

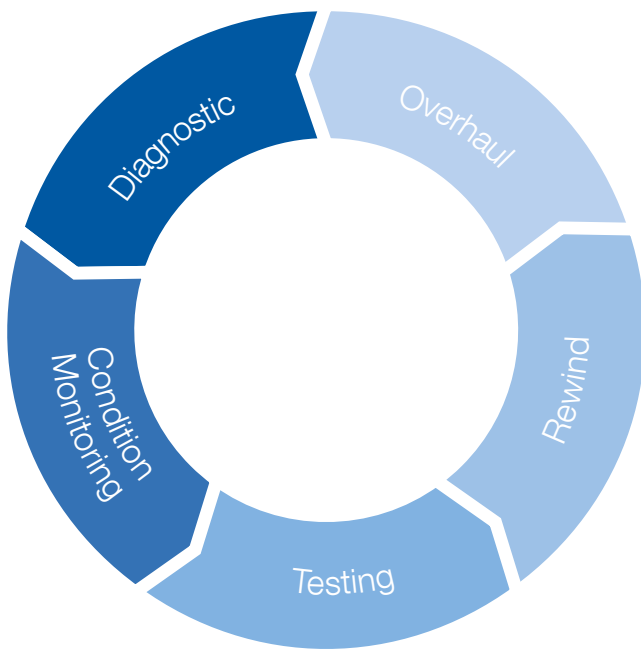
# Caring for your HV equipment



# Your rewind journey

Sulzer offers first-class support services to ensure the reliability of your equipment. From monitoring and maintenance right through to partial repairs or the full rewind of your high voltage (HV) machines, together with you, we want to guarantee your equipment's future.

Whatever the size, application or market, and whoever the manufacturer, Sulzer is your partner for all types of machines up to 200MW and 18kV.



High voltage load testing of your equipment.

## Diagnostics and technical support

We believe the delivery of reliable and quality services is paramount to your success.

Our dedicated team of engineering experts is on hand to help you solve your problem and will offer you advice to predict your operational costs, and enhance the technical criteria to improve the efficiency of your equipment.



## Overhaul services

Identifying any potential causes of failure, Sulzer tailors maintenance or action plans to support the life extension program of your machines.

As a reliable, independent service provider, with fast turnaround times, our crews work with you onsite or taking your equipment in to our workshops for repair. We are part of your team.

We offer:

- Multi-skilled mechanical, electrical and controls engineers
- Worldwide coverage
- Fully-equipped tool containers
- Technical expertise



Engineers onboard an offshore platform for the safe commissioning of a repaired HV motor

# The processes involved in your rewind

## Coil design and manufacture

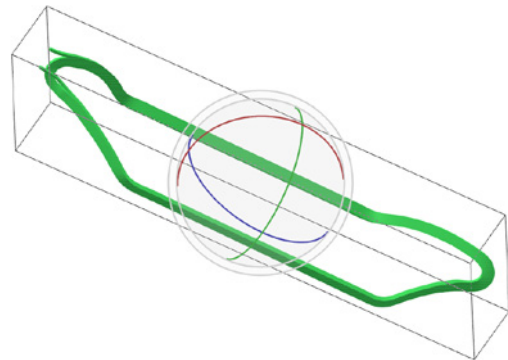
Sulzer is in a unique position with our in-house copper rolling mill that proves our commitment to faster response times, as well as working with you to optimize your required coil designs to fill the slot for the perfect fit.

Key to a successful rewind is understanding the application's requirements and, the ability to offer a design that gives you value and reliability. You can reap the rewards from using our design processes, which we continually advance and develop using cutting-edge technology, giving you access to full levels of customization.

Our fully-equipped coil manufacturing facilities have been manufacturing coils in-house for over 40 years. This long-standing expertise, coupled with our commitment to continually adopt modern manufacturing techniques allow us to offer you the highest quality of products.

## Development and quality control

We know that technological advancements are at the forefront of your mind, as they are continuously evolving. Sulzer's development laboratory gives us greater independence to test coil products before bringing them to the market, to make sure they are suitable for the purposes intended.



## Testing

You will receive a full report to support the integrity of every coil, as we conduct thorough dimensional checks and tests throughout the manufacturing process.

All coils are tested to international standards:

- Interturn surge test
- AC high voltage test
- Tan Delta test

On request the following tests are performed:

- Corona probe test
- Partial discharge
- DC leakage
- DC Hi-pot thermal cycle

Sample coils can also be tested for breakdown and endurance.

You can benefit from fully equipped load test facilities globally, with the capacity to test motors up to 15MW. We also perform generator testing and no-load tests as an alternative.

As part of the design verification it is often recommended to load test your machine to confirm that the motor can be put back into service with zero risk.

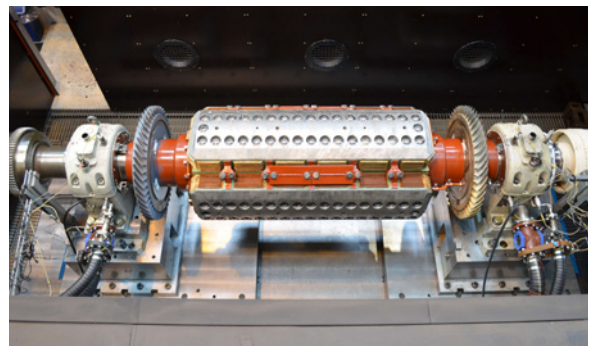
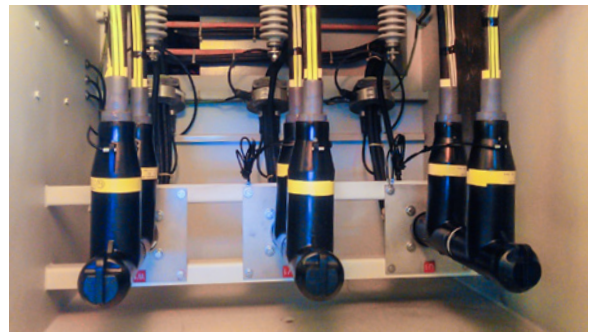
## Additional services HV cable jointing

Throughout the life of your machine the connecting cables may also need repair or replacement, we offer support with:

- Terminations and joints
- Cold shrink technology
- Heat shrink technology
- Hazardous area
- Separable connectors
- Crimped and shearbolt
- Full project management
- Kit specification
- Over full range up to 24kv

At speed / high speed balance capability  
At-speed balancing significantly reduces the likelihood of costly and time-consuming field balancing. Equipment will run at lower vibration levels, which helps maintain the reliability of the equipment.

High-speed balancing is used in places where a critical rotor cannot be run in its intended casing prior to installation.



# The support you receive

Experts in motor rewinding and established around the globe, our electromechanical service centers house a vast wealth of expertise. Over the years, we have seen all types of winding configuration and we have built up a vast knowledge base that is here for you to tap in to. We act as your partner to support your motor and generator repairs during both scheduled periods and in emergencies, when you need a trustworthy service most.

To ensure your equipment is serviced to the highest standards, Sulzer has partnered with some key OEM's for the distribution and/or service of your equipment including:

- ABB
- GE
- Nidec Industrial Solutions
- TECO-W
- Siemens
- ATB Laurence Scott

To fully support your repair schedule Sulzer also offers you in-house mechanical service solutions including: machining, welding and the re-manufacture of worn or damaged components through reverse-engineering techniques.

Our experienced and flexible teams are close to you and work collaboratively sharing expertise across the network to ensure the specialists are on hand when you need them, and within response times that fit your requirements.

We can join you onsite, offshore and overseas, as we are dedicated to delivering a high quality and efficient service at all times.

## The equipment we rewind and monitor

Sulzer rewinds electrical equipment of all types including:

- Turbo rotors and generators
- Hydro rotors and generators
- Wind turbines

We also manufacture and supply Rogowski coils for partial discharge (PD) measurement. Since 1991, we have installed over 1 300 Rogowski coil sets, supplied in sets of 3, which have recorded many gigabytes of data over the years and are continuing to do so for many of our customers.

By extracting the data recorded, our team of electrical engineers conducts detailed trend analysis in order to understand the activity of your



machine. We then share with you not only how your machine is running, but also provide recommendations of what course of action can be taken to prolong the operation of the machine.



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