



PolyWorks | Inspector™

From product engineering to manufacturing —
a 3D metrology solution to gain control of the entire process

PolyWorks|Inspector is a powerful industrial 3D metrology software solution to control tool or part dimensions, diagnose and prevent manufacturing and assembly issues, guide assembly building through real-time measurements, and oversee the quality of assembled products by using non-contact point cloud digitizers and single-point contact-based probing devices.

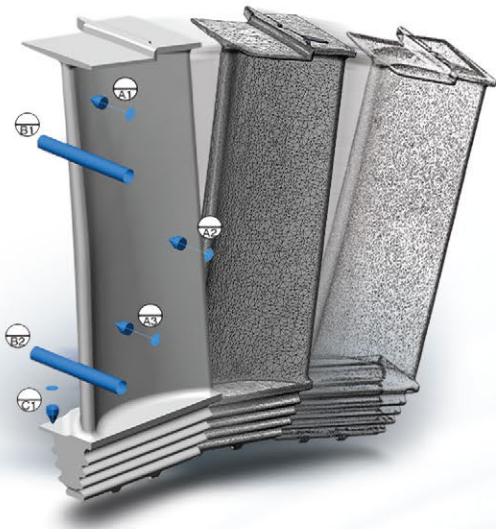
Align

Get the alignment right

Inspecting and analyzing a measured part is only possible if the digitized data is properly positioned and oriented in 3D. Typically, a measured part is aligned to its nominal CAD model to enable the extraction and comparison of nominal and measured dimensions. It can also be assembled with the surrounding mating parts in virtual 3D to check for interference issues or to analyze flush and gap deviations.

PolyWorks | Inspector offers a broad range of part alignment techniques that let users construct alignments with:

- Surfaces or cross-sections (measured-to-nominal best-fit, constrainable in rotation/translation, and within tolerance zone)
- Features (3-2-1, pairs of center points, and GD&T datum reference frames)
- Reference points and lines (RPS, surface points, and six-point nest)
- Virtual gauges (caliper, flush & gap, and airfoil)



Measure

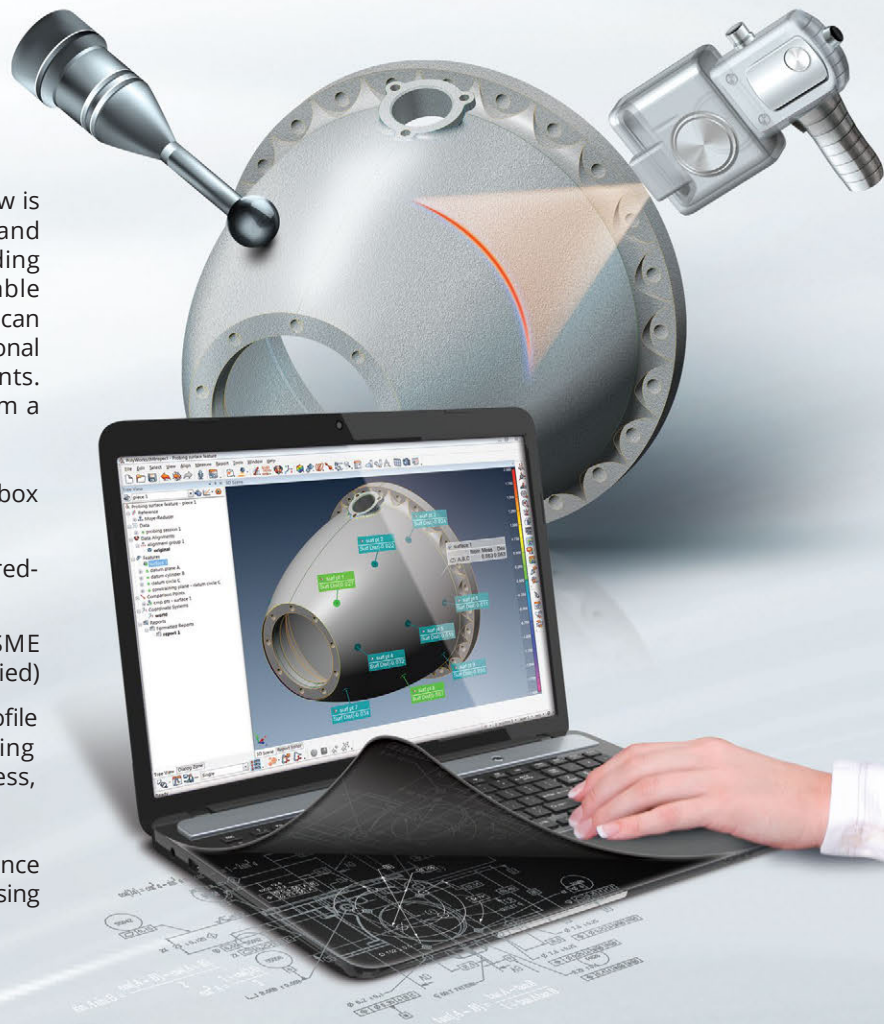
Extract all required dimensions

At the core of the PolyWorks | Inspector workflow is the extraction of measured part dimensions and computing the deviations to their corresponding nominal dimensions. Thanks to the remarkable flexibility integrated into PolyWorks, dimensions can be extracted from measured point clouds, polygonal models built from point clouds, or probed points. Nominal dimensions can also be extracted from a CAD model or a measured reference part.

PolyWorks | Inspector delivers the complete toolbox you need to extract and analyze:

- Surface, boundary, and cross-sectional measured-to-nominal deviations
- Feature dimensions and GD&T controls (ASME Y14.5-2009 and ISO 1101, as well as PTB certified)
- Advanced dimensions such as flush and gap, profile radius, airfoil dimensions (leading edge, trailing edge, and global), assembly clearance, thickness, and more

PolyWorks | Inspector also offers real-time guidance to accurately build and inspect fixtures and jigs using single-point measurement devices.



Report

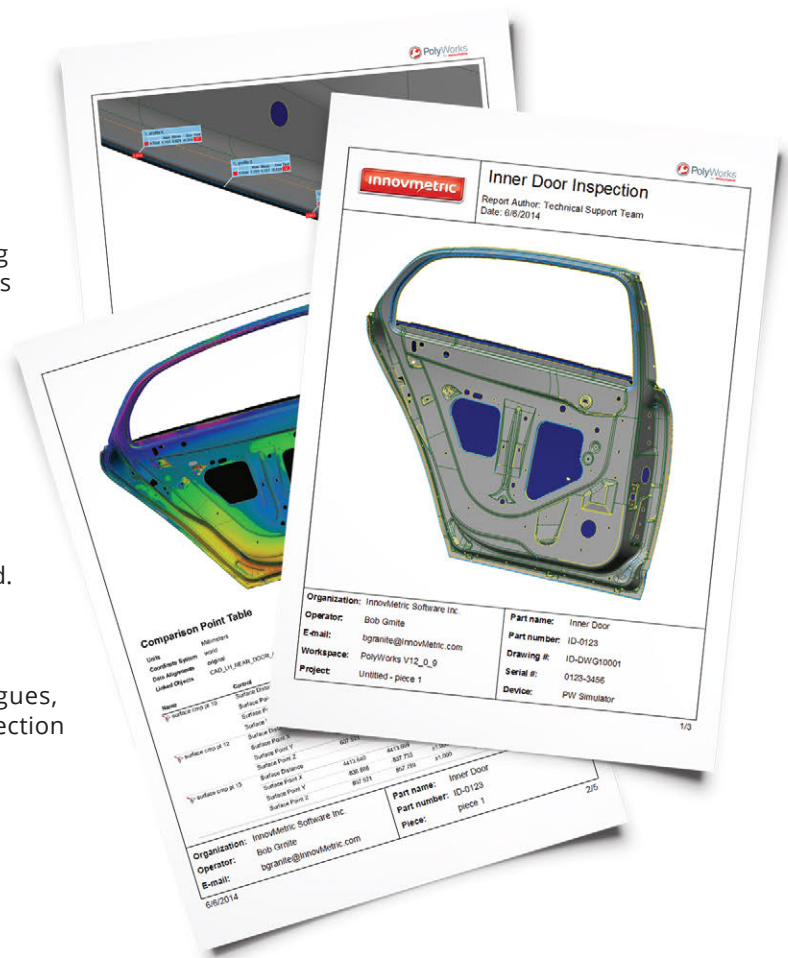
Generate updateable reports

PolyWorks|Inspector provides an outstanding updateable reporting technology that guarantees the exactness of a report and dramatically accelerates multipiece inspection.

Report items, such as 3D scene screenshots and result tables, are automatically updated if a project is altered. You can modify the parameters of a project, or replace the measured data points of the current piece by the data points from a new piece, knowing that the entire inspection report will be automatically updated.

Share inspection results

The PolyWorks|Viewer enables your colleagues, managers, and suppliers to review your inspection projects in 3D.



Multiple piece inspection

Simplify the inspection of multiple pieces

Preparing an inspection project for a multi-piece inspection task has never been this easy. With DirectReplay™, PolyWorks|Inspector literally does the work for you.

- 1 Create an inspection project and a report for a first piece.
- 2 Let DirectReplay automatically replay the same inspection on subsequent pieces.
- 3 Focus on acquiring the 3D measurement data of the new pieces with your point cloud digitizer, single-point measurement device, or both.

Thanks to the relational inspection architecture of PolyWorks|Inspector, zero teaching is now a reality.

Monitor your process with statistical process control (SPC)

Thanks to its multipiece project format, PolyWorks|Inspector is capable of automatically computing and updating an SPC database of multi-piece statistics for object dimensions and surface deviations. SPC databases and related analysis tools, including trend charts and statistical color maps, are very powerful tools to diagnose manufacturing or assembly issues, or to approve a tool or a part before production.

	PROBING	STANDARD	PREMIUM
Single-point measuring device support	•	•	•
Point cloud digitizer support		•	•
Point cloud meshing			•
IGES/STEP neutral CAD file translator	•	•	•
Part alignment toolset	•	•	•
Dimensional control toolset	•	•	•
Smart GD&T toolset	•	•	•
One-year support	•	•	•

AVAILABLE OPTIONS

Native CAD file translators	Option	Option	Option
Airfoil gauges	Option	Option	Option

Single-point measuring device support: All available plug-ins for articulated arms, optically tracked probes, laser trackers, manual CMMs, and theodolites

Point cloud digitizer support: All available point-cloud-digitizing plug-ins and import capabilities for a wide range of native point cloud file formats for laser line scanners, fringe-projection digitizers, long-range spherical grid scanners, and more

Point cloud meshing: Transformation of digitized point clouds into polygonal models, including real-time quality meshing for online processing while laser scanning a part, and offline meshing of point cloud data files

IGES/STEP neutral CAD file translator: Import of IGES and STEP files

Part alignment toolset: Powerful set of data-to-CAD alignment techniques that include constrained surface and cross-sectional best-fit, best-fit within tolerance, as well as techniques based on features, reference points, flush and gap gauges, and more

Dimensional control toolset: Widest range of dimensional control tools on the market for a complete analysis of surface, boundary, and cross-sectional deviations, feature dimensions, flush and gap, profile radius, clearance, thickness, and more

Smart GD&T toolset: GD&T engine based on algorithms prescribed by the ASME Y14.5-2009 and ISO 1101 standards, advanced Datum Reference Frame capabilities (supports datum feature patterns, composite datum features, and datum targets), tolerance zone size and mobility modifiers, radial and slab-like tolerance zones, and more

Native CAD file translators: Optional translators to import CAD models produced by professional CAD solutions: CATIA V6/V5, CATIA V4, NX (UG), Creo (Pro/E), Inventor, Parasolid, and SolidWorks

Airfoil gauges: Optional comprehensive dimensional analysis solution for fan, compressor, and turbine blades

What you get with your purchase

One year of support/maintenance that includes:

- New major PolyWorks releases launched during the year
- Monthly intermediate releases that include software enhancements, bug fixes, and plug-in updates
- Assistance from our technical support team by e-mail and telephone
- Access to the Technical Support Zone

