



# Valves & Actuators Catalog

EMEA/APAC  
EcoBuilding | 2022



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Sizing and Selection for all HVAC valve and actuators

- Ball Valves
- Butterfly Valves
- Globe Valves
- Pressure Independent Balancing Control Valves
- Zone Valves
- Shoe Valves
- Damper Actuators

### Features

- Intuitive selection based on calculators and/or drop down menus
- Customer and partner profiles possible in any schedule creation
- Create a Schedule of hydronic systems using the Valve and Actuator selection feature
- Create own or add to the hydronics a schedule of damper actuators
- Ability to view, edit, change, communicate and adjust schedules. Download completed schedules to Excel, pdf, BOM.
- Save schedules in progress to be worked on later or for use as a template for future projects.

### Browser Compatibility

- Chrome (preferred). Use of other browsers may exhibit unintended behaviors.

## PRODUCT SELECTION TOOLS: Actuators and Valves



# About This Catalog and Online Resources

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	1. PIBCV Valves and Actuators	7
	2. Zone Valves and Actuators	19
	3. Radiator Valve Actuators	27
	4. Globe Valves	31
	5. Globe Valve Actuators	51
	6. Ball Valves and Actuators	61
	7. Butterfly Valves and Actuators	67
	8. Shoe Valves and Actuators	75
	9. Damper Actuators	79
	10. Specialist Products	89
	11. Supporting Information	103







# 1. PIBCV Valves and Actuators

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 of PIBCV include reducing the time taken for system balancing and commissioning.

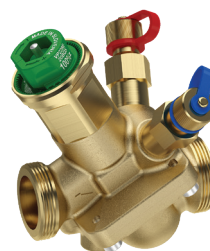


# 1. PIBCV Valves and Actuators

## VP228E, VP229E, VP220E

The **SpaceLogic** 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 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, ISO228/1
Media Temperature	-10...120 °C
Leakage (ISO 5208)	Tight - no visible leakage Max. 0.05% of Q <sub>nom</sub>
DN10...DN32	
DN40...DN50	
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 614N	Brass CW 614N
Seat	DZR Brass	SS 1.4305
Seals	EPDM	EPDM

DN	Litres/Hour		Litres/Second		Cubic Meters/Hour		$\Delta P$ (Q <sub>nom</sub> ) (kPa)	Connection	Part No.		Suitable Actuator
	Q <sub>min</sub>	Q <sub>nom</sub> (100%)	Q <sub>min</sub>	Q <sub>nom</sub> (100%)	Q <sub>min</sub>	Q <sub>nom</sub> (100%)			Ext. Thread (ISO 228/1)	Without T/P ports	
DN10	30	150	0.008	0.04	0.03	0.15	16-600	G 1/2A	VP228E-10BQLNT	VP228E-10BQL	SP90 MP120 NC MP140 NO MP130 MP300-SR
	55	275	0.015	0.08	0.06	0.28			VP228E-10BQSNT	VP228E-10BQS	
DN15	55	275	0.015	0.08	0.06	0.28		G 3/4A	VP228E-15BQLNT	VP228E-15BQL	
	90	450	0.025	0.13	0.09	0.45			VP228E-15BQSNT	VP228E-15BQS	
DN20	227	1,135	0.063	0.32	0.23	1.14		G 1A	VP229E-15BQHNT		
	180	900	0.050	0.25	0.18	0.90			VP228E-20BQSNT	VP228E-20BQS	
DN25	340	1,700	0.094	0.47	0.34	1.70	G 1 1/4A	VP229E-20BQHNT			
	340	1,700	0.09	0.47	0.34	1.70		VP229E-25BQSNT	VP229E-25BQS		
DN32	545	2,700	0.15	0.76	0.54	2.70	G 1 1/2A	VP229E-25BQHNT			
	640	3,200	0.18	0.89	0.64	3.20		VP229E-32BQSNT	VP229E-32BQS		
DN40	800	4,000	0.22	1.1	0.80	4.00	G 2A	VP229E-32BQHNT			
	3,200	7,500	0.8	2.1	3.0	7.5			VP220E-40CQS	MP500C MP500C-SR	
DN50	5,000	12,500	1.4	3.5	5.0	12.5	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.  
 $\Delta P$  : 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 Number	Description	Quantity per Pack
9114060000	Commissioning Label Set / Flow Tag Hanger ID	48

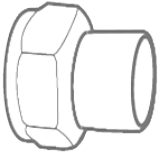
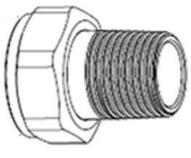
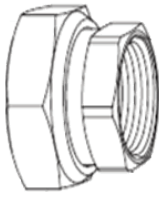
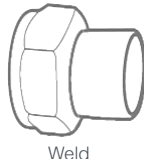


## Pipe Connections

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

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

Two end connection sets per pack. Order one pack per valve.

Valve DN	Pipe Connection type	Part Number	Valve Connection	End Fitting Connection
DN10	 <p>Solder</p>	9112113010	G1/2	15 mm*
DN15		9112113015	G3/4	15 mm
		9112113115		22 mm *
DN20		9112113020	G1	15 mm
		9112113120		22 mm
DN25		9112113025	G1.1/4	28 mm
DN32		9112113032	G1.1/2	35 mm
DN40		9112113040	G2	42 mm
DN50	9112113050	G2.1/2	54 mm	
DN10	 <p>R taper External thread</p>	9112112010	G1/2	R 3/8
DN15		9112112015	G3/4	R 1/2
DN20		9112112020	G1	R 3/4
DN25		9112112025	G1.1/4	R 1
DN32		9112112032	G1.1/2	R 1. 1/4
DN40		9112112040	G2	R 1.1/2
DN50		9112112050	G2.1/2	R 2
DN10		 <p>Internal thread</p>	9112111010	G1/2
DN15	9112111015		G3/4	Rp 1/2*
DN20	9112111020		G1	Rp 1/2
DN25	9112111025		G1.1/4	Rp 3/4
DN32	9112111032		G1.1/2	Rp 1
DN40	9112111040		G2	Rp 1.1/4
DN50	9112111050		G2 1/2	Rp 1.1/2
DN20	 <p>Weld</p>		9112115020	G1
DN25		9112115025	G1.1/4	33.7 mm
DN32		9112115032	G1.1/2	42.4 mm
DN40		9112115040	G2	48.3 mm
DN50		9112115050	G2.1/2	60.3 mm

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

# 1. PIBCV Valves and Actuators

## VP220F, VP221F, VP222F

The **SpaceLogic** 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,		EPDM	
Membranes	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		Cubic Meters/Hour		$\Delta P$ ( $Q_{nom}$ ) (kPa)	Part Number	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	30-600	VP220F-65CQS		
	10,000	25,000	2.8	6.9	10.0	25.0	60-600	VP220F-65CQH		
DN80	11,200	28,000	3.1	7.8	11.2	28.0	30-600	VP220F-80CQS		
	16,000	40,000	4.4	11.1	16.0	40.0	60-600	VP220F-80CQH		
DN100	15,200	38,000	4.2	10.6	15.2	38.0	30-600	VP220F-100CQS		
	23,600	59,000	6.6	16.4	23.6	59.0	60-600	VP220F-100CQH		
DN125	36,000	90,000	10.0	25.0	36.0	90.0	60-600	VP221F-125CQS		MP2000 MP2000-SR
	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		
	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	
	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		
	148,000	370,000	41	103	148	370	60-600	VP222F-250CQH		

## Accessories, Stem Lock Handles

Converts a standard PIBCV valve to automatic flow regulation valve / flow controller which provides a fixed flow against varying pressure. Stem Lock Handle are fitted in replacement of an actuator.

\*DN10-32 valves are supplied with a plastic flow setting cap for the same purpose.

Part Number	Valve Size
9114070000	DN40...100
9114071000	DN125...150
9114072000	DN200...250

## MP130 Actuators

The MP130 is a family of compact and low power motoric actuators that drive the DN10...32 **SpaceLogic** 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	Sound power level	Max 35 dB(A)
Stroke	5 mm	Relative humidity	max. 95 %
Max. medium temperature	120 °C	Enclosure rating	IP 42
Environment		Weight	0.3 kg
Operating Temperature	0... 55 °C		
Storage / transportation	-40 ...70 °C		

Part Number	Control Signal (Y)	Speed (s/mm)	Position Feedback (U)	Cable Length (m)	Voltage (50/60 Hz)	Power consumption running (standby)
MP130-24M	0 (2)...10 Vdc	24	-	1.5	24 Vac	2 VA (.5 w)
MP130-24M-10M				10		
MP130-24MP			0 (2)...10 Vdc	1.5		1.5 VA (.4 W)
MP130-24MP-10M				10		
MP130-24T	two-position	12	-	1.5	230 Vac	1 VA
MP130-230T					8 VA	
MP130-24F	floating	24	-	10	24 Vac	1 VA (0W)
MP130-24F-10M					230 Vac	8 VA (0W)
MP130-230F				1.5		

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



## 1. PIBCV Valves and Actuators

### MP120/MP140

MP120NC and MP140NO are small thermoelectric valve actuators for two-point or pulse-width-modulated (PWM) regulation of the DN10...32 **SpaceLogic** PIBCV valves. 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 (MP120)
- 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)
- Silent Operation



MP120 NC



MP140 NO

### Specifications

Power supply	
24 V Models	
MP120NC-24T, MP140NO-24T:	24 Vac/Vdc ± 20%
230 V Models	
MP120NC-230T, MP140NO-230T:	230 Vac + 10%...-15%
Power consumption	2 W
Environment	
Operating Temperature	Max. 50 °C
Protection standard	IP44 in all mounting positions
Cable length (standard)	1.5 m
Cable size	2 x 0.5 mm <sup>2</sup>
Medium temperature	Max. 120 °C
Nominal Force	
MP120	120N
MP140	140N

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/Vdc	20...120%	20...110%
MP120NC-230T		230 Vac		
MP140NO-24T	Normally Open (Stem Up)	24 Vac/Vdc	20...100%	DN15...20: 20...65% DN25...32: 20...50%
MP140NO-230T		230 Vac		

### 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. The MP300-SR actuator is not suitable for use in very quiet applications like hotel guest rooms.

### 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
Nominal Force	300 N

Environment	
Operating Temperature	0...55 °C
Sound Power Level	40 dB(A)
Enclosure rating	IP 54
Weight	0.8 kg

Part Number	Spring Return Direction	Linkage type (included with actuator)
MP300-SRU	Up - Normally Open	Adapter
MP300-SRD	Down - Normally Closed	Spacer



## SP90

Schneider Electric's **SpaceLogic** SP90 is a high accuracy multi-function field bus actuator, specifically designed for use in combination with DN10...32 **SpaceLogic** PIBCV valves.

The SP90 can be used as an energy valve due to the high positional accuracy, together with the linear flow characteristic of the **SpaceLogic** PIBCV valve. This enables the **SpaceLogic** SP90 to not only be used as a flow indicator but when the SP90 is connected to temperature sensors across a coil, heat consumption will also be calculate, reported and controlled.

- All Remote design flow settings made from the BMS
- Pluggable cables with Daisy chain connectivity allowing for super quick installation and reduction of mis-wiring
- LED status indication
- Auto MAC addressing
- Alarm reporting
- Spare 0...10 V and 2xPt1000 input
- Additional 0...10 V output



Set up of the actuator and valve parameters are all made via fieldbus. The remote flow adjustment saves considerable time during mechanical installation/flow balancing with no need to adjust the flow setting dial on the valve. Dedicated 6-way change over valves can also be used in combination with the SP90.

## Specifications

Power supply range	24 V ac/dc, ± 25%, 50 / 60 Hz
Power consumption	Running: 2.7 VA Standby: 1.8 VA
Protection class	III safety extra-low voltage
Electrical connection	Pre-molded plug connector
Control signals	BACnet MS/TP, Modbus 0...10 Vdc, 4...20 mA
Actuator speed selections (sec/mm)	3, 6, 12, 24, Constant Time
Positional accuracy	± 0.05 mm
Working Ambient temp.	-10° C...50 °C
Max. medium temp.	120 °C
Storage temp. range	-40...70 °C
Sound Power Level	Max. 30 dB(A)
Enclosure rating	IP54 (IP40 upside-down)
Weight	0.4 kg

Part Number	Description
SP90-24BMM	Fieldbus PIBCV Actuator

## BACnet Data

BACnet device profile	BACnet Application Specific Controller (B-ASC)
BACnet protocol	BACnet Master Slave / Token Passing (MS/TP)
BACnet baud rates supported	Auto baud rate detection / 9600 bps / 19200 bps / 38400 bps / 56700 bps / 76800 bps / 115200bps

## Modbus RTU Data

Supported baud rates	Auto baud rate detection / 9600 bps / 19200 bps / 38400 bps / 56700 bps / 76800 bps / 115200bps
Supported transmission modes	Parity: None (1-8-N-2) / Odd (1-8-O-1) / Even (1-8-E-1) / None (1-8-N-1) Data format: Parity (Start bit - Data bits - Parity - Stop bits)

## Cable Accessories

Type	Length (m)	Connections	Part Number
Digital	1.5	Bus / power	9114401500
	10.0	Bus / power	9114410000
Daisy chain	0.5	Actuator / actuator	9114500500
	1.5		9114501500
	5.0		9114505000
	10.0		9114510000
Analogue + I/O	1.5	Actuator / free wires	9114601500
		Energy	PT1000 surface mount temp sensors PT1000 Immersed temp sensors
Energy, Power and 0...10V I/O	1.5	PT1000 surface mount sensors, Power, 0...10V In and Out	9114901500

Note: Cables are not included with actuator and must be ordered separately

## Accessory Pockets/Wells for Insertion Probe Sensors

Description	Brass Part No.	Stainless Steel Part No.
Immersion pocket, 50 mm, G1/2	9121040000	9121050000
Immersion pocket, 100 mm, G1/2	9121041000	9121051000
Immersion pocket, 150 mm, G1/2	9121042000	9121052000
Immersion pocket, 200 mm, G1/2	9121043000	9121053000

Note: 2 x Immersion Pockets/Wells required per device

## 1. PIBCV Valves and Actuators

### MP500C

MP500C linear electro-mechanical actuator for the control of the VP220 **SpaceLogic** 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...10 V.

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

### Specifications

Supply Voltage	24 Vac +/- 20%, 50...60Hz 24 Vdc +/- 20%
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
Wiring Entry	
Conduit connection	2 x M20 knockout
Cable gland	1 x 6..12 mm O/D
Environment	
Operating Temperature	-10...+50 °C
Storage temperature	-25...+65 °C
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

Part Number	Description	Valve Size
MP500C	<b>SpaceLogic</b> Multi-signal control actuator	DN40...100
8800104000	S2 (Aux End Switch)	



## MP500C-SR

The MP500C-SR is spring return linear electro-mechanical actuator for the control of the VP220 **SpaceLogic** 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/Vdc ±10% 50-60Hz / 24 Vdc +/- 15%
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 Range	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 0...20, 4..20 mA with supplied 500 Ohm resistor

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
Wiring Entry	
Conduit connection	4 x M20 capped holes
Cable gland	1 x 6..12 mm O/D, IP68
Environment	
Operating and Storage	
Temperature	-10 / +50 °C
Humidity	max 90% RH
Enclosure rating	IP54 or IP65
Sound power lever	43 dBa
S2 Auxillary Switch Relay (optional accessory)	SPDT, 24 Vac 4A AC1 (contacts made at 5% and 95% of end stroke)
Weight	2.8 Kg

Part Number	Description	Function on Power Failure	Valve Size (DN)	IP Rating
MP500C-SRU	Spring return (stem up)	Valve Open	40...100	IP54
MP500C-SRD	Spring return (stem down)	Valve Closed		
MP500C-SRU-W	Spring return (stem up)	Valve Open		IP65
MP500C-SRD-W	Spring return (stem down)	Valve Closed		
8800104000	S2 auxiliary end point switches			

## 1. PIBCV Valves and Actuators

### MP2000

MP2000 actuator is used with pressure independent balancing and control large valve type **SpaceLogic** PIBCV DN125 and DN150. 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

Environment	
Operating	0...55 °C
Storage / transp. temp	-40...+70 °C
Protection class	III safety extra-low voltage
Enclosure rating	IP 54
Weight	7.5 kg

Part Number	Description	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 **SpaceLogic** 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	15 VA
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
Environment	
Operating Temperature	0...+ 55 °C

Enclosure rating	IP 54
Weight	8.6 kg
Safety function	
runtime/50 mm stroke	120 s
Manual operation	Electrical and Mechanical

Part No.	Spring Return Direction	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, 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
Temperature Operating	0...+ 55 °C
Humidity	5...95%

Enclosure rating	IP 54
Power consumption	35.7 VA
Weight	8.6 Kg
Safety function runtime/50 mm stroke	120 s.
Manual operation	Electrical and Mechanical

Part Number	Description	SmartX Valve
MP2000-SRU-230	Stem Up (Valve Open)	DN125...DN150
MP2000-SRD-230	Stem Down (Valve Closed)	

## MP4000

The MP4000 is a powerful universal control actuator for the DN200 and DN250 SpaceLogic 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	15 VA
Signal	10 mA
Frequency	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

Environment Ambient Temperature	0...+ 55 °C
Storage / transport Temperature	-40...+70 °C
Humidity	5...95%
Protection class	II
Enclosure rating	IP 54, Type 2
Electrical connection	conduit
Weight	7.5 Kg
Manual operation	Electrical and mechanical
Power failure response	Stem remains in last position

Part Number	Description	Valve Size
MP4000	Multi-signal control, Fail in place	DN200-250





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## 2. 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.



## 2. Zone Valves and Actuators

### VZ\*08\*

The VZ\*08\* short stroke (2.5 mm) 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.



VZ\*08E

VZ\*08C

### Specifications

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 Range	5...95 °C

Leakage	0% tight close-off
Main Construction Materials	
Valve body	Brass (CW617N)
Trim	Glass reinforced PPS
Stem	Stainless steel (AISI 303)
Stem packing	Double EPDM O-ring
Plug sealing	EPDM

		VZ*08E	VZ*08C					
		Flat face	Compression*			Max Close-off (kPa) MZ140		
<b>2-way valves</b>								
Size	Kvs	Part Number	Connection	Part Number	Connection	A-AB		
DN15	0.25	VZ208E-15BP01	G1/2A	VZ208C-15BP01	15 mm	400		
	0.4	VZ208E-15BP02		VZ208C-15BP02				
	0.6	VZ208E-15BP03		VZ208C-15BP03				
	1	VZ208E-15BP04		VZ208C-15BP04				
	1.6	VZ208E-15BP05		VZ208C-15BP05				
DN20	2.5	VZ208E-20BP07	G3/4A	VZ208C-20BP07	22 mm	250		
	4	VZ208E-20BP08				150		
	6	VZ208E-20BP09						
<b>3-way valves</b>								
	Kvs		Part Number	Connection	Part Number	Connection	A-AB	B-AB
	A-AB	B-AB						
DN15	0.25	0.25	VZ308E-15BP01	G1/2A	VZ308C-15BP01	15 mm	400	400
	0.4	0.4	VZ308E-15BP02		VZ308C-15BP02			
	0.6	0.6	VZ308E-15BP03		VZ308C-15BP03			
	1	0.8	VZ308E-15BP04		VZ308C-15BP04			
	1.6	1	VZ308E-15BP05		VZ308C-15BP05			
DN20	2.5	1.6	VZ308E-20BP07	G3/4A	VZ308C-20BP07	22 mm	100	40
	4	2.5	VZ308E-20BP08					
	6	4	VZ308E-20BP09					
<b>3-way valves with integral by-pass (4 ports)</b>								
DN15	0.25	0.25	VZ408E-15BP01	G1/2A	VZ408C-15BP01	15 mm	400	400
	0.4	0.4	VZ408E-15BP02		VZ408C-15BP02			
	0.6	0.6	VZ408E-15BP03		VZ408C-15BP03			
	1	0.8	VZ408E-15BP04		VZ408C-15BP04			
	1.6	1	VZ408E-15BP05		VZ408C-15BP05			
DN20	2.5	1.6	VZ408E-20BP07	G3/4A	VZ408C-20BP07	22 mm	100	40
	4	2.5	VZ408E-20BP08					
	6	4	VZ408E-20BP09					

\* Nuts and Olives supplied with Valve



### MZ140

MZ140 thermo-electric actuators are wax filled actuators that are silent in operation, providing either on/off or modulating control for the VZ\*08\* zone valves.



MZ140-24T



MZ140-24M

### Specifications

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

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

Part Number	Full Type Designation	Cable Length	Control signal	Power	Power consumption	Initial consumption
					VA	A
MZ140-230T	MZ140-110/230T 2M44 00	2m	On/Off	110-230 Vac	1.8	0.25
MZ140-24T	MZ140-24T 2M44 00			24 Vac/Vdc		0.17
MZ140-24T-5M	MZ140-24T 5M44 00	5m				
MZ140-24T-10M	MZ140-24T 10M44 00	10m				
MZ140-24M	MZ140-24M 2M44 00	2m	0...10 V modulating	24 Vac		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*	12 mm	15	G 1/2	12	-	-	9112076000	1
		15 mm	20	G 3/4	15	-	-	9112113015	2
	External Thread	R 3/8" R 1/2"	15 20	G 1/2 G 3/4	-	R 3/8 R 1/2	-	9112078010 9112079010	10
	Flat face external thread to compression*	15 mm 22 mm	15 20	G 1/2 G 3/4	-	-	15 22	9112080000 9112081000	1
	Compression Capnut and olive	15 mm 20 mm	15 20	G1/2A Whitworth 1 1/8" - 14	-	-	15 22	9112082000 9112083000	10

\*One fitting required per valve port.

## 2. Zone Valves and Actuators

### VZ\*19\*

These long stroke (5.5 mm) 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.



VZ\*19E

VZ\*19C

### Specifications

Pressure class	PN16
Stroke	5.5 mm
Max fluid speed	3 m/s
Media temperature range	2...95 °C
Max. Glycol concentration	30%
Flow Characteristics	
On direct (A-AB) way	Equal percentage
On by-pass (B-AB) way	Linear

Leakage	0% tight close-off
Rangeability	50:1
Main Construction Materials	
Valve body	Brass (CW617N)
Trim	Glass reinforced PPE
Stem	Stainless steel (AISI 303)
Stem packing	Double EPDM O-ring
Plug sealing	EPDM

		VZ*19E	VZ*19C					
		Flat face external thread	Compression End Connection*		Max Close-off (kPa) MZ20			
<b>2-way valves</b>								
Size	Kv	Part Number	Connection	Part Number	Connection	A-AB		
DN15	0.25	VZ219E-15BP01	G1/2A	VZ219C-15BP01	15 mm	400		
DN15	0.4	VZ219E-15BP02		VZ219C-15BP02				
DN15	0.6	VZ219E-15BP03		VZ219C-15BP03				
DN15	1	VZ219E-15BP04		VZ219C-15BP04		350		
DN15	1.6	VZ219E-15BP05		VZ219C-15BP05				
DN15	2	VZ219E-15BP06		VZ219C-15BP06				
DN20	2.5	VZ219E-20BP07	G3/4A	VZ219C-20BP07	22 mm	250		
DN20	4	VZ219E-20BP08				150		
DN20	6	VZ219E-20BP09						
<b>3-way valves</b>								
	Kvs		Part Number	Connection	Part Number	Connection	A-AB	B-AB
	A-AB	B-AB						
DN15	0.25	0.25	VZ319E-15BP01	G1/2A	VZ319C-15BP01	15 mm	400	400
DN15	0.4	0.25	VZ319E-15BP02		VZ319C-15BP02			
DN15	0.6	0.4	VZ319E-15BP03		VZ319C-15BP03			
DN15	1	0.6	VZ319E-15BP04		VZ319C-15BP04		350	
DN15	1.6	1	VZ319E-15BP05		VZ319C-15BP05			
DN15	2	1.6	VZ319E-15BP06		VZ319C-15BP06			
DN20	2.5	1.6	VZ319E-20BP07	G3/4A	VZ319C-20BP07	22 mm	100	40
DN20	4	2.5	VZ319E-20BP08					
DN20	6	4	VZ319E-20BP09					
<b>3-way valves with integral by-pass (4 ports)</b>								
DN15	0.25	0.25	VZ419E-15BP01	G1/2A	VZ419C-15BP01	15 mm	400	400
DN15	0.4	0.25	VZ419E-15BP02		VZ419C-15BP02			
DN15	0.6	0.4	VZ419E-15BP03		VZ419C-15BP03			
DN15	1	0.6	VZ419E-15BP04		VZ419C-15BP04		350	
DN15	1.6	1	VZ419E-15BP05		VZ419C-15BP05			
DN15	2	1.6	VZ419E-15BP06		VZ419C-15BP06			
DN20	2.5	1.6	VZ419E-20BP07	G3/4A	VZ419C-20BP07	22 mm	100	40
DN20	4	2.5	VZ419E-20BP08					
DN20	6	4	VZ419E-20BP09					

Nuts and olives supplied with the compression end connection valve

### MZ20

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.



### Specifications

Input voltage	24 Vac, 50/60 Hz
MZ20A	24 Vac or 230 Vac 50/60 Hz
MZ20B	
Power consumption	
MZ20A	1 VA
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)
Sound Power Level	35 dB(A)

#### MZ20A/B zone valve actuator for VZ\*19 valves

Part Number	Description	Control
8455051000	MZ20A	Selectable*
8455052000	MZ20A-R	0...10 V
8455001000	MZ20B-24	3P-24 Vac
8455003000	MZ20B-230	3P-230 Vac

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

#### Accessory

Part Number	Description
9116006000	6m 24V pluggable cable pack, 10 pieces

Connections for VZ*19 Series Zone Valves									
	Connection type	Pipe size	DN	a	c (mm)	d	e	Part Number	Pack quantity
	Flat Face External thread to Solder *	12 mm 15 mm	15 20	G 1/2 G 3/4	12 15	-	-	9112076000	1
								9112013015	2
	External Thread	R 3/8" R 1/2"	15 20	G 1/2 G 3/4	-	R 3/8 R 1/2	-	9112078010 9112079010	10
	Flat face external thread to compression*	15 mm 22 mm	15 20	G 1/2 G 3/4	-	-	15 22	9112080000** 9112081000	1
	Compression Capnut and olive	15 mm 20 mm	15 20	G1/2A Whitworth 1 1/8" - 14	-	-	15 22	9112082000 9112083000	10

\*One fitting required per valve port.

\*\* Not suitable for PIBCV valves

F-27878-10

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## 2. Zone Valves and Actuators

### Erie VT Zone Valve

The industry leading Erie Zone valve is suitable for on/off control of hot and chilled water in terminal unit applications.

High flow capacity paddle design and the unique 'pop-top' actuator connection allows for a quick and simple installation.



### Specifications

Media	Hot and chilled water
Media temperature	0...93 °C
Glycol Concentration	50%
Pressure class	300 psi (PN20)
Seat Leakage	0.01% (ANSI class IV)

ΔPm	100kPa
Main Construction Materials	
Valve body	Forged Brass
Stem	Nickel-plated Brass
Seat	Brass
Paddle/ Stem o-rings	Buna-N/EPDM

2-way Valves				
Thread	Kvs	Part Number	Max ΔP (kPa) AG...Actuators	Max ΔP (kPa) AH...Actuators
Rp 1/2	0.85	VT2231	410	515
	2.2	VT2232	275	340
	3.0	VT2233	170	205
Rp 3/4	2.2	VT2332	275	340
	3.0	VT2333	170	205
	4.3	VT2335	135	170
	6.5	VT2337	115	135
Rp 1	6.9	VT2437		

3-way valves				
Thread	Kvs	Part Number	Max ΔP (kPa) AG...Actuators	Max ΔP (kPa) AH...Actuators
Rp 1/2	1.3	VT3231	410	515
	2.6	VT3232	275	340
	3.5	VT3233	170	205
Rp 3/4	2.6	VT3332	275	340
	3.5	VT3333	170	205
	4.3	VT3335	135	170
	6.5	VT3337	115	135
Rp 1	6.9	VT3437		



## Erie AG/AH Zone Actuator

The AG (General Close Off) and AH (High Close Off) actuators are spring return, two-position actuators for coupling to the VT series valves.

The Pop-top connection allows for quick and simple assembly, all Normally Closed actuators feature a manual override lever.



2. Zone Valves and Actuators

## Specifications

Supply Voltage	24 Vac @ 50/60 Hz 230 Vac @ 50 Hz
Power Consumption	6.5 watts, 7.5 VA
End Switch	24...240 Vac (101 mA min...5 A) 9-30 Vdc (100 mA max.)
Control Signal	On/Off, 2 position, spring return
Full Running time	30 Sec (50 Hz) 9 Sec (S.R. function)
Enclosure	IP31
Main Construction Materials	
Base Plate	Stainless Steel
Cover	Aluminium
Environment	
Shipping and Storage	-40...71 °C
Operating Temperature	40°
Humidity	5...95% RH, non-condensing

General Close-Off Actuator					
Part Number	Voltage	End Switch	Control	Spring Return Valve Function	Cable
AG13A230	24 Vac	-	On/Off	Normally Closed	910 mm (36")
AG13A23A		yes			
AG13U230	230 Vac	-			
AG13U23A		yes			
AG23A230	24 Vac	-		Normally Open	
AG23A23A		yes			
AG23U230	230 Vac	-			
High Close-Off Actuator					
AH13A230	24 Vac	-	On/Off	Normally Closed	910 mm (36")
AH13U230	230 Vac	-			
AH13U23A		yes			



# 3. 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.



## 3. 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 silent operating actuator suitable for living space installations.



### Specifications

Max. stroke	4 mm
Supply voltage	MR95xx-24T: 24 Vac/Vdc $\pm$ 20% MR95xx-230T: 230 Vac +10%-15%
Stem force	95 N
Temperature Range	Max. 50 °C
Power consumption	2 W
Protection standard	IP44 in all mounting positions
Cable length (standard)	1.0 m
Cable size	2 x 0.5 mm <sup>2</sup>
Medium temperature	Max. 120 °C
Radiator connection	M30 x 1.5

Part Number	Type Designation	Action <sup>1</sup>	Voltage
MR95NC-24T	MR95-NCD-24T 1.0M44 00	Normally closed (stem down)	24 Vac/Vdc
MR95NO-24T	MR95-NOU-24T 1.0M44 00	Normally open (stem up)	
MR95NC-230T	MR95-NCD-230T 1.0M44 00	Normally closed (stem down)	230 Vac
MR95NO-230T	MR95-NOU-230T 1.0M44 00	Normally open (stem up)	

1- Without 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.

### Accessories

Part Number	Description
9114202500	Additional cable set 2.5M, 10 pcs
9114205000	Additional cable set 5M, 10 pcs
9114210000	Additional cable set 10M, 10 pcs

### Compatible Radiator Valves

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

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



### 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.



### Specifications

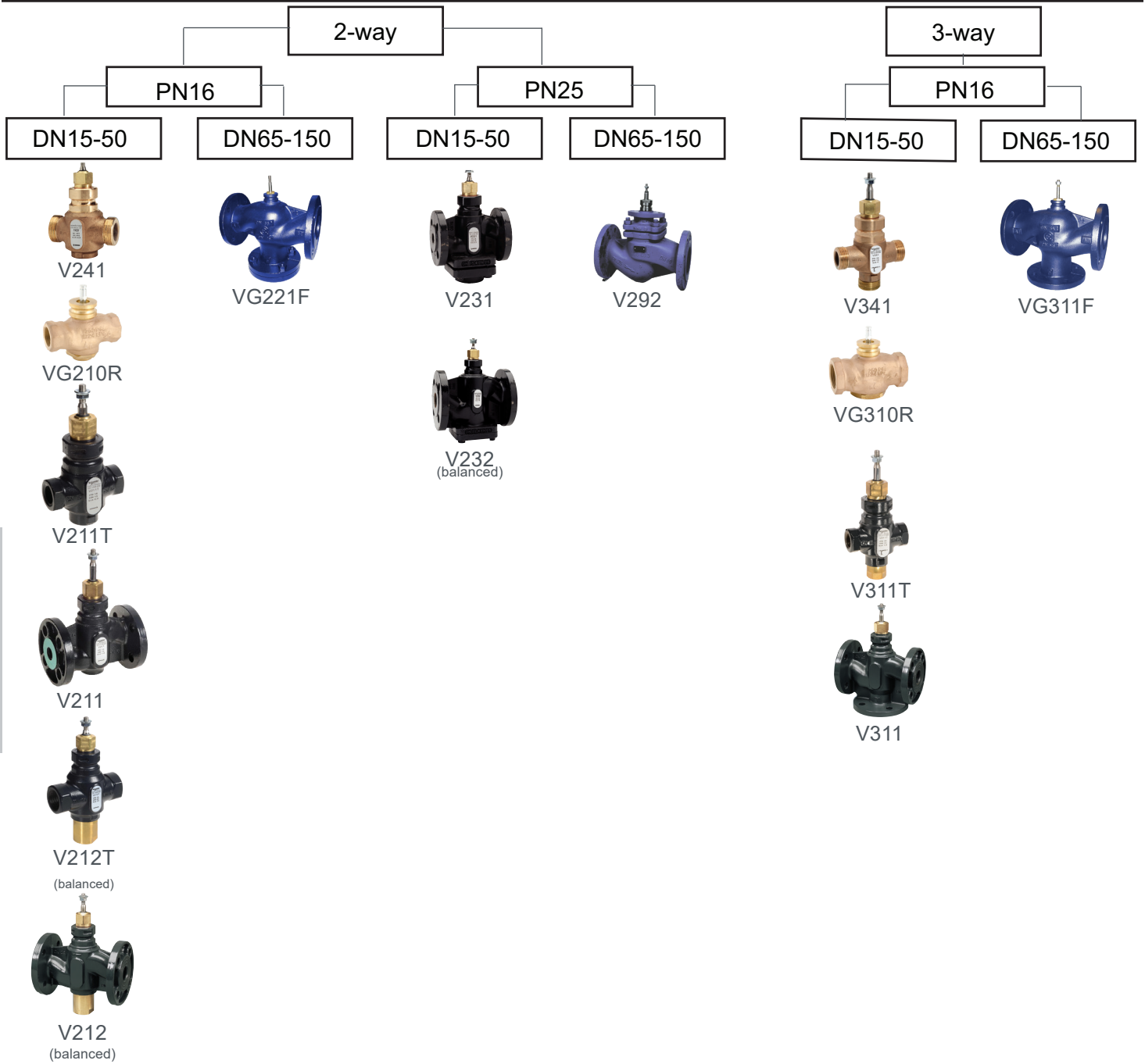
Input voltage	24 Vac + 10 % / -30 %; 50/60 Hz
Power consumption	0.7 VA
Control mode	Floating (3-point)
Stroke	1.6 mm controlled valve stroke 7.9 mm complete actuator stroke
Running time	36 s / 1.6 mm valve stroke
Stem force	90 N
Protection standard	IP 43
Connection cable	0.9 m
Coupling ring	M 30 x 1.5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

MZ09B actuator for radiator valves	
Part Number	Description
8455111000	MZ 09B 2.5 mm

### Suitable valves

Manufacturer	Valve type	Adapter
Honeywell	V100, V200	Not required
Heimeier		
Siemens L&S	Duogyr	
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



4. Globe Valves

Steam (2-way, 200°C, PN16, DN15-100)



VGS211F

## 4. Globe Valves

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.



## 4. Globe Valves

### 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.



### Specifications

Design	2-way plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	20 mm
Rangeability (Kvs/Kv <sub>min.</sub> )	(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
Main Construction 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					
7214106000	15	G1B	0.25	>50	800	800	1000	1600	1600	1600	1600	1600					
7214110000			0.40														
7214114000			0.63														
7214118000			1.0				>100	300			300	350	850	1350	1350	650	855
7214122000			1.6														
7214126000			2.5														
7214130000			4.0														
7214134000	20	G1¼B	6.3	650	650	650	1500	1100	1510								
7214138000	25	G1½B	10	400	400	500	1150	850	1160								
7214142000	32	G2B	16	300	300	350	850	1350	1350	650	855						
7214146000	40	G2¼B	25	150	150	250	600	950	950	450	605						
7214150000	50	G2½B	38	50	50	150	400	650	650	300	415						

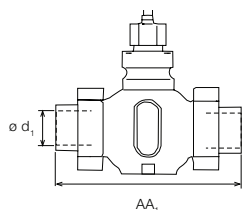
Service kit:

Replacement stem packing box: 100108000



## Connections V241

### Internal Thread Connection



#### Main Construction Materials

Union nut malleable iron casting, galv.  
 Union end malleable iron casting, galv.

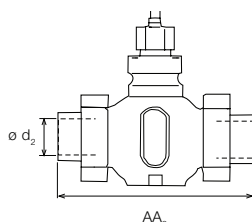
Packing, standard Fibre Gasket (Klingsil C4400)

or Packing, spec PTFE Gasket (Kingsil Top Chem 1.5 mm)

Valve		$\varnothing d_1$	$AA_1$	Part Number for connection, one pkg/port	
DN	End Conn.	Int. thread (ISO 7/1)	mm	Packing, std	Packing, spec.*
15	G1B	Rp ½	146	9112100015	9112103015
20	G1¼B	Rp ¾	146	9112100020	9112103020
25	G1½B	Rp 1	159	9112100025	9112103025
32	G2B	Rp 1¼	169	9112100032	9112103032
40	G2¼B	Rp 1½	197	9112100040	9112103040
50	G2½B	Rp 2	222	9112100050	9112103050

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

### Soldering Type Connection



#### Main Construction Materials

Union nut malleable iron casting, galv.  
 Union end Bronze, SS 5204

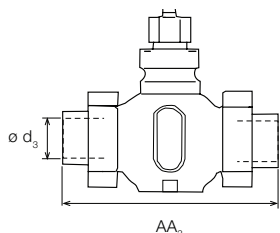
Packing, standard Fibre Gasket (Klingsil C4400)

or Packing, spec PTFE Gasket (Kingsil Top Chem 1.5 mm)

Valve		$\varnothing d_2$	$AA_2$	Part Number for connection, one pkg/port	
DN	End Conn.	mm	mm	Packing, std	Packing, spec.*
15	G1B	15	136	9112101015	9112104015
20	G1¼B	22	146	9112101020	9112104020
25	G1½B	28	155	9112101025	9112104025
32	G2B	35	163	9112101032	9112104032
40	G2¼B	42	200	9112101040	9112104040
50	G2½B	54	232	9112101050	9112104050

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

### Welded Type Connection



#### Main Construction Materials

Union nut Malleable iron casting, galv.  
 Packing, standard Brass  
 or Packing, Spec Stainless Steel SS2172  
 Union end

Packing, standard Fibre Gasket (Klingsil C4400)  
 or Packing, spec PTFE Gasket (Kingsil Top Chem 1.5 mm)

Valve		$\varnothing d_3$	$AA_3$	Part Number for connection, one pkg/port	
DN	End Conn.	mm	mm	Packing, std	Packing, spec.*
15	G1B	21.8	182	9112102015	9112105015 (1)
20	G1¼B	26.9	182	9112102020	9112105020 (1)
25	G1½B	33.7	187	9112102025	9112105025 (1)
32	G2B	42.4	197	9112102032	9112105032 (1)
40	G2¼B	48.3	232	9112102040	9112105040
50	G2½B	60.3	262	9112102050	9112105050

(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

## 4. Globe Valves

### VG210R 15-50B

The VG210R 15-50B is a range of compact precision bronze globe valves, suitable for a wide range of fluid control applications, including heating, cooling, air handling and domestic hot water systems. The VG210R 15-50B series works reliably under a wide variety of conditions, including fluids with high glycol concentrations and very high temperature bands. The valve utilizes precision plugs for improved rangeability and fine fluid control on small opening degrees. Soft seating also guards against seepage of precious energy when not required.



### Specifications

Design	2-way plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	11 mm
Rangeability (Kvs/Kv <sub>min.</sub> )	>100
ΔPm	400 kPa, water
Max. temperature of medium	138 °C
Min. temperature of medium	-7 °C
Max. glycol concentration	60%
Connections	Internal pipe thread Rp

#### Main Construction Materials

Body	Bronze; ASTM B584; CDA 83450 Oshalloy®
Bonnet / Packing	Brass; UNS C36000 and PTFE/EPDM
Cartridge chevrons	PTFE/EPDM
Stem	AISI 316 SS
Plug	Brass; UNS C36000
Plug Seal	EPDM, DN25...50
Seat Seal	PTFE, DN15...20
Integral Seat	Bronze; ASTM B584; CDA 83450 Oshalloy®
Slotted Stem Adaptor	RoHS compliant Zinc-plated steel

VG210R 15-50B					Max Close-off Pressure (kPa <sup>a</sup> )			
					MG350C		MG600C (-SR) Actuator	
Part Number	Type Designation	DN	Connection	Kvs	Class IV-S1 ≤0.005%	Class IV1 ≤0.01%	Class IV-S1 <0.005%	Class IV >0.01%
VG210R-15B02	VG210R 15B 0.4E SU 00	15	Rp 1/2	0.4	1000	1500	1600	1600
VG210R-15B03	VG210R 15B .63E SU 00			0.63				
VG210R-15B04	VG210R 15B 1E SU 00			1.0				
VG210R-15B05	VG210R 15B 1.6E SU 00			1.6				
VG210R-15B07	VG210R 15B 2.5E SU 00			2.5				
VG210R-15B08	VG210R 15B 4.0E SU 00			4.0				
VG210R-20B	VG210R 20B 6.3E SU 00	20	Rp 3/4	6.3	800	930		
VG210R-25B	VG210R 25B 10E SU 00	25	Rp 1	10	380	460	1100	1200
VG210R-32B	VG210R 32B 17E SU 00	32	Rp 1¼	17	250	290	600	700
VG210R-40B	VG210R 40B 24E SU 00	40	Rp 1½	24	100	170	350	450
VG210R-50B	VG210R 50B 35E SU 00	50	Rp 2	35	55	69	90	240

a - Valves designed for direct connection onto compact **SpaceLogic** actuators, type MG350C, MG600C. For all other **SpaceLogic** actuators, Type M310, M400, M800, M1500 stem extension, code AV-823 is required. M700 and MV15B will not connect to this valve. Leakage class as a percentage of a valves Kvs, EN60534-4. Replacement Bonnet, Packing Gland: YBA-689-C.

## 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.



## Specifications

Design	2-way plug valve, stem up closed	Max. glycol concentration	50%
Pressure class	PN 16	Connections	Internal pipe thread Rp
Flow characteristic	Equal percentage modified	Main Construction Materials	
Stroke	20 mm	Body	Nodular iron EN-JS 1030
Rangeability (Kvs/Kv <sub>min.</sub> )	>50	Stem	Stainless steel SS 2346
Leakage	Tight sealing	Plug	Brass CW602N
ΔPm	400 kPa, water	Seat Sealing	EPDM
Max. temperature of medium	120 °C	Seat	Nodular iron EN-JS 1030
Min. temperature of medium	-20 °C	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
7211716000	15	Rp 1/2	1.6	>50	800	800	800	1600	1600	1600	1400	1600
7211720000			2.5									
7211724000			4.0									
7211728000	20	Rp 3/4	6.3		650	650	650	1500	1100	1510		
7211732000	25	Rp 1	10		400	400	500	1150	850	1160		
7211736000	32	Rp 1¼	16		300	300	350	850	1350	1350	650	855
7211740000	40	Rp 1½	25		150	150	250	600	950	950	450	605
7211744000	50	Rp 2	38		50	50	150	400	650	650	300	415

Service Kit: Replacement stem packing box: 100108000

## 4. Globe Valves

### 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.



### Specifications

Design	2-way plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	20 mm
Rangeability (Kvs/Kv <sub>min.</sub> )	>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
Main Construction 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
7211116000	15	1.6	>50	800	800	800	1600	1600	1600	1600
7211120000		2.5								
7211124000		4.0								
7211128000	20	6.3		650	650	650	1500	1160		
7211132000	25	10		400	400	500	1150			
7211136000	32	16		300	300	350	850	1350	1350	855
7211140000	40	25		150	150	250	600	950	950	605
7211144000	50	38		50	50	150	400	650	650	415

Service kit:  
Replacement stem packing box: 100108000



## 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.



### Specifications

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 <sub>min.</sub> )	>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
Main Construction 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
7211832000	25	Rp 1	10	>50	800	1600	1600	1600	1600	1600
7211836000	32	Rp 1¼	16		750					
7211840000	40	Rp 1½	25		700					
7211844000	50	Rp 2	38		600					

Service kit:  
Replacement stem packing box: 100108000

## 4. Globe Valves

### 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.



### Specifications

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 <sub>min.</sub> )	>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
Main Construction 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
7211236000	32	16	>50	750	1600	1600	1600	1600
7211240000	40	25		700				
7211244000	50	38		600				

Service kit:  
Replacement stem packing box: 100108000

## 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.



### Specifications

Design	2-way plug valve, stem up open
Pressure class	PN 16
Flow characteristic	Equal Percentage
Rangeability (Kvs/Kv <sub>min.</sub> )	
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
Main Construction 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	
DN15...DN25	16.5 mm
DN32...DN65	25 mm
DN80...DN100	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		1.0													
VGS211F-15CS05	VGS211F-15CS 1.6M SD00		1.6													
VGS211F-15CS07	VGS211F-15CS 2.5M SD00		2.5													
VGS211F-15CS08	VGS211F-15CS 4M SD00		4.0													
VGS211F-20CS	VGS211F-20CS 6.3 M SD00	20	6.3	>35	750	1300	1350	1350	-	1500	1300					
VGS211F-25CS	VGS211F-25CS 10M SD00	25	10		450					900		800	800	550	800	
VGS211F-32CS	VGS211F-32CS 16M SD00	32	16		250					900		900	900	350	500	
VGS211F-40CS	VGS211F-40CS 24M SD00	40	24		150					900		900	900	350	500	
VGS211F-50CS	VGS211F-50CS 32M SD00	50	32		-					210		350	350	720	150	210
VGS211F-65CS	VGS211F-65CS 63M SD00	65	63		-					150		250	250	550	100	-
VGS211F-80CS	VGS211F-80CS 110M SD00	80	110		-					90		150	150	350	60	-
VGS211F-100CS	VGS211F-100CS 140M SD00	100	140		-					-		-	-	-	-	-

Service kit:  
Replacement stem packing box: 100108110.

## 4. Globe Valves

### 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.



### Specifications

Design	2-way pressure balanced plug valve, stem up closed
Pressure class	PN 16
Flow characteristics	Equal Percentage
Rangeability (Kvs/Kv <sub>min.</sub> )	>50
Stroke	
DN65	25 mm
DN80...DN150	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
Main Construction 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		1450				1000	700	-
VG221F-100C	VG221F-100C 130M SU00		100	130		1000				700	-	
VG221F-125C	VG221F-125C 200M SU00		125	200		750	470	-				
VG221F-150C	VG221F-150C 300M SU00		150	300		550	300	-				

Service kit:  
Replacement stem packing box: 100108100



## 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.



## Specifications

Design	2-way plug valve, stem up closed	Max. temperature, water	150 °C
Pressure class	PN 25	Max. temperature, saturated steam	120 °C
Flow characteristic	Equal percentage modified	Min. temperature of medium	-20 °C
Stroke	20 mm	Max. Glycol concentration	50%
Rangeability (Kvs/Kv <sub>min.</sub> )	(refer to table)	Flanges drilling	According to SS 335 and ISO 2084
Leakage	Up to 0.02% of Kvs	Main Construction Materials	
ΔPm	Max. 800 kPa, water	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
7213106000	15	0.25	>50	1000	1000	1600	1600	1600	1600
7213110000		0.40							
7213114000		0.63							
7213118000		1.0		800	800	1500	1350	1350	
7213122000		1.6							
7213126000		2.5							
7213130000		4.0							
7213134000	20	6.3	>200	650	650	1500	1500	1500	
7213138000	25	10		400	500	1150	1150	1150	
7213142000	32	16		300	350	850	1350	1350	850
7213146000	40	25		150	250	600	950	950	600
7213150000	50	38		50	150	400	650	650	400

Service kit:  
Replacement stem packing box: 100108000

## 4. Globe Valves

### 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.



### Specifications

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 <sub>min.</sub> )	(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
Main Construction 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
7213238000	25	10	>200	800	1600	1600	1600	1600
7213242000	32	16		750				
7213246000	40	25		700				
7213250000	50	38		600				

Service kit:  
Replacement stem packing box: 100108000

## 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



### Specifications

Design	2-way pressure balanced plug valve stem down, closed	Max. temperature of medium	150 °C
Pressure class	PN 25	Min. temperature of medium	-10 °C
Flow characteristics	Equal Percentage	Max. Glycol concentration	50%
Stroke		Connection	Flange according ISO 7005-2
DN65...DN100	30 mm	Main Construction Materials	
DN125...DN150	50 mm	Body	Nodular iron GGG40.3
Rangeability (Kvs/Kv <sub>min.</sub> )	> 50	Stem	Stainless steel SS 1.4021
Leakage	<0.05% of Kvs	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
7219254010	65	63	>50	1500	2500	2500	2500	-	-	1200
7219258010	80	85		1100	1600	1600				800
7219262010	100	130		-	-	-	-	1800	2500 2500	-
7219266000	125	250		-	-	-	-	1400		
7219270000	150	350								

Service Kit: Replacement stem packing box

DN65...DN100: 100108201

DN125...DN150: 100108210

Stem Heater

DN65...DN100: 8800112000

DN125...DN150: 8800113000

Replacement stem adaptor/hex bush:

DN125...DN150: 8800134000

## 4. Globe Valves

### 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.



### Specifications

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 <sub>min.</sub> )	(refer to table)
Leakage A-AB	up to 0.02% of Kvs
Leakage B-AB	up to 0.05% of Kvs

ΔPm (mixing)	600 kPa, water
ΔPm (diverting)	60 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%
Main Construction Materials	
Body	Bronze Rg5
Plug and seat	Stainless steel SS 2346
Stem	Stainless steel SS 2346
Stem packing	EPDM

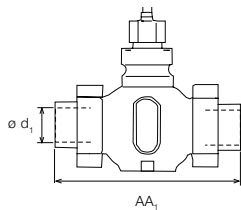
V341					Max Close-off Pressure (kPa)									
					Non-spring Return Actuators						Spring Return			
Part Number	DN	Connection	Kvs	Rangeability	M310	MG350	M400	M800	M1500	MV15B (1500N)	M700	MG900 SR		
7314121000	15	G1B	1.6	>50	800	800	800	1600	1600	1600	1400	1600		
7314125000			2.5											
7314129000			4.0											
7314133000	20	G1½B	6.3	>100	650	650	650	1500	1350	1350	1100	1510		
7314137000	25	G1½B	10		400	400	500	1150			850	1160		
7314141000	32	G2B	16		300	300	350	850			650	855		
7314145000	40	G2¼B	25		150	150	250	600			950	950	450	605
7314149000	50	G2¾B	38		50	50	150	400			650	650	300	415

Service kit:  
Replacement stem packing box: 100108000



## Connections V341

### Internal Thread Connection

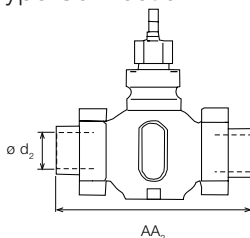


Main Construction Materials	
Union nut	malleable iron casting, galv.
Union end	malleable iron casting, galv.
Packing, standard or Packing, spec	Fibre Gasket (Klingsil C4400) PTFE Gasket (Kingersil Top Chem 1.5 mm)

Valve		$\varnothing d_1$	$AA_1$	Part Number for connection, one pkg/port	
DN	End Conn.	Int. thread (ISO 7/1)	mm	Packing, std	Packing, spec.*
15	G1B	Rp ½	146	9112100015	9112103015
20	G1¼B	Rp ¾	146	9112100020	9112103020
25	G1½B	Rp 1	159	9112100025	9112103025
32	G2B	Rp 1¼	169	9112100032	9112103032
40	G2¼B	Rp 1½	197	9112100040	9112103040
50	G2¾B	Rp 2	222	9112100050	9112103050

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

### Soldering Type Connection

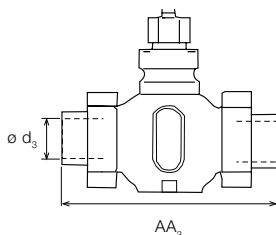


Main Construction Materials	
Union nut	malleable iron casting, galv.
Union end	Bronze, SS 5204
Packing, standard or Packing, spec	Fibre Gasket (Klingsil C4400)\ PTFE Gasket (Kingersil Top Chem 1.5 mm)

Valve		$\varnothing d_2$	$AA_2$	Part Number for connection, one pkg/port	
DN	End Conn.	mm	mm	Packing, std	Packing, spec.*
15	G1B	15	136	9112101015	9112104015
20	G1¼B	22	146	9112101020	9112104020
25	G1½B	28	155	9112101025	9112104025
32	G2B	35	163	9112101032	9112104032
40	G2¼B	42	200	9112101040	9112104040
50	G2¾B	54	232	9112101050	9112104050

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

### Welded Type Connection



Main Construction Materials	
Union nut	Malleable iron casting, galv.
Packing, standard or Packing, Spec	Brass
Union end	Stainless Steel SS2172
Packing, standard or Packing, spec	Fibre Gasket (Klingsil C4400) PTFE Gasket (Kingersil Top Chem 1.5 mm)

Valve		$\varnothing d_3$	$AA_3$	Part Number for connection, one pkg/port	
DN	End Conn.	mm	mm	Packing, std	Packing, spec.*
15	G1B	21.8	182	9112102015	9112105015 <sup>1</sup>
20	G1¼B	26.9	182	9112102020	9112105020 <sup>1</sup>
25	G1½B	33.7	187	9112102025	9112105025 <sup>1</sup>
32	G2B	42.4	197	9112102032	9112105032 <sup>1</sup>
40	G2¼B	48.3	232	9112102040	9112105040
50	G2¾B	60.3	262	9112102050	9112105050

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

## 4. Globe Valves

### VG310R 15-50B

The VG310R 15-50B is a range of compact precision bronze globe valves, suitable for a wide range of fluid control applications, including heating, cooling, air handling and domestic hot water systems. The VG310R 15-50B series works reliably under a wide variety of conditions, including fluids with high glycol concentrations and very high temperature bands.

The valve utilizes precision plugs for improved rangeability and fine fluid control on small opening degrees. Soft seating provides an ultra tight close off performance against energy seepage.



### Specifications

Design	3-way plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	11 mm
Rangeability (Kvs/Kv <sub>min.</sub> )	>100
ΔPm	400 kPa, water
Max. temperature of medium	138 °C
Min. temperature of medium	-7 °C

Max. glycol concentration	60%
Connections	Internal pipe thread Rp
Main Construction Materials	
Body	Bronze
Stem	Stainless steel 316
Plug	Brass CW602N
Sealing	PTFE for 15 and 20 mm units. EPDM for others.
Seat	Bronze
Standard packing box	Brass with PTFE and EPDM Chevrons
Slotted Stem Adapter	RoHS compliant Zinc-plated Steel

VG310R 15-50B						Max Close-off Pressure (kPa)			
						with MG350C		with MG600C (-SR) actuator	
Part Number <sup>a</sup>	Type Designation	DN	Connection	Kvs	Rangeability	Class IV-S1 ≤0.005%	IV1 ≤0.01%	Class IV-S1 ≤0.005%	Class IV ≤0.01%
VG310R-15B05	VG310R-15B 1.6T SU00	15	Rp 1/2	1.6	>100	1000	1500	1600	1600
VG310R-15B07	VG310R-15B 2.5T SU00			2.5					
VG310R-15B08	VG310R-15B 4T SU00			4.0					
VG310R-20B	VG310R-20B 6.3T SU00	20	Rp 3/4	6.3		800	930		1600
VG310R-25B	VG310R-25B 10E SU00	25	Rp 1	10		380	460	1100	1200
VG310R-32B	VG310R-32B 17E SU00	32	Rp 1¼	17		250	290	600	700
VG310R-40B	VG310R-40B 24E SU00	40	Rp 1½	24		100	170	350	450
VG310R-50B	VG310R-50B 35E SU00	50	Rp 2	35		55	69	90	240

a. Valves designed for direct connection onto compact **SpaceLogic** actuators, type MG350, MG600C, MG600C-SR. For M310, M400, M800, M1500 actuators, stem extension code AV-823 is required. It is not possible to drive this valve with the M700 or MV15B actuator.

Replacement Bonnet, Packing Gland: YBA-689-C

## 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.



## Specifications

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 <sub>min.</sub> )	>50	
Leakage A-AB and B-AB	Tight sealing	
ΔPm (mixing)	400 kPa, water	Max. temperature of medium 120 °C
ΔPm (diverting)	60 kPa, water	Min. temperature of medium -20 °C
		Max. Glycol concentration 50%
		Connection Internal pipe thread Rp
		Main Construction 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
7311717000	15	Rp 1/2	1.6	>50	800	800	800	1600	1600	1600	1400	1600
7311721000			2.5									
7311725000			4.0									
7311729000	20	Rp 3/4	6.3		650	650	650	1500	1100	1510		
7311733000	25	Rp 1	10		400	400	500	1150	850	1160		
7311737000	32	Rp 1 ¼	16		300	300	350	850	1350	1350	650	605
7311741000	40	Rp 1 ½	25		150	150	250	600	950	950	450	604
7311745000	50	Rp 2	38		50	50	150	400	650	650	300	415

Service kit:  
Replacement stem packing box: 100108000

## 4. Globe Valves

### 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.



### Specifications

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 <sub>min.</sub> )	>50
Leakage A-AB and B-AB	Tight sealing
ΔPm (mixing)	400 kPa, water
ΔPm (diverting)	60 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
Main Construction 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
7311117000	15	1.6	>50	800	800	800	1600	1600	1600	1400	1600
7311121000		2.5									
7311125000		4.0									
7311129000	20	6.3		650	650	650	1500	1100	1510		
7311133000	25	10		400	400	500	1150	850	1160		
7311137000	32	16		300	300	350	850	1350	1350	650	855
7311141000	40	25		150	150	250	600	950	950	450	605
7311145000	50	38		50	50	150	400	650	650	300	415

Service kit:  
Replacement stem packing box: 100108000



## 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.



### Specifications

Design	3-way plug mixing valve stem up closed (A port/B-AB open)		$\Delta P_m$ (mixing)	200 kPa, water
Pressure class	PN 16		$\Delta P_m$ (diverting)	60 kPa, water
Connection	Flange according ISO 7005-2		Max. temperature of medium	150 °C
Rangeability (Kvs/Kv <sub>min.</sub> )	> 50		Min. temperature of medium	-10 °C
Flow characteristics			Max. Glycol concentration	50%
A – AB	Equal Percentage		Main Construction Materials	
B – AB	Linear		Body	Grey Cast iron (GJL 250)
Stroke			Stem	Stainless steel (AISI 303)
DN65	25 mm		Plug (DN65...DN100)	Brass (CW614)
DN80...150	45 mm		Plug (DN125...DN150)	Bronze (CB491K UNI EN 1982)
Leakage			Seat	Grey Cast iron (EN JL 1040)
A – AB	< 0.03% of Kvs		Stem Packing	EPDM
B – AB	< 2% of Kvs			

### Mixing Applications

VG311F...C					Max Close-off Pressure $\Delta P_C$ (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	850	220	290
VG311F-80C	VG311F-80C 100M SU00	80	100		160	240	570	140	-
VG311F-100C	VG311F-100C 130M SU00	100	130		100	150	370	80	
VG311F-125C	VG311F-125C 200M SU00	125	200		60	90	230	50	
VG311F-150C	VG311F-150C 300M SU00	150	300		40	50	160	35	

### Diverting Applications

VG311F...C					Max Close-off Pressure $\Delta P_C$ (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	80	135	285	75	85
VG311F-80C	VG311F-80C 100M SU00	80	100		53	80	190	45	-
VG311F-100C	VG311F-100C 130M SU00	100	130		33	50	125	25	
VG311F-125C	VG311F-125C 200M SU00	125	200		20	30	76	16	
VG311F-150C	VG311F-150C 300M SU00	150	300		13	16	55	12	

$\Delta P_C$  = Maximum allowed pressure drop across a closed valve (that the nominal force of the actuator will open or close against).







## 5. Globe Valve Actuators

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

**SpaceLogic** actuators such as the M400, M800, M1500 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.



## 5. Globe Valve Actuators

### SpaceLogic MG350

The **SpaceLogic** MG350 is a compact electro-mechanical actuator for controlling 2-way and 3-way globe valves V241/V341, 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/Vdc ±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/Vdc or 0 V
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 kΩ
Environment	
Operating Temperature	-5...+55 °C (for valve fluid temperatures up to 130 °C)
Storage	-40...+70 °C
Humidity	max. 95%



Position Feedback	
MG350-(24MP/-24FP)	0...5 Vdc / 2...10 Vdc
Enclosure 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)
Wiring entry	
Cable Gland wire size	min. 2.4 mm...max. 6.6 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



## SpaceLogic MG350C

The **SpaceLogic** MG350C is a compact electro-mechanical actuator for controlling the VG210 and VG310 2-way and 3-way linear globe valves. The MG350C actuators are primarily designed for applications where the demands on speed and thrust are relatively small.

- Stable force control with stall protection
- Hysteresis Control - Intelligent response to fluctuating control signals, extending actuator life and better plant regulation
- High Resolution PCBA and motor transmission for fine valve plug position and excellent flow control.
- Low power holding
- Auto adaptation to valve end stroke limits upon first power up
- LED status indication
  - Tri-color LED for operation, calibration, and alarm notification
- Removable terminal block and cable gland for ease installation



## Specifications

Supply voltage	24 Vac/Vdc ±20% 50/60 Hz
Power Consumption (50Hz)	
Running	
MG350C-24F	5 VA (3.5 W)
MG350C-24M	7.2 VA (3.5 W)
Holding (Modulating only)	1.2 VA
Transformer sizing	(same as power consumption)
Running Time	8 s/mm (Full stroke time = 88 sec)
Max. Stroke	16.5 mm
Nominal Force	350 N
Control (Floating/Digital)	
Dependant upon wiring	
3 wire Floating	24 Vac/Vdc or 0 V
2 Position on/off	NO or NC
Minimum input pulse	100 msec
Control (Modulating)	
Selectable input signals	0...10 Vdc, 2...10 Vdc
Impedance	min. 100 kΩ
Environment	
Operating Temperature	-5...+55 °C (for valve fluid temperatures up to 130 °C)
Storage	-40...+70 °C
Humidity	max . 95% RH (NC)
Enclosure rating	IP 53 (vertically mounted)

Sound power level	max. 30 dBA
Weight (shipping)	0.36 kg
Material	
Yoke	Aluminum
Material Housing (Covers)	PBT/PC
Mechanical	
Manual Override	3 mm Hex
Position indication	Red and blue position markers for hot and cold pipe indication (green position indicator for closed valve)
Wiring entry	
Cable Gland wire size	min. 2.4 mm...max. 6.6 mm
Conduit hole	M20

Part Number	Control
MG350C-24M	Modulating
MG350C-24F	Floating

5. Globe Valve Actuators

## 5. Globe Valve Actuators

### SpaceLogic M310, M400, M800, M1500 and M3000

The SpaceLogic M310, M400, M800, M1500 and M3000 are a family of actuators for the control of 2-way and 3-way globe valves.

A very fine resolution PCBA board 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.



M310, M400, M800, M1500



M3000

### Specifications

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)
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
Environment	
Operating Temperature	-10...+50 °C
Storage Temperature	-10...+50 °C
Humidity	Max. 90% RH
Enclosure rating	
M310, M400, M800, M1500	IP54
M3000	IP55
Wiring entry	
Conduit connection	3 x M20 screwed
Cable gland	1 x 6..12 mm O/D, IP68
Main Construction Materials	
Housing	Aluminium
Cover	ABS/PC plastic
Color (M310, M400, M800, M1500)	Aluminium/Grey
Color (M3000)	Black/Grey

SpaceLogic 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	
8800210030	M310	300	15s	20s	-	6	30
8800211030	M310 S2						
8800230030	M400	400	60s	60s	7	50	
8800231030	M400 S2						
8800310030	M800	800	15s	20s	30s		10
8800311030	M800 S2						
8800450000	M1500	1500	15s	20s	30s	15	
8800451000	M1500 S2						
8800500000	M3000	3000	14-40s	40-50s	50-80s	25	
8800510000	M3000 S2						

## SpaceLogic MG900 SR

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

The Manual override is operated by a hex key 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.



### Specifications

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 Range	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
Wiring Entry	
Conduit connection	4 x M20 capped holes
Cable gland	1 x 6..12 mm O/D, IP68

Environment	
Operating Temperature	-10...50 °C
Storage Temperature	-10...50 °C
Humidity	Max. 90% RH
Main Construction Materials	
Housing	Aluminium
Cover	Aluminium

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

### Accessories

Part Number	Description
8800104000	S2 auxiliary end point switches
AV-821	Linkage kit to VB-7000 valves
AV-822	Linkage kit to VB-8000 valves
8800109000	Yoke Heater
MG900-SU-PCB	Circuit board for MG900 SRU
MG900-SD-PCB	Circuit board for MG900 SRD
8800124000	L2SV linkage kit to VZ and MZ Satchwell Valves.
8800129000	Linkage - M30 x 1.5, Spirax Sarco KE, KL, KF, DN15...100

## 5. Globe Valve Actuators

### SpaceLogic MG600C, MG600C-SR

The MG600C and MG600C-SRU/SRD are short yoke actuators designed for use with the VG210R and VG310R valves. Spring return and Non-spring return versions with Flexible control configuration (floating or modulating, sequencing), position feedback and flow curve adaptation (EQ to Lin).

- Brushless DC motors and a high resolution control board allow a very fine fluid control.
- Working range and end point switches adjust automatically to valve stroke.
- Firmware calibrates consistent running time regardless of valve stroke.
- On power loss the spring return mechanism drives the motor, generating power to control braking speed, avoiding mechanical stress and system water hammer.
- Available in spring return stem up or spring return stem down and either IP54 or rooftop IP65 enclosures.



MG600C



MG600C-SR

- Configurable for either a 3-point increase/decrease signal or various modulating control signals including sequencing.
- U-Bolt connection allows direct mounting without any mounting kit or special tools.

### Specifications

Supply voltage	24 Vac +25% / -35%, 50/60 Hz
Duty cycle	Max. 20%/60 minutes
Analogue control input Selectable Voltages	0...10 V / 2...10 V / 0...5V / 5...10 / 2...6 / 6...10
Impedance	Min. 100 kΩ
Digital control input (3-point floating) Voltage across open input	24 Vac
Current through closed input	5 mA
Minimum Pulse Time	20 ms
S2 Output – Auxiliary end point switch where fitted Type	2 x SPDT
Voltage	24 Vac
Load	4A (resistive) / 1A (inductive)

Position feedback (Y) Voltage	2...10 V (0...100%)
Load	2 mA
Wiring entry Conduit connection 600C	3 x M20 screwed
600C-SR	4 x M20 screwed
Cable gland	1 x 6...12 mm O/D, IP68
Environment Operating Temperature	-10...+50 °C
Storage	-10...+50 °C
Humidity	Max. 90% RH
Enclosure rating	IP 54
Main Construction Materials Housing	Aluminium
Cover	ABS/PC plastic
Color	Aluminium/Grey

Part Number	Designation	SR Function	VG210R / VG310R function on SR operation	Running time		Transf. sizing	Power consumption	
				Modulating	Increase/Decrease		(running)	(rest)
MG600C	MG600C-24FM T54 00	-	-	60s	300s/60s	30 VA	4W	3W
MG600C-S	MG600C-24FMS T54 00	-	-	15s		50 VA	21W	7W
MG600C-SRU	MG600C SRU-24FM T54 00	Stem Up	A-AB Closed	15s				
MG600C-SRD	MG600C SRD-24FM T54 00	Stem Down	A-AB Open	15s				

The MG600C(-SR) will not connect on to Satchwell or the 20 mm stroked valves. ex. V211, V241

## 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.

### Specifications

Supply voltage	24 Vac ±10%, 50/60 Hz 230 Vac ±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 Range	9...52 mm
Thrust	1500 N
Environment	
Operating Temperature	-10...50 °C
Storage Temperature	-25...+65 °C
Enclosure rating	IP 55
Wiring Entry	
Conduit connection	2 x PG13.5 capped hole
Cable gland	1 x 6..12 mm O/D



Main Construction Materials	
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%
8800460000	MV15B-230	230
8800462000	MV15B-24	24

MV15B accessories & linkage kits	
Part Number	Description
8800126000	Linkage M700-Satchwell L7SV
8800469000	Switch S2-MV15B
8800109000	Yoke Heater for amb. temp -10 °C, media temp -8 °C

## SpaceLogic M700 - Spring Return

The **SpaceLogic** M700 is a spring return actuator for control of longer stroked and larger size globe valves. It utilises the same flexible platform functionality as in the M310, M400, M800, M1500, M3000 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.

### Specifications

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 Range	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...10 V / 2...6V / 6...10 V
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
Position feedback	
Voltage	2...10 V (0...100%)
Load	2 mA



Wiring Entry	
Conduit connection	2 x PG13.5 capped hole
Cable gland	1 x 6..12 mm O/D

Environment	
Operating Temperature	-10...50 °C
Storage Temperature	-10...50 °C
Humidity	Max. 90% RH

Enclosure rating	IP 55
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Part Number	Description
8800430000	M700-SRSU
8800431000	M700-S2-SRSU
8800440000	M700-SRSD
8800441000	M700-S2-SRSD

### Accessories

Part Number	Description
8800126000	Linkage M700-Satchwell L7SV
8800109000	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



## 5. Globe Valve Actuators

### SpaceLogic M400, M800, M1500, MG600C Electrical Accessories

Part Number	Description
8800104000	S2 – 2 x SPDT Axillary End Point Switches (24 Vac 4A AC-1)
8800109000	FYH050 Yoke Heater for amb. temp -10 °C, media temp -8 °C

### SpaceLogic M400, M800, M1500 Linkage kits to other valves

Part Number	Description
8800124000	Linkage Satchwell L2SV: VSF-MJF-MZ, VZ-MZF- VZF
8800116000	Linkage Honeywell M6 and 6.25 mm (1/4") stem
8800118000	Linkage Siemens
8800125000	Linkage Danfoss
8800129000	Linkage Spirax Sarco (M30 x1.5 :KE, KF, and KL; DN15...100)
	Linkage – Controlli threaded valves with M30 bonnet types: VSB, VMB, VSB_F, VMB_F
8800128000	Linkage – Controlli Flanged Valves with M40 threaded bonnet VBG, SS, DS, VSS, VBA, 3V, VMS VSG, VMB16, SSGA
8800135000	Linkage Satchwell VZ 7*** and MZ 7*** series
	Regin/Osby: NTVS / GTRS / GTVS, 2SAS / 2SBS, MTVS / MTRS, MRT and FRS
8800252000	Linkage TAC V298, DN15
8800253000	Linkage kit for old TAC DN15 valves -V282/ V294/ V384/ V386/ V394
8800130000	V321 DN65...DN100 to M800 / M1500 / M3000 (convert from M16 actuator)
AV-821	Linkage to VB-7000 valves (Siebe/TAC)
AV-822	Linkage to VB-8000/VB-9000 valves (Siebe / TAC)
AV-823	Stem extension for VG210R/VG310R









## 6. 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.



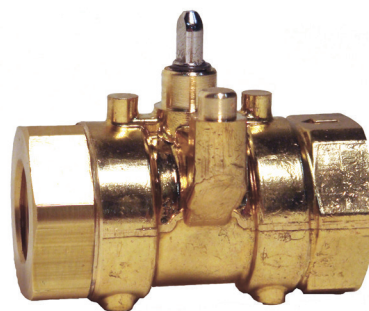
## 6. Ball Valves and Actuators

### 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.



### Specifications

Service <sup>a</sup>	Hot and chilled water, up to 60% glycol
System Static Pressure Limit	PN40
Media Temperature Limits	-7...120 °C
Close-off Pressure <sup>b</sup>	895 kPa 2-way; 480 kPa, 3-way
ΔPm	205 kPa normal operation, 135 kPa psi quiet operation
Seat Leakage <sup>c</sup>	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 2-way Control Valves

Size	Part Number	Type Designation	Thread	kvs
DN15	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 3-way Control Valves

Size	Part No.	Type Designation	Thread	kvs
DN15	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
	DN20	VB310R-20BS08		VB310R-20BS 4.0T 00
VB310R-20BS09		VB310R-20BS 6.3T 00	6.3	

#### VB200R 2-way Full Port Valves

Size	Part Number	Type Designation	Thread	kvs
DN15	VB200R-15BS	VB200R-15BS 8.7T 00	Rp 1/2	8.7
DN20	VB200R-20BS	VB200R-20BS 8.7T 00	Rp 3/4	

#### VB300R 3-way Full Port Valves

Size	Part No.	Type Designation	Thread	kvs
DN15	VB300R-15BS	VB300R-15BS 8.7T 00	Rp 1/2	8.7
DN20	VB300R-20BS	VB300R-20BS 8.7T 00	Rp 3/4	



### 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.



### Specifications

Supply Voltage	24 Vac +25%, -15% @ 50/60 Hz.	Electrical Connection	Terminal Block
Floating and Modulating		Cable Gland (M20)	5...9 mm O/D
Two-Position	24 Vac 50/60, (+25%, -15%). 24 Vdc (+/-20%)	Shipping & Storage Temp. Limits	-40...76 °C
Manual Operation		Environment (at media temp. limits)	
Floating / Modulation	Hand lever	Operating Temperature	
Two-position	Hex Key 3.96 mm (5/32")	Floating	0...60 °C
Proportional Control		Proportional	0...60 °C
(Field Selectable)	0...10 V, 2..10 V, 0..5 V, 5..10 V, 4..20 mA Direct or reverse acting	Two-Position	0...76 °C
Main Construction Materials	Thermoplastic base and cover. Approved for use in air plenums.	Humidity	5...95% relative humidity, non-condensing
		Enclosure rating (Horizontal and Vertical Mounting)	IP31

### Two-Position Actuators

Part Number	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	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 Number	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	135	180	4.5	2.0 W
MB3-SO-24F	MB3-SRO-24F T31 00	Normally Open			4.5*	2.0 W
MB3-SC-24F	MB3-SRC-24F T31 00	Normally Closed				

\* Size transformer for each spring actuators at 7VA

### Proportional Actuators (0...10 V, 2..10 V, 0..5V, 5...10 V, 4...20 mA)

Part Number	Type Designation	Spring Return Action (Valve Normal Position)	Stroke Time, sec. 50/60 Hz	VA	Power Consumption
MB3-24M	MB3-24M T31 00	None	135	4.5*	2.0 W
MB3-SO-24M	MB3-SRO-24M T31 00	Normally Open			
MB3-SC-24M	MB3-SRC-24M T31 00	Normally Closed			

\* Size transformer for each spring actuators at 7VA

## 6. Ball Valves and Actuators

### VB601R Valves and MB10 Series Actuators

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 **SpaceLogic** MB10 two-position rotary actuator.

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

The 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.

Models also exist for use with PIBCV SP90 actuators: MB10-24T-PLUG, MB10-24T-ENGY and MB10-24T-FLEX.



Other features include:

- No cross-flow between supply circuits.
- Single on/off control signal to change over supply 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 PIBCV	14 kPa Qnom of 900 l/h DN20-STD Flow PIBCV
Kvs	2.4 m <sup>3</sup> /h	4.0 m <sup>3</sup> /h
Pressure Class, PN	16	16
Medium Temp.	0 ... 90 °C	
Shut off	800 kPa	
Valve neck	Quick fix connection	
Connection	Internal thread Rp 1/2 ISO 7/1	
Weight	1140 g	
Main Construction		
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 °
Environment	
Operating Temperature	0...55 °C
Storage / transp. temp	-10...80 °C
Protection Class (EN 60730-1)	II according
Enclosure rating	IP42
Weight	405 g
Connection cable (halogen free)	1.5 m 3×0.5 mm <sup>2</sup>

#### VB601R Valve bodies

DN	Kvs (m <sup>3</sup> /h)	Connection	Part Number
15	2.4	Rp 1/2	VB601R-15B
20	4.0	Rp 3/4	VB601R-20B

#### MB10 Actuators

Cable length (m)	Part Number	Associated Control Valve Actuators (fitted to PIBCV)
1.5	MB10-24T	MP130
10	MB10-24T-10M	
1.5	MB10-24T-PLUG	SP90
	MB10-24T-ENGY	
	MB10-24T-FLEX	

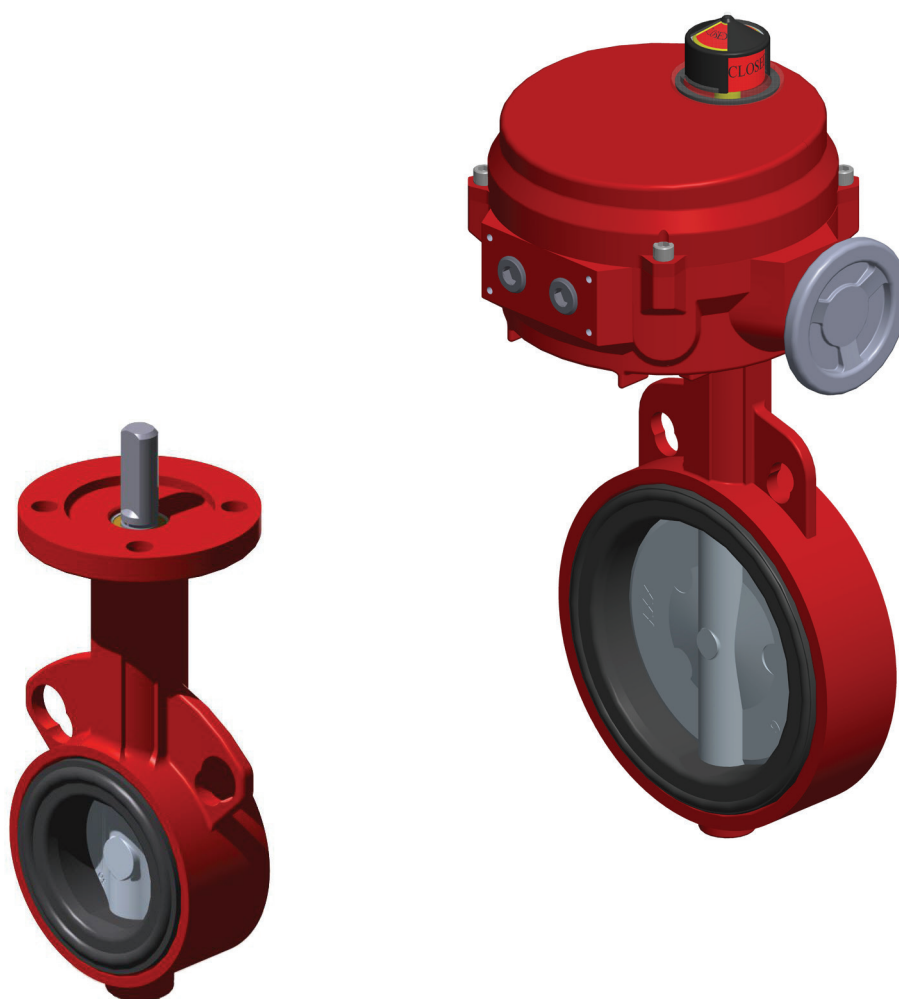
Notes





## 7. 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.



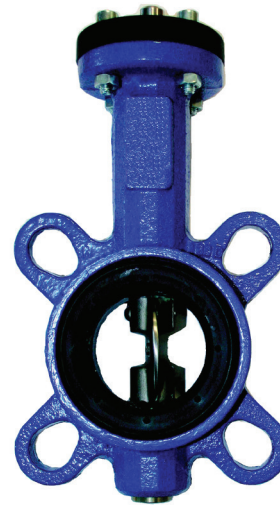


## 7. Butterfly Valves and Actuators

### 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 DN25-80 (DVGW)
- Maintenance free, double sealing of stem, central disc bearing
- Good flow control characteristics
- Integrated dew point barrier
- No linkage kits required



### Specifications

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

Main Construction 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 Number	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

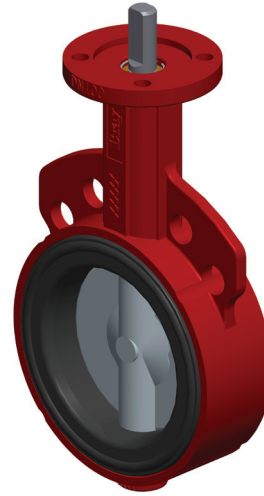
Size	Kv	Nodular Iron Disc		Max ΔP (kPa)	Actuator
		Part Number	Full Type Designation		
DN100	760	VF208W-100NZ	VF208W 100NZ 760E B00	600	MF20
DN125	1,025	VF208W-125NZ	VF208W 125NZ 1025E B00	600	MF40
DN150	1,790	VF208W-150NZ	VF208W 150NZ 1790E B00	300	MF40
DN200	3450	VF208W-200NZ	VF208W 200NZ 3450E B00	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



### Specifications

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

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

Size	Kvs	Part Number	Max ΔP (kPa)	Actuator	Gear operator
DN250	4670	VF299W-250CN	350	MF200	917 0300000
DN300	6946	VF299W-300CN		MF550/700	
DN350	9063	VF299W-350CN			MF700
DN400	12004	VF299W-400CN			
DN450	14804	VF299W-450CN			
DN500	19212	VF299W-500CN			

## 7. Butterfly Valves and Actuators

### VF209W-50...500CN

The VF209W is a premium 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.

- Wafer type connection for fitting between flanges. PN6 (DN50...DN400), PN10, and PN16 (DN50...DN500)
- 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.



### Specifications

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

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

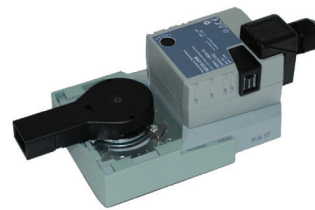
DN	Kvs <sup>a</sup>	Valve Type / Part No.	ΔP	Actuator Type	Hand Lever	Gear Operator	
50	124	VF209W-50CN	1200	MF68	916 0080000		
65	243	VF209W-65CN					
80	397	VF209W-80CN					
100	723	VF209W-100CN		MF200	916 0100000		
125	1.083	VF209W-125CN					
150	1.591	VF209W-150CN		MF550 / 700	916 0150000		
200	2.852	VF209W-200CN					
250	4.67	VF209W-250CN					
300	6.946	VF209W-300CN	1000	MF700	917 0300000		
350	9.063	VF209W-350CN					
400	12.044	VF209W-400CN				MF1450	917 0400000
450	14.804	VF209W-450CN					
500	19.212	VF209W-500CN					

a - The recommended angle of rotation range for modulating control is between 15° and 70°. At a disc angle of 70°, the KV is 55% of the stated Kvs value.

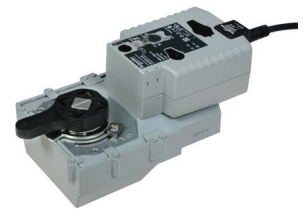
### MF20 (SR), MF20-R, MF40 (ER)

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 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	Loss of power function	Torque	Control	Part Number	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	0.4 W	3 W	7 VA	90 sec
				MF20-24F	24 Vac/Vdc	0.2 W	2.5 W	5.5 VA	
	Spring return		2...10 V	MF20-24M		0.4 W	2.5 W	5 VA	
				On-Off	MF20SR-TS	24-230 Vac	3 W	7 W	18 VA
2...10 V	MF20SR-24M	24 Vac/Vdc	3 W		5.5 W	8.5 VA	90 sec		
	DN125...200	Stop in place	40Nm	On-Off / 3P	MF40-230F	230 Vac	2.5 W	5 W	9 VA
MF40-24F					24 Vac/Vdc	2 W	4 W	6 VA	
2...10 V		MF40-24M		2 W		4.5 W	6.5 VA		
		Electronic return		On-Off	MF40ER-24T	24 Vac/Vdc	3 W	11 W	21 VA
MF40ER-24M									

#### Actuators for installed base of TRV-S butterfly Valves

Suitable TRV-S valve size	Loss of power function	Torque	Control	Part Number	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	0.4 W	3 W	7 VA	90 sec
				MF20-24F-R	24 Vac/Vdc	0.2 W	2.5 W	5.5 VA	
				MF20-24M-R		0.4 W	2.5 W	5V A	

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

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

#### Accessories

MD-S1, 1 x SPDT auxiliary switch	9141060000
MD-S2, 2 x SPDT auxiliary switch	9141061000

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

#### Hand Levers

DN25...65	9150065000
DN80...100	9150100000
DN125...200	9150200000





## 7. 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	Suitable VF299W Valve	Control	Part Number	Torque	Supply Voltage	Power Consumption			Operating Time 90° ↺
						Rest	Operation	Wire Sizing	
DN50...150	-	Floating & On/Off	MF68-24F	68 Nm	24 Vac	5 W	43 VA	48 VA	60 sec.
DN200	DN250		MF200-24F	226 Nm			48 VA	53 VA	
DN250...300	DN350...450		MF550-24F	565 Nm			69 VA	77 VA	
DN50...150	-	0(2)-10 V Modulating	MF68-24M	68 Nm		7 W	45 VA	50 VA	
DN200	DN250		MF200-24M	226 Nm			50 VA	55 VA	
DN250...300	DN350...450		MF550-24M	565 Nm			71 VA	79 VA	
DN50...150	-	Floating & On/Off	MF68-230F	68 Nm	230 Vac	5 W	140 VA	155 VA	36 sec.
DN200	DN250		MF200-230F	226 Nm			108 VA	120 VA	
DN250...350	DN350...500		MF700-230F	735 Nm			232 VA	258 VA	
DN400...450	-		MF1450-230F	1470 Nm		275 VA	305 VA	132 sec.	
DN500	-		MF2050-230F	2034 Nm		315 VA	350 VA		





## 8. 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. Typical applications include heating, cooling and air conditioning.





## 8. Shoe Valves and Actuators

### MB

The MB is a 3-port screwed rotary shoe valve.

### Specifications

Design	3-way rotary shoe valve
Pressure Class	PN10
Flow Characteristic	Port 2 Modified Parabolic
Operating angle	90°
Rangeability (Kvs / Kv <sub>min.</sub> )	>50
Leakage	0.5% (%of Kvs)
Max. temperature of medium	120 °C
Min. temperature of medium	2 °C



Connection	Screwed Parallel (female) BSP to BS21
Main Construction Materials	Body 12.7...25.4 mm (½"...1") valves Hot Pressed Brass to BS218 Body 31.75...50.8 mm (1¼"...2" valves) Close Grained Cast Iron BS1452 Grade 260
Body 65 mm...100 mm	Close Grained Cast Iron BS1452 Grade 260 or 220
Spindle	High Tensile Brass to BS2874 CZ114
O Rings	EPDM

MB					Max Close-off Pressure kPa	
Valve Part Number	Size mm (inches)	Reconditioning Kit Part Number	Kvs	Rangeability	RM XRM	MD10B MD10A
					2Nm	10Nm
MB1402	Rp 1/2	0617-9-410	2.0	>50	70	
MB1452	Rp 3/4	0617-9-410	4.0			
MB1502	Rp 1	0617-9-410	8.3			
MB1552	Rp 1¼	0617-9-411	12.5		35	
MB1602	RP 1½	0617-9-412	21			
MB1652	Rp 2	0617-9-413	33			

The MD10 is a damper actuator requiring a linkage kit for use with the MB shoe valves. (LMD/MB linkage kit part number 9141071000). Order Auxiliary switches separately, type MD-S2 part number 9141061000, type MD-S1, part number 9141060000.

### VTRE

The VTRE is a 3-way flanged rotary hydronic shoe valve.

The valve is delivered with a handle for manual operation.



### Specifications

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
Main Construction Materials	
Body	Cast iron
Sleeve	Brass
Connections	Flanged DIN 2531

VTRE			Max Close-off Pressure kPa	
Part Number	DN	Kvs	Mixing Application	Diverting Application
			EM9, M9B	
15Nm				
731 7039000	20	12	50	
731 7041000	25	18		
731 7045000	32	28		
731 7049000	40	44		
731 7053000	50	60		
731 7057000	65	90		
731 7061000	80	150		
731 7065000	100	225		
731 7067000	125	280		
731 7069000	150	400		

RM, XRM

These actuators operate the MB Shoe Valves. The XRM actuator is designed to be operated by a three point floating controller providing an output of 24 Vac. The RM actuator is a mains voltage reversing actuator, designed for two-position control when used with a changeover type thermostat or modulating control when used with an appropriate controller. On power failure the actuator can be operated manually.

Specifications

Input voltage XRM	24 Vac, 50 Hz, 0.5VA
Input voltage RM	230 Vac, 50 Hz, 5VA
Stroke	90° angular. Reversing
Running time	240 secs
Torque	2Nm
Protection standard	IP 41
Environment	
Operating Temperature	-20 °C...+35 °C with water at 120 °C



RM, XRM Actuators for MB Valves		Torque
Part Number	Description	Nm
XRM3201	Rotary 24 Vac 3-point	2
RM3601	Rotary 230 Vac 2-point reversing/modulating	

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.

Specifications

Power consumption	3 VA
Duty cycle	10%
Torque	15 Nm
Environment	
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%
8601010000	M9B/24	3-point	30-180°	90° 4 min	24
8601020000	M9B/230				230
8601110000	EM9/90/180	modulating <sup>1</sup>	90° or 180°	60/90/120s (90°) or 120/180/240s (180°)	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
8600990000	Linkage E/M9-VTRA
8600991000	Linkage E/M9-TRV <sup>2</sup>

2 - NOTE: Not suitable for TRV-S







# 9. Damper Actuators

A wide program of damper actuator products are available from Schneider Electric, enabling 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.





## 9. 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.

Damper Actuators can be used with Mounting kits to drive selected Butterfly and Shoe valves.



### Specifications

Power supply	24 Vac $\pm 20\%$ , 50/60 Hz, 24 Vdc $\pm 20\%$
Connection cable	1 m, 4 $\times$ 0.75 mm <sup>2</sup> (AWG 18)
Effective control signal range	2...10 Vdc
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 push-button, self-resetting, manual locking
Enclosure rating	IP 54
Humidity	95% RH, non-condensing
Environment	
Operating Temperature	-30...+50 °C
Storage Temperature	-40...+80 °C
Maintenance	Maintenance free

Part Number	Description	Torque Nm	Power Consumption		
			In operation	At rest	For Transformer Sizing
8751009000	MD5A-24	5	1 W	0.4 W	2 VA
8751019000	MD10A-24	10	2 W		4 VA
8751029000	MD20A-24	20	4.5 W	2 W	6.5 VA
8751039000	MD40A-24	40			

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

\* Optional accessory K-MD10 part number 9141062000. For damper actuator accessories see "Damper Actuator Accessories" on page 86.

### 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 and versions with an integrated end point switch (-S types). The Auxiliary switch is also available as an accessory.

Damper Actuators can be used with Mounting kits to drive selected Butterfly and Shoe valves.



### Specifications

Connection cable	
Actuator	1 m, 3×0.75 mm <sup>2</sup> (AWG 18)
Auxiliary switches (-S)	1 m, 3×0.75 mm <sup>2</sup> (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%)

Protection Class	III Safety extra-low voltage
MD..B-24(-S)	II Totally insulated
MD..B-230(-S)	IP 54
Enclosure rating	
Humidity	95% RH, non-condensing
Environment	
Operating Temperature	-30...+50 °C
Storage Temperature	-40...+80 °C
Maintenance	Maintenance free

Part Number	Description	Torque Nm	Power supply	Power Consumption			
				In operation	At rest	For Transformer Sizing	
8751001000	MD5B-230	5	230 Vac -60%/+15%	1.5 W	0.4 W	3.5 VA	
8751003000	MD5B-230-S						
8751005000	MD5B-24		24 Vac/Vdc ± 20%	1 W	0.2 W	1.5 VA	
8751007000	MD5B-24-S						
8751011000	MD10B-230	10	230 Vac -60%/+15%	2.5 W	0.6 W	5.5 VA	
8751015000	MD10B-24						
8751021000	MD20B-230	20	230 Vac -60%/+15%	2.5 W	0.6 W	6 VA	
8751025000	MD20B-24						
8751035000	MD40B-24		40	24 Vac/Vdc ± 20%	2 W	0.2 W	4 VA
					4 W	2 W	6 VA

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

\* Optional accessory K-MD10 part number 9141062000.

For damper actuator accessories see "Damper Actuator Accessories" on page 86.

## 9. 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 0.8m<sup>2</sup> 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



### Specifications

Connection cable	2×0.75 mm <sup>2</sup> (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

Enclosure rating	IP 54
Humidity	95% RH, non-condensing
Environment	
Operating Temperature	-30...+50 °C
Storage Temperature	-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
8740003000	LF24	4	on/off	24 Vac±20%	5 W	2.5 W	7 VA
8750003000	LF230			230 Vac±14%		3 W	
8770003000	LF24-SR		0...10 V	24 Vac±20%	2.5 W	1 W	5 VA

For damper actuator accessories see "Damper Actuator Accessories" on page 86.

### MD10 SR

The MD10 SR is a compact spring return damper actuator for the operation of ventilation dampers up to 2m<sup>2</sup> in building service installations



### Specifications

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

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					8.5VA	
MD10SR-24T	MD10 SR-24T 1M54 00		24 Vac/Vdc	3.5W		5.5VA	2...10 V Mod.
MD10SR-24TS	MD10 SR-24TS 1M54 00						
MD10SR-24M	MD10 SR-24M 1M54 00						

For damper actuator accessories see "Damper Actuator Accessories" on page 86.

### Spindle Clamp

Damper Spindle Attachment		Spindle Length	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	



## 9. 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 4m<sup>2</sup> in building service installations



### Specifications

Motor Torque	Min. 20 Nm@ Nominal Voltage
Spring Return	Min. 20Nm
Running Time, Motor	
Modulating	≤ 150 s
On/off	≤ 75 s
Spring Return	≤ 20 s
Input signal range, modulating (X)	0...10 Vdc
Effective Control Signal range, 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 <sup>2</sup>
-24M,	4 x 0.75 mm <sup>2</sup>
-T,-24T	2 x 0.75v mm <sup>2</sup>
S2 versions	2+6 x 0.75 mm <sup>2</sup>
Direction of Rotation	
Motor	Reversible with Switch I/O
Spring return	via mounting orientation, L / R

Manual Override	5 mm Hex key, 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
Enclosure rating	IP54
Environment	
Operating Temperature	-30 °C...+ 50 °C
Storage	-40 °C...+ 80 °C
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						
MD20SR-24T	MD20 SR-24T 1M54 00		24 Vac/Vdc	5W	2.5W	7.5VA	
MD20SR-24TS	MD20 SR-24TS 1M54 00						
MD20SR-24M	MD20 SR-24M 1M54 00						

For damper actuator accessories see "Damper Actuator Accessories" on page 86.

### 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 8m<sup>2</sup>
- 24 Vac/Vdc
- 2...10 V Position Feedback
- Long Life Supercaps



### Specifications

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

Part Number	Control	Torque	Power Consumption		
		Nm	In operation	At rest	For Transformer Sizing
MD40ER-24M	Modulating	Min. 40	11 W @ nominal torque	<3 W	≤21 VA
MD40ER-24T	Two-Position	Nm			
Description	For air control dampers area	Damper spindle	Spindle length, mm	Spindle diameter, mm	
MD40	approx. 8 m <sup>2</sup>	Clamp on top	min. 52	12...26.7	
		Clamp on bottom	min. 20		

For damper actuator accessories see "Damper Actuator Accessories" on page 86.

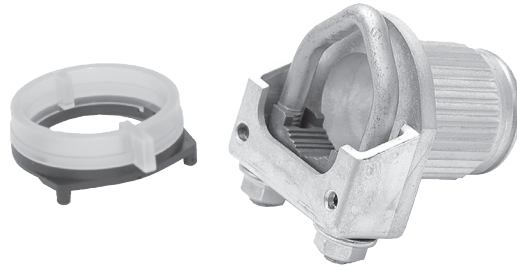
## 9. Damper Actuators

### Damper Actuator Accessories

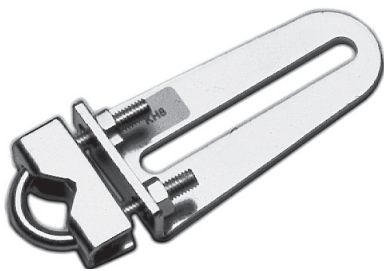
9. Damper Actuators



AV8-25



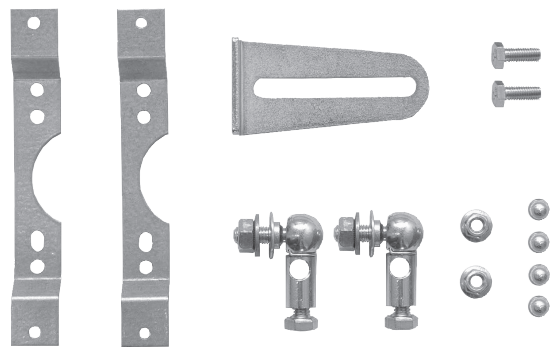
K-MD10



KH8



ZDB-LF



ZG-MD20

Mechanical Accessories

Name	Description	Part number	MD5	MD10	MD20	MD40	LF	MD10 SR	MD20 SR
AV8-25	Shaft extension Length approx. 250 mm For damper spindles 8...25 mm dia. or 10...25 mm square	9141023010		●	●		●	●	●
K-MD10	Reversible spindle clamp	9141062000		●					
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	9141021000			●		●	●	●
ZG-MDSR	Mounting Kit for flat and side installation	9141046000						●	●
ZDB-LF	Angle of rotation limiter and pointer	9141045000					●		
ZG-MD20	Parallel lever linkage kit	9141063000			●				
Z-AF	Mounting plate adaptor for anti-rotation strap-- Retrofitting MD20 SR or MD10 SR from AF installation	9141047000						●	●

Auxiliary Switch



MD-S2

Electrical Accessories

Name	Description	Part number	MD5	MD10	MD20	MD40	LF	MD10 SR / MD20 SR
MD-S1	Auxiliary switch, add-on 1×SPDT 1 mA...3(0.5) A, 250 Vac	914-1060-000	●	●	●	●		Actuators only available with integrated switches
MD-S2	Auxiliary switch, add-on ×SPDT1 mA...3(0.5) A, 250 Vac	914-1061-000	●	●	●	●		







# 10. Specialist Products

Specialist products provide solutions for our wide installation base or the more demanding hydronic applications, such as globe and zone valves capable of handling higher pressure drops typically experienced in high rise buildings.



## 10. Specialist Products

### VZ22, VZ32, VZ42

These long stroke (6.5 mm) zone valves have a very high working pressure capability and can be driven from a wide range of actuators including types with LON communication. The VZ22, VZ32 and VZ42 valves are a robust range of zone valves in 2-way, 3-way and 3-way with 4 ports.

With this range of products, the same valve body can be driven by both a thermal and motoric actuator.



### Specifications

Valve types	VZ22
2-way valve	VZ32
3-way valve	VZ42
Nominal pressure rating	PN16 (232 psi)
Flow characteristics	Equal percentage port A-AB Linear for bypass B-AB
Rangeability	50:1
2-way valve	50:1 for controlled port
3-way valve	
Leakage rate	< 0.02% of kv
Connections	External thread
Suitable medium	Water according to VDI 2035
Max. glycol concentration	50%
Controlled water temperature	2...120 °C (36...248°F)
Material	
Valve body	DN15 yellow brass DN20 red brass Stainless steel
Stem	
Plug	Brass
Function	
2-way valve	Stem up to open port A to B
3-way valve	Stem up to close port A to AB
Stroke	6.5 mm (0.26 in.)

1 - Up to 1000 kPa system pressure

For fittings please see the tables "Connections for VZ\*08 Series Zone Valves" on page 21 and "Connections for VZ\*19 Series Zone Valves" on page 23.

VZ22			Max Close-off Pressure kPa	
Part Number	Size (mm)	Kv	MZ18L / MZ18A / MZ18B	MZ10T / MZ95
			180N	95N
7210702000	15	0.16	1600	600
7210706000		0.25		
7210710000		0.4		
7210714000		0.63		
7210718000	20	1	1200	180
7210722000		1.6		
7210726000		2.5		
7210730000		4		
			400	50 <sup>1</sup>

VZ32				MZ18L / MZ18A / MZ18B	MZ10T / MZ95
Part Number	Size (mm)	Kv		180N	95N
		A-AB	B-AB		
7310706000	15	0.25	0.16	800	600
7310710000		0.4	0.25		
7310714000		0.63	0.4		
7310718000		1.0	0.63		
7310722000	20	1.6	1.0	250	180
7310726000		2.5	1.6		
7310730000		4.0	2.5		
7310727000		2.5	1.6		
7310731000		4.0	2.5	100	50 <sup>1</sup>

VZ42				MZ18L / MZ18A / MZ18B	MZ10T / MZ95
Part Number	Size (mm)	Kv		180N	95N
		A-AB	B-AB		
7410706000	15	0.25	0.16	800	500
7410710000		0.4	0.25		
7410714000		0.63	0.4		
7410718000		1.0	0.63		
7410722000	20	1.6	1.0	250	150
7410726000		2.5	1.6		
7410730000		4.0	2.5		

## MZ18A, MZ18B, MZ18L

For VZ22, VZ32, VZ42 Zone Valves, the MZ18 is a compact electro-mechanical zone valve actuator designed for use with the VZ\*2 valves.

These actuators feature reliable long term operation ensured from a simple design without the need for end switches. Visual position indication on all models.



### Specifications

Supply voltage	24 Vac
Running time (full stroke, 50 Hz)	150 s
Stroke	6.5 mm
Force	180 N
Connection cable	1.5 m
Coupling ring	M 30 x 1.5
Enclosure rating	IP 42

Part number	Description	Control	Power Consumption	Ambient Temperature
8455100000	MZ18A-24	0...10 V, 2...10 V, Direct/ Reverse	1.4 VA	0...55 °C
8455101000	MZ18B	3 Point Floating	0.7 VA	0...60 °C

## MZ95

The MZ95 is a thermal zone valve actuator designed for use with the VZ\*2 valves.

Normally used for on/off two-position control but PWM is possible with the appropriate controller.

A discreet design with high IP rating in any orientation, clear position indication and alternative cable lengths.



### Specifications

Supply voltage	24 Vac
Power Consumption	2 W
Stroke	8 mm
Force	95 N
Connection Cable (standard)	2.5 m
Coupling Ring	M30 x 1.5
Ambient Operating Temperature	0...55 °C
Enclosure rating	IP44

Part Number	Voltage	Actuator Stem Action (2-way Valve Function)
MZ95NC-24T	24 Vac/Vdc	Stem Down (Normally Closed)
MZ95NO-24T		Stem UP (Normally Open)
MZ95NC-230T	230 Vac	Stem Down (Normally Closed)
MZ95NO-230T		Stem UP (Normally Open)

#### Additional cable set, MZ95

Part Number	Cable length	Qty in pack
9114205000	5.0 m	10 pcs
9114210000	10.0 m	

## 10. Specialist Products

### V222

The V222 is a large flanged balanced globe valve, suitable for control of large flows in heating and air conditioning systems. The balanced plug enables a low actuating force to control the valve. A stainless steel seat allows a large pressure drop across the valve.

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



### Specifications

Design	2-way pressure balanced plug valve, stem down, closed		
Pressure class	PN 16		
Flow characteristics	Equal Percentage		
Stroke			
DN65...DN100	30 mm		
DN125...DN150	50 mm		
Rangeability (Kvs/Kv <sub>min.</sub> )	>50		
Leakage	<0.05% of Kvs		
Stem			
DN 65...100	M8		
DN 125...150	M16		
	(fitted with Hex Bush for M22/M50 actuators)		

Max. temperature of medium	150 °C
Min. temperature of medium	-10 °C
Connection	Flange according ISO 7005-2
Max. glycol/concentration	50%
Main Construction Materials	
Body	Grey Cast Iron GG25
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

Part Number	DN	Kvs	ΔPm (kPa)	Rangeability	Max Close-off Pressure (kPa)								
					Non-spring Return Actuators						Spring Return		
					M800	M1500	MV15B (1500N)	M3000	M22 (2200N)	M50 (5000N)	M700		
7212254010	65	63	800	>50	1500	1600	1600	1600	-	-	1200		
7212258010	80	85	400										
7212262010	100	130	150		1100							800	
7212266000	125	250	100		-						1600	1600	-
7212270000	150	350									1400		

Service kit:

Replacement stem packing box:

DN65...DN100: 100108201

DN125...DN150: 100108210

Stem Heater

DN65...DN100: 8800112000

DN125...DN150: 8800113000

Replacement stem adaptor/hex bush:

DN125...DN150: 8800134000



V321

The V321 is a large flanged valve with a stainless steel seat for high pressure drops.

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 heater to prevent ice formation on the valve stem.



Specifications

Design	3-way plug mixing valve stem up closed (A port/B-AB open)
Pressure class	PN 16
Connection	Flange according ISO 7005-2
Flow characteristics	
A – AB	Equal Percentage
B – AB	Linear
DN65...100	30 mm
DN125...150	40 mm
Leakage	
A – AB	<0.05% of Kvs
B – AB	<0.05% of Kvs
Stem	

DN65...100	Ø10 mm, M10 thread connection (fitted with <b>SpaceLogic</b> stem adaptor to M8)
DN125...150	Ø10 mm, M10 thread connection (fitted with Hex Bush for M22/M50)
Max. temperature of medium	130 °C
Min. temperature of medium	-10 °C
Max. Glycol concentration	50%
Main Construction Materials	
Body	Grey Cast iron GG25
Stem	
DN65...100	Stainless steel SS 1.4571
DN125...150	Stainless steel SS 1.4021
Plug	Stainless steel SS 1.4021
Seat	Stainless Steel SS 1.4021
Stem Packing	EPDM

Mixing Application

V321					Max Close-off Pressure (kPa)						
					Non-Spring Return Actuators						Spring Return
Part Number	DN	Kvs	ΔPm	Rangeability	M800	M1500	MV15B (1500N)	M3000	M22 (2200N)	M50 (5000N)	M700
7312153020	65	63	100	>30	140	290	290	700	-	-	80
7312157020	80	100	80		80	180	180	440			40
7312161020	100	160	60		40	110	110	280			-
7312165010	125	220			-	90	340	-			
7312169010	150	320	60		240	-	-				

Service kit: Replacement stem packing box:  
 DN65...DN150: 100108220  
 Pre 2007, DN125...DN150 with 18 mm stem dia: 100108210  
 Conversion kit V321 with old M16 actuator to **SpaceLogic** connection: 8800130000

Stem Heater:  
 DN65...DN100: 8800110000  
 DN125...DN150: 8800111000  
 Replacement Stem adaptors  
 DN65...DN100: 8800133000  
 DN125...DN150: 100108240

Diverting Application

Size		Kvs	ΔPm	Max Close Pressure, ΔPc (kPa)					
DN	In.	m³/h	kPa	SpaceLogic M800	SpaceLogic M1500/MV15B	SpaceLogic M3000	SpaceLogic M700 SR	M22**	M50**
65	2½"	63	100	70	145	350	40	-	-
80	3"	100	80	45	60	220	20	-	-
100	4"	160	60	25	55	140	-	-	-
125	5"	220	60	-	-	-	-	55	165
150	6"	320	60	-	-	-	-	35	110

ΔP<sup>c</sup> = Maximum allowed pressure differential across a closed valve (a function of actuator performance)  
 ΔP<sub>m</sub> = Maximum allowed pressure drop across a fully 'open' valve (a function of hydronic valve performance)  
 \*\*M22 and M50 actuators will not fit to valves DN65...100  
 Note: Never exceed a fluid velocity above 2m/s

## 10. Specialist Products

### M22, M50

The M22 and M50 actuators are powerful actuators suitable for driving DN125 and DN150 sizes of valve types V222, V292 and V321. The actuators are available in modulating or 3-point floating versions. The 3-point floating versions are available in 24 Vac or 230 Vac voltages with and without end switches.



### Specifications

Supply voltage	24 Vac +10% / -15%, 50/60 Hz
Power consumption	Average 15 VA
Running time	0...50 mm 50Hz, 132s 60Hz, 112s
Duty cycle	Max. 80%/60 minutes
Analog input Voltage	0 (2)...10 V
Impedance	30 kOhm
Current	0 (4)...20 mA
Impedance	125 Ohm
Environment	
Operating Temperature	-20...+70 °C
Storage Temperature	-20...+70 °C
Humidity	<95 %RH
Enclosure rating	IP 65

Standards

Emission	EN 50081-1: 03.1993
Immunity	EN 50082-1: 11.1997 EN 50082-2:02.1996

Material Housing	CoPA – Grivory GV-4H
Cover	PC – Polycarbonate

Weight	
M22A	5.4 kg
M50A	6.0 kg

Optional travel switch S2	
Type	Zero potential
Capacity	10A, 250 V

### Modulating Actuators

Part Number	Description	Force (N)
8900104000	M22A-24 V	2200
8900204000	M50A-24 V	5000

### M22B, M50B 3-Point Floating Actuators

Part Number	Description	Force (N)	Power supply Vac +10% / -15%	Power consumption 50 Hz
8900106000	M22B-24V	2200	24	12 VA
8900108000	M22B-24V-S2			
8900110000	M22B-230V		230	11 VA
8900112000	M22B-230V-S2			
8900206000	M50B-24V	5000	24	19 VA
8900208000	M50B-24V-S2			
8900210000	M50B-230V		230	28 VA
8900212000	M50B-230V-S2			

## MBF

The MBF is a 3-port flanged rotary shoe valve suitable for both mixing and diverting circuits. The Valve is operated with a linkage kit and the MD20 Damper actuator.



## Specifications

Design	3-way rotary shoe valve
Pressure Class	PN6
Flow Characteristic	Port 3 Linear
Operating angle	90°
Rangeability (Kvs / Kv <sub>min.</sub> )	>50
Leakage	0.5% (%of Kvs)
Max. temperature of medium	120 °C
Min. temperature of medium	2 °C

Connection	Flanged BS4504, Table 6/11
Main Construction Materials	
Body 12.7...25.4 mm (½"...1") valves	Hot Pressed Brass to BS218
Body 31.75...50.8 (1¼"...2") valves	Close Grained Cast Iron BS1452 Grade 260
Body 65 mm...100 mm	Close Grained Cast Iron BS1452 Grade 260 or 220
Spindle	High Tensile Brass to BS2874 CZ114
O Rings	EPDM

MBF					Max Close-off Pressure kPa
Valve Number	DN	Spares Reconditioning Kit	Kvs	Rangeability	MD20B MD20A
					20Nm
MBF4732	65	0618 9 510	65	>50	35
MBF4782	80	0618 9 511	83		25
MBF4857	100	0618 9 512	125		

The MD20A/B is a damper actuator requiring linkage kit (LMD/MBF part number 9141070000).

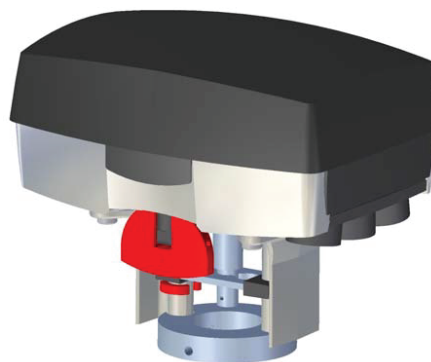
Order auxiliary switches separately:  
 Type MD-S2 part number: 9141061000  
 Type MD-S1 part number: 9141060000.

## 10. Specialist Products

### M315

M315 has an electro-mechanical actuator for the control of V294, V282 and V394 Valves:

M315 utilizes the **SpaceLogic** universal functionality and may be controlled by an increase/decrease signal or by a modulating 0–10 V control signal.



### Specifications

Part Number	8800070030
Supply voltage	24 V AC +25%/ -35%, 50–60 Hz
Power consumption	6 VA
Transformer sizing	30 VA
Running time	
Modulating 9–25 mm (0.35 - 1 in.)	15 s
Increase/decrease	300 s/60 s
Stroke	
Range	9...15 mm (0,35...0.59 in.)
Factory set stroke	15 mm (0.59 in.)
Thrust	300 N (67 lbf.)
Duty cycle	max. 20% / 60 minutes
Analog input	
Voltage	0–10 V
Impedance	min 100 kW
Digital inputs VH–VC	
Voltage across open input	24 V AC
Current through closed input	5 mA
Pulse time	min. 20 ms

Output G1	
Voltage	16 V DC $\pm$ 0.3 V
Load	25 mA, short-circuit proof
Output Y (position feed back signal)	
Voltage	2...10 V (0...100%)
Load	2 mA
Wiring Entry	
Conduit connection	3 x M20 screwed
Cable gland	1 x 6..12 mm O/D, IP68
Environment	
Operating Temperature	-10...+50 °C (14 °F...122 °F)
Storage Temperature	-10 ...+50 °C (14 °F...122 °F)
Humidity	max. 90% RH
Enclosure rating	IP 54
Material	
Housing	Aluminium
Cover	ABS/PC plastic
Color	aluminium/black
Weight	1.8 kg (3.96 lb.)

### Accessories

S2- <b>SpaceLogic</b> Aux switch relay	8800104000
Replacement Circuit board M315	100106750



## MG350S

The MG350S is a compact electro-mechanical actuator for controlling the VZX and MZX 2-way and 3-way linear globe valves. The MG350S actuators are primarily designed for applications where the demands on speed and thrust are relatively small.

- Stable force control with stall protection
- Hysteresis Control - Intelligent response to fluctuating control signals, extending actuator life and better plant regulation
- High Resolution PCBA and motor transmission for fine valve plug position and excellent flow control.
- Low power holding
- Auto adaptation to valve end stroke limits upon first power up
- LED status indication
  - Tri-color LED for operation, calibration, and alarm notification
- Removable terminal block and cable gland for ease installation



## Specifications

Supply voltage	24 Vac/Vdc ±20% 50/60 Hz
Power Consumption (50Hz)	
Running: MG350S-24M	7.2 VA (3.5 W)
MG350S-24F	5 VA (3.5 W)
Holding (Modulating only)	1.2 VA
Transformer sizing	(same as Power Consumption)
Running Time	8 s/mm (Full stroke time = 102 sec)
Max. Stroke	16.5 mm
Nominal Force	350 N
Control (Floating/Digital) Dependant upon wiring	
3 wire Floating	24 Vac/Vdc or 0 V
2 Position on/off	NO or NC
Minimum input pulse	100 msec
Control (Modulating)	
Selectable input signals	0...10 Vdc, 2...10 Vdc
Impedance	min. 100 kΩ
Environment	
Operating Temperature	-5...+55 °C (for valve fluid temperatures up to 130 °C)
Storage	-40...+70 °C
Humidity	max . 95% RH (NC)
Enclosure rating	IP 53 (vertically mounted)

Sound power level	max. 30 dBA
Weight (shipping)	0.36 kg
Material	
Yoke	Aluminum
Material Housing (Covers)	PBT/PC
Mechanical 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
MG350S-24M	Modulating
MG350S-24F	Floating

## 10. Specialist Products

### MZ300S

MZ300S actuator is a universal actuator this can drive many valves with an M30 bonnet. It is supplied with an adapter to drive the Satchwell VUE, MEU and FEU zone valves, the VP224R PICV valve and for a specific 230 Vac model, the VZX and MZX globe valve.

Proportional models are equipped with 3 operation and alarm LED's.

#### Specifications

Power supply	
MZ300S-24x	24 Vac ±10%
MZ300S-230F	230 Vac ±10%
Power Consumption	
MZ300S-24F	2.2 VA / 2,2 W
MZ300S-24M	3.6 VA / 3 W
MZ300S-230F	16.2 VA / 1.1 W
Frequency	50/60Hz
Speed	11.5s/mm at 50Hz - 9.4s/mm at 60Hz
Force	300N
Environment	
Operating Temperature	-5...55 °C
Storage Temperature	-25...65 °C
Protection class	II

Connection cable	
MZ300-24F / MZ300-230F	3-wire 1.5m
for MZ300S-24M (CEI20-22/II)	5-wire 1.5m
Protection degree	IP43
Weight	0.250 kg
Feedback signal (MZ300-24M)	2...10 V reversible according to dip switch configuration)

Part Number	Control signal	Power supply	Max. stroke
MZ300S-230F	3 point - ON/OFF	230 Vac	16 mm
MZ300S-24F		24Vac	
MZ300S-24M	0...10 V Modulating		



### MC52

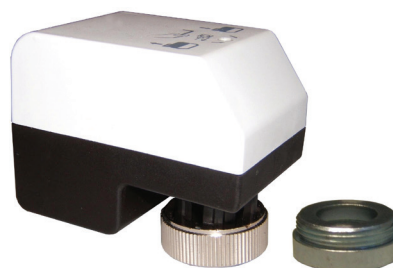
MC52 is an zone actuator designed to provide modulating control together with the old V354 valves using an adapter. Due to an automatic synchronization function the close-off point is self-adjusting. Based on a running time of 155 s, valve positioning and flow adjustment is very exact.

#### Specifications

Range	7 different command field to be selected with embedded dip-switches and direct/reverse action
Input voltage	24 Vac 50/60 Hz
Power consumption	1 VA
Speed	18 s/mm (50 Hz) - 15 s/mm (60 Hz)
Environment	
Operating Temperature	-5...55 °C
Storage Temperature	-25...65 °C
Stem force	200 N (45 lbf)

Max stroke	8.5 mm
Connection cable	3 wires 1.5 m (5 ft)
Protection class	IP 43 (for vertical mounting)
Suitable valve	V354 - PN 731-5425-000

Part Number	Description	Control	Input voltage
8532221010	MC52A-24	Modulating	24 Vac 50/60 Hz
8531320000	MC52B-230	Floating	230 Vc 50/60 Hz
8532320000	MC52B-24		24 Vac 50/60 Hz



MC52 Actuator      Adapter

## MP140

MP140 is a thermoelectric actuator designed to provide two-position on/off control together with the legacy and current VP228E/VP229E VP223R pressure independent control valves.



### Specification

Stem force	140 N
Max stroke	4 mm
Coupling ring	M30 x 1.5
Power cable	2m twin core (0,35 mm <sup>2</sup> )
Suitable valve	VP223R (DN15...32)
Nominal Power Supply	
MZ140-24T	21.8 ... 26.8 Vac 50/60 Hz
MZ140-230T	110 ... 250 Vac 50/60 Hz
Starting current	
24 V models	0.17A
230 V models	0.25A
Working current	
24 V models	75 mA
230 V models	8 mA

Power consumption	
24 V models	2W
230 V models	2W
Environmental	
Ambient working temperature	+2...+50 °C
Storage temperature	-45...+60 °C
Humidity	max. 95% Non-condensing
Material: Fire-resistant case	Class V0
Protection class	IP 44 / IP41

Part number	Function	Voltage
MP140NC-24T	Normally closed	24 Vac 50/60 Hz
MP140NO-24T	Normally open	24 Vac 50/60 Hz
MP140NC-230T	Normally closed	110 - 230 Vac 50/60 Hz
MP140NO-230T	Normally open	110 - 230 Vac 50/60 Hz

## MP200

MP200 is an compact linear actuator for driving the the 5 mm Frese Optima compact PIBCV and the former VP223R short stroke pressure independent control valve. Versions available as either 3 point floating or 0...10 Vdc modulating control. A full stroke run time of 60 seconds provides very precise flow control. Stroke indication and manual override on all models.

### Specification

Force	200 N
Stroke Range	3.5 mm...5 mm
Speed	18s/mm (50Hz), 15s/mm (60Hz)
Connection cable	3 wire 1.5 m
Full stroke time on VP223R valve	63s (50Hz), 52s (60Hz)
Recommended controller 'time out' function	120% of full stroke time (floating modules)
Supply Voltage	
MP200-24F/MP200-24M	21.6 ... 26.4 Vac (50/60Hz)
MP200-230F	207 ... 253 Vac (50/60Hz)
Power consumption	
MP200-24F	0.6W (0.7VA)
MP200-230F	1W (5VA)
MP200-24M	1.0W (1VA)



Environmental	
Working temperature	-5 ... 55 °C
Storage temperature	-25 ... 65 °C
Protection class	IP43/IP41 (dependant on mounting orientation)
Sound power level	35 dBa
Weight	162g
Humidity	Max 95% non-condensing

Part number	Control	Voltage
MP200-24M	Modulating Control	0...10 V
MP200-24F	3 Point Floating	24 V
MP200-230F		230 V

Note: The floating actuators (MP200-24F / MP200-230F) have no end switches for automatic shut off when the valve is fully open or closed. These floating actuators are intended for use with controllers with a time out facility. If the floating actuators are to be used with an on/off thermostat, a separate delay off timer should be used to cut the driven power to the actuator.

## 10. Specialist Products

### MR90

The MR90 is a range of low cost and simple thermal actuators that. Available in all voltages and Normally Open or Normally closed functions



### Specifications

Part Number	
MR90 NC	MR90NC-230T MR90NC-24T
MR90 NO	MR90NO-230T MR90NO-24T
Type Designation	
MR90 NC	MR90 NCD-230T 2M43 00 MR90 NCD-24T 2M43 00
MR90 NO	MR90 NOU-230T 2M44 00 MR90 NOU-24T 2M44 00
Normal Stem position (without power)	
MR90 NC	Down (Extended)
MR90 NO	Up (Retracted)
Input voltage	
MR90NC/NO-230T	110...230 Vac 50/60 Hz
MR90NC/NO-24T	24 Vac/dc 50/60 Hz
Power consumption	1.8 W
Power consumption at start up	
MR90NC/NO-230T	50 VA
MR90NC/NO-24T	4 VA
Opening/closing time:	Refer to specification sheet <a href="#">03-00247</a>
Max. stroke	4 mm
Force, nominal	90 N

Environment	
Operating Temperature	2...50 °C
Storage Temperature	-45...50 °C
Enclosure rating	
MR90NC	IP43 (Vertical mount) IP41 (Horizontal mount) IP40 (Upside down)
MR90NO	IP44
Connection thread	M30 x 1.5
Main Construction Materials	
Fire-resistant case	Class V0
Cable	
MR90NC	2 m bipolar (0.35 mm <sup>2</sup> ), white
MR90NO	2 m bipolar (0.75 mm <sup>2</sup> ), white
Cable diameter	
MR90NC	4.5 mm
MR90NO	6 mm
Weight	
MR90NC	118 gr
MR90NO	188 gr

Part Number	Type Designation	Voltage	Function - without power
MR90NC-230T	MR90 NCD-230T-2M43 00	110-230 V ac	Stem Down - Normally Closed
MR90NC-24T	MR90 NCD-24T-2M43 00	24 Vac/dc	
MR90NO-230T	MR90 NOU-230T-2M44 00	110-230 V ac	Stem Up - Normally Open
MR90NO-24T	MR90 NOU-24T-2M44 00	24 Vac/dc	



## 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.



### Specifications

Input voltage	230 Vac 50-60Hz
Output voltage	24 Vac
Enclosure rating	IP 40
Material	Thermoplastic, Grey
Weight	
TR32	0.8 kg
TR60	1.3 kg

Model	Part No.	Power Consumption
TR32	3413032000	32 VA
TR60	3413060000	60 VA

### Accessories and Spare Parts

Description	Part No.
Circuit board M400 Spare	100106730
Circuit board M800 Spare	100106740
Circuit board M315 Spare	100106750
Circuit board M310 Spare	100106760
Circuit board M1500 Spare	100106770
Circuit board M700-SRSU Spare	100106780
Circuit board M700-SRSD Spare	100106790
Linkage AL-TAC Vxxx L8TV	9141080000
Linkage AL-TAC VGxxx L9TVG	9141081000
Adapter DN15-V298	8800252000
Adapter DN15-V2XX/V3XX	8800253000
Stuffing box VXZ / MZX	0626-9-204
Stuffing box Type S Spare (V241, V341, V211, V211T, V311, V311T, V231, V232)	100108000
Stuffing box VG222/VG321 Spare	100108100
Stuffing box VG211 Spare	100108110

Description	Part No.
Stuffing Box V2x2 65-100 Spare	100108200
StuffingBox V2x2 125-150 Spare	100108210
Stuffing Box V321 65-100 Spare	100108220
StuffingBox V321 125-100 Spare	100108230
Gasket VTRE-F/UF -65 Spare	0805098005
Gasket VTRE-F/UF 80-150 Spare	0805099005
Recond kit VTRE-F/UF 65 Spare	0805665005
Recond kit VTRE-F/UF 80 Spare	0805666005
Recond kit VTRE-F/UF 125 Spare	0805668005
Recond kit VTRE-F/UF 150 Spare	0805669005
GLAND KIT & GREASE (MZ [s3], VZ [s1+2] & VJF, VSF [DN15-25 only] & MJF: DN15-50)	0626-9-203
REPLACEMENT GLAND KIT & GREASE ( MZ [series 1])	0626-9-310
GLAND KIT / GREASE (MZF: DN65-150)	0626-9-311
VSF GLAND KIT 32 - 50MM	0667-9-201

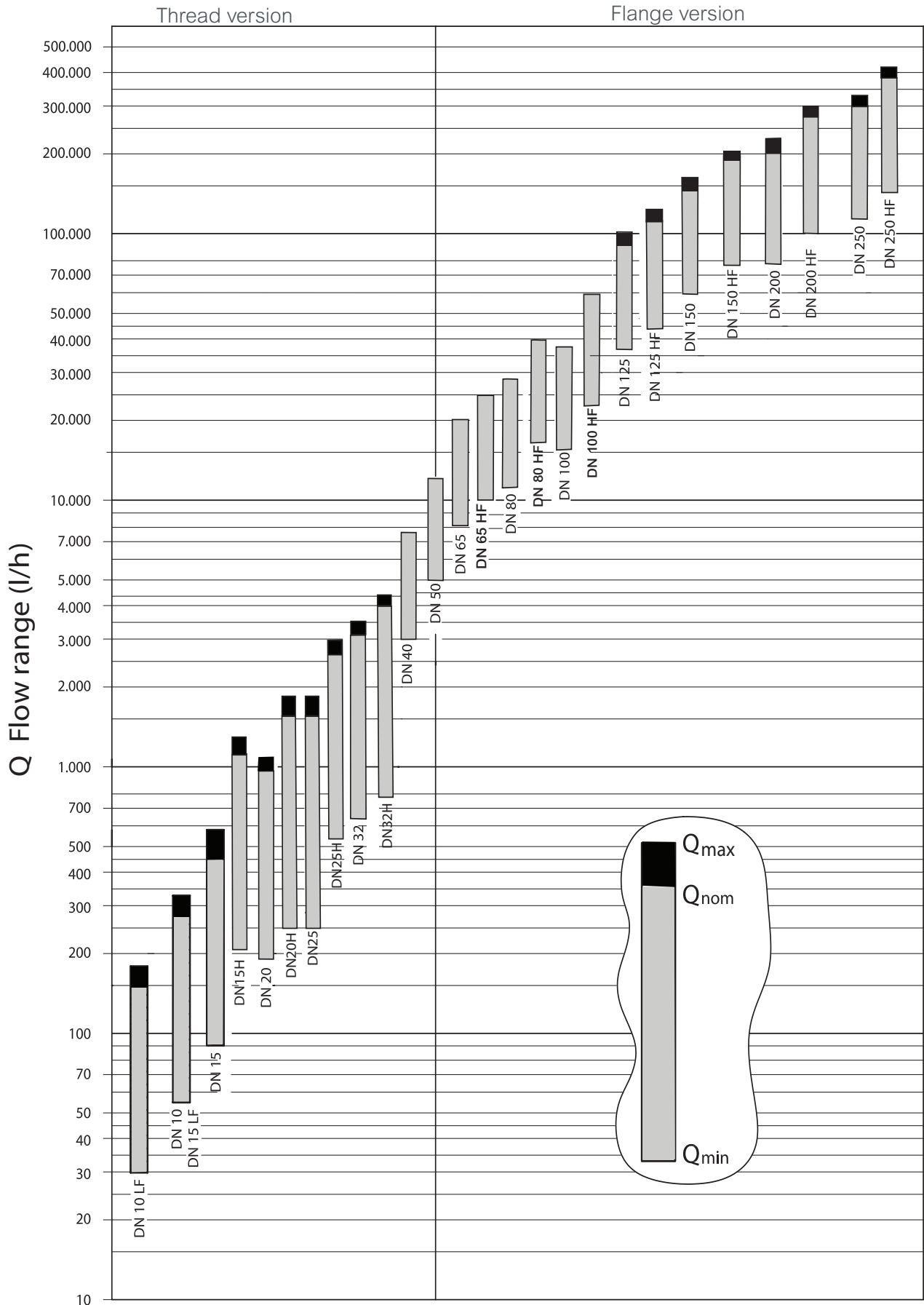






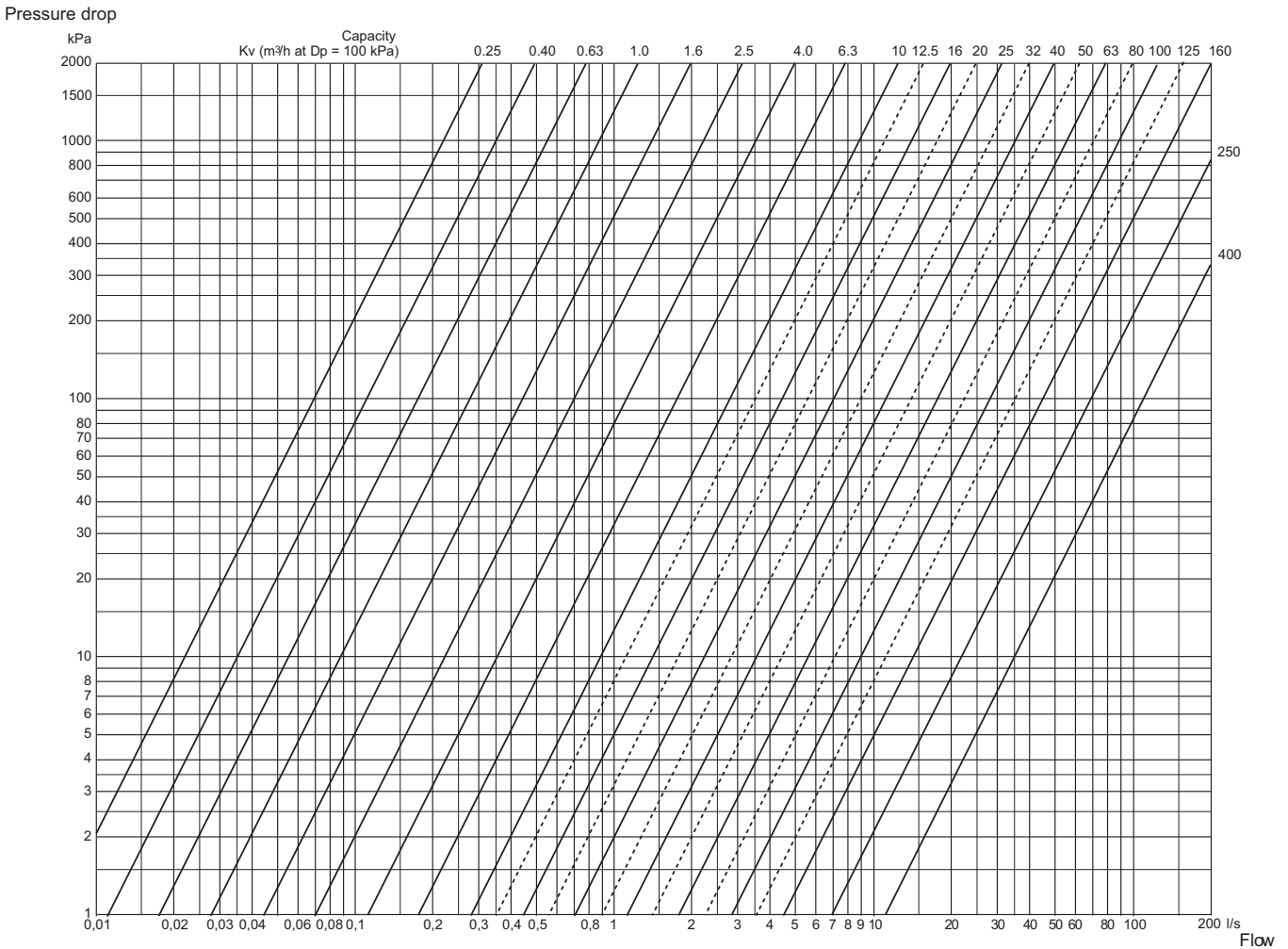
# 11. Supporting Information

## PIBCV Flow Selection Chart



# 11. Supporting Information

## Water Valve Sizing Chart, Traditional Pressure Dependant Valves



1 litre per second = 3.6m<sup>3</sup>/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

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

Kv = Valve Capacity (m<sup>3</sup>/h)  
 Q - Volume flow (m<sup>3</sup>/h)

Calculation of valve flow rate, Q

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

ΔP = Pressure drop across valve (bar)  
 ρ = Specific gravity of fluid (kg/m<sup>3</sup>)

Calculation of Pressure drop, ΔP

$$\Delta P = \rho \times \left(\frac{Q}{Kv}\right)^2$$

## Steam Valve Sizing Chart

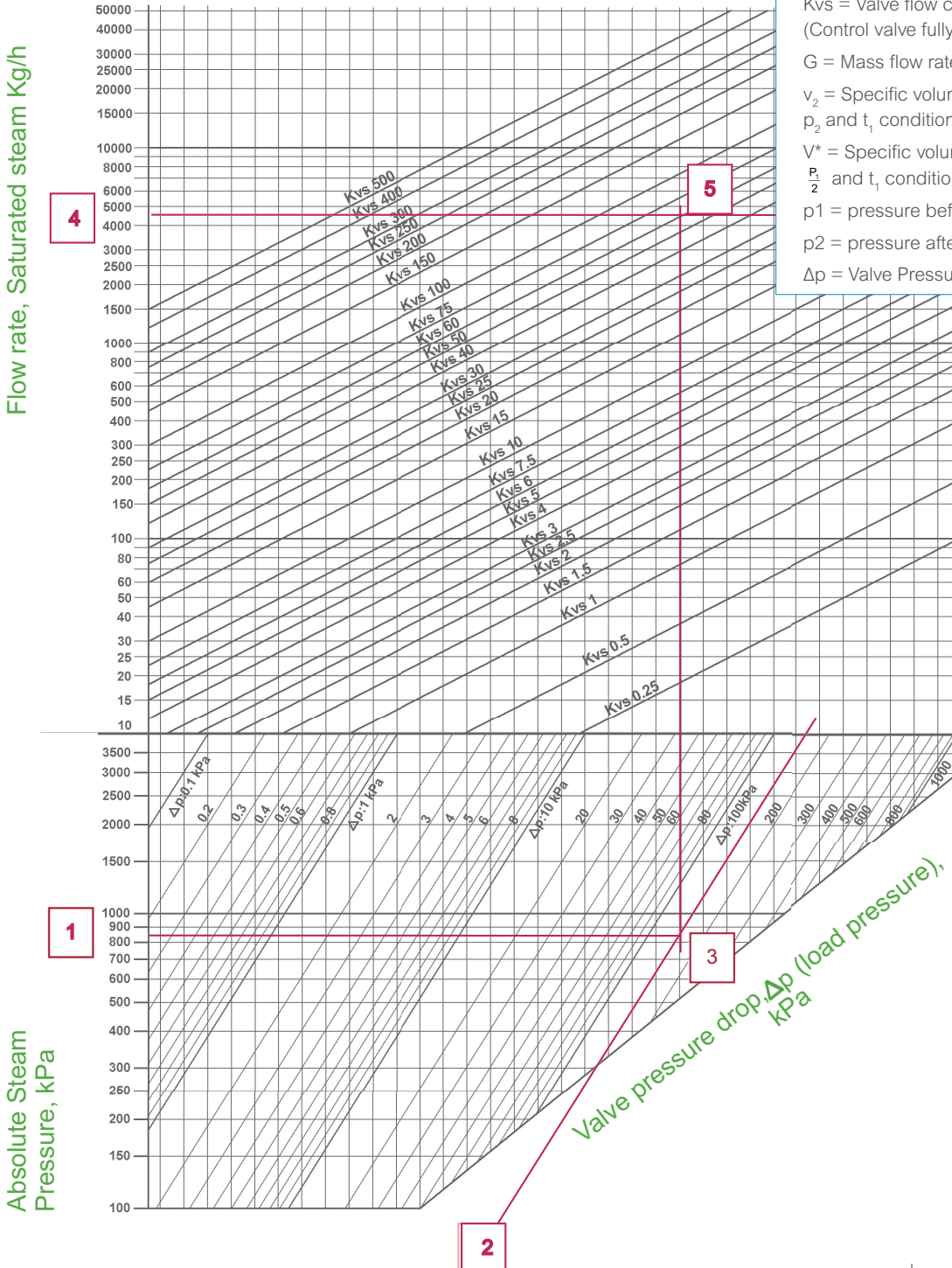
Example for saturated Steam:

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



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

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

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

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

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

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

Key:

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

G = Mass flow rate (Kg/h)

v<sub>2</sub> = Specific volume (from steam table) for p<sub>2</sub> and t<sub>1</sub> condition

V\* = Specific volume (from steam table) for  $\frac{P_1}{2}$  and t<sub>1</sub> condition

p<sub>1</sub> = pressure before valve

p<sub>2</sub> = pressure after valve

Δp = Valve Pressure drop (bar)

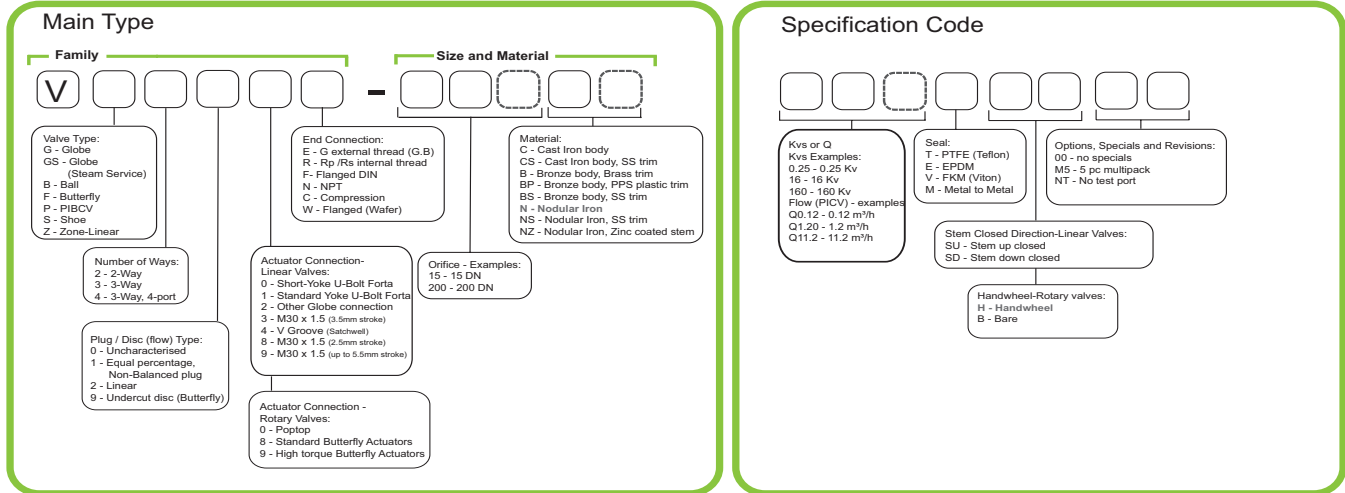


## Type Designation Guide

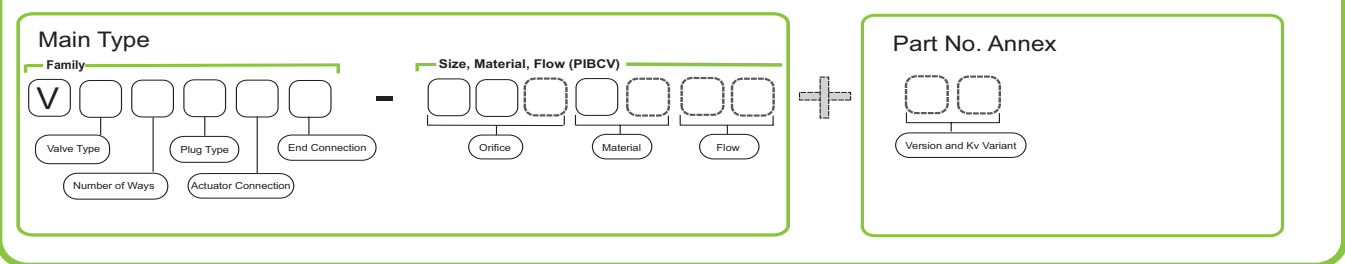
This guide details the type designation coding applicable on all new products launched from June 2009.

### Build Up Code - Valve Body Type Designation

#### Full Type Designation

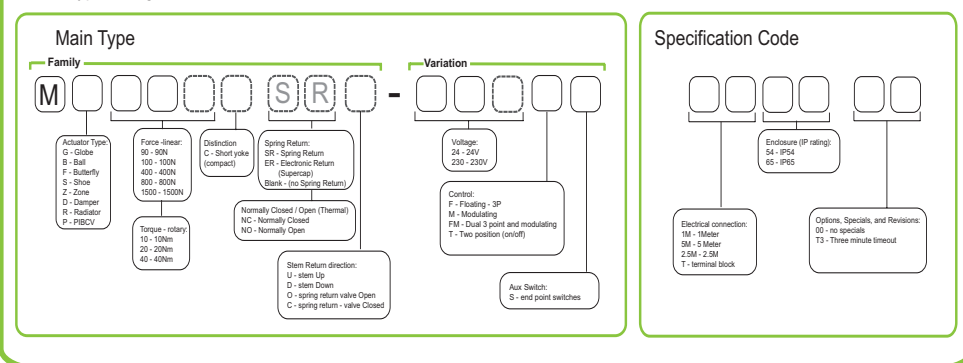


#### Part No.

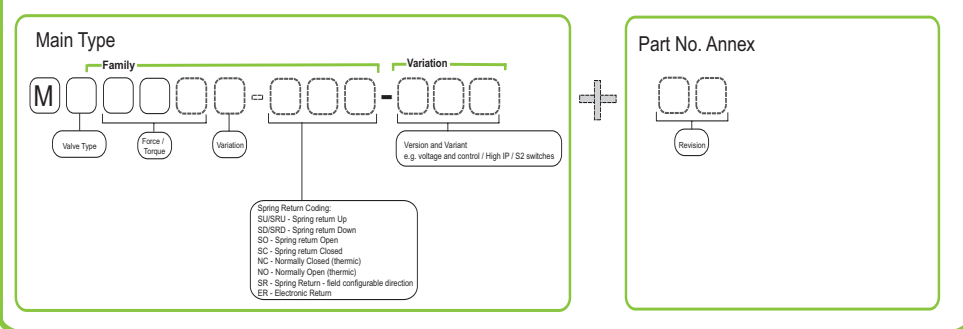


### Build Up Code - Valve Actuators Type Designation

#### Full Type Designation



#### Part No.



## Products Under the New Designation

VB200R page 62	Ball Valves - Full Port, 2-way
VB210R page 62	Ball Valves – Characterised Control, 2-way
VB300R page 62	Ball Valves – Full Port, 3-way
VB310R page 62	Ball Valves – Characterised Control, 3-way
MB3 page 63	Ball Valve Actuator
MB3 SR page 63	Ball Valve Actuator, Spring Return
MB6 SR–24T page 63	Ball Valve Actuator, Spring Return (Two-position)
VF209W page 70	Butterfly Valves (High Pressure)
VF299W page 69	Butterfly Valves (undercut disc)
MF20-R page 71	Butterfly Valve Actuator (replacement for MB15 on installed TRV-S Valves)
MF68/MF200/ MF500 MF1450 page 72	Butterfly Valve actuator for VF209/VF299
VG210R page 34	Globe Valve - Rp threads, 2-way
VG310R page 46	Globe Valve - Rp threads, 3-way
VG221F page 40	Globe Valve, 2-way, Balanced (former VG222)
VG311F page 49	Globe Valve, 3-way (former VG321)
VGS211F page 39	Globe Valve, Steam, 2-way (former VG211)
MG900 SR page 55	<b>SpaceLogic</b> Spring Return Globe Valve Actuator
MG600C page 56	<b>SpaceLogic</b> Short Yoke Globe Valve Actuator
MG600C SR page 56	<b>SpaceLogic</b> Spring Return Short Yoke Globe Valve Actuator
MD10 SR page 83	Damper Actuator Spring Return, 10 Nm
MD20 SR page 84	Damper Actuator Spring Return, 20 Nm
MD40 ER page 85	Damper Actuator, Electronic Return, 40Nm
VZ208E page 20	Zone Valve, 2-way, Short Stroke, External Thread (replaced VZ28)
VZ308E page 20	Zone valve, 3-way, Short Stroke, External Thread (replaced VZ38)
VZ408E page 20	Zone Valve, 3-way with bypass, 4 Ports, Short Stroke, External Thread (replaced VZ48)
VZ219E page 22	Zone Valve, 2-way, Long Stroke, External Thread (replaced VZ29)
VZ319E page 22	Zone Valve, 3-way, Long Stroke, External Thread (replaced VZ39)
VZ419E page 22	Zone Valve, 3-way with bypass, 4 Ports, Long Stroke, External Thread (replaced VZ49)

VZ208C page 20	Zone Valve, 2-way, Short Stroke, Compression Ended (replaced VZ28C)
VZ308C page 20	Zone Valve, 3-way, Short Stroke, Compression Ended (replaced VZ38C)
VZ408C page 20	Zone Valve, 3-way with bypass, 4 ports, Short Stroke, Compression Ended (replaced VZ48C)
VZ219C page 22	Zone Valve, 2-way, Long Stroke, Compression Ended (replaced VZ29C)
VZ319C page 22	Zone Valve, 3-way, Long Stroke, Compression Ended (replaced VZ39C)
VZ419C page 22	Zone Valve, 3-way with bypass, 4 ports, Long Stroke, Compression Ended (replaced VZ49C)
MZ140- <sup>T</sup> page 21	Zone Valve Actuator, 2 Position (replaced MZ88T and MZ89T)
MZ140-24M page 21	Zone Valve Actuator, Modulating (replaced MZ88TA and MZ89TA)
MZ95* page 91	Zone Actuator, 2 position - for VZ*2 valves
MR90 page 100	Radiator Valve Actuator, Thermal
MR95 page 28	Radiator Valve Actuator, Thermal
MF20/MF40 page 71	Butterfly Valve Actuator
VP228E page 8	PIBCV DN10-20 (M30 connection, short stroke)
VP229E page 8	PIBCV DN10-32 (M30 connection, long Stroke)
VP220E page 8	PIBCV DN40-50
VP220F page 8	PIBCV DN50-100
VP221F page 10	PIBCV DN125...DN150
VP222F page 10	PIBCV DN200-200
MP120 page 12	Thermal PIBCV Actuator, DN10-32
MP130 page 11	PIBCV Motoric actuators - DN10-32
MP300 SR page 12	PIBCV Spring Return motoric actuators, DN10-32
MP500C page 14	<b>SpaceLogic</b> PIBCV actuator, DN40-100
MP500C-SR page 15	<b>SpaceLogic</b> Spring return PIBCV actuator, DN40-100
MP2000 page 16	PIBCV actuator, DN125...DN150
MP2000-SR page 16	PIBCV spring return actuator
MP2000 230 page 17	PIBCV spring return actuator
MP4000 page 17	PIBCV actuator, DN200-250
SP90 page 13	PIBCV high accuracy multi-function field bus actuator, DN10...32.

## Products under old designation

AVUX, AVUM, AVUE	Compact Linear Actuators (Satchwell)
AT**** / AG****	Erie Zone Valve Actuators
V241 page 32	Globe Valve, 2-way, Bronze, External Threads
VZX page 94	Globe Valve, 2-way, Bronze, Satchwell (for AVU.. Actuators)
V211T page 35	Globe Valve, 2-way, Nodular Iron, Threaded
V212T page 37	Globe Valve, 2-way, Nodular Iron, Balanced, Threaded
V211 page 36	Globe Valve, 2-way, Nodular iron, Flanged
V212 page 38	Globe Valve, 2-way, Nodular Iron, Flanged, Balanced
V222 page 92	Globe Valve, 2-way, DN65-150, Cast iron
V231 page 41	Globe Valve, 2-way, Nodular Iron, PN25
V232 page 42	Globe Valve, 2-way, Nodular Iron, PN25, Balanced
V292 page 43	Globe Valve, 2-way, Nodular Iron, PN25, DN65-150, Balanced
V341 page 44	Globe Valve, 3-way, Bronze, External Threads
MZX page 96	Globe Valve, 3-way, Bronze, Satchwell (for AVU.. Actuators)
V311T page 47	Globe Valve, 3-way, Nodular Iron, Threaded
V311 page 48	Globe Valve, 3-way, Nodular Iron, Flanged

V321 page 93	Globe Valve, 3-way, Cast Iron, DN65-150
VTRE page 76	Shoe Valves
VT****	Erie Zone Valves
M310/M400/M800/M1500/ M3000	<b>SpaceLogic</b> Linear Globe Actuator
MV15B page 57	Linear Globe Actuator (24 & 230 V Floating)
M700	Linear Globe Valve Actuator – Spring Return
M22, M50 page 94	Powerful Linear Globe Actuator
MZ18* page 91	Zone Valve Actuator – for VZ*2 Valves
MZ20* page 23	Zone Valve Actuator – for VZ*19" Valves
MZ09 page 29	Zone Valve Actuator – for VZ*2 Valves
EM9/M9B page 77	Shoe Valve Actuator
RM/XRM page 77	Shoe Valve Actuator (Satchwell)
LF24/LF230 page 82	Spring Return Damper Actuator
MB page 76	Shoe Valves, Threaded, Satchwell
MBF page 95	Shoe Valves, Flanged, Satchwell

## 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 installation and 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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