

# MZ140-T

On/Off Thermoelectric Actuator (two position)

## Product Description

MZ140-T is a thermoelectric actuator designed to provide two position on/off control together with VZ\*08\* zone Valves.

The Actuator without power is retracted to ensure the zone valve is in a closed state. With power, the actuator stem is extended to open the valve.

The compact construction provides a small footprint.

## Specifications

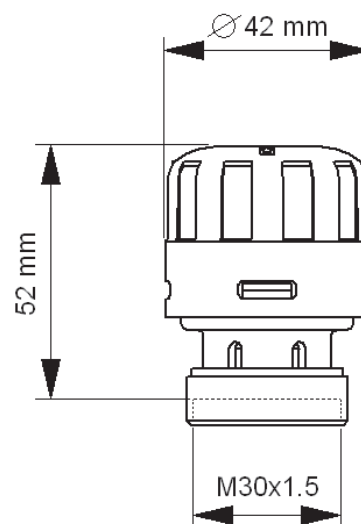
|                          |  |
|--------------------------|--|
| Starting current         |  |
| MZ140-24T                | 0.17A  |
| MZ140-230T               | 0.25A  |
| Working current          |  |
| MZ140-24T                | 75 mA  |
| MZ140-230T               | 8 mA   |
| Power consumption        |  |
| MZ140-24T                | 2W   |
| MZ140-230T               | 2W   |
| Nominal Power Supply     |  |
| MZ140-24T                | 21.8 to 26.8V ac 50/60 Hz  |
| MZ140-230T               | 200 to 250V ac 50/60 Hz  |
| Temperature              |  |
| working                  | 2...50°C   |
| storage                  | -45...60°C   |
| Humidity                 | max. 95% Non condensing  |
| Stem force               | 140 N  |
| Max stroke               | 4 mm   |
| Coupling ring            | M30 x 1,5  |
| Max. Ambient temperature | 50 °C  |
| Power cable              | 2m bipolar (0,35 mm <sup>2</sup> )   |
| Material                 | Fire-resistant case: Class V0  |
| Protection class         | IP44 (for vertical mounting)   |
| Suitable for valves      | see table on page 3  |
| Approvals                | EMC 2014/30/EU according to the EN 61326-1.<br>LVD 2014/35/EU according to the EN 61010-1 for the products powered 230 V |



## Ordering Table

| Part No.      | Type Designation       | Description          | Cable Length (m) |
|---------------|------------------------|----------------------|------------------|
| MZ140-24T     | MZ140-24T 2M44 00      | 24 Vac 50/60 Hz      | 2 m              |
| MZ140-24T-5M  | MZ140-24T 5M44 00      | 24 Vac 50/60 Hz      | 5 m              |
| MZ140-24T-10M | MZ140-24T 10M44 00     | 24 Vac 50/60 Hz      | 10 m             |
| MZ140-230T    | MZ140-110/230T 2M44 00 | 110-230 Vac 50/60 Hz | 2 m              |

## Dimensions (mm)



Function

The actuator operation is carried out by a built-in wax thermostatic element.

without Power the actuator is retracted for a closed valve state.

When power is applied to the actuator, after a small dead band in time the actuator stem extends to open the valve.

Mounting

Prior to the actuator being mounted onto the valve, good practice should be followed regarding the valve installation.

The Valve adjustment cap, if present from system balancing and flushing will need to be removed from the valve prior to actuator connection.

The actuator assembly onto the valve is made by the M30 threaded ring nut. The actuator assembly must be made by hand, no tools are required, excessive tightening of the actuator from the use of tools could cause damage to the valve assembly.

The threaded ring nut allows for comfortable cable positioning at any 360° angle on the valve.

The actuator is able to operate in any mounting position but it is advisable not to install it upside down.

For fluid temperatures above 80°C it is recommended to install the actuator horizontally rather than vertically above the media pipe work. Note the protection degree granted is IP44 for a vertical mounting and IP41 for a horizontal mounting.

Good practice it to install the valve in the return loop from the heat exchanger to reduce excessive pipe fluid temperatures.

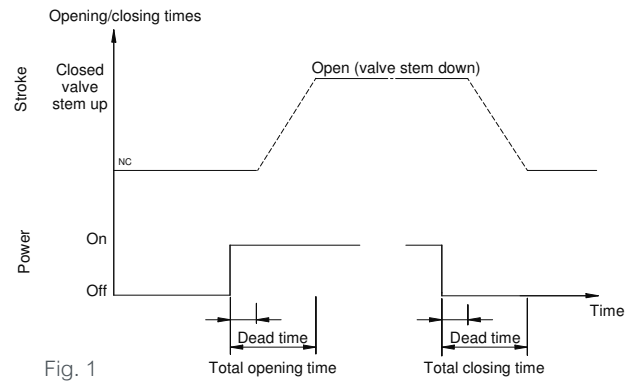


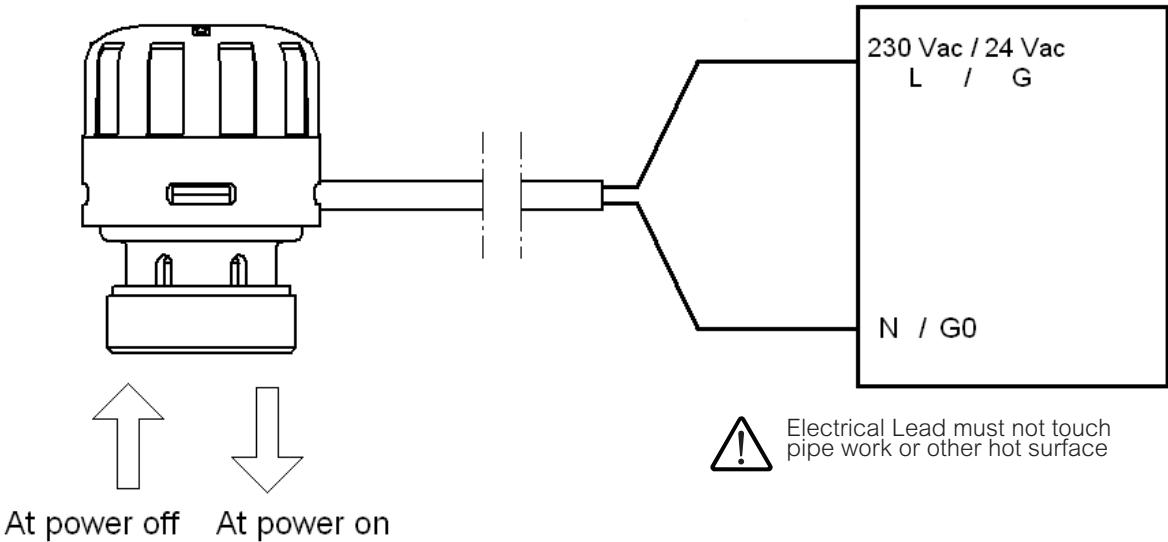
Fig. 1

| Actuator timing details (approx.) |                |               |              |                                   |              |                                    |              |
|-----------------------------------|----------------|---------------|--------------|-----------------------------------|--------------|------------------------------------|--------------|
| Actuator                          | Supply voltage | Valve opening |              | Valve closing (after 5' power on) |              | Valve closing (after 30' power on) |              |
|                                   |                | Dead time     | Total time   | Dead time                         | Total time   | Dead time                          | Total time   |
| MZ140-24T                         | 24             | 2 min 30 sec  | 5 min 50 sec | 2 min 20 sec                      | 6 min 30 sec | 2 min 30 sec                       | 6 min 40 sec |
| MZ140-230T                        | 230            | 1min 20 sec   | 3 min 50 sec | 2 min 20 sec                      | 6 min 30 sec | 2 min 30 sec                       | 6 min 40 sec |
|                                   | 110            | 1 min 40 sec  | 6 min 20 sec | 1min 20 sec                       | 5 min 30 sec | 1min 20 sec                        | 5 min 30 sec |





Fig. 2

Electrical Connections



## Valve Selection and Close Off Performance with MZ140 Actuator

|  |      |                     | VZ*08E<br>Flat face<br> | VZ*08C<br>Compression*<br> | Max Close-off<br>(kPa) MZ140 |                |      |      |
|--|------|---------------------|--|--|------------------------------|----------------|------|------|
| Two-way valves                                   |      |                     |  |  |                              |                |      |      |
| Size   | Kvs  | Valve Body Part No. | End Connection   | Part Number  | End Connection               | A-AB           |      |      |
| DN15   | 0.25 | VZ208E-15BP01       | G1/2A  | VZ208C-15BP01  | 15mm                         | 400            |      |      |
|  | 0.4  | VZ208E-15BP02       |  | VZ208C-15BP02  |                              |                |      |      |
|  | 0.6  | VZ208E-15BP03       |  | VZ208C-15BP03  |                              |                |      |      |
|  | 1    | VZ208E-15BP04       |  | VZ208C-15BP04  |                              |                |      |      |
|  | 1.6  | VZ208E-15BP05       |  | VZ208C-15BP05  |                              | 350            |      |      |
| DN20   | 2.5  | VZ208E-20BP07       | G3/4A  | VZ208C-20BP07  | 22mm                         | 150            |      |      |
|  | 4    | VZ208E-20BP08       |  |  |                              |                |      |      |
|  | 6    | VZ208E-20BP09       |  |  |                              |                |      |      |
| Three-way valves                                 |      |                     |  |  |                              |                |      |      |
|  | Kvs  |                     | Valve Body Part No.  | End Connection   | Part Number                  | End Connection | A-AB | B-AB |
|  | A-AB | B-AB                |  |  |                              |                |      |      |
| DN15   | 0.25 | 0.25                | VZ308E-15BP01  | G1/2A  | VZ308C-15BP01                | 15mm           | 400  | 400  |
|  | 0.4  | 0.4                 | VZ308E-15BP02  |  | VZ308C-15BP02                |                |      |      |
|  | 0.6  | 0.6                 | VZ308E-15BP03  |  | VZ308C-15BP03                |                |      |      |
|  | 1    | 0.8                 | VZ308E-15BP04  |  | VZ308C-15BP04                |                |      |      |
|  | 1.6  | 1                   | VZ308E-15BP05  |  | VZ308C-15BP05                |                | 350  |      |
| DN20   | 2.5  | 1.6                 | VZ308E-20BP07  | G3/4A  | VZ308C-20BP07                | 22mm           | 100  | 40   |
|  | 4    | 2.5                 | VZ308E-20BP08  |  |                              |                |      |      |
|  | 6    | 4                   | VZ308E-20BP09  |  |                              |                |      |      |
| Three-way valves with integral by-pass (4 ports) |      |                     |  |  |                              |                |      |      |
| DN15   | 0.25 | 0.25                | VZ408E-15BP01  | G1/2A  | VZ408C-15BP01                | 15mm           | 400  | 400  |
|  | 0.4  | 0.4                 | VZ408E-15BP02  |  | VZ408C-15BP02                |                |      |      |
|  | 0.6  | 0.6                 | VZ408E-15BP03  |  | VZ408C-15BP03                |                |      |      |
|  | 1    | 0.8                 | VZ408E-15BP04  |  | VZ408C-15BP04                |                |      |      |
|  | 1.6  | 1                   | VZ408E-15BP05  |  | VZ408C-15BP05                |                | 350  |      |
| DN20   | 2.5  | 1.6                 | VZ408E-20BP07  | G3/4A  | VZ408C-20BP07                | 22mm           | 100  | 40   |
|  | 4    | 2.5                 | VZ408E-20BP08  |  |                              |                |      |      |
|  | 6    | 4                   | VZ408E-20BP09  |  |                              |                |      |      |

\* Nuts and Olives supplied with Valve

