

Dear customers, dear partners,

Oscar Wilde was a man of pleasure who brought his passion precisely to the point: "I have but the simplest taste – I am always satisfied with the best."

In principal, we at EMG consider ourselves to be connoisseurs as well and fully share these very simple tastes. But we define them a little differently:

"We are only satisfied with the best for our customers."

Giving our customers the best is our passion, in which we invest all of our energy and experience. Our goals are: to be as flexible as possible in reacting quickly to the demands of the market; to meet all of our customers' requirements; and to provide advancements and new solutions in the shortest time possible.

In our newsletter you can read about the following news:

- the further development of the new generation of eMASS,
- the use of IMPOC and SORM 3plus at BMW,
- eMASS in hot-dip galvanizing for sheet metal in the architectural field at Corus Myriad,
- 7 points, that make eMASS a very worthwhile investment,
- the innovative weld seam scanner WD1.

Enjoy reading our newsletter for the 3rd quarter of 2009.

Jürgen Koch
Vice President
Automation

EMG-SORM 3plus in regular production processes – quality assurance right from the start

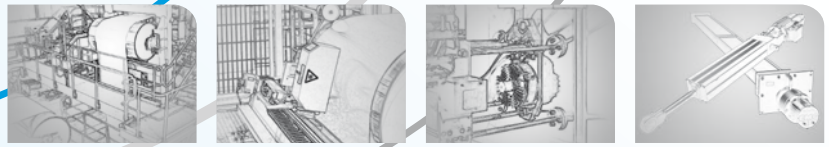


An EMG-SORM 3plus system has been consistently monitoring surface parameters such as roughness and peak value for the materials used for exterior body parts for the 5, 6 and 7 series on coil line No. 5 in BMW's Dingolfing plant for a short time now. With it, conclusions about the materials' characteristics are now drawn in real time and materials that deviate from specifications are recognized early on. In the process, EMG-SORM 3plus investigates everything from aluminum to high strength steel by observing fixed limiting values. After a test phase of several months the system has now been adopted into the regular production process.

The standard measuring method involves surface testing measurement with manual stylus instruments – a selective procedure that can only give limited information about the material characteristics of the entire strip length. The use of materials outside tolerance limits and

the problems in production which result are thus not completely ruled out, and therefore BMW's ever-increasing quality requirements are no longer met.

By means of continuous measurement of the roughness (Ra) and peak value (R_pc) with EMG-SORM 3plus at BMW, additional current information about the material's condition along the entire strip length is now collected. When deviations from given reference values occur immediate interventions can be made. By using a laser-assisted optical scanning process EMG-SORM 3plus records the material surface without contact. The desired surface parameters are identified along →



the entire length of the material strip in real time by means of standardized evaluation processes. If the system detects deviations from the given reference value, the operator of the coil line is immediately "warned". This information is relayed to the press operation. Then the material in question can be put through a production test if need be, or it can be immediately separated out and no longer processed in the subsequent press line. Furthermore, a report is automatically prepared for quality management.

A one-sided SORM system is used for recording the surface parameters of the exterior side. The measurement of surface roughness takes place traversing in different lines. Integration into existing plants can be smoothly carried out without the installation of additional rollers. ■

eMASS evolution – development with the customer in mind



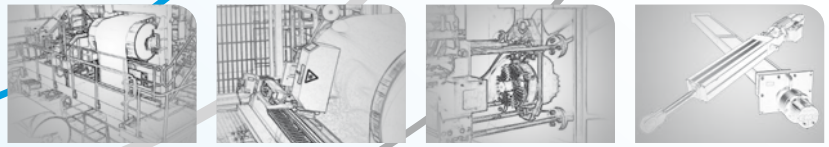
Two years of eMASS in 20 installations worldwide means 20 x 2 years of experience integrating, installing and operating eMASS under the most diverse conditions. The experience that has gone into the further development of eMASS includes: a modular design enabling shorter procurement times; more compact dimensions for all plant components making installation easier and more flexible; and reduced operating costs through starkly reduced energy consumption for ventilation. Strip stabilization with EMG-eMASS means improved product quality, resource savings and higher throughput in the production of hot-dip galvanized steel strips. Specific installation conditions during installation consistently made the construction of a special support structure with

spans of up to 9 meters and a welding seam length of more than 20 meters necessary. All in all, this was a very complex procedure which had implications for delivery times. Based on a standard hollow section, a completely new, modular design is now available. It needs only the required excavations, bore holes and surfaces to be finished. Only the nozzle-specific support heads still consist of individual, short modules that must be welded together from sheet metal. All of this allows significantly shorter procurement, delivery and installation times.

The installation of the strip position sensors and the associated electronic and cooling system was optimized. The restricted temperature range of the electronics previously made an expensive protective housing in the support necessary. The demands on the cooling air production and intake were high. At a maximum intake temperature of 40 °C a 7.5 kW blower was used. The installation situation with 6 meters of laid cable and complicated cooling air conduits made repairs difficult. By constructing the sensor electronics with an extended temperature range the blower is now placed in the housing for the electromagnets and has a short cable. The ventilator's intake temperature can now be up to 50 °C. Laying the cooling conduits has been considerably simplified and the connected load for the ventilator has been reduced by 30 percent (2.2 kW). This is noticeable in lower operating costs. Overall, the replacement of a sensor system by means of these measures has become much easier.

With the optimization of the electronics and reduction of the ventilator power, the switching cabinet has also been reduced in size. It is now even easier to place it in an appropriate location in the customer's plant.

The function of EMG-eMASS causes a restriction in the access to the air knives. The new generation of eMASS now takes up less space beneath the carrier. The actuators for the movement of the magnet housings are now installed inside the carrier and removed from the area beneath the carrier. Overall, accessibility is improved with eMASS installed. →



With easily accessible levers on both sides of the magnet housings the guide unit can now be very easily manually uncoupled and moved in case of a power failure. The additionally modified position detection system simplifies recoupling considerably.

Through communication with customers a range of system improvements were thus implemented which considerably simplify working with the equipment and which make themselves apparent through reduced operation and maintenance costs. EMG is constantly working to improve its systems and to adapt to new developments. Each additional installation, while expanding the wealth of experience, also points the way for future developments.

In summary, eMASS can be considered a success in all respects. The system satisfies its performance and operational requirements in full. ■

Final acceptance for EMG-IMPOC – more security for production



In the BMW plant at Dingolfing, Germany an EMG-IMPOC system is now in use for normal production after having passed its final acceptance. Tensile strength and yield point will thus be reliably detected online. The location for IMPOC is coil line No. 3, where the interior body parts for the BMW 5, 6 and 7 series are processed. The spectrum of material to be tested ranges from low-alloy carbon and IF-steels up to high-strength complex-phase steels.

The IMPOC-system's magnetizing coil periodically magnetizes the running material. Shortly thereafter the residual magnetic field strength is measured. With these values and knowledge of the material-specific mechanical properties tensile strength and yield point are determined.

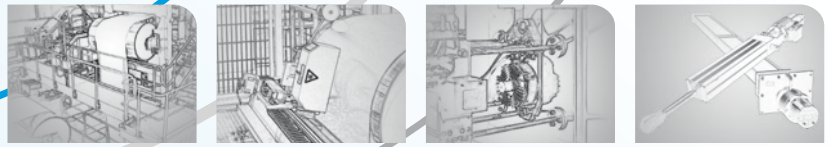
Taking samples and complex manual inspection of those samples is unnecessary. Test results are available almost immediately. Since it is not merely selectively measured, but is instead recorded over the entire strip length, the inspection reliability is also improved.

Through the use of IMPOC the main focus is on the early recognition of deviations from pre-defined mechanical characteristics. If the system detects irregularities in the material the operator at BMW receives a warning message. The operator then makes the decision whether to further process the corresponding sheet on a trial basis or to exclude it from production immediately. A report is automatically written for quality assurance. Inferior materials are recognized right from the start, errors in production are avoided and unnecessary processing steps are saved.

Another update to the IMPOC-system software will occur before long. Regression and modelling for new materials can then be independently carried out with it at BMW. ■

"I'm happy!" – Corus Myriad benefits from eMASS in its production process

Corus Myriad puts EMG's eMASS strip stabilization system into regular operation. With it, Corus Myriad achieves significant savings in hot-dip galvanizing for sheet metal in the architectural field. eMASS improves the oscillation behavior of the running strip, which makes lower layer weights possible. At the same levels of productivity, zinc and nitrogen consumption are significantly reduced and galvanizing quality is improved. →



Corus Color is the second largest producer of pre-painted and coated steel sheets in Europe, closely behind ArcelorMittal. The subsidiary Corus Myriad – France is particularly well known in the field of architecture as a manufacturer of high quality, hot-dip galvanized and organic coated sheets. In connection with air knife equipment optimization in hot-dip galvanizing line No. 2 at Myriad by the air knife manufacturer Danieli Kohler, and in the course of continual improvement measures, the experts at Corus decided to install the EMG-eMASS system as their strip stabilization solution.

In January of this year eMASS was installed and put into operation without any trouble. The system operates in a strip width range of 850–1265 mm, on strip thicknesses of 0.4–2 mm, and layer weights of 80–350 g/m² (total coating layer). In conjunction with the extensive alterations to the Danieli Kohler air knife equipment significant improvements were thus achieved in the production plant. Due to the close collaboration between the Danieli Kohler designers and EMG, the complete integration of the eMASS system into the air knife's lifting and traversing mechanism was successful. Only six months after the initial installation, the eMASS system has now undergone final acceptance by Corus Myriad.

Corus was able to achieve an improvement in strip shape (crossbow on the actuator level in all cases $< \pm 2$ mm) and coincidental oscillation (dampening > 50 %). This allows Corus Myriad to run the air knife with a very small distance between the strip and the air knife gap.

The results are:

- reduced air knife pressure at the same layer weight,
- realization of lower layer weights at maximum air knife pressure,
- zinc conservation,
- significant reduction in the application of nitrogen.

All in all, the investment paid for itself within a short period of time, or as the technical director of Myriad, Alain Bouilliez said to our regional sales manager: „Anno - I'm happy." One can hardly imagine a nicer compliment from a customer.

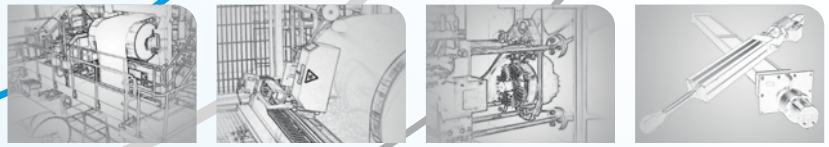
The Myriad example shows that significant cost savings and process improvements are achieved with EMG-eMASS, especially in production lines outside the "automotive" sector. Please feel free to draw on the broad experience of the EMG experts here: sales@emg-automation.com

We are happy to advise you! ■

7 points, that make eMASS a very worthwhile investment – or "Why zinc savings aren't everything!"

The topic of electromagnetic strip stabilization evolved with the introduction of the EMG-eMASS system in late 2006, and since then it is now a standard solution for problems with strip oscillation and variations in strip shape in hot-dip galvanizing processes. 20 eMASS systems in just over 2 years makes a very clear statement.

In general, strip stabilization will always be spoken in the same breath with reducing zinc consumption, and of course this is a key factor in creating value for all production lines on which a one-sided layer weight must be guaranteed. With a zinc price currently at about 1500 €/t means each gram of zinc saved on a typical hot-dip galvanizing line comes out to a →



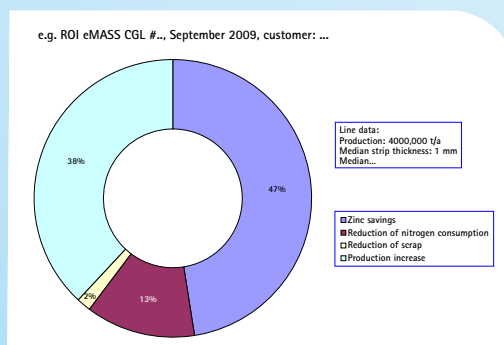
- Raw material cost savings of approximately 130,000 - 150,000 €/year (depending on production volume per year).

In the many successfully completed installations by EMG since then, it has been shown, however, that the added value is decisively influenced by other factors to a certain extent. Each project has its specifics, and a close collaboration between users and EMG is sensible and helpful for obtaining a reliable estimate of the expected effects in advance.

In summary, the following 7 points are highlighted as particularly interesting:

1. Zinc savings through the reduction of variations in zinc layer thickness across strip length and width
2. Homogeneous layer across strip width
3. Zinc savings through the reliable production of low coating weights
4. Reduction of surface defects (such as air knife streaks)
5. Reduction of the distance from the air knife to the strip
6. Reduction in cleaning cycles for the air knife
7. Reduction in nitrogen consumption with the same end product quality

The appreciation of what is possible is facilitated significantly by an intensive discussion between future users and the experts at EMG. In the meantime EMG has a structured approach available for evaluating the optimal use and expected results in a "workshop" with the end user in advance of a purchase decision.



At the end of this process an evaluation takes place (an example of this is shown in the excerpted chart on the left), which allows the user to push ahead with a focused investment process. This is an important element for a company to plan and be able to successfully implement cost savings or process optimizations, especially in these times of crisis in the steel market.

Have we piqued your interest? If so, please schedule an eMASS ROI workshop with us. We will send you an initial overview of discussion points and necessary data. Please send a short email with the subject: ROI eMASS
to: sales@emg-automation.com,

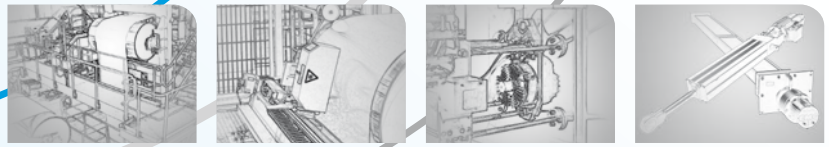
and we will contact you immediately. For planning eMASS projects you can download our eMASS white paper at the following link:

http://www.emg-automation.com/service_download/daten_prospekte/qualitaet/emass/englisch/eMASS-whitepaper_en.pdf

in order to get an overview of installation constraints, and project execution.

With EMG's experience, the clear definition of project priorities and careful scheduling of the system, the success of an eMASS project is not rocket science.

Let us bring the 7 points to life for you! ■



Precise weld seam tracking in strip systems – a new sensor from EMG



EMG WD1: a new product from EMG which makes your production process safer.

In all typical process plants these days, knowledge about precise weld seam position is very important in order to optimally control the production processes and to enable logging of the steel strip with meter precision. The widest variety of machines, such as paint shops, skin pass rolling mills or trimming shears in the exit section of process lines are guided as a function of the weld position. Weld seam detection these days is thus often realized by means of an optical sensor to detect an additional punch hole.

defective punch holes. Even for processing lines without a punching press the sensor is ideally suited to precisely record the weld seam position.

In the future this punched hole can be eliminated with the new WD1 optical sensor from EMG Automation, so as to eliminate air turbulence on the air knives or even mechanical damages on deflector rolls by

The innovative optical sensor is based on an area scan camera with an infrared filter, with which the images of the weld seams are filtered and analyzed with FPGA technology (field-programmable gate array).

A subsequent rapid signal output to the plant control system provides an accurate update of the weld seam position, or even general weld seam tracking in existing process equipment, where applicable. In today's plants in which weld seam detection is already carried out with inductive or optical sensors for detecting notches, even the notching of similar strip widths can often be omitted at the weld seam.

The WD1 sensor can be used with plant speeds up to 600 m/min, with laser welded seams there is currently a strip speed limitation of 200 m/min. The new system is currently being tested in various field tests and will be available starting in February or March, 2010. ■

Contact

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