



Synchronous motor for steel subsidiary

The finishing train at Salzgitter Flachstahl GmbH, where the roughed starting material is milled into hot-rolled strip. The largest steel subsidiary of the Salzgitter Group awarded an order to VEM Sachsenwerk for duplication of a 9,775 kW synchronous motor for the drive of a double roll stand. This motor was a one-off design for VEM and was manufactured according to the old drawings of the original supplier.

CUSTOMER INFORMATION

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NO. 01|12

Impulse

SENSE EXPERIENCE
EXPERIENCE VISION



VEM – Realignment of a traditional brand

On the way to a visionary supplier of complete drive solutions with 125 years of experience.

With the acquisition of transresch Berlin last year, VEM has taken a decisive step along the road to becoming a system supplier, a course which is to be maintained consistently in the future.

One logical consequence of this development is realignment of our traditional brand name. After intensive discussions, realisation of this process began in the group at the beginning of 2012. You are already holding a first result in your hands – our customer magazine “Impulse” with a completely new layout and design. We hope you like it. But there is naturally much more to come in the next days and weeks, for example a new website and new presentations for the Hannover Fair in 2012.

What forms the basis of our new corporate identity? It is estimated that between 25 and 30 million electric machines bearing our label are in use around the world. The cradle of the European electrical engineering industry stands in Dresden, today's headquarters of VEM Holding. It was here, in the 1930s, that the first standard motors were developed, motors without which today's global manufac-

ture would be unthinkable. Priceless experience has been handed down from generation to generation, and today enables highly qualified scientists and engineers to address the future demands to be met by customer-specific drive systems.



That is all inherent to our new perception of the globally established brand name VEM – and the message expressed by the new slogan: “SENSE EXPERIENCE. EXPERIENCE VISIONS”. But experience also means continuity. You can thus continue to

rely on our global sales and service network, on our customer proximity, our dependability as a partner and the reliability of our environment-friendly products. We will continue to offer you every conceivable specification, developed by visionary engineers and brought together under the new brand name VEMoDRIVE. That is also a topic later in this issue of our customer magazine. These measures are to be flanked by the gradual introduction of a refreshed corporate design. Our proven logo, however, will remain our trademark in the future, too. After all, future needs origins...

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PRINT AND DIGITAL

New basic catalogue available

The new catalogue for low-voltage motors for energy efficiency classes IE1, IE2 and IE3 is now also available in printed form. German and English language versions can be requested with immediate effect. To order a copy of the catalogue, please contact the documentation management department at VEM motors GmbH.

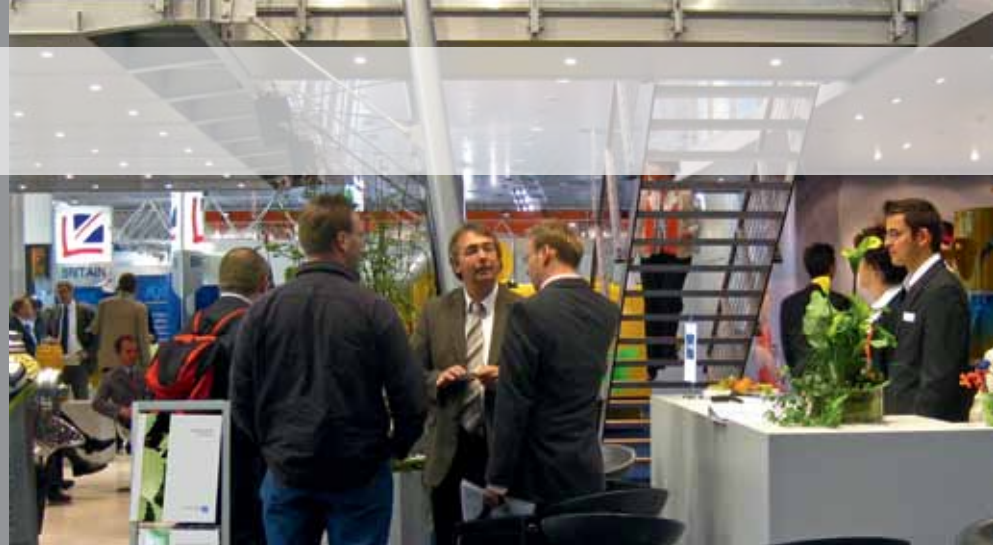
E-mail:

emw-dokumentation@vem-group.com

The electronic version of the catalogue can be downloaded from www.vem-group.com



VEM will be welcoming visitors to a redesigned stand at this year's Hannover Fair. Just wait and see!



EDITORIAL

Dear friends and colleagues,



while the factories in Dresden, Zwickau, Most and Piešťany were again able to record a profit in 2011, Wernigerode had to be satisfied with a break-even result. Transresch recorded a loss in its first short financial year, though that was actually expected for the start-up phase. Keulahütte has unfortunately also returned another

loss. Overall, however, VEM has achieved a distinctly positive bottom line. I thank all the management teams and employees for that. You have safeguarded your own job security.

In 2012, it will be necessary for the factory in Wernigerode, in particular, to enlarge its production structures with a view to greater value creation. The same applies in Zwickau, though Zwickau has already shown a promising result in 2011 even without such restructuring. The sales efforts by Keulahütte have been very successful, and that with regard to both our standard product range and special, drawing-based customer castings. Consequently, the foundry in Krauschwitz has been able to enter 2012 with a comforting order book.

Investments in the factory in Most will further strengthen the reliable supplies of components to Dresden and Zwickau, as is already the case between Piešťany and Wernigerode. The planning for 2012 points to a respectable outcome for the group as a whole. Nevertheless, everything possible must be done to place Wernigerode, transresch in Berlin and Keulahütte back on the road of success.

Investment, good work on the market and a rejuvenated but well-familiarised management team (see also page 5) place us in a good position to tackle the challenges which lie ahead. Customer castings sales for the foundry in Krauschwitz and the product restructuring in Wernigerode and Zwickau, in particular, justify high expectations. On this note, I wish you likewise optimism, job satisfaction and success in your work.

Yours, Freiherr von Rothkirch

WORLD MEETING PLACE

Tradition meets progress

VEM at the HANNOVER FAIR 2012 – new stand at the familiar location

Technology meets progress. As a major exhibitor, VEM lives up to this motto for the HANNOVER FAIR 2012 in two respects. Firstly, this will be the first public appearance of the company after realignment of our traditional brand name (see also page 1). This brand name epitomises 125 years of experience in electrical engineering, and supports today's transition to a supplier of complete drive systems. Tradition thus goes hand in hand with progress. At the same time, VEM will be informing its visitors on the latest trends and solutions regarding energy efficiency and the VEMoDRIVE drive systems. A focus will be placed on drive solutions incorporating energy-efficient motors.

Intelligent energy automation, modern energy transmission and use of the latest electrical components hold the potential to reduce energy consumption in industry by 30 per cent. Variable-speed drives are the key to these savings. Experts have calculated that the use of intelligent motor control systems would save 1.7 billion kWh of electricity worldwide. That corresponds to the annual output of 290 nu-

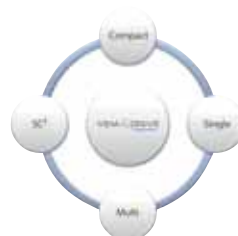
clear power station blocks. With products and complete solutions for drive technologies, VEM would like to help shape a sustainable ecological future. Visit us to learn more about energy-efficient IE2 and IE3 motors and complete solutions for the chemical industry, for steel and rolling mills, and for general plant and machine engineering.

You are warmly invited to a panel discussion on our fair stand at 11.00 a.m. on 25th April 2012. The subject for the discussion: "Experience with the introduction of Commission Regulation (EC) 640/2009 – Market developments and future prospects".

Contact details and further information can be found on our website at www.vem-group.com.

VEM FAIR STAND

Visit us at the flagship fair Industrial Automation from 23rd to 27th April 2012 in Hall 14, Stand H 10.



System solutions with the brand in their name

VEM manufactures and supplies variable-speed drive systems under the brand name VEMoDRIVE. These systems comprise motors, frequency controllers/converters and transformers for an output range from 0.06 kW to 28 MW – for both low and medium voltages. The VEMoDRIVE concept marries robust VEM motors with drive components from other leading manufacturers. This guarantees maximum flexibility when addressing drive and automation tasks, whether for new plant or for modernisation projects. The possibilities range from compact single drives to complex multiple-motor drive systems, including all necessary project design services.

CHEMICAL INDUSTRY

Pioneer in energy efficiency

VEM offers complete motor series for energy-saving IE2 drives with protection rating "Ex nA II".



The efficiency classifications of squirrel-cage motors (IE codes) have been governed by DIN EN 60034-30 since August 2009. The standard also makes provisions for the use of IE codes to label motors designed for use in explosive atmospheres. For the past two years, therefore, design engineers at VEM motors have been working on revision

of the existing energy-saving motors for explosion-protected applications with a view to obtaining IE2 and IE3 classifications in the future. That refers both to motors for the zones 2, 21 and 22, and to future manufacturing of a IE2 and IE3 series with protection rating "e" (increased safety).

VEM motors is today able to supply complete series of IE2 motors with protection ratings "Ex nA II", "d" (flameproof) (here already complete series for both IE2 and IE3) and "tD A21/tD A22" (enclosure protection). When further IE3 standard motors enter production, these types will also become immediately available with the above protection ratings.

Good progress has been made in the meantime with Ex "e" motors. The necessary EC specimen test certificates have already been obtained for most 2- and 4-pole versions and some 6-pole 50 Hz versions for the IE2 series. The first types have also been certified as IE3 motors. This process will probably be completed by mid-2013.

There is currently no statutory obligation to attach IE labels to explosion-protected motors in accordance with Commission Regulation (EC) 640/2009. Nevertheless, there is already strong demand for corresponding motors, above all from customers in the chemical industry. The use of energy-efficient Ex-rated motors has also been promoted by the VIK recommendation of March 2011. This paper proposes that Ex nA and flameproof motors should satisfy the requirements of energy efficiency class IE2. Motors with protection rating "e" (increased safety) should be manufactured for at least energy efficiency class IE1.

ENERGY EFFICIENCY

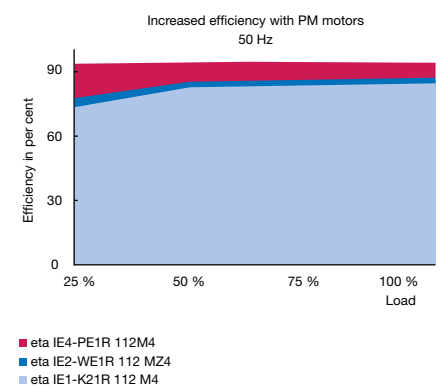
Noticeably reduced losses with PM motors

Convincing benefits for replacement of standard asynchronous motors

One of the energy-efficient solutions which VEM will also be presenting at the Hannover Fair is the replacement of variable-speed standard asynchronous motors with permanent magnet synchronous motors. This is expedient, for example, in the case of fans and pumps. Such drives are often designed with over-generous safety reserves, with the result that the drive is later operated at far below the nominal working point.

To give a concrete example: Two 4 kW pumps with asynchronous motors circulate water in the spray cabin for the paint mist extraction system at the VEM factory in Zwickau. The diagram shows the effects which can be achieved through the substitution of permanent-magnet synchronous motors. In partial-load operation, in particular, the arising losses are reduced by up to 70 per cent with PM motors.

Assuming 75% utilisation of the 4 kW motors in two-shift operation and 250 working days per year, a PM solution would result in energy savings of 1,640 kWh



after replacement of an IE1 motor or 1,040 kWh after replacement of an IE2 motor. This corresponds to €328 (IE1) or €208 (IE2) per replaced motor, based on an electricity price of €0.20 per kWh. These cost savings are a convincing argument for the replacement of variable-speed standard asynchronous motors with permanent magnet synchronous motors and were an important factor in the decision to implement this solution for the newly planned paint mist extraction system in Zwickau.



Marcus Moll in the Zwickau paint-spraying plant. The newly planned system incorporates permanent-magnet synchronous motors.



Well packed for shipping to the cruise fleet – VEM motors from Sachsenwerk on their way to Italy.

SHIPBUILDING

On the way to a princess

This VEM motor from Sachsenwerk (photo top) is one of the drives ordered by the Italian shipyard Fincantieri. The VEM factory in Dresden is supplying thruster motors, propulsion units and diesel generators for the cruise liner fleet of Princess Cruises on behalf of system supplier SAM Electronics GmbH.

Princess Cruises belongs to the “World’s Leading Cruise Lines”, the largest cruise liner group in the world.

LOW VOLTAGE

New service partners in Abu Dhabi and India

VEM has expanded its global service network with new partners for the Middle East and India. In Abu Dhabi (photo), the company WESCO will be handling service activities for VEM in future. In India, the DOL Group has been engaged to look after low-voltage motors. Both service partners possess longstanding experience and all the technical know-how required to perform repairs and maintenance for electric machines. Users in the two regions thus gain a local contact offering direct and immediate assistance.

Through further development of its service network, VEM is able to guarantee customers comprehensive support for the most varied projects, for example in wind energy or the chemical and steel industries. The offers of support cover the whole process from project planning through to operation of the finished installations.



ENERGY EFFICIENCY

Market reactions and the road ahead

Minimum efficiency levels to EN 60034-30 for asynchronous motors in the EU

Since Commission Regulation (EC) 640/2009 came into effect on 16th June 2011, it has only been permissible to market two-, four- and six-pole motors for the output range from 0.75 to 375 kW if they meet at least the requirements of efficiency class IE2. Such motors represent the basic product range from VEM motors and are also available from stock. Their share of sales increased from 8% to around 35% in 2011.

VEM motors manufactured approx. 43,000 IE2 motors in 50 Hz versions last year. Taking into account the distribution of outputs and pole counts, that corresponds to a power saving of 32,100 MWh, assuming an average annual operating time of 3,000 hours. Taking a calculated CO₂ factor of 0.62 kg per kWh, this means that around 20,000 tonnes of CO₂ can be saved each year. IE3 motors are already available in many frame sizes for the medium output range from 4 kW. From October 2012, this series will also be complete. IE1 motors and motors without a specific efficiency rating, which are not covered by EC Regulation 640/2009 but still comply with IEC/EN 60034-30, are becoming more and more of an exception.

Still not the end of the road

It is already foreseeable that the developments with regard to minimum efficiency will not halt when stage 3 of the EU MEPS programme becomes effective on 1st January 2017. The revision of IEC 60034-30 is expected to extend the applicable output range up to 800 kW

and down to 0.12 kW. Limit values for an efficiency class IE4 are to be defined, and there will no doubt be a look ahead to IE5. Modification of the operating temperature range to -20 to +60 °C is a topic under discussion, as is broadening of the efficiency classifications to include 8-pole motors and motors operated on a frequency converter.

Greater freedoms for plant engineering

The question which remains is: Up to which stage and for which applications does the increased material input – relative to the achieved efficiency – still make economic and ecological sense? Should we not perhaps turn to a more process-oriented evaluation, paying greater attention to the actual motor operating times, rather than simply pursuing blanket replacement of modern motors with “even better” energy-saving motors. Process-specific converter control for a modern IE2 motor is often more effective than a simple switch to an IE3 or IE4 motor. The plant engineering branch needs to be given greater freedoms. The difficulties are illustrated by the following fact: According to Community Regulation (EC) 640/2009, it is to be permissible to use an IE2 motor in conjunction with a frequency converter in place of a more expensive IE3 motor when the latter become mandatory from 2015. It is still undecided, however, who is to be assigned responsibility for the verification of such converter-fed applications. This is a point which demands a fast, meaningful and practicable statement from the political side.



HANDING OVER

New management generation at VEM

VEM Sachsenwerk in Dresden is proud to present two new managing directors. After 15 years as managing director responsible for sales and production, Gerhard Freymuth (63) will be handing the management baton to former works manager and managing director of transresch, Dr. Torsten Kuntze (47), with effect from 1st April 2012. Gerhard Freymuth will nevertheless continue to serve the company with his vast knowledge, experience and expertise.

At the same time, Falk Lehmann (37), managing director of VEM Holding, will be assuming additional responsibility as commercial director for the VEM locations Dresden, Wernigerode and Zwickau, as well as for Keulahütte in Krauschwitz. His new remit covers also the commercial side of VEM's service organisation. The current commercial director, Dr. Dietmar Puschkeit (63), remains spokesman for the board of VEM Holding and has furthermore been appointed deputy to the VEM executive manager. All future duties in connection with direct business operations are thus placed in the hands of the new management team. Michael Gruner and Dirk Weidemann are being groomed as successors to Dieter Bellstedt and Jür-



New responsibility: Dr. Torsten Kuntze and Falk Lehmann (left to right)

gen Sander. When the time comes, Jürgen Sander will likewise remain active as a representative for VEM.

The passing of responsibility to the next generation was not a sudden decision, having been carefully prepared over a long period by the VEM executive manager, Freiherr von Rothkirch. This considered approach is characteristic of the management continuity practised consistently since privatisation of the company in 1997, and guarantees a basis for reliable planning on the part of customers, employees and shareholders.

Ten years of positive development are confirmation of this philosophy. The two newly appointed managing directors will further develop the successful strategy, paying particular attention to the expansion of system business and to customer-tailored special solutions.

11th TECHNICAL CONFERENCE11th TECHNICAL CONFERENCE

Quo vadis electrical engineering?

That is the question set to occupy this year's Technical Conference in Wernigerode. The discussions are to explore the paths to system solutions in power and drive technologies.

Listening, discussing, questioning and developing ideas – the annual VEM Technical Conference (photo above) bridges the gap between research and practical applications. The focus of the 2012 agenda again rests above all on energy-efficient and environment-friendly solutions. The benchmarks for low-voltage motors are currently IE2 and IE3. Against this background, one important objective for the Technical Conference is to identify the trends shaping future standards. The realignment of VEM as a supplier of system solutions will similarly play a significant role.

Those wishing to attend should mark the dates 25th/26th September 2012 in their diary and be sure to register for the conference in good time.

Move for Dirk Weidemann

Dirk Weidemann (50) has taken on a new function with effect from 1st January 2012. He is now head of sales for Germany, Austria and

Switzerland at VEM motors. This has also entailed a move from Dresden to Wernigerode. His core duties include coordination and strengthen-

ing of the German-speaking sales region. The development of system business is another important aspect. That applies above all to the manufacturing and marketing of VEMoDRIVE drive systems with shaft heights from 280 mm for low-voltage applications.



Detailed information on the conference agenda can be found at our website.



The combined heat and power plant Simmering 3 in Vienna is the largest power plant in Austria.

CONTROL ELECTRONICS

Second life for converter cascades

VEM modernises 12 MW drives for the boiler feed pumps of a Vienna power plant

To guarantee continued reliable operation, Vienna public utility company Wien Energie GmbH decided to modernise its Simmering 3 power plant in the Austrian capital (photo above). The contract for this project was awarded to VEM transresch, and addresses specifically control of the subsynchronous converter cascades regulating the speed of the boiler feed pumps.

Factors which clinched the deal were the technical expertise of the VEM specialists in Berlin, alongside the company's long-standing experience with drive solutions

based on subsynchronous cascades. With the aid of modern simulation systems, VEM transresch rose to the challenge and mastered the special SCC configuration at the Simmering plant with its 12-pulse converters on the motor and grid sides.

Innovative concepts are combined with the latest technologies in data and control electronics to ensure that every SCC solution represents the absolute state of the art. VEM transresch supplies its sophisticated drive systems for the most demanding control tasks to customers from the Arctic Ocean to the Arabian peninsula.

TRANSRESCH

Full steam ahead under a new flag

Name change symbolises the win-win situation for the VEM locations Dresden and Berlin

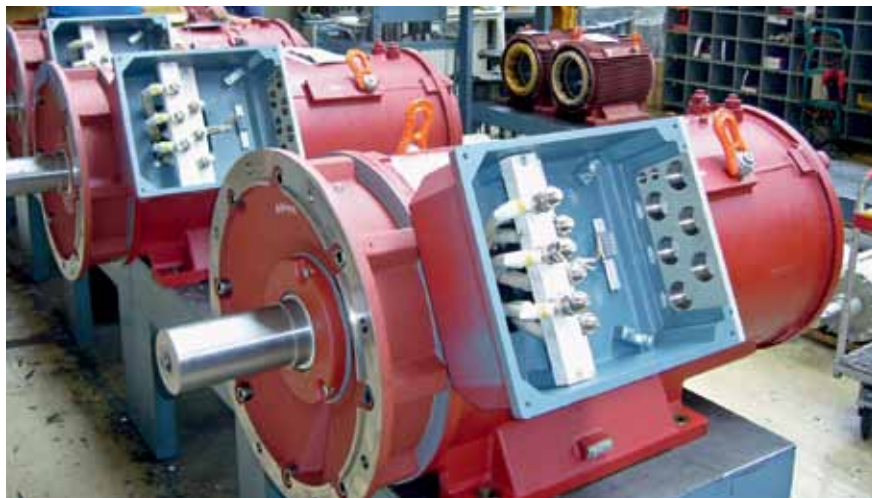
The Berlin-based supplier of tailored automation and drive solutions transresch was integrated into the VEM Holding as a new subsidiary in 2011. A change of name followed in January 2012: transresch Antriebssysteme Berlin GmbH has become VEM transresch GmbH.

This constellation has enabled VEM to position itself as a globally active system supplier for complete electric drives. With the know-how contributed by transresch, the company portfolio now offers not only high-performance motors, but increasingly also user-specific solutions for the most demanding drive tasks.

LOW VOLTAGE

New generation of water-cooled motors

Further frame sizes with outputs up to 560 kW now available as IE2 and IE3 motors.



The development of a new generation of water-cooled motors enables VEM to cater to market demands for high-output motors with compact installation dimensions. The existing K21B/K23B series of grey-cast motors has now been expanded to include frame sizes 315 and 355 as welded-steel constructions. They are available in IE2 and IE3 versions.

The new water-cooled motors are characterised by their robust grey-cast or welded-steel design and very good energy-efficiency parameters. They are used above all in mechanical engineering for injection moulding machines, extruders, hydraulic units, printing presses, paper machines and mining equipment.

Final assembly of 400 kW water-cooled motors

Lake Banyoles near the town of the same name in Catalonia/Spain. The VEM sales partner for Spain, Cosgra S. A., has its offices here.



INTERVIEW

“Our customers are free to expect the impossible”

Managing director Dr. Torsten Kuntze on the large orders and projects which ensure full order books for VEM in Dresden.

Dr. Kuntze, what is the first thing which comes to mind when you see luxury cruise liners such as those of the AIDA fleet?

I naturally think first of all of the generators which drive these floating luxury hotels and supply them with electricity. Sachsenwerk delivers power generating systems for the AIDA fleet, and so I know how reliable such large machines are. That is quite a comforting thought for me as a potential cruise passenger.

How important are these deliveries for Sachsenwerk?

They are major orders which more than compensate the presently somewhat sluggish business with wind power generators. We supplied around 900 such generators for renewable energy sources in 2011. The figure for this year will probably lie between 300 and 400.

Which output classes do these machines serve?

We have left the league of 2.5 MW generators behind us and are currently specialised on generators with outputs between 3.5 and 6.5 MW, which is the output range typical for the big offshore wind farms. The energy concept of the German government envisages an offshore wind capacity of 10,000 MW by 2020 and up to 25,000 MW by 2030. But of course we also supply smaller machines for many other branches. I would here like to mention one major order from the public transport sector, namely equipment for the trams serving the Canadian city of Toronto.



A dependable statement, conveyed with a portion of humour: With this sticker for the HANNOVER FAIR, VEM emphasises its ability to satisfy even very special customer wishes.

On the subject of specialisation: What does that mean for Sachsenwerk?

We are on our way to becoming a system supplier for complete drive solutions. With our highly advanced engineering know-how, we can occupy the niche between manufacturers from the Far East and the branch giants for whom many special orders and small series are simply too small. VEM is flexible enough and correspondingly equipped to satisfy even very specific customer wishes. You could say: Our customers are free to expect the impossible.

Where do you hope to stand at the end of the year?

We are targeting significant increases compared to 2011 and are calculating for an annual turnover of at least €120 million. And by the way: To achieve this, we are also creating 15 to 20 new jobs.

WORLDWIDE

Strong partner on the Iberian peninsula

Cosgra S. A. earns reputation as a successful distributor for VEM motors in Spain.

The company Cosgra S. A. was founded more than 30 years ago. From the very beginning, it concentrated on supplies of electrical and mechanical drive components to partners in various fields of industry.

The company possesses 16,000 m² of warehouse space. A wide range of different motor types can thus be held in stock and adapted to individual customer needs at short notice. The combination of a comprehensive product portfolio, immediate deliveries and customer-oriented service has established the company as one of the leading motor suppliers in Spain. Fast response, broad know-how in the branch and longstanding experience with drive technologies are furthermore attributes which have built up Cosgra's reputation as a reliable local partner for VEM.

An experienced team of engineers and technicians from the fields of electrical and mechanical engineering and power electronics has been offering its skilled services for solution of the most diverse drive tasks for Spanish customers for more than three decades.

Working hard for hydro power

Modernisation continues at the Wendefurth pumped-storage power plant in Saxony-Anhalt/Germany. The second 278-tonne generator is also being treated to a thorough makeover. Responsibility for this project was assigned to VEM Sachsenwerk in Dresden.

A supplementary order from autumn 2011 now covers complete renewal of the stator and rewinding of the poles. The 50 MVA hydro power generator, which is designed for the 10.5 kV voltage range, is to go back into service in spring 2014.



The premises of VEM Slovakia in Piešťany

LOW VOLTAGE

Fit for roll mill projects

Customer proximity is not just a phrase for VEM. Proof of that is provided by a number of recent projects in the iron and steel industry, for example broad strip mills for Mittal Steel in Poland and Jindal in India, and a heavy-plate mill for MMK Plate Mill in Russia.

The foundation stone for this development was laid some years ago at the Competence Centre in Düsseldorf, where VEM set up a central department to devote attention specifically to the wishes of customers in this field. VEM is thus increasingly in a position to act as a syndicate partner of global plant engineering enterprises, rather than a mere supplier. That entails also a corresponding share in the project planning work for current and future large-scale projects.

PIEŠŤANY

15 years VEM Slovakia

Preparations for the manufacturing of components for special motors

VEM Slovakia celebrated the 15th anniversary of its founding in November 2011. The subsidiary on the edge of the Slovakian spa town Piešťany has been a member of the VEM family since 1996. It stands on the site of the former “TESLA” works, a state combine of electronics manufacturers set up in Czechoslovakia in 1946.

180 highly motivated employees

VEM Slovakia is certified to ISO 9001 and produces windings for VEM motors in Wernigerode. The facto-

ry in Piešťany is furthermore responsible for supplies of insulation, cables and terminal leads. A daily lorry shuttle spans the distance of 850 km to the parent company in Wernigerode. Production lies in the hands of 180 highly motivated employees, all of whom were trained within the company. The production space of 6,000 square metres incorporates also a social building with its own canteen.

The latest project planned by VEM Slovakia involves the manufacturing of components for special motors. A total of around €2 million has been invested in the location to date.

PERSONNEL

Change at the helm in Piešťany

Almost 15 years in charge at VEM Slovakia and a total of 46 busy years with electric motor manufacturer VEM – just two figures from the long and fruitful career of Rudolf Beutner (63, photo). The works manager at the VEM location Piešťany celebrated his well-earned retirement at the end of 2011.

Freiherr von Rothkirch thanked him for his outstanding commitment, perseverance and the principled approach with which Rudolf Beutner has developed the Slovakian subsidiary over the years. His management style was performance-oriented, but never neglected the human aspect.

Rudolf Beutner was visibly moved and at the same time confident that his successor would continue his work in the accustomed vein. Norbert Meyer has acted as head of electrical production since November. He has worked in Piešťany from the start, having joined VEM in 1970.



Rudolf Beutner (centre) with his colleagues from VEM motors

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