

# Overview

## Valve-actuator combinations

2013



**BELIMO**<sup>®</sup>

Valve-actuator combinations				Page
<b>Characterised control valves</b>				<b>3 ... 9</b>
<b>6-way</b>	Internal thread	50°C	DN 15+20	3
<b>2-way/3-way with small actuators</b>	Internal thread	120°C	DN 15	4
	External thread	100°C	DN 10-20	4
	Flange	100°C	DN 15+20	4
	Internal thread	120°C	DN 20-50	5
<b>2-way/3-way with standard actuators</b>	Flange PN 6	100°C	DN 25-50	5
	External thread	100°C	DN 15-50	6
<b>2-way/3-way with standard actuators</b>	External thread	100°C	DN 15-50	6
<b>2-way with extended function (max. 130°C)</b>	External thread	130°C	DN 10-20	6
<b>2-way DN65 to DN150</b>	Flange	120°C	DN 65 - 150	7
<b>2-way, pressure-independent</b>	PICCV	80°C	DN 15-50	8
<b>2-way, electronically pressure-independent</b>	EPIV + Belimo Energy Valve™	120°C	DN 65-150	9
<b>Globe valves</b>				<b>10 ... 13</b>
<b>PN 6 2-way/3-way</b>	Flange	120°C	DN 15-100	10
<b>PN 16 2-way/3-way</b>	External thread	120°C	DN 15-50	10
	Flange	120°C	DN 15-150	10
<b>PN 16 2-way</b>	Flange	150°C	DN 15-150	11
<b>PN 16 2-way</b>	Flange, partly pressure-balanced	150°C	DN 40-150	11
<b>PN 25 2-way</b>	Flange	150°C	DN 15-50	12
	Flange, partly pressure-balanced	150°C	DN 65-100	12
	Flange	200°C	DN 15-100	12
<b>PN 40 3-way</b>	Flange	200°C	DN 15-100	12
<b>PN 16 2-way/3-way large globe valves</b>	Flange	120°C	DN 200+250	13
<b>Open-close ball valves</b>				<b>14 ... 15</b>
<b>Shut-off valves</b>	2-way/3-way internal thread	120°C	DN 15-50	14
	2-way/3-way external thread	100°C	DN 15-50	14
	2-way/3-way flange	100°C	DN 15-50	14
<b>Change-over valves</b>	3-way internal thread	100°C	DN 15-50	15
<b>Shut-off valves with extended function (max. 130°C)</b>	2-way external thread	130°C	DN 10-20	15
<b>Butterfly valves</b>				<b>16 ... 18</b>
<b>Butterfly valves with rotary actuators</b>	2-way flange	120°C	DN 25-150	16
<b>Butterfly valves with fast runners</b>	2-way flange	120°C	DN 25-350	17
<b>Butterfly valves with fast runners</b>	2-way flange	120°C	DN 400-700	18

**Explanations:**

- 1)  $k_{VS} = A - AB$ ;  $k_{VS} (B - AB) = 70\% \times k_{VS}$
- 1a)  $k_{VS} = A - AB$ ;  $k_{VS} (B - AB) = 50\% \times k_{VS}$
- 2) Low-noise operation  $\Delta p_{max} = 200 \text{ kPa}$
- 3) Medium temperature  $-10 \dots +5^\circ\text{C}$  with spindle heating
- 4) 2-way valves only
- 5) Parallel control not possible
- 5a) Only parallel control possible
- 6) MP types: Running times, control signal, stroke limitation and other functions can be parameterized with PC-Tool or the parameterising device MFT-H (delivery condition: modulating, operating range 0.5...10 V)
- 7) Low-noise operation  $\Delta p_{V100} < 50 \text{ kPa}$
- 8) Emergency setting position (NO/NC) manually adjustable at the actuator. Presetting: actuator spindle is retracted  
H..R, H..B, H..N, H7..X.., H7..Y.. have their closing points at top (valve stem extended)  
H..S, H6..SP, H6..X.. have their closing points at bottom (valve stem retracted)
- 9) LV..A: only H6.. possible
- 10) Can be switched to DC 0.5...10 V / DC 2...10 V
- 11) If medium temperature  $\geq 100^\circ\text{C}$ , then pipe and valve must be insulated
- 12) Media: High temperature water and steam ( $\Delta p/p1 < 0.4$ ), water with glycol up to max. 50% vol.
- 13) Media: Cold, warm and high temperature water (no steam), water with glycol up to max. 50% vol.
- 14) Actuator is a component of the valve
- 15) R3.., R5.., R7..: not suitable for open circuits
- 16) Valve can not be motorised with NRQ.. actuators
- 17) Valve can not be motorised with SRQ.. actuators

**The following applies for the rotation product line:**

- Actuator types **without** «..-O»: NC (normally closed)  
 Actuator types **with** «..-O»: NO (normally open)  
 Actuator types with «..-S»: With auxiliary switch  
 Actuator types with «..-S2»: With two auxiliary switches

**6-way characterised control valves**

				LR	HR			
				50°C	50°C			
		Running times	(Control) Operating range					
modulating	AC/DC 24 V	90 s	DC (0) 2 ... 10 V	LR24A-SR				
		140 s	DC (0) 2 ... 10 V		HR24-SR			
Communication	AC/DC 24 V	90 s, adjustable	MP-Bus, DC (0) 2 ... 10 V variable	LR24A-MP x)				
<b>Internal thread Rp (ISO 7/1)</b> 6-way 			<b>p<sub>s</sub> = 1000 kPa</b> <b>T<sub>max</sub> = 50°C</b>		<b>Range of use</b> closed circuits (pH > 7)			
			<b>DN</b> [mm]	<b>Rp</b>	<b>k<sub>vs</sub> (Sequence 1)</b> [m <sup>3</sup> /h]	<b>k<sub>vs2</sub> (Sequence 2)</b> [m <sup>3</sup> /h]	<b>Δp<sub>max</sub></b> [kPa]	<b>Δp<sub>max</sub></b> [kPa]
R3015-P25-P25-B2			15	1/2"	0.25	0.25	100 <sup>7)</sup>	100 <sup>7)</sup>
R3015-P25-P4-B2			15	1/2"	0.25	0.4		
R3015-P25-P63-B2			15	1/2"	0.25	0.63		
R3015-P25-1-B2			15	1/2"	0.25	1.0		
R3015-P25-1P3-B2			15	1/2"	0.25	1.3		
R3015-P4-P25-B2			15	1/2"	0.4	0.25		
R3015-P4-P4-B2			15	1/2"	0.4	0.4		
R3015-P4-P63-B2			15	1/2"	0.4	0.63		
R3015-P4-1-B2			15	1/2"	0.4	1.0		
R3015-P4-1P3-B2			15	1/2"	0.4	1.3		
R3015-P63-P25-B2			15	1/2"	0.63	0.25		
R3015-P63-P4-B2			15	1/2"	0.63	0.4		
R3015-P63-P63-B2			15	1/2"	0.63	0.63		
R3015-P63-1-B2			15	1/2"	0.63	1.0		
R3015-P63-1P3-B2			15	1/2"	0.63	1.3		
R3015-1-P25-B2			15	1/2"	1.0	0.25		
R3015-1-P4-B2			15	1/2"	1.0	0.4		
R3015-1-P63-B2			15	1/2"	1.0	0.63		
R3015-1-1-B2			15	1/2"	1.0	1.0		
R3015-1-1P3-B2			15	1/2"	1.0	1.3		
R3015-1P3-P25-B2			15	1/2"	1.3	0.25		
R3015-1P3-P4-B2			15	1/2"	1.3	0.4		
R3015-1P3-P63-B2			15	1/2"	1.3	0.63		
R3015-1P3-1-B2			15	1/2"	1.3	1.0		
R3015-1P3-1P3-B2			15	1/2"	1.3	1.3		
R3020-P63-1P6-B2			20	3/4"	0.63	1.6		
R3020-P63-2P5-B2			20	3/4"	0.63	2.5		
R3020-1-1P6-B2			20	3/4"	1.0	1.6		
R3020-1-2P5-B2			20	3/4"	1.0	2.5		
R3020-1P6-P63-B2			20	3/4"	1.6	0.63		
R3020-1P6-1-B2			20	3/4"	1.6	1.0		
R3020-1P6-1P6-B2			20	3/4"	1.6	1.6		
R3020-1P6-2P5-B2			20	3/4"	1.6	2.5		
R3020-2P5-P63-B2			20	3/4"	2.5	0.63		
R3020-2P5-1-B2			20	3/4"	2.5	1.0		
R3020-2P5-1P6-B2			20	3/4"	2.5	1.6		
R3020-2P5-2P5-B2			20	3/4"	2.5	2.5	100 <sup>7)</sup>	100 <sup>7)</sup>

x) Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool

7) see explanation, page 2

# Characterised control valves



## Characterised control valves with small actuators

		Running times		(Control) Operating range	Emergency control function	KR	TR / TRF / TRC
3-point	AC/DC 24 V	☉ : 90 s / ☉ : <25 s	3-point	☉		80 °C	TRF24-2(-O)
		75 s	3-point			KR24	
		100 s	3-point			TR24	
	AC 230 V	75 s	3-point			KR230	
		105 s	3-point			TR230-3 <sup>5)</sup>	
Modulating	AC/DC 24 V	15 s	DC (0) 2 ... 10 V			TRC24A-SR	
		75 s	DC (0) 2 ... 10 V			KR24-SR	
		90 s	DC (0) 2 ... 10 V			TR24-SR	
		☉ : 90 s / ☉ : 25 s	DC (0) 2 ... 10 V	☉		TRF24-SR(-O)	
<b>Internal thread Rp (ISO 7/1)</b>				<b>p<sub>s</sub> = 1600 kPa</b> T <sub>max</sub> = 120 °C		<b>Range of use<sup>15)</sup></b> Closed / open circuits (pH > 7)	
2-way		3-way		DN [mm]	k <sub>vs</sub> <sup>1)</sup> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
R2015-P25-S1 ... R2015-6P3-S1		R3015-P25-S1 ... R3015-4-S1		15	0.25 / 0.4 / 0.63 / 1 / 1.6 / 2.5 / 4 / 6.3 <sup>4)</sup>	1400	350 <sup>2)</sup>
<b>External thread G (ISO 228/1)</b>				<b>p<sub>s</sub> = 1600 kPa</b> T <sub>max</sub> = 100 °C <sup>3)</sup>		<b>Range of use<sup>15)</sup></b> Closed / open circuits (pH > 7)	
2-way		3-way		DN [mm]	k <sub>vs</sub> <sup>1)</sup> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
R405K ... R409K		R505K ... R508K		10	0.25 / 0.4 / 0.63 / 1 / 1.6 <sup>4)</sup>		1400 200
R409 ... R414		R509 ... R513		15	0.63 / 1 / 1.6 / 2.5 / 4 / 6.3 <sup>4)</sup>	1400	200
R417... R419		R517... R518		20	4, 6.3/8.6 <sup>4)</sup>	1400	200
<b>Flange (EN 10921)</b>				<b>PN 6</b> T <sub>max</sub> = 100 °C		<b>Range of use<sup>15)</sup></b> Closed / open circuits (pH > 7)	
2-way		3-way		DN [mm]	k <sub>vs</sub> <sup>1)</sup> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
R6015RP63-B1 ... R6015R4-B1		R7015RP63-B1 ... R7015R4-B1		15	0.63/1/1.6/2.5/4 <sup>4)</sup>	600	100
R6020R6P3-B1		R7020R6P3-B1		20	6.3	600	100

1) to 5), 11) and 15) see explanations, page 2

**Characterised control valves with standard actuators**

				Emergency control function			
				LR/LRC/LRQ / LRF/NRFD	NR / NRQ / NRF	SR / SRF	SR..P
				120°C	120°C	120°C	120°C
		Running times	(Control) Operating range				
3-point	AC/DC 24 V	90 s	3-point	LR24A(-S)	NR24A(-S)	SR24A(-S)	SR24P
	AC 230 V	90 s	3-point	LR230A(-S)	NR230A(-S)	SR230A(-S)	SR230P
		Ⓜ : 35 s / Ⓞ : <20 s	3-point	Ⓞ NRFD230A-3(-S2)(-O)			
		Ⓜ : 90 s / Ⓞ : <20 s	3-point		NRF230A-3(-S2)(-O)		
Modulating	AC/DC 24 V	9 s	DC (0) 2 ... 10 V	LRQ24A-SR	NRQ24A-SR		
			DC (0) 0.5 ... 10 V	LRQ24A-SZ	NRQ24A-SZ		
	35 s	DC (0) 2 ... 10 V		LRC24A-SR			
				LR24A-SR	NR24A-SR	SR24A-SR	SR24P-SR
			Ⓜ : 90 s / Ⓞ : <20 s	DC (0) 0.5 ... 10 V	Ⓞ	NRF24A-SZ(-S2)(-O)	SRF24A-SZ(-S2)(-O)
		Ⓜ : 150 s / Ⓞ : <20 s	DC (0) 2 ... 10 V	Ⓞ	LRF24-SR <sup>11)</sup>		

Internal thread Rp (ISO 7/1)		p <sub>s</sub> = 1600 kPa T <sub>max</sub> = 120°C		Range of use							
2-way		DN [mm]	k <sub>vs</sub> <sup>1)</sup> [m <sup>3</sup> /h]	Closed / open circuits (pH > 7)							
				Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
R2020-4-S2	... R2020-8P6-S2	20	4 / 6.3 / 8.6	1400	350 <sup>2)</sup>	1400	350 <sup>2)</sup>	1400	350 <sup>2)</sup>	1400	350 <sup>2)</sup>
R2025-6P3-S2	... R2025-16-S2	25	6.3 / 10 / 16	1400	350 <sup>2)</sup>						
R2032-16-S3		32	16								
R2040-16-S3	... R2040-25-S3	40	16 / 25			1400	350 <sup>2)</sup>				
R2050-25-S4	... R2050-40-S4	50	25 / 40					1400	350 <sup>2)</sup>	1400	350 <sup>2)</sup>

Internal thread Rp (ISO 7/1)		p <sub>s</sub> = 1600 kPa T <sub>max</sub> = 120°C		Range of use <sup>15)</sup>							
3-way		DN [mm]	k <sub>vs</sub> <sup>1)</sup> [m <sup>3</sup> /h]	closed circuits (pH > 7)							
				Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
R3020-4-S2	... R3020-6P3-S2	20	4 / 6.3	1400	350 <sup>2)</sup>	1400	350 <sup>2)</sup>	1400	350 <sup>2)</sup>	1400	350 <sup>2)</sup>
R3025-6P3-S2	... R3025-10-S2	25	6.3 / 10	1400	350 <sup>2)</sup>						
R3032-16-S3		32	16								
R3040-16-S3		40	16			1400	350 <sup>2)</sup>				
R3040-25-S4		40	25								
R3050-25-S4	... R3050-58-S4	50	25 / 40 / 58					1400	350 <sup>2)</sup>	1400	350 <sup>2)</sup>

Flange (EN 1092/1)		PN 6 T <sub>max</sub> = 100°C		Range of use							
2-way		DN [mm]	k <sub>vs</sub> <sup>1)</sup> [m <sup>3</sup> /h]	Closed / open circuits (pH > 7)							
				Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
R6025R10-B2		25	10	600	100	600	100	600	100 <sup>2)</sup>	600	100 <sup>2)</sup>
R6032R16-B3		32	16								
R6040R25-B3		40	25								
R6050R40-B3 <sup>16)</sup>		50	40			600	100	600	100 <sup>2)</sup>	600	100 <sup>2)</sup>

Flange (EN 1092/1)		PN 6 T <sub>max</sub> = 100°C		Range of use <sup>15)</sup>							
3-way		DN [mm]	k <sub>vs</sub> <sup>1)</sup> [m <sup>3</sup> /h]	closed circuits (pH > 7)							
				Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
R7025R10-B2		25	10	600	100	600	100	600	100 <sup>2)</sup>	600	100 <sup>2)</sup>
R7032R16-B3		32	16								
R7040R16-B3		40	16								
R7050R25-B3 <sup>16)</sup>		50	25			600	100	600	100 <sup>2)</sup>	600	100 <sup>2)</sup>

1), 2), 11) and 16) see explanations, page 2

# Characterised control valves



## Characterised control valves with standard actuators

				Emergency control function	LR / LRC / LRQ / LRF / NRFD	NR / NRQ / NRF	SR / SRF	SR..P					
					100°C	100°C	100°C	100°C					
3-point	AC/DC 24 V	90 s	3-point		LR24A(-S)	NR24A(-S)	SR24A(-S)	SR24P					
		AC 230 V	90 s	3-point		LR230A(-S)	NR230A(-S)	SR230A(-S)	SR230P				
		Ⓜ : 35 s / Ⓢ : <20 s	3-point	Ⓢ	NRFD230A-3(-S2)(-O)								
		Ⓜ : 90 s / Ⓢ : <20 s	3-point	Ⓢ		NRF230A-3(-S2)(-O)							
Modulating	AC/DC 24 V	9 s	DC (0) 2 ... 10 V		LRQ24A-SR	NRQ24A-SR							
			DC (0) 0.5 ... 10 V		LRQ24A-SZ	NRQ24A-SZ							
		35 s	DC (0) 2 ... 10 V		LRC24A-SR								
		90 s	DC (0) 2 ... 10 V		LR24A-SR	NR24A-SR	SR24A-SR	SR24P-SR					
		Ⓜ : 90 s / Ⓢ : <20 s	DC (0) 0.5 ... 10 V	Ⓢ		NRF24A-SZ(-S2)(-O)	SRF24A-SZ(-S2)(-O)						
		Ⓜ : 150 s / Ⓢ : <20 s	DC (0) 2 ... 10 V	Ⓢ	LRF24-SR <sup>11)</sup>								
<b>External thread G (ISO 228/1)</b> 2-way		3-way		p <sub>s</sub> = 1600 kPa T <sub>max</sub> = 100°C	<b>Range of use</b> Closed / open circuits (pH > 7)								
		DN [mm]	k <sub>vs</sub> <sup>1)</sup> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
R409 ... R414	R509 ... R513	15	0.63/1/1.6/2.5/4/6.3 <sup>4)</sup>	1400	200	1400	200	1400	200	1400	200	1400	200
R417 ... R419	R517 / R518	20	4/6.3/8.6 <sup>4)</sup>										
R422 ... R424	R522 / R523	25	6.3/10/16 <sup>4)</sup>	1400	200								
R431	R531	32	16			1400	200	1400	200	1400	200	1400	200
R438 / R439	R538	40	16/25										
R448 / R449	R548	50	25/40 <sup>4)</sup>			1400	200	1400	200	1400	200	1400	200

## Characterised control valves with extended function (max. 130°C)

				Emergency control function	TR / TRF	LR / LRF	NRFD						
					130°C <sup>11)</sup>	130°C	130°C						
3-point	AC/DC 24 V	90 s	3-point			LR24A							
		100 s	3-point		TR24								
		Ⓜ : 90 s / Ⓢ : 25 s	3-point	Ⓢ	TRF24-2(-O)								
		AC 230 V	Ⓜ : 35 s / Ⓢ : 20 s	3-point	Ⓢ			NRFD230A-3(-S2)(-O)					
Modulating	AC/DC 24 V	9 s	DC (0) 2 ... 10 V			LRQ4A-SR							
		15 s	DC (0) 2 ... 10 V		TRC24A-SR								
	35 s	DC (0) 2 ... 10 V		TRY24-SR	LRC24A-SR								
	90 s	DC (0) 2 ... 10 V		TR24-SR	LR24A-SR								
		Ⓜ : 90 s / Ⓢ : 25 s	DC (0) 2 ... 10 V	Ⓢ	TRF24-SR(-O)								
		Ⓜ : 150 s / Ⓢ : 20 s	DC (0) 2 ... 10 V	Ⓢ		LRF24-SR <sup>11)</sup>							
<b>External thread G (ISO 228/1)</b> 2-way		p <sub>s</sub> = 2700 kPa T <sub>max</sub> = 130°C (Water)		<b>Range of use</b> Closed / open circuits (pH > 7)									
		DN [mm]	k <sub>vs</sub> <sup>1)</sup> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>v0</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>v0</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>v0</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>v0</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>v0</sub> [kPa]
R404DK ... R409DK		10	0.3/0.4/0.63/1/1.6/2.5 <sup>4)</sup>	1400	800	1400	800	1400	800	1400	800	1400	800
R412D ... R414D		15	2.5/4/6.3 <sup>4)</sup>										
R417D ... R419D		20	6.3/10/16 <sup>4)</sup>			1400	800	1400	800	1400	800	1400	800

1), 4) and 11) see explanations, page 2

Characterised control valves DN65 to DN150

			Emergency control function		SR	SRF	SRP	GR	GRK	GRC					
							IP66/67 			IP66 					
					120°C	120°C	120°C	120°C	120°C	120°C					
Open-close	AC/DC 24 V	Ⓜ : <75 s Ⓢ : <20 s	1-wire			SRF24A-5(-O) SRF24A-S2-5(-O)									
		Ⓜ : 150 s -II- : 35 s	1-wire	-II-					GRK24A-5						
	AC 230 V	Ⓜ : <75 s Ⓢ : <20 s	1-wire			SRF230A-5(-O) SRF230A-S2-5(-O)									
3-point	AC/DC 24 V	90 s	3-point		SR24A-5		SR24P-5								
		150 s	3-point					GR24A-5							
	AC 230 V	90 s	3-point		SR230A-5		SR230P-5								
		150 s	3-point					GR230A-5							
modulating	AC/DC 24 V	35 s	DC (0) 0.5 ... 10 V							GRC24G-SZ-T-5					
			DC (0) 2 ... 10 V		SRC24A-SR-5										
		90s	DC (0) 2 ... 10 V		SR24A-SR-5		SR24P-SR-5								
			DC (0) 2 ... 10 V					GR24A-SR-5							
		Ⓜ : 90 s Ⓢ : <20 s	DC (0) 0.5 ... 10 V			SRF24A-SZ-5(-O) SRF24A-SZ-S2-5(-O)									
			DC (0) 0.5 ... 10 V	-II-					GRK24A-SZ-5						
	AC 230V	90 s	DC (0) 2 ... 10 V		SR230A-SR-5		SR230P-SR-5								
<b>Flange (ISO 7500)</b> 2-way 		<b>PN16</b> T <sub>max</sub> = +120°C		<b>Range of use</b> closed circuits (pH > 7)											
		<b>DN</b> [mm]	<b>k<sub>vs</sub></b> [m <sup>3</sup> /h]	<b>Δp<sub>s</sub></b> [kPa]	<b>Δp<sub>max</sub></b> [kPa]	<b>Δp<sub>s</sub></b> [kPa]	<b>Δp<sub>max</sub></b> [kPa]	<b>Δp<sub>s</sub></b> [kPa]	<b>Δp<sub>max</sub></b> [kPa]	<b>Δp<sub>s</sub></b> [kPa]	<b>Δp<sub>max</sub></b> [kPa]	<b>Δp<sub>s</sub></b> [kPa]	<b>Δp<sub>max</sub></b> [kPa]	<b>Δp<sub>s</sub></b> [kPa]	<b>Δp<sub>max</sub></b> [kPa]
		R6065W63-S8	65 63	690	400	690	400	690	400	690	400	690	400	690	400
		R6080W100-S8	80 100	690	400	690	400	690	400						
		R6100W160-S8	100 160												
		R6125W250-S8	125 250												
		R6150W320-S8	150 320							690	400	690	400	690	400

# Characterised control valves


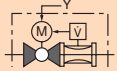
## Pressure-independent characterised control valves

				KR	LR / LRQ / LRC LRF / NRFD	NR / NRQ / NRC NRF	SRP	SR / SRF / SRC		
				80 °C	DN15/DN20: 100 °C DN25...DN50: 80 °C					
Open-close,	AC/DC 24 V	75 s	(Control) Operating range	Open-close, 3-p	Emergency control function					
		90 s		Open-close, 3-p		KR24				
3-point	AC 230 V	75 s		Open-close, 3-p						
		90 s		Open-close, 3-p		LR24A(-S)	NR24A(-S)	SR24P	SR24A(-S)	
		Ⓜ : 35 s / Ⓢ : <20 s		Open-close, 3-p	Ⓢ	KR230				
		Ⓜ : 90 s / Ⓢ : <20 s		Open-close, 3-p	Ⓢ		LR230A(-S)	NR230A(-S)	SR230P	SR230A(-S)
				NRFD230A-3(-S2)(-O)						
				NRF230A-3(-S2)(-O)						
Modulating	AC/DC 24 V	9 s		DC (0) 0,5 ... 10 V		LRQ24A-SZ	NRQ24A-SZ			
				DC (0) 2 ... 10 V		LRQ24A-SR	NRQ24A-SR			
		35 s		DC (0) 2 ... 10 V		LRC24A-SR			SRC24A-SR	
		45 s		DC (0) 2 ... 10 V			NRC24A-SR			
		75 s		DC (0) 2 ... 10 V		KR24-SR				
		90 s		DC (0) 2 ... 10 V			LR24A-SR	NR24A-SR	SR24P-SR	SR24A-SR
		Ⓜ : 90 s / Ⓢ : <20 s		DC (0) 0,5 ... 10 V	Ⓢ			NRF24A-SZ(-S2)(-O)		SRF24A-SZ(-S2)(-O)
		Ⓜ : 150 s / Ⓢ : <20 s		DC (0) 2 ... 10 V	Ⓢ		LRF24-SR			

Internal thread Rp (ISO 7/1) 2-way	$p_s = 1600 \text{ kPa}$ $T_{max} = 80 \text{ °C} / 100 \text{ °C}$			Range of use closed circuits (pH > 7)										
	DN [mm]	Rp	V [l/s]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	
	R215P-010 / R215P-040	15	1/2"	0.1/0.4	700	350	700	350	700	350	700	350	700	350
	R220P-040 / R220P-060	20	3/4"	0.4/0.6										
	R225P-070 / R225P-110	25	1"	0.7/1.1			700	350						
	R232P-120 / R232P-160	32	1 1/4"	1.2/1.6										
	R240P-180 / R240P-220	40	1 1/2"	1.8/2.2										
	R250P-270	50	2"	2.7					700	350	700	350		
	R250P-550	50	2"	5.5									700	350




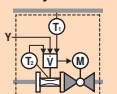
**Electronic pressure-independent characterised control valve with adjustable flow rate**

				SR	GR					
										
		<b>Running times</b>	<b>(Control) Operating range</b>							
modulating	AC/DC 24 V	90 s	DC (0) 0,5 ... 10 V variable	14)	14)					
communication	AC/DC 24 V	90 s	MP-Bus, DC (0) 0,5 ... 10 V variable	14)	14)					
<b>Flange (EN 1092/1) 2-way</b> 			<b>PN16</b> $T_{max} = 120^{\circ}C$		<b>Range of use</b> closed circuits (pH > 7)					
			$\dot{V}_{nom}$ [l/s]    [l/min]	$k_{vs}$ 1) [m <sup>3</sup> /h]	<b>DN</b> [mm]    [Zoll]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	
<b>P6065W800E-MP</b>			8	480	45	65	2 1/2"	690	340	
<b>P6080W1100E-MP</b>			11	660	65	80	3"	690	340	
<b>P6100W2000E-MP</b>			20	1200	115	100	4"			690    340
<b>P6125W3100E-MP</b>			31	1860	175	125	5"			
<b>P6150W4500E-MP</b>			45	2700	270	150	6"			690    340

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

Control, operating range, position feedback, running time and further functions are parameterisable with PC-Tool

**Belimo Energy Valve™ - Electronic pressure-independent characterised control valve with adjustable flow rate and monitoring function**

				SR	GR					
										
		<b>Running times</b>	<b>(Control) Operating range</b>							
modulating	AC/DC 24 V	90 s	DC (0) 0,5 ... 10 V variable	14)	14)					
communication	AC/DC 24 V	90 s	MP-Bus, BACnet IP, BACnet MS/TP, DC (0) 0,5 ... 10 V variable	14)	14)					
<b>Flange (EN 1092/1) 2-way</b> 			<b>PN16</b> $T_{max} = 120^{\circ}C$		<b>Range of use</b> closed circuits (pH > 7)					
			$\dot{V}_{nom}$ [l/s]    [l/min]	$k_{vs}$ 1) [m <sup>3</sup> /h]	<b>DN</b> [mm]    [Zoll]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	
<b>P6065W800EV-BAC</b>			8	480	40	65	2 1/2"	690	340	
<b>P6080W1100EV-BAC</b>			11	660	60	80	3"	690	340	
<b>P6100W2000EV-BAC</b>			20	1200	100	100	4"			690    340
<b>P6125W3100EV-BAC</b>			31	1860	160	125	5"			
<b>P6150W4500EV-BAC</b>			45	2700	240	150	6"			690    340

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

Completely parameterisable by means of integrated Web server

Globe valves, PN 6 und PN 16, 120 °C

		Actuating time	(Control) Operating range	Emergency control function	Emergency setting position	LV..A..	NV..A..	SV..A..	AVK..A..	EV..A..	RV..A..	
						500 N 15 mm	1000 N 20 mm	1500 N 20 mm	2000 N 32 mm	2500 N 40 mm	4500 N 40 mm	
3-point	AC/DC 24 V	150s/Nominal stroke	3-point			LV24A-TPC	NV24A-TPC	SV24A-TPC		EV24A-TPC		
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	3-point	-II-8)			NVK24A-3-TPC		AVK24A-3-TPC			
	AC 230 V	150s/Nominal stroke	3-point			LV230A-TPC	NV230A-TPC	SV230A-TPC		EV230A-TPC		
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	3-point	-II-8)			NVK230A-3		AVK230A-3			
modu- lating	AC/DC 24 V	35s/Nominal stroke	DC (0) 0,5 ... 10 V			LVC24A-SZ-TPC	NVC24A-SZ-TPC	SVC24A-SZ-TPC		EVC24A-SZ		
			DC (0) 2 ... 10 V			LVC24A-SR-TPC	NVC24A-SR-TPC	SVC24A-SR-TPC		EVC24A-SR		
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	DC (0) 0,5 ... 10 V	-II-8)			NVKC24A-SZ-TPC					
			DC (0) 2 ... 10 V	-II-8)			NVKC24A-SR-TPC					
		150s/Nominal stroke	DC (0) 0,5 ... 10 V				LV24A-SZ-TPC	NV24A-SZ-TPC	SV24A-SZ-TPC		EV24A-SZ-TPC	RV24A-SZ
			DC (0) 2 ... 10 V				LV24A-SR-TPC	NV24A-SR-TPC	SV24A-SR-TPC		EV24A-SR-TPC	RV24A-SR
Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	DC (0) 0,5 ... 10 V	-II-8)				NVK24A-SZ-TPC		AVK24A-SZ-TPC				
	DC (0) 2 ... 10 V	-II-8)				NVK24A-SR-TPC		AVK24A-SR-TPC				
multi- func- tional 6)	AC/DC 24 V	35s/Nominal stroke	DC (0) 0,5 ... 10 V	-II-8)		LVC24A-MP-TPC	NVC24A-MP-TPC	SVC24A-MP-TPC		EVC24A-MF		
			Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	DC (0) 0,5 ... 10 V	-II-8)			NVKC24A-MP-TPC				
		150s/Nominal stroke	DC (0) 0,5 ... 10 V				LV24A-MP-TPC	NV24A-MP-TPC	SV24A-MP-TPC		EV24A-MP-TPC	RV24A-MF
			Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	DC (0) 0,5 ... 10 V	-II-8)			NVK24A-MP-TPC		AVK24A-MP-TPC		

Flange (ISO 7005)		PN 6		Range of use											
2-way	3-Weg	$T_{max} = 120\text{ °C }^3)$		Closed circuits											
		DN [mm]	$k_{vs}$ [m³/h]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]
H611R ... H615R	H711R ... H715R	15	0,63/1/1,6/2,5/4	600	400	600	400	600	400						
H620R	H720R	20	6,3	600	400	600	400	600	400						
H625R	H725R	25	10	500	400	600	400	600	400						
H632R	H732R	32	16	350	350	600	400	600	400						
H640R	H740R	40	25	150	150	500	400	600	400						
H650R	H750R	50	40	70	70	300	300	550	400						
H664R	H764R	65	58			140	140	280	280						
H679R	H779R	80	90			80	80	160	160						
H6100R	H7100R	100	145							150	150	200	200	450	400

External thread (ISO228)		PN 16		Range of use											
2-way	3-Weg	$T_{max} = 120\text{ °C }^3)$		Closed / open circuits (pH > 7)											
		DN [mm]	$k_{vs}$ [m³/h]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]
H411B ... H415B	H511B ... H515B	15	0,63/1/1,6/2,5/4	1300	400	1600	400	1600	400						
H420B	H520B	20	6,3	900	400	1600	400	1600	400						
H425B	H525B	25	10	500	400	1300	400	1600	400						
H432B	H532B	32	16	350	350	1000	400	1600	400						
H440B	H540B	40	25	150	150	500	400	900	400						
H450B	H550B	50	40	70	70	300	300	550	400						

Flange (ISO 7005)		PN 16		Range of use											
2-way	3-Weg	$T_{max} = 120\text{ °C }^3)$		Closed circuits											
		DN [mm]	$k_{vs}$ [m³/h]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]
H611N ... H615N	H711N ... H715N	15	0,63/1/1,6/2,5/4	1300	400	1600	400	1600	400						
H620N	H720N	20	6,3	900	400	1600	400	1600	400						
H625N	H725N	25	10	500	400	1300	400	1600	400						
H632N	H732N	32	16	350	350	1000	400	1600	400						
H640N	H740N	40	25	150	150	500	400	900	400						
H650N	H750N	50	40	70	70	300	300	550	400						
H664N	H764N	65	58			140	140	280	280						
H665N	H765N	65	63							400	400	550	400	1100	400
H679N	H779N	80	90			80	80	160	160						
H680N	H780N	80	100							250	250	350	350	700	400
H6100N	H7100N	100	145							150	150	200	200	450	400
	H7125N	125	220									130	130	290	290
	H7150N	150	320									80	80	190	190

3), 6) und 8) see explanations, page 2

## Globe valves, PN 6 und PN 16, 120 °C

			(Control) Operating range	Emergency control function	Emergency setting position	LV..A..	NV..A..	SV..A..	AVK..A..	EV..A..	RV..A..	
						500 N 15 mm	1000 N 20 mm	1500 N 20 mm	2000 N 32 mm	2500 N 40 mm	4500 N 40 mm	
<b>Actuating time</b>												
3-point	AC/DC 24 V	150s/Nominal stroke	3-point			LV24A-TPC	NV24A-TPC	SV24A-TPC		EV24A-TPC		
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	3-point	-II 8)				NVK24A-3-TPC		AVK24A-3-TPC		
	AC 230 V	150s/Nominal stroke	3-point			LV230A-TPC	NV230A-TPC	SV230A-TPC		EV230A-TPC		
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	3-point	-II 8)				NVK230A-3		AVK230A-3		
modu- lating	AC/DC 24 V	35s/Nominal stroke	DC (0) 0,5 ... 10 V			LVC24A-SZ-TPC	NVC24A-SZ-TPC	SVC24A-SZ-TPC		EVC24A-SZ		
			DC (0) 2 ... 10 V			LVC24A-SR-TPC	NVC24A-SR-TPC	SVC24A-SR-TPC		EVC24A-SR		
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	DC (0) 0,5 ... 10 V	-II 8)				NVKC24A-SZ-TPC				
			DC (0) 2 ... 10 V	-II 8)				NVKC24A-SR-TPC				
		150s/Nominal stroke	DC (0) 0,5 ... 10 V				LV24A-SZ-TPC	NV24A-SZ-TPC	SV24A-SZ-TPC		EV24A-SZ-TPC	RV24A-SZ
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	DC (0) 2 ... 10 V	-II 8)			LV24A-SR-TPC	NV24A-SR-TPC	SV24A-SR-TPC		EV24A-SR-TPC	RV24A-SR
multi- func- tional 6)	AC/DC 24 V	35s/Nominal stroke	DC (0) 0,5 ... 10 V			LVC24A-MP-TPC	NVC24A-MP-TPC	SVC24A-MP-TPC		EVC24A-MF		
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	DC (0) 0,5 ... 10 V	-II 8)				NVKC24A-MP-TPC		AVK24A-SR-TPC		
		150s/Nominal stroke	DC (0) 0,5 ... 10 V			LV24A-MP-TPC	NV24A-MP-TPC	SV24A-MP-TPC		EV24A-MP-TPC	RV24A-MF	
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	DC (0) 0,5 ... 10 V	-II 8)				NVK24A-MP-TPC		AVK24A-MP-TPC		

Flange (ISO 7005) 2-way		PN 16		Range of use											
		$T_{max} = 150^{\circ}C @ 1400 \text{ kPa}^{12}$ $T_{max} = 120^{\circ}C @ 1600 \text{ kPa}^{12}$		Closed circuits / steam: Pressure ratio $\Delta p/p_1 < 0.4$											
DN [mm]	$k_{vs}$ [m³/h]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]
H610S ... H611S	15	0,4 / 0,63		1600	1000	1600	1000	1600	1000						
H612S ... H615S	15	1 / 1,6 / 2,5 / 4		800	800	1600	1000	1600	1000						
H619S / H620S	20	4 / 6,3		800	800	1600	1000	1600	1000						
H624S / H625S	25	6,3 / 10		450	450	1300	1000	1600	1000						
H632S	32	16		300	300	950	950	1550	1000						
H640S	40	25		140	140	500	500	850	850						
H650S	50	40		60	60	300	300	500	500						
H664S	65	58				130	130	250	250						
H665S	65	63								400	400	550	550	1100	1000
H680S	80	90								250	250	350	350	700	700
H6100S	100	145								150	150	200	200	450	450
H6125S	125	220										110	110	250	250
H6150S	150	320										70	70	180	180

Flange (ISO 7005) 2-way		PN 16 / partial pressure reduced		Range of use											
		$T_{max} = 150^{\circ}C @ 1400 \text{ kPa}^{12}$ $T_{max} = 120^{\circ}C @ 1600 \text{ kPa}^{12}$		Closed circuits / steam: Pressure ratio $\Delta p/p_1 < 0.4$											
DN [mm]	$k_{vs}$ [m³/h]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]
H640SP	40	25		1600	1000	1600	1000								
H650SP	50	40		1600	1000	1600	1000								
H664SP	65	58		1600	1000	1600	1000								
H679SP	80	90		1600	1000	1600	1000								
H6100SP	100	145						600	600	600	600	600	600	600	600
H6125SP	125	220								600	600	600	600	600	600
H6150SP	150	320								600	600	600	600	600	600

6), 8) und 12) see explanations, page 2

Globe valves, PN 6 und PN 16, 120 °C






		(Control) Operating range		Emergency control function Emergency setting position	LV..A..	NV..A..	SV..A..	AVK..A..	EV..A..	RV..A..	
					500 N 15 mm	1000 N 20 mm	1500 N 20 mm	2000 N 32 mm	2500 N 40 mm	4500 N 40 mm	
3-point	AC/DC 24 V	150s/Nominal stroke	3-point		LV24A-TPC	NV24A-TPC	SV24A-TPC		EV24A-TPC		
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	3-point	-II-8)		NVK24A-3-TPC		AVK24A-3-TPC			
	AC 230 V	150s/Nominal stroke	3-point		LV230A-TPC	NV230A-TPC	SV230A-TPC		EV230A-TPC		
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	3-point	-II-8)		NVK230A-3		AVK230A-3			
modu- lating	AC/DC 24 V	35s/Nominal stroke	DC (0) 0,5 ... 10 V		LVC24A-SZ-TPC	NVC24A-SZ-TPC	SVC24A-SZ-TPC		EVC24A-SZ		
			DC (0) 2 ... 10 V		LVC24A-SR-TPC	NVC24A-SR-TPC	SVC24A-SR-TPC		EVC24A-SR		
		Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	DC (0) 0,5 ... 10 V	-II-8)		NVKC24A-SZ-TPC					
			DC (0) 2 ... 10 V	-II-8)		NVKC24A-SR-TPC					
		150s/Nominal stroke	DC (0) 0,5 ... 10 V			LV24A-SZ-TPC	NV24A-SZ-TPC	SV24A-SZ-TPC		EV24A-SZ-TPC	RV24A-SZ
			DC (0) 2 ... 10 V			LV24A-SR-TPC	NV24A-SR-TPC	SV24A-SR-TPC		EV24A-SR-TPC	RV24A-SR
Ⓜ150s/Nom. stroke / -II-35s/Nom. stroke	DC (0) 0,5 ... 10 V	-II-8)		NVK24A-SZ-TPC			AVK24A-SZ-TPC				
	DC (0) 2 ... 10 V	-II-8)		NVK24A-SR-TPC			AVK24A-SR-TPC				
multi- func- tional 6)	AC/DC 24 V	35s/Nominal stroke	DC (0) 0,5 ... 10 V		LVC24A-MP-TPC	NVC24A-MP-TPC	SVC24A-MP-TPC		EVC24A-MF		
			DC (0) 0,5 ... 10 V	-II-8)		NVKC24A-MP-TPC					
		150s/Nominal stroke	DC (0) 0,5 ... 10 V			LV24A-MP-TPC	NV24A-MP-TPC	SV24A-MP-TPC		EV24A-MP-TPC	RV24A-MF
			DC (0) 0,5 ... 10 V	-II-8)		NVK24A-MP-TPC			AVK24A-MP-TPC		

Flange (ISO 7005)		PN 25		Range of use													
2-way		3-Weg		T <sub>max</sub> = 150 °C @ 2430 kPa (H6..X..-S2) <sup>12)</sup> T <sub>max</sub> = 120 °C @ 2500 kPa (H6+H7..X..-S2) <sup>12)</sup> T <sub>max</sub> = 200 °C @ 2300 kPa (H7..X..-S) <sup>13)</sup>		Closed circuits											
				DN [mm]	K <sub>vs</sub> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
H6015XP4-S2		15	0,4	2500	1000	2500	1000	2500	1000								
H6015XP63-S2		15	0,63	2500	1000	2500	1000	2500	1000								
H6015X1-S2		15	1	800	800	2200	1000	2500	1000								
H6015X1P6-S2		15	1,6	800	800	2200	1000	2500	1000								
H6015X2P5-S2		15	2,5	800	800	2200	1000	2500	1000								
H6015X4-S2	H7015X4-S2	15	4	800	800	2200	1000	2500	1000								
H6020X4-S2		20	4	800	800	2200	1000	2500	1000								
H6020X6P3-S2	H7020X6P3-S2	20	6,3	600	600	1500	1000	2500	1000								
H6025X6P3-S2		25	6,3	450	450	1300	1000	2100	1000								
H6025X10-S2	H7025X10-S2	25	10	450	450	1300	1000	2100	1000								
H6032X10-S2		32	10	300	300	900	900	1500	1000								
H6032X16-S2	H7032X16-S2	32	16	300	300	900	900	1500	1000								
H6040X16-S2		40	16	140	140	500	500	850	850								
H6040X25-S2	H7040X25-S2	40	25	140	140	500	500	850	850								
H6050X25-S2		50	25	60	60	300	300	500	500								
H6050X40-S2	H7050X40-S2	50	40	60	60	300	300	500	500								
	H7065X63-S4	65	63					400	400	550	550	1100	1000				
	H7080X100-S4	80	100					250	250	350	350	700	700				
	H7100X160-S4	100	160					150	150	200	200	450	450				

Flange (ISO 7005)		PN 25 / partial pressure reduced		Range of use											
2-way		T <sub>max</sub> = 150 °C @ 2430 kPa <sup>12)</sup> T <sub>max</sub> = 120 °C @ 2500 kPa <sup>12)</sup>		Closed circuits											
		DN [mm]	K <sub>vs</sub> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
H6065X58-SP2		65	58			2100	1000	2500	1000						
H6080X90-SP2		80	90			1600	1000	2400	1000						
H6100X125-SP2		100	125			1000	1000	1700	1000						

Flange (ISO 7005)		PN 40		Range of use											
3-Weg		T <sub>max</sub> = 200 °C @ 3200 kPa <sup>13)</sup> T <sub>max</sub> = 120 °C @ 4000 kPa <sup>13)</sup>		Closed circuits											
		DN [mm]	K <sub>vs</sub> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]
H7015Y4-S2		15	4			2200	1000	3500	1000						
H7020Y6P3-S2		20	6,3			1500	1000	2500	1000						
H7025Y10-S2		25	10			1300	1000	2100	1000						
H7032Y16-S2		32	16			900	900	1500	1000						
H7040Y25-S2		40	25			500	500	850	850						
H7050Y40-S2		50	40			300	300	500	500						
H7065Y63-S4		65	63					400	400	550	550	1100	1000		
H7080Y100-S4		80	100					250	250	350	350	700	700		
H7100Y160-S4		100	160					150	150	200	200	450	450		

Large globe valves, PN 16, 120 °C

				GV	
				12 kN 65 mm	
					
			(Control) Operating range		
3-point	AC 230 V	0.79 mm/s	3-point	GV12-230-3-T	
Modulating	AC/DC 24 V	0.79 mm/s	DC (0) 2 ... 10 V <sup>10)</sup>	GV12-24-SR-T	
<b>Flange (ISO 7005)</b> 2-way  		3-way  		<b>PN 16</b> $T_{max} = 120^{\circ}C$	
		<b>DN</b> [mm]		<b>Range of use</b> Closed circuits	
		<b>k<sub>vs</sub></b> [m <sup>3</sup> /h]		<b>Δp<sub>s</sub></b> [kPa]	
				<b>Δp<sub>max</sub></b> [kPa]	
<b>H6200W630-S7</b>	<b>H7200W630-S7</b>	200	630	310	60
<b>H6250W1000-S7</b>	<b>H7250W1000-S7</b>	250	1000	190	60

10) see explanations, page 2

# Open-close ball valves

## Shut-off valves

Open-close	Running times	Control	Emergency control function	KR	TR / TRF / TRY	LR / LRQ / LRF	NR / NRQ / NRF	SR / SRF / SRQ	SR..P
				80 °C	120 °C <sup>11)</sup>	120 °C	120 °C	120 °C	120 °C
AC/DC 24 V	9 s	1-wire				LRQ24A	NRQ24A	SRQ24A	
	35 s	1-wire/2-wire			TRY24				
	75 s	1-wire/2-wire		KR24					
	90 s	1-wire/2-wire			TR24	LR24A(-S)	NR24A(-S)	SR24A(-S)	SR24P
	Ⓜ : 75 s / Ⓞ : 75 s	1-wire	Ⓞ		TRF24(-S)(-O)				
	Ⓜ : <75 s / Ⓞ : <20 s	1-wire	Ⓞ			LRF24(-S)(-O) <sup>11)</sup>	NRF24A(-S2)(-O)	SRF24A(-S2)(-O)	
AC 230 V	35 s	1-wire/2-wire			TRY230				
	75 s	1-wire/2-wire		KR230					
	90 s	1-wire/2-wire				LR230A(-S)	NR230A(-S)	SR230A(-S)	SR230P
	Ⓜ : 75 s / Ⓞ : 75 s	1-wire	Ⓞ		TRF230(-S)(-O)				
	Ⓜ : <75 s / Ⓞ : <20 s	1-wire	Ⓞ			LRF230(-S)(-O) <sup>11)</sup>	NRF230A(-S2)(-O)	SRF230A(-S2)(-O)	

Internal thread Rp (ISO 7/1)		3-way		DN [mm]	p <sub>s</sub> = 1600 kPa T <sub>max</sub> = 120 °C		Range of use Closed / open circuits (pH > 7) <sup>15)</sup>										
2-way	k <sub>vs</sub> [m <sup>3</sup> /h]	k <sub>vs</sub> <sup>1a)</sup> [m <sup>3</sup> /h]	k <sub>vs</sub> <sup>1a)</sup> [m <sup>3</sup> /h]		Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	
	R2015-S1	15	R3015-S1	15	15	1400	1000 <sup>2)</sup>	1400	1000 <sup>2)</sup>	1400	1000 <sup>2)</sup>	1400	1000 <sup>2)</sup>	1400	1000 <sup>2)</sup>	1400	1000 <sup>2)</sup>
	R2020-S2	32	R3020-S2	32	20												
	R2025-S2	26	R3025-S2	26	25			1400	1000 <sup>2)</sup>								
	R2032-S3	32	R3032-S3	32	32												
	R2040-S3	31	R3040-S3	31	40					1400	1000 <sup>2)</sup>						
	R2050-S4	49	R3050-S4	49	50							1400	1000 <sup>2)</sup>	1400	1000 <sup>2)</sup>	1400	1000 <sup>2)</sup>

External thread G (ISO 228/1)		3-way		DN [mm]	p <sub>s</sub> = 1600 kPa T <sub>max</sub> = 100 °C		Range of use Closed / open circuits (pH > 7) <sup>15)</sup>										
2-way	k <sub>vs</sub> [m <sup>3</sup> /h]	k <sub>vs</sub> <sup>1a)</sup> [m <sup>3</sup> /h]	k <sub>vs</sub> <sup>1a)</sup> [m <sup>3</sup> /h]		Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	
	R415 <sup>3)</sup>	8.6	R515 <sup>3)</sup>	8.6	15	1400	400 <sup>2)</sup>	1400	400 <sup>2)</sup>	1400	400 <sup>2)</sup>	1400	400 <sup>2)</sup>	1400	400 <sup>2)</sup>	1400	400 <sup>2)</sup>
	R420 <sup>3)</sup>	21	R520 <sup>3)</sup>	21	20	1400	400 <sup>2)</sup>	1400	400 <sup>2)</sup>								
	R425 <sup>3)</sup>	26	R525 <sup>3)</sup>	26	25			1400	400 <sup>2)</sup>								
	R432 <sup>3)</sup>	32	R532 <sup>3)</sup>	32	32												
	R440 <sup>3)</sup>	32	R540 <sup>3)</sup>	32	40												
	R450 <sup>3)</sup>	49	R550 <sup>3)</sup>	49	50					1400	400 <sup>2)</sup>	1400	400 <sup>2)</sup>	1400	400 <sup>2)</sup>	1400	400 <sup>2)</sup>

Flange (EN 1092/1)		3-way		DN [mm]	PN 6 T <sub>max</sub> = 100 °C		Range of use Closed / open circuits (pH > 7) <sup>15)</sup>										
2-way	k <sub>vs</sub> [m <sup>3</sup> /h]	k <sub>vs</sub> <sup>1a)</sup> [m <sup>3</sup> /h]	k <sub>vs</sub> <sup>1a)</sup> [m <sup>3</sup> /h]		Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>max</sub> [kPa]	
	R6015R-B1	15	R7015R-B1	15	15	600	100	600	100	600	100	600	100	600	100	600	100
	R6020R-B1	32	R7020R-B1	32	20	600	100	600	100								
	R6025R-B2	26	R7025R-B2	26	25					600	100						
	R6032R-B3	32	R7032R-B3	32	32												
	R6040R-B3	31	R7040R-B3	31	40												
	R6050R-B3 <sup>16)</sup>	49	R7050R-B3 <sup>16)</sup>	49	50					600	100	600	100	600	100	600	100

1a), 2), 3), 11), 15) and 16) see explanations, page 2

## Change-over valves

Change-over valves			Emergency control function	KR	TR / TRF / TRY	LR / LRQ / LRF	NR / NRQ / NRF	SR / SRF / SRQ	SR..P
Open-close	<b>Running times</b>	<b>Control</b>		80°C	100°C	100°C	100°C	100°C	100°C
AC/DC 24 V	9 s	1-wire				LRQ24A	NRQ24A	SRQ24A	
	35 s	1-wire/2-wire			TRY24				
	75 s	1-wire/2-wire		KR24					
	90 s	1-wire/2-wire			TR24	LR24A(-S)	NR24A(-S)	SR24A(-S)	SR24P
	Ⓜ : 75 s / Ⓢ : 75 s	1-wire	Ⓢ		TRF24(-S)(-O)				
	Ⓜ : <75 s / Ⓢ : <20 s	1-wire	Ⓢ			LRF24(-S)(-O) <sup>11)</sup>	NRF24A(-S2)(-O)	SRF24A(-S2)(-O)	
AC 230 V	35 s	1-wire/2-wire			TRY230				
	75 s	1-wire/2-wire		KR230					
	90 s	1-wire/2-wire				LR230A(-S)	NR230A(-S)	SR230A(-S)	SR230P
	Ⓜ : 75 s / Ⓢ : 75 s	1-wire	Ⓢ		TRF230(-S)(-O)				
	Ⓜ : <75 s / Ⓢ : <20 s	1-wire	Ⓢ			LRF230(-S)(-O) <sup>11)</sup>	NRF230A(-S2)(-O)	SRF230A(-S2)(-O)	

Internal thread Rp (ISO 7/1) 3-way 	$p_s = 1600 \text{ kPa}$ $T_{max} = 100^\circ\text{C}$		Range of use Closed / open circuits (pH > 7)											
	DN [mm]	$k_{vs}$ [m <sup>3</sup> /h]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{max}$ [kPa]
R3015-BL1	15	5.2	500	350 <sup>2)</sup>	500	350 <sup>2)</sup>	500	350 <sup>2)</sup>	500	350 <sup>2)</sup>	500	350 <sup>2)</sup>	500	350 <sup>2)</sup>
R3020-BL2	20	8.6												
R3025-BL2	25	9												
R3032-BL2	32	8					500	350 <sup>2)</sup>						
R3032-BL3	32	15												
R3040-BL3	40	15												
R3050-BL3 <sup>16)</sup>	50	17							500	350 <sup>2)</sup>				
R3040-BL4 <sup>17)</sup>	40	47												
R3050-BL4 <sup>17)</sup>	50	58									500	350 <sup>2)</sup>	500	350 <sup>2)</sup>

## Shut-off valves with extended function (max. 130°C)

Shut-off valves with extended function (max. 130°C)			Emergency control function	TR / TRF / TRY	LR / LRQ / LRF	NRF
	<b>Running times</b>	<b>Control</b>		130°C <sup>16)</sup>	130°C <sup>16)</sup>	130°C <sup>16)</sup>
Open-close	AC/DC 24 V	9 s	1-wire		LRQ24A	
		35 s	1-wire/2-wire		TRY24	
		90 s	1-wire/2-wire			LR24A(-S)
		100 s	1-wire/2-wire		TR24	
		Ⓜ : 75 s / Ⓢ : 75 s	1-wire	Ⓢ	TRF24(-S)(-O)	
		Ⓜ : 75 s / Ⓢ : 20 s	1-wire	Ⓢ		LRF24(-S)(-O)
AC 230 V		35 s	1-wire/2-wire		TRY230	
		90 s	1-wire/2-wire			LR230A(-S)
		105 s	1-wire/2-wire		TR230-3	
		Ⓜ : 75 s / Ⓢ : 75 s	1-wire	Ⓢ	TRF230(-S)(-O)	
		Ⓜ : 75 s / Ⓢ : 20 s	1-wire	Ⓢ		LRF230(-S)(-O)
	3-point	AC 230 V	Ⓜ : 35 s / Ⓢ : <20 s	1-wire/2-wire	Ⓢ	

External thread G (ISO 228/1) 2-way 	$p_s = 2700 \text{ kPa}$ $T_{max} = 130^\circ\text{C}$ (Water)		Range of use Closed / open circuits (pH > 7)					
	DN [mm]	$k_{vs}$ [m <sup>3</sup> /h]	$\Delta p_s$ [kPa]	$\Delta p_{V100}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{V100}$ [kPa]	$\Delta p_s$ [kPa]	$\Delta p_{V100}$ [kPa]
R410DK	10	4	1400	400	1400	400	1400	400
R415D	15	12						
R420D	20	25			1400	400	1400	400

2), 11) 16) and 17) see explanations, page 2

# Butterfly valves

## Butterfly valves with rotary actuators

		Running times		Control		Emergency control function	SR	SRF	SR..P	GR	GRK
							120°C	120°C	IP66/67 120°C	120°C	120°C
Open- close	AC/DC 24 V	90 s		1-wire/2-wire			SR24A-5		SR24P-5		
		150 s		1-wire					GR24A-5	GR24A-7	
	Ⓜ: <75 s / Ⓢ: <20 s		1-wire	Ⓢ			SRF24A(-S2)-5(-O)				
	Ⓜ: 150 s / : -II-35 s				-II-						GRK24A-5
AC 230 V	90 s			1-wire/2-wire			SR230A-5		SR230P-5		
		150 s		1-wire					GR230A-5	GR230A-7	
	Ⓜ: <75 s / Ⓢ: <20 s		1-wire	Ⓢ			SRF230A(-S2)-5(-O)				

Flange (ISO 7005 / EN1092-2)		PN 16 (PN 6 / PN 10) T <sub>max</sub> = 120°C		Range of use Closed / open circuits (pH > 7)					
		DN [mm]	k <sub>vs</sub> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]
D625N	D625NL	25	45	1200	1200	1200	1200		1200
D632N	D632NL	32	55						
D640N	D640NL	40	70						
D650N	D650NL	50	90						
D665N	D665NL	65	180						
D680N	D680NL	80	300	1200	1200	1200			
D6100N	D6100NL	100	580	200	200	200	1200		1200
D6125N	D6125NL	125	820					600	
D6150N	D6150NL	150	1600						

## Butterfly valves with rotary actuators

		Running times		Control		DGR 5a)	DRC	
						120°C	IP54 120°C	IP66 120°C
Open- close	AC/DC 24 V	35 s		1-wire			DRC24A-TP-7	DRC24G-T-7
		150 s		1-wire/2-wire		DGR24A-7		
	AC 230 V	150 s		1-wire/2-wire		DGR230A-7		








  

Flange (ISO 7005 / EN1092-2)		PN 16 (PN 6 / PN 10) T <sub>max</sub> = 120°C		Range of use Closed / open circuits (pH > 7)		
		DN [mm]	k <sub>vs</sub> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]
D625N	D625NL	25	45			
D632N	D632NL	32	55			
D640N	D640NL	40	70			
D650N	D650NL	50	90			
D665N	D665NL	65	180			
D680N	D680NL	80	300			
D6100N	D6100NL	100	580			
D6125N	D6125NL	125	820	1200	1200	1200
D6150N	D6150NL	150	1600	600	1200	1200

5a) see explanations, page 2













**Butterfly valves with fast runners**

				SY1 <sup>5)</sup>	SY2 <sup>5)</sup>	SY3 <sup>5)</sup>	SY4 <sup>5)</sup>	SY5 <sup>5)</sup>
				IP67	IP67	IP67	IP67	IP67
								
				120 °C	120 °C	120 °C	120 °C	120 °C
Open- close	AC 24 V	Running times	Control	SY1-24-3-T	SY2-24-3-T			
		15 s	2-wire					
		16 s	2-wire				SY4-24-3-T	
		22 s	2-wire			SY3-24-3-T		SY5-24-3-T
	AC 230 V	13 s	2-wire	SY1-230-3-T				
		17 s	2-wire		SY2-230-3-T			
		18 s	2-wire				SY4-230-3-T	
		25 s	2-wire					SY5-230-3-T
		26 s	2-wire				SY3-230-3-T	
<b>Flange (ISO 7005 / EN1092-2)</b>		<b>PN 16 (PN 6 / PN 10)</b> T <sub>max</sub> = 120 °C		<b>Range of use</b> Closed / open circuits (pH > 7)				
		<b>DN</b> [mm]	<b>k<sub>vs</sub></b> [m <sup>3</sup> /h]	<b>Δp<sub>s</sub></b> [kPa]	<b>Δp<sub>s</sub></b> [kPa]	<b>Δp<sub>s</sub></b> [kPa]	<b>Δp<sub>s</sub></b> [kPa]	<b>Δp<sub>s</sub></b> [kPa]
D625N	D625NL	25	45	1200				
D632N	D632NL	32	55					
D640N	D640NL	40	70					
D650N	D650NL	50	90					
D665N	D665NL	65	180					
D680N	D680NL	80	300					
D6100N	D6100NL	100	580	1200				
D6125N	D6125NL	125	820		1200	1200		
D6150N	D6150NL	150	1600		1200			
D6200N	D6200NL	200	2900			1200		
D6250N	D6250NL	250	4400				1200	
D6300N	D6300NL	300	7300				600	1200
D6350N	D6350NL	350	10900					600

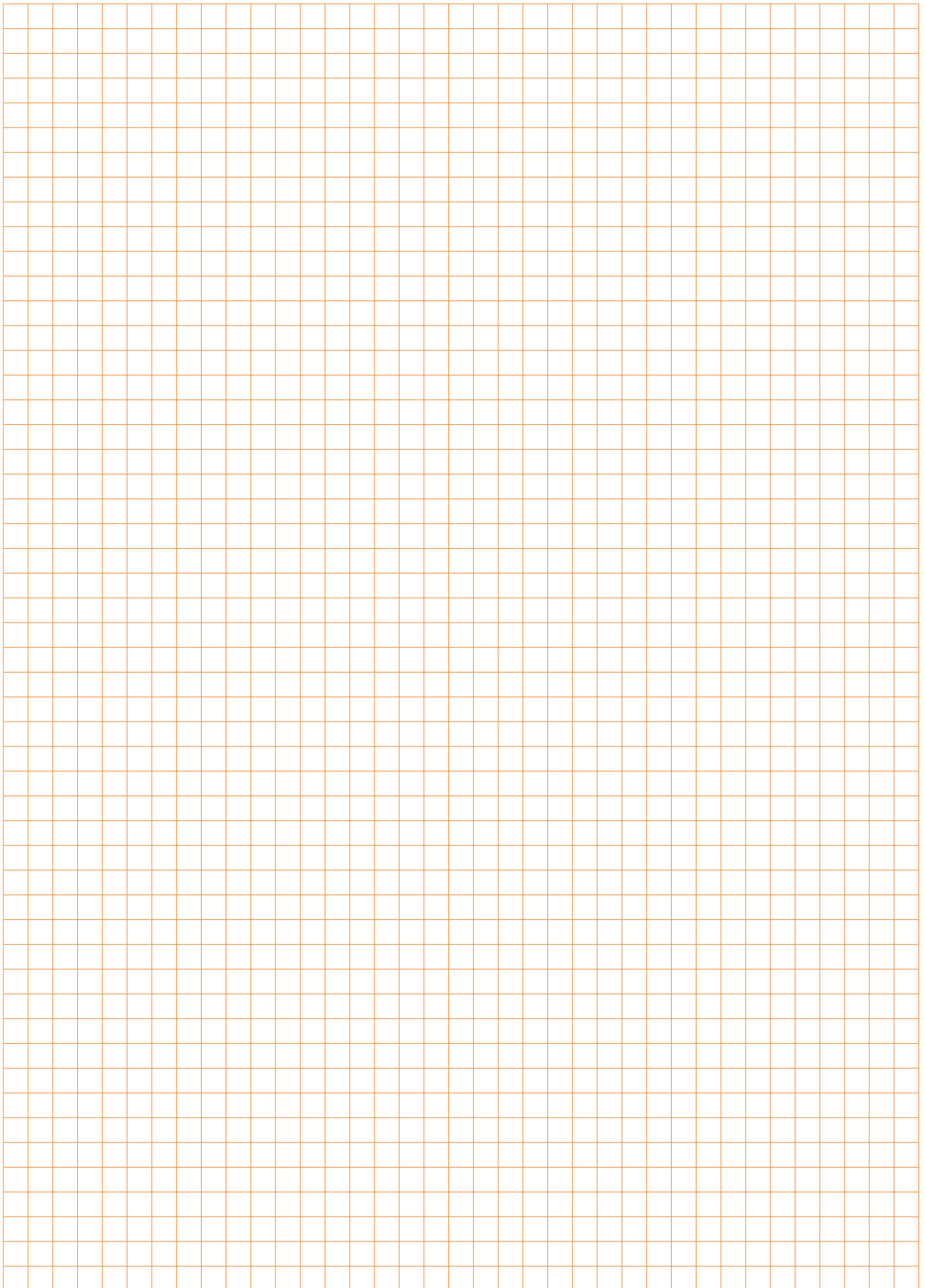
5) see explanations, page 2

## Butterfly valves

### Butterfly valves with fast runners

				SY4 <sup>5)</sup>	SY5 <sup>5)</sup>	SY6 <sup>5)</sup>	SY7 <sup>5)</sup>	SY8 <sup>5)</sup>	SY9 <sup>5)</sup>	SY10 <sup>5)</sup>	SY12 <sup>5)</sup>
											
				IP67	IP67	IP67	IP67	IP67	IP67	IP67	IP67
				120 °C	120 °C	120 °C	120 °C	120 °C	120 °C	120 °C	120 °C
Open- close	AC 24 V	Running times	Control	SY4-24- 3-T							
		16 s	2-wire								
		22 s	2-wire		SY5-24- 3-T						
Open- close	AC 230 V	18 s	2-wire	SY4-230- 3-T							
		25 s	2-wire		SY5-230- 3-T						
		31 s	2-wire			SY6-230- 3-T					
		55 s	2-wire				SY7-230A- 3-T				
		55 s	2-wire					SY8-230A- 3-T			
		70 s	2-wire						SY9-230A- 3-T		
		70 s	2-wire							SY10-230A- 3-T	
		70 s	2-wire								SY12-230A- 3-T
		70 s	2-wire								
Flange (ISO 7005 / EN1092-2)		PN 16 T <sub>max</sub> = 120 °C		Range of use Closed / open circuits (pH > 7)							
		DN [mm]	k <sub>vs</sub> [m <sup>3</sup> /h]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]	Δp <sub>s</sub> [kPa]
D6400N	D6400NL	400	14200	200		600	1000				
D6450N	D6450NL	450	18800		200		600	1000			
D6500N	D6500NL	500	24100				600	1000			
D6600N	D6600NL	600	37300					200	600	1000	
D6700N	D6700NL	700	42800								200

5) see explanations, page 2



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