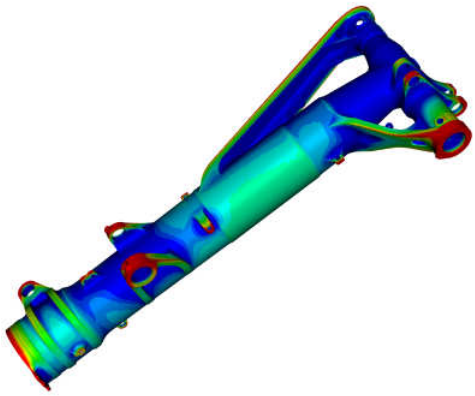
Plating performance obtained from an Elsyca developed tooling configuration for a landing gear part

The first step of a Computer Aided Engineering project is to identify the problem zones by performing a simulation without any dedicated tooling. Only with the main anodes are active, without any resource to manual anodes. The layer thickness is computed along the entire surface of the component.

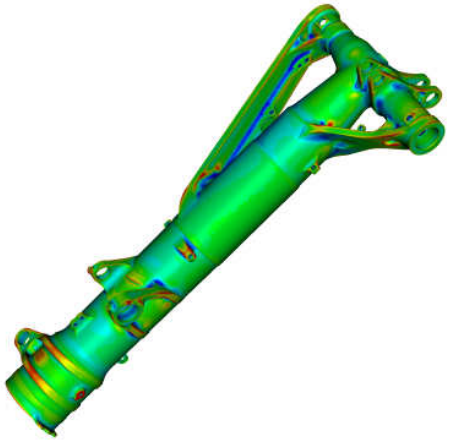
In the figure below, the red areas represent excessive deposit and the dark blue areas are under minimum specifications, hence it can be concluded that the majority of the part surface areas fall outside specifications if only main anodes are used.



By addressing each problem zone at a time via iterative simulations, a complete package of auxiliary anodes, current robbers and insulating shields is developed. Different rectifiers act on separate zones to achieve enhanced control over the current density distribution. This finally leads to deposit thickness that is within specifications over 95 to 100 % of the surface area to be plated.

To eliminate gas pockets in recessed areas a forced flow system is defined. This prevents that the part has to be repositioned during the plating process.

With the final tooling design mounted on the part (not shown here) and lowered into the plating tank, the current program can be activated. The operator no longer has to intervene with manual anodes, thereby eliminating an important irreproducible factor in the plating process. The dedicated tooling design allows for a reliable, consistent and operator independent plating process.



Once the plating is concluded, the tooling can be extracted and a deposit within specifications is achieved.

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