

SUCCESS STORY

vibro-meter®

FLUE GAS TURBINES

ABOUT

Flue gas turbines are among the most critical rotating machinery in refineries because production chains stop if they fail.

KEY LEARNINGS

- **Close to the customer:**
In order to identify specific customer needs.
- **Solution oriented:**
To translate customer needs into a custom solution.
- **Communication:**
To make other end-users with similar applications aware of our solutions in order to win additional business.

CHALLENGE

In petrochemical refineries, flue gas turbines typically use exhaust flue gas from catalytic cracking processes to generate power and drive other machinery. However, flue gas turbine failures can completely stop a refinery production chain if they fail – resulting in substantial financial impacts in terms of downtime and repairs.

Flue gas turbines are characterised by overhung rotors, large turbine wheels and poor stability, while flue gases are typically high temperature, high flow and low pressure, with fine catalyst particles. Accordingly, operational problems are more sensitive to and typically indicated by absolute bearing case vibration.

In this specific application, Bently Nevada's 3500 system is the standardised solution for the machine train but does not include the casing vibration measurements required: high temperature (HT) and low temperature (LT) side bearings of the flue gas turbine.

SOLUTION

Thanks to their understanding of the application, the team was able to produce a custom solution that allows the end-user to enhance their existing vibration monitoring system. **~12 kCHF per solution**

The easy to implement "enhancement solution" includes:

- 2 × CA306 or 2 × CA134 for HT side bearing
- 2 × PV102 for LT side bearing
- 1 × VM600 slimline rack containing an MPC4/IOC4T card pair.

RESULT

We made end-users aware of the gaps, and associated risks, in their existing solution and suggested an easy to implement improvement. As a result, since 2014, 8 VM600-based flue gas turbine monitoring systems have been installed in 6 different Sinopec petrochemical refineries during machine overhauls.

An additional 4 systems have been ordered and will be installed soon.

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