



The Newsletter of FKI Rotating Machines Division

PART OF THE  FKI GROUP OF COMPANIES

# Welcome to the FKI Rotating Machines Division Newsletter

During the last three years FKI has been playing a leading role in the reorganisation of the global electrical machines business. In FKI Rotating Machines Division we have brought together six companies with a combined history approaching 700 years and a product range spanning all sizes of industrial motors, generators, electronic drives and rotating test equipment.

Our motor range stretches from fractional horsepower to multi-megawatt machines, and includes general purpose industrial motors; hazardous area machines for mining, petrochemical and other flammable environment applications; specialist machines featuring low starting current, high torque, inverter drive and many other options. In this issue we announce the introduction of two new motor ranges featuring improved efficiency and large TEFC enclosures.

Currently, we are seeing huge world-wide demand for generators. The recent acquisition of HMA Power Systems (see article below) has added to our capacity as well as extending our

4-pole range to over 60MVA. New investment at Marelli's factory has allowed us to double output of low voltage generators during the past year.

As the Division develops the individual companies are able to provide more than the sum of the parts: by sharing our international networks we now offer service and support globally; by sharing our technologies we are increasing the pace of new product development; by pooling our purchasing power we are lowering the cost of our products; and by co-ordinating our sales and marketing we are providing better support to the market. This new newsletter is part of the process of increasing our reach and spread into the market place and reinforces to customers, competitors, employees and all stakeholders alike FKI-RMD's position of leadership in the global electrical machines industry. I hope you find it both interesting and helpful.

Reg Gott – Managing Director, FKI Rotating Machines Division



## Acquisition

# FKI Acquires HMA Power Systems



HMA Power Systems factory

On 24th March 2000 the Dutch competition authorities approved the acquisition of HMA Power Systems by FKI plc. HMA Power Systems is now being fully integrated into FKI's Rotating Machines Division.

HMA Power Systems has had a long and illustrious history in the Dutch electrical engineering industry, having been established in November 1882 by two young entrepreneurs, Willem Smit and Adriaan Pot, under the name 'Elektrisch-Licht-Machines Fabriek Willem Smit & Co.'. That was the beginning of Smit Slikkerveer, later known as 'Holec Machines and Apparaten', and since March 1998 under the current name of 'HMA Power Systems'.

The HMA product range includes electric machines and variable speed drives for applications in power generation, marine,

transportation and heavy materials handling environments. The products and applications have strong synergies with existing FKI Rotating Machines Businesses.

Of particular interest to FKI is HMA's range of four pole generators, which extend our power capability to in excess of 60MVA using this technology. Designated the "DG" range, this family of generators is available in three core diameters and a number of lengths to give cost effective products from 10 to 60MVA and above. HMA's impressive reference list includes applications with LM6000, GE Frame 5 & 6, LM2500 and Solar Titan.

HMA Power Systems has been designated FKI Rotating Machines' Centre of Excellence for four pole generators.



## Exhibitions

# LSE announce new HV motor series at Hannover Messe

Taking pride of place on the FKI Electrical Engineering Group stand at Hannover Messe were the new LSE M-Series High Voltage TEFC induction motors. These motors represent a milestone in design for high efficiency and low cost of ownership, providing excellent power/weight ratios while minimising running noise & vibration. Covering 355 to 500 frame sizes in 3.3kV to 13.8kV, the M-Series can provide 150 to 1500kW of output capacity.

As a replacement for the LSE R series TEFC machines, the M-Series takes best design and manufacturing practices from two internationally-recognised makers of high quality electrical machines within FKI Rotating Machines division. The whole range was

developed in conjunction with FKI RMD partners Marelli Motori of Italy, and these motors benefit from a concerted effort to harmonise components across the range and procure/manufacture parts via the most cost-effective channels. LSE are manufacturing the MV/HV versions of this range, and Marelli Motori are to make the LV versions, so as to capitalise on the experience base of both factories in their respective areas.

LSE traditional markets are the oil & gas, petro-chem and chemical manufacturing industries where hazardous area approvals and experience are critical in gaining user acceptance. The M-Series has been designed from the outset with hazardous area users in mind, and standard machines are suitable for

EExn/IP56 applications without project-specific design reviews.

In fact, the main thrust of the M-Series is to improve availability through the concept of mass customisation – the base motor is standard, but a long list of 'standard' options are available to suit the requirement of individual end-users.

The aggressive cost reduction programme and rationalised component sourcing programme that formed the basis of the entire re-design process also permits the M-Series to be offered at prices competitive with the very best in the industrial marketplace. There is no doubt that these new motors represent a new era for LSE in high voltage motor manufacturing and sales.

## Where to meet us

FKI Rotating Machines attended Hannover Messe with a large stand in Hall 6 (see picture, left) shared with our sister FKI Electrical Engineering companies from Switchgear and Transformers Division. The show was the launch pad for Marelli's new range of high efficiency motors and LSE's M-series (see separate articles). The show was a success with a high visitor turnout and many useful enquiries.

During the year companies from RMD will be exhibiting at:

- Offshore Technology Conference, Houston USA, May 1-4
- Testing Expo 2000, Hamburg Germany, June 14-16
- PowerGen Europe, Helsinki Finland, June 20-22
- On-site Power, NEC England, Sept 12-13
- PowerGen Asia, Bangkok, Sept 20-22
- Shipbuilding Machinery & Marine Technology (SMM), Hamburg, Sept 26-30
- Power Gen International, Orlando USA, Nov 14-16

Consult the What's New section of our website at [www.fki-eng.com](http://www.fki-eng.com) to find stand details and which companies will be exhibiting.

## High Efficiency Motors from MarelliMotori

MarelliMotori introduced its new range of low voltage High Efficiency Motors, the Palladio Series, at the Hannover Messe 2000. The range covers 1.1 kW to 90 kW.

These High Efficiency products are the culmination of two years of intense development effort by Marelli engineers to comply with the request of the European Commission and CEMEP to reduce overall energy consumption. The new products provide significant improvements for users of MarelliMotori motors, in particular:

- reduction of energy losses by as much as 40%
- reduced operating temperatures
- increased lifetime and reliability
- increased tolerance of overload

These new products are the first of a complete re-design of the MarelliMotori product range for the New Millennium.



FKI Rotating Machines stand at Hanover Messe 2000



## FKI Industrial Drives clean up in the North West

Cleaning up the UK's on-shore waters and improving bathing water quality at resorts up and down the country is a major on-going project being undertaken by North West Water.

FKI Industrial Drives has supplied £875K of AC Inverters to this program including the company's newly introduced FID 3000 and earlier 9001 series drives which are being used to control sewage effluent passing to treatment works during normal and storm conditions. FKI Industrial Drives became involved via principal contractors including Purac and sub-contractors such as KSB Pumps.

FKI were commissioned to supply stand

alone variable speed drives for installation at a number of locations including Lytham St Annes, Fairhaven and Blackpool, included in Phase II of the Fylde Coast work and Ennerdale, Fazakerley, Wallasey and Bromborough which form part of the Mersey Estuary improvement project. The drives that range in size from 110kW up to 500kW are located close to storm tanks and are employed on pump motors. The drives are interfaced to a PLC which communicates via a telemetry link to the local treatment works. The PLC receives parameter data via the link which it passes to the FKI drives to control pump speeds.





# Volvo Truck Corporation



The photographs show the large rear axle rollers being fitted with their shaft bearing arrangements and the complete rear axle assembly during pre-delivery factory tests.

The Volvo Truck Corporation has placed an order for a Froude Consine 4 x 4 Chassis Dynamometer and control system for NVH testing of trucks which will be installed in their new Vehicle Laboratory in Gothenburg, Sweden.

The dynamometer rear axle has 2.5 metre diameter independent rollers driven through single speed reduction gearboxes by DC motor assemblies. The front axle is fixed and has independent 48 inch diameter rollers with side mounted DC motor assemblies. The rear axle has automatic wheelbase adjustment that can be pre-set to suit a range of vehicles.

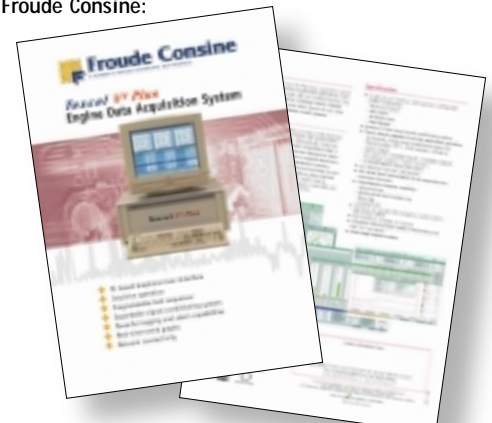


**VOLVO**

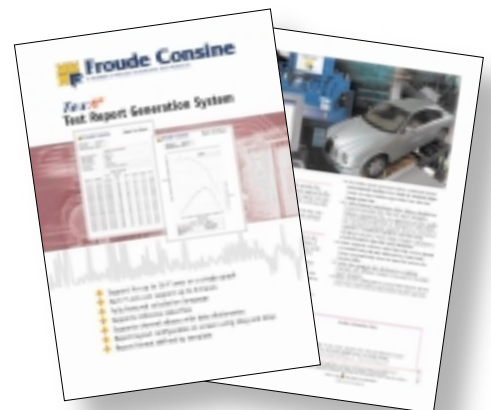
## New products

## Froude Consine

Two exciting new products are now available from Froude Consine:



The new Texcel V4 Plus data acquisition system is specifically designed for engine test applications, such as R&D, production, quality audit and post overhaul testing. The system can be supplied as a package with Texcel V4 engine and dynamometer control unit or as a standalone system when used in conjunction with a suitable control system.



TexAn is a software package designed to provide graph plotting and data presentation tools required by the automotive industry for generation of engine and vehicle test data reports. It is a complete test report system running under Windows NT.

TexAn is available as an option with Texcel V4 Plus and Texcel V6 control systems, as additional functionality of Chassis dynamometer controllers, or as a stand alone package.

## Brush Electrical



# Increased orders for DAX

A substantial number of Brush DAX turbogenerators have been ordered by S&S Energy Products for delivery in 2000 as a result of continued high demand for their packaged generator sets in the United States.

Amongst others, S&S Energy Products, a GE Power Systems business, has been awarded a \$280 million contract from Reliant Energy, Houston, Texas, to provide 19x44MW GE LM6000 aeroderivative gas turbine-generator sets.

Fuelled by natural gas, the gas turbines provide the flexible start-and-stop capabilities that Reliant

needs in order to quickly, efficiently and safely produce power from its portfolio to meet peak demand. Reliant Energy will operate the gas turbines in simple-cycle mode for peaking power.

Some units will begin service in the summer of 2000, with the remaining slated for operation in the summer of 2001. Reliant Energy has announced plans to use eight of the units at a site in Shelby County, Illinois.

S&S Energy Products will fabricate and assemble the LM6000 gas turbine-generator packages at its Houston manufacturing facility.

# PRISMIC - New Developments and a Family Name

Brush Electrical Machines' range of generator control and power management products which include AVRs, rotor earth fault monitors, power system stabilisers etc, have now adopted PRISMIC as their family name.

Today the PRISMIC family comprises:

**PRISMIC A30** - the new top of the line excitation controller derived from the MicroAVR.

**PRISMIC A10** - high performance Automatic Voltage Regulator.

**PRISMIC PMS** - power management system.

The Controls Department has recently completed major developments of the PRISMIC PMS and A30.

PRISMIC PMS has been developed to include faster input/output cards and processor and a Windows NT based human-machine interface (HMI). A less obvious but possibly even more important part of the project was the development of a software based power system simulator. This is starting to improve throughput in PRISMIC PMS engineering, allowing better delivery times to be achieved. It has also allowed the building of a re-configurable sales demo

unit, which has already been used at a number of exhibitions around the world.

PRISMIC A30 has been developed to replace obsolete 8 bit microprocessors and add improved software for commissioning. The new A30 is also able to talk to customers' plant monitoring or SCADA systems using a communications link. Almost every PRISMIC PMS delivered is now required to talk to a SCADA system and we are now finding that customers are choosing the PRISMIC A30 for its ability to hook into a communication network for remote monitoring.



## Sales & support locations

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- 2 pole DAX turbogenerators up to 200MVA, 15kV
- PRISMIC™ A30 high performance Automatic Voltage Regulator
- PRISMIC™ PMS power management system

**FKI Industrial Drives**  
Meadow lane, Loughborough,  
Leicestershire LE11 1NB, England.  
Tel: +44 (0) 1509 610000  
Fax: +44 (0) 1509 610505  
e-mail: sales@fid.fki-eng.com



- AC Inverters up to 600kW, 800V
- AC Synchro converters up to 20MW
- DC Drive Systems up to 3.5MW

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Tel: +39 0444 479711  
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e-mail: sales@marelli.fki-eng.com



- Low voltage cage induction motors up to 1,500KW
- DC motors to 120kW
- Generators to 4,000kVA
- Flameproof motors

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- 4 Pole Generators 10-60MVA

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e-mail: sales@lse.fki-eng.com



- Cage induction motors up to 20,000kW, 15kV, 20 poles
- Flameproof motors
- Range of Power Transmission Products

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Tel: +44 (0) 1905 856800  
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e-mail: sales@froude.fki-eng.com



- Chassis dynamometers up to 650kW and 280km/h
- Eddy current dynamometers to 2,000 kW
- Hydraulic dynamometers to 74,000 kW
- High Speed Test Automation Systems

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