

CHATTERBLOCK MONITORING

AVOIDING STRIP BREAKAGE THROUGH CHATTER MONITORING

Increased throughput and rising demands on product quality push rolling mills to their limits – and sometimes even further. This results in intensified stand vibrations, which impair product quality and in the worst case seriously jeopardize the rolling process itself.

Continuous monitoring of the vibration level at each stand of a cold rolling mill prevents strip breakage disasters. Before chatter levels reach excessively high levels, the process control system must be alarmed.

ChatterBlock Monitoring reliably detects dangerous third octave chatter of cold rolling mill stands before it becomes audible. Line speed is then automatically reduced and the rolling mill returns to safe operation. Furthermore, the ChatterBlock Monitoring algorithms can detect fifth octave chatter and roll defects (e.g. eccentricities, flat spots) of work and backup rolls.

FIELD OF APPLICATION

Cold rolling mills

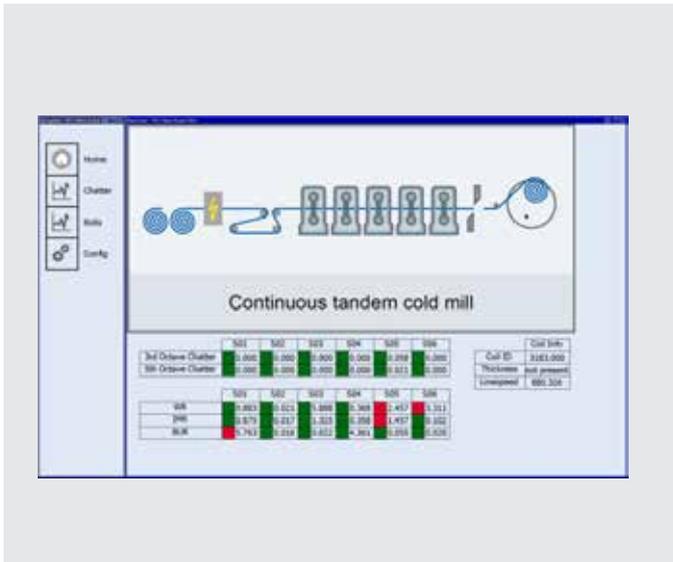
FUNCTION

A vibration sensor at each roll stand continuously acquires and transfers vibration signals via sensor interface and data connection to the ChatterBlock Monitoring server. At the same time, the server gets data like the spindles' revolutions per minute and roll diameters from the process control system (PCS). Based on these data, algorithms generate several vibration levels per stand (third octave chatter, fifth octave chatter, roll defect) in real time. If third octave chatter is detected, an alarm is immediately issued to the PCS for a reduction in line speed until the level falls back below the alarm threshold. The operator can then increase the strip speed again if desired.

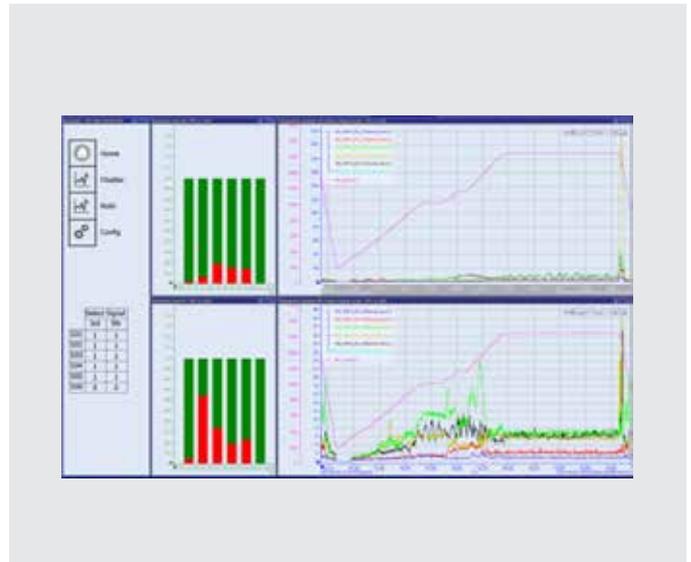
BENEFITS

- Prevents strip breakage caused by third octave chatter
- Prevention of unplanned production stops
- Increased product quality
- Cost reduction through increased lifetime of production equipment
- Online monitoring and alarming at a reasonable price

Without the support of a resonance vibration monitoring system, the reaction time may be too long to prevent damages to the strip or strip breakage. It is normally not possible for the operator to identify and perform the necessary corrective measures within such a short reaction time.



Client overview screen



GUI with bar graphs and trending of vibration levels

PRODUCT FEATURES

Besides third octave, the system also detects fifth-octave roll-chatter vibrations and possible roll defects such as eccentricities. In addition to real-time monitoring the ChatterBlock Monitoring system also stores raw data and can thus be used for condition monitoring in maintenance.

ChatterBlock Monitoring utilizes industrial grade, yet affordable standard vibration sensors, proven signal transformers and connection equipment and is suitable for a wide range of cold rolling mills.

The human machine interface provides online visualization in the form of bar graph indicators and level trends as well as line speed for quick stand status overview.

TECHNICAL DATA

- Suitable for various mill stand configurations (e.g. 1-stand reversing, 5-stand tandem, ...)
- PC based solution
- Server-client architecture
- Self monitoring hardware features
- IEPE accelerometers
- Up to 6 sensor inputs (expandable on request)
- 4 k samples raw data acquisition rate
- Continuous measurements with vibration evaluation update every 0.25 seconds
- Configurable data archiving

SERVICES

- Mounting and installation of system (sensors, data acquisition units and ChatterBlock Monitoring PC)
- During start-up, basic parameterization is carried out
- After installation fine tuning can be provided. We are also pleased to help you with your analysis of rolling conditions and recommend actions. We can best turn our competencies and experience to account with a service contract that is tailor-made for your business

OTHER RELATED PRODUCTS

- ChatterBlock Control
- DMon
- TorqueMon
- CMS