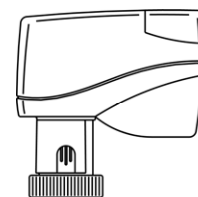


with microcontroller
for two-way and three-way valves
BR216MZ • BR316MZ



MC15

Features

- Microprocessor controlled
- Automatic self-calibration on start up
- Wear-free distance measuring system
- Wire break recognition in 2...10 VDC operation
- Shockproof at 230 VAC, no protective conductor (PE) necessary
- Manual override by hexkeys
- Mechanical position indication
- Operating voltage interrupted in manual operation

Technical data

| Type | | MC15/24 | MC15/230 |
|----------------------------|------|--------------------------|--------------|
| Actuating time | s/mm | 20 | 20 |
| Actuating thrust | kN | 0.15 | 0.15 |
| Stroke | mm | 9 | 9 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ¹⁾ | VDC | 24 ±10% | |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | 2.5 | 2.5 |
| Input signal | | 3-point 0(2)...10 VDC | 3-point |

Enclosure protection: IP 40

Mains connection: 1.5 m flexible cable, 0.5mm², with wire end ferrule

Operating mode: S3 - 100 % ED

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

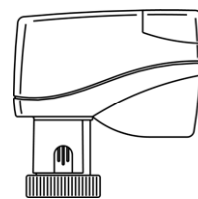
Weight: 0.18 kg

¹⁾ only rectified alternating voltage

Electric actuators

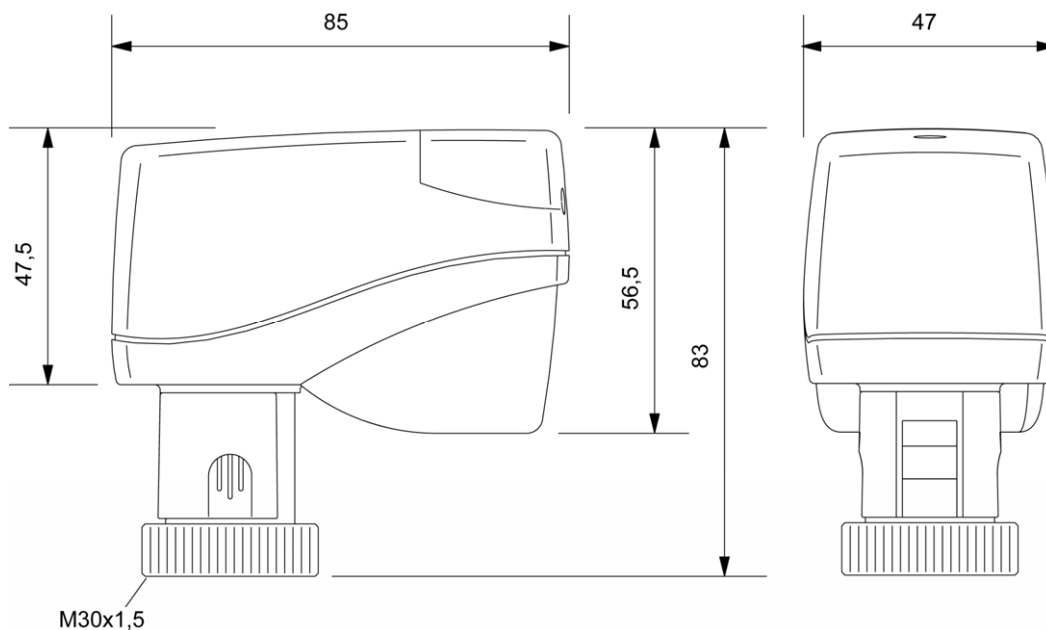
0.15 kN **7.1.1**

with microcontroller
for two-way and three-way valves
BR216MZ • BR316MZ

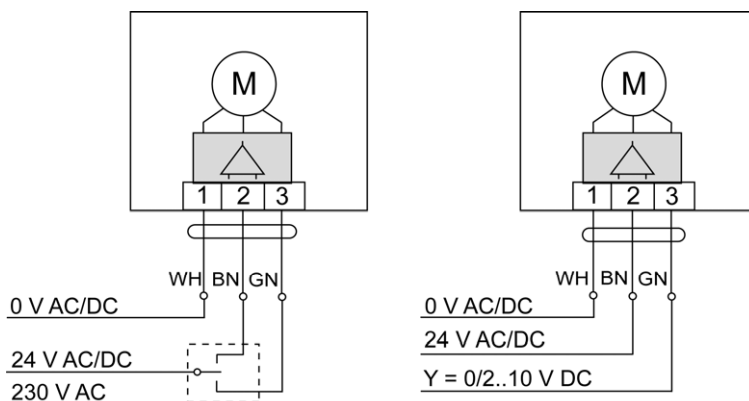


MC15

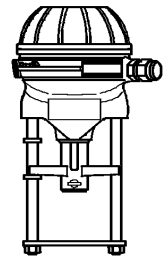
Drawing



Wiring



with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR206GF • BR306GF
BR216GF • BR316GF



**MC55
MC65**

Features

- Microprocessor controlled
- Automatic self-calibration on start up
- Wear-free distance measuring system - no potentiometer
- Wire break recognition in 2...10 VDC operation
- Safety position for switching a binary signal (frost safety)
- Input signal Y and output signal X simultaneously reversible
- Hysteresis 0.3 V in continuous operation (fixed value)
- Shockproof at 230 VAC, no protective conductor (PE) necessary
- Manual override by hand wheel
- Mechanical position indication
- Operating voltage interrupted in manual operation

Technical data

| Type | | MC55/24 | MC65/24 | MC55/230 | MC65/230 | MC55Y | MC65Y |
|------------------------------|------|--|---------|--|----------|---|---------|
| Actuating time ¹⁾ | s/mm | 9 · 5* | | 9 · 5* | | 9 · 5* | |
| Actuating thrust | kN | 0.6 | | 0.6 | | 0.6 | |
| Stroke | mm | max. 14 | max. 20 | max. 14 | max. 20 | max. 14 | max. 20 |
| Power supply | VAC | 24 ±10% | | 230 +6% -10% | | 24 ±10% | |
| Power supply ²⁾ | VDC | 24 ±10% | | | | 24 ±10% | |
| Frequency | Hz | 50/60 ±5% | | 50/60 ±5% | | 50/60 ±5% | |
| Power consumption | VA | 3.5 | | 7 | | 3.5 | |
| Input signal ³⁾ | | 3-point | | 3-point | | 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | | 0...10 VDC max. 8 mA min. 1200 Ohm | | 0...10 VDC max. 8 mA min. 1200 Ohm | |
| Hysteresis | V | 0.3 | | 0.3 | | 0.3 | |

Enclosure protection: IP 54 in automatic operation
IP 30 in manual operation

Resolution: electric 0.04 VDC
mechanical 0.06 mm

Mains connection: Actuator with terminal

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

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

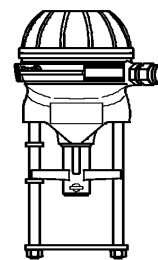
Weight: 1.5 kg

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

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

with microcontroller
 for two-way and three-way valves
 BR216RA • BR316RA
 BR206GF • BR306GF
 BR216GF • BR316GF

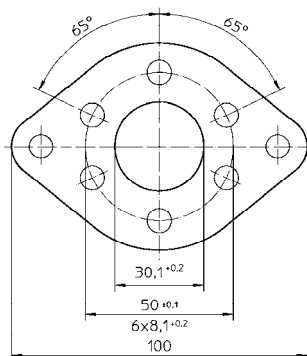
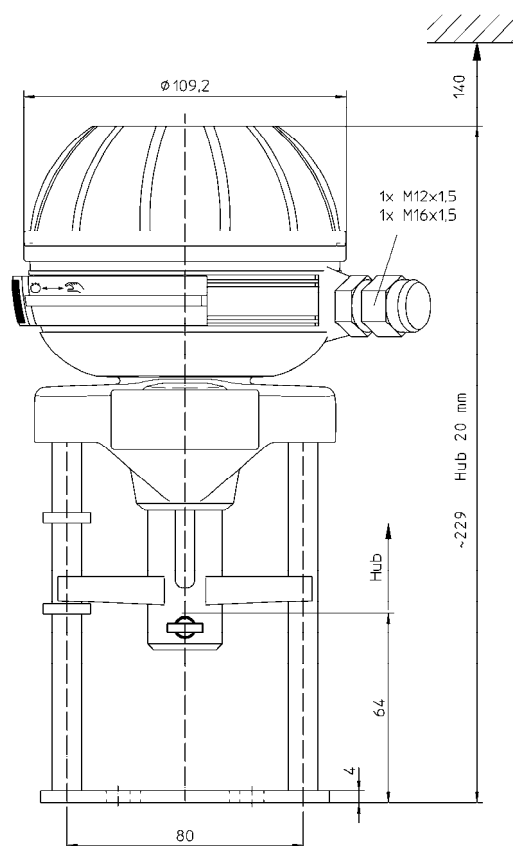
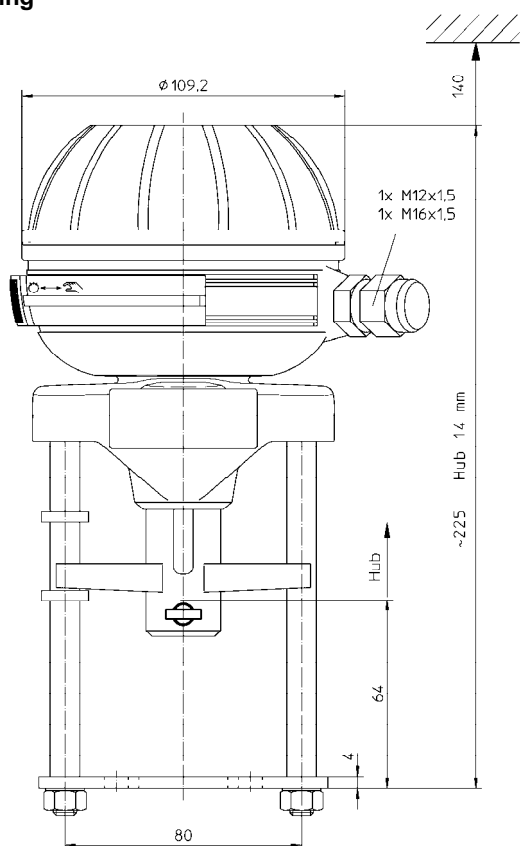


MC55
MC65

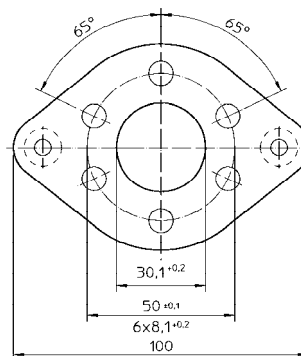
Actuator variant and accessories

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

Drawing

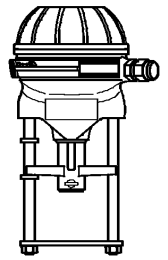


MC55



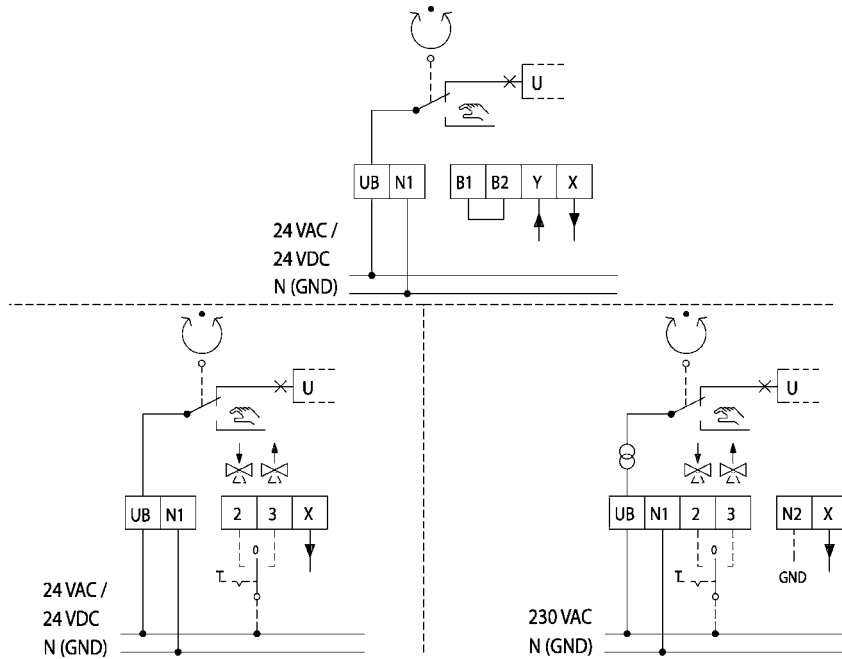
MC65

with microcontroller
 for two-way and three-way valves
 BR216RA • BR316RA
 BR206GF • BR306GF
 BR216GF • BR316GF



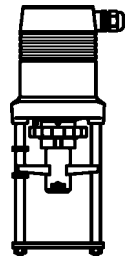
MC55
 MC65

Circuit diagram



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

with microcontroller
 for two-way and three-way valves
 BR216RA • BR316RA
 BR216RA-TW • BR316RA-TW
 BR206GF • BR306GF
 BR216GF • BR316GF



MC100

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

| Type | | MC100/24 | MC100/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 12 · 9* · 4 · 1.9 | 12 · 9* · 4 · 1.9 |
| Actuating thrust | kN | 1.0 | 1.0 |
| Stroke | mm | max. 20 | max. 20 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | 6 | 12 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.15 · 0.5 | 0.15 · 0.5 |

Enclosure protection: IP 54

Resolution: electric 0.04 VDC
 mechanical 0.095 mm

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

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight: 2.5 kg

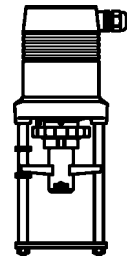
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
 for two-way and three-way valves
 BR216RA • BR316RA
 BR216RA-TW • BR316RA-TW
 BR206GF • BR306GF
 BR216GF • BR316GF

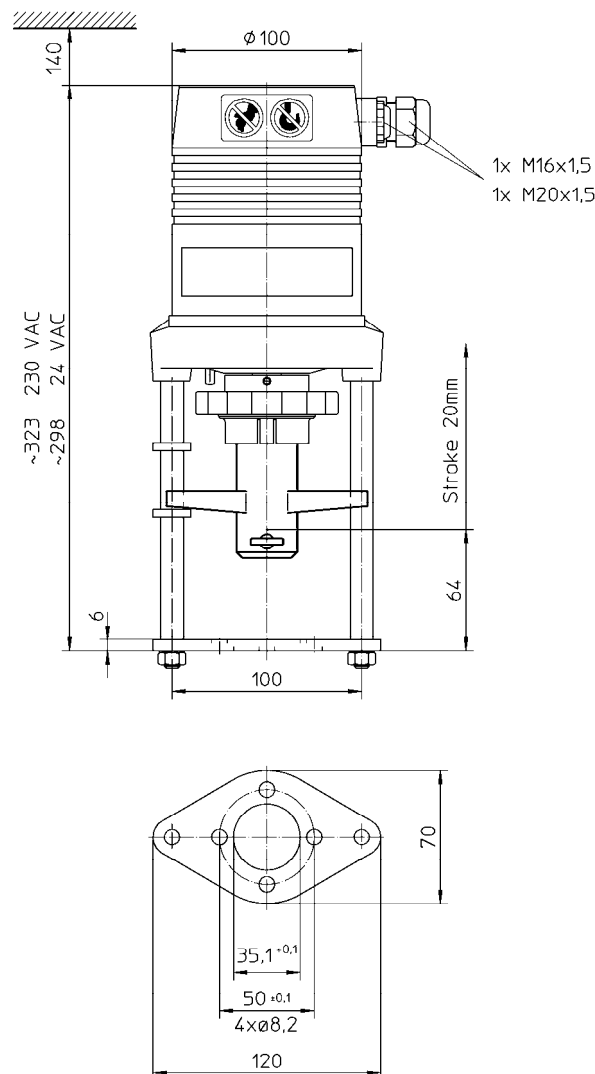


MC100

Actuator variant and accessories

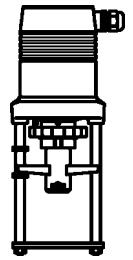
- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
 Rated load: 8 A / 250 VAC
 8 A / 30 VDC
 Turn-on voltage: max. 400 VAC
 max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Drawing



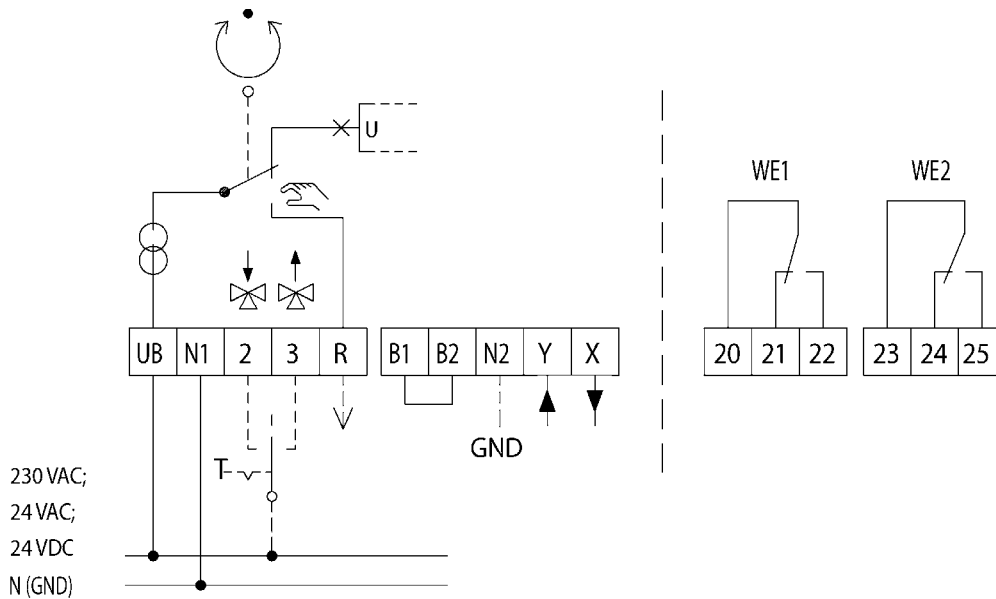
¹⁾ Position switch unit and output signal 0(4)...20 mA not in combination

with microcontroller
 for two-way and three-way valves
 BR216RA • BR316RA
 BR216RA-TW • BR316RA-TW
 BR206GF • BR306GF
 BR216GF • BR316GF



MC100

Circuit diagram



R Feedback signal in „Manual“ mode of operation
 R=24 VAC max.100 mA for actuators in 24 VAC design
 R=24 VDC max.100 mA for actuators in 24 VDC design
 R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

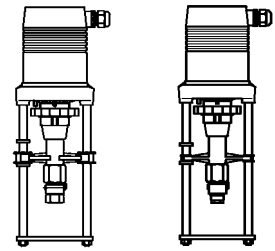
If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

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

Electric actuators

1.6 kN **7.1.5**

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR216RA-TW • BR316RA-TW
BR206GF • BR306GF
BR216GF • BR316GF



MC161

MC160

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

| Type | | MC160/24 | MC161/24 | MC160/230 | MC161/230 |
|------------------------------|------|--|----------------------------|--|----------------------------|
| Actuating time ¹⁾ | s/mm | 6 · 4* | | 6 · 4* | |
| Actuating thrust | kN | 1.6 | | 1.6 | |
| Stroke | mm | max. 30 | max. 20 | max. 30 | max. 20 |
| Power supply | VAC | 24 ±10% | | 230 +6% -10% | |
| Power supply ²⁾ | VDC | 24 ±10% | | - | |
| Frequency | Hz | 50/60 ±5% | | 50/60 ±5% | |
| Power consumption | VA | 6 | | 12 | |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 0(4)...20 mA | 77 kOhm 0.51 kOhm | 3-point 0(2)...10 VDC 0(4)...20 mA | 77 kOhm 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC | max. 8 mA min. 1200 Ohm | 0...10 VDC | max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | | 0.05 · 0.15 · 0.3 · 0.5 | |

Enclosure protection: IP 54

Resolution: electric 0.04 VDC
mechanical 0.05 mm

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

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight: 3.2 kg

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

²⁾ only rectified alternating voltage

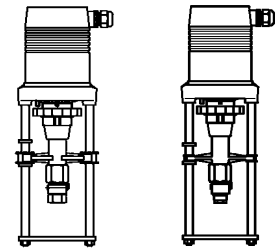
³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

Electric actuators

1.6 kN **7.1.5**

with microcontroller
for two-way and three-way valves
BR216RA • BR316RA
BR216RA-TW • BR316RA-TW
BR206GF • BR306GF
BR216GF • BR316GF



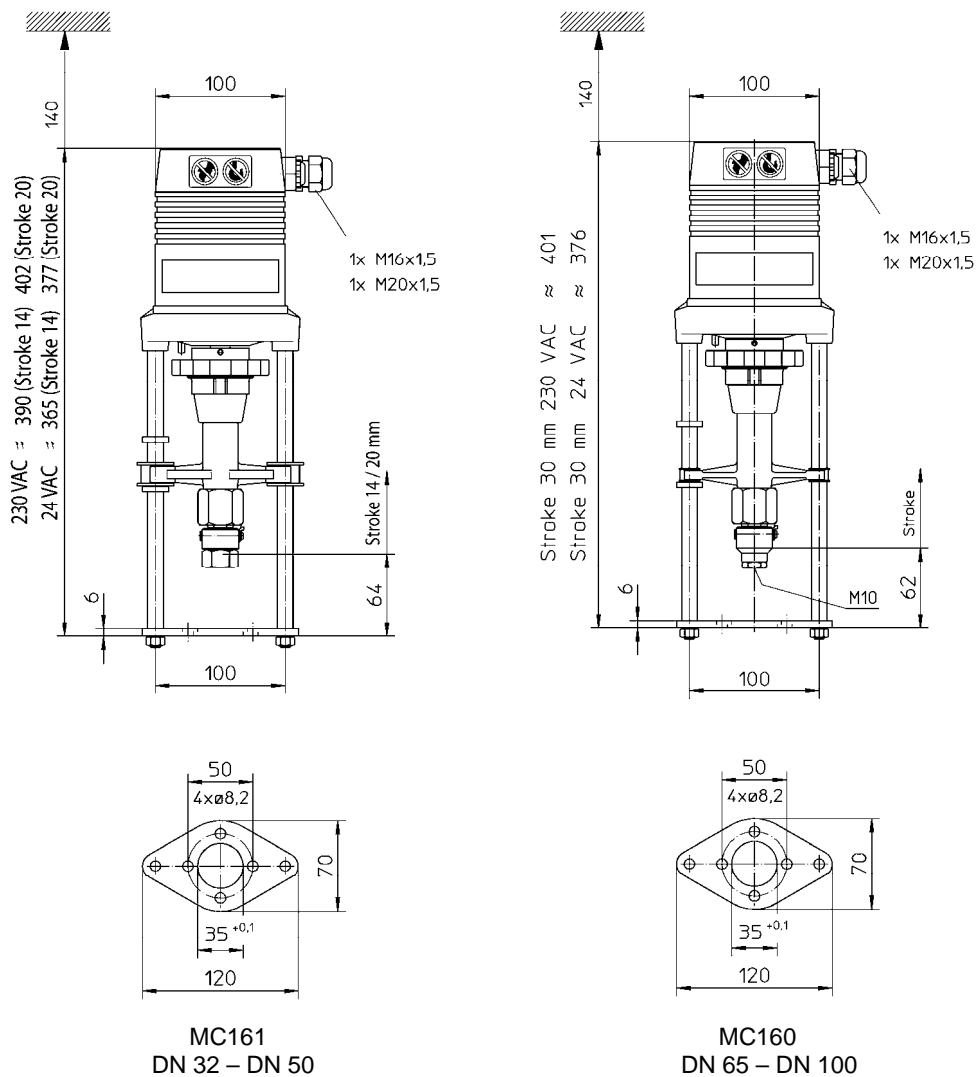
MC161

MC160

Actuator variant and accessories

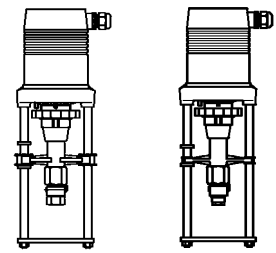
- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Drawing



¹⁾ Position switch unit and output signal not in combination

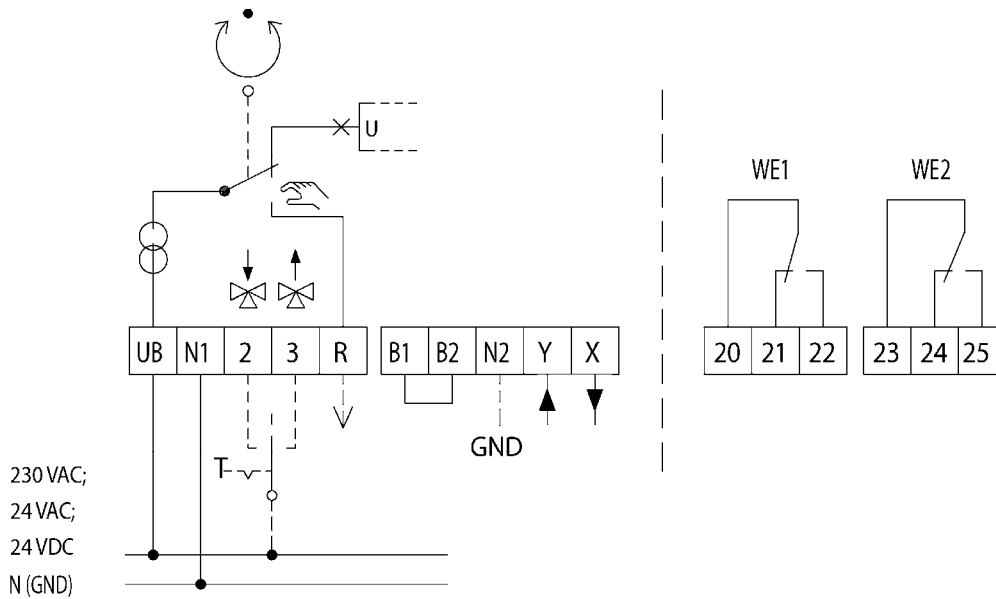
with microcontroller
 for two-way and three-way valves
 BR216RA • BR316RA
 BR216RA-TW • BR316RA-TW
 BR206GF • BR306GF
 BR216GF • BR316GF



MC161

MC160

Circuit diagram



R Feedback signal in „Manual“ mode of operation
 R=24 VAC max.100 mA for actuators in 24 VAC design
 R=24 VDC max.100 mA for actuators in 24 VDC design
 R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.
 If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

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

with microcontroller
for two-way and three-way valves
BR206GF • BR306GF
BR216GF • BR316GF



**MC250
MC400
MC500
MC1000**

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Integrated, self-controlling heater
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

| Type | | MC250/24 | MC250/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 5 · 2.5* | 5 · 2.5* |
| Actuating thrust | kN | 2.5 | 2.5 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 18 | max. 25 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

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

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR206GF • BR306GF
BR216GF • BR316GF



**MC250
MC400
MC500
MC1000**

| Type | | MC400/24 | MC400/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 0,6 · 0,4* | 0,6 · 0,4* |
| Actuating thrust | kN | 4,0 | 4,0 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 50 | max. 63 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0,51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0,51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0,05 · 0,15 · 0,3 · 0,5 | 0,05 · 0,15 · 0,3 · 0,5 |

| Type | | MC500/24 | MC500/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 5 · 2,5* | 5 · 2,5* |
| Actuating thrust | kN | 5,0 | 5,0 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 18 | max. 25 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0,51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0,51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0,05 · 0,15 · 0,3 · 0,5 | 0,05 · 0,15 · 0,3 · 0,5 |

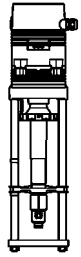
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR206GF • BR306GF
BR216GF • BR316GF



**MC250
MC400
MC500
MC1000**

| Type | | MC1000/24 ³⁾ | MC1000/230 ³⁾ |
|-----------------------------|------|--|--|
| Actuating time | s/mm | 1 | 1 |
| Actuating thrust | kN | 10 | 10 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 50 | max. 63 |
| Input signal ¹⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ¹⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ²⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

Enclosure protection: IP 54

Resolution: MC... electric 0.04 VDC
MC250 / MC500 mechanical 0.04 mm
MC400 mechanical 0,12 mm
MC1000 mechanical 0.05 mm

Operating mode: MC250 / MC500 S3-50% ED c/h 1200 EN 60034-1
MC400 / MC1000 S3-30% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: -10...+60°C

Weight: MC250/24 and MC500/24 7.0 kg
MC250/230 and MC500/230 8.2 kg
MC400 9,5 kg
MC1000 11.0 kg

¹⁾ Invertible input and output signal

²⁾ Freely adjustable

³⁾ only for BR216GF/BR316GF

Actuator variant and accessories

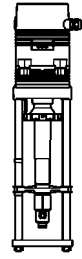
3/6 HORA
Holter Regelarmaturen GmbH & Co. KG
Geschäftsbereich Flow Control

Helleforthstrasse 58 – 60
33758 Schloss Holte-Stukenbrock
Germany

phone: +49 (0) 52 07 / 89 03 - 0
mail: fc@hora.de
www.hora.de



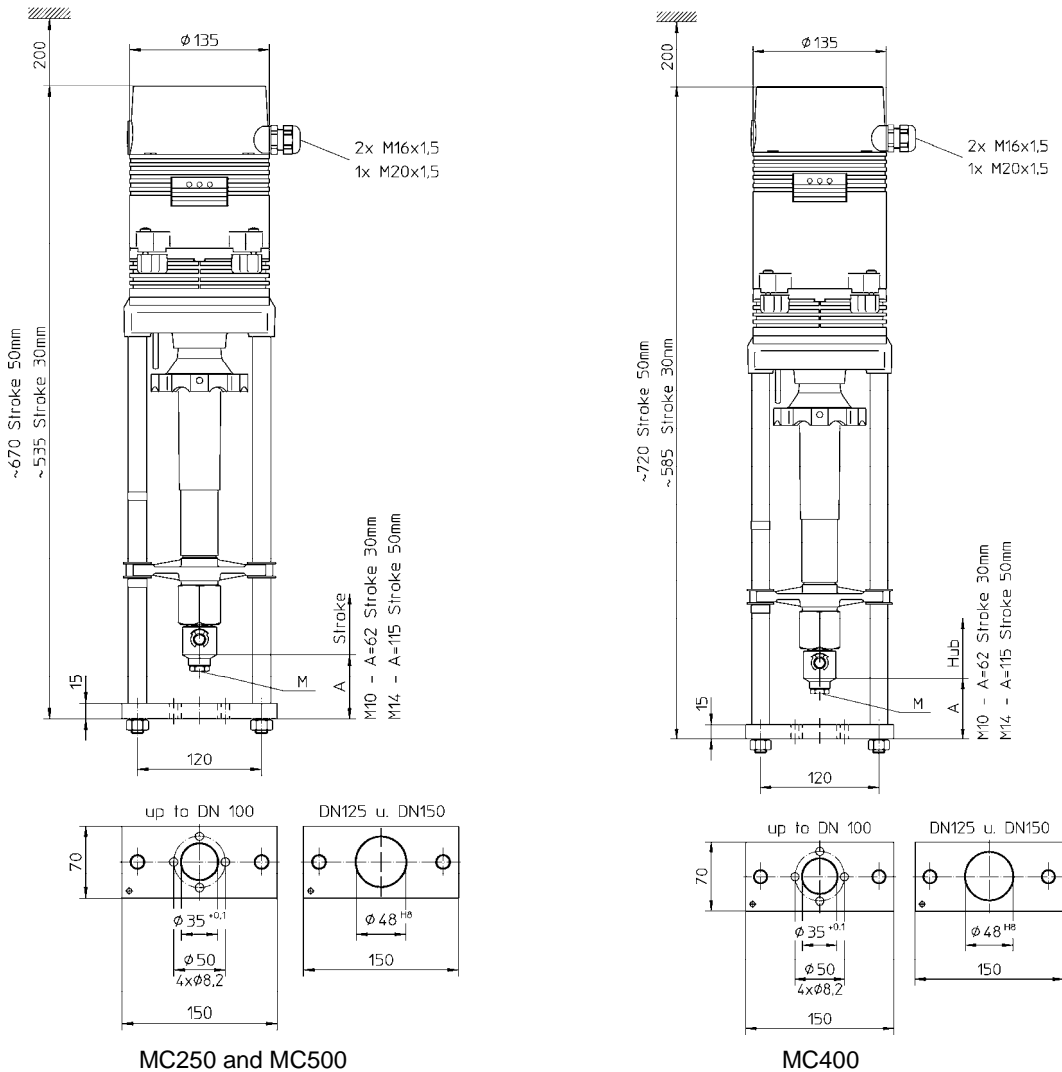
with microcontroller
 for two-way and three-way valves
 BR206GF • BR306GF
 BR216GF • BR316GF



MC250
MC400
MC500
MC1000

- Voltage: 115 VAC
- Position switch unit: 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
- Board for output signal X=0(4)...20 mA
- Adapter with coupling for external products

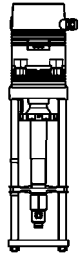
Drawing



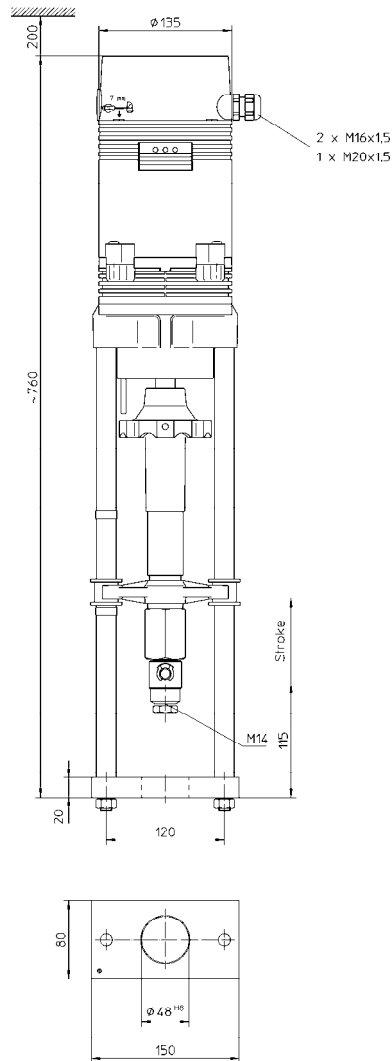
Electric actuators

2.5 - 10 kN **7.1.7**

with microcontroller
for two-way and three-way valves
BR206GF • BR306GF
BR216GF • BR316GF

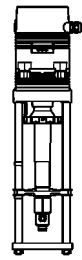


MC250
MC400
MC500
MC1000



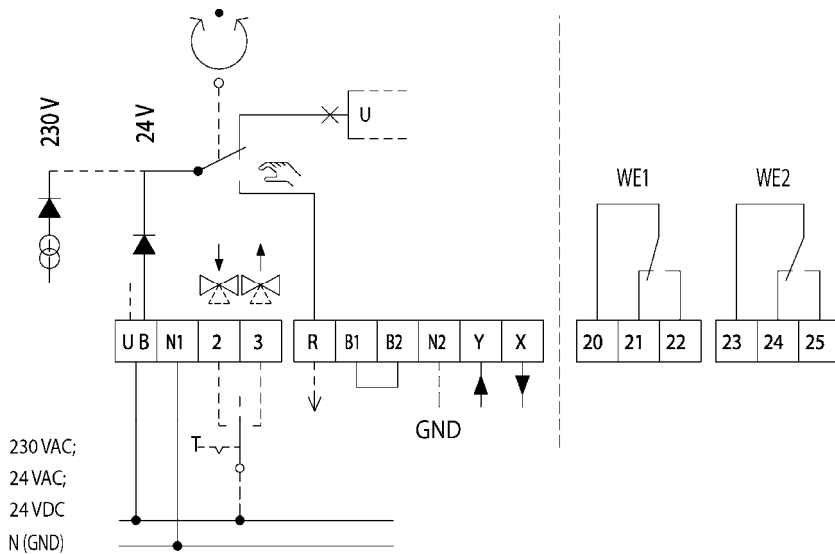
MC1000

with microcontroller
 for two-way and three-way valves
 BR206GF • BR306GF
 BR216GF • BR316GF



MC250
 MC400
 MC500
 MC1000

Circuit diagram



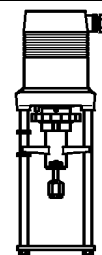
R Feedback signal in „Manual“ mode of operation
 R=24 VAC max.100 mA for actuators in 24 VAC design
 R=24 VDC max.100 mA for actuators in 24 VDC design
 R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be used by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

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

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC103

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

| Type | | MC103/24 ⁵⁾ | MC103/230 ⁵⁾ |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 12 · 9 · 4* · 1.9 | 12 · 9 · 4* · 1.9 |
| Actuating thrust | kN | 1.0 | 1.0 |
| Stroke | mm | max. 20 | max. 20 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | 6 | 12 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.15 · 0.5 | 0.15 · 0.5 |

Enclosure protection: IP 54

Resolution: electric 0.04 VDC
mechanical 0.095 mm

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

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight: 2.5 kg

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

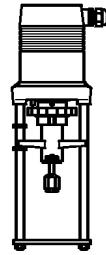
²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

⁵⁾ Actuator suitable for medium temperature up to 150°C

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E

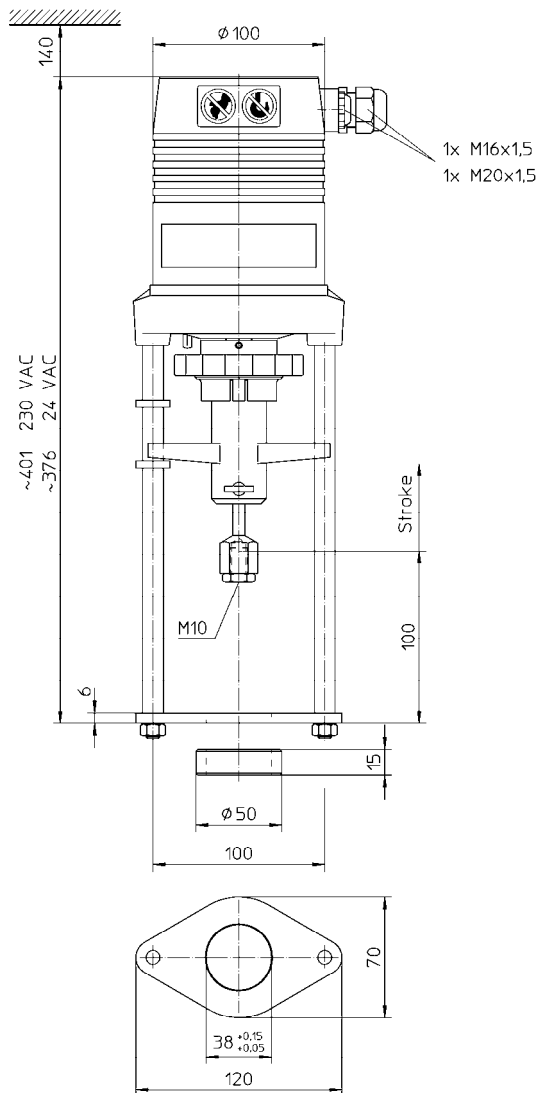


MC103

Actuator variant and accessories

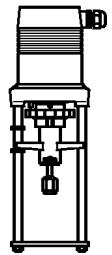
- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Drawing



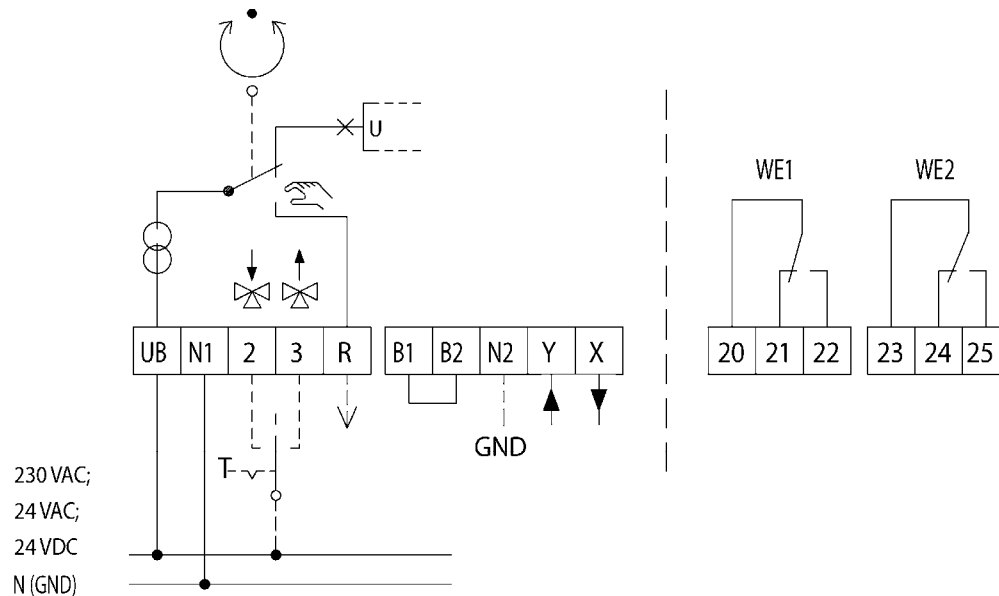
¹⁾ Position switch unit and output signal 0(4)...20 mA not in combination

with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E



MC103

Circuit diagram



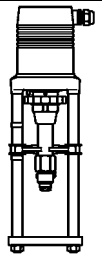
R Feedback signal in „Manual“ mode of operation
 R=24 VAC max.100 mA for actuators in 24 VAC design
 R=24 VDC max.100 mA for actuators in 24 VDC design
 R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

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

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC163

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

| Type | | MC163/24 | MC163/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 6 · 4* | 6 · 4* |
| Actuating thrust | kN | 1.6 | 1.6 |
| Stroke | mm | max. 30 | max. 30 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | 6 | 12 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

Enclosure protection: IP 54

Resolution: electric 0.04 VDC
mechanical 0.05 mm

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

End position switch-off: load-dependent

Ambient temperature: 0...+60°C

Weight: 4.0 kg

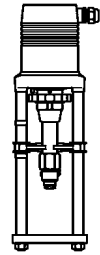
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E

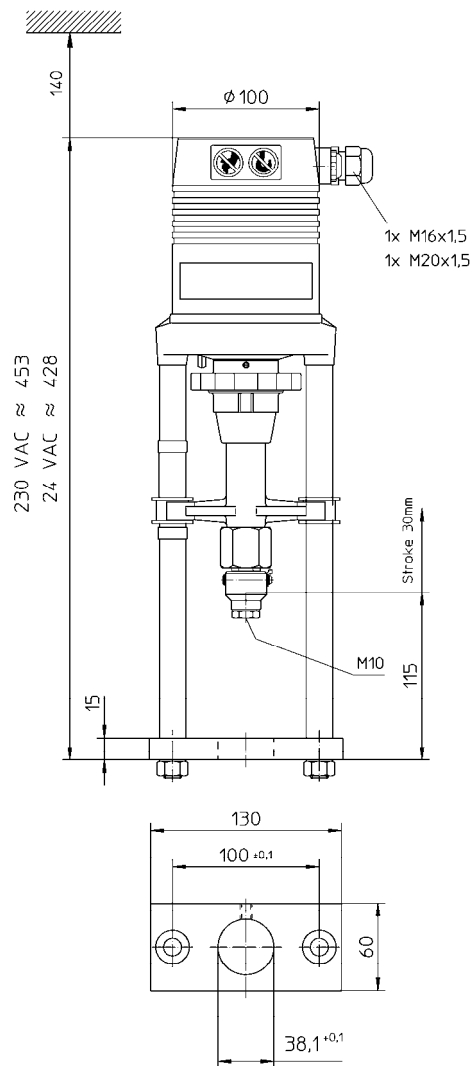


MC163

Actuator variant and accessories

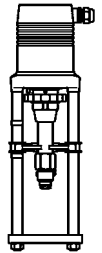
- Voltage: 115 VAC
- Position switch unit ¹⁾: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC
8 A / 30 VDC
Turn-on voltage: max. 400 VAC
max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA ¹⁾
- Adapter with coupling for external products

Drawing



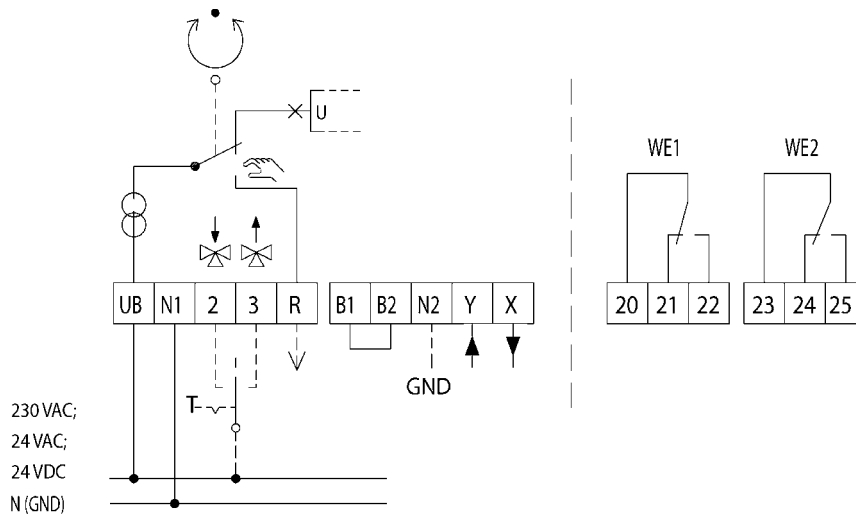
¹⁾ Position switch unit and output signal not in combination

with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E



MC163

Circuit diagram

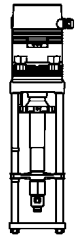


R Feedback signal in „Manual“ mode of operation
 R=24 VAC max.100 mA for actuators in 24 VAC design
 R=24 VDC max.100 mA for actuators in 24 VDC design
 R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.
 If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

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

with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Integrated, self-controlling heater
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

| Type | | MC253/24 | MC253/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 5 · 2.5* | 5 · 2.5* |
| Actuating thrust | kN | 2.5 | 2.5 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 18 | max. 25 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

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

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

| Type | | MC403/24 | MC403/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 0.6 · 0.4* | 0.6 · 0.4* |
| Actuating thrust | kN | 4.0 | 4.0 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 50 | max. 63 |
| Input signal ³⁾ | | 3-Punkt 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-Punkt 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

| Type | | MC503/24 | MC503/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 5 · 2.5* | 5 · 2.* |
| Actuating thrust | kN | 5.0 | 5.0 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 18 | max. 25 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

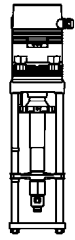
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

| Type | | MC1003/24 | MC1503/24 | MC1003/230 | MC1503/230 |
|------------------------------|------|--|----------------------|--|----------------------|
| Actuating time ¹⁾ | s/mm | 1 | 2 | 1 | 2 |
| Actuating thrust | kN | 10 | 15 | 10 | 15 |
| Stroke | mm | max. 80 | | max. 80 | |
| Power supply | VAC | 24 ±10% | | 230 +6% -10% | |
| Frequency | Hz | 50/60 ±5% | | 50/60 ±5% | |
| Power consumption | VA | max. 50 | | max. 63 | |
| Input signal ²⁾ | | 3-point 0(2)...10 VDC 0(4)...20 mA | 77 kOhm 0.51 kOhm | 3-point 0(2)...10 VDC 0(4)...20 mA | 77 kOhm 0.51 kOhm |
| Output signal ²⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | | 0...10 VDC max. 8 mA min. 1200 Ohm | |
| Hysteresis ³⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | | 0.05 · 0.15 · 0.3 · 0.5 | |

Enclosure protection: IP 54

Resolution: MC... electric 0.04 VDC
MC253 / MC503 mechanical 0.04 mm
MC403 mechanical 0.12 mm
MC1003 / MC1503 mechanical 0.05 mm

Operating mode: MC253 / MC503 S3-50% ED c/h 1200 EN 60034-1
MC403 / MC1003 / MC1503 S3-30% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: MC253 / MC503 / MC403 / MC503 / MC1003 -10...+60°C
MC1503 -10...+50°C

Weight: MC253/24 and MC503/24 7.4 kg
MC253/230 and MC503/230 8.6 kg
MC403 9.5 kg
MC1003 / MC1503 11.5 kg

Actuator variant and accessories

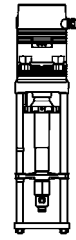
- Voltage: 115 VAC
- Position switch unit: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC or 8 A / 30 VDC
Turn-on voltage: max. 400 VAC / max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA
- Adapter with coupling for external products

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

²⁾ Invertible input and output signal

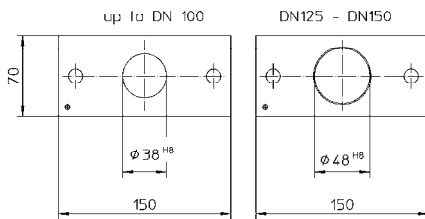
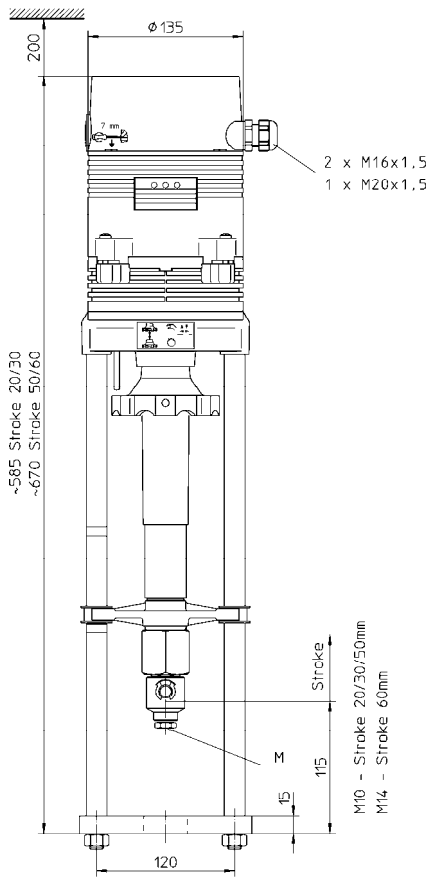
³⁾ Freely adjustable

with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E

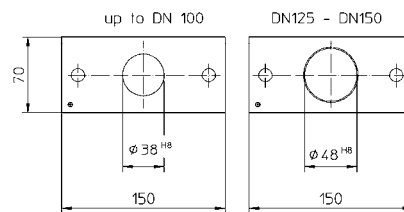
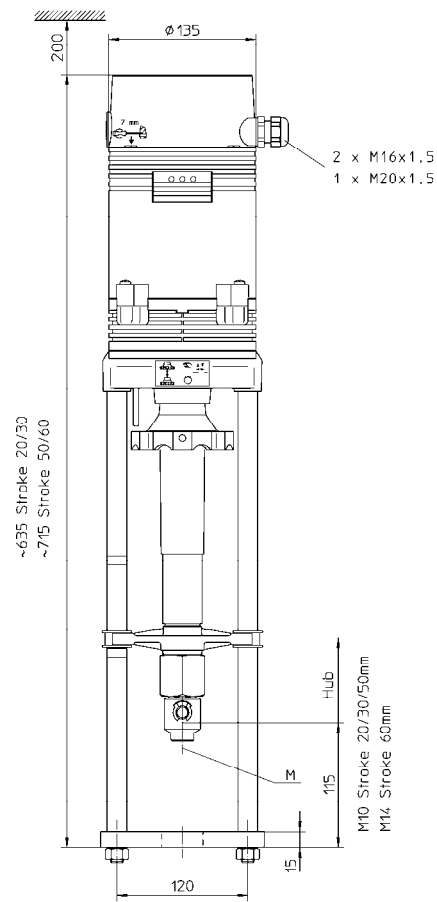


MC253
MC403
MC503
MC1003
MC1503

Drawing

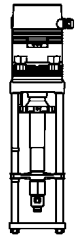


MC253 and MC503

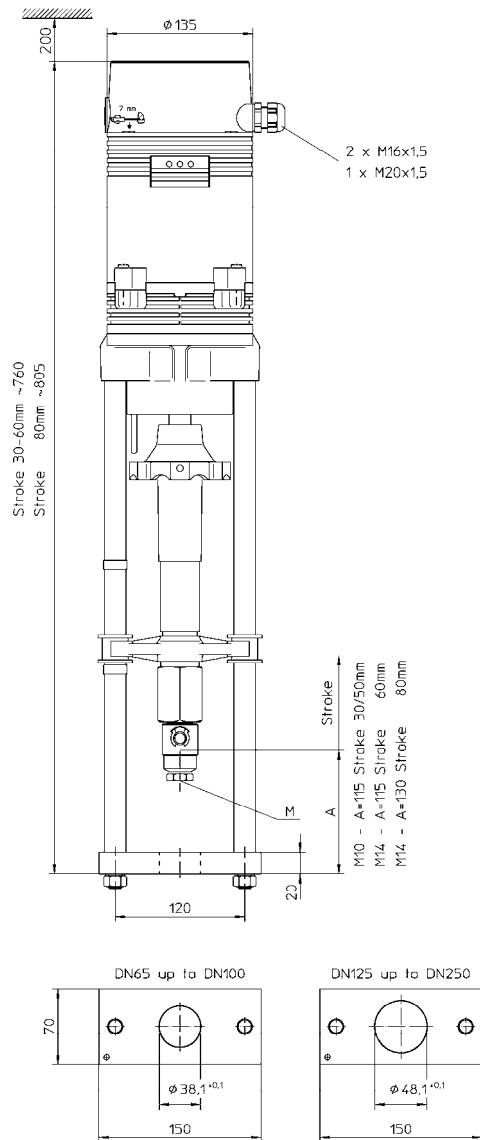


MC403

with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E

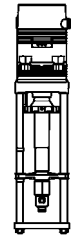


MC253
MC403
MC503
MC1003
MC1503



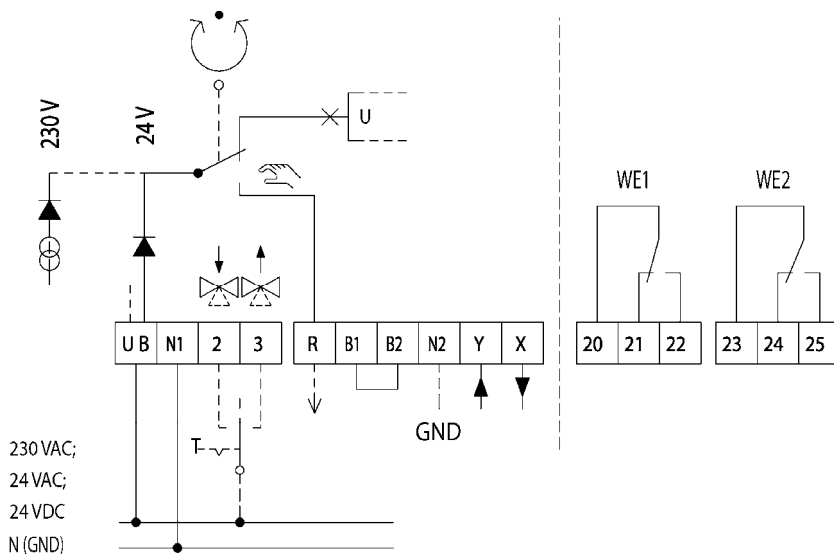
MC1003
MC1503

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

Circuit diagram



R Feedback signal in „Manual“ mode of operation
R=24 VAC max.100 mA for actuators in 24 VAC design
R=24 VDC max.100 mA for actuators in 24 VDC design
R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

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

with microcontroller and spring return
for two-way valves
BR225
BR240S
BR240E



MC103SE
MC253SE

Features

- Electric linear actuator with defined end position in case of power failure (actuator stem extended)
- Electro-mechanic safety function (spring reserve), hydraulically damped
- Microprocessor controlled with automatic calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Terminals for binary signal to move to a limit position (frost protection)
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

| Type | | MC103SE/24 | MC103SE/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 6 · 4* | 6 · 4* |
| Fail-safe time | s/mm | approx 0.1 | approx 0.1 |
| Actuating thrust | kN | 1.0 | 1.0 |
| Stroke | mm | max. 20 | max. 20 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 25 | max. 20 |
| Input signal ²⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ²⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ³⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

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

²⁾ Invertible input and output signal

³⁾ Freely adjustable

with microcontroller and spring return
for two-way valves
BR225
BR240S
BR240E



MC103SE
MC253SE

| Type | | MC253SE/24 | MC253SE/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 5 · 2,5* | 5 · 2,5* |
| Fail-safe time | s/mm | approx 0.1 | approx 0.1 |
| Actuating thrust | kN | 2.5 | 2.5 |
| Stroke | mm | max. 40 | max. 40 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 50 | max. 80 |
| Input signal ²⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ²⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ³⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

| | | |
|--------------------------|--------------------|------------|
| Enclosure protection: | IP 54 | |
| Resolution: | electric | 0.04 VDC |
| | mechanical | 0.04 mm |
| Operating mode: | S3-50% ED c/h 1200 | EN 60034-1 |
| End position switch-off: | load-dependent | |
| Ambient temperature: | 0...+60°C | |
| Weight: | MC103SE | 5.0 kg |
| | MC253SE | 13.0 kg |

Actuator variant and accessories

- Voltage: 115 VAC
- Position switch unit ⁴⁾: 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
- Board for output signal X=0(4)...20 mA ⁴⁾
- Adapter with coupling for external products

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

²⁾ Invertible input and output signal

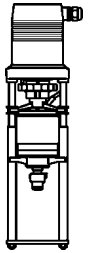
³⁾ Freely adjustable

⁴⁾ Position switch unit and output signal not in combination

Electric actuators with spring return

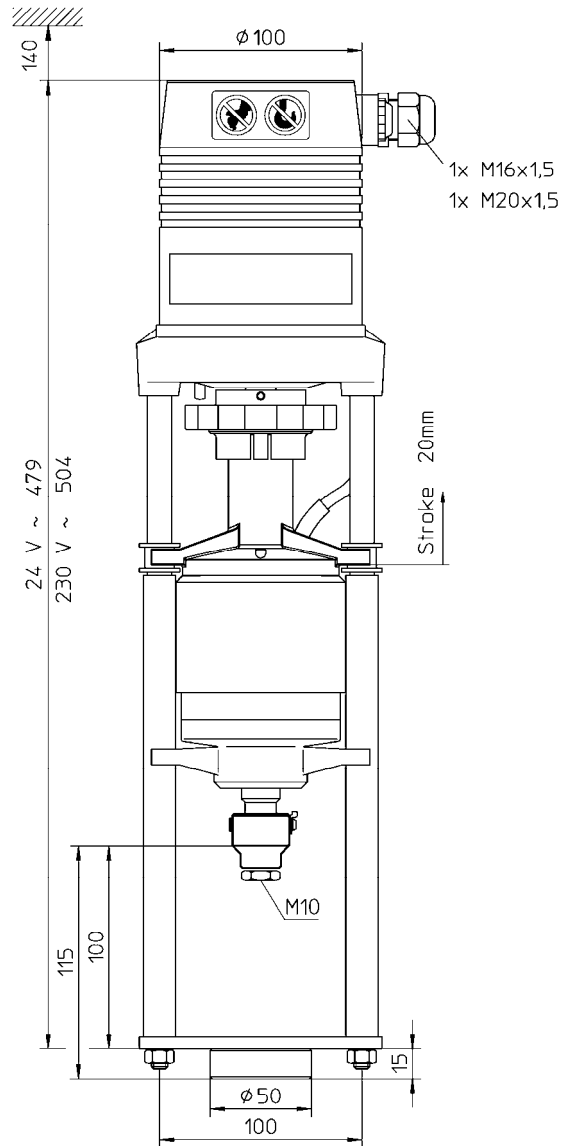
1.0 – 2.5 kN **7.3.2**

with microcontroller and spring return
for two-way valves
BR225
BR240S
BR240E



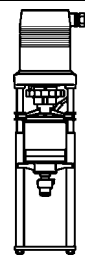
MC103SE
MC253SE

Drawing

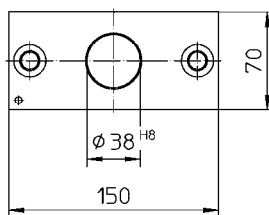
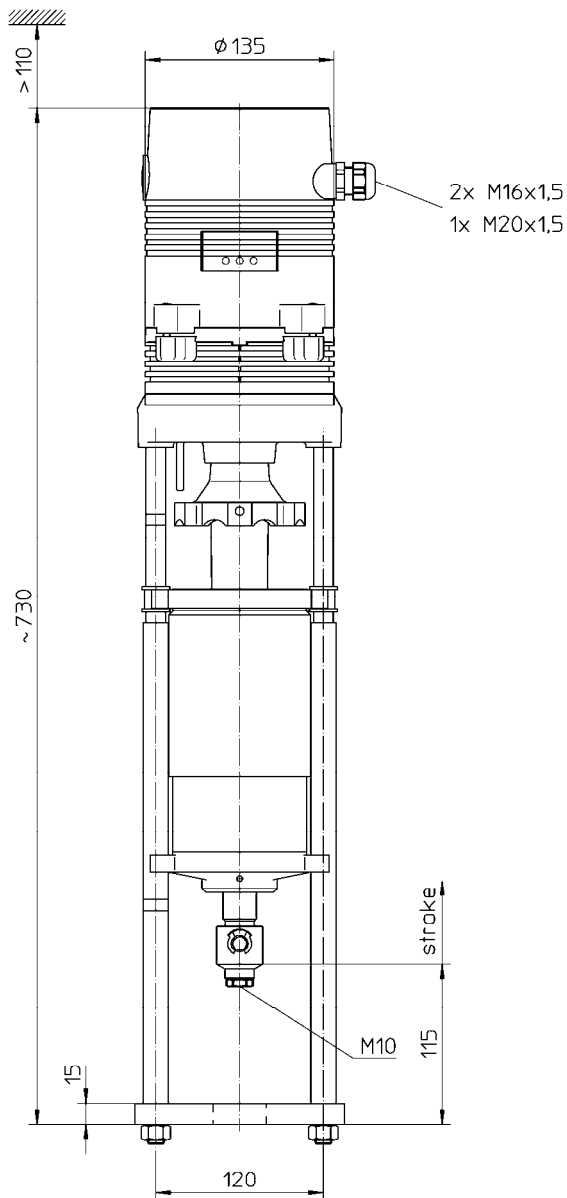


MC103SE

with microcontroller and spring return
 for two-way valves
 BR225
 BR240S
 BR240E



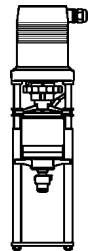
MC103SE
 MC253SE



MC253SE

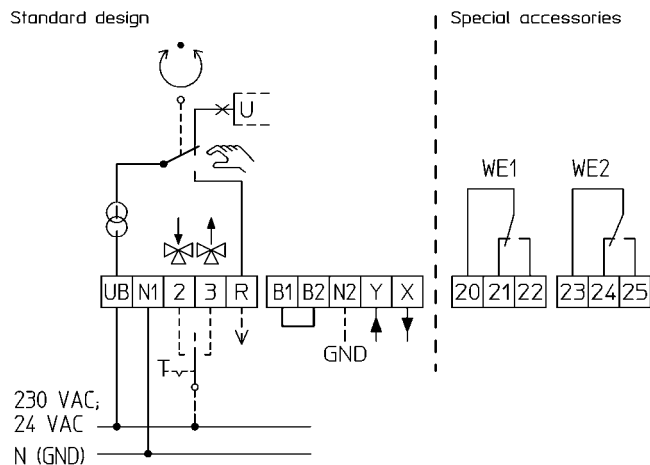
01/03/2011 Data subject to change without notice

with microcontroller and spring return
for two-way valves
BR225
BR240S
BR240E



MC103SE
MC253SE

Circuit diagram



R Feedback signal in „Manual“ mode of operation

R=24 VAC max.100 mA for actuators in 24 VAC design

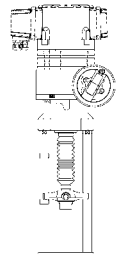
R=24 VDC max. 35 mA for actuators in 230 VAC design, resistance of load > 480 Ohm

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

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

with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E



Features MH2503

- Electric linear actuator for industrial applications, controlled by microprocessor, with automatic self-calibration
- Innovative eccentric cycloidal motor/gearbox design, incorporating a large-dimensioned and highly efficient 3-phase HORA motor
- High thrust of 25kN, combined with a fast actuating speed of 2mm/s
- Compact design and long stroke
- In series suitable for modulated control signals and 3-point control
- Integrated thrust-measuring sensor and permanent thrust detection
- Path-measuring system, supplying absolute values of travel, with a wear-free magnetic Hall-Effect sensor
- Automatic self-calibration at start up
- Connection-terminal in a separate terminal box. No need to open the actuators main housing
- Integrated, self-regulating heater
- Manual hand wheel with retractable crank
- Input and output signal independently invertible
- Wire break recognition in 2... 10 VDC and 4... 20 mA operation
- Binary input to travel to a pre-defined end position (e.g. for frost protection purposes, etc.)
- Hysteresis selectable

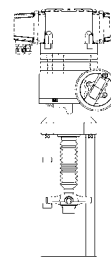
Technical data

| Type | MH2503 | |
|-------------------|--------|---|
| Actuating time | s/mm | 0.5 |
| Actuating thrust | kN | 25 |
| Stroke | mm | 100 |
| Power supply | VAC | 230 +6% -10% |
| Frequency | Hz | 50/60 ±5% |
| Power consumption | VA | max. 500VA, Power Rating 250VA standby power consumption <10VA |
| Input signal | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0,51 kOhm |
| Output signal | | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis | V | 0.05 · 0.15 · 0.3 · 0.5 |

| | | |
|--------------------------|--------------------|------------|
| Enclosure protection: | IP 65 | |
| Resolution: | electrical | 10 mV |
| | mechanical | 0.15 mm |
| Operating mode: | S3-50% ED c/h 1200 | EN 60034-1 |
| | S3-30% ED c/h 1200 | EN 60034-1 |
| End position switch-off: | load-dependent | |
| Ambient temperature: | -10...+60°C | |
| Weight: | approx. 24 kg | |

05/05/2015 Data subject to change without notice

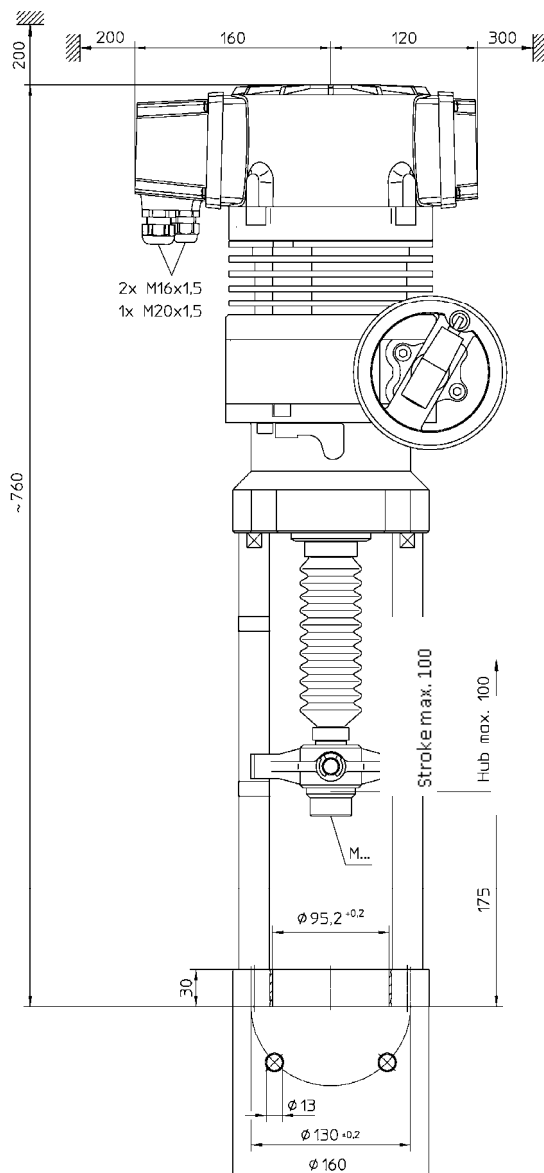
with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E



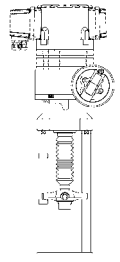
Actuator variant and accessories

- Position switch unit: Complete Connection Board, 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
- Pluggable IC-board for an output signal X = 0(4)...20 mA
- Linkages for valves of other makes

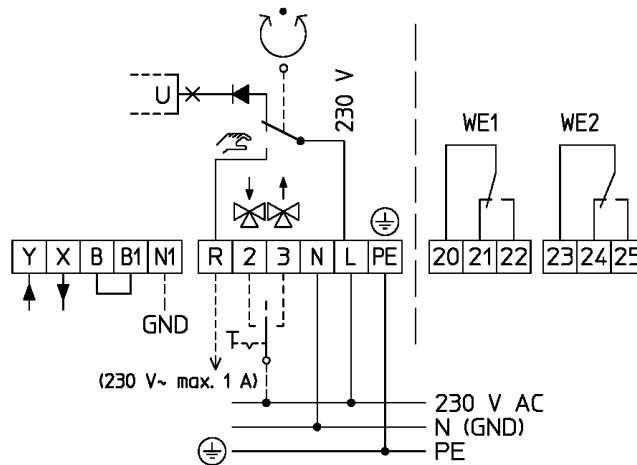
Dimensions:



with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E



Circuit diagram:



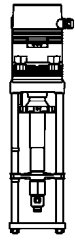
R: Status signal for „Manual“ mode of operation, R=230 VAC max.1 A

N1: Zero potential of the „X“, and „Y“ signals.

If the actuator is used in the „continuous“ mode of operation by supplying an analogue signal „Y“, the connection of N1 (zero potential of the controller) is absolutely necessary. In „3-point“ mode of operation, it is only necessary to connect N1 if the feedback signal „X“ is to be used as well.

B1/B2: Connection of a binary signal (e.g. for frost protection purposes, etc.)

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Integrated, self-controlling heater
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

| Type | | MC253/24 | MC253/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 5 · 2.5* | 5 · 2.5* |
| Actuating thrust | kN | 2.5 | 2.5 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 18 | max. 25 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

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

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

| Type | | MC403/24 | MC403/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 0.6 · 0.4* | 0.6 · 0.4* |
| Actuating thrust | kN | 4.0 | 4.0 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 50 | max. 63 |
| Input signal ³⁾ | | 3-Punkt 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-Punkt 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

| Type | | MC503/24 | MC503/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 5 · 2.5* | 5 · 2.* |
| Actuating thrust | kN | 5.0 | 5.0 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 18 | max. 25 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

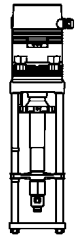
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

| Type | | MC1003/24 | MC1503/24 | MC1003/230 | MC1503/230 |
|------------------------------|------|--|----------------------|--|----------------------|
| Actuating time ¹⁾ | s/mm | 1 | 2 | 1 | 2 |
| Actuating thrust | kN | 10 | 15 | 10 | 15 |
| Stroke | mm | max. 80 | | max. 80 | |
| Power supply | VAC | 24 ±10% | | 230 +6% -10% | |
| Frequency | Hz | 50/60 ±5% | | 50/60 ±5% | |
| Power consumption | VA | max. 50 | | max. 63 | |
| Input signal ²⁾ | | 3-point 0(2)...10 VDC 0(4)...20 mA | 77 kOhm 0.51 kOhm | 3-point 0(2)...10 VDC 0(4)...20 mA | 77 kOhm 0.51 kOhm |
| Output signal ²⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | | 0...10 VDC max. 8 mA min. 1200 Ohm | |
| Hysteresis ³⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | | 0.05 · 0.15 · 0.3 · 0.5 | |

Enclosure protection: IP 54

Resolution: MC... electric 0.04 VDC
MC253 / MC503 mechanical 0.04 mm
MC403 mechanical 0.12 mm
MC1003 / MC1503 mechanical 0.05 mm

Operating mode: MC253 / MC503 S3-50% ED c/h 1200 EN 60034-1
MC403 / MC1003 / MC1503 S3-30% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: MC253 / MC503 / MC403 / MC503 / MC1003 -10...+60°C
MC1503 -10...+50°C

Weight: MC253/24 and MC503/24 7.4 kg
MC253/230 and MC503/230 8.6 kg
MC403 9.5 kg
MC1003 / MC1503 11.5 kg

Actuator variant and accessories

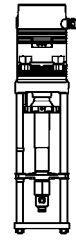
- Voltage: 115 VAC
- Position switch unit: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC or 8 A / 30 VDC
Turn-on voltage: max. 400 VAC / max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA
- Adapter with coupling for external products

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

²⁾ Invertible input and output signal

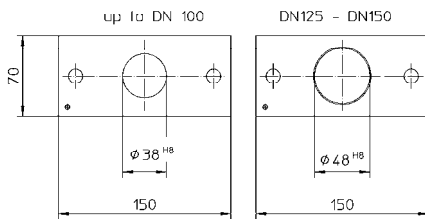
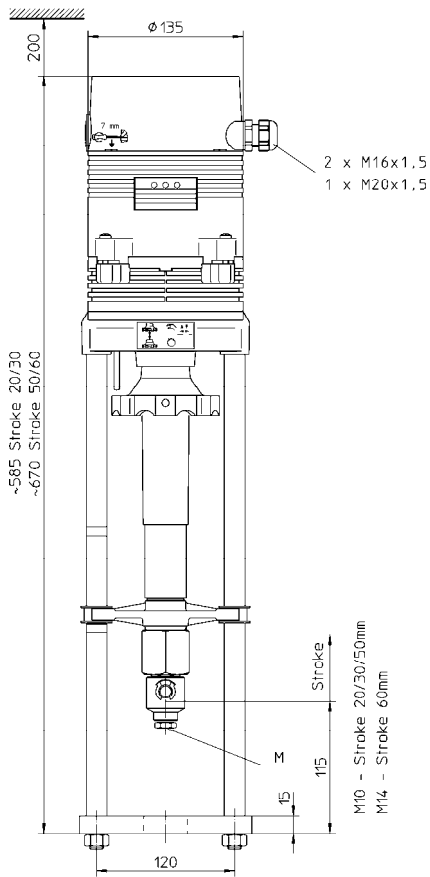
³⁾ Freely adjustable

with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E

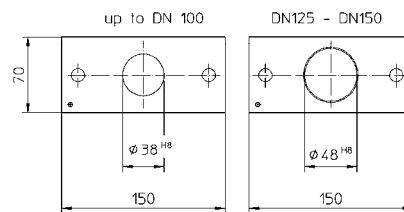
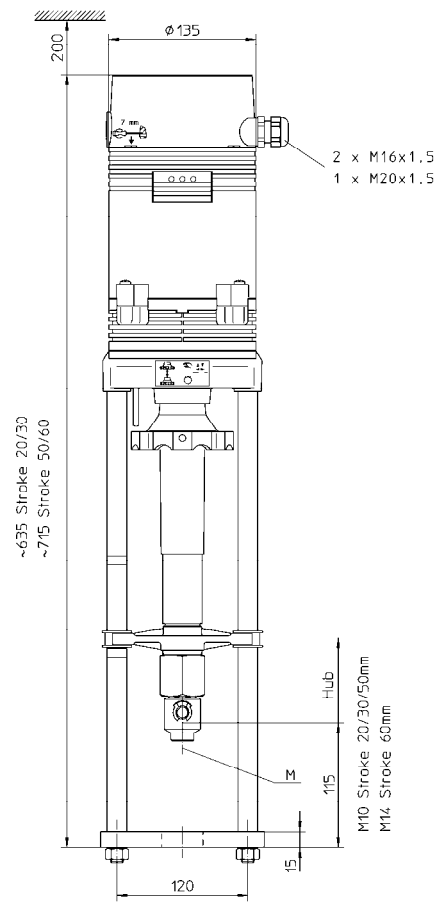


MC253
MC403
MC503
MC1003
MC1503

Drawing

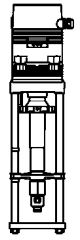


MC253 and MC503

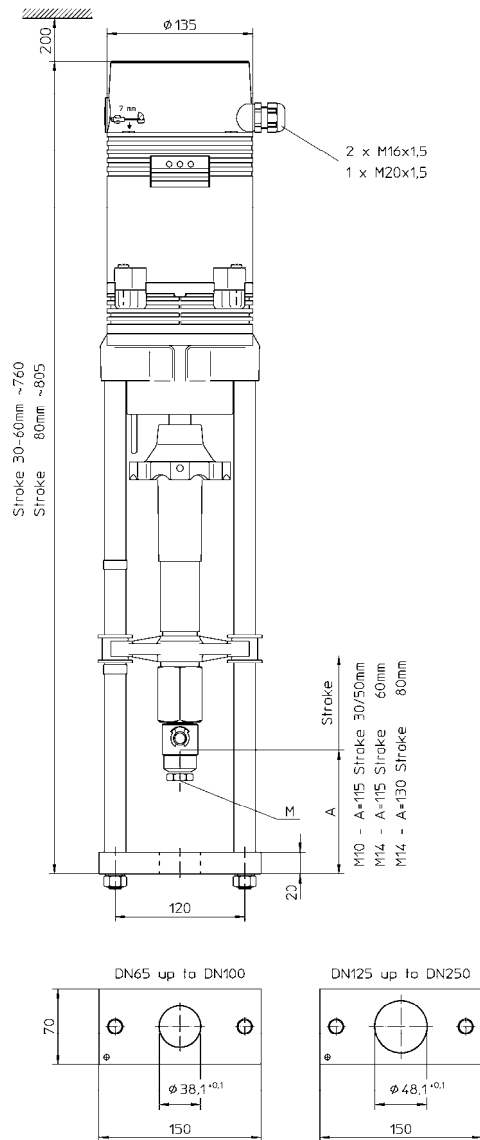


MC403

with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E

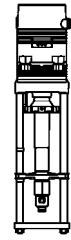


MC253
MC403
MC503
MC1003
MC1503



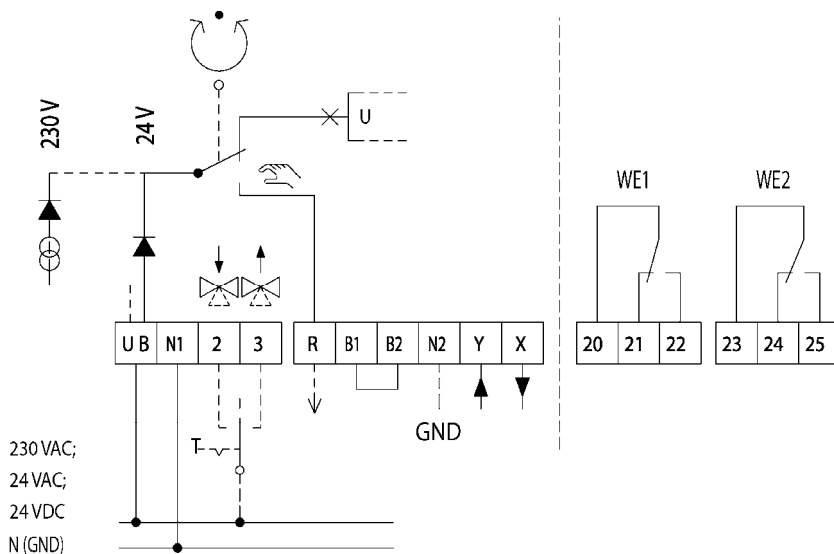
MC1003
MC1503

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

Circuit diagram



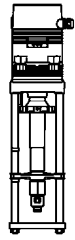
R Feedback signal in „Manual“ mode of operation
R=24 VAC max.100 mA for actuators in 24 VAC design
R=24 VDC max.100 mA for actuators in 24 VDC design
R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

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

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

Features

- Microprocessor controlled with automatic self-calibration on start up
- LED indication of actuator status
- Wear-free distance measuring system - no potentiometer
- Permanent storage of stroke in EPROM memory, values can not be lost
- Wire break recognition in 2...10 VDC and 4...20 mA operation
- Bonnet detachable in four positions, 90° locking, no screws required
- Safety position for switching a binary signal (frost safety)
- Integrated, self-controlling heater
- Pull-out manual adjustment with message signal
- Fault recognition in continuous operation (in case of blockage by foreign bodies)
- Input and output signal independently reversible
- Input signal freely adjustable: 3-point or modulating
- Hysteresis freely adjustable
- Shockproof at 230 VAC, no protective conductor (PE) necessary

Technical data

| Type | | MC253/24 | MC253/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 5 · 2.5* | 5 · 2.5* |
| Actuating thrust | kN | 2.5 | 2.5 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 18 | max. 25 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

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

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

| Type | | MC403/24 | MC403/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 0.6 · 0.4* | 0.6 · 0.4* |
| Actuating thrust | kN | 4.0 | 4.0 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 50 | max. 63 |
| Input signal ³⁾ | | 3-Punkt 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-Punkt 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

| Type | | MC503/24 | MC503/230 |
|------------------------------|------|--|--|
| Actuating time ¹⁾ | s/mm | 5 · 2.5* | 5 · 2.* |
| Actuating thrust | kN | 5.0 | 5.0 |
| Stroke | mm | max. 60 | max. 60 |
| Power supply | VAC | 24 ±10% | 230 +6% -10% |
| Power supply ²⁾ | VDC | 24 ±10% | - |
| Frequency | Hz | 50/60 ±5% | 50/60 ±5% |
| Power consumption | VA | max. 18 | max. 25 |
| Input signal ³⁾ | | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm | 3-point 0(2)...10 VDC 77 kOhm 0(4)...20 mA 0.51 kOhm |
| Output signal ³⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | 0...10 VDC max. 8 mA min. 1200 Ohm |
| Hysteresis ⁴⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | 0.05 · 0.15 · 0.3 · 0.5 |

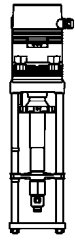
¹⁾ Actuating time freely adjustable, presetting is marked with *

²⁾ only rectified alternating voltage

³⁾ Invertible input and output signal

⁴⁾ Freely adjustable

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

| Type | | MC1003/24 | MC1503/24 | MC1003/230 | MC1503/230 |
|------------------------------|------|--|----------------------|--|----------------------|
| Actuating time ¹⁾ | s/mm | 1 | 2 | 1 | 2 |
| Actuating thrust | kN | 10 | 15 | 10 | 15 |
| Stroke | mm | max. 80 | | max. 80 | |
| Power supply | VAC | 24 ±10% | | 230 +6% -10% | |
| Frequency | Hz | 50/60 ±5% | | 50/60 ±5% | |
| Power consumption | VA | max. 50 | | max. 63 | |
| Input signal ²⁾ | | 3-point 0(2)...10 VDC 0(4)...20 mA | 77 kOhm 0.51 kOhm | 3-point 0(2)...10 VDC 0(4)...20 mA | 77 kOhm 0.51 kOhm |
| Output signal ²⁾ | | 0...10 VDC max. 8 mA min. 1200 Ohm | | 0...10 VDC max. 8 mA min. 1200 Ohm | |
| Hysteresis ³⁾ | V | 0.05 · 0.15 · 0.3 · 0.5 | | 0.05 · 0.15 · 0.3 · 0.5 | |

Enclosure protection: IP 54

Resolution: MC... electric 0.04 VDC
MC253 / MC503 mechanical 0.04 mm
MC403 mechanical 0.12 mm
MC1003 / MC1503 mechanical 0.05 mm

Operating mode: MC253 / MC503 S3-50% ED c/h 1200 EN 60034-1
MC403 / MC1003 / MC1503 S3-30% ED c/h 1200 EN 60034-1

End position switch-off: load-dependent

Ambient temperature: MC253 / MC503 / MC403 / MC503 / MC1003 -10...+60°C
MC1503 -10...+50°C

Weight: MC253/24 and MC503/24 7.4 kg
MC253/230 and MC503/230 8.6 kg
MC403 9.5 kg
MC1003 / MC1503 11.5 kg

Actuator variant and accessories

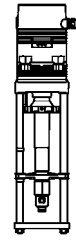
- Voltage: 115 VAC
- Position switch unit: 2 switches (WE1/WE2), potential free, infinitely adjustable
Rated load: 8 A / 250 VAC or 8 A / 30 VDC
Turn-on voltage: max. 400 VAC / max. 125 VDC
- Enclosure protection: IP 65
- Board for output signal X=0(4)...20 mA
- Adapter with coupling for external products

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

²⁾ Invertible input and output signal

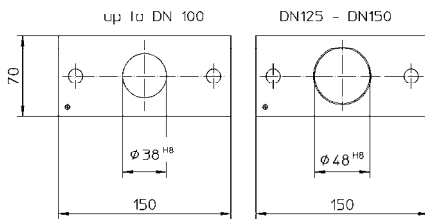
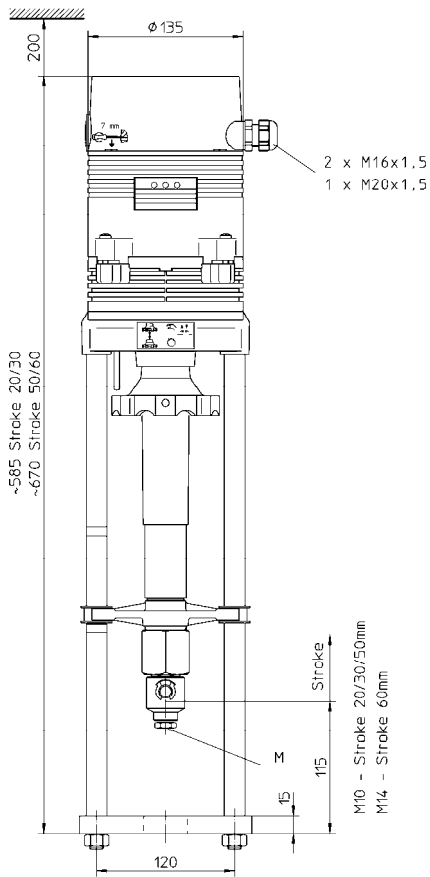
³⁾ Freely adjustable

with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E

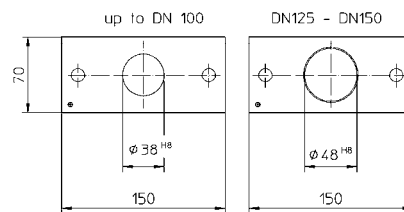
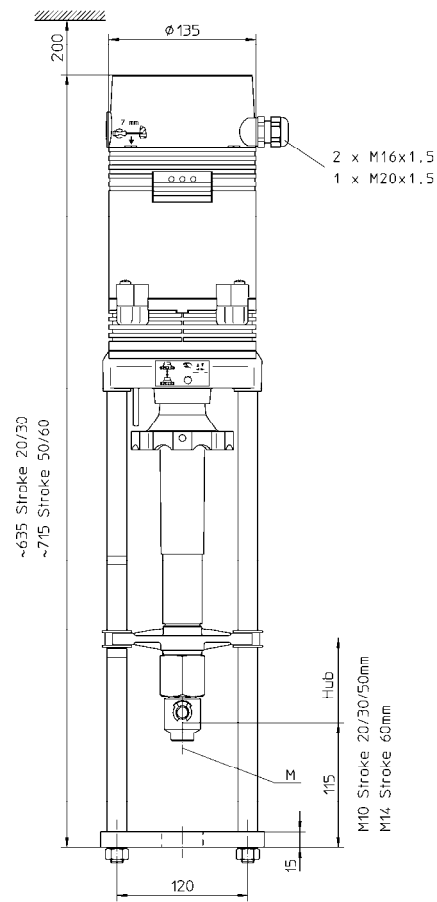


MC253
MC403
MC503
MC1003
MC1503

Drawing

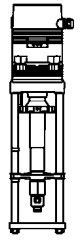


MC253 and MC503

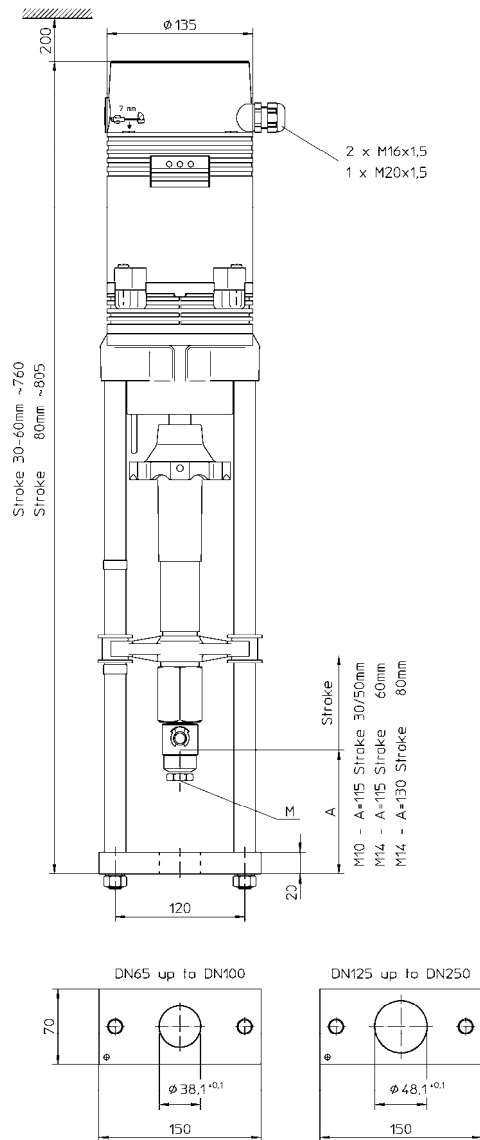


MC403

with microcontroller
 for two-way and three-way valves
 BR216 • BR316
 BR225 • BR325
 BR240S • BR340S
 BR240E • BR340E

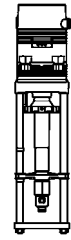


MC253
MC403
MC503
MC1003
MC1503



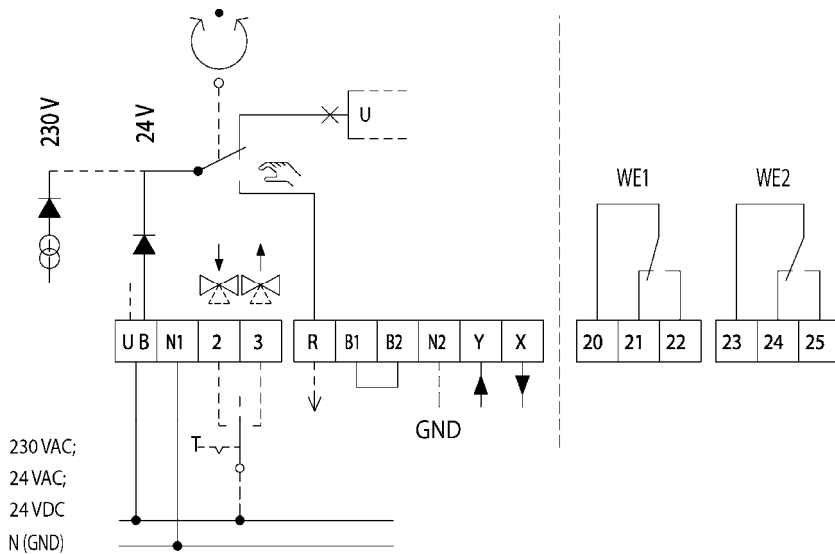
MC1003
MC1503

with microcontroller
for two-way and three-way valves
BR216 • BR316
BR225 • BR325
BR240S • BR340S
BR240E • BR340E



MC253
MC403
MC503
MC1003
MC1503

Circuit diagram



R Feedback signal in „Manual“ mode of operation
R=24 VAC max.100 mA for actuators in 24 VAC design
R=24 VDC max.100 mA for actuators in 24 VDC design
R=24 VDC max. 100 mA for actuators in 230 VAC design

N2 Zero potential of the „X“, „Y“ and „R“ signals.

If the actuators in 230 VAC design are to be triggered on the „continuous“ mode of operation, i.e. by analogue signal „Y“, the connection of N2 (zero potential of the controller) is absolutely necessary. For actuators in 230 VAC design the connection N2 in the „3-position“ mode of operation is only necessary if „X“ and/or „R“ are to be use by the actuator. If the zero potentials of the signals X, Y and R are identical with the zero potential of the supply voltage, a bridge can be laid between N1 and N2 in order to save an additional lead to N2.

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