

## > Applications in iron & steel and aluminium

### > When and why?

- Predictive maintenance of machines
- Assessment of critical equipment before overhaul
- Monitoring of rolling mills
- Vibration at work stations
- Vibration of structures

### > The results

- Maintenance recommendations
- Acceptance test after servicing
- Bearing and meshing diagnosis
- Instrumentation and remote diagnoses
- Diagnosis and considering solutions



### > Vibratory diagnosis

- Mechanical and electrical fault diagnosis
- Natural frequencies and structure resonance
- Analysis of the start/stop phases
- Balancing on site

### > Dynamic survey of machine layout

- Dynamic calculation of the host structure
- Qualification of the structure per measurement
- Torsional calculation of the shaft lines
- Vibratory acceptance test: vibrations and torsion

### > Diagnosis of manufacturing faults

- Faceting faults on cold rolling mills
- Facets and malfunctions on rolling mills
- Dynamic analysis of the rolling mill cages
- Measurement and analysis of torque fluctuations

### > Specific structure study

- Analysis of structure vibrations: Cowpers, blast furnaces, smokestacks, cranes and gantries
- Diagnosis of pulsating type vibrations: acoustic or flow phenomena
- Checking the anchorings and crackings of bases
- Correcting resonance phenomena by finite element calculations

### > Turnkey protection and monitoring solutions

- Machinery protection and monitoring system
- Sensor instrumentation:
- Specific instrumentation engineering
- Consultancy, assistance and remote diagnosis

### > Periodic assessment of the critical machinery

- Rolling mill control unit
- Diagnosis of slow-speed shaft bearings



#### DYNAE

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

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> Software/Application software

- DynamX® data acquisition and processing software
- SysTeo® mobile monitoring system
- CTMO® for simple signal acquisition

> Vibratory diagnosis

Alcan Rhenalu Neuf - Brisach	Cage extension and feeler gauge support
Aubert et Duval	Vibratory diagnosis of the Braun chainsaw
CEZUS	Diagnosis of the rolling mill
Erasteel	Rolling mill high-voltage motor monitoring
Zircotube	Vibratory diagnosis of the rolling mill

> Manufacturing fault diagnosis

Alcan Rhenalu Neuf - Brisach	L16 rolling mill roller faceting expert survey
Ugine et Alz	Sticking problem on the Sendzimir rolling mill
Imphy	Sundwig 010 cold rolling mill
Imphy	Demag rolling mill
DMS	ZM4 rolling mill, Acerinox in Algéceras

> Specific structure surveys

Ascometal	Analysis of cracks on quenching tanks
ArcelorMittal FOS	FOS Analysis of the constraints the convertor's belt
ArcelorMittal FOS	Analysis of the cracks on the dust trap
ArcelorMittal FOS	Diagnosis of the vibrations of the cowpers
ArcelorMittal FOS	Vibration of cabin of the steel mill crane
ArcelorMittal FOS	Vibration of the cabins of the unloading gantries

> Periodic assessment of the critical machines

ArcelorMittal FOS	Assessment of the controls of the finishing stands
ArcelorMittal FOS	Diagnosis and monitoring of the bearings of the slab press
Aubert et Duval	Periodic assessment of the stock of machines
Alcan Riotinto Gardanne	Monitoring of the stock of machines
Alcan Rhenalu Bisheim	Diagnosis of the rolling mill controls
Cezus	Vibratory assessment of rolling mill cages and winding machines
Vallourec & Mannesmann	Assessment of the rolling mill cages' control units

> Consultancy, Training courses

ArcelorMittal FOS	Intra-company training courses
ArcelorMittal FOS	Feasibility study for the monitoring of the finishing stands

