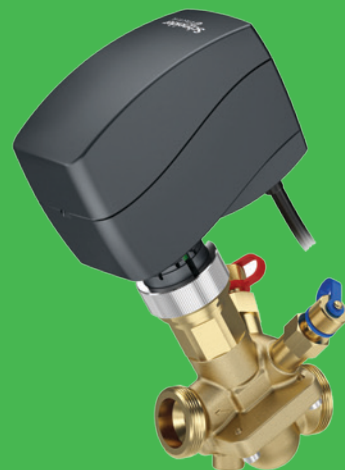


Life Is On

Schneider
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Valves & Actuators Catalog

EMEA/APAC Core Product Offer
EcoBuilding Division | Spring 2017



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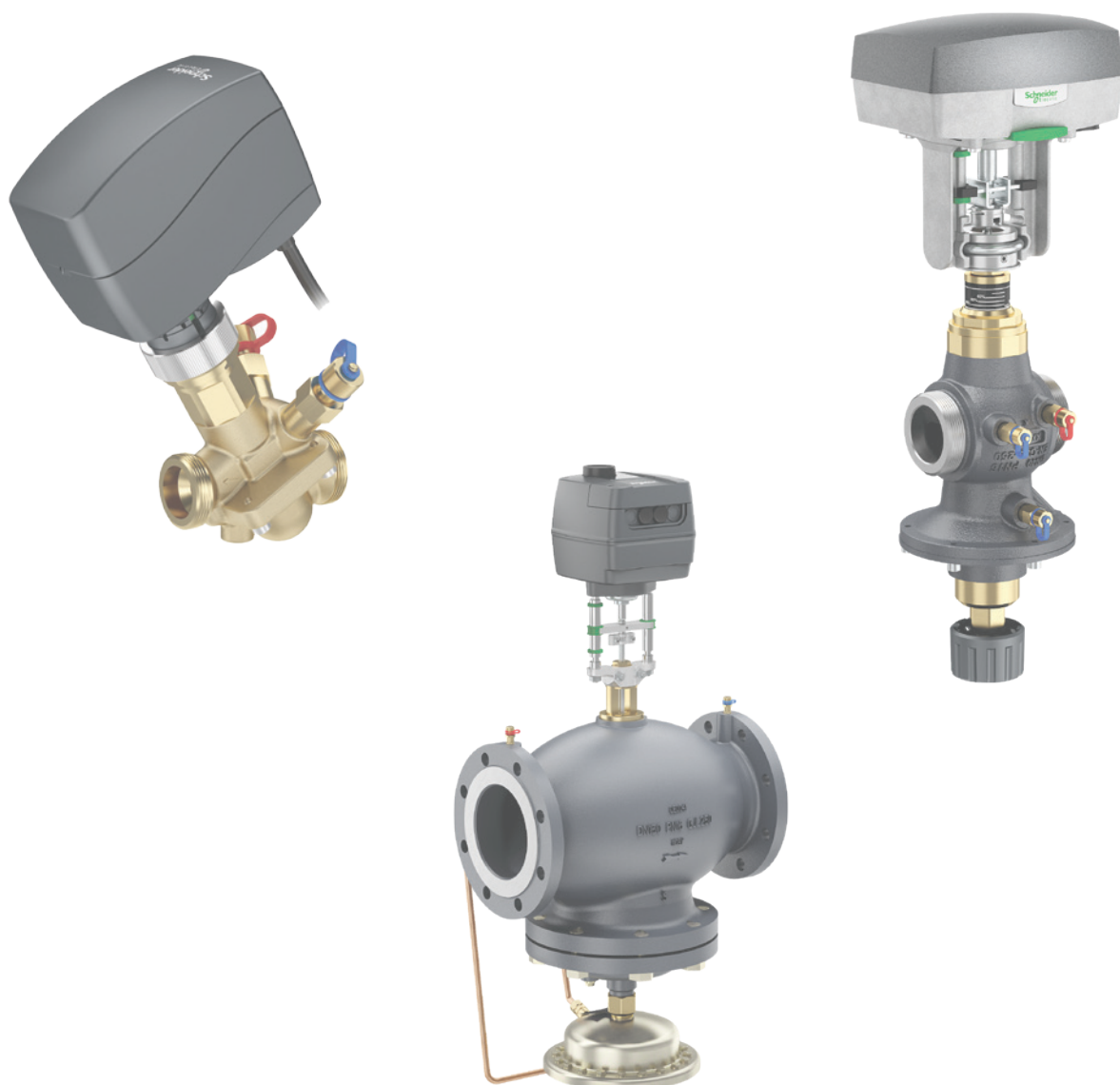
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Pressure Independent Balancing Control Valves provide the optimum control of fluid flow, unaffected by changes in system pressure. With inherent hydronic system balancing characteristics, PIBCV products provide the ultimate solution for the most energy efficient room temperature control.

Additional benefits include reducing time for system balancing and commissioning in a facility.



PIBCV Valves and Actuators

VP228E, VP229E, VP220E

The VP228E, VP229E, and VP220E are threaded pressure independent balance and control valves for use in heating and cooling circuits.

- Stable hydronic flow, independent of any change in system pressure.
- Without an actuator, the valve can be operated as an automatic balancing valve for flow limiting applications.
- Simple to calculate and adjust to the needed flow setting



DN10-32



DN40-50

Specifications

Pressure Class	PN16
Function	Normally Open / Stem Up
End Connection	External Thread, ISO 228/1
Media Temperature	-10...120°C
Leakage (ISO 5208)	
DN10-DN32	Tight - no visible leakage
DN40-DN50	Max. 0.05% of Q _{nom}
Stroke	
VP228E	2.25 mm
VP229E (DN15-DN20)	4.0 mm
VP229E (DN25-DN32)	4.5 mm
VP220E	10 mm

Materials	DN10...32	DN40...50
Valve body	DZR Brass	GG 25
Control Valve, Cone	Brass CW	Brass CW 614N
Seat	614N	SS 1.4305
Seals	DZR Brass	EPDM
	EPDM	

DN	Litres/Hour		Litres/Second		m³/hr		Δ P (Q _{nom}) (kPa)	Connection	Part No.		Suitable Actuator
	Q _{min}	Q _{nom} (100%)	Q _{min}	Q _{nom} (100%)	Q _{min}	Q _{nom} (100%)		Ext. Thread (ISO 228/1)	Without T/P ports	With T/P Ports	
DN10	30	150	0.008	0.042	0.03	0.15	16-600	G 1/2A	VP228E-10BQLNT	VP228E-10BQL	MP120 MP130 MP300-SR
	55	275	0.015	0.076	0.06	0.28			VP228E-10BQSNT	VP228E-10BQS	
DN15	55	275	0.015	0.076	0.06	0.28		G 3/4A	VP228E-15BQLNT	VP228E-15BQL	
	90	450	0.025	0.125	0.09	0.45			VP228E-15BQSNT	VP228E-15BQS	
	227	1,135	0.063	0.315	0.23	1.14	35-600		VP229E-15BQHNT		
DN20	180	900	0.050	0.250	0.18	0.90	16-600	G 1A	VP228E-20BQSNT	VP228E-20BQS	
	340	1,700	0.094	0.472	0.34	1.70	35-600		VP229E-20BQHNT		
DN25	340	1,700	0.09	0.47	0.34	1.70	20-600	G 1 1/4A	VP229E-25BQSNT	VP229E-25BQS	MP500C MP500C-SR
	545	2,700	0.15	0.75	0.54	2.70	35-600		VP229E-25BQHNT		
DN32	640	3,200	0.18	0.89	0.64	3.20	20-600	G 1 1/2A	VP229E-32BQSNT	VP229E-32BQS	
	800	4,000	0.22	1.11	0.80	4.00	35-600		VP229E-32BQHNT		
DN40	3,200	7,500	0.8	2.1	3.0	7.5	30-600	G 2A		VP220E-40CQS	MP500C MP500C-SR
DN50	5,000	12,500	1.4	3.5	5.0	12.5	30-600	G 2 1/2A		VP220E-50CQS	

Note: A Higher flow (Q max) is achievable on some sizes by increasing the pressure drop through the valve; please refer to specific technical data sheets.

ΔP : Differential Pressure Operating range. The differential pressure across the valve must be within the range specified for predictable, stable and fully adjustable flow to the limits detailed within.

Accessories

Part No.	Description	Quantity per Pack
911-4060-000	Commissioning Label Set / Flow Tag Hanger ID	50

VP220F, VP221F, VP222F

The VP220F, VP221F, and VP222F are flanged pressure independent balance and control valves for large flows in heating and cooling circuits.

- Stable Hydronic flow independent of any change in system pressure.
- Without an actuator, the valve can be operated as an automatic balancing valve for flow limiting applications.



Specifications

Pressure Class	PN16
Function	Stem Up Valve Open
End Connection	Flanged PN16, ISO 7005-2
Media Temperature	-20...120°C
Leakage (ISO 5208)	
DN50-100	0.05 % of Q_{nom}
DN125-250	0.01 % of Q_{nom}

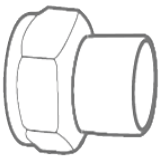
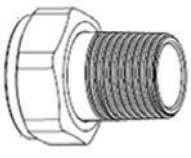
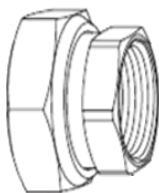
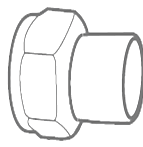
Materials	DN50-100	DN125	DN150-250
Valve body	GG25	GG25	GG25
Seals, Membranes	EPDM	EPDM, 1.4571	EPDM
Cone	CW 614N	1 (W.Nr.1.4404NC)	1.4021
Seat	1.4305	1.4305	1.4027
Springs	1.4568/1.4310	1.4401	1.4310
Gaskets	NBR	Graphite	Non-asbestos

DN	Litres/Hour		Litres/Second		m³/hr		$\Delta P (Q_{nom})$ (kPa)	Part No. with T/P Ports	Suitable Actuator
	Qmin	Qnom (100%)	Qmin	Qnom (100%)	Qmin	Qnom (100%)			
DN50	5,000	12,500	1.4	3.5	5.0	12.5	30-600	VP220F-50CQS	MP500C MP500C-SR
DN65	8,000	20,000	2.2	5.6	8.0	20.0		VP220F-65CQS	
DN80	11,200	28,000	3.1	7.8	11.2	28.0		VP220F-80CQS	
DN100	15,200	38,000	4.2	10.6	15.2	38.0		VP220F-100CQS	
DN125	36,000	90,000	10	25	36	90	40-600	VP221F-125CQS	MP2000 MP2000-SR
DN125	44,000	110,000	12	31	44	110	60-600	VP221F-125CQH	
DN150	58,000	145,000	16	40	58	145	40-600	VP221F-150CQS	
DN150	76,000	190,000	21	53	76	190	60-600	VP221F-150CQH	
DN200	76,000	200,000	21	56	76	200	40-600	VP222F-200CQS	MP4000
DN200	100,000	270,000	28	75	100	270	60-600	VP222F-200CQH	
DN250	112,000	300,000	31	83	112	300	40-600	VP222F-250CQS	
DN250	148,000	370,000	41	103	148	370	60-600	VP222F-250CQH	

Pipe Connections

The VP228E, VP229E and VP220E have Male threaded end connections for the attachment of various pipe connections.

Pipe connections are typically three piece separable design allowing the valve to be removed with minimal disruption to the pipework. On some sizes a two piece inseparable design is necessary and additional couplings may be required for practical disassembly.

Valve DN Size	Pipe Connection type	Part No.	Valve Connection	End Fitting Connection
DN10	 Solder	911 2113 010	G1/2	15mm*
DN15		911 2113 015	G3/4	15mm
DN15		911 2113 115	G3/4	22mm *
DN20		911 2113 020	G1	15mm
DN20		911 2113 120	G1	22mm
DN25		911 2113 025	G1.1/4	28mm
DN32		911 2113 032	G1.1/2	35mm
DN40		911 2113 040	G2	42mm
DN50		911 2113 050	G2.1/2	54mm
DN10	 R taper Male thread	911 2112 010	G1/2	R3/8
DN15		911 2112 015	G3/4	R1/2
DN20		911 2112 020	G1	R3/4
DN25		911 2112 025	G1.1/4	R1
DN32		911 2112 032	G1.1/2	R1. 1/4
DN40		911 2112 040	G2	R1.1/2
DN50		911 2112 050	G2.1/2	R2
DN10	 Female thread	911 2111 010	G1/2	G1/2*
DN15		911 2111 015	G3/4	G1/2*
DN20		911 2111 020	G1	G1/2
DN25		911 2111 025	G1.1/4	G3/4
DN32		911 2111 032	G1.1/2	G1
DN40		911 2111 040	G2	G1.1/4
DN50		911 2111 050	G2	G1.1/2 F
DN20	 Weld	911 2115 020	G1	26.9mm
DN25		911 2115 025	G1.1/4	33.7mm
DN32		911 2115 032	G1.1/2	42.4mm
DN40		911 2115 040	G2	48.3mm
DN50		911 2115 050	G2.1/2	60.3mm

* two piece compact design (inseparable); additional coupler may be needed to ease assembly / disassembly

MP130 Actuators

The MP130 is a family of compact and low power motoric actuators that drive the DN10...32 SmartX PIBCV in various hydronic HVAC applications.

The modulating actuators have fine positional control and are self calibrating to the adjustable stroke/flow setting in the VP228E and VP229E valves which provide optimal hydronic control.

- Low Noise Operation
- Overload Protection
- Manual override in all models



Specifications

Close off force	130 N	Ambient temperature	0... 55 °C
Stroke	5 mm	Storage / transp. temp	-40 ...70 °C
Relative humidity	max. 80 %	Grade of enclosure	IP 42
Max. medium temperature	120 °C	Weight	0.3 kg

Part No.	Control Signal (Y)	Speed	Position Feedback (U)	Cable Length (m)	Voltage (50/60 Hz)	Power consumption running (standby)
MP130-24M	0 (2)...10 Vdc	24	N	1.5	24 Vac	2 VA (.5 w)
MP130-24M-10M	0 (2)...10 Vdc	24	N	10	24 Vac	2 VA (.5 w)
MP130-24MP	0 (2)...10 Vdc	24	0 (2)...10 Vdc	1.5	24 Vac	1.5 VA (.4 W)
MP130-24MP-10M	0 (2)...10 Vdc	24	0 (2)...10 Vdc	10	24 Vac	1.5 VA (.4 W)
MP130-24T	two position	12	N	1.5	24 Vac	1 VA
MP130-230T	two position	12	N	1.5	230 Vac	8 VA
MP130-24F	floating	24	N	1.5	24 Vac	1 VA (0W)
MP130-24F-10M	floating	24	N	10	24 Vac	1 VA (0W)
MP130-230F	floating	24	N	1.5	230 Vac	8 VA (0W)

Note: Actuators with 5 m and 10 m cable length are produced on request. Please note this increases lead time.

MP120/MP140

MP120NC and MP140NO are small thermoelectric valve actuators in zone applications for two-point and pulse-width-modulated (PWM) regulation of the SmartX PIBCV valves, from DN10 to DN32. The MP120 has a manual override operation for easy flushing.

- Water-protected housing design in all mounting positions
- Pluggable cable for easy installation and servicing
- Low power consumption – allowing many actuators to be driven from the same controller
- Visual indicator showing valve position and type of action (NO or NC)



MP120 NC



MP140 NO

Specifications

Power supply	
MP120xx-24T:	24 Vac/dc $\pm$ 20%
MP120xx-230T:	230 Vac + 10%...15%
Power consumption	2 W
Ambient temperature	Max. 50 °C
Protection standard	IP44 in all mounting positions
Cable length (standard)	1.5 m
Cable size	2 x 0.5 mm ²
Medium temperature	Max. 120 °C
Valve connection	M30 x 1.5
Stroke Range	
MP120NC	8 mm
MP140NO	4 mm

Part Number	Action	Voltage	Operational Flow Range	
			VP228E	VP229E
MP120NC-24T	Normally Closed (Stem Down)	24 Vac/dc	20-120%	20-110%
MP120NC-230T		230 Vac		
MP140NO-24T	Normally open (Stem Up)	24 Vac/dc	20-120%	20-80%
MP140NO-230T		230 Vac		

MP140NO is limited to 80% of Q_{nom} on VP229E

MP300-SR

MP300-SR actuators with Floating and Proportional control are low voltage motoric actuators for the Smart X PIBCV DN10-32 Valves. These actuators have a spring return safety function that provides for an open or close valve in the event of power loss. The Spring return safety function should not be used for two position control.

Specifications

Power supply	24 V; +10...-15 %; AC
Frequency	50/60 Hz
Power consumption	9 VA
Control input Y	0...10 (2...10) V 0...20 (4...20) mA
Output signal U	0...10 (2...10) V
Speed	11.75 (50 Hz) s/mm
Max. medium temperature	120 °C
Ambient temperature	0...55 °C
Grade of enclosure	IP 54
Weight	0.8 kg



Part No.	Spring Return Direction	Linkage Type (included with actuator)
MP300-SRU	Up - Normally Open	Adapter
MP300-SRD	Down - Normally Closed	Spacer

MP500C

MP500C linear electro-mechanical actuator for the control of the VP220 SmartX PIBCV, DN40-100.

MP500C is controls either by an increase/decrease floating signal or by a range of modulating control signals between the span of 0...10V.

- High resolution control for precise fluid control.
- Working range and end point switches calibrate to any stroke and flow setting of the valve.
- Fixed proportional running time of 15s regardless of valve stroke.
- Multi-signal control for either 3-point increase/decrease signal or various modulating control signals including sequencing.

Specifications

Supply Voltage	4 Vac +/- 10%, 50...60Hz 24 Vdc +/- 15%
Power consumption	average 15 VA
Transformer sizing	50 VA
Running time	
Modulating	15 s
Increase/decrease	300 s/60 s
Duty cycle	max. 20%/60 minutes
Analog input (Y-M)	
Voltage Range	0...10 Vdc
Selectable Input signals	2...10 V, 0...5 V, 2...6 V, 5...10 V, 6...10 V
Impedance	minimum 100 k Ohm
Digital input (Y2-Y1)	
Voltage across open input	24 Vac
Current through closed input	5 mA
Minimum Pulse time	20 ms
Output U (Position Feedback Signal)	2...10 V
Load	2 mA



- Stroke Indicators on the yoke provide clear visual indication to the valves opening position.

Environmental	
Operation temperature	-10...+50 °C
Storage temperature	-25...+65 °C
Ambient humidity	max. 90% RH non-condensing
Enclosure rating	IP 54 (NEMA 2)
Sound power level	max. 32 dBA
Material	
Housing	Aluminium
Cover	ABS/PC plastic
Color	aluminium/grey
Weight	1.8 kg (3.96 lb.)

Part No.	Description	SmartX Valve Size
MP500C	Forta Multi-signal control actuator	DN40-100
880-0104-000	S2 (Aux End Switch)	

MP500C-SR

The MP500C-SR is spring return linear electro-mechanical actuator for the control of the VP220 SmartX PIBCV, DN40-100.

- Universal control input and self calibrating to any valve setting.
- High resolution control board allows precise fluid control.
- Working range and end point switches calibrate to any stroke and flow setting of the valve.
- A proportional set running time of 15s regardless of valve stroke.
- Stroke Indicators on the yoke provide clear visual indication to the valves opening position.



Specifications

MP500C-SRU	Stem up (retract)
MP500C-SRD	Stem down (extend)
Voltage supply	24 Vac $\pm 10\%$ 50-60Hz
Power consumption	
Running	30 VA (21 W)
Rest	7 W
Running Time	
Modulating	15 sec.
Increase/decrease	60/300 sec. (selectable)
Spring return	13 sec.
Transformer Sizing	50 VA
Stroke	2...35 mm
Force, nominal	500 N
Analog input Voltage range	0...10 Vdc
Selectable input signals	0...10, 2...10, 0...5, 2...6, 5...10, 6...10 Vdc
Digital inputs, Y1, Y2	
Voltage across open input	24 Vac
Current through closed input	5 mA
Minimum Pulse time	20 ms
Output, Y (Feedback)	2...10 Vdc or 0...5 Vdc (0-100%) - Load 2 mA

Environmental	
Operation and Storage	
Temperature	-10 / +50 °C
Ambient Humidity	max 90% RH
Enclosure rating	IP54
Sound power level	43 dBa
Max cable core diameter	2.5 mm ²
S2 Auxillary Switch Relay	SPDT, 24 Vac 4A AC1 (contacts made at 5% and 95% of end stroke)
Weight	2.8 Kg

Part Number	Spring Return Direction	Function on Power Failure	SmartX Valve Size
MP500C-SRU	Spring return (stem up)	Valve Open	DN40-100
MP500C-SRD	Spring return (stem down)	Valve Closed	
880-0104-000	S2 auxiliary end point switches		

MP2000

MP2000 actuator is used with pressure independent balancing and control large valve type SmartX PIBCV DN 125 and DN 150. The actuator has universal control inputs and is self-calibrating.

- Over load protected.
- Diagnostic LED for operational data capture and self-stroking feature.
- Manual override.

Specifications

Power supply	24 Vac, +10...-15%
Power consumption	9 VA
Frequency	50 / 60 Hz
Control signal input	Modulating and 3 Point floating
Control input Y	0...10 V(2...10) Ri = 24 kΩ 0...20 mA (4...20) Ri = 500 Ω
Output signal X	0...10 V (2...10)
Speed	8 s/mm
Max. medium temperature	200 °C
Ambient temperature	0...55 °C



Storage / transp. temp	-40...+70 °C
Protection class	III safety extra-low voltage
Degree of protection	IP 54
Weight	3.8 kg

Part No.	Description	SmartX Valve Size
MP2000	Multi-signal Actuator, Fail in place	DN125-150

MP2000-SR

The MP2000-SR is a spring return actuator used with the DN125-150 SmartX PIBCV.

The actuator has universal control inputs and is self-calibrating .

- Manual operation mechanical and/or electrical
- Position indication, LED signalization
- Selectable speed 4 or 6 s/mm
- Integrated external switch
- Linear to EQ% Curve Adaptation
- Anti-oscillation function
- 3-point floating or modulating control selection
- Thermal and overload protection
- Precise regulation and fast response on 3-point signal (0.01 s)

Specifications

Nominal voltage	24 Vac/Vdc, 50 Hz/60 Hz
Power consumption	19.2 VA (24 V)
Control input signal	Modulating or 3-point floating
Control input Y	0...10 V (2...10 V) Ri = 24 kΩ 0...20 mA (4...20 mA) Ri = 500 Ω
Position Feedback U	0...10 V (2...10 V)
Speed (selectable)	4 or 6 s/mm
Ambient temperature	0...+ 55 °C



Grade of enclosure	IP 54
Weight	8.6 kg
Safety function runtime/50 mm stroke	120 s
Manual operation	Electrical and Mechanical

Part No.	Description	SmartX Valve Size
MP2000-SRU	Stem UP, retracts (valve open)	DN125-150
MP2000-SRD	Stem Down, extends (valve closed)	

MP2000-SR-230

The MP2000-SR-230 is a line voltage spring return actuator for the DN125-150 SmartX PIBCV.

The actuator has universal control inputs and is self-calibrating.

- Manual operation mechanical and/or electrical
- Position indication, LED signalization
- Integrated external switch
- 3-point or modulating control selection

Specifications

Nominal voltage	230 Vac/Vdc, 50 Hz/60 Hz
Control input signal	Modulating or 3-point
Control input Y	0...10 Vdc (2-10) 0...20 mA (4-20) 3-point
Control output U	0...10 Vdc (2-10) 0...20 mA (4-20)
Speed (selectable)	2 or 6 s/mm
Ambient temperature	0...+ 55
Humidity	5...95%
Grade of enclosure	IP 54
Power consumption (VA)	35.7



Weight (kg)	8.6
Safety function runtime/50 mm stroke (s)	120
Manual operation	Electrical and Mechanical

Part No.	Spring Return Direction	SmartX Valve Size
MP2000-SRU-230	Stem Up (Valve Open)	DN125-150
MP2000-SRD-230	Stem Down (Valve Closed)	

MP4000

The MP4000 is a powerful universal control actuator for the DN200 and DN250 Smart X PIBCV.

- Universal input control and self-calibrating.
- Manual operation mechanical and/or electrical
- Position indication, LED signalization
- Integrated external switch
- Characteristic optimization
- 3-point floating or modulating control selection
- Thermic and overload protection
- Precise regulation and fast response on 3-point signal (0.01 s)

Specifications

Power supply	24 Vac/Vdc (+10, -15%)
Power consumption	35 VA (24 V) 50 VA (230 V)
Signal (mA)	10 mA
Frequency (Hz)	50/60 Hz
Control input Y	0...10 Vdc (2...10 Vdc); 0...20 mA (4...20 mA)
Control output U	0...10 Vdc (2...10 Vdc); 0...20 mA (4...20 mA)
Speed (selectable)	3 s/mm or 6 s/mm
Max. spindle travel	80 mm
Max. medium temperature	200 °C



Ambient temperature	0...+ 55 °C
Storage / transport temperature	-40...+70 °C
Humidity	5...95%
Protection class	II
Grade of enclosure	IP 54, Type 2
Electrical connection	conduit
Weight (kg)	7.5
Manual operation	Electrical and mechanical
Power failure response	Stem remains in last position

Part No.	Description	SmartX Valve Size
MP4000	Multi-signal control, Fail in place	DN200-250

Notes



EPC 1089

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E6

Zone Valves and Actuators

Zone valves provide hydronic flow control in terminal units such as fan coils. A comprehensive range of products is provided with a large selection of capacities, connection types and choice in electrical actuator control.



Zone Valves and Actuators

VZ*08*

The VZ*08* short stroke (2.5mm) zone valves are small linear valves designed for control of hot and chilled water in fan coils or other terminal unit applications.

These particular valves are designed to be used with thermo-electric actuators type MZ140, which is available in an on/off or a modulating variant.



Specification

Valve types	2-way, 3-way, 3-way with bypass
Pressure class	PN16
Stroke	2.5 mm
Max fluid speed	3 m/s
Media	Water, water+glycol (30% max)
Temperature	5...95°C
Leakage	0% tight close-off

Materials	Brass (CW617N)
Valve body	Glass reinforced PPS
Trim	Stainless steel (AISI 303)
Stem	Double EPDM O-ring
Stem packing	EPDM
Plug sealing	

		VZ*08E		VZ*08C				
Two-way valves		Flat face		Compression*		Kvs		Max Close-off – kPa
Size	Kv	Part No.	Connection	Part No.	MZ140-xxT	A-AB	B-AB	MZ140
DN15	0.25	VZ208E-15BP01	G1/2A	VZ208C-15BP01	15mm	0.25	--	250
DN15	0.4	VZ208E-15BP02	G1/2A	VZ208C-15BP02	15mm	0.4		
DN15	0.6	VZ208E-15BP03	G1/2A	VZ208C-15BP03	15mm	0.6		
DN15	1	VZ208E-15BP04	G1/2A	VZ208C-15BP04	15mm	1		
DN15	1.6	VZ208E-15BP05	G1/2A	VZ208C-15BP05	15mm	1.6		
DN20	2.5	VZ208E-20BP07	G3/4A	VZ208C-20BP07	22mm	2.5		
DN20	4	VZ208E-20BP08	G3/4A					150
DN20	6	VZ208E-20BP09	G3/4A					
Three-way valves								
DN15	0.25	VZ308E-15BP01	G1/2A	VZ308C-15BP01	15mm	0.25	0.25	250
DN15	0.4	VZ308E-15BP02	G1/2A	VZ308C-15BP02	15mm	0.4	0.4	
DN15	0.6	VZ308E-15BP03	G1/2A	VZ308C-15BP03	15mm	0.6	0.6	
DN15	1	VZ308E-15BP04	G1/2A	VZ308C-15BP04	15mm	1	0.8	
DN15	1.6	VZ308E-15BP05	G1/2A	VZ308C-15BP05	15mm	1.6	1	
DN20	2.5	VZ308E-20BP07	G3/4A	VZ308C-20BP07	22mm	2.5	1.6	150
DN20	4	VZ308E-20BP08	G3/4A					100 A-AB 40 B-AB
DN20	6	VZ308E-20BP09	G3/4A					
Three-way valves with integral by-pass (4 ports)								
DN15	0.25	VZ408E-15BP01	G1/2A	VZ408C-15BP01	15mm	0.25	0.25	250
DN15	0.4	VZ408E-15BP02	G1/2A	VZ408C-15BP02	15mm	0.4	0.4	
DN15	0.6	VZ408E-15BP03	G1/2A	VZ408C-15BP03	15mm	0.6	0.6	
DN15	1	VZ408E-15BP04	G1/2A	VZ408C-15BP04	15mm	1	0.8	
DN15	1.6	VZ408E-15BP05	G1/2A	VZ408C-15BP05	15mm	1.6	1	
DN20	2.5	VZ408E-20BP07	G3/4A	VZ408C-20BP07	22mm	2.5	1.6	150
DN20	4	VZ408E-20BP08	G3/4A					100 A-AB 40 B-AB
DN20	6	VZ408E-20BP09	G3/4A					

* Nuts and Olives supplied with Valve

MZ140

MZ140 thermo-electric actuators are wax filled actuators that provide either on/off or modulating control for the VZ*08* zone valves.

- Compact construction
- Silent Operation
- Low Power consumption



MZ140-24T / 230T



MZ140-24M

Specification

Temperature	Working: 2...50°C
Storage:	-10...60°C
Stem force	140N
Max stroke	
MZ140-24T / 230T	4 mm
MZ140-24M	2.5mm

Coupling ring	M30 x 1.5
Power cable	2m bipolar (0.75mm ²)
Materials	
Fire-resistant case	Class V0
Protection class	IP 44 (for vertical mounting)

Part number	Full Type Designation	Control signal	Power	Power consumption	Initial consumption
			Vac	VA	A
MZ140-230T	MZ140-110/230T 2M44 00	On/Off	110-230	1.8	0.25
MZ140-24T	MZ140-24T 2M44 00	On/Off	24	1.8	0.17
MZ140-24M	MZ140-24M 2M44 00	0...10 V modulating	24	1.8	0.2

Connections for VZ*08* Series Zone Valves									
	Connection type	Pipe size	DN	a	c (mm)	d	e	Part number	Pack quantity
	Flat Face External thread to Solder*	15mm	15	G 1/2	12	--	--	911 2076 000	1
		12mm	20	G 3/4	15	--	--	911 2077 000	1
	External Thread	R 3/8"	15	G 1/2	--	R 3/8	--	911 2078 010	10
		R 1/2"	20	G 3/4	--	R 1/2	--	911 2079 010	10
	Flat face external thread to compression*	15 mm	15	G 1/2	--	--	15	911 2080 000	1
		22 mm	20	G 3/4	--	--	22	911 2081 000	1
	Compression Capnut and olive	15 mm	15	G1/2A	--	--	15	911 2082 000	10
		20 mm	20	Withworth 1 1/8" - 14	--	--	22	911 2083 000	10

*One fitting required per valve port

VZ*19*

These long stroke (5.5mm) small linear zone valves are designed for the regulation in flow of hot and chilled water in fan coils or other terminal unit applications.

These particular valves are designed to be used with the compact electro-mechanical actuators type MZ20.



Specification

Pressure class	PN16	Leakage	0% tight close-off
Stroke	5.5 mm	Rangeability	50:1
Max fluid speed	3 m/s	Materials	
Media temperature range	2...95°C	Valve body	Brass (CW617N)
Max. Glycol concentration	30%	Trim	Glass reinforced PPE
Flow Characteristics		Stem	Stainless steel (AISI 303)
Equal percentage	On direct (A-AB) way	Stem packing	Double EPDM O-ring
Linear	On by-pass (B-AB) way	Plug sealing	EPDM

		VZ*19E		VZ*19C				
Two-way valves								
		Flat face external thread		Compression End Connection*		Kvs		Close-off
Size	Kv	Part No.	Connection	Part No.	Connection	A-AB	B-AB	MZ20 actuator
DN 15	0.25	VZ219E-15BP01	G1/2A	VZ219C-15BP01	15mm	0.25	--	350
DN 15	0.4	VZ219E-15BP02	G1/2A	VZ219C-15BP02	15mm	0.4		
DN 15	0.6	VZ219E-15BP03	G1/2A	VZ219C-15BP03	15mm	0.6		
DN 15	1	VZ219E-15BP04	G1/2A	VZ219C-15BP04	15mm	1		
DN 15	1.6	VZ219E-15BP05	G1/2A	VZ219C-15BP05	15mm	1.6		
DN 15	2	VZ219E-15BP06	G1/2A	VZ219C-15BP06	15mm	2		250
DN 20	2.5	VZ219E-20BP07	G3/4A	VZ219C-20BP07	22mm	2.5		
DN 20	4	VZ219E-20BP08	G3/4A					150
DN 20	6	VZ219E-20BP09	G3/4A					
Three-way valves								
DN 15	0.25	VZ319E-15BP01	G1/2A	VZ319C-15BP01	15mm	0.25	0.25	350
DN 15	0.4	VZ319E-15BP02	G1/2A	VZ319C-15BP02	15mm	0.4	0.25	
DN 15	0.6	VZ319E-15BP03	G1/2A	VZ319C-15BP03	15mm	0.6	0.4	
DN 15	1	VZ319E-15BP04	G1/2A	VZ319C-15BP04	15mm	1	0.6	
DN 15	1.6	VZ319E-15BP05	G1/2A	VZ319C-15BP05	15mm	1.6	1	
DN 15	2	VZ319E-15BP06	G1/2A	VZ319C-15BP06	15mm	2	1.6	150
DN 20	2.5	VZ319E-20BP07	G3/4A	VZ319C-20BP07	22mm	2.5	1.6	
DN 20	4	VZ319E-20BP08	G3/4A					100 A-AB 40 B-AB
DN 20	6	VZ319E-20BP09	G3/4A					
Three-way valves with integral by-pass (4 ports)								
DN 15	0.25	VZ419E-15BP01	G1/2A	VZ419C-15BP01	15mm	0.25	0.25	350
DN 15	0.4	VZ419E-15BP02	G1/2A	VZ419C-15BP02	15mm	0.4	0.25	
DN 15	0.6	VZ419E-15BP03	G1/2A	VZ419C-15BP03	15mm	0.6	0.4	
DN 15	1	VZ419E-15BP04	G1/2A	VZ419C-15BP04	15mm	1	0.6	
DN 15	1.6	VZ419E-15BP05	G1/2A	VZ419C-15BP05	15mm	1.6	1	
DN 15	2	VZ419E-15BP06	G1/2A	VZ419C-15BP06	15mm	2	1.6	250
DN 20	2.5	VZ419E-20BP07	G3/4A	VZ419C-20BP07	22mm	2.5	1.6	
DN 20	4	VZ419E-20BP08	G3/4A					100 A-AB 40 B-AB
DN 20	6	VZ419E-20BP09	G3/4A					

Nuts and olives supplied with the compression end connection valve

MZ20A, MZ20B

The long stroke MZ20 is an electro-mechanical zone valve actuator designed for use with the VZ*19* valves.

The actuator provides precise valve position and flow for good hydronic control.

Reliable long term operation is provided by the optimal design without feedback potentiometer or end switches.



Specification

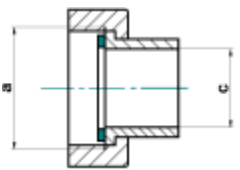
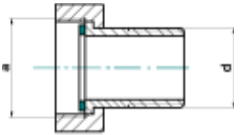
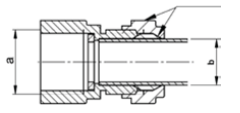
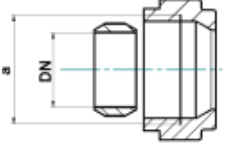
Input voltage MZ20A	24 Vac, 50/60 Hz
Input voltage MZ20B	24 Vac or 230 Vac 50/60 Hz
Power consumption MZ20A	1 VA
Power consumption MZ20B-24	0.7 VA
MZ20B-230	5 VA
Speed	18 s/mm (50 Hz) – 15 s/mm (60 Hz)
Temperature Working	-5...+55°C
Storage	-25...+65°C
Stem force	200 N
Max stroke	5.5 mm
Connection cable	3 wires 1.5 m
Protection class	IP 43 (for vertical mounting)

MZ20A/B zone valve actuator for VZ*19 valves

Part number	Description	Control
845-5051-000	MZ20A	Selectable*
845-5052-000	MZ20A-R	0...10 V
845-5001-000	MZ20B-24	3P-24 Vac
845-5003-000	MZ20B-230	3P-230 Vac

* 0...10 V, 6-9V, 1-5V, 2...10 V, 4...7 V, 6...10 V, 8...11 V

Connections for VZ*08* Series Zone Valves

	Connection type	Pipe size	DN	a	c (mm)	d	e	Part number	Pack quantity
	Flat Face External thread to Solder *	15mm 12mm	15 20	G 1/2 G 3/4	12 15	-- --	-- --	911 2076 000 911 2077 000	1 1
	External Thread	R 3/8" R 1/2"	15 20	G 1/2 G 3/4	-- --	R 3/8 R 1/2	-- --	911 2078 010 911 2079 010	10 10
	Flat face external thread to compression *	15 mm 22 mm	15 20	G 1/2 G 3/4	-- --	-- --	15 22	911 2080 000 911 2081 000	1 1
	Compression Capnut and olive	15 mm 20 mm	15 20	G1/2A Withworth 1 1/8" - 14	-- --	-- --	15 22	911 2082 000 911 2083 000	10 10

*One fitting required per valve port.



Radiator Valve Actuators

Our selection of short stroke valve actuators is designed for BMS automation of fluid control in radiators and under floor heating manifolds. The Schneider-Electric range provides a dependable discreet design in every variant.



Radiator Valve Actuators

MR95

The MR95 is a small thermoelectric linear radiator valve actuator used in room applications for time-controlled two-point (On/Off) and pulse-width-modulated (PWM) regulation radiators or underfloor heating manifolds.

The MR95 is a discreet design actuator suitable for living space installations.



Specification

Max. stroke	4 mm
Supply voltage	MR95xx-24T: 24 Vac/dc $\pm$ 20% MR95xx-230T: 230 Vac $\pm$ 10%-15%
Stem force	95 N
Ambient temperature	Max. 50°C
Power consumption	2 W
Protection standard	IP44 in all mounting positions
Cable length (standard)	1.5 m
Cable size	2 x 0.5 mm ²
Medium temperature	Max. 120°C
Radiator connection	M30 x 1.5

Available Products			
Part No.	Type Designation	Action ¹	Voltage
MR95NC-24T	MR95-NCD-24T 1.5M54 00	Normally closed (stem down)	24 Vac/Vdc
MR95NO-24T	MR95-NOU-24T 1.5M54 00	Normally open (stem up)	
MR95NC-230T	MR95-NCD-230T 1.5M54 00	Normally closed (stem down)	230 Vac
MR95NO-230T	MR95-NOU-230T 1.5M54 00	Normally open (stem up)	

¹Without power, in combination with standard radiator valve.

"Normally Closed" = Actuator stem extends downward without power closing the valve, retracts when powered to open the valve.

"Normally Open" = Actuator stem retracts upward without power opening the valve, extending when powered to close the valve.

Part Number and Accessories

Part No.	Description
911 4202 500	Additional cable set 2.5M, 10 pcs
911 4205 000	Additional cable set 5M, 10 pcs
911 4210 000	Additional cable set 10M, 10 pcs

Compatible Radiator Valves

Manufacturer	Type
Drayton	TRV 4
Honeywell	M30x1.5, all
Empur	M30x1.5
Heimeier	M30x1.5
Junkers	M30x1.5
Oventrop	M30x1.5
Siemens	Duogyr, M30x1.5
TA	M30x1.5 ²

² Some older TA valves are M28 and not suitable for the MR95.

MZ09L

The MZ09L LON® actuator is designed for decentralised building structures and gives customers an effective new capability in energy management and product flexibility. The actuator works with standard SNVTs to provide interoperability with controllers based on LonWorks® technology.

The MZ09L small linear actuator is specifically designed to provide LonMark® capabilities together with radiator valves and is used in fan coil units, induction units, small reheaters and recoolers, and for zone control applications. The MZ09L actuator is suitable for LonWorks technology. Using standard Echelon configuration tools, the actuator can be configured with job specific settings.

Specification

Power supply	24 Vac, ± 20%, 50/60 Hz
Power consumption	1.4 VA
Control signal	SNVT_lev_percent 0...100%
Network protocol	LonTalk®
Channel	FTT10A
Stroke	2.5mm
Running time	53s at 50 Hz 44s at 60 Hz
Stem force	90 N (for valves DN 15-20)
Protection standard	IP 42
Insulation class	III
Connection cables	1.5 m, three leads 1.5 m, two leads
Coupling ring	M 30 x 1.5
Ambient operating temperature	0...55°C
Enclosure rating	IP 42



MZ09L actuator for radiator valves

Part number	Description
845-5112-000	MZ 09L(LON) 2.5mm

Suitable valves

Manufacturer	Valve type	Adapter
Honeywell	V100, V200	Not required
Heimeier		Not required
Siemens L&S	Duogyr	Not required
Danfoss	Series RA2000, RA-PN, RA-N, RA-U, RA-G	911-2075-000
Danfoss	Series RAVL	911-2074-000

MZ09B

The MZ09B actuator is designed to provide 3-point control together with radiator valves. The MZ09B actuator is used for radiator valves in fan coil units, induction units, small reheaters and recoolers, and for zone control applications. The absence of end switches and feedback potentiometer provides longtime reliability.

Specification

Input voltage	24 Vac + 10 % / -30 %; 50/60 Hz
Power consumption	0.7 VA
Control mode	Floating (3-point)
Stroke	1.6 mm controlled valve stroke 7.9 mm complete actuator stroke
Running time	36 s / 1.6 mm valve stroke
Stem force	90 N
Protection standard	IP 43 in accordance with EN 60529
Connection cable	0.9 m
Coupling ring	M 30 x 1.5
Ambient operating temperature limits	0...60°C
Enclosure rating	IP 42



MZ09B actuator for radiator valves

Part number	Description
845 5111 000	MZ 09B 2.5mm

Suitable valves

Manufacturer	Valve type	Adapter
Honeywell	V100, V200	Not required
Heimeier		Not required
Siemens L&S	Duogyr	Not required
Danfoss	Series RA2000, RA-PN, RA-N, RA-U, RA-G, RA-UR, RA-KE, RA-K	911-2075-000
Danfoss	Series RAVL	911-2074-000

Hot and Chilled Water

2-way

PN16

DN15-50



V241

DN65-150



VG221F

PN25

DN15-50



V231

DN65-150



V292

3-way

PN16

DN15-50



V341

DN65-150



VG311F



V211T



V211



V212T (balanced)



V212
(balanced)



V232
(balanced)



V311T



V311

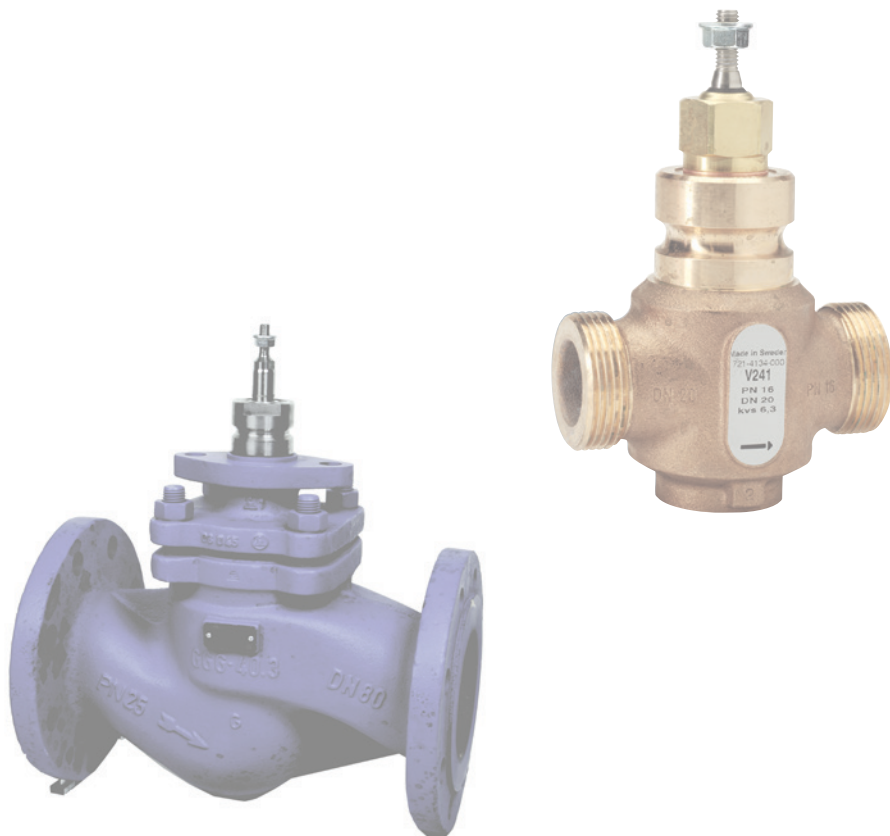
Steam (2-way, 200°C, PN16, DN15-100)



VGS211F

Globe valves provide the finest level of fluid control. The Schneider-Electric portfolio covers an extensive range of products for almost any working pressure and flow capacity.

Globe valves can be serviced to provide a very long and reliable working life to any plant they are installed within.



V241

The V241 is a high quality general purpose valve. Polished stainless seats provide high differential pressure capability and low leakage.

Suitable for a wide range of applications such as heating, cooling, air handling, domestic hot water, and district heating applications. The valve can handle hot and cold water with phosphate, hydrazine and antifreeze additives.

If the valve is used for media at temperatures below 0°C (32°F), it should be equipped with a heater to prevent ice formation on the valve stem.



Specification

Design	2-way plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	20 mm
Rangeability (Kvs/Kv min.)	(refer to table)
Leakage	up to 0.02% of Kv
ΔPm	600 kPa, water
Max. temperature of medium	150°C
Min. temperature of medium	-20°C

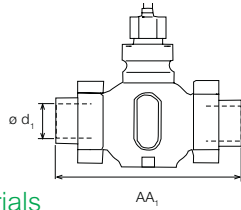
Max. glycol/concentration	50%
Connection	External pipe thread according to ISO 228/1
Materials	
Body	Bronze Rg5
Plug and seat	Stainless steel SS 2346
Stem	Stainless steel SS 2346
Stem packing	EPDM

V241					Max Close-off Pressure (kPa)							
					Non-spring Return Actuators						Spring Return	
Part number	DN	Connection	Kvs	Rangeability	M310	MG350	M400	M800	M1500	MV15B (1500N)	M700	MG900 SR
721 4106 000	15	G1B	0.25	>50	800	800	1000	1600	1600	1600	1600	1600
721 4110 000	15	G1B	0.40	>50	800	800	1000	1600	1600	1600	1600	1600
721 4114 000	15	G1B	0.63	>50	800	800	1000	1600	1600	1600	1600	1600
721 4118 000	15	G1B	1.0	>50	800	800	1000	1600	1600	1600	1600	1600
721 4122 000	15	G1B	1.6	>50	800	800	800	1600	1600	1600	1400	1600
721 4126 000	15	G1B	2.5	>50	800	800	800	1600	1600	1600	1400	1600
721 4130 000	15	G1B	4.0	>50	800	800	800	1600	1600	1600	1400	1600
721 4134 000	20	G1½B	6.3	>100	650	650	650	1500	1600	1600	1100	1510
721 4138 000	25	G1½B	10	>100	400	400	500	1150	1600	1600	850	1160
721 4142 000	32	G2B	16	>100	300	300	350	850	1350	1350	650	855
721 4146 000	40	G2½B	25	>100	150	150	250	600	950	950	450	605
721 4150 000	50	G2½B	38	>100	50	50	150	400	650	650	300	415

Replacement packing box: 1-001-0800-0

Connections V241

Internal Thread Connection



Materials

Union nut: malleable iron casting, galv.

Union end: malleable iron casting, galv.

Packing, standard:

Fibre Gasket (Klingsil C4400)

or

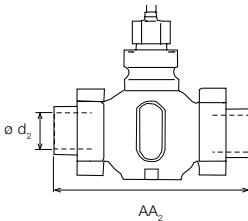
Packing, spec:

PTFE Gasket (Kingsil Top Chem 1.5mm)

Valve		Ød ₁	AA1	Part no. for connection, one pkg/port	
DN	End Conn.	Int. thread (ISO 7/1)	mm	Packing, std	Packing, spec.*
15	G1B	RP ½"	146	911 2100 015	911 2103 015
20	G1¼B	RP ¾"	146	911 2100 020	911 2103 020
25	G1½B	RP 1"	159	911 2100 025	911 2103 025
32	G2B	RP 1¼"	169	911 2100 032	911 2103 032
40	G2¼B	RP 1½"	197	911 2100 040	911 2103 040
50	G2½B	RP 2"	222	911 2100 050	911 2103 050

* The accessory intended for the primary circuit of district heating connections.

Soldering Type Connection



Materials

Union nut: malleable iron casting, galv.

Union end: Bronze, SS 5204

Packing, standard:

Fibre Gasket (Klingsil C4400)

or

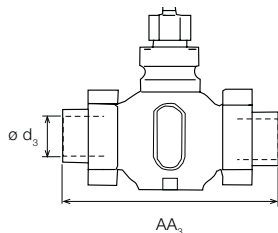
Packing, spec:

PTFE Gasket (Kingsil Top Chem 1.5mm)

Valve		Ød ₂	AA2	Part no. for connection, one pkg/port	
DN	End Conn.	mm	mm	Packing, std	Packing, spec.*
15	G1B	15	136	911 2101 015	911 2104 015
20	G1¼B	22	146	911 2101 020	911 2104 020
25	G1½B	28	155	911 2101 025	911 2104 025
32	G2B	35	163	911 2101 032	911 2104 032
40	G2¼B	42	200	911 2101 040	911 2104 040
50	G2½B	54	232	911 2101 050	911 2104 050

* The accessory combination intended for the primary circuit of district heating connections.

Welded Type Connection



Materials

Union nut:

Packing, standard:

Malleable iron casting, galv.

or

Packing, Spec: Brass

Union end: malleable iron casting, galv.

Packing, standard:

Fibre Gasket (Klingsil C4400)

or

Packing, spec:

PTFE Gasket (Kingsil Top Chem 1.5mm)

Valve		Ød ₃	AA3	Part no. for connection, one pkg/port	
DN	End Conn.	mm	mm	Packing, std	Packing, spec.*
15	G1B	21.8	182	911 2102 015	911 2105 015 (1)
20	G1¼B	26.9	182	911 2102 020	911 2105 020 (1)
25	G1½B	33.7	187	911 2102 025	911 2105 025 (1)
32	G2B	42.4	197	911 2102 032	911 2105 032 (1)
40	G2¼B	48.3	232	911 2102 040	911 2105 040
50	G2½B	60.3	262	911 2102 050	911 2105 050

(1) Material Union nut: brass SS 5252

* The accessory Combination intended for the primary circuit of district heating connections.

2 sets of connections required for 2 way valves

V211T

The V211T is an internally threaded valve with a soft seat for tight shut off.

Suitable for a wide range of applications such as heating, cooling and air handling systems with hot or chilled water.

If the valve is used for media at temperatures below 0°C, it should be equipped with a heater to prevent ice formation on the valve stem.



Specification

Design	2-way plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	20 mm
Rangeability (Kvs/Kv min.)	>50
Leakage	Tight sealing
ΔPm	400 kPa, water
Max. temperature of medium	120°C
Min. temperature of medium	-20°C
Max. glycol concentration	50%
Connections	Internal pipe thread Rp

Materials	
Body	Nodular iron EN-JS 1030
Stem	Stainless steel SS 2346
Plug	Brass CW602N
Seat Sealing	EPDM
Seat	Nodular iron EN-JS 1030
Stem packing	EPDM

V211T					Max Close-off Pressure kPa							
					Non-spring Return Actuators						Spring Return	
Part number	DN	Connection	Kvs	Rangeability	M310	MG350	M400	M800	M1500	MV15B (1500N)	M700	MG900 SR
721 1716 000	15	Rp ½	1.6	>50	800	800	800	1600	1600	1600	1400	1600
721 1720 000	15	Rp ½	2.5	>50	800	800	800	1600	1600	1600	1400	1600
721 1724 000	15	Rp ½	4.0	>50	800	800	800	1600	1600	1600	1400	1600
721 1728 000	20	Rp ¾	6.3	>50	650	650	650	1500	1600	1600	1100	1510
721 1732 000	25	Rp 1	10	>50	400	400	500	1150	1600	1600	850	1160
721 1736 000	32	Rp 1¼	16	>50	300	300	350	850	1350	1350	650	855
721 1740 000	40	Rp 1½	25	>50	150	150	250	600	950	950	450	605
721 1744 000	50	Rp 2	38	>50	50	50	150	400	650	650	300	415

Replacement packing box: 1-001-0800-0

V211

The V211 is a flanged valve with a soft seat for tight shut off.

Suitable for a wide range of applications such as heating, cooling and air handling systems with hot or chilled water.

If the valve is used for media at temperatures below 0°C, it should be equipped with a heater to prevent ice formation on the valve stem.



Specification

Design	2-way plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	20 mm
Rangeability (Kvs/Kv min.)	>50
Leakage	Tight sealing
ΔPm	400 kPa, water
Max. temperature of medium	120°C
Min. temperature of medium	-20°C
Max. glycol/concentration	50%
Connections	Flange according to ISO 7005-2

Materials

Body	Nodular iron EN-JS 1030
Stem	Stainless steel SS 2346
Plug	Brass CW602N
Plug Sealing	EPDM
Seat	Nodular iron EN-JS 1030
Stem packing	EPDM

V211				Max Close-off Pressure (kPa)						
				Non-spring Return Actuators						Spring Return
Part number	DN	Kvs	Rangeability	M310	MG350	M400	M800	M1500	MV15B (1500N)	MG900 SR
721 1116 000	15	1.6	>50	800	800	800	1600	1600	1600	1600
721 1120 000	15	2.5	>50	800	800	800	1600	1600	1600	1600
721 1124 000	15	4.0	>50	800	800	800	1600	1600	1600	1600
721 1128 000	20	6.3	>50	650	650	650	1500	1600	1600	1600
721 1132 000	25	10	>50	400	400	500	1150	1600	1600	1160
721 1136 000	32	16	>50	300	300	350	850	1350	1350	855
721 1140 000	40	25	>50	150	150	250	600	950	950	605
721 1144 000	50	38	>50	50	50	150	400	650	650	415

Replacement packing box: 1-001-0800-0

V212T

The V212T is an internally threaded balanced valve requiring only minimal actuator force. Coupled with a soft seat and good rangeability the V212T provides very energy efficient control of hydronic applications. If the valve is used for media at temperatures below 0°C, it should be equipped with a heater to prevent ice formation on the valve stem. Suitable for a wide range of applications such as heating, cooling and air handling systems with hot or chilled water.



Specification

Design	2-way pressure balanced plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	20 mm
Rangeability (Kvs/Kv min.)	>50
Leakage	Tight sealing
ΔPm	400 kPa, water
Max. temperature of medium	120°C
Min. temperature of medium	-20°C
Max. glycol/concentration	50%
Connections	Internal pipe thread Rp

Materials	
Body	Nodular iron EN-JS 1030
Stem	Stainless steel SS 2346
Plug	Brass CW602N
Seat Sealing	EPDM
Seat	Nodular iron EN-JS 1030
Stem packing	EPDM

V212T					Max Close-off Pressure (kPa)					
					Non-spring Return Actuators				Spring Return	
Part number	DN	Connection	Kvs	Rangeability	M400	M800	M1500	MV15B (1500N)	M700	MG900 SR
721 1832 000	25	Rp 1	10	>50	800	1600	1600	1600	1600	1600
721 1836 000	32	Rp 1¼	16	>50	750	1600	1600	1600	1600	1600
721 1840 000	40	Rp 1½	25	>50	700	1600	1600	1600	1600	1600
721 1844 000	50	Rp 2	38	>50	600	1600	1600	1600	1600	1600

Replacement packing box: 1-001-0800-0

V212

The V212 is a flanged balanced valve requiring only minimal actuator force. Coupled with a soft seat and good rangeability the V212 provides very energy efficient control of hydronic applications.

Suitable for a wide range of applications such as heating, cooling and air handling systems with hot or chilled water.

If the valve is used for media at temperatures below 0°C, it should be equipped with a heater to prevent ice formation on the valve stem.



Specification

Design	2-way pressure balanced plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	20 mm
Rangeability (Kvs/Kv min.)	>50
Leakage	Tight sealing
ΔP_m	400 kPa, water
Max. temperature of medium	120°C
Min. temperature of medium	-20°C
Max.glycol/concentration	50%
Connections	Flange according to ISO 7005-2

Materials	
Body	Nodular iron EN-JS 1030
Stem	Stainless steel SS 2346
Plug	Brass CW602N
Sealing	EPDM
Seat	Nodular iron EN-JS 1030
Stem packing	EPDM

V212				Max Close-off Pressure (kPa)				
				Non-spring Return Actuators				Spring Return
Part number	DN	Kvs	Rangeability	M400	M800	M1500	MV15B (1500N)	MG900 SR
721 1232 000	25	10	>50	800	1600	1600	1600	1600
721 1236 000	32	16	>50	750	1600	1600	1600	1600
721 1240 000	40	25	>50	700	1600	1600	1600	1600
721 1244 000	50	38	>50	600	1600	1600	1600	1600

Replacement packing box: 1-001-0800-0

VGS211F 15-100CS

The VGS211F...CS is a flanged high temperature valve for media temperatures up to 200°C.

Primarily designed for steam but also suitable for a wide range of applications such as heating, cooling and air handling systems with hot or chilled water and steam.

If the valve is used for media at temperatures below 0°C, it should be equipped with a stem heater to prevent ice formation on the valve stem.



Specification

Design	2-way plug valve, stem up open
Pressure class	PN 16
Flow characteristic	Equal Percentage
Rangeability (Kvs/Kv min.)	
DN15-20	>50
DN25-100	>35
Leakage	0,02% of Kvs
ΔPm	600 kPa
Max. temperature of medium	200°C
Min. temperature of medium	-10°C
Max. glycol/concentration	50%
Connections	Flange according to ISO 7005-2

Materials

Body	Cast iron , EN-GJL 250
Stem	Stainless steel (AISI 303)
Plug	Stainless steel (AISI 303)
Seat	Stainless steel (AISI 303)
Stem Packing	Spring Loaded PTFE V-Ring
Stroke	
DN 15...DN 25	16.5 mm
DN 32...DN 65	25 mm
DN 80...DN 100	45 mm

VGS211F...CS					Max Close-off Pressure (kPa)						
					Non-spring Return Actuators					Spring Return	
Part number	Type Designation	DN	Kvs	Rangeability	M400	M800	M1500	MV 15B (1500N)	M3000	M700	MG 900 SR
VGS211F-15CS03	VGS211F-15CS 0.63M SD00	15	0.6	>50	1600	1600	1600	1600	-	1600	1600
VGS211F-15CS04	VGS211F-15CS 1M SD00	15	1.0	>50	1600	1600	1600	1600	-	1600	1600
VGS211F-15CS05	VGS211F-15CS 1.6M SD00	15	1.6	>50	1600	1600	1600	1600	-	1600	1600
VGS211F-15CS07	VGS211F-15CS 2.5M SD00	15	2.5	>50	1300	1600	1600	1600	-	1600	1600
VGS211F-15CS08	VGS211F-15CS 4M SD00	15	4.0	>50	1300	1600	1600	1600	-	1600	1600
VGS211F-20CS	VGS211F-20CS 6.3 M SD00	20	6.3	>50	750	1600	1600	1600	-	1500	1600
VGS211F-25CS	VGS211F-25CS 10M SD00	25	10	>35	450	1300	1600	1600	-	900	1300
VGS211F-32CS	VGS211F-32CS 16M SD00	32	16	>35	450	1300	1600	1600	-	900	1300
VGS211F-40CS	VGS211F-40CS 25M SD00	40	25	>35	250	800	1350	1350	-	550	800
VGS211F-50CS	VGS211F-50CS 40M SD00	50	40	>35	150	500	900	900	-	350	500
VGS211F-65CS	VGS211F-65CS 63M SD00	65	63	>35	-	210	350	350	720	150	210
VGS211F-80CS	VGS211F-80CS 110M SD00	80	110	>35	-	150	250	250	550	100	-
VGS211F-100CS	VGS211F-100CS 140M SD00	100	140	>35	-	90	150	150	350	60	-

Replacement packing box: 1-001-0811-0.

VG221F 65-150C

The VG221F...C is a large flanged balanced valve suitable for large hydronic flows in heating and air conditioning circuits. The balanced plug enables a low actuating force to control the valve.

Suitable for a wide range of applications using hot water or de-aerated cooling water

With cooling media at temperatures below 0°C, a heater must be fitted to protect against stem seizure due to freezing.



Specification

Design	2-way pressure balanced plug valve, stem up closed
Pressure class	PN 16
Flow characteristics	Equal Percentage
Rangeability (Kvs/Kv min.)	>50
Stroke	
DN 65	25 mm
DN 80 – DN 150	45 mm
Leakage	<0.03% of Kvs
ΔPm	200 kPa, water
Max. temperature of medium	150°C
Min. temperature of medium	-10°C
Connection	Flange according ISO 7005-2

Materials

Body	Grey cast iron (EN-GJL 250)
Stem	stainless steel (AISI 303)
Plug	Brass (CW614N)
Seat, Integrated	Grey cast iron (EN-GJL 250)
Stem Packing	EPDM

VG221F...C						Max Close-off Pressure (kPa)					
						Non-spring Return Actuators				Spring Return	
Part number	Type Designation	Stroke	DN	Kvs	Rangeability	M800	M1500	MV15B (1500N)	M3000	M700	MG900 SR
VG221F-65C	VG221F-65C 63M SU00	25	65	63	>50	1600	1600	1600	1600	1300	1600
VG221F-80C	VG221F-80C 100M SU00	45	80	100	>50	1450	1600	1600	1600	1000	-
VG221F-100C	VG221F-100C 130M SU00		100	130	>50	1000	1600	1600	1600	700	-
VG221F-125C	VG221F-125C 200M SU00		125	200	>50	750	1600	1600	1600	470	-
VG221F-150C	VG221F-150C 300M SU00		150	300	>50	550	1450	1450	1600	300	-

Replacement packing box: 1-001-0810-0

V231

The V231 is a flanged PN25 valve with a very high rangeability.

The valve is suitable for primary district heating circuits as well as hot and chilled water applications where high pressure or where a very fine resolution of flow control is required.

If the valve is used for media at temperatures below 0°C, it should be equipped with a heater to prevent ice formation on the valve stem.



Specification

Design	2-way plug valve, stem up closed
Pressure class	PN 25
Flow characteristic	Equal percentage modified
Stroke	20 mm
Rangeability (Kvs/Kv min.)	(refer to table)
Leakage	Up to 0.02% of Kvs
ΔPm	Max. 800 kPa, water
Max. temperature, water	150°C
Max. temperature, saturated steam	120°C
Min. temperature of medium	-20°C
Max. Glycol concentration	50%
Flanges drilling	According to SS 335 and ISO 2084

Materials	
Body	Nodular iron SS 0727 (GGG40.3)
Plug and seat	Stainless steel SS 2346
Stem	Stainless steel SS 2346
Stem Packing	EPDM

V231				Max Close-off Pressure (kPa)					
				Non-spring Return Actuators					Spring Return
Part number	DN	Kvs	Rangeability	M310	M400	M800	M1500	MV15B (1500N)	MG900 SR
721 3106 000	15	0.25	>50	1000	1000	1600	1600	1600	1600
721 3110 000	15	0.40	>50	1000	1000	1600	1600	1600	1600
721 3114 000	15	0.63	>50	1000	1000	1600	1600	1600	1600
721 3118 000	15	1.0	>50	1000	1000	1600	1600	1600	1600
721 3122 000	15	1.6	>50	800	800	1600	1600	1600	1600
721 3126 000	15	2.5	>50	800	800	1600	1600	1600	1600
721 3130 000	15	4.0	>50	800	800	1600	1600	1600	1600
721 3134 000	20	6.3	>200	650	650	1500	1600	1600	1500
721 3138 000	25	10	>200	400	500	1150	1600	1600	1150
721 3142 000	32	16	>200	300	350	850	1350	1350	850
721 3146 000	40	25	>200	150	250	600	950	950	600
721 3150 000	50	38	>200	50	150	400	650	650	400

Replacement packing box: 1-001-0800-0

V232

The V232 is a pressure balanced flanged PN25 valve with high rangeability and a high differential pressure capability. The balanced plug enables a low actuating force to control the valve.

The valve is suitable for primary district heating circuits as well as hot and chilled water applications where high pressure or a very fine resolution of controllable flow is required.

If the valve is used for media at temperatures below 0°C, it should be equipped with a heater to prevent ice formation on the valve stem.



Specification

Design	2-way, pressure balanced plug valve, stem up closed
Pressure class	PN 25
Flow characteristic	Equal percentage modified
Stroke	20 mm
Rangeability (Kvs/Kv min.)	(refer to table)
Leakage	Up to 0.02% of Kvs
ΔPm	Max. 800 kPa, water
Max. temperature of medium	150°C
Min. temperature of medium	-20°C
Flange drilling	According to SS 335 and ISO 2084

Materials	
Body	Nodular iron SS 0727 (GGG40.3)
Plug and seat	Stainless steel SS 2346
Stem	Stainless steel SS 2346
Stem packing	EPDM

V232				Max Close-off Pressure (kPa)				
				Non-spring Return Actuators				Spring Return
Part number	DN	Kvs	Rangeability	M400	M800	M1500	MV15B (1500N)	MG900 SR
721 3238 000	25	10	>200	800	1600	1600	1600	1600
721 3242 000	32	16	>200	750	1600	1600	1600	1600
721 3246 000	40	25	>200	700	1600	1600	1600	1600
721 3250 000	50	38	>200	600	1600	1600	1600	1600

Replacement packing box: 1-001-0800-0

V292

The V292 is a large pressure balanced flanged valve to PN25. The balanced plug enables a low actuating force to control the valve.

The valve is suitable for primary district heating circuits as well as high pressure hot and chilled water applications



Specification

Design	2-way pressure balanced plug valve stem down, closed		
Pressure class	PN 25		
Flow characteristics	Equal Percentage		
Stroke			
DN 65 – DN 100			30 mm
DN 125 – DN 150			50 mm
Rangeability (Kvs/Kv min.)	> 50		
Leakage	<0.05% of Kvs		
Max. temperature of medium	150°C		
Min. temperature of medium	-10°C		
Max. Glycol concentration	50%		
Connection	Flange according ISO 7005-2		

Materials

Body	Nodular iron GGG40.3
Stem	Stainless steel SS 1.4021
Plug	Stainless steel SS 1.4021
Seat	Stainless steel SS 1.4021
Packing box	Spring-loaded PTFE-V-ring

V292				Max Close-off Pressure (kPa)						
				Non-spring Return Actuators						Spring Return
Part number	DN	Kvs	Rangeability	M800	M1500	MV15B	M3000	M22 (2200N)	M50 (5000N)	M700
721 9254 000	65	63	>50	1500	2500	2500	2500	---	---	1200
721 9258 000	80	85	>50	1500	2500	2500	2500	---	---	1200
721 9262 000	100	130	>50	1100	1600	1600	2500	---	---	800
721 9266 000	125	250	>50	---	---	---	---	1800	2500	---
721 9270 000	150	350	>50	---	---	---	---	1400	2500	---

Replacement packing box

DN65-100: 1-001-0820-0

DN125-150: 1-001-0821-0

Stem Heater

DN65-100: 880-0112-000

DN125-150: 880-0113-000

Replacement stem adaptor/hex bush:

DN125-150: 880-0134-000

V341

The V341 is a high quality general purpose valve. Polished stainless seats provide high differential pressure capability and low leakage.

The valve is suitable for a wide range of applications such as heating, cooling, air handling and domestic hot water systems. The valve can handle hot and cold water with phosphate, hydrazine and antifreeze additives.

If the valve is used for media at temperatures below 0°C, it should be equipped with a heater to prevent ice formation on the valve stem.



Specification

Design	3-way plug valve Stem up closed, A port (B-AB open)
Pressure class	PN 16
Flow characteristics A-AB	Equal percentage modified
Flow characteristics B-AB	Complementary
Stroke	20 mm
Rangeability (Kvs/Kv min.)	(refer to table)
Leakage A-AB	up to 0.02% of Kvs
Leakage B-AB	up to 0.05% of Kvs
ΔPm	600 kPa, water
Max. temperature of medium	150°C
Min. temperature of medium	-20°C
Connection	External pipe thread according to ISO 228/1
Glycol Concentration	50%

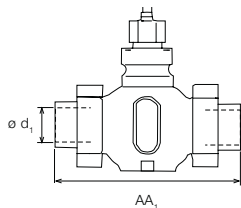
Materials	
Body	Bronze Rg5
Plug and seat	Stainless steel SS 2346
Stem	Stainless steel SS 2346
Stem packing	EPDM

V341					Max Close-off Pressure (kPa)							
					Non-spring Return Actuators						Spring Return	
Part number	DN	Connection	Kvs	Rangeability	M310	MG350	M400	M800	M1500	MV15B (1500N)	M700	MG900 SR
731 4121 000	15	G1B	1.6	>50	800	800	800	1600	1600	1600	1400	1600
731 4125 000	15	G1B	2.5	>50	800	800	800	1600	1600	1600	1400	1600
731 4129 000	15	G1B	4.0	>50	800	800	800	1600	1600	1600	1400	1600
731 4133 000	20	G1½B	6.3	>100	650	650	650	1500	1600	1600	1100	1510
731 4137 000	25	G1½B	10	>100	400	400	500	1150	1600	1600	850	1160
731 4141 000	32	G2B	16	>100	300	300	350	850	1350	1350	650	855
731 4145 000	40	G2¼B	25	>100	150	150	250	600	950	950	450	605
731 4149 000	50	G2¾B	38	>100	50	50	150	400	650	650	300	415

Replacement packing box: 1-001-0800-0

Connections V341

Internal Thread Connection



Materials

Union nut: malleable iron casting, galv.

Union end: malleable iron casting, galv.

Packing, standard:

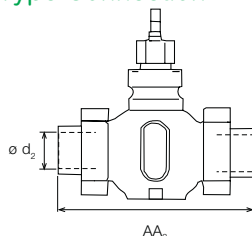
Fibre Gasket (Klingsil C4400)

or

Packing, spec:

PTFE Gasket (Kingersil Top Chem 1.5mm)

Soldering Type Connection



Materials

Union nut: malleable iron casting, galv.

Union end: Bronze, SS 5204

Packing, standard:

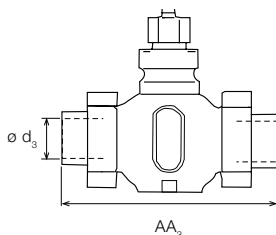
Fibre Gasket (Klingsil C4400)

or

Packing, spec:

PTFE Gasket (Kingersil Top Chem 1.5mm)

Welded Type Connection



Materials

Union nut:

Packing, standard:

Malleable iron casting, galv.

or

Packing, Spec: Brass

Union end: malleable iron casting, galv.

Packing, standard:

Fibre Gasket (Klingsil C4400)

or

Packing, spec:

PTFE Gasket (Kingersil Top Chem 1.5mm)

Valve		$\varnothing d_1$	AA_1	Part no. for connection, one pkg/port	
DN	End Conn.	Int. thread (ISO 7/1)	mm	Packing, std	Packing, spec.*
15	G1B	RP ½"	146	911 2100 015	911 2103 015
20	G1¼B	RP ¾"	146	911 2100 020	911 2103 020
25	G1½B	RP 1"	159	911 2100 025	911 2103 025
32	G2B	RP 1¼"	169	911 2100 032	911 2103 032
40	G2¼B	RP 1½"	197	911 2100 040	911 2103 040
50	G2½B	RP 2"	222	911 2100 050	911 2103 050

* The accessory intended for the primary circuit of district heating connections.

Valve		$\varnothing d_2$	AA_2	Part no. for connection, one pkg/port	
DN	End Conn.	mm	mm	Packing, std	Packing, spec.*
15	G1B	15	136	911 2101 015	911 2104 015
20	G1¼B	22	146	911 2101 020	911 2104 020
25	G1½B	28	155	911 2101 025	911 2104 025
32	G2B	35	163	911 2101 032	911 2104 032
40	G2¼B	42	200	911 2101 040	911 2104 040
50	G2½B	54	232	911 2101 050	911 2104 050

* The accessory combination intended for the primary circuit of district heating connections.

Valve		$\varnothing d_3$	AA_3	Part no. for connection, one pkg/port	
DN	End Conn.	mm	mm	Packing, std	Packing, spec.*
15	G1B	21.8	182	911 2102 015	911 2105 015 (1)
20	G1¼B	26.9	182	911 2102 020	911 2105 020 (1)
25	G1½B	33.7	187	911 2102 025	911 2105 025 (1)
32	G2B	42.4	197	911 2102 032	911 2105 032 (1)
40	G2¼B	48.3	232	911 2102 040	911 2105 040
50	G2½B	60.3	262	911 2102 050	911 2105 050

(1) Material Union nut: brass SS 5252

* The accessory Combination intended for the primary circuit of district heating connections.

3 sets of connections required for 3 way valves

V311T

The V311T is an internally threaded valve with a soft seat for tight shut off.

If the valve is used for media at temperatures below 0°C, it should be equipped with a heater to prevent ice formation on the valve stem.



Specification

Design	3-way plug valve stem up closed, A port (B-AB open)
Pressure class	PN 16
Flow characteristic A-AB	Equal percentage modified
Flow characteristic B-AB	Complementary
Stroke	20 mm
Rangeability (Kvs/Kv min.)	>50
Leakage A-AB and B-AB	Tight sealing
ΔPm	400 kPa, water
Max. temperature of medium	120°C
Min. temperature of medium	-20°C
Max. Glycol concentration	50%
Connection	Internal pipe thread Rp

Materials	
Body	Nodular iron EN-JS 1030
Stem	Stainless steel SS 2346
Plug	Brass CW602N
Sealing	EPDM
Seat	Nodular iron EN-JS 1030
Stem packing	EPDM

V311T					Max Close-off Pressure (kPa)							
					Non-spring Return Actuators						Spring Return	
Part number	DN	Connection	Kvs	Rangeability	M310	MG350	M400	M800	M1500	MV15B (1500N)	M700	MG900SR
731 1717 000	15	Rp ½	1.6	>50	800	800	800	1600	1600	1600	1400	1600
731 1721 000	15	Rp ½	2.5	>50	800	800	800	1600	1600	1600	1400	1600
731 1725 000	15	Rp ½	4.0	>50	800	800	800	1600	1600	1600	1400	1600
731 1729 000	20	Rp ¾	6.3	>50	650	650	650	1500	1600	1600	1100	1510
731 1733 000	25	Rp 1	10	>50	400	400	500	1150	1600	1600	850	1160
731 1737 000	32	Rp 1¼	16	>50	300	300	350	850	1350	1350	650	605
731 1741 000	40	Rp 1½	25	>50	150	150	250	600	950	950	450	604
731 1745 000	50	Rp 2	38	>50	50	50	150	400	650	650	300	415

Replacement packing box: 1-001-0800-0

V311

The V311 is a flanged valve with a soft seat for tight shut off.

The valve is suitable for a wide range of mixing applications with hot or chilled water in heating cooling and air handling systems.

If the valve is used for media at temperatures below 0°C, it should be equipped with a stem heater to prevent ice formation on the valve stem.



Specification

Design	3-way plug valve stem up closed (A port/B-AB open)
Pressure class	PN 16
Flow characteristic A-AB	Equal percentage modified
Flow characteristic B-AB	Complementary
Stroke	20 mm
Rangeability (Kvs/Kv min.)	>50
Leakage A-AB and B-AB	Tight sealing
ΔPm	400 kPa, water
Max. temperature of medium	120°C
Min. temperature of medium	-20°C
Max. Glycol concentration	25%
Connection	Flange according to ISO 7005-2

Materials	
Body	Nodular iron EN-JS 1030
Stem	Stainless steel SS 2346
Plug	Brass CW602N
Sealing	EPDM
Seat	Nodular iron EN-JS 1030
Stem Packing	EPDM

V311				Max Close-off Pressure (kPa)							
				Non-spring Return Actuators						Spring Return	
Part number	DN	Kvs	Rangeability	M310	MG350	M400	M800	M1500	MV15B (1500N)	M700	MG900 SR
731 1117 000	15	1.6	>50	800	800	800	1600	1600	1600	1400	1600
731 1121 000	15	2.5	>50	800	800	800	1600	1600	1600	1400	1600
731 1125 000	15	4.0	>50	800	800	800	1600	1600	1600	1400	1600
731 1129 000	20	6.3	>50	650	650	650	1500	1600	1600	1100	1510
731 1133 000	25	10	>50	400	400	500	1150	1600	1600	850	1160
731 1137 000	32	16	>50	300	300	350	850	1350	1350	650	855
731 1141 000	40	25	>50	150	150	250	600	950	950	450	605
731 1145 000	50	38	>50	50	50	150	400	650	650	300	415

Replacement packing box: 1-001-0800-0

VG311F 65-150C

The VG311F...C is a large flanged general purpose valve suitable for a wide range of mixing applications with hot or chilled water in heating cooling and air handling systems.

If the valve is used for media at temperatures below 0°C, it should be equipped with a stem heater to prevent ice formation on the valve stem.



Specification

Design	3-way plug mixing valve stem up closed (A port/B-AB open)
Pressure class	PN 16
Connection	Flange according ISO 7005-2
Rangeability (Kvs/Kv min.)	> 50
Flow characteristics A – AB	Equal Percentage
Flow characteristics B – AB	Linear
Stroke	DN65 25 mm DN80-150 45mm
Leakage A – AB	< 0.03% of Kvs
Leakage B – AB	< 2% of Kvs
ΔPm	200 kPa, water
Max. temperature of medium	150°C
Min. temperature of medium	-10°C
Max. Glycol concentration	50%

Materials

Body	Grey Cast iron (GJL 250)
Stem	Stainless steel (AISI 303)
Plug (DN65-100)	Brass (CW614)
Plug (DN125-150)	Bronze (CB491K UNI EN 1982)
Seat	Grey Cast iron (EN JL 1040)
Stem Packing	EPDM

VG311F...C					Max Close-off Pressure (kPa)					
					Non-spring Return Actuators				Spring Return	
Part number	Type Designation	DN	Kvs	Rangeability	M800	M1500	MV15B (1500N)	M3000	M700	MG900 SR
VG311F-65C	VG311F-65C 63M SU00	65	63	>50	240	400	400	850	220	290
VG311F-80C	VG311F-80C 100M SU00	80	100	>50	160	240	240	570	140	--
VG311F-100C	VG311F-100C- 130M SU00	100	130	>50	100	150	150	370	80	--
VG311F-125C	VG311F-125C 200M SU00	125	200	>50	60	90	90	230	50	--
VG311F-150C	VG311F-150C 300M SU00	150	300	>50	40	50	50	160	35	--

Replacement packing box: 1-001-0810-0



Fine hydronic control in a globe valve is achieved from precise positioning actuators.

Forta actuators provide superb positioning accuracy across a broad range of valves and also accept multiple modulating input signals, as well as 3 position floating control. Running speed is fast and fixed to a set value based on the valve stroke limits, enabling simple tuning of control loops. Position feedback, manual override and the ability to add auxiliary switches are other features possible on globe valves actuators.



MG350

The MG350 is a compact electro-mechanical actuator for controlling two-way and three-way Venta globe valves V211, V211T, V311, and V311T. The MG350 actuators are primarily designed for applications where the demands on speed and thrust are relatively small.

- Stable force control with stall protection
- Dual 3-Point floating and 2-position control.
- Sink or source floating control
- High Resolution PCBA and motor transmission for fine valve plug position and excellent flow control.
- LED status indication
 - Tri-color LED for operation, calibration, and alarm notification
- Removable terminal block and cable gland for ease of installation.



Specifications

Supply voltage	24 Vac/dc $\pm 20\%$ 50/60 Hz
Power Consumption (50Hz)	
Running: MG350-24 (F)	5.2 VA (3.5 W)
MG350-24 (M/MP/FP)	7.2 VA (3.5 W)
Holding (M/MP/FP)	1.2 VA
Transformer sizing	(same as power consumption)
Running Time	4 s/mm (Full stroke time = 80 sec)
Max. Stroke	21.5 mm
Force	350 N
Control (Floating/Digital)	
Dependant upon wiring	
3 wire Floating	24 Vac/dc or 0V
2 Position on/off	NO or NC
Minimum input pulse	100 msec
Control (Modulating)	
Selectable input signals	
MG350-24M	0...10 Vdc, 2...10 Vdc
MG350-24MP	0...10 Vdc, 2...10 Vdc, 4...20mA
Impedance	min. 100 k Ω
Operational Temperature Range	-5...+55°C (for valve fluid temperatures up to 130°C)
Storage Temperature Range	-40...+70°C
Ambient humidity	max. 95%

Position Feedback (MG350-24MP/-24FP)	0-5 Vdc / 2-10 Vdc
Protection rating	IP 53 (vertically mounted)
Sound power level	max. 30 dBA
Weight (shipping)	0.36 kg
Material	
Yoke	Aluminum
Housing	PBT/PC
Manual Override	3 mm Hex
Position indication	Red and blue position markers for hot and cold pipe indication (green position indicator for closed valve)
Cable Gland wire size	6...12 mm
Conduit hole	M20

Part number	Control
MG350-24M	Modulating
MG350-24MP	Modulating with feedback and alarms
MG350-24F	Floating
MG350-24FP	Floating with feedback and alarms

Forta M310, M400, M800, M1500 and M3000

The Forta is a family of actuators for the control of 2 way and 3 way globe valves.

The Forta has a very fine resolution PCBA board which provides good rangeability of the valve. The Software in the actuator calibrates the running time and S2 switch points to the valve stroke limits. It may also be configured for different flow characteristics, inverse signal or sequence control.

The U-bolt mounting makes for a very easy and quick installation. The manual override allows the actuator to be overridden and valve position adjusted without disconnecting the power supply.

Specification

Supply Voltage	
AC	24 Vac +25% / -35%, 50/60 Hz
DC	24 Vdc ±10%
Duty cycle	Max. 20%/60 minutes
Full Stroke Runtime	
Modulating	(refer to table)
Increase/decrease	300s/60s
Analog Control Input	
Selectable Voltages	0...10 V / 2...10 V / 0...5 V / 5-10 / 2-6 / 6-10
Impedance	Min. 100 kΩ
Digital inputs VH-HC	
Voltage across open input	24 Vac
Current through closed input	5 mA
S2 Output – Auxiliary end point switch (optional)	
Type	2 x SPDT
Voltage	24 VAC
Load	4A (resistive) / 1A (inductive)



M310, M400, M800, M1500



M3000

Regulated Voltage Output G1	
Voltage	16 Vdc ±0.3 V
Load	25 mA, short-circuit proof
Position Feedback, Y	
Voltage	2...10 V (0...100%)
Load	2 mA
Ambient Temperature	
Operation	-10...+50°C
Storage	-10...+50°C
Ambient humidity	Max. 90% RH
Enclosure rating	IP 54
Standards	
Emission	EN 61326-1
Immunity	EN 61326-1
Material	
Housing	Aluminium
Cover	ABS/PC plastic
Color (M310,M400,M800,M1500)	Aluminium/grey
Color (M3000)	Black/grey

Forta Actuators		Force	Modulating control Running time / stroke			Avg. power consumption	Transformer sizing
Part number	Description	N	9-25 mm	25-32 mm	32-51 mm	VA	
880 0210 030	M310	300	15s	20s	---	6	30
880 0211 030	M310 S2	300	15s	20s	---	6	30
880 0230 030	M400	400	60s	60s	---	7	30
880 0231 030	M400 S2	400	60s	60s	---	7	30
880 0310 030	M800	800	15s	20s	30s	10	50
880 0311 030	M800 S2	800	15s	20s	30s	10	50
880 0450 000	M1500	1500	15s	20s	30s	15	50
880 0451 000	M1500 S2	1500	15s	20s	30s	15	50
880 0500 000	M3000	3000	14-40s	40-50s	50-80s	25	50
880 0510 000	M3000 S2	3000	14-40s	40-50s	50-80s	25	50

Forta MG900 SR

The Forta MG900 SR is a spring return actuator for the control of linear globe valves.

The Manual override is operated by a hex key retained in the cover and can be locked into position for commissioning.

Regenerative Braking is used to control the actuator closing speed when the actuator is driven under the spring return force.



Specification

Supply voltage	24 Vac +25% / -30%, 50-60 Hz
Power consumption	Average 30 VA
Transformer sizing	50 VA
Spring return close off time at power failure	
20 mm stroke	Less than 50 seconds
32 mm stroke	Less than 95 seconds
Stroke	9...30 mm
Thrust	900 N
Duty cycle	Max. 20%/60 minutes (and 80%/ 60 min.) for half load / amb. temp
Running Time	
Modulating 10...25 mm (0.39...1 in.)	15s
Modulating 25...32 mm (1...1.26 in.)	20s
Increase/decrease	300s/60s
Analog input	
Voltage	0...10 V / 2...10 V / 0-5V / 5-10 / 2-6 / 6-10
Digital inputs VH-VC	
Voltage across open input	24 Vac
Current through closed input	5 mA
Pulse time	Min. 20 ms
Output G1	
Voltage	16 Vdc / 20 Vdc ±0.3 V
Load	25 mA, short-circuit proof
Output Y	
Voltage	2...10 V (0...100%)
Load	2 mA
Ambient temperature	
Operation	-10...50°C
Storage	-10...50°C
Ambient humidity	Max. 90% RH
Material	
Housing	Aluminium
Cover	ABS/PC
plastic	

Forta MG900 SR

Spring Return Function	Part number	Type Designation	IP Rating
Stem Up	MG900-SU	MG900 SRU-24FM T54 00	54
Stem Down	MG900-SD	MG900 SRD-24FM T54 00	54

Forta MG900 SR Accessories

Part number	Description
880 0104 000	S2 auxiliary end point switches
AV-821	Linkage kit to VB-7000 valves
AV-822	Linkage kit to VB-8000 valves
FYH50	Yoke Heater
MG900-SU-PCB	Circuit board for MG900 SRU
MG900-SD-PCB	Circuit board for MG900 SRD
880 0124 000	L2SV linkage kit to VZ and MZ Satchwell Valves.
880 0129 000	Linkage - M30 x 1.5, Spirax Sarco KE, KL, KF, DN15-100

MV15B

The MV15B is a powerful 3-point floating actuator for the control of 2 way and 3 way globe valves, available in both 24 Vac and 230 Vac versions. The actuator self adjusts to the stroke of whatever valve it is connected to. The U-bolt mounting makes for a very easy and quick installation. A manual override is standard on all models.

Specification

Supply voltage	24 Vac $\pm 10\%$, 50-60 Hz 230 Vac $\pm 10\%$, 50-60 Hz
Power consumption	12 VA
Transformer sizing	15 VA
Running speed	0.75 mm/s
Running time for 20 mm	27s
Stroke	9...52 mm
Thrust	1500 N
Ambient temperature	
Operation	15...50°C
Storage	-25...+65°C
Enclosure rating	IP 55
Material	
Housing	Aluminium
Cover	ABS plastic
Color	Black/red



Optional auxiliary travel switch S2-MV15B

Type	SPDT 10A (resistive) 3A (inductive)
Capacity	250 V

MV15B actuators		Power supply
Part number	Description	Vac +10%/-10%
880 0460 000	MV15B-230	230
880 0462 000	MV15B-24	24

MV15B accessories & linkage kits	
Part number	Description
880 0126 000	Linkage M700-Satchwell L7SV
880 0469 000	Switch S2-MV15B
880 0109 000	Forta Yoke Heater for amb. temp -10°C, media temp -8°C

Forta M700 - Spring Return

The Forta M700 is a spring return actuator for control of longer stroked and larger size globe valves. It utilises the same flexible functionality as in the Forta non-spring return actuators so it has the same capability for self-adapting to the valve stroke, and the same flexibility in set-up configuration. The U-bolt mounting makes for quick installation. Manual override is standard on all models.

Specification

Supply voltage	24 Vac +25% / -30%, 50-60 Hz
Power consumption	Average 30 VA
Transformer sizing	50 VA
Spring return close off time at power failure	
20 mm stroke	Less than 50 seconds
45 mm stroke	Less than 95 seconds
Stroke	9...52 mm
Thrust	700 N
Duty cycle	Max. 20%/60 minutes
Running Time	
Modulating 10...25 mm	15s
Modulating 25...32 mm	20s
Modulating 10...52 mm	30s
Increase/decrease	300s/60s
Analog input	
Voltage	0...10 V / 2...10 V / 0-5V / 5-10V / 2-6V / 6-10V
Impedance	Min. 100 kΩ
Digital inputs VH-VC	
Voltage across open input	24 Vac
Current through closed input	5 mA
Pulse time	Min. 20 ms
Regulated Voltage	
Voltage	16 Vdc ± 0.3 V



Load	25 mA, short-circuit proof
Position feedback	
Voltage	2...10 V (0...100%)
Load	2 mA
Ambient temperature	
Operation	-10...50°C
Storage	-10...50°C
Ambient humidity	Max. 90% RH
Enclosure rating	IP 54
Material	
Housing	Aluminium
Cover	ABS/PC plastic
Color	Black/red

Forta M700 Actuators

Part number	Description
880 0430 000	M700-SRSU
880 0431 000	M700-S2-SRSU
880 0440 000	M700-SRSD
880 0441 000	M700-S2-SRSD

Globe Valve Actuators

Forta M400, M800, M1500 Accessories

Forta Accessories	
Part number	Description
880 0104 000	S2 – 2 x SPDT Axillary End Point Switches (24 Vac 4A AC-1) (1)
880 0109 000	Forta Yoke Heater for amb. temp -10°C, media temp -8°C

(1) Not for Forta M700

Forta M400, M800, M1500 Linkage kits to other valves

Forta Linkage Kits for other valves	
Part number	Description
880 0124 000	Linkage Forta-Satchwell L2SV: VSF-MJF-MZ, VZ-MZF- VZF
880 0116 000	Linkage Forta-Honeywell M6 and 1/4" stem
880 0118 000	Linkage Forta-Siemens
880 0125 000	Linkage Forta-Danfoss
880 0129 000	Linkage Forta-Spirax Sarco (M30 x1.5 :KE, KF, and KL; DN 15-100)
880 0127 000	Linkage – Controlli flanged Valves with M40 threaded bonnet, installed pre July 2009 types: VSG, VMB16, VBG (up to DN65).
880 0128 000	Linkage – Controlli Flanged Valves with M40 threaded bonnet, installed Pre July 2009 types: VBG, SS, DS, VSS, VBA, 3V, VMS (all sizes) types: VSG, VMB16, (DN80 or larger), SSGA
880 0129 000	Linkage – Controlli, types: VSB, VMB, VSB_F, VMB_F
880 0135 000	Linkage Satchwell VZ 7*** and MZ 7*** series
880 0252 000	Linkage TAC V298, DN15
880 0253 000	Linkage kit for old TAC DN15 valves -V282/ V294/ V384/ V386/ V394
880 0130 000	V321 DN65-100 to Forta (convert from M16 actuator)
880 0135 000	Regin/Osby: NTVS / GTRS / GTVS, 2SAS / 2SBS, MTVS / MTRS, MRT and FRS
AV-821	Forta to VB-7000 valves (Siebe/TAC)
AV-822	Forta to VB-8000/VB-9000 valves (Siebe / TAC)
AV-823	Stem extension for VG210R/VG310R

Forta M700 Accessories

Part number	Description
880 0126 000	Linkage M700-Satchwell L7SV
880 0109 000	Forta Yoke Heater for amb. temp -10°C, media temp -8°C

Key:

S2- Auxiliary end point switch

SRSU - spring return stem up

SRSD - spring return stem down

L7SV - Satchwell linkage to VZ and MZ valves

Notes



Ball Valves and Actuators

Ball Valves provide reliable, high static pressure control of fluids. The Schneider Electric VB210R / VB310R / VB601R range of control valves provide excellent EQ proportional flow control with a full complement of electrical actuators.

The VB200R / VB300R types are a full flow design without any restrictive EQ characterisation disc and are ideal for isolation or change over in two position control.



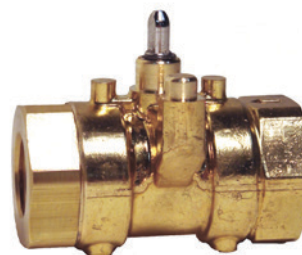
Ball Valves and Actuators

VB210R, VB200R & VB310R, VB300R

These VB range of ball valves utilise a low friction packing design around the ball which enables a low torque and compact motor to be used in the actuator.

The VB210R and VB310R ball valves variants incorporate a flow characterizing insert to providing an equal percentage flow characteristic with high rangeability.

These valves are suitable for control of hot or chilled water applications.



Specification

Service ^a	Hot and chilled water, up to 60% glycol
System Static Pressure Limit	PN40
Media Temperature Limits	-7...120°C
Close-off Pressure ^b	895 kPa Two-Way; 480 kPa, Three-Way
ΔPm	205 kPa normal operation, 135 kPa psi quiet operation
Seat Leakage ^c	ANSI class IV (0.01%)
End Connections	Rp threaded

Material	
Body Material	Forged UNC 37700 brass
Stem Material	Stainless steel
	anti-blow out stem with dual Viton™ o-rings
Ball Material	304 Stainless steel
Seat Material	PTFE
Characterized Insert	Glass-filled PEEK

a. Not rated for steam service.

b. Close-off is defined as the maximum allowable pressure drop to which a valve may be subjected while fully closed.

c. Seat Leakage in normal direction of flow only

VB210R Two-Way Control Valves

Size	Part No.	Type Designation	Thread	kvs
15 mm	VB210R-15BS01	VB210R-15BS 0.25T 00	Rp 1/2	0.25
	VB210R-15BS03	VB210R-15BS 0.6T 00		0.6
	VB210R-15BS04	VB210R-15BS 1.0T 00		1.0
	VB210R-15BS05	VB210R-15BS 1.8T 00		1.8
	VB210R-15BS07	VB210R-15BS 3.0T 00		3.0
	VB210R-15BS08	VB210R-15BS 4.0T 00		4.0
	VB210R-15BS09	VB210R-15BS 6.3T 00		6.3
20 mm	VB210R-20BS08	VB210R-20BS 4.0T 00	Rp 3/4	4.0
	VB210R-20BS09	VB210R-20BS 6.3T 00		6.3

VB310R Three-way Control Valves

Size	Part No.	Type Designation	Thread	kvs
15 mm	VB310R-15BS03	VB310R-15BS 0.52T 00	Rp 1/2	0.52
	VB310R-15BS04	VB310R-15BS 0.86T 00		0.86
	VB310R-15BS05	VB310R-15BS05 1.6T 00		1.6
	VB310R-15BS07	VB310R-15BS07 2.5T 00		2.5
	VB310R-15BS08	VB310R-15BS 4.0T 00		4.0
	VB310R-15BS09	VB310R-15BS 6.3T 00		6.3
20 mm	VB310R-20BS08	VB310R-20BS 4.0T 00	Rp 3/4	4.0
	VB310R-20BS09	VB310R-20BS 6.3T 00		6.3

VB200R Two-Way Full Port Valves

Size	Part No.	Type Designation	Thread	kvs
15 mm	VB200R-15BS	VB200R-15BS 8.7T 00	Rp 1/2	8.7
20 mm	VB200R-20BS	VB200R-20BS 8.7T 00	Rp 3/4	8.7

VB300R Three-way Full Port Valves

Size	Part No.	Type Designation	Thread	kvs
15 mm	VB300R-15BS	VB300R-15BS 8.7T 00	Rp 1/2	8.7
20 mm	VB300R-20BS	VB300R-20BS 8.7T 00	Rp 3/4	8.7

MB3, MB6

The MB3 and MB6 are compact actuators for the VB210R, VB310R, VB200R and VB300R.

A 'pop top' connection between the valve and actuator provides a fast and easy installation.

Actuators are available in both spring return and non-spring return versions for floating, proportional and 2-position control.



Specification

Supply Voltage	24 Vac +25%, -15% @ 50/60 Hz.	Materials	Thermoplastic base and cover. Approved for use in air plenums.
Proportional and Modulating		Electrical Connection	Terminal Block
Two-Position	24 Vac 50/60, (+25%, -15%). 24 Vdc (+/-20%)	Cable Gland (M20)	5...9mm O/D
Manual Operation	Hand lever	Shipping & Storage Temp. Limits	-40...76°C
Floating / Modulation	Hex Key (5/32")	Operating Temperature Range (at media temp. limits).	
Two Position		Floating	0...60°C
Proportional Control (Field Selectable)	0...10 V, 0-5V, 5-10V, 4...20 mA Direct or reverse acting	Proportional	0...60°C
		Two-Position	0...76°C
		Humidity	5...95% relative humidity, non-condensing
		Enclosure Rating (Horizontal and Vertical Mounting)	IP31

Two-Position Actuators

Part No.	Type Designation	Spring Return Action (Valve Normal Position)	Stroke Time, sec. 50/60 Hz	Spring Return Time, sec. 50/60 Hz	VA @ 24 V ac/dc	Power Consumption ac/dc
MB6-SO-24T	MB6 SRO-24T T31 00	Normally Open	50 sec.	35	3.5/1.8	2.3/1.6 W
MB6-SC-24T	MB6 SRC-24T T31 00	Normally Closed				

Three Point Floating Actuators (Increase/Decrease)

Part No.	Type Designation	Spring Return Action (Valve Normal Position)	Stroke Time, sec. 50/60 Hz	Time-out Delay, sec. 50/60 Hz	VA	Power Consumption
MB3-24F	MB3-24F T31 00	None	160/135	N/A ^a	2.3	2.5 W
MB3-SO-24F	MB3 SRO-24F T31 T3	Normally Open			3.2 ^b	3.0 W
MB3-SC-24F	MB3 SRC-24F T31 T3	Normally Closed				

a. No Time-out feature. Controller must provide time-out after 3 minutes on time.

b. Size transformer for each spring actuators at 10VA

Proportional Actuators (0...10 V, 0...5V, 5...10V, 4...20 mA)

Part No.	Type Designation	Spring Return Action (Valve Normal Position)	Stroke Time, sec. 50/60 Hz	Time-out Delay, sec. 50/60 Hz	VA	Power Consumption
MB3-24M	MB3-24M T31 00	None	160/135	200/166	2.7 ^c	2.5 W
MB3-SO-24M	MB3 SRO-24M T31 00	Normally Open			2.7 ^c	
MB3-SC-24M	MB3 SRC-24M T31 00	Normally Closed				

c. Size transformer for each spring actuators at 10VA

VB601R Motorized 6-port Ball Valve

The VB601R is a 6-port motorized ball valve that performs a diverting function between two water circuits in 4-pipe changeover system. The VB601R valve will switch between heating and cooling with the addition of the SmartX MB10 two-position rotary actuator.

Flow regulation is provided from an additional SmartX PIBCVC valve and actuator. This provides the additional benefit of having a balanced energy efficient solution with superb proportional control.

A single on/off control signal to the 6-port diverting valve actuator determines the direction of flow through the valve. Changing the control signal will rotate the actuator and switch the supply ports between heating and cooling or vice versa. During the 6-port valve motorization, the valve rotates through a mid point with all ports isolated and with no possibility to cross connect and mix the heating and cooling circuits.

- No cross-flow between supply circuits.
- Single on/off control signal to changeoversupply circuits.



- Visual indication of actual valve position.
- Silent and reliable operation.
- Maintenance free.
- Teflon seal and polished chrome valve ball to prevent valve sticking.
- Manual override.

Specifications

Valve

DN	15	20
Diff Pressure	3.6 (kPa) at Qnom of 450 l/h DN15-STD Flow SmartX PIBCVC	14 (kPa) Qnom of 900 l/h DN20-STD Flow SmartX PIBCVC
Kvs	2.4 (m³/h)	4.3 (m³/h)
Pressure Class, PN	16	16
Medium Temp.	0 ... 90 (°C)	
Shut off	800 (kPa) 2)	
Valve neck	Quick fix connection	
Connection	Internal thread Rp 1/2 ISO 7/1	
Certifications	PED directive 97/23/EC (Art. 3§3)	
Weight	1140 (g)	
Materials: Body and connection	CW 602 N (DZR Brass)	
Ball	CW 614 N Chrome plated	
Stem	CW 614 N Nickel plated	
Seals	P.T.F.E. (TEFLON)	
O-ring	70 EPDM 281	

Actuator

Power supply	24 AC ± 20% (V)
Operating power consumption	5 (VA) (only when running)
Frequency	50/60 (Hz)
Running speed	80 (sec/90°)
Control input	2-point
Operating torque	10 (Nm)
Rotation angle	90 °
Ambient temperature	0...55 (°C)
Storage / transp. temp	-10...80 (°C)
Protection Class	II according to EN 60730-1
Grade of enclosure	IP42 according to EN 60529
Weight	405 (g)
Connection cable (halogen free)	1.5 (m) 3×0.5 (mm²)

VB601R Valve bodies

DN	kVS (m3/h)	Connection	Part No.
15	2.4	Rp ½	VB601R-15B
20	4.7	Rp 3/4	VB601R-20B

MB10 Actuators

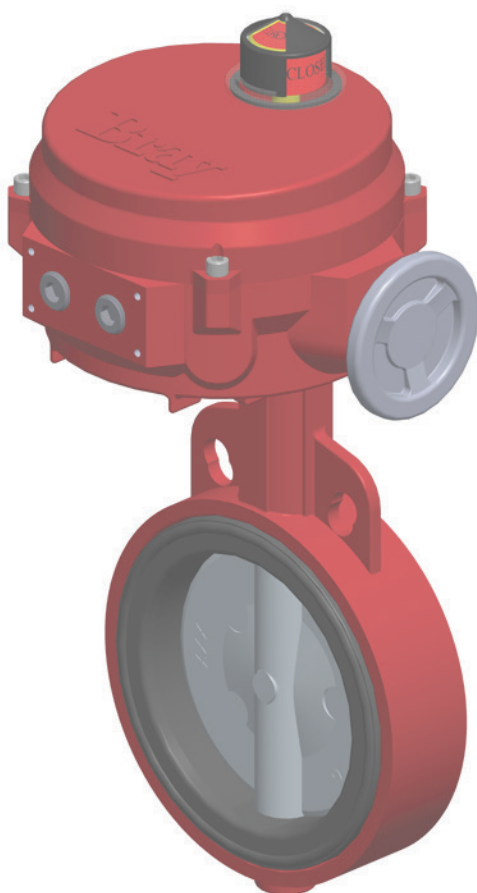
Supply voltage (V)	Speed (s / 90°)	Cable length (m)	Part No.
24 AC	80	1.5	MB10-24T
24 AC	80	10	MB10-24T-10M

Notes



Butterfly Valves and Actuators

Butterfly Valves are the ideal choice of product for isolation (on/off control) where needed within a plants heating system. The full range of Schneider-Electric products can be electrically or manually operated.

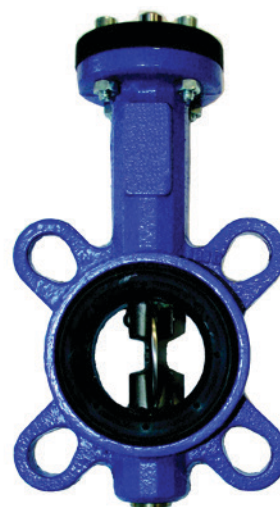


Butterfly Valves and Actuators

VF208W 25-200NS & 100-200NZ

The VF208W is a new generation butterfly valve for the isolation and control of water for HVAC systems such as boiler isolation or heat pump change over from cooling to heating. The butterfly valves have elongated wafer type eyelets for fitment between flanges

- Energy saving: EPDM soft seats provide tight shut off and zero leakage (complete insulation possible according to German energy saving order, EnEV)
- Approved for use with drinking water DN 25-80 (DVGW)
- Maintenance free, double sealing of stem, central disc bearing
- Good flow control characteristics
- Integrated dew point barrier
- No linkage kits required



Specification

Pressure Class	PN 16
Leakage (EN 12266-1)	Tight, (Leakage Rate A)
Temperature Range	-10°C...+100°C
Max glycol concentration	50%

Materials	
Body	Nodular Iron (EN-JS1030)
Lining	EPDM
Disc	DN25-80: 1.4581 (AISI316)
with zinc-lamella coating	DN100-200: (EN-JS1030)
Stem	1.4021-QT

Size	Kv	Stainless Steel Disc		Max ΔP (kPa)	Actuator
		Part No.	Full Type Designation		
DN25	26	VF208W-25NS	VF208W-25NS 26E B00	600	MF20
DN32	26.5	VF208W-32NS	VF208W-32NS 26E B00	600	MF20
DN40	50	VF208W-40NS	VF208W-40NS 50E B00	600	MF20
DN50	115	VF208W-50NS	VF208W-50NS 115E B00	600	MF20
DN65	260	VF208W-65NS	VF208W-65NS 260E B00	600	MF20
DN80	375	VF208W-80NS	VF208W-80NS 375E B00	600	MF20
DN100	760	VF208W-100NS	VF208W-100NS 760E B00	600	MF20
DN125	1,025	VF208W-125NS	VF208W-125NS 1025E B00	600	MF40
DN150	1,790	VF208W-150NS	VF208W-150NS 1790E B00	300	MF40
DN200	3450	VF208W-200NS	VF208W 200NS 3450E B00	300	MF40

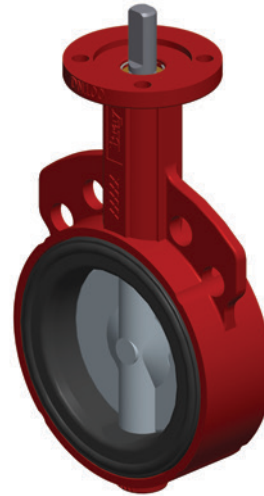
Size	Kv	Nodular Iron Disc		Max ΔP (kPa)	Actuator
		Part No.	Full Type Designation		
DN100	760	VF208W-100NZ	VF208W 100NZ 760E B00	600	MF20
DN125	1,025	VF208W-125NZ	VF208W 125NZ 1025E B00	600	MF40
DN150	1,790	VF208W-150NZ	VF208W 150NZ 1790E B00	300	MF40
DN200	3450	VF208W-200NZ	VF208W 200NZ 3450E B00	300	MF40

Contact Product Management for larger sizes.

VF299W-250...500CN

The VF299W is a general purpose, large butterfly valve with an undercut disc for low actuator torque.

- Wafer lugs for PN6, PN10 and PN16 pattern flanges
- The EPDM soft-seat provides a tight close off with low torque actuator
- Nylon 11 disc for compatibility with many media types including sea water
- Manual adjustment through hand lever, gearbox



Specification

Pressure Class	PN 16
Leakage (EN 12266-1)	Gas tight, (Leak Rate A)
Temperature Range	-29°C...121°C
Fluids	Hot and cold water with 50% Glycol vol. max. Well water, Sea water

Materials	
Body	ASTM A 126 ≈ GG25
Primary and Secondary seal, seat	EPDM
Disc	GGG40 Nylon11 coated
Stem	1.4405-QT

Size	Kvs	Part No.	Max ΔP (kPa)	Actuator	Gear operator
DN250	4670	VF299W-250CN	350	MF200	917-0300-000
DN300	6946	VF299W-300CN		MF550/700	917 0300 000
DN350	9063	VF299W-350CN			917-0400-000
DN400	12004	VF299W-400CN			917-0400-000
DN450	14804	VF299W-450CN			917-0500-000
DN500	19212	VF299W-500CN		MF700	917-0500-000

Butterfly Valves and Actuators

VF209W-50...500CN

The VF209W is a high pressure butterfly valve for heavy duty HVAC and industrial applications.

The VF209W can be used as a manual isolation valves or be controlled from a choice of Two position On/off, 3-point floating and Modulating actuators. Modulating control is typically between 0 and 70°For EQ flow.

Wafer type connection for fitting between flanges. PN6 (DN50 to DN400), PN10, and PN16 (DN50 to 500)

The EPDM soft-seat provides a tight closing of the butterfly valve with the maximum close-off pressure.

Suitable for cooling with salt, brackish and drinking water media from the Nylon 11 disc coating.

Manual adjustment through a ten-position hand lever, gearbox or the handwheel on the actuators.



Specification

Pressure Class	PN 16
Leakage (EN 12266-1)	Gas tight, (Leakage Rate A)
Temperature Range	-29°C...121°C
Fluids	Hot and cold water with 50% Glycol vol. max. Well water, Saltwater

Materials	
Body	Grey cast iron GG25
Primary & secondary seal, seat	EPDM
Disc	GGG40 Nylon11 coated
Stem	1.4405-QT

Size	Kvs	Part No.	Max ΔP (kPa)	Actuator	Hand lever	Gear Operator
DN50	124	VF209W-050CN	1200	MF68	9160080000	
DN65	243	VF209W-065CN	1200	MF68	9160080000	
DN80	397	VF209W-080CN	1200	MF68	9160080000	
DN100	723	VF209W-100CN	1200	MF68	9160100000	
DN125	1083	VF209W-125CN	1200	MF68	9160150000	
DN150	1591	VF209W-150CN	1200	MF68	9160150000	
DN200	2852	VF209W-200CN	1200	MF200	9160200000	
DN250	4670	VF209W-250CN	1200	MF550/700		9170300000
DN300	6946	VF209W-300CN	1200	MF550/700		9170300000
DN350	9063	VF209W-350CN	1000	MF700		9170400000
DN400	12004	VF209W-400CN	1000	MF1450		9170400000
DN450	14804	VF209W-450CN	1000	MF1450		9170500000
DN500	19212	VF209W-500CN	1000	MF2050		9170500000

MF20 (SR) / MF20-R / MF40 (ER)

The MF20 and MF40 are robust reliable actuators for the control of the VF208W butterfly valves. These actuators mount to the VF208W series valves without linkage kits and connect using terminal blocks to simplify and reduce installation time. The MF20-R actuator allows connection on to installed TRV-S butterfly valves, no linkage kit is required with this actuator too.

- Models for Floating / Modulating / On-Off and LON control
- 2...10 V Positional feedback on modulating models
- Latching Manual override
- Direct Handlever / position indicator
- Auxillary switch available as an accessory
- Standard and Spring Return/Electronic return variants



MF20 / MF20-R



MF40ER



MF40



MF20SR

Actuators for VF208W Butterfly Valves

Suitable VF208W valve size	Loss of power function	Torque	Control	Part No.	Supply Voltage	Power Consumption			Operating time, 90°
						Rest	Operation	Transformer/ Wire Sizing	
DN25-100	Stop in place	20Nm	On-Off/3P	MF20-230F	230 Vac	0.4W	3W	7VA	90 sec
				MF20-24F	24 Vac/Vdc	0.2W	2.5W	5.5VA	
			2...10 V	MF20-24M		0.4W	2.5W	5VA	
			LON	MF20-24L		1.25W	3.5W	6VA	
	Spring return	On-Off	MF20SR-TS	24-230 Vac	3W	7W	18VA	75 sec	
		2...10 V	MF20SR-24M	24 Vac/Vdc	3W	5.5W	8.5VA	90 sec	
DN125-200	Stop in place	40Nm	On-Off / 3P	MF40-230F	230 Vac	2.5W	5W	9VA	150 sec
				MF40-24F	24 Vac/Vdc	2W	4W	6VA	
			2...10 V	MF40-24M		2W	4.5W	6.5VA	
			LON	MF40-24L		1.5W	4W	7VA	90 sec
	Electronic return	On-Off	MF40ER-24T	24 Vac/Vdc	3W	11W	21VA	150 sec	
		2...10 V	MF40ER-24M						

Actuators for installed base of TRV-S butterfly Valves

Suitable TRV-S valve size	Loss of power function	Torque	Control	Part No.	Supply Voltage	Power Consumption			Operating time, 90°
						Rest	Operation	Transformer/ Wire Sizing	
DN25-125	Stop in place	20Nm	On-Off / 3P	MF20-230F-R	230 Vac	0.4W	3W	7VA	90 sec
				MF20-24F-R		0.2W	2.5W	5.5VA	
			2...10 V	MF20-24M-R	24 Vac/Vdc	0.4W	2.5W	5VA	

The MF40 and MF40-ER will connect without linkage kit to the TRV-S valves DN150-200

Accessories:

MD-S1, 1 x SPDT auxiliary switch, Part No. 914-1060-000

MD-S2, 2 x SPDT auxiliary switch, Part No. 914-1061-000

Handlevers:

Handlevers can be ordered to fit the VF208W butterfly valve. This enables the valve to be used as hand isolation valves.

DN25-65 Part No. : 915-0065-000

DN80...100 Part No. : 915-0100-000

DN125-200 Part No. : 915-0200-000

NOTE: Max ΔP Pressure for the valve remains (Max Valve ΔP is a function of construction, not the actuator)



Butterfly Valves and Actuators

MF68 / MF200 / MF550 / MF700 / MF1470 / MF2050

The direct-coupled IP65 rotary actuators are heavy duty dedicated actuators for VF209W and VF299W butterfly valves.

- Hand wheel for manual operation as standard
- Adjustable start/end point switch
- 2 additional auxiliary switches as standard
- Terminal connection
- Direct fit without any linkage kits
- Optical position display
- Suitable for outdoor and industrial environments (IP65)
- Very low maintenance
- Self-regulating heater to prevent condensation buildup within the actuator
- Adjustable positioning speed, 60 sec...360 sec (modulating models)
- Control signal sensitivity adjustment (modulation models)



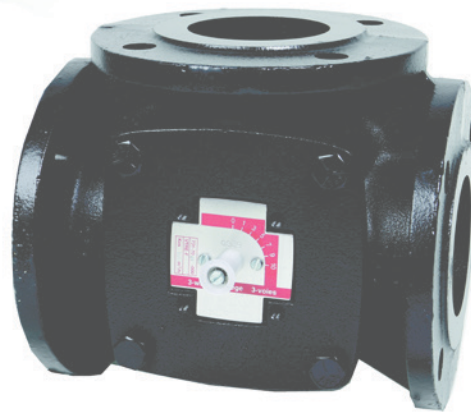
Suitable VF209W Valve Sizes	Suitable VF299W Valve Sizes	Control	Part No.	Torque	Supply Voltage	Power Consumption			Operating Time 90° ✕
						Rest	Operation	Wire Sizing	
DN50-150	-	Floating & On/ Off	MF68-24F	68Nm	24 Vac	5W	43	48VA	60 sec.
DN200	DN250		MF200-24F	226Nm			48	53VA	
DN250-300	DN350-450		MF550-24F	565Nm			69	77VA	
DN50-150	-	0(2)-10 VPro- portional	MF68-24M	68Nm		7W	45	50VA	
DN200	DN250		MF200-24M	226Nm			50	55VA	
DN250-300	DN350-450		MF550-24M	565Nm			71	79VA	
DN50-150	-	Floating & On/ Off	MF68-230F	68Nm	230 Vac	5W	140	155VA	36 sec.
DN200	DN250		MF200-230F	226Nm			108	120VA	
DN250-350	DN350-500		MF700-230F	735Nm			232	258VA	
DN400-450	-		MF1450-230F	1470Nm			275	305VA	132 sec.
DN500	-		MF2050-230F	2034Nm			315	350VA	

Notes



Shoe Valves and Actuators

Shoe valves are the ideal type of valve for recirculation systems, allowing control of the fluid flow in both mixing and diverting circuits. Shoe valves are designed to be used in both mixing and diverting circuits. Typical applications include heating, cooling and air conditioning.



Shoe Valves and Actuators

VTRE

The VTRE is a 3-way flanged rotary hydronic shoe valve.
The valve is delivered with a handle for manual operation.



Specification

Valve type	3 way rotary shoe
Flow characteristic	Modified linear
Operating angle	90°
Pressure class	PN 6
Water temperature	
Max.	110°C
Min.	-10°C

Max glycol concentration	50%
Max pressure drop	50 kPa
Leakage	Max. 1% of Kvs
Materials	
Body	Cast iron
Sleeve	Brass
Connections	Flanged DIN 2531

VTRE			Max Close-off Pressure kPa	
			Mixing Application	Diverting Application
Part number	DN	Kvs	EM9, M9	EM9, M9B
			15Nm	
731 7039 000	20	12	50	
731 7041 000	25	18		
731 7045 000	32	28		
731 7049 000	40	44		
731 7053 000	50	60		
731 7057 000	65	90		
731 7061 000	80	150		
731 7065 000	100	225		
731 7067 000	125	280		
731 7069 000	150	400		

Rotary Shoe Valve Actuators EM9/M9B

The EM9/M9B are electronic actuators for motorising VTRE rotary shoe valves. EM9 operates on 24 V and is controlled by selectable 0...10 Vdc, 2...10 Vdc, 0...20 mA or 4-20 mA control signal. The running time can be programmed. EM9/M9B can be operated manually and has a valve position indicator on the front of the unit.



Specification

Power consumption	3 VA
Duty cycle	10%
Torque	15 Nm
Operating temperature	-15...+55°C
Protection class	IP 54

Material	
Enclosure material	Reinforced plastic PA66
Color	Black/Red

M9B, EM9 actuators for valves VTRE		Control signal	Working range	Running time	Power
Part number	Description				Vac ±10%
860 1010 000	M9B/24	3-point	30-180°	90° 4 min	24
860 1020 000	M9B/230	3-point	30-180°	90° 4 min	230
860 1100 000	EM9/90	modulating (1)	90°	60/90/120s	24
860 1110 000	EM9/180	modulating (1)	180°	120/180/240s	24

(1) Selectable 0...10 V, 2...10 V, 0...20 mA, 4...20 mA

M9B, EM9 linkage kits for other valves

Part number	Description
860 0990 000	Linkage E/M9-VTRA
860 0991 000	Linkage E/M9-TRV (2)

(2) **NOTE:** Not suitable for TRV-S



A wide program of damper actuators products is available from Schneider-Electric to enable the control of air movement from the smallest to the very largest air handling equipment.

Intelligent torque control is used in the motors for stall protection and low power holding providing a dependable range of products for the facility manager.



Damper Actuators - Non-spring Return

MD5A, MD10A, MD20A, MD40A

The MD...A are 2...10 V modulating damper actuators designed for operating air control dampers in ventilation and air conditioning systems for building services installations.

As an accessory, these modulating actuators have a fully adjustable auxiliary switch unit.



Specification

Power supply	24 Vac $\pm 20\%$, 50-60 Hz, 24 Vdc $\pm 20\%$
Connection cable	1 m, 4 $\times$ 0.75 mm ² (AWG 18)
Input signal range X	0...10 Vdc
Input resistance	100 k Ohm
Operating range	2...10 Vdc (for set angle of rotation)
Synchronisation tolerance	$\pm 5\%$
Position feedback Y	2...10 Vdc (max. 1 mA)
Direction of rotation	Reversible with switch 0 / 1 at switch position 0 resp 1
Angle of rotation	Max. 95° (adjustable by mechanical stops)
Running time	150 s
Position indication	Mechanical
Manual override	Gearing latch disengaged with pushbutton, self-resetting, manual locking

Standards conformity	
EMC, emission	EN 6100-6-3: 07
EMC, immunity	EN 6100-6-2: 05
Protection class	III Safety extra-low voltage
Enclosure rating	IP 54
Ambient humidity	95% RH, non-condensing
Ambient temperature	
Operation	-30...+50°C
Storage	-40...+80°C
Maintenance	Maintenance free

Part number	Description	Torque	Power Consumption		
		Nm	In operation	At rest	For Transformer Sizing
875 1009 000	MD5A-24	5	1 W	0.4 W	2 VA
875 1019 000	MD10A-24	10	2 W	0.4 W	4 VA
875 1029 000	MD20A-24	20	2 W	0.4 W	4 VA
875 1039 000	MD40A-24	40	4.5 W	2 W	6.5 VA

Description	For air control dampers area	Damper spindle	Spindle length, mm	Spindle diameter, mm
MD5	approx. 1 m ²		min. 37	6-20
MD10	approx. 2 m ²	Clamp on top	min. 40	8...26.7
		Clamp on bottom*	min. 20	8...20
MD20	approx. 4 m ²	Clamp on top	min. 48	10...20
		Clamp on bottom	min. 20	10...20
MD40	approx. 8 m ²	Clamp on top	min. 52	12...26.7
		Clamp on bottom	min. 20	12...26.7

* Optional accessory K-MD10 part number 914-1062-000. For damper actuator accessories see page 78.

MD5B, MD10B, MD20B, MD40B

The MD...B are on/off damper actuators designed for operating air control dampers in ventilation and air conditioning systems for building services installations.

The actuators are available in 24 Vac/Vdc or 230 Vac versions.

Versions available with integrated end point switch (-S types).

Auxiliary switch also available as an accessory.



Specification

Connection cable	
Actuator	1 m, 3×0.75 mm ² (AWG 18)
Auxiliary switches (-S)	1 m, 3×0.75 mm ² (AWG 18)
Angle of rotation	max. 95° (adjustable by mechanical stops)
Running time	150 s
Direction of rotation	Reversible with switch 0 / 1 at switch position 0 resp 1
Position indication	Mechanical
Auxiliary switch	1 mA...3 (0.5) A, 250 Vac
Switching point	(adjustable 0...100%)

Standards conformity	
EMC, emission	EN61000-6-3: 07
EMC, immunity	EN 61000-6-2: 05
LVD Safety; MD5B-230(-S)	EN 60730-1/2-14
Protection Class	
MD..B-24(-S)	III Safety extra-low voltage
MD..B-230(-S)	II Totally insulated
Enclosure rating	IP 54
Ambient humidity	95% RH, non condensing
Ambient temperature	
Operation	-30...+50°C
Storage	-40...+80°C
Maintenance	Maintenance free

Part number	Description	Torque Nm	Power supply	Power Consumption		
				In operation	At rest	For Transformer Sizing
875 1001 000	MD5B-230	5	230 Vac -60%/+15%	1.5 W	0.4 W	3.5 VA
875 1003 000	MD5B-230-S	5	230 Vac -60%/+15%	1.5 W	0.4 W	3.5 VA
875 1005 000	MD5B-24	5	24 Vac/Vdc ± 20%	1 W	0.2 W	1.5 VA
875 1007 000	MD5B-24-S	5	24 Vac/Vdc ± 20%	1 W	0.2 W	1.5 VA
875 1011 000	MD10B-230	10	230 Vac -60%/+15%	2.5 W	0.6 W	5.5 VA
875 1015 000	MD10B-24	10	24 Vac/Vdc ± 20%	1.5 W	0.2 W	3.5 VA
875 1021 000	MD20B-230	20	230 Vac -60%/+15%	2.5 W	0.6 W	6 VA
875 1025 000	MD20B-24	20	24 Vac/Vdc ± 20%	2 W	0.2 W	4 VA
875 1035 000	MD40B-24	40	24 Vac/Vdc ± 20%	4 W	2 W	6 VA

Description	For air control dampers area	Damper spindle	Spindle length mm	Spindle diameter mm
MD5	approx. 1 m ²		min. 37	6...20
MD10	approx. 2 m ²	Clamp on top	min. 40	8...26.7
		Clamp on bottom*	min. 20	8...20
MD20	approx. 4 m ²	Clamp on top	min. 42	10...20
		Clamp on bottom	min. 20	10...20
MD40	approx. 8 m ²	Clamp on top	min. 42	14...26
		Clamp on bottom	min. 20	14...26

* Optional accessory K-MD10 part number 914-1062-000 For damper actuator accessories see page 78.

Damper Actuators - (Spring / SuperCap Return)

LF24, LF230, LF24-SR

The LF series are compact, low-torque, spring return damper actuators suitable for controlling air dampers up to 0.8m² cross sectional area.

The LF24 and LF230 versions are on/off controlled. The LF24-SR version is for 0...10 V modulating control with 2...10 V position feedback



Specification

Connection cable	2×0.75 mm² (AWG 18)
Angle of rotation	Max. 95° (adjustable 37-100% with additional limit stop ZDB-LF)
Torque	
Spring return	Min. 4 Nm (3 ft-lbf)
Running time	
Actuator	40-75 s (0-4 Nm (0-3 ft-lbf))
Spring return	Approx. 20 s (at -20...+50°C) max. 60 s (at -30°C)
Direction of rotation	Selected by mounting L/R
Position indication	Mechanical

Standards conformity	
EMC, emission	EN 55014-1
EMC, immunity	EN61000-6-2
LVD Safety; LF230	EN 60730-1/-2-14
Enclosure rating	IP 54
Ambient humidity	95% RH, non condensing
Ambient temperature	
Operation	-30...+50°C
Storage	-40...+80°C
Service life	min. 60,000 operations
Maintenance	Maintenance free

Part number	Description	Torque Nm	Control Signal	Power supply	Power Consumption		
					In operation	At rest	For Transformer Sizing
874 0003 000	LF24	4	on/off	24 Vac±20%	5 W	2.5 W	7 VA
875 0003 000	LF230	4	on/off	230 Vac±14%	5 W	3 W	7 VA
877 0003 000	LF24-SR	4	0...10 V	24 Vac±20%	2.5 W	1 W	5 VA

For damper actuator accessories see page 78.

MD10 SR

The MD10 SR is a compact spring return damper actuator for the operation of ventilation dampers up to 2m² in building service installations



Specification

Motor Torque	Min. 10Nm @ Nominal Voltage	Adjustable angle of rotation	0...Max 95°
Spring Return	Min. 10Nm	Position indication	Mechanical
Running Time, Motor		Protection Class	
Modulating	≤150 s	24 V versions	III Extra low Voltage
On/off	≤75 s	230 V Versions	II Totally insulated
Spring Return	≤20 s	Degree of Protection	IP54
Control Signal, modulating		Ambient Humidity	95% r.h. Non condensing
Range of Operation (X)	2...10 Vdc	Environmental	
Input Resistance	100 kΩ	Operation Temperature	-30°C...+ 50°C
Position Feedback (Y)	2...10 Vdc, max. 0.5mA	Storage (non operation)	-40°C...+ 80°C
Position accuracy	+/- 5%	Sound power level	
Cable Size	1m	Motor	≤40 dB (mod.) 45dB (on/off)
-24M,	4 x 0.75 mm ²	Spring return	≤62 dB
-T, -24T	2 x 0.75 mm ²	Service Life	Min.60,000 emergency positions
S2 versions	2+6 x 0.75 mm ²	Maintenance	Maintenance free
Direction of Rotation		Weight	2.1Kg
Motor	Reversible with Switch I/O		
Spring return	via mounting orientation, L / R		
Manual Override	5mm Hex key crank, supplied plus interlocking switch		

Part number	Type Designation	Torque Nm	Power Supply	Power Consumption			Control Signal
				In Operation	At Rest	For wire sizing	
MD10SR-T	MD10 SR-24/230T 1M54 00	10	24...240 Vac / 24...125 Vdc	6W	2.5W	9.5VA	On/Off
MD10SR-TS	MD10 SR-24/230FTS 1M54 00	10	24...240 Vac / 24...125 Vdc	6W	2.5W	9.5VA	On/Off
MD10SR-24T	MD10 SR-24T 1M54 00	10	24 Vac/Vdc	6W	2.5W	8.5VA	On/Off
MD10SR-24TS	MD10 SR-24TS 1M54 00	10	24 Vac/Vdc	6W	2.5W	8.5VA	On/Off
MD10SR-24M	MD10 SR-24M 1M54 00	10	24 Vac/Vdc	3.5W	2.5W	5.5VA	2...10 V Mod.

For damper actuator accessories see page 78.

Spindle Clamp

Damper Spindle Attachment		Spindle Length	Spindle Diameter	Spindle Diameter	Spindle Diameter
			●	■	◆
Clamp on Top	With Insert	≥85 mm	10...22 mm	10 mm	14...25.4 mm
	Without Insert		19...25.4 mm	12...18 mm	
Clamp on Bottom	With Insert	≥15 mm	10...22 mm	10 mm	14...25.4 mm
	Without Insert		12...18 mm	19...25.4 mm	

Damper Actuators - (Spring / SuperCap Return)

MD20 SR

The MD20 SR is a compact spring return damper actuator for the operation of ventilation dampers up to 4m² in building service installations



Specification

Motor Torque	Min. 20Nm @ Nominal Voltage
Spring Return	Min. 20Nm
Running Time, Motor	
Modulating	≤150 s
On/off	≤75 s
Spring Return	≤20 s
Control Signal, modulating	2...10 Vdc
Input Resistance	100 kΩ
Position Feedback (Y)	2...10 Vdc, max. 0.5mA
Position accuracy	+/- 5%
Cable Size	1m, 0.75 mm ²
-24M,	4 x 0.75 mm ²
-T,-24T	2 x 0.75 mm ²
S2 versions	2+6 x 0.75 mm ²
Direction of Rotation	
Motor	Reversible with Switch I/O
Spring return	via mounting orientation, L / R
Manual Override	5mm Hex key crank, supplied

	plus interlocking switch
Adjustable angle of rotation	0...Max 95°
Position indication	Mechanical
Protection Class	
24 V versions	III Extra low Voltage
230 V Versions	II Totally insulated
Degree of Protection	IP54
Environmental	
Operational Temperature	-30°C...+ 50°C
Storage temperature (non operation)	-40°C...+ 80°C
Ambient Humidity	95% r.h. Non condensing
Sound power level	
Motor	≤40 dB (mod.) ≤45dB (on/off)
Spring return	≤62 dB
Service Life	Min.60,000 emergency positions
Maintenance	Maintenance free
Weight	approx. 2.1Kg

Part number	Type Designation	Torque Nm	Power Supply	Power Consumption			Control Signal
				In Operation	At Rest	For wire sizing	
MD20SR-T	MD20 SR-24/240T 1M54 00	20	24...240 Vac / 24...125 Vdc	6.5W	3.3W	18VA	On/Off
MD20SR-TS	MD20 SR-24/240TS 1M54 00	20	24...240 Vac / 24...125 Vdc	6.5W	3.3W	18VA	On/Off
MD20SR-24T	MD20 SR-24T 1M54 00	20	24 Vac/Vdc	5W	2.5W	7.5VA	On/Off
MD20SR-24TS	MD20 SR-24TS 1M54 00	20	24 Vac/Vdc	5W	2.5W	7.5VA	On/Off
MD20SR-24M	MD20 SR-24M 1M54 00	20	24 Vac/Vdc	5W	3W	7VA	2...10 V Mod.

For damper actuator accessories see page 78.

Spindle Clamp

Damper Spindle Attachment		Spindle Length	Spindle Diameter	Spindle Diameter	Spindle Diameter
			●	■	◆
Clamp on Top	With Insert	≥85 mm	10...22 mm	10 mm	14...25.4 mm
	Without Insert		19...25.4 mm	12...18 mm	
Clamp on Bottom	With Insert	≥15 mm	10...22 mm	10 mm	14...25.4 mm
	Without Insert		19...25.4 mm	12...18 mm	

MD40 ER

The MD40 Electronic Return (SuperCap) Damper Actuator is a powerful rotary damper actuator with super capacitor technology for positional electronic drive return in the event of a power failure.

- Air Dampers up to 8m²
- 24 Vac/Vdc
- 2...10 V Position Feedback
- Long Life Supercaps



Specification

Power Supply	AC: 19.2...28.8V; 50/60 Hz DC: 21.6...28.8V	Angle of Rotation	Max. 95°, limited both ends, adjustable end stops
Running Time		Position Indication	Mechanical
Motor Driven	150 s/90°	Environment	
Capacitor Driven	35 s/90°	Operation Temperature	-30°C...+ 50°C
Control Signal		Storage Temperature (non operation)	-40°C...+ 80°C
Range of Operation (X)	2...10 Vdc	Ambient Humidity	95% r.h. Non-condensing
Input Resistance	100 kΩ	Weight	approx. 1.8 kg
Position Feedback (Y)	2...10 Vdc, max. 0.5 mA	Safety	
Position accuracy	+/- 5%	Protection Class	III Safety Extra Low Voltage / UL Class 2 Supply IP54
Functional Data		Degree of Protection	NEMA2, UL Enclosure Type 2
Electronic Return position	0...100% of max. angle or rotation (POP dial)	Standards	CE to 2004/108/EC cULus to UL60730-1A UL60730-2-14 and CAN/CSA E60730-1:02 IEC/EN 60730-1 and IEC/EN 60730-2-14
Direction of Rotation			
Motor (mod.)	Reversible with Switch 0/1		
Electronic Return (SuperCap) Position	0...100% (any position between, as set by POP dial)		

Part number	Control	Torque	Power Consumption		
		Nm	In operation	At rest	For Transformer Sizing
MD40ER-24M	Modulating	Min. 40 Nm	11 W @ nominal torque	<3 W	≤21 VA
MD40ER-24T	Two-Position				
Description	For air control dampers area	Damper spindle		Spindle length, mm	Spindle diameter, mm
MD40	approx. 8 m²	Clamp on top		min. 52	12...26.7
		Clamp on bottom		min. 20	12...26.7

For damper actuator accessories see page 78.

Damper Actuators

Damper Actuator Accessories

Mechanical Accessories

Name	Description	Part number	Actuators							
			MD5	MD10	MD20	MD40	LF	MD10 SR	MD20 SR	MD40 ER
AV8-25	Shaft extension Length approx. 250 mm For damper spindles 8...25 mm dia. or 10...25 mm square	914-1023-010		x	x		x	x	x	
K-MD10	Reversible spindle clamp	914-1062-000		x						
KH8	Universal damper crank arm Zinc-plated steel For damper spindles 10...18 mm dia. or 10...14 mm square Slot width 8.2 mm	914-1021-000			x		x	x	x	
ZG-MDSR	Mounting Kit for flat and side installation	914-1046-000						x	x	
ZDB-LF	Angle of rotation limiter and pointer	914-1045-000					x			
ZG-MD20	Parallel lever linkage kit	914-1063-000			x					
Z-AF	Mounting plate adaptor for anti-rotation strap-- Retrofitting MD20 SR or MD10 SR from AF installation	914-1047-000						x	x	

Electrical Accessories

Name	Description	Part number	Actuators						
			MD5	MD10	MD20	MD40	LF	MD10 SR / MD20 SR	MD40 ER
MD-S1	Auxiliary switch, add-on 1xSPDT 1mA...3(0.5)A, 250 Vac	914-1060-000	x	x	x	x		Actuators only available with integrated switches	x
MD-S2	Auxiliary switch, add-on 2xSPDT 1mA...3(0.5)A, 250 Vac	914-1061-000	x	x	x	x		Actuators only available with integrated switches	x

TR32 / TR60 Transformer

The TR32 and TR60 are transformers moulded in thermoset plastic and mounted in a grey enclosure made of an impact-resistant, self-extinguishing thermoplastic. They can be mounted on a wall or use snap-locking on a 35 mm DIN rail (suitable for modular equipment enclosures).

The transformers are double-insulated and do not require safety grounding. Both the TR32 and the TR60 have primary and secondary terminal blocks in different connection sections.

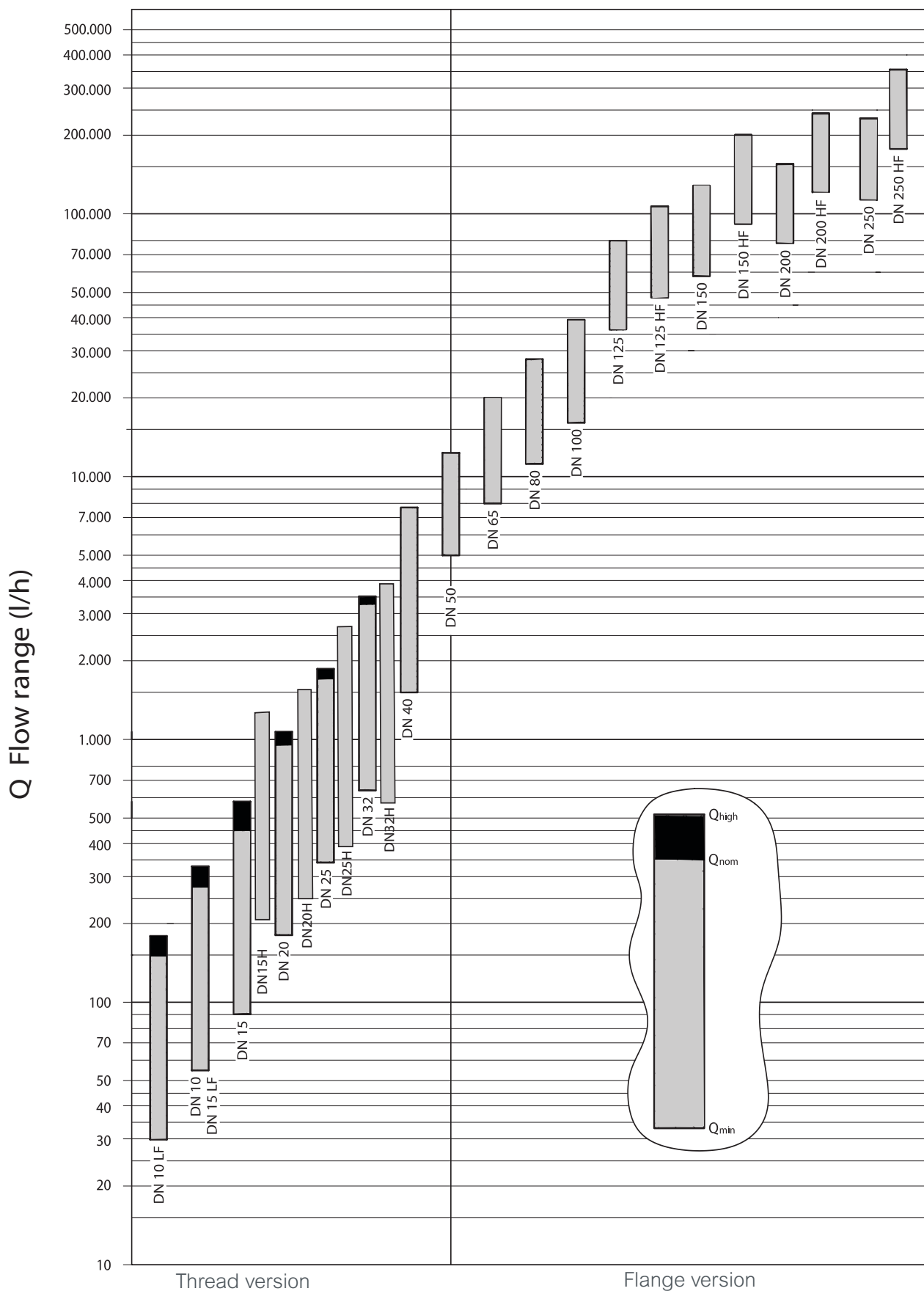
The transformers are protected by PTC resistors on the secondary side. Reset the protection by switching the power off for 10 seconds.

Specification

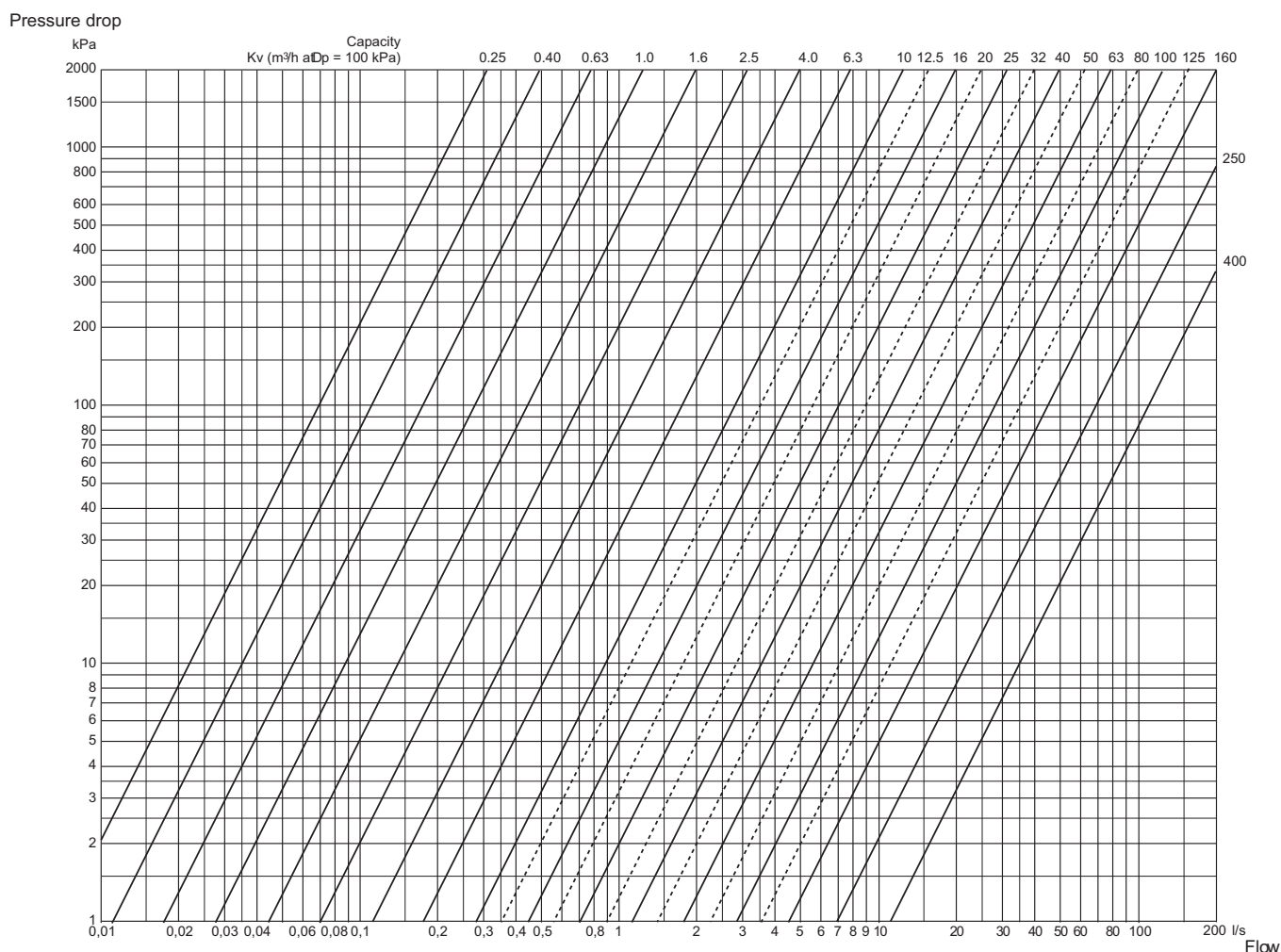
Input voltage	230 Vac 50-60Hz
Output voltage	24 Vac
Product standards, CE	
Safety	EN 61 558-1, EN 61 558-2-6
Emission	EN 55 014-1, EN 61000-3-2/3-3
Immunity	EN 55 014-2
Enclosure Rating	IP 40
Material	Thermoplastic, Grey
Weight	
TR32	0.8 kg
TR60	1.3 kg

Model	Part No.	Power Consumption
TR32	341-3032-000	32 VA
TR60	341-3060-000	60 VA

SmartX PIBCV Flow Selection Chart



Water Valve Sizing Chart, Traditional Pressure Dependant Valves



1 litre per second = 3.6m³/h

100 kPa = 1 Bar = 14.5psi

Valve sizing formulae for water service

to size a valve, the following must be known: The volumetric flow rate through the valve, Q.

The differential pressure across the valve, ΔP.

Calculation of valve flow coefficient, Kv

$$Kv = Q \times \sqrt{\frac{\rho}{\Delta P}}$$

Calculation of valve flow rate, Q

$$Q = Kv \times \sqrt{\frac{\Delta P}{\rho}}$$

Calculation of Pressure drop, ΔP

$$\Delta P = \rho \times (Q/Kv)^2$$

Kv = Valve Capacity (m³/h)

Q = Volume flow (m³/h)

ΔP = Pressure drop across valve (bar)

ρ = Specific Gravity of fluid (kg/m³)

Steam Valve Sizing Chart

Example for saturated Steam:

Flow rate, (G) 4700 Kg/h
Abs. Pressure upstream (p1) 850 kPa
Load Pressure (ΔP_v) 160 kPa

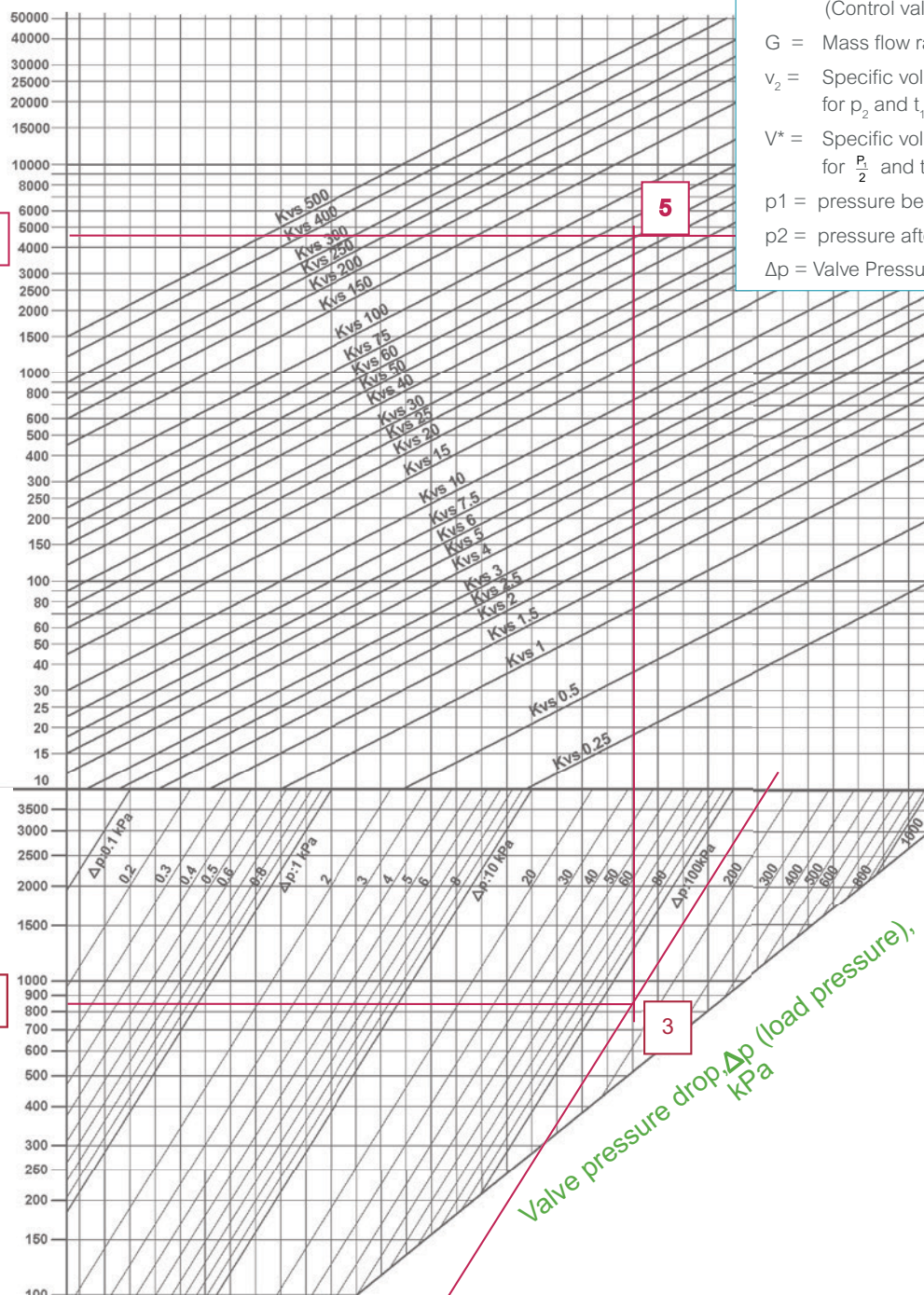
Mark the point of intersection [3] between the line originating from the absolute upstream pressure [1] and the inclined line corresponding to the load pressure (valve pressure drop)[2].

Identify the point of intersection between point [3] found above and the flow rate of Saturated steam [4]

The last found point would corresponds to a valve with a Kvs of 63 [5]

Flow rate, Saturated steam Kg/h

Absolute Steam Pressure, kPa



$$P_2 > \frac{P_1}{2}$$

$$K_{vs} = \frac{G}{31.6} \times \sqrt{\frac{v_2}{\Delta p}}$$

$$\Delta P > \frac{P_1}{2}$$

$$P_2 < \frac{P_1}{2}$$

$$K_{vs} = \frac{G}{31.6} \times \sqrt{\frac{2 \times v^*}{p_1}}$$

$$\Delta P > \frac{P_1}{2}$$

Key:

Kvs = Valve flow co-efficient,
(Control valve fully open).

G = Mass flow rate (Kg/h)

v_2 = Specific volume (from steam table)
for p_2 and t_1 condition

V^* = Specific volume (from steam table)
for $\frac{P_1}{2}$ and t_1 condition

p_1 = pressure before valve

p_2 = pressure after valve

Δp = Valve Pressure drop (bar)

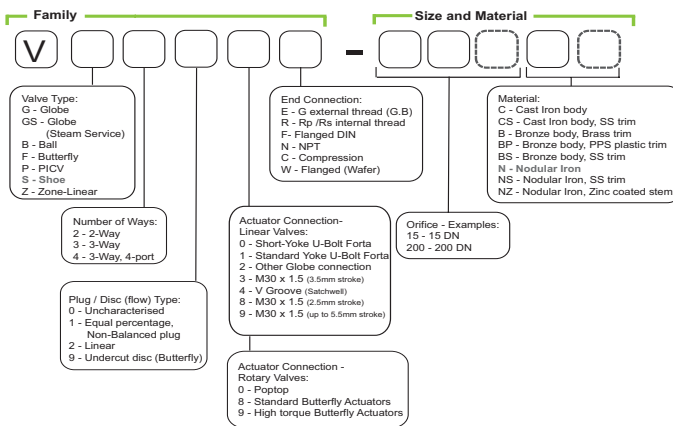
Type Designation Guide

This guide details the type designation coding applicable on all new products launched from June 2009.

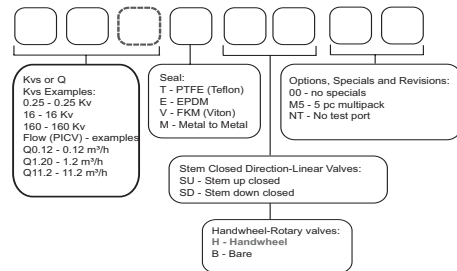
Build Up Code - Valve Body Type Designation

Full Type Designation

Main Type

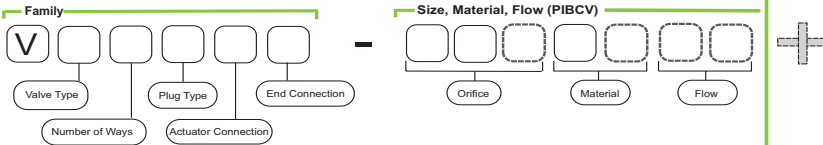


Specification Code



Part No.

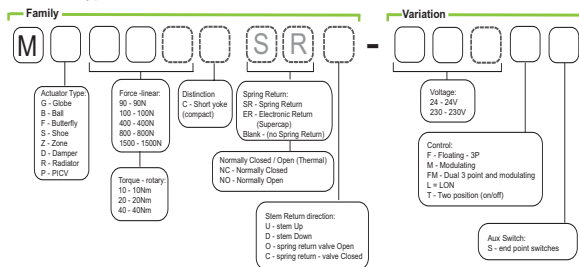
Main Type



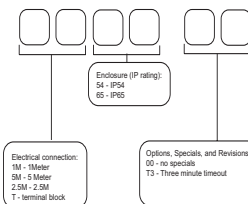
Build Up Code - Valve Actuators Type Designation

Full Type Designation

Main Type

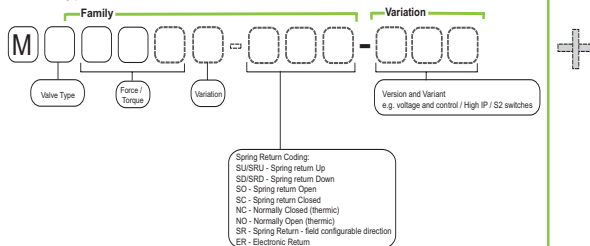


Specification Code



Part No.

Main Type



Part No. Annex



Supporting Information

Products Under the New Designation

VB200R	Ball Valves - Full Port, 2 Way
VB210R	Ball Valves – Characterised Control, 2 Way
VB300R	Ball Valves – Full Port, 3 Way
VB310R	Ball Valves – Characterised Control, 3 Way
MB3	Ball Valve Actuator
MB3 SR	Ball Valve Actuator, Spring Return
MB6 SR-24T	Ball Valve Actuator, Spring Return (Two Position)
VF208W	Butterfly Valves
VF209W	Butterfly Valves (High Pressure)
VF299W	Butterfly Valves (undercut disc)
MF20-R	Butterfly Valve Actuator (replacement for MB15 on installed TRV-S Valves)
MF68/MF200/ MF500 MF1450	Butterfly Valve actuator for VF209/VF299
VG210R	Venta Globe Valve - Rp threads, 2 Way
VG310R	Venta Globe Valve - Rp threads, 3 Way
VG221F	Globe Valve, 2 Way, Balanced (former VG222)
VG311F	Globe Valve, 3 Way (former VG321)
VGS211F	Globe Valve, Steam, 2 Way (former VG211)
MG900 SR	Forta Spring Return Globe Valve Actuator
MG600C	Forta Short Yoke Globe Valve Actuator
MG600C SR	Forta Spring Return Short Yoke Globe Valve Actuator
MD10 SR	Damper Actuator Spring Return, 10 Nm
MD20 SR	Damper Actuator Spring Return, 20 Nm
MD40 ER	Damper Actuator, Electronic Return, 40Nm
VZ208E	Zone Valve, 2 Way, Short Stroke, External Thread (replaced VZ28)
VZ308E	Zone valve, 3 Way, Short Stroke, External Thread (replaced VZ38)
VZ408E	Zone Valve, 3 Way with bypass, 4 Ports, Short Stroke, External Thread (replaced VZ48)
VZ219E	Zone Valve, 2 Way, Long Stroke, External Thread (replaced VZ29)
VZ319E	Zone Valve, 3 Way, Long Stroke, External Thread (replaced VZ39)
VZ419E	Zone Valve, 3 Way with bypass, 4 Ports, Long Stroke, External Thread (replaced VZ49)
VZ208C	Zone Valve, 2 Way, Short Stroke, Compression Ended (replaced VZ28C)
VZ308C	Zone Valve, 3 Way, Short Stroke, Compression Ended (replaced VZ38C)
VZ408C	Zone Valve, 3 Way with bypass, 4 ports, Short Stroke, Compression Ended (replaced VZ48C)
VZ219C	Zone Valve, 2 Way, Long Stroke, Compression Ended (replaced VZ29C)
VZ319C	Zone Valve, 3 Way, Long Stroke, Compression Ended (replaced VZ39C)
VZ419C	Zone Valve, 3 Way with bypass, 4 ports, Long Stroke, Compression Ended (replaced VZ49C)
MZ140-*T	Zone Valve Actuator, 2 Position (replaced MZ88T and MZ89T)
MZ140-24M	Zone Valve Actuator, Modulating (replaced MZ88TA and MZ89TA)
MZ95*	Zone Actuator, 2 position - for VZ*2 valves
MR90	Radiator Valve Actuator, Thermal
MR95	Radiator Valve Actuator, Thermal
MF20/MF40	Butterfly Valve Actuator
VP228E	PIBCV DN10-20 (M30 connection, short stroke)
VP229E	PIBCV DN10-32 (M30 connection, Long Stroke)
VP220E	PIBCV DN40-50 Forta connection
VP220F	PIBCV DN50-100 Forta connection
VP221F	PIBCV DN125-150
VP222F	PIBCV DN200-200
MP120	Thermal PIBCV Actuator, DN10-32
MP130	PIBCV Motoric actuators - DN10-32
MP300 SR	PIBCV Spring Return motoric actuators, DN10-32
MP500C	Forta PIBCV actuator, DN40-100
MP500C-SR	Forta Spring return PIBCV actuator, DN40-100
MP2000	PIBCV actuator, DN125-150
MP2000-SR	PIBCV spring return actuator
MP4000	PIBCV actuator, DN200-250
MB	Shoe Valves, Threaded, Satchwell
MBF	Shoe Valves, Flanged, Satchwell

Products under old designation

AVUX, AVUM, AVUE	Compact Linear Actuators (Satchwell)
AT**** / AG****	Erie Zone Valve Actuators
V241	Globe Valve, 2 Way, Bronze, External Threads
VZX	Globe Valve, 2 Way, Bronze, Satchwell (for AVU.. Actuators)
V211T	Globe Valve, 2 Way, Nodular Iron, Threaded
V212T	Globe Valve, 2 Way, Nodular Iron, Balanced, Threaded
V211	Globe Valve, 2 Way, Nodular iron, Flanged
V212	Globe Valve, 2 Way, Nodular Iron, Flanged, Balanced
V222	Globe Valve, 2 Way, DN65-150, Cast iron
V231	Globe Valve, 2 Way, Nodular Iron, PN25
V232	Globe Valve, 2 Way, Nodular Iron, PN25, Balanced
V292	Globe Valve, 2 Way, Nodular Iron, PN25, DN65-150, Balanced
V341	Globe Valve, 3 Way, Bronze, External Threads
MZX	Globe Valve, 3 Way, Bronze, Satchwell (for AVU.. Actuators)
V311T	Globe Valve, 3 Way, Nodular Iron, Threaded
V311	Globe Valve, 3 Way, Nodular Iron, Flanged
V321	Globe Valve, 3 Way, Cast Iron, DN65-150
VTRE	Shoe Valves
VT****	Erie Zone Valves
M310/M400/ M800/M1500/ M3000	Forta Linear Globe Actuator
MV15B	Linear Globe Actuator (24 & 230V Floating)
M700	Linear Globe Valve Actuator – Spring Return
M22, M50	Powerful Linear Globe Actuator
MZ18*	Zone Valve Actuator – for VZ*2 Valves
MZ20*	Zone Valve Actuator – for VZ*19* Valves
MZ09	Zone Valve Actuator – for VZ*2 Valves
EM9/M9B	Shoe Valve Actuator
RM/XRM	Shoe Valve Actuator (Satchwell)
LF24/LF230	Spring Return Damper Actuator

Recommendations / Best practices and Hazard Warnings

It is the responsibility of the installer or product specifier to verify media compatibility of any valves construction materials with the supplier of water treatment/heat transfer solution. If the material details within this catalog are not sufficient to verify media compatibility, please refer to the respective product data sheet or consult product support services.

Only competent service engineers should undertake maintenance. On installed hot water systems, safe working practice, including system de-pressurisation, should always be followed.

It is recommended to fit a strainer upstream of any valve to increase reliability and to follow water treatment guidelines as detailed in VDI 2035. Where possible valves should be installed in the return pipe to reduce the valve and actuator exposure to media temperature extremes.

Hot Water Hazard

Whenever replacing an installed actuator: Depressurise the valve before removing the existing actuator and check integrity of the valve stem, spindle or plug by manually moving the stem within the valve. If the valve stem and plug have been damaged, the stem may blow out under pressure and cause injury and equipment damage.

Electrical Hazard

Safe electrical working practice should also always be followed; special care should be given to mains voltage actuators.



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