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RESEARCH ON THE DETAIL DESIGN OF AIRCRAFT WINGS

Abstract

Due to the lack of the wings detail design progress and the limitation of ordinary detail design ways for the complicated design of wings, while a new wing detail design process was proposed based on traditional wing structural design approach, including two parts: the sub-components design and the particular design. The process involves taking loads on initial proofing structure, structural design, FEM (Finite Element Methods) analysis, and buckling analysis, etc. According to the wing structural characteristics, it makes the reaction forces as the input loads for the sub-components design. In the particular design, the structural loads were calculated by the corresponding deformation based on the initial proofing design. The detail components are designed based on the new design process which meets to all the design requirements. It shows that the new design process is feasible and available.