TAC Forta M400

Actuator for Valves

G-40-22

2001-06-28

M400 is an electro-mechanical actuator for the control of two-way and three-way plug valves in:

- heating systems
- air handling systems

M400 is primarily designed for applications where the demands on actuator speed and thrust are small.

The actuator can not be equipped with Self Testing Device STS.

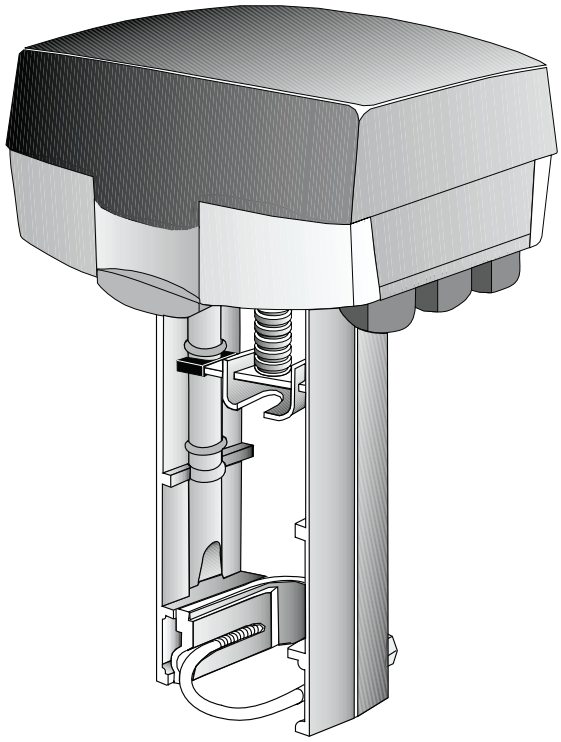
M400 is either controlled by an increase/decrease signal or by a modulating 2–10 V control signal.

The electronic circuitry of the actuator ensures that the running time is the same, regardless of the stroke of the valve in question.

It is easy to mount and connect the actuator. It can be mounted directly onto TAC's control valves, without any mounting kit.

The working range of the actuator is adjusted automatically depending on the stroke of the valve. The electronic circuitry of the actuator then takes care of the adjustment of the valve end positions.

The actuator is supplied by 24 V AC. It can provide 16 V DC voltage supply for older TAC controllers.



TECHNICAL DATA, M400

Part numbers ..... see the table on the next page
Supply voltage ..... 24 V AC ±10%, 50–60 Hz
Power consumption ..... 6 VA
Running time:
  Modulating ..... 60 s
  Increase/decrease ..... 300 s/60 s
Stroke ..... 10–32 mm (0.39 - 1.26 in.)
  Factory set stroke ..... 20 mm (0.79 in.)
Thrust ..... 400 N (90 lbf)
Duty cycle ..... max. 20%/60 minutes
Analog input:
  Voltage ..... 0–10 V
  Impedance ..... min 100 kΩ
Digital inputs VH–VC:
  Voltage across open input ..... 24 V AC
  Current through closed input ..... 5 mA
  Pulse time ..... min. 20 ms
Output G1:
  Voltage ..... 16 V DC ±0,3 V
  Load ..... 25 mA, short-circuit proof
Output Y:
  Voltage ..... 2-10 V (0-100%)
  Load ..... 2 mA

Ambient temperature:
  Operation ..... –10 – +50 °C (14°F - 122°F)
  Storage ..... –10 – +50 °C (14°F - 122°F)
Ambient humidity ..... max. 90% RH
Enclosure rating ..... IP 54
Standards:
  Emission ..... EN 50081-1:1992
  Immunity ..... EN 50082-1:1992
  Heat IEC-68-2-2
  Humidity IEC-68-2-3
  Cold IEC-68-2-1
  Salt mist IEC-68-2-11
  Vibration IEC-68-2-6
Material:
  Housing ..... aluminium
  Cover ..... ABS/PC plastic
Color ..... aluminium/black
Weight ..... 1,8 kg (3.96 lb)
Dimensions ..... refer to the table on the next page

PART NUMBERS

Designation	Explanation	Part number
M400	modulating control signal or increase/decrease signal	880-0230-020
M400-S2	modulating control signal or increase/decrease signal and end point switches	880-0231-020

DIMENSIONS

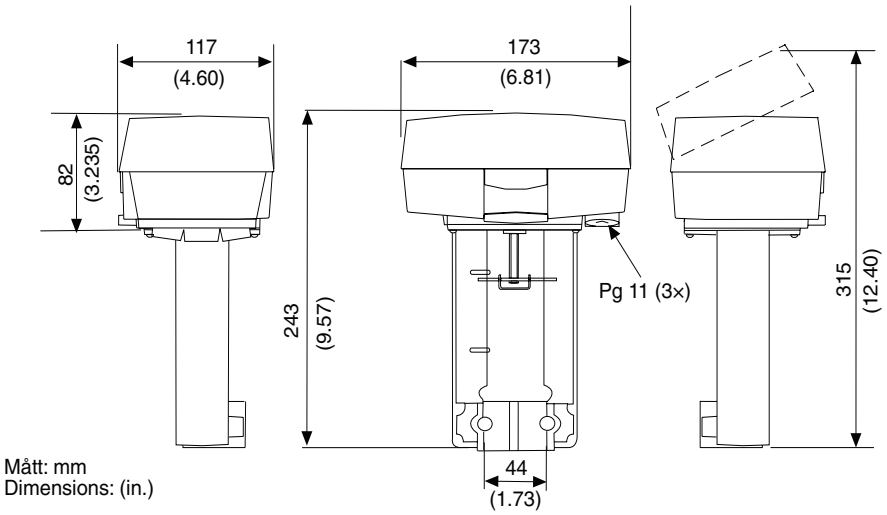


Figure 1

FUNCTION

The actuator
The step motor of the actuator turns a screw via a gear wheel. The motor receives a control signal from a controller. The screw gets a linear movement which moves the stem of the valve.

Control signal
M400 can either be controlled by an increase/decrease signal or by a variable direct voltage.

If an increase/decrease signal is used, the actuator normally moves inwards on an increase signal and outwards on a decrease signal, see Settings.

Manual operation
There is a manual operation handle on the actuator, see figure 2. When it is lowered, the motor stops. Then, the actuator can be operated manually if the handle is turned.

Position feedback
Forta actuators are equipped with a 2–10 V DC position feedback signal, where 2 V always corresponds to the closed position and 10 V to the open position.

End point switches
When actuators are controlled in sequence, it is possible to use the end point switches that have set positions. They will toggle when the valve is fully open or fully closed, respectively.

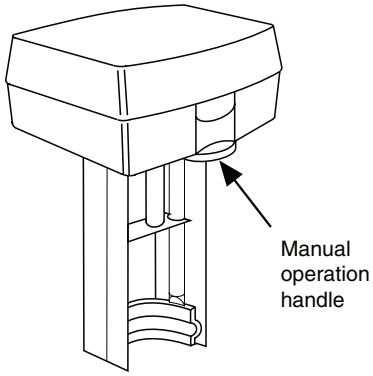


Figure 2