The Complete Motors Solution

ERIKS and WEG

know-how makes the difference

WHAT DRIVES INDUSTRY?

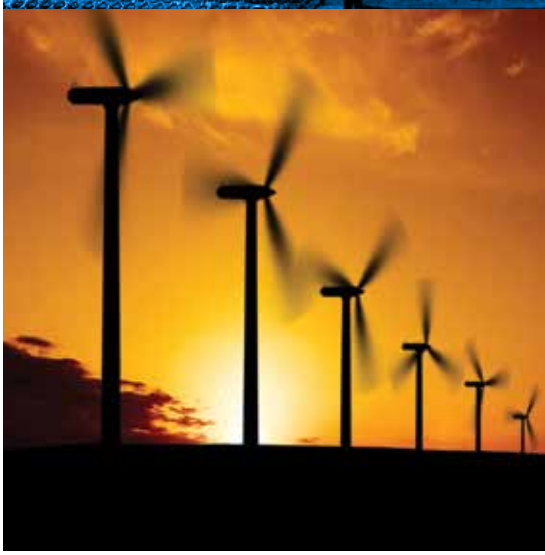
Industry consumes around 42% of the world's electricity. Of that 42%, around two-thirds is consumed by electric motors and drives. Which is why they are not only the main drivers of industry, but also the primary consumers of energy in Europe and worldwide.

Electric motors and drives are used throughout industry to produce rotary power, which in turn is used for a wide range of applications, such as pumping, air moving, bulk handling, conveying, winding, stirring or processing.

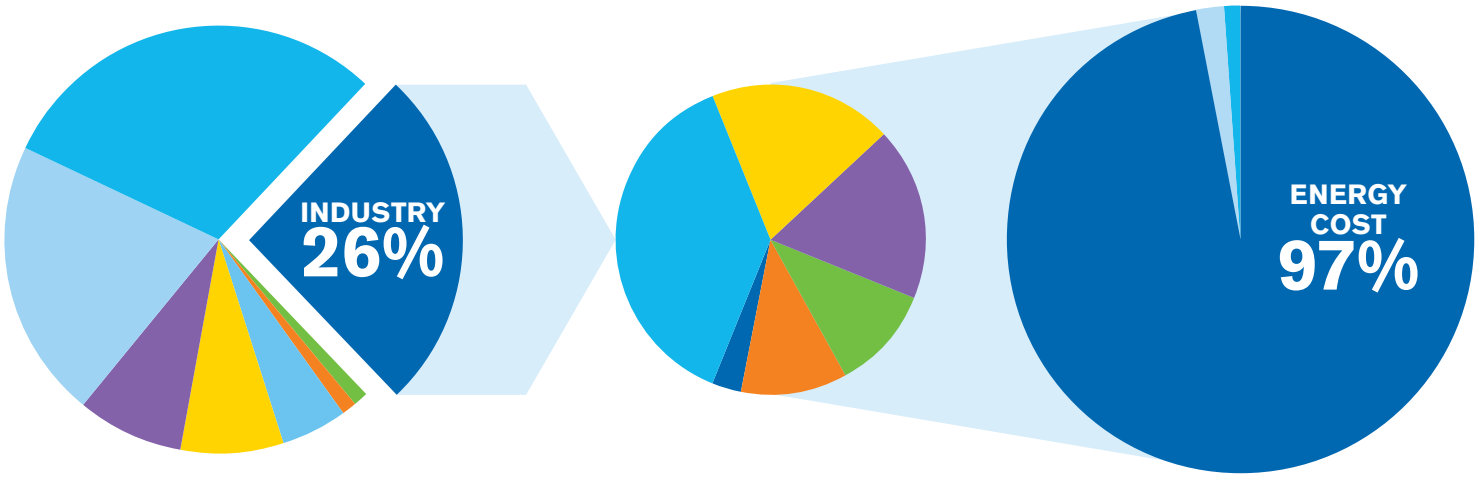
Energy-saving motors

As industry's workhorses, electric motors consume around 66% of all energy used by the industrial sector. So their efficiency – or lack of it – has a major influence on industry's energy costs and productivity. It also directly affects the world's energy use and carbon dioxide emissions.

The EU Minimum Energy Performance Standard (MEPS) scheme for new electric motors is predicted to lead to the replacement of approximately 30 million industrial motors in Europe alone, saving 5.5 billion kilowatt-hours of electricity per annum, and reducing CO_2 emissions by 3.4 million tonnes.



UK Electricity demand by sector*



Money-saving motors

When the Europe-wide consumption figures and energy costs are scaled down to one motor, at one site, the figures are even more revealing.

The Total Cost of Ownership of an electric motor can be broken down as follows:

- Energy cost – 97%
- Purchase price – 2%
- Maintenance – 1%

It's hardly surprising that, within just one month, the running costs of a single motor can easily exceed its purchase cost.

Total demand: 373,755 GWh
Industry demand: 98,007 GWh

*Ref: Digest of UK Energy Statistics (DUKES) 2014

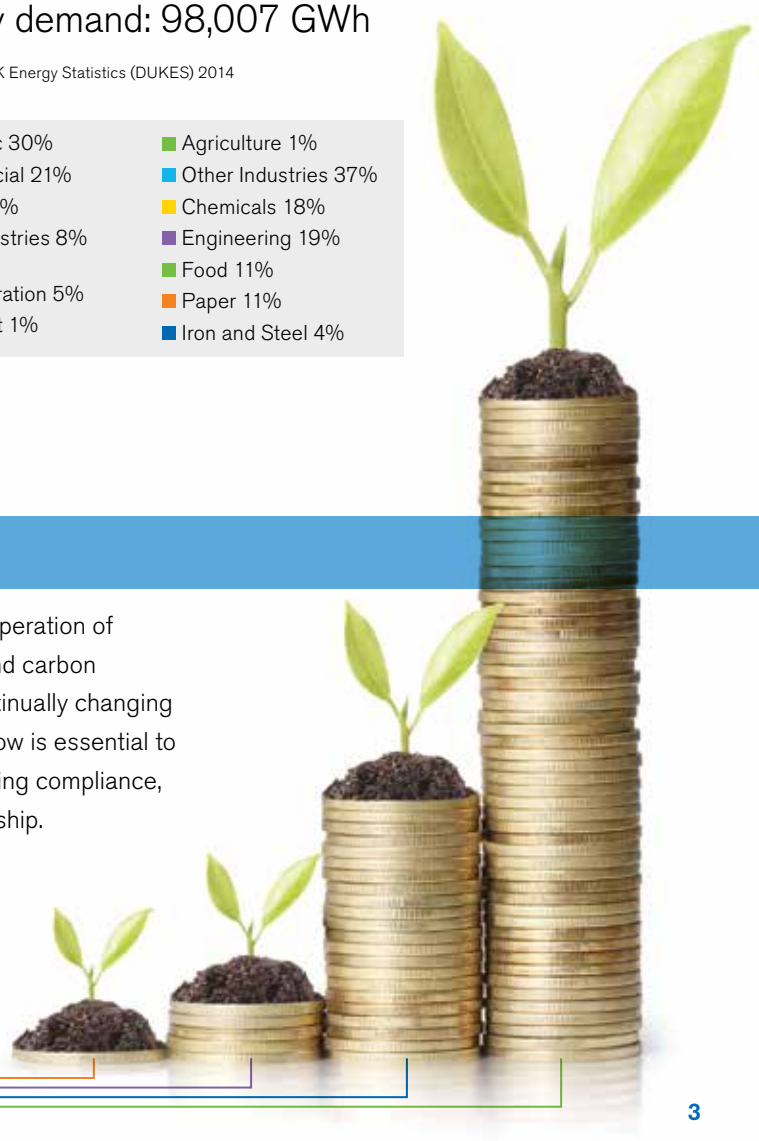
Domestic 30%	Agriculture 1%
Commercial 21%	Other Industries 37%
Losses 8%	Chemicals 18%
Fuel Industries 8%	Engineering 19%
Public Administration 5%	Food 11%
Transport 1%	Paper 11%
	Iron and Steel 4%

Cutting the cost of ownership

Electric motors and drives are of critical importance in the daily operation of industrial plant and facilities. Meanwhile, the energy-efficiency and carbon emissions regulations and legislation which govern them are continually changing and evolving. So having a motors and drives partner with know-how is essential to optimising your plant availability, reducing costly downtime, ensuring compliance, and helping you achieve the lowest possible Total Cost of Ownership.

Motor size	Running cost+
1.5kW	Over £25/week
4.0kW	Over £270/month
37.0kW	Over £28,000/year
132kW	Over £1.8m/15 years

+Based on continuous running, IE1 efficiencies and energy at £0.08/kWh



WHOLE-LIFE MOTOR MANAGEMENT FROM ERIKS AND WEG

Achieving the lowest Total Cost of Ownership for your electric motors requires reliable resources and expert support at every stage of your motor review or purchasing cycle. ERIKS and WEG offer a whole-life supply chain from specification and design through to manufacture, customisation, assemblies, installation, commissioning and ongoing maintenance.

Local service, nationally

Wherever you are in the UK, you can rely on ERIKS and WEG to provide the products and support you need.

Motors of up to 250kW are held both centrally and locally, for rapid supply from stock. And with over 60 strategically located service centres, plus 26 repair workshops UK-wide, you can expect local, expert, technical and application support. A team for large projects can be called on when the scale of your installation and application demands a complete end-to-end service.

Complete capability

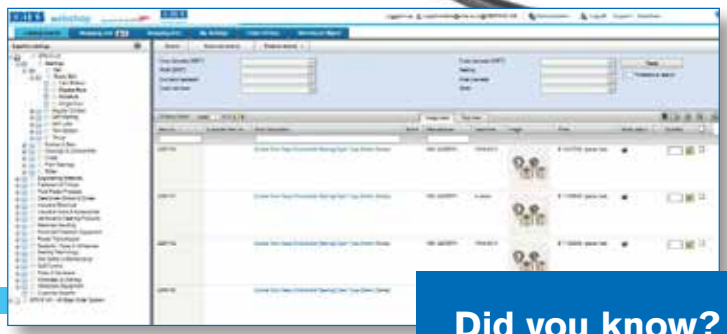
Together, ERIKS and WEG provide a complete solution for your AC, DC, slip ring, HV, MV and LV electric motor requirements, variable speed drives and gearboxes.

Replace

Choose to replace your failed motor and we can offer next-day delivery or same day courier service on high efficiency WEG motors up to 250kW. The ‘personalised’ stocking profile of our local network means we can deliver within hours in many cases.

Our delivery service is also supported by a full installation service covering electrical and mechanical requirements, laser alignment, DC to AC conversions and inverter installations.

For more information see pages 8 & 9



Making it e-asy

Our e-commerce and EDI systems make it quicker and easier for you to work with ERIKS and WEG, from initial ordering to final payment.

We can also link with your own systems to ensure total synergy, transparency and efficiency.

Did you know?

WEG annually invests an average of 2.5% of net income in research and development. The result is a range of motors and drives which leads the way in engineering innovation and energy efficiency.

Repair

Our nationwide network of 26 workshops offers state-of-the-art repairs and a 24/7/365 emergency call-out service for all brands and types of electric motors.

ERIKS is the approved WEG repairer, and our trained, skilled and certified engineers are available to work on-site or in the ERIKS workshops.

For more information see page 11

Maintain

ERIKS' unique 'solution neutral' approach, Condition Monitoring expertise and asset management capabilities, ensure cost-effective maintenance of not just the motor but the whole machine.

For more information see page 12

Upgrade

When choosing a new drive system or reviewing an existing application, ERIKS can work with you to identify the most suitable solution based on Total Cost of Ownership covering capital expenditure, operating and maintenance costs taking into account your performance and reliability requirements. What really matters is the Return On Investment.

This holistic approach gives peace of mind over the long term when evaluating whether to adopt new technologies.

For more information see page 10

SETTING THE STANDARD

Before the EU introduced the EuP Directive to make the efficiency levels of motors mandatory, the International Electrotechnical Commission laid down a voluntary standard for efficiency.

For a market-leading and responsible manufacturer such as WEG, this was the driver for increasing the pace of product development, leading to innovative energy-efficiency solutions which had proved themselves even before the legislation came into force.

IEC 60034-30:2008 Rotating electrical machines – Part 30: Efficiency classes of single-speed, three-phase, cage-induction motors. The Standard defines three International Efficiency (IE) classes for the motors:

- IE1 – Standard efficiency. Efficiency levels similar to the previous European CEMEP Eff2 class
- IE2 – High efficiency. Efficiency levels similar to previous CEMEP Eff1 class, and identical to USA Epact levels for 60Hz motors
- IE3 – Premium efficiency. A new class in Europe, identical to the USA NEMA Premium class for 60Hz motors
- IE4 – Super Premium Efficiency, the latest classification. Exceeds IE3 and USA NEMA Premium class

Making it law

The European Union has now brought the Standard into law. All new electric motors made in or imported into the European Union must meet the efficiency ratings below, with effect from the following dates:

IE2 0.75 – 375kW 1st June 2011

IE3 7.5 – 375kW (IE2 with VSD) 1st January 2015

IE3 0.75 – 375kW (IE2 with VSD) 1st January 2017

MOVING MOTORS FORWARD

The new concept in electric motors

The WEG W22 electric motor combines high-performance with maximum energy efficiency and a low Total Cost of Ownership.

- Constant efficiency from 75% up to nominal load, guaranteeing energy savings and reduced payback period
- 10–40% energy loss reductions
- Top, right or left mounting options for the terminal box, without complete disassembly of the motor, reduce modification time and stockholding requirements
- Cast iron construction at WEG owned foundries ensures maximum durability and high performance, even in aggressive operating conditions
- Innovative fan cover design for increased impact resistance
- Increased bearing heat dissipation
- Unique WISE insulation system, allowing VFD operation up to 575V without modification – for greater versatility and extended motor life
- New WEG motors using the innovative W22 platform are already in development, including new permanent magnet motors, Exd motors, and compact eco designed motors providing greater output in a smaller frame size

THE FULL WEG MOTORS RANGE

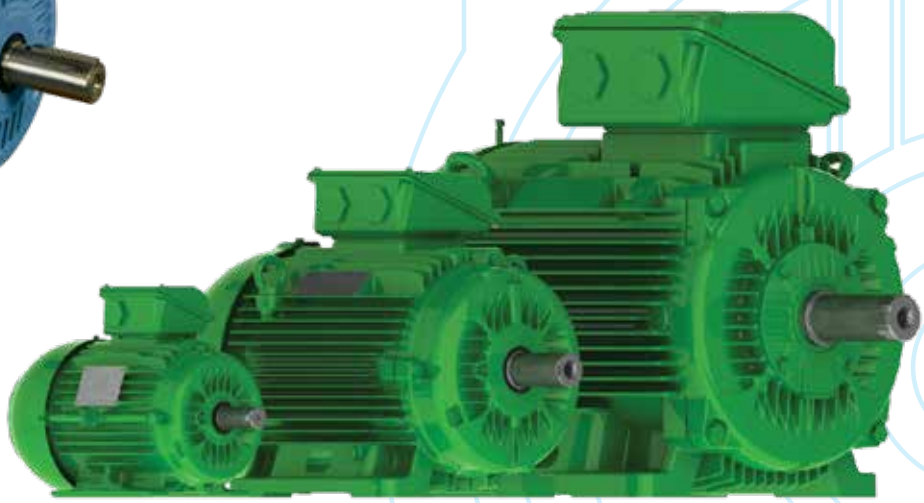
As a world leader in the design and delivery of industrial motors, WEG's focus is not only on helping you to meet new IE3 standards, but also on developing motors with the highest efficiency ratings in the market – to help reduce your energy usage and your costs.

W21 Aluminium Range

- 0.12 - 37kW
- Efficiencies IE2 / IE3
- Frames 63 to 200
- Multimount frame

W22 Cast Iron Range

- 0.12 - 500kW
- Efficiencies IE2 / IE3 / IE4
- Frames 63 to 355
- Low running cost



IE2

All WEG motors now exceed the requirements of the mandatory IE2 energy-efficiency standard for electric motors.

IE3

Although the higher IE3 standard has now come into force in January 2015, WEG has had a full range of Premium Efficiency IE3 motors available since 2011.

IE4

No date has yet been confirmed for the introduction of a mandatory IE4 rating, but a super-premium efficiency cast iron frame WEG IE4 motor is already available.

W22X ATEX Range

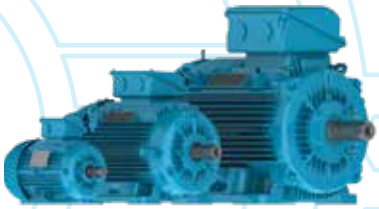
- 0.12 - 400kW
- Efficiencies IE1 / IE2 / IE3
- Frames 63 to 355
- ATEX Certified for Gas & Dust Groups

High Voltage Range

- Outputs up to 20,000kW
- Voltage up to 13,800V
- Multiple design options and configurations
- Tailored to the application

W Quattro / W Magnet Ranges

- 0.37 - 160kW
- Efficiencies up to IE5
- Frames 80 to 250
- Hybrid and Permanent Magnet Solutions



W22 WIMES Range

- WIMES - Water Industry Standard Compliant
- 0.12 - 500kW
- Efficiencies IE2 / IE3
- Frames 63 to 355
- 3 Year Warranty

IE5

The WEG WQuattro line, with outputs from 0.37-7.5kW, is a hybrid motor with squirrel cage rotor, which exceeds IE4 efficiency levels. Suitable for direct on-line state.

Wmagnet Drive System

A super-premium efficiency permanent magnet motor with a frequency inverter. Ideal for applications demanding variable speeds, low noise levels and reduced motor size.

WEG Variable Speed Drives

For most machines slowing them down by 10% will use 10% less power.

For machines with centrifugal loads (fans and pumps) slowing them down by 10% will use 27% less power. A 20% reduction in speed will use 49% less power therefore almost halving energy consumption.

To complement their electric motor ranges WEG offer an extensive range of variable speed drives covering power ratings from 0.18 to 630kW.

Combining application know-how and energy saving technology ERIKS can help you achieve your energy saving targets.

With the additional benefit of a drive that is perfectly matched to the electric motor from the same manufacturer and an extended 3-year warranty, a drive and motor package from ERIKS & WEG is a perfect combination to deliver lower Total Cost of Ownership.

REPAIR OR REPLACE?

Calculating the cost

When a motor fails, the priority is to get production back online – and that is always ERIKS' priority too. But either at the time of failure or later, ERIKS know-how and the ERIKS Total Cost of Ownership (TCO) online calculator can help you decide whether you have more options for a longer-term, added value solution.

The calculator uses basic data about your current motor and application:

- Existing motor efficiency grade
- Motor power and speed
- Annual operation hours
- Motor running load
- Type of failure

From this the Total Cost of Ownership tool calculates a number of factors including:

- Annual running cost
- Carbon footprint (CO_2 tonnes/annum)
- Energy usage (kWh)

It then extrapolates these figures to provide the cost – over any term from one year to twenty – of repairing and running the existing motor, and of replacing it with a minimum efficiency, or premium efficiency motor.

The calculation even takes into account the Enhanced Capital Allowance claim value and the end-of-life scrap value, to give you a set of figures to help you make a fully-informed repair, replace or upgrade decision.

REPAIR

Our nationwide network of 26 workshops offers state-of-the-art repairs and a 24/7/365 emergency call-out service for all brands and types of electric motors, including AC, DC, slip ring, LV, MV, HV, single and three phase, up to 13.8kV.

Our trained, skilled and certified engineers are available to work on-site or in the ERIKS workshops. In either case, they will operate as an extension of your own team, to achieve the most efficient working processes and most effective results for:

- Extraction
- Installation
- Commissioning (both electrical and mechanical of all aspects)
- Alignment
- Maintenance

Repair capability

- 24/7/365 emergency call-out service
- Most standard AC machines repaired within 24 hours
- To best practice standards (including AEMT and EASA)
- Controlled burn-out ovens
- Solvent-free varnish
- On-site repair if possible (overhauls, bearing changes etc.)
- 12-month warranty

We offer specialist motor repairs for:

- AC/DC servos
- Spindles
- Steppers
- Electronically-controlled

TAKING CARE OF YOUR MOTORS

ERIKS' unique 'solution neutral' approach to caring for your motors ensures you are always recommended the most cost-effective solution. In addition, ERIKS' Condition Monitoring expertise and asset management capabilities can help you avoid motor maintenance issues turning into major problems. ERIKS' comprehensive product knowledge covers not just your motor but the whole machine – from motor to drive chain, and from gearbox and bearings to lubricants and electrics.

Condition Monitoring

ERIKS Condition Monitoring collects, stores, compares and analyses key variables from your machines, enabling you to assess their health. Then, if failures or deviations from the norm are detected, ERIKS' know-how comes into play, to diagnose the cause and prescribe the cure.

ERIKS Asset Guard installed condition-based monitoring systems are available as Asset Guard and Asset Guard Plus.

Asset Guard

- Time based readings
- Warning if pre-set parameter exceeded
- Text or email warnings

Asset Guard Plus using the ERIKS Know-how Cloud

- Continual readings
- Warning of intermittent incidents
- Trend identification
- Text or email warnings
- Safe shutdown
- Asset performance data
- Diagnostic and prognostic evaluation (when linked to the ERIKS Know-how Cloud)

By taking advantage of ERIKS Condition Monitoring and the Asset Guard system, you can make planned, proactive decisions, to:

- Avoid catastrophic failure
- Minimise downtime
- Achieve environmental and safety compliance

MAKING THE MOST OF YOUR MOTORS

One of the greatest threats to efficiency and productivity is when your motors come to a halt. Not in their operation, but in their development. Continuing innovation in motor design means frequent reappraisal of your motor fleet is essential to achieve maximum efficiency and minimum Total Cost of Ownership.

Working in partnership with you and with each other, ERIKS and WEG can help you to evaluate your motors, assess your current practices, and discover the potential for improved reliability, reduced energy use, or lower costs.

This may be a case of our engineers, in consultation with you, developing new motor programmes for your site, ensuring motors are not over or under sized for their use, or modifying or re-engineering motors to better suit their application.

Managing your motors

The ERIKS Paragon asset tracking and motor management system helps ERIKS and customers to keep a close eye on assets, to enable more timely maintenance and more effective repairs.

Information on the physical attributes of assets, and their location, is stored for easy access, alongside stocking information for the same motors, to speed up sourcing when a replacement is required.

The motor management system also holds a record of repairs carried out on each asset, including a note of what failed, how often it fails, and what action has been taken to prevent future failure. By highlighting causes of failure, whether they were installation specific or due to a poor maintenance plan, comprehensive statistics can be produced to help improve the lifecycle of maintained assets.

A customer extranet provides access to the application, 24/7/365.

Be prepared

Effective predictive maintenance can increase production line productivity by up to 15%.

ERIKS' predictive maintenance services and systems can be used alongside the motor management system, to help determine when assets are likely to fail, as well as making it easier to identify process improvements to delay or prevent failure, and to cut losses due to wastage and inefficiencies.

SINGLE OR RETURN?

When choosing a new motor, the single capital expenditure represented by the purchase price should not be the most important criterion. What really matters is the Return On Investment.

Through a number of essential processes, ERIKS can help you to identify the right motor and assess the returns, and help you to manage and maintain your installed motor assets on-site, with expert technical support and asset management.

Energy appraisal

A one-size-fits-all motor policy is not always practical or sensible. To assess your specific situation our engineers carry out a basic motor appraisal using a 5-step approach:

1. Site visit to assess installed base and processes
2. Identification of up to 5 motor-driven applications for investigation
3. Provision of theoretical repair/replace/upgrade illustration based on available options
4. Review of existing stock, replenishment, and repair/replace policies
5. Introduction of ERIKS' motor management options (Repair/Replace, TCO)

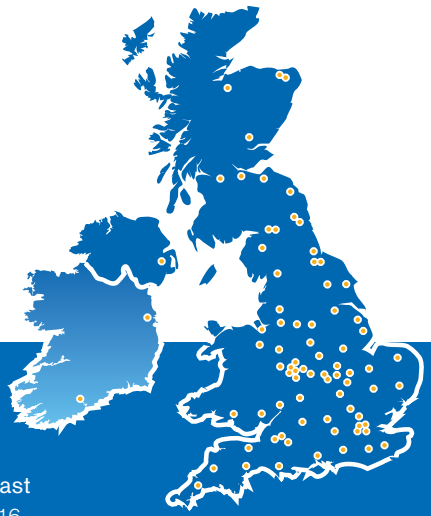
Using this method we can help determine the right choice for you, based on your specific situation, without bias towards any particular solution.

Application assessment

An in-depth assessment of your application, based on ERIKS' product and application know-how, will enable simplification and greater efficiency. This simplification and efficiency also extends to your supply chain, with ERIKS as a sole partner covering 10 core competences and replacing your existing plethora of suppliers.

Your next step

Your next step towards a more efficient motor fleet is to contact ERIKS. Together with WEG, we offer the complete motor solution. Simply email drives.enquiries@eriks.co.uk or call 0845 006 6000



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