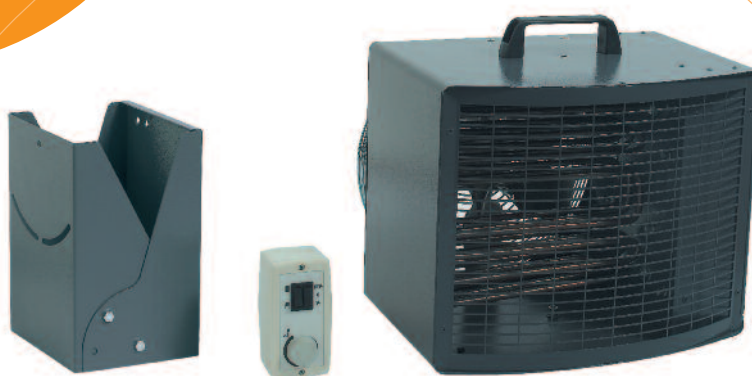


# Fan heaters

## Electric heaters



### Types of uses



Floor-standing (1 handle)  
Size 1 : 4,5/3 kW  
6/4 kW - 9/6 kW



Floor-standing (2 handles)  
Size 2 : 12/8 kW  
18/9 kW - 24/12 kW



Ceiling-mounting



Wall-mounting



### Control unit



Temperature regulation knob

Button switch  
(high speed/  
low speed)

Button switch  
(off/fan-only/heating)

Dimension (mm)  
H : 137 - L : 71 - W : 74



### Ratings and dimensions

	Power (W)	Voltage (V)	Air flow (m <sup>3</sup> /h)	Delta T* maxi (°C)	Height (mm)	Length (mm)	Depth (mm)	Weight (kg)
Size 1	4,5/3	230 V mono / 230 V Tri / 400 V Tri + N	475	28	346	405	390	11
	6/4	230 V mono / 230 V Tri / 400 V Tri + N	675	26	346	405	390	11
	9/6	230 V Tri / 400 V Tri + N	950	28	346	405	390	11
Size 2	12/8	400 V Tri + N	1150/850	31/28	436	500	410	20
	18/9	400 V Tri + N	1770/1180	30/22	436	500	410	20
	24/12	400 V Tri + N	2200/1520	32/23	436	500	410	20

CE - Classe I - IP32



## Industrial heating design

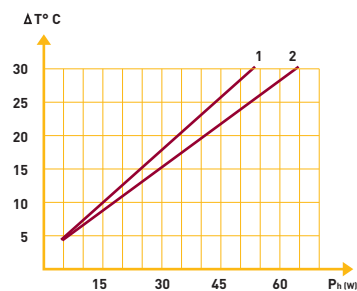
### Fan heaters

#### • Small premises (Volume < 500 m<sup>3</sup>):

> Phase 1: The  $\Delta t^{\circ}\text{C}$  differential between the set temperature and the outside temperature is calculated.

> Phase 2: From the graph below, the type of premises determines which curve will be used.

From the temperature differential (y-axis), you can find the heating power  $Ph$  (W) required to heat 1 m<sup>3</sup> (x-axis).



- Curve 1: Well insulated industrial premises.

- Curve 2: Poorly insulated industrial premises.

> Phase 3: The formula to be used is given below:

$$Q(W) = Ph(W) \times V (m^3)$$

Once the heating power  $Ph(W)$  has been determined, merely multiply it by the volume of the room to find  $Q(W)$ : the total heating power.

#### • Medium-sized premises (500 m<sup>3</sup> < Volume < 5000 m<sup>3</sup>):

> Phase 1: From the graph below, the type of premises determines which curve will be used. Using the volume of the room (x-axis), you can find the heating power required to increase the temperature by 1°C in a volume of 1 m<sup>3</sup>.  $Ph$  (y-axis).

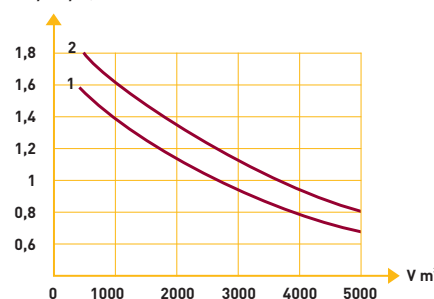
> Phase 2: Two situations can arise with regard to ventilation.

##### a) Premises with no ventilation system:

$Ph$  is multiplied by the volume of the room and by the differential in degrees Celsius between the set temperature and the outside temperature.

Namely the formula:  $Q(W) = Ph \times V (m^3) \times \Delta T (^{\circ}\text{C})$

$Ph w / m^3 / ^{\circ}\text{C}$



- Curve 1: Poorly-insulated industrial premises.

- Curve 2: Poorly-insulated industrial premises.

This determines the total output of the appliance(s) to be installed:  $Q(W)$ .

##### b) Premises with ventilation:

As in the previous case:  $Ph$  is multiplied by the volume of the room and by the differential in degrees Celsius between the set temperature and the outside temperature.

Namely the formula:  $Q(W) = Ph \times V (m^3) \times \Delta T (^{\circ}\text{C})$

Ventilation creates heat losses as the air is renewed.

The extent of the heat loss must be determined:  $Qra(W)$ .

The following formula is used:

$$Qra(W) = 0.34 \times Vra (m^3/h) \times \Delta T (^{\circ}\text{C})$$

$Vra$ : is the volume of air renewed per hour.

$\Delta T^{\circ}\text{C}$ : is the differential in degrees Celsius between the room temperature and the outside temperature

The total output of the appliance(s) to be installed is obtained:  $Q(W) + Qra(W)$ .

### ■ Large premises (Volume > 5000 m<sup>3</sup>):

A design office can study the heat balance to determine the output of the appliances to install.

N.B. Destratifier: A destratifier can be fitted during air heater installation when the air circulation rate is not sufficient to enable low-level homogenisation of the temperature.