ACP

Accelerated Concept —›to Product Process

Lower Costs, Reduce Mass & Improve Performance

Using ACP, ETA's Expert Consulting Team Can:

- Reduce Product Development Cost by **35-40%**
- Improve Manufacturing Efficiencies
- Reduce Product / Component Mass by **~ 20%**
- Improve Product Performance
- Improve Fuel Efficiency by ~ **4.5% to 8%** for every 10% in mass reduction

What is ACP?

ACP is a performance-driven, proprietary product design development method which is based on CAE. ACP incorporates the use of multiple CAE tools including modeling, application specific, solver technology, optimization and manufacturing solutions to generate an optimal design solution.

Investigating Multiple Design Concepts

Contrary to conventional methods where just one or a few design concepts are evaluated, with the ACP process hundreds of design concepts under multiple load conditions are evaluated simultaneously. Only those concepts which meet all of the design targets and manufacturing constraints are initiated.

The Optimal Design Solution

The resulting concept(s) is designed, analyzed and optimized using loading, manufacturing, material and cost constraints. This ensures that the final product meets all performance, mass and cost constraints.

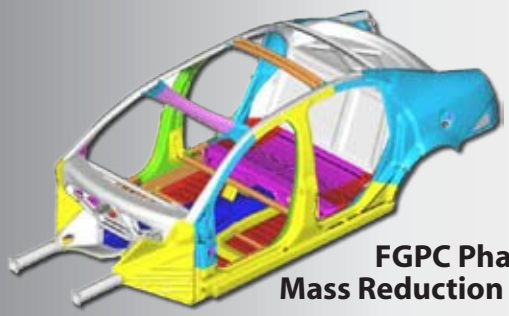
Applications at Any Level

Applied at the component, sub-system or full-system level, significant efficiencies and product improvements are achievable using ACP.

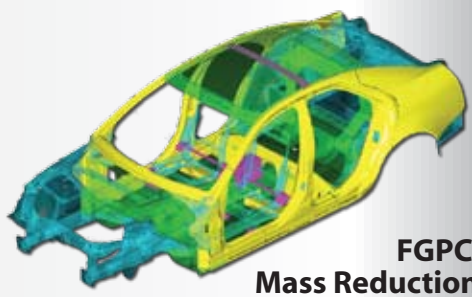
For more information please email es-sales@eta.com or visit www.eta.com.

ETA is an EEO/AAP Employer

Engineering Technology Associates, Inc. • +1(248) 729-3010 • www.eta.com



FGPC Phase 1:
Mass Reduction 30%



FGPC Phase 2:
Mass Reduction 15-20%

Applying ACP for Maximum Mass Reduction

Mass Reduction Processes & Goals

Using multi-disciplinary (MD) optimization techniques, ETA's experienced consulting team can achieve unprecedented results. Using the ACP process, ETA can reduce mass and overall cost significantly, while maintaining & even improving the current performance level of the product. In this practice, the expert team revisits process requirements and uses the most advanced technology, tools and materials to give the client the most lightweight structure possible.

ACP Application Options:

Option #1: Full Scale Structural Optimization

Comprehensive goals are achievable with this option, which offers the greatest possible mass reduction & overall efficiency improvement through a complete redesign of the current product architecture. For multi-material objective products, the team performs geometry, material & thickness (GMT) optimization to select the material among potential material types (steel, composite, aluminum, magnesium, etc.) and then performs MD geometry, gage and grade (3G) optimization for fine-tuning.

Option #2: Critical Parts Optimization - Shape Change

Targeted mass reduction and efficiency improvement goals are achievable with this option. The ETA consulting team analyzes critical features by looking at structural performance, GMT (if necessary) and performs MD 3G optimization of critical parts, while keeping existing product architecture.

Option #3: Critical Parts Optimization - No Change in Shape

Using Option #3, very focused goals of mass reduction and efficiency improvements are achievable. The ETA team analyzes critical features by looking at structural performance and performing MD gage and grade (2G) optimization of critical parts, while maintaining the existing product architecture.

ETA is an EEO/AAP Employer
Engineering Technology Associates, Inc. • +1(248) 729-3010 • www.eta.com