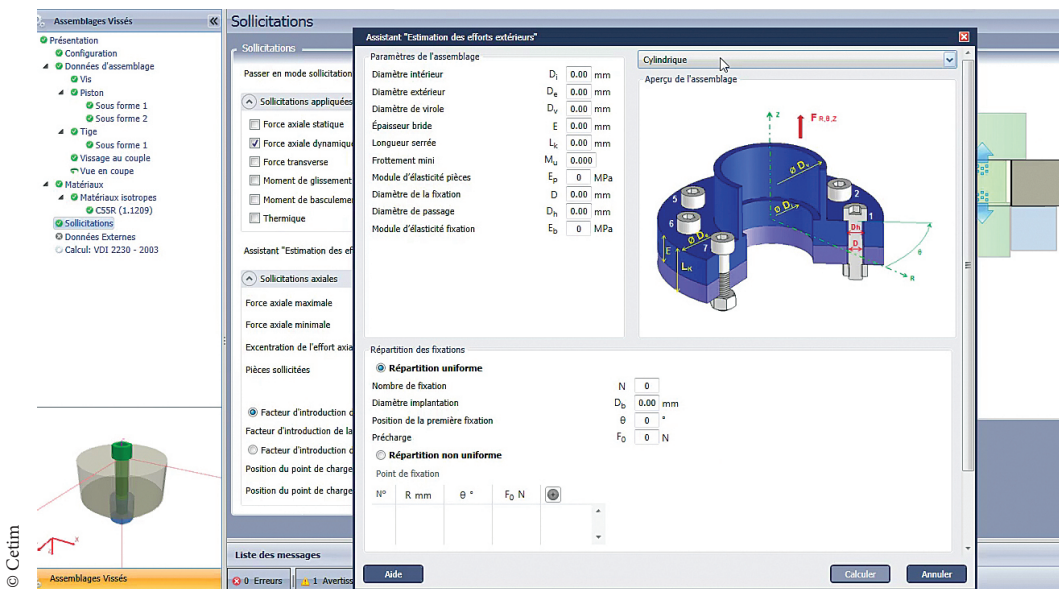Cnes

Cobra extents its scope of application

The Centre national d'études spatiales (Cnes, the French centre for space studies) has acquired the latest version of Cobra, a bolted assembly design aiding tool, developed for its specific needs. Cobra now has a more user-friendly interface.

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There is no need to change a winning team… A few years ago, the Centre national d'études spatiales (Cnes) asked Cetim to develop a version of Cobra tailored to its specific needs. « *Cobra is a design aiding tool applicable to pre-stressed, controlled tightening bolted joints, but it did not exactly meet our requirements. However, it was a tool which we could rely on to find answers to our problems* », explains Laurence Rozenberg, Bolted joint design methodologies and tools manager at Cnes. The main purpose of this tool was to design the most stressed bolt on flanges with diameters ranging between 2 to 5.4 m, fitted with several hundreds of bolts. These flanges are used to attach the stages of Ariane 5 launch vehicles and their variants.

After two years, the Cnes turned to Cetim again to extend the functions and scope of use of Cobra. The second version of Cobra-Cnes, financed jointly by Cnes and Cetim, must be able to meet four requirements: processing of specific geometries such as chapel flanges; integration of pressure type stresses on flanges; simulation of the presence of an insert in tapped holes ; and execution of calculations on composite material flanges. Laurence Rozenberg to add : « *Cetim has the necessary technical skills to develop computational kernels suited to our requirements, as well as testing means to adjust the models* ».

A new IHM
The development of this new version of Cobra-Cnes was the opportunity to integrate the new, renovated, Cobra human-machine interface (HMI). Laurence Rozenberg to conclude : « *We now have a modern, user-friendly HMI and a functional, easy-to-use tool which meets our requirements and whose limits we perfectly know* ».

Cetim's asset
Cetim has experts able to develop analytical tools tailored to specific needs as well as testing means to perform adjustments on models.

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