PolyWorks|Inspector™ basic probing applications for laser trackers

Objective

The objective of this two-day training is to enable metrology operators, technicians, and engineers, who have little or no knowledge of the PolyWorks Metrology Suite, to perform 3D inspections using tools found in PolyWorks|Inspector™. More specifically, it covers the key concepts of typical inspection workflows for laser trackers.

Prerequisites

- Trainees must have basic knowledge of metrology and be able to read engineering drawings.
- Trainees must have basic computer skills (Windows operating systems).

Outline

- Use different probing and compensation methods efficiently
- Define a measurement plan
- Measure surface deviations and control part dimensions by probing
- Align the measured part to the CAD model
- Inspect the part from multiple device positions
- Perform live adjustments to parts and/or fixtures using the Build/Inspect tool
- Review, report, and share inspection results
- Inspect multiple pieces

Content

Manage files and navigate through the PolyWorks® interface

- Navigate through the PolyWorks Workspace manager interface
- Create and save a workspace
- Navigate through the PolyWorks|Inspector interface
- Create and save a PolyWorks|Inspector project

Use different probing and compensation methods

- Select the reflector used for the measurement
- Use the Single/Stationary, Continuous Distance and Continuous Time probing modes
- Use different compensation methods
- Review and adjust device-specific measurement parameters

Define a measurement plan

- Define the steps of a typical inspection workflow
- Import a CAD model and use it as a Reference object
- Create features and comparison points
- Set dimensional and GD&T controls and tolerances

Measure surface deviations and control part dimensions by probing

- Configure a probing device
- Probe measurement objects
  - Features and comparison points
- Measure hidden points

Align measured part to the CAD model

- Align using Surface Points
- Align using objects
  - Perpendicular Planes
  - Plane, Axis, Center Point
  - Best-Fit Measurement Objects
- Align using Datum Reference Frames
- Create coordinate systems

Inspect part from multiple device positions

- Align using device position targets
- Verify measurement stability using drift checks
- Scale and use bundling to manage changes in environmental parameters

Perform live adjustments to part using the Build/Inspect tool

- Create Level Plane
- Set compensation directions and tolerances
- Perform adjustments with and without a CAD model

Review, report, and share inspection results

- Review measurement results using the Control Reviewer
- Structure measurement results using control views
- Create formatted reports using snapshots and tables
- Share and review inspection results using PolyWorks|Reviewer™

Inspect multiple pieces

- Create a piece template for multipiece inspections
- Repeat an inspection automatically
- Review SPC results from multipiece inspections