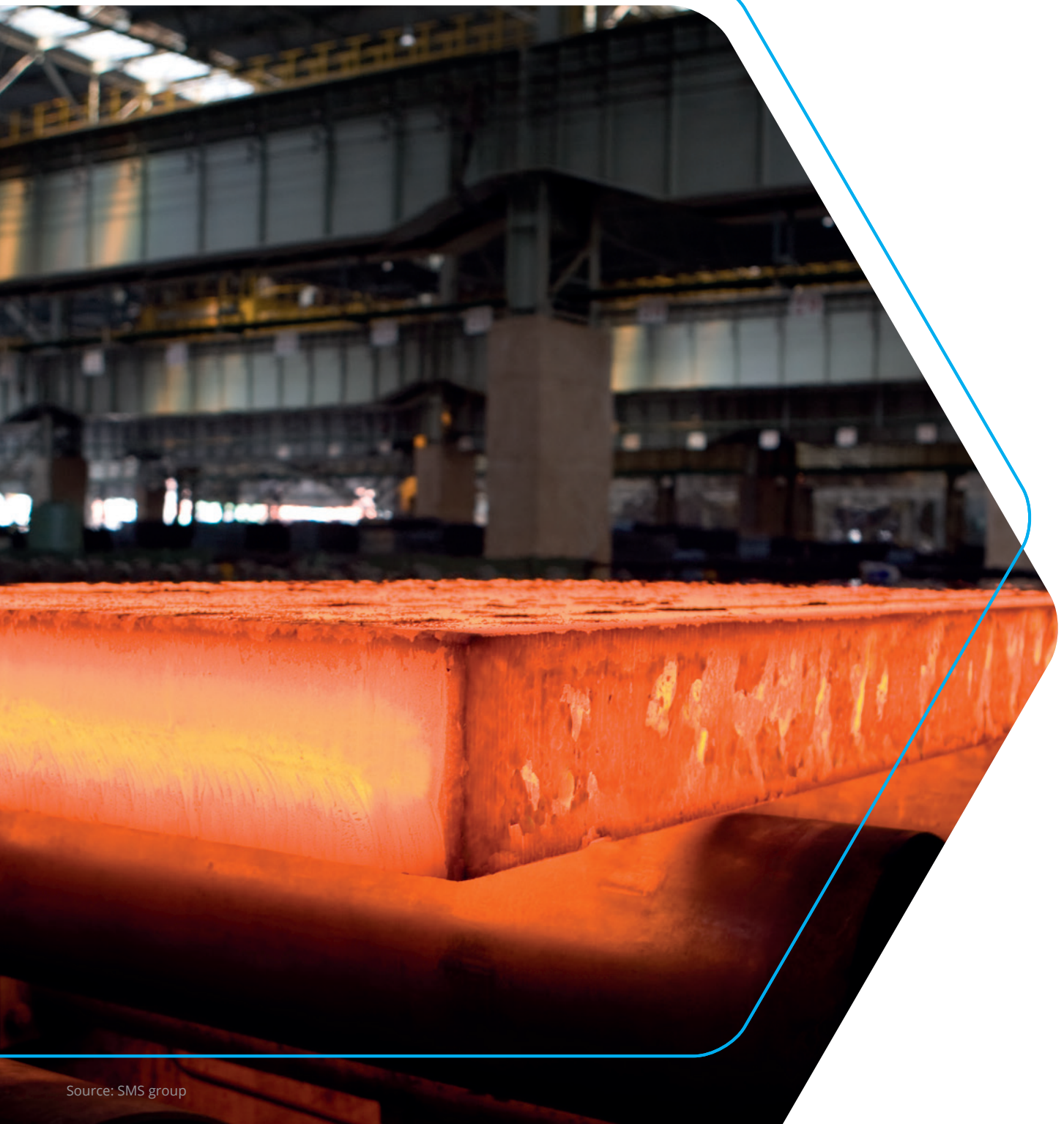


Optimise your processes and increase your quality

# Quality assurance systems for slab and hot strip





EMG Automation GmbH

## perfecting your performance

EMG Automation GmbH

### The company

EMG is the specialist when it comes to intelligent and complex automation solutions. As a technology leader, EMG is the first point of contact for you, our customers.

Central areas of application for series products, individual components and complex system solutions from EMG are continuous production processes in the metal industry.

As a traditional company and world market leader with 75 years of experience, EMG's Metals business unit offers its customers, i.e. you, complete solutions for your respective individual requirements.

Consultation, joint planning and intensive support of the customer up to commissioning therefore play a decisive role in addition to the pure technical products.

Here, we focus on process automation and visualisation as well as process control and monitoring

#### EMG Strip guiding solutions

With our high-quality strip guiding systems, we provide safe, low-maintenance and technically mature components as well as complete solutions that optimally support your respective technological production process.

Due to the constantly increasing demands on quality and high availability in combination with reduced operating and maintenance personnel, the requirements of our customers are also constantly increasing. Through the continuous optimisation of our solutions, we are able to meet these requirements.

Together with our quality assurance systems, we offer versatile and reliable solutions for improving your process and product quality - all from one single source!

**Our goal: Perfecting your performance!**

#### EMG Quality assurance systems:

EMG's innovative quality assurance systems enable you, as our customer, to continuously optimise your manufacturing processes and increase your production quality in order to optimally meet the constantly growing demands on your end product in the long term.

- » **EMG iSCAN®:**  
Slab dimension / position measurement and tracking
- » **EMG hotCAM:**  
Strip position measurement and guiding
- » **EMG IMPOC:**  
Online measurement of tensile and yield strength
- » **EMG SORM®:**  
Online roughness measurement
- » **EMG eMASS®:** Strip stabilisation
- » **EMG eBACS:** Baffle blade control
- » **EMG SOLID®:**  
Online oil layer measurement
- » **EMG BREIMO:**  
Strip width measurement
- » **EMG iCAM®:**  
Online measurement of strip and slit strip width

#### Solutions for slab and hot strip:

The special conditions in the hot area require special solutions. Learn more about the possibilities and advantages of EMG solutions in this brochure.

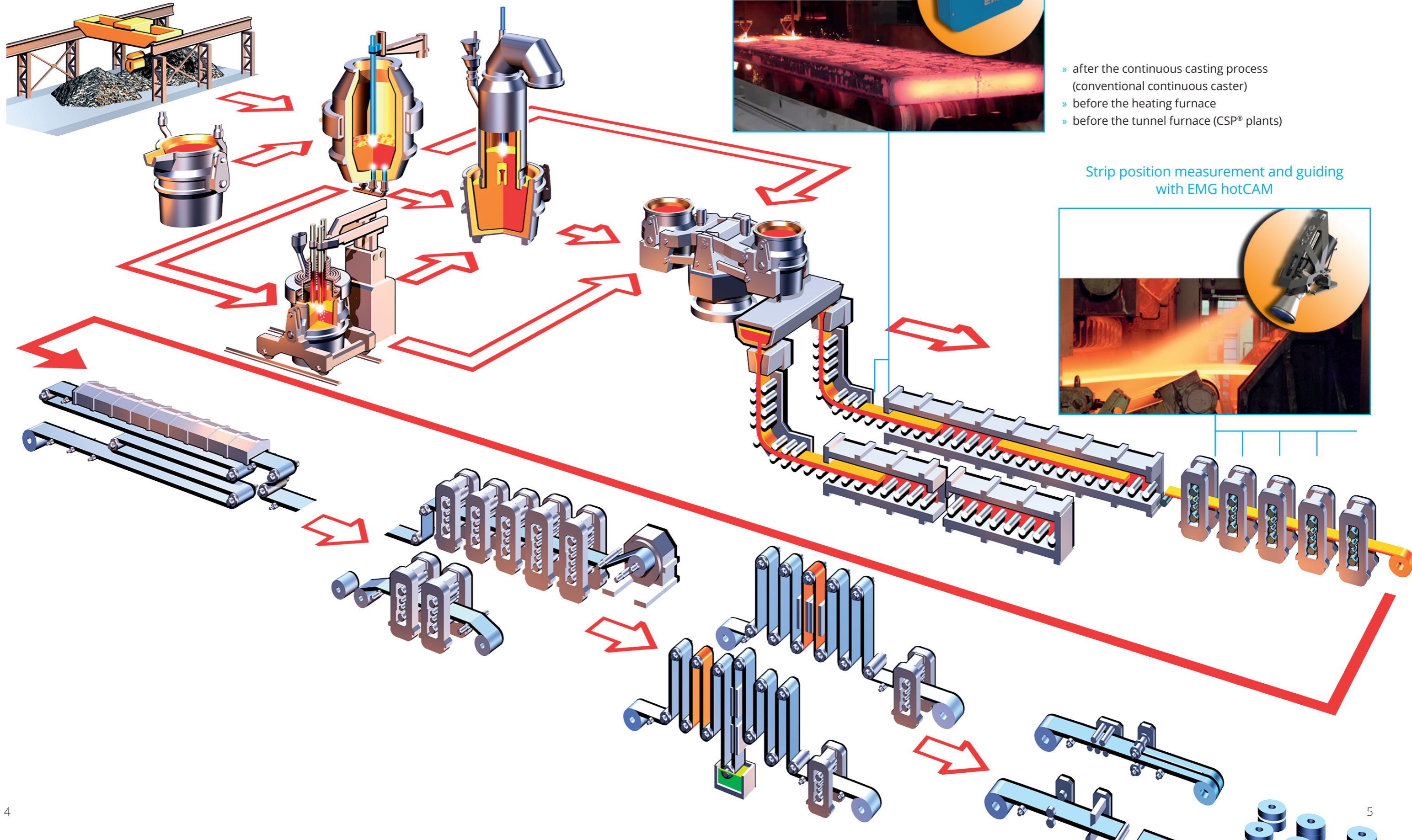
- » **EMG iSCAN®:**  
Slab dimension / position measurement and tracking
- » **EMG hotCAM:**  
Strip position measurement and guiding

to optimise your hot strip processes!

**All EMG systems are based on the same hardware and software structure. Benefit from the use of our broad solution portfolio and reduce your TCO (Total Cost of Ownership)!**



# Typical installation positions in the process line





## EMG iSCAN® Slab dimension measurement

Width, length and thickness - with EMG iSCAN® the non-contact and precise measurement of the slab geometry is realised.

The number, type and configuration of the laser-based sensors are adapted to your individual application.

As far as technically possible, the laser sensors required for the application have laser protection class 2.

Our sensors are ideally suited for harsh environmental conditions, e.g. high temperatures.

Measuring accuracy*	» +/- 4 mm	(width)
	» +/- 2 mm	(thickness)
	» +/- 15 mm	(length)
	» +/- 5 °C	(temperature)

*\*typical for standard applications*

### Application areas

The slab dimension measurement with EMG iSCAN® is typically used at the outlet of the continuous casting machine (cooling section) before or after flame cutting.

Guttering, edge shape and off-center cracks are examples of influences are examples of influences of the casting process.

EMG iSCAN® displays this information and thus supports the optimisation of the casting process, e.g. by changing the mold setup or the primary and secondary cooling.

## EMG iSCAN® Slab positioning & tracking

Further areas of application of EMG iSCAN® are the slab tracking on the roller table from the slab store to the heating furnace and the position and length measurement of slabs before or after the heating furnace.

The slab transport to the heating furnace can be optimised with EMG iSCAN® and the precise push-in into a walking beam or pusher furnace can be realised.



*Functional principle of the slab position measurement on the roller table*

### Customer benefits

- » Display of the slab width profile such as e.g. guttering, edge shape and off-corner cracks
- » Optimisation of the casting process by the customer
- » Slab geometry measurement at the roller table for efficient loading of the heating furnace
- » Calculation of a virtual rectangle to determine the optimal space-requirement inside the reheating furnace
- » Optimisation of slab transport to the heating furnace
- » Ideal slab positioning in front of the reheating furnace
- » Precise push-in into reciprocating or pusher-type furnace feasible





EMG hotCAM

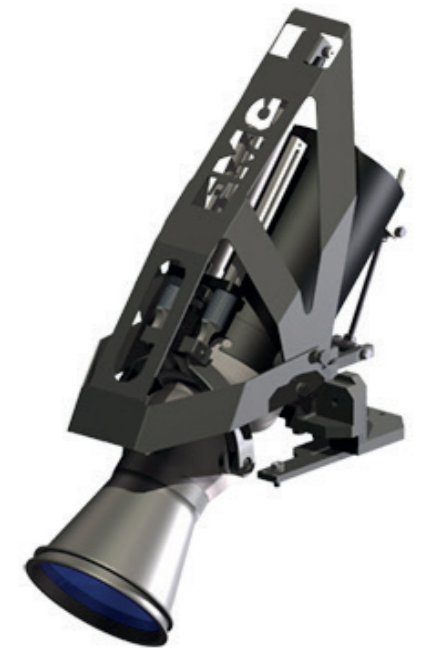
## Position measurement

The hot rolling process is typically a combination of a reversing stand (roughing stand) and a finishing line with several rolling stands.

Maintaining a defined position of the strip between the rolling stands is enormously important for process reliability in a hot rolling mill. The continuous measurement of the strip position with our EMG hotCAM solution enables you to optimise the adjustment of rolling force and gap. The measuring accuracy of our system is +/- 1.5 mm.

In reversing stands this leads to a reduction of the strip camber and thus to a reduction of the strip gap.

In reversing stands this leads to a reduction of the strip camber and thus to the avoidance of collisions of the strip with the mechanical strip guiding of the roller table. The continuous control of the centre position in the finishing line also reduces the occurrence of cobbles, which lead to serious damage and production stops.



### Customer benefits

- » Improved process reliability
- » Easy to integrate
- » Little maintenance required on the camera
- » Targeted error analysis through extended process data (position value between the stands)
- » Evaluation of individual images (PDF report of each strip with strip end images)
- » Better manual control by the operator through direct feedback

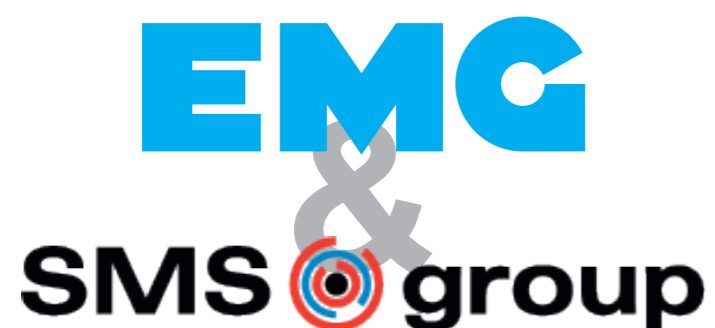
EMG hotCAM

## Control algorithm with SMS X-Pact®

Using the EMG hotCAM centre position, a closed control loop can be realised in a finishing line.

EMG draws on the many years of experience of the SMS Group, which has developed the SMS X-Pact®, a

product that demonstrably stabilises the rolling process. With this combination of position measurement on the hot strip EMG hotCAM and the closed control loop, EMG offers comprehensive process optimisation in the hot strip area.



### Advantages EMG hotCAM & SMS X-Pact®

- » Sheared strip ends are reduced
- » Fewer unscheduled roll changes necessary
- » Improvement of process stability
- » Stabilisation of the strip position
- » Improvement of the strip geometry
- » Reduced operator intervention in the line
- » TOM (Tail Out Monitor) - Improved operator support



The logo for EMG, consisting of the letters 'EMG' in a bold, white, sans-serif font. The background of the entire page is a blue-tinted photograph of industrial machinery, specifically large rollers or wheels, with a white line graphic that starts horizontally and then curves downwards and to the right.

an **eLEXIS** company

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