

Electric duct heater

Batterie terminale électrique pour gaine

Elektro-Heizregister für Lüftungssysteme

Электрические каналные нагреватели



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 can be with PG connection, flanges or intended to install directly to AHU.

Heaters can be installed vertically or horizontally.
Maximum output air temperature 50°C.



Elektrische Heizgeräte werden entworfen, um saubere Luft in Lüftungssystemen zu heizen. Die Verschalung wird von beschichtetem Stahl von aluzinc gemacht, der hohe Temperaturbeweis ist. Heizelement-Tube wird vom Edelstahl AISI 304 gemacht. In Heizungen werden 2 Schutzthermostate, Schraube-Terminals für die leichte Verbindung installiert. Das Gehäuse kann mit PG-Anschluss, Flanschen oder für die Montierung gerade in die Lüftungsgeräte geeignet sein. Heizungen können vertikal oder horizontal installiert werden. Maximale Produktionslufttemperatur 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 thermoprotectons et des bornes de jonction électrique sont montées dans les batteries électriques. Les enveloppes sont fabriquées avec des connecteurs PG, des flasques ou bien en montage direct sur les caissons de ventilation.

Les batteries électriques peuvent être montées horizontalement et verticalement.
Température maximale de l'air réchauffé : 50°C.



Электрические каналные нагреватели предназначены для подогрева чистого воздуха в вентиляционных системах. Корпус изготовлен из алюмоцинкованной стали, поверхность которой устойчива к высоким температурам. Трубка тена изготовлена из нержавеющей стали AISI 304. В нагревателе установленные 2 термозащиты, клеммы электрического подключения, корпус может быть изготовлен с PG соединением, с фланшами или для монтирования в вент. агрегат.

Нагреватели могут быть установлены горизонтально и вертикально.
Максимальная температура подогреваемого воздуха 50°C.

Accessories

Controller for electrical heater



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Controller for electrical heater



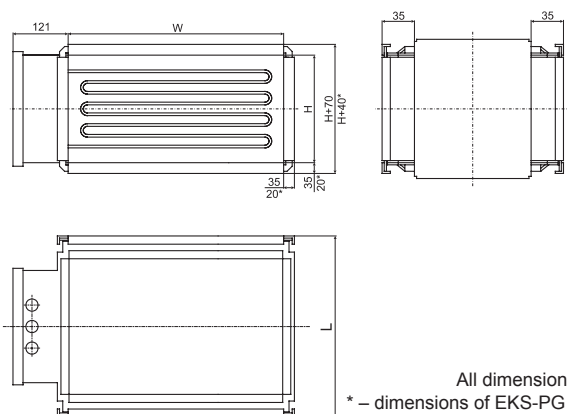
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Duct sensor

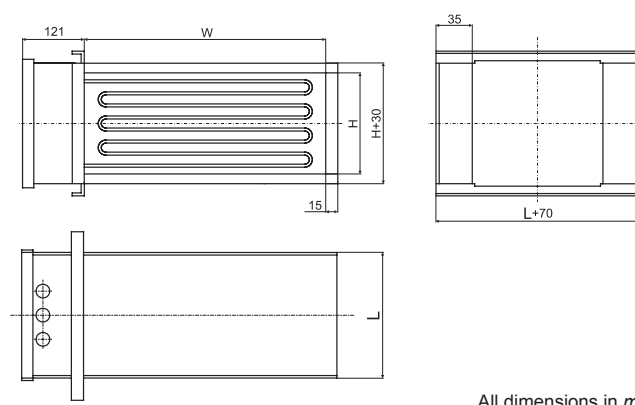


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EKS, EKS-PG



EKS-L



Specification

EKS	EKS W x H
W [mm]	Electrical duct heater
H [mm]	Rectangular duct width
	Rectangular duct height

Dimensions

EKS 400 x 200						
Length L	[mm]	370	420	520		
Total rated power	[kW]	6	9	12	15	21

EKS 500 x 250								
Length L	[mm]	370	420	520	600	820	970	
Total rated power	[kW]	9	12	15	21	24	36	45

EKS 500 x 300													
Length L	[mm]	370					440	520	600				
Total rated power	[kW]	9	12	15	18	21	24	27	30	33	36	42	45

EKS 600 x 300													
Length L	[mm]	370					440	520	600				
Total rated power	[kW]	9	12	15	18	21	24	27	30	33	36	42	45

EKS 600 x 350															
Length L	[mm]	370						420			500				
Total rated power	[kW]	9	12	15	18	21	24	27	30	33	36	39	42	45	

EKS 700 x 400																
Length L	[mm]	370										440	520			
Total rated power	[kW]	9	12	15	18	21	24	27	30	33	36	42	45	51	60	66

EKS 800 x 500																		
Length L	[mm]	370												420	440	500		
Total rated power	[kW]	9	12	15	18	21	24	27	30	33	36	39	42	45	51	54	60	66

EKS 1000 x 500																		
Length L	[mm]	370																
Total rated power	[kW]	9	12	15	18	21	24	27	30	33	36	39	42	45	51	54	60	66

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

Type	Accessories		
	EKR 15.1	EKR 15.1P	TJK 10K
EKS 400 x 200	+	+	+
EKS 500 x 250	+	+	+
EKS 500 x 300	+	+	+
EKS 600 x 300	+	+	+
EKS 700x400	+	+	+
EKS 800x500	+	+	+
EKS 1000x500	+	+	+

Power steps

Total rated power [kW]	Steps
9	9
12	12
15	15
18	9 + 9
21	9 + 12
24	9 + 15
27	12 + 15
30	15 + 15
33	15 + 18
36	9 + 12 + 15
39	9 + 15 + 15
42	12 + 15 + 15
45	12 + 15 + 18
51	9 + 12 + 12 + 18
54	9 + 12 + 15 + 18
60	12 + 15 + 15 + 18
66	15 + 15 + 18 + 18

Power requirements

Heating power range of manufactured EKS heaters varies from 0,3 kW to 300 kW.

Calculation of required heater power:

$$P = Q * 0,36 * (t_2 - t_1)$$

I.e.: **P** - heating power [W],
Q - airflow [m³/h],
t₁ - temperature of incoming air [°C],
t₂ - required air temperature [°C].

Overheat protection

Minimum air velocity is 1,5 m/s.

All EKS duct heaters has 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).

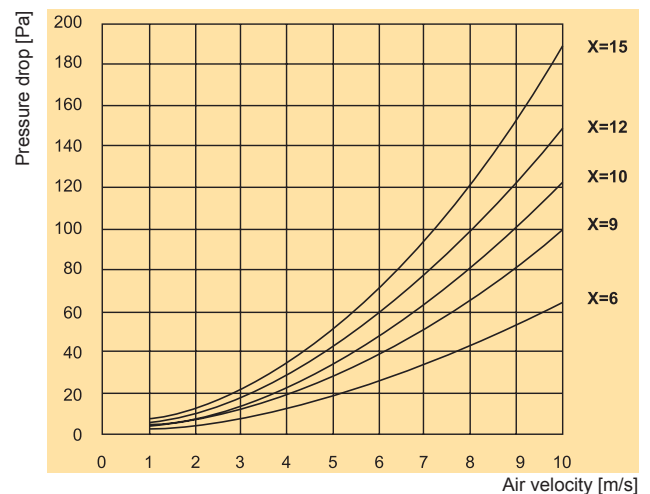
EKS has no internal temperature controller. External heating controllers EKR are used in this case.

Pressure drop

Pressure drop across a duct heater depends on air velocity and the number of rows of heating elements (with reference to diagram). Calculation of heating element rows number:

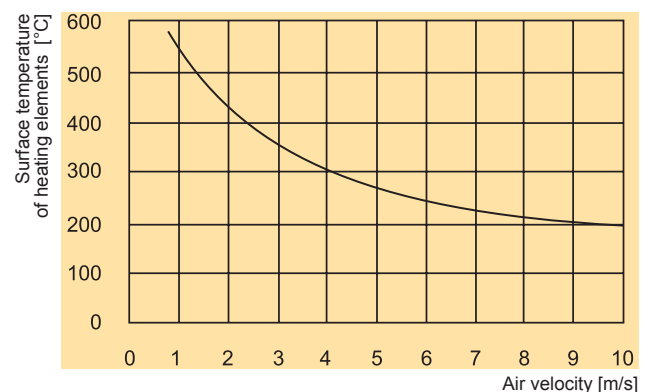
$$X = P / (A * 15)$$

I.e.: **X** - approx. number of heating element rows
P - total rated power [kW],
A - cross sectional area [m²].



Surface temperature of heating element

Surface temperature of heating elements depend on air velocity and surface heating power rating of the element (approx. 3 W/cm²). The diagram illustrates the surface temperature of the element as a function of air velocity at an air output temperature of approx. 20°C from the heater.



Possible electrical connection

- A -Overheat protection with manual reset 100°C
- B -Overheat protection with automatical reset 50°C
- D -Electrical heater
- J -Switch
- K₁ - K₄ -Contactors
- T -Thermostat
- S₁ - S₄ -Automatic circuit breakers
- 1step - 4step -Heater steps

