

Precision – Made in Germany

As a part of the Schubert & Salzer Group, Schubert & Salzer Inc. has developed a strong network of aligned technical sales representatives and regional offices across the Americas. We are defined by highly technical products, astute customer service, exceptional deliveries and commercially attractive costing. We offer a multitude of control and actuated valves for a wide variety of process industries. These valves serve a variety of disciplines where durability, precision and value are important. Our support and service staff in Concord, North Carolina, USA and within a number of direct regional sites as well as our distribution partners are accustomed to fulfilling all of your application needs and requirements.

Tradition since 1883

We are a part of everyday life; whether it be production of chemical or pharmaceutical products, food & beverage processing, production of plastics, rubber, steel, paper, textiles or simply heating & cooling campus's or buildings Schubert & Salzer products play a vital role.

The global market expects highly developed and engineered products that encompass the "Made in Germany" label. Schubert & Salzer delivers on this theme and exemplifies excellent response and delivery, highly functional products that are competitively priced, completing a full circle of value.



Technology for tomorrow

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fast

Sliding gate valves (GS) by Schubert & Salzer

This is how easy control can be. In the field of control valves, Schubert & Salzer has been breaking new ground for many years. We developed the sliding gate control valve: a practical, light and highly accurate valve. It operates based on a principle that had already excited Leonardo Da Vinci. Even today, it satisfies the most challenging requirements that are placed on a control valve.

The alternative when the demands are high

The sliding gate valve series controls liquid, vapor and gaseous media precisely, quickly and economically. A sealing disc (2) fixed in the body (1) at right angles to the flow direction has a certain number of horizontal slots (3). A moving disc (4) with the same arrangement of slots moves parallel to the fixed disc, 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, steam and liquids:

- Food and beverage industry
- Breweries
- Chemical and pharmaceutical industry
- Steel and aluminum plants
- Textile manufacturing
- Tire production
- Plastics and rubber
- Research and development
- Gas and compressed air production and utilization
- & many more.

innovative

accurate



Details



Website

Positioner

Pilot line

Diaphragm shell

Diaphragm disc

Coupling

Adjusting nut

Packing tube

Chevron packing, spring loaded

Bellows (where needed)

Column

Valve stem

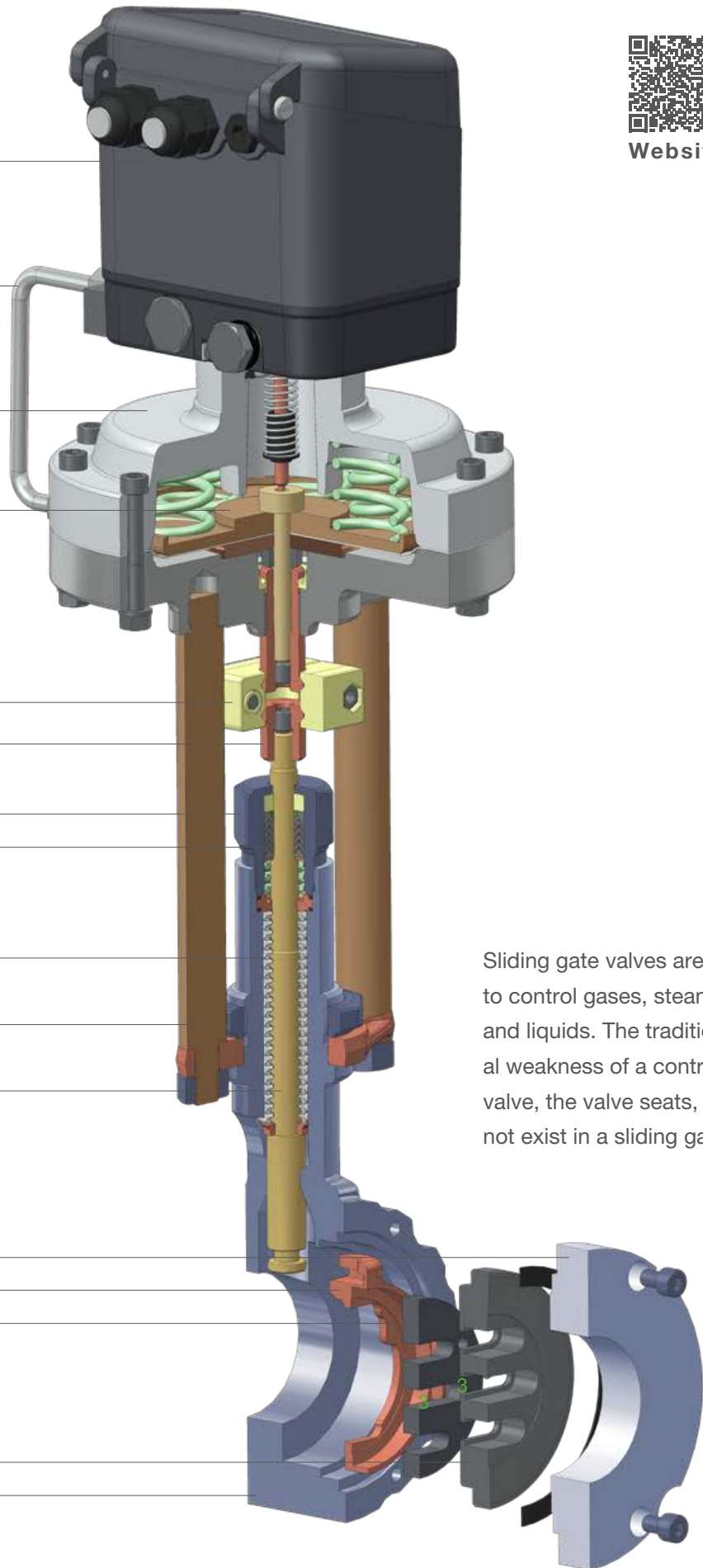
Body cover (1)

Coupling ring

Moving disc (4)

Fixed disc (2)

Body (1)



Sliding gate valves are used to control gases, steam and liquids. The traditional weakness of a control valve, the valve seats, does not exist in a sliding gate.

The advantages of sliding gate valves

Fits into tight spaces

Compact construction for minimum use of space and ease of installation.

Easy to install and maintain

Thanks to the compact construction, the low weight and the innovative seal disc design makes easy work of installation and maintenance.

Extremely low leakage rate

< 0.0001% of the C_{Vmax} value due to the self-lapping action of the moving disc and the pressure of the medium against the moving disc, using a surface seal instead of an annular seal.

Outstanding rangeability

From 30 : 1 up to 160 : 1

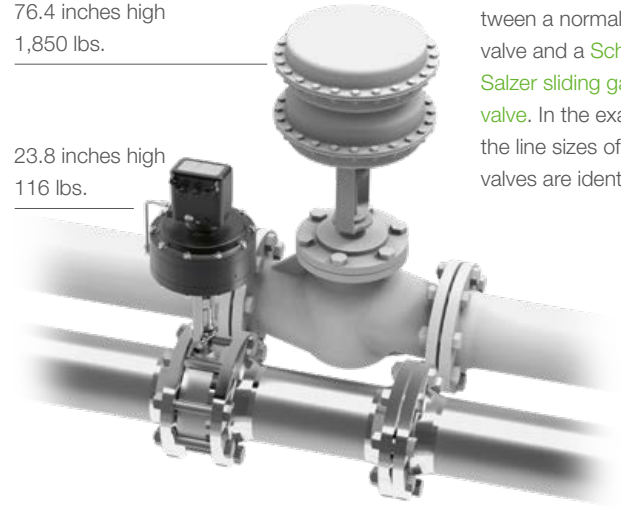
Variable C_{Vmax} values and characteristic curves

A simple exchange of the fixed disc (plate) is all that's needed to change the C_{Vmax} value and characteristic curve at any time - possible range of $C_{Vmax} = 0.02$ to 1056.

Size comparison 10 inch GS vs globe

76.4 inches high
1,850 lbs.

23.8 inches high
116 lbs.



Size comparison between a normal globe valve and a Schubert & Salzer sliding gate valve. In the example, the line sizes of both valves are identical.

Minimal wear

Low turbulence means less erosion. The short stroke (1/4" to 1/2") insures greater packing life and also requires reduced actuation energy.

High differential pressures

Using its unique compact design and low energy consumption, the GS valve gives accurate control of high differential pressures up to 1450 psi.

Variable C_{Vmax} values and characteristic curves – By simply replacing the fixed sealing disc:



Optimal flow control

Avoids cavitation problems in the valve and operates quietly by reducing turbulence.

Saves resources and climate-friendly

Sliding gate valves are more compact and weigh much less than standard flanged valves. When in use, the GS valves benefit from a driving force that is reduced 10-fold. This reduces the energy consumption and is good for the climate and the environment.



Variable C_v values

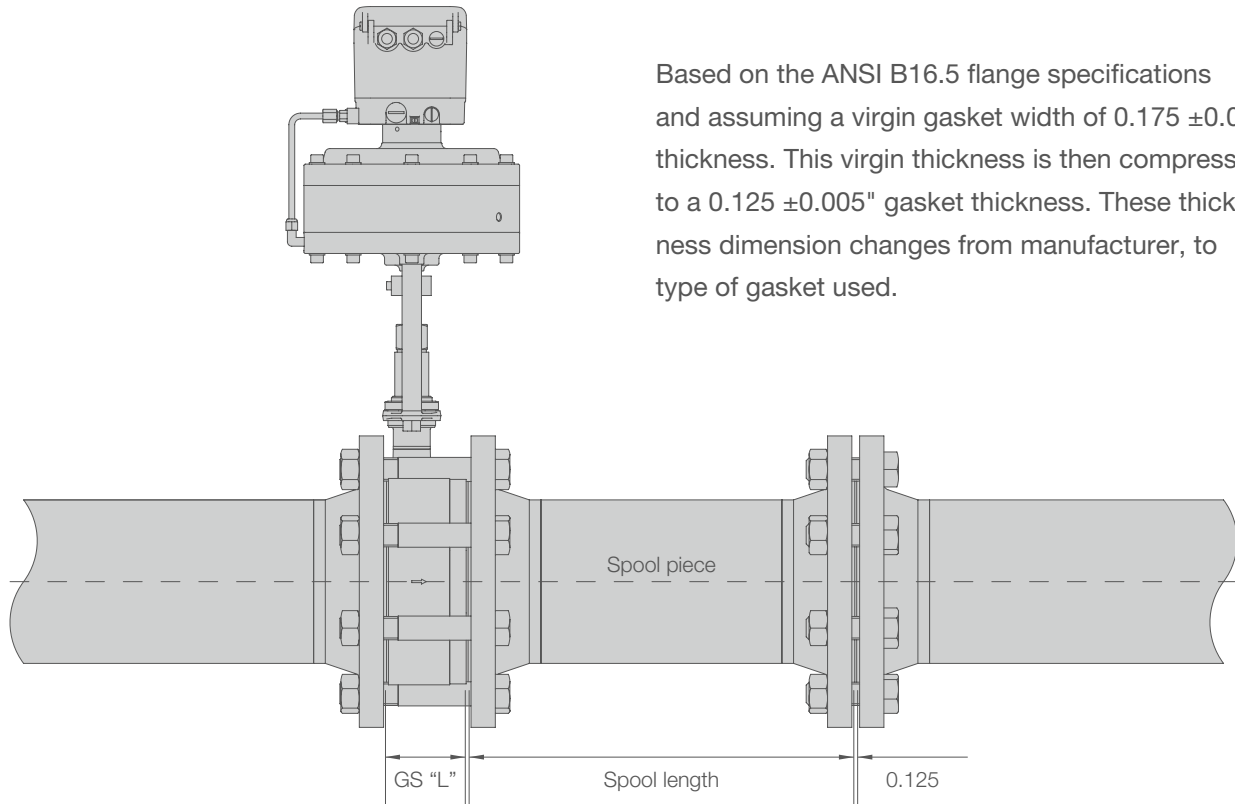
Ordering code		-	A	1	B	6	2	7	C	3	4	8	5	9
Size	Charact.	100 %	63 %	40 %	25 %	20 %	16 %	12 %	10 %	6.3 %	2.5 %	2 %	1 %	0.4 %
1/2"	(mod.) linear eq. perc	4.6 2	3 -	2 1.3	1.6 -	- 0.4	0.82 -	0.57 -	0.51 -	0.3 0.12	0.16 -	0.09 -	0.05 -	0.021 -
3/4"	(mod.) linear eq. perc	7.4 3.5	- -	- 1.7	- -	- -	1.16 -	- -	- -	- -	- -	0.15 -	- -	- -
1"	(mod.) linear eq. perc	13 5.8	7.4 -	4.6 2.8	- -	- 1.3	1.9 -	- -	1.08 -	0.72 -	0.3 -	- -	0.16 -	0.05 -
1 1/4"	(mod.) linear eq. perc	19 9.3	12 -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
1 1/2"	(mod.) linear eq. perc	30 13	19 9.9	13 -	8.1 3.2	- -	- -	- -	- -	- -	- -	- -	- -	- -
2"	(mod.) linear eq. perc	52 22	32 14	23 -	14 -	12 -	- -	- -	- -	- -	- -	- -	- -	- -
2 1/2"	(mod.) linear eq. perc	60 35	41 -	- -	17 9.3	- -	- -	- -	- -	- -	- -	- -	- -	- -
3"	(mod.) linear eq. perc	107 56	67 41	46 -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
4"	(mod.) linear eq. perc	179 89	110 56	72 -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
5"	(mod.) linear eq. perc	275 135	- -	110 -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
6"	(mod.) linear eq. perc	392 171	246 104	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
8"	(mod.) linear eq. perc	650 296	408 -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
10"	(mod.) linear eq. perc	1056 -	667 -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -

Seating elements

		Function unit			
		Carbon – SST	SFC	STN2	STN3
Characteristics	Friction coefficient	⊕ ⊕	⊕ ⊕	⊖	⊖
	Actuator force	⊕ ⊕	⊕ ⊕	⊖	⊖
	Leakage rate	⊕ ⊕	⊕	⊖	⊖
	Chemical resistance	⊕ ⊕	⊖	⊕	⊕
	Ability for high differential pressure	⊖	⊖	⊕	⊕ ⊕
	Edge stability	⊖ ⊖	⊖	⊕	⊕ ⊕
	Application during cavitation	⊖ ⊖	⊖	⊕	⊕ ⊕
	Application at low valve opening (liquids and steam)	⊖ ⊖	⊖	⊕	⊕ ⊕
Applications	Range of use	Gases, fluids, steam without possibility for condensate hammer (continuous applications)	Reinforced alternative to carbon tribological pairing without influence to actuating forces, stability and rigidity of the STN2 pairing	Loaded fluids, like steam even at the danger of water hammer	Applications with very high differential pressures
	Fluid temperature	-328 °F to 842 °F	-76 °F to 572 °F	-148 °F to 986 °F	
Setup	Fixed disc	Stainless steel, coated with Stellite			Stellite
	Moving disc	Carbon	Stainless steel combined coating technique – SFC	Stainless steel coated with Tribaloy	Tribaloy
Availability		1/2" - 10"		1/2" - 6"	1/2" - 2"



Simple installation to replace existing flanged valves



Based on the ANSI B16.5 flange specifications and assuming a virgin gasket width of 0.175 ± 0.01 " thickness. This virgin thickness is then compressed to a 0.125 ± 0.005 " gasket thickness. These thickness dimension changes from manufacturer, to type of gasket used.

Spool piece adapters for retrofitting Schubert & Salzer GS wafer style

Nominal size	150 #	300 #	600 #	150 #	300 #	600 #	S&S GS valve "L" dimension (in.)
	ANSI B16.5 standard face to face dimension (in.)			Spool piece length (in.)			
1/2"	7.25	7.50	8.00	4.93	5.18	5.68	2.20
3/4"	7.25	7.63	8.13	4.93	5.30	5.80	2.20
1"	7.25	7.75	8.25	4.93	5.43	5.93	2.20
1 1/4"	NA	8.38	NA	NA	6.06	NA	2.20
1 1/2"	8.75	9.25	9.88	6.43	6.93	7.55	2.20
2"	10.00	10.50	11.25	7.36	7.86	8.61	2.52
2 1/2"	10.88	11.50	12.25	8.07	8.70	9.45	2.68
3"	11.75	12.50	13.25	8.88	9.63	10.38	2.75
4"	13.88	14.50	15.50	10.80	11.43	12.43	2.95
5"	Consult factory						3.15
6"	17.75	18.63	Consult factory	14.48	15.35	Consult factory	3.15
8"	21.38	Consult factory		17.60	Consult factory		3.65
10"	26.50	factory		22.59	factory		3.78

Virgin gasket width (in.) 0.175 may vary

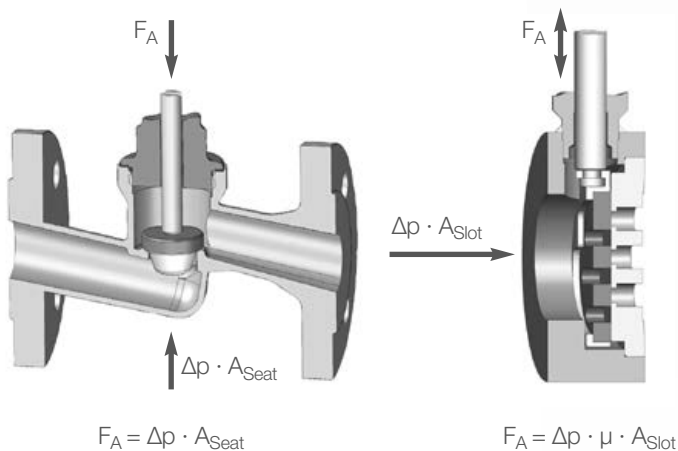
Nominal gasket compression width (in.) 0.125 may vary

Efficiency

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

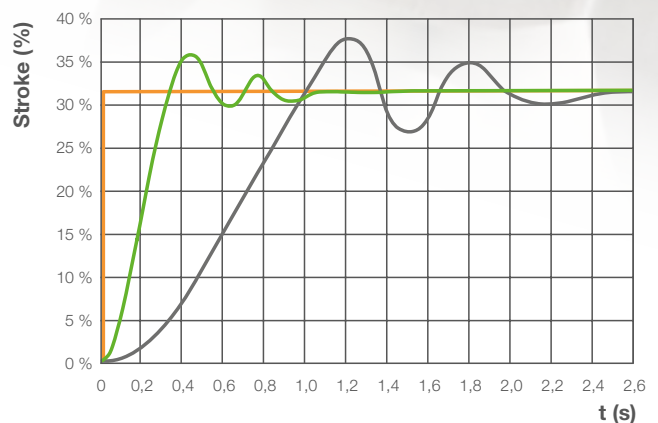
The decisive factor in this respect is the low actuation force required that results from the static or sliding friction of the disc pairing. Globe valves on the other hand have to overcome the force of the flowing medium.

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



Vitality

Sliding gate control valves are considerably faster than conventional control valves. If you compare the stroke of two valves after a control signal step, it can be seen that the short stroke, the low actuating forces and the small actuator volume of the sliding gate control valves result in lower actuating times and a significantly smaller stroke amplitude in the transient condition. This high dynamism has a positive influence on the control quality of the entire control circuit.

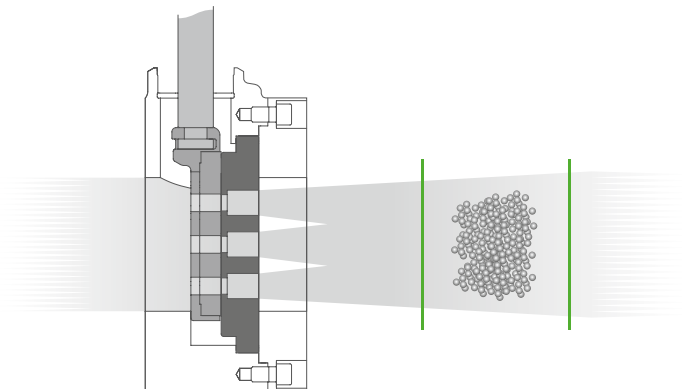


■ Control signal
 ■ Sliding gate valve
 ■ Globe valve



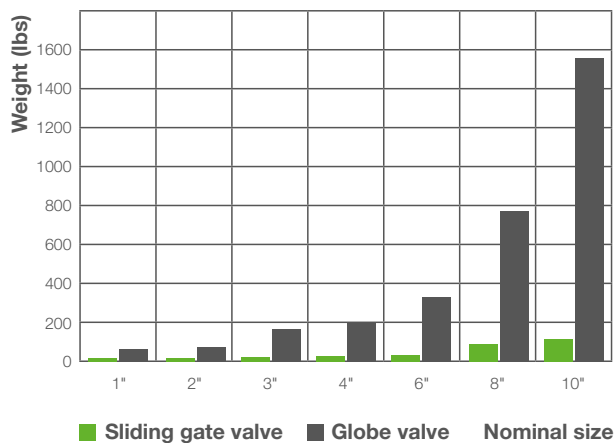
Cavitation

A high rate of flow through the narrowest cross section of a valve will lower the local pressure below the vapor pressure of the liquid. Vapor bubbles form which then collapse 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 **3 - 6 ft** beyond the valve. The cavitation bubbles then collapse around the center of the pipe-line without consequence.



Weight

The low actuating force and short stroke allow the use of smaller actuator. Coupled with the space-saving wafer construction, weight and installation dimensions are minimized, particularly in the mid to large nominal sizes. This translates into about 330 lbs for a flanged globe valve in 6", whereas a sliding gate valve of the same nominal size weighs a mere 33 lbs!



Have it your way – from the USA

Now, the Schubert & Salzer sliding gate valve is available in a new flanged body design. This product is designed to replace existing flanged control valves where a need is required to meet ANSI B16.5, ANSI/ISA-75.08.01 as well as API standards. This new model is excellent for new installations concerning field retrofit and replacement of existing control valves. The 8621 is manufactured in the Concord, North Carolina, USA facility and proudly carries the label “Made in the USA”. It fully implements all of the technical and maintenance advantages of the wafer body style GS3 series. This latest development has the advantages of less weight and a smaller footprint than other traditional and globe style control valves.

GS Advantages

- Compact construction
- Ease of installation & maintenance
- Extremely low leakage rates
- Variable $C_{V\max}$ values and flow characteristics
- Outstanding rangeability
- Minimal wear
- High differential pressures

ANSI

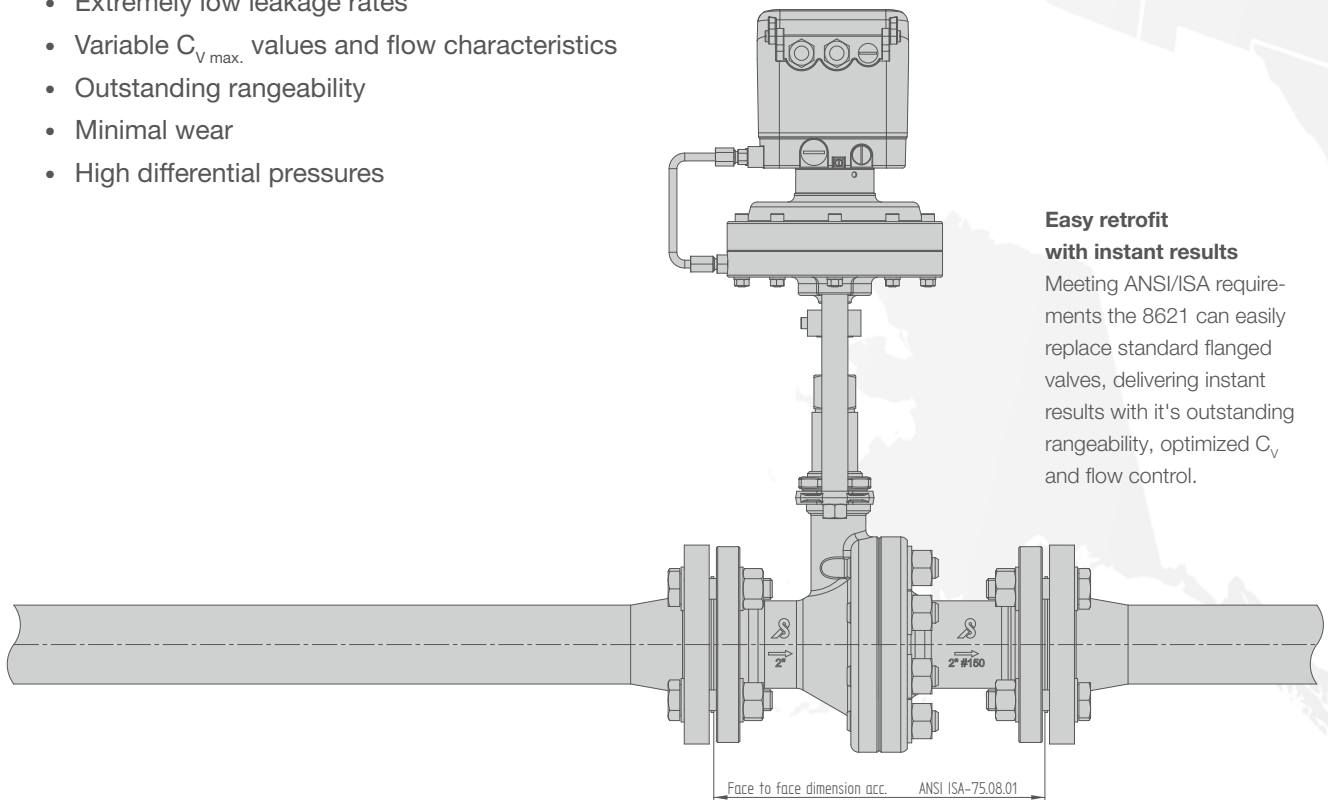
The 8621 control valve meets ANSI/ISA requirements in carbon steel and stainless steel flanged bodies in Class 150/300 designs from 1/2 inch through 6 inch.

Various sizes and actuation principles

The flanged sliding gate valve is shipped in every size and actuation principle that is required, i.e. with electric actuator as type 8638. Have it your way... has never been so fast & easy.

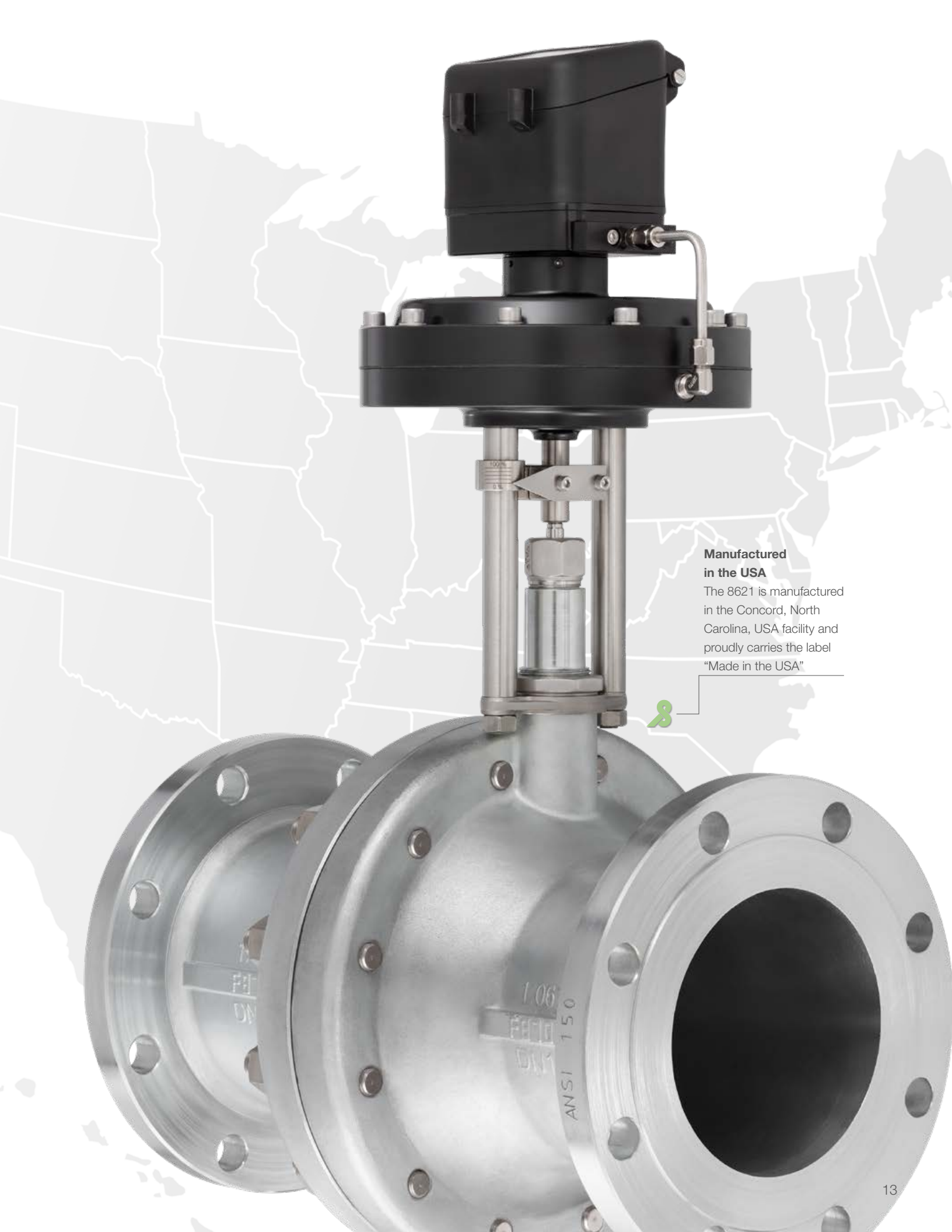
Made in the USA

A dream and a plan to one day manufacture control valve products in the Americas has now become a reality. The 8621, now available for shipment from the Concord, North Carolina facility near Charlotte. Customized product can now be shipped quickly and efficiently.



Easy retrofit with instant results

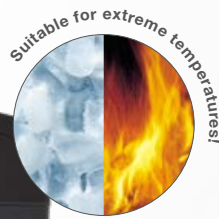
Meeting ANSI/ISA requirements the 8621 can easily replace standard flanged valves, delivering instant results with its outstanding rangeability, optimized C_v and flow control.



**Manufactured
in the USA**

The 8621 is manufactured in the Concord, North Carolina, USA facility and proudly carries the label "Made in the USA"





Sliding Gate Valve 8021

Nominal size: 1/2" - 10"
 Nominal pressure: ANSI Class 150 - 900
 Media temperature: -76°F to +662°F, optional -328°F to +986°F
 Material: carbon steel, stainless steel, Alloy C276
 Positioner: pneumatic, analog electropneumatic, digital electro-pneumatic, Ex-i, FM, IO-Link



Sliding Gate Valve 8020

Nominal size: 1/2" - 10"
 Nominal pressure: ANSI Class 150 - 600
 Media temperature: -76°F to +662°F, optional to +986°F
 Material: carbon steel, stainless steel, Side mount positioner: pneumatic, analog electro-pneumatic, digital electro-pneumatic, Ex-Version, Various communication protocols available, ex. Hart, Fieldbus Foundation, Profibus, etc.



Sliding Gate Valve 8028

Nominal size: 1/2" - 6"
 Nominal pressure: ANSI Class 150 - 300
 Media temperature: -76°F to +662°F
 Material: carbon steel, stainless steel
 Positioner: pneumatic, analogue electropneumatic, digital electro-pneumatic, Ex-i version
 Series GS1 also available as a short version., IO-Link



Sliding Gate Valve 8621

Nominal size: 1/2" - 8"
 Nominal pressure: ANSI Class 150 - 300
 Media temperature: -76°F to +662°F
 Material: carbon steel, stainless steel
 Positioner: pneumatic, analogue electropneumatic, digital electro-pneumatic, Ex-i, FM, IO-Link
 Available with electric actuator as flanged sliding gate control valve 8638.



Sliding Gate Valve 8043

Nominal size: 1/2"- 10"
 Nominal pressure: ANSI Class 150 - 300
 Media temperature: -76°F to +662°F
 Material: carbon steel, stainless steel
 Positioner: pneumatic, analog electro-pneumatic, digital electro-pneumatic, Ex-i, FM, IO-Link



Sliding Gate Valve 8040

Nominal size: 1/2" - 8"
 Nominal pressure: ANSI Class 150 - 300
 Media temperature: -76°F to +662°F
 Material: carbon steel, stainless steel
 Accessories: metal bellows, pilot valve, limit switches, stroke limiter



Sliding Gate Motor Valve 8230

Nominal size: 1/2"-10"
 Nominal pressure: ANSI class 150 - 300
 Media temperature: -76°F to +662°F,
 Material: carbon steel, stainless steel
 Actuation: On/off and control actuation,
 optional positioning control and
 position feedback plus limit switches



Sliding Gate Motor Valve 8038

Nominal size: 1/2" - 10"
 Nominal pressure: ANSI Class 150 - 600
 Media temperature: -76°F to +662°F
 optional -328°F to +986°F
 Material: carbon steel, stainless steel,
 Alloy C276
 Dead band: ± 0.2%
 Repeatability: ± 0.1%
 Stroking speed: adjustable between
 4.7 and 35 seconds
 Actuator: high resolution motor actuator
 for control and switching with stroke
 monitoring, limit switches and optional
 fail safe unit



Sliding Gate Motor Valve 8037

Nominal size: 1/2" - 10"
 Nominal pressure: ANSI Class 150 - 600
 Media temperature: -76°F to +662°F
 optional -328°F to 986°F
 Material: carbon steel, stainless steel
 Power supply: 24 ... 230 V AC/DC
 (Multi-zone power pack)
 Explosion-proof (gas version):
 II 2G Ex de [ia] IIC T6/T5
 Protection class: IP 66
 Optional actuation with 3-point
 control + position electronics obtainable



Sliding Gate Pressure Regulator 8011

Nominal size: 1/2" - 6"
 Nominal pressure: ANSI Class 150 - 300
 Media temperature: -76°F to +446°F
 optional up to 572°F
 Pressure ranges: 4.4 psi to 145 psi
 Material: Stainless steel
 Self-operated pressure controller
 Enclosed spring housing



Sliding Gate Valve 8050

Nominal size: 1/2" - 10"
 Nominal pressure: ANSI Class 150 - 600
 Media temperature: -76°F to +662°F,
 optional -328°F to +986°F.
 Gear operator available
 Material: carbon steel, stainless steel,
 Alloy C276



Adjustable Sliding Gate Orifice 8090

Nominal size: 1/2" - 10"
 Nominal pressure: ANSI Class 150 - 600
 Media temperature: -76°F to +662°F,
 Material: carbon steel, stainless steel

reliable

Seat valves by Schubert & Salzer

Seat valves made of stainless steel or bronze are the extremely reliable all-rounders in the valve world. In a wide range of applications, they provide a number of benefits:

- Robust and compact
- High switching performance and wear resistance
- No water hammer when closing against the media flow
- High degree of tightness, low leakage
- Wide operating temperature range
- Simple insulation, low heat losses
- High C_v value
- Easy to install and maintain

The seat performance, whether pharma-grade PTFE or formulations of other elastomers, such as enhanced PTFE and PEEK, ensures long-lasting products with positive shut-off. Schubert & Salzer's seat valves come with various end connections, including thread, weld ends, tri-clamp, ANSI, and DIN flanged connections. The category also includes integrally flanged globe, three-way, and right-angle valves. All these valves are designed for maximum performance and control and are available in various actuation principles, including manual, pneumatic, and electric.



Website

consistent

high quality

Angle seat valve 7010

7010 technical data

	Body material		
	Brass	Bronze	SST 316
Nominal size	2 1/2" and 3"	1/2" - 2"	1/4" - 3"
Connections: NPT thread, Tri clamp Welding ends (ISO/SAE), Tube ends ANSI 150, ANSI 300	2 1/2" - 3"	1/2" - 2"	1/4" - 3"
Nominal pressure	235 psi	235 psi	580 psi
Max. fluid temperature * Optional type 220 HT-version	-22 °F up to +338 °F	-22 °F up to +338 °F up to +392 °F (opt.)	-22 °F up to +338 °F up to +428 °F*
Ambient temperature	-5 °F up to +140 °F (versions from -40°F to +212°F possible)		
Viscosity of the fluid	maximum 600 mm ² /s (600 cSt, 80 °E)		
Vacuum	maximum 0.075 mm mercury (Hg)		
Working pressure for inverted packing	maximum 175 psi		
Seating seal	PTFE, glass reinforced PTFE, PEEK, EPDM, Viton, Buna N, Vulkollan		

7010 key features

Rotating actuator

Chrome plated brass and stainless housing for high heat dissipation and corrosion resistance. Actuator not susceptible to UV degradation, and is suitable for washdown.

Dual stem bearings for "true" guidance and superior life

Precision roller-burnished and polished 316 SS stem for long life

NPT standard connection and optional end connections

Chevron packing

O-ring

Packing PTFE filled with carbon

Spring loading on packing rings for tight sealing

Guide rings

Fully repairable for optimum serviceability without removal from system

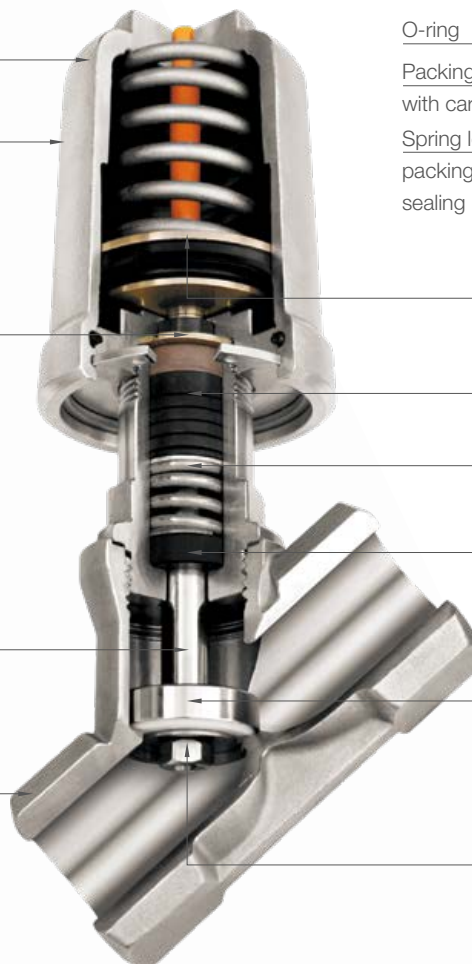
4-PTFE chevron packing rings

Spring loading on packing rings for tight sealing

Wiping ring prior to packing gland to protect against contamination

PTFE seal provides resistance to aggressive fluids, high temperatures and tight sealing. Other seat materials available.

Water-hammer free flow under seat



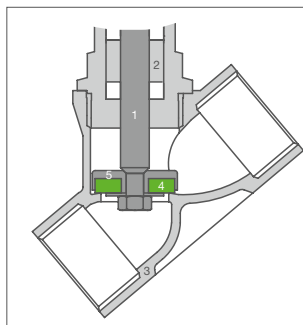
Normally closed version shown

Angle seat valves

The angle-seat valves from Schubert & Salzer offer a long service life, reliable on-off and precise control performance. Due to the angled arrangement of the valve actuators in relation to the pipeline, the compact angle seat on-off and control valves can be installed and operated even in very confined spaces.

The Schubert & Salzer angle seat valves with optimized flow direction are characterized by particularly high flow coefficient (C_v) values. The body provides various combination with different actuator types for a wide range of applications in industrial piping systems.

Angle seat valves



- 1 Piston rod
- 2 Packing
- 3 Body
- 4 Seating seal
- 5 Disc





Angle seat stop valve 7010

Nominal size: 1/4" - 3"
 Working pressure up to 580 psi
 Media temperature: -22°F up to +392°F,
 optional -148°F to 428°F
 Material: Bronze and 316 stainless steel
 Also available as sanitary version.



Angle seat control valve 7020

Nominal size: 1/4" - 3"
 Working pressure up to 580 psi
 Media temperature: -22°F to +392°F,
 optional -148°F to +428°F
 Material: Stainless steel
 Positioner: pneumatic, analog elec-
 tro-pneumatic, digital electro-pneumatic,
 Ex-i, FM, IO-Link
 Direct acting 3-15 psi, 6-30 psi



Angle seat manual valve 7011

Nominal size: 1/2" - 2"
 Working pressure up to 580 psi
 Media temperature: -22°F to +392°F
 Material: Stainless steel



Strainer 4005

Nominal size: 3/8" - 3"
 Working pressure up to 580 psi
 Media temperature: -40°F to +428°F
 Material: Stainless steel



Angle seat motor valve 7210

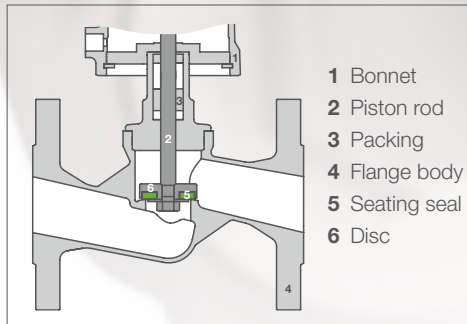
Nominal size: 1/4" - 3"
 Working pressure up to 580 psi
 Media temperature: -22°F to +392°F
 optional -148°F to +428°F
 Material: Bronze and stainless steel
 Actuation: stop and control actuation,
 optional position control and
 position feedback plus limit switches



Check valve 4000

Nominal size: 3/8" - 3"
 Working pressure up to 580 psi
 ANSI # 150, DIN flanged versions
 Media temperature: -40°F to +392°F
 optional up to +428°F
 Material: Stainless steel

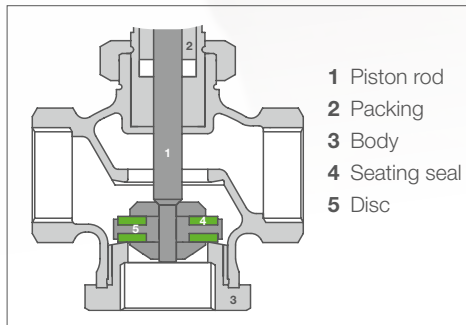
Seat valves (1)



Seat valves

For globe valves, the actuator orientation is at 90° to the flow direction. The rugged design with welding ends or flanged connections is in no way less competitive than the angle seat valves in terms of performance. The traditional flange design allows the simple disassembly and reassembly of the valves.

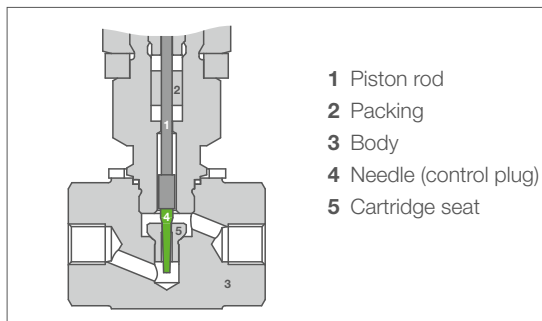
Three-way valves (2)



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 installed in a pipeline by threaded connections.

Low flow valves (3)



Low flow valves

Low flow valves with threaded connections and metallic seat seal are ideal for precise control or safe shut-off at high pressures and very low flow rates.



(1) Seat valve 7017

Nominal size: 1/2" - 2"
 Working pressure: Up to 580 psi
 Media temperature: -22°F up to +392°F,
 optional -148°F to +428°F
 Material: Stainless steel



(1) Seat control valve 7027

Nominal size: 1/2" - 2"
 Working pressure: Up to 580 psi
 Media temperature: -22°F up to +392°F,
 optional -148°F to +428°F
 Material: Stainless steel
 Positioner: pneumatic, analog
 electro-pneumatic, digital electro-
 pneumatic, Ex-i, FM, IO-Link



(1) Flanged control valve 7032/7037

Nominal size: 1/2" - 3"
 On/Off or Modulating
 Nominal pressure: ANSI # 150, DIN
 Media temperature: -22°F up to 392°F
 optional -148°F to +428°F
 Material: Stainless steel
 Positioner: pneumatic, analog
 electro-pneumatic, digital electro-
 pneumatic, Ex-i, FM, IO-Link
 Direct acting 3-15 psi, 6-30 psi



(2) Three-way control valve 7082

Nominal size: 1/2" - 2"
 Working pressure: Up to 580 psi
 Media temperature: -22°F up to 392°F
 optional -148°F to +428°F
 Material: Stainless steel
 Positioner: digital electro-pneumatic,
 Ex-i, FM, IO-Link
 Available with pneumatic actuator as
 3/2-way stop valve 7080 in corrosion-re-
 sistant bronze, Motor actuators
 available as well



(3) Low Flow Valve 7042

Nominal size: 1/4" & 1/2"
 Working pressure: up to 4641 psi
 Media temperature: -76°F up to +410°F
 Material: Stainless steel
 Positioner: digital electro-
 pneumatic, Ex-i, FM, IO-Link



Right angle motor valve 7250

Nominal size: 1/2" - 2"
 Working pressure: Up to 580 psi
 Media temperature: -22°F up to +392°F
 Material: Stainless steel
 Actuation: on/off and control actuation,
 optional position control and
 position feedback plus limit switch
 Available with pneumatic actuator as on/
 off valve 7050 and optionally
 with positioner as right angle control valve
 7051



robust

Ball sector valves by Schubert & Salzer

The ball sector valve is designed to succeed in harsh applications; slurries, dry media and fluids with suspended solids or fibers. It is suitable for control and isolation.

With pneumatic and electrical actuators, it is the best choice for very precise control within a broad range of industries and a variety of process applications.

Pulp fiber & digestive liquors, mining slurries, dry powders, oils, coal & carbon, molasses, sugar slurries, limestone & fly ash suspensions, miscellaneous fluids, combustion gases, coke gases, steam and more.

precise

- Minimal wear even with contaminated, abrasive and glutinous media
- Precise control over a large control range
- Very high rangeability 300:1
- Extremely high C_v -values
- Robust and compact design
- Long service life, low operating costs
- No flow deflection
- No draining of paper stock due to elliptical flow geometry

efficient

Details



Website

Positioner

Actuator

Pilot line

Drive adapter

Bracket

Plain bearing sleeve

Plain bearing

Packing

Plain bearing

Bearing pin

Ball sector

Seat support ring

O-ring

Seat ring

Seat retaining ring

Body

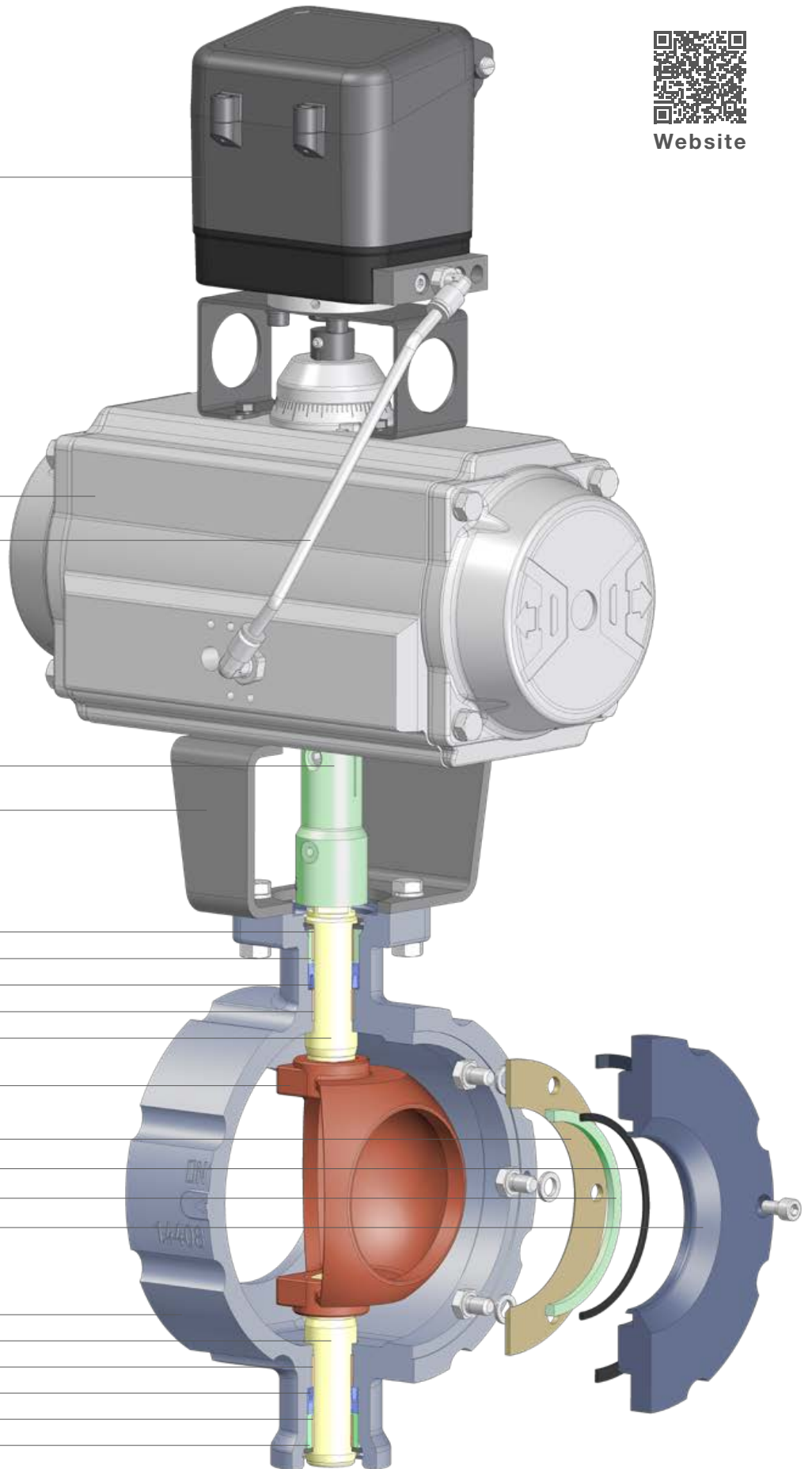
Bearing pin

Plain bearing

Packing

Plain bearing

Plain bearing sleeve



The advantages of ball sector valves

High $C_{V\max}$ values

When open, ball sector valves allow the media flow to pass through almost the entire nominal pipe diameter. They therefore achieve high $C_{V\max}$ values and do not redirect the flow.

Excellent rangeability

Ball sector valves have a very high rangeability of 300:1 and therefore enable precise control over a wide control range. Combined with high-resolution actuators, the most demanding control tasks can thus be managed.

No clogging or draining with fibrous media

Ball sector valves have an elliptical flow path, which means that even small flow rates of fibrous media (e.g. paper pulp) can be controlled without draining or clogging the valve.

Variable $C_{V\max}$ values

Because of the different flow openings of the ball sectors, the $C_{V\max}$ value can be adjusted precisely to the requirements of the respective application.



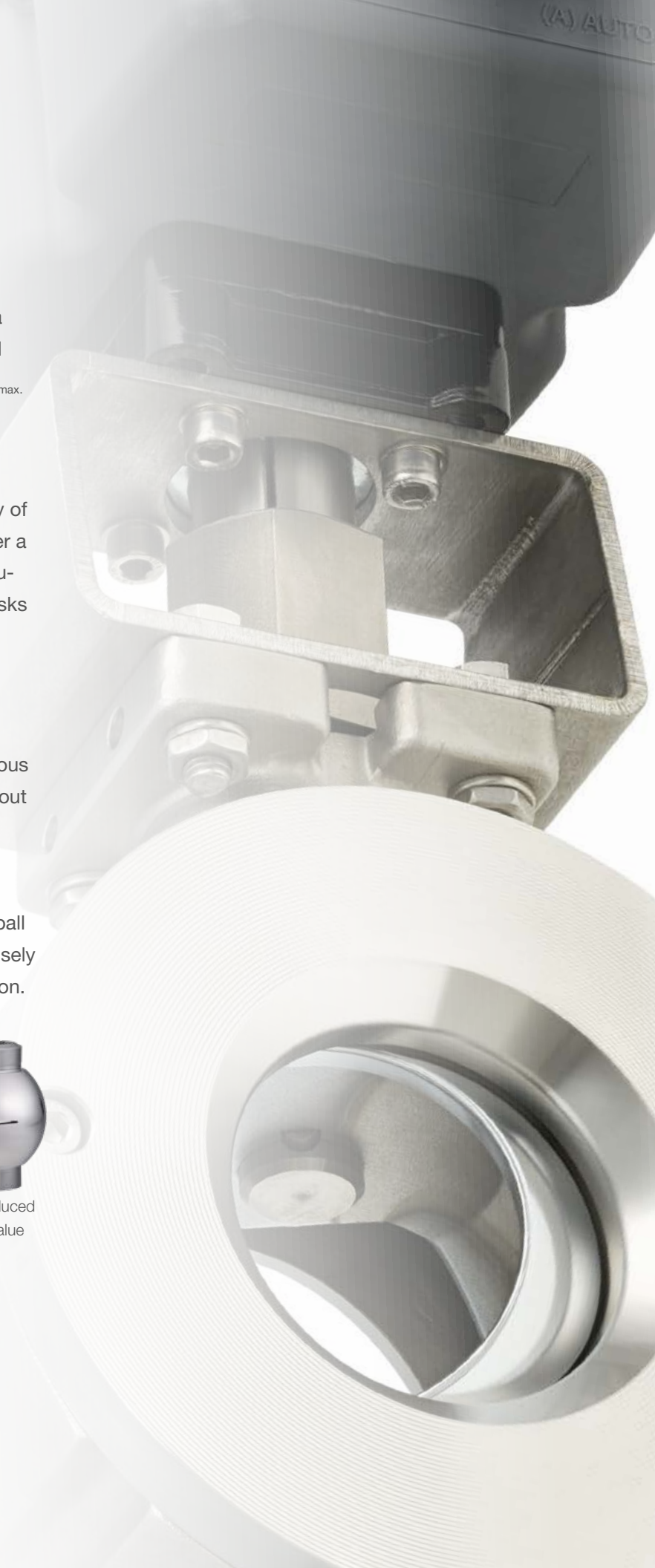
100% $C_{V\max}$ -value



63% reduced $C_{V\max}$ -value



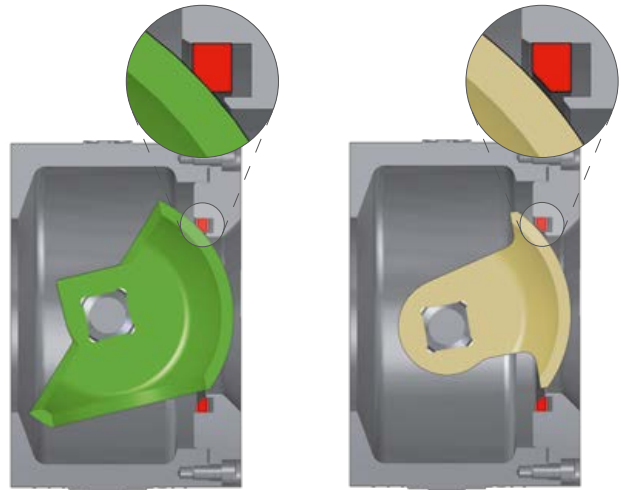
6.3% reduced $C_{V\max}$ -value



Wear-resistant thanks to protected sealing surfaces

Due to their central bearing, the ball sectors maintain continuous contact with the seat seal during rotation. Contrary to eccentric standard rotary globe valves, the sealing surfaces of ball sector valves are therefore protected against the attack of abrasive media even in the open position.

Furthermore, solids from the medium cannot get jammed between the ball sector and the seat ring and cause damage.



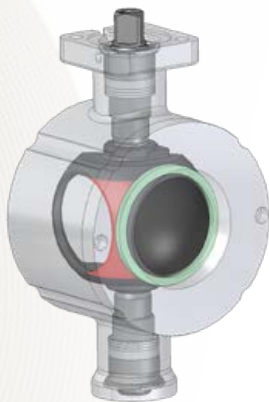
Unlike ball sector valves (left), rotary globe valves (right) lift off the seat seal when rotating. This often results in damage to the sealing surfaces of the rotary globe valves due to abrasion and jammed particles.

Durable under extreme conditions

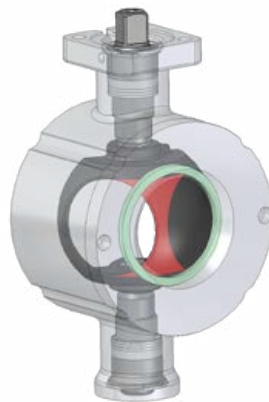
Wear caused by abrasive media starts at the control edge of the throttle. The sealing surface on the ball sectors is far away from the control edge of the ball sector and is not exposed to high flow velocities. Even heavy wear therefore leads to leaks much less frequently and later than with rotary globe valves.

This beneficial sealing concept, combined with different materials and surface treatments for the valve seat, is the basis for long service life and reliable operation, particularly in applications with abrasive, highly viscous or fibrous media.

- Seat seal
- Available wear surface



Schubert & Salzer
Ball sector valve
closed



Schubert & Salzer
Ball sector valve
slightly open



Standard
Rotary globe / butterfly valve
closed



Standard
Rotary globe / butterfly valve
slightly open



Ball sector valve 4040

Nominal size: 1" - 12"
 Nominal pressure: PN 10 - 40,
 ANSI # 150 - 300
 Media temperature: -40°F up to +428°F
 Material: stainless steel 1.4408 (CF8M)
 and 1.4404 (316L)
 Single or double acting on/off actuators
 Positioner: pneumatic, analogue electro-
 pneumatic, digital electro-pneumatic,
 Ex-i, FM, IO-Link
 As an open/close valve, it is also available
 with an optional limit switch box and a
 manual actuator.



Motorized ball sector valve 4030

Nominal size: 1" - 12"
 Nominal pressure: PN 10 - 40,
 ANSI # 150 - 300
 Media temperature: -40°F up to +428°F
 Material: stainless steel 1.4408 (CF8M)
 and 1.4404 (316L)
 With an electric actuator for controlling
 and for the open/close function incl. a
 position feedback.
 With an optional limit switch.
 Other electrical actuators available.



**Ex-motorized
 ball sector valve 4037**

Nominal size: 1" - 4" (others on
 request), 1" - 3" also available
 with spring return
 Nominal pressure: PN 10 - 40,
 ANSI # 150 - 300
 Media temperature: -40°F up to +428°F
 Material: stainless steel 1.4408 (CF8M)
 and 1.4404 (316L)
 Actuator: Ex-certified motor actuator
 II2G/D EEx ia IIC T6/T5 and IEC Ex



**Highly precise
 ball sector valve 4032**

Nominal size: 3" - 10"
 Nominal pressure: PN 10 - 40,
 ANSI # 150 - 300
 Media temperature:
 -40°F up to +428°F
 Material: stainless steel
 1.4408 (CF8M) and 1.4404 (316L)
 Actuator: electric actuator, highly precise
 (1300/1600/4000/8192 steps)



Three-way ball sector valve 4080

Nominal size: 2" - 6"
 Nominal pressure: PN 25 - 40
 Media temperature: -40°F up to +428°F
 Material: stainless steel
 1.4408 (CF8M) and 1.4404 (316L)
 Single or double acting on/off actuators
 Positioner: pneumatic, analogue electro-
 pneumatic, digital electro-pneumatic,
 Ex-i, FM, IO-Link
 Flanges according to DIN EN 1092-1

The details that matter

Compact top mount
Schubert & Salzer
digital positioner

Wide range of accessories available,
mounting to
NAMUR standard

Pneumatic actuator
(double or single
acting) or motor
actuator mounting
to DIN/ISO 5211

Mounting kit according
to DIN/ISO 5211

Wafer body designed
to suit ANSI or DIN standards
up to 12"
(12" flanged only)

Centric and maintenance-free, high temperature bearings

Visual position indication

Tubing

Adjustable travel stops

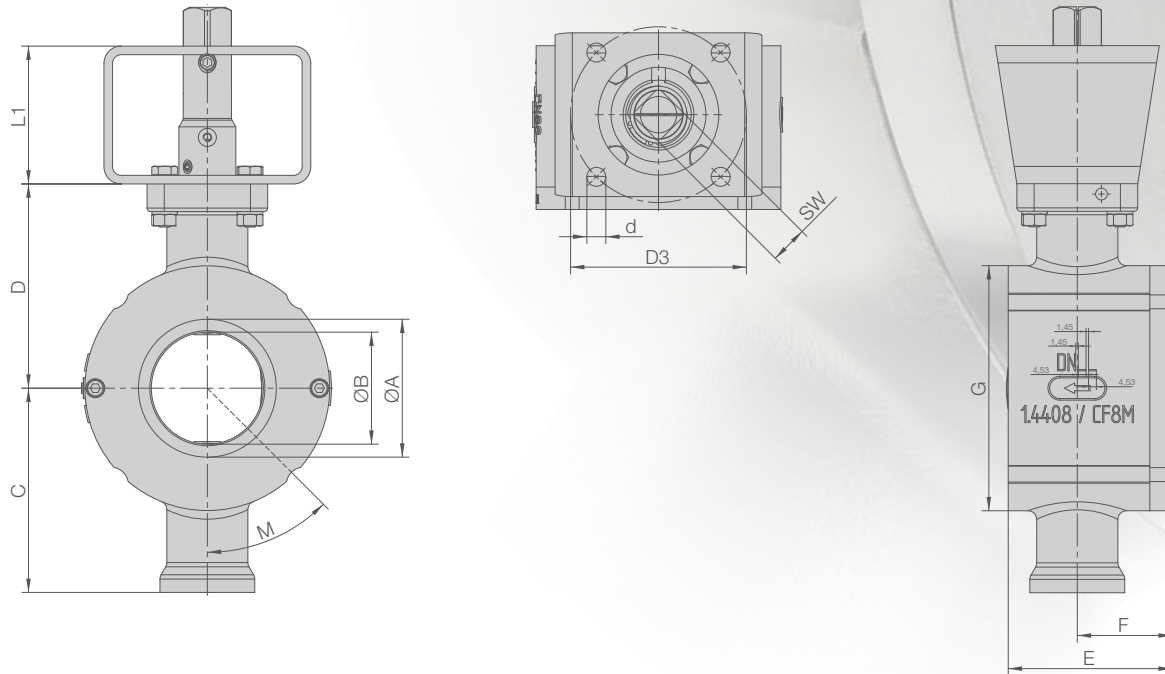
Close toleranced coupling to ensure precise positioning and repeatability

Ball sector optional with hardened surface treatments for demanding media and modified equal percentage flow characteristic with rangeability of 300:1

Seat retaining ring and valve seat available in various material combinations; easy to install and maintain



Standard dimensions without actuator (with mounting kit ISO 5211)



Size	A	B	C	D	E	F	G	L1	d	D3	SW	DIN/ISO 5211
1"	0.98	0.79	3.35	3.35	1.97	1.02	2.95	2.36	0.26	1.97	0.55	F 05
1 1/2"	1.61	1.26	3.62	3.62	2.28	1.22	3.78	2.36	0.35	2.76	0.67	F 07
2"	2.09	1.57	3.74	3.74	2.8	1.5	4.41	2.36	0.35	2.76	0.67	F 07
2 1/2"	2.56	1.97	4.55	4.55	3.35	1.93	5.08	3.15	0.43	4.02	0.87	F 10
3"	3.15	2.56	4.67	4.67	3.74	2.17	5.59	3.15	0.43	4.02	0.87	F 10
4"	3.94	3.15	5.1	5.1	4.41	2.44	6.85	3.15	0.43	4.02	0.87	F 10
5"	4.92	3.94	6.99	6.99	5.83	3.35	7.87	3.15	0.53	4.92	1.06	F 12
6"	5.91	4.72	7.36	7.36	6.69	3.74	8.66	3.15	0.53	4.92	1.06	F 12
8"	7.87	6.1	8.5	8.5	8.27	4.72	10.85	3.15	0.67	5.51	1.42	F 14
10"	9.84	7.68	9.53	9.53	10.63	5.71	13.31	3.15	0.67	5.51	1.42	F 14

Dimensions for 12" on request

Dimensions in inch

Valve seat combinations

Seat ring	Ball sector	Leakage	Temp. range (°F)*
PTFE	Stainless steel polished	5×10^{-7} from max. C_v	-40 up to +338 °F
PEEK	Stainless steel polished	5×10^{-7} from max. C_v	-40 up to +428 °F
PTFE	Stainless steel, hard chrome plated	5×10^{-7} from max. C_v	-40 up to +338 °F
PEEK	Stainless steel, hard chrome plated	5×10^{-7} from max. C_v	-40 up to +428 °F
Stellite	Stainless steel, hard chrome plated and lapped	Class IV-S1 acc. EN 1349 (IEC 534-4) 5×10^{-6} from max. C_v	-40 up to +446 °F
PTFE	Stainless steel, hard chrome plated and lapped	Class VI acc. EN 1349 (IEC 534-4)	-40 up to +338 °F

* Please note the restrictions of the o-ring material!

Technical information

Design	Flangeless, wafertype (size 12" flanged)	
Nominal sizes	1" up to 12"	
Body material	Cast parts Turned parts	CF8M (1.4408) 316 L (1.4404)
Bearing material	High temperature plain bearing	
Actuator mount	Mounting kit DIN/ISO 5211	
Nominal pressure	1" - 2" 2 1/2" - 4" 5" - 12"	ANSI150, ANSI300, 580 psi (for flanges 145 psi - 580 psi) ANSI150, ANSI300, 365 psi ANSI150, 235 psi Other pressure ranges on request
Fluid temperature	-76 °F up to +446 °F	
Ambient temperature	-40 °F up to +176 °F (special version on request)	
Characteristic	Almost equal percentage	
Rangeability	300:1	

C_v-values

Size	100%	63%	40%	25%	6.3%
1"	24.6	14.9	9.83	6.14	1.7
1 1/2"	80	47.2	29.3		
2"	126	70.6			
2 1/2"	179.2				
3"	348				
4"	456				
5"	874				
6"	948				
8"	1597				
10"	2597				
12"	4493				

Maximum working pressure

Nominal size	Maximum differential pressure (Δp)							
	Seat ring PTFE			Seat ring PEEK			Seat ring Stellite	
	up to 176 °F psi	248 °F psi	338 °F psi	up to 248 °F psi	338 °F psi	428 °F psi	up to 338 °F psi	428 °F psi
1" - 2"	365	230	85	580	365	230	580	365
3" - 4"	230	175	75	365	230	145	365	230
6" - 12"	230	175	60	230	175	115	230	175

Three-way ball sector valves

Three-way ball sector valves combine exceptionally good C_{Vmax} values with superior control accuracy. They offer particularly high added value in the temperature control and mixing processes of the steel, chemical, food and beverage industries as well as in power generation, the manufacture of plastic and rubber products and for use in test benches.

Extraordinarily high C_{Vmax} value

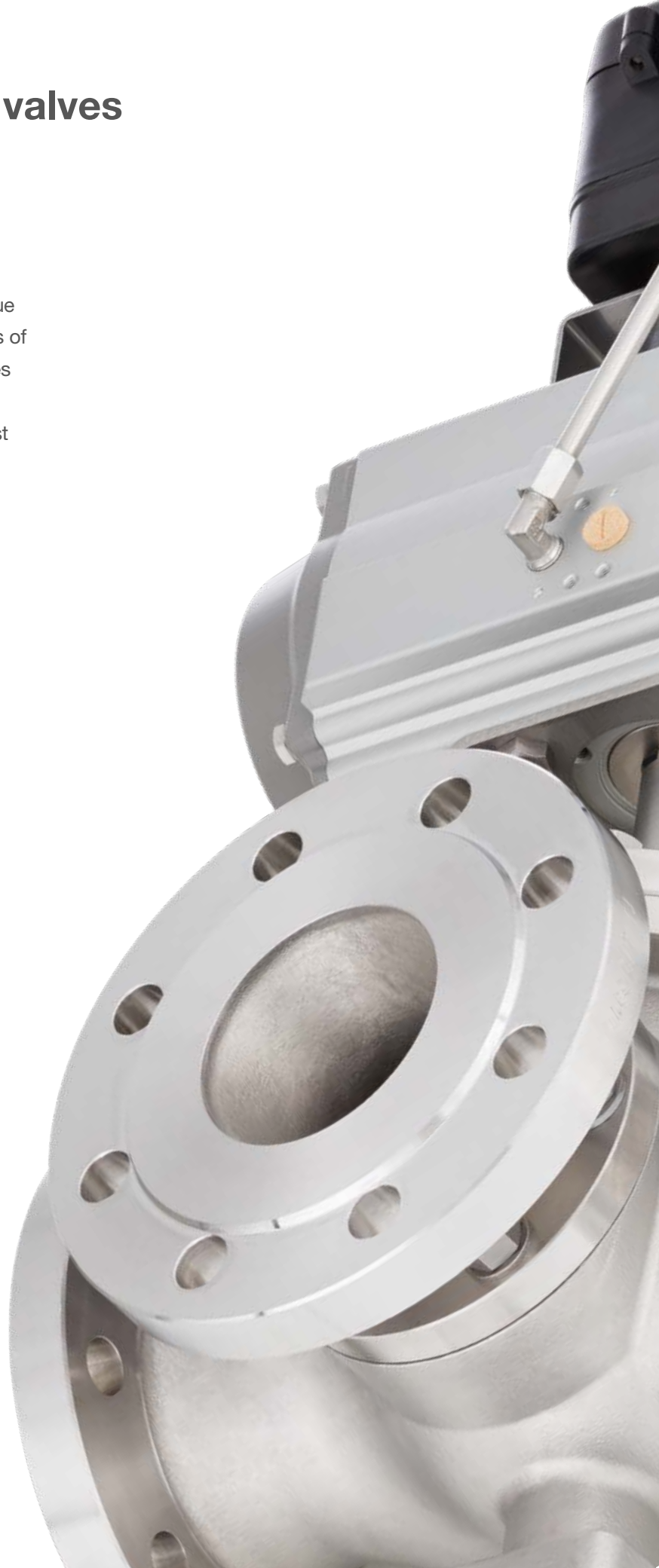
Due to the sophisticated flow control and the special design of the ball sector, three-way ball sector valves achieve C_{Vmax} values that are around 20% higher than any of the conventional alternatives.

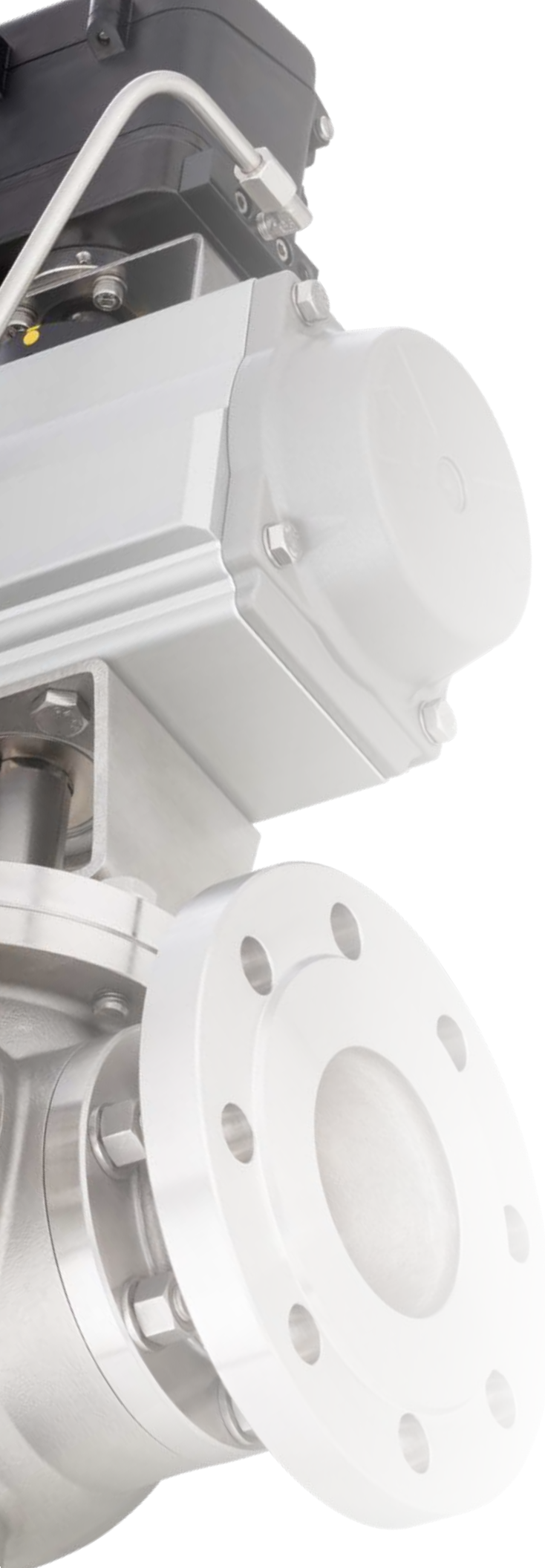
Excellent control behavior

Due to the interaction of positioner, actuator and ball sector principle, a superior control accuracy is achieved with a high control spread and a rangeability of 300:1.

Versatility

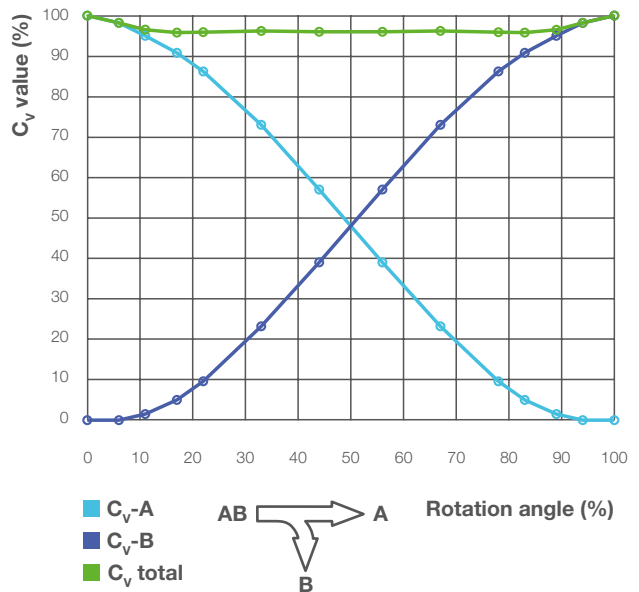
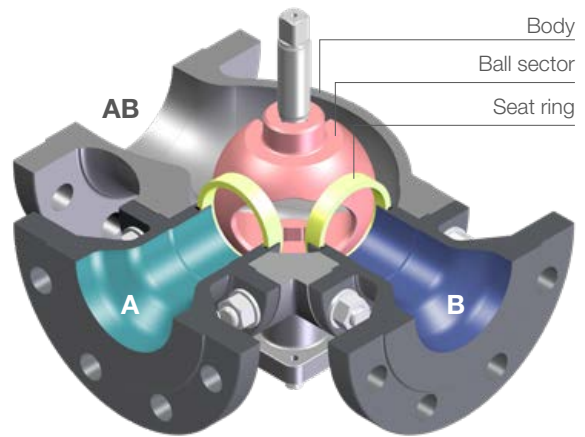
The actuator can be installed at either end of the shaft, allowing for flexible integration even in complex piping scenarios.





Almost constant total C_v value throughout the entire control range

Due to the special contour of the ball sector, the total C_v value of the valve remains virtually constant in any valve position when diverting or mixing.



ultra-clean

Sanitary valves by Schubert & Salzer

The cleanability of valves is becoming more and more important in many segments. The Schubert & Salzer Sanitary valves comply with the highest cleanability requirements while also maintaining maximum efficiency. The valves are CIP and SIP-capable in order to avoid accumulation of bacteria and residue from the production process. A particular focus has been placed eliminating dead spaces across the entire stroke area.

Hygienic Angle Seat Valves

The hygienic angle seat valves from Schubert & Salzer are particularly robust and are suitable for high temperatures. With $Ra < 32 \mu\text{in}$ ($0.8 \mu\text{m}$), all wetted surfaces of the body construction optimized to avoid dead spaces are ideally suitable for applications in the food and beverage manufacturing sector. They are particularly used when controlling and shutting off process water, sterile steam and sterile air.

precise

Aseptic Right Angle Valves

The aseptic right angle valves from Schubert & Salzer with integrated positioner combine high control quality with the highest aseptic requirements. They guarantee ultimate rangeability, tremendous chemical resistance and can be used over a wide temperature range. Flow analyses have been used to optimize all wetted areas with regard to maximum wall shear stresses.

The EHEDG-certified type 6051 aseptic right angle valves meet almost every requirement in the pharmaceutical and cosmetics industry, but also in the biotechnology sector as well as the food and beverage technology sector. The components used are FDA-compliant, meet USP class VI and the directives (EC) 1935/2004 and (EU) 10/2011.

The 3A-compliant type 6052 right angle valve provides high safety in production processes for food and dairy products.

aseptic

Details

Positioner

Sensing pin

Bolt

Piston spring

Pilot line

Piston

Flange

Bonnet

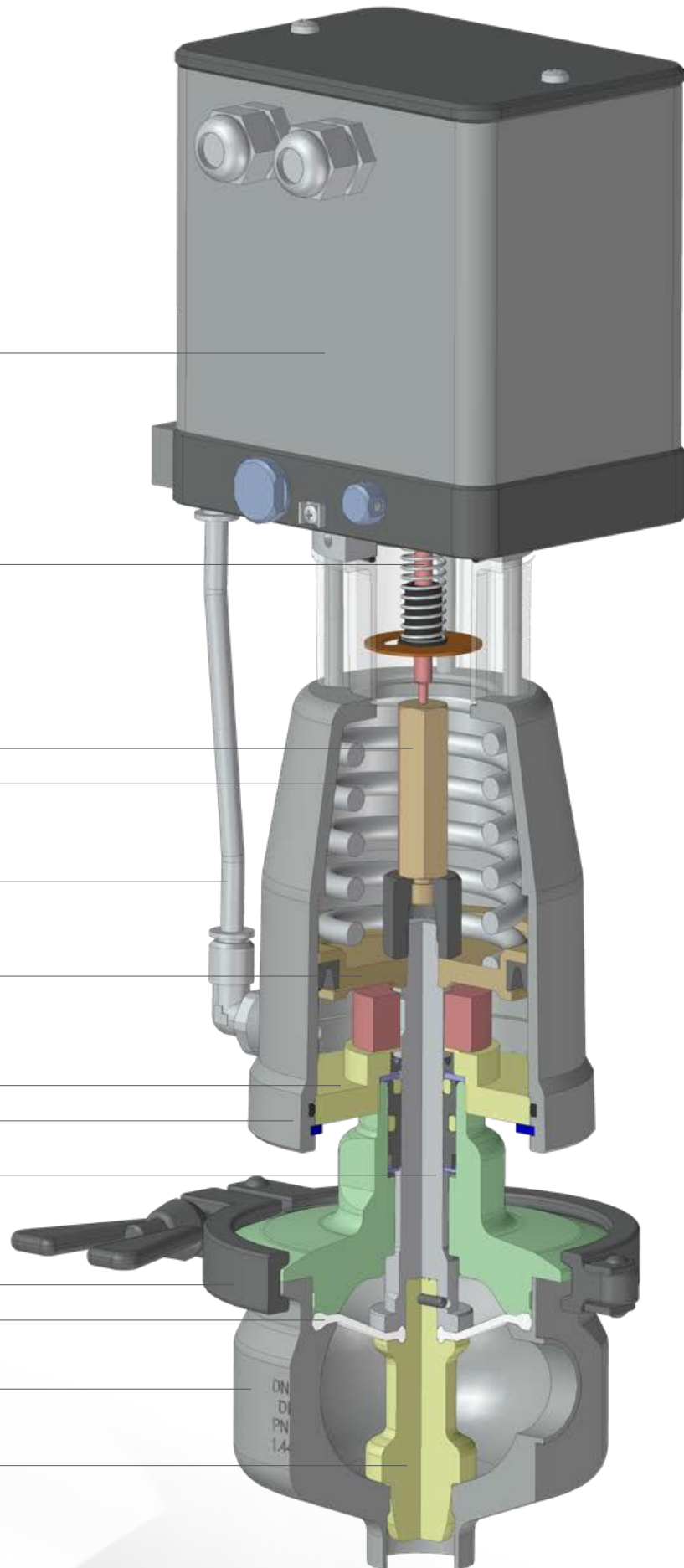
Valve stem

Tri-clamp

Diaphragm

Body

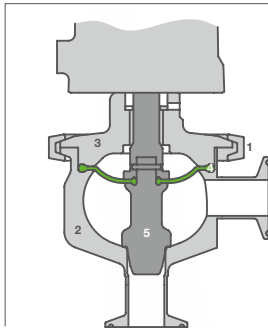
Control cone





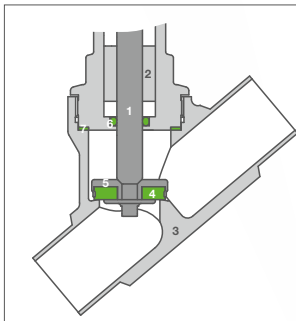
Website

Aseptic right angle valves



- 1 Clamp connection
- 2 Body
- 3 Head section
- 4 Diaphragm
- 5 Control cone

Hygienic angle seat valves



- 1 Piston rod
- 2 Packing
- 3 Body
- 4 Seating seal
- 5 Disc
- 6 Stem seal
- 7 Head section seal



Hygienic angle seat valve 7015

Nominal size: 1/2" - 2"
 Nominal pressure: PN 40
 Maximum operating pressure: 362 psi
 Media temperature: -22°F to +338°F,
 optional -58°F to +356°F
 Material: Stainless steel 1.4408,
 wetted surface Ra < 32µm (0.8µm)



Hygienic angle seat control valve 7025

Nominal size: 1/2" - 2"
 Nominal pressure: PN 40
 Maximum operating pressure: 362 psi
 Media temperature: -22°F to +338°F,
 optional -58°F to +356°F
 Material: Stainless steel 1.4408,
 wetted surface < 32µm (0.8µm)
 Positioner: pneumatic, analogue
 electro-pneumatic, digital electro-
 pneumatic, Ex-i, FM, IO-Link



Aseptic angle control valve 6051

Nominal size: 1/2" - 2"
 Nominal pressure: 235 psi
 Media temperature: -4°F to +284°F
 Material: Stainless steel 1.4435
 wetted surface < 16µm (0.4µm)
 Diaphragm material:
 EPDM with PTFE-foil
 Positioner: pneumatic, analogue
 electro-pneumatic, digital electro-
 pneumatic, Ex-i, FM, IO-Link
 Available with motor actuator or pneu-
 matic on/off actuator



Hygiene right angle valve 6052

Nominal size: 1/2" - 2"
 Nominal pressure: 235 psi
 Media temperature: -4°F to +284°F
 Material: Stainless steel 1.4435
 Diaphragm material:
 EPDM with PTFE-foil
 Positioner: pneumatic, analogue
 electro-pneumatic, digital electro-
 pneumatic, Ex-i, FM, IO-Link
 Available with pneumatic on/off actuator



versatile

Pinch valves by Schubert & Salzer

On Schubert & Salzer pinch valves, only the tube itself, or a few components, come into contact with the operating medium. They are suitable for safely shutting off and controlling in a wide variety of processes and applications.

Endless pinch valves have absolutely no dead spaces and therefore provide a modern solution for applications with the highest hygienic requirements e.g. in the pharmaceutical industry, cosmetics and biotechnology.

Pinch valves with an enclosed metal housing are used for lower hygienic requirements such as in food and beverage applications, environmental technology and water treatment, as well as in electroplating. Their straight valve passage is particularly advantageous for contaminated, abrasive and viscous media.



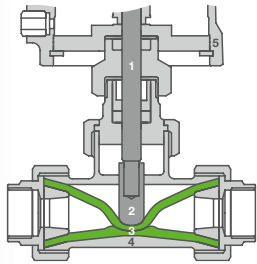
Website

straight



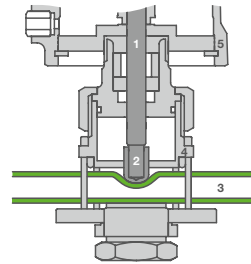
resilient

Pinch valves



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

Endless tube pinch valves



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



Pinch shut off valve 7078

Nominal size: 1/2" - 2"
 Operating pressure: to 87 psi
 Media temperature: -40°F to +266°F
 Tube material: NBR and EPDM (conforming to FDA), FKM, and more



Mini pinch valve 7071

Nominal size: 1/24" - 1/8"
 Tube external diameter: 0.16" - 0.35"
 Operating pressure: to 30 psi (depending on tube)
 Media temperature: -22°F to +212°F (depending on tube)
 Material: Polyamide



Endless tube shut off valve 7072

Nominal size: 1/8" - 1/2"
 Tube external diameter: 1/2" - 5/8"
 Operating pressure: to 58 psi (depending on tube)
 Media temperature: -22°F to +338°F (depending on tube)
 Material: Stainless steel



Pinch control valve 7079

Nominal size: 1/2" - 2"
 Operating pressure: to 87 psi
 Media temperature: -40°F to +266°F
 Tube material: NBR and EPDM (conforming to FDA), FKM, and more
 Positioner: pneumatic, analogue electro-pneumatic, digital electro-pneumatic, Ex-i, FM, IO-Link



Endless tube control valve 7077

Nominal size: 1/8" - 1/2"
 Tube external diameter: 1/2" - 5/8"
 Operating pressure: to 58 psi (depending on tube)
 Media temperature: -22°F to +338°F (depending on tube)
 Material: Stainless steel
 Positioner: pneumatic, analogue electro-pneumatic, digital electro-pneumatic, Ex-i, FM, IO-Link

Positioners by Schubert & Salzer

Compact positioners in analog and digital versions for adaption to pneumatic control valves.

- **High precision and minimum hysteresis**
Because the positioner is integrated in the valve actuator, no moving parts (return stroke) are accessible from the outside. The operational safety and particularly the control accuracy are thus significantly increased.
- **Low compressed air consumption**
Through the use of piezo and solenoid valves.
- **FM IS & NIFW version available**
Intrinsically safe zone 0, class I, division 1 or nonincendive field wiring class I, division 2.
- **Self-adaptation and diagnostics**
Configuration and diagnostics function by means of "DeviceConfig" software.



DeviceConfig by Schubert & Salzer

Maximum efficiency and performance – with the configuration and diagnosis software, "DeviceConfig", you have control over all of the digital positioners and motor actuators from Schubert & Salzer.



- Calibration and optimization of the positioners and motors to the used valve with just a few clicks.
- Numerous diagnosis functions provide for a fast and simple fault analysis.
- Configuration of individual maintenance settings.
- Connection is possible via Bluetooth or USB using a connector
- Compatible with the following types: 8049, 2040, 2030, 2032.



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),
 optional up to 50mm (sliding stem),
 max. 270° (rotary stem)
 Versions: 2 and 4-wire
 Ambient temperature:
 -10°C to +75°C / 14°F to +167°F
 Also in Ex-i & FM version
 Optional feedback module available



**Digital positioner 8049
 (stainless steel)**

Entirely in stainless steel
 Connections: G 1/8", NPT 1/8"
 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
 Ambient temperature:
 -10°C to +75°C / 14°F to +167°F
 Also in Ex-i version



Digital positioner 8049 IPC

Positioner with integrated process
 controller
 Input signal: 0/4 - 20 mA, PT-100
 Sampling rate: ca. 50 ms
 Set point setting: external/internal
 Ambient temperature:
 -10°C to +75°C / 14°F to +167°F



Positioner 8047 i/p + p/p

Input signal range:
 electro-pneumatic 0/4 - 20 mA
 pneumatic 3 - 15 psi
 Stroke range: 5 - 22 mm / 0.2" - .87"
 (depending on stroke return spring)
 Pilot energy: 43 - 87 psi
 Hysteresis: < ± 1%
 Air consumption: 400 - 600 NI/h
 (depending on air supply)
 Also in Ex-i version
 M12 connection



Smart communication by Schubert & Salzer

As the digitalization of industry progresses, the focus is shifting to smart devices that not only reliably fulfil their function, but also actively communicate information about their status.

IO-Link, a standardized communication system, enables the bi-directional exchange of data between sensors, actuators and control systems.

By using IO-Link, modern control valves with positioners type 8049 can provide extensive status data, which – in addition to enabling predictive maintenance planning – can also make error analysis and commissioning much easier, for example.

predictive

Remote diagnostics and control

Using IO-Link, status data from the field level is available centrally - without the need for physical access to the valve. Valve parameters such as dynamics, accuracy and characteristic curve can be easily adjusted from the control system at any time.

Predictive Maintenance

The continuous monitoring and evaluation of the centrally available status data means that even the smallest irregularities are detected at an early stage. Operating companies can react in good time and plan maintenance work with foresight. Process reliability and plant uptime are increased significantly.

Minimized cabling required

A single cable with an M12 plug bundles the positioning signal, position feedback, data transmission and even the power supply.

easy-to-use

efficient

Simple commissioning

Wiring errors are technically impossible thanks to the coded connectors.

Quick hardware change via plug & play

When replaced, the new positioner type 8049 automatically adopts the previously used parameterization and is immediately ready for use after a self-calibration.



Electric actuators by Schubert & Salzer

Besides a precise throttling element, a precise actuator is also required for solving complex control applications.

This requirement is achieved by electrical Schubert & Salzer actuators, model 2030 and 2032. These actuators are focused on control accuracy, high positioning speed and reliability. These actuators are field configurable through Schubert & Salzer's device config communications software, complete with diagnostics capability. All motors are interchangeable with existing actuators.



Actuator 2030

Fast and high-resolution actuator
Regulating speed up to 0.75 mm/s (.03 "/s)
Dead band: $\pm 0.2\%$ of the valve stroke
Repeatability: approx. $\pm 0.1\%$
Actuating force: 450 lbf and 1,100 lbf
Protection class: IP67
Ambient temperature:
-10 °C to +60 °C / 14°F to 140°F
Low temperature version to -40° C / F
Automatic valve adaption
Diagnostics functions
Also available with safety position in case of power failure



Actuator 2032

Compact and precise actuator
Regulating speed up to 1.5 mm/s (.06 "/s)
Dead band: $\pm 0.6\%$ of the valve stroke
Repeatability: approx. $\pm 0.3\%$
Actuating force: 180 lbf
Protection class: IP65
Ambient temperature:
-10 °C to +60 °C / 14°F to 140°F
Automatic valve adaption
Diagnostics functions
Also available with safety position in case of power failure



Customized valve manifolds

Compact valve manifolds by Schubert & Salzer reduce piping, maintenance time and ultimately minimize investment costs.

In many systems, processes require connecting multiple valves for different media so that they can together carry out a special process function. A connection system well-known from the field of hydraulics and adapted to the respective application, allows for the intelligent combination of several valves in a customer-specific manifold. All necessary connections between the individual process valves are integrated in the manifold. On the customer side, connections for process media input and output in the desired number are available depending on the requirement.

Manifolds can be manufactured either completely from stainless steel or solid carbon steel with threaded valve seats. Additional pressure and temperature sensors can be integrated at any time. The manifolds are developed and manufactured individually according to your P&I diagrams.

Applications include:

Tire presses

Food & beverage

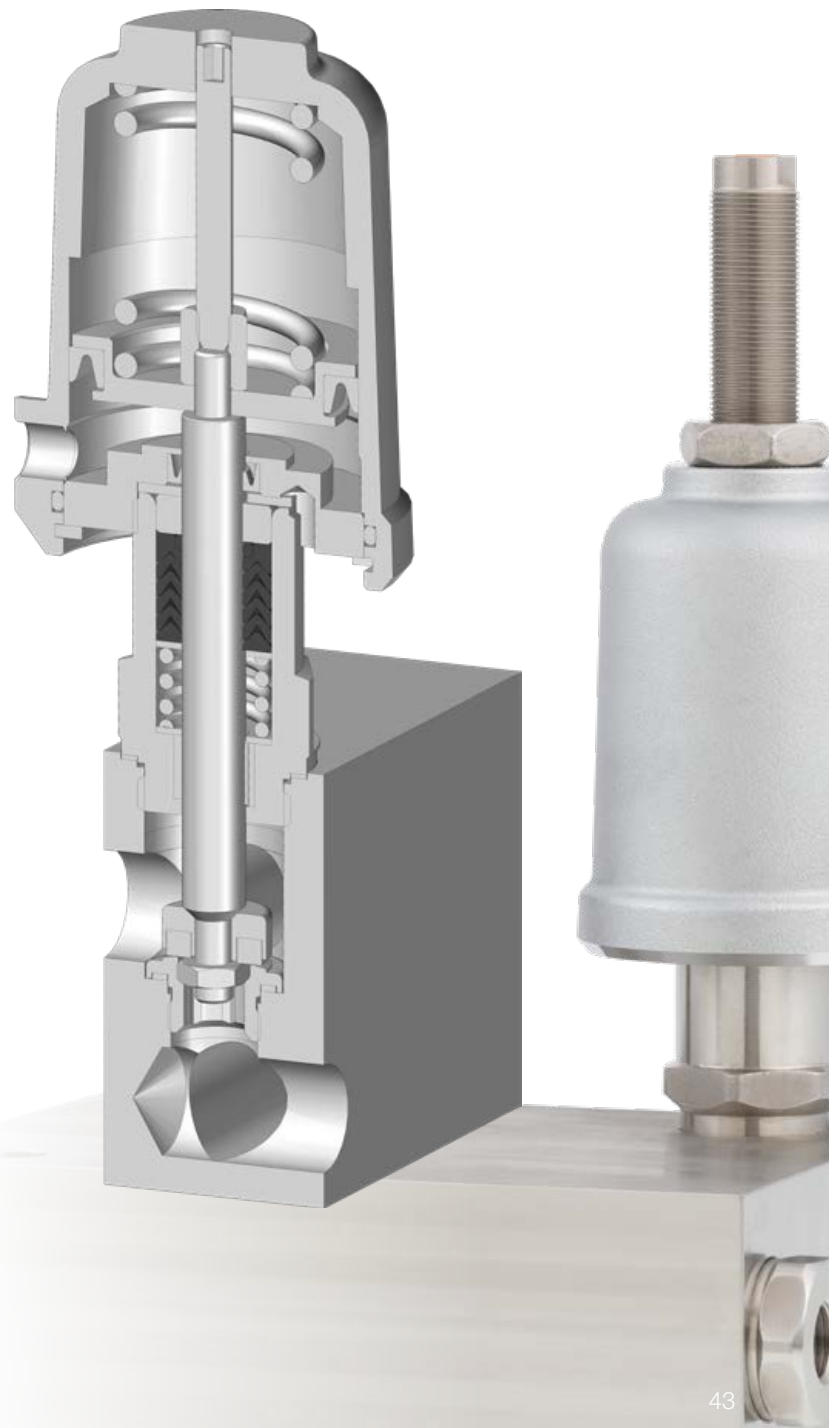
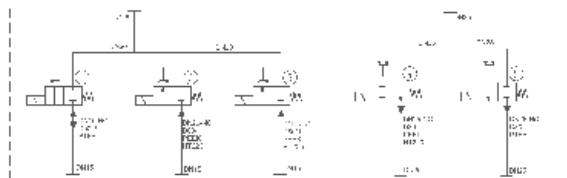
Multiple pipe racks

Specialty chemicals

bioPharm

Electronics

more...



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