ESSENTIALS

The customer magazine of EschmannStahl GmbH & Co. KG

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Dear reader,

environmental protection and sustainability have been big topics during the last decade. In the 90s of the last century terms such as “ecological rucksack” and “ecological footprint” were established. This issue focuses on “resources”, and its objective is to inform you and invite you to reflect without riding the high horse.

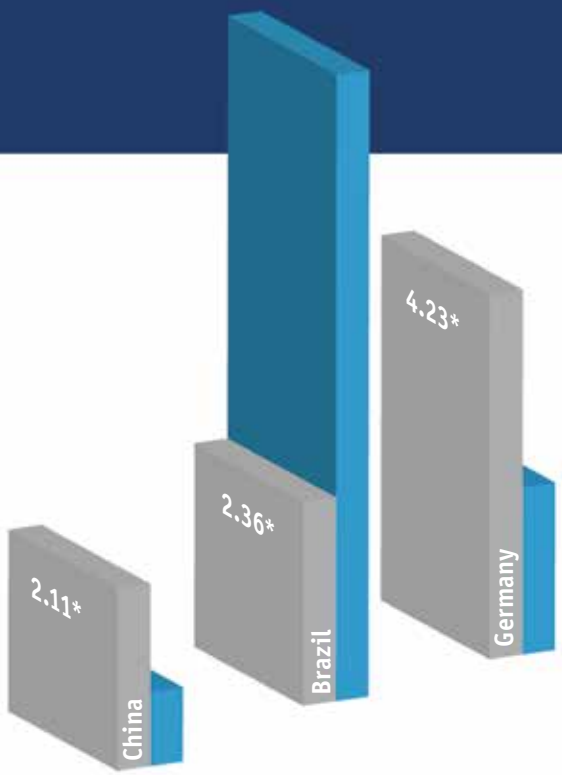
This is the third issue of the newly designed ESSENTIALS – and with immediate effect we will be printing our customer magazine on FSC-certified paper. We would be interested in finding out how you like the magazine and what other topics you would like to read about. To get that feedback, please fill in the leaflet and send it back to us. Every sender will receive a small present. We look forward to receiving your feedback!

I hope you enjoy reading this issue

Your Markus Krepschik (Sales Manager)

The Future of Environmentally-Inspired Economic Activity

Current studies show that for many companies, dealing with resources responsibly has by now become part of their philosophy.



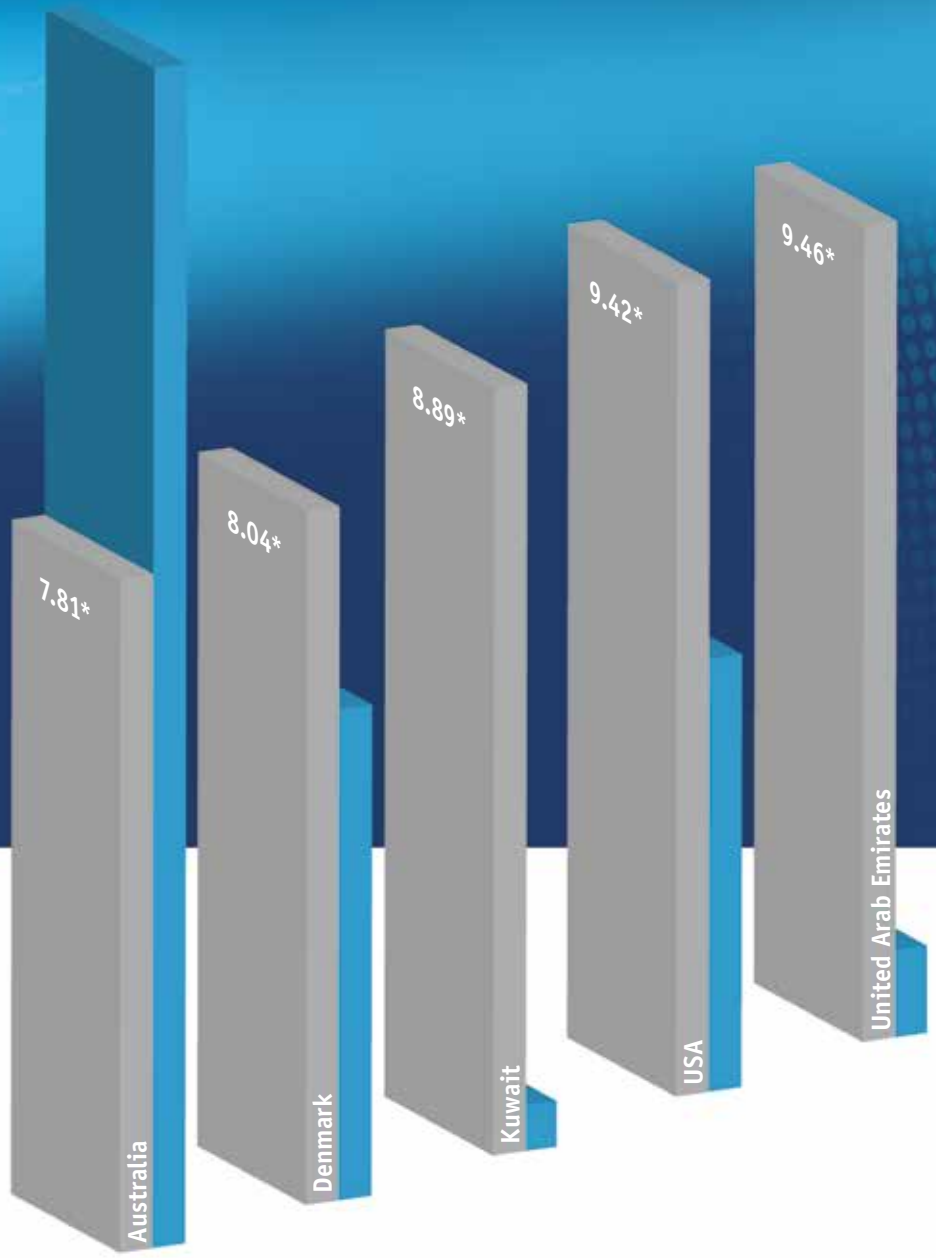
Whether you look at industry, commerce, or private life – the environmental issue is topping the agenda more than ever. In earlier times, industry focused mainly on production and profit without incorporating environmental aspects. Meanwhile business is rethinking the issue. Climate change and impending resource scarcity have led to an increased environmental awareness. Companies across the globe are faced with adapting their economic thinking and behaviour to the new realities. EschmannStahl is aware of its responsibility and uses the available resources as efficiently as possible.

Raw materials are the basis for economic activity on earth. Minerals, metallic ores, and fossil fuels are extracted from nature, transformed into products by the economy, and returned to nature as waste. This material flow is part of our societal metabolism.

The ecological footprint

Global resource consumption and its environmental effects today already exceed the long-term capacity of the eco-system earth. This is the message of studies on the ecological footprint. The footprint measures the annual consumption of natural resources by humans (see definition on page 6). Based on this principle, both consumption and supply of resources are measured in global hectares and set in relation to one another. This provides the answer to the question of whether we are beyond ecological capacity. Applying this equation, a German citizen, for example, thus consumes more than double as many resources as is available to him.

The gap of this ecological balance is steadily widening. The earth's population and living standards are growing while yields and bio-capacity are decreasing, for instance, through deforestation, overfishing, and over-utilisation of surface areas. The average footprint per person continues to get bigger. In 2008, the capacity of the planet was already exceeded by 40 percent; this means that on 23 September – based on the calculation of the



The graph shows that several countries have exceeded their bio-capacity many times over, i.e. they have a bigger ecological footprint and consume more resources than they theoretically have at their disposal.

Source: Global Footprint Network, data set 2005

- *Ecological footprint*
- *Bio-capacity*
- * *global hectares per person*

ecological footprint – all resources were used up. The WWF compares this to a bank account that is already overdrawn on the twentieth of a month. Withdrawing more money from a bank account is easy thanks to the overdraft facility but not without consequences due to interest. It is just as easy – even if it also incurs "interest" – to consume resources more quickly than they are created. But this only works for a limited amount of time as one day they will be fully depleted.

The ecological rucksack

While the ecological footprint is a measure for the population, the so-called ecological rucksack is a measure for products and services – and the ecological rucksack outweighs the actual product itself (see definition on page 6). It is composed of raw material extraction, product processing and refinement, and transport as well as waste that accrues during raw material extraction and product manufacturing. To reduce the weight of the rucksack one has to reduce the Material Input per Service Unit (MIPS) (see definition on page 6).➔

Ecological Rucksack

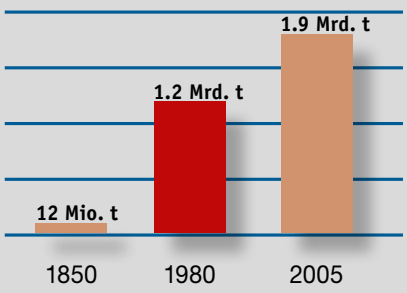
Amount	Ecological Rucksack
1 kg steel	2.3 kg
1 kg zinc	8 kg
1 kg copper	15 kg
1 kg mordant	6,500 kg

Source: Abfallvermeidung (Chapter 5.1), WS 2007/08, Sandra Lebersorger

Iron and steel

Iron and steel, which are needed for buildings, rail systems, ships, cars, machines, household appliances, and many other goods, are a good gauge for measuring the growth of resource consumption in the past few years and decades. With the birth of the industrial age, iron and steel production increased: in 1850 it was 12 million tons – in 1980 1.2 billion tons and in 2005 1.9 billion tons. Overall worldwide resource consumption in 2009 was at about 60 billion tons, and in 2030 it could be 100 billion tons.

Worldwide
steel and iron production:



Source: US Geological Survey, 2005
(http://www.oekosystem-erde.de/html/rohstoffe.html)

A lot more material is hidden in most products than their actual weight would suggest. In comparison to other metals like copper, steel has a relatively small ecological rucksack (see graph "Ecological Rucksack" on page 5). On average eight kilos of rock and fossil fuel are required for producing one kilo of steel – for a kilo of copper this jumps to a total of 348 kilos.

Companies like EschmannStahl can also contribute to reducing the ecological rucksack of various tool steel products by increasingly using scrap metal instead of ore as a raw material. Besides profitability and functionality, environmental aspects play a role in new as well as further development of steel grades. The application of more effective steels, for instance, increases operating life or reduces production time and thus conserves resources.
Axel Maerevoet, Head of Sawmills and P-Plate Production at EschmannStahl, on handling of resources in everyday production: "In the sawmill we have a modern machine outfit with an average age of under 10 years. By applying new technologies in sawing machines and saw bands and thanks to regular maintenance we operate the high-performance machines at maximum capacity utilisation – and this has led to a significant increase in output in the past few years. If every company deals with resources in a responsible way we can really achieve a lot." ■

Ecological Footprint

A population's ecological footprint is the amount of productive land and water surface that are necessary for providing the resources that population consumes as well as absorbing its waste; all this based on given technology.

Ecological Rucksack

The "ecological rucksack" is defined as the sum of all natural raw materials from extraction to processable material or marketable product in tons of nature per ton of product, minus the own weight of the processable material or product itself. Thereby, material input is defined as the absolute amount of raw materials that are moved in the product's whole life cycle.

MIPS

MIPS is a basic tool for assessing the environmental impact of a product. There are two ways of reducing this impact: Either by using less material and wherever possible using materials with a low raw-material factor, or by increasing the service units which means the utility of the product.

"Steel Is a Very Good Recycling Product"

ESSENTIALS interviewed Mr. Axel Maerevoet, Head of Sawmills and P-Plate Production at EschmannStahl on measures that make environmental sense.

ESSENTIALS: Mr. Maerevoet, the industrial sector is coming into ever stronger public focus with regard to environmental protection and ecology. How does EschmannStahl deal with these calls for greater environmental awareness?

EschmannStahl incorporates environmental aspects in many areas. In production, for example, we changed our cooling lubricant some time ago. We now use an emulsion with a much smaller percentage of mineral oil and with fewer additives such as preservative agents. This enabled us to reduce the concentration from 6 percent to 3 percent. Presently we are also testing a synthetic product, of which we would need to use less. Moreover, this product has the advantage of pearling off the material better. The benefits are obvious: as less emulsion adheres to the steel, more lubricant remains in the machine and we don't have to top it up so often. The customer gets a cleaner product. In addition, the parts dry more quickly which means that there is less swarf on them and we can feed more swarf back into the recycling loop.

A further issue relates to dry machining. By using state-of-the-art tools with a special coating we are able to dispense with cooling lubricants completely in this processing step. The resulting swarf can be fully recycled. The tools are designed in a way that the heat developed no longer enters the work piece but now goes into the swarf – and this allows us to guarantee consistently high quality even without cooling lubricants.

ESSENTIALS: The steel industry is a very raw materials-intensive sector. You mentioned feeding resulting swarf back into the recycling loop. Are there any other recycling possibilities and how are they used?

Basically, we need to keep in mind that tool steel as well as nearly all other kinds of stainless steel are almost exclusively made from scrap metal. This means that steel, once it has been produced, can basically be repeatedly reused.

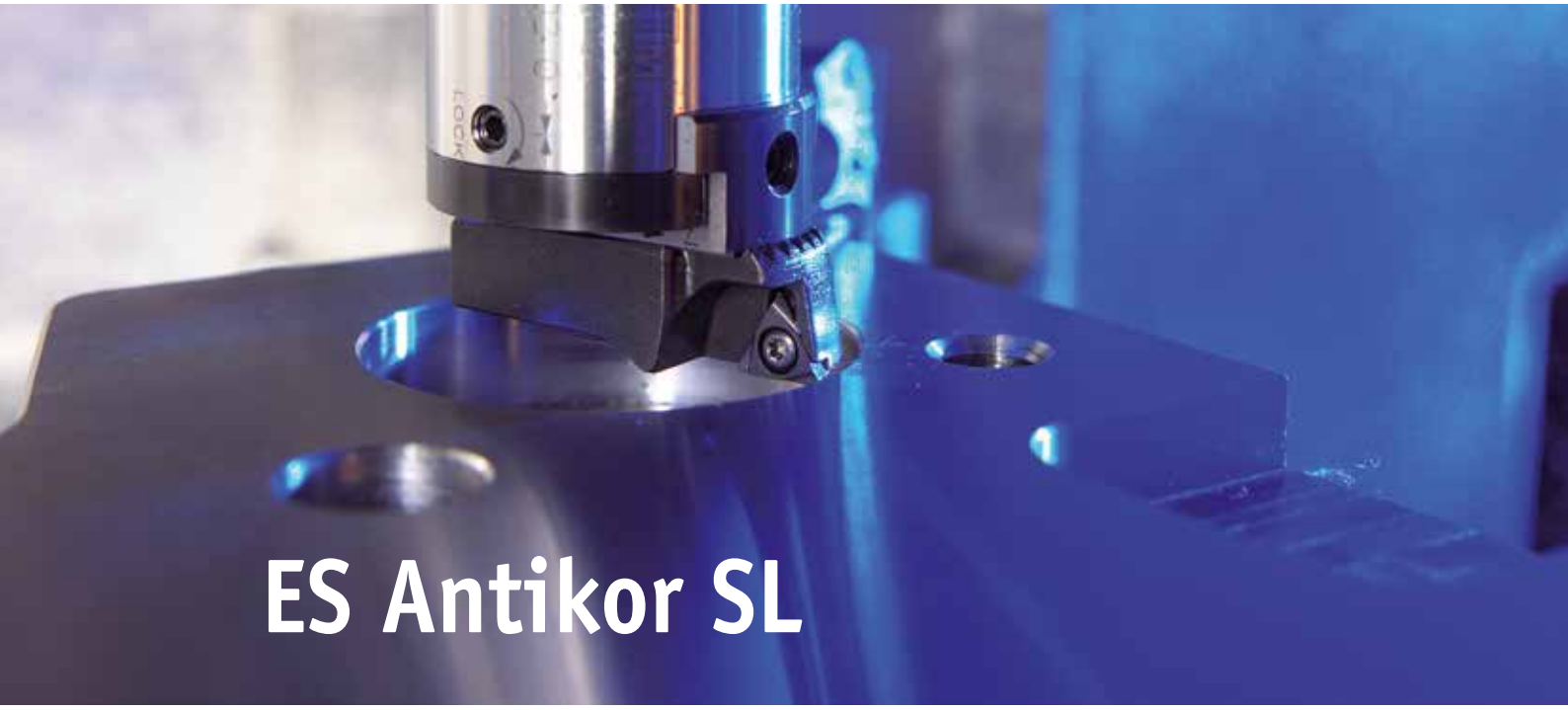
Tool steels from EschmannStahl consist of industrial metal waste which, for example, comes from the automotive industry. Amongst other origins, this is waste that is left over after punching out of large parts and it is of very high quality. Generally steel can be easily recycled and reused at consistently high quality.

We sell about 30 different materials; due to the different alloy proportions, the scrap is separated into four waste groups before it enters the scrap metal wholesale market. As we have a very good oddment management system we end up with waste of 250 tons per month while processing 4,000-5,000 tons. This consists of oddments and millings.

ESSENTIALS: What role does the further development of tool steels play with regard to resource conservation?

The optimisation of tool steels helps our customers to save resources particularly well. The special grade ES Primus SL, for example, is a further development of an existing material and fulfils the requirements of ever-increasing tool life. An important feature of a further special material, ES Antikor SL (see also page 8-9), is its easy machinability. This means the customer can process it easier and more quickly, which results in both reduced energy inputs and increased tool life. Thanks to the excellent dimensional stability, a reduced allowance can be used – and this reduces waste considerably.

ESSENTIALS: Mr. Maerevoet, thank you very much for the interview! ■



ES Antikor SL

The development and optimisation of steel is a core aspect of EschmannStahl's company philosophy. Comprehensive market observation and customer surveys lead to high quality tool steels that fulfil industry demands. One of them is the special alloy ES Antikor SL – a further development of the material ES Antikor S.

DIN	Reference analysis (in %)							Machinability	Weldability
	C	Si	Mn	Cr	Mo	Ni	S		
1.2316	0.38	-	-	16.0	1.2	≤1.0	-	•	•
1.2085	0.30	0.5	1.0	16.0	-	-	0.10	••	•
ES Antikor SL	0.04	-	1.2	13.0	-	-	0.12	••••	•••
1.2312	0.40	-	1.5	1.9	0.2	-	0.0	••••	•

Composition of selected tool steels in comparison with ES Antikor SL

Features:

- Excellent machinability
- Uniform cross-sectional hardness
- Good corrosion resistance
- High degree of dimensional stability
- High degree of toughness
- Very good heat conductivity

This innovative material combines corrosion resistance and excellent machinability and can be applied in many ways within the toolmaking and mould and die production sectors.

Application in plastics mould and die production

The requirements of materials for plastics mould and die production are high. Besides good machinability and excellent dimensional stability, ES Antikor SL also offers minimal warpage. In contrast to the tool steels 1.2316 and 1.2085, it provides for an excellent machinability. In combination with high cutting rates, the newly developed steel grade has an extremely short swarf. It has a good hardness and, at the same time, good toughness. In comparison to 1.2316 and 1.2085, this toughness is significantly higher in the beam impact test, both in the longitudinal and transverse test specimens.

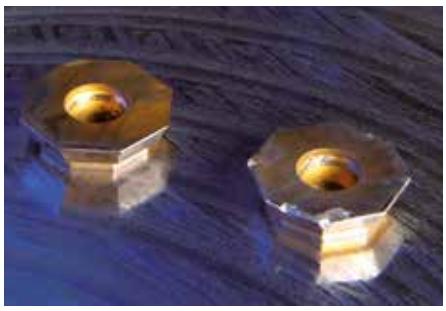
Its good heat conductivity provides for an even temperature spread in plastics mould and die production and thus enables easy process control. The use of ES Antikor SL reduces mould production, maintenance, and cycle times.

Excellent machinability reduces wear

Its innovative properties make ES Antikor SL an appropriate material for plastics mould and die production. Despite the sulphur content, which provides for an unusually good machinability, the material is convincing due to its good toughness and good weldability. This means higher cutting rates when milling and drilling ES Antikor SL, because it can be better and more quickly machined than its comparable grades. Wear and disruption danger of the cutting edges of indexable inserts, milling, and drilling are less than with conventional materials. Volkmar Dumm, Product Manager at EschmannStahl explains: "The special alloy ES Antikor SL has excellent technical features. They enable significant reductions of cost-intensive machining and drilling work. The material can be more quickly and more easily processed as against conventional grades – this reduces costs and makes toolmakers and mould and die producers even better performers." ■

Storage facility in Wehnrath

Machining of ES Antikor SL



Cutting plates: processed with ES Antikor SL on the left, with conventional steel on the right

The Right Ingredients are Decisive

A New Tool Steel is Preceded by Numerous Development Steps

The harmonic flavour, the right seasoning, that certain something – preparing a good meal requires more than the right amount of the right ingredients. A key determining factor for success versus failure: the cook. He needs a lot more than a good sense of taste. Only he who is well-versed in the perfect composition of ingredients is able to influence the result in a decisively positive way. Experience, know-how, and sound training are just as important as solid basic knowledge. In this way, the further development of materials is similar to food preparation.

At EschmannStahl, technological, economic, and environmental optimisation is at the fore of further development of high-performance steels. This reflects market demands. And to analyse the market and know its needs is the first step on the path towards a good product. Pivotal on the list – also in terms of sustainability – are demands for enhanced tool life and lighter materials as well as consistent quality (see also ESSENTIALS 1/2010). Lightweight design concepts in vehicle construction and alternative drives, for instance, exact high demands on the construction material steel.

Nuances are decisive for success

Here, the task of material development is one of creating the right recipe for individual requirements. What sounds like an easy thing to do is actually hard work. From the initial idea to the final product up to two years can elapse with countless tests. In this process, by no means new materials are created but, instead, existing ones are changed in nuances to arrive at the desired result. Often only details in the composition or marginal changes of alloy proportions lead to the breakthrough advance. Just as in motorsports, very fine calibrations are the determining factor for success or failure. Material development contributes to improved and intelligently designed parts that at the same time contribute to environmental protection and enhance profitability (see also pages 4-7). Material development is progress; it plays a key role in modern industry, an industry in which

Staff in material engineering at Wehnrath

demands exacted on materials continue to increase due to new processes and applications.

Recipe vs. feasibility

The application of modern materials is a prerequisite for innovative products. Developing them is always a process of trial and error. Moreover, feasibility frequently stands in opposition to cost-effectiveness. What looks like a perfect solution on paper often cannot be implemented in practice due to costs. Although EschmannStahl's specialists strive to satisfy all demands, not all developments can be brought to market. Uwe Feldhoff, Quality Management Head at EschmannStahl, on material development: "Unfortunately we cannot design a material that meets only positive criteria. Material development is always a compromise. If a steel fulfils a certain feature particularly well this is often to the detriment of another feature."

Material development at EschmannStahl

Uwe Feldhoff is something like the "head cook" in the Metallurgy Department. If you are now imaging a dark basement laboratory you are completely off track. Modern, clean, tidy, and brightly lit – this is how material development at the Wehnrath location presents itself. The ideas for new high-performance steels emerge in the minds of the technicians at EschmannStahl and then on paper – people no longer work with test tubes here. In the context of material development 99 percent of the necessary material tests are carried out in the high-tech lab. Industry requirements are the basis for a new material. The company tries to anticipate events as far into the future as possible and seeks to identify tendencies through market observation.

On this basis the new material is theoretically designed and a cost calculation based on required raw materials, production processes, and finishing treatment is undertaken. Only then does EschmannStahl decide whether it makes economic sense to develop this new material. If a decision is taken in favour of the new material a sample casting of several tons takes place in collaboration with a steel plant. This initial test often leads to a 90 percent hit of the desired result. Then fine tuning follows, and this is somewhat more time-consuming. Uwe Feldhoff on development efforts: "Material development is like a trip to a place you haven't been to before without using a GPS device. The first 990 kilometres are easy and when you are nearly there you have to stop at least five times and ask for directions."

The big challenge in producing a new tool steel is not primarily about finding the right composition but about defining the production process. ➔

Sometimes alloys in the ppm range need to be distributed evenly in 100 tons of steel melt. EschmannStahl uses the cast block to collect various data pertaining to things like structure, purity grade, or hardness profiles. External institutes are responsible for determining other important key parameters such as heat conductivity or heat expansion. Before a new material can go to market many time-consuming analyses are carried out up front. Markus Krepschik, Sales Manager at EschmannStahl, describes this process: "Ahead of going to market we of course have to define very clearly what advantages the new tool steel will have for the customer and where the differences are with respect to products already available on the market – this is the only way we can gain acceptance. Moreover, we have to immaculately serve the features we promise. And this naturally requires a lot of tests." After going to market, however, development work does not simply come to a halt – the tool steels are continuously scrutinised and optimised.

Important feedback from practical experience

It is impossible to combine all desired specifications in a single material. Hardness, toughness, machinability, stability, and heat conductivity are only some of the features a tool steel should have. This is EschmannStahl's point of departure, where it provides its customers with individual advice. Moreover, even after delivery the company continues to serve its customers advice in all questions pertaining to dealing with the tool steel. Uwe Feldhoff on EschmannStahl's advisory performance: "We also go to the front line, stand next to the machines and discuss problems they may have in applying our materials. Usually these are a result of the way they use the steel – and then we immediately take appropriate action and throw light on the issue. This too is one of our tasks and part of EschmannStahl's service."

Customers have different tastes and these change over time. For this reason, continuous research and further development of "recipes" are decisive for securing sustainability – for EschmannStahl and thus for the customers.

As a specialist in the area of metallurgy with many years of expertise as an advisor and solution provider, EschmannStahl is the right partner. ■

Many factors are responsible for a good tool steel
Source: EschmannStahl

Gneuß Kunststofftechnik GmbH

Success with Filter Systems

An innovative family enterprise from Bad Oeynhausen, Germany, has shaped the plastics industry: Gneuß GmbH supplies the plastics processing industry with intelligent solutions. The company's core competencies are patented rotary filters for cleaning recycled plastics.

What began in 1983 in the living room of Detlef Gneuß with a couple of ideas and a handful of patents is today an internationally active company with about 150 staff worldwide.

A success story

The cornerstone for this success was laid in the 80s of the last century – since 1990 Gneuß has been technology and market leader in the filtration technology segment. Already a year later the subsidiary Gneuß Inc. in the US had been established, which is today headed by Daniel Gneuß and Dr. Monika Gneuß. The second generation around Daniel Gneuß and Dr. Stephan Gneuß has been active in the company since the end of the 90s. In contrast to the general trend, an enormous expansion move took place in the last couple of years. Within a period of only six years, investments were made into three new buildings at the Bad Oeynhausen site. Gneuß Kunststofftechnik GmbH today holds an outstanding position in the processing of plastic melt. Since its founding the company has become a specialist in recycling plastics such as PET bottles.

Presently, Gneuß offers technology in three performance areas:

Filtration Technology

Development and production of fully-automatic, constant-pressure and constant-process filters and screen changers for the filtration of plastic melts.

Processing Technology

Design of extruders and marketing of extrusion systems for downstream processing of PET recycling and polymer products. Gneuß's bottle-to-bottle recycling process has been certified with a Letter of Non Objection (LNO) by the US Food and Drug Administration (FDA) for applications of up to 100 percent recycling products since 2011.

Measurement Technology

Manufacturing of measuring and control technology such as pressure and temperature sensors for monitoring extrusion processes.

Worldwide presence

About 100 of the overall 150 staff are located in Germany. Worldwide sales are carried out by the subsidiary Gneuß Inc. in the US, by own sales offices in China and Brazil as well as by a global network of about 30 sales and service agencies, a unique construct in this industry. ■

"Reliability means planning dependability"

Dr. Stephan Gneuß in the interview with ESSENTIALS

In An Interview, Dr. Stephan Gneuß, Managing Director of Gneuß Kunststofftechnik GmbH, Talks about the Market for Filter Systems and the Partner-Oriented Collaboration with EschmannStahl.

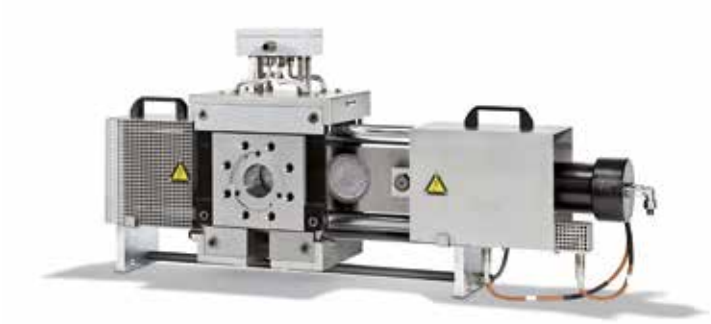
ESSENTIALS: Dr. Gneuß, please briefly describe the business areas, core competencies, and USPs of Gneuß Kunststofftechnik GmbH.

We work in the areas of filtration technology, processing technology, and measurement technology. The mid 90s saw the dawn of the polyester bottle. In 1997 we went to market with the fully-automatic filtration system RSF*genius* which is particularly well-suited for recycling expensive plastics that need to be fine-filtered. The system is extremely successful and to this day it remains our flagship in the area of melt filtration. Our success with the RSF*genius* was the cornerstone for the development of extrusion systems that focus on the polyester market and recycling.

ESSENTIALS: In the course of time, how did the filtration systems change? What requirements do your customers have for the systems?

The systems' basic principle has remained unchanged. But the requirements pertaining to automation and control technology have risen. Besides these technical issues demands towards reducing maintenance, screen wear, and melt losses as much as possible are also on the table. A further demand focuses on best possible process constancy. Our product is, for example, the only one worldwide that forecloses pressure fluctuations in the final product when screen changes take place.

RSF*genius*



HS*primus*

ESSENTIALS: What are the other advantages of your filtration systems – besides process and pressure constancy?

Customers benefit from the high cost-effectiveness of our products. The system is a niche product; the market for fully-automated filters is very special. A lot of development work combined with a lot of know-how goes into filter production – and this distinguishes our company. Beyond the product realm we also have global service and sales structures. Experienced technicians are at customers' worldwide disposal to answer questions on the systems.

ESSENTIALS: Your customers rely on a consistent quality of filters and filter discs. What role do suppliers such as EschmannStahl play in fulfilling these demands?

We get the steel for the filters from EschmannStahl. The company can provide the different sizes we require from within its portfolio. As the melt is pressed through the filter under high pressure we need to rely on an excellent surface quality – and this steel quality is what EschmannStahl supplies us with in consistently high quality. Working together is a good fit overall, whereby key factors are, of course, delivery times and pricing.

ESSENTIALS: How do you deal with customer requests for special solutions?

We do special systems design and this is where EschmannStahl enters the game again. We frequently approach the company when we need a certain kind of steel. Some polymers are, for instance, extremely corrosive and the required steel properties need to correspond with the corrosive behaviour of the polymer. Where we already boast some experience we prefer selecting the steel ourselves, but where aspects unknown to us are part of the deal we rely on EschmannStahl's advice.

ESSENTIALS: To what extent is EschmannStahl not only a supplier but also a solution provider?

EschmannStahl shows us the advantages of individual steel grades and gives us application recommendations. The company also informs us on the special properties of various materials – at the end of the day we have to take the decision ourselves. Cooperation with EschmannStahl goes beyond material supply as it also encompasses advisory services and lab tests concerning technical issues. It is important that someone gives us comprehensive explanations and advises us on the pros and cons of the various steel grades – and this makes EschmannStahl the right partner.

ESSENTIALS: How long has the partnership between Gneuß and EschmannStahl existed?

The company has been our steel supplier from day one. Our requirements have grown over the years – we regularly reappraise our supplier relationships. The arguments have been speaking in favour of EschmannStahl for years and one can simply define the long partnership as a quality feature.

ESSENTIALS: How do you deal with the topic of environmental protection and sustainability in your company?

Of course we are strongly committed in this area as we design products for recycling plastic bottles. Issues such as staff security and environmental protection are a matter of course, particularly if one operates in this area. And recycling is a good solution as the material is already there and was already used as plastic, so why shouldn't one continue to use it as plastic? We also concentrate on this business area because it is the logical conclusion to draw when looking at the resource situation. It makes environmental and economical sense.

ESSENTIALS: Dr. Gneuß, thank you very much for the interview! ■

INFORMATION • DATA • FACTS

- Established: 1983
- Number of staff: 150
- Location: Bad Oeynhausen

Products and services:
- Rotary filters and screen changers
- Extruders and extrusion systems
- Measurement and control technology

Series: The People at EschmannStahl

3 Specialists at EschmannStahl

How they perform cannot be picked up overnight. Their comprehensive know-how and years of experience make them so valuable for companies in current times. The knowledge base they have accrued during many years of service is invaluable. Highly specialised qualified employees contribute significantly to a company's success.

At EschmannStahl specialists work in all business areas. From field and purchasing staff all the way across to process engineering, sawmill, and quality management – in all these areas people are at work who know their "trade". Most of them have been with the company for several years and are thus well-acquainted with the daily work flows and conditions at EschmannStahl. Markus Krepschik asserts: "Good, qualified employees are not easy to find nowadays and need to be retained. Our goal is a minimal staff fluctuation as every colleague boasts a great deal of specialist knowledge." Many staff members have been with EschmannStahl since finishing their apprenticeship (see also ESSENTIALS 1/2010). In the following interview one of those specialists, Uwe Feldhoff, talks about his tasks as Head of Quality Management and gives some insights into material development. ■

"No two days are alike."

In-House Material Development and Excellent Advisory Services Mark EschmannStahl. Quality Management Head Uwe Feldhoff Talks about his Daily Work in the Interview.

ESSENTIALS: Mr. Feldhoff, please tell us something about yourself. What kind of training did you receive and how long have you been working at EschmannStahl?

After getting the German equivalent to the British Secondary School Level I Certificate or American Junior High School Certificate I started professional training as a materials tester; after that I got my university-entrance diploma and then undertook university studies in material engineering finishing as a chartered or graduate engineer. In the following years I worked in a steel plant as a technical expert on materials before I took over the position of Quality Management Head at EschmannStahl in 2003.

ESSENTIALS: What are your tasks at EschmannStahl, and what does a typical workday look like?

We cover four areas: quality management, materials development, materials advice, and failure analysis pertaining to materials. A typical working day does not exist. The only thing that takes place every day is the 8 am meeting with my ten-person team – there we talk about current issues, exchange information, and define priorities. Apart from that, every day is different: it can be that I get a phone call today and am in an aeroplane tomorrow because a customer has a problem. We are focused on helping the customer very quickly. I have a certain idea of how long something like that can take and react immediately, regardless of where it is on the globe.

ESSENTIALS: What are the typical demands exacted on tool steels and what are the main industries represented in your customer basket?

The demands always reflect the specific application to which the tool steel is put. Best would be an "all-in-one": a material that is low-cost, easy to process, resistant to corrosion, hard and hardenable as well as coatable using every available technology, with extremely good heat conductivity and a high degree of toughness et cetera. Of course this does not exist and a material is always the best available compromise for a specific application. In the same way, I cannot define our clients in terms of certain industries as queries come from all kinds of industries worldwide because tool steel is used in all production processes.

Uwe Feldhoff in the interview with ESSENTIALS

ESSENTIALS: What tests are undertaken in your in-house lab?

Besides ongoing quality checks, we also carry out most of the material development tests ourselves. Moreover, we execute orders from the aerospace industry and carry out failure analyses as a service provider for other companies.

ESSENTIALS: How many material development projects do you run in parallel?

Every new material means a lot of work at the frontline, in other words, on location at the customer. It is important to inform the users comprehensively. We continuously work on developing and optimising tool steels.

ESSENTIALS: Where do the ideas and does the expertise come from?

Besides a well-grounded professional training, the core aspect of the job is experience. A professor once said to me that experience is the sum of all failures – and that's what it ultimately is. Every day brings forth positive and negative experiences. And these you take into account when you go into the next development.

ESSENTIALS: Mr. Feldhoff, thank you for the interview! ■

Beginning the cost-effectiveness equation

Process Planning Sets the Course for Efficiency.

Thinking many moves in advance – planning ahead intelligently. As the interface between sales and sawmill it is the task of process planning to configure all ensuing processes in terms of lean and efficient production.

From incoming order to delivery, a work piece moves through many stages at EschmannStahl. Approximately 1,300 order items come in daily by phone, fax, and email or online and are recorded by sales staff using special software. Using various factors such as material availability, the software checks whether the order can be filled. Due to the big inventory of more than 20,000 tons of steel nearly every order item can be delivered within a very short time.

Material preparation

If the system does not clearly assign a work piece in accordance with the parameters entered the order moves to process planning. At the Wehnrath location it is responsible for material selection in the sawmill. From more than 2,500 pieces, the team of five staff selects the most suitable one for every order. This material selection process takes place in line with the following factors:

Resource conservation

The experienced staff members tell the sawmill, for instance, how the work piece should be processed so that the oddments do not have to go to waste but can still be further used.

Cost-effectiveness

Aspects such as storage location, permissible variation, and reusability of the oddments play an important role when looking at cost-effectiveness.

Speed

Decisive for speed is the question from what storage location the material can be made available quickest.

Special attention is given to environmentally sound behaviour with respect to moving the parts and avoiding waste. In the last couple of years, it was possible, for instance, to reduce the amount of oddments from 3,000 tons to 300 tons based on an optimised oddment management system operated by the process planning group. Based on material selection, a cutting plan is produced that contains data related to permissible variation, delivery date, and location. The selection undertaken by the process planning group is binding for sawmill staff.

Axel Maerevoet, Sawmill Head at EschmannStahl, summarises the task of the department: “Every day, we cut more than 2,500 items in all kinds of dimensions according to customer desires. With a team of five people we can select the right piece for every order. In the same way as an air traffic controller designates runways, we select the most suitable material in the shortest possible time. With orders in which the material is manually assigned, a maximum of sixty minutes elapses between incoming order and printing out of the cutting plan. Most orders are delivered to the customer the next day. EschmannStahl guarantees its customers a quick reaction and excellent delivery reliability – that is our motivation.” ■

IN BRIEF

Technology Seminars

This year EschmannStahl will again be offering training courses on various topics dealing with tool steel in collaboration with other companies. The objective of these events is to polish up and enhance existing knowledge. Also, participants have the opportunity of getting answers to individual questions from the experts as well as exchanging experiences with others.

Technology Forum Milling
Lecture
"From the CAD Model to the
Finished Machined Component"
18 May, Agie Charmilles GmbH
Schorndorf near Stuttgart, Germany

EschmannStahl Workshop
13 July, Agie Charmilles GmbH
Schorndorf near Stuttgart, Germany

If you want to find out more about the topics and dates of our product training events and seminars please feel free to contact **Volkmar Dumm** (Product Manager):
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Review EuroMold 2010

EschmannStahl looks back at a successful EuroMold 2010. The company's stand was well-visited on all trade-fair days and was very well-received among visitors. The company's representatives held many important talks on various issues relating to toolmaking and mould and die production and made valuable contacts. Once again EschmannStahl was able to present its know-how and competence in the area of tool steels to a wider specialist audience.

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The core issues of cutting

Steel World: Emissions Trading
How emission rights are allocated and
what impact it has

Practice: Customers in Portrait
Beckenbach Formen- und Modellbau GmbH

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