



Thomas Instrument Chooses InspectionXpert for Faster First-Article Inspection Packages

By Dwayne Anders

Thomas Instrument is an award-winning provider of engineering, manufacturing, and repair/overhaul services to the United States Department of Defense. Since 1954, Thomas Instrument has maintained and repaired thousands of Flight and Safety Critical Components currently in use on military aircraft. Our Corporate headquarters and main manufacturing is located in Brookshire, Texas with satellite manufacturing and engineering facilities near major logistics centers throughout the U.S.

At Thomas Instrument, our processes require First Article Inspection and include a zero defect quality sampling plan. Success is dependent on our quality and on time delivery, so we have always been committed to finding ways to streamline and error-proof our processes. InspectionXpert has helped us save almost 90% of the time it takes to create our inspection documentation which has helped improve quality and turnaround times in our manufacturing process.

Challenge

The amount of manufacturing work orders Thomas Instrument processes can vary widely, and the amount of inspection documentation will depend on quality clauses spelled out in contract requirements. As a standard today, AS9102 forms I, II, and III (or equivalent) are completed to correspond with each blue print within each First Article Inspection report (FAI). As a result, the FAI package could easily be several three-inch binders that travel with a part to the customer. The quality and format of each blue print varies as well. OEM and legacy parts often have drawings that originated in the 60's and 70's that were hand-drawn and scanned into PDFs or are redrawn in AutoCAD or Solid Edge. In-process prints (that supplement router or work instructions for various manufacturing processes) are usually drawn in AutoCAD.

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We typically need to inspect about 60 - 100 dimensions per drawing. Creating the bubbled print and the check sheet, used to take us about four hours each on average. For an entire First-Article Inspection package for new parts or assemblies, this manual process could sometimes take a whole week. To prepare for our First Article Inspections in the past, we hand-bubbled our CAD drawings and created spreadsheets in Excel to generate our check sheets for inspection.

In an attempt to automate this process and make our documentation look more professional, at one point we were using Adobe Acrobat Professional to draw text boxes on our scanned PDF drawings to designate inspection characteristic numbers and notes for manufacturing. Even though it was somewhat of an improvement this was a time-consuming and manual process.

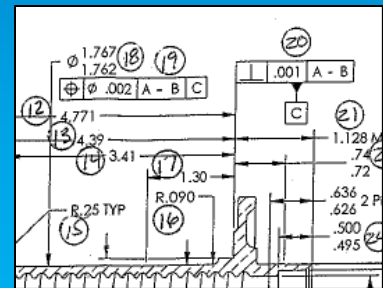


Figure 1 - Hand-bubbled Drawing



Solution

Thomas Instrument needed a product that automated the inspection package creation process so management tasked me with finding possible solutions. In my research I came across two potential solutions, one of which was InspectionXpert.

Thomas Instrument is standardized on AutoCAD and Solid Edge for our CAD designs and we have full-time drafters and engineers in three locations across Texas. Documents which have been released for manufacturing are typically split among three format types: AutoCAD, Solid Edge, and scanned PDFs. Although both software solutions we evaluated had similar capabilities, only InspectionXpert had CAD-integrated solutions that would function as an add-in to our AutoCAD or Solid Edge programs and pull data directly from those drawings. Even with many of our older, hand-drawn prints which had been scanned into PDF, InspectionXpert First Article was able to recognize and interpret the majority of the drawing data.

We decided to purchase InspectionXpert for AutoCAD and InspectionXpert for Solid Edge for use in two of our locations. For a third location we chose InspectionXpert First-Article Since InspectionXpert First-Article allows us to balloon directly from PDF files, this allows us to work with our scanned drawings or CAD files that have been saved to PDF format. We've trained a lot of our people to use InspectionXpert because when we do have a large set of work orders we can have people using both our network and standalone licenses to quickly generate the bubbled drawings and check sheets. We also used the InspectionXpert Template Editor to create our own custom template that we have standardized across the company.

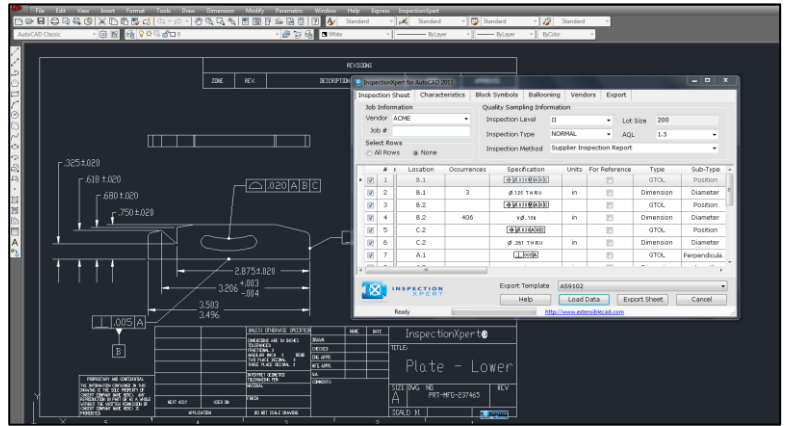


Figure 2 - InspectionXpert for AutoCAD works as an add-in for AutoCAD

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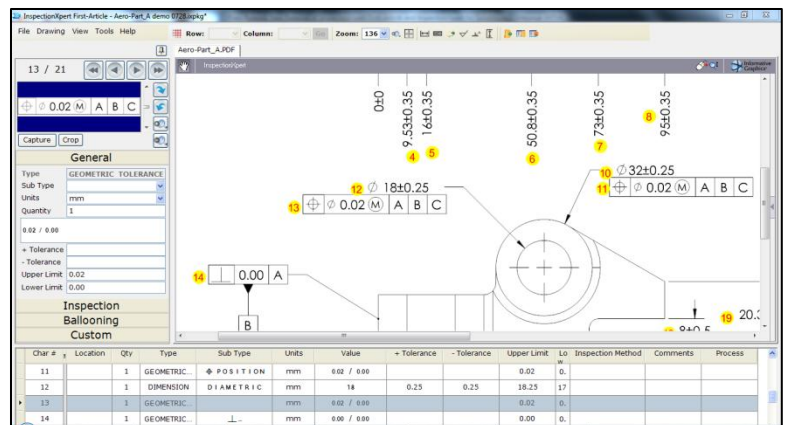


Figure 3 - InspectionXpert First-Article balloons PDF files



Results

We use InspectionXpert First Article and InspectionXpert for AutoCAD more than InspectionXpert for Solid Edge, primarily because our drafters are busy with design and document modifications. With InspectionXpert First Article, we can easily create five inspection packages per day on average, sometimes as many as ten packages. It takes five to thirty minutes to generate the documents whereas before InspectionXpert this process could take multiple hours for each blue print (depending on the complexity and clarity of drawing.) Entire First-Article packages that would easily take a week or more to create in the past now only take a day. We've seen a time savings of almost 90%.

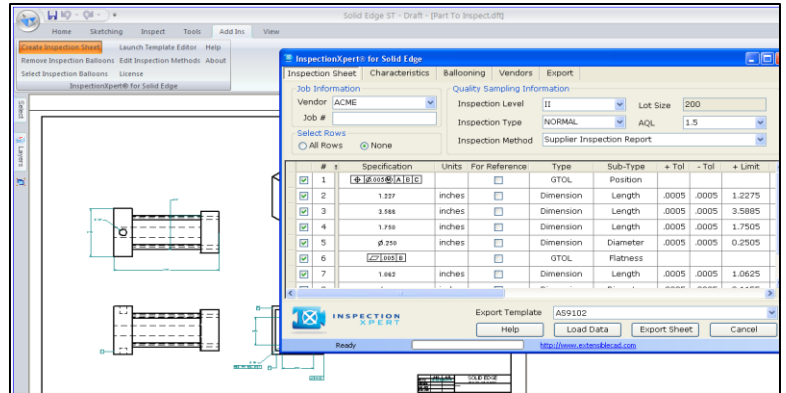


Figure 4 - InspectionXpert for Solid Edge works directly inside the Solid Edge interface

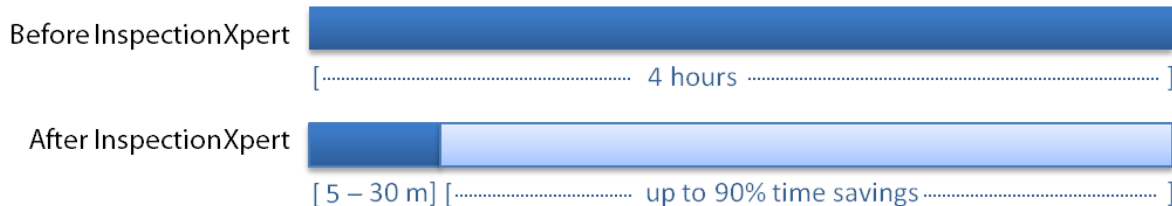
Because the program is so easy to use, we trained a manufacturing clerk to create these documents for us. This individual has no engineering or manufacturing experience and was able to become fully functional within a few hours of use. And it's more cost-efficient than using an engineer or drafter to create these documents, since we just need someone who can use Adobe Acrobat Reader and Microsoft Excel.

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Another area where Thomas Instrument benefitted from InspectionXpert was improved clarity and uniformity for their inspectors and operators by using the AS9101 forms offered with the software. Our company had created a plan that required all manufactured parts to have a bubble print and check sheet. Although this was a longtime goal of ours, before InspectionXpert it was unfeasible because it was too time consuming to implement for every part. With InspectionXpert we were able to implement that goal and now all job packets leave Configuration Management with a bubble print and check sheet. We even use InspectionXpert to create in-process check sheet documents.

Time Savings with InspectionXpert

Time to create First-Article Documentation



About the Author

Dwayne Anders is the IT Manager for Thomas Instrument and is located in their Brookshire, Texas location.



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InspectionXpert for SolidWorks is a SolidWorks Gold Partner product. SolidWorks is a registered trademark of DS SolidWorks Corporation.

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InspectionXpert for Solid Edge is Siemens PLM Solution Partner. Solid Edge is a registered trademark of Siemens Corporation.

InspectionXpert for CATIA V5 is a CAAV5 Adopter Program. CATIA V5 is a registered trademark of Dassault Systemes.

InspectionXpert for AutoCAD is a Autodesk Authorised Developer partner. AutoCAD is a registered trademark of AutoDesk Inc.

The InspectionXpert product line eliminates the manual ballooning of inspection drawings and manual creation of inspection sheets for first article and in process inspections. InspectionXpert ships with standard report templates including AS9102 and PPAP forms, or you can create an unlimited number of report templates using the InspectionXpert Template Editor.

Create Inspection Documentation from PDF files

InspectionXpert First-Article® works with PDF and TIFF file formats to help you quickly and accurately create ballooned inspection drawings and inspection reports. InspectionXpert First-Article works well for quality departments who receive scanned drawings or drawings in multiple CAD formats. InspectionXpert First-Article functions independently of any CAD program, and the easy-to-use interface means you can train anyone in your company to create inspection documentation for your quality inspectors.

Program Requirements:

- Windows XP Professional SP2, Windows Vista Business, or Windows 7 Professional or higher (32 bit or 64 bit)
- Microsoft Excel 2003, 2007 or 2010
- Adobe Acrobat Reader version 7.0.7 or higher

Create Inspection Documentation from CAD files

InspectionXpert is also a software solution partner for popular CAD programs including Solid Edge, CATIA, AutoCAD, SolidWorks, and Pro/ENGINEER. InspectionXpert's CAD-integrated versions work as an add-in to a CAD program to automatically balloon the 2D drawing (InspectionXpert for CATIA will also balloon the 3DCATIA Model) and export to an Excel-based template. This CAD-integration means an even faster and more accurate way to create inspection documentation.

Program Requirements:

- Windows XP Professional SP2, Windows Vista Business, or Windows 7 Professional or higher (32 bit or 64 bit)
- Microsoft Excel 2003, 2007 or 2010
- InspectionXpert for SolidWorks® requires SolidWorks® 2009, 2010 or 2011
- InspectionXpert for AutoCAD® requires AutoCAD® or AutoCAD Mechanical® 2009, 2010 or 2011
- InspectionXpert for Pro/ENGINEER® requires Pro/ENGINEER® Wildfire 3, Wildfire 4 or Wildfire 5
- InspectionXpert for CATIA® V5 requires CATIA V5 R18, R19 or R20
- InspectionXpert for Solid Edge® requires Solid Edge ST1 or ST2

For more information contact Extensible CAD Technologies or your local InspectionXpert reseller today!