glückauf

The newspaper for employees, customers and friends of the GMH Group

1/2017

Extracts in English

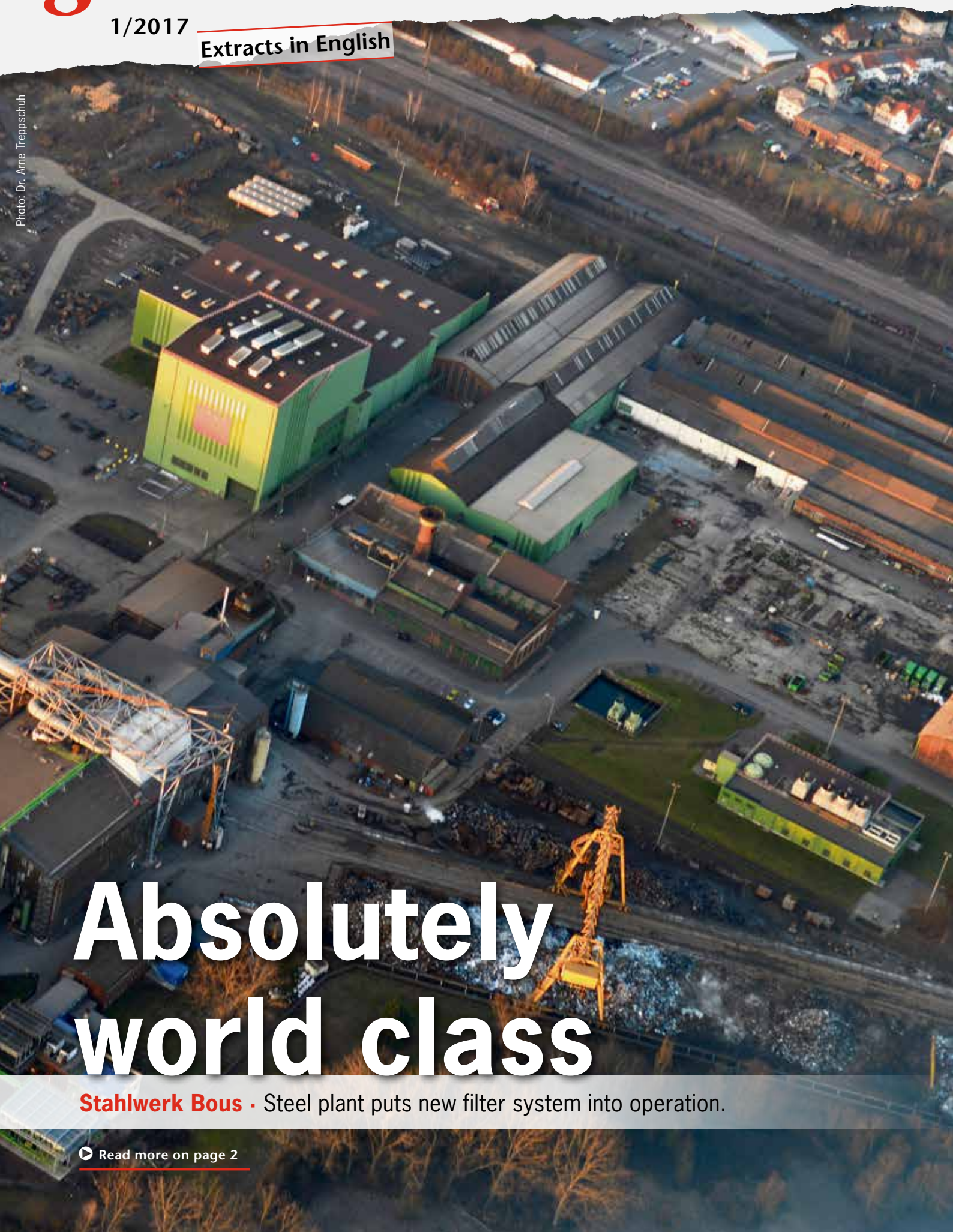

Photo: Dr. Arne Treppschuh

Absolutely world class

Stahlwerk Bous · Steel plant puts new filter system into operation.

Read more on page 2

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The new filter/dedusting system of Stahlwerk Bous (SB) is a policy statement by the company in three respects:

First, the system is the most modern worldwide in terms of design and execution; second, the GMH Group has thus made a clear commitment to Bous as a production location; and, third, it is a demonstration by the steel company that high-grade steel production and protection of the environment will continue to be reconcilable in future in Germany.

Undoubtedly, the investment (in the lower double-digit million euro range) is also a commitment, as SB managing director Franz Josef Schu states: "It is a clear and conscious declaration of our belief in the future organisation and continued development of our operating location. We are very aware of our responsibility for people and the environment – particularly in times characterised by fierce and, in some cases, unfair competition within the global steel industry."

To ensure local sustainability, there is a constructive dialogue with the appropriate bodies and authorities with a view to also improving infrastructural connections to the plant still further (among other things, through better road links).

Where design and execution are concerned, the filter/dedusting system is regarded as the most modern in the world – and it reduces pollutant emissions to a level not considered possible. The volume of filtered air alone sets new standards: whereas the performance of the old system was already impressive at 560,000 cubic metres of exhaust air per hour, the new system filters 1.3 million cubic metres per hour – in other words, twice the amount.

But what matters particularly: what is the level remaining in the elaborately filtered exhaust air? How high is the dust content?

All in all: less than 1 milligramme per cubic metre, a level that is five times below the statutory limit, namely 5 milligrammes per cubic metre. Detailed information on the measured levels can be found on SB's internet site (www.stahlwerk-bous.de).

A workforce of around 350 people is employed in Bous. In 2016 they achieved a turnover of just under 217 million euros.

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Group Overview

GMH Gruppe

GEORGSMARIENHÜTTE HOLDING GMBH

STEEL PRODUCTION	STEEL PROCESSING	STEERING SYSTEMS	FORGINGS	CASTINGS
Georgsmarienhütte GmbH Georgsmarienhütte	**Stahl Judenburg GmbH** Judenburg / Austria	**MVO GmbH Metallverarbeitung Ostalb** Schwäbisch Gmünd · Indianapolis / USA	**Schmiedewerke Gröditz GmbH** Gröditz	**Walter Hundhausen GmbH** Schwerte
Stahlwerk Bous GmbH Bous	**GMH Blankstahl GmbH** Georgsmarienhütte	**BST Bishop Steering Technology Pty Ltd** Sydney / Australia	**Energietechnik Essen GmbH** Essen	**Dieckerhoff Guss GmbH** Gevelsberg
Mannstaedt GmbH Troisdorf	**GeisslerWista GmbH** Witten		**Schmiedag GmbH** Hagen · Hornburg	**Harz Guss Zorge GmbH** Zorge / Südharz
GMH Recycling GmbH Osnabrück · Dortmund			**Wildauer Schmiede- und Kurbelwellentechnik GmbH** Wildau	**Friedrich Wilhelms-Hütte Eisenguss GmbH** Mülheim an der Ruhr
				Friedrich Wilhelms-Hütte Stahlguss GmbH Mülheim an der Ruhr
				Pleissner Guss GmbH Herzberg

SERVICES

GMH Akademie GmbH Georgsmarienhütte	**GMH Real Estate GmbH** Georgsmarienhütte	**GMH Systems GmbH** Georgsmarienhütte

03/2017

The new group overview of the GMH Group

After a phase of consolidation and organisational merging, the GMH Group has become smaller and is clearly focussed on steel as its core business. Technical expertise is embedded in the management of each of the five business units.

Playing an active role – instead of merely reacting

Frank Koch: "I look forward to working together with you"

Dear employees,

As new Chairman of the Management Board of the GMH Group, this is the first time I am addressing you via this channel. "New" only refers to the function, however. I have actually been working for the GMH Group for over nine years. The focus of my work used to be in steelmaking at Georgsmarienhütte and in steel processing.

For all of us, 2016 was a year characterised principally by a new organisational direction of our Group. The markets to which we export our products have developed far beyond the borders of Europe. Just like our competitors, we are confronted by strong international competitive pressure. Customer requirements are becoming more complex – which means constantly increasing technical demands on our systems and products.

In order to play an active role in shaping this development instead of merely reacting to it, and to synchronise our internal structures in a visionary manner with our performance throughout the Group, we have done an analysis and, as a result, adapted these structures to suit the changed requirements profile.

We have interlinked the companies of the GMH Group more closely as far as organisation is concerned – or merged locations wherever it has made good sense with regard to process and administration procedures, value flow and knowledge sharing.

Examples in this context are the amalgamation of two forging companies to form Wildauer Schmiede- und Kurbelwellentechnik GmbH, as well as the merging of three recycling companies into GMH Recycling GmbH. As a result we have been able to increase synergies, reduce costs and thus improve our competitive capacity.

We have had to bid farewell to the formerly decentralised organisation, in which every company operated independently in the market.

Present-day circumstances require us to combine our strengths and our efforts systematically within the GMH Group, without the individual locations losing their identity.

Consequently, we are able to present ourselves more efficiently in the market and to our customers with a united image and under one name. In addition, we all benefit from an active exchange of knowledge and experience, which is shared within the entire GMH Group.

New forms of collaboration are being conceived, tested and implemented, in combination with innovative thinking beyond established boundaries. This inspires ideas and visions, the scope of which extends far beyond our plant gates. Innovation Day, held for the first time last autumn, very quickly produced results and gave rise to new ways of looking at things, conceivable business ideas and process-oriented impulses.

Frank Koch Photo courtesy of the company

It is not possible to implement everything as so many of the suggestions are still being assessed and evaluated.

The "Simulation and Innovation" unit recently established in the GMH Group links and processes information and data, and develops and calculates models which, in the long run, will lead to improved processes. All GMH Group members are able to use this unit by sharing their visions, contributing ideas, looking for suggestions or having solutions checked for feasibility and efficiency. It provides the scope for clever minds to develop innovations together – which we subsequently expand into new business models or business fields. These developments are all in the process of being implemented. Their effects will be felt in the course of the year and become visible in the way the Group presents itself.

The challenges of today are the demands of tomorrow, which is why good preparation is so vital. Against this background, in our different company divisions, we are carefully investigating all the details which these topics entail for our markets in the future, such as power train optimisation, electric drives, and future mobility which is changing generally, digital networking, climate change and knowledge transfer, as well as process simulation models.

We are linking these topics with the skills available in the GMH Group and developing new products and services specifically to suit the future needs of our markets and customers.

We have set ourselves ambitious targets for the next few years. We intend to grow – on a solid financial basis – as a supplier to the automobile and mechanical engineering sectors, and to invest and expand our workforce. This is to be done on the basis of technical and strategic excellence. Everything we tackle together, we tackle with the aim of being the best in the field.

The focus on our core business of steel and the strategic goal-setting are intricately linked with the existing added value chains, which we will also be developing further. Our scope to think and act extends from scrap metal as a primary material right through to final components ready for installation, and we need to be able to do this better than our competitors. We want to be the best choice in our markets for customers in need of technical solutions made of steel.

In other words: we want to play an active role in shaping the market – and not merely react to it. For this reason we have embedded our technical competence directly in the management of each of the five business units – namely where the operative business is developed and where the accountability lies. This has led directly to leaner management of the GMH Group and focussed the power where it is best deployed, utilised and translated into success.

We have divested ourselves of those business fields which we were no longer in a position to develop successfully in the market, or for which a different kind of ownership made good sense for reliable future development. Particularly worthy of mention here is the sale of Railway Systems to a Chinese investor. The GMH Group will also maintain contact to Railway Systems, however, via existing delivery contracts.

Over the next few months I will gradually be visiting all companies of the five business units. On the one hand, I would like to introduce myself to them in person and get to know them better, and on the other hand – and this is the more essential point – I would like to get into discussion with them. As employees of the GMH Group, you have many good ideas and suggestions – but sometimes also some critical remarks. I would like to hear about everything and discuss all these aspects with you.

Furthermore, I will inform you regularly about our business development. I am quite consciously seeking contact and exchanges with you. We can only achieve our joint and ambitious aims if you are familiar with them and understand them.

I look forward to working together with you.

Glück auf!

Dear GMH Group employees,

Not only is our company based in Europe, it is also – quite significantly – dependent on Europe. We sell one fifth of our steel to other EU countries – without having to pay customs duty or surmount any further bureaucratic barriers. Conversely, our company benefits from stable imports from the EU.

Since the euro was introduced 18 years ago, we have been exempted exchange rate risks within the Eurozone. As a consequence, the improvement in efficiency, which we have achieved through hard work in combination with some painful cost-saving measures, will not be devoured by our currency becoming more expensive. The euro helps us as well as our customers who export throughout the world because it is not subjected to as much pressure to revalue as is nowadays the Swiss Franc, for example, or as was formerly the case concerning the Deutsche Mark.

Many of you, dear colleagues, come from other EU countries such as Poland, Spain or Slovakia. We are pleased to have you here, and I hope you enjoy living in Germany. The free movement of labour in Europe has made it possible for us to employ you. This arrangement is mutually beneficial. A varied workforce has more knowledge and ideas. The diversity of European culture involves advantages for all of us.

We are currently experiencing how one large trading partner intends to use protectionist measures to shield its market whilst another resorts to the system of state subsidies to secure the existence of its oversized steel industry. Such pressures can be resisted more effectively when we Europeans work closely together.

I could, quite obviously therefore, be a committed European for reasons of common sense and self-interest. This is not the case, however. I am a committed European because I am convinced that this is the right way forward, and I am passionate about it. Europe, in my opinion, is the most important peace project from a global perspective. I have been able to spend my entire life in peace and freedom in our country. There has been no other generation since Roman times in which a man of my age, living in central Europe, could make such an assertion. My greatest wish is that this peace may continue – for the sake of your children, my children and our children's children.

Photo courtesy of the company

European unification began with the Treaty of Paris, establishing the European Coal and Steel Community. In other words, our raw material has been intricately involved since the outset – although in the past steel was unfortunately equated predominantly with weapons, conflict and war. Today this is no longer the case but we may still emphasise steel's exceptional relationship with Europe – e.g. for improvement of infrastructure.
Steel companies' special European heritage provided the impetus for me, at the beginning of 2017, to invite the GMH Group to apply for company membership of United Europe, at my expense. I have settled the membership fee by way of a donation. I want talented young people from the GMH Group who are interested in Europe to be able to take part in seminars held by United Europe. Let me know if you are interested in finding out more: please contact me via redaktion@glueckauf-online.de.

Yours

United Europe
competitive and diverse

As an engineer I only believe in noble words if they are also followed by deeds. For this reason I founded United Europe four years ago – a non-profit association which promotes the preservation and rejuvenation of Europe. Fellow campaigners include companies and political personalities from Spain to Finland. Former Austrian chancellor, Wolfgang Schüssel, an extremely intelligent and dedicated man, is president of United Europe. The association meanwhile has over 200 personal members – representatives from industry as well as from academia, and also many young persons. This is because the most important goal of United Europe is to bring together excellent young people from across the whole of Europe. Unfortunately, many people who are currently under the age of 30 take Europe, and the liberty, open borders and travel opportunities it offers, for granted. United Europe intends to make clear to these people that the future of the European project is in their hands.

A number of the young members of United Europe have been collectively thinking over the last few months about how Europe is to continue. They have compiled an extremely optimistic paper, despite the euro crisis, Brexit and various anti-European and populist movements which are gaining support. Together they call for a comprehensive reform of the European Union, to make it more democratic and more relevant to its citizens.

The young authors are presenting their paper at the end of March in Rome, where Europe is celebrating its 60th birthday. The Treaty of Rome was signed on 25 March 1957. This treaty was modelled on the European Coal and Steel Community (ECSC) with which Germany, France, Italy, the Netherlands, Belgium and Luxembourg regulated their coal and steel industries under a centralised authority, and established the European Economic Community, forerunner of the European Union.

I will be there for the presentation of our Rome Manifesto. Take a look at the websites www.united-europe.eu and www.romemanifesto.eu/?lang=de. Above all, however, think about what Europe means for all of us in our everyday lives, and for peace, liberty and economic prosperity.

External view

Photo: Dr. Arne Treppschuh

Greater scope for electric-arc furnace

Stahlwerk Bous · New filter system: higher extraction rate, better workplace climate. 220 t steel structure supports hood including exhaust-air system weighing 45 t.

INTERVIEW

The start-up of the new filter system involved diverse technical challenges, as Arne Treppschuh, who provided crucial support during the work on site, reports in an interview with *glück*auf:

***glück*auf:** What was the reason for installing the new system, Dr. Treppschuh?
Arne Treppschuh: The old system had been put into service in the 1980s when, of course, stacks were not a specified requirement. Exhaust air was simply emitted into the environment by way of a diffuser. Nowadays in the Saarland region, stacks with a height of 50 metres are mandatory for reducing the pollution levels.

Would it have been possible to do without a stack?
Treppschuh: Even if we had had the space for it – it would not have been practical, in particular because we have continually increased the productivity of our AC arc furnace in the past. The dedusting capacity of the old system was simply no longer adequate.

What, then, was the greatest challenge in planning the new system?
Treppschuh: The new system has a considerably larger hood than the old system so as to draw in and extract the furnace off-gases above the furnace.

Continued on the next page

Continued from last page

What was the solution?
Treppschuh: We have constructed a 50 metre-long and up to 20 metre-wide steel structure above the meltshop roof from which we have suspended the loads.

Which loads are we talking about specifically?
Treppschuh: The entire crude-gas piping weighs 220 tonnes, 80 tonnes of which are suspended from the structure. Hinged-support A and fixed-support block B, at 30 tonnes and 50 tonnes respectively, bear the remaining 140 tonnes of crude-gas piping as far as the coarse-dust separator at the filter inlet.

Let us talk about the actual off-gas cleaning. How does that take place?
Treppschuh: The system concept is very sophisticated. The hot furnace off-gas is combusted completely in a secondary combustion chamber, thus destroying its harmful contents. The gas is then promptly mixed with cold air – a process referred to as off-gas quenching.

What happens during such quenching?
Treppschuh: If I'm to explain that, it will become somewhat more complicated.

No matter, go ahead.
Treppschuh: To know how to arrive at the best system design, we conducted so-called "computational fluid dynamics" simulations beforehand. We wanted to find out how we could rapidly cool the hot furnace off-gases down, not with water, but using only air

Because it would have been much more cost- and effort-intensive to cool the hot gases down with water?
Treppschuh: Exactly. Eventually we found a design that manages without any additional internals such as mixing blades or airflow deflectors. This, and the streamlined concrete filter housing, now enables us to keep the pressure loss exceptionally low throughout the system – in other words, it is an optimally run system.

Arne Treppschuh Photo courtesy of the company

Why is the filter house built of prefabricated concrete elements?
Treppschuh: The benefits of this are twofold: the filtering process is insulated acoustically toward the outside and thermally toward the inside.

What, in your view, is also worth mentioning about the system?
Treppschuh: The flow-optimised circulation of the gas in the filter guarantees that any pressure loss is extremely low – meaning very low energy consumption levels for the fans and, in turn, a higher extraction rate for the meltshop than was planned. And that, in turn, creates a better workplace climate.

And what happens to the waste heat? Is it simply released?
Treppschuh: No. The heat from the water-cooled piping can be put to practical use. The system's water supply and distribution are connected via a heat exchanger to the company's district heating network. And Bous' AC electric-arc furnace, which at present produces up to 70 tonnes steel per melting cycle, will also profit from the new technology, as it will make further increases in productivity possible.

Many thanks for talking to us.

The journey continues

GMH Gruppe · The first Innovation Day generated a flood of ideas and impulses, and plenty of food for thought. But how to channel this flood? How can individual ideas be enabled to flow productively and inspire further reflection?

In a world which is strongly interconnected and networked, innovations are becoming increasingly essential (for survival) as many sectors are having to struggle against oversupply.

Only companies that integrate new processes, procedures and technologies to their economic advantage on the market will become long-term market leaders – rather than followers.

It is a well-known fact that increasing competitive pressure is also affecting the German steel industry as new companies from Russia and China flood the market with their products.

The first GMH Group Innovation Day, held on 19 October 2016, was one response to this. The strategic objective was not only to connect the 150 selected participants with each other but also to encourage them to be open to the idea of innovative thinking and to integrate relevant work and procedural processes in the Group in future (cf. *glück*auf 4/2016).

From the beginning, the intention was to ensure that this first Innovation Day would not be seen merely as a costly one-day event but that it would also be used to generate genuine added value for the GMH Group. The basis for this has been the findings developed by the different working groups on Innovation Day in relation to a diverse range of issues and future challenges.

The sheer volume of ideas, impulses and food for thought developed on the day was overwhelming and this is why the evaluation has taken considerably more time than anticipated (carried out by the team of organisers and, to a great extent, by the "Simulation and Innovation" unit of GMHütte). Although such a "delay" may seem negative at first, it is actually incredibly positive considered in the context of the ultimate objective of Innovation Day.

After laboriously summarising all index cards, pages of notes and flipcharts on which ideas and suggestions were captured by hand, the all-important question was how these impulses – for which it has not yet been possible in all cases to develop into concrete innovative products or concepts – can be sensibly connected to each other? How do they need to be processed if they are subsequently to form the basis for actual innovative approaches?

"Innovation distinguishes between a leader and a follower."

Steve Jobs

A type of software freely available online for visualising large data sets provided the ideal solution: Gephi. This software has been used to interlink the content correlations among the findings and then analyse them. Various versions of this evaluation can be viewed on the Innovation Day team page in the online portal of the GMH Group (https://portal.gmh-group.de).

In addition to many ideas which are to be examined in terms of feasibility in future, there are four central findings generated from the first Innovation Day. There is requirement for

- a Wiki as a knowledge and exchange platform
- more transparency across the Group
- collaboration and
- the development of new market fields.

It can, therefore, be concluded that the GMH Group first needs the necessary infrastructure to be able to operate in an innovative way.

Action is now being taken in response to this finding: in collaboration with GMH Systems, the "Simulation and Innovation" unit is currently working on the programming of an appropriate exchange platform. It is to improve connections between GMH companies, also in the case of specialised, subject-specific questions and problems. Implementation of the platform is to be completed within the course of the first quarter of 2017.

The topic of "innovation" has also become more strongly embedded within the structure of the GMH Group since the start of the year, with Zeljko Cancarevic having taken on responsibility for innovation as an interdisciplinary function across the entire Group.

Innovative thinking is an ongoing process rather than a final result. With the measures now being implemented, the GMH Group has taken the first important step in the right direction – and the journey is set to continue

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INTERVIEW

Marco Vostell Photo: mha

Information just in time

Mannstaedt · Digital information terminals are opening up a completely new communication culture on the shopfloor, facilitating documentation management, informing the workforce directly on important matters, and helping to curb the endless paperwork.

The management at Mannstaedt attach great importance to keeping their workforce regularly abreast of what is going on. That aside, it is a responsibility firmly anchored in the company's Guiding Principles. How the company has succeeded in greatly improving the quality of its information policy is explained by Ulrich Welteroth (Logistics Centre Manager), Marco Vostell (Head of Quality Planning and Process Management) and Morten Barfels (Quality Planning) in an interview with *glück*auf.

Photo: Ulrich Welteroth

***glück*auf:** *The flood of information is growing – including within companies. The information exchanged between company levels, the shopfloor and departments has, moreover, to reach the workforce at the right time, something which is certainly not an easy task.*

Ulrich Welteroth: That is why we have specifically addressed this topic over the past few months. Our conclusion has been that only an information concept tailored to the departments concerned can sustainably improve the quality of the information exchange.

And what solution have you found?

Marco Vostell: Digital communication. It is something that more and more industrial companies swear by, using professional techniques to keep their workforces regularly informed and up to date.

What, precisely, does such communication technology comprise?

Morten Barfels: So-called information terminals or kiosk systems. These make it possible to implement novel digital information communication concepts.

What does this involve specifically?

Vostell: These information terminals are self-service stations, so to speak. They make information available which employees can call up at their workplace via a touchscreen. This includes not only general information but also, in particular, the latest documents, instructions, regulations – everything that is needed to work effectively on a day-to-day basis.

Who administrates, manages and updates this information and documentation?

Barfels: We use the Share Point web application for this purpose, through which the information terminals we have so far set up are serviced. This offers the benefit that we can reduce the maintenance effort and exchange of out-of-date information to a minimum. Instructions, regulations, etc. are updated centrally.

Would you have known?

Information terminals

Kiosk systems are interactive computer systems used in the public domain or also at semi-public locations for the purpose of providing information (for example, in shopping malls). Unlike mobile computer devices (for instance, tablets) they have a fixed location.

Would you like to know more about the information terminals?
The persons to contact for GMH companies are Ulrich Welteroth (02241.84-2324) and Morten Barfels (02241.84-2369).

Perhaps information terminals of tomorrow will be what tablets already are today: digital tools without which everyday working life would no longer be imaginable (from left to right): Ulrich Welteroth and Morten Barfels in the logistic centre. Photo: mha

So nobody within the departments has to laboriously keep the corresponding files up to date any longer?
Welteroth: Correct. We take care of all that through Share Point.

How many terminals are already in use?
Vostell: We tested the first three terminals as a pilot project in the logistics centre, after which we put another six into operation in the rolling mill. Further terminals will be going into service in the downstream processing facilities shortly. We are doing the preparations for this.

It seems you have achieved your goal of getting information and documents to where they are needed within the company, quickly, reliably and on an up-to-date basis. But who informs you that the workforce also notice and read them?
Welteroth: Quite clearly, it is up to them, of course, to consult the information terminals at regular intervals. It is plainly their obligation to do so. But our experience shows that the workforce are happy to use the terminals.

Have notice boards now become a thing of the past?
Welteroth: The information terminals are not intended to replace the notice boards but to offer quite different possibilities for communication. Neither is competing with the other at all. The terminals offer information possibilities and also, especially, functions that notice boards cannot. One needs only to consider the amount of data provided and the updating of the documentation.

What has brought about this great acceptance within the workforce?
Barfels: The association between functionality and an intuitive user interface, which is very similar to using a tablet.
Welteroth: The terminals fascinate the workforce and help communication.
Vostell: What is more, they are genuine "eyecatchers" on the shopfloor.

Many thanks for talking to us.

INTERVIEW

Martin Barndt Photo courtesy of the company

The screw press at Schmiedag is as good as new again: fitting of the screw nut.

Photo: Martin Barndt

Outage time cleverly used

Schmiedag · A circular crack in the ram of the screw press made a major repair necessary. The repair went completely to schedule, during which time secondary units and the screw were replaced.

In 2013, Schmiedag had the screw of its PSH 500 screw press replaced by Schuler, a company based in Weingarten. On that occasion the ram was also ultrasonically inspected, revealing a circular crack that had formed in the seat of the screw nut. Martin Barndt (Maintenance Manager) describes in an interview with *glück*auf why the repair was deferred for the time being.

***glück*auf:** *A forging press ram of this type, weighing 28 tonnes, cannot be procured that quickly, of course. So what is done if it develops a fault, Mr Barndt – with the whole of production depending on it?*
Martin Barndt: Whether repair or replacement – both indeed involve lengthy lead times, which is why we were unable to solve our problem at short notice.

How, then, did you deal with the situation?
Barndt: We re-installed the ram for the time being. Fortunately, it was not in such a bad state that it was no longer usable. We simply had to recognise that the crack would grow in size. Our laboratory personnel therefore inspected it regularly using ultrasound.

How often do you mean by regularly?
Barndt: Every four weeks. We then evaluated and filed the inspection results.

And how long did the crack leave you in peace?
Barndt: The crack depth did not change dramatically from December 2013 to February 2016. But in March 2016 we then had to sound the alarm, because measurements revealed that the crack had become longer.

Measurement error was ruled out?
Barndt: To be on the safe side we had also commissioned an outside company to carry out the measurement. They confirmed our findings with a second inspection.

Repair was now unavoidable – and the time had arrived to commence the major job that had been planned, was that so?
Barndt: Exactly, and it involved the usual formalities: evaluation of tenders invited in advance for the repair work, finalisation of a choice, and negotiations by our Purchasing Department. After which we, together with Production Control, decided on a commencement date: November. We set 9 January 2017 as the date for the re-start.

What happened then?
Barndt: On 23 November 2016 the removed ram including screw nut was transported by a haulier to Dortmund where a repair company carried out the repair – i. e. grooving-out of cracks, welding work, heat treatment, machining, adjustment of the screw nut seat, and so on. These jobs were completed before Christmas. The repaired ram then arrived back at our company on 27 December.

And you were already waiting impatiently for the ram and nut …?
Barndt: … but not twiddling our thumbs. During the repair work, namely, the drive, brakes and ejector system of the screw press were overhauled. We also used the time to replace the self-aligning roller bearing of the screw with a new one. And we conducted preventive maintenance on the secondary units …

… the induction furnace, KUKA robot, forging roll and deflashing press…
Barndt: … correct.

When were you able to conclude the re-assembly of the screw press?
Barndt: On 8 January 2017.

And when did the first red-hot forgings leave the group of presses?
Barndt: Just one day later – after we had optimally adjusted the entire line including peripherals.

That really went off smoothly!
Barndt: Thanks to the major repair being well prepared and executed in every respect by all involved.

Many thanks for talking to us.

Would you have known?

US inspection

US is the abreviation for ultrasound. Non-destructive test method: acoustic technique for detecting faults in materials by means of ultrasound.

Photo courtesy of the company

Machine data

A boring mill (to be more precise: horizontal boring and milling machine) is a machine-tool that finds use in general engineering. Here a few data concerning the CNC boring mill (TOS WHN 13). Manufacturer: TOS-Varnsdorf. Year of manufacture: 2008. Control system: Heidenheim iTNC 530. Traversed distances: X-axis 2,000 mm, Y-axis 2,500 mm, Z-axis 2,000 mm and W-axis 800 mm. Machine table loading capacity: 12 t. Clamping table 2,500 mm x 1,800 mm.

Production gap closed, product range expanded

Pleissner Guss · Investment in a new CNC boring mill has paid off in many respects, permitting the machining of castings as heavy as 12 t.

For a long time, WMW Werkzeugmaschinen GmbH was a proven and reliable supplier for Pleissner Guss (PG). On its CNC boring mill (TOS WHN 13) it machined PG castings that either were too heavy for the foundry's own machines (more than a total weight of 8 t) or were too large dimensionally – frequently making the foundry's scheduling more difficult and reducing flexibility.

In March of last year, news was then received that WMW would be closing on 31 October 2016. Who was now to take on the machining of PG's castings? The solution was quickly found: Pleissner Guss decided to purchase the TOS WHN 13 CNC boring mill and integrate it into its own production – a decision that also soon became a reality thanks to the investment approval given by holding company GMH Guss GmbH.

However, such a mill, weighing 35 t, cannot simply be collected and quickly put in place in the workshop. A "move" like that needs careful planning and preparation because, with a floor space requirement of 15 m x 15 m and a height of somewhat over 5 m, the new CNC boring mill is not among the country's smaller units – and consequently is a real eye-catcher.

Foundations encompassing a floor area of 15 m x 15 m were therefore needed, involving the excavation of 120 m^3 earth, the pouring of 120 m^3 foundation concrete, and the installation of 3,730 kg steel.

The disassembly and subsequent reassembly of the CNC boring mill took place in late July. Successful acceptance of the machine was followed by training of the personnel, whereafter it was finally possible to put the CNC boring mill into operation, as planned, in October 2016. A half-year on, the mid-term appraisal is that the procurement has paid dividends. It has lightened the workload of the already installed CNC machining centres; the machining times of the conventional boring mill have been reduced; transport costs have been pared (no more outsourcing); flexibility has been increased, and faster casting throughput times have been achieved thanks to inhouse machining.

Matthias Behrens

Stefano Gobbi, with headquarters in Genoa, Italy

GMH Gruppe · Sales office is contact partner for customers from Italy, Spain and Scandinavia.

The GMH Group has a new family member. Under the leadership of Stefano Gobbi, former GMH Italia has been renamed. What started out as an interim solution in home-office style on 1 January, is slowly but surely taking shape. The new office space of GMH International in the Ligurian capital of Genoa was renovated in the first weeks of the year and is meanwhile open for business. Supported by three key account managers plus a back office employee, Stefano Gobbi and his team will in future be the direct contact partner for the Italian, Spanish and Scandinavian markets. Colleagues in our other foreign subsidiaries (GMH East Europe, GMH France, GMH UK) also continue to be active in their respective market segments.

Stefano Gobbi, Manager of GMH International at the new location in Genoa (Italy)

Photo courtesy of the company

The new offices not only mean that the number of international representations of the GMH Group has increased but, at the same time, it is also a reflection of one of the current core sales topics – internationalisation. Establishing this approach across the business units is essential if further inroads are to be made.

Melanie Moschner

SCHMIEDAG

Maximum precision.

After 28 years of service, the Leitz-Sirio measurung unit at Schmiedag had reached the end of its useful life: it was faulty and no longer reparable. The strictest quality criteria were applied when procuring a new 3D measuring machine (Wenzel measuring machine, manufactured by Klostermann), which meets all of Schmiedag's metrological requirements and offers a much greater range of measurement than the old unit. Its system accuracy in all axes is an incredible 2.2 µm (thousandths of a millimetre). For comparison: a human hair is some 25 times "thicker" (!) – 50 to 70 µm. The machine comes with state-of-the-art measurement software (Metrosoft QUARTIS), permitting faster and simple programming even when performing complex measurement tasks. The photo shows Klostermann managing director Andreas Pyka (left) and Andreas Studinski (Head of Quality) at the official handover of the machine in Schmiedag's measuring room. A workpiece undergoing measurement on the test stand at that precise moment is visible in the background.

Andreas Studinski

Photo: Karin Kriebel

Coating remains where it should

FWH-Eisenguss · Airless spray technique replaces airmix spray systems – and puts an end to "coating showers" for personnel when working in overhead position.

In the iron foundry of Friedrich Wilhelms-Hütte (heavy castings), the moulds and the cores fabricated in the moulding shop used to be coated traditionally with a whitewash brush.

To coat large-sized moulds and cores, however, there is a far more efficient technique: flow coating.

This technique is viable only if enough space is available to install a suitably large flow-coating system including turning device. That was not the case in the iron foundry, which is why use was made of so-called "airmix spray systems" – an unsatisfactory option in many respects. It was a technique that was not really convincing because of the extremely irregular coating it applied.

Furthermore, the entire room would become fogged during the coating process – which was an unreasonable imposition for the coating operatives and other foundry personnel working there.

It is a different matter with the airless technique, where the coatings are atomised by means of compressed air only as they exit the spray nozzle. The coating operative regulates the coating rates and spray widths needed in each case by means of suitable nozzles.

FWH-Eisenguss invested in the first airless unit in 2015 after several convincing demonstrations conducted by the airless equipment manufacturer. Practical operation has meanwhile confirmed the efficient functioning and reliability of the technique. For this reason, FWH-Eisenguss is now investing in a second airless unit.

Bidjan Eskandari-Djahmani

Christian Kucza

"Previously, during overhead coating work, the coating fluid would often run downward over your head and body into your gloves, which is why much of it also then dripped onto the floor. That is no longer the case with the airless technique. I am most satisfied as well as convinced: the results produced by the technique speak for themselves and have made our working conditions appreciably easier. A sensible investment!"

CHRISTIAN KUCZA (MOULDER) ON THE NEW AIRLESS SYSTEM

A core with a diameter of around 5 metres and a height of 3 metres fabricated in the moulding shop

Photos courtesy of the company

Advantages of the airless technique

- → Fast coating of large surface areas (up to 50 percent increase in efficiency)
- → Lower coating consumption (by as much as 20 percent)
- → No bubbles formed on the surface
- → No 'curtaining' effect as can occur during flow-coating, for example (recoating hardly necessary)
- → Low incidence of fogging (clean workplaces, low cleaning requirement)
- → Ergonomic technique

Would you have known?

Coatings for moulds and cores

In foundry technology, so-called coatings are applied to moulds and cores to form a separating layer between the iron and moulding sand and produce a smooth surface on the casting. The base material of the coatings ranges from finely ground refractory to superrefractory materials. Sense and purpose of the technique: the coating insulates the substrate and provides protection against thermal stress caused by the molten metal.

Two large ingots simultaneously

Schmiedewerke Gröditz · Modified ESR unit also boosts quality.

Liebscher specialists install the new return-cooling system.
Photo courtesy of the company

The ESR unit of Schmiedewerke Gröditz (SWG) comprises two remelting stations. Both are designed mechanically for remelting ingots in diameters up to 1,650 mm. Before its modification the unit was equipped with four power-supplying transductor transformers, each of which delivered 17 kA remelting current. It was possible to share that melting current between the two remelting stations: either 34 kA for both remelting stations at the same time or 51 kA for remelting station #1 and 17 kA for remelting station #2. This imposed limitations where the two large ingot formats of 1,500 mm and 1,650 mm were concerned, Because a remelting current as high as 51 kA was required, only one ingot could be remelted at a time. Remelting two large ingots simultaneously used to be technically impracticable, therefore. To make this possible in future, the ESR unit was modified over the course of two weeks in October of last year. What has changed on the unit is explained by Ronny Wolsky (project manager and coordinator) and Stefan Hackel (sub-project manager):

SWG had commissioned Inteco GmbH to modify the ESR unit in order to be able to remelt two large ingots simultaneously in future at both remelting stations.The timeframe scheduled for the modification work was two weeks.

Nothing was modified electrically at remelting station #1, while a new 51 kA power supply was installed at remelting station #2, comprising a step-down transformer (15 kV/700 V), a transductor current supply (51 kA/120 V) and two additional compensation modules (4 Mvar).

It was necessary to construct a new transformer cell to create the space needed for the new technical components. It was also necessary to modify or upgrade the existing medium-voltage switchgear and, because of the higher remelting current, to replace the high-current bus bars leading to the remelting station. The existing cooling-water situation had also been reviewed beforehand, the finding being that the cooling water system also needed upgrading. Only thus could the greater cooling-water requirement for remelting two large ingots simultaneously be met.

The inflow temperature into the crucible, base plate and extraction hood was to be freely adjustable (irrespective of the current-carrying components). This was already viable using the primary circuit set-up. Nevertheless, the energy efficiency for using the different crucible formats was optimised by means of an improved pump control system.

The inflow temperature for cooling the current-carrying components was to be as low as possible, which was generally feasible with the existing system (open circuit), but a changeover was nevertheless made to a closed circuit including a cooling module because it would benefit the new transductor current supply system.

A new primary circuit comprising a closed return flow was also created for supplying water to the internal cooling circuit (header and manifold) of the unit (secondary consumers). The system consists of a tank, cooling-water pumps – including redundant stand-by pump to supply the header/manifold station(s) – accessories and instruments, as well as a cooling-water return line to the heat exchanger and tank. The individual circuits for the secondary consumers were fitted with a thermometer, temperature transmitter, pressure gauge, flow meter and diverse valves.

A "stand-alone" recooling system was installed to individually take account of the recooling function. It comprises mainly a cooling tower, a tank with filter unit, a pumping station and the connecting pipework including instrumentation and valves.

It was also necessary to upgrade the low-voltage switchgear and the automation engineering for controlling and monitoring all the new components. Several switchgear cabinets were constructed and integrated into the existing plant control system and peripherals.

SWG additionally wanted to improve the surface quality of the ESR ingots to a further significant extent, for which reason a delta-t feedback solution was installed for the crucible and base plate during the modification – and has had a very positive impact.

And last but not least, fire-protection monitoring for the new power supply system. A new fire detection and alarm system has been installed, based on a smoke aspiration system. In the event of a fire the company's fire department is very quickly able to connect up to the in-feed points of a semi-stationary sprinkler system (that had already been installed for the transformer cells and the compensation equipment).

A total of 18 enterprises along with some 60 personnel were involved in the modification.

ESR steels

Electroslag remelting process (abbreviation: ESR). Metallurgical process for producing steels with a very high cleanness and a directionally solidified and thus faultless structure. A solid steel ingot is immersed into a pool of molten slag in a crucible that at the same time functions as an electrical resistor. The ingot becomes a current-carrying electrode and melts. The slag absorbs sulphur and non-metallic inclusions, which are later separated. These steels have enhanced technological properties: high sulphide and oxide purity, a uniform solidification structure that extends over the entire ingot length and cross-section, a particularly high tensile strength, and very good toughness (also at the core of large workpieces).

One face to the customer

GMH Gruppe · Whether Milan, Cleveland or Amsterdam: the GMH Group is showing its colours at international exhibitions.

CORRESPONDENT PIECE

Milan – Cleveland – Amsterdam: associated with this cosmopolitan triad of large international cities are this year's exhibition aims of the GMH sales team. It is there, namely, that the doors to a wide variety of international contacts in technology, marketing and related fields will be opening for the steel and forging industries. And they are, of course, venues that also the representatives of GMHütte must not miss. In what follows, three GMH staff members outline their goals and expectations for the exhibition appearances of GMHütte:

FORGE FAIR

Jörg Multhaupt (International Sales Manager, GMHütte) on the Forge Fair at the Convention Center in Cleveland, Ohio, USA (4 – 6 April 2017). He will be the contact partner there, together with Henning Dickert, to answer visitors' questions. Here his assessment regarding the fair:

"Despite the current political climate we would like to make use of the potentials that exist in the States to our advantage. That is why GMHütte is taking part for a second time at the Forge Fair. For me and my colleague Henning Dickert, this fair is the highlight of a USA forging roundtrip. We have meanwhile intensified the contacts established during our presence at the fair in 2015. I am anticipating many new contacts from the forging sector also for 2016 as well as a reunion with business partners from earlier projects. What is more, I am looking forward to the many interesting specialist presentations and to visiting the accompanying exhibition. It gives you a feel for current trends in the industry. We will be demonstrating our new products and developments in specialist presentations to potential U.S. customers."

Jörg Multhaupt

MADE IN STEEL

Stefano Gobbi (Managing Director, GMH International) on Made in Steel in Milan (17 – 19 May 2017). It marks a first appearance at the exhbition: the new Group company "GMH International", based in Genoa (see page 10), will be represented there with its own stand – manned by Stefano Gobbi and his four-strong sales team:

"The exhibition in Milan is a biennial platform for Italian as well as foreign producers and processing enterprises from the steel industry. Having attended "Made in Steel" as visitors in recent years, our team from GMH

Stefano Gobbi

International will this year also be getting to know the exhibition for the first time as an exhibitor.

The internationalisation of the GMH Group is of course a topic that is very close to our hearts. For that reason our aim is to present the new corporate structure along with our great many products, components and locations to our regular and new customers at the exhibition. We are looking forward to numerous discussions with existing and prospective customers and to welcoming them at the GMH Group stand."

SCT

Henning Dickert (Head of Process Assurance/Process Technology, GMHütte) on the SCT in Amsterdam (18 – 22 June 2017). Every three years the SCT (Steels in Cars and Trucks) takes place at a different venue. This year it has been organised by the German Iron and Steel Institute (VDEh). GMHütte is the Gold Sponsor of this event. Henning Dickert will be holding a specialist presentation there:

"I am very much looking forward to this year's Steels in Cars and Trucks – and not only because of the opportunity to hold my presentation before the auditorium. I will, by the way, be speaking about a wide variety of concepts for high-strength self-hardening steels for forged components that acquire their strength directly upon cooling from forging temperature.

I am, though, also looking forward, of course, to the presentations held by customers, other forging enterprises and competitors.

I like the SCT not only for the opportunity to exchange views and ideas with colleagues and customers from the steelmaking industry, but also for the special technical topics relating to the automotive industry."

Melanie Moschner

Henning Dickert Photos: vl

glückauf on the move


Photo: Christina Horstmann

Give it a guess!

Where is Marco Bovenschulte (Adolf Ellermann) reading his *glück***auf**? We are looking for the name of a city. Here are a few hints: the sculpture in front of which Marco is posing is a landmark in the city and famous far beyond it. The city we are looking for is by far the largest trading center for crude oil in Europe. The oil is stored at the port and, for the most part, further processed (the "barrels" in which this crude oil is stored are enormous). Send your reply to m.krych@rro-gmbh.de or (by postcard) to Matthias Krych, Rohstoff Recycling Osnabrück GmbH, Rheinstraße 90, 49090 Osnabrück. Closing date for entries is 15 May 2017. If more than one correct entry is received, the winner will be drawn from all correct entries submitted.

And where is your photo? Would you also like to submit a picture puzzle? Just take a photo featuring *glück***auf** in the foreground. In the background there should be enough specific details to be able to recognise in which place or in which city the photo was taken. Mail your photo to m.krych@rro-gmbh.de.

Did you know?

Armin Schröder (RRO) is reading his *glück***auf** in the Italian city of Pompeii (with Vesuvius in the background). The winner, Hubert Suppan (rolling mill, Stahl Judenburg), was drawn from all correct entries submitted (thank you for taking part). Congratulations! (The judge's decision is final.)


Photo: privat

YOUR PRIZE!?

This time you have the opportunity to win a light grey knitted fleece jacket with GMH logo (knitted surface, stand-up collar, two side pockets) and a white polo shirt with red GMH logo.

SPOT-THE-DIFFERENCE PUZZLE – 5 TO FIND

It is not so easy: spot the five differences between the original and the altered picture. What is missing from the altered picture? This time the original photo was taken at Georgsmarienhütte GmbH. Felix Treppschuh from Rohstoff Recycling Osnabrück captured the shot and manipulated it to incorporate the alterations. If you have trouble spotting all five differences, you will find the solution to the puzzle online at www.glueckauf-online.de.

ORIGINAL

ALTERED PHOTO

Masthead

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