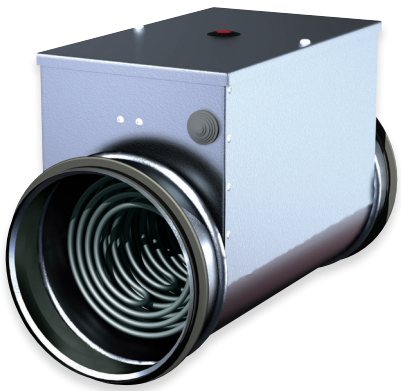
EKA/EKA NV/EKA NI/EKA NIS



Electric duct heater

Batterie terminale électrique pour gaine

Elektro-Heizregister für Lüftungssysteme

Kanalvarmer

Electric heaters are designed to heat clean air in ventilation systems.
Casing is made from aluzinc coated steel which is high temperature proof. Heating elements tube is made from stainless steel AISI 304.
In heaters are installed 2 protection thermostats, screw terminals for easy connection. Casing is with rubber seals for duct connection.
Heaters can be installed vertically or horizontally.
Maximum output air temperature 50°C.

Sie finden bei den Lüftungssystemen Verwendung. Das runde Gehäuse der Kanal-Erwärmungseinrichtung ist aus mit Aluzink beschichtetem Stahlblech hergestellt, und das Spiralheizelement - aus rostfreiem Stahl AISI 304. Die Erwärmungseinrichtungen mit einer Leistung von 0,3 kW bis 2,4 kW können in jeder beliebigen Stellung montiert werden. Die 3-12 kW-Erwärmungseinrichtungen dürfen nicht so montiert werden, dass der Stromanschlusskasten nach unten gerichtet ist. Die Luftstromgeschwindigkeit durch die Erwärmungseinrichtung darf nicht geringer als 1,5 m/s sein. Die Maximaltemperatur der erwärmten Luft 50°C.

Les batteries terminales électriques pour gaine sont destinées au réchauffement de l'air propre dans les systèmes de ventilation.
L'enveloppe est réalisée à partir de fer-blanc et recouverte de AlZn avec une surface résistante aux températures élevées. Le tube des éléments de chauffage est fabriqué en acier inoxydable AISI 304.
Deux thermoprotections et des bornes de jonction électrique sont montées dans les batteries électriques. L'enveloppe est avec une étanchéité en caoutchouc en montage direct sur le conduit d'air.
Les batteries électriques peuvent être montées horizontalement et verticalement.
Température maximale de l'air réchauffé : 50°C.

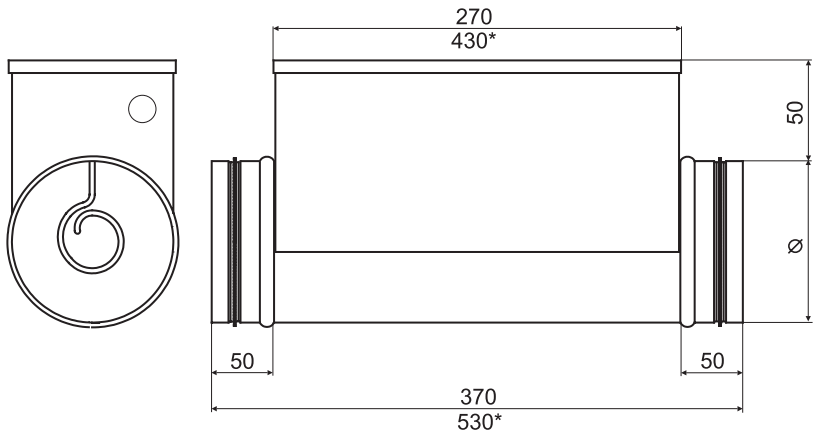
Elektrisk kanalvarmer beregnet for opvarmning af ren luft i runde kanaler. Huset er fremstillet af Alu-zinkbelagt stålplade med høj varmebestandighed. Varmeelementet er fremstillet i rustfrit stål AISI 304. I kanalvarmeren er der monteret 2 overhedningstermostater. Kanalvarmeren er forsynet med skrueterminaler for enkel tilslutning. Huset er forsynet med gummi tætninger for kanalmontage. Kanalvarmere kan monteres horisontalt eller vertikalt.
Maksimum afgangstemperatur er 50°C.

ACCESSORIES

Accessories

Controller for electrical heater	Controller for electrical heater	Duct sensor
		
EKR 6.1	**EKR 15.1**	**TJK 10K**

EKA/EKA NV/EKA NI/EKA NIS



All dimensions in *mm*
* Dimensions of 12 kW heaters

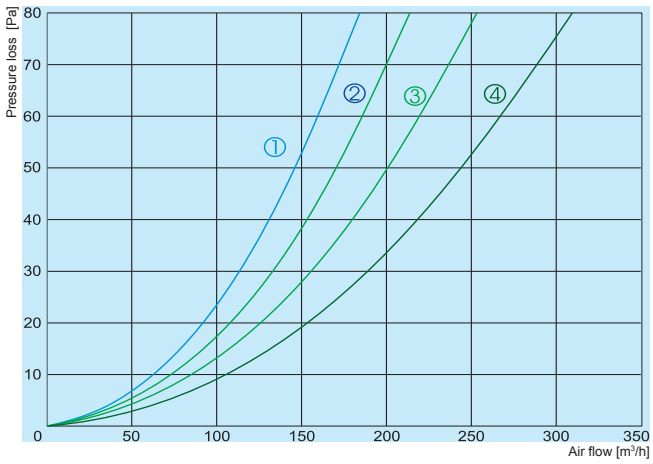
Technical data

Type	Diameter [mm]	Min. airflow [m³/h]	Voltage V/50Hz]	Power [kW]	Nominal current, I_n [A]
EKA/EKA NV/EKA NI/EKA NIS 100	100	40	1~ 230	0,3/0,6/0,9/1,2	1,4/2,8/4,1/5,5
EKA/EKA NV/EKA NI/EKA NIS 125	125	70	1~ 230	0,3/0,6/0,9/1,2/1,5/1,8	1,4/2,8/4,1/5,5/6,8/8,2
EKA/EKA NV/EKA NI/EKA NIS 160	160	110	1~ 230	1,2/2,0/2,4	5,5/9,1/10,9
			2~ 400	3,0/5,0/6,0	7,9/13,2/15,8
			3~ 400	6,0	8,7
EKA/EKA NV/EKA NI/EKA NIS 200	200	170	1~ 230	1,2/2,0/2,4	5,5/9,1/10,9
			2~ 400	3,0/5,0/6,0	7,9/13,2/15,8
			3~ 400	6,0	8,7
EKA/EKA NV/EKA NI/EKA NIS 250	250	270	1~ 230	1,2/2,0/2,4	5,5/9,1/10,9
			2~ 400	3,0/5,0/6,0	7,9/13,2/15,8
			3~ 400	6,0/9,0	8,7/13,0
EKA/EKA NV/EKA NI/EKA NIS 315	315	415	1~ 230	1,2/2,0/2,4	5,5/9,1/10,9
			2~ 400	3,0/5,0/6,0	7,9/13,2/15,8
			3~400	6,0/9,0/12,0	8,7/13,0/17,3
EKA/EKA NV/EKA NI/EKA NIS 400	400	690	2~ 400	3,0/5,0/6,0	7,9/13,2/15,8
			3~ 400	6,0/9,0/12,0	8,7/13,0/17,3
EKA/EKA NV/EKA NI/EKA NIS 500	500	1060	2~ 400	3,0/5,0/6,0	7,9/13,2/15,8
			3~ 400	6,0/9,0/12,0/15,0	8,7/13,0/17,3/21,6

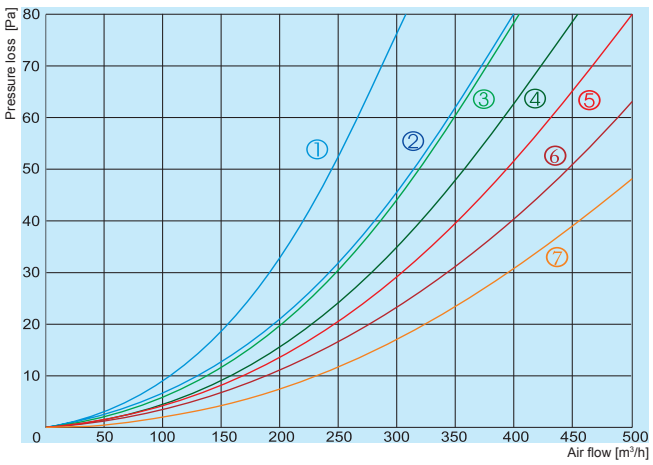
Electrical heaters conforms to requirements of standards IEC 60335-2-30 : 1996, LST EN 600335-2-30 : 1999, LST EN 61010-1+A2 : 2000, LST EN 50081-2 : 1995, LST EN 55011 : 1999+A1 : 2001and carries CE mark.

Type	Accessories		
	EKR 6.1 (1,2 - phase)	EKR 15.1 (3 - phase)	TJK 10K
EKA/EKA NV/EKA NI/EKA NIS 100	+	-	+
EKA/EKA NV/EKA NI/EKA NIS 125	+	-	+
EKA/EKA NV/EKA NI/EKA NIS 160	+	+	+
EKA/EKA NV/EKA NI/EKA NIS 200	+	+	+
EKA/EKA NV/EKA NI/EKA NIS 250	+	+	+
EKA/EKA NV/EKA NI/EKA NIS 315	+	+	+
EKA/EKA NV/EKA NI/EKA NIS 400	+	+	+
EKA/EKA NV/EKA NI/EKA NIS 500	+	+	+

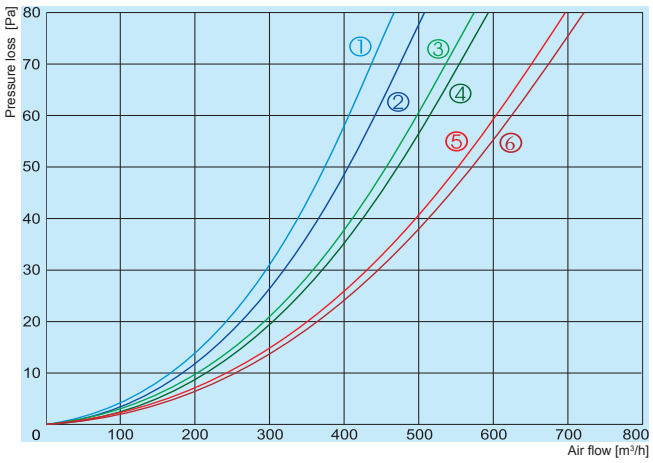
EKA/EKA NV/EKA NI/EKA NIS



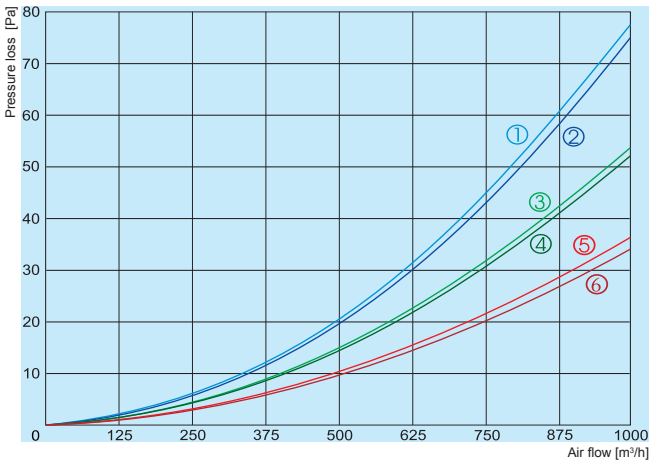
① EKA/EKA NV/ EKA NI/EKA NIS 100-1,2
② EKA/EKA NV/ EKA NI/EKA NIS 100-0,9
③ EKA/EKA NV/ EKA NI/EKA NIS 100-0,6
④ EKA/EKA NV/ EKA NI/EKA NIS 100-0,3



① EKA/EKA NV/ EKA NI/EKA NIS 125-2,4
② EKA/EKA NV/ EKA NI/EKA NIS 125-1,8
③ EKA/EKA NV/ EKA NI/EKA NIS 125-1,5
④ EKA/EKA NV/ EKA NI/EKA NIS 125-1,2
⑤ EKA/EKA NV/ EKA NI/EKA NIS 125-0,9
⑥ EKA/EKA NV/ EKA NI/EKA NIS 125-0,6
⑦ EKA/EKA NV/ EKA NI/EKA NIS 125-0,3



① EKA/EKA NV/ EKA NI/EKA NIS 160-6,0
② EKA/EKA NV/ EKA NI/EKA NIS 160-5,0
③ EKA/EKA NV/ EKA NI/EKA NIS 160-3,0
④ EKA/EKA NV/ EKA NI/EKA NIS 160-2,4
⑤ EKA/EKA NV/ EKA NI/EKA NIS 160-2,0
⑥ EKA/EKA NV/ EKA NI/EKA NIS 160-1,2



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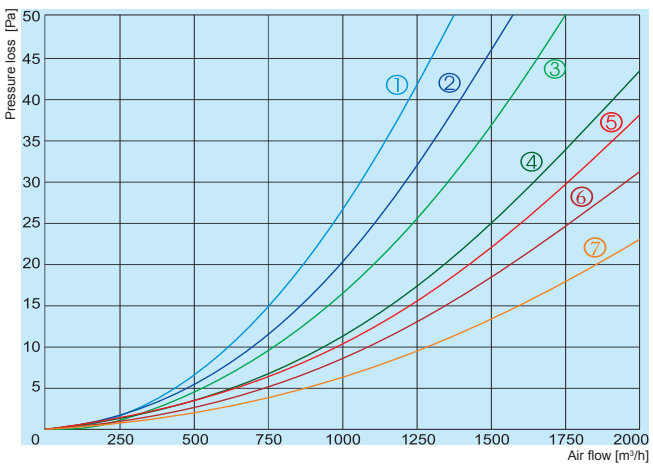
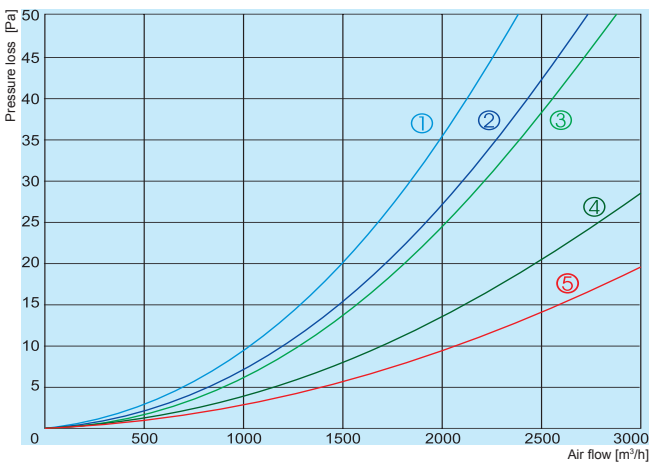
② EKA/EKA NV/ EKA NI/EKA NIS 200-5,0
③ EKA/EKA NV/ EKA NI/EKA NIS 200-3,0
④ EKA/EKA NV/ EKA NI/EKA NIS 200-2,4
⑤ EKA/EKA NV/ EKA NI/EKA NIS 200-2,0
⑥ EKA/EKA NV/ EKA NI/EKA NIS 200-1,2

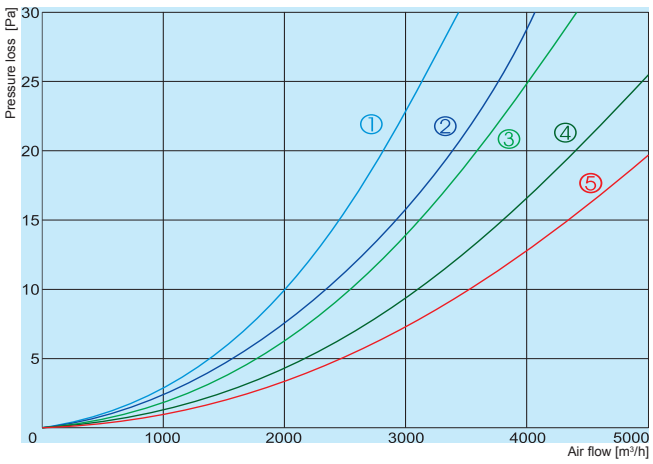


① EKA/EKA NV/ EKA NI/EKA NIS 250-9,0
② EKA/EKA NV/ EKA NI/EKA NIS 250-6,0
③ EKA/EKA NV/ EKA NI/EKA NIS 250-5,0
④ EKA/EKA NV/ EKA NI/EKA NIS 250-3,0
⑤ EKA/EKA NV/ EKA NI/EKA NIS 250-2,4
⑥ EKA/EKA NV/ EKA NI/EKA NIS 250-2,0
⑦ EKA/EKA NV/ EKA NI/EKA NIS 250-1,2



① EKA/EKA NV/ EKA NI/EKA NIS 315-12,0
② EKA/EKA NV/ EKA NI/EKA NIS 315-9,0
③ EKA/EKA NV/ EKA NI/EKA NIS 315-6,0
④ EKA/EKA NV/ EKA NI/EKA NIS 315-3,0
⑤ EKA/EKA NV/ EKA NI/EKA NIS 315-2,0

EKA/EKA NV/EKA NI/EKA NIS



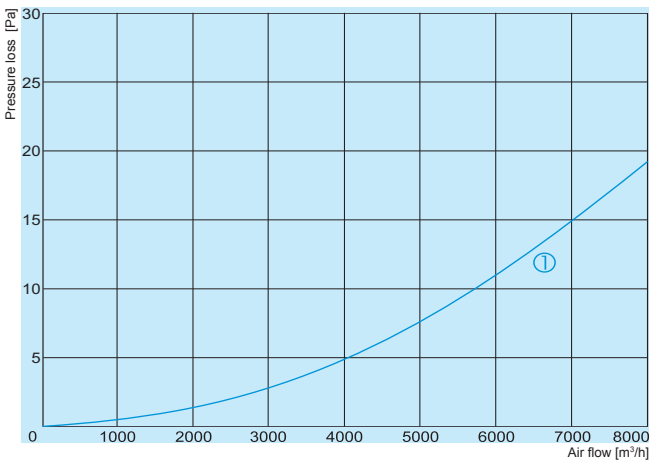
① EKA/EKA NV/ EKA NI/EKA NIS 400-12,0

② EKA/EKA NV/ EKA NI/EKA NIS 400-9,0

③ EKA/EKA NV/ EKA NI/EKA NIS 400-6,0

④ EKA/EKA NV/ EKA NI/EKA NIS 400-5,0

⑤ EKA/EKA NV/ EKA NI/EKA NIS 400-3,0



① EKA/EKA NV/ EKA NI/EKA NIS 500-6,0

Overheat protection

All EKA duct heaters have two-stage overheat protection: the first stage switches on when the temperature reaches 50°C (resets automatically), the second stage switches on when the temperature reaches 100°C (is reset manually with pushbutton on the casing).
EKA has no internal temperature controller. External heating controllers EKR are used in this case. Heaters with internal temperature controller (EKA...NV, EKA...NI and EKA...NIS) have this controller.

EKA ...NV

Heaters with integrated temperature controller, temperature setpoint internal

Heaters EKA ...NV with integrated temperature control contains temperature regulator which works by algorithm impulse/pause, that enables fine temperature control. Regulator controls load by triacs without moving parts, which causes no-noise commutation. Potentiometer is used to set temperature. Manual termocontact restoration button and temperature setpoint are located on the case of a heater.
The duct temperature sensor is needed.

EKA ...NI

Heaters with integrated temperature controller, temperature setpoint external

Heaters EKA ...NI with integrated temperature control, contains temperature regulator which works by algorithm impulse/pause, that enables fine temperature control. Regulator controls load by triacs without moving parts, which causes no-noise commutation. External temperature setpoint must be connected separately. The button of manual restoration located on the case of a heater.
The duct temperature sensor and potentiometer is needed.

EKA ...NIS

Heaters with integrated temperature controller, external control signal

Heaters EKA ...NIS with integrated temperature control, contains temperature regulator which works by algorithm impulse/pause, that enables fine temperature control. Regulator controls load by triacs without moving parts, which causes no-noise commutation. The button of manual restoration located on the case of a heater.
The external control signal (0-10V) is needed. The ratio between On-time and Off-time is varied 0-100% to suit the prevailing heat demand.

Temperature regulator EKR-K...

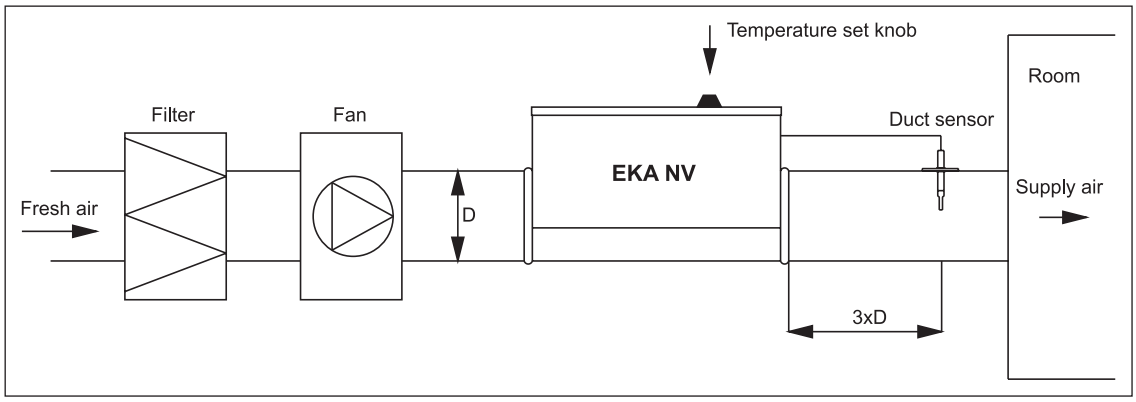
Temperature controller EKR-K... is installed into electrical heaters EKA -NV, -NI, -NIS

Voltage:	1 phase - 230V
	2 phase - 400V
	3 phase - 400V
Ambient temperature:	0 - 40°C
Humidity:	max 80%
Adjustment range of temperature:	0 - 30°C.
Temperature is adjusted by:	internal or external potentiometer.
Input signal for temperature control:	0...10V DC.

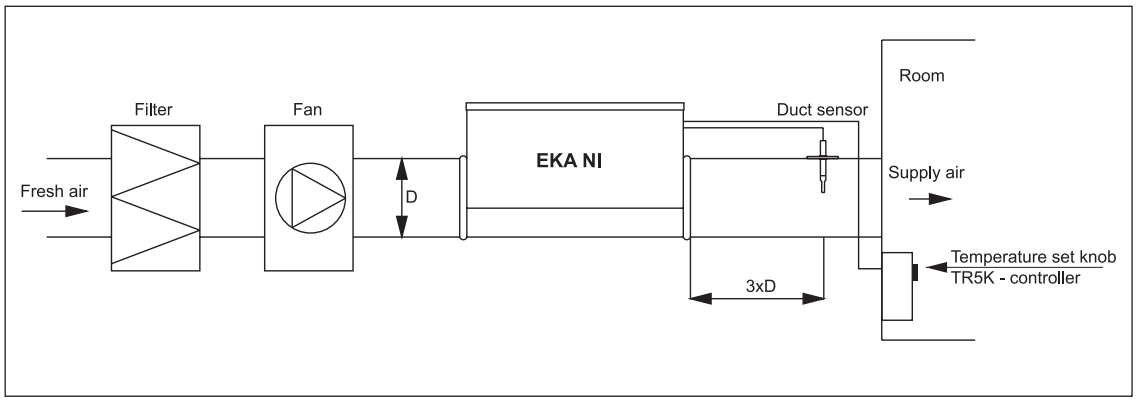
The PCB is equipped with internal fuses F1 and F2 on 50 mA. Their applicability, to protect PCB from the increased current.

EKA/EKA NV/EKA NI/EKA NIS

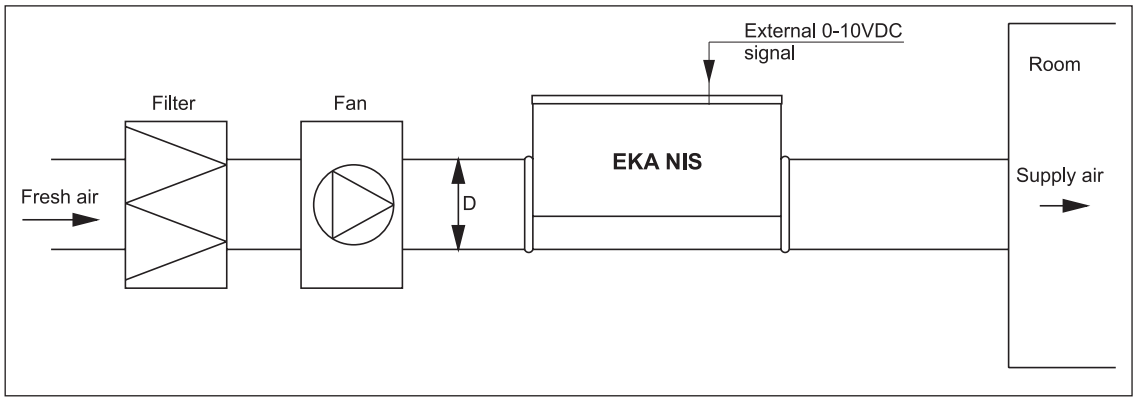
EKA NV connection diagram



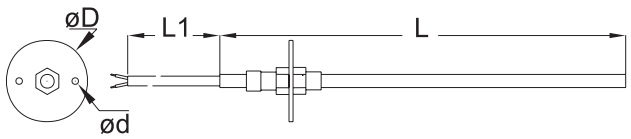
EKA NI connection diagram

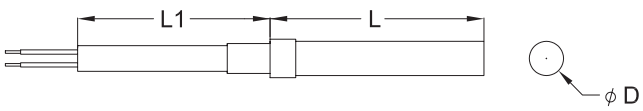


EKA NIS connection diagram



Duct sensor





TJK 10K

TJP 10P

Duct sensors used in measuring air temperature in ventilation ducts. With adjustable insertion length.

Les sondes de température de l'air pour gaines TJK sont utilisées pour mesurer la température de l'air dans les conduits d'air. La longueur de l'entrée dans le conduit d'air est réglable.

Kanalfühler mässt Lufttemperatur im Rohr ab. Eingangslänge in den Rohr ist regulierbar.

Kanalfølere anvendes til at måle temperaturen i ventilationskanaler. Med justerbar indstikslængde.

TJP 10K temperature sensors used in measuring return water temperature.

10K TJP - Capteur de température utilisé pour mesurer la température de retour d'eau.

Temperaturfühler TJP10 K werden zur Messung des Rücklaufwassers eingesetzt.

TJP 10K temperatur sensor, bruges til at måle retur vand temperatur.

Technical data

Type	Temperature range [°C]	Time constant [s]	Casing
TJK 10K	-30...+105	15	Plastic
TJP 10K	-30...+105	15	Stainless steel

Dimensions

Type	L, [mm]	L1, [mm]	øD, [mm]	ød, [mm]
TJK 10K	230	1500	40	3,2
TJP 10K	50	2000	8	-

EKR 15.1

Controller of electrical heating

EKR15.1 is a proportional controller for electric heaters with automatic voltage adaptation. EKR15.1 controls the whole load On-Off. The ratio between On-time and Off-time is varied 0-100% to suit the prevailing heat demand.
EKR15.1 is designed only for electric heating control. The control principle makes it unsuitable for motor or lighting control.
EKR15.1 can control 15kW heater and has relay output for extra load control with contactor, on which can be connected load up to 12kW. Full load can be 27kW.

EKR15.1 est un régulateur proportionnel de batterie électrique. EKR15.1 régule le chauffage en branchant ou en débranchant totalement la charge. Le rapport entre le temps de raccordement et de débranchement dépend du besoin en chauffage et peut varier de 0 à 100%. EKR15.1 n'est adapté que pour le réglage des batteries terminales électriques. Les principes de fonctionnement ne permettent pas de l'utiliser pour les moteurs ou l'éclairage. EKR15.1 peut contrôler une batterie terminale jusqu'à 15kW et il possède une sortie relais destinée à contrôler à l'aide d'un contacteur la charge supplémentaire. Charge supplémentaire jusqu'à 12kW. Charge totale contrôlée : 27kW.

EKR15.1 - das ist ein proportionaler Regler der elektrischen Erwärmung. EKR15.1 regelt die Heizung, indem er die Belastung voll ein- oder ausschaltet. Das Verhältnis zwischen der Ausschalt- und Einschaltzeit hängt vom Heizungsbedürfnis ab und kann variieren zwischen 0 und 100%. EKR15.1 eignet sich nur für die Regelung von elektrischen Erwärmungseinrichtungen. Die Arbeitsprinzipien erlauben es nicht, ihn für die Motor- oder Beleuchtungssteuerung einzusetzen. EKR15.1 kann eine Erwärmungseinrichtung bis 15kW steuern und er hat einen Relaisausgang, der für die Steuerung einer Zusatzbelastung mithilfe eines Kontaktgebers bestimmt ist. Zusatzbelastung - bis 12kW. Volle gesteuerte Belastung - 27kW.

EKR 15.1 er en proportional styring for elektriske kanalvarmere. EKR 15.1 styrer varmen ved at tænde eller slukke for kanalvarmeren. Forholdet mellem tændt og slukket, kan varieres trinløst, således at den ønskede temperatur opnås.
EKR 15.1 kan kun anvendes for styring af kanalvarmere.
EKR 15.1 kan styre en 15kW kanalvarmer og har en relæudgang for ekstra belastning via kontaktor. Hertil kan tilkobles op til ekstra 12kW, hvorved en samlet belastning der kan styres er 27kW.

Technical data

Controlled load [kW]	15
Extra controlled load (recommended) * [kW]	12
Total controlled load [kW]	27
Max. conrolled current [A]	25
Voltage [V]	3x230/3x400
Frequency [Hz]	50-60
Phases	3~
Dimensions (WxHxL) [mm]	105 x 260 x 120
Fuse [A]	2 x 0,315
Protection class	IP20
Ambient temperature without condensation [°C]	0-40
Heat dissipation [W]	50
Ambient humidity	90%RH max.

* Extra load should be connected via contactor to the relay output.

Controllers conforms to requirements of standards EN 61010-1+A2: 2000, EN 50081-1: 1995, EN 55022: 2000 and carries CE mark.

Control principle

EKR15.1 has zero phase-angle detection to prevent RFI (radio frequency interference).
EKR15.1 automatically adapts its control mode to suit the dynamics of the controlled object . For rapid temperature changes i. e. supply air control EKR15.1 will act as a PID controller. For slow temperature changes i.e. room control EKR15.1 will act as a PID controller.

PID- proportional–integral–derivative.

Night set-back
Potential-free closure will give a night set-back of 0-10°C. Settable with a potentiometer (Contacts 10, 11) in the EKR15.1.

Controller of electrical heating

EKR15.1P is a proportional controller for multistep(up to 5 steps) electric heaters with automatic voltage adaptation. EKR15.1P controls the whole load On-Off. The ratio between On-time and Off-time is varied 0-100% to suit the prevailing heat demand.
EKR15.1P is designed only for electric heating control. The control principle makes it unsuitable for motor or lighting control.
EKR15.1P can control with triac output 15kW heater and has four relay outputs for 4 extra load steps control with contactors, on which can be connected load up to 225kW. Full load can be 240kW.

EKR15.1P est un régulateur proportionnel de batterie électrique multi-étages (jusqu'à 5 étages).
Régulateur de batterie terminale avec contrôle automatique de la tension.
EKR15.1P régule le chauffage en branchant ou en débranchant totalement la charge. Le rapport entre le temps de raccordement et de débranchement dépend du besoin en chauffage et peut varier de 0 à 100%. EKR15.1P n'est adapté que pour le réglage des batteries terminales électrique. Les principes de fonctionnement ne permettent pas de l'utiliser pour les moteurs ou l'éclairage. EKR15.1P peut contrôler une batterie terminale électrique de 15kW et il possède 4 sorties relais supplémentaires destinées à contrôler à l'aide de contacteurs les charges supplémentaires. Les charges supplémentaires font jusqu'à 225kW. Charge totale contrôlée jusqu'à 240kW.

EKR15.1P - das ist ein proportionaler mehrstufiger Regler (bis zu 5 Stufen) der elektrischen Erwärmung mit einer automatischen Spannungssteuerung. EKR15.1P regelt die Heizung, indem er die Belastung voll ein- oder ausschaltet. Das Verhältnis zwischen der Ausschalt- und Einschaltzeit hängt vom Heizungsbedürfnis ab und kann variieren zwischen 0 und 100%. EKR15.1P eignet sich nur für die Regelung von elektrischen Erwärmungseinrichtungen. Die Arbeitsprinzipien erlauben es nicht, ihn für die Motor- oder Beleuchtungssteuerung einzusetzen. EKR15.1P kann eine 15kW-Erwärmungseinrichtung steuern und hat 4 zusätzliche Relaisausgänge, die für die Steuerung von Zusatzbelastungen mithilfe der Kotaktgeber bestimmt sind. Zusatzbelastungen betragen bis zu 225kW. Volle gesteuerte Belastung bis zu 240kW.

EKR 15.1P er en proportional styring for flertins (op til 5 trin) elektriske kanalvarmere. EKR 15.1P styrer varmen ved at tænde eller slukke for kanalvarmeren. Forholdet mellem tændt og slukket, kan varieres trinløst, således at den ønskede temperatur opnås.
EKR 15.1P kan kun anvendes for styring af kanalvarmere.
EKR 15.1P kan styre en 15kW kanalvarmer og har fire relæudgange for ekstra belastning via kontaktor. Hertil kan tilkobles op til ekstra 225kW, hvorved en samlet belastning der kan styres er 240kW.

Technical data

Controlled load [kW]	15
Extra load control output	4x5A/230V
Max. triac conrolled current [A]	25
Voltage [V]	3x230/3x400
Frequency [Hz]	50-60
Phases	3~
Dimensions (WxHxL) [mm]	105 x 260 x 120
Fuse [A]	2x 0,315
Protection class	IP20
Ambient temperature without condensation [°C]	0-40
Heat dissipation [W]	50
Ambient humidity	90%RH max.

* Extra load should be connected via contactor to the relay output.

Controllers conforms to requirements of standards EN 61010-1+A2: 2000, EN 50081-1: 1995, EN 55022: 2000 and carries CE mark.

Control principle

Triac output of EKR15.1P has zero phase-angle detection to prevent RFI (radio frequency interference).
If triac output is ON more then 5 min controller will increase output by one step. Second step will be switch on after 2 min if previous is switched on for this time. All steps are switching in such order to increasing output. In case then output decreasing is needed, step will be switch off after 5min. Other steps will be switch off after 2 min to decrease output.
Extra load steps can switching in binary or serial mode. Number of connected extra load steps can be selected with rotating switch. In binary mode switching steps can be 0-15, in serial mode 0-4.

Night set-back
Potential-free closure will give a night set-back of 0-10°C. Settable with a potentiometer (Contacts 10, 11) in the EKR15.1P.

EKR 6.1

Controller of electrical heating

EKR6.1 is a proportional controller of electrical heating controller with automatic adaptation of voltage. An internal or an external sensor is used with the device. EKR6.1 controls the heating intensity by switching electrical power on or off. The ratio between the off-time and on-time depends on the need for heating and can vary in the range between 0% and 100%. EKR6.1 is suitable for the control of electrical heating only. Its principle of operation preclude its being used for the control of motors or lighting systems. EKR6.1 is not suitable for the control of three-phase electrical current, it is used to control monophasic and diphase heaters only.

EKR6.1 est un régulateur proportionnel de batterie électrique avec adaptation automatique de la tension et utilisant un capteur interne ou externe. EKR6.1 régule le chauffage en branchant ou en débranchant totalement la charge. Le rapport entre le temps de raccordement et de débranchement dépend du besoin en chauffage et peut varier de 0 à 100%. EKR6.1 n'est adapté que pour le réglage des batteries terminales électriques. Les principes de fonctionnement ne permettent pas de l'utiliser pour les moteurs ou l'éclairage. EKR6.1 ne peut pas contrôler une charge de trois phases, il est destiné au contrôle des batteries terminales électriques à une ou deux phases.

EKR6.1 - das ist ein proportionaler Regler der elektrischen Erwärmung mit automatischer Spannungsanpassung, der mit Innen- oder Außensensor verwendet wird. EKR6.1 regelt die Heizung, indem er die Belastung voll ein- oder ausschaltet. Das Verhältnis zwischen der Ausschalt- und Einschaltzeit hängt vom Heizungsbedürfnis ab und kann variieren zwischen 0 und 100%. EKR6.1 eignet sich nur für die Regelung von elektrischen Erwärmungseinrichtungen. Die Arbeitsprinzipien erlauben es nicht, ihn für die Motor- oder Beleuchtungssteuerung einzusetzen. EKR6.1 kann nicht eine Dreiphasenbelastung steuern, er ist für die Steuerung von Einphasen- oder Zweiphasen-Erwärmungseinrichtungen bestimmt.

EKR 6.1 er en proportional styring for automatisk styring af elektriske kanalvarmere. Styringen modtager signaler fra en intern eller ekstern føler. EKR 6.1 styrer varmen ved at tænde eller slukke for kanalvarmeren. Forholdet mellem tændt og slukket, kan varieres trinløst, således at den ønskede temperatur opnås. EKR 6.1 kan kun anvendes til styring af en- eller tofasede kanalvarmere.

Technical data

Max. controlled load [kW]	6,4/400V, 3,2/230V
Max. conrolled current [A]	16
Voltage [V]	230-415
Frequency [Hz]	50-60
Phases	1~230V, 2~400V
Dimensions (WxHxL) [mm]	150 x 80 x 55
Protection class	IP20
Ambient temperature [°C]	30 max.
Ambient humidity	90% RH max.

Controllers conforms to requirements of standards LST EN 61010-1:2002, LST EN 55022:2000, LST EN 60730-1+A11: 2002/A16 2007 and carries CE mark.

Control principle

EKR6.1 controls the full load On-Off. EKR6.1 adjusts the mean power output to the prevailing power demand by proportionally adjusting the ratio between On-time and Off-time.

EKR6.1 has zero phase-angle detection for preventing RFI (radio frequency interference).

EKR6.1 automatically adjusts it's control mode to suit the controlled object's dynamics.

For rapid temperature changes i.e. supply air control EKR6.1 will act as a PID controller.

For slow temperature changes i.e. room control EKR6.1 will act as a PID controller.

Night temperature set-back

Potential-free closure will give a night set-back of 1 - 10°C. Settable with a potentiometer which is in the EKR6.1.