



## Training the future generation

Prof. Günther Bühler presents energy-saving Premium Efficiency (IE3) motors from VEM in the power electronics laboratory of the Harz University of Applied Science in Wernigerode. Olga Pechena, Lars-Kristian Feldhaus and Gerald Walluscheck (left to right) are third-year students of engineering management, specialising in the field of automation. VEM supports the training of future specialists with the endowed chair currently held by Prof. Bühler.

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# Impulse

SENSE EXPERIENCE  
EXPERIENCE VISION



## Responsibility for the environment

VEM successfully introduces environmental management system to ISO 14001 in Wernigerode and Zwickau.

To protect and preserve the environment for the present and future generations – VEM has long since given a commitment to this responsibility. As the pioneer within the group, Sachsenwerk already acquired environmental certification in 2006. After 18 months of hard work to elaborate and introduce an environmental management system, VEM motors has now successfully mastered the most important stage of VEM's environmental programme for the Wernigerode and Thurm locations. DQS auditors assessed the corresponding status of the implemented management system and confirmed its conformity with the globally acknowledged rules of the international environmental management standard ISO 14001. With the awarding of this certificate, VEM motors is now able to formulate an official environmental declaration. This declaration will contain a summary of relevant environmental data since 2008, as well as plans for environmental protection measures in the coming years.

VEM considers it an obligation to serve its customers as a reliable partner, offering cutting-edge products to all required schedules. Important aspects in this context are the continued promise of aware and economical re-

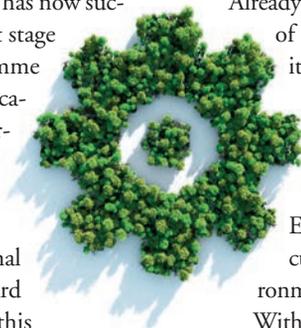
source management, efficient energy and material use, and high quality standards. It remains indispensable to set clear targets, to pursue constant improvement, and above all to encourage motivated and committed employees who are conscious of their responsibilities and translate the objectives into practical reality.

Already in the past, VEM motors was a signatory of the CEMEP Voluntary Agreement, with its aim of promoting the manufacturing and marketing of energy-efficient motors in Europe. A further step in this same direction was the active participation as an endorser of the Motor Challenge Programme of the European Union. These activities have now culminated in the implementation of an environmental management system.

Within the framework of the first compliance monitoring audit in June 2013, it is furthermore planned to extend the system for the VEM motors Thurm location in Zwickau. The close cooperation between the two environmental teams has enabled systematic anchoring of practice-oriented environment protection and industrial safety principles at both locations.

The next project on the table is to establish an energy management system in compliance with ISO 50001.

*Read more on page 10.*



### INHALT

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### TECHNICAL CONFERENCE

## Successful event

“Quo vadis electrical engineering?” was the motto chosen for the 11th Technical Conference of the VEM Group on 25<sup>th</sup> and 26<sup>th</sup> September 2012. More than 260 participants from 18 countries followed the presentations of a total of 25 speakers over the two days of the conference. The topics discussed covered the whole spectrum from science to practical application. One of the core themes was the search for innovative system solutions for energy and drive technologies.

*Read more on pages 2 to 4.*



Wernigerode, 25<sup>th</sup> September 2012:  
Already half an hour before the start of the 11<sup>th</sup> Technical Conference, there was hardly a free seat left in the conference room at the Harzer Kultur- und Kongresshotel.

EDITORIAL

## Dear friends and colleagues,



Do you know how thick a five Euro banknote is? Well, it's approx. 0.1 millimetre. Ten notes would then make a millimetre. Germany's total debts and payment obligations currently amount to around 2,000 billion Euros, or put another way: 2 million million Euros. In figures that would be 2,000,000,000,000 Euros. If we now calcu-

late that 10,000 five Euro notes make a metre, that gives us 50,000 Euros per metre. The pile of banknotes representing our national debt would thus be 2,000,000,000,000 : 50,000 = 40,000,000 metres high: An unbelievable 40,000 kilometre stack of five Euro notes. Laid down, that is enough to stretch once around the whole equator. As we know from school, large parts of the equator run across the Atlantic, Indian and Pacific Oceans. We can only hope that our financial bunglers in Berlin would survive the action in a reasonably dry state, because there is no guarantee that they can tell the difference between land and water either. Or am I perhaps doing them wrong?

On a more serious note, let's look at VEM instead. The management is just completing its planning for 2013. We expect incoming orders to decline by up to 5 per cent. This is already now the case for the VEM motors locations Zwickau and Wernigerode. At Sachsenwerk in Dresden, we reckon with poorer capacity utilisation from July 2013. Keulahütte, on the other hand, will display marginally positive development following the product range expansion, as will VEM transresch.

At our planning meetings, we also discussed measures aimed at general cost reductions across all locations. That necessarily involves systematic capacity reorganisation. At Sachsenwerk, the intensive efforts to improve manufacturing logistics, deadline integrity and quality stability are to continue.

Affecting the whole VEM Group, the introduction of frame size 400 for higher output ranges in Wernigerode will be accompanied by certain production switches between the individual companies. I am much more optimistic regarding developments at Keulahütte in the meantime.

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MEETING PLACE

## 11<sup>th</sup> Technical Conference – Forum for new ideas

The latest trends in technical developments, standards and customer wishes were placed in the spotlight at this traditional international meeting of the electrical engineering branch.

Electric motors account for two-thirds of the energy consumption in industry. Reduced energy consumption and improved motor efficiency are thus ideal goals for efforts addressing climate protection, the sparing use of resources and a new approach to energy management. That is also a succinct summary of the two days of discussion and deliberation in Wernigerode, where more than 260 participants came together for the 11th Technical Conference of the VEM Group on 25<sup>th</sup> and 26<sup>th</sup> September 2012.

Energy efficiency was a recurring topic of the first day of the conference, which was concerned primarily with the low-voltage sector. "Our important aim is here

to establish energy-saving motors of efficiency classes IE2 and IE3 as the market standard for the most varied applications across the whole spectrum of industrial branches," said Jürgen Sander, managing director of VEM motors GmbH.

That motors must actually deliver what stands on the label, and that purchasers of energy-saving motors must be able to rely on a serious market, was a further significant point identified by the European motor manufacturers. "Many countries share our view and are demanding corresponding mechanisms to monitor the market," Jürgen Sander continued. "That will hopefully safeguard the extensive research and development work and the



Packed agenda: Conference participants gave their undivided attention to a total of 25 speakers. The presentations were given in German and English.



STATEMENTS

## What participants had to say

expensive investments for the manufacturing of energy-efficient motors against the cheapening actions of ‘black sheep’ in the industry.”

### Motor/inverter combinations on the advance

The 11<sup>th</sup> Technical Conference certainly lived up to its reputation as a platform for exchanges between manufacturers, researchers and suppliers, not least through the presentation of numerous technical innovations. This included, for example, the use of bearingless motors and interesting solutions to raise the efficiency of electric drives. The latter point is also a topic for drives for medium-voltage applications, and specifically for the increased use of inverter-fed motors. This still holds true in connection with PM motors, as a means to optimise costs and to improve the performance of an overall drive system, said Philippe Thiery from the company Leroy-Somer.

In line with customer expectations, energy efficiency takes pride of place at VEM, from the motor design phase

through to system application. “That all happens parallel to and as the logical continuation of work in the low-voltage sector,” said Dr. Torsten Kuntze, managing director of the VEM locations Dresden and Berlin. The presentation of a starting inverter for high-output synchronous motors attracted particular interest among the conference participants. Developed under the brand name VEMoDRIVE by Sachsenwerk and VEM transresch, this drive system for use in the petrochemical industry comprises a compressor and the aforementioned starting inverter.

Inverters were in fact featured at various points of the agenda. Stefan Fassbinder from the German Copper Institute (DKI), for example, underlined the enormous energy saving potential. He also gave a very positive personal estimation of the conference series. In a sideswipe at the slow-moving bureaucracy behind European standardisation, he suggested with a touch of irony in his voice: “Is the Technical Conference not the perfect platform from which to clear the remaining obstacles?”

“We were able to present our bearingless motor. It is something completely new, needs no additional magnetic bearings, and is thus an alternative to classic magnetic-bearing drives for high-speed applications. Bearingless motors are at the same time simpler and less expensive to manufacture.”

**Gabriel Munteanu,**  
Darmstadt University of Technology



“When it comes to energy efficiency, we could well take up some of the ideas presented at the Technical Conference for small motors for adaptation to medium-voltage applications.”

**Dr. Torsten Kuntze,**  
managing director, VEM Sachsenwerk  
and VEM transresch

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Interpreter Konstanze Plötz provided simultaneous translation.

Frank Steuer, head of the Düsseldorf and Siegen Competence Centres, with Dr. Sascha Bernhardt, Volker Jenneßen and Steffen Giesel from the company Schorch Electric Machines and Drives (photo left, left to right). Prof. Martin Doppelbauer and Jürgen Sander in discussion (photo right, left to right).

Culinary and Caribbean pleasures: Chef Florian Hecek was the man to thank for the delicious catering. Three dancers guaranteed a colourful and lively end to the day. They were even able to persuade a few conference participants to join in.



STATEMENTS

## What participants had to say

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“With its steps towards becoming a system supplier, VEM has chosen a path which is welcomed by customers in the low- and high-voltage sectors. Many customers see not the individual factory locations, but rather the overall brand name VEM and its products. They want to be offered complete solutions from a single supplier.”

**Roland Zänger,**  
head of the Leipzig Competence Centre



“I was pleased that the 11<sup>th</sup> Technical Conference dealt with energy and material efficiency, i.e. with resources. Given that the branch uses enormous quantities of increasingly expensive and scarce materials, I would now like to see the topic of recycling on a future agenda. It would also be interesting to view drives together with gearboxes and shafts. And why are we not yet talking about motors which by design only need to function for five or ten years? For such motors, after all, a long service life is not the solely decisive criterion.”

**Prof. Dr. Wilfried Hofmann,**  
Dresden University of Technology



“The discussions help us to assess the likely trends in technical developments, standards and customer wishes for the coming decade. And this will naturally remain a focus of the Technical Conference in the future.”

**Jürgen Sander,**  
managing director, VEM motors

“After 50 years of relative quiet in electrical engineering, we have seen some positively explosive changes over the past decade. In the field of electromobility, for example, we now have permanent-magnet motors with exceptional output capabilities but the smallest ever dimensions. And industry will no doubt follow up soon with corresponding decisive innovations.”

**Prof. Dr. Martin Doppelbauer,**  
Karlsruhe Institute of Technology



“As electrical engineers, we must assume responsibility for the whole system comprising motor, inverter, machine and power supply connection. If we ignore the framework conditions, then the overall result can never function perfectly. This system responsibility is one answer to the question embedded in the conference motto ‘Quo vadis electrical engineering?’”

**Mario Kirst,**  
VEM Sachsenwerk

“We have heard that, contrary to the current draft, medium-voltage motors will still not be covered by efficiency classifications in the second edition of IEC 60034. Our motors for such applications nevertheless achieve efficiencies of around 97 to 98%. The trend for high-output medium-voltage machines seems to be gearless drives. In some applications, there has been a shift from synchronous to asynchronous motors.”

**Andreas Boeltzig,**  
VEM Sachsenwerk



“Energy efficiency is a key strategy for the future. The development of such motors also enables us to increase manufacturing productivity and reduce the cost of repairs. IE4 motors are especially meaningful for applications with high numbers of operating hours.”

**Prof. Dr. Anibal de Almeida,**  
University of Coimbra

FOR YOUR DIARY

The 12<sup>th</sup> Technical Conference will be taking place on 24<sup>th</sup> and 25<sup>th</sup> September 2013. The conference venue is once more the Harzer Kultur- und Kongresshotel in Wernigerode.



Karin Wagner from the VEM public relations department and Ilona Koch from VEM motors were just two of the many busy helpers, whose hard work in the background contributed decisively to the success of the two-day conference.

COOPERATION

# School project for practice-oriented teaching

The cooperation between VEM Sachsenwerk and the Free Evangelical School (FES) in Dresden is to be extended for at least another two years. An option for further extension until 2016 has also been agreed. The recently signed cooperation agreement is the latest of a series stretching back to the end of 2007.

The two partners hope that this initiative will encourage pupils to consider studies in a technical discipline or a career in

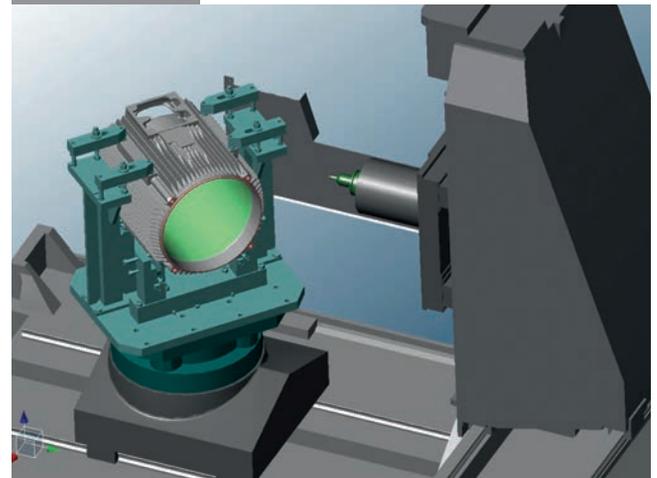
industry. A first success: Former FES pupil Tillmann Schulz began vocational training as an electronics technician at Sachsenwerk at the end of August.

The Sachsenwerk contribution takes the form of project days at the company, for which the in-house training department makes corresponding teaching materials available as a basis for practice-oriented lessons. VEM also provides financial support for the project.



Lukas Stelzer assists Tarek Abaibou (left to right) and further 8th-grade pupils from the Free Evangelical School in Dresden during their project lessons in the Sachsenwerk training workshop.

ENGINEERING



# 3D simulation in production planning

Upgrade for new machining centre simplifies workpiece programming

The new machining centre at VEM motors in Wernigerode has been expanded with a facility for 3D simulation of the workspace. The incorporation of this modern technology will enable more efficient programming of the housings and terminal boxes.

Realistic representation of the workspace, the workpiece clamping and the tools simplifies the programming of new components. Possible problems or programming errors can thus be recognised at an early stage during production planning. The new system is also a valuable aid in connection with feasibility studies, tool design, time calculations and collision avoidance.

Shorter periods for verification of the NC programs permit more effective utilisation of the machine capacities. A further benefit is the reduced risk of down time, which translates into faster throughput rates and greater operational reliability.

EDITORIAL

*continued from page 2*

Custom castings also in highly ductile cast iron for temperatures down to -50 °C, alongside the standard product

range, will bring us further improvement in Krauschwitz. The company and its workforce have held together and have overcome various hurdles. Where competitors have been bought

up or radically restructured, we have remained a reliable constant on the European market, a fact which is rewarded accordingly by our customers. I would like to thank our customers

for this loyalty, and every one of our employees for their commitment and hard work.

Yours, Freiherr von Rothkirch



VEM is currently manufacturing energy-efficient low-voltage motors for the AIDA fleet, and thus for the largest cruise liners on the German market. The motors are to comply without exception with the stipulations of efficiency class IE3.

SHIPBUILDING

## IE3 motors for two new AIDA cruise liners

VEM to supply low-voltage machines with premium energy efficiency for the new class of vessels.

The new vessels which the Rostock-based operator AIDA Cruises has ordered from Mitsubishi Heavy Industries represent a new dimension for the German cruise market. They are currently the largest ships ever built for this market. But it is not only their size which impresses; their many technical features and the clear commitment to ecological operations, in particular, set new standards.

Energy saving plays an important role in all aspects of the ship's design and has naturally influenced the choice of suppliers. That begins with hydrodynamic optimisation of the hull and refers to reduc-

tion of its frictional resistance in the water by way of a principle known as "MALS". The main engines have also been designed as dual-fuel engines.

### Energy efficiency as a success factor

VEM motors has demonstrated its ability to meet this challenge as a competent supplier for the AIDA vessels which are already at sea or else under construction. A further reference for VEM's innovative strength: In June 2012, the company was awarded a contract to supply the full spectrum of low-voltage motors. The task is

now to manufacture all the required motors in the low-voltage range with efficiency class rating IE3 to IEC 60034-30. The motor efficiency is determined in accordance with IEC 60034-2-1.

Despite the fact that the new cruise liners are not to go into service until 2015 and 2016, respectively, the motors for the first vessel must already be made available by the end of 2012.

Thanks to its longstanding commitment to energy efficiency, VEM was able to submit a well-founded and convincing offer. The company's competence for the project at hand was underlined not least by its track record as a signatory of the CEMEP Voluntary Agreement and endorser of the Motor Challenge Programme of the European Union, and since 1st August 2012 through certified implementation of an environmental management system.

WORLDWIDE

## Partner with several locations in the land of the rising sun

VEM motors is expanding its business relationships in the Far East, and the demand for motors for use in shipbuilding and wind power generation has risen noticeably over the past months. Customers appreciate the quality of VEM low-voltage motors, which meet their every requirement in respect of reliability and a long service life even under the harsh conditions of a marine environment.

As a further benefit, VEM customers in the region can in future turn to a local partner with any questions concerning service and motor repairs. The company Daito Engineering is to be integrated into the VEM network as a new sales and service

partner. Daito counts almost 200 employees at several locations across Japan and has already been active in electric machine repairs for many years. This comprehensive experience and an equipment base geared to work on electric machines of all kinds are ideal prerequisites for the future role of a competent VEM service partner.

"For the future, we would like to establish similar cooperation with further international partners. The objective is to achieve a new quality of cooperation and support for our customers, also in the field of service," says Jürgen Sander, managing director responsible for sales and technology at VEM motors.

SHIPBUILDING

## Motors for the 18<sup>th</sup> princess

Sixteen luxury liners already belong to the fleet of Princess Cruises. The maiden voyage of the 17<sup>th</sup> ship, the Royal Princess, is scheduled for 2013.

In the meantime, VEM Sachsenwerk has been able to send further 66-tonne generators for ship number 18 on their way to the Italian shipyard Fincantieri. They left Dresden at the end of August. A third order for yet another vessel has already been received. Two propeller motors with an output of 18 MW each, four on-board generators (2 x 21 kVA and 2 x 18 kVA) and six 2.5 MW thruster motors are to be supplied. The deliveries are planned for the period between May and August 2013.

The propeller motors are the largest machines which Sachsenwerk in Dresden has manufactured for the shipbuilding sector to date.

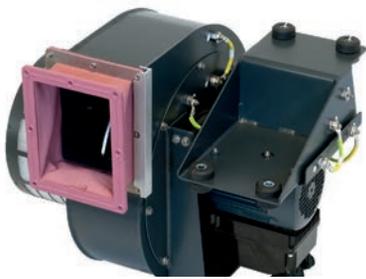


TRANSPORTATION

# Robust, shock-resistant and long-lasting

New compact drive M21...AST BAH for railway applications contributes to comfortable train journeys.

Fast, but at the same time smooth, quiet and with no shakes and bumps – that is what every passenger wishes for a train journey. And not least for that reason, electrical equipment for the railway sector must satisfy particularly high demands. It must be designed to handle significantly more extreme climatic conditions and much greater vibration and shock loads



Radial fans with variable-speed drives for cooling of the traction motors on high-speed trains

than those encountered in other branches. Just a few examples: All components installed on board rolling stock must withstand shocks of up to 5 g without impairment as part of an endurance test to DIN EN 61373. In contrast to standard variable-speed drives, VEM compact drives for railway applications are also designed for operation without performance reductions over a temperature range from -25°C to +50°C. And if ambient temperatures reach +70°C after a longer stop in the summer sun, the compact drive must function reliably under such conditions for 10 minutes when the train moves off. The motors and its control electronics are similarly subject to enormous temperature shocks when the train passes through tunnels. This must all be taken into account when assembling the compact

drive before actual on-board installation. Considerable demands are thus placed on the design and construction of both motors and their built-on inverters. To ensure the required high levels of reliability and availability over a service lifetime of 20 years for rolling stock, the compact drives used are manufactured in accordance with special railway standards, with binding stipulations concerning regular maintenance. The performance parameters, after all, must be guaranteed not only at nominal frequency, but over the whole frequency range.

## New solution found

The Berlin-based company Systemair is a specialist in the field of fan applications for rail vehicles. Fans in axial and radial designs are adapted accordingly to the special demands of railway use. VEM first spoke with Systemair a year ago, in connection with the development of a system for the cooling of traction motors on high-speed trains. The objective was production of a completely new variable-speed drive system. At the same time, the passengers in the new high-speed trains were to be offered more space and greater comfort.

To achieve this, it was necessary to reduce the size of the control cabinets and to relocate the inverters. The solution found was a motor with built-on inverter.

Compact drives for railway applications had not been available in the past. The company AST Leistungselektronik developed the corresponding inverter. “There were a lot of customer requirements to be met before the compact drive was ready for series manufacture, for example rais-

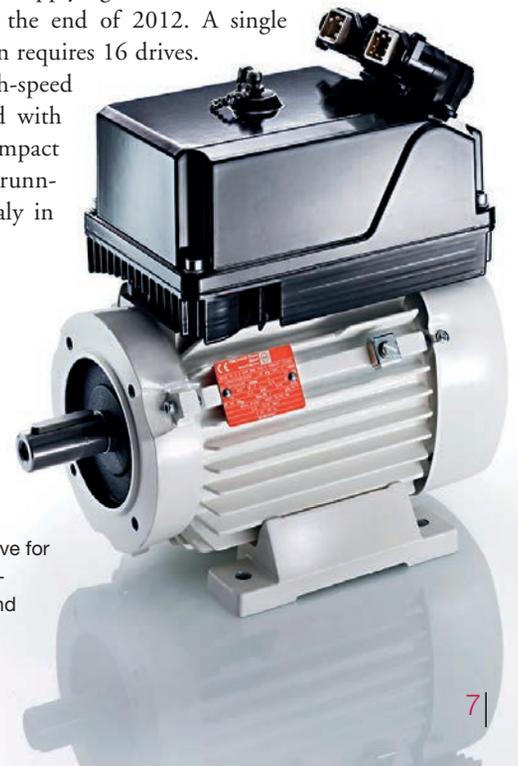
ing of the electric strength of the output relay to 160 V DC and a dual-coded output function for this relay,” says VEM project coordinator Dr. Jörg Tröltzsch. “To still be able to deliver the nominal torque at 55 Hz, we used a special winding.” The positive experience from this project also strengthened his conviction that success-oriented cooperation between all involved partners is the key to the development of such drive systems.

## Successful function test

After six months, the first prototype was ready for testing. Comprehensive thermal and electrical tests were performed on the test stand over a period of three days. Subsequently, VEM motors in Thurm produced a pilot series of 16 compact drives and delivered them to Systemair. The compliance with railway standards was then tested in Berlin with the fan unit assembled, including verification of the shock and vibration load capabilities. The function tests for the compact drives lasted two months and were conducted at increased temperatures and humidity. The results were to the satisfaction of all concerned.

VEM will be supplying 83 of these compact drives by the end of 2012. A single high-speed train requires 16 drives.

The first high-speed trains equipped with the new compact drives will be running through Italy in 2013.



New compact drive for an extended temperature range and for high vibration and shock loads

Visitors to the production areas must be equipped with all these items. They are recommended to bring their own safety shoes, which must comply with class S1P or S3. VEM keeps a small assortment of shoes for unplanned cases only.



NEW YOUNG EMPLOYEES

## Training fairs as key to success

To be able to uphold its high standards in research and production in the future, VEM is constantly on the lookout for qualified young specialists. One regularly promising venue for this search is the annual graduate and company contact fair “ZWIK”, which has been held in Zwickau since 1999. This fair offers a platform for the dialogue between the universities and industry. VEM motors Thurm is one of over 150 companies who will be attending the 14th ZWIK in the Zwickau Stadthalle on 8th No-

vember 2012. With more than 3,000 visitors expected, it has evolved into the most successful fair of its kind in Central Germany.

VEM motors Thurm already documented its interest in the recruitment of suitable young employees with its participation in a training fair organised by the Chamber of Industry and Commerce in October. And with the fair “Future here” in February 2013, the next important date has already been underlined on the company calendar.



VEM is one of the many companies who have discovered the ZWIK fairs as a source of future and qualified engineers. Students can obtain information on practical placements and possible dissertation topics, or even secure a corresponding job.

HEALTH AND SAFETY

## “Electricity can be everywhere, also where least expected”

Stricter regulations relating to industrial health and safety apply throughout the EU. They also affect visitors to the test stand for large machines at Sachsenwerk.

It cannot be denied that there is still scope for improvement when it comes to industrial health and safety in Germany. Greater urgency is imperative in the implementation of all the various EU directives and regulations pertaining to health and safety at work. After all, the companies themselves are liable for the consequences of any shortcomings. And there are new regulations coming into force almost daily. It was against this background that Toralf Kunte was offered his job at VEM Sachsenwerk a year and a half ago. He has studied safety engineering and is responsible for all aspects of health and safety in the factory. “Things have also changed for the visitors to our test stand,” as Toralf Kunte explains. “They must wear safety shoes and are provided with jackets and helmets before they are allowed to enter the production areas.”

Alongside protection for life and health, there are further reasons to pay due attention to the subject of safety. The past few years have seen fundamental changes with regard to accident insurance. As a result, there are many more cases in which a company must itself assume liability for damages. The statutory insurance associations cover the costs for far fewer accidents at work than even just two years ago. “Work accidents today cost the employers on average two-thirds more than 10 years ago,” says Toralf Kunte. “And if a company hopes to win a major tender, then full points in the categories occupational health and safety and environment protection are imperative to stand any chance of prevailing.”

For Toralf Kunte, these circumstances should be food for thought for every employee. To help refresh the corresponding knowledge, he has organised 14 additional seminars and training meetings on special safety-related topics at Sachsenwerk this year alone. Work on the live test stand was just one of them – remembering the wise words: Electricity can be everywhere, also where least expected.



Managing director Radek Valta has been with the company since 1984. He is married and has two children.

VEM INTERNATIONAL

## Fine feeling for the job

New hall and new managing director – busy times at VEM in the Czech Republic

Bright, with generous space and already designed to permit further equipment installations and an expansion of production – that well sums up the company's new hall on the commercial estate of the Czech town Most-Komořany. The employees of VEM Tschechien s.r.o. are also offered significantly better working conditions than just a year ago. The manufacturing of windings primarily for low-voltage motors began in February 2012. "The move to the new hall from our



Miroslava Výborná and Jiří Pechek in the production hall of VEM Tschechien in Most. The Czech facility manufactures primarily windings for low-voltage motors and for certain special high-voltage machines.

small old factory was accomplished over a series of weekends, without interrupting the ongoing production," says managing director Radek Valta proudly. "That was only possible because the employees feel close loyalty to VEM and everyone pulled their weight."

The majority of the employees have been working here since VEM first transferred the manufacturing of stator windings to its Czech partner in 1995. VEM acquired the remaining shares in the Czech company in 2007. In the meantime, the workforce has been increased to around 110 and a programme of continuous investment has followed: Not only production equipment and machines, but also new flooring, lighting and ventilation for the adjoining buildings. Renovation of the social facilities is on the agenda for next year.

Radek Valta: "Our colleagues are glad that we are now a 100 % VEM subsidiary, and appreciate the safe jobs and better working conditions. Everyone is working constantly to ensure absolute deadline reliability and to

further improve the quality of the windings." And it must be said that the complicated windings for the pole-changing and rail traction motors demand both a great deal of manual work and fine feeling for the job.

The new director has himself been with the company and its predecessors from the very beginning. Mechanical fitter, technologist, supervisor and works manager were the steps on his career ladder to date. Since the spring of this year, he is now jointly responsible for the Czech production facility of VEM motors Thurm and VEM Sachsenwerk alongside Dieter Bellstedt. The German colleagues are unanimous that Radek Valta has everything under strict control. The fact that he is not only completing a university correspondence course in environment protection and waste management, but also attending German classes once or twice a week, has earned their special respect. With such partners, it is easy to get things moving. Naturally to the benefit of both sides.

MONUMENT PRESERVATION

## Middle Age bronze meets modern technology

The bells of St. Catherine's in Zwickau are soon to be controlled by motors from VEM

The 62-metre spire of St. Catherine's church in Zwickau is a dominant feature of the town skyline. Reformer Thomas Müntzer was pastor here for a brief period in the early 1520s. One attraction of this valuable church is one of the oldest and most important peals of bells in Saxony. The almost three-tonne bell "Osanna" had been ringing out over the town for 530 years, before it was taken down for the first time for repairs in 2012. It will be returning before the end of the year, however, together with two smaller bells which have been newly cast in the design of the historical originals. The spire itself has also been restored in the meantime, and will in future house an impressive four-bell peal.

Once the project is completed, the bells of St. Catherine's will be controlled automatically. The motors for the four bells were manufactured by VEM motors Thurm. "VEM and Zwickau have been inseparable partners for more than 100 years," says managing director Dieter Bellstedt. "It was thus only natural that we should contribute to the restoration of one of the oldest landmarks of our town."

The next honour for St. Catherine's already lies around the corner: It is soon to receive the newly created European cultural heritage seal from the EU. Germany applied for the seal on behalf of 22 sites of particular historical significance for the Reformation.

St. Catherine's church in Zwickau gained its present appearance in the 15<sup>th</sup> and 16<sup>th</sup> centuries. VEM motors Thurm is providing five special motors with outputs between 0.37 and 0.75 kW for the newly restored peal of bells.



VEM attended the AICHEMA fair in Frankfurt/Main with a representative cross-section of its product range. The exhibits included low-voltage motors for different explosion hazard zones, which were for the first time gathered under the brand name VEMoCHEM.



RESSOURCEN

# Energy efficiency – a key to environment protection

The annual production of IE2 and IE3 motors from VEM motors represents an annual saving of 20,000 tonnes of CO<sub>2</sub>.

As a contribution to environmental protection, VEM is strongly promoting the use of energy-optimised motors and drive systems. These efforts are coordinated with the corresponding OEMs in order to maximise the energy savings.

VEM already adopted a clear position regarding the energy efficiency of its products by joining the “Voluntary Agreement” concluded between CEMEP and the European Union, and through its support for the “EU Motor Challenge Programme”. This process is now being continued with implementation of the Council directive 2009/125/EC “establishing a framework for the setting of ecodesign requirements for energy-related products.” VEM motors is presently switching its production to electric motors satisfying efficiency classes IE2 and IE3.

Energy-saving motors from VEM fit into practically every drive concept and are characterised by their significantly reduced power losses compared to previous standard motors. For many types of the new IE3 series W41R, it has also been possible to pack this increased efficiency into a much smaller housing by using die-cast copper rotors.

Energy-saving motors of the efficiency classes IE2 and IE3 recoup their investment in less than a year. In addition to the specifications contained in standards regarding energy parameters, material-related issues are similarly taken into account, meaning

that all critical and proscribed substances (REACH regulations) have been banished from further developments of our motor series. It is a fundamental goal to minimise environmental impacts and to spare natural resources in all phases of the product life cycle.



In 2011, VEM motors manufactured approx. 43,000 IE2 motors in 50 Hz versions. Depending on the distribution of outputs and pole numbers in any particular year, this equates to an annual saving of approx. 32,100 MWh for an average 3,000 operating hours. Applying a CO<sub>2</sub> factor of 0.62 kg per kWh, the calculated reduction in CO<sub>2</sub> emissions amounts to around 20,000 tonnes per

year. The average service life of a motor is ten years. The total carbon saving over the whole lifetime is thus 200,000 tonnes.

To achieve more transparent accountability for the environmental policies at the individual locations, the VEM companies are in the process of obtaining certification to DIN EN ISO 14001. Following Sachsenwerk in Dresden, VEM motors Wernigerode has now implemented an environmental management system to DIN EN ISO 14001 and successfully completed the certification audits in August (see also page 1).

VEM motors Thurm is expected to finally receive its environmental management certificate during the coming year.

FAIRS

## Fair year 2012

One highlight of the fair year 2012 was the unveiling of VEM's new corporate design. The individual presentations of the company group were characterised by intensive technical discussions and fruitful exchanges with suppliers, customers and partners. In all of our meetings, we received positive feedback on the new style.

The Hannover Fair in April was already a very successful event for VEM. In September, three more important fairs followed in the company diaries: SMM, as the leading fair for representatives of the shipbuilding industry in Hamburg, InnoTrans in Berlin and HUSUM WindEnergy. VEM also expects close contact with the market and interesting encounters from the remaining fairs this year. Events still to come include Energia 2012 in Tampere/Finland and SPS IPC Drives 2012 in Nürnberg/Germany. Developments, trends and implementation of the EU directives on drive motors and systems are topics which VEM will be placing at the focus.

### VEMoCHEM at AICHEMA

The 30<sup>th</sup> AICHEMA, the leading international meeting place for experts and decision-makers in the fields of chemical engineering, environment protection and biotechnology, was held in Frankfurt am Main from 18<sup>th</sup> to 22<sup>nd</sup> June 2012. With almost half of the 3,770 exhibitors coming from abroad, this year's AICHEMA was even more international than ever before.

VEM attended with a representative cross-section of its product range. The showcase exhibits were low-voltage motors for the various explosion hazard zones Ex nA, Ex e, Ex de and Ex tD, which were for the first time gathered under the brand name VEMoCHEM. The transnorm motors in frame size 400 which are planned for 2013 also attracted particular attention.

The fair team established many new contacts and was able to continue its interesting dialogue with numerous customers. One key topic was further development of the Ex motors, and particularly the fast introduction of efficiency class IE3 for all Ex zones. The customers here acknowledged the results achieved by VEM as the first manufacturer able to supply a complete range of products for all energy-saving classes and all Ex zones. Further steps were also taken at the fair in connection with specific projects which are in the pipeline. VEM will be presenting the outcome at the next AICHEMA in Frankfurt from 15<sup>th</sup> to 19<sup>th</sup> June 2015.

The generator for the power station in Wendefurth, below the Rappbodetal Reservoir in the Harz Mountains, in the factory at VEM Sachsenwerk.



Twelve months have passed since Florian Meyer moved from Wernigerode to Munich. "Work, love, life, surroundings – everything is perfect here," he says. "And I am not missing my home town that much, because we have mountains here, too."

#### VEM – THE PEOPLE

## “We have mountains here, too”

Florian Meyer has now been a member of the Munich Competence Centre team for a year.

If you phone the VEM Competence Centre in Munich, you will most likely be speaking with Florian Meyer. He joined the customer support team there about a year ago and is responsible for in-house support. Florian Meyer is proud that the customers soon knew his name, and that they were confident to place their concerns in his hands. "I was immediately welcomed and familiarised with the various processes," he says. "That helped me to quickly cope independently with the tasks in hand."

He still had no idea that the work in a competence centre would be so rewarding during his initial vocational training as an industrial machinist at VEM. But he did already know that he was not going to

spend his whole working life by a machine. In 2008, therefore, he took the initiative and asked to be delegated for advanced training. His chosen goal was qualification as a state-examined technologist for machine engineering, for which he completed a sandwich study course in Hannover and Osnabrück. VEM motors supported these plans with special leave and a tailored training contract. The company also contributed 50% to the course fees.

It is certainly no picnic combining work and study, but Florian Meyer already knew that from his brother's experience. His brother also works for VEM and was actually the first employee to complete such parallel studies with the support of the company. "The whole family is linked with VEM," says Florian Meyer. "My father worked for the company for over 40 years, and I knew from the very beginning that this was also where I wanted to work."

When VEM offered him the job in Munich after successful completion of his studies, Florian Meyer accepted without hesitation. Two weeks later, his mind was made up: This is the right job. He has lived within sight of the Alps ever since.

#### POWER STATIONS

## Hydropower in the Harz mountains

Work on the first of the two generators at the Wendefurth pumped-storage power station is approaching completion. At times, there are nine technicians from VEM Sachsenwerk on site to assemble the enormous generator. Once assembly is completed, the testing for trial operation can begin. The refurbishing of the two turbines is part of a major revision of the whole power station.

"We have been able to fall back on our old design drawings for the manufacturing and assembly of the new generators," says project manager Marcel Markula. "Sachsenwerk already supplied the generators

when the power station was first opened in 1967." Wendefurth serves as a peak-load power station. Markula: "As this type of power station can be started up within just a few minutes and can also be operated flexibly over a wide output range, it is increasingly used to regulate and stabilise the grid in case of threatening overload."

The Wendefurth power station, like a similar facility in Goldisthal in the Thuringian Forest, is operated by energy supplier Vattenfall. VEM also provided machinery for the Goldisthal hydroelectric power station.



The generator during assembly in the turbine hall of the pumped-storage power station in Wendefurth

Andreas Boeltzig, head of the engineering department, was one of the guides for the Long Night of Industry at Sachsenwerk. In the production hall, he explained that most of the large electric machines are unique products tailored to customer wishes.



EVENT

# “Quality-oriented work and customised products”

1<sup>st</sup> Long Night of Industry in Dresden attracts a stream of visitors to Sachsenwerk

Dresden is not only a centre of culture and science, but also an industrial location with great potential. The general public was able to witness this fact for themselves during the “1st Long Night of Industry” in Dresden. VEM Sachsenwerk was one of 19 companies which opened its doors for four hours on the evening of 3<sup>rd</sup> July 2012 – during on-going production.

Participants were able to register for visits to two different companies during the run-up to the meticulously prepared event. The response was a flood of requests for eventually twice the number of available places. That was the satisfied summary of the Dresden Chamber of Industry and Commerce and the City

Administration as project organisers. And it matched the experience gained by the Hamburg-based agency “prima events”, the inventor of such “Long Nights of Industry”, in other German cities since 2008. The most important goals of the event: To provide future specialists and students with information on interesting career and training opportunities, and to establish dialogue with interested local citizens.

## Comments from the visitors

First of all, the visitors were shown a presentation with insights into the profile, the range of products and services, and the history of the VEM location in Dresden. Groups of ten visitors each then took a tour of the factory with a knowledgeable guide. “The presentation was very informative and conveyed a good picture of the company,” said Brit Nowaczyk. “The fact that the company has been in existence for 125 years shows that it is capable of adapting to new situations.” Her impression after the tour: Sachsenwerk is an attractive employer offering a good chance of a permanent job at the end of training.

One of the crowd of interested visitors was Lars Tobeschat, design engineer with a manufacturer of optical sensors near Dresden. He was especially impressed by the dimensions of the large machines. It was a similar technical interest which brought Britt Schmitt to Sachsenwerk. “It’s fantastic that we can see the machines here at such close quarters,” said the former machinist, who now works as a secretary.

Anke Sebastian, assistant to the board of a regional financial institute, even left her baby with her husband so as not to miss



Visitors take a look into the test stand for large machines at Sachsenwerk. Although now the owner of a bookshop, Cornelia Maul (front left) has lost none of her interest in industrial installations.

the tour of the production areas. She was especially interested in the drives for ships and wind turbines, which she had often seen in action on holidays at the Baltic coast. “I now know just how many different branches there are which rely on products from Sachsenwerk,” she added.

One of the oldest visitors was 71-year-old Jost Adam. He lives close by and has followed developments at Sachsenwerk through the local newspaper for many years. “I had always wanted to see the factory from the inside, and this was the ideal opportunity,” he explained. Melanie Karl, on the other hand, has only lived in Dresden for about 18 months. Sachsenwerk was still unknown territory for her to date, but as personnel advisor for a temporary employment agency, she immediately took the chance to get to know one of the biggest local companies.

The motivation for Cornelia Maul, the owner of a successful Dresden bookshop, was quite different. She had worked at Sachsenwerk for 12 years before German unification. “I am glad that VEM has found a niche for its quality-oriented work,” she said. “That also shows that the company has maintained a core of well-trained employees with the necessary qualification to manufacture such demanding customised products.”

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