

CC-EYE

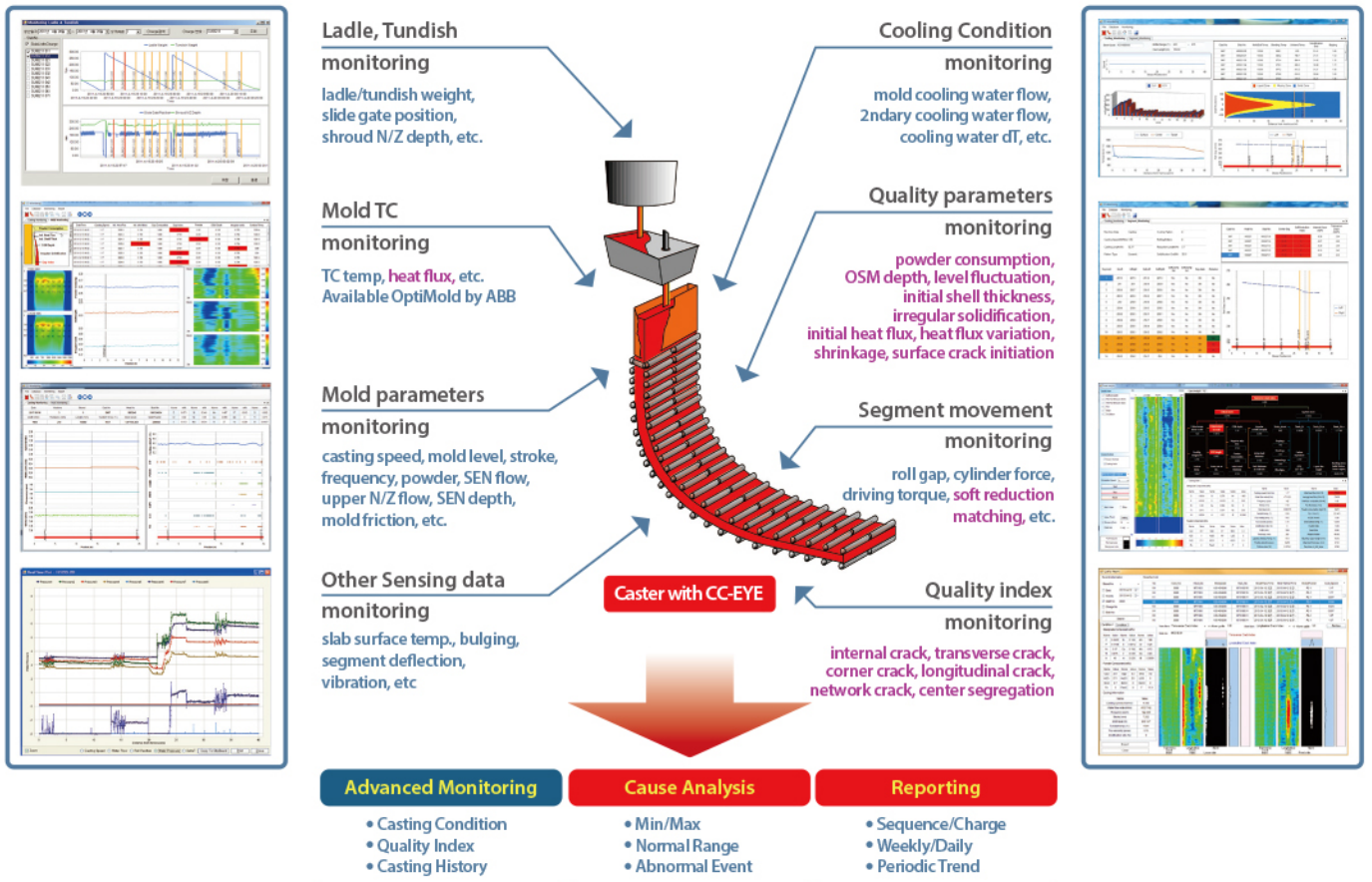
Smart Factory System for Continuous Casting

On-line Prediction of Qualities and Origins of Defects

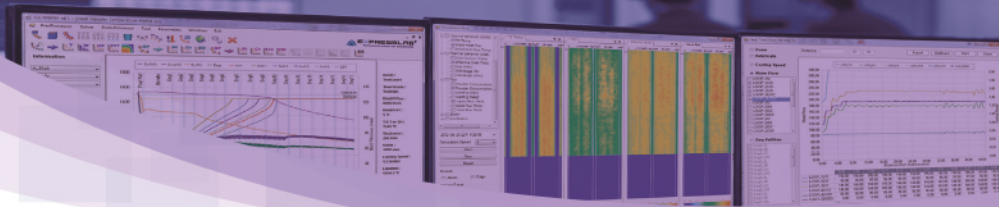
CC-EYE offers a function of an advanced on-line monitoring of quality related parameters, cracks, and central segregation during continuous casting. It also gives on-line prediction of the origins of defects and casting abnormalities, and it is easy to check whether these problems are solved. Eventually, the basic framework for Smart Factory System for continuous casting can be constructed.

Expert System for Continuous Casting

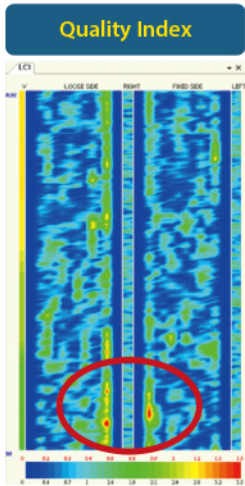
- Real time Check of Casting Conditions & Quality Index
- Check History of Casting Conditions & Quality Index
- Scarfing/Grinding Decision Guide
- Finding Cause of Defect and Solution Guide
- Data Management of Casting Information and results



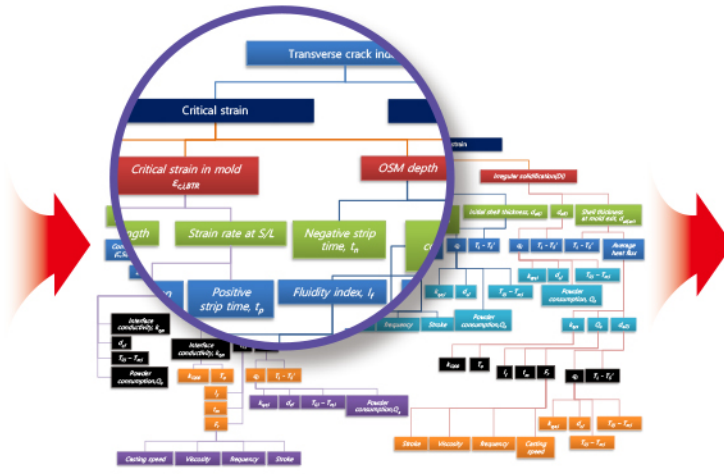
Right Solution of Smart Factory for Continuous Casting!



CAUSE ANALYSIS & REPORTING



Advanced Monitoring



Cause Analysis

Casting / Quality Parameters Check

- Checking Min/Max values
- Checking normal range or not
- Checking abnormal variation

Casting parameters

TC temp, heat flux, casting speed, mold level, stroke, frequency, powder, SEN flow, N/Z flow, SEN depth, mold friction mold cooling water flow, 2ndary cooling water flow, cooling water dT, roll gap, cylinder force, driving torque

Quality parameters

powder consumption, OSM depth, level fluctuation, initial shell thickness, irregular solidification, initial heat flux, heat flux variation, shrinkage, surface crack initiation

Cause Analysis

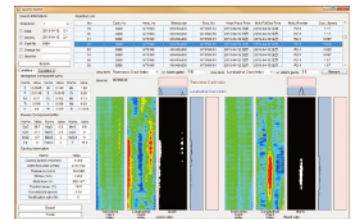
- Summary of abnormal parameters
- Finding main parameter of the problem
- Evaluating effect of main parameter change

Quality Index

Internal crack, transverse crack, corner crack, longitudinal crack, network crack, center segregation

Reporting

- Systematic reporting based on slab position
- Guidance for precise scarfing/grinding decision



BENEFITS

- Maintaining optimum casting condition by constant real-time monitoring of slab qualities and casting condition – **basic platform for defect-free slab casting and highly efficient casting operation**
- Expected profit from **minimizing the defect ratio of each steel grade**
- **Reducing the required time for problem solving to less than 1/20**
- **Reducing the cost for trial and error** by drawing optimum casting condition through carrying out off-line simulation before new steel grade production
- **Reducing the cost of scarfing loss** by using the predicted defect ratio with slab position as guidance for precise scarfing decision

REQUIREMENTS

- System server : HP DL380 or higher
- Database S/W : Oracle or MS-SQL
- Network : TCP/IP networking with Level2 and Level3 system
- Client PC : Desktop or Notebook PC
- Operating system : Windows Server (32/64 bit)
- Can be changed by
 - situation of inventories at ordering time
 - user requirements

