Enhancing mold flow control in continuous slab casting process

Produce cleaner steel, faster and at lower cost by adjusting to varying casting conditions in real time

**SITUATION**

Defects, rejects and steel downgrades due to varying slab casting conditions

- Different electromagnetic settings are needed depending on throughput, slab format, slag type, steel grade, argon flow injection, SEN type and immersion depth mold level, etc.
- Too time consuming to find appropriate settings through trials, by slowly building up an experience database, or by numerically simulating the process

**SCOPE OF DELIVERY**

- **METALS, Tata Steel Europe, 2018**

**SOLUTION**

Complete system for online monitoring, measurement and optimization of casting process

- Fiber-optic mold plate temperature measurement for continuous casting
- Simultaneous stirring and braking in the mold from one fixed position
- Automated control and optimization of continuous casting process in real time

**SUCCESS**

Creating best possible flow for electromagnetic devices that adjust to varying casting conditions

- Increased control of molten steel flows by getting early warnings on defects, predicting mold flow
- Significant reduction of inclusion defects and downgrades for all casting conditions
- Producing cleaner steel, faster and at lower cost (Higher casting speed with FC Mold)

**BENEFITS**

- **ABB Ability™ Optimold Monitor** with unparalleled spatial resolution - over 4000 fiber-optic measuring points per mold
- **FC Mold** electromagnetic stirring / braking device for elimination of mold powder entrapments, reduced crack formations and more
- **ABB Ability™ Optimold Control** for powerful analysis of casting conditions and flow patterns to regulate symmetry and flow speed

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