







Pressure drop $\rho = 1.20 \text{ kg/m}^3$ Pa¹⁶⁰ 120 80 40 EHR-K 24/50/25 EHB-K 3 0 3000 1000 2000

Accessories Electronic temperature controller EHS.. see model chart Controls the heat output of the

4000

heating element by monitoring difference between the supply air temperature and the required temperature.

Duct sensor

(Accessory for EHS..) Ref. No. 5005 TFK Temperature sensor for detecting the air temperature in ducting.

Room sensor

(Accessory for EHS..) TFR Ref. No. 5006

Temperature sensor with integrated "desired value encoder" for surface mounting. Can also be used as temperature sensor or as desired value encoder only.



Electric heater battery EHR-K Heating elements enclosed in a galvanised casing with MEZ flanges on both sides for in-duct installation.

Heating elements with low surface temperature are individually wired to the outer terminal box and coils can be wired in several groups.

Equipped with a thermal switch which opens at 90 °C and resets itself after cooling down. The other thermal switch opens at 120 °C and must be reset manually.

Note

DIN VDE 0100-420 must be observed on site; a proper air flow monitoring and electrical interlocking shall be provided.

Installation

The heater must be installed downstream of the fan. If installing it before the fan, make sure that the air flow temperature at the fan does not exceed the fan's maximum temperature. A rectangular duct with a length of at least 1 metre must be installed between fan and heater. The heater should not be used below the minimum air flow volume of the heater battery. The electrical connection must be interlocked so that the heater cannot operate if the fan is not running. If the thermal switch releases, the heater battery must cut off automatically. The coils can be wired in groups so that the heat output can be reduced arbitrarily.

Selection and operation

The heater batteries generate an additional resistance that must be considered when designing the system. The temperature increase depends on air flow volume and heat output (see diagrams above). In order to prevent an unwanted thermal cut out, the air flow volume must be higher than the minimum figure shown in the chart.

Accessories	Page
Electronic temperature	
controller EHS	311

Туре	Ref.	No.	Power	Drives	Current	Minimum air flow volume	Fits fan nominal size	Wiring diagram ¹⁾	Dimensions in mm A B C D L		Nominal weight	Suitable temperature controller				
			kW	x kW	А	m³/h	NG cm	Nr.						kg	Туре	Ref. No.
3-phase motor, 400																
EHR-K	6/40/20	8702	6	2 x 3	8.7	430	40/20	361.4	423	223	550	250	200	7.3	EHSD 16	5003
EHR-K	15/40/20	8703	15	5 x 3	21.7	430	40/20	366.4	423	223	550	250	320	13.3	EHSD 16	5003
EHR-K 8	/50/25-30	8704	8	2 x 4	11.3	680	50/25-30	362.4	523	273/323	650	350	200	9.2	EHSD 16	5003
EHR-K 24	/50/25-30	8705	24	6 x 4	33.9	680	50/25-30	364.4	523	273/323	650	350	250	17.2	EHSD 30	5004
EHR-K 15	5/60/30-35	8706	15	3 x 5	20.9	980	60/30-35	365.4	623	323/373	750	400	200	12.9	EHSD 16	5003
EHR-K 30	/60/30-35	8707	30	6 x 5	41.7	980	60/30-35	363.4	623	323/373	750	400	200	19.3	EHSD 30	5004

¹⁾ Principal wiring for all models use wiring diagram No. SS-476.2

Accessories Duct / Rect. fans



Electric heater battery EHR-R

Heating elements with low surface temperature made of stainless high-grade steel and are totally enclosed in a galvanised casing with terminal box for commercial in-duct installations.

Equipped with a thermal switch which opens at 50 °C and resets itself after cooling down. The other thermal switch opens at 120 °C and must be reset manually.

Accessories

Electronic temperature controller EHS.. see model chart Controls the heat output of the heating element by monitoring the difference between the supply air temperature and the required temperature.

Duct sensor (for EHS..)

TFK Ref. No. 5005 Temperature sensor for detecting the air temperature in ducting.

Room sensor (for EHS..)

Ref. No. 5006 TFR Temperature sensor with integrated "desired value encoder" for surface mounting. Can also be used as temperature sensor or as "desired value encoder" only.





Dimensions in mm see chart
*EHR 0.4/100 and EHR/125 ¹⁾ UK only





Information on installation,

EHR-K on page 309.

Accessories

controller EHS..

Pressure drop

Δp₁₀₀ Pa

80

Electronic temperature

selection and operation see

DIN VDE 0100-420 must be observed on site; a proper air

flow monitoring and electrical

interlocking shall be provided.

Page

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 ρ = 1.20 kg/m³

Notes

Wiring Drives Current Minimum Fits fan Suitable Power Dimensions Nominal diagram Туре Ref. No airflow nominal weight temperature øD Н volume size controller kW x kW A m³/h NG mm No. mm mm mm kg Туре Ref. No. 1-phase, 230 V EHR-R 0.4/100 8708 0.4 1 x 0.4 1.7 45 100 813 100 185 325 2.0 EHS 5002 EHR-R 0.8/125 8709 0.8 1 x 0.8 3.5 70 125 813 125 225 325 2.3 EHS 5002 EHR-R 1.2/125 9433 1.2 1 x 1.2 5.2 70 125 813 125 225 325 2.4 EHS 5002 EHR-R 1.2/160 9434 1.2 1 x 1.2 5.2 110 160 813 160 260 380 2.6 EHS 5002 EHR-R 2.4/160 9435 2.4 1 x 2.4 10.4 110 160 814 160 260 380 3.0 EHS 5002 EHR-R 1.2/200 9436 1.2 1 x 1.2 5.2 180 200 813 200 300 380 2.8 EHS 5002 EHR-R 2/200 9437 2.0 1 x 2.0 8.7 180 200 813 200 300 380 3.2 EHS 5002 2-phase, 400 V EHR-R 5/160 8710 5.0 1 x 5.0 parallel 12.5 110 160 815 160 260 380 4.0 EHS 5002 EHR-R 8711 5.0 1 x 5.0 parallel 12.5 180 200 815 200 300 380 4.6 EHS 5002 5/200 EHR-R 6.0 1 x 6.0 parallel 270 250 815 250 350 380 EHS 5002 6/250 8712 15.0 7.3 EHR-R 8713 1 x 6.0 parallel 15.0 420 315 815 315 415 380 9.2 EHS 5002 6/315 6.0 3-phase, 400 V EHR-R 9/355 8656 9.0 1 x 9.0 in Δ 13.0 550 355 816 355 455 380 12.5 EHSD 16 5003 8657 9.0 1 x 9.0 in Δ 13.0 680 816 400 500 380 13.1 EHSD 16 EHR-R 9/400 400 5003 1) Principal wiring for all models use wiring diagram No. SS-476.2

AVAILABLE IN The UK ONLY!		Power	Drives	Current	Minimum airflow volume	Fits fan nominal size	Wiring diagram ¹	Dimensions			Nominal weight	Suitable temperature	
								øD	Н	L		COL	ntroller
		kW	x kW	А	m³/h	NG mm	No.	mm	mm	mm	kg	Туре	Ref. No.
e, 230 V /	1 ph. / 50) Hz											
1/100	7620	1.0	1 x 1.0	4.2	71	100	802	98	170	450	2.2	EHS	5002
1.5/125	7621	1.5	1 x 1.5	6.3	110	125	802	123	190	450	2.2	EHS	5002
2.5/150	7622	2.5	1 x 2.5	10.5	159	150	802	148	220	450	3.2	EHS	5002
5/200	7623	5.0	2 x 2.5	21.0	283	200	802	198	270	450	4.2	EHS	5002
6/250	7624	6.0	2 x 3.0	25.4	440	250	802	248	320	450	5.3	EHS	5002
8/315	7625	8.0	4 x 2.0	33.6	700	315	802	313	313	450	6.7	EHS	5002
	AILABL E UK ON 2, 230 V / 1/100 1.5/125 2.5/150 5/200 6/250 8/315	AILABLE IN E UK ONLY ! e, 230 V / 1 ph. / 50 1/100 7620 1.5/125 7621 2.5/150 7622 5/200 7623 6/250 7624 8/315 7625	AILABLE IN Power EUK ONLY! kW e, 230 V / 1 ph. / 500 Hz 1.0 1/100 7620 1.0 1.5/125 7621 1.5 2.5/150 7622 2.5 5/200 7623 5.0 6/250 7624 6.0 8/315 7625 8.0	AILABLE IN E UK ONLY! Power Drives kW x kW kW x kW e, 230 V / 1 ph. / 50 Hz 1 x 1.0 1/100 7620 1.0 1 x 1.0 1.5/125 7621 1.5 1 x 1.5 2.5/150 7622 2.5 1 x 2.5 5/200 7623 5.0 2 x 2.5 6/250 7624 6.0 2 x 3.0 8/315 7625 8.0 4 x 2.0	AILABLE IN E UK ONLY! Power Drives Current kW x kW A e, 230 V / 1 ph. / 50 Hz kW x kW A 1/100 7620 1.0 1 x 1.0 4.2 1.5/125 7621 1.5 1 x 1.5 6.3 2.5/150 7622 2.5 1 x 2.5 10.5 5/200 7623 5.0 2 x 2.5 21.0 6/250 7624 6.0 2 x 3.0 25.4 8/315 7625 8.0 4 x 2.0 33.6	AILABLE IN E UK ONLY! Power Drives Current Ninimum kW Minimum x kW Minimum airflow volume kW x kW A m³/h e, 230 V / 1 ph. / 50 Hz 1 x kW A m³/h 1/100 7620 1.0 1 x 1.0 4.2 71 1.5/125 7621 1.5 1 x 1.5 6.3 110 2.5/150 7622 2.5 1 x 2.5 10.5 159 5/200 7623 5.0 2 x 2.5 21.0 283 6/250 7624 6.0 2 x 3.0 25.4 440 8/315 7625 8.0 4 x 2.0 33.6 700	AILABLE IN UK ONLY! Power Drives Current Gurrent Minimum airflow ourme Fils fan nominal size kW x kW A m³/h NG mm e, 230 V / 1 ph. / 50 Hz X kW A m³/h NG mm 1/100 7620 1.0 1 x 1.0 4.2 71 100 1.5/125 7621 1.5 1 x 1.5 6.3 110 125 2.5/150 7622 2.5 1 x 2.5 10.5 159 150 5/200 7623 5.0 2 x 2.5 21.0 283 200 6/250 7624 6.0 2 x 3.0 25.4 440 250 8/315 7625 8.0 4 x 2.0 33.6 700 315	AILABLE IN UK ONLYI Power Drives Current sirflow kW Minimum sirflow x kW Fits fan mominal x W Wiring diagram ^a kW x kW A m ³ /h NG mm No. e, 230 V / 1 ph. / 50 Hz x kW A m ³ /h NG mm No. 1/100 7620 1.0 1 x 1.0 4.2 71 100 802 1.5/125 7621 1.5 1 x 1.5 6.3 110 125 802 2.5/150 7622 2.5 1 x 2.5 10.5 159 150 802 5/200 7623 5.0 2 x 2.5 21.0 283 200 802 6/250 7624 6.0 2 x 3.0 25.4 440 250 802 8/315 7625 8.0 4 x 2.0 33.6 700 315 802	AILABLE IN E UK ONLY! Power Drives Current prives Minimum airflow volume Fits fan size Wiring diagram Diagram kW x kW A m³/h NG mm No. mm e, 230 V / 1 ph. / 50 Hz kW x kW A m³/h NG mm No. mm 1/100 7620 1.0 1 x 1.0 4.2 71 100 802 98 1.5/125 7621 1.5 1 x 1.5 6.3 110 125 802 123 2.5/150 7622 2.5 1 x 2.5 10.5 159 150 802 148 5/200 7623 5.0 2 x 2.5 21.0 283 200 802 198 6/250 7624 6.0 2 x 3.0 25.4 440 250 802 248 8/315 7625 8.0 4 x 2.0 33.6 700 315 802 313	AILABLE IN UK ONLY! Power Drives Current of algram Minimum airflow volume Fits fan nominal volume Wiring diagram Dimensio Ø D KW x kW A m³/h NG mm No. mm mm e, 230 V / 1 ph. / 50 Hz KW x kW A m³/h NG mm No. mm mm 1/100 7620 1.0 1 x 1.0 4.2 71 100 802 98 170 1.5/125 7621 1.5 1 x 1.5 6.3 110 125 802 123 190 2.5/150 7622 2.5 1 x 2.5 10.5 159 150 802 148 220 5/200 763 5.0 2 x 2.5 21.0 283 200 802 198 270 6/250 7624 6.0 2 x 3.0 25.4 440 250 802 248 320 8/315 7625 8.0 4 x 2.0 33.6 700 315	AILABLE IN UK ONLY1 Power Drives Current Prives Minimum airflow ourme Fits fan nominal airflow ourme Wiring diagram ⁹ Dimensions kW x kW A m ³ /h NG mm No. mm mm mm kW x kW A m ³ /h NG mm No. mm mm mm e, 230 V / 1 ph. / 50 t t 1.x 1.0 4.2 71 100 802 98 170 450 1.5/125 7621 1.5 1 x 1.5 6.3 110 125 802 123 190 450 2.5/150 7622 2.5 1 x 2.5 10.5 159 150 802 148 220 450 5/200 7623 5.0 2 x 2.5 21.0 283 200 802 198 270 450 6/250 7624 6.0 2 x 3.0 25.4 440 250 802 248 320 450 8/315 <t< th=""><th>AILABLE IN UK ONLY! Power Drives Current Drives Minimum erriflow volume Fits fan nominal volume Wiring diagram Dimmision Dimmision Dimmision Mominal weight kW x kW A m³/n NG mm No. mm mm kg e, 230 V / 1 ph. / 50 H L 1 x 1.0 4.2 71 100 802 98 170 450 2.2 1,5/125 7621 1.5 1 x 1.5 6.3 110 125 802 123 190 450 2.2 2,5/150 7622 2.5 1 x 2.5 10.5 159 150 802 148 220 450 3.2 5/200 7623 5.0 2 x 2.5 21.0 283 200 802 198 270 450 4.2 6/250 7624 6.0 2 x 3.0 25.4 440 250 802 183 313 450 6.7 </th><th>AILABLE IN UK ONLY! Power Drives Current prives Minimum airflow volume Fits fan nominal volume Wiring mominal size Dimestors Dimestors Nominal weight SL temp torr kW x kW A m³/h NG mm No. mm mm km the temp torr 1/100 7620 1.0 1 x 1.0 4.2 71 100 802 98 170 450 2.2 EHS 1.5/125 7621 1.5 1 x 1.5 6.3 110 125 802 123 190 450 2.2 EHS 2.5/150 7622 2.5 1 x 2.5 10.5 159 150 802 148 220 450 3.2 EHS 5/200 7623 5.0 2 x 2.5 21.0 283 200 802 148 220 450 4.2 EHS 6/250 7624 6.0 2 x 3.0 25.4 440 250 802 218 3</th></t<>	AILABLE IN UK ONLY! Power Drives Current Drives Minimum erriflow volume Fits fan nominal volume Wiring diagram Dimmision Dimmision Dimmision Mominal weight kW x kW A m³/n NG mm No. mm mm kg e, 230 V / 1 ph. / 50 H L 1 x 1.0 4.2 71 100 802 98 170 450 2.2 1,5/125 7621 1.5 1 x 1.5 6.3 110 125 802 123 190 450 2.2 2,5/150 7622 2.5 1 x 2.5 10.5 159 150 802 148 220 450 3.2 5/200 7623 5.0 2 x 2.5 21.0 283 200 802 198 270 450 4.2 6/250 7624 6.0 2 x 3.0 25.4 440 250 802 183 313 450 6.7	AILABLE IN UK ONLY! Power Drives Current prives Minimum airflow volume Fits fan nominal volume Wiring mominal size Dimestors Dimestors Nominal weight SL temp torr kW x kW A m ³ /h NG mm No. mm mm km the temp torr 1/100 7620 1.0 1 x 1.0 4.2 71 100 802 98 170 450 2.2 EHS 1.5/125 7621 1.5 1 x 1.5 6.3 110 125 802 123 190 450 2.2 EHS 2.5/150 7622 2.5 1 x 2.5 10.5 159 150 802 148 220 450 3.2 EHS 5/200 7623 5.0 2 x 2.5 21.0 283 200 802 148 220 450 4.2 EHS 6/250 7624 6.0 2 x 3.0 25.4 440 250 802 218 3

.5/125 5/200 6/250 8/315 9/355 9/400 2 3 60 20 1000 1500 2000 2500 3000 Vm³/h 500 Temperature increase K 1.20 kg/m K



1) Principal wiring for all models use wiring diagram No. SS-476.2



Electronic temperature controller EHS for electric heater batteries

□ Electronic controller for electric heater batteries installed in circular or rectangular ventilation systems. Controls the heat output of heating element by monitoring the supply air temperature against the required temperature.

Continuous control is achieved by a proportional timer which allocates power in time intervals. The relation between on and off time periods is adjusted to the required heat. Switching sequence in compliance with electricity boards can be obtained even with high switching power.

Power regulation without contacts through electronic power switch.

Control via desired value encoder (internal or external, room sensor TFR) or via remote signal 0 – 10 V DC (only in EHSD models).

Application

☐ The controllers are designed to maintain a constant supply air temperature and a constant room temperature. With rapid change in supply air temperature the unit first gives a considered response whilst checking whether the change is going to be sustained and then goes to full proportional response. All models feature a night set-back facility which can be activated using a time clock (to be supplied on site externally).

For safety reasons an additional air flow sensor is required to monitor the air flow.

Air flow sensor,	 electronic
SWE	Ref. No. 0065
– mechanic, from N	IW 315
SWT	Ref. No. 0080
see product page.	



EHS

Electronic temperature controller for electric heater batteries up to 3.5 kW (230 V)/6.4 kW (400 V) EHS Ref. No. 5002

Temperature sensitive semi conductor controller. Attractive white polymer casing suitable for wall mounting. Constant supply air or room air control via built-in temperature sensor for temperature detection on installation site. Switchable on remote duct sensor or room sensor (TFK or TFR, accessory). Automatic detection of supply voltage 230 V 1 ph. or 400 V 2 ph. g.

Voltage 230 V, 1 ph. / 40	00 V, 2 ph.
(automatic detection)	
Loading capacity (curren	t) 16 A
Protection to	IP 30
Dim. in mm H 153 x W	93 x D 40
Weight	ca. 0.3 kg
Wiring diagram No.	SS-531



Electronic temperature controller for electric heater batteries up to 17 kW

Ref. No. 5003 EHSD 16 Temperature sensitive semi conductor controller. Robust aluminium casing suitable for wall and switchboard mounting. Constant supply air or room air control via external duct sensor or room sensor (TFK/TFKB or TFR, accessory). Remote control via external desired value encoder TFR or external control voltage 0 - 10 V DC. 400 V, 3 ph. Voltage Loading capacity (current) 25 A IP 40 Protection to Dim in mm H 207xW 160xD 95 Weight ca. 1.7 kg SS-550.2 Wiring diagram No.

Other accessories for EHSD In-duct temperature sensor for

Imiting functions.TFKBRef. No. 5009

Electronic temperature controller EHS for electric heater batteries

Note

The on site required system control which is consequential to wiring diagrams shall be provided.

Electronic temperature controller for electric heater batteries up to 34 kW

EHSD 30 Ref. No. 5004 As EHSD 16 but with a maximum output of 34 kW. The total output is split into a controlled output (max. 17 kW) and an uncontrolled basic output (17 kW). If the required power exceeds approx. 17 kW the basic output of 17 kW will be activated permanently via an internal contactor. The remaining output will be temperature controlled.

Voltage	4	00 V,	3 ph.
Loading capa	city (currer	nt)	25 A
Protection to			IP 40
Dim in mm	H 207x W	160×	vD 95
Weight		ca. 1	1.7 kg
Relay	voltage 2	30 V,	1 ph.
Current		ma	x. 5 A
Contactor	voltage 4	00 V,	3 ph.
Current		max.	25 A
Wiring diagrar	m No.	SS-	550.2





Duct sensor (Accessory for EHS..)

TFKRef. No. 5005Temperature sensor to detect the
airflow temperature in ducting.
Includes mounting plate to fit on
duct wall.Temperature range0 - 30 °CProtection toIP 20Protrusion into duct.130 / 50 mmDia. of sensor elementø 10 mmWeightca. 0.1 kg

Room sensor (Accessory for EHS..)

TFR	Ref. No. 5006								
Temperature s	ensor with desired								
value encoder for surface moun-									
ting. Also suita	able as desired value								
encoder or se	nsor only. Attractive								
casing made of polymer.									
Temperature r	ange 0 – 30 °C								
Protection to	IP 20								
Dim in mm	H 85 x W 85 x D 30								
Weight	ca. 0.1 kg								

CV



The CV Electric Heater battery with integrated temperature control. An easy to install solution for all areas where a constant room or air supply temperature is required.

The CV Electric Heater battery is equipped with an integrated temperature controller and can be mounted in the ducting in any position. The installation is simple, easy and space saving.

Heater battery

Low surface temperature highgrade steel heating elements enclosed in a galvanised steel casing with integrated temperature control, fitting nominal duct sizes for in-line installation. Equipped with an automatic temperature cut-out (operating temperture 60 °C) and a manual resetting temperture cut out (operating temperture 120 °C). resets itself after cooling down.

Temperature control

- Constant supply air control by connecting a duct sensor (TFK, accessory). Desired temperture to be set using the heater setting knob, located outside the unit. Room temperture control by conneting a room sensor (TFR, accessory); desired temperature to be controlled either via the room sensor TFR or via the setting knob on the unit. Supply voltage 230 V or 400 V.
- □ Stepless control is achieved by pulse/pause technology, which allocates power in time intervals. The relation between on and off time periode is adjusted to the required heat (switching sequence in comliance with IEE regulation even with high switching power).

1.000

1.500

2.000

Application □ The CV heaters are suitable for constant supply air temperature or for constant room temperture. With rapid change in temperature the unit first gives a considered response whilst checking whether the change is going to be sustained and then goes to full proportional response.

Temperature increase K

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For safety reasons air flow monitoring is required. The DDS pressure switch, when fitted accros the fan, will not allow the unit to heat when there is no pressure and thus no airflow in the system.



2.500

The heater is to be installed after the fan and at least one duct diameter away from the fan.

 $\rho = 1.20 \text{ kg/m}^3$

12.

4000

Vm³/h

3.500

Selection and operation

The heater will add an additional resistance to the system that must be considered when designing the system. The temperture increase depends on power output and air flow volume (see diagram above).

The prevent the thermal cut-out from tipping the air flow volume must be higher than the minimum figure shown in the table.





Accessories

Duct sensor TFK Ref. No. 5005 Temperature sensor for detecting the air temperature in ducting.

Room sensor

TFR Ref. No. 5006 Temperture sensor with setting dial, to achieve room requirements.

Pressure sensor

Ref. No. 0445 DDS Sensor to monitor pressure to ensure air flow.

Type	Ref No	Power	Current	Minimum air flow	Fits fan				Nominal			
Type	HEI. NO.		Guiteili	volume	size	øD	Н	L	А	В	weigin	
		kW	А	m³/s	NG	mm	mm	mm	mm	mm	kg	
1-phase, 230	V											
CV 10-04-1	S582	0.8	1.6	0.012	100	100	171	375	100	120	2.4	
CV 12-12-1	S588	1.2	5.0	0.018	125	125	196	375	125	145	2.7	
CV 16-24-1	5294	2.4	10.4	0.030	160	160	260	380	150	170	3.4	
CV 20-21-1	S579	2.1	8.75	0.037	200	200	271	375	160	180	4.4	
CV 25-30-1	S577	3.0	3.0	0.074	250	250	321	375	200	220	4.8	
CV 31-54-1	S585	5.4	22.5	0.117	315	315	386	375	250	270	6.4	
CV 40-54-1	S590	5.4	22.5	0.188	400	400	471	375	315	335	6.9	
3-phase, 400	V											
CV 25-60-3	5296	6.0	15.0	0.075	250	250	350	380	150	170	4.8	
CV 31-60-3	S589	6.0	8.67	0.117	315	315	386	375	315	335	6.9	
CV 31-90-3	S584	9.0	13.0	0.117	315	315	386	375	315	335	6.9	
CV 35-90-3	5297	9.0	13.0	0.152	355	355	455	380	150	182	8.5	
CV 40-90-3	5299	9.0	13.0	0.189	400	400	500	380	150	182	8.9	
CV 40-120-3	S591	12.0	12.0	0.188	400	400	471	375	400	420	8.9	