SENSOR SYSTEM »bd-2« – INLINE THICKNESS MEASUREMENT OF METAL SHEETS

Technology

Fraunhofer ILT has developed a novel sensor for thickness measurements in the metal processing industry. The thickness measurement system »bd-2« consists of two interferometric sensors and a C-frame. The sensors measure the metal sheet passing through to determine the exact thickness. In contrast to radiometric methods the real geometric thickness of the product is measured and not an indirect value, which has to be converted on the basis of the material composition.

The contactless measuring process is suited especially for fast inline measurements of moving objects. The measuring beams run forth and back along the same line. Due to this bidirectionality the measuring heads are compact, fixed in a stable manner at the C-frame and equipped with minimal sized optical windows. Data transfer is accomplished in a pure optical way via fiber optics with lengths up to 15 m from the C-frame to a separate control unit. The sensor »bd-2« is made for industrial applications under rough ambient conditions. The optical access withstands even the strongest loads.

Thickness Measurement of Metal Sheets and Foils

- Thickness measurement of rolled sheets
- Thickness measurement of cold rolled strip, metal foils
- Steel, aluminum, copper a.o., dark to polished surfaces

Specifications

- Measuring frequency: 70 kHz
- Measuring range: 7.5 mm
- Precision: < 100 nm
- Dynamics: 60 dB
- Laser sources: 2
- Wavelength: 850 nm
- Beam guiding: bidirectional
- Length of fiber optics: 15 m
- Size of control unit: 600 x 520 x 420 mm³

C-frame, exhibit »bd-2« (CONTROL 2013)

- Free gap A: 180 mm
- Depth B: 280 mm
- Extension of C-frame C: 200 mm
- Size: 540 x 680 x 200 mm³
- Weight: 65 kg

Contacts

PD Dr. Reinhard Noll  
Phone +49 241 8906-138  
reinhard.noll@ilt.fraunhofer.de

Dr. Stefan Hölters MBA  
Phone +49 241 8906-436  
stefan.hoelters@ilt.fraunhofer.de

1 Robust housing of »bd-2« made of stainless steel.
2 Measurement under rough ambient conditions.