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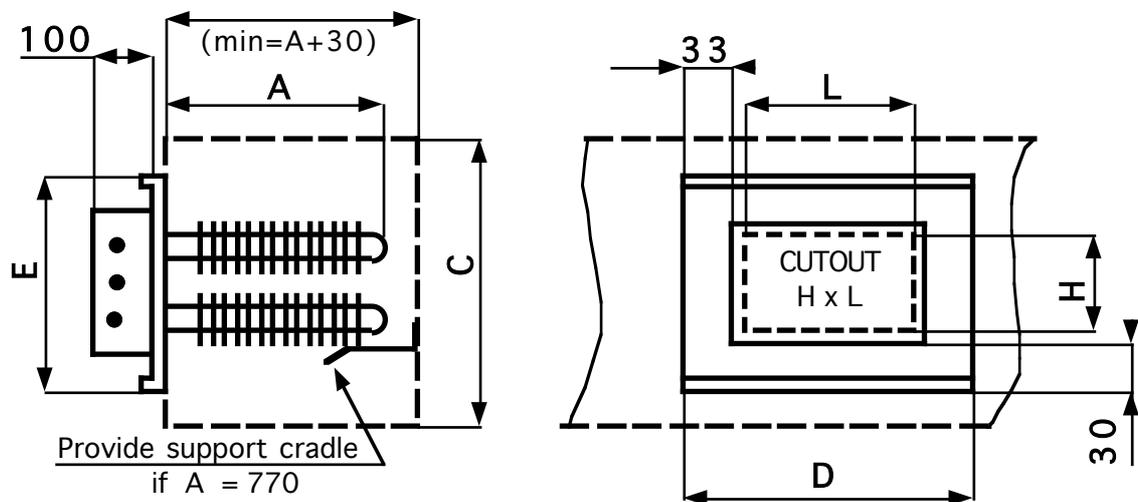
## OWNER'S MANUAL

### MODEL 60511/2/3 TERMINAL DUCT HEATERS FOR RECTANGULAR DUCTS

#### 1 - COMPOSITION :

The duct heaters made from zinc-plated stainless steel sheet or stainless steel sheet are designed for air velocities of at least 2m/s and are composed of :

- A bearing plate supporting from 1 to 18 25 x 50 Model 6004 finned heater elements (in one of 3 standard formats).
- An IP 307 electric box with 3 wire penetrations.
- A 90°C-100°C safety thermostat (10A maximum amperage at 230V) including automatic reset on standardized models (manual reset available on demand).



**2 - PRECAUTIONS DURING OPERATION :** Check the following :

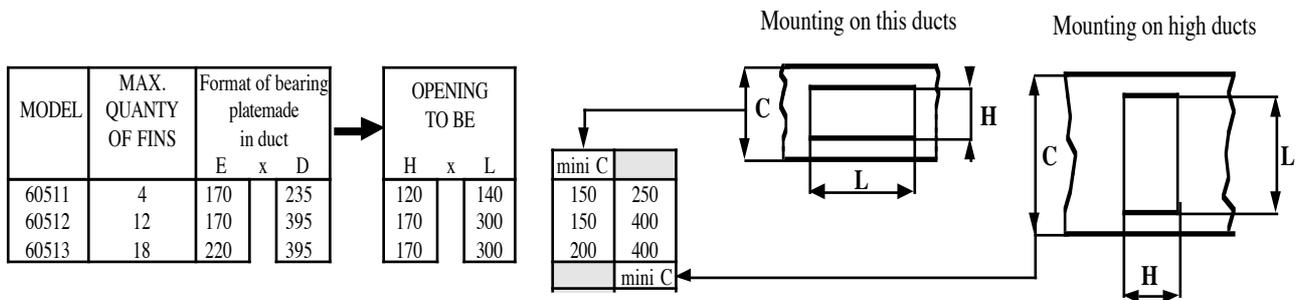
- 2 - 1 - That dimensions of the duct heater to be installed correspond to those of the duct in which it is to be installed (See Section 3-1).
- 2 - 2 - The power supply voltage used is that specified on the rating plate.
- 2 - 3 - That connections between items are still fast after transport and handling.
- 2 - 4 - That finned heaters are spaced at least 1 fan diameter from the fans.

**IMPORTANT :** To prevent overheating of the terminal boxes, it is recommended that wherever possible, these should be mounted toward the bottom when ducts are horizontal.

**3 - INSTALLATION AND WIRING :**

3 - 1 - INSTALLATION :

- Attachment holes should be drilled during installation.
- For large duct heaters, provide reinforcement around the inside of the duct opening using flat bar.
- A support cradle should be provided to support duct heaters with finned heater dimension A larger than 770 mm if they are to be mounted on thin sheet material. To be effective the cradle bearing surface should be at least 20 mm wide.



3 - 2 - WIRING : Make the following connections :

- From the earthing bolt to the earthing network.
- From the safety thermostat. If it has automatic reset, the control mechanism should irreversibly interrupt power in case of a fault.
- To the power system :
  
- When the duct heaters are supplied already connected, the only connection required is to connect the RED TERMINALS if they are installed in single stages. For dual stage duct heaters : the first stage should be connected to the terminals indentified in red and the second to terminals identified in green. The power rating and color coding are shown on the rating plate.
- When the duct heaters are supplied UNCONNECTED (references 60512-08, 60512-19,60512-28 and 60513-39) the user will be able to select one of the connection diagrams on the specific instructions that come with the unit and may select to use all or a portion of the heaters. (The necessary jumper straps are provided with with the duct heaters). After connection, check that resistance between terminals is correct in each operating configuration :

Measure resistance and compare with values tabulated below. P is power for the operating configuration in kW :

VOLTAGE FOR USE				
	230 SINGLE	400 SINGLE	230 THREE	400 THREE
Résistance to be measured ( in ohms)	52,9 / P	158,7 / P	105,8 / P	317,4 / P

#### 4 - **INITIAL STARTUP PROCEDURE** :

##### 4 - 1 - Starting :

**ATTENTION** : **UNDER NO CIRCUMSTANCES** should the duct heaters be energized without airflow.

4 - 1 - 1 Before energization : verify that minimum air flow is present.

4 - 1 - 2 Startup : energize the duct heater and check adjustment of regulation devices.

**IMPORTANT** : Check that interruption of air flow in all cases interrupts heater operation (i. e. deenergizes heaters).

##### 4 - 2 - Shutdown :

It is recommended that airflow be maintained for several minutes after the heaters have been shutdown (to cool the heaters).

#### 5 - **MAINTENANCE** :

5 - 1 After 50 hours of operation : Check that all connections and heater elements are tight. Torque for heater attachment should be 2.5 mN.

5 - 2 Every 6 months : Same operations as 5-1.

5 - 3 Every year : Check that heaters are not fouled, otherwise clean them.

**ATTENTION** : If heaters are removed for cleaning or repair, after reinstallation refer to Sections 2, 3 and 4.

**RECOMMENDATION** : It is recommended that the temperature limiter, in addition to interrupting irreversibly heater energization, also actuate an alarm system with an interlock and manual reset (with reset performed only after verification of the heater system).

For manual reset, interrupt power before pushing the reset button.

#### 6 - **GUARANTEE** :

The Guarantee complies with French Electrical Construction trade association accords.

We will not be responsible for any damages caused by the following :

- use at voltage 10% greater than nominal,
- insufficient maintenance, inappropriate handling or inexperienced users.