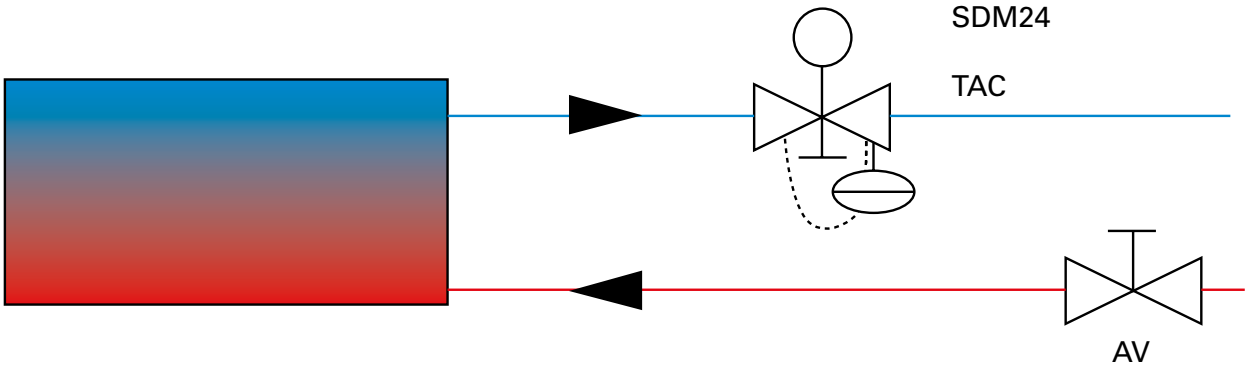
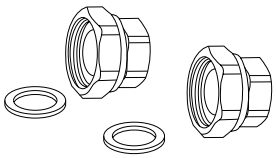
VPFC

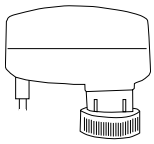


VPFC

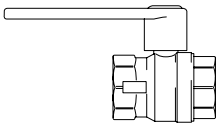
TAC



UNSGxxRxx



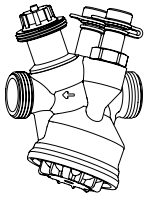
SDM24



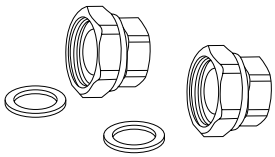
AV

Components

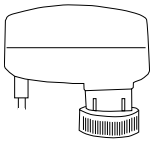
VPFC, pressure independent and modulating valve kit



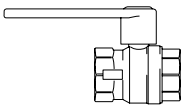
TAC



UNSGxxRxx



SDM24



AV

VPFC15LF

Type		Specification
TAC15LF	Two way pressure independent regulation and adjustment valve	Low flow, DN15, (G20, ¾" outside thread)
SDM24	Modulating actuator 24V	24V~
AV15	Shut off valve	DN15, (G15, ½" inside thread)
UNSGR20R15	Union set	G20 x R15. Union set with swiveling nut and female thread.

VPFC15NF

Type		Specification
TAC15NF	Two way pressure independent regulation and adjustment valve	Normal flow, DN15, (G20, ¾" outside thread)
SDM24	Modulating actuator 24V	24V~
AV15	Shut off valve	DN15, (G15, ½" inside thread)
UNSGR20R15	Union set	G20 x R15. Union set with swiveling nut and female thread.

VPFC20

Type		Specification
TAC20	Two way pressure independent regulation and adjustment valve	Normal flow, DN20, (G25, 1" outside thread)
SDM24	Modulating actuator 24V	24V~
AV20	Shut off valve	DN20, (G20, ¾" inside thread)
UNSGR25R20	Union set	G25 x R20. Union set with swiveling nut and female thread.

VPFC25

Type		Specification
TAC25	Two way pressure independent regulation and adjustment valve	Normal flow, DN25, (G32, 1 ¼" outside thread)
SDM24	Modulating actuator 24V	24V~
AV25	Shut off valve	DN25, (G25, 1" inside thread)
UNSGR32R25	Union set	G32 x R25. Union set with swiveling nut and female thread.

VPFC32

Type		Specification
TAC32	Two way pressure independent regulation and adjustment valve	Normal flow, DN32, (G40, 1 ½" outside thread)
SDM24	Modulating actuator 24V	24V~
AV32	Shut off valve	DN32, (G32, 1 ¼" inside thread)
UNSGR40R32	Union set	G40 x R32. Union set with swiveling nut and female thread.

VPFC, pressure independent and modulating valve system

Two way pressure independent control and adjustment valve with modulating actuator, shut-off valve UNSGxxRxx union set with swiveling nut and inside thread. DN15/20/25/32. 24V.

The valve system consists of the following:

- TAC (TA Compact-P), pressure independent regulation and adjustment valve
- AV, shut off valve
- SDM24, modulating actuator 24V
- UNSGxxRxx

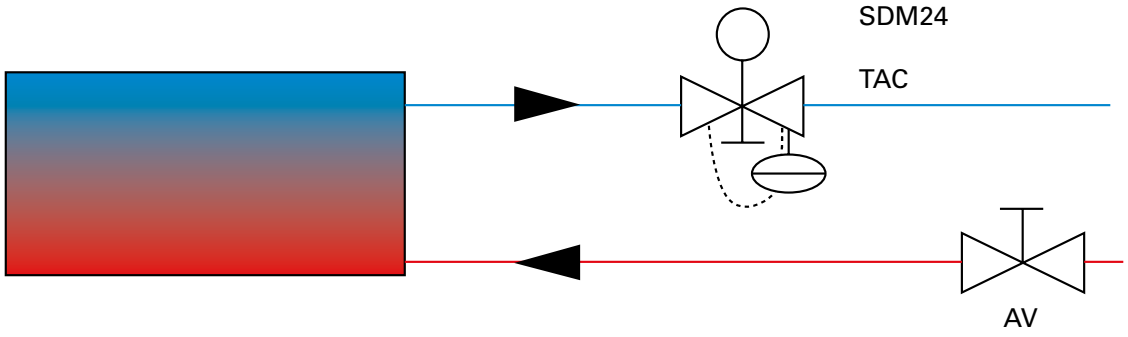
The regulation and adjustment valve (TAC) can be used to finely adjust or shut off the water flow manually. TAC is independent of the available differential pressure, which contributes to stable and accurate regulation (ensures the correct flow to the heater even if the differential pressure in the rest of the pipe system changes). The water flow is set using the grey button on the valve.
UNSGxxRxx is a transition coupling for the TAC valve from external thread to internal thread.

The shut off valve (AV) consists of a ball valve which is either open or closed and is used to shut off the flow, when servicing for example.

The actuator (SDM24) is modulated and gives the right temperature. FC control system is set to always allow through a small leak flow in order to provide a fast heat supply when a door is opened and for frost protection.

The valve system is available in 4 different valve dimensions, DN15 (1/2"), DN20 (3/4"), DN25 (1") and DN32 (1 1/4").

Used with FC control system or supplemented with suitable thermostat.

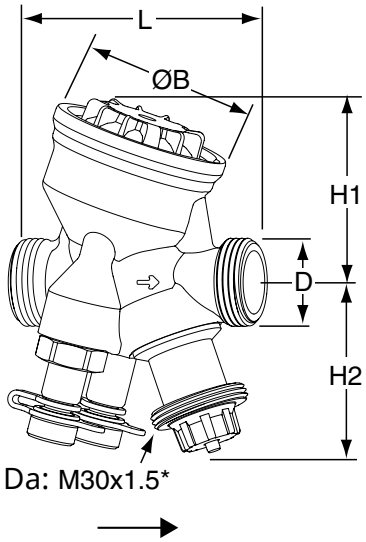


Two way pressure independent regulation and adjustment valve TAC

Dimensions and technical specifications

Type	D	Da*1	L [mm]	H1 [mm]	H2 [mm]	B [mm]
TAC15LF	G3/4	M30x1,5	74	55	55	54
TAC15NF	G3/4	M30x1,5	74	55	55	54
TAC20	G1	M30x1,5	85	64	55	64
TAC25	G1 1/4	M30x1,5	93	64	61	64
TAC32	G1 1/2	M30x1,5	112	78	61	78

*1) Connection to actuator.



Type	DN	Flow	Weight [kg]
TAC15LF	15	Low	0,54
TAC15NF	15	Normal	0,54
TAC20	20	Normal	0,69
TAC25	25	Normal	0,79
TAC32	32	Normal	1,5

Pressure class: PN16
Max. working temperature: 90 °C
Min. working temperature: -10 °C
Lift: 4 mm

Material
Valve body: AMETAL®
Valve insert: AMETAL®
Valve plug: Brass
Spindle: Stainless steel
Spindle seal: EPDM O-ring
Δp insert: PPS
Membrane: EPDM and HNBR
Springs: Stainless steel
O-rings: EPDM

AMETAL® is a dezincification resistant alloy.

Media
Water or neutral fluids, water-glycol mixtures.

Flow range
The flow (qmax) can be set within the range:
DN15 LF: 44–245 l/h (0,012–0,068 l/s)
DN15 NF: 88–470 l/h (0,024–0,131 l/s)
DN20: 210–1150 l/h (0,058–0,319 l/s)
DN25: 370–2150 l/h (0,103–0,597 l/s)
DN32: 800–3700 l/h (0,222–1,028 l/s)
q_{max} = l/h at each setting and fully open valve plug.

Differential pressure (ΔpV)
Max. differential pressure (ΔpV_{max}):
400 kPa = 4 bar
Min. differential pressure (ΔpV_{min}):
DN15, DN20 = 15 kPa = 0,15 bar
DN25, DN32 = 23 kPa = 0,23 bar
(Valid for position 10, fully open. Other positions will require lower differential pressure.)
ΔpV_{max} = The maximum allowed pressure drop over the valve, to fulfi ll all stated performances.
ΔpV_{min} = The minimum recommended pressure drop over the valve, for proper differential pressure control.

Leakage rate
Leakage flow ≤ 0,01% of max. q_{max} (setting 10) and correct flow direction.
(Class IV according to EN 60534-4).

Connection
Male thread according to ISO 228.

Marking
TA, IMI, PN 16, DN and flow direction arrow. Grey setting wheel: TAC and DN. For low flow version also LF.

Application

The regulation and adjustment valve (TAC) can be used to finely adjust or shut off the water flow manually. TAC is independent of the available differential pressure, which contributes to stable and accurate regulation (ensures the correct flow to the heater even if the differential pressure in the rest of the pipe system changes). The water flow is set using the gray adjustment knob on the valve.

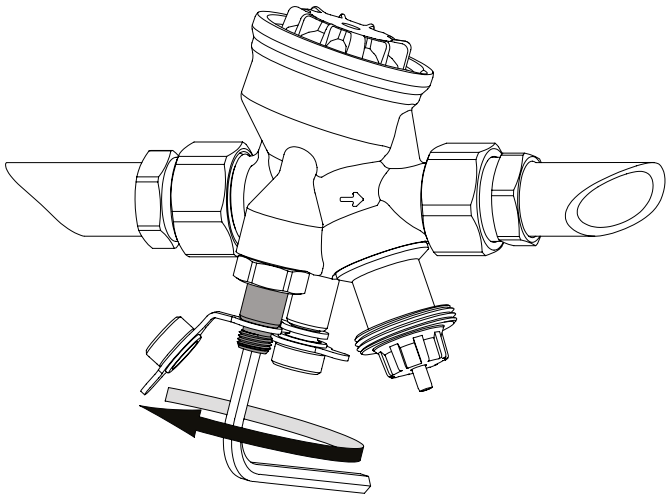
Functions

- Control
- Pre-setting (max. flow)
- Differential pressure control
- Measuring (ΔH, T, q)
- Shut-off

Measuring q

1. Remove any actuator.
2. Connect TA* balancing instrument to the measuring points.
3. Input the valve type, size and setting and the actual flow is displayed.

Measuring ΔH



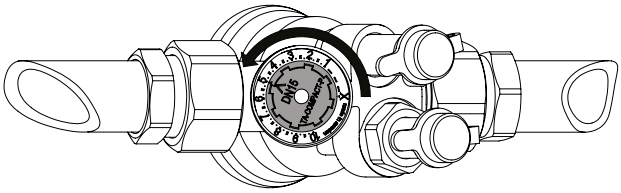
1. Remove any actuator.
2. Close the valve according to “Shut-off”.
3. Bypass the Δp part by opening the bypass spindle ≈1 turn anticlockwise, with a 5 mm Allen key.
4. Connect TA* adjustment instrument to the measuring points and measure.

Important! Close the bypass spindle after the measurement is completed.

Noise

In order to avoid noise in the installation the valve must be correctly installed and the water de-aerated.

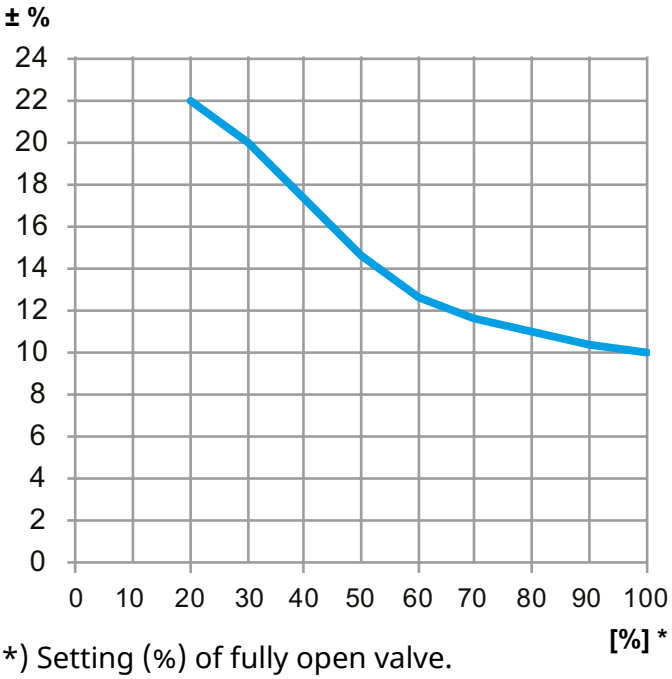
Setting



1. Turn the setting wheel to desired value, e.g. 5.0.

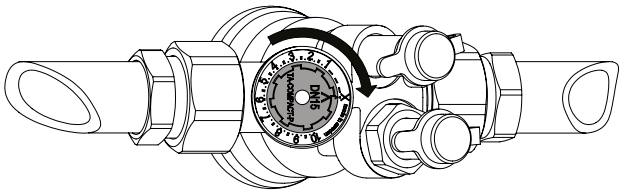
Measuring accuracy

Maximum flow deviation at different settings.



*) Setting (%) of fully open valve.

Shut-off



1. Turn the setting wheel clockwise to X.

* www.imi-hydronic.com/

Sizing

1. Choose the smallest valve size that can obtain the design flow with some safety margin, see "q_{max} values". The setting should be as open as possible.
2. Check that the available ΔpV is within the working range 15–400 kPa or 23–400 kPa.

q_{max} values

	Position									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
DN15LF	44	71	97	123	148	170	190	210	227	245
DN15	88	150	200	248	295	340	380	420	450	470
DN20	210	335	460	575	680	780	890	990	1080	1150
DN25	370	610	830	1050	1270	1490	1720	1870	2050	2150
DN32	800	1220	1620	2060	2450	2790	3080	3350	3550	3700

q_{max} = l/h at each setting and fully open valve plug.
LF = low flow

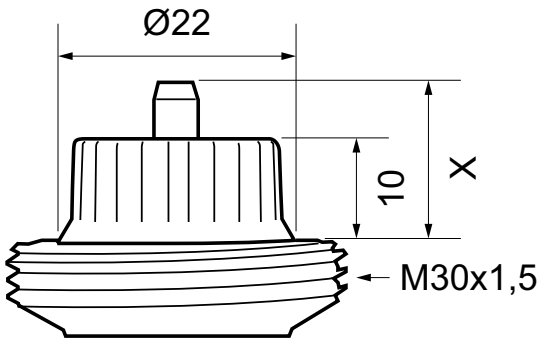
Closing force

Working range: X (closed - fully open) = 11,6–15,8
Closing force: Min. 125 N (max. 500 N)

The maximum recommended pressure drop over a valve and actuator combination for close off (ΔpV_{close}) and to fulfill all stated performances (ΔpV_{max}).

	kPa*
DN15	400
DN20	400
DN25	400
DN32	400

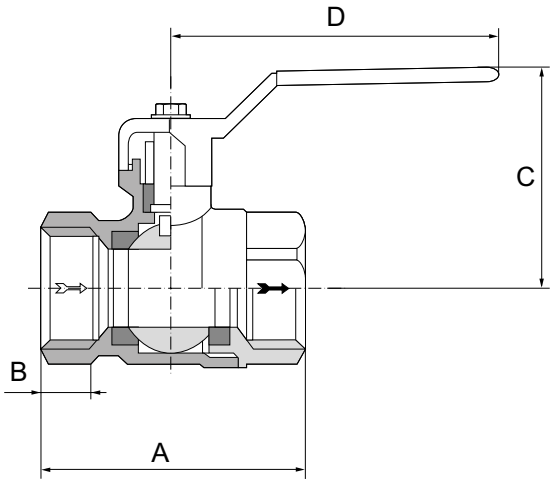
*) Closing force 125 N.



ΔpV_{close} = The maximum pressure drop that the valve can close against from an opened position, with a specified force (actuator) without exceeding stated leakage rate.
ΔpV_{max} = The maximum allowed pressure drop over the valve, to fulfill all stated performances.

Shut off valve (AV15/20/25/32)

Dimensions and technical specifications



Type	DN	A [mm]	B [mm]	C [mm]	D [mm]	Weight [kg]
AV15	15	49	11,5	53	90	0,23
AV20	20	58	12	57	90	0,31
AV25	25	67	14,5	65	125	0,51
AV32	32	81	16	71	125	0,81

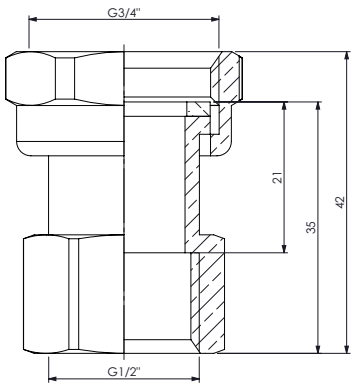
Application

The shut off valve is used to shut off the water flow to the unit and consists of a ball valve which is either open or closed. The shut off valve have no adjustment function and is only used for maintance and service.

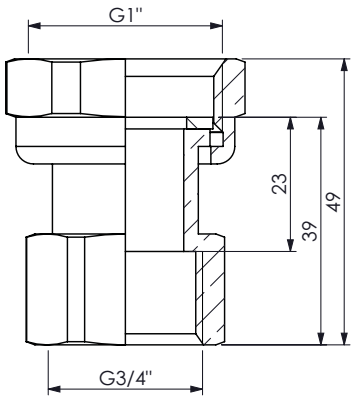
Union set (UNSGxxRxx)

Dimensions

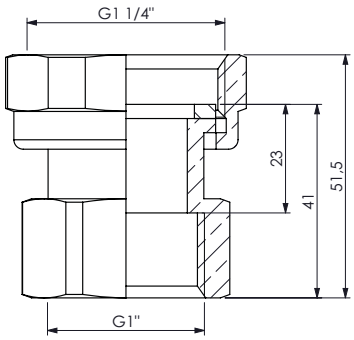
UNSG20R15



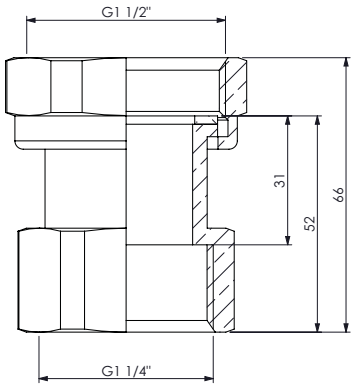
UNSG25R20



UNSG32R25

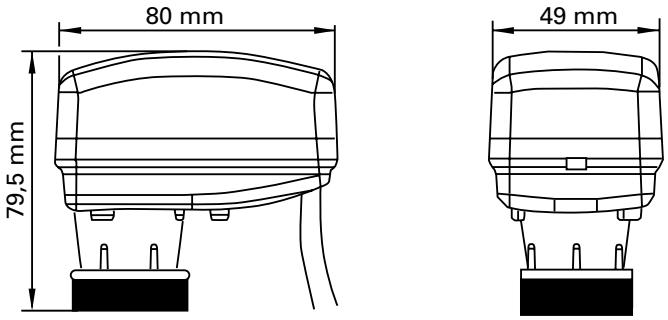


UNSG40R32



Actuator (SDM24)

Dimensions and technical specifications



Function	Modulating 0-10 V
Supply voltage	24 AC ±15%, 50-60 Hz
Power consumption	2,5 VA at max. power supply 1,5 W - active
Nominal force	120 N +30% / -20%
Maximum stroke	6 mm (3,2 / 4,3 /6)
Running time	8 s/mm
Protection class	IP43
Fitting thread	M30x1,5
Cable	L = 1,5 m, (3 x 0,35 mm²)
Ambient operating condition	0 - 50°C, non condensing
Ambient storage condition	-20 - 65°C, non condensing
Max. water temperature	95 °C
Sound level	<30 dB(A)
Weight	0,2 kg
Colour	White semi transparent
Material housing	PA66 - Glass + Mineral filled (30% total) Kelon A FR CETG/300-VO
Material fitting	Brass CuZn40Pb2
CE-Compliance	Directive 89/336 EEC; EN 61000-6-1; EN 61000-6-3

Operating status indication

OFF	○	No power supply
Green Flashing	☀	Actuator running
Green Flashing	☀	Performs an end-of-stroke confirmation
Green steady On	☀	Position reached
Red Flashing	☀	Cycle
Red steady On	☀	4/20mA or 2/10Vdc signal missing

Application

The actuator (SDM24) is modulated and gives the correct heat. FC can be set to always allow a small leakage flow through. This is to provide quick heat supply when a door is opened but also to provide a degree of frost protection.

Function

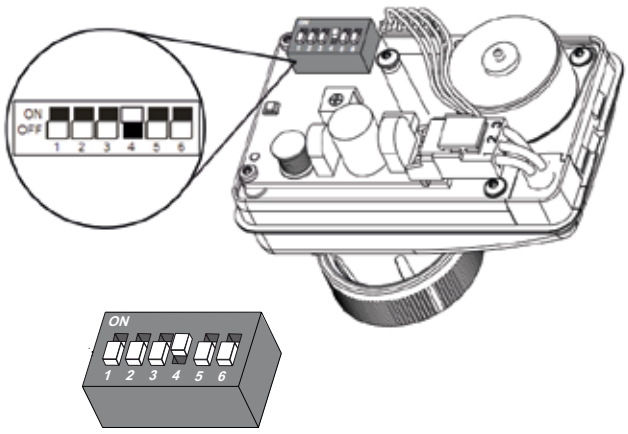
Actuator is controlled by a 0-10 V signal.

The valve is open in unaffected position. The actuator should be in "Reverse Action," dipswitch no. 4 should be set to ON, which means that at 10 V, the valve is unaffected, ie fully open for heat input. In the closed position FC still gives an output to pass through a small leak flow through the valve.

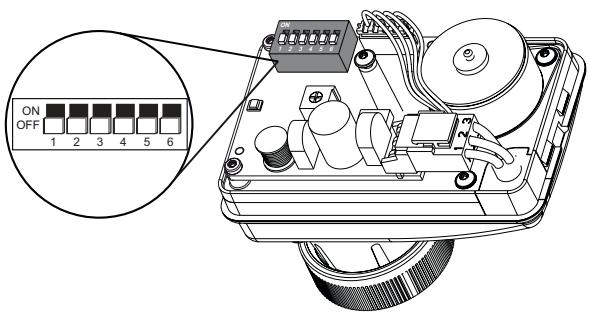
The actuator is self-calibrating and sets the end positions by itself.

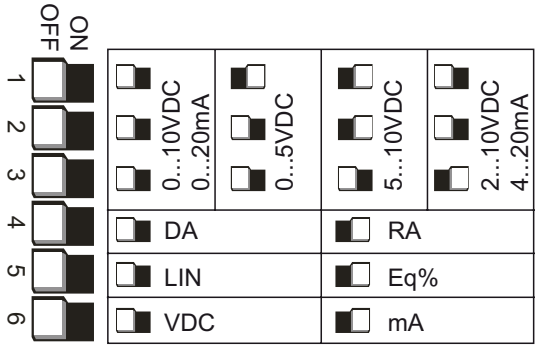
Dipswitch settings

SDM24 is adjustable, this is done by setting dipswitches. These are located under the actuator cover. To SDM24 to work with FC, dip no. 4 should be set to = ON as follows, i.e. "Reverse Action":



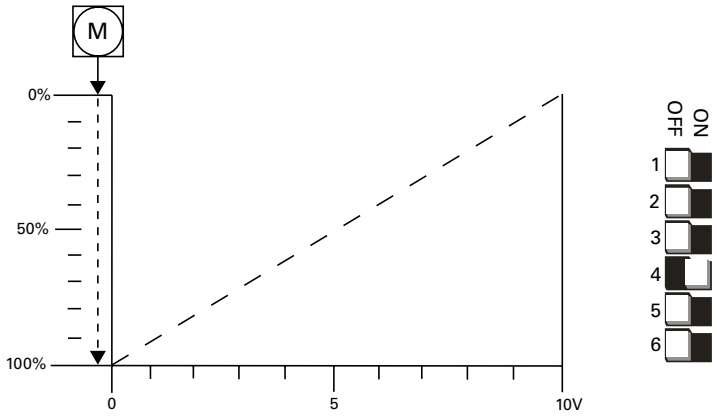
Settings



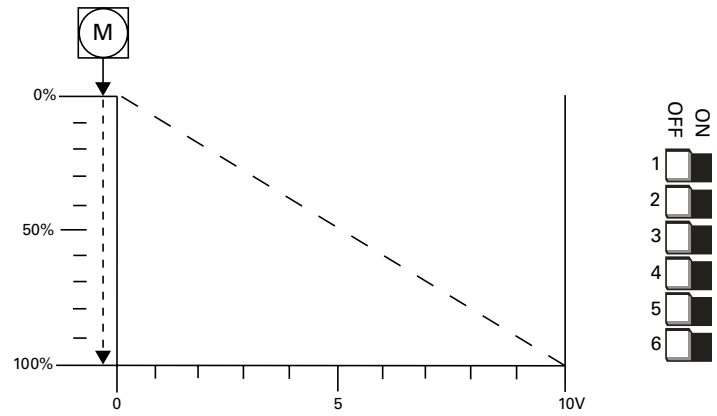


1: CONTROL SIGNAL 2: RANGE 3:	4: ACTION
	5: CURVE
	6: SIGNAL TYPE

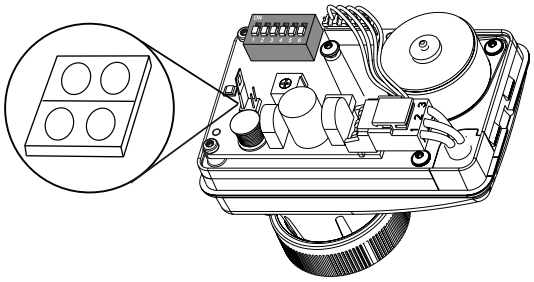
Reverse action, dip4 = ON
Setting applying when controlled by FC

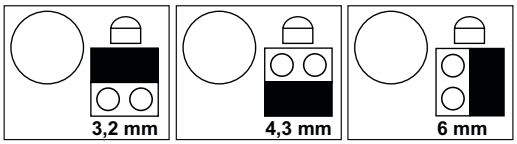


Direct action, dip4 = OFF

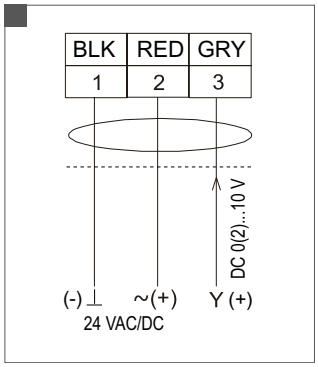


Change length of stroke
The stroke is set to 4,3 mm when delivered from the factory. This can be changed to 3,2 mm or 6,0 mm, if used together with a valve from a different manufacturer than the one described in this manual. It can be changed by moving the jumper as follows:

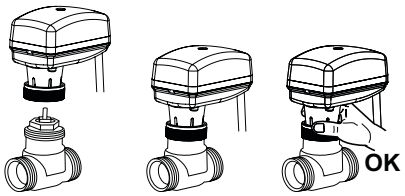


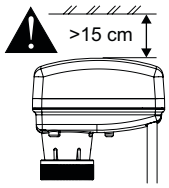


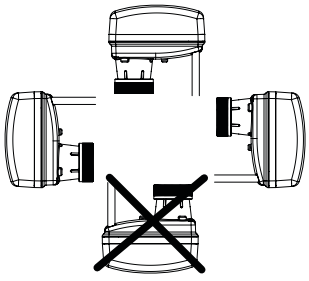
Wiring
All electrical connections must be made by a qualified electrician



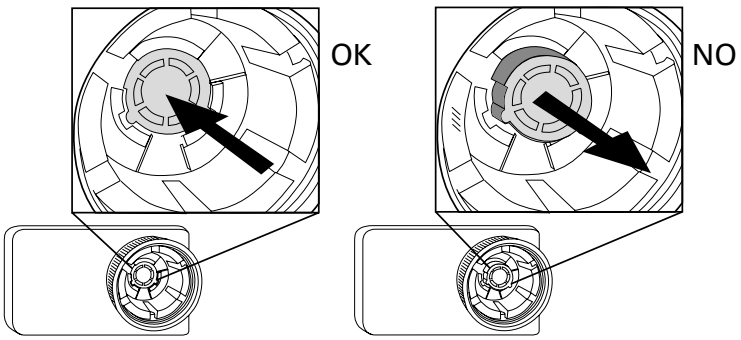
Mounting
The actuator is mounted on the valve when the power supply is disconnected.







NOTE!
If the actuator has been powered up, check that the drive rod within the actuator is in its innermost position before the actuator is mounted on the valve.
Alternatively, use dipswitch no. 4, if it is set to Reverse Action, ensure that FC calls for heat.



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