EMG
an ELEXIS company

# Keeping Quality on Track: Why Strip Guiding is a Foundation of Flat Metal Production

Producers must deliver consistent material properties, flawless surfaces and precise dimensions while reducing scrap, downtime and resource consumption.

Reliable strip guiding is therefore much more than a conventional automation function. It establishes the stable process conditions required for safe line operation, reproducible production results and dependable inline quality measurement.

For eight decades, EMG has combined strip guiding expertise with sensor technology, control electronics, actuators and, since the 2000s, quality assurance systems for the international metals industry.

Modern flat metal production is defined by increasingly tight tolerances, higher line speeds and growing demands for process reliability. All these objectives depend on one fundamental requirement: the strip must run exactly where it is supposed to run.

## Why stable strip position matters

Metal strip naturally tends to move laterally as it passes over rollers and through processing equipment. Without effective guiding, even relatively small deviations can lead to damaged strip edges, unstable process conditions, increased equipment wear or interruptions to production.

The consequences extend far beyond the guiding point itself. An incorrectly positioned strip can affect trimming, rolling, annealing, coating, slitting and recoiling processes.

It may also reduce the reliability of downstream measurement systems or prevent them from using their full production capabilities.

EMG strip guiding systems keep the material centred or at another defined reference position throughout the production line. This supports uniform processing, protects the strip and the equipment, and creates the stable conditions needed for consistently high product quality.

Discover EMG strip guiding solutions

# Three components working as one control loop

A strip guiding system is only as effective as the interaction between its components. The sensor must determine the strip position reliably, the control electronics must evaluate the measurement immediately, and the actuator must translate the calculated correction into precise mechanical movement.

EMG develops and supplies all three central elements of this control loop:

## Sensors: detecting the strip position

The first task is to determine the position of the strip edge or strip centre accurately and continuously. However, no single measuring principle is ideal for every production environment.

Depending on the material, installation space, line configuration and ambient conditions, EMG uses inductive, optical or radar-based sensor technology. This allows the sensing concept to be selected specifically for the application instead of adapting the process to a standardised measuring solution.

Inductive sensors offer non-contact and highly reliable detection, especially under demanding industrial conditions. Optical sensors provide precise edge and centre position information for a wide range of applications. Special sensor solutions, like radar, are available for areas such as furnaces, where conventional measuring arrangements may not be suitable.

Explore EMG sensors for strip guiding

## Electronics: turning measurements into precise control

The electronics form the intelligence of the guiding system. They process the sensor signals, compare the measured position with the defined target and calculate the necessary correction.

The EMG iCON® digital controller provides a compact and scalable platform for different strip guiding applications. Its modular structure, fast computing performance and graphical user interface support both straightforward operation and flexible adaptation to the respective production line.

Because the hardware, software and application engineering come from one source, the control system can be configured to match the sensor technology, actuator dynamics and mechanical guiding arrangement. This coordinated approach is essential for achieving stable and responsive guiding behaviour.

Learn more about EMG iCON® control electronics


## Actuators: applying the correction

Once the controller has calculated the required adjustment, the actuator must execute it quickly, precisely and reliably.

EMG offers hydraulic and electromechanical actuator solutions that can be adapted to the available installation space, required forces and dynamic characteristics of the line. The portfolio includes the EMG SRD guiding roll with proportional positioning, EMG HR and HA hydraulic components, the compact EMG HST hydraulic control unit, EMG SV servo valves and the EMG ESZ Electro-Servo-Cylinder.

This range enables customer-specific guiding concepts for new production lines as well as modernisation and retrofit projects.
The objective remains the same: to convert the control signal into an accurate movement that keeps the strip safely on track.

Find out more about EMG actuators

# Stable guidance creates the basis for reliable quality assurance

Strip guiding does not operate in isolation. Its value becomes particularly clear when it is considered as the foundation for downstream process control and inline quality assurance. A stable strip position allows measurement systems to observe the material under reproducible conditions. It helps maintain defined distances between the strip and the measuring equipment and ensures that the relevant strip area remains within the measurement field.

Building on this foundation, EMG provides systems that make critical quality characteristics visible directly during production:

## EMG iCAM®

measures overall strip width and individual slit strip widths or detects holes across the strip area, depending on the selected system configuration. Continuous dimensional information helps producers optimise material utilisation, monitor slitting or trimming results and identify defective sections before further value is added.

More information

## EMG SORM®

measures roughness and waviness on running strips.

The resulting information supports the optimisation of rolling and skin-pass processes and helps detect surface roughness deviations at an early stage.

More information

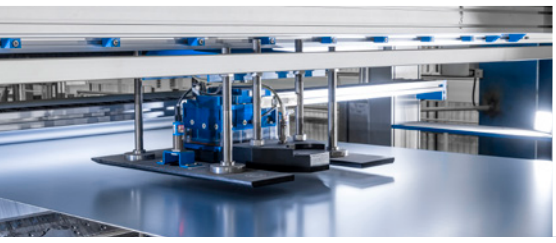
## EMG eMASS®

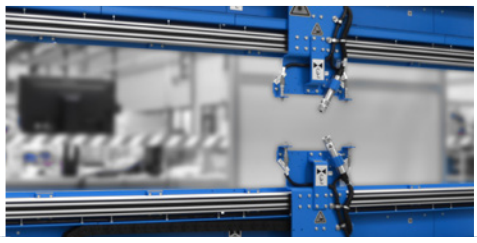
provides non-contact electromagnetic strip stabilisation close to the air knives in hot-dip galvanising lines.

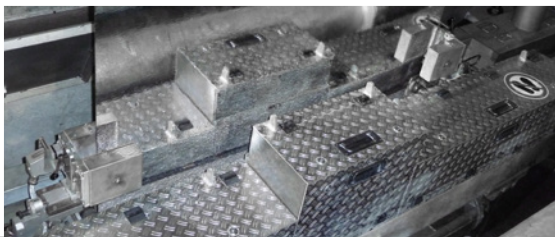
Reducing strip vibration and cross-bow supports more uniform coating conditions and can contribute to lower zinc consumption.

More information







## EMG IMPOC

determines tensile strength and yield strength of ferromagnetic steel strip non-destructively and inline. This provides quality information along the strip rather than relying exclusively on individual laboratory samples.

More information

## EMG SOLID®

solutions measure oil layers and dry film thickness inline. They support uniform application, process reliability and the efficient use of oils and coating materials.

More information

## EMG eBACS

is a baffle blade control system that detects contactless and controls motorised the position of edge masks in hot-dip coating lines.

More information

# From individual components to an integrated production strategy

The strength of the EMG portfolio lies in the way its solutions complement one another.

Strip guiding establishes a stable process. Inline measurement systems create continuous information about dimensions, surfaces, coatings and mechanical properties or optimizes the galvanizing process by stabilisation and baffle blade control. This gives operators and quality teams the transparency required to identify deviations earlier and respond more effectively.

Where additional analysis is required, production, material and quality data can also be combined within EMG iCASS®. This modular intelligent platform supports applications such as root-cause analysis, anomaly detection and process optimisation by means of AI capabilities and machine learning models. In this overall concept, digital analysis does not replace reliable automation and physical measurement. It builds on them.

Process optimisation for the metal industry with AI

## Put your strip in good hands

Whether the requirement is a single sensor, a modern control system, a high-performance actuator or a complete guiding and quality assurance concept, EMG solutions are designed around the conditions of the individual production line.

The result is a coordinated approach that keeps the strip stable, protects equipment, improves process transparency and creates a reliable foundation for consistent quality.

## Discover how EMG can support your production line

Strip Guiding Solutions

EMG Sensors

EMG iCON® Electronics

EMG Acutators

Quality Assurance Systems

EMG iCASS® AI

Contact EMG