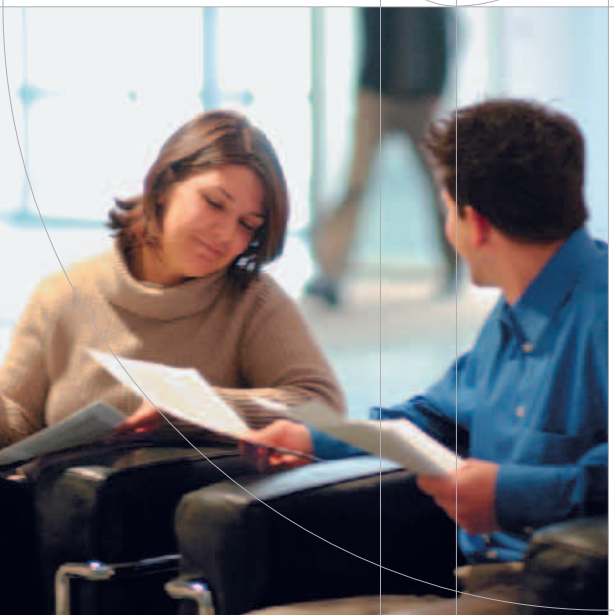
SIEMENS

HVAC Products



Acvatix™
Valves and Actuators
- Selection Guide

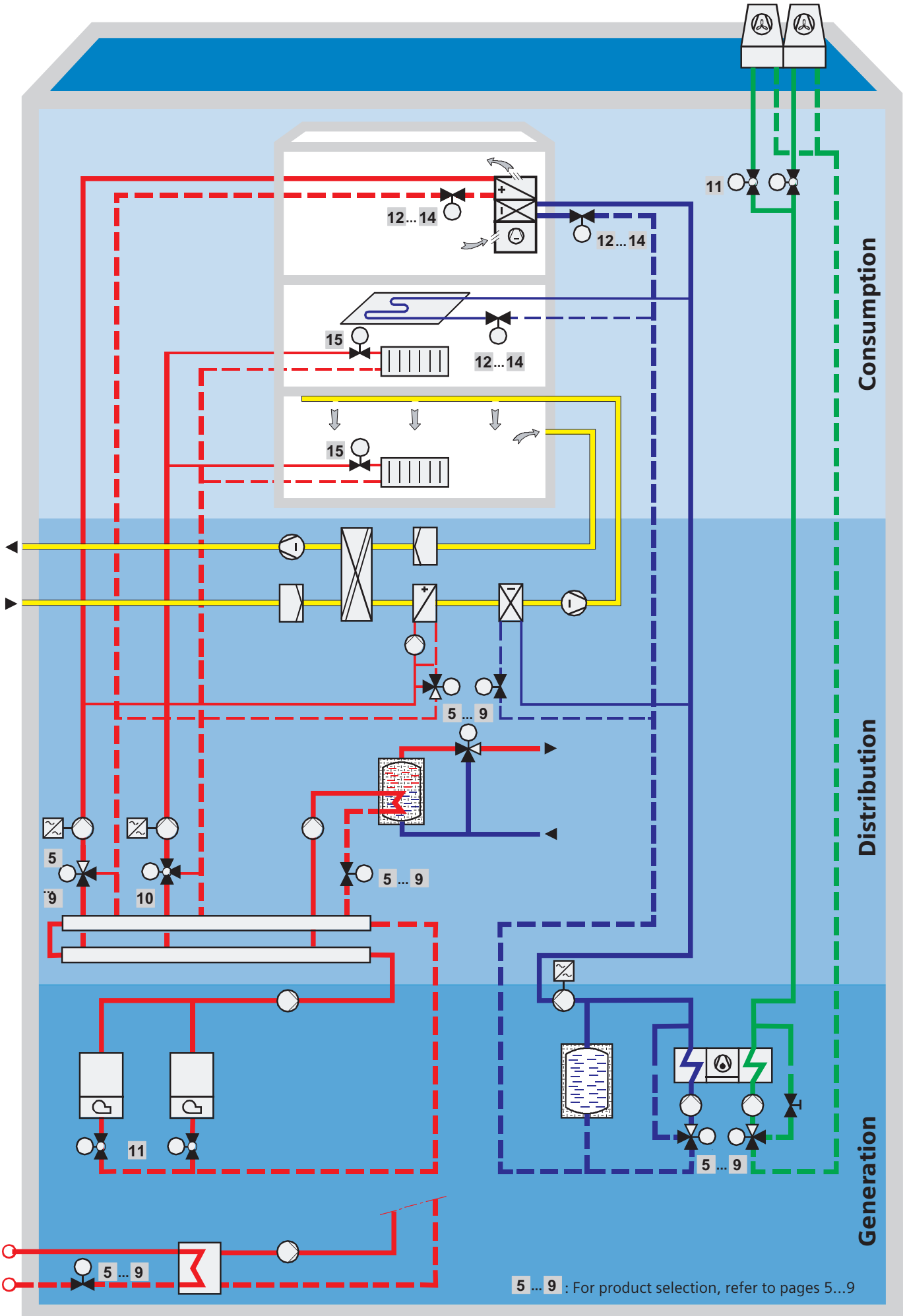
More than 50 engineers and other specialists worldwide are working on the continual development of our comprehensive Acvatix range of valves and actuators on the forefront of technology, aimed at finding innovative solutions to satisfy the needs of our customers.

Air handling, d.h.w. plants, community and district heating systems as well as heat pump plants are the major fields of use for our robust electromotoric and electrohydraulic actuators.
For demanding applications, such as district heating systems and large plants in general, electrohydraulic actuators are the preferred choice. They excel in large positioning forces, long-term stability, spring return facility and a host of auxiliary functions.
The broad product range also includes the right valves for any kind of application. Magnetic valves are especially suited for accurate control of air conditioning plants.

If fast-acting and accurate control is of prime importance, be it for supply air control or d.h.w. heating, for example, the precision valves with their magnetic actuators represent unique solutions. In addition, they are ideally suited for special applications, such as test rigs in the industrial sector, close control of air conditioning systems in clean rooms and plants, and reliable temperature control for production processes.

Over the past few years, we have developed a large number of products for individual room temperature control. There are ideal solutions for fan coil unit applications and chilled ceilings, underfloor heating systems and radiators.

Contents


Consumption
Distribution
Generation
12 ... 14
15
11
5 ... 9
10
5 ... 9 : For product selection, refer to pages 5...9

Actuating devices for central HVAC plants

acvatix

Electrohydraulic line SKB, SKC, SKD

High-end valves and powerful actuators for the most demanding requirements and a long service life

Page 5 to 7

- Great positioning forces (up to 2,800 N)
- Long service life
- Single seat, metallically tight
- Dirt-resistant
- Low noise level
- Leakage rate < 0.02 %
- 3-port valves can be used as mixing or diverting valves

Pressure class	Temperature	Characteristic	Spring return
PN6 PN10 PN16 PN25 PN40	-25...220 °C 350 °C (thermo oil)	Selectable: Equal-percentage or linear	As per DIN 32730 if required

Electromotoric line SQX

High-end valves and actuators for the most demanding requirements

Page 5 to 7

- Long service life
- Single seat, metallically tight
- Dirt-resistant
- Low noise level
- Leakage rate <0.02 %
- 3-port valves can be used as mixing or diverting valves

Pressure class	Temperature	Characteristic	Spring return
PN16 PN25	-25...140 °C	Selectable: Equal-percentage or linear	None

Electromotoric line SQS

High-end valves and actuators for the most demanding requirements in smaller plants

Page 8

- Long service life
- Single seat, metallically tight
- Dirt-resistant
- Low noise level
- Leakage rate <0.02 %
- 3-port valves can be used as mixing or diverting valves

Pressure class	Temperature	Characteristic	Spring return
PN16 PN25	-25...130 °C	Selectable: Equal-percentage or linear	As per DIN 32 730 if required

Electromotoric line SSC

Favorably priced valves and actuators of good quality for smaller plants

Page 8

- Single seat, metallically tight
- Dirt-resistant
- Low noise level
- Leakage rate <0.02 %...

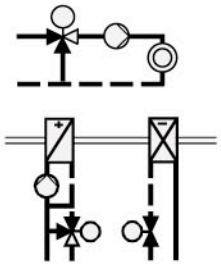
NEW

Pressure class	Temperature	Characteristic	Spring return
PN16	-25 °C... 110 °C	Up to DN25: Equal-percentage, from DN25: Linear	Available

Threaded 2- and 3-port valves with 20 mm stroke actuators

Typical applications

- Heating zones, heat distribution
- Primary heating and cooling plant
- Ventilation and air conditioning plants

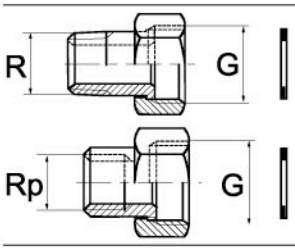


Type of actuator				Force			20 mm 700 N	20 mm 1000 N	20 mm 2800 N
SQX SKD SKB		Positioning signal	Spring return function	Positioning time [s] SQX	SKD	SKB			
AC 230 V		3P	–	150	120	120	**SQX32.00**	**SKD32.50**	**SKB32.50**
		3P	✓SKD..	35	30		**SQX32.03**	**SKD32.21**	–
		3P	✓		120	120	–	**SKD32.51**	**SKB32.51**
AC 24 V		0-10V	–	35			**SQX62**	**SKD60**	**SKB60**
		0-10V	✓		30	120	–	**SKD62**	**SKB62**
		3P	–	150	120	120	**SQX82.00**	**SKD82.50**	**SKB82.50**
		3P	–	35			**SQX82.03**	–	–
		3P	✓		120	120	–	**SKD82.51**	**SKB82.51**

Type of valve		Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_S [kPa]	Δp_{max} [kPa]	Δp_S [kPa]	Δp_{max} [kPa]	Δp_S [kPa]	Δp_{max} [kPa]
PN16 **VVG41** – 25...130 °C		**VVG41.11...15**	15	G 1B	0.63/1/1.6/2.5/4	1600	800	1600	800	1600	800
		VVG41.20	20	G 1 1/4B	6.3	1600	800	1600	800	1600	800
		VVG41.25	25	G 1 1/2B	10	1500	800	1600	800	1600	800
		VVG41.32	32	G 2B	16	850	600	1250	800	1600	800
		VVG41.40	40	G 2 1/4B	25	500	400	750	700	1600	800
		VVG41.50	50	G 2 3/4B	40	300	250	450	400	1200	800
PN16 **VXG41** – 25...130 °C		**VXG41.13...15**	15	G 1B	1.6/2.5/4	1600	800	1600	800	1600	800
		VXG41.20	20	G 1 1/4B	6.3	1600	800	1600	800	1600	800
		VXG41.25	25	G 1 1/2B	10	1500	800	1600	800	1600	800
		VXG41.32	32	G 2B	16	850	600	1250	800	1600	800
		VXG41.40	40	G 2 1/4B	25	500	400	750	700	1600	800
		VXG41.50	50	G 2 3/4B	40	300	250	450	400	1200	800

Union nuts for threaded valves

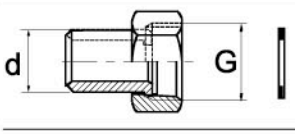
ALG../ALS..



Union nuts: Made of brass or nodular cast iron

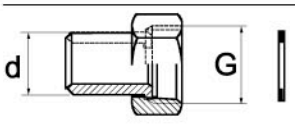
Typ reference	G [in]	R, Rp [in]	Material
ALG13	G 1/2B	R 3/8B (externally threaded)	Brass
ALG14	G 3/4B	R 1/2B (externally threaded)	Brass
ALG12	G 3/4B	Rp 3/8	Nodular cast iron
ALG15	G 1B	Rp 1/2	Nodular cast iron
ALG20	G 1 1/4B	Rp 3/4	Nodular cast iron
ALG25	G 1 1/2B	Rp 1	Nodular cast iron
ALG32	G 2B	Rp 1 1/4	Nodular cast iron
ALG40	G 2 1/4B	Rp 1 1/2	Nodular cast iron
ALG50	G 2 3/4B	Rp 2	Nodular cast iron

– Valve side: Cylindric thread to ISO 228/1
– Pipe side: ALG... with tapered thread to ISO 7/1
– Pipe side: ALS... with welded connection



Union nuts: Made of gun metal, with soldered connection

Typ reference	G [in]	d [mm]	Material
ALG13.210	G 1/2B	10	Gun metal
ALG13.212	G 1/2B	12	Gun metal
ALG14.215	G 3/4B	15	Gun metal
ALG14.218	G 3/4B	18	Gun metal
ALG15.222	G 1B	22	Gun metal



Union nuts: Made of steel, with soldered connection

Typ reference	G [in]	d [mm]	Material
ALS15	G 3/4B	21.3	Steel, weldable
ALS20	G 1B	26.8	Steel, weldable
ALS25	G 1 1/4B	33.7	Steel, weldable

Flanged 2-port valves with 20 mm / 40 mm stroke actuators

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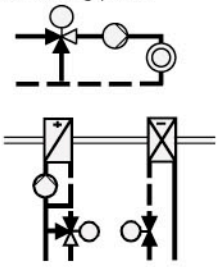
Typical applications

- Heating plants
- Ventilation and air conditioning plants
- Heat generation
- Heat distribution
- District heating plants



Type of actuator						Force	20 mm 700 N	20 mm 1000 N	20 mm 2800 N	40 mm 2800 N
										
SQX SKD SKB SKC	Positioning signal	Spring return function	Positioning time [s] SQX	SKD	SKB SKC					
AC 230 V	3P	–	150	120	120		**SQX32.00**	**SKD32.50**	**SKB32.50**	**SKC32.60**
	3P	✓SKD..	35	30			**SQX32.03**	**SKD32.21**	–	–
	3P	✓		120	120		–	**SKD32.51**	**SKB32.51**	**SKC32.61**
AC 24 V	0-10V	–	35				**SQX62**	**SKD60**	**SKB60**	**SKC60**
	0-10V	✓		30	120		–	**SKD62**	**SKB62**	**SKC62**
	3P	–		120	120		**SQX82.00**	**SKD82.50**	**SKB82.50**	**SKC82.60**
	3P	–					**SQX82.03**	–	–	–
	3P	✓		120	120		–	**SKD82.51**	**SKB82.51**	**SKC82.61**

Valves		Type reference	DN [mm]	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]
PN6		**VVF21.22...25**	25	1.9/3/5/7.5	600	100	600	100	600	100	–	–
VVF21		**VVF21.39...40**	40	12/19	500	100	600	100	600	100	–	–
		VVF21.50	50	31	300	100	450	100	600	100	–	–
		VVF21.65	65	49	175	100	250	100	600	100	–	–
		VVF21.80	80	78	100	80	150	100	450	100	–	–
-25...130 °C		**VVF21.90**	100	124	–	–	–	–	–	–	300	100
PN10		**VVF31.24...25**	25	5/7.5	1000	100	1000	100	1000	100	–	–
VVF31		**VVF31.39...40**	40	12/19	500	100	750	100	1000	100	–	–
		VVF31.50	50	31	300	100	450	100	1000	100	–	–
		VVF31.65	65	49	175	100	250	100	700	100	–	–
		VVF31.80	80	78	100	80	150	100	450	100	–	–
		VVF31.90	100	124	–	–	–	–	–	–	300	100
		VVF31.91	125	200	–	–	–	–	–	–	175	100
-25...130 °C		**VVF31.92**	150	300	–	–	–	–	–	–	125	100
PN16		**VVF40.15-...**	15	1.9/3	1600	100	1600	100	1600	100	–	–
VVF40		**VVF40.25-...**	25	5/7.5	1500	100	1600	100	1600	100	–	–
		VVF40.40-...	40	12/19	500	100	750	100	1600	100	–	–
		VVF40.50-31	50	31	300	150	450	100	1200	100	–	–
		VVF40.65-49	65	49	175	100	250	100	700	100	–	–
NEW		**VVF40.80-78**	80	78	100	80	150	100	450	100	–	–
		VVF40.100-124	100	124	–	–	–	–	–	–	300	100
		VVF40.125-200	125	200	–	–	–	–	–	–	175	100
-25...130 °C		**VVF40.150-300**	150	300	–	–	–	–	–	–	125	100
PN16		**VVF41.50**	50	31	350	300	500	400	1400	1000	–	–
VVF41		**VVF41.65**	65	49	–	–	–	–	–	–	800	600
		VVF41.80	80	78	–	–	–	–	–	–	500	400
		VVF41.90	100	124	–	–	–	–	–	–	300	250
		VVF41.91	125	200	–	–	–	–	–	–	200	175
-25...130 °C (180 °C)		**VVF41.92**	150	300	–	–	–	–	–	–	125	100
PN16		**VVF45.49...50**	50	19/31	–	–	–	–	1600	1200	–	–
VVF45		**VVF45.65**	65	49	–	–	–	–	–	–	1600	1000
		VVF45.80	80	78	–	–	–	–	–	–	1600	700
		VVF45.90	100	124	–	–	–	–	–	–	1600	450
		VVF45.91	125	200	–	–	–	–	–	–	1600	300
-25...140 °C (180 °C)		**VVF45.92**	150	300	–	–	–	–	–	–	1600	200
PN25		**VVF52.15-...**	15	0.16/0.2/0.25/0.32	2500	1600	2500	1600	2500	1600	–	–
VVF52		**VVF52.15-...**	15	0.4/0.5/0.63/0.8/1	2500	1600	2500	1600	2500	1600	–	–
		VVF52.15-...	15	1.25/1.6/2/2.5/3.2/4	2500	1600	2500	1600	2500	1600	–	–
		VVF52.25-...	25	5/6.3/8/10	1500	1200	2250	1600	2500	1600	–	–
-25...140 °C (180 °C)		**VVF52.40-...**	40	12.5/16/20/25	500	400	750	700	2000	1600	–	–
PN40		**VVF61.09...12**	15	0.19/0.3/0.45/0.7	–	–	4000	1600	4000	1600	–	–
VVF61		**VVF61.13...15**	15	1.2/1.9/3	–	–	4000	1600	4000	1600	–	–
		VVF61.24...25	25	5/7.5	–	–	2250	1600	4000	1600	–	–
		VVF61.39...40	40	12/19	–	–	–	–	4000	1600	–	–
		VVF61.50	50	31	–	–	–	–	4000	1600	–	–
		VVF61.65	65	49	–	–	–	–	–	–	4000	1000
		VVF61.80	80	78	–	–	–	–	–	–	4000	700
		VVF61.90	100	124	–	–	–	–	–	–	4000	450
		VVF61.91	125	200	–	–	–	–	–	–	4000	300
-25...220 °C (350 °C)		**VVF61.92**	150	300	–	–	–	–	–	–	4000	200

Flanged 3-port valves with 20 mm / 40 mm stroke actuators

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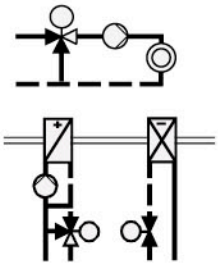
Typical applications

- Heating plants
- Ventilation and air conditioning plants
- Heat generation
- Heat distribution



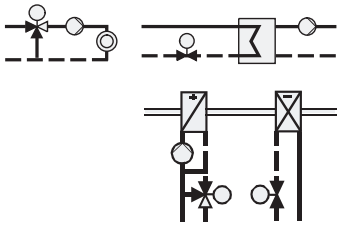
Type of actuator						Force	20 mm 700 N	20 mm 1000 N	20 mm 2800 N	40 mm 2800 N
SQX SKD SKB SKC	Positioning signal	Spring return function	Positioning time [s] SQX	SKD	SKB SKC					
AC 230 V	3P	–	150	120	120		**SQX32.00**	**SKD32.50**	**SKB32.50**	**SKC32.60**
	3P	✓SKD..	35	30			**SQX32.03**	**SKD32.21**	–	–
	3P	✓		120	120		–	**SKD32.51**	**SKB32.51**	**SKC32.61**
AC 24 V	0-10V	–	35				**SQX62**	**SKD60**	**SKB60**	**SKC60**
	0-10V	✓		30	120		–	**SKD62**	**SKB62**	**SKC62**
	3P	–		120	120		**SQX82.00**	**SKD82.50**	**SKB82.50**	**SKC82.60**
	3P	–					**SQX82.03**	–	–	–
	3P	✓		120	120		–	**SKD82.51**	**SKB82.51**	**SKC82.61**

Valves		Type reference	DN [mm]	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]
PN6		**VXF21.22...25**	25	1.9/3/5/7.5	600	100	600	100	600	100	–	–
VXF21		**VXF21.39...40**	40	12/19	500	100	600	100	600	100	–	–
		VXF21.50	50	31	300	100	450	100	600	100	–	–
		VXF21.65	65	49	175	80	250	100	600	100	–	–
		VXF21.80	80	78	100	60	150	80	450	100	–	–
-25...130 °C		**VXF21.90**	100	124	–	–	–	–	–	–	300	100
PN10		**VXF31.24...25**	25	5/7.5	1000	100	1000	100	1000	100	–	–
VXF31		**VXF31.39...40**	40	12/19	500	100	750	100	1000	100	–	–
		VXF31.50	50	31	300	100	450	100	1000	100	–	–
		VXF31.65	65	49	175	80	250	100	700	100	–	–
		VXF31.80	80	78	100	60	150	80	450	100	–	–
		VXF31.90	100	124	–	–	–	–	–	–	300	100
		VXF31.91	125	200	–	–	–	–	–	–	175	100
-25...130 °C		**VXF31.92**	150	300	–	–	–	–	–	–	125	100
PN16		**VXF40.15-...**	15	1.9/3	1600	100	1600	100	1600	100	–	–
VXF40		**VXF40.25-5**	25	5	1500	100	1600	100	1600	100	–	–
		VXF40.25-7.5	25	7.5	1500	100	1600	100	1600	100	–	–
		VXF40.40-12	40	12	500	100	750	100	1600	100	–	–
		VXF40.40-19	40	19	500	100	750	100	1600	100	–	–
		VXF40.50-31	50	31	300	100	450	100	1200	100	–	–
		VXF40.65-49	65	49	175	80	250	100	700	100	–	–
NEW		**VXF40.80-78**	80	78	100	60	150	80	450	100	–	–
		VXF40.100-124	100	124	–	–	–	–	–	–	300	100
		VXF40.125-200	125	200	–	–	–	–	–	–	175	100
-25...130 °C		**VXF40.150-300**	150	300	–	–	–	–	–	–	125	100
PN16		**VXF41.14...15**	15	1.9/3	1600	800	1600	800	1600	800	–	–
VXF41		**VXF41.24**	25	5	1500	800	1600	800	1600	800	–	–
		VXF41.25	25	7.5	1500	800	1600	750	1600	800	–	–
		VXF41.39	40	12	500	500	750	750	1600	800	–	–
		VXF41.40	40	19	500	500	750	500	1600	800	–	–
		VXF41.49	50	19	350	350	500	500	800	800	–	–
		VXF41.50	50	31	350	350	500	500	1400	800	–	–
		VXF41.65	65	49	–	–	–	–	–	–	800	500
		VXF41.80	80	78	–	–	–	–	–	–	500	350
		VXF41.90	100	124	–	–	–	–	–	–	300	250
		VXF41.91	125	200	–	–	–	–	–	–	200	175
-25...130 °C (180 °C)		**VXF41.92**	150	300	–	–	–	–	–	–	125	100
PN40		**VXF61.15**	15	1.9/3	–	–	4000	1200	4000	1600	–	–
VXF61		**VXF61.25**	25	5/7.5	–	–	2250	1200	4000	1600	–	–
		VXF61.40	40	12/19	–	–	–	–	2000	1200	–	–
		VXF61.50	50	31	–	–	–	–	1400	1000	–	–
		VXF61.65	65	49	–	–	–	–	–	–	800	800
		VXF61.80	80	78	–	–	–	–	–	–	500	500
		VXF61.90	100	124	–	–	–	–	–	–	300	300
		VXF61.91	125	200	–	–	–	–	–	–	200	200
-25...220 °C (350 °C)		**VXF61.92**	150	300	–	–	–	–	–	–	125	100

Threaded 2-port and 3-port valves with 5.5 mm stroke actuators 400 N

Typical applications

- Heating plants
- District heating plants
- Ventilation and air conditioning
- plants



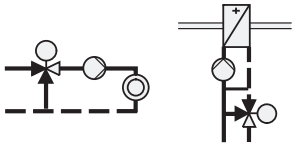
Type of actuator			Force		5.5 mm 400 N		
SQS	Positioning signal	Spring return function	Positioning time [s] SQS35.. SQS85..	Positioning time [s] SQS35.. SQS65.. SQS85..			
AC 230 V	3P	✓	150	35	**SQS35.50**	**SQS35.53**	**–**
	3P	–	150	35	**–**	**SQS35.00**	**SQS35.03**
AC 24 V	3P	–	150	35	**–**	**SQS85.00**	**SQS85.03**
	0-10V	–	–	35	**–**	**–**	**SQS65**
	0-10V	✓	–	35	**SQS65.5**	**–**	**–**
	2-10V	–	–	35	**–**	**–**	**SQS65.2**

Valves		Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
PN16		**VVG44.15-...**	15	G 1B	0.25/0.4/0.63	1600	400	1600	400	1600	400
VVG44		**VVG44.15-...**	15	G 1B	1/1.6	850	400	850	400	850	400
		VVG44.15-...	15	G 1B	2.5/4	400	400	400	400	400	400
		VVG44.20-6.3	20	G 1 1/4B	6.3	800	400	800	400	800	400
		VVG44.25-10	25	G 1 1/2B	10	400	300	400	300	400	300
		VVG44.32-16	32	G 2B	16	225	200	225	200	225	200
2...120 °C		**VVG44.40-25**	40	G 2 1/4B	25	100	100	100	100	100	100
PN16		**VXG44.15-...**	15	G 1B	0.25/0.4/0.63	1600	400	1600	400	1600	400
VXG44		**VXG44.15-...**	15	G 1B	1/1.6	850	400	850	400	850	400
		VXG44.15-...	15	G 1B	2.5/4	400	400	400	400	400	400
		VXG44.20-6.3	20	G 1 1/4B	6.3	800	400	800	400	800	400
		VXG44.25-10	25	G 1 1/2B	10	400	300	400	300	400	300
		VXG44.32-16	32	G 2B	16	225	200	225	200	225	200
2...120 °C		**VXG44.40-25**	40	G 2 1/4B	25	100	100	100	100	100	100
PN25		**VVG55.15-...**	15	G 3/4B	0.25/0.4/0.63	2500	1200	2500	1200	2500	1200
VVG55		**VVG55.15-...**	15	G 3/4B	1/1.6/2.5	2300	1200	2300	1200	2300	1200
		VVG55.20-4	20	G 1B	4	1000	1000	1000	1000	1000	1000
2...130 °C		**VVG55.25-6.3**	25	G 1 1/4B	6.3	800	800	800	800	800	800
PN25		**VVI52.15-...**	15	Rp 1/2	0.25/0.4	2500	700	2500	700	2500	700
VVI52		**VVI52.15-...**	15	Rp 1/2	0.63	2500	700	2500	700	2500	700
		VVI52.15-...	15	Rp 1/2	1/1.6	1600	700	1600	700	1600	700
2...130 °C		**VVI52.15-...**	15	Rp 1/2	2.5	1600	700	1600	700	1600	700

Threaded 2-port and 3-port valves with 5.5 mm stroke actuators 300 N

Typical applications

- Heating plants
- Ventilation plants



Type of actuator			Force				5,5 mm 300 N
SSC	Positioning signal	Spring return function	Positioning time [s] SSC31 SSC81	Positioning time [s] SSC61			
AC 230 V	3P	–	150			**SSC31**	
AC 24 V	3P	–	150		**SSC81**		
	0-10V	–		30			**SSC61**
	0-10V	✓		30			**SSC61.5**

Valves		Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
PN16		**VVP45.20-4**	20	G 1B	4	400	200	400	200	400	200
VVP45		**VVP45.25-6,3**	25	G 1 1/4B	6.3	200	200	200	200	200	200
		VVP45.25-10	25	G 1 1/2B	10	300	200	300	200	300	200
		VVP45.32-16	32	G 2B	16	150	150	150	150	150	150
2...110 °C		**VVP45.40-25**	40	G 2 1/4B	25	70	70	70	70	70	70
PN16		**VXP45.20-4**	20	G 1B	4	400	200	400	200	400	200
VXP45		**VXP45.25-6,3**	25	G 1 1/4B	6.3	200	200	200	200	200	200
		VXP45.25-10	25	G 1 1/2B	10	300	200	300	200	300	200
		VXP45.32-16	32	G 2B	16	150	150	150	150	150	150
2...110 °C		**VXP45.40-25**	40	G 2 1/4B	25	70	70	70	70	70	70

Note: For DN10...DN15 with k_{VS} = 0.25...2.5 m³/h, VVP45... and VXP45... valves can be used (refer to page 12)

Magnetic line

Accurate and fast-acting combinations of valves and actuators

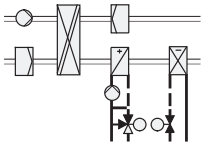
- Positioning times < 2 s
- Stroke resolution 1 : 1000
- No wear and tear
- Leakage rate < 0.02 %

Pressure class	Temperature	Characteristic	Spring return
PN16	-20...180 °C	Selectable: Equal-percentage or linear	Standard

Threaded / flanged 2-port and 3-port valves with magnetic actuator fitted

Typical applications

- Supply air control with / without cascade
- Fast-acting heat exchanger control
- D.h.w. mixing control
- High-precision process control



Product range

MXG461
MXF461, M3P...FY
M3B..GY
M2H..FY

Key features of the magnetic line

- Short positioning times → fast response to disturbance variables
- High stroke resolution → excellent control performance
- No abrupt start → control stability also in the low-load range
- Modulating magnetic actuators with no wear and tear → long service life

Combinations		Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Actuator AC 24 V Positioning signal	Actuator AC 24 V Positioning time
PN16		**MXG461.15...**	15	G 1B	0.6/1.5/3.0	300	300		
MXG461		**MXG461.20-5.0**	20	G 1 1/4B	5	300	300		
		MXG461.25-8.0	25	G 1 1/2B	8	300	300	DC 0...10 V	
		MXG461.32-12	32	G 2B	12	300	300	DC 2...10 V	< 2 s
		MXG461.40-20	40	G 2 1/4B	20	300	300	DC 4...20 mA	
2...120 °C		**MXG461.50-30**	50	G 2 3/4B	30	300	300		
PN16		**MXF461.15...**	15	–	0.6/1.5/3	300	300		
MXF461		**MXF461.20-5.0**	20	–	5	300	300		
		MXF461.25-8.0	25	–	8	300	300	DC 0...10 V	
		MXF461.32-12	32	–	12	300	300	DC 2...10 V	< 2 s
		MXF461.40-20	40	–	20	300	300	DC 4...20 mA	
		MXF461.50-30	50	–	30	300	300		
		MXF461.65-50	65	–	50	300	300		
		M3P80FY	80	–	80	300	300	DC 0...10 V	< 2 s
2...120 °C		**M3P100FY**	100	–	130	200	200	DC 4...20 mA	

Note: For use as 2-port or mixing valves, not as diverting valves. When used as 2-port valves, the bypass is to be closed off with a blanking flange and screws.

Threaded 3-port valves for d.h.w.

Combinations		Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Actuator AC 24 V Positioning signal	Actuator AC 24 V Positioning time
PN16		**M3B15GY06**	08/15	G 1B	0.6	1000	1000		
M3B		**M3B15GY15**	08/15	G 1B	1.5	1000	1000		
		M3B15GY	15	G 1B	3	1000	1000		
		M3B20GY	20	G 1 1/4B	5	800	800	DC 0...10 V	< 2 s
		M3B25GY	25	G 1 1/2B	8	700	700	DC 4...20 mA	
		M2B32GY	32	G 2B	12	600	600		
		M3B40GY	40	G 2 1/4B	20	600	600		
-20...120 °C		**M3B50GY**	50	G 2 3/4B	30	600	600		

Flanged 2-port valves for district heating plants

Combinations		Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Actuator AC 24 V Positioning signal	Actuator AC 24 V Positioning time
PN16		**M2H15FY06N**	15		0.6	1000	1000		
M2H		**M2H15FY15N**	15		1.5	1000	1000		
		M2H15FYN	15		3	1000	1000		
		M2H20FYN	20		5	1000	1000	DC 0...10 V	< 2 s
		M2H25FYN	25		8	1000	1000	DC 4...20 mA	
		M2H32FYN	32		12	1000	1000		
		M2H40FYN	40		20	1000	1000		
2...180 °C		**M2H50FYN**	50		30	1000	1000		

3- and 4-port slipper valves

High-end slipper valves and powerful actuators for the most demanding requirements and a long service life

- Directly coupled (SQK34)
- Long service life
- Low noise level
- Maintenance-free
- Linear characteristic
- Mixing valve with manual adjuster, can be operated manually or with electric actuator
- Flexibility: Actuator can be mounted in 4 different positions

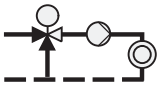
Rotary actuators SQK... and SQL...

Positioning class	Torque	Positioning time
3-port/AC 230 V 3-port/AC 24 V	5; 10; 12.5	125; 30

3-port / 4-port slipper valves VB... and VC...

Pressure class	k_{VS} [m³/h]	Temperature	Leakage rate
PN6 PN10	6.3...820	2...120 °C	Up to DN100: < 0.1 % from DN125: < 0.5 %

3-port and 4-port slipper valves with rotary actuators 5 Nm / 12.5 Nm

Typical applications	Type of actuator		Torque		5 Nm	5 Nm	10/12,5 Nm
• Small to medium-size heating plants • Closed circuits	**SQK** **SQL**	Positioning signal	Positioning time [s] SQK33 SQK34 SQK84	SQL33 SQL33 SQL83			
	AC 230 V	3-port	125	30		**SQK33.00**	**SQL33.03**
		3-port	135	125	**SQK34.00**		**SQL33.00**
	AC 24 V	3-port	135		**SQK84.00**		
		3-port	125			**SQL83.00**	

3-port slipper valves, Flanged	Typ	DN [mm]	k_{VS} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
PN6	**VBF21.40**	40	25	30	30	–
VBF21  	**VBF21.50**	50	40	30	30	–
	VBF21.65	65	63	–	–	30
	VBF21.80	80	100	–	–	30
	VBF21.100	100	160	–	–	30
	VBF21.125	125	500	–	–	30
2...120 °C	**VBF21.150**	150	820	–	–	30

3-port slipper valves, externally and internally threaded	Typ	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
PN10	**VBG31.20**	20	G 1 1/4B	6.3	30	30	–
VBG31  	**VBG31.25**	25	G 1 1/2B	10	30	30	–
	VBG31.32	32	G 2B	16	30	30	–
2...120 °C	**VBG31.40**	40	G 2 1/4B	25	30	30	–
PN10	**VBI31.20**	20	Rp 3/4	6.3	30	30	–
VBI31  	**VBI31.25**	25	Rp 1	10	30	30	–
	VBI31.32	32	Rp 1 1/4	16	30	30	–
2...120 °C	**VBI31.40**	40	Rp 1 1/2	25	30	30	–

4-port slipper valves, internally threaded	Typ	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
PN10	**VCI31.20**	20	Rp 3/4	6.3	30	30	–
VCI31  	**VCI31.25**	25	Rp 1	10	30	30	–
	VCI31.32	32	Rp 1 1/4	16	30	30	–
2...120 °C	**VCI31.40**	40	Rp 1 1/2	25	30	30	–

Butterfly valves

High-end butterfly valves and powerful actuators for the most demanding requirements and a long service life

- Great rotary forces
- Directly coupled
- Long service life
- Low noise level
- Maintenance-free
- Air bubble-tight to DIN 3230

Rotary actuators SQL...

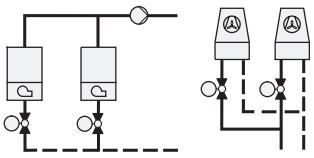
Positioning signal	Torque [Nm]	Positioning time [s]
3-port/AC 230 V 3-port/AC 24 V	10; 12.5; 20; 100; 400	6, 12, 30, 125

Butterfly valves VKF41 and VKF46

Pressure class	Temperature	k_{VS} [m³/h]	Leakage rate
PN6 PN10 PN16	-15...120 °C	11...4000	VKF...: 0.22...0.01 % of k_{VS} VKF46: Air bubble-tight

Butterfly valves for mounting between flanges, with rotary actuators 10 Nm to 400 Nm

Typical applications
- Shutoff or control
- For closed or open HVAC plants



Type of actuator	Torque		10/12.5 Nm	20 Nm	20 Nm	100 Nm	400 Nm
3-position **SQL33, 83** **SQL35, 85** **SQL36**	Positioning time [s] SQL33 SQL35 SQL33 SQL83 SQL36 SQL85 SQL36						
AC 230 V	30	125	**SQL33.03**	**SQL35.00**			
	125	6	**SQL33.00**			**SQL36E60**	
	125	12			**SQL35.00**		**SQL36E100**
AC 24 V	125		**SQL83.00**	**SQL85.00**	**SQL85.00**	–	–
Mounting kits			**ASK33**	**ASK35.1**	**ASK35.2**	–	–

Butterfly valves	Type reference	DN [mm]	k_{VS} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
PN16	**VKF41.40**	40	50	500	–	–	–	–
VKF41	**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	–	–	–	–
-15...120 °C	**VKF41.200**	200	4000	125	–	–	–	–
PN16	**VKF46.40**	40	50	–	1600	–	–	–
VKF46	**VKF46.50**	50	80	–	1600	–	–	–
	**VKF46.65**	65	200	–	1600	–	–	–
	VKF46.80	80	400	–	–	1600	–	–
	VKF46.100	100	760	–	–	1000	–	–
	VKF46.125	125	1000	–	–	800	–	–
	VKF46.150	150	2100	–	–	–	1200	–
	VKF46.200	200	4000	–	–	–	400	–
	VKF46.250	250	6400	–	–	–	–	1000
	VKF46.300	300	8500	–	–	–	–	600
	VKF46.350	350	11500	–	–	–	–	300
-15...120 °C	**VKF46.400**	400	14500	–	–	–	–	200

Small electromotoric valves 200 N

High-end actuators for the most demanding requirements

- Automatic detection of valve stroke
- Long service life
- Low noise level
- Plug-in connecting cable

Electromotoric actuators SSB

Positioning signal	Positioning force [N]	Stroke [mm]
3-position/AC 230 V 3-position/AC 24 V DC 0-10 V/AC 24 V	200	5.5

For great pressure differentials

- Long service life
- Single seat, metallically tight
- Dirt-resistant
- Low noise level
- Leakage rate < 0.02 %

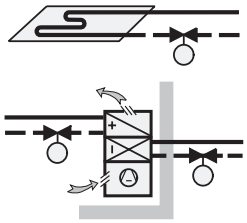
Small valves VMP43... and V.P45...

Pressure class	k_{VS} [m³/h]	Temperature	Characteristic
PN16	0.25...6.3	2...110 °C	Equal-percentage

Small 2-port and 3-port valves with 5.5 mm stroke actuators 200 N

Typical applications

- Terminal units
- Induction units
- Chilled ceilings



Type of actuators			Force		5.5 mm 200 N		
SSB	Positioning signal	Auxiliary switch	Positioning time [s] SSB31 SSB81	Positioning time [s] SSB61			
AC 230 V	3P	–	150	–	**SSB31**		
	3P	✓	150	–			**SSB31.1**
AC 24 V	3P	–	150	–	**SSB81**		
	3P	✓	150	–			**SSB81.1**
	0..10V	–	–	75		**SSB61**	

Valves	Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
PN16 **VVP45** 2...110 °C	**VVP45.10**[1]	10	G 1/2B	0.25/0.4/0.63/1/1.6	600	200	600	200	600	200
	VVP45.15[1]	15	G 3/4B	2.5	400	200	400	200	400	200
	VVP45.20[1]	20	G 1B	4	400	200	400	200	400	200
	VVP45.25[1]	25	G 1 1/4B	6.3	200	200	200	200	200	200
PN16 **VXP45** 2...110 °C	**VXP45.10**[1]	10	G 1/2B	0.25/0.4/0.63/1/1.6	600	200	600	200	600	200
	VXP45.15[1]	15	G 3/4B	2.5	400	200	400	200	400	200
	VXP45.20[1]	20	G 1B	4	400	200	400	200	400	200
	VXP45.25[1]	25	G 1 1/4B	6.3	200	200	200	200	200	200
PN16 **VMP45** 2...110 °C	**VMP45.10**[1]	10	G 1/2B	0.25/0.4/0.63/1	600	200	600	200	600	200
	VMP45.10[1]	10	G 1/2B	1.6	600	200	600	200	600	200
	VMP45.15[1]	15	G 3/4B	2.5	400	200	400	200	400	200
	VMP45.20[1]	20	G 1B	4	400	200	400	200	400	200

[1] The complete type reference also contains the k_{VS} value, e.g. VVP45.10-0,25

Valves	Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]	Δp_s [kPa]	Δp_{max} [kPa]
PN16 **VMP43(2)** 2...110 °C	**VMP43...(2)**[2]	10	G 1/2B	0.25/0.4	400	400	400	400	400	400
	VMP43...(2)[2]	10	G 1/2B	0.63/1	400	400	400	400	400	400
	VMP43...(2)[2]	15	G 3/4B	1.6	400	400	400	400	400	400
	VMP43...(2)[2]	15	G 3/4B	2.5	400	400	400	400	400	400
PN16 **VMP43** 2...110 °C	**VMP43...**[2]	10	G 1/2B	0.25/0.4	400	400	400	400	400	400
	VMP43...[2]	10	G 1/2B	0.63/1	400	400	400	400	400	400
	VMP43...[2]	15	G 3/4B	1.6	400	400	400	400	400	400
	VMP43...[2]	15	G 3/4B	2.5	400	400	400	400	400	400
PN16 **VMP43(4)** 2...110 °C	**VMP43...(4)**[2]	10	G 1/2B	0.25/0.4	400	400	400	400	400	400
	VMP43...(4)[2]	10	G 1/2B	0.63/1	400	400	400	400	400	400
	VMP43...(4)[2]	15	G 3/4B	1.6	400	400	400	400	400	400
	VMP43...(4)[2]	15	G 3/4B	2.5	400	400	400	400	400	400

[2] The complete type reference also contains the k_{VS} value, e.g. VMP43.09 with k_{VS} = 0.25 m³/h (also refer to Data Sheet 4841).

Small electromotoric and thermal valves 100 N

High-end actuators for demanding requirements **NEW**

- Automatic detection of valve stroke
- Long service life
- Low noise level
- Plug-in connecting cable

Electromotoric actuators SSP

Positioning signal	Positioning force [N]	Stroke [mm]
3-position/AC 230 V 3-position/AC 24 V DC 0-10 V/AC 24 V	100	2.5

Favorably priced 2-position actuators

- Absolutely no noise
- Long service life

Thermal actuators STP

Positioning signal	Positioning force [N]	Stroke [mm]
2-position/AC 230 V 2-position/AC 24 V	100	2.5

Favorably priced valves for standard applications

- Long service life
- Single seat
- Dirt-resistant
- Low noise level
- Leakage rate < 0.05 %

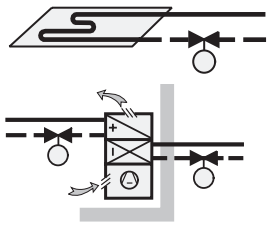
Small valves VVP47..., VXP47 and VMP47...

Pressure class	k_{VS} [m³/h]	Temperature	Characteristic
PN16	6.3...2.5	2...110 °C	Linear

Small 2-port and 3-port valves with 2.5 mm stroke actuators 100 N

Typical applications

- Terminal units
- Induction units
- Chilled ceilings



Type of actuator		Force		2.5 mm 100 N		
STP SSP	Positioning signal	Positioning time [s] STP SSP	STP SSP			
AC 230 V	2P	–	180	**STP21**		
	3P	–	150			**SSP31**
AC 24 V	2P	180		**STP71**		
	3P	150	43		**SSP81**	**SSP81.04**
	0..10V		34		**SSP61**	

Valves		Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_S [kPa]	Δp_{max} [kPa]	Δp_S [kPa]	Δp_{max} [kPa]	Δp_S [kPa]	Δp_{max} [kPa]
PN16 **VVP47** 2...110 °C		**VVP47.10**[1]	10	G 1/2B	0.63/1	100	100	100	100	100	100
		VVP47.10[1]	10	G 1/2B	1.6	100	100	100	100	100	100
		VVP47.15[1]	15	G 3/4B	2.5	100	100	100	100	100	100
		VVP47.20[1]	20	G 1B	4	40	40	40	40	40	40
PN16 **VXP47** 2...110 °C		**VXP47.10**[1]	10	G 1/2B	0.63/1	100	100	100	100	100	100
		VXP47.10[1]	10	G 1/2B	1.6	100	100	100	100	100	100
		VXP47.15[1]	15	G 3/4B	2.5	100	100	100	100	100	100
		VXP47.20[1]	20	G 1B	4	40	40	40	40	40	40
PN16 **VMP47** 2...110 °C		**VMP47.10**[1]	10	G 1/2B	0.63	100	100	100	100	100	100
		VMP47.10[1]	10	G 1/2B	1	100	100	100	100	100	100
		VMP47.10[1]	10	G 1/2B	1.6	100	100	100	100	100	100
		VMP47.15[1]	15	G 3/4B	2.5	100	100	100	100	100	100

Available from mid 2002

[1] The complete type reference also contains the k_{VS} value, e.g. VVP47.10-0.63

TRV / MCV line

High-end actuators for the most demanding requirements
- Automatic detection of valve stroke
- Long service life
- Low noise level
- Plug-in connecting cable

Motoric actuators SSA...

Positioning signal	Positioning force [N]	Stroke [mm]
3-position/AC 230 V 3-position/AC 24 V DC 0-10 V/AC 24 V	100	2.5...5.5

Favorable priced actuators for demanding requirements
- Absolutely no noise
- Long service life

Thermal actuators STA...

Positioning signal	Positioning force [N]	Stroke [mm]
2-position/AC 230 V 2-position/AC 24 V	100	2.5

Self-contained actuators
- Absolutely no noise
- Long service life
- Setpoint adjustment with knob

Thermostatic actuators RT...

Positioning signal	Positioning force [N]	Stroke [mm]
self-acting	8...28 °C	0.44 at Δt 2K

Preadjustable radiator valves
- Tested to EN 215
- Insert can be replaced while plant is under pressure

Radiator valves VD..., VE... and VU

Pressure class	k_{vs} [m³/h]	Temperature	Characteristic
PN10	0.25...3.4	3... 110 °C	Linear

For perfect hydraulic balancing
- No noise problems
- No line balancing valves required
- No hydraulic balancing required
- Simplified pressure drop calculation
- Creates comfort and saves energy

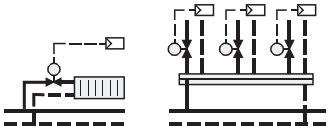
Pressure-compensated radiator valves VP... (MCV)

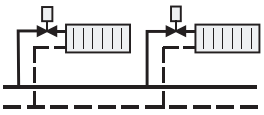
Pressure class	k_{vs} [m³/h]	Temperature	Characteristic
PN10	0.025... 0.483	3... 110 °C	Linear

NEW

Straight and angle radiator valves with small actuators

Typical applications





Type of actuator

STA
SSA

STA21	STA71	SSA31	SSA61	SSA81
2P/AC 230 V	2P/AC 24 V	3P/AC 230 V	DC 0...10 V	3P/AC 24 V

Type of actuator

RT
REH

RT56	REH90	RT76.052	RT86.2	RT96.27

Radiator valves		Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
PN10		**VD...10**	10	Rp/R 3/8″	0.25...1.1	150	150	150	150	150
VD		**VD...15**	15	Rp/R 1/2″	0.28...1.9	150	150	150	150	150
3...110 °C		**VD...20/125**	20/25	Rp/R 3/4″	0.25...2.6	150	150	150	150	150
PN10		**VE...10**	10	Rp/R 3/8″	0.25...2.2	150	150	150	150	150
VE		**VE...15**	15	Rp/R 1/2″	0.28...2.6	150	150	150	150	150
3...110 °C		**VE...20/125**	20/25	Rp/R 3/4″	0.25...3.4	150	150	150	150	150
VU		**VU215**	15	Rp/R 1/2″		150	150	150	150	150

Pressure-compensated radiator valves MCV		Type reference	DN [mm]	G [in]	k_{VS} [m³/h]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]	Δp_{max} [kPa]
PN10		**VPD110A-...**	10	Rp/R 3/8″	0.025...0.318	200	200	200	200	200
VPD		**VPD115A-...**	15	Rp/R 1/2″	0.025...0.318	200	200	200	200	200
		VPD110B-...	10	Rp/R 3/8″	0.031...0.483	200	200	200	200	200
3...110 °C		**VPD115B-...**	15	Rp/R 1/2″	0.031...0.483	200	200	200	200	200
PN10		**VPE110A-...**	10	Rp/R 3/8″	0.025...0.318	200	200	200	200	200
VPE		**VPE115A-...**	15	Rp/R 1/2″	0.025...0.318	200	200	200	200	200
		VPE110B-...	10	Rp/R 3/8″	0.031...0.483	200	200	200	200	200
3...110 °C		**VPE115B-...**	15	Rp/R 1/2″	0.031...0.483	200	200	200	200	200