

Electric duct heater

Batterie terminale électrique pour gaine

Elektro-Heizregister für Lüftungssysteme

Batería eléctrica para conducto rectangular



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.



Elektro-Register werden entworfen, um saubere Luft in Lüftungssystemen zu heizen. Das Gehäuse wird aus dem mit Aluzink beschichtetem Stahlblech hergestellt, und das Spiralheizelement - aus rostfreiem Stahl AISI 304 hergestellt. Im Heizregister werden 2 Schutzthermostate, Schraubklemmen für leichten Anschluss eingebaut.

Das Gehäuse kann mit PG-Anschluss, Flanschen oder direkt in die Lüftungsgeräte montiert werden.  
Heizregister können vertikal oder horizontal eingebaut werden.  
Maximale Lufttemperatur 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. 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.



Las baterías eléctricas para conductos rectangulares están diseñadas para calentar el aire fresco en sistemas de ventilación. El cuerpo está hecho de acero recubierto aluzinc que es resistente a altas temperaturas. Los tubos de calefacción están hechos de acero inoxidable AISI 304. El calentador incorpora dos protecciones térmicas y terminales de fácil conexión. La envolvente puede llevar conexión PG, bridas, o para intalación directa en las UTAS.

Montaje horizontal o verticalmente.  
Temperatura máxima del aire caliente 50°C.

## Accessories

Controller for electrical heater



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Controller for electrical heater



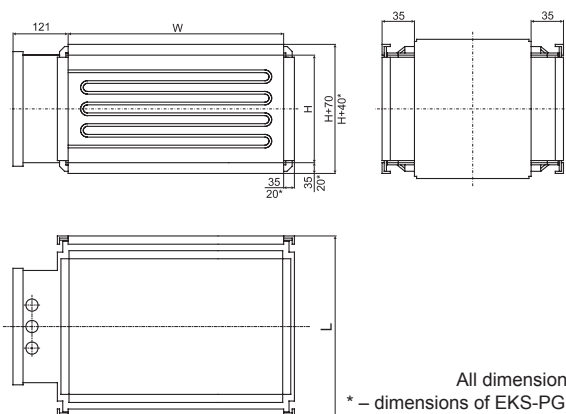
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Duct sensor

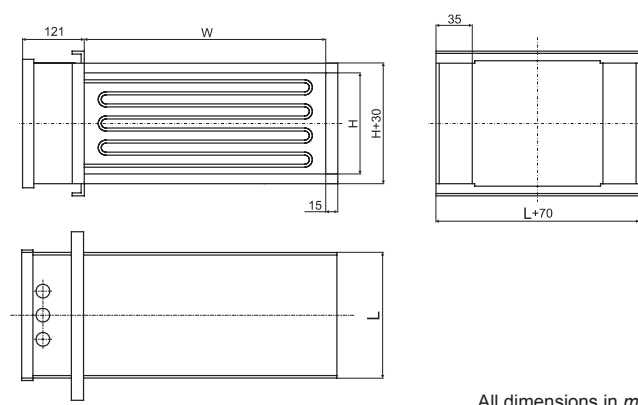


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## EKS, EKS-PG



## 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 [m<sup>3</sup>/h],  
**t<sub>1</sub>** - temperature of incoming air [°C],  
**t<sub>2</sub>** - 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).

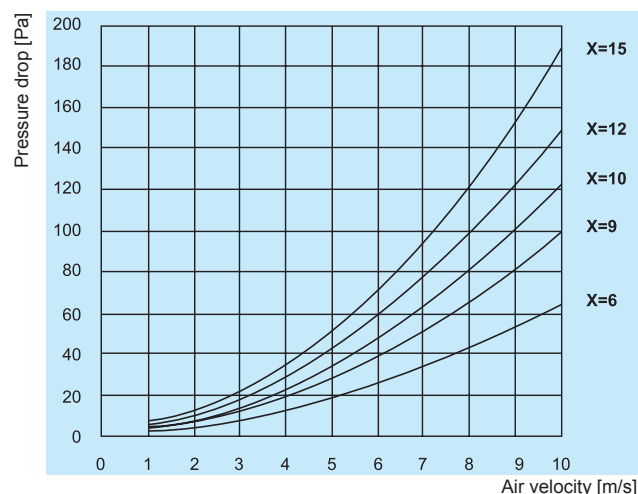
EKS has no internal temperature controller. External heating controllers EKR are used in this case.

## 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:

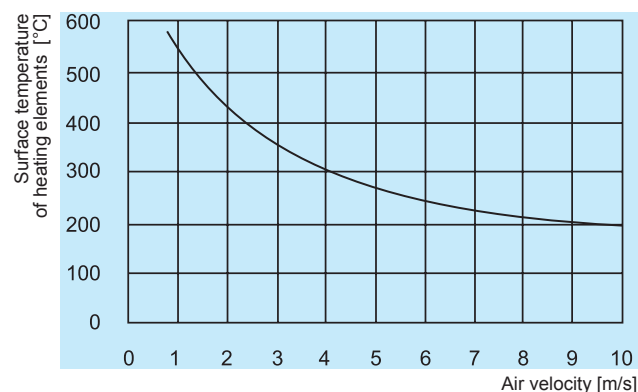
$$X = P / (A * 15)$$

I.e.: **X** - approx. number of heating element rows  
**P** - total rated power [kW],  
**A** - cross sectional area [m<sup>2</sup>].



## 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/cm<sup>2</sup>). 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
- K<sub>1</sub> - K<sub>4</sub> -Contactors
- T -Thermostat
- S<sub>1</sub> - S<sub>4</sub> -Automatic circuit breakers
- 1step - 4step -Heater steps

