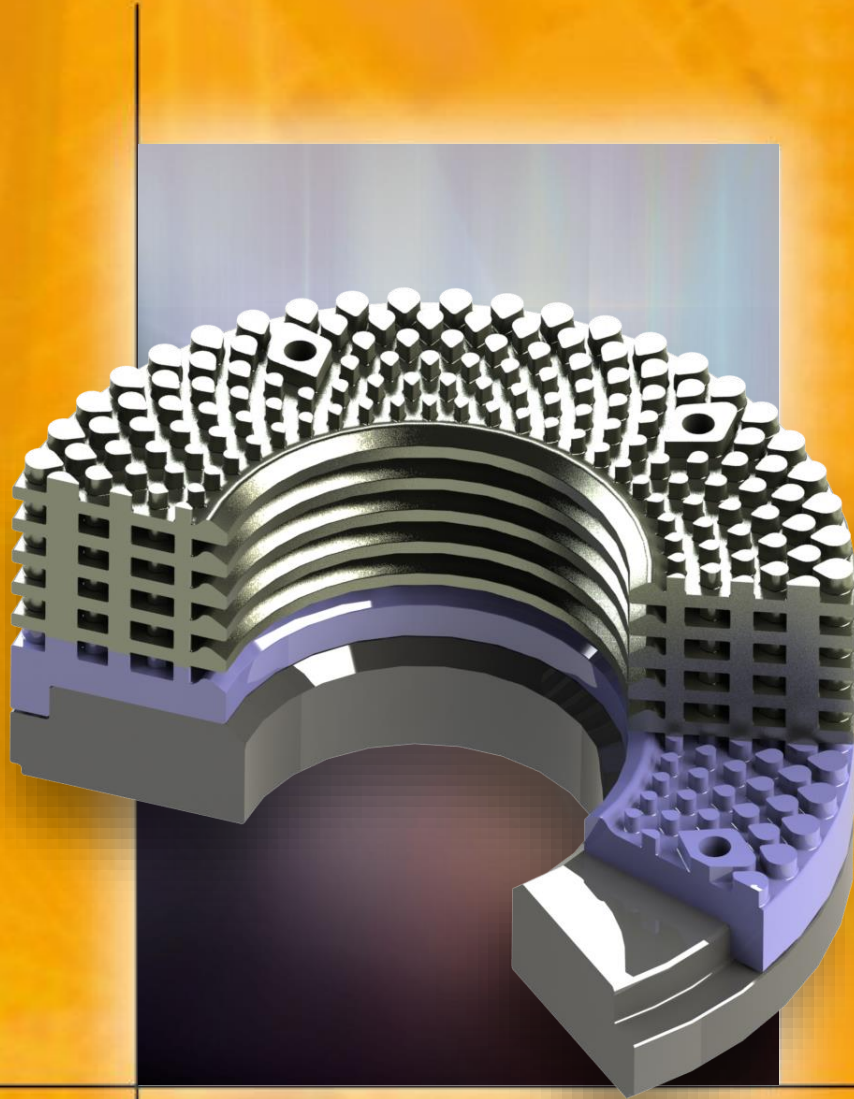


Severe Service Control Valves



SchuFI 

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SchuF is fully registered, accredited and certified worldwide



SchuF Control Valves

Control valves work to keep a process variable such as flow or pressure within a predefined operating range. They are often the last piece of equipment in a process loop that can compensate a load disturbance and are therefore considered critical valves.

Why choose SchuF?

The SchuF Group is an industry-renowned valve supplier with over 100 years' experience designing and manufacturing application-specific valve solutions.

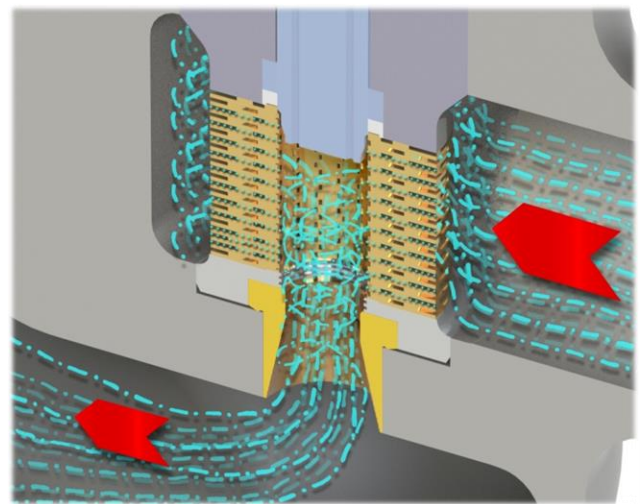
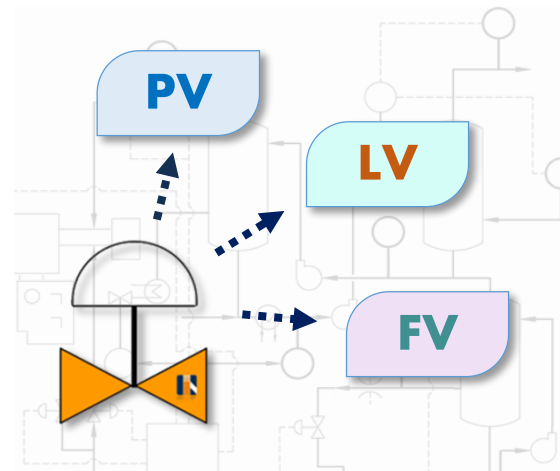
SchuF has developed over 20,000 control valve variations in its hundred-year history. Each has its own specific characteristics tailored to the process-control elements that are most important for it- pressure, level, flow or temperature.

SchuF has the capability to ship our unique and highly-praised valve solutions world-wide from production facilities located in Germany, India, Ireland, Italy, the United Kingdom and the United States.

SchuF has an extensive product selection with a vast and diverse range of applications, from oil production to concrete manufacture. SchuF's team of skilled engineers and product specialists design each valve from the ground up to meet specific application requirements and provide optimal service-life and performance.

Where does SchuF use its expertise?

- **Discharge and feed flow-control valves** in PET, PVC, PP & PE reactors
- **Level, pressure & steam injection control valves** in PTA processes
- **Level control** of flashing fluid in coal liquefaction or heavy oil upgrading
- **Feed and level control** for gasification according to the Siemens, Lurgi, GE and Shell process licenses
- **Flow control of powder** in fine chemical & pharmaceutical processes
- **Resurge and flare control** for gas
- **Steam, feedwater and condensate control** in power generation and Cogen/CHP facilities
- **High-precision multi-port flow control** of highly viscous, non linear, non-Newtonian polymer fluids
- **Discharge flow control valves** for urea reactors where urea-grade stainless steel is mandatory
- Fully-jacketed **short-body wafer control valves**, for Nylon and PC production
- **Mineral processing** applications such as high-pressure acid leaching (HPAL)
- **Sour water and Amine letdown** in several refinery processes
- **Bio - Fuels** (Renmatix)
- **Hydrocarbon fluid separation and injection** in Oil and Gas industries



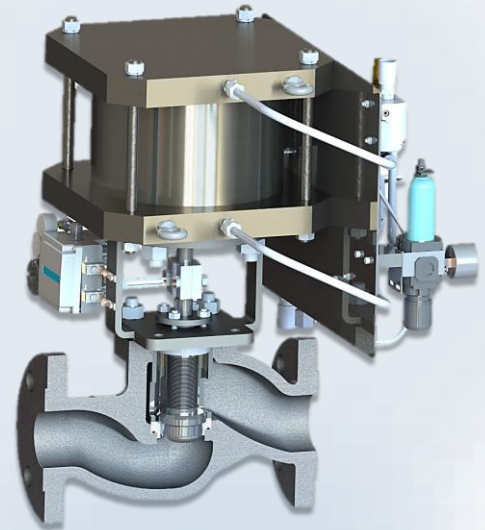
Control Valve Types

In line Control Valves

Straight Globe Valve – Type 72

Straight Globe control valves combine the protection of a bellows seal with the controllability and leak-tightness of a SchuF control valve. They are used in arduous and lethal services with critical media such as chlorine, phosgene, hydrofluoric acid, NH₃, CO₂, urea etc. They are Eurochlor compliant.

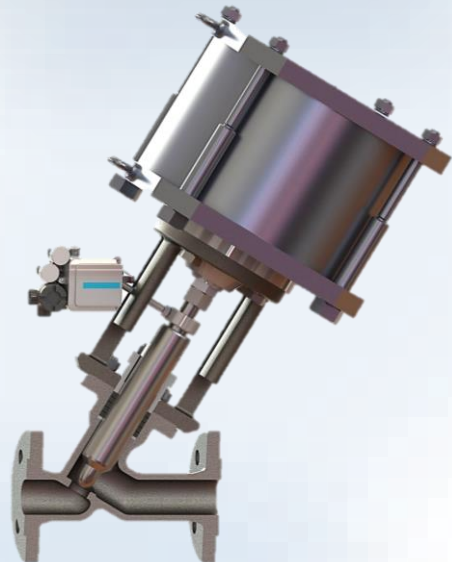
- Designed for at least **200,000 operations**
- **Emergency stuffing boxes** as standard
- **Linear, equal % or on/off** control
- Optional **Bellows Seal**, which is located in the bonnet area and thus not exposed to erosive flow
- Wide **variety of control trims** available (see page 8-10)
- Loose self-aligning disc for **absolute shut-off**, (ASME Class VI)
- **Metallic sealing surfaces** with different hardness (Stellite® ...)



Y - Globe Valve – Type 50

The Y-globe control valve can be installed in process lines from 1 inch to 24 inches and is **ideal to control flow or to reduce pressure**. It has a **sturdy design, superior flow and control characteristics** (compared to globe or ball control valves) and **zero-leakage sealing** performance.

- **High throughput** (e.g. 4" (DN 100) – Cv min 140 to max 300)
- Flow optimized – **low pressure drop**
- **Equal %, linear or custom control characteristics**
- **Class VI process shut-off and zero leakage to atmosphere** performance
- **Dead-and slow-space-free** options



Wafer Valve – Type 76

Ideal for limited-space control applications

- **Space-saving** design
- **Cost-optimised**
- **Linear or equal %**
- **½ inch to 3 inch**
- Up to **ASME 2500#**



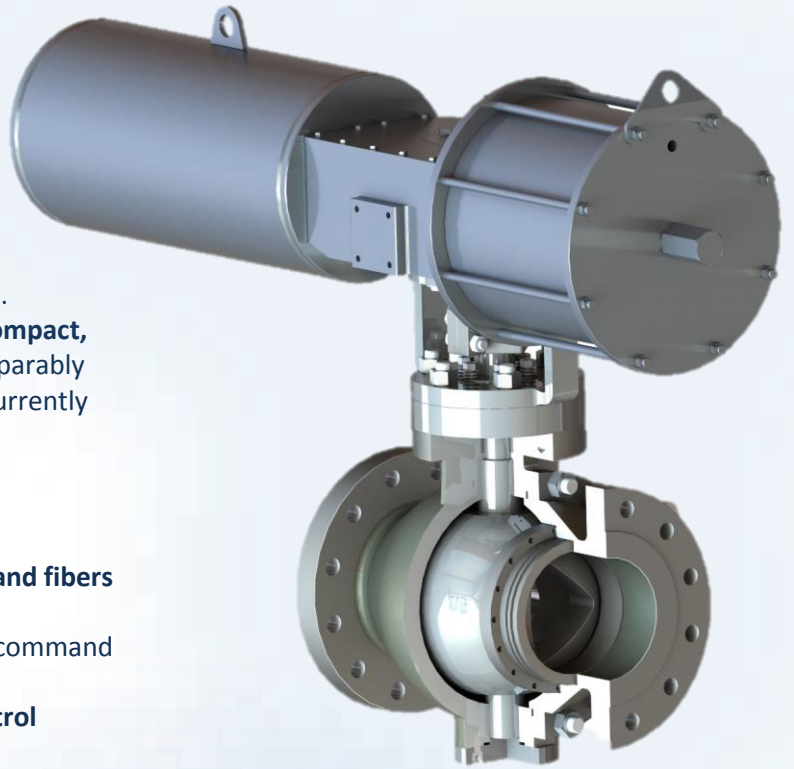
Control Valve Types

In line Control Valves

V-notch Ball Valve

By choosing the SchuF line of characterized **V-Control ball valves**, a full range of control applications is available with **superior flow control**. These quarter-turn-control ball valves are **more compact, lighter weight and much less expensive** than comparably sized globe valves and segmented control valves currently available in the market.

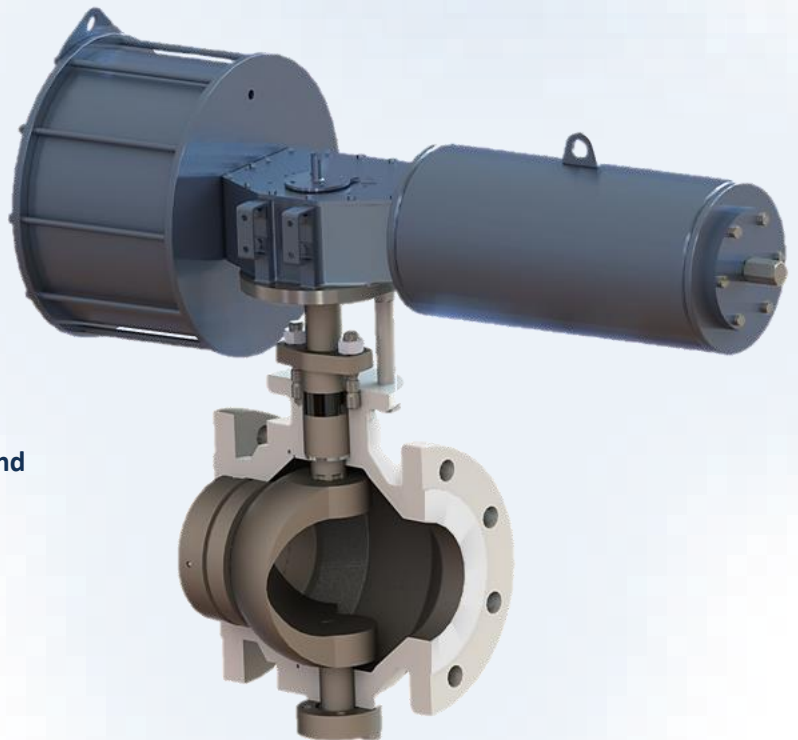
- **Superior rangeability and repeatability**
- **High flow capacity**
- Ability to function with fluids containing **solids and fibers**
- **Ease of maintenance**
- **Exceptional interface** with PLCs and computer command signals
- SchuF **high-quality pneumatic and electric control actuators**
- **Accurate positioning**



Segmented Ball Valve

The SchuF **Segmented Ball Valve** offers an **accurate control** with a **clogging free design**. **High capacity** and **superior sealing properties** make this valve type a perfect In-Line valve for control purposes, even with **high solid content mediums**.

- **Superior rangeability and repeatability**
- **High flow capacity**
- Ability to function with fluids **containing solids and fibers**
- Flow optimized – **low pressure drop**
- **Erosive medium control**
- **Ease of maintenance and seal replacement**
- **Accurate positioning**



Control Valve Types

Angle Control Valves – Model 74

The SchuF Model 74 Angle Control Valve is designed for critical or severe applications involving level control and pressure let-down in High Pressure Acid Leach (HPAL), Hydrocracking, Coal Liquefaction, PTA and other demanding processes.

The SchuF Angle Control Valve is often custom-made to suit process requirements in order to optimise field performance. Valve bodies are designed to help extend service life, by preventing impingement of particles on internal surfaces. Stagnant areas are minimized to prevent build-up of slurry or scale.

X-Flash – Type 74BS

These **valves open into the downstream** vessel to **eliminate choking and cavitation**. The “accelerating body” design prevents in-body flashing.

- **High CV values (1 to 3000)**
- **Low wear and tear**
- Disc opening **eliminates plugging** by sediments
- **Best suited for vessel installation**

Tough Flash – Type 74CS

If piping considerations prohibit a disc-opening valve, the 74CS accommodates flashing in the valve while **opening the disc into the body**. The effects of cavitation are minimised by the use of suitable trims.

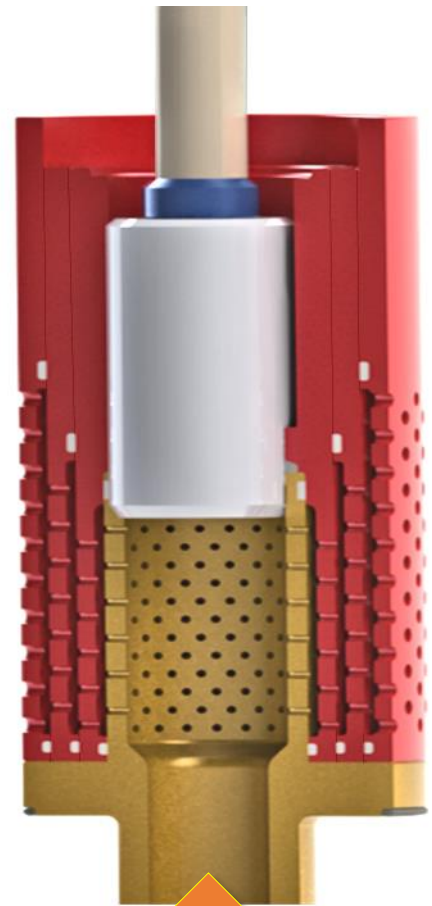
- **Hard material trim**
- **Flashing occurs in the protected seat / choke tube area**
- **Up to 180 bar let-down** is possible in a **single stage**
- **Customised and replaceable choke tube**
- **Suitable for pipeline or vessel installation**



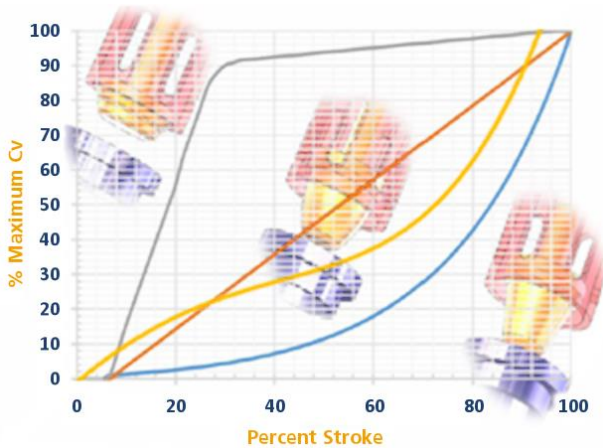
Trim Design: Multi-stage Cage Designs

- Can be installed in any type of body (angle, straight-through globe, Y-globe and Z-globe) including ASME Class 4500 (PN640) & API 15k
- A series of multi-hole 'cages' is utilised, providing a torturous flow path for the medium
- Suitable for liquids, gases and mixed-phase fluids
- Different designs reduce the fluid pressures by contracting, expanding & change of direction
- All trim materials are available
- Relatively Low cost
- Control Characteristics
 - Equal Percentage
 - Modulated Equal Percentage
 - Linear
 - Quick-Opening
 - SchuF's patented x^3 Bell Curve
- Effective with up to 3 cages
- Anti-cavitation & low-noise configurations

Liquid Over-the-plug flow



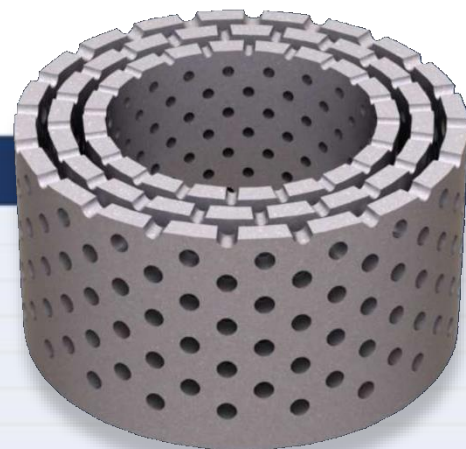
Gas Under-the-plug flow



Curve Types

- Linear
- Equal Percentage
- Quick Opening
- SchuF x^3

Below: Cage holes flow pattern

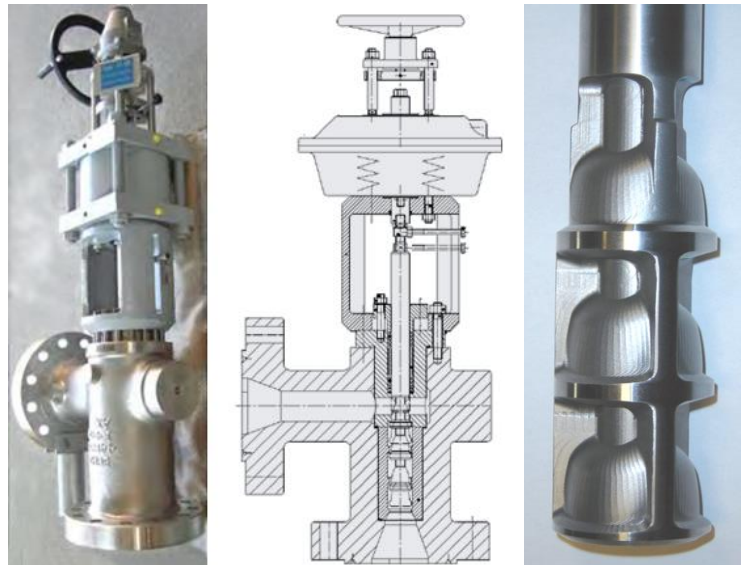


Valve Size		Available trim Cv for Cage Trims
in	mm	
1	25	10
1,5	40	20
2	50	45
3	80	90
4	100	150
6	150	300
8	200	400
10	250	600
12	300	900
14	350	1200
16	400	1500
18	450	2000
20	500	3000

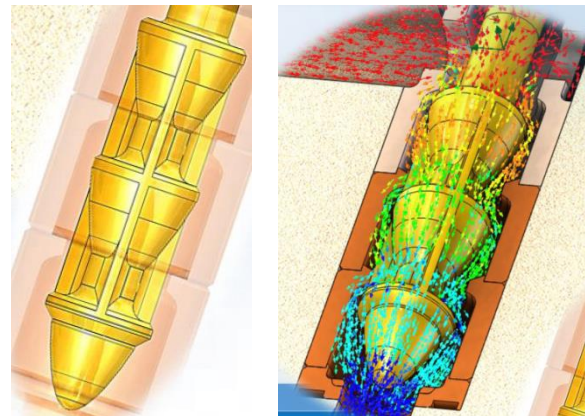
Trim Design: Axial Flow

- Angle or Globe body type
- \leq ASME Class 4500 (PN640)
- High Cv values (1 to 3000)
- Large outlet chamber to reduce velocities
- True Equal Percentage characteristics
- Cast or single-block forged body available
- Quick-Change trim
- Cavitation elimination
- Pressure reduction method:
 - Expansion
 - Contraction
 - Directional change
 - Flow area increase
- Guiding along entire length of plug
- Stages throttle together
- Large flow passages - the size of particle which is allowed to pass will depend on the distance the seating surface is away from the seat. The larger the valve, the larger the trim, which means a greater distance between seating surfaces, which in turn dictates the size of the particle which is allowed to pass
- Effective for contaminated flows
- Up to 8 stages of pressure reduction
- Protected seats - as the seating angle tends to be on the high-pressure side, there is less chance of cavitation occurring
- Shut-off up to Class VI with soft-seat sealing and up to Class V with metal-to-metal sealing can be achieved. Alternatively, testing to MSS-SP-61 (Manufacturers Standardization Society Standard Practice) can be considered.

74MB trim, Under-the-plug flow



74MC trim, Over-the-plug flow



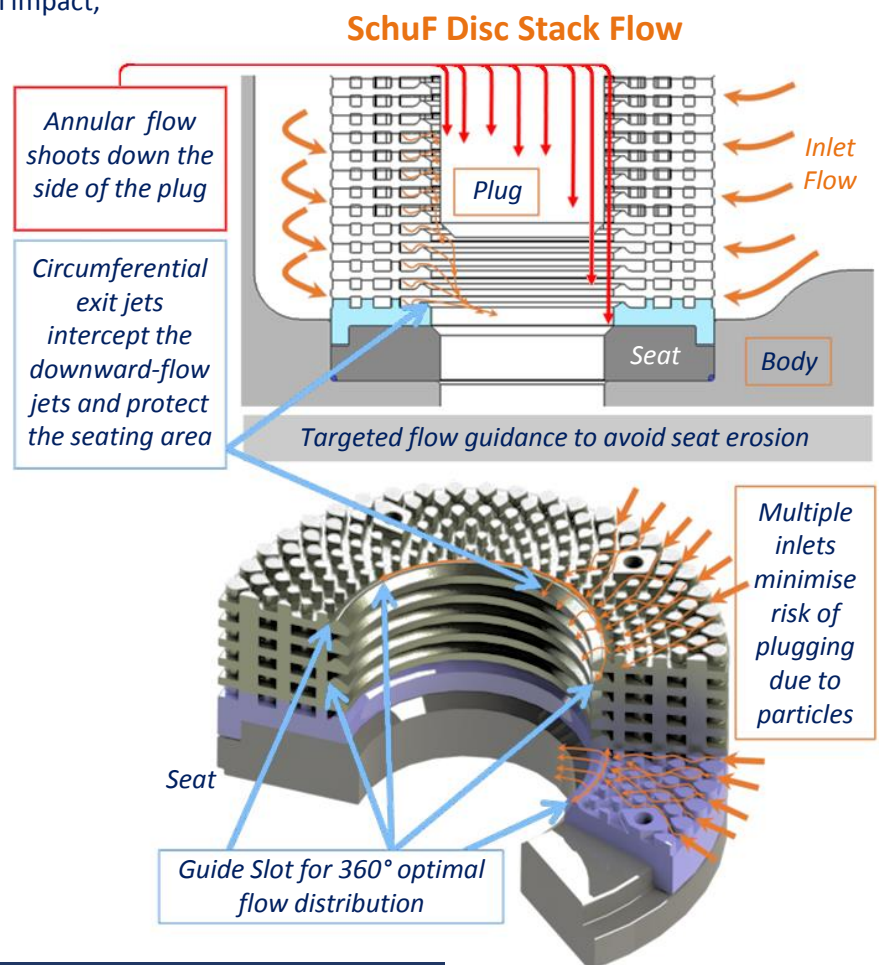
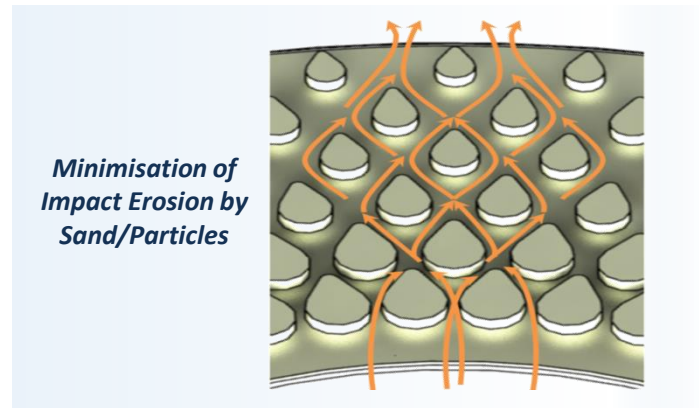
Velocity/Pressure Analysis ensuring optimized design

Valve Size		Available trim Cv for Multi Stage Trims			
in	mm				
1	25				
1,5	40				
2	50	35			
3	80	70			
4	100	200			
6	150	300			
8	200	400			
10	250	600			
12	300	900			
14	350	1200			
16	400	1500			
18	450	2000			
20	500				3000

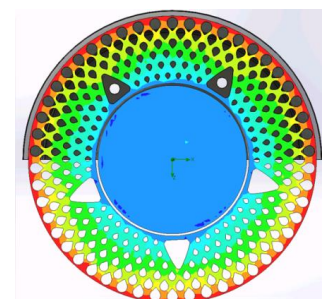
Trim Design : Patented SchuF disk stack technology can be installed in any body shape

Features of *Tortuous Path* design:

- No recirculation zones
 - Reducing particle erosion and clogging
- Pressure Reduction Strategies
 - Largest passage friction
 - Contraction
 - Expansion
 - Fluid impact on itself
 - Change of direction
 - 90° turns without metal sharp corners
 - Expanding flow passage to reduce velocity
- Minimised fluid “angle of attack” material impact, reduces particle/sand impact erosion
- Fluid Pressure and Velocity calculations (CFD) are completed to ensure static pressure never drops below the fluid vapor pressure:
 - Eliminating cavitation, vibration
 - Reducing noise/erosion
 - Eliminating hydrate and condensate formation
- The circumferential-passage exit-flow intercepts the downward annular flow.
 - This protects the seating area from high-velocity impingement erosion.
 - The 360° Guide-Slot allows flow to spread around the outside diameter of the plug circumference. This circumferential flow
 - Helps to centre the plug and reduce risk of plug lateral vibration and/or instability
 - Intercepts all of the downward annular flow and redirects it to the centre of the seat-ring flow area.



Valve Size		Available trim Cv for Stacker Trims
In	mm	
1	25	
1.5	40	
2	50	10
3	80	20
4	100	50
6	150	100
8	200	150
10	250	200
12	300	250
14	350	350
16	400	500
18	450	700
20	500	1000



Type 70 Liquid-Throttling Service

Disk stack technology valve solutions

Angle-Type 70SC
with Manual
Hand-wheel



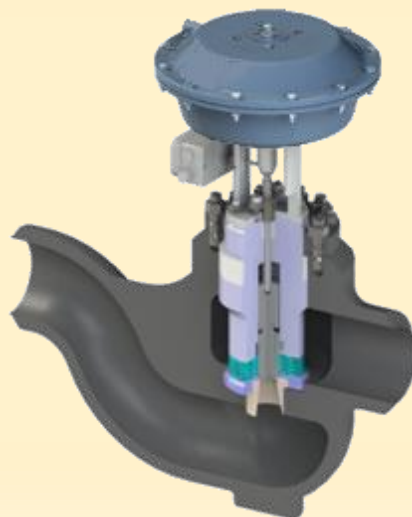
Z-Type Body
70GA with Electro-
Mechanical
Actuator &
Manual Hand-
wheel



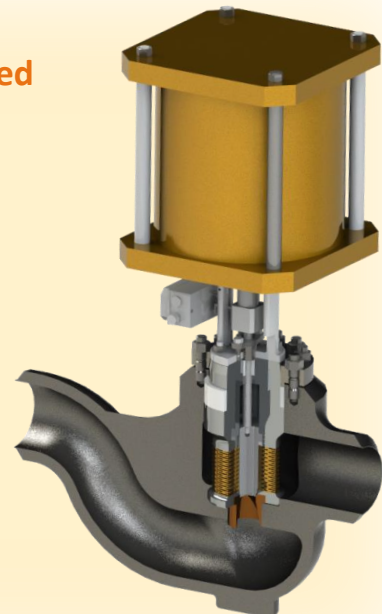
Globe Model 70CG with
various actuator designs installed



Double Acting Piston Actuator
with Manual hand-wheel



Diaphragm actuator for
shorter strokes



Double Acting Piston
Actuator for longer strokes

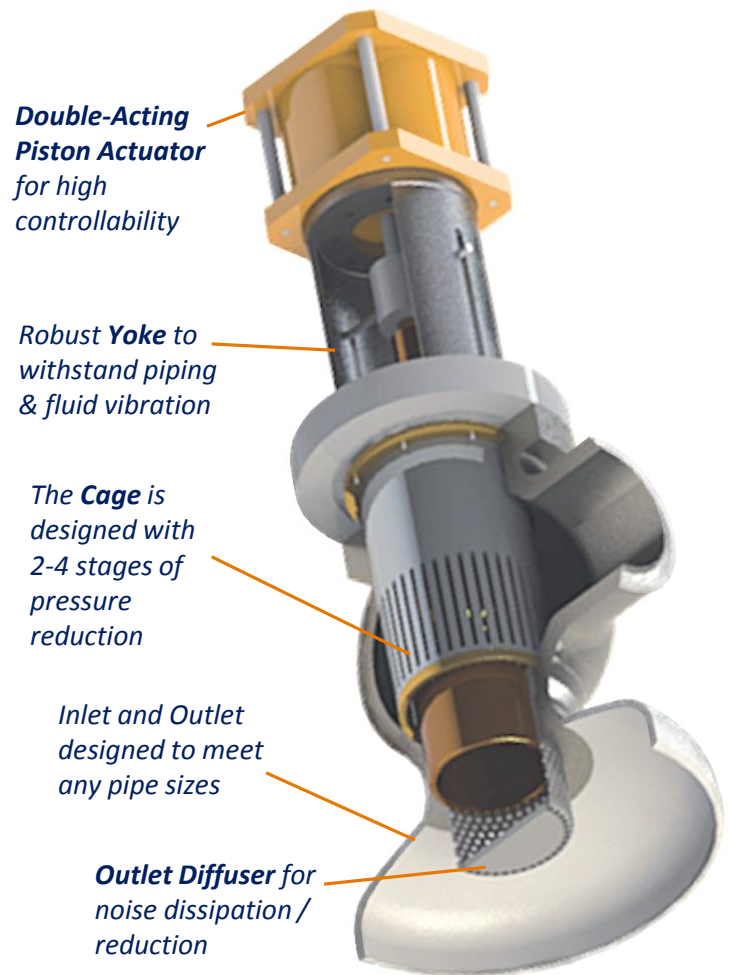
Valve Details

- Size 1.2"(Din 15) up to 24(Din 600) inches
- 4500 ASME (PN640) & API 15k
- Trim options: 3-Stage Cage, Axial flow & Disk-stack >30 stages available
- Flanges: Threaded, BWE, RF, & RTJ
- Actuators and positioners as per client request
- Shut-off up to Class VI with soft-seat and Class V with metal-to-metal
- Actuator & positioners as per client request

Type 27DR

Steam Application Solution

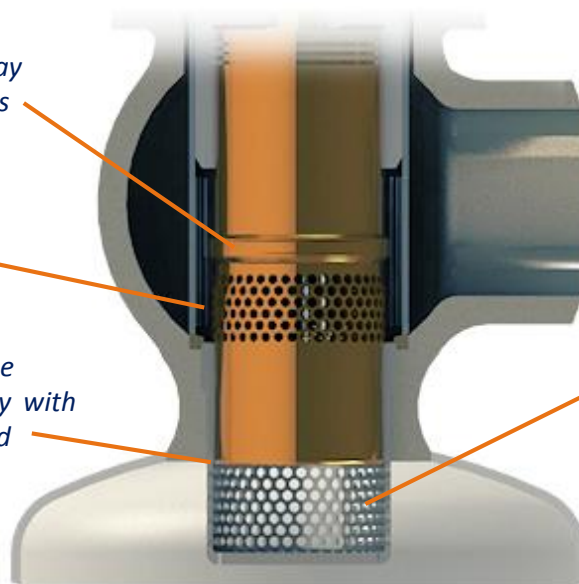
- **One-piece Plug/Cage** for improved resistance against vibration compared to a 2-piece plug-stem
- **One-piece Body**, no welded flanges
- **Replaceable Seat** and **Pressure-Reduction Cages** compressed securely between flanges.
- **Class V shut-off**
- Designs for **All Steam Pressure-Reduction Applications**
- Angle body, flow-to-close (a.k.a. *over-the-plug* flow)
- Pipe connection is **butt-welded** or **flanged**
- **Actuation:** Pneumatic, hydraulic or electro-mechanical
- Options: **Transition Pieces** for large pipe diameters and material compatibility
- Options: **Pre-Warming** and **Drain** connections available upon request
- **Multi-Stage Cage** or **Disc-Stack** available
- Can also be supplied with a flange at the **outlet** where the trim is exchanged through the outlet instead of through the **bonnet**.
- **Body internal/external contours fully machined** to ensure **smooth transition** for **reduced thermal stress, resistance to thermal shock and fatigue**



Seating surface away from throttling holes

Flow Area

The Plug bottom edge strokes proportionally with regard to the exposed throttling holes



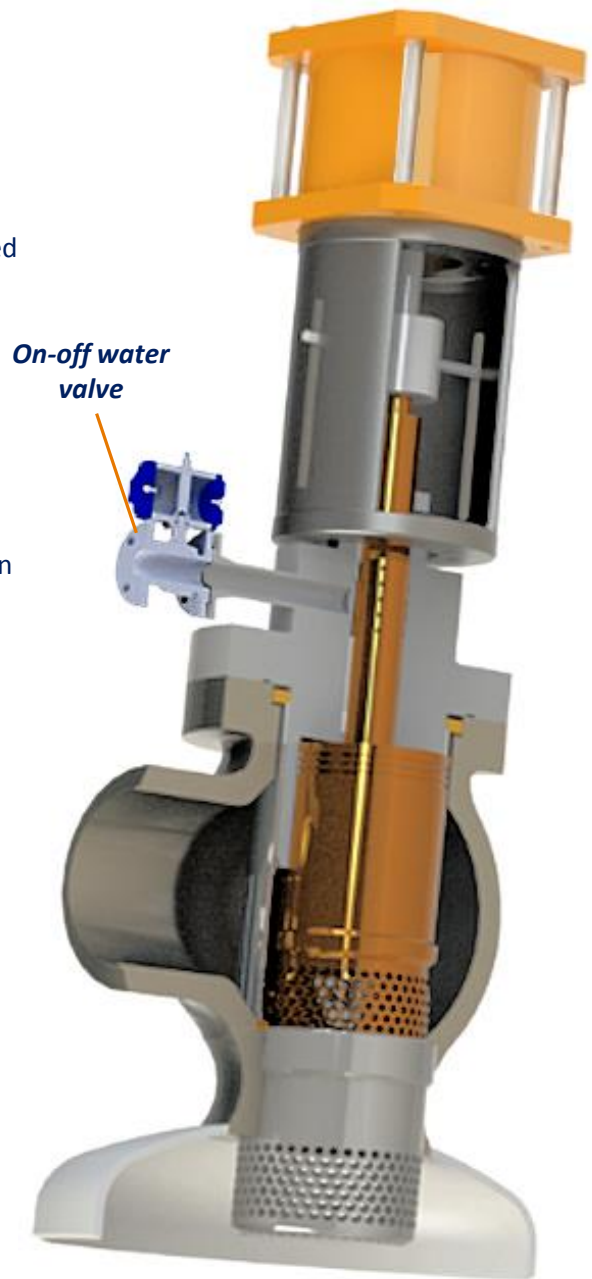
The Diffuser Holes take into consideration the attributes of the expanded steam

- Up to **Four-Stage Cage** or **Disk Stack** (>24 stages) with a **Proportional Diffuser** controlling steam expansion can be supplied
- +3 **Outlet Cages** are possible for sound control
- The **Seat is not welded to the body**, so the **Seat** can be removed easily for inspection
- **Plug-Cage Holes/Passages** are **away from seating surface** for **better sealing** compared to plug designs with no holes. Any erosion due to condensed steam could damage the holes, but here the **Seating/Sealing angle face is protected**.

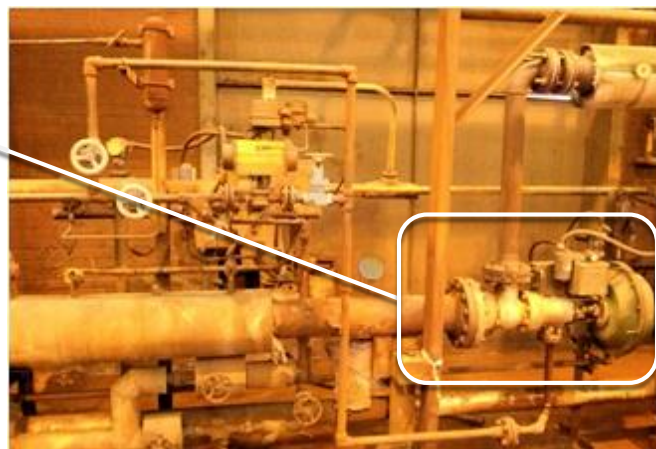
Type 27DU

Steam Desuperheating Application

- **One-piece Plug-Cage** for improved resistance against **vibration** compared to a 2 piece plug-stem
- **One-piece Body**, no welded flanges
- **Replaceable Seat** and **Pressure Reduction Cages** compressed securely between flanges.
- **Class V shut-off**
- Design for all **Steam Pressure-Reduction Applications**
- Angle body, flow-to-close (a.k.a. over-the-plug flow)
- Pipe connection is **butt-welded** or **flanged**
- **Actuation:** Pneumatic, hydraulic or electro-mechanical
- Options: **Transition Pieces** for large pipe diameters and material compatibility
- Options: **Pre-Warming** and **Drain** connections available upon request
- **Multi-Stage Cage** or **Disc-Stack** available
- Can also be supplied with a flange at the **outlet** where the trim is exchanged through the outlet instead of through the **Bonnet**.
- **Controlled Water Injection** through the **stem** to control steam temperature



Replaceable seat outlet flange available similar to 27DR model



Type 27DS

Steam Desuperheating/Attemperation Application

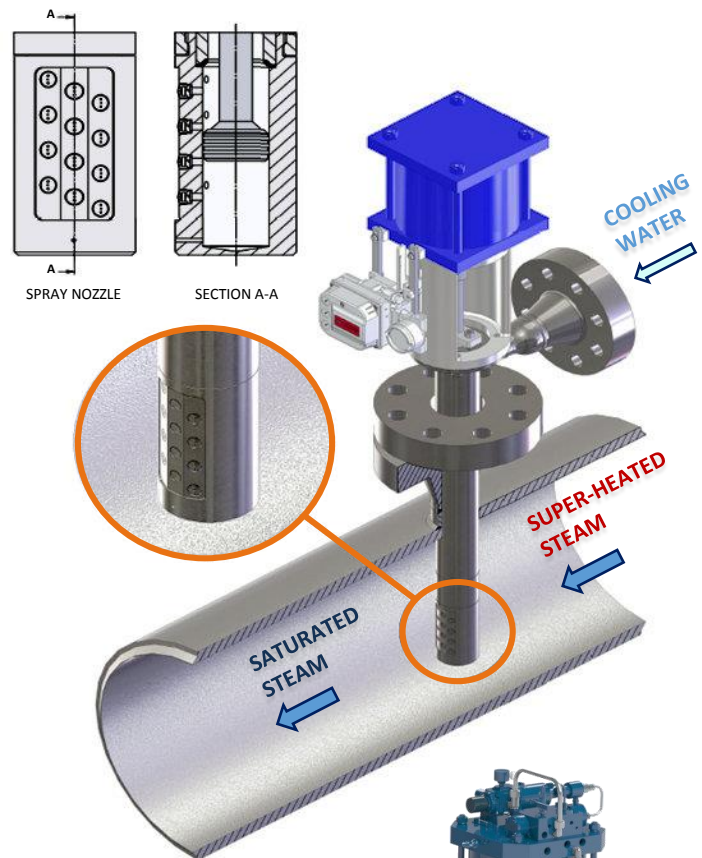
This is the SchuF basic design, and can be a **standalone installation** in a steam pipe. This would be used in **interstage attemperation** where no steam pressure reduction is needed.

It can also be used after our **27DR Model** where steam pressure reduction is required.

The typical nozzle diameter of each hole is 0.5 to 1 mm, and smaller sizes are possible.

Features:

- **Counterflow Nozzles** designed to ensure atomisation with a **delta P as low as one bar**.
- **Valve Cv from 0.05 to 15** with 3,4,6,8,9 or 12 nozzles in the spray head.
- **Nozzles are staggered, for linear flow characterisation**.
- **Piston Sealing Rings** are titanium-nitrided for better sealing and smoother running.
- **Graphite Packing and nitrided Spindle** ensure perfect, leak-free sealing to the outside while maintaining the **low packing friction** important for **good control**.
- **Special materials available** for non water/steam applications.
- Available with **Pneumatic Diaphragm** or **Piston Actuator, Air Motor, Hydraulic** or **Electric Actuators**. **Intelligent** or **standard positioners** as per customer preference.



A **Type 27DS** Valve is shown here being used for water injection in a steam pipe. It is installed (on the right) after a **Type 27DR** Steam Pressure Reduction Valve (on the left)

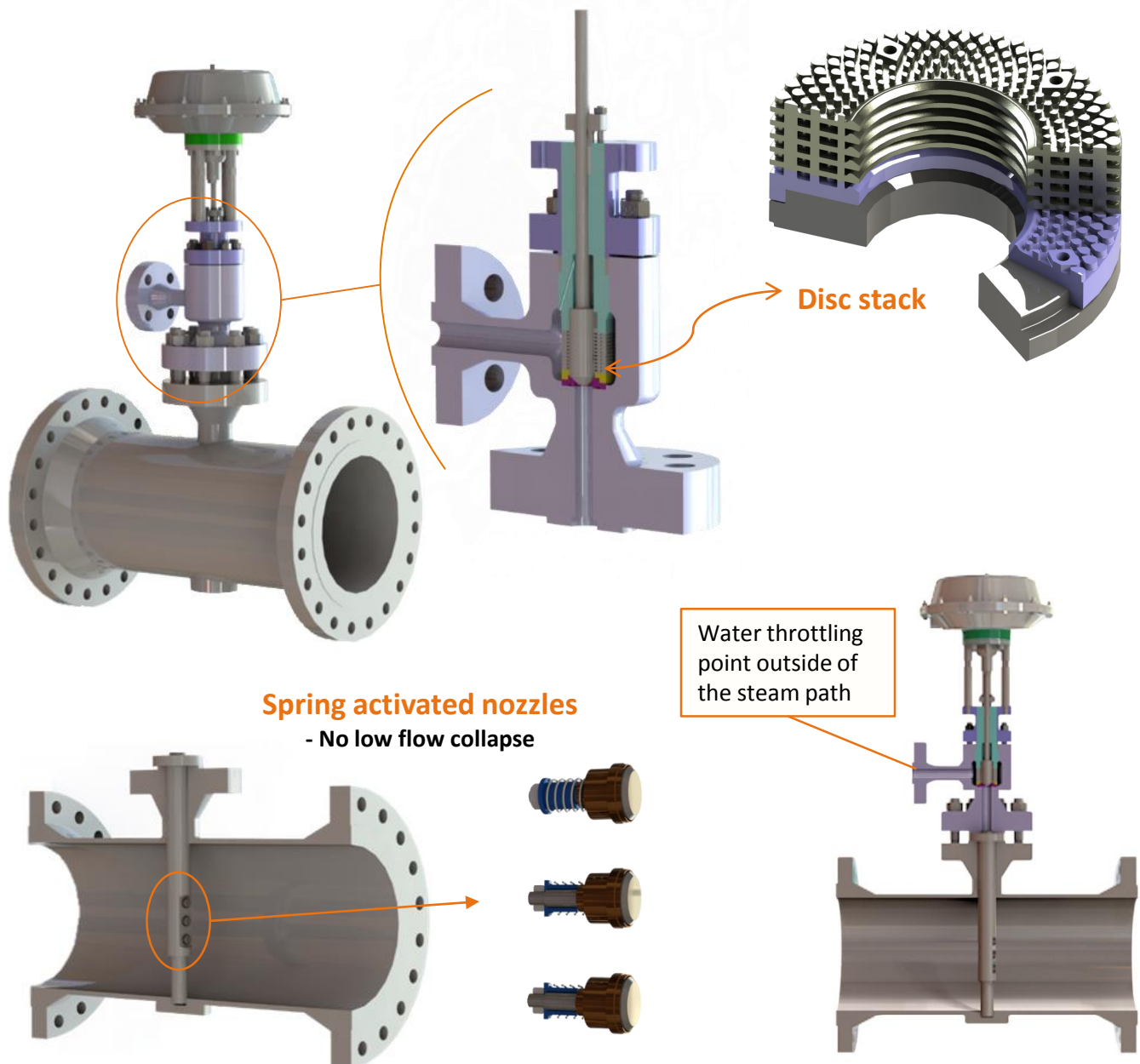
Type 27DC

Steam Desuperheating / Attemperation Application Disc-Stack design with spring-loaded spray nozzles

This design is used when the client needs better **attemperation**. In these applications, **spring-loaded nozzles** provide the solution.

The nozzles are spring-loaded to allow them to open according to a pressure controlled by the water control valve. This design will optimize the water injection velocity. The spring ensures that the nozzle opens to the absolute minimum opening, therefore providing the highest injection exit velocity- and this in turn increases the chances of the droplets breaking up at a faster rate, resulting in the formation of smaller droplet diameters more quickly.

The water throttling point is also moved away from **inside** the steam path (inside the probe) to **outside** of the steam path- therefore creating a reduced risk of **thermal shock** on the **Cage (or Disk-Stack), Plug and Seat Ring** (i.e. Seating surfaces).

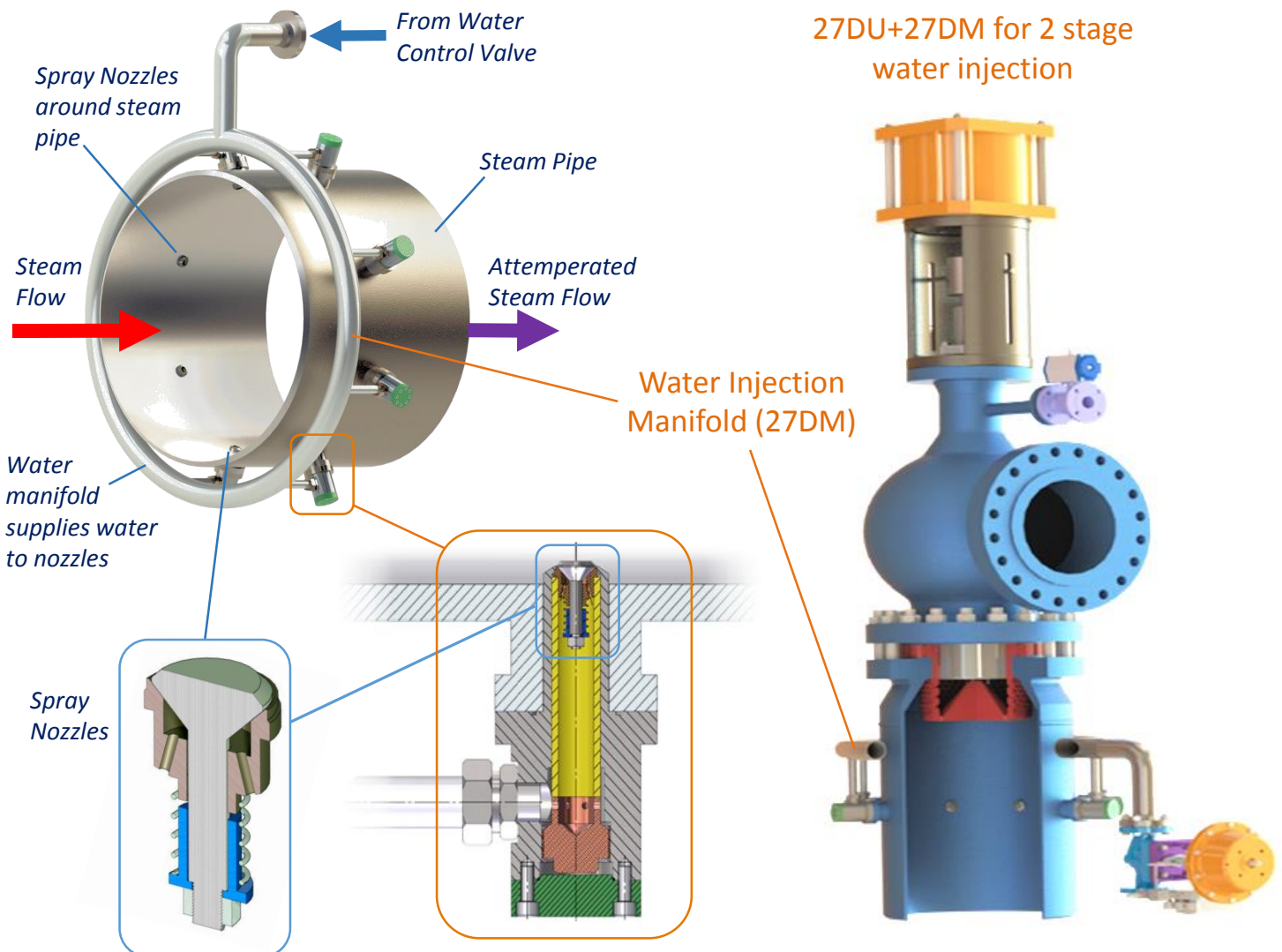


27DM

Water Injection Manifold with Spring-Loaded Nozzles

Steam Desuperheating / Attemperation Application

In order to improve on the **desuperheating** performance even further, we can install our **Manifold-style design**. This design has a **Manifold** around the steam pipe. Part of the water injection angle will be against the steam flow, therefore increasing the net impact vector between the water and steam flow, which means **more of the droplets will be reduced in size more quickly**. The steam itself will break up the water droplets at a much faster rate compared to a traditional probe-style design.



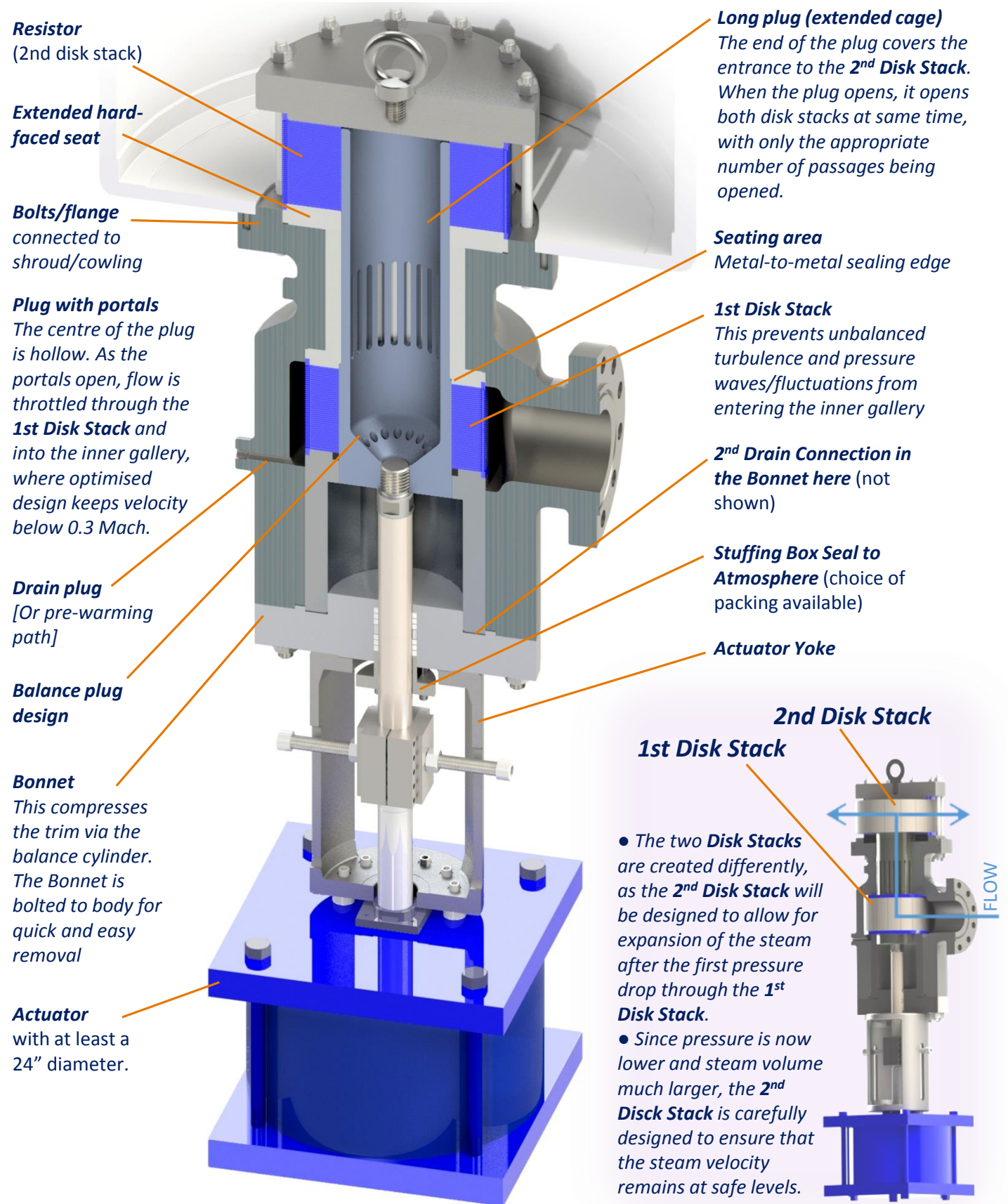
Existing designs often include the welding of the water manifold assembly to the steam pipe shown above. If there is damage to the nozzle-holder, the complete assembly, including the steam pipe section, has to be cut out. Next, the water manifold is repaired and then re-welded back into the steam pipe section. This steam pipe section is subsequently welded back into the main steam pipe.

In contrast, the SchuF design has a '**Replaceable Nozzle Holder**' Body. In this design, the holder body can be removed and replaced/repared, providing huge savings in maintenance costs over the welded version. SchuF can also supply a welded water manifold design if requested.

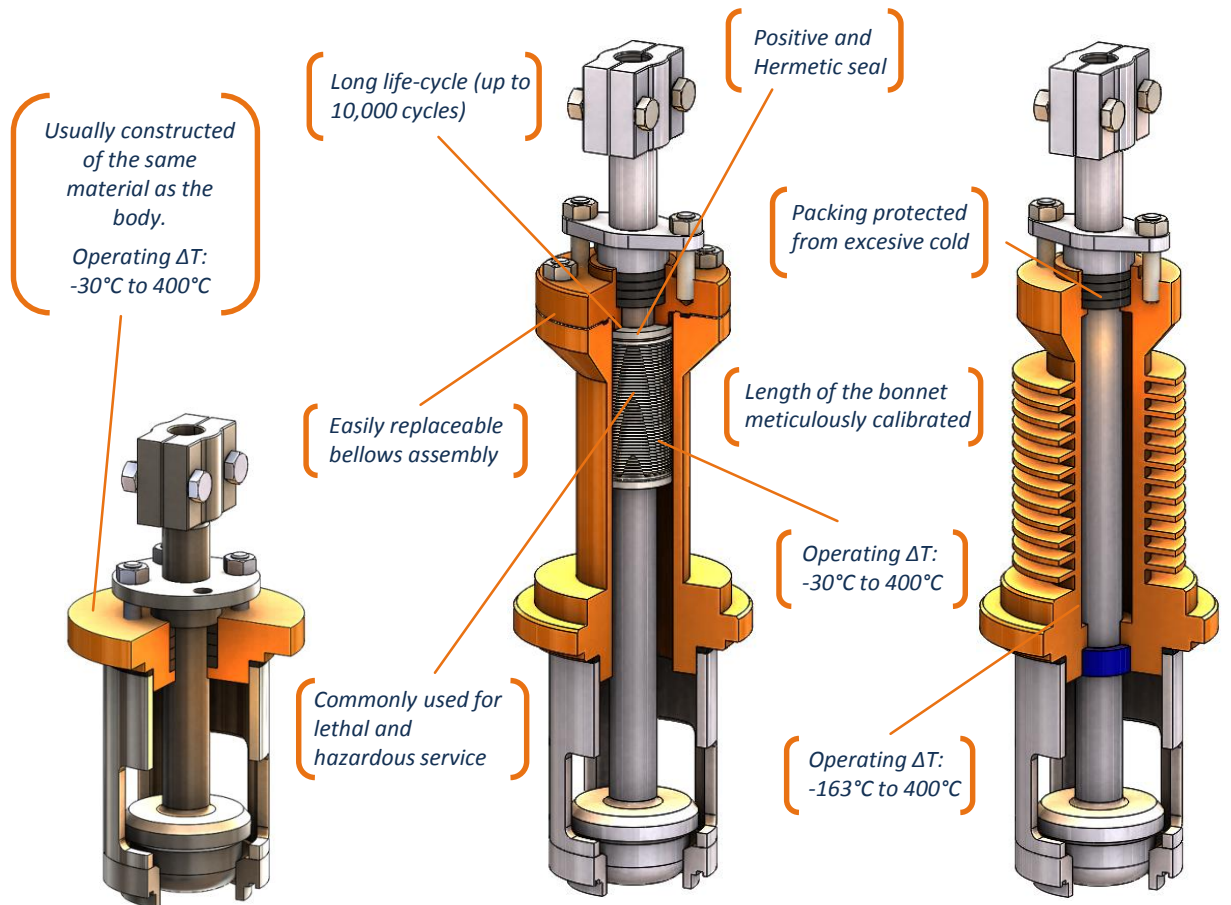
Type 27SV

Sky valve (Steam Vent)

Noise & vibration reduction using a double disk-stack solution



Bonnet & Packing Arrangements



Standard Bonnet

Bellows Bonnet

Cryogenic Bonnet

Standard packing and Chevron rings available, spring-loading and test connections on request

Control Globe Valve Actuators



Pneumatic



Hydraulic



Electric



Manual

Materials of Construction 70SC & 70GA, 74KS/MB/MC

Globe, Angle & Z Control Body & Bonnet Materials for liquid applications					
Pressure Rating	Standard ASME 150 to ASME 4500 Other Pressure applications are possible				
Temperature Rating	Standard -29°C to 593°C Other temperature applications are possible				
Shut-Off Class	ANSI/FCI 70-2 Class V/ Class VI Available API 598 / EN1022-1				
Trim Material	STANDARD	STAINLESS	TITANIUM	ALLOYS	SPECIALS
Recommended Service	-	<i>Corrosive</i>	<i>Highly Corrosive</i>	<i>Highly Corrosive</i>	<i>Abrasive</i>
Body	Carbon Steel ●DIN 1.0619 ●A216 (WCB)	Duplex ●DIN 1.4462 / A479 (S31803) Stainless Steel ●DIN 1.4401 / A182 (316) DIN 1.4404 / A182 (316L) ●DIN1.4552 / A351 (CF8C)	Titanium Grade 2	●Hastalloy® ●Incolloy® ●Inconel® ●Monel®	Cladded with Alloy Steel
Trim	Carbon Steel ●DIN 1.0619 ●A216 (WCB) Stainless Steel ●DIN 1.4401 / A182 (316L) ●DIN 1.4404 / A182 (316L) ●DIN 1.4541 / A182 (321) DIN 1.4550 / A182 (347)	Duplex ●DIN 1.4462/A479 (S31803) Stainless Steel ●DIN 1.4401 / A182 (316) DIN 1.4404 / A182 (316L) ●DIN1.4541 / A182 (347) ●Nitronic	Titanium Grade 2 or 5	●Hastalloy® ●Incolloy® ●Monel® ●Inconel®	Cladded with Alloy Steel Ceramic Tungsten Carbide Proprietary coatings

Bold text above: Materials used in water applications

Materials of Construction Type 27DR, 27DU, 27SV, 27DS* & 27DC*

Body	Plug / Stem Cage	Outlet Cage	Seat
A182 F22/A217WC9 (<540°C/1005°F)	X19CrMoV121, A182-F22 with Stellite & 10CrMo910 (<540°C/1005°F)	10CrMo910/A182-F22 (<600°C/1132°F)	10CrMo910, A182-F22 with Stellite (<540°C/1005°F)
A182 F91/A217 C12A (540-600°C/1005°-1132°F)	Inconel 718, X20CrMoV121 (540-600°C/1005°-1132°F)		X20CrMoV121 (540-600°C/1005°-1132°F)
		*27DS & 27DC Nozzle housing (probe) into steam pipe A182 F22/F91	

Water injection manifold (27DM)

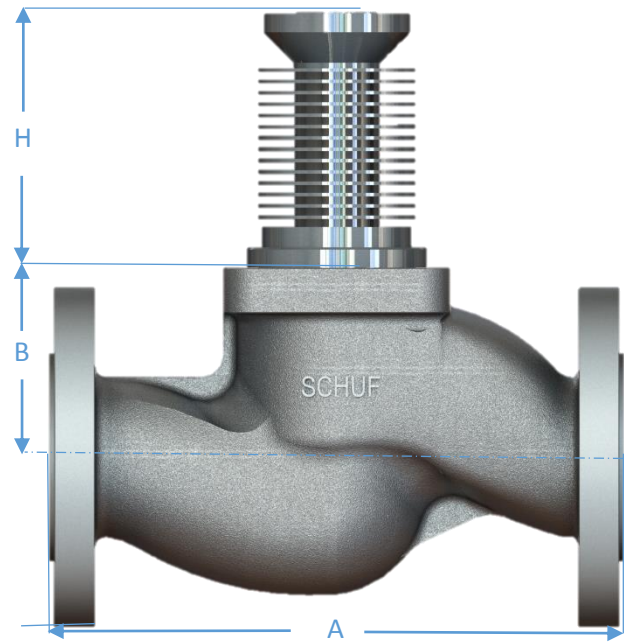
Nozzle Plug	Spring	Nozzle body	Steam pipe / liner	Water pipes
X19CrMoVNb11.1	Heat-resistant spring steel, NIMONIC 90 (Boiler applications)	X19CrMoVNb11.1, AISI 616	10CrMo910, A335-P11/A182-F11, A335-P22/A182-F22, 13CrMo44, A335-P12, St35.8 (A105) or A335-P91/A-182 F91	13CrMo44, A335-P12 or St35.8 (A105)
Pressure Class	Steam pipe sizes	Water pipe sizes	Ratings	
ASME 150-2500, PN 16-320	6" to 44" (DN150 to DN1100)	1" to 6" (DN025 to DN150)	ASME B31.1, ASME VIII Div I, Job-rated, ASME 1500 (PN250)	

Globe Control Valve Standard Dimensions

¹ Additional sizes, connections, and configurations are available upon request; dimensions are subject to change.

² Threaded, BWE, RF, RTJ, API, BX, and PE connections are available for all sizes and configurations.

³ ASME RF flanged dimensions are shown. Threaded, BWE, RTJ and ISO flanged dimensions are available upon request.



ASME/ANSI RF Flanged Globe Control Valve Dimensions¹²

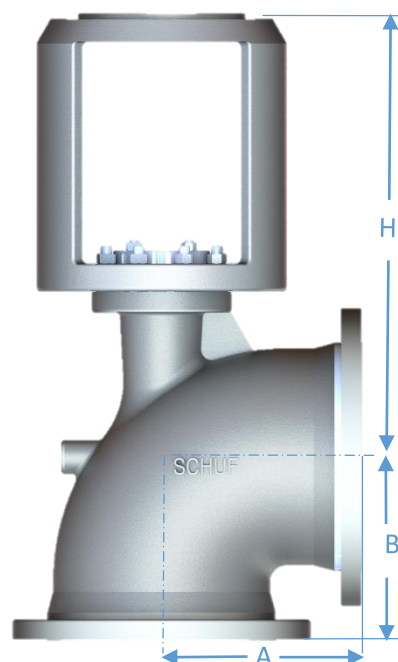
Body Size (Din)	A/B (mm) ³						B (mm)	H (mm)	
	Integral Flange							Std. Bonnet	Ext. Bonnet
	Class 150 PN10/16	Class 300 PN25/40	Class 600 PN100	Class 900 PN100	Class 1500 PN	Class 2500 PN100			
½" (15)	108	140	165	216	-	264	38	97	212
¾" (20)	117	152	190	229	229	273	38	97	212
1" (25)	127	165	216	254	254	308	44	97	212
1½" (40)	165	190	241	305	305	384	59	132	246
2" (50)	203	216	292	368	368	451	59	138	252
3" (80)	241	282	356	381	470	578	86	172	312
4" (100)	292	305	432	457	546	673	133	214	354
6" (150)	406	403	559	610	705	914	146	311	451
8" (200)	495	419	660	737	832	1022	190	365	505
10" (250)	622	457	787	838	991	1270	227	359	524
12" (300)	698	502	838	965	1130	1422	318	413	578
14" (350)	787	762	889	1029	1257	-	330	622	908
16" (400)	914	838	991	1130	1384	-	400	721	1013
18" (450)	978	914	1092	1219	1537	-	407	714	1020
20" (500)	978	991	1194	1321	1664	-	489	902	1082
24" (600)	1295	1143	1397	1549	1943	-	508	864	1180

Angle Control Valve Standard Dimensions

¹ Additional sizes, connections, and configurations are available upon request; dimensions are subject to change.

² Threaded, BWE, RF, RTJ, API, BX, and PE connections are available for all sizes and configurations.

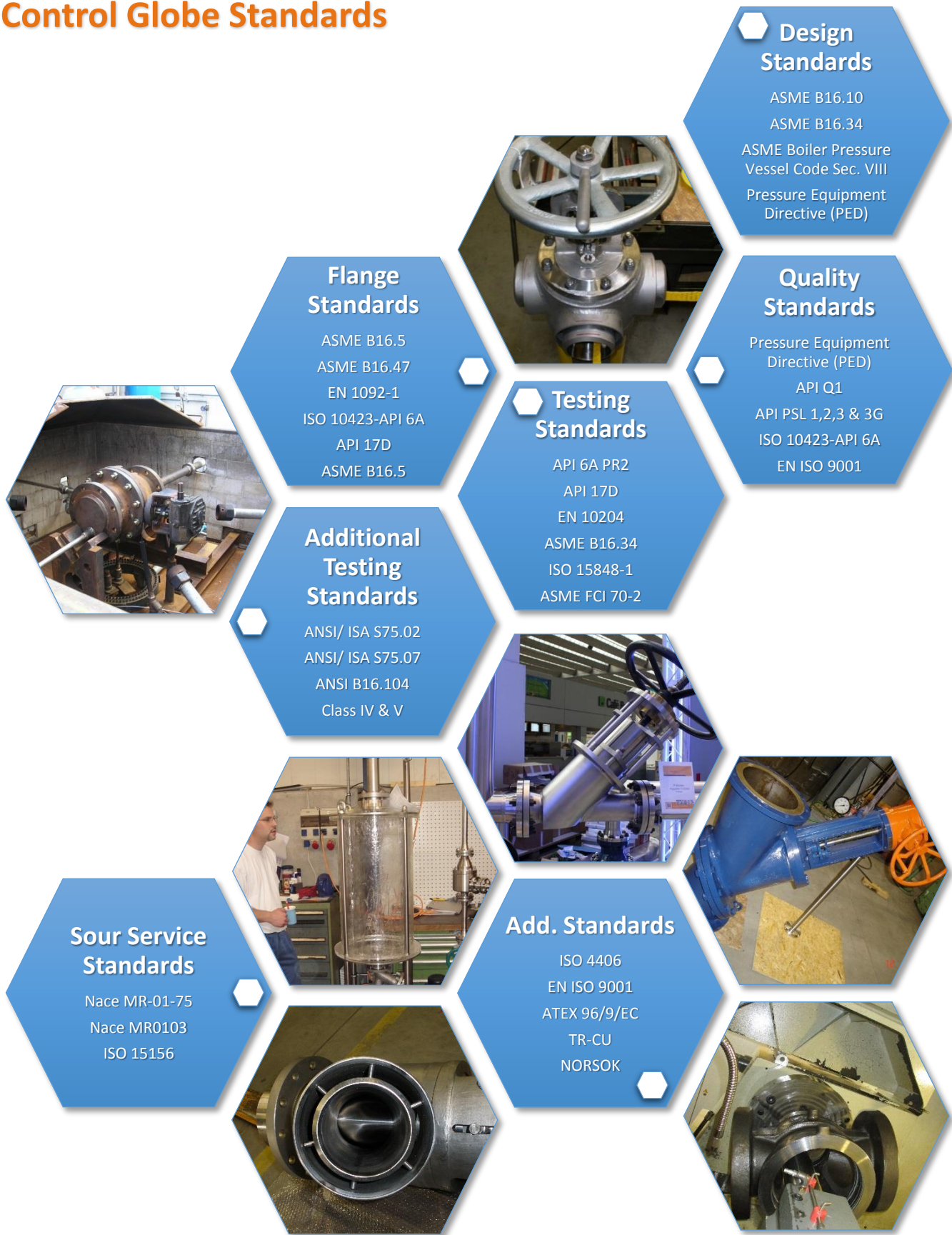
³ ASME RF flanged dimensions are shown. Threaded, BWE, RTJ and ISO flanged dimensions are available upon request.



ASME/ANSI RF Flanged Angle Control Valve Dimensions¹²

Body Size (Din)	A/B (mm) ³						H (mm)
	Integral Flange						
	Class 150 PN10/16	Class 300 PN25/40	Class 600 PN100	Class 900 PN100	Class 1500 PN	Class 2500 PN100	
½" (15)	51	76	83	-	108	132	229
¾" (20)	57	89	95	114	114	137	234
1" (25)	70	102	108	127	127	154	251
1½" (40)	83	114	121	152	152	192	324
2" (50)	102	133	146	184	184	226	364
3" (80)	121	159	178	190	235	289	461
4" (100)	146	178	216	178	273	337	551
6" (150)	203	222	279	305	353	457	768
8" (200)	248	279	330	368	416	511	876
10" (250)	311	311	394	419	495	635	994
12" (300)	349	356	419	483	565	711	1124
14" (350)	394	457	490	514	629	-	-
16" (400)	457	536	555	660	-	-	-
18" (450)	536	605	627	737	-	-	-
20" (500)	605	627	763	826	-	-	-
24" (600)	694	770	801	991	-	-	-

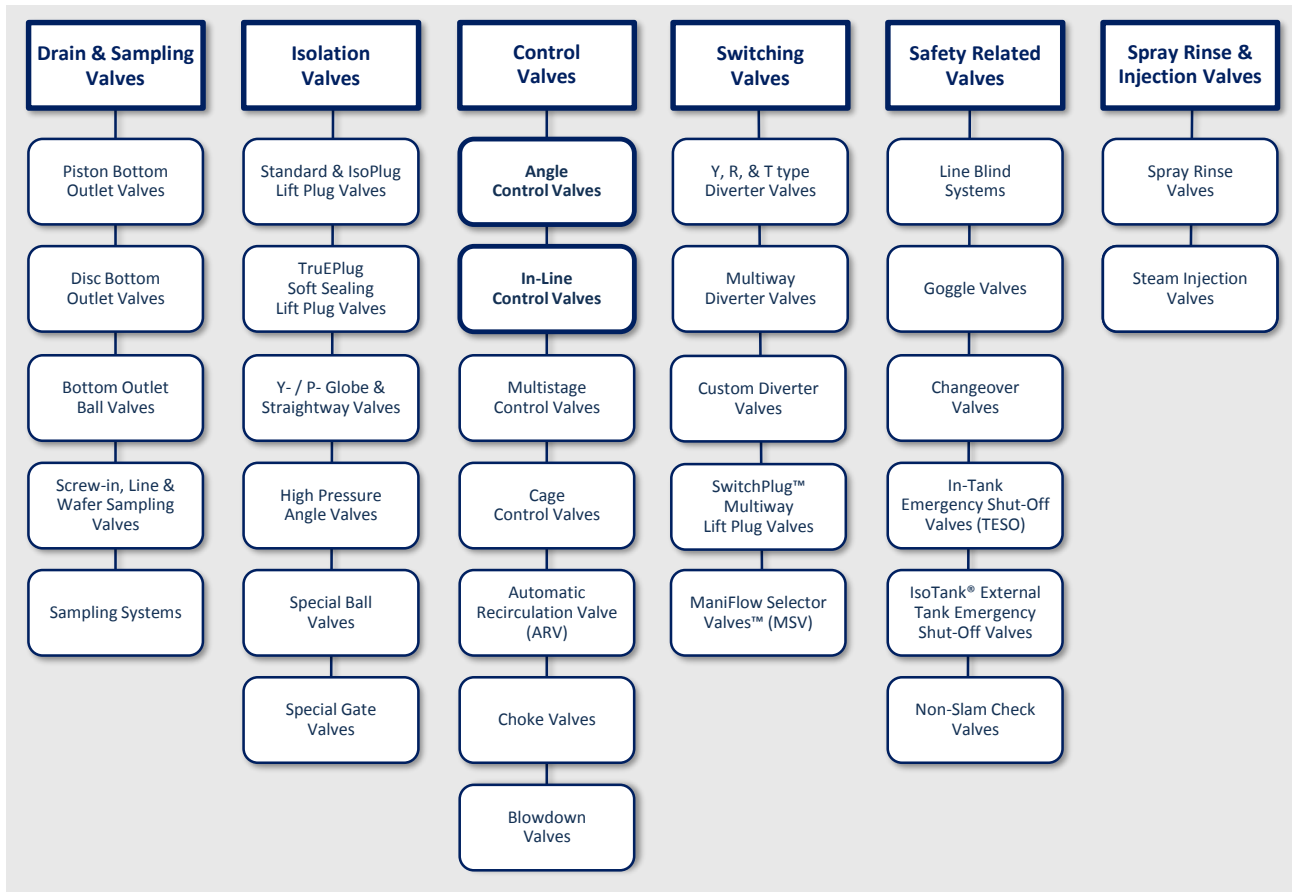
Control Globe Standards



Product Portfolio Overview

The SchuF Group has delivered over one million valves during its 100 year history, to a wide variety of industries in over 50 countries worldwide. Headquartered near Frankfurt, Germany, the company has additional design and manufacturing centres in India, Ireland, Italy, UK, and the USA.

The SchuF Group has sales and agent offices servicing virtually every country in the world. We manufacture valve products that control, isolate, divert, and sample liquids, gases, powders, and slurries. Our extensive product range of engineered, customized valves includes:



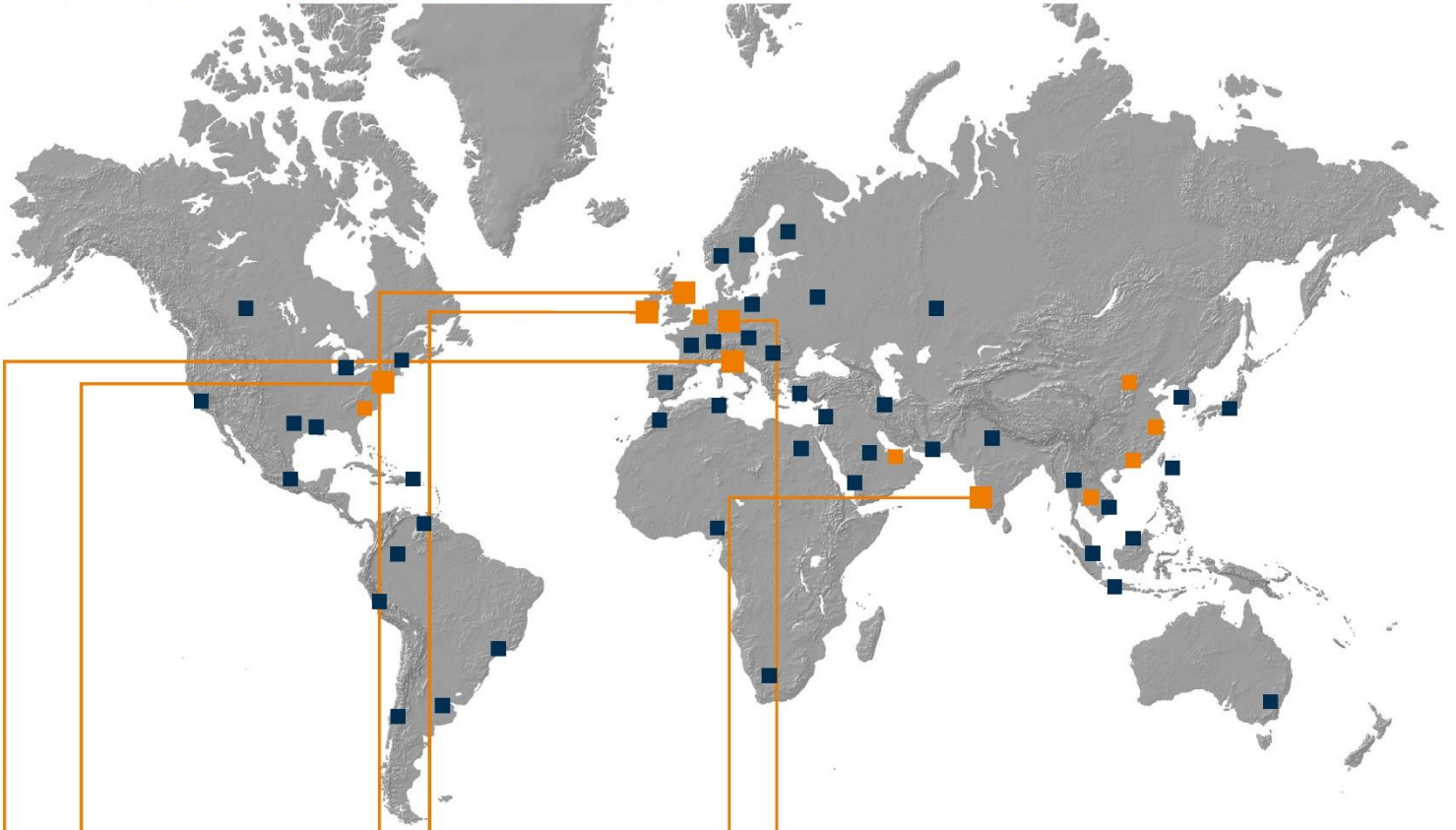
Control Valve Client List:

- Aluminium Pechiney
- Auriga Polymers
- BASF
- CEPSA
- Chang Chun Petrochemical
- China Textile
- CTCI Corp.
- Formosa Chemicals & Fibre Corp.
- Far Eastern New Century Corp.
- Hengli Petrochemical
- Hebi Huashi United Energy
- Ignite Energy Resources
- Jiangsu HAILUN Petrochemical
- KBR Technology
- Lenzing AG
- Lurgi GmbH
- Nanjing Chemical
- OPTC
- Reliance Industries
- Renmatix
- SABIC Innovative Plastics
- Samsung Petrochemical
- Technip
- Uhde-Inventa-Fischer GmbH



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