

Visualization of the Flow in the Mold by Contactless Inductive Flow Tomography in the Presence of a Magnetic Brake

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In order to enhance the productivity and to achieve higher steel cleanliness in continuous casting the application of various magnetic fields is considered an efficient tool for controlling the flow in the mold. For instance, DC magnetic fields perpendicular to the wide faces of the mold are used to dampen the jets emerging from the submerged entry nozzle (SEN). Especially in this case, even a rough knowledge of the flow structure in the mold would be highly desirable.

The Contactless Inductive Flow Tomography (CIFT) allows reconstructing the dominating two-dimensional flow structure in a slab casting mold by applying one external magnetic field and by measuring the flow induced magnetic fields along the narrow faces of the mold.

For a physical model of a continuous caster, consisting of a mold with a cross section of 140 mm x 35 mm, we will present first measurements of the flow induced magnetic field in the presence of a magnetic brake of the ruler type. The first results demonstrate the viability of the CIFT measurement technique in such a configuration.

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