KOTEM

SmartProfile | Comprehensive GD&T Evaluation Software
For Manufacturing Quality Control

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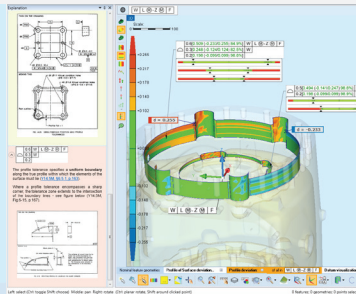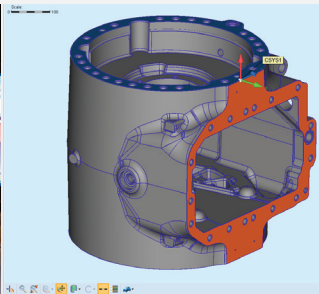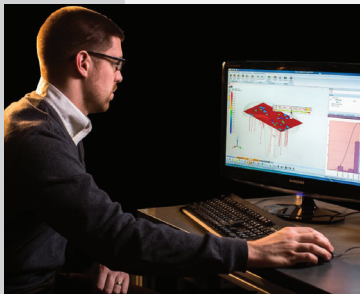
SmartProfile

SmartProfile® from KOTEM is the world's leading dimensional analysis software used by manufacturers all around the world. SmartProfile takes point clouds from part measurements performed on any measurement system, combines that data with the nominal CAD model of the part and automatically generates GD&T evaluation. SmartProfile also offers an option to allow the GD&T values to be translated back to manufacturing machine coordinates.

SmartProfile Benefits

- Model-based interface naturally leads project workflow from importing data to generating the report.
- Provides guidance for adding or modifying part design tolerances based on actual part inspection results.
- Eliminates results variability caused by using different evaluation techniques and/or metrology software.
- Eliminates human error caused by incorrect interpretation of the GD&T standards.
- Quickly assess part tolerances and process to improve production.
- Optimize enterprise resources by separating part measurements from the tolerance evaluation process.

Easy to Use GD&T Evaluation

SmartProfile makes it easy to set up a new project to analyze product tolerances.

| Import CAD Model	Define Standards	Import Measured Points	Save Results

- **Import** CAD model - compatible with multiple standard formats such as IGES, STEP, or STL.
- **Define** which GD&T standard applies: AMSE Y14.5 - 1994, AMSE Y14.5 - 2009, or ISO 1101.
- **Import** measured points from any source: CMM, laser scan, CT, and others. Manage point cloud using Data Preparation tool when necessary.
- **Save** results as a SmartProfile project.

GD&T Standards and FCF Editor

A powerful GD&T engine is applied that provides all major GD&T Standards (ASME Y14.5M-1994, ASME Y14.5-2009, ISO 1101) and Least Squares evaluation technique, supporting multi-tier tolerances, complex, compound datum and standard symbols in Feature Control Frames.
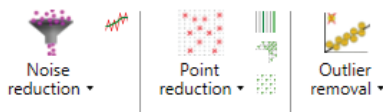
Data Preparation Tool

Data Preparation allows importing and handling of scan measurements with large numbers of points.
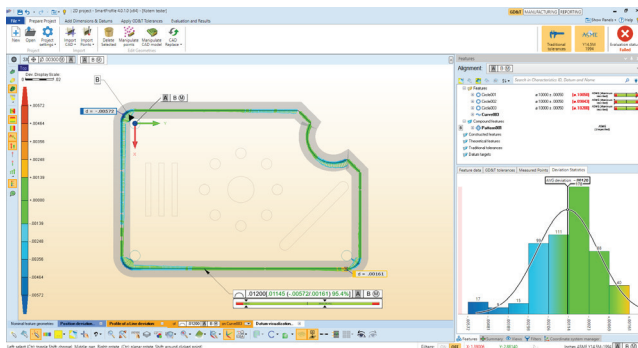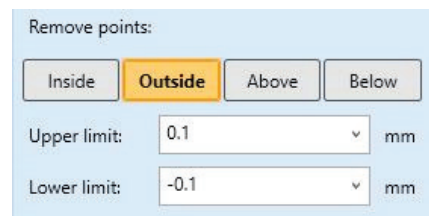

Deviation coloring while processing points: source vs. result coloring or CAD vs. result point deviation coloring.
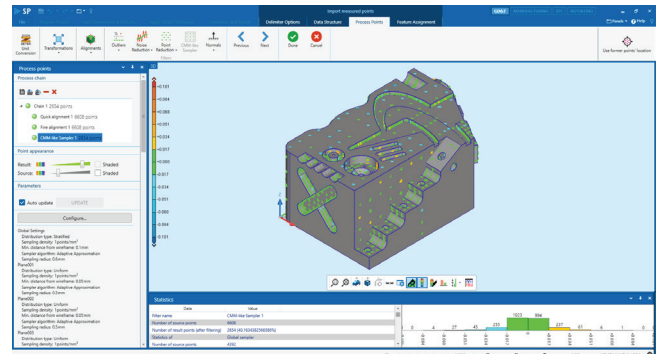
A **CMM-like sampler** tool for extracting reliable measurement points from dense and noisy point clouds.
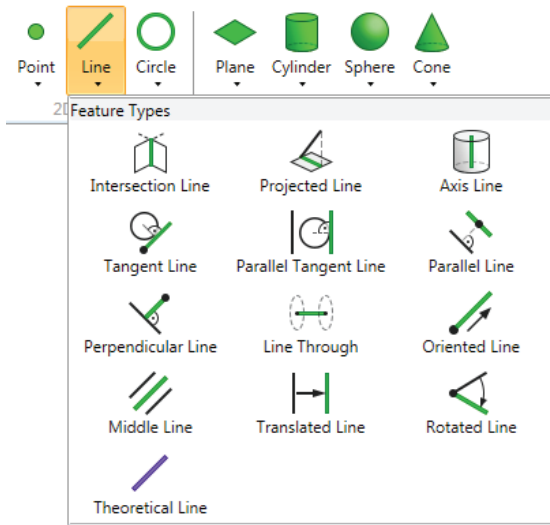

Noise Reduction enhanced with surface and curve based options, depending on the point structure.

Filter by Deviation tool for eliminating outliers, islands and unnecessary points based on the deviation from the CAD model.
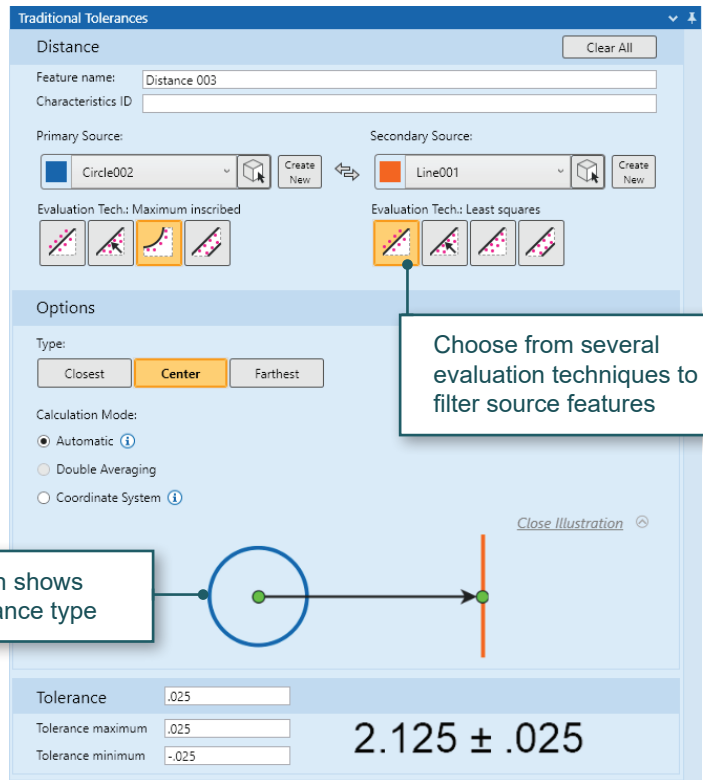
Constructions

Construct new features from existing CAD geometries.


Traditional Tolerances

Define plus-minus distance and angle tolerances.

- Distance and angle between two arbitrary features can be created.
- Angle of a selected cone can be defined.

Choose from several evaluation techniques to filter source features

Distance illustration, which shows the properly selected distance type

$$2.125 \pm .025$$

Enhanced Features of SmartProfile
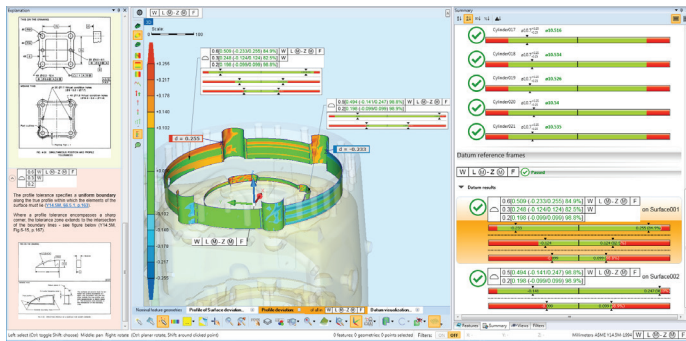
Global Alignment

Global Alignment deviation mode supports the ability to visualize sample deviations on a color map, locate deviation labels and document those deviations as part of the completed report.

Enhanced QuickAlign

Enhanced QuickAlign and Finalize Assignment algorithm automatically detects outliers resulting in a much more robust and proper fit.

Update CAD Revisions

Ability to replace the old CAD model with a new one:

- If the CAD model is modified, it can be easily updated in the project. No need to create a new project with the new CAD model from scratch, this feature allows import and export label positions.
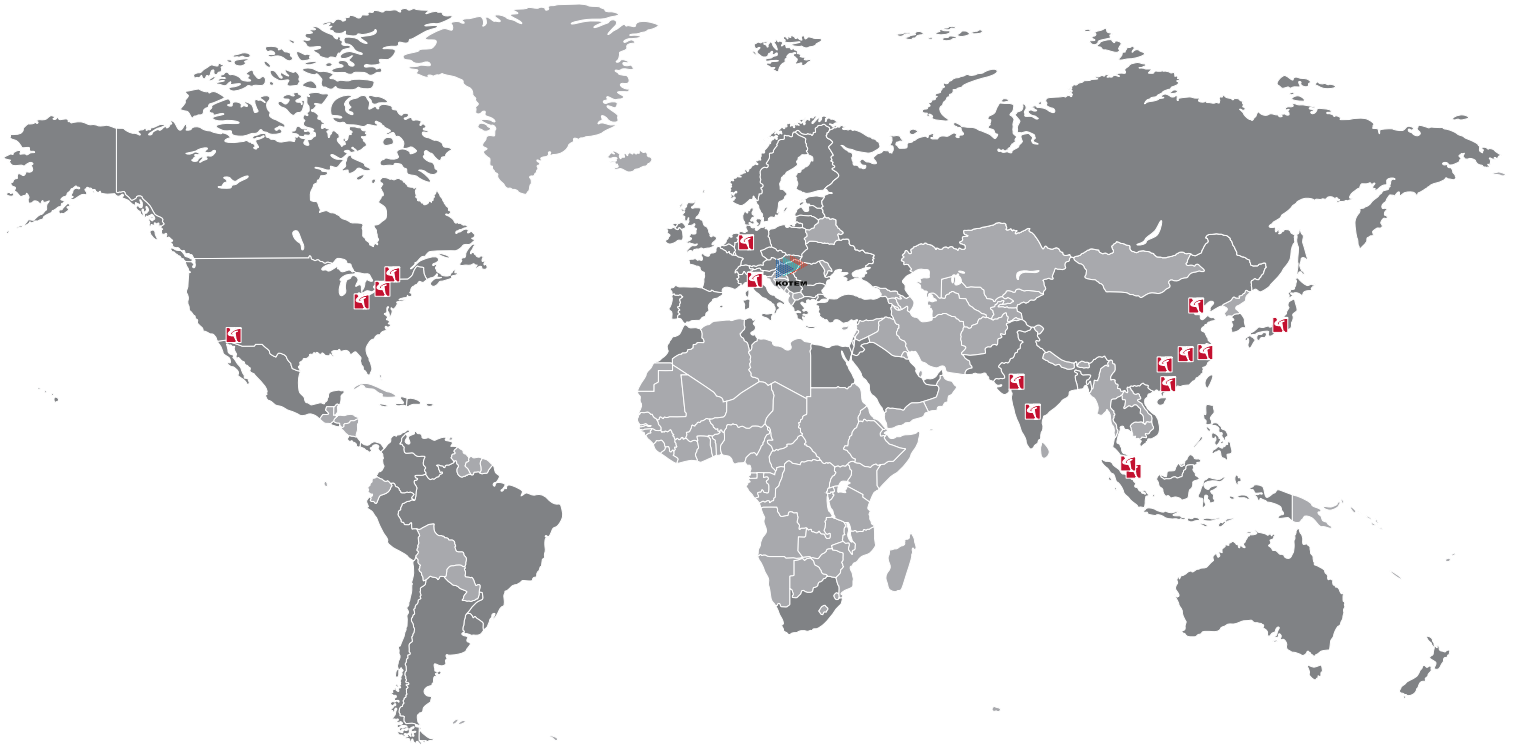
KOTEM

The leader in dimensional analysis software

KOTEM is the worldwide leader in dimensional analysis software. Our family of advanced GD&T and fitting software helps manufacturers integrate quality inspection data with their manufacturing and design work flows. KOTEM is a Quality Vision International company.

QVI® (Quality Vision International) is the world's largest vision metrology company. Founded in 1945, QVI is the world leader in optical, electronic and software technologies for vision and multisensor measuring systems.

To learn more about the SmartProfile family go to www.kotem.com/smartprofile

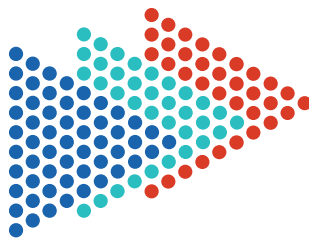SmartProfile is fully compliant with all internationally accepted GD&T Standards:

ASME
SETTING THE STANDARD
ASME Y14.5M-1994

ASME
SETTING THE STANDARD
ASME Y14.5-2009

ISO
ISO 1101

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