

HEAT

AUTOMATIC MACHINES FOR THE INDUCTION PRE-HEATING BEFORE WELDING

HEAT machines have been developed by Commersald for the **pre-heating** of metallic workpieces when they can't be welded at ambient temperature, due to the metallurgical features of the base material and/or of the filler metal.

The main **advantages** of HEAT, if compared with a traditional furnace, are:

- high efficiency and saving in energy cost;
- quick heating of each workpiece, with substantial reduction of the preparation time;
- easy repetition of the process and perfect control of the temperature of each workpiece;
- improvement of the working environment.

These machines have been developed following a principle of medium frequency induction and optimized to obtain a **quick and uniform pre-heating** to the core of workpieces from 0,5 to 40 kg weight.



A quick pre-heating offers the first great advantage to keep the oxidation low; this feature allows to pass directly to the welding operation, without any intermediate cleaning.

Each machine is assembled on a steel **mainframe**, where there are the electric cabinet and the working bench, complete of adequate metallic safety barriers.

On the working bench there are the refractory stones that work as a support for the workpiece to be heated, **the heating head** (fixed or mobile) with the related coil and the temperature probe (thermocouple) to monitor the temperature.

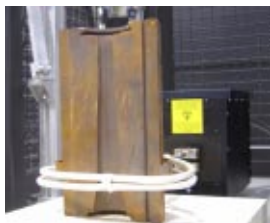


The electric cabinet contains all the electrical components, the power generator, the cooler and the **control panel** complete of a PLC with a display for the set up and the control of the working parameters.

Once the setting temperature is reached, the system is able to keep it automatically until the door is opened to pick up the workpiece.

The temperature is read by a contact **thermocouple** offering a very quick feedback with a lamellar sensor.

The machines **HEAT** have been developed mainly for the Glass industry, to heat moulds, bottoms and neckrings in cast iron or bronze, that is therefore our reference to describe the duty cycle. They could be used in different ways, depending on the type of workpiece to be welded, but usually **the heating time is shorter than the welding time**, reducing the dead time.



- Pre-heating in vertical axis with mobile inductor (HEAT 12F excluded). This method is used for **cast iron moulds** of every kind and for **bronze moulds** having a constant external diameter. The coil winds the workpiece and it is moving up and down. This condition grants a uniform heating without excessive overheating of the corners. The mobile thermocouple that controls and manages the temperature is over the workpiece.



- Fixed inductor under the workpiece. This is the most productive method to pre-heat **heavy bronze moulds**, placed horizontally and held by two refractory stones to keep a constant distance of 3-4 mm from the inductor. The mobile thermocouple that controls and manages the temperature is over the workpiece.



- Fixed inductor that winds the workpiece. Useful for **bottoms, rings and neckrings** of every type. The shape of the inductor could be either closed or fork-like. The thermocouple is under the workpiece.

HEAT is available in three standard **versions**; in addition, thanks to the system versatility, HEAT can be integrated in a working island and fully robotized.

HEAT 12F

POWER 12 KW
FIXED INDUCTOR

HEAT 12 F is the basic version, with fixed inductor, useful to pre-heat pieces having maximum size **Ø 150 x 100 mm**, therefore in general it is suitable for bottoms, rings and neckrings of every kind.

HEAT 12

POWER 12 KW
MOTORIZED HEAD

This model offers the **MOTORIZED** excursion of the inductor, with fork or round coil, moved up and down. This version is used to pre-heat pieces having maximum size **Ø150 x 350 mm**, therefore, adding to small pieces, it is suitable for moulds, too. The motion of the induction unit grants a perfect pre-heating, avoiding an excessive over-heating in the corners.

HEAT 24

POWER 24 KW
MOTORIZED HEAD

This model is similar to the previous one, mounting therefore the **MOTORIZED** excursion of the inductor. The higher power of the generator (24 KW) allows to pre-heat heavy workpieces, with maximum size **Ø250 x 450 mm**. Heat24 can be used in place of the previous ones, too, by setting a lower heating power.

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