HyperWorks provides flexibility and agility to development processes of Engineering Services Provider Beta Epsilon

Overview

As a design company, Beta Epsilon designs racing cars and offers engineering services to automotive racing car providers and racing companies. They were, for instance, responsible for the design of the Formula Renault 2010 and the Formula Premium 2013 cars. In addition to full vehicle design, the company also provides suspensions designs and CFD development, i. e. for a Formula 1 club car of an English constructor. Outside the automotive industry they also supply services for additional branches such as the mechanical engineering industry, and they were in charge of the design and the CFD development for an RV constructor. Within their everyday tasks, the Beta Epsilon engineers handle the meshing of components and vehicles, the FEA analysis of metal and composite components, crash test simulation, optimization, and CFD simulations. Being an Altair customer since Q1 2013, Beta Epsilon uses HyperWorks tools such as HyperMesh, OptiStruct, HyperCrash, RADIOSS, AcuSolve, HyperView, and Virtual Wind Tunnel via Altair's flexible licensing system. Thanks to the HyperWorks suite, the specialized service provider was able to improve the quality of its products and to extend its range of services to additional application areas. To offer their customers the best performance at controlled costs, the Beta Epsilon engineers always strive to optimize weight and product reliability. In addition to the experience and know-how of the engineers, one of Beta Epsilon's keys to success is the solutions the HyperWorks suite provides.
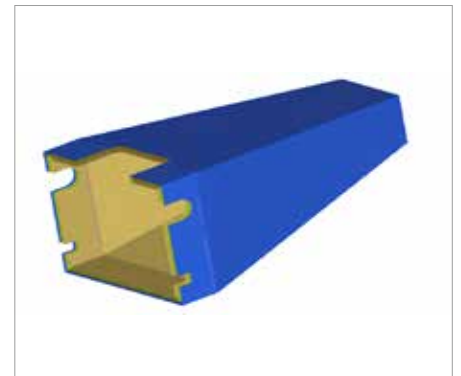

Formula premium

Business Profile

Beta Epsilon is a company that integrates multidisciplinary engineering and R&D skills in the mechanical field. The company specializes in the design, development and industrialization of light composite structures, especially components or vehicles responding to dynamic stress, and a high level of vibrations. Also, Beta Epsilon offers in house prototype building enabling them to see the results of their design work directly, and to understand the needs for production. Beta Epsilon is a specialized team of 4 to 5 engineers, working mainly for the motorsports and mechanical engineering industries.
For more information please visit: www.betaepsilon.fr and www.formula-premium.fr

Crashbox Formula premium

Challenge to take

Motorsports is a great environment for leading edge technology and it provides a perfect proving ground for technical innovations. Within the scope of the official specifications every racing team is pushing the car's performance to the limit. For this reason, the teams need optimized components as well as an optimized overall system. Due to limited development time, the teams often collaborate with engineering service providers that offer high-end services in prototype development and production.

"Thanks to the HyperWorks suite we are able to be on the edge of engineering performance. We have a very flexible access to a broad range of different software tools for basically all design and development disciplines we need to cover, at a reasonable price,"

Alain Duluard, Technical director of Beta Epsilon.

Being a specialized engineering service provider for a demanding industry such as motorsports, Beta Epsilon has to cover a wide range of engineering disciplines. Race cars have to be optimized for weight, performance, reliability, and efficiency – a process which involves several engineering tasks such as the meshing of parts and full vehicles, the FEA analysis of components, crash test simulation, optimization, and CFD analysis. In the design of a complete racing car, the engineers design and optimize every single part of the vehicle, simulate crash tests, simulate the CFD performance of the car, and push the test for FIA homologation before they or the customers start the production or build a prototype. To handle all of those tasks, Beta Epsilon needs a flexible and cost efficient access to several CAE tools, some of which are used more frequently than others. Since engineering service providers have to minimize development cost to be able to offer their customers services at competitive prices, it is not possible to invest into every single full license of each required tool. Only a licensing system that takes into account both – usage and cost – offers the necessary flexibility.
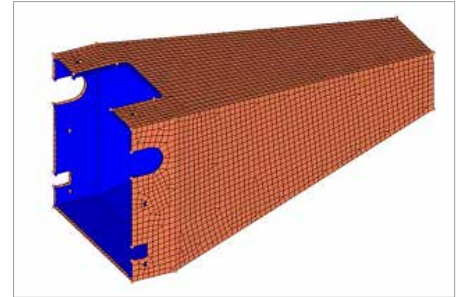

Meshing with Hyper Mesh

Solution at hand

With Altair's solutions, especially HyperWorks and the HyperWorks licensing system, Beta Epsilon has access to almost all CAE tools they need in their development process, including HyperMesh, OptiStruct, HyperCrash, RADIOSS, AcuSolve, HyperView, and Virtual Wind Tunnel. The flexible unit based HyperWorks license system is a software licensing model that replaces expensive paid-up licensing types for each single tool, with a pay-per-use system for all of the included tools. Using this system, employees of companies such as Beta Epsilon are able to access simultaneously not only the HyperWorks suite, but also a broad range of complementary third-party programs and other Altair products at no extra cost. Beta Epsilon has chosen an annual leasing contract which enables them to work with any tool the HyperWorks suite provides. This way, all Beta Epsilon's engineers have access to the appropriate solution for each task they have to handle, may it be meshing, optimization, structural analysis or post processing. Each car is handled individually and with the engineers' expertise and tools such as the HyperWorks suite at hand, the company is able to provide an even broader services offer to their customers.

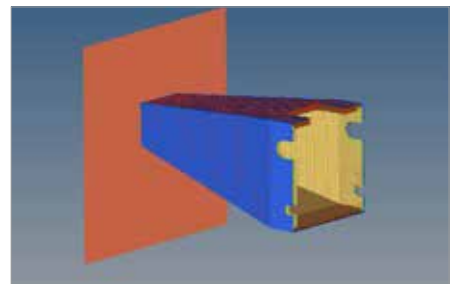*Simulation with solver RADIOSS*

Results/Benefits

HyperWorks and Altair's flexible licensing system enables Beta Epsilon to:

- accelerate the development process and cut down software expenses
- improve product quality and efficiency
- offer a broader range of services
- have access to the entire software suite via the HyperWorks units, even for punctual use
- deploy the appropriate solution for each problem/task
- have access to a responsive and good technical support, with quick to answers and good trainings

Post Traitement with HyperView