



**VG Metrology**



**MAXIMUM PRECISION, MINIMAL CT DATA SET SIZES**



**VOLUME  
GRAPHICS**  
SOLUTIONS ABOUT VOXELS

# THE UNIVERSAL METROLOGY SOLUTION IN AN EASY-TO-USE PACKAGE

Measure on voxel data, point clouds, meshes and CAD data with *VGMetrology*, Volume Graphics' new universal metrology solution. Our easy-to-use stand-alone application turns your computed tomography (CT) scanner into a comprehensive and precise metrology device.

## VG METROLOGY IS:

- Concise. *VGMetrology* gives you the most precise picture of all object surfaces you can get – and saves it in the new, very compact .mvgf format.
- Uncompromising. With .mvgf there is no tradeoff between file size and the quality of information.
- Full-featured. *VGMetrology* offers you the full metrology-related functionality of our flagship product *VGStudio MAX* including GD&T functionality (according to DIN EN ISO 1101).
- Universal. *VGMetrology* is the first application worldwide that works on native voxel, point cloud, mesh, and CAD data.
- Easy-to-use. The focussed range of functionality makes *VGMetrology* easily accessible for new users.
- Seamless. You can exchange files between *VGMetrology* and other Volume Graphics products.
- Certified. *VGMetrology* is verified by the Physikalisch Technische Bundesanstalt (PTB), Germany's national metrology institute.
- Affordable. *VGMetrology* costs significantly less than a comparably equipped *VGStudio MAX*.



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

## HOLISTIC MEASUREMENT TECHNOLOGY

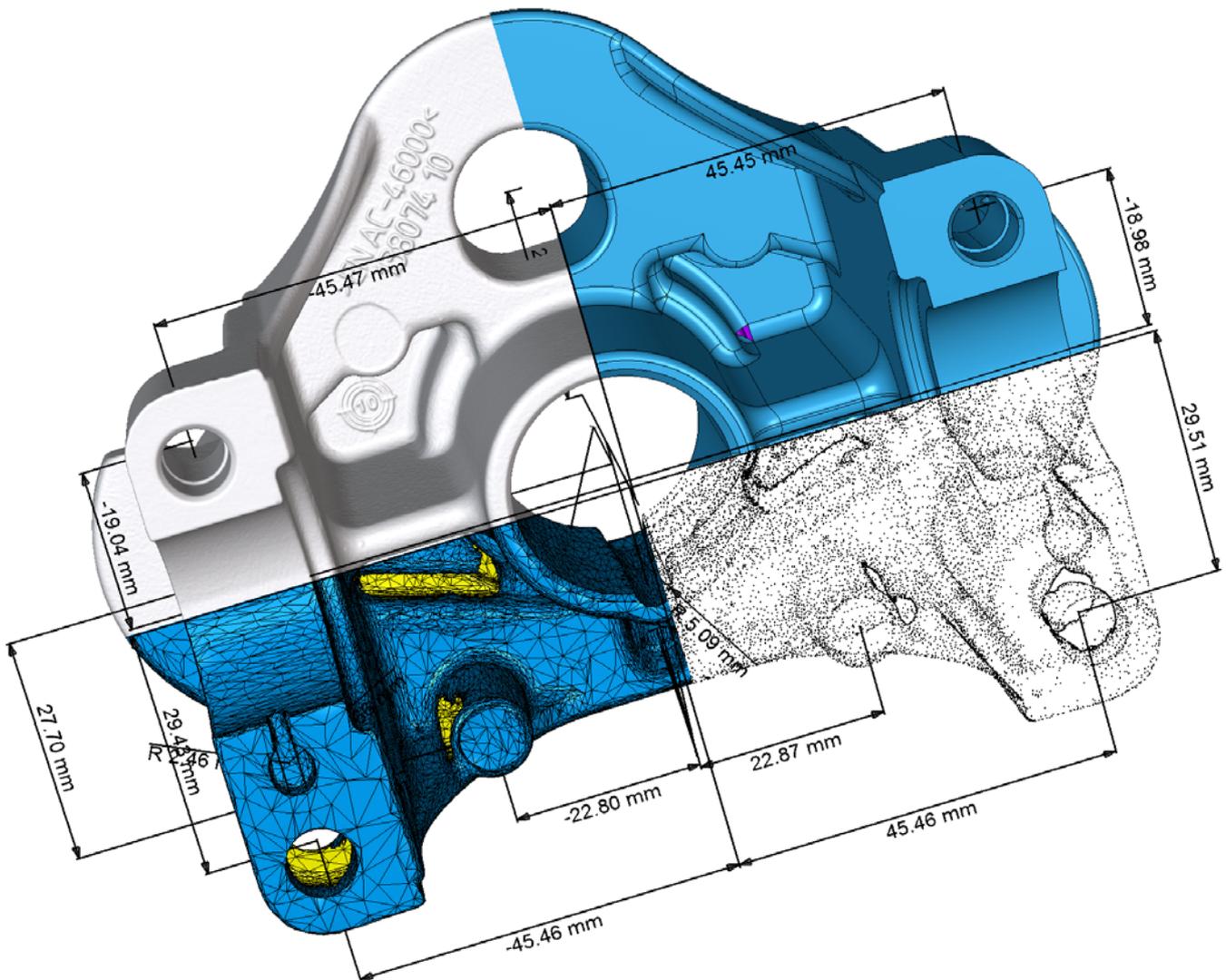
### CT GIVES YOU THE FULL PICTURE – CONVENTIONAL METHODS CAN'T

In contrast to tactile and optical methods, industrial CT holistically scans all surfaces of an object, even if they might be inside your part or difficult to capture. This makes CT the modern non-destructive testing technology of choice.

CT helps those of you working with complex parts with inner or hidden structures. While leaving the object to be examined intact, CT acquires more surface points than tactile and optical methods. As a result, a CT scan as basis for metrology applications provides more comprehensive information compared with conventional methods – in less time.

CT also has tangible benefits if you want to measure flexible or reflective materials. While tactile coordinate measurement methods are also non-destructive, CT moreover is non-intrusive. This means measuring on CT doesn't deform the part. And unlike optical methods, CT isn't prone to the influence of reflections.

You can trust in CT-based metrology with *VG Metrology*. The accuracy of *VG Metrology* is certified by Germany's national metrology institute, the Physikalisch Technische Bundesanstalt (PTB).



No matter what's the format, *VG Metrology* can handle it. From top left to bottom right: voxel, CAD, mesh, and point cloud data.

## INNOVATIVE FILE FORMAT

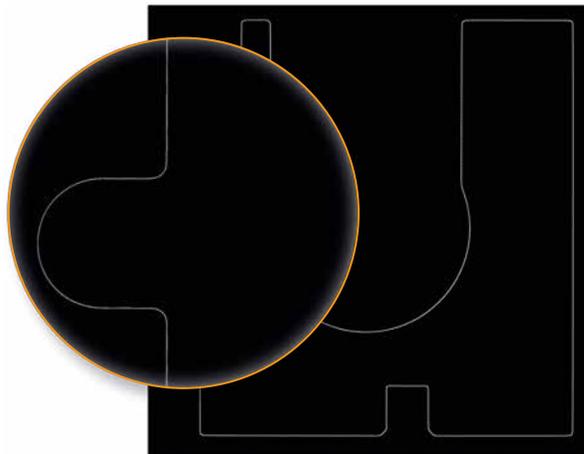
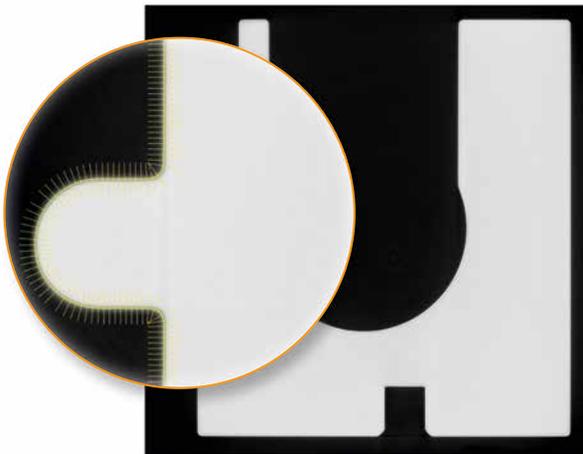
### IT'S TIME TO RETIRE THOSE MESHES

Working with a surface based on the original voxel data (.mvgl files) offers you both a precision that is hard to match with mesh data (.stl files) and small, easy-to-handle files.

The advantages of .mvgl files and the disadvantages of .stl files already lie in the nature of both formats. One – .mvgl – is subvoxel perfect and the other one – .stl – is just an approximate description of the surface of the object. In a .stl file, a polygon mesh describes the surface of the object. A small file size of a mesh limits its accuracy; the more accurate the surface is being represented by polygons, the larger the file.

Unlike the .stl format, the .mvgl format does not sacrifice information for the sake of getting the file size down. Our new file format is efficient since it contains only the surface of the object. Its files are very precise and at the same time smaller than .stl files with standard precision – without compromising the accuracy.

Our .mvgl format per se helps you getting things done more quickly. Not only does it save time by eliminating the need to convert voxel data into a .stl file, but also it packs everything metrologists need into one compact file. This 'single-file format' comes handy when you exchange metrology data sets over the internet. In combination with the full metrology-related functionality of *VG Metrology*, .mvgl enables your metrologists to work independently of the CT department.



Left:  
Conventional CT data,  
right:  
*VG Metrology* data

## TRULY UNIVERSAL

### VG METROLOGY BRIDGES THE GAP BETWEEN VOXELS AND MESHES

Its native support of not only voxel data but also point cloud, mesh, and CAD data makes *VG Metrology* unique. Metrologists can use *VG Metrology* as the one universal application for all their measurements. This direct processing of voxel, point cloud, mesh, and CAD data reduces measurement uncertainty and improves processing time.

*VG Metrology* is designed to work with them all:

- *VG Metrology* can directly import the neutral exchange formats STEP and IGES as well as native CAD file formats such as CATIA or Creo/ProENGINEER.
- To save you even more time, *VG Metrology* automatically translates

and intelligently evaluates so-called PMI (Product Manufacturing Information).<sup>\*</sup> PMI data provides additional part information, e. g., dimensioning, GD & T, layers, annotations, or captions. This makes the creation and execution of measurement plans faster and thus increases the efficiency of your quality control.

- *VG Metrology* supports the import of point clouds provided in ASCII files, comma-separated value files, and plain text files. The support of mesh files in the .stl format includes both ASCII coded as well as binary coded files.
- Measure on all formats. *VG Metrology* reduces measurement uncertainty by treating voxel, CAD, mesh, and point cloud data differently in the fitting process.

<sup>\*</sup> Supported CAD formats are: CATIA V5 (R4 to V5-6R2013), Creo (Elements/Pro 5.0, Parametric 2.0). In beta status: CATIA V4 (up to 4.2.5), JT (up to 9.5), Pro/ENGINEER (up to Wildfire 5), Siemens PLM Software NX (Unigraphics V11.0 to NX 8.5), Solid Edge (V19 – 20, ST – ST6), SolidWorks (up to 2014). PMI import is supported for CATIA V5 and Creo. In beta status also for Pro/ENGINEER and Siemens PLM Software NX.

# HERE'S WHY YOU SHOULD USE VGMETROLOGY

## GREAT DEAL

### VGMETROLOGY ISN'T ONLY UNIVERSAL, IT'S ALSO AFFORDABLE

You can get *VGMetrology* as a stand-alone product (*VGMetrology*), as an 'Essential Version' (*VGMetrology ES*), or as a free viewer application (*VGMetrology VIEWER*). So which version should you get?

If you're a first time industrial CT user, our stand-alone version of *VGMetrology* is most likely the right choice. It comes with voxel, point cloud, mesh, and CAD import features. Its voxel importer understands files that your CT scanner has generated on its own. Macros, templates, and batch processing can be used for automation.

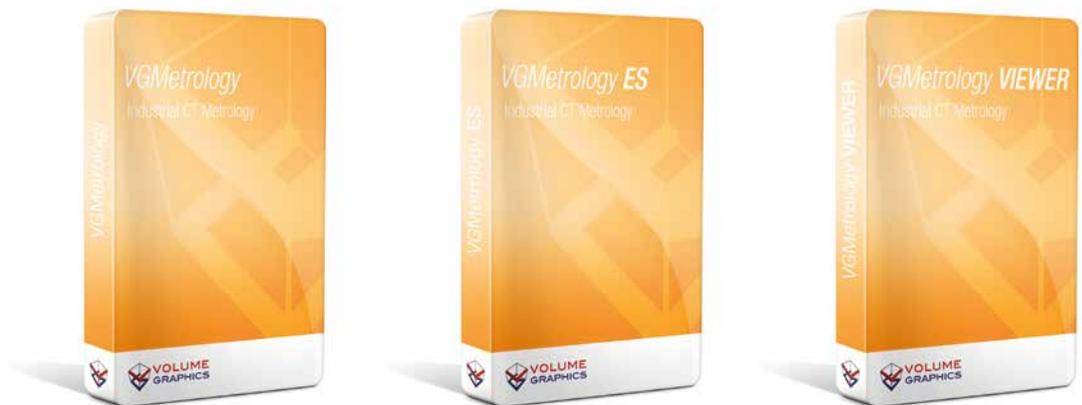
If you already work with .vgl files – either because you or your CT scanning service provider have access to the latest *VGStudio MAX* version with an installed Coordinate Measurement Module – *VGMetrology ES* is the application of choice. As usual, you determine the surface within *VGStudio MAX* and save the project as a .vgl file.

This file you can then open with *VGMetrology ES* for performing all of your subsequent metrology tasks. Point cloud, mesh, and CAD import as well as automation features are available in *VGMetrology ES* just like in the stand-alone *VGMetrology* version.

If you want to view projects already created with *VGMetrology* or *VGMetrology ES*, you can use the free *VGMetrology VIEWER*. It even allows to change the alignment of objects or add basic measurements.

With the upcoming version of *VGStudio MAX* you will even be able to save projects directly in the compact .mvgl format.

Every version of *VGMetrology* costs significantly less than a comparably equipped *VGStudio MAX*. How much? Just contact us for a quote!



#### FEATURES

#### *VGMetrology*

#### *VGMetrology ES*

#### *VGMetrology VIEWER*

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

## VOLUME GRAPHICS

Volume Graphics GmbH, founded in 1997, develops market-leading software for the analysis and visualization of industrial computed tomography data. Today, thousands of companies across diverse industries use our software. They analyze, inspect and measure objects in research, production and quality assurance. Our customers value our software's unique ability to display and analyze voxel, point cloud, mesh, and CAD data within one application.

*VGStudio MAX* is our extendable high-end software; *VGStudio* offers a budget entry into the world of CT data analysis and visualization; *VG InLine* brings industrial CT in or close to the production process; *VG Metrology* turns a computed tomography scanner into a comprehensive and precise metrology device; and *myVGL* is the free, universal CT data viewer.

Our customers get more than support: We offer training courses and partner certification in our VG Academy, consulting services in all aspects of industrial computed tomography, and custom development projects in the fields of analysis, visualization, and processing of volumetric data.



Visit our website to learn more about our software, support and training opportunities, custom software development and consulting services.

### HEADQUARTERS

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