



## PHOENIX & STRACK Inspired by tradition, driven by innovation

Leaders in designing and manufacturing highly engineered valves for the commercial nuclear power industry, oil & gas processing facilities, and globally recognized for providing solutions to numerous other industries.

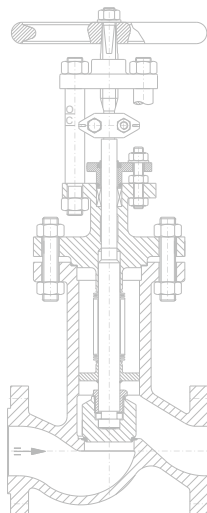
Two brands able to cover a complete range of high quality products providing long lasting safety and reliability in chemical plants, refineries and power plants. Worldwide, they supply valves complying with the most demanding and strict requirements, as well as offering really valuable pre & post-sales technical advices.

Our mission begins with the deep understanding of customer needs and develops through a genuine passion aimed at always finding the most suitable solutions. Over a century of technical expertise led us to embrace the highest quality standards driven by innovation.

### Two brands, one DNA

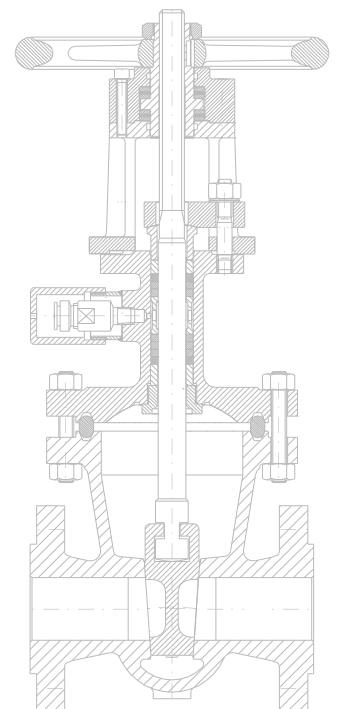
#### Phoenix Armaturenwerke GmbH

Founded in 1910 as a small company, is today a leading manufacturer of specialty valves. Phoenix bellows sealed globe valves have been used worldwide for over 70 years for critical media in the chemical industry and have – due to design and quality – substantially contributed to the improvement of air quality.



#### Strack Armaturenwerke GmbH

Founded in 1922, has become a well-known manufacturer of high quality valves conforming to all design standards. Strack manufactures a wide products portfolio for HF acid service, keeps maintaining its production line of high pressure valves as well as plug valves, serving sophisticated niche markets.







## Certificates and Approvals

### Management System

- ISO 9001:2015
- PED 2014/68/EU CE0525)
- PE(S)R 2016 (UKCA0038)
- 2010/35/EC TPED
- AD 2000 HPO
- 94/9/EC ATEX

### Industrial Applications

- ASME BPVC Sec VIII Div 1 & 2, Design
- ASME Pressure Piping (PP), ASME Steam Boiler (S), National Board Registered
- API 600, API 6D, ANSI N45.2, Lloyds DOT Rule 54 Appendix D
- EPA Method 21 (Gland Emissions), TA- Luft approved
- ISO 15848-1 Approval
- Fire Safe (API 607 6FA, BS 6755-2 and ISO 10497)
- AAR Class-F Registration
- SIL approved designs

### Nuclear Applications

- AWS-CWI
- Certified Welders to ASME, BPVC, Section-IX, PMI Program
- Manufacturer approval: Framatome acc. to ISO 19443:2018, QN-100 GEN Rev. B/C
- STUK/TVO/Areva, KTA 1401 HAF 604, VdTÜV 100, WB 35

### Country Approvals and Product Lines



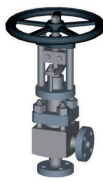

- UOP
- Euro Chlor GEST 17/492
- Manufacturer License China, CSQI China, TÜV Nord
- CSA Z299 Canada, CSA N285.0 Canada














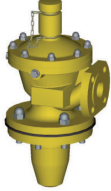

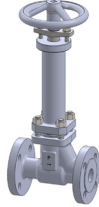

## Product Lines

Bellow Seal Globe Valves for chemical & other industrial application	p. 4
Euro Chlor Approved Bellow Seal Globe Valves	p. 5
Pneumatic Piston & Diaphragm actuated Euro Chlor Approved Bellow Seal Globe Valves	p. 5
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Basket type Strainers / Y-Type Strainers	p. 6-7
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Cryogenic Globe Valves with stuffing box seal & superlong bellows	p. 8
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Nuclear Lines of Pressure Gauge Valves	p. 10-11
Manifolds with 3 and 5 Valves	p. 12





Type	350	390	355 HS / 431 HS	834
<b>Design</b>				
<b>Description</b>	Globe valve with encapsulated superlong bellows and emergency gland	Globe valve with long flushed bellows and emergency gland	Globe valve with encapsulated superlong bellows and emergency gland or gland packed	Gate valve with encapsulated superlong bellows and emergency gland
<b>PN</b>	10 - 250	10 - 100	325	10 - 160
<b>DN</b>	15 - 500	15 - 400	6 - 120	15 - 800
<b>Class</b>	150 - 1500	150 - 300		150 - 900
<b>NPS</b>	1/2 - 20	1/2 - 16		1/2 - 30
<b>Temperature Rating</b>	-196°C up to +800°C	-196°C up to +450°C	196°C up to +800°C	-196°C up to +800°C
<b>Body Forms</b>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern Body</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern Body</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Other Special Alloys</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Threaded Flanges</li> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Lever</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Lever</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Gear Operator</li> <li>• Pneumatic</li> <li>• Electric</li> <li>• Lever</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Electric Actuator</li> </ul>
<b>Application</b>	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance	For highly toxic, aggressive, inflammable, volatile, polymerising and crystallising media under consideration of the material resistance	High pressure valves for the high pressure synthesis in the chemical industry (e.g. in urea and ammonia plant, hydro-hydrocarbons et.) under consideration of the material resistance	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance
<b>Approvals</b>	Fire safe VdTÜV Prototype WB 35 ISO 15848-1 AH TA-Luft 2021	Fire safe, TPED 2010/35/EU VdTÜV Prototype ISO 15848-1 AH TA-Luft 2021		Patented wedge design US, Europe, China Fire safe





Type	350 EC.4 / 14 and EC.5 / 15	350 EC.8 and EC.9	350 EC.16 and EC.17	359
<b>Design</b>				
<b>Description</b>	Globe valve for chlorine service with encapsulated superlong bellows in the body and one piece bonnet. EC.14 and EC.15: one piece stem design	Control valve for chlorine service with encapsulated superlong bellows in the body and one piece bonnet	Remotely operated shut-off valve for chlorine service with encapsulated superlong bellows in the body and one piece bonnet	Control valve with encapsulated superlong bellows and emergency gland
<b>PN</b>	40	40	40	10 - 250
<b>DN</b>	15 - 350	15 - 350	15 - 350	15 - 250
<b>Class</b>	300	300	300	150 - 1500
<b>NPS</b>	1/2 - 14	1/2 - 14	1/2 - 14	1/2 - 10
<b>Temperature Rating</b>	-40°C up to +120°C	-40°C up to +120°C	-40°C up to +120°C	-196°C up to +650°C
<b>Body Forms</b>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Angle Pattern Body</li> </ul>
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel - Low Temperature</li> <li>• Stainless Steel</li> <li>• Hastelloy</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - Low Temperature</li> <li>• Stainless Steel</li> <li>• Hastelloy</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - Low Temperature</li> <li>• Stainless Steel</li> <li>• Hastelloy</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Other Special Alloys</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Flanged ends</li> <li>• Other requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Lever Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>
<b>Application</b>	For liquid chlorine service and similar dangerous, toxic, aggressive and corrosive media (for example phosgene)	For liquid chlorine service and similar dangerous, toxic, aggressive and corrosive media (for example phosgene)	For liquid chlorine service and similar dangerous, toxic, aggressive and corrosive media (for example phosgene)	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance
<b>Approvals</b>	Euro Chlor approval 20/01 DGM 29823805.5 ISO 15848-1 AH TA-Luft 2021	Euro Chlor approval 20/02 SIL approved	Euro Chlor approval 20/08 SIL approved ISO 15848-1 AH TA-Luft 2021	Fire safe VdTÜV Prototype SIL approved





Type	320 / 370	320 B / 370 B	374 / 324	820
<b>Design</b>				
<b>Description</b>	Change-over-Valve with flushed superlong bellows and emergency gland or with stuffing box seal	Change-over-Valve with flushed superlong bellows and emergency gland or with stuffing box seal	3-Way Valve with encapsulated superlong bellows and emergency gland or with stuffing box seal	Strainer basket type with extremely huge filtrating area and low pressure drop
<b>PN</b>	10 - 400	10 - 40	10 - 160	10 - 40
<b>DN</b>	15 - 500	15 - 200	15 - 500	15 - 400
<b>Class</b>	150 - 2500	150 - 300	150 - 900	150 - 300
<b>NPS</b>	1/2 - 20	1/2 - 8	1/2 - 20	1/2 - 16
<b>Temperature Rating</b>	-196°C up to +650°C	-196°C up to +650°C	-196°C up to +650°C	-196°C up to +450°C
<b>Body Forms</b>	• 3-Way Type	• 3-Way Type		• Straight Pattern Body
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Hastelloy</li> <li>• Other Special Alloys</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	
<b>Application</b>	Switch-over valve or in combination with safety valves for toxic, aggressive and inflammable gases and liquids, boiler and cooling water, saturated steam etc., under consideration of the material resistance	Switch-over valve or in combination with safety valves for toxic, aggressive and inflammable gases and liquids, boiler and cooling water, saturated steam etc., under consideration of the material resistance	Regulating valve or mixing valve for toxic, aggressive and inflammable gases and liquids, boiler and cooling water, saturated steam etc., under consideration of the material resistance	In front of measuring equipment to protect sensitive valves, pumps, aggregates and similar plant components under consideration of the material resistance
<b>Approvals</b>		Patented design 370B/320B: US, Europe, China		





Type	829	309.40 and 309.50	309 stationary	141	142
<b>Design</b>					
<b>Description</b>	Strainer Y-Type	Tanker valve (POV) combination of a pneumatically operated quick closing valve with bellows and a spring-loaded ball check valve	Valves for Stationary Tanks / storage containers	Pressure Relief Valve	Pressure Relief Valve and shut/off function
<b>PN</b>	10 - 40	25	25, 40	40	16 - 40
<b>DN</b>	15 - 300	40	25 - 150	15 - 100	15 - 50
<b>Class</b>	150 - 300	150	150, 300	150 - 300	150 - 300
<b>NPS</b>	1/2 - 12	1 1/2	1 - 6	1/2 - 4	1/2 - 2
<b>Temperature Rating</b>	-196°C up to +450°C	-50°C up to +70°C	- 40°C - 120°C	- 200°C - 400°C	- 200°C - 400°C
<b>Body Forms</b>	• Y-Pattern	• Angle Pattern Type	• Angle Pattern Body	• Angle Pattern Body • Straight Pattern Body	• Angle Pattern Body • Straight Pattern Body
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Hastelloy</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - Low Temperature</li> <li>• Stainless Steel</li> <li>• Other Materials on Request</li> </ul>	<ul style="list-style-type: none"> <li>• carbon steel (high and low temperature)</li> <li>* stainless steel</li> </ul>	<ul style="list-style-type: none"> <li>• carbon steel (high and low temperature)</li> <li>• stainless steel (high temperatur, high chromium)</li> </ul>	<ul style="list-style-type: none"> <li>• carbon steel (high and low temperature)</li> <li>• stainless steel (high temperatur, high chromium)</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> </ul>
<b>Operation</b>		<ul style="list-style-type: none"> <li>• Pneumatic Diaphragm Actuator</li> <li>• Manual Override</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> </ul>
<b>Application</b>	In front of measuring equipment to protect sensitive valves, pumps, aggregates and similar plant components under consideration of the material resistance	Acc. to DIN 26028, CEFIC UN 14, GGV Annex XI with ref. for railway tankers, ISO-Container (309.50) and trucks top loading for extremely dangerous media, e.g. chlorine, hydrofluoridric	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance
<b>Approvals</b>		Prototype 06D2, BAM approved, Euro Chlor approval 96/01; 96/02; 96/03; 96/07, eg 2010/35 (TPED) Prototype tests DIN EN 14432	Eurochlor Approval 22-08		

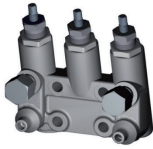
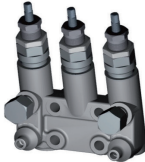




Type	925	919	941	935
<b>Design</b>				
<b>Description</b>	Globe and control valve for cryogenic service with encapsulated superlong bellows and emergency gland with extractable trim and displacer	Globe and control valve for cryogenic service with stuffing box seal, extractable trim and displacer	Globe and control valve for cryogenic service with encapsulated superlong bellows and emergency gland, long isolation distance	Globe and control valve for cryogenic service with stuffing box seal and long isolation distance
<b>PN</b>	10 - 63	10 - 63	10 - 63	10 - 63
<b>DN</b>	15 - 300	15 - 300	15 - 300	15 - 300
<b>Class</b>	150 - 300	150 - 300	150 - 300	150 - 300
<b>NPS</b>	1/2 - 12	1/2 - 12	1/2 - 12	1/2 - 12
<b>Temperature Rating</b>	-270°C up to +400°C	-270°C up to +400°C	-270°C up to +400°C	-270°C up to +400°C
<b>Body Forms</b>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern</li> <li>• Angle Pattern Body</li> </ul>
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Stainless Steel</li> <li>• Aluminum Body</li> </ul>	<ul style="list-style-type: none"> <li>• Stainless Steel</li> <li>• Aluminum Body</li> </ul>	<ul style="list-style-type: none"> <li>• Stainless Steel</li> <li>• Aluminum Body</li> </ul>	<ul style="list-style-type: none"> <li>• Stainless Steel</li> <li>• Aluminum Body</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>
<b>Application</b>	For cryogenic use e.g. oxygen, nitrogen and similar liquids, gases and vapours and extreme low service temperatures, for cold box installation	For cryogenic use e.g. oxygen, nitrogen and similar liquids, gases and vapours and extreme low service temperatures, for cold box installation	For cryogenic use e.g. oxygen, nitrogen and similar liquids, gases and vapours and extreme low service temperatures, for cold box installation	For cryogenic use e.g. oxygen, nitrogen and similar liquids, gases and vapours and extreme low service temperatures, for cold box installation
<b>Approvals</b>				

Type	385-Refrigerant Valve	420	661	506 / 525
<b>Design</b>				
<b>Description</b>	Globe and control valve with flushed bellows and emergency gland, inside rising stem (comparable with refrigerant valves - DIN 3158)	Check valve spring loaded option	Globe valve with stuffing box seal, coupled divided stem, integral seat	Globe valve with stuffing box seal, coupled divided stem, renewable disc and seat
<b>PN</b>	10 - 40	10 - 160	160	400/630
<b>DN</b>	15 - 400	15 - 350	8	8
<b>Class</b>	150 - 300	150 - 900	900	2500
<b>NPS</b>	1/2 - 16	1/2 - 14	1/4	1/4
<b>Temperature Rating</b>	-196°C up to +450°C	-196°C up to +450°C	-196°C up to +450°C	-196°C up to +650°C
<b>Body Forms</b>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Angle Pattern Body</li> </ul>
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel - Low Temperature</li> <li>• Stainless Steel</li> <li>• Hastelloy</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel</li> <li>• Stainless Steel</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Hastelloy</li> <li>• Other Special Alloys</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Flanged Ends</li> <li>• Other Requirements</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>		<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• T-Handle</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• T-Handle</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>
<b>Application</b>	Acc. to TA-Luft (German "Clean Air Act"), especially for media which are dangerous for environment and cold service media. Operation components protected against icing.	For aggressive gases and liquids as far as these are not toxic, inflammable or detrimental to environment under consideration of the material resistance	For liquids, gases and vapours under consideration of the material resistance, also be used as first interception valve	For liquids, gases and vapours under consideration of the material resistance, also be used as first interception valve
<b>Approvals</b>		VdTÜV Prototype		VdTÜV approved in accordance with WB 35

Type	662	570 / 535	580 / 582 / 584	664
<b>Design</b>				
<b>Description</b>	Globe valve with encapsulated bellows and emergency gland, coupled divided stem, integral seat	Globe valve with encapsulated bellows and emergency gland, coupled divided stem, renewable disc and seat	Pressure gauge valve with stuffing box seal, vent screw (DIN 16270), test connection (DIN 16271), blocking test connection (DIN 16272)	Pressure gauge valve with encapsulated bellows and emergency gland, vent screw, coupled divided stem, integral seat
<b>PN</b>	100	250 / 400	400	100
<b>DN</b>	8	8	3.5	3.5
<b>Class</b>	600	1500 / 2500	2500	600
<b>NPS</b>	1/4	1/4	1/8	1/8
<b>Temperature Rating</b>	-196°C up to +450°C	-196°C up to +650°C	-40°C up to +120°C	-196°C up to +450°C
<b>Body Forms</b>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Angle Pattern Body</li> </ul>
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel</li> <li>• Stainless Steel</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Other Special Alloys on request</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel</li> <li>• Stainless Steel</li> <li>• Brass</li> <li>• Other Special Alloys on request</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel</li> <li>• Stainless Steel</li> <li>• Other Special Alloys on request</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Flanged Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Flanged Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Inlet: Male Plug G 1/2 Acc. to DIN EN 837-1</li> <li>• Outlet: Male Plug G 1/2-LH with Adjusting Nut G 1/2 (Form A) or Female G 1/2 (Form B)</li> <li>• Test: Male Plug M 20X1.5</li> </ul>	<ul style="list-style-type: none"> <li>• Inlet: Butt and Socket Welding Ends, Threaded Ends</li> <li>• Outlet: Male Plug G 1/2-LH with Adjusting Nut G 1/2 Acc. to DIN 16283</li> <li>• Test: Male Plug M 20X1.5</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• T-Handle</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• T-Handle</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• T-Handle</li> </ul>
<b>Application</b>	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance, also be used as first interception valve	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance, also be used as first interception valve	For liquids, gases and vapours under consideration of the material resistance	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance
<b>Approvals</b>		VdTÜV approved in accordance with WB 35, DGM 297 21 782.8		

Type	587	597	589	599
<b>Design</b>				
<b>Description</b>	Pressure gauge valve with test connection, stuffing box seal, coupled divided stem, renewable disc and seat	Pressure gauge valve with test connection, bellows and emergency gland, coupled divided stem, renewable disc and seat	Pressure gauge valve with blocking test connection, stuffing box seal, coupled divided stem, renewable disc and seat	Pressure gauge valve with blocking test connection, bellows and emergency gland, coupled divided stem, renewable disc and seat
<b>PN</b>	400	250	400	250
<b>DN</b>	3.5	3.5	3.5	3.5
<b>Class</b>	2500	1500	2500	1500
<b>NPS</b>	1/8	1/8	1/8	1/8
<b>Temperature Rating</b>	-196°C up to +450°C	-196°C up to +450°C	-196°C up to +450°C	-196°C up to +450°C
<b>Body Forms</b>	• Straight Pattern Body	• Straight Pattern Body	• Straight Pattern Body	• Straight Pattern Body
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Chromium</li> </ul> </li> <li>• Hastelloy</li> <li>• Other Special Alloys on request</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Chromium</li> </ul> </li> <li>• Other Special Alloys on request</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Chromium</li> </ul> </li> <li>• Other Special Alloys on request</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Chromium</li> </ul> </li> <li>• Other Special Alloys on request</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Inlet: Butt and Socket Welding Ends, Threaded Ends</li> <li>• Outlet: Male Plug G 1/2-LH with Adjusting Nut G 1/2 Acc. to DIN 16283</li> <li>• Test: Male Plug M 20X1.5</li> </ul>	<ul style="list-style-type: none"> <li>• Inlet: Butt And Socket Welding Ends, Threaded Ends</li> <li>• Outlet: Male Plug G 1/2-LH with Adjusting Nut G 1/2 Acc. to DIN 16283</li> <li>• Test: Male Plug M 20X1.5</li> </ul>	<ul style="list-style-type: none"> <li>• Inlet: Butt And Socket Welding Ends, Threaded Ends</li> <li>• Outlet: Male Plug G 1/2-LH with Adjusting Nut G 1/2 Acc. to DIN 16283</li> <li>• Test: Male Plug M 20X1.5</li> </ul>	<ul style="list-style-type: none"> <li>• Inlet: Butt And Socket Welding Ends, Threaded Ends</li> <li>• Outlet: Male Plug G 1/2-LH with Adjusting Nut G 1/2 Acc. to DIN 16283</li> <li>• Test: Male Plug M 20X1.5</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• T-Handle</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• T-Handle</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• T-Handle</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• T-Handle</li> </ul>
<b>Application</b>	For liquids, gases and vapours under consideration of the material resistance	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance	For liquids, gases and vapours under consideration of the material resistance	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance
<b>Approvals</b>	VdTÜV approved in accordance with WB 35	VdTÜV approved in accordance with WB 35	VdTÜV approved in accordance with WB 35	VdTÜV approved in accordance with WB 35


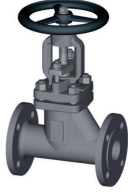


Type	626	659	630	631
<b>Design</b>				
<b>Description</b>	Manifold with 3 valves and test connection, stuffing box seal, coupled divided stem, renewable disc and seat	Manifold with 3 valves and test connection, bellows and emergency gland, coupled divided stem, renewable disc and seat	Manifold with 5 valves and test connection, stuffing box seal, coupled divided stem, renewable disc and seat	Manifold with 5 valves and test connection, bellows and emergency gland, coupled divided stem, renewable disc and seat
<b>PN</b>	400	250	400	250
<b>DN</b>	8	8	8	8
<b>Class</b>	2500	1500	2500	1500
<b>NPS</b>	1/4	1/4	1/4	1/4
<b>Temperature Rating</b>	-196°C up to +650°C	-196°C up to +650°C	-196°C up to +650°C	-196°C up to +650°C
<b>Body Forms</b>	• Straight Pattern Body	• Straight Pattern Body	• Straight Pattern Body	• Straight Pattern Body
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Other Special Alloys</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Inlet: Butt And Socket Welding Ends, Threaded Ends</li> <li>• Outlet: Directly Flanged to Transducer (Acc. to DIN 19213)</li> <li>• Test: Male Plug M 20X1.5</li> </ul>	<ul style="list-style-type: none"> <li>• Inlet: Butt And Socket Welding Ends, Threaded Ends</li> <li>• Outlet: Directly Flanged to Transducer (Acc. to DIN 19213)</li> <li>• Test: Male Plug M 20X1.5</li> </ul>	<ul style="list-style-type: none"> <li>• Inlet: Butt and Socket Welding Ends, Threaded Ends</li> <li>• Outlet: Directly Flanged to Transducer (Acc. to DIN 19213)</li> <li>• Test: Male Plug M 20X1.5</li> </ul>	<ul style="list-style-type: none"> <li>• Inlet: Butt and Socket Welding Ends, Threaded Ends</li> <li>• Outlet: Directly Flanged to Transducer (Acc. to DIN 19213)</li> <li>• Test: Male Plug M 20X1.5</li> </ul>
<b>Operation</b>	• T-Handle	• T-Handle	• T-Handle	• T-Handle
<b>Application</b>	For liquids, gases and vapours under consideration of the material resistance	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance	For liquids, gases and vapours under consideration of the material resistance	For highly toxic, aggressive, inflammable, volatile and expensive media under consideration of the material resistance
<b>Approvals</b>	VdTÜV approved in accordance with WB 35	VdTÜV approved in accordance with WB 35	VdTÜV approved in accordance with WB 35	VdTÜV approved in accordance with WB 35





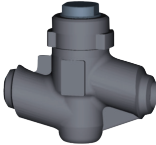



## Product Lines

Gate & Globe Vales with stuffing seal	p. 14
Piston Check & Strainers	p. 15
High Pressure forged Gate Valves (Bolted Bonnet / Pressure Seal)	p. 15
High Pressure forged Globe & Check Valves (Bolted Bonnet / Pressure Seal)	p. 16
Lift plug Valves and 3-Way Lift plug Valves	p. 17
HF Acid Service Gate-Globe-Check Valves	p. 17

Type	S 02 / S 03 / S 04 / S 17	S 20 / S 24	S 40	S 21
<b>Design</b>				
<b>Description</b>	Gate valve with stuffing seal and non-rotating, rising stem	Globe valve with stuffing seal and rotating or non rotating, rising stem	Bottom valve	Globe valve with integrated stuffing seal in the body, non-rotating and rising stem
<b>PN</b>	10 - 160	10 - 160	10 - 40	160 - 630
<b>DN</b>	50 - 600	15 - 300	15 - 250	10 - 50
<b>Class</b>	150 - 800	150 - 2500	150 - 300	900 - 4500
<b>NPS</b>	1/2 - 24	1/2 - 18	1/2 - 10	1/2 - 2 1/2
<b>Temperature Rating</b>	-196°C up to +650°C	-196°C up to +650°C	-196°C up to +650°C	-196°C up to +650°C
<b>Body Forms</b>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Disc Opens into Tank and Opens into Valve</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Monel</li> <li>• 6Mo</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> <li>- High Chromium</li> </ul> </li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Monel</li> <li>• 6Mo</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel                             <ul style="list-style-type: none"> <li>- High and Low Temperature</li> </ul> </li> <li>• Stainless Steel                             <ul style="list-style-type: none"> <li>- High Temperature</li> </ul> </li> <li>• Other Special Alloys</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Lever Chainwheel</li> <li>• Gear Operator</li> <li>• Electric Actuator</li> <li>• Pneumatic Piston Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Lever Chainwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Pneumatic Piston Actuator</li> <li>• Pneumatic Diaphragm Actuator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Chainwheel</li> <li>• Pneumatic Piston Actuator</li> <li>• Electric Actuator</li> </ul>
<b>Application</b>	For gases and liquids as well as boiler and cooling water, saturated steam and similar under consideration of the materials resistance refining and chemical processes	For gases and liquids as well as boiler and cooling water, saturated steam and similar under consideration of the materials resistance	Chemical plants, petrochemical plants	High pressure and temperature service in power plants. For non-aggressive liquids, gases and vapours
<b>Approvals</b>	Fire safe	Fire safe, VdTÜV-Prototype ISO15848-1 CH TA-Luft 2021		VdTÜV-Prototype

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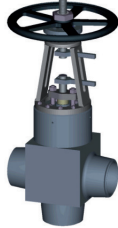


Type	S 27	S 29 / S 68	S 15	S 16
<b>Design</b>				
<b>Description</b>	Piston check valve spring loaded option	Strainer	Forged - high pressure Gate valve with stuffing box seal and pressure seal bonnet	Forged - high pressure Gate valve with stuffing box seal and bolted bonnet
<b>PN</b>	160 - 630	160 - 630	160 - 630	160 - 400
<b>DN</b>	10 - 65	10 - 250	50 - 600*	50 - 300*
<b>Class</b>	900 - 4500	900 - 4500	900 - 4500	900 - 2500
<b>NPS</b>	1/2 - 2 1/2	1/2 - 10	2 - 24*	2 - 12*
<b>Temperature Rating</b>	-196°C up to +650°C	-196°C up to +650°C	-196°C up to +650°C	-196°C up to +650°C
<b>Body Forms</b>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Other Special Alloys</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Threaded Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Other Requirements</li> </ul>
<b>Operation</b>			<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Gear Operator</li> <li>• Electric Actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Gear Operator</li> <li>• Electric Actuator</li> </ul>
<b>Application</b>	High pressure and temperature service in power plants. For non aggressive liquids, gases and vapours	In front of measuring equipment to protect sensitive valves, pumps, aggregates and similar plant components under consideration of the material resistance	Chemical plants, petrochemical plants and offshore power plants, including the new generation of power plants with temperatures up to 650°C	Chemical plants, petrochemical plants and offshore
<b>Approvals</b>	VdTÜV-Prototyp			

\* Bigger on request

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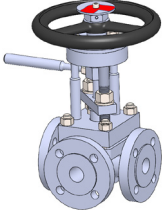





Type	S 22 / S74	S 72	S 70 / S 25 / S 73	S 600	S 601 / S 603
<b>Design</b>					
<b>Description</b>	Forged - high pressure Globe valve with stuffing box seal and pressure seal bonnet	Forged - high pressure Swing check valve with pressure sealed bonnet	Check valve with bolted bonnet	Spring Loaded Bypass Valve with stuffing box seal and pressure seal bonnet	Forged - high pressure Preheater valve with pressure sealed bonnet
<b>PN</b>	160 - 630	160 - 630	25 - 400		160 - 630
<b>DN</b>	50 - 300	50 - 450	50 - 400	200 - 500	150 - 600
<b>Class</b>	900 - 4500	900 - 4500	150 - 2500	up to 2500 special	900 - 4500
<b>NPS</b>	2 - 12	2 - 18*	2 - 16*	8 - 20	6 - 24
<b>Temperature Rating</b>	-196°C up to +650°C	-196°C up to +650°C	-196°C up to +650°C	as per ASME 16.34	up to +550°C
<b>Body Forms</b>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> <li>• Y-Pattern</li> <li>• Angle Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Swing and Piston Check Types</li> </ul>	<ul style="list-style-type: none"> <li>• Straight Pattern Body</li> </ul>	<ul style="list-style-type: none"> <li>• Quick Closing 3-Way Valve and T- or Angel Quick Closing Check Valve</li> </ul>
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High Temperature</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Butt Welding Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Butt Welding Ends</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Gear Operator</li> <li>• Pneumatic Piston Actuator</li> </ul>			None (handwheel only for setting the set pressure)	
<b>Application</b>	Chemical plants, petrochemical plants and offshore power plants, including the new generation of power plants with temperatures up to 650°C	Chemical plants, petrochemical plants and offshore power plants, including the new generation of power plants with temperatures up to 650°C	High demanding valves for special and dangerous services	Power plants	Power plants
<b>Approvals</b>					

\* Bigger on request

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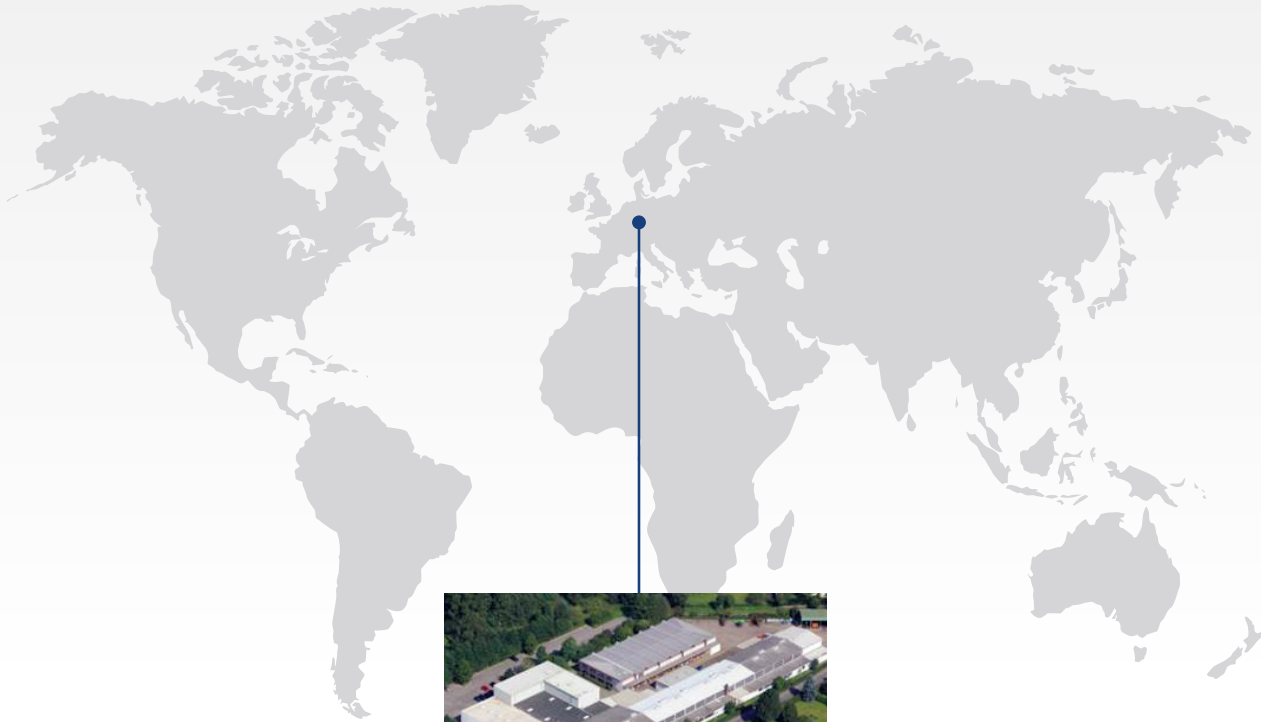
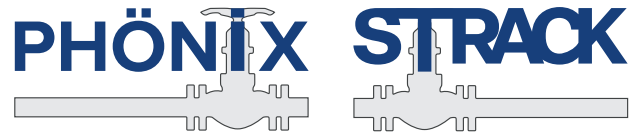


Type	S 50	S 51	S 96	S 97	S 98 / S 99
<b>Design</b>					
<b>Description</b>	Lift plug valve, non-lubricated	3-Way lift plug valve special design, non lubricated	Gate valve for HF-Service	Globe valves for HF-Service	Check valves for HF-Service (swing/piston type)
<b>PN</b>	10 - 160	10 - 100			
<b>DN</b>	15 - 500	25 - 300			
<b>Class</b>	300 - 1500	300	150 - 800	150 - 800	150 - 800
<b>NPS</b>	1/2 - 20	1 - 12	1/2 - 24	1/2 - 24	1/2 - 24
<b>Temperature Rating</b>	-196°C up to +800°C	-196°C up to +650°C	as per ASME 16.34	as per ASME 16.34	as per ASME 16.34
<b>Body Forms</b>	• Straight Pattern Body	• 3-Way Design	• Straight Pattern Body	• Straight Pattern Body	• Straight Pattern Body
<b>Basic Shell Material</b>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Monel</li> <li>• 6Mo</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Steel - High and Low Temperature</li> <li>• Stainless Steel - High Temperature - High Chromium</li> <li>• Hastelloy</li> <li>• Inconel</li> <li>• Pure Nickel</li> <li>• Titanium</li> <li>• Other Special Alloys</li> </ul>	<ul style="list-style-type: none"> <li>• Monel</li> <li>• Carbon Steel with Monel</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Monel</li> <li>• Carbon Steel with Monel</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Monel</li> <li>• Carbon Steel with Monel</li> <li>• Other Requirements</li> </ul>
<b>Connections</b>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Flanged Ends</li> <li>• Butt Welding Ends</li> <li>• Socket Welding Ends</li> <li>• Other Requirements</li> </ul>
<b>Operation</b>	<ul style="list-style-type: none"> <li>• Handwheel and Lever</li> <li>• Automatic Mechanism with Pneumatic- and Electric Actuators</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel and Lever</li> <li>• Automatic Mechanism with Pneumatic- and Electric Actuators</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Other Requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Handwheel</li> <li>• Other Requirements</li> </ul>	None
<b>Application</b>	Valves for special services, abrasive, synthetic media and offshore	High demanding valves for special services abrasive, synthetic media	Alkylation plants	Alkylation plants	Alkylation plants
<b>Approvals</b>			UOP approved TA-Luft approved	UOP approved TA-Luft approved	UOP approved





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