Noise & Vibration
Testing and Analysis Solutions
for Precision Machining & Processes

www.oros.com
They trust OROS

“They trust OROS because OROS delivers high performance, high quality and and high accuracy in a portable and flexible packaging.”

Edward BAYLE, 31
Noise and Vibration Technician, Stepper Services Leader.
Optimizing your Production Machines

Rotating Analysis

Gear & Transmission Analysis

Gear box vibrations have high frequency content which can impact machine’s parts quality. A first step is to analyze them using the standard FFT analysis. One can get further with tools such as cepstrum, kurtosis and harmonic markers provided by the OROS FFT-Diagnostics tool.

Torsional Analysis

Electric motors and their transmissions are subject to rotational speed fluctuations and resonances. These torsional motions may have important effects: fatigue, life time reduction, malfunction or low quality machined parts source may be hidden in the motors, gears, belts or chains of your machine tool. The OROS Torsional inputs and associated software offer the ideal toolset for identifying the source and path of rotational fluctuation into your machine kinematic.

On-Site Measurements & Applied Trainings

Experts from OROS come on-site for applied trainings. They will help you using your OROS system. They can provide assistance in your measurement. They are also able to recommend optimization in your measurement process depending on your application and field requirements.

Machine Tools
- High Speed Machining
- Milling and Lathing Machines
- CNC center
- Grinding Machines
- Robots

Micro-Electronics Equipments
- Wafer Steppers
- Photolithography Machines
- Workshops Floor Vibration

Structural Dynamics

Isolation & Ground Vibration

Absorbing and damping mounts are the components through which the vibration energy is transmitted between the motor and the rest of the optical parts: their properties dimensions and positions are key and should be determined with care. The techniques used are cross spectrum, transfer functions, damping, as well as ODS.

Experimental Modal Analysis

Modal Analysis is one of the key step when testing machines’ structures and components: it will determine their structural characteristics and so, will define how they will react to operating excitations. Shaker or impact hammer excitations can be used to capture the experimental datasets: the final stage is the actual OROS Modal analysis.

Cutting Tool Optimization

To produce high quality mechanics, high quality machining is required. Machine tools like any other high speed machines have a potentially rich vibration content. It is essential to monitor and optimize surface fluctuations generated by the cutting tool vibrations in order to avoid any possible defect in the quality of the manufactured parts.
OROS is a global manufacturer and solution provider of noise and vibration measurement systems.

OROS masters the latest technology of data acquisition, digital signal processing as well as user interface software.

OROS instruments are used in the major sectors of industry and research, for industrial acoustics, structural dynamics and rotating machinery applications. Hardware and software are totally designed in-house.

OROS instruments are renowned as being designed for the field but powerful enough for any lab.

Find out more on the OROS offer in the Range brochure. Downloadable on www.oros.com

**Rotating Analysis**
- ORNV-ORD: Synchronous Order Analysis plug-in
- ORNV-CBT: Real-time constant band tracking add-on
- ORNV-FTTDiag: Real-time diagnostic tool set (Envelope, Cepstrum, Pk; Pk-Pk, Crest factor, shaft view) add-on
- ORNV-IVC: Integrated instantaneous angular Velocity Converter plug-in, allows on-line and offline torsional analysis
- ORNVS-BAL: Balancing Solution

**Structural Dynamics**
- ORNV-FFT: Real-time FFT plug-in
- ORNVS-MOD-ODS: Operating Deflection Shape
- ORNVS-MOD-MIMO: MIMO Modal Analysis

**Data Acquisition**
- ORNV-REC: Recorder
- ORNV-TDA: Real-time time domain analysis plug-in
- OR36/8-CAN: CAN Bus hardware interface and software components for OR36/OR38
- OR36/8-PXD-B: 8 Strain gauges bridge conditioner XPOD

**Noise Analysis**
- ORNV-OCT: Real-time filter based 1/n octave plug-in
- ORNV-ONA: Real-time overall acoustic levels plug-in analyzer
- ORNV-SP: Sound Power Solution

**Analyzers: examples of configurations**
- Above software options may be added to these configurations:
  - OR10-DAQ-8: 8 ch. Mobile Data acquisition
  - OR34-FREQ-4: OR34-4 Ch. FFT analyzer
  - OR35-FREQ-10: 8 × 2 Ch. FFT analyzer
  - OR36-FREQ-16: OR36-16 Ch. FFT analyzer
  - ORMP-FREQ-16: Mobi-Pack-16 Ch. FFT analyzer
  - OR38-FREQ-32: OR38-32 Ch. FFT analyzer

**Specifications**
- **Channels count**: 2 to hundreds of channels
- **Inputs**
  - Sampling: 2 kS/s to 102.4 kS/s - 24 bits delta sigma ADC
  - Accuracy: Phase ±0.02° - amplitude ±0.02 dB - Dynamic > 140 dB
  - Conditioning: AC/DC/ICP/TEDS up to 40 V, Temp & Bridges
- **Outputs**
  - DC to 40 kHz - ±10 V range - 24 bits DACs -THD < 0.002%
  - Ext. synch (Trigger / Tach): 64 x over sampled - Resolution < 160 ns (0.06° @ 1 kHz) - up to 40 V
  - DC channels*: Sampling 10 Hz - 50 Hz/60 Hz rejection - reproducibility <1 mV
- **System**
  - Hard disk: 16 to 512 GB SSD
  - Internal battery: up to 4h
  - Link to PC: 1 Gb/s Ethernet, Wi-Fi
  - Weight: from 0.8 kg/3 lb to 10 kg/22 lb