

MD15-C, MD15-HR, MD15-HE and MD15-DA Small Actuators

for Rxx and RWxx Valves and Danfoss of the Series RA

Application

The MD15-C, MD15-HR, MD15-HE and MD15-D small actuators for 3-position or continuous control systems for zone post-treatment devices for heating, ventilation and air conditioning systems.



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Änderungen vorbehalten - Contents subject to change - Sous réserve de modifications - Reservado el derecho a modificación - Wijzigingen voorbehouden - Con riserva di modifiche - Innehåll som skall ändras - Změny vyhrazeny - Zmiany zastrzeżone - Возможны изменения - A változtatások jogát fenntartjuk - 保留未经通知而改动的权力

Important Information Regarding Product Safety

Safety Instructions

This data sheet contains information on installing and commissioning the product "MD15-C, MD15-HR, MD15-HE, MD15-DA". Each person who carries out work on this product must have read and understood this data sheet. If you have any questions that are not resolved by this data sheet, you can obtain further information from the supplier or manufacturer.

If the product is not used in accordance with this data sheet, the protection provided will be impaired.

Applicable regulations must be observed when installing and using the device. Within the EU, these include regulations regarding occupational safety and accident prevention as well as those from the VDE (Association for Electrical, Electronic & Information Technologies). If the device is used in other countries, it is the responsibility of the system installer or operator to comply with local regulations.

Mounting, installation and commissioning work on the devices may only be carried out by qualified technicians. Qualified technicians are persons who are familiar with the described product and who can assess given tasks and recognize possible dangers due to technical training, knowledge and experience as well as knowledge of the appropriate regulations.

Legend



WARNING

Indicates a hazard of medium risk which can result in death or severe bodily injury if it is not avoided.



CAUTION

Indicates a hazard of low risk which can result in minor or medium bodily injury if it is not avoided.



CAUTION

Indicates a hazard of medium risk which can result in material damage or malfunctions if it is not avoided.



NOTE

Indicates additional information that can simplify the work with the product for you.

Notes on Disposal

For disposal, the product is considered waste from electrical and electronic equipment (electronic waste) and must not be disposed of as household waste. Special treatment for specific components may be legally binding or ecologically sensible. The local and currently applicable legislation must be observed.

Product Description**MD15-C, MD15-HR, MD15-HE, MD15-DA****MD15-C, MD15-HR, MD15-HE and MD15-DA Small Actuators**

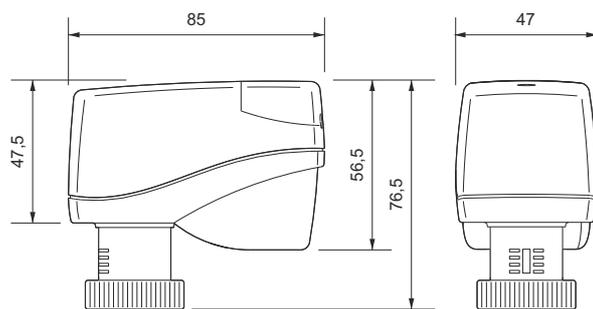
MD15-HE	Small actuator for Rxx and RWxx valves and other valves with an M30x1.5 connection that were manufactured by Heimeier, Honeywell-MNG, Junkers, TA, Honeywell-Baukmann, Oventrop (2001 and later) or Cazzaniga
MD15-DA	Small actuator for radiator valves that were manufactured by Danfoss of the RA-N, RA-FN or RA-U series
MD15-C	Small actuator for valve series D15xx and W15xx (manufacturer Controlli, series VST and VMT) that were discontinued in 2003
MD15-HR	Small actuator for valve series R15/x and RW15/x (manufacturer Hora, series 216Z and 316Z) that were discontinued in 11-2015

**Technical Data**

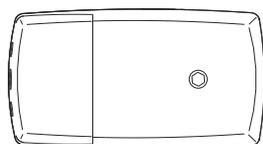
Nominal voltage	AC 24 V \pm 10%; 50/60 Hz; 2.5 VA; DC 24 V \pm 10%; 0.8 W
Control	3-point signal (Open/Stop/Closed) or continuous control DC 0(2)..10 V
Connection	Built-in cable 1.5 m; 3 x 0.34 mm ²
Motor switch-off	Actuator spindle: when extending = load-dependant, when retracting = path-dependant
Display	LED display for operating voltage
Actuating noise	<31 dB (A)
Nominal stroke	MD15-C 6 mm; MD15-HR 9 mm; MD15-HE and MD15-DA 3 mm
Travel time	15 s/mm
Positioning force	MD15-C nominal 200 N; MD15-HR nominal 200 N; MD15-HE and MD15-DA nominal 100 N
Position indication	Stroke range scale
Manual adjustment	Only when disconnected from the mains power supply Socket for hexagon key on the actuator cover, key socket 4 mm
Valve block protection	Can be switched on (optional)
Ambient temp.	0 °C to 50 °C
Degree of protection	IP40
Protection class	III, in accordance with EN 60730
Installation position	Anywhere from vertical to horizontal
Maintenance	Maintenance-free
Weight	180 g

Dimensions

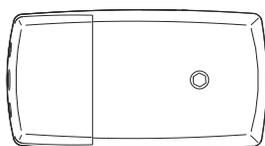
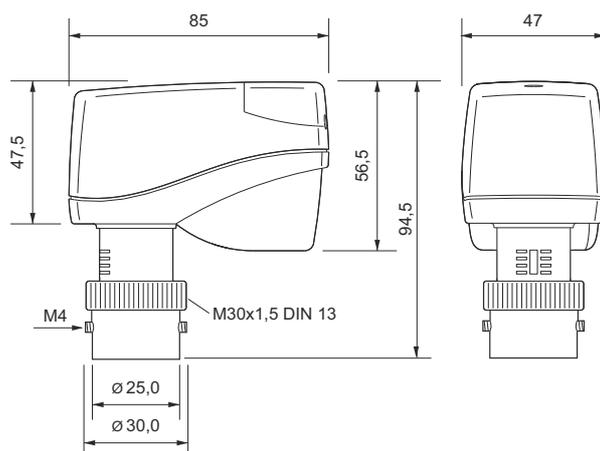
- MD15-C, MD15-HR, MD15-HE



M30x1 DIN 13 (MD15-HR, MD15/230-HR)
 M30x1,5 DIN 13 (MD15-C, MD15-HE, MD15/230-HE,
 MD15-R-HE, MD15-DA1)

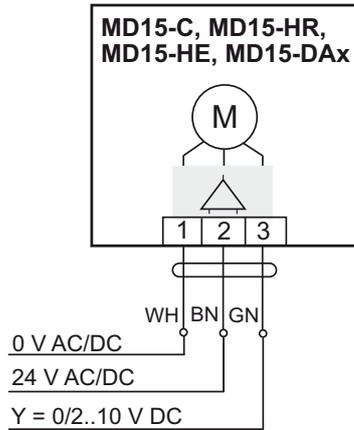


- MD15-DA

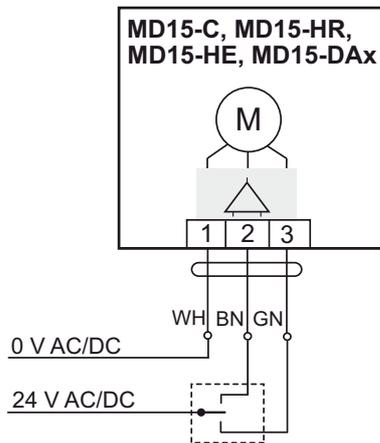


Connection

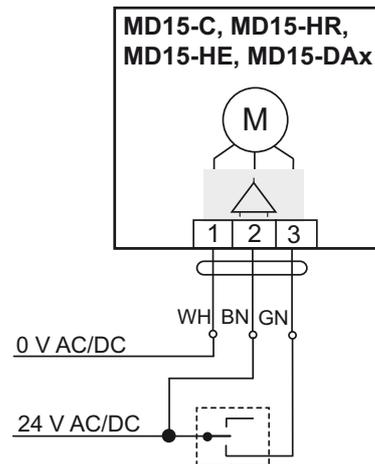
- Continuous control



- 3-point control



- 2-point control



Rxx and RWxx Two-Way/Three-Way Valves for MD15-HE Small Actuator

Types

PN10 gunmetal two-way valve for water up to 120 °C

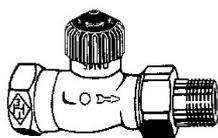
	Type	DN	PN	Kvs	R
Straight-through flow	R10D	10	10	1.25	3/8"
	R15D	15	10	1.35	1/2"
	R20D	20	10	2.5	3/4"
Flow through 90°	R10E	10	10	1.25	3/8"
	R15E	15	10	1.35	1/2"
	R20E	20	10	2.5	3/4"
Straight-through flow with Kvs setting	R10DV	10	10	0.86	3/8"
	R15DV	15	10	0.86	1/2"
	R20DV	20	10	0.86	3/4"
Flow through 90° with Kvs setting	R10EV	10	10	0.86	3/8"
	R15EV	15	10	0.86	1/2"
	R20EV	20	10	0.86	3/4"

PN10 gunmetal three-way valve for water up to 120 °C

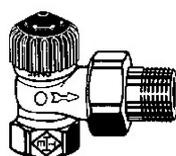
	Type	DN	PN	Kvs	R
Connection left	RW15L	10	10	1.45	1/2"
Connection right	RW15R	15	10	1.45	1/2"

Technical Data - Rxx and RWxx Valves

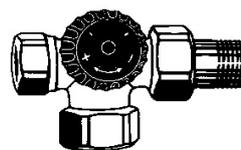
Nominal diameter	DN10 - 20
Pressure rating	PN10
Connection	Pipe screw connections in accordance with DIN EN 2115
Actuating stroke	2 mm
Temperature of medium	Water up to 120 °C
Housing	Gunmetal; nickel-plated
Cone	EPDM
Valve spindle	Stainless steel
Spindle seal	EPDM
Maintenance	Maintenance-free



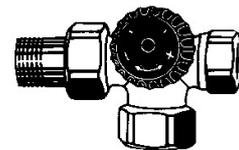
R10..20D, R10..20DV



R10..20E, R10..20EV

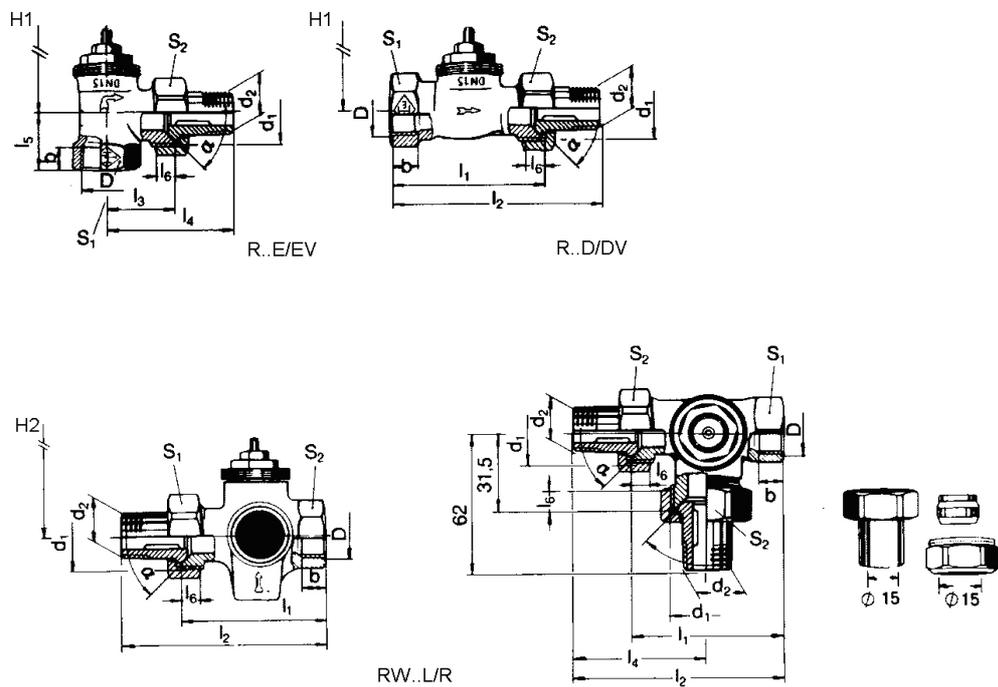


RW15L



RW15R

Dimensions



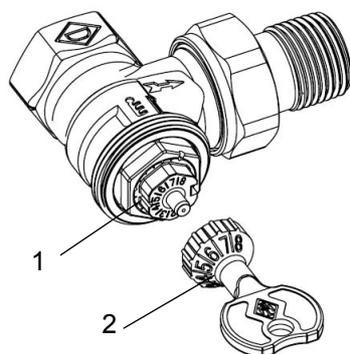
Kvs default setting for R10 - 20DV/EV valves

To adjust to the heat requirement, the R10 - 20DV/EV valves have 8 flow settings for the radiator mass flow rate.

The maximum flow rate, Kvs value (m³/h) can be selected by using the settings 1, 2, 3, 4, 5, 6, 7 or 8 (delivery setting = 8, corresponds to a Kvs value = 0.86).

The setting can be made using a Z29 socket key (accessory). The setting between 1 and 8 can be read from the valve, and will be implemented by the installed small actuator.

Position	1	2	3	4	5	6	7	8
Kvs value	0,049	0,102	0,185	0,313	0,420	0,565	0,740	0,860



- (1) Setting marks
- (2) Z29 socket key (accessory)

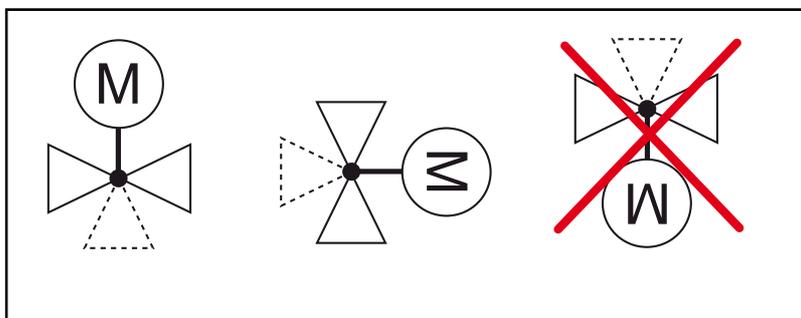
Valve Installation



CAUTION

The valve may only be installed by qualified technicians. In addition to the generally applicable installation guidelines, the following items are to be observed:

- The pipeline system and the fixture interior must be free of foreign objects. In the event of contaminated media, dirt collectors are to be inserted upstream of the valves with fine screens, mesh width 0.25 mm.
- There must be no tension between the valve and the pipeline connection.
- To avoid eddy formations in the valve body, the valve should be installed in a straight section of the pipe. A distance of 10 times the nominal diameter is recommended between the valve flange and manifold or other similar parts.
- The installation location is to be selected so that the ambient temperature at the actuator is kept between 0 °C–+50°C.
- When carrying out installation, the permissible max. pressure difference Δp and the specified direction of flow must be observed (see table in "Types" section, as well as the "Valve Principle").
- The three-way valves are to be used as mixing valves. Pay attention to the direction of flow (see fig. "Valve Principle").
- Once the valve is installed, make sure the ball in the valve seating can be moved easily by pushing in the valve stem.
- To install the actuator and remove the housing cover, approx. 170 mm of free space is required above the actuator.
- For safety reasons, do not suspend the small actuators under the valve.
- Observe the direction arrow on the valve body. Inverting the direction of flow impairs control behavior.



Installation and Commissioning of the Small Actuator



CAUTION

Do not operate the MD15-C, MD15-HR, MD15-HE, MD15-DA Kleinstellantrieb electrically without a valve.



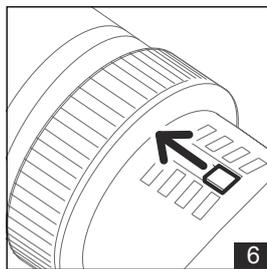
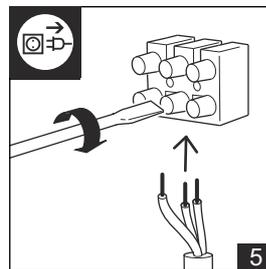
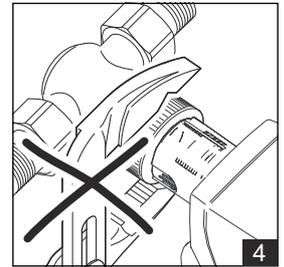
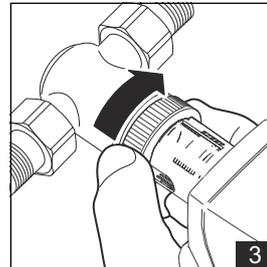
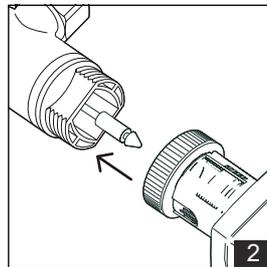
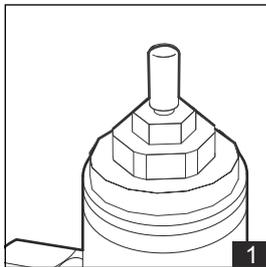
CAUTION

Installation and commissioning work may only be carried out by qualified technicians.

If the valve is installed in the system, make sure that no differential pressure builds up in the valve body before beginning work. If necessary, close the gate valve and turn off pumps. After the pipeline has cooled off, the actuator can be installed.

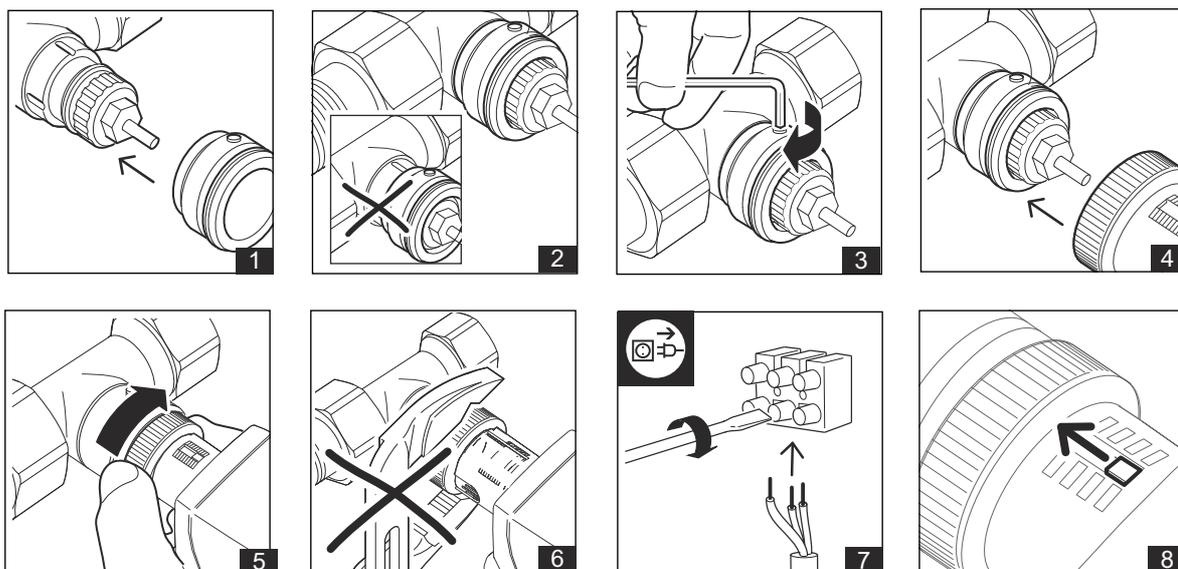
Be sure to comply with VDE guidelines and local wiring regulations. The device is connected according to the legally binding system circuit diagram.

installation: MD15-C, MD15-HR and MD15-HE



- Place the small actuator on the threaded connection of the valve and tighten until hand-tight using the union nut.
- Make the default setting based on the maximum flow rate set on the valve.
- Establish the electrical connection.
- After the power supply has been switched on, an initialization run takes place.

installation: MD15-DA



- Place the valve adapter onto the valve and tighten the hexagon socket screw.
- Place the small actuator on the threaded connection of the valve adapter and tighten hand-tight with the union nut.
- Establish the electrical connection.
- After the mains power supply has been switched on, an automatic initialization run takes place.

Removal of the Small Actuator

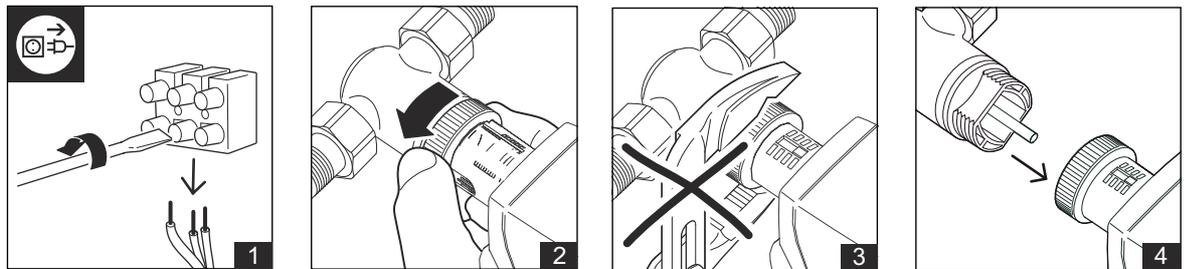


CAUTION

Before beginning to remove the unit, make sure that no differential pressure builds up in the valve body before beginning work. If necessary, close the gate valve and turn off pumps.

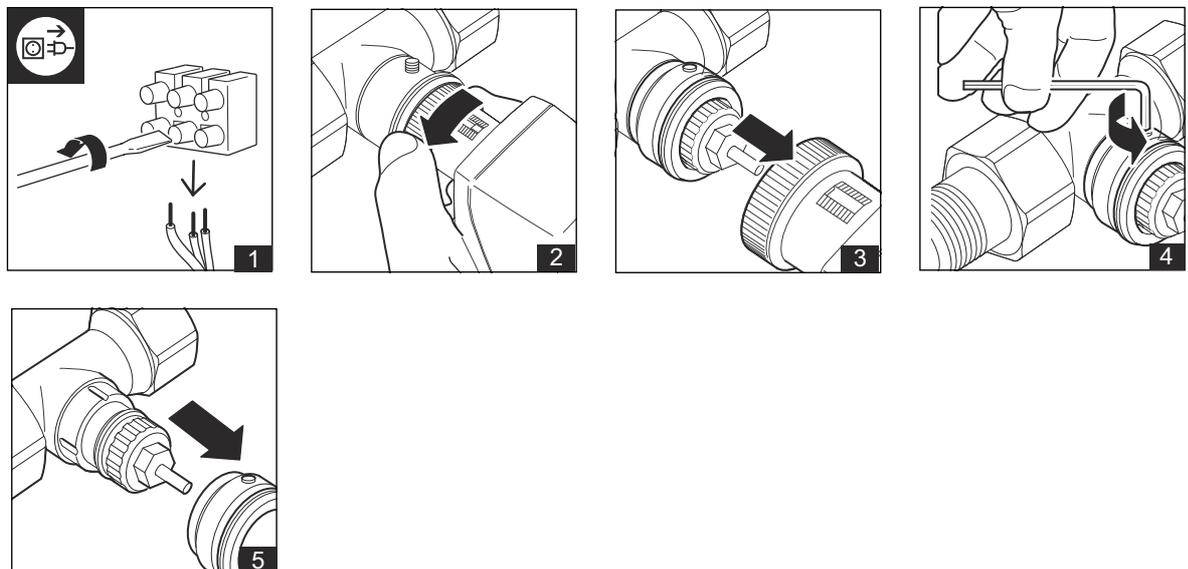
After the pipeline has cooled off, you can begin removal of the small actuator.

Removal: MD15-C, MD15-HR and MD15-HE



- Disconnect the small actuator from the mains power supply. Then disconnect all electrical connections.
- Remove the union nut.
- Remove the small actuator from the valve.

Removal: MD15-DA



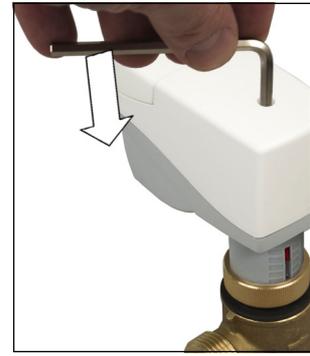
- Disconnect the small actuator from the mains power supply. Then disconnect all electrical connections.
- Remove the union nut.
- Remove the small actuator from the valve.
- Loosen the hexagon socket screw on the valve adapter.
- Remove the valve adapter.

Manual adjustment

**CAUTION**

Manual adjustment may only be performed when the actuator is installed.

- The small actuator must be disconnected from the mains power supply for manual operation.
- Using a hexagon key (key socket 4 mm), the actuator can be moved into any position.

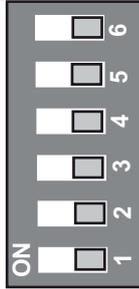
**CAUTION**

If you manually adjust until the slip clutch responds, turn the hexagon key half a turn in the opposite direction after the manually set stroke position has been reached.

Commissioning

Valve Functions

The valve functions are adjusted with switches (A) 1 to 6 under the connection cover.

Function	Switch (A)	Function
No function		No function
No function		No function
No function		No function
Actuating direction and positioning feedback 100% to 0% 		Actuating direction and positioning feedback 0% to 100% 
DC 2 V to 10 V		DC 0 V to 10 V
Valve block protection On		Valve block protection Off

Switch 1: Valve block protection

If the plant specifications permit it, the valve block protection can be activated during commissioning.

Block protection prevents the ball from jamming when the valve is not moved for a longer period of inactivity, e.g. for heating systems during the summer.

When the block protection is activated, the valve cone is raised for a few seconds if no stroke movement has occurred in a period of 24 hours.

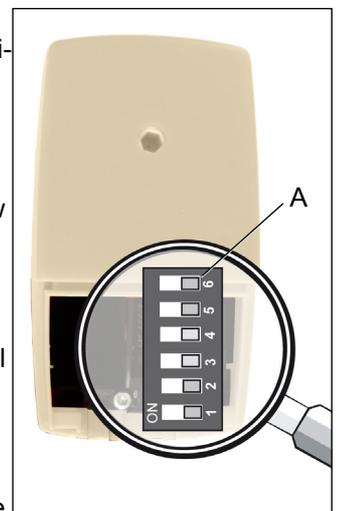
Factory setting: Off

Switch 2: Setting of the control range by the continuous actuating signal DC 0 V to 10 V or DC 2 V to 10 V

Factory setting: DC 0 V to 10 V

Switch 3: Setting of the actuating direction with DC 10 V control voltage “valve open”  or “valve closed”  and position feedback

Factory setting: 0% to 100%; “valve open” 



NOTE

If the small actuator is controlled with a 3-point actuating signal, the only valve function in effect is the setting of the actuating direction “valve open” or “valve closed” (switch 3).

Product Description

MD15-C, MD15-HR, MD15-HE, MD15-DA

Product Description

MD15-C, MD15-HR, MD15-HE, MD15-DA
