



1 Color coded contoured profile of a mineral board.

ONLINE THICKNESS AND PROFILE MEASUREMENT FOR FLAT PRODUCTS

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Initial Situation and Motivation

A variety of flat products such as boards (e.g. mineral and particle boards) or sheets (e.g. rolled sheet metal, strips and slab ingots) frequently require continuous measurement of the thickness or cross section profile directly in the manufacturing process to inspect product quality or to control the process. Point measuring systems with fixed measuring paths or oscillating systems are used to do so. One widespread application is radiometric or point measuring laser ranging sensors. These systems are only cost effective when measurements must be taken over large widths. Solutions with cascaded linear measuring laser light-sectioning sensors furnish an alternative.

Cascaded Laser Light-sectioning Systems

In keeping with the required path width and measurement uncertainty, such thickness and profile measurement systems are configured from several linear measuring laser light-sectioning sensors inclined toward the direction of material transport. The sensors are calibrated and spatially oriented in a common coordinate system with a fixed reference to the target. While the target is moving along the underside of the system, measured data is captured at equal distances and complete profile cross sections are computed from this online and visualized. A single-sided measurement against a reference or a double-sided measurement can be used to continuously determine a thickness cross section profile.