CIRCOR | RTK®

made in Germany

SMART RELIABLE FLOW CONTROL SOLUTIONS

SENSORS
ELECTRIC COMPONENTS

CONTROLVALVES

VALVES FOR SPECIAL APPLICATIONS

EQUIPMENT FOR THERMAL AND REFRIGERATION SYSTEMS

Applications where RTK products are used

- Power plant technology
- Heating / cooling systems for water, steam, thermal oil
- Heat transfer media
- Refrigeration systems
- Process technology
- Petro chemical

RTK is a leading specialist in the field of control valves for over 45+ years, RTK stands out as a reliable and innovative specialist, offering industry-leading solutions that enable businesses to optimize their processes, enhance safety, and achieve operational excellence.

RTK's control valves are engineered to meet the highest quality standards, ensuring optimal performance, durable and reliability in demanding industrial environments. The company's extensive portfolio includes a diverse range of valve types, such as Globe valves, 3-way valves, Actuators both Pneumatic and Electrical actuators, Regulators, Sensors and Digital controllers and more. These valves are available in different sizes, materials, allowing for customized solutions tailored to specific applications.

Utilizing advanced technologies and engineering expertise, RTK's control valves offer exceptional accuracy, responsiveness, and reliability. Our control valves are equipped with intelligent control mechanisms, allowing for precise regulation of flow rates, pressures, and temperatures. This level of control helps industries achieve optimal process efficiency, reduce energy consumption, and maintain consistent product quality.

RTK's control valves find applications across a wide range of industries, including oil and gas, petrochemical, power generation, renewables, Hydrogen eco-system and general process manufacturing. From controlling steam, gases, and liquids to handling corrosive and abrasive media, RTK's valves are designed to meet the diverse needs.

In addition to its high-quality products, RTK provides comprehensive support services to ensure customer satisfaction. This includes expert technical assistance, installation guidance, maintenance, and prompt after-sales support. RTK's commitment to customer service and its ability to deliver reliable control valve solutions have made it a trusted partner for industries around the world.

SMART VALVES AND ACTUATORS

Made in Germany

What contributes to our success?

At RTK, our success stems from several key factors. First and foremost, we place great value on ideas and suggestions from both our employees and customers. We take these inputs seriously and actively implement them into our processes, fostering a culture of collaboration and continuous improvement. Through regular internal workshops, we question and optimize our in-house processes, ensuring efficiency without external pressure.

Tradition

Our tradition of manufacturing reliable and durable products remains unwavering. While we embrace innovation and adaptability, our commitment to meeting high industry standards and delivering trouble-free operation never changes. We subject new products to extensive testing and scrutiny, benefitting from modern production facilities that grant us flexibility and control over quality.

Innovation

Innovation thrives at RTK, where good ideas are at the core of our advancements. From valve calculation programs to automated manufacturing processes and product configurators, our concepts often set industry standards and find their origins in Kornwestheim. We strive to provide products that have that special "something" to meet and exceed customer expectations.

Reliability

Reliability is ingrained in our well-trained workforce, enabling us to promptly respond to customer needs. By continually evaluating key performance indicators across departments, we can swiftly and effectively address unforeseen circumstances. We believe in keeping our promises to customers as a fundamental principle of our business.

Thoroughness

Thoroughness is a hallmark of RTK in every aspect of our operations. Our dedicated specialists in sales, Engineering, production planning, and purchasing meticulously engage with inquiries, ensuring that operating data is thoroughly tested and questioned. The result is a clear and comprehensive offer that our customers can confidently rely on.

Ultimately, our success is anchored in our unwavering commitment to delivering quality in everything we do. At RTK, we continuously strive for excellence to meet and exceed the expectations of our valued customers.

We deliver Quality with German Engineering!

OUR SERVICE

Competent, reliable and fast

Commissioning

- We help with commissioning our equipment
- Support during commissioning of the entire system
- Tuning of control circuits and control systems
- Troubleshooting and error handling support

Spare parts supply

System safety has the highest priority. That's why we manufacture reliable, long-lasting equipment.
Never the less, if you do need a spare part, then of course you will find it available at short notice.

- Original spare parts
- Same day dispatch of standard parts
- Customised spare part kits for preventive maintenance
- Expert advice

Inspection of plant and inventory analysis

- We have a close look at your system
- Recording of operating parameters and normal conditions of use
- Realisation of your system-specific wishes and expectations

TAKE ADVANTAGE OF OUR COMPLETE SAVE OFFER

Regular inspection and maintenance

- Review of the components according to predetermined specifications
- Maintenance and optimization of components
- Documentation of all work carried out

and all at a fixed price.

Repair and overhaul

- On-site repairs are offered as standard
- Repairs and creation of an in-factory quote
- Complete functional test of all components
- Renewed warranty on maintained units
- We also repair other brands
- Pick-up and drop-off service

Quality management

Tests and approvals

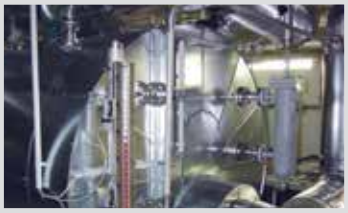
- DIN EN ISO-9001
- Druckgeräterichtlinien (PED) 2014/68/EU Modul H / H1, CE0036
- DIN EN 14597 (DIN Certco)
- TA-Luft / ISO 15858
- Vd-TÜV Wasserstand 100
- DVGW
- ATEX Declaration of conformity, 2014/34/EU
- TR TS (EAC)
- LR- Lloyd's Register
- DNV-GL
- BV-Bureau Veritas
- RINA-Registro Italiano Navale
- ABS-American Bureau of Shipping
- China Compulsory Product Certificate (CCC)
- Chinese Safety Technology Regulation (TSG)
- Canadian Regestration Number (CRN)
- Occupational Health and Safety Management System ISO 45001:2018

CONTENT

Stellventile

Actuators

Sensors



Electric components

Other

CONTROL VALVES

- Electric and pneumatic control valves
- Electric and pneumatic control valves (refrigeration)
- Shut-off valves
- Three way control valves
- Silencers
- RTK – Heavy duty control valves
- Electric control valves with fail closed unit
- Steam converting valves
- Multi nozzle lance type desuperheater
- Feed-water control valves with re-circulation
- Continuous blow down valves
- Bottom blow down valves
- Valves for discharge / re-circulation control

Shut-off and control valves

MV 5211

PV 6221

Electric series	Pneumatic series	
With electric actuators REact 15 REact 30	**With pneumatic actuators** ST 6115 ST 6135	**With Bellows seal**
MV 5211	PV 6211	–
MV 5214	PV 6214	yes
MV 5221	PV 6221	–
MV 5224	PV 6224	yes
MV 5231	PV 6231	–
MV 5234	PV 6234	yes

Technical data

	DIN		ANSI
Nominal diameter	DN 15 … 100		NPS ½ ... 4
Nominal pressure	PN 16 … 160		CL 150 … 900
Body materials	EN-GJL-250	(PN 16)	SA216 WCB
	EN-GJS-400-18-LT	(PN 16; 25)	SA351 CF8M
	GP240GH		SA217 WC6
	G17CrMo5-5		SA217 WC9
	GX5CrNiMo19-11-2		
	Other materials available on request		
Flanges	According to DIN 2501; EN 1092-1 and EN 1092-2		According to ASME B16.25
	Different flanges on request		RF und RTJ
Butt Weld ends	According to EN 12627		According to ASME B16.25
	Edge form DIN 2559 -22 (Others on request)		
	End connection P235GH for body material GP-240 GH		
	End connection 13CrMo4-5 for body material G 17 CrMo 5-5		
Further End Connections	Female thread according to DIN EN 10226-1		
	Socket Weld Ends according to DIN EN 10760		
Stem packing	Chevron rings PTFE-graphite (max. +250 °C)		
	Stuffing box pure graphite (max. +530 °C medium dependent)		
	Stem packing with DVGW-Approval (max. 6 bar, +60 °C)		
	Stem packing for oxygen with BAM approval (max. +50 °C)		on request
Trim variations	Shut-off plug	1.4122, 1.4122 hardened, stellit	(open-close)
	Paraboloic plug	1.4122, 1.4122 hardened, stellit, Ferro Titanium	(equal% / linear)
	V-port plug	1.4122, 1.4122 hardened, stellit 1.4408	(equal% / linear)
	Perforated plug	1.4122, 1.4122 hardened	(equal% / linear)
	Mixing- / Diverting plug	1.4122, 1.4408	(linear)
	Soft seat PTFE graphite	PTFE graphite	
	Seat	1.4571 (AISI 316Ti), stellit	
	Stem	1.4571 (AISI 316Ti)	
	Quick Change Seat (QCS) 1-/2 stage CA6MN		
	According to NACE MR0175 / MR0103		
	Other materials available on request		
Version for refrigerants	Chevron packing rings NBR (-60 °C to +100 °C)		
	Chevron rings PTFE-graphite (-60 °C to +250 °C)		
	Seals (gaskets) suitable for refrigerants		
	Bellows seal with safety stuffing box		
	Stem heater with glycerine cup, free from non-ferrous metals		
	Bonnet studs and nuts in stainless steel		
	Epoxy coating		
	Flanges with groove	nach EN 1092-1 (DIN 2512)	
Seat leakage	According DIN EN 1349 / IEC 60534-4		According to ANSI / FCI 70-2
	Class IV (metal to metal)		Class IV
			Class V (optional / upon request)
	Class V (optional / upon request)		
	Class VI (soft seat with PTFE max. +200°C)		Class VI
Max. press / temp.	According to DIN EN 1092		ASME B16.34
Approvals	DGRL (CE), DVGW, ATEX (für PV...),		
	DNV-GL, RINA, ABS, TR TS (EAC), CRN, CCC		

Three way control valves / shortened B flange

MV 5274

PV 6274

Electric series	Pneumatic series	
With electric actuators REact 15 REact 30	**With pneumatic actuators** ST 6115 ST 6135	**With Bellows seal**
MV 5271	PV 6271	–
MV 5274	PV 6274	yes

Technical data

Nominal diameter	DN 20 … 100	
Nominal pressure	PN 16, 25	
Body materials	EN-GJS-400-18-LT	(max. PN 25)
Flanges	Connection according to DIN 2501 / DIN EN 1092 Facing DIN 2526 Form C Different flanges on request	
Stem packing	Chevron rings PTFE-graphite Bellows seal with safety stuffing box	(max. +250 °C) (max. +350 °C)
Trim variations	Mixing plug 1.4122 / 1.4408 Stem + Seat 1.4571 Other materials available on request	(linear)
Seat leakage	According DIN EN 1349 Class IV (metal to metal)	
Approvals	DGRL (CE), ATEX (für PV...), TR TS (EAC), CCC, CRN	

Data sheet under https://www.rtk.de/en-us/Products/Shut-off-and-control-valves

MV 5311

PV 6321

Electric series

Pneumatic series

With electric actuators REact 60 REact 100	**With pneumatic actuators** ST 6160	**With Bellows seal**	**With Bellows seal PN100**
MV 5311	PV 6311	–	–
MV 5314	PV 6314	yes	yes
MV 5321	PV 6321	–	–
MV 5324	PV 6324	yes	–
MV 5331	PV 6331	–	–
MV 5334	PV 6334	yes	–

Technical data

	DIN		ANSI
Nominal diameter	DN 15 … 150		NPS ½ … 6
Nominal pressure	PN 16 … 160		CL 150 … 900
Body materials	EN-GJL-250	(PN 16)	SA216 WCB
	EN-GJS-400-18-LT	(PN 16; 25)	SA351 CF8M
	GP240GH		SA217 WC6
	G17CrMo5-5		SA217 WC9
	GX5CrNiMo19-11-2		
	Other materials available on request		
Flanges	According to DIN 2501; EN 1092-1 and EN 1092-2		According to ASME B16.5
	Different flanges on request		
Butt weld ends	According to EN 12627		According to ASME B16.25
	Edge form DIN 2559-22 (Others on request)		
	End connection P235GH for body material GP-240 GH		
	End connection 13CrMo4-5 for body material G 17 CrMo 5-5		
Further End Connections	Female thread according to DIN EN 10226-1		
	Socket Weld Ends according to DIN EN 10760		
Stem packing	Chevron rings PTFE-graphite (max. +250 °C)		
	Stuffing box pure graphite (max. +530 °C medium dependent)		
	Bellows seal with safety stuffing box (max. +350 °C) DN 40 - DN 150 in PN 100		
	Stem packing with DVGW-Approval (6 bar, max. +60 °C)		
	Stem packing for oxygen with BAM approval (max. +50 °C)		
Trim variations	Shut-off plug	1.4122, 1.4122 hardened, stellit	(Quick opening)
	Parabloic plug	1.4122, 1.4122 hardened, stellit	(equal% / linear)
	V-port plug	1.4122, 1.4122 hardened, stellit 1.4408	(equal% / linear)
	Perforated plug	1.4122, 1.4122 hardened	(equal% / linear)
	Mixing- / Diverting plug	1.4122, 1.4408	(linear)
	Balanced plug	PTFE graphite	(equal% / linear)
	Soft seat PTFE-graphite	1.4571 (AISI 316Ti), stellit	
	Seat	1.4571 (AISI 316Ti), stellit	
	Stem	1.4571 (AISI 316Ti)	
	Quick Change Seat (QCS) 1-/2 stage CA6MN		
	According to NACE MR0175 / MR0103		
	Other materials available on request		
Version for refrigerants	Chevron packing rings NBR (-60 °C to +100 °C)		
	Chevron rings PTFE-graphite (-60 °C to +250 °C)		
	Seals (gaskets) suitable for refrigerants		
	Bellows seal with safety stuffing box		
	Stem heater with glycerine cup, free from non-ferrous metals		
	Bonnet studs and nuts in stainless steel, epoxy coating		
	Flanges with groove according to EN 1092-1 (DIN 2512)		
Seat leakage	According DIN EN 1349 / IEC 60534-4		According to ANSI / FCI 70-2
	Class IV (metal to metal)		Class IV
	Class V (optional / upon request)		Class V (optional / upon request)
	Class VI (soft seat with PTFE-Graphite max. +200°C)		Class VI
Max. press / temp.	According to DIN EN 1092		ASME B16.34
Approvals	DGRL (CE), DVGW, TA-Luft, ATEX (für PV...), DNV-GL, RINA, ABS, TR TS (EAC), CRN, CCC		

Shut-off and control valves

MV 5421

PV 6411

Electric series

Pneumatic series

With electric actuators REact150 REact220 REact300	**With pneumatic actuators** ST 6175	**With Bellows seal**
MV 5411	PV 6411	–
MV 5414	PV 6414	yes
MV 5421	PV 6421	–
MV 5424	PV 6424	yes
MV 5431	PV 6431	–
MV 5434	PV 6434	yes

Technical data

	DIN		ANSI
Nominal diameter	DN 40 … 400		NPS 1 ½" … 12"
Nominal pressure	PN 16 … 160		Class 150 … 900
Body materials	EN-GJL-250 EN-GJS-400-18-LT GP240GH G17CrMo5-5 GX5CrNiMo19-11-2 Other materials available on request	(PN 16) (PN 16; 25)	SA216 WCB SA351 CF8M SA217 WC6 SA217 WC9
Flanges	According to DIN 2501; EN 1092-1 and EN 1092-2 Different flanges on request		According to ASME B16.5 RF und RTJ
Butt weld ends	According to EN 12627 Edge form DIN 2559-22 (Others on request) End connection P235GH for body material GP-240 GH End connection 13CrMo4-5 for body material G 17 CrMo 5-5		According to ASME B16.25
Further End Connections	Female thread according to DIN EN 10226-1 Socket Weld Ends according to DIN EN 10760		
Stem packing	Chevron rings PTFE-graphite (max. +250 °C) Stuffing box pure graphite (max. +530 °C medium dependent) Bellows seal with safety stuffing box PN 25 Stem packing with DVGW-Approval (6 bar, max. +60 °C) Stem packing for oxygen with BAM approval (max. +50 °C)		
Trim variations	Shut-off plug Parabloic plug V-port plug Perforated plug Mixing- / Diverting plug Soft seat Seat Stem Quick Change Seat (QCS) 1-/2 stage CA6MN According to NACE MR0175 / MR0103 Other materials available on request	1.4122, 1.4122 hardened, stellit 1.4122, 1.4122 hardened, stellit 1.4122, 1.4122 hardened, stellit 1.4408 1.4122, 1.4122 hardened 1.4122, 1.4408 PTFE graphite 1.4571 (AISI 316Ti), stellit 1.4571 (AISI 316Ti)	(Quick opening) (equal% / linear) (equal% / linear) (equal% / linear) (linear)
Version for refrigerants	Chevron packing rings NBR (-60 °C to +100 °C) Chevron rings PTFE-graphite (-60 °C to +250 °C) Seals (gaskets) suitable for refrigerants Bellows seal with safety stuffing box Stem heater with glycerine cup, free from non-ferrous metals Bonnet studs and nuts in stainless steel, epoxy coating Flanges with groove according to EN 1092-1 (DIN 2512)		
Seat leakage	According DIN EN 1349 Class IV (metal to metal) Class VI (soft seat with PTFE-Graphite max. +200°C)		According to ANSI / FCI 70-2 Class IV Class VI
Max. press / temp.	According to DIN EN 1092		ASME B16.34
Approvals	DGRL (CE), DVGW, TA-Luft, ATEX (für PV...), DNV-GL, RINA, ABS, TR TS (EAC), CRN, CCC		

Flow-control silencer

Silencer Type A, Type B

SL-Type

For liquid media	For gases and vapours
SL Type A	SL Type B

Flow-control silencer / expansion after control valves to reduce noise after choked flow of gases and vapours.
In order to largely suppress cavitation in liquid media and sound reduction.

- Suitable for operating temperatures up to +530 °C
- System of two to four throttle plates
- Including pipe expansion
- Supplied ready to fit including the connecting elements

Technical data

Inlet and outlet	PN 40 … 160, Class 300 … 900	
	Different nominal pressure ranges for inlet and outlet on request	
Materials	P250GH Equivalent to A105	(PN 40 … 160)
		(Class 300 … 900)
	1.4571 / 316Ti	(PN 40 … 160)
		(Class 300 … 900)
	13CrMo4-5 / SA 182 F12	(PN 63 … 160)
		(Class 600 … 900)
	Other materials available on request	
Connections	As per DIN EN 1092-1	
	As per ASME B 16.5	
Approvals	DGRL (CE)	

Data sheet under https://www.rtk.de/en-us/Products/Shut-off-and-control-valves

Pressure balanced control valves

MV 5311

PV 6411

Electric series	Pneumatic series
With electric actuators	**With pneumatic actuators**
REact 60E REact 60 DC REact 100 DC	ST 6135 ST 6160
MV 5311	PV 6311
REact 150 REact 220 REact 300	ST 6175
MV 5411	PV 6411

Technical data	DIN	ASNI
Nominal diameter:	DN 80... 400 * DN 300...PN100 *DN 400... PN 40	NPS 3...12 *NPS 12... CL 600
Nominal pressure:	PN 16…160	Cl 150…900
Body materials:	EN-GJS-400-18LT (PN 16…25) GP240GH G17CrMo5-5 GX5CrNiMo19-11-2	SA 216 WCB SA 217 WC6 SA 217 WC9 SA 351 CF8M
Connection	Flange acc.to EN 1092-1 / DIN 2501 facing acc. to DIN 2526 form C (FL) Flanges with groove acc. to EN 1092 (FLN) Butt Weld Ends acc. to EN 12627 (ASE	Flanges with raised face (RF) and Ring Type Joint (RTJ) flanges acc. to ASME B16.5 Butt Weld Ends (BWE) acc. to ASME B16.25
Spindle packing:	PTFE/graphite (max. 250°C) pure graphite (max. 530°C) (medium dependent)	PTFE/graphite (max. 250°C) pure graphite (max. 530°C)
Trim : **(characteristic curve)**	**Trims: 1-stage:** Perforated cage and piston (equal % / linear) **2-stage:** Perforated cage and perforated plug (equal % / linear)	
Remark trims :	Interchangeable with 1- and 2-stage **Trims:** Quick Change Seat (QCS) trim	
Trim Materials :	Piston / plug 1.4112 hardened Spindle 1.4571 Cage 1.4112 Optional: Cage 1.4112 hardened	Piston / plug 440B hardened Spindle AISI 316 Ti Cage 440B Optional: Cage 440B hardened
SEAT Leakage:	acc. DIN EN 1349 - 0,05% of nominal flow rate (Kvs) metallic tight - Optional: Class IV (<0,01% Kvs) Max Temp 250°C	acc. ANSI / FCI 70-2 0,05% of nominal flow rate (Cv) metallic tight Optional: Class IV (<0,01% Cv) Metal and O-ring Soft seal Ring (max. +482°F)
Max. Press/ Temp.	according to DIN EN 1092	according to ASME B16.34
Approvals :	ATEX (PV…) TR TS (MV…, PV…) DGRL (MV…, PV…)	ATEX (PV…) TR TS (MV…, PV…) DGRL (MV…, PV…)

Data sheet under https://www.rtk.de/en-us/Products/Shut-off-and-control-valves

Electric control valves with fail closed unit

ST 6150

Electric series

With electric actuators		Actuators
MV 52 …	Approved by German Technical Inspectorate	REact 30 ST 6151-5
MV 53 …		REact 60 ST 6151-5
MV 53 …		REact 60 ST 6151-6 REact 100 ST 6151-6
MV 54 …		REact 150 ST 6152-1/2 REact 220 ST 6152-1/2 REact 300 ST 6152-1/2

Fail close unit for motorized valves
MV 52 … / MV 53 … / MV 54 … series
2 way or 3 way design

- Approved by German Technical Inspectorate DIN EN 14597:2012-09 as safety functional device for steam and water in heating systems.
  (Valid only in combination with ST 6151-5)
- Valve closes on loss of power
- Closes smoothly even at large differential pressures
- Adjustable closing time for ST 6152-1/2
- Automatic return to normal operation possible

Technical data

	DIN	ANSI	
Nominal diameter	DN 15 … 100	NPS ½ … 4	(Series MV 52 …)
	DN 15 … 150	NPS ½ … 6	(Series MV 53 …)
	DN 40 … 400	NPS 1½ …12	(Series MV 54 …)
Nominal pressure	PN 16 ... 160	CL 150 … 900	
Stem packing	Chevron rings PTFE-graphite		(max. +250 °C)
	Bellows seal with safety stuffing box		(max. +300 °C)
Trim variations	V-port plug		(equal% / linear)
	Perforated plug		(equal% / linear)
Seat leakage	According DIN EN 1349		According to ANSI / FCI 70-2
	Class IV (metal to metal)		Class IV
	Class VI (soft seat with PTFE max. +200 °C)		Class VI

Data sheet under https://www.rtk.de/en-us/Products/Valves-for-special-applications

Steam converting valves

Electric series	Pneumatic series
With electric actuators	**With pneumatic actuators**
REact 60E/DC	ST 6160
REact 100/E/DC	ST 6175
REact 100	
REact 150	
REact 220	
REact 300	
MV 5351	PV 6351
MV 5451	PV 6451

Steam-converting valves used to reduce the steam pressure while simultaneously cooling the steam.

- Steam pressure reduction and cooling in one unit
- Low-noise Perforated plug
- Water injection from below
- Wide control range
- Optimized control characteristic with adapted trim for steam and water

Technical data	DIN	ANSI
Nominal diameter	DN 40 … 250	NPS 1 1/2 - NPS 10
Nominal pressure	PN 16 … 100	Class 150- 300
Body materials	GP240GH G17CrMo5-5	SA 216 WCB SA 217 WC6
Flanges	According to DIN 2501; EN 1092-1 and EN 1092-2 Different flanges on request	ASME B16.5
Stem packing	Chevron rings PTFE-graphite Stuffing box pure graphite	(max. +250 °C) (max. +530 °C)
Trim variations	Perforated plug 1.4122, 1.4122 hardened Stem 1.4571 (AISI 316Ti), stellit Seat 1.4571 (AISI 316Ti) Other materials available on request	(equal% / linear)
Seat leakage	According to DIN EN 1349 / IEC 60534-4 Class IV (metal to metal)	According to ANSI/FC/70-2 Class IV
Max. press / temp.	According to DIN EN 1092	According to ASME B16.34
Approvals	DGRL (CE) ATEX (für PV...), TR TS (EAC), CCC	

Data sheet under https://www.rtk.de/en-us/Products/Valves-for-special-applications

Multi nozzle lancer Desuperheater

PDK-6351

MDK 5351

Electric series

With electric actuators
REact 150 DC

MDK 5351	PDK 6351
REact 220 REact 300	ST 6175
MDK 5451	PDK 6451

Pneumatic series

With pneumatic actuators
ST 6160

Injection cooler – Desuperheated steam cooler

- Variable control characterstics
- Precise steam temperature control
- Variable turndown ratio 10 :1 / 25:1
- Excellent atomising characterstic at ΔP water/ steam of minimum 10 bar at minimum. Steam velocity of 10 m/s.
- Max. ΔP Water/Steam upto 100 bar. No additional control valve is required.
- Tight shut-off, without any leakage
- High reliability due to simple parts and minimum wear

Technical data

Body materials	15Mo3 (~ ASTM A182 F1) 13CrMo (~ ASTM A182 F12) Inner parts made of min.13 % chromium steels	
Flanges	Cooling water inlet flange DN 25 / 40 / 50 Mounting flange DN 80 / 100 Connection Optionsly in DIN or ANSI (On request) Minimum inside pipe diameter on mounting flange 76 mm	(PN 25 … PN 400) (PN 25 … PN 400)

Description of function

In cases where, steam conditioning valves are only of limited use or can no longer be used in the event of a subcritical steam pressure reduction requiring steam cooling, due to very small or very large water requirement (more than 25 % of the steam quantity) and/or where very large differences between the operating condition exist. In such cases, the steam temperature is controlled by injecting finely atomized cooling water into the steam flow by injection cooler of the series PDK 6X51 / MDK 5X51 after the steam pressure has been reduced. This brings the steam to the desired value (at least 5 K above the saturated steam temperature).

In the nozzle chambers, the cooling medium is accelerated and starts to rotate by means of a twist insert, so that a very finely atomized spray cone is created when it is discharged into the steam piping. This guarantees a very good mixing of the cooling medium with the hot steam flow and ensures an optimum cooling effect. By using several twist nozzles (the necessary number is adapted to the operating data) a very good and precise steam temperature control is achieved for the planned operating states between the minimum and maximum mass flow of hot steam that is to be cooled.

The valve seat is positioned directly upstream from the nozzle head which completely prevents any undesired dripping due to its tight connection with the control piston. The control piston is lapped tightly into the seat during production.

Data sheet under https://www.rtk.de/en-us/Products/Valves-for-special-applications

Feed-water control valves with re-circulation connection

MV 5391

Electric series

With electric actuators
REact 30
REact 60
REact 100

MV 5291

MV 5391

Control valve for steam boiler feed-water control systems

- Boiler-feed pump securely protected against falling below the minimum flow rate
- Adjustable re-circulation flow rate
- Perforated plug for feed-water control
- Boiler steam ratings 5 ... 50 t/h

Technical data

	DIN	ANSI
Nominal diameter	DN 25 ... 80	NSP 1 ... 3
Nominal pressure	PN 40	CL 150 CL 300
Body materials	1.0619 / 1.4408	SA216 WCB SA351 CF8M
Stem packing	Chevron rings PTFE-graphite	(bis +250 °C)
Trim variations	Perforated cone 1.4122 hardened	
Seat leakage	According to DIN EN 1349 Class IV (metallisch dichtend)	According to ANSI / FCI 70-2 Class IV
Max. medium Temperature	+200 °C	
Max. press / temp.	According to DIN EN 1092	According to ASME B16.34
Approvals	DGRL (CE), ATEX (für PV...), TR TS (EAC), CCC, CRN	

Data sheet under https://www.rtk.de/en-us/Products/Valves-for-special-applications

Continuous blow down valves

MV 5291

PV 6291

Electric series

With electric actuators
REact 15
REact 30

MV 5291-D
MV 5291-V

Pneumatic series

With pneumatic actuators
ST 6135

PV 6291-D
PV 6291-V

Motorized control valves for continuous blow down of steam boilers.

- Two-way design with (V) / without (D) sample valve
- Durable execution
- Hardened plug and seat for low wear operation
- body material GP-240-GH
- Parabolic plug with linear characteristic for exact dosing of blow down flow rate

Technical data

	DIN	ANSI
Nominal diameter	DN 15, 20, 25, 40	NPS ½, ¾, 1 und 1½
Nominal pressure	PN 40	CL 300
Body material	GP-240-GH	SA 216 WCB
Stem packing	Chevron rings PTFE-graphite	(bis +250 °C)
Trim variations	Parabolic plug	
Seat leakage	According to DIN EN 1349 / IEC 60534 Class IV (metal to metal)	According to ANSI / FCI 70-2 Class IV
Max. press. / temp.	According to DIN EN 1092	According to ASME B16.34
Approvals	DGRL (CE), ATEX (für PV...), CCC, CRN	

Data sheet under https://www.rtk.de/en-us/Products/Valves-for-special-applications

Bottom blowdown valves

PV 6291-E

HV 6291

PV 6291

Pneumatic series

With pneumatic actuator ST 6135	With Handwheel
PV 6291	HV 6291
PV 6291-E	

Bottom blowdown valves for steam boilers

- Maintenance free stem packing
- Clear flow through valve
- Protection of stem packing by back sealing
- Easy replacement of plug
- Reduced susceptibility to water hammer due to bonnet having a smaller cross sectional area
- Guided plug which reduces plug vibration
- Supplied with high quality B7A grooved gaskets

Technical data

	Two-way design		Angle form	
	DIN	ANSI	DIN	
Nominal diameter	DN 20 … 65	NPS ¾ … 2 ½	DN 20 … 50	
Nominal pressure	PN 40	CL 300	PN 63 ... 160	
Body material	GP240GH	SA 216 WCB	GP240GH, Others on request	
Stem packing	Chevron rings PTFE-graphite	(max. +250 °C)	Chevron rings PTFE-graphite	(max. +292 °C)
Trim variations	Shut-off plug Stem + Seat 1.4571 Hardened		Shut-off plug Stem + Seat	Hardened 1.4571 Hardened
Mounting position	Any			
Max. press / temp.	According to DIN EN 1092		According to ASME B16.34	
Options	Solenoid valve with control unit for bottom blowdown valve			
Function HV 6291	The bottom blowdown valve is operated by hand lever The valve closes automatically when the lever is released The valve can be blocked in the open position			
Function PV 6291	The air supply must not exceed 6 bar The bowdown valve must be quickly + fully opened			
Approvals	DGRL (CE), ATEX (für PV...), CCC, CRN			

Data sheet under https://www.rtk.de/en-us/Products/Valves-for-special-applications

Valves for discharge / re-circulation control

MV 5341

Electric series	Pneumatic series
With electric actuators	**With pneumatic actuators**
REact 30	ST 6135
MV 5241	PV 6241
REact 60 REact 100	ST 6160
MV 5341	PV 6341

Control valves for discharge / re-circulation used for water- or air-cooled condensers

- Three-way design
- Kvs value adjustable in gate B
- Plug can be rotated upto 80°
- Vacuum-resistant on re-circulation side
- Re-circulation plug assy cavitation resistant

Technical data

Nominal diameter	DN 50 … 150	
Nominal pressure	PN 16 … 40	
Body materials	EN-GJS-400-18-LT	(max. PN 25)
	GP240GH	(max. PN 40)
	GX5CrNiMo19-11-2	(max. PN 40)
Flanges	According to DIN 2501; EN 1092-1 and EN 1092-2	
	Different flanges on request	
Stem packing	Chevron rings PTFE-graphite	(max. +250 °C)
	Stuffing box pure graphite	(max. +530 °C medium dependent)
Trim variations	Diverting plug to control flow / re-circulation	(linear)
	Stem + Seat 1.4571	
	Parabolic plug 1.4122	
	Perforated plug 1.4122, 1.4122 hardened	
	Other materials available on request	
Seat leakage	According to DIN EN 1349	
	Class IV (metal to metal)	
Max. press / temp.	According to DIN EN 1092	
Approvals	DGRL (CE), ATEX (für PV...), CCC	

Data sheet under https://www.rtk.de/en-us/Products/Valves-for-special-applications

For Hydrogen Service

Electric series	Pneumatic series
With electric actuators	**With pneumatic actuators**
REact 30	ST 6135
MV 5200	PV 6200
REact 60 REact 100	ST 6160
MV 5300	PV 6300

Control valve for Hydrogen Service (Pure Hydrogen , Hydrogen mixed with natural gas)

Technical data	DIN	ANSI
Nominal diameter:	DN 15…DN 150	NPS 6
Nominal pressure:	PN 16…160	Cl 150…900
Body materials:	GP-240-GH (PN 16…160) GX5CrNiMo19-11-2 (PN 16....40)	SA 216 WCB (CL 150…900) SA 351 CF8M (CL 150…900)
Connection	Flanges according to DIN EN 1092-1	Flanges according to ASME B16.5
Spindle packing:	Bellow seals upto PN 100 TA Luft / ISO 15848	Bellow seals upto Cl 600 TA Luft / ISO 15848
Trim : **(characteristic curve)**	On/ off, Linear , Equal percentage	On/ off, Linear , Equal percentage
Remark trims :	On/off plug, V-port plug, Parabolic plug, Perforated plug	On/off plug, V-port plug, Parabolic plug, Perforated plug
Trim Materials :	1.4571	ANSI 316Ti
SEAT Leakage:	IEC 60534- Class IV, metallic tight	ANSI / FCI 70-2 -Class IV metallic tight
Max. Press/ Temp.	According to DIN EN 1092 (see page nr….)	According to ASME/ANSI B16.34 (see page nr….)
Approvals :	PED 2014/68/EU ATEX - Complete Valve in combination with Pneumatic Actuator / Valve without Electric Actuator	PED 2014/68/EU ATEX - Complete Valve in combination with Pneumatic Actuator / Valve without Electric Actuator

Data sheet under https://www.rtk.de/en-us/Products/Shut-off-and-control-valves

ACTUATORS

- Electric actuators
- Pneumatic actuators

REact 15

Series

REact 15 E
REact 15 DC

Electric actuator for modulating control and shut/off valves

- operated by 3-term-step controllers
- force switches for both directions
- limit switch for one direction, spindle retracted
- Four speed settings as standard | DC
- protection rating IP 65
- valve position indicator
- manual control
- Electrical connections via plug/socket connectors
- CE marking

Options:

- Spring clamp connection terminals
- 2 freely selectable limit switches
- Anti condensation heater
- Feedback potentiometer
- Feedback transducer 2 or 3-Wire
- Positioner with display

Technical data

Type	REact 15 E			REact 15 DC			
Operating force	1,5 kN						
Closing force	1,7 kN						
Stroke	max. 35 mm						
Speed	0,38 mm/s			0,28 mm/s	0,38 mm/s	0,57 mm/s	1,14 mm/s
Power draw	13,2 VA			4,5 W	5 W	6,2 W	8,6 W
Isolation class	B						
Motor voltage	24 V AC-50/60 HZ	115 V AC-50/60 HZ	230 VAC -50/60 HZ	24 VDC			
Motor rating standard	S3-70%	S3-50%	S3-60%	S1			
Limit switches	1 switch						
Protection rating	IP 65, DIN VDE 0470						
Ambient temperature	-20 °C bis +70 °C						
Mounting position	Any, except upside down						
Gear lubricant	Divinol Fett Central, NIGI Klasse 0						
Cable glands	3 x M16						
Weight	4,2 kg						

Optional accessories

2 additional limit switch	2 additional circuit board is necessary Contact rating 5 A, 250 V	
Potentiometer	1 kΩ 2 kΩ 5 kΩ	
Position indicator	REtrans4W, 3-wire REtrans2W, 2-wire	0(4) – 20 mA, 0(2) 10V 4 – 20 mA
Digital positioner	REpos Input Output	 0(4) – 20 mA bzw. 0(2) – 10 V 0(4) – 20 mA bzw. 0(2) – 10 V
Heater	12 - 36 VUC (3W), 110-230 VAC (3W)	

Data sheet under https://www.rtk.de/en-us/Products/Actuators

REact 30

Series

REact 30 E
REact 30 DC

Electric actuator for control and shut/off valves with brushless 24 VDC motor technology (REdrive)

- 3-point step control
- Separate force and limit switches for both directions
- Four speed settings as standard I DC
- Protection rating IP 65
- Valve position indicator
- Manual hand wheel
- Electrical connections via plug/socket connectors
- CE marking

Options:

- Spring clamp connection terminals
- Power pack, input: 90-264 V 50/60 Hz I Out: 24V DC
- Heater
- Potentiometer
- Position indicator, 2 or 3-wire
- Positioner with display
- Bus system (Profibus DP, CANopen, Modbus)
- Hydraulic system for fail-safe control
- For DC: DriCo-Modul

Technical data

Type	REact 30 E			REact 30 DC			
Operating force	2,8 kN						
Closing force	3,0 kN						
Stroke	max. 40 mm						
Speed	0,28 mm/s	0,74 mm/s	1,12 mm/s	0,2 mm/s	0,28 mm/s	0,42 mm/s	0,84 mm/s
Power draw	max. 27 VA	max. 27 VA	max. 46 VA	9 W	10 W	13 W	21 W
Motor voltage	24 VAC, 115 V, AC / 230 V, AC, 50/60 Hz*			24 VDC			
Isolation class	B						
Motor rating standard	S1– 100%						
Limit switches	2 x force switch, 2 x switches Rating 4 A, 250 V 2 adjustable switches Rating max. 4 A, 250 V						
Protection rating	IP 65, DIN EN 60529			IP 65, DIN VDE 0470			
Ambient temperature	-20 °C bis +70 °C*						
Mounting position	beliebig, jedoch Antrieb nicht nach unten hängend						
Gear lubricant	Divinol Fett F 14 EP, NLGI Klasse						
Cable glands	4 x M 20						
Weight	4,5 kg						

*If you use the power supply (NG2450) the max. ambient temperature is -10°C till +60°C

Optional accessories

Potentiometer	max. 2	1 kΩ, 2 kΩ ,5 kΩ
Position indicator	REtrans4W, 3-wire	0(4) – 20 mA, 0(2) – 10 V
	REtrans2W, 2-wire	4 – 20 mA
REpos with Profibus DP or CanOpen or Modbus RTU	REpos	
	Input	0(4) – 20 mA bzw. 0(2) – 10 V
	Output	0(4) – 20 mA bzw. 0(2) – 10 V
Bus System	REpos with Profibus DP or CanOpen or Modbus RTU	
Heater	12-36 VUC (2x3W), 110-230 VAC (2x3W)	
Power pack	Input: 90-264V 50/60Hz Output: 24VDC	
Supplementary equipment	NRTL(Nationallly Recognized Testing Laboratory)-Certification for USA & Canada	
	Sea air resistant variant	

Additional options on request

Data sheet under https://www.rtk.de/en-us/Products/Actuators

REact 60

Series

REact 60 E
REact 60 DC

Electric actuator for control and shut/off valves with brushless 24 VDC motor technology (REdrive)

- 3-point step control
- Separate force and limit switches for both directions
- Four speed settings as standard | DC
- Low height due to adaption spindle
- Protection rating IP 65
- Valve position indicator
- Manual hand wheel
- Electrical connections via plug/socket connectors
- CE marking

Options:

- Spring clamp connection terminals
- Power pack, input: 90-264 V 50/60 Hz | Out: 24V DC
- Heater
- Potentiometer
- Position indicator, 2 or 3-wire
- REpos positioner with display
- Bus system (Profibus DP, CANopen, Modbus)
- Process controller integrated in cover
- Hydraulic system for fail-safe control
- For DC: DriCo-Modul

Technical data

Type	REact 60 E				REact 60 DC			
Operating force	6,0 kN							
Stroke	max. 60 mm							
Speed	0,3 mm/s	0,45 mm/s	0,9 mm/s	1,7 mm/s	0,2 mm/s	0,3 mm/s	0,45 mm/s	0,9 mm/s
Power draw	27 VA	46 VA	46 VA	79 VA	11,5 W	12,5 W	18 W	27 W
Motor voltage	24 VAC, 115 V, AC / 230 V, AC, 50/60 Hz				24 VDC			
Isolation class	B							
Motor rating standard	S1 100%	S1 100%	S1 100%	S3 50%	S1 100%			
Force switches	2, directly wired							
Limit switches	2, directly wired							
Additional limit switches	2, rating 4 A, 250 V							
Protection rating	IP 65, DIN EN 60529							
Ambient temperature	-20 °C bis +70 °C*							
Mounting position	Any, except upside down							
Gear lubricant	Divinol Fett Central, NIGI grade 0							
Cable glands	4 x M 20							
Weight	6,7 kg							

*If you use the power supply (NG2450) the max. ambient temperature is -10°C till +60°C

Optional accessories

Potentiometer	max. 2	1 kΩ, 2 kΩ, 5 kΩ
Position indicator	REtrans4W, 3-wire	0(4) – 20 mA, 0(2) – 10 V
	REtrans2W, 2-wire	4 – 20 mA
REpos / digital positioner with display	REpos	
	Input	0(4) – 20 mA, 0(2) – 10 V
	Output	0(4) – 20 mA, 0(2) – 10 V
Bus System	REpos with Profibus DP or CanOpen or Modbus RTU	
Heater	12-36 VUC (2x3W), 110-230 VAC (2x3W)	
Power pack	Input: 90-264V 50/60Hz Output: 24VDC	
Supplementary equipment	NRTL(Nationallly Recognized Testing Laboratory)-Certification for USA & Canada	
	Sea air resistant variant	

Additional options on request

Data sheet under https://www.rtk.de/en-us/Products/Actuators

REact 100

Series

REact 100 E
REact 100 DC

Electric actuator for control and shut/off valves with brushless 24 VDC motor technology (REdrive)

- 3-point step control
- Separate force and limit switches for both directions
- Four speed settings as standard | DC
- Low height due to adaption spindle
- Protection rating IP 65
- Valve position indicator
- Manual hand wheel
- Electrical connections via plug/socket connectors
- CE marking

Options:

- Spring clamp connection terminals
- Power pack, input: 90-264 V 50/60 Hz | Out: 24V DC
- Heater
- Potentiometer
- Position indicator, 2 or 3-wire
- REpos positioner with display
- Bus system (Profibus DP, CANopen, Modbus)
- Hydraulic system for fail-safe control
- For DC: DriCo-Modul

Technical data

Type	React 100 E			REact 100 DC			
Operating force	10 kN						
Stroke	max. 80 mm						
Speed	0,3 mm/s	0,45 mm/s	0,9 mm/s	0,2 mm/s	0,3 mm/s	0,45 mm/s	0,9 mm/s
Power draw	27 VA	46 VA	81 VA	18 W	21 W	28 W	41 W
Motor voltage	24 VAC, 115 V, AC / 230 V, AC, 50/60 Hz			24 VDC			
Isolation class	B						
Motor rating standard	S1 100%	S1 100%	S3 50%	S1 100%			
Force switches	2, directly wired						
Limit switches	2, directly wired						
Additional limit switches	2, rating 4 A, 250 V						
Protection rating	IP 65, DIN EN 60529						
Ambient temperature	-20 °C bis +70 °C*						
Mounting position	Any, except upside down						
Gear lubricant	Divinol Fett Central, NIGI grade 0						
Cable glands	4 x M 20						
Weight	6,7 kg						

*If you use the power supply (NG2450) the max. ambient temperature is -10°C till +60°C

Optional accessories

Potentiometer	max. 2	1 kΩ, 2 kΩ, 5 kΩ
Position indicator	REtrans4W, 3-wire	0(4) – 20 mA, 0(2) – 10 V
	REtrans2W, 2-wire	4 – 20 mA
REpos / digital positioner with display	REpos	
	Input	0(4) – 20 mA, 0(2) – 10 V
	Output	0(4) – 20 mA, 0(2) – 10 V
Bus System	REpos with Profibus DP or CanOpen or Modbus RTU	
REpos /with Profibus DP		
Heater	12-36 VUC (2x3W), 110-230 VAC (2x3W)	
Power pack	Input: 90-264V 50/60Hz Output: 24VDC	
Supplementary equipment	NRTL(Nationallly Recognized Testing Laboratory)-Certification for USA & Canada Sea air resistant variant	

Additional options on request

Data sheet under https://www.rtk.de/en-us/Products/Actuators

REact 30DC-PoP

Series

REact 30DC-PoP

Electric 3kN actuator for control valves with emergency power supply REepac03

Characteristics REact 30DC PoP

- 24 V BLDC Motor technology
- Advanced motor electronic REdrive^{ecu}
- 3-point step operation
- Separate force and limit switches
- Four speed settings as standard
- Protection rating IP 65, NEMA 4X
- Valve position indicator
- Manual hand wheel
- Electrical connections via plug/socket connectors

Characteristics REepac03

- SuperCap technology
- maintenance free
- backup speed:
  1.1mm/sec. REact30 DC PoP low version
  3.1mm/sec. REact30 DC PoP high version
- max travel range: 40mm
- actuator spindle retracted or extended selectable via DIP switch
- life cycle: > 500 000 Cycles
- charging time : 60 sec/ max charge
- power supply: 24Vdc/ 4A
- degree of protection: IP65
- ambient temperature -20°C upto 55°C

Options:

- Power pack input: 90-264 V 50/60 Hz
  Out 24V dc
- anti condensation heater
- Potentiometer
- Position indicator, 2 or 3-wire
- Positioner with display
- Bus system (Profibus DP, CANopen, Modbus)
- NRTL-Certification for USA & Canada
- Sea air resistant variant
- For DC: DriCo Modul

Technical data

Type	**REact 30DC-PoP**			
Operating force	2,8 kN			
Closing force	3,0 kN			
Stroke	max. 40 mm			
Speed low type	0,2 mm/s	0,28 mm/s	0,42 mm/s	0,84 mm/s
Speed high type	0,6 mm/s	0,74 mm/s	1,12 mm/s	2,24 mm/s
Power draw low/high	9 / 26 W	10 / 33 W	13 / 43 W	21 / 48 W
Motor voltage	24 VDC			
Isolation class	B			
Motor rating standard	S1– 100%			
Force switches	2, directly wired			
Wegschalter	2, directly wired			
Additional limit switches	2, rating 4 A, 250 V			
Protection rating	IP 65, DIN VDE 0470 / NEMA 4X			
Ambient temperature	-20°C...55°C*			
Mounting position	any, except upside down			
Gear lubricant	Divinol Fett F 14 EP, NLGI grade			
Cable glands	4 x M 20			
Weight	4,5 kg			

*If you use the power supply (NG2450) the max. ambient temperature is -10°C till +60°C

Optional accessories

Potentiometer	Max. 2	1 kΩ, 5 kΩ, 10 kΩ
Position indicator	REtrans4W, 3-wire REtrans2W, 2-wire	0(4) – 20 mA, (0)2..10 V 4 – 20 mA
Digital positioner with display	REpos input output	 (0)4..20mA,(0)2..10V (0)4..20mA,(0)2 10V
Bus System	REpos with Profibus DP or CanOpen or Modbus RTU	
REpos with Profibus DP		
Heater	12-36 VUC (2x3W), 110-230 VAC (2x3W)	
Power pack	Input: 90-264V 50/60Hz Output:24VDC	
NRTL-Certification		

Additional options on request

Data sheet under https://www.rtk.de/en-us/Products/Actuators

Electric actuator

Series

REact 60-DC-PoP
REact 100 DC-PoP

Electric 6/10kN actuator with emergency power supply REepac06

Characteristics
24 V BLDC Motor technology

- Fail-safe function
- Advanced motor electronic REdriveecu
- 3-point step operation 24Vdc
- force switches for both directions
- travel switches for both directions
- Four speed settings as standard
- Protection rating IP 65, NEMA 4X
- Manual operation
- Electrical plug/socket connectors

Characteristics REepac06

- SuperCap technology
- Maintenance free
- Fail safe speed:
  2.1mm/s. low version
  4.3mm/s. high version
- Max travel range: 60/80mm
- Actuator spindle retracted or extended
  Selectable via DIP switch
- Life cycle: >500 000 Cycles
- Charging time: 60 sec/max. charge
- Power supply: 24Vdc
- Degree of protection: IP65, NEMA 4X
- Ambient temperature -20°C up to 55°C

Optional accessories:

- Power pack (REpow06) see tech-data
- 3-point step control 115 or 230VAC
- Anti-condensation heater
- Potentiometer
- Position indicator, 2 or 3-wire
- Positioner with display
- Bus System REpos DP or CanOpen
  or Modus RTU
- Positioner with display
- For DC: DriCo Modul

Technical specification

Type		**REact 60DC-PoP**				**REact 100DC-PoP**			
Operating force		6 kN				10 kN			
Stroke		max. 60 mm				max. 80 mm			
Speed / low type	**mm/s**	0,4	0,53	0,8	1,6	0,4	0,53	0,8	1,6
Speed / high type	**mm/s**	0,81	1,1	1,6	3,1	0,81	1,1	1,6	3,1
Speed / fail type	**mm/s**	low / high 2,1 / 4,3				low / high 2,1 / 4,3			
Power supply		24 Vdc							
Rated power		max. 125W							
Motor rating standard		S1/ 100%							
Force switches		2, hard-wired							
Limit switches		2, hard-wired							
Additional limit switchese		2, Schaltleistung 4 A, 250 V / rating 4 A, 250 V / puissance de coupure 4 A, 250 V							
Protection rating		IP 65**, DIN VDE 0470 /							
Ambient temperature		-20°C...55°C*							
Mounting position		any, except upside down							
Gear lubricant		Divinol Fett F 14 EP, NLGI Klasse / grade / classe 0							
Cable glands		4 x M 20							
Weight		5 kg							

*When using all cable glands according to the specification.

Optional accessories

Type			
Potentiometer	max. 2		1k,2k,5k Ohm
Position indicator	RETrans4W, 3-wire	Output	(0)4...20 mA (0)2…10V
	RETrans2W, 2-wire	Output	4 – 20 mA
		Input	(0) 4...20mA, (0) 2.10V
		Output	

BUS System	Bus System REpos DP or CanOpen or Modus RTU
NRTL-Certification	see separate documentation REact 60_100 – 8010 NRTL
Heater	12-36 V - 3W/6W, 110-230V - 3W/6W
Power pack..Type: REpow06	Input/ Entrée : 100-240V 50 / 60Hz Output / Sortie 24VDC / 6A

Additional options on request

Data sheet under https://www.rtk.de/en-us/Products/Actuators

Electric Actuators

REacTron

Series

REacTron 30DC
REacTron 60DC
REacTron 100DC

Electric actuator for control valves with integrated single loop PID controller

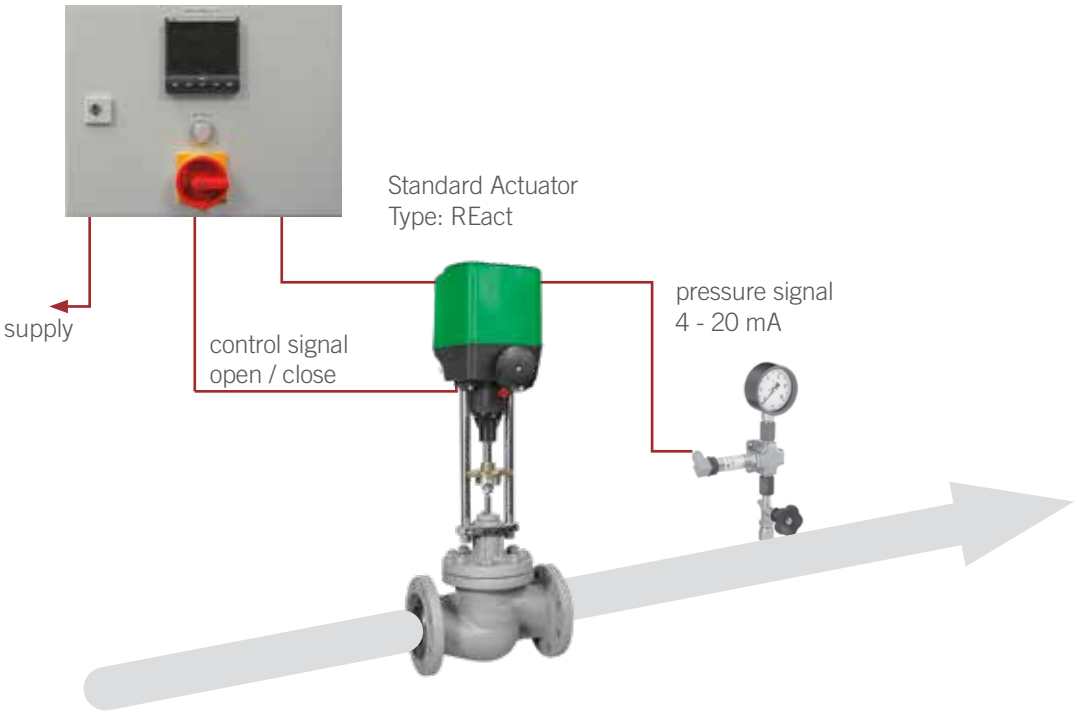
- single loop PID controller type : Qube
- power supply: 24V dc
- Input: mA, V, PT100, TC (free selectable)
- Output: 3-point step
- degree of protection: IP65
- ambient temperature : 0-50°C
- power unit : In 115/230Vac out 24Vdc
- prewired connectors

Options:

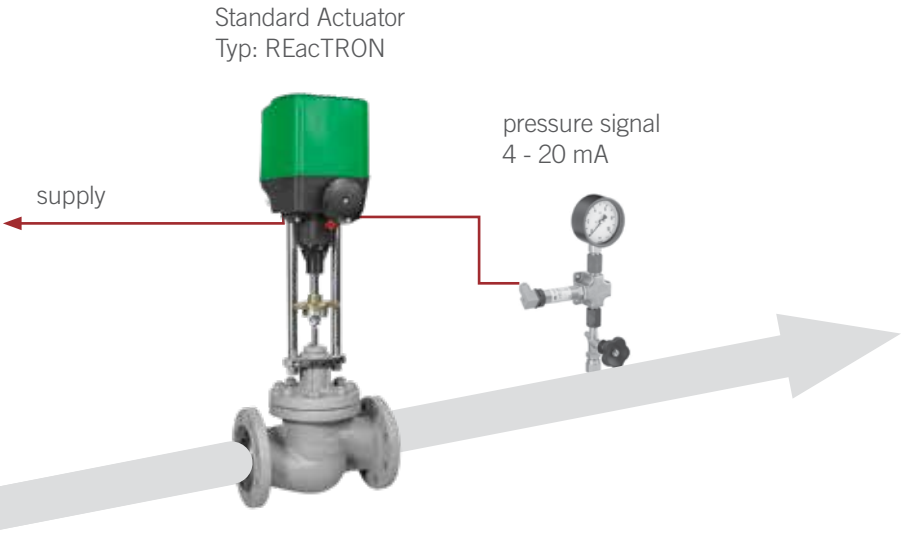
- interface RS485 Modbus (on request)
- RElog (starting up device for emergency closing unit)
- approval: NRTL

Application

Standard solution for a single loop PID process control



Low cost solution REacTron -> reduced material and costs



Data sheet under https://www.rtk.de/en-us/Products/Actuators

Electric Actuators

REact 150
REact 220
REact 300

Series

REact 150
REact 220
REact 300

Electric actuator for control and shut/off valves

- 3-point step control (open – stop – closed)
- Separate force and limit switches for both directions
- Protection rating IP 66 / NEMA Type 4X
- Valve position indicator
- Manual hand wheel
- Electrical connections via plug/socket connectors
- CE marking

Options:

- Heater
- Potentiometer
- Position Transducer 2 or 3-wire
- REpos Digital Positioner with Display
- Bus System REpos DP or CanOpen or Modus RTU
- NRTL (Nationally Recognized Testing Laboratory)-Certification for USA & Canada (Dokumentation: REact150_220_300-8010 NRTL)
- Sea air resistant variant
- For DC: DriCo Modul

Technical data

Type	React 150	REact 220	REact 300
Closing force	15kN	22kN	30kN
Operational force	15kN	22kN	30kN
Stroke	min. 15mm, max. 100 mm		
Speed	0,35 / 0,47 / 0,70 / 1,40	0,35 / 0,47 / 0,70	0,35 / 0,47 / 0,70
Power consumption	max. 125W	max. 125W	max. 125W
Power supply	3 ~ 380-480 V 50/60 Hz / 1 ~100-240 V 50/60 Hz		
Drive Control	24VDC / 30mA		
Motor rating standard	short-time 2 steps 2/sek.		
Duty cycle	100% ED		
Limit switches	2 / Max. 24VDC / 2A		
Protection rating	IP 66, DIN VDE 0470		
Ambient temperature	-20°C...+70°C **		
Mounting position	Any, except upside down		
Gear lubricant	Divinol Lithogrease, NLGI Klasse 0		
Cable glands	4 x M 20		
Weight	28 kg	34 kg	

** If an electronic positioner is used, then the ambient temperature range must be equivalent to the temperature range of the positioner

Optional accessories

Potentiometer	max. 2	1 kΩ, 2 kΩ, 5 kΩ
Position indicator	REtrans4W, 3-wire	0(4) – 20 mA, 0(2) – 10 V
	REtrans2W, 2-wire	4 – 20 mA
REpos / Digital Positioner	REpos	
	Input	0(4) – 20 mA, 0(2) – 10 V
	Output	0(4) – 20 mA, 0(2) – 10 V
BUS System	REpos with Profibus DP or CanOpen or Modbus RTU	
Heater	14W	

Additional options on request
DriCo Modul 3-point step 115 V or 230 VAC / Drico Modul (power pack)

Pneumatic Actuators

ST 6135

Series

ST 6115	120 cm²
ST 6135	280 cm²
ST 6160	530 cm²

Special applications

ST 6135.B6-__-C5-M
ST 6135.B6-__-OX
ST 6160.A6-__-C5-M
ST 6160.A6-__-OX

Pneumatic actuators for control and on/off valves

- Approved by German Technical Inspectorate (TÜV) as safety functional device for steam and water in heating systems.
- Spring closed or open
- Max. stroke 60 mm
- Max. air supply 6 bar
- Max. actuating force 10 kN
- Direct mounting of positioner with internal air supply
- Special applications possible
  -C5-M Marine air resistant
  -OX For oxygen as operating medium

Technical data

Type	ST 6115 .A6-3S	ST 6115 .C6-4S	ST 6135 .B6-2G	ST 6135 .B6-6G	ST 6160 .A6-6G	ST 6160 .C6-3G	ST 6160 .C6-7G
Diaphragm area	120 cm²		280 cm²		530 cm²	530 cm²	
Spring range (bar)	0.9 ... 2.0	0.8 ... 2.4	0.2 ... 1.0	0.8 ... 3.0	0.8 ... 2.8	0.3 ... 1.3	0.7 ... 3.0
Stroke	20 mm	25 mm	35 mm		40 mm	60 mm*	
Operating pressure (bar)	Min. 2.2 Max. 6	Min. 2.6 Max. 6	Min. 1.2 Max. 6	Min. 3.2 Max. 6	Min. 3.0 Max. 6	Min. 1.5 Max. 6	Min. 3.2 Max. 6
Actuator volume	0.4 L_N		1.7 L_N		2.8 L_N	3.6 L_N	
Ambient temperature	-40 °C to +80 °C					-40 °C to +80 °C	
Coating	Acrylic						
Weight	3 kg		5 kg		12.5 kg	14 kg	
Connection	¼" NPT Female thread						
Mounting position	Any						

*50 mm for direction of action « open »; spring range reduced

Options

Handwheel	Mounted on top
Limit switches	Contact rating max. 6 A, 400 V Protection IP 65
3 / 2-solenoid valve	24 V DC, 24 V, 115 V, 230 V 50 / 60 Hz, EEx The safety function according to DIN EN 14597:2005-12 is only possible in combination with a solenoid valve with spring to close function.

Positioners		
SRP 981	0,2...1,0 bar max. 6 bar	max. 6 bar
SR 6136 (Sipart)	4 – 20 mA	4-20 mA 2/3/4-Leiter
SRD 998	4 – 20 mA	4.-20 mA 2- Leiter
SRI 986	4 – 20 mA	4-20 mA 2- Leiter

Other options available on request

Important note

The actuator needs in conjunction with the approval DIN EN 14597:2012-09 for failure free service, dry oil free instrument air.

- Particle size 30 µm
- Pressure dewpoint +20 °C under ambient temperature

Data sheet under https://www.rtk.de/en-us/Products/Actuators

Pneumatic Actuators

ST 6175

Series

ST 6175.B6-__ 1000 cm²
ST 6175.C6-__ 1000 cm²

Pneumatic actuators for control and on/ off valves

- Actuating force max. 40 kN
- Spring closed or open
- Stroke max. 60 mm / 100mm
- Max air supply 6 bar

Technical data

Type	.B6-2S	.B6-3D	.B6-5D	.B6-7D	.C6-3S	.C6-3D	.C6-5D	.C6-7D
Diaphragm area	1000 cm²							
Spring range (bar)	0.3 ... 0.9	0.7 ... 2.1	1.2 ... 3.4	1.6 ... 4.7	0.5 ... 1.4	0.8 ... 2.1	1.4 ... 3.4	1.9 ... 4.7
Actuating force spring closed, closed position	3 kN	7 kN	12 kN	16 kN	5 kN	8 kN	14 kN	19 kN
Actuating force spring open, open position	40 kN	32 kN	21 kN	10 kN	38 kN	32 kN	21 kN	10 kN
Stroke	60 mm				100 mm			
Operating pressure (bar)	Min.1.1 Max. 6	Min. 2.3 Max. 6	Min. 3.6 Max. 6	Min. 4.9 Max. 6	Min. 1.6 Max. 6	Min. 2.3 Max. 6	Min. 3.6 Max. 6	Min. 4.9 Max. 6
Actuator volume	0.8 ... 5.8 L_N				0.8 ... 9 L_N			
Ambient temperature	-40 °C to +80 °C							
Coating	Acrylic							
Weight	35 kg	37 kg	39 kg	41 kg	45 kg	48 kg	54 kg	60 kg
Connection	⅜" NPT Female thread							
Mounting position	Any							

Options

Handwheel	Mounted on top
Limit switches	Contact rating max. 6 A, 400 V Protection IP 65
3 / 2 way solenoid valve	24 V DC, 24 V, 115 V, 230 V 50 / 60 Hz, EEx
	The safety function according to DIN EN 14597:2005-12 is only possible in combination with a solenoid valve which fullfills the requirements of the Mounted on top mentioned directive. DIN EN 14597 only spring to closes.
Positioners	
SRP 981	0,2...1,0 bar max. 6 bar max. 6 bar
SR 6136 (Sipart)	4-20 mA 2/3/4-Leiter 2 / 3 / 4-Wire
SRD 998	4.-20 mA 2- Leiter 2-Wire
SRI 986	4-20 mA 2- Leiter 2-Wire

Other options available on request

Important note

The actuator needs in conjunction with the approval DIN EN 14597:2012-09 for failure free service, dry oil free instrument air

- Particle size 30 µm
- Pressure dewpoint +20 °C under ambient temperature

Data sheet under https://www.rtk.de/en-us/Products/Actuators

Tandem B6.7D

ST6175
B6.7D TANDEM

Tandem Series

.B6-7D-TANDEM__ 2 x 1000 cm²

Penumatic actuators for control and on/off valves

- Actuating force of 35 kN in spring-closed, closed position
- Spring closed or spring open
- Stroke max. 60mm
- Max air supply 6 bar

EXPECTED LAUNCH IN 2024

Technical data

Type	.B6-7D-TANDEM
Diaphragm area	2 x 1000 cm²
Spring range (bar)	1.6....4.7
Actuating force sping closed, closed position	35 kN
Actuating force spring open, open position	20 kN
Stroke	60 mm
Operating pressure (bar)	Min. 4.9 Max. 6
Actuator volume	0.8 … 5.8 L_N
Ambient temperature	-40 C to 80 C
Weight	85 kg
Connection	⅜" NPT Female thread

Technical Data is subject to change

Data sheet under https://www.rtk.de/en-us/Products/Self-operating-valves

SENSORS

- RTD Temperature probes
- Level sensors
- Electronic pressure-measuring station
- Power supply

RTD Temperature probes

WT 1104

WT 1102

Series

Screw in RTD Temperature probes

WT 1102-1	1 x PT100 / 160 mm
WT 1102-2	1 x PT100 / 250 mm
WT 1102-3	2 x PT100 / 160 mm
WT 1102-4	2 x PT100 / 250mm
WT 1102-MU	4 – 20 mA

Push in RTD Temperature probes for air measurement

WT 1104-1	1 x PT100 / to 400 mm
WT 1104-2	1 x PT100 / to 400 mm
WT 1104-4	2 x PT100 / to 1000 mm
WT 1104-MU	4 – 20 mA

Screw in RTD Temperature probes

Screw in RTD Temperature probes for standard applications are typically used for measuring temperatures of liquids or gases in pipelines or containers. They offer fast response time and come complete with stainless steel thermowell.

Measuring Insert	PT100 / temperature probe DIN EN60751 Class B	
Electrical Connection	2-Wire	
Process Connection	Thermowell, stainless steel 1.4571	
Temperature	-40 °C to +400 °C	
Pressure	PN max. 40 bar static	
Thread	G ½"	1.4571
Connection Head	Protection	IP 54
	Form	B / Aluminium
	Temperature	-40 °C to +85 °C (WT 1102-MU)
Design WT 1102-MU	2-Wire	Transducer
	Output	4 – 20 mA
	Please state required measuring range.	

Push in RTD Temperature probes for air measurement

With perforated brass thermowell and sliding stop flange

Measuring Insert	PT100 / Temperature probe DIN EN60751 Class B	
Electrical Connection	2-Wire	
Process Connection	Thermowell, brass	
Temperature	-40 °C to +400 °C	
Pressure	PN max. 40 bar static	
Thread	G ½"	1.4571
Connection Head	Protection	IP 54
	Form	B / Aluminium
	Temperature	-40 °C to +85 °C (WT 1104-MU)
Design WT 1104-MU	2-Wire	Transducer
	Output	4 – 20 mA
	Please state required measuring range.	

Data sheet under https://www.rtk.de/en-us/Products/Sensors-Electronic-components

NI 1341 NI 1342

Series

NI 1341
- For thermal and refrigeration applications

NI 1342
- Shortened design
- For thermal and refrigeration applications

Standard version

- TÜV component tested
- Electronic measurement system: Analogue technology, suitable for nuclear facilities
- Version available with shock, vibration or earthquake tests on request.
- Measuring range from 150 to 4000 mm
- Good temperature stability
- Excellent measuring precision
- LED trend display
- Connection thread G1

Technical data

Nominal pressure	PN 40 / PN 100	
Temp. max.	+238 °C (Medium)	PN 40
	+280 °C (Medium)	PN 100
Pressure max.	32 bar at +238 °C	(PN 40)
	40 bar at +20 °C	(PN 40)
	63 bar at +280 °C	(PN 100)
	100 bar at +20 °C	(PN 100)
Temperature range		
NI 1341	-60 °C to +280 °C (Medium)	
NI 1342	-20 °C to +70 °C (Medium)	
Materials	Wet parts	Stainless steel 1.4541
	Housing	Aluminium AlMgSi0, 5F25
	Connector	Polyamid PA
Electrical data	Output	4 – 20 mA, 3-Wire
	Load, max.	220 Ω
	Display	10 LEDs per 10 % steps
	Supply-voltage Standard	24 V DC / 100 mA
	Supply-voltage CAN-open	24 V DC / 250 mA
	Power consumption Standard	ca. 80 mA
	Protection rating	IP 65
	Ambient temperature	-20 °C to +70 °C
Options	Field bus interface	CAN-open
Operation	The level is determined by the weight of the displacer, which is located in the medium. The weight depends on the buoyancy therefore on the specific weight and the level. The buoyancy of the displacer, depending on level and density of the liquid, is measured with a spring balance and inductively transformed in a 4 … 20 mA signal. To be able to calibrate the level sensor, the density of the liquid must be known. If used with strongly agitated fluids it is recommended that the level sensor be installed outside the vessel, for this a reference vessel with connection flanges should be used.	
Application	1. Level measuring with LED display per 10 % steps and remote transmission with 4-20 mA output signal	

Data sheet under https://www.rtk.de/en-us/Products/Sensors-Electronic-components

Electronic pressure-measuring station

DR 1226

Series

DR 1226
DR 1226-K

Electronic pressure-measuring station for use in heating and refrigeration systems, suitable for gases and liquids

- Piezoresistive
- Measuring range up to 60 barg
- Power supply 12 … 30 V DC
- With pressure gauge
- Two-Wire system
- Protection rating IP 54

Technical data

Function	A piezoresistive pressure sensor produces a pressure-proportional bridge voltage. This voltage is normalised to the corresponding measuring range and is given as a 4 – 20 mA signal.
Supply-voltage	12 … 30 V DC
Output	4 – 20 mA
Load	Max. 400 Ω
Protection rating	IP 54 / 65
Accuracy	Class 1
Ambient temperature	-20 °C to + 60 °C
Dimensions	380 x 146 x 96 mm
Compression strength	Short-time 1.3 pressure range
Vacuum resistance	High-vacuum
Material	
DR 1226	GK-CuZn38A
DR 1226-K	Stainless steel 1.4541

Data sheet under https://www.rtk.de/en-us/Products/Sensors-Electronic-components

NG 1534

Series

NG 1534

Switched mode AC/DC power supply

- Wide input range 85 … 264 V **AC**
  85 … 375 V **DC**
- Output: 24 V DC / 24 W
- Short-circuit-proof
- Compliance with:
  IEC / EN60950 EN50178
  UL / cUL60950, UL508C
- DIN top hat rail assembly
- Ambient temperature -10 °C to +70 °C
- Protection rating IP 20

Data sheet under https://www.rtk.de/en-us/Products/Sensors-Electronic-components

ELECTRIC COMPONENTS

- Digital controllers
- Analog controllers
- Electric switch gears

Digital controllers

RE 3172

Series

¼ DIN 96 x 96
RE 3172
RE 3472
RE 3672
RE 3972

On request

¼ DIN 96 x 96	⅛" DIN 48 x 96
RE 3173	RE 3172-M
RE 3473	RE 3472-M
RE 3673	RE 3672-M
RE 3973	RE 3972-M
	RE 3173-M
	RE 3473-M
	RE 3673-M
	RE 3973-M

Digital controllers with PID control RE3072/73 free configurable as:

Inputs:
- Feedback potentiometer from actuator
- External set point

Additional RE3073/RE3073M
- Programmer function
- Second analogue/digital output

On request
- Interface RS485 or Profibus DP

Technical data

Typ	RE 3172 RE 3172-M	RE 3472 RE 3472-M	RE 3173 RE 3173-M	RE 3473 RE 3473-M	RE 3672 RE 3672-M	RE 3972 RE 3972-M	RE 3673 RE 3673-M	RE 3973 RE 3973-M
Input	PT100	0(4)–20 mA	PT100	0(4)–20 mA	PT100	0(4)–20 mA	PT100	0(4)–20 mA
Output	3-point step				0(4)–20 mA			
Additional outputs	2 Alarm contacts 1 Measuring transducer SP, PV				3 Alarm contacts			
Regulations for electrical apparatus	Directives 73 / 23 / EEC as amended by directives 93 / 68 / EEC EN61010-1:93 + A2:95							
Regulations for electromagwnetic compatibility	Directives 89 / 336 / EEC as amended by directives 92 / 13 / EEC							
Regulations for RF émissions	EN61000-6-3:2001 for residential environments EN61000-6-4:2001 for industrial environments							
Regulation for HF immunity	EN61000-6-2:2001 for industrial equipment and systems							
Power supply	Standard On request		100–240 V AC / 50–60 Hz 24 V DC / 50–60 Hz					
Power consumption	Max. 3 VA							
Protection rating	Rear terminal block Housing Front		IP20 IP00 IP65					
E-connection	Screw terminal / 1 mm^2							
Housing	Switchboard mounting		96 (48) x 96 x 110 mm					
Ambient temperature	0 °C to +50 °C							
Humidity	Max. 95 % rel							
Approvals	CE, UL and cUL							

Data sheet under https://www.rtk.de/en-us/Products/Sensors-Electronic-components

OTHERS

- General information 5000 - 7010
- Product description tables
- Certificates
- Delivery conditions

Table-1 Parabloic plug/ KVS values [m³/h]

EN DN	ANSI NPS	Parabolic plug Seat (mm)																			
		4		8	12	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
15	½"	0.01	0.1											-	-	-	-	-	-	-	-
		0.02	0.25	1	2.1								-	-	-	-	-	-	-	-	-
		0.05	0.5	1.7	2.7	3.3							-	-	-	-	-	-	-	-	-
20	¾"	0.01	0.1										-	-	-	-	-	-	-	-	-
		0.02	0.25	1	2.5								-	-	-	-	-	-	-	-	-
		0.05	0.5	1.7	3.7	4.2	6						-	-	-	-	-	-	-	-	-
25	1	0.01	0.1										-	-	-	-	-	-	-	-	-
		0.02	0.25	1	2.5								-	-	-	-	-	-	-	-	-
		0.05	0.5	1.7	4	5.2	7.5	9.2					-	-	-	-	-	-	-	-	-
32	-		0.1										-	-	-	-	-	-	-	-	-
			0.25	1	2.5								-	-	-	-	-	-	-	-	-
			0.5	1.7	4.4	6.3	9.4	11	15				-	-	-	-	-	-	-	-	-
40	1½		0.1										-	-	-	-	-	-	-	-	-
			0.25	1	2.5								-	-	-	-	-	-	-	-	-
			0.5	1.7	4.4	6.8	11	15	19	24			-	-	-	-	-	-	-	-	-
50	2	-		1	2.5								-	-	-	-	-	-	-	-	-
		-		1.7	4.4	6.8	12	18	24	30	37		-	-	-	-	-	-	-	-	-
65	2½	-			2.5								-	-	-	-	-	-	-	-	-
		-		-	4.4	6.8	12	19	28	37	47	63	-	-	-	-	-	-	-	-	-
80	3	-		-	-	6.8	12	19	31	45	58	79	95	-	-	-	-	-	-	-	-
100	4	-		-	-	-	12	19	31	48	70	99	120	148	-	-	-	-	-	-	-
125	-	-		-	-	-	-	19	31	48	75	118	150	187	231	-	-	-	-	-	-
150	6	-		-	-	-	-	-	-	48	75	127	179	234	292	333	-	-	-	-	-
200	8	-		-	-	-	-	-	-	-	75	127	193	280	366	420	592	-	-	-	-
250	10	-		-	-	-	-	-	-	-	-							847	-	-	-
		-		-	-	-	-	-	-	-	-	127	193	302	438	527	747	926	-	-	-
300	12	-		-	-	-	-	-	-	-	-	-						977	-	-	-
		-		-	-	-	-	-	-	-	-	-	193	302	466	565	813	1126	1333	-	-
400		-		-	-	-	-	-	-	-	-	-	-	-	-			1455	-	-	-
		-		-	-	-	-	-	-	-	-	-	-	-	-	680	1208	1753	2110	2290	2371
Stroke Course (mm)		25							30			35		35 50[1]	50	60	80	80 100	100	100	120

* Stroke 50 mm for series 54

Table-2 Perforated plug / KVS values [m³/h]

EN DN	ANSI NPS	Perforated plug Seat (mm)																			
		12	15	20	25	32	40	50	65	80	90	100	125	150	175	200	225	250	300	350	400
15	½	1.6	2.6																		
20	¾	1.7	2.7	4.6																	
25	1	1.7	2.7	4.8	7.2																
32	-	1.7	2.7	4.8	7.6	12															
40	1½	1.7	2.7	4.8	7.6	12	19														
50	2	1.7	2.7	4.8	7.6	12	19	29													
65	2½			4.8	7.6	13	19	30	49												
80	3				7.6	13	20	30	52	74											
100	4				7.6	13	20	30	52	78	95	116									
125	-					13	20	30	52	78	95	122	181								
150	6						20	30	52	78	95	122	190	261							
200	8														320	403					
								30	52	78	95	122	190	273	375	465					
250	10														320	413	560	682			
									52	80	95	122	190	273	375	486	640	726			
300	12														320	413	560	725			
										78	95	122	190	273	375	486	640	785	1054		
400	-														320	413	560	725			
														273	375	486	640	785	1100	1491	1861
Hub/Stroke Course (mm)		25				30			40	50			60	80	80	80	80	80	100	120	150
															100	100	100	100			

Table-3 V-Port Plug/ KVS values [m³/h]

EN DN	ANSI NPS															
		20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
20	¾	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	1	7.5	9.2	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	9.4	11	15	-	-	-	-	-	-	-	-	-	-	-	-
40	1½	11	15	19	24	-	-	-	-	-	-	-	-	-	-	-
50	2		18	24	30	37	-	-	-	-	-	-	-	-	-	-
65	2½	-	19	28	37	47	63	-	-	-	-	-	-	-	-	-
80	3	-	-	31	45	58	79	95	-	-	-	-	-	-	-	-
100	4	-	-	-	48	70	99	120	148	-	-	-	-	-	-	-
125	-	-	-	-	-	75	118	150	187	231	-	-	-	-	-	-
150	6	-	-	-	-	-	127	179	234	292	333	-	-	-	-	-
200	8	-	-	-	-	-	-	193	280	366	420	592	-	-	-	-
250	10	-	-	-	-	-	-	-	302	438	527	747	926	-	-	-
300	12	-	-	-	-	-	-	-	-	466	565	813	1126	1333	-	-
400	-	-	-	-	-	-	-	-	-	-	680	1208	1455	2110	2290	2371
Stroke² mm		15						25	30	35	40	60	80	100	100	120

Strokes of equal percentage version on request

Table-4 Shut-off Plug / KVS values [m³/h]

EN DN	ANSI NPS	On-off plug Seat (mm)																	
		8	12	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
15	½	1.7	2.7	3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	¾	1.7	3.7	4.2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	1	1.7	4	5.2	7.5	9.2	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	4.4	6.3	9.4	11	15	-	-	-	-	-	-	-	-	-	-	-	-
40	1½	-	-	6.8	11	15	19	24	-	-	-	-	-	-	-	-	-	-	-
50	2	-	-	-	12	18	24	30	37	-	-	-	-	-	-	-	-	-	-
65	2½	-	-	-	-	19	28	37	47	63	-	-	-	-	-	-	-	-	-
80	3	-	-	-	-	-	31	45	58	79	95	-	-	-	-	-	-	-	-
100	4	-	-	-	-	-	-	48	70	99	120	148	-	-	-	-	-	-	-
125	-	-	-	-	-	-	-	-	75	118	150	187	231	-	-	-	-	-	-
150	6	-	-	-	-	-	-	-	-	127	179	234	292	333	-	-	-	-	-
200	8	-	-	-	-	-	-	-	-	-	193	280	366	420	592	-	-	-	-
250	10	-	-	-	-	-	-	-	-	-	-	302	438	527	747	926	-	-	-
300	12	-	-	-	-	-	-	-	-	-	-	-	466	565	813	1126	1333	-	-
400	-	-	-	-	-	-	-	-	-	-	-	-	-	680	1208	1753	2110	2290	2371
Stroke [mm]		15									25	30	35	40	60	80	100	100	120

Tabel-5 Mixing plug / Kvs values (m³/h)

Mixing plug				
EN DN	ANSI NPS	Stroke (mm)	Seat (mm)	Kvs (m³/h)
20	-	15	32	6
25	1"		32	9.2
32	-		32	15
40	1½		40	24
50	2"		50	37
65	2½		65	63
80	3"	25	80	95
100	4"	30	100	148
125	-	35	125	231
150	6"	40	150	333
200	8"	60	200	592
250	10"	60[1] / 80	250	847 / 926
300	12"	100	300	1333
400[2]	-	100	400	2371

*Stroke 60 mm for valves with bellows seal

Table-6 Diverting pg Plug / KVS values [m³/h]

Diverting plug				
EN DN	ANSI NPS	Stroke (mm)	Seat (mm)	Kvs (m³/h)
20	-	15	25	4.2
25	1"		25	7.5
32	-		25	11
40	1½		32	19
50	2"		40	30
65	2½		50	47
80	3"		65	79
100	4"	25	80	120
125	-	30	100	187
150	6"	35	125	292
200	8"	40	150	420
250	10"	60	200	747
300	12"	80	250	1126[3] / 625[4]
400	-	120	320	2110[3] / 1250[4]

DN 400 always requires technical clarification ** Port A *** Port B

Table- 7 Two stage parablolic plug / KVS values [m³/h]

EN DN	ANSI NPS	Multi stage parabolic plug Values [m³/h]		
		8	12	15
15	½	0.7	1.5	
		1.2	2.0	2.4
20	¾	0.7	1.8	
		1.2	2.9	4.0
25	1	0.7	1.8	
		1.2	2.9	4.0
32	-	0.7	1.8	
		1.2	3.3	4.5
40	1½	0.7	1.8	
		1.2	3.3	5.0
50	2	0.7	1.8	
		1.2	3.3	5.0
65	2½	-	1.8	
		-	3.3	5.0
Stroke (mm)		25		

Tabel-8 Two stage perforated plug / KVS values [m³/h] Only used for incompressible media

EN DN	ANSI NPS	Multi stage perforated plug Seat [mm]													
		20	25	32	40	50	65	80	100	125	150	200	250	300	350
40	1½	3.5	5.5	8.5	-	-	-	-	-	-	-	-	-	-	-
50	2	3.5	5.5	8.5	13.5	-	-	-	-	-	-	-	-	-	-
65	2½	3.5	5.5	9.3	13.5	21	-	-	-	-	-	-	-	-	-
80	3	-	5.5	9.3	14.3	21	37	-	-	-	-	-	-	-	-
100	4	-	5.5	9.3	14.3	21	37	55	-	-	-	-	-	-	-
125	-	-	-	9.3	14.3	21	37	55	86	-	-	-	-	-	-
150	6	-	-	-	14.3	21	37	55	86	135	-	-	-	-	-
200	8	-	-	-	-	21	37	55	86	135	195	-	-	-	-
250	10	-	-	-	-	-						293		-	-
							37	55	86	135	195	345			
300	12	-	-	-	-	-	-					293	515		
								55	86	135	195	345	555		
400		-	-	-	-	-	-	-	-	-		293	515		
											195	345	555	780	1055
Stroke (mm)		25		30			40	50		60	80	80/100	80/100	100	120

Table-1 Possible combinations of actuator and valve

Seat (mm) Parabolic plug	4	8	12	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
REact 15	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-
REact 30	•	•	•	•	•	•	•	•	•	•	•	• [1]	-	-	-	-	-	-	-
REact 60	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
REact 100	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
REact 150	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	-	-
REact 220	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	-	-
REact 300	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	-	-
ST 6115	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-
ST 6135	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-
ST 6160	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
ST 6175	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	-	-

Table-2

Seat (mm) Parabolic plug	4	8	12	15	20	25	32	40	50	65	80	90	100	125	150	175	200	225	250	300	350	400
REact 15	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-
REact 30	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-
REact 60	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
REact 100	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-
REact 150	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
REact 220	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
REact 300	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-
ST 6115	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ST 6135	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	-	-	-
ST 6160	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-	-	-
ST 6175	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-

Table-3

Seat (mm) Mixing, V-port and On-off plug	4	8	12	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
REact 15	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-
REact 30	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-
REact 60	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
REact 100	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-
REact 150	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	-	-
REact 220	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	-	-
REact 300	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	-	-
ST 6115	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-	-
ST 6135	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
ST 6160	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	-	-	-	-
ST 6175	-	-	-	-	-	-	-	•	•	•	•	•	•	•	•	•	•	-	-

Table-4 Closing pressure control valves and on / off valves

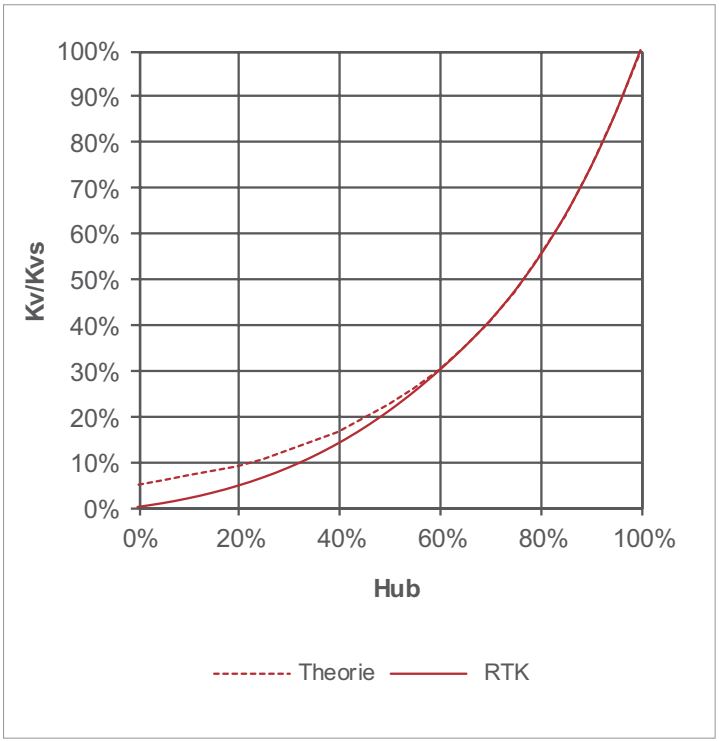
Seat (mm) Closing pressures[1]	4	8	12	15	20	25	32	40	50	65	80	90	100	125	150	175	200	225	250	300	350	400
REact 15	40	40	40	40	30	18.1	10.2	5.9	3.2	1.4	-	-	-	-	-	-	-	-	-	-	-	-
REact 30	160	160	160	141.1	77.7	48.7	28.8	17.8	10.9	6.0	3.6	2.7	2.1	-	-	-	-	-	-	-	-	-
REact 60	160	160	160	160	160	109.8	66.1	41.7	26.1	15.0	9.6	7.4	5.9	3.6	2.3	-	-	-	-	-	-	-
REact 100	160	160	160	160	160	160	115.9	73.5	46.5	27.1	17.6	13.7	11.0	6.8	4.6	-	-	-	-	-	-	-
REact 150	160	160	160	160	160	160	160	108.6	69.0	40.4	26.3	20.6	16.6	10.4	7.1	5.1	3.8	3.0	2.3	1.6	1.1	0.8
REact 220	160	160	160	160	160	160	160	160	104.6	61.4	40.3	31.6	25.5	16.1	11.0	8.0	6.0	4.7	3.8	2.5	1.8	1.3
REact 300	160	160	160	160	160	160	160	160	145.4	85.6	56.2	44.2	35.7	22.6	15.6	11.3	8.6	6.7	5.4	3.7	2.6	2.0
ST 6115	on Request																					
ST 6135																						
ST 6160																						
ST 6175																						

With flow to open, PTFE packing and leakage class IV

- • The points demonstrate the possible combinations between valve and actuator
- — The thick line shows the limit for valves with bellows seal
- 1 Stroke 35 mm for valve series MV 52/53…

Plug characteristics for control valves

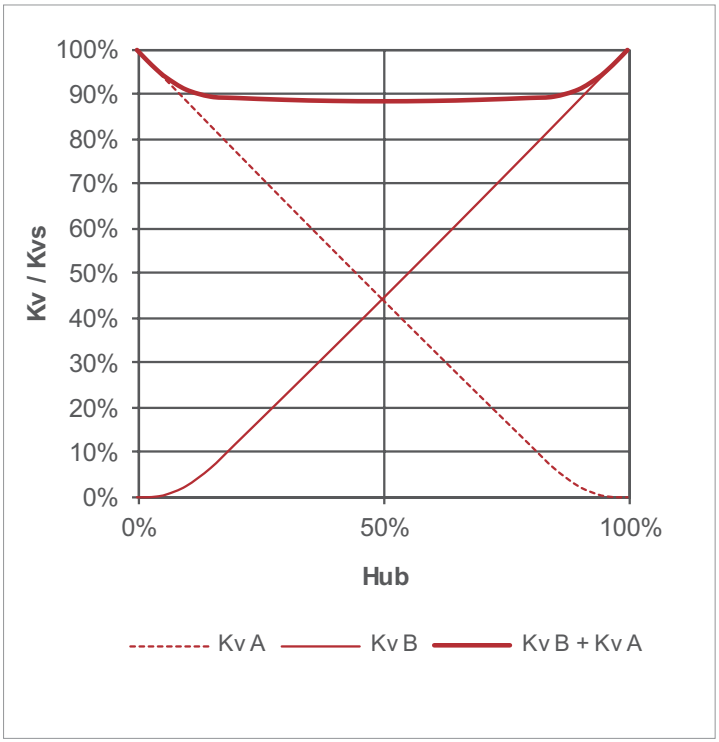
Equal percentage characteristic



The thick Continuous "equal percentage" line is a characteristic for practical use in industrial applications, which is continuously reduced to zero for small strokes. This characteristic allows suitable control even at small values.

If not especially requested,in different version control valves are manufactured with this special "equal percentage" characteristic (see diagram characteristic RTK).

Linear Characteristic



KvB Two-way valve
KvB + KvA Three-way valve

Plug types for 2-way valves

Parabolic plug

Characteristic	Linear / equal percentage
Materials	1.4122 Ferro titanium
Sealing	Metallic tight
Flow direction	Flow to open / flow to close
Rangeability	30:1 (max. 50:1)
Leakage	Class IV acc. to DIN EN 1349 / ANSI / FCI 70-2
Application	All kinds of media, especially for small Kvs valves

Shut-off plug

Characteristic	Quick opening
Material	1.4122
Sealing	Metallic tight
Flow direction	Flow to open / flow to close
Leakage	Class III according to DIN 3230 Class IV according to DIN EN 1349 / ANSI / FCI 70-2
Application	All kinds of media

V-port plug

Characteristic	Linear
Material	1.4122
Sealing	Metallic tight
Flow direction	Flow to open / flow to close
Rangeability	30:1
Leakage	Class IV according to DIN EN 1349 / ANSI / FCI 70-2
Application	All kinds of media

Perforated plug

Characteristic	Linear / equal percentage
Material	1.4122
Sealing	Metallic tight
Flow direction	Flow to open/flow to close
Ratio	30:1 (max. 40:1)
Leakage	class IV acc. to DIN EN 1349 / ANSI/FCI 70-2
Application	All kinds of media and noise reduction

Plug types for 2-way valves

Two-stage perforated plug

Characteristic	Linear / equal percentage
Material	1.4122
Sealing	Metallic tight
Flow direction	Reverse/normal flow
Ratio	30:1 (max. 40:1)
Leakage	class IV acc. to DIN EN 1349 / ANSI/FCI 70-2
Application	For high difference Pressures (ΔP) Gases, steam, liquid cavitation and noise reduction

Option with soft sealing for parabolic plug, shut-off plug and V-port plug (example parabolic plug)

Characteristic	Linear / equal percentage / Quick opening
Material	1.4122
Sealing	Soft seal PTFE-graphite
Flow direction	Flow to open / flow to close
Rangeability	30:1 (max. 40:1)
Leakage	Class I according to DIN 3230 Class VI according to DIN EN 1349 / ANSI / FCI 70-2
Application	All kinds of medium up to +200 °C with tight shut-off

Quick Change Seat (QCS) 1-Stage

Characteristic	Linear / equal percentage
Flow direction	To open

This trim offers an easy tool-free seat exchange and can be combined with all on/off, parabolic and V-port plugs.

Quick Change Seat (QCS) 2-Stage

Characteristic:	Linear or Equal Percentage
Flow direction:	To close

This trim offers an easy tool-free seat exchange and is used for high differential pessures to provide cavitation and for noise reduction.

Plug types for 2-way valves

Two-stage parabolic plug

Characteristic	Linear / equal percentage
Material	1.4122
Sealing	Metallic tight
Flow direction	Flow to open / flow to close
Rangeability	30:1 (max. 40:1)
Leakage	Class IV according to DIN EN 1349 / ANSI / FCI 70-2
Application	All kinds of media and high difference pressures

1- Stage parabolic plug

Characteristic	Linear / equal percentage
Material	1.4122
Sealing	Metallic tight
Flow direction	Reverse/normal flow
Ratio:	30:1 (max. 40:1)
Leakage	Class IV acc. to DIN EN 1349 / ANSI/FCI 70-2
Application	For high difference Pressures (Gases, steam, liquid cavitation and noise reduction for small Kvs-value up to 300°C.

Plug types for 3-way valves

Mixing plug

Characteristic	Linear / linear
Material	1.4122
Sealing	Metallic tight
Rangeability	30:1 (max. 50:1)
Leakage	Class IV according to DIN EN 1349 / ANSI / FCI 70-2
Application	Three way valves with mixing function (standard design)

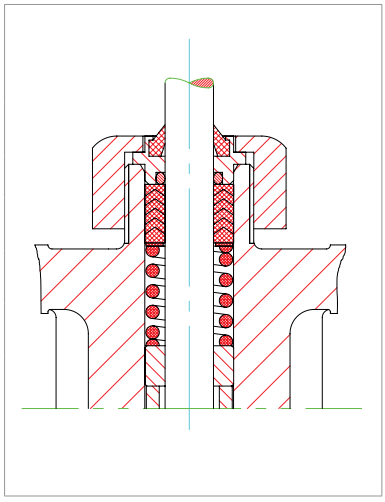
Diverting plug

Characteristic	Linear / linear	
Material	1.4122	
Sealing	Metallic tight	
Rangeability	30:1	
Leakage	Port A	Class IV according to DIN EN 1349 / ANSI / FCI 70-2
	Port B	0,1 % of Kvs
Application	Three way valves with diverting function	

Mixing plug with soft seal

Characteristic	Linear / linear
Material	1.4122
Sealing	Soft seal tight PTFE-graphite
Rangeability	30:1 (max. 50:1)
Leakage	Class I according to DIN 3230 Class VI nach DIN EN 1349 / ANSI / FCI 70-2
Application	Three way valves with mixing function up to +200 °C with tight shut-off

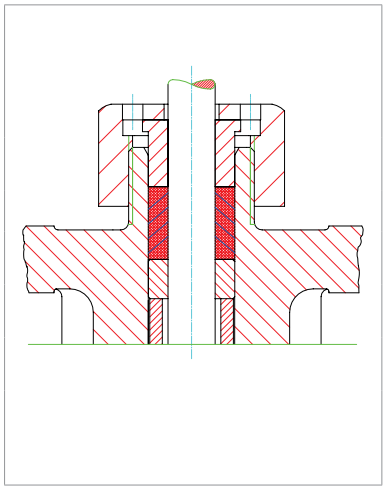
Stem packings



PTFE-graphite stem packing

Maintenance free chevron rings with pre stressed spring

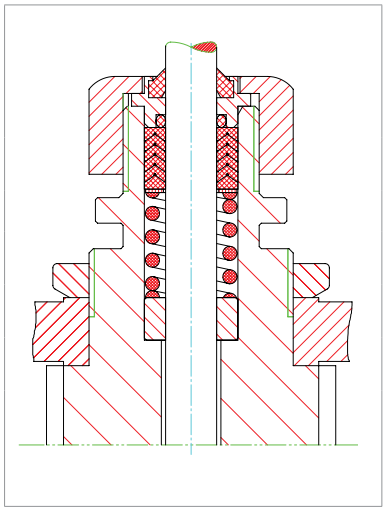
Material	PTFE-graphite
Temperature	-10 °C to max. +250 °C (-60 °C for K-Version)
Pressure	Max. 40 bar
Friction	[kp] = 3 x Stem diameter (mm)
Application	All kinds of media



Graphite stem packing

Pure flexible graphite rings and two anti extrusion inconel wire reinforced flexible graphite rings

Material	Graphite
Temperature	-10 °C to max. +530 °C (medium dependent) (-60 °C for K-Version)
Pressure	Max. 40 bar
Friction	[kp] = 10 x Stem diameter (mm)
Application	All kinds of media

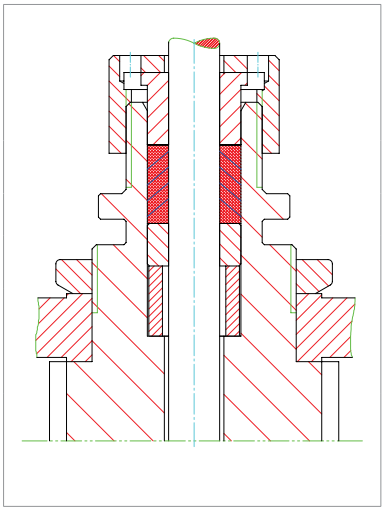


PTFE-graphite stem packing

Maintenance free chevron rings with pre stressed spring,
bonnet with cooling ribs

Material	PTFE-graphite
Temperature	-10 °C to max. +250 °C (-60 °C for K-Version)
Pressure	Max. 160 bar
Friction	[kp] = 3 x Stem diameter (mm)
Application	All kinds of media

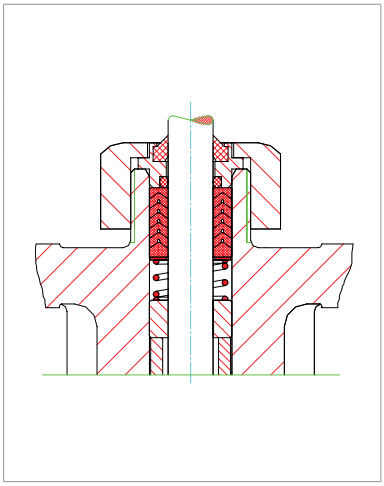
Stem packings



Graphite stem packing

Pure flexible graphite rings and two anti extrusion inconel wire reinforced flexible graphite rings, bonnet with cooling ribs

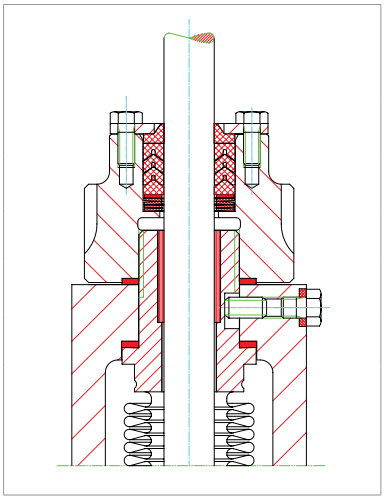
Material	Graphite
Temperature	-10 °C to max. +530 °C (medium dependent) (-60 °C for K-Version)
Pressure	Max. 160 bar
Friction	[kp] = 10 x Stem diameter (mm)
Application	All kinds of media



Stem packing with DVGW approval

Maintenance free chevron rings with pre stressed spring

Material	NBR
Temperature	-10 °C to max. +60 °C (-60 °C for K-Version)
Pressure	Max. 6 bar
Friction	[kp] = 2 x Stem diameter (mm)
Application	Natural gas

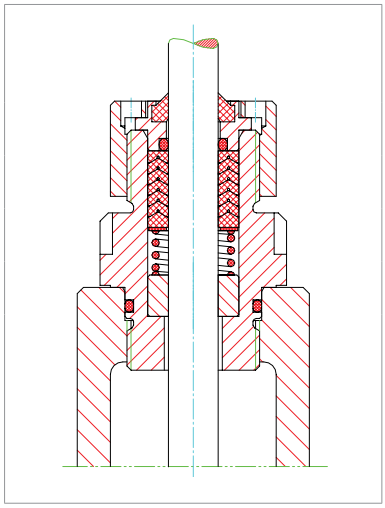


Bellows seal with stem packing for refrigerants

Maintenance free metal bellows stem seal with safety packing

Material	1.4571
Temperature	-60 °C to +350 °C
Pressure	Max. 25 bar
Friction	[kp] = 1 x Stem diameter (mm)
Application	All kinds of media

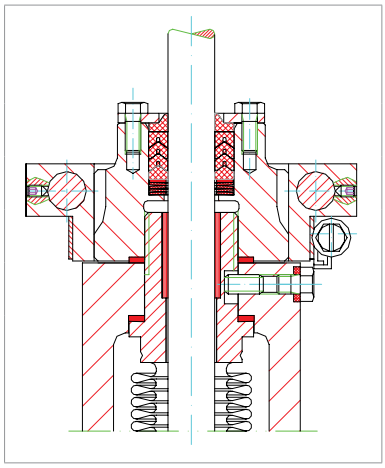
Stem packing



Chloroprene stem packing

Maintenance free chevron rings with pre stressed spring

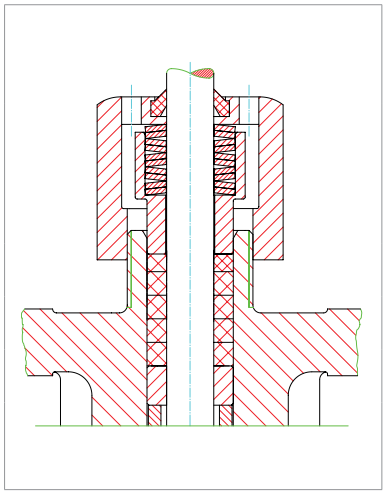
Material	NBR
Temperature	-60 °C to +150 °C
Pressure	Max. 40 bar
Friction	[kp] = 2 x Stem diameter (mm)
Application	Refrigerants



Bellows seal with stem packing for refrigerants

Maintenance free metal bellows stem seal with safety packing

Material	1.4571
Temperature	-60 °C to +350 °C
Pressure	Max. 25 bar
Friction	[kp] = 1 x Stem diameter (mm)
Application	Refrigerants

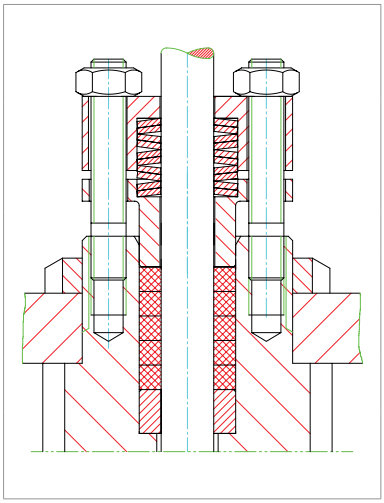


Stem packing with “TA-Luft” approval

Carbon fiber packing with pre stressed disc spring

Material	Carbon fiber fibrous web PTFE, aramid fibrous web
Temperature	-10 °C to max. +250 °C (- 60 °C for K-Version)
Pressure	Max. 40 bar
Friction	[kp] = 10 x Stem diameter (mm)
Application	Chemical industry

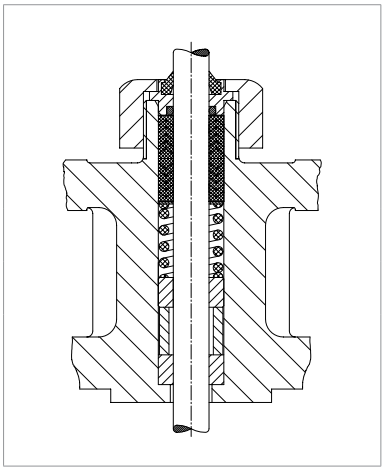
Stem packing



Stem packing with “TA-Luft” approval

Carbon fiber packing with pre stressed disc spring

Material	Carbon fiber, Pure graphite Special fibrous web
Temperature	-10 °C to max. +400 °C (-60 °C for K-Version)
Pressure	Max. 40 bar
Friction	[kp] = 30 x Stem diameter (mm)
Application	Chemical Industry

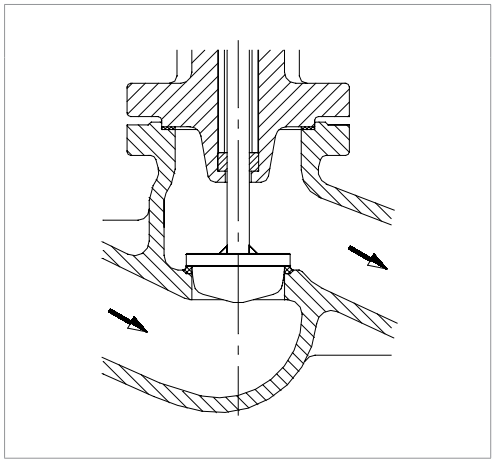


PTFE-graphite stem packing

2 sets of maintenance free chevron rings with pre stressed spring

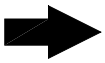
Material	PTFE-graphite
Temperature	Max. +250 °C
Pressure	Max. 40 bar
Friction	[kp] = 6 x Stem diameter (mm)
Application	All kinds of media Suitable for vacuum application

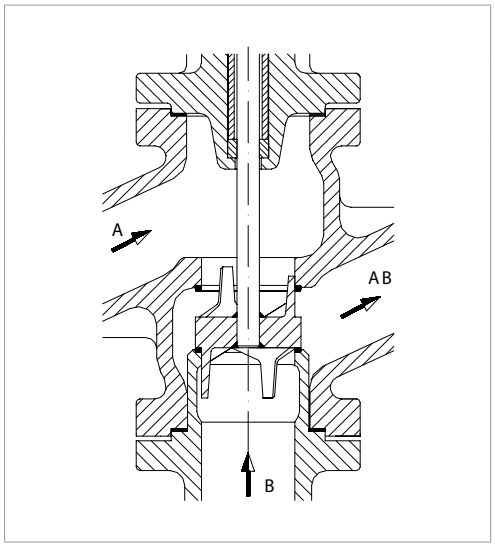
Types of valves



Two way valve

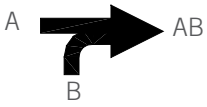
Application
Shut-off, control of flow, pressure, ...

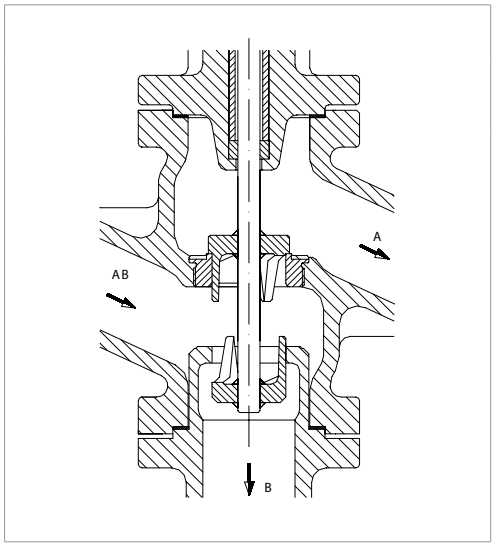




Mixing Valve

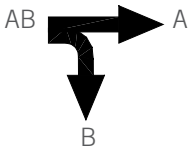
Application
Mixing two flows, bypass for heat exchangers



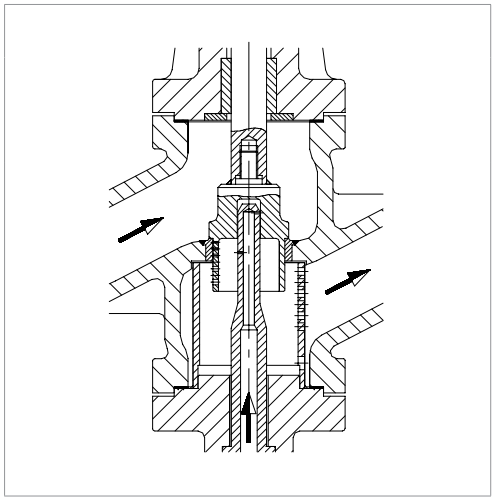


Diverting valve

Application
Diverting two flows, bypass for heat exchangers

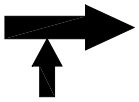


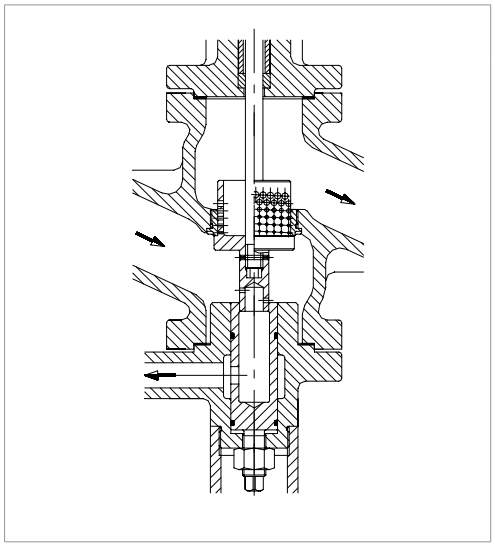
Types of valves



Desuperheating valve

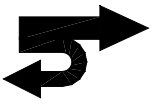
Application
Pressure reducing and steam cooling
by water injection

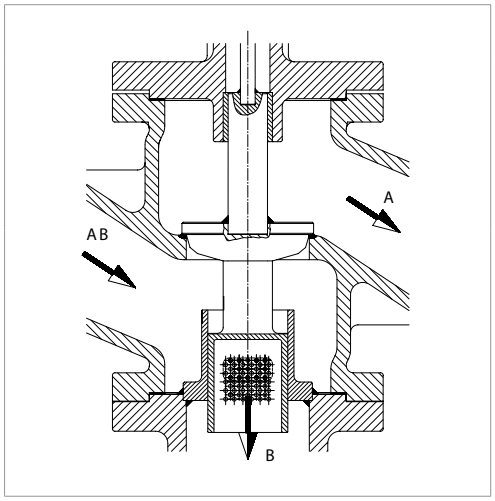




Feed water control valve with re-circulation connection

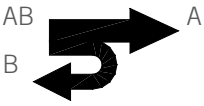
Application
Control of flow rate with re-circulation connection
to protect the pump from falling below the minimum
flow rate





Control valves for controlling discharge/re-circulation

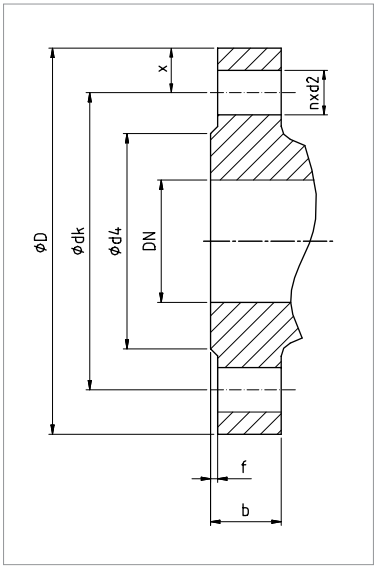
Application
Diverting in two flows
Control of dischargere/circulation in water- or air-cooled
condensers, with adjustable Kvs value in port B



Flange Dimensions

Dimensions in mm according to DIN EN 1092 as well as ASME / ANSI 16.5

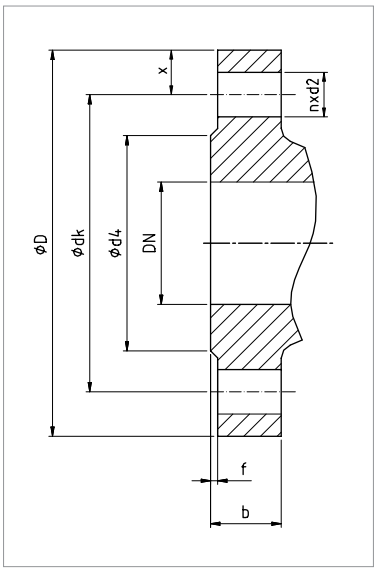
DN	PN / Class	D	b	f	dk	d4	d2	n	Ph.	x
15	16	95	14	2	65	45	14	4	M12	15
	25	95	16	2	65	45	14	4	M12	15
	40	95	16	2	65	45	14	4	M12	15
½"	#150	89	11	1.6	60	35	16	4	½"	14.5
	#300	95	14	1.6	67	35	16	4	½"	14
20	16	105	16	2	75	58	14	4	M12	15
	25	105	18	2	75	58	14	4	M12	15
	40	105	18	2	75	58	14	4	M12	15
¾"	#150	98	13	1.6	70	43	16	4	½"	14
	#300	117	16	1.6	83	43	19	4	⅝"	17
25	16	115	16	2	85	68	14	4	M12	15
	25	115	18	2	85	68	14	4	M12	15
	40	115	18	2	85	68	14	4	M12	15
1"	#150	108	14	1.6	79	51	16	4	½"	14.5
	#300	124	18	1.6	89	51	19	4	⅝"	17.5
32	16	140	16	2	100	78	18	4	M16	20
	25	140	18	2	100	78	18	4	M16	20
	40	140	18	2	100	78	18	4	M16	20
1 ¼"	#150	117	16	1.6	89	64	16	4	½"	14
	#300	133	19	1.6	98	64	19	4	⅝"	17.5
40	16	150	16	3	110	88	18	4	M16	20
	25	150	18	3	110	88	18	4	M16	20
	40	150	18	3	110	88	18	4	M16	20
1 ½"	#150	127	18	1.6	98	73	16	4	½"	14.5
	#300	156	21	1.6	114	73	22.2	4	¾"	21
50	16	165	18	3	125	102	18	4	M16	20
	25	165	20	3	125	102	18	4	M16	20
	40	165	20	3	125	102	18	4	M16	20
2"	#150	152	19	1.6	121	92	19	4	⅝"	15.5
	#300	165	22	1.6	127	92	19	8	⅝"	19
65	16	185	18	3	145	122	18	4	M16	20
	25	185	22	3	145	122	18	8	M16	20
	40	185	22	3	145	122	18	8	M16	20
2 ½"	#150	178	22	1.6	140	105	19	4	⅝"	19
	#300	190	25	1.6	149	105	22	8	¾"	20.5



Flange Dimensions

Dimensions in mm according to DIN EN 1092 as well as ASME / ANSI 16.5

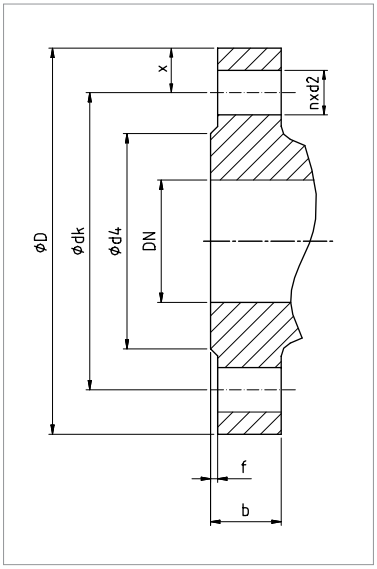
DN	PN / Class	D	b	f	dk	d4	d2	n	Ph.	x
80	16	200	20	3	160	138	18	8	M16	20
	25	200	24	3	160	138	18	8	M16	20
	40	200	24	3	160	138	18	8	M16	20
3"	#150	190	24	1.6	152	127	19	4	⅝"	19
	#300	210	29	1.6	168	127	22	8	¾"	21
100	16	220	20	3	180	158	18	8	M16	20
	25	235	24	3	190	162	22	8	M20	22.5
	40	235	24	3	190	162	22	8	M20	22.5
4"	#150	229	23	1.6	190	158	19	8	⅝"	19.5
	#300	254	32	1.6	200	158	22	8	¾"	27
125	16	250	22	3	210	188	18	8	M16	20
	25	270	26	3	220	188	26	8	M24	25
	40	270	26	3	220	188	26	8	M24	25
150	16	285	22	3	240	212	22	8	M20	22.5
	25	300	28	3	250	218	26	8	M24	25
	40	300	28	3	250	218	26	8	M24	25
6"	#150	280	25	1,6	241	216	22	8	¾"	19,5
	#300	318	36	1,6	270	216	22	12	¾"	24
200	16	340	24	3	295	268	22	12	M20	22.5
	25	360	30	3	310	278	26	12	M24	25
	40	375	34	3	320	285	30	12	M27	27.5
8"	#150	343	28	1.6	299	270	22	8	¾"	22
	#300	381	41	1.6	330	270	25	12	⅞"	25.5
250	16	405	26	3	355	320	26	12	M24	25
	25	425	32	3	370	335	30	12	M27	27.5
	40	450	38	3	385	345	33	12	M30	32.5
10"	#150	406	30	1.6	362	324	25	12	⅞"	22
	#300	445	48	1.6	387	324	28	16	1"	29
300	16	460	28	4	410	378	26	12	M24	25
	25	485	34	4	430	395	30	16	M27	27.5
	40	515	42	4	450	410	33	16	M30	32.5
12"	#150	483	32	1.6	432	381	25	12	⅞"	25.5
	#300	521	51	1.6	450	381	32	16	1 ⅛"	35.5



Flange Dimensions

Dimensions in mm according to DIN EN 1092 as well as ASME / ANSI 16.5

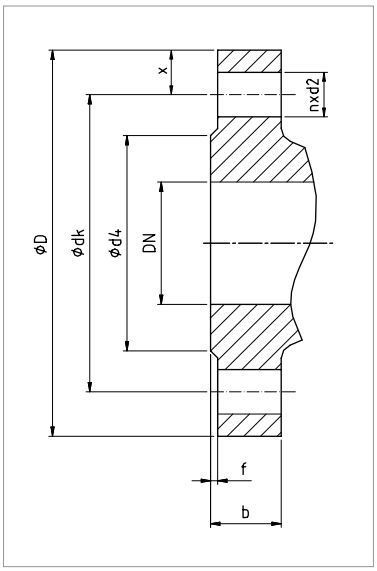
DN	PN / Class	D	b	f	dk	d4	d2	n	Ph.	x
400	16	580	32	4	525	490	30	16	M27	27.5
	25	620	40	4	550	505	36	16	M33	35
	40	660	50	4	585	535	39	16	M36	37.5
16"	#150	596	36	1.6	540	470	29	16	1"	28
	#300	648	57	1.6	571	470	35	20	1 ¼"	38.5
15	63	105	20	2	75	45	14	4	M12	15
	100	105	20	2	75	45	14	4	M12	15
	160	105	20	2	75	45	14	4	M12	15
½"	#600	95	21	6.4	67	35	16	4	½"	14
	#900	121	29	6.4	83	35	16	4	¾"	19
25	63	140	24	2	100	68	18	4	M16	20
	100	140	24	2	100	68	18	4	M16	20
	160	140	24	2	100	68	18	4	M16	20
1"	#600	124	24	6.4	89	51	19	4	⅝"	17.5
	#900	149	35	6.4	102	51	25	4	⅞"	23.5
40	63	170	26	3	125	88	22	4	M20	20
	100	170	26	3	125	88	22	4	M20	22.5
	160	170	26	3	125	88	22	4	M20	22.5
1 ½"	#600	156	29	6.4	114	73	22.2	4	¾"	21
	#900	178	38	6.4	124	73	29	4	1"	27
50	63	180	26	3	135	102	22	4	M20	22.5
	100	195	28	3	145	102	26	4	M24	25
	160	195	30	3	145	102	26	4	M24	25
2"	#600	165	32	6.4	127	92	19	8	⅝"	19
	#900	216	45	6.4	165	92	25	8	⅞"	25.5
65	63	205	26	3	160	122	22	8	M20	22.5
	100	220	30	3	170	122	26	8	M24	25
	160	220	34	3	170	122	26	8	M24	25
2 ½"	#600	190	35	6.4	149	105	22	8	¾"	20.5
	#900	244	48	6.4	190	105	29	8	1"	27
80	63	215	28	3	170	138	22	8	M20	22.5
	100	230	32	3	180	138	26	8	M24	25
	160	230	36	3	180	138	26	8	M24	25



Flange Dimensions

Dimensions in mm according to DIN EN 1092 as well as ASME / ANSI 16.5

DN	PN / Class	D	b	f	dk	d4	d2	n	Ph.	x
3"	#600	210	38	6.4	168	127	22	8	¾"	21
	#900	267	45	6.4	203	127	32	8	⅞"	32
100	63	250	30	3	200	162	26	8	M24	25
	100	265	36	3	210	162	30	8	M27	27.5
	160	265	40	3	210	162	30	8	M27	27.5
4"	#600	273	45	6.4	216	158	25	8	⅞"	28.5
	#900	292	51	6.4	235	158	32	8	1 ⅛""	28.5
125	63	295	34	3	240	188	30	8	M27	27.5
	100	315	40	3	250	188	33	8	M30	32.5
	160	315	44	3	250	188	33	8	M30	32.5
150	63	345	36	3	280	218	33	8	M30	32.5
	100	355	44	3	290	218	33	12	M30	32.5
	160	355	50	3	290	218	33	12	M30	32.5
6"	#600	355	54	6.4	292	216	28	12	1"	31.5
	#900	381	62	6.4	318	216	32	12	1 ⅛"	31.5
200	63	415	42	3	345	285	36	12	M33	35
	100	430	52	3	360	285	36	12	M33	35
	160	430	60	3	360	285	36	12	M33	35
8"	#600	419	62	6.4	351	270	32	12	1 ⅛"	34
	#900	470	70	6.4	394	270	38	12	1 ⅜"	38
250	63	470	46	3	400	345	36	12	M33	35
	100	505	60	3	430	345	39	12	M36	37.5
	160	515	68	3	430	345	42	12	M39	37.5
10"	#600	508	70	6.4	432	324	34	16	1 ¼"	38
	#900	546	76	6.4	470	324	38	16	1 ⅜"	38
300	63	530	52	4	460	410	36	16	M33	35
	100	585	68	4	500	410	42	16	M39	42.5
	160	585	78	4	500	410	42	16	M39	42.5
12"	#600	559	73	6.4	489	381	34	20	1 ¼"	35
	#900	610	86	6.4	533	381	38	20	1 ⅜"	38.5



Series Overview

Series	Act. force	Stem diameter	Valve series 2-way valve	3-way valve	Possible actuators
MV 5200	1,5 kN - 3 kN	12 mm	MV 5210	MV 5220 MV 5230 MV 5270	REact 15 (1,5 kN) REact 30 (3 Kn)
MV 5300	6 - 10 kN	12 mm	MV 5310	MV 5320 MV 5330	ST 5113 (6 kN) ST 5114 (10 kN) Actuators from other manufacturers
MV 5400	15 - 56 kN	32 mm	MV 5410	MV 5420 MV 5430	REact (10 kN) REact (15 kN) REact (22 kN) REact (30kN) Actuators from other manufacturers (max. 56 kN)
MV 5900	56 kN - 80 kN	60 mm	MV 5910	MV 5920 MV 5930	Actuators from other manufacturers (max. 80 kN)

Type Code

MV 5 Actuator	2 Actuating force	1 Type of valve	1 Stem packing
5: electric (MV)	2: 3 kN 3: 6 - 10 kN 4: 10 - 56 kN 9: > 56 kN < 80 kN	1: 2-way valve 2: 3-way mixing valve 3: 3-way diverting valve 4: 3-way valve for regulation flow/circulation 5: Steam-converting valve 7: 3-way mixing valve with shortened B-flange 9: Valves for special applications - Continous blow down valve - Bottom blow down valve - Valve with re-circulation connection	1: Stuffing box - PTFE / graphite - Pure graphite - Packing acc."TA Luft" - Gas-packing (acc. to DVGW) 4: Bellows seal - With safety stuffing box - Additionally with leakage monitoring

Our current documentation can be found on our homepage under http://www.rtk.de/en/welcome.html

Series Overview

Series	Act. force	Stem diameter	Valve series 2-way valve	3-way valve	Possible actuators
MV 5200-K	1,5 kN - 3 kN	12 mm	MV 5210-K	MV 5220-K MV 5230-K MV 5270-K	REact 15 (1,5 kN) REact 30 (3 Kn)
MV 5300-K	6 - 10 kN	12 mm	MV 5310-K	MV 5320-K MV 5330-K	REact 60 (6 kN) REact 100 (10 kN) Actuators from other manufacturers (max. 10 kN)
MV 5400-K	10 - 56 kN	32 mm	MV 5410-K	MV 5420-K MV 5430-K	REact (10 kN) REact (15 kN) REact (22 kN) REact (30kN) Actuators from other manufacturers (max. 56 kN)
MV 5900-K	56 kN - 80 kN	60 mm	MV 5910-K	MV 5920-K MV 5930-K	Actuators from other manufacturers (max. 80 kN)

Type Code

MV 5 Actuator	2 Actuating force	1 Type of valve	1 Stem packing	-K Version for refrigerants
5: electric (MV)	2: 3 kN 3: 6 - 10 kN 4: 10 - 56 kN 9: > 56 kN < 80 kN	1: 2-way valve 2: 3-way mixing valve 3: 3-way diverting valve	1: Stuffing box - PTFE / graphite - Pure graphite - Packing acc."TA Luft" - Gas-packing (acc. to DVGW) 4: Bellows seal - With safety stuffing box - Additionally with leakage monitoring	- Without nonferrous metals - Studs and nuts of stainless steel - Gaskets compatible for refrigerants - Acrylic coating

Our current documentation can be found on our homepage under http://www.rtk.de/en/welcome.html

Series Overview

Series	Effec. area / Act. force	Stem diameter	Valve series 2-way valve	3-way valve	Possible actuators
PV 6200	120 cm^2 280 cm^2 < 10 kN	12 mm	PV 6210	PV 6220 PV 6230 PV 6270	ST 6115 ST 6135
PV 6300	530 cm^2 < 10 kN	12 mm	PV 6310	PV 6320 PV 6330	ST 6160 Actuators from other manufacturers
PV 6400	1000 cm^2 < 56 kN	32 mm	PV 6410	PV 6420 PV 6430	ST 6175 Actuators from other manufacturers
PV 6900	> 56 kN < 80 kN	60 mm	PV 6910	PV 6920 PV 6930	Actuators from other manufacturers

Type Code

PV 6 Actuator	2 Effec. area / Act. force	1 Type of valve	1 Stem packing
6: pneumatic (PV)	2: 120 / 280 cm^2 < 10 kN 3: 530 cm^2 < 10 kN 4: 1000 cm^2 < 56 kN 9: > 56 kN < 80 kN	1: 2- way valve 2: 3-way mixing valve 3: 3-way diverting valve 4: 3-way valve for regulation flow/circulation 5: Steam-converting valve 7: 3-way mixing valve with shortened B-flange 9: Valves for special applications - Continous blow down valve - Bottom blow down valve - Valve with re-circulation connection	1: Stuffing box - PTFE / graphite - Pure graphite - Packing acc.“TA Luft“ - Gas-packing (acc. to DVGW) 4: Bellows seal - With safety stuffing box - Additionally with leakage monitoring

Our current documentation can be found on our homepage under http://www.rtk.de/en/welcome.html

Series Overview

Series	Effec. area / Act. force	Stem diameter	Valve series 2-way valve	3-way valve	Possible actuators
P6200-K	120 cm^2 280 cm^2 < 10 kN	12 mm	PV 6210-K	PV 6220-K PV 6230-K PV 6270-K	ST 6115 ST 6135
PV 6300-K	530 cm^2 < 10 kN	12 mm	PV 6310-K	PV 6320-K PV 6330-K	ST 6160 Actuators from other manufacturers
PV 6400-K	1000 cm^2 < 56 kN	32 mm	PV 6410-K	PV 6420-K PV 6430-K	ST 6175 Actuators from other manufacturers
PV 6900-K	> 56 kN < 80 kN	60 mm	PV 6910-K	PV 6920-K PV 6930-K	Actuators from other manufacturers

Type Code

PV 6 Actuator	2 Effec. area / Act. force	1 Type of valve	1 Stem packing	-K Version for refrigerants
6: pneumatic (PV)	2: 120 / 280 cm^2 < 10 kN 3: 530 cm^2 < 10 kN 4: 1000 cm^2 < 56 kN 9: > 56 kN < 80 kN	1: 2-way valve 2: 3-way mixing valve 3: 3-way diverting valve	1: Stuffing box - PTFE / graphite - Pure graphite - Packing acc."TA Luft" - Gas-packing (acc. to DVGW) 4: Bellows seal - With safety stuffing box - Additionally with leakage monitoring	- Without nonferrous metals - Studs and nuts of stainless steel - Gaskets compatible for refrigerants - Acrylic coating

Our current documentation can be found on our homepage under http://www.rtk.de/en/welcome.html

- DIN EN ISO-9001
- Druckgeräterichtlinien (PED) 97 / 23EG Modul H / H1, CE0036
- DIN EN 14597 (DIN Certco)
- TA-Luft / ISO 15858
- Vd-TÜV Wasserstand 100
- DVGW
- ATEX Declaration of conformity, 2014/34/EU
- TR TS (EAC)
- LR- Lloyd's Register
- DNV-GL
- BV-Bureau Veritas
- RINA-Registro Italiano Navale
- ABS-American Bureau of Shipping
- China Compulsory Product Certificate (CCC)
- Chinese Safety Technology Regulation (TSG)
- Canadian Regestration Number (CRN)
- Occupational Health and Safety Management System ISO 45001:2018

1. General/Area of application

a) Our sales and delivery terms are exclusively valid. We do not acknowledge contrary terms or conditions deviating from our sales and delivery terms of the orderer, unless we agreed to their validity explicitly in writing. Our sales and delivery terms are also valid if we perform delivery to the orderer without reservation with knowledge of contrary terms or conditions deviating from our sales and delivery conditions.

b) All agreements that are made between us and the orderer for the performance of this contract are to be recorded in this contract in writing.

c) These sales and delivery conditions are exclusively valid for the business transactions between companies.

2. Offer, conclusion of contract, written form

a) Our general statements, specifically in price lists and brochures are subject to confirmation and non-binding.

b) Agreements require our written confirmation to become legally valid. Only our order confirmation is decisive for the extent of the delivery. Later supplements, modifications, or other additional agreements require written confirmation to become valid.

c) We reserve property rights and copyrights to the illustrations, calculations and other documents. They may not be made accessible to third parties.

d) The documents relating to the offer like illustrations, drawings, measurement and weight specifications are only approximate unless explicitly termed binding.

3. Prices

a) Insofar no deviating agreements exist in the order confirmation, our prices are applicable „ex factory", including loading in the factory, excluding packaging, freight, and transport insurance. These are billed separately.

b) The legal value added tax is not included in our prices. It is listed separately on the bill at the legal amount on the day of billing.

4. Payment

a) Our bills are to be paid within 14 days after invoice date minus 2 % early payment discount, or within 30 days without any discount.

b) If the orderer comes under delay of payment we bill the legal interest for delay of 8 percentage points over the basic interest rate of the European Central Bank. If we are able to prove a higher interest for delay, we are authorized to enforce it.
The orderer is authorized to prove us that we did not have any or a significantly lower damage as a consequence of the payment delay.

c) Rights of retention and offsetting are only admissible for the orderer if his opposing claims have been legally determined, indisputable, or acknowledged by us. We are not obliged to perform further deliveries prior to the payment of due invoices, we also reserve the right to interrupt the manufacture of parts from other contracts of orderers under delay of payment.

5. Delivery time

a) The beginning of the stated delivery time requires the clarification of all technical questions as well as the receipt of a possibly agreed down payment.

b) If the orderer sets us an adequate grace period with threat of denial after we have already come under delay, he is authorized to withdraw from the contract after fruitless expiration of this grace period. Damage compensation claims due to non-fulfilment to the amount of the foreseeable damage are only admissible to the orderer if the delay was based on intention or gross negligence. Apart from that the damage compensation liability is limited to 50 % of the occurred damage.

c) The adherence of our delivery obligation requires the timely and proper fulfilment of the obligations of the orderer.

d) If the orderer comes under delay of acceptance or if he violates other obligations of contribution we have the right to demand the damage occurred to us including possible additional expenditures. In this case the risk of accidental loss or an accidental worsening of the purchase object is transferred to the orderer at the time at which he comes under delay of acceptance.

6. Transfer of risk

a) Insofar the order confirmation does not state anything else, shipment purchase is agreed upon. The risk is transferred to the orderer with the dispatch of the delivery parts. This is also valid for partial deliveries, also if the supplier has assumed other services like for example the shipping costs or delivery and set-up.

b) By request of the orderer the shipment is insured against burglary, damage by breakage, transport, fire, and water damage and other insurable risks.

7. Retention of title

a) We reserve the property rights and the right of disposal to the purchase object up to the receipt of all payments from the delivery contract and previously concluded contracts. Cheque and draft demands as well as demands from Motor voltage invoices or Motor voltage account are included. If a draft liability for us is founded in association with the payment, this retention of title does not become void before our utilization from the draft is excluded.

b) Prior to the full balance of our previously stated demands the orderer may continue to use the delivered products in the framework of a proper business operation, unless an assignment prohibition was or is agreed upon for the claims assigned to us in advance in lit. f) with third parties. Prior to that pledging or assignment as security is prohibited and reselling is only allowed to resellers in common business transaction under the condition that the reseller receives payment from his customer and forwards it to us immediately. Possible costs of interventions are carried by the orderer.

c) In case of pledging, confiscation or other orders and interference of third parties the orderer is to inform us immediately.

d) If the orderer behaves opposing to the contract, specifically in case of delay of payment we are authorized to retrieve after payment reminder, and the orderer is obliged to hand out the goods.

e) The enforcement of the retention of title and the pledging of the delivery object by us are not regarded as a withdrawal from the contract.

f) The orderer already now assigns all demands amounting to the percentual amount of our invoice including VAT with all additional rights to us that arise to him from the reselling towards customers or third parties. This is also valid in the case that the orderer ceases a purchase price demand he is entitled to by the reselling in a Motor voltage account agreed with the customer or third parties. We accept this assignment.

g) In case of association with a property or mobile objects of third parties and the working or processing in the framework of a factory contract, the orderer already now assigns the wage demand and /or the occurring co-ownership part amounting to our percentual invoice amount including VAT for the processed goods under retention of title to us. We accept the assignment.

h) The orderer is hereby authorized to collect the Mounted on top assigned demands in the framework of the proper business transaction himself, insofar he forwards the incoming amounts to us immediately. The allowance to collect the assigned demands becomes void with delay of payment, initiation of insolvency proceedings or a cheque or draft objection.

i) If the realized value of the security existing for us exceeds our claims by more than 10% alone because of this regulation for retention of title or together with other securities, we are obliged to release securities of our choice insofar as the orderer demands this.

j) We are authorized to insure the purchased object against burglary, fire, water, and other damages on costs of the orderer, insofar the orderer has not by proof taken out insurance himself.

k) The application for the initiation of insolvency proceedings authorizes us to withdraw from the contract and to demand the immediate return of the de-livery object.

8. Liability for defects of the delivery (warranty)

We are liable as follows for material and legal defects of the delivery under exclusion of further claims under reservation of item 9:

Material defects

a) All defects that come about to be defective due to a circumstance prior to the transfer of risk are to be improved or delivered again by our choice. We are to be informed of the determination of such defects immediately in writing. Replaced parts become our property.

b) The orderer is to give us the time and opportunity after information to perform all improvements and supplementary deliveries we find necessary, otherwise we are released from the liability of the resulting consequences. Only in urgent cases of danger of the operational safety and the prevention of unrelationally large damages, whereas we are to be informed immediately, the orderer has the right to eliminate the defect himself or through third parties, and to demand compensation for the necessary expenditures.

c) From the immediate costs accruing through the improvement reps. supplementary delivery we carry the costs of the supplementary piece including shipping free border – insofar the defect claim proves to be admissible– as well as the adequate costs for instalment and removal, further within Germany, in case this can be adequately demanded depending on the situation of the single case, the costs of the possibly required assemblymen and auxiliary personnel. Apart from that the orderer carries the costs. Replaced parts are transferred into our property.

d) The manufacturer is authorized to withdraw from the contract in the framework of the legal regulations if we – under consideration of the legal regulations for exceptions – let an adequate grace period for the improvement or replacement delivery due a material damage expire fruitlessly. If the defect is only insignificant, the orderer only has the right to reduce the contract price. The right of reduction of the contract price remains excluded otherwise.

e) No warranty is assumed specifically in the following cases: Inadequate or improper usage, faulty assembly resp. start up by the orderer or third parties, natural wear, faulty or negligent treatment, improper maintenance, inadequate operating agents, chemical, electro chemical or electrical influences, insofar they are not our responsibility.

f) If the orderer or a third party improves improperly, no liability is given on part of the orderer for the resulting consequences. The same is valid for changes on the delivery object without prior consent of the orderer.

g) If parts or material for processing or as supplement to the processing of an order are delivered by the orderer, no receipt inspection for non-apparent faults is conducted if not otherwise agreed.

Legal faults:

h) If the usage of the delivery object leads to the violation of trade protection rights or copyrights, we will procure the basic right for further usage on cost of the orderer or modify the delivery object in a way acceptable for the orderer so that the violation of the trademark protection right no longer exists.

i) If this is not possible under commercially adequate conditions in an adequate term, the orderer is allowed to resign from the contract. We are al-so allowed to resign from the contract under the previously stated conditions.

j) Beyond that we will release the orderer from indisputable or legally determined claims of the involved trademark protection right owners.

k) Our obligations stated in lit. h) are conclusive with reservation of the item 9 in the case of trademark protection and copyright violation.
They are only existent if
- the orderer informs us immediately of enforced trademark protection or copyright violations,
- the orderer supports us in the defence of enforced claims to an adequate extent respectively enables us to conduct the modification measures according to lit. i).
- all defence measures including settlement regulations remain reserved,
- the legal defect is not based on an instruction of the orderer and
- the legal violation was not caused by the orderer modifying the delivery object by himself or used it in a manner contrary to the contract.

9. Liability

a) If material delivered by the orderer becomes damaged or unusable at our location, specifically in the working /processing or repair, we are only liable if the damage was caused by gross negligence, however only to an amount of 10% of the processing value, insofar unlimited liability is not legally required.

b) If the delivery object cannot be used according to contract by our fault due to neglect or faulty execution of suggestions and consulting prior to or after the conclusion of the contract or by the violation of other contractual additional obligations – especially instruction for operation and maintenance of the delivery object – the regulations of item 8) and 9a) are valid for further claims of the orderer.

c) For damages that did not occur on the delivery object itself we are for legal reasons only liable for
- intention
- gross negligence of the owner, the organs, or managing employees,
- in case of culpable violation of life, body, health,
- in case of defects that we have maliciously concealed or whose absence we have guaranteed,
- in case of faults of the delivery object, insofar liability is given according to the product liability law for persons or material damage on privately used objects.

d) In case of culpable violation of essential contract obligations we are also liable for gross negligence of non-managing employees or slight negligence, in the latter case limited to the contract typical, reasonably foreseeable damage.

e) Further claims are excluded.

10. Our damage compensation claim in case of non-fulfilment of the orderer

we are authorized to demand damage compensation due to non-fulfilment. The minimum damage to be compensated is a lump sum of 15 % on fittings and on other devices 10% of the purchase price. The damage amount is to be increased or decreased if we prove a higher or the orderer proves a lower damage.

11. Statute of limitations

All claims of the orderer – for whatever legal reasons – come under the statute of limitations in 12 months. The legal terms are applicable to intentional or malicious behaviour in case of claims according to the product liability law.

12. Other regulations

a) The contract remains binding in its other regulations even in case of legal invalidity of single clauses. This is not applicable if the maintenance of the con-tract would pose to be an unreasonable hardship for one party.

b) Should a regulation be or become void in whole or part, the contract partners will promptly make effort to achieve the commercial success strived for with the void regulation by another legally admissible manner.

c) The court responsible for our company is the place of jurisdiction for all disputes arising from the contractual relationship. We are also authorized to file lawsuit at the location of the orderer.

d) German law for the legal relationships of national parties among each other is exclusively applicable for all legal relationships between the orderer and us. The application of the uniform UN convention on the international sale of goods or other conventions concerning the right of goods purchase is excluded.

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