

GOM Acceptance Test

160830_CP40-170-40471

Certificate No.

Acceptance/Reverification According to VDI/VDE 2634, Part 3

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General Data

System: ATOS Core 135 SN:140969
Measuring volume: MV135 (135x100x100) mm
Date: 30.08.2016
Inspector: Stefan Ruhe
Measurement temperature: 22.7 °C

Artifact

General

Name: PSA/Z0016/400_L5_R5
Calibration date: 19.02.2016
Calibration ID: 0573/D-K-15007-02-00/2016-02
Calibration temperature: 20.0 °C
Expansion coefficient for sphere spacing: $4.00 \cdot 10^{-6} \text{ K}^{-1}$
Expansion coefficient for diameter: $10.50 \cdot 10^{-6} \text{ K}^{-1}$

Basic dimensions

Sphere spacing: 80 mm
Diameter left sphere: 15 mm
Diameter right sphere: 15 mm

Calibrated nominal dimensions

Sphere spacing: 80.0026 mm
Diameter left sphere: 15.0028 mm
Diameter right sphere: 14.9987 mm

Measurement Parameters**Measurement Settings**

Number of exposure times:	1
Min. fringe contrast:	15 gray values
State: Avoid points at strong brightness differences?:	Yes
State: Avoid Triple Scan points?:	No
State: Avoid Triple Scan points at strong brightness differences?:	Yes
Max. residual:	0.20 pixel
Depth limitation mode:	Automatic depth limitation
Corner mask size:	40
Measurement resolution:	Full resolution

Settings of Checks

State: Check "Sensor movement"?:	Yes
Max. sensor movement:	0.10 pixel
State: Check "Lighting change"?:	Yes

Sensor Calibration**General**

Calibration date:	Tue Aug 30 11:31:42 2016
Measurement temperature:	22.5 °C

Calibration Object

Calibration object type:	Panel (Triple Scan)
Calibration object name:	CP40-170-40471
Test distances:	243.2653 / 243.2653 mm
Certification temperature:	22.0 °C
Expansion coefficient:	$3.25 \cdot 10^{-6} \text{ K}^{-1}$

Calibration Settings

Focal length (camera):	12.500 mm
Focal length (projector):	8.000 mm
Light intensity:	100%
Snap mode:	Double snap
Max. ellipse quality:	0.50 pixel

Calibration Result

Calibration deviation:	0.070 pixel (Quality check: Good)
Calibration deviation (optimized):	0.026 pixel
Projector calibration deviation:	0.050 pixel (Quality check: Good)
Projector calibration deviation (optimized):	0.016 pixel
Camera angle:	31.74 °
Height variance:	100.003 mm
Measuring volume:	145 x 110 x 107 mm

Acceptance/Reverification Test**General**

Number of test positions (measurement series): 3
 Nominal diameter of left sphere with temperature correction: 15.0032 mm
 Nominal diameter of right sphere with temperature correction: 14.9991 mm
 Nominal sphere spacing with temperature correction: 80.0035 mm

Parameter Probing Error Form, Left Sphere

Pos ²⁾	M ³⁾	P ⁴⁾	Min. deviation	Max. deviation	Range of deviation	Probing error form (sigma)
1	10	21137	-0.004 mm	0.004 mm	0.008 mm	0.001 mm
2	10	19235	-0.004 mm	0.004 mm	0.008 mm	0.001 mm
3	10	19835	-0.004 mm	0.004 mm	0.008 mm	0.001 mm

Parameter Probing Error Form, Right Sphere

Pos ²⁾	M ³⁾	P ⁴⁾	Min. deviation	Max. deviation	Range of deviation	Probing error form (sigma)
1	10	21570	-0.004 mm	0.003 mm	0.007 mm	0.001 mm
2	10	20259	-0.004 mm	0.004 mm	0.007 mm	0.001 mm
3	10	19082	-0.004 mm	0.004 mm	0.007 mm	0.001 mm

Parameter Probing Error Size, Left Sphere

Pos ²⁾	M ³⁾	P ⁴⁾	Diameter (actual)	Diameter (nominal) ¹⁾	Probing error (size)
1	10	21137	15.000 mm	15.003 mm	-0.004 mm
2	10	19235	15.000 mm	15.003 mm	-0.003 mm
3	10	19835	15.000 mm	15.003 mm	-0.003 mm

Parameter Probing Error Size, Right Sphere

Pos ²⁾	M ³⁾	P ⁴⁾	Diameter (actual)	Diameter (nominal) ¹⁾	Probing error (size)
1	10	21570	14.994 mm	14.999 mm	-0.005 mm
2	10	20259	14.994 mm	14.999 mm	-0.005 mm
3	10	19082	14.996 mm	14.999 mm	-0.003 mm

Sphere Spacing Error

Pos ²⁾	M ³⁾	Sphere spacing (actual)	Sphere spacing (nominal) ¹⁾	Sphere spacing error
1	10	80.004 mm	80.004 mm	0.000 mm
2	10	80.005 mm	80.004 mm	0.001 mm
3	10	80.005 mm	80.004 mm	0.002 mm

Parameter Length Measurement Error

Pos ²⁾	M ³⁾	Length (actual)	Length (nominal) ¹⁾	Length measurement error
1	10	95.001 mm	95.005 mm	-0.004 mm
2	10	95.005 mm	95.005 mm	0.000 mm
3	10	95.006 mm	95.005 mm	0.001 mm

¹⁾ With temperature correction

²⁾ Test position

³⁾ Number of measurements

⁴⁾ Number of points

Summary Acceptance/Reverification Test

Parameter	Maximum deviation	Limit
Probing error form (sigma)	0.001 mm	0.003 mm
Probing error (size)	-0.005 mm	0.012 mm
Sphere spacing error	0.002 mm	0.009 mm
Length measurement error	-0.004 mm	0.021 mm

Additional Information

A detailed description of the acceptance test is compiled in the following document:

GOM Acceptance Test - Process Description,
Acceptance test according to the guideline VDI/VDE 2634 Part 3
Document number: 0000000476_...

Test requirements are stated, the exact test procedure (incl. software operation) is documented and the used parameters are listed.

In addition, limits are defined with respect to:

- Operation modes (adjustment and configuration possibilities of the measuring system)
- Operation conditions (outside influences)

The documentation in the version valid at the time of the test is part of the GOM Acceptance Test protocol and is enclosed.

The respective current version is available for download under <https://support.gom.com>.