STRESS ENGINEERING SERVICES INC.

STRESS? WE CAN HELP.

September 2019

Industrial Packaging Solutions

The traditional approach for introducing a new industrial packaging system into the marketplace is a build-test-fail model, where once the product demonstrates initial success during the prototype phase, the product is deemed acceptable and production ramps up. This approach typically has limited engineering, limited user research or incomplete design requirements, and a limited qualification of manufacturing processes that can potentially lead to field failures such as toppling stacks of IBC's or unit loads falling from racking systems.

Stress Engineering Services, Inc. (SES), supports customers in product development, as well as in field issues. Industrial packaging systems, such as pallet/unit loads, intermediate bulk containers, and totes for example, can be understood at a fundamental level using our core competencies in material science, advanced simulations, instrumentation, and high end testing equipment capabilities. All of these engineering disciplines coupled with a 20,000+ sq. ft. ISO 9001:2015, ISO 13485:2016, and ISTA certified custom testing laboratory in Mason, OH, enable SES to provide root cause analysis and solutions that are timely and cost effective.

SES is hyper focused on three primary design goals of industrial packages throughout this industrial packaging process: weight, performance, and cost. Our engineers build "digital twins" of the package to optimize a design to meet design requirements, understand how products interact with your package, and how the packaging system responds to its environment and loads. We will use our deep understanding of process sciences to recognize where manufacturing defects can occur in your package, and how they can affect overall performance. These tools then become readily available when critical issues arise, so the build-test-fail cycle becomes a data driven design-verify-implement solution path. SES has the industry awareness and technical capability to consider these complex interactions when a package is being developed, analyzed for redesign, or re-mediating field failures.

Contact SES and learn more on how we can bolster your engineering team and supplement

your technical capabilities through new product packaging development, package sustainability, and failure remediation of your industrial packaging system.

The MakerBot Replicator Z18

3D printing has been in the limelight for well over a decade, but at SES it is not just a novelty, but an indispensable part of our process. We use 3D printing to iterate on a part's design and help our clients make decisions during the product development process. They are also tools for our Testing Services group to make custom test fixtures quickly. Having 3D printing capabilities in-house allows us to print parts overnight or within hours, if needed. This helps us make better decisions and get to a final design much faster.

We have recently added a fifth 3D printer to our in-house prototyping equipment. The MakerBot Replicator Z18 is a fused deposition modeling or FDM printer that sets itself apart from our existing printers due to its much larger build capacity. With maximum build dimensions of 11.8" L x 12" W x 18" H, the MakerBot easily doubles the capacity of our other units. The printer primarily works with PLA materials, but can also work with Tough, Bronzefill, Copperfill and Woodfill filaments.

Other 3D printers at Stress include two LulzBot FDM printers, one Ultimaker FDM printer and one Form Labs SLA printer. These printers run on a daily basis and are frequently hard at work long after everyone else has left for the day. Let the experienced team at Stress Engineering Services guide you through the product development process with the help of our in-house 3D printing capabilities.

Missed our previous newsletter?

Click here to read about PalletSled™, a portable unit load test system developed by Stress Engineering, Inc.

Stress Engineering Services, Inc. (SES) offers an integrated team of experts in creative design, functional engineering, design for manufacturing, materials, cost analysis, and reliability to deliver the highest level of innovation and technical success in developing products and packaging. SES provides expert engineering consulting services for:

- New Product Development
- Material Science
- Risk Assessment
- Human Factors
- Failure Analysis
- Package Development
- Testing
- Industrial Design

SES has extensive laboratory testing capabilities for evaluating materials, product performance, life assessment, and failure analysis. We have extensive simulation capabilities to predict mechanical, thermal, and fluid flow characteristics of complex problems.

Take your engineering to the next level. Find out more at innovation.stress.com.

To learn more about Stress Engineering Services, Inc., visit our website or contact us at 513-336-6701.

ISO 9001:2015 & ISO 13485:2016 Certified
ISO 17025:2005 Accredited for Several Test Methods
ISTA Certified Testing Laboratory Member

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