



R473

R478

### Description

In order to allow an optimal control of the room temperature, combining the energy saving with a high comfort, the use of electrical actuators on distribution manifolds, on radiator valves with thermostatic option, or on fancoil valves is advisable. The series of R478 and R473 electrical actuators is characterised by an absolute quiet operation, long lasting lifetime as it has no mechanism subjected to wear and a sufficiently slow closing to prevent from water hammer phenomenon. The operation mechanism is made of wax bulbs controlled by low consumption electrical PTC (Positive Temperature Coefficient).

### Technical data

- Product in compliance with the Directives B.T. 73/23/CEE and 93/68/CEE and ENEC 03 Certificate
- Product category: "Electrical actuators for assembly on radiators or radiant panel systems"
- Condition in absence of voltage:
  - Normally Open "NO" (R478)
  - Normally closed "NC" (R473)
- Linear motion
- Valve working stroke 2,4 m
- Dust protection class 2
- Electrical discharge voltage 4 kV
- Electrical enclosure to IP40
- Protection against direct contacts by means of double insulation (Class II)
- Supply cable type H05 VV-F, useful length 1,5 m
- Opening time at ambience temperature for R473/R473V/R473M/R473VM versions, 230 V - 24 V  $\approx$  6 minutes
- Opening time at ambience temperature for R478/R478V/R478M/R478VM versions, 230 V - 24 V  $\approx$  6 minutes
- Working room temperature: -5÷50 °C
- Storage room temperature: -20÷65 °C
- Casing material flame retardant PBT V0-UL94
- Vertical assembly above the valve, or horizontal
- Rapid connection for Giacomini standard
- Valve position mechanical indicator
- Micro-switch NC with open valve (R478M - R478MV)
- Micro-switch NO with closed valve (R473M - R473MV)

### Electrical actuators NO - (series R478)



R478

R478M

The actuators of the **R478** series are normally open (NA). They allow the hydraulic supply of the circuits when there is no voltage and they have a cable with two conductor for the connection to room thermostats or adjustment regulators.

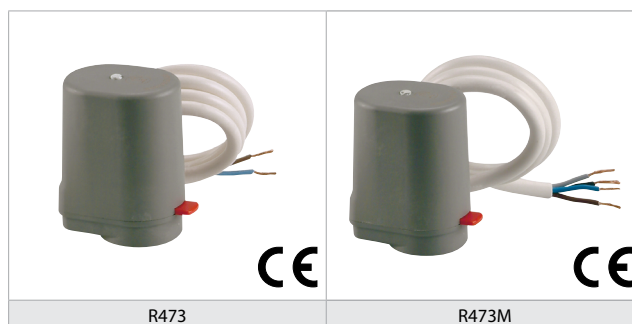
The **R478M** version has a stroke end micro-switch for driving circulators or zone valves.

The **R478M** version has varistor for installation on places where the network voltage undergoes sudden changes that could damage the electronic components.

The **R478MV** version has either varistor or stroke end micro-switch.

In radiant panel heating and cooling systems, the normally open electrical actuators are to be preferred as they are not supplied for most of the time involving a sensible electric energy saving.

### Electrical actuators NC - (series R473)



R473

R473M

The actuators of the **R473** series are normally closed (NC); they allow the hydraulic supply of the circuits in presence of voltage and they have a cable with two conductors for the connection to room thermostats or adjustment regulators.

The **R473M** version has a stroke end micro-switch for driving circulators or zone valves.

The **R473V** version has varistor for installation on places where the network voltage undergoes sudden changes that could damage the electronic components.

The **R473MV** version has either varistor or stroke end micro-switch.

These models have a manual block mechanism in opening position to make the assembly on valves easier, and allow maintenance to the electric plant by maintaining the water circulation into the hydraulic system.

**ELECTRICAL ACTUATORS SERIES  
R473-R473M R478-R478M**

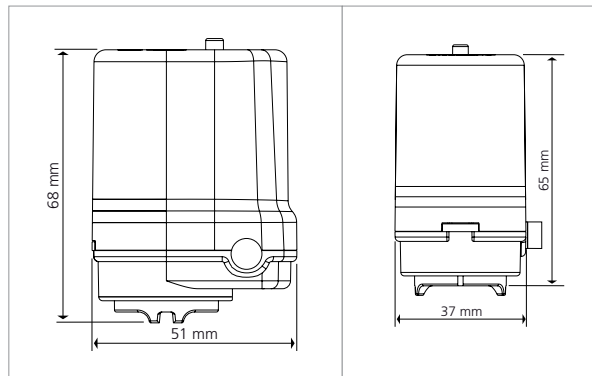
Versions and product codes

Part number	Power consumption	Supply voltage	Maximum starting current (*)	Current consumption after 12 min (*)	Resistance (*)	Supply cable section	Micro-switch NC	Varistore
R478X121	3,5 W	230V 50Hz	≤0,26A	≤0,015A	1200Ω + 46% - 35%	2 x 0,75mm <sup>2</sup>	-	-
R478X122	3 W	24V 50Hz	≤0,2A	≤0,125A	147Ω ± 25%	2 x 0,75mm <sup>2</sup>	-	-
R478MX021	3,5 W	230V 50Hz	≤0,26A	≤0,015A	1200Ω + 46% - 35%	4 x 0,75mm <sup>2</sup>	5A 125Vac	-
R478MX022	3 W	24V 50Hz	≤0,2A	≤0,125A	147Ω ± 25%	4 x 0,75mm <sup>2</sup>	5A 125Vac	-
R478VX121	3,5 W	230V 50Hz	≤0,26A	≤0,015A	1200Ω + 46% - 35%	2 x 0,75mm <sup>2</sup>	-	S10K250
R478VX021	3,5 W	230V 50Hz	≤0,26A	≤0,015A	1200Ω + 46% - 35%	4 x 0,75mm <sup>2</sup>	5A 125Vac	S10K250
R473X121	3,5 W	230V 50Hz	≤0,26A	≤0,015A	1200Ω + 46% - 35%	2 x 0,75mm <sup>2</sup>	-	-
R473X122	3 W	24V 50Hz	≤0,2A	≤0,125A	147Ω ± 25%	2 x 0,75mm <sup>2</sup>	-	-
R473MX021	3,5 W	230V 50Hz	≤0,26A	≤0,015A	1200Ω + 46% - 35%	4 x 0,75mm <sup>2</sup>	5A 125Vac	-
R473MX022	3 W	24V 50Hz	≤0,2A	≤0,125A	147Ω ± 25%	4 x 0,75mm <sup>2</sup>	5A 125Vac	-
R473VX121	3,5 W	230V 50Hz	≤0,26A	≤0,015A	1200Ω + 46% - 35%	2 x 0,75mm <sup>2</sup>	-	S10K250
R473VX021	3,5 W	230V 50Hz	≤0,26A	≤0,015A	1200Ω + 46% - 35%	4 x 0,75mm <sup>2</sup>	5A 125Vac	S10K250

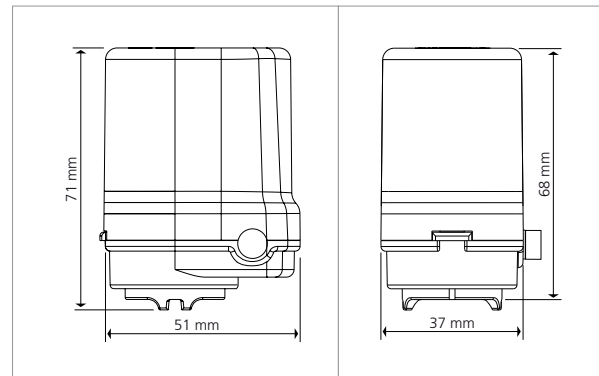
(\*) Values measured at room temperature

Dimensions

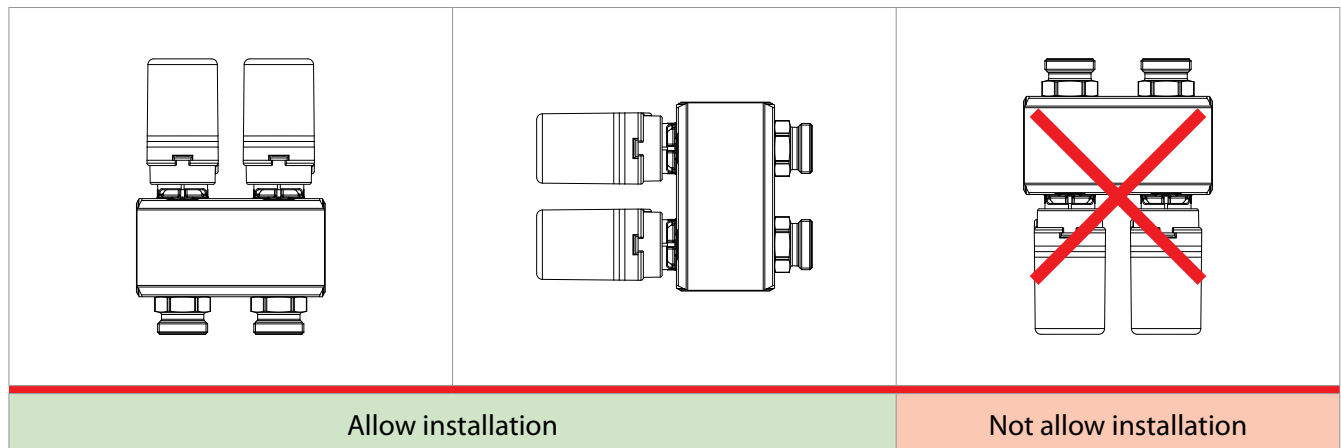
R478-R478M



R473-R473M



Installation



Allow installation

Not allow installation

ELECTRICAL ACTUATORS SERIES  
 R473-R473M R478-R478M

Electrical connections

Termostati ambiente / Room thermostats

R478X121  
R478VX121

R478X122

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Termostati ambiente / Room thermostats

R473X121  
R473VX121

R473X122

**Note.**  
 R478 and R473 actuators allow various connection options able to satisfy different plant engineering requirements. The most recurrent case studies require simple direct connections to room thermostats or relay interposition to drive circulators or zone valves.

Termostati ambiente / Room thermostats

R478MX021  
R478VX021

R478MX022

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Termostati ambiente / Room thermostats

R473MX021  
R473VX021

R473MX022

**Note.**  
 R478M and R473M actuators having a stroke end micro-switch, allow operating circulators or zone valves with extreme simplicity. They are usually connected to the room thermostats by considering that the R478M actuator is open in absence of voltage (while the micro-switch is electrically closed in this status) and the R473M actuator is instead closed in absence of voltage (while the micro-switch is electrically opened in this status). In order to drive significant power loads, it is recommended to interpose a relay so as to avoid the overload of the actuator micro-switches.

**Caution!**  
 The casing of the actuator is not removable and it must not be opened for any reason. Tampering with the actuator will cause the immediate loss of the guarantee. The supply cable of this device can not be replaced; if the cable is damaged the control device must be rejected. The guarantee is valid for one year from the installation date. The guarantee does not cover the replacement of products damaged through careless handling or lack of skill during installation. Claims must reach Giacomini S.p.A. through its authorized sales centres. Before installation the voltage must be carefully checked to ensure that the actuator and the proposed control voltage are compatible. The electrical connections to the actuator must be made only when the installation is isolated from the supply voltage. The connection to the electrical distribution network must be done in safe conditions, as prescribed by the Technical Standards in force in the Country where the actuators are used. Giacomini S.p.A. can not be held responsible for damage caused to persons or property resulting from an improper use of the product.

## Product specification

### R478 230V

Electrical actuator normally open for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 230 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R478 24V

Electrical actuator normally open for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 24 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R478M 230V

Electrical actuator normally open with end stroke micro-switch for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 230 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R478M 24V

Electrical actuator normally open with end stroke micro-switch for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 24 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R478V 230V

Electrical actuator normally open with varistore for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 230 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R478MV 230V

Electrical actuator normally open with varistore and end stroke micro-switch for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 230 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R473 230V

Electrical actuator normally closed for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 230 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R473 24V

Electrical actuator normally closed for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 24 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R473M 230V

Electrical actuator normally closed with end stroke micro-switch for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 230 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R473M 24V

Electrical actuator normally closed with end stroke micro-switch for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 24 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R473V 230V

Electrical actuator normally closed with varistore for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 230 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

### R473MV 230V

Electrical actuator normally closed with varistore and end stroke micro-switch for use on radiators and radiant panel heating and cooling systems. Casing material flame retardant PBT V0-UL94, rapid connection, with valve position mechanical indicator, supply cable type H05 VV-F 1,5 m useful length. Linear motion, dust protection class 2, electrical enclosure to IP40, protection against direct contacts by means of double insulation (Class II). Valve working stroke: 2,4 mm. Electrical discharge voltage: 4 kV. Power supply 230 Vac. Closing time at room temperature  $\approx$  6 minutes. Working room temperature:  $-5^{\circ}\text{C} \div +50^{\circ}\text{C}$ . Storage room temperature:  $-20^{\circ}\text{C} \div +65^{\circ}\text{C}$ . Product in compliance with Directive B.T. 73/23/CEE and 93/68/CEE and ENEC03 Certificate.

## Additional information

For additional information please check the Giacomini website at the following address: [www.giacomini.com](http://www.giacomini.com)

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✉ [consulenza.prodotti@giacomini.com](mailto:consulenza.prodotti@giacomini.com)

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