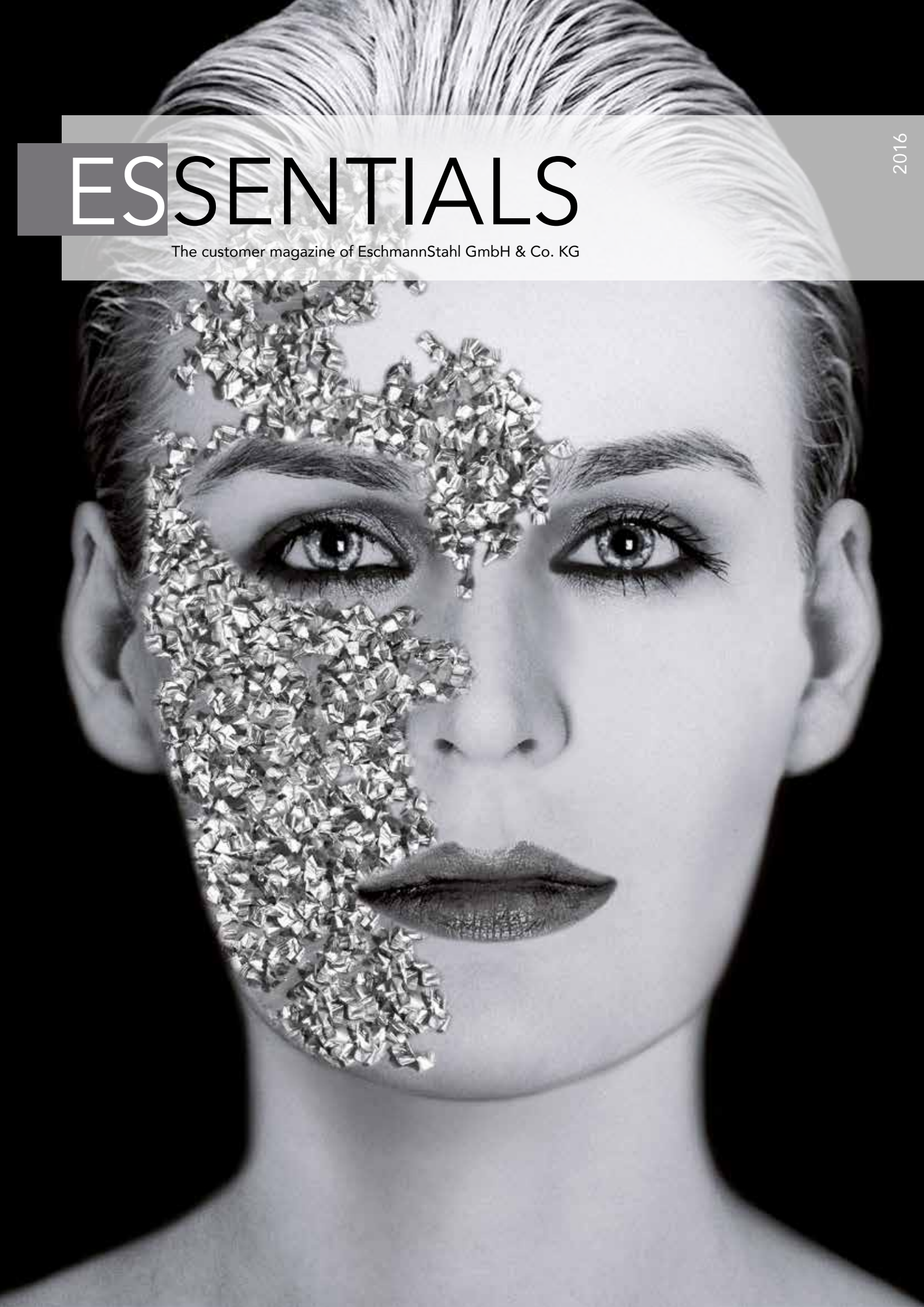


# ESSENTIALS

The customer magazine of EschmannStahl GmbH & Co. KG

2016





Dear readers,

we are in our element as far as tool steel is concerned. The tools that are manufactured from our steel are used to shape/mould other materials, including numerous types of plastic. Steel and plastic – we want to familiarise you with both these environments in the current issue of Essentials. At the K Show in Dusseldorf we will be demonstrating together with our affiliated company, Eschmann Textures, how we can help the plastics processing industry.

Join us on a journey into a world, where steel has to exhibit the right characteristics to pass muster in the multi-faceted plastics industry. Our new EschmannStahlGrade **ESATLAS 42** is the kind of product that dovetails perfectly with the needs of the market. In a comprehensive 'In Practice' section we also illustrate surface finishing methods that give plastics entirely new wind tunnel performance figures. You will be in for a surprise!

A handwritten signature in blue ink, appearing to read 'MK 2016', written in a cursive, stylized script.

Yours sincerely Markus Krepschik (CEO)

04	<b>WORLD OF STEEL</b>   Plastic and steel: a harmonious couple
08	<b>MATERIALS AND PROCESSES</b>   The new EschmannStahlGrade ESATLAS 42
10	<b>PROSPECTS</b>   Face to Face
12	<b>PROSPECTS</b>   Making of
14	<b>IN THE FIELD</b>   Speed, precision and reliability
16	<b>IN THE FIELD</b>   A street shark
18	<b>IN THE FIELD</b>   Using Cera-Shibo to create bionic surfaces
20	<b>INSIGHTS</b>   Quality matters
23	<b>INSIGHTS</b>   IN BRIEF

## PLASTIC AND STEEL: A HARMONIOUS COUPLE



At first sight plastic and steel have little in common. On closer inspection these materials not only have their own special qualities, but they also complement each other perfectly.



Plastic and steel are a harmonious couple: each of the two materials has its own particular properties, benefits and individual character. The strength of steel meets the versatility of plastics in production facilities around the world: processing plastics without using steel is inconceivable.

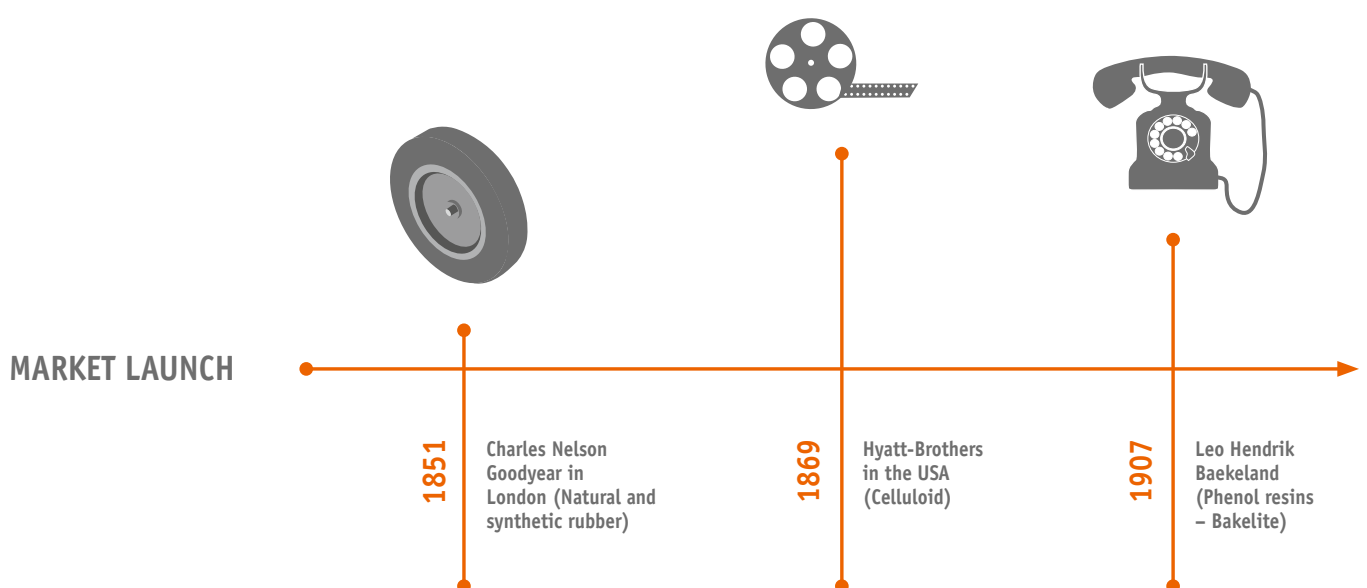
#### Erratic beginnings, specialised future

Of the two, plastic has the more recent history. It originated in the mid-19th century, in an age when other materials were becoming scarcer. While many initial discoveries tended to be more of a coincidence – celluloid, for instance, was originally developed for use in billiard balls – these days the various types of plastics on the market are specifically enhanced for very particular applications. Degrees of hardness, heat resistance, damping characteristics and recyclability are just a few examples of the properties of plastics that can be enhanced.

Take cars as an example: nowadays some 15 percent of a car's weight is accounted for by plastics. They are found in bodywork components, wheel housings, tyres, seats, dashboards or seals. As coatings or decorative skins they ensure an appealing look, as semi-hard foam backing they ensure safety or good acoustics or as soft integral foam they give a surface feel to steering wheels and gearshift knobs. "New" or enhanced plastics are developed for the automotive market every year.

#### Processing using steel tools

Steel is an indispensable part of plastics processing, as it is required for injection moulds, press moulds, extruders, blow moulds and extrusion tools. Each method makes different demands on the material. As plastic mould steel it lays the foundations for the surface quality of plastic components. Be it elaborately textured or smooth and mirror-bright, the ➔



product can only be as good as the surface consistency of the tool allows. Demands on the quality of steel as the raw material are therefore correspondingly high. The job of the steel supplier is to know what requirements toolmakers and the plastics industry have and to reconcile them.

#### Many demands on the steel

From the toolmaker's perspective, properties like degree of purity, polishability, graining suitability, microstructure, machinability and reproducible heat treatment are key factors that enable them to work effectively with the steel. In contrast, what matters to the plastics processing industry are wear resistance, compressive strength, thermal conductivity, hardness, toughness, dimensional stability and similar issues. If EschmannStahl is aware of what both groups of users expect of the steel, it can not only make the optimum choice of material, but also han-

dle mechanical pre-machining, heat treatment and other finishing processes on behalf of customers.

Demand for plastics is increasing steadily worldwide. In 2003 the production threshold of 200 million tonnes was exceeded for the first time, and the 300 million tonnes mark is now well within reach. Given increasing quantities and a steady stream of new production methods, the demands made on plastics manufacturing processes and therefore on tool steel are getting tougher. EschmannStahl looks forward to meeting this challenge and by launching its new EschmannStahlGrade, **ESATLAS 42** it has once again opened a new chapter (see pages 6/7) in its efforts to continue meeting more stringent requirements. Here's to ensuring that plastic and steel continue to remain a dynamic duo that adapt well to each other's needs and conquer the world together. ■



1923

Leo Hendrik  
Baekeland  
(Aminoplastics)



1930

Wallace Hume  
Carothers  
(Polyester)



1933

Röhm & Haas AG  
in Germany  
(PMMA – Plexiglas)



1935

Nylon, Wallace Hume  
Carothers/USA  
Perlon 1939,  
Paul Schlack/Germany  
(Polyamide – Nylon  
and Perlon)



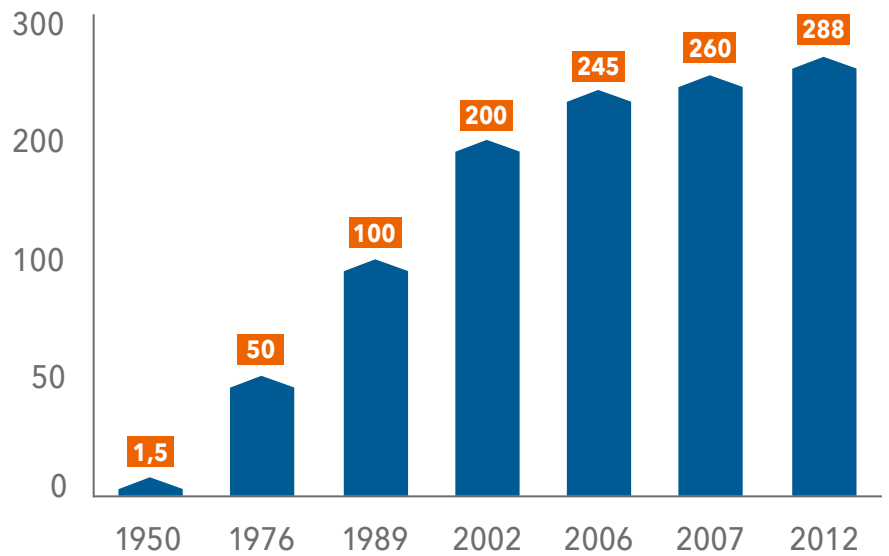
No PET bottles without plastic mould steel



Mould next to finished product

## PLASTICS PRODUCTION

Million t



1938

Market launch in Germany;  
discovered by Fritz Klatte 1912  
(Polyvinyl chloride – PVC)



1945

Market launch by DuPont  
(Polytetrafluorethen)  
  
Discovery by Plunkett 1938/  
USA (PTFE, Teflon)



1953

1953 Hermann Schnell,  
Farbenfabriken Bayer  
(Polycarbonate – PC)



# ESATLAS<sup>42</sup>

## PLASTIC MOULD STEEL IN A CLASS OF ITS OWN: **ESATLAS 42**

By launching **ESATLAS 42**, EschmannStahl is bringing a new, versatile material on to the market.

No matter whether we are talking of car bumpers, the interior of a refrigerator or the jacketing on a washing machine: such large plastic components with heavy-duty surfaces are manufactured using the injection moulding method. A special combination of alloy elements enables this steel to perform to maximum efficiency.

### **Tough and polishable**

To meet these specific requirements, EschmannStahl has developed a material quenched and tempered to 38-42 HRC - **ESATLAS 42**. In addition to being fully and evenly quenched and tempered,

this steel also features a high level of toughness. Given its very low risk of cracking, longer tool service lifetimes can therefore be achieved. This minimizes failure or malfunction risk and extends service lifetimes.

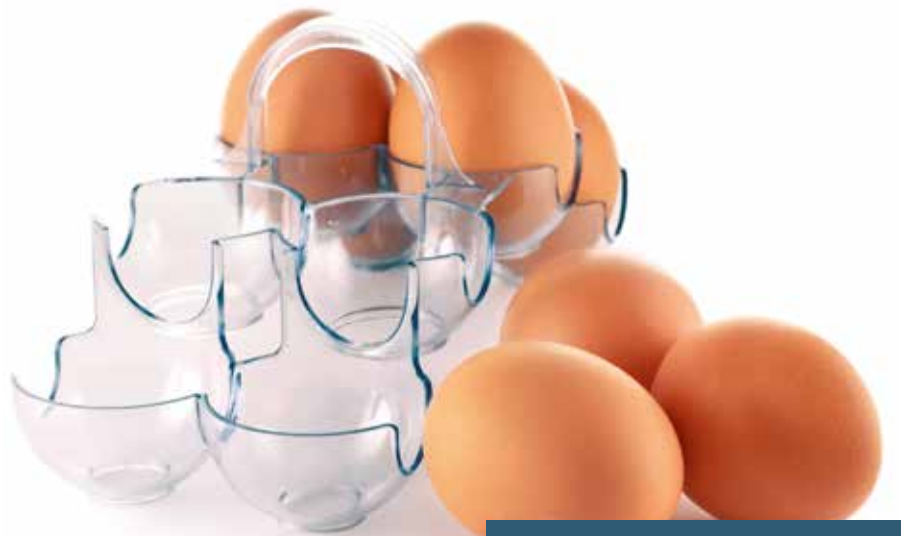
At the same time maintenance costs are also reduced. Another outstanding feature of this new plastic mould steel is its superb polishability. It can be polished to a degree of polishing reliability up to a grain size of 1000. This achieves a high degree of surface quality on both the steel and the manufactured plastic

component. Industries where this is a very relevant issue include the household appliances industry - for example the production of transparent appliance-interior components made of polycarbonate. The **ESATLAS 42** EschmannStahlGrade is also used in the vehicle manufacturing sector to produce dimensionally stable, completely smooth-surface radiator cowlings. Conversely the graining suitability of the steel is a key factor in the production of polycarbonate dashboards, for example. Here too **ESATLAS 42** scores points: it features the best prerequisites for ensuring reliably reproducible graining.





*ESATLAS 42 is particularly suitable for manufacturing transparent plastic components out of polycarbonate.*



#### Thermal Conductivity [W/mK]

Material	20°	200°	350°	700°
<b>ESATLAS<sup>42</sup></b>	38,0	40	-	-
1.2311	34,5	-	-	32,0
1.2738	35,5	-	33,2	31,9

#### Eminently suitable for surface finishing

**ESATLAS 42** is also very suitable for various types of surface finishing. Its high degree of polishability means it meets optimum diffusion coating requirements. The material's specific level of hardness at 38-42 HRC is also very useful. Other methods such as nitriding, hard chrome plating, galvanizing/electroplating, PVD coating or laser hardening are also feasible.

In the case of laser hardening, the steel's special alloy composition enables the maximum possible degree of surface hardness to be achieved. This prolongs

the tool's service lifetime. Output quantities and shot numbers also increase.

In addition to the wide range of application options provided, the new special grade, **ESATLAS 42**, delivers production certainty and reliability above all. And although this new steel has a higher thermal conductivity at simultaneously lower thermal expansion coefficients (see table above), the tool does not need to be reengineered. This enables EschmannStahl's customers to produce tools made of **ESATLAS 42** themselves or have such tools made. ■

Do you have any questions or are you interested in finding out more about **ESATLAS 42**?

We are happy to advise you!  
Please contact:

Uwe Feldhoff, Head of Research  
& Development:

E-Mail  
uwe.feldhoff@eschmannstahl.de



## FACE TO FACE

### EschmannStahl makes its debut at K 2016 in Dusseldorf

Every three years the plastics industry is concentrated in this city at the Rhine – the entire plastics and rubber industry gathers for the K Show. The long interval between shows ensures that exhibitors showcase a wealth of new products and innovations. In 2013 more than 3000 exhibitors demonstrated their skills in 168,000 square metres of space and used the opportunity to communicate intensively with decision-makers from all over the world.

This year EschmannStahl is exhibiting for the first time. As a steel company, its participation would seem unusual at first glance, but it does have a close relationship with the plastics processing industry. Mouldmakers especially, whose customers are producers of plastic products require steels with specific properties for their day-to-day operations. Together with its affiliate, Eschmann Textures, one

of the leading surface texturing companies, EschmannStahl is set to demonstrate on 90 square metres what touch-points it has with the plastics industry.

Meetings and communication are the most important reason for participating in any trade fair. FACE TO FACE documents the desire to get in face-to-face contact with the industry. Personal conversations with plastics industry experts and with potential customers are the main priority for Sales Director, Gerd Ehrmann.



Another issue that participants have in common, no matter what industry they are from, is the current topic of Industry 4.0. Today and the future will be about more than just specialised solutions. Smart technologies with a high degree of interlinkage will bring humans and industrial processes closer together. Intensive communication will in future enable more synergies to be leveraged than previously. This too is an important reason for EschmannStahl to showcase its business and full portfolio of products and services at K - face to face. ■



Besuchen Sie uns  
auf der K 2016

FACE  
TO FACE

## MAKING OF

FACE TO FACE is our show motto - to make this a reality on the cover of ESSENTIALS, our agency C&G undertook a really special photoshoot.

A picture that links everything - the reader with EschmannStahl on the one hand, as well as both of them to the FACE TO FACE concept on the other. A young lady looks the reader in the eye and literally has steel make-up on her face.

How is this impression created? Initially by applying bold make-up. The clear, powerful expression in the eyes and a neutral gaze were the challenge that the photo model had to master. The chip-pings, which remodel the face and establish the link to steel, were only added when the photo was subsequently edited.

Once the basic digital photo had been taken at the appropriate quality, the next step was to edit it on the computer.

Virtual dodging was used to highlight the uniform structure of the model's hair and the intention is to kindle an impression of graphic art in the observer's eye.

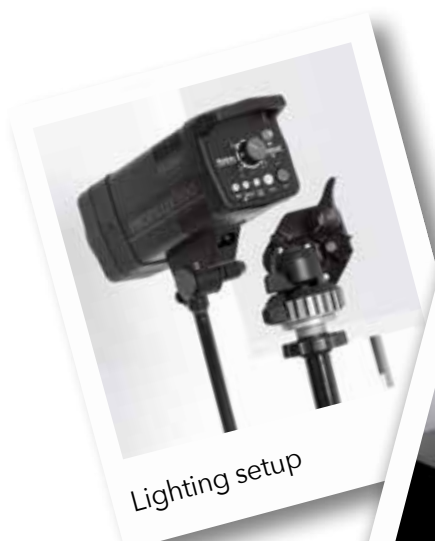
The picture's mission was not yet accomplished by just gracing the cover. It then served as a template for the trade fair logo to go with the FACE TO FACE motto. The template provided inspiration for an unconventional graphic design. The elaborate and involved production of picture and logo also documents how much importance EschmannStahl attaches both to its customer magazine and to its debut at K 2016. ■



The basics:  
optimal make-up







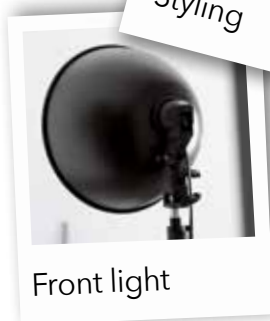
Lighting setup



Styling



Make up

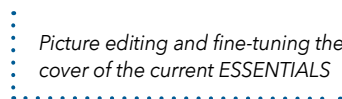


Front light

*That's not yet a wrap: the right expression takes time and plenty of repeats.*



*Picture editing and fine-tuning the cover of the current ESSENTIALS*





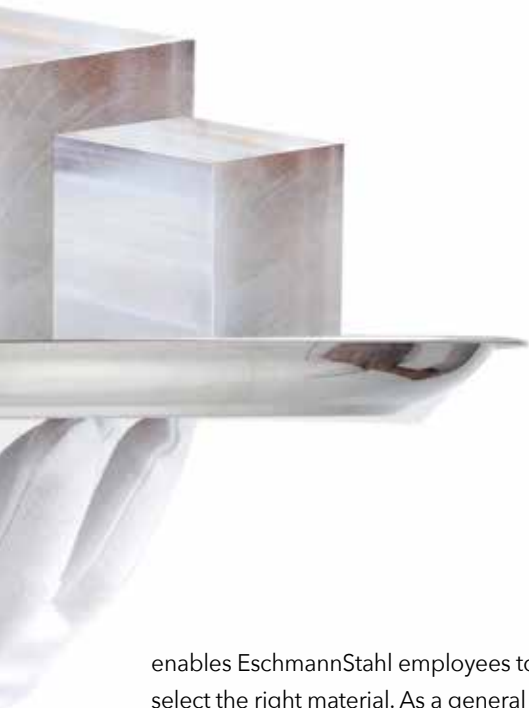


# SPEED, PRECISION AND RELIABILITY

EschmannStahl provides a whole range of specific services - a proprietary hardening facility even offers a range of different heat treatments.

What is service? "EschmannStahl regards service very clearly as focusing on the customer and their needs", Stefan Urbaniak, Head of Mechanical Processing Sales at EschmannStahl, explains. "That already starts with providing advice, because ultimately there

is steel and there's steel. That's why our experts are able to shed light on this subject - they not only have their eyes on our own products but also on the steel market as a whole." The skills and experience that they have acquired over the course of many years



enables EschmannStahl employees to help customers select the right material. As a general rule this material is available immediately given the wide range we stock at Reichshof-Wehnrath. "We always have up to 20,000 tonnes of steel in stock and can usually deliver within a very short period. This enables our customers to dispense with holding their own inventory and therefore saves space and capital being tied up", says Stefan Urbaniak. Fast reaction times are down to efficient processes at EschmannStahl.

#### Cut to the desired size

"Cutting steel to specified sizes is a good example of what is in our service portfolio and is at the same time our most requested service. We machine around 2500 units a day", Stefan Urbaniak emphasises. Our sawing facility features state-of-the-art saws. The company also offers other steel processing services beyond straight-forward sawing to size, which can be described as an extended workbench. The standardised SP programme (see Essentials - Issue 1 | 2015) represents a cost-effective 6-sided machining service downstream from the sawing process. Sawed-to-size steel sheets then undergo mechanical processing in accordance with the SP finish selected.

#### Express service for 6-sided machining

Since last year EschmannStahl has set new benchmarks as far as speed is concerned. "If orders are placed by 10 am, our Express Service, which is available at an additional charge, means our customers can take delivery of machined steel sheets the next working day", says Stefan Urbaniak. If orders are even more urgent, the machined

sheets are available for collection six hours later. Our Express Service is the right solution, particularly if orders are urgent or where capacity bottlenecks occur.

Another service includes further milling and drilling work covering a broad spectrum of dimensions. In this case EschmannStahl is able to prepare any geometry required for subsequent precision machining. Such work includes gun/deep-hole drilling, 2D and 3D milling, finishing operations, flat/surface grinding and the production of complex rotationally symmetric workpieces. This service relieves pressure on customers' own production facilities and saves time during major projects. Specified tolerances guarantee a high standard of machining quality – at a high level of delivery reliability.

#### Hardening services

EschmannStahl has also provided vacuum heat treatment services since 2008. We specifically provide vacuum hardening, vacuum tempering, vacuum annealing, hot-bath-effect quenching and gas nitriding services for all unit sizes in more than 15 state-of-the-art hardening units.

Sustainable activities ensure the quality of the steel delivered. That includes logging production processes as well as tests in our in-house laboratory. Here materials testers use analysers to determine properties like the chemical composition and the degree of purity of the steel (for more about quality assurance, see page 20). ■

# A SHARK ON THE STREET



Technology specialist, FRIMO, has developed a bionic vehicle surface with high-performance properties in a collaborative project with Eschmann Textures.

The key to successful and dynamic corporate development lies in embracing change and in having a healthy determination to innovate. That also applies to FRIMO, a much-in-demand international provider of polyurethane processing solutions. FRIMO is also actively involved in a number of collaborative projects. One very interesting and thoroughly successful project is the "Street Shark", in which the company partnered with Eschmann Textures. With the assistance of its collaborative partners, this project ena-

bled FRIMO to develop a bionic vehicle surface that reduces drag. As the name "Street Shark" suggests, the skin of a mako shark served as the model for enhancing the aerodynamics and appearance of road vehicles – an area where vehicle manufacturers in particular are constantly seeking to make improvements.

"The shark is a fast and very accomplished swimmer. The tooth-shaped scales on its skin reduce drag substantially", Karl-Heinz Stelzl, Head of Technology

Development at the FRIMO Group, explains. Applying imitation shark skins to vehicle or other surfaces has only been feasible to date with the aid of special films or foils. Using innovative polyurethane-composites and specifically adapted tooling and plant technologies, FRIMO and Eschmann Textures, along with their other collaborative partners, dstyle, ISL, 3D-Core and Huntsman, have succeeded in developing a process for manufacturing bionic vehicle surfaces. But how exactly would that work in practice?

#### The secret: an innovative sandwich design

Fabricating a shark skin requires a mould to start with. To this end Eschmann Textures produced a female mould/cast of a real shark skin, which FRIMO then used to fabricate a special tool. A weight-enhanced sandwich design was then developed with the assistance of one of the other collaborative partners. Here the focus is on a structure-reinforcing foam core (SRFC), which is filled three-dimensionally with foam using a separate tool. The intermediate spaces are filled with a special resin – an enhanced PU matrix system. On account of its chemical properties – low-viscosity consistency, rapid hardening and low heat generation – this provides new opportunities and therefore facilitates a serial production-compatible RTM process.

This intelligent sandwich design reduces weight, yet at the same time increases the rigidity of the component. Given that only low clamping forces are required, this means that ceramic tools can be employed, with which in turn the shark skin and other filigree surface structures can be modelled/recreated. The benefits of this process include significant reductions in weight, decreasing material costs as well as lower fuel consumption.

#### The “Street Sharks”

This intelligent sandwich method, including sharkskin surface, was premiered on a BMW Z4. This new surface structure was added both to the bonnet and the roof module. The so-called “Street Shark 1.0” attracted an increasing amount of interest from the market. The model demonstrated just how well it is able to perform in countless tests. Thus, for example, drag and other aspects like susceptibility to fouling or dirt were tested. Wind tunnel tests in particular resulted in an improvement in the drag coefficient at higher speeds.

Further wind tunnel tests were followed by the creation of an upgraded version – the “Street Shark 2.0” – of the predecessor model. This second version involved a Jürgen Alzen Porsche 911 Mission 400 having its bonnet and front spoiler fitted with the sharkskin components, although the sharkskin structure was enlarged and therefore optimised on this model.

Following further results from wind-tunnel tests and numerous workshops, the surface structure was once again enlarged by a factor of 2:1, in order to achieve further improvements, and so the idea of “Street Shark 3.0” was born. As part of this project, two vehicles – a BMW Z4 hardtop convertible and a Z4 QP in white – were kitted out with the new, enlarged sharkskin surface structure. The newest version of the shark skin graced the BMW Z4 convertible’s entire roof module, while in the case of the Z4 QP, the emphasis was placed on the design. Here sections of the interior and the mirrors were kitted out with the special shark skin.

Street Shark 4.0 is already raring to go. Another project on which FRIMO is currently working with its “Street Shark” partners is a collaborative venture ➔

### FRIMO GROUP

**Established:**  
1962

**Locations:**  
15 in Europe, America  
and Asia

**Annual sales:**  
over 200 millions  
Euro (2015)

**Headcount:**  
1,400

**Managing Directors:**  
Hans-Günter Bayer (CEO)  
Rainer Wittkorn (CFO)



Headquarters of FRIMO Group



FRIMO Group GmbH  
Hansaring 1  
49504 Lotte  
Deutschland

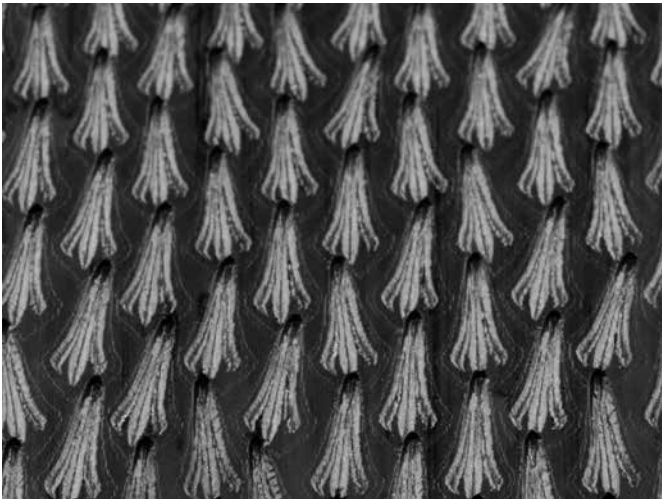
Tel: +49 (0) 54 04 / 8 86 - 0  
Fax: +49 (0) 54 04 / 8 86 - 3 33

[www.frimo.com](http://www.frimo.com)





Sharks generate low drag when swimming...



...which is down to the particular surface structure of their skin ...



...which was also reproduced for the hardtop of a modified BMW Z4.

with Callaway Competition, a company that specialises in bodywork manufacturing, vehicle repairs and racing conversions. Dominik Schwager drives a Corvette C7 GT3-R for the Callaway Team in the ADAC GT Masters championship. The rear wing on this Corvette is to be manufactured to the three-dimensional sandwich design and feature the shark-skin structure. The enhanced Corvette will be on show at the Eschmann booth at the K Show in October.

Karl-Heinz Stelzl, Head of Technology Development at the FRIMO Group, is also pleased with the way the partnership with Callaway is going. "This collaborative project means that FRIMO is not only showcasing the development of a revolutionary composite system, but at the same time it also reinforces its aspiration of acting as a systems partner to develop pioneering, sustainable solutions for manufacturing fibre-composite components."

## DATA | FACTS | FIGURES

### Die FRIMO Group GmbH: a plastics industry pioneer

Bold, focused, innovative – the FRIMO Group has progressed in the last 50 years to become a full-service provider of a broad range of plastics processing technologies. 22 awards for innovative solutions speak for themselves. The company's portfolio ranges from different PU processing methods via flexible trimming, punching, pressing/forming, thermoforming, laminating and edge folding through to joining. FRIMO is a market-leading systems provider, particularly in the vehicle market and it offers its clients customised tools, machinery and systems as stand-alone or integrated solutions from a single source. Its global polyurethane machinery business is managed from its headquarters in Lotte. The company's portfolio also includes system-based solutions for the serial-production-compatible processing of composite materials.





### Alfred Scherer-Eurich

Plant Manager,  
Authorised Officer  
EschmannTextures

## Using Cera-Shibo to create bionic surfaces

Alfred Scherer-Eurich is the plant manager at Eschmann Textures' Neuenstadt plant. He reveals in an interview with ESSENTIALS how the shark made it on to the street.

**ESSENTIALS:** Mr. Scherer-Eurich, what does shark skin actually feel like and what makes it so special?

Alfred Scherer-Eurich: A shark skin of this kind is covered with tooth-shaped scales, which modify drag. If you run your finger along the surface, you can feel a tingling sensation, which changes in direction and frequency. It simply feels extremely fascinating and it makes you want to examine it straightaway under the microscope to understand it.

**ESSENTIALS:** What is so special about the surface?

Alfred Scherer-Eurich: Less drag means less fuel consumptions and fewer emissions. That is an appealing technology for cars, aircraft, boats and fast trains. In tests at Audi, a car featuring shark skin on the underbody was considerably quieter. Porsche tested an entire car featuring shark skin and it warped considerably less at high speeds.

**ESSENTIALS:** Did you have an actual skin at your disposal to enable you to imitate this exceptional structure?

Alfred Scherer-Eurich: Yes, we were able to undertake our first casting attempts on preserved sharks. Later a fresh skin in a larger size was made available to us.

**ESSENTIALS:** How did you transfer this natural structure to a synthetic surface?

Recreating structures has been our core mission for many years. We have now developed a technology - Cera-Shibo - that enables us to cast existing templates like the shark skin directly using a ceramic coating. This coating can be introduced into plastics processing tools and is thus transferred.

**ESSENTIALS:** What is the advantage of this method?

Alfred Scherer-Eurich: This technology also transfers structural properties that we cannot recreate using etching or laser technology. Furthermore the ceramics used can be embedded in a wide range of different tool materials. It therefore provides completely new opportunities to explore new avenues. ■

**ESCHMANN** TEXTURES

# QUALITY MATTERS

Customer satisfaction is EschmannStahl's top priority. Gerhard Possoch is a member of the quality assurance team of nine that checks the quality of the steel in exact detail, to ensure that customers get the flawless materials they require.

## A DAY WITH GERHARD POSSOCH



Gerhard Possoch at his specially adapted desk.



Employees can obtain information about the company's current key management ratios from the large noticeboard.

Together with his line manager and seven other colleagues, Gerhard Possoch's job at EschmannStahl is to ensure that customers can rely on the quality of the materials they order. During the quality assurance process the experts check that the steel has the properties requested by the customer. Gerhard Possoch works in the department's administrative section. His responsibilities include incoming goods checks, quality inspection documentation and the commercial handling of complaints.

Gerhard Possoch's working day kicks off at half past seven in the morning. When he arrives at his desk in the department, he first of all reads and answers his

e-mails. He then discusses the status of various departmental projects with his head of department, Tino Leushacke. One other responsibility has high priority - monitoring the processing of heat treatment orders, which EschmannStahl outsources. "I usually deal with these issues first thing in the morning. I then contact my contract manufacturer to enquire about the current status of orders", says Gerhard Possoch.

### Several positions at EschmannStahl

In doing this job the 54-year-old provides back office support to his colleagues in the Sales department. He manages and monitors external partners and organises

the logistics process up until delivery to the customer. Possoch is a specialist in this field - on the one hand he is a trained all-purpose hardening professional, and on the other he has already worked in Purchasing and the Commercial Dept. of EschmannStahl's hardening facility after retraining to gain his wholesale and export business qualification. He is therefore extremely familiar with the relevant procedures and ensures that customers receive their heat-treated materials on time.

Given that Gerhard Possoch, along with his head of department, Tino Leushacke and his colleague Simone Lobermeier deal with administrative procedures in the

*Microscopic examination of the microstructure*



*In the lab the materials testers check the characteristics of the steel using various analysers.*



*Gerhard Possoch and his colleague Hartmut Kemper (right) at the materials testing laboratory's small field warehouse.*

quality assurance team, he also has regular contact with other EschmannStahl departments, apart from Sales. Thus he regularly communicates with the incoming goods, production planning and accounts teams.

Incoming Goods is the first point in the company at which a quality check is performed on the incoming steel blocks. If colleagues here identify any irregularities or conspicuous features in a material, like an incorrect alloy composition, this is logged in to the SAP system along with a stop note. At the same time Gerhard Possoch is also notified of the fact that the material needs to undergo a quality inspection.

### Real detective work

There are other reasons why the QA team gets involved. A random inspection of a supplier may be due, using a checklist as specified by Purchasing, or a first-time check of a new supplier is scheduled. Furthermore the QA team also handles material samples that have been sent in as complaints by customers. For example, a current case involved the steel exhibiting signs of blistering while a tool was being lathed. This is where real detective work is required, in order to find out the reasons for such an occurrence - was something wrong with the structure of the steel? Did an error or fault occur during the heat treatment process? Or did the steel not

have the required degree of hardness? Be it checking for irregularities, investigating a complaint or taking a random sample - Gerhard Possoch always passes the job on to his colleagues in the two neighbouring laboratories.

Three members of staff in each lab handle materials testing and spectral analysis. Thus, for example, Gerhard Possoch then goes to join his colleague Hartmut Kemper in the materials testing laboratory. The latter performs the various tests and investigations like tension tests or notched-bar impact-bending tests. Such tests show whether the steel has the required properties →





*Hartmut Kemper inserts a piece of steel sawed to size into the mounting press, to produce a test specimen.*



*He then checks the degree of purity using the spectral analyser.*

Toughness and strength as well as surface hardness and stainlessness are tested.

#### 700 tests a year

In order to be able to examine the to some extent huge, super-heavy steel blocks, EschmannStahl employees saw a thin strip from the middle of the block. They process it bit by bit, depending on the particular test being conducted. An example: for analysis under the microscope the materials testers fuse the steel samples in a mounting press with phenol resin to form a round test specimen, which at a standardized diameter of 40 or 50 millimetres fits into the automatic polishing machine. That polishes the steel to mirror-brightness, which enables the steel's degree of purity to be examined under the microscope. EschmannStahl's quality assurance team conducted around 700 such materials tests last year.

While Hartmut Kemper and his colleagues make their own test specimens for the purity test, the rest – for tension

and impact tests, for example – are made externally from the material samples. They also use the mobile ultrasound device for quality checks on larger blocks of steel and take it with them when they visit customers to conduct on-site tests.

#### Specially adapted desk

Gerhard Possoch is unable to perform this job, as he has been wheelchair-bound as a result of an illness since 2009. His workplace is therefore only the office. EschmannStahl does everything it can to make his work routines easier. Thus the quality expert was provided with a special wheelchair ramp during his time in the hardening facility at the company site where he previously worked. Today his office in Reichshof-Wehnrath is anyhow at ground-level and easy to access and he is able to park his car, which has been converted to hand-accelerator and handbrake operation, just a few metres away in front of the building. A specially adapted desk enables him to work to an optimum degree of ergonomic comfort.

#### Wide range of responsibilities

Even if his health occasionally niggles him, Gerhard Possoch likes going to work. "I have such a wide range of responsibilities, I value the variety". It's exactly for this reason that he gave up planning his working day some time ago. "I take on the tasks as they come", he says.

He does however have one fixed appointment – every Monday at 2pm the entire quality assurance team meets in front of the large whiteboard in the corridor. Head of department Tino Leushacke then provides his team with information about key management ratios. Furthermore Gerhard Possoch always keeps his eye on the sales figures in the SAP system. "When I see that the sales figures stack up, that gives me a sense of satisfaction in my work. The company's objectives are after all my own objectives too." ■

# IN BRIEF

## Ready for take-off!



Christian Roth, Kathrin Schlagheck, Thomas Grauberger, Leon Madel and Markus Meister.

For many people airports are places of anticipation. This is where people jet off on their holidays, the starting point for enjoying the best days of the year. However at night the character of Cologne-Bonn Airport changes. The focus at this time is not on tourists and business travellers, but on goods. Between 11pm and 2am is when large cargo aircraft are the centre of attention.

EschmannStahl trainees were able to see this for themselves this September. That's because together with their training supervisors, Ulrike

Geschwinde (commercial) and Simone Milizia (industrial) they got the opportunity to get to know the cargo zone of Cologne-Bonn Airport by visiting the major logistics company, UPS.

Industrial and commercial trainees visited the large logistics centre and were even allowed on to the tarmac to get a closer look at a cargo aircraft. "It was very impressive to see how many aircraft are turned around and get airborne in such a short space of time", said Christian Roth, a warehouse logistics trainee, in amazement.

"Cargo aircraft are unloaded/loaded in quick succession.

The logistics are based on a sophisticated system to enable as many goods as possible to be channelled through the airport as quickly as possible. That's why the taxiways and runways are busy, even at night when there is a break in passenger aircraft movements. The trainees really enjoyed their night-time excursion. "Thanks to UPS, we were able to take a look at an area of the airport that is closed to normal travellers and thus get to know a completely different aspect of the airport."

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