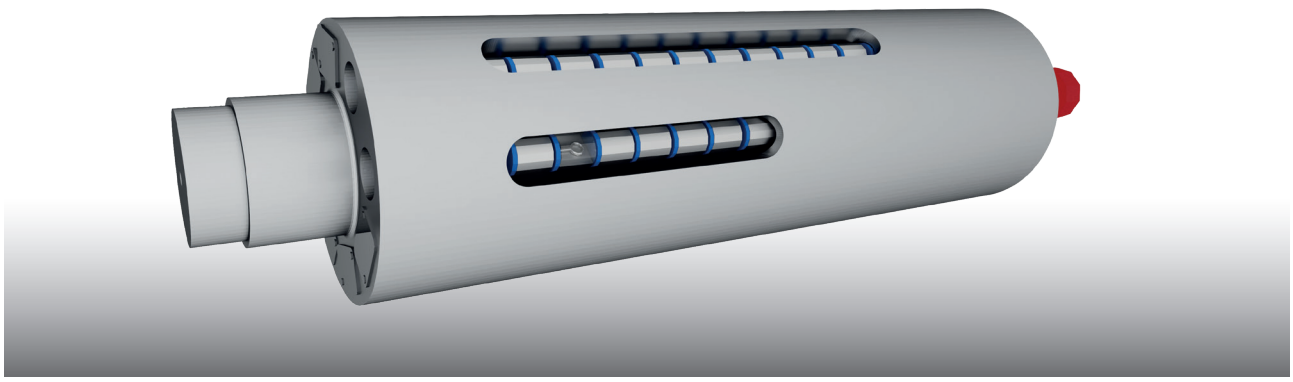
Shapemeter Roll

The shapemeter roll (BFI principle) consists of a solid roll body equipped with a project-specific number of piezoelectric sensors.

The sensors are distributed over the entire roller body as required for the specific measurement task.

The measured value of each sensor is amplified in the roll body, digitised and transferred from the rotating part (rotor) to the static part (stator) of the shapemeter roll via an optical and wear-free rotary transmitter.



Measurement Task

- strip flatness measurement (tensile stress distribution)
- optional:
  - relative strip temperature profile measurement
  - high temperature roll up to 300°C
  - drive system

Special Features

- solid roller body (seamless)
- selectable roll diameter 200 – 500 mm
- selectable measuring zone widths 15 – 60 mm
- roller surface:
  - hardened & ground
  - hard chrome
  - tungsten carbide
  - rubber coating
- low number of electronic and transmission units
- piezo-quartz sensors in single wire technology with low risk of failure
- maintenance-free and digital roller electronics with optical rotary transmitter

Material Data

Typical thickness range:	0.006 – 10 mm, but not limited to
Max. speed:	2,000 m/min, but not limited to
Width:	up to 2,800 mm, but not limited to
Length:	not limited / continuous inspection

Measuring System Data

Gauge type:	Force Measurement (Piezo-quartz sensors in single wire technology)
Max. Measurement density (number of measurement points per metre of strip):	96 standard version 192 special version
Transmission:	contactless rotary transformer with charge amplifier (24-channel standard version, 48-channel special version)

Measurement Accuracy

Measuring range per zone:	0.2–60,000 N
Max. mechanical load per zone without the need to recalibrate the roll:	72,000 N
Dynamically measurable force change per zone:	0.2 N
Accuracy of the measuring device (2σ):	1I-Unit oder 10 µm/m