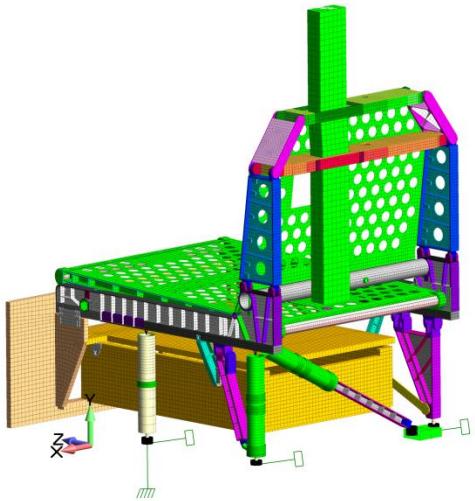
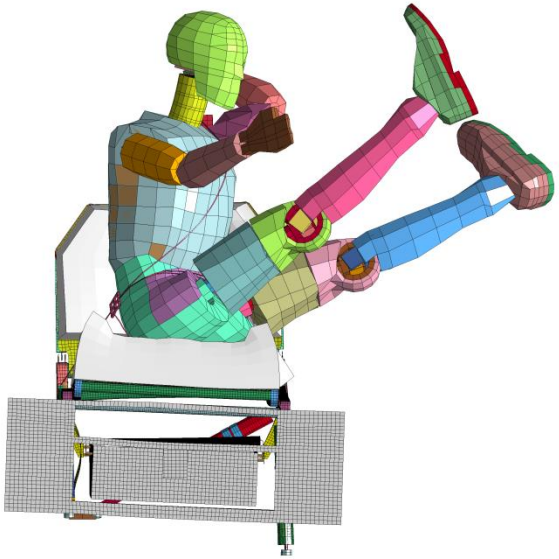
16g Seat Crash Test
TSO-C127a / SAE AS8049A / 14 CFR Part 25.562

Femap FEA Model

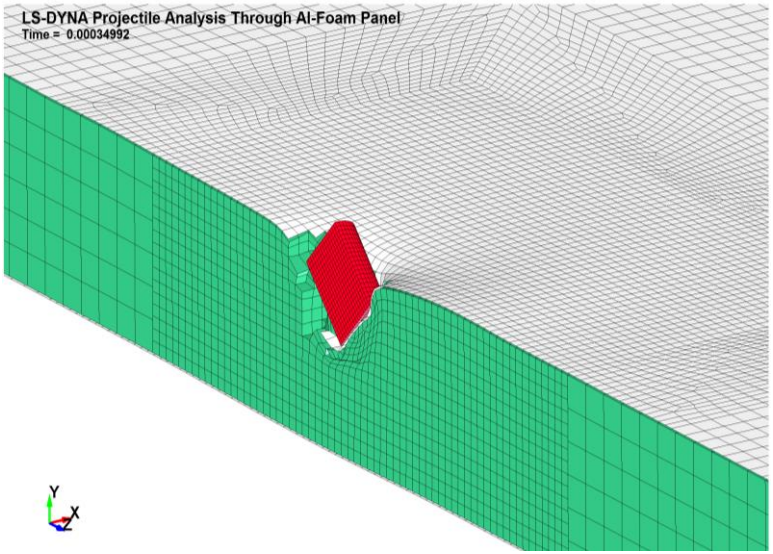


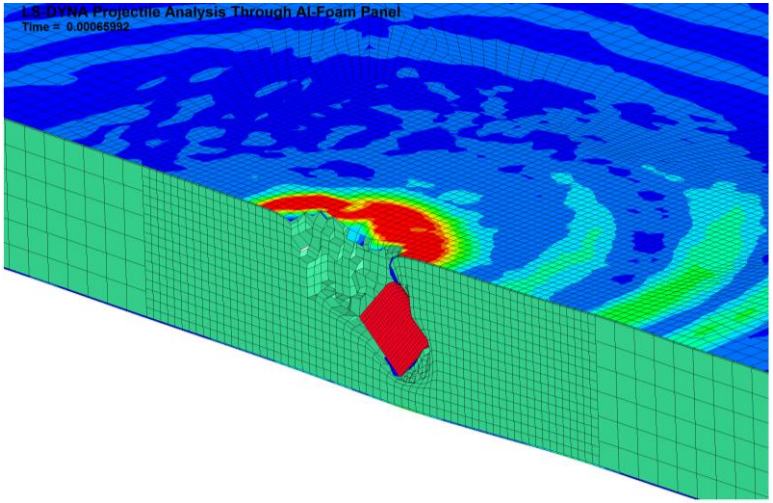
FEA + LS-DYNA Model



Validation is Gold

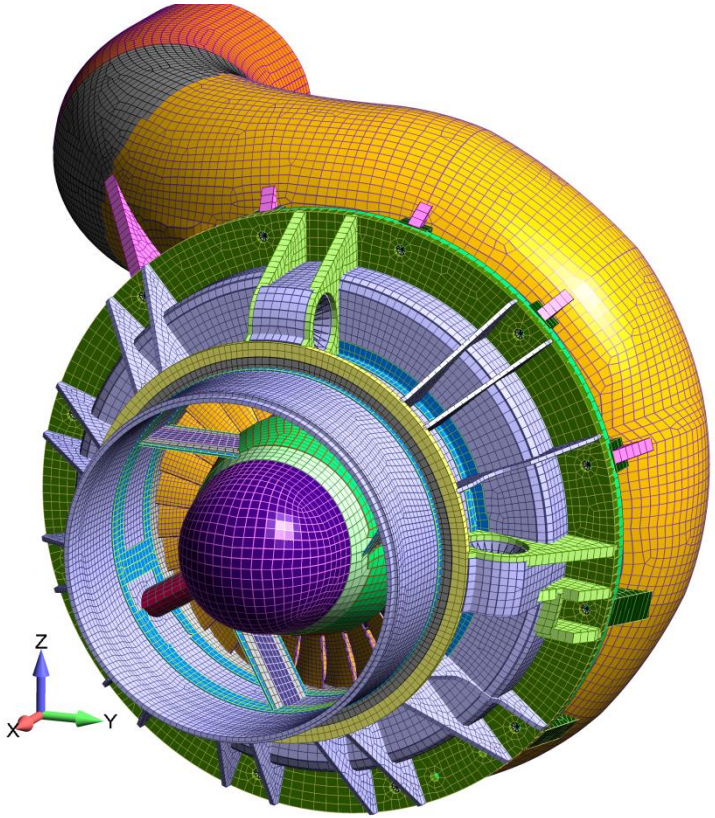
Passing the FAA 16g sled test is no trivial matter for highly optimized aluminum and composite airplane seats. The objective of this LS-DYNA study was to ensure that the client's seat could be validated against the test sled results and that subsequent seat versions would pass "the first time".

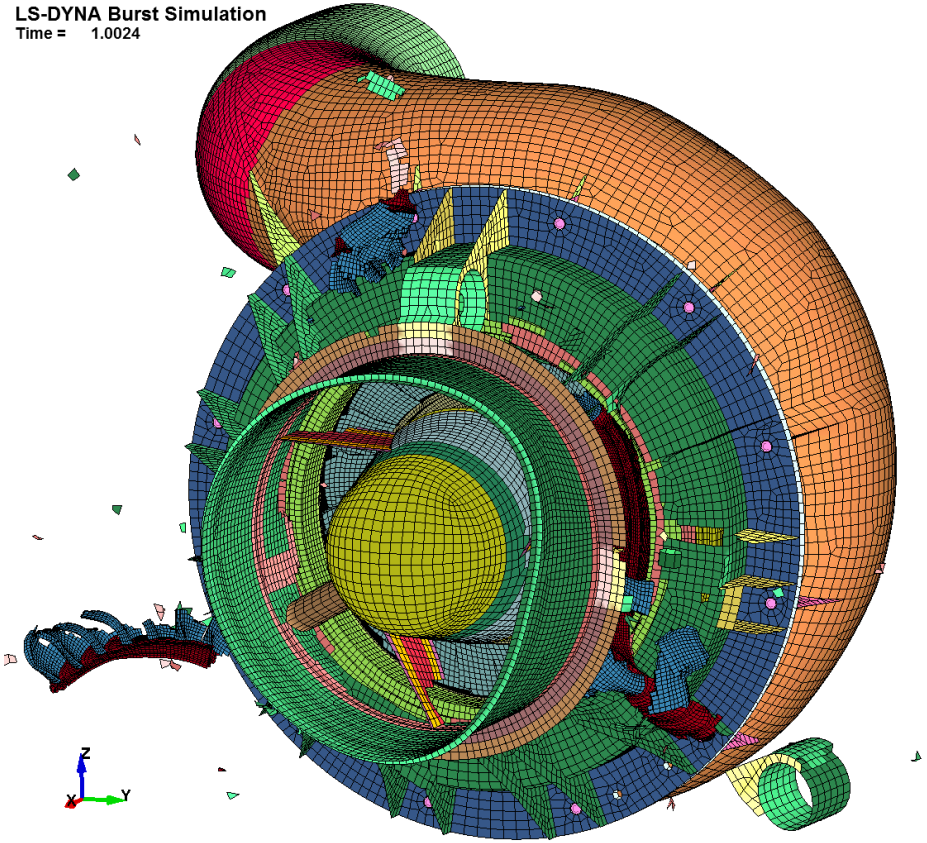




A projectile penetration study was conducted to assess the protective capabilities of a standard aluminum skinned foam sandwich panel. These types of panels are commonly used to create lightweight truck-mounted mobile shelters. For this analysis work, a section of the panel was idealized into a plate and brick FEA model. The panel was subjected to a secondary ballistic impact penetration of a grenade fragment falling at terminal velocity. The final results allowed the client to meet their design requirements without the need of experimental testing.

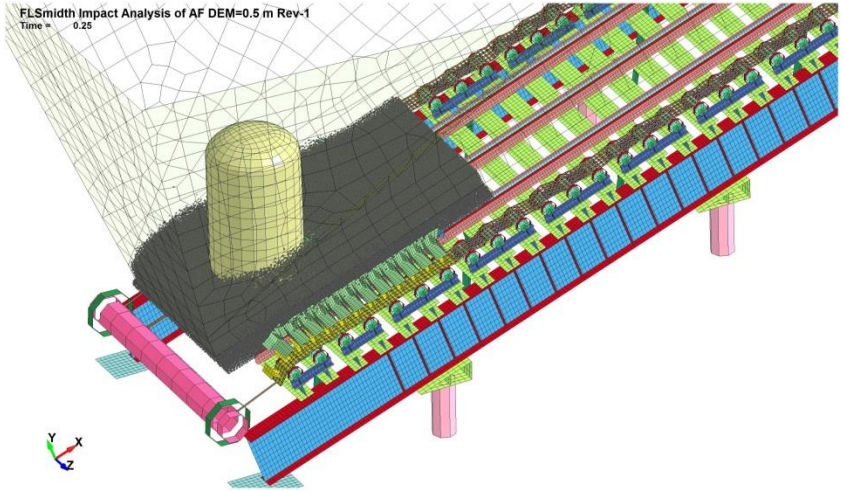
BOEING FAA

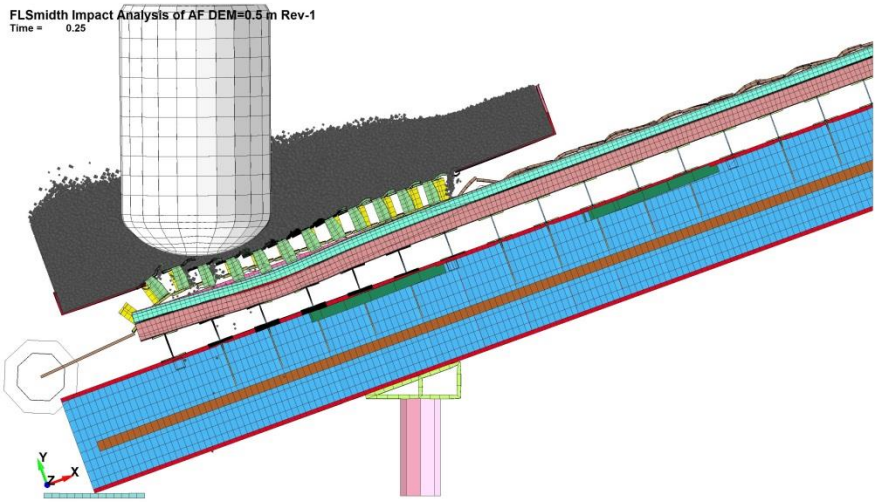




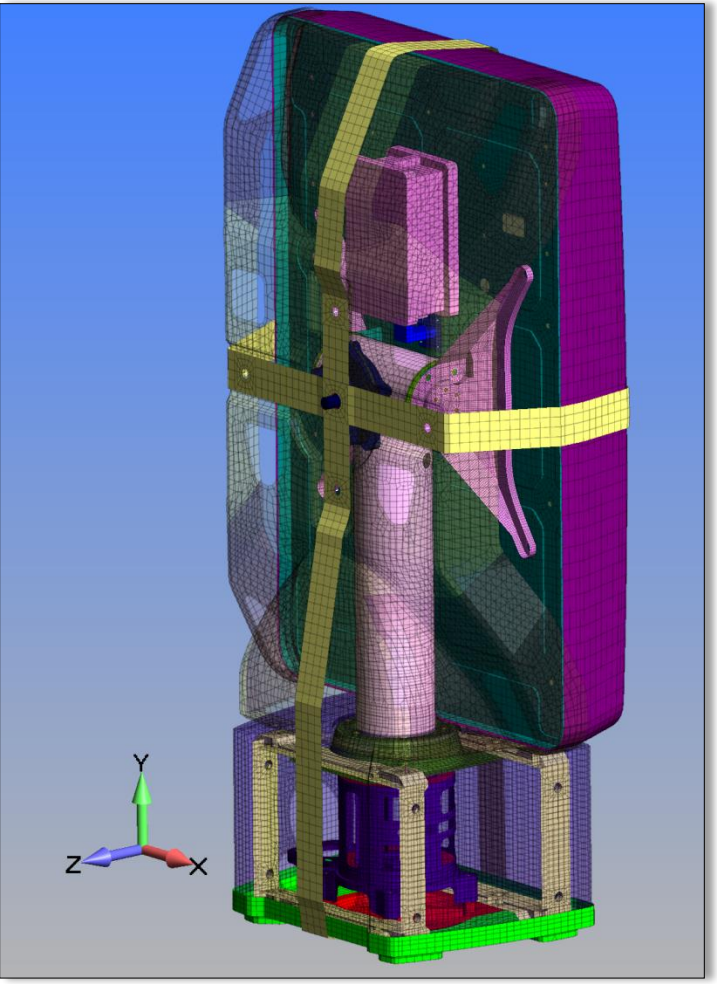
LS-DYNA turbine burst simulation of an air drive power turbine. Analysis work led to significant costs and schedule savings; e.g., each simulation was approximately $5k and four days as compared to the burst tests at over $100k and 30 days.

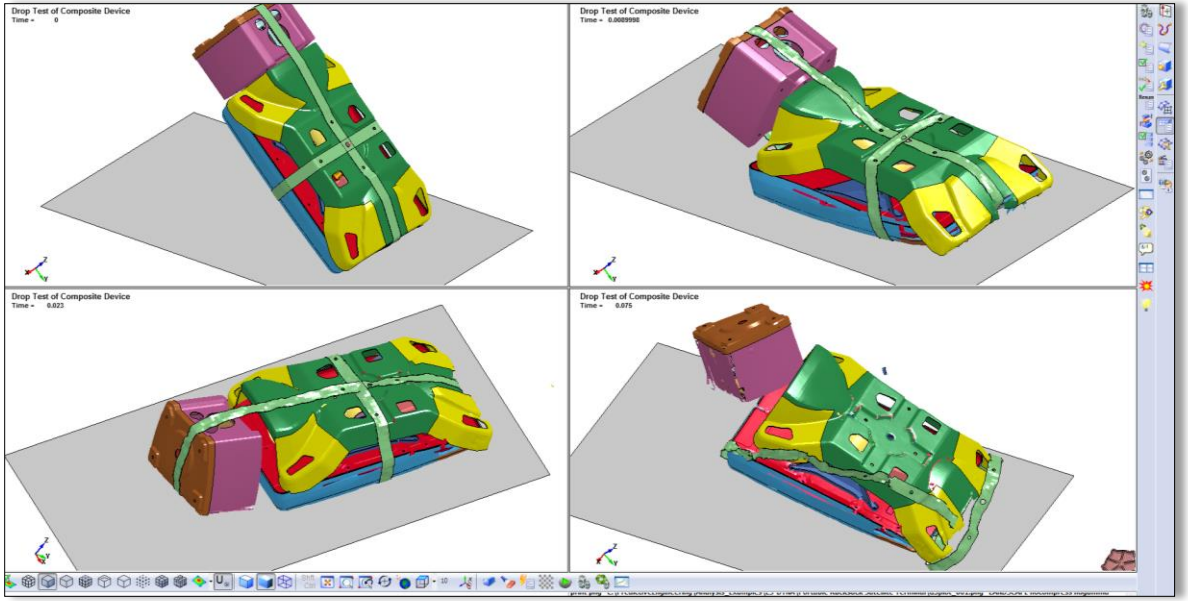
Impact Analysis using Discrete Element Method

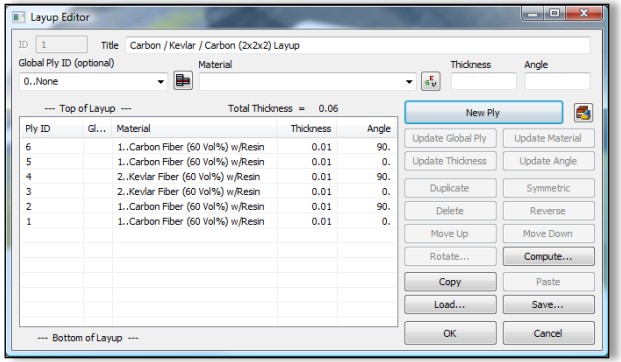




LS-DYNA was used in a combined structural / DEM model for the simulation of a large rock-drop on an apron feeder (AF) commonly used within the mining industry. Results show that if the AF is keep filled with material, the impact of large rocks is almost completely mitigated.

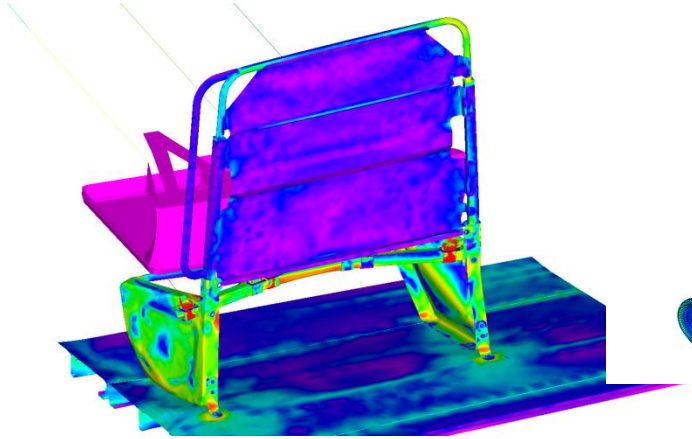




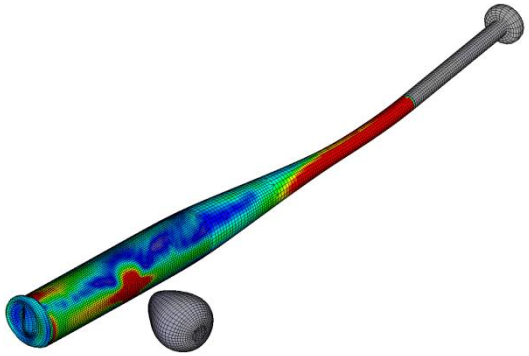


An ultra light-weight carbon fiber composite electronic device was drop tested through a range of 26 positions (MIL-STD 810e). The shell of the unit was a blend of carbon and Kevlar layers for increased impact resistance. The finite element model was used to document experimental drop test failures and then to implement solutions. The modeling results were reviewed by a team of external experts and accepted for production.

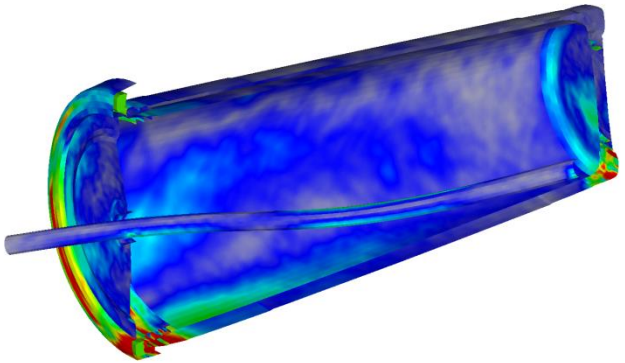
Bus Seat Development



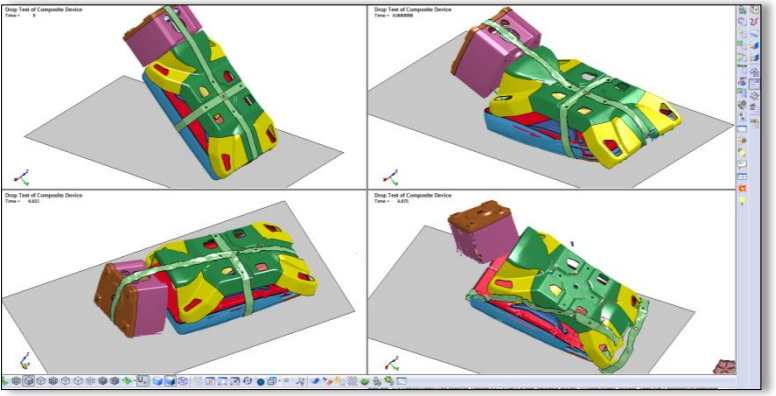
Sports Equipment



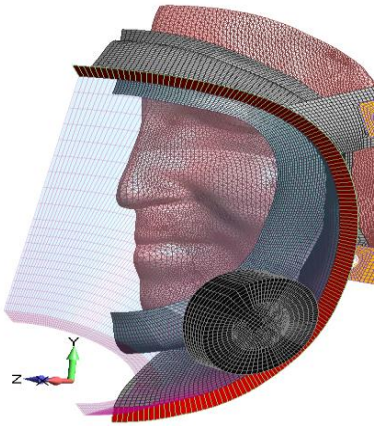
Drop Test of Consumer Products



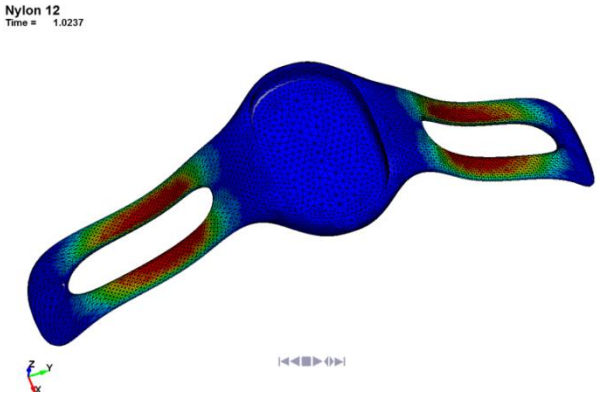
Drop Test of Electronics



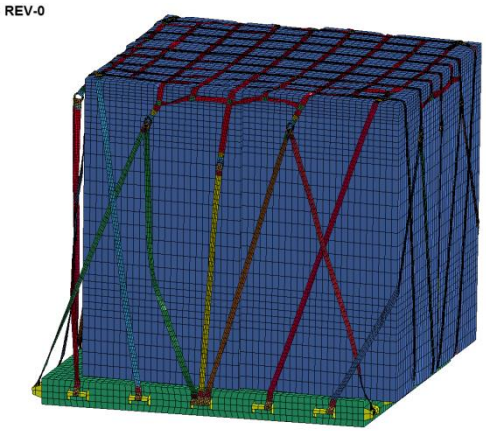
Human Biometrics



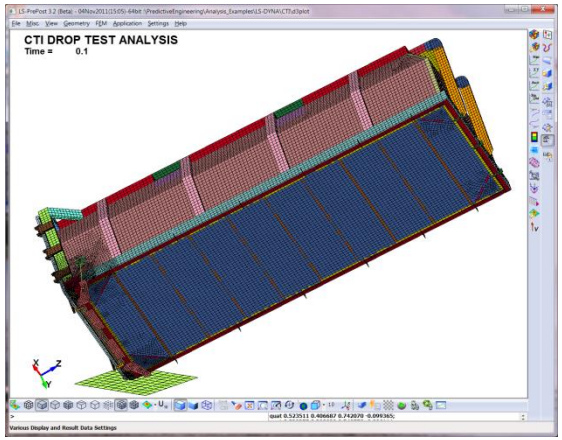
Plastic Structures



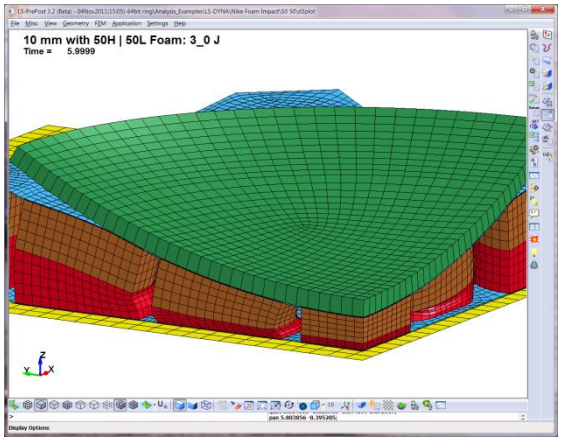
Cargo Net Development



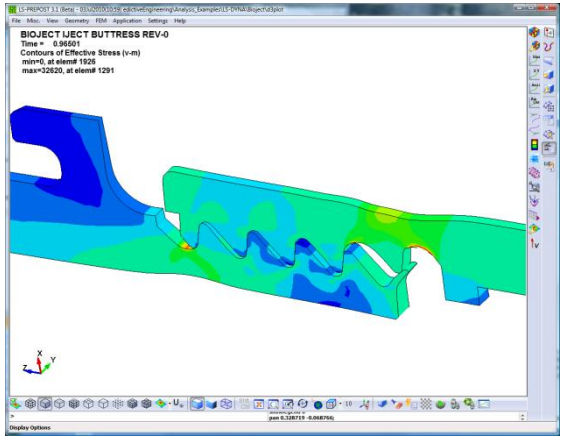
Impact Analysis



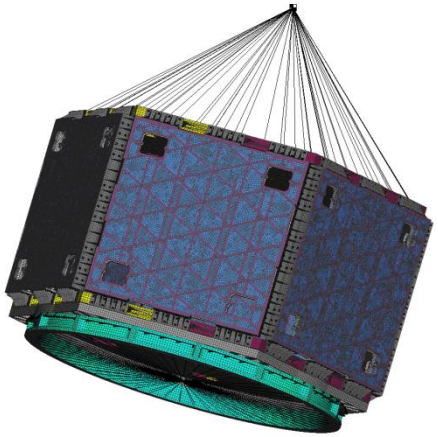
Impact of Plastic Foams



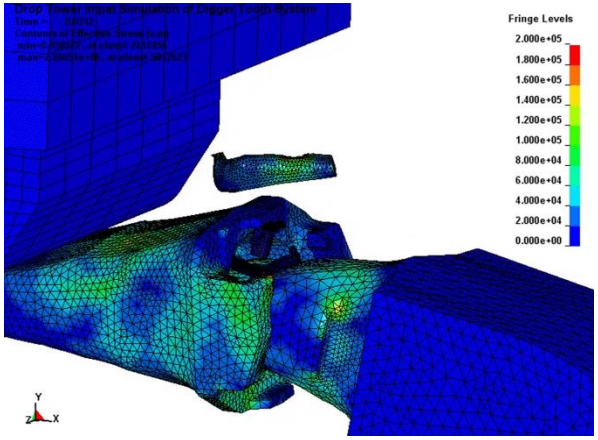
Plastic Thread Design



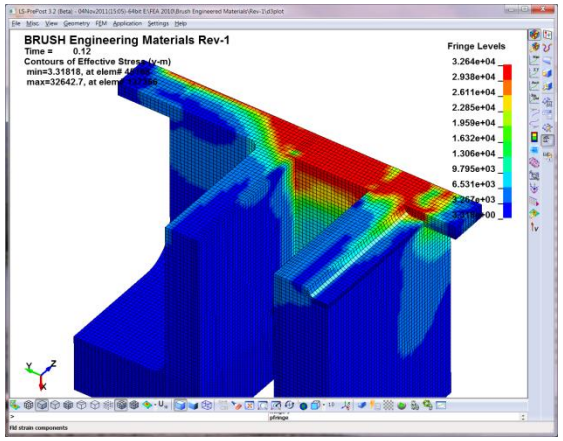
Modal Analysis



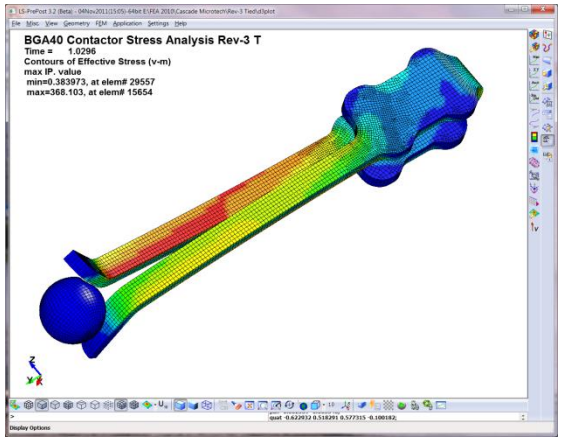
Digger Tooth Failure Simulation



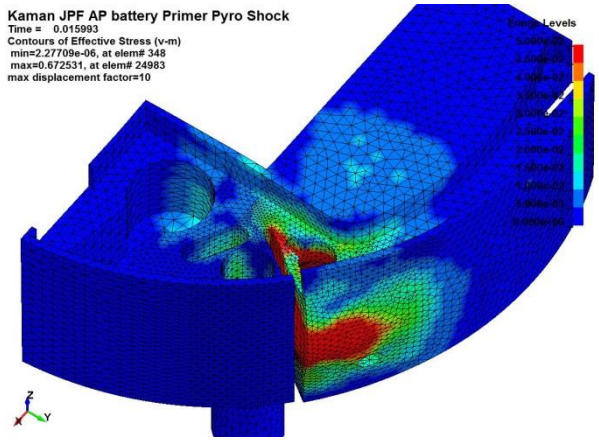
Electron Beam Welding



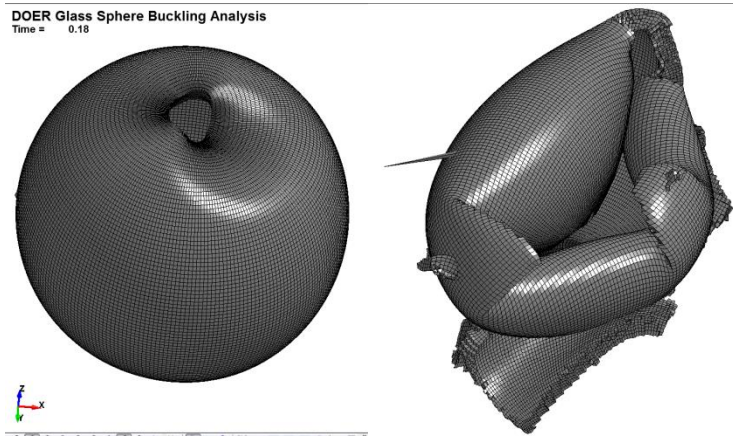
Elastic-Plastic Contact



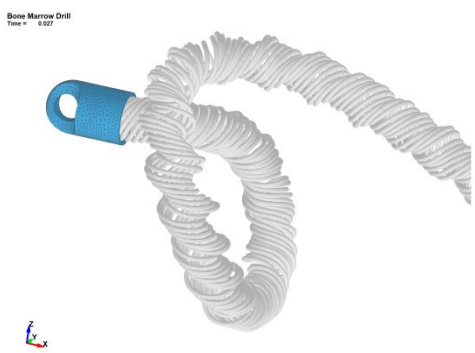
Pyro-Shock Analysis



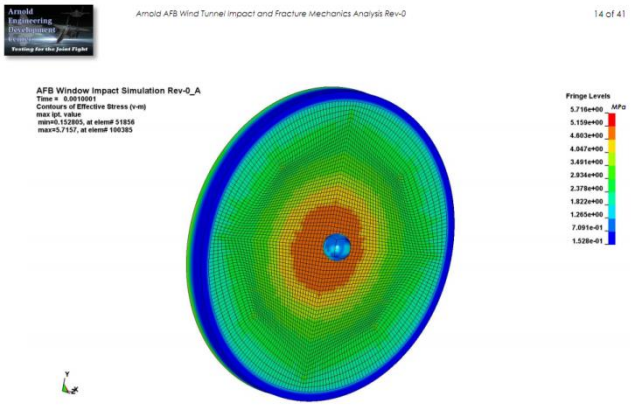
D.O.E.R. Glass Bathysphere



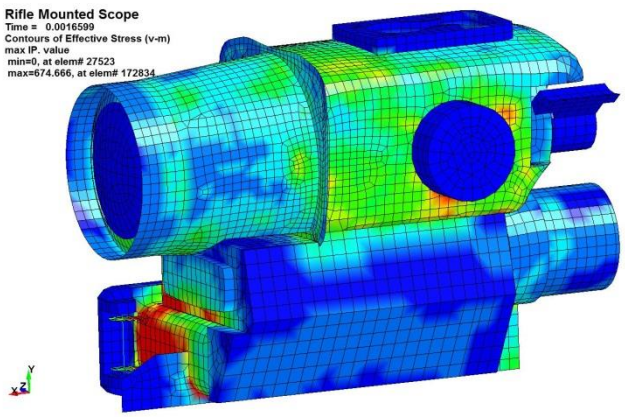
Medical Equipment



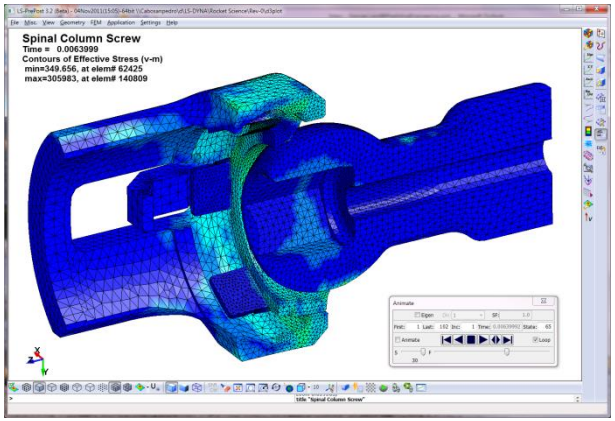
Fracture Mechanics



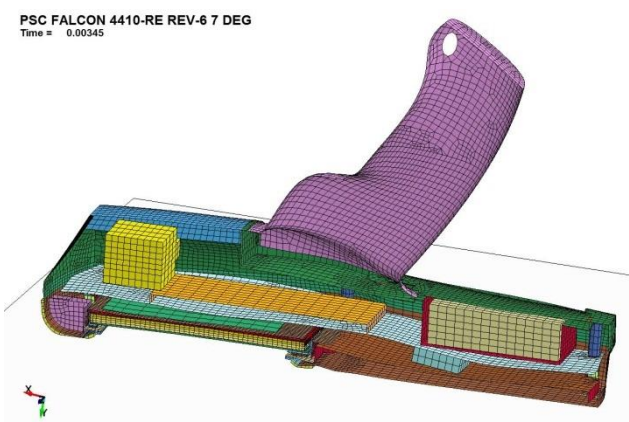
Ballistic Shock Loading



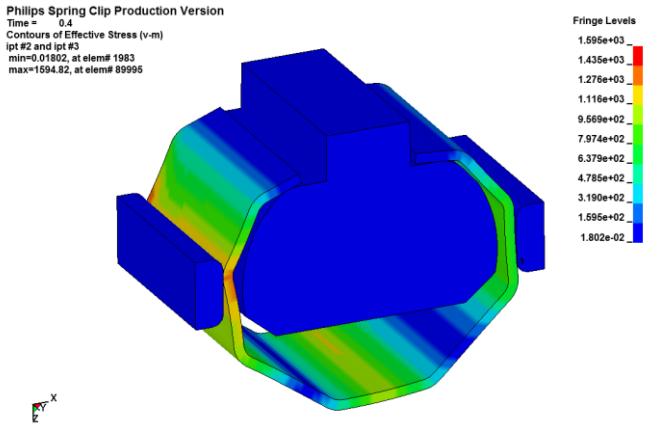
Max. Load Failure Analysis



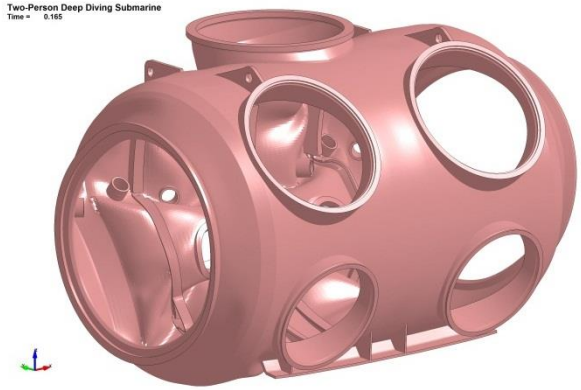
Hand-Held Scanner Drop Test



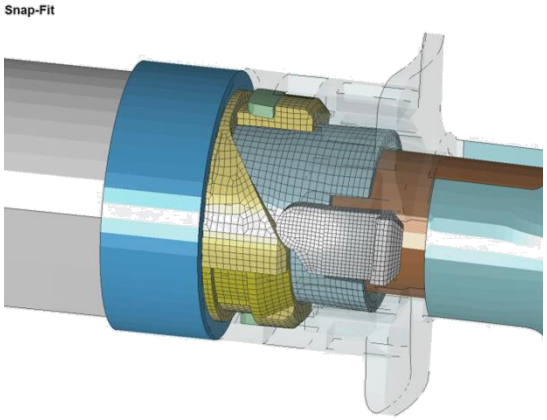
Toothbrush Spring Design



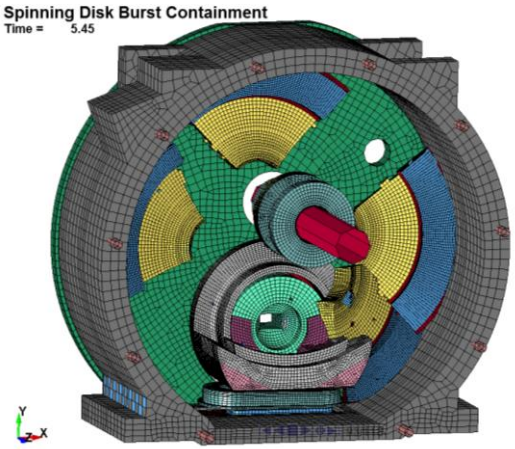
Non-Linear Buckling of Sub



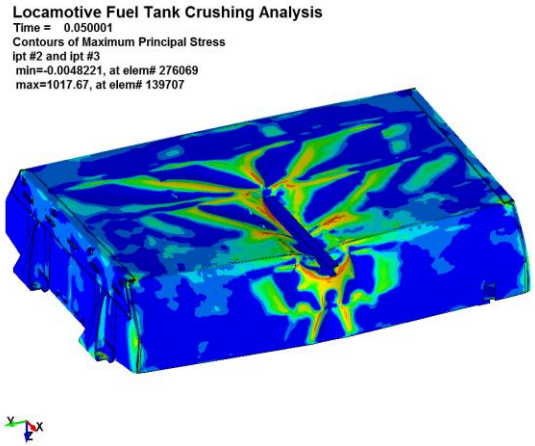
Medical Device – Plastic Snap-Fit



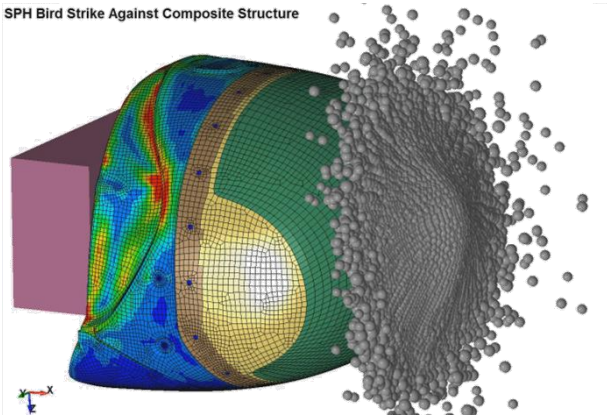
Disk Burst Containment



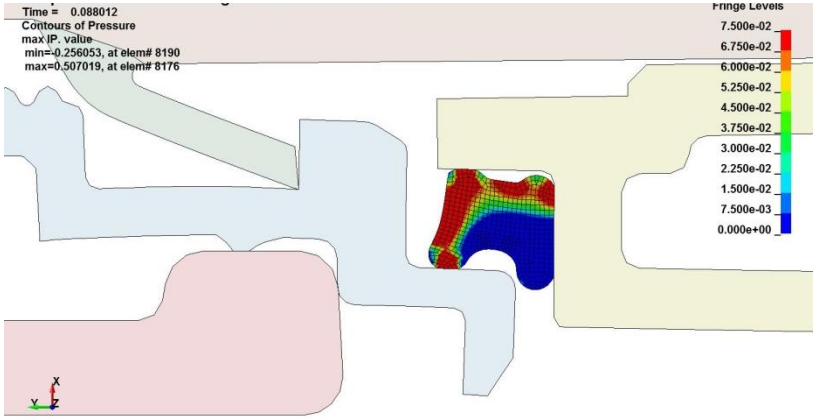
Locomotive Fuel Tank



SPH Bird-Strike



Hyperelastic Silicone Seal Design



General LS-DYNA

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