**Press information for ALUMINIUM 2022**

Quality control at strip processing lines and in service centers

**nokra: Inline flatness and contour measurement of sheets for the first time with just one system**

**Baesweiler, Germany, 11 August 2022 nokra is presenting alpha.fi compact, its new laser-optical measuring system at the ALUMINIUM trade fair. It is the first system to combine high-precision optical contour and surface flatness measurement of sheets within one compact unit.**

nokra has developed alpha.fi compact for inline sheet measurements intended to check and document with an accuracy of a tenth of a millimeter that the products comply with the specified quality standards. For these measurements, the systems may be arranged behind the leveler or the cut-to-length line, for example.

Geometry measurements include sheet length, width, contour and angularity - and flatness measured over the surface area, a capability that conventional systems do not provide so far. alpha.fi compact is generally laid out for measuring up to 3,200 mm wide and up to 6,000 mm long products. The system can be scaled up for measuring also much larger sheets, as used in aircraft construction, for example. Sheets of any – also non-rectangular – shape can be measured, even if they are foil or paper-clad. Contours can be measured with an accuracy of ± 0.1 mm, surface flatness with an accuracy of ± 0.025 mm. The systems are MSA capable measuring equipment, meaning that they can be used to verify that products comply with DIN standards and to control and audit production processes.

When a sheet reaches the gantry of the measuring system, the roller table or conveyer belt briefly stops for the measurement to be performed. The gantry accommodates both the transmitter and receiver optics. It travels over the sheet, scanning the entire surface. In addition to the contour, it also captures the height profile, which the surface flatness can be derived from. The measuring time is independent of the product width. A measurement takes just a few seconds. For a 4,000 mm long product, it is less than ten seconds.

According to Günter Lauven, Managing Director of nokra, the new system makes an important contribution to digitalization in quality control: "So far, measuring a sheet’s geometry was quite a manual effort – resulting in a corresponding loss of production time. In particular, measuring flatness over a surface area could hardly be accomplished by manual means. With alpha.fi compact, you can now measure the complete geometry and the height profile of the entire surface within seconds. If necessary, operators can intervene in the production process in virtually no time. They can provide their customers with all relevant quality information – in digital form as a matter of course.”

The measurements can be visualized in 2D or 3D and transmitted to higher-level systems via standard interfaces.

**440 words**

**The technology**

The flatness measurement is based on the light-section process. Light-section sensors of nokra’s alpha.VR series project laser lines onto the sheet. The laser lines run across the entire width of the measuring table. nokra delivers the system pre-calibrated. Therefore, the sensors are ready to be used without on-site calibration.

While the gantry is travelling along the sheet to be measured, the cameras, arranged at an angle within the sensor units, capture their respective lines projected onto the sheet surface. The height data that are used to calculate flatness are derived from the angle at which the cameras “see” the lines on the product surface. As the gantry moves along the sheet, its position is continuously measured to obtain a height profile of the entire sheet surface. When the sensors in the gantry recognize the sheet end, the measurement stops automatically and the gantry travels back to its starting position.

Thanks to the high resolution of the light-section cameras used, the measured data are so precise that the sheet edges can be clearly identified. In combination with the length measurements, the entire sheet contour can be derived from this.

**Technology section: 190 words**

**nokra at the ALUMINIUM 2022 trade fair
in Düsseldorf, from 27 to 29 September 2022:
Hall 5, Stand 5H29**

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Figure and captions

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| Fig. 1: alpha.fi compact is the first system to measure sheet contours and surface flatness with just one unit.File name: nokra Messung Ebenheit+Kontur.jpg |  |

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**About nokra**

nokra GmbH is an international business specialized in high-end measuring and testing equipment for the manufacturing industry. nokra systems measure and inspect geometrical features such as length, width, thickness, flatness, profile, shape and position.

nokra develops and manufactures the automated inspection systems and the laser sensors for the systems in-house. This enables nokra to easily optimize a standard system for the specific use case on hand. The company builds on comprehensive expertise from a wide range of projects addressing measuring tasks in industries such as steel, aluminium and automotive, plant engineering, automotive glazing and the plastics industry.