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Control system for AHU with EC motors, plate or rotary heat exchanger, electric or water heater

DESCRIPTION

The control system is intended to be used for the control of AHU with plate heat exchangers, supply and extract fans with EC motors, supply air electric heater, outside air damper, and plate heat exchanger “Bypass” damper. For the parameter settings measured data monitoring, a remote control with a touch screen is connected to the control board. The remote control with the control board is connected using the 4-wire cable and data transmitted RS485 MODBUS mode.

For economical and accurate AHU control 4 or 5 (depending on AHU type) temperature sensors are connected to the control board. Temperature sensors help quickly reach the user's defined settings.

For the fan motors control, PCB has 0-10VDC control outputs. PCB has an input for fan motors TACHO or NC feedback signal connection. With TACHO or NC system gets the fan fault signals. The electric heater is controlled by the PID algorithm and this allows to obtain good temperature control accuracy.

The control system has a heat exchanger frost protection function. If the exhaust air temperature drops below the set limit (factory default 1-10) and the freezing risk of the heat exchanger then first according to default settings pre-heaters turn on, then if the exhaust temperature does not rise „Bypass” damper opens. If the exhaust temperature still does not rise above the set limit supply and exhaust fan speeds are altered to raise exhaust air temperature (supply air fan speed is gradually reduced to 30%, then exhaust air fan speed is increased gradually up to 100%).

The system controls the heat exchanger and free-cooling modes.

The control system also can check the status of external signals such as filter pollution from the pressure switch, and fire alarm for the fire alarm system.

TECHNICAL DATA:

- Power supply: 230 VAC, 50 Hz.
- Remote control connection: RS485 MODBUS.
- Temperature setpoint range: 5..30°C.
- Fans rotation speed setpoint range: 0, 20...100 %.
- Air damper actuator control: 230 VAC.
- Electric heater and preheater control: total power 230VAC up to 3,6kW (16A) or 0-10VDC output for heater.
- Fans control signals: 0-10 VDC.
- Fans motors failure signal: pulse.
- Temperature sensors quantity and type: 4-5 pcs., NTC10K.
- Filter pollution alarm digital input: voltage free, NO.
- Fire alarm digital input: voltage free, NO.
- Dimensions of electrical plate: 90x160 mm.
- Dimensions of remote controller: 86x92x19 mm.



Type	Input voltage [V]	Current[A]	Net weight [kg]	Price Eur
A RPA-EC-U2, VT1-15-3.5/P/M6,4NTC+N	230	16,0	1,1	365,98

(Prices without VAT).

Water leakage detection relay LDW

DESCRIPTION

The water leakage detection relay LDW is used to prevent water flooding in the room if there is water leakage in the plumbing system. The water leakage is detected on the floor with a water sensor.



TECHNICAL DATA:

- Power supply: 12 VDC/1,5 A.
- Motorized valve output: max 12 VDC/1,0 A.
- Protection class: IP44.
- Max. ambient temperature: 40°C.
- Dimensions: 80x80x27 mm.

Type	Price Eur
LDW	143,50

(Prices without VAT).

Electronic speed controllers (230V) ERV..B PS (push switch)

DESCRIPTION

Electronic speed controllers ERV..B PS (push switch) are used to change rotation speed by changing the supply voltage of the motor without overheating the external connection. The controller has a minimum speed setpoint inside. The hard start time setpoint inside of the controller. The start from the maximum rotating speed with the time delay to set one with a potentiometer. If the setpoint is 0, the controller will start in the soft mode – minimum to maximum. Controllers ERV..B have an overheat protection function.

ERV..B PS are designed with microprocessors, which help to reduce the noise emitted by the controlled motors. Additionally, all ERV..B PS controllers can be configured for both soft and hard starts of the controlled motor.

Other versions of electronic controllers ERV..TS (turn switch) are also possible.

TECHNICAL DATA:

- Frequency (Hz):50/60.
- Protection class: IP44/54.
  - When installed in a flush-mounted box - IP44.
  - When installed in an overhead box - IP54.
- Dimensions: 80x80x60 mm/80x80x65 mm with the surface box.
- Overheat protection: 65°C.
- Max. ambient temperature: 30°C.
- Storage temperature: -35...+ 50°C.



Type	Input voltage [V]	Current [A]	Fuse 5x20mm [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
ERV 0.5B PS	230	0,5	0,63	80x80x65x60	0,1	35,10
ERV 1.5B PS	230	1,5	2,0	80x80x65x60	0,2	38,30
ERV 3.0B PS	230	3,0	4,0	80x80x65x60	0,2	41,20
ERV 4.0B PS	230	4,0	5,0	80x80x65x60	0,2	62,40

(Prices without VAT).

Electronic speed controllers ERV ..T (230V)

DESCRIPTION

Triac speed controllers ERV ..T are designed to change motor rotation speed by changing voltage. Controllers have a triac thermal protection function. The regulation of motor rotating speed is stepless from the set minimum inside of the controller up to full supply voltage on the controller's output. The rotation setpoint can be done with a knob on the cover of the controller. The controllers also have an ON/OFF switch with a green power supply indication. A fuse is installed in the controllers for safety work.

TECHNICAL DATA:



- The regulation of motor rotation speed is stepless from the set minimum inside of the controller up to full supply voltage on the controller's output.
- Minimum output voltage set point range: 60...150 VAC.
- Power supply: 230 VAC.
- Frequency: 50/60[Hz].
- Protection class: IP54.
- Max. ambient temperature 35°C.
- Max. controller temperature 70°C is limited with thermal protection.

Type	Input voltage [V]	Current [A]	Fuse [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
ERV 5.0T	230	0,1-5,0	6,0	125x175x90x75	0,6	**90,90**
ERV 10.0T	230	0,2-10,0	12,5	125x175x90x75	0,7	**105,80**

(Prices without VAT).

Electronic speed controllers ERV ..TMB (230V)

DESCRIPTION

Triac speed controllers ERV ..TMB are designed to change the motor rotation speed by changing the output voltage. Controllers have a function of triac thermo protection. The regulation of the motor rotation speed is stepless from the set minimum inside of the controller up to the full supply voltage on the controller's output. The rotation speed setpoint can be done with a knob which is located on the cover of the controller or with the external control signal 0-10VDC, by the interface RS485 MODBUS. The work mode change of the controller mode can be changed with the external relay contacts. The controllers also have an ON/OFF switch with a green power supply indication. The fuse is installed in the controller for safety work.

TECHNICAL DATA:



- The regulation of motor rotating speed is stepless from the set minimum inside of the controller up to full supply voltage on the controller's output.
- Minimum output voltage set point range: 50...150 VAC ±5%.
- Power supply: 230 VAC ±5%.
- Frequency: 50/60[Hz].
- Protection class: IP54.
- Max. ambient temperature 35°C+5%.
- Max. controller temperature 70°C+5% is limited with thermo protection.

Type	Input voltage [V]	Current [A]	Fuse [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
ERV 5.0TMB	230±5%	0,1-5,0	6,3	125x175x90x75	0,6	**117,90**
ERV 10.0TMB	230±5%	0,2-10,0	12,5	125x175x90x75	0,7	**148,90**

(Prices without VAT).

Controller EC-10 PS (push switch)

DESCRIPTION

The controller is designed for direct control or nominal value present of EC-10 PS fans with potentiometer input or any application where 0...+10 VDC control signal is required. The controller EC-10 PS has an additional relay output that connects/disconnects when the switch/knob is pushed. The controller's 0-10VDC output is adjustable by turning the knob.

Other versions of controller EC..TS (turn switch) are also possible. The controller EC-10 TS has an additional relay output that connects/disconnects when the switch/knob is turned.

TECHNICAL DATA:



- Protection class: IP44/54.
  - When installed in a flush-mounted box – IP44.
  - When installed in an overhead box – IP54.
- Max. ambient temperature 0 to 40°C.
- Net weight: 140 gr.
- Control range: 0...20 kΩ.
- Supply voltage: 10 VAC.
- Output voltage: 0...10 VDC.
- Switch rating: 3A/250 VAC, 10A/12 VDC.

Type	Switch rating [A/VAC]	Supply voltage [VAC]	Output voltage [VDC]	Ambient temperature [°C]	Dimensions [mm]	Price Eur
EC-10 PS	3/250	10	0...10	0+40	80x80x65x60	**22,90**

(Prices without VAT).

Controller EC-10 PS (push switch) 24VDC

DESCRIPTION

The controller is designed for direct control or nominal value present of EC-10 PS 24VDC fans with potentiometer input or any application where 0...+10 VDC control signal is required. For the manual control of speed and airflow of electrical fans with 0-10V output. Additionally equipped with an enabling push switch.

TECHNICAL DATA:



- Protection class: IP44/54.
  - When installed in a flush-mounted box – IP44.
  - When installed in an overhead box – IP54.
- Max. ambient temperature 0 to 40°C.
- Net weight: 140 gr.
- Supply voltage: 12-30 VAC.
- Output voltage: 0...10 VDC.
- Switch rating: 3A/250 VAC, 10A/12 VDC.

Type	Switch rating [A/VAC]	Supply voltage [VAC]	Output voltage [VDC]	Ambient temperature [°C]	Dimensions [mm]	Price Eur
EC-10 PS 24VDC	3/250	12-30	0...10	0+40	80x80x65x60	**27,90**

(Prices without VAT).

Controller EC-10 with 4 steps

DESCRIPTION

The controller is designed to change the EC (electronically commutated) motor's rotating speed by changing the control signal 0...10 VDC. The controller can also be used with frequency inverters or devices that are controlled by 0...10 VDC signal. Supply voltage for this controller is 10 VDC.



TECHNICAL DATA:

- Protection class: IP44/54.
  - When installed in a flush-mounted box – IP44.
  - When installed in an overhead box – IP54.

TECHNICAL DATA:

- Max. ambient temperature 0 to 40°C.
- Net weight: 160 gr.
- Supply voltage: 10VDC.

Type	Input voltage [VDC]	Dimensions [mm]	Net weight [kg]	Price Eur
EC-10 with 4 steps	10	80x80x65x60	0,1	**31,50**

(Prices without VAT).

Controller with relay output ECS10 IP54

DESCRIPTION

Controller with relay output ECS10 IP54 is designed to change EC (electronically commutated) motor rotating speed by changing control signal 0..10 VDC. The controller ECS10 IP54 can be also used to change control input 0..10 VDC signals for frequency inverters or other devices that can be controlled by input 0..10 VDC signals. For the output signal regulation the voltage 3..15 VDC must be supplied to the ECS10 IP54. For enabling the controlled device the controller ECS10 IP54 has relay output. The minimum and maximum levels of the controller output signal can be adjusted with inside installed trimmers.

TECHNICAL DATA:

- The supply voltage: 3..15 VDC.
- The adjustable output signal is limited with minimum and maximum.
- The relay output is voltage-free for enabling a controlled device.
- The minimum setpoint range: 10..70% of the supply voltage.
- The maximum setpoint range: is 30..100% of the supply voltage.
- The protection class: IP44/54.
  - When installed in a flush-mounted box – IP44.
  - When installed in an overhead box – IP54.
- The max. ambient temperature: 40°C.
- The max. ambient humidity 90% without the condensation.



Type	Input voltage [VDC]	Dimensions [mm]	Net weight [kg]	Price Eur
ECS10 IP54	3..15	80x80x65x60	0,1	**29,90**

(Prices without VAT).

Controller ECS10-PWM

DESCRIPTION

The controller ECS10-PWM is designed to control EC (electronically commutated) motor rotating speed or to control other devices by changing control signals 0-10 VDC, 2-20 mA or PWM 10-100 %. The selection of signal type can be done with the switch inside the controller. The ECS10-PWM has an enclosure for the surface and flush-mounted installation. The power supply 230 VAC must be supplied to the controller ECS10-PWM. For enabling the controlled device the ECS10-PWM has the relay output. The minimum and maximum levels of the potentiometer output signal can be adjusted with inside-installed trimmers.

TECHNICAL DATA:

- The supply voltage 230 VAC.
- The adjustable output signal is limited with minimum and maximum.
- The output 230 VAC.
- The minimum setpoint range: 1..7 VDC, 2..10 mA , PWM 10..70 %.
- The maximum setpoint range: 3..10 VDC, 6..20 mA, PWM 30..100 %.
- Protection class: IP44/54.
  - When installed in a flush-mounted box – IP44.
  - When installed in an overhead box – IP54.
- The max. ambient temperature: 40°C.
- The max. ambient humidity 90% without the condensation.



Type	Input voltage [VDC]	Dimensions [mm]	Net weight [kg]	Price Eur
ECS10-PWM	230	80x80x65x60	0,6	99,90

(Prices without VAT).

Transformer fan speed controllers RV..B (1x230V) with cable glands (GL) or grommets (GR)

DESCRIPTION

Transformer controllers RV ..B are designed to change motor rotation speed by changing voltage. Controllers have transformers overheating protection function. The steps have fixed voltages and are switchable with a rotary switch. With a single-speed, the controller can control multiple motors, if the total of all motor's power consumption does not exceed the maximum controller current. The controller's accessories to ensure hermetic: cable glands (GL), cable grommets (GR).



TECHNICAL DATA:

- 5 steps the motor rotation speed controller.
- Power supply: 230 VAC.
- Frequency (Hz):50/60.
- Protection class IP54.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.

Type	Input voltage [V]	Current [A]	Dimensions AxBxC [mm]	Net weight [kg]	Price Eur
RV 0.6B GL / GR	230	0,6	100x180x80	1,2	69,40
RV 1.2B GL / GR	230	1,2	100x180x80	1,5	86,42
RV 1.5B GL / GR	230	1,5	100x180x80	1,7	88,30
RV 2.2B GL / GR	230	2,2	100x180x80	2,0	99,02

(Prices without VAT). (Without motor thermo protection connection).

Transformer fan speed controllers RV..B (1x230V)

DESCRIPTION

Transformer controllers RV ..B are designed to change motor rotation speed by changing voltage. Controllers have transformers overheating protection function. The steps have fixed voltages and are switchable with a rotary switch. With a single-speed, the controller can control multiple motors, if the total of all motor's power consumption does not exceed the maximum controller current.



TECHNICAL DATA:

- 5 steps the motor rotation speed controller.
- Power supply: 230 VAC.
- Frequency (Hz):50/60.
- Protection class IP54.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.

Type	Input voltage [V]	Current [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RV 0.6B	230	0,6	120x100x70x85	0,9	67,90
RV 1.2B	230	1,2	120x100x70x85	1,4	84,92
RV 1.5B	230	1,5	175x125x75x90	1,7	86,90
RV 2.2B	230	2,2	175x125x75x90	2,1	97,52
RV 3.0B	230	3,0	175x125x100x115	2,9	110,65
RV 4.0B	230	4,0	175x125x100x115	3,6	123,55
RV 5.0B	230	5,0	175x125x100x115	4,0	143,45
RV 7.0B	230	7,0	300x250x130x145	6,9	196,03
RV 11.0B	230	11,0	300x250x130x145	9,7	222,24
RV 14.0B	230	14,0	300x250x130x145	10,5	255,45

(Prices without VAT). (Without motor thermo protection connection).

Transformer fan speed controllers RV.. (1x230V) with cable glands (GL) or grommets (GR)

DESCRIPTION

Transformer controllers RV .. are designed to change motor rotation speed by changing voltage. Controllers have transformers overheating protection function. The steps have fixed voltages and are switchable with a rotary switch. With a single-speed, the controller can control multiple motors, if the total of all motor's power consumption does not exceed the maximum controller current. The controller's accessories to ensure hermetic: cable glands (GL), cable grommets (GR).



TECHNICAL DATA:

- 5 steps the motor rotation speed controller.
- Power supply: 230 VAC.
- Frequency (Hz):50/60.
- Protection class IP54.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.

Type	Input voltage [V]	Current [A]	Dimensions AxBxC [mm]	Net weight [kg]	Price Eur
RV 1.2 GL / GR	230	1,2	100x180x80	1,5	**95,04**
RV 1.5 GL / GR	230	1,5	100x180x80	1,7	**97,45**
RV 2.2 GL / GR	230	2,2	100x180x80	2,0	**110,12**

(Prices without VAT). (Without motor thermo protection connection).

Transformer fan speed controllers RV..(1x230V)

DESCRIPTION

Transformer controllers RV .. are designed to change motor rotation speed by changing voltage. Controllers have transformers overheating protection function. The steps have fixed voltages and are switchable with a rotary switch. With a single-speed, the controller can control multiple motors, if the total of all motor's power consumption does not exceed the maximum controller current.

TECHNICAL DATA:



- 5 steps the motor rotation speed controller.
- Power supply: 230 VAC.
- Frequency (Hz):50/60.
- Protection class IP54.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.

Type	Input voltage [V]	Current [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RV 1.2	230	1,2	175x125x75x90	1,6	**93,54**
RV 1.5	230	1,5	175x125x75x90	1,7	**95,95**
RV 2.2	230	2,2	175x125x75x90	2,1	**108,62**
RV 3.0	230	3,0	175x125x100x115	3,0	**119,33**
RV 4.0	230	4,0	175x125x100x115	3,6	**128,46**
RV 5.0	230	5,0	175x125x100x115	4,1	**167,41**
RV 7.0	230	7,0	300x250x130x145	6,9	**212,33**
RV 11.0	230	11,0	300x250x130x145	10,0	**236,44**
RV 14.0	230	14,0	300x250x130x145	11,1	**275,29**

(Prices without VAT). (Without motor thermo protection connection).

Transformer fan speed controllers RV 1.5 WT (weekly timer)

DESCRIPTION

The transformer fan speed controller RV 1.5WT is designed to change motor rotation speed by changing voltage. The controller has a transformer's overheating protection function. The steps have fixed voltages and are switchable with a rotary switch. A single-speed controller can control multiple motors if the total of all motor's power consumption does not exceed the maximum current. The transformer controller has an integrated weekly timer. It is possible to set two motor speeds, which will be turned on/off using the installed weekly timer contacts.

TECHNICAL DATA:



- 2 steps motor rotation speed controller.
- Power supply: 230 VAC.
- Frequency (Hz):50/60.
- Protection class: IP54.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.
- Time relay with weekly programming, with LCD display.

Type	Input voltage [V]	Current [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RV 1.5 WT	230	1,2	240x190x90x110	2,6	**264,20**

(Prices without VAT).

Transformer fan speed controllers RT..(3x400V)

DESCRIPTION

Transformer controllers RT .. are designed to change motor rotation speed by changing voltage. All controllers have an overheating protection function. The steps have fixed voltages and are switchable with a rotary switch. With a single-speed, the controller can control multiple motors, if the total of all motor's power consumption does not exceed the maximum controller current.

TECHNICAL DATA:



- 5 steps motor rotation speed controller.
- Power supply: 400 VAC.
- Frequency (Hz):50/60.
- Protection class:
  - IP54 (RT 1.0...RT 5.0) – plastic boxes.
  - IP44 (RT 7.0...RT 14.0) – metal boxes.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.

Type	Input voltage [V]	Current [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RT 1.0	400	1,0	250x200x100x115	5,6	**179,07**
RT 2.0	400	2,0	250x200x100x115	8,2	**211,37**
RT 3.0	400	3,0	300x250x130x145	9,9	**237,77**
RT 4.0	400	4,0	300x250x130x145	14,0	**278,00**
RT 5.0	400	5,0	300x250x130x145	16,2	**315,66**
RT 7.0	400	7,0	360x300x170x185	23,0	**404,08**
RT 11.0	400	11,0	380x340x200x215	37,0	**498,98**
RT 14.0	400	14,0	380x340x200x215	38,7	**661,38**

(Prices without VAT).

Transformer fan speed controllers RT..EX (3x400V)

DESCRIPTION

Transformer controllers RT ..EX are designed to change motor rotation speed by changing voltage. All controllers have an overheating protection function. The steps have fixed voltages and are switchable with a rotary switch. With a single speed, the controller can control multiple motors, if the total of all motor's power consumption does not exceed the maximum controller current.

TECHNICAL DATA:



- 5 steps motor rotation speed controller.
- Power supply: 400 VAC.
- Frequency (Hz):50/60.
- Protection class:
  - IP54 (RT 1.0EX...RT 5.0EX – plastic boxes).
  - IP44 (RT 7.0EX...RT 14.0EX – metal boxes).
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.
- Motor thermal protection – PTC.

Type	Input voltage [V]	Current [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RT 1.0EX	400	1,0	250x200x100x115	6,0	**330,58**
RT 2.0EX	400	2,0	300x250x130x145	9,0	**362,72**
RT 3.0EX	400	3,0	300x250x130x145	11,1	**377,10**
RT 4.0EX	400	4,0	300x250x130x145	14,6	**422,76**
RT 5.0EX	400	5,0	300x250x130x145	16,5	**473,29**
RT 7.0EX	400	7,0	360x300x170x185	23,0	**536,89**
RT 11.0EX	400	11,0	380x340x200x215	37,0	**620,81**
RT 14.0EX	400	14,0	380x340x200x215	38,7	**670,98**

(Prices without VAT). (For explosion-proof fans).

Transformer fan speed controllers RV..B-2 (1x230V)

DESCRIPTION

Transformer controllers RV ..-2B are designed to change motor rotation speed by changing voltage. All controllers have an overheating protection function. The steps have fixed voltages and are switchable with a rotary switch. Controllers are equipped with 2 rotary switches. Rotary switch selection can be made with an external signal. In this case, can be selected one of the set speeds.

TECHNICAL DATA:



- 5 steps the motor rotation speed controller.
- Power supply: 230 VAC.
- Frequency (Hz):50/60.
- Protection class IP54.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C.

Type	Input voltage [V]	Current [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RV 0.6B-2	230	0,6	175x125x75x90	1,7	**110,20**
RV 1.2B-2	230	1,2	175x125x75x90	1,8	**120,20**
RV 1.5B-2	230	1,5	175x125x75x90	1,9	**129,70**
RV 2.2B-2	230	2,2	175x125x75x90	2,1	**138,20**
RV 3.0B-2	230	3,0	250x200x100x115	2,9	**157,44**
RV 4.0B-2	230	4,0	250x200x100x115	3,6	**175,32**
RV 5.0B-2	230	5,0	250x200x100x115	4,0	**215,18**
RV 7.0B-2	230	7,0	300x250x130x145	7,0	**234,20**
RV 11.0B-2	230	11,0	300x250x130x145	8,1	**257,16**

(Prices without VAT). (Without motor thermo protection connection).

Transformer fan speed controllers RV..-2 (1x230V)

DESCRIPTION

Transformer controllers RV ..-2 are designed to change motor rotation speed by changing voltage. Controllers are with transformers and motor overheating protection functions. The steps have fixed voltages and are switchable with a rotary switch. Controllers are equipped with 2 rotary switches. Rotary switch selection can be made with an external signal. In this case, can be selected one of the set speeds. With a single-speed, the controller can control multiple motors, if the total of all motor's power consumption does not exceed the maximum controller current.

TECHNICAL DATA:



- 5 steps the motor rotation speed controller.
- Power supply: 230 VAC.
- Frequency (Hz):50/60.
- Protection class IP54.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.

Type	Input voltage [V]	Current [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RV 1.2-2	230	1,2	175x125x75x90	1,6	**142,75**
RV 1.5-2	230	1,5	175x125x75x90	1,9	**149,95**
RV 2.2-2	230	2,2	175x125x75x90	2,3	**163,75**
RV 3.0-2	230	3,0	250x200x100x115	3,2	**170,56**
RV 4.0-2	230	4,0	250x200x100x115	4,0	**194,18**
RV 5.0-2	230	5,0	250x200x100x115	4,9	**241,43**
RV 7.0-2	230	7,0	300x250x130x145	7,1	**289,28**
RV 11.0-2	230	11,0	300x250x130x145	10,4	**310,94**

(Prices without VAT). (With motor thermo protection connection).

Transformer fan speed controllers R T ..-2 (3x400V)

DESCRIPTION

Transformer controllers RT ..-2 are designed to change motor rotation speed by changing voltage. Controllers are with transformers and motor thermal protection functions. The steps have fixed voltages and are switchable with a rotary switch. Controllers are equipped with 2 rotary switches. Rotary switch selection can be made with an external signal. In this case, can be selected one of the set speeds.

TECHNICAL DATA:



- 5 steps motor rotation speed controller.
- Power supply: 400 VAC.
- Frequency (Hz):50/60.
- Protection class:
  - IP54 (RT 1.0-2..RT 5.0-2) – plastic boxes.
  - IP44 (RT 7.0-2..RT 14.0-2) – metal boxes.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.

Type	Input voltage [V]	Current [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RT 1.0-2	400	1,0	300x250x130x145	6,8	**255,84**
RT 2.0-2	400	2,0	300x250x130x145	7,9	**284,22**
RT 3.0-2	400	3,0	300x250x130x145	10,4	**323,40**
RT 4.0-2	400	4,0	300x250x130x145	18,1	**369,40**
RT 5.0-2	400	5,0	300x250x130x145	18,3	**415,50**
RT 7.0-2	400	7,0	360x300x170x185	24,0	**488,04**
RT 11.0-2	400	11,0	380x340x200x215	33,4	**567,52**
RT 14.0-2	400	14,0	380x340x200x215	36,5	**724,25**

(Prices without VAT).

Transformer fan speed controllers RV ..YS (1x230V) with external relay input (door switch)

DESCRIPTION

Transformer controllers RV ..YS are designed to change motor rotation speed by changing voltage. Controllers are with transformers and motor overheating functions. The steps have fixed voltages and are switchable with a rotary switch. Controllers have external relay signal input S-S for switching ON/OFF controllers. With a single-speed, the controller can control multiple motors, if the total of all motor's power consumption does not exceed the maximum controller current.



TECHNICAL DATA:

- 5 steps the motor rotation speed controller.
- Power supply: 230 VAC.
- Frequency (Hz):50/60.
- Protection class IP54.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.

Type	Input voltage [V]	Current [A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RV 1.2YS	230	1,2	175x125x75x90	1,6	**113,29**
RV 1.5YS	230	1,5	175x125x75x90	1,8	**119,08**
RV 2.2YS	230	2,2	175x125x75x90	2,3	**130,28**
RV 3.0YS	230	3,0	250x200x100x115	3,6	**151,33**
RV 4.0 YS	230	4,0	250x200x100x115	4,0	**179,16**
RV 5.0 YS	230	5,0	250x200x100x115	4,6	**214,88**
RV 7.0 YS	230	7,0	300x250x130x145	7,1	**237,92**
RV 11.0YS	230	11,0	300x250x130x145	10,4	**261,93**
RV 14.0YS	230	14,0	300x250x130x145	10,7	**302,06**

(Prices without VAT). (With motor thermo protection connection).

Transformer speed controllers RT ..YS (3x400V) with external relay input (door switch)

DESCRIPTION

Transformer controllers RT ..YS are designed to change motor rotation speed by changing voltage. Controllers are with transformers and motor thermal protection functions. The steps have fixed voltages and are switchable with a rotary switch. Controllers have external relay signal input S-S for switching ON/OFF controllers. With a single-speed, the controller can control multiple motors, if the total of all motor's power consumption does not exceed the maximum controller current.



TECHNICAL DATA:

- 5 steps motor rotation speed controller.
- Power supply: 400 VAC.
- Frequency (Hz):50/60.
- Protection class:
  - IP54 (RT 1.0YS...RT 5.0YS) – plastic boxes.
  - IP44 (RT 7.0YS...RT 14.0YS) – metal boxes.
- Max. ambient temperature: 40°C.
- Max. controller temperature 70°C is limited with thermo protection.

Type	Input voltage [V]	Current[A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RT 1.0YS	400	1,0	300x250x130x145	6,3	**207,67**
RT 2.0YS	400	2,0	300x250x130x145	8,7	**236,97**
RT 3.0YS	400	3,0	300x250x130x145	10,6	**249,90**
RT 4.0YS	400	4,0	300x250x130x145	14,5	**301,59**
RT 5.0YS	400	5,0	300x250x130x145	18,3	**342,44**
RT 7.0YS	400	7,0	360x300x170x185	24,0	**426,96**
RT 11.0YS	400	11,0	380x340x200x215	33,4	**508,79**
RT 14.0YS	400	14,0	380x340x200x215	36,5	**569,27**

(Prices without VAT).

Controllers for two speeds fan motor RD 4.0

DESCRIPTION

Controllers are used for two-speed fan motor control with a star/delta electrical connection. Controllers have a motor overheating protection function. If the motor overheats protection gives a signal that the motor winding temperature is too high the controller cuts off the power supply to the motor.

TECHNICAL DATA:



- Power supply: 400 VAC.
- Frequency: 50/60 Hz.
- Motor power and current: max 4,0 kW, 9,0 A.
- Protection class: IP54.
- Max. ambient temperature: 40°C.

Type	Input voltage [V]	Current[A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RD 4.0	400	9,0	175x125x146x101	1,1	**109,90**

(Prices without VAT).

Controllers for two speeds fan motor RD 4.0EX

DESCRIPTION

Controllers are used for two-speed fan motor control with a star/delta electrical connection. Controllers have a motor overheating protection function. If the motor overheats protection gives a signal that the motor winding temperature is too high the controller cuts off the power supply to the motor.

TECHNICAL DATA:



- Power supply: 400 VAC.
- Frequency: 50/60 Hz.
- Motor power and current: max 4,0 kW, 9,0 A.
- Protection class: IP54.
- Max. ambient temperature: 40°C.
- Motor thermal protection – PTC.

Type	Input voltage [V]	Current[A]	Dimensions AxBxCxD [mm]	Net weight [kg]	Price Eur
RD 4.0EX	400	9,0	175x125x146x101	1,2	**174,90**

(Prices without VAT). For explosion-proof fans.

Rotary change - over cam switches VMSE...

NEW

DESCRIPTION

The unit service switches are designed to ensure safe operating conditions during maintenance and to disconnect the unit from the mains supply. They can function as a main switch or an emergency stop switch. The switch enclosure has an IP65 protection rating.

TECHNICAL DATA:



- Contact voltage: 230 VAC or 400 VAC.
- Degree of protection: IP65.
- Number of poles: 3 or 4.
- Locking function in the OFF position.

Type	Function	Operational current AC21A* [A]	Operational power 400VAC/AC3* [kW]	Number of poles	Price Eur
VMSE-316	ON/OFF	16,0	1,5	3	**21,41**
VMSE-320	ON/OFF	20,0	3,0	3	**21,41**
VMSE-325	ON/OFF	25,0	3,7	3	**31,17**
VMSE-332	ON/OFF	32,0	5,5	3	**32,97**
VMSE-340	ON/OFF	40,0	7,5	3	**39,73**
VMSE-363	ON/OFF	63,0	11,0	3	**42,82**
VMSE-380	ON/OFF	80,0	13,0	3	**78,25**
VMSE-3100	ON/OFF	100,0	15,0	3	**86,81**
VMSE-416	ON/OFF	16,0	1,5	4	**23,07**
VMSE-420	ON/OFF	20,0	3,0	4	**23,07**
VMSE-425	ON/OFF	25,0	3,7	4	**34,76**
VMSE-432	ON/OFF	32,0	5,5	4	**36,50**
VMSE-440	ON/OFF	40,0	7,5	4	**46,09**
VMSE-463	ON/OFF	63,0	11,0	4	**49,05**
VMSE-480	ON/OFF	80,0	13,0	4	**86,45**
VMSE-4100	ON/OFF	100,0	15,0	4	**99,53**

(Prices without VAT).

NOTE: AC21A- switching of resistive loads, including small loads.
AC3- electric rotary motors: START/STOP control.

3 and 4 positions switches PJ-3, PJ-4

DESCRIPTION

Operational speed step switches can adjust manually the speed of electrical motors/fans. Several motors can be connected to a one-step switch if the total of all motor power consumption does not exceed the maximum switch current.

TECHNICAL DATA:

- Switch: ON/OFF.
- Control signal: step switch.
- Protection class: IP44/54.
  - When installed in a flush-mounted box - IP44.
  - When installed in an overhead box – IP54.
- Max. ambient temperature up to 40°C.

PJ-3



PJ-4



Type	Steps	Supply voltage [V]	Switch rating [A/VAC]	Dimensions [mm]	Price Eur
PJ-3	2	230	3/230	80x80x65x60	**19,90**
PJ-4	3	230	3/230	80x80x65x60	**20,90**

(Prices without VAT).

Pressure switches SR ..

DESCRIPTION

SR .. pressure switches are capable of sensing tiny pressure changes. Pressure switches can control the flue of the aerator, the operation of the fan, and filter contamination in a ventilation system. Pressure switches are also suitable for overheat protection in industrial cooling systems. The setpoint is adjusted to be visible due to pressure switch's outstanding design.

TECHNICAL DATA:

- Relay output.
- Contact voltage: 250 VAC.
- For differential pressure measurement.
- Protection class: IP54.
- Max. operating pressure: 5kPa.
- Measured gasses: air, non-combustible and no-aggressive gasses.
- Operating temperature range: -40°C...+85°C.
- Mounting: in any vertical position.
- Pressure connections: 2 plastic pipe connection pieces (P1 and P2), external diameter 6.0 mm, P1 for connection to higher pressure, P2 for connection to lower pressure.
- Electric contact: SPDT.
- Tolerance: 15%.
- Weight: 140 g.
- Contact electrical rating:
  - Resistance: initial <400milliohms.
  - Current: 1.5A (0.4A)/250 V.

NOTE: SR..- pressure switch.



SR..

NOTE: SR..K- pressure switch with accessories.



SR..K

ACCESSORIES SR..K:

Plastic tube – 1,5 m.
Connectors – 2 pcs.
Screw for connectors – 4 pcs.

Type	Differential [Pa]	Pressure range [Pa]	Current/voltage [A/V]	Price Eur
SR 200	10	20-200	1,5A(0,4)/250V	16,00
SR 300	10	30-200	1,5A(0,4)/250V	16,48
SR 400	20	40-200	1,5A(0,4)/250V	16,97
SR 500	20	50-500	1,5A(0,4)/250V	17,48
SR 1000	100	200 -1000	1,5A(0,4)/250V	18,01
SR 2500	150	500-2500	1,5A(0,4)/250V	18,55
SR 5000	250	1000-5000	1,5A(0,4)/250V	19,10
SR 200K	10	20-200	1,5A(0,4)/250V	18,76
SR 300K	10	30-200	1,5A(0,4)/250V	19,24
SR 400K	20	40-200	1,5A(0,4)/250V	19,73
SR 500K	20	50-500	1,5A(0,4)/250V	20,24
SR 1000K	100	200-1000	1,5A(0,4)/250V	20,77
SR 2500K	150	500-2500	1,5A(0,4)/250V	21,31
SR 5000K	250	1000-5000	1,5A(0,4)/250V	21,86

(Prices without VAT).

Differential air pressure switch with light and sound indication SR...

NEW

DESCRIPTION

The pressure switch with light and sound indication is intended to indicate fan operation, filter contamination in ventilation systems.

TECHNICAL DATA:

- For differential pressure indication.
- IP54 protection.
- Max. operation pressure: 5kPa.
- Measured gasses: air. non-combustible and no-aggressive gasses.
- Operational temperature range: -40°C to +85°.
- Weight: 200 g.
- Mounting: in any vertical position.
- Pressure connections: 2 plastic pipe connection pieces (P1 and P2), external diameter 6.0 mm, P1 for connection to higher pressure, P2 for connection to lower pressure.
- Supply voltage: 230VAC.
- Tolerance: 15%.

NOTE: SR..- pressure switch.



SR... with indication

NOTE: SR..K- pressure switch with accessories.



SR...K with indication

ACCESSORIES SR..K WITH INDICATION:

Plastic tube – 1,5 m.
Connectors – 2 pcs.
Screw for connectors – 4 pcs.

Type	Differential [Pa]	Pressure range [Pa]	Current/voltage [A/V]	Price Eur
SR 200 with indication	10	20-200	1,5A(0,4)/250V	48,76
SR 300 with indication	10	30-200	1,5A(0,4)/250V	49,24
SR 400 with indication	20	40-200	1,5A(0,4)/250V	49,73
SR 500 with indication	20	50-500	1,5A(0,4)/250V	50,24
SR 1000 with indication	100	200-1000	1,5A(0,4)/250V	50,77
SR 2500 with indication	150	500-2500	1,5A(0,4)/250V	51,31
SR 5000 with indication	250	1000-5000	1,5A(0,4)/250V	51,86
SR 200K with indication	10	20-200	1,5A(0,4)/250V	51,52
SR 300K with indication	10	30-200	1,5A(0,4)/250V	52,00
SR 400K with indication	20	40-200	1,5A(0,4)/250V	52,49
SR 500K with indication	20	50-500	1,5A(0,4)/250V	53,00
SR 1000K with indication	100	200-1000	1,5A(0,4)/250V	53,53
SR 2500K with indication	150	500-2500	1,5A(0,4)/250V	54,07
SR 5000K with indication	250	1000-5000	1,5A(0,4)/250V	54,62

(Prices without VAT).

Frequency inverters VT1000...

DESCRIPTION

VT1000 series is a high-performance small frequency converter with a power range of 0,4/15,0kW. It has complete product protection functions, reliable quality, strong load-bearing capacity, and low-temperature rise.

TECHNICAL DATA:



- 485 communication.
- Provide +10V and 24V two-way power supply at the same time.
- Protection class: IP20.
- Simple PLC application, PID control function.
- Sixteen-stage speed control.
- Programmable digital input: 5 digital inputs.
- 4 groups of acceleration and deceleration time settings.
- One relay output.
- Brake unit.
- Run/stop timing.
- Control mode: linear V/F control, V/F separation mode, SVPWM modulation.

Input: 1x230V 50/60Hz, output: 3x230V 50/60 Hz, IP20.	Price Eur
Frequency inverter VT1000 0,4kW/230V	239,93
Frequency inverter VT1000 0,75kW/230V	263,97
Frequency inverter VT1000 1,5kW/230V	297,80
Frequency inverter VT1000 2,2kW/230V	345,43
Frequency inverter VT1000 3,7kW/230V	412,85
Frequency inverter VT1000 5,5kW/230V	481,94

(Prices without VAT).

Input: 3x400V 50/60Hz, output: 3x400V 50/60 Hz, IP20	Price Eur
Frequency inverter VT1000 0,75kW/400V	295,54
Frequency inverter VT1000 1,5kW/400V	349,40
Frequency inverter VT1000 2,2kW/400V	397,09
Frequency inverter VT1000 3,0kW/400V	458,35
Frequency inverter VT1000 4,0kW/400V	495,70
Frequency inverter VT1000 5,5kW/400V	592,36
Frequency inverter VT1000 7,5kW/400V	687,14
Frequency inverter VT1000 11,0kW/400V	869,19
Frequency inverter VT1000 15,0kW/400V	1069,90

(Prices without VAT).

Frequency inverters VT9000... with filter

DESCRIPTION

It is a general-purpose, high-performance current vector AC drive based on the VT9000... with filter series and enhanced with technical improvements.

The frequency inverter is primarily used to control and regulate the speed and torque of three-phase AC synchronous motors. Featuring advanced vector control technology, the VT9000... with filter series AC drive provides high torque output at low speeds, excellent dynamic performance, and superior overload capability.

Available in power ratings from 0.75 to 15.0 kW. Other power ratings can be provided according to the clients requirements.

TECHNICAL DATA:

- Open loop V/F & SVC control.
- Closed loop FVC control.
- Starting torque.
- 150% at 0.5 Hz for SVC.
- 180% at 0 Hz for FVC.
- Communication options:
  - Modbus-RTU RS-485.
  - Profibus-DP.
  - Profinet.
- Automatic torque boost.
- Slip compensation.
- Simplified parameter for easy.
- Flexible programmable I/O connection.
- User programmable function.
- Variable DC-injection braking.
- Comprehensive trip diagnostic.
- Output frequency 500Hz.
- Buil-in dynamic braking unit.
- Protection class: IP20 or IP65.



FREQUENCY INVERTERS VT9000... WITH FILTER, NO WATERPROOF, IP20

Input: 1x230V 50/60Hz, output: 3x230V 50/60 Hz, no wateproof, IP20	Price Eur
Frequency inverter VT9000 0,75kW/230V	404,05
Frequency inverter VT9000 1,5kW/230V	504,75
Frequency inverter VT9000 2,2kW/230V	538,93
Frequency inverter VT9000 4,0kW/230V	862,42
Frequency inverter VT9000 5,5kW/230V	1007,07

(Prices without VAT).

Input: 3x400V 50/60Hz, output: 3x400V 50/60 Hz, no wateproof, IP20	Price Eur
Frequency inverter VT9000 0,75kW/400V	472,49
Frequency inverter VT9000 1,5kW/400V	479,98
Frequency inverter VT9000 2,2kW/400V	511,26
Frequency inverter VT9000 4,0kW/400V	639,99
Frequency inverter VT9000 5,5kW/400V	774,36
Frequency inverter VT9000 7,5kW/400V	851,86
Frequency inverter VT9000 11,0kW/400V	1135,62
Frequency inverter VT9000 15,0kW/400V	1373,09

(Prices without VAT).

FREQUENCY INVERTERS VT9000... WITH FILTER AND WATEPROOF, IP65

Input: 1x230V 50/60Hz, output: 3x230V 50/60 Hz, with wateproof, IP65	Price Eur
Frequency inverter VT9000 0,75kW/230V	464,47
Frequency inverter VT9000 1,5kW/230V	580,44
Frequency inverter VT9000 2,2kW/230V	619,50
Frequency inverter VT9000 4,0kW/230V	1078,48
Frequency inverter VT9000 5,5kW/230V	1258,53

(Prices without VAT).

Input: 3x400V 50/60Hz, output: 3x400V 50/60 Hz, with wateproof, IP65	Price Eur
Frequency inverter VT9000 0,75kW/400V	650,17
Frequency inverter VT9000 1,5kW/400V	660,48
Frequency inverter VT9000 2,2kW/400V	703,48
Frequency inverter VT9000 4,0kW/400V	880,62
Frequency inverter VT9000 5,5kW/400V	1065,51
Frequency inverter VT9000 7,5kW/400V	1172,17
Frequency inverter VT9000 11,0kW/400V	1562,59
Frequency inverter VT9000 15,0kW/400V	1889,39

(Prices without VAT).

Setpoint for frequency inverter RES 001/10kom/ON/OFF

DESCRIPTION

RES 001/10kom/ON/OFF is intended to be used for external speed setpoint when it is connected to a frequency inverter. An external speed setpoint device is an accessory for a frequency inverter.



TECHNICAL DATA:

- Protection class: IP30.
- Nominal value: 10 kΩ.
- Speed range: 0..100%.

Type	Price Eur
RES 001/10kom/ON/OFF	39,90

(Prices without VAT).

Electronic controllers for electrical heating REC16, REC16MB

DESCRIPTION

The controller's REC.. are intended to be used for electrical heating control by the PID algorithm. Operating is managed by set and measured temperatures. If the measured temperature is lower than set one, controllers gradually change the pulse and pause time of the heater's power supply voltage to get the precise value of the set temperature. The controllers can work with an internal or external temperature sensor or with both at one time when heating control is carried out with temperature limitation of the supply air and the room temperature control according to the set temperature. The controlled phase current is switched at zero angle to avoid radio interference. The controllers can be used for single-phase or two-phase power supply, it is not suitable for a three-phase power supply. Controllers REC16MB are intended to be connected to the building management system (BMS) via RS485 mode by MODBUS protocol.

TECHNICAL DATA:



- Power supply: 1 phase 230VAC or 2 phase 400VAC, 190..410 VAC.
- Controlled load: up to 16A, 1~ 230VAC/max. 3kW or 2~ 400VAC/max. 6kW.
- Frequency: 50/60[Hz].
- Protection class: IP20.
- Max. ambient temperature: 30°C.
- Storage temperature: -35+50°C.
- Temperature setpoint: 0..+30°C or 0..+60°C (can be set in the programming menu).
- Working mode:
  - With one sensor (supply air temperature control).
  - With two sensors (the regulation of extract/room air temperature according to setpoint, supply air temperature limiting).
  - With external control signal 0-10VDC.

Type	Input voltage [V]	Current[A]	Dimensions AxBxC [mm]	Net weight [kg]	Price Eur
REC16	1~230 or 2~400	16,0	140x110x37	0,3	104,90
REC16MB	1~230 or 2~400	16,0	140x110x37	0,3	115,90

(Prices without VAT). **NOTE: duct temperature sensor TSD/NTC10K/2m. must be ordered separately.**

Electronic controllers for electric heating REC25, REC25B, REC50, REC50B

DESCRIPTION

The controller's REC.. are intended to be used for electric heating control by PID algorithm. Operation is managed by set and measured temperatures. If the measured temperature is lower than set one, controllers gradually change the pulse and pause time of the heater's power supply voltage to get the precise value of the set temperature. The controllers can work with one temperature sensor for controlling supply air temperature or with 2 sensors when heating control is carried out with temperature limitation of the supply air and with the room temperature control according to the set temperature. The controlled phase current is switched at zero angle to avoid radio interference. The controllers can be used for only a three-phase power supply. The controllers can be used for building a management system (BMS) via RS485 mode by MODBUS protocol when the control panel is disconnected from the control PCB and RS485 is connected instead. Controllers are designed only for electric heater control. REC25 and REC50 have 4 relay outputs for extra load control if the heater has more than 1 step. REC25B and REC50B have 1 relay output.



TECHNICAL DATA:

- Power supply: 3 phases 400VAC, 350..425 VAC.
- Controlled load with triacs: up to 25A, 3~ 400VAC/max.16.44 kW or up to 50A, 3~ 400VAC/max.32.89 kW.
- Frequency: 50/60[Hz].
- Working mode:
  - With one sensor (supply air temperature control).
  - With two sensors (the regulation of extract/room air temperature according to setpoint, supply air temperature limiting).
  - With external control signal 0-10VDC.

Type	Input voltage [V]	Current[A]	Dimensions AxBxC [mm]	Net weight [kg]	Price Eur
REC25 4xDO	3~400	25,0	240x168x130	2,5	269,00
REC25B 1xDO	3~400	25,0	240x168x130	2,5	249,90
REC50 4xDO	3~400	50,0	240x168x140	2,8	389,50
REC50B 1xDO	3~400	50,0	240x168x140	2,7	349,90

(Prices without VAT). **NOTE: duct temperature sensor TSD/NTC10K/2m. must be ordered separately.**

Electric circular duct heaters/preheaters for ventilation systems EHC..

DESCRIPTION

The electric circular duct heaters/preheaters are intended to be used for heating clean air in the ventilation systems. Also, heaters/preheaters can be used for heating or preheating functions with air-handling units. The heaters/preheaters are supplied with or without the installed electronic controller, with a pressure and/or flow monitoring system, with a contactor, or produced according to the client's requirements. It is possible to connect to the BMS system via the RS485 MODBUS. The heater/preheater cases are produced from aluzinc-coated metal sheets, sealing rubber for a tight connection with the ventilation duct system. The stainless steel tubes of heating elements are used in the heaters/preheaters.

The integrated heater controller is designed to control electric heating using a PID algorithm. Control is performed based on the set and measured temperatures or an external 0–10 VDC control signal. If the measured temperature is lower than the set temperature, the controller continuously adjusts the pulse-to-pause ratio of the heater's power supply to achieve the set temperature as accurately as possible. The pulse-to-pause ratio is also

adjusted according to the level of the external 0–10 VDC control signal.

All heaters/preheaters are equipped with 2 overheat thermostats. Heaters/preheaters with diameters under 250 mm have an automatic reset thermostat of 60°C that controls output air temperature, manual reset thermostat of 100°C is for cut-off function in case of overheating. Heaters/preheaters with a diameter of 250 mm have an automatic reset thermostat of 70°C that controls output air temperature, manual reset thermostat of 100°C is for cut-off function in case of overheating.

The thermostat push button is installed on the heater cover to reset manual reset. Thermostats for 1 phase are connected in series with the heating element and no extra relay is needed. For 2 and 3 phase heaters, the external relay is needed for overheating functions. Except in that case, when the mounted relay is inside of the heaters/preheaters.

Preheaters are additionally insulated.

Minimum airspeed for heaters/preheaters must be not less than 1,5 m/s.

Flow monitor makes it possible to monitor airflow in ducts and prevent them from operating and overheating if there is no airflow. In this case, no extra interlocking with fans or air handling units is needed.

Heaters/preheaters with the installed electronic controller can be supplied in 9 types:

- An internal setpoint with one duct temperature sensor (model SI), duct sensor must be installed in the output air duct. Setpoint knob is installed on the heater case.
- An external setpoint with one duct temperature sensor (model SE), duct sensor must be installed in the output air duct.
- A setpoint device installed on the wall is used (potentiometer resistance – 10K). External control signal 0-10 VDC (model CE). An external control signal from other controllers must be supplied.
- FC – flow and pressure control.
- F – flow control.
- SR – pressure relay.
- MB – MODBUS. Temperature setpoint and other settings can be adjusted using the RS485 serial interface and MODBUS protocol. MODBUS master can be a BMS (building management system) module, local server or computer.
- K – contactor 230VAC.
- K24VDC – contactor control voltage 24VDC.

If the heater/preheater is supplied without an installed electronic controller, an external controller should be used.

HEATER'S MODEL NAME DESCRIPTION

Example: EHC 250/3.0/2/SI/FC/MB/K (0...+30)
EHC – electric circular heater,
250 – diameter of duct in mm,
3.0 – output power kW,
2 – phase,
SI – electronic controller type,
FC – flow and pressure control,
MB – MODBUS,
K – contactor. The contactor has been included into the three-phase heaters with automatic integrated control.
(0...+30) – temperature setpoint.



PREHEATER'S MODEL NAME DESCRIPTION

Example: EHC 250/3.0/2/SI/FC/MB/K (-10...+20)
EHC – electric circular preheater,
250 – diameter of duct in mm,
3.0 – output power kW,
2 – phase,
SI – electronic controller type,
FC – flow and pressure control,
MB – MODBUS,
K – contactor. The contactor has been included into the three-phase heaters with automatic integrated control.
(-10...+20) – temperature setpoint.

Type	Price Eur EHC	Price Eur EHC	Price Eur EHC..CE	Price Eur EHC..CE	Price Eur EHC..SE	Price Eur EHC..SE	Price Eur EHC..SI	Price Eur EHC..SI	Price Eur EHC..FC	Price Eur EHC..FC
	Heater without integrated control	Preheater without integrated control	Heater with integrated control (0-10)V	Preheater with integrated control (0-10)V	Heater with integrated control (external setpoint) (0...+30)	Preheater with integrated control (external setpoint) (-10...+20)	Heater with integrated control (internal setpoint) (0...+30)	Preheater with integrated control (internal setpoint) (-10...+20)	Heater Plug & play (with flow and pressure control) (0...+30)	Preheater Plug & play (with flow and pressure control) (-10...+20)
EHC 100/0.5/1	70,65	74,18	120,54	126,57	140,29	147,30	143,62	150,09	182,09	189,38
EHC 125/0.5/1	72,87	76,52	122,77	128,90	142,51	149,64	145,85	152,41	184,32	191,69
EHC 125/1.0/1	74,15	77,86	124,04	130,25	143,79	150,98	147,13	153,75	185,60	193,02
EHC 160/0.5/1	75,73	79,51	125,63	131,91	145,37	152,64	148,72	155,41	187,18	194,67
EHC 160/1.0/1	76,68	80,52	126,59	132,92	146,33	153,65	149,67	156,40	188,14	195,67
EHC 160/1.5/1	85,91	90,21	135,82	142,61	155,56	163,34	158,90	166,05	197,36	205,25
EHC 160/2.0/1	89,10	93,55	139,00	145,95	158,74	166,68	162,08	169,37	200,54	208,56
EHC 160/3.0/1	101,19	106,25	151,08	158,63	170,84	179,38	174,18	182,02	212,63	221,14
EHC 160/3.0/2	103,15	108,31	152,55	160,18	172,49	181,12	175,87	183,79	215,15	223,75
EHC 160/4.5/2	112,01	117,61	162,31	170,42	182,02	191,12	185,36	193,70	223,89	232,85
EHC 200/1.0/1	78,91	82,85	128,81	135,25	148,56	155,98	151,90	158,74	190,35	197,97
EHC 200/1.5/1	89,41	93,89	139,32	146,28	159,06	167,02	162,40	169,71	200,86	208,89
EHC 200/2.0/1	92,60	97,23	142,50	149,63	162,25	170,36	165,58	173,03	204,04	212,20
EHC 200/3.0/1	102,15	107,25	152,04	159,64	171,79	180,38	175,13	183,01	213,59	222,13
EHC 200/3.0/2	104,12	109,33	153,92	161,62	173,82	182,51	177,20	185,18	216,11	224,76
EHC 200/4.5/2	115,20	120,95	165,49	173,76	185,20	194,46	188,54	197,03	227,07	236,16
EHC 200/6.0/2	129,18	135,64	179,50	188,47	199,20	209,16	202,55	211,66	241,08	250,73
EHC 200/6.0/3	131,70	138,28	205,32	214,49	224,14	234,24	227,47	236,72	267,61	277,44
EHC 200/9.0/3	158,47	166,39	239,69	250,58	258,50	270,32	261,84	272,63	301,97	313,17
EHC 250/1.0/1	82,73	86,87	132,63	139,26	152,38	160,00	155,72	162,72	194,18	201,94
EHC 250/1.5/1	90,68	95,22	140,60	147,62	160,33	168,35	163,68	171,04	202,14	210,22
EHC 250/2.0/1	93,86	98,56	143,78	150,97	163,51	171,69	166,86	174,37	205,32	213,53
EHC 250/3.0/1	108,83	114,27	158,72	166,66	178,48	187,40	181,81	189,99	220,28	229,09
EHC 250/3.0/2	110,94	116,49	160,68	168,71	180,57	189,60	183,95	192,23	222,85	231,76
EHC 250/4.5/2	117,10	122,96	167,40	175,77	187,11	196,47	190,46	199,03	228,99	238,15
EHC 250/6.0/2	131,10	137,65	181,40	190,47	201,12	211,17	204,46	213,66	242,99	252,71
EHC 250/6.0/3	132,29	138,91	209,78	219,17	228,59	238,92	231,93	241,38	272,06	282,07
EHC 250/9.0/3	163,87	172,07	245,10	256,25	263,91	276,00	267,25	278,29	307,38	318,80
EHC 315/2.0/1	101,83	106,92	151,72	159,30	171,47	180,05	174,81	182,68	213,27	221,80
EHC 315/3.0/1	116,14	121,95	166,05	174,35	185,78	195,07	189,13	197,64	227,60	236,70
EHC 315/3.0/2	118,40	124,32	168,07	176,47	187,96	197,36	191,34	199,95	230,25	239,46
EHC 315/4.5/2	127,92	134,31	178,22	187,13	197,94	207,83	201,27	210,33	239,80	249,40
EHC 315/6.0/2	142,87	150,01	193,17	202,82	212,88	223,52	216,22	225,95	254,76	264,95
EHC 315/6.0/3	145,64	152,92	218,36	228,18	237,17	247,93	240,51	250,35	280,65	291,00
EHC 315/9.0/3	172,15	180,76	253,37	264,94	272,18	284,69	275,52	286,93	315,65	327,40
EHC 315/12.0/3	211,60	222,18	300,83	314,37	319,64	334,12	322,97	336,16	363,11	376,44
EHC 400/3.0/1	130,46	136,98	180,36	189,38	200,11	210,11	203,45	212,60	241,91	251,58
EHC 400/3.0/2	135,23	141,99	185,54	194,82	205,25	215,51	208,60	217,98	247,13	257,01
EHC 400/4.5/2	147,96	155,36	198,26	208,18	217,97	228,87	221,32	231,28	259,86	270,25
EHC 400/6.0/2	160,69	168,72	211,00	221,55	230,70	242,23	234,05	244,58	272,58	283,48
EHC 400/6.0/3	163,59	171,77	236,33	247,05	255,33	266,99	258,69	269,35	299,23	310,32
EHC 400/9.0/3	190,60	200,13	271,82	284,31	290,63	304,07	293,97	306,21	334,12	346,61
EHC 400/12.0/3	228,46	239,89	317,70	332,08	336,51	351,83	339,84	353,79	379,98	393,98
EHC 400/15.0/3	265,70	278,98	358,86	375,30	377,24	394,61	380,57	396,35	421,42	437,08

(Prices without VAT).

NOTE: the contactor is included in the price of the three-phase heaters/preheaters with integrated controller.

NOTE: external temperature setpoint must be ordered separately for EHC..SE, EHC..SE/FC modifications.

Electric circular duct heaters/preheaters with contactors for ventilation systems EHC.../K and EHC.../K24VDC

Contactors type	Price Eur for all heaters/preheaters modifications			
	0.5kW-4.5kW	6.0kW-9.0kW	12.0kW-15.0kW	18.0kW-84.0kW
EHC../K	15,00	22,00	30,00	35,00
EHC../K24VDC	15,00	22,00	30,00	35,00



(Prices without VAT).

NOTE: heater/preheater contactors are available at an additional cost, except for 3-phase heaters/preheaters with integrated controller.

NOTE: to the additional heater cost includes the contactors mounting.

MODBUS

Type	Price Eur EHC..SE/MB	Price Eur EHC..SE/MB	Price Eur EHC..SI/MB	Price Eur EHC..SI/MB	Price Eur EHC..SE/FC/MB EHC..SI/FC/MB	Price Eur EHC..SE/FC/MB EHC..SI/FC/MB
	Heater with integrated control (external setpoint) with MODBUS (0...+30)	Preheater with integrated control (external setpoint) with MODBUS (-10...+20)	Heater with integrated control (internal setpoint) with MODBUS (0...+30)	Preheater with integrated control (internal setpoint) with MODBUS (-10...+20)	Heater plug & play (with flow and pressure control) with MODBUS (0...+30)	Preheater plug & play (with flow and pressure control) with MODBUS (-10...+20)
EHC 100/0.5/1	159,38	165,76	162,72	169,23	201,18	208,22
EHC 125/0.5/1	161,61	168,07	164,94	171,54	203,40	210,52
EHC 125/1.0/1	163,88	169,90	166,82	172,87	204,98	212,00
EHC 160/0.5/1	164,47	171,05	167,82	174,53	206,27	213,49
EHC 160/1.0/1	165,43	172,05	168,77	175,52	207,23	214,48
EHC 160/1.5/1	174,66	181,64	177,99	185,11	216,45	224,03
EHC 160/2.0/1	177,84	184,95	181,17	188,41	219,64	227,32
EHC 160/3.0/1	189,92	197,52	193,27	201,00	231,73	239,84
EHC 160/3.0/2	191,29	199,90	195,64	203,39	234,17	242,30
EHC 160/4.5/2	201,12	209,16	204,46	212,63	242,99	251,49
EHC 200/1.0/1	167,65	174,36	171,00	177,84	209,45	216,78
EHC 200/1.5/1	178,16	185,29	181,49	188,75	219,96	227,65
EHC 200/2.0/1	181,33	188,58	184,67	192,06	223,14	230,95
EHC 200/3.0/1	190,88	198,51	194,22	201,99	232,69	240,83
EHC 200/3.0/2	193,25	200,90	196,59	204,37	235,12	243,28
EHC 200/4.5/2	204,30	212,47	207,64	215,94	246,17	254,79
EHC 200/6.0/2	218,29	227,02	221,64	230,50	260,18	269,28
EHC 200/6.0/3	255,95	265,31	259,29	268,78	299,44	309,15
EHC 200/9.0/3	290,32	301,05	293,65	304,52	333,80	344,71
EHC 250/1.0/1	171,47	178,33	174,81	181,80	213,27	220,74
EHC 250/1.5/1	179,42	186,59	182,76	190,07	221,23	228,98
EHC 250/2.0/1	182,60	189,90	185,95	193,38	224,42	232,27
EHC 250/3.0/1	197,56	205,47	200,90	208,94	239,37	247,75
EHC 250/3.0/2	199,94	207,85	203,27	211,32	241,80	250,20
EHC 250/4.5/2	206,21	214,45	209,55	217,94	248,09	256,77
EHC 250/6.0/2	220,20	229,01	223,54	232,48	262,08	271,26
EHC 250/6.0/3	260,40	269,94	263,75	273,42	303,88	313,75
EHC 250/9.0/3	295,72	306,67	299,07	310,15	339,21	350,31
EHC 315/2.0/1	190,56	198,18	193,90	201,65	232,37	240,50
EHC 315/3.0/1	204,88	213,07	208,22	216,55	246,69	255,32
EHC 315/3.0/2	206,25	215,46	210,60	218,94	249,13	257,78
EHC 315/4.5/2	217,02	225,70	220,36	229,17	258,90	267,96
EHC 315/6.0/2	259,79	270,18	235,31	244,73	273,85	283,43
EHC 315/6.0/3	268,99	278,87	272,34	282,36	312,47	322,64
EHC 315/9.0/3	303,99	315,27	307,34	318,75	347,48	358,87
EHC 315/12.0/3	351,45	364,31	354,79	367,78	394,94	407,71
EHC 400/3.0/1	219,20	227,97	222,54	231,44	261,00	270,14
EHC 400/3.0/2	224,33	233,31	227,68	236,79	266,22	275,54
EHC 400/4.5/2	237,06	246,55	240,41	250,03	278,94	288,71

MODBUS

Type	Price Eur EHC..SE/MB	Price Eur EHC..SE/MB	Price Eur EHC..SI/MB	Price Eur EHC..SI/MB	Price Eur EHC..SE/FC/MB EHC..SI/FC/MB	Price Eur EHC..SE/FC/MB EHC..SI/FC/MB
	Heater with integrated control (external setpoint) with MODBUS (0...+30)	Preheater with integrated control (external setpoint) with MODBUS (-10...+20)	Heater with integrated control (internal setpoint) with MODBUS (0...+30)	Preheater with integrated control (internal setpoint) with MODBUS (-10...+20)	Heater plug & play (with flow and pressure control) with MODBUS (0...+30)	Preheater plug & play (with flow and pressure control) with MODBUS (-10...+20)
EHC 400/6.0/2	249,80	259,79	253,14	263,27	291,68	301,88
EHC 400/6.0/3	384,90	295,41	288,24	298,89	328,38	399,11
EHC 400/9.0/3	322,46	334,48	325,80	337,95	365,94	377,98
EHC 400/12.0/3	368,32	381,86	371,66	385,33	411,80	425,16
EHC 400/15.0/3	409,06	424,22	412,40	427,69	453,24	468,05

(Prices without VAT).

NOTE: the contactor is included in the price of the three-phase heaters/preheaters with integrated controller.

NOTE: external temperature setpoint must be ordered separately for EHC..SE, EHC..SE/FC modifications.

Electric circular duct heaters/preheaters with MODBUS and contactors for ventilation systems EHC.../MB/K and EHC.../MB/K24VDC

Contactors type	Price Eur for all heaters/preheaters modifications			
	0.5kW-4.5kW	6.0kW-9.0kW	12.0kW-15.0kW	18.0kW-84.0kW
EHC../K	15,00	22,00	30,00	35,00
EHC../K24VDC	15,00	22,00	30,00	35,00



(Prices without VAT).

NOTE: heater/preheater contactors are available at an additional cost, except for 3-phase heaters/preheaters with integrated controller.

NOTE: to the additional heater cost includes the contactors mounting.

Electric circular duct heaters/preheaters with PTC heating elements for ventilation systems EHC .../PTC

DESCRIPTION

The electric circular duct heaters/preheaters with PTC heating elements are intended to be used for heating clean air in the ventilation systems. Also, heaters/preheaters can be used for heating or preheating functions with air-handling units. The heaters/preheaters are supplied with or without the installed electronic controller, with a pressure and/or flow monitoring system, with a contactor, or produced according to the client's requirements.

It is possible to connect to the BMS system via the RS485 MODBUS.

The heater/preheater cases are produced from aluzinc-coated metal sheets, sealing rubber for a tight connection with the ventilation duct system. The stainless steel tubes of heating elements are used in the heaters/preheaters.

The integrated heater controller is designed to control electric heating using a PID algorithm. Control is performed based on the set and measured temperatures or an external 0–10 VDC control signal. If the measured temperature is lower than the set temperature, the controller continuously adjusts the pulse-to-pause ratio of the heater's power supply to achieve the set temperature as accurately as possible. The pulse-to-pause ratio is also adjusted according to the level of the external 0–10 VDC control signal.

All heaters/preheaters are equipped with 2 overheat thermostats. The automatic reset thermostat of 60°C is for controlling output air temperature, manual reset thermostat of 100°C is for cutoff function in case of overheating. The thermostat push button is installed on the heater cover to reset manual reset. Thermostats for 1 phase are connected in series with the heating element and no extra relay is needed.

Flow monitor makes it possible to monitor airflow in ducts and prevents them from operating and overheating if there is no airflow. In this case, no extra interlocking with fans or air handling units is needed.

Preheaters are additionally insulated.

Heaters/preheaters with the installed electronic controller can be supplied in 9 types:

- An internal setpoint with one duct temperature sensor (model SI), duct sensor must be installed in the output air duct. Setpoint knob is installed on the heater case.
- An external setpoint with one duct temperature sensor (model SE), duct sensor must be installed in the output air duct.
- A setpoint device installed on the wall is used (potentiometer resistance – 10K). External control signal 0-10 VDC (model CE). An external control signal from other controllers must be supplied.
- FC – flow and pressure control.
- F – flow control.
- SR – pressure relay.
- MB – MODBUS. Temperature setpoint and other settings can be adjusted using the RS485 serial interface and MODBUS protocol. MODBUS master can be a BMS (building management system) module, local server or computer.
- K – contactor 230VAC.
- K24VDC – contactor control voltage 24VDC.

If heaters/preheaters are supplied without an electronic controller, an external controller should be used.

Benefits:

- Self-regulating and safe PTC heating element.
- Small heater/preheater size.
- Low-pressure drop.



HEATER'S MODEL NAME DESCRIPTION

Example: EHC 200/2.0/1/SI/FC/MB/K/PTC (0...+30)
EHC – electric circular heater,
200 – diameter of duct in mm,
2.0 – output power kW,
1 – phase,
SI – electronic controller type,
FC – flow and pressure control,
MB – MODBUS,
K – contactor. The contactor has been included into the three-phase heaters with automatic integrated control.
PTC – heating element.
(0...+30) – temperature setpoint.

PREHEATER'S MODEL NAME DESCRIPTION

Example: EHC 200/2.0/1/SI/FC/K/PTC (-10..+20)
EHC – electric circular preheater,
200 – diameter of duct in mm,
2.0 – output power kW,
1 – phase,
SI – electronic controller type,
FC – flow and pressure control,
MB – MODBUS,
K – contactor. The contactor has been included into the three-phase heaters with automatic integrated control.
PTC – heating element.
(-10..+20) – temperature setpoint.

Type	Price Eur EHC.../PTC	Price Eur EHC.../PTC	Price Eur EHC.../CE/PTC	Price Eur EHC.../CE/PTC	Price Eur EHC.../SE/PTC	Price Eur EHC.../SE/PTC	Price Eur EHC.../SI/PTC	Price Eur EHC.../SI/PTC	Price Eur EHC.../FC/PTC	Price Eur EHC.../FC FC
	Heater without integrated control	Preheater without integrated control	Heater with integrated control (0-10)V	Preheater with integrated control (0-10)V	Heater with integrated control (external setpoint) (0...+30)	Preheater with integrated control (external setpoint) (-10...+20)	Heater with integrated control (internal setpoint) (0...+30)	Preheater with integrated control (internal setpoint) (-10...+20)	Heater Plug & play (with flow and pressure control) (0...+30)	Preheater Plug & play (with flow and pressure control) (-10...+20)
EHC 125/0.5/1/PTC	136,76	141,00	185,20	190,96	218,03	222,92	220,91	227,69	257,49	264,70
EHC 160/1.0/1/PTC	172,93	178,20	210,56	217,34	238,46	244,88	242,99	250,65	277,74	285,66
EHC 200/2.0/1/PTC	197,91	204,18	239,50	247,02	281,76	288,02	286,07	295,46	319,25	328,15

(Prices without VAT).

NOTE: external temperature setpoint must be ordered separately for EHC .../SE/PTC, EHC ...SE/FC/PTC modifications.

Electric circular duct heaters/preheaters with heating elements and contactors for ventilation systems EHC.../K/PTC and EHC .../K24VDC/PTC

Contactors type	Price Eur for all heaters/preheaters modifications
	0.5kW-4.5kW
EHC.../K	15,00
EHC.../K24VDC	15,00



(Prices without VAT).

NOTE: to the additional heater cost includes the contactors mounting.

MODBUS

Type	Price Eur EHC ...SE/MB /PTC	Price Eur EHC ...SE/MB /PTC	Price Eur EHC ...SI/MB /PTC	Price Eur EHC ...SI/MB /PTC	Price Eur EHC .../FC/MB /PTC	Price Eur EHC .../FC/MB /PTC
	Heater with integrated control (external setpoint) with MODBUS (0...+30)	Preheater with integrated control (external setpoint) with MODBUS (-10...+20)	Heater with integrated control (internal setpoint) with MODBUS (0...+30)	Preheater with integrated control (internal setpoint) with MODBUS (-10...+20)	Heater plug & play (with flow and pressure control) with MODBUS (0...+30)	Preheater plug & play (with flow and pressure control) with MODBUS (-10...+20)
EHC 125/0.5/1/PTC	239,46	257,27	246,33	254,12	273,97	282,12
EHC 160/1.0/1/PTC	262,95	271,40	273,89	281,55	296,85	305,80
EHC 200/2.0/1/PTC	298,17	307,62	306,67	316,06	342,30	354,54

(Prices without VAT).

NOTE: external temperature setpoint must be ordered separately for EHC .../SE/MB/PTC, EHC ...SE/FC/MB/PTC modifications.

Electric circular duct heaters/preheaters with heating elements, MODBUS and contactors for ventilation systems EHC.../MB/K/PTC and EHC.../MB/K24VDC/PTC

Contactors type	Price Eur for all heaters/preheaters modifications
	0.5kW-4.5kW
EHC../K	15,00
EHC../K24VDC	15,00



(Prices without VAT).

NOTE: to the additional heater cost includes the contactors mounting.

Electric circular duct heaters/preheaters for ventilation systems short version EHC TR..

DESCRIPTION

The electric circular duct heaters/preheaters are intended to be used for heating clean air in the ventilation systems. Also, heaters/preheaters can be used for heating or preheating functions with air-handling units. The heaters/preheaters are supplied with or without the installed electronic controller, with a pressure and/or flow monitoring system, with a contactor, or produced according to the client's requirements. It is possible to connect to the BMS system via the RS485 MODBUS. The heater/preheater cases are produced from aluzinc-coated metal sheets, sealing rubber for a tight connection with the ventilation duct system. The stainless steel tubes of heating elements are used in the heaters/preheaters.

The integrated heater controller is designed to control electric heating using a PID algorithm. Control is performed based on the set and measured temperatures or an external 0–10 VDC control signal. If the measured temperature is lower than the set temperature, the controller continuously adjusts the pulse-to-pause ratio of the heater's power supply to achieve the set temperature as accurately as possible. The pulse-to-pause ratio is also adjusted according to the level of the external 0–10 VDC control signal.

All heaters/preheaters are equipped with 2 overheat thermostats. Heaters/preheaters with diameters under 250 mm have an automatic reset thermostat of 60°C that controls output air temperature, manual reset thermostat of

100°C is for cut-off function in case of overheating. The thermostat push button is installed on the heater cover to reset manual reset. Thermostats for 1 phase are connected in series with the heating element and no extra relay is needed. For 2 and 3 phase heaters, the external relay is needed for overheating functions. Except in that case, when the mounted relay is inside of the heaters/preheaters.

Preheaters are additionally insulated.

Minimum airspeed for heaters/preheaters must be not less than 1,5 m/s.

Flow monitor makes it possible to monitor airflow in ducts and prevent them from operating and overheating if there is no airflow. In this case, no extra interlocking with fans or air handling units is needed.

Heaters/preheaters with the installed electronic controller can be supplied in 9 types:

- An internal setpoint with one duct temperature sensor (model SI), duct sensor must be installed in the output air duct. Setpoint knob is installed on the heater case.
- An external setpoint with one duct temperature sensor (model SE), duct sensor must be installed in the output air duct.
- A setpoint device installed on the wall is used (potentiometer resistance – 10K). External control signal 0-10 VDC (model CE). An external control signal from other controllers must be supplied.
- FC – flow and pressure control.
- F – flow control.
- SR – pressure relay.
- MB – MODBUS. Temperature setpoint and other settings can be adjusted using the RS485 serial interface and MODBUS protocol. MODBUS master can be a BMS (building management system) module, local server or computer.
- K – contactor 230VAC.
- K24VDC – contactor control voltage 24VDC.

If the heater/preheater is supplied without an installed electronic controller, an external controller should be used.

Benefit:

- Short heater's/preheater's case.



HEATER'S MODEL NAME DESCRIPTION

Example: EHC TR 125/1.0/1/SI/FC/MB/K (0...+30)
EHC – electric circular heater,
TR – short version,
125 – diameter of duct in mm,
1.0 – output power kW,
1 – phase,
SI – electronic controller type,
FC – flow and pressure control,
MB – MODBUS,
K – contactor. The contactor has been included into the three-phase heaters with automatic integrated control.
(0...+30) – temperature setpoint.

PREHEATER'S MODEL NAME DESCRIPTION

Example: EHC TR 125/1.0/1/SI/FC/MB/K (-10...+20)
EHC – electric circular preheater,
TR – short version,
125 – diameter of duct in mm,
1.0 – output power kW,
1 – phase,
SI – electronic controller type,
FC – flow and pressure control,
MB – MODBUS,
K – contactor. The contactor has been included into the three-phase heaters with automatic integrated control.
(-10...+20) – temperature setpoint.

Type	Price Eur EHC TR	Price Eur EHC TR	Price Eur EHC TR.. CE	Price Eur EHC TR.. CE	Price Eur EHC TR.. SE	Price Eur EHC TR.. SE	Price Eur EHC TR.. SI	Price Eur EHC TR.. SI	Price Eur EHC TR.. FC	Price Eur EHC TR.. FC
	Heater without integrated control	Preheater without integrated control	Heater with integrated control (0-10)V	Preheater with integrated control (0-10)V	Heater with integrated control (external setpoint) (0...+30)	Preheater with integrated control (external setpoint) (-10...+20)	Heater with integrated control (internal setpoint) (0...+30)	Preheater with integrated control (internal setpoint) (-10...+20)	Heater Plug & play (with flow and pressure control) (0...+30)	Preheater Plug & play (with flow and pressure control) (-10...+20)
EHC TR 125/0.5/1	71,74	75,33	121,63	127,71	141,38	148,45	144,72	151,23	183,19	189,60
EHC TR 125/1.0/1	73,02	76,67	122,91	129,06	142,66	149,79	145,99	152,56	184,46	190,92
EHC TR 160/0.5/1	74,59	78,32	124,39	130,61	144,24	151,45	147,49	154,12	185,84	192,35
EHC TR 160/1.0/1	75,34	79,11	125,35	131,62	145,10	152,35	148,33	155,01	186,80	193,34
EHC TR 160/1.5/1	84,57	88,80	134,48	141,20	154,32	162,04	157,66	164,76	196,02	202,88
EHC TR 160/2.0/1	87,86	92,25	137,66	144,54	157,40	165,27	160,84	168,08	199,20	206,17
EHC TR 160/3.0/1	99,95	104,95	149,74	157,23	169,50	177,97	172,84	180,62	211,29	218,69
EHC TR 200/1.0/1	77,57	81,45	127,58	133,95	147,32	154,69	150,57	157,34	189,02	195,63
EHC TR 200/1.5/1	88,08	92,48	137,98	144,88	157,72	165,61	161,06	168,31	199,52	206,50
EHC TR 200/2.0/1	91,26	95,82	141,16	148,22	160,91	168,95	164,24	171,63	202,71	209,81
EHC TR 200/3.0/1	100,91	105,95	150,70	158,23	170,45	178,98	173,89	181,72	212,25	219,68

(Prices without VAT).

NOTE: heater's/preheater's length 270 mm.

NOTE: external temperature setpoint must be ordered separately for EHC TR..SE, EHC TR..SE/FC modifications.

Electric circular duct heaters/preheaters with contactors for ventilation systems EHC TR.../K and EHC TR.../K24VDC

Contactors type	Price Eur for all heaters/preheaters modifications
	0.5kW-4.5kW
EHC TR../K	15,00
EHC TR../K24VDC	15,00



(Prices without VAT).

NOTE: to the additional heater cost includes the contactors mounting.

MODBUS

Type	Price Eur EHC TR..SE/MB	Price Eur EHC TR..SE/MB	Price Eur EHC TR..SI/MB	Price Eur EHC TR..SI/MB	Price Eur EHC TR..FC/MB	Price Eur EHC TR..FC/MB
	Heater with integrated control (external setpoint) with MODBUS (0...+30)	Preheater with integrated control (external setpoint) with MODBUS (-10...+20)	Heater with integrated control (internal setpoint) with MODBUS (0...+30)	Preheater with integrated control (internal setpoint) with MODBUS (-10...+20)	Heater plug & play (with flow and pressure control) with MODBUS (0...+30)	Preheater plug & play (with flow and pressure control) with MODBUS (-10...+20)
EHC TR 160/2.0/1	176,81	183,88	180,14	187,34	218,61	226,26
EHC TR 160/3.0/1	188,89	196,45	192,24	199,93	230,70	238,77
EHC TR 200/1.0/1	166,62	173,29	169,97	176,77	208,42	215,72
EHC TR 200/1.5/1	177,13	184,21	180,46	187,67	218,93	226,59
EHC TR 200/2.0/1	180,30	187,51	183,64	190,98	222,11	229,88
EHC TR 200/3.0/1	189,85	197,44	193,19	200,91	231,66	239,77
EHC TR 125/0.5/1	160,58	167,00	163,91	170,47	202,37	209,46
EHC TR 125/1.0/1	161,85	168,33	165,19	171,80	203,65	210,78
EHC TR 160/0.5/1	163,44	169,98	166,79	173,46	205,24	212,42
EHC TR 160/1.0/1	164,40	170,97	167,74	174,44	206,20	213,41
EHC TR 160/1.5/1	173,63	180,57	176,96	184,04	215,42	222,96

(Prices without VAT).

NOTE: heater's/preheater's length 270 mm.

NOTE: external temperature setpoint must be ordered separately for EHC..SE/MB, EHC..SE/FC/MB modifications.

Electric circular duct heaters/preheaters with MODBUS and contactors for ventilation systems short version EHC TR...MB/K and EHC TR.../MB/K24VDC

Contactors type	Price Eur for all heaters/preheaters modifications
	0.5kW-4.5kW
EHC TR../K	15,00
EHC TR../K24VDC	15,00

NOTE: to the additional heater cost includes the contactors mounting.



ACCESSORIES

Type
External controller REC16, 1~230 VAC or 2~400 VAC, 16A
External controller REC16MB, 1~230 VAC or 2~400 VAC, 16A
External controller REC25B, 3~400 VAC/max. 16,44 kW, 25A
External controller REC25, 3~400 VAC/max. 16,44 kW, 25A
External controller REC50B, 3~400 VAC/max. 32,89 kW, 50A
External controller REC50, 3~400 VAC/max. 32,89 kW, 50A
Duct temperature sensor TSD/NTC10K/2m
External temperature setpoint RES 001
External temperature setpoint with room sensor RES 002/NTC

External temperature setpoint RES 001



External temperature setpoint with room sensor RES 002/NTC



Duct temperature sensor TSD/NTC10K/2m.



NOTE: to specify a temperature setpoint (-10...+20), (-30...0) or (0...+30) in order.

NOTE: the heater's standard temperature setpoint is (0...+30). The Preheater's standard temperature setpoint is (-10...+20) and (-30..0).

The other temperature setpoints are possible according to a client's requirements.

NOTE: heaters/preheaters with an integrated control system: EHC../SE, EHC../SE/FC, EHC../SE/F, EHC../SE/SR, EHC../SE/MB, EHC../SE/FC/MB, EHC../SE/F/MB, EHC../SE/MB/SR, EHC ../SE/PTC, EHC../SE/FC/PTC, EHC../SE/F/PTC, EHC../SE/SR/PTC, EHC../SE/FC/MB/PTC, EHC../SE/F/MB/PTC, EHC../SE/MB/SR/PTC, EHC TR../SE, EHC TR../SE/FC, EHC TR../SE/F, EHC TR../SE/SR EHC TR../SE/MB, EHC TR../SE/FC/MB, EHC TR../SE/MB/SR, EHC TR../SE/F/MB, EHC TR../SE/MB/SR, EHC../SE/K, EHC../SE/FC/K, EHC../SE/F/K, EHC../SE/K/SR, EHC../SE/MB/K, EHC../SE/FC/MB/K, EHC../SE/F/MB/K, EHC../SE/MB/K/SR, EHC../SE/K/PTC, EHC../SE/FC/K/PTC, EHC../SE/F/K/PTC, EHC../SE/K/SR/PTC, EHC../SE/FC/MB/K/PTC, EHC../SE/F/MB/K/PTC, EHC../SE/MB/K/SR/PTC, EHC TR../SE/K, EHC TR../SE/FC/K, EHC TR../SE/F/K, EHC TR../SE/K/SR, EHC TR../SE/MB/K, EHC TR../SE/FC/MB/K, EHC TR../SE/F/MB/K, EHC TR../SE/MB/K/SR, EHC../SE/K24VDC, EHC../SE/FC/K24VDC, EHC../SE/F/K24VDC, EHC../SE/K24VDC/SR, EHC../SE/MB/K24VDC, EHC../SE/FC/MB/K24VDC, EHC../SE/F/MB/K24VDC, EHC../SE/MB/K24VDC/SR, EHC../SE/K24VDC/PTC, EHC../SE/FC/K24VDC/PTC, EHC../SE/F/K24VDC/PTC, EHC../SE/K24VDC/SR/PTC, EHC../SE/FC/MB/K24VDC/PTC, EHC../SE/F/MB/K24VDC/PTC, EHC../SE/MB/K24VDC/SR/PTC, EHC TR../SE/K24VDC, EHC TR../SE/FC/K24VDC, EHC TR../SE/F/K24VDC, EHC TR../SE/K24VDC/SR, EHC TR../SE/MB/K24VDC, EHC TR../SE/FC/MB/K24VDC, EHC TR../SE/F/MB/K24VDC, EHC TR../SE/MB/K24VDC/SR, EHC../SI, EHC../SI/FC, EHC../SI/F, EHC../SI/SR, EHC../SI/MB, EHC../SI/FC/MB, EHC../SI/F/MB, EHC../SI/MB/SR, EHC../SI/PTC, EHC../SI/FC/PTC, EHC../SI/F/PTC, EHC../SI/SR/PTC, EHC../SI/FC/MB/PTC, EHC../SI/F/MB/PTC, EHC../SI/MB/SR/PTC, EHC TR../SI, EHC TR../SI/FC, EHC TR../SI/F, EHC TR../SI/SR, EHC TR../SI/MB, EHC TR../SI/FC/MB, EHC TR../SI/F/MB, EHC TR../SI/MB/SR, EHC../SI/K, EHC../SI/FC/K, EHC../SI/F/K, EHC../SI/K/SR, EHC../SI/MB/K, EHC../SI/FC/MB/K, EHC../SI/F/MB/K, EHC../SI/MB/K/SR, EHC../SI/K/PTC, EHC../SI/FC/K/PTC, EHC../SI/F/K/PTC, EHC../SI/K/SR/PTC, EHC../SI/FC/MB/K/PTC, EHC../SI/F/MB/K/PTC, EHC../SI/MB/K/SR/PTC, EHC TR../SI/K, EHC TR../SI/FC/K, EHC TR../SI/F/K, EHC TR../SI/K/SR, EHC TR../SI/MB/K, EHC TR../SI/FC/MB/K, EHC TR../SI/F/MB/K, EHC TR../SI/MB/K/SR, EHC../SI/K24VDC, EHC../SI/FC/K24VDC, EHC../SI/F/K24VDC, EHC../SI/K24VDC/SR, EHC../SI/MB/K24VDC, EHC../SI/FC/MB/K24VDC, EHC../SI/F/MB/K24VDC, EHC../SI/MB/K24VDC/SR, EHC../SI/K24VDC/PTC, EHC../SI/FC/K24VDC/PTC, EHC../SI/F/K24VDC/PTC, EHC../SI/K24VDC/SR/PTC, EHC.../SI/FC/MB/K24VDC/PTC, EHC../SI/F/MB/K24VDC/PTC, EHC../SI/MB/K24VDC/SR/PTC, EHC TR../SI/K24VDC, EHC TR../SI/FC/K24VDC, EHC TR../SI/F/K24VDC, EHC TR../SI/K24VDC/SR,EHC TR../SI/MB/K24VDC, EHC TR../SI/FC/MB/K24VDC, EHC TR../SI/F/MB/K24VDC, EHC TR../SI/MB/K24VDC/SR – duct temperature sensor L-2.0 m included.

NOTE: external temperature setpoint RES 001 and external temperature setpoint with room sensor RES 002/NTC are needed for: EHC../SE, EHC../SE/FC, EHC../SE/F, EHC../SE/SR, EHC../SE/MB, EHC../SE/FC/MB, EHC../SE/F/MB, EHC../SE/MB/SR, EHC .../SE/PTC, EHC.. /SE/FC/PTC, EHC../SE/F/PTC, EHC../SE/SR/PTC, EHC TR../SE, EHC TR../SE/FC, EHC TR../SE/F, EHC TR../SE/SR EHC TR../SE/MB, EHC TR../SE/FC/MB, EHC TR../SE/F/MB, EHC TR../SE/MB/SR, EHC../SE/K, EHC../SE/FC/K, EHC../SE/F/K, EHC../SE/K/SR, EHC../SE/MB/K, EHC../SE/FC/MB/K, EHC../SE/F/MB/K, EHC../SE/MB/K/SR, EHC..SE/K/PTC, EHC ..SE/FC/K/PTC, EHC..SE/F/K/PTC, EHC..SE/K/SR/PTC, EHC TR../SE/K, EHC TR../SE/FC/K, EHC TR../SE/F/K, EHC TR../SE/K/SR, EHC TR../SE/MB/K, EHC TR../SE/FC/MB/K, EHC TR../SE/F/MB/K, EHC TR../SE/MB/K/SR, EHC../SE/K24VDC, EHC../SE/FC/K24VDC, EHC../SE/F/K24VDC, EHC../SE/K24VDC/SR, EHC../SE/MB/K24VDC, EHC../SE/FC/MB/K24VDC, EHC../SE/F/MB/K24VDC, EHC../SE/MB/K24VDC/SR, EHC..SE/K24VDC/PTC, EHC..SE/FC/K24VDC/PTC, EHC..SE/F/K24VDC/PTC, EHC..SE/K24VDC/SR/PTC, EHC TR../SE/K24VDC, EHC TR../SE/FC/K24VDC, EHC TR../SE/F/K24VDC, EHC TR../SE/K24VDC/SR, EHC TR../SE/MB/K24VDC, EHC TR../SE/FC/MB/K24VDC, EHC TR../SE/F/MB/K24VDC, EHC TR../SE/MB/K24VDC/SR modifications.

Electric rectangular duct heaters/preheaters for ventilation systems EHR..

DESCRIPTION

The electric rectangular duct heaters/preheaters are intended to be used for heating clean air in the ventilation systems. Also, heaters/preheaters can be used for heating or preheating functions with air-handling units. The heaters/preheaters can be supplied with or without the installed electronic controller, with a pressure and/or flow monitoring system, with a contactor, or produced according to the client's requirements. It is possible to connect to the BMS system via the RS485 MODBUS. The heater/preheater cases are produced from aluzinc coated metal sheet. The stainless steel heating elements are used in the heaters/preheaters.

The integrated heater controller is designed to control electric heating using a PID algorithm. Control is performed based on the set and measured temperatures or an external 0–10 VDC control signal. If the measured temperature is lower than the set temperature, the controller continuously adjusts the pulse-to-pause ratio of the heater's power supply to achieve the set temperature as accurately as possible. The pulse-to-pause ratio is also adjusted according to the level of the external 0–10 VDC control signal.

All heaters/preheaters are equipped with 2 overheat thermostats. The automatic reset thermostat at 70°C is for controlling output air temperature, manual reset thermostat at 100°C is for cut-off function in case of overheating.

The thermostat push button is installed on the heater/preheater cover to reset the manual reset. Thermostats for 1 phase are connected in series with the heating element and no extra relay is needed. For 2 and 3 phase heaters, the external relay is needed for overheating functions. Except in that case, when the mounted relay is inside of the heaters/preheaters.

Preheaters are additionally insulated.

Minimum airspeed for heaters/preheaters must be not less than 1,5 m/s.

Flow monitor makes it possible to monitor airflow in ducts and prevent from operating and overheating if there is no airflow. In this case, no extra interlocking with fans or air handling units is needed.

Heaters/preheaters with the installed electronic controller can be supplied in 9 types:

- An internal setpoint with one duct temperature sensor (model SI), duct sensor must be installed in the output air duct. Setpoint knob is installed on the heater case.
- An external setpoint with one duct temperature sensor (model SE), duct sensor must be installed in the output air duct. Setpoint device installed on the wall is used (potentiometer resistance – 10K).
- An external control signal 0-10 VDC (model CE). An external control signal from another controller must be supplied.
- FC– flow and pressure control.
- F– flow control.
- SR – pressure relay.
- MB–MODBUS. Temperature setpoint and other settings can be adjusted using the RS485 serial interface

and MODBUS protocol. MODBUS master can be a BMS (building management system) module, local server or computer.

- K – contactor 230VAC.
- K24VDC – contactor control voltage 24VDC.

If the heater is supplied without an installed electronic controller, an external controller should be used.

We can also manufacture chamber heaters/preheaters. Price for chamber heaters upon request.

HEATER'S MODEL NAME DESCRIPTION

Example: EHR 400x200x200/6.0/3/SI/FC/MB/K (0..+30)

EHR – electric rectangular heater,

400x200x200 – dimensions of duct in mm. W (width) x H (height) x D (depth). The third dimension (depth) depends on the heater/preheater configuration.

K – contactor. The contactor has been included into the three-phase heaters with automatic integrated control.

(0...+30) – temperature setpoint.

6.0 – output power kW,

3 – phase,

SI – electronic controller type,

FC – flow and pressure control,

MB – MODBUS,

PREHEATER'S MODEL NAME DESCRIPTION

Example: EHR 400x200x200/6.0/3/SI/FC/MB/K (-10...+20)

EHR – electric rectangular preheater,

400x200x200 – dimensions of duct in mm. W (width) x H (height) x D (depth). The third dimension (depth) depends on the heater/preheater configuration.

6.0 – output power kW,

3 – phase,

SI – electronic controller type,

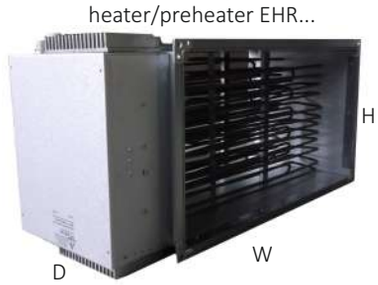
FC – flow and pressure control,

MB – MODBUS,

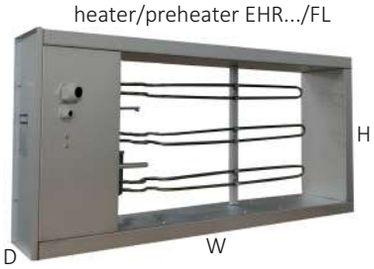
K – contactor. The contactor has been included into the three-phase heaters with automatic integrated control.

(-10...+20) – temperature setpoint.

Electric rectangular duct heater/preheater EHR...



Electric rectangular chamber heater/preheater EHR.../FL



Type (WxHxD)	Price Eur EHR	Price Eur EHR	Price Eur EHR..CE	Price Eur EHR..CE	Price Eur EHR..SE	Price Eur EHR..SE	Price Eur EHR..SI	Price Eur EHR..SI	Price Eur EHR..FC	Price Eur EHR..FC
	Heater without integrated control	Preheater without integrated control	Heater with integrated control (0-10)V	Preheater with integrated control (0-10)V	Heater with integrated control (external setpoint) (0...+30)	Preheater with integrated control (external setpoint) (-10...+20)	Heater with integrated control (internal setpoint) (0...+30)	Preheater with integrated control (internal setpoint) (-10...+20)	Heater Plug & play (with flow and pressure control) (0...+30)	Preheater Plug & play (with flow and pressure control) (-10...+20)
EHR 400x200/1.0/1	170,24	177,05	227,51	236,61	240,24	249,61	243,42	252,91	268,88	277,75
EHR 400x200/2.0/1	176,59	183,66	233,87	243,23	246,60	256,22	249,79	259,53	275,24	284,32
EHR 400x200/3.0/1	195,69	203,52	252,97	263,09	265,70	276,06	268,88	279,37	294,33	304,05
EHR 400x200/3.0/3	198,87	206,83	271,15	281,40	283,88	294,37	287,06	297,67	312,52	322,33
EHR 400x200/6.0/3	206,13	214,38	283,54	294,00	296,26	306,95	299,44	310,26	321,37	331,25
EHR 400x200/9.0/3	238,65	248,20	321,75	333,74	335,11	347,32	370,09	383,66	392,25	404,47
EHR 400x200/12.0/3	283,20	294,53	393,08	407,60	400,71	415,16	406,42	421,10	433,76	447,08
EHR 400x200/15.0/3	334,11	347,48	444,94	461,53	457,66	474,33	460,84	477,64	485,03	500,05
EHR 500x250/3.0/1	200,47	208,49	255,87	266,11	268,60	279,08	271,79	282,39	289,56	299,12
EHR 500x250/3.0/3	205,24	213,45	275,64	286,07	288,37	299,03	291,54	302,33	309,33	319,05
EHR 500x250/6.0/3	216,64	225,31	294,03	304,91	306,75	317,86	309,94	321,17	331,87	342,09
EHR 500x250/9.0/3	249,08	259,05	329,00	341,28	341,73	354,20	344,92	357,51	367,08	378,47
EHR 500x250/12.0/3	297,62	309,52	403,18	418,11	415,91	430,96	419,09	434,27	443,04	456,67
EHR 500x250/15.0/3	339,68	353,27	450,51	467,33	463,23	480,12	466,41	483,43	490,88	506,09

Type (WxHxD)	Price Eur EHR	Price Eur EHR	Price Eur EHR..CE	Price Eur EHR..CE	Price Eur EHR..SE	Price Eur EHR..SE	Price Eur EHR..SI	Price Eur EHR..SI	Price Eur EHR..FC	Price Eur EHR..FC
	Heater without integrated control	Preheater without integrated control	Heater with integrated control (0-10)V	Preheater with integrated control (0-10)V	Heater with integrated control (external setpoint) (0...+30)	Preheater with integrated control (external setpoint) (-10...+20)	Heater with integrated control (internal setpoint) (0...+30)	Preheater with integrated control (internal setpoint) (-10...+20)	Heater Plug & play (with flow and pressure control) (0...+30)	Preheater Plug & play (with flow and pressure control) (-10...+20)
EHR 500x250/18.0/3	395,33	411,15	507,49	526,39	520,22	539,15	523,41	542,45	547,51	564,42
EHR 500x250/21.0/3	429,57	446,75	541,74	562,01	554,47	574,73	557,64	578,03	581,75	599,80
EHR 500x250/24.0/3	475,58	494,61	593,00	615,32	605,73	627,99	608,91	631,29	633,54	653,30
EHR 500x250/27.0/3	511,96	532,44	629,37	653,15	642,10	665,78	645,29	669,09	669,90	690,85
EHR 500x250/30.0/3	597,59	621,49	715,00	742,20	727,73	754,74	730,91	758,05	755,55	779,32
EHR 500x250/33.0/3	614,14	638,70	757,00	785,88	769,73	798,38	772,91	801,69	800,09	825,34
EHR 500x250/36.0/3	660,27	686,68	805,06	835,86	819,05	849,62	820,96	851,61	848,33	875,17
EHR 500x300/3.0/1	207,47	215,77	255,87	266,11	273,75	284,43	280,03	290,95	299,86	309,76
EHR 500x300/6.0/3	216,64	225,31	294,03	304,91	306,75	317,86	309,94	321,17	331,87	342,09
EHR 500x300/9.0/3	249,08	259,05	329,00	341,28	341,73	354,20	344,92	357,51	367,09	378,48
EHR 500x300/12.0/3	297,62	309,52	403,18	418,11	415,91	430,96	419,09	434,27	443,04	456,67
EHR 500x300/15.0/3	339,68	353,27	450,51	467,33	463,23	480,12	466,41	483,43	490,88	506,09
EHR 500x300/18.0/3	395,33	411,15	507,49	526,39	520,22	539,15	523,41	542,45	547,51	564,42
EHR 500x300/21.0/3	429,57	446,75	541,74	562,01	554,47	574,73	557,64	578,03	581,75	599,80
EHR 500x300/24.0/3	475,58	494,61	593,00	615,32	605,73	627,99	608,91	631,29	633,54	653,30
EHR 500x300/27.0/3	511,96	532,44	629,37	653,15	642,10	665,78	645,29	669,09	669,90	690,85
EHR 500x300/30.0/3	597,59	621,49	715,00	742,20	727,73	754,74	730,91	758,05	755,55	779,32
EHR 500x300/33.0/3	613,50	638,04	756,36	785,21	769,09	797,72	772,27	801,03	799,46	824,68
EHR 500x300/36.0/3	663,45	689,99	808,23	839,16	822,23	852,93	824,14	854,92	851,51	878,46
EHR 600x300/3.0/3	210,02	218,42	280,42	291,04	293,46	304,32	296,32	307,30	314,11	323,98
EHR 600x300/6.0/3	217,03	225,71	292,81	303,64	305,17	316,21	308,26	319,42	329,55	339,70
EHR 600x300/9.0/3	276,89	287,97	356,81	370,20	369,54	383,10	372,73	386,40	394,89	407,20
EHR 600x300/12.0/3	315,24	327,85	420,81	436,45	433,54	449,28	436,73	452,59	460,67	474,89
EHR 600x300/15.0/3	355,60	369,82	466,41	483,87	479,14	496,66	482,32	499,97	506,79	522,52
EHR 600x300/18.0/3	411,78	428,26	523,95	543,51	536,68	556,25	539,86	559,55	563,97	581,42
EHR 600x300/21.0/3	445,49	463,30	557,64	578,55	570,37	591,25	573,56	594,56	597,66	616,23
EHR 600x300/24.0/3	491,50	511,16	608,91	631,86	621,64	644,52	624,82	647,82	649,46	669,73
EHR 600x300/27.0/3	527,86	548,98	645,29	669,70	658,01	682,30	661,19	685,61	685,82	707,29
EHR 600x300/30.0/3	615,57	640,19	732,98	760,90	745,71	773,43	748,89	776,73	773,51	797,88
EHR 600x300/33.0/3	639,50	665,08	782,46	812,36	795,19	824,84	798,37	828,15	825,55	851,63
EHR 600x300/36.0/3	674,59	701,57	819,37	850,74	833,37	864,51	835,28	866,49	862,64	889,95
EHR 600x300/39.0/3	731,87	761,14	876,64	910,31	890,65	924,02	892,56	926,00	919,91	949,12
EHR 600x300/42.0/3	776,41	807,47	924,05	959,62	937,10	972,29	940,29	975,59	967,96	998,75
EHR 600x300/45.0/3	846,42	880,28	991,20	1029,45	1005,20	1043,04	1007,10	1045,02	1034,47	1067,45
EHR 600x300/48.0/3	916,42	953,08	1064,06	1105,23	1077,11	1117,76	1080,30	1121,06	1107,97	1143,38
EHR 600x300/51.0/3	953,01	991,14	1146,95	1155,04	1125,48	1168,01	1128,03	1170,66	1156,82	1193,84
EHR 600x300/54.0/3	989,60	1029,19	1159,84	1204,84	1173,84	1218,25	1175,76	1220,25	1205,66	1244,29
EHR 600x350/6.0/3	237,05	246,54	316,33	328,11	330,34	342,37	333,52	345,67	355,76	366,78
EHR 600x350/9.0/3	293,68	305,43	373,59	387,65	386,32	400,53	399,80	414,54	421,99	435,19
EHR 600x350/12.0/3	321,61	334,47	427,18	443,07	439,91	455,90	443,09	459,20	467,04	481,46
EHR 600x350/15.0/3	361,96	376,44	472,78	490,49	485,51	503,27	488,69	506,58	513,15	529,10
EHR 600x350/18.0/3	418,15	434,88	530,32	550,13	543,05	562,86	546,23	566,17	570,33	588,00
EHR 600x350/21.0/3	451,85	469,92	564,01	585,17	576,74	597,87	579,92	601,17	604,02	622,80
EHR 600x350/24.0/3	497,86	517,78	615,27	638,48	628,00	651,13	631,18	654,44	655,82	676,31
EHR 600x350/27.0/3	534,23	555,60	651,65	676,32	664,37	688,92	667,55	692,22	692,18	713,87
EHR 600x350/30.0/3	619,86	644,66	737,27	765,37	750,01	777,89	753,19	781,20	777,82	802,33
EHR 600x350/33.0/3	649,14	675,10	792,01	822,29	804,74	834,76	807,91	838,06	835,09	861,50
EHR 600x350/36.0/3	680,95	708,19	825,73	857,36	839,74	871,12	841,64	873,10	869,00	896,52
EHR 600x350/39.0/3	744,60	774,38	889,37	923,55	903,38	937,25	905,28	939,22	932,65	962,27
EHR 600x350/42.0/3	792,33	824,02	939,97	976,17	953,02	988,82	956,19	992,12	983,88	1015,19
EHR 600x350/45.0/3	871,87	906,75	1016,65	1055,92	1030,66	1069,49	1032,57	1071,47	1059,92	1093,74
EHR 600x350/48.0/3	922,78	959,69	1070,43	1111,85	1083,48	1124,37	1086,66	1127,68	1114,34	1149,96
EHR 600x350/48.0/3	959,38	997,75	1153,32	1161,66	1131,85	1174,62	1134,39	1177,27	1163,18	1200,41
EHR 600x350/54.0/3	995,97	1035,81	1166,21	1211,46	1180,21	1224,87	1182,12	1226,86	1212,02	1250,86

Type (WxHxD)	Price Eur EHR	Price Eur EHR	Price Eur EHR..CE	Price Eur EHR..CE	Price Eur EHR..SE	Price Eur EHR..SE	Price Eur EHR..SI	Price Eur EHR..SI	Price Eur EHR..FC	Price Eur EHR..FC
	Heater without integrated control	Preheater without integrated control	Heater with integrated control (0-10)V	Preheater with integrated control (0-10)V	Heater with integrated control (external setpoint) (0...+30)	Preheater with integrated control (external setpoint) (-10...+20)	Heater with integrated control (internal setpoint) (0...+30)	Preheater with integrated control (internal setpoint) (-10...+20)	Heater Plug & play (with flow and pressure control) (0...+30)	Preheater Plug & play (with flow and pressure control) (-10...+20)
EHR 700x400/9.0/3	311,27	323,72	391,18	405,95	403,90	418,80	407,09	422,10	429,27	442,71
EHR 700x400/12.0/3	359,79	374,18	465,36	482,77	478,09	495,57	481,27	498,87	505,22	520,90
EHR 700x400/15.0/3	400,14	416,15	510,96	530,20	523,69	542,94	526,87	546,25	551,34	568,55
EHR 700x400/18.0/3	456,33	474,58	568,50	589,84	581,23	602,53	584,41	605,84	608,51	627,44
EHR 700x400/21.0/3	490,03	509,63	602,20	624,89	614,92	637,54	618,10	640,84	642,21	662,24
EHR 700x400/24.0/3	536,04	557,48	653,46	678,20	666,18	690,80	669,37	694,11	694,00	715,75
EHR 700x400/27.0/3	572,41	595,31	689,83	716,03	702,56	728,60	705,75	731,91	730,36	753,31
EHR 700x400/30.0/3	658,05	684,37	773,86	803,41	788,19	817,56	791,37	820,87	815,99	841,76
EHR 700x400/33.0/3	665,05	691,65	807,91	838,83	820,64	851,28	823,83	854,59	851,00	877,92
EHR 700x400/36.0/3	690,50	718,12	835,28	867,29	849,29	881,04	851,19	883,02	878,55	906,39
EHR 700x400/39.0/3	754,15	784,31	898,92	933,48	912,92	947,16	914,83	949,14	942,19	972,13
EHR 700x400/42.0/3	805,06	837,26	952,70	989,41	965,74	1002,04	968,92	1005,34	996,61	1028,34
EHR 700x400/45.0/3	881,41	916,67	1026,20	1065,85	1040,21	1079,41	1042,11	1081,39	1069,47	1103,61
EHR 700x400/48.0/3	932,33	969,62	1079,98	1121,78	1093,03	1134,29	1096,21	1137,60	1123,89	1159,82
EHR 700x400/51.0/3	968,93	1007,68	1127,87	1171,59	1141,39	1184,54	1143,94	1187,19	1172,73	1210,28
EHR 700x400/54.0/3	1005,52	1045,74	1175,76	1221,39	1189,75	1234,79	1191,67	1236,78	1221,57	1260,73
EHR 700x400/57.0/3	1027,79	1068,90	1198,03	1244,56	1212,02	1257,93	1213,94	1259,92	1243,85	1283,74
EHR 700x400/60.0/3	1078,70	1121,85	1248,95	1297,51	1262,94	1310,82	1264,85	1312,82	1294,76	1336,33
EHR 700x400/66.0/3	1148,71	1194,66	1318,95	1370,30	1332,94	1383,56	1334,86	1385,55	1364,76	1408,64
EHR 800x500/12.0/3	378,02	393,14	483,60	501,75	496,33	514,52	499,52	517,83	523,45	539,74
EHR 800x500/15.0/3	403,86	420,02	516,27	535,72	527,42	546,82	530,60	550,12	555,06	572,39
EHR 800x500/18.0/3	459,51	477,89	571,68	593,15	584,41	605,84	587,60	609,15	611,70	630,73
EHR 800x500/21.0/3	493,22	512,94	605,38	628,20	618,10	640,84	621,29	644,15	645,39	665,53
EHR 800x500/24.0/3	539,23	560,79	656,64	681,50	669,37	694,11	672,55	697,41	697,19	719,04
EHR 800x500/27.0/3	575,59	598,62	693,02	719,34	705,75	731,91	708,92	735,20	733,55	756,60
EHR 800x500/30.0/3	687,31	687,68	778,64	808,38	791,37	820,87	794,55	824,18	819,17	845,05
EHR 800x500/33.0/3	698,10	714,88	820,64	852,07	833,37	864,51	836,56	867,82	863,73	891,08
EHR 800x500/36.0/3	722,31	741,36	858,01	890,53	872,01	904,26	873,91	906,24	901,28	929,54
EHR 800x500/39.0/3	766,88	797,55	911,64	946,71	925,65	960,39	927,56	962,37	954,91	985,27
EHR 800x500/42.0/3	820,96	853,80	968,60	1005,95	981,65	1018,57	984,84	1021,88	1012,51	1044,77
EHR 800x500/45.0/3	894,14	929,91	1038,93	1079,09	1052,94	1092,64	1054,83	1094,61	1082,20	1116,76
EHR 800x500/48.0/3	938,69	976,24	1086,34	1128,40	1099,39	1140,90	1102,57	1144,21	1130,25	1166,39
EHR 800x500/51.0/3	978,47	1017,61	1137,42	1181,52	1150,94	1194,46	1153,48	1197,11	1182,28	1220,14
EHR 800x500/54.0/3	1018,25	1058,98	1188,49	1234,63	1202,48	1248,02	1204,39	1250,00	1234,30	1273,88
EHR 800x500/57.0/3	1040,52	1082,14	1210,76	1257,79	1224,75	1271,15	1226,67	1273,14	1256,57	1296,88
EHR 800x500/60.0/3	1091,43	1135,09	1261,67	1310,73	1275,67	1324,05	1277,58	1326,04	1307,48	1349,47
EHR 800x500/66.0/3	1161,44	1207,90	1331,68	1383,54	1345,68	1396,79	1347,59	1398,78	1377,49	1421,79
EHR 1000x500/15.0/3	436,23	453,67	547,05	567,73	559,77	580,43	562,95	583,74	588,19	606,61
EHR 1000x500/18.0/3	491,88	511,55	604,04	626,81	616,76	639,45	619,95	642,76	644,05	664,15
EHR 1000x500/21.0/3	525,57	546,59	637,74	661,84	650,47	674,47	653,65	677,78	677,76	698,97
EHR 1000x500/24.0/3	571,59	594,45	689,00	715,16	701,73	727,73	704,91	731,04	729,54	752,46
EHR 1000x500/27.0/3	607,96	632,28	725,37	752,98	738,10	765,52	741,28	768,83	765,91	790,03
EHR 1000x500/30.0/3	693,58	721,32	810,99	842,03	823,72	854,48	826,91	857,79	851,54	878,49
EHR 1000x500/33.0/3	715,60	739,02	830,19	862,00	842,92	874,43	846,10	877,74	873,27	900,93
EHR 1000x500/36.0/3	742,92	772,64	867,10	900,38	881,10	914,10	883,01	916,08	910,37	939,25
EHR 1000x500/39.0/3	779,60	810,78	924,37	959,95	938,38	973,61	940,29	975,59	967,64	998,42
EHR 1000x500/42.0/3	833,69	867,04	981,33	1019,19	994,38	1031,80	997,57	1035,11	1025,24	1057,92
EHR 1000x500/45.0/3	913,24	949,77	1058,02	1098,94	1072,02	1112,47	1073,93	1114,45	1101,30	1136,49
EHR 1000x500/48.0/3	960,97	999,41	1108,61	1151,55	1121,66	1164,04	1124,84	1167,35	1152,53	1189,41
EHR 1000x500/51.0/3	995,97	1035,81	1154,92	1199,71	1168,43	1212,64	1170,98	1215,29	1199,78	1238,22
EHR 1000x500/54.0/3	1030,97	1072,21	1201,22	1247,87	1215,20	1261,23	1217,12	1263,22	1247,03	1287,03
EHR 1000x500/57.0/3	1056,43	1098,69	1226,67	1274,34	1240,67	1287,69	1242,58	1289,68	1272,48	1313,32
EHR 1000x500/60.0/3	1100,98	1145,02	1271,22	1320,66	1285,21	1333,97	1287,13	1335,96	1317,03	1359,34

Type (WxHxD)	Price Eur EHR	Price Eur EHR	Price Eur EHR..CE	Price Eur EHR..CE	Price Eur EHR..SE	Price Eur EHR..SE	Price Eur EHR..SI	Price Eur EHR..SI	Price Eur EHR..FC	Price Eur EHR..FC
	Heater without integrated control	Preheater without integrated control	Heater with integrated control (0-10)V	Preheater with integrated control (0-10)V	Heater with integrated control (external setpoint) (0...+30)	Preheater with integrated control (external setpoint) (-10...+20)	Heater with integrated control (internal setpoint) (0...+30)	Preheater with integrated control (internal setpoint) (-10...+20)	Heater Plug & play (with flow and pressure control) (0...+30)	Preheater Plug & play (with flow and pressure control) (-10...+20)
EHR 1000x500/66.0/3	1174,16	1221,13	1344,41	1396,78	1358,40	1410,01	1360,31	1412,00	1390,22	1434,94
EHR 1000x500/75.0/3	1263,26	1313,79	1452,59	1509,29	1466,59	1522,42	1470,09	1526,06	1502,07	1550,48
EHR 1000x500/84.0/3	1603,74	1667,89	1793,07	1863,39	1807,06	1876,17	1810,35	1879,59	1842,55	1902,20

(Prices without VAT).

NOTE: the contactor is included in the price of the three-phase heaters/preheaters with integrated controller.

NOTE: external temperature setpoint must be ordered separately for EHR...SE, EHR...SE/FC modifications.

Electric rectangular duct heaters/preheaters with contactors for ventilation systems EHR.../K and EHR.../K24VDC



Contactors type	Price Eur for all heaters/preheaters modifications			
	0.5kW-4.5kW	6.0kW-9.0kW	12.0kW-15.0kW	18.0kW-84.0kW
EHR.../K	15,00	22,00	30,00	35,00
EHR.../K24VDC	15,00	22,00	30,00	35,00

(Prices without VAT).

NOTE: heater/preheater contactors are available at an additional cost, except for 3-phase heaters/preheaters with integrated controler.

NOTE: to the additional heater cost includes the contactors mounting.

MODBUS

Type (WxHxD)	Price Eur EHR..SE/MB	Price Eur EHR..SE/MB	Price Eur EHR..SI/MB	Price Eur EHR..SI/MB	Price Eur EHR..SE/FC/MB EHR..SI/FC/MB	Price Eur EHR..SE/FC/MB EHR..SI/FC/MB
	Heater with integrated control (external setpoint) with MODBUS (0...+30)	Preheater with integrated control (external setpoint) with MODBUS (-10...+20)	Heater with integrated control (internal setpoint) with MODBUS (0...+30)	Preheater with integrated control (internal setpoint) with MODBUS (-10...+20)	Heater plug & play (with flow and pressure control) with MODBUS (0...+30)	Preheater plug & play (with flow and pressure control) with MODBUS (-10...+20)
EHR 400x200/1.0/1	259,33	269,71	262,52	272,89	287,97	298,05
EHR 400x200/2.0/1	265,70	276,33	268,88	279,50	294,33	304,63
EHR 400x200/3.0/1	284,78	296,18	287,97	299,34	313,43	324,40
EHR 400x200/3.0/3	315,70	327,73	318,88	330,88	344,33	355,86
EHR 400x200/6.0/3	328,09	340,33	331,27	343,48	353,20	364,79
EHR 400x200/9.0/3	366,93	380,72	363,77	377,27	391,12	404,04
EHR 400x200/12.0/3	432,52	448,62	438,26	454,39	443,67	458,15
EHR 400x200/15.0/3	489,48	507,86	492,67	510,94	516,85	533,89
EHR 500x250/3.0/1	287,69	299,20	290,87	302,36	308,66	319,46
EHR 500x250/3.0/3	320,19	332,40	323,37	335,55	341,15	352,56
EHR 500x250/6.0/3	338,58	351,24	341,76	354,39	363,68	375,64
EHR 500x250/9.0/3	373,55	387,61	376,73	390,74	398,91	412,10
EHR 500x250/12.0/3	447,74	464,45	450,92	467,55	474,87	490,44
EHR 500x250/15.0/3	495,06	513,66	498,24	516,73	522,70	539,95
EHR 500x250/18.0/3	552,05	572,73	555,23	575,78	579,33	598,39
EHR 500x250/21.0/3	586,29	608,34	589,47	611,37	613,57	633,82
EHR 500x250/24.0/3	637,55	661,65	640,73	664,66	665,36	687,42
EHR 500x250/27.0/3	673,92	699,48	677,10	702,47	701,73	725,06
EHR 500x250/30.0/3	759,54	788,52	762,73	791,47	787,36	813,70
EHR 500x250/33.0/3	801,56	832,22	523,55	542,85	831,91	859,80
EHR 500x250/36.0/3	850,87	883,51	852,79	885,09	880,15	909,73
EHR 500x300/3.0/1	287,69	299,20	290,87	302,36	308,66	319,46
EHR 500x300/6.0/3	338,58	351,24	341,76	354,39	363,68	375,64
EHR 500x300/9.0/3	373,55	387,61	376,73	390,74	398,91	412,10

MODBUS

Type (WxHxD)	Price Eur EHR..SE/MB	Price Eur EHR..SE/MB	Price Eur EHR..SI/MB	Price Eur EHR..SI/MB	Price Eur EHR..SE/FC/MB EHR..SI/FC/MB	Price Eur EHR..SE/FC/MB EHR..SI/FC/MB
	Heater with integrated control (external setpoint) with MODBUS (0...+30)	Preheater with integrated control (external setpoint) with MODBUS (-10...+20)	Heater with integrated control (internal setpoint) with MODBUS (0...+30)	Preheater with integrated control (internal setpoint) with MODBUS (-10...+20)	Heater plug & play (with flow and pressure control) with MODBUS (0...+30)	Preheater plug & play (with flow and pressure control) with MODBUS (-10...+20)
EHR 500x300/12.0/3	447,74	464,45	450,92	467,55	474,87	490,44
EHR 500x300/15.0/3	495,06	513,66	498,24	516,73	522,70	539,95
EHR 500x300/18.0/3	552,05	572,73	555,23	575,78	579,33	598,39
EHR 500x300/21.0/3	586,29	608,34	589,47	611,37	613,57	633,82
EHR 500x300/24.0/3	637,55	661,65	640,73	664,66	665,36	687,42
EHR 500x300/27.0/3	673,92	699,48	677,10	702,47	701,73	725,06
EHR 500x300/30.0/3	759,54	788,52	762,73	791,47	787,36	813,70
EHR 500x300/33.0/3	800,92	831,56	804,10	834,48	831,27	859,14
EHR 500x300/36.0/3	854,06	886,82	855,95	888,38	883,33	913,02
EHR 600x300/3.0/3	324,97	337,37	328,14	340,51	345,93	357,51
EHR 600x300/6.0/3	345,48	358,42	348,66	361,57	370,59	382,79
EHR 600x300/9.0/3	401,36	416,53	404,54	419,65	426,73	440,89
EHR 600x300/12.0/3	465,36	482,77	468,54	485,87	492,49	508,68
EHR 600x300/15.0/3	510,96	530,20	514,14	533,26	538,61	556,42
EHR 600x300/18.0/3	568,50	589,84	571,68	592,88	595,78	615,41
EHR 600x300/21.0/3	602,20	624,89	605,38	627,91	629,49	650,29
EHR 600x300/24.0/3	653,46	678,20	656,64	681,19	681,27	703,89
EHR 600x300/27.0/3	689,83	716,03	693,02	719,01	717,63	741,52
EHR 600x300/30.0/3	777,53	807,23	780,71	810,17	802,15	829,00
EHR 600x300/33.0/3	827,01	858,69	830,19	861,60	857,35	886,13
EHR 600x300/36.0/3	865,19	898,40	867,10	899,96	894,46	924,54
EHR 600x300/39.0/3	922,47	957,97	924,37	959,50	951,74	983,83
EHR 600x300/42.0/3	968,92	1006,28	972,10	1009,12	999,79	1033,56
EHR 600x300/45.0/3	1037,03	1077,11	1038,93	1078,59	1066,29	1102,38
EHR 600x300/48.0/3	1108,93	1151,89	1112,11	1154,66	1139,80	1178,47
EHR 600x300/51.0/3	1157,30	1202,19	1159,84	1204,28	1188,64	1229,02
EHR 600x300/54.0/3	1205,66	1252,48	1207,57	1253,89	1237,48	1279,57
EHR 600x350/6.0/3	362,16	375,76	365,34	378,90	387,59	400,38
EHR 600x350/9.0/3	397,54	412,56	400,72	415,68	422,91	436,94
EHR 600x350/12.0/3	471,73	489,39	474,91	492,48	498,86	515,27
EHR 600x350/15.0/3	517,32	536,82	520,51	539,88	544,98	563,00
EHR 600x350/18.0/3	574,86	596,46	578,05	599,50	602,15	622,00
EHR 600x350/21.0/3	608,56	631,50	611,74	634,52	635,84	656,87
EHR 600x350/24.0/3	659,82	684,81	663,00	687,81	687,63	710,47
EHR 600x350/27.0/3	696,20	722,65	699,38	725,62	724,00	748,11
EHR 600x350/30.0/3	781,82	811,69	785,00	814,63	809,62	836,73
EHR 600x350/33.0/3	836,56	868,62	839,74	871,53	866,91	896,03
EHR 600x350/36.0/3	871,56	905,02	873,46	906,58	900,83	931,13
EHR 600x350/39.0/3	935,20	971,21	937,10	972,74	964,46	996,99
EHR 600x350/42.0/3	984,84	1022,83	988,02	1025,66	1015,69	1050,02
EHR 600x350/45.0/3	1062,47	1103,56	1064,38	1105,04	1091,75	1128,74
EHR 600x350/48.0/3	1115,29	1158,51	1118,48	1161,27	1146,16	1185,05
EHR 600x350/51.0/3	1163,66	1208,81	1166,21	1210,89	1195,01	1235,61
EHR 600x350/54.0/3	1212,02	1259,10	1213,94	1260,51	1243,85	1286,16
EHR 700x400/9.0/3	435,73	452,28	438,91	455,38	461,09	476,46
EHR 700x400/12.0/3	509,91	529,10	513,09	532,17	537,04	554,78
EHR 700x400/15.0/3	555,51	576,53	558,69	579,57	583,16	602,52
EHR 700x400/18.0/3	613,05	636,17	616,22	639,18	640,33	661,52
EHR 700x400/21.0/3	646,75	671,22	649,93	674,22	674,03	696,40

MODBUS

Type (WxHxD)	Price Eur EHR..SE/MB	Price Eur EHR..SE/MB	Price Eur EHR..SI/MB	Price Eur EHR..SI/MB	Price Eur EHR..SE/FC/MB EHR..SI/FC/MB	Price Eur EHR..SE/FC/MB EHR..SI/FC/MB
	Heater with integrated control (external setpoint) with MODBUS	Preheater with integrated control (external setpoint) with MODBUS	Heater with integrated control (internal setpoint) with MODBUS	Preheater with integrated control (internal setpoint) with MODBUS	Heater plug & play (with flow and pressure control) with MODBUS (0...+30)	Preheater plug & play (with flow and pressure control) with MODBUS (-10...+20)
EHR 700x400/24.0/3	698,01	724,53	701,19	727,51	725,82	750,00
EHR 700x400/27.0/3	734,38	762,36	737,56	765,31	762,18	787,63
EHR 700x400/30.0/3	820,00	851,40	823,19	854,32	847,82	876,27
EHR 700x400/33.0/3	852,47	885,17	855,64	888,06	882,82	912,50
EHR 700x400/36.0/3	881,10	914,95	883,01	916,51	910,37	941,00
EHR 700x400/39.0/3	944,75	981,14	946,65	982,66	974,01	1006,88
EHR 700x400/42.0/3	997,57	1036,07	1000,75	1038,90	1028,42	1063,19
EHR 700x400/45.0/3	1072,01	1113,49	1073,93	1114,97	1101,30	1138,62
EHR 700x400/48.0/3	1124,84	1168,44	1128,03	1171,20	1155,70	1194,93
EHR 700x400/51.0/3	1173,21	1218,74	1175,76	1220,82	1204,55	1245,48
EHR 700x400/54.0/3	1221,57	1269,03	1223,49	1270,43	1253,39	1296,03
EHR 700x400/57.0/3	1243,85	1292,20	1245,77	1293,59	1275,67	1319,09
EHR 700x400/60.0/3	1294,76	1345,15	1296,68	1346,51	1288,96	1332,85
EHR 700x400/66.0/3	1326,03	1377,67	1327,89	1378,96	1396,59	1444,24
EHR 800x500/12.0/3	528,15	548,08	531,33	551,13	555,27	573,65
EHR 800x500/15.0/3	559,23	580,40	562,42	583,45	586,89	606,38
EHR 800x500/18.0/3	616,23	639,48	619,41	642,50	643,51	664,81
EHR 800x500/21.0/3	649,93	674,53	653,11	677,53	574,22	593,09
EHR 800x500/24.0/3	701,19	727,84	704,38	730,82	729,00	753,29
EHR 800x500/27.0/3	737,56	765,67	740,75	768,62	765,36	790,93
EHR 800x500/30.0/3	823,19	854,71	826,37	857,63	851,01	879,57
EHR 800x500/33.0/3	865,19	898,40	868,37	901,29	895,54	925,66
EHR 800x500/36.0/3	893,83	928,19	895,74	929,74	923,10	954,18
EHR 800x500/39.0/3	957,47	994,37	959,37	995,89	986,74	1020,05
EHR 800x500/42.0/3	1013,47	1052,61	1016,65	1055,43	1044,34	1079,67
EHR 800x500/45.0/3	1084,76	1126,75	1086,66	1128,20	1114,02	1151,78
EHR 800x500/48.0/3	1131,22	1175,07	1134,39	1177,82	1162,07	1201,51
EHR 800x500/51.0/3	1182,76	1228,67	1185,31	1230,74	1214,10	1255,36
EHR 800x500/54.0/3	1234,30	1282,27	1236,22	1283,66	1266,12	1309,21
EHR 800x500/57.0/3	1256,58	1305,44	1258,49	1306,81	1288,40	1332,27
EHR 800x500/60.0/3	1307,48	1358,38	1309,40	1359,74	1339,31	1384,96
EHR 800x500/66.0/3	1377,49	1431,19	1379,41	1432,51	172,28	177,08
EHR 1000x500/15.0/3	591,60	614,06	594,78	617,09	619,24	639,87
EHR 1000x500/18.0/3	648,59	673,14	651,77	676,14	675,88	698,31
EHR 1000x500/21.0/3	682,28	708,17	685,47	711,16	709,58	733,19
EHR 1000x500/24.0/3	733,55	761,49	736,73	764,45	761,36	786,78
EHR 1000x500/27.0/3	769,92	799,31	773,10	802,25	797,74	824,43
EHR 1000x500/30.0/3	855,54	888,36	858,72	891,26	883,36	913,05
EHR 1000x500/33.0/3	874,74	908,33	877,92	911,22	905,08	935,54
EHR 1000x500/36.0/3	912,92	948,04	914,83	949,58	942,19	973,94
EHR 1000x500/39.0/3	970,20	1007,61	972,10	1009,12	999,47	1033,23
EHR 1000x500/42.0/3	1026,20	1065,85	1029,38	1068,66	1057,06	1092,83
EHR 1000x500/45.0/3	1103,85	1146,61	1105,75	1148,04	1133,11	1171,55
EHR 1000x500/48.0/3	1153,49	1198,23	1156,66	1200,97	1184,35	1224,57
EHR 1000x500/51.0/3	1200,26	1246,87	1202,81	1248,94	1231,60	1273,48
EHR 1000x500/54.0/3	1247,03	1295,51	1248,95	1296,90	1278,85	1322,38
EHR 1000x500/57.0/3	1272,48	1321,98	1274,40	1323,36	1304,30	1348,73
EHR 1000x500/60.0/3	1317,03	1368,31	1318,95	1369,66	1348,86	1394,84
EHR 1000x500/66.0/3	1390,22	1444,43	1392,14	1445,75	1422,04	1470,59
EHR 1000x500/75.0/3	1498,41	1556,95	1501,91	1559,85	1533,90	1586,36
EHR 1000x500/84.0/3	1838,89	1911,05	1842,39	1913,78	1874,36	1938,74

(Prices without VAT).

NOTE: the contactor is included in the price of the three-phase heaters/preheaters with integrated controller.

NOTE: external temperature setpoint must be ordered separately for EHR...SE/MB, EHR...SE/FC/MB modifications.

Electric rectangular duct heaters/preheaters with MODBUS and contactors for ventilation systems EHR.../MB/K and EHR.../MB/K24VDC



Contactors type	Price Eur for all heaters/preheaters modifications			
	0.5kW-4.5kW	6.0kW-9.0kW	12.0kW-15.0kW	18.0kW-84.0kW
EHR.../K	15,00	22,00	30,00	35,00
EHR.../K24VDC	15,00	22,00	30,00	35,00

(Prices without VAT).

NOTE: heater/preheater contactors are available at an additional cost, except for 3-phase heaters/preheaters with integrated controler.

NOTE: to the additional heater cost includes the contactors mounting.

ACCESSORIES

Type
External controller REC16, 1~230 VAC or 2~400 VAC, 16A
External controller REC16MB, 1~230 VAC or 2~400 VAC, 16A
External controller REC25B, 3~400 VAC/max. 16,44 kW, 25A
External controller REC25, 3~400 VAC/max. 16,44 kW, 25A
External controller REC50B, 3~400 VAC/max. 32,89 kW, 50A
External controller REC50, 3~400 VAC/max. 32,89 kW, 50A
Duct temperature sensor TSD/NTC10K/2m
External temperature setpoint RES 001
External temperature setpoint with room sensor RES 002/NTC

External temperature setpoint RES 001



External temperature setpoint with room sensor RES 002/NTC



Duct temperature sensor TSD/NTC10K/2m.



NOTE: to specify a temperature setpoint (-10...+20), (-30...0) or (0...+30) in order.

NOTE: the heater's standard temperature setpoint is (0...+30). The Preheater's standard temperature setpoint is (-10...+20) and (-30...0). The other temperature setpoints are possible according to a client's requirements.

NOTE: heaters/preheaters with an integrated control system: EHR..SE, EHR..SE/FC, EHR..SE/F, EHR..SE/SR, EHR..SE/MB, EHR..SE/FC/MB, EHR..SE/F/MB, EHR..SE/MB/SR, EHR..SE/K, EHR..SE/FC/K, EHR..SE/F/K, EHR..SE/K/SR, EHR..SE/MB/K, EHR..SE/FC/MB/K, EHR..SE/F/MB/K, EHR..SE/MB/K/SR, EHR..SE/K24VDC, EHR..SE/FC/K24VDC, EHR..SE/F/K24VDC, EHR..SE/K24VDC/SR, EHR..SE/MB/K24VDC, EHR..SE/FC/MB/K24VDC, EHR..SE/F/MB/K24VDC, EHR..SE/MB/K24VDC/SR, EHR..SI, EHR..SI/FC, EHR..SI/F, EHR..SI/SR, EHR..SI/MB, EHR..SI/FC/MB, EHR..SI/F/MB, EHR..SI/MB/SR, EHR..SI/K, EHR..SI/FC/K, EHR..SI/F/K, EHR..SI/K/SR, EHR..SI/MB/K, EHR..SI/FC/MB/K, EHR..SI/F/MB/K, EHR..SI/K24VDC, EHR..SI/FC/K24VDC, EHR..SI/F/K24VDC, EHR..SI/K24VDC/SR, EHR..SI/MB/K24VDC, EHR..SI/FC/MB/K24VDC, EHR..SI/MB/K24VDC/SR – duct temperature sensor L-2.0 m included.

NOTE: external temperature setpoint RES 001 and external temperature setpoint with room sensor RES 002/NTC are needed for: EHR..SE, EHR..SE/FC, EHR..SE/F, EHR..SE/SR, EHR..SE/MB, EHR..SE/FC/MB, EHR..SE/F/MB, EHR..SE/MB/SR, EHR..SE/K, EHR..SE/FC/K, EHR..SE/F/K, EHR..SE/K/SR, EHR..SE/MB/K, EHR..SE/FC/MB/K, EHR..SE/F/MB/K, EHR..SE/MB/K/SR, EHR..SE/K24VDC, EHR..SE/FC/K24VDC, EHR..SE/F/K24VDC, EHR..SE/K24VDC/SR, EHR..SE/MB/K24VDC, EHR..SE/FC/MB/K24VDC, EHR..SE/F/MB/K24VDC, EHR..SE/MB/K24VDC/SR modifications.

Temperature and humidity transducers

DESCRIPTION

The temperature and humidity transducer is intended to measure the temperature and humidity in the ducts of the ventilation system. The temperature and humidity transducer has a digital signal output. It applies exclusive digital signal collecting technique and humidity sensing technology, assuring its reliability and stability.

TECHNICAL DATA:

- Supply voltage: 2.2 – 5.5V.
- Measuring range (humidity): 0 ~100% RH.
- Measuring range (temperature): -40 ~ + 80°C.
- Humidity accuracy: ± 2 % RH (25°C).
- Temperature accuracy: ± 0.3°C.
- Resolution (temperature): 0.01°C.
- Resolution (humidity): 0.024%RH.
- Temperature accuracy: ± 0.3°C.
- Resolution (temperature): 0.01°C.
- Resolution (humidity): 0.024%RH.

Temperature and humidity transducer TH2-R2



Temperature and humidity transducer TH1-R1



Type	Dimensions AxØ [mm]	Price Eur
Temperature and humidity transducer TH2-R2	100x16	45,90
Temperature and humidity transducer TH1-R1	140x16	52,00

(Prices without VAT).

Temperature sensors and setpoint devices

DUCT TEMPERATURE SENSOR TSD/NTC10K

DESCRIPTION

The duct temperature sensor with an NTC element is designed for measuring air temperature in ventilation ducts. Insertion length is not adjustable.

TECHNICAL DATA:



- Insertion length: 100 mm.
- Cable length: 2.0 m., 15 m., or 25 m.
- Protection class: IP54.
- Sensor element thermistor: NTC10K B25/85 (K)3977.
- Temperature range: -40...+60°C.

Type	Price Eur
TSD/NTC10K/2m	10,76
TSD/NTC10K/15m	19,72
TSD/NTC10K/25m	20,60

(Prices without VAT).

DUCT TEMPERATURE SENSOR TSD/PT1000/2m

DESCRIPTION

The duct temperature sensor with a PT1000 element is designed for measuring air temperature in ventilation ducts. The sensor has an adjustable length. The length of the connecting cable is 2 m.

TECHNICAL DATA:



- Insertion length: 100 mm.
- Cable length: 2.0 m.
- Protection class: IP54.
- Sensor element thermistor: PT1000(1kΩ/0°C).
- Temperature range: -30...+60°C.

Type	Price Eur
TSD/PT1000/2m	16,36

(Prices without VAT).

SURFACE TEMPERATURE SENSOR TSS/NTC10K/2m

DESCRIPTION

The surface temperature sensor with an NTC element is designed for measuring temperature on closed pipe systems. Insertion length is not adjustable. The length of the connecting cable is 2 m.

TECHNICAL DATA:



- Insertion length: 30 mm.
- Insertion diameter: 4 mm.
- Cable length: 2.0 m.2x0,14² mm.
- Protection class: IP54.
- Sensor element thermistor: NTC10K B25/85 (K)3977.

Type	Price Eur
TSS/NTC10K/2m	12,69

(Prices without VAT).

SURFACE TEMPERATURE SENSOR TSS/PT1000/2m

DESCRIPTION

The surface temperature sensor with PT1000 element is designed for measuring temperature on closed pipe systems. Insertion length is not adjustable. The length of the connecting cable is 2 m.

TECHNICAL DATA:



- Insertion length: 30 mm.
- Insertion diameter: 4 mm.
- Cable length: 2.0 m.2x0,14² mm.
- Protection class: IP54.
- Sensor element thermistor: PT1000.
- Temperature range: -40...+85°C.

Type	Price Eur
TSS/PT1000/2m	15,74

(Prices without VAT).

ROOM TEMPERATURE SENSOR TSR/NTC10

DESCRIPTION

The sensor with NTC-element is designed for measuring air temperature in rooms.

TECHNICAL DATA:



- Protection class: IP54.
- Sensor element thermistor: NTC10K B25/85 (K)3977.
- Temperature range: -40...+60°C.
- Dimensions: X-71 mm, Y-71 mm, Z-27 mm.

Type	Price Eur
TSR/NTC10	22,10

(Prices without VAT).

ROOM TEMPERATURE SENSOR TSR/PT1000

DESCRIPTION

The sensor with PT1000 element is designed for measuring air temperature in rooms.

TECHNICAL DATA:



- Protection class: IP20.
- Sensor element thermistor: PT1000.
- Temperature range: 0...+60°C.

Type	Price Eur
TSR/PT1000	24,60

(Prices without VAT).

EXTERNAL TEMPERATURE SETPOINT RES 001

DESCRIPTION

The RES 001 is intended to be used for external temperature setpoint when it is connected to the electric heater's controller REH.. installed in heaters EHC.. or EHR.. .



TECHNICAL DATA:

- Protection class: IP30.
- Nominal value 10 kΩ.
- Temperature range: 0...+30°C.
- Dimensions: X-71 mm, Y-71 mm, Z-24 mm.

Type	Price Eur
RES 001	28,52

(Prices without VAT). NOTE: the other temperature range is possible according to a client's requirements.

EXTERNAL TEMPERATURE SETPOINT WITH ROOM SENSOR RES 002/NTC

DESCRIPTION

The RES 002/NTC is intended to be used for external temperature setpoint when it is connected to the electric heater's controller REH .. installed in heaters EHC .. or EHR .. .
Sensor with NTC element is for measuring air temperature in the room.



TECHNICAL DATA:

- Protection class: IP30.
- Nominal value 10 kΩ.
- Temperature range: 0...+30°C.
- Sensor element thermistor: NTC10K B25/85 (K)3977.
- Dimensions: X-71 mm, Y-71 mm, Z-24 mm.

Type	Price Eur
RES 002/NTC	38,12

(Prices without VAT). NOTE: the other temperature range is possible according to a client's requirements.

Heating elements

DESCRIPTION

Tubular heating elements are used in ventilation systems. The possibility to modify the shape of the heating elements is suitable for many applications.



Type	Price Eur
Heating element 6,4mm 300W 230V	11,70
Heating element 6,4mm 500W 230V	13,44
Heating element 6,4mm 1000W 230V	16,45
Heating element 6,4mm 1500W 400V	18,52
Heating element 6,4mm 2000W 230V	26,30
Heating element 6,4mm 2500W 230V	26,57

(Prices without VAT).

NOTE: heating elements are with double flange and 6,3 tags.

PTC heating elements

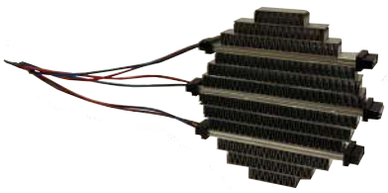
DESCRIPTION

The PTC heating elements are intended to be used for heating clean air in the ventilation systems. Also, can be used for heating or preheating functions in air-handling units.

TECHNICAL DATA:

- Voltage: 1~230V, 50Hz.
- The power:
  - 500W/1000W/2000W-round types.
  - 800W/2000W-rectangular types.
- Diameter: according to element.
- Lowest air temperature: -30°C.
- Not intended to be used for salty air heating.

PTC heating element (round)



PTC heating element (rectangular)



Type	Price Eur
PTC heating element 500W, d-125 mm, gap-4,5 mm, wires-150 mm (round)	63,95
PTC heating element 1000W, d-160 mm, gap-4,5 mm, wires-150 mm (round)	79,59
PTC heating element 2000W, d-200 mm, gap-4,5 mm, wires-150 mm (round)	166,95
PTC heating element 800W, 66x234x20 mm, gap-4,5 mm, wires-150 mm (rectangular)	71,09
PTC heating element 2000W, 127x362x20 mm, gap-4,5 mm, wires-150 mm (rectangular)	170,10

(Prices without VAT). **NOTE: the sizes and capacities are possible according to a client's requirements.**

Air damper actuators without spring return

DESCRIPTION

The actuators contain the right products to suit different torques, in all the usual damper sizes. Quality and highly-developed technology are of course a part of the package. Whether for 24, 120 or 240 VAC/DC, the optimized design of the actuators guarantees at least 6000 cycles for springs and motors. Less mechanical components mean that the integrated BLDC technology (brushless direct current) reduces wear.



Type	225S-230T-02	225S-230T-05	225S-230T-05-S2	225S-230T-05-P5	225S-024T-05
Torque motor	2 Nm	5 Nm	5 Nm	5 Nm	5 Nm
3 point control	·	·	·	·	·
On / Off	·	·	·	·	·
Power supply 24 VAC					·
Power supply 230 VAC	·	·	·	·	
Control (0) 2...10 VDC					
Duration	20...35s/90° (BDC Motor!)	20...35s/90° (BDC Motor!)	20...35s/90° (BDC Motor!)	20...35s/90° (BDC Motor!)	20...35s/90° (BDC Motor!)
Feedback			2 end switches	Potentiometer	
Electric connection	Screw terminals	Screw terminals	Screw terminals	Screw terminals	Screw terminals
Protection class	IP 52 (cable entry downwards)	IP 52 (cable entry downwards)	IP 52 (cable entry downwards)	IP 52 (cable entry downwards)	IP 52 (cable entry downwards)
With spring return					
Price Eur	**131,07**	**131,07**	**174,46**	**231,62**	**131,07**

(Prices without VAT).

Type	225S-024T-05-S2	225S-024T-05-P5	225CS-024T-05	225CS-024T-05-S2
Torque motor	5 Nm	5 Nm	5 Nm	5 Nm
3 point control	·	·		
On / Off	·	·		
Power supply 24 VAC	·	·	·	·
Power supply 230 VAC				
Control (0) 2...10 VDC				·
Duration	20...35s/90° (BDC Motor!)	20...35s/90° (BDC Motor!)	20...35s/90° (BDC Motor!)	20...35s/90° (BDC Motor!)
Feedback	2 end switches	Potentiometer	(0)2...10V	(0)2...10V 2 end switches
Electric connection	Screw terminals	Screw terminals	Screw terminals	Screw terminals
Protection class	IP 52 (cable entry downwards)	IP 52 (cable entry downwards)	IP 52 (cable entry downwards)	IP 52 (cable entry downwards)
With spring return				
Price Eur	**174,46**	**231,62**	**182,34**	**227,68**

(Prices without VAT).

Type	227C-024-05	227S-024-05	227S-230-05	227-230-10	227-230-10
Torque motor	5 Nm	5 Nm	5 Nm	10 Nm	10 Nm
3 point control		·	·	·	·
On / Off		·	·	·	·
Power supply 24 VAC	·	·		·	
Power supply 230 VAC			·		·
Control (0) 2...10 VDC	·				
Duration	100s/90°	20s/90°	20s/90°	150s/90°	150s/90°
Feedback	(0)2...10V				
Electric connection	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.
Protection class	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)
With spring return					
Price Eur	**211,90**	**162,62**	**162,62**	**195,14**	**200,06**

(Prices without VAT).

Type	227C-024-10	227-024-15	227-230-15	227C-024-15	363-230-20
Torque motor	10 Nm	15 Nm	15 Nm	15 Nm	20 Nm
3 point control		·	·		·
On / Off		·	·		·
Power supply 24 VAC	·	·		·	
Power supply 230 VAC			·		·
Control (0) 2...10 VDC	·			·	
Duration	150s/90°	150s/90°	150s/90°	150s/90°	150s/90°
Feedback	(0)2...10V		(0)2...10V		

Type	227C-024-10	227-024-15	227-230-15	227C-024-15	363-230-20
Electric connection	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.
Protection class	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)
With spring return					
Price Eur	**278,91**	**204,03**	**210,91**	**305,54**	**225,70**

(Prices without VAT).

Type	363-230-20-S2	363-024-20	363-024-20-S2	363C-024-20
Torque motor	20 Nm	20 Nm	20 Nm	20 Nm
3 point control	·	·	·	
On / Off	·	·	·	
Power supply 24 VAC		·	·	·
Power supply 230 VAC	·			
Control (0) 2...10 VDC				·
Duration	150s/90°	150s/90°	150s/90°	150s/90°
Feedback	2 end switches		2 end switches	(0)2...10V
Electric connection	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.
Protection class	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)
With spring return				
Price Eur	**281,89**	**221,76**	**275,97**	**314,40**

(Prices without VAT).

Air damper actuators with spring return

DESCRIPTION

The actuators contain the right products to suit different torques, in all the usual damper sizes. Quality and highly-developed technology are of course a part of the package. Whether for 24, 120 or 240 VAC/DC, the optimized design of the actuators guarantees at least 6000 cycles for springs and motors. Less mechanical components mean that the integrated BLDC technology (brushless direct current) reduces wear.



Type	341-230D-03	341-024D-03	341-230-05	341-230-05-S2	341-024-05-S2
Torque motor	3 Nm	3 Nm	5 Nm	5 Nm	5 Nm
3 point control					
On / Off	·	·	·	·	·
Power supply 24 VAC		·			·
Power supply 230 VAC	·		·	·	
Control (0) 2...10 VDC					
Duration	Motor 75s/90°, Return 20s/90°	Motor 40s/90°, Return 20s/90°	Motor 75s/90°, Return 20s/90°	Motor 75s/90°, Return 20s/90°	Motor 75s/90°, Return 20s/90°
Feedback				2 end switches	2 end switches

Type	341-230D-03	341-024D-03	341-230-05	341-230-05-S2	341-024-05-S2
Electric connection	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.
Protection class	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)
With spring return	·	·	·	·	·
Price Eur	**221,76**	**204,99**	**271,04**	**307,52**	**288,77**

(Prices without VAT).

Type	341-024-05	341C-024-05	361-230-10	361-230-10-S2	361-024-10
Torque motor	5 Nm	5 Nm	10 Nm	10 Nm	10 Nm
3 point control					
On / Off	·		·	·	·
Power supply 24 VAC	·	·			·
Power supply 230 VAC			·	·	
Control (0) 2...10 VDC		·			
Duration	Motor 75s/90°, Return 20s/90°	Motor 75s/90°, Return 20s/90°	Motor 150s/90°, Return 20s/90°	Motor 150s/90°, Return 20s/90°	Motor 150s/90°, Return 20s/90°
Feedback		(0)2...10V		2 end switches	
Electric connection	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.
Protection class	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)
With spring return	·	·	·	·	·
Price Eur	**250,34**	**338,05**	**370,59**	**419,87**	**311,46**

(Prices without VAT).

Type	361C-024-10	361-024-10-S2	361-230-20	361-230-20-S2	361-024-20
Torque motor	10 Nm	10 Nm	20 Nm	20 Nm	20 Nm
3 point control					
On / Off		·	·	·	·
Power supply 24 VAC	·	·			·
Power supply 230 VAC			·	·	
Control (0) 2...10 VDC	·				
Duration	Motor 150s/90°, Return 20s/90°	Motor 150s/90°, Return 20s/90°	Motor 75s/90°, Return 20s/90°	Motor 75s/90°, Return 20s/90°	Motor 75s/90°, Return 20s/90°
Feedback	(0)2...10V	2 end switches		2 end switches	
Electric connection	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.	Cable 1 m.
Protection class	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)	IP 54 (cable down)
With spring return	·	·	·	·	·
Price Eur	**373,54**	**351,87**	**441,54**	**481,95**	**383,39**

(Prices without VAT).

Type	361-024-20-S2	361C-024-20
Torque motor	20 Nm	20 Nm
3 point control		
On / Off	·	
Power supply 24 VAC	·	·
Power supply 230 VAC		
Control (0) 2...10 VDC		·
Duration	Motor 75s/90°, Return 20s/90°	Motor 75s/90°, Return 20s/90°
Feedback	2 end switches	(0)2...10V
Electric connection	Cable 1 m.	Cable 1 m.
Protection class	IP 54 (cable down)	IP 54 (cable down)
With spring return	·	·
Price Eur	**423,81**	**443,52**

(Prices without VAT).

Room thermostats TEM 16

DESCRIPTION

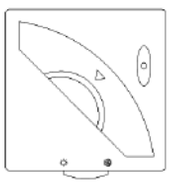
Electromechanical thermostats are intended to be used for control of heating, cooling, and air conditioning systems. Thermostats can control fans, coolers, heaters or other types of equipment according to temperature setpoint.

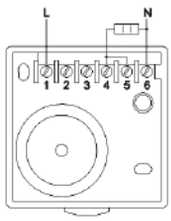
TECHNICAL DATA:

- Temperature setpoint: +10...+30 °C.
- Measurement accuracy: ±1°C.
- Power supply: 230V.
- Frequency: 50/60 Hz.
- Protection class: IP20.
- Dimensions: 80x80x44 mm.

Type	Supply voltage [VAC]	Temperature setpoint [°C]	Control load	Max. ambient temperature [°C]	Price Eur
TEM 16	230	+10...+30	16(2.5) A, 230V	50	**28,00**

(Prices without VAT).







Electromechanical room thermostat for fan coil TMM6-3V

DESCRIPTION

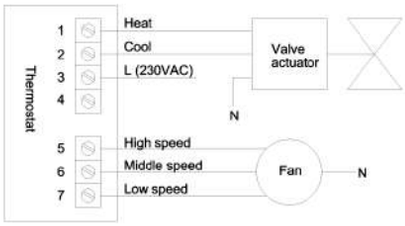
Electromechanical thermostats are intended to be used for control of heating, cooling, and air conditioning systems. Thermostats can control heating, cooling valve actuators and 3-speed fans according to temperature set point.

TECHNICAL DATA:

- Temperature setpoint: +10...+30 °C.
- Measurement accuracy: ±1°C.
- Power supply: 230V.
- Frequency: 50/60 Hz.
- Protection class: IP20.
- Dimensions: 128x85x39 mm.

Type	Supply voltage [VAC]	Temperature setpoint [°C]	Control load	Max. ambient temperature [°C]	Price Eur
TMM6-3V	230	+10...+30	6(4) A, 230V	50	39,90

(Prices without VAT).





TEM 16TD touch screen weekly heating thermostat

DESCRIPTION

This new design thermostat satisfies all market requirements. It has a large LCD display, easy operation, and complete functions. It can control the motorized ball valve, motorized valve, thermal valve, solenoid valve, heater, electric heating, and carbon crystal. It is used for floor heating. Flush mounting.

TECHNICAL DATA:

- Power supply: AC200~240V, 50/60.
- Load current: (3) 16A electric heating.
- Accuracy: ±0.5°C.
- Limit temperature range: 5+99°C.
- Consumption: <0.3W.
- Temperature sensor: NTC.
- Size: 86x86x17 mm.



Type	Supply voltage [VAC]	Temperature setpoint [°C]	Control load	Max ambient temperature	Price Eur
TEM 16TD	230	+5...+60	3 A, 240V	50	60,00

(Prices without VAT).

TEM 3TD series touch screen thermostat with the possibility to connect to BMS system

DESCRIPTION

TEM 3TD series of touchscreen thermostats is designed for fan coil units or central windpipe systems. Air conditioning helps to adjust the indoor temperature by comparing the room temperature with the set temperature. Surface mounting.

TECHNICAL DATA:

- Power supply: AC100~240V, 50/60.
- Rated current: 3A.
- Ambient: 0-50°C.
- Size: 130x90x27 mm.
- Installation: surface-mounting.
- Sensor: NTC.
- Accuracy: ±0.5°C.
- Protection class: IP30.
- Storage temperature: 10°C~60°C.
- With RS485.



Type	Supply voltage [VAC]	Temperature setpoint [°C]	Control load	Max. ambient temperature [°C]	Price Eur
TEM 3TD	230	+5...+35	3 A, 240V	50	80,00

(Prices without VAT).

Frost protection thermostat FT 6.0

DESCRIPTION

Frost protection thermostat is developed to protect ventilation components (water heaters) from freezing under cold weather and insufficient heating. Frost protection thermostat works under pressure of steam, reacts fast and has maximum sensitivity.

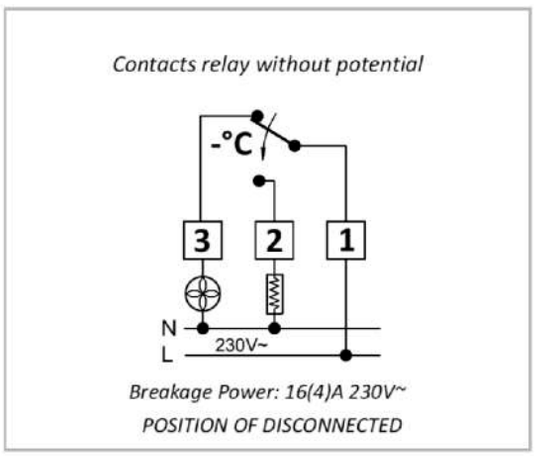
TECHNICAL DATA:

- Regulation scale: -15°C to +15°C.
- Differential: 2°C fix.
- Capillary reaction length 300..600 mm (depending on capillary length).
- Maximum temperature for the body: 55°C.
- Minimum capillary bending radius: 5 mm.
- Connections fast-on: 6,3 x 0,8 DIN or screw.
- Capillary tinned cooper: 1.8 m./4 m./6 m.
- Switched contacts: 16(4)A 250 V~.
- Approvals: EN-60730-1.
- Mounting accessories 4 sets.
- With RS485.

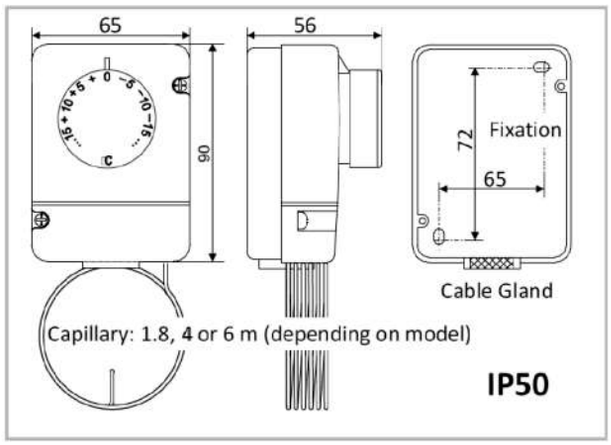
Type	Work range [°C]	Reset type	Max. ambient temperature [°C]	Mounting type	Price Eur
FT 6.0	-15....+15	manual	55	Capillary	69,90

(Prices without VAT).

ELECTRICAL CONNECTION



DIMENSIONS





Capillary and surface thermostats

Type	Work range	Reset type	Max. Ambient temperature [°C]	Mounting type	Price Eur
TC 70/1000/90/6A	70°C calibrated	automatic	150	Capillary	8,00
TC100/1000/90/6R	75°C calibrated	manual	150	Capillary	9,15
T-24-60°C bimetallic	60°C calibrated	automatic	100	Surface	1,70
T-24-70°C bimetallic	70°C calibrated	automatic	100	Surface	1,70
T-24R-100°C	100°C calibrated	manual	150	Surface	1,80

(Prices without VAT).

TECHNICAL DATA- TC75/1000/90/6A:

- Max. ambient temperature T150.
- Rated current and voltage 16(3)A/250V NC - 0,5A/250V NO.
- Minimal current 200 mA.
- Thermostats with selected temperatures can be ordered according to the customer's requirements.

TECHNICAL DATA- TC75/1000/90/6R:

- Max. ambient temperature T150.
- Rated current and voltage 16(3)A/250V NC - 0,5A/250V NO.
- Minimal current 200 mA.
- Thermostats with selected temperatures can be ordered according to the customer's requirements.
- With reset cap.

TECHNICAL DATA- T-24-60°C, T24-70°C:

- The number of automatic cycles, at rated current 10 A and power coeff. 0,95, not less than 100000.

TECHNICAL DATA- T-24R-100°:

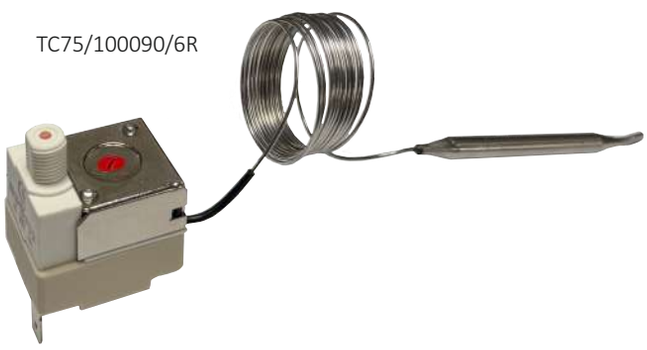
- The number of automatic cycles, at rated current 10 A and power coefficient 0,95, not less than –100000.
- Rated current power coeff. 0,95, not more 16A.Minimal current 200mA.



TC75/1000/90/6A



TC75/100090/6R





AUTOTRANSFORMERS

Description	Code	I in [A]	Weight [kg]	Safety class	Price Eur
Autotransformer 5 outputs, 115V..230V (1,2A..3A), 80V..230V (4A..11A), 50/60Hz	124960	1,2	1,1	IP00	**35,22**
	124959	1,5	1,3	IP00	**38,47**
	124964	2,2	1,9	IP00	**47,87**
	124957	3,0	2,5	IP00	**62,52**
	124218	4,0	3,0	IP00	**76,08**
	124185	5,0	3,4	IP00	**81,46**
	124187	7,0	5,5	IP00	**127,19**
	124223	11,0	7,4	IP00	**149,50**

Description	Code	I in [A]	Weight [kg]	Safety class	Price Eur
Autotransformer 5 outputs, 130V..400V, 50/60Hz	124206	1,0	2,2	IP00	**56,42**
	124183	2,0	2,8	IP00	**81,08**
	124162	3,0	4,0	IP00	**92,74**
	124175	4,0	6,3	IP00	**132,97**
	124161	5,0	7,3	IP00	**145,94**
	124174	7,0	9,1	IP00	**195,55**
	124200	11,0	14,3	IP00	**262,68**
	124184	14,0	15,6	IP00	**276,94**

(Prices without VAT).

TRANSFORMERS

Description	Code	Primary (V)	Secondary (V)	Power (VA)	Price Eur
230v//18v 30VA encapsulated with tabs	124936	230	1x18	18,0	**32,04**
230v//18v 15VA/24v 15VA, 30VA encapsul. with tabs	124937	230	1x18//1x18	30,0	**33,88**
230v//18v 25VA/24v 25VA, encapsulated with tabs	124935	230	1x18//1x24	50,0	**41,39**

(Prices without VAT).

PCB TRANSFORMERS

Description	Code	Primary [V]	Secondary [V]	Power [VA]	Price Eur
Transformer 1x12V/6,0W	124915	230	1x12	6,0	**10,43**
Transformer 1x12V/20W	124924	230	1x12	20,0	**18,70**

(Prices without VAT).

NOTE: possible to supply various versions according to client's requirements.

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ISO 9001 ISO45001 ISO14001

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