METHOD OF MITIGATING WRINKLES DURING THE MANUFACTURE OF SUPER-PLASTICALLY FORMED PARTS

ABSTRACT

A method including arranging a plurality of flat sheets into a part assembly, consisting of a first outer sheet and a second outer sheet. A friction-modifying layer is applied to the first outer sheet, where the first outer sheet has a first portion and a second portion. The friction-modifying layer is applied at a first thickness in the first portion and a second thickness in the second portion. The first thickness and the second thickness are different thicknesses. The method also includes placing the part assembly on a lower die of a die system with the first outer sheet facing the lower die. The method further includes moving an upper die of the die system in a forming direction toward the lower die to stretch and compress the part assembly between the upper die and the lower die and to super-plastically form the part assembly into the formed part.

Fig. 7