HOFMANN

Complete equipment

TDSP

- Machinery protection
- Continuous monitoring
- Analog & digital output
- Ethernet communication
- Multilevel diagnostic software
- Complete modularity and flexibility
- From a single machine to a complete plant

CEMB

BALANCING MACHINES

Imagine...

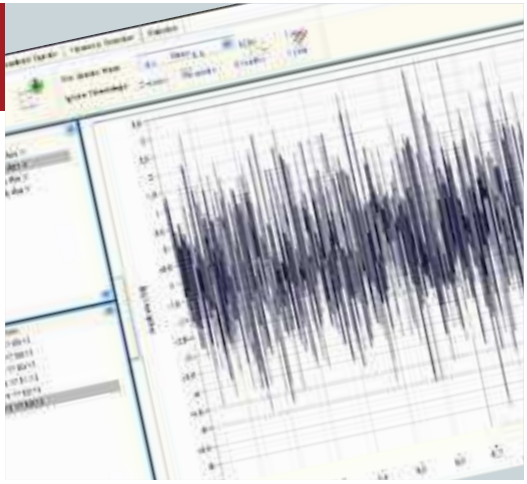
a clean better world,
where rotating machines
are running safely
under a vigilant continuous monitoring system;
where performances are guaranteed
and reliability increases day by day.
This is what we do.
This is CEMB Vibration Analysis Division.

CEMB

Cemb was founded in 1946 by Eng. Luigi Buzzi. In a short time, the company stepped up to a first-rank position on the market of balancing machines.
Both its capacity in meeting the requirements of customers and markets, and its ability in proposing original, innovating technical solutions resulted in the creation of “Vibration Analysis Division”. This branch is oriented towards developing portable balancing equipments and over-control systems aimed also at large energy production plants.

MONITORING EQUIPMENTS

Cemb manufactures a wide range of appliances for the measurement of fixed ranges during the functioning of mechanical complexes. These systems can provide anytime the actual value of the measure under investigation, signal alarms and, in case, stop the machine without any manual intervention as soon as the values reach the set alert thresholds, well before any serious damage occur.



COMPLETE PACKAGE

Cemb not only provides for all the support needed in the installation process of its equipment, but it also assures the presence of specialized personnel for checks of all system components, all the way to a turnkey delivery.

PRE-POST SALES ASSISTANCE

Cemb provides for a complete assistance both at a development stage, in cooperating with the customers to find the most suitable product according to the target application, and at a post-sales stage, so as to make the most of its systems performances.

CONSULTANCY

Cemb's specialized technicians can count on a long experience in the field of vibrations analysis, balancing and problem solving. They cooperate with their customers as a continuous support for all Cemb activities.

TRAINING

Cemb, thanks to its know-how, is a qualified partner for all the companies dealing with problems regarding balancing, vibrations control and conditioned maintenance. CEMB can provide a full range of technical publications, containing a large number of monographies on vibrotechnics and maintenance. It is also possible to arrange for tailor-made courses at the Customer's premises.
At the end of each course, an attendance certificate is issued.

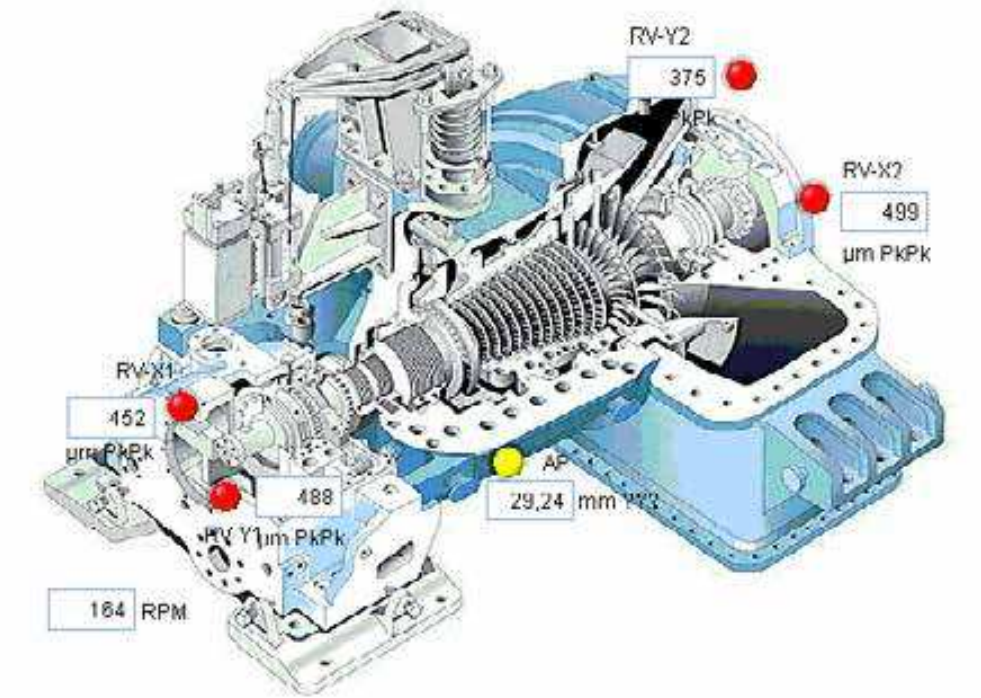
The instrumentation for monitoring vibrations and diagnostics of machinery using the TDSP system is based on CEMB's many years experience in the field of vibro-technics and the diagnosis of rotating machinery.

Thousands of CEMB systems have been installed to protect steam / gas / hydraulic turbines, pumps, compressors and fans.

In addition to all the main functions required for monitoring, the TDSP system is designed with particular care to the operator interface, in order to simplify the correct management of the equipment.

The new TDSP system is designed using modern DSP based architecture to meet the demands for maximum flexibility and modularity, providing a high performance solution to a wide range of needs. The TDSP system can be used either for protecting a single machine that calls for just a few measuring points, monitoring, acquiring and storing typical data for intelligent supervision or as a sophisticated diagnostic system used for machinery in a complete plant.

The system is based on the TDSP processing module, which is dual-channel and can operate on a stand-alone basis. Its terminal board makes it possible to connect to measuring transducers with analogue and digital inputs/ outputs. The ethernet port on the front is used for configuring the board and makes it possible to connect to a dedicated PC that can be used for presenting data and for connecting to external diagnostic systems and/or DCS.



sensors

TA18-S Accelerometer

TV22 Velomitor

ITALIAN HEART:
All the engineering and production are made in Italy.

transducers

T1-40 Velocity

TNC8/API No-contact

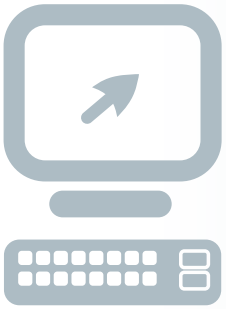
TNC16 Differential expansion

T5-LVDT Absolute expansion

T7-LVDT Valve position

T6-H Speed

protection & monitoring system



on-line monitor

on-line real time software

portable instruments

N100 Vibrometer

Dual channel
N300 Vibrometer
Balancer

Dual channel
N600 Multipurpose vibrometer
Balancer

Advanced
Diagnostic
Software

post-processing software

one supplier, global solution

MODULES FEATURES:
- hot swap/plug
- real time & on-line
- high level intelligence on board
- decision making capabilities

19" RACK SIZE 3U
Small and custom for any kind of application

CONFIGURABLE VIA ETHERNET PORT
100Mbps with SW Set-up

REDUNDANT POWER SUPPLY
- AC/DC power input
- Power relays status
- Led's status display
- 3 independent Phase reference channels
- 3 independent phase signal BNC

MODULE CHARACTERISTICS
- 2 Sensor inputs (including power supply)
- Phase reference
- 2 Analog outputs:
  0-10V or 4-20mA opto isolated
- 4 Digital input (by-pass & trip multiplier)
- 6 independent relays with SPDT contact
- Any relay can be set in several way
  (eg Overall, 1x, 2x, Gap, non 1x)
- 2 BNC connectors for analysis
- 4 multicolour LED
- Ethernet port 100Mbps

SMART MULTICOLOR LED INDICATORS
For an easy operator analyisis

FRONT PANEL BNC
For raw signal analyisis

MODULE BASIS FUNCTION
- Protection against short-circuits
- Self diagnosis for anomalous conditions
- Sampling and digital conversion of signal
- LED measuraments status indication
- LED indication thresholds

TYPE OF MEASUREMENT
- Vibration
- Differential or absolute expansion
- Axial position
- Eccentricity
- Zero Speed
- Speed
- Over speed
- Reverse rotation
- Valve position
- WTVC (Wind turbine vibration controller)
- HTVC (Hydro turbine vibration controller)
- Generic process input 4-20mA

LEVEL 1
stand alone

protection

FEATURES:

- Machine protection
- Analogue outputs
- Digital inputs and outputs
- Self diagnostic
- Led status

LEVEL 2
intermediate

protection+visual

FEATURES:

- Level 1 plus:
- Industrial PC with SW-On-line monitor
- SW TDSP set-up
- Time domain multitrend
- Global status graphical indicator
- Graphical user interface
- Real time machinery condition trend (Overall, 1x, 2x, non 1x, DC)
- Event history
- Plant organizer
- Remote diagnostic
- DCS integration through modbus TCP/IP communication

Integrated set-up software

Plant overview

Live trend

Live events list

LEVEL 3
complete plant

protection+visual+diagnostic

FEATURES:

- Level 1&2 plus:
- Network of TDSP system

REMOTE on site PC with ADS
Advanced Diagnostic Software

REMOTE PC
with
Advanced Diagnostic Software

turbine

feed water pump

cooling tower

industrial fan

compressor

gear box

motor

CEMB presents ADS

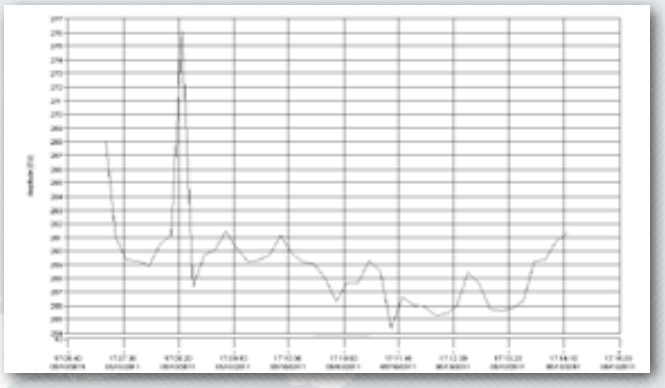
the advanced software for remote condition monitoring

With this powerful tool it is possible to load the data and make different types of analysis in post-processing.
ADS has three different levels for satisfy all the requests coming from the market.

LEVEL 1 - Basic

features:

- Multilanguage interface
- Different operator levels
- Analysis time domain
- Trend
- Cursor
- Event list
- Upload data from database MS SQL server for ON-SITE analysis
- Import workspace for post-analysis
- Data export to different format (jpg, xls)
- Zoom



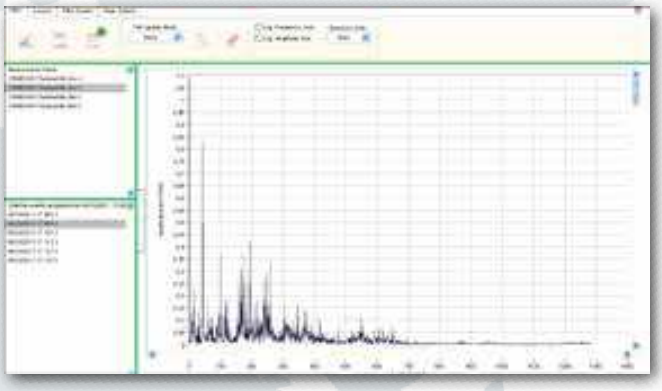
TREND: Single or multi-graph for an easy side by side comparison of different trends.

LEVEL 2 - Standard

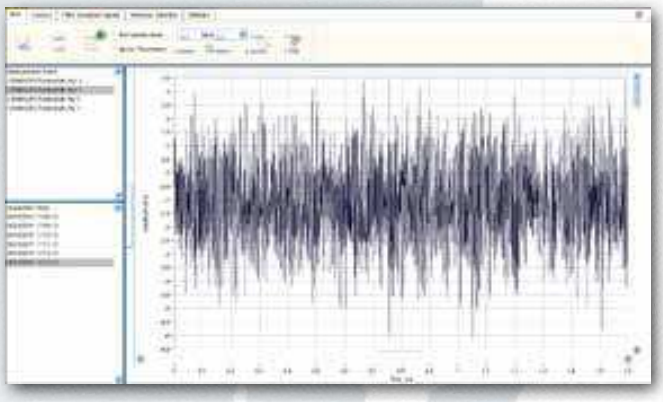
features:

All the functions level 1 plus

- Time waveform
- Cursor with extra features (Δ t, Δ f, pK-pK)
- Raw or filtered signal
- Statistic information
- Spectra
- Cursor
- Harmonic Cursor
- Linear or Log scale
- Peak list



SPECTRA: Frequency domain representation of vibration signal for machinery troubleshooting.



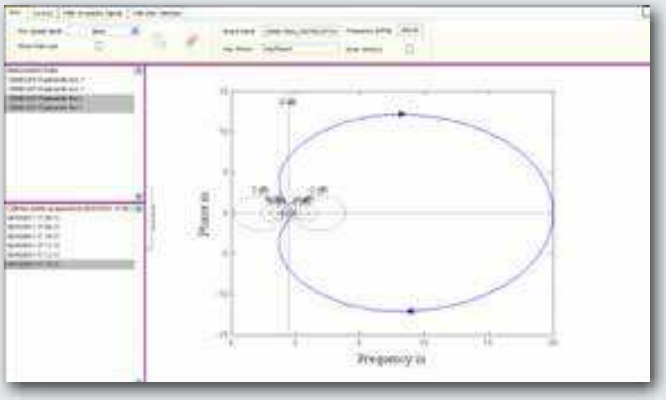
WAVEFORM: Time domain representation of raw or filtered vibration signal.

LEVEL 3 - Expert

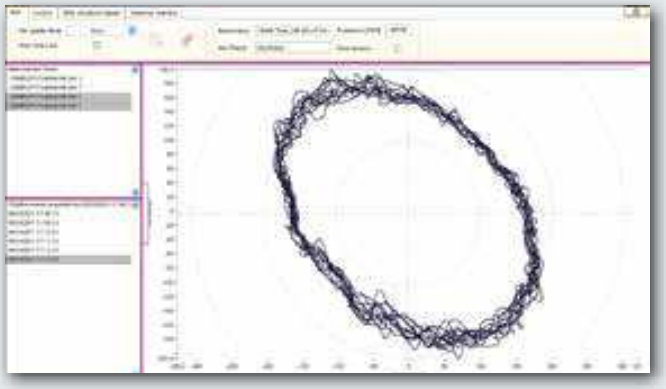
features:

All the functions level 1 and 2 plus

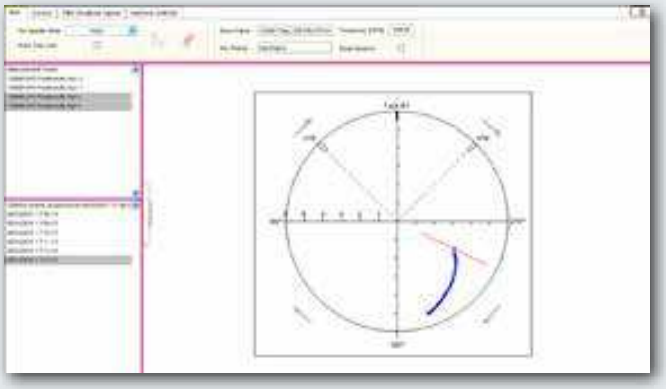
- Orbit
- Waterfall
- Bode
- Nyquist
- Shaft Centerline
- Color mapHz
- Full spectrum



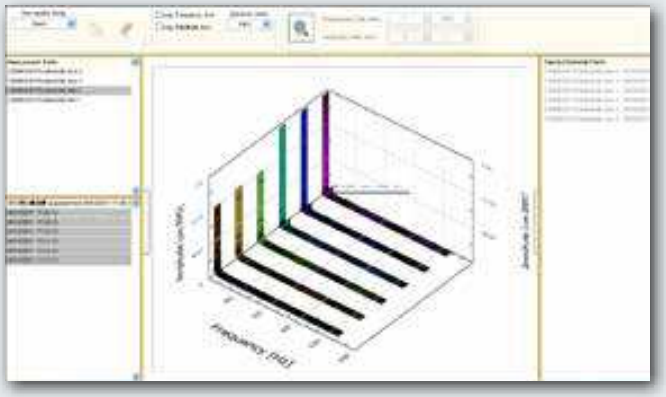
NYQUIST: Nyquist diagram for ramp-up / coast down analysis.



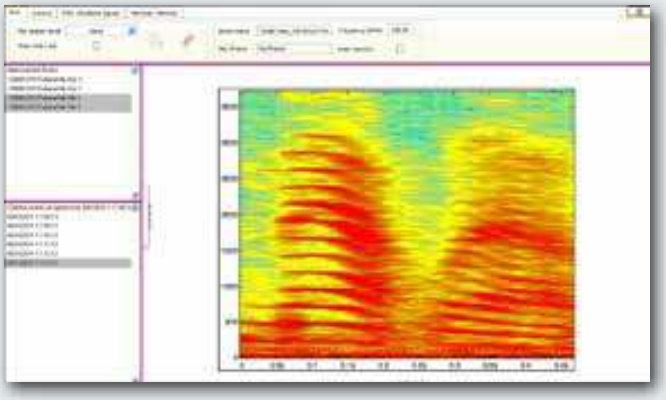
ORBIT: Time domain representation of X-Y vibration for analysis of shaft displacement.



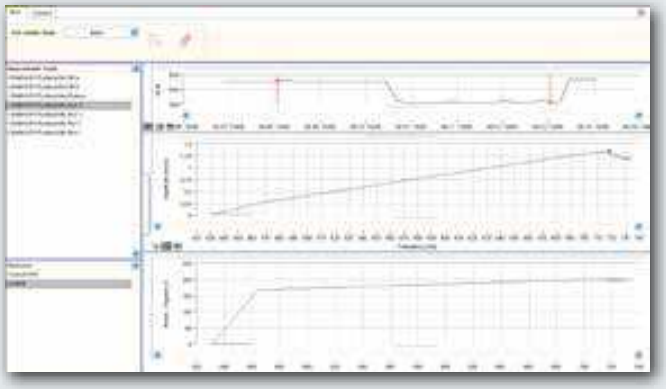
SHAFT CENTERLINE: Graphical representation of shaft displacement during ramp-up / coast down.



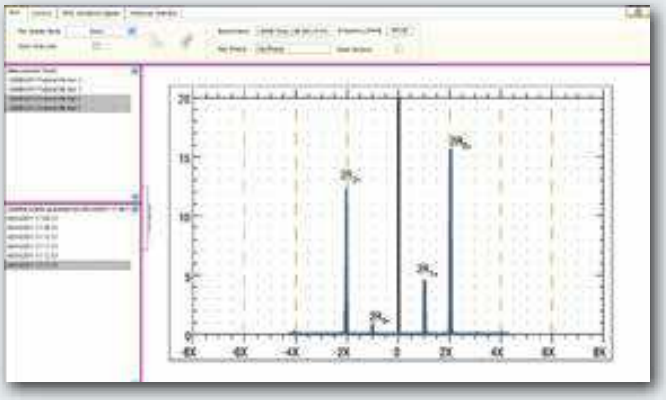
WATERFALL: 3D graph of multispectra data.



COLOR MAPHz: Time – frequency coloured graph for ramp-up / coast down analysis.



BODE: Amplitude and phase graph VS rpm for ramp-up / coast down analysis.



FULL SPECTRUM: Frequency analysis with separation of Forward – Backward components for advanced analysis.

CEMB

BALANCING MACHINES

CEMB S.p.A.
Via Risorgimento, 9
23826 MANDELLO DEL LARIO (LC) Italy

HOFMANN

Hofmann Maschinen- und Anlagenbau GmbH
Altrheinstraße 11
D-67550 Worms-Rheindürkheim
phone +49 (0) 6242 -904-0
fax +49 (0) 6242 -904-286
e-mail: indo@hofmannmaschinen.com

ASTA19220 www.digimediasas.it

CEMB

Everywhere, close to the customer…