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VALVES AND ACTUATORS

MICRA - MOTORIZED VALVES FOR FANCOIL UNITS

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RETROFITTING

Micra - Fan Coil Motorised Valves 90 N

Actuators series MVX - Electrothermal actuator for normally closed V.X valves - Stroke end indicator - 2 m bipolar/tripolar cable - Protection IP44.

MODEL	STARTING TIME s.	SUPPLY Vac	FORCE N	ACTION
MVX21R	60	110-230	90	on-off
MVX41R	60	24	90	on-off, PWM
MVX57	60	24	90	proportional 0-10 Vdc

MVR series **90 N** Electrothermal actuator for V.X valves with reverse action - 0.65 m cable - IP44 protection.

MODEL	STARTING TIME s.	SUPPLY Vac	FORCE N	ACTION
MVR230V ¹⁾	60	110-230	90	on-off - normally open for Micra valve
MVR24V ¹⁾	60	24	90	on-off - normally open for Micra valve

1. These models are also available with auxiliary microswitch. When ordering this version, add the letter "M" at the end of the model code, e.g. MVR230M.

Series V.X. - **PN16** brass valve bodies - Tight close-off both on direct and angle way - PPS plug with double EPDM o-ring - Fluid: water and water+glycol 30% max. - Temperature 5 to 95 °C - **Stroke 2.5 mm** - Threaded connections for conic and flat tight - Motorised by MVX-MVR.

MODEL	Kvs		CLOSE-OFF bar	ACTION TYPE DIRECT WAY	THREADED CONNECTIONS	TIGHT
	DIRECT WAY	ANGLE WAY				
V SX09P	0.25	-	2.5	2-way n.c.	G 1/2" M	flat
V SX10P	0.4	-	2.5		G 1/2" M	flat
V SX11P	0.6	-	2.5		G 1/2" M	flat
V SX12P	1	-	2.5		G 1/2" M	flat
V SX13	1.6	-	2.5		G 1/2" M	conic
V SX13P	1.6	-	2.5		G 1/2" M	flat
V SX21	2.5	-	1.5		G 3/4" M	conic
V SX21P	2.5	-	1.5		G 3/4" M	flat
V MX09P	0.5	0.25	2.5	3-way	G 1/2" M	flat
V MX10P	0.4	0.4	2.5		G 1/2" M	flat
V MX11P	0.6	0.6	2.5		G 1/2" M	flat
V MX12P	1	0.6	2.5		G 1/2" M	flat
V MX13	1.6	1	2.5		G 1/2" M	conic
V MX13P	1.6	1	2.5		G 1/2" M	flat
V MX21	2.5	1.6	1.5		G 3/4" M	conic
V MX21P	2.5	1.6	1.5		G 3/4" M	flat
V TX09P ¹⁾	0.25	0.25	2.5	3-way 4-port	G 1/2" M	flat
V TX10P ¹⁾	0.4	0.4	2.5		G 1/2" M	flat
V TX11P ¹⁾	0.6	0.6	2.5		G 1/2" M	flat
V TX12P ¹⁾	1	0.6	2.5		G 1/2" M	flat
V TX13	1.6	1	2.5		G 1/2" M	conic
V TX13P ¹⁾	1.6	1	2.5		G 1/2" M	flat
V TX21	2.5	1.6	1.5		G 3/4" M	conic
V TX21P	2.5	1.6	1.5		G 3/4" M	flat

1. These models are also available with 40-mm port-to-port distance, instead of 35 mm. When ordering this version, add "4" at the end of the model code; e.g. VTX12P4.

Accessories

DESCRIPTION
VXC - Manual control for V.X and V.XT series valves
Thermal insulation



Fan Coil Motorised Valves with high Kvs 140 N

Actuators series MVX - Electrothermal actuator for V.X valves with Kvs 4 and 6 - Stroke end indicator - 2 m. bipolar/tripolar cable - Protection IP44.

MODEL	STARTING TIME s.	SUPPLY V _{ac}	FORCE N	ACTION
MVX22R	90	110-230	140	on-off
MVX42R	90	24	140	on-off, PWM
MVX52	90	24	140	proportional 0-10 Vdc



Series V.X. - **PN16** brass valve bodies - Tight close-off both on direct and angle way - Brass plug with double EPDM o-ring Fluid: water and water + glycol 30% max. - Temperature 5 to 95°C - **Stroke 2.5 mm** - Threaded connection for conic and flat tight. Motorised by MVX actuators.

MODEL	Kvs		CLOSE-OFF bar	ACTION TYPE DIRECT WAY	THREADED CONNECTIONS	TIGHT
	DIRECT WAY	ANGLE WAY				
VSX24P	4	-	1.5	2-way n.c	G 3/4" M	flat
VSX26P	6	-	1.5		G 3/4" M	flat
VMX24P	4	2.5	1 (0.4) ¹⁾	3-way	G 3/4" M	flat
VMX26P	6	4	1 (0.4) ¹⁾		G 3/4" M	flat
VTX24P	4	2.5	1 (0.4) ¹⁾	3-way 4-port	G 3/4" M	flat
VTX26P	6	4	1 (0.4) ¹⁾		G 3/4" M	flat



1. The values in brackets refer to the angle way.



Valve Bodies with 5.5mm stroke for fan coil units

Series V.XT - **PN16** forged brass valve body - Tight close-off both on direct and angle way - Plug with double EPDM OR - Fluid: water and water+glycol 30% max., temperature 2 to 95°C - **Stroke 5.5 mm** - Flow characteristic: equal-percentage direct way, linear angle way. To be motorised with MVT actuator.

MODEL ¹⁾	Kvs		CLOSE-OFF bar	ACTION TYPE DIRECT WAY	THREADED CONNECTIONS	TIGHT
	DIRECT WAY	ANGLE WAY				
VSXT09P	0.25	-	3.5	2-way n.c	G 1/2" M	flat
VSXT10P	0.4	-	3.5		G 1/2" M	flat
VSXT11P	0.6	-	3.5		G 1/2" M	flat
VSXT12P	1	-	3.5		G 1/2" M	flat
VSXT13P	1.6	-	3.5		G 1/2" M	flat
VSXT1P	2	-	2.5		G 1/2" M	flat
VSXT21P	2.5	-	2.5		G 3/4" M	flat
VSXT24P	4	-	1.5		G 3/4" M	flat
VSXT26P	6	-	1.5		G 3/4" M	flat
VMXT09P	0.25	0.25	3.5	3-way	G 1/2" M	flat
VMXT10P	0.4	0.25	3.5		G 1/2" M	flat
VMXT11P	0.6	0.4	3.5		G 1/2" M	flat
VMXT12P	1	0.6	3.5		G 1/2" M	flat
VMXT13P	1.6	1	3.5		G 1/2" M	flat
VMXT1P	2	1.6	2.5		G 1/2" M	flat
VMXT21P	2.5	1.6	2.5		G 3/4" M	flat
VMXT24P	4	2.5	1 (0.4) ³⁾		G 3/4" M	flat
VMXT26P	6	4	1 (0.4) ³⁾		G 3/4" M	flat
VTXT09P ²⁾	0.25	0.25	3.5	3-way 4-port	G 1/2" M	flat
VTXT10P ²⁾	0.4	0.25	3.5		G 1/2" M	flat
VTXT11P ²⁾	0.6	0.4	3.5		G 1/2" M	flat
VTXT12P ²⁾	1	0.6	3.5		G 1/2" M	flat
VTXT13P ²⁾	1.6	1	3.5		G 1/2" M	flat
VTXT1P ²⁾	2	1.6	2.5		G 1/2" M	flat
VTXT21P	2.5	1.6	2.5		G 3/4" M	flat
VTXT24P	4	2.5	1 (0.4) ³⁾		G 3/4" M	flat
VTXT26P	6	4	1 (0.4) ³⁾		G 3/4" M	flat

1. All V.XT valves are available with conic connection. When ordering this version, ignore the letter "P" at the end of the model code; e.g. VSXT21.

2. These models are also available with 40-mm port-to-port distance, instead of 35 mm. When ordering this version, add "4" at the end of the model code; e.g. VTXT1P4.

3. The values in brackets refer to the angle way.



Zone Valves

Series VSE/VDE - On/off actuator with aluminium case - Power supply 230 Vac -Spring return - Stroke end microswitch.

Brass valve body - Temperature range 0 to 93 °C - Mixing and diverting.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar	TYPE
VSE1	1/2"	2.2	2,1	Two-way normally closed
VSE2	3/4"	3.0	1,4	
VSE3	1"	6.9	1	
VDE1	1/2"	2.6	2,1	Three way
VDE2	3/4"	3.4	1,4	
VDE3	1"	6.5	1	



Dymanic pressure independent control valves

VSX..PB and VSXT..PB series. 2-way brass valves PN25. Control and balancing valves with compact dimensions for MCA and MVT actuators, as specified below.

Dynamic balancing eliminates overflows, regardless of fluctuating pressure conditions in the system. Male threaded connections. From 0,2 to 4 m3/h. Normally closed. Maximum temperature: 120°C

MODEL	EXTERNAL THREADED CONNECTIONS	STROKE [mm]	SUITABLE CONTROLLI ACTUATOR	CONTROL ACTION	MAX.FLOW [l/h]	MAX. DIFFERENTIAL PRESSURE (bar)
VSX03PB	G 1/2"	2,5	MCA230L/MCA24L	On/Off, PWM	200	4
VSXT03PB	G 1/2"	5	MVT28 / MVT44 / MVT56S	Proportional	370	
VSX04PB	G 3/4"	2,5	MCA230L/MCA24L	On/Off, PWM	200	
VSXT04PB	G 3/4"	5	MVT28 / MVT44 / MVT56S	Proportional	370	
VSX05PB	G 3/4"	2,5	MCA230L/MCA24L	On/Off, PWM	575	
VSX06PB	G 1"	2,5	MCA230L/MCA24L	On/Off, PWM	575	
VSXT06PB	G 1"	5	MVT28 / MVT44 / MVT56S	Proportional	1330	
VSXT07PB	G 1 1/4"	5.5	MVT28 / MVT44 / MVT56	Proportional	3605	
VSXT08PB	G 1 1/2"	5.5	MVT28 / MVT44 / MVT56	Proportional	4001	



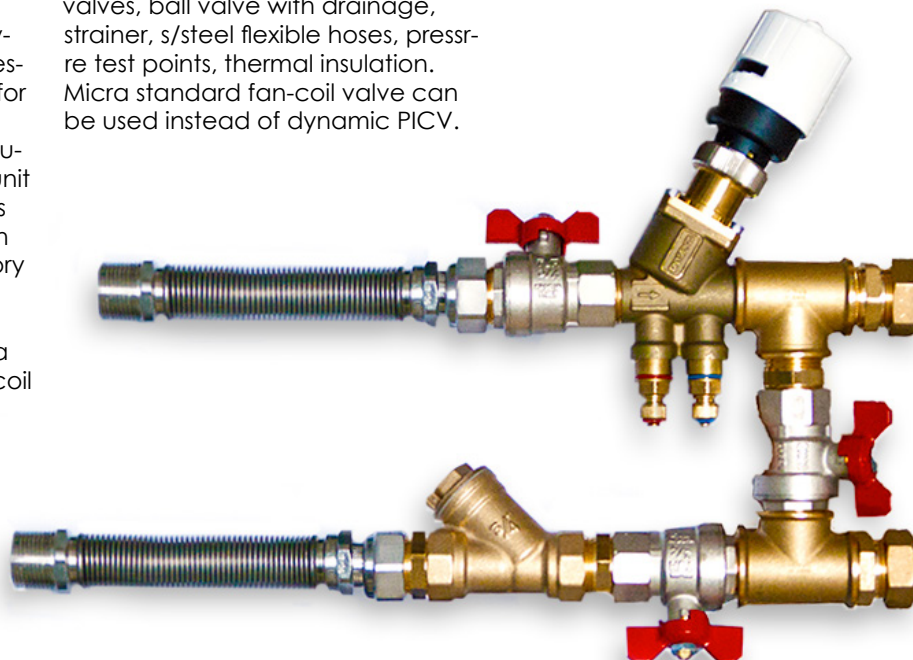
Commissioning kits for terminal units

Controlli linking kits for FCUs are designed to connect a fan-coil unit directly into a building's chilled water or hot water network.

Each kit includes an inbuilt factory-assembled set of valves and accessories in order to reduce the time for installation and commissioning on site, while preventing potential future system leakages from fan-coil unit systems. All necessary components are installed as a single item which is then pressure-tested in our factory prior to delivery to site. No specific tools are needed.

A built-in bypass section includes a full port isolating valve to enable coil and circuit flushing and cleaning.

List of assembled components: 2way dynamic PICV (with On/Off or 3 pos. or Proportional actuator), isolating valves, ball valve with drainage, strainer, s/steel flexible hoses, pressure test points, thermal insulation. Micra standard fan-coil valve can be used instead of dynamic PICV.



Electrothermal actuator for manifolds and radiant panels: 90 N

On/off and PWM control - Fast opening/closing times - 24 Vac, 110-230Vac, 50-60 Hz
IP44 - 4.0 mm stroke - M30x1.5 connection on valves/manifolds - 90N force - Starting time 60 sec. Auxiliary microswitch. Operation: without power supply MVR spindle is in "outside" position; when powered MVR pulls the spindle "inside".
All models are also available with auxiliary microswitch. When ordering this version, add the letter "M" to the model code, e.g. MVR230MC2.



MODEL	STEM OUTPUT	SUPPLY Vac	FORCE N	ACTION
MVR230	10,7÷11,8	110-230	90	on-off
MVR24	10,7÷11,8	24	90	on-off, PWM
MVR230C1*	12,3÷13,4	110-230	90	on-off
MVR24C1*	12,3÷13,4	24	90	on-off, PWM
MVR230C2*	11,3÷12,4	110-230	90	on-off
MVR24C2*	11,3÷12,4	24	90	on-off, PWM
MVR230C3*	10,3÷11,4	110-230	90	on-off
MVR24C3*	10,3÷11,4	24	90	on-off, PWM

1. *Models suitable to manifolds or valves of many different brands. Please check Controlli "MVR_DBL310E" data sheet for details.



Customizable

Thanks to a little plastic stem adapter, our MVR thermal actuators are suitable to a number of different valves or manifolds.
Connection is M30x1.5. All materials are self-extinguishing rated V0. An indicator shows the open/closed position of the actuator.
MVR actuators can easily be customized with your company logo.





MCA

Valve Adaptive concept without adapters

Protection from condensation and from leaking regardless of the valve position (throughout 360°)
Function Indicator Pin visible from any direction.
Fast installation thanks to our Manual Override Position.
MCA has not only a protection from condensation and from water leak whichever is the mounting position (IP44 also up side down), but it is designed to be adapted to the majority of underfloor heating manifolds and zone valves up to 4 mm stroke available on the market

without the need of any adapters.
Another peculiarity of MCA is the Manual Override position, which allows opening and closing the valve/manifold through an easy operation and without powering the actuator.
Last but not least, the MCA is equipped with an ON/OFF Position Indicator, visible from any directions, which allows an easy and fast installation.
As for any other Controlli product, the reliability and quality are key requirements, that's why our products continuously undergo life tests and

each MCA is tested before being shipped to the customer.
MCA is available with or without a end-stroke switch contact and with the possibility to be powered with 110/220Vac or 24Vac/dc.
MCA is then the ideal product for installers and distributors who can use it on any manifolds/valves but also for OEMs thanks to its high performances, its installation quickness as well as the possibility to be customized for example with the customer's logo.

MODEL	CONTROL SIGNAL [Vca]	AUXILIARY MICROSWITCH	POWER [N]	STROKE [mm]
MCA230	110÷230	--	90N	3
MCA230M		•		
MCA24	24	--	140N	4
MCA24M		•		
MCA230L	110÷230	--	140N	4
MCA230LM		•		
MCA24L	24	--		
MCA24LM		•		

Series 2T (threaded) - **PN16** - Stroke 11.5 mm. To be motorised by MVB (2TGB.B) or MVE.S (2TGB.F) actuators.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar	OTHER FEATURES
2TGB15BR00	1/2"	0.4	16	<ul style="list-style-type: none"> - GJL-250 cast-iron body - Brass internal parts - Equal-percentage control flow characteristic - Leakage 0 to 0.001% Kvs - Female threaded connections: fluid temperature -5²⁾ to 140 °C, with MVB max 120°C (140 °C with MVB+MVBHT) - For MVB actuator
2TGB15BR0	1/2"	0.63		
2TGB15BR1	1/2"	1		
2TGB15BR2	1/2"	1.6		
2TGB15BR3	1/2"	2.5		
2TGB15B	1/2"	4		
2TGB15FR00	1/2"	0.4	16	<ul style="list-style-type: none"> - GJL-250 cast-iron body - Brass internal parts - Equal-percentage control flow characteristic - Leakage 0 to 0.001% Kvs - Female threaded connections: fluid temperature -5²⁾ to 140 °C - For MVE.S actuator
2TGB15FR0	1/2"	0.63		
2TGB15FR1	1/2"	1		
2TGB15FR2	1/2"	1.6		
2TGB15FR3	1/2"	2.5		
2TGB15F	1/2"	4		

1. In order to avoid seat & plug wearing issues we recommend not to exceed 4 bar differential pressure.



Series VSB (threaded) - VSB.F (flanged) - **PN16** - Stroke 16.5 mm. To be motorised by MVB - MVE - MVH actuators - Thermal insulation available.

MOD	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar							OTHER FEATURES
			MVB	MVE506	MVE510	MVE515	MVH	MVH56FA MVH56FC	MVF59A MVF59C	
VSB3	3/4"	6.3	10,8	16	16	16	16	16	16	<ul style="list-style-type: none"> - G 25 cast-iron body - Brass internal parts - Female threaded connections: fluid temperature -10²⁾ to 150 °C, with MVB max 120°C (140°C with MVB+MVBHT) - Equal-percentage control flow characteristic - Leakage 0.03% Kvs - For MVE actuator, add AG52 linkage - For MVH actuator, add AG62 linkage
VSB4	1"	10	6,8	11,9	16	16	16	13,8	16	
VSB5	1 1/4"	16	4,1	7,2	12,1	16	16	8,4	10,7	
VSB6	1 1/2"	22	2,9	5	8,6	13	11,7	5,9	7,5	
VSB8	2"	30	2,1	3,7	6,4	9,6	8,7	4,4	5,6	
VSB8A	2"	40	2,1	3,7	6,4	9,6	8,7	4,4	5,6	
VSB3F	20	6.3	10,8	16	16	16	16	16	16	As above but with slip-on flanges
VSB4F	25	8	6,8	11,9	16	16	16	13,8	16	
VSB5F	32	16	4,1	7,2	12,1	16	16	8,4	10,7	
VSB6F	40	22	2,9	5	8,6	13	11,7	5,9	7,5	
VSB8F	50	30	2,1	3,7	6,4	9,6	8,7	4,4	5,6	
VSB8AF	50	40	2,1	3,7	6,4	9,6	8,7	4,4	5,6	

1. By spring return MVHFA closed, MVHFC open.

2. For applications with ice formation on stem and packing, use the stem heater.

3. In order to avoid seat & plug wearing issues we recommend not to exceed 2 bar differential pressure.



Tight Close-off

Series VSBPM threaded valves - Modulating tight close-off valves **PN16** - Thermal insulation available - To be motorised by MVB actuators.

MODEL	DN	Kvs	STROKE mm	MAX DIFFERENTIAL PRESSURE bar	OTHER FEATURES
VSBP3M	3/4"	6.3	16.5	2 (8.8)	<ul style="list-style-type: none"> - G 25 cast-iron body - Fluid temperature -5 to 95°C - Leakage 0% Kvs
VSBP4M	1"	10	16.5	2 (5.5)	
VSBP5M	1 1/4"	16	16.5	2 (5.5)	
VSBP6M	1 1/2"	25	16.5	2 (2.5)	
VSBP8M	2"	40	16.5	1.8	

1. Values in brackets are max close-off differential pressure. In applications with steam, the value in brackets is not applicable.

2. In order to avoid seat & plug wearing issues we recommend not to exceed 2 bar differential pressure.



Series VSBT in G25 cast-iron **PN 16** - Stroke 5,5mm - To be motorised by MVT actuators.

MODEL	DN	Kvs	STROKE mm	MAX DIFFERENTIAL PRESSURE bar	OTHER FEATURES
VSBT3	3/4"	6,3	5,5	2,5	- Linear control flow characteristics - Leakage 0.03% Kvs - Fluid temperature 5° to 95°C
VSBT4	1"	10	5,5	1,5	
VSBT5	1 1/4"	14	5,5	0,9	
VSBT6	1 1/2"	18	5,5	0,6	

1. In order to avoid seat & plug wearing issues we recommend not to exceed 2 bar differential pressure.

2-way Globe Valves with high performances

2TGA.B Series 2-way valves **PN16** with pressure balanced plug, compact dimensions, threaded connections up to 2", maximum temperature 130°C, suitable to applications with high close-off pressure: up to 10 bar close-off.
8,5mm stroke for MVT28, MVT44 (3 pos.) and MVT56L (proportional) actuators.

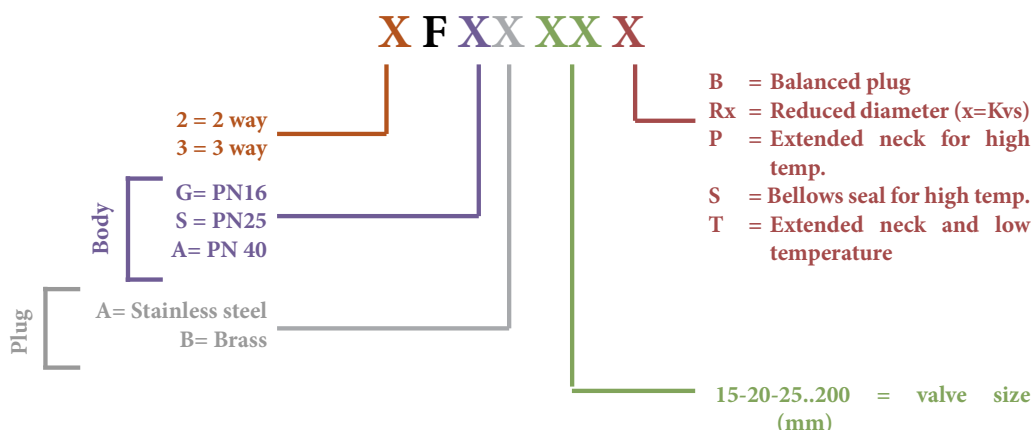
MODEL	DN	KVS	MAX. DIFFERENTIAL PRESSURE WITH MVT ACTUATORS	OTHER FEATURES
2TGA20B	3/4"	5	10 bar	Stainless steel internal parts (seat, plug, stem)
2TGA25B	1"	8		
2TGA32B	1" 1/4	11		
2TGA40B	1" 1/2	18		
2TGA50B	2"	30		

2TBB Series = 2-way valves, bronze body, with threaded connections up to 2", brass plug, stainless steel stem. Temperature applications -10°C to 130°C. Rangeability 50:1. To be motorised by MVE and MVH actuators (no adapter needed).
1/2" and 3/4" models are tight close-off. Maximum leakage on 1" to 2" models is 0.1% of Kvs.
Stroke on 1/2" and 3/4" models is 9.5mm. Stroke on 1" to 2" models is 16mm.

Model	DN	Kvs	MAX DIFFERENTIAL PRESSURE (bar)			
			MVE506	MVE510	MVE515	MVH56FA MVH56FC
2TBB15R1	1/2"	0,2	16	16	16	16
2TBB15R2	1/2"	0,5	16	16	16	16
2TBB15R3	1/2"	1	16	16	16	16
2TBB15	1/2"	2,5	16	16	16	16
2TBB20	3/4"	5	16	16	16	16
2TBB25	1"	10	11,3	16	16	13,2
2TBB32	1 1/4"	16	7,1	12,2	16	8,4
2TBB40	1 1/2"	25	4,9	8,4	12,8	5,7
2TBB50	2"	38	2,7	4,6	7,1	3,2



Flanged Globe Valves Selection Chart



2-way flanged Valves

Series 2F - **PN16** - Stroke 16.5 mm (DN25), 25 mm (DN40 to 65) 45 mm (DN80 to 150) - To be motorised by MVH - MVE actuators.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar							OTHER CHARACTERISTICS
			MVE506	MVE510	MVE515	MVH	MVH3K	MVH56FA MVH56FC	MVF59A MVF59C	
2FGB25R4	25 R	4	9,4	15,9	16	16	16	11	14	- G 25 cast-iron body internal parts in bronze - PN16 flanged connections - Fluid temperature: - 10 ² to 150 °C - Control flow characteristics equal-percentage - Leakage 0.03% Kvs
2FGB25R7	25 I	6.3	9,4	15,9	16	16	16	11	14	
2FGB25	25	10	9,4	15,9	16	16	16	11	14	
2FGB40	40	25	5	8,6	13	11,7	16	5,9	7,5	
2FGB40R	40	19	5	8,6	13	11,7	16	5,9	7,5	
2FGB50	50	40	3,1	5,3	8,1	7,3	16	3,6	4,7	
2FGB65	65	63	1,8	3,1	4,8	4,3	9,6	2,1	2,7	
2FGB80	80	100	1,1	2	3,1	2,8	6,2	1,3	-	
2FGB100	100	130	0,7	1,2	1,9	1,7	3,9	0,8	-	
2FGB125	125	200	0,4	0,7	1,2	1	2,4	0,5	-	
2FGB150	150	300	0,3	0,5	0,8	0,7	1,6	0,3	-	
2FGA15R0	15R	0.6	16	16	16	16	16	16	16	- G 25 cast-iron body internal parts in stainless steel - PN16 flanged connections - Fluid temperature: - 10 ² to 200 °C - Equal-percentage control flow characteristic - Leakage 0.02% Kvs
2FGA15R1	15R	1	16	16	16	16	16	16	16	
2FGA15R2	15R	1.6	16	16	16	16	16	16	16	
2FGA15R3	15R	2.5	16	16	16	16	16	16	16	
2FGA15	15	4	16	16	16	16	16	16	16	
2FGA20	20	6.3	12,5	16	16	16	16	15,1	16	
2FGA25	25	10	7,6	14,1	16	16	16	9,2	12,2	
2FGA32	32	16	7,6	14,1	16	16	16	9,2	12,2	
2FGA40	40	24	5,1	9,5	15	13,4	16	6,2	8,2	
2FGA50	50	32	3,3	6,2	9,8	8,7	16	4	5,3	
2FGA65	65	63	1,3	2,5	4	3,5	8,3	1,6	2,1	
2FGA80	80	110	0,8	1,6	2,6	2,3	5,5	1	-	
2FGA100	100	140	0,5	1	1,6	1,4	3,5	0,6	-	

1. 2FGB: by spring return MVHFA close, MVHFC open. 2FGA: by spring return MVHFA open, MVHFC closed.

2. For applications with possible ice formation on stem and packing, use the stem heater.

3. Options and accessories for valve bodies.

4. In order to avoid seat & plug wearing issues we recommend not to exceed 2 bar (2FGB) & 6 bar (2FGA) differential pressure.



Series 2F - **PN25-40** - Stroke 16.5 mm (DN25), 25 mm (DN32 to 65) 45 mm (DN80 to 150) - To be motorised by MVE - MVF actuators.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar							OTHER FEATURES
			MVE506	MVE510	MVE515	MVH	MVH3K	MVH56FA MVH56FC	MVF59A MVF59C	
2FSA25R4	25 R	4	18,5	25	25	25	25	21,5	25	- Spheroidal cast-iron body internal parts in stainless steel - PN25 flanged connections - Fluid temperature: -10 ²⁾ to -230°C - Equal-percentage control flow characteristic - Leakage 0.02% Kvs
2FSA25R7	25I	6.3	9,3	15,8	23,9	21,5	25	10,8	13,9	
2FSA25	25	10	9,3	15,8	23,9	21,5	25	10,8	13,9	
2FSA32	32	16	6,2	10,6	16,1	14,5	25	7,3	9,3	
2FSA40	40	25	4,4	7,6	11,6	10,4	23,1	5,2	6,7	
2FSA50	50	40	2,8	4,8	7,4	6,6	14,7	3,3	4,2	
2FSA65	65	63	1,6	2,8	4,3	3,9	8,6	1,9	2,4	- Fe 52 steel body internal parts in stainless steel - PN40 flanged connections - Fluid temperature: -10 ²⁾ to 230 °C - Equal-percentage control flow characteristic - Leakage 0.02% Kvs
2FAA15R2	15 R	1.6	30	30	30	30	30	30	30	
2FAA15	15	4	14,5	32,1	40	30	30	18,7	27	
2FAA20	20	6.3	8,5	19	32,2	28,4	30	11,1	16	
2FAA25	25	10	5,1	11,6	19,8	17,4	30	6,7	9,7	
2FAA32	32	16	5,1	11,6	19,8	17,4	30	6,7	9,7	
2FAA40	40	24	3,4	7,8	13,3	11,7	29,2	4,5	6,5	
2FAA50	50	32	2,2	5,1	8,7	7,6	19,1	2,9	4,2	
2FAA65	65	63	0,8	2	3,5	3,1	7,9	1,1	1,7	- Fe 52-steel body with extended neck internal parts in stainless steel with greaser and special gaskets for high temperatures - PN40 flanged connections - Fluid temperature: -20 ³⁾ to 350°C - Equal-percentage control flow characteristic - Leakage 0.02% Kvs
2FAA80	80	110	0,5	1,3	2,3	2	5,2	0,7	-	
2FAA15PR2	15 R	1.6	30	30	40	30	30	30	30	
2FAA15P	15	4	14,5	32,1	40	30	30	18,7	27	
2FAA20P	20	6.3	8,5	19	32,2	28,4	30	11,1	16	
2FAA25P	25	10	5,1	11,6	19,8	17,4	30	6,7	9,7	
2FAA32P	32	16	5,1	11,6	19,8	17,4	30	6,7	9,7	
2FAA40P	40	24	3,4	7,8	13,3	11,7	29,2	4,5	6,5	
2FAA50P	50	32	2,2	5,1	8,7	7,6	19,1	2,9	4,2	
2FAA65P	65	63	0,8	2	3,5	3,1	7,9	1,1	1,7	
2FAA80P	80	110	0,5	1,3	2,3	2	5,2	0,7	-	

1. 2FSA: by spring return MVHFA close, MVHFC open. 2FAA: by spring return MVHFA open, MVHFC closed.

2. For applications with possible ice formation on stem and packing, use the stem heater.

3. For fluid applications with temperature below -10 °C, when ordering, add "T" instead of "P" to model, e.g. 2FAA40T.

4. In order to avoid seat & plug wearing issues we recommend not to exceed 8 bar (2FSA & 2FAA) & 12 bar (2FAAP) differential pressure.



2-way Balanced Plug Valves

Series 2F.B **PN16-25-40** Stroke 16.5 mm (DN25), 25 mm (DN40 to 65) 45 mm (DN80 to 150).
To be motorised by MVH-MVE actuators.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar						OTHER FEATURES
			MVE506	MVE510	MVE515	MVH	MVHF A/C	MVF59A MVF59C	
2FGB65B	65	63	10,8	16	16	16	14	16	<ul style="list-style-type: none"> - G25 cast iron body, brass plug - PN16 flanged connections - Fluid temperature: -10²¹ to 150°C - Equal-percentage control characteristic - Leakage 0.03% Kvs
2FGB80B	80	100	8	16	16	16	10,6	15,7	
2FGB100B	100	130	5,3	13,9	16	16	7,4	11,4	
2FGB125B	125	200	3,5	10,4	16	16	5,1	8,3	
2FGB150B	150	300	2,1	7,8	15	12,9	3,5	6,2	
2FSA-25BR4	25R	4	25	25	25	25	25	25	<ul style="list-style-type: none"> - Spheroidal cast iron body, stainless steel internal parts - PN25 flanged connections - Fluid temperature: -10²¹ to 230°C - Equal-percentage control characteristic - Leakage 0.02% Kvs
2FSA-25BR7	25I	6,3	25	25	25	25	25	25	
2FSA25B	25	10	25	25	25	25	25	25	
2FSA32B	32	16	25	25	25	25	25	25	
2FSA40B	40	25	24,9	25	25	25	25	25	
2FSA50B	50	40	18,3	25	25	25	25	25	
2FSA65B	65	63	12,2	25	25	25	17,6	25	
2FSA80B	80	80	8,3	25	25	25	12,8	-	<ul style="list-style-type: none"> - Steel body and stainless steel internal parts - PN40 flanged connections - Fluid temperature: -20²¹ to 230°C - Equal-percentage control characteristic - Leakage 0.02% Kvs
2FAA25B	25	10	30	30	30	30	30	30	
2FAA32B	32	16	30	30	30	30	30	30	
2FAA40B	40	25	27,6	30	30	30	30	30	
2FAA50B	50	40	21	30	30	30	28,1	30	
2FAA65B	65	63	14,9	30	30	30	20,4	30	
2FAA80B	80	100	11	29,6	30	30	15,5	-	
2FAA100B	100	160	6,5	19,1	30	30	9,5	-	
2FAA125B	125	200	4,2	14,3	27,6	23,3	6,6	-	

1. By spring return MVHFA close, MVHFC open.

2. For applications with possible ice formation on stem and packing, use the stem heater.

3. In order to avoid seat & plug wearing issues we recommend not to exceed 2 bar (2FGBB) & 8 bar (2FSA) & 12 bar (2FAAB) differential pressure.



2-way Double-seat Valves

Series 2FGA.B-2FAA.B - Stroke 45 mm - To be motorised by MVH-MVE actuators.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar				OTHER FEATURES
			MVE510	MVE515	MVH	MVH56FA MVH56FC	
2FAA150B (PN25)	150	300	9,5	20,3	17,1	2,9	<ul style="list-style-type: none"> - Fe 52 Steel body and stainless steel internal parts - PN40 flanged connections - Fluid temperature: -10²¹ to 230°C - Equalpercentage control characteristic - Leakage 0.12% Kvs
2FGA200B (PN16)	200	500	6,3	13,4	11,3	1,9	
							<ul style="list-style-type: none"> - G25 cast iron body, stainless steel internal parts - PN16 flanged connections - Fluid temperature: -10²¹ to 200°C - Equalpercentage control characteristic - Leakage 0.12% Kvs

1. By spring return MVHFA closed, MVHFC open.

2. For applications with possible ice formation on stem and packing, use the stem heater.



Series 3T (threaded) - **PN16** - Stroke 11.5 mm. To be motorised by MVB (3TGB.B) - MVE.S (3TGB.F) actuators.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar	ACTUATORS	OTHER FEATURES
3TGB15BR2	1/2"	1.6	16	For MVB actuator	<ul style="list-style-type: none">- GJL-250 cast-iron body- Brass internal parts- Equal-percentage control flow characteristic- Leakage 0 to 0.001% Kvs- Female threaded connections: fluid temperature -5¹⁾ to 140 °C, with MVB max 120°C (140 °C with MVB+MVBHT)
3TGB15BR3	1/2"	2.5			
3TGB15B	1/2"	4			
3TGB15FR2	1/2"	1.6	16	For MVE.S actuator	
3TGB15FR3	1/2"	2.5			
3TGB15F	1/2"	4			

1. For applications with possible ice formation on stem and packing, use the stem heater.
2. In order to avoid seat & plug wearing issues we recommend not to exceed 4 bar differential pressure.

Series VMB (threaded) - VMBF (flanged) - **PN16**. To be motorised by MVB - MVE - MVH actuators. - Thermal insulation available.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar							OTHER FEATURES
			MVB	MVE506	MVE510	MVE515	MVH	MVH56FA MVH56FC	MVF59A MVF59C	
VMB3	3/4"	6.3	2,6	13,1	16	16	16	15,6	16	<ul style="list-style-type: none"> - G 25 cast-iron body - Brass internal parts - Female threaded connections - Fluid temperature: -10¹⁾ to 150°C (with MVB max 120 °C, with MVB+MVBHT max 140 °C) - Control characteristic: equal-percentage on direct way, linear on angle way - Leakage 0.03% Kvs - For MVE actuator, add AG52 linkage - For MVH actuator, add AG62 linkage
VMB4	1"	10	1,7	8,7	15,6	16	16	10,3	13,6	
VMB5	1 1/4"	16	1,1	5,4	9,8	15,4	13,7	6,5	8,6	
VMB6	1 1/2"	22	0,8	3,9	7,1	11,1	9,9	4,7	6,2	
VMB8	2"	30	0,6	2,9	5,4	8,4	7,5	3,5	4,7	
VMB8A	2"	40	0,6	2,9	5,4	8,4	7,5	3,5	4,7	
VMB3F	20	6.3	2,6	13,1	16	16	16	15,6	16	As above with NP16 slip-on flanges
VMB4F	25	8	1,7	8,7	15,6	16	16	10,3	13,6	
VMB5F	32	16	1,1	5,4	9,8	15,4	13,7	6,5	8,6	
VMB6F	40	22	0,8	3,9	7,1	11,1	9,9	4,7	6,2	
VMB8F	50	30	0,6	2,9	5,4	8,4	7,5	3,5	4,7	
VMB8AF	50	40	0,6	2,9	5,4	8,4	7,5	3,5	4,7	

1. By spring return MVHFA closed, MVHFC open.
2. For applications with possible ice formation on stem and packing, use the stem heater.
3. In order to avoid seat & plug wearing issues we recommend not to exceed 2 bar (VMB) & 2 bar (VMBF) differential pressure.

Tight Close-Off

Series VMBPM threaded valves - Tight close-off modulating valves **PN16** - Thermal insulation available - To be motorised by MVB actuators.

MODEL	DN	Kvs	STROKE mm	MAX DIFFERENTIAL PRESSURE bar	OTHER FEATURES
VMBP3M	3/4"	6.3	16.5	8.8	<ul style="list-style-type: none"> - G25 cast iron valve body - Fluid temperature -5 to 95°C - Leakage 0% Kvs
VMBP4M	1"	10	16.5	5.5	
VMBP5M	1 1/4"	16	16.5	3.5	
VMBP6M	1 1/2"	25	16.5	2.5	
VMBP8M	2"	40	16.5	1.8	

1. The values in brackets refer to angle way.
2. In order to avoid seat & plug wearing issues we recommend not to exceed 2 bar differential pressure.



Series VMBT **PN16** - Stroke 5,5 mm - To be motorised by MVT actuators.

MODEL	DN	Kvs		STROKE mm	MAX DIFFERENTIAL PRESSURE bar	OTHER FEATURES
		DIRECT WAY	ANGLE WAY			
VMBT3	3/4"	6.3	5.5	5.5	1.7	<ul style="list-style-type: none"> - G25 cast iron body - Fluid temperature 5 to 95 °C - Linear control characteristic - Leakage: direct way <0.03% Kvs angle way < 2% Kvs
VMBT4	1"	10	9	5.5	1	
VMBT5	1 1/4"	13	11	5.5	0.7	
VMBT6 ¹⁾	1 1/2"	16	7	5.5	0.5	

1. In order to avoid seat & plug wearing issues we recommend not to exceed 2 bar differential pressure.



3TBB Series = 3-way valves, mixing or diverting, bronze valve bodies with threaded connections, brass plug, stainless steel stem. Temperature applications -10°C to 130°C. Rangeability 50:1.

To be motorised by MVE and MVH actuators (no adapter needed).

1/2" and 3/4" models are tight close-off. Maximum leakage on 1" to 2" models is 0.1% of Kvs.

Stroke on 1/2" and 3/4" models is 9.5mm. Stroke on 1" to 2" models is 16mm.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE (bar)			
			MVE506	MVE510	MVE515	MVH56FA MVH56FC
3TBB15	1/2"	2,5	16	16	16	16
3TBB20	3/4"	5	16	16	16	16
3TBB25	1"	10	9,7	16	16	11,7
3TBB32	1" 1/4	16	6,1	11,2	16	7,3
3TBB40	1" 1/2	25	4,2	7,7	12,1	5
3TBB50	2"	38	2,3	4,2	6,7	2,8



Series 3F **PN16-25** - Stroke 16.5 mm (DN25), 25mm (DN32-65), 45mm (DN80-150) - To be motorised by MVE-MVH actuators.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar							OTHER FEATURES
			MVE506	MVE510	MVE515	MVH	MVH3K	MVH56FA MVH56FC	MVF59A MVF59C	
3FGB25R4	25 R	4	7	12,7	16	16	16	8,4	11	<ul style="list-style-type: none"> - G25 cast-iron body brass internal parts - PN16 flanged connections - Fluid temperature: -10° to 150 °C - Control flow characteristic: direct way: equal-percentage, angle way: linear - Leakage: direct-way: 0.03% Kvs, angle way: 2% Kvs
3FGB25R7	25 I	6.3	7	12,7	16	16	16	8,4	11	
3FGB25	25	10	7	12,7	16	16	16	8,4	11	
3FGB40R19	40 R	19	3,9	7,1	11,1	9,9	16	4,7	6,2	
3FGB40	40	25	3,9	7,1	11,1	9,9	16	4,7	6,2	
3FGB50	50	40	2,5	4,5	7,1	6,3	14,4	3	3,9	
3FGB65	65	63	1,5	2,7	4,2	3,7	8,5	1,7	2,3	
3FGB80	80	100	0,9	1,7	2,7	2,4	5,6	1,1	-	
3FGB100	100	130	0,6	1,1	1,7	1,5	3,6	0,7	-	
3FGB125	125	200	0,4	0,7	1,1	1	2,3	0,4	-	
3FGB150	150	300	0,2	0,5	0,7	0,7	1,6	0,3	-	<ul style="list-style-type: none"> - G-308 spheroidal cast-iron body stainless steel internal parts - PN25 flanged connections - Fluid temperature: -10° to 230 °C - Control flow characteristic: equalpercentage (DN25÷65) linear (DN80), angle way linear - Leakage 0.02% Kvs
3FSA25R4	25 R	4	9,5	22,2	25	25	25	12,5	18,5	
3FSA25R7	25 I	6.3	4,7	11,2	19,3	16,9	25	6,3	9,3	
3FSA25	25	10	4,7	11,2	19,3	16,9	25	6,3	9,3	
3FSA32	32	19	3,1	7,5	13	11,4	25	4,2	6,2	
3FSA40	40	25	2,2	5,4	9,4	8,2	20,8	3	4,4	
3FSA50	50	40	1,3	3,4	5,9	5,2	13,3	1,8	2,8	
3FSA65	65	63	0,7	1,9	3,4	3	7,8	1	1,6	
3FSA80	80	110	0,7	1,5	2,2	2,2	5,3	0,9	-	
3FSA25SR4	25 R	4	5	5	5	5	5	5	5	
3FSA25SR7	25 I	6.3	5	5	5	5	5	5	5	<ul style="list-style-type: none"> - G 308 spheroidal cast-iron body stainless steel internal parts with bellows seal - PN25 flanged connections - Fluid temperature: -10° to 300 °C - Control flow characteristic: equal percentage (DN25÷65) linear (DN80), angle way linear - Leakage 0.02% Kvs
3FSA25S	25	10	5	5	5	5	5	5	5	
3FSA32S	32	16	4,7	5	5	5	5	5	5	
3FSA40S	40	25	3,4	5	5	5	5	4,2	5	
3FSA50S	50	40	2,2	4,2	5	5	5	2,7	3,6	
3FSA65S	65	63	1,3	2,5	4	3,5	5	1,6	2,1	
3FSA80S	80	110	0,8	1,6	2,6	2,3	5	1	-	

1. By spring return MVHFA closed, MVHFC open.

2. For applications with possible ice formation on stem and packing, use the stem heater.

3. In order to avoid seat & plug wearing issues we recommend not to exceed 2 bar (3FGB) & 8 bar (3FSA & 3FSAS) differential pressure.



*



*Also available with grooved connection

Series 3F **PN40** - Stroke 16.5 mm (DN25), 25mm (DN32-65), 45mm (DN80-125) - To be motorised by MVE-MVH actuators.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar							OTHER FEATURES
			MVE506	MVE510	MVE515	MVH	MVH3K	MVH56FA MVH56FC	MVF59A MVF59C	
3FAA25R4	25 R	4	6	13	21,7	19,2	30	7,7	10,9	<ul style="list-style-type: none"> - Fe 52 steel body stainless steel internal parts - PN40 flanged connections - Fluid temperature: -10²¹ to 230 °C - Control flow characteristic: linear - Leakage 0.02% Kvs
3FAA25R7	25 I	6.3	6	13	21,7	19,2	30	7,7	10,9	
3FAA25	25	10	6	13	21,7	19,2	30	7,7	10,9	
3FAA32	32	16	3,8	8,2	13,7	12,1	30	4,8	6,9	
3FAA40	40	22	2,4	5,3	9	7,9	19,4	3,1	4,5	
3FAA50	50	32	1,7	3,7	6,3	5,6	13,7	2,2	3,2	
3FAA65	65	70	1	2,2	3,7	3,3	8,1	1,3	1,8	
3FAA80	80	110	0,6	1,4	2,4	2,1	5,3	0,8	-	
3FAA100	100	140	0,4	0,9	1,5	1,4	3,4	0,5	-	
3FAA125	125	250	0,2	0,6	1	0,8	2,1	0,3	-	
3FAA25PR4	25 R	4	6	13	21,7	19,2	30	7,7	10,9	<ul style="list-style-type: none"> - Fe 52 steel body internal parts in AISI 316 stainless steel with grease-cap and special seals for high temperature - PN40 flanged connections - Fluid temperature: - 20²¹ to 350 °C - Control flow characteristics: linear - Leakage 0.02% Kvs
3FAA25PR7	25 I	6.3	6	13	21,7	19,2	30	7,7	10,9	
3FAA25P	25	10	6	13	21,7	19,2	30	7,7	10,9	
3FAA32P	32	16	3,8	8,2	13,7	12,1	30	4,8	6,9	
3FAA40P	40	22	2,4	5,3	9	7,9	19,4	3,1	4,5	
3FAA50P	50	32	1,7	3,7	6,3	5,6	13,7	2,2	3,2	
3FAA65P	65	70	1	2,2	3,7	3,3	8,1	1,3	1,8	
3FAA80P	80	110	0,6	1,4	2,4	2,1	5,3	0,8	-	
3FAA100P	100	140	0,4	0,9	1,5	1,4	3,4	0,5	-	
3FAA125P	125	250	0,2	0,6	1	0,8	2,1	0,3	-	

1. By spring return MVHFA closed direct way, MVHFC open

2. For fluid applications with temperature below -10 °C, when ordering, add "T", instead of "P" to model, e.g. 3FAA40T

3. In order to avoid seat & plug wearing issues we recommend not to exceed 12 bar differential pressure.



Accessories

(Supplied separately from the valve body, mounting to be carried out by the user)

MODEL	DESCRIPTION
AG22	Linkage kit for MVB on V500
AG50	Linkage kit for MVE-MVH on VMB16-VBG-VSG (old type) up to DN65 valves
AG51	Linkage kit for MVE-MVH on other SS-VS-DS-VM-3V (old type) flanged valves
AG52	Linkage kit for MVE-MVH on VSB-VMB, VSB.F-VMB.F valves (pages 52, 56)
AG53	Linkage kit for MVE on Satchwell valves
AG60-20	Linkage kit for MVE on Honeywell valves
AG70-10	Linkage kit for MVE on Siemens valves with 10 mm spindle diameter
AG70-14	Linkage kit for MVE on Siemens valves with 14 mm spindle diameter
AG66/AG67	Linkage kit for MVE on Johnson Controls valves
AG60-07	Linkage kit for MVE on Danfoss valves
AG62	Linkage kit for MVH on VSB-VMB, VSB.F-VMB.F valves (pages 52, 56)
AG63	Linkage kit for MVE.S on VSB-VMB, VSB.F-VMB.F valves (pages 52, 56)
AG64	Linkage kit for MVH on SS-DS-VM-3V (old type) up to DN65 valves with MVLHT spacer
AG65	Linkage kit for MVH on SS-DS-VM-3V (old type) DN ≥80 valves with MVLHT spacer
244	Stem heater for VSB/VSB-F- VMB/VMB-F valves motorised by MVB actuator or MVE-MVH actuators with AG52-AG62, supply 24 V a.c.
248	As above for MVH-MVE with 2F-3F flanged valves





MVT 300 Newton
Compact Actuator

Electric bidirectional actuator with compact dimensions suitable to valves with hot or cool water used in a variety of applications including FCUs, AHUs, zone control systems, solar plants, small heating and cooling plants, small re-heating and dehumidification coils. Force is 300N i.e. it provides 50% more force than standard MVT actuators that means higher close-off performances. It is easy to fit the actuator on Controlli valves. Further more, thanks to self-stroking feature and 17mm long stroke, these new MVT 300N actuators can be used to retrofit actuators from other manufacturers, for example actuators for MZX, VZX, MEU, FEU, VEU Satchwell valves. Additionally, they can be used to motorize a number of PICVs available in the market. Please contact export@controlli.eu for

a comprehensive list of manufacturers.

MVT 300N actuators can be controlled by either proportional (modulating) signals or by an increase/decrease (floating) signal. On all models, PC Board is equipped with two micro-switches detecting the complete open and complete closed positions.

Two versions are available:
SHORT: up to 9mm yoke, self stroking, only pushing
LONG: up to 17mm yoke, self stroking, push & pull

Timing:
60seconds on 5,5 mm stroke valves e.g. VMBT
90seconds on 8,5 mm stroke valves e.g. 2TGA..B

IP43 protection class.
Manual override by means of a 3mm Allen key.

Proportional actuators can be connected to any controller with 0..10Vdc, 2..10Vdc, 0..5Vdc, 6..10Vdc, 4..20mA signal.
Feedback signal: 2..10Vdc (2V=fully retracted; 10V= fully extended)

Proportional actuators are equipped with 3 LEDs visible under the cover

- Green for Power On
- Yellow for opening action
- Red for closing action

Direct / reverse action: actuator movement direction can be selected via a dip-switch.

				VALVES WITH SPRING				VALVES WITHOUT SPRING	
				VSXT / VMXT / VIXT VALVES FOR FCUS 1/2" TO 3/4"	VSXT..PB DYNAMIC PICVS 1/2" TO 1" 1/2	VSBT_ / VMBT_ GLOBE VALVES 3/4" TO 1" 1/2	2TGA..B VALVES WITH HIGH CLOSE-OFF 3/4" TO 2"	VSB_T / VMB_T GLOBE VALVES 3/4" TO 1" 1/2	VALVES FROM OTHER MANUFACTURERS UP TO 17mm STROKE
				STROKE 5,5mm	STROKE 5,0mm	STROKE 5,5mm	STROKE 8,5mm	STROKE 5,5mm	
SHORT YOKE, ONLY PUSHING	MVT203S	3POS.	230VAC	●	●	●	●		
	MVT403S			●	●	●	●		
	MVT503S	PROPORTIONAL	24VAC	●	●	●	●		
LONG YOKE, PULLING & PUSHING	MVT203	3POS.	230VAC					●	●
	MVT403							●	●
	MVT503	PROPORTIONAL	24VAC					●	●

Actuators for Zone Valves and Terminal Unit Valves 200 N

Series MVT2./4. - Bidirectional type - Stroke 5.5 mm, stroke time 117 s. - For V.XT - V.BT valve bodies - Protection IP43.
Series MVT5. - Bidirectional type with microprocessor module for proportional signal Vdc - 24 Vac power supply - Stroke 5 mm to 5,5 mm, stroke time 117 s. - For V.XT - V.BT valve bodies - Protection IP43.

MODEL	POWER SUPPLY Vac	CONSUMPTION VA	OTHER FEATURES
MVT28	230	5	3-position control
MVT44	24	0.5	3-position control
MVT56	24	1	0 to 10/ 6 to 10/ 1 to 5/ 2 to 10/ 4 to 7/ 6 to 9/8 to 11 Vdc proportional control - direct/reverse action
MVT56L	24	1	Same as MVT56 but Stroke 8,5 mm
MVT56S	24	1	Same as MVT56 but Stroke 5 mm
MVT57	24	1	0 to 10 Vdc - proportional control - only direct action



Globe Valve Actuators 450 N

Series MVB - Bidirectional motor for V.B threaded ½" to 2" and flanged 15 to 50 mm valve bodies - Supplied with linkage for mounting on 2T-3T and V.B-V.BF valve bodies - IP50 protection.

MODEL	TIMING s.	SUPPLY Vac	CON-SUMPTION VA	OTHER FEATURES
MVB22	37	230	5	on/off, floating
MVB26	60	230	5	
MVB28	370	230	5	
MVB46	60	24	5	
MVB46P	As MVB46 with 1 kOhm auxiliary potentiometer			
MVB36	60	24	5	proportional potentiometric
MVB52	37	24	5	Vdc/ current proportional control. Ranges: 6 to 9, 4 to 7, 8 to 11, 0 to 10, 2 to 10, 1 to 5 Vdc, 4 to 20 mA. Default setting: 0 to 10Vdc
MVB56	60	24	5	



MVBAV MVB mounting on valvebody





MVE

Universal Actuator

The MVE is a flexible electro-mechanical actuator for the control of two and three way globe valves in: Heating and Cooling systems, Air handling units, District Heating plants, Industrial Temperature Control systems. The MVE can be controlled either by a proportional (modulating) signal or by an increase/decrease (Floating) signal simply changing switch settings on the field. It is designed for an easy installation to any CONTROLLO flanged valve. Linkage kits are available for threaded valves as well as for valves of other manufacturers. The Actuator has a fine resolution (500 steps on the full stroke range) for a very accurate fluid control and it is able to self-calibrate on a different stroke without the need of any user action. A Plug&Play function is available as well calibrating the actuator on the valve at the very first power-on only. The MVE implements an smart control algorithm with self diagnostic and alarm functionality in case

of unexpected operation, feedback of alarms to the user is provided by LEDs (Green and Red) on the control board. MVE is available with standard yoke and with a compact yoke for applications where compact dimensions are required and each ver-

sion can be available with close-off force 600 N, 1000 N and 1500 N.
MVE5.. - MVE5..S
MVE is available with very low voltage power supply 24 Vac or 24Vdc.
MVE2.. - MVE2..S
MVE is also available with

high voltage power supply 230Vac with the same functionality of the 24Vac/dc

MODEL		TIMING [s]			3P.	POWER SUPPLY		FORCE [N]	OTHER
		STROKE [mm]				MVE5..	MVE2..		
		5/15	15/25	25/60					
MVE506	MVE206	15	20	30	60	24Vac/dc	220Vac	600	Control 3p floating and proportional switch selectable. Control range 0..10 Vdc, 2..10 Vdc, 0.5 Vdc, 5..10 Vdc, 2..6 Vdc, 6..10 Vdc and 4-20 mA
MVE510	MVE210							1000	
MVE515	MVE215							1500	
MVE506S	MVE206S							600	Control 3p floating and proportional switch selectable. Control range 0..10 Vdc, 2..10 Vdc, 0.5 Vdc, 5..10 Vdc, 2..6 Vdc, 6..10 Vdc and 4-20 mA Short Yoke.
MVE510S	MVE210S							1000	
MVE515S	MVE215S							1500	

Globe Valve Actuators 1500 N-3000 N

Series MVH - For all valve bodies, self-adjusting stroke 10 to 45 mm (9 to 50 mm for MVH56F)
 - For VSB-VSB.F VMB-VMB.F valves only, add linkage AG62, - Manual override - Protection IP55.

MODEL	TIMING DEPENDING ON VALVE STROKE (seconds)			SUPPLY Vac	CON-SUMPTION VA	FORCE N	ACTION
	16.5	25	45				
MVH26	22	33	60	230	12	1500	on/off floating
MVH46	22	33	60	24	12		
MVH36	22	33	60	24	12		proportional potentiometric
MVH56	22	33	60	24	12		proportional control selectable range for industrial applications
MVH56F	26	40	70	24	12	3000	3-position and/or proportional control (selectable) Ranges: 6 to 9/4 to 7/8 to 11/0 to 10/2 to 10/1 to 5 Vdc; current 4 to 20 mA. Default setting: 0 to 10Vdc
MVH3K	26	40	70	24	25		
MVHAV	MVH assembly on valve body						



Globe Valve Actuators with Spring Return 700 N

Series MVH - For all valve bodies, self-adjusting stroke 9 to 50 mm - Direct-reverse action
 - For VSB-VSBF VMB-VMBF valves only, add linkage AG62 - Protection IP55.

MODEL	TIMING DEPENDING ON VALVE STROKE (seconds)			SUPPLY Vac	CON-SUMPTION VA	ACTION	OTHER FEATURES
	16.5	25	45				
MVH56FA	17 (45)	25 (60)	48 (114)	24	15	Vdc/ mA proportional control or floating control. Default setting: 0 to 10Vdc	with spring return stem up
MVH56FC	17 (45)	25 (60)	48 (114)	24	15		with spring return stem down

1. The values in brackets indicate the return time by spring return. By spring return: MVHFA closes two-way valves and direct way in three-way valves, MVHFC opens two-way valves and direct way in three-way valves. This is valid for all valves except 2FGA-2FGA.B-2FAA-2FAA150B in which it happens the opposite.



Action of spring return on power failure

2 WAY VALVES

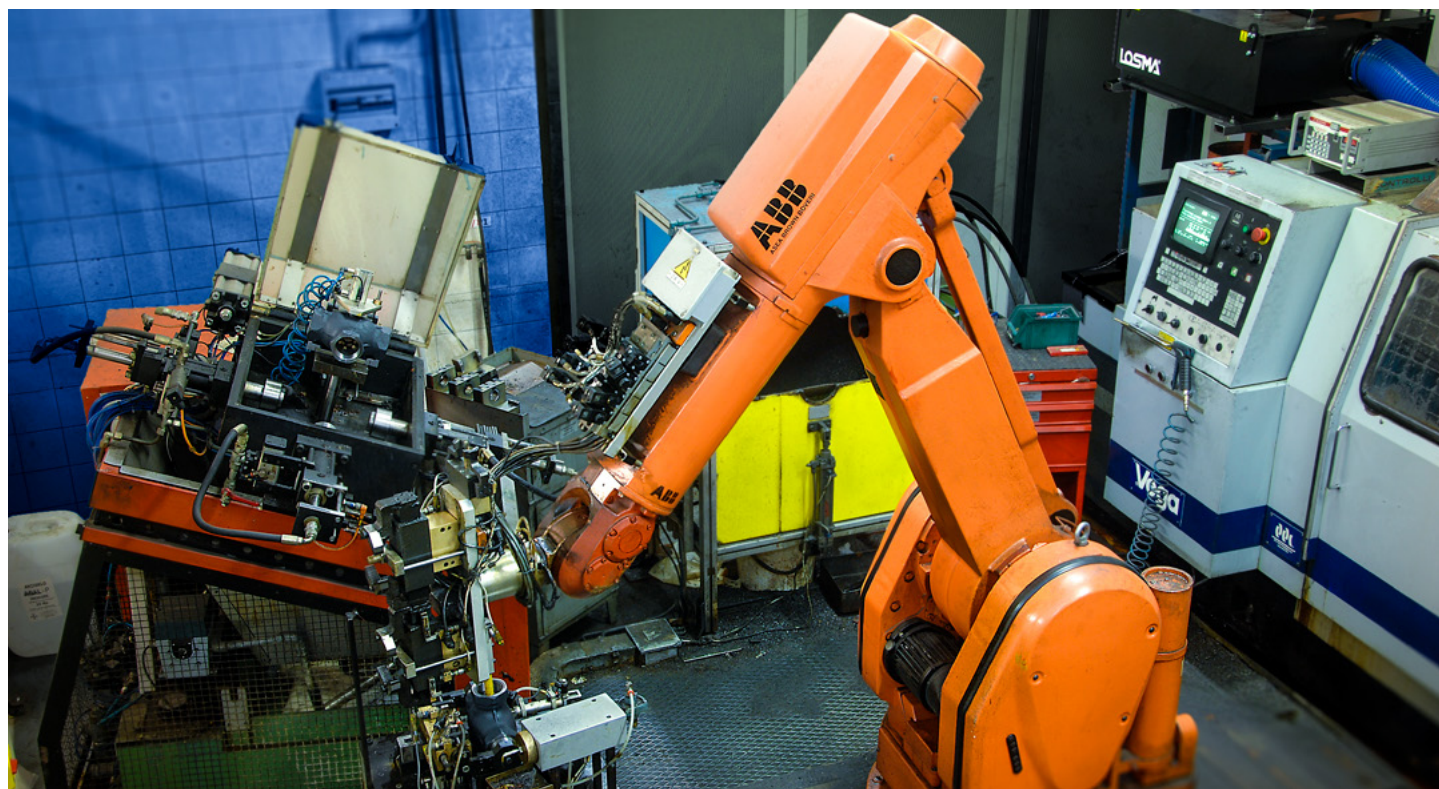
SPRING ACTION ON POWER FAILURE

	VALVE	MVH56FA	MVH56FC	MVF59A	MVF59C
Valve series	VSB	VALVE CLOSED	VALVE OPEN	-	-
	VSB.F	VALVE CLOSED	VALVE OPEN	-	-
	2TBB	VALVE CLOSED	VALVE OPEN	-	-
	2FGB	VALVE CLOSED	VALVE OPEN	VALVE CLOSED	VALVE OPEN
	2FGA	VALVE OPEN	VALVE CLOSED	VALVE OPEN	VALVE CLOSED
	2FSA	VALVE CLOSED	VALVE OPEN	VALVE CLOSED	VALVE OPEN
	2FAA	VALVE OPEN	VALVE CLOSED	VALVE OPEN	VALVE CLOSED
	2FAA.P	VALVE OPEN	VALVE CLOSED	VALVE OPEN	VALVE CLOSED
	2FGB.B	VALVE CLOSED	VALVE OPEN	VALVE CLOSED	VALVE OPEN
	2FSA.B	VALVE CLOSED	VALVE OPEN	VALVE CLOSED	VALVE OPEN
	2FAA.B	VALVE CLOSED	VALVE OPEN	VALVE CLOSED	VALVE OPEN
	2FGA.B	VALVE OPEN	VALVE CLOSED	-	-

3 WAY VALVES

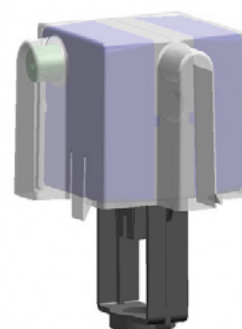
SPRING ACTION ON POWER FAILURE

	VALVE	MVH56FA	MVH56FC	MVF59A	MVF59C
Valve series	VMB	DIRECT WAY CLOSED	DIRECT WAY OPEN	DIRECT WAY CLOSED	DIRECT WAY OPEN
	VMB.F	DIRECT WAY CLOSED	DIRECT WAY OPEN	DIRECT WAY CLOSED	DIRECT WAY OPEN
	3TBB	DIRECT WAY CLOSED	DIRECT WAY OPEN	DIRECT WAY CLOSED	DIRECT WAY OPEN
	3FGB	DIRECT WAY CLOSED	DIRECT WAY OPEN	DIRECT WAY CLOSED	DIRECT WAY OPEN
	3FSA	DIRECT WAY CLOSED	DIRECT WAY OPEN	DIRECT WAY CLOSED	DIRECT WAY OPEN
	3FSA.S	DIRECT WAY CLOSED	DIRECT WAY OPEN	DIRECT WAY CLOSED	DIRECT WAY OPEN
	3FAA	DIRECT WAY CLOSED	DIRECT WAY OPEN	DIRECT WAY CLOSED	DIRECT WAY OPEN
	3FAA.P	DIRECT WAY CLOSED	DIRECT WAY OPEN	DIRECT WAY CLOSED	DIRECT WAY OPEN



Accessories for MVB - MVE - MVH - MVHF - MDA Actuators

MODEL	DESCRIPTION
D36	One stroke-end auxiliary microswitch adjustable on the whole stroke for MVB
DMDA	Two auxiliary microswitches for MDA
DMVE	Two auxiliary microswitches for MDA
DMVH	Two auxiliary microswitches adjustable on the whole stroke for MVH
MVBC	Rain-proof protection (see picture on the right)
MVBD	Microswitch driven by manual control knob. Supplied only factory-mounted
MVBHT	Spacer for MVB. To be used with V.B/V.BF valves with temperature from 120 to 140 °C
MVHFS5	Selection module for 4 to 20 mA range for MVHF (supplied with the actuator)
MVHT	Spacer for high temperature for MVH-MVF. To be used with valve bodies with fluid temperature higher than 150°C (2F-3F)
MVHPA2	1000 Ohm auxiliary potentiometer for MVH26
MVHPA4	1000 Ohm auxiliary potentiometer for MVH46



1. All accessories, except MVBD, are supplied separately. Mounting is carried out by the user.

Valve Options

MODEL	DESCRIPTION
A125-2	Flanges with ANSI (ASA) 125 bolt holes for 2-way valves 2FGA.B, 2FGB, 2FGB.B, 2FSA (DN50 to 65), 2FSA.B (DN50 to 80), 2FGA (DN25, 32, 50, 65)
A125-3	Flanges with ANSI (ASA) 125 bolt holes for 3-way valves 3FGB, 3FSA (DN50 to 65)
A150-2	Flanges with ANSI (ASA) 150 bolt holes for 2-way valves 2FAA150B, 2FSA (DN50 to 65), 2FSA.B (DN50 to 80), 2FAA.B (DN50 to 125), 2FAA (DN32 to 65)
A150-3	Flanges with ANSI (ASA) 150 bolt holes for 3-way valves 3FAA (DN50 to 125), 3FSA (DN50 to 65)
A300-2	Flanges with ANSI (ASA) 300 bolt holes for 2-way valves 2FSA, 2FSA.B, 2FAA.B (DN32 to 65 and DN100 to 125), 2FAA (DN15 and DN32 to 65)
A300-3	Flanges with ANSI (ASA) 300 bolt holes for 3FSA, 3FAA (DN32 to 65 and DN100 to 125)

Insulation Jackets for V.B Valve Bodies

(Supplied separately from the valve body, mounting to be arranged by the user)

MODEL	DESCRIPTION
GVB3	Thermal insulation for V.B-V.BF-V.BPM 3/4" or DN20
GVB4	Thermal insulation for V.B-V.BF-V.BPM 1" or DN25
GVB5	Thermal insulation for V.B-V.BF-V.BPM 1 1/4" or DN32
GVB6	Thermal insulation for V.B-V.BF-V.BPM 1 1/2" or DN40
GVB8	Thermal insulation for V.B-V.BF-V.BPM 2" or DN50.



Valve Sizing

Software assistant to choose the correct valve size for: water, superheated water, saturated steam and thermal oil.

Available on our web site www.controlli.eu



Butterfly Valves

Series VFA - The valves are ready for mounting on MDA actuators.

They can also be motorized by MDL actuators (page 29) by means of AF24 and AF25 and adapter.

MODEL	DN	Kvs	MAX DIFFERENTIAL PRESSURE bar		OTHER FEATURES
			MDA22/42/52	MDA24/44/54	
VFA (PN10)	25	27.8		-	<ul style="list-style-type: none"> - Spheroidal cast-iron body (EN-JS1030) - Shaft tight O-Ring - Seat EPDM - Fluid temp.: -10 to 100°C - Close-off leakage: leakage rate A (DIN EN 12266-1)
	32	28.5		-	
	40	58		-	
	50	107	6	-	
	65	201		-	
	80	336		-	
	100	576		-	
	125	840	-	6	
	150	1295	-	3	
	200	2470	-		



Shoe Valves

Series M - Cast-iron PN6 - To be motorised by MDB24-44-54 actuators, fitted with AM72.

TYPE	DN	Kvs	MODEL	MAX DIFFERENTIAL PRESSURE bar	OTHER FEATURES
M3 (PN6) threaded	1"	30	M31P	1	<ul style="list-style-type: none"> - THREE-WAY - PN 6 cast-iron valve body - Female threaded connections - Outlet from angle-way - Fluid temperature: 110 °C max
	1 1/4"	37	M31P1/4	1	
	1 1/2"	38	M31P1/2	1	
	2"	45	M32P	1	
M3 (PN6) flanged	40	38	M340	1	As above, with flanged connections
	50	70	M350	1	
	65	80	M365	0.8	
	80	90	M380	0.5	
	100	110	M3100	0.3	
	125	120	M3125	0.2	
M4 (PN6) threaded	1"	30	M41P	1	<ul style="list-style-type: none"> - FOUR-WAY - PN 6 cast-iron valve body - Female threaded connections - Fluid temperature: 110 °C max
	1 1/4"	37	M41P1/4	1	
	1 1/2"	40	M41P1/2	1	
	2"	45	M42P	1	
M4 (PN6) flanged	50	70	M450	1	As above, with flanged connections
	65	80	M465	1	
	80	90	M480	0.8	
	100	110	M4100	0.3	



Actuators for Butterfly Valves

Series MDA - Bidirectional actuator for VFA butterfly valves - Floating (MDA2.-4.) or proportional 0-10 V (MDA5.) control signal - Angular stroke 90° - Manual control - Supplied with linkage for mounting on valve body - Protection IP54.

MODEL	TIMING s.	POWEER SUPPLY V _{ca}	TORQUE Nm	OTHER FEATURES
MDA22	90	230	20	For VFA valves up to DN100
MDA24	150		40	For VFA valves from DN125 to DN200
MDA42	90	24	20	For VFA valves up to DN100
MDA44	150		40	For VFA valves from DN125 to DN200
MDA52	90		20	For VFA valves up to DN100
MDA54	150		40	For VFA valves from DN125 to DN200
MDAV1	MDA actuators are supplied NOT mounted on valve bodies. In case the actuator-valve assembly is required, order the specific part number MDAV1 together with the models of actuator and valve body.			

MDAV2

DMDA microswitch assembling on MDA actuator



Actuators for Butterfly valves

Series MDL - Bidirectional motor- Input signal P.C. board - Power consumption 12VA - 2 output shafts: main and secondary shaft Ø 9.5 x 9.5 mm - MDL30-50 angular travel set at 90°adjustable between 55 and 160°- MDL20-40-60 angular travel set at 90°adjustable between 0 and 160° - Force 500 N - Manual override - IP 55.

MODEL	TIMING (s. FOR 90°)	TORQUE Nm	ADJUSTABLE ANGULAR TRAVEL	SUPPLY Vac	MAX DAMPER SURFACE m ²	ACTION
MDL22	15 - 27	6	0 to 160	230	1.2	on/off, floating
MDL24	45 - 80	20	0 to 160	230	4	"
MDL26	60 - 107	30	0 to 160	230	6	"
MDL42	15 - 27	6	0 to 160	24	1.2	"
MDL44	45 - 80	20	0 to 160	24	4	"
MDL46	60 - 107	30	0 to 160	24	6	"
MDL62	15 - 27	6	0 to 160	110	1.2	"
MDL64	45 - 80	20	0 to 160	110	4	"
MDL66	60 - 107	30	0 to 160	110	6	"
MDL32	15 - 27	6	55 to 160	24	1.2	proportional-potentiometric (165 Ohm)
MDL34	45 - 80	20	55 to 160	24	4	
MDL36	60 - 107	30	55 to 160	24	6	
MDL52	15 - 27	6	55 to 160	24	1.2	Vdc/current proportional control. Ranges: 6 to 9, 4 to 7, 8 to 11, 0 to 10, 1 to 5 Vdc, or current 4 to 20 mA
MDL54	45 - 80	20	55 to 160	24	4	
MDL56	60 - 107	30	55 to 160	24	6	

1. VARIANTS: in case the MDL2./4. actuators are needed to be supplied with 1 KOhm auxiliary potentiometer, add PA2 for MDL20, PA4 for MDL40 and PA6 for MDL60: e.g. MDL24PA2, MDL46PA4 or MDL66PA6. In special applications, the actuators can be supplied with 2 or 3 auxiliary potentiometers.



Options

MODEL	DESCRIPTION
MDLS5	Electronic card input signal, range 6 to 9, 4 to 7, 8 to 11, 1 to 5 V d.c., 4 to 20 mA for MDL32/34/36
MDLV5	Electronic card input signal, range 0 to 10 V d.c., 4 to 20 mA with adjustable start point and span for MDL32/34/36
DMDL	Two auxiliary microswitches SPDT 10 (3) A - 240 V a.c. adjustable on the whole stroke for MDL
MDLA1	Damper drive linkage for MDL
MDLA2	Linkage for mounting MDL when replacing SL
MDLPA2	Board with 1 K Ohm auxiliary potentiometer for MDL2
MDLPA4	Board with 1 K Ohm auxiliary potentiometer for MDL4
MDLPA6	Board with 1 K Ohm auxiliary potentiometer for MDL6

YS7

Crank-arm in addition to MDLA1 composed of 2 joints and 8-mm rod for dampers with 10 to 18mm shaft with MDL actuator

Without Spring Return MDB Series. Maximum rotation 95°. For air dampers up to 2sqm. IP54

MODEL		Torque	Power supply	Control action	Micro-switch
MDB42		5 Nm	24 Vac	2-3 pos.	-
MDB42M				2	
MDB52				0-10Vdc proportional	-
MDB24		8 Nm	230 Vac	2-3 pos.	-
MDB24M			24 Vac		1
MDB44					-
MDB44M				1	
MDB54			0-10Vdc proportional	-	
MDB26	MDB28	15 Nm 20 Nm	230 Vac	2-3 pos.	-
MDB26M	MDB28M		24 Vac		2
MDB46	MDB48				-
MDB46M	MDB48M			2	
MDB56	MDB58		0-10Vdc proportional	-	



With Spring Return DuraDrive series. With spring return - Protection IP54 (for 7-15 Nm only with conduit connector downwards, otherwise IP30).

MODEL	CONTROL SIGNAL	TORQUE Nm	SUPPLY Vac	AUXILIARY MI-CROSSWITCH	MAX DAMPER SURFACE m²	TIMING (s. FOR 90°)
MA40-7041-G00	2 pos.	4	230		0.74	50
MA40-7041-G01	2 pos.	4	230	1	0.74	50
MA40-7043-G00	2 pos.	4	24		0.74	50
MA40-7043-G01	2 pos.	4	24	1	0.74	50
MA41-7071-G00	2 pos.	7	230		1.39	80
MA41-7071-G02	2 pos.	7	230	2	1.39	80
MA41-7073-G00	2 pos.	7	24		1.39	80
MA41-7073-G02	2 pos.	7	24	2	1.39	80
MA41-7151-G00	2 pos.	15	230		3.25	190
MA41-7151-G02	2 pos.	15	230	2	3.25	190
MA41-7153-G00	2 pos.	15	24		3.25	190
MA41-7153-G02	2 pos.	15	24	2	3.25	190
MF40-7043-G00	floating	4	24		0.74	130
MF40-7043-G01	floating	4	24	1	0.74	130
MF41-7073-G00	floating	7	24		1.39	195
MF41-7073-G02	floating	7	24	2	1.39	195
MF41-7153-G00	floating	15	2		3.25	190
MF41-7153-G02	floating	15	24	2	3.25	190
MS40-7043-G00	2-10 V	4	24		0.74	130
MS40-7043-G01	2-10 V	4	24	1	0.74	130
MS41-7073-G00	2-10 V	7	24		1.39	195
MS41-7073-G02	2-10 V	7	24	2	1.39	195
MS41-7153-G00	2-10 V	15	24		3.25	190
MS41-7153-G02	2-10 V	15	24	2	3.25	190



4 Nm



7 and 15 Nm

ACTUATORS



VALVES

PN16 THREADED VALVES

2TGB15B	2-way threaded for MVB	DN 1/2"
3TGB15B	3-way threaded for MVB	DN 1/2"
2TGB15F	2-way threaded for MVE.S	DN 1/2"
3TGB15F	3-way threaded for MVE.S	DN 1/2"
VSB	2-way threaded	DN 3/4" - 2"
VMB	3-way threaded	DN 3/4" - 2"
VSBP. M	2-way threaded tight close-off	DN 3/4" - 2"
VMBP. M	3-way threaded tight close-off	DN 3/4" - 2"
2TBB	2-way bronze valve	DN 1/2" - 2"
3TBB	3-way bronze valve	DN 1/2" - 2"

PN16 FLANGED VALVES

VSB. F	2-way slip-on flanges	DN 20 - 50
VMB. F	3-way slip-on flanges	DN 20 - 50

PN16, 25, 40 FLANGED VALVES

2FCB	2-way flanged PN16	DN 25-150
3FCB	3-way flanged PN16	DN 25-150
2FCA	2-way flanged PN16	DN 15-100
2FSA	2-way flanged PN25	DN 25-65
3FSA *2	3-way flanged PN25	DN 25-80
2FAA *2	2-way flanged PN40	DN 15-80
3FAA *2	3-way flanged PN40	DN 25-125

FLANGED VALVES FOR HIGH CLOSE-OFF PRESSURE

2FGB.B	2-way flanged PN16, balanced plug	DN 65-150
2FSA.B	2-way flanged PN25, balanced plug	DN 25-80
2FAA.B	2-way flanged PN40, balanced plug	DN 25-125
2FAA150B	2-way double seat PN25	DN150
2FCA200B	2-way double seat PN16	DN200

*1 - Available on request

*2 - Also 2FAA.P, 2FAA.T, 3FAA.P, 3FAA.T, 3FSA.S

VALVES AND ACTUATORS

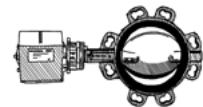
COMPATIBILITY

MVB		MVE		MVF59		MVH	
MVB22	prop. 24V	MVE506	MVE506S	MVF59A	MVF59AS	MVH26	MVH56F
MVB26		MVE510	MVE510S	MVF59AW	MVF59AWS	MVH36	MVH56F
MVB28		MVE515	MVE515S	MVF59C	MVF59CS	MVH46	MVH3K
MVB46		3 pos. & prop. 24V	3 pos. & prop. 24V, short bracket	MVF59CW	MVF59CWS	Prop. pot. or Vdc-mA 24V	3 pos. & prop. 24V
2 - 3 pos. 24V, 230V	prop. 24V	3 pos. & prop. 24V	3 pos. & prop. 24V, short bracket	3 pos. & prop. 24V, spring return up to DN65	2 - 3 pos. 24V, 230V	2 - 3 pos. 24V, 230V	3 pos. & prop. 24V, spring return
450 N		600 N 1000 N 1500 N	600 N 1000 N 1500 N	900 N	1500 N	1500 N	1500 N 3000 N
●		-	-	-	-	-	-
●		-	-	-	-	-	-
-	●	-	●	-	-	-	-
-		-	●	-	-	-	-
●		● with AG52	● with AG63	● with AG52	● with AG62	● with AG62	● with AG62
●		● with AG52	● with AG63	● with AG52	● with AG62	● with AG62	● with AG62
●	●	-	-	-	-	-	-
●		-	-	-	-	-	-
●		●	●*1	●	●	●	● no MVH 3K
●		●	●*1	●	●	●	● no MVH 3K
●	●	● with AG52	● with AG63	● with AG52	● with AG62	● with AG62	● with AG62
●		● with AG52	● with AG63	● with AG52	● with AG62	● with AG62	● with AG62
●		●	●	●	●	●	●
●		●	●	●	●	●	●
●	●	● with AG52	● with AG63	● with AG52	● with AG62	● with AG62	● with AG62
●		● with AG52	● with AG63	● with AG52	● with AG62	● with AG62	● with AG62
●		●	●	●	●	●	●
●		●	●	●	●	●	●
●	●	●	-	● up to DN 65	-	●	●
●		●	-	● up to DN 65	-	●	●
●		●	-	● up to DN 65	-	●	●
●		●	-	● up to DN 65	-	●	●
●	●	●	-	● up to DN 65	-	●	●
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VALVES

BRASS VALVES PN16 - KVS 0.25 TO 6									
VSXT	2-way								
VMXT	3-way	DN 1/2"-3/4"							
VXT	3-way +bypass								
BRASS VALVES PN16 - KVS 0.25 TO 2.5									
VX	2-way								
VMX	3-way	DN 1/2"-3/4"							
VTX	3-way +bypass								
BRASS VALVES PN16 - KVS 4 TO 6									
VX24-26	2-way	DN 3/4"							
VMX24-26	3-way								
VTX24-26	3-way +bypass								
CAST IRON VALVES PN16 - KVS 6.3 TO 18									
VSBT	2-way	DN 3/4"-1 1/2"							
VMBT	3-way								
2TGA_B	2-way	DN 3/4-2"							
PRESSURE INDEPENDENT CONTROL VALVES									
VX..PB	2 way								
VSXT..PB	2 way								



VALVES

VALVES

BUTTERFLY VALVES PN10

VFA		Butterfly valve PN10	DN 25-200	MDA		MDB		MDL	
		●		●			-	● with AF24	● with AF25

SHOE VALVES PN6

M3		3 ports female thread	DN 1"-2"	MDA		MDB		MDL	
		-		-		● with AM72	● with AM72	-	-
		-		-		● with AM72	● with AM72	-	-
M3 flanged		3 ports flanged connections	DN 40-125	-		● with AM72	● with AM72	-	-
M4 flanged		4 ports flanged connections	DN 50-100	-		● with AM72	● with AM72	-	-

COMPATIBLE VALVES / LINKAGE KITS

MANUFACTURER	MODEL	WAY	TYPE	MVE	MVH	MVH56FA/C	MVF59A/C
SCHNEIDER ELECTRIC	V241	2way	threaded	compatible	compatible	compatible	compatible
	V211T	2way	threaded	compatible	compatible	compatible	compatible
	V212T	2way	threaded	compatible	compatible	compatible	compatible
	V211	2way	flanged	compatible	compatible	compatible	compatible
	V212	2way	flanged	compatible	compatible	compatible	compatible
	VG211	2way	flanged	compatible	compatible	compatible	compatible
	VG222	2way	flanged	compatible	compatible	compatible	compatible
	V231	2way	flanged	compatible	compatible	compatible	compatible
	V232	2way	flanged	compatible	compatible	compatible	compatible
	V292	2way	flanged	compatible	compatible	compatible	compatible
	V341	3way	threaded	compatible	compatible	compatible	compatible
	V311T	3way	threaded	compatible	compatible	compatible	compatible
	V311	3way	flanged	compatible	compatible	compatible	compatible
	VG321	3way	flanged	compatible	compatible	compatible	compatible
	V321	3way	flanged	compatible	compatible	compatible	compatible
SATCHWELL	VZ	2way	threaded	AG53	AG54	AG54	X
	VSF DN15-50	2way	flanged	AG53	AG54	AG54	X
	VZF DN65 150	2way	flanged	AG53	AG54	AG54	X
	MZ	3way	threaded	AG53	AG54	AG54	X
	MJF DN15-50	3way	flanged	AG53	AG54	AG54	X
	MZF DN 65-150	3way	flanged	AG53	AG54	AG54	X
HONEYWELL	V176A,B	2way	flanged	AG60-10	X	X	X
	V5011A	2way	flanged	AG60-10	X	X	X
SIEMENS	VVF21 DN 25..80	2way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VVF21DN ≥100	2way	flanged	AG70-14	AG70-14	AG70-14	X
	VVF31 DN 15..80	2way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VVF31DN 150	2way	flanged	AG70-14	AG70-14	AG70-14	X
	VVF40 DN 15..80	2way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VVF40 DN 150	2way	flanged	AG70-14	AG70-14	AG70-14	X
	VVF41 DN 50	2way	flanged	AG70-14	AG70-14	AG70-14	AG70-14
	VVF41 DN 65..150	2way	flanged	AG70-14	AG70-14	AG70-14	X
	VVF45 DN 50	2way	flanged	AG70-14	AG70-14	AG70-14	AG70-14
	VVF45 DN65..150	2way	flanged	AG70-14	AG70-14	AG70-14	X
	VVF51DN15..40	2way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VVF52 DN 15..40	2way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VVF53 DN 15..50	2way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VVF53 DN 65..150	2way	flanged	AG70-10	AG70-10	AG70-10	X
	VVF61 DN 15..25	2way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VVF61 DN 40..50	2way	flanged	AG70-14	AG70-14	AG70-14	AG70-14
	VVF61 DN 65..150	2way	flanged	AG70-14	AG70-14	AG70-14	X
	VVF61_2 DN 15..50	2way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VVF61_2 DN 65..150	2way	flanged	AG70-10	AG70-10	AG70-10	X
	VVG41 DN 15.50	2way	threaded	AG70-10	AG70-10	AG70-10	AG70-10
	VVG11 DN 25..40	2way	threaded	AG70-10	AG70-10	AG70-10	AG70-10
	VXF21DN 25..80	3way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VXF21DN 100	3way	flanged	AG70-14	AG70-14	AG70-14	X

SIEMENS	VXF31 DN 15..80	3way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VXF31 DN 100..150	3way	flanged	AG70-14	AG70-14	AG70-14	X
	VXF40 DN 15..80	3way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VXF40 DN 100..150	3way	flanged	AG70-14	AG70-14	AG70-14	X
	VXF41 DN 50	3way	flanged	AG70-14	AG70-14	AG70-14	AG70-14
	VXF41 DN 65..150	3way	flanged	AG70-14	AG70-14	AG70-14	X
	VXF45 DN 50	3way	flanged	AG70-14	AG70-14	AG70-14	AG70-14
	VXF45 DN 65..150	3way	flanged	AG70-14	AG70-14	AG70-14	X
	VXF51 DN 15..40	3way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VXF52 DN 15..40	3way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VXF53 DN 15..50	3way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VXF53 DN 65..150	3way	flanged	AG70-10	AG70-10	AG70-10	X
	VXF61 DN 15..25	3way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VXF61 DN 40..50	3way	flanged	AG70-14	AG70-14	AG70-14	AG70-14
	VXF61 DN 65..150	3way	flanged	AG70-14	AG70-14	AG70-14	X
	VXF61_2 DN 15..50	3way	flanged	AG70-10	AG70-10	AG70-10	AG70-10
	VXF61_2 DN 65..150	3way	flanged	AG70-10	AG70-10	AG70-10	X
	VXG41 DN 15..50	3way	threaded	AG70-10	AG70-10	AG70-10	AG70-10
	VXG11 DN 25..40	3way	threaded	AG70-10	AG70-10	AG70-10	AG70-10
JOHNSON CONTROLS	VB7816	3way	threaded	AG66	X	X	X
DANFOSS	VF2	2way	flanged	AG60-07	X	X	X
	VF3	3way	flanged	AG60-07	X	X	X
MUT	MK DN50 - 150	3way	flanged	AG69	X	X	X

x = link not available



2F & 3F VALVES CROSS REFERENCE WITH OLD CONTROLLI VALVES

	OLD MODEL	NEW MODEL
2-way valves PN40		
Steel valves	SSAA15R	2FAA15R2
	SSAA15	2FAA15
	SSAA20	2FAA20
	SSAA25	2FAA25
	SSAA32	2FAA32
	SSAA40	2FAA40
	SSAA50	2FAA50
	SSAA65	2FAA65
	SSAA80	2FAA80
Steel valves for very high temperatures	SSAACP15R	2FAA15PR2
	SSAACP15	2FAA15P
	SSAACP20	2FAA20P
	SSAACP25	2FAA25P
	SSAACP32	2FAA32P
	SSAACP40	2FAA40P
	SSAACP50	2FAA50P
	SSAACP65	2FAA65P
	SSAACP80	2FAA80P
Steel valves for very low temperatures	SSAACP15RB	2FAA15TR2
	SSAACP15B	2FAA15T
	SSAACP20B	2FAA20T
	SSAACP25B	2FAA25T
	SSAACP32B	2FAA32T
	SSAACP40B	2FAA40T
	SSAACP50B	2FAA50T
	SSAACP65B	2FAA65T
	SSAACP80B	2FAA80T
Balanced plug valves	VBAA25	2FAA25B
	VBAA32	2FAA32B
	VBAA40	2FAA40B
	VBAA50	2FAA50B
	VBAA65	2FAA65B
	VBAA80	2FAA80B
	VBAA100	2FAA100B
	VBAA125	2FAA125B

	OLD MODEL	NEW MODEL
3-way valves PN25		
Spheroidal cast iron valves	VMS25R	3FSA25R4
	VMS25I	3FSA25R7
	VMS25	3FSA25
	VMS32	3FSA32
	VMS40	3FSA40
	VMS50	3FSA50
	VMS65	3FSA65
	3VSA80	3FSA80
High temperature valves	VMSTS25R	3FSA25SR4
	VMSTS25I	3FSA25SR7
	VMSTS25	3FSA25S
	VMSTS32	3FSA32S
	VMSTS40	3FSA40S
	VMSTS50	3FSA50S
	VMSTS65	3FSA65S
	3VSATS80	3FSA80S

	OLD MODEL	NEW MODEL
2-way valves PN16		
Cast iron valves with s/steel internal parts	SSGA11	2FGA15R0
	SSGA12	2FGA15R1
	SSGA15R	2FGA15R2
	SSGA1	2FGA15R3
	SSGA15	2FGA15
	SSGA20	2FGA20
	SSGA25	2FGA25
	SSGA32	2FGA32
	SSGA40	2FGA40
	SSGA50	2FGA50
	SSGA65	2FGA65
Cast iron valves	VSG25R	2FGB25R4
	VSG25I	2FGB25R7
	VSG25	2FGB25
	VSG40	2FGB40
	VSG50	2FGB50
	VSG65	2FGB65
	VSG80	2FGB80
	VSG100	2FGB100
Balanced plug valves	VSG125	2FGB125
	VSG150	2FGB150
	VBG65	2FGB65B
	VBG80	2FGB80B
	VBG100	2FGB100B
	VBG125	2FGB125B
	VBG150	2FGB150B
	DSGA200	2FGA200B

	OLD MODEL	NEW MODEL
3-way valves PN16		
Cast iron valves	VMB1625R	3FGB25R4
	VMB1625I	3FGB25R7
	VMB1625	3FGB25
	VMB1640R	3FGB40R19
	VMB1640	3FGB40
	VMB1650	3FGB50
	VMB1665	3FGB65
	VMB1680	3FGB80
	VMB16100	3FGB100
	VMB16125	3FGB125
	VMB16150	3FGB150

OLD MODEL	NEW MODEL	DESCRIPTION
Actuators		
245	248	Stem heater for MVH-MVF with flanged valves
245F		
246	244	Stem heater for MVH-MVF with VSB-VMB-VSBF-VMBF valves
AG31	AG62	Linkage for MVH actuators with VSB-VMB-VSBF-VMBF valves
DMVL	DMVH	Aux. microswitches for MVH
MVLF55	MVHFS5	4-20 mA input signal
MVLPA2	MVHPA2	1kOhm aux. potentiometer for MVH26
MVLPA4	MVHPA4	1kOhm aux. potentiometer for MVH46
MVLHT	MVHT	High temperature spacer

	OLD MODEL	NEW MODEL
2-way valves PN25		
Spheroidal cast iron valves	VSS25R	2FSA25R4
	VSS25I	2FSA25R7
	VSS25	2FSA25
	VSS32	2FSA32
	VSS40	2FSA40
	VSS50	2FSA50
Balanced plug valves	VSS65	2FSA65
	VBS25R	2FSA25BR4
	VBS25I	2FSA25BR7
	VBS25	2FSA25B
	VBS32	2FSA32B
	VBS40	2FSA40B
	VBS50	2FSA50B
	VBS65	2FSA65B
	VBS80	2FSA80B
	DSAA150	2FAA150B

	OLD MODEL	NEW MODEL
3-way valves PN40		
Steel valves	3VAA25R	3FAA25R4
	3VAA25I	3FAA25R7
	3VAA25	3FAA25
	3VAA32	3FAA32
	3VAA40	3FAA40
	3VAA50	3FAA50
	3VAA65	3FAA65
	3VAA80	3FAA80
	3VAA100	3FAA100
	3VAA125	3FAA125
Steel valves for very high temperatures	3VAACP25R	3FAA25PR4
	3VAACP25I	3FAA25PR7
	3VAACP25	3FAA25P
	3VAACP32	3FAA32P
	3VAACP40	3FAA40P
	3VAACP50	3FAA50P
	3VAACP65	3FAA65P
	3VAACP80	3FAA80P
	3VAACP100	3FAA100P
	3VAACP125	3FAA125P
Steel valves for very low temperatures	3VAACP25RB	3FAA25TR4
	3VAACP25IB	3FAA25TR7
	3VAACP25B	3FAA25T
	3VAACP32B	3FAA32T
	3VAACP40B	3FAA40T
	3VAACP50B	3FAA50T
	3VAACP65B	3FAA65T
	3VAACP80B	3FAA80T
	3VAACP100B	3FAA100T
	3VAACP125B	3FAA125T

REPLACING OLD CONTROLLI ACTUATORS

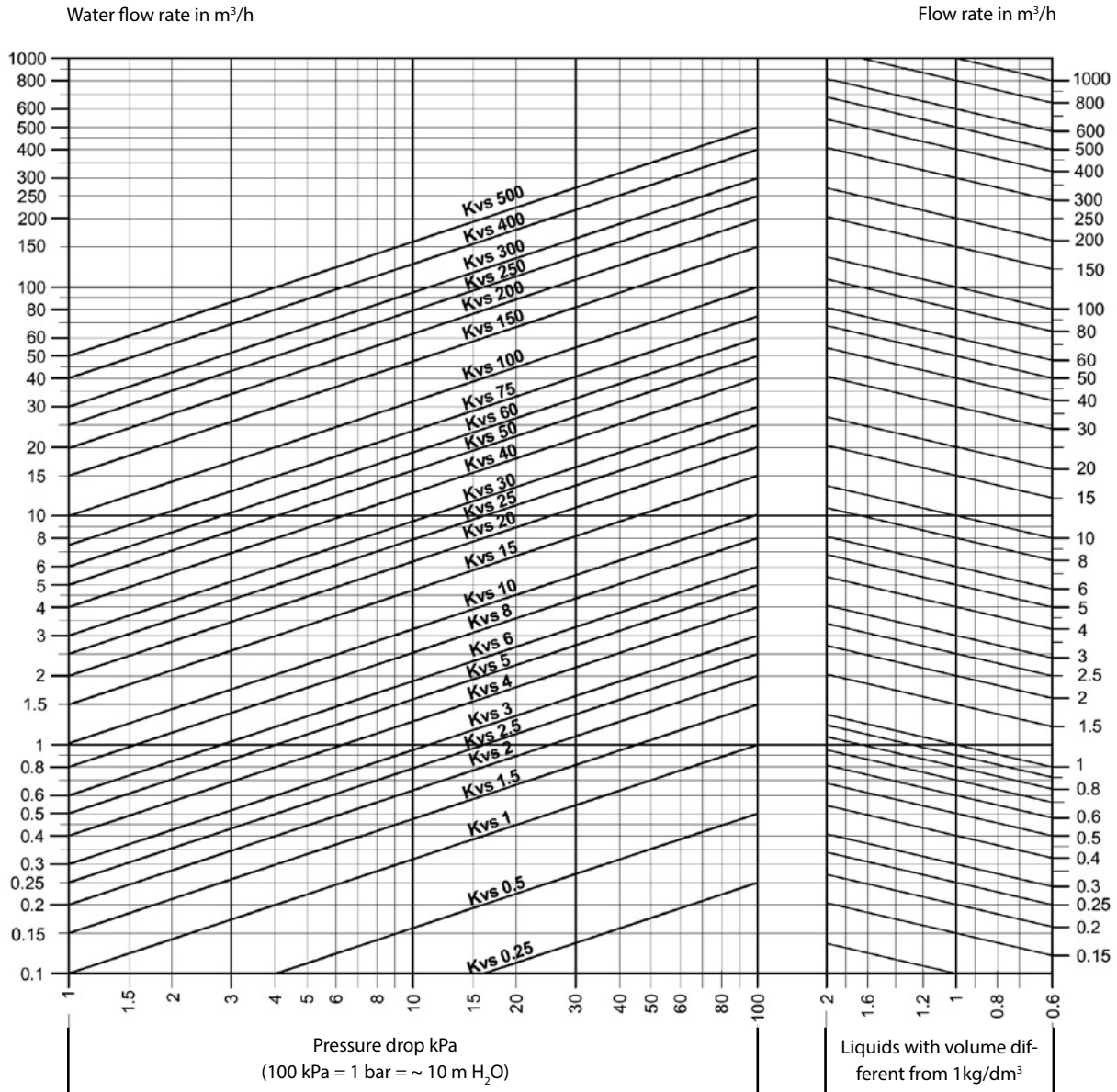
In the event of replacing an old Controlli actuator mounted on one of the old valves listed below, here is the equivalent MVH actuator model to be used:

OLD MODEL		NEW MODEL	LINKAGE KIT
SH242		MVH26	AG50 / AG51 / AG62
SH222		MVH46	
SH522		MVH56	
MVL26		MVH26	
MVL36		MVH36	
MVL46	=	MVH46	
MVL56		MVH56	
MVL56F		MVH56F	
MVL56A / MVL56FA/MVL46A		MVH56FA	
MVL56C / MVL56FC/MVL46C		MVH56FC	
MVL3K		MVH3K	

	LINKAGE FOR MVH ACTUATORS	LINKAGE FOR MVE ACTUATORS	LINKAGE FOR MVB ACTUATORS
<i>OLD threaded valves</i>			
S300	-	-	AG40
V500	-	-	AG22
<i>OLD flanged valves</i>			
VSG, VMB16, VBG (up to 65mm)	AG50	-	-
VSG, VMB16, VBG (80mm or more)	AG51	-	-
SS, DS, VSS, VBS, VBAA, 3V, VMS	AG51	-	-
SS, DS, VS, VBS, 3V, VM + MVLHT DN15÷65mm	AG64	-	-
SS, DS, VS, VBS, 3V, VM + MVLHT DN80÷200mm	AG65	-	-
<i>existing threaded valves</i>			
2TGB.B, 3TGB.B	-	-	✓
2TGB.F, 3TGB.F	-	✓	-
VSB, VMB	AG62	AG52	✓
<i>existing valves with slip-on flanges</i>			
VSB_F, VMB_F	AG62	AG52	✓
<i>existing flanged valves</i>			
2F, 3F	✓	✓	-

Valve Sizing Diagram for Fluids

$$Kvs = \frac{Q \cdot 10}{\sqrt{\Delta p_v}} \quad \begin{array}{l} Q = \text{flow rate in m}^3/\text{h} \\ \Delta p_v = \text{pressure drop in kPa} \end{array}$$



The recommended valve pressure drop must be at least equal to the load.

Example for fluids with relative density 1 kg/dm³ (water)

In order to size a control valve with:

FLOW RATE: 7.5 m³/h of water

PRESSURE DROP: 55 kPa

Use the diagram as follows:

- Identify the crossing point between the line starting from the flow rate value (7.5 m³/h) and from the pressure drop value (55 kPa).

This point corresponds to the required flow coefficient, i.e. Kvs 10. Therefore, the control valve must have Kvs 10.

Example for liquids having relative density different from 1 kg/dm³

In order to size a control valve with:

FLOW RATE : 150 m³/h having (0.9 kg/dm³) relative density

PRESSURE DROP: 80 kPa

Use the diagram as follows:

Identify the crossing point (right side of the diagram) between the line starting from the relative density value (0.9 kg/dm³) and the inclined line starting from the flow rate value (150 m³/h).

Identify the crossing point between the line starting from the crossing point above and the other from the pressure drop value (80 kPa).

This point corresponds to the required flow coefficient. Therefore, the control valve must have approximately kvs 160.

Example with diathermic oil.

It could be convenient to size the valve on diathermic oil using the water diagram. To do this, it is necessary to apply the following conversion formula, which takes into account the mass and the "average" specific heat of diathermic oil:

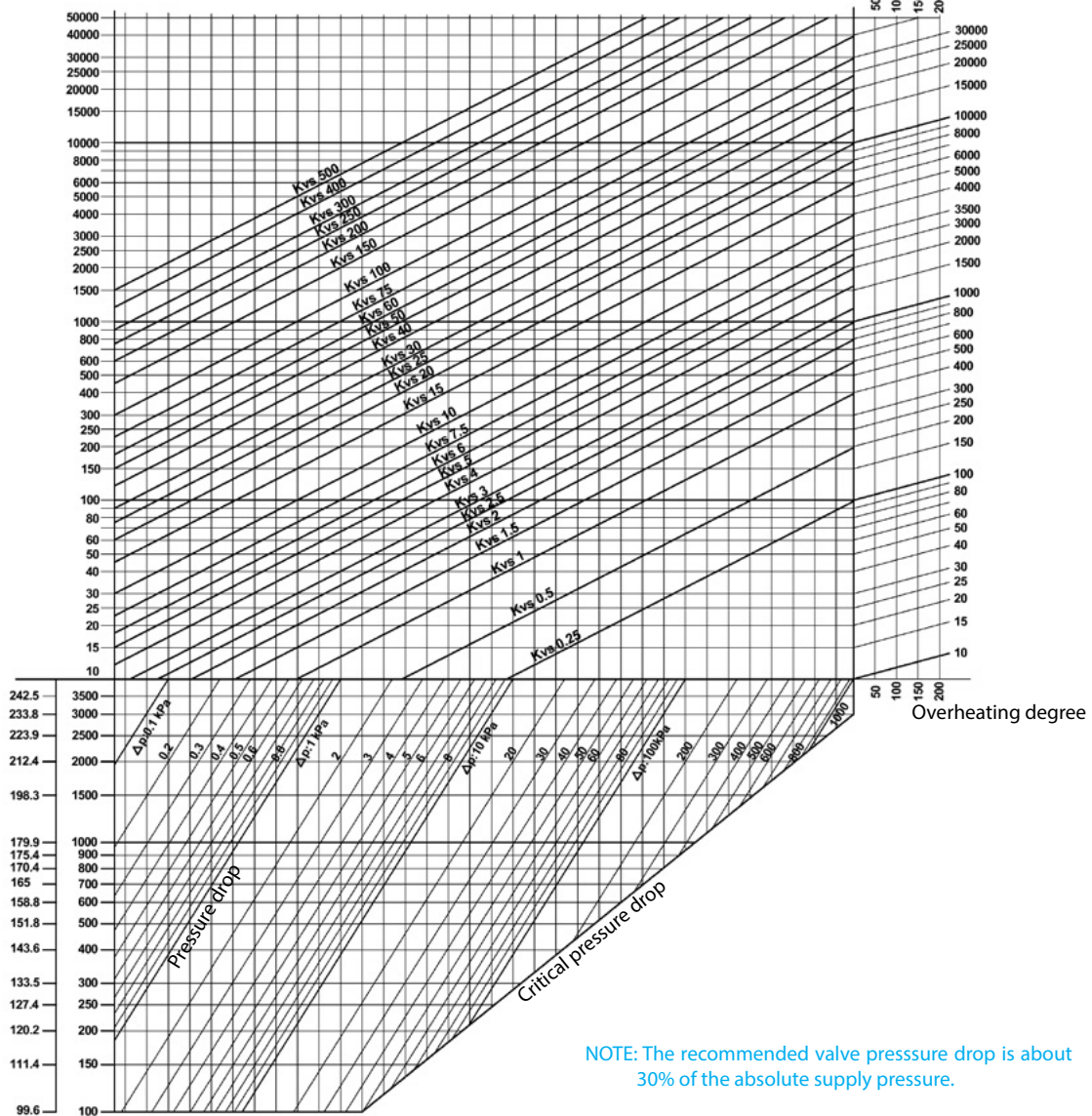
$$Q = \frac{K \text{ calories}}{\Delta t \cdot 500} \text{ in m}^3/\text{h} = \text{water}$$

Valve Sizing Diagram for Steam

$$Kvs = \frac{Q}{22.8 \cdot \sqrt{\Delta p_v \cdot P_u}}$$

Saturated steam flow rate kg/h

Overheated steam flow rate kg/h



NOTE: The recommended valve pressure drop is about 30% of the absolute supply pressure.

Example for saturated steam:

FLOW RATE: 4700 Kg/h of saturated steam

ABSOLUTE PRESSURE

UPSTREAM: 850 kPa

PRESSURE DROP: 160 kPa

Use the diagram as follows:

- Identify the crossing point between the line starting from absolute pressure upstream the valve (850 kPa) and the inclined line corresponding to the pressure drop value (160 kPa).
- Identify the crossing point between the line starting from the crossing point above and the line from the flow rate value (4700 Kg/h). This point corresponds to the required flow rate coefficient: Kvs 63.

Example for overheated steam:

FLOW RATE: 140 Kg/h of overheated steam

ABSOLUTE PRESSURE UPSTREAM: 350 kPa

TEMPERATURE: 209 °C

PRESSURE DROP: 100 kPa

Calculate the overheating degree of steam as follows:

- On the left side of the diagram, read the temperature value corresponding to 350 kPa (139 °C). The overheating degree is: 209 – 139 = 70 °C

Use the diagram as follows:

- Identify the crossing point "A" (right side of the diagram) between the line starting from the overheating value (70 °C) and the inclined line corresponding to the flow rate value (140 Kg/h).
- Identify the crossing point "B" between the line starting from the value of pressure upstream (350 kPa) and the inclined line corresponding to the value of pressure drop (100 kPa).
- Identify the crossing point between the line starting from the points "A" and "B".

How to Calculate Kvs

Flow coefficient Kvs is the flow rate of water in m³/h passing through a fully open valve at a 100 kPa pressure drop.

$$a) \text{ Liquids } kvs = 10 \times Q \times \sqrt{\frac{r}{Dp}}$$

Q = flow rate m³/h

Dp = pressure drop (kPa)

r = relative density

The Dp pressure drop should be determined as follows:

- Equal or higher than the Dp of the circuit under control, in case of variable flow applications
- Equal or higher than the Dp of the supply circuit, in case of constant flow applications

$$b) \text{ Steam } kvs = \frac{100 \times G \times C}{20.3 \sqrt{P_2 \times Dpv}}$$

G = flow rate (kg/h)

C = 1 + 0.0013 (t-ts)

t = steam temperature in working conditions

ts = saturated steam temperature at P₂ pressure

P₂ = pressure downstream (kPa)

Dpv = pressure drop (kPa)

Choose the valve with the Kvs closest to the calculated one.

Water Systems

Two-way valve

For this application the pressure drop through the valve must be high, in order to have a good control flow characteristic and a properly working system.

- 1) The valve pressure drop must be 30 to 50% of the pressure upstream the valve.
- 2) The valve pressure drop must be equal to, or higher than the pressure drop of the coil or heat exchanger under control, in particular:

TEMPERATURE DROP OF HEAT EXCHANGER

DESIGN OF VALVE PRESSURE DROP

30 °C

Equal to pressure drop of heat exchanger

20 °C

Twice as pressure drop of heat exchanger

10 °C

Three times as pressure drop of heat exchanger

Three- way mixing valve

For mixing valve a high pressure drop is not normally required even when used in primary and secondary water circuits to control supply temperature to users.

As a general rule, the valve must have a pressure drop similar to the one of the heat exchanger.

Three-way diverting valve

Three-way diverting valves are used to control flow to heat exchanger and, therefore, the pressure drop through the valve. For proportional systems it must be high.

Note:

When selecting pressure drop, you must not exceed the above-mentioned values because an undersized valve could produce:

- Noisy operation and vibration of the plug
- Rapid wear of plug and seat due to high speed of the fluid through the valve.

Overheated Water Systems

For this application the valves can be two- or three-way type.
The valve pressure drop must be high, in order to have a good control flow characteristic and a properly working system.
The principles and rules for correct sizing are the same as "WATER SYSTEMS".

Steam Systems

For low pressure steam systems (up to 2 kPa), the pressure drop through the valve must be from 60 to 80 % of the pressure available upstream the valve.

STEAM PRESSURE UPSTREAM THE VALVE	VALVE PRESSURE DROP
0.5 bar (50 kPa)	40 kPa
1.0 bar (100 kPa)	70 kPa

For high pressure steam systems (above 2 bar) the pressure drop through the valve must be from 30 to 40% of the pressure available upstream the valve.

STEAM PRESSURE UPSTREAM THE VALVE	VALVE PRESSURE DROP
200 kPa	80 kPa
600 kPa	200 kPa
1,000 kPa	300 kPa

For on/off valves there are no particular rules to follow: pressure drop may be 10 to 20% of inlet pressure, but the valve is normally pipe sized.

Note:
Do not size valves for high pressure steam with pressure drop higher than 50% of absolute pressure upstream: beyond this percentage thermodynamic problems could affect valve efficiency and life.

Diathermic Oil Systems

The most commonly used valve type is three-way with linear characteristics, in order to ensure a constant flow to the boiler by constant speed.
Two-way valves can be used for several low-power users and wherever a balanced-plug valve is mounted between supply and return boiler.
The pressure drop of three-way valves must be at least equal to or higher than the one of the heat exchanger.
For a single user control, the valve must have a pressure drop from 30 to 50% of the system pressure drop.
For two-way valves, see also the "WATER SYSTEMS" section.