

HVAC Valves and Actuators Catalogue

UK short form



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This catalogue presents the comprehensive European Valve and Actuator portfolio from Schneider Electric. These products deliver energy saving environmental control to a broad range of HVAC applications.

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Ball Valves

VB210R, VB200R & VB310R, VB300R

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

VB210R and VB310R ball valves incorporate a flow characterizing insert to providing an equal percentage flow characteristic with high rangeability. Suitable for control of hot or chilled water applications.

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

Specification

Service ^a	Hot and chilled water, up to 60% glycol.
System Static Pressure Limit	PN40.
Media Temperature Limits	-7 to 120°C.
Close-off Pressure ^b	895 kPa Two-Way; 480 kPa, Three-Way
ΔPm	205 kPa normal operation, 135 kPa psi quiet operation.
Seat Leakage ^c	ANSI class IV (0.01%)
End Connections	Rp threaded
Body Material	Forged UNC 37700 brass.
Stem Material	Stainless steel anti-blow out stem with dual Viton™ o-rings.
Ball Material	304 Stainless steel
Seat Material	PTFE.
Characterized Insert	Glass-filled PEEK.

a. Not rated for steam service.

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

c. Seat Leakage in normal direction of flow only



VB210R Two-Way Control Valves

Size	Part Number	Type Designation	Thread	kvs
15 mm	VB210R-15BS01	VB210R-15BS 0.25T 00	Rp 1/2	0.25
	VB210R-15BS03	VB210R-15BS 0.6T 00		0.6
	VB210R-15BS04	VB210R-15BS 1.0T 00		1.0
	VB210R-15BS05	VB210R-15BS 1.8T 00		1.8
	VB210R-15BS07	VB210R-15BS 3.0T 00		3.0
	VB210R-15BS08	VB210R-15BS 4.0T 00		4.0
	VB210R-15BS09	VB210R-15BS 6.3T 00		6.3
20 mm	VB210R-20BS08	VB210R-20BS 4.0T 00	Rp 3/4	4.0
	VB210R-20BS09	VB210R-20BS 6.3T 00		6.3

VB200R Two-Way Full Port Valves

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

VB310R Three-way Control Valves

Size	Part Number	Type Designation	Thread	kvs
15 mm	VB310R-15BS03	VB310R-15BS 0.52T 00	Rp 1/2	0.52
	VB310R-15BS04	VB310R-15BS 0.86T 00		0.86
	VB310R-15BS05	VB310R-15BS05 1.6T 00		1.6
	VB310R-15BS07	VB310R-15BS07 2.5T 00		2.5
	VB310R-15BS08	VB310R-15BS 4.0T 00		4.0
	VB310R-15BS09	VB310R-15BS 6.3T 00		6.3
20 mm	VB310R-20BS08	VB310R-20BS 4.0T 00	Rp 3/4	4.0
	VB310R-20BS09	VB310R-20BS 6.3T 00		6.3

VB300R Three-way Full Port Valves

Size	Part Number	Type Designation	Thread	kvs
15 mm	VB300R-15BS	VB300R-15BS 8.7T 00	Rp 1/2	8.7
20 mm	VB300R-20BS	VB300R-20BS 8.7T 00	Rp 3/4	8.7

Ball Valve Actuators

MB3, MB6

Supply Voltage

Proportional and Modulating 24 Vac +25%,
-15% @ 50/60 Hz.

Two-Position 24 Vac 50/60, (+25%, -15%).
24V DC (+/-20%)

Manual Operation

Floating / Modulation Hand lever

Two Position Hex Key (5/32")

Proportional Control (Field Selectable)

0-10V,0-5V, 5-10V, 4-20mA
Direct or reverse acting

Materials

Thermoplastic base and cover.
Approved for use in air plenums.

Electrical Connection

Terminal Block

Cable Gland (M20)

5-9mm O/D

Shipping & Storage Temp. Limits

-40 to 76°C

Operating Temperature Range (at media temp. limits).

Floating 0 to 60 °C

Proportional 0 to 60 °C

Two-Position 0 to 76° C

Humidity 5 to 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 @ 24V AC/DC	Power Consumption AC/DC
MB6-SO-24T	MB6 SRO-24T T31 00	Normally Open	50 sec.	35	3.5/1.8	2.3/1.6 W
MB6-SC-24T	MB6 SRC-24T T31 00	Normally Closed				

Three Point Floating Actuators (Increase/Decrease)

Part 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	160/135	N/A ^a	2.3	2.5 W
MB3-24F-T3	MB3-24F T31 T3	None		2.5 ^b		
MB3-SO-24F	MB3 SRO-24F T31 T3	Normally Open		217/181	3.2 ^b	3.0 W
MB3-SC-24F	MB3 SRC-24F T31 T3	Normally Closed				

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

b. Size transformer for each spring actuators at 10VA

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

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
MB3-24M	MB3-24M T31 00	None	160/135	200/166	2.7 ^c	2.5 W
MB3-SO-24M	MB3 SRO-24M T31 00	Normally Open			2.7 ^c	
MB3-SC-24M	MB3 SRC-24M T31 00	Normally Closed				

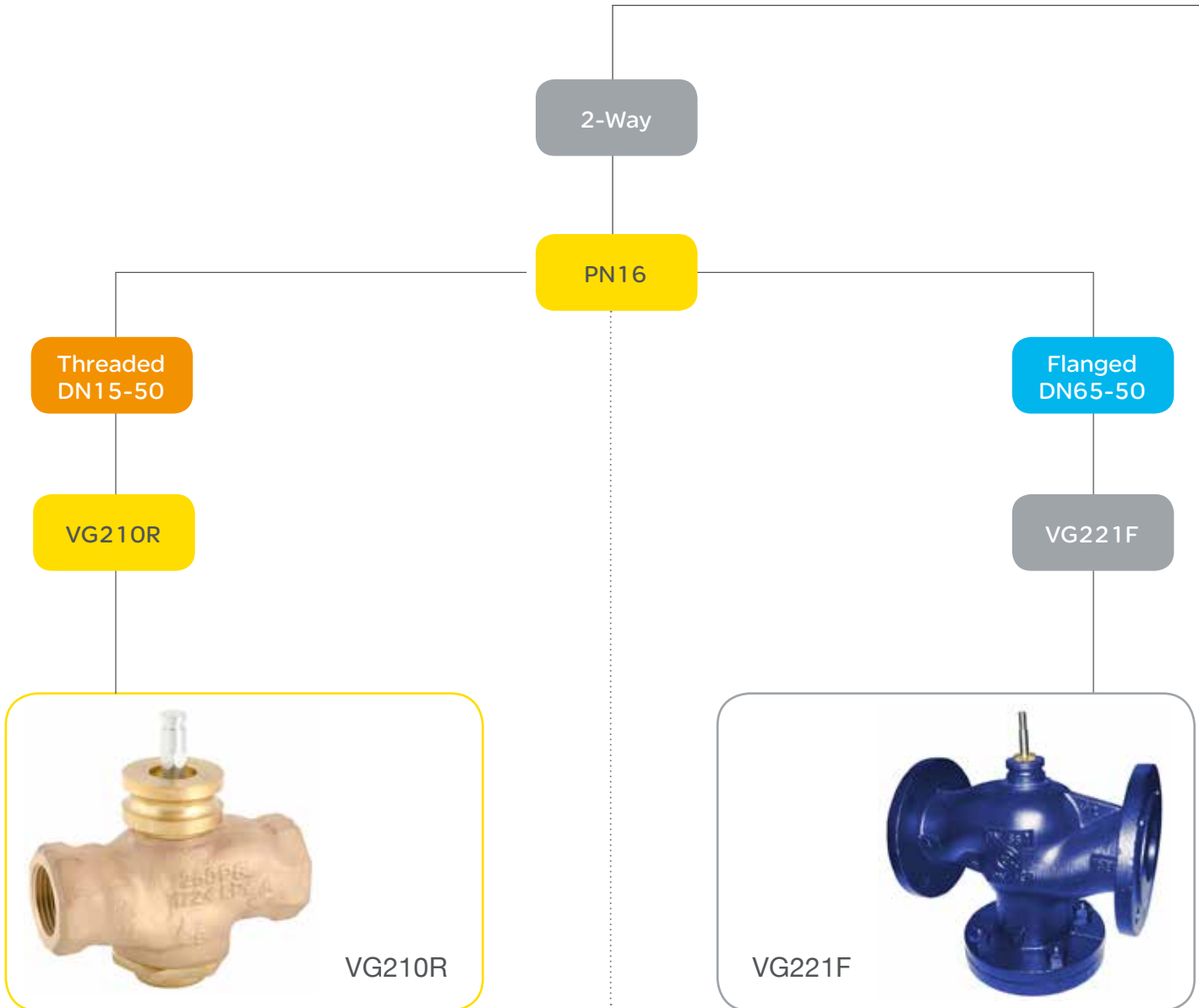
c. Size transformer for each spring actuators at 10VA

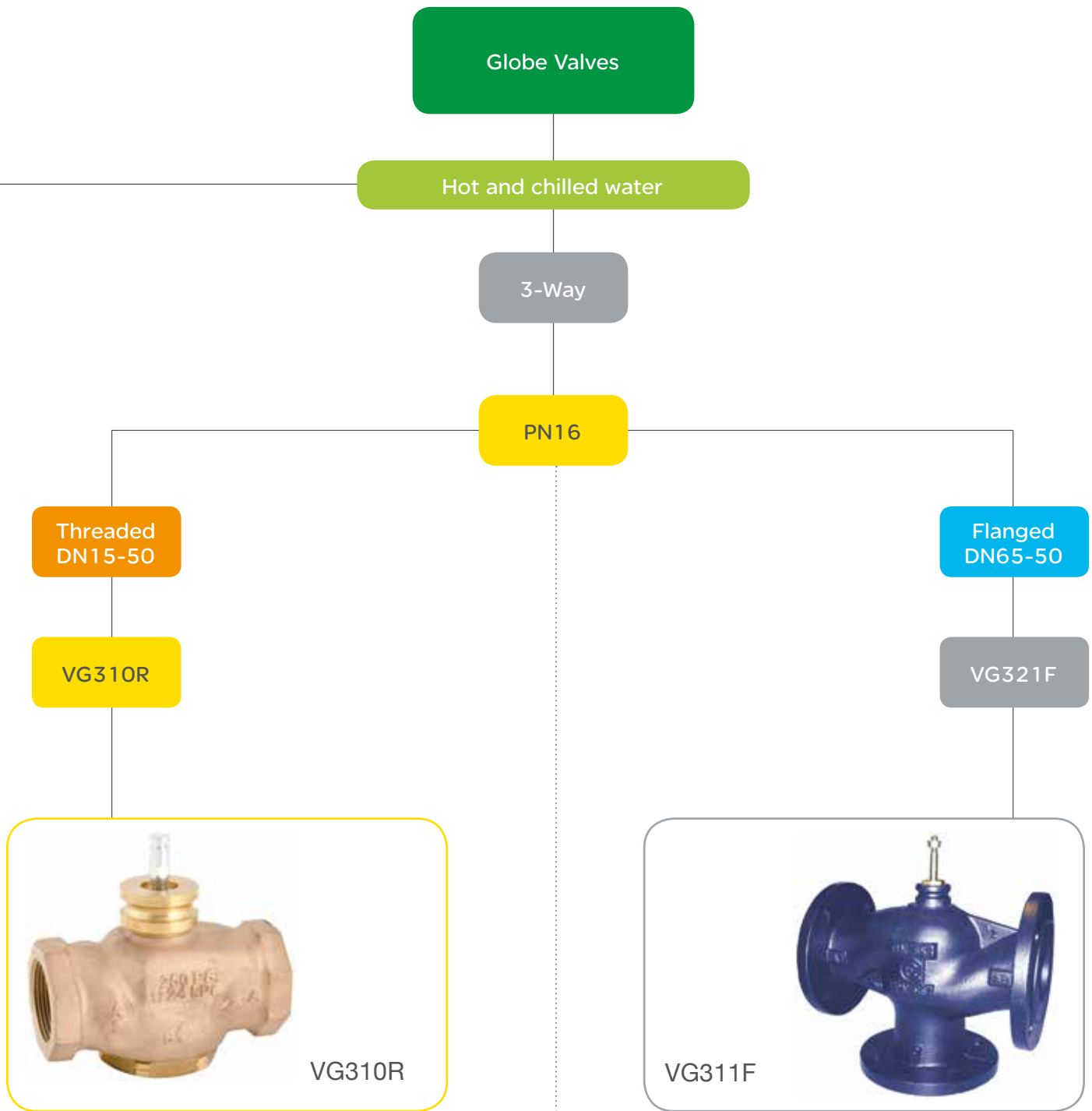
Globe Valves

Globe valves are the ideal plant room control valve. They deliver the best controllable flow of any proportional valve.

The Venta range of valves have excellent rangeability, low leakage and a robust stem sealing. The crown plug is self cleaning in design and is the consultants choice of control valve.

Globe Valve Overview





VG210R 15-50B

The New Venta VG210R 15-50B is a new range of 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 utilises precision plugs for improved rangeability and fine fluid control on small opening degrees. Soft seating also ensures no seepage of precious energy when not required.



Design	2-way plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	11 mm
Rangeability (Kvs/Kv min)	>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

Materials

Body	Bronze
Stem	Stainless steel 316
Plug	Brass CW602N
Sealing	PTFE for 15 and 20 mm units. EPDM for others.
Seat	Bronze
Stem packing	Brass with PTFE and EPDM Chevrons
Slotted Stem Adapter	RoHS compliant Zinc-plated Steel

VG210R 15-50B						Max Close-off Pressure kPa	
Part number	Type Designation	DN	Connec-tion	Kvs	Range-ability	leakage Class IV-S1	Leakage Class IV
						<0.005%	>0.01%
VG210R-15B02	VG210R 15B 0.4E SU 00	15	Rp ½	0.4	>100	1600	1600
VG210R-15B03	VG210R 15B .63E SU 00	15	Rp ½	0.63	>100	1600	1600
VG210R-15B04	VG210R 15B 1E SU 00	15	Rp ½	1.0	>100	1600	1600
VG210R-15B05	VG210R 15B 1.6E SU 00	15	Rp ½	1.6	>100	1600	1600
VG210R-15B07	VG210R 15B 2.5E SU 00	15	Rp ½	2.5	>100	1600	1600
VG210R-15B08	VG210R 15B 4.0E SU 00	15	Rp ½	4.0	>100	1600	1600
VG210R-20B	VG210R 20B 6.3E SU 00	20	Rp ¾	6.3	>100	1600	1600
VG210R-25B	VG210R 25B 10E SU 00	25	Rp 1	10	>100	1100	1200
VG210R-32B	VG210R 32B 17E SU 00	32	Rp 1¼	17	>100	600	700
VG210R-40B	VG210R 40B 24E SU 00	40	Rp 1½	24	>100	350	450
VG210R-50B	VG210R 50B 35E SU 00	50	Rp 2	35	>100	90	240

Note: Valves designed for direct connection onto compact Forta actuators, type MG600C. For all other Forta actuators, stem extension, code NYBA-234-30 is required. M700 and MV15B will not connect to this valve.

Leakage class as a percentage of a valves Kvs, EN60534-4.

VG221F 65-150C (VG222)

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.



Design	2-way pressure balanced plug valve, stem up closed
Pressure class	PN 16
Flow characteristics	Equal Percentage
Rangeability (Kvs/Kv min)	>50

ΔPm	200 kPa, water
Max. temperature of medium	150°C
Min. temperature of medium	-10°C
Connection	Flange according ISO 7005-2

Stroke	
DN 65	25 mm
DN 80 – DN 150	45 mm
Leakage	<0.03% of Kvs

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	M700
						800N	700N
VG221F-65C	VG221F-65C 63M SU00	25	65	63	>50	1600	1300
VG221F-80C	VG221F-80C 100M SU00	45	80	100	>50	1450	1000
VG221F-100C	VG221F-100C 130M SU00		100	130	>50	1000	700
VG221F-125C	VG221F-125C 200M SU00		125	200	>50	750	470
VG221F-150C	VG221F-150C 300M SU00		150	300	>50	550	300

Replacement packing box: 1-001-0810-0

VG310R 15-50B

The New Venta VG310R 15-50B is a new range of 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 utilises precision plugs for improved rangeability and fine fluid control on small opening degrees. Soft seating ensures an ultra tight close off performance against energy seepage.



Design	3-way plug valve, stem up closed
Pressure class	PN 16
Flow characteristic	Equal percentage modified
Stroke	11 mm
Rangeability (Kvs/Kv min)	>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

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 MG600C (-SR) actuator	
Part number	Type Designation	DN	Connection	Kvs	Rangeability	Class IV-S1	Class IV
						≤0.005%	≤0.01%
VG310R-15B05	VG310R 15B 0.4E SU00	15	Rp ½	0.4	>100	1600	1600
VG310R-15B07	VG310R 15B .63E SU00	15	Rp ½	0.63	>100		
VG310R-15B08	VG310R 15B 1E SU00	15	Rp ½	1.0	>100		
VG310R-20B	VG310R 20B 6.3E SU00	20	Rp ¾	6.3	>100	1600	1600
VG310R-25B	VG310R 25B 10E SU00	25	Rp 1	10	>100	1100	1200
VG310R-32B	VG310R 32B 17E SU00	32	Rp 1¼	17	>100	600	700
VG310R-40B	VG310R 40B 24E SU00	40	Rp 1½	24	>100	350	450
VG310R-50B	VG310R 50B 35E SU00	50	Rp 2	35	>100	90	240

a. Valves designed for direct connection onto compact Forta actuators, type MG600C, MG600C-SR. For all other Forta actuators, stem extension, code NYBA-234-30 is required. It is not possible to drive this valve with the M700 or MV15B actuator.

VG311F 65-150C (VG321)

The VG311F...C is a large flanged general purpose valve

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 in order to prevent ice formation on the valve stem.



Design	3-way plug mixing valve stem up closed (A port/B-AB open)
Pressure class	PN 16
Connection	Flange according ISO 7005-2
Rangeability (Kvs/Kv min)	> 50
Flow characteristics A – AB	Equal Percentage
Flow characteristics B – AB	Linear
Stroke DN65	25 mm
DN80-150	45mm
Leakage A – AB	< 0.03% of Kvs
Leakage B – AB	< 2% of Kvs

ΔP_m	200 kPa, water
Max. temperature of medium	150°C
Min. temperature of medium	-10°C
Max. Glycol concentration	50%

Materials

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

VG311F...C					Max Close-off Pressure kPa	
					Non Spring Return Actuators	Spring Return
Part number	Type Designation	DN	Kvs	Rangeability	M800	M700
					800N	700N
VG311F-65C	VG311F-65C 63M SU00	65	63	>50	240	220
VG311F-80C	VG311F-80C 100M SU00	80	100	>50	160	140
VG311F-100C	VG311F-100C- 130M SU00	100	130	>50	100	80
VG311F-125C	VG311F-125C 200M SU00	125	200	>50	60	50
VG311F-150C	VG311F-150C 300M SU00	150	300	>50	40	35

Replacement packing box: 1-001-0810-0

Forta M800

M800 is an electro-mechanical actuator for the control of two-way and three-way plug valves in:

- domestic hot water systems
- heating systems
- air handling systems

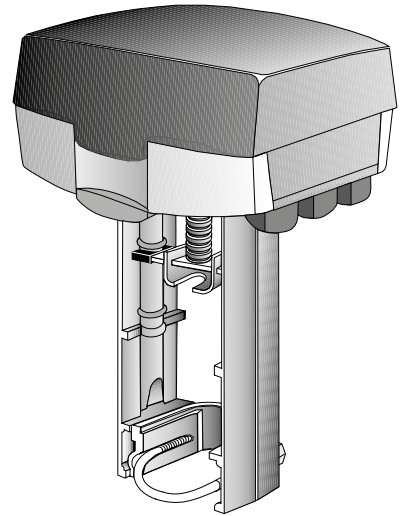
M800 is either controlled by an increase/decrease signal or by a modulating 2–10 V control signal. Modulating control makes for a faster positioning of the actuator.

The electronic circuitry of the actuator ensures that the running time is the same, regardless of the stroke of the valve in question.

It is easy to mount and connect the actuator. It can be mounted directly onto control valves, without any mounting kit.

The working range of the actuator is adjusted automatically depending on the stroke of the valve. The electronic circuitry of the actuator then takes care of the adjustment of the valve end positions.

The actuator is supplied by 24 V AC. It can provide 16 V DC voltage supply for older TAC controllers.



Supply voltage	24 V AC +10%/-40%, 50–60 Hz
Power consumption	average 15 VA
Transformer sizing	50 VA

Running time:

Modulating 10–25 mm (0.39 - 1 in.)	15 s
Modulating 25–32 mm (1 - 1.26 in.)	20 s
Modulating 10–52 mm (0.39 - 2.05 in.)	30 s
Increase/decrease	300 s/60 s

Close off time with STS, at power failure:

Stroke 10–25 mm (0.39 - 1 in.)	max. 20 s
Stroke 25–32 mm (1 - 1.26 in.)	max. 25 s
Stroke 32–52 mm (1.26 - 2 in.)	max. 35 s
Stroke	10–52 mm (0.39 - 2 in.)
Factory set stroke	41 mm (1.61 in.)
Thrust	800 N (180 lbf.)
Duty cycle	max. 20%/60 minutes

Analog input:

Voltage	0–10 V
Impedance	min 100 kΩ

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 ±0.3 V
Load	25 mA, short-circuit proof

Output Y:

Voltage	2-10 V (0-100%)
Load	2 mA

Ambient temperature:

Operation	–10 – +50 °C (14°F - 122°F)
Storage	–10 – +50 °C (14°F - 122°F)

Ambient humidity	max. 90% RH
Enclosure rating	IP 54
Sound power level	max. 40 dBA

Standards:

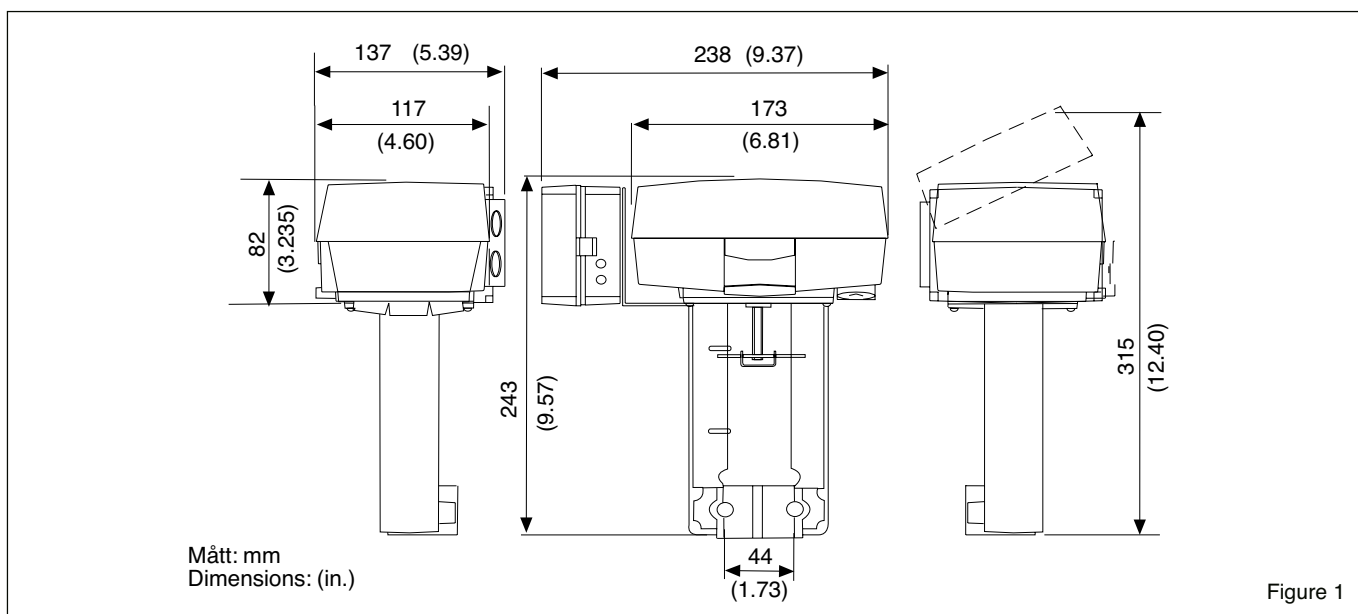
Emission	EN 50081-1:1992
Immunity	EN 50082-1:1992
Heat	IEC-68-2-2
Humidity	IEC-68-2-3
Cold	IEC-68-2-1
Vibration	IEC-68-2-6

Materials

Housing	aluminium
Cover	ABS/PC plastic
Color	aluminium/black
Weight	1.8 kg (3.96 lb.)

Designation	Explanation	Part number
M800	modulating control signal or increase/decrease signal	880-0310-030
M800-S2	modulating control signal or increase/decrease signal and end point switches	880-0311-030
M800-ST5	modulating control signal or increase/decrease signal and self testing safety device	880-0311-030
M800-S2-ST5	modulating control signal or increase/decrease signal with end point switches and self testing safety device	880-0313-040

Dimensions



Function

The actuator

The brushless DC-motor of the actuator turns a screw via a gear wheel. The motor receives a control signal from a controller. The screw gets a linear movement which moves the stem of the valve.

Control signal

M800 can either be controlled by an increase/decrease signal or by a variable direct voltage. If an increase/ decrease signal is used, the actuator normally moves inwards on an increase signal and outwards on a decrease signal, see Settings.

Manual operation

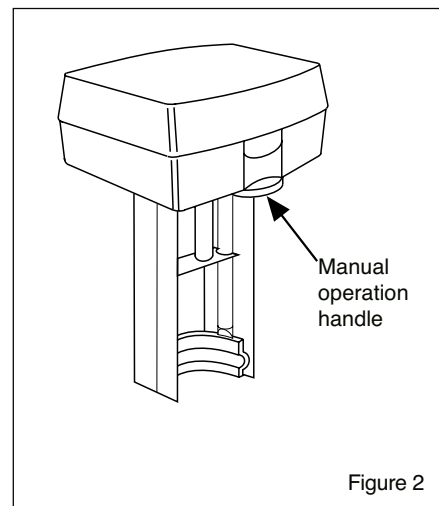
There is a manual operation handle on the actuator, see figure 2. When it is lowered, the motor stops. Then, the actuator can be operated manually if the handle is turned.

Position feedback

Forta actuators are equipped with a 2–10 V DC position feedback signal, where 2 V always corresponds to the closed position and 10 V to the open position.

End point switches

When actuators are controlled in sequence, it is possible to use the end point switches that have set positions. They will toggle when the valve is fully open or fully closed, respectively.



Forta: MG600C, MG600C-SR

The MG600C and MG600C-SR are short yoke Forta actuators designed for use with the VG210R and VG310R valves.

Spring return and Non spring return versions with the full Forta functionality and precision control: Flexible control configuration, floating or modulating, sequencing, position feedback and flow curve adaptation (EQ to Lin).



Supply voltage	24 V AC +25% / -35%, 50-60 Hz
Duty cycle	Max. 20%/60 minutes

Analogue control input

Selectable Voltages	0-10V / 2-10V / 0-5V / 5-10 / 2-6 / 6-10
Impedance	Min. 100 kΩ

Digital control input (3 point floating)

Voltage across open input	24 V AC
Current through closed input	5 mA
Pulse Time	Min. 20 ms

S2 Output – Auxiliary end point switch where fitted

Type	2 x SPDT
Voltage	24V AC
Load	4A (resistive) / 1A (inductive)
Part Number	880-0104-000

Position feedback(Y)

Voltage	2-10 V (0-100%)
Load	2 mA

Ambient temperature

Operation	-10 to +50°C
Storage	-10 to +50°C
Ambient humidity	Max. 90% RH
Enclosure rating	IP 54

Standards

Emission	EN 61326-1
Immunity	EN 61326-1

Material

Housing	Aluminium
Cover	ABS/PC plastic
Colour	Aluminium/grey

Forta Short Yoke Actuators								
Part number	Designation	SR Function	VG210R / VG310R function on SR operation	Running time		Transformer 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	-	-	60s	300s/60s	30VA	4W	3W
MG600C-SRU	MG600C SRU-24FM T54 00	Stem Up	A-AB Closed	15s	300s/60s	50VA	21W	7W
MG600C-SRD	MG600C SRD-24FM T54 00	Stem Down	A-AB Open	15s	300s/60s	50VA	21W	7W

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

Forta M700 - Spring Return

The Forta M700 is a spring return actuator for the control of the longer stroked and the larger sized globe valves.

It utilises the same PCBA as the Forta non spring return actuators and so has the same capability with regard to self adapting to the valve stroke, and the same flexibility with regard to set up configuration.

The U bolt mounting makes for a very easy and quick installation. A manual override is standard on all models.



Supply voltage	24 V AC +25% / -30%, 50-60 Hz
Power consumption	Average 30 VA
Transformer sizing	50 VA

Standards

Emission	EN 61326-1
Immunity	EN 61326-1

Spring return close off time at power failure

20 mm stroke	Less than 50 seconds
45 mm stroke	Less than 95 seconds
Stroke	9 to 52 mm
Thrust	700 N
Duty cycle	Max. 20%/60 minutes

Material

Housing	Aluminium
Cover	ABS/PC plastic
Colour	Black/red

Running time

Modulating 10 to 25 mm	15s
Modulating 25 to 32 mm	20s
Modulating 10 to 52 mm	30s
Increase/decrease	300s/60s

Forta M700 actuators

Part number	Description
880-0430-000	M700-SRSU
880-0440-000	M700-SRSD

Analogue input

Voltage	0-10V / 2-10V / 0-5V / 5-10V / 2-6V / 6-10V
Impedance	Min. 100 kΩ

Key:

SRSU	spring return stem up
SRSD	spring return stem down

Digital inputs VH-VC

Voltage across open input	24 V AC
Current through closed input	5 mA
Pulse time	Min. 20 ms

Regulated Voltage

Voltage	16 V DC ±0.3 V
Load	25 mA, short-circuit proof

Position feedback

Voltage	2-10 V (0-100%)
Load	2 mA

Ambient temperature

Operation	-10 to 50 °C
Storage	-10 to 50 °C
Ambient humidity	Max. 90% RH
Enclosure rating	IP 54

Zone Valves - Short Stroke

VZ*08*

These small linear valves are 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.

Valve types

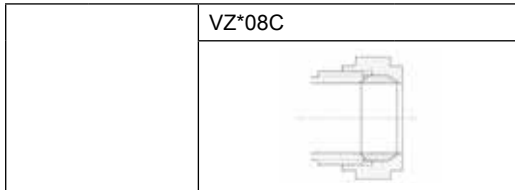
2-way, 3-way, 3-way with bypass

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

Materials

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

* Nuts and Olives supplied with Valve



Two-way valves		Compression*		Kvs		Max Close-off – kPa
Size	Kv	Part Number	Connection	A-AB	B-AB	MZ140
DN15	0,25	VZ208C-15BP01	15mm	0.25	--	250
DN15	0,4	VZ208C-15BP02	15mm	0.4		
DN15	0,6	VZ208C-15BP03	15mm	0.6		
DN15	1	VZ208C-15BP04	15mm	1		
DN15	1,6	VZ208C-15BP05	15mm	1.6		
DN20	2,5	VZ208C-20BP07	22mm	2.5		150
DN20	4					
DN20	6					
Three-way valves						
DN15	0,25	VZ308C-15BP01	15mm	0.25	0.25	250
DN15	0,4	VZ308C-15BP02	15mm	0.4	0.4	
DN15	0,6	VZ308C-15BP03	15mm	0.6	0.6	
DN15	1	VZ308C-15BP04	15mm	1	0.8	
DN15	1,6	VZ308C-15BP05	15mm	1.6	1	
DN20	2,5	VZ308C-20BP07	22mm	2.5	1.6	150
DN20	4					100 A-AB 40 B-AB
DN20	6					
Three-way valves with integral by-pass (4 ports)						
DN15	0,25	VZ408C-15BP01	15mm	0.25	0.25	250
DN15	0,4	VZ408C-15BP02	15mm	0.4	0.4	
DN15	0,6	VZ408C-15BP03	15mm	0.6	0.6	
DN15	1	VZ408C-15BP04	15mm	1	0.8	
DN15	1,6	VZ408C-15BP05	15mm	1.6	1	
DN20	2,5	VZ408C-20BP07	22mm	2.5	1.6	150
DN20	4					100 A-AB 40 B-AB
DN20	6					

Zone Valve Actuators - Short Stroke

MZ140

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



Temperature

Working	2 to 50°C
Storage	-10 to 60°C

Stem force	140N
Max stroke	4 mm
Coupling ring	M30 x 1,5
Power cable	2m bipolar (0.75mm ²)
Material	Fire-resistant case: Class V0
Protection class	IP 44 (for vertical mounting)

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

Note:

5 pc multi packs of the Compression variants (VZ*08C) are available, consult data sheet for full details and part numbers.

Zone Valves – Long Stroke

VZ*19*

These small linear valves are 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 the compact electro-mechanical actuators type MZ20.

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

Leakage	0% tight close-off
Rangeability	50:1

Materials

Valve body	Brass (CW617N)
Trim	Glass reinforced PPE
Stem	Stainless steel (AISI 303)
Stem packing	EPDM
Plug sealing	EPDM

Two-way valves						
VZ*19C						
						
		Compression*		Kvs		Close-off
Size	Kv	Part Number	Connection	A-AB	B-AB	MZ20 actuator
DN 15	0,25	VZ219C-15BP01	15mm	0.25	--	350
DN 15	0,4	VZ219C-15BP02	15mm	0.4		
DN 15	0,6	VZ219C-15BP03	15mm	0.6		
DN 15	1	VZ219C-15BP04	15mm	1		
DN 15	1,6	VZ219C-15BP05	15mm	1.6		250
DN 15	2	VZ219C-15BP06	15mm	2		
DN 20	2,5	VZ219C-20BP07	22mm	2.5		
DN 20	4					
DN 20	6				150	
Three-way valves						
DN 15	0,25	VZ319C-15BP01	15mm	0.25	0.25	350
DN 15	0,4	VZ319C-15BP02	15mm	0.4	0.25	
DN 15	0,6	VZ319C-15BP03	15mm	0.6	0.4	
DN 15	1	VZ319C-15BP04	15mm	1	0.6	
DN 15	1,6	VZ319C-15BP05	15mm	1.6	1	150
DN 15	2	VZ319C-15BP06	15mm	2	1.6	
DN 20	2,5	VZ319C-20BP07	22mm	2.5	1.6	100 A-AB 40 B-AB
DN 20	4					
DN 20	6					
Three-way valves with integral by-pass (4 ports)						
DN 15	0,25	VZ419C-15BP01	15mm	0.25	0.25	350
DN 15	0,4	VZ419C-15BP02	15mm	0.4	0.25	
DN 15	0,6	VZ419C-15BP03	15mm	0.6	0.4	
DN 15	1	VZ419C-15BP04	15mm	1	0.6	
DN 15	1,6	VZ419C-15BP05	15mm	1.6	1	250
DN 15	2	VZ419C-15BP06	15mm	2	1.6	
DN 20	2,5	VZ419C-20BP07	22mm	2.5	1.6	100 A-AB 40 B-AB
DN 20	4					
DN 20	6					

Zone Valve Actuator – Long Stroke

MZ20A, MZ20B

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

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

The actuator provides exact valve position and flow adjustment due to the 100 second running time.



Input voltage MZ20A	24 V AC, 50/60 Hz
Input voltage MZ20B	24V or 230V AC 50/60 Hz
Power consumption MZ20A	1 VA
Power consumption MZ20B	0.5 VA
Speed	18 s/mm (50 Hz) – 15 s/mm (60 Hz)

Temperature

Working	-5 to +55°C
Storage	-25 to +65°C
Stem force	200 N
Max stroke	6.5 mm
Connection cable	3 wires 1.5 m
Protection class	IP 43 (for vertical mounting)

MZ20A/B zone valve actuator for VZ*19valves

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

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

Contact Schneider Electric for LON actuators for long stroke zone valves.

Note:

5 pc multi packs of the VZ*19C valves are available, consult data sheet for full details and part numbers.

Radiator Valve Actuators

MR90

The MR90 is a thermoelectric actuator designed to provide on/off control together with radiator valves. The actuators are used for radiant heating applications, such as radiators, underfloor heating manifolds, fan coil units, induction units, and small reheaters. The actuator operates together with controllers using on/off control signal.

Opening/closing time	Approx. 5.5 min.
Stem force	90 N
Max stroke	4 mm
Coupling ring	M30 x 1.5
Connection cable	2m, white
Max. Ambient temperature	50°C



Normally Open



Normally Closed

Protection Class

MR90 NC	IP43 (Vertically Mounted)
	IP41 (Horizontally Mounted)
	IP40 (Upside down)
MR90 NO	IP44 (Any orientation)

MR90 actuator for radiator valves		Power Supply	Power consumption (running)	Power Consumption (start up)	Valve Function
Part number	Type Designation	V	W	VA	Without Power
MR90NO-24T	MR90NOU-24T-2M 43 00	24 V AC/DC	2	4	Normally Open
MR90NC-24T	MR90NCD-24T-2M 43 00	24 V AC/DC	2	4	Normally Closed
MR90NO-230T	MR90NOU-230T-2M 43 00	110-230V AC	2	50	Normally Open
MR90NC-230T	MR90NCD-230T-2M 43 00	110-230V AC	2	50	Normally Closed

Suitable valves

Manufacturer	Valve type	Adapter
Honeywell	VT220E	Not required
Heimeier		Not required
Minstral		Not required
Danfoss	RAS-C	911-2074-000
Drayton	TRV-4	Not required
TA	TRV-2/TRV-4	Not required

Butterfly Valves

VF208W 25-200NS & 100-200NZ

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

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

OPTIONS: (upon special request)

- Lugged flange connections



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

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

Ordering Table

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

Shaded items are stocked products.

Contact Product Management for larger sizes.

Butterfly Valve Actuators

MF20 / MF20-R / MF40

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

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



MF20 / MF20-R



MF40

Actuators for VF208W Butterfly Valves

Control	Part Number	Full Type Designation	Torque	Supply Voltage	Power Consumption (rest)	Power Consumption (operation)	Power Consumption (wire sizing)	Operating time, 90°	Suitable VF208W valve size
On-Off / 3P	MF20-24F	MF20-24F T54 00	20Nm	24V AC/DC	0.2W	2.5W	5.5VA	90 sec	DN25-100
On-Off / 3P	MF20-230F	MF20-230F T54 00	20Nm	230V AC	0.4W	3W	7VA	90 sec	DN25-100
2-10V	MF20-24M	MF20-24M T54 00	20Nm	24V AC/DC	0.4W	2.5W	5VA	90 sec	DN25-100
LON	MF20-24L	MF20-24L 1M54 00	20Nm	24V AC/DC	1.25W	3.5W	6VA	90 sec	DN25-100
On-Off / 3P	MF40-24F	MF40-24F T54 00	40Nm	24V AC/DC	2W	4W	6VA	150 sec	DN125-200
On-Off / 3P	MF40-230F	MF40-230F T54 00	40Nm	230V AC	2.5W	5W	9VA	150 sec	DN125-200
0-10V	MF40-24M	MF40-24M T54 00	40Nm	24V AC/DC	2W	4.5W	6.5VA	150 sec	DN125-200
LON	MF40-24L	MF40-24L 1M54 00	40Nm	24V AC/DC	1.5W	4W	7VA	90 sec	DN125-200

Actuators for installed base of TRV-S butterfly Valves

Control	Part Number	Full Type Designation	Torque	Supply Voltage	Power Consumption (rest)	Power Consumption (operation)	Power Consumption (wire sizing)	Operating time, 90°	Suitable TRV-S valve
Floating & On/Off	MF20-24F-R	MF20-24F-T54 R0	20Nm	24V AC/DC	0.2W	2.5W	5.5VA	90 sec	DN25-125
Floating & On/Off	MF20-230F-R	MF20-230F-T54 R0	20Nm	230V AC	0.4W	3W	7VA	90 sec	DN25-125
0-10V	MF20-24M-R	MF20-24M T54 R0	20Nm	24V AC/DC	0.4W	2.5W	5VA	90 sec	DN25-125

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

Accessories:

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

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

Handlevers:

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

DN25-65, Part No. :915-0065-000
 DN80-100, Part No. :915-0100-000
 DN125-200, Part No. : 915-0200-000

N.B Max ΔP Pressure for the valve remains
 (Max Valve ΔP is a function of construction, not the actuator)

Damper Actuators

Non-Spring Return

MD5A, MD10A, MD20A, MD40A

The MD...A are 2-10V 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.

Power supply	24 V AC $\pm 20\%$, 50-60 Hz, 24 V DC $\pm 20\%$	Manual override	Gearing latch disengaged with pushbutton, self-resetting, manual locking
Connection cable	1 m, 4x0.75 mm ² (AWG 18)	Standards conformity	
Input signal range X	0-10 V DC	EMC, emission	EN 6100-6-3: 07
Input resistance	100 k Ohm	EMC, immunity	EN 6100-6-2: 05
Operating range	2-10 V DC (for set angle of rotation)	Protection class	III Safety extra-low voltage
Synchronisation tolerance	$\pm 5\%$	Enclosure rating	IP 54
Position feedback Y	2-10 V DC (max. 1 mA)	Ambient humidity	95%RH, non-condensing
Direction of rotation	Reversible with switch 0 / 1 at switch position 0 resp 1	Ambient temperature	
Angle of rotation	Max. 95° (adjustable by mechanical stops)	Operation	-30 to +50°C
Running time	150 s	Storage	-40 to +80°C
Position indication	Mechanical	Maintenance	Maintenance free

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

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

* Optional accessory K-MD10 part number 914-1062-000 For damper actuator accessories see page 57.

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 24V AC/DC or 230V AC versions. Versions available with integrated end point switch (-S types). Auxiliary switch also available as an accessory.

**Connection cable**

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

Standards conformity

EMC, emission	EN61000-6-3: 07
EMC, immunity	EN 61000-6-2: 05
LVD Safety; MD5B-230(-S)	EN 60730-1/2-14

Protection class

MD..B-24(-S)	III Safety extra-low voltage
MD..B-230(-S)	II Totally insulated
Enclosure rating	IP 54
Ambient humidity	95% RH, non condensing

Ambient temperature

Operation	-30 to +50°C
Storage	-40 to +80°C
Maintenance	Maintenance free

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

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

* Optional accessory K-MD10 part number 914-1062-000 For damper actuator accessories see page 57.

Damper Actuators

Spring Return

LF24, LF230, LF24-SR

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

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



Connection cable 2x0.75 mm² (AWG 18)

Angle of rotation Max. 95° (adjustable 37-100% with additional limit stop ZDB-LF)

Torque

Spring return Min. 4 Nm (3 ft-lbf)

Running time

Actuator 40-75 s (0-4 Nm (0-3 ft-lbf))

Spring return Approx. 20 s (at -20 to +50°C)
max. 60 s (at -30°C)

Direction of rotation Selected by mounting L/R

Position indication Mechanical

Standards conformity

EMC, emission EN 55014-1

EMC, immunity EN61000-6-2

LVD Safety; LF230 EN 60730-1/-2-14

Enclosure rating IP 54

Ambient humidity 95% RH, non condensing

Ambient temperature

Operation -30 to +50°C

Storage -40 to +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 wire sizing
874-0003-000	LF24	4	on/off	24Vac±20%	5 W	2.5 W	7 VA
875-0003-000	LF230	4	on/off	230Vac±14%	5 W	3 W	7 VA
877-0003-000	LF24-SR	4	0-10V	24Vac±20%	2.5 W	1 W	5 VA

For damper actuator accessories see page 57.

MD10 SR

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



Motor Torque	Min. 10Nm @ Nominal Voltage
Spring Return	Min. 10Nm
Running Time, Motor	
Modulating	≤150 s
On/off	≤75 s
Spring Return	≤20 s

Control Signal, modulating

Range of Operation (X)	2-10V DC
Input Resistance	100 kΩ
Position Feedback (Y)	2-10V DC, max 0.5mA
Position accuracy	+/- 5%

Cable Size	1m
-24M,	4 x 0.75mm ²
-T, -24T	2 x 0.75mm ²
S2 versions	2+6 x 0.75mm ²

Direction of Rotation	
Motor	Reversible with Switch I/O
Spring return	via mounting orientation, L / R

Manual Override	5mm Hex key crank, supplied plus interlocking switch
Adjustable angle of rotation	0 to Max 95°
Position indication	Mechanical
Protection Class	
24V versions	III Extra low Voltage
230V Versions	II Totally insulated
Degree of Protection	IP54

Environmental

Operation Temperature	-30°C to + 50°C
Storage (non operation)	-40°C to + 80°C

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	2.1Kg
Ambient Humidity	95% r.h. Non condensing

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	24-240V AC / 24-125V DC	6W	2.5W	9.5VA	On/Off
MD10SR-TS	MD10 SR-24/230FTS 1M54 00	10	24-240V AC / 24-125V DC	6W	2.5W	9.5VA	On/Off
MD10SR-24T	MD10 SR-24T 1M54 00	10	24V AC/DC	6W	2.5W	8.5VA	On/Off
MD10SR-24TS	MD10 SR-24TS 1M54 00	10	24V AC/DC	6W	2.5W	8.5VA	On/Off
MD10SR-24M	MD10 SR-24M 1M54 00	10	24V AC/DC	3.5W	2.5W	5.5VA	2-10V Mod.

For damper actuator accessories see page 62

Spindle Clamp

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

MD20 SR

The MD10 SR is a compact spring return damper actuator for the operation of ventilation dampers up to 4m² in building service installations.



Motor Torque	Min. 20Nm @ Nominal Voltage	Manual Override	5mm Hex key crank, supplied plus interlocking switch
Spring Return	Min. 20Nm	Adjustable angle of rotation	0 to 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	24V versions	III Extra low Voltage
		230V Versions	II Totally insulated
		Degree of Protection	IP54

Control Signal, modulating

Range of Operation (X)	2-10V DC
Input Resistance	100 kΩ
Position Feedback (Y)	2-10V DC, max 0.5mA
Position accuracy	+/- 5%

Cable Size	1m, 0.75mm ²
-24M,	4 x 0.75mm ²
-T,-24T	2 x 0.75mm ²
S2 versions	2+6 x 0.75mm ²

Direction of Rotation	
Motor	Reversible with Switch I/O
Spring return	via mounting orientation, L / R

Environmental

Operational Temperature	-30°C to + 50°C
Storage temperature (non operation)	-40°C to + 80°C

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
Ambient Humidity	95% r.h. Non condensing

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	24-240V AC / 24-125V DC	6.5W	3.3W	18VA	On/Off
MD20SR-TS	MD20 SR-24/240TS 1M54 00	20	24-240V AC / 24-125V DC	6.5W	3.3W	18VA	On/Off
MD20SR-24T	MD20 SR-24T 1M54 00	20	24V AC/DC	5W	2.5W	7.5VA	On/Off
MD20SR-24TS	MD20 SR-24TS 1M54 00	20	24V AC/DC	5W	2.5W	7.5VA	On/Off
MD20SR-24M	MD20 SR-24M 1M54 00	20	24V AC/DC	5W	3W	7VA	2-10V Mod.

For damper actuator accessories see page 62.

Spindle Clamp

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

Mechanical Accessories

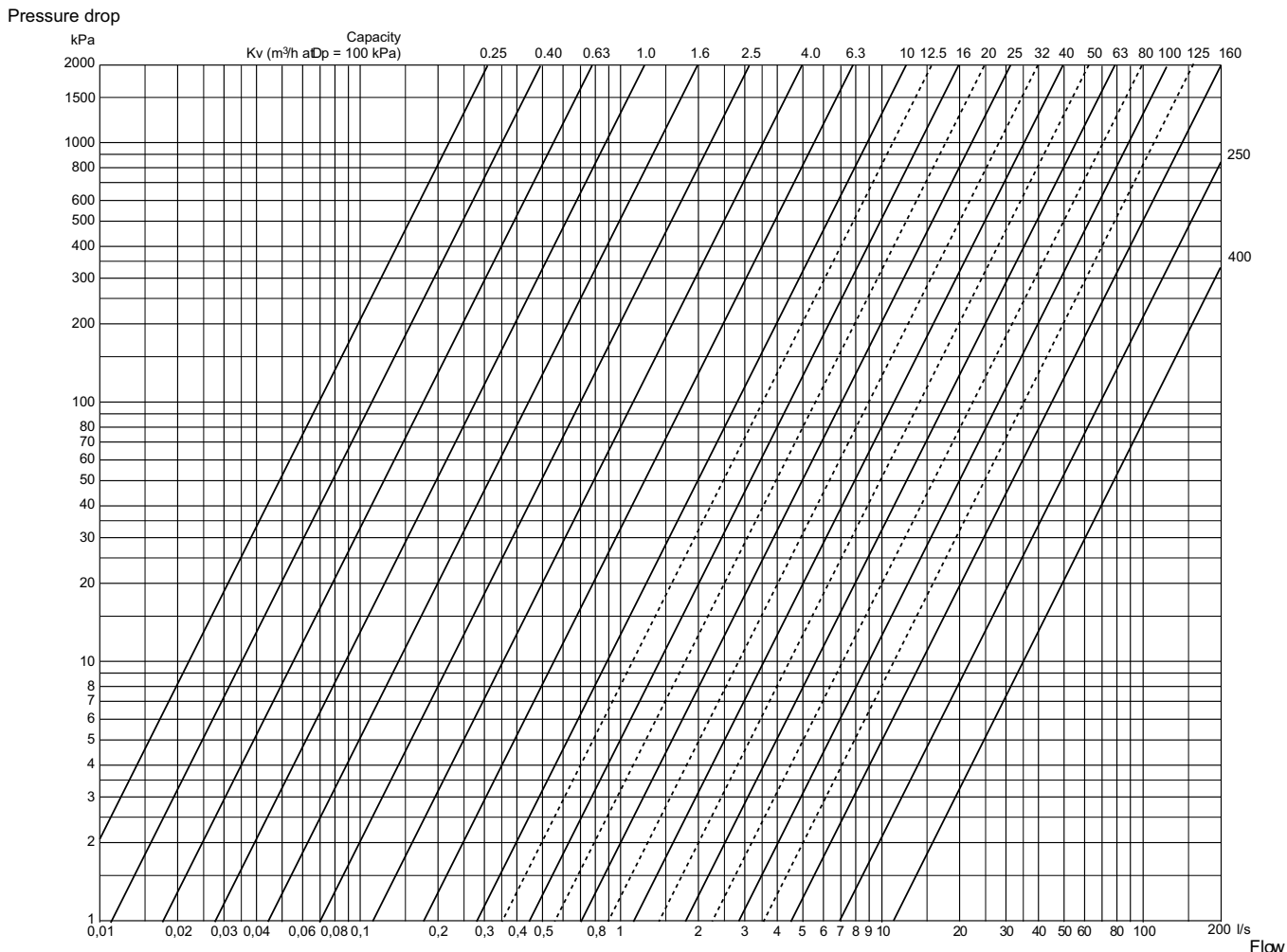
Name	Description	Part number	Actuators							
			MD5	MD10	MD20	MD40	LF	MD10 SR	MD20 SR	
AV8-25	Shaft extension Length approx. 250 mm For damper spindles 8-25 mm dia. or 10-25 mm square	914-1023-010		x	x			x	x	x
K-MD10	Reversible spindle clamp	914-1062-000		x						
KH8	Universal damper crank arm Zinc-plated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

Electrical Accessories

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

Appendix

Water Valve Sizing Chart



1 litre per second = 3.6m³/h
 100 kPa = 1 Bar. = 14.5psi

Valve sizing formulae for water service

In order 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

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

Calculation of valve flow rate, Q

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

Calculation of Pressure drop, ΔP

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

Kv = Valve Capacity (m³/h)
 Q = Volume flow (m³/h)
 ΔP = Pressure drop across valve (bar)
 ρ = Specific Gravity of fluid (kg/m³)

Steam Valve Sizing Chart

Example for saturated Steam:

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

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

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

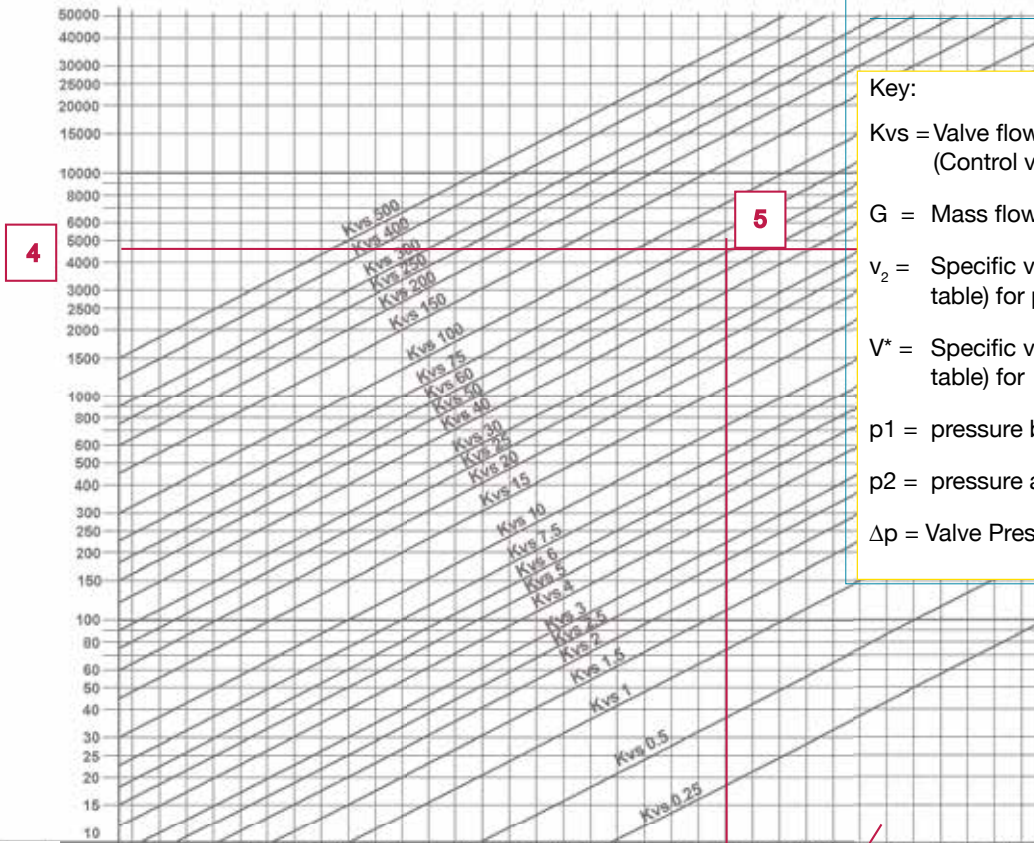
$$\Delta P > \frac{P_1}{2}$$

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

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

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

Flow rate, Saturated steam Kg/h



Key:

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

G = Mass flow rate (Kg/h)

v₂ = Specific volume (from steam table) for p₂ and t₁ condition

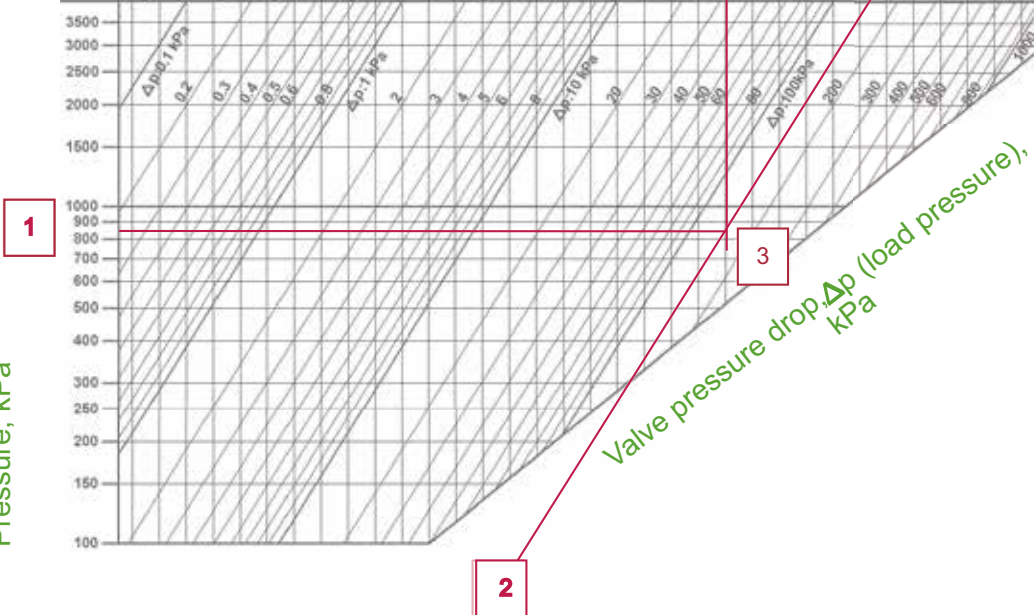
V* = Specific volume (from steam table) for $\frac{p_1}{2}$ and t₁ condition

p₁ = pressure before valve

p₂ = pressure after valve

Δp = Valve Pressure drop (bar)

Absolute Steam Pressure, kPa



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Customer sales / technical advice and service



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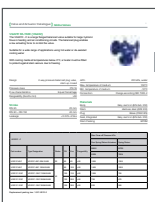
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Literature



We have a comprehensive range of literature available specific to our HVAC products. Our catalogues can be downloaded in PDF format directly from our website, alternatively you can request an original copy via post.

Data sheets



Technical data sheets are available to download in PDF format to support your technical questions and requirements.

Valve & Actuator Selector Criteria

The following questions have been produced to help you identify the correct valve to suit your application

- Step 1.** What is the type of valve (configuration)?
- > 2 Way
 - > 3 Way
 - > 4 Way
-
- Step 2.** What temperature, maximum or range?
- > °C or °F
-
- Step 3.** What is the line pressure at the valve inlet?
- > Bar G
 - > psi
 - > kvs
-
- Step 4.** What is the line size?
- > mm
 - > Inches
-
- Step 5.** What is the connection type?
- > Flanged - what rating?
 - > Screwed
-
- Step 6.** Is a safety shut off facility required?
- > Spring return or power failure
-
- Step 7.** What type of power supply?
- > 24 / 240V AC
 - > 24V AC 0-10V DC
 - > 230V
-
- Step 8.** What options?
- > Auxillary switches
 - > Auxillary Potentiometers
-
- Step 9.** What is the flow rate?
- > Litres per second (l/s)
 - > Cubic metres per hour (m³/hr)
 - > Gallon per minute (GPM)
-
- Step 10.** What type of power supply is available?
- > Electric on/off modulating. State voltage, and if modulating what control signal 0-10V DC or 4-20mA
 - > Pneumatic on/off and modulating. What air supply is available? If modulating what control signal 0-10V DC, 4-20mA or 3-15 psi?
-
- Step 11.** Options
- > Manual override
 - > Position switches

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MB3-SO-24F	5	VB210R-20BS09	4	VG310R-15B08	10
MB3-SC-24F	5	VB200R-15BS	4	VG310R-20B	10
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* Please note this is a short form catalogue which has been produced to support the UK new build market. There is a global catalogue which include legacy products to support the replacement market.

Considerations:

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 catalogue is not sufficient to verify media compatibility, please refer to the respective product data sheet or consult product support services.

Recommendations

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.

WARNING - 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.

Only competent service engineers should undertake maintenance on an installed hot water systems, safe working practice should always be followed.

WARNING - Electrical Hazard

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

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