

CV216/316 RGA



Standard control valves

2- or 3-way, DN 15-50, bronze

CV216/316 RGA

Suitable in building applications for heating and cooling systems. Available in dimensions up to DN 50, pressure class PN 16, with external thread connection and internal connection parts.

Key features

- > **Microprocessor controlled**
Multifunctional adjustable.
- > **Extensive actuator programme**
For different actuating thrust and actuating time – easily interchangeable.
- > **Complete delivery**
Delivery of valve, inclusive connection parts.



Technical description

Application:

Heating and cooling systems

Function:

CV216 RGA: 2-way control valve
CV316 RGA: 3-way mixing or reversing valve

Characteristics:

CV216 RGA: Equal percentage.
CV316 RGA: A-AB equal percentage.
B-AB linear.

Dimensions:

DN 15-50

Pressure class:

PN 16

Temperature:

Max. working temperature: 150°C
(The valves should be mounted in horizontal position at temperatures above 130°C)
Min. working temperature: 0°C
Suitable for water with antifreeze compounds down to -15°C.
(For lower and higher temperatures (up to 200°C) and working pressures PN 25-40 please contact IMI Hydronic Engineering).

Material:

Body: Bronze CC491K
Plug: Brass CW614N
Stem: CrMo-steel 1.4122
Stem sealing: EPDM O-rings

Marking:

TA, PN, DN and flow direction arrow.
(in case of CV316 RGA names of ports also - A, B, AB)

Connection:

Body with male thread according to ISO 228/1 including connection parts of malleable cast iron with cylindrical female thread according to ISO 7/1, union nuts and gaskets.

Leakage rate:

EN 1349, seat-leakage VI G 1 (tight sealing)

Max. lift of the control valve:

DN 15-20: 12 mm
DN 25-50: 14 mm

Range ability:

DN 15: 50:1
DN 20-50: 100:1

Actuator:

TA-MC55, TA-MC100, TA-MC161,
TA-MC100FSE/FSR.

Valve variants and accessories

- Internal thread connection parts of bronze, union nut of malleable cast iron
- Plug made of CrNi-steel 1.4305
- With stem heater suitable for water with antifreeze compounds down to -15°C
24 VAC, 50/60 Hz
Power consumption: 30 W

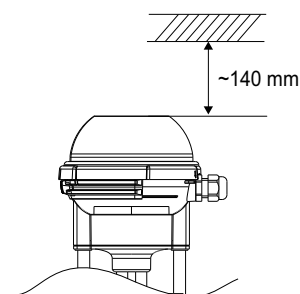
- Usable for media based on mineral oil basis (stem sealing made of FKM)
- Technical silicone free version

For variants and accessories please contact IMI Hydronic Engineering.

Installation

Valve trim could be damaged by dirt in the pipe system. Installation of strainers are recommended.

Note! The free space above the actuators is necessary for TA-MC55, TA-MC100, TA-MC161 and TA-MC100FSE/FSR.

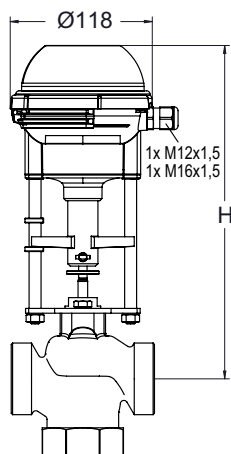


Technical data valve with actuator

DN		15		20	25	32	40	50			
Kvs		4 2,5	1,6 1,25 0,63	6,3 5	10 8	16 12,5	25 20	40 31,5			
Stroke		mm			12	14					
TA-MC55/24 TA-MC55/230 TA-MC55Y	Actuating time ¹⁾	s			105 60*	125 70*					
	Closing pressure	kPa			1500	1500	1250	750	450	250	150
TA-MC100/24 TA-MC100/230	Actuating time ¹⁾	s			145 105* 45 20	170 125* 55 30					
	Closing pressure	kPa			1600	1600	1600	1500	900	550	350
TA-MC161/24 TA-MC161/230	Actuating time ¹⁾	s						85 55*			
	Closing pressure	kPa						1500	950	600	
TA-MC100FSE/24 TA-MC100FSR/24	Actuating time	s			25		30				
	Fail-safe time	s			~15						
TA-MC100FSE/230 TA-MC100FSR/230	Closing pressure	kPa			1600	1600	1600	1500	900	550	350
	Actuating time	s			110		130				
TA-MC100FSE/230 TA-MC100FSR/230	Fail-safe time	s			~15						
	Closing pressure	kPa			1600	1600	1600	1500	900	550	350

1) Actuating time freely adjustable, presetting is marked with *

Actuator TA-MC55



TA-MC55/24, TA-MC55/230, TA-MC55Y

DN	H	Kg
15	267	1,5
20	272	1,5
25 - 32	277	1,5
40 - 50	282	1,5

Technical description

		TA-MC55/24	TA-MC55/230	TA-MC55Y
Actuating time ¹⁾	s/mm		9 · 5*	
Actuating thrust	kN		0,6	
Stroke	mm		max. 20	
Power supply	VAC	24 ±10%	230 +6% -10%	24 ±10%
Power supply	VDC	24 ±10%	-	24 ±10%
Frequency	Hz		50/60 ±5%	
Power consumption	VA	3,5	7	3,5
Input signal ³⁾		3-point		0(2)...10 VDC, 70 kΩ 0(4)...20 mA, 0,51 kΩ
Output signal ³⁾		0..10 VDC max. 8 mA min. 1200 Ω		
Hysteresis	V	0,3		

Enclosure class:

Automatic operation: IP 54
Manual operation: IP 30

Resolution:

Electric: 0,04 VDC
Mechanical: 0,06 mm

Electrical connection:

Actuator with screwed terminals.

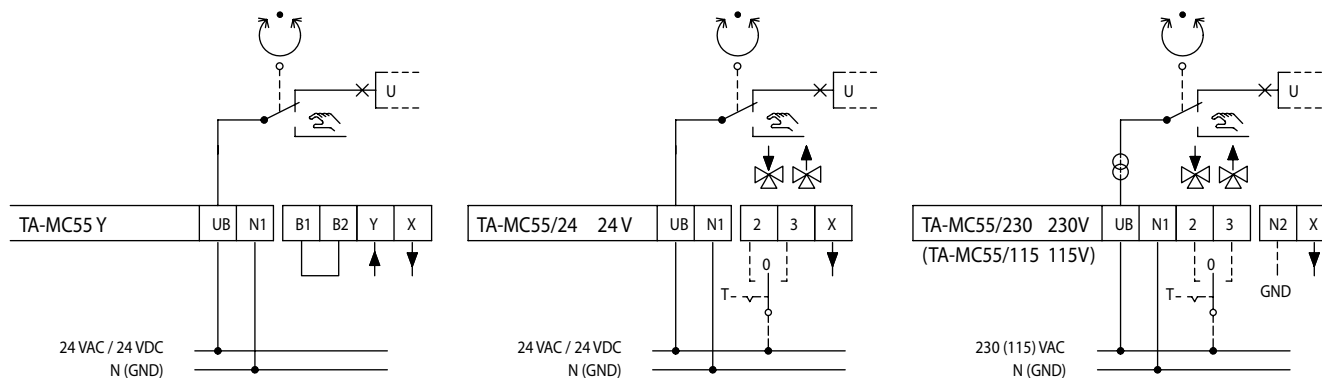
Ambient temperature:

0 - 60°C

Operation mode:

S3-50% ED c/h 1200 EN 60034-1

Wiring diagram:



End position switch-off:

Load-dependent

Actuator variants:

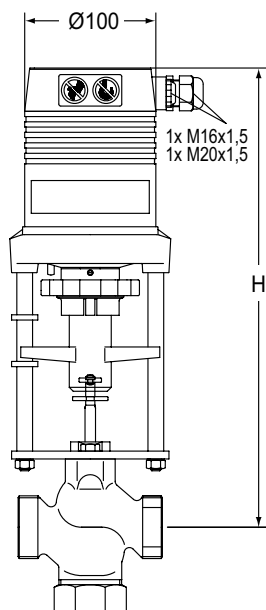
- Voltage: 115 VAC
- Adapter with coupling for external products

For variants and accessories please contact IMI Hydronic Engineering.

1) Actuating time freely adjustable, presetting is marked with *

3) Invertible input and output signal

Actuator TA-MC100



TA-MC100/24, TA-MC100/230

DN	24 V H	230 V H	Kg
15	343	368	2,5
20	348	373	2,5
25 - 32	353	378	2,5
40 - 50	358	383	2,5

Technical description

		TA-MC100/24	TA-MC100/230
Actuating time ¹⁾	s/mm	12 · 9* · 4 · 1,9	
Actuating thrust	kN	1,0	
Stroke	mm	max. 20	
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC, 77 kΩ 0(4)... 20 mA, 0,51 kΩ	
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ω	
Hysteresis ⁴⁾	V	0,15 · 0,5	

Ingress protection:
IP 54

Resolution:
Electric: 0,04 VDC
Mechanical: 0,095 mm

Ambient temperature:
0 - 60°C

Operation mode:
S3-50% ED c/h 1200 EN 60034-1

End position switch-off:
Load-dependent

Actuator variants:

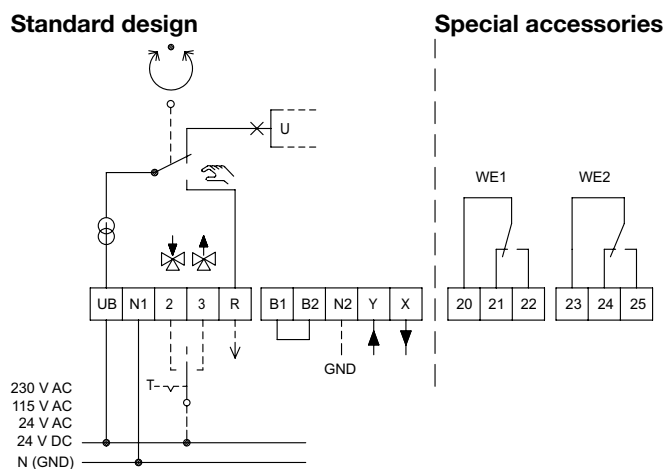
- Voltage: 115 VAC
- Position switch unit ⁵⁾:
2 switches (WE1/WE2), potential free, infinitely adjustable.
Rated load: 8 A / 250 VAC, 8 A / 30 VDC.
Turn-on voltage: max. 400 VAC, max. 125 VDC
- Enclosure protection: IP 65
- Output signal ⁵⁾: X=0(4)...20 mA
- Adapter with coupling for external product

For variants and accessories please contact IMI Hydronic Engineering.

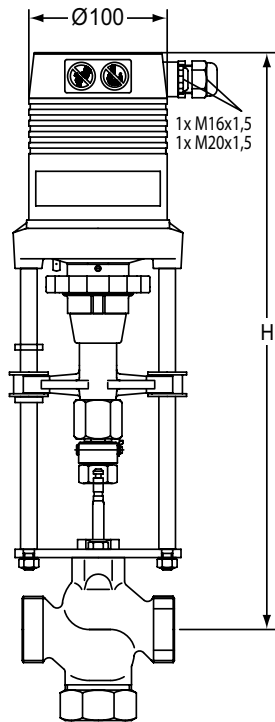
- 1) Actuating time freely adjustable, presetting is marked with *
- 3) Invertible input and output signal
- 4) Freely adjustable
- 5) Position switch unit and output signal 0(4)...20 mA not in combination

Wiring diagram:

B1/B2 Connection of a binary signal (e.g. frost safety)



Actuator TA-MC161



TA-MC161/24, TA-MC161/230

DN	24 V H	230 V H	Kg
32	431	456	3,2
40 - 50	436	461	3,2

Technical description

		TA-MC161/24	TA-MC161/230
Actuating time ¹⁾	s/mm	6 · 4*	
Actuating thrust	kN	1,6	
Stroke	mm	max. 20	
Power supply	VAC	24 ±10%	230 +6% -10%
Power supply ²⁾	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	
Power consumption	VA	6	12
Input signal ³⁾		3-point 0(2)...10 VDC, 77 kΩ 0(4)... 20 mA, 0,51 kΩ	
Output signal ³⁾		0...10 VDC max. 8 mA min. 1200 Ω	
Hysteresis ⁴⁾	V	0,05 · 0,15 · 0,3 · 0,5	

Ingress protection:

IP 54

Resolution:

Electric: 0,04 VDC

Mechanical: 0,05 mm

Ambient temperature:

0 - 60°C

Operation mode:

S3-50% ED c/h 1200: EN 60034-1

End position switch-off:

Load-dependent

Actuator variants:

- Voltage: 115 VAC

- Position switch unit ⁵⁾:

2 switches (WE1/WE2), potential free, infinitely adjustable.

Rated load: 8 A / 250 VAC, 8 A / 30 VDC.

Turn-on voltage: max. 400 VAC, max. 125 VDC

- Enclosure protection: IP 65

- Output signal ⁵⁾: X=0(4)...20 mA

- Adapter with coupling for external product

For variants and accessories please contact IMI Hydronic Engineering.

1) Actuating time freely adjustable, presetting is marked with *

2) Direct-current rectified alternating voltage

3) Invertible input and output signal

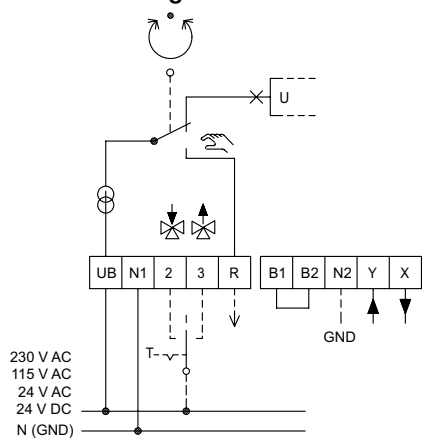
4) Freely adjustable

5) Position switch unit and output signal 0(4)...20 mA not in combination

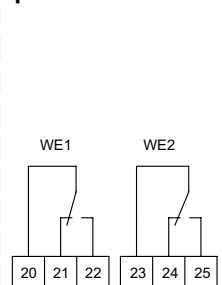
Wiring diagram:

B1/B2 Connection of a binary signal (e.g. frost safety)

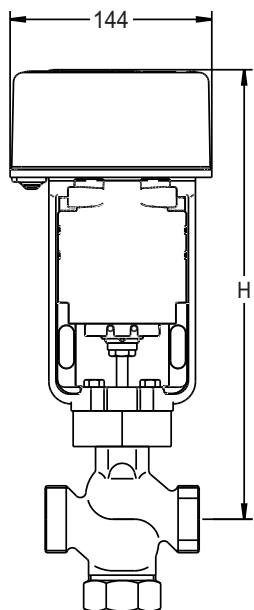
Standard design



Special accessories



Actuator TA-MC100FSE/FSR



TA-MC100FSE/24, TA-MC100FSE/230, TA-MC100FSR/24, TA-MC100FSR/230

DN	H	Kg
15	309	2,8
20	312	2,8
25	315	2,8
32	324	2,8
40 - 50	327	2,8

Technical description

		TA-MC100FSE/24 TA-MC100FSR/24	TA-MC100FSE/230 TA-MC100FSR/230
Actuating time	s/mm	2	9
Fail-safe time	s/mm	~1	
Actuating thrust	kN	1,0	
Stroke	mm	max. 20	
Power supply	VAC	24 ±15%	230 ±15%
Frequency	Hz	50/60 ±5%	
Power consumption	VA	26	30
Input signal		3-point	
		0(2)...10 VDC 0(4)... 20 mA	3-point
Output signal		0(2)...10 VDC max. 5 mA 0(4)...20 mA max. 5 mA	0...10 VDC max. 5 mA

Ingress protection:

IP 54

Fail-safe function:

TA-MC100FSE: Stem extended on power failure

TA-MC100FSR: Stem retracted on power failure

Ambient temperature:

0 - 50°C

Operation mode:

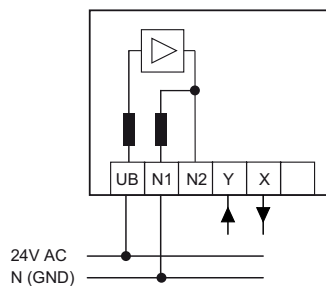
S3-50% ED c/h 1200: EN 60034-1

End position switch-off:

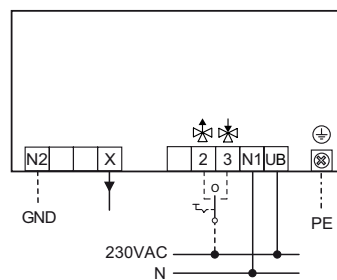
Load-dependent

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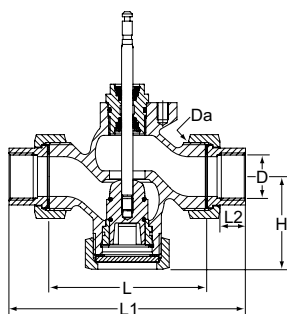
Wiring diagram TA-MC100FSE/24 and TA-MC100FSR/24:



Wiring diagram TA-MC100FSE/230 and TA-MC100FSR/230:



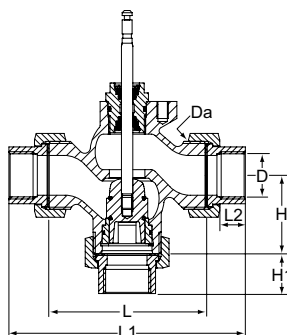
CV216 RGA (2-way)



Female threads according to ISO 7

DN	D	Da	L	L1	L2	H	Kvs	Kg	Article No
15	Rp1/2	G1	62	114	13	48	0,63	0,9	60-230-115
15	Rp1/2	G1	62	114	13	48	1,25	0,9	60-230-215
15	Rp1/2	G1	62	114	13	48	1,6	0,9	60-230-315
15	Rp1/2	G1	62	114	13	48	2,5	0,9	60-230-415
15	Rp1/2	G1	62	114	13	48	4	0,9	60-230-515
20	Rp3/4	G1 1/4	75	127	15	53	5	1,4	60-230-120
20	Rp3/4	G1 1/4	75	127	15	53	6,3	1,4	60-230-220
25	Rp1	G1 1/2	80	138	17	57	8	1,7	60-230-125
25	Rp1	G1 1/2	80	138	17	57	10	1,7	60-230-225
32	Rp1 1/4	G2	120	184	19	68	12,5	3,4	60-233-132
32	Rp1 1/4	G2	120	184	19	68	16	3,4	60-233-232
40	Rp1 1/2	G2 1/4	130	198	19	73	20	4,0	60-233-140
40	Rp1 1/2	G2 1/4	130	198	19	73	25	4,0	60-233-240
50	Rp2	G2 3/4	150	222	24	78	31,5	5,7	60-233-150
50	Rp2	G2 3/4	150	222	24	78	40	5,7	60-233-250

CV316 RGA (3-way)



Female threads according to ISO 7

DN	D	Da	L	L1	L2	H	H1	Kvs	Kg	Article No
15	Rp1/2	G1	62	114	13	40	66	0,63	0,9	60-330-115
15	Rp1/2	G1	62	114	13	40	66	1,25	0,9	60-330-215
15	Rp1/2	G1	62	114	13	40	66	1,6	0,9	60-330-315
15	Rp1/2	G1	62	114	13	40	66	2,5	0,9	60-330-415
15	Rp1/2	G1	62	114	13	40	66	4	0,9	60-330-515
20	Rp3/4	G1 1/4	75	127	15	41	67	5	1,4	60-330-120
20	Rp3/4	G1 1/4	75	127	15	41	67	6,3	1,4	60-330-220
25	Rp1	G1 1/2	80	138	17	45	74	8	1,7	60-330-125
25	Rp1	G1 1/2	80	138	17	45	74	10	1,7	60-330-225
32	Rp1 1/4	G2	120	184	19	55	89	12,5	3,4	60-333-132
32	Rp1 1/4	G2	120	184	19	55	89	16	3,4	60-333-232
40	Rp1 1/2	G2 1/4	130	198	19	60	94	20	4,0	60-333-140
40	Rp1 1/2	G2 1/4	130	198	19	60	94	25	4,0	60-333-240
50	Rp2	G2 3/4	150	222	24	65	101	31,5	5,7	60-333-150
50	Rp2	G2 3/4	150	222	24	65	101	40	5,7	60-333-250

Actuators

Note: DC – Direct-current rectified alternating voltage.

*) DC – Direct current flat voltage.

Type	Power supply	Actuating thrust [kN]	Input signal	Article No
TA-MC55/24	24 VAC/DC	0,6	3-point	61 055-001
TA-MC55/24	24 VDC *	0,6	3-point	61 055-402
TA-MC55/230	230 VAC	0,6	3-point	61 055-002
TA-MC55Y	24 VAC/DC	0,6	0(2)-10 V, 4(0)-20 mA	61 055-003
TA-MC55Y	24 VDC *	0,6	0(2)-10 V, 4(0)-20 mA	61 055-004
TA-MC100/24	24 VAC/DC	1,0	3-point, 0(2)-10 V, 4(0)-20 mA	61 100-001
TA-MC100/24	24 VDC *	1,0	3-point, 0(2)-10 V, 4(0)-20 mA	61 100-003
TA-MC100/230	230 VAC	1,0	3-point, 0(2)-10 V, 4(0)-20 mA	61 100-002
TA-MC161/24	24 VAC/DC	1,6	3-point, 0(2)-10 V, 4(0)-20 mA	61 161-001
TA-MC161/230	230 VAC	1,6	3-point, 0(2)-10 V, 4(0)-20 mA	61 161-002
TA-MC100FSE/24	24 VAC	1,0	3-point, 0(2)-10 V, 4(0)-20 mA	61 100-101
TA-MC100FSE/230	230 VAC	1,0	3-point	61 100-102
TA-MC100FSR/24	24 VAC	1,0	3-point, 0(2)-10 V, 4(0)-20 mA	61 100-201
TA-MC100FSR/230	230 VAC	1,0	3-point	61 100-202

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