

3D Laser measurement at production line

Digital transformation in solid forming



alpha.hot3D

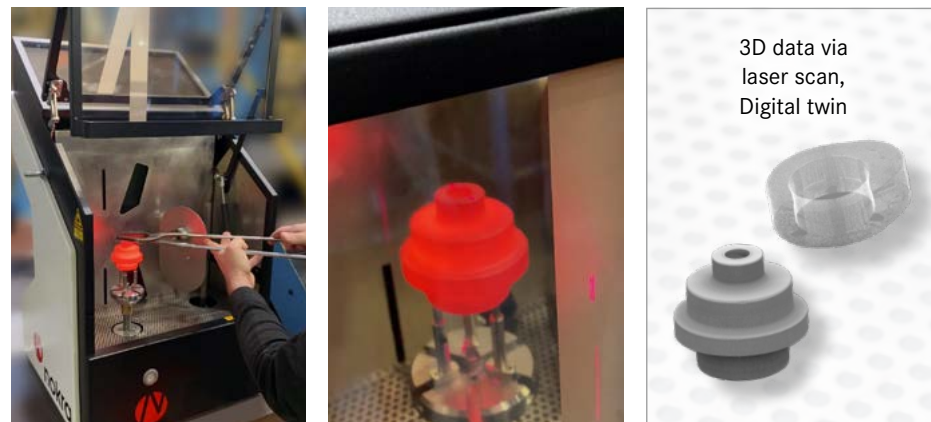
3D feature evaluation in solid forming

alpha.hot3D

Quick and easy in-line process

- Operation at production line
- Benchtop unit for measurement of specimen up to 1200 °C
- Easy operation and status display with one button
- Complete 3D scan with precise laser sensors
- Measurement and evaluation in a few seconds
- Individual prediction of cold dimensions for each feature
- Accuracy of predicted cold dimensions from ±25 µm
- Customizable inspection plans, expandable feature library
- Flexible interface configuration for result data (CAQ systems, qs-STAT, ...)
- Automatic measuring equipment monitoring according to MSA method 1

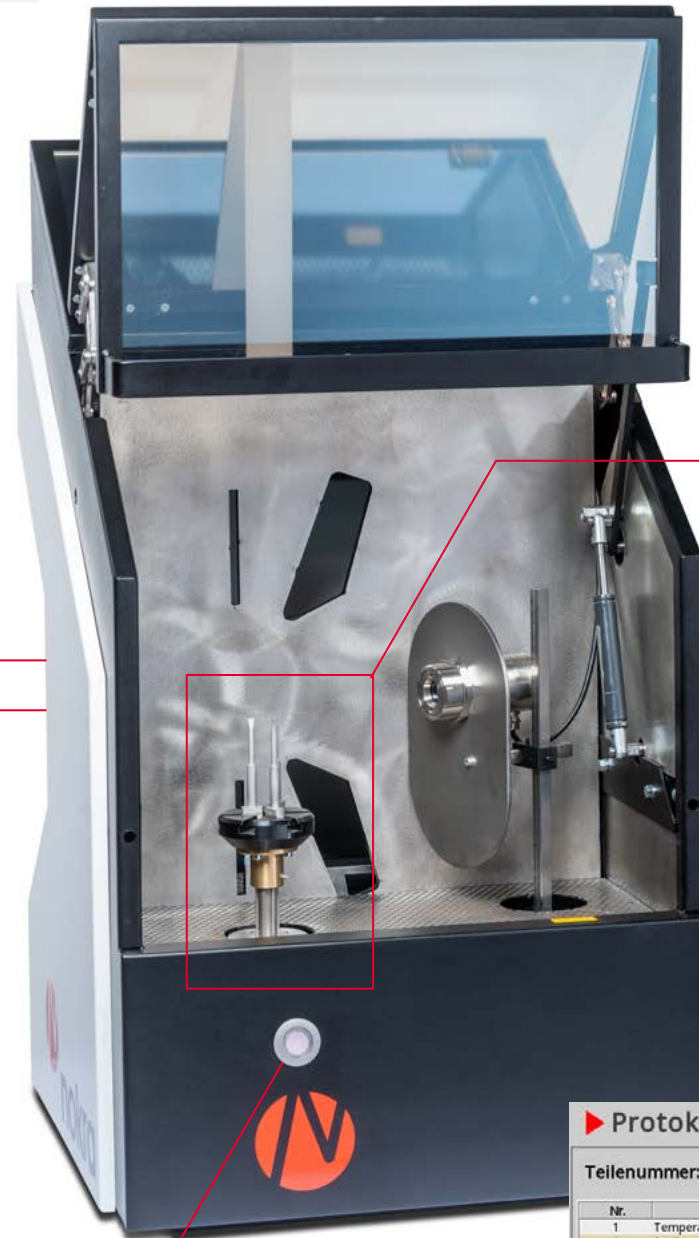
Measurement of hot forged specimen up to 1200 °C



3D data via laser scan, Digital twin

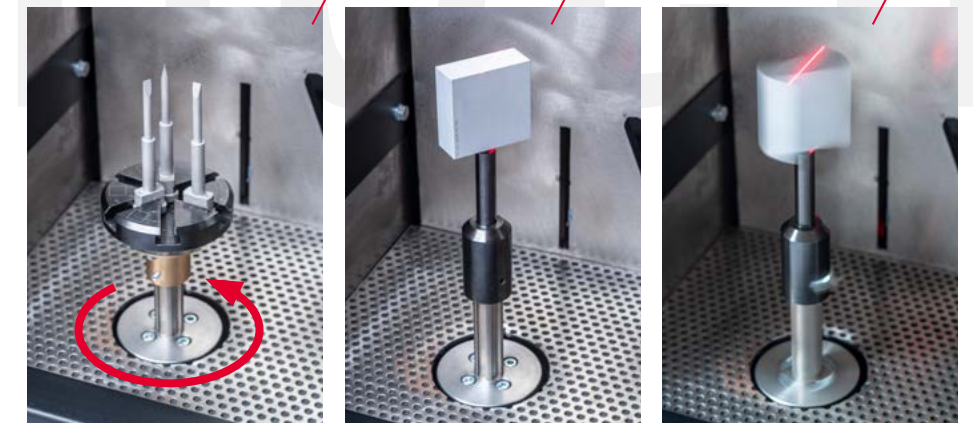
Digital transformation on the line

- Digital twins as permanent reference samples
- Documentation of the production process
- Early intervention in the process
- Objective criteria for forging tool evaluation
- Optimization of forging tool life
- Process optimization: Time, material and energy savings



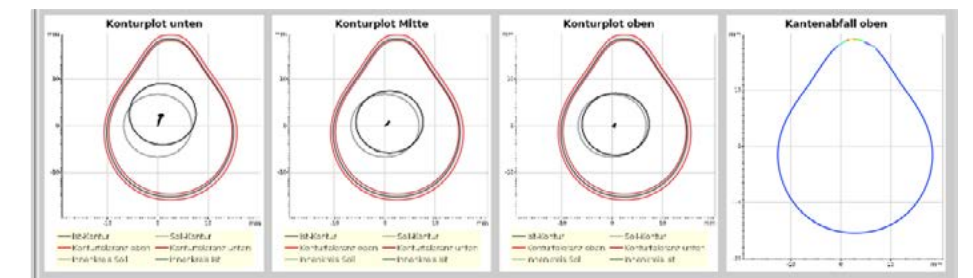
360° rotation of measuring plate

Sensor alignment with incl. reference body



Operating principle: laser measurement

The 3D geometry of the specimen is assessed by nokra laser light section sensors while being rotated by 360°.



Graphic display of edge filling levels and contour fits

Display of feature evaluation results

Overall assessment of tested part

Evaluation of each individual feature

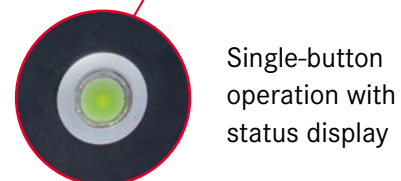
Protokoll Messung

Teilenummer: pn_4757 Messzeit: 10.05.2023 17:41:06

Nr.	Merkmal	Einh.	Ist	Soil	UEG	OTG
1	Temperatur	mm	913,341	33,000	---	---
2	B1-Durchmesser 104.7	mm	104,710	104,700	104,550	---
3	B3-Haupthöhe 38.5	mm	38,745	38,500	38,250	---
4	B5-Innendurchmesser 43	mm	42,792	43,000	42,850	---
5	B7-Durchmesser 80.3	mm	80,122	80,300	80,150	---
6	B8-12-Durchmesser 80.3	mm	24,373	24,300	24,150	---
7	B15-Kantendurchmesser 12	mm	25,963	26,000	25,850	---
8	B17-Kantendurchmesser 17	mm	1,966	1,900	1,750	---
9	B18-Kantendurchmesser 18	mm	44,677	44,600	44,450	---
10	B19-Kantendurchmesser 19	mm	77,150	77,200	77,050	---
11	B20-Kantendurchmesser 20	mm	55,542	55,400	55,250	---
12	B21-Kantendurchmesser 21	mm	62,107	62,000	61,850	---
13	B22-Kantendurchmesser 22	mm	104,526	104,700	---	---
14	B23-Kantendurchmesser 23	mm	79,989	80,300	---	---
15	B24-Kantendurchmesser 24	mm	78,894	79,000	---	---
16	Innenkantendurchmesser 44.5	mm	44,664	44,500	---	---
17	Innenkantendurchmesser 45	mm	45,045	45,000	---	---
18	Kantenabfall oben aussen 2	mm	0,964	0,000	-0,001	1,000

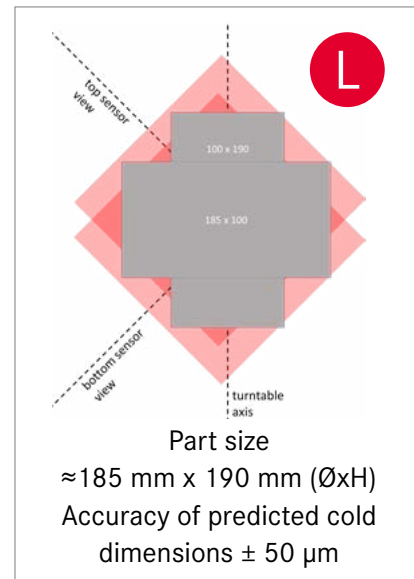
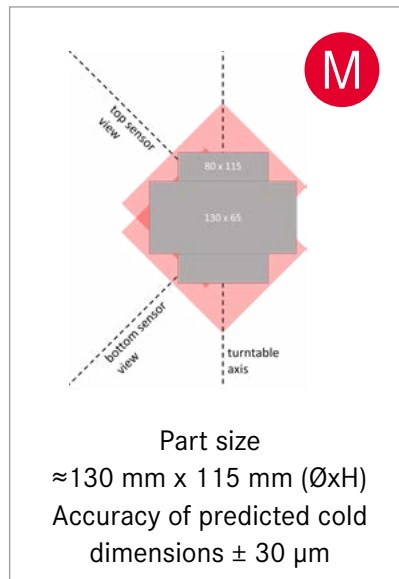
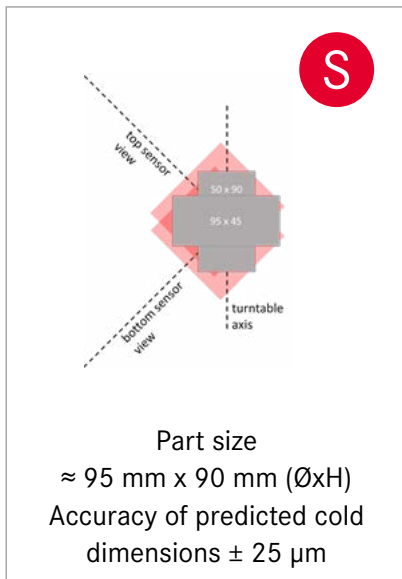
Individually selectable features

Evaluation of characteristics with graphical display of tolerance and action limits



Single-button operation with status display

Standard measuring volumes



Technical features

Quickly exchangeable specimen adapter

Easy referencing with included reference body

Laser class 1 system

TWIN sensors optionally available to avoid shading effects in case of non-rotationally symmetrical components (for system size L)

Integrated database for storage of results (4 TB)

Dimensions of the measuring cell (W x H x D, in mm)
 Benchtop system S and M: 520 x 900 x 580, 92 kg
 Benchtop system L: 670 x 1000 x 680, 115 kg

