

Improving Appliance Performance through CAE & Optimization

ACP
Accelerated Concept
→ to Product

25 Years of CAE Expertise

ETA has been a leading engineering service supplier for over 25 years, with unique expertise in crash/impact. It provides services to a variety of industries including domestic appliance, automotive, aerospace, medical equipment, electronic and civil engineering disciplines.

Performance-Driven Product Development

The experienced engineering service team has developed a revolutionary product development system, the Accelerated Concept to Product (ACP) process. ACP can significantly reduce cost and time to market for appliance manufacturers.



Unique CAE Experience Allows ETA's Expert Team to:

- Analyze loadcases (vibration effects).
- Analyze mechanical resistance of drums.
- Perform simulated product drop testing.
- Provide packaging optimization
- Provide forming and manufacturability analysis.
- Reduce product mass significantly.
- Reduce the need for costly prototyping.
- Predict forming problems early in the development process.
- Improve product quality through optimization.

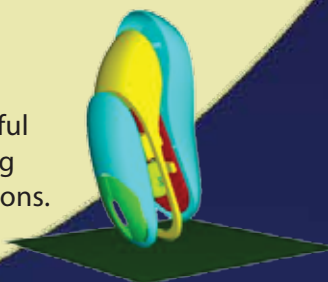
Die System Analysis - eta/DYNAFORM

Using its flagship software product, eta/DYNAFORM, ETA can assist the client to significantly reduce the cost of manufacturing by predicting and analyzing:

- Die Structural Integrity
- Scrap Shedding/Removal
- Sheet Metal Transferring/Handling

Drop Testing - eta/VPG

Using eta/VPG, which incorporates the powerful LS-DYNA solver, ETA's team is skilled at creating accurate drop, vibration and pressure simulations. The results ensure durability and reliability for the lifetime of the product.



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Accelerated Concept to Product

Performance-Driven Product Development

The Accelerated Concept to Product (ACP) process has revolutionized and streamlined the product development process, through optimization led design. The performance-driven development process relies heavily on simulations to meet timing and budget targets, whereas the traditional processes have been built around a build-test philosophy.

The process incorporates the use of multiple CAE tools including modeling, application specific, solver technology, optimization and manufacturing solutions. Many design concepts under multiple load conditions are evaluated simultaneously, but are not initiated until a concept that meets all of the design and manufacturing targets emerges.

The optimized concept is then designed, analyzed and optimized using loading, manufacturing, material and cost constraints. Upon completion, the resulting CAD data is generated for an ideal production-ready design.

Product Design Development

1. Make one or more initial concept designs—select one design.
2. Perform a DOE optimization study for the chosen design.
3. Perform simulations (formability analysis).
4. Re-design new components based on final results.

ACP Process

1. Phase I- perform topology optimization and sensitivity load path optimization—study hundreds of concepts versus just one.
2. Phase II- detail design optimization of shape/material/gage—study hundreds of potential designs.
3. Perform simulations (formability analysis).
4. Re-design new components based on final results.



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