

Shop floor measuring technology



## **DuraMax**

Professional quality inspection  
for the workshop and production.



We make it visible.



// PERFECTION  
MADE BY CARL ZEISS



The moment you know exactly  
how to optimize your production quality.  
**This is the moment we work for.**

# DuraMax Overview

## At home on the shop floor

- Completely covered guideways
- Temperature stability from +18°C to +30°C
- Three-sided loading
- Integrated passive damping system
- No compressed air required.
- Space-saving design

## Sensors with scanning function

- VAST XXT sensor for single-point measurements and scanning
- CNC-guided stylus change

## Shop floor base

- Lockable storage space for a PC, dust and moisture protected in accordance with IP54, thermally shielded
- Carrier arm for keyboard and monitor
- Can be moved with lifting truck or forklift



### Flexible configuration

Regarding design, sensors and software, DuraMax can be specially configured to meet your needs, for example

- for in-line inspections in production
- to measure gear geometries

Our experts will put together a package that best meets your needs.

### Measure with the reference software

With CALYPSO and its extensions, you have access to the leading measuring software from Carl Zeiss. It is the best of the best regarding user friendliness and functionality.

### Basic data

Measuring range: 500 x 500 x 500 mm

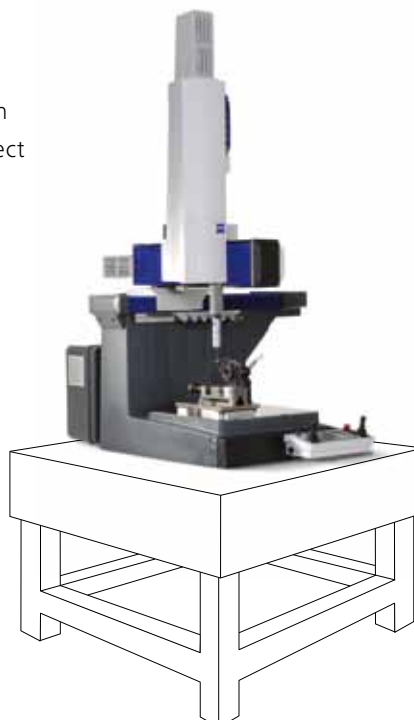
Max. workpiece weight: 100 kg

Length measuring error [ $\mu\text{m}$ ]: from  $2.4 + L/300$



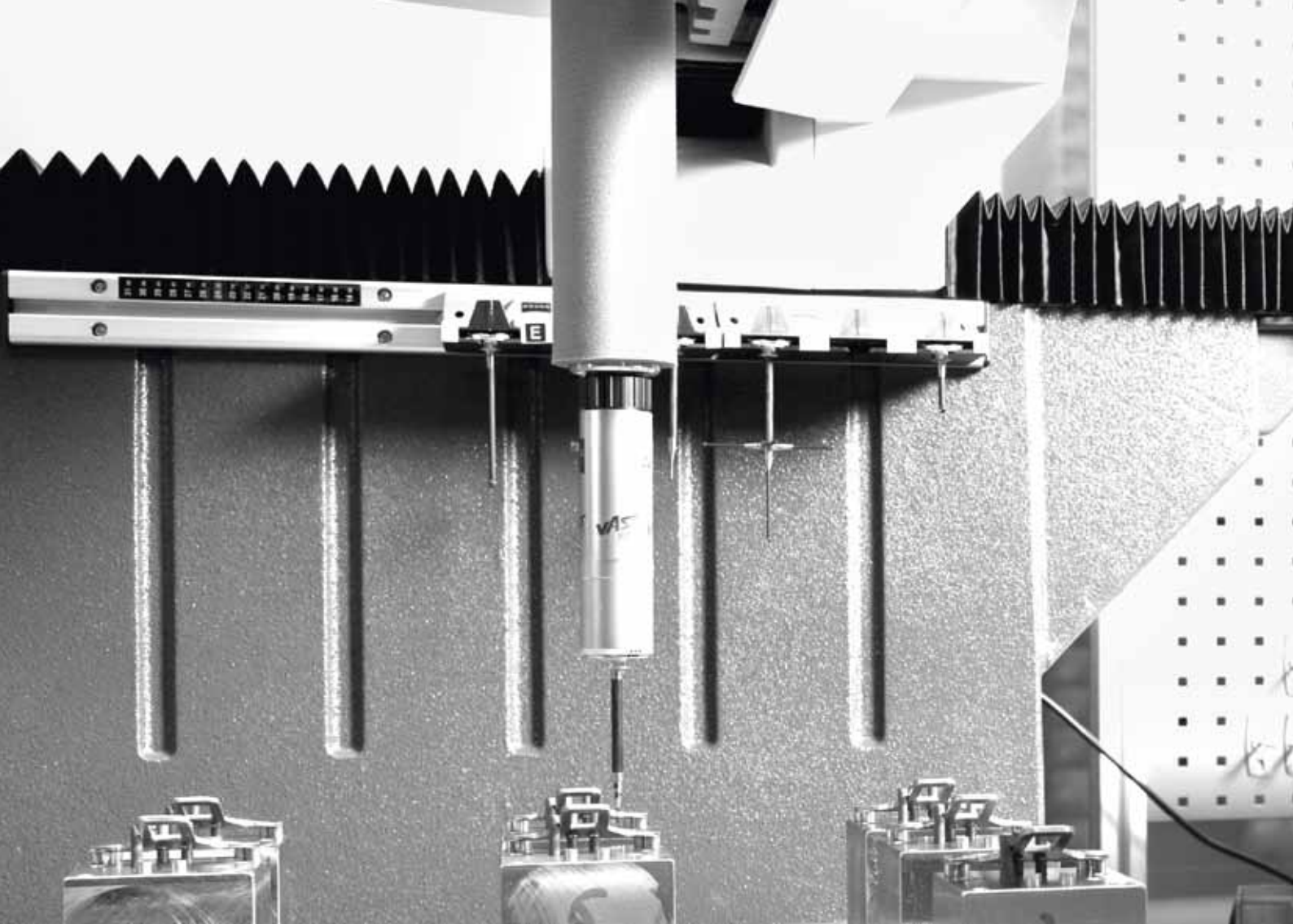
### Base standard

The massive metal base ensures reliable operation at an ergonomically correct height.



### Without base

DuraMax is available without a base for those who would like to use it on a surface, e.g. a measuring table or a corresponding machine table.



## Ready for production

Temperature fluctuations, dust, contamination and a knock or two are commonplace in a production environment. DuraMax is designed to take the best that such environments have to offer. It can be reliably operated at a temperature range of +18°C to +30°C. Its enclosed guideways protect it against contamination. Its massive design ensures solid footing. Put the benefits of state-of-the-art coordinate measuring technology to work in your production environment.



### 1. You are flexible

Inspect various workpieces and characteristics with a single system.

### 2. You receive more information

You can not only check single measured points, but you can also receive extensive information on the quality of your workpiece. The measuring results can be conveniently analyzed and documented with software from Carl Zeiss. This enables conclusions for production and reduces the number of rejections.

### 3. You are fast

Scanning technology from Carl Zeiss allows you to measure a large number of points in one go. You can quickly evaluate contours and gear geometries, for example.



**Lifecycle costs**

**Flexibility**

**Temperature stability**

**Operator influence**

**Gage**

**High:**  
New gage for each measuring job

**Low:**  
New requirements = low: new gage

**Low:**  
No temperature compensation and correction

**High:**  
Personnel required for measurement

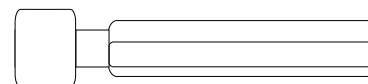
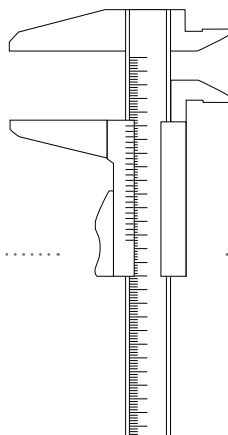
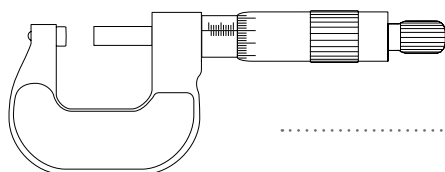
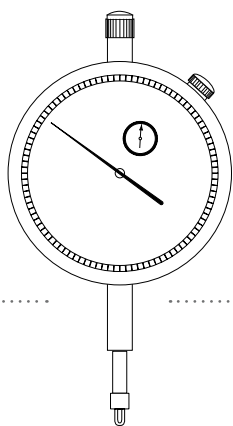
**DuraMax**

**Low:**  
One-time investment, no compressed air

**High:**  
One machine for all requirements

**High:**  
Temperature stability up to +30°C, no measuring lab

**Low:**  
CNC



*In the past, many different gauges and inspection tools were required to cover the range of jobs completed by DuraMax.*



## Probe from the inventor of scanning

Scanning – the fast capture of measured values in one run – has become a firmly established element of measuring technology because it delivers better results in less time. Carl Zeiss invented scanning and, with DuraMax, offers the first system in its class to master scanning.



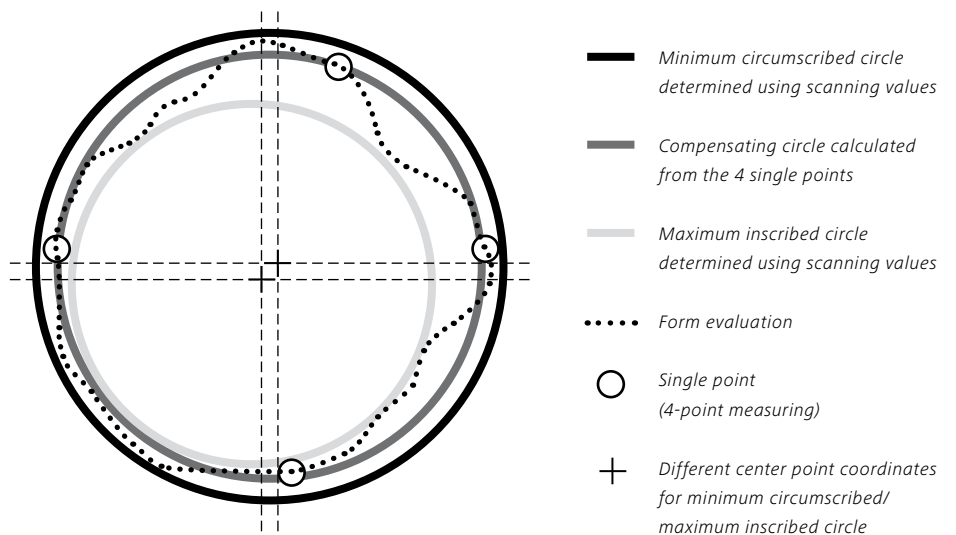
### More productivity thanks to scanning

In general, DuraMax is positioned next to tool machines to control and monitor running production activities. As the number of generated measuring points increase, so too does the accuracy and quality of the measurement. This also benefits productivity: minimum circumscribed and maximum inscribed circles, for example, can be determined to arrange pairs of boreholes and waves. This enables you to achieve a higher number of matching pairs than with traditional measuring technology. The rejection rate is therefore reduced to a minimum.

### Upper-class sensor: VAST XXT

VAST XXT is a sensor for single-point measurements and scanning. These types of sensors are used in numerous upper-class systems from Carl Zeiss. Different stylus systems from the rack can be exchanged under full CNC control to meet the needs of the measuring job.

- 25 mm adapter plate for optimal reproducibility
- Axial stylus length: 30 to 150 mm
- Radial stylus length: 30 to 65 mm



### Single-point measuring

- Acquisition of single points
- Determination of single points
- Longer measuring times
- High dispersion
- Low repeatability
- Inaccurate information on position, practically none on the form of planes, curves and freeform surfaces

### Scanning

- Acquisition of a point line
- Determination of the form
- Shorter measuring times
- Low dispersion
- Maximum reproducibility
- Precise statements on position and form, exact scanning of known contours and free-form surfaces, as well as unknown contours



## Easy measuring with CALYPSO

DuraMax runs under CALYPSO, the reference software from Carl Zeiss for standard geometries and freeform surfaces. CALYPSO combines enormous functionality and ease of use – to allow you to start measuring immediately.

### Measure intuitively

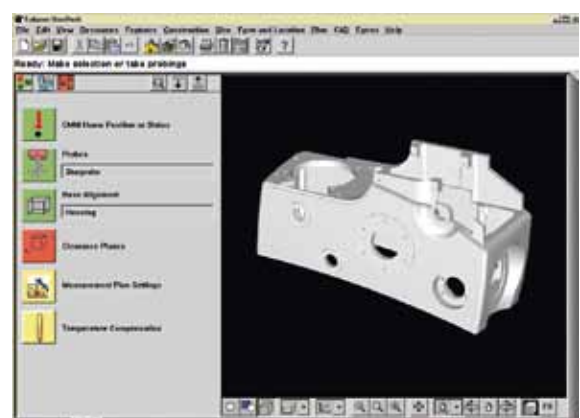
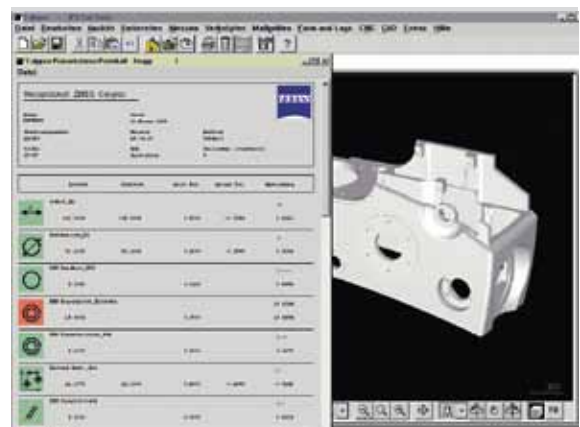
CALYPSO is based on the principle of visual metrology: you measure what you see – without complicated code and text input. All part features from a drawing or a CAD model are stored as icons in CALYPSO. Select the desired features and your measurement plan is finished. CALYPSO automatically calculates the ideal measuring run and travel paths.

### Only measure what you need to know at the moment

In CALYPSO, you can quickly run any number of sequences from a complete measuring run as a partial measurement. This quickly provides you with the results you need for the current production segment.

### Autorun: operator errors ruled out

The autorun function initiates programmed measuring runs at the push of a button. This enables untrained personnel to make perfect measuring runs.



# The ideal package

With its variable software and hardware, DuraMax can be tailored to your needs. Our specialists will put together a package that best meets your needs, for example, to measure on the shop floor with DuraMax In-Line or to check spur gears with RT GEAR.

## In-Line

### For shop floor integration

#### Shop floor base

With storage room to protect the PC in accordance with IP54 and a practical carrier arm to mount a monitor and keyboard tray.

#### Automatic temperature reader with two workpiece sensors

#### DuraMax safety position

#### Digital E/A box with 12 ports

#### CALYPSO PCM

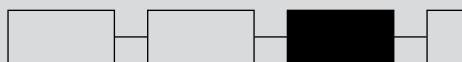
Menu-guided control of parameter-supported measuring runs.

#### CALYPSO Flex Reporter

Display and evaluate measured values with graphic and statistical options.

#### FACS light

Automation software to connect automation systems with coordinate measuring technology from Carl Zeiss.



## RT GEAR

### To inspect spur gears

#### GEAR PRO involute

The GEAR PRO involute extension enables the convenient measurement and analysis of spur gears. The analytical 3D gear tooth model and the graphic-supported input windows make measuring with GEAR PRO involute highly effective. The software is suitable for the following gear geometries:

- Straight and slanted-tooth spur gears
- Conically corrected gears
- Bevel gears
- Splines

#### CALYPSO measuring software

#### Stylus set

Different sizes for inner and outer spur gears.

#### Precision rotary table

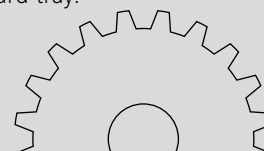
Precision rotary table with jaw chuck to expand the rotary axis.

#### Reference sphere

8 mm reference sphere to calibrate the stylus system.

#### Shop floor base

With storage room to protect the PC in accordance with IP54 and a practical carrier arm to mount a monitor and keyboard tray.



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