PCB PIEZOTRONICS
AN MTS COMPANY

| MACHINE MONITORING |

VIBRATION MONITORING ON ROTATING MACHINES IN PAPER PRODUCTION

Preventive Maintenance

Early Warning

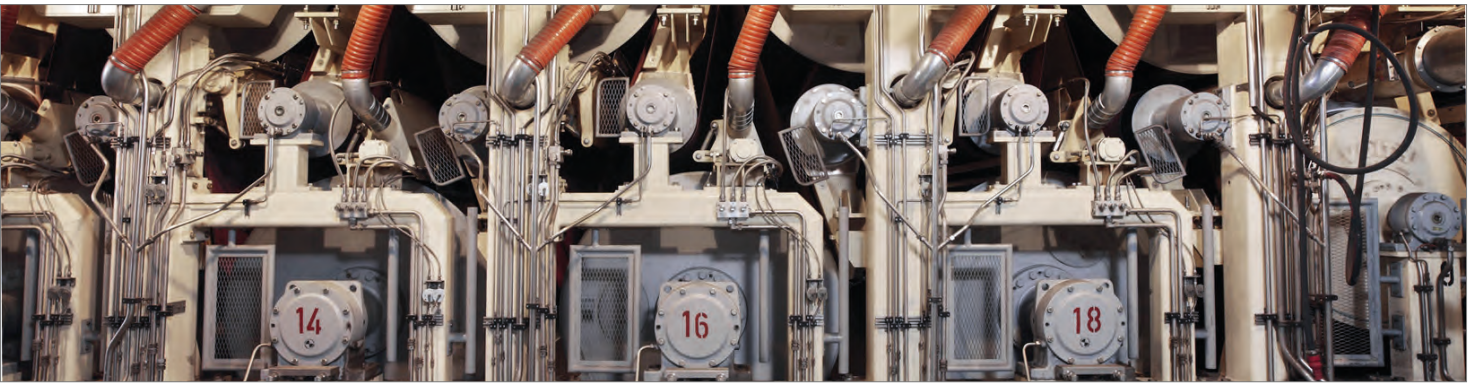
Vibration Level

Condition Monitoring

Motor Vibration

Process Control

Vibration Measurement

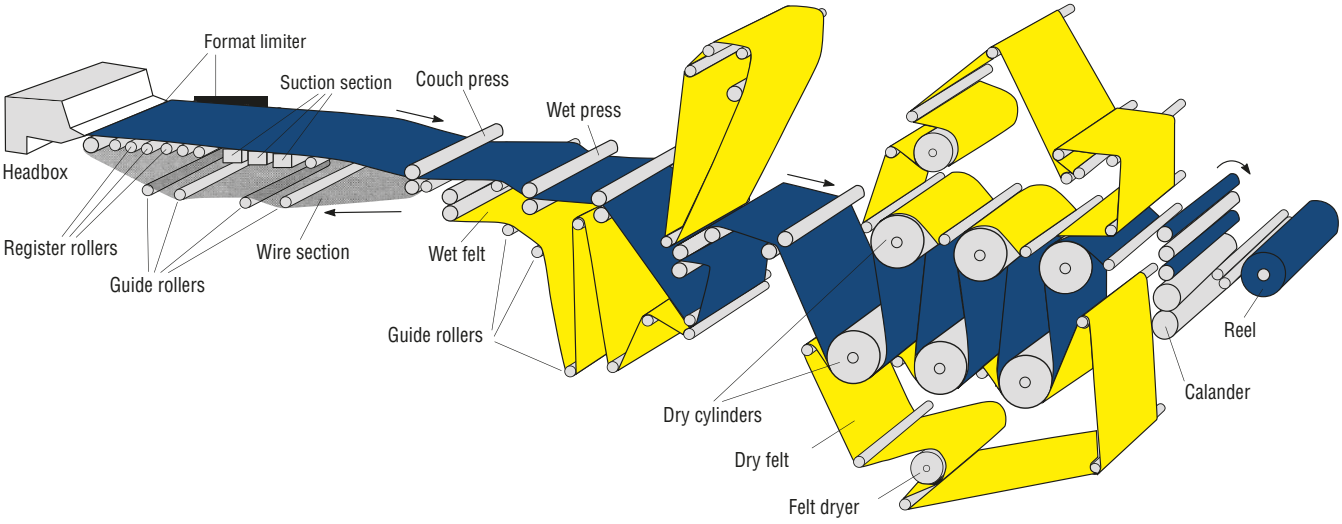


PREVENTIVE MAINTENANCE

Rolling bearings are hard-working components in rotating production machines. Damage or total failure of these components affects the quality of the product and causes additional costs. Bearing locations include hot, wet or other hazardous areas that are not readily accessible to maintenance and service technicians.

Vibration measurements on machines in paper and board production increase their operational reliability and improve production efficiency. The regular or permanent recording and analysis of machine vibrations enable the detection of changes in condition, so that necessary.

Maintenance can be planned in a predictive and cost-effective manner. The vibration sensors from IMI Sensors, the industrial sensor division of PCB Piezotronics, Inc., feature a double-walled, hermetically welded stainless steel housing that acts both as mechanical protection against environmental influences and contamination and as a Faraday cage that prevents electrical interference. The galvanic isolation of the sensor element and the downstream measuring chain from the sensor housing prevents ground loops and noise.



Notes:
All sensors presented in this brochure are supplied with an 1/4-28" mounting stud as standard. By using the prefix "M" in front of the model number, the sensor is delivered with a metric M6 x 1.0 mounting stud. Mounting studs with M8 x 1.25 thread are also available as an option.

INDUSTRIAL ACCELEROMETERS

Acceleration sensors with ICP®/IEPE technology are usually used for vibration monitoring. Sensors for series use are particularly suitable if a large number of measuring points are to be monitored. The low-cost sensor models can be permanently installed in monitoring systems or used in conjunction with a portable data collector/analyzer for route-based monitoring. The accelerometers presented here can be used in an ambient temperature up to 121 °C. If the operating conditions require it, these models are also available with EX approval or with SIL-2 declaration and a CoC (Certificate of Conformity) issued by the manufacturer PCB Piezotronics.

ICP® LOW PROFILE ACCELEROMETER

MODEL (M)602D01

- Frequency range 0,5 ... 8.000 Hz
- Sensitivity 100 mV/g
- Easy mounting thanks to through-hole, facilitated cable alignment
- Low profile, less than 25 mm overall height

ICP® ACCELEROMETER WITH QUARTZ SENSOR ELEMENT

MODEL (M)627A01

- Frequency range 0,3 ... 10.000 Hz
- Sensitivity 100 mV/g
- Good temperature coefficient thanks to quartz sensor element

ICP® ACCELEROMETER WITH SWIVELER® MOUNTING

MODEL (M)607A11

- Frequency range 0,5 ... 10.000 Hz
- Sensitivity 100 mV/g
- Integrated cable, patented 360° Swiveler® mounting

Typically, the industrial accelerometers from IMI Sensors with 1-point calibration measure linear in the frequency range up to 10 kHz. This makes them suitable for advanced monitoring applications.

HIGH TEMPERATURE ICP® ACCELEROMETERS

Up to 163 °C

Sensors with integrated ICP®/IEPE electronics can usually be used up to 121 °C. By means of special high-temperature electronics in sensors with the prefix "HT", the operating temperature range is extended up to 163 ° C.

LOW PROFILE ICP® ACCELEROMETER

MODEL HT(M)602D61

- Frequency range 0,8 ... 8.000 Hz
- Sensitivity 100 mV/g
- Integrated and armored cable

ICP® ACCELEROMETER WITH SHORT SWITCH-ON TIME

MODEL HT(M)622B01

- Frequency range 0,2 ... 12.000 Hz
- Sensitivity 100 mV/g
- Short switch-on time

ICP® ACCELEROMETER WITH QUARTZ SENSOR ELEMENT

MODEL HT(M)628F01

- Frequency range 0,3 ... 10.000 Hz
- Sensitivity 100 mV/g
- Good temperature coefficient thanks to quartz sensor element

ACCELEROMETERS FOR LOW SPEED

For monitoring very slow rotating machines, acceleration sensors with low lower limit frequency as well as high sensitivity are available. For these models, the discharge time constant has been extended so that the sensor can be used at speeds lower than 12 rpm (0,2 Hz). In slow rotating applications crack are signified by high frequency impulses and it is typical to monitor up to 10 kHz for these events. If this analysis is important for your condition monitoring strategy it makes sense to use full ISO 17025 calibration for frequency. If the resonance frequency of the accelerometer is at 6 kHz and below, this can lead to faulty signal analysis.

ICP® ACCELEROMETER WITH THROUGH HOLE

MODEL (M)625B01

- Frequency range 0,2 ... 6.000 Hz
- Sensitivity 100 mV/g

ICP® ACCELEROMETER WITH LOW NOISE FLOOR

MODEL (M)626B01

- Frequency range 0,2 ... 6.000 Hz
- Sensitivity 100 mV/g

ICP® ACCELEROMETER WITH HIGH SENSITIVITY

MODEL (M)626B02

- Frequency range 0,2 ... 6.000 Hz
- Sensitivity 500 mV/g

PROCESS MONITORING

Current loop powered vibration transmitters allow a cost effective and permanent monitoring of machine vibrations. They provide a standardized 4 ... 20 mA output signal, which is proportional to the RMS value of the measured vibration amplitude. The transmitters are connected to existing, free inputs of a PLC or a process control system.

VIBRATION TRANSMITTER WITH HEAD CONNECTION

MODELS (M)641B0X

- Frequency range 10 ... 1.000 Hz
- RMS vibration velocity
- 12 mm/s, 25 mm/s and 50 mm/s (RMS)

VIBRATION TRANSMITTER WITH SIDE CONNECTION

MODEL (M)643A0X

- Frequency range 10 ... 1.000 Hz
- RMS vibration velocity
- 12 mm/s, 25 mm/s and 50 mm/s (RMS)
- Patented 360° Swiveler® mounting

LOW COST VIBRATION TRANSMITTER

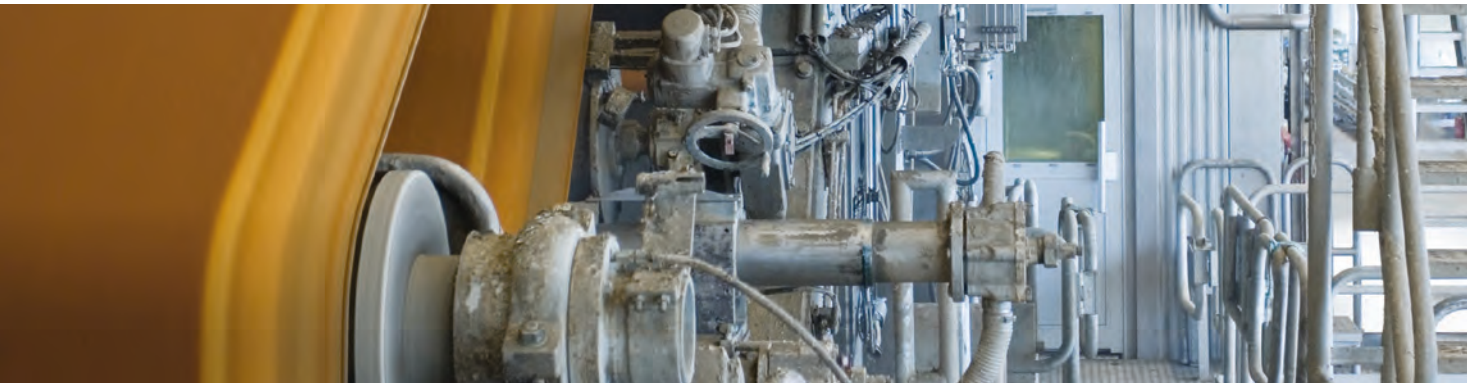
MODEL 682A15

- ICP®/IEPE sensor excitation
- RMS value of vibration velocity
- 4 ... 20 mA output of the vibration signal for further processing in PLC/DCS/SCADA
- Raw signal output

BEARING FAULT DETECTOR

MODEL 682C05

- ICP®/IEPE sensor excitation
- Two 4 ... 20 mA outputs (Vibration velocity RMS & bearing condition)
- Raw signal output



SWITCH BOXES

IMI Sensors offers 6-/12-/24-/36- and 48-channel switch boxes that help optimize personnel deployment in route-based maintenance solutions. The boxes provide a central collection point for periodic access to data from accelerometers installed in the field, and offer the ability to route the measurement signals to online monitoring systems via appropriate output terminals.

MODELS 691C43, 691C45 & 691C46

- Tapping of the vibration and temperature signal
- Switchable vibration and temperature data via BNC socket and MIL connector to the data collector
- Continuous vibration and temperature data via output terminal blocks to online monitoring system
- Choice of three housing designs and a wide range of connection options

INDUSTRIAL PORTABLE VIBRATION CALIBRATOR

The Models 9100D & 9110D are Industrial Portable Vibration Calibrator is the ideal tool for testing accelerometers, vibration transmitters and eddy current sensors over a wide range of frequencies and amplitudes. The portable instrument is housed in a rugged and compact case and includes a shaker, including control and regulation, which can be used to validate the entire measurement chain from sensor to evaluation.

MODEL 9100D & 9110D

- Carrying out a calibration with variable frequency and amplitude
- Frequency range 5 … 10.000 Hz
- ICP®/IEPE sensor excitation
- Calibration of eddy current sensors with the optional adapter kit
- Mobile use via integrated rechargeable battery or mains operation

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