

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Space Structures I - Development and Verification (Space Vehicles and Components) (1)

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METHOD OF WEIGHT OPTIMIZATION OF DISCRETELY LOADED ROCKET BAYS OF WAFFLE
STRUCTURE

Abstract

A new method of weight reduction of rocket bays, mainly aft, of waffle structure, loaded in operation by the concentrated forces through discretely arranged (four) parking legs is developed and demonstrated by calculation results. In accordance with suggestion, the reinforced areas of bay stiffening are made only in zones of action of the concentrated forces and represent "stiffness columns" placed above legs. Reduction by milling in thickness of ribs, linen and shaping strips in less loaded zones between "stiffness columns" enables to reduce the bay weight up to 20%. Design documentation is issued for lightweight case structure of newly developed aft bay, weight reduction is more than 200 kg.