

Wrap Up

Precise 3D Stereo Measurement at 900°

Thyssenkrupp Steel AG is producing stainless flat steel and other high quality steel at a modern hot strip mill in Bochum, Germany. The sheet steel quality of coiling is monitored by an automated optical inspection system. The 3D measurement is carried out contact free and without any interruption of the production process. Measurement results are important data to control the current condition of the production line and the impact of different steel qualities to the rolling process. In the future, measurement results shall be used to define objective criteria for the optimization of the whole process with the aim to achieve effective enhancement of product quality and productivity.



The quality control is executed with the Coilcontrol system of Germany based Solving3D. Coilcontrol is a non-contact and fully automated 3D measurement system for the measurement of coiling quality at the head side of the coil. There are five types of bad shapes which are classified by the software. Even red glowing steel coils with diameter up to 2 m are measured with an accuracy of 0.5 mm. The sys-

tem consists of a freely configurable sensor head and a separate PC for data evaluation. The sensor heads, set up with a minimum of two cameras and one lighting device, can be placed quite close to the hot coil. Maneuverable mechanical components are not necessary and it is not hard to guard the cameras against radiant heat emitted from the hot coils. Usually this is done with water-cooled mountings.

Profile Measurement

In order to measure the coiling quality a laser line is projected onto the head of the coil. This leads to so called profile points marked with lighting. The line is captured with a high resolution stereo camera system. The sensor head captures the whole line with one shot and can reconstruct up to 1,000 3D points with a depth resolution



Transportation of coils at hotstrip mill (ThyssenKrupp Steel AG, WBW Bochum, Germany)



During measurement a laser line illuminates the head site of a coil

