POUROMAT –
the flexible solution for the automated pouring of cast iron

With its extensive practical experience in the field of pouring furnaces, ABB has now extended its range of automatic metal pouring products by introducing the unheated POUROMAT system.

The POUROMAT system is particularly well suited for the automatic pouring of a range of materials including spheroidal graphite cast iron.

The structure is basically that of the PRESSPOUR® pouring furnace: a cylindrical furnace with a refractory lining, a pressure-resistant roof and flange-mounted feeder and discharge siphons. The latter runs into a tundish in which the bath level is held constant by pressure control. Pouring is via a stopper using either a teach-in process or a closed loop control circuit. The whole unit can travel both lengthwise and transversely. The furnace is equipped with a hydraulic tilt mechanism.
Simple installation on foundry floor

Even if low moulds are to be used (upper edge not lower than approx. 1m), the flat design of the furnace allows the POUROMAT to be installed on the foundry floor without the need for a pit. The modular substructure is adjusted to suit the particular pouring height required.

Rapid furnace vessel changeover

The furnace vessel is mounted on the four trunnions of the support structure. Other system components such as the stopper control, inoculation facility, camera or laser-based monitoring system, gas burner and electrode holder are installed on a peripheral frame which is attached to the carriage. The furnace vessel can be changed quickly once the stopper has been removed and the stopper arm swung away. Also attached to the frame is a work platform which runs around the tundish, which makes it easy for the operator to change stoppers and nozzle bricks or to clean the tundish.
Benefits for Mg-treated melts

The feed and discharge siphons are designed so that short easily accessible channels are formed, from which deposits can be mechanically removed without difficulty. For spheroidal iron production, nitrogen is admitted to the POUROMAT. In addition, the experience gained from using pouring furnaces to pour Mg-treated melts is also taken into account.

Small heel - great flexibility

The shape of the furnace vessel and its refractory lining have been designed for the best possible ratio of usable to total capacity so that, despite the use of a siphon system, only a relatively small quantity of iron remains after the furnace has been completely discharged. An important component in this regard is the bottom channel which connects the two siphons.

Minimal heat losses

Heat losses are kept to a minimum by:

- the refractory lining of the furnace vessel and the highly insulating furnace cover,
- the pneumatically actuated feeder lid and tundish cover,
- the short, narrow tundish with its small surface area for the stopper and the bath level monitoring electrodes.

The temperature drop of the melt in the POUROMAT is 1 to 1.5 K/min.

<table>
<thead>
<tr>
<th>Capacity</th>
<th>total</th>
<th>usable</th>
<th>heel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pouromat OCC 18</td>
<td>2.400 kg</td>
<td>1.800 kg</td>
<td>600 kg</td>
</tr>
<tr>
<td>Pouromat OCC 38</td>
<td>4.500 kg</td>
<td>3.800 kg</td>
<td>700 kg</td>
</tr>
</tbody>
</table>
Heat retention by the melt

If the unit comes to an accidental standstill, the POUROMAT can, at the push of a button, be tilted to discharge the contents of the tundish and the stopper opened so that it does not freeze solid. The heat content of the melt is sufficient to maintain the furnace vessel close to operating temperature for approximately one hour. Depending on the length of the down-time, pouring operations are either continued immediately or the furnace vessel is tilted further to fully discharge the contents and then recharged prior to restarting operations.

Controlled mould-filling of proven reliability

The pouring process itself is based upon tried and tested ABB engineering solutions: pneumatic or hydraulic stopper control with its patented cleaning mechanism, programmed pouring with OPTIPOUR® (or laser controlled) and the incorporation of the inoculation process into the pouring stream or, additionally, into the tundish.