

ESSENTIALS



The customer magazine of EschmannStahl GmbH & Co. KG

2/2010

Take a Second Glance

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New Contracts for Iron Ore

The End of Planability?
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Customer Portrait

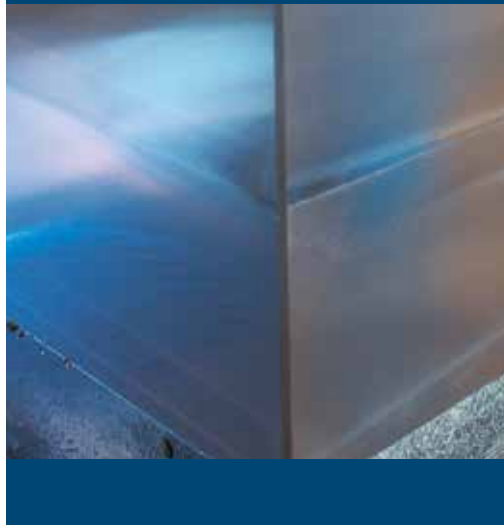
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Integrated Degree Programme



Dear readers,

We were very happy with the positive feedback we received regarding the first issue of the new ESSENTIALS. We see this as a confirmation and invitation to continue to provide you with important background information on EschmannStahl in the future. In this issue, we will talk about the state of the raw materials market. The partially very volatile quotations directly influence the alloy surcharges and thus the steel prices. Though we cannot change these developments, we want to provide you with background information on the various raw materials in the next issues. You will also get insights to some areas of our company, for example personnel development. At the end of the day, performance and success are defined by the small but significant differences. And these we work on every day.

Enjoy reading

A handwritten signature in blue ink, appearing to read 'MK' followed by a stylized flourish.

Your Markus Krepschik (Sales Manager)

Is it All Just Steel?

When Buying Steel, One Is Confronted with an Enormous Range of Products in His Decision for a Certain Material.



Steel is not just steel. That is obvious. The basic differences are commonly known. But the deeper you go into the respective applications, the more difficult it becomes to assess the properties and shape the decision for a certain material.

“The buyers of tool steel are always confronted with similar questions: Are these two grades of steel really identical or only similar? Does the low purchasing price really pay off in the long term? What special grade is the best for my application?” is how Volkmar Dumm, Product Manager at EschmannStahl, describes the challenges many customers face. With requirements becoming increasingly special and complex and thus leading to ever greater differentiation, the situation on the steel market is becoming increasingly confusing. Dumm adds: “Through our consulting, we shed light on that darkness. And we do this without restricting ourselves to our own products but, instead, looking at the whole supply situation in the market.” The company is able to provide this support for two main reasons: The experience and expertise as a long-time market leader for tool steel in Germany and the own product range, which EschmannStahl continues to develop, are the ideal basis for well-founded consulting. The proportion of tool steel in the overall global steel market is only 0.1 percent – of the worldwide production of about 1.22 billion tons and about 2,500 steel grades. Within this niche, it is the comprehensive consulting competence itself that gives EschmannStahl its outstanding position as a specialist for tool steel. The fine distinction between tool steel as cold work tool steel, hot work tool steel and plastic mould steel provides for a fundamental differentiation of tool steel. Broken down further to



the applications, the property requirements become even more particular.

Material as a competitive factor

The technical infrastructure and the efforts the company undertakes with regard to steel research and development are not ends in themselves; rather, they are the necessary prerequisites for the consistently high quality of processing and thus of material. For users and tool makers whose customers demand increasingly higher guarantees, the material quality and selection is a core competitive and value-creating factor. Without continuous innovation and specialisation, materials such as plastics, aluminium, magnesium, or steel could not be processed economically in the long run: from manufacturing seat hinges to producing cooking pots, from the polycarbonate car roof to garden chairs, from transverse links to aluminium rims.

As the example of the new special grade ES Primus SL, which has been developed on the basis of the extensive feedback received from practical experience, shows (see report on pages 8-9), the cooperation between producers and users will be playing an increasingly important role in the future. Steel is not just steel. ■

Application areas cold work tool steels

- Punching
- Cutting
- Forming
- Deep-drawing
- Bending
- Embossing

Source: EschmannStahl

Application areas hot work tool steels

- Forging
- Extrusion pressing
- Hot forming
- Pressure die casting
- Hot rolling
- Shearing

Source: EschmannStahl

Application areas plastic mould steels

- Injection moulding
- Extruding
- Extrusion blow moulding
- Moulding
- Embossing

Source: EschmannStahl

New Contracts for Iron Ore – the End of Planability?

Raw Materials Companies Reduce Contract Periods

For over four decades, steel processing companies could rely on it: After initial negotiation, prices for the raw material iron ore remained stable for twelve months. Fluctuations only occurred on an annual basis. With the new system of quarterly contracting durations, the three big mining companies (Vale, Rio Tinto and BHP Billiton) have significantly reduced planning reliability. What impact does this have for the value chain? In what way are users of tool steel affected? How does EschmannStahl react to this development?



There is no progress without oil, iron ore, and coal. The engine of ongoing economic growth in the big emerging markets needs fuel, or, to be more exact: raw materials. The swift and raw materials-intensive industrialisation taking place in countries such as China or India increases demand and thus raises prices. The fact that these will be even more volatile and even more difficult to plan in the future is related to the new contractual system. This system guarantees buyers of raw materials price stability for a period of only three months, in comparison to the previous one-year period. The prices for iron ore had been becoming more erratic in the recent past anyway. As early as 2005 – due to the old contracts on a yearly basis – price fluctuations had been taking place. After the

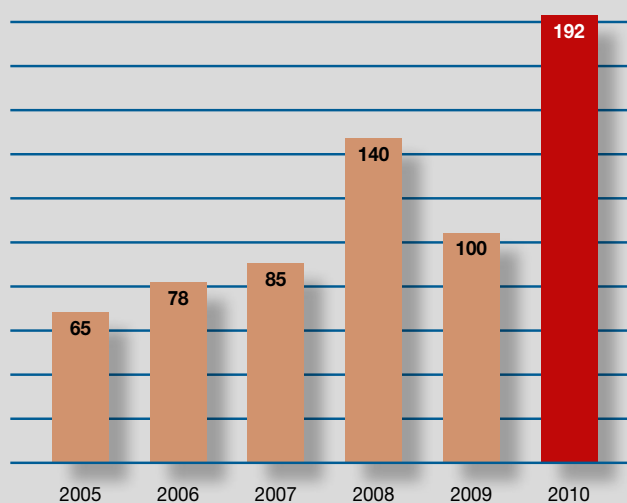
surge by about two thirds in 2008 a drop by nearly one third had taken place a year later. The new short-term contracts will be leading to increased price volatility in the future.

Development of other raw materials prices

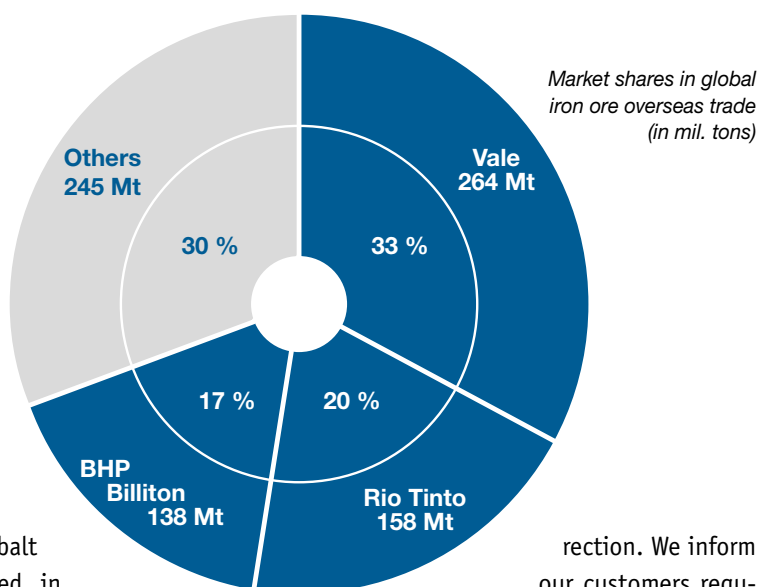
Comparable to iron ore, prices for alloys such as nickel, the most important metal alloy, have also increased. A decisive factor for this development has been the good employment situation in various industrial sectors, such as the automotive industry and the mechanical and plant engineering industry. For the first half of 2011, further price increases are quite possible. Nickel: Measured in terms of its availability, it is presently expensive. This points to the fact



Price development of iron ore
(USD cents/Fe Unit)



Source: EschmannStahl



that price formulation is detached from the actual nickel market. Chromium: Price declines are improbable, as the South African producers will continue to go for a price-conscious selling policy – in line with the slogan “price before quantity”. Molybdenum: Prices are showing a clear upward movement. Reasons for this are the demand for SAH products in molybdenum-containing grades and the recovery of the automotive industry as well as various capital goods industries (chemicals, oil, gas, and energy).

Raw materials are increasingly becoming a focus of the financial sector and thus of speculation. This trend is being further enhanced by listings on the commodities futures exchanges, in particular the London Metal Exchange (LME). There, contracts for molyb-

denum and cobalt were introduced in February 2010. The whole steel industry is making efforts to secure raw materials cost effectively, in order to prevent price increases within the value chain. With only 0.1 percent of the whole steel market volume, the niche product tool steel is subject to other fluctuations than commercial grade steels. But the dependency on raw materials prices remains. Markus Krepschik, Sales Manager at EschmannStahl, makes the following observation regarding the current development of raw materials prices: “Our principle is: Pricing remains market-oriented and transparent. This means that, for us, the present steel price and the level of alloy surcharges is binding. We adapt to this, no matter in which di-

rection. We inform our customers regularly about the current scrap metal and alloy surcharges. They can rely on us – and we continue to offer them best-possible planning reliability despite quarterly fluctuating raw materials prices. As a market leader in the area of tool steel, we will continue to uphold our position and supply best quality at reasonable prices. We owe this to the market and to our customers!”

ES Primus SL

The Right Choice for Pressure Die Casting Moulds and Tools Subject to High Stress

Talks with customers lay the basis for developing and introducing new innovative steel grades such as ES Primus SL. As an industry partner, EschmannStahl sees itself not only as a supplier of tool steel – its development and optimisation is an integral part of company philosophy. All tool steels – from standard materials to special grades – fulfil higher standards than the international norm DIN EN ISO 4957 requires.

Application as material for dies

In comparison to the material 1.2343 ESU, ES Primus SL has a greater toughness with the same hardness, which significantly minimises the risk of breakage and crack formation through mechanical stress. This property is decisive for its application as material for dies. Due to its sudden strain, it has to fulfil highest toughness demands. Its high degree of heat resistance means it is ideally suited for application in moulding presses and forging machines. Because of the longer cycle time of the forging material in the forging die, the temperature strain of the tool is a decisive factor for the selection of the material. The application of ES Primus SL as a tool steel thus fulfils industry demands for a strong degree of resistance and longevity of forging parts such as shaft, chassis, or drive components.

Application in extrusion presses

Its strong resistance against thermally and mechanically-induced crack formation makes it the preferred

choice for producing tools for extrusion presses. They are used, for instance, for making solid and hollow profiles, pipes, rods as well as wire and solder for metal welding. It guarantees a high degree of process reliability during manufacturing and provides for long tool life in production.

Requirements of pressure die casting operators are fulfilled

Particularly pressure die casting companies stand to benefit from the above-mentioned advantages. With greater hardness, the material still offers a toughness that is comparable to the standard material 1.2343 ESU at standard hardness. This counteracts the formation of thermally-induced crack formation during aluminium pressure die casting without increasing breakage danger. Thanks to its improved properties, it fulfils the requirements of casting operators with respect to longevity and long tool life. It is also the right material for applications in injection die tools with non-chloride thermoplastics. Volkmar Dumm, Product Manager at EschmannStahl, on the new special grade: "With the development of ES Primus SL, we have succeeded in fulfilling the demands of various industries for ever higher quality standards. Due to its properties, the multi-purpose hot work tool steel fulfils the various requirements materials are exacted to. Its strong resistance and particularly its special properties define it as an alternative that combines economy, efficiency, and function". ■

DIN	Reference Analysis (in %)					Toughness	Thermal Shock Resistance
	Carbon	Silicium	Chromate	Molybdenum	Vanadium		
ES Primus SL	0,36	0,3	5,0	1,4	0,4	•••••	••••
1.2343	0,38	1,0	5,3	1,3	0,4	••••	•••
1.2344	0,40	1,0	5,3	1,4	1,0	•••	•
1.2367	0,38	0,5	5,0	3,0	0,6	••	••
						••	••••

Comparison of ES Primus SL with various steel grades

Demands Exacted on Various Processes:

Die material:

- High degree of hardness, toughness, and fatigue resistance
- High yield stress and strain
- Excellent heat resistance
- Non-sensitive to short-term temperature fluctuations
- Highest wear resistance

Tools of extrusion presses:

- Excellent heat resistance with high wear resistance
- Good tempering resistance with good toughness
- Non-sensitive to shifting thermal stress

Pressure die casting tools:

- High resistance against thermal fluctuations
- Excellent heat resistance
- Good tempering resistance
- Optimal heat toughness and heat wear resistance
- Strong heat conductivity
- Low adhesive tendency



Expertise Along the Entire Process Chain

EschmannStahl's Customised Service Packages

Everything from the delivery to the centre of distribution – this article gives an overview of the steel processes involved from the order right through to the distribution.

With the complete range of tool steels, mechanical processing and heat treatment, EschmannStahl offers customers a total package. Along the entire process chain the materials underlie rigorous terms of quality control. The production process is moni-

tored by high-quality analytical devices for metallographic and mechanical analysis.

Extensive material testing, complex test procedures and the constant further development of materials, all form the basis for consistently high-quality products. ■



Internal sales service

Orders come in by fax, telephone or email and are recorded. The system independently checks material stocks and allocates the work piece accordingly. This is then followed by the printing of a saw chart.

1

2



Sawmill

Speed and efficiency – with over 80 band saws there is a fitting saw for every request.

Location: Gummersbach

Thermal treatment center

The vacuum heat treatment installations, including one with a nitriding unit, enable a wide range of processes to be carried out.



Location: Reichshof-Wehnrath

2



Sawmill

For large blocks, some of Europe's biggest log band saws are available.

Mechanical processing

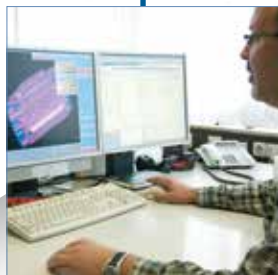
Production of p plates on milling and grinding machines.



3

4

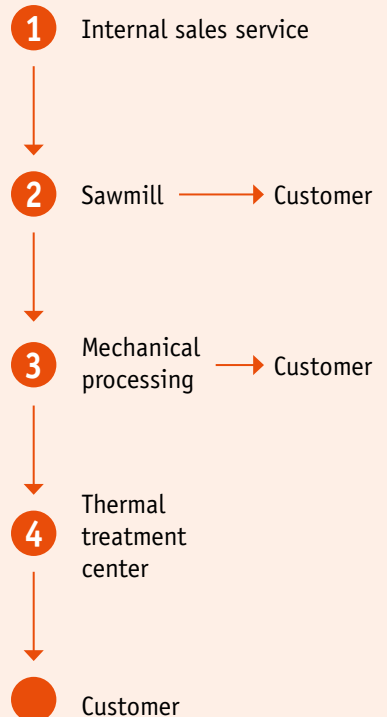
3



Mechanical processing

The data is sent to a CAD workstation for 2D or 3D pre-machining and is constantly monitored throughout the production process. The material is pre-milled or completely machined. Depending on requirements, machine contouring or deep hole drillings are carried out.

Caption



FOBOHA GmbH

Perfection From the Outset



When stepping into the lobby of advaltech FOBOHA you already get the feeling that nothing is left to chance here. A friendly welcome and an inviting interior very much reflect the company philosophy emphasising openness, perfection, and quality.

From the town of Haslach to world class injection moulding technologies: FOBOHA GmbH from Haslach in southern Germany develops high-tech tools for the plastics industry. With innovations such as the Stack Turning Technology or the Cube Technology, the company has been driving injection moulding technology for over 35 years.

FOBOHA GmbH, which belongs to the advaltech group, manufactures premium injection moulds on an area of about 11,000 square meters. Its core competencies are product development and pilot production as well as the construction and manufacturing of high-performance moulds based on multi-component or Stack Turning Technology. The company supplies customers worldwide in the

consumer goods, medical, pharmaceutical, and automotive industries. In over 30 countries across all continents, they benefit from the solutions that FOBOHA develops in close collaboration with their partners – moving from the initial idea through the ready tool to consulting and support after commissioning. The company has production sites in Switzerland, Germany, Hungary, China and Mexico as well as a global service network.

With the development of the Stack Turning Technology in the mid 1990s FOBOHA set benchmarks. To this day, the company has developed, produced, and delivered more than 240 systems. The Cube Technology they are based on has become an integral part of the whole industry. Both technologies are characterised by large output volumes and short cycle times – for maximum productivity and flexibility.

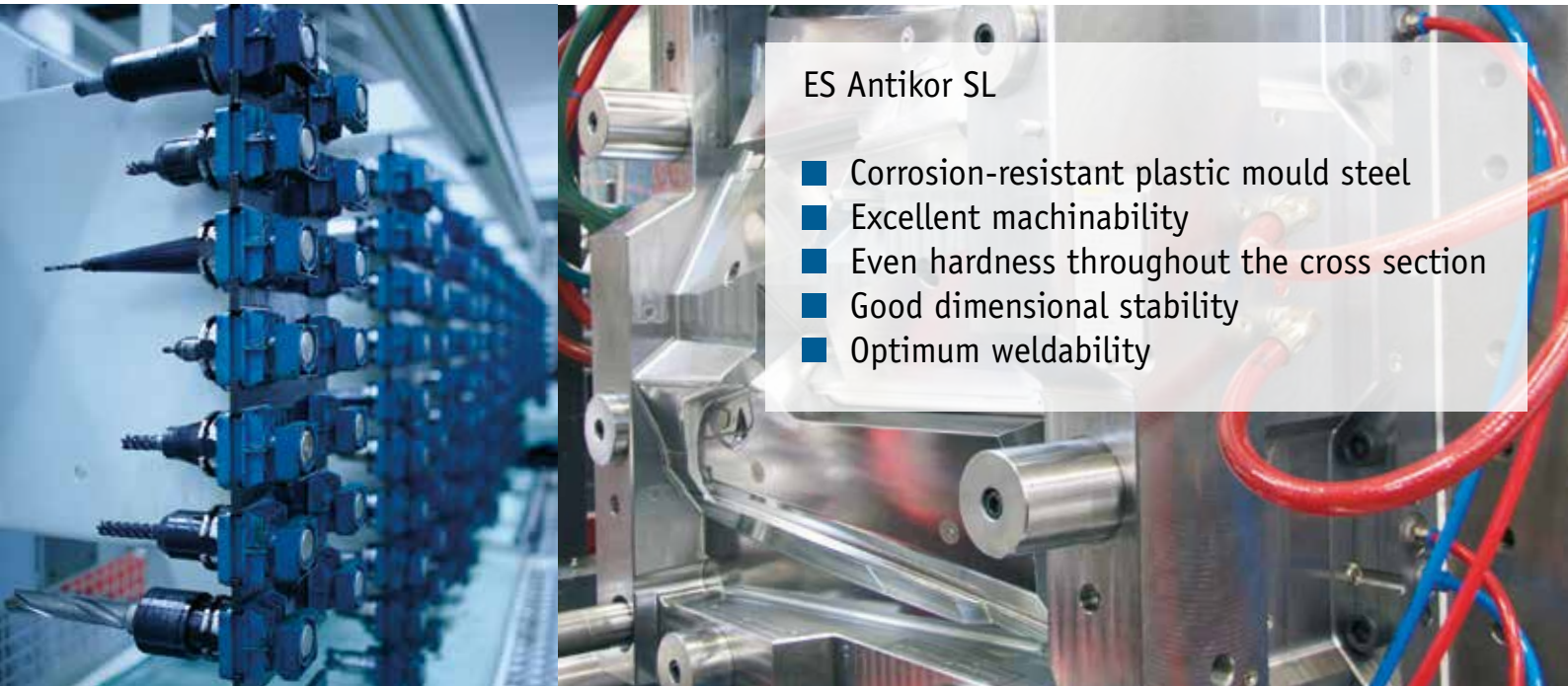
Competent and comprehensive consulting as well as a thorough project analysis are integral parts of FOBOHA's performance. Every production step is simulated using

INFOS • DATA • FACTS

- Founded: 1973
- Staff: 175
- Company headquarters:
Haslach in the Black Forest, Germany

Products and services:

- Injection moulds
- Stack Turning Technology
- Cube Technology
- Construction and development
- Own technological centre



ES Antikor SL

- Corrosion-resistant plastic mould steel
- Excellent machinability
- Even hardness throughout the cross section
- Good dimensional stability
- Optimum weldability

state-of-the-art software technologies. Based on decades of experience with demanding injection moulds, the company continuously develops future-oriented solutions: from single-component standard moulds ranging to highly complex Twin Cube systems. The focus is always on a combination of reproducible quality and high cost efficiency. All relevant constructive and mould components are manufactured in fully-air conditioned production halls using highly automated tool machines, which guarantee the necessary precision right down to the smallest detail. The online transmittal of the CAD/CAM data to the machines provides for a compliance with narrowest tolerances. On the way to the finished product, the moulds undergo stringent quality checks in pre-defined lab intervals using optical and tactile measuring systems.

In its own technology centre, FOB0HA optimises the injection mould technology of machines with a clamping force of 110 to 500 tons. Customers have the opportunity of setting up their own injection mould ma-

chines including peripheral equipment to test them. For many years, EschmannStahl has supplied FOB0HA with the plastic mould steel ES Antikor SL. This corrosion-resistant special material can be ideally machined and has extremely low distortion properties – and is thus an ideal fit for FOB0HA's requirement profile. As a supplier of tool steel, EschmannStahl fulfils the high demands on delivery dependability, reliability, and flexibility. Find out more about the cooperation between the two companies on the following pages. ■



“No supplier merry-go-round”

**Interview with
FOBHA GmbH's
General Manager,
Mr. Rainer Armbruster**

ESSENTIALS: Mr. Armbruster, your company has been working with EschmannStahl continually for several years. For your moulds, you use the special material ES Antikor SL. What characterises this long-term partnership?

The most important criteria that a supplier has to fulfil are trust and reliability. For us, these requirements are primarily related to the quality of the material. The work of all of EschmannStahl's staff is based on an understanding of the need for consistent quality. Further criteria are flexibility, speed, delivery reliability, and transparent pricing. The basis for our collaboration is a framework contract which both parties benefit from, as the time-consuming process of making a request and producing an offer is eliminated. This provides for a close supplier relationship. This continuity pays off in all areas. By the way, we seek to replicate this long-term strategy with our staff too. We boast average job

tenure of about 18 years. Of course, our customers can draw from this expertise pool too.

ESSENTIALS: How does this collaboration affect your daily work?

Here, too, the key word is continuity – in terms of quality and processing. Our staff can carry out production processes more efficiently as they know the material and can be sure that EschmannStahl always delivers the same grade.

ESSENTIALS: Beyond contracts and materials: What role do the personal contacts play in your business relationship?

They make cooperation even more valuable for all parties. For our purchasing people, the personal contact beyond pure figures is important – an exchange concerning market demands and developments in the company also takes place. In purchasing, we do not only look at the manifest price, but, instead, at the long-term profitability. Overall, the business relationship is shaped by a trustful and cooperative interaction.

ESSENTIALS: What effect does the cooperation between EschmannStahl and FOB0HA for your customers? What are the concrete advantages?

Our partnerships – regardless whether suppliers of customers – are based on long-term interaction, and we attach great importance to this. The trust and long-term experience in interacting with one another allow us to react quickly and flexibly to short-notice queries. Our customers benefit from the process reliability, availability and quality that EschmannStahl provides us with.

“Our customers benefit from the process reliability and quality EschmannStahl provides us with.”

ESSENTIALS: You deliver to customers in the consumer goods industry, the medical and pharmaceutical industry as well as the automotive industry. What are the demands these different industries exact on your company? What is EschmannStahl's contribution?

Overall, the demands are very different, but they all have one thing in common: The requirements concerning warranty services are increasing evermore – only he who can bindingly guarantee a minimum of cycles can stay in business. Our tools have an economic lifetime of at least four million cycles – and this means that the processing and materials used have to be right. Tiny deviations in quality have grave

consequences for tool life. Our staff lives the commitment to quality for which FOB0HA stands. Because they know that it is not the boss

but the satisfied customer that actually pays their wages. EschmannStahl is the ideal partner for putting this demand into practice on a long-term basis. The materials contribute decisively to the continuously high quality requirements our customers can rely on. For us as well as for EschmannStahl, the same premise holds true: Every performance display provides us with the opportunity of confirming the trust placed in our products.

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



Series: The People at EschmannStahl



2

Perspectives: Further Education and Training

The quick pace of technological progress in our knowledge society requires imparting, maintaining, and continuously updating vocational skills and knowledge. The further education and training programme is a good mixture of practical work and establishing a comprehensive theoretical basis. Junior commercial staff is ideally prepared for its everyday vocational work.

Some of the trainees at EschmannStahl have opted for the Integrated Degree Programme, so, parallel to vocational training, they study a respective subject at a university. This means that, in addition to their vocational studies aimed at becoming a Wholesale and International Trade Specialist, they undertake part-time studies in Business Administration, which they complete after three years with a Bachelor of Arts (B.A.). Up to three evenings a week and on two Saturdays a month, the trainees study micro and macro-economics at the "University of Economics and Management" in Cologne.

Later on in the study course, they receive knowledge focused on their personal area of work and interests. At the end of their studies, the young men and women have become competent specialists with extensive management knowledge, which they use in a targeted way during their later career at EschmannStahl. In the story on page 17, we will be introducing you to Eric Wortmann, who has completed the Integrated Degree Programme and now works in the Controlling Department. ■

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EschmannStahl

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Close to the Market:
Field and Sales Staff

A Good Mixture

Interview with Eric Wortmann, Part-time Studies Graduate at EschmannStahl



Eric Wortmann interviewed by ESSENTIALS

Graduates of a Integrated Degree Programme are at the heart of the company from the outset. Eric Wortmann opted for this programme – in the ESSENTIALS interview, he describes the contents of the study course and his perspectives at EschmannStahl.

ESSENTIALS: Mr. Wortmann, please briefly introduce yourself. Since when have you been working for EschmannStahl and how did you enter the company?

I started my training as a Wholesale and International Trade Specialist at EschmannStahl in 1999. In the context of the Integrated Degree Programme, I undertook additional part-time studies in Business Administration at the Academy of Business and Administration in Essen, Germany.

ESSENTIALS: What are the characteristic features of education and training at EschmannStahl? Tell us something about your everyday work.

During my two-year vocational training, I moved through all departments. I already had contact to customers early on and was able to handle many tasks autonomously. In the context of my degree studies, besides working in the company, I visited lectures on Business Administration and Law twice a week and every second Saturday. The course of study also included methodological fundamentals such as financial mathematics and IT.

ESSENTIALS: Why did you opt for vocational training at EschmannStahl over 11 years go? For what target group is this model – in your experience – particularly suitable?

On the one hand, I wanted to start a part-time study course alongside work, as I considered the combination of a company-based and practical as well as scientific and theoretical approach to be very attrac-

tive. EschmannStahl offered me that possibility back then. On the other hand, as a supplier of tool steels, the company is a steadfast element of my home town Lüdenscheid, an important centre of toolmaking. I can recommend the Integrated Degree Programme without reservations to all high school graduates who do not want to cover each and every area of Business Administration, but want to apply their knowledge in a practical way as soon as possible.

ESSENTIALS: In your eyes, what are the strengths of vocational training at EschmannStahl?

The company supported me a lot during the three-year study course, both in terms of giving me the study time I needed and financially, for instance, in terms of learning materials. This made it easy for me to manage the double burden.

ESSENTIALS: You now work in the Controlling Department. Why did you opt for that area of work and what are your main tasks there?

In the context of company planning, my main tasks are the formulation of sales and turnover plans as well as the continuous development of our reporting systems. Moreover, I am responsible for sales controlling – whereby undertaking ad-hoc analyses for sales management is the main focal area. I can ideally apply the knowledge I acquired during my vocational training and university studies in my everyday work.

ESSENTIALS: Mr. Wortmann, thank you for the interview. ■

Room for Talks

Preview to the EuroMold 2010 – Forum for Mouldmaking and Tooling



Making contacts, meeting customers, and setting the course for the future – with its exhibition appearance at the EuroMold in December, EschmannStahl will be where the pulse of tooling can be felt. In comparison to last year, the 17th EuroMold already boasts a 10 percent higher visitor registration.

“The EuroMold has been providing us an ideal platform for talks with various industry representatives for over 15 years” says Markus Krepschik, Sales Manager at EschmannStahl, in describing the tradition-like connectedness with this trade fair for mouldmaking and tooling, design and application development, which was established in 1994. And he adds: “Due to the good feedback we have continuously received

from all sides, our annual returning is a mere formality.” The fact that an increasing number of renowned companies are going to be in Frankfurt on the Main from 1 to 4 December confirms the importance of the event for various industries.

An important goal of EschmannStahl at this forum is to increase the awareness of users of tool steel for the role of this material as a competitive and value-creating factor. “The net purchase price should not be the only criteria in supplier selection. In the long run, it is also the consistent quality of the material in its application as well as the performance transcending the product itself that supports company profitability and ultimately provides them with an additional competitive advantage”, Krepschik

adds. Opportunities for illustrating this in personal talks will again be abundant in Frankfurt.

The event organiser is expecting 1,500 exhibitors from 45 countries and 60,000 business visitors from across the world. The largest number of international visitors will be coming from Turkey (11.8 percent). Core issues are still the optimisation of processes and products, and thus efficiency gains across the whole process chain in toolmaking and mould and die production. The EuroMold offers the opportunity of jointly assessing what performance contribution EschmannStahl can make in this context in terms of providing consulting, processing, consignment and delivery reliability of high-quality materials. ■

IN BRIEF



Workshop and Technology Seminar

“Reducing Costs – Enhancing Performance”: This was the title of the workshop EschmannStahl hosted (together with GF AgieCharmilles) and a technology seminar (in collaboration with Deckel Maho and Hitachi). In his presentations, Product Manager Volkmar Dumm informed the participants about the steel grades ES Multiform SL and ES Antikor SL. Both events demonstrated how one can take advantage of additional potentials across the whole value chain to one's own benefit. In addition, the events provided a platform for transferring knowledge and exchanging specialist know-how, a platform the participants were eager to make use of.



Technology Forum in Retrospect

At the Milling Technology Forum hosted by GF AgieCharmilles, specialists informed themselves comprehensively about new trends in toolmaking and mould and die production as well as in the production of precision parts. Participants had the opportunity of asking individual questions and received useful hints in application technologies from the experts. Volkmar Dumm was also a speaker at this event. He delivered a presentation on the topic “The Influence of Alloy Components on the Machinability of Tool Steels”. Because of the combination of theoretical input and practical demonstrations using the machines, the forum was “a great success”, Dumm summarised.

PREVIEW ESSENTIALS 1/2011

Steel World: “Ecological Footprint”

ESSENTIALS reports on the link between ecology and economy at EschmannStahl.

Materials and processing: “The Sawmill”

The issues with cuts

Further planned topics:

Material ES Antikor SL
Developing steel grades
Material preparation and processing
Introducing: quality control

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