



Compact drives
Motors with frequency converters gaining popularity

PAGE 2



Roller mills
VEM offers a full range of drives

PAGE 5



Rationalisation
Sachsenwerk reacts even more flexibly to customer wishes

PAGE 6

New dimensions in epoxy-resin powder coating

INNOVATION Fluidised-bed coating plant permits greater flexibility in corrosion protection for cast parts

Keulahütte. Castings produced at Keulahütte in Krauschwitz can now be treated with a new highly effective corrosion protection technology, enabling further substitution of the previous bitumen-coated or cemented fittings. The core of this technology is a recently commissioned fluidised-bed powder coating plant. Complementing our existing coating facilities, this robot-assisted plant provides for flexible coating of all the piping parts and fittings manufactured at the company. It is thus also possible to supply tailored solutions to satisfy specific customer wishes. Furthermore, the customer is now offered integrally coated fittings and hydrants whose corrosion protection properties are at least comparable to those of enamelled products.

Where the previous spray plant, for technological reasons, required comparable fittings to be coated manually, the new automatic sequence permits the coating time to be reduced to on average 75 seconds. But this is not the only benefit of the new plant: It brings also a high degree of automation for the coating process, extremely constant coating thicknesses between 300 and 400 µm, and more efficient energy utilisation. As neither



Robot coating of slide valve housings

solvents nor bonding agents are necessary, the process is at the same time very kind to the environment. The previous spray plant nevertheless remains available to handle large parts, deviating colour wishes and duplex coating processes.

Successful restructuring

The commissioning of the fluidised-bed coating plant represents the final

stage of a comprehensive restructuring of the machining workshops. With a new building for the finished parts stores, the installation of a horizontal machining centre and relocation of the fitting and hydrant assembly section, the past two years have witnessed considerable investments aimed at concentration of the department's processes. The whole plant for the epoxy-resin coating of cast parts is now accommodated in a hall com-

plex directly alongside the mechanical workshops.

The restructuring has at the same time achieved complete technical and territorial separation of the foundry processes from final machining and dispatch, providing for a streamlining of logistics processes. Following the final cleaning stage, the casting is now transferred centrally to the finishing workshops.

Robot-assisted technology

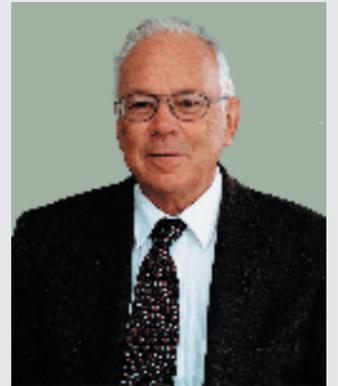
The fluidised-bed coating plant operates with robot assistance. After blasting, the cast parts are aligned and placed on a continuous conveyor. Their sizes and configuration are reported to the system. Parts up to a cast weight of 120 kg are subsequently passed through a continuous furnace, where they are heated by convection to temperatures of 200 – 210°C. A robot picks them up and dips them into a bed of fluidised epoxy-resin powder. The heat brought by the cast parts causes the powder to bond to their surface with a high layer thickness. The high heat capacity hardens this layer completely and renders a

Continued on page 3

EDITORIAL

Dear readers,

By the time you hold this issue of Impulse in your hands, the year 2005 will be fast approaching its close. It will still be too early for final analyses, but I can already confirm that it has been a successful year for the VEM Group. Contrary to the trends in Germany, we are



continuing to grow steadily. Contrary to the trends in Germany, our workforce has remained constant. And contrary to the trends, our production is based in this country, and that will remain so in the future. Not even the framework conditions imposed upon us by politics are going to change our minds. As an entrepreneur, I stand for reliable relationships to both staff and customers, I stand for resolution and fair partnerships. I expect this also of the political decision-makers in our country. The standard by which we will be assessing the new government is thus correspondingly high.

The future yardstick for the VEM Group will be equally demanding, because successful development necessarily leads to higher self-imposed standards. Above-average order levels, for example in the traffic engineering segment, will be setting our staff new challenges with regard to schedule reliability and quality. But with their commitment and diligence – that I am sure – they will continue to satisfy all the demands placed on them. After all, it has always been this reliability, high quality and the performance standards of our products which have been so appreciated by our customers. We are now all sparing no effort to ensure that this remains the case in the future.

On this note, I wish you already in advance a successful and happy year 2006.

Regards, Dr. A. Merckle

VDE founds working group for electrical machines and drives

VEM ACTIVE VEM Group participation in various national and international organisations

VEM Group. The Dresden regional group of the Industry Association of Electrical Engineering, Electronics and Information Technology (VDE), as executive representative of these key technologies, has founded a new working group whose most important tasks include exchanges of experience regarding worldwide development trends in the drives sector, the promotion of scientific cooperation and support for the companies and staff involved in this process. In this connection, the VDE asked the participation of companies which have been active in the development and manufacturing of electrical machines and drives in Saxony for many years.

Dipl.-Ing. Michael Gruner from VEM motors Thurm and Dipl.-Ing. Jens Proske from VEM Sachsenwerk were both present at the founding meeting. Prof. Dr.-Ing. Heinz-Dieter Eberhardt was elected chairman of the working group, with Jens Proske as his deputy.

Front-line commitment

The cooperation and involvement of the VEM Group, with its special competence, resources and expert knowledge, is also especially welcomed by national and international organisations and associations.

A few examples are:

CEMEP: Within the European Committee of Manufacturers of Electrical Machines and Power Electronics (CEMEP), the managing director of VEM motors, Jürgen Sander, is president of the working group "Low-Voltage AC Motors" of the European motor manufacturers.



VDMA: The Association of German Machinery and



Plant Manufacturers (VDMA) maintains the broadest branch networks in Europe for its member companies from the capital goods industry. The managing director of VEM Sachsenwerk GmbH, Gerhard Freymuth, is an active board member in the section for shipbuilding and offshore supplier industries.

Continued on page 3

Compact drives gaining popularity

FAIRS

RESULTS Lighter, simpler to install, economical - the new drives offer many benefits

VEM Group. The industrial use of variable-speed drives with built-on frequency converter has been increasing significantly recently. The VEM Group offers these compact drives for the output range from 0.55 kW to 22 kW with proven and robust grey-cast motors. The majority are 2- and 4-pole drives, though 6- and 8-pole compact drives with forced ventilation have also been available for a year now. Three advantages of these drives are especially worthy of mention: The reduced volume of the overall system, the straightforward installation in the same way as an asynchronous motor without shielded motor cable, and the fact that the whole drive is supplied by a single partner, which greatly simplifies service.

Further benefits are to be gained from the possibilities to use compact drives for control tasks requiring an operating frequency less than 50 Hz and in partial-load applications. The compact drive draws only the actually required power from the mains supply, which achieves decisive savings in energy consumption. Pump drives must be configured such that the pumped medium is always delivered in the desired quantities and at the desired pressure, even during peak-load periods.



Compact drives in use

When the performance of a drive is determined by the generally short-time peak loads, this means that it is actually rather oversized for the remaining normal operating periods. Motors operate in the lower to mid-output range for most of the time. A

speed reduction permits drastic energy savings and places less stress on the overall system.

Series components

The scope of applications and the customer acceptance of VEM compact drives have grown continuously since the product launch in 2000. Increases in the numbers of drives compared to the previous year of approx. 25 % in the lower output range and almost 50 % in the upper output are not least testimony to the outstanding reliability of the drives. Compact drives for the lower output range, in particular, have been able to enter new fields of use in machine-building and in ventilation. This has a very positive effect on new-customer business, as can be seen from the diagram for M21...T drives.

The especially notable energy savings for pumps operating in the partial-load range have resulted in considerably increased demand for compact drives from 11 kW. Overall, compact drives hold clear price advantages over conventional variable-speed drives with separate frequency converters. They are supplied as complete, ready-to-install units. They incorporate im-

portant components as standard, and by principle eliminate other expensive components.

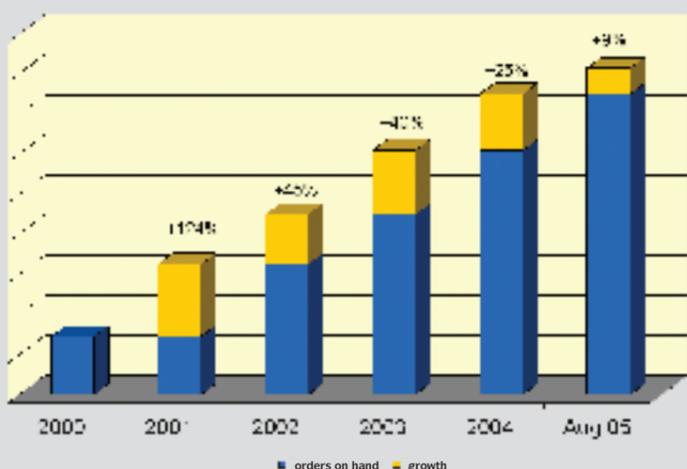
Where motors and converters are configured separately, further costs are incurred for electrical planning, switch-gear integration and installation. All these sub-suppliers must harmonise to develop a properly functioning drive system from the individual components and accessories - EMC filters, reactors, shielded cables, etc. The obvious advantages of compact drives are exploited extensively by pump and fan manufacturers. When a pump system is to be supplied, installed and commissioned, the pump manufacturer assumes responsibility for the whole project. The costs remain within their own company, and there is no need for complicated shifting and offsetting.

Internet platform

Customer advice and support play an increasingly important role in the case of special applications. For example, cooperation with a renowned customer, which entailed the use of a special winding, led to the application range being extended to 60 Hz. This in turn raises the competitiveness of the product significantly. This customer alone has already indicated probable increases of up to 250 drives per year. Customers can find out more about our special expertise in the field of compact drives by visiting our Internet site at www.vem-group.com (button "Products"). We offer potential users an information platform and in this way have established yet another avenue for contacts to new customers.

VEM motors is currently preparing a customer-specific solution permitting the use of energy-saving motors for outputs up to 5.5 kW with integrated converters and optimum efficiency in the partial-load range. Future application fields are to be seen in pumps and fans. Even high-performance drive tasks can thus be realised, where necessary. Additional motor and converter options are set to further extend the scope of application, and official approvals will accelerate worldwide use.

Annual development for compact drive



Relocating the power electronics saves space and weight without compromising convenience

APPLICATION VEM motors with integrated frequency converter offer significant benefits

VEM Group. In mixing or dispersion applications in the laboratory or in connection with pilot projects, the available space is generally rather restricted. Even so, the ease of operation of a pilot set-up must still satisfy the usual demands placed on a production environment. This includes precise speed control for the mixing systems and reproducibility of the product with defined parameters. In the past, the control system required large switch cabinets to be able to meet all the specifications of technical guidelines. The necessary frequency converter and its associated control electronics had to be accommodated in a cabinet, even though this cabinet could then easily dwarf the actual mixing or dispersion equipment. Relocation of the frequency converter power electronics to the motors themselves enables technical specifications to be met with significantly

reduced space requirements. Our photo illustrates how a heavy and inconvenient floor-standing unit can become a simple-to-handle desktop system. The weight of the overall pilot system is reduced by more than half. Furthermore, the heat problems of a switch cabinet, which could only be overcome with additional fans and ventilation slots, are no longer an issue for the new configuration. More and more production machines from the company ystral gmbh are also using VEM motors with integrated frequency converter.



Volume savings for a new dispersion system (right) thanks to M21...T compact drives from VEM

Fair news 2005

VEM Group. Contacts, customers and contracts were the keywords characterising the meetings and discussions at the counters with which the VEM Group and its individual companies were represented at numerous fairs this year.

Hanover Industry Fair

VEM presented "The Whole World of Motors and Drives" at the year's most important industrial fair. With a focus on steel and rolling mills, customers were given an insight into the broad VEM product range from roller table motors, via twin drives to the newly developed water-cooled grey-cast iron motors. Armed with these developments and the successful strategy "Quality, a VEM trademark - Made in Germany", the group confirmed its reputation as a driving force in the branch.

IFAT Munich

This year's International Trade Fair for Water and Wastewater (IFAT) again far exceeded the expectations of the 2,223 exhibitors from 35 countries by welcoming some 108,000 trade visitors from 166 countries. An attendance at this national and international meeting of the branch was consequently a must, and at the same time a highlight on the fair calendar for Keulahütte. The perfect styling of the exhibition stand drew particular attention to the coating of the products. One innovation presented was Tyton-Sit-Plus®. Over 200 meetings were held with potential customers and other interested visitors over the 5 days of the fair, approx. 30 % of this number being international contacts. The generally positive response cannot hide the fact that we are facing ever stronger international competition on the market for our standard fittings and hydrants, but we are naturally standing up to this challenge with innovation and competence. Keulahütte will also be attending the next IFAT, the world fair for the environment and waste disposal, to be held in Munich from 5th to 9th May 2008.

Elcom Ukraine

The fair in Kiev proved once more that Ukraine has become an important sales market for VEM. The International Trade Exhibition for Energy and Electrical Engineering was a perfect forum to cultivate contacts, to win new customers and to conclude contracts with a sustained effect.

TIIF Teheran

The international industrial fair in the Iranian capital was for VEM a welcome opportunity to intensify existing business relationships and to establish new contacts.

SPS/IPC/DRIVES Nuremberg

VEM will be attending this fair for the first time when the branch meets in Nuremberg in November to reveal the latest innovations in electrical automation, systems and components.

Worldwide boom in the steel industry

VEM Group offers a comprehensive product range from universal drives to customer-specific large-scale machines

VEM Group. The prices for quality flat-rolled steel have risen during the fourth quarter and are expected to rise further in 2006. Despite the high fuel prices, more cars were sold in August than in the same month of any of the previous four years. Order book levels in the German machinery and plant engineering sector were in July 3% higher than in the previous year. Such news is currently dominating the headlines in the economic sections of our newspapers. One important background to these developments has been the high world market price for steel, which is in turn due to short-

ages in supplies to the manufacturing industry and construction. Whether rolling mills are upgraded or modernised, or whether new plants are built in the so-called emerging countries, a worldwide boom in the industry is the result. The VEM Group has long since established a reputation as a supplier of drives for this industrial branch. With our sophisticated project range from universal drives of the most varied sizes through to customer-specific large-scale machines, we are able to react to the boom at the highest quality level.

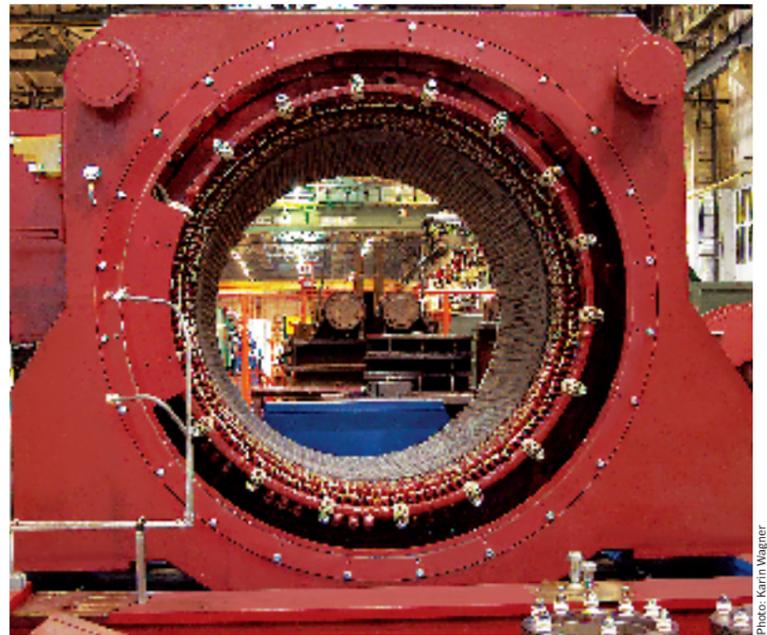


Photo: Karin Wagner

EXAMPLE Large-scale drives from Sachsenwerk



Photo: Karin Wagner

Rolling mill drive 5 MW

As a traditional supplier to steel and rolling mills, Sachsenwerk is able to point to an outstanding vertical range of manufacture and maximum flexibility in accommodating the demands of the industry. Just a few of the countless production prerequisites are the

crane capacity of 200 t in the production hall, VPI impregnation for diameters up to 4.60 m, the large test stands and the balancing system for balancing of the rotors.

Irrespective of the strategic alignment of the steel industry, VEM Sachsenwerk

is thus the ideal partner for all forthcoming tasks. This applies, for example, to the building of new rolling mills, for which complete drives can be sent out all over the world from Dresden both quickly and in high quality. But it applies equally to the modernisation of production facilities, for which Sachsenwerk, as a supplier of large-scale drives, possesses extensive know-how. The specialists from Dresden have gathered vast experience in the conversion of production lines from DC machines to three-phase technologies with parallel performance enhancement, all of which can be ach-

QUOTE



Photo: Karin Wagner

Gerhard Freymuth, managing director of VEM Sachsenwerk (right), and chief designer Andreas Boeltzig at an asynchronous machine of the type also used in rolling mills

"The VEM Group is a strong partner for the steel industry. The decisive principle: For drive technology, it is not the price, but the quality which counts. We are well placed to meet this challenge in the future, too."

other companies of the Merckle family, the aspect of maintenance convenience despite the immense dimensions of the bearings and lubrication systems (Zollern bearings) for rolling mill drives can already be taken into account at the overall design stage. In rolling mill business, which has traditionally been a field for the industrial heavyweights, a mid-size company like VEM is able to offer decisive benefits. It is able to react immediately to customer wishes. With regard to the very robust constructions nec-

essary to handle the high mechanical loads arising in reversing-duty operation, the cylindrical rotors offered by VEM Sachsenwerk hold distinct advantages over the alternative salient-pole designs. And last but not least, the fair price-performance ratio of the Sachsenwerk products is a no less convincing selling argument.

Thanks to its optimum manufacturing depth and a highly productive machinery base, VEM Sachsenwerk is able to pass on the benefits of a favourable cost structure to its customers.

VEM Sachsenwerk projects

- 2 Rolling mill drives (twin drive), Italy, 8.5 MW
- 2 Rolling mill drives (twin drive), Alchevsk/Ukraine, 4.6 MW
- 2 Rolling mill drives, Alu Norf/Germany, 5 MW
- 1 Blooming stand drive, Böhler Edelstahl Kapfenberg/Austria, 6 MW
- 4 Rolling mill drives for TKS Bruckhausen/Germany, 5-6 MW
- 7 Rolling mill drives, Quningdao/China, 4 MW each
- 2 Rolling mill drives (twin drive) for Nosta/Russia, 5 MW

VEM motors projects

- 70 Section mill (ARC 280), Voest Alpine/Austria
- 4 Coiler/pinch rolls, TKS Bochum/Siemens, Germany
- 31 PM and HSM, Shougang/Siemens, China
- 171 HSM delivery table, Lake Erie Steel/TMEIC, Canada
- 32 Plate mill/mill table, Voest Alpine Stahl, Austria
- 26 Plate mill/pendulum table, Voest Alpine Stahl, Austria
- 56 HSM/coiling section, NLMK/Siemens, Russia
- 130 Walking-beam furnace roller table, Voest Alpine Stahl, Austria
- 15 Modernisation shears roller table, Alu Norf, Germany
- 280 HSM delivery table, Severstal/Imex Trade, Russia

EXAMPLE Roller table motors from VEM motors

The demand for higher-quality and higher-performance motors is a consequence of the current boom in the steel industry, and one to which VEM motors has also responded successfully. Especially fruitful in this respect is the close interaction between staff of VEM motors GmbH and cooperation partner KLOSE ENGINEERING at the Competence Centre in Düsseldorf. As a first port of call in all matters concerning the steel industry, it bundles the metalworking competence of KLOSE ENGINEERING with the innovation, expertise and long-standing manufacturing experience of VEM motors GmbH, as well as the latter's excellent production facilities and comprehensive know-how in the designing of electrical machines. Such



Photo: Volker Benmann

Roller table motors

proven partnerships are to be maintained in the future, and new contacts

are to be sought. One addition to the portfolio of the Competence Centre in

Düsseldorf this year was the newly launched frame size 400 in the series

of roller table motors. This development was triggered by the increased interest shown by customers. The spectrum has now been extended to cover the whole range of frame sizes from 112 to 400, and is now tailored perfectly to the typical requirements of rolling mill customers.

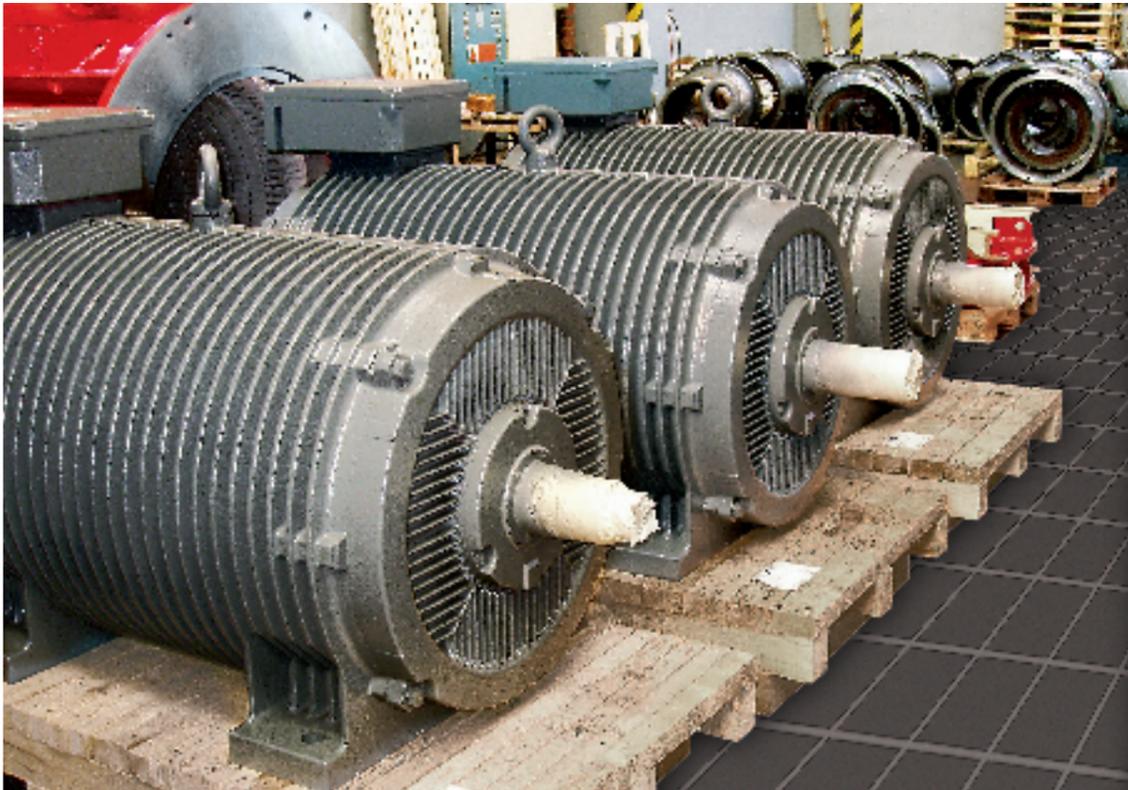
It is not to be overseen that the increasing steel prices and the growing demand for steel on the world market will continue to boost the volumes of orders in the branch in 2006.

VEM is already expecting a double-figure growth rate for the coming year and has secured all the necessary prerequisites. This includes not least the fact that the VEM Group is already prepared to handle the demands placed on product logistics and transport.

Frame size 400 completes the line-up of roller table motors

STEEL AND ROLLING MILLS

VEM reacts to the worldwide expansion of steel capacities with a new drive concept



Roller table motors fresh from manufacturing at VEM motors (above) and in action in a rolling mill (right)

VEM motors. The increasing worldwide demand for steel is forcing the producers to invest and to modernise their existing capacities. This also results in calls for new drive concepts. VEM answers such calls with a whole series of roller table motors, and has now extended this series to include

also frame size 400. These drives are ideally prepared to handle the extreme operating conditions prevailing in the steel industry, meeting the unusually exacting electrical and mechanical demands arising from the varying operating modes and load situations. Many steel and rolling mills are still

equipped with DC roller table motors, whose suitability is founded on their good control response. However, since modern combinations of three-phase motor and frequency converter today achieve practically the same control performance, three-phase systems are gradually ousting the conventional

equipment when new mills are built or existing facilities are modernised. Against this background, VEM motors already introduced its new ARC series of roller table motors in the early 1990s. These motors are particularly suitable for converter-fed operation. The first motors of the series, in frame sizes 160 and 315, were built and delivered to Cockerill in 1993 for a new rolling mill in Eisenhüttenstadt. Further sizes were added over the years until 2004. The latest frame size 400 has now rounded off the product range, which today offers the market frame sizes from 112 to 400. First orders for the largest motors have already illustrated the interest of customers in the steel industry. Alongside the above-mentioned series of roller table motors, VEM supplies also geared table motors and motors in steel housings.



PEOPLE

New head of sales takes up his post

VEM Sachsenwerk. Joachim Zwick (48) will be taking up his new duties as head of sales for shipbuilding and wind energy solutions at VEM Sachsenwerk on 1st November. As a graduate engineer in electrical engineering, he has worked for several years as head of sales at Winery AG Voerde



Joachim Zwick obtained a degree from the Ilmenau Technical College – today Ilmenau Technical University – in 1985. He is married and has one son.

and has been responsible for the cultivation of worldwide customer relationships. As a first target for his new activities, Joachim Zwick aims to place VEM business on an even broader base in the fields of shipbuilding and wind energy, while promoting further export successes.

The focus of his work to date has been on sales of components for wind turbine systems. "Irrespective of the changed political landscapes in Germany, the future German government will also be required to express its commitment to an energy mix which includes alternative energy sources. Studies indicate, furthermore, that wind energy is still far from reaching its saturation point on the international market, and will continue to grow in the coming years. I am thinking here of countries such as Spain and the USA, but also the developments in Asia", says Joachim Zwick. He sees VEM Sachsenwerk well equipped for this market as a flexible, mid-size company. "The average output of a wind turbine system on the international market is currently around 1.8 MW, but rising. The product range at Sachsenwerk is ideally positioned to cater for demands – not only with traditional asynchronous generators, but also with the synchronous generators which are set to play an increasingly important role in the future."

AID PROJECT

Social Concern Day of the Saxon Youth Foundation

VEM Sachsenwerk. Participating schools from all over Saxony declared 12th July to be Social Con-



cern Day and permitted their pupils to miss school and instead to seek work in aid of charity. Sachsenwerk provided work for seven pupils, whose agreed wages were paid into the charity account "Schools Help Live". The money is used to fund projects improving the education opportunities for young people in Southeast Europe, in this year a school project for poverty-stricken Roma children in Skopje/Macedonia.

With its support for the Social Concern Day in Saxony, VEM is proud to help young people in Germany who are actively involved in projects to benefit their contemporaries in Southeast Europe. At the same time, this is a direct contribution to improving the quality of life for young people whose childhood has been characterised by war, poverty and discrimination, and to offering them a chance of a better future.

Faster, more flexible and in better quality

INTERVIEW

Works manager Arnd Türke sums up the extensive changes at the company

Sachsenwerk has made considerable investments. With which goals?

Over the past three years, in particular, we have put a lot of effort into streamlining and improving our processes. Higher-performance machinery enables us to react in greater depth and even more flexibly to customer wishes. A total of seven million Euros has been spent since 2003 and has achieved an annual increase in productivity of over 4%. The positive results of the company in recent years also permitted us to finance the most important of these investments without outside capital.

What benefits are derived for the customers?

We now possess manufacturing facilities at a level ensuring that we can handle special customer demands in an optimum manner. We have landed a quality leap enabling us to manufacture our products faster, more flexibly and in better quality than others. It is no exaggeration when I say that we are a specialist machine supplier whose production is geared not to the existing possibilities, but to the wishes of the customers.

How was that achieved?

With a whole package of measures embracing the whole manufacturing process, including better utilisation of the existing production areas and the purchasing of high-performance machine tools. I would like to mention

here the shaft machining centre. We have modernised our punching section with a new automatic punching machine, we have purchased two CNC machining centres for drilling and milling, we have modernised the measuring and analysis facilities of our test stand and will also be upgrading the crane capacity in the main production hall. The new 3D CAD system will from the earliest possible stage meet customer expectations with regard to fast and uncomplicated communication.



Arnd Türke is works manager at VEM Sachsenwerk GmbH.

What have been the most important results?

Our medium and large machines are in great demand among our customers, for example in the cement industry, the steel industry and in shipbuilding. Corresponding orders raise the challenges posed for our employees, who are then able to bring their high level of qualifications into the spotlight. The optimised work processes have by the way also enabled us to improve working conditions, in the form of new lighting and heating systems, for example.

What can customers expect in the future?

Our market position today enables us to stand up even to our larger competitors. Here, especially, there will be no letting up – after all, standstill in industry is the first step towards decline. For this reason, a further investment volume of 3 million Euros is already planned for the coming year. In unison with new technical developments, which are reflected in new customer wishes, this will not only enhance our manufacturing flexibility, but will at the same time further improve our testing processes.

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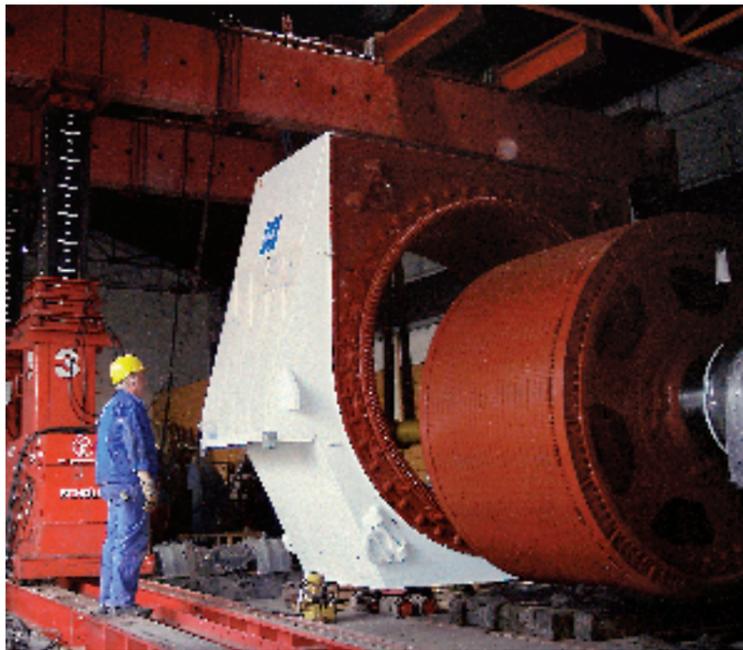
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Successful test run

REPORT Assembly of a VEM Sachsenwerk rolling mill motor in Kapfenberg/Austria

VEM Sachsenwerk. The delivery at the end of July took almost a week. Two special transporters left Sachsenwerk in the early hours of 27th July and set off on their journey to Kapfenberg in Austria with a 145-tonne rolling mill motor. After a number of necessary waits along the route, it was around 2.00 a.m. on 3rd August when it finally reached its destination: the building site of Böhler Edelstahl GmbH Kapfenberg, where reconstruction of a mill train is in full swing. The machines were first removed to a separate hall to enable the old bed plate to be torn out. Once the foundation was exposed, the engineers from Sachsenwerk were able to commence laying of the irons for the new base frame. At the same time, the company Scholpp from Chemnitz assembled a special lifting frame, as the 65 Mp capacity of the available hall crane was insufficient to handle the motor. Heavy-duty trolleys brought the rotor into the machine hall together with the bed, bearings and transport frame –

no easy task considering the narrow roads to be taken. Once in the machine hall, the rotor and bed were lifted onto the foundation, aligned in accordance with the customer specifications and secured with M100 anchor bolts. The engineers were now able to open the bearings and to lift the rotor out of the pit. Two mobile cranes helped to erect the stator, whose dimensions had required it to be transported in a horizontal position. The door clearances also meant that the heavy-duty rolls to transport the stator into the hall could be no more than 200 mm high. Once the stator had been positioned in the hall, and once the auxiliary shaft had been assembled at the rotor, the rotor could be inserted into the stator. At this point, the special lifting frame was required once more, to lower the now paired stator and rotor into the pit – but not without an intermediate stop, as the height of the hall prevented the lifting frame from being extended fully. After mounting of the cooler, the lifting frame could be dismantled. The



Insertion of the rotor

engineers checked the air gap between stator and rotor, mounted the guard plates and closed the bearings. Parallel to this, engineers from Böhler reassembled the 90 Mp gearbox and aligned it to the VEM motor.

It was now possible to cast the bed plate and to finally tighten the anchor bolts. Further contractors connected the power supply and the oil and water lines. To complete the installation, the Böhler engineers mounted the clutch and left the motor ready to be started up. The start signal for commissioning was given on 18th August. On 26th August, the message was received that it had been completed successfully. The test runs were performed with

Site: Böhler Edelstahl GmbH Kapfenberg
Customer: Alstom Power Conversion
Motor type: DMMYZ 3860 - 20V

both hot and cold billets, at 1,200° C and 800°C, respectively. The results were to the full satisfaction of the customers, namely both Alstom Power Conversion Berlin and end user Böhler. It was also emphasised in this connection that the service centre had throughout the project met all the deadlines contained in the site schedules.



The motor assembly is complete

NEWS

“Eurodrant compact” was developed at Keulahütte

Keulahütte. In answer to the particular demands of the European market for simple, functional and quality-compliant hydrants, the corresponding product family from Keulahütte has been extended to include a new model: “Eurodrant compact”. This hydrant meets all the requirements for a favourably priced, compact hydrant model compliant with the European standard. The use of exclusively high-quality materials, paired with outstanding variability and convincing flow properties, makes this hydrant an extremely interesting option for our European customers.

The priority during development was to use the standard components of our overground hydrants as far as possible. One characteristic feature is the combination of cast and steel parts. Only a few components are necessary to provide the functions of a street hydrant.

The use of a variable-length steel pipe has also made it possible to offer exact pipe jointing to individual customer specifications. Corrosion protection is provided in the proven manner with an



Final assembly of the “Eurodrant compact”

EKB+P coating. In this way, the hydrants are safe not only from corrosion, but also from chalking due to UV irradiation. This new development is currently passing the approval phase in a number of European countries.

CONFERENCE

VEM conference in Linz

VEM motors. The positive response to the series of Technical Conferences in Wernigerode was for VEM motors Austria the encouragement to organise a technical meeting for its own customers in Linz on 6th October.

The central topics were energy-saving and water-cooled low-voltage machines, and the implementation of the ATEX standard for manufacturers and users of explosion-protected equipment.



VDE finds working group for electrical machines and drives

Continued from page 1

NUMOV:

Jürgen Sander has been a member of the board of the German Business Association for the Near and Middle East Region (NUMOV) since



2004. This association has been assisting its member companies to establish and expand their business contacts in this region for over 70 years.

ZVEI:

The Central Association of the Electrical Engineering and Electronics Industry (ZVEI) represents the economic, technology and environment-policy interests of the German electrical engineering industry at national, European and international level. The know-how of the VEM Group, as a globally active company, is contributed by Gerhard Freymuth and Jürgen Sander through their work on the ZVEI advisory



committee. Furthermore, Jürgen Sander is chairman of the working group on low-voltage three-phase motors of the ZVEI section Automation. Gerhard Freymuth is involved as a board member of the working group on wind energy and contributes actively to the working group on high-voltage machines.

DKE:

The German Commission for Electrical Engineering, Electronics and Information Technology at DIN and VDE is the national organisation



elaborating standards and safety regulations for these branches in Germany. VEM interests are represented by Dr. Frieder Kielmann from VEM Sachsenwerk in working group K311 and the associated working groups on insulation systems for electrical machines, converter-fed operation, asynchronous machines and explosion-protected high-voltage machines, while Dipl.-Ing. Michael Gruner from VEM motors Thurm contributes to working group UK 311.1 regarding the performance and dimensioning of electrical machines.

RFID technology from VEM at Logistics Conference

VEM motors. The so-called “memory motor”, as an application of RFID technology in the manufacturing of electrical machines, is to be the subject of a presentation to the 11th Magdeburg Logistics Conference on 25th November 2005. The managing director of VEM motors GmbH, Jürgen Sander, will be speaking at the two-day event, which is being held at the Otto-von-Guericke University in Magdeburg under the banner “Intelligent logistics processes – Concepts, solutions, experience”.

Jürgen Sander will be explaining how the use of an RFID system permits dynamic retrieval of the information held on an electronic data tag attached to the electric

motors. This can be exploited first of all for unambiguous identification of the motor. Furthermore, the ID system functions as an electronic rating plate for the customer, who is here able to save and edit additional relevant information.

The presentation is based on the results of a study commissioned by VEM motors in 2002 at the Fraunhofer Institute of Factory Operation and Automation (IFF). The close cooperation between VEM motors and this renowned scientific institute has also been continued beyond completion of this study with the R&D topic “Developments in RFID/Internet technologies for electric motors” at VEM in Wernigerode.

New dimensions in epoxy-resin powder coating

Continued from page 1

separate hardening process superfluous. Defined swing movements of the robot guarantee that any excess powder falls back into the bed and prevents unwanted coating build-up. The robot then holds the part outside the bed to enable initial hardening, before placing it onto a cooling

conveyor. The gripper teeth are now cleaned automatically before the next part is picked up. On the conveyor, the part is allowed to cool to a defined handling temperature. The cast parts are already ready for dispatch immediately after packing.

Guidelines via the Intranet

NEWS

PEOPLE Hans-Joachim Kittler: Head of quality control at VEM motors Thurm

VEM motors Thurm. "My duties are so varied, that I could hardly imagine a more interesting job," says Hans-Joachim Kittler, the head of the quality control section at VEM motors Thurm. Born in Brandenburg, he can fall back on a wealth of experience gathered over 26 years in Thurm. He joined the company straight from college after completing his electrical engineering studies and worked first in the testing department. Eight years later, in 1987, he was appointed head of what was at that time known as the Technical Control Organisation department. Today, there are 14 staff in his department. As leader of this team, Hans-Joachim Kittler is responsible for a vitally important task, namely to organise quality management within the company in such a way that customers can justifiably place their trust in the constant high quality of VEM products. This starts with the checking of incoming goods deliveries, continues with mechanical component testing on modern CNC testing equip-



Hans-Joachim Kittler is married with two children. Leisure time is spent looking after house and garden.

ment in the precision measuring lab, incorporates naturally the actual production, and ends only with testing of the proper functioning of each mo-

tor produced. Explaining the special nature of business with VEM, he points out: "We manufacture our motors to customer wishes, which means we offer products which other companies are unable - or unwilling - to supply. And with a product range as diverse as the one we have developed over the past few years, there is no such thing as routine for the quality control department."

The members of Hans-Joachim Kittler's team are already involved in the planning and design of a new motor. Their knowledge is equally in demand in connection with on-going research and development. After all, they must maintain an extraordinarily broad overview, because their department is also the responsible address for both service requests and complaints. "If a customer reports a problem, then I must decide who needs to be called to the table," is the summary of an experienced professional. "Then we sit down together for as long as it takes to find a good solution."

The year 1993 was an important milestone for his work. "In that year, we were certified to ISO 9001 together with VEM motors." It was only natural that the two factories should not apply for certification separately. After all, their product series complement each other within the overall product range from VEM. Since then, Hans-Joachim Kittler has often cooperated closely with his counterpart Hartmut Badstübner from Wernigerode, whether to elaborate a common quality manual for the two VEM locations, or to integrate any changes as quickly as possible. Hans-Joachim Kittler also monitors implementation of the guidelines in daily practice. "Via the company Intranet, every employee has immediate access to the specific procedures and instructions contained in the quality manual. This, too, serves to safeguard the good reputation of quality products from VEM, as we have been able to prove in a series of successful audits," he underlines proudly.

Well-filled order books in transport engineering

VEM Sachsenwerk. The transport engineering division has achieved a very pleasing turnaround in incoming orders since the beginning of 2005. By the end of September, orders had been received for more than 1,200 traction motors right across the output range from 65 kW to 500 kW. Further contracts are approaching completion. The orders are spread over 11 different traction motor types, and were placed by five different rail vehicle and component manufacturers.



Auxiliary generator for diesel-hydraulic locomotives shortly before delivery

It is interesting to note that only some 25 % of the motors can be assigned to projects in Germany. Diverse projects in Western Europe account for 70 % of the motors, with the remaining 5 % earmarked for vehicles in Eastern Europe and Australia. New regions for Sachsenwerk traction motors are France, Spain, England and Sweden. The top countries in terms of the numbers ordered, however, are Austria and the Netherlands.

It must be pointed out, furthermore, that the proven DKCBZ motor family used in low-floor trams is to be complemented in future with the newly developed and more powerful DKOBZ series, which will enable VEM drives to be used even for trams and light-rail systems operating at speeds up to 100 km/h.

Drives for diesel locomotives

The points are also set to the future for traction generators. Commencing in 2006, after a longer break, generators from Dresden will again be supplying drive power to the latest generations of diesel-electric locomotives. A corresponding declaration of intent was signed with a renowned rail technology system house at the end of September 2005.

Diesel-electric mining trucks, finally, are another highly dynamic segment. Following the successful field tests of the first 2,506 kVA generator, Sachsenwerk has been awarded an order for a second, smaller machine (1,834 kVA). The objective here is to establish a stable, long-term partnership with a guaranteed annual business volume.

SHIPBUILDING

Low-voltage motors from VEM for new AIDA liners

VEM motors. The German cruise operator AIDA Cruises (Rostock/Neu-Isenburg) has awarded the Meyer shipyards in Papenburg an order for three new 68,500 BRT club-cruise liners. For the first time, VEM has received a contract to supply the full range of low-voltage motors from 0.37 kW to 160 kW for such a cruise liner.

With Germanischer Lloyd marine-standard classification, our motors are to be installed in all areas of the ships. Deliveries to pump suppliers have already commenced.

With an overall length of 249 metres and a width of 32.2 metres, the three liners take the AIDA concept into its third generation. As the new club liners for AIDA Cruises, they incor-

porate a host of technical innovations and new approaches to interior decoration. The 1,015 cabins accommodate up to 2,030 passengers. The first of these liners is to be launched in April 2007, joining the rest of the AIDA fleet in the Mediterranean, around the Canary Islands, in the North and Baltic Seas and in the Caribbean.



FIG. AIDA Cruises

5th Technical Conference already on the horizon

VEM Group. The 4th Technical Conference of the VEM Group was held in Wernigerode in June. Experts from test institutes, manufacturers and users of explosion-protected drive technologies presented their individual views on the implementation of the ATEX standard and on its future national and international development in a total of 21 lectures. More than 160 participants from 13 countries accepted the invitation to join VEM in Wernigerode, providing ample proof of the widespread interest in both the conference series and the chosen topic. In the meantime, this expert forum has earned a firm place in the branch's diaries. And so we would already like to announce the dates for next year's meeting:

The 5th Technical Conference will be held in Wernigerode on 12th and 13th September 2006 and will be discussing "Drive technology in the process industry".

The final agenda will be published in good time.

Motors with frequency converters in demand

PARTNERS Interview with Dr. Hans Linnenbrink, technical department head at Bayer MaterialScience

VEM motors. For some decades, customers in the chemicals industry have counted among the most important purchasers of VEM drives of the most varied sizes and types. In the case of large-scale projects, VEM motors works together closely with ATB. Impulse asked Dr. Hans Linnenbrink from Bayer MaterialScience how the customer views this partnership.

What is your relationship to VEM?

We have been working together since mid-2004. Via a general contract with ATB, we obtain large numbers of standard, EEx nA and EEx e motors from VEM, installing them worldwide in countries operating to the IEC standard. The latest example is a major chemical works in Shanghai which is currently being expanded and in this connection equipped with motors from VEM.



Dr. Hans Linnenbrink is responsible for electrical drive technologies within the central department for process control systems at Bayer MaterialScience. At the same time, he heads the working group on drive technologies at the Association of Industrial Energy and Power Generation (VIK) and the process control systems interest group of the chemical and pharmaceuticals industries, NAMUR.

What demands does your company place on the VEM drives?

With VEM, we have gained the services of a manufacturer who meets all the demands we place on high-quality and robust motors, and at the same time promises favourable costs and fast availability. We pay particular attention to compliance with the quality parameters contained in the VIK recommendations for three-phase asynchronous motors.

Which trends in the chemicals industry are relevant for a motor manufacturer?

Major German chemical works, in particular, are turning increasingly to motors with frequency converters. This is naturally followed by a demand for further harmonisation in respect of transnorm motors. VEM is already involved in such developments and has formulated certain ideas. As head of the working group on drives at the

VIK and of NAMUR, I know that we must generally find a compromise between the wishes of the operators and the needs of the suppliers in terms of economically reasonable manufacturing of the products. But the trend shows that the specification of uniform motor designs with improved performance characteristics is not actually more expensive, and can in fact often bring savings.

What is your experience with VEM products?

Very good, as far as the quality of the products is concerned. And if technical problems arose, they were always solved to our satisfaction. Specifically in the Asian region, all those involved are facing new challenges with regard to project management. Organisational procedures and the quality of the available service, in particular, must be matched to these new demands.