

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)  
Technologies for Future Space Transportation Systems (5)

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DEVELOPMENTS ON LOW COST MANUFACTURING METHODS FOR CYLINDRICAL  
LAUNCHER STRUCTURES

**Abstract**

Due to the increasing international competition and growing pressure to lower costs in the launcher segment, enhanced technologies and competences for efficient development and production methods have to be evolved. In this paper, an innovative technology developed over the last few years at MT Aerospace AG with collaboration from NASA Langley Research Center, Lockheed Martin, and Leifeld Metal Spinning in the field of manufacturing processes for the launcher application is presented. The so-called "ISC" (Integrated Stiffened Cylinder) manufacturing method was first investigated in 2010. Early results indicated a high mass saving potential for the cylinder production of launcher systems using the ISC method. More recently, cost-benefit studies conducted at NASA Langley and MT Aerospace estimated up to 50% mass saving. This paper summarizes the status and relevant results of the performed manufacturing test sequence of the ISC cylinder manufacturing method. Moreover, an outlook will be given on further planned activities and development steps.