

CV 216/316 RGA

– NPT threads



Standard control valves

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

CV 216/316 RGA

– NPT threads

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 female NPT union ends.

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 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 -15°C
24 VAC, 50/60 Hz
Power consumption: 30 W

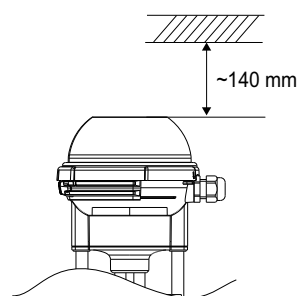
- Usable for media based on mineral oil basis (stem sealing made of FKM)
- Technical silicone free version

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.

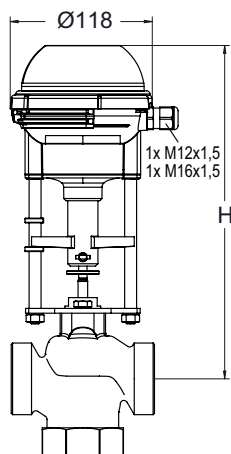


Technical data valve with actuator

| 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-MC55/115 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 TA-MC100/115 | 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 TA-MC161/115 | 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 | | | | | | | |
| | | Closing pressure | kPa | 1600 | 1600 | 1600 | 1500 | 900 | 550 | 350 |
| TA-MC100FSE/230 TA-MC100FSR/230 | Actuating time | s | 110 | | | 130 | | | | |
| | 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-MC55/115, 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-MC55/115 | 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% | 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 | | | 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.

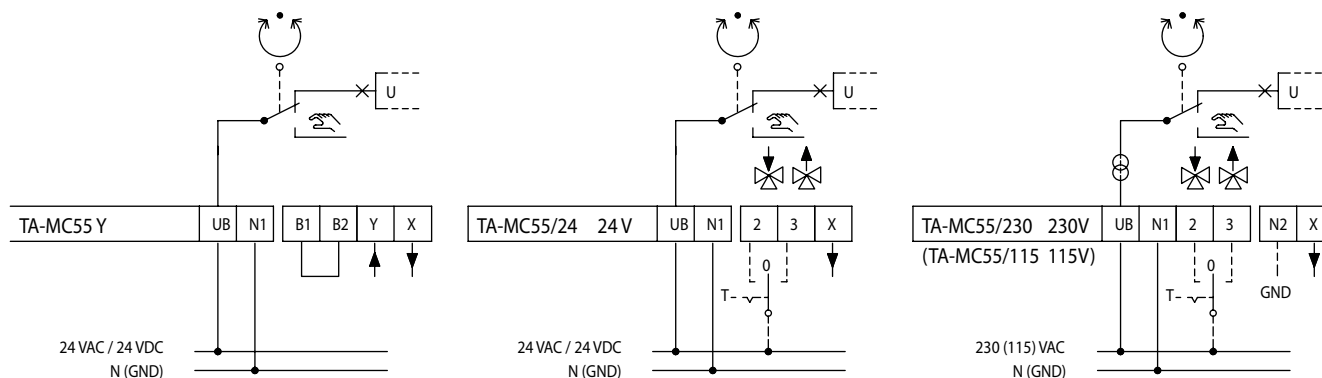
Ambient temperature:

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

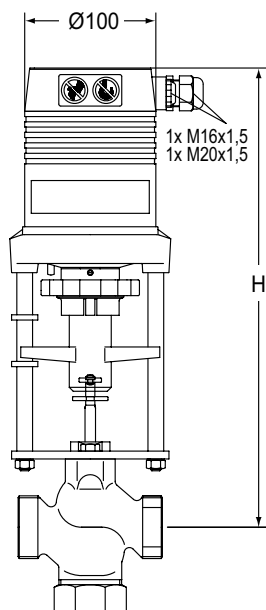
- Adapter with coupling for external products

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, TA-MC100/115

| DN | 24 V H | 230 V/115 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 | TA-MC100/115 |
|------------------------------|------|---|--------------|--------------|
| 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% | 115 +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

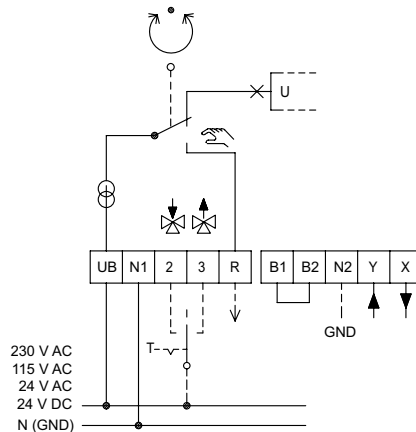
For variants and accessories please contact IMI Hydronic Engineering.

- 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

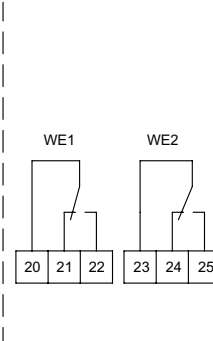
Wiring diagram:

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

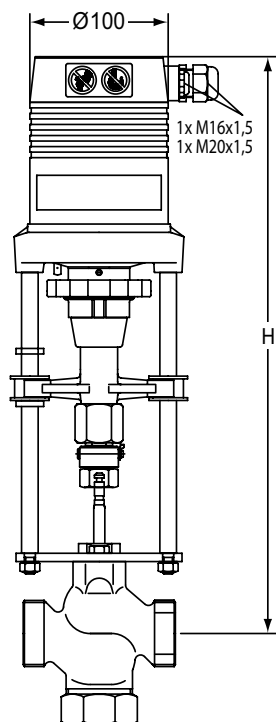
Standard design



Special accessories



Actuator TA-MC161



TA-MC161/24, TA-MC161/230, TA-MC161/115

| DN | 24 V H | 230 V/115 V H | Kg |
|---------|-----------|------------------|-----|
| 32 | 431 | 456 | 3,2 |
| 40 - 50 | 436 | 461 | 3,2 |

Technical description

| | | TA-MC161/24 | TA-MC161/230 | TA-MC161/115 |
|------------------------------|------|---|--------------|--------------|
| Actuating time ¹⁾ | s/mm | | 6 · 4* | |
| Actuating thrust | kN | | 1,6 | |
| Stroke | mm | | max. 20 | |
| Power supply | VAC | 24 ±10% | 230 +6% -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 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

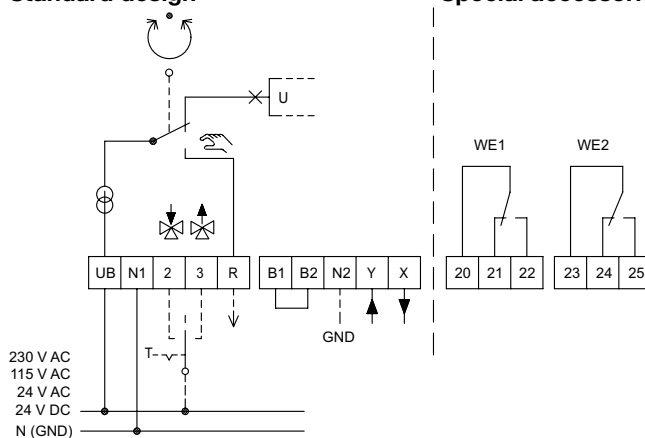
4) Freely adjustable

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

Wiring diagram:

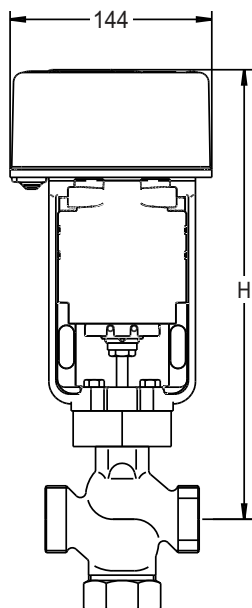
B1/B2 Connection of a binary signal (e.g. frost safety)

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:

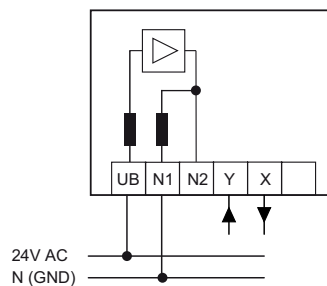
S3-50% ED c/h 1200: EN 60034-1

End position switch-off:

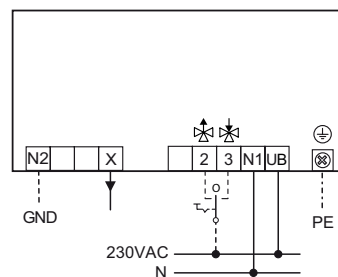
Load-dependent

For variants and accessories please contact IMI Hydronic Engineering.

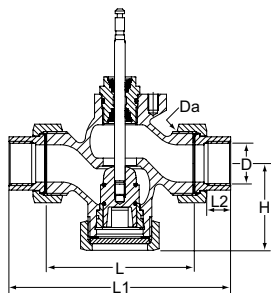
Wiring diagram TA-MC100FSE/24 and TA-MC100FSR/24:



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



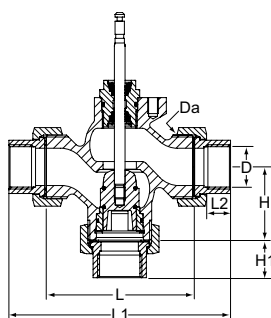
CV216 RGA (2-way)



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

| DN | Size | D | Da | L | L1 | L2 | H | Kvs | Kg | Article No |
|----|--------|-----------|--------|-----|-----|----|----|------|-----|------------|
| 15 | 1/2" | 1/2 NPT | G1 | 62 | 114 | 13 | 48 | 0,63 | 0,9 | 60-237-115 |
| 15 | 1/2" | 1/2 NPT | G1 | 62 | 114 | 13 | 48 | 1,25 | 0,9 | 60-237-215 |
| 15 | 1/2" | 1/2 NPT | G1 | 62 | 114 | 13 | 48 | 1,6 | 0,9 | 60-237-315 |
| 15 | 1/2" | 1/2 NPT | G1 | 62 | 114 | 13 | 48 | 2,5 | 0,9 | 60-237-415 |
| 15 | 1/2" | 1/2 NPT | G1 | 62 | 114 | 13 | 48 | 4 | 0,9 | 60-237-515 |
| 20 | 3/4" | 3/4 NPT | G1 1/4 | 75 | 127 | 15 | 53 | 5 | 1,4 | 60-237-120 |
| 20 | 3/4" | 3/4 NPT | G1 1/4 | 75 | 127 | 15 | 53 | 6,3 | 1,4 | 60-237-220 |
| 25 | 1" | 1 NPT | G1 1/2 | 80 | 138 | 17 | 57 | 8 | 1,7 | 60-237-125 |
| 25 | 1" | 1 NPT | G1 1/2 | 80 | 138 | 17 | 57 | 10 | 1,7 | 60-237-225 |
| 32 | 1 1/4" | 1 1/4 NPT | G2 | 120 | 184 | 19 | 68 | 12,5 | 3,4 | 60-237-132 |
| 32 | 1 1/4" | 1 1/4 NPT | G2 | 120 | 184 | 19 | 68 | 16 | 3,4 | 60-237-232 |
| 40 | 1 1/2" | 1 1/2 NPT | G2 1/4 | 130 | 198 | 19 | 73 | 20 | 4,0 | 60-237-140 |
| 40 | 1 1/2" | 1 1/2 NPT | G2 1/4 | 130 | 198 | 19 | 73 | 25 | 4,0 | 60-237-240 |
| 50 | 2" | 2 NPT | G2 3/4 | 150 | 222 | 24 | 78 | 31,5 | 5,7 | 60-237-150 |
| 50 | 2" | 2 NPT | G2 3/4 | 150 | 222 | 24 | 78 | 40 | 5,7 | 60-237-250 |

CV316 RGA (3-way)



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

| DN | Size | D | Da | L | L1 | L2 | H | H1 | Kvs | Kg | Article No |
|----|--------|-----------|--------|-----|-----|----|----|-----|------|-----|------------|
| 15 | 1/2" | 1/2 NPT | G1 | 62 | 114 | 13 | 40 | 66 | 0,63 | 0,9 | 60-337-115 |
| 15 | 1/2" | 1/2 NPT | G1 | 62 | 114 | 13 | 40 | 66 | 1,25 | 0,9 | 60-337-215 |
| 15 | 1/2" | 1/2 NPT | G1 | 62 | 114 | 13 | 40 | 66 | 1,6 | 0,9 | 60-337-315 |
| 15 | 1/2" | 1/2 NPT | G1 | 62 | 114 | 13 | 40 | 66 | 2,5 | 0,9 | 60-337-415 |
| 15 | 1/2" | 1/2 NPT | G1 | 62 | 114 | 13 | 40 | 66 | 4 | 0,9 | 60-337-515 |
| 20 | 3/4" | 3/4 NPT | G1 1/4 | 75 | 127 | 15 | 41 | 67 | 5 | 1,4 | 60-337-120 |
| 20 | 3/4" | 3/4 NPT | G1 1/4 | 75 | 127 | 15 | 41 | 67 | 6,3 | 1,4 | 60-337-220 |
| 25 | 1" | 1 NPT | G1 1/2 | 80 | 138 | 17 | 45 | 74 | 8 | 1,7 | 60-337-125 |
| 25 | 1" | 1 NPT | G1 1/2 | 80 | 138 | 17 | 45 | 74 | 10 | 1,7 | 60-337-225 |
| 32 | 1 1/4" | 1 1/4 NPT | G2 | 120 | 184 | 19 | 55 | 89 | 12,5 | 3,4 | 60-337-132 |
| 32 | 1 1/4" | 1 1/4 NPT | G2 | 120 | 184 | 19 | 55 | 89 | 16 | 3,4 | 60-337-232 |
| 40 | 1 1/2" | 1 1/2 NPT | G2 1/4 | 130 | 198 | 19 | 60 | 94 | 20 | 4,0 | 60-337-140 |
| 40 | 1 1/2" | 1 1/2 NPT | G2 1/4 | 130 | 198 | 19 | 60 | 94 | 25 | 4,0 | 60-337-240 |
| 50 | 2" | 2 NPT | G2 3/4 | 150 | 222 | 24 | 65 | 101 | 31,5 | 5,7 | 60-337-150 |
| 50 | 2" | 2 NPT | G2 3/4 | 150 | 222 | 24 | 65 | 101 | 40 | 5,7 | 60-337-250 |

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-MC55/115 | 115 VAC | 0,6 | 3-point | 61 055-302 |
| 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-MC100/115 | 115 VAC | 1,0 | 3-point, 0(2)-10 V, 4(0)-20 mA | 61 100-302 |
| 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-MC161/115 | 115 VAC | 1,6 | 3-point, 0(2)-10 V, 4(0)-20 mA | 61 161-302 |
| 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 |

The products, texts, photographs, graphics and diagrams in this document may be subject to alteration by IMI Hydronic Engineering without prior notice or reasons being given. For the most up to date information about our products and specifications, please visit www.imi-hydronic.com.