



Holding furnace with transistor converter

The channel-type induction furnace, a special design for horizontal continuous casting, consists of a refractory-lined metal vessel, an exchangeable induction unit, a vertically and laterally adjustable support structure, and a hydraulic tilting mechanism. The tilting mechanism guarantees operation in all working positions and allows for rapid die changes.

The metal vessel and the inductor are two completely independent components.

A furnace of this size (5,000 kg and up) calls for inductor units with a double channel, i.e. with two water-cooled furnace coils.

In its basic form, the inductor unit consists of an enclosed, laminated iron core with two inductor coils around its legs. Embedded in the refractory material, the melt runs around the inductor coils in the channel. This metal loop enclosing the inductor coil is connected electrically and thermally to the metal in the vessel and thus forms a closed circuit in which the induced secondary current can flow.

The magnitude of the primary and secondary current depends on the operating voltage, the effective resistance and reactance of the system, and the number of windings of the inductor coils.

The channel-type induction furnace operates at stepless



voltage in order to match the working and casting conditions.

The variable voltage is supplied by a transistor converter. The temperature control system regulates automatically the power supplied by the converter.

This guarantees nearly constant metal flow conditions at the die entry during the entire casting operation.

The converter cabinet contains an AC rectifier, an intermediate DC circuit, an inverter, control electronics and a control panel in the front door of the converter.

MACHINE CHARACTERISTICS

Cast material	Cu alloys
Furnace nominal capacity	approx. 6,000 - 12,000 kg (Cu)
Furnace usable capacity when casting	approx. 2,500 - 7,000 kg (Cu)
Metal heel when casting	approx. 3,500 - 5,000 kg (Cu)
Metal heel when changing dies	approx. 2,000 - 2,700 kg (Cu)
Inductor power	150 - 250 kW (Cu)
Cooling water requirement	2.5 - 4.0 m ³ /h

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