

Entering into Space and New Energy and Propulsion Technology (7)

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RESEARCH ON THE KEY TECHNOLOGIES OF PRECISE MANUFACTURING AND MEASUREMENT OF CRYOGENIC VALVE FOR NEW GENERATION LAUNCH VEHICLE

Abstract

A new generation of carrier rocket using liquid oxygen / kerosene propellant, is the future development of the new trend of carrier rocket. A new generation of carrier rocket booster delivery system Cryogenic valve work in the liquid oxygen low temperature medium or large flow of liquid oxygen, helium erosion and other new environments, while the valve diameter, high precision, difficult to develop. To ensure the successful development of a new generation of launch vehicles, should break through the low-temperature valve precision manufacturing and measurement of common and typical technical difficulties, so as to ensure that China's deep space carrying capacity and national space industry sustainable development. This paper focuses on several advanced low temperature valve manufacturing and measurement of key technologies, including low temperature sealing technology, multi-function high precision large temperature difference frost-free detection technology, distributed rupture diaphragm and corrugated diaphragm precision stamping molding technology, low temperature pulsating pressure Cycle life test technology, describes its technical difficulties and research methods, and gives the development of low-temperature valve technology recommendations.