



# Mold & Oscillator for Continuous Casting

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## Business Case

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# Mold & Oscillator for Continuous Casting

## Remodelling and Fabrication of Mold & Oscillator for Continuous Casting Line

A project for fabrication of Mold and Oscillator, that was originally designed by SMS, was carried out at POSCO's Pohang Iron & Steel in Gwangyang, Korea. The 10 months long project involved remodeling and fabrication of the mold and oscillator to accommodate ABB's agitator with electromagnetic ruler braking (EMBR) technology for thin slab casting. The joint development efforts between LPR, ABB and POSCO delivered a highly cost-effective mold and oscillation solution with increased mold life, high homogeneity of cast steel, improved cast speed, and superior steel cleanliness.





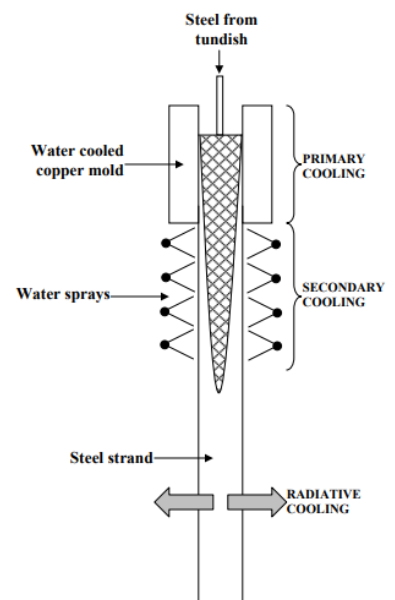
# Mold & Oscillator for Continuous Casting

## What is EMBr Technology in Continuous Casting?

When casting steel slabs, EMBr is an effective way to generate a laminar flow of molten metal within the mold. This laminar flow reduces several surface defects, including due to meniscus freezing, slag entrainment and other intermittent defects. EMBr assists in controlling flow by applying static or moving electromagnetic forces through the core of the strand. The electromagnetic field controls the flow by generating induction current in the strand which in turn generates force or “brakes” opposite to the original flow of the melt. EMBr also effectively doubles the life of the mold due to its ability to streamline the flow of the melt.

## Project Scope

Weighing approximately 28 tons, a set of 4 mold frames were redesigned in collaboration with POSCO and manufactured to accommodate the ABB EMBr flow control system. The project was undertaken by POSCO, with POSCO E&C being the co-designer and POSCO ICT the system designer, and LPR providing the comprehensive fabrication services.





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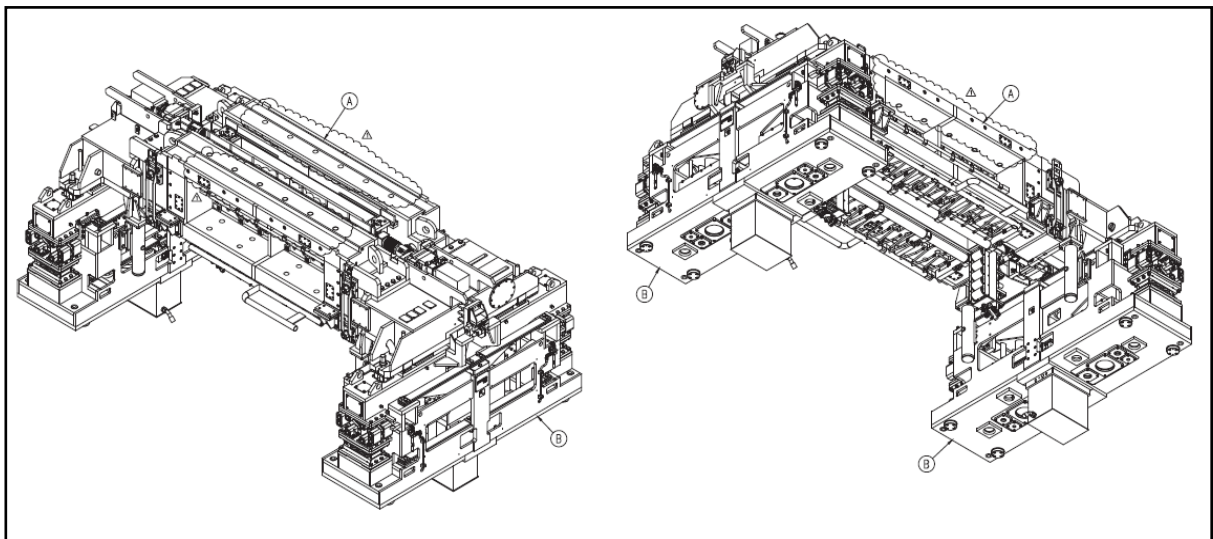
## Fabrication Challenges:

Fabrication of mold is a challenging task, with numerous inbuilt cooling channels and the need to handle excessive loads within its constrained dimensions. The cooling system within the mold needs to be designed such that almost 40% of the total superheat and 30% of the sensible heat is removed from the strands through the molds. To achieve this, sophisticated materials in combination with precision welding is used. Additionally, thorough post fabrication testing is conducted, including high pressure water pressure testing, before the molds are cleared for delivery.

LPR having extensive experience in fabrication of complex equipment, such as molds and oscillators for casting lines, takes pride in their state of the art facility, exceptionally skilled workforce, and testing facility.

LPR completed the fabrication in time, budget and quality to meet our clients performance expectations.

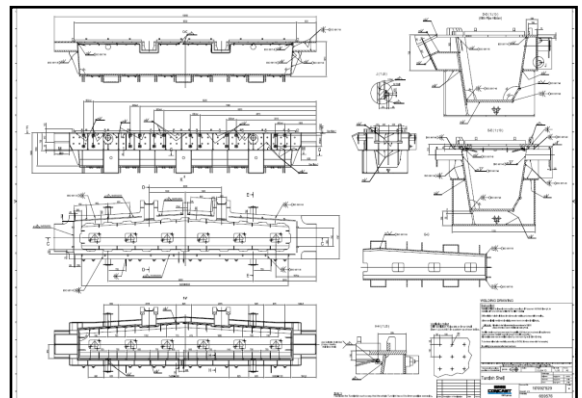
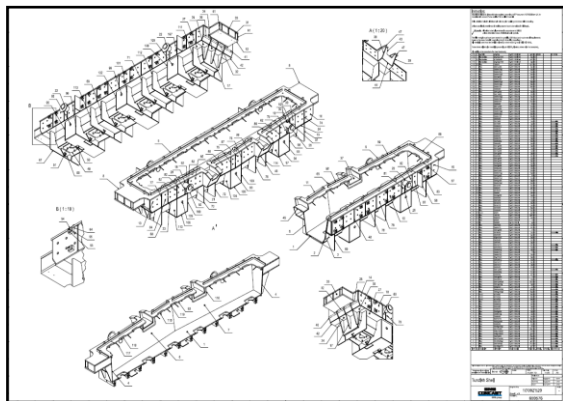
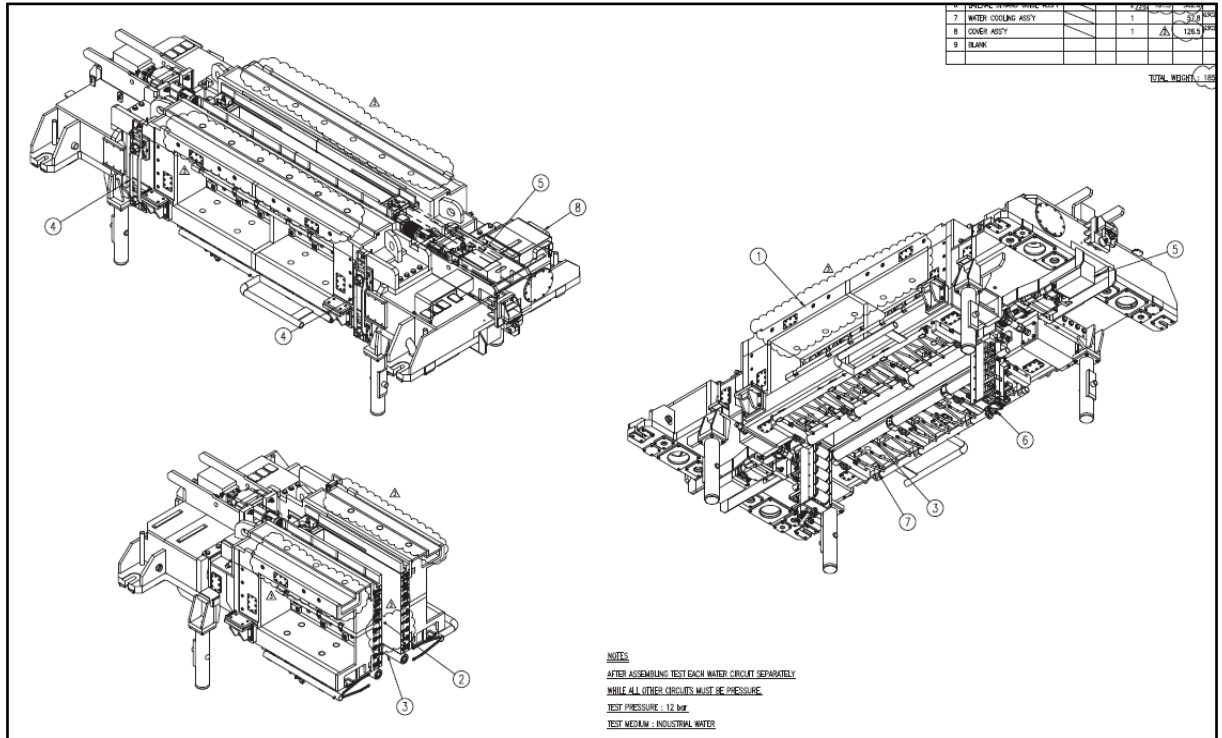
## Project Reference Drawings:





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## Project Reference Drawings:





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