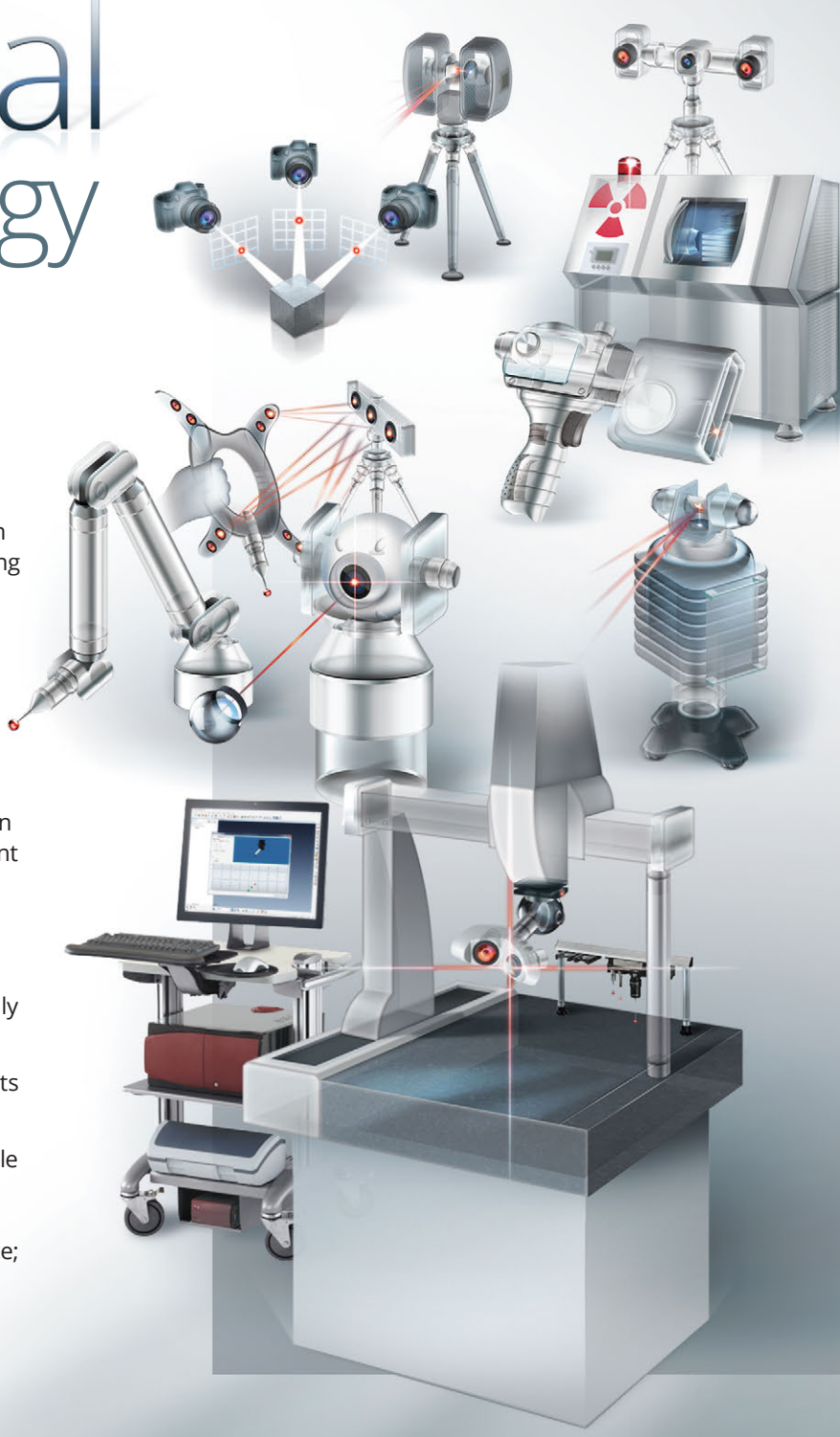
What's new in PolyWorks® 2016

Universal 3D metrology workflow



More than ten years ago, InnovMetric embarked on an ambitious journey to deliver a universal hardware-independent 3D metrology software platform to its customers. With PolyWorks 2016, the definition of what constitutes a universal platform takes on an entirely new meaning: a universal digitizing hub that interfaces with any type of 3D metrology measurement device, and offers a universal workflow for performing all inspection tasks.

This innovative end-to-end approach will significantly lower the total cost of software ownership for industrial manufacturers as it eliminates metrology workflow silos, decreases the cost of training, facilitates broader collaboration between teams, ensures consistency in measurement results, and increases workforce mobility.

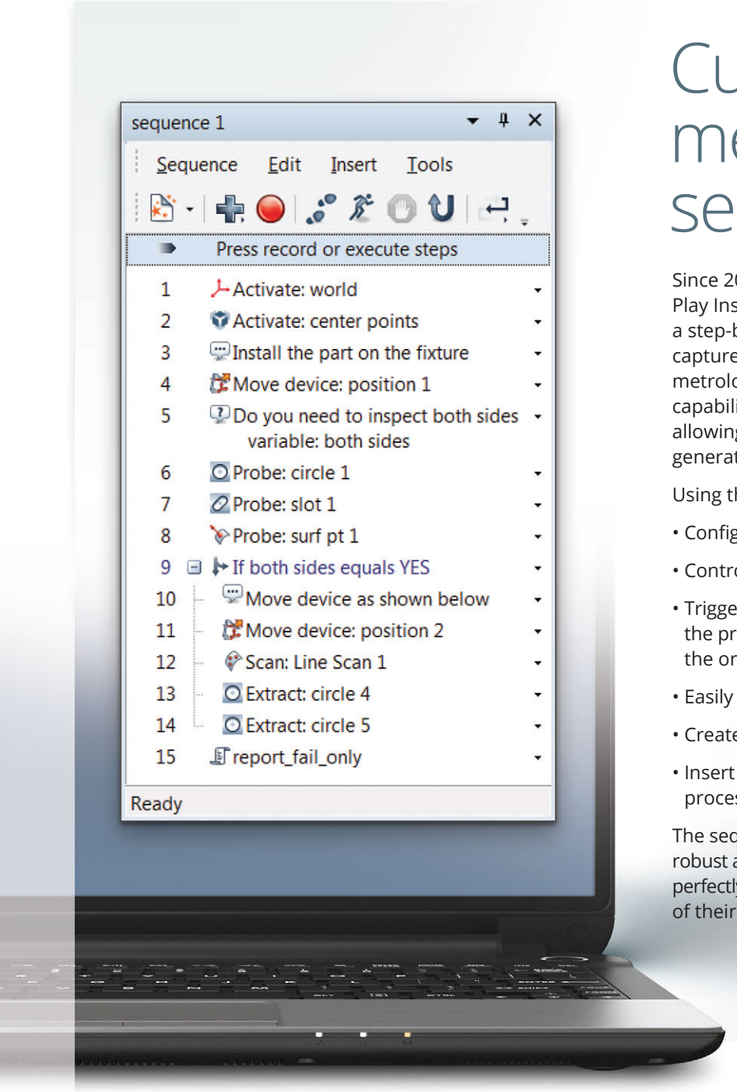
With PolyWorks 2016, portable metrology and CNC CMM operators are now able to:

- Define a measurement plan without being physically connected to a specific measurement device;
- Specify geometry controls on measurement objects and prepare inspection reports;
- Connect to a non-contact or a contact-based portable metrology device, or to a CNC CMM controller (from Hexagon, Mitutoyo, Nikon, Pantec, Wenzel, and I++ servers), to play the measurement sequence;
- Review measured object geometry controls and reports, or multipiece inspection results through the built-in SPC functionality.

Universal inspection projects

Thanks to the universal 3D metrology architecture of PolyWorks 2016, only minimal changes will need to be made to a PolyWorks inspection project so that it can be used with multiple hardware platforms to optimize object measurement methodologies and adapt them to different measurement principles.

As a result, PolyWorks 2016 opens a new era for universal inspection projects and device interoperability, ensuring total flexibility for customers to select the appropriate measurement devices for their needs and maximize the return on their 3D metrology investments.



Customized measurement sequences

Since 2012, PolyWorks has offered the powerful Play Inspection tool that automatically generates a step-by-step guided measurement sequence to capture 3D datasets of a new piece using portable metrology devices. PolyWorks 2016 expands the capabilities of the Play Inspection technology by allowing the customization of its automatically generated sequence.

Using the new sequence editor, users can now:

- Configure the order of measurement operations;
- Control device position moves;
- Trigger CMM-specific operations, such as moving the probe head to a specific location or changing the orientation of a measurement tool;
- Easily add guidance messages and images;
- Create conditional blocks of operations;
- Insert macro scripts, opening up unlimited process customization possibilities.

The sequence editor empowers users to easily define robust and repeatable measurement sequences that are perfectly adapted to their needs, ensuring the efficiency of their metrology operations on the shop floor.

Offline inspection project setup

PolyWorks 2016 delivers a new easy-to-use offline simulation functionality that automatically generates simulated point cloud data and probed points from a CAD model of the measured part, while going through a simulated measurement workflow. Offline simulation allows users to quickly create simulated measured object components, Data alignments, Data color maps, geometry control tables, 3D scene snapshots, and inspection reports before performing the real measurement task, without needing access to a measurement device. PolyWorks 2016 offline simulation also fully supports CNC CMMs, allowing users to control the probing and laser scanning tool orientations and trajectories on a virtual device.

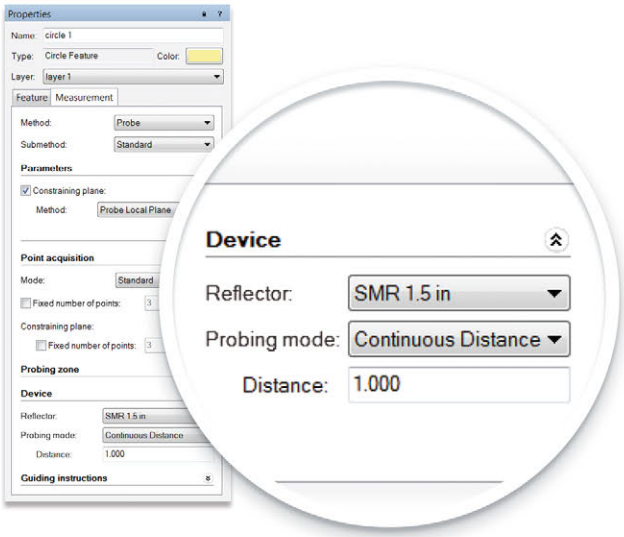
Enhanced part measurement capabilities

Feature extraction groups for flexible part inspection

Group sets of features and quickly best-fit surrounding measured data points to the CAD model to get the optimal alignments for feature extraction on flexible and highly-deviated parts.

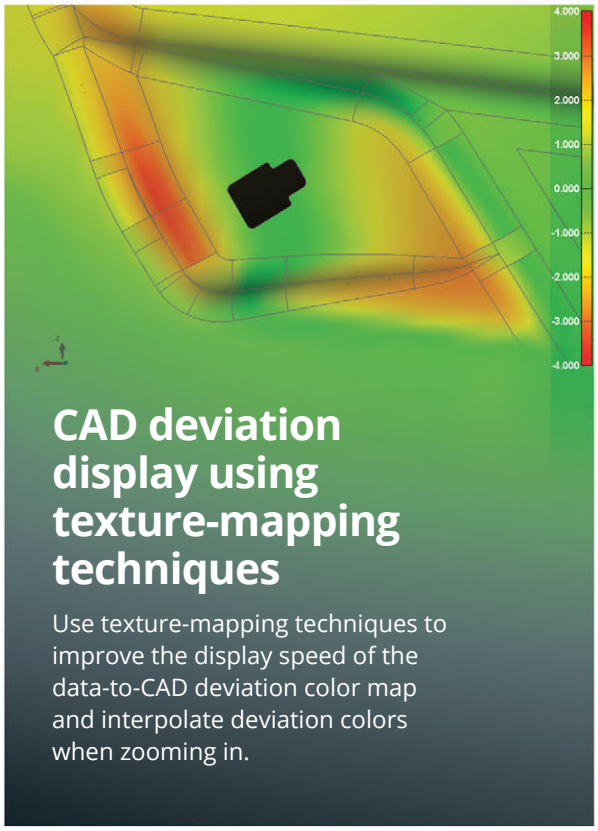
Iterative measurement on trimmed and hemmed edges

Improve the accuracy of the measured surface and edge deviations when the part is significantly deviated from the nominal Reference object.



Laser tracker measurement properties within features

Record or predefine object measurement properties such as the reflector type and the measurement mode for individual features to implement repeatable guided measurement sequences for laser tracker devices.



CAD deviation display using texture-mapping techniques

Use texture-mapping techniques to improve the display speed of the data-to-CAD deviation color map and interpolate deviation colors when zooming in.

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