



### Bakker Repair + Services, your partner for worldwide repair and services

Bakker Repair + Services has 40 years of experience in repair and service of generators, electromotors and transformers in the industrial sector. Our value added services offer you high quality, short delivery time and good pricing. We have comprehensive knowledge on all brands and types and work completely independent. Bakker Repair + Services provides on site services to customers worldwide.

# Worldwide repairs and services for the heavy industry

From our workshop in Sliedrecht we perform repairs and services to industrial customers worldwide. We offer 24/7 fast and agile support to our customers who are active in various heavy industry branches.

## Safety, quality and environment

Safety, quality and environmental care are the basis of your business. Bakker Repair + Services believes that safety and environmental care are vital in her services. This is supported by our SCC\*\* certification for safety, our IECEx 03 certification for explosive atmospheres and our level 3 CO2 performanceladder certification for reducing our impact on the environment. Bakker Repair + Services is also ISO 9001:2008 certified.

# Experience in various industrial branches

We are familiar with the specifics of each branch in the industry, from petro chemistry to paper industry. Therefore you can trust on a reliable partner which is familiar with your specific working methods, such as periodic stops, safety briefings and kick off meetings.



## **Inspections and Measurements**

What is the current condition of the machines on your plant? Unexpected damage has a great impact on the continuity of the process. Bakker Repair + Services periodically inspects your generators and electromotors. This enables you to detect (potential) failures early and take appropriate action timely.



#### Bakker Motor Circuit Analyzer (BMCA)

During the BMCA measurement the condition of the following aspects are measured resulting in an analysis of the power quality and performance:

- Stator windings
- Rotor bars
- Insulation
- Polarisation index
- · Winding resistance

#### Features:

- Online & offline measurements
- Mobile equipment
- Quick condition measurement, less than 1 hour per machine
- Suitable for high and low voltage
- Report including conclusions and recommendations

#### Vibration measurement

By measuring and analyzing vibrations, the condition of the following aspects are monitored:

- Bearings
- Alignment
- Coupling
- Windings
- Lamination

#### Features:

- Periodic measurements to determine machine condition
- ISO 18436-2 category 2 certified
- Report including conclusions and recommendations

#### Slide bearing inspection

A slide bearing inspection is a non destructive test to determine the condition of slide bearings. The following aspects are inspected:

- Bearing clearance
- Running surface
- Axial plane

#### Features:

- Non destructive testing (ultrasonic)
- Oil analysis (optional)
- Visual inspection
- Report including conclusions and recommendations

#### Protection relays inspection

A protection relays inspection inspects all protection systems of a machine, ensuring an automatic safety stop in case of an emergency. Amongst others the following parameters are checked:

- Over frequency
- Under frequency
- Over voltage
- Under voltage
- Over current
- Reverse Power

#### Features:

- Ensure the safety of your machine
- Report including conclusions and recommendations

#### Diagnostic measurements HV

A diagnostic measurement on high voltage generators and electromotors analyzes the quality of the windings by performing multiple measurements. This diagnostic measurement is especially focused on the windings of electromotors and generators.

The following measurements are performed:

- Isolation resistance measurement
- Polarization index measurement
- Partial discharge measurement
- Tan-delta measurement

#### Features:

- Suitable for HV generators and electromotors
- Option to measure multiple HV machines in one day
- Combine with visual inspection
- Report including conclusions and recommendations

#### Videoscopic inspection

Internal visual inspection on your machine without disassembling. During a videoscopic inspection the following components are checked:

- Wedges
- Stator winding
- Rotor winding

#### Features:

- Timesaving
- Clear photos of internal components
- Report including photos, conclusions and recommendations

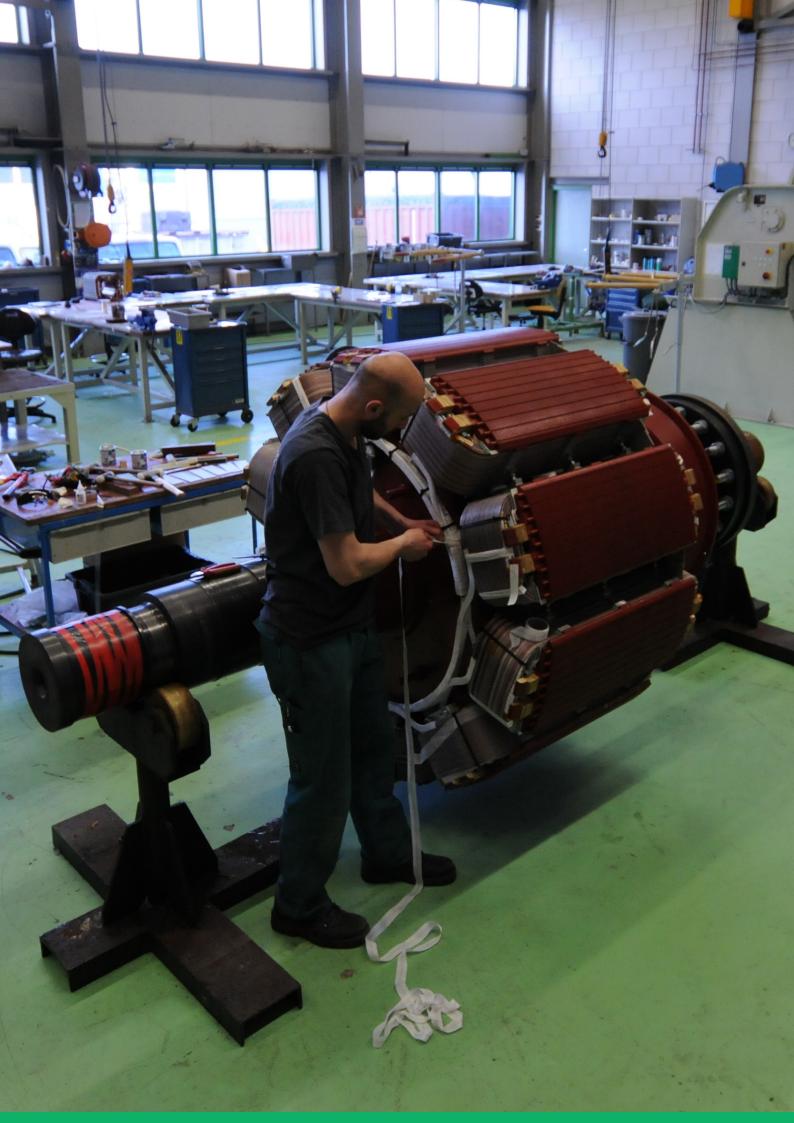


#### Thermographic measurement

During thermographic measuring the different heat levels in a machine are compared in order to detect (possible) damages in an early stage.

#### Features:

- Ability to measure complete installation (motors, generators, switchboards, drives)
- Detect possible bad connections, overload and internal dirt
- Analysis of aging components
- Report including thermographic images, conclusions and recommendations



## Repair in our workshop

Our workshop has 40 years of experience in overhauling, repairing and rewinding generators and electromotors. The modern workshop of Bakker Repair + Services measures 5500 m<sup>2</sup>. It includes an impregnation facility, a mechanic workshop, multiple steam cleaning facilities, a welding facility and a lifting capacity over 100 tons. High quality and short delivery times are our motto.

#### **Overhaul**

Bakker Repair + Services overhauls all kinds of high and low voltage AC and DC machines. The overhauling of your generator, electromotor or transformer is oftentimes a great opportunity to carry out additional value adding activities. Since you want to be aware of the costs upfront, the work scope is determined together and additional work will be discussed.

## **Balancing**

We have four computer controlled balancing machines and can balance all rotating parts conform with ISO 1940, including rotors, couplings, crankshafts and gears.

## Rewinding

The winding shop of Bakker Repair + Services is designed to rewind all AC and DC generators and electromotors with a short delivery time. During the rewinding multiple tests are carried out to assure our high quality standard. Our certified and experienced winders can also fabricate coils and restore lamination.

## **Testing facility**

As a quality assurance we test all repaired machines in our own specialized testing facility which consists of three testing fields. Whilst testing different aspects such as temperature, insulation resistance and bearings are measured. In case you have specific needs we are able to create custom testing procedure. Certified testing can be arranged.



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