

Mechanical Design

CATIA - Aerospace SheetMetal Design (ASL)

CATIA V5R18





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Designs (hydro-pressed or break-formed) sheet metal parts used in the aerospace industry.

Product overview

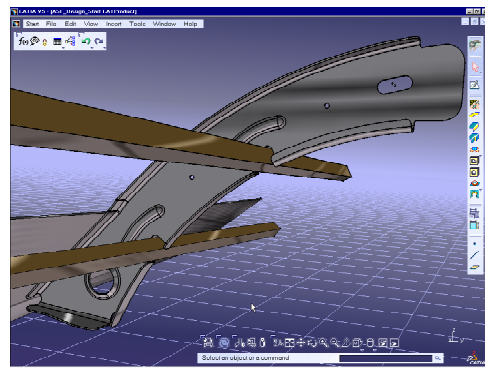
CATIA Generative Aerospace Sheetmetal Design is a product dedicated to the definition of sheetmetal parts used in the aerospace industry (hydro-pressed or break-formed).

It enables the capture of company knowledge, including design, and manufacturing constraints.

Product is based on Feature Modeling techniques, using a pre-defined set of Features used for sheetmetal parts designed in the aerospace industry. Based on both specification-driven and generative approaches, this product will allow typical hydro-formed aerospace parts to be easily specified, the system taking care of creating both 3D and flattened part geometry. Where such parts are designed or modified with basic modeling tools within hours or days, this product allows same result to be achieved in minutes.

CATIA Generative Aerospace Sheetmetal Design provides an interactive function to design sheetmetal parts in a very intuitive way, taking manufacturing constraints into accounts. It provides the flatpattern of the sheetmetal part, and allows easy incremental design (from preliminary to detailed stages) and modification both in 3D and flattened conditions.

Whenever initial specifications are changed (e.g. the aircraft skin on which a frame has been designed is modified), this product will allow new part to be



automatically rebuild, based on new specifications.

Product Highlights

- ❑ Associative and dedicated SheetMetal feature-based modeling
- ❑ Creates and manages sheetmetal parts through specifications (feature based techniques based on solids, surfaces & wireframe geometry, and technological attributes)
- ❑ Folding and unfolding capabilities
- ❑ Concurrent engineering between the unfolded or folded part representation
- ❑ Dedicated aerospace features available include Web, Flange (curved, double curved or planar), Joggle, Cutout, Stiffening bead, extruded hole
- ❑ Compute automatically 3D folded part and 2D flattened part geometry from technical specifications
- ❑ Enables simple creation/modification of sheetmetal elements through change in specifications, the update of geometry automatic

- ❑ Provides bend allowance computation when flattening through user-defined neutral fiber
- ❑ Company standards and skills can be used to specify features through CATIA V5 Knowledge abilities
- ❑ Encapsulates Feature Based Modeling and makes it available through a handy user-interface dedicated to Sheetmetal for Aerospace

Product Key Customers Benefits

Specification-Based Design... Using feature-based techniques and technological attributes, aerospace designers can quickly create sheet metal parts (hydro-pressed or break-formed) with Generative Aerospace Sheetmetal Design. The intelligent tools of this system enable designers to generate and modify their models, such as frames, within minutes instead of hours or days.

Automated Modification capabilities... Designers can effect modifications through changes to defined features and technological attributes or direct geometry manipulation. As designers make changes in specifications, the system automatically updates the geometry.

Flexible Solution... Generative Aerospace Sheetmetal Design allows designers to switch from one representation -- whether solids or surfaces -- to another whenever they want. Users can create and modify their design as a 3D formed part or a 2D flat pattern. Due to the design approach's flexibility, users can initially define the part through major functional characteristics that comply with the part's general dimensions. Later, the designers can add holes and cutouts for access as well as place components and fasteners.

2D and 3D Capabilities... Generative Aerospace Sheetmetal Design can automatically compute a 3D formed part as well as 2D flattened part geometry from the technical specifications. With user-defined neutral fiber data, the system computes bend allowance when flattening the design.

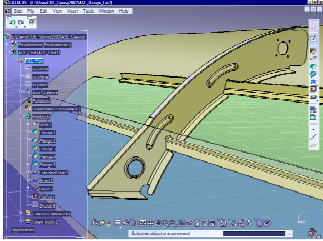
Associativity between the flattened and formed part ensures accuracy of design details and helps designers ensure manufacturability. Associativity is also maintained with the drawings. This integration of aerospace sheetmetal parts into the drafting environment avoids duplicate part definition, thereby increasing data integrity.

Dedicated Aerospace Interface... With Generative Aerospace Sheetmetal Design designers work with familiar aerospace features enabling them to concentrate on their design project. Some of these aerospace-specific design features include:

- ❑ Web
- ❑ Flange (curved, double curved or planar)
- ❑ Flange cutout
- ❑ Flanged hole
- ❑ Flanged slot
- ❑ User Flange
- ❑ Joggle
- ❑ Slot
- ❑ Cutout
- ❑ Stiffening bead
- ❑ Stiffening Rib
- ❑ Corner relief
- ❑ Hole
- ❑ Stamp
- ❑ Planar Flange
- ❑ Tear Drop
- ❑ Hem

Captured Company Expertise... Users are able to create files with defined corporate standards for such features as holes, stiffening beads or lightening holes. As many files as necessary can be created for different materials, machines, or projects. This enables CATIA users to take advantage of the technical expertise in defining their model specifications. Integration of the Company standards improves design quality and reliability.

Other images



ABOUT CATIA V5R18

CATIA is Dassault Systemes' PLM solution for digital product definition and simulation.

plm.3ds.com/CATIA

