EIFFAGE DYNAE

> Vibratory acceptance test on industrial installations

> Your requirements ?

- Guaranteed good working order
- A zero point when commissioning
- Validation of the works carried out
- Qualification of the host structure

> The solutions

- Detection of latent defects
- « Genetic map » of the installation
- Immediate correction of defects
- Avoid resonance problems





> A key stage in the life of a machine

- Comparison with the specifications
- Conformity with standards
- Validation of the calculations
- Zero point
- Initialisation of vibratory monitoring

> The validation of each stage of the project

- Dynamic qualification of the civil engineering
- Qualification of the chassis and the related structures
- Qualification of the whole structure: structural appearance
- Vibratory signature of the whole structure

> Extensive testing

- Measuring the equipment's natural frequencies
- Recording the start/stop phases
- Analysing the whole operating range
- Vibratory mapping of the whole installation
- Additional electrical analysis

> Concrete results

- Early correction of structural or assembly defects
- Identification of the « teething problems »
- Monitoring latent defects likely to evolve
- Defining the follow-up indicators and thresholds

DYNAE

> Vibratory analysis
> Electrical analysis
> Infrared thermography
> Instrumentation and sensors
> Software
> Training

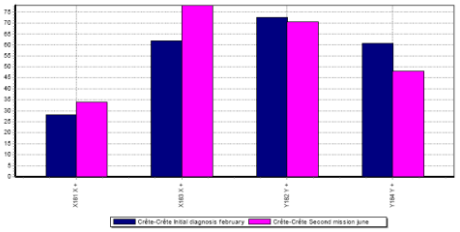
Head Office
Parc technologique Nord
29 rue Condorcet
38090 VILLEFONTAINE - France
Tel. : +33 (0)4 74 99 07 10
E-mail : contact@dynae.com

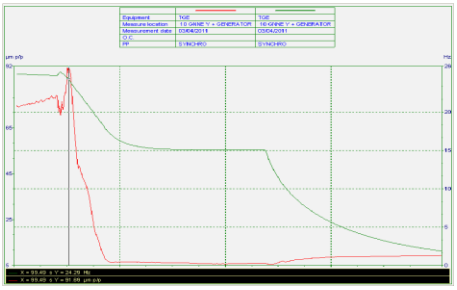
Agences :
Centre-IDF-Nord, Est, Sud-Ouest, Sud-Est, Ouest, Rhône-Alpes

> Vibratory acceptance test on industrial installations

> What is a vibratory acceptance test?

The aim of the functional acceptance test of a new facility is to check the performance of the production tool. The vibratory acceptance test makes it possible to guarantee its smooth mechanical operation or on the contrary identify defects.





> How to proceed?

Perform a second-level vibratory signature comprising :

- machines at a standstill, measuring the structure's natural frequencies using an impact hammer.
- recording the starting and ramping up of the machine
- the vibratory and electrical signature for various operating conditions

The results are then compared to known criteria (specification, standard…) or our data base.

> What are the points examined?

- **High vibrations**: diagnosis of the defects generating high vibrations. Criterion : vibratory amplitude

- **Latent defects**: detecting defects which do not yet generate high vibratory levels, but which reflect an anomaly like to evolve unfavourably over time. Criterion: typology of the vibratory signal

- **Dynamic behaviour of the rotor:** critical shaft frequencies, amplification when changing critical gears, behaviour in the slide bearings**.**

- **Electrical signature** of induction machines to decide on electromagnetic defects or defects generating torque fluctuations.

> And what about the structure?

Here it is a matter of the dynamic qualification of the host structure, i.e. the machine's supporting structure: chassis, studs, fixings, civil engineering. This makes it possible to evaluate the contribution of the « stiffness » of the assembly in the vibratory behaviour of the installation.
Criterion : frequency distance between exciting frequencies and natural frequencies

EIFFAGE DYNAE