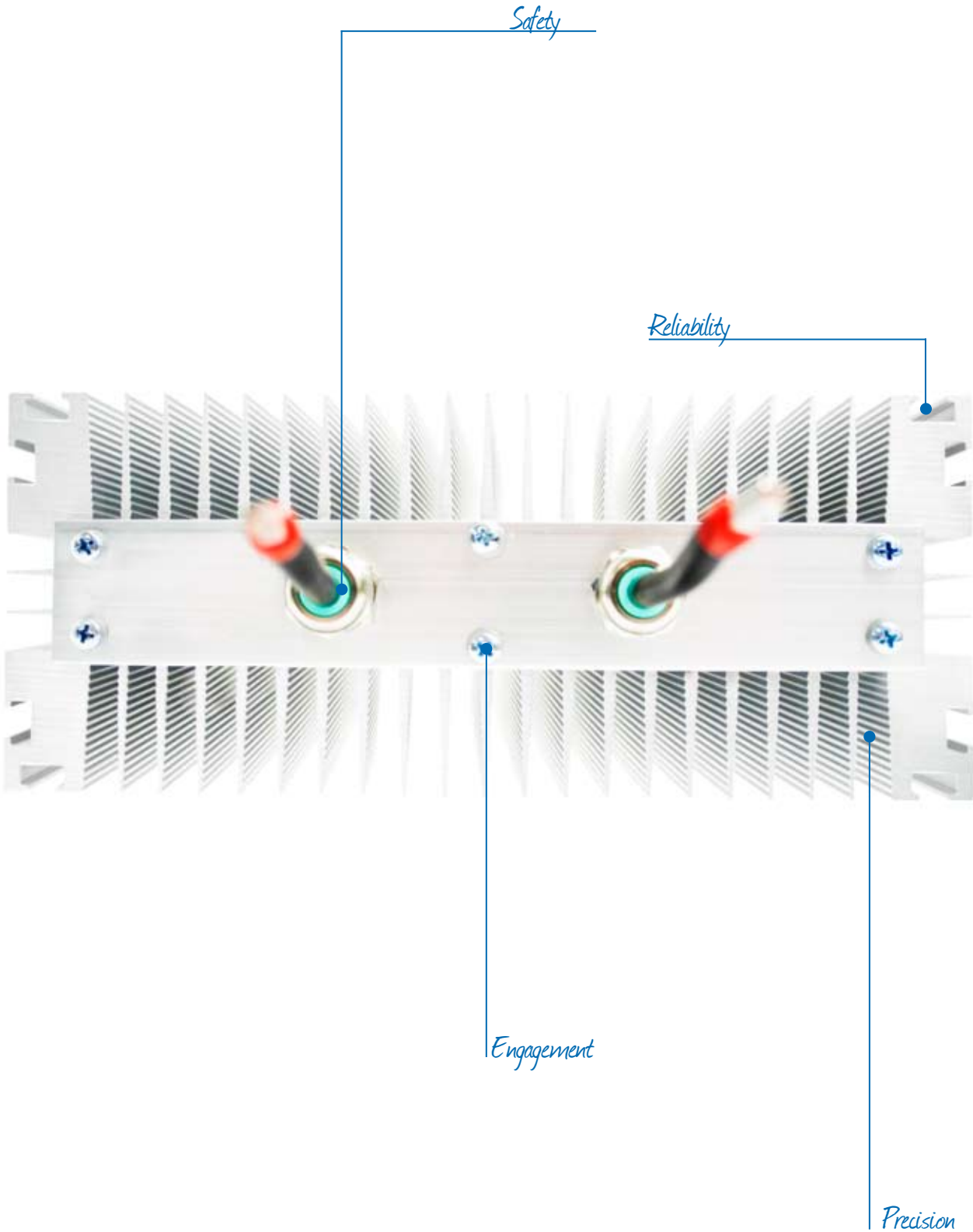


Industrial Converter Solutions REOunity - System Solutions for Variable Speed Drives



Practical Solutions

with added benefits from REO

Modern technology has meant that drives are being used in more challenging applications and environments. Legislative and practical requirements exist to ensure that the completed system takes the following phenomena into account:

- EMC problems
- Harmonics issues
- Voltage peaks
- Short-circuit currents
- Interference currents

A drive integrator should be aware of and take measures to meet current EMC and Power Quality Guidelines without compromising the efficient and reliable operation of the plant. These requirements are in addition to the specific requirements for special filters and brake resistors which certain applications demand.

REO provides components for demanding applications involving the use of Variable Speed Drives. It has the know-how and experience to develop individual solutions which offer added value to the customer.

REO - ideas make the difference

Founded in 1925, the adjustment of voltage and current, the development and manufacture of resistors, and the elimination of interference has played a central role in the company's core activities. REO today reflects this collective experience in a wide range of components such as resistors, inductors and EMC filters.

Innovative ways to solve problems coupled with the means to realise and develop solutions allows us to make a difference.

With REO as a partner, you always get a little extra:

- REO's experience of railway technology, goes far beyond the requirements of drives for industrial applications and this has allowed the development of highly efficient components that operate under extreme conditions with long term reliability.
- As a manufacturer of test equipment REO is an expert in quality and has its own test facilities that simulate real-world conditions, this ensures that a component can be optimised for its application.
- Knowledge of both inductive technology and power electronics means that REO knows the difficulties and issues first hand ensuring that practical and efficient solutions are offered.
- REO has offices worldwide meaning support is never far away.



REOunity
The principle of compatibility and synergy.

REO's philosophy has always been the pursuit of the system concept - to provide system solutions to customers, thus enabling enhanced functionality with optimal performance.

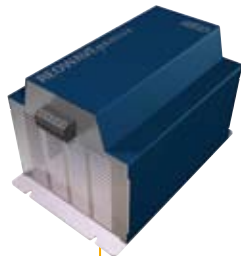
REOunity provides drive peripheral components of an inductive or resistive nature. Whether line reactor or harmonic filter on the input side, DC reactor or braking resistor for the DC link, chokes, and dv / dt filter, sine filter or current transformers for the output side – REO offer a multitude of solutions.

REOunity

Drive Peripheral Components (1 - 350 kW)



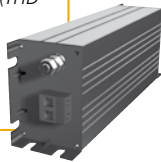
REO Choke-Filter Combination
(500 V / 3 - 180 A)*
– for suppression of RFI noise with simultaneous reduction of harmonics (THD <60%) and line commutation issues



REOWAVEpassive (690 V / 9 - 450 A)*
– is a harmonic filter for nonlinear loads in B6 rectifier applications to reduce harmonics to a THD of <5%



REO PowerPack (690 V / up to 80 A)*
– serves as the Regenerative central power supply of DC-bus systems with integrated filtering. Compact size and low losses.



REO EMC Filter*
– with high attenuation (upto 100 dB attenuation) in practical housings for installation flexibility and to ensure low heat dissipation.



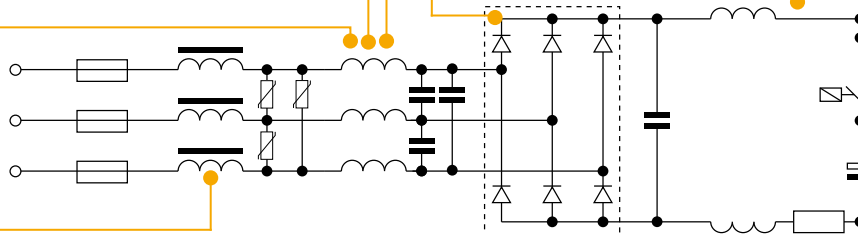
REO Damping Resistance (BW 159)*
– to damp current and voltage spikes, high energy dissipation 50 kW/s, maximum short circuit current 20 kA (protection up to IP67)



REO DC Link Chokes
(< 1000 V / 100 A)*
– to smooth the DC link current, and reduce system disturbances



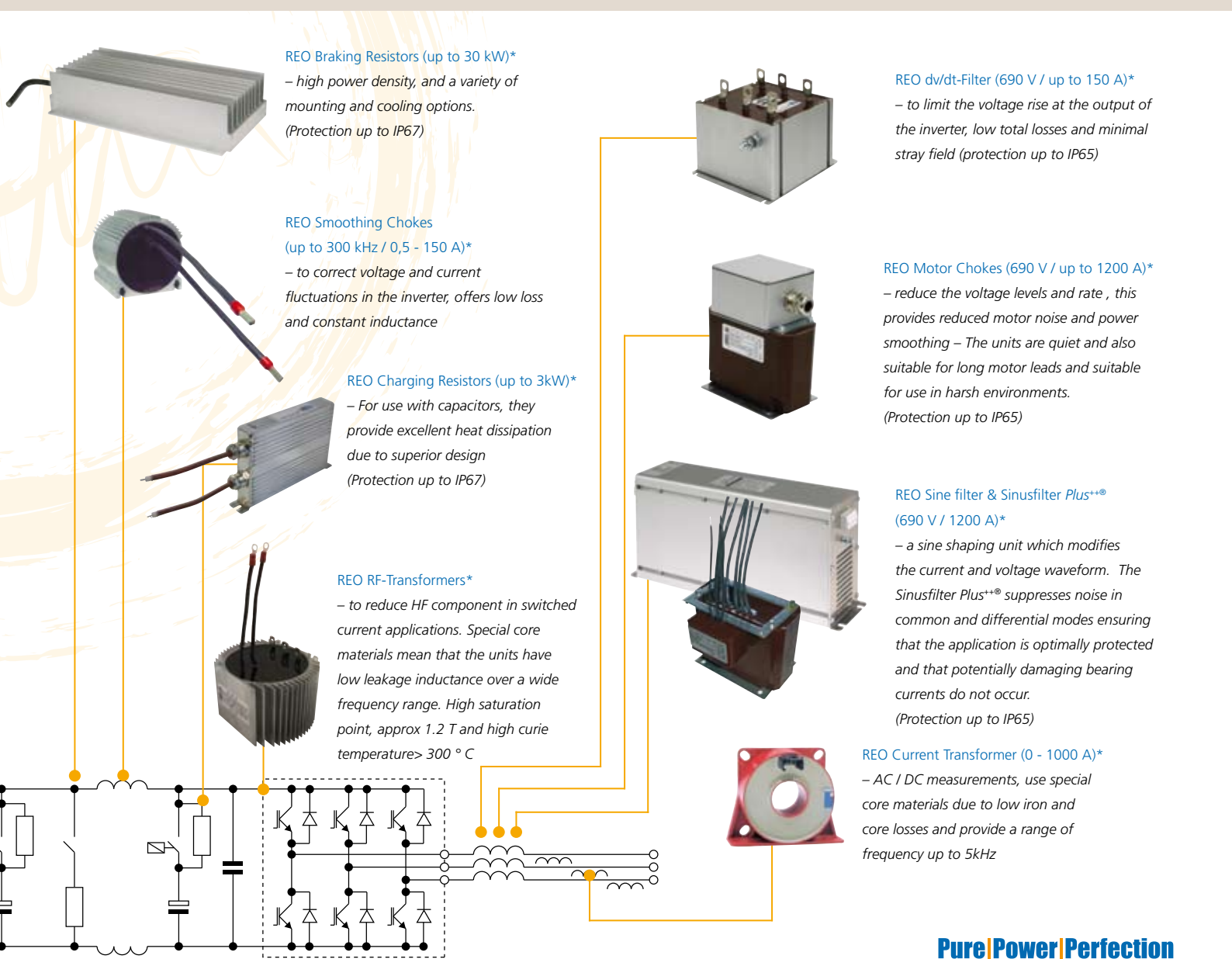
REO Line Reactors (up to 690 V / 3 - 1200 A)*
– open and encapsulated designs for protection up to IP64; used to reduce commutation losses and harmonics, very robust and with good thermal properties



*higher ratings on request



Bildharweis: © Jörgen Udvang - istockphoto.com



REO Braking Resistors (up to 30 kW)*

– high power density, and a variety of mounting and cooling options.
(Protection up to IP67)

REO Smoothing Chokes (up to 300 kHz / 0,5 - 150 A)*

– to correct voltage and current fluctuations in the inverter, offers low loss and constant inductance

REO Charging Resistors (up to 3kW)*

– For use with capacitors, they provide excellent heat dissipation due to superior design
(Protection up to IP67)

REO RF-Transformers*

– to reduce HF component in switched current applications. Special core materials mean that the units have low leakage inductance over a wide frequency range. High saturation point, approx 1.2 T and high curie temperature > 300 °C

REO dv/dt-Filter (690 V / up to 150 A)*

– to limit the voltage rise at the output of the inverter, low total losses and minimal stray field (protection up to IP65)

REO Motor Chokes (690 V / up to 1200 A)*

– reduce the voltage levels and rate, this provides reduced motor noise and power smoothing – The units are quiet and also suitable for long motor leads and suitable for use in harsh environments.
(Protection up to IP65)

REO Sine filter & Sinusfilter Plus⁺⁺ (690 V / 1200 A)*

– a sine shaping unit which modifies the current and voltage waveform. The Sinusfilter Plus⁺⁺ suppresses noise in common and differential modes ensuring that the application is optimally protected and that potentially damaging bearing currents do not occur.
(Protection up to IP65)

REO Current Transformer (0 - 1000 A)*

– AC / DC measurements, use special core materials due to low iron and core losses and provide a range of frequency up to 5kHz

Complex technology

REO demonstrates innovation

By concentrating on core technologies and by working actively with customers on new developments REO aims to create value and provide benefits for the customer.

The field of drive technology calls for increased efficiency and performance. Space can be limited and there are often difficult environmental conditions. REO provides many options and techniques for optimal heat dissipation, and high ingress protection ratings.

REO was an early adopter in the field of water-cooling and now is able to provide exceptional expertise and a variety of techniques that allow the realization of complex power architecture integrating EMC and power quality aspects with this cooling technology. Whether water-cooled braking resistors, designed to be housed in a special aluminium housing or inductors, in which the cooling lines form part of the winding - REO can always be relied upon for innovative solutions when problems are presented.

Especially in offshore industries or where applications are exposed to extreme environmental conditions. The equipment used in these components have to withstand humidity, water spray and salt air. REO has years of experience in the railway sector, where these conditions prevail, this has allowed REO to develop techniques to produce components in high degrees of protection up to IP66/67.

REO provides in-house manufacturing for production and prototyping of housings and forms. This allows special bespoke designs to be offered without delay unnecessary premiums. In situations where converters are modular and supplied without a control cabinet, the unique nature of our products means that we can still provide the necessary components to ensure safe and compliant system operation.

Flexibility, expertise and practical solutions are at the core of our organisation, this approach always leads to the optimisation of solutions and the maximisation of benefits.



REO – Technology that convinces

REO Braking Resistor (BW D 158)
– in water-cooled design – offers a compact design for applications that require high performance despite limited space.



REO ColdPlate (CNW MD 903)
– is a water-cooled EMC filter, Mounted on a converter or other component of the water cooling system – airflow is not necessary.



REO Encapsulation and Impregnation
– is used for components that are required in high protection classes. REO has developed a procedure which utilises a moulding process, thereby simplifying the manufacturing process and reducing costs.



REO Braking Resistor, Housed
– REO's standard aluminum profile resistors, have excellent thermal properties. However, applications where high surface temperatures are an issue or where the resistor must be mounted in an area outside of a control cabinet mean that special measures must be taken. These resistors offer a good option in these cases.



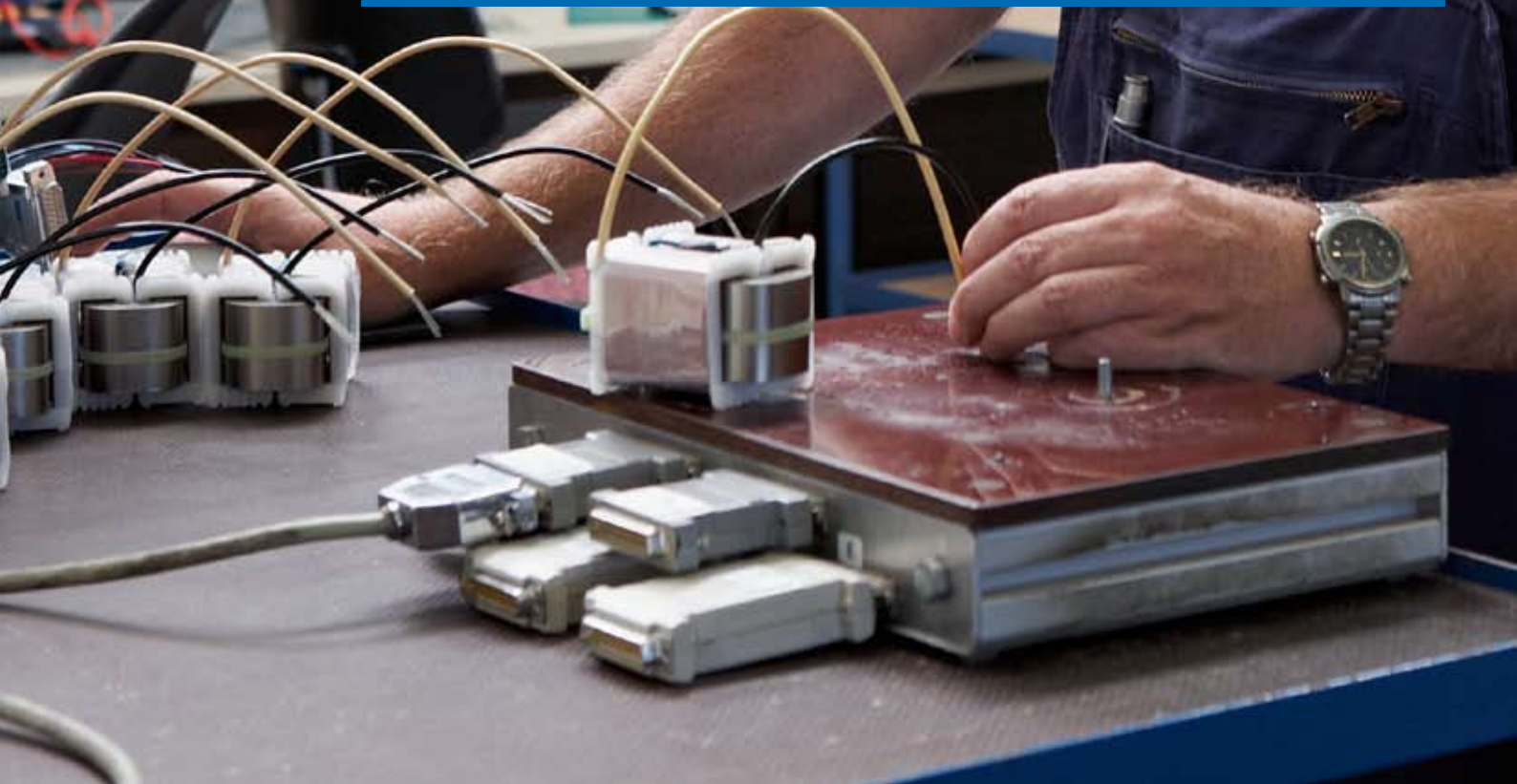


-Ingenious solutions for your application-

Four manufacturing sites in Germany, and production facilities in England, China, India and the United States makes REO a reliable global partner.

It is with good reason that REO products meet the highest standards of quality. ElectricalTest Solutions, is the REO division involved with the development and manufacture of modular test facilities. This is an area in which REO has dealt for many years and it now produces quality and innovative test systems that are based on in-house developments that correspond to the current state of REO technology and wider market trends. Whether EMC tests, measurements of partial discharges or electrical tests with integrated energy recovery - sophisticated technology makes testing more efficient and allows REO to deal with complex challenges.

Many years of experience in a variety of engineering disciplines mean that REO boasts comprehensive technical capabilities and unique engineering potential. REO is the perfect partner for EMC and power quality requirements especially in the exciting field of variable speed drives.





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