

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Solutions for Human Flights in China (9-D6.2)

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RESEARCH ON PROCESSING OF SPACESUIT BY EMF

Abstract

Some key technologies that shapes hole flanging, bulging, the pressure helmet sizing and the door-shaped flanged sizing are produced by electromagnetic forming (EMF) technology during the development of extravehicular spacesuit are described in this paper. A series of technical problems that cannot be solved by conventional method are worked out. It makes EMF one of the highlight technologies of extravehicular spacesuit development and creates an international precedent for the application of EMF on extravehicular spacesuit. The development and application of EMF technique in China are promoted greatly. As a forming process of metal plate and tube, EMF possess high-energy characteristics that other methods cannot match, such as rapid forming, simple mold, green environment, small rebound, especially for single-piece and small batch production. Since EMF technique was invented in U.S. in the 50s of the last century, it has been gradually applied in aerospace, electronics, machinery and other fields in U.S., Japan, Germany and Russia. Aiming at the forming of sheet metal used in Long March launch vehicle, engine and other products, CAMC started to conduct application research in this area in 2005. In addition to playing an important role in the development of extravehicular spacesuit, EMF has solved a number of production bottlenecks and short-term problems. Practical results show that EMF have a very broad prospects in aerospace application.