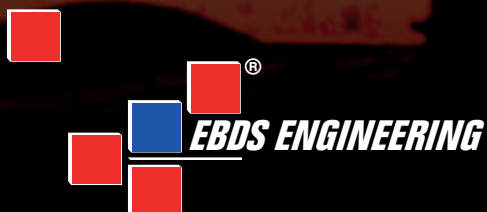
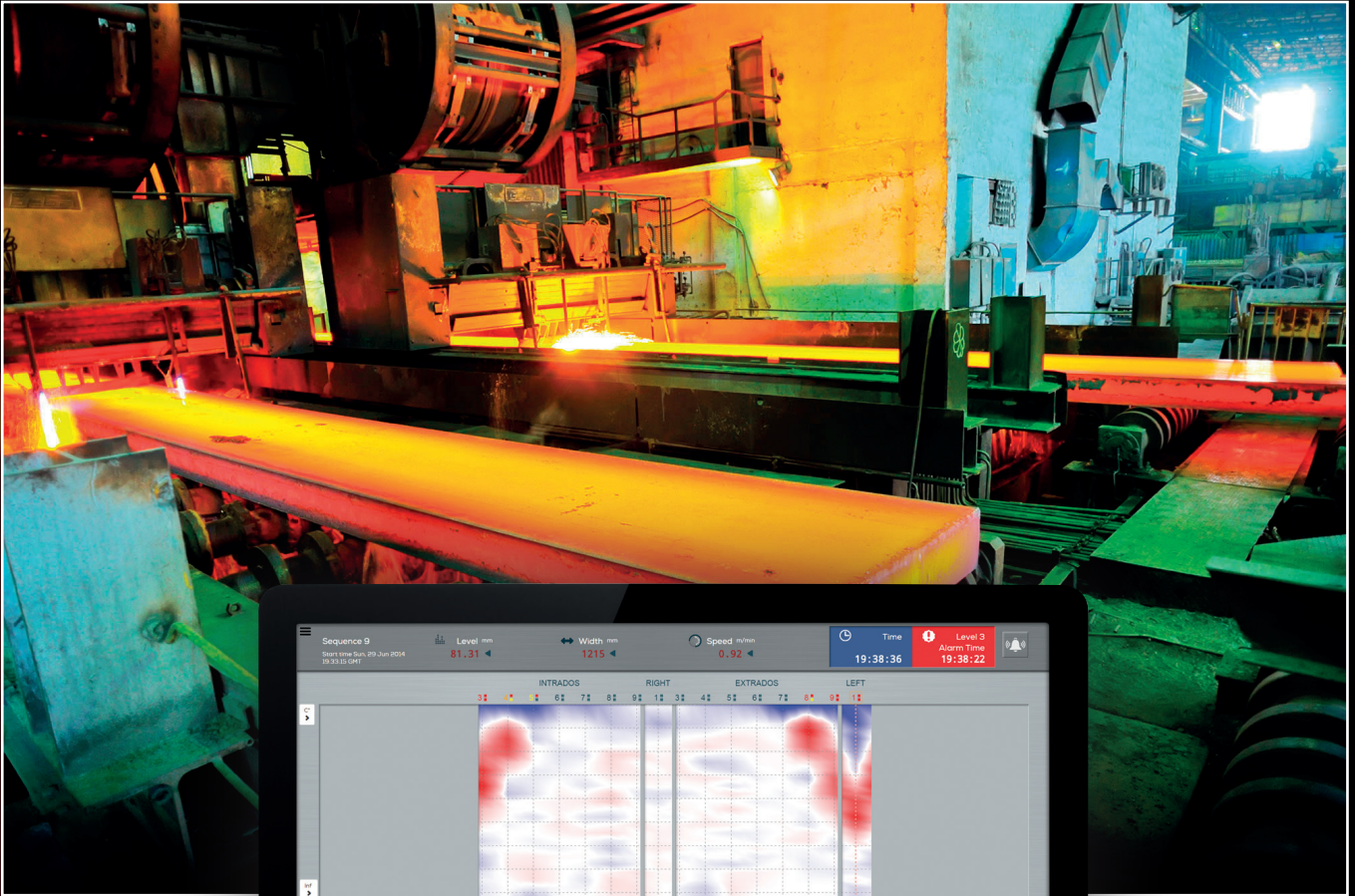


EMERALD

Sticker Breakout Detection System & Mould Thermal Behaviour Monitoring System For Continuous Casters



EBDS Engineering is pushing higher the standards in Sticker BO Detection with its new "Emerald" BO detection system:

It is a completely brand new BO detection program, developed from scratch, incorporating a lot of new features and functions, compared to the former « Martine » program. Emerald is a "must have" for all continuous casters that wants to be at the -state of the art- in Sticker BO Detection.

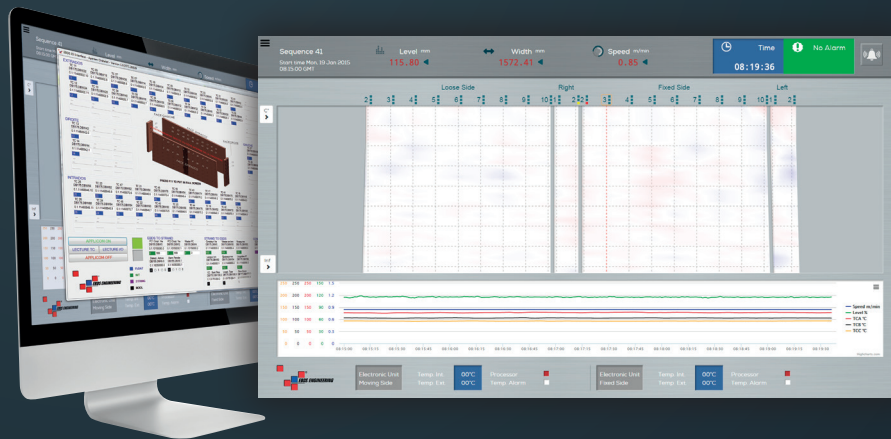
IMAGE AND INTERFACE FEATURES

The Emerald interface shows the operator the mould thermal conditions in real-time in a way that he understands, at a glimpse, if everything 's ok or if there is a problem in the mould.

The size of the thermographical image is permanently self-adjusted to the casting width.

At a mouse click, the operator can:

- > check the global thermocouple situation
- > de-activate/re-activate a specific thermocouple
- > come back into the history to review a previously released alarm or problem, while the detection
- > check the acquisition system working conditions
- > ...and a lot more



The engineer in charge of the system can of course analyze deeply the reasons of an alarm (what rule has triggered the alarm), by replaying the file (back and forth), with a dedicated engineer interface; He can adjust the calculation parameters and upload them directly to the servers.

The emerald BO detection system can be adapted to any existing mould situation (2 or 3 tc rows, several pairs -or triplets - on narrow face, etc...).

COMPUTER SYSTEM/HARDWARE

Emerald runs and uses the latest IT technology.

Windows Server 2012, MySQL real-time database, Industrial Ethernet network Applicom cards, Client/Server information distribution, redundant servers for each casting strand, etc....

It makes of Emerald the most reliable BO detection system worldwide.

The client/server solution allows to display the BO detection on any computer connected on the network of the plant, using a Web Browser interface (Http,Php,...).

DATA ACQUISITION SYSTEM

EBDS Engineering has developed its own data acquisition system, as well as its own method of thermocouple installation, in order to maximize reliability and reduce maintenance costs of the hardware on the mould. The digitalization is done on the mould, with the help of an EBDS's dedicated electronic data acquisition card. It allows to suppress the heavy compensation cables by a twisted pair cable. The long range transmission to the electrical substation is done by Profibus. In addition, a SIEMENS S7-300 is used for each strand, for data concentration and preparation.

The Emerald system can be connected to any existing temperature acquisition system, provided the information needed can be, at final stage, collected through an Industrial Ethernet network.

If you have false alarms, and do not understand why your system generates them ...

If you have sticker breakouts, and you don't understand why your system did not detect them ...

THEN, IT'S TIME TO SWITCH TO EMERALD BO DETECTION SYSTEM!



Don't hesitate to contact us for a presentation,
or for a free evaluation of your existing system,
and see all the benefits of using Emerald BO detection system instead!

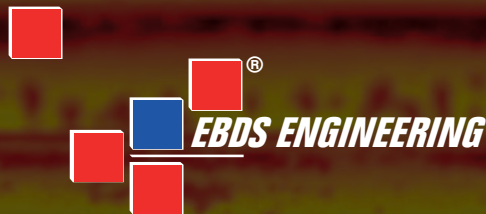
THE CALCULATIONS FEATURES

The calculations, unlike classical system, are based on the possible metallurgical behaviours of the curves. They have notably the following characteristics:

- › Self adaptation to the casting conditions without any necessary intervention of an operator thanks to its individual Self Adaptation Thresholds Parameters.
- › Quantification of the importance of the phenomena's to increase the reliability and the speed of detection, in combination with the use of a Critical Events Matrix.
- › Absolute Temperature Correction Algorithms, for thermal sensibility compensation.
- › Calculation algorithms for detection of other patterns (ex: mold flux "rupture" in ferritic stainless).
- › New algorithms can be incorporated if necessary.



The calculations strategy and rules are continuously being improved and upgraded by EBDS Engineering's specialists.



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