Components for

medical technology

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Medical technology lifesavers

Modern examination and operating methods would not be possible without the use of electricity. Be it computer tomography, ECG or dental treatment – on the one hand, while the use of electricity has replaced and improved traditional treatment methods, on the other hand, only certain procedures would be possible because of it.

However, the use of electricity also holds dangers for people. A potential hazard is especially high in the medical sector, where electrical appliances are in direct contact with patients.

These sources of danger are subjected to standards such as the IEC 60601-1, which govern demands for a safe supply of electricity in the medical sector and protect patients from danger.

REO's factory in Pfarrkirchen develops and produces REO transformers for medical technology which meet globally applicable standards and set standards in matters of reliability and efficiency.

Service

Guarantee

Winning quality – extra peace of mind, thanks to the expanded REO manufacturer's guarantee. We believe in the quality of our own products and are confident of the durability of all components used, which is why we have extended the legal guarantee from one to two years.

Safety

We offer you devices with the highest possible operational safety. Should any unwanted events occur with any of our products, your professional emergency responder will be available to help you over the telephone free of charge. If the situation or query cannot be resolved over the telephone, you have the opportunity to have the defective device sent back after consultation.

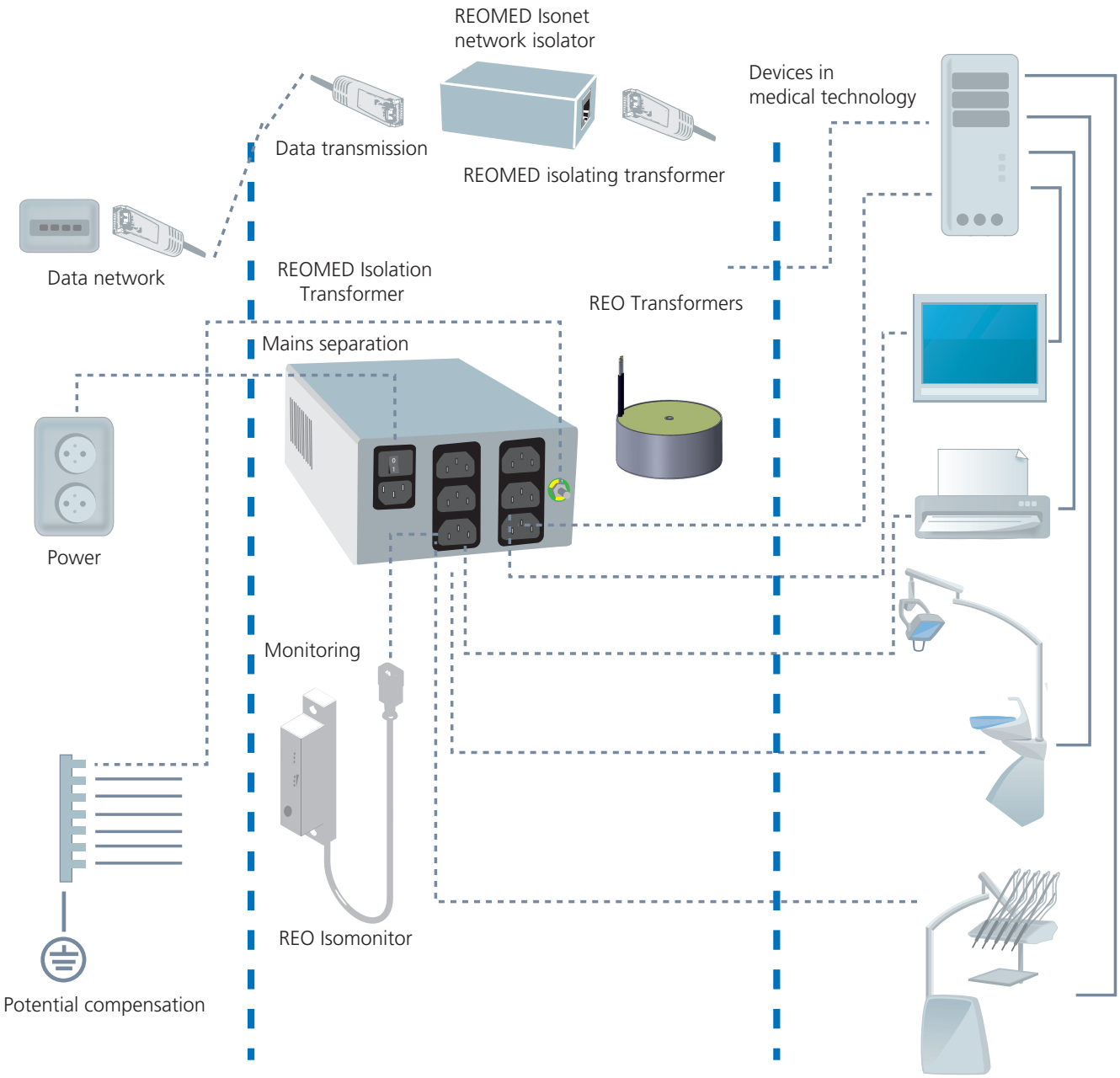
Repairs

After telephone consultation, and after the defective product has been received, we can offer you express repairs if possible. This minimises downtime in the event of a fault and guarantees a swift exchange.

Hotline

Our REO sales specialists look forward to giving you a helping hand. Contact your REO contact partner or call our hotline to receive further information about our services and the REO portfolio.

Solutions for medical technology



REO FIXED TOROIDAL TRANSFORMERS

Type RFT VV

Fixed Transformers for medical applications

High quality toroidal transformers are essential for providing safe, isolated power for medical equipment with extremely low levels of leakage current.

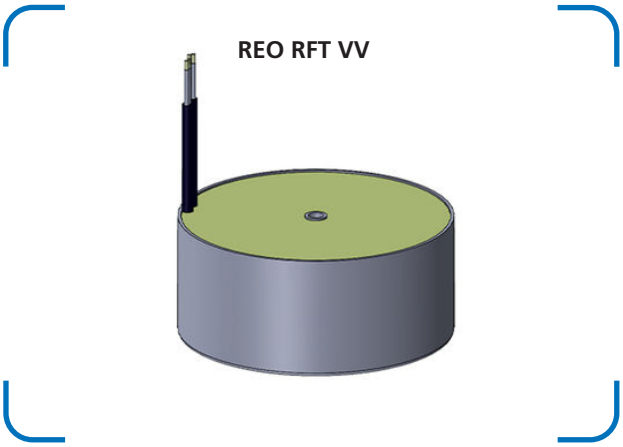
REO RFT VV ranges are used extensively in the medical sector to provide power for OEM equipment, especially manufacturers of patient diagnosis, treatment, and monitoring devices like tomography, ECG, and endoscopy systems.

REO Isolation transformers are known for their low magnetic stray field, high level of safety, and reliability while also providing high efficiency and many connection options.

These transformers may be constructed according to customer requirements, for example, without potting or center potting and adding bespoke mountings and metalwork.

Features

- Wide range of voltage options
- Power ratings up to 6000 VA
- Low weight
- Fully encapsulated to IP54 (other designs available)
- High efficiency
- Centre point mounting
- Can be manufactured from UL listed materials



REO Fixed Toroidal Transformers are able to be manufactured in a wide range of voltage and power ratings, with a maximum current capacity of 50 Amps.

The units demonstrate excellent efficiency, especially when compared to conventional EI type transformers.

The fully encapsulated design protects the transformer from potentially dangerous ingress of both moisture and dust.

The robust design also allows the units to be securely mounted using a central mounting point.

REOMED I
Isolation transformers – Version 3.1

Medical transformers

Medical systems must safely meet the leakage current requirements specified in EN60601 – if several devices are connected to the same medical device, the overall leakage current increases accordingly.

The TÜV-certified REOMED isolation transformers are proven and reliable equipment for all electrical systems in a medical environment – they limit the leakage current and thus help ensure patients' safety.

REOMED isolation transformers are known for their low magnetic stray field, high level of safety, and reliability while also providing high efficiency and many connection options.

In addition to the standard range, these transformers may be constructed to customer requirements and enhanced by adding an electronic starting current limiter, surge protection and EMC mains filters.

Advantages

- Wide range of options
- Low weight
- Short-circuit and overload protection
- Integrated starting current limiter
- Sturdy aluminium housing
- Equipotential earthing pin as per DIN 42801
- Plug connections as per IEC 60320
- IEC 60601- 1:2005/ AMD1:2012; ANSI/ AAMIES 60601-1:2005/ CR/ 2012 CAN/ CSA C22.2 No. 60601-1:14 (medical technology) USA and Canada IEC 60601-1-2:2014 (partly); EN/ IEC 61000-3-2:2014; EN/ IEC 61000-3-3:2013

REOMED I Version 3.1

Standard IEC 60601-1 (ed 3.1) / NRTL
Standard IEC 60601-1-2 (ed 4.0)

Technical data

REOMED I ed 3.1	
Input voltage	115 / 230 V
Output voltage	115 / 230 V
Rated power input	300 - 2200 VA
Housing protection rating	IP 20
Weight	4,5 - 19,0 kg
Ground leakage current at 127/254 V / 50/60 Hz	< 300 / 500 µA
Contact current	<100µA
Number of output sockets	4 - 9 as per IEC 320
Test voltage	4 kVac (between primary and secondary winding)
Max. Ambient temperature	40 °C
Isolation resistance	> 2 MΩ
Protective conductor resistance	< 0,1 Ω

All devices have a starting current limiter (NTC or electronic), potential compensation as per DIN 42801, a primary power cable and a over temperature warning. Devices can be fixed using wall, table or floor mounting.

REOMED II
Isolation transformers – Version 3.1

Medical transformers

The REOMED II isolation transformer reliably reduces leakage current in medical systems.

High-quality insulation materials and processing provide safe isolation from the mains input. The REOMED II range of transformers is designed for low energy loss, resulting in high efficiency, typically <1 %.

A circuit breaker ensures that the transformers are protected against overload and short-circuit on both the input and output sides.

The mains input is switched ON and OFF via an illuminated double pole mains switch. A two-pole circuit breaker on the side of the main and a one-pole circuit breaker on the output side protect both the REOMED and the connected devices.

Resettable circuit breakers mean circuit trips can be quickly rectified without carrying spare fuses.

In addition, a temperature switch is integrated into the power isolation transformer, providing additional safety by automatically shutting down in the event of a thermal issue.

REOMED II Version 3.1

Standard IEC 60601-1 (ed 3.1) / NRTL
Standard IEC 60601-1-2 (ed 4.0)

Advantages

- Compact dimensions
- Sturdy aluminium housing
- Double Pole Illuminated Mains switch
- Low overall weight
- Integrated circuit breakers
- Plug connections as per IEC 60320
- IEC 60601-1:2005/ AMD1:2012; ANSI/ AAMIES 60601-1:2005/ CR/ 2012 CAN/ CSA C22.2 No. 60601-1:14 (Medizintechnik) USA und Canada IEC 60601-1-2:2014 (Partly); EN/ IEC 61000-3-2:2014; EN/ IEC 61000-3-3:2013

Technical data

REOMED II Version 3.1	
Input voltage	230 V
Output voltage	230 V
Rated power input	660 - 2000 VA
Housing protection rating	IP 20
Weight	7,7 - 18,0 kg
Primary circuit breaker	4 - 12 A
Secondary circuit breaker	3 - 10 A
Ground leakage current at 254 V / 50/60 Hz	< 500 µA
Contact current	<100µA
Number of output sockets	6x as per IEC 320
Test voltage	4 kVac (between primary and secondary winding)
Max. Ambient temperature	40 °C
Isolation resistance	> 2 MΩ
Protective conductor resistance	< 0,1 Ω

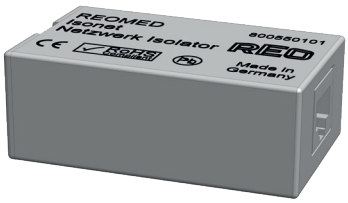
All devices have a starting current limiter (NTC or electronic), potential compensation as per DIN 42801, a primary power cable and a protective temperature limiter. Devices can be fixed with wall, table or floor mounting.

REOMED Isonet network isolator

Accessories
A screened Ethernet cable is usually earthed via the chassis of connected equipment or the network interface circuitry; this exposes the connected equipment to potential surges and spikes, which can cause insulation breakdown and a possible electric shock hazard. In addition, connecting cables and equipment at multiple points increases the likelihood of leakage currents flowing between earth connections at different potentials.

The REOMED Isonet network isolator electrically isolates computers and other connected devices in Ethernet networks to 4kV. It protects devices and people from the effects of possible electrical voltage spikes on network power cables and reliably prevents potential equalization currents via network cable shielding.

REOMED Isonet network isolator



EN 60950-1
EN 60601-1

Advantages

- Bi-Directional protection
- Isolation of the screened earth of the network cable
- No additional power supply required
- No software installation required
- Maintenance-free
- RoHS compliant
- EN 60950-1
- EN 60601-1

Technical data

REO network isolator	
Isolation voltage	4 kV
Input / output connector	RJ45
Supported network protocols	10BaseT, 100BaseTx, 1000BaseT
Insertion loss	-1,3 max. dB
Return loss	-8 min. dB
Protection rating	IP 20
Max. voltage of the connected devices	250 Vac rms
Operating temperature	-10 bis +70 °C
Storage temperature	-40 bis +85 °C
Air humidity	10 bis 90 % (without condensation)
Housing	Plastic
Weight	45 g
Dimensions [H x W x D]	25 x 66 x 40 mm

Isomonitor - isolation monitor for REOMED transformers

Accessories

Conventional circuit protection measures, such as overcurrent circuit breakers, may fail to warn of potential isolation faults on the output side when isolation transformers are used.

The ISOMONITOR monitors the dielectric resistances of both live contacts of the isolation transformer's output socket against grounding potential and generates a warning signal in the event of a fault.

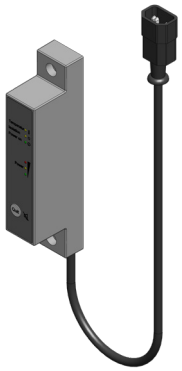
Isolation resistance is monitored, and if the threshold value of 50 kΩ (25 kΩ) is exceeded, both an acoustic signal (a pulsating tone of approx. 3
kHz, approx. 98 db), and a visual signal (LED indicator) are generated.

The ISOMONITOR can be directly connected to one of the output sockets on the REOMED isolation transformer. Other optional functions are monitoring the transformer temperature with audible/visual alarms and displaying the transformer's power consumption.

In the event of a fault, the audible alarm can be manually reset, and the visual alarm is automatically reset as soon as the fault has been resolved.

A functional test can be performed with the ISOMONITOR using an appropriate test plug, which simulates an isolation fault; this must be plugged into one of the output sockets on the isolation transformer, triggering the alarms once power is applied..

Isomonitor – isolation monitor for REOMED transformers



Standard IEC 60601-1-2 (ed 4.0)

In combination with the REOMED isolation transformer as per:
EN 60601-1
EN 60601-1-2

Advantages

- Easy to operate
- Audible and visual signals
- Function test with test plug
- Power consumption display (optional)
- Temperature warning (optional)

Technical data

REO Isomonitor			
Rated voltage	230	115	(V)
Working range	200 - 240	100 - 120	(VAC)
Response value	≤ 50	≤ 25	(kΩ)
Response time	< 2		(sec.)
Signal indicators	**During operation:** LED green (power on) **Isolation fault::** LED yellow (isolation) **Transformer threshold temperature reached:** LED yellow (temperature) **Transformer power workload (power):** LED green: 30 % LED yellow: 60 % LED red: 90 %		
Audilble signal	For isolation fault: pulsating For overtemperature: Continuous tone		
Ambient operating temperature	0... +40		(°C)
Relative ambient operating air humidity	30... 75		(%)
Protective class	II		
Protection rating	IP 20		
Dimensions [H x W x D]	192 x 34 x 56		(mm)

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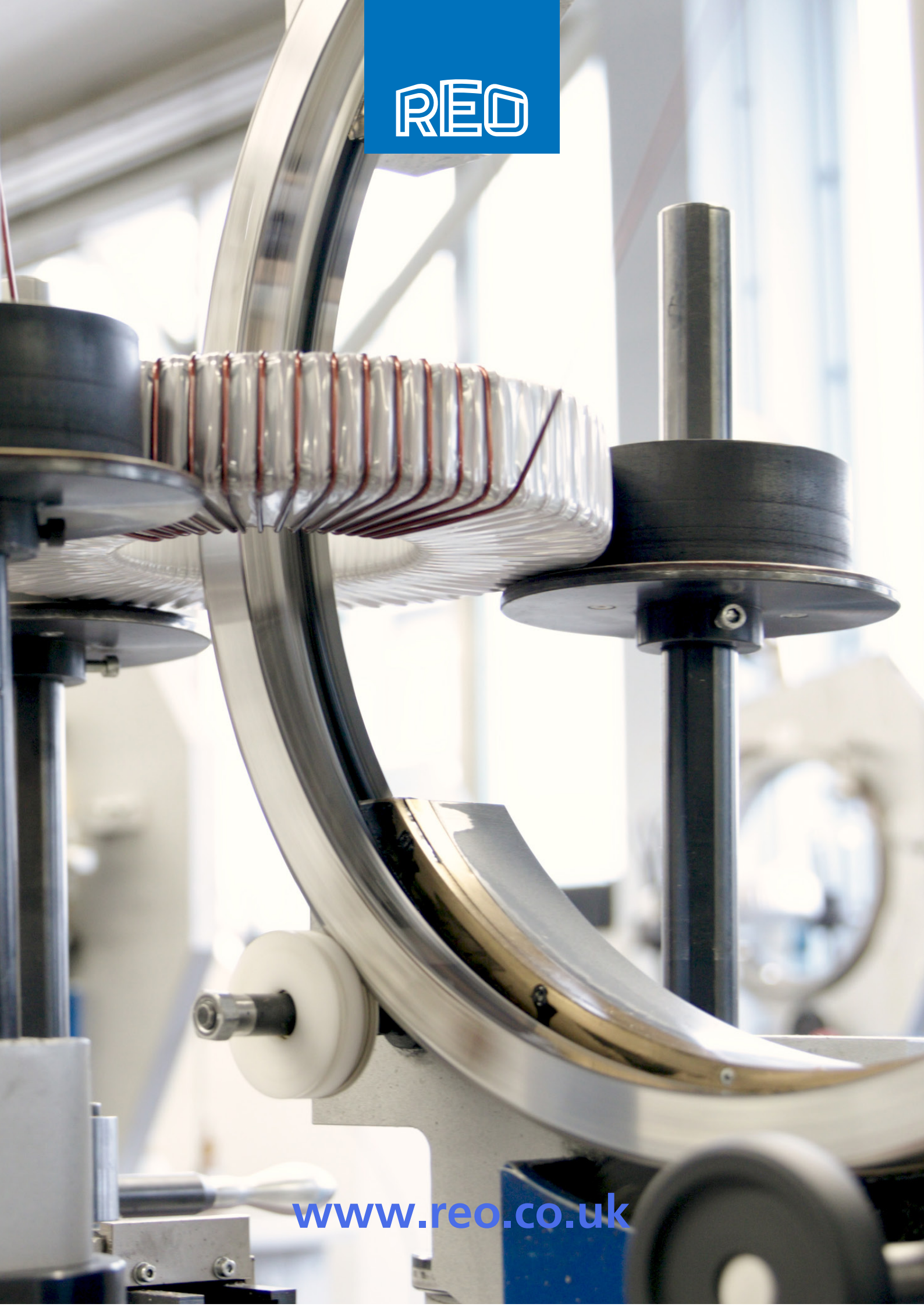

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