rate and can be even used to effect in lightly contaminated media.

Flange valves

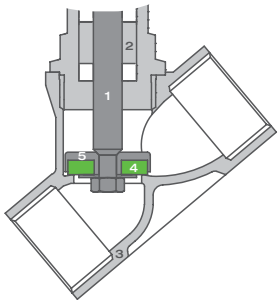
In the larger sizes, flange valves are easier to remove from pipelines than screwed valves. This range is supplied to various connection standards as angle and straight flanged seat valves.

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.

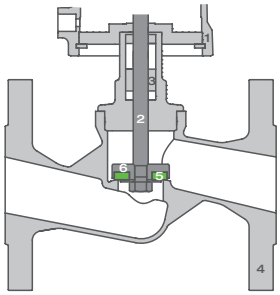

Position indicator
Bonnet
Piston spring
Piston
Flange
Seal
Valve stem
Disc
Seat seal
Body seat
Body

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



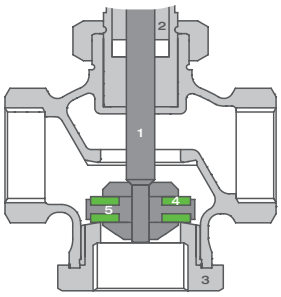
1 Piston rod
2 Packing
3 Body
4 Seat seal
5 Disc

Flange valves (4)



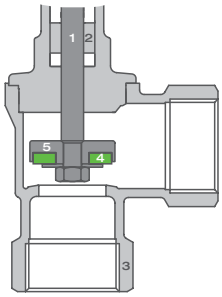
1 Bonnet
2 Piston rod
3 Packing
4 Flange body
5 Seat seal
6 Disc

Three-way valves (5)



1 Piston rod
2 Packing
3 Body
4 Seat seal
5 Disc

Right-angled valves (6)



1 Piston rod
2 Packing
3 Body
4 Seat seal
5 Disc

(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.

sterile

reliable

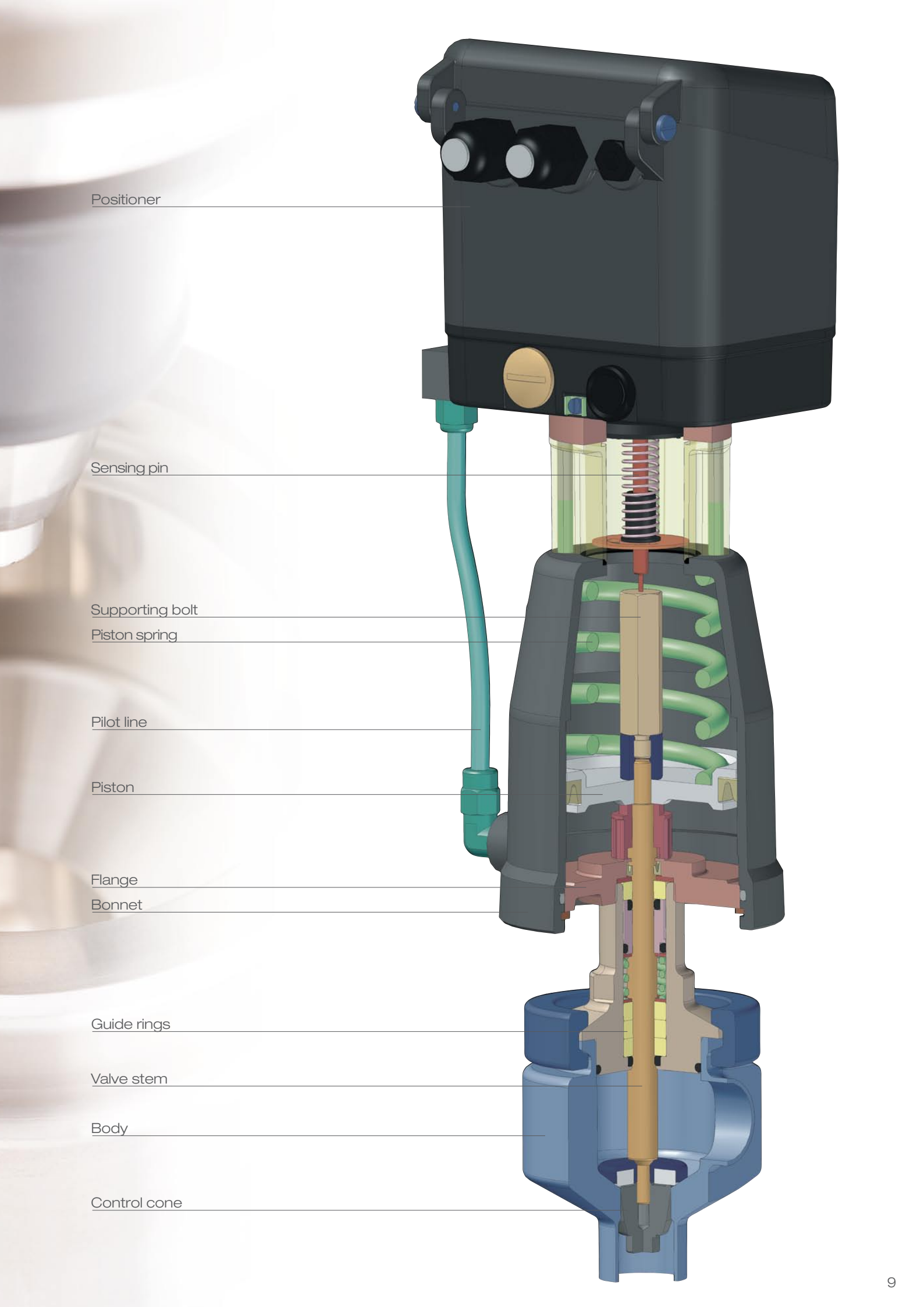
Right angle valves

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.

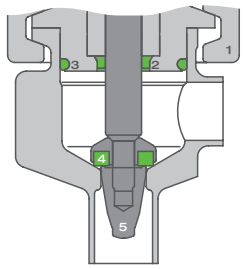
Pinch valves

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

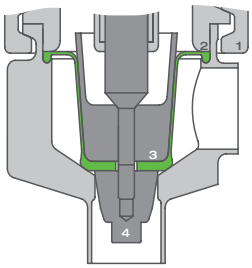

Positioner
Sensing pin
Supporting bolt
Piston spring
Pilot line
Piston
Flange
Bonnet
Guide rings
Valve stem
Body
Control cone

Hygienic right angle valves (1)



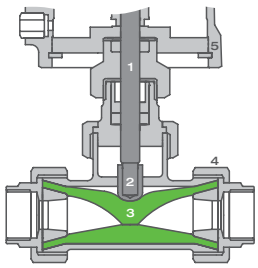
1 Clamp connection
2 Rod seal
3 Body seal
4 Seat seal
5 Control cone

Aseptic right angle valves (2)



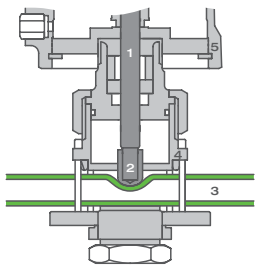
1 Clamp connection
2 Body seal with diaphragm
3 Seat seal with diaphragm
4 Control cone

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.

fast

accurate

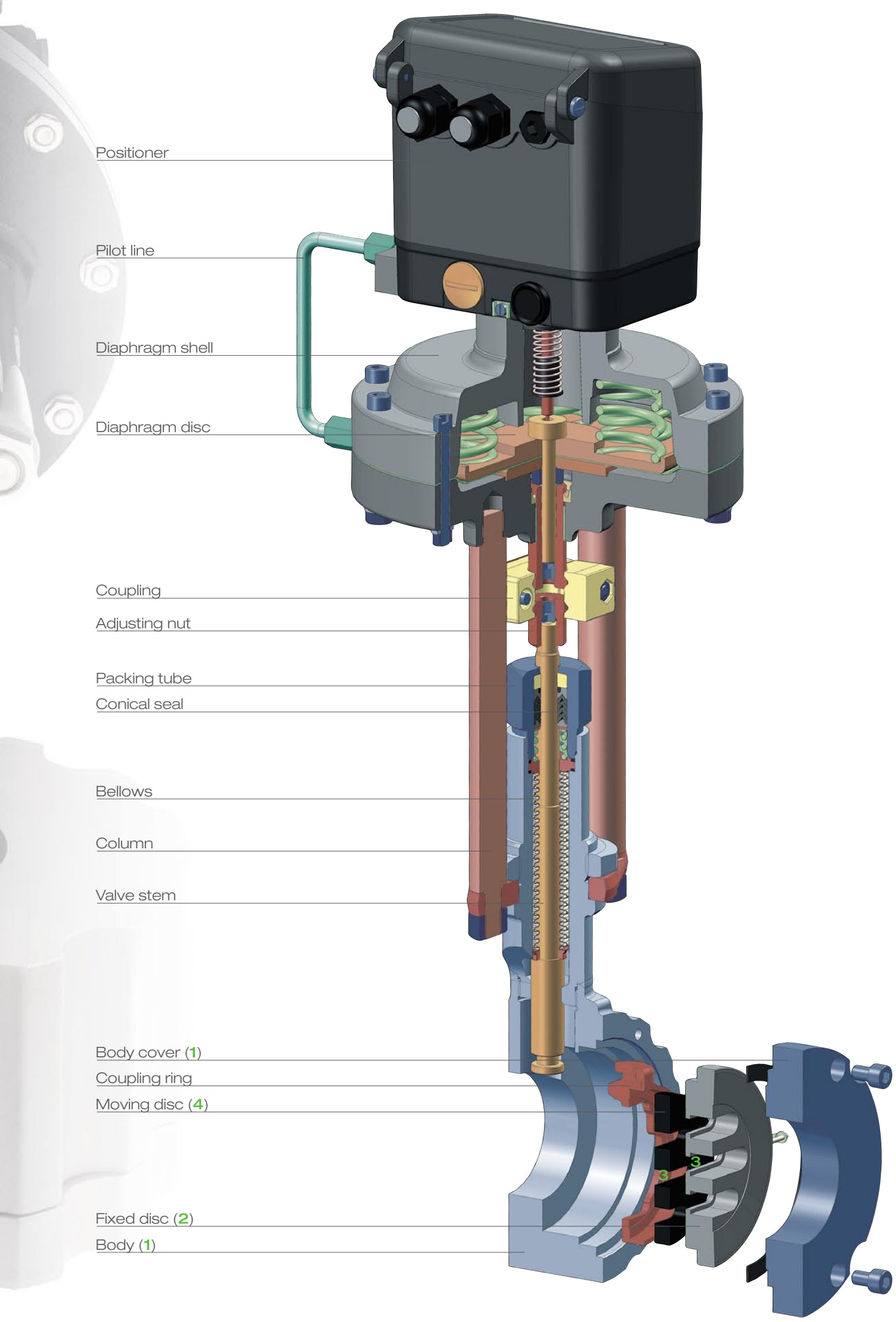
innovative

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.*


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)
3
3
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°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

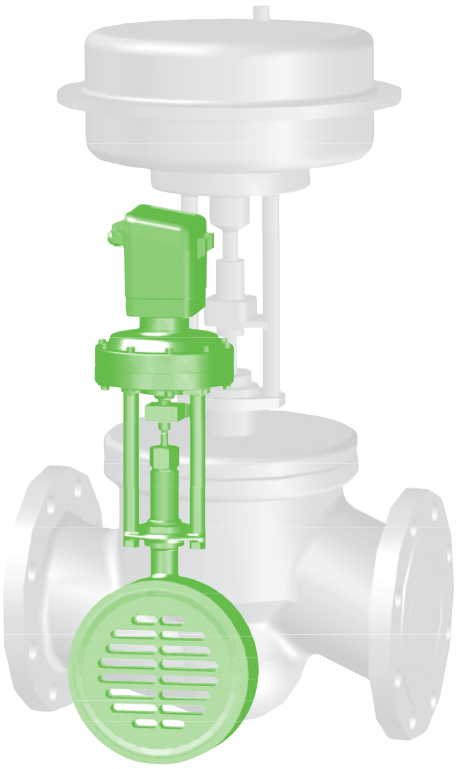
Significantly reduced energy consumption
Short stroke requires very little actuation energy

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° to the direction of flow and minimised by the highly effective pairing of the materials used for the moving and fixed discs

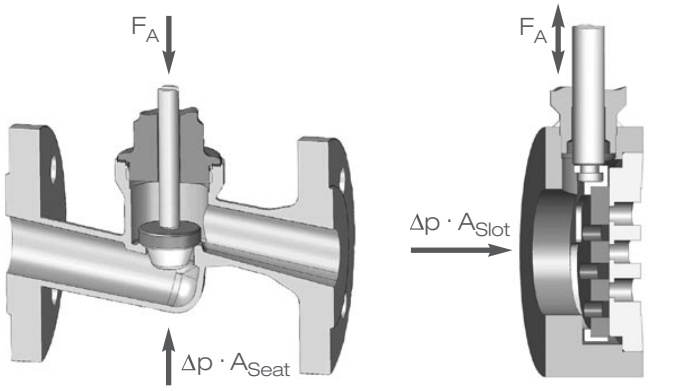
Maximum differential pressures
Using its unique compact design and low energy consumption, the GS valve gives accurate control of high differential pressures up to 160 bar



Size comparison between a normal seat valve and a Schubert & Salzer sliding gate valve.
In the example, the nominal size of both is identical.


fast
precise
individual

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



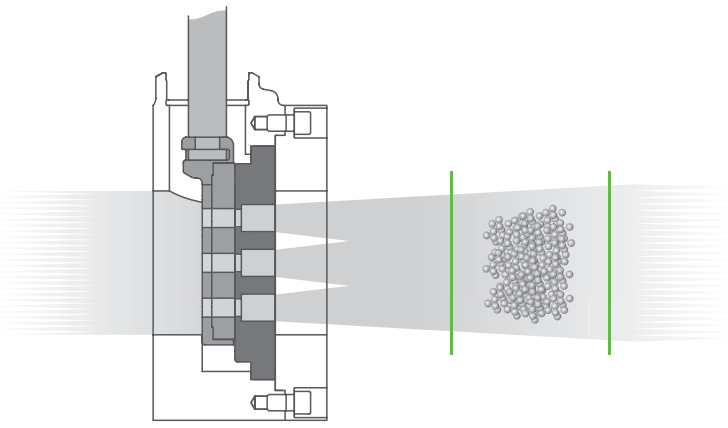
$F_A = \Delta p \cdot A_{Seat}$

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

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.

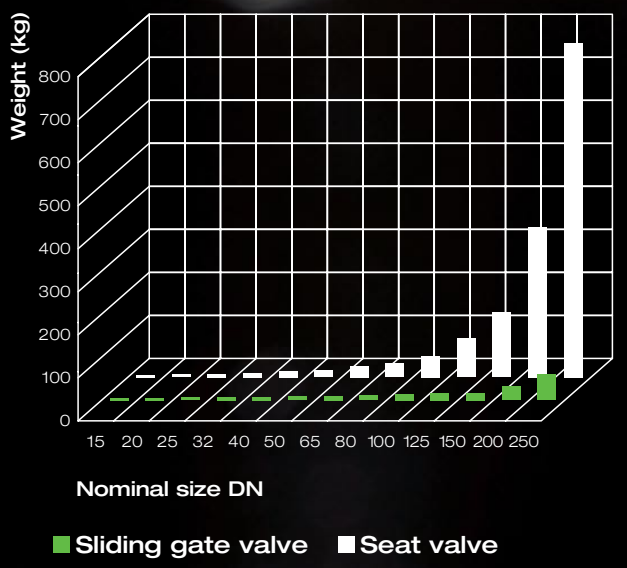


Cavitation

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.

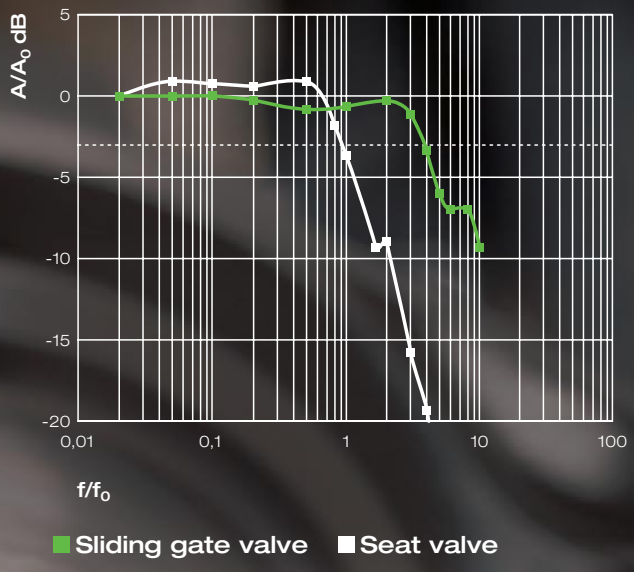
Weight

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!



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 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

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

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 Nl/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 Nl/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
II2G/D EEx ia IIC T6/T5 and IEC Ex

По вопросам продаж и поддержки обращайтесь:
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Москва (495)268-04-70, Санкт-Петербург (812)309-46-40
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