

HOT ROLLING

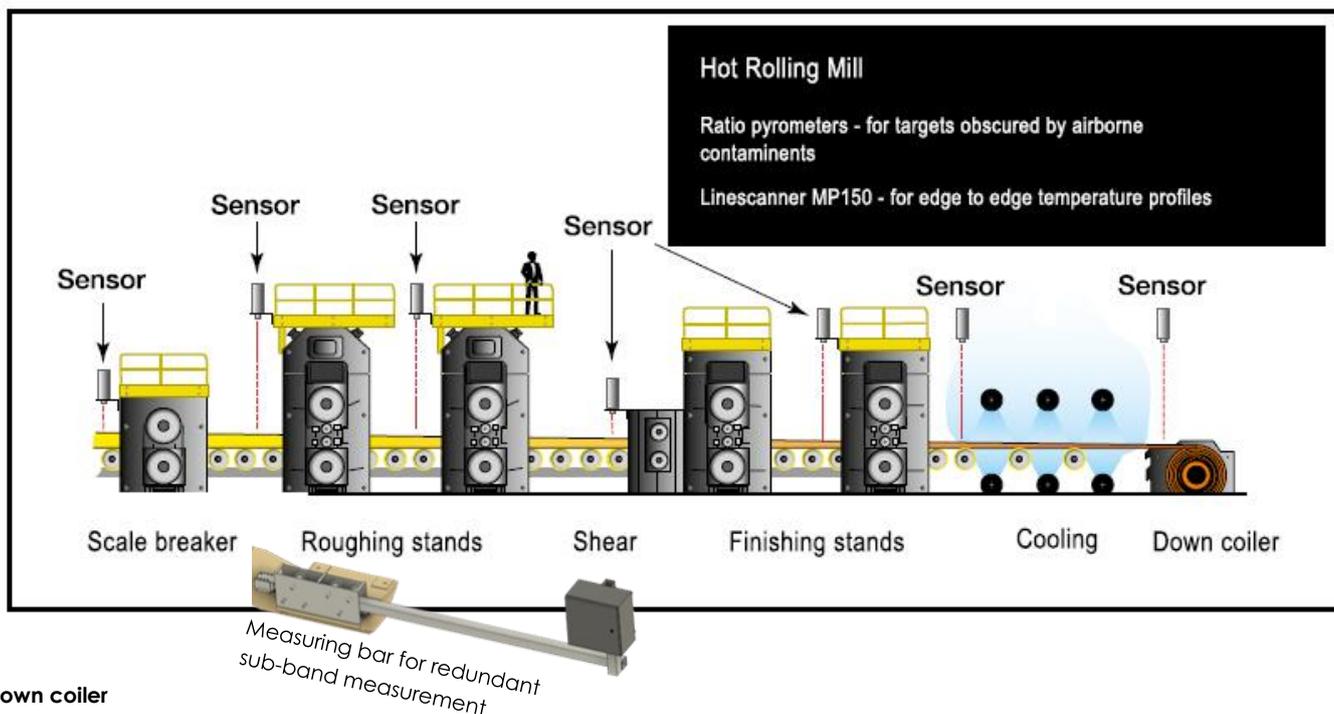
Depending on the type of rolled product (sheets, profiles, etc.) and the process, hot rolling mills are equipped and operated with different rolling stands.

Scale breaker

High-performance Endurance series ratio pyrometers or short-wave, high-resolution MP150 Linescanners (for wide plates/strips) installed upstream of the scale breaker and the rolling stand provide the operating personnel with temperature readings for monitoring limit values, controlling and automatically correcting the setting parameters of the rolling stand. In every respect, continuous temperature measurements during rolling processes and constant readjustment of the parameters ensure consistently high product quality and trouble-free operation.

Rolling stands

During the rolling process, the steel continues to cool. Short stoppages caused by operation can result in undesired cooling of the rolled material. Temperature changes must be taken into account when adjusting the stands. This adjustment can be made manually by the operating personnel or automatically by the process monitoring system. In any case, the IR measuring heads installed in front of each rolling stand provide temperature measurement data for automatic readjustment of the rolls and thus the certainty that the rolling stand is adapted to the production conditions at all times. On controlled cooling sections, water curtains, steam or dust make non-contact temperature measurement difficult. The Endurance series ratio pyrometers enable precise measurements even when the target is covered by up to 95 %.



Down coiler

At a hot rolling mill (similar to the illustration above) cooled steel is often rolled at the down coiler for transport to a cold mill or to another facility. Accurate temperature measurements at the down coiler are needed to maintain proper cooling at the laminar-flow cooling section. Temperatures at this point are critical as incorrect cooling can change metallurgical properties, and the coil would have to be scraped. Since the speed of the cooling sheet/strip upstream of the coiler can be around 20 to 30 m/s, a low-temperature sensor with a short response time is used for this.

Coil Box

In some rolling mills, the hot strips are temporarily rolled into coils after first rolling before further processing. After transferring to a second station, the coils are uncoiled, passed through the finishing stands and cooling section and recoiled for storage or further transport - as described above. Accurate temperature measurement and monitoring of the coils is crucial before finishing rolling.

APPLICATION EXAMPLE

*Steel industry process
Hot Rolling*

ENDURANCE SERIES

- Temperature range: from 50 to 3200 °C
- Single and Dual Channel Models or ratio pyrometer (emissivity independent)
- LAN / Ethernet interface with PoE
- Manual varifocal lens
- Video function
- Short response times of only 2 ms

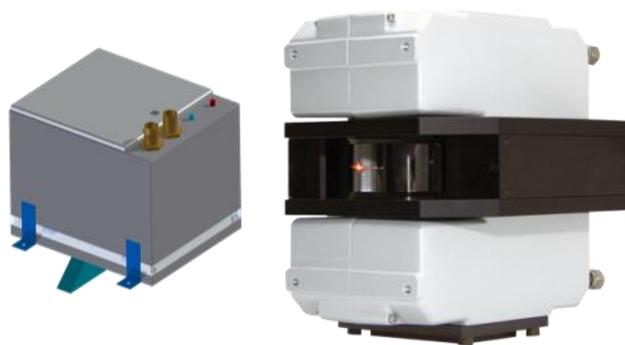


ENDURANCE SERIES PARAMETERS:

- Ambient temp. from 0 to +315 °C
- Measuring range from +50 to +3200 °C
- Spectral range from 1.0 to 2.4 μm
- Response time from 2 ms
- Measuring spot of only 0.6 mm diameter
- Robust industrial case (IP65)
- Superior optical resolution up to 300:1
- Optional accessories

LINESCANNER MP150 SERIES

- Real-time thermal line-scanner system for continuous or discrete process measurements
- Up to 1024 measuring points per line.
- Scanning speed of max. 300 lines per second.
- Built-in line laser as sighting aid.
- Wide model range of spectral and temperature ranges.



MP150 SERIES PARAMETERS:

- Ambient temp. from -40 to +180°C
- Measuring range from 20 to +3000 °C
- Spectral range from 1.0 to 5 μm
- Robust industrial case (IP65)
- Internal line laser as sighting aid
- Optional accessories
- Mechanical scanning system: MTBF 40,000 hrs.



If you are unsure which measuring device is the right one for your application, please briefly describe the application and the boundary conditions by filling in our reply form and sending it back to us.

We will be happy to return to your enquiry as soon as possible and offer you the appropriate solution.