

ARIANE6 CRYO CONNECTION PROJECT

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Abstract:

Groupe ADF, specialist in complex mechanical systems on constraint environment, has developed the structures and mechanisms of the Ground/Launch Vehicle links on the Ariane Launch Pad number 4. These structures allow to support the lines for filling and draining Liquid Oxygen and Liquid Hydrogen to/from the stages of the Launch Vehicle up to the jettisonable interfaces.

The Ground/Launch Vehicle links are one of the major breakthrough in the Ariane 6 Launch System compared to previous legacy systems. Indeed, these links are now disconnected when the launcher takes off, whereas previous systems, from Ariane 1 to Ariane 5, were disconnected a few seconds before.

In addition, regarding the severe environment, the systems now have a function that makes possible to protect the fuel lines from the environment of the take-off and thus to guarantee the protection before reuse.

To realize these systems, Groupe ADF has mobilized all its expertise in design, development, manufacturing, testing and management of huge projects. This made possible to meet the requirements of CNES/ SDS in order to obtain reliability, robustness and simplicity for maintenance and operation.

The presentation of the Ariane 6 Ground/Launch Vehicle links' project will show the different phases and the logic of the technological choices made for the solutions to get the performance expected.

In addition, a special focus will present the integration steps that have been necessary to carry out the tests at the GroupeADF site in Fos sur mer, then the transport logistics requirement to integrate finally the systems in French Guyana in Kourou up to the Launch Pad number 4.