High Performance
Dear readers,

faster, higher, further - human beings and manufacturing industry are constantly striving to improve their standards of performance. Superb products and innovations are therefore launched in quick succession and in this respect the steel industry is no different and second to none.

We are now providing a new Express Service to enable our customers to get their hands on the material they order even faster. This service allows you to take delivery of your consignment of steel the very next working day. Haidlmair GmbH’s seven-ton anvil also serves as a source of inspiration in striving to be the best. Made of our steel, it is not only an exceptional work of art, but also unique in its size. In contrast, redesigning our “Essentials” magazine has not been heavy going - the content is now accentuated even better.

We hope you really enjoy reading this edition and look forward to receiving your feedback about the magazine’s new design!

Yours sincerely Markus Krepschik (Managing Director)
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Steel as a Source of Inspiration

Be it in architecture or in modern industry or as a work of art, steel is a robust and versatile material that will help shape the future too.

Steel is an eminently suitable material for works of art. A two-meter-high steel anvil has therefore graced the entrance to Haidlmair GmbH in the Austrian town of Nussbach since last year. Made of several layers of special steel and weighing seven tons, it is officially the world’s largest and heaviest anvil. This exceptional work of art was made to celebrate the toolmaking business’ 35th anniversary. The anvil was unveiled at an open day to mark this special occasion. Given the robustness of the material used, i.e. steel, this anvil is set to delight Haidlmair staff and customers for many years to come.

Breaking new ground in architecture
Steel already inspired people way back in the 19th century. The most obvious example of this is the Eiffel Tower in Paris, the steel structure of which weighs 7,300 tons and is more than 300 meters high. Up until the Eiffel Tower’s completion, the world’s largest steel structure was located in Cologne. The entire roof truss of Cologne Cathedral has been supported by a steel structure since 1860 and even survived several direct hits by bombs during the Second World War.

Everybody is familiar with the famous “Lunch atop a skyscraper” photograph: eleven steelworkers were photographed in 1932 sitting at a dizzying height on a steel beam that formed part of the Rockefeller Center, which was being built in New York. This photo is regarded as a symbol of architecture reaching new heights. Steel gives the major cities of the world a completely new face. Architects and urban planners are inspired by this lightweight yet sturdy material, and are constructing taller and taller buildings.
Sustainable flagship material
However steel is not only robust and durable but also thoroughly flexible and malleable as well. After heating and liquefaction it can be cast in any mould you like. Complex processes and formulations that have been painstakingly developed over the course of decades are applied in order to deliver its unique and customizable properties.

An almost inexhaustible supply of raw materials is available to manufacture steel, nevertheless the sustainability factor plays an important role. Large quantities of steel and scrap metal, which have previously been used for a wide range of different purposes, are added to natural resources during the process of melting steel. Steel is therefore the world’s most recycled material. In Germany steel recycling prevents more than 20 million tons of carbon dioxide emissions a year.

Basis of a revolution
Recyclability and emissions reduction demonstrate one aspect of steel’s cost-effectiveness. Other dimensions need to be added to that: modern high-performance steels are facilitating new approaches to power generation. The energy revolution is, from a physical perspective, based to a very large extent on steel. A game-changing facility - Germany’s largest offshore wind farm to date, “BARD Offshore 1” in the North Sea off Borkum - consists of 120,000 tons of steel. And nearly every modern wind turbine is 80 percent steel: from the gondola via the gearing and to some extent the tower through to the foundations.

Steel is what makes these trends toward environmentally compatible power generation a reality. This material is playing a key role in the energy revolution - in the construction of new power plants, in the more efficient generation and storage of renewable energies and in the expansion of power grids. In this regard the steel industry is not only a supplier but also a source of inspiration for enhancements and innovations.

Steel is part of the future
Industry 4.0 requires the use of high-strength, premium-quality steels, which are easy to process/handle and exhibit optimum characteristics for use as tool steel. Lightweight, high-strength steels are also required in vehicle manufacturing to produce efficient means of transportation. Good machinability and superb graining suitability of tool steels enable cast components to exhibit new properties.

Steel will still be an important industrial material in the future and will highlight new opportunities. Increasing demands on the material and increasingly bolder architectural plans require continuous enhancement of formulations. Staff at EschmannStahl’s quality assurance laboratories are therefore working on new formulations. Customers can thus continue to expect steel grades that are able to meet the challenges and are compatible with the ideas of the future.
Outsourcing Performance, Increasing Efficiency

EschmannStahl’s SPSTANDARD and SPFINE service offerings are synonymous with cost-effective six-sided machining, which follows on directly from the sawing process.

Our Special Plates (SP) service offerings enable toolmakers and mouldmakers to outsource time-consuming activities, meaning customers no longer need to maintain the necessary staffing levels and machining capacities. Head of Sales, Gerd Ehrmann, emphasizes, “We handle the preliminary precision work on behalf of the customer and therefore provide a cost-effective alternative to what is frequently common practice.”

Made to specification at supreme quality standards
Our huge materials warehouse stocks all common dimensions and thus ensures rapid order-processing as well as fast manufacture to specification. Blanks are cut to size in line with customer requirements, machined on all six sides and then properly deburred.

Defined tolerances as well as accurate testing and careful documentation of dimensional accuracy prior to delivery guarantee a continuously high standard of quality. Optimized logistics mean that the products can be delivered at short notice.

Cost-effective alternatives
SPSTANDARD provides a useful alternative to raw-material sawing and is available for all ex-stock materials. Customers can select the dimensions they want from a flexible range. “These six-sided milled, chamfered blanks are a simple way of reducing costs and increasing manufacturing efficiency for users that are not willing or able to perform these operations themselves”, says Gerd Ehrmann in summary.

The same applies to the SPFINE service, “the cost-effective alternative to burnished p-plates. Here we take a little bit more work off the customer’s hands”, as Gerd Ehrmann

Incoming order
Material allocation
“WE PROVIDE GRADED SOLUTIONS FOR DIFFERENT REQUIREMENTS AND THEREFORE A HIGH DEGREE OF POTENTIAL SAVINGS”

explains. SPFINE is also available for all ex-stock materials and for a flexible range of dimensions. A high degree of precision and fine-milled exposed and contact surfaces mean that SPFINE is ideal for meeting mouldmaking, toolmaking, gaugemaking and jigmaking requirements.

“Some are looking just for sawed blanks, whilst others want six-sided fine-milled surfaces in a wide range of different dimensions. We provide graded solutions to the different requirements that the markets approach us with and therefore enable a high degree of potential savings to be achieved compared with proprietary production”, Gerd Ehrmann explains.

6 Shipping

Technical Information
SPFINE

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In-depth conversations about the Express Service topic

Occasionally speed is of the essence: when steels are required overnight, EschmannStahl’s new Express Service delivers by the next working day.

Quality alone is sometimes not the be-all-and-end-all; time can also be a key factor. For that reason EschmannStahl is increasingly focusing on its “extended workbench” services, such as the new Express Service. This service was unveiled at Moulding Expo in Stuttgart at the beginning of May to a professional audience.

EschmannStahl’s Express Service involves customers taking earlier delivery of the steel plates that they have ordered against payment of an upcharge. The six-sided milled blanks with chamfered edges are guaranteed to be delivered on the next working day if ordered by 10 a.m.
If blanks are required even more urgently, they can be made available for collection from EschmannStahl six hours after ordering. Despite short lead times, manufacture to specification to high standards of quality is guaranteed. Maximum dimensions for Express Service plates are 800 x 200 x 800 millimeters.

Major interest from show visitors
The new Express Service is of particular interest where urgent orders or capacity bottlenecks are involved. Preparation and rapid provision of steel plates gives EschmannStahl’s customers a high degree of flexibility. The interest shown in this service by show visitors was accordingly high. “The new Express Service was well-received at Moulding Expo”, says Stefan Urbaniak. He was on hand in Stuttgart to answer questions and provide information and was keen to illustrate by way of example what the Express Service upcharge would be for an order. This depends on the weight of each order item. “Many people were surprised at how comparatively inexpensive the Express Service is compared to the costs of a manufacturing delay”, Stefan Urbaniak adds.

Moulding Expo debuted in Stuttgart from May 5 to 8, 2015. Companies from the industry will in future be showcasing their products and services every two years at this toolmaking, modelmaking and mouldmaking trade fair. Besides users, Moulding Expo is also targeted at design engineers, product developers as well as toolmakers, modelmakers and mouldmakers. At more than 600 exhibitors - including manufacturers and subcontractors - exhibition space was completely sold out.
The result are plastic parts weighing one to eight kilos: for example, the rear and front spoilers of the Opel Adam Rocks, the trunk cover of a Mercedes or the bumper of a Bentley. The tools for production, however, are of a different caliber: such an injection casting or pressing mold weighs five to 40 tons of steel. At Formenbau Züttlingen, steel is part of the daily business.

The traditional company was founded in 1968 as the mold making division of August Läpple AG in Heilbronn. Since 2012, it has belonged to Huazhong Holdings, China. The company’s range of services not only includes the development and production of molds, but also mold sampling, services such as tryout, repair and maintenance, commissioned work and even the production of small batches. For testing purposes, the company’s machinery not only includes CNC
machines and other systems for producing molds: there are also two injection casting machines from Krauss Maffei in the production hall. In order that these are better utilized, Formenbau Züttlingen also takes on the production of small batches. “Of course, this gives us experience from production that can in turn be integrated into design,” Plant Manager Andreas Horch explains a positive side effect of this offering.

Machines for fine and rough work
The CNC machines represent the heart of the machinery, however. Five processing centers and milling machines of various sizes with up to five axes and a table load of up to twelve tons per square meter are supplemented by a deep-hole drilling machine. Injection casting or pressing molds consist of various parts: The stamp or core, which fills out the convex curvature of the mold, lies on supports. Above that, with a recess for the plastic, is the die, which spans over it concavely. Above this in turn is a clamp. In order that the finished mold does not exhibit any flash between the core and the die, both must be fitted precisely over each other. Spotting presses, a measurement table and a portable, six-axis measurement arm are likewise part of the machine portfolio.

“We receive the data for the final product from our customers and then build the practical mold around it”, Andreas Horch explains the usual process. Depending on the order specifications, the customer may also directly specify the steel quality for the respective individual parts. “If no specification is made, we suggest compatible steel qualities. In every case, we obtain quotes from the steel provider with prices and delivery times – these two criteria are decisive.” EschmannStahl is regularly contacted and is often awarded the contract, as well.

Popular hardening shop service
“We then normally deliver the steel processed cleanly on six sides, but sometimes also take on further preliminary work,” reports Area Sales Manager Emanuel Schmidt from Eschmann-Stahl. For the molds, the experts from Formenbau Züttlingen use steels of the qualities 1.2738, 1.2312 or even 1.2343 ESU, depending on demands. Formenbau Züttlingen is also happy to hire EschmannStahl’s hardening shop, including transport service. In the end, the molds must be very durable: they are to produce at least one million components. For most parts, only a single mold is required.
ESSENTIALS: Mr. Horch, our cars are made less and less of sheet metal and more and more of plastics. For which car components do you make molds?

That began several decades ago when the old sheet metal bumper was replaced by plastic bumpers. These are among the most important products for which we produce molds today. Other parts have also come along, however. Wheel housing liners made of plastic, for example: They ensure that it is quieter in the interior of the vehicle. Many visible body parts also come from injection casting molds, particularly for the front and rear. From the roof to the trailer hitch cover, everything is possible and is also produced. For example, Mercedes Benz won an award for the design of the SLK trunk lid - that is manufactured with one of our molds.
ESSENTIALS: How much of your customer base comes from the automobile industry?
It is the most important industry for us, without doubt. Large trash containers are another important product. These are also produced with the injection casting process. But in comparison to automobiles, that is a small customer group.

ESSENTIALS: How does the customer arrive at the right mold?
First of all, we need precise data and dimensions from our client regarding how the final product should look. In addition, there are specifications about material, lot size and the like. Our engineers are then called in: they implement the CAD design in Catia and the CAM programming. Once the plans are created, the steel is processed. Because we usually work with a batch size of one, a great deal of manual work is still required. Our employees in production must be accordingly well trained and experienced. The final processing of our molds in particular requires great care and precision.

Furthermore, we also offer other services such as quality assurance measures, including part measurement or mold optimizations. Each of our services can also be called for individually - that applies as much for laser welding as for milling or deep hole drilling. Naturally, we also offer sampling. Mold tryout at the customer is also very important to us so that the production machine there runs optimally. Of course, this also includes instruction of the employees on site in mold operation, as well as maintenance work.

HZ FbZ Formenbau Züttlingen GmbH
Wilhelm-Maybach-Straße 2
(GPS address: Nordstraße 38)
74219 Möckmühl (-Züttlingen)

Phone: +49 6298 9268-0
Fax: +49 6298 9268-100

www.fbz-formen.de
The Customers of Tomorrow

Trainees and trainers of Kunststoffe Helmbrechts AG visit the Wehnrath location. An educational visit in every respect.

In the foyer of the new administrative building of EschmannStahl in Wehnrath, Area Sales Manager Angelo Sickau greets 18 trainees and trainers from Kunststoffe Helmbrechts AG. After donning safety vests and an initial tour of the company premises, Research & Development Manager Uwe Feldhoff receives the guests in his department’s conference room. Over canapés and coffee, he creates a familiar atmosphere in the group with entertaining anecdotes about the Cologne Cathedral and an explanation of the brewing rights of Kölsch.

The visitors from Upper Franconia are prospective tool mechanics and process mechanics for plastic and rubber technology. Kunststoffe Helmbrechts produces plastic components which are primarily used in vehicle interiors. Parts manufactured here, such as switches or dashboard elements, later come into direct contact with the vehicle passengers and therefore require the highest quality. All of the trainees work with steel every day. At EschmannStahl today they will gain insight into how the steel achieves its quality and special properties.

It all starts with the melting process

Uwe Feldhoff begins with steel melting: “We are often on site in the steel plants to discuss our requirements of the steel. The fundamental properties of the material can already be influenced starting at this stage. We do not purchase steel by the kilo from the plant, but instead rent the entire facility so that the steel is produced exactly according to our specifications.” As soon as the material has arrived at the company premises in Wehnrath, it is once again precisely examined in the receiving inspection. Because even if the steel has a standardized designation in the first moment, there can be twelve variants for one type. “You do not notice it at the start, but the differences become very clear in later use,” emphasizes Uwe Feldhoff. Factors such as yield strength, tensile stress or grindability on different levels are essential for use.

In the laboratory, Uwe Feldhoff shows the guests various testing processes for examining the individual, decisive properties. Under the microscope, the trainees can see clear differences in various material samples; they then get to experience a tensile test. A pencil-like material sample is mounted in a test machine which stresses the steel in opposing directions. Upon exceeding the tensile strength, the sample loudly breaks. “The ductility decides when the steel breaks. When it happens here in the lab, that is good and we know the exact point, which we can influence in the next variant. Of course, this can not happen under the high stresses the material is subjected to during forming processes,” explains Uwe Feldhoff.

He and his team are always focused on the quality of the steel and examine it closely. Demands are growing, however, which is why new materials are continually developed. “In toolmaking, we primarily use the 1.2312 from EschmannStahl,” reports Jens Eckardt, Technical Training Manager of Kunststoffe Helmbrechts AG. “Our trainees use steel as a matter of course, but it’s only here that they really get to know it.”
The thickness of the sheets astounds the trainees.

From the sheet to polished tool steel

The trainees are only now learning how much work actually goes into the tool steel they use - by some, as the daily basic form for tools, and by others to produce plastic molded parts. The next station for the group is the sawmill. The sight of the large quantities of steel, some in enormous dimensions, leaves many speechless. Angelo Sickau picks upon a statement from the previous conversation: “When we talk about sheets, we do not mean the ones that are only a few millimeters thick, but rather those here, several centimeters thick, which ultimately press the thin sheets in form.”

In the sawmill, the guests watch as pieces of steel, suspended by magnets to cranes, float through the hall and are trimmed by saws of all sizes. “If you consider that our tools usually weigh about 200 kilograms, the dimensions here are really impressive,” marvels Natascha, a tool mechanic trainee in her third year of instruction.

Upon arriving at the “mechanical processing” station, the guests have a look at steel which has been finely milled, as they know it from their work. The material is processed on one to six sides at various stations. The long route the steel takes to the trainees becomes apparent. “We are used to tool steel being flawlessly shiny like this. But everything that is behind it, so that it looks like this and meets our requirements, we never could imagine through theory alone,” professes Florian, who is approaching his final examination and will soon be a trained tool mechanic.

“We have all learned a great deal today,” says Jens Eckardt at the end. In conclusion, he invites the trainees from EschmannStahl to a reciprocal visit, to see things from the other side. “The trainees are our customers of tomorrow,” clarifies Angelo Sickau. “It is important to us that they learn about all parts of the process chain and develop a new appreciation for the material of steel.”
Experiencing EschmannStahl
Not just another Day

EschmannStahl extended an invitation to the redesigned company premises for Family Day. In response, more than 1,000 visitors came to Wehnrath.

Food trucks, truck-mounted crane, life-size foosball, archery and much more: With Family Day on August 29, 2015, EschmannStahl offered its employees and their families an entertaining day full of shared activities and friendly togetherness.

All of the employees had the chance to show their loved ones their own workstation. This was the basic idea of the Family Day. A positive byproduct: at the same time, the administrative employees got the chance to look around in production - and vice versa. This created the opportunity for colleagues from different departments to get to know each other better, in a relaxed atmosphere.
Opening up new perspectives
The event’s program took the entire family into consideration. Children, for example, enjoyed a round on the chair swing ride or took part in the circus workshop. They could have their faces painted, or burn off some energy on the bouncy castle and in the life-size foosball game. In addition to the photo booth and archery, the large, truck-mounted crane was the highlight for the adults: in an enclosed cage, they could ride to lofty heights and, from high above, experience the company premises of EschmannStahl from a wholly new perspective.

There was a lot to discover for employees and their families in the new administrative building and in the production hall, as well - they were able to look around at their leisure on designated routes. “My family was amazed at how many tons of steel we store in our production hall,” said Ulrike Geschwinde, Marketing Manager and co-organizer of the event.

The organizing team for Family Day thought up something special for everyone’s creature comforts, as well: four different food trucks provided all sorts of different treats to eat. Whether pulled pork burgers, curry sausage, french fries, pizza or thai curry – there was something to suit everyone’s fancy. For dessert, there was popcorn, ice cream or crepes.

Positive summary
“We are delighted that so many employees came to Family Day with their families. At times, there were more than 1,000 people on the premises,” says CEO Markus Krepschik. He and the entire organizational team were also thankful for the good weather for the day, which had been planed since April. “Sunshine the entire day, it could not have been better. More importantly, the visitors were enthusiastic about the event’s program.” The day was thus a complete success for the entire EschmannStahl family.
... for the whole family

... more than 1,000 visitors

... a venue!
A Day in the Receiving Department: Where it all Begins

An average of about 200 tons of steel are delivered to EschmannStahl in Reichshof-Wehnrathevery day. Stefan Lemmer and his team are there to receive it.

When Stefan Lemmer begins his workday in the morning in his office at the EschmannStahl plant, the first thing he does is to check his email and various processing records from the previous day. "I need to know what my employees got done last night," says the 49-year old foreman. He and his six-person team are responsible for all steel deliveries at EschmannStahl.

As the foreman, Stefan Lemmer works the day shift and ensures that the daily business runs smoothly. Only three employees in each of two shifts are responsible for the entire process – from receipt, unloading and inspection to check-in and distribution/warehousing of the delivered volume. Stefan Lemmer and his team process up to 15 trucks each day, from six in the morning until 6 p.m.

Unloading with forklift or crane
Upon arrival at the EschmannStahl plant in Wehnrathe, the trucks are first weighed at the gate with a weighbridge. After arriving at receiving, the truck drivers report to the receiving office with the weighing and delivery slips. The delivery slip is inspected and the driver is assigned one of three truck parking spaces in the receiving area. "We then normally unload the material with an eight-ton forklift. Steel blocks from eight to 20 tons are unloaded with the gantry crane,
directly in the outside warehouse. Blocks from 20 to 50 tons must be unloaded with a crane in the production hall,” explains Stefan Lemmer.

The material is then compared with the delivery slip. In the next step, he and his colleagues precisely examine the individual steel blocks. They first ensure whether the steel has already been marked on one face with the correct material color by the manufacturer. Each color stands for a very specific material at EschmannStahl.

“That’s when our real work begins,” explains Stefan Lemmer, who was formerly a trained roofer and has been working at EschmannStahl in the receiving department for ten years.

The employees first superficially examine the steel: Are shape, size and surface correct – are the values within tolerance? In the case of a delivery of multiple larger single pieces, the attainable dimensions are recorded and hand-written on the delivery slip. The analysis of the “interior values” according to the test plan then follows, including the chemical composition. A mobile spectral analysis device is used for this. If required, the steel hardness is tested at various locations with a hardness testing device, whose values are additionally entered with the incoming goods check-in. If a deviation from the EschmannStahl delivery specifications is found, a deviation report is created and the material is checked in as “under investigation.” The colleagues from quality assurance then take over further testing steps and initiate corresponding measures.

60 incoming goods check-ins daily
If everything is in order, the employees record each individual item of a delivery with the SAP goods management program. Up to 60 incoming goods check-ins are required each day on average, for which specifications such as order number, net weight, dimensions and batch are decisive. Individual pieces then automatically receive their own piece number, using the software. All important data is later summarized on an incoming goods slip.

In addition, the material is supplied with a colored warehouse label. The label contains all important data, including the incoming goods number, which can →
be used to trace the origin of the material at any time. “This incoming goods number follows the material along with each additional processing step,” says Lemmer. Every remainder piece created after a sawing process is identified with this incoming goods number. Even very small pieces of steel can actually be found in the large warehouse and production hall, which are stored there until the next use. The 1,500 square meter exterior warehouse serves as an intermediate buffer and is likewise operated by the receiving department employees.

Well organized team
Organization is the most important thing in goods receiving overall and as a result, a maximum of 30 minutes normally pass from weighing the truck in on the scale to concluding the unloading process. Up to three trucks can even be processed simultaneously, since each of the six employees are able to assume all tasks in the receiving department. They have been trained for every situation and can be universally assigned. “We have a really good team here,” Stefan Lemmer praises his employees. “Even the two new colleagues who transferred here from the sawmill after internal restructuring have quickly found their footing.”

What is more, collaboration with other colleagues in the company also works out exceptionally well. There are direct interfaces primarily to the employees from quality assurance, purchasing and process planning. The latter likewise receives automatic notification at the moment incoming goods are checked in. After the receiving employees have unloaded, inspected and checked in the delivered quantities, they wait for feedback from process planning. Process planning, under the leadership of Dietmar Rüggeberg, distributes and checks in the quantities to the respective warehouse locations, or assigns customer orders directly. Corresponding transport is then carried out by the receiving employees.
Congratulations!

45 years company anniversary

On September 1, 2015, our employee Gudrun Tinzmann celebrated her 45th company anniversary. On that we congratulate warmly!