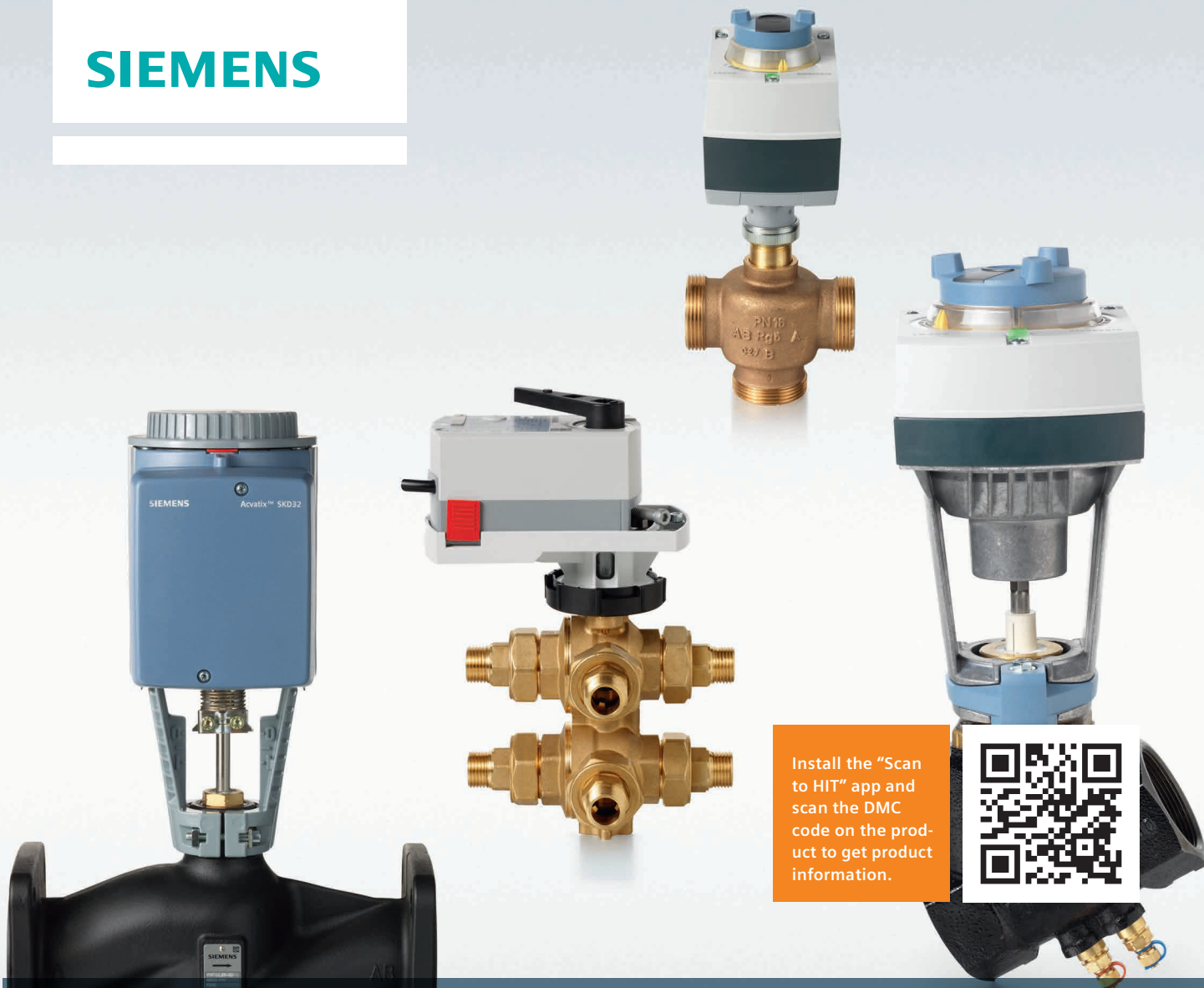


SIEMENS



Install the "Scan to HIT" app and scan the DMC code on the product to get product information.



Acvatix hydronics. Everything under control.

Valves and actuators for any application –
planning, installation and commissioning are fast and easy



The right solution for every hydronic project

Acvatix™ is a versatile range of valves and actuators for superior ease of use, maximum control accuracy and energy efficiency. It allows you to meet virtually any control and hydronic requirement associated with the generation, distribution and use of heating and cooling. Siemens provides useful tools and extensive knowledge to assist you in every project phase.

Easy planning, easy installation and easy commissioning

Benefit from our decades of experience

Acvatix valves and actuators are improved continually based on our many years of experience in the field and subjected to rigorous testing in Siemens' in-house HVAC laboratory. The result: Acvatix products have been used for decades in millions of successful installations worldwide. You can be sure to receive the highest quality and maximum reliability.

Selection and engineering made easy

The VDI3805/ISO16757 Selector makes planning easier than ever. In addition to CAD data, it also includes specifier texts. The HIT Portal, the valve slide ruler or the Combi Valve Sizer app allow you to quickly find the right products for your application. You can use the HIT Portal to design the entire HVAC application step by step, including specifications complete with plant diagrams and lists of materials.

Installation in a few simple steps

Acvatix products make your daily work easier, whether it is intuitive manual operation irrespective of the installation position or valve actuator coupling with just one screw or via bayonet mount. Lost the instructions for a product? No problem! Simply use the "Scan to HIT" app from Siemens to scan the data matrix code on the product and receive complete product information.

Intelligent comfort for optimized plant operation

Acvatix offers rapid commissioning and efficient plant control. Easy-to-see operating status and position indicators speed up commissioning, testing and maintenance of the plant and help with troubleshooting. State-of-the-art products such as pressure independent combi valves save time and effort through automatic hydronic balancing. Acvatix is synonymous with robust design, outstanding reliability as well as minimal need for maintenance.

Highlights

- Products for any hydronic requirement
- Support and practical tools for every project phase
- High level of investment protection thanks to long life and maximum reliability
- Easy and quick planning, installation and commissioning

The Combi Valve Sizer app for smartphones makes it easy to select the right Acvatix combi valve and actuator. This makes designing energy-efficient HVAC systems easier than ever.



SIEMENS



										Recommended media														
		2-port valve	3-port valve	4-port valve	6-port valve	PN class	Type of connection	Silicon-free grease	Closed circuits	Open circuits	Chilled water	Cooling water ¹⁾	Drinking water	Low-temperature hot water	High-temperature hot water	Water glycol mixture	Saturated steam	Superheated steam	Heat transfer oil	Media containing mineral oils	Safety refrigerants	R744 (CO ₂)	R717 (ammonia)	
Globe valves	VDN../VEN../VUN..	■				10	ET		■		■				■									
	VD1..CLC					10	ET		■		■				■									
	VVP45..	■				16	ET		■		■				■									
	VXP45..		■			16	ET		■		■				■									
	VMP45..			■		16	ET		■		■				■									
	VVP47..	■				16	ET		■		■				■									
	VXP47..		■			16	ET		■		■				■									
	VMP47..			■		16	ET		■		■				■									
	VVG41..	■				16	ET	■	■	■	■	■			■		■	■						
	VXG41..		■			16	ET	■	■	■	■	■			■		■	■						
	VXG41..01 ⁴⁾		■			16	ET	■	■	■	■	■	■		■		■	■						
	VVG44..	■				16	ET	■	■		■	■			■		■	■						
	VXG44..		■			16	ET	■	■		■	■			■		■	■						
	VVG549..	■				25	ET	■	■		■	■	■		■		■	■						
	VVG55..	■				25	ET	■	■		■	■			■		■	■						
	VVI46..	■				16	IT		■		■	■			■		■	■						
	VXI46..		■			16	IT		■		■	■			■		■	■						
	VVF22..	■				6	F	■	■		■	■			■		■	■						
	VXF22..		■			6	F	■	■		■	■			■		■	■						
	VVF32..	■				10	F	■	■		■	■			■		■	■						
	VXF32..		■			10	F	■	■		■	■			■		■	■						
	VVF42..	■				16	F	■	■		■	■			■		■	■						
	VXF42..		■			16	F	■	■		■	■			■		■	■						
	VVF43..	■				16	F	■	■	■	■	■			■		■	■	■					
VXF43..		■			16	F	■	■	■	■	■			■		■	■	■						
VVF53..	■				25	F	■	■		■	■			■		■	■	■						
VXF53..		■			25	F	■	■		■	■			■		■	■	■						
VVF61..	■				40	F		■	■	■	■			■		■	■	■						
VVF61..2	■				40	F		■	■	■	■			■		■	■	■						
VXF61..		■			40	F		■	■	■	■			■		■	■	■						
VXF61..2			■		40	F		■	■	■	■			■		■	■	■						
PICV	VPD../VPE..	■				10	ET		■		■			■		■	■							
	VPP46..	■				25	ET		■		■			■		■	■							
	VPI46..	■				25	IT		■		■			■		■	■							
	VPF43..	■				16	F	■	■		■			■		■	■							
	VPF53..	■				25	F	■	■		■			■		■	■							
Control ball valves	VAG61..	■				40	ET	■	■		■			■		■	■							
	VBG61..		■			40	ET	■	■		■			■		■	■							
	VAI61..	■				40	IT	■	■		■			■		■	■							
	VBI61..		■			40	IT	■	■		■			■		■	■							
	VWG41..20..				■	16	ET/IT	■	■		■			■		■	■							
Magnetic valves	MXG461..	■	■			16	ET		■		■			■		■	■							
	MXG461..P	■	■			16	ET		■		■			■		■	■	■						
	MXG461B..	■	■			16	ET		■		■	■		■		■	■	■						
	MXG461S..	■	■			16	ET		■		■	■		■		■	■	■						
	MXG462S..	■	■			16	ET		■		■	■		■		■	■	■						
	MXF461..	■	■			16	F		■		■			■		■	■							
	MXF461..P	■	■			16	F		■		■			■		■	■							
	M3P..FY	■	■			16	F		■		■			■		■	■	■						
	M3P..FYP	■	■			16	F		■		■			■		■	■	■						
	MVF461H..	■				16	F		■		■			■		■	■	■						
Rotary valves	VBG31..		■			10	ET		■		■			■		■	■							
	VBI31..		■			10	IT		■		■			■		■	■							
	VCI31..			■		10	IT		■		■			■		■	■							
	VBF21..		■			6	F		■		■			■		■	■							
	VKF41..	■				16	F		■		■			■		■	■							
	VKF46..	■				16	F		■	■	■			■		■	■							
	VAG60..	■				40	ET	■	■		■			■		■	■							
	VBG60..		■			40	ET	■	■		■			■		■	■							
	VAI60..	■				40	IT	■	■		■			■		■	■							
Refrigerant valves	M2FP03GX					32	-		■												■		■	
	M3FK..LX..		■			32	S		■												■			
	M3FB..LX..		■			PS 43	S		■												■			
	MVL661..	■				PS 45	S		■												■	■		
	MVS661..N	■				PS 53	W		■												■	■	■	

Recommendation: water treatment according to VDI 2035

¹⁾ Open circuits; ²⁾ Not for drinking water circuit (open circuit) ³⁾ Variable air volume; ⁴⁾ Sealed bypass; ⁵⁾ As zone valve for floor heating systems

IT = internally threaded connection, ET = externally threaded connection, F = flanged connection, S = soldered connection, W = welded connection

Permissible medium temperature [°C]										Generation				Distribution			Consumption/Use														
-40	-25	-20	-10	0	1	...	90	100	110	120	130	150	180	220	350	District heating	Boiler plants	Chiller plants	Cooling towers ¹⁾	Domestic hot water ²⁾	Heating groups	Air handling units	Floor heating	Radiators	Chilled ceilings	Heated and chilled ceilings	VAV ³⁾	Fan coil units	Zone control		
																														VDN../VEN../VUN..	
																															VD1..CLC
																															VVP45..
																															VXP45..
																															VMP45..
																															VVP47..
																															VXP47..
																															VMP47..
																															VVG41..
																															VXG41..
																															VXG41..01 ⁴⁾
																															VVG44..
																															VXG44..
																															VVG549..
																															VVG55..
																															VVI46..
																															VXI46..
																															VVF22..
																															VXF22..
																															VVF32..
																															VXF32..
																															VVF42..
																															VXF42..
																															VVF43..
																															VXF43..
																															VVF53..
																															VXF53..
																															VVF61..
																															VVF61..2
																															VXF61..
																															VXF61..2
																															VPD../VPE..
																															VPP46..
																															VPI46..
																															VPF43..
																															VPF53..
																															VAG61..
																															VBG61..
																															VAI61..
																															VBI61..
																															VWG41.20..
																															MXG461..
																															MXG461..P
																															MXG461B..
																															MXG461S..
																															MXG462S..
																															MXF461..
																															MXF461..P
																															M3P..FY
																															M3P..FYP
																															MVF461H..
																															VBG31..
																															VBI31..
																															VCI31..
																															VBF21..
																															VKF41..
																															VKF46..
																															VAG60..
																															VBG60..
																															VAI60..
																															VBI60..
																															M2FP03GX
																															M3FK..LX..
																															M3FB..LX..
																															MVL661..
																															MVS661..N

Globe valves

PICV










Control ball valves

Magnetic valves

Rotary valves



Refrigerant valves

Threaded globe valves




Typical applications	Actuators	Data sheet								
– Radiators	RTN..	N2111								
			RTN51/RTN51G	RTN71	RTN81					
Typical applications	Actuators	Data sheet	4.5 mm	2.5 mm	4.5 mm					
– Radiators	STA.. SSA..	N4884 N4893	100 N	100 N	90 N					
										
			STA23	SSA31	STA23HD ¹⁾					
Operating voltage	Positioning signal	Positioning time [s]								
AC 230 V	2-position	210	–	–	–					
	3-position	150	–	SSA31	–					
AC 24 V	3-position	150	–	SSA81	–					
	0...10 V	270 ²⁾	STA63	–	–					
AC/DC 24 V	2-position/PDM	270	STA73	–	STA73HD ¹⁾					
	0...10 V	34	–	SSA61	–					
	Normally open/normally closed (for radiator valves)		NC	–	NC					
PN 10	1...120 °C	DIN	NF	DN	Rp/R [inch]	k _v [m ³ /h]	Δp _{max} [kPa]			
Data sheet		N2105	N2106							
		VDN110	VDN210	10	Rp/R 3/8	0.09...0.63			60	
		VDN115	VDN215	15	Rp/R 1/2	0.10...0.89			60	
		VDN120	VDN220	20	Rp/R 3/4	0.31...1.41			60	
		VEN110	VEN210	10	Rp/R 3/8	0.09...0.63			60	
		VEN115	VEN215	15	Rp/R 1/2	0.10...0.89			60	
		VEN120	VEN220	20	Rp/R 3/4	0.31...1.41			60	
		–	VUN210	10	Rp/R 3/8	0.14...0.60			60	
		–	VUN215	15	Rp/R 1/2	0.13...0.77			60	

Presettings for radiator valves VEN... VDN... VUN..

k_v values [m³/h] at the different preadjusted positions (XP=2K)

Control range with electromotoric and electrothermic actuators SSA... STA..			■	■	■	■	■	■	–
Control range with thermostatic head RTN..			■	■	■	■	■	■	■
Reference numbers for preadjustment			1	2	3	4	5	N	N (k _{vs})
VDN110/VDN210/VEN110/VEN210			0.072	0.17	0.24	0.28	0.37	0.43	0.63
VDN115/VDN215/VEN115/VEN215			0.07	0.17	0.28	0.36	0.45	0.50	0.89
VDN120/VDN220/VEN120/VEN220			0.22	0.35	0.44	0.52	0.60	0.71	1.41
VUN210			0.14	0.26	0.34	0.39	0.40	0.43	0.60
VUN215			0.13	0.22	0.30	0.39	0.45	0.50	0.77

Threaded globe valves
























Typical applications	Actuators	Data sheet			
– Chilled ceilings	STA.. SSA..	N4884 N4893	4.5 mm	2.5 mm	
			100 N	100 N	
					
			STA23	SSA31	
Operating voltage	Positioning signal	Positioning time [s]			
AC 230 V	2-position	210	–	–	–
	3-position	150	–	SSA31	–
AC 24 V	3-position	150	–	SSA81	–
	0...10 V	270 ²⁾	STA63	–	–
AC/DC 24 V	2-position/PDM	270	STA73	–	–
	0...10 V	34	–	SSA61	–
	Normally open/normally closed (for radiator valves)		NC	–	–
PN 10	1...110 °C	DIN	Rp/R [inch]	k _v [l/h]	Δp _{max} [kPa]
Data sheet		N2103			
		VD115CLC	15	Rp/R 1/2	0.25...1.9
		VD120CLC	20	Rp/R 3/4	0.25...2.6
		VD125CLC	25	Rp/R 1	0.25...2.6
					150
					150
					150

¹⁾ Optimized for floor heating systems

²⁾ In control mode (warm-up time) min. running time approx. 30 s/mm

k_v = nominal flow rate of cold water (5...30 °C) through the valve at the respective stroke and a differential pressure of 100 kPa (1 bar)
The selected k_v values of the radiator valves can be easily and precisely set on the valve head in 5 steps + N (fully open)

Threaded globe valves

Typical applications		Actuators	Data sheet			5.5 mm			
<ul style="list-style-type: none"> – Floor heating – Chilled ceilings – VAV – Fan coil units – Zone control 		SSB..	N4891			200 N	200 N		
			Operating voltage	Positioning signal	Positioning time [s]	Auxiliary switch			
						SSB..1.1			
						AC 230 V	3-position	150	✓
AC 24 V	3-position	150	✓	SSB81	SSB81.1				
AC/DC 24 V	0...10 V	75	–	SSB61	–				
PN 16	1...110 °C	DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]			
Data sheet	N4845								
 		VVP45.10-.. ¹⁾	10	G ½B	0.25 / 0.4 / 0.63 / 1 / 1.6	725	400		
		VVP45.15-2.5	15	G ¾B	2.5	350	350		
		VVP45.20-4	20	G 1B	4	350	350		
		VVP45.25-6.3	25	G 1¼B	6.3	300	300		
 		VXP45.10-..	10	G ½B	0.25 / 0.4 / 0.63 / 1 / 1.6	–	400		
		VXP45.15-2.5	15	G ¾B	2.5	–	350		
		VXP45.20-4	20	G 1B	4	–	350		
		VXP45.25-6.3	25	G 1¼B	6.3	–	300		
 		VMP45.10-..	10	G ½B	0.25 / 0.4 / 0.63 / 1	–	400		
		VMP45.10-1.6	10	G ½B	1.6	–	400		
		VMP45.15-2.5	15	G ¾B	2.5	–	350		
		VMP45.20-4	20	G 1B	4	–	350		
Typical applications		Actuators	Data sheet			4.5 mm		2.5 mm	
<ul style="list-style-type: none"> – Chilled ceilings – VAV – Fan coil units 		STP..	N4884			100 N	135 N		160 N
		SFP..	N4865						
		SSP..	N4864						
		Operating voltage	Positioning signal	Positioning time [s]	Spring return function [s]				
AC 230 V	2-position				210	–	STP23	–	–
AC 24 V	2-position	10	30-50	–	–	SFP21/18	–		
	3-position	150	–	–	–	SSP31	–		
	2-position	10	30-50	–	–	SFP71/18	–		
	3-position	43	–	–	–	–	SSP81.04		
	3-position	150	–	–	–	–	SSP81		
	0...10 V	270 ²⁾	–	–	–	–	–		
AC/DC 24 V	2-position/PDM	270	–	–	STP63	–	–		
	0...10 V	34	–	–	STP73	–	–		
–	–	–	–	–	–	–	SSP61		
PN 16	1...110 °C	DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	
Data sheet	N4847								
 		VVP47.10-.. ¹⁾	10	G ½B	0.25 / 0.4	700	400	1000	400
		VVP47.10-..	10	G ½B	0.63 / 1	250	250	500	400
		VVP47.10-1.6	10	G ½B	1.6	150	150	300	300
		VVP47.15-2.5	15	G ¾B	2.5	150	150	300	300
 		VVP47.20-4	20	G 1B	4	100	100	175	175
		VXP47.10-..	10	G ½B	0.25 / 0.4	–	400	–	400
		VXP47.10-..	10	G ½B	0.63 / 1	–	250	–	400
		VXP47.10-1.6	10	G ½B	1.6	–	150	–	300
 		VXP47.15-2.5	15	G ¾B	2.5	–	150	–	300
		VXP47.20-4	20	G 1B	4	–	100	–	175
		VMP47.10-..	10	G ½B	0.25 / 0.4	–	400	–	400
		VMP47.10-..	10	G ½B	0.63 / 1	–	250	–	400
 		VMP47.10-1.6	10	G ½B	1.6	–	150	–	300
		VMP47.15-2.5	15	G ¾B	2.5	–	150	–	300
		–	–	–	–	–	–	–	–

Union nuts for threaded valves

Union nuts for threaded valves [See page 9](#)

VVP45..N with Serto compression fittings, $k_{vs} = 2.5 / 4 / 6.3$ m³/h







VVP45..S, VMP45..S with Conex® compression fittings, $k_{vs} = 0.63 / 1 / 1.6 / 2.5$ m³/h

VVP47..S, VMP47..S with Conex® compression fittings, $k_{vs} = 0.63 / 1 / 1.6 / 2.5$ m³/h

¹⁾ .. = k_{vs} value

²⁾ In control mode (warm-up time) min. running time approx. 30 s/mm

Threaded globe valves

Typical applications	Actuators	Data sheet			2.5 mm		4.5 mm	2.5 mm		
		Operating voltage	Positioning signal	Positioning time [s]	Spring return function [s]	200 N	150 N	100 N	160 N	
– Floor heating – Fan coil units – Zone control	SFA..	N4863								
	SUA21/1	N4830								
	STA..	N4884								
	SSA31.04 ¹⁾	N4860								
	AC 230 V	2-position	10	30-50	SFA21/18	–	–	–	–	
		2-position	210	–	–	–	–	STA23	–	
	2-position/SPST ²⁾	10	–	–	–	SUA21/1	–	–		
	3-position/SPDT ²⁾	43	–	–	–	–	–	SSA31.04		
AC 24 V	2-position	10	30-50	SFA71/18	–	–	–	–		
	0...10 V	270 ³⁾	–	–	–	–	–	STA63	–	
AC/DC 24 V	2-position/PDM	270	–	–	–	–	–	STA73	–	
PN 16	1...110 °C	DN	Rp	k _{vs}	Δp _s	Δp _{max}	Δp _s	Δp _{max}	Δp _s	Δp _{max}
Data sheet	N4842		[inch]	[m ³ /h]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]
	VVI46.15	15	Rp ½	2	300	300	300	300	200	200
	VVI46.20	20	Rp ¾	3.5	300	300	300	300	200	200
	VVI46.25	25	Rp 1	5	300	300	250	250	200	200
	VXI46.15 ⁴⁾	15	Rp ½	2	–	300	–	300	–	200
	VXI46.20 ⁴⁾	20	Rp ¾	3.5	–	300	–	300	–	200
	VXI46.25 ⁴⁾	25	Rp 1	5	–	300	–	300	–	200
	VXI46.25T ⁵⁾	25	Rp 1	5	–	200	–	200	–	200

Thermal actuators and connecting cables for combinable range, STx..3..

Color		White					Black			
Equipped with		–	Function module DC 0...10 V		Auxiliary switch for STA	Auxiliary switch for STP	LED	–	Function module DC 0...10 V	
Positioning signal		2-position (On/Off)	DC 0...10 V	DC 0...10 V	2-position (On/Off)	2-position (On/Off)	2-position (On/Off)	2-position (On/Off)	DC 0...10 V	DC 0...10 V
		[STA..., NC]	[STA..., NC]	–	[STA..., NC]	–	[STA..., NC]	[STA..., NC]	[STA..., NC]	–
		[STP..., NO]	–	[STP..., NO]	–	[STP..., NO]	[STP..., NO]	[STP..., NO]	–	[STP..., NO]
Standard PVC cables	0.8 m	ASY23L08								
	1 m	ASY23L10			ASA23U10	ASP23U10				
	2 m	ASY23L20	ASY6AL20	ASY6PL20	ASA23U20	ASP23U20	ASY23L20LD		ASY6AL20B	ASY6PL20B
	3 m	ASY23L30						ASY23L30B		
	4 m	ASY23L40								
	5 m	ASY23L50	ASY6AL50	ASY6PL50			ASY23L50LD	ASY23L50B	ASY6AL50B	
	6 m	ASY23L60								
	7 m	ASY23L70	ASY6AL70	ASY6PL70					ASY6AL70B	
	10 m	ASY23L100						ASY23L100B		
15 m	ASY23L150									
Halogen-free cables	2 m	ASY23L20HF	ASY6AL20HF	ASY6PL20HF						
	5 m	ASY23L50HF	ASY6AL50HF	ASY6PL50HF						
	7 m	ASY23L70HF	ASY6AL70HF	ASY6PL70HF						
	10 m	ASY23L100HF								
Actuator										
STA73/00	■	■			■		■			
STA23/00	■				■					
STP73/00	■		■			■				
STP23/00	■					■				
STA73PR/00 ⁶⁾	■				■		■			
STP73PR/00 ⁶⁾	■					■	■			
STA73MP/00 ⁷⁾	■	■			■		■			
STA23MP/00 ⁷⁾	■				■					
STA73B/00							■	■		
STA23B/00							■			
STP73B/00							■		■	
STP23B/00							■			■

¹⁾ Not suited for radiator valves

²⁾ SPST = single-pole single-throw, SPDT = single-pole double-throw

³⁾ In control mode (warm-up time) min. running time approx. 30 s/mm




⁴⁾ 70% k_{vs} in bypass, leakage rate in bypass 2...5% of k_{vs} value











⁵⁾ 100% k_{vs} in bypass, leakage rate in bypass 0.05% of k_{vs} value. For noiseless operation, the value of 100 kPa should not be exceeded.

⁶⁾ Actuators ideal for parallel running. Pulse duration modulation (PDM) in connection with Siemens room controllers of the Desigo™ range and room thermostats.

⁷⁾ Multipack with 50 actuators (OEM) NC: normally closed, NO: normally open

Threaded globe valves

Typical applications		Actuators	Data sheet					Spring return function [s]	20 mm		
<ul style="list-style-type: none"> - District heating - Boiler plants - Chiller plants - Domestic hot water - Heating groups - Air handling units 		SAX.. SKD.. SKB..	N4501 N4561 N4564						 800 N	 1000 N	 2800 N
Operating voltage	Positioning signal	Positioning time [s]			SKD						
AC 230 V	3-position	120	120	120	-	-	SAX31.00	SKD32.50	SKB32.50		
	3-position	-	120	120	8	10	-	SKD32.51	SKB32.51		
	3-position	30	-	-	-	-	SAX31.03	-	-		
	3-position	-	30	-	8	-	-	SKD32.21	-		
AC 24 V ¹⁾	3-position	120	120	120	-	-	SAX81.00	SKD82.50	SKB82.50		
	3-position	-	120	120	8	10	-	SKD82.51	SKB82.51		
	3-position	30	-	-	-	-	SAX81.03	-	-		
	0...10 V, 4...20 mA	-	30	120	-	-	-	SKD60	SKB60		
	0...10 V, 4...20 mA	-	30	120	15	10	-	SKD62	SKB62		
AC/DC 24 V	0...10 V, 4...20 mA	30	-	-	-	-	SAX61.03	-	-		

PN 16	-25...150 °C ²⁾	Data sheet		DN	G [inch]	k _{vs} [m ³ /h]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]	Δp _s [kPa]	Δp _{max} [kPa]
	N4363		N4463									
	VVG41.11..12		-	15	G 1B	0.63 / 1	1600	800	1600	800	1600	800
	VVG41.13		VXG41.1301	15	G 1B	1.6	1600	800	1600	800	1600	800
	VVG41.14		VXG41.1401	15	G 1B	2.5	1600	800	1600	800	1600	800
	VVG41.15		VXG41.15	15	G 1B	4	1600	800	1600	800	1600	800
	VVG41.20		VXG41.20	20	G 1¼B	6.3	1600	800	1600	800	1600	800
	VVG41.25		VXG41.25	25	G 1½B	10	1550	800	1600	800	1600	800
	VVG41.32		VXG41.32	32	G 2B	16	875	800	1275	800	1600	800
	VVG41.40		VXG41.40	40	G 2¼B	25	525	525	775	775	1600	800
	VVG41.50		VXG41.50	50	G 2¾B	40	300	300	450	450	1225	800

Union nuts for threaded valves ³⁾

Type	Set of 2		G [inch]	R, Rp [inch]	Material
	Set of 2	Set of 3			
ALG132	ALG132	ALG133	G ½B	R ¾ (externally threaded)	Brass
ALG142	ALG142	ALG143	G ¾B	R ½ (externally threaded)	Brass
ALG122	ALG122	ALG123	G ¾B	Rp ¾	Malleable cast iron
ALG152	ALG152	ALG153	G 1B	Rp ½	Malleable cast iron
ALG152B	ALG152B	ALG153B	G 1B	Rp ½	Brass
ALG202	ALG202	ALG203	G 1¼B	Rp ¾	Malleable cast iron
ALG202B	ALG202B	ALG203B	G 1¼B	Rp ¾	Brass
ALG252	ALG252	ALG253	G 1½B	Rp 1	Malleable cast iron
ALG252B	ALG252B	ALG253B	G 1½B	Rp 1	Brass
ALG322	ALG322	ALG323	G 2B	Rp 1¼	Malleable cast iron
ALG322B	ALG322B	ALG323B	G 2B	Rp 1¼	Brass
ALG402	ALG402	ALG403	G 2¼B	Rp 1½	Malleable cast iron
ALG402B	ALG402B	ALG403B	G 2¼B	Rp 1½	Brass
ALG502	ALG502	ALG503	G 2¾B	Rp 2	Malleable cast iron
ALG502B	ALG502B	ALG503B	G 2¾B	Rp 2	Brass














Type	G [inch]	Ø d [mm]	Material
Set of 2			
ALS152	G ¾B	21.3	Steel, weldable
ALS202	G 1B	26.8	Steel, weldable
ALS252	G 1¼B	33.7	Steel, weldable

¹⁾ SAX81..: AC/DC 24 V

²⁾ SAX.. max. 130 °C













³⁾ Valve side: cylindrical thread G according to ISO 228-1, pipe side: ALG.. with cylindrical Rp- or tapered R-thread according to ISO 7-1 Pipe side: ALS.. with welded connection

Threaded globe valves

Typical applications		Actuators	Data sheet		Spring return function [s]	5.5 mm			
<ul style="list-style-type: none"> – Boiler plants – Domestic hot water – Heating groups – Air handling units 		SAS..	N4581	400 N		  			
Operating voltage		Positioning signal	Positioning time [s]						
AC 230 V		3-position	120	–	SAS31.00		–	–	–
			30	–	SAS31.03		–	–	
			120	28	–		SAS31.50	–	–
			30	14	–		SAS31.53	–	–
AC/DC 24 V		0...10 V, 4...20 mA, 0...1000 Ω	30	–	SAS61.03		–	–	–
			30	14	–		–	–	SAS61.33
			30	14	–		SAS61.53	–	–
			120	–	SAS81.00		–	–	–
			30	–	SAS81.03	–	–	–	
			30	14	–	–	SAS81.33		
PN 16	1...120 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	
Data sheet	N4364		N4464						
	VVG44.15-.. ¹⁾		VXG44.15-..	15	G 1B	0.25 / 0.4 / 0.63	1600	400	
	VVG44.15-..		VXG44.15-..	15	G 1B	1 / 1.6	725	400	
	VVG44.15-..		VXG44.15-..	15	G 1B	2.5 / 4	400	400	
	VVG44.20-6.3		VXG44.20-6.3	20	G 1½B	6.3	750	400	
	VVG44.25-10		VXG44.25-10	25	G 1½B	10	400	400	
	VVG44.32-16		VXG44.32-16	32	G 2B	16	250	250	
	VVG44.40-25		VXG44.40-25	40	G 2½B	25	125	125	
PN 25	1...130 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	
Data sheet	N4379								
	VVG55.15-.. ¹⁾			15	G ¾B	0.25 / 0.4 / 0.63	2500	1200	
	VVG55.15-..			15	G ¾B	1 / 1.6 / 2.5	2000	1200	
	VVG55.20-4			20	G 1B	4	1000	1000	
	VVG55.25-6.3			25	G 1½B	6.3	800	800	
Typical applications		Actuators	Data sheet		Spring return function [s]	5.5 mm			
<ul style="list-style-type: none"> – Boiler plants – Heating groups – Air handling units 		SSC..	N4895						
Operating voltage		Positioning signal	Positioning time [s]						
AC 230 V		3-position	150		–		SSC31		
AC 24 V		3-position	150		–		SSC81		
AC/DC 24 V		0...10 V	30		–		SSC61		
		0...10 V	30		30		SSC61.5		
PN 16	1...110 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	
Data sheet	N4845		N4845						
	VVP45.20-4		VXP45.20-4	20	G 1B	4	350	350	
	VVP45.25-6.3		VXP45.25-6.3	25	G 1½B	6.3	300	300	
	VVP45.25-10		VXP45.25-10	25	G 1½B	10	300	300	
	VVP45.32-16		VXP45.32-16	32	G 2B	16	175	175	
	VVP45.40-25		VXP45.40-25	40	G 2½B	25	75	75	
Typical applications		Actuators	Data sheet		Spring return function [s]	5.5 mm			
<ul style="list-style-type: none"> – District heating – Boiler plants 		SAT..	N4584			 			
Operating voltage		Positioning signal	Positioning time [s]						
AC 230 V		3-position	8		–		SAT31.008		
			15		8		SAT31.51		
AC/DC 24 V		0...10 V, 4...20 mA, 0...1000 Ω	8		–		SAT61.008		
			15		8		SAT61.51		
PN 25	1...130 °C			DN	G [inch]	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	
Data sheet	N4380								
	VVG549.15-.. ¹⁾			15	G ¾B	0.25 / 0.4 / 0.63	2500	1200	
	VVG549.15-..			15	G ¾B	1 / 1.6 / 2.5	2000	1200	
	VVG549.20-4K			20	G 1B	5	1600	1200	
	VVG549.25-6.3K			25	G 1½B	6.3	1600	1200	

¹⁾ .. = insert k_{vs} value

Flanged globe valves

Typical applications		Actuators	Data sheet				Spring return function [s]	20 mm				40 mm		
– District heating – Boiler plants – Chiller plants – Domestic hot water – Heating groups – Air handling units		SAX..	N4501					800 N	1000 N	2800 N	2800 N			
		SKD..	N4561											
		SKB..	N4564											
		SKC..	N4566											
Operating voltage		Positioning signal	Positioning time [s]											
AC 230 V		3-position	120	120	120	–	–	SAX31.00	SKD32.50	SKB32.50	SKC32.60			
		3-position	–	120	120	8	10/18	–	SKD32.51	SKB32.51	SKC32.61			
		3-position	30	–	–	–	–	SAX31.03	–	–	–			
		3-position	–	30	–	8	–	–	SKD32.21	–	–			
AC 24 V ¹⁾		3-position	120	120	120	–	–	SAX81.00	SKD82.50	SKB82.50	SKC82.60			
		3-position	–	120	120	8	10/18	–	SKD82.51	SKB82.51	SKC82.61			
		3-position	30	–	–	–	–	SAX81.03	–	–	–			
		0...10 V, 4...20 mA	–	30	120	–	–	–	SKD60	SKB60	SKC60			
		0...10 V, 4...20 mA	–	30	120	15	10/20	–	SKD62	SKB62	SKC62			
AC/DC 24 V		0...10 V, 4...20 mA	30	–	–	–	–	SAX61.03	–	–	–			
PN 6	-10...130 °C													
Data sheet	N4401		N4401	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	
	VVF22.25... ²⁾		VXF22.25...	25	2.5/4/6.3/10	600	300	600	300	600	300	–	–	
	VVF22.40...		VXF22.40...	40	16/25	550	300	600	300	600	300	–	–	
	VVF22.50-40		VXF22.50-40	50	40	350	300	450	300	600	300	–	–	
	VVF22.65-63		VXF22.65-63	65	63	200	150	250	200	600	300	–	–	
	VVF22.80-100		VXF22.80-100	80	100	125	75	175	125	450	300	–	–	
	VVF22.100-160		VXF22.100-160	100	160	–	–	–	–	–	–	300	250	
PN 10	-10...150 °C ³⁾													
Data sheet	N4402		N4402	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	
	VVF32.15... ²⁾		VXF32.15...	15	1.6/2.5/4	1000	400	1000	400	1000	400	–	–	
	VVF32.25...		VXF32.25...	25	6.3/10	1000	400	1000	400	1000	400	–	–	
	VVF32.40...		VXF32.40...	40	16/25	550	400	750	400	1000	400	–	–	
	VVF32.50-40		VXF32.50-40	50	40	350	300	450	400	1000	400	–	–	
	VVF32.65-63		VXF32.65-63	65	63	200	150	250	200	700	400	–	–	
	VVF32.80-100		VXF32.80-100	80	100	125	75	175	125	450	400	–	–	
	VVF32.100-160		VXF32.100-160	100	160	–	–	–	–	–	–	300	250	
	VVF32.125-250		VXF32.125-250	125	250	–	–	–	–	–	–	190	160	
	VVF32.150-400		VXF32.150-400	150	400	–	–	–	–	–	–	125	100	
PN 16	-10...150 °C ³⁾													
Data sheet	N4403		N4403	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	
	VVF42.15... ²⁾		VXF42.15...	15	1.6/2.5/4	1600	400	1600	400	1600	400	–	–	
	VVF42.20-6.3		VXF42.20-6.3	20	6.3	1600	400	1600	400	1600	400	–	–	
	VVF42.25...		VXF42.25...	25	6.3/10	1600	400	1600	400	1600	400	–	–	
	VVF42.32-16		VXF42.32-16	32	16	900	400	1200	400	1600	400	–	–	
	VVF42.40...		VXF42.40...	40	16/25	550	400	750	400	1600	400	–	–	
	VVF42.50...		VXF42.50...	50	31.5/40	350	300	450	400	1200	400	–	–	
	VVF42.65...		VXF42.65...	65	50/63	200	150	250	200	700	400	–	–	
	VVF42.80...		VXF42.80...	80	80/100	125	75	175	125	450	400	–	–	
	VVF42.100...		VXF42.100...	100	125/160	–	–	–	–	–	–	300	250	
	VVF42.125...		VXF42.125...	125	200/250	–	–	–	–	–	–	190	160	
	VVF42.150...		VXF42.150...	150	315/400	–	–	–	–	–	–	125	100	
	VVF42.50-40K		–	50	40	1600	400	1600	400	1600	400	–	–	
	VVF42.65-63K		–	65	63	1600	400	1600	400	1600	400	–	–	
	VVF42.80-100K		–	80	100	1600	400	1600	400	1600	400	–	–	
	VVF42.100-160K		–	100	160	–	–	–	–	–	–	1600	400	
	VVF42.125-250K		–	125	250	–	–	–	–	–	–	1600	400	
	VVF42.150-360K		–	150	360	–	–	–	–	–	–	1600	400	
PN 16	-20...220 °C													
Data sheet	N4404		N4404	DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	
	VVF43.65-50		–	65	50	–	–	–	–	–	–	700	650	
	VVF43.65-63		VXF43.65-63	65	63	–	–	–	–	–	–	700	650	
	VVF43.80-80		–	80	80	–	–	–	–	–	–	450	400	
	VVF43.80-100		VXF43.80-100	80	100	–	–	–	–	–	–	450	400	
	VVF43.100-125		–	100	125	–	–	–	–	–	–	300	250	
	VVF43.100-160		VXF43.100-160	100	160	–	–	–	–	–	–	300	250	
	VVF43.125-200		–	125	200	–	–	–	–	–	–	190	160	
	VVF43.125-250		VXF43.125-250	125	250	–	–	–	–	–	–	190	160	
	VVF43.150-315		–	150	315	–	–	–	–	–	–	125	100	
	VVF43.150-400		VXF43.150-400	150	400	–	–	–	–	–	–	125	100	
	VVF43.65-63K		–	65	63	–	–	–	–	–	–	1600	800	
	VVF43.80-100K		–	80	100	–	–	–	–	–	–	1600	800	
	VVF43.100-150K		–	100	150	–	–	–	–	–	–	1600	800	
	VVF43.125-220K		–	125	220	–	–	–	–	–	–	1600	800	
	VVF43.150-315K		–	150	315	–	–	–	–	–	–	1600	800	





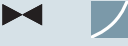
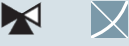


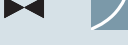
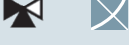


¹⁾ SAX81...: AC/DC 24 V

²⁾ .. = insert k_{vs} value

³⁾ SAX.. max. 130 °C

VVF43..., VXF43...: For DN 15...50 and k_{vs} values ≤ 40 m³/h see V..F53..

Flanged globe valves

Typical applications		Actuators	Data sheet	Spring return function [s]	20 mm				40 mm				
– District heating – Boiler plants – Chiller plants – Domestic hot water – Heating groups – Air handling units		SAX..	N4501		800 N	1000 N	2800 N	2800 N					
		SKD..	N4561										
		SKB..	N4564										
		SKC..	N4566										
Operating voltage		Positioning signal	Positioning time [s]										
AC 230 V		3-position	120	120	120	–	–	SAX31.00	SKD32.50	SKB32.50	SKC32.60		
		3-position	–	120	120	8	10/18	–	SKD32.51	SKB32.51	SKC32.61		
		3-position	30	–	–	–	–	SAX31.03	–	–	–		
		3-position	–	30	–	8	–	–	SKD32.21	–	–		
AC 24 V ¹⁾		3-position	120	120	120	–	–	SAX81.00	SKD82.50	SKB82.50	SKC82.60		
		3-position	–	120	120	8	10/18	–	SKD82.51	SKB82.51	SKC82.61		
		3-position	30	–	–	–	–	SAX81.03	–	–	–		
		0...10 V, 4...20 mA	–	30	120	–	–	–	SKD60	SKB60	SKC60		
		0...10 V, 4...20 mA	–	30	120	15	10/20	–	SKD62	SKB62	SKC62		
AC/DC 24 V		0...10 V, 4...20 mA	30	–	–	–	–	SAX61.03	–	–	–		
PN 25	-20...220 °C ²⁾			DN	k_{vs} [m ³ /h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4405		N4405										
		VVF53.15... ³⁾	–	15	0.16/0.2/0.25/ 0.32/0.4/0.5/0.63	2500	1200	2500	1200	2500	1200	–	–
		VVF53.15...	–	15	0.8/1/1.25/2/ 3.2	2500	1200	2500	1200	2500	1200	–	–
		VVF53.15-..	VXF53.15-..	15	1.6/2.5/4	2500	1200	2500	1200	2500	1200	–	–
		VVF53.20-6.3	VXF53.20-6.3	20	6.3	2500	1200	2500	1200	2500	1200	–	–
		VVF53.25-..	–	25	5/8	1600	1200	2100	1200	2500	1200	–	–
		VVF53.25-..	VXF53.25-..	25	6.3/10	1600	1200	2100	1200	2500	1200	–	–
		VVF53.32-16	VXF53.32-16	32	16	900	750	1200	1100	2500	1200	–	–
		VVF53.40-..	–	40	12.5/20	550	500	750	650	2000	1200	–	–
		VVF53.40-..	VXF53.40-..	40	16/25	550	500	750	650	2000	1200	–	–
		VVF53.50-31.5	–	50	31.5	350	300	450	400	1200	1150	–	–
		VVF53.50-40	VXF53.50-40	50	40	350	300	450	400	1200	1150	–	–
		VVF53.65-63	VXF53.65-63	65	63	–	–	–	–	–	–	700	650
		VVF53.80-100	VXF53.80-100	80	100	–	–	–	–	–	–	450	400
		VVF53.100-160	VXF53.100-160	100	160	–	–	–	–	–	–	300	250
		VVF53.125-250	VXF53.125-250	125	250	–	–	–	–	–	–	190	160
		VVF53.150-400	VXF53.150-400	150	400	–	–	–	–	–	–	125	100
		VVF53.50-40K	–	50	36	–	–	2500	1250	2500	1250	–	–
		VVF53.65-63K	–	65	63	–	–	–	–	–	–	2500	1250
		VVF53.80-100K	–	80	100	–	–	–	–	–	–	2500	1250
		VVF53.100-150K	–	100	150	–	–	–	–	–	–	2500	1250
		VVF53.125-220K	–	125	220	–	–	–	–	–	–	2500	1250
		VVF53.150-315K	–	150	315	–	–	–	–	–	–	2500	1250
PN 40	-25...220 °C (350 °C)			DN	k_{vs} [m ³ /h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
Data sheet	N4382		N4482										
		VVF61.09..11 ⁴⁾	–	15	0.19/0.3/0.45	–	–	4000	1600	4000	1600	–	–
		VVF61.12..13 ⁴⁾	–	15	0.7/1.2	–	–	4000	1600	4000	1600	–	–
		VVF61.14..15 ⁴⁾	–	15	1.9/3	–	–	4000	1600	4000	1600	–	–
		VVF61.23..25 ⁴⁾	VXF61.14..15 ⁴⁾	15	1.9/3	–	–	4000	1600	4000	1600	–	–
		VVF61.39..40 ⁴⁾	VXF61.24..25 ⁴⁾	25	3/5/7.5 5/7.5	–	–	2250	1600	4000	1600	–	–
		VVF61.49..50 ⁴⁾	VXF61.39..40 ⁴⁾	40	12/19	–	–	–	–	4000	1600	–	–
		VVF61.49..50 ⁴⁾	VXF61.49..50 ⁴⁾	50	19/31	–	–	–	–	4000	1600	–	–
		VVF61.65	VXF61.65	65	49	–	–	–	–	–	–	4000	1000
		VVF61.80	VXF61.80	80	78	–	–	–	–	–	–	4000	700
		VVF61.90	VXF61.90	100	124	–	–	–	–	–	–	4000	450
		VVF61.91	VXF61.91	125	200	–	–	–	–	–	–	4000	300
		VVF61.92	VXF61.92	150	300	–	–	–	–	–	–	4000	200
						–	–	–	–	–	–	4000	200
						–	–	–	–	–	–	–	125




¹⁾ SAX81...: AC/DC 24 V

²⁾ SAX.. max. 130 °C

³⁾ .. = insert k_{vs} value

⁴⁾ For 09...15, 14...15, 23...25, 24...25, 39...40, 49...50 = insert number in place of k_{vs} value

Threaded combi valves

Typical applications		Actuators		Data sheet			4.5 mm		2.5 mm				
<ul style="list-style-type: none"> – Radiators – Chilled ceilings – Fan coil units 		RTN.. STA.. SSA..		N2111 N4884 N4893									
		Operating voltage		Positioning signal		Positioning time [s]							
		AC 230 V		2-position		210		–		STA23			
				3-position		150		–		SSA31			
		AC 24 V		3-position		150		–		SSA81			
				0...10 V		270 ¹⁾		–		STA63			
		AC/DC 24 V		2-position /PDM		270		–		STA73			
				0...10 V		34		–		SSA61			
								RTN51		–			
								RTN71		–			
								RTN81		–			
PN 10	1...90 °C	DIN	DN	Rp/R [inch]	V [l/h]	V _{nom} ²⁾ [l/h]		Δp _{min} [kPa]		Δp _{max} [kPa]			
Data sheet		N2185											
		VPD110A-.. ²⁾	10	Rp/R 3/8	25...318	45	90	145	6 ³⁾	8 ³⁾	10 ³⁾	200	
		VPD115A-..	15	Rp/R 1/2	25...318	45	90	145	6 ³⁾	8 ³⁾	10 ³⁾	200	
		VPD110B-200	10	Rp/R 3/8	95...483	200			20			200	
		VPD115B-200	15	Rp/R 1/2	95...483	200			20			200	
		VPE110A-..	10	Rp/R 3/8	25...318	45	90	145	6 ³⁾	8 ³⁾	10 ³⁾	200	
		VPE115A-..	15	Rp/R 1/2	25...318	45	90	145	6 ³⁾	8 ³⁾	10 ³⁾	200	
		VPE110B-200	10	Rp/R 3/8	95...483	200			20			200	
		VPE115B-200	15	Rp/R 1/2	95...483	200			20			200	
Typical applications		Actuators		Data sheet			4.5 mm		2.5 / 5 mm		15 mm		
<ul style="list-style-type: none"> – Heating groups – Air handling units – Chilled ceilings – VAV – Fan coil units – Zone control 		STA.. SSA.. SAY..P..		N4884 N4893 A6V10628469									
		Operating voltage		Positioning signal		Positioning time [s]							
		AC 230 V		3-position		–		150/300		30			
				2-position		210		–		–			
		AC 24 V		0...10 V		270 ¹⁾		–		30			
		AC/DC 24 V		3-position		–		150/300		30			
				2-position/PDM		270		–		–			
				0...10 V		–		34/70		–			
								–		SSA61/SSA61EP			
PN 25	1...120 °C	Without pressure testing points	With pressure testing points	DN	G [inch]	V _{min} [l/h]	V ₁₀₀ [l/h]	Δp _{min} [kPa]	Δp _{max} [kPa]	Δp _{min} [kPa]	Δp _{max} [kPa]	Δp _{min} [kPa]	Δp _{max} [kPa]
Data sheet		N4855											
		VPP46.15L0.2	VPP46.15L0.2Q	15	1/2	30	200	16	400	16	400	–	–
		VPP46.15L0.2	VPP46.15L0.2Q	15	3/4	30	200	16	400	16	400	–	–
		VPP46.15L0.6	VPP46.15L0.6Q	15	3/4	100	575	19	400	19	400	–	–
		VPP46.20F1.4	VPP46.20F1.4Q	20	1	200	1190	21	400	–	–	–	–
		VPP46.20F1.4	VPP46.20F1.4Q	20	1	220	1330	–	–	22	400	–	–
		VPP46.25F1.8	VPP46.25F1.8Q	25	1 1/4	204	1470	39	400	–	–	–	–
		VPP46.25F1.8	VPP46.25F1.8Q	25	1 1/4	250	1800	–	–	39	400	–	–
		VPP46.32F4	VPP46.32F4Q	32	1 1/2	450	3270	24	400	–	–	–	–
		VPP46.32F4	VPP46.32F4Q	32	1 1/2	550	4001	–	–	28	400	–	–
PN 25	1...120 °C	Without pressure testing points	With pressure testing points	DN	Rp [inch]	V _{min} [l/h]	V ₁₀₀ [l/h]	Δp _{min} [kPa]	Δp _{max} [kPa]	Δp _{min} [kPa]	Δp _{max} [kPa]	Δp _{min} [kPa]	Δp _{max} [kPa]
Data sheet		N4855											
		VPI46.15L0.2	VPI46.15L0.2Q	15	1/2	30	200	16	400	16	400	–	–
		VPI46.15L0.6	VPI46.15L0.6Q	15	3/4	100	575	19	400	19	400	–	–
		VPI46.20F1.4	VPI46.20F1.4Q	20	3/4	200	1190	21	400	–	–	–	–
		VPI46.20F1.4	VPI46.20F1.4Q	20	3/4	220	1330	–	–	22	400	–	–
		VPI46.25F1.8	VPI46.25F1.8Q	25	1 1/4	204	1470	39	400	–	–	–	–
		VPI46.25F1.8	VPI46.25F1.8Q	25	1 1/4	250	1800	–	–	39	400	–	–
		VPI46.32F4	VPI46.32F4Q	32	1 1/2	450	3270	24	400	–	–	–	–
		VPI46.32F4	VPI46.32F4Q	32	1 1/2	550	4001	–	–	28	400	–	–
		–	VPI46.40F9.5Q	40	1 1/2	1370	9500	–	–	–	–	25	400
		–	VPI46.50F12Q	50	2	1400	11500	–	–	–	–	36	400








¹⁾ In control mode (warm-up time) min. running time approx. 30 s/mm

²⁾ .. = insert V_{nom}

V_{nom} = factory setting = volumetric flow at 0.5 mm stroke or setting mark 3 of the presetting

³⁾ Δp_{min} is valid for V_{nom} 45/90/145 l/h

Flanged combi valves

Typical applications	Actuators	Data sheet				20 mm	20 / 40 mm	40 mm	
– District heating – Heating groups – Air handling units	SAX..P..	N4509							
	SQV91P..	N4833							
	SAV..P..	N4510							
	Operating voltage	Positioning signal	Positioning time [s]						Spring return function [s]
	AC 230 V	3-position	30	–	120				–
		3-position	–	40/80	–				30
		3-position	–	40/80	–				30
	AC/DC 24 V	3-position	30	–	120				–
		3-position	–	40/80	–				30
		3-position	–	40/80	–				30
0...10 V, 4...20 mA		30	–	120	–				
0...10 V, 4...20 mA		–	40/80	–	30				
0...10 V, 4...20 mA	–	40/80	–	30					
					SAX31P03	–	SAV31P00		
					–	SQV91P40 ¹⁾	–		
					–	SQV91P30 ²⁾	–		
					SAX81P03	–	SAV81P00		
					–	SQV91P40 ¹⁾	–		
					–	SQV91P30 ²⁾	–		
					SAX61P03	–	SAV61P00		
					–	SQV91P40 ¹⁾	–		
					–	SQV91P30 ²⁾	–		
PN 16	1...120 °C	DN	V _{min} [m ³ /h]	V ₁₀₀ [m ³ /h]	Δp _{min} [kPa]	Δp _i /Δp _{max} [kPa]	Δp _i /Δp _{max} [kPa]	Δp _s /Δp _{max} [kPa]	
Data sheet	N4315								
 	VPF43.50F16	50	2.3	15	35	600	600	–	
	VPF43.50F25	50	4.3	25	70	600	600	–	
	VPF43.65F24	65	4.4	24	35	600	600	–	
	VPF43.65F35	65	6	35	70	600	600	–	
	VPF43.80F35	80	5.3	34	35	600	600	–	
	VPF43.80F45	80	7	43	70	600	600	–	
	VPF43.100F70	100	12.1	68	35	–	600	600	
	VPF43.100F90	100	14.8	90	75	–	600	600	
	VPF43.125F110	125	18.5	110	35	–	600	600	
	VPF43.125F135	125	23	135	53	–	600	600	
	VPF43.150F160	150	25.6	148	35	–	600	600	
	VPF43.150F200	150	32	195	65	–	600	600	
	PN 25	1...120 °C	DN	V _{min} [m ³ /h]	V ₁₀₀ [m ³ /h]	Δp _{min} [kPa]	Δp _i /Δp _{max} [kPa]	Δp _i /Δp _{max} [kPa]	Δp _s /Δp _{max} [kPa]
Data sheet	N4316								
 	VPF53.50F16	50	2.3	15	35	600	600	–	
	VPF53.50F25	50	4.3	25	70	600	600	–	
	VPF53.65F24	65	4.4	24	35	600	600	–	
	VPF53.65F35	65	6	35	70	600	600	–	
	VPF53.80F35	80	5.3	34	35	600	600	–	
	VPF53.80F45	80	7	43	70	600	600	–	
	VPF53.100F70	100	12.1	68	35	–	600	600	
	VPF53.100F90	100	14.8	90	75	–	600	600	
	VPF53.125F110	125	18.5	110	35	–	600	600	
	VPF53.125F135	125	23	135	53	–	600	600	
	VPF53.150F160	150	25.6	148	35	–	600	600	
	VPF53.150F200	150	32	195	65	–	600	600	




¹⁾ Fail-safe function: valve closed

²⁾ Fail-safe function: valve open

Control ball valves

Typical applications		Actuators	Data sheet				Spring return function [s]	2 Nm	5 Nm	7 Nm	10 Nm								
– Domestic hot water – Heating groups – Air handling units – Chilled ceilings – VAV – Fan coil units – Zone control		GQD..9A GDB..9E GMA..9E GLB..9E	N4659 N4657 N4658 N4657																
			Operating voltage	Positioning signal	Positioning time [s]														
			AC 230 V	3-position	–	150							–	150	–	–	GDB331.9E	–	GLB331.9E
			AC 24 V	3-position	–	150							–	150	–	–	GDB131.9E	–	GLB131.9E
AC/DC 24 V	0...10 V	–	150	–	150	–	–	GDB161.9E	–	GLB161.9E									
	3-position	30	–	90	–	15	GQD131.9A	–	GMA131.9E	–									
0...10 V	30	–	90	–	15	GQD161.9A	–	GMA161.9E	–	–									
PN 40	-10...120 °C																		
Data sheet	N4211		N4211				DN	G	k_{vs} [m ³ /h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]						
		VAG61.15-.. ¹⁾	VBG61.15-..	15	G 1 B	1.6 / 2.5 / 4 / 6.3	1400	350	1400	350									
		VAG61.15-..	–	15	G 1 B	1	1400	350	1400	350									
		VAG61.20-..	VBG61.20-..	20	G 1 ¼ B	4 / 6.3	1400	350	1400	350									
		VAG61.20-10	–	20	G 1 ¼ B	10	1400	350	1400	350									
		VAG61.25-10	VBG61.25-10	25	G 1 ½ B	10	1400	350	1400	350									
		VAG61.25-..	–	25	G 1 ½ B	6.3 / 16	1400	350	1400	350									
		VAG61.32-10	–	32	G 2 B	10	–	–	1000	350									
		VAG61.32-16	VBG61.32-16	32	G 2 B	16	–	–	1000	350									
		VAG61.32-25	–	32	G 2 B	25	–	–	1000	350									
		VAG61.40-16	–	40	G 2 ¼ B	16	–	–	800	350									
		VAG61.40-25	VBG61.40-25	40	G 2 ¼ B	25	–	–	800	350									
		VAG61.40-40	–	40	G 2 ¼ B	40	–	–	800	350									
		VAG61.50-25	–	50	G 2 ¾ B	25	–	–	600	350									
		VAG61.50-40	VBG61.50-40	50	G 2 ¾ B	40	–	–	600	350									
		VAG61.50-63	–	50	G 2 ¾ B	63	–	–	600	350									
		PN 40	-10...120 °C																
Data sheet	N4211		N4211				DN	Rp	k_{vs} [m ³ /h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]						
		VAI61.15-.. ¹⁾	VBI61.15-..	15	Rp ½	1.6 / 2.5 / 4 / 6.3	1400	350	1400	350									
		VAI61.15-..	–	15	Rp ½	1 / 10	1400	350	1400	350									
		VAI61.20-..	VBI61.20-..	20	Rp ¾	4 / 6.3	1400	350	1400	350									
		VAI61.20-10	–	20	Rp ¾	10	1400	350	1400	350									
		VAI61.25-10	VBI61.25-10	25	Rp 1	10	1400	350	1400	350									
		VAI61.25-..	–	25	Rp 1	6.3 / 16	1400	350	1400	350									
		VAI61.32-10	–	32	Rp 1 ¼	10	–	–	1000	350									
		VAI61.32-16	VBI61.32-16	32	Rp 1 ¼	16	–	–	1000	350									
		VAI61.32-25	–	32	Rp 1 ¼	25	–	–	1000	350									
		VAI61.40-16	–	40	Rp 1 ½	16	–	–	800	350									
		VAI61.40-25	VBI61.40-25	40	Rp 1 ½	25	–	–	800	350									
		VAI61.40-40	–	40	Rp 1 ½	40	–	–	800	350									
		VAI61.50-25	–	50	Rp 2	25	–	–	600	350									
		VAI61.50-40	VBI61.50-40	50	Rp 2	40	–	–	600	350									
		VAI61.50-63	VBI61.50-63	50	Rp 2	63	–	–	600	350									






6-port control ball valves

Typical applications		Actuators	Data sheet			5 Nm		5 Nm	
– Heated and chilled ceilings		GDB161.9E GDB111.9E/KN	N4657 A6V10301232						
			Operating voltage	Positioning signal	Positioning time [s]				
		AC 24 V	DC 0...10 V KNX-TP	150		GDB161.9E		–	
PN 16	5...90 °C								
Data sheet	A6V10564480		DN			Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
	VWG41.20-0.25-0.4		20	0.25	0.4	–	200	–	200
	VWG41.20-0.25-0.65		20	0.25	0.65	–	200	–	200
	VWG41.20-0.25-1.0		20	0.25	1	–	200	–	200
	VWG41.20-0.4-1.0		20	0.4	1	–	200	–	200
	VWG41.20-0.4-1.3		20	0.4	1.3	–	200	–	200
	VWG41.20-0.4-1.6		20	0.4	1	–	200	–	200
	VWG41.20-0.65-1.0		20	0.65	1	–	200	–	200
	VWG41.20-0.65-1.6		20	0.65	1.6	–	200	–	200
	VWG41.20-0.65-2.5		20	0.65	2.5	–	200	–	200
	VWG41.20-1.0-1.6		20	1	1.6	–	200	–	200
	VWG41.20-1.0-2.5		20	1	2.5	–	200	–	200
	VWG41.20-1.6-2.5		20	1.6	2.5	–	200	–	200
	VWG41.20-1.6-3.45		20	1.6	3.45	–	200	–	200
	VWG41.20-2.5-3.45		20	2.5	3.45	–	200	–	200
	VWG41.20-2.5-4.25		20	2.5	4.25	–	200	–	200
	VWG41.20-4.25-4.25		20	4.25	4.25	–	200	–	200

¹⁾ .. = insert k_{vs} value


VBG61../VBI61...: For noiseless operation, the Δp_{max} value of 200 kPa should not be exceeded


Fittings for 6-port control ball valves



	Type	Description
	ALN15.152B	Fittings set made of brass for media temperatures up to 90 °C, consisting of 2x cap nuts
	ALN15.202B	2x inserts with external threading per ISO 228-1 2x flat seals
	ALG15.152B	Fittings set made of brass for media temperatures up to 90 °C, consisting of 2x cap nuts with sleeves and insert per ISO 7-1
	ALG15.202B	2x flat seals
	ALG15.252B	


Magnetic valves

Typical applications	Valve type	Operating voltage	Positioning signal	Type suffix
– District heating	MXF461..	AC/DC 24 V	0...10 V, 2...10 V, 4...20 mA	P ¹⁾
– Boiler plants	M3P..FY..	AC 24 V	0...10 V, 4...20 mA	P ¹⁾
– Chiller plants	MVF461H..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	–
– Domestic hot water	MXG461..	AC/DC 24 V	0...10 V, 2...10 V, 4...20 mA	P ¹⁾
– Heating groups	MXG461B..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	–
– Air handling units	MXG461S..	AC/DC 24 V	0...10 V, 2...10 V, 4...20 mA	–
	MXG462S..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA	–

PN 16	1...130 °C	DN	k _{vs} [m ³ /h]	Δp _s [kPa]	Δp _{max} [kPa]	Note
Data sheet	N4455					To be used as 2-port or mixing valves, not as diverting valves. Selectable valve characteristic: equal-percentage or linear.
	MXF461.15-.. ²⁾	15	0.6 / 1.5 / 3	300	300	
	MXF461.20-5.0	20	5	300	300	
	MXF461.25-8.0	25	8	300	300	
	MXF461.32-12	32	12	300	300	
	MXF461.40-20	40	20	300	300	
	MXF461.50-30	50	30	300	300	
	MXF461.65-50	65	50	300	300	
	1...120 °C					
	N4454					
	M3P80FY	80	80	300	300	
	M3P100FY	100	130	200	200	

PN 16	1...180 °C	DN	k _{vs} [m ³ /h]	Δp _s [kPa]	Δp _{max} [kPa]	Note
Data sheet	N4361					
	MVF461H15-.. ²⁾	15	0.6 / 1.5 / 3	1000	1000	
	MVF461H20-5	20	5	1000	1000	
	MVF461H25-8	25	8	1000	1000	
	MVF461H32-12	32	12	1000	1000	
	MVF461H40-20	40	20	1000	1000	
	MVF461H50-30	50	30	1000	1000	

PN 16	1...130 °C	DN	G [inch]	k _{vs} [m ³ /h]	Δp _s [kPa]	Δp _{max} [kPa]	Note
Data sheet	N4455						To be used as 2-port or mixing valves, not as diverting valves. Selectable valve characteristic: equal-percentage or linear. ³⁾
	MXG461.15-.. ²⁾	15	G 1B	0.6 / 1.5 / 3	300	300	
	MXG461.20-5.0	20	G 1¼B	5	300	300	
	MXG461.25-8.0	25	G 1½B	8	300	300	
	MXG461.32-12	32	G 2B	12	300	300	
	MXG461.40-20	40	G 2¼B	20	300	300	
	MXG461.50-30	50	G 2¾B	30	300	300	
	-20...130 °C						
	N4461						
	MXG461B15-.. ²⁾	15	G 1B	0.6 / 1.5 / 3	1000	1000	
	MXG461B20-5	20	G 1¼B	5	800	800	
	MXG461B25-8	25	G 1½B	8	700	700	
	MXG461B32-12	32	G 2B	12	600	600	
	MXG461B40-20	40	G 2¼B	20	600	600	
	MXG461B50-30	50	G 2¾B	30	600	600	

PN 16	1...130 °C	DN	G [inch]	k _{vs} [m ³ /h]	Δp _s [kPa]	Δp _{max} [kPa]	Note
Data sheet	N4465						
	MXG461S15-1.5	15	G 1B	1.5	300	300	
	MXG461S20-5.0	20	G 1¼B	5	300	300	
	MXG461S25-8.0	25	G 1½B	8	300	300	
	MXG461S32-12	32	G 2B	12	300	300	
		50	G 2¾B	30	600	600	

¹⁾ P = media containing mineral oil

²⁾ .. = insert k_{vs} value





³⁾ Parts that are in contact with medium in stainless steel

Slipper valves

Typical applications	Actuators	Data sheet				5 Nm	5 Nm	10 Nm
– Boiler plants – Heating groups	SQK34../84..	N4508						
	SQK33..	N4506						
	SAL..	N4502						
	Operating voltage	Positioning signal	Positioning time [s]					
			SQK	SQK33	SAL			
	AC 230 V	3-position	135	125	120	SQK34.00	SQK33.00	SAL31.00T10
		3-position	–	–	30	–	–	SAL31.03T10
	AC 24 V	3-position	135	–	–	SQK84.00	–	–
	AC/DC 24 V	3-position	–	–	120	–	–	SAL81.00T10
		3-position	–	–	30	–	–	SAL81.03T10
0...10 V, 4...20 mA		–	–	120	–	–	SAL61.00T10	
	0...10 V, 4...20 mA	–	–	30	–	–	SAL61.03T10	
	Mounting set ¹⁾				direct	ASK32	ASK31N	
PN 6	1...120 °C				Δp_{\max}	Δp_{\max}	Δp_{\max}	
Data sheet	N4241	DN			[kPa]	[kPa]	[kPa]	
	VBF21.40	40			30	30	–	
	VBF21.50	50			30	30	–	
	VBF21.65	65			–	–	30	
	VBF21.80	80			–	–	30	
	VBF21.100	100			–	–	30	
	VBF21.125	125			–	–	30	
	VBF21.150	150			–	–	30	
PN 10	1...120 °C	DN	G	k_{vs}	Δp_{\max}	Δp_{\max}	Δp_{\max}	
Data sheet	N4233		[inch]	[m³/h]	[kPa]	[kPa]	[kPa]	
	VBG31.20	20	G 1¼B	6.3	30	30	–	
	VBG31.25	25	G 1½B	10	30	30	–	
	VBG31.32	32	G 2B	16	30	30	–	
	VBG31.40	40	G 2¼B	25	30	30	–	
PN 10	1...120 °C	DN	Rp	k_{vs}	Δp_{\max}	Δp_{\max}	Δp_{\max}	
Data sheet	N4232		[inch]	[m³/h]	[kPa]	[kPa]	[kPa]	
	VBI31.20	20	Rp ¾	6.3	30	30	–	
	VBI31.25	25	Rp 1	10	30	30	–	
	VBI31.32	32	Rp 1¼	16	30	30	–	
	VBI31.40	40	Rp 1½	25	30	30	–	
PN 10	1...120 °C	DN	Rp	k_{vs}	Δp_{\max}	Δp_{\max}	Δp_{\max}	
Data sheet	N4252		[inch]	[m³/h]	[kPa]	[kPa]	[kPa]	
	VCI31.20	20	Rp ¾	6.3	30	30	–	
	VCI31.25	25	Rp 1	10	30	30	–	
	VCI31.32	32	Rp 1¼	16	30	30	–	
	VCI31.40	40	Rp 1½	25	30	30	–	

¹⁾ Mounting sets ASK40, ASK41 for products of other manufacturers: mounting sets for SQK33.. for 3-port and 4-port slipper valves from AXA, BUDERUS, CENTRA, ESBE/SHUNT AB, LOELL, MUEHLENBERG, ONDAMIX and VISSMANN. For additional details, see data sheet N4291.

Butterfly valves

Typical applications	Actuators	Data sheet	Rotation angle		90°	
					10 Nm	40 Nm
– Boiler plants – Chiller plants – Heating groups	SAL..	N4502				
			Operating voltage	Positioning signal	Positioning time [s]	
	AC 230 V	3-position	120		SAL31.00T10	SAL31.00T40
		3-position	125		–	–
		3-position	30		SAL31.03T10	–
	AC/DC 24 V	3-position	120		SAL81.00T10	SAL81.00T40
		3-position	30		SAL81.03T10	–
0...10 V, 4...20 mA		120		SAL61.00T10	SAL61.00T40	
0...10 V, 4...20 mA		30		SAL61.03T10	–	
	Mounting set			ASK33N	ASK33N	
PN 6/10/16	-10...120 °C		DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_s [kPa]
Data sheet	N4131					
		VKF41.40	40	50	500	–
		VKF41.50	50	80	500	–
		VKF41.65	65	200	500	–
		VKF41.80	80	400	500	–
		VKF41.100	100	760	500	–
		VKF41.125	125	1000	300	–
		VKF41.150	150	2100	250	400
		VKF41.200	200	4000	125	300

Typical applications	Actuators	Data sheet	Rotation angle	90°						
				20 Nm	40 Nm	40 Nm		100 Nm	400 Nm	1200 Nm
– Boiler plants – Chiller plants – Cooling towers – Domestic hot water – Heating groups	SAL..	N4502								
			SQL36..	N4505						
	Operating voltage	Positioning signal	time [s]							
	AC 230 V	3-position	6 ¹⁾	–	–	–	–	SQL36E65	–	–
		3-position	12 ¹⁾	–	–	–	–	–	SQL36E110	–
		3-position	24 ¹⁾	–	–	–	–	–	–	SQL36E160
		3-position	25	–	–	–	–	–	–	–
3-position		120	–	–	–	–	–	–	–	
AC/DC 24 V	3-position	120	SAL31.00T20	SAL31.00T40	–	–	–	–	–	
	0...10 V, 4...20 mA	120	SAL61.00T20	SAL61.00T40	–	–	–	–	–	
PN 16	-10...120 °C									
Data sheet	N4136		DN	k_{vs} [m³/h]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]	Δp_s [kPa]
		VKF46.40	40	50	1600	–	1600	–	–	–
		VKF46.50	50	85	1600	–	1600	–	–	–
		VKF46.65	65	215	1600	–	1600	–	–	–
		VKF46.80	80	420	–	1600	–	–	–	–
		VKF46.100	100	800	–	1200	–	–	–	–
		VKF46.125	125	1010	–	800	–	–	–	–
		VKF46.150	150	2100	–	–	–	1600	–	–
		VKF46.200	200	4000	–	–	–	1000	–	–
		VKF46.250	250	6400	–	–	–	–	1000	–
		VKF46.300	300	8500	–	–	–	–	1000	–
		VKF46.350	350	11500	–	–	–	–	600	–
		VKF46.400	400	14500	–	–	–	–	300	–
		VKF46.450	450	20500	–	–	–	–	–	300
		VKF46.500	500	21000	–	–	–	–	–	300
		VKF46.600	600	29300	–	–	–	–	–	300

¹⁾ With auxiliary module SEZ31.1 variable positioning time: SQL36E65: 30...180 s, SQL36E110: 60...360 s, SQL36E160: 120...720 s

Recommended maximum flow velocity:


VKF41...: < 4 m/s for water, see data sheet for details

VKF46...: 4.5 m/s for water, 60 m/s for gas

Changeover and open/close ball valves

Typical applications	Actuators	Data sheet					Spring return function [s]	2 Nm	7 Nm	10 Nm				
<ul style="list-style-type: none"> – Boiler plants – Chiller plants – Domestic hot water – Heating groups 	GSD..9A	N4655						  	  	  	  			
	GQD..9A	N4659												
	GMA..9E	N4658												
	GLB..9E	N4657												
	Operating voltage	Positioning signal	Positioning time [s]											
	AC/DC 24 V	2-position	GSD	GLB	GQD	GMA	–					GSD141.9A	–	–
	AC 230 V	2-position	30	–	–	–	–					GSD341.9A	–	–
	AC 24 V	(2)/3-position	–	150	–	–	–					–	–	GLB131.9E
	AC 230 V	(2)/3-position	–	150	–	–	–					–	–	GLB331.9E
	AC/DC 24 V	2-position	–	–	30 (15)	–	✓					GQD121.9A	–	–
AC 230 V	2-position	–	–	30 (15)	–	✓	GQD321.9A	–	–					
AC/DC 24 V	2-position	–	–	–	90 (15)	✓	–	GMA121.9E	–					
AC 230 V	2-position	–	–	–	90 (15)	✓	–	GMA321.9E	–					
PN 40	-10...120 °C		DN	G	k _{vs}			Δp _s	Δp _{max}	Δp _s	Δp _{max}	Δp _s	Δp _{max}	
Data sheet	N4213			[inch]	[m ³ /h]			[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	
	VAG60.15-9	15	G 1 B	9	1400	350	1400	350	1400	350	1400	350		
	VAG60.20-17	20	G 1 ¼ B	17	1400	350	1400	350	1400	350	1400	350		
	VAG60.25-22	25	G 1 ½ B	22	1400	350	1400	350	1400	350	1400	350		
	VAG60.32-35	32	G 2 B	35	–	–	1000	350	1000	350	1000	350		
	VAG60.40-68	40	G 2 ¼ B	68	–	–	800	350	800	350	800	350		
	VAG60.50-96	50	G 2 ¾ B	96	–	–	600	350	600	350	600	350		
PN 40	-10...120 °C		DN	G	k _{vs}			Δp _{max}	Δp _{max}	Δp _{max}				
Data sheet	N4213			[inch]	[m ³ /h]			[kPa]	[kPa]	[kPa]				
	VBG60.15-8T	15	G 1 B	8	350	350	350	350	350	350				
	VBG60.20-13T	20	G 1 ¼ B	13	350	350	350	350	350	350				
	VBG60.25-13T	25	G 1 ½ B	13	350	350	350	350	350	350				
	VBG60.32-25T	32	G 2 B	25	–	–	350	350	350	350				
	VBG60.40-49T	40	G 2 ¼ B	49	–	–	350	350	350	350				
	VBG60.50-73T	50	G 2 ¾ B	73	–	–	350	350	350	350				
PN 40	-10...120 °C		DN	Rp	k _{vs}			Δp _s	Δp _{max}	Δp _s	Δp _{max}	Δp _s	Δp _{max}	
Data sheet	N4213			[inch]	[m ³ /h]			[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	[kPa]	
	VAI60.15-15	15	Rp ½	15	1400	350	1400	350	1400	350	1400	350		
	VAI60.20-22	20	Rp ¾	22	1400	350	1400	350	1400	350	1400	350		
	VAI60.25-22	25	Rp 1	22	1400	350	1400	350	1400	350	1400	350		
	VAI60.32-35	32	Rp 1 ¼	35	–	–	1000	350	1000	350	1000	350		
	VAI60.40-68	40	Rp 1 ½	68	–	–	800	350	800	350	800	350		
	VAI60.50-96	50	Rp 2	96	–	–	600	350	600	350	600	350		
PN 40	-10...120 °C		DN	Rp	k _{vs}			Δp _{max}	Δp _{max}	Δp _{max}				
Data sheet	N4213			[inch]	[m ³ /h]			[kPa]	[kPa]	[kPa]				
	VBI60.15-12T	15	Rp ½	12	350	350	350	350	350	350				
	VBI60.20-16T	20	Rp ¾	16	350	350	350	350	350	350				
	VBI60.25-16T	25	Rp 1	16	350	350	350	350	350	350				
	VBI60.32-25T	32	Rp 1 ¼	25	–	–	350	350	350	350				
	VBI60.40-49T	40	Rp 1 ½	49	–	–	350	350	350	350				
	VBI60.50-73T	50	Rp 2	73	–	–	350	350	350	350				
PN 40	-10...120 °C		DN	Rp	k _{vs}			Δp _{max}	Δp _{max}	Δp _{max}				
Data sheet	N4213			[inch]	[m ³ /h]			[kPa]	[kPa]	[kPa]				
	VBI60.15-5L	15	Rp ½	5	350	350	350	350	350	350				
	VBI60.20-9L	20	Rp ¾	9	350	350	350	350	350	350				
	VBI60.25-9L	25	Rp 1	9	350	350	350	350	350	350				
	VBI60.32-13L	32	Rp 1 ¼	13	–	–	350	350	350	350				
	VBI60.40-25L	40	Rp 1 ½	25	–	–	350	350	350	350				
	VBI60.50-37L	50	Rp 2	37	–	–	350	350	350	350				








Refrigerant valves

Typical applications		Valve	Operating voltage	Positioning signal			Auxiliary functions	
– Chiller plants		M2FP03GX	AC 24 V	0...10 V, 4...20 mA, 0...20 Phs			–	
		MVL661..	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA			Minimum stroke setting	
		MVS661..N	AC/DC 24 V	0...10 V, 2...10 V, 0...20 mA, 4...20 mA			Minimum stroke setting	
		M3FB..LX..	AC 24 V	0...10 V, 4...20 mA, 0...20 Phs			–	
		M3FK..LX..	AC 24 V	0...10 V, 4...20 mA, 0...20 Phs			–	
PN 32	-40...100 °C				k_{vs}		Δp_{max}	
Data sheet	N4731				[m ³ /h]		[kPa]	
	M2FP03GX		Pilot valve		0.3		1800	
PS 45	-40...120 °C	DN	Connection	Inner Ø	k_{vs}	k_{vs} reduced	Δp_{max}	
Data sheet	N4714			[inch]	[m ³ /h]	[m ³ /h]	[kPa]	
	MVL661.15-0.4	15	Sleeve	5/8	0.4	0.25	2500	
	MVL661.15-1.0	15	Sleeve	5/8	1	0.63	2500	
	MVL661.20-2.5	20	Sleeve	7/8	2.5	1.6	2500	
	MVL661.25-6.3	25	Sleeve	1 1/8	6.3	4	2500	
	MVL661.32-10	32	Sleeve	1 3/8	10	6.3	1600	
	MVL661.32-12	32	Sleeve	1 3/8	12	7.6	200	
PS 53	-40...120 °C	DN	Connection	Inner Ø	Outer Ø	k_{vs}	k_{vs} reduced	Δp_{max}
Data sheet	N4717			[mm]	[mm]	[m ³ /h]	[m ³ /h]	[kPa]
	MVS661.25-016N	25	Weldable	22.4	33.7	0.16	0.1	2500
	MVS661.25-0.4N	25	Weldable	22.4	33.7	0.4	0.25	2500
	MVS661.25-1.0N	25	Weldable	22.4	33.7	1	0.63	2500
	MVS661.25-2.5N	25	Weldable	22.4	33.7	2.5	1.6	2500
	MVS661.25-6.3N	25	Weldable	22.4	33.7	6.3	4	2500
PN 32	-40...120 °C	DN	Connection	Inner Ø		k_{vs}	Liquid	Gas
Data sheet	N4722			[inch]		[m ³ /h]	Δp_{max}	Δp_{max}
	M3FK15LX06	15	Sleeve	5/8		0.6	200	800
	M3FK15LX15	15	Sleeve	5/8		1.5	200	800
	M3FK15LX	15	Sleeve	5/8		3	200	800
	M3FK20LX	20	Sleeve	7/8		5	200	800
	M3FK25LX	25	Sleeve	1 1/8		8	200	800
	M3FK32LX	32	Sleeve	1 3/8		12	200	800
	M3FK40LX	40	Sleeve	1 7/8		20	200	800
	M3FK50LX	50	Sleeve	2 1/8		30	200	800
PS 43	-40...120 °C	DN	Connection	Inner Ø		k_{vs}	Δp_{max}	
Data sheet	N4721			[inch]		[m ³ /h]	[kPa]	
	M3FB15LX06/A	15	Sleeve	5/8		0.6	2200	
	M3FB15LX15/A	15	Sleeve	5/8		1.5	2200	
	M3FB15LX/A	15	Sleeve	5/8		3	2200	
	M3FB20LX/A	20	Sleeve	7/8		5	1800	
	M3FB25LX/A	25	Sleeve	1 1/8		8	1200	
	M3FB32LX	32	Sleeve	1 3/8		12	800	

Definitions

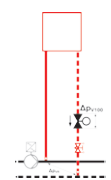
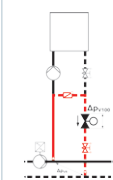
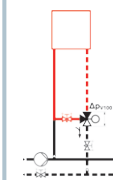
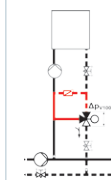
Abbr.	Term	Unit	Definition
Δp	Differential pressure	kPa	Pressure differential between plant sections.
Δp_{\max}	Maximum differential pressure	kPa	Maximum permissible differential pressure across the valve's control path (when mixing), valid for the entire actuating range of the motorized valve.
$\Delta p_{\max V}$	Maximum differential pressure	kPa	Maximum permissible differential pressure across the valve's control path (when distributing), valid for the entire actuating range of the motorized valve.
Δp_{\min}	Minimum differential pressure	kPa	Minimum differential pressure required, so that the differential pressure regulator works reliably with combi valves. Δp_{\min} depends on presetting position, see data sheet for details.
Δp_{V0}		kPa	Maximum differential pressure across the valve's closed control path.
Δp_{V100}	Differential pressure at nominal flow rate	kPa	Differential pressure across the fully open valve and the valve's control path by a volumetric flow V_{100} .
Δp_s	Closing pressure	kPa	For 2-port valves, maximum permissible differential pressure at which the motorized valve will close securely against the pressure (close off pressure). Only valid for 2-port valves.
Δp_{MV}		kPa	Differential pressure across the variable flow path. Often Δp_{MV} is not known, in which case typical values can be used.
Δp_{VR}		kPa	Differential pressure between flow and return.
ΔT	Temperature spread	K	Temperature differential between flow and return.
DN	Nominal size		Characteristic for matching parts of the piping system.
H_0	Shutoff head	m	The head generated by a pump at closed valve, at a given speed and a given pump medium.
kPa	Unit of pressure	kPa	100 kPa = 1 bar = 10 mWC
mWC	Meter water column	m	
k_v	Nominal flow	m ³ /h	Amount of cold water (5...30 °C) passing through the valve at the respective stroke and at a differential pressure of 100 kPa (1 bar).
k_{vS}	Nominal flow rate	m ³ /h	Nominal flow rate of cold water (5...30 °C) through the fully open valve (H_{100}) at a differential pressure of 100 kPa (1 bar).
	Spring return function		Shutoff in the event of a power failure.
PN	PN class		Characteristic relating to the combination of mechanical and dimensional properties of a component in the piping system.
Phs	Phase cut control signal	V	DC 0...20 V Phs
P_v	Valve authority		Ratio of differential pressure across fully open valve (H_{100}) and differential pressure across valve and variable flow path. To ensure correct control, a minimum valve authority of 0.25 is required.
Q_{100}	Rated capacity	kW	Plant's design capacity.
V_{100}	Volumetric flow	m ³ /h	Volumetric flow with valve fully open (H_{100}).
V_{\min}	Minimum volumetric flow	m ³ /h	Smallest presettable volumetric flow through the fully open combi valve (H_{100}).
ν	Kinematic viscosity	mm ² /s	In the case of kinematic viscosities ν up to 10 mm ² /s, no corrections are required. For the selection of actuating devices for kinematic viscosities ν above 10 mm ² /s, please contact your local Siemens branch office.
c	Specific heat capacity	kJ/kgK	
ρ	Specific density	kg/m ³	

Symbols

	3-port valve, control path with equal-percentage valve characteristic, bypass with linear valve characteristic.
	3-port valve, control path with equal-percentage valve characteristic, bypass with linear valve characteristic with 70% of the k_{vS} value. This compensates for the flow resistance of the heat exchanger, so that the total volumetric flow V_{100} remains as constant as possible.
	2-port valve, control path with equal-percentage valve characteristic.
	2-port valve or 6-port control ball valve in the respective control path with linear valve characteristic.
	3-port, control path and bypass with linear valve characteristic. Bypass with 70% of the k_{vS} value. This compensates for the flow resistance of the heat exchanger, so that the total flow amount V_{100} remains as constant as possible.
	3-port valve, control path and bypass with linear valve characteristic.
	3-port valve, control path and bypass with equal-percentage valve characteristic.

Valve sizing and actuator selection

Basic hydronic circuit

1	Determine the type of hydronic circuit	Throttling circuit	Injection circuit with 2-port valve	Diverting circuit	Injection circuit with 3-port valve	Mixing circuit	Mixing circuit with fixed premixing
—	For valve sizing relevant variable flow path					Primary pump ✓ Primary pump ✗	Primary pump ✓ Primary pump ✗

HVAC plants and consumers

Heating

Surface/floor heating	—	■	—	outdated	—	—	■	■
Heating plant (primary)	—	■	■	outdated	■	■	■	■
Zone control, heating	—	■	—	outdated	—	—	—	—
Heating group	—	■	—	—	■	■	■	■
Generation of heat energy	—	—	—	—	—	■	—	■
Heat exchanger water-water	■	uncommon	uncommon	uncommon	uncommon	—	—	—

Ventilation and air conditioning plants

Air handling unit (AHU)	■	■	■	outdated	■	■	—	—
Fan coil unit	■	—	■	outdated	—	—	—	—
Cooling coil	dehumidifying	—	dehumidifying	uncommon	—	—	—	—
Reheating coil	■	■	outdated	outdated	uncommon	uncommon	uncommon	uncommon
Preheating coil	—	■	—	outdated	uncommon	uncommon	uncommon	uncommon
VAV	■	—	■	outdated	—	—	—	—
Zone control	■	—	■	outdated	—	—	—	—

Chiller plants

Surface/floor cooling	—	■	—	outdated	—	—	—	—
Generation of cooling energy	—	—	—	—	—	■	—	■
Cooling towers	■	—	■	uncommon	—	—	—	—
Zone control, cooling	—	■	—	outdated	—	—	—	—

District heating and cooling

District heating, primary	■	uncommon	—	—	—	uncommon	—	uncommon
District heating, secondary	■	■	—	—	—	uncommon	—	uncommon
District cooling, primary	■	uncommon	—	—	—	uncommon	—	uncommon
District cooling, secondary	■	■	—	—	—	uncommon	—	uncommon

Domestic hot water (DHW)

DHW	—	■	—	—	—	■	—	—
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Header

Differential pressure header	pressurized		pressureless
Volumetric flow	variable	constant	variable

Determination of k_{vs} value

2	Δp_{VR} or Δp_{MV}	Δp_{VR}	Δp_{MV}						
	typical range	10...200 kPa	10...200 kPa	10...50 kPa	2...5 kPa	2...5 kPa	5...15 kPa	2...5 kPa	5...15 kPa
	typical value	Use effective Δp_{VR} value		35 kPa	3 kPa	3 kPa	8 kPa	3 kPa	8 kPa
3	Determine Δp_{V100}	$\Delta p_{V100} \geq \frac{\Delta p_{VR}}{2}$			$\Delta p_{V100} > \Delta p_{MV}$				
4	Calculate V_{100}	Water without anti-freeze $V_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T}$			Water with anti-freeze $V_{100} = \frac{Q_{100} \cdot 3600}{c \cdot \rho \cdot \Delta T}$				
5	Determine k_{vs} value	$k_v = \frac{V_{100}}{\sqrt{\frac{\Delta p_{V100}}{100}}} \Rightarrow k_{vs} \geq 0.85 \cdot k_v \text{ value}$							
6	Check resulting Δp_{V100}	$\Delta p_{V100} = 100 \cdot \left(\frac{V_{100}}{k_{vs}} \right)^2$							

Selection of valve and actuator

7	Select suitable valve series	a) Type of valve (2-port, 3-port, 3-port with bypass) b) Connections (flanged, threaded, soldered)			c) PN class d) Nominal size DN		e) Max./min. medium temperature f) Medium		
8	Check valve authority P_v (control stability)	$P_v = \frac{\Delta p_{V100}}{\Delta p_{VR}} \geq 0.25 \dots 0.8$			$P_v = \frac{\Delta p_{V100}}{\Delta p_{V100} + \Delta p_{MV}} \geq 0.25 \dots 0.8$				
9	Select actuator	a) Operating voltage	b) Positioning signal	c) Positioning time	d) Spring return function	e) Auxiliary functions			
10	Check working range	a) Differential pressure $\Delta p_{max} > \Delta p_{v0}$			b) Closing pressure $\Delta p_s > H_0$				
11	Selection	Valve and suitable actuator							

Size and select combi valves

Determine volumetric flow V

1	Determine Q_{100}	Q_{100}				
2	Determine ΔT	ΔT				
3	Calculate V	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Water without anti-freeze</td> <td style="text-align: center;">$V_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T}$</td> <td style="width: 50%;">Water with anti-freeze</td> <td style="text-align: center;">$V_{100} = \frac{Q_{100} \cdot 3600}{c \cdot \rho \cdot \Delta T}$</td> </tr> </table>	Water without anti-freeze	$V_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T}$	Water with anti-freeze	$V_{100} = \frac{Q_{100} \cdot 3600}{c \cdot \rho \cdot \Delta T}$
Water without anti-freeze	$V_{100} = \frac{Q_{100}}{1.163 \cdot \Delta T}$	Water with anti-freeze	$V_{100} = \frac{Q_{100} \cdot 3600}{c \cdot \rho \cdot \Delta T}$			

Select combi valve and actuator

4	Select suitable combi valve	<table border="0" style="width: 100%;"> <tr> <td style="width: 33%;">a) Type of valve (with/without P/T plugs)</td> <td style="width: 33%;">b) PN class</td> <td style="width: 33%;">c) Max./min. medium temperature</td> </tr> <tr> <td>d) Connection (flanged, threaded)</td> <td>e) Nominal size DN</td> <td>f) Medium</td> </tr> </table>	a) Type of valve (with/without P/T plugs)	b) PN class	c) Max./min. medium temperature	d) Connection (flanged, threaded)	e) Nominal size DN	f) Medium
a) Type of valve (with/without P/T plugs)	b) PN class	c) Max./min. medium temperature						
d) Connection (flanged, threaded)	e) Nominal size DN	f) Medium						
5	Determine presetting	Determine presetting using the volumetric flow/dial table in data sheet of the respective combi valve						
6	Select actuator	a) Operating voltage b) Positioning signal c) Positioning time d) Auxiliary functions						
7	Check working range	<p>a) $\Delta p < \Delta p_{max}$ – maximum permissible differential pressure across the valve's control path, valid for the entire actuating range of the motorized valve</p> <p>b) $\Delta p > \Delta p_{min}$ – minimum differential pressure required across the valve's control path, so that the differential pressure regulator works reliably</p>						
8	Select actuator	Combi valve and suitable actuator						

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