Automate Inspections with Bubble Drawing

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Introduction

Precision manufacturing markets are demanding stricter tolerances and higher levels of data visibility with each passing year. All of these requirements stem from engineering details in planning and quality review. With properly designed and proven engineering plans, including detailed drawings, manufacturing facilities can prove precision and minimize risk before parts are even produced. Properly identified and designed drawings, created internally or supplied by your clients, are critical to assure precision building and to assist in improving data analysis going forward.

The most prevalent view of inspection and inspection certification is to report to your client that you are building quality product, well within the required tolerance for the standard(s) you maintain and the industry(s) you service. This view is without question a correct one, but there is a second view that is far too often overlooked: enhancing internal certification. Meaning, using this collected inspection data to improve your own process as you grow your database of detailed process planning vs. actual results. Not only can you meet customer requirements with greater ease and efficiency, but you can also grow your understanding of your own capabilities, thus potentially opening your organization to new business sectors.
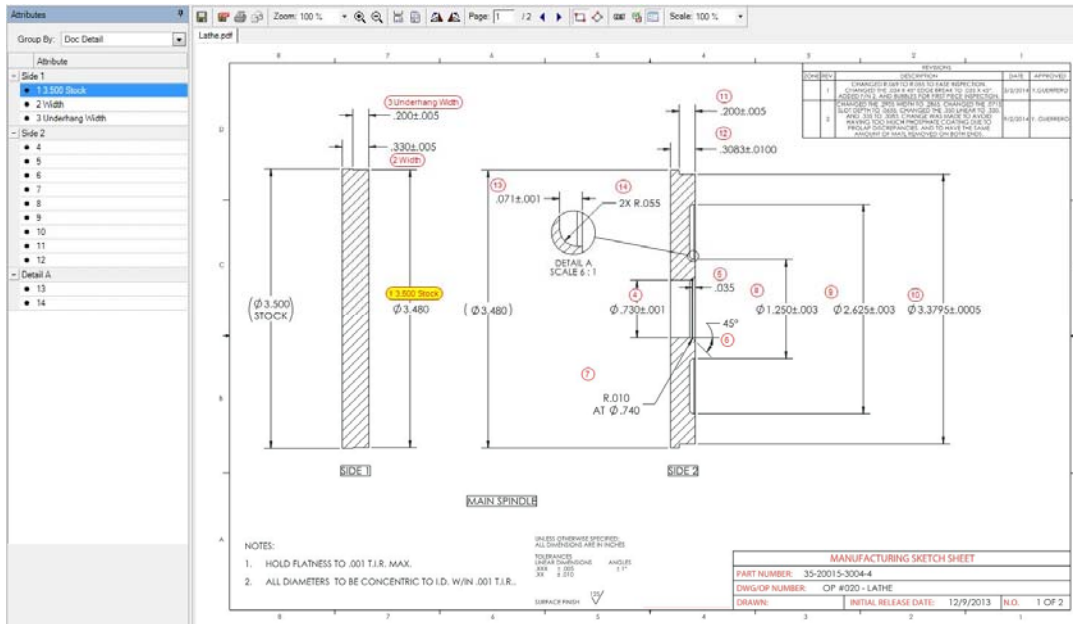
Current state

Manually preparing individual, detailed balloon drawings can take hours or even days. Furthermore, no reporting, trending or preventative analysis can be done on manually ballooned drawings. Every time a new customer drawing is received or revised, someone must manually input all the new or altered dimensions and tolerances. Even with all that effort, the ballooning alone does not create an inspection sheet for machinists / inspectors to follow and record their data as production occurs. This requires the creation of a paper or simple electronic (usually Excel) file to record data and findings. Finally, to produce a Certificate of Inspection, compliance requires more manual effort to collect, aggregate and produce the report you have been asked to ship with your product.

The total time spent to achieve these requirements can easily take one or more full-time resources, or at least, it will take hours away from many inspectors during the course of the day and week. What if your inspectors could get back to inspecting?

Automated Balloon Drawing

You can use an automated tool employing Optical Character Recognition (OCR) to balloon, sequence, group and track all dimensions and characteristics on an in-house or customer-supplied drawing. Reading from any PDF file, you can create an inspection specification (control plan) straight from the drawing - without ANY data entry or RISK of data input mistakes. Bubbling will create each attribute with a baseline, range or tolerance, limit warnings and the ability to group attributes by work center, tool, machinist, or any other detail that you or your client has identified as vital.

Bubbling accomplishes all tasks simultaneously: identify distinct attributes including baseline, tolerances & GD&T; clearly mark each attribute on the drawing for reference; add the attribute <u>automatically</u> to the Inspection Specification; automate the creation of the Inspection Record where you input the actual results of each attribute with pass/fail indicators; and populate SPC reporting, X-Bar Charts and Histograms with CPK analysis.

Here is the data entry saved by bubbling the (14) dimensions bubbled above. This gained efficiency is just the starting point ROI of automating your inspection and overall quality management system.

Key Inspection Bubbling Features you need:

- Move and re-size Bubbles with options for default outside and fill colors.
- Edit Bubble attribute details at any time.
- Copy existing bubbles attributes to new drawing revisions.
- Support bubbling of dimensions with GD&T.
- Create Inspection Specification (inspection test plan) while creating the bubbled drawing.
- Work with all ISO approved dimensioning methods.
- Group attributes by category or work center.
- Print Bubbled drawings by category or work center.

Key Bubble Drawing Advantages

- Automates inspection planning process

- Eliminates data entry mistakes

- Saves hundreds of hours each year

- Provides easy mechanism for drawing revision

- Is intuitive and easy-to-use; deployable in hours rather than days or weeks.

- Is fast, accurate and reliable.

Conclusion

Inspection is a complicated yet vital aspect of most quality management systems. It is critical to provide a rapid and accurate inspection bubble drawing capability. However, a standalone Bubbling solution is not sufficient. Your inspection effort must be integrated to a broader quality management (QMS) system that offers connectivity to manage other quality functions; the ability to turn an inspection failure into a Non-Conformance; the visibility of the calibration status of inspection tooling and equipment during the actual inspection process; and the option to launch alert emails when an inspected attribute fails or enters a warning control level. Finally, your inspection solution and QMS must provide a real-time integration to your critical ERP data to eliminate redundant data entry.

INTEGRATION

Using an ERP system with limited or no Quality Management capability? Not to worry, uniPoint can plug right in!

TECHNOLGY

What's under the hood really does matter! It impacts the ease of our installation, software upgrades, the user experience, and inter-operability with your other software systems.

SIMPLICITY

With 22 configure-to-order modules for Quality Management and Continual Improvement, uniPoint is Quality Made Simple.

Our EQMS: uniPoint is the industry leader in ERP-integrated, Enterprise Quality Management Software, offering standard integrations to over 40 leading ERP systems. This means you no longer have to run your quality system in isolation of your critical business data. Plus you can eliminate redundant data entry, reduce mistakes and show measurable efficiency improvement.

Our Solution: The cornerstone of our solution is the technology we use to develop it; the database we use to store your critical data reliably; and the reporting engine we employ to summarize your data in printed reports, graphs and charts. uniPoint uses Microsoft Visual Studio .Net; a Microsoft SQL Database; and Crystal Reporting. You will never outgrow our system, and you can rest assured that our proven technology will continue to service your growing and adapting quality compliance needs going-forward.

Our Advantage: Over 1,500 companies throughout North America agree that uniPoint is one of the easiest software applications they have ever used. That's because we use a consistent and intuitive design philosophy in every module. To support your users, our implementation consultants are ISO experts. Plus we offer FREE group training webinars every month.

THANK YOU.
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