

An Advanced Materials & Manufacturing Firm Puts MadgeTech to the Drop Test

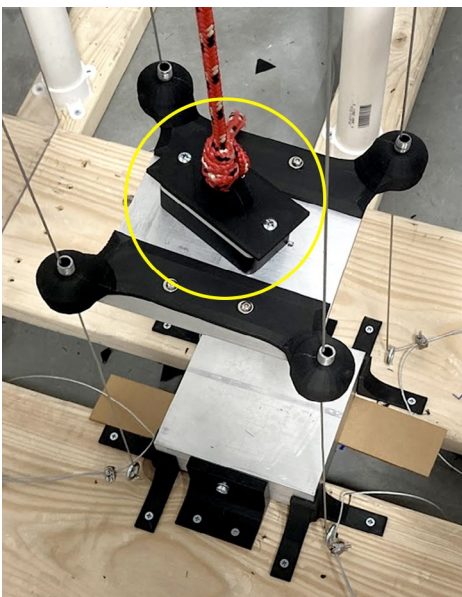


BACKGROUND

Founded in 2018, Multiscale Systems is an advanced materials and manufacturing firm located in Worcester, Massachusetts. Instead of creating new materials through costly chemical or molecular engineering, Multiscale Systems uses mechanical metamaterial technology to embed complex 3D geometric patterns into conventional materials to create new functionality.

CHALLENGE

Multiscale Systems was conducting research and development for NASA, requiring testing with realistic conditions to better understand performance at elevated strain rates. Multiscale Systems needed an affordable and reliable way to test impact forces during drop tower testing.



Impacting platen with Shock300 (circled) and guide attachments, lower platen secured and rigid

SOLUTION

MadgeTech offered a perfect solution with the **Shock300**, as it is compact, allows an acceleration range up to ± 300 g, and has sampling rate of 1kHz. Measuring shock forces at high sampling rates, the Shock300 was able to mimic impact forces during deceleration in a crash scenario.

To replicate the precise requirements that needed to be tested, the team at Multiscale Systems built their own impact drop test tower and fitted the Shock300 to the impacting platen.

Once drop testing was complete, post analysis of the data showed the impact velocity range and the percent of energy converted from potential to kinetic energy. This data allows Multiscale Systems to determine what type or impact rate dependence their materials may have in real-world use cases.

“The MadgeTech logger benefited us by allowing measurement of high impact forces at fast sampling rates without breaking the bank. Alternative solutions were unable to meet our performance and price needs, but the plug-and-play nature of the device and software made it easy to get the job done.”
– Jesse Silverberg, PhD, CEO and Research Director

To read more about Multiscale Systems’ drop test and the results of the impact absorbing metamaterial prototypes, [click here](#).

For more information on the Shock300 or to find the ideal data logger for your research and development application, call us at (603) 456-2011 or email info@madgetech.com.

Photos credit: Multiscale Systems



The completed drop tower