

Condition Monitoring Equipment & Services

The 2009 Listing of Condition Monitoring Equipment and Services was compiled by Len Bradshaw, June 2009. The data given is as received from the respondents. The AMMJ does not therefore accept any liability for actions taken as a result of information given in this survey. (Copyright to the Asset Management and Maintenance Journal)

Applied Infrared Sensing

Address: Build. 22, 270 Ferntree Gully Rd. Notting Hill VIC 3168.
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www.applied-infrared.com.au



CM PRODUCTS

NEC AVIO Thermal Imaging Cameras for Condition Monitoring, Maintenance, Process Control and Research. NEC is one of the most advanced manufacturers of thermal imaging cameras with full production chain in Japan (including infrared detector arrays used in the cameras) and strict Japanese quality control.

Product range includes hand-held and fixed cameras and camera core modules. Detector arrays 640 x 480 pixels, 320 x 240 and 160 x 120 pixels. All cameras include advanced thermography functions. The latest ThermoShot F30 is a new generation camera for maintenance personnel. The concept is very similar to a photo camera which makes operator training extremely easy. In addition to traditional thermal imaging display the operator can view temperatures right on visual image to avoid misinterpretation.

The camera is physically very small (shaped like a modern digital photo camera) enough for carrying it in a pocket.

Other popular models include TH7800, TH7716, TVS-200EX and TVS-500EX all are advanced thermography systems typically used by thermography specialists.

H6240 is the most advanced thermal imager based on the latest true high performance 640 x 480 pixels detector with better than 0.06 deg.C sensitivity even without any averaging! Such sensitivity and optical resolution means hardly any fault will go undetected. These characteristics allow the operator to work at longer distances and analyze various types of equipment, large or very small.

The H6240 system comes with 1.3M pixels visual camera and image fusion (blending of thermal and visual images) on the screen.

The camera will measure temperatures between -40 to 500 deg. C and optional 2000 deg. C.

NEC AVIO has been supplying thermal imaging cameras in Australian market for 15 years and earned excellent reputation.

Apt Group (of Companies)

Address: (HO) Level 1, Suite 5,
13-15 Wentworth Ave, Sydney,
NSW 2000. Australia
Email: info@aptgroup.com.au
Web Page: www.aptgroup.com.au



CM PRODUCTS Portable/On-line Products

The apt Group (of Companies) sell products incorporating advanced techniques and fast resolve/prediction to failure for Mechanical & Electrical plant diagnostics.

Products suit large and small industrial plants, production critical and less critical machines, operator and service provider applications. Equipment

- Agency agreements for Pruftechnik, EuroPulse, Guide, APIPro, All-testPro, APT, amongst others.
- Machine/Bearing Monitoring: predictive trending tools, Data Loggers, FFT Analysers, Fixed Monitors & WEB based Surveillance – Vibration, Eccentricity, Acoustics, Ultrasonic, Temperature.
- Alignment/Laser Measurement: Shafts; Pulleys; Machines.
- Dynamic Balancing: Rotors/Fans.
- Battery Maintenance: Extend Life/Rejuvenate.
- Electric Motor Monitoring: detect & measure the severity of AC motor stator and rotor problems, DC motor field winding problems, power problems and cable issues.

- Motor Circuit Analysis (MCA) off-line static impedance based testing, assesses the condition of AC/DC motors, providing in-depth analysis of the motor circuits - turn-to-turn shorts, open turns/coils, reversed coils, coil-to-coil shorts, connection defects, air gap defects, rotor defects - broken bars, eccentricity and casting voids. Also, Electrical Signature Analysis (ESA) for complete on-line dynamic Motor/Power Diagnostics.
- Infrared Cameras: Predictive Maintenance; Research Development; Machine Vision; Surveillance.

Software

- Asset Performance Tools: cost/risk evaluation.
- Asset Efficiency Optimiz.: data management, display/analysis.
- Knowledge Based: efficient diagnostics of machinery problems "rule based"; justification/explanation.
- Decision Support: facilitate reliability efforts, root cause failure analysis, cost calculation/tracking.
- Maintenance Management: resources, inspection/maintenance routines; interface condition monitoring, finance, production.

CM SERVICES

The apt Group (of Companies) is an Independent Engineering Consultancy – providing Condition Monitoring Services focusing on Plant Reliability.

- Contractual/one-off plant surveys, project engineering, advise in system/component selection/implementation.
- Highly qualified personnel, applying best practices, international standards and corrective recommendations.

Mechanical Discipline

- Machinery Diagnostics; Vibration Analysis; Modeling; Alignment; Balancing; NDT; Oil Analysis.

Electrical Discipline (LV & HV)

- Motor Management/Diagnostics, Thermal Imaging, Switchboard Inspections, Power Factor Correction/Condition Analysis.
- Substations, Transformers, Circuit Breakers, Busbars, DC Systems, Power Cable Testing & Diagnostics.

Support Services

- Plant Surveys, Database Establishment/Management, Data Analysis, Training/Seminar Programs.
- On-site and remote data analysis/management services are available "around the clock".

The apt Group of companies, promote Precision Engineering / Maintenance practices. Both in-house personnel and world-renowned advisors are available to undertake site audits, review in-house processes and assist with change as needed.

Aquip Systems

Address: 4/5 Brodie Hall Drive,
Bentley WA 6102 Australia
Email: sales@aquip.com.au
Web Page: www.aquip.com.au



CM PRODUCTS

PRÜFTECHNIK's Condition Monitoring products available for both online and offline applications:

- VIBSCANNER – hand-held tool capable of collecting vibration data, temperature, speed and process parameters. Add-on modules available for Full Spectrum, Time Waveform, Balancing & Laser Alignment.
- VIBXPRT – a high performance, full-feature 1 or 2 channel FFT data collector and signal analyzer for the monitoring & diagnosis of machine conditions.
- VIBCODE – Vibration transducer with automatic measurement point identification for all systems. This guarantees consistently reproducible measurement results, regardless of who takes the

readings.

- VIBNODE, VIBROWEB XP, VIBROWEB – intelligent machine monitoring systems that can perform measurements, evaluation, archiving & alarm warning. Very-fast-multiplexer systems available up to 32 channels with an internal webserver & email server, these systems provide convenient remote access from any PC.

- OMNITREND is the common PC software for all data collectors and online monitoring systems from PRÜFTECHNIK. Omnitrend is used to program measurement tasks and to evaluate, archive and document measurement results in conformance with ISO standards.

CM SERVICES

Aqip Systems provides expert ongoing condition monitoring services as well as adhoc machine diagnosis. We provide condition monitoring training with emphasis on practical applications (introductory to advanced level). We also operate the sole PRÜFTECHNIK certified service centre in Australia, and are fully equipped to carry out services, repairs and calibration checks on all PRÜFTECHNIK equipment.

eReliability

Address: PO Box 3090,
Dural NSW 2158
info@ereliability.com.au
www.ereliability.com.au



CM PRODUCTS Condition Monitoring Systems

eRELIABILITY offers the latest technology Vibration Analysis & Alignment Software & Hardware Systems. Alliances with leading PdM companies allows eRELIABILITY to offer fit for purpose solutions for your Company including installation, commissioning and on-going training.

Complete range of accelerometers & accessories including:

- 'AC'/mV/g vibration sensors
- High and Low frequency vibration sensors
- Compact vibration sensors
- Dual output vibration sensors
- IECEx certified vibration sensors
- Submersible vibration sensors
- Signal Conditioning Modules
- Cable assemblies
- 4-20mA vibration sensors
- Junction and Switch boxes
- Mounting accessories

Computer Based InterActive Training Software

eRELIABILITY have a complete range of InterActive Computer Based Training packages available covering Vibration Analysis, Alignment & precision maintenance procedures.

eMonitor Remote Data Analysis

eMonitor offers a new innovative vibration analysis program with online data analysis and remote data collection ability. No huge capital expenditure required but providing asset protection at a very affordable price!

CM SERVICES

Vibration Analysis Surveys

With 20 Years experience in Machinery Condition Monitoring, eRELIABILITY offer a full range of Vibration Analysis Services.

Infra-red Thermography Surveys

eRELIABILITY has 15 years IR experience on both mechanical and electrical (including outside HV work) equipment.

Oil Tribology Services

Combining Wear Debris Analysis with other particle separation and analysis tests the results are capable of determining the Root Cause abnormal wear commencement in drives, transmissions, hydraulics and engines.

Laser Shaft Alignment Services

We specialise in precision laser alignments on all rotating machinery. Our technicians use only the latest Pruftechnik Rotalign Pro laser alignment equipment and quality stainless steel shims.

On-Site Dynamic Balancing

eRELIABILITY has 20 years of on-site balancing experience and utilises current technology 2-channel analysers to perform precision on-site dynamic machine balancing on all types of machines.

InterActive CM Training Courses

- NEW CM System installation & commissioning
- Reliability Awareness Seminar
- Balancing & Alignment Skills Training
- PDM & CBM System Management & Audits
- Activity Based Vibration Analysis Level 1 & 2

FLIR Systems Australia

Address: 10 Business Park Drive
Notting Hill Vic 3168 Australia
Email: info@flir.com.au
Web Page: www.flir.com.au



CM PRODUCTS

FLIR Systems, the global leader in infrared cameras, offer a wide range of infrared cameras for predictive and preventative maintenance. These include:

- The low cost FLIR i series
- The revolutionary, low cost FLIR i5
- The new, innovative FLIR T/B series, which offers an optimum mix of ergonomics, flexibility and features
- The brilliant new FLIR P660, which features a 640x480 uncooled microbolometer array with measurement & also possesses GPS
- The affordable A series, for integration into machine vision and automation systems
- GasFindIR series for detection of leaking hydrocarbons and SF6
- A variety of software packages
- Quality tested infrared windows

Infrared training is offered on site or through the University of Melbourne. Level I and II thermography courses accredited to AINDT standard are available.

After sales service from the FLIR Systems certified service centre, which is supported by factory trained and experienced service manager and other personnel.

CM SERVICES

FLIR Systems Australia Pty Ltd is a subsidiary of FLIR Systems Inc., the global leader in infrared cameras. We are totally focused on supply, service, training and application support for infrared camera users. FLIR Systems is the world leader in the design, production and marketing of thermal imaging camera systems for a wide variety of thermography and imaging applications.

We are proud of the efficient service we can provide our customers. We know and understand that turnaround times are critical and this is why we have in-house service & calibration checks undertaken by our factory trained service manager.

Infratherm

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Freemans Reach,
NSW 2756 Australia
info@infratherm.com.au
www.infratherm.com.au



CM PRODUCTS

Infratherm is a premium supplier of Thermal Imaging Cameras and attendant Report and Analysis Software for Preventative Maintenance and Condition Monitoring applications.

With over 20 years experience in the market, Infratherm can provide a range of services and applications support that has become the bench mark in the industry.

Full maintenance and calibration services are provided along with accredited training programs in infrared technology.

Infratherm offer equipment from the worlds leading manufacturers of thermal imaging equipment and are not limited to a single supplier or brand name. Our focus is on customer needs and satisfaction and we back this up with the best service in the industry.

CM SERVICES

Infratherm provide a range of Thermal Imaging Radiometric

Cameras for Conditioning Monitoring and Preventative Maintenance Applications.

These cameras are available with Report and Analysis Software for generating reports on the required servicing resulting from equipment inspections. Infratherm also provide accredited training courses in thermographic practices with emphasis on how to conduct Condition Monitoring inspections. As an independent supplier of thermal inspection equipment and training, the focus is on customer needs and support.

ISS Machine Health

Pin Gin Hill Lab.,
496 Palmerston Highway,
Innisfail, QLD 4860
admin@machinehealth.com
www.machinehealth.com



CM PRODUCTS

Self-Sealing Magnetic Chip Collectors. Routinely collecting, quantifying and identifying ferrous wear debris from machine oil systems is one of the most cost effective condition monitoring tools available. It is also highly complementary to Vibration Analysis. The self-sealing nature of these magnets means that no oil is lost during sampling (machines can be sampled "live") and with a simple adapter they also provide an excellent oil sampling port.

MCC Sample Cards. The ferrous wear debris collected on the self-sealing magnets is collected onto a special adhesive patch on custom made MCC debris sample cards. Using these cards ensures 100% debris collection and provides for the analysis, microscopic examination and storage of the wear debris samples.

Remote Network Vibration Monitoring System. ISS Machine Health offers Customers the option of being set up with an on-site NVMS with the ability of remote dial-in from ISS Head Office.

CM SERVICES

ISS Machine Health offers a fully integrated and cost effective CM service :

Vibration Analysis. Dual channel portable collector/analysers, multichannel vibration data acquisition. Comprehensive suite of vibration analysis techniques available including TSA, Variable Speed (order tracking), ODS, FEM etc.

Wear Debris Analysis. Oil, Grease, Magnetic Chip Collector, Ferrography (Analytical and DR) and Filter Debris Analysis. Visual and NDT. DPI, MPI, and UT (by partner company). Additional. Laser Alignment, In-field Balancing, and Maintenance Supervision.

Failure Analysis. Macro/Micro FA and Report.

Management. Plant/Machinery/CM Program Audit, and CM scope of work for Tender.

Training. Full suite of CM Training courses (including CBA).

Machinery Vibration Specialists Australia

Lv3, 7-9 Merriwa Street GORDON NSW 2072 Australia
mvsaust@ozemail.com.au www.spminstrument.com
www.leonovabyspm.com www.bearingchecker.com

MVS Aust P/L is a specialist company supplying products, support services and technical training for the maintenance and repair of rotating machinery.

CM Products:

SPM Instrument AB: Originator of the "True Shock Pulse Method" BearingChecker Pocket Bearing Monitoring made Easy

- True Shock Pulse with evaluated bearing condition.
- Light weight, rugged, low cost, simple to use.
- Also measures IR temperature and used as a Stethoscope.

Leonova™ Infinity 2-Channel Bearing/ Vibration Analyser with Balancing, Laser Alignment, Bump Tests, Orbit & Lubrication Analysis

- Hand held 2 Channel Data Collector, Colour Touch Screen <600g

- Shock Pulse Bearing, Lubrication, Vibration Spectrum Analyser.
- Evaluated results RED, YELLOW & GREEN while at the machine.

- LineLazer™ shaft alignment accessories and live program.

- Unique Purchase Plan "PAY ON USE" reduces capital outlay.

On-Line Protection Protection & Monitoring of M/c Parameters

- Single & multichannel monitors + relays, Modbus & 4-20mA outputs.

NEW Intellinova Continuous On-Line multi channel Analysing/**Diagnostic Monitoring Systems.** The sophisticated system is designed to monitor complex machines such as container cranes, windgenerators, rolling mills, paper machines, cement plant machinery and mining conveyor and crushing systems.

CEMB SpA Maintenance & Process Dynamic Balancing Machines

- True "Hard Bearing" force measuring Balancing Machines.

- Horizontal & Vertical for Maintenance & Production.

- Capacity Range 10Kg to 20,000Kg

IRD Balancing LLC - Maintenance Dynamic Balancing Machines.

- "Soft Bearing" Motion measuring machines.

- Transportable balancing machines up to 200 tonne.

- Portable Dynamic Balancing instruments.

CM Services

- Instrument and machine repair and calibration to NML Standards.

- SPM Software installation and commissioning.

- Monitor Start-up commissioning.

- On-site machine trouble-shooting bearing & vibration problems.

- Vibration/ Balancing/Alignment Training Courses in-House or Public.

- Precision Dynamic Balancing of rotors up to 3.0Kg

SigmaMSc

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www.sigmamsc.com

Victorian Branch – 27 Research Drive, Croydon Vic 3136
NSW Branch – 1/5 Harris Street, Wallsend NSW 2287



CM PRODUCTS

MONITORING – VIBRATION PRODUCTS

CSI Portable Vibration Analysis

- CSI 2130D, A1, A2, Z1, Z2 Analysers
- Safety rated (Q) analysers

CSI Online Vibration Analysis

- 4500 online machinery analysis system
- XP32 online portable machinery analysis system
- CSI 6500 Protection / Prediction System
- CSI 9420 Wireless Transmitter System
- CSI 9210 Online Transmitter

CSI MHM Software

- MHM – Machinery Health Management software. Extremely powerful diagnostic and vibration analysis route based software.

VMI Vibration Meter

- Handheld Viber A vibration meters and X-Viber route based systems

METRIX Vibration Protection Equipment

- Vibration Protection Meters, Monitors, Switches, Transmitters, Proximity Probes, Drivers

CTC Vibration Analysis Hardware

- Wide range of accelerometers, sensors, transmitters, cables boxes and other vibration hardware

MONITORING – OIL & INFRARED PRODUCTS

CSI Oil Analysis

- Complete range of industrial oil analysis hardware and software

UVLM Grease Analysis

- UVLM grease monitoring meter

Thermoteknix Infrared Thermographic Cameras

- 640 x 480 high resolution thermal/visual VISIR640 camera with powerful Thermonitor reporting software

Irisys Thermal Imager

- IRI 2010 (budget priced) 4010 (standard lens), 4030 & 4035 (Dual Temp range) and 4040 (Telephoto) Thermal Imagers

Extech Temperature GUNs

- Extech low cost temperature guns

LASER ALIGNMENT AND BALANCING

CSI Laser Alignment & Balancing

- 8130 Advanced & Basic Laser Alignment & balancing systems

IGS Alignment Shims

- Pre-cut Stainless Steel Shims

MEASUREMENT & TESTING PRODUCTS

CSI & EFI Ultrasonics

- Ultrasonic kits for determining airborne leaks & mechanical faults

Cygnus & Checkline Ultrasonic Thickness Gauges

- Complete range of non-destructive thickness gauges for many Applications

Compact Laser Tachometers

- Wide range of laser tachometers for measuring machine speed
- Checkline Stroboscopes and Temperature Guns
- Check machine speed & inspect the temperature of most equipment.

MEASUREMENT & TESTING PRODUCTS

Provision and ITI Scopes

- Low cost borescopes, Mid range scopes and fully functional V5 PLUS videoscope system

CM SERVICES

CM ENGINEERING SERVICES

Advanced Vibration Services

Advanced problem analysis, root cause analysis, system design & commissioning, performance monitoring, system integration, alarm setting, system audits, custom reporting, remote analysis

Remote Analysis Services

Customer consultation, determine machine criticality, system design and installation, on-site training, remote data analysis, quarterly reviews

CONSULTANCY SERVICES

Vibration Analysis Comprehensive Vibration Surveys for collection of time waveform / spectral data.

Oil Analysis, Oil chemistry, ferrous wear, contamination (incl. water and Non Fe), lube condition, particle count to ISO, viscosity.

Laser Alignment Shaft alignment, providing detailed report plus after hours service as well.

Precision Balancing Experienced / trained staff to precisely balance your machines.

Infrared Thermography Includes full colour single page fault reports with IR & Visual images

Motor Diagnostics Advanced non intrusive motor diagnostic technology to detect rotor, stator and other motor faults.

Ultrasonic Leak Detection Detect air, gas, vacuum leaks, defective valves or steam traps, electrical and mechanical problems.

Vibration Diagnostics For root cause fault investigations requiring the use of multi-channel FFT analysers, detecting transient events.

CM TRAINING

- SigmaMSc provides a wide range of Condition Monitoring & Vibration Training Courses at SigmaMSc's Training Centre in Melbourne and at various cities around Australia.
- SigmaMSc also provide tailored, on-site training for specific applications and technologies.

PearlStreet

Address: 43 Wittenberg Drive,
Canning Vale, WA 6155 Australia
stephen.teo@metlabs.au
www.pearlstreet.com.au



CM SERVICES

PearlStreet supplies a range of vibration transducers, e.g. Vibra-

Metrics, Wilcoxon Research, etc, with customized cabling, data collection points, monitoring stations and on site installation, as required for a complete package.

PearlStreet also supplies custom designed monitoring systems for both short term and permanent monitoring of vibration and process parameters. These systems are catered to client requirements together with on site installation, off site remote monitoring and analysis if required.

CM SERVICES

PearlStreet has provided condition monitoring services for over 30 years, delivering integrated condition monitoring based on ISO 17359, using the 'right' mix of technology, targeted at specific component failure modes and aimed at overall reliability improvement. With more than 20 offices around Australia, PearlStreet is able to provide cost effective services nationally. Services provided include:

- Develop, implement and / or Audit Condition Monitoring Programs
- Staff Leave Coverage and Technical Support to in house programs
- Vibration Monitoring and Analysis
- Infra-red Thermography of electrical, mechanical and process installations
- Oil and Wear Debris Analysis
- Vibration Acceptance Testing and Commissioning
- Laser Alignment and in-situ Balancing
- Bearing Inspection and Failure Investigation
- Strain Gauging and Finite Element Analysis
- Data logging and process monitoring
- Fatigue Life Assessment
- Structural Integrity Inspection
- Classified Plant Inspection
- Non Destructive Testing
- Materials Consulting
- On site Training

SIRF Roundtables

Address: 276 City Rd,
Southbank VIC 3006
peter.todd@sirfrt.com.au
anna@sirfrt.com.au
www.sirfrt.com.au



Shared learning networks

for organisations seeking best business performance

CM SERVICES

SIRF Roundtables facilitates regional shared learning networks across Australia and New Zealand. Membership groups include the Industrial Maintenance Roundtable (IMRt), Manufacturing Excellence Roundtable (MERT), Knowledge Management Roundtable (KMRt), Supply Chain Roundtable (SCRt) and Sustainability Roundtable (SARt). Services related to condition monitoring include:

- Facilitates the sharing of Condition Monitoring best practice between IMRt/ MERT members
- Coordinates the annual Condition Monitoring & Lubrication Forum eg. October 27 & 28 2009 in Sydney
- Training on Management and Operation of Condition Monitoring and Inspection systems for non-specialists
- Training on Basic Condition Monitoring for non-specialists
- Carrying out Predictive Maintenance Strategy Reviews

SIRF Roundtables annually runs a National Forum on Condition Monitoring and Lubrication. It is an opportunity to listen to leading industry practitioners on techniques and proven strategies they use in their operation. Attendees learn from these presentations and are able to take back tips and ideas and adapt into their own environment. The forum provides not only a learning platform but also networking opportunities amongst delegates with similar roles and challenges to learn from one another.

SKF Australia

17-21 Stamford Road,
Oakleigh, Victoria 3166
R.S.Senthil.Vel@SKF.com
www.skfcm.com



Countries Supported by this parent company: + 130 countries

CM PRODUCTS

SKF is the leading supplier of condition monitoring and maintenance diagnostic systems, hardware and software that enables us to monitor operations and identify problems both mechanical and electrical faults.

1. Basic Condition Monitoring

SKF Basic condition monitoring kits combine instruments to enable a "multi-parameter" approach to monitoring that includes vibration, oil condition, temperature, speed, and more to help ensure the accurate and reliable assessment of machine condition.

2. Portable data-collectors/Analyzers for Condition Monitoring

SKF offers a wide variety of portable data collectors/analyzers including data collection, machinery vibration analysis and monitoring, early detection of bearing defects or gear tooth wear, electric motor monitoring and field machinery balancing. Easy menu selection and control enable the user to quickly and efficiently perform a wide variety of operations.

3. Online Surveillance condition monitoring systems

SKF's On-line surveillance systems complement the use of periodic data collection instruments, facilitating a round-the-clock monitoring of machinery that collects data 24 hours per day, 7 days per week from permanently installed sensors.

4. On-Line Machinery Protection Systems

SKF Condition Monitoring offers a spectrum of machinery protection and monitoring solutions backed by decades of experience and global support that includes monitoring, protection, analysis and diagnosis of critical machinery.

5. Baker Motor Testing and Diagnostic Systems:

SKF acquired Baker Instruments in June 2007. Baker Instruments Company is dedicated in developing and manufacturing motor reliability tools that offer a broad spectrum of capabilities. Dynamic (on-line) monitoring combined with comprehensive static testing (off-line), enhances motor condition awareness including efficiency and performance information

6. Measurement and Laser alignment Systems:

SKF is an exclusive distributor for Easy-Laser, precision laser alignment system for industrial applications. SKF also offers a suite of other complimentary products such as Online and Offline Thermography systems, Ultrasonic Inspection kits, low cost vibration sensors etc.,

CM SERVICES

SKF RELIABILITY SYSTEMS

SKF offers Asset Efficiency optimization (AEO), a management process designed to achieve maximum efficiency and effectiveness from work management activities focused on business goals, increasing profitability

1. SKF Energy and Sustainability Management (ESM) program benefits to a customer by establishing an "opportunity map" of potential savings and improved practices, including potential areas for:

1. Reducing energy consumption
2. Improving poorly operating energy-intensive systems
3. Improving facility economic performance
4. Improving facility environmental performance

2. Maintenance Strategy.

SKF can assist in developing and implementing maintenance strategies using the following commonly applied techniques:

1. RCM: Reliability Centered Maintenance;
2. SRCM®: Streamlined Reliability Centered Maintenance;
3. RBM: Risk Based Maintenance

3. Work identification.

For increasing plant reliability SKF recommends following processes/ programs to identify appropriate maintenance tasks:

1. Operator Driven Reliability (ODR):

2. SKF Predictive maintenance (PdM)
3. SKF Proactive Reliability Maintenance (PRM)
4. Motor testing and diagnostics service

4. Work Execution.

SKF can assist by providing project management, supervision, and inspection, mechanical installation skills where customers do not have either the tools or specialized knowledge in these tasks.

a) Application knowledge: SKF has extensive application knowledge through branch offices around Australia, as well as the industrial specialists to draw on to solve customer problems with regards to rotating equipments.

b) Reliability Training: SKF engineers are on hand to provide specialist knowledge and training for our customers. We have offices both globally and locally, as one of largest global suppliers of condition monitoring/reliability services.

Tui Industries P/L

Address: 5/14 Argon Street,
Sumner Park, Brisbane 4074
mail@tuiindustries.com.au
www.tuiindustries.com.au



CM PRODUCTS

General Purpose Accelerometers

The two wire accelerometers can be connected directly to most data collectors or online systems that use the constant current method of transmission.

4-20mA Accelerometers

For industrial machine monitoring, especially in preventative maintenance. Features 4-20mA outputs for use with PLC's and SCADA/DCS systems. No additional interface is needed.

Special Purpose Accelerometers

- EXI approved accelerometers Standard and 4-20mA
- Dual Accelerometer with temperature and vibration
- High Temperature and radiation models
- Submersible accelerometers with 10bar maximum pressure and IP68 rating
- Low profile and side entry options available

Accelerometer Options Available

Side Entry with 1/4"-28UNF, 6mm or 8mm bolt through options
Cable lengths

Integral or connector cable

Stainless steel braided cable or polyurethane

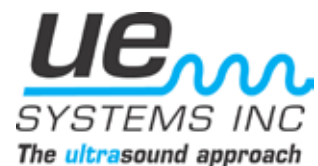
Various mounting

CM SERVICES

Providers of innovative web based online condition monitoring services for rotating machinery. Our Core service called ozWatch is a centralised dynamic information system which provides real-time spectral analysis of machinery vibration with automated exception alerts issued to client and Tui engineers. Equipment condition information is available anywhere anytime. We work in partnership with your reliability team, perform data analysis, provide recommendations for investigation and correction of faults. ozWatch delivers early warning of condition degradation enabling controlled intervention before failure. Knowledge of machinery condition prevents premature or unnecessary maintenance and reduces downtime and maintenance costs. ozWatch is a cost effective and permanent whole-of-plant monitoring solution.

UE Systems Inc.

Address: 14 Hayes Street,
Elmsford, NY 10523 USA
info@uesystems.com
www.uesystems.com



CM PRODUCTS

Portable hand held and on-line ultrasonic instruments for mechanical analysis, leak inspection and electric emission detection. The Ultraprobe 10,000 includes on-board data logging and on-board sound recording supported by data management and spectral analysis software. Ultraprobe 201 Grease Caddy prevents over-lubrication of

bearings. UE Systems has helped clients world-wide improve asset availability and reduce energy waste by locating early warning signals of mechanical failure, locating compressed air and steam leaks and by identifying arcing tracking and (in high voltages) corona emissions in electrical equipment.

Vibration Institute of Australia

P.O. Box 4413,
Doncaster Heights
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www.viaustralia.com.au



CM SERVICES

The Vibration Institute of Australia offers vibration training courses that follow the ISO 18436-2 standard. The training is understandable and enjoyable thanks to Clyde Volpe's teaching skills and enthusiasm, and the Mobius Institute 3D animations and simulations – you have to see them to believe them. We offer Category I, II and III public courses around Australia and New Zealand, plus we can deliver the courses at your site.

We have successfully trained and certified hundreds of analysts from Australia's and New Zealand's largest (and smallest) companies, and we have trained a large proportion of the vibration consultants. You'll be surprised what you'll learn!

Vipac Engineers & Scientists Limited

279 Normanby Road
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www.vipac.com.au



CM PRODUCTS

VIPAC has been performing condition monitoring for over 30 years, applying the latest reliability solutions to all segments of the power, process, petrochemical, mining and mineral processing industries. This experience has paid dividends for our clients in the accurate assessment of machine condition and diagnosis of the root causes of deterioration and failure. VIPAC's reliability/machinery engineers have backgrounds in plant maintenance, mining and power generation and are able to confer with specialists from other departments within Vipac on acoustic, aerospace and product development issues. The company also holds NATA accreditation for a wide range of tests. VIPAC's services in machine vibration analysis encompass bearing condition surveys, overall machine condition surveys, balancing and advanced diagnosis of machine faults. Our services can be adjusted to the client's requirements, ranging from peripheral support to full out-sourcing. Maintenance techniques include Vibration Condition Monitoring, Infrared Thermographic Surveys, Pipe Thickness Surveys, Lubricating Oil Analysis (Tribology), Process Parameters and Electric Motor Circuit Testing.

CM SERVICES

- Vibration Condition Monitoring
- Thermographic Imaging
- Laser Alignment
- Electric Motor Circuit Analysis
- Torsional Vibration • Vibration Isolation
- Modal analysis and structural modification
- Ground vibration / blast vibration monitoring
- Fatigue life and failure assessment, strain measurements and structural rehabilitation
- Automated diesel engine diagnosis
- Rotor dynamics analysis & analytical modelling
- Single & multi plane field balancing of turbo machinery, boiler feed pumps, fans, etc.
- Vibration shaker tests of components and systems to MIL, AS, Lloyds and IEC Standards
- Ride evaluations & human comfort assessment
- Shock design and certification
- Design for vibration endurance

Vitech Reliability

5A Modal Crescent,
Canning Vale, WA, 6155
info@vitechreliability.com
www.vitechreliability.com



CM PRODUCTS

Commtest:

Developers of the revolutionary Vb series portable and online vibration analysers and monitoring systems:

- Vb Series portable data collectors, analysers & balancing systems
- Vb Online multi-channel plant surveillance systems.
- Ascent analysis / data management software.

Fixturlaser: Leaders in laser shaft alignment and specialist measurement solutions.

- XA – High-end shaft alignment system
- GO – Mid-range shaft alignment system
- PAT - pulley alignment tool
- Dirigo - entry level alignment systems
- OL2R - dynamic movement measurement system

Wilcoxon Research: For over 40-years manufacturers of accelerometers, vibration sensors, and accessories for industrial condition based monitoring (CBM) applications.

- Industrial accelerometers, cables and terminations solutions
- 4-20mA loop powered transducers
- Signal Conditioners

Mobius - iLearn Interactive: Innovative and interactive computer-based vibration and shaft alignment training products, vibration analysis tools and vibration certification courses.

- iLearn Vibration training programs and resources
- iLearn Alignment training programs and resources

FLIR Systems: The global leader in Infrared Cameras, offer a wide range of low cost, innovative and high end Infrared Cameras for Predictive and Preventative Maintenance. These include the iSeries – Low cost / high performance hand held infrared cameras.

Beran Instruments: Manufacturers of online and portable turbine diagnostic and monitoring solutions.

- 767 - 32-ch portable multi-channel diagnostic and motoring system
- 766 - 32-ch on-line multi-channel diagnostic and motoring system

Endevco: World leaders in extreme vibration and pressure sensing technologies.

- Industrial accelerometers for harsh and high temperature environments.
- Precision pressure transducers
- Test & measurement accelerometers

PDMA: Electric motor and generator testing systems / asset management.

- MCE – Offline motor testing systems
- Emax – Online motor testing systems
- MCEmax – Combined tester systems

Shinkawa

- API approved turbine protection and diagnostic systems
- WK Series loop powered proximity probe

Vibration monitoring systems

Artesis: Online motor condition monitoring systems

- MCM Online motor monitoring systems
- MCM Scada motor management and diagnostic software

Baseline Series:

Vibration tools and termination products.

- BLS-UVLA vibration listening amplifier for data collectors or stand alone stethoscope use.
- BLS-TB series accelerometer termination boxes
- Assorted accelerometer mounting hardware.

CM SERVICES

Vitech Asia Pacific provides the following service:

- Product, VA and Alignment Training (class room & customized on site)
- Installation & commissioning of systems