z-automation®

INSPIRING PARTNER

OPTICAL LENGTH MEASURING DEVICE
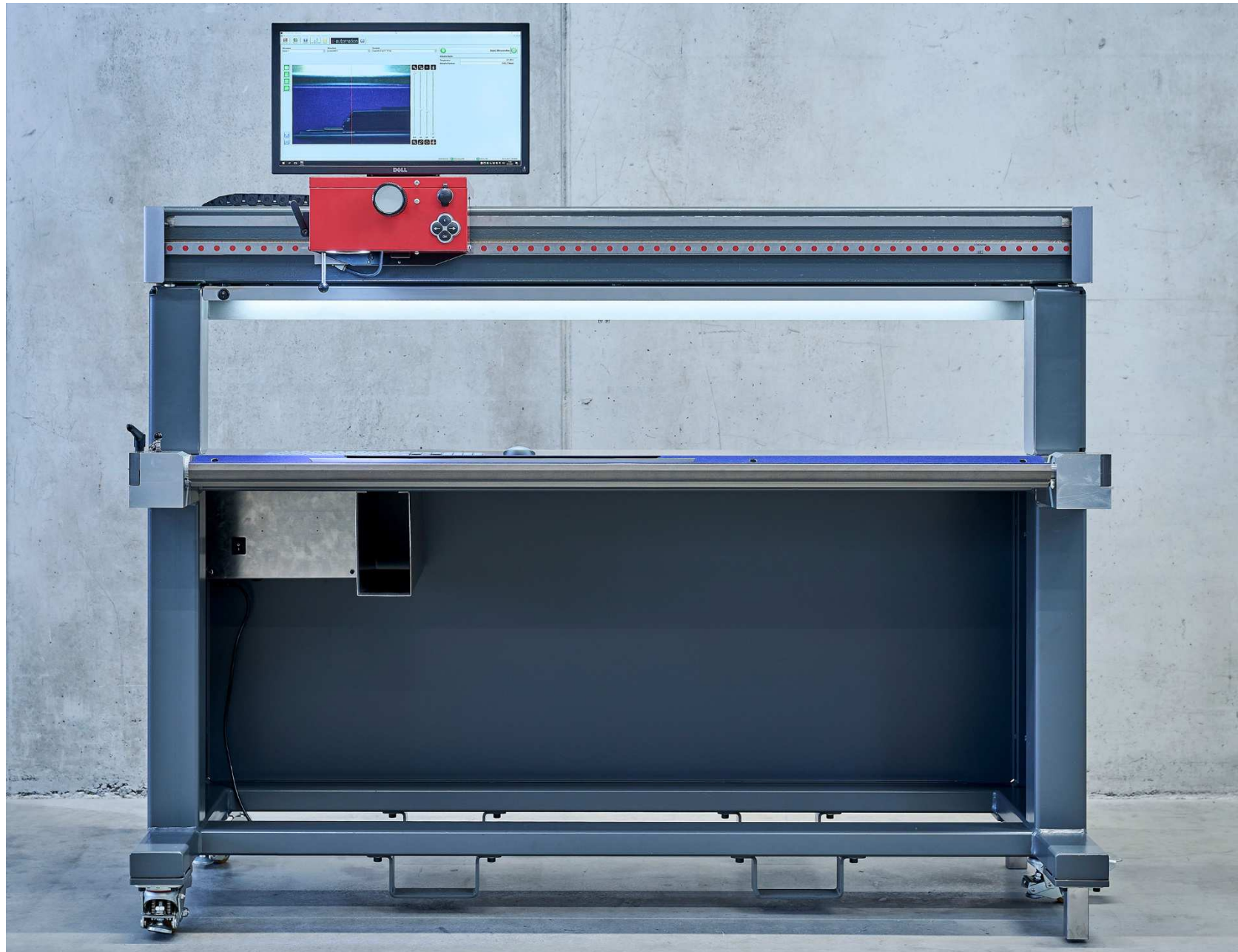
z-md1500 / **z**-md3000

z-measuring device: **z**-md1500 / **z**-md3000

The universal measuring device for the quality proof of automotive sealings

Optical measuring method

Measurement method based on digital image processing combined with precision glass scale

Highest measuring accuracy in the sealing industry

Measuring system resolution 0,01 mm

Measuring equipment capable for product length tolerances of ≥ ± 0,4 mm

Capability analysis based on measuring rows

Comfort due to extensive software package

Monitoring of the serial production process

Periodical measurements – e.g. of several products in a manufacturing cell – during the working shift
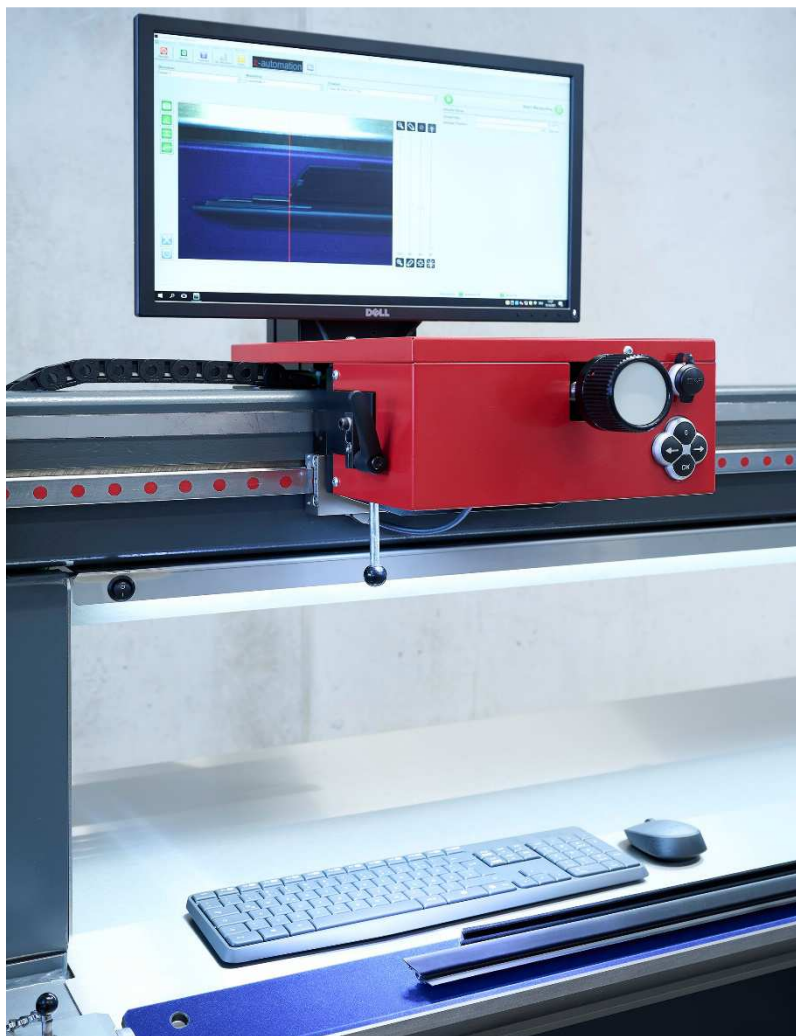
Easy & fast communication of facts

Easy integration into the company's network (WLAN or Ethernet) due to the Windows based control system

Therefore trouble-free transmission of measuring row data or immediate measuring results as screenshots – e.g. directly via e-mail
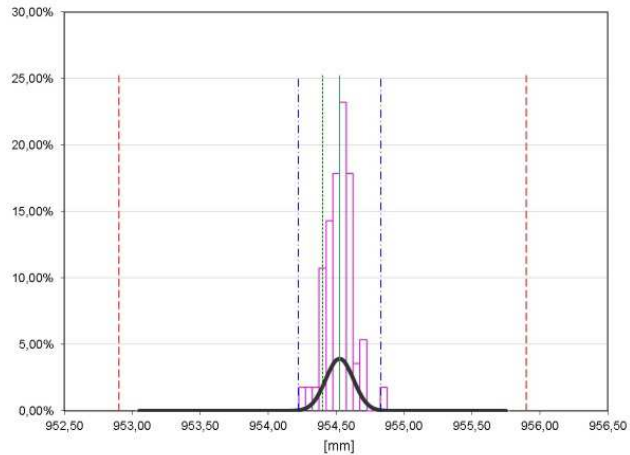
All from one source

Universal measuring device and product specific measuring guide

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z-measuring device specification

Resolution	0,01 mm
Measuring area	1500 mm (z-md1500)
	3000 mm (z-md3000)

Technology

- Measuring value admission by camera and image processing system
- Measurement system capability proved for product tolerances ≥ ± 0.4 mm
- Resolution of measuring element 3 µm
- Control by Windows-PC standard
- Torsion-free three-point support on steering rollers
- Plane measuring supporting area,   ~1700 x 750 mm (z-md1500),
  ~3200 x 750 mm (z-md3000)
  height 930 mm
- Pivoting angle admission as standard measuring admission
- Indexing preparation for centring measuring admissions
- Component height inclusive measuring admission at most 250 mm
- Headroom portal / camera 300 mm
- Length x depth x height   ~1800 x 735 x 1780 mm (z-md1500)
  ~3470 x 735 x 1780 mm (z-md3000)
  Weight 350 kg
- Calibration certificate, periodical calibration service on request

Manufacturer   z-werkzeugbau-gmbh, Dr.-Walter-Zumtobel-Strasse 8, 6850 Dornbirn, Austria

z-measuring device optional features

- Additional measuring range due to V-shaped fixed profile guide with calibrated end stop for x-length measurements between: ~1500 and 3500 mm (z-md1500) ~3000 and 5000 mm (z-md3000) Broadening of measuring support by 400 mm, pluggable.
Accuracy x ≤ ± 0.1 mm, switchable software modes "0-1500" and "1500-3500" or "0-3000" and "3000-5000"

- Drawing tray as a full extension drawer: width x depth = 1200 x 530 mm

- Measuring support extension by 400 mm, pluggable

- Pin board, pluggable ~1900 x 800 mm (z-md1500)
                              ~3400 x 800 mm (z-md3000)

- Guiding slots for defined lifting with a fork lift

- Hardcopy / screenshot (camera picture as well as full screen)

- 2D measuring + measuring of angles (optical)
Module for the additional auxiliary-wise measuring in y-direction as well as for the measuring of angles purely about image processing
Measuring area y: 15 – 70 mm, depending on object distance and zoom adjustment of the camera,
Accuracy y: ≤ ± 0,1 mm with vertical camera axis to the measuring plane
Accuracy angle: ≤ ± 0.1 °

- Measure angles (optical) for additional measurement of angles purely via image processing ≤ ± ~0.1°

- Auxiliary lines and auxiliary radius for better identification of difficult measuring points

- Contour measurement by means of comparison measurement, e.g. for bending curves or angles of profile areas by comparative measurement, in which the camera image of the workpiece is brought into line with a predefined target image. The target image contains ± tolerances drawn in as lines, within which the measured image must lie. The decision "OK" or "NOT OK" is made by the operator

- Data base module for documenting measuring data
Software system for pre-definition and documentation of measuring rows of products with up to 16 measuring values per product and several reference points for measures. Data bank archiving with time stamp, ambient temperature, measuring equipment ID and user ID. Export of measuring row data in .csv format

- Continued measurement / ongoing production monitoring per product for several products at the same time, e.g. in one shift, and thus switch between the products

- Template image for the additional definition of measurement points in measurement series

- Label print for marking measured products in measuring rows

- Prescription image for additional definition of measuring points in measuring rows

- Save screenshots of measurements per measuring point of measuring rows as additional documentation

- WLAN module for the integration of the system into the enterprise network

- Software for capability verification
  on standard Excel base for the evaluation of the exported measuring row data for machine or process capability proofs: Upload of z-md export data and graphic evaluation according to ISO/TS 16949 concerning capability potentiality (cm/cp) and critical capability (cmk/cpk).

- Measuring guide - product-/work piece specific, built up on lightweight building board with index bolts for centring on z-md1500 or z-md3000