IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Vehicles in Service or in Development (1)

Author: Mr. Xiaobo Peng
Beijing Interstellar Glory Space Technology Co., Ltd, China

Mr. Zhihong Li
Beijing Interstellar Glory Space Technology Co., Ltd, China
Mr. Yong Zhang
Beijing Interstellar Glory Space Technology Co., Ltd, China
Mr. Liwei Zheng
Beijing Interstellar Glory Space Technology Co., Ltd, China
Dr. Jingqi Cai
Beijing Interstellar Glory Space Technology Co., Ltd, China
Mr. Liang Chen
Beijing Interstellar Glory Space Technology Co., Ltd, China

THE HYPERBOLA LAUNCH VEHICLE FAMILY

Abstract

The hyperbola launch vehicle family, including a small solid launch vehicle and two liquid launch vehicles, is under development by Beijing Interstellar Glory Space Technology Co., Ltd (iSpace). The solid launch vehicle is designed to satisfy the needs of small satellite launch and responsive launch, while the liquid ones targeting the larger satellites and higher orbits. ISpace focuses on the research and development of high quality, low cost and rapid response launch vehicles, and will strive to provide commercial launch service for payloads of various orbits, from low earth orbit to geostationary transfer orbit in five years.

Hyperbola-1 is a four stage solid launch vehicle, capable to launch 300 kg into a 500 km sun-synchronous orbit. Due to the use of four solid rocket motors, the rocket is simple, reliable and can meet the needs of responsive launch. In July 25th, 2019, Hyperbola-1 successfully launched from Jiuquan Satellite Launch Center in northwest China and deployed two satellites into a 300 km low earth orbit with high accuracy. It was also recorded as China's first privately-developed rocket to orbit the earth.

Hyperbola-2 is a two stage, reusable liquid propulsion (LOX/LCH4) launch vehicle, capable to carry over 1100 kg (or 800 kg when the first stage reused) into a 500 km sun-synchronous orbit. High quality, reliability and low cost are achieved by multidisciplinary design optimization, intelligent fly control and the reusability of its first stage. First launch of Hyperbola-2 is scheduled for Dec. 2021. Hyperbola-3, a two stage liquid launch vehicle, designed to deploy medium weight payloads, is scheduled to make its first launch in 2023.