Product Application
Rotating Machines

The epoxy-mica stator winding insulation of rotating machines is a “forgiving” insulation system. Due its dielectric stability, partial discharge activity acts as an indicator for a variety of defect mechanisms. Besides the normal thermal ageing, further problems, such as end winding contamination, bar or overhang vibrations, deterioration of grading layers, loose wedges, or large internal delaminations are common practice and can be classified by analysis of the phase resolved pattern properties. Partial discharge testing and monitoring on generators and large motors offers a detailed stator winding condition assessment. This helps avoiding unplanned outages as well as scheduling efficient maintenance turn arounds.

PD MEASUREMENTS

Power Diagnostix offers various instruments for continuous monitoring, schedule-based routine testing and in-depth analysis of rotating machinery. The instruments and their control software were continuously improved based on the feedback and requirements of the end users. Permanently installed partial discharge couplers greatly simplify periodical on-line testing using the ICM*system* without any interruption or downtime. Continuous on-line PD monitoring with a permanently installed ICM*monitor* helps optimizing maintenance intervals and reducing costs, while improving the level of equipment reliability.

ICMsystem Gen. 5

PARTIAL DISCHARGE MONITORING

Based on the stand-alone ICM*monitor* unit connected to an individual machine, larger networks supervising a multitude of generators in combined-cycle thermal power plants or pump-storage hydro power plants have been realized. Such networks include full control of the local instrument via global Intranet access as well as visualization of the monitoring data in monitoring centers. The ICM*monitor* software offers automated scanning, pattern acquisition, and analysis of the trending data, while the ICM*server* software operates in the background to supervise the communication between the individual instruments and data servers.

ICMmonitor Portable

LARGE MOTORS

High voltage motors are the main assets to keep compressors, cooling pumps, extruders and large fans running in refineries, oil and gas plants, chemical and petrochemical industry. Here, unplanned outages can cause immense losses. Not only for the HV motor in particular, but to clean pipelines with remaining product or compressor and extruders that have stalled by motor failure. Further, such motors act as auxiliary drives in thermal and nuclear power plants to run the (emergency) cooling system, for example. Here, failure of the stator winding can cause critical subsequent damage. Given the typical 5-yearly outages for such setups, permanent installation of capacitive couplers offers periodical online PD measurements, and, hence, the possibility for an accurate and short follow-up. For the most critical trains, continuous monitoring can be installed from the early beginning.

TYPICAL PACKAGES

Advanced PD measurement system (off-line and on-line):

- 1 x ICM*system* Gen. 5 (incl. option spectrum analysis)
- 1 x ICM*system* software
- 1 x GPIB interface
- 2 x Preamplifier RPA1H
- 1 x Preamplifier RPA2 (for online testing)
- 1 x High frequency current transformer CT1 or CT100 (opt.)
- 1 x Impulse calibrator CAL1B
- 1 x Set of cables
- 1 x Offline coupling capacitor, e. g. CC25B/V

Standard PD test system (off-line):

- 1 x ICM*compact* (opt. MUX4 & gating)
- 1 x ICM*compact* software
- 1 x Preamplifier RPA1 or RPA1e
- 1 x Impulse calibrator CAL1B
- 1 x Set of cables
- 1 x Offline coupling capacitor, e. g. CC25B/V

Combined PD and TD measurement equipment (off-line):

- 1 x ICM*flex* incl. software
- 1 x Impulse calibrator CAL1B
- 1 x Set of cables