



Materials handling
VEM drives
for cranes, excavators
and conveyors

PAGE 2



Wind power
Generators from
1.5 to 6 MW from
Sachsenwerk

PAGE 4



Technical Conference
Energy efficiency
at the focus
of attention

PAGE 6

Manufactured hand in hand

ENGINEERING

Keulahütte takes on machining for VEM generator and motor housings



Machining of a generator housing on the CNC carousel

One partner for the whole process - for the VEM Group, this motto is also implemented in agreements entrusting the machining of various motor and generator housings to the Keulahütte foundry in Krauschwitz. Already this year, Sachsenwerk Dresden has been sending generator housings to Keulahütte for further mechanical processing. The complete machining of the primed welded constructions is accomplished in several clamping positions on a CNC carousel, before the generator housings are returned ready-for-assembly to Sachsenwerk. They are then used in the 2 MW wind turbines of wind-energy specialists REpower. A total of some 75 of these housings are to be machined at Keulahütte in 2007. Through additions to the workforce and expansion of the machining capacity in a continuous-shift system, this figure is to be increased to 120 next year.

The complete machining of special

large motor housings for VEM motors Wernigerode has also been commenced. The housings arrive ready-primed at Keulahütte. The machining cycle entails two clamping positions on a horizontal machining centre. These housings, too, are returned ready-to-assemble.

Such interactions between the different manufacturing facilities of the VEM Group represent just one of the benefits arising from the extensive modernisation programme realised over the past few years in the Keulahütte machine shops.

This has included the purchasing of a Hüller Hille horizontal machining centre with a table size of 1000 mm x 800 mm, a tool changing system with 144 tool locations and a Carnaghi CNC carousel with a table diameter of 1600 mm. The new machining capacities are naturally also extremely welcome for the machining of Keulahütte's own customer castings.

EDITORIAL

Dear readers,

One thing that I have learned over the course of my life is that the demand profiles for managing directors and pilots are actually quite similar. Whether or not they are able to live up to the demands is usually only revealed in extreme or unexpected situations.



Photo: Karin Wagner

One aspect of both professions seems particularly important to me. Whether at the helm of a company or at the controls of an aircraft, both bear great responsibility: one for the employees, the shareholders' capital and the product, the other for the passengers, freight and the aircraft. "Fly ahead" is for both the motto.

One of my flying instructors, Mr. Steuer, never stopped hammering the message home: "In your mind, you must always fly 10 to 15 minutes ahead of your plane. If you let it catch you up, you are as good as dead." There is very little in the cockpit which has to be done in a hurry. Most things can be planned and taken care of as time permits. But nothing is postponed indefinitely. Everything which is vital is looked after as soon as the necessity becomes foreseeable. Consequently, no-one gets into a rush and the risks of irreparably wrong decisions can be minimised.

As a whole, the VEM Group has mastered its restructuring. The individual companies are returning positive figures. To stay with the comparison above: We must now think very intensively about the potential effects of a break in the present economic upswing. A decline in orders of 30%, for example, would have very different consequences for each company. All the managing directors, therefore, have elaborated or are working on concepts for the handling of such scenarios. The absolute priority, as

continued on page 6

Motors for energy saving are cost-effective

INTERVIEW

Prof. Anibal de Almeida about energy saving in drive engineering

At the Technical Day in Wernigerode Prof. de Almeida, motor expert from the University of Coimbra (Portugal), had introduced the results of his study in preparation for the realisation of the EuP directive. On behalf of the European Union he and his team have investigated how low voltage motors and drive systems can be designed in a more environmentally compliant way. Therefore the costs and ecological effects of electric motors for the total life cycle have been examined.

What are the most important results of your study?

We have realized that for costs and environmental impact associated with their use phase is crucial. It can be said, that for industrial electric drives the operational costs normally amount to more than 95% of the life cycle costs. Energy efficient motors are cost-effective after about 2.000 hours of operation and this is valid even when energy costs are low. The investment in motors of efficiency class EFF1 is therefore profitable. The life cycle costs of these motors are lower compared to EFF2 motors, even with the higher purchase price.

What other saving potentials have you detected?

To considerably reduce the energy

consumption, the whole drive system has to be optimised. The example of a pump system with variable flow requirements is showing that above all the use of frequency converters can significantly increase the energy efficiency.

You have already participated at last years Technical Day. What has changed in the meantime?

Most notably three things have changed. 1. The acceptance of activities to improve the climate has grown remarkably. 2. The energy prices have increased. 3. Throughout the world people have realised that uniform efficiency test and classification standards have to be adopted. The market for motors is now a global market.

What steps will come next?

Efficiency standards should be globally comparable and binding. Already minimum efficiencies are legally required in the USA, Canada, Mexico, Australia and New Zealand and they are planned in other countries as well. In 2010 China will have enforced EFF1 standards. 1 Integrated systems have a huge cost-effective savings potential and measures (including incentives) should be created to promote their large scale application.



Jürgen Sander, managing director of VEM motors GmbH (left), with Prof. Anibal de Almeida

Photo: Karin Wagner

Economic growth and world trade with modern logistics

Whether for ports, mines or steelworks, a broad range of drives enables VEM to meet every demand in materials handling



Quayside crane installations – here in Hamburg, the largest port in Germany and one of the nine largest container terminals in the world – and equipment for open-cast mines – here the El Abra copper mine in Chile – are equipped with specially designed VEM drives.

As we proceed into the 21st century, the growth in world trade is far outstripping the overall growth of the world economy. In 2005, goods worth more than \$ 10,400 billion were exported, with decisive contributions coming above all from countries such as the USA, China, Japan, France and “export world champion” Germany.

Port of transshipment

To be able to handle the movement of these huge flows of goods, the port capacities in the international growth centres are being extended constantly. The largest ports in the world are to-

dated vehicle systems and other special solutions tailored to the very specific demands.

The VEM Group is able to offer a broad range of electric machines to drive conveyor and handling systems. Not least thanks to their high design quality and reliability, motors bearing the VEM brand name are today to be found in use in the largest container terminals around the world. They demonstrate their capabilities in the most diverse situations and under widely varying climatic conditions. For example, VEM supplies three-phase motors for the main drives, lifting frames and trolleys of gantry and container cranes, to the broad satisfaction of lead-

exposed with the aid of gigantic overburden conveyor bridges, and the removed overburden must often be transported over great distances. VEM motors serve as reliable drives for the conveyor systems. Several motors function as travelling motors to enable the overburden bridge to work its way over the full expanse of the coal seam. Subsequently, the coal itself can be removed, the bucket excavators for which are also powered by VEM motors in high- and low-voltage versions. VEM similarly supplies motors for conveying tasks in mechanical engineering, for example for the gantry cranes used in assembly halls and elsewhere. In such cases, a low weight

climatic conditions, our drives are specially adapted to meet the prevailing demands in every field of application. In the past, it was common to deploy DC motors or three-phase slipring motors. Their benefits are to be seen in their ease of control and the relatively low loads placed on the supply system at start-up and during acceleration. Disadvantageous, on the other hand, are the increased service and maintenance requirements, for which maintenance capacities and corresponding stocks of spares and wearing parts must be kept available. Even so, slipring motors are still ordered as crane drives. In regions whose power supply networks are less stable, and in ca-

loads on the hook, for example. The specific design eliminates maintenance-intensive wearing parts, such as sliprings, which is today not only an argument in favour of modern three-phase drives in the case of new installations. In existing plants, too, the previous conventional solutions are being replaced by converter-fed three-phase cage motors. The VEM product range includes a variety of motor series designed for these purposes.

A new kind of motor

For the future, a new type of motor could well prove interesting for materials handling applications: Synchron-



The former open-cast mine Lichterfeld-Schacksdorf is today a major attraction. Various sound and light installations add to the experience. The conveyor bridge, which is now accessible to visitors, was used in the Brandenburg lignite mine Klettwitz-Nord from 1991 to 1992. Up to its decommissioning in June 1992, it had handled around 27 million m³ of overburden.

day to be found in Asia in Shanghai and Singapore, in Europe in Rotterdam and Antwerp and in Germany in Hamburg, which is at the same time the largest port in Germany. Alongside the handling of oil, chemical products and general cargo, container transshipment is gaining increasingly in importance. Many new container terminals have been opened over the past few years, including also the terminal in Hamburg, one of the nine largest in the world and the second-largest in Europe. Almost nine million containers were handled in 2006. That can only be accomplished with a broad variety of quayside installations, for example cranes, conveyors, auto-

ing manufacturers of crane and hoist systems. The ships are generally unloaded via the container gantry cranes. Subsequently, fully automatic ground-handling vehicles take over the containers and transport them to a storage area, where they are stacked and sorted by way of rail-mounted gantries. VEM has also delivered motors for all these cranes.

Another field of application for VEM drives involves conveyor systems for mining. For several decades now, VEM has regularly supplied motors in high- and low-voltage versions for the belt installations used to transport bulk materials from coal and ore mines. In open-cast mines, the coal seams are

of the crane itself is an important consideration. As a special version, therefore, VEM has developed an aluminium motor capable of meeting such demands with regard to high performance and low weight.

Prerequisites for a first-class choice

VEM motors are used as drives for roller tables in the steel industry, as well as in the food and drinks industry, e.g. in the filling lines of breweries. Regardless of which variables are most critical, whether output, speed, torque, power supply conditions, impact loads, thermal parameters or ambient

ses where the use of a three-phase cage motor and frequency converter is not possible, they are the motors of choice. VEM is one of the few manufacturers still producing this type of motor and supplies customers in Europe, North America, the Middle East and Asia.

The developments in modern power electronics have enabled converter-controlled three-phase cage motors to gain an ever greater share of the market. The convenient control response, comparable to that of DC machines, permits smooth acceleration, braking, lifting and lowering of the travelling, lifting and trolley systems, which in turn helps to avoid the swinging of

ous torque motors (STM). They combine the advantages of three-phase cage motors with those of synchronous motors. As the prices for magnetic materials have stabilised on an economically acceptable level on the world market in recent years, this motor type is enjoying an increasing popularity. The principal benefit for users in plant engineering is the significantly higher torque capability compared to a three-phase cage motor, which enables complex drive trains and gearboxes to be eliminated. The efficiency of the final system is noticeably improved. Development activities are already in progress within the VEM group.

VEM belt drives for copper mine in Chile

Chile is one of the most important economic nations in Latin America, and one of the world's major suppliers of primary natural resources. Around 40% of the known deposits of copper, for example, are to be found in Chile. It is thus not surprising, that copper is the country's key export, accounting for 45.1% of its total exports. Since 2004, Chile has been experiencing a new phase of industrial boom, driven not least by the global commodities market. The planned development of new mining areas is at the same time boosting the demand for conveyor installations.

VEM Sachsenwerk in Dresden has always been a supplier of electric drives to the primary and processing industries, for example for shredders, mills, crushers, excavators, shaft winches and screw conveyors. With its production capacities and ultimate flexibility, it boasts the ideal prerequisites to be able to satisfy the special demands of these machines and systems. VEM is once more able to live up to its reputation as a manufacturer of special machines, with product management geared not to internally defined capa-

bilities, but instead to the precise needs of the markets.

Electric drives sold to Chile must cope with extremely harsh ambient conditions, for example altitudes of 4000 m above sea level combined with temperatures of +40 °C. VEM machines are in service to the full satisfaction of our customers as belt drives for the El Abra copper mine. One special feature here is the fact that each of the 1.6 MW machines incorporates a brake winding. In case of a belt break or any other

disturbance, this ensures that the conveyor belt is brought safely to a standstill.

The drives manufactured for this field, which are today predominantly asynchronous motors with sliprings, cover an output range from 1000 to 5000 kW and are in worldwide use. Sachsenwerk even supplies motors with outputs up to 10 MW for primary industry. They are to be found, for example, as drives for belt conveyors or for mills and crushers.



In Chile, electric drives must prove themselves under extremely harsh ambient conditions.



Photo: Sabine Hartenstein

Brake motors in special design

At VEM, drives can also be tailored precisely to customer specifications. For such special versions, the windings, mechanical features and shaft loads are individually calculated and adapted. It is their ease of modification which guarantees the universal applicability of our motors, and which continually opens up new fields of application in handling and transport solutions.

One conspicuous example is a brake

Jens Reichardt in the assembly hall for special motors

motor comprising a VEM three-phase cage motor and a built-on brake, which is used in elevators, hoists, cranes, winches, conveyors and machine tools. The motors can be supplied in frame sizes from 63 to 355, with outputs between 0.18 and 500 kW. The brakes, which are designed as twin-disc spring-operated brakes, provide their holding torque in the non-energised state. Especially where lifting is to be performed at high speeds and heights, electric cable winches are used. Thurm produces special brake motors for lifting equipment.

EXCAVATION FOR ENERGY GENERATION

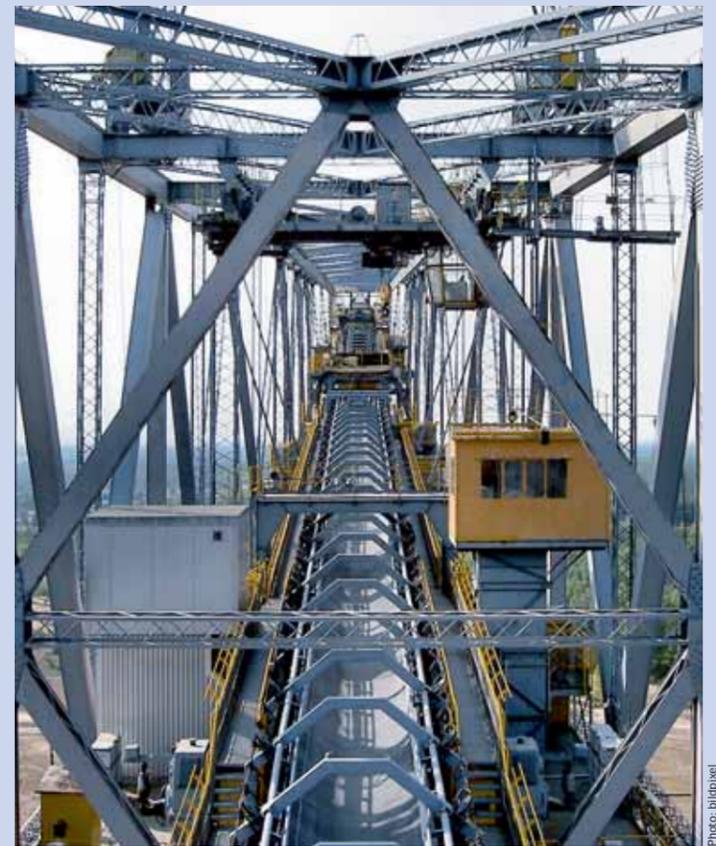
The steel giants of open-cast lignite mining

F60 was the series designation for five conveyor bridges deployed in the open-cast mining areas of Eastern Saxony. They were built in the late 1980s by the predecessor of today's TAKRAF GmbH in Lauchhammer and are equipped with VEM motors of the most varied types. Even today, these steel giants are considered the largest mobile machines in the world.

Three of the F60 bridges are still in use in the coal field. A further F60 is currently being modernised and should be back in service transporting overburden in 2009. The fifth and "youngest" installation stands in Lichterfeld-Schacksdorf, as the central attraction of a visitors' mine.

The conveyor bridges in open-cast lignite mines carry away the overburden covering the coal seams. They can achieve a transport height of 60 metres, which is the origin of the designation F60. With their length of 502 metres, they have often also been described as "horizontal Eiffel Towers" – even though the real tower in Paris measures a mere 327 metres, and that including its aerial installations.

In total, the F60 is up to 80 metres high and 240 metres wide. Ready for operation, it weighs 13,600 tonnes. The two undercarriages run on 760 wheels, of which 380 are driven. The maximum speed of the F60 is 13 m/min, its working speed 9 m/min.



Detail of the F60 overburden conveyor bridge in the German state of Brandenburg

Photo: bitlapixel

TRANSPORT SYSTEMS

VEM supplies traction motors for the low-floor tram Flexity Berlin

In spring 2007, Sachsenwerk received an order from Bombardier Transportation for 48 water-jacket-cooled traction motors of type DKWBZ 1606-4 for its Flexity Berlin project. It is initially planned to install these motors on four trams of the pilot series, which are to undergo a comprehensive programme of trials on the Berlin public transport network from 2008. If the trials are successful, Bombardier has secured an option for delivery of a further 206 trams. A shorter version is designed with eight drives, whereas the full-length version possesses twelve drives. For VEM, this would mean an order volume of in total 2,080 motors.

The traction motors, which deliver a continuous output of 50 kW, are a new development on the basis of proven designs and at the same time re-

present an interesting complement to the lower-output range of drive solutions for modern tram and light-rail systems. With this new version, our customers are now able to choose from seven basic variants for high- and low-floor vehicles covering an output range from 50 to 130 kW.

The compact form of the motors for Berlin will also present a number of new challenges for the manufacturing process. It is thus comforting to know that Sachsenwerk can rely on sister company VEM motors Thurm as a competent partner and specialist for small series. The prototype motor has in the meantime successfully completed type testing, and two further motors are being prepared for their system test in the fourth quarter of 2007. Delivery of the pilot series is similarly scheduled to begin before the end of the year.



Source: Bombardier Transportation GmbH

The four prototype trams – our photo shows original design drawings – are to be supplied in different versions: For unidirectional and bidirectional operation, in a 30-metre version with 8 motors and a 40-metre version with 12 motors.

The photo below shows a motor of type DKWBZ 1606-4 for the 40-metre tram.



Photo: VEM Sachsenwerk GmbH

Generators breezing ahead

WIND POWER

VEM presents its wind-power generators at the Husum fair for the first time

The significance of wind power as a key component of the energy mix was again demonstrated impressively at

the branch's largest international fair, HUSUMwind, which was held in the North German town of Husum in Sep-

tember 2007. With a range of products for the German wind-power industry, VEM is also contributing to the

reduced dependence of industry on fossil fuels and energy imports, to the strengthening of global climate protection and to the creation of new jobs. VEM attended this year's HUSUMwind fair for the first time as an exhibitor and was very satisfied with the response. "We saw the fair as an opportunity to show visitors how we are working together with our partners on further enhancing the energy efficiency of turbine installations, to underline our position as a major supplier of wind-power generators, to stay in touch with our customers and to establish new contacts," says Gerhard Freymuth, managing director at VEM Sachsenwerk. "With 40 % of the order volume, wind-power generators for outputs from 1.5 to 6 MW are one of our main product lines," he continues. "The demand will no doubt continue to grow, especially on the Asian and American markets. But VEM is well-prepared to handle the coming challenges." The two existing fairs HUSUMwind and WindEnergy are in the future to be merged under the name HUSUM Wind Energy. This newly aligned international trade fair for the wind energy branch in Germany is to be held for the first time from 9th to 13th September 2008, and thereafter every two years.



The VEM stand at the world's largest trade fair for wind energy

Photo: Karin Wagner

PEOPLE

New representative on committee K 311

Dr. Frieder Kielmann ended his long-standing membership of the Electrotechnical Commission in DIN and VDE (DKE) on 27th September 2007. He had represented the VEM Group on committee K 311 "Rotating Electrical Machines" since his initial appointment in October 1998. Jens Proske (photo) from Sachsenwerk will be taking over the responsibilities assumed by the VEM Group in the standardisation processes.



Photo: Karin Wagner

ENGINEERING

Notching press revolutionises lamination manufacture

The technical capabilities of a new CNC notching press have brought fundamental changes to the technologies in use at VEM motors in Wernigerode. They permit the company to respond at the highest quality levels to the increased demand for certain types of slipping motors. These motors are characterised by a high starting torque and are the preferred choice as lifting drives for large cranes. One of their special features is the copper-wound rotor, whose individual core plates are usually manufactured in a notching process. This guarantees maximum variability and is furthermore suitable also for relatively small batch sizes. The ultra-modern computer-controlled notching press applies a pressing force of 80 kN. It displays several benefits:

- Highly dynamic drive of the saddle shaft, rendering various type-specific mechanical fixture elements superfluous
- CNC-controlled Y axis for slot base diameter
- Stamping of several slot rows
- Manufacturing of bevelled core stacks
- Different types of intermittence. When slotting the plates of a stack, each individual plate is turned on by a few angular seconds. Quieter running of certain cage motors is also achieved by manufacturing the rotor stacks with arrow-shaped bevelling of the slots. This can only be achieved with a CNC notching press. At the same time, the new machine raises output capacity for the manufacturing of AH 355 motors.



Peter Biernat-Karnapke at the new CNC notching press

Photo: Thomas Geiflich

Keulahütte expands hand moulding



Mixer line with continuous mixer (30 t/h) in the hand moulding shop

Photo: archives Keulahütte

Hand-moulded castings are increasingly in demand among our customers, particularly for machine and plant engineering, but no less also in the field of large-size fittings. To such an extent, in fact, that demand can no longer be satisfied with our existing production capacities. After all, the Keulahütte Krauschwitz foundry is currently turning out 14,000 tonnes of quality castings every year, of which some 11,000 tonnes are machine moulding and 3,000 tonnes for hand-moulded products. With regard to the weights of castings, experience in the workshop indicates a gradual transition from the air-pulse moulding plant to hand moulding at approx. 200 kg.

The management in Keulahütte wasted no time in making the necessary decisions to be able to expand the still limited hand moulding capacities. Planning is now in full swing. The first contracts for improvement of the existing foundry hall and for targeted expansion of the plant installations have already been concluded. The concept provides for the mould production to be accommodated with two continuous mixers (30 t/hour) in a new hall with a floor space of approx. 1,400 m². An adjoining annex building is planned for the tank systems for the che-

mical binders, for the central media supplies and for office and social facilities.

Already in February 2008, a storage system for 150 tonnes of reclaimed sand and 50 tonnes of new quartz sand is to be taken into service to supplement the presently available storage capacity for only 90 tonnes of reclaimed sand. Three 20-tonne cranes with auxiliary lifting facilities and two special rail-borne trolleys with a load capacity of 40 tonnes each take care of the necessary transport processes in the hall and establish a link-up to the existing hand moulding shop. One special challenge is the fact that the conversion work is to be completed while the existing hand moulding shop continues to function at full capacity. The incorporation of an additional and significantly enlarged casting pit provides for greatly enhanced flexibility in the processing of customer orders.

With this expansion of its hand moulding facilities, Keulahütte has deliberately chosen not to follow the trends towards ever heavier castings. A casting weight of three tonnes will remain the limit in future, too. The intention is rather to double the production of castings in the existing weight range from 200 kg.

NEWS

Large machines in service in the Middle East

Economic relations with the countries of the Arab region are developing quite positively. Germany is counted one of the major trading partners for these countries, whose modernisation programmes also include plans for new chemical and industrial plants.

With its high-quality product range, VEM is in an optimum position to satisfy the arising demands. Deliveries of large compressor motors from VEM Sachsenwerk to the Arab region are no longer unusual. This year, for example, eight synchronous compressor drives (photo) with outputs of 7, 7.6, 22.5 and 27.5 MW have already been supplied. Especially with the 27.5 MW machines (200 rpm), each of which weighs 180 tonnes, Sachsenwerk has been able to further strengthen its reputation as a manufacturer of special machines for polyethylene plants.



Photo: Karin Wagner

Between customer and factory

PEOPLE Dieter Baensch: Technical adviser in the Order Centre at VEM motors Thurm

When Dieter Baensch walks through the factory and offices in Thurm, everyone knows and greets him. But that is not surprising, considering he joined the company over 40 years ago. After completing a toolmaking apprenticeship in nearby Glauchau, he found his first job in the tool department in Thurm in 1966. Later, he obtained an engineering degree in mechanical engineering, and in 1975 moved into the technical sales department for motors and geared motors. Nowadays, the department responsible for export business bears the name "Order Centre". Dieter Baensch is one of its longest-standing and most experienced staff members.

His day is spent looking after the needs and wishes of customers from Germany, Europe and overseas - from initial technical advice to the final preparations for contract signing. His reliability and competence is praised from all sides. The companies Pedersen in Denmark and Dutchi in the Netherlands, Sermes in France and Partisani in Italy, for example, have full confidence in Dieter Baensch's ability to search for as long as is necessary to identify the ideal technical solution for a particular problem, and in this way to clear the way for the business deal. "I see myself as a kind of interpreter between customer and factory," he says. "I have to understand the customer's wishes and gather together the necessary information to be able to translate these wishes for our design engineers." A team comprising designers and pro-

duction planners then elaborates a practical solution for proposal to the customer.

Dieter Baensch is proud of the fact that VEM has been able to maintain its good reputation also after 1990, under free market conditions. As a salesman, he is convinced: "Our customers have noticed that we offer quality, flexibility and reliability, and that you never find that simply by chasing the cheapest prices." He is pleased that his department has contributed so much to VEM's mastering the global trend away from standard motors and towards increasingly specialised solutions.

Dieter Baensch has lost track of how often he has flown around the world on his visits to customers and dealers, to national and international trade fairs and to technical conferences. But there is one thing he knows for certain: Without regular further training on the latest developments in electric machines, he would never have been able to perform his work to the satisfaction of the customers - and would also have fallen short of the demands he places on himself. "Just think about variable-speed drives, which were made possible by the advent of electronics in our branch," he says. "Such things are taken for granted today, but just 20 years ago they were practically unknown."

The responsibility felt for his customers is also demonstrated in the way he is gradually preparing for the end of his active working life. Dieter Baensch: "My successor, a young, highly quali-



Photo: Sabine Hartenstein

Dieter Baensch (62) is married and has a daughter and two grandchildren. He finds his best relaxation, he says, working in his garden and on walks in the mountains.

fied engineer, has already joined the department. I have the next 18 months or so to familiarise him with everything.

And when I finally leave, the transition will be absolutely seamless for our customers."

From 3D model to NC data

INVESTMENT A new programming system raises efficiency in shaft manufacture at VEM motors



Photo: Thomas Geffach

Following a successful introductory phase, all shafts for standard and special motors at VEM motors in Wernigerode are now manufactured with the aid of a new programming system. This innovation brings a number of benefits for shaft manufacture. It ensures clean electronic data exchanges, also for the process of machine programming, and ensures that the data remain available permanently and transparently throughout the whole manufacturing process. At the same time, a central database and regular backups provide for maximum data security.

With the new programming system, programs are now created on the ba-

The CNC turning machine manufactures shafts designed on the basis of 3D models (see small illustration).

sis of electronic drawing data, which are supplied via a corresponding interface to the design departments. One prerequisite for introduction of the new technology was that the design process be converted from the existing 2D drawings to modern 3D models. The consistently digital system permits 3D design data to be imported directly. As the tools can also be represented with the new CAD software of the graphical NC program, continuous simulation and collision monitoring is possible. This significantly enhances reliability for the later machining of the parts.

The result of this form of program creation is an individual, machine-oriented NC program. Stored in a central database, it is kept available at all times for on-demand distribution to the machine shop.

KEULAMOBILE A BOON FOR SUCCESSFUL SALES

With the so-called "Keulamobile" (photo), the field sales representatives from Keulahütte Krauschwitz possess an ideal means to present the company's range of products and services to potential customers. On the road since August, it is fitted out with samples of the latest products, in some cases also as cutaway models.

The customers can take a first-hand look at examples of overground hydrants with special coating variants and municipal coats-of-arms integrated into the casting, the current version of the underground hydrant Model 08 with integrated foot seal, slide valves in union-spigot end ver-

sions, and house connection fittings of various types, as well as especially informative cutaway models of shut-off and non-return valves. This visual form of product presentation has already proved its value on visits to water authorities, engineering offices and trade partners. Technical advance sales, especially for hydrants and fittings, are lent active support, and for local presentations, the Keulamobile is a practical alternative to a mobile fair stand. During training seminars, furthermore, explanations of the technical and quality benefits can be followed up with immediate illustrative demonstration.



Photo: Lido Müller

NEWS

Thurm celebrates centenary in 2008

In 2008, VEM motors Thurm will be reviewing a company chronicle stretching back 100 years. It all began when Kurt Stephan registered a business with the authorities of the Zwickau rural district on 20th March 1908. After the 21st birthday of brother Alfred, the newly founded company K. & A. Stephan GmbH Thurm was entered into the official register of limited companies in Glauchau. On various occasions, political and economic developments tested the company's stamina. But from the very beginning, success had been based on the commitment of people who in some cases devoted their whole life to the well-being of the company. Having started out as a small workshop, and along the way a major national enterprise, VEM Elektromotorenwerke Thurm, with numerous branch locations, the company is today an independent member of the VEM Group. The last weekend in May 2008 has been set aside for VEM motors Thurm to celebrate its centenary in fitting style.

Machines on their way to the Ural

There is no end in sight to the boom of the steel industry in the regions along the Ural, the river forming the border between Europe and Asia. In spring 2009, the next large machines from Sachsenwerk in Dresden will be setting off for Asia. VEM is supplying roughing mill motors as twin drives, as well as edger and stand drives for a new hot-strip train at the rolling mill of the Magnitogorsk Metallurgical Combine (MMK). Each of the three twin drives for the roughing stand is designed for an output of 8.5 MW and weighs 500 tonnes. The peak torque delivered by the machines is 4775 kNm.

At the same time, the rolling mill in Magnitogorsk has ordered motors and special drives from VEM motors. These include 1,235 geared roller table motors in both foot- and shaft-mounted versions. A total of 34 special drives in welded-steel versions and with frame sizes from 400 to 560 will be heading eastwards.

The scope of delivery for VEM motors also includes 30 ring-ribbed motors in frame size 400 and over 150 in frame size 355. Overall, the order comprises 1,537 motors and special drives, not counting those to be held as spares.

VEM conference in Linz

Customers and dealers from all over Austria took the opportunity to obtain first-hand information on the development of VEM products during the SMART fair in Linz. VEM motors Austria had issued an invitation for one of a whole series of events presenting information from the 6th VEM Technical Conference, and enabled experts and customers to discuss the development and use of energy-saving motors.

Further important aspects were product information on roller table motors, as well as compact drives and water-cooled machines.

Climate protection through efficient drive technology

EDITORIAL

continued from page 1

TECHNICAL CONFERENCE Branch experts discuss standardisation, market developments and new technologies

Rocketing energy prices and global climate changes are demanding measures to save energy in all spheres of business and life. For manufacturers and users of industrial drive technologies, too, the problems stand at the

focus of attention. Under the motto "Environmentally sound design and planning in drive technology", the VEM Group also devoted its 6th Technical Conference to this highly topical issue. More than 160 experts from

12 countries came to Wernigerode on 4th/5th September 2007 to discuss implementation of the EuP guideline, energy-saving motors and energy-efficient drive solutions.

Over a series of 15 lectures, renowned speakers presented the latest research results and offered proposals for further activities in the fields standardisation, market developments and technology. They reported on standardisation trends, expounded LCC (life-cycle cost) analyses, and related experiences in the implementation of energy-saving measures. Technical information was proffered on copper as a raw material, on the state of the markets in wind energy, shipbuilding and the chemicals industry, and on important developments in system control.

"VEM's aim is above all to offer a platform for exchanges between users, manufacturers and research," explained Jürgen Sander, managing director of VEM motors GmbH. "The conference is not intended to serve as just another training seminar." He was especially pleased to note that younger scientists and technicians had attended to present the results of their work. "We also saw some interesting examples for cooperation between industry and the universities."

With reference to the new EU guidelines, Jürgen Sander gladly emphasised,

also in his capacity as chairman of the CEMEP working group on low-voltage motors, that the manufacturers are interested in cooperation to reduce outputs of CO₂, "but the outcome must be affordable, feasible and practicable." The premium class, in particular, is an area calling for objective discussion. The two-day conference once more proved to be a lively discussion forum for drive experts. Many participants praised the successful blend of top-flight presentations, practice-oriented exchanges and fringe meetings in a casual atmosphere. Jürgen Sander was similarly very satisfied with the results. "We were able to approach the topic from many different angles." The presence of leading scientists and representatives of the most varied branches of industry indicated the widespread reputation which the conference has built up in the meantime. "That naturally strengthens us in our intention to continue the tradition again next year."



Photo: Karin Wagner

Variable-speed pump drives hold considerable energy-saving potential. Several hundred kilowatt-hours can be saved each year compared to other control systems.



"Greater attention must be paid to life-cycle costs"

INTERVIEW Five questions for Heinz Werner Bläß, director of the electrical drives department at the ZVEI

With which expectations did you come to the 6th Technical Conference in Wernigerode?

The technical conferences are well known well beyond just the VEM Group itself as a platform for exchanges of information and experiences between motor experts. I simply wanted to be part of that, to listen and join in the discussion. At the same time, the list of guests and speakers was extremely interesting. Especially with regard to the subject of energy efficiency, there were many important names from the political arena and universities, with whom I was then able to enjoy some very valuable background discussions.

What can the motor manufacturers do, in your opinion, for climate and environment protection?

A great deal. After all, use of EFF1-class energy-saving motors would permit a saving of around 5.5 billion kWh in German industry alone. For the environment, that equates to a saving of 3.4 million tonnes of CO₂ per year. If we also take into account the use of converters for electronic speed control, the enormous savings potential of this system approach adds up to 27.5 billion kWh per year. That represents 16.9 million tonnes of CO₂, or in other terms: the electricity production of eleven 400 MW power stations. Not to mention the fact that industry could reduce its electricity costs by 2.2 billion Euros per year. It is not surprising, therefore, that both the Federal Government and the recent BDI climate report drawn up by McKinsey give most prominent mention to electric drives. The contribution of large machines to energy saving potential, on the other

hand, is relatively small, because the plain laws of physics mean that the greatest potential for saving is to be found in the lower power ranges. Large machines already display greater efficiency simply by way of their design, and motor losses, furthermore, are generally an important evaluation criterion in the selection process, contrary to the situation with smaller standard motors. That is not to say that there is not also room for improvements. But whatever happens, the customers will be paying ever greater attention to efficiency. And the political pressures with regard to environment protection will increase worldwide.

How do you assess the CEMEP initiative asking the EU for support to promote higher degrees of efficiency among general contractors and plant manufacturers?

One of our central political demands, at both national and European level, is naturally to ensure that life-cycle costs, and thus also energy costs, are incorporated into project specifications and become issues in the investment decisions of the end users. After all, the machinery and plant manufacturers will only be willing to use more expensive energy-efficient motors and drives if the end user demands this and is prepared to pay the extra price. We should also not view only new installations - there is considerable potential for savings slumbering in existing inventories. We are here demanding appropriate measures to promote energy-efficiency audits in industry. The Federal Government has taken up these demands, and is well aware that the present voluntary measures are not sufficient.

Parallel to the political discussion, the ZVEI will also be intensifying its public awareness efforts. We are just thinking about how the difficult subject of drives could be transported as a media campaign in a form understandable to the man on the street.



Photo: Karin Wagner

Heinz Werner Bläß from the department of electrical drives at the Central Association of the Electrical and Electronics Industry (ZVEI)

The manufacturers are facing some difficult decisions. In Europe, the share of EFF1 motors is a disappointing 9 per cent. Premium motors, which are already being propagated massively in North America and Australia, are still not even part of the discussion. China is planning to catch up as quickly as possible. In Europe, however, there are still manufacturers who are not even offering EFF1 motors. Only very few already have premium motors in their portfolio, or at least "in the pipeline". Development and the conversion of production from EFF2 to EFF1, and later perhaps to premium,

costs money. The timing is important, to keep the pay-back periods as short as possible. But at the moment, no one can give reliable forecasts on the expected timescales.

What does the new EUP guideline mean for manufacturers of electric motors?

The new EUP guideline could well prove an effective instrument with which to strengthen the presence of energy-saving motors of the EFF1 class on the market. The exciting question which we are discussing both internally and with the responsible bodies of the European Commission is how to achieve this. The so-called voluntary supplier agreements are unable to surmount certain limitations. That leaves statutory provisions or financial incentives. Money, however, is lacking. EU guidelines have the advantage that they are implemented in 27 European countries and thus establish a common starting point. At the same time, they offer state market controls by way of the CE marking. Nevertheless, we must not forget to look also across the Atlantic. The numbers of different regulations and efficiency classes must be kept as small as possible.

What did the Technical Conference in Wernigerode show you with regard to low- and high-voltage machines?

That the potential for agreement in technical questions is greater than that concerning political implementation. But it was certainly very useful for me to have been here. As representative of the motor manufacturers in the ZVEI, I was especially pleased to witness the openness of this platform.

already over the past 10 years, is to safeguard our German locations. This means, on the one hand, responsible moderate raises in personnel costs, to permit sustained improvements in income in conjunction with profit-sharing payments. At the same time, manual activities which can be performed by semi-skilled labour are to be transferred increasingly to our own facilities in Most and Piešťany. Despite the significant increases in wages and the costs of living there, these companies remain affiliated suppliers for Wernigerode, Thurm and Dresden and will help to maintain our competitiveness in the longer term. Investments in Dresden must improve the unsatisfactory "internal logistics" and thus throughput rates. Investments in Most will establish further possibilities for the manufacturing of cost-sensitive components. The workforce in Piešťany is to be brought up to the envisaged numbers. In Krauschwitz, considerable investments are to be made in the growth market "hand moulding". Apart from a few machining centres, Thurm is already equipped for its challenges. In Wernigerode, process organisation and pre-emptive cost-centre management are to be improved, alongside installation of additional die-casting capacities. We are currently cruising at 25,000 feet, speed 800 km/h, perfect weather conditions. The cabin crew is serving refreshments and everyone is enjoying the flight. In the cockpit, however, our long-range radar is showing a few thunderstorms with hail and hefty turbulence directly ahead of us. The pilots are paid to bring the passengers, freight and aircraft safely and punctually to their destination. They are already calculating course changes and alternative airports for landing. Before the passengers finish their coffee, the necessary decisions have already been made in the cockpit.

By the time the balance sheets for 2007 are finalised, the managing directors of the VEM Group, too, will have already made their strategic decisions.

On this forward-looking note, I wish you all a peaceful Advent and Christmas, continued good health and a successful start into the new year.

Yours,
R. von Rothkirch

IMPRINT

Publisher:
VEM-Firmenverbund/VEM Group

Verantwortlich:
Sabine Michel, public relations office
Pirnaer Landstrasse 176
D-01257 Dresden
t +49-(0)351-208-1001
michel@vem-group.com

Contributing editors:
Sabine Hartenstein, t +49-(0)375-427-320
Petra Klingebiel, t +49-(0)35771-54-260
Lutz Schube, t +49-(0)3943-68-3305
Karin Wagner, t +49-(0)351-208-3291
Bernd Waßmus, t +49-(0)3943-68-3169
Kommunikation Schnell GmbH, Dresden:
t +49-(0)351-85367-16

Art:
Kommunikation Schnell GmbH, Dresden

Editorial deadline:
15th October 2007

Print:
Druckerei Vettors GmbH & Co. KG

©2007 Kommunikation Schnell GmbH