Tender specification:
Oventrop electrothermal actuators, are two point actuators, with First-Open function (except for actuators opened with current "off") and stroke index. Available as model closed with current "off" and opened with current "off". The actuators can be installed in any position. Simple plug-in connection with valve adapter.

Models 230 V:	**Item no.:**
Connection thread M 30 x 1.5	
"H NO" closed with current "off"	101 28 15
"H NO" opened with current "off"	101 28 25
"H NC" closed with current "off" with integrated auxiliary switch	101 28 17
"H NC" closed with current "off", cable 2 m long	101 28 52
"H NC" closed with current "off", cable 5 m long	101 28 55
"H NC" closed with current "off", cable 10 m long	101 28 59
Squeeze connection	
"H NC" closed with current "off"	101 28 18

Performance data:

Operating current:	230 V AC, ± 10 %, 50/60 Hz
Start up load:	300 mA for a max. of 200 ms
Current:	8 mA
Closing/opening time:	about 4.5 min.
Piston stroke:	4.5 mm
Operating power:	> 90 N
Auxiliary switch, switching current:	5 (1) A at 230 V AC
Auxiliary switch, switching point:	about 2 mm
Protection:	IP 54 in any position
Protective system:	II according to EN 60730
Fluid temperature:	0 °C up to 100 °C
Ambient temperature:	0 °C up to 60 °C
Storage temperature:	-25 °C up to +60 °C
Connecting cable:	2 x 0.75 mm², 1 m long 4 x 0.75 mm² (item no. 101 28 17)

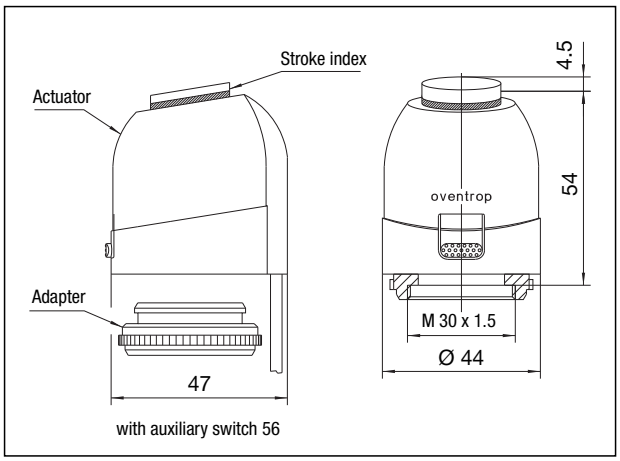
Models 24 V:	**Item no.:**
Connection thread M 30 x 1.5	
"L NC" closed with current "off"	101 28 16
"L NO" opened with current "off"	101 28 26
"L NO" closed with current "off", cable 2 m long	101 28 42
Squeeze connection	
"L NC" closed with current "off"	101 28 19

Performance data:

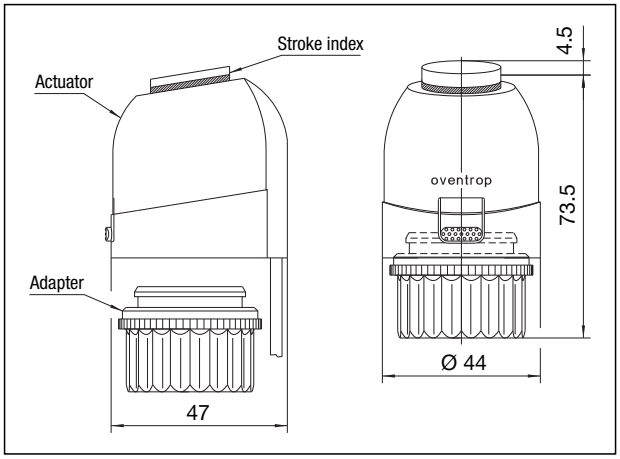
Operating current:	24 V AC/DC, + 20 up to -10 %, 0 up to 60 Hz
Start up load:	250 mA for a max. of 2 min.
Current:	75 mA
Closing/opening time:	about 4.5 min.
Piston stroke:	4.5 mm
Operating power:	> 90 N
Protection:	IP 54 in any position
Protective system:	III according to EN 60730
Fluid temperature:	0 °C up to 100 °C
Ambient temperature:	0 °C up to 60 °C
Storage temperature:	-25 °C up to + 60 °C
Connecting cable:	2 x 0.75 mm², 1 m long

Installation and fitting:
Electrial connection must be carried out in accordance with the requirements of the local Electricity Board.
Please observe: The brown cable must be connected to phase (L). It is recommended that the electric circuit should be fused. The connecting cable must not come into contact with the hot pipe as excessive heat will accelerate the ageing of the cable insulation. When choosing the switching contacts and network fuses, the start up load of the heating element has to be taken into consideration. The loss of potential must not exceed 10 % so that the indicated operating time is kept.

"Aktor T 2P"



Dimensions actuators with connection thread M 30 x 1.5



Dimensions actuators with squeeze connection

Max. length of cable for 1 actuator, with given wire cross sections (indication with a voltage drop of about 5%, for 230 V voltage drop about 10 V, for 24 V voltage drop about 1 V).

Wire cross section [mm²]	230 V max. length [m]	24 V max. length [m]
2 x 0.75	1680	168
2 x 1.00	2240	224
2 x 1.50	3360	340
2 x 2.50	5600	560

When installing several actuators, the indicated length of cable must be divided by the number of connected actuators.

When using 24 V actuators, a safety transformer according to EN 61558-2-6 must always be used. Dimensioning of the transformer is determined by the start up power of the actuators.

Rule-of-thumb: $P_{Transformer} = 6\ W \times n$
n = Number of actuators

The actuator is mounted with the help of the valve adapter, no tools are required. The valve adapter is manually screwed onto the valve and the actuator is fixed to the adapter by use of the plug-in connection.

Oventrop electrothermal actuators can be installed in any position but a vertical (stroke index pointing upwards) or horizontal installation is preferable. In case of vertical downward installation, special circumstances (e.g. dirt water) may reduce the service life.

Application:

The Oventrop electrothermal actuators with two point control are used for heating, ventilation and air-conditioning. In combination with Oventrop thermostatic radiator valves or distributors/collectors for surface heating systems and the Oventrop room thermostats, the actuators allow an individual room temperature control. The actuators are activated through controls with two point output or pulse-width modulation and can be combined with the following Oventrop valves with connection thread M 30 x 1.5:

- Thermostatic radiator valves, all series (except for “Series ADV 6” as well as “Series KTB” with actuators closed with current “off”)
- Three-way conversion valves
- Distributors/collectors for surface heating systems (please observe ambient temperature within the cabinet)
- Regulating valves “Cocon 2TZ/QTZ”
- Regulating valves “Hycocon ETZ/HTZ”
- Three-way diverting and mixing valves

Function:

The Oventrop actuators work with an expansion type working element which is heated electrically by a PTC heating element. A silent operation and low power consumption are thus guaranteed.

As for the model closed with current “off”, the valve is opened constantly by the lift of the push rod each time the operating current is switched on - after termination of the idle time (stroke index in extended position). By switching off the operating current and after termination of the rest period, the valve is closed constantly by the closing pressure of the pressure spring (stroke index in retracted position).

The function of the actuators opened with current “off” is reversed, i.e. the valve is closed if the actuator is energized (stroke index in extended position) and it is opened when the operating current is switched off (stroke index in retracted position).

Due to the First-Open function, the actuators (only the models closed with current “off”) are supplied opened with current “off”. This allows the operation of the heating system during construction work even if the electric wiring of the individual room temperature control has not yet been terminated. During initial operation, the First-Open function is released automatically by switching the operating current on (more than 6 min.) and the actuator is ready for operation.

If room temperatures are controlled via the Oventrop actuators, it is recommended to carry out the room temperature setback via the room thermostat, e.g. the Oventrop room thermostat-clock (see technical data sheet “Individual room temperature control”).

If for some reason a setback of the flow temperature is required during night hours or at other times, a setback of the room temperature via the room thermostat should be carried out additionally.

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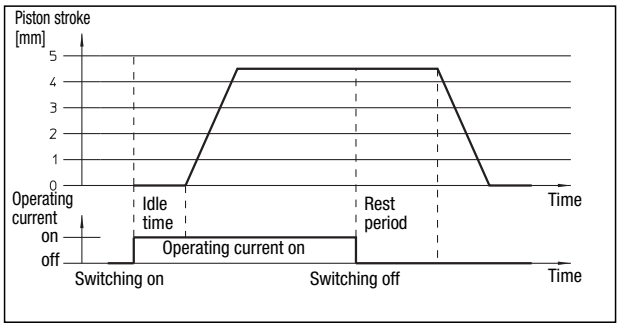
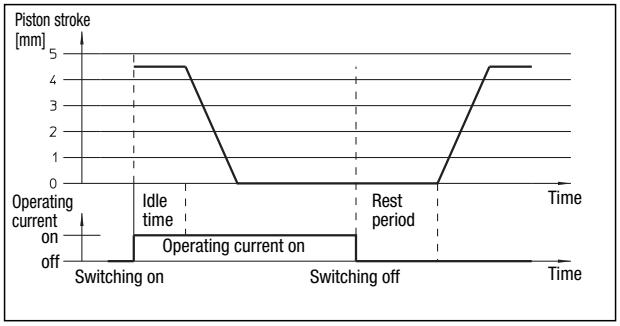
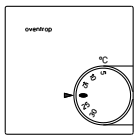


Characteristic line, opened with current “off”

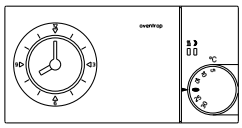


Characteristic line, closed with current “off”

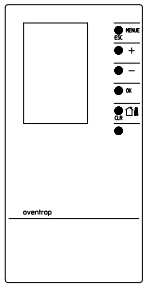
Accessories:	**Item no.:**
Room thermostat 230 V	115 20 51 / 71
Room thermostat 24 V	115 20 52 / 72
Room thermostat-clock 230 V, with daily setting	115 25 51
as above, 230 V, with weekly setting	115 25 52
as above, 24 V, with weekly setting	115 25 54
Room thermostat Heating/Cooling 24 V	115 22 51
Valve adapter, connection thread M 30 x 1.5	101 28 90
Reinforcing cap	101 28 80
Valve adapter, high model (+11 mm), connection thread M 30 x 1.5	101 28 92



Room thermostat
for electrical individual room temperature control. Temperature setback via external time switch (item no. 115 25 51/52/54) (not with actuator opened with current “off”)
Item no. 115 20 51/71 or 52/72



Room thermostat – clock
for electrical individual room temperature control and central temperature setback.
Item no. 115 25 51/52/54



Room thermostat Heating/Cooling
with proportional and proportional-plus integral control, for electrical individual room temperature control and central temperature setback.
Item no. 115 22 51

Reinforcing cap
To protect electrothermal actuators against vandalism. To be used with electrothermal actuators item no. 101 28 15/25/16/26/17/42/52/55/59 and 101 29 52.
Item no. 101 28 80

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