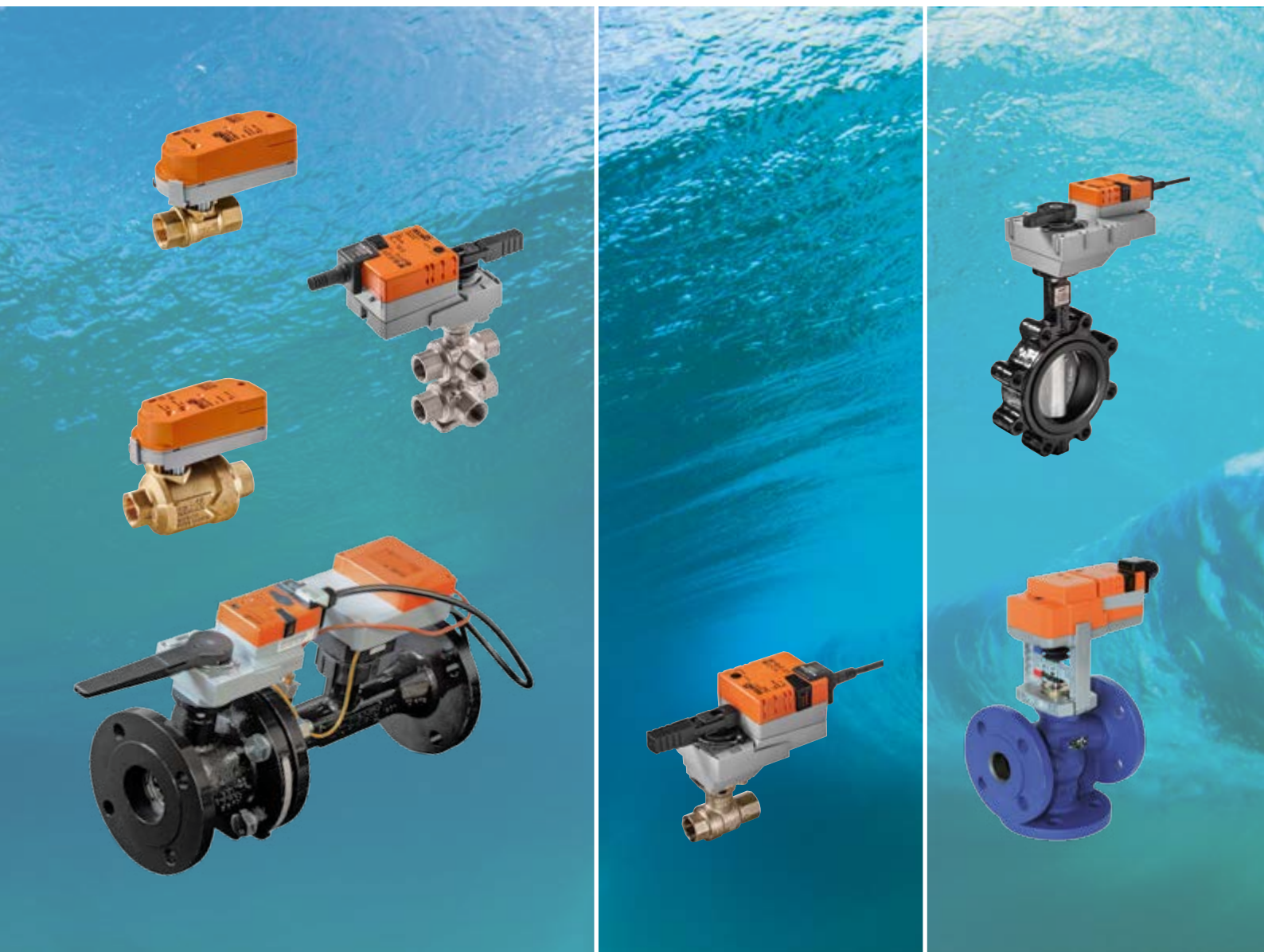


The complete product range of water solutions.



Edition 2016

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DN 15 / DN 20

Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	+2...+90 °C
Flow characteristic	A-AB, equal percentage
Leakage rate	Leakage rate A, leak-proof (EN 12266-1)

Suitable actuators

Nominal torque	Open-close	3-point	Modulating (2–10 V)	MP-Bus® communication	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	DN 15		DN 20			
								k _{vs} [m³/h]	Valve type	k _{vs} [m³/h]	Valve type		
1 Nm	•	•				24 V	75 s	CQ24A	CQ24A-T	0.4	C215Q-J	0.5	C220Q-K
										0.6		0.8	
										1		1.3	
										1.5		1.9	
										2		2.8	
1 Nm	•	•				24 V	75 s	CQ24A-SR	CQ24A-SR-T	2.9		4	
										4		5.7	
										4.8		8	

Actuators		Actuator type with connection cable	Actuator type with connecting terminals	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]
1 Nm	•	24 V	CQ24A	280	350	280	350
		230 V	CQ230A	280	350	280	350
		24 V	CQ24A-SR	280	350	280	350
		24 V	CQ24A-MPL	280	350	280	350
Actuator with emergency control function NC							
1 Nm	•	24 V	CQK24A-SR	280	350	280	350

Zone valves Change-over valve / Internal thread / PN 16

DN 15 / DN 20

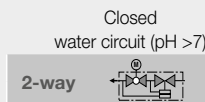
Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	+2...+90 °C
Flow characteristic	A-AB, equal percentage
Leakage rate	Leakage rate A, leak-proof (EN 12266-1)

Suitable actuators

Nominal torque	Open-close	3-point	MP-Bus® communication	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	DN 15		DN 20							
						k _{vs} [m³/h]	Valve type	k _{vs} [m³/h]	Valve type						
1 Nm	•	•		24 V	75 s	CQ24A	CQ24A-T	2.5	C315Q-H	4	C320Q-J				
								230 V		280		350	280	350	
								24 V		CQ24A-MPL		280	350	280	350
								24 V		CQ24A-MPL-T		280	350	280	350

DN 15 / DN 20

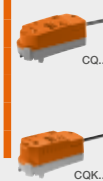
Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	+2...+90 °C
Flow characteristic	A-AB equal percentage
Leakage rate	Leakage rate A, leak-proof (EN 12266-1)



2-way Closed water circuit (pH > 7)

Suitable actuators

Nominal torque	Open-close	3-point	Modulating (2 - 10 V)	MP-Bus® communication	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	DN 15		DN 20	
								V _{nom} [l/h]	Valve type	V _{nom} [l/h]	Valve type
1 Nm	•	•	•	•	•	24 V	75 s	CQ24A	CQ24A-T	350	700
						230 V		CQ230A	CQ230A-T	350	700
						24 V		CQ24A-MPL	CQ24A-MPL-T	350	700
						24 V		CQ24A-SR	CQ24A-SR-T	350	700
Actuator with emergency control function NC											
1 Nm	•				-I-	24 V	75 s	CQK24A-SR		350	700



DN 15 / DN 20

Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	+6...+80 °C
Linear flow characteristic	Sequence I: 0 - 30° Dead zone: 30 - 60° Sequence II: 60 - 90°
Leakage rate	Leakage rate A, air bubble tight (EN 12266-1)

Suitable actuators

Nominal torque	Modulating (2 - 10 V)	Modulating (2 - 10 V, variable)	MP-Bus® communication ¹⁾	Nominal voltage 24 V AC/DC	Running time motor 90°	Running time adjustable	DN 15		DN 20		
							k _{vs} [m³/h]	Valve type	k _{vs} [m³/h]	Valve type	
1 Nm	•	•	•	•	75 s	•	0.25	R3015-P25-P25-B2	0.63	1.6	R3020-P63-1P6-B2
							0.4	R3015-P25-P4-B2		2.5	R3020-P63-2P5-B2
							0.63	R3015-P25-P63-B2		1.6	R3020-1-1P6-B2
							1	R3015-P25-1-B2		2.5	R3020-1-2P5-B2
							1.3	R3015-P25-1P3-B2		0.63	R3020-1P6-P63-B2
0.4 Nm	•	•	•	•	75 s	•	0.25	R3015-P4-P25-B2	1.6	1	R3020-1P6-1-B2
							0.4	R3015-P4-P4-B2		1.6	R3020-1P6-1P6-B2
							0.63	R3015-P4-P63-B2		2.5	R3020-1P6-2P5-B2
							1	R3015-P4-1-B2		0.63	R3020-2P5-P63-B2
							1.3	R3015-P4-1P3-B2		1	R3020-2P5-1-B2
0.25 Nm	•	•	•	•	75 s	•	0.25	R3015-P63-P25-B2	2.5	1.6	R3020-2P5-1P6-B2
							0.4	R3015-P63-P4-B2		2.5	R3020-2P5-2P5-B2
							0.63	R3015-P63-P63-B2		4	R3020-2P5-4-B2
							1	R3015-1-1-B2		2.5	R3020-4-2P5-B2
							1.3	R3015-1-1P3-B2		4	R3020-4-4-B2

Actuators	Nominal torque	Modulating (2 - 10 V)	Modulating (2 - 10 V, variable)	MP-Bus® communication ¹⁾	Nominal voltage 24 V AC/DC	Running time motor 90°	Running time adjustable	Actuator type		Δp _{max} [kPa]	Δp _{max} [kPa]
								LR24A-SR	LR24A-MP	100	100
5 Nm	•	•	•	•	24 V	90 s	•	LR24A-SR	100	100	
								LR24A-MP	100	100	

¹⁾ Control, operating range, position feedback, running time and further functions are adjustable on MP types using PC-Tool.

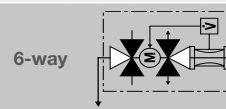
Electronic pressure-independent 6-way characterised control valve / Internal thread / PN 16

DN 15 / DN 20

Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	+6...+80 °C
Flow characteristic	Linear
Leakrate	Leakage rate A, air bubble tight (EN 12266-1)
V _{max}	Freely adjustable 5...100% of V _{nom}
Control, operating range, position feedback, running time and further functions are parameterisable with ZTH EU	



Closed water circuit (pH > 7)



Non-drehmoment	Modulating (2 - 10 V, variable)	MP-Bus® communication	BACnet IP communication	BACnet MS/TP communication	Nominal voltage 24 V AC/DC	Running time motor 90°	DN 15		DN 20			
							V _{nom} [l/s]	V _{max} low-noise [l/s]	V _{nom} [l/min]	V _{max} low-noise [l/min]	Valve type with actuator	Valve type with actuator
5 Nm	•	•	•	•	24 V	90 s	0.35	0.23	21	14	EP015R-R6+SR	EP020R-R6+SR
							0.65	0.45	39	27		

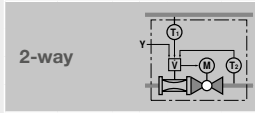
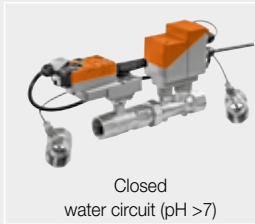
Suitable actuators

Actuators	Nominal torque	Modulating (2 - 10 V)	Modulating (2 - 10 V, variable)	MP-Bus® communication	BACnet IP communication	BACnet MS/TP communication	Nominal voltage 24 V AC/DC	Running time motor 90°	Actuator type		Δp _{max} [kPa]	Δp _{max} [kPa]
									LR..		110	110
5 Nm	•	•	•	•	•	•	24 V	90 s	LR..		110	110



DN 15–50 / internal thread

Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	-10...+120 °C
Flow characteristic	Equal percentage (acc. to VDI/VDE 2178) Can be switched to linear
Leakage rate	A, air bubble tight (EN 12266-1)
V _{max}	Freely adjustable 30–100% V _{nom}
Completely parameterisable by means of integrated web server	



Actuators

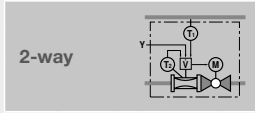
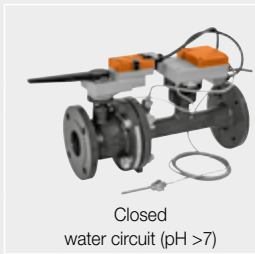
Nominal torque	Modulating (2–10 V, variable)	MP-Bus® communication	BACnet IP communication	BACnet MS/TP communication	Nominal voltage 24 V AC/DC	Running time motor 90°	DN	Rp ["]	V _{nom} [l/s]	V _{nom} [l/min]	k _{vs} theoretical [m³/h] ¹⁾	Valve type with actuator	Valve type with actuator	Valve type with actuator
							15	20	25	32	40	50	EV015R+BAC	EV020R+BAC
5 Nm	•	•	•	•	24 V	90 s	15	1/2	0.35	21	2.9	EV015R+BAC		
10 Nm	•	•	•	•	24 V	90 s	20	3/4	0.65	39	4.9	EV020R+BAC		
20 Nm	•	•	•	•	24 V	90 s	25	1	1.15	69	8.6	EV025R+BAC		
							32	1 1/4	1.8	108	14.2		EV032R+BAC	
							40	1 1/2	2.5	150	21.3		EV040R+BAC	
							50	2	4.8	288	32			EV050R+BAC

Actuator type	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
LR..	1400	350				
NR..			1400	350		
SR..					1400	350

¹⁾ Theoretical k_{vs} value for pressure drop calculation.

DN 65–150 / flange

Pipe connection	Flange PN 16 (EN 1092-1)
Medium temperature	-10...+120 °C
Flow characteristic	Equal percentage (acc. to VDI/VDE 2178) Can be switched to linear
Leakage rate	A, air bubble tight (EN 12266-1)
V _{max}	Freely adjustable 45–100% V _{nom}
Completely parameterisable by means of integrated web server	



Actuators

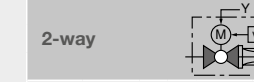
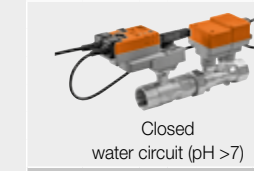
Nominal torque	Modulating (2–10 V, variable)	MP-Bus® communication	BACnet IP communication	BACnet MS/TP communication	Nominal voltage 24 V AC/DC	Running time motor 90°	DN	Rp ["]	V _{nom} [l/s]	V _{nom} [l/min]	k _{vs} theoretical [m³/h] ¹⁾	Valve type with actuator	Valve type with actuator
							65	80	100	125	150	P6065W800E-BAC	P6080W1100E-BAC
20 Nm	•	•	•	•	24 V	90 s	65	2 1/2	8	480	40	P6065W800E-BAC	
40 Nm	•	•	•	•	24 V	90 s	80	3	11	660	60	P6080W1100E-BAC	
							100	4	20	1200	100		P6100W2000E-BAC
							125	5	31	1860	160		P6125W3100E-BAC
							150	6	45	2700	240		P6150W4500E-BAC

Actuator type	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
SR..	690	340		
GR..			690	340

¹⁾ Theoretical k_{vs} value for pressure drop calculation.

DN 15–50 / internal thread

Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	-10...+120 °C
Flow characteristic	Equal percentage (acc. to VDI/VDE 2178) Can be switched to linear
Leakage rate	A, air bubble tight (EN 12266-1)
V _{max}	Freely adjustable 30–100% V _{nom}
Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool	



Actuators

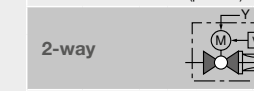
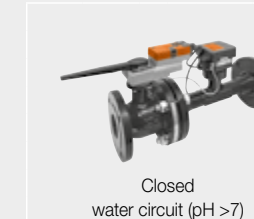
Nominal torque	Modulating (2–10 V, variable)	MP-Bus® communication	Nominal voltage 24 V AC/DC	Running time motor 90°	DN	Rp ["]	V _{nom} [l/s]	V _{nom} [l/min]	k _{vs} theoretical [m³/h] ¹⁾	Valve type with actuator	Valve type with actuator	Valve type with actuator
					15	20	25	32	40	50	EP015R+MP	EP020R+MP
5 Nm	•	•	24 V	90 s	15	1/2	0.35	21	2.9	EP015R+MP		
10 Nm	•	•	24 V	90 s	20	3/4	0.65	39	4.9	EP020R+MP		
20 Nm	•	•	24 V	90 s	25	1	1.15	69	8.6	EP025R+MP		
					32	1 1/4	1.8	108	14.2		EP032R+MP	
					40	1 1/2	2.5	150	21.3		EP040R+MP	
					50	2	4.8	288	32			EP050R+MP

Actuator type	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
LR..	1400	350				
NR..			1400	350		
SR..					1400	350

¹⁾ Theoretical k_{vs} value for pressure drop calculation.

DN 65–150 / flange

Pipe connection	Flange PN 16 (EN 1092-1)
Medium temperature	-10...+120 °C
Flow characteristic	Equal percentage (acc. to VDI/VDE 2178) Can be switched to linear
Leakage rate	A, air bubble tight (EN 12266-1)
V _{max}	Freely adjustable 45–100% V _{nom}
Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool	



Actuators

Nominal torque	Modulating (2–10 V, variable)	MP-Bus® communication	Nominal voltage 24 V AC/DC	Running time motor 90°	DN	Rp ["]	V _{nom} [l/s]	V _{nom} [l/min]	k _{vs} theoretical [m³/h] ¹⁾	Valve type with actuator	Valve type with actuator
					65	80	100	125	150	P6065W800E-MP	P6080W1100E-MP
20 Nm	•	•	24 V	90 s	65	2 1/2	8	480	40	P6065W800E-MP	
40 Nm	•	•	24 V	90 s	80	3	11	660	60	P6080W1100E-MP	
					100	4	20	1200	100		P6100W2000E-MP
					125	5	31	1860	160		P6125W3100E-MP
					150	6	45	2700	240		P6150W4500E-MP

Actuator type	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
SR..	690	340		
GR..			690	340

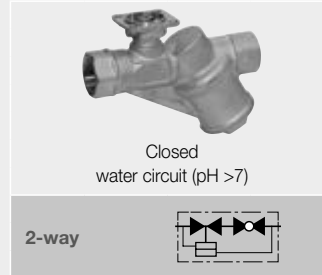
¹⁾ Theoretical k_{vs} value for pressure drop calculation.

DN 15–50

Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	DN 15 / 20_+5...+100 °C DN 25–50_+5...+80 °C
Flow characteristic	Equal percentage (acc. to VDI/VDE 2178)
Leakage rate	Tight (leakage class IV at 350 kPa, EN 60534-4)

Suitable actuators

Nominal torque	Open-close	3-point	Modulating (2–10 V)	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Running time emergency control function
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DN 15			DN 20		
Rp ["]	V _{nom} [l/s]	Valve type	Rp ["]	V _{nom} [l/s]	Valve type
1/2	0.1	R215P-010	3/4	0.4	R220P-040
	0.2	R215P-020		0.6	R220P-060
	0.4	R215P-040			

DN 25			DN 32			DN 40			DN 50		
Rp ["]	V _{nom} [l/s]	Valve type	Rp ["]	V _{nom} [l/s]	Valve type	Rp ["]	V _{nom} [l/s]	Valve type	Rp ["]	V _{nom} [l/s]	Valve type
1	0.7	R225P-070	1 1/4	1.2	R232P-120	1 1/2	1.8	R240P-180	2	2.7	R250P-270
	1.1	R225P-110		1.6	R232P-160		2.2	R240P-220		5.5	R250P-550

Standard actuators		Actuator type	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
LR.. NR.. SR..	5 Nm	• • • 24 V 90 s LR24A	700	350	700	350
		• • • 230 V 90 s LR230A	700	350	700	350
		• • • 24 V 90 s LR24A-SR	700	350	700	350
LRC.. NRC.. SRC..	10 Nm	• • • 24 V 90 s NR24A	700	350	700	350
		• • • 230 V 90 s NR230A	700	350	700	350
		• • • 24 V 90 s NR24A-SR	700	350	700	350
LRC.. NRC.. SRC..	20 Nm	• • • 24 V 90 s SR24A	700	350	700	350
		• • • 230 V 90 s SR230A	700	350	700	350
		• • • 24 V 90 s SR24A-SR	700	350	700	350

Fast runners		Actuator type	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
LRF..	5 Nm	• • • 24 V 35 s LRC24A-SR	700	350	700	350
	10 Nm	• • • 24 V 45 s NRC24A-SR	700	350	700	350
	20 Nm	• • • 24 V 35 s SRC24A-SR	700	350	700	350

Actuators with mechanical emergency control function		Actuator type NC		Actuator type NO		Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
		without auxiliary switch	with two auxiliary switches	without auxiliary switch	with two auxiliary switches				
NRF.. SRF..	4 Nm	• • • 24 V 150 s <20 s LRF24-SR				700	350	700	350
	10 Nm	• • • 230 V 90 s <20 s NRF230A-3	..-S2	..-O	..-S2-O	700	350	700	350
		• • • 24 V 90 s <20 s NRF24A-SR	..-S2	..-O	..-S2-O	700	350	700	350
	20 Nm	• • • 24 V 90 s <20 s SRF24A-SR	..-S2	..-O	..-S2-O	700	350	700	350

Continued next page

Continued from previous page

Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
700	350								
700	350								
700	350								
700	350	700	350	700	350	700	350		
700	350	700	350	700	350	700	350		
700	350	700	350	700	350	700	350	700	350
700	350	700	350	700	350	700	350	700	350
700	350	700	350	700	350	700	350	700	350
700	350	700	350	700	350	700	350	700	350

Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
700	350								
700	350	700	350	700	350	700	350		
700	350	700	350	700	350	700	350		
700	350	700	350	700	350	700	350	700	350
700	350	700	350	700	350	700	350	700	350

DN 15-50

Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	-10...+120 °C (small actuators TR../TRY.. only up to +100 °C) (compact actuators KR.. only up to +80 °C)
Flow characteristic	A-AB equal percentage / B-AB linear (k_{vs} 70% of A-AB)
Leakage rate	Control path A-AB: leakage rate A, air bubble tight (EN 12266-1) / bypass B-AB: leakage class I

	DN 15	DN 20	
 Closed and open water circuit (pH >7)	k_{vs} [m³/h] Valve type 0.25 R2015-P25-S1 0.4 R2015-P4-S1 0.63 R2015-P63-S1 1 R2015-1-S1 1.6 R2015-1P6-S1 2.5 R2015-2P5-S1	k_{vs} [m³/h] Valve type 4 R2020-4-S2 6.3 R2020-6P3-S2 8.6 R2020-8P6-S2	
	 Closed water circuit (pH >7)	k_{vs} [m³/h] Valve type 0.25 R3015-P25-S1 0.4 R3015-P4-S1 0.63 R3015-P63-S1 1 R3015-1-S1 1.6 R3015-1P6-S1 2.5 R3015-2P5-S1 4 R3015-4-S1	k_{vs} [m³/h] Valve type 4 R3020-4-S2 6.3 R3020-6P3-S2

	DN 25	DN 32	DN 40	DN 50			
k_{vs} [m³/h] Valve type 6.3 R2025-6P3-S2 10 R2025-10-S2 16 R2025-16-S2	k_{vs} [m³/h] Valve type 16 R2032-16-S3	k_{vs} [m³/h] Valve type 16 R2040-16-S3 25 R2040-25-S3	k_{vs} [m³/h] Valve type 25 R2050-25-S4 40 R2050-40-S4				
				k_{vs} [m³/h] Valve type 6.3 R3025-6P3-S2 10 R3025-10-S2	k_{vs} [m³/h] Valve type 16 R3032-16-S3	k_{vs} [m³/h] Valve type 16 R3040-16-S3 25 R3040-25-S4	k_{vs} [m³/h] Valve type 25 R3050-25-S4 40 R3050-40-S4 58 R3050-58-S4

Suitable actuators

Nominal torque	Open-close	3-point	Modulating (2-10 V)	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Running time emergency control function
2 Nm	•	•	•	•	24 V	75 s	
5 Nm	•	•	•	•	24 V	90 s	
10 Nm	•	•	•	•	24 V	90 s	
20 Nm	•	•	•	•	24 V	90 s	

Small and compact actuators		Actuator type	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
2 Nm	•	KR24 ²⁾	1400	350		
	•	TR24 ²⁾	1400	350		
	•	KR230 ²⁾	1400	350		
	•	TR230-3 ²⁾	1400	350		
	•	KR24-SR ²⁾	1400	350		
	•	TRY24-SR ²⁾	1400	350		

Standard actuators		Actuator type without auxiliary switch	Actuator type with auxiliary switch	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
5 Nm	•	LR24A	...S	1400	350		
	•	LR230A	...S	1400	350		
	•	LR24A-SR		1400	350		
10 Nm	•	NR24A	...S	1400	350		
	•	NR230A	...S	1400	350		
	•	NR24A-SR		1400	350		
20 Nm	•	SR24A	...S	1400	350		
	•	SR230A	...S	1400	350		
	•	SR24A-SR		1400	350		

Fast runners and very fast runners		Actuator type	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
2 Nm	•	TRC24A-SR	1400	350		
4 Nm	•	LRQ24A-SR			1400	350
5 Nm	•	LRC24A-SR			1400	350
8 Nm	•	NRQ24A-SR			1400	350
10 Nm	•	NRC24A-SR			1400	350
20 Nm	•	SRC24A-SR			1400	350

Actuators with mechanical emergency control function		Actuator type NC without auxiliary switch	Actuator type NO without auxiliary switch	Actuator type NC with two auxiliary switches	Actuator type NO with two auxiliary switches	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
2 Nm	•	TRF24-2 ²⁾	...O			1400	350		
	•	TRF24-SR ²⁾	...O			1400	350		
4 Nm	•	LRF24-SR ²⁾						1400	350
	•	NRF230A-3	...S2	...O	...S2-O			1400	350
10 Nm	•	NRF230A-3	...S2	...O	...S2-O			1400	350
	•	NRF24A-SR	...S2	...O	...S2-O			1400	350
20 Nm	•	SRF24A-SR	...S2	...O	...S2-O			1400	350

¹⁾ Low-noise operation $\Delta p_{max} = 200$ kPa.
²⁾ If medium temperature ≥ 100 °C, then line and valve must be insulated.

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Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
1400	350								
1400	350								
1400	350								
1400	350	1400	350	1400	350				
1400	350	1400	350	1400	350				
1400	350	1400	350	1400	350				
1400	350	1400	350	1400	350	1400	350	1400	350
1400	350	1400	350	1400	350	1400	350	1400	350
1400	350	1400	350	1400	350	1400	350	1400	350
1400	350	1400	350	1400	350	1400	350	1400	350
1400	350	1400	350	1400	350	1400	350	1400	350

DN 10-50

Pipe connection	External thread G (ISO 228/1)
Medium temperature	+6...+100 °C (compact actuators KR.. only up to +80 °C) (DN 10-50: -10...+5 °C with spindle heating)
Flow characteristic	A-AB equal percentage / B-AB linear (k _{vs} 70% of A-AB)
Leakage rate	Control path A-AB: leakage rate A, air bubble tight (EN 12266-1) / bypass B-AB: leakage class I

	DN 10	DN 15
 Closed and open water circuit (pH >7) 2-way	k _{vs} [m³/h] Valve type	k _{vs} [m³/h] Valve type
	0.25 R405K	0.63 R409
	0.4 R406K	1 R410
	0.63 R407K	1.6 R411
	1 R408K	2.5 R412
 Closed and open water circuit (pH >7) 3-way	k _{vs} [m³/h] Valve type	k _{vs} [m³/h] Valve type
	0.25 R505K	0.63 R509
	0.4 R506K	1 R510
	0.63 R507K	1.6 R511
	1 R508K	2.5 R512

	DN 20	DN 25	DN 32	DN 40	DN 50
 Closed and open water circuit (pH >7) 2-way	k _{vs} [m³/h] Valve type	k _{vs} [m³/h] Valve type	k _{vs} [m³/h] Valve type	k _{vs} [m³/h] Valve type	k _{vs} [m³/h] Valve type
	4 R417	6.3 R422	16 R431	16 R438	25 R448
	6.3 R418	10 R423	16 R431	25 R439	40 R449
	8.6 R419	16 R424	16 R431	25 R439	40 R449
 Closed and open water circuit (pH >7) 3-way	k _{vs} [m³/h] Valve type	k _{vs} [m³/h] Valve type	k _{vs} [m³/h] Valve type	k _{vs} [m³/h] Valve type	k _{vs} [m³/h] Valve type
	4 R517	6.3 R522	16 R531	16 R538	25 R548
	6.3 R518	10 R523	16 R531	16 R538	25 R548

Suitable actuators

Nominal torque	Open-close	3-point	Modulating (2-10 V)	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Running time emergency control function
2 Nm	•	•	•	•	24 V	75 s	
5 Nm	•	•	•	•	24 V	90 s	
10 Nm	•	•	•	•	24 V	90 s	
20 Nm	•	•	•	•	24 V	90 s	

Small and compact actuators		Actuator type	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
2 Nm	• •	KR24	1400	200	1400	200
	• •	TR24	1400	200	1400	200
	• •	KR230	1400	200	1400	200
	• •	TR230-3	1400	200	1400	200
2 Nm	• •	KR24-SR	1400	200	1400	200
	• •	TR24-SR	1400	200	1400	200
	• •	TRY24-SR	1400	200	1400	200

Standard actuators		Actuator type without auxiliary switch	Actuator type with auxiliary switch	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
5 Nm	• •	LR24A	..-S	1400	200	1400	200
	• •	LR230A	..-S	1400	200	1400	200
	• •	LR24A-SR	..-S	1400	200	1400	200
10 Nm	• •	NR24A	..-S	1400	200	1400	200
	• •	NR230A	..-S	1400	200	1400	200
	• •	NR24A-SR	..-S	1400	200	1400	200
20 Nm	• •	SR24A	..-S	1400	200	1400	200
	• •	SR230A	..-S	1400	200	1400	200
	• •	SR24A-SR	..-S	1400	200	1400	200

Fast runners and very fast runners		Actuator type	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
2 Nm	•	TRC24A-SR	1400	200	1400	200
4 Nm	•	LRQ24A-SR	1400	200	1400	200
5 Nm	•	LRC24A-SR	1400	200	1400	200
8 Nm	•	NRQ24A-SR	1400	200	1400	200
10 Nm	•	NRC24A-SR	1400	200	1400	200
20 Nm	•	SRC24A-SR	1400	200	1400	200

Actuators with mechanical emergency control function		Actuator type NC without auxiliary switch	Actuator type NO without auxiliary switch	Actuator type NC with two auxiliary switches	Actuator type NO with two auxiliary switches	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
2 Nm	•	TRF24-2	..-O	..-S2	..-S2-O	1400	200	1400	200
	•	TRF24-SR	..-O	..-S2	..-S2-O	1400	200	1400	200
4 Nm	•	LRF24-SR	..-O	..-S2	..-S2-O	1400	200	1400	200
	•	NRF230A-3	..-S2	..-S2	..-S2-O	1400	200	1400	200
10 Nm	•	NRF230A-3	..-S2	..-S2	..-S2-O	1400	200	1400	200
	•	NRF24A-SR	..-S2	..-S2	..-S2-O	1400	200	1400	200
20 Nm	•	SRF24A-SR	..-S2	..-S2	..-S2-O	1400	200	1400	200

Value = recommended combinations Value = other possible combinations (Data does not relieve the user of the obligation for testing in individual cases.)

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Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
1400	200								
1400	200								
1400	200								
1400	200								
1400	200								
1400	200								
1400	200								
1400	200								

Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
1400	200	1400	200						
1400	200	1400	200						
1400	200	1400	200						
1400	200	1400	200	1400	200	1400	200	1400	200
1400	200	1400	200	1400	200	1400	200	1400	200
1400	200	1400	200	1400	200	1400	200	1400	200
1400	200	1400	200	1400	200	1400	200	1400	200
1400	200	1400	200	1400	200	1400	200	1400	200

Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
1400	200								
1400	200	1400	200						
1400	200	1400	200						
1400	200	1400	200	1400	200	1400	200	1400	200
1400	200	1400	200	1400	200	1400	200	1400	200
1400	200	1400	200	1400	200	1400	200	1400	200

Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
1400	200								
1400	200	1400	200						
1400	200	1400	200						
1400	200	1400	200	1400	200	1400	200	1400	200
1400	200	1400	200	1400	200	1400	200	1400	200
1400	200	1400	200	1400	200	1400	200	1400	200

DN 15–50

Pipe connection	Flange PN 6 (EN 1092/1)
Medium temperature	-10...+100 °C (compact actuators KR.. only up to +80 °C)
Flow characteristic	A-AB equal percentage / B-AB linear (k_{vs} 70% of A-AB)
Leakage rate	Control path A-AB: leakage rate A, air bubble tight (EN 12266-1) / bypass B-AB: leakage class I

	DN 15	DN 20
 Closed and open water circuit (pH >7) 2-way	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type
	0.63 R6015RP63-B1	
	1 R6015R1-B1	
	1.6 R6015R1P6-B1	
	2.5 R6015R2P5-B1	
4 R6015R4-B1	6.3 R6020R6P3-B1	
 Closed water circuit (pH >7) 3-way	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type
	0.63 R7015RP63-B1	
	1.6 R7015R1P6-B1	
	4 R7015R4-B1	6.3 R7020R6P3-B1

Suitable actuators

Nominal torque	Open-close	3-point	Modulating (2-10 V)	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Running time emergency control function
2 Nm	•	•	•	•	24 V	75 s	
5 Nm	•	•	•	•	24 V	90 s	
10 Nm	•	•	•	•	24 V	90 s	
20 Nm	•	•	•	•	24 V	90 s	

Small and compact actuators		Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
 2 Nm	•	KR24	600	100	600	100
	•	TR24	600	100	600	100
	•	KR230	600	100	600	100
	•	TR230-3	600	100	600	100
	•	KR24-SR	600	100	600	100
	•	TR24-SR	600	100	600	100
	•	TRY24-SR	600	100	600	100

Standard actuators		Actuator type without auxiliary switch	Actuator type with auxiliary switch	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
 5 Nm	•	LR24A	..-S			600	100
	•	LR230A	..-S			600	100
	•	LR24A-SR	..-S			600	100
 10 Nm	•	NR24A	..-S			600	100
	•	NR230A	..-S			600	100
	•	NR24A-SR	..-S			600	100
 20 Nm	•	SR24A	..-S			600	100
	•	SR230A	..-S			600	100
	•	SR24A-SR	..-S			600	100

Fast runners and very fast runners		Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
 2 Nm	•	TRC24A-SR	600	100	600	100
	•	LRQ24A-SR			600	100
 4 Nm 5 Nm 8 Nm 10 Nm 20 Nm	•	LRC24A-SR			600	100
	•	NRQ24A-SR			600	100
	•	NRC24A-SR			600	100
	•	SRC24A-SR			600	100

Actuators with mechanical emergency control function		Actuator type NC without auxiliary switch	Actuator type NO without auxiliary switch	Actuator type NC with two auxiliary switches	Actuator type NO with two auxiliary switches	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
 2 Nm	•	TRF24-2	..-O	..-S2	..-S2-O	600	100	600	100
	•	TRF24-SR	..-O	..-S2	..-S2-O	600	100	600	100
 4 Nm	•	LRF24-SR	..-O	..-S2	..-S2-O	600	100	600	100
	•	NRF230A-3	..-S2	..-S2	..-S2-O	600	100	600	100
 10 Nm	•	NRF230A-3	..-S2	..-S2	..-S2-O	600	100	600	100
	•	NRF24A-SR	..-S2	..-S2	..-S2-O	600	100	600	100
 20 Nm	•	SRF24A-SR	..-S2	..-S2	..-S2-O	600	100	600	100

DN 25	DN 32	DN 40	DN 50
k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type
10 R6025R10-B2	16 R6032R16-B3	25 R6040R25-B3	40 R6050R40-B3

DN 25	DN 32	DN 40	DN 50
k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type
10 R7025R10-B2	16 R7032R16-B3	16 R7040R16-B3	25 R7050R25-B3

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
600	100						
600	100						
600	100						
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
600	100						
600	100						
600	100						
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
600	100						
600	100						
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100

DN 65 – 150

Pipe connection	Flange PN 16 (EN 1092/1)
Medium temperature	-10...+120 °C
Flow characteristic	A-AB, equal percentage
Leakage rate	Leakage rate A, air bubble tight (EN 12266-1)

Suitable actuators

Nominal torque	Open-close	3-point	Modulating (2–10 V)	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Running time emergency control function	Auxiliary switch SPDT
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 Closed water circuit (pH > 7) 2-way	DN 65		DN 80	
	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
	63	R6065W63-S8	100	R6080W100-S8

DN 100		DN 125		DN 150	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
160	R6100W160-S8	250	R6125W250-S8	320	R6150W320-S8

Standard actuators		Actuator type		Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]		
SR..	20 Nm	• •	24 V	90 s	SR24A-5	690	400	690	400
		• •	230 V	90 s	SR230A-5	690	400	690	400
		• •	24 V	90 s	SR24A-SR-5	690	400	690	400
		• •	230 V	90 s	SR230A-SR-5	690	400	690	400
GR..	40 Nm	• •	24 V	150 s	SR24P-5	690	400	690	400
		• •	230 V	150 s	SR230P-5	690	400	690	400
		• •	24 V	150 s	SR24P-SR-5	690	400	690	400
		• •	230 V	150 s	SR230P-SR-5	690	400	690	400
SRC..	40 Nm	• •	24 V	150 s	GR24A-5	690	400	690	400
		• •	230 V	150 s	GR230A-5	690	400	690	400
		• •	24 V	150 s	GR24A-SR-5	690	400	690	400

Fast runners		Actuator type		Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	
20 Nm	•	24 V	35 s	SRC24A-SR-5	690	400	690	400

Actuators with emergency control function NC/NO		Actuator type		Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]				
SRF..	20 Nm	•	24 V	<75 s	<20 s	2	SRF24A-5	690	400	690	400
		•	230 V	<75 s	<20 s	2	SRF24A-S2-5	690	400	690	400
		•	230 V	<75 s	<20 s	2	SRF230A-5	690	400	690	400
		•	230 V	<75 s	<20 s	2	SRF230A-S2-5	690	400	690	400
GRK..	40 Nm	•	24 V	90 s	<20 s	2	SRF24A-SR-5	690	400	690	400
		•	24 V	90 s	<20 s	2	SRF24A-SR-S2-5	690	400	690	400
		•	24 V	150 s			GRK24A-5	690	400	690	400
		•	24 V	150 s			GRK24A-SR-5	690	400	690	400

⊙ = Actuators with mechanical emergency control function.
 -||- = Actuators with electrical emergency control function. The emergency setting position NC/NO of all -||- actuators can be adjusted on the actuator.

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DN 10–20

Pipe connection	External thread G (ISO 228/1)
Medium temperature	+2...+130 °C
Flow characteristic	A-AB, equal percentage
Leakage rate	Leakage rate A, air bubble tight (EN 12266-1)

Suitable actuators

Nominal torque	Open-close	3-point	Modulating (2–10 V)	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Running time emergency control function	DN 10		DN 15		DN 20	
								k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
								0.3	R404DK				
								0.4	R405DK				
								0.63	R406DK	2.5	R412D	6.3	R417D
								1	R407DK	4	R413D	10	R418D
								1.6	R408DK	6.3	R414D	16	R419D
								2.5	R409DK				

Small and compact actuators

Actuator type	Nominal torque	Nominal voltage	Running time	Emergency control function	Actuator type	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
						[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]
TR24 ¹⁾	2 Nm	24 V	100 s		TR24-SR ¹⁾	1400	800				
TRY24-SR ¹⁾	2 Nm	24 V	35 s								

Standard actuators

Actuator type	Nominal torque	Nominal voltage	Running time	Emergency control function	Actuator type	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
						[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]
LR24A	5 Nm	24 V	90 s		LR230A	1400	800	1400	800	1400	800
LR24A-SR	5 Nm	24 V	90 s		LR24A-SR	1400	800	1400	800	1400	800

Fast runners and very fast runners

Actuator type	Nominal torque	Nominal voltage	Running time	Emergency control function	Actuator type	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
						[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]
TRC24A-SR	2 Nm	24 V	15 s		LRQ24A-SR	1400	800	1400	800	1400	800
LRC24A-SR	5 Nm	24 V	35 s								

Actuators with mechanical emergency control function

Actuator type	Nominal torque	Nominal voltage	Running time	Emergency control function	Actuator type NC		Actuator type NO		Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
					without auxiliary switch	with two auxiliary switches	without auxiliary switch	with two auxiliary switches				
TRF24-2 ¹⁾	2 Nm	24 V	<25 s		..-O	1400	800					
TRF24-SR ¹⁾	2 Nm	24 V	25 s		..-O	1400	800					
LRF24-SR ¹⁾	4 Nm	24 V	<20 s			1400	800	1400	800	1400	800	
NRFD230A-3	10 Nm	230 V	<20 s		..-S2	1400	800	1400	800	1400	800	

¹⁾ If medium temperature ≥ 100 °C, then line and valve must be insulated.

DN 15–50

Pipe connection	External thread G (ISO 228)
Medium temperature	+5...+120 °C (-10...+5 °C with spindle heating)
Flow characteristic	A-AB equal percentage / B-AB linear
Leakage rate	Control path A-AB: max. 0.05% of k_{vs} value bypass B-AB: max. 1% of k_{vs} value

Suitable actuators

Actuating force	Actuating time per nominal stroke	Actuating time for emergency control function	Open-close	3-point	Modulating (2–10 V)	MP-Bus [®] communication ¹⁾	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	DN 15		DN 20		DN 25		DN 32		DN 40		DN 50	
									k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
									0.63	H411B										
									1	H412B										
									1.6	H413B	6.3	H420B	10	H425B	16	H432B	25	H440B	40	H450B
									2.5	H414B										
									4	H415B										

Standard actuators

Actuator type	Actuating force	Actuating time per nominal stroke	Actuating time for emergency control function	Open-close	3-point	Modulating (2–10 V)	MP-Bus [®] communication ¹⁾	Emergency control function	Nominal voltage	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
										[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]
LV24A-TPC	500 N	150 s							24 V	1300	400	900	400	500	400	350	350	150	150	70	70
LV230A-TPC	500 N	150 s							230 V	1300	400	900	400	500	400	350	350	150	150	70	70
LV24A-SR-TPC	500 N	150 s							24 V	1300	400	900	400	500	400	350	350	150	150	70	70
LV24A-MP-TPC	500 N	150 s							24 V	1300	400	900	400	500	400	350	350	150	150	70	70
NV24A-TPC	1000 N	150 s							24 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
NV230A-TPC	1000 N	150 s							230 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
NV24A-SR-TPC	1000 N	150 s							24 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
NV24A-MP-TPC	1000 N	150 s							24 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
SV24A-TPC	1500 N	150 s							24 V	1600	400	1600	400	1600	400	1600	400	900	400	550	400
SV230A-TPC	1500 N	150 s							230 V	1600	400	1600	400	1600	400	1600	400	900	400	550	400
SV24A-SR-TPC	1500 N	150 s							24 V	1600	400	1600	400	1600	400	1600	400	900	400	550	400
SV24A-MP-TPC	1500 N	150 s							24 V	1600	400	1600	400	1600	400	1600	400	900	400	550	400

Fast runners

Actuator type	Actuating force	Actuating time per nominal stroke	Actuating time for emergency control function	Open-close	3-point	Modulating (2–10 V)	MP-Bus [®] communication ¹⁾	Emergency control function	Nominal voltage	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
										[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]
LVC24A-SR-TPC	500 N	35 s							24 V	1300	400	900	400	500	400	350	350	150	150	70	70
LVC24A-MP-TPC	500 N	35 s							24 V	1300	400	900	400	500	400	350	350	150	150	70	70
NVC24A-SR-TPC	1000 N	35 s							24 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
NVC24A-MP-TPC	1000 N	35 s							24 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
SVC24A-SR-TPC	1500 N	35 s							24 V	1600	400	1600	400	1600	400	1600	400	900	400	550	400
SVC24A-MP-TPC	1500 N	35 s							24 V	1600	400	1600	400	1600	400	1600	400	900	400	550	400

Actuators with electrical emergency control function²⁾

Actuator type	Actuating force	Actuating time per nominal stroke	Actuating time for emergency control function	Open-close	3-point	Modulating (2–10 V)	MP-Bus [®] communication ¹⁾	Emergency control function	Nominal voltage	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
										[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	
NVK24A-3-TPC ³⁾	1000 N	150 s	35 s					-II-	24 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
NVK230A-3	1000 N	150 s	35 s					-II-	230 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
NVK24A-SR-TPC	1000 N	150 s	35 s					-II-	24 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
NVK24A-MP-TPC	1000 N	150 s	35 s					-II-	24 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
NVKC24A-SR-TPC	1000 N	150 s	35 s					-II-	24 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300
NVKC24A-MP-TPC	1000 N	150 s	35 s					-II-	24 V	1600	400	1600	400	1300	400	1000	400	500	400	300	300

¹⁾ Running times, control signal, stroke limitation and other functions are adjustable on MP types using PC-Tool or ZTH EU parameterizing device (delivery state: modulating, operating range 2–10 V).

²⁾ The emergency setting position NC/NO of all -II- actuators can be adjusted on the actuator. Delivery state: actuator spindle retracted.

Closing point of the globe valves H..B is at top (valve stem extended).

³⁾ Nominal voltage 24 V AC.

DN 15–100

Pipe connection	Flange PN 6 (ISO 7005-2)
Medium temperature	+5...+120 °C (-10...+5 °C with spindle heating)
Flow characteristic	A-AB equal percentage / B-AB linear
Leakage rate	Control path A-AB: max. 0.05% of k_{vs} value / Bypass B-AB: max. 1% of k_{vs} value

	DN 15	DN 20
 Closed cold and hot water systems 2-way	k_{vs} [m³/h]	k_{vs} [m³/h]
	0.63	H611R
	1	H612R
	1.6	H613R
	2.5	H614R
	4	H615R
	6.3	H620R
 Closed cold and hot water systems 3-way	k_{vs} [m³/h]	k_{vs} [m³/h]
	0.63	H711R
	1	H712R
	1.6	H713R
	2.5	H714R
	4	H715R
	6.3	H720R

Suitable actuators

Actuating force	Actuating time per nominal stroke	Actuating time for emergency control function	Open-close	3-point	Modulating (2 - 10 V)	MP-Bus [®] communication ¹⁾	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC
500 N	150 s		•	•				24 V
1000 N	150 s		•	•				24 V
1500 N	150 s		•	•				24 V
2500 N	150 s		•	•				24 V
4500 N	120 s		•	•				24 V

Standard actuators

Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Actuator type					
					Actuator type	Actuator type				
LV.. NV.. SV..	500 N	150 s	•	•	24 V	LV24A-TPC	600	400	600	400
					230 V	LV230A-TPC	600	400	600	400
					24 V	LV24A-SR-TPC	600	400	600	400
					24 V	LV24A-MP-TPC	600	400	600	400
EV.. RV..	1000 N	150 s	•	•	24 V	NV24A-TPC	600	400	600	400
					230 V	NV230A-TPC	600	400	600	400
					24 V	NV24A-SR-TPC	600	400	600	400
					24 V	NV24A-MP-TPC	600	400	600	400
LVC.. NVC.. SVC..	1500 N	150 s	•	•	24 V	SV24A-TPC	600	400	600	400
					230 V	SV230A-TPC	600	400	600	400
					24 V	SV24A-SR-TPC	600	400	600	400
					24 V	SV24A-MP-TPC	600	400	600	400
LVC.. NVC.. SVC..	2500 N	150 s	•	•	24 V	EV24A-TPC				
					230 V	EV230A-TPC				
					24 V	EV24A-SR-TPC				
					24 V	EV24A-MP-TPC				
LVC.. NVC.. SVC..	4500 N	120 s	•	•	24 V	RV24A-SR				
					24 V	RV24A-SR				

Fast runners

Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Actuator type					
					Actuator type	Actuator type				
EVC..	500 N	35 s	•	•	24 V	LVC24A-SR-TPC	600	400	600	400
					24 V	LVC24A-MP-TPC	600	400	600	400
EVC..	1000 N	35 s	•	•	24 V	NVC24A-SR-TPC	600	400	600	400
					24 V	NVC24A-MP-TPC	600	400	600	400
EVC..	1500 N	35 s	•	•	24 V	SVC24A-SR-TPC	600	400	600	400
					24 V	SVC24A-MP-TPC	600	400	600	400
EVC..	2500 N	35 s	•	•	24 V	EVC24A-SR				
					24 V	EVC24A-SR				

Actuators with electrical emergency control function²⁾

Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Actuator type					
					Actuator type	Actuator type				
NVK.. NVKC..	1000 N	150 s	•	•	24 V	NVK24A-3-TPC ³⁾	600	400	600	400
					230 V	NVK230A-3	600	400	600	400
					24 V	NVK24A-SR-TPC	600	400	600	400
					24 V	NVK24A-MP-TPC	600	400	600	400
AVK..	2000 N	150 s	•	•	24 V	NVKC24A-SR-TPC	600	400	600	400
					24 V	NVKC24A-MP-TPC	600	400	600	400
					24 V	AVK24A-3-TPC ³⁾				
					230 V	AVK230A-3				
AVK..	2000 N	150 s	•	•	24 V	AVK24A-SR-TPC				
					24 V	AVK24A-MP-TPC				
					24 V	AVK24A-MP-TPC				

¹⁾ Running times, control signal, stroke limitation and other functions are adjustable on MP types using PC-Tool or ZTH EU parameterizing device (delivery state: modulating, operating range 2–10 V).

²⁾ The emergency setting position NC/NO of all —|— actuators can be adjusted on the actuator. Delivery state: actuator spindle retracted.

Closing point of the globe valves H..R is at top (valve stem extended).

³⁾ Nominal voltage 24 V AC.

DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100
k_{vs} [m³/h]	k_{vs} [m³/h]	k_{vs} [m³/h]	k_{vs} [m³/h]	k_{vs} [m³/h]	k_{vs} [m³/h]	k_{vs} [m³/h]
10	16	25	40	58	90	145
Valve type	Valve type	Valve type	Valve type	Valve type	Valve type	Valve type
H625R	H632R	H640R	H650R	H664R	H679R	H6100R

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
500	400	350	350	150	150	70	70								
500	400	350	350	150	150	70	70								
500	400	350	350	150	150	70	70								
600	400	600	400	500	400	300	300	140	140	80	80				
600	400	600	400	500	400	300	300	140	140	80	80				
600	400	600	400	500	400	300	300	140	140	80	80				
600	400	600	400	600	400	550	400	280	280	160	160				
600	400	600	400	600	400	550	400	280	280	160	160				
600	400	600	400	600	400	550	400	280	280	160	160				
600	400	600	400	600	400	550	400	280	280	160	160				
												200	200		
												200	200		
												200	200		
												200	200		
												450	400		

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
500	400	350	350	150	150	70	70								
500	400	350	350	150	150	70	70								
600	400	600	400	500	400	300	300	140	140	80	80				
600	400	600	400	500	400	300	300	140	140	80	80				
600	400	600	400	500	400	300	300	140	140	80	80				
600	400	600	400	600	400	550	400	280	280	160	160				
600	400	600	400	600	400	550	400	280	280	160	160				
												200	200		
												200	200		
												200	200		
												200	200		
												150	150		
												150	150		
												150	150		
												150	150		

DN 15–150

Pipe connection	Flange PN 16 (ISO 7005-2)
Medium temperature	+5...+120 °C (-10...+5 °C with spindle heating)
Flow characteristic	A-AB equal percentage / B-AB linear
Leakage rate	Control path A-AB: max. 0.05% of k_{VS} value / Bypass B-AB: max. 1% of k_{VS} value

	DN 15	DN 20	DN 25
 Closed cold and hot water systems 2-way	k_{VS} [m³/h]		
	0.63		
	1		
	1.6		
	2.5		
	k_{VS} [m³/h]	k_{VS} [m³/h]	k_{VS} [m³/h]
	4	6.3	10
		Valve type	Valve type
		H611N	H612N
		H613N	H614N
		H615N	H625N
 Closed cold and hot water systems 3-way	k_{VS} [m³/h]		
	0.63		
	1		
	1.6		
	2.5		
	k_{VS} [m³/h]	k_{VS} [m³/h]	k_{VS} [m³/h]
	4	6.3	10
		Valve type	Valve type
		H711N	H712N
		H713N	H714N
		H715N	H725N

Suitable actuators

Actuating force	Actuating time per nominal stroke	Actuating time for emergency control function	Open-close	3-point	Modulating (2-10 V)	MP-Bus® communication ¹⁾	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC

Standard actuators

LV.. NV.. SV..	500 N	150 s	•	•	•	•	24 V	LV24A-TPC	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
									[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]
							230 V	LV230A-TPC	1300	400	900	400	500	400
							24 V	LV24A-SR-TPC	1300	400	900	400	500	400
							24 V	LV24A-MP-TPC	1300	400	900	400	500	400
							24 V	NV24A-TPC	1600	400	1600	400	1300	400
							230 V	NV230A-TPC	1600	400	1600	400	1300	400
							24 V	NV24A-SR-TPC	1600	400	1600	400	1300	400
							24 V	NV24A-MP-TPC	1600	400	1600	400	1300	400
							24 V	SV24A-TPC	1600	400	1600	400	1600	400
							230 V	SV230A-TPC	1600	400	1600	400	1600	400
							24 V	SV24A-SR-TPC	1600	400	1600	400	1600	400
							24 V	SV24A-MP-TPC	1600	400	1600	400	1600	400
							24 V	EV24A-TPC						
							230 V	EV230A-TPC						
							24 V	EV24A-SR-TPC						
							24 V	EV24A-MP-TPC						
							24 V	RV24A-SR						

Fast runners

LVC.. NVC.. SVC..	500 N	35 s	•	•	•	•	24 V	LVC24A-SR-TPC	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
									[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]
							24 V <td>LVC24A-MP-TPC <td>1300</td> <td>400</td> <td>900</td> <td>400</td> <td>500</td> <td>400</td> </td>	LVC24A-MP-TPC <td>1300</td> <td>400</td> <td>900</td> <td>400</td> <td>500</td> <td>400</td>	1300	400	900	400	500	400
							24 V <td>NVC24A-SR-TPC <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1300</td> <td>400</td> </td>	NVC24A-SR-TPC <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1300</td> <td>400</td>	1600	400	1600	400	1300	400
							24 V <td>NVC24A-MP-TPC <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1300</td> <td>400</td> </td>	NVC24A-MP-TPC <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1300</td> <td>400</td>	1600	400	1600	400	1300	400
							24 V <td>SVC24A-SR-TPC <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> </td>	SVC24A-SR-TPC <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1600</td> <td>400</td>	1600	400	1600	400	1600	400
							24 V <td>SVC24A-MP-TPC <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> </td>	SVC24A-MP-TPC <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1600</td> <td>400</td>	1600	400	1600	400	1600	400
							24 V <td>EVC24A-SR <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </td>	EVC24A-SR <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						

Actuators with electrical emergency control function²⁾

NVK.. NVKC..	1000 N	150 s	35 s	•	•	•	•	24 V	NVK24A-3-TPC ³⁾	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
										[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]
								230 V <td>NVK230A-3</td> <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1300</td> <td>400</td>	NVK230A-3	1600	400	1600	400	1300	400
								24 V <td>NVK24A-SR-TPC</td> <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1300</td> <td>400</td>	NVK24A-SR-TPC	1600	400	1600	400	1300	400
								24 V <td>NVK24A-MP-TPC</td> <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1300</td> <td>400</td>	NVK24A-MP-TPC	1600	400	1600	400	1300	400
								24 V <td>NVKC24A-SR-TPC</td> <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1300</td> <td>400</td>	NVKC24A-SR-TPC	1600	400	1600	400	1300	400
								24 V <td>NVKC24A-MP-TPC</td> <td>1600</td> <td>400</td> <td>1600</td> <td>400</td> <td>1300</td> <td>400</td>	NVKC24A-MP-TPC	1600	400	1600	400	1300	400
								24 V <td>AVK24A-3-TPC³⁾</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	AVK24A-3-TPC ³⁾						
								230 V <td>AVK230A-3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	AVK230A-3						
								24 V <td>AVK24A-SR-TPC</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	AVK24A-SR-TPC						
								24 V <td>AVK24A-MP-TPC</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	AVK24A-MP-TPC						

¹⁾ Running times, control signal, stroke limitation and other functions are adjustable on MP types using PC-Tool or ZTH EU parameterizing device (delivery state: modulating, operating range 2 – 10 V).

²⁾ The emergency setting position NC/NO of all —|— actuators can be adjusted on the actuator. Delivery state: actuator spindle retracted.

Closing point of the globe valves H..N is at top (valve stem extended).

³⁾ Nominal voltage 24 V AC.

DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150
k_{VS} [m³/h]	k_{VS} [m³/h]	k_{VS} [m³/h]	k_{VS} [m³/h]	k_{VS} [m³/h]	k_{VS} [m³/h]	k_{VS} [m³/h]	k_{VS} [m³/h]
16	25	40	58	63	90	100	145
Valve type	Valve type	Valve type	Valve type	Valve type	Valve type	Valve type	Valve type
H632N	H640N	H650N	H664N	H665N	H679N	H680N	H6100N

Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
350	350	150	150	70	70														
350	350	150	150	70	70														
350	350	150	150	70	70														
1000	400	500	400	300	300	140	140			80	80								
1000	400	500	400	300	300	140	140			80	80								
1000	400	500	400	300	300	140	140			80	80								
1600	400	900	400	550	400	280	280			160	160								
1600	400	900	400	550	400	280	280			160	160								
1600	400	900	400	550	400	280	280			160	160								
1600	400	900	400	550	400	280	280			160	160								

Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}	Δp_s	Δp_{max}
350	350	150	150	70	70														
350	350	150	150	70	70														
1000	400	500	400	300	300	140	140			80	80								
1000	400	500	400	300	300	140	140			80	80								
1600	400	900	400	550	400	280	280			160	160								
1600	400	900	400	550	400	280	280			160	160								
						550	400							350	350	200	200	130	130
						550	400							350	350	200	200	130	130
						550	400							350	350	200	200	130	130
						1100	400							700	400	450	400	290	290

DN 40 – 150

Pipe connection	Flange PN 16 (ISO 7005-2)
Medium temperature	+5...+150 °C (120 °C to 1600 kPa, 150 °C to 1400 kPa)
Flow characteristic	A-AB, equal percentage
Leakage rate	Control path A-AB: max. 0.05% of k_{vs} value
Media	For closed hot water and steam systems ($\Delta p/p1 < 0.4$), water with glycol up to max. 50 vol. %

Suitable actuators

Actuating force	
Actuating time per nominal stroke	
Actuating time for emergency control function	
Open-close	
3-point	
Modulating (2 – 10 V)	
MP-Bus® communication ¹⁾	
Emergency control function	
Nominal voltage 24 V AC/DC 230 V AC	



DN 40		DN 50	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
25	H640SP	40	H650SP

Standard actuators				Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
NV.. SV..	1000 N	150 s	• •	24 V NV24A-TPC	1600	1000	1600	1000
				230 V NV230A-TPC	1600	1000	1600	1000
				24 V NV24A-SR-TPC	1600	1000	1600	1000
				24 V NV24A-MP-TPC	1600	1000	1600	1000
EV.. RV..	1500 N	150 s	• •	24 V SV24A-TPC	1600	1000	1600	1000
				230 V SV230A-TPC	1600	1000	1600	1000
				24 V SV24A-SR-TPC	1600	1000	1600	1000
				24 V SV24A-MP-TPC	1600	1000	1600	1000
NVC.. SVC..	2500 N	150 s	• •	24 V EV24A-TPC				
				230 V EV230A-TPC				
				24 V EV24A-SR-TPC				
				24 V EV24A-MP-TPC				
NVC.. SVC..	4500 N	120 s	•	24 V RV24A-SR				

Fast runners				Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
EVC..	1000 N	35 s	• •	24 V NVC24A-SR-TPC	1600	1000	1600	1000
				24 V NVC24A-MP-TPC	1600	1000	1600	1000
				24 V SVC24A-SR-TPC	1600	1000	1600	1000
				24 V SVC24A-MP-TPC	1600	1000	1600	1000
EVC..	1500 N	35 s	• •	24 V SVC24A-SR-TPC	1600	1000	1600	1000
				24 V SVC24A-MP-TPC	1600	1000	1600	1000
EVC..	2500 N	35 s	•	24 V EVC24A-SR				

Actuators with electrical emergency control function ²⁾				Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
NVC.. NVKC..	1000 N	150 s	35 s	24 V NVK24A-3-TPC ³⁾	1600	1000	1600	1000
				230 V NVK230A-3	1600	1000	1600	1000
				24 V NVK24A-SR-TPC	1600	1000	1600	1000
				24 V NVK24A-MP-TPC	1600	1000	1600	1000
	2000 N	150 s	35 s	24 V NVKC24A-SR-TPC	1600	1000	1600	1000
				24 V NVKC24A-MP-TPC	1600	1000	1600	1000
				24 V AVK24A-3-TPC ³⁾				
				230 V AVK230A-3				
AVK..	2000 N	150 s	35 s	24 V AVK24A-SR-TPC				
				24 V AVK24A-MP-TPC				

¹⁾ Running times, control signal, stroke limitation and other functions are adjustable on MP types using PC-Tool or ZTH EU parameterizing device (delivery state: modulating, operating range 2 – 10 V).
²⁾ The emergency setting position NC/NO of all –II– actuators can be adjusted on the actuator. Delivery state: actuator spindle retracted.
 Closing point of the globe valves H6...SP is at bottom (valve stem retracted).
³⁾ Nominal voltage 24 V AC.

DN 65		DN 80		DN 100		DN 125		DN 150	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
58	H664SP	90	H679SP	145	H6100SP	220	H6125SP	320	H6150SP

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
				600	600	600	600	600	600
				600	600	600	600	600	600
				600	600	600	600	600	600
				600	600	600	600	600	600

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
				600	600	600	600	600	600

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
1600	1000	1600	1000						
				600	600				
				600	600				
				600	600				
				600	600				

DN 200 / DN 250

Pipe connection	Flange PN 16 (ISO 7005-2)
Medium temperature	+5...+120 °C
Flow characteristic	2-way: A-AB equal percentage 3-way: A-AB linear / B-AB linear
Leakage rate	Control path A-AB: max. 0.05% of k_{vs} value / bypass B-AB: max. 1% of k_{vs} value

	DN 200	DN 250
 2-way Closed cold and hot water systems	630 H6200W630-S7	1000 H6250W1000-S7
 3-way Closed cold and hot water systems	k_{vs} [m³/h] 630 H7200W630-S7	k_{vs} [m³/h] 1000 H7250W1000-S7

Suitable actuators

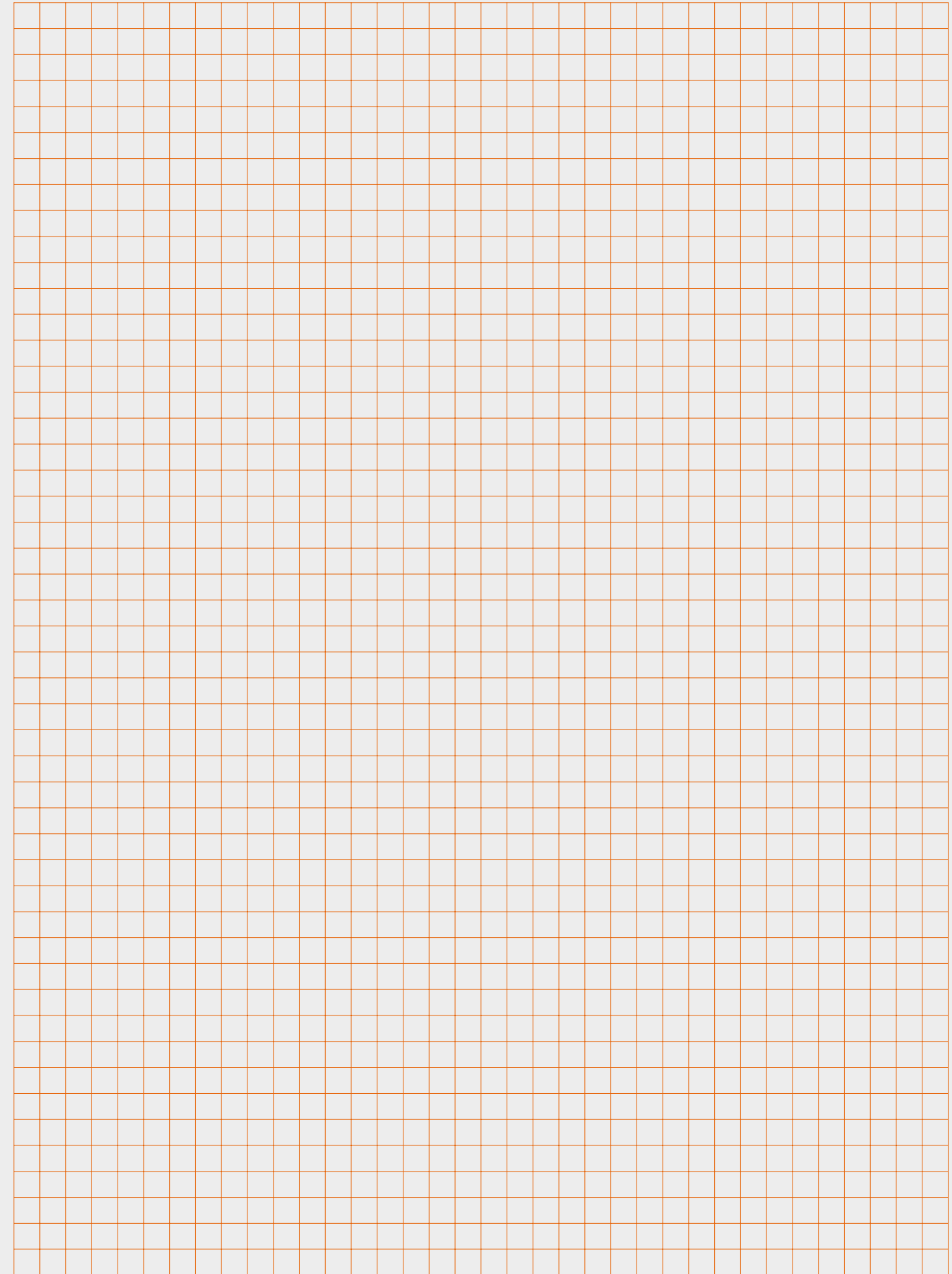


Standard actuators

Actuating force	12000 N
Actuating time per nominal stroke	82 s
3-point	•
Modulating (2-10 V) ¹⁾	•
Nominal voltage	230 V
24 V AC/DC	•
230 V AC	•
Auxiliary switch SPDT	2

Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
GV12-230-3-T	310	60	190	60
GV12-24-SR-T	310	60	190	60

¹⁾ Operating range can be switched 0.5-10 V / 2-10 V.



DN 15–100

Pipe connection	Flange PN 25 (ISO 7005-2)
Medium temperature	+5...+200 °C (120 °C to 2500 kPa, H6...X...S2: 150 °C to 2430 kPa, H7...X...S2: 200 °C to 2300 kPa)
Flow characteristic	2-way: A-AB equal percentage 3-way: A-AB linear / B-AB linear
Leakage rate	Control path A-AB: max. 0.05% of k_{vs} value / bypass B-AB: max. 1% of k_{vs} value
Media	For closed hot water and steam systems ($\Delta p/p1 < 0.4$), water with glycol up to max. 50 vol. %

	DN 15				DN 20	
 2-way Closed hot water and steam systems in the non-critical range	k_{vs} [m³/h]	k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type		
	0.4	H6015XP4-S2	2.5	H6015X2P5-S2	4	H6015X4-S2
 3-way Closed cold water, warm water and hot water systems	0.63	H6015XP63-S2	4	H6015X4-S2	4	H6020X4-S2

Suitable actuators

Actuating force	Actuating time per nominal stroke	Actuating time for emergency control function	Open-close	3-point	Modulating (2–10 V)	MP-Bus® communication ¹⁾	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC
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Standard actuators

Actuator type	Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
 500 N 150 s	LV24A-TPC ²⁾	2500	1000	800	800	800	800	800	800
	LV230A-TPC ²⁾	2500	1000	800	800	800	800	800	800
	LV24A-SR-TPC ²⁾	2500	1000	800	800	800	800	800	800
	LV24A-MP-TPC ²⁾	2500	1000	800	800	800	800	800	800
 1000 N 150 s	NV24A-TPC	2500	1000	2200	1000	2200	1000	2200	1000
	NV230A-TPC	2500	1000	2200	1000	2200	1000	2200	1000
	NV24A-SR-TPC	2500	1000	2200	1000	2200	1000	2200	1000
	NV24A-MP-TPC	2500	1000	2200	1000	2200	1000	2200	1000
 1500 N 150 s	SV24A-TPC	2500	1000	2500	1000	2500	1000	2500	1000
	SV230A-TPC	2500	1000	2500	1000	2500	1000	2500	1000
	SV24A-SR-TPC	2500	1000	2500	1000	2500	1000	2500	1000
	SV24A-MP-TPC	2500	1000	2500	1000	2500	1000	2500	1000
 2500 N 150 s	EV24A-TPC								
	EV230A-TPC								
	EV24A-SR-TPC								
	EV24A-MP-TPC								
 4500 N 120 s	RV24A-SR								

Continued next page

Fast runners

Actuator type	Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
 500 N 35 s	LVC24A-SR-TPC ²⁾	2500	1000	800	800	800	800
	LVC24A-MP-TPC ²⁾	2500	1000	800	800	800	800
 1000 N 35 s	NVC24A-SR-TPC	2500	1000	2200	1000	2200	1000
	NVC24A-MP-TPC	2500	1000	2200	1000	2200	1000
 1500 N 35 s	SVC24A-SR-TPC	2500	1000	2500	1000	2500	1000
	SVC24A-MP-TPC	2500	1000	2500	1000	2500	1000
 2500 N 35 s	EVC24A-SR						

Actuators with electrical emergency control function³⁾

Actuator type	Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
 1000 N	150 s 35 s	NVK24A-3-TPC ⁴⁾	2500	1000	2200	1000	2200
		NVK230A-3	2500	1000	2200	1000	2200
	35 s 35 s	NVK24A-SR-TPC	2500	1000	2200	1000	2200
		NVK24A-MP-TPC	2500	1000	2200	1000	2200
		NVKC24A-SR-TPC	2500	1000	2200	1000	2200
		NVKC24A-MP-TPC	2500	1000	2200	1000	2200
2000 N 150 s 35 s	AVK24A-3-TPC ⁴⁾						
	AVK230A-3						
	AVK24A-SR-TPC						
	AVK24A-MP-TPC						

¹⁾ Running times, control signal, stroke limitation and other functions are adjustable on MP types using PC-Tool or ZTH EU parameterizing device (delivery state: modulating, operating range 0.5–10 V).

²⁾ Actuators LV...A... possible only on valves H6...

³⁾ The emergency setting position NC/NO of all --HI-- actuators can be adjusted on the actuator. Delivery state: actuator spindle retracted.

Closing point of the globe valves H6...X is at bottom (valve stem retracted), closing point of the globe valves H7...X is at top (valve stem extended).

⁴⁾ Nominal voltage 24 V AC.

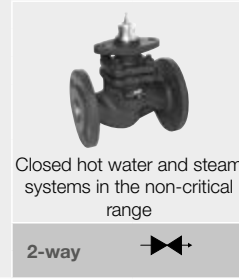
	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H6020X6P3-S2	10	H6025X6P3-S2	16	H6032X10-S2	25	H6040X16-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25	H7040X25-S2	40
k_{vs} [m³/h] Valve type		k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	k_{vs} [m³/h] Valve type	
	6.3	H7020X6P3-S2	10	H7025X10-S2	16	H7032X16-S2	25		

DN 65 – 100

Pipe connection	Flange PN 25 (ISO 7005-2)
Medium temperature	+5...+150 °C (120 °C to 2500 kPa, 150 °C to 2430 kPa)
Flow characteristic	A-AB, equal percentage
Leakage rate	Control path A-AB: max. 0.05% of k_{vs} value
Media	For closed hot water and steam systems ($\Delta p/p_1 < 0.4$), water with glycol up to max. 50 vol. %

Suitable actuators

Actuating force	
Actuating time per nominal stroke	
Actuating time for emergency control function	
Open-close	
3-point	
Modulating (2–10 V)	
MP-Bus® communication ¹⁾	
Emergency control function	
Nominal voltage 24 V AC/DC 230 V AC	



Closed hot water and steam systems in the non-critical range

	DN 65	DN 80	DN 100
k_{vs} [m³/h] Valve type	58 H6065X58-SP2	90 H6080X90-SP2	125 H6100X125-SP2

Standard actuators		Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
1000 N	150 s	• • • • 24 V NV24A-TPC	2100	1000	1600	1000	1000	1000
		• • • • 230 V NV230A-TPC	2100	1000	1600	1000	1000	1000
		• • • • 24 V NV24A-SR-TPC	2100	1000	1600	1000	1000	1000
		• • • • 24 V NV24A-MP-TPC	2100	1000	1600	1000	1000	1000
1500 N	150 s	• • • • 24 V SV24A-TPC	2500	1000	2400	1000	1700	1000
		• • • • 230 V SV230A-TPC	2500	1000	2400	1000	1700	1000
		• • • • 24 V SV24A-SR-TPC	2500	1000	2400	1000	1700	1000
		• • • • 24 V SV24A-MP-TPC	2500	1000	2400	1000	1700	1000

Fast runners		Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
1000 N	35 s	• • • • 24 V NVC24A-SR-TPC	2100	1000	1600	1000	1000	1000
		• • • • 24 V NVC24A-MP-TPC	2100	1000	1600	1000	1000	1000
1500 N	35 s	• • • • 24 V SVC24A-SR-TPC	2500	1000	2400	1000	1700	1000
		• • • • 24 V SVC24A-MP-TPC	2500	1000	2400	1000	1700	1000

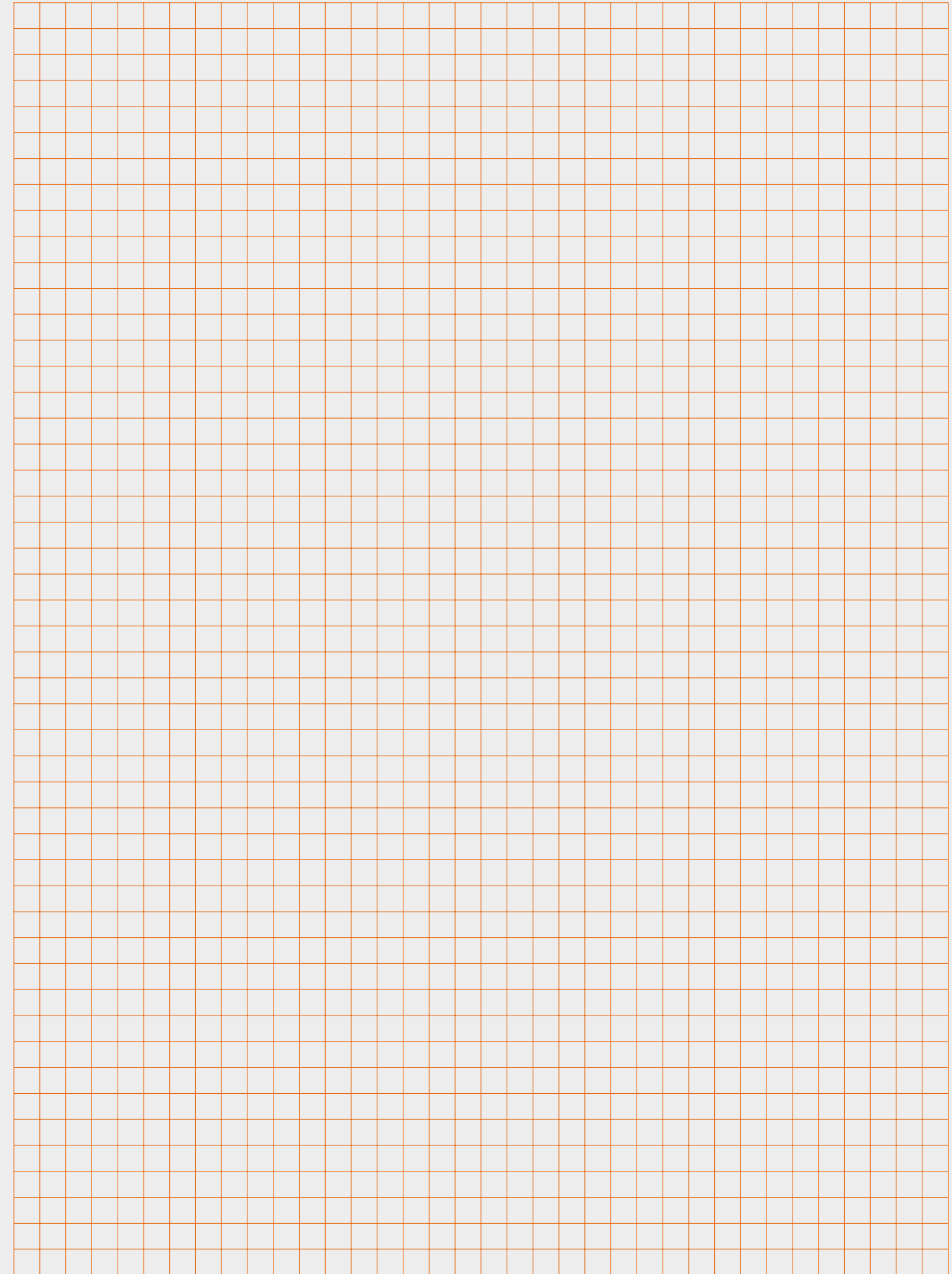
Actuators with electrical emergency control function ²⁾		Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
1000 N	150 s	• • • • -II- 24 V NVK24A-3-TPC ³⁾	2100	1000	1600	1000	1000	1000
		• • • • -II- 230 V NVK230A-3	2100	1000	1600	1000	1000	1000
		• • • • -II- 24 V NVK24A-SR-TPC	2100	1000	1600	1000	1000	1000
		• • • • -II- 24 V NVK24A-MP-TPC	2100	1000	1600	1000	1000	1000
	35 s	• • • • -II- 24 V NVKC24A-SR-TPC	2100	1000	1600	1000	1000	1000
		• • • • -II- 24 V NVKC24A-MP-TPC	2100	1000	1600	1000	1000	1000

¹⁾ Running times, control signal, stroke limitation and other functions are adjustable on MP types using PC-Tool or ZTH EU parameterizing device (delivery state: modulating, operating range 2–10 V).

²⁾ The emergency setting position NC/NO of all -II- actuators can be adjusted on the actuator. Delivery state: actuator spindle retracted.

Closing point of the globe valves H6..X is at bottom (valve stem retracted).

³⁾ Nominal voltage 24 V AC.



DN 15–100

Pipe connection	Flange PN 40 (ISO 7005-2)
Medium temperature	+5...+200 °C (120 °C to 4000 kPa, 200 °C to 3200 kPa)
Flow characteristic	A-AB linear / B-AB linear
Leakage rate	Control path A-AB: max. 0.05% of k_{vs} value / Bypass B-AB: max. 1% of k_{vs} value
Media	For closed cold water, warm water and hot water systems, water with glycol up to max. 50 vol. %

Suitable actuators

Actuating force	
Actuating time per nominal stroke	
Actuating time for emergency control function	
Open-close 3-point	
Modulating (2–10 V)	
MP-Bus® communication ¹⁾	
Emergency control function	
Nominal voltage 24 V AC/DC 230 V AC	

 3-way	 Closed cold water, warm water and hot water systems	DN 15 k_{vs} [m³/h] 4 Valve type H7015Y4-S2	DN 20 k_{vs} [m³/h] 6.3 Valve type H7020Y6P3-S2
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Standard actuators				Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
	1000 N	150 s	• •	24 V NV24A-TPC	2200	1000	1500	1000
				230 V NV230A-TPC	2200	1000	1500	1000
				24 V NV24A-SR-TPC	2200	1000	1500	1000
				24 V NV24A-MP-TPC	2200	1000	1500	1000
	1500 N	150 s	• •	24 V SV24A-TPC	3500	1000	2500	1000
				230 V SV230A-TPC	3500	1000	2500	1000
				24 V SV24A-SR-TPC	3500	1000	2500	1000
				24 V SV24A-MP-TPC	3500	1000	2500	1000
	2500 N	150 s	• •	24 V EV24A-TPC				
				230 V EV230A-TPC				
				24 V EV24A-SR-TPC				
				24 V EV24A-MP-TPC				
	4500 N	120 s	•	24 V RV24A-SR				

Fast runners				Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
	1000 N	35 s	• •	24 V NVC24A-SR-TPC	2200	1000	1500	1000
				24 V NVC24A-MP-TPC	2200	1000	1500	1000
	1500 N	35 s	• •	24 V SVC24A-SR-TPC	3500	1000	2500	1000
				24 V SVC24A-MP-TPC	3500	1000	2500	1000
	2500 N	35 s	•	24 V EVC24A-SR				

Actuators with electrical emergency control function ²⁾				Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
	1000 N	150 s	35 s	24 V NVK24A-3-TPC ³⁾	2200	1000	1500	1000
				230 V NVK230A-3	2200	1000	1500	1000
				24 V NVK24A-SR-TPC	2200	1000	1500	1000
				24 V NVK24A-MP-TPC	2200	1000	1500	1000
	2000 N	150 s	35 s	24 V NVKC24A-SR-TPC	2200	1000	1500	1000
				24 V NVKC24A-MP-TPC	2200	1000	1500	1000
				24 V AVK24A-3-TPC ³⁾				
				230 V AVK230A-3				
				24 V AVK24A-SR-TPC				
				24 V AVK24A-MP-TPC				

¹⁾ Running times, control signal, stroke limitation and other functions are adjustable on MP types using PC-Tool or ZTH EU parameterizing device (delivery state: modulating, operating range 2–10 V).
²⁾ The emergency setting position NC/NO of all –I– actuators can be adjusted on the actuator. Delivery state: actuator spindle retracted.
 Closing point of the globe valves H7..Y.. is at top (valve stem extended).
³⁾ Nominal voltage 24 V AC.

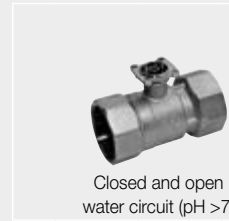
DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100
k_{vs} [m³/h] 10 Valve type H7025Y10-S2	k_{vs} [m³/h] 16 Valve type H7032Y16-S2	k_{vs} [m³/h] 25 Valve type H7040Y25-S2	k_{vs} [m³/h] 40 Valve type H7050Y40-S2	k_{vs} [m³/h] 63 Valve type H7065Y63-S4	k_{vs} [m³/h] 100 Valve type H7080Y100-S4	k_{vs} [m³/h] 160 Valve type H7100Y160-S4
Δp_s [kPa] 1300 Δp_{max} [kPa] 1000	Δp_s [kPa] 900 Δp_{max} [kPa] 900	Δp_s [kPa] 500 Δp_{max} [kPa] 500	Δp_s [kPa] 300 Δp_{max} [kPa] 300			
1300	900	500	300			
1300	900	500	300			
1300	900	500	300			
2100	1500	850	500			
2100	1500	850	500			
2100	1500	850	500			
2100	1500	850	500			
				550	350	200
				550	350	200
				550	350	200
				550	350	200
				1100	700	450
Δp_s [kPa] 1300 Δp_{max} [kPa] 1000	Δp_s [kPa] 900 Δp_{max} [kPa] 900	Δp_s [kPa] 500 Δp_{max} [kPa] 500	Δp_s [kPa] 300 Δp_{max} [kPa] 300			
1300	900	500	300			
1300	900	500	300			
2100	1500	850	500			
2100	1500	850	500			
				550	350	200
Δp_s [kPa] 1300 Δp_{max} [kPa] 1000	Δp_s [kPa] 900 Δp_{max} [kPa] 900	Δp_s [kPa] 500 Δp_{max} [kPa] 500	Δp_s [kPa] 300 Δp_{max} [kPa] 300			
1300	900	500	300			
1300	900	500	300			
1300	900	500	300			
1300	900	500	300			
1300	900	500	300			
				400	250	150
				400	250	150
				400	250	150
				400	250	150

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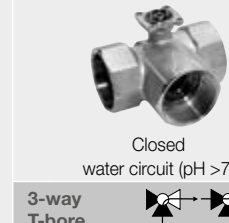
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DN 15–50

Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	-10...+120 °C (small actuators TR../TRY.. only up to +100 °C) (compact actuators KR.. only up to +80 °C)
Flow characteristic	A-AB equal percentage / B-AB linear (k_{vs} 50% of A-AB)
Leakage rate	Control path A-AB: leakage rate A, air bubble tight (EN 12266-1) / bypass B-AB: leakage class I



2-way		DN 15	DN 20
k_{vs} [m³/h]	Valve type	15	32
		R2015-S1	R2020-S2



3-way T-bore		DN 15	DN 20
k_{vs} [m³/h]	Valve type	15	32
		R3015-S1	R3020-S2

Suitable actuators

Nominal torque	Open-close	3-point	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Running time emergency control function
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Small and compact actuators							Actuator type	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
2 Nm	•	•		24 V	35 s		TRY24 ²⁾	1400	1000		
					75 s		KR24 ²⁾	1400	1000		
	•	•		230 V	100 s		TR24 ²⁾	1400	1000		
					75 s		KR230 ²⁾	1400	1000		
				35 s		TRY230 ²⁾	1400	1000			

Standard actuators							Actuator type without auxiliary switch	Actuator type with auxiliary switch	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
5 Nm	•	•		24 V	90 s		LR24A	..-S	1400	1000	1400	1000
							LR230A	..-S	1400	1000	1400	1000
10 Nm	•	•		24 V	90 s		NR24A	..-S	1400	1000	1400	1000
							NR230A	..-S	1400	1000	1400	1000
20 Nm	•	•		24 V	90 s		SR24A	..-S	1400	1000	1400	1000
							SR230A	..-S	1400	1000	1400	1000

Very fast runners							Actuator type	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
4 Nm	•	•		24 V	9 s		LRQ24A	1400	1000	1400	1000
							NRQ24A	1400	1000	1400	1000
							SRQ24A	1400	1000	1400	1000

Actuators with mechanical emergency control function							Actuator type NC with 1 auxiliary switch without auxiliary switch	Actuator type NO with 1 auxiliary switch	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
2 Nm	•	•	⊗	24 V	75 s	75 s	TRF24 ²⁾	..-S	..-O	..-S-O	1400	1000
							TRF230 ²⁾	..-S	..-O	..-S-O	1400	1000
4 Nm	•	•	⊗	24 V	<75 s	<20 s	LRF24 ²⁾	..-S	..-O	..-S-O	1400	1000
							LRF230 ²⁾	..-S	..-O	..-S-O	1400	1000

Actuators with mechanical emergency control function							Actuator type NC with two auxiliary switches without auxiliary switches	Actuator type NO with two auxiliary switches	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
10 Nm	•	•	⊗	24 V	<75 s	<20 s	NRF24A	..-S2	..-O	..-S2-O	1400	1000
							NRFA	..-S2	..-O	..-S2-O	1400	1000
20 Nm	•	•	⊗	24 V	<75 s	<20 s	SRF24A	..-S2	..-O	..-S2-O	1400	1000
							SRFA	..-S2	..-O	..-S2-O	1400	1000

¹⁾ Low-noise operation $\Delta p_{max} = 200$ kPa.

²⁾ If medium temperature ≥ 100 °C, then line and valve must be insulated.

DN 25		DN 32		DN 40		DN 50	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
26	R2025-S2	32	R2032-S3	31	R2040-S3	49	R2050-S4

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
1400	1000						
1400	1000						
1400	1000	1400	1000	1400	1000		
1400	1000	1400	1000	1400	1000		
1400	1000	1400	1000	1400	1000	1400	1000
1400	1000	1400	1000	1400	1000	1400	1000

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
1400	1000						
1400	1000	1400	1000	1400	1000		
1400	1000	1400	1000	1400	1000	1400	1000

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
1400	1000						
1400	1000						

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
1400	1000	1400	1000	1400	1000		
1400	1000	1400	1000	1400	1000		
1400	1000	1400	1000	1400	1000	1400	1000
1400	1000	1400	1000	1400	1000	1400	1000

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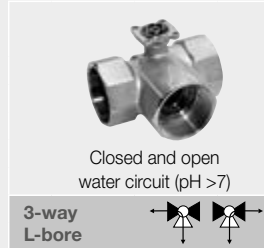
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DN 15-50

Pipe connection	Internal thread Rp (ISO 7/1)
Medium temperature	-10...+100 °C (compact actuators KR.. only up to +80 °C)
Leakage rate	Leakage rate A, air bubble tight (EN 12266-1)

Suitable actuators

Nominal torque	Open-close	3-point	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Running time emergency control function
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DN 15		DN 20	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
5.5	R3015-BL1	11	R3020-BL2

Small and compact actuators		Actuator type		Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
2 Nm	• •	24 V	TRY24	500	350		
			KR24	500	350		
	• •	230 V	TR24	500	350		
			KR230	500	350		
			TRY230	500	350		

Standard actuators		Actuator type		Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
		without auxiliary switch	with auxiliary switch				
5 Nm	• •	24 V	LR24A	500	350	500	350
		230 V	LR230A	500	350	500	350
10 Nm	• •	24 V	NR24A	500	350	500	350
		230 V	NR230A	500	350	500	350
20 Nm	• •	24 V	SR24A	500	350	500	350
		230 V	SR230A	500	350	500	350

Very fast runners		Actuator type		Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
4 Nm	• •	24 V	LRQ24A	500	350	500	350
8 Nm	• •	24 V	NRQ24A	500	350	500	350
16 Nm	• •	24 V	SRQ24A	500	350	500	350

Actuators with mechanical emergency control function		Actuator type NC with 1 auxiliary switch		Actuator type NO with 1 auxiliary switch		Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
		without auxiliary switch	with 1 auxiliary switch	without auxiliary switch	with 1 auxiliary switch				
2 Nm	• •	24 V	TRF24	..-S	..-O	500	350		
		230 V	TRF230	..-S	..-O	500	350		
4 Nm	• •	24 V	LRF24	..-S	..-O	500	350	500	350
		230 V	LRF230	..-S	..-O	500	350	500	350

Actuators with mechanical emergency control function		Actuator type NC with two auxiliary switches		Actuator type NO with two auxiliary switches		Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
		without auxiliary switch	with two auxiliary switches	without auxiliary switch	with two auxiliary switches				
10 Nm	• •	24 V	NRF24A	..-S2	..-O	500	350	500	350
		DC 24-125 V	NRFA	..-S2	..-O	500	350	500	350
20 Nm	• •	24 V	SRF24A	..-S2	..-O	500	350	500	350
		DC 24-125 V	SRFA	..-S2	..-O	500	350	500	350

¹⁾ Low-noise operation $\Delta p_{max} = 200$ kPa.

DN 25		DN 32		DN 40		DN 50	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
10	R3025-BL2	9	R3032-BL2	15	R3032-BL3	14	R3040-BL3
						47	R3040-BL4
						24	R3050-BL3
						75	R3050-BL4

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
500	350	500	350										
500	350	500	350										
500	350	500	350	500	350	500	350			500	350		
500	350	500	350	500	350	500	350			500	350		
500	350	500	350	500	350	500	350	500	350	500	350	500	350
500	350	500	350	500	350	500	350	500	350	500	350	500	350

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
500	350	500	350										
500	350	500	350	500	350	500	350						
500	350	500	350	500	350	500	350			500	350		
500	350	500	350	500	350	500	350			500	350		

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
500	350	500	350										
500	350	500	350										

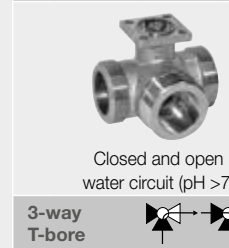
Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
500	350	500	350	500	350	500	350			500	350		
500	350	500	350	500	350	500	350			500	350		
500	350	500	350	500	350	500	350	500	350	500	350	500	350
500	350	500	350	500	350	500	350	500	350	500	350	500	350

DN 15–50

Pipe connection	External thread Rp (ISO 228/1)
Medium temperature	+6...+100 °C (compact actuators KR.. only up to +80 °C) (-10...+5 °C with spindle heating, not with R440, R450)
Flow characteristic	A-AB equal percentage / B-AB linear (k_{vs} 50% of A-AB)
Leakage rate	Control path A-AB: leakage rate A, air bubble tight (EN 12266-1) / bypass B-AB: leakage class I



2-way		DN 15		DN 20	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
8.6	R415	21	R420		



3-way T-bore		DN 15		DN 20	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
8.6	R515	21	R520		

Suitable actuators

Nominal torque	Open-close	3-point	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Running time emergency control function
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Small and compact actuators							Actuator type		Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
2 Nm	•	•		24 V	35 s	TRY24	1400	400	1400	400		
					75 s	KR24	1400	400	1400	400		
					100 s	TR24	1400	400	1400	400		
					75 s	KR230	1400	400	1400	400		
					35 s	TRY230	1400	400	1400	400		
230 V	•	•		230 V	75 s	KR230	1400	400	1400	400		
					35 s	TRY230	1400	400	1400	400		

Standard actuators							Actuator type without auxiliary switch		with auxiliary switch		Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
5 Nm	•	•		24 V	90 s	LR24A	..-S	1400	400	1400	400			
						LR230A	..-S	1400	400	1400	400			
10 Nm	•	•		24 V	90 s	NR24A	..-S	1400	400	1400	400			
						NR230A	..-S	1400	400	1400	400			
20 Nm	•	•		24 V	90 s	SR24A	..-S	1400	400	1400	400			
						SR230A	..-S	1400	400	1400	400			
230 V	•	•		230 V	90 s	SR24A	..-S	1400	400	1400	400			
						SR230A	..-S	1400	400	1400	400			

Very fast runners							Actuator type		Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]				
4 Nm	•	•		24 V	9 s	LRQ24A		1400	400	1400	400					
						8 Nm	•	•	24 V	9 s	NRQ24A		1400	400	1400	400
						16 Nm	•	•	24 V	9 s	SRQ24A		1400	400	1400	400

Actuators with mechanical emergency control function							Actuator type NC with 1 auxiliary switch		without auxiliary switch		Actuator type NO with 1 auxiliary switch		without auxiliary switch		Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
2 Nm	•	•	⊗	24 V	75 s	75 s	TRF24	..-S	..-O	..-S-O	1400	400	1400	400				
							TRF230	..-S	..-O	..-S-O	1400	400	1400	400				
4 Nm	•	•	⊗	24 V	<75 s	<20 s	LRF24	..-S	..-O	..-S-O	1400	400	1400	400				
							LRF230	..-S	..-O	..-S-O	1400	400	1400	400				
230 V	•	•	⊗	230 V	<75 s	<20 s	LRF24	..-S	..-O	..-S-O	1400	400	1400	400				
							LRF230	..-S	..-O	..-S-O	1400	400	1400	400				

Actuators with mechanical emergency control function							Actuator type NC with two auxiliary switches		without auxiliary switches		Actuator type NO with two auxiliary switches		without auxiliary switches		Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
10 Nm	•	•	⊗	24 V	<75 s	<20 s	NRF24A	..-S2	..-O	..-S2-O	1400	400	1400	400				
							NRFA	..-S2	..-O	..-S2-O	1400	400	1400	400				
20 Nm	•	•	⊗	24 V	<75 s	<20 s	SRF24A	..-S2	..-O	..-S2-O	1400	400	1400	400				
							SRFA	..-S2	..-O	..-S2-O	1400	400	1400	400				
230 V	•	•	⊗	230 V	<75 s	<20 s	NRF24A	..-S2	..-O	..-S2-O	1400	400	1400	400				
							NRFA	..-S2	..-O	..-S2-O	1400	400	1400	400				

¹⁾ Low-noise operation $\Delta p_{max} = 200$ kPa.

DN 25		DN 32		DN 40		DN 50	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
26	R425	32	R432	32	R440	49	R450

DN 25		DN 32		DN 40		DN 50	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
26	R525	32	R532	32	R540	49	R550

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
1400	400						
1400	400						
1400	400	1400	400	1400	400	1400	400
1400	400	1400	400	1400	400	1400	400
1400	400	1400	400	1400	400	1400	400
1400	400	1400	400	1400	400	1400	400

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
1400	400						
1400	400	1400	400	1400	400	1400	400
1400	400	1400	400	1400	400	1400	400
1400	400	1400	400	1400	400	1400	400

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
1400	400						
1400	400						

Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]	Δp_s [kPa]	$\Delta p_{max}^{1)}$ [kPa]
1400	400	1400	400	1400	400	1400	400
1400	400	1400	400	1400	400	1400	400
1400	400	1400	400	1400	400	1400	400
1400	400	1400	400	1400	400	1400	400

DN 15–50

Pipe connection	Flange PN 6 (EN 1092/1)
Medium temperature	-10...+100 °C (compact actuators KR.. only up to +80 °C)
Flow characteristic	A-AB equal percentage / B-AB linear (k_{vs} 50% of A-AB)
Leakage rate	Control path A-AB: leakage rate A, air bubble tight (EN 12266-1) / bypass B-AB: leakage class I

	DN 15	DN 20
 Closed and open water circuit (pH >7) 2-way	k_{vs} [m³/h] Valve type 15 R6015R-B1	k_{vs} [m³/h] Valve type 32 R6020R-B1
 Closed water circuit (pH >7) 3-way T-bore	k_{vs} [m³/h] Valve type 15 R7015R-B1	k_{vs} [m³/h] Valve type 32 R7020R-B1

Suitable actuators

Nominal torque	Open-close	3-point	Emergency control function	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Running time emergency control function
2 Nm	•	•		24 V	35 s	
5 Nm	•	•		24 V	90 s	
10 Nm	•	•		24 V	90 s	
20 Nm	•	•		24 V	90 s	

Small and compact actuators							Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
	2 Nm	•	•	24 V	35 s		TRY24	600	100	600	100
					75 s		KR24	600	100	600	100
					100 s		TR24	600	100	600	100
					75 s		KR230	600	100	600	100
•	•	230 V	35 s		TRY230	600	100	600	100		

Standard actuators							Actuator type without auxiliary switch	with auxiliary switch	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
	5 Nm	•	•	24 V	90 s		LR24A	..-S	600	100	600	100
				230 V		LR230A	..-S	600	100	600	100	
	10 Nm	•	•	24 V	90 s		NR24A	..-S	600	100	600	100
				230 V		NR230A	..-S	600	100	600	100	
	20 Nm	•	•	24 V	90 s		SR24A	..-S	600	100	600	100
				230 V		SR230A	..-S	600	100	600	100	

Very fast runners							Actuator type	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
	4 Nm	•	•	24 V	9 s		LRQ24A	600	100	600	100
	8 Nm	•	•	24 V	9 s		NRQ24A	600	100	600	100
	16 Nm	•	•	24 V	9 s		SRQ24A	600	100	600	100

Actuators with mechanical emergency control function															
	Nominal torque	Open-close	3-point	Emergency control function	Nominal voltage	Running time motor	Running time emergency control function	Actuator type NC		Actuator type NO		Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
								without auxiliary switch	with 1 auxiliary switch	without auxiliary switch	with 1 auxiliary switch				
	2 Nm	•	•	☉	24 V	75 s	75 s	TRF24	..-S	..-O	..-S-O	600	100	600	100
					230 V	75 s	75 s	TRF230	..-S	..-O	..-S-O	600	100	600	100
•	4 Nm	•	•	☉	24 V	<75 s	<20 s	LRF24	..-S	..-O	..-S-O	600	100	600	100
					230 V	<75 s	<20 s	LRF230	..-S	..-O	..-S-O	600	100	600	100

Actuators with mechanical emergency control function															
	Nominal torque	Open-close	3-point	Emergency control function	Nominal voltage	Running time motor	Running time emergency control function	Actuator type NC		Actuator type NO		Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
								without auxiliary switch	with two auxiliary switches	without auxiliary switch	with two auxiliary switches				
	10 Nm	•	•	☉	24 V	<75 s	<20 s	NRF24A	..-S2	..-O	..-S2-O	600	100	600	100
					AC 24–240 V DC 24–125 V	<75 s	<20 s	NRFA	..-S2	..-O	..-S2-O	600	100	600	100
•	20 Nm	•	•	☉	24 V	<75 s	<20 s	SRF24A	..-S2	..-O	..-S2-O	600	100	600	100
					AC 24–240 V DC 24–125 V	<75 s	<20 s	SRFA	..-S2	..-O	..-S2-O	600	100	600	100

DN 25	DN 32	DN 40	DN 50
k_{vs} [m³/h] Valve type 26 R6025R-B2	k_{vs} [m³/h] Valve type 32 R6032R-B3	k_{vs} [m³/h] Valve type 31 R6040R-B3	k_{vs} [m³/h] Valve type 49 R6050R-B3
k_{vs} [m³/h] Valve type 26 R7025R-B2	k_{vs} [m³/h] Valve type 32 R7032R-B3	k_{vs} [m³/h] Valve type 31 R7040R-B3	k_{vs} [m³/h] Valve type 49 R7050R-B3

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
600	100						
600	100						
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
600	100						
600	100	600	100	600	100		
600	100	600	100	600	100	600	100

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
600	100						
600	100						

Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100
600	100	600	100	600	100	600	100

DN 10–20

Pipe connection	External thread G (ISO 228/1)
Medium temperature	+2...+130 °C
Flow characteristic	A-AB, equal percentage
Leakage rate	Leakage rate A, air bubble tight (EN 12266-1)

Suitable actuators

Nominal torque	Open-close	3-point	Emergency control function	Nominal voltage	Running time	Running time emergency control function
				24 V AC/DC	motor 90°	
				230 V AC		



DN 10		DN 15		DN 20	
k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type	k_{vs} [m³/h]	Valve type
4	R410DK	12	R415D	25	R420D

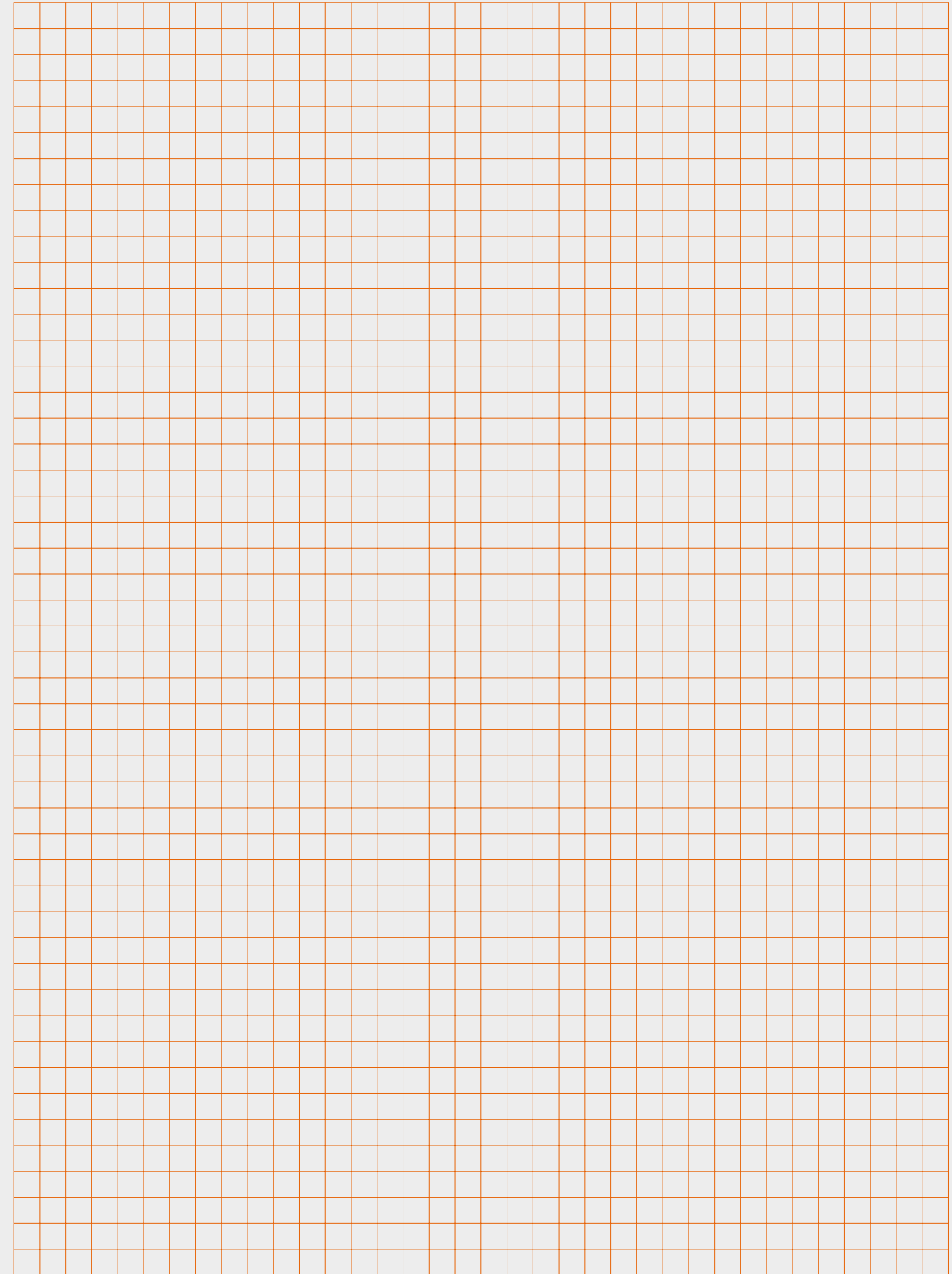
Small and compact actuators						Actuator type		Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
TR... TRY...	2 Nm	• •	24 V	35 s	TRY24 ¹⁾			1400	400				
				100 s	TR24 ¹⁾			1400	400				
		• •	230 V	35 s	TRY230 ¹⁾			1400	400				
				105 s	TR230-3 ¹⁾			1400	400				

Standard actuators						Actuator type		Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
						without auxiliary switch	with 1 auxiliary switch						
LR...	5 Nm	• •	24 V	90 s		LR24A	..S	1400	400	1400	400	1400	400
						LR230A	..S	1400	400	1400	400	1400	400

Very fast runners						Actuator type		Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
LRQ...	4 Nm	• •	24 V	9 s		LRQ24A		1400	400	1400	400	1400	400

Actuators with mechanical emergency control function						Actuator type NC		Actuator type NO		Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]		
						without auxiliary switch	with 1 auxiliary switch	with two auxiliary switches	without auxiliary switch	with 1 auxiliary switch	with two auxiliary switches						
TRF...	2 Nm	• •	24 V	75 s	75 s	TRF24 ¹⁾	..S		..O	..S-O		1400	400				
						TRF230 ¹⁾	..S		..O	..S-O		1400	400				
LRF...	4 Nm	• •	24 V	75 s	20 s	LRF24 ¹⁾	..S		..O	..S-O		1400	400	1400	400	1400	400
						LRF230 ¹⁾	..S		..O	..S-O		1400	400	1400	400	1400	400
	10 Nm	•	230 V	35 s	<20 s	NRFD230A-3	..S2		..O	..S2-O		1400	400	1400	400	1400	400

¹⁾ If medium temperature ≥ 100 °C, then line and valve must be insulated.

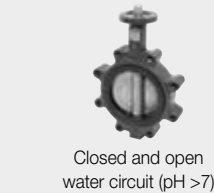


DN 25 – 450

Pipe connection	Flange (ISO 7005-2 and EN 1092-2)
Medium temperature	-20...+120 °C
Leakage rate	A, tight (EN 12266-1)
PN 6, 10, 16	DN 25 – 200
PN 10, 16	DN 250 – 350
PN 16	DN 400 – 450



With wafer type		k_{vmax} [m³/h]	BV type	k_{vmax} [m³/h]	BV type	k_{vmax} [m³/h]	BV type	k_{vmax} [m³/h]	BV type		
DN 25	45	D625N	DN 32	55	D632N	DN 40	70	D640N	DN 50	90	D650N



With lug type		k_{vmax} [m³/h]	BV type	k_{vmax} [m³/h]	BV type	k_{vmax} [m³/h]	BV type	k_{vmax} [m³/h]	BV type		
DN 25	45	D625NL	DN 32	55	D632NL	DN 40	70	D640NL	DN 50	90	D650NL

Suitable actuators

Nominal torque	Open-close	3-point	Terminal connection	Emergency control function	Nominal voltage	Running time motor	Auxiliary switch SPDT
					24 V AC/DC	90°	
					230 V AC		

Standard actuators

SR..	Nominal torque	Open-close	3-point	Terminal connection	Emergency control function	Nominal voltage	Running time motor	Actuator type		Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
								open-close / 3-point	Modulating (2 – 10 V)				
SR..	20 Nm	•	•			24 V	90 s	SR24A-5	SR24A-SR-5	1200	1200	1200	1200
								SR230A-5	SR230A-SR-5	1200	1200	1200	1200
GR..	40 Nm	•				24 V	150 s	GR24A-5	GR24A-SR-5	1200	1200	1200	1200
								GR230A-5	GR230A-SR-5	1200	1200	1200	1200
GR..	<90 Nm	•				24 V	150 s	DR24A-5	DR24A-SR-5				
								DR230A-5					
								DR24A-7	DR24A-SR-7				
								DR230A-7					
						24 V		DR24A-TP-7					

Fast runners

DR..	Nominal torque	Open-close	3-point	Terminal connection	Emergency control function	Nominal voltage	Running time motor	Actuator type		Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
								open-close / 3-point	Modulating (2 – 10 V)				
DR..	40 Nm	•	•			230 V	35 s	SY1-230-3-T		1200	1200	1200	1200
								GRC24A-5					
DRC..	<90 Nm	•	•			24 V	35 s	DRC24A-5					
								DRC24A-7					
SY1..	90 Nm	•	•	•		24 V	15 s	SY2-24-3-T	SY2-24-SR-T				
								SY2-230-3-T	SY2-230-SR-T				
SY1..	150 Nm	•	•	•		24 V	22 s	SY3-24-3-T	SY3-24-SR-T				
								SY3-230-3-T	SY3-230-SR-T				
SY1..	400 Nm	•	•	•		24 V	16 s	SY4-24-3-T	SY4-24-SR-T				
								SY4-230-3-T	SY4-230-SR-T				
SY1..	650 Nm	•	•	•		230 V	31 s	SY6-230-3-T					
								SY7-230A-3-T					
SY1..	1000 Nm	•	•	•		230 V	55 s	SY8-230A-3-T					
								SY9-230A-3-T					
SY1..	1500 Nm	•	•	•		230 V	55 s	SY10-230A-3-T					
								SY12-230A-3-T					
SY1..	2000 Nm	•	•	•		230 V	70 s						
SY1..	2500 Nm	•	•	•		230 V	70 s						
SY1..	3500 Nm	•	•	•		230 V	70 s						

Actuators with emergency control function NC/NO

SRF..	Nominal torque	Open-close	3-point	Terminal connection	Emergency control function	Nominal voltage	Running time motor	Actuator type		Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
								NC	NO				
SRF..	20 Nm	•	•			24 V	75 s	SRF24A-5	..-O	1200	1200	1200	1200
								SRF24A-S2-5		1200	1200	1200	1200
SRF..	40 Nm	•	•			AC 24 – 240 V	75 s	SRFA-5	..-O	1200	1200	1200	1200
								SRFA-S2-5		1200	1200	1200	1200
GRK..	<90 Nm	•	•			24 V	150 s	GRK24A-5		1200	1200	1200	1200
								DRK24A-5					
						24 V	150 s	DRK24A-7					

⊗ = Actuators with mechanical emergency control function.
 -II- = Actuators with electrical emergency control function. The emergency setting position NC/NO of all -II- actuators can be adjusted on the actuator.
 Value = recommended combinations Value = other possible combinations (Data does not relieve the user of the obligation for testing in individual cases.)

DN 65	DN 80	DN 100	DN 125	DN 150	DN 200	DN 250	DN 300	DN 350	DN 400	DN 450	
k_{vmax} [m³/h]	180	300	580	820	1600	2900	4400	7300	10900	14200	18800
BV type	D665N	D680N	D6100N	D6125N	D6150N	D6200N	D6250N	D6300N	D6350N	D6400N	D6450N

Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
1200										
1200	1200									
1200	1200	1200								
1200	1200	1200	1200							
				1200						
				1200						
				1200						





Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
1200	1200									
1200	1200	1200								
1200	1200	1200	1200							
1200	1200	1200	1200	1200						
				1200	1200					
				1200	1200					
						1200	1200			
						1200	1200			
								600	600	
								1200	1000	600
										1000

Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
1200	1200									
1200	1200									
1200	1200									
1200	1200									
1200	1200									
		1200								
		1200	1200							
				1200						

¹⁾ Adapter ZSY-005
²⁾ Adapter ZSY-401
³⁾ Adapter ZSY-701
⁴⁾ Adapter ZSY-702
⁵⁾ Adapter ZSY-703

DN 500 – 700

Pipe connection	Flange (ISO 7005-2 and EN 1092-2)
Medium temperature	-20...+120 °C
Leakage rate	A, tight (EN 12266-1)
PN 16	DN 500 – 700

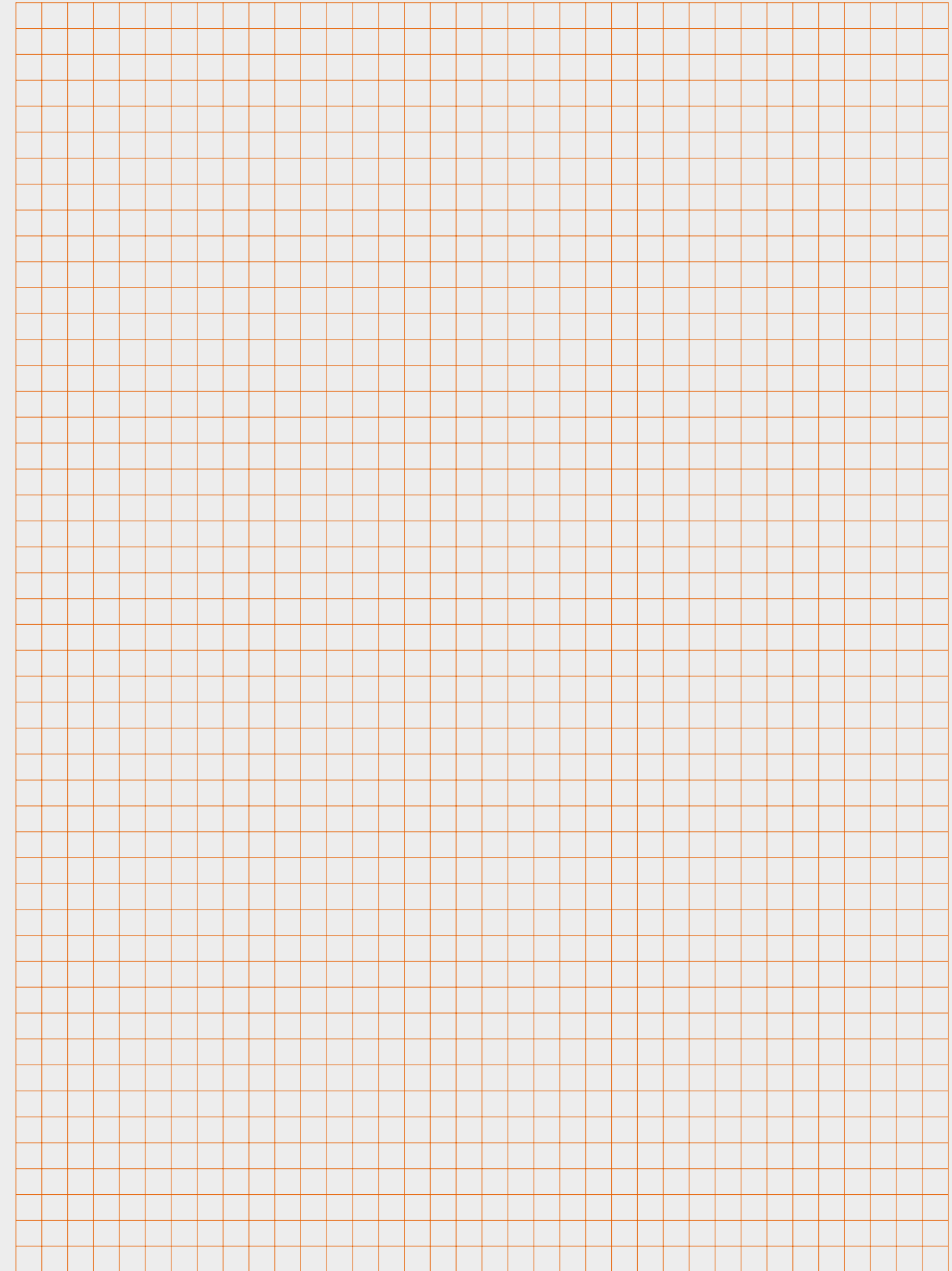
	DN 500	DN 600	DN 700
 Closed and open water circuit (pH >7)			
With wafer type 	K_{vmax} [m ³ /h] 24100 D6500N	K_{vmax} [m ³ /h] 37300 D6600N	K_{vmax} [m ³ /h] 42800 D6700N
 Closed and open water circuit (pH >7)			
With lug type 	K_{vmax} [m ³ /h] 24100 D6500NL	K_{vmax} [m ³ /h] 37300 D6600NL	K_{vmax} [m ³ /h] 42800 D6700NL

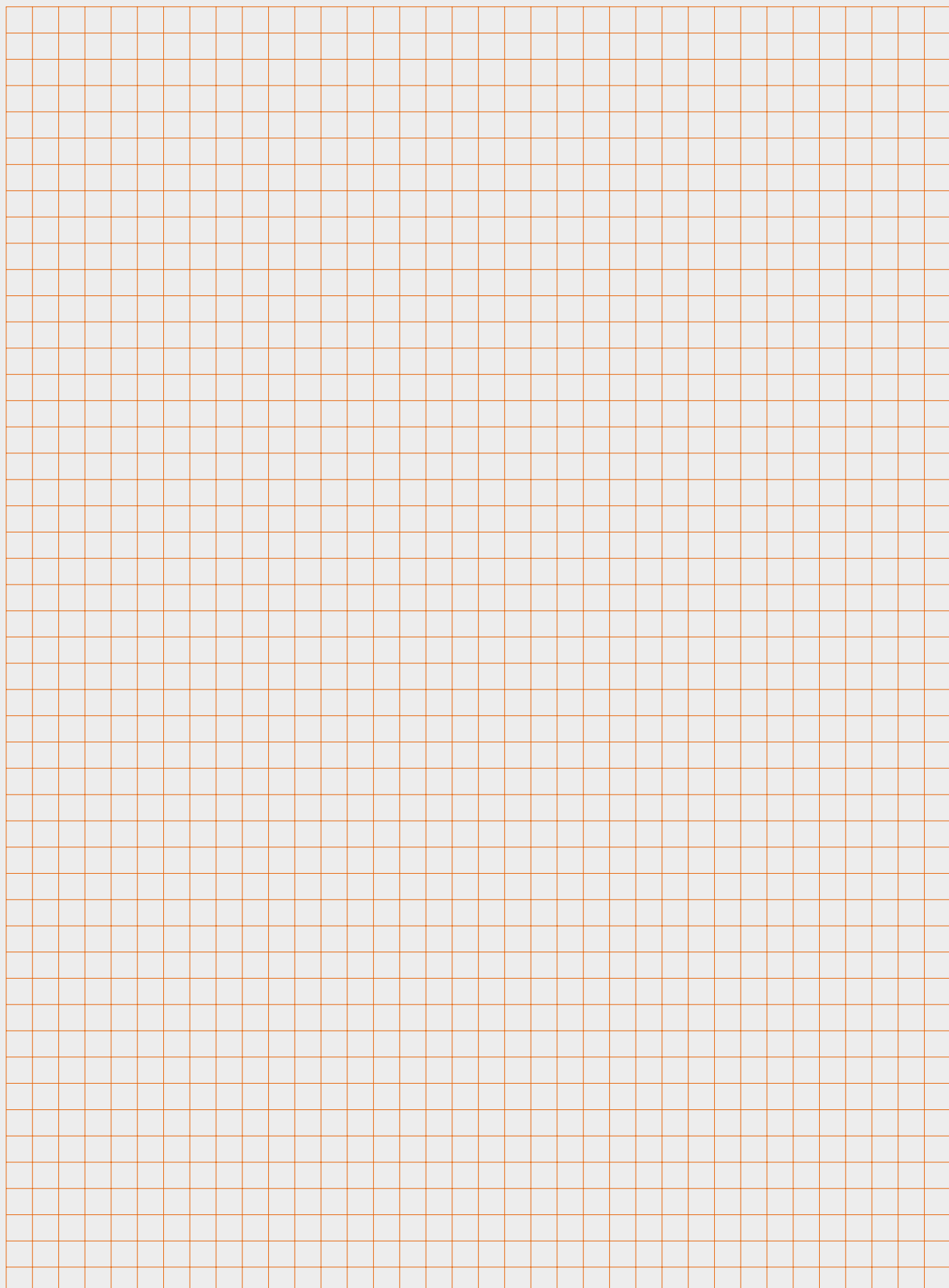
Suitable actuators

Nominal torque	Open-close	3-point	Terminal connection	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Auxiliary switch SPDT
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Fast runners	Nominal torque	Open-close	3-point	Terminal connection	Nominal voltage 24 V AC/DC 230 V AC	Running time motor 90°	Auxiliary switch SPDT	Actuator type		Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
								open-close / 3-point	Modulating (2-10 V)			
1500 Nm	•	•	•	•	230 V	55 s	2	SY8-230A-3-T		600 ¹⁾		
2000 Nm	•	•	•	•	230 V	70 s	2	SY9-230A-3-T		1000 ²⁾		
2500 Nm	•	•	•	•	230 V	70 s	2	SY10-230A-3-T			600 ³⁾	
3500 Nm	•	•	•	•	230 V	70 s	2	SY12-230A-3-T			1000 ³⁾	200 ⁴⁾

¹⁾ Adapter ZSY-702 Value = recommended combinations Value = other possible combinations (Data does not relieve the user of the obligation for testing in individual cases.)
²⁾ Adapter ZSY-901
³⁾ Adapter ZSY-902
⁴⁾ Adapter ZSY-903



 **k_{vs}** k_v value of the valve at 100% degree of opening **k_v**

Flow rate factor or flow rate coefficient.
The k_v value corresponds to the volumetric flow of water through a valve (in m^3/h or l/min) with a differential pressure of 100 kPa (1 bar), a water temperature of 5...40° C and at a fixed delay angle.

$$k_v = \frac{\dot{V}_{100}}{\sqrt{\frac{\Delta p_{v100}}{100}}}$$

 Δp_{v100} [kPa] \dot{V}_{100} [m^3/h] k_v [m^3/h] **\dot{V}_{max}**

Is the maximum flow rate of a pressure-independent valve which has been set with the greatest positioning signal, e.g. 10 V

 \dot{V}_{nom}

Greatest possible flow rate of a pressure-independent valve, catalogue value, status upon delivery

 Δp_{max}

Maximum permitted differential pressure for long service life across control path A-AB, with reference to the whole opening range.

 Δp_s

Closing pressure at which the linear actuator can still seal the fitting tightly, with reference to the particular leakage class.

 k_{vs} theor.Theoretical k_{vs} value for pressure drop calculation for electronic pressure-independent characterised control valve

All-inclusive.



The image features a world map with numerous orange dots scattered across North America, South America, Europe, Africa, Asia, and Australia, signifying a global presence. Below the map are six icons, each with a corresponding text label:

- 5-year guarantee**: Represented by a large number '5' and a checkmark icon.
- On site around the globe**: Represented by a globe icon and an information 'i' icon.
- Complete product range**: Represented by an icon of stacked boxes and a document icon.
- Tested quality**: Represented by a gear icon and the word 'SWISS'.
- Short delivery times**: Represented by a box icon and a clock icon.
- Comprehensive support**: Represented by a 'WWW' icon and a mobile phone icon.

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