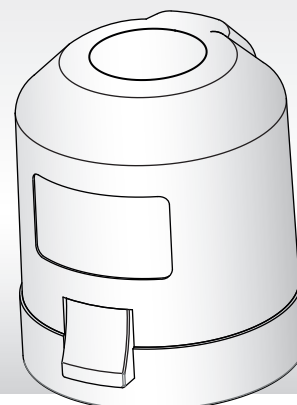


Actuator VM 230 V

The Actuator VM 230 V is a thermoelectric valve drives for opening and closing valves on heating circuit distributors of concealed floor heating and cooling systems.

Features, as a compact and modern casing, versions in normally closed and normally open, valve adapter concept and an enhanced life time have been of particular importance. This allows to fulfill the requirements within the bounds of technical reliability, improved installation and a nearby noiseless operation.

The Actuator VM 230 V is controlled by a 230 V room thermostat with two-point output or pulse-width modulation.



Features

- Compact size, small dimensions
- Available in normally closed (NC) or normally open (NO)
- Patented 100% protection against leaky valves
- All around function indicator
- with first open function (NC only)
- Maintenance-free
- Noiseless
- High functional safety and long expected service life
- High over-voltage protection
- 360° installation position
- Low power consumption
- Snap-on installation
- Valve-adapter concept
- Adaptation check on valve

Application

The Actuator 2x404-x0 serves for optimum control of valves on heating circuit distributors. Control is done by a room thermostat with two-point output or pulse-width modulation.

General Information

Scope of Supply (standard)

- 1 x Actuator VM 230 V in single package (normally closed)
- 1 x installation manual in 9 languages

Alternative Version

- Version normally open

Type

VM 20404-00: Version 230 V – normally closed

VM 21404-10: Version 230 V – normally open

Accessories

Valve Adapter Adapters are available for almost all standard valves and manifolds

Functions

In general

The valve drive mechanism of the Actuator VD 230 V uses a PTC resistor heated elastic element and a compression spring. The wax element is heated by applying the operating voltage and moves the integrated ram. The force generated by the movement is transferred on the valve lifter and thus opens and closes the valve.

Valve-Adapter-Concept

A valve-adapter concept guarantees a perfect match of the actuator to almost any valve bottom or heating circuit distributor available on the market. Simply snap-on the Actuator VM 230 V to the pre-installed valve adapter.

Function Display

The function display of the Actuator VM 230 V (all-round display) allows identifying the operating condition (valve open or closed) at a glance.

Standard Version

Normally Closed (valve closed)

The valve is opened steadily by the ram motion upon switching on the operating voltage and after expiry of the dead time. The elastic element cools down after the operating voltage is cut and after expiry of the hold time, the valve is closed evenly by the closing force of the compression spring.

The closing force of the compression spring is matched to the closing force of commercially available valves and keeps the valve normally closed.

First-Open Function (for NC only)

In its delivery condition, the Actuator VM 20404-00 is normally open due to the First-Open function. This enables heating operation during the carcass construction phase even when the electric wiring of the single room control is not yet complete. When commissioning the system at a later date, the First-Open function is automatically unlocked by applying the operating voltage (for more than 6 minutes) and the Actuator VM 20404-00 is fully operable.

Alternative Version

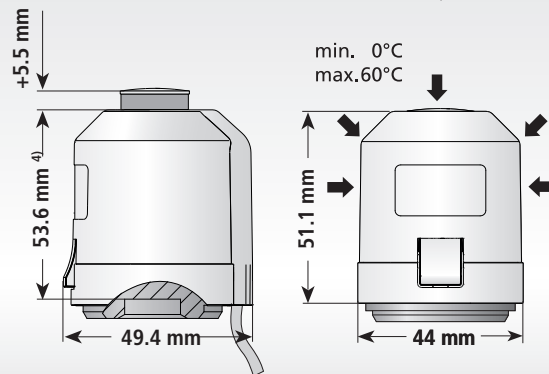
Normally Open (valve open)

In case of the normally open version, the valve is closed evenly by the ram motion upon switching on the operating voltage and after expiry of the dead time. After the operating voltage is cut and after expiry of the hold time, the valve is opened evenly by the closing force of the compression spring.

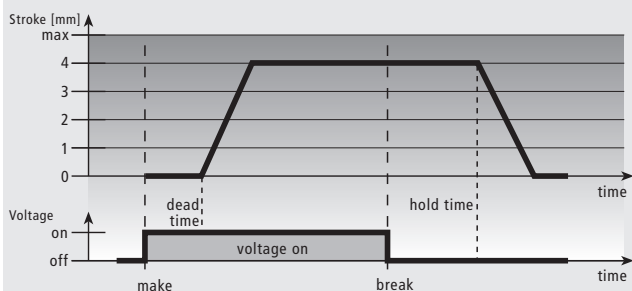
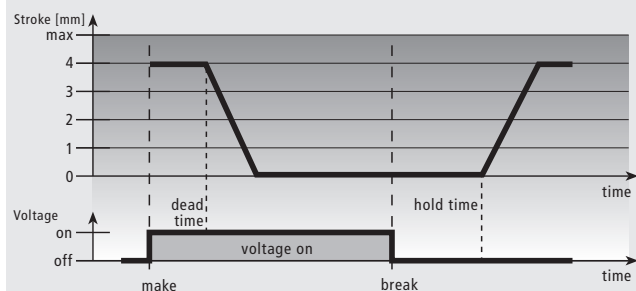
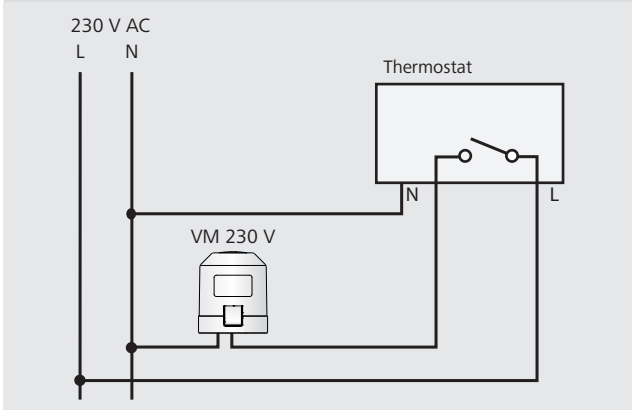
Technical Data

Type	VM 20404-00 / VM 21404-10
Version	normally closed / normally open
Voltage	230 V AC, +10%...-10%, 50/60 Hz
Max. inrush current	300 mA for max. 200 ms
Operating current	8 mA
Operating power	2 W
Closing and opening times	approx. 3 min.
Actuator travel	4 mm
Actuating force	100 N \pm 5%
Fluid temperature	0 to 100 °C ¹⁾
Storage temperature	-25 to +60 °C
Ambient temperature	0 to +60 °C
Degree/class of protection	IP54 ²⁾ / II
CE conformity according to	EN 60730
Housing / housing colour	Polyamid / grey
Weight	100 g with connection cable
Connecting cable / length ³⁾	2 x 0.75 mm ² PVC, grey / 1 m
Overvoltage protection according to EN 60730-1	2.5 kV

Actuator VM 230 V with valve adapter

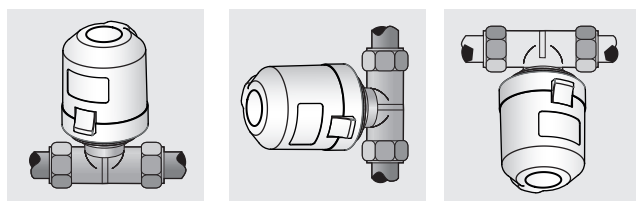


- 1) in dependence of the adapter even higher
- 2) in all installation positions
- 3) special length on demand, but < 5.0 m
- 4) referring to standard valves

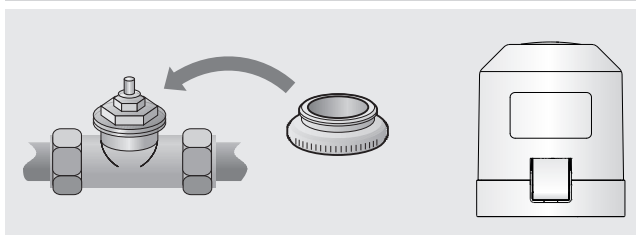
Characteristic Curves
Normally Closed (NC)

Normally Open (NO)

Planning and Installation Notes
Connections Overview


We recommend the following lines for installing a 230 V system:

Light plastic-sheathed cable:	1,5 mm ²
Flat webbed building wire:	1,5 mm ²

Installation Positions


Preferred installation positions of the Actuator are vertical and horizontal. An up-side down position may reduce product life through special circumstances (e.g. contaminated water).

Valve Adaptation


Valve adaptation is realised by a valve adapter which is available in different versions to suit the most common valve bottoms and heating circuit distributors (please consider when ordering).