

# EXPERTISE AND FAILURE ANALYSIS ON TURBINES

**Rotating machines, particularly turbines, are strategic components used in many industrial sectors (energy, petrochemicals, aeronautics, etc.).**



## Your expectations

As a manufacturer or operator of turbines (gas turbines, steam turbines, reactors, hydraulic turbines, etc.), you are faced with failures (cracks, breakage, fatigue, corrosion, fretting, erosion, cavitation, vibrations, wear, efficiency, overheating, leaks, etc.).

Whether these failures occur on the blades/vanes, discs, rotor, bearings or shaft, you want to carry out an assessment to:

- Understand the degradation phenomenon(s);
- Identify causes, origins and remedies;
- Determine the responsibilities of those involved in a dispute (designer, manufacturer, installer, user, maintenance provider);
- Prevent recurrence or serious accidents;
- Study the remaining service life;
- Benefit from maintenance or monitoring support.

## Our solutions

Thanks to our multidisciplinary expertise (materials, products, systems), Cetim offers you its skills to conduct a factual and pragmatic investigation:

- On-site expertise in France and internationally: diagnosis/assessment taking into account the history, environment and operating conditions of the machine.
- Laboratory failure analysis: Materials expertise, search for clues (wear, friction, defects, damage, static and dynamic sealing, etc.).
- Identification of damage scenarios.
- Numerical simulations: Confirmation of hypotheses and scenarios, fluid flow and cavitation simulation.
- Advice and support: Proposed solutions and assistance with maintaining operational condition.

## Your benefits

Cetim, an independent and neutral technical centre, is a leader in the analysis of mechanical behaviour during operation and a specialist in rotating machinery.



- **We act as a third party recognised for its level of expertise**, providing you with comprehensive support that goes beyond laboratory results (metallurgical reports, vibration analysis, etc.).
- **Our recognised know-how and expertise give you credibility and confidence** in your dealings with your suppliers and customers.
- **You benefit from Cetim's more than 60 years of experience** in these fields.
- **Prevention of Future Failures:** thanks to its in-depth understanding of degradation phenomena, CETIM helps you implement effective corrective measures.



**Question and Answer Service**  
contact@cetim.fr [www.cetim.fr](http://www.cetim.fr)

