Dynamic torque measurement plays a decisive role in monitoring the systems of rolling plants. Problems appearing during the production process or in the drive train components express themselves predominantly in the form of torque fluctuations. Torque observation can lead to the prevention of breakdowns, to the effect that maintenance times can be planned and production increased. Torque observation prevents breakdowns, makes maintenance times projectable and increases productivity.

**YOUR CHALLENGE**

In order to achieve high product quality, homogeneous rolling parameters must be attained in the rolling process. From this point of view, incorrect torque may lead to flatness defects on the product resulting in additional defects during the rolling process. Furthermore, from a point of reliability, fluctuating torque can lead to an overload, thus damaging bearings and motors and in the worst case resulting in breakage of the chocks. In most cases, the causes of these damages are related to the torque and the difference in speed between the rollers and the roller table.

Speed measurements and current measurements at the motor are influenced by inertia and damping at the gearbox. In comparison, measurements taken directly at the shaft can easily and reliably identify the speed and current values.

Furthermore, differences in torque may lead to a deformation of the rolled material – in particular to front end bending. In order to avoid production standstills resulting from the strip end bending down into the roller table, as a precaution, the operator often bends the strip end up. This is somewhat safer, but by no means perfect. This can all be avoided with a reliable torque measurement.

**FUNCTION**

The torque measurement system, TorqueMon, is a reliable method of measuring the torque of rolling mill shafts. It offers a permanent, real-time measurement based on the principle of strain gauge measurement. Sensors mounted on the rotating parts send the measurement signals to a rotary antenna.

Without any wiring, a stationary antenna supplies all rotary parts with power and receives the measurement signals. A calibratable telemetry converts measurement results into analogue or digital signals. An optional PC can be used for data access and storage as well as for the evaluation of the data. These results can be easily used to verify and detect variations and overloads in the rolling torque during the whole rolling process.
PRODUCT FEATURES
The measurement of torques is possible under nearly all environmental conditions. All sensor-positions can be calibrated by remote control and measurement data transfer system can also be adapted to other sensors. The whole range of amplification and offset is completely adjustable. The contactless transmission method uses inductive couplings between measurement and transmission devices.

TECHNICAL DATA
- Rotational acceleration up to 100 g (optionally higher)
- Maximum shaft temperature of 100 °C (optionally up to 220 °C), max. surrounding temperature of 100 °C
- Measurement of dynamic torque up to 1 kHz
- Adjustable measuring and zero point range
- Frequency range 0 to 1 kHz
- Temperature range -20 ° to +70 °C

ADVANTAGES OF TORQUEMON:
- Prevention of unplanned production stops
- Exact knowledge of system condition
- Industrial, very robust system
- High temperature stability (up to 100 °C).

TorqueMon measurement data of upper and lower roll shaft