

# ESSENTIALS

The customer magazine of EschmannStahl GmbH & Co. KG

2017

A woman with dark hair styled in a Renaissance fashion, wearing a light-colored floral dress with ruffled pink and gold trim and a pearl necklace. She is holding a smartphone in her left hand and looking at it with a smile. The background is plain white.

Renaissance  
of a material



Dear readers,

What does an old-fashioned lady with a smartphone in her hand have to do with EschmannStahl? In this issue we would like to show you that steel with its long track record as a material is currently undergoing a renaissance. To do this we want to take you on a journey, from steel's breakthrough during the Industrial Revolution to the present day, where engineers and designers are once again increasingly focusing on steel's proven strengths. High-tech and steel are no longer mutually exclusive, by any stretch of the imagination.

At the same time enhancements and innovations are driving the success of this particular material. EschmannStahl too is dynamic. That's why we have plenty of news for you to read about, for example, our new website and our online shop that has had many functions added or Jörn Maubach, our new Head of Sales. In the Insights articles you can take a look behind the scenes at a long-established toolmaker and at our sawing centre in Wehnrath.

I wish you an informative and entertaining read.

A handwritten signature in blue ink, appearing to read 'M. Krepschik'.

Yours sincerely Markus Krepschik (CEO)

- 04 **WORLD OF STEEL** | Renaissance of a material
- 08 **WORLD OF STEEL** | The plastics industry at its best
- 09 **WORLD OF STEEL** | Mould-making basics
- 10 **MATERIALS AND PROCESSES** | The beryllium-free alternative
- 11 **MATERIALS AND PROCESSES** | State-of-the-art surface protection
- 12 **MATERIALS AND PROCESSES** | ESATLAS 42 - long service lives for production reliability
- 14 **PROSPECTS** | Fakuma reaches 25
- 15 **PROSPECTS** | New Head of Sales Jörn Maubach
- 16 **PROSPECTS** | Preferred dimensions in just a few clicks
- 20 **IN THE FIELD** | Steel in great shape
- 24 **INSIGHTS** | Alois Höller: The man for preferred dimensions
- 26 **INSIGHTS** | Eyes open for greater efficiency
- 27 **INSIGHTS** | IN BRIEF



## RENAISSANCE OF A MATERIAL

Where people tended to opt for lighter materials in the more recent past, steel is currently celebrating its comeback among design engineers and designers. It continues to appeal by providing its traditional advantages - as it has done for more than 150 years.

A look at the history of steel reveals how indispensable this material is to industrial and architectural progress - particularly from the mid-19th century onwards. The age of industrialisation is regarded as the greatest catalyst of the spread of steel around the world. The most important changes to manufacturing methods are made during this period. These changes incorporating the use of cheap coke and compressed air improve manufacturing lead times and costs to such an extent and mark the start of steel mass production. Given more efficient production of and resultant massive demand for steel as a construction material for railway tracks and trains and the emerging vehicle industry, steel experiences a boom, which is memorialized by the building of the Eiffel Tower in 1889. The smoking chimneys of the blast furnaces have been a symbol of industrialisation ever since.

### Superior to all fads

Engineers and product developers have invoked steel's traditional advantages from the industrial euphoria of the late 19th century to the present day. The superb combination of ultra-hardness and malleability as well as comparatively low material costs remains unbeaten. In the 19th century steel facilitated for the first time the building of taller, more robust structures, which would have been unthinkable if timber, stone and iron had been used. Nowadays in the era of aluminium, carbon or titanium, what is more important is reduced material inputs in lightweight construction at constant performance capability and robustness. The approach has changed, but the

pivotal arguments in favour of steel remain the same. Taking a long-term view, this material is therefore less susceptible to the fads and fashions of designers. A good example of this is the new iPhone X, Apple's new flagship.

#### From aluminium housing to steel frame

We now know for sure since the keynote presentation – steel remains the new old option. To mark the 10th anniversary of its smartphone, Apple is going to revive a design that determined the look of the iPhone 4. From 2012 onwards it was replaced by the aluminium housing, which back then created a new signature design feature and was copied throughout the industry. Increased competitive pressure and the desire for a different appearance have now presumably got Silicon Valley's design engineers thinking steel again.

Apple developed an iPhone X carcass consisting of two convex glass panels held together by a steel frame. The forged, stainless steel is used to border the upper and lower glass surfaces and increases the stability of the device body – also called a "glass sandwich" in industry circles. Given its strength, the steel

frame can be so minimalistic that it barely catches the eye of design-savvy Apple customers. Glass and frame visually almost seem to blend into one. The steel design also supports cordless charging, which is crucial for the creation of a magnetic field – a key sales argument, not just in the premium segment.

#### Steel delivers efficiency increases

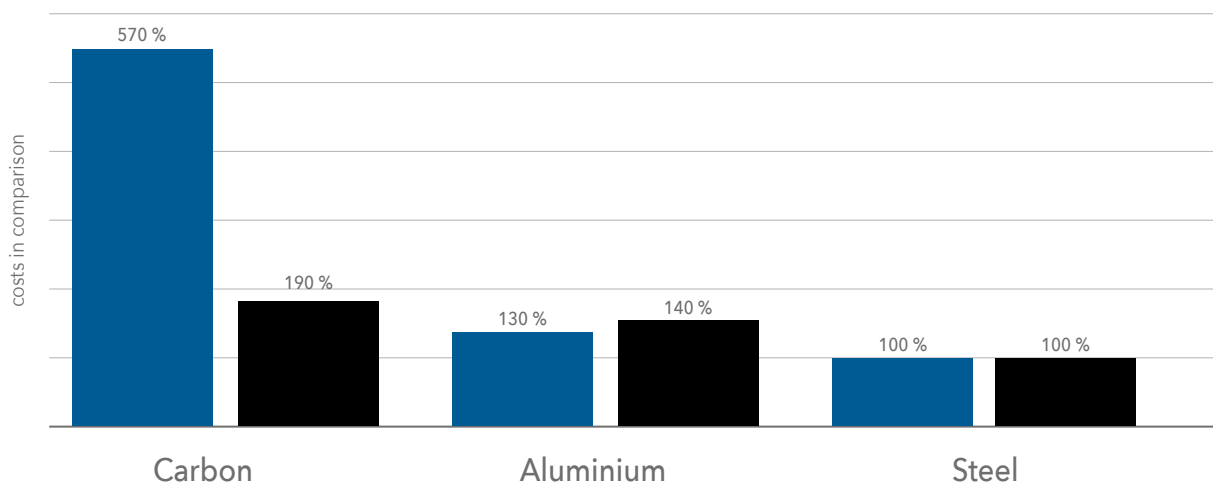
The advantages that steel has over aluminium are also very explicit in terms of production processes – faster, less expensive production using steel frames, which dispense with elaborate CNC methods, enables efficiency to be increased significantly. According to estimates, cost savings amount to between 30 and 50 percent at a simultaneously lower reject rate, compared to milled and drilled aluminium bodies.

#### Longevity and sustainability in the sport of cycling

Steel is also being revived in cycling in addition to the vehicle manufacturing industry, which continues to use high-strength steel as a more cost-efficient option for reducing weight and emissions. The steel frame is currently experiencing a renaissance, even in an age of feather-light high-performance →

## COMPARISON OF COST TRENDS OF ALUMINIUM, CARBON, AND STEEL

Costs of an aluminium or carbon part compared with a steel part in 2010 and forecast for 2030



carbon bikes. If it's not exactly a time-trial stage of the Tour de France, but rather regular, extended cross-country tours, then the steel-frame bike has a diehard fan community that doesn't just consist of nostalgists.

One of the most important reasons for this is steel's better fatigue resilience compared to aluminium. Fractures as a result of continuous stress generally occur much later. Consequently the lifetime of a bike with a steel frame design is longer than that of a comparable carbon-fibre model. A two-wheeled steed made of steel will therefore be a trusty companion for decades without mutating into a safety risk due to undetected frame fractures. If a carbon frame gets broken in the

first place, in very few cases can it be repaired and carbon is non-recyclable special waste. Especially in terms of sustainability, steel boasts full recyclability.

#### Specialisation equals enhancement

These are just two current examples of how steel is still able to compete against modern materials and score points with its traditional attributes of resilience, cost-effectiveness and longevity.

Since the age of industrialisation the steel industry has not only focused on its core business but has also committed resources to developing specialist non-standard grades of steel. Precision-generated material properties enable suitable responses to be

## OUR ES SPECIAL GRADES

### ESATLAS<sup>42</sup>

- high degree of full quenching and tempering homogeneity
- high degree of tenacity for long service lives
- good wear resistance
- superior thermal conductivity
- supreme polishability for top surface quality
- high degree of immunity against formation of cracks and fractures
- highly graining-proof

### ESMULTIFORM<sup>SL</sup>

- cross-sections feature homogeneous properties throughout
- high degree of graining capability

found for new applications. The industry develops or enhances around 150 steels every year. Added to that - and this applies to EschmannStahl too - are improved surface finishing or alloying techniques, which increase service lifetimes and wear resistance. They also continuously provide new sources of inspiration to design engineers and product developers.

That's because cost efficiency and sustainability - the key issues in the modern era - are the core factors that will take the traditional material, steel, into the future and be at the heart of all innovations. Customers can therefore be confident that they can rely on steel to help meet the challenges of tomorrow. ■



## ESPRIMUS<sup>SL</sup>

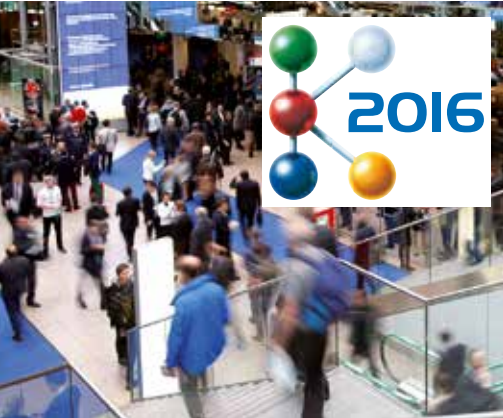
- superior tenacity
- improved thermal conductivity
- increase in wear resistance
- good machinability
- an isotropic structure can be achieved by applying a special hardening process

## ESANTIKOR<sup>SL</sup>

- minimal tool wear
- excellent weldability
- increased tenacity delivers greater production reliability
- also suitable for grained blow moulding

## ESAKTUELL<sup>1200</sup>

- excellent thermal conductivity
- excellent tenacity
- prehardened up to 1200 N/mm<sup>2</sup>



Nearly a quarter million of visitors came to Dusseldorf.



Interesting conversations at the EschmannStahl booth



Clear surfaces are possible with the right steel only.

## THE PLASTICS INDUSTRY AT ITS BEST

EschmannStahl draws thoroughly positive conclusions about its debut at K 2016 in Dusseldorf.

Last autumn the world's most important plastics and rubber industry event attracted nearly a quarter of a million trade fair visitors and around 3300 exhibitors to the K show in Dusseldorf. In this highly professional environment EschmannStahl showcased the materials-partner role it plays for the first time to an audience of potential customers.

Steel at a plastics trade fair? How does that fit? "The experience and consultancy know-how of a steel expert is in great demand, especially as far as mould-making for plastic components with filigree surface textures is concerned. This is especially true when customers don't want to make concessions in terms of the service lives of their machine tools. This is what the many conversations we had at the trade fair have clearly shown", Joachim Stotz, Key Account Manager at EschmannStahl, explains. Following this high level of interest from the plastics industry, K 2019 is already a fixed date in EschmannStahl's trade fair calendar. ■







Experts of the industry meet  
at the Moulding Expo

## MOULD-MAKING BASICS

EschmannStahl exhibited this year at Moulding Expo in Stuttgart for the second time and showcased what it does to a specialist mould- and toolmaking audience.

EschmannStahl used the opportunity provided by Moulding Expo to showcase its products and solutions to a specialist international tool-, model- and mould-making audience. The four-day trade show registered around 15,000 visitors and 760 exhibitors.

"This trade fair of course models the industry's entire production chain. And it all starts with selecting the right high-performance mould steel", Uwe Feldhoff, Head of R & D at EschmannStahl explains. Selecting optimum tool steels means the cost-effectiveness and reliability of proprietary manufacturing processes can be increased substantially. Many mould-makers are now aware of that too and showed plenty of interest at our trade fair booth. Featuring an advertising pillar and retro-design advertising posters, it attracted a lot of attention this year. ■

200 years ago, Ernst Litfaß invented the  
"announcement pillar" - to this day an eye-catcher



# THE BERYLLIUM-FREE ALTERNATIVE

EschmannStahl is adding two high-performance materials - bronze and copper alloys - to its portfolio and they are not just intended for effective mould and die production.

When a particularly high degree of thermal conductivity is required, copper and bronze are the ideal complement to steel. That's because such alloys have significant advantages compared to conventional tool steels. The use of bronze or other copper alloys at a shaping contour level significantly enhances heat removal in the production process. This enables cycle times to be reduced considerably.

## More performance - less warpage

Both alloys are produced using a forging method. They are used to make premium-quality components with improved heat removal, good corrosion resistance and demoulding properties. Optimized thermal distribution in the mould insert has a positive impact on the entire production process.

For tool steel applications it is important not to use highly toxic beryllium. "Both ES CU 200 and ES B-LG 1 are therefore beryllium-free and are ideally suited to the purposes of our customers", Joachim Stotz, Key Account Manager at EschmannStahl, explains.

Customers therefore do not have to fear any loss in toughness. They are also weldable and erodible as well as grainable and polishable. The bronze alloy also features good sliding properties and is food-compatible.

## Extremely competitive

At the same time unit costs can be reduced considerably, despite comparatively higher material input costs. Joachim Stotz explains why: "These total cost savings result from fundamentally shorter cycle times. This therefore makes bronze and copper alloys a worthwhile option even from a cost effectiveness perspective." This gives toolmakers an additional argument for proprietary sales.

## Preferred dimensions available

Both special materials are always in stock in a range of different dimensions and can also be delivered within three to five working days made to your own preferred-dimension specifications. That means they are also an option for time-critical projects. ■



# STATE-OF-THE-ART SURFACE PROTECTION

The **MOLDADUR** treatment is another new service provided by EschmannStahl. This protective coating for highly sensitive surfaces is particularly suitable for polished and textured plastic moulds.

A particularly scratchproof mould surface can only reproduce surface textures in a modified way at a later stage. EschmannStahl is now offering its innovative MOLDADUR solution, which can do both of the following: it protects the plastic mould, while smooth or filigree textures remain intact at the same time. Like EschmannStahl's entire service package, MOLDADUR can be used on tools of up to 5000 kilogram unit weight.

## Scratchproof and wear resistant

MOLDADUR is produced using a diffusion process that has been specially adapted to tool steel. Depending on application, the resultant homogenized surface delivers perfect polishing results or ensures exact texture reproduction. The new protective coating ensures the tool does not warp. The tool's basic hardness also remains the same. Uwe Feldhoff, Head of R&D at EschmannStahl, also provides another argument in favour of this new processing step:



Perfect polishing results with MOLDADUR

"MOLDADUR increases wear resistance and tool service lifetimes, thus ensuring sustainably good results. That also improves cost-effectiveness." High-cycle tool components subject to heavy-duty use in particular therefore benefit from this surface coating. ■

## ADVANTAGES OF MOLDADUR

- reduced maintenance costs
- improved tool cleaning
- easier demoulding
- improved corrosion protection
- existing tools can be retro-treated

## INFOS | DATEN | FAKTEN

The **ESPRIMUS SL**, **ESATLAS 42** and **ESAKTUELL 1200** special grades are particularly compatible with the MOLDADUR method. EschmannStahl treats other standard tool steels using the same method on request. An additional PVD coating is also feasible afterwards.

# ESATLAS 42 - LONG SERVICE LIVES FOR PRODUCTION RELIABILITY

**ESATLAS 42 is a new special grade for plastic moulds that has gained a firm foothold among EschmannStahl's customers.**

The service life of a machine tool often determines whether manufacturing operations are cost-effective and productive. "Total failure resulting from a crack in a tool mould is a production nightmare", Uwe Feldhoff, Head of Research & Development at EschmannStahl, remarks. "The consequential costs of a stoppage and the time and money required to action a new tool also need to be added. That is why we wanted to offer our customers a material that precisely counteracts the impact of such an event", Feldhoff continues. Based on an acute awareness of this problem, EschmannStahl last year developed its **ESATLAS 42** grade - a plastic mould steel in a class of its own.

## High-performance grade for tools

**ESATLAS 42** is even available in large dimensions and in thicknesses of up to 655 millimetres. For that reason its range of applications is so varied and it is also suitable for large-scale mould-making. This material, which is hardened to 38-42 HRC, boasts some very impressive numbers. **ESATLAS 42** is designed for high-performance, not least due to the special combination of alloying elements. The high, consistent degree of full quenching and tempering ensures continuous cross-sectional hardness and simultaneously good tenacity properties. The risk of cracks in a tool mould is therefore reduced considerably.

"This material is increasingly popular, especially with our customers that mainly mass-produce plastic components, and they have every confidence in it", Uwe Feldhoff reveals. That's because the enormous quantities involved make major demands on tools. **ESATLAS 42** by nature exhibits the robustness required to give a mould in continuous operation an extended lifecycle. As a result tooling and main-



tenance costs are reduced, service lifetimes and production cycles are improved. In this respect, price-driven industries, like automotive component suppliers, are paving the way for greater competitiveness.

#### Supremely polishable and grainable

Another key point about plastic moulds is the resultant surface finish. The frequently filigree surface textures that are required, for example, for dashboards or rubber gaskets can only be produced if a particularly polishable material is used. "Here **ESATLAS 42** fully demonstrates its polishing characteristics all the way to 1000-grain", Uwe Feldhoff comments. Added to that are good graining properties - a prerequisite for the production of polycarbonate components. These include, for example, the housing of a hardside suitcase or the interior of a refrigerator. **ESATLAS 42** is also able to cope with production of complex components made of aluminium, zinc, magnesium, copper, lead or tin.

#### Service life prolongation

Anybody that wants to get even more out of **ESATLAS 42** can opt for an additional diffusion coating. To meet specific needs, the material can be strengthened by nitriding, hard-chrome-plating, galvanizing, PVD-coating or laser-hardening it. This process enables service lives to be prolonged even more. Finally let's not forget the **ESATLAS 42** grade's high degree of thermal conductivity at lower thermal expansion coefficients compared to standard steel grades.

Finally the inspiration for the name is no accident. Atlas the Titan is portrayed propping up the firmament on his shoulders. Its power and endurance enables this material to deliver optimum production results and ensure toolmaking reliability. The application enhancement described above clearly demonstrates how much innovation potential steel still harbours and to what practically relevant extent R & D is working to enhance it even more.

For more information about toolmaking experience involving **ESATLAS 42**, you can also read the Gebr. Rath customer profile starting on **page 20**. ■



For special surface finishes and optimum dimensional stability



Transparent surfaces are particularly challenging to manufacture



#### Uwe Feldhoff

Manager R & D  
EschmannStahl

## FAKUMA REACHES 25

A highlight for EschmannStahl in this busy trade fair year is the 25th anniversary of the Fakuma show - the must-attend event for the plastics processing industry.

We are doing more than just enabling people to obtain extensive advice about its injection moulding product portfolio from 17 to 21 October in Friedrichshafen. In Fakuma's anniversary year we are focusing on purchasing steel the digital way. At the show we will be providing you with detailed information about the options and functions of our new online shop (see page 16 as well) and how you can place your next order for steel with just a few clicks.

We would also like to use the opportunity provided by this prestigious plastics processing industry event to introduce you to the new Head of Sales at EschmannStahl, Jörn Maubach. If you can't meet with him in person at Fakuma, you can get to know him in the following interview. ■





Jörn Maubach sticks up for tool steel

## NEW HEAD OF SALES JÖRN MAUBACH

Jörn Maubach joined EschmannStahl as the new Head of Sales and as an authorised signatory in July 2017. In addition to his technical and business management training, the industrial engineering graduate also has many years of experience in the tool steel industry.

**ESSENTIALS:** Mr. Maubach, have you already settled in well at EschmannStahl?

*Jörn Maubach:* The chemistry was right from the word go. Now that I have had the opportunity of getting to know all the departments, I really appreciate the informal atmosphere within the company as well as its professionalism and its standing in the market. Of course everybody wants a high-performance product and service spectrum that they can sell effectively. That is exactly what I have found here.

**ESSENTIALS:** You have worked in the steel industry for many years. What is it about this material that inspires you?

*Jörn Maubach:* Steel has been one of the central pillars of industry from the Industrial Revolution through to the present day. Although the industry in general has a reputation for tending to be conservative, it harbours an enormous amount of innovation potential. We boast more than 4000 new steel-related patent

registrations a year. At the same time this material supports innovation-driven fields of endeavour in their evolution, like the mobility industry for example. Steel is indispensable for efficient light-weight design and mobility in the future.

**ESSENTIALS:** You have specialised in tool steel in particular. Why?

*Jörn Maubach:* Tool steel is the basis of many products. If we take a look at everyday objects – the telephone receiver, the water bottle top, the washbasin plug... the list of products that require tool steel for mould-making is endless. It all starts with the steel and the tool mould. I really regret the fact that there is so little general awareness of its importance for our economy. And that's despite the fact that we in Germany are the world's leading toolmaker. This gives us a major competitive advantage compared to other countries. I would hope that the strengths of toolmaking, which are to be found in research, the power

of innovation and progress in particular, receive greater recognition.

**ESSENTIALS:** Are your beliefs and convictions leading to any tangible plans for your work at EschmannStahl?

*Jörn Maubach:* Our successful track record as a supplier of tool steel to the vehicle manufacturing industry can definitely be built upon. We all hear in the media how much is happening in this industry. Our versatile product range and fast reaction times of course mean that we at EschmannStahl have plenty to offer, not just to this particular sector of industry. And at standards of quality and reliability that you don't get from abroad.

**ESSENTIALS:** Will you also be attending Fakuma?

*Jörn Maubach:* Of course, I wouldn't want to miss this plastics processing industry event and am particularly looking forward to talking and getting to know plenty of existing and potential customers. ■



ESCHMANN STAHL

Produkte

Applikationen

Service

Unternehmen

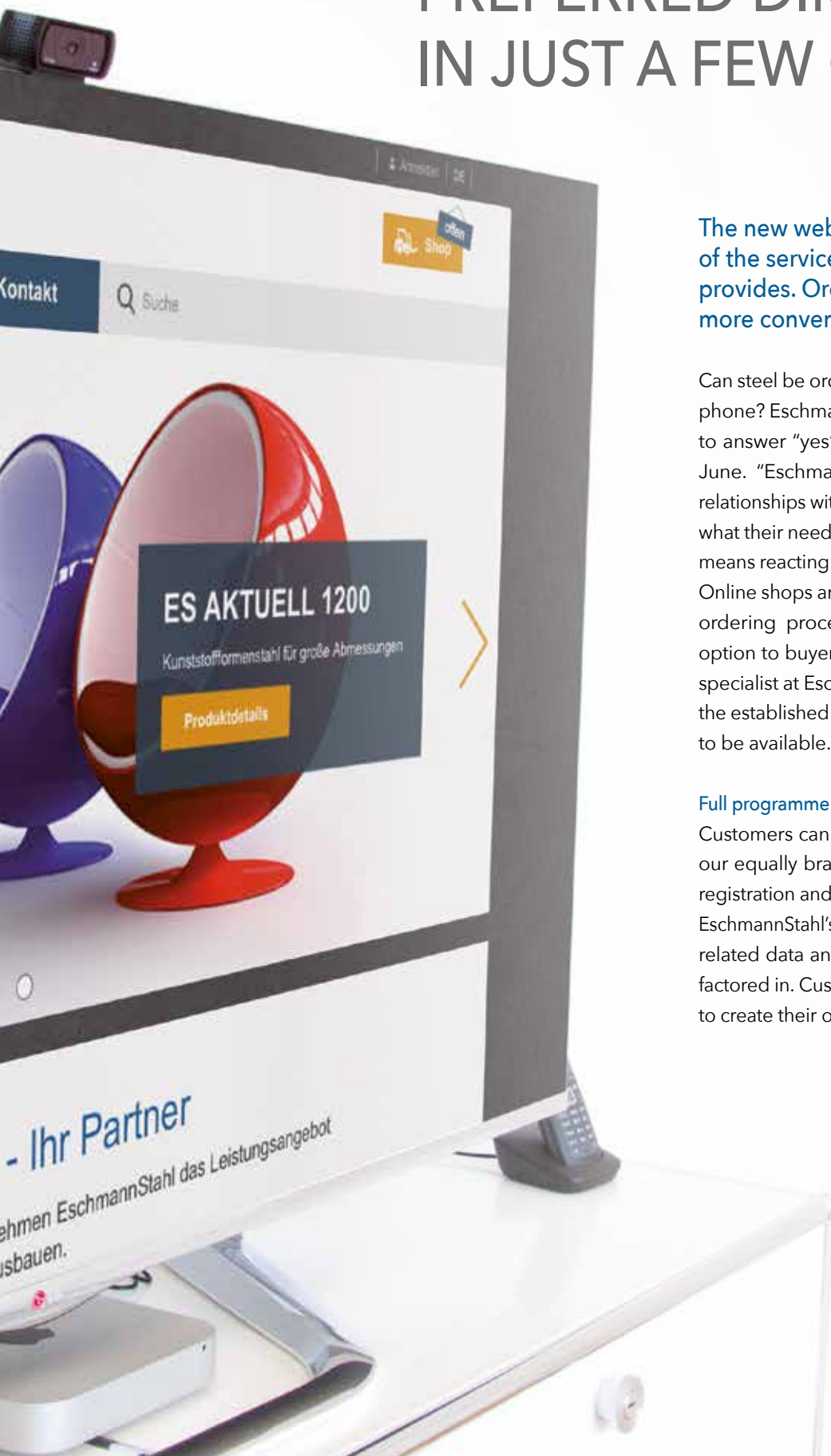


Eschmann Stahl

Seit der Gründung im Jahre 1953 konnte das Unternehmen kontinuierlich au...



# PREFERRED DIMENSIONS IN JUST A FEW CLICKS



The new webshop is another component of the services that EschmannStahl provides. Ordering is now faster and more convenient.

Can steel be ordered as easily as a book or a smartphone? EschmannStahl customers have been able to answer “yes” to this question since the end of June. “EschmannStahl’s key priorities are close relationships with its customers and knowing exactly what their needs are. As a service provider that also means reacting to changed habits and preferences. Online shops are now established tools for efficient ordering processes. We also want to offer this option to buyers of steel”, Janine Hielscher, online specialist at EschmannStahl, explains. Of course all the established communications channels continue to be available.

#### Full programme available

Customers can access the online shop directly via our equally brand new website. Following one-off registration and activation, customers can configure EschmannStahl’s entire range of products. Customer-related data and terms & conditions are of course factored in. Customers not only get the opportunity to create their own preferred dimensions, →



but also select from a range of different finish versions. The quotation function generates a cost estimate for the current shopping basket. This information can be retrieved from the customer account and is available for future purchase orders.

The buyer can also choose between two delivery options - standard and express. "Of course the webshop also provides the opportunity of ordering six-side-machined sheets by 10 am for same-day collection from 4 pm onwards or for next-working-day express delivery throughout Germany. This enables customers to react anytime anywhere to urgent orders and capacity bottlenecks", Carolin Uellner, also an online specialist at EschmannStahl, adds. Once the order has been placed, the shipment status of the goods can be viewed in the protected customer section at any time or the buyer is notified by e-mail. EschmannStahl customers are therefore always fully aware of their current product flows.

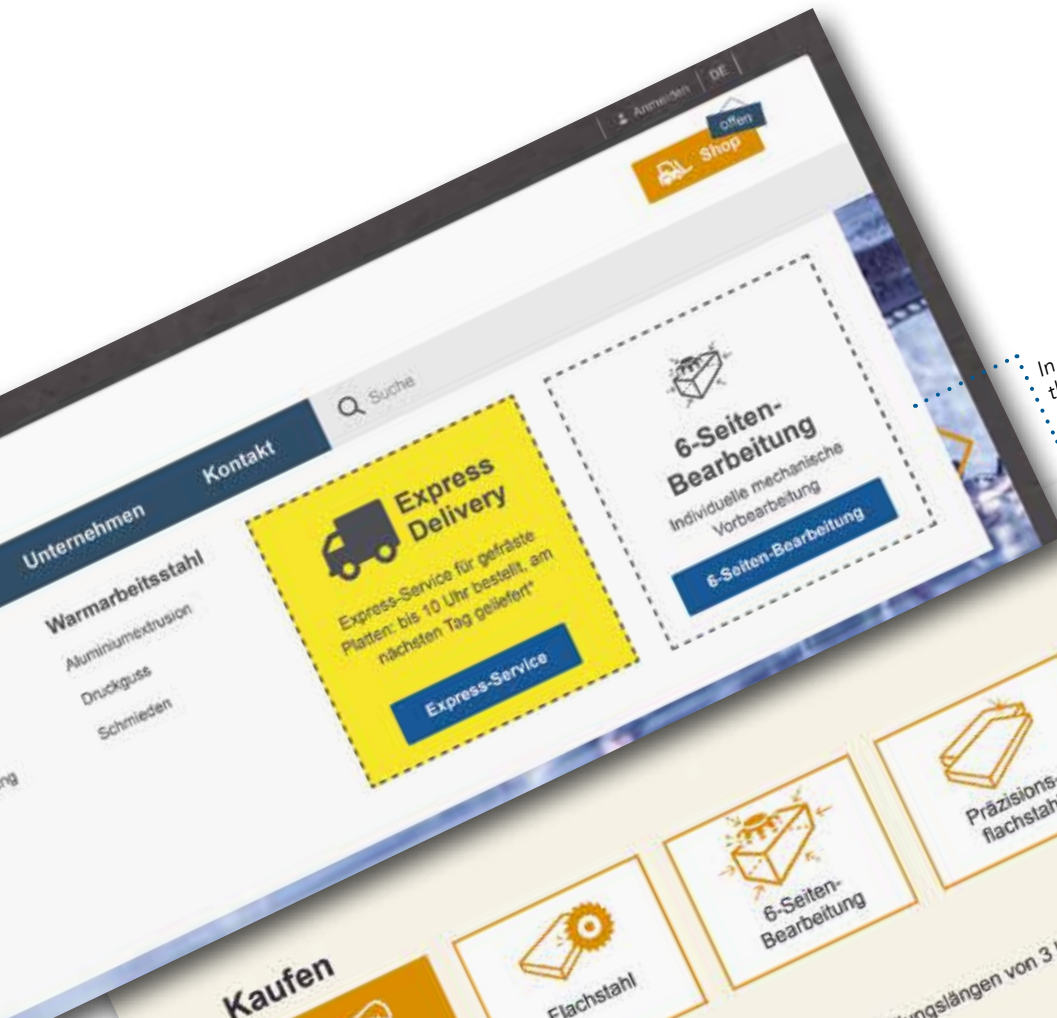
#### A permanent eye on ordering activities

Central customer account functions also provide other benefits. All quotations, delivery notes, invoices, certificates and drawings are stored here ready to be downloaded in addition to an order history breakdown. That saves customers plenty of document management time. The "shopping list" makes steel purchasing faster, more efficient, easier to delegate. Buyers can make a note of their standard items. This makes specific reconfiguration for follow-up orders unnecessary.

#### Advisory benefit is retained

Yet webshop customers don't miss out on professional advice about choices of material or about design engineering issues from EschmannStahl. Here too the usual contacts provide advice and support by phone or e-mail. ■





In the webshop there is also the possibility to order by short delivery.

### Kaufen



Rundstahl

### Rundstahl

Wir lagern gewalztes oder geschmiedetes Rundmaterial in Herstellungslängen von 3 bis 4 Metern, in den meisten Werkstoffen in geschälter oder vorgedrehter Ausführung.



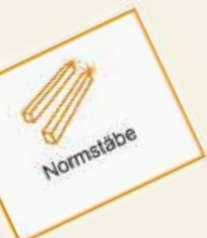
Flachstahl



6-Seiten-Bearbeitung



Präzisions-flachstahl



Normstäbe

Easy to configure, ...

## Ihre verlängerte Werkbank - EschmannStahl

Sicher. Zuverlässig. Kompetent.

EschmannStahl denkt über den Werkzeugstahl hinaus. Wir unterstützen Sie bei der Verschlanung Ihrer Prozesse – bei gleichbleibend hoher Sicherheit mit Blick auf Qualität und Liefertreue.



... user-friendly and clear.

# STEEL IN GREAT SHAPE

Gebr. Rath, based in Kreuztal, specialises in developing and manufacturing premium quality tools for the automotive industry in particular. Mould quality starts with selecting the right steel grade.



Products that are one day destined to end up as part of a Mercedes C-Class or a Miele oven are sometimes manufactured as individual components in the Siegerland town of Kreuztal. Gebr. Rath manufactures both tailor-made, serial-production-ready punching tools and forming dies as well as ready-to-install steel components in production facilities totalling 5000 square metres. Contract manufacturing of specific components is the company's second main production division alongside toolmaking.

Gebr. Rath, today part of the Linde+Wiemann group of companies, can look back on more than 70 years of corporate history. The company now employs 154 staff in its Product Development, Production, Sales and Administration functions. Given its many years of specialist toolmaking expertise, the Kreuztal-based company views itself as a full-service supplier to the sheet metal processing industry. It knows what's important in this industry - maximum functionality at minimum material inputs and optimum manufacturing parameters for tool users. Integrated design and implementation of the production process begins at the planning stage with the development of drawing simulations and feasibility analyses, continues via the production of prototypes through to the provision of spare parts or a repair service.

#### Quality tools are in demand

"Some 80 percent of our customers come from the premium vehicle sector, like, for example, VW, Audi, Mercedes or Porsche. Requirements and standards are therefore correspondingly high", says Stephan Homrighausen, Head of Toolmaking at Gebr. Rath. The Kreuztal-based company's regular customer base also includes the container/tank/receptacle and construction industries as well as manufacturers of "white goods".

A classic example of a vehicle body making contract job is the B- or centre pillar. This is an essential factor in the stability and therefore the safety of a vehicle. The increasing diversity of vehicle manufacturers' model ranges and growing component complexity keep on presenting new die-/mould-making challenges - in the choice of material as well.

#### Special solution: ESATLAS 42

In such cases the long-standing, close working relationship between Gebr. Rath and EschmannStahl as its main supplier of tool steel and plastic mould steel is worth its weight in gold. A model case of this is the choice of a special steel grade for the manufacturing tool for a complex new Daimler B-pillar. "Based on the specifications requested, we provided a new special grade, which is actually designed for plastic mould-making, but which met the requirements exactly and was superior in terms of quality and cost-effectiveness to other competing products in the market", Dennis Kulisch, Regional Sales Manager at EschmannStahl and Gebr. Rath's customer relationship manager for three years now, recalls. This material is not just a oneproject "miracle weapon" but is called **ESATLAS 42** and is an integral part of EschmannStahl's special steel grades programme. (You can read more about **ESATLAS 42**'s applications on pages 12 and 13.)

**ESATLAS 42** provides the right balance between degree of hardness (38-42 HRC) and extreme wear resistance at simultaneously good deformation properties. It can also be really well polished using up to 1000-grain polishers. "Available dimensions of up to 655 mm thickness are perfectly suited to large-scale mould-making. This includes, for example, radiator cowlings, bumpers or load-bearing, safety-relevant structural components, like the above-mentioned B-pillars - all of them →

## COMPANY

ESTABLISHED IN:  
1945

PRODUCTION SPACE:  
5000 sqm

ANNUAL SALES 2016:  
25 million €

HEADCOUNT:  
154

CEOS:  
Torsten Neumann,  
Ulrich Flötzinger



.....  
The company building of  
Gebrüder RATH GmbH  
.....

**RATH**  
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• Jost Schleifenbaum (Gebr. Rath), Dennis Kulisch (EschmannStahl) und  
 • Stephan Homrighausen (Gebr. Rath) during a tour of the factory (left to right).

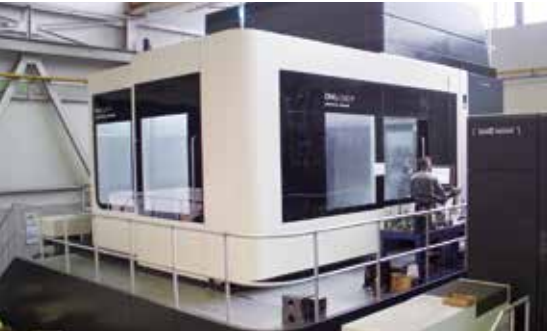
bodywork components that need to be able to withstand pressure”, Jost Schleifenbaum, who works in toolmaking production scheduling at Gebr. Rath, explains. “With the added lower procurement lead time and savings in the manufacturing process, this material also scores points in terms of cost-effectiveness. Given its high degree of original hardness, we can dispense with vacuum tempering”, Stephan Homrighausen adds. In addition to standard steel grades, Gebr. Rath also uses **ESPRIMUS SL** from the EschmannStahl portfolio, which has equally good machining properties.

#### Five new CNC machines

When touring Gebr. Rath’s factory buildings, it’s not just the many tool moulds that catch your eye. The extensive stock of contract manufacturing machinery has been completely modernised in the last two years and was expanded substantially in 2017 with the addition of five top-of-the-range CNC machines. A new programming system was also introduced in parallel. By simulating the programmes it increases the level

of anti-collision protection in advance. “Our customers are regionally based companies. Our new milling machines now provide them with a very wide range of machining options. This allows them to augment their own capacities and increase their effectiveness”, says Stephan Homrighausen with conviction.

The new five-axis metal-cutting machines mean that only a single reclamping procedure is required during the entire process. All the other five sides can be machined in one single operation. This facilitates contract manufacturing of workpieces featuring lengths of up to 6.30 metres and volumes of 40 tonnes of unit weight. As a specialist in five-sided machining featuring enhanced set-up processes, Gebr. Rath is facing the future with optimism. Its stable business situation and close relationships with regional and transregional companies already ensure a continuously high degree of capacity utilisation for its increasing number of hardware assets.



With the new CNC milling machine...

... contract manufacturing up to 6.30 metres is possible.

Quality check of a tool mould



Five-sided machining with only a single reclamping procedure



Mould-making is high-precision work - the automotive industry appreciates that.

#### Manual work remains a factor

In addition to its newly equipped CNC milling centre, Gebr. Rath also provides EDM, swaging or 3D lasering services for the production of small-batch and pilot series. There are also 120 tool stations available to put the "finishing touches" to prefabricated steel components. "Some 20 percent of total inputs in our business still involve manual work", Stephan Homrighausen explains and points straight through the production building, where workpieces are being set up, milled, ground or polished at the different stations as part of the manual finishing process. That's why training up its own toolmakers and milling machinists as well as its own machine and equipment operators is so important to Gebr. Rath, in order to guarantee consistently high quality for its exacting customers. Premium-quality coordinate measuring equipment also ensures high standards of precision quality of the tools and components.

#### A reliable partner for more than ten years

Of course reliable supplier partnerships are equally

vital to achieving consistently good results. "Gebr. Rath draws on EschmannStahl's full product and service spectrum. With the machining options that we have, we are able to provide effective support to our customers during periods of high capacity utilisation. Both companies complement each other perfectly and benefit from an intensive level of communication", Dennis Kulisch emphasises.

Given short delivery lead times of two to three working days, even for sheet metal milled on six sides, the Kreuztal-based firm sources its entire tool steel requirement from EschmannStahl. "The uncomplicated ordering processes with express service are a real asset for our Production team, especially when our customers are demanding more and more flexibility and fast reaction times", says Stephan Homrighausen. The new CNC milling machines have already laid the foundations for the future working relationship between these two firms. ■

## ALOIS HÖLLER: THE MAN FOR PREFERRED DIMENSIONS

Custom dimensions “from sugar cube to utility vehicle” are his speciality - Alois Höller has headed up sawing centre operations at EschmannStahl for three years. With a team of 75 and more than 70 ultramodern machine saws at his disposal, he ensures that every order is punctually cut to the right dimensions.

Alois Höller monitors all precision saw-cutting processes from the raw material stage to shipping completed workpieces - the EschmannStahl service most in demand. Appropriately enough Austrian-born Höller has the perfect view of the large sawing centre building in Reichshof-Wehnrath from his office window. This is where the steel sheets are cut to size, order items are assorted and orders are readied for delivery.

Nevertheless the first thing the 55-year-old does every morning is to wander around the buildings among materials and machine saws, where he gets updates on the status of projects and an overview of his area of responsibility. “When I walk past a machine in operation, I can hear whether it is operating at the correct settings and the right feed rate. That is key to whether I require an hour or just 20 minutes to cut a blank”, the head of department reveals.

### 30 years of service at EschmannStahl

Alois Höller knows what he is talking about when he explains procedures to his colleagues and provides assistance with complex tasks. That’s because his career at EschmannStahl began here at the machine saw in 1987. His extensive practical skills and specialist knowledge are the result of a successful career track record - from saw operator via foreman, shift supervisor and master craftsman to Head of the Sawing Centre. This year he celebrated 30 years of service at the company.

For this reason Alois Höller is also familiar with the time when orders came in via tube mail, were handwritten on job cards and were distributed. Of course procedures are now electronic. Monitoring and managing order intake, capacities, scheduling, material and human resource requirements are therefore next on his agenda after his tour of inspection and account for the bulk of his workload.



*The management of orders in process require much oversight.*



*For short-term express orders flexibility is in demand.*



**Blank cutting to measure**

The Sawing Centre at EschmannStahl in Wehnrath processes around 750 job items a day in three shifts. That corresponds to approx. 1500 to 2000 units. In total the Sawing Centre in Wehnrath boasts daily order intake of an average of 160 tonnes overall weight. Blanks measuring up to 2 x 2.5 x 6 metres or 1.25 metres in diameter are no problem for Alois Höller and his team. Occasionally they also get to handle steel blocks weighing as much as 50 tonnes.

“Nevertheless some 50 percent of our total orders are accounted for by small components. Accurate order management is vital, especially given our increasingly popular express service offering next-day delivery”, says Höller. The increasing need to complete jobs at short notice requires plenty of planning flexibility from him and his team. But given his major level of routine and profound understanding of processes, he is pretty unflappable.

**Hitch-free processes are teamwork**

But he initially had to give the matter briefly some thought when he was offered the head of department position at

EschmannStahl. But he has not regretted his decision at all. That’s because close interaction and communicating with other departments, like Production Planning and Sales, appeal to him. There is a meeting with the Production managers once a month for this purpose.

“It’s only by interacting with colleagues from all departments that we can guarantee customers the highest quality standards and the delivery reliability, which EschmannStahl represents. To achieve that we all pull in the same direction. And I continue to really enjoy it”, Höller states. That’s because the process chain often does not end in the Sawing Centre, but continues in the Machining section with other services, like six-sided machining, being provided.

**Reliable quality**

That’s why quality control constitutes an important part of Alois Höller’s day-to-day work. This generates more interfaces with the heat treatment and quality assurance departments at EschmannStahl. Zero-defect source materials ranging from standard steel to our special grades are essential for effective processing and finishing.

Furthermore regular bandsaw blade tests on the machines are just as necessary in order to increase service lifetimes and remain efficient. This is when the gadgeteer and diligent do-it-yourselfer in him comes to the fore. However at home he “just” works with wood by way of a change, but always with the same accuracy as at work.

**Safety is the name of the game**

Looking back, Alois Höller has experienced the way leadership of a team has changed alongside the changes brought by digitalization and the acceleration of processes. “Our team has become more international over the last few years. Possible language and cultural barriers have had to be broken down in order to create a unit”. Last but not least workplace safety is a top-priority issue that can’t be allowed to fail due to misunderstandings. That’s why he likes taking the briefing reins himself. “I don’t let anybody get started beforehand”, Alois Höller affirms. ■



Blank cutting to measure: Alois Höller during a quality control



To sit at a desk only is nothing for Alois Höller. He likes to lend a hand himself from time to time.



## EYES OPEN FOR GREATER EFFICIENCY



Oil quenching basin in the materials laboratory before ...

... and after installation of the practical winch.

**EschmannStahl is relying on the ingenuity of its employees to help it put optimum processes in place. The "Idea of the Year" is accoladed once a year.**

The profitability and long-term success of a company are to a large extent gauged by its internal processes. EschmannStahl launched an internal suggestions scheme – the "Speed-CIP" – in line with this principle two years back. CIP stands for "continuous improvement process", which is also driven by its own employees' optimization ideas. The term "speed" refers to the targeted speed of implementation – short on hesitation, long on pragmatism.

"The aim of this platform is to give our employees extra incentive to play even more of a proactive part in our business. Improvement does not mean you keep on replicating the familiar status quo, but challenging it. Nobody knows as much about the optimization potential in each working routine as we ourselves do", believes Tino Leushacke, Head of Quality Assurance at EschmannStahl and initiator of this ideas contest. Workplace safety is also a regular issue, in addition to sources of inspiration for greater efficiency in terms of costs, labour and material inputs.

### Small idea – major impact

One quality assurance suggestion is a very good example of that and a contender for "Idea of the Year 2017". Following heat treatment in the materials laboratory, heavy and very hot materials previously had to be lowered manually by two people into the oil quenching basin. A simple winch was the solution to the problem. The lifting device that has now been installed is not only more practical, but also safer. Replacing the brushes in the sawing facilities was also an employee's idea. The street-cleaning brushes are not only considerably cheaper, they also enable you to sweep up fine steel chippings more effectively and conveniently.

### Complex assessment criteria

Several letter boxes are available throughout company buildings where employees can post their suggestions. An internal selection committee and the relevant specialist department meticulously check them in terms of benefits,

feasibility and savings potential. "Our assessment criteria also include the idea's readiness to be implemented, the personal commitment of the employee, thinking outside the box of one's own workspace and the range of possible applications", Leushacke states. Points are then awarded, which are then used to calculate the relevant financial reward for the suggestion.

But it's not only ideas that have actually been implemented that count. Detailed reasons for every submission that's rejected are also provided and discussed with the employee that submitted the suggestion.

"Of course, for us as a company it is important to keep on improving. But it's also great to see colleagues showing commitment to EschmannStahl and being creative. We are often our own best management consultants", Tino Leushacke adds. ■

# IN BRIEF

## Training: the tool of the future



Left to right: Thomas Grauberger, Antonino La Porta, Yannick Hombach, Anna Klaes, Markus Meister, Kathrin Schlagheck, Leon Madel

EschmannStahl trains up young people in the administration, warehouse logistics and materials testing functions out of a sense of conviction and personal commitment.

A total of seven young people are currently undergoing traineeships in Reichshof-Wehnrath. Five of them are wholesale and export management trainees. Anna Klaes and Yannick

Hombach (1st trainee year), Markus Meister (2nd trainee year), Kathrin Schlagheck and Leon Madel (3rd trainee year) are learning all about key commercial activities in the relevant specialist departments with the support of their training supervisor, Ulrike Geschwinde.

Simone Milizia is currently mentoring the training of two warehouse logistics

specialists. Antonio La Porta (1st trainee year) and Thomas Grauberger (3rd trainee year) are learning to ensure the proper flow of goods in our warehousing facilities.

We wish the new trainees in particular a great start to their exciting traineeships and all examinees a successful finish! ■

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