

# Technical diagnostics and special measurements



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## Annealing of gas turbine rotor discs with induction preheating

The mechanical parameters of turbine rotor discs' material degrade after a certain time of gas turbine operation. This considerably increases the risk of disc failure, for example due to blade fragmentation. The service life of rotor discs can be extended by annealing based on an analysis of rotor material properties. Induction preheating represents a convenient solution that provides the following benefits:

- Restoration of mechanical parameters (notch impact strength) of turbine rotor discs' material
- Extension of rotor discs' service life
- Annealing performed without need for disc removal from the turbine shaft (thus avoiding potential damage)
- Significant cost savings

## Induction heating of pipe components

- Achieving the required temperatures at the place of welding (circumferential welds on fittings)
- Establishing temperature conditions for reliably achieving the guaranteed weldability of pipe components – preheating of welded parts with electric induction
- Possibility of welding a fitting on the gas pipeline without gas flow interruption
- Temperature control and monitoring during the entire welding process

## Leakage monitoring of methane and other hydrocarbons

**NET4GAS performs gas leakage monitoring at three levels:**

- Gas leakage detection with a portable laser methane detector (infrared absorption spectrophotometry) – fast and reliable detection even over longer distances
- Visualization of gas leaks with thermovision – visual display of gas leaks and oil products' vapour in real time within the visible spectrum, possibility of visualization in infrared mode, too
- Quantification of gas leaks with the HiFlow Sampler gas leak quantificator – accurate quantification of gas leakage in l/min

## Other technologies and services

- Vibration metering, verification of metering chains
- Metering of the guaranteed parameters of compressors and turbines by flow, pressure, and temperature measurement pursuant to PTC6, PTC10 and PTC22
- Thermovision diagnostics – temperature field, including electrical distribution systems
- Measurement of pulses in pipeline systems
- Gas flow measurement in large diameter pipelines (with flow meter installation without operational interruption)
- Borescope inspections (inspection of turbine blades without disassembly)

## References

- Technical diagnostics and special measurements within the NET4GAS transmission system
- Technical diagnostics and special measurements at external customer sites: Czech Republic, Slovakia, Germany

## Certification in the fields of technical diagnostics

- Vibration diagnostics technician
- Thermography diagnostics technician



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