WAMORE, INC.
ELIMINATING AIRDROP SYSTEM ASSEMBLY ISSUES WITH SOLIDWORKS INSPECTION

By implementing SOLIDWORKS Inspection software, Wamore has improved the accuracy of incoming part inspections, reduced its inspection overhead, and eliminated the bulk of its assembly issues related to its air payload delivery systems.

Efficient Engineering
WAMORE, INC.

Challenge:
Improve the efficiency and accuracy of incoming part inspections to elevate inspection effectiveness and consistency, and eliminate product assembly issues.

Solution:
Implement SOLIDWORKS Inspection software.

Benefits:
- Reduced inspection overhead substantially
- Improved inspection accuracy dramatically
- Eliminated bulk of assembly issues
- Replaced paper inspection documents with automated, digital approach

When the U.S. military needs to deliver payloads of up to 42,000 pounds from cargo aircraft to the ground via parachute, it relies on the expertise of Wamore, Inc. to ensure that airdropped payloads arrive intact and on-target. The Arizona company's products support the U.S. military in active combat theaters and range from Air Guidance Units (AGUs) and cargo handling systems to cargo parachute release systems and data gathering/analysis systems.

While Wamore has benefited from using SOLIDWORKS® design, simulation, product data management (PDM), and technical communication solutions for several years, assembly issues related to inconsistent inspection of incoming manufactured parts for its autonomous, robotic-controlled airdrop systems persisted, according to Configuration Manager Mark Gerhart.

"We had some issues related to incoming inspections of components because they weren't being done correctly," Gerhart explains. "Although we were good at identifying a certain sample size for inspections, our reliance on 2D paper prints to support inspections created the potential for inspecting against an older revision and misinterpreting inspection criteria, including critical dimensions. For example, going to the file drawer to find an old print of a prior revision to perform incoming part inspections was a common occurrence."

"We needed a means for controlling the variability of inspectors, so that they always inspect to the same dimensions and/or criteria, with no possibility for misinterpretation," says Vice President of Engineering & Business Development Mark Kusbel. "Human error contributes to our inspection challenges, so we needed a system to help us eliminate it."

"Inspection inconsistency led to some serious issues during assembly, adding time and effort to the product delivery process," Gerhart notes. "Not only did we have to improve the consistency of our incoming inspection effort to save time and money during product assembly, we also needed to achieve inspection consistency as a requirement of our ISO quality certification."

Gerhart discovered a solution to Wamore's inspection challenges at the SOLIDWORKS World 2014 Conference and Exhibition in San Diego, California. "I got a preview of SOLIDWORKS Inspection software, which automates inspection processes and documentation, at SOLIDWORKS World," Gerhart recalls. "SOLIDWORKS Inspection software provides another opportunity to go digital and eliminate paper, which we already had done with SOLIDWORKS Enterprise PDM (EPDM) and SOLIDWORKS Composer technical communication software."

Wamore chose SOLIDWORKS Inspection Professional software because it's easy to use, tightly integrated with the EPDM system, and supports a digital approach. "SOLIDWORKS Inspection software provides a solution to our incoming inspection challenges in a place that everyone can access without any questions or ambiguities," Gerhart says.

"The SOLIDWORKS Inspection database is a critical part of the system because it gathers and establishes a history of inspection measurements, which will enable us to immediately identify when a supplier has the same problem, lot by lot, with a specific feature," Kusbel notes.

AUTOMATED SYSTEM VS. PAPER DOCUMENTS
Because SOLIDWORKS Inspection software integrates with the EPDM system, Wamore has established a separate, automated workflow for incoming inspections and has eliminated its reliance on paper documentation. Using this automated, digital approach, Wamore has substantially reduced its inspection overhead, significantly increased inspection efficiency, and dramatically improved inspection accuracy.
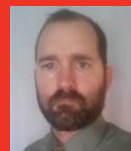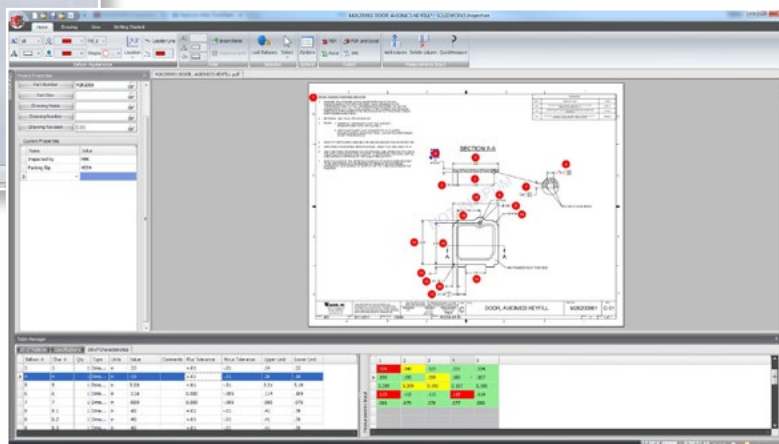
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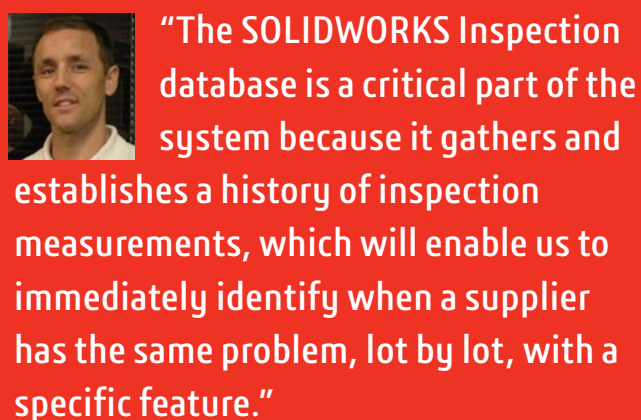
— Mark Gerhart, Configuration Manager

"By acquiring SOLIDWORKS Inspection software and configuring it according to our internal inspection requirements, we have achieved a level of inspection consistency that boosts productivity," Gerhart stresses. "When a lot of parts comes in, EPDM rolls the inspection version and the specific inspection criteria to the exact lot number and correct revision. With SOLIDWORKS Inspection software, we've found a real solution to our incoming inspection challenges."

The integration of SOLIDWORKS Inspection software with SOLIDWORKS Enterprise PDM (EPDM) product data management software makes the inspection process easier and more accurate for inspectors because Wamore can establish specific inspection criteria for an incoming lot of parts—such as dimensions, construction, conformity and orientation—and also indicate the number of parts to inspect, all based on the specific lot number for the part in EPDM.

GREEN/PASS, RED/FAIL

Implementing SOLIDWORKS Inspection software has also made inspections easier for Wamore personnel who conduct part inspections. With SOLIDWORKS Inspection software, Wamore can establish specific inspection criteria for an incoming lot of parts—such as dimensions, construction, conformity and orientation—and also indicate the number of parts to inspect:,all based on the specific lot number for the part in EPDM.

"The combination of SOLIDWORKS Inspection and EPDM software makes conducting an incoming part inspection a straightforward process," Gerhart stresses. "For example, the software will indicate that the inspector needs to inspect 10 items out of 200, or 12 out of 50, or 100 percent of 20, against specific inspection criteria set up for that part. The inspector types a dimension into the measurement input field and instantly gets a green/pass or red/fail indicator. They have access to so much more information and can add comments on the inspection. We no longer have to chase paper and now have an incredible amount of history on all incoming inspections."

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— Mark Kusbel, Vice President of Engineering
& Business Development

REDUCED OVERHEAD, GREATER RESOURCE FLEXIBILITY

Using SOLIDWORKS Inspection software, Wamore has reduced its inspection overhead while enjoying greater resource flexibility for conducting inspections. "SOLIDWORKS Inspection software gives us the ability to assign inspection responsibility to a technician rather than a product engineer," Gerhart notes.

"This type of flexibility maximizes resource utilization while improving inspection performance," Gerhart adds. "From incoming part lots to in-process assembly inspections, SOLIDWORKS Inspection software helps us catch more unacceptable parts and eliminate assembly issues. After an inspection is complete, checking it into EPDM mandates that inspections are completed in full, performed using the correct part revision, and done based on specific part criteria set up for that part. It's simply easier, faster, and more accurate."

Focus on Wamore, Inc.
VAR: Digital Dimensions, Inc., Phoenix, AZ, USA

**Headquarters:** 1907 W Parkside Lane
Phoenix, AZ 85027
USA
Phone: +1 623 582-8448

For more information
www.wamore.com

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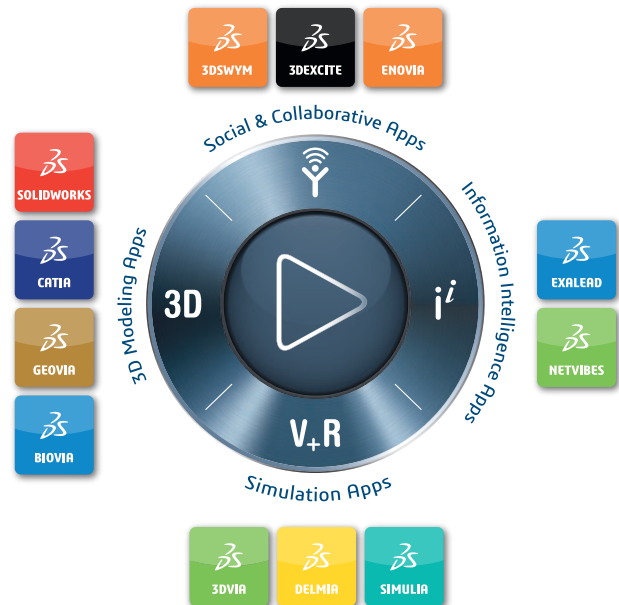
Europe/Middle East/Africa
Dassault Systèmes
10, rue Marcel Dassault
CS 40501
78946 Vélizy-Villacoublay Cedex
France

Asia-Pacific
Dassault Systèmes K.K.
ThinkPark Tower
2-1-1 Osaki, Shinagawa-ku,
Tokyo 141-6020
Japan

Americas
Dassault Systèmes
175 Wyman Street
Waltham, Massachusetts
02451-1223
USA