The company

EMG Automation GmbH, which was established in 1946, specialises in the automation of continuous production processes in the metals, paper and plastics industries as well as in the foil and tyre industries.

The business unit Automation is a leading provider of strip guiding and quality assurance systems for the manufacturing industry.

Based on the combination of more than 70 years of experience, the quality of our products and complete solutions as well as our advisory skills, our customers, by their trust, make us the market leader.

In close co-operation with our customers, research facilities and universities we are permanently searching for innovative solutions to promote our new and further developments and therefore to design and form the market as innovation leader actively.

Innovative solutions worldwide!
Strip Guiding Systems

For metal strip production, treatment and processing, the material, which is supplied in the form of coils, is unwound and then fed to the production process. In most cases, it is rewound into coils thereafter so as to allow convenient transport. Due to its geometric shape or mechanical misalignments in the process line, metal strips tend to run unevenly on the deflector rolls in the production line.

The strip guiding system serves to keep a strip in the center of the equipment or in any other defined position. Thereby the strip control prevents damage to the product or the production equipment and ensures that the strip runs evenly through the production process.

With our high quality strip guiding systems we provide our customers with safe, low-maintenance, and technically advanced components as well as complete solutions which optimally support their respective technological production process.

Quality during continuous strip processing!
EMG is the leading supplier of strip guiding systems in the steel and metals industry. Worldwide, more than 10,000 guiding solutions based on the EMG technology are installed.

The guiding solution itself is always a combination of sensors to detect the strip position, electronics for data acquisition and analysis, as well as mechanical elements and actuators to influence the strip position.

Due to the specific conditions of the metals industry like high temperature, aggressive environments, dust, humidity and steam, inductive sensors are the key element for robust industrial applications. The further development of the inductive EMG technology led to new and emerging solutions e.g. single sided edge detection for rolling mills or inductive baffle blade control for galvanizing lines, which have unbeatable advantages compared to traditional optical or capacitive systems.

- Furnace solutions
- Inductive measurement
- Optical measurement
- Width measurement
- Hydraulic units
- Actuators
- Electrical components

More than 70 years of strip guiding experience!
Quality Assurance Systems

The ever increasing quality requirements and high availability in combination with reduced operating and maintenance staff, however, have a great impact on the quality of strip guiding systems and their components. The innovative quality assurance systems from EMG continuously optimize your manufacturing processes and consequently increase your production quality. We thus enable our customers to meet the ever-growing demands on their final product with the following solutions:

- **eMASS®** Strip stabilization
- **eWIPE** Wiping equipment
- **eBACS** Baffle blade control
- **SORM 3plus** Online roughness measurement
- **IMPOCpro** Online measurement of material properties
- **BREIMO** Strip width measurement
- **hotCAM** Camber and position measurement in hot rolling mills
- **EMG SOLID®** Oil layer measurement

*process optimization*
*contact-free and online measurement*

Improve your process and product quality!
eFAMILY

eMASS® electromagnetic Strip Stabilization gives targeted control of strip oscillations and allows high galvanizing quality without minimizing the production throughput.

Furthermore, the use of eMASS® electromagnetic strip stabilization gives significant zinc savings in all hot-dip galvanizing plants. eMASS® thus offers a high potential for significant cost reduction in the production of hot-dip galvanized sheet metal.

The air knife blows off the liquid zinc layer. As a result of strip vibration between the two nozzles, inequalities in the zinc layer thickness occur across the strip width and along the length.

EMG-eMASS® is installed right on the air knife device. It optimizes the strip shape and leads to a reduction in the level of vibration, which provides a more even zinc layer.

- crossbow reduction
- lower strip vibrations
- homogeneous zinc layer
- process optimization
- to save zinc

Stabilize your strip! Save zinc!
eFAMILY

eBACS - BAffle blade Control System:
eBACS optimizes galvanizing at the strip edges. Contamination or damage to the zinc coating through contact with the strip by touch rolls is prevented. Sensors and actuators of proven EMG quality provide for maintenance-free, reliable operation. It results in a homogenous zinc layer even at the strip edges. The fully automated systems also provide for greater operational safety and active prevention of accidents.

eWIPE - air knife WiPIng Equipment:
eWIPE greatly simplifies and automates the process of cleaning the air knife gap. Maintenance costs are noticeably reduced and the risk of accidents to operators is minimized. By means of continuous cleaning during operation there are fewer surface defects. In this way eWIPE promotes a consistently high zinc coating quality. This results in less waste and fewer downgraded coils, which reduces overall costs. The system can be retrofitted to many types of air knives.

> increased yield
> less production loss
> better product quality
> less maintenance costs

Increase your operational safety!
IMPOC

The IMPOC measuring system is a testing device for automatic, non-destructive online measurement of mechanical parameters (tensile strength, yield point) of ferromagnetic steel strips.

The functioning of the non-contact measuring system is based on periodically magnetising the strip, followed by measurement of the gradient of the magnetic residual field intensity on the upper and lower side of the strip.

The mechanical parameters of the steel strip are determined using regression relations, portrayed online in the form of a graph on a plotting computer in the control station and recorded.

Using the IMPOC measuring system, the mechanical parameters of each steel coil produced are continuously documented on the basis of strip length and strip width.

- online / contact-free
- non-destructive
- measurement at any point across strip width

Continuous online measurement of material properties!
SORM 3plus

SORM 3plus is a non-contact online roughness measurement system, which can be used on metallic and non-metallic surfaces at production speeds of up to 1800 m/min. SORM 3plus measures online the surface roughness of the travelling strip.

By means of an optical procedure, SORM scans the surface topography. This surface profile can be compared to the profile which is determined by a tactile stylus instrument. Based on the measured profile, the roughness parameters (Ra, Rp, Rz) are calculated according to the applicable standards (DIN / ISO / SEP).

The values of surface roughness are saved, displayed online for the operator’s information and may be transmitted to a higher-level network.

By using SORM 3plus an early detection of deviations from the requested roughness range is guaranteed.

- laser optical
- real-time measurement at any point across strip width

Contact-free online roughness measurement!
In many steel treatment processes the steel strip is subject to a contraction in dimensions. This shows itself by a reduction of the strip width in a process line, often caused by thermal treatment or by high strip tension.

Precise knowledge of the input and output width allows predetermination of the change in the strip width as a function of the line parameters. This results in strip width optimization for all upstream processes and to a reduction in the amount of edge scrap from trimming.

The most important factors which influence changes in strip width are the grade of steel, the strip width itself and the thickness as well as strip tension and the annealing cycle in the process line.

With BREIMO EMG presents a precise and reliable optical measuring system to determine the strip width at any operating condition with an accuracy of up to ±<i>/-0.2 mm.

► high accuracy
► high efficiency
► cost-effective

Reduce your edge scrap!
The hot rolling process is typically a combination of a reversing mill (roughing mill) and a multi-stand hot rolling mill (finishing line). For the process reliability in a hot rolling mill it is extremely important to keep a defined position of the strip between the hot rolling stands. The continuous measurement of the strip position allows an optimized adjustment of the rolling force and gap.

In reversing mills this leads to a reduction of the camber of the strip and thus prevents collisions of the strip with the mechanical strip guiding rail. The continuous control of the centre position in a hot rolling mill also reduces cobbles (outbreaks) of the strip, which lead to serious damages and production stops.

The EMG solution hotCAM for camber and position measurement helps you to increase your product quality and to avoid damage to your line!

► reduced camber
► higher operational safety
► improved strip quality

Optimize your hot rolling process!
Optimize your oiling and forming process!

EMG SOLID®

EMG SOLID® is used for the online measurement of oil layers on running strip material (SOLID = Surface Oil Layer Inline Determination).

Increased demands on new materials and more complex components require a greater process reliability. Those ever increasing demands with regard to a uniform and defined oil layer are particularly apparent in the automotive industry.

Typical applications range from rolling mills, where the initial application of oil is implemented, to metal processors, for whom sufficient lubrication in the forming process and an oil-free surface before coatings or paintings are applied, is essential.

EMG SOLID® performs an online measurement within the production line to determine the layer of oil on the running strip over the entire width and length of the material.

► high process reliability
► high measuring accuracy
All from a single source

Maximum flexibility
Our customers benefit from our high flexibility in designing the mechanical and electronic components to meet their particular application and installation situation. The functionality is tailored to match our customers’ individual needs.

As the software is developed by our own specialists, programming and maintenance is also based on our customers’ requirements.

Always at your side
All our systems are pre-calibrated by us according to your requirements. Thus the installation into your line requires only a very short time. Of course, after installing a new system we provide dedicated training of your staff on site or at our facilities.

Our world of innovative solutions – contact us!