

# Mechanalysis<sup>®</sup> India Limited

ISO9001:2008

condition management solutions



PREDICT



PROTECT



FERTILISER



DEFENCE



PETROCHEMICAL



MINING



CEMENT



FOOD



STEEL



FOSSIL



GAS



HYDRO



NUCLEAR



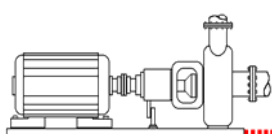
WIND

MACHINERY OEMS

PHARMACEUTICAL

PULP & PAPER

WATER & SEWERAGE



The Vibration People



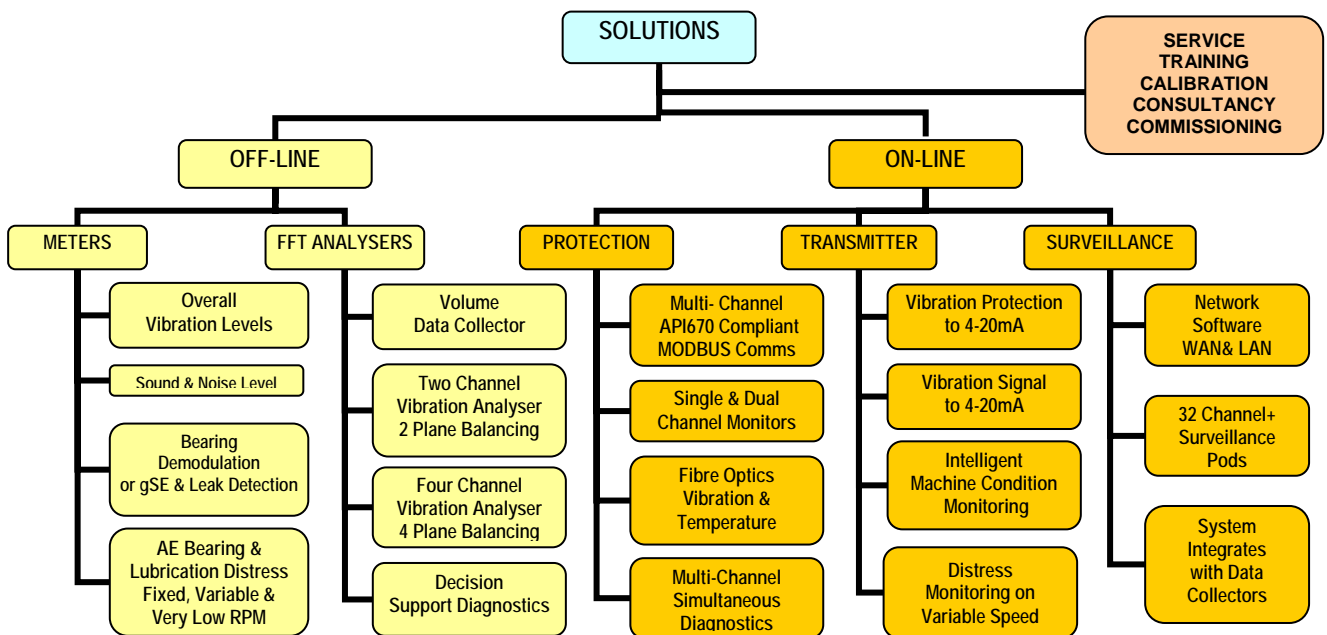
## Engineering the Environment

*It is an established fact that rotating machines: fans, pumps, motors, generators etc will consume as much as 15% more energy if misaligned or out of balance. Worn or poorly lubricated bearings will contribute to such losses. The **Mechanical-Analysis Condition Management System** reduces energy consumption, enables greater machinery availability and improves plant productivity; everyone benefits.*

*In 2006 India generated 118,561MW, just 3% saved would translate to 3,500MW of extra power!*

**Mechanalysis**® India Ltd (MIL) is a leading provider of condition management solutions with over 32 years experience in machinery vibration measurement. The company designs and manufactures industrial instrumentation and sensors. To complement its own products MIL partners with world-class OEMs these include: **Artesis UK, Beran Instruments UK, Comntest Instruments New Zealand, Holroyd Instruments UK, Hansford Sensors, UK, Mobius of Australia, QPS Photonics Inc. Canada and Senonics UK.** Originally established in 1978 as a Joint Venture Company with IRD Mechanalysis of Columbus, Ohio, USA and Chester UK. In 2001 Mechanalysis became a wholly owned Indian company but continues to maintain the heritage and respected design principles of IRD®. MIL is credited with pioneering the concept of vibration based condition monitoring programmes in India. With the advent of computerisation, MIL has established and maintained over 300 automated vibration based CM systems and has a user base of over 2500 major Producers and OEMs in India. MIL will continue to introduce new technologies to match needs and reduce the cost of Condition Management. MIL is now rapidly expanding its International Export Division globally. The company is ISO9001:2008 certified.

### Vibration Based Condition Monitoring Architecture



**Mission Statement:** *Mechanalysis India Limited is a Manufacturing System Integrator that strives to provide reliable, easy to use and rugged instrumentation to enable customers to enhance their productivity and investment. We develop condition management solutions to meet industry's needs that 'Engineers the Environment' but maintain appropriate technologies to match local conditions and skills. We respect all Stakeholders namely Customers, Suppliers, Employees, Shareholders and the Community. We continue to develop our staff so that customers are sustained with the best available expertise.*

*Peter W. Hills*  
Managing Director & CEO



# Mechanalysis® -Off-Line

The **Commtest vbX** series of FFT vibration analysers & data collectors range from single to four channels. The **vb7** has two channels with ergonomic design, 1GB flash memory & high definition display. It is ideal for field diagnostics and proactive maintenance programmes. The unit includes a powerful bearing analysis tool, dynamic balancing, cross channel phase and long time waveform etc. Associated with **Ascent2** Software, vb7 is a powerful combination for site and lab use.



**Vb7 - Advanced Two Channel Vibration Analyser**

The **Mechanalysis** model **MIL812** is a specialist portable vibration meter for high temperature machinery checks with casings of up to 450°C. It is supplied with a version of the model **MIL566** a very high temperature accelerometer (not shown) and in line charge amplifier. The **MIL812** meter takes auto ranging measurements in either Acceleration or Velocity. A unique tool for Gas Turbine applications etc.



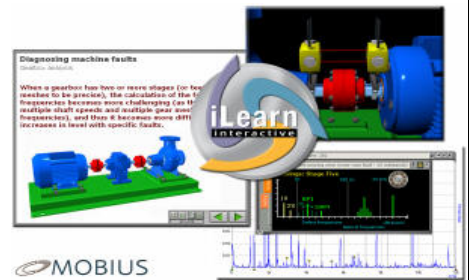
**MIL812 – Vibration Meter for High Bearing Temperature**

**Holroyd Instruments** moved acoustic emission from the laboratory to industry. A range of portable and on-line instruments apply their unique **Distress®** measurement to simplify bearing status without the need for expert analysis. The condition of bearings and their lubrication operating down to speeds as low as 0.25rpm can now be stated with confidence and repeatability.



**MHC-MemoPro - Acoustic Emission Meter**

**The Mobius Institute:** Interactive CDs and Web based training in vibration analysis and shaft alignment. The **iLearnVibration** is now SCORM and AICC compliant. The World Leading provider of **MOBIUS** computer based training also offers professional training with certification exams (ISO Category I, II & III and ASNT Level I and II).



**Mechanalysis** digital sound level meter, model **MIL111** is suitable for accurately measuring industrial noise for health and safety with A and C Scale weighting. The compact lightweight meter is easy to use with digital level, bar-graph and hold facility. It enables pin point accuracy of acoustic measurements in a noisy environment. It also has an output jack for use with an FFT vibration analyser for machinery diagnostics.



**MIL111 - Digital Sound Level Meter**

**Mechanalysis** models **MIL306/DI/DP**, **MIL811/D** portable analog or digital vibration meters. Suitable for industrial applications with easy to read accurate displays. Basic or Advanced, they measure machinery vibration in displacement (microns), velocity (mm/sec), acceleration (g) Spike Energy™ (gSE™). Standard or re-chargeable battery units are available. Globally proven for over 32 years, the meters are ideal for mechanics and the serious vibration analyst.



**MIL811D - Digital Vibration Meter - Advanced**

The MIL products displayed are a selection of a wider range available. The company also has the design capability to customise products to meet specific user needs

Represented by



# Mechanalysis®-On-Line

Mechanalysis MIL8800 API670 Machinery Protection Monitor is manufactured for global end users with type tests & CE Mark. Programmable with analog and digital displays, it is highly reliable for monitoring strategic rotating machinery & TSI with individual power supplies per module. It interfaces directly with Beran's online diagnostic system with both front and rear BNC sockets, see below:



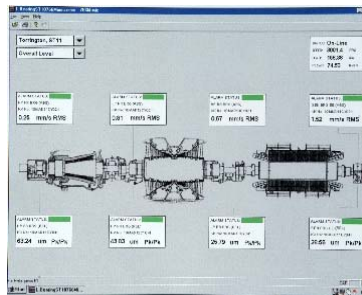
MIL8800 – API670 Protection Monitor – VMS & TSI

Sensonics Sentry G3 API670 Machinery Protection Monitor is a state of the art DSP based vibration and turbine supervisory instrument system. Modules are programmable for any measurement option and output. The unique 4 channel display module monitors strategic machinery at a glance. With 24 channels it is very suitable for the power, petroleum and oil & gas sectors. Sentry G3 interfaces with Beran's online diagnostic system, see below:



Sentry G3- API670 Protection Monitor – VMS & TSI

The Beran On-Line Simultaneous Diagnostic Systems come in 19" rack or portable options. Beran is widely recognised as the most user friendly multi-channel diagnostic system for strategic rotating plant. Applications include high speed compressors, gas & steam turbines, generators, hydro power plants etc. The system imports both dynamic and static process data for intelligent alarming. Reporting and interrogation is available on LAN & WAN networks; ideal for corporate and remote plant monitoring strategies. The Beran system is essential for machinery event diagnostics and plant life cycle analysis.



Beran's On-Line Multi-Channel Simultaneous Machinery Diagnostics



**vbOnline - Surveillance**  
Commtest's vbOnline is a multi-channel automated data acquisition Surveillance local area network system, hardwired or WiFi. It reduces cost and improves the quality & reporting of on-line machinery measurements.



### Motor Condition Monitor

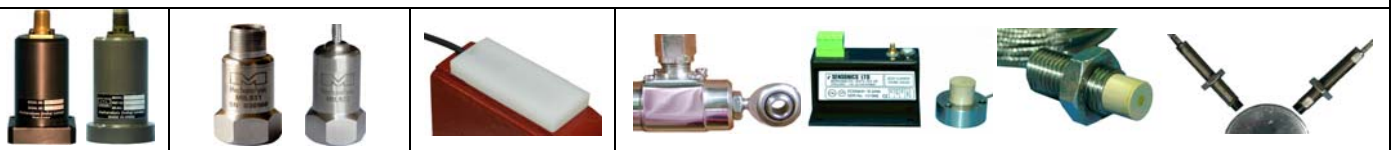
MIL's MCM is a state of the art intelligent device for condition monitoring of equipment driven by electric motors; MCM employs Artesis technology. Measuring the three supply phases, it learns to detect and diagnose a range of electrical and mechanical faults: including insulation breakdown, soft-foot, unbalance, misalignment, bearings etc.



### Protection & Signal Transmitters

The MIL7000 series of transmitters cover vibration and Turbine Supervisory. Single & Dual Channels are supplied in IP65 enclosures. DIN rail and 19" rack are options. Vibration and TSI signals are converted to industry standard 4-20mA with warning and trip relays and or communications such as RS485 / MODBUS on selected units. The raw signal can be accessed directly from BNC sockets. MIL7400 is DCS loop powered that offers a lower cost solution for process and machine health monitoring with buffered output.

## Sensors for Vibration, Turbine Supervisory & Stator End Winding Monitoring Systems



MIL544M/B Velocity Sensor

MIL500 Series Accelerometers

QPS Fibre Optics Vibration & Temp.

LVDT Sensors, Senturion Series: Driver & Eddy Current Probes include: Relative, Thrust, Diff Expansion, Eccentricity etc from Sensonics.



# Mechanalysis® Support Services

*Getting you Started  
Keeping you Going  
Taking you Further*

**Consulting Services**  
**National Service Centre**  
**Calibration - National Traceable**

**Training Schools**  
**Decision Support Software**  
**Interactive CD or Web Training**

## Partial Customer List

<p><b>CEMENT</b> ACC, Birla White, Century, Chettinad, Dalmia, Diamond, Dhar, , Grasim Industries, Gujarat Ambuja, Humboldt Wedag, India, Jaypee, J.K Lakshmi., JK White, Kesoram, Lafarge, Madras, Narmada, Orient, Panyam, Rajashree, Shree, Sanghi Rain, Ultra, Vasavadatta, Vikram, Zuari, etc.</p> <p><b>CHEMICAL</b> Birla Deccan, Chemplast Sanmar, FACT, GNFC, Godavari Fertiliser &amp; Chemicals, Hindustan Lever, Hindustan Organic, IFFCO, Kribhco, Mangalore, Narmada, NFL, Nirma, NOCIL, Orchid, Paradeep, Sudarshan, Tutticorin, Tata, Tuticorin Alkalies, SPIC, Thirumalai, etc.</p> <p><b>CONSULTANTS</b> Avant Garde, Development Consultants Ltd., Desein, ERDA, FL Smidth, Hoffincons, MECON, M. N. Dastur, Fitchner Consulting, MGP Associates, Tata Engineering Consultants etc.</p> <p><b>ENGINEERING CONTRACTORS</b> <b>Bharat Heavy Electricals Ltd (BHEL):</b> Delhi, Bangalore, Bhopal, Hardwar, Hyderabad, Kolkata, Noida, Ranipet, Trichy, etc.</p> <p>Alstom, ABB, Engineers India Ltd (EIL), Electronics Corp. India (ECIL), ILK, FFE, GEA, Honeywell, Industrial Systems, Keltron Controls, Larsen &amp; Toubro, McNally Bharat Engineering, Tata Robins Fraser, Siemens, TATA Projects, Tecpro Systems, TDPS, Electric, Engineering Experts, Yokogawa, etc.</p> <p><b>FERTILISER INDUSTRY</b> Chambal, Coromandel, Gujarat Narmada Valley, GSFC, IFFCO, Indo-Gulf Fertilizers, Kribhco Shyam Nagarjuna, National, Madras, Mangalore, Rashtriya, Shriram, Zuari Agro, etc.</p> <p><b>FOOD</b> Sugar Plants: Arunchalam, Arignar Anna, Bannari Amman, Dharani, Dhampur , Bajaj Hindusthan, Gem, Kallakurichi, Madurai, Tamilnadu, Tirupattur, Thiru Arooran, Ugar.</p> <p>Avain Milk, Brooke Bond, Sunil Healthcare, Food Corp India, Maize Products, Mohan Breweries, Pondicherry Co-Op, Rampur Distillery, Sudha Agro, etc.</p>	<p><b>DEFENCE &amp; MARINE</b> Indian Navy, Coast Guard, Cochin Ship Yard, Goa Shipyard, ABG Shipyard, GRSE Calcutta, Mazagon Docks, NSTL, etc.</p> <p><b>MINING</b> Kutch Lignite, Kudremukh, KMML, Neyvili Lignite, Northern &amp; Western Coalfields, NMDC, SESA, West Bokaro Collieries, etc.</p> <p><b>Non Ferrous:</b> Angul, Damanjodi, Bhubaneswar, Hindustan Zinc, Hindalco, Hindustan Copper, NALCO, Nalconagar, Philips Carbon, SWIL, Sterlite, Saint Gobain etc.</p> <p><b>MACHINERY OEMS</b> Belliss, Cethar Vessels, Chola Turbo, Concast, Kessels, Kirloskars, Koshyma Fans Fläkt, NICCO, Reitz, Triveni, TDPL etc.</p> <p><b>OIL, GAS, PETROLEUM</b> AEGIS, Bharat Petroleum, Bongaigaon Refinery &amp; Petrochemicals, GAIL, Hindustan Petroleum, IOCL, Indian Petrochemical, Madras Refinery, Tamilnadu Petroproducts SPIC, ONGC, Cairn, etc.</p> <p><b>POWER</b> <b>SEBs:</b> Andhra Pradesh, Bihar State, Chattisgarh, Gujarat, Haryana, Jharkhand, Kerala, Maharashtra, Madhya Pradesh, Punjab, Rajasthan, Tamilnadu, Uttar Pradesh, West Bengal, Delhi Viduyt etc.</p> <p><b>POWER Corps</b> Calcutta Electricity Supply, Damodar Valley, Essar Gujarat, GVK, Jegurpadu, NLC, Nuclear Power Corp. IPGCL, Jindal Tractabel, Karnataka Power, Reliance Energy, Tata Power, GMR Vasavi, etc</p> <p><b>NTPC Plants:-</b> Angul, Anta, Auraiya, Badarpur, Balco, Dadri, Farakka, Faridabad, HQ Delhi, Kahalgaon, Kayamkulam, Korba, Ramagundam, Rihand, Singrauli, Simhadri, Talcher, Unchahar, Vindychal etc.</p> <p><b>STEEL INDUSTRY</b> BMM, Ispat, Bellary Steels, Bhushan Steel, Essar Steel &amp; Hygrade Pellet, IP Tata Sponge, Ispat Industries, JSW Steel, Mahindra Ugin Steel, Mukand Iron &amp; Steel, Salem Steel, SISCOL, SJK Steels, SAIL: Bokaro, Durgapur, Rourkella, Sunflag Iron &amp; Steel, Tata Iron &amp; Steel, Vikram Ispat, Visakhapatnam Steel Plant, etc.</p>
<p><b>International:</b> BSG Texas, Energy Electric Illinois, Loren Cook, TECO Westinghouse USA, Ontario Hydro, Wabash Mines Canada, Benue Cement Nigeria, AAC South Africa, KCM Zambia, Kakira Sugar Uganda, BSRM Steel Bangladesh, Korea Hydro &amp; Nuclear Corp, Jin Sung Engineering Co. Korea, Taiwan Power Corp. Pacific K&amp;S Corp Taiwan, Argentina, Kenya, Mexico, etc.</p> <p><b>Supplies through OEMs:</b> Australia, Bahrain, Canada, Dubai, Iran, Egypt, Europe, Kuwait, Qatar, Saudi Arabia, Singapore, Syria, Yemen, UK.</p>	

Mechanalysis is ISO9001:2008 Certified.



# Mechanalysis® India Ltd

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