COMET®L3D

INNOVATIVE • EASY • FAST • ACCURATE

3D DIGITIZING

BLUE-LED TECHNOLOGY

AFFORDABLE • EFFICIENT

steinbichler

COMETL3D - THE NEW 3D SENSOR GENERATION

Steinbichler Optotechnik proudly presents COMETL3D – a bright new star in the 3D digitizing universe. Featuring innovative LED lighting technology, the extremely compact high-performance 3D sensor adds a new dimension of efficient 3D data acquisition.

The new ultra-portable sensor makes 3D data acquisition even faster, easier and more accurate. It is the ideal cost-effective entry level solution for users who want to take advantage of the extensive functionality of optical metrology without compromising performance, technology or data quality.

COMETL3D performs excellently even in demanding applications such as quality assurance. Its rugged design, the dustproof enclosure for the optical components of the sensor head, and the high-quality connectors allow use in industrial environments. The sensor is controlled via an industrial standard CAN bus interface. Thanks to its ultra-compact size and light weight, you can position the sensor using standard accessories (e.g. camera stands). Transport, setup and commissioning of the overall system take very little effort. Designed for easy handling and use, COMETL3D offers you maximum flexibility and efficiency in all your measurement tasks.

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COMETL3D - EFFICIENT DIGITIZATION

- **INNOVATIVE** COMETL3D uses innovative, maintenance-free and cost-effective LED lighting technology with a long life, so you can benefit from extremely low consumable costs. The sensor housing with the proven single-camera technology from Steinbichler and the complete measurement setup are ultra-compact and lightweight for easy portability.

- **EASY** The COMETL3D sensor is ready to run in minimum time. Conventional camera/video stands for positioning the measuring head make handling very easy and efficient. The short working distance ensures ease of use even in confined areas. Changing the field of view is also quick and simple – all you need to do is change the lens. To further streamline the measurement process, you can combine the sensor system with special accessories such as a rotary table for automated object positioning (COMET*rotary*, COMET*dual rotary*).

- **FAST** 3D data acquisition with COMETL3D is sensationally fast. The extremely short measurement time and the simple-to-use software allow efficient measurements.

- **ACCURATE** Delivering excellent data quality and highly accurate results, COMETL3D is also ideal for demanding applications in quality assurance. The unique solution can even be combined with photogrammetric processes to digitize large objects. Like all Steinbichler 3D scanners, COMETL3D is calibrated using traceable calibration methods.

COMETL∃D - APPLICATION AREAS

- Quality Control / Inspection
  - Comparison of actual data with nominal data (part to CAD)
- Mold and Toolmaking
  - Tool reconstruction
  - Scan data for generation of milling tool paths
  - Documentation of actual 3D data at tool release
- Design
  - Scanning of design models for further processing of CAD data, documentation
- Rapid Manufacturing
  - Acquisition of 3D data for Rapid Prototyping
- Reverse Engineering
- 3D-Scanning
  - Scanning of art/historical objects, archaeology

- COMETL∃D is particularly well suited for the quality assurance of small and medium-sized plastic or metal parts.
- The non-contact measurement principle of the COMETL∃D sensor offers the possibility to measure delicate and fragile objects (e.g. of plastic or foam material) that are very difficult to measure using conventional measuring machines/tactile measuring heads.
- The BLUE LED technology of the COMETL∃D allows capturing up to 2M measurement points in only about 1.5 seconds. Parts with many features can be captured many times faster using this process than using conventional tactile systems.

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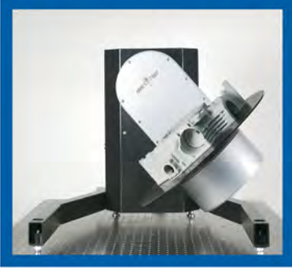
ACCESSORIES

COMET*rotary*

Rotation table for the automated positioning of small and medium-sized objects (up to 30 kg weight).
Control via COMET*plus* software.

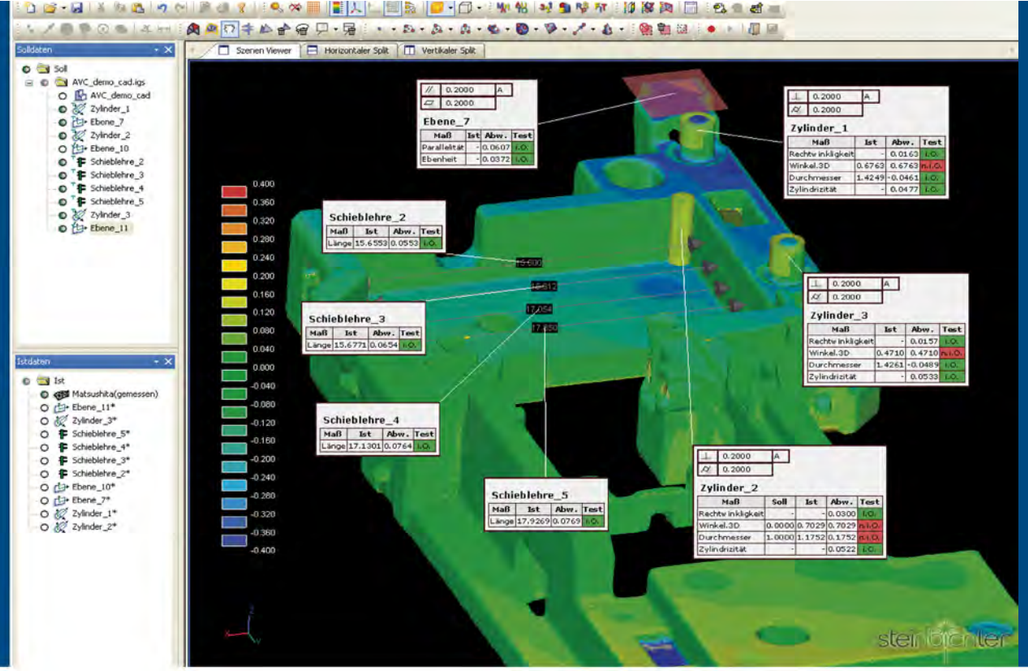
COMET*dual rotary*



Rotation table with turn/tilt axis for automated positioning of small and medium-sized objects (up to 20 kg weight).
Control via COMET*plus* software.

TECHNICAL DATA

	COMETL∃D 2 M
Camera Resolution	1600 x 1200
Measuring Volume in mm³ 100 200 400	100 x 75 x 60 215 x 165 x 140 400 x 300 x 250
3D Point Distance in µm 100 / 200 / 400	60 / 135 / 250
Fastest Measuring Time in Seconds	1.5
PC	available with desktop PC or notebook
Sensor Positioning	tripod or sensor stand with manual rotation and tilt axis
Automatic Object Positioning	rotation table (COMET*rotary*, COMET*dual rotary*)

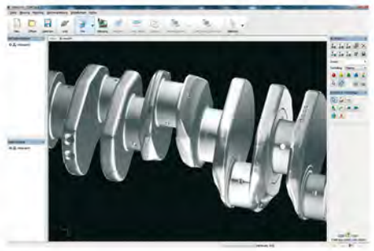


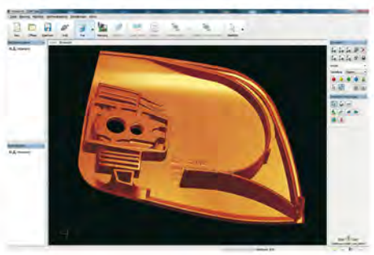
SOFTWARE FOR DATA ACQUISITION AND PROCESSING

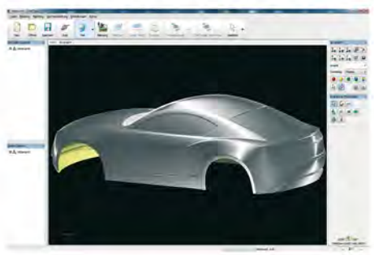
The (Windows based) measurement and processing software developed by Steinbichler Optotechnik is a strong companion to the new COMET L3D sensor. Several measurement strategies which can also be combined for more demanding tasks, offer automatic alignment of single measurements with maximum accuracy and minimal object preparation. Through the use of the latest available algorithms and parallel processing utilizing high-end hardware technologies (multiple CPUs, dual core/quad core) a perfect data quality - in particular for the generation of high-quality STL meshes - is achieved with minimal processing time and enables the user of the system to take practical advantage of the fully automatic data post-processing capabilities.

For maximum efficiency, the software can be integrated into various automated measuring applications.

The measuring results can be used for the comparison with a reference object (CAD files, approved sample part) using common inspection software packages.







SOFTWARE FUNCTION OVERVIEW

GENERAL FUNCTIONS:

- Application in 64bit technology, multi processor support, Windows XP 64bit and Windows 7 64bit compatible
- Easy to use graphical user interface with adjustable menu buttons
- Integration of video and 3d view into the main menu for a comfortable analysis and processing of the data
- Interactive and automatic control of the sensor parameters (switching between measurement modes, camera configuration, exposure fusion, non-cooperative surfaces, quality criteria, 3D preview measurement)
- Wide function variety for file management (storage in binary format, data import and export, import of CAD data)
- Easy configuration of system settings and selection of field-of-view
- Data exchange with INSPECT*plus* (optional software package) possible for the simultaneous inspection (on-line) of single views (comparison with CAD data by false-color display)

MATCHING AND TRANSFORMATION FUNCTIONS:

- Free matching of data sets based on surface structure with automated pre-alignment
- Automatic tie point matching (using a minimum of only 2 markers)
- Matching with scale bar information (for free matching and matching using tie points)
- Automatic determination of coded and uncoded photogrammetry markers *
- Automatic data matching using pre-measured reference points *
- Matching with modular reference setups
- Combination of different matching strategies within one measuring project
- Matching with tolerance settings „constraint matching"
- Group matching (interactive grouping and selection of defined areas for global matching)
- Display of matching quality using false-color-index
- Matching of data sets with different resolution and point density
- 3-2-1 alignment of coordinate system
- Bestfit alignment of measurement object to reference data (CAD)

DATA EDITING FUNCTIONS:

- Automatic post processing (conversion of point-clouds into triangle meshes, decimation and optimization in one automatic tolerance-based process)
- Automatic editing and optimization of triangle meshes (removing outliers, tolerance-based smoothing, curvature-based decimation, scaling, mirroring)
- Interactive editing of triangle meshes (hole filling, cutting, smoothing, decimating)
- Interactive and automatic calculation of cross sections
- Automatic measurement of adapters
- Interactive definition of features on CAD data (e.g., circles, long holes, fold points)
- Combined 2D/3D feature measurement

FUNCTIONS TO ENSURE SENSOR ACCURACY:

- Fast, simple and highly accurate sensor calibration on-the-spot by the user
- Service functions for control of sensor accuracy and sensor calibration
- Integrated hardware diagnosis function

EXTRAS:

- Complete range of functions can be automated using macros (VB scripts)
- COM interface for integration into automated solutions
- Automatic data acquisition using optional rotary table (data acquisition and control of hardware)

* function only available in Reference module

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