OROS

Noise & Vibration

Testing and Analysis Solutions

for Precision Machining & Processes

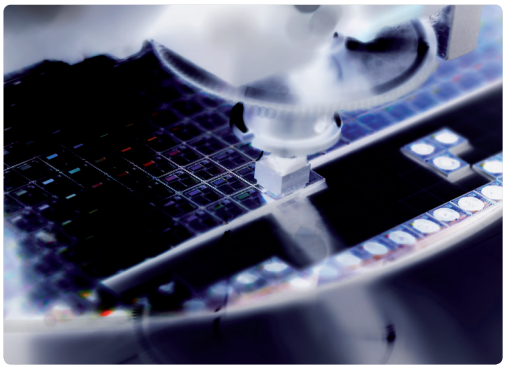
www.oros.com

Made for Your Demanding World

1- Improve Efficiency 2- Improve Quality

R&D

- Machine tools structures
- Machine tools transmissions
- Micro-electronics machine stability



Complete testing capacities

- Universal sensor's types: temperature, strain, pressure, displacement
- Force / displacement FRF
- High accuracy displacement measurement

Production

- High speed machining optimization
- On-line test
- Machining quality check
- Grinding machines tuning

Optimize quality

- Versatile tool box for vibration troubleshooting and diagnostics applications
- Force / displacement FRF
- Remote tests
- Test automation and interface customization

They trust OROS

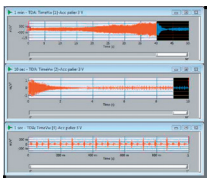
- *"Testing micro-electronics machines requires very high accuracy of a lab instrument in a portable and flexible packaging. The OROS Teamwork system is perfect for our job, it provides accuracy and flexibility in any situation. From our services lab to factory measurements, these units allow measuring from 2 to 64 channels in the same way."*

Edward BAYLE, 31
Noise and Vibration Technician,
Stepper Services Leader.

OROS Solutions Enhance your Efficiency

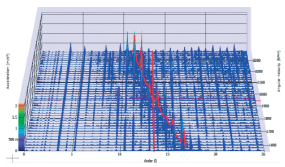
SOFTWARE R&D, Acceptance, Diagnostics

Signal Processing & Data Acquisition



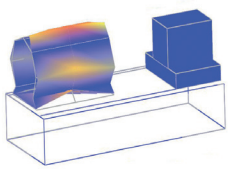
- Time domain analysis
- Monitor
- Recorder
- Narrow band spectral analysis

Rotating Analysis



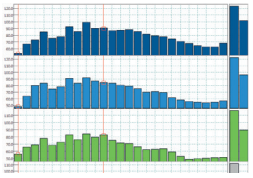
- Synchronous order analysis
- Spectral & order diagnostics
- Torsion & twist
- Balancing
- Turbomachinery vibration & rotordynamics
- Reciprocating machines diagnostics
- Monitoring

Structural Dynamics



- FRF acquisitions
- ODS (Operating Deflection Shape)
- Experimental modal analysis
- Operational modal analysis

Acoustics



- 1/n otave analysis
- Sound level meter
- Sound power
- Sound quality
- Sound intensity
- Holography
- TPA (Transfer Path Analysis)
- EV/HV NVH Testing Solution
- Beamforming

INSTRUMENTS from 2 to 32 channels, distributed up to 1000+

Flexible Connection

- Mobile analyzer
- Distributed configuration
- Remote access
- Large channel count systems

Multioperations

- PC free recorder
- Online & post-analysis
- Multianalysis
- Handling any transducers

Made For the Field

- Portable
- Rugged
- Real-time
- Multi-channel

Accurate

- DSP-based
- 24 Bit – 40 kHz – 140 dB
- ± 40 V input range
- ±0.02 dB / ±0.02°

SERVICES Anywhere Close to You

Training

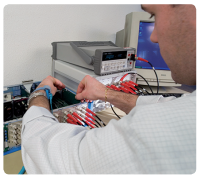
- Initial
- Advanced
- Webinar

Coaching

- Sofware customization
- Assistance in your measurement

Testing

- Expertise in diagnostics
- Troubleshooting
- Tools for automation



A Dedicated Team

- Dynamic and responsive services department
- Worldwide hotline
- Global accredited maintenance centers (worldwide coverage)
- Renting
- Ready-to-go systems at any time

Maintenance and Contracts

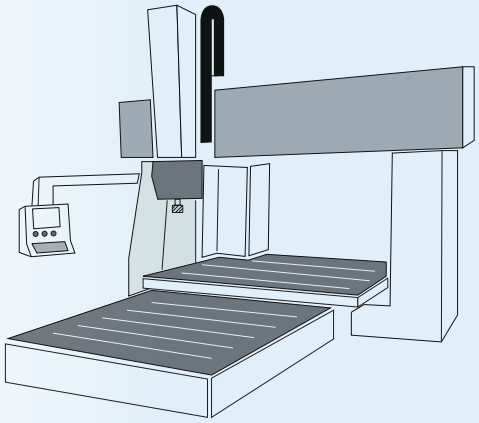
- Premium contracts
- Software updates
- Hardware upgrades
- Calibration

OROS

MEASURING NOISE & VIBRATION

Optimizing your Production Mac

Rotating Analysis

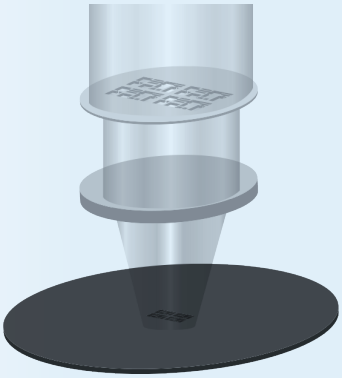


Gear & Transmission Analysis

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.

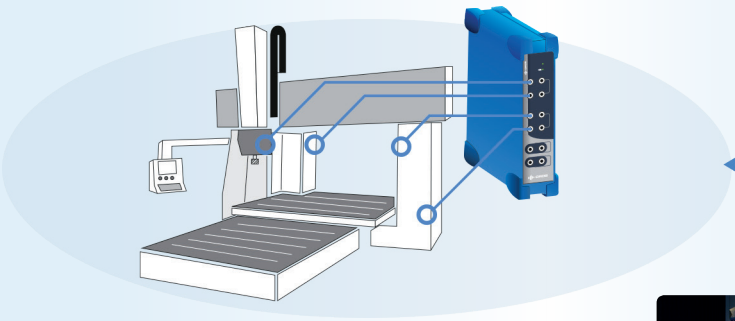
Torsional Analysis

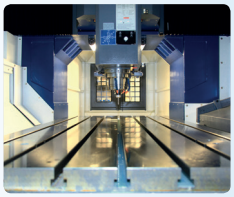
Electric motors and their transmissions are subject to **rotational speed fluctuations** and **resonances**. These torsional motions may have important effects; fatigue, life time reduction, malfunction or low quality machined parts source may be hidden in the motors, gears, belts or chains of your machine 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.





chines

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

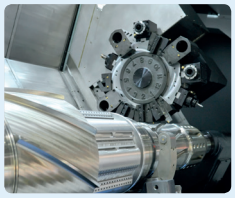
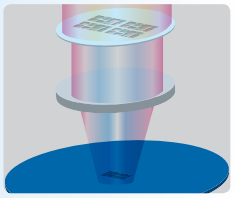
Absorbing and damping mounts are the components through which the vibration energy is transmitted between the motor and the rest of the optical parts: their properties dimensions and positions are key and should be determined with care. The techniques used are **cross spectrum**, transfer functions,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

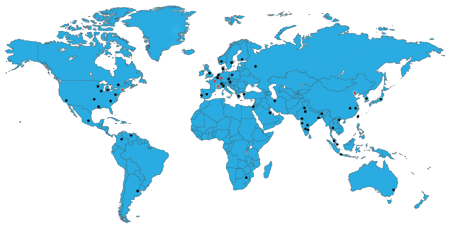
To produce high quality mechanics, high quality machining is required. Machine tools like any other high speed machines have a potentially rich vibration content. It is essential **to monitor and optimize surface fluctuations generated by the cutting tool vibrations** in order to avoid any possible defect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

OROS
MEASURING NOISE & VIBRATION

Ordering Information

specifications not binding - pamplemousse.com | Design: designvisuel.com | Sara Baumgartner - Photo credits: No Comment, nb nota bene, gettysimage



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 renowed 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-FFTDiag	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 plung-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-OVA	Real-time overall acoustic levels plug-in analyzer
ORNVS-SI	Sound Intensity Solution
ORNVS-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
Auxiliaries	
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

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M002-146-2

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OROS
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ISO 9001:2015 BUREAU VERITAS Certification

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