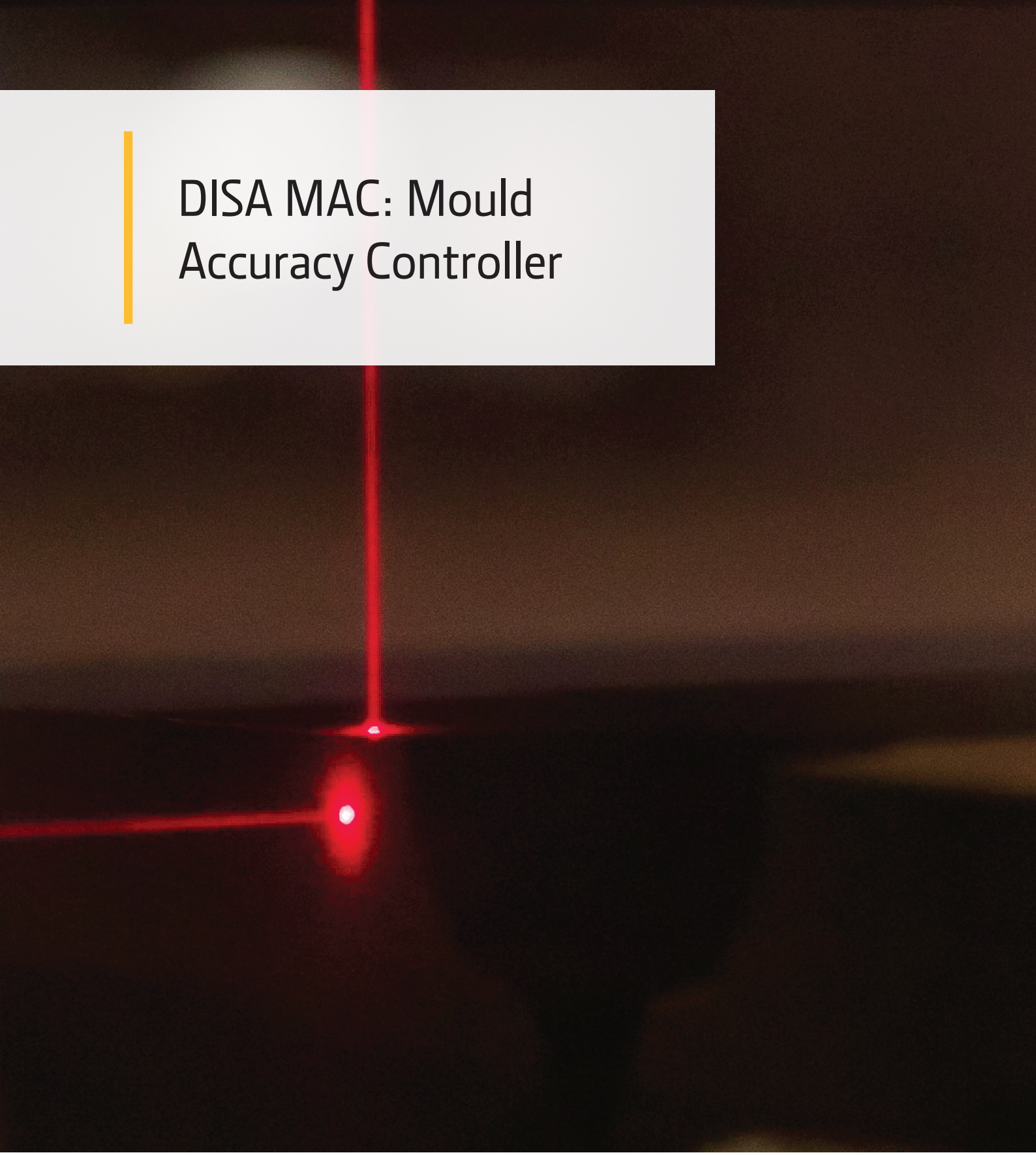

DISA MAC: Mould Accuracy Controller

A new dimension in casting precision

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Be sure before you pour

Pour only the perfect moulds

Only a perfect mould alignment can produce perfect castings. Misalignment - mould mismatch and gaps - cause casting defects which then need extensive rework, or have to be scrapped; it can also cause run-through, leading to mould line downtime.

Even the most advanced foundries have limited means of identifying issues with mould alignment early enough to prevent them. In fact, they often won't know until long after moulds have been poured and further processed. Due to this time delay, many more castings could be produced with the same problem.

The DISA Mould Accuracy Controller (MAC) helps identify and tackle this problem.

For the first time ever, foundries are able to spot and react to mould string inaccuracies in real time, and crucially, before pouring.

The DISA MAC in brief

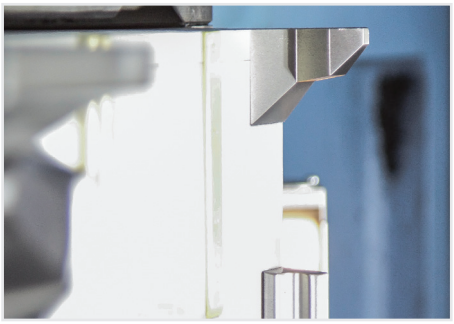
The DISA MAC is a high-precision measuring device that captures mould-related mismatch, mould gaps, mould steps and parallelism (measurement parameters) for each mould before pouring.

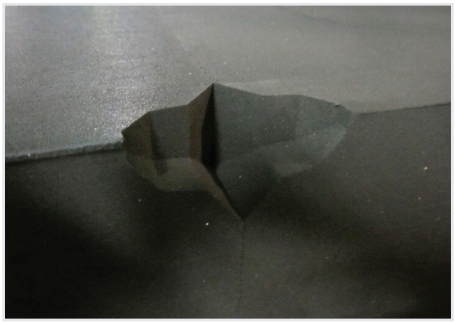
It consists of a bridge-like scanning bracket mounted across the mould string between the moulding machine and the pouring unit.

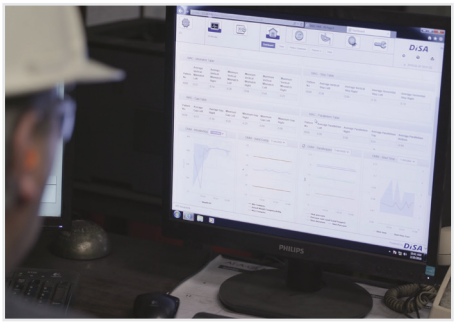
The bracket is equipped with laser sensors that continuously scan the mould string and specially designed impressions on each mould. The MAC system then calculates the four measurement parameters and identifies issues according to customer pre-set limits.

A warning light on top of the bracket alerts operators to deviations via a simple traffic light system.

Keeping an eye on alignment







Straight-forward hardware, intelligent software

The patent-pending MAC system is made up of easy-to-install, easy-to-align hardware and one clever piece of software.

Together, they enable the precise detection of mould string imperfections, using a unique algorithm developed by DISA.

Making a unique impression: MAC pattern plate blocks

How do you reliably measure the accuracy of a mould cavity from the outside of the mould string? That's the challenge the development team at DISA had to overcome.

The ingenious solution: the creation of reference impressions on the outside surface of each mould half.

The position of these impressions - in relation to the casting cavities in the mould - is known, so when they meet up at the mould parting line, their relative positions will reflect the actual position of the two mould cavities relative to each other.

The team achieved all this by designing special MAC pattern plate blocks to be fitted in each of the four corners of both press and swing pattern plates.

The distinctive shape of these blocks makes sure that, just by scanning along the impressions they leave on the mould, the MAC system can capture data on the four dimensional and positional mould parameters.

A signature curve

The readings taken by the laser sensors result in an exact depiction of the mould string, in the form of a distinctive curved graph, via which the four aspects of mould and mould string measurements can be calculated.

Outer values for mismatch, gaps, steps or parallelism then trigger alarms depending on pre-set limits. The measurements and analysis are done in-line, giving the operator enough time to stop moulds from being poured.

A new perspective on your data

The MAC data can be easily monitored at the operator panel on the moulding machine, showing real time data on a range of dashboard, table and graph views.

Through this, operators can monitor production and gain a better understanding of the behaviour of the line – leading to better control of mould production parameters.

However, to enable even deeper analysis of the data, the MAC also comes with a free basic version of the Monitizer® | CIM, a new data platform for foundry processes.

It provides easy access to both historical and real-time data, turning it into actionable insights to improve foundry operations.

DISA Industries A/S
Hojager 8
2630 Taastrup
Denmark

T: +45 44 50 50 50
F: +45 44 94 52 25

www.disagroup.com

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www.noricangroup.com