

## Duct electric heater

**HDE****Description**

HDE duct electric heaters are designed for use in ventilation systems which require raising or stabilizing the supplied air temperature.

The heater's enclosure is made from galvanized steel sheet. The heating resistors are made from stainless steel. The heating resistors form a spiral to ensure homogeneous heating of the air stream volume passing through them.

The external terminal box houses the connection terminal strip and the overtemperature protection.

The overtemperature protection is a system of two thermostats. The first thermostat is an automatic-reset temperature limiter set to trip at +60°C. The other thermostat is a manual temperature limiter set to trip at +90°C (once tripped, this device needs to be reset by hand).

The HDE ducted electric heater features EPDM gaskets at the connection ends.

The HDE can be installed in a vertical or horizontal duct, irrespective of the air flow direction.

The HDE ducted electric heater supports external temperature controllers and the PULSER controller.

**Note:**

When choosing a ducted electric heater, note that the supplied air temperature cannot exceed 40°C.

The minimum air flow rate across the ducted electric heater must be 1.5 m/s.

**Product code example**

Product code: **HDE - 125 - 1,2**

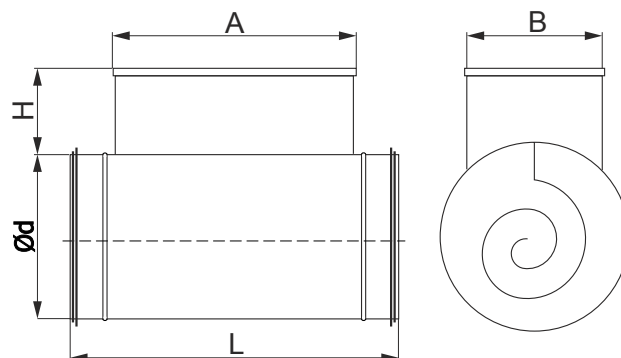
type

Ød

power factor

|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |

Power factor:  $1.2 \times 1000 = 1200 \text{ W}$

**Dimensions**

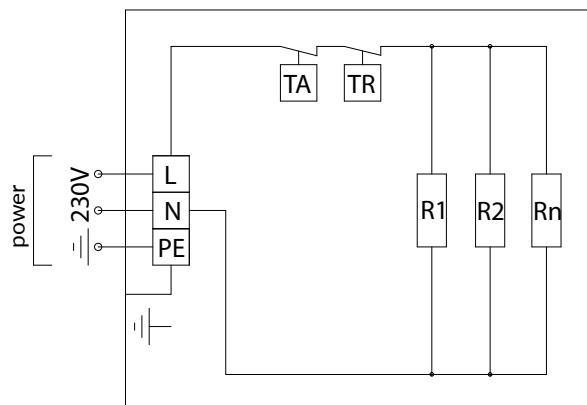
| Type    | Ød<br>(mm) | A<br>(mm) | B<br>(mm) | H<br>(mm) | L<br>(mm) |
|---------|------------|-----------|-----------|-----------|-----------|
| HDE-100 | 100        | 280       | 100       | 110       | 380       |
| HDE-125 | 125        | 280       | 100       | 110       | 380       |
| HDE-150 | 150        | 280       | 120       | 110       | 380       |
| HDE-160 | 160        | 280       | 120       | 110       | 380       |
| HDE-200 | 200        | 300       | 160       | 110       | 400       |
| HDE-250 | 250        | 300       | 190       | 110       | 400       |
| HDE-315 | 315        | 300       | 190       | 110       | 400       |
| HDE-355 | 355        | 300       | 240       | 110       | 430       |
| HDE-400 | 400        | 300       | 240       | 110       | 430       |

## Technical specifications

| Type         | Power (W) | Voltage (V) | Number of heating resistors (pcs) | Rated current [A] |
|--------------|-----------|-------------|-----------------------------------|-------------------|
| HDE-100-0,3  | 300       | 1 x 230     | 1                                 | 1,3               |
| HDE-100-0,6  | 600       | 1 x 230     | 2                                 | 2,6               |
| HDE-100-0,9  | 900       | 1 x 230     | 3                                 | 3,9               |
| HDE-100-1,2  | 1200      | 1 x 230     | 4                                 | 5,2               |
| HDE-125-0,3  | 300       | 1 x 230     | 1                                 | 1,3               |
| HDE-125-0,6  | 600       | 1 x 230     | 2                                 | 2,6               |
| HDE-125-0,9  | 900       | 1 x 230     | 3                                 | 3,9               |
| HDE-125-1,2  | 1200      | 1 x 230     | 4                                 | 5,2               |
| HDE-125-1,5  | 1500      | 1 x 230     | 3                                 | 6,5               |
| HDE-150-0,5  | 500       | 1 x 230     | 1                                 | 2,2               |
| HDE-150-1,0  | 1000      | 1 x 230     | 2                                 | 4,4               |
| HDE-150-1,5  | 1500      | 1 x 230     | 3                                 | 6,5               |
| HDE-150-2,0  | 2000      | 1 x 230     | 4                                 | 8,7               |
| HDE-160-0,5  | 500       | 1 x 230     | 1                                 | 2,2               |
| HDE-160-1,0  | 1000      | 1 x 230     | 2                                 | 4,4               |
| HDE-160-1,5  | 1500      | 1 x 230     | 3                                 | 6,5               |
| HDE-160-2,0  | 2000      | 1 x 230     | 4                                 | 8,7               |
| HDE-200-0,5  | 500       | 1 x 230     | 1                                 | 2,2               |
| HDE-200-1,0  | 1000      | 1 x 230     | 2                                 | 4,4               |
| HDE-200-1,5  | 1500      | 1 x 230     | 3                                 | 6,5               |
| HDE-200-2,0  | 2000      | 1 x 230     | 4                                 | 8,7               |
| HDE-200-3,0  | 3000      | 1 x 230     | 2                                 | 13                |
| HDE-200-4,5  | 4500      | 3 x 400     | 3                                 | 6,5               |
| HDE-250-0,5  | 500       | 1 x 230     | 1                                 | 2,2               |
| HDE-250-1,0  | 1000      | 1 x 230     | 2                                 | 4,4               |
| HDE-250-1,5  | 1500      | 1 x 230     | 3                                 | 6,5               |
| HDE-250-2,0  | 2000      | 1 x 230     | 4                                 | 8,7               |
| HDE-250-3,0  | 3000      | 1 x 230     | 2                                 | 13                |
| HDE-250-4,5  | 4500      | 3 x 400     | 3                                 | 6,5               |
| HDE-315-3,0  | 3000      | 1 x 230     | 2                                 | 13                |
| HDE-315-4,5  | 4500      | 3 x 400     | 3                                 | 6,5               |
| HDE-315-9,0  | 9000      | 3 x 400     | 6                                 | 13                |
| hde-355-4,5  | 4500      | 3 X 400     | 3                                 | 6,5               |
| HDE-355-9,0  | 9000      | 3 x 400     | 3                                 | 13                |
| HDE-400-4,5  | 4500      | 3 X 400     | 3                                 | 6,5               |
| HDE-400-9,0  | 9000      | 3 x 400     | 3                                 | 13                |
| HDE-400-18,0 | 18000     | 3 x 400     | 6                                 | 26                |

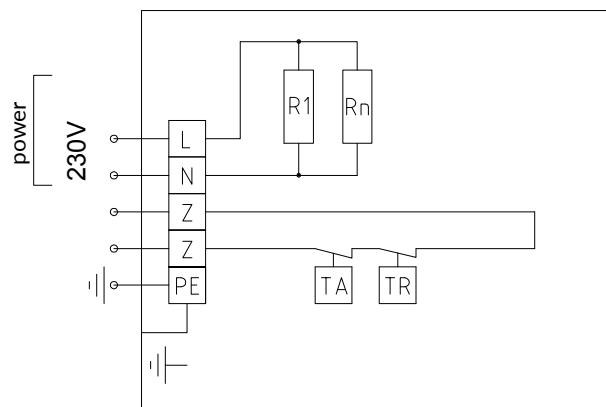
## Connection diagram

Single-phase HDE ducted electric heater with a total power  $\leq 2000$  W



- L, N - 1 x 230V, 50 Hz single-phase power supply
- PE - protective conductor
- R1, R2...Rn - heating resistors
- TA - automatic temperature limiter, trips at +60°C (with automatic reset)
- TR - temperature limiter with manual reset, trips at +90°C (non-automatic)

Single-phase HDE ducted electric heater with a total power  $\leq 3000$ W

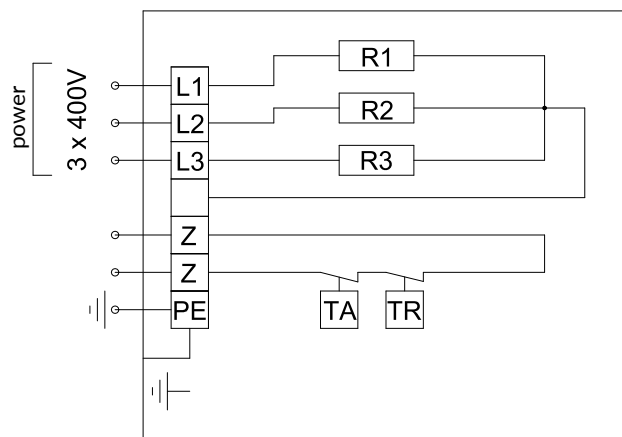


- L, N - 1 x 230V, 50 Hz single-phase power supply
- PE - protective conductor
- R1, R2...Rn - heating resistors
- Z-Z - temperature limiter terminals
- TA - automatic temperature limiter, trips at +60°C (with automatic reset)
- TR - temperature limiter with manual reset, trips at +90°C (non-automatic)

## Duct electric heater

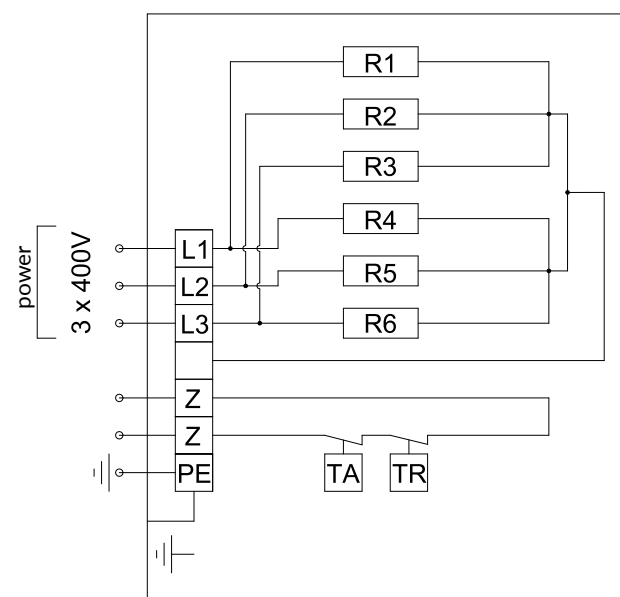
**HDE****Connection diagram**

three-phase HDE duct electric heater with a total power  $\leq 4500 \text{ W} / 9000 \text{ W}$



- L1, L2, L3 - 3 x 400V, 50 Hz three-phase power supply  
 PE - protective conductor  
 R1, R2...Rn - heating resistors  
 Z-Z - temperature limiter terminals  
 TA - automatic temperature limiter, trips at  $+60^\circ\text{C}$  (with automatic reset)  
 TR - temperature limiter with manual reset, trips at  $+90^\circ\text{C}$  (non-automatic)

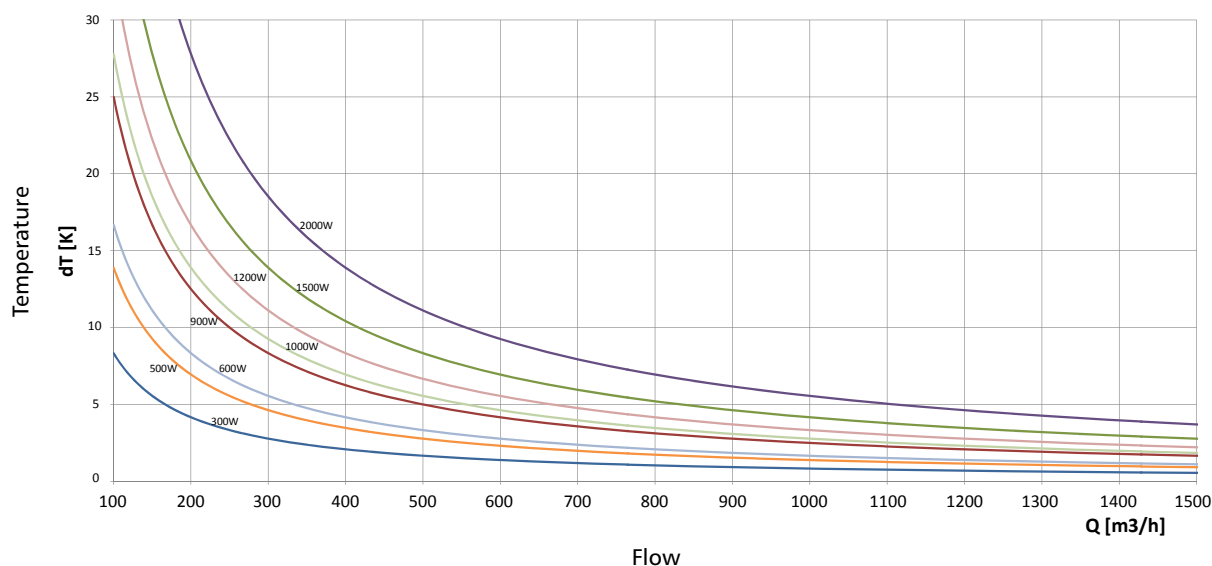
three-phase HDE duct electric heater with a total power  $\leq 9000 \text{ W} / 18000 \text{ W}$



- L1, L2, L3 - 3 x 400V, 50 Hz three-phase power supply  
 PE - protective conductor  
 R1, R2...Rn - heating resistors  
 Z-Z - temperature limiter terminals  
 TA - automatic temperature limiter, trips at  $+60^\circ\text{C}$  (with automatic reset)  
 TR - temperature limiter with manual reset, trips at  $+90^\circ\text{C}$  (non-automatic)

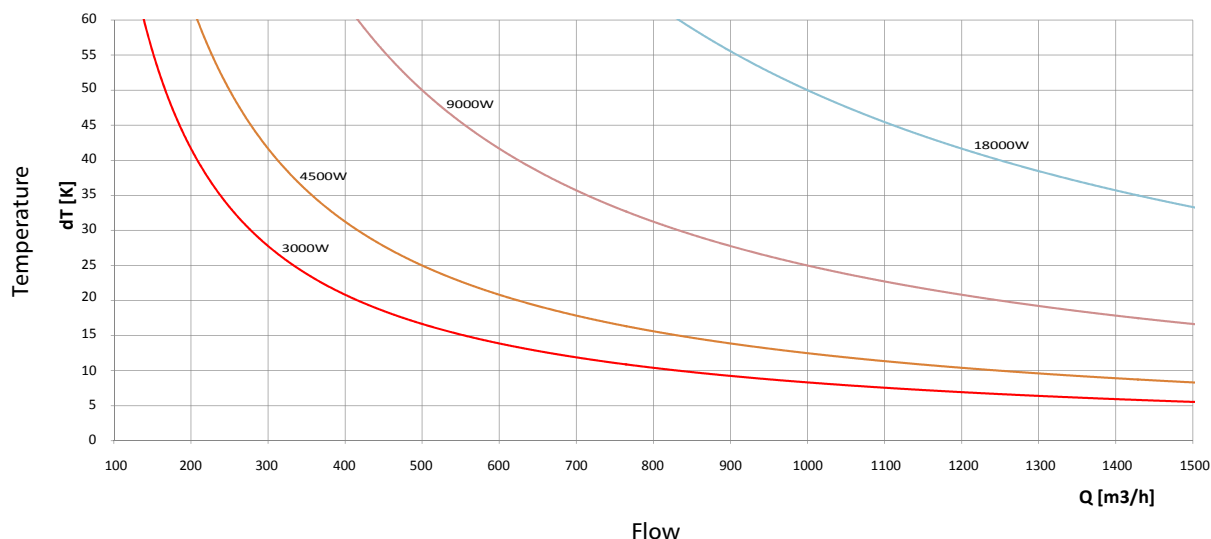
**Technical specifications**

Selection chart for HDE ducted electric heaters with a maximum total power of 2000 W



## Technical specifications

Selection chart for HDE duct electric heaters with a maximum total power of 3000 W / 4500 W / 9000 W / 18000 W



The characteristics are a graphic representation of the following relation:  $P = Q \times c_w \times dT \times p$ , with:

P — heating power of the ducted electric heater (W)

Q — air output from the ducted electric heater (m³/h)

$c_w = 1005$  — specific heat of air (J/kgK)

dT — temperature difference (K)

$p = 1.29$  — air density (kg/m³)

once reduced:  $P = Q \times 0.36 \times dT$

## Available combinations



HDE 230V duct electric heater

+



Pulser controller



HDE 230V ducted electric heater

+



Pulser controller

+



TG-K330 ducted air temperature sensor

## Duct electric heater

# HDE

### Available combinations



HDE 400V duct electric heater

+



TTC2000 controller



HDE 400V duct electric heater

+



TTC2000 controller

+



TG-K330 duct air temperature sensor