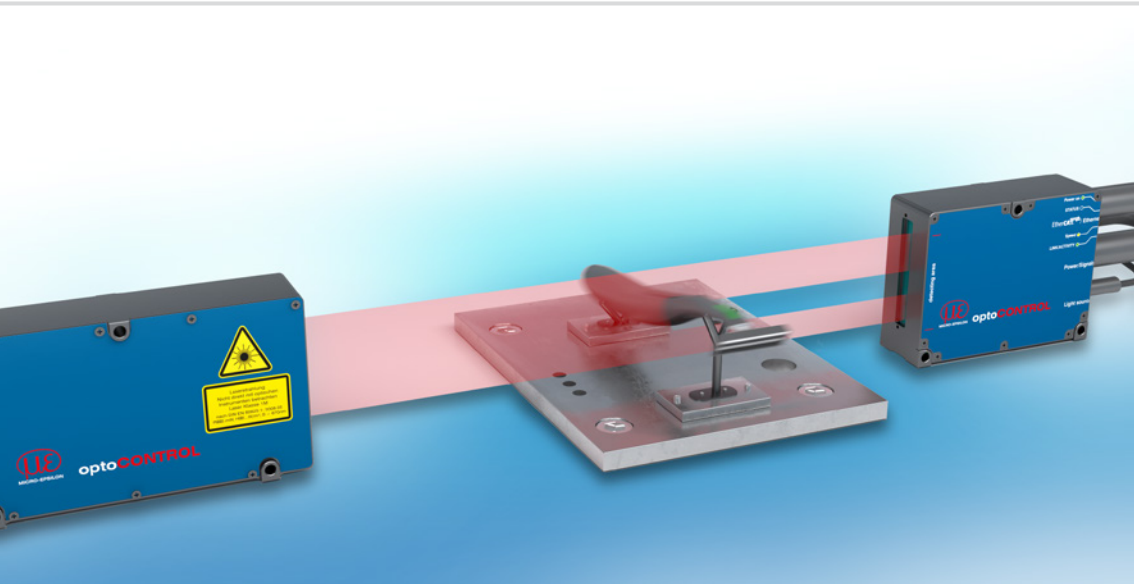
A140

Optical micrometers
optoCONTROL



Frequency detection of battery-operated wet shavers

To reduce skin irritation, battery-operated wet shavers work with battery-controlled micro-pulses. In contrast to the production of manual razors, the production of battery-operated wet razors requires special quality assurance requirements. At the end of the production line, the assembled shavers undergo an end-of-line test to sort out faulty devices. When switched on, the razors are placed in a V-shaped holder in the beam path of an optical precision micrometer.

The optoCONTROL 2520-46 laser micrometer measures the change in distance to the lower edge of the light band caused by the vibrations of the micro pulses. This extremely small change in distance corresponds to the vibration amplitude of the vibrating razor. The resulting oscillation frequency is measured via the voltage output and a downstream frequency counter.

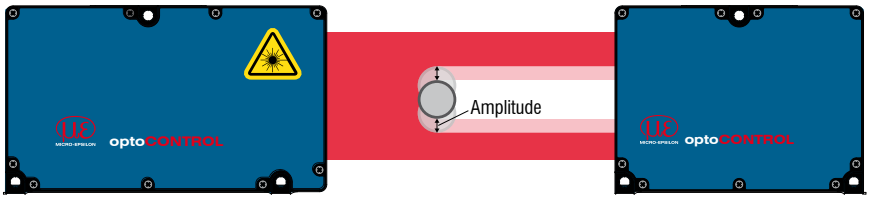
Thanks to the ThruBeam measurement method, exact alignment and position of the test specimens can be dispensed with. Another advantage is the material independence of the measurement process: the shavers are manufactured in different housing materials from transparent to matte black. Since the measurement method used is based on optical shadowing, there are no material influences on the measurement result.

Requirements for the measurement system
- Measuring range: 46 mm
- Repeatability: ≤5 µm
- Resolution: ±1 µm
- Measuring rate: 2.5 kHz

Ambient conditions
- Temperature up to 30 °C
- Laboratory environment

System design
- optoCONTROL 2520-46

Advantages
- Material-independent measurement compared to other measurement methods
- Easy positioning
- No measuring errors in case of misalignment of the measuring object
- Frequency detection based on amplitude measurement



Transmitter Receiver

Micro-Epsilon Eltrotec GmbH A member of micro-epsilon group

Tel. +49 7161 / 988 72-300 | www.micro-epsilon.com | info@micro-epsilon.com | Modifications reserved / 9781140-B012112DKo