Antares™
Medium-Class Space Launch Vehicle

Overview
Designed to provide responsive, low-cost, and reliable access to space, Antares is a two-stage vehicle (with optional third stage) that provides low-Earth orbit (LEO) launch capability for payloads weighing over 5,000 kg. Internally funded by Orbital, Antares is currently under development with a total of 10 missions planned between 2012 and 2015: a risk reduction mission, a demonstration of commercial re-supply services for the International Space Station (ISS) under a NASA Commercial Orbital Transportation Services (COTS) agreement, and eight Commercial Resupply Missions (CRS) to deliver cargo to the ISS. The Antares launch system utilizes Orbital’s proven MACH avionics system and many management approaches, engineering standards, production and test processes common to Orbital’s family of highly successful small-class Pegasus®, Taurus®, and Minotaur launch vehicles. These proven launch technologies, along with hardware from one of the world’s leading launch vehicle integrators, combine to provide cost-effective access to a variety of orbits for civil, commercial and military medium-class payloads.

Antares is designed to achieve a 95% or greater launch reliability. Design, manufacturing and testing of Antares is taking place in Dulles, Virginia and Chandler, Arizona.

Key Features
• Incorporates both solid and liquid stages and flight-proven technologies to meet medium-class mission requirements
• 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
• Initial launch capability in 2012 from Wallops Flight Facility (WFF), Virginia
• Also compatible with the Western Range at Vandenberg Air Force Base (VAFB), Eastern Range at Cape Canaveral Air Force Station (CCAFS) and the Kodiak Launch Complex (KLC)

Antares will launch from the newly built Pad-0A at Wallops Flight Facility, Virginia

QUICK FACTS:
Medium-class space launch vehicle utilizes proven systems from other Orbital product lines and Zenit heritage
Over 5,000 kg to low-Earth orbit
Designed to achieve a 95% or greater launch reliability

Key Partners:
Orbital Sciences Corporation
• Prime integrator, systems engineering, avionics, primary structure, testing and software
• Overall Stage 1 development and integration
KB Yuzhnoye/Yuzhmash
• Stage 1 core design, production and verification
Aerojet
• Stage 1 engines
ATK
• Stage 2 motor

Artist’s rendering of Orbital’s Antares medium-class space launch vehicle
Antares

### Expanded View

#### Payload Fairing
- Diameter: 3.9 meters
- Height: 9.9 meters
- Structure: Honeycomb core, composite face
- Separation: Non-contaminating frangible ring

#### Stage 2
- ATK CASTOR® 30B solid motor (CASTOR 120 heritage) with thrust vectoring
- MACH avionics

#### Optional Stage 2
- ATK CASTOR 30XL solid motor with thrust vectoring

#### Stage 1
- Two Aerojet AJ26-62 LOX/Kerosene fueled engines with independent thrust vectoring
- Liquid oxygen/kerosene fueled
- Orbital 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 MACH components

### Performance

#### Circular Low-Earth Orbit Performance

**Legend**
- Antares 120
- Antares 121
- Antares 122
- Antares 130
- Antares 131
- Antares 132
- Antares 230
- Antares 231

#### High Energy Performance

**Legend**
- Antares 120
- Antares 122

### Optional Bi-Propellant Third Stage (BTS)
Helium pressure regulated bi-propellant propulsion system using nitrogen tetroxide and hydrazine (Orbital GEOStar™ bus heritage)

### Key Contacts

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