A350XWB S19.1 WEIGHT OPTIMIZATION

INTRODUCTION

ICEMM has done some weight optimization of the metallic and composite primary structure of the S19.1 for the Airbus A350XWB-900. In this project, it has been carried out all the preliminary calculations for weight reduction of different parts of the composite and metallic structure of the S19.1 (Torsion Boxes, Stringers and Front Firewall).

COMPLETED PROJECT

Client: Alestis Aerospace

Date: 2014

- Weight Optimization of the composite and metallic Structure of the S19.1 for the Airbus A350XWB-900.

Figure 1. General view of the A350XWB S19.1

COMPLETED ACTIVITIES

- Evaluation of possible areas of weight optimization.
- Preliminary proposals for weight reduction.
- Analytic calculations for preliminary proposals
- Torsion Boxes weight optimization. Stress analyses.
- Front Firewall weight optimization. Stress analyses.
- Stringers suppression for weight optimization. Stress analyses.
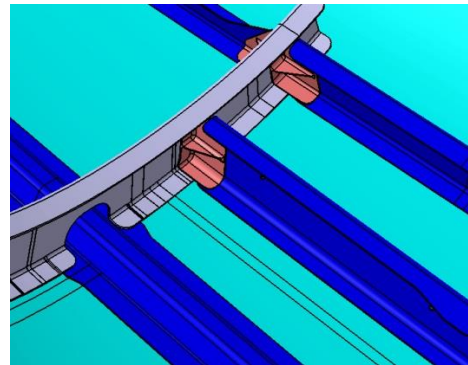- Documentation.

Figure 2. Elements analyzed

TECHNOLOGY

The entire project has been analyzed using Alestis-Airbus methodology (Alestis S19.1 methodology, linear FE models, non-linear FE models, analytic calculations [handmade or using macros]). The software used in this project is:
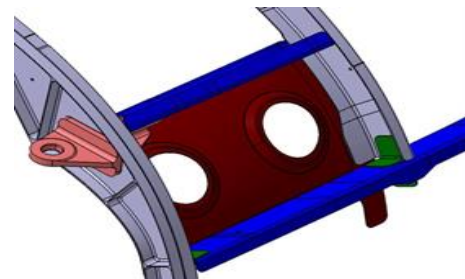
- ISAMI v7.2.2.
- Excel + VBA.
- Alestis Software.
- Nastran/Patran.
- Abaqus/CAE.

Figure 3. Elements analyzed