

CV 216/316 RGA

- NPT threads



Standard control valves

2- or 3-way, size 1/2" - 2", bronze

CV 216/316 RGA

– NPT threads

Suitable in building applications for heating and cooling systems. Available in dimensions up to size 2", pressure class rating of 230 psi, 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:

1/2" - 2"

Pressure class:

230 psi (PN 16)

Temperature:

Max. working temperature: 302 °F
(The valves should be mounted in horizontal position at temperatures above 266 °F)
Min. working temperature: 32 °F
Suitable for water with antifreeze compounds down to 5 °F.
(For lower and higher temperatures (up to 392 °F) and working pressure class 360-580 psi, 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 female NPT union ends.

Leakage rate:

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

Max. lift of the control valve:

1/2" - 3/4": 0.47 in
1" - 2": 0.55 in

Range ability:

1/2": 50:1
3/4" - 2": 100:1

Actuator:

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

Valve variants and accessories

- Internal thread connection parts of bronze, union nut and female NPT connection of malleable cast iron
- Plug made of CrNi-steel 1.4305
- With stem heater suitable for water with antifreeze compounds down to 5 °F
24 VAC, 50/60 Hz
Power consumption: 30 W

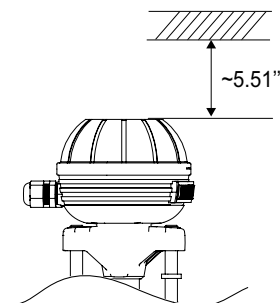
- Usable for media based on mineral oil basis (stem sealing made of FKM)
- Technical silicon free version

For variants and accessories please contact your local sales office.

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.

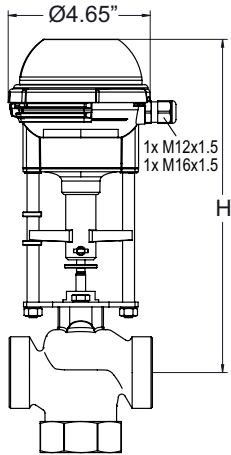


Technical data valve with actuator

DN		1/2"		3/4"	1"	1 1/4"	1 1/2"	2"
Cvs		4.64	1.86	7.31	11.6	18.56	28.7	45.4
		2.9	1.45	5.8	9.28	14.5	23.2	36.54
Stroke		in			0.47			
					0.55			
TA-MC55/24 TA-MC55/115 TA-MC55Y	Actuating time ¹	s			105 60*			
	Closing pressure	psi			218 218 181 109 65 36 22			
TA-MC100/24 TA-MC100/115	Actuating time ¹	s			145 105* 45 20			
	Closing pressure	psi			230 230 230 218 131 80 51			
TA-MC161/24 TA-MC161/115	Actuating time ¹	s			85 55*			
	Closing pressure	psi			218 138 87			
TA-MC100FSE/24 TA-MC100FSR/24	Actuating time	s			25 30			
	Fail-safe time	s			~15			
	Closing pressure	psi			230 230 230 218 131 80 51			

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

Actuator TA-MC55



TA-MC55/24, TA-MC55/115, TA-MC55Y

Size	H [in]	Weight [lb]
1/2"	10.5	3.3
3/4"	10.7	3.3
1" - 1 1/4"	10.9	3.3
1 1/2" - 2"	11.1	3.3

Technical description

		TA-MC55/24	TA-MC55/115	TA-MC55Y
Actuating time ¹	s/mm		9 or 5*	
Actuating thrust	lbf		135	
Stroke	in		maximum 0.79"	
Power supply	VAC	24 ±10%	115 +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 24 VAC/DC		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: IP54
Manual operation: IP30

Resolution:

Electric: 0.04 VDC
Mechanical: 0.0024 in

Mains connection:

24 VAC and 115 VAC: Actuator with screwed terminals.

Ambient temperature:

32 - 140 °F

Operation mode:

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

End position switch-off:

Load-dependent

Actuator variants:

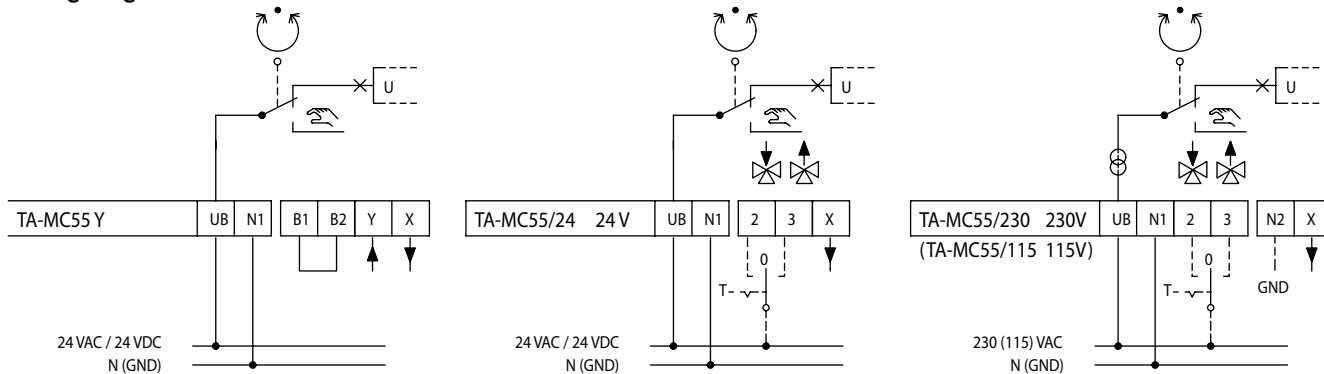
- Voltage: 230 VAC
- Adapter with coupling for external products

For variants and accessories please contact your local sales office.

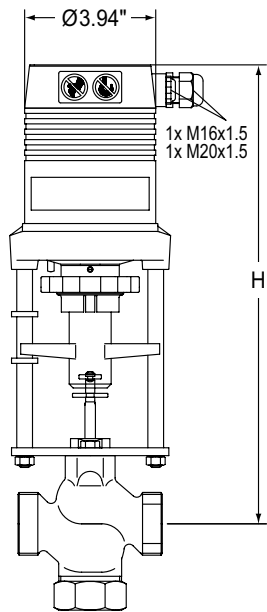
1) Actuating time freely adjustable, presetting is marked with *

3) Invertible input and output signal

Wiring diagram:



Actuator TA-MC100



TA-MC100/24, TA-MC100/115

Size	24 V H [in]	115 V H [in]	Weight [lb]
1/2"	13.5	14.5	5.5
3/4"	13.7	14.7	5.5
1" -1 1/4"	13.9	14.9	5.5
1 1/2" - 2"	14.1	15.1	5.5

Technical description

		TA-MC100/24	TA-MC100/115
Actuating time ¹	s/mm	12 or 9* or 4 or 1.9	
Actuating thrust	lbf	224.8	
Stroke	in	maximum 0.79"	
Power supply	VAC	24 ±10%	115 +6% -10%
Power supply	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	
Power consumption	VA	6	12
Input signal ³		3-point 24 VAC/DC 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:
IP54

Resolution:
Electric: 0.04 VDC
Mechanical: 0.0037 in

Ambient temperature:
32 - 140 °F

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

End position switch-off:
Load-dependent

Actuator variants:

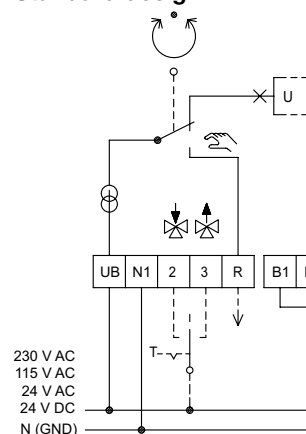
- Voltage: 230 VAC
- Position switch unit ⁵⁾:
2 switches (WE1/WE2), potential free, infinitely adjustable.
Rated load: 8 A / 250 VAC, 8 A / 30 VDC.
Turn-on voltage: max. 400 VAC, max. 125 VDC
- Enclosure protection: IP 65
- Output signal ⁵⁾: X=0(4)...20 mA
- Adapter with coupling for external product

- 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

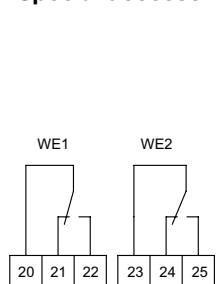
Wiring diagram:

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

Standard design

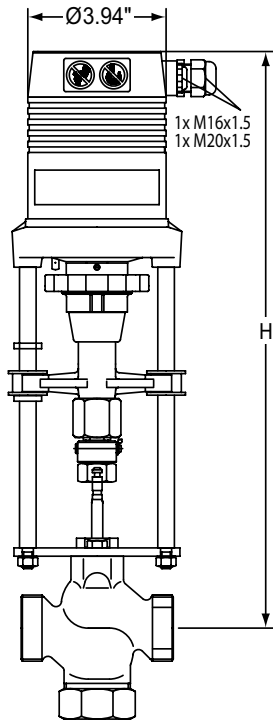


Special accessories



For variants and accessories please contact your local sales office.

Actuator TA-MC161



TA-MC161/24, TA-MC161/115

Size	24 V H [in]	115 V H [in]	Weight [lb]
1 1/4"	17.0	18.0	7.1
1 1/2" - 2"	17.2	18.1	7.1

Technical description

		TA-MC161/24	TA-MC161/115
Actuating time ¹	s/mm	6 or 4*	
Actuating thrust	lbf	359.7	
Stroke	in	maximum 0.79"	
Power supply	VAC	24 ±10%	115 +6% -10%
Power supply ²	VDC	24 ±10%	-
Frequency	Hz	50/60 ±5%	
Power consumption	VA	6	12
Input signal ³		3-point 24 VAC/DC 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:
IP54

Resolution:
Electric: 0.04 VDC
Mechanical: 0.002 in

Ambient temperature:
32 - 140 °F

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

End position switch-off:
Load-dependent

Actuator variants:

- Voltage: 230 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

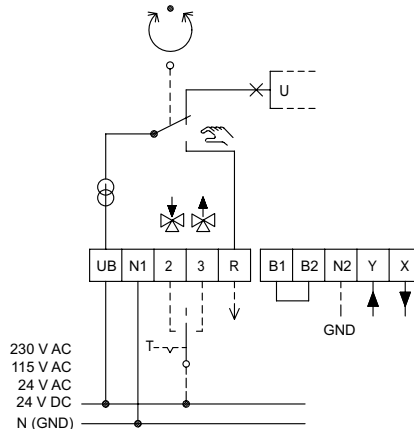
For variants and accessories please contact your local sales office.

- 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

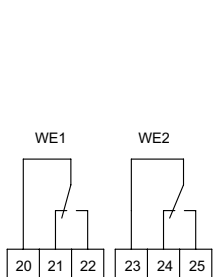
Wiring diagram:

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

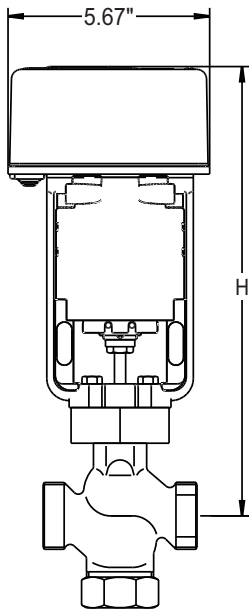
Standard design



Special accessories



Actuator TA-MC100FSE/FSR



TA-MC100FSE/24, TA-MC100FSR/24

Size	H [in]	Weight [lb]
1/2"	12.2	6.2
3/4"	12.3	6.2
1"	12.4	6.2
1 1/4"	12.8	6.2
1 1/2" - 2"	12.9	6.2

Technical description

		TA-MC100FSE/24 TA-MC100FSR/24
Actuating time	s/mm	2
Fail-safe time	s/mm	1
Actuating thrust	lbf	224.8
Stroke	in	maximum 0.79"
Power supply	VAC	24 ±15%
Frequency	Hz	50/60 ±5%
Power consumption	VA	26
Input signal		3-point 24 VAC/DC 0(2)...10 VDC 0(4)... 20 mA
Output signal		0(2)...10 VDC max. 5 mA 0(4)...20 mA max. 5 mA

Ingress protection:

IP54

Fail-safe function:

TA-MC100FSE: Stem extended on power failure
TA-MC100FSR: Stem retracted on power failure

Ambient temperature:

32 - 122 °F

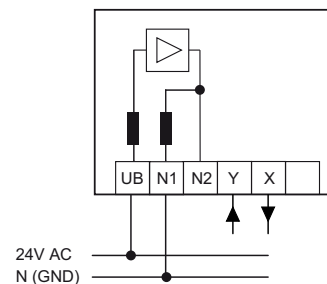
Operation mode:

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

End position switch-off:

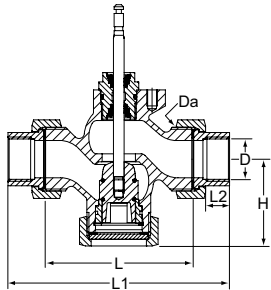
Load-dependent

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



For variants and accessories please contact your local sales office.

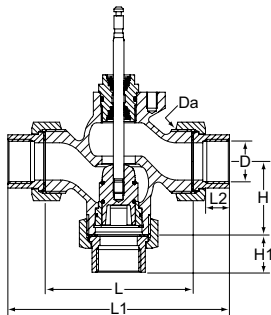
CV216 RGA (2-way)



Female NPT threads. Body male thread (Da) according to ISO 228/1.

Size	D	Da	L [in]	L1 [in]	L2 [in]	H [in]	Cvs	Weight [lb]	Article No
1/2"	1/2 NPT	G1	2.44	4.49	0.51	1.89	0.73	2.0	60-237-115
1/2"	1/2 NPT	G1	2.44	4.49	0.51	1.89	1.45	2.0	60-237-215
1/2"	1/2 NPT	G1	2.44	4.49	0.51	1.89	1.86	2.0	60-237-315
1/2"	1/2 NPT	G1	2.44	4.49	0.51	1.89	2.9	2.0	60-237-415
1/2"	1/2 NPT	G1	2.44	4.49	0.51	1.89	4.64	2.0	60-237-515
3/4"	3/4 NPT	G1 1/4	2.95	5.00	0.59	2.09	5.8	3.1	60-237-120
3/4"	3/4 NPT	G1 1/4	2.95	5.00	0.59	2.09	7.31	3.1	60-237-220
1"	1 NPT	G1 1/2	3.15	5.43	0.67	2.24	9.28	3.7	60-237-125
1"	1 NPT	G1 1/2	3.15	5.43	0.67	2.24	11.6	3.7	60-237-225
1 1/4"	1 1/4 NPT	G2	4.72	7.24	0.75	2.68	14.5	7.5	60-237-132
1 1/4"	1 1/4 NPT	G2	4.72	7.24	0.75	2.68	18.56	7.5	60-237-232
1 1/2"	1 1/2 NPT	G2 1/4	5.12	7.80	0.75	2.87	23.2	8.8	60-237-140
1 1/2"	1 1/2 NPT	G2 1/4	5.12	7.80	0.75	2.87	28.9	8.8	60-237-240
2"	2 NPT	G2 3/4	5.91	8.74	0.94	3.07	36.54	12.6	60-237-150
2"	2 NPT	G2 3/4	5.91	8.74	0.94	3.07	45.4	12.6	60-237-250

CV316 RGA (3-way)



Female NPT threads. Body male thread (Da) according to ISO 228/1.

Size	D	Da	L [in]	L1 [in]	L2 [in]	H [in]	H1 [in]	Cvs	Weight [lb]	Article No
1/2"	1/2 NPT	G1	2.44	4.49	0.51	1.57	2.60	0.73	2.0	60-337-115
1/2"	1/2 NPT	G1	2.44	4.49	0.51	1.57	2.60	1.45	2.0	60-337-215
1/2"	1/2 NPT	G1	2.44	4.49	0.51	1.57	2.60	1.86	2.0	60-337-315
1/2"	1/2 NPT	G1	2.44	4.49	0.51	1.57	2.60	2.9	2.0	60-337-415
1/2"	1/2 NPT	G1	2.44	4.49	0.51	1.57	2.60	4.64	2.0	60-337-515
3/4"	3/4 NPT	G1 1/4	2.95	5.00	0.59	1.61	2.64	5.8	3.1	60-337-120
3/4"	3/4 NPT	G1 1/4	2.95	5.00	0.59	1.61	2.64	7.31	3.1	60-337-220
1"	1 NPT	G1 1/2	3.15	5.43	0.67	1.77	2.91	9.28	3.7	60-337-125
1"	1 NPT	G1 1/2	3.15	5.43	0.67	1.77	2.91	11.6	3.7	60-337-225
1 1/4"	1 1/4 NPT	G2	4.72	7.24	0.75	2.17	3.50	14.5	7.5	60-337-132
1 1/4"	1 1/4 NPT	G2	4.72	7.24	0.75	2.17	3.50	18.56	7.5	60-337-232
1 1/2"	1 1/2 NPT	G2 1/4	5.12	7.80	0.75	2.36	3.70	23.2	8.8	60-337-140
1 1/2"	1 1/2 NPT	G2 1/4	5.12	7.80	0.75	2.36	3.70	28.9	8.8	60-337-240
2"	2 NPT	G2 3/4	5.91	8.74	0.94	2.56	3.98	36.54	12.6	60-337-150
2"	2 NPT	G2 3/4	5.91	8.74	0.94	2.56	3.98	45.4	12.6	60-337-250

Actuators

Type	Power supply	Actuating thrust [lbf]	Input signal	Article No
TA-MC55/24	24 VAC/DC	135.0	3-point 24 VAC/DC	61 055-001
TA-MC55/24	24 VDC *	135.0	3-point 24 VAC/DC *	61 055-402
TA-MC55/115	115 VAC	135.0	3-point 24 VAC/DC	61 055-302
TA-MC55Y	24 VAC/DC	135.0	0(2)-10 V, 4(0)-20 mA	61 055-003
TA-MC55Y	24 VDC *	135.0	0(2)-10 V, 4(0)-20 mA	61 055-004
TA-MC100/24	24 VAC/DC	224.8	3-point, 0(2)-10 V, 4(0)-20 mA	61 100-001
TA-MC100/24	24 VDC *	224.8	3-point, 0(2)-10 V, 4(0)-20 mA	61 100-003
TA-MC100/115	115 VAC	224.8	3-point, 0(2)-10 V, 4(0)-20 mA	61 100-302
TA-MC161/24	24 VAC/DC	359.7	3-point, 0(2)-10 V, 4(0)-20 mA	61 161-001
TA-MC161/115	115 VAC	359.7	3-point, 0(2)-10 V, 4(0)-20 mA	61 161-302
TA-MC100FSE/24	24 VAC	224.8	3-point, 0(2)-10 V, 4(0)-20 mA	61 100-101
TA-MC100FSR/24	24 VAC	224.8	3-point, 0(2)-10 V, 4(0)-20 mA	61 100-201

Note: DC – Direct-current rectified alternating voltage.

*) DC – Direct current flat voltage.

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