The FC MEMS, designed for conventional slab casting with low to normal casting speed, consists of two stirrers placed at meniscus level, one at each mold wide side. This location enables direct flow control at the meniscus with high efficiency and low power demand.

Quality improvements.
The FC MEMS is designed to produce rotational movement of the melt in the slab mold resulting in:

- Washing away of inclusions and gas bubbles normally entrapped in the slab surface/subsurface.
- Increased meniscus temperature close to the SEN resulting in a more even shell growth and decreasing the risk for mid face longitudinal cracks; see figure to the right.
- Uniform meniscus temperature contributing to an even layer of molten powder; see figure to the right.
- Increased meniscus temperature at the solidification front decreasing the hook depth of the solidified skin, further decreasing subsurface inclusions; see figure to the right.
- Possibilities for higher casting speed.
Productivity improvements

As a consequence of the slab quality improvements coming from using an FC MEMS, the casting speed can often be increased, thereby resulting in increased productivity. Further, the improved quality might also bring new product areas within reach.

Effective solution

The location of the two stirrers at the meniscus level enables direct flow control without the need for additional control hardware. Consequently, the use of the FC MEMS is simple and straightforward.

The two part stirrers are electrically connected in series and thus only one frequency converter is needed.

This solution using less equipment meaning lower investment cost.

Building in

Normally, the FC MEMS is placed in a “window” in the water jacket (internal design) and goes in and out of the caster with the mold; see figure to the right. The mold copper back-up plate has to be replaced with non-magnetic austenitic stainless steel.

The FC MEMS can also be fastened on manipulators and pulled out of the mold “window” at mold exchange; see figure to the right. In this case (external design), the oscillation weight of the mold remains unchanged and the electric cables and water hoses do not have to be (dis)connected during mold exchange.

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