Efficient production, maximized throughput

- online process optimization
- validated quality information
- secured strip quality control

Until recently, the use of surface inspection systems was limited in all processing steps from Hot Mills down to Rolling lines.

Now, manufacturers of high-quality steel can go even further and control upstream processes such as slabs.

Save costs, material and time

Detecting major defects on the surface of slabs can provide important information. As an example, longitudinal and transverse cracks are often covered by the subsequent hot rolling and only become invisible much later in the steel manufacturing process. At this point in the process, significant time and effort has already been wasted.

These kinds of defects can now be detected early in the process on the slab itself. The manufacturer not only saves production time and effort, but also material. Consequently, he is able to schedule repair measures in due time.

The application:

- Automated optical surface quality inspection of slabs for: stainless slab producers, strip producers (mini-mills) and hot strip mills
- Reliable 2 or 4 sided inspection of slabs
- 100% quality documentation for further process optimization

The advantages:

- 100% detection of all process and material related surface defects at a very early stage
- Early decision support for elimination of scrap
- Optimization of grinding process
- Reduction of material loss
- Faster processing and higher throughput
- Processes and production are systematically optimized
Reliable inspection for operation even under harsh environmental conditions

The slab surface is often characterized by a strong surface structure. Therefore, simple contrast-based defect detection methods can seldom be applied. Once the slab is released from the casting unit, the surface is covered in scale. This results in defects being covered or in surface structures, which can easily be mistaken for other specific defects. Furthermore, some defects such as cracks are not formed until the slab has cooled down, even though they might already have existed invisibly in the hot slab. On the other hand, inspecting a cool slab slows down the production process and drastically reduces energy efficiency. Also, ambient conditions for continuous casting, casting roller or hot rolling units challenge the required technical equipment quality of the inspection system. This process, up until recently, was only available at huge expenses.

Prevention through early recognition - quality becomes controllable

Automated slab inspection systems were once not available for slab casters. Now, inspecting hot slabs after the scale washing process and before the rolling stands, both for HSMs and CSPs, has been found to be especially well suited. The surface is lightly scaled, the ambient conditions are difficult but manageable and the inspection results of slab and hot strips can be correlated immediately. The self-radiation of red hot slabs is suppressed with special optical filters. A special enclosure technology protects the hardware and a cleaning blower eliminates any water left on the slab before inspection. The coupled inspection of slab and hot strip surface takes the lengthening of the material into consideration - a solution that makes position accurate inspection of major defects on the hot strip possible.