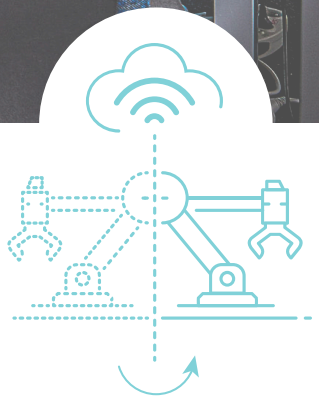
DESIGN & OPTIMISATION

MECHANICAL DESIGN AND STRUCTURAL OPTIMISATION FOR MECHATRONIC SYSTEMS



Flanders Make assists companies in taking design decisions in the conceptual phase of a mechatronic product design process. This results in a better initial design within a shorter period of time, fewer design iterations and shorter development times.

We provide workflows to perform structural topology optimisation of components in modern machinery, accounting for their interaction with other components and their dynamic performance. The results of these approaches serve as an effective starting point for the final human design iterations, including verification of the structural integrity of components and systems as well as the optimisation of mechanical structures:

- optimisation of weight, NVH, strength, stiffness and cost;
- evaluation and comparison of design concepts;
- decision support in connection with material and geometrical parameter choices.

We use various unique software and hardware tools in this process:

- Simulation and concept evaluation tools: from lumped parameter to 3D distributed parameter analysis and co-simulation
- Robust pattern search optimisers
- Structural topology and parametrical optimisation tools
- Materials database (Granta CES Selector)

www.flandersmake.be

For more information, please contact
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FLANDERS MAKE

SUCCESS STORY

Design optimisation of Thule bike carriers

PROBLEM
Thule, manufacturer of bike carriers, was confronted with consumers changing from normal bikes to electrical bikes, which are considerably heavier. Therefore, they aimed to strengthen their aluminium bike carriers using steel reinforcements.

SOLUTION
Flanders Make optimised their design in such a way that it could remain all-aluminium to ensure the same mechanical performance in terms of strength and stiffness.

CUSTOMER VALUE
The assembly procedure was simplified, the weight and cost decreased by 3% and the risk of corrosion was eliminated.