

CATIA V5 Electrical Wire Harness Design and Manufacturing

Master the complexity of product development



Highlights

- ***Eliminate prototype costs by validating the wire harness installation in the digital mock-up***
- ***Avoid late engineering changes by verifying the wire harness assembly early in the design process***
- ***Reduce design time and increase overall quality of products utilising complex electrical wire harness assemblies.***

CATIA V5 Electrical Domain

The CATIA electrical portfolio contains several applications dedicated to complete the electrical 3D design and manufacturing documentation process for even the most complex wire harnesses as typically found in the automotive and aerospace industry. The 3D electrical process starts with the creation and placement of the electrical components like connectors, supports and protections using CATIA – Electrical Library 2 (ELB). Second phase, the creation of the bundle harnesses throughout the digital mock-up (DMU) is done through CATIA – Electrical Harness Installation 2 (EHI).

Based on the definition of the wires in the schematic/functional application CATIA – Electrical Wire Routing 2 (EWR) will route these wires through the created bundles, completing the electrical wire harness system. The manufacturing documentation is done through CATIA – Electrical Harness Flattening 2 (EHF) thus providing all manufacturing documents. Following is a more detailed description of each of these applications:

CATIA – Electrical Library 2 (ELB)

allows users to create and manage catalogues containing electrical components. This product extends mechanical parts and assemblies with electrical behaviours to define electrical components, such as connectors, equipments, shells, supports and protections. These devices can be stored in catalogues in the same way as mechanical CATIA V5 parts/assemblies. When the components are placed from the catalogue in the DMU, it takes into account all pre-defined mechanical constraints, this allowing a correct use/placement of the devices.

Through flexible integration and mapping mechanisms the components can be placed based on the definition in electrical schematic/functional systems.

CATIA – Electrical Harness

Installation 2 (EHI) is a product dedicated to the design of physical harnesses within the context of the DMU. The mechanical context is used as an input for electrical harness design to obtain a complete integration. Easy modifications and associations between the 3D environment and the harness are available. For instance, EHI provides unique slack management capabilities and allows the definition of unconstrained derivation points. EHI used together with CATIA – Flex Physical Simulation 2 (FLX) allows the definition of even more accurate harness shapes based on FEM algorithms.

CATIA – Electrical Wire Routing

2 (EWR) defines electrical wires/wire-groups within the DMU, according to the functional/wiring definition. The wires are routed according to specifications coming from schematic/functional applications within the harness bundles designed with EHI.

EWR allows users to capture and reuse corporate know-how during the routing process for optimised wire routing. Analysis capabilities such as bundle content are provided as well as reports about wire routing for harness manufacturing and back-annotation in schematics.

CATIA – Electrical Harness

Flattening 2 (EHF) enables the generation of 3D flattened views of the complete wire harness. Through the use of several parameters the layout of the flattened view can be controlled (like scaling and so on). 3D Mechanical constraints defined with EHI are preserved, so that bend radius and length of bundle segments are maintained. The integration with CATIA drafting applications allows the user to create drawings and define and manage annotations and dimensions to create full reports for wire harness documentation.

For more information, contact your IBM Marketing Representative, IBM Business Partner or visit the IBM PLM Web site at: ibm.com/solutions/plm



IBM Eurocoordination

Product Lifecycle Management
Tour Descartes
La Defense 5
2, avenue Gambetta
92066 Paris La Defense Cedex
France

The IBM home page can be found at ibm.com

IBM, the IBM logo, ibm.com and the On Demand Business logo are trademarks of International Business Machines Corporation in the United States, other countries, or both.

CATIA® is a registered trademarks of Dassault Systèmes.

Other company, product and service names may be trademarks, or service marks of others.

Any reference to an IBM product, program or service is not intended to imply that only IBM products, programs or services may be used. Any functionally equivalent product, program or service may be used instead.

This publication is for general guidance only. Information is subject to change without notice. Please contact your local IBM sales office or reseller for latest information on IBM products and services.

IBM does not represent or warrant that its products or services ensure compliance with laws. Clients are responsible for compliance with applicable securities laws and regulations, including national laws and regulations.

Photographs may show design models.

© Copyright IBM Corporation 2005
All Rights Reserved.