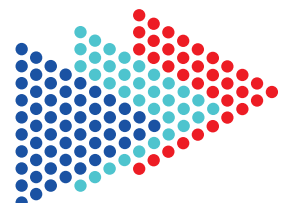
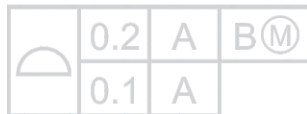
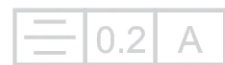
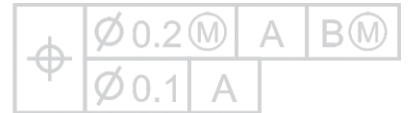
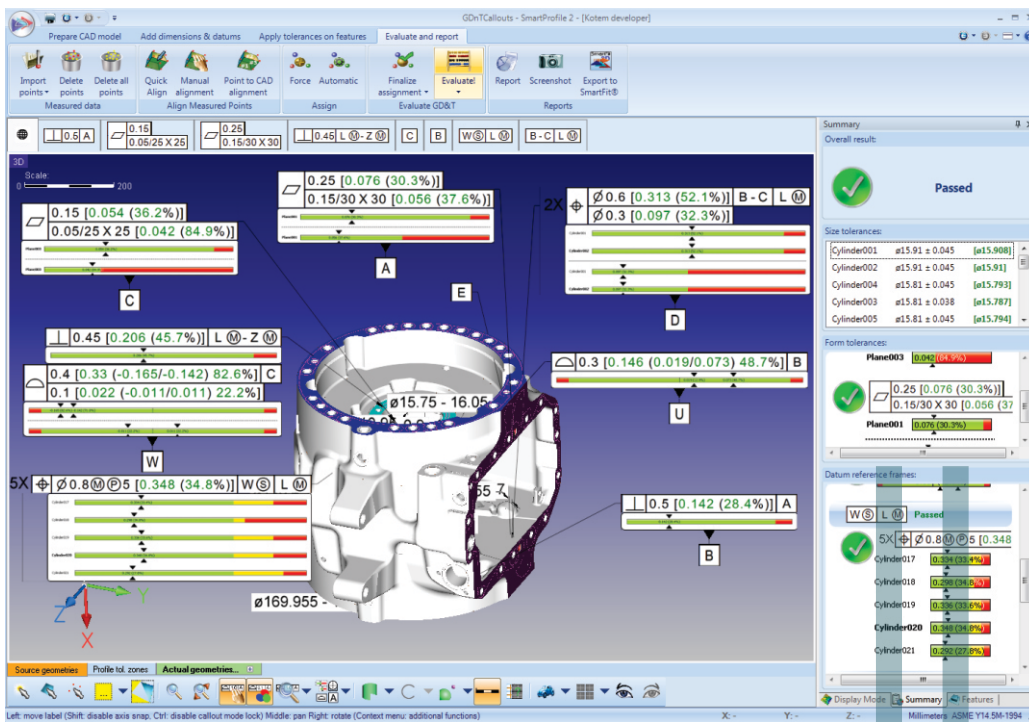


SmartProfile 2

High-Powered GD&T
Evaluation &
Fitting Software



KOTEM
A Division of Quality Vision International



SmartProfile 2 Graphical User Interface

- Project with a CAD model and GD&T callouts
- Imports measured data from any measurement system
- Icon-driven navigation
- One-click Evaluation
- Graphical results visualization
- Simple reporting in several file formats
- Easy integration into the production line

SmartProfile 2

Innovative GD&T Evaluation & Fitting Software

SmartProfile® takes point clouds of data from part measurements performed on any measurement system, merges that data with the nominal CAD model of the part with GD&T tolerances, and automatically performs a results evaluation based on those tolerances.

SmartProfile cleanly deals with the optimization of all types of tolerances, and allows you to optimize results for true compliance with ASME Y14.5 and Y14.5.1 standards.

Any number of common-format CAD files can be imported into a SmartProfile project. SmartProfile can then perform several operations on the 3D model, including:

- Dimensioning of form and/or pattern features
- Simple assignment of Datums
- Easy application of GD&T tolerances on features, using an intuitive Feature Control Frame editor

All types of GD&T tolerances, including form, profile, orientation, location, and runout, are supported in SmartProfile.

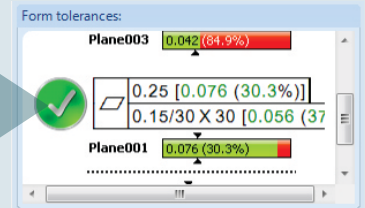
Point Cloud Overlay

Once the CAD model has been dimensioned, datums defined, and GD&T tolerances applied, measured data may be imported and overlaid upon the model. The point cloud may be aligned to the model manually or automatically.

SmartProfile then compares the measured data with the nominal model and determines whether the measured feature is within tolerance. A color-coded chart indicates the status for each measured feature in a go-no go format, and also shows the magnitude of tolerance deviation. Reports may be printed out or exported to a number of file formats for further analysis or distribution.

Scripting Support

SmartProfile supports scripting to integrate the automated evaluation process into the production line. Script Wizards drive through the script definition steps for the most common workflows. Customized scripts (Python or C#) are also supported for specialized integration tasks, out of the built-in workflows.



Graphical Results

- Indicates tolerance status for each feature
- Specifies percentage of the tolerance used for each feature

It's as Easy as 1-2-3-4

Though extremely powerful, SmartProfile is intuitive, approachable, and very easy to use. The process is as follows.



Import the CAD model into SmartProfile.



Enter tolerances, as called out on the engineering drawing, into SmartProfile.



Import measured data into SmartProfile.

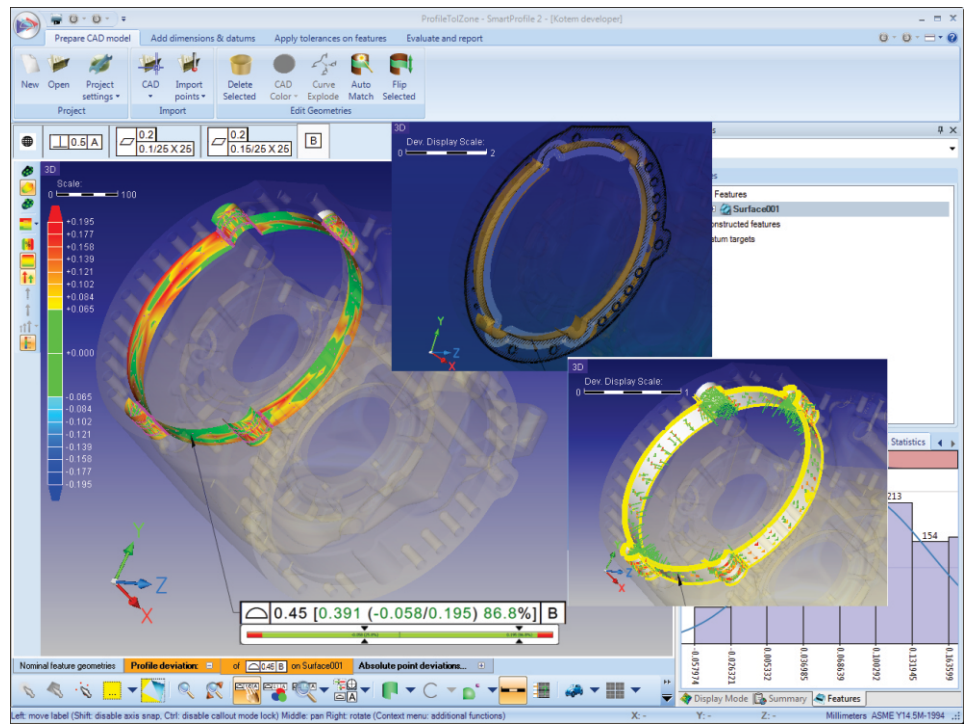


Click on the SmartProfile Evaluate button.

That's all there is to it! SmartProfile does the rest.

SmartProfile 2 Exclusive Functions

- Point importing wizard with built-in, reusable filter chain for easier data preparation
- Easy-access toolbar with enhanced visualization modes
- Profile or Surface tolerance zone visualization in a user-specified cross-section
- Zooming in deviation statistics
- QC-Calc™ statistical reporting
- Visual script wizard, and powerful scripting with Python and C#
- Easy data exchange from SmartFit to 3D fitting software



SmartProfile 2

What is SmartProfile?

SmartProfile is the first stand-alone 2D/3D GD&T automatic evaluation software package that is fully compliant with ASME Y14.5/1994 and ISO 1101 standards. It provides an interactive framework for the intelligent and automatic GD&T evaluation of measured data in accordance with these standards. Since SmartProfile uses ANSI/ISO-approved fitting methods, it is easy to apply engineering print GD&T tolerances to the model — and fit the measured data.

What kind of inputs can SmartProfile use?

SmartProfile can import a number of popular CAD formats, including IGES, STEP, VDA, and STL files. Some native CAD formats are importable, too, via an optional converter module.

SmartProfile accepts measured data from virtually any measuring device — even with or without tip radius compensation (for tactile data points). Built-in point preprocessing tools are available to accept millions of points and reduce them to a reasonable size.

How does SmartProfile analyze the data?

SmartProfile takes the burden of standards interpretation off the shoulders of the user,

and provides an evaluation solution even in the most difficult cases.

SmartProfile can evaluate surface profiles or geometric tolerances against Datum Reference Frames, with —

- Compound datums
- Pattern datums
- Datums at MMC/LMC
- Partially constrained degrees of freedom
- Composite tolerance zones

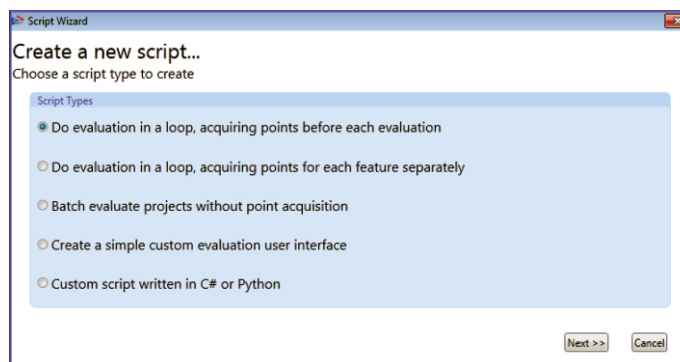
SmartProfile Feature Control Frames are grouped by their Datum Reference Frames, and may be evaluated with or without a “simultaneous requirement.”

What is the output of SmartProfile?

SmartProfile produces results numerically/statistically, and also through easy-to-interpret color maps. Reports may also be exported to several file formats, including PDF, CSV, HTML, or plain text format.

Why SmartProfile?

SmartProfile provides an intuitive evaluation workflow, from importing measured data to generating reports. The evaluation is compliant with industry-accepted standards, because SmartProfile uses ANSI/ISO-approved fitting methods. Also, a scripting environment aids in the integration of automated evaluation into the production line or batch evaluation.



SmartProfile supports scripting to integrate automatic evaluation into the production line, with Script Wizards driving through the script definition steps for common workflows.



Tolerance types supported in SmartProfile —

Position

	$\varnothing 0.2 \text{ (M)}$	A	B (M)
	$\varnothing 0.1$	A	

Surface profile

	0.2	A	B (M)
	0.1	A	
	0.05		

Straightness

	0.1
	0.1 / 20

Flatness

	0.2
	0.1 / 10x100

Circularity

	0.05
--	------

Cylindricity

	0.1
--	-----

Concentricity

	0.1	A	B
--	-----	---	---

Symmetry

	0.2	C
--	-----	---

Line profile

	0.2	A	B
--	-----	---	---

Angularity

	0.1 (T)	A
--	---------	---

Perpendicularity

	0.2	A
--	-----	---

Parallelism

	0.05	A
--	------	---

Circular runout

	0.2	B
--	-----	---

Total runout

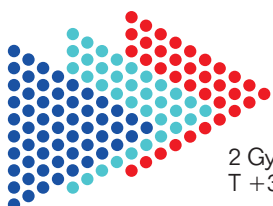
	0.15	A
--	------	---

The KOTEM Vision —

Revolution in metrology

Correctness in evaluation

Simplicity in application



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