United Launch Alliance

ATLAS V

MAXIMUM FLEXIBILITY AND RELIABILITY

LAUNCHING A HIGHER STANDARD

ATLAS V

A HISTORY OF MISSION SUCCESS

The Atlas V family of Evolved Expendable Launch Vehicles (EELV) represents our commitment to enhanced competitive launch services for the U.S. government. Since its debut in August 2002, the Atlas V family has achieved 100 percent mission success for the U.S. Air Force (USAF), the National Reconnaissance Office, NASA and commercial customers with launches from both the East and West Coasts.

50 YEARS AND COUNTING

Since 1957, Atlas rockets have protected our nation, sent people into space and the led the way in solar system exploration.

MODULAR SYSTEM FOR MAXIMUM FLEXIBILITY

Built modularly using flight-proven elements, Atlas V has followed a carefully executed program of incremental improvements becoming the worthy successor to the 100 percent successful Atlas II and III programs. Providing customers maximum flexibility, capability and reliability have been hallmarks of the Atlas program, which has logged more than 600 launches to date, from the early days of America's manned spaceflight to our recent return to the Moon.

THE ATLAS V FAMILY OF LAUNCH VEHICLES OFFERS:

- Significantly enhanced capability via a structurally stable common booster core powered by the RD-180 engine. Produced by RD AMROSS, the RD-180 engine is throttleable over a wide range and develops a liftoff thrust of 3.8 MN (860,600 lbf).
- Provisions for adding up to five Aerojet Atlas V strap-on solid rocket boosters. The solid rocket boosters, the largest monolithic solids in the world, enable the Atlas V to flexibly and competitively meet varied performance requirements for missions from low-Earth to geosynchronous orbit and beyond.
- A Centaur upper stage configured with either one or two Pratt & Whitney Rocketdyne-manufactured RL10 engines to optimally meet various spacecraft mission requirements.
- The option of either a 4.2-meter diameter Atlas-heritage design payload fairing or a 5.4-meter diameter Oerlikon-manufactured payload fairing. Both flight-proven fairings are offered in three lengths to more precisely accommodate customer requirements.

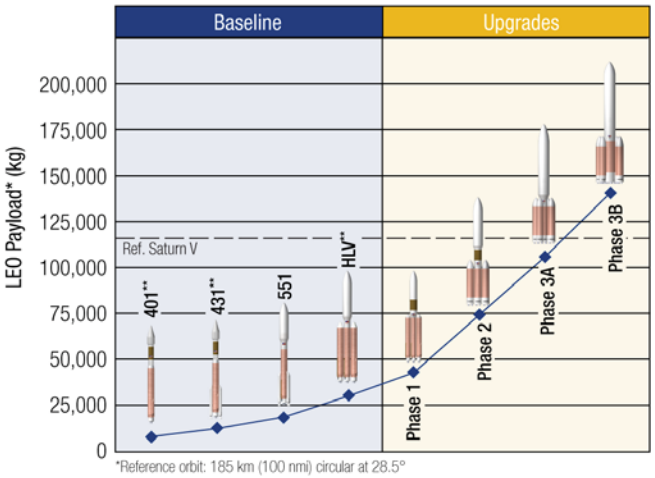
PERFORMANCE

	401	431	551	HLV
GTO	4,750 kg (10,470 lb)	7,700 kg (16,970 lb)	8,900 kg (19,260 lb)	13,000 kg (28,660 lb)
LEO	9,370 kg (20,650 lb)	15,130 kg (33,650 lb)	18,510 kg (40,800 lb)	29,400 kg (64,820 lb)

Geosynchronous transfer orbit (GTO): 35,786 x 185 km (19,323 x 100 nmi) at 27°
Low-Earth orbit (LEO): 400 km (216 nmi) circular at 28.5°

GROWTH OPTIONS

Built on sequential enhancements, Atlas V launch vehicles serve as a reliable partner to the U.S. government. ULA recognizes Atlas' importance to the nation and continues to develop solutions to meet evolving customer requirements.



*Reference orbit: 185 km (100 nmi) circular at 28.5°
**May require mission analysis or launch vehicle modifications

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