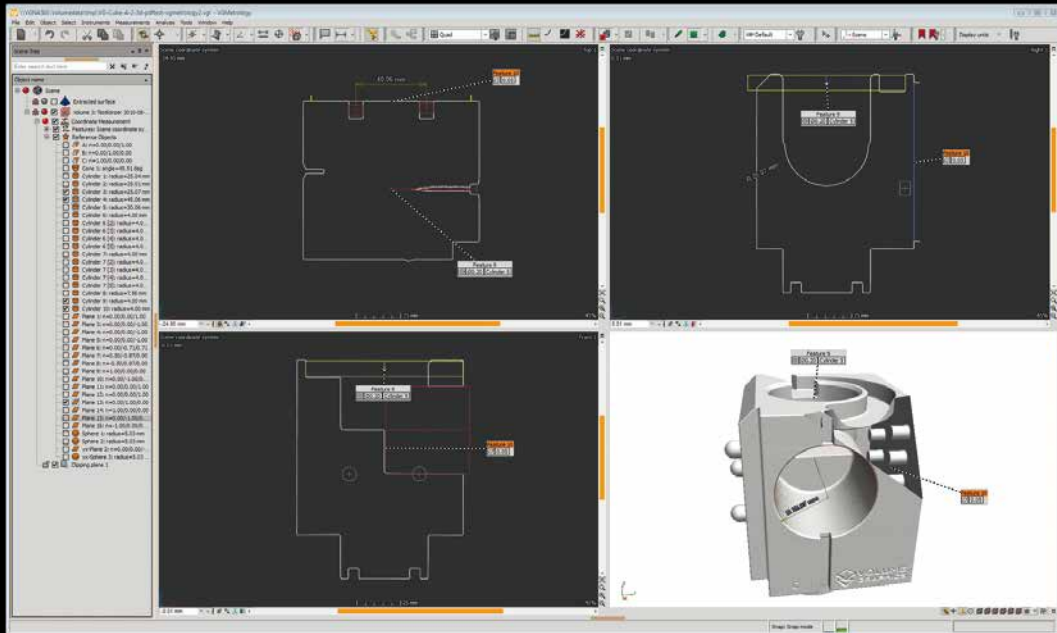




VG METROLOGY 3.0

Maximum Precision, Minimal CT Data Set Sizes



Full-featured but nonetheless easy-to-use – VGMETROLOGY is made for metrologists.

The Universal Metrology Solution

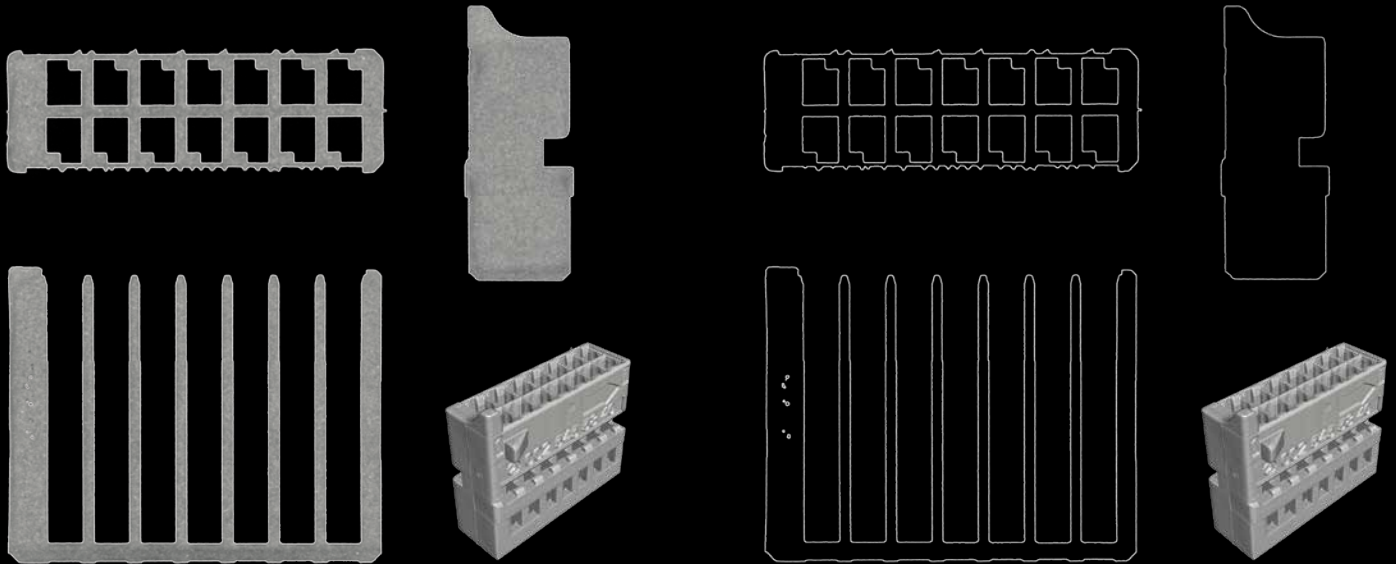
VGMETROLOGY is made for metrologists. Our universal metrology solution turns your computed tomography (CT) scanner into a comprehensive and precise metrology device.

VGMETROLOGY 3.0

- > **Full-featured.** VGMETROLOGY 3.0 offers you the full metrology-related functionality of VGSTUDIO MAX 3.0 including GD&T functionality.
- > **Uncompromisingly accurate.** VGMETROLOGY 3.0 gives you the complete picture of all object surfaces – and saves it in the very compact .mvgl format.
- > **Universal.** VGMETROLOGY 3.0 works natively on voxel, point cloud, mesh, and CAD data.
- > **Easy-to-use.** The focused range of functionality makes VGMETROLOGY 3.0 easily accessible for new users.
- > **Seamless.** You can exchange files between VGMETROLOGY 3.0 and other Volume Graphics 3.0 products.
- > **Affordable.** VGMETROLOGY 3.0 costs significantly less than a comparably equipped VGSTUDIO MAX 3.0

The Volume Graphics Metrology Kernel in VGMETROLOGY 3.0 (Windows 64-bit) has been verified by the Physikalisch-Technische Bundesanstalt (PTB).*

* PTB (Germany's national metrology institute) tested the algorithms based on the minimum-zone method ("Chebyshev") and on the least-squares method ("Gaussian"). These algorithms are used for coordinate measurement in VGMETROLOGY 3.0.



Left: conventional CT data, right: VGMETROLOGY data

CT Gives You the Full Picture – Conventional Methods Can't

In contrast to tactile and optical methods, industrial CT holistically scans all surfaces of an object, even if they are inside your part or difficult to capture.

CT is the ideal basis for metrology applications. While tactile coordinate measurement methods are also non-destructive, CT is also non-intrusive. This means measuring on CT doesn't deform the part. And unlike optical methods, CT still works accurately even if the part reflects or is translucent.

It's Time to Retire Those Meshes

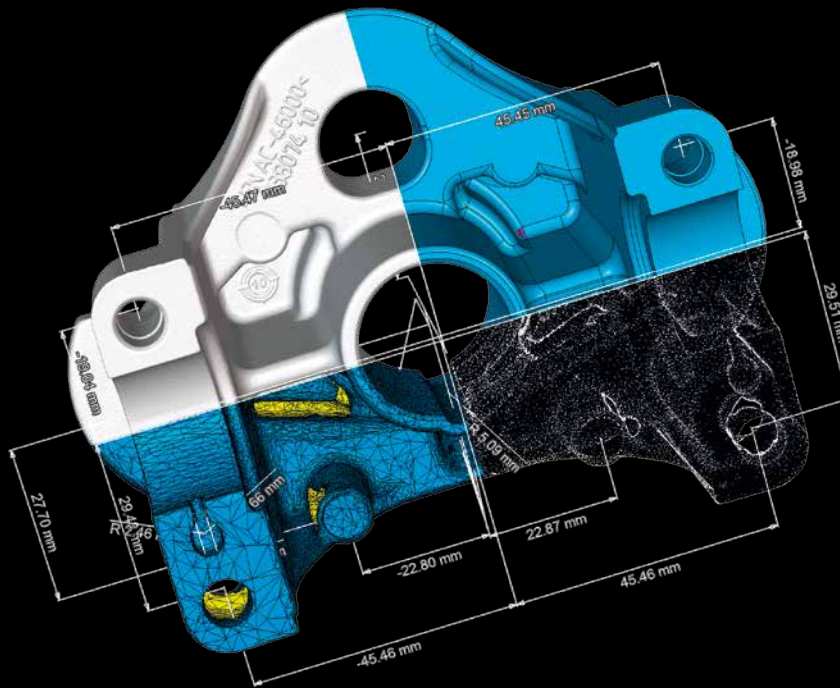
A .mvgl file contains the best possible object surface without any loss in quality.

At the same time, a .mvgl file is smaller than a .stl file with comparable precision. But unlike the .stl format, a .mvgl file is small because it contains only the surface of the object. In a .stl file, a polygon mesh approximately describes the surface of the object. The smaller the .stl file, the less accurate the mesh.

A .mvgl file contains subvoxel-accurately determined surfaces. To achieve subvoxel accuracy, VGMETROLOGY 3.0 processes the gray values of individual voxels in such a way that even those details which are smaller than a voxel become visible.*

Our .mvgl format packs everything metrologists need into one compact, easy-to-handle file. This comes in handy especially when you exchange metrology data sets over the internet.

* VGMETROLOGY ES 3.0 and VGMETROLOGY VIEWER 3.0 can work with subvoxel-precise surfaces, but don't offer surface determination.



No matter the format, VGMETROLOGY can handle it. From top left to bottom right: voxel, CAD, mesh, and point cloud data.

Equipped for All Common Measurement Methods

> Works natively with point clouds and meshes created by tactile and optical scanners in addition to voxel data

- > Loads CAD models in formats such as CATIA V5, Creo, Pro/ENGINEER – in addition to the import of STEP and IGES formats*
- > Automatically translates and intelligently evaluates additional part information that is stored in Product and Manufacturing Information (PMI), e.g., dimensioning, GD&T, layers, annotations, or captions**
- > Imports point clouds in ASCII files, .csv files, and plain text files
- > Supports mesh files in the .stl format, both ASCII-coded as well as binary-coded
- > Reduces measurement uncertainty because geometry object fitting is optimized for each supported data type (voxel, CAD, mesh, and point cloud data)

Full Metrology-Related Functionality

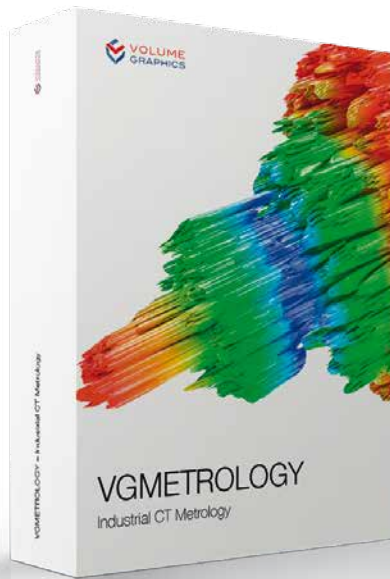
> Including GD&T (according to DIN EN ISO 1101)

- > Object registration by Best-fit, 3-2-1, RPS, or feature-based method
- > Fitting of ruled geometries
- > Nominal/actual comparisons on CAD data, mesh data (.stl), and voxel data
- > Application of tolerances to the nominal/actual comparison with various parameters, e.g., deviation (minimum, maximum, cumulated)
- > Support of Regions of Interest (ROIs), e.g., for nominal/actual comparisons
- > Macros, templates, and batch processing for automation
- > Extensive reporting functions, e.g., for test reports
- > Familiar Volume Graphics user interface

* Optional add-on module for a fee. Supported CAD formats are: CATIA V5 (R4 to V5-6R2015), Creo (Elements/Pro 5.0, Parametric 3.0). In beta status: CATIA V4 (up to 4.2.5), JT (up to 10.0), Pro/ENGINEER (up to Wildfire 5), Siemens PLM Software NX (Unigraphics V11.0 to NX 10.0), Solid Edge (V19 – 20, ST – ST8), SolidWorks (up to 2015). CAD Translation Technology supplied by Tech Soft 3D.

** Optional add-on module for a fee. PMI import is supported for CATIA V5 and Creo, in beta status also for Pro/ENGINEER and Siemens PLM Software NX. CAD Translation Technology supplied by Tech Soft 3D.

Three Versions



> **All versions of VGMETROLOGY 3.0 cost significantly less than a comparably equipped VGSTUDIO MAX 3.0.**

- > Stand-alone version VGMETROLOGY 3.0: Works with files that your CT scanner has generated (without prior surface determination).
- > Essential version VGMETROLOGY ES 3.0: Determine the surface within VGSTUDIO MAX 3.0, save the project as a .vgl or .mvgl file, and open this file in VGMETROLOGY ES 3.0 (except for surface determination, VGMETROLOGY 3.0 and VGMETROLOGY ES 3.0 are identical).
- > Viewer application VGMETROLOGY VIEWER 3.0: View projects saved in the .mvgl format, change the alignment of objects, and add basic measurements.

Features

	VGMETROLOGY 3.0	VGMETROLOGY ES 3.0	VGMETROLOGY VIEWER 3.0
Import voxel data directly from your CT scanner	✓		
Import point cloud, mesh, and CAD data	✓	✓	✓
Measure on voxel, CAD, mesh, and point cloud data	✓	✓	✓*
Automate with macros, templates, and batch processing	✓	✓	
Save projects as compact .mvgl files	✓	✓	
Open .mvgl files	✓	✓	✓
Price	Contact us for a quote!	Contact us for a quote!	Free

* Only alignments and basic measurements



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Enabling better products

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