

STEEL ROLLING & ANNEALING

 **IMI SENSORS**
A PCB DIVISION

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STEEL ROLLING & ANNEALING

Steel mills not only have fans, pumps, compressors, gearboxes and cooling towers but also have machines and processes unique to the steel industry. The machine sizes, designs, operating speeds, cycle times, batch operations and harsh mill environments often command the use of carefully selected sensors and methods for effective equipment monitoring. Iron making and steel making areas often have an abundance of large belt conveyors, critical ultra-low speed machines with limited rotation, critical large electric overhead traveling cranes and large volume turbo blowers coupled with >2300 °F (1260°C) hot blast air, molten liquid iron, red hot slabs, often carbon monoxide risks and of course, rolling mills.

HOT ROLLING MILLS

Hot rolling mills have large low speed gearboxes, pinion stands, drive shafts and large diameter rolls in bearings to reduce the thickness of red hot steel slabs. Running these at variable loads/speeds and cycle times which may last only 30 seconds during speed variations of >500% presents challenges. Environmental factors here include reheat furnace temperatures, steam and scale from cooling water sprays and of course coiling red hot steel traveling at thousands of feet per minute.



HIGH TEMPERATURE ICP® ACCELEROMETER

MODEL HT602D01

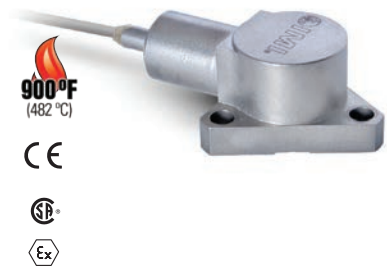
- Low noise floor
- Low profile design
- Through-bolt mount



HIGH TEMPERATURE KIT ACCELEROMETER

MODEL 600A02

- 26 pC/g change mode accelerometer (Model 6120A01)
- 4 mV/pC inline charge converter (Model 422E20)
- 10ft low-noise cable (Model 045ER010CJ)



VERY HIGH TEMPERATURE ACCELEROMETER

SERIES EX600B1X

- Sensitivity: 10 or 100 mV/g (1.02 mV/(m/s²) or in both locations 10.2 mV/(m/s²)
- Frequency Range (±5%): 282 or 240000 cmp (4.7 to 3.5 KHz)
- Measurement Range: ±50 or 500 g peak (±490 or 4900 m/s²)
- Mounting: Through Holes (3)

COLD ROLLING MILLS

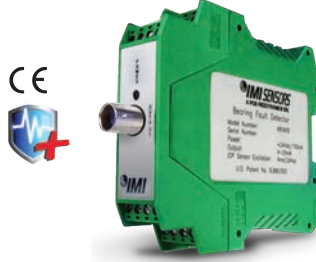
Cold rolling mills have similar operating and cyclic challenges as hot rolling, but add in large numbers of roll “chock” bearings that are inherently difficult to instrument, run at varying speeds/loads in batch cycles. These “chocks” are removed and reinstalled into the mill with new rolls many times a day, after only minutes of operation at times. Couple this with stringent product quality critical requirements and again, many more extreme monitoring challenges are raised.



4-20 MA OUTPUT SENSOR

MODEL 640B01

- Available in top or side exit casings
- Peak or RMS, acceleration or velocity
- Intrinsically safe / explosion proof versions available



BEARING FAULT DETECTOR

MODEL 682C05

- Provides early warning of bearing and gear faults
- Operates with PLC, DCS, SCADA, alarm and control systems
- Outputs 4-20 mA signals for peak acceleration and overall vibration



PRECISION ICP® ACCELEROMETER

MODEL 626B01

- Low noise floor
- Low frequency response to 12 cpm (0.2 Hz)
- Full sweep calibration

ANNEALING OPERATIONS

Annealing and coated product operations often run at quite low speeds and also have product quality critical requirements. Temperatures from annealing furnaces and molten zinc and aluminizing baths add many temperature, personnel safety and monitoring concerns as well.



LOW COST ICP® ACCELEROMETER

MODEL 603C01

- General purpose, hermetically sealed
- IMI's most popular accelerometer
- Small footprint



LOW COST ICP® ACCELEROMETER

MODEL 607A11

- Ideal for submersible applications
- Smallest true industrial accelerometer on the market
- Armored integral cable options available



PRECISION ACCELEROMETER

MODEL 622B01

- Full frequency sweep calibration: 5% sensitivity deviation tolerance
- 15 kHz high frequency response ideal for early detection of bearing fluting conditions
- Ideal for route-based data collection



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IMI Sensors offers a wide range of industrial vibration sensors, bearing fault detectors, mechanical vibration switches, panel meters, cables, and accessories for predictive maintenance and equipment protection. For power generation and energy applications requiring precision measurements, IMI also offers pressure sensors and accelerometers.

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