



CYGNUS™

Cargo Delivery Spacecraft for the International Space Station

Northrop Grumman developed the Cygnus advanced maneuvering spacecraft to provide cargo delivery services under a NASA Commercial Orbital Transportation Services (COTS) Space Act Agreement.

Northrop Grumman uses Cygnus to perform International Space Station (ISS) resupply flights under the Commercial Resupply Service (CRS) contract. Under the second CRS contract, Northrop Grumman is conducting at least six missions delivering more than 20,000 kilograms of critical cargo to the space station. The initial CRS contract, consisting of 11 missions and approximately 30,000 kg of cargo, was completed in April 2019.

The Cygnus system is a flight proven design incorporating elements drawn from Northrop Grumman and its partners' existing, flight-proven spacecraft technologies. Cygnus consists of a Service Module and a Pressurized Cargo Module. Cygnus is used to carry crew supplies, spare equipment and scientific experiments to the space station.

The Service Module incorporates advanced avionics developed by Northrop Grumman and guidance and navigation components that allow for fully autonomous rendezvous with the space station. The avionics design fully meets all of the demanding NASA safety requirements imposed on human-rated space vehicles.

The Pressurized Cargo Module is manufactured by Thales Alenia Space specifically for Cygnus.

MISSION PARTNERS

THALES ALENIA SPACE - ITALIA

Pressurized Cargo Module

L-3 CINCINNATI ELECTRONICS

Communications

JENA - OPTRONIK

Rendezvous sensing

NEPTEC DESIGN GROUP

Rendezvous sensing

NORTHROP GRUMMAN

Prime contractor; engineering and development; Cygnus Service Module, mission and cargo operations, solar arrays



CYGNUS™

SPECIFICATIONS

SERVICE MODULE

Heritage:	GEOSTar™, LEOStar™
Power Generation:	2 fixed wing UltraFlex™ solar arrays, ZTJ Gallium Arsenide cells
Power Output:	3.5 kW
Propellant:	Dual-mode N2H4/MON-3 or N2H4

PRESSURIZED CARGO MODULE

Heritage:	Multi-Purpose Logistics Module
Total Cargo Mass:	Up to 3,750 kg
Pressurized Volume:	27 m ³
Berthing at International Space Station:	Node 1 or Node 2 Common Berthing Mechanism (CBM)



The Cygnus Service Module incorporates systems from Northrop Grumman's flight proven LEOStar and GEOSTar satellite product lines



For CRS Missions, Cygnus is boosted into orbit by Northrop Grumman's Antares™ launch vehicle (left) or a United Launch Alliance Atlas V rocket (right)



The Cygnus Service Module is mated with the Pressurized Cargo Module

MORE INFORMATION

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