



Success Story

STRING TESTING A TYPICAL MACHINE TRAIN

Many petrochemical and power projects include large production machines, such as the propane and mixed refrigerant compressor trains in an LNG plant or the turbo-generator sets in a power plant. To ensure operational integrity of the entire machine train, it is important to test all the machine components assembled together as an entire unit, and under load if possible. Compass, together with Brüel & Kjær Vibro's service team play an important role in this process by monitoring all the important machine train vibration parameters and issuing a report that typically includes a list of potential failure modes that have been detected and recommendations to remedy these.

MACHINE/INDUSTRY/PROCESS

Machine	Compressor GT trains, Steam turbine generator, etc.
Company/Process	Process or power industry, such as an LNG plant
Monitoring System	Brüel & Kjær Vibro Compass 6000
Monitoring Strategy	String test - Vendor data vs. commissioning data

BENEFITS

Compass 6000 is a plant-wide monitoring system with advanced diagnostic functionality that is well suited to string testing. After the monitoring system itself is commissioned at the package vendor's facility, the condition monitoring part of the system ensures the machine train conforms to design specifications and Identifies problems, such as incorrect thermal expansion or misalignment. It is imperative that the monitoring system can effectively detect faults before the machine train is shipped to site. Repairs done onsite can be costly and result in lost production.

The monitoring system is also used to establish baselines for future monitoring purposes (i.e. the new, clean condition of the machine). This enables the machines to be completely monitored during onsite commissioning and immediately after during operational service. This is also an important time saving factor since baselines for all the transient operating conditions have already been established during the string test. It could take a long time to do the same for continuous baseload machines onsite.

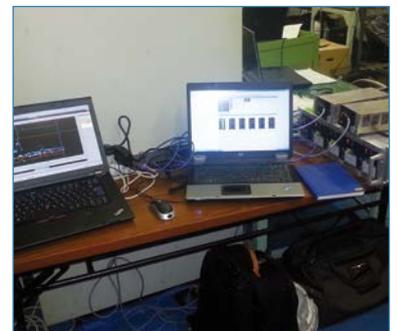


Figure 1. Monitoring system setup for the string test at the machine packager test facilities

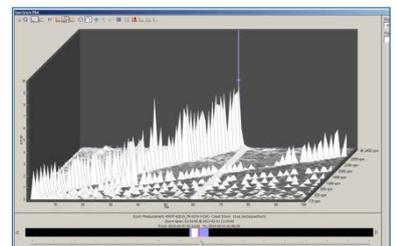


Figure 2. Example of an actual string test plot: Spectrum waterfall plot (frequency scale) during coast down of a steam turbine.

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