

Supersize My Shell

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Abstract

The manufacture of large investment castings in any material is notoriously difficult for static casting, whilst the application of up to 20G during casting places huge additional forces on the shell which has a knock-on effect on shell strength, thickness and weight. The system was designed to be able to manufacture a shell envelope of 6ft 6ins diameter and 8ft 2ins long with a maximum shell weight of 5,510 lbs.

This huge shell envelope and payload presented many challenges from both an equipment and process perspective, with dip tanks 10 ft. in diameter and rain sanders of 13 ft. diameter. The shell system also had to cater for both steel and the far more reactive titanium alloys.

This paper will outline the early systems employed prior to this customized solution, initial objectives, the interactive design, manufacture, installation and most importantly practical experience with the “supersize” shell manufacturing facility.



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