



## Electric Heater Battery

### Quality Standards

VES are members of the British Standards Institution, operating a quality management system in accordance with BS EN ISO 9001, certificate no. Q5375. All units tested to BS 848 Part 1.

### Electric heater

The sheathed elements are tubular incolloy, with an internal nickel chromium resistance wire centrally located and insulated in compressed magnesium oxide powder. The elements are formed and arranged to be evenly spread over the open area of the duct. They are secured into the terminal box with air tight glands, the element having a 50mm cold end. The elements are either linked with a copper busbar or fitted with a terminal as necessary to achieve step requirements. Heaters are designed to have a surface temperature of 400°C (black heat) at an air velocity of 2.5m/sec. It is not advisable to design for a velocity of lower than 2.0m/sec. All heater batteries are fitted with a nonadjustable high temperature safety cutout which operated on rise in temperature above 130°C ± 5°C, and can be manually reset. Automatic resetting thermal cutouts are not recommended. Uneven step ratings available. The electric heater is suitable for horizontal or vertical airflow. It is important that the thermal cutout is mounted at the highest point of the heater elements. The heater control system should ensure that the heater is switched off before the fan to ensure that the elements are cooled.

### Inspection Procedure

The heaters are given a flash test to 1500V, together with a resistance test for load insulation, tightness of glands and terminals, clearance check between element terminals and cover, and operation of thermal cutout. Test certificates available on request.

### Heater Selection

Calculate heater rating:

Output = Air Volume x Constant x Temperature Rise  
kW = m<sup>3</sup>/sec x 1.21 x  $\Delta$ T°C

### Selection requirements:

- kW loading
- Number of steps
- Type of step - 1 phase or 3 phase
- State if uneven steps are required
- Stab-in or duct mounting
- Duct size - width x height or diameter
- Air volume
- Horizontal or vertical airflow

Download specification from [www.ves.co.uk/information-centre](http://www.ves.co.uk/information-centre)