Antares™
Medium-Class Space Launch Vehicle

FACT SHEET

Overview

Designed to provide responsive and low-cost access to space, Antares is a two-stage vehicle (with optional third stage) that provides low-Earth orbit (LEO) launch capability for payloads weighing up to 8,000 kg. Internally funded by Orbital ATK, Antares completed a risk reduction mission and a demonstration of commercial re-supply services for the International Space Station (ISS) under a NASA Commercial Orbital Transportation Services (COTS) agreement in 2013. Orbital ATK commenced delivery of cargo to the International Space Station under the NASA Commercial Resupply Services (CRS) contract in 2014. The Antares launch system utilizes Orbital ATK's proven MACH avionics system and many management approaches, engineering standards, production and test processes common to Orbital ATK's family of successful small-class Pegasus® and Minotaur launch vehicles.

The Antares design has been upgraded with newly-built RD-181 first stage engines to provide greater payload performance and increased reliability. Orbital ATK has modified the rocket's first stage systems to accommodate the RD-181 and successfully hot fire tested the stage in the second quarter 2016. The company had a spectacular and successful return to flight in October 2016. Orbital ATK was also recently awarded a CRS-2 contract for cargo deliveries through 2024.

Key Features

- Incorporates both solid and liquid stages and flight-proven technologies
- Provides substantial payload performance into a variety of low inclination low-Earth and sun-synchronous orbits and interplanetary trajectories
- Streamlined vehicle/payload integration and testing via simplified interfaces reduce time from encapsulation to lift-off
- 3.9 meter fairing accommodates large payloads
- Capable of launching single and multiple payloads
- Launch capability from Wallops Flight Facility (WFF), Virginia

FACTS AT A GLANCE

Medium-class space launch vehicle utilizes systems from other Orbital ATK product lines and Zenit heritage
Up to 8,000 kg to low-Earth orbit

Mission Partners

Orbital ATK
Prime integrator, systems engineering, avionics, primary structure, testing and software. Overall Stage 1 development and integration, Stage 2 motor

KB Yuzhnoye/Yuzhmash
Stage 1 core design, production and verification

NPO Energomash
Stage 1 engines

Antares™

Expanded View

Payload Fairing

- Diameter: 3.9 m
- Height: 9.9 m
- Structure: Honeycomb core, composite face
- Separation: Non-contaminating frangible ring

Stage 2

- Orbital ATK CASTOR® 30XL solid motor (CASTOR 120 heritage) with thrust vectoring
- MACH avionics

Optional Stage 2

- Orbital ATK CASTOR® 30B solid motor with thrust vectoring

Optional STAR™ 48-Based Third Stage

- Orbital ATK STAR 48BV high energy upper stage solid rocket motor
- Thrust vector guidance and control
- 3-axis stabilized satellite orbit insertion

Optional Bi-Propellant Third Stage (BTS)

Helium pressure regulated bi-propellant propulsion system using nitrogen tetroxide and hydrazine (Orbital ATK GEOStar™ bus heritage)
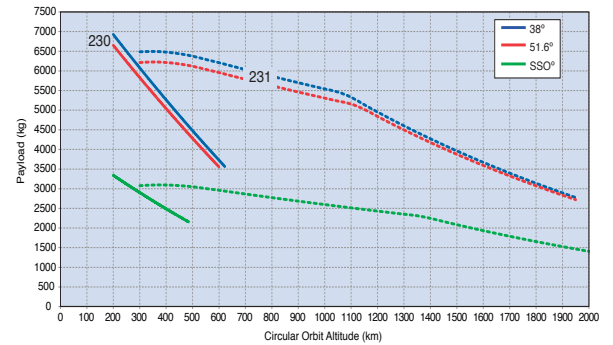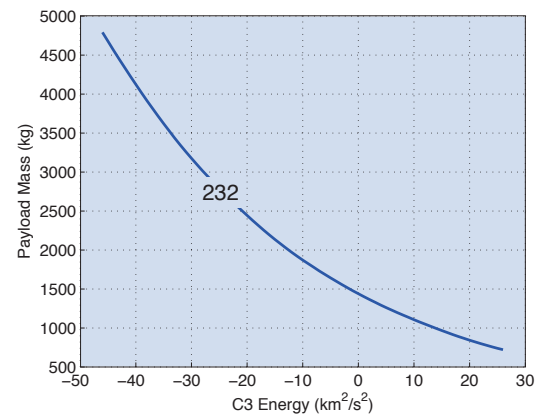
Stage 1

- Two NPO Energomash RD-181 engines with independent thrust vectoring
- Liquid oxygen/kerosene fueled
- Orbital ATK responsible for system development and integration
- Core tank design and design verification by KB Yuzhnoye (Zenit-derived)
- Core tank production by Yuzhmash
- Avionics stage controller uses flight-proven Orbital ATK MACH components

Performance

Antares Performance to Circular Orbits (WFF)

Antares Performance to 38° High Energy Orbits (WFF)

Antares Configuration Numbering

First Stage	Second Stage	Third Stage
2 – Two NPO Energomash RD-181 Lox/Kerosene Fueled Engines	2 – CASTOR® 30B Solid Motor 3 – CASTOR® 30XL Solid Motor	0 – None 1 – Bi-Propellant Third Stage (BTS) 2 – STAR 48-Based Third Stage

Key Contacts

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