DO YOU KNOW HOW

Shock & Impact Loads

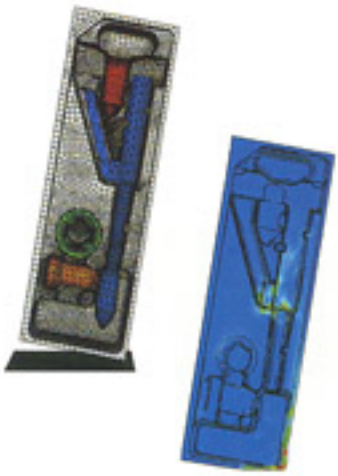
EFFECT YOUR PRODUCT OR DEVICE?

Find out if you have a problem before production prototypes are available for testing.

INNOVATIVE TESTING DEVELOPMENT

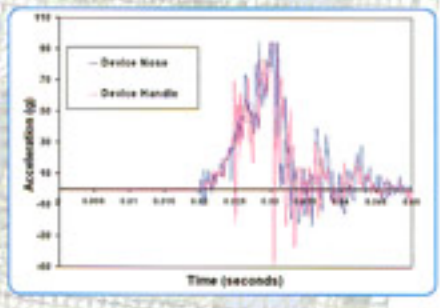
Shock and impact loads are among the most challenging and counter-intuitive forces that a product designer must account for. In most cases, because of the difficulty of designing for these events, shock and impact are simply not considered during a new product's design phase. The first understanding of this load case on product performance and reliability is gained once production prototypes are available for testing. Of course, if a problem is discovered, it is too late to develop a solution without significant impact on the project schedule.

Fatal failure of a battery-operated drill when dropped on its handle

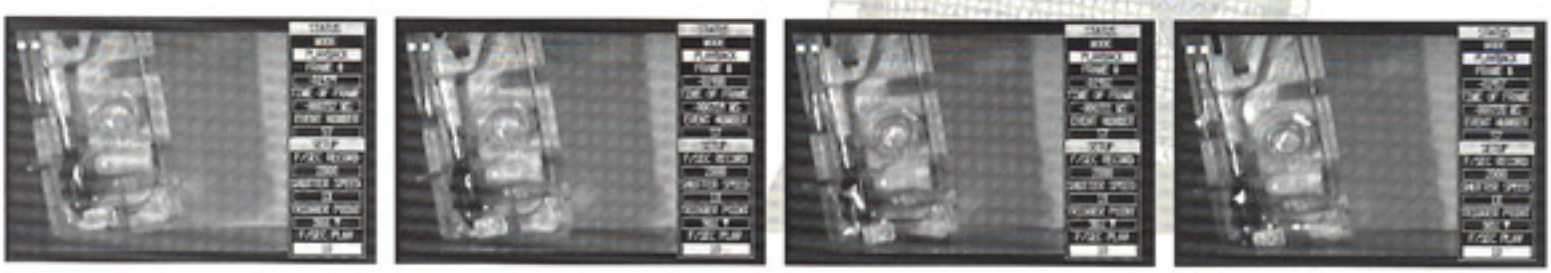


SES Delivers Answers ... And Time to Develop Solutions

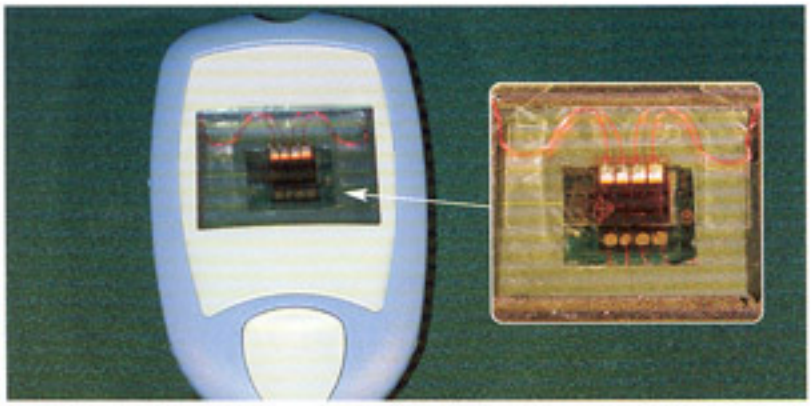
SES has developed a broad range of analytical, computational and experimental testing and instrumentation skills specifically focused on predicting how shock loads effect products. In upstream situations, before the product or package exists, we use analytical and computational modeling to predict the effects of component/component interactions. This approach is used to anticipate possible problems and formulate and evaluate solutions, while still in the design phase of the effort.



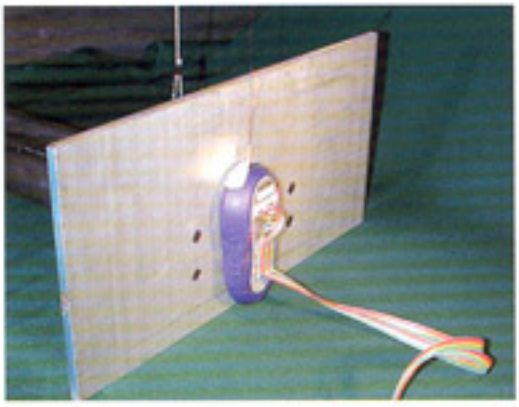
Measured impact/drop loading on a surgical device



High speed video of instrumented impact loading on a surgical device.



SES instrumented the circuit board with a strain gauge, then calibrated it such that the impact force could be measured.



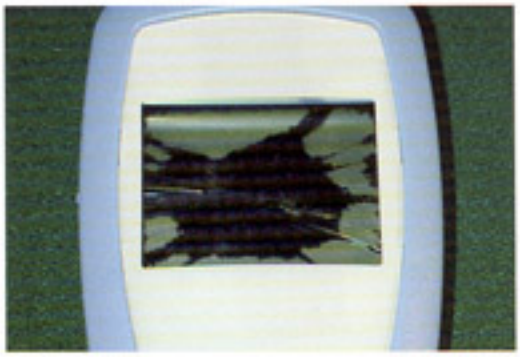
Controlled force impact of a pharmaceutical device.

High Speed Instrumentation & Data Collection

For downstream situations, where production-quality prototypes or finished product is available, SES enhances shock testing via high-speed instrumentation and data collection. By instrumenting individual components in the device they become transducers themselves, providing important information about the forces and movements during the event. This information is used to assess the performance of a device, provide a foundation for the development of solutions if needed, and quantify the effectiveness of possible modifications.

Solution to shock/impact problems always involve consideration of design features and materials that enable absorption and viscous dissipation of kinetic energy and thus shield critical components of the product. In complex assemblies, the process of identification of energy absorption and loading pathway is non-intuitive. In this regard, SES brings vast experience, and a variety of analytical and testing tools to enable *a priori* assessment of products under shock/impact condition.

Measured force pulse due to impact.



Don't Let Shock or Impact Derail Your Launch Schedule
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