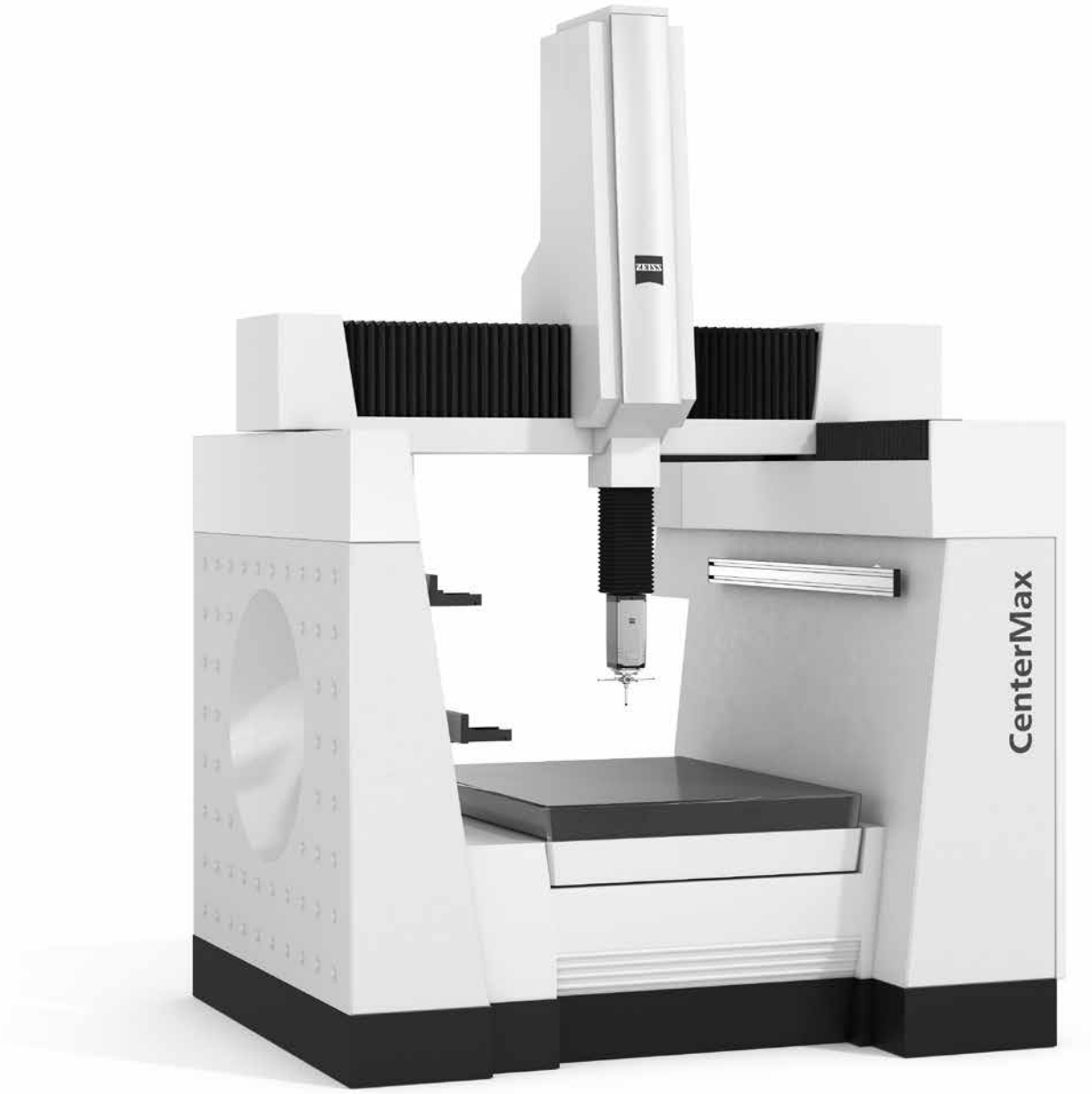



# ZEISS CenterMax®
# Specifications

Version: November 2018

**System description**

| | | | | |
|---|---|---|---|---|
| **Type according to ISO 10360-1:2000** | Gantry CMM | | | |
| **Operating mode** | motorized / CNC | | | |
| **Sensor mounts** | Fixed installation | | | |
| **Software** | ZEISS CALYPSO, ZEISS GEAR PRO, ZEISS HOLOS | | | |
| **Acceleration** | | | | |
| **Travel speeds** | | | axis | Vector |
| **Set-up mode** | | in mm/s | 0 to 70 | |
| **Batch measurement mode** | | in mm/s | max. 300 | max. 520 |
| **Acceleration** | | in $m/s^2$ | max. 1.4 | max. 2.4 |

**Accuracy and measuring performance** [1]

The CMM specifications are only valid when using original accessories by ZEISS. The specified parameters are observed in the application of the internal test instructions for acceptance testing and in the use of the released standards in accordance with the ISO 10360 series.

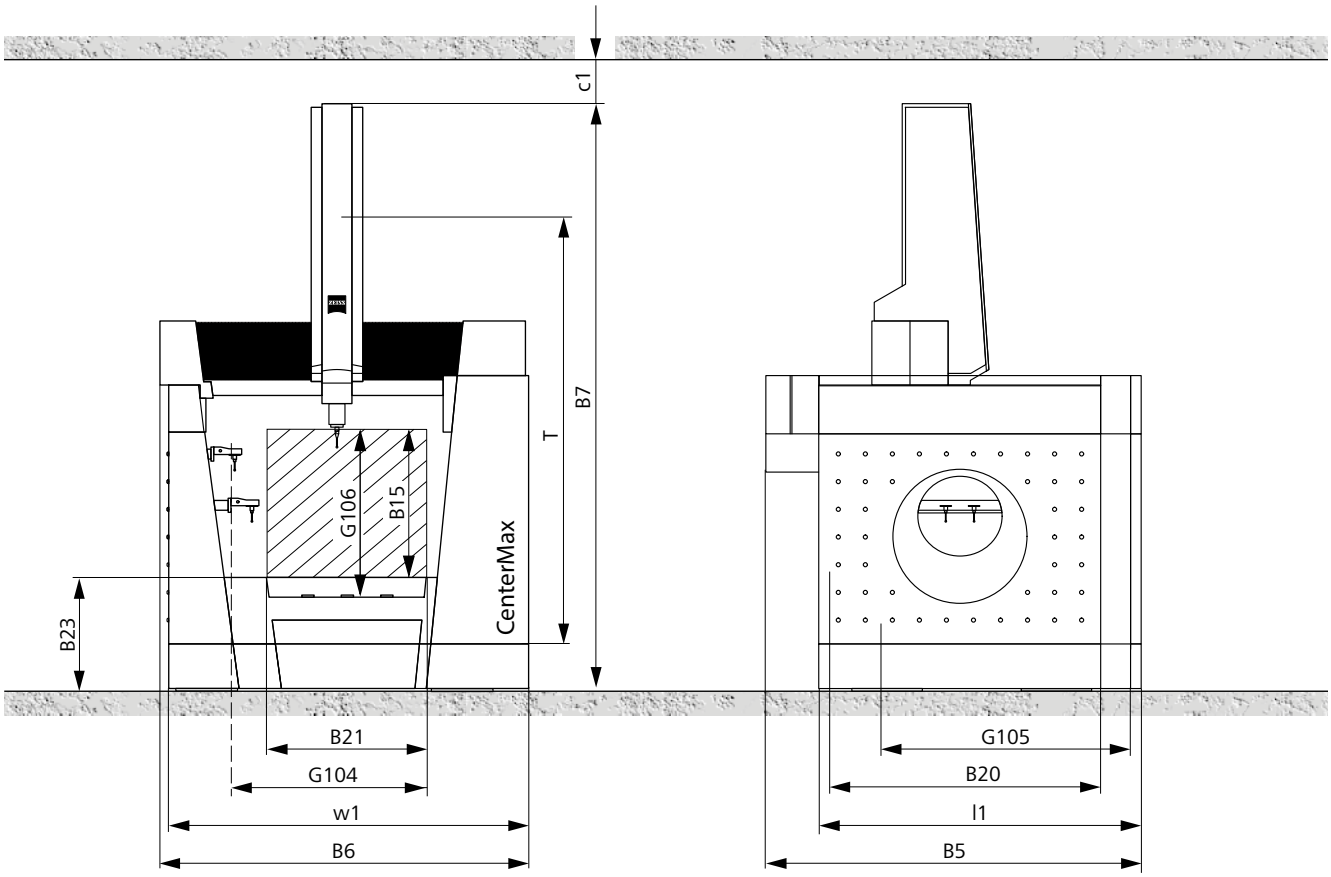
| **ZEISS CenterMax** | | | **ZEISS VAST gold** | **ZEISS VAST XTR gold** |
|---|---|---|---|---|
| **TVA** [2]<br>(Temperature Variable Accuracy) | TVA $MPE_E$ | in µm | 1.2 + (0,05 \|Δϑ\|) + L/(280 - (5 \|Δϑ\|)) | 1.2 + (0,05 \|Δϑ\|) + L/(280 - (5 \|Δϑ\|)) |
| | | | \|Δϑ\| = error in K of 20 °C [3] | \|Δϑ\| = error in K of 20 °C [3] |
| **Length measurement error** [2]<br>MPE complies with ISO 10360-2:2009 | E0 / E150 | in µm | At 20 °C: 1.2 + L/280<br>At 26 °C: 1.5 + L/250<br>At 30 °C: 1.7 + L/230<br>At 40 °C: 2.2 + L/180 | At 20 °C: 1.2 + L/280<br>At 26 °C: 1.5 + L/250<br>At 30 °C: 1.7 + L/230<br>At 40 °C. 2.2 + L/180 |
| **Repeatability range of E0**<br>MPL complies with ISO 10360-2:2009 | R0 | in µm | 1.1 | 1.1 |
| **Scanning error**<br>MPE complies with ISO 10360-4:2000 | THP | in µm | 2.2 | 2.2 |
| required measuring time MPT | τ | in s | 26 | 26 |
| **Form measurement error**<br>MPE for roundness [4] complies with<br>ISO 12181 (VDI/VDE 2617 sheet 2.2) | RONt (MZCI) | in µm | 1.0 | 1.0 |
| **Single stylus form probing error**<br>MPE complies with ISO 10360-5:2010 | PFTU | in µm | 1.4 | 1.4 |
| **Multi-stylus form probing error**<br>MPE complies with ISO 10360-5:2010 | PFTM [5] | in µm | 2.7 | 3.3 |
| **Multi-stylus dimension probing error**<br>MPE complies with ISO 10360-5:2010 | PSTM [5] | in µm | 1.0 | 1.0 |
| **Multi-stylus location probing error**<br>MPE complies with ISO 10360-5:2010 | PLTM [5] | in µm | 2.2 | 2.3 |
| **Length measuring system** | ZEISS glass ceramic; reflected light system, photo-electric, resolution 0.2 µm | | | |

**Sensors**

| | | | |
|---|---|---|---|
| **ZEISS VAST gold**<br>  | Active measuring with stylus changer<br>Scanning measuring rate up to 500 points/s. | | |
| **Measuring force at data acquisition** | | in mN | min. 50 |
| **Stylus system weight** | | in g | max. 600 |
| **Stylus system length** | | in mm | max. 800 |
| **Stylus rack optional** | 8 rack slots (max. 24 fixed rack slots, constantly within the measuring range) | | |
| | ZEISS ProMax active stylus rack with 15 slots<br>(requires compressed air supply for measuring operations) | | |
| **ZEISS VAST XTR gold**<br>  | Active measuring with stylus changer,<br>with rotary axis positioning in 15° increments [6], 1 µm positioning accuracy<br>ZEISS VAST XTR gold not combinable with ZEISS ProMax<br>Scanning measuring rate up to 500 points/s. | | |
| **Measuring force at data acquisition** | | in mN | min. 50 |
| **Stylus system weight** | | in g | max. 500 |
| **Stylus system length** | | in mm | max. 500 (rigid), max. 350 mm (during rotation) |
| **Stylus rack optional** | 6 rack slots (combination with ZEISS ProMax not approved) | | |

1) Stylus for the acceptance test: ZEISS VAST, length 60 mm, stylus tip diameter 8 mm.
2) L = measuring length in mm.
3) Explanation: value |Δϑ|: e.g. at 22 °C |Δϑ| = 2, at 24 °C |Δϑ| = 4.
4) Filter used: 50 W/U; scanning speed for roundness: 5 mm/s.
5) Measuring location near the calibration position to document sensor properties.
6) Explanation: 360°/15° = 24 positions

| | Dimensions in mm | | | | | | | | Weight in kg | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ZEISS CenterMax** | **Measuring range** | | | **Working range (Max. workpiece size)** | | | | | **Max. workpiece** | | |
| | X axis | Y axis | Z axis | Width | Length | Height | | | Universal table | Granite table | Optional rotary table centering capacity (including clamping equipment and workpiece) |
| | G104 | G105 | G106 | B21 | B20 | B15 | | | | | |
| | 1100 | 1200 | 900 | 955 | 1520 | 841[1] | | | 1000 | 750 | 250 |
| | **Overall CMM dimensions** | | | **Footprint** | | **Working height** [1] | **Assembly space** | **Transport height** | **Measuring machine** | | |
| | Width | Length | Height | Width | Length | Height | Height | Height | | | |
| | B6 | B5 | B7 | w1 | l1 | B23 | c1 | T | | | |
| | 2092 | 2140 | 3340 | 2040 | 1830 | 652 | ≥200 | 2550 | 6000 | | |




Note: The given dimensions and weights are approximate values. Dimensions in mm. Subject to change. Dimensioning based on DIN 4000-167:2009.

1) Depending on clamping device.

**Environmental requirements**

| | | | |
|---|---|---|---|
| Ambient temperature for operational readiness | | | 8 °C - 40 °C |
| Temperature conditions to guarantee specified accuracies | | | |
| Ambient temperature | | | 15 °C - 40 °C |
| Temperature fluctuations | per hour | in K/h | 2.0 |
| | per day | in K/d | 8.0 |
| Temperature gradient | spatial | in K/m | 2.0 |
| Relative humidity | 40 % to 70 % Optional: up to 85 % in combination with an air conditioner on the computer/controller cabinet. | | |
| Floor vibrations | ZEISS CenterMax is equipped with an active damping system and is therefore highly resistant to vibrations. Please contact us for limiting curves. Upon request, we will perform a vibration analysis. | | |
| Acoustic pressure | ≤100 dB | | |

**Requirements for operational readiness**

| | | |
|---|---|---|
| Data technology | As an option, ZEISS CenterMax is available with a computer cabinet. Here the required PC equipment can be safely protected from the immediate production environment. | |
| Electrical power rating | Measuring machine and controller: | 1/N/PE 100/110/115/120/125/230/240 V~ (±10%); 47-63 Hz.<br>Max. power consumption 2500 VA |
| | Computer cabinet: | 1/N/PE 100/110/115/120/125/230/240 V~ (±10%); 47-63 Hz.<br>Max. power consumption 2500 VA |
| Compressed air supply | Supply pressure min. 6 bar, max. 10 bar, pre-cleaned max. 10 l/min at 5 bar operating pressure (50 Nl/min at 1 bar). Air quality complies with ISO 8573 part 1: Class 4 | |

**Approvals**

| | |
|---|---|
| Regulations | ZEISS CenterMax fulfills EC machine directive 2006/42/EC, EMC directive 2014/30/EU and the RoHS directive 2011/65/EU.<br>ZEISS CenterMax can be optionally equipped with safety positions in Y and Z for automation or crane locking. |
| Disposal | ZEISS products and packaging returned to us are disposed of in accordance with applicable legal provisions. |

**Certification/accreditation**

| | |
|---|---|
| Quality management system | ISO 9001:2008;<br>VDA 6, Part, 2nd Issue 2005 |
| Environmental management system | ISO 14001:2004 |
| Occupational health & safety management systems | BS OHSAS 18001:2007 |
| Accredited | ISO/IEC 17025:2005 |

**EN_60_022_0332XII** Printed in Germany CZ-X/2018
Subject to change in design and scope of delivery and as a result of ongoing technical development.
Printed on chlorine-free bleached paper. 