

CV216/316 RGA

– NPT threads



Standard control valves

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

CV216/316 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.
- > **Complete delivery**
Delivery of valve, inclusive connection parts.
- > **Extensive actuator programme**
For different actuating thrust and actuating time – easily interchangeable.



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:

PN 16 (230 psi)

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).

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

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 external thread according to ISO 228/1 including connection parts of malleable cast iron with female NPT union ends.

Actuator:

TA-MC55, TA-MC100, TA-MC161.

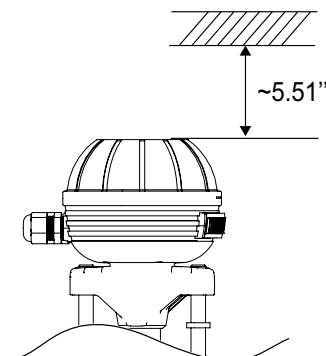
Valve variants and accessories

See sections “Accessories for actuators”, “Accessories for valves” and “Valve variants”.

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 and TA-MC161.

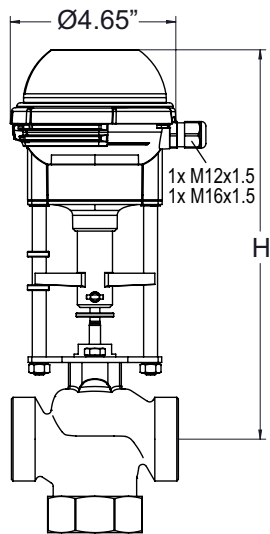


Technical data – Valve with actuator

Size			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*			125 70*			
	Closing pressure	psi	218	218	181	109	65	36	22
TA-MC100/24 TA-MC100/115	Actuating time ¹⁾	s	145 105* 45 20			170 125* 55 30			
	Closing pressure	psi	230			218	131	50	51
TA-MC161/24 TA-MC161/115	Actuating time ¹⁾	s	-				85 55*		
	Closing pressure	psi	-				218	138	87

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 ²	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		

Ingress protection:

Automatic operation: IP 54

Manual operation: IP 30

Resolution:

Electric: 0.04 VDC

Mechanical: 0.0024 in (0.06 mm)

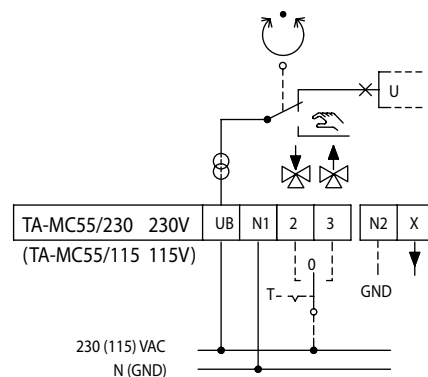
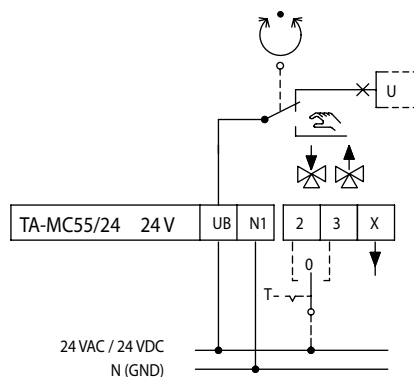
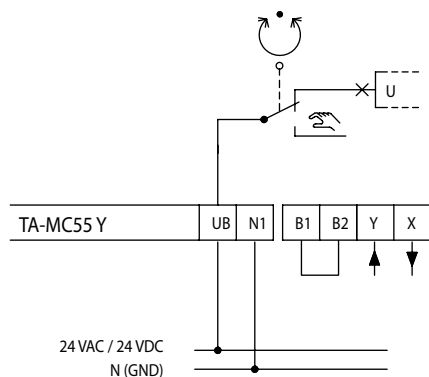
Electrical connection:

Actuator with screwed terminals.

Ambient temperature:

32 – 140 °F

Wiring diagram:



Operation mode:

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

End position switch-off:

Load-dependent

Actuator variants:

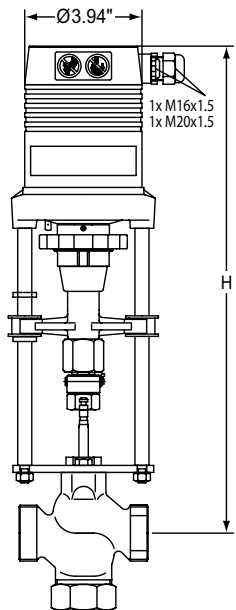
- Voltage: 115 VAC

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

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

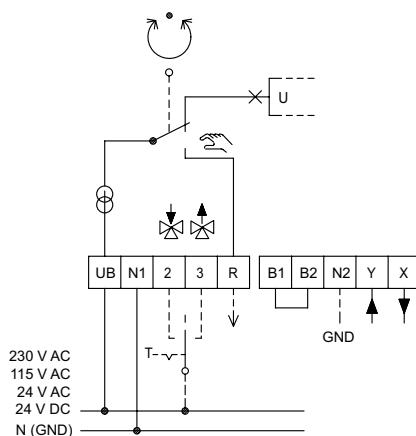
For variants and accessories please contact your local sales office.

- 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

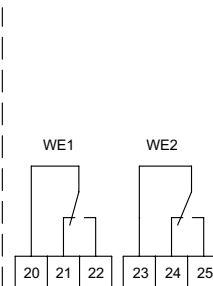
Wiring diagram:

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

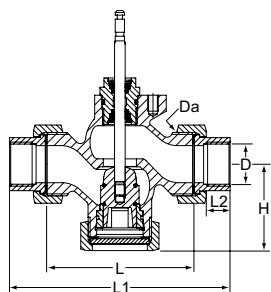
Standard design



Special accessories



CV216 RGA (2-way)

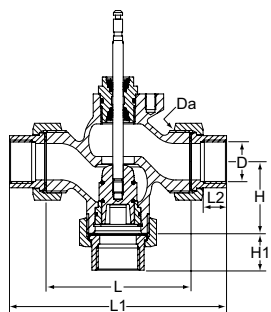


Internal NPT threads

Body external 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)



Internal NPT threads

Body external 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

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

*) DC – Direct current flat voltage.

Accessories for actuators

ACA71, ACA72, ACA76

NOTE!

- ACA72 must be ordered together with the actuator.
- TA-MC100, TA-MC161: Position switch unit (ACA71) and output signal 0(4)...20 mA (ACA76) not in combination.

Type	For actuator	Article No
ACA71 Position switch (2 switches)	TA-MC100, TA-MC161	67 071-100XA
ACA72 IP65	TA-MC100, TA-MC161	67 072-100XA
ACA76 Output signal 0(4)-20 mA	TA-MC100, TA-MC161	67 076-100XA

For actuator accessories, please add "SO" (special order) after the article number of the actuator, and include the article number for the type of accessory.
Accessories for actuators not suitable for TA-MC55.

Example: 61 100-001**SO** + 67 071-100XA

Accessories for valves

Stem heater

Stem heater for water-glycol mixtures.

Min. temperature: 5°F

Power supply: 24 VAC $\pm 10\%$, 50/60 Hz $\pm 5\%$.

Power consumption: Pmax ~400 VA, PN ~45 VA

For size	Article No
1/2" - 2"	68 013-015

Valve variants

For valve variant, please add "SO" after the article number of the valve, and include the article number of the variant.

Example: 60 230-115SO + 68 012-015XV

ACV12 Plug made from CrNi-steel 1.4305

NOTE! Must be ordered together with the valve.

Size	Article No
1/2"	68 012-015XV
3/4"	68 012-020XV
1"	68 012-025XV
1 1/4"	68 012-032XV
1 1/2"	68 012-040XV
2"	68 012-050XV

ACV15 O-rings made of FKM

NOTE! Must be ordered together with the valve.

Size	Article No
1/2"	68 015-015XV
3/4"	68 015-020XV
1"	68 015-025XV
1 1/4"	68 015-032XV
1 1/2"	68 015-040XV
2"	68 015-050XV

ACV16 Technical silicon free version, max. 150°C

NOTE! Must be ordered together with the valve.

Size	Article No
1/2"	68 016-015XV
3/4"	68 016-020XV
1"	68 016-025XV
1 1/4"	68 016-032XV
1 1/2"	68 016-040XV
2"	68 016-050XV

