PolyWorks®

10

Products | PolyWorks | PolyWorks/Inspector™

1. Short Description:

PolyWorks|Inspector™

PolyWorks/Inspector™ is a powerful software solution that uses high-density point clouds to control the quality of castings/dies/molds and to approve manufacturing processes through prototype, first-article, manufactured, and assembled parts inspection. PolyWorks/Inspector offers a complete toolset for comparing forms and profiles (part-to-part and part-to-CAD), and includes the most complete GD&T analysis capabilities on the market, as well as the widest array of soft-gauging tools.

PolyWorks/Inspector offers unprecedented automation capabilities with its macro recorder and user-friendly scripting language. One click of a mouse can execute an entire inspection sequence and generate detailed and customized inspection reports.

2. Detailed Description

Total point cloud inspection solution

In today's fast-paced environment, quality engineers need a comprehensive set of tools for analyzing and correcting complex manufacturing problems. Through the years, PolyWorks/Inspector™ has proven to be the most complete software solution available to analyze and respond to these everyday challenges.

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PolyWorks/Inspector offers unprecedented automation capabilities with its macro recorder and user-friendly scripting language. One click of a mouse can execute an entire inspection sequence and generate detailed and customized inspection reports.

The complete PolyWorks|Inspector solution allows you to:

- Precisely align any scanned object to its reference model;
- Compare a digitized object to its reference model for extensive form and profile analysis;
- Apply advanced Geometric Dimensioning and Tolerancing (GD&T) analysis on

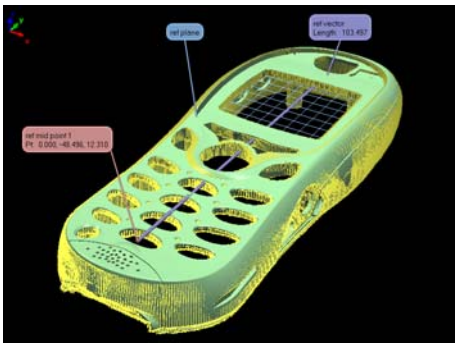
point clouds;

- Extract accurate measurements directly from digitized parts using sophisticated software-based gauging tools;
- Automate your inspection processes through powerful macro-programming capabilities;
- Create meaningful inspection reports through a rich set of building blocks.

Precisely align any scanned object to its reference model

Prior to comparing digitized data to a CAD model or to the surface of another scanned object, users need to bring the data points into the coordinate system of the reference model. PolyWorks/Inspector offers a sophisticated set of point-to-surface alignment techniques, including:

- Intelligent best-fit
- Feature-based and 3-2-1 alignment
- Alignment based on reference points (RPS or datum targets)

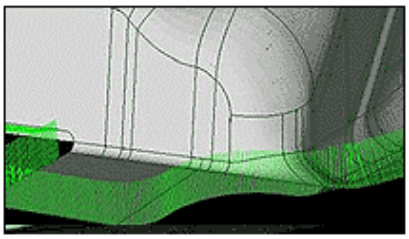


Alignment using circles, cones, cylinders, planes, points, rectangles, regular polygons, slots, spheres, and vectors

All techniques can be fully automated and constrained for optimizing specific degrees-of-freedom.

Compare a digitized object to its reference model for extensive form and profile analysis

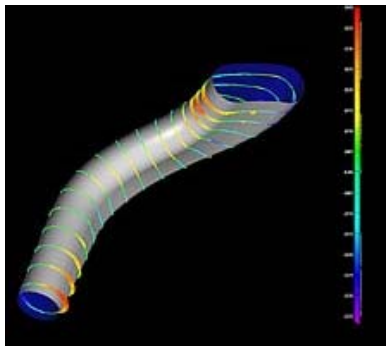
As unknown problems are difficult to understand and characterize, quality engineers require many tools to tackle their real-life applications. PolyWorks/Inspector allows you to quickly compare your digitized point clouds to their reference models through a wide range of part-to-CAD and part-to-part comparison techniques. PolyWorks/Inspector's ability to handle large datasets of up to 100 million points gives you a complete source of information for your global analyses.



PolyWorks/Inspector peut calculer la plus courte distance entre un nuage de points numérisés sur le pourtour d'un objet et les courbes frontières d'un modèle CAO

PolyWorks/Inspector offers an extensive set of comparison techniques for comparing forms and profiles, including:

- Global comparison to CAD surface or



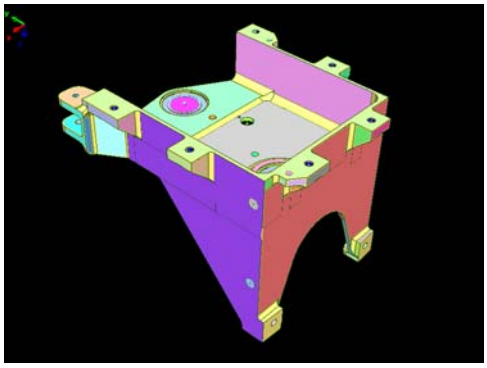
Vue 3D de 16 profils sur un tuyau diffuseur

boundary
- Cross-sectional analysis
- Interactive measurements
- Report by comparison points

Apply advanced Geometric Dimensioning and Tolerancing (GD&T) analysis on point clouds

Geometric Dimensioning and Tolerancing (GD&T) is a methodology used by design engineers to specify design requirements, and communicate to quality control specialists in a non-ambiguous way what dimensions needs to be measured and how they should be measured.

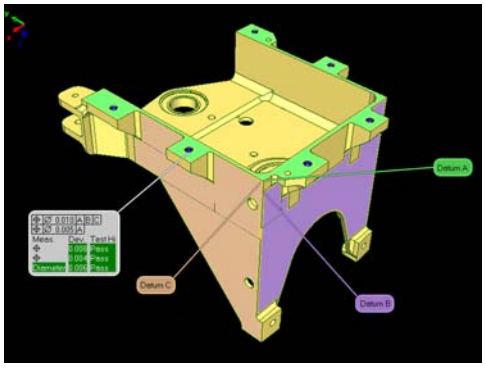
PolyWorks' implementation of GD&T methodology allows you to program your GD&T inspection process using CAD geometry, then automatically extract all measurements required directly on the digitized point clouds.



Automatic feature extraction

PolyWorks/Inspector offers the most advanced set of tools for GD&T analysis, including:

- Automatic feature extraction from CAD models
- Automatic feature fitting on point clouds
- Automatic datum-based alignment for True Position
- Full support of feature patterns
- ANSI/ISO compliant GD&T annotations
- GD&T and tolerance templates for quick and efficient GD&T programming



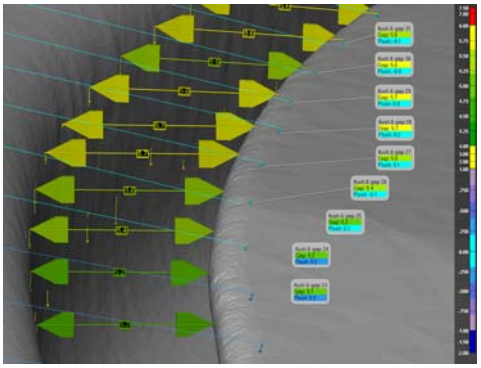
Automatic datum-based alignment for True Position

Extract accurate measurements directly from digitized parts using sophisticated software-based gauging tools

PolyWorks/Inspector software-based gauging tools virtually replicates typical physical gauging inspection techniques in a fraction of the time, and yield superior results at a fraction of the cost.

PolyWorks/Inspector soft-gauging tools include:

- Programmable Flush and Gap gauges
- Caliper gauges
- Radius gauges
- Thickness gauges



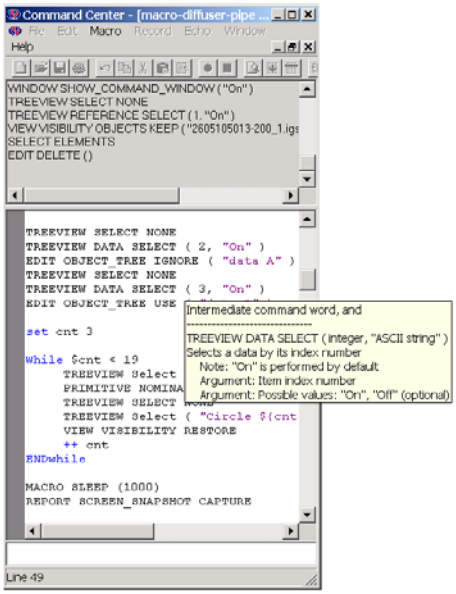
For measuring flush and gap distances and checking profile deviations on assemblies

Automates the inspection process through powerful macro-programming capabilities

PolyWorks/Inspector offers powerful tools that enable you to automate an entire inspection task through a user-friendly macro-programming environment.

PolyWorks/Inspector Command Center allows you to:

- Record your operations and paste them into a macro editor
- Quickly access on-line help
- Check syntax prior to running macros (with macro compiler)



User-friendly Macro Command Center

Create meaningful inspection reports through a rich set of building blocks

PolyWorks/Inspector offers a wide array of building blocks that you can use to build meaningful inspection reports adapted to the needs of your organization. PolyWorks' comprehensive inspection reports are entirely customizable, enabling you to clearly communicate results with colleagues, suppliers, and customers.

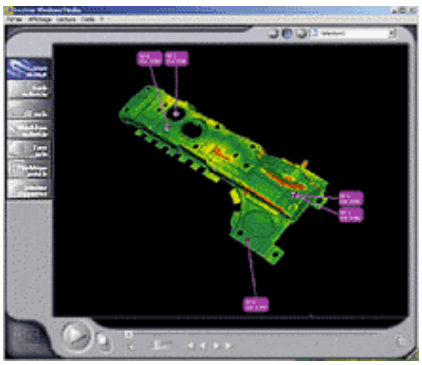
PolyWorks/Inspector's flexible report capabilities include:

- Scalable 2D vector graphics exportable to DXF, HPGL (for 1/1 full scale plotting), PDF, and SVG files
- Sophisticated annotation capabilities for intelligent snapshots exportable to BMP, JPG, and TIFF files
- Customizable reports with tables, text, and images exportable to Excel, HTML, or Word files.
- Pie charts exportable to Excel
- Video reports exportable to an AVI file

Classeur1

	A	B	C	D	E
1	Report Type	GD&T			
2					
3	Name	Measurement	Nom.	Nom.(y)	Nom.(z)
4	GD&T 1	Diameter	20,003	N/A	N/A
5	GD&T 1	Dist NI	443,508	750,000	-5,006
6	GD&T 1	Dist Tg	443,508	750,000	-5,006
7	GD&T 2	Diameter	12,481	N/A	N/A
8	GD&T 2	Dist NI	385,368	751,015	186,105
9	GD&T 2	Dist Tg	385,368	751,015	186,105
10	GD&T 3	Diameter	14,501	N/A	N/A

Tabular Report



3D animated reports

Applications

PolyWorks/Inspector is a powerful comparison and measurement software solution for the rapid inspection of physical objects using high-density point clouds to:

- Control the quality of castings, dies, and molds;
- Approve a manufacturing processes through prototype, first-article,

manufactured, and assembled parts inspection

- Inspect the core of a plastic part
- Measure discrepancies between two molds or dies;
- Track the modifications made to a clay model;
- Measure shape deformation over time for objects submitted to harsh conditions;
- Analyze differences between non-rigid objects;
- Create a golden template from several prototypes.
