

# Fan blade generator accident case

Can a cooling fan blade be fractured?

Since fracture in cooling fan blades has been occurred five times in our case study, in this research, the emphasis has been placed on failure analysis and preventing methods from the fracture in this generator's fan blades.

Do generator rotor fan vanes & blower blades fail?

The potential failure of generator rotor fan vanes and blower blades has been identified as an area for detailed risk assessment in the electric power generation industry. Liberation of fan component has caused catastrophic damage to both the rotor and stator components on a number of units.

Why do fan blades fail?

Previous investigations showed that blades mainly failed by fatigue, especially due to heavy stress distribution and vibration. In some cases, environment conditions accelerate the failure through corrosion mechanisms. Moreover, fan stability was correlated with the safety performance of the entire cooling system.

Which fan blade fractured in the 2018 accident?

The fan blade that fractured in the 2018 accident had fractured features that were very similar to the 2016 accident. The fracture occurred in the dovetail of blade 13, and multiple origins were located at the convex contact face but further forward near the leading edge (Fig. 11).

Are gas turbine fan blades broken?

Failure report for gas turbine fan blades, 1997]. Metallurgical and structural analyses on the failed blades have not shown any microstructure degradation. Studies on the ruptured surfaces using scanning electron microscope (SEM) have shown that fracture has been happened as a result of high cycle fatigue (hcf).

What is failure analysis of gas turbine generator cooling fan?

Failure analysis (Experimental and numerical approach) of gas turbine generator cooling fan in comparison between using 2 types (14° and 19° angle of attack) of blades Numerical simulation of the pneumatic elasticity for the blade of a big axial-flow fan ISO 6892-1:2016.

In five cases the fan blades of this type of gas turbine have broken in the first 100 h of operation (after first operation and or after repair), and in some cases the broken blades have punctured through stators coils (copper conductors), ...

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