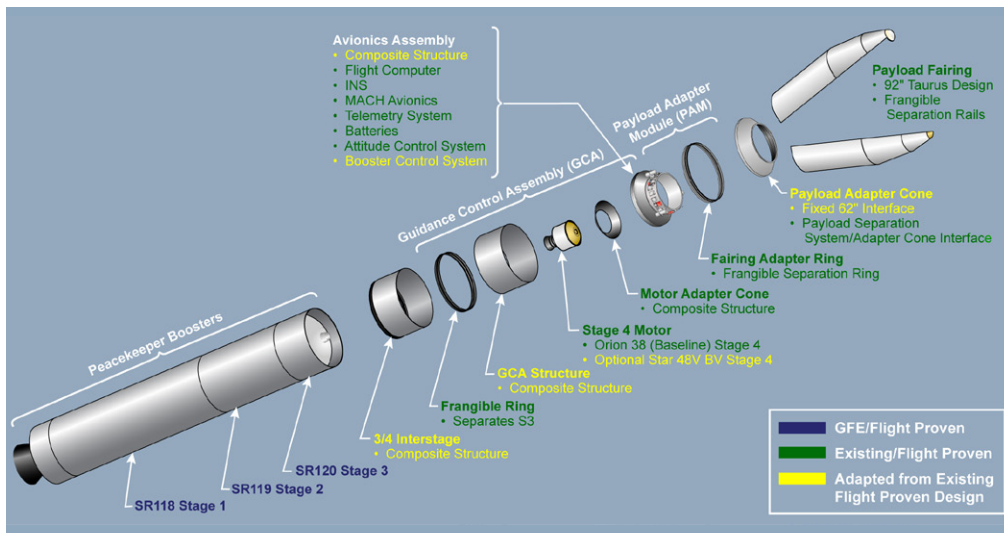




Minotaur IV

Space Launch Vehicle



Expanded view of the Minotaur IV launch vehicle

Overview

The Minotaur IV Space Launch Vehicle (SLV) leverages the flight-proven heritage of the Minotaur I, Pegasus, and Taurus space launch vehicles to provide an extremely cost-effective and capable space solution for U.S. Government-sponsored spacecraft. It builds on a long background of dependable launch systems with over 50 flights of each core stage. The combination of three government-furnished solid rocket stages, a commercial solid rocket upper stage, and Orbital's flight-proven systems and processes provide an unmatched mix of value and performance. The integration of government motors with commercial boosters and state-of-the-art hardware is one of Orbital's unique strengths from experience spanning several decades, including the use of the Peacekeeper Stage 1 motor on three successful Taurus missions.

For the Minotaur IV, the standard Minotaur-family avionics, flight software, and subsystems are integrated into a Guidance Control Assembly (GCA) which also incorporates the Stage 4 solid motor. The baseline Stage 4 motor is the same Orion 38 design used on Minotaur I, Pegasus, Taurus, and other Orbital launch vehicles. An optional Star 48V motor is available for additional performance in the Minotaur IV+ configuration.

The Minotaur family of launch vehicles are provided via the Orbital/Suborbital Program 2 (OSP-2) and managed by the U.S. Air Force Space and Missile Systems Center (SMC), Space Development and Test Wing's (SDTW) Launch Test Squadron (LTS) located at Kirtland AFB, NM.

QUICK FACTS:

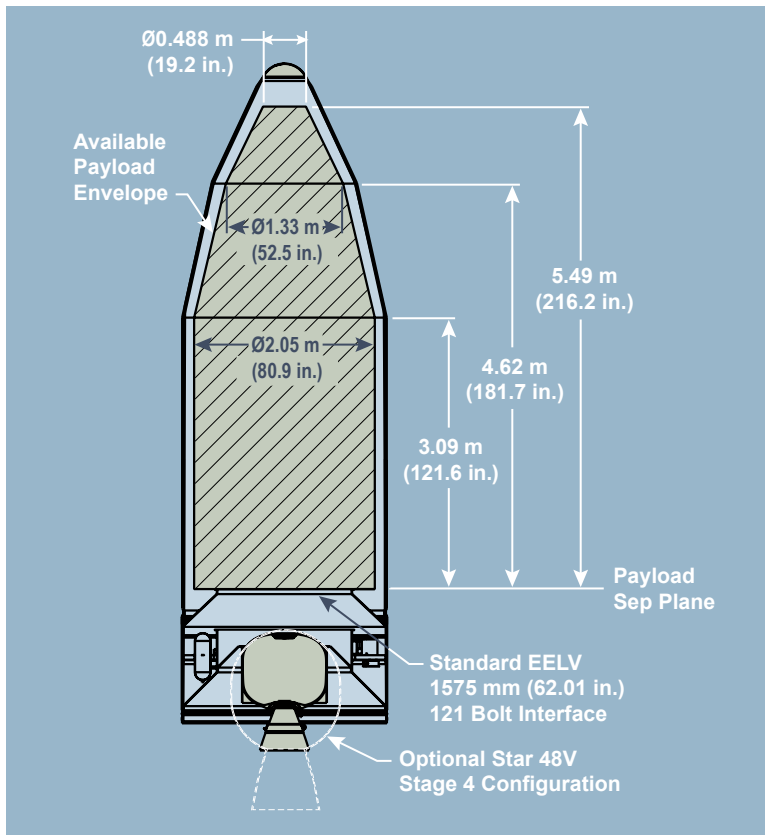
System Features

- Full spacecraft integration support, including mission management, spacecraft interface support (power, telemetry, sequencing, attitude control, and deployment), through launch operations and post-launch performance evaluation
- Standard 18 month mission response including mission integration and launch by Orbital's uniquely experienced team
- Responsive launch solutions from 6 months to a few hours available
 - Orbital's rigorous mission assurance program
 - Full Government insight and independent assessment
- Multiple spaceport launch capability (California, Florida, Alaska, Mid-Atlantic) using portable ground support equipment



Minotaur IV space launch vehicle

Minotaur IV



Standard 2.34 m (92 in.) fairing envelope supports various spacecraft configurations

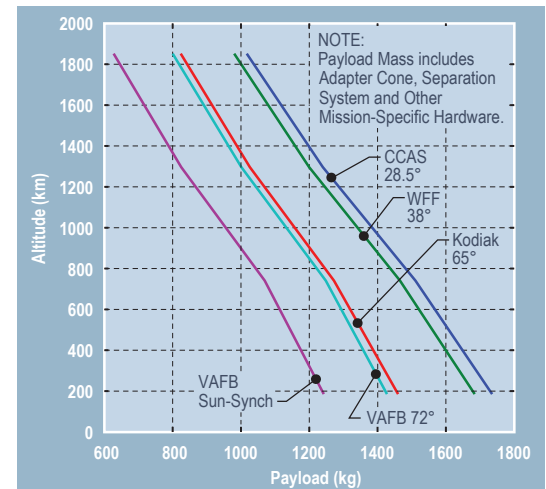
Payload Accommodations:

- Standard 2.34 m (92 in.) dia. spacecraft fairing (Taurus heritage)
- Mission-specific fairing access doors for spacecraft support
- Spacecraft and fairing assembly integrated independently from launch vehicle stages
- Well-defined launch environments derived from extensive flight data
- Temperature, humidity and cleanliness control through lift-off
- Standard 1575 mm (62.01 in.) dia. bolted interface with optional spacecraft support options
 - Single and multiple spacecraft adaptors
 - Various flight-proven spacecraft separation systems available, including low-shock designs



Performance

- 1735 kg to LEO (28.5 deg, 185 km)
- System performance assured from extensive booster motor flight history of more than 50 flights each
- Typical orbit accuracy of better than $\pm 5\text{ km}$ insertion apse, $\pm 25\text{ km}$ non-insertion apse, and $\pm 0.1\text{ deg}$ inclination (3-sigma values)
- Optional enhanced insertion accuracy available
- Cold gas attitude control system readily accommodates a variety of spacecraft mission requirements, including precise separation pointing and post-boost maneuvers
- Minotaur IV with optional Star 48V Stage 4 provides up to 250 kg increased performance to LEO and support for HEO missions



Performance to orbit is assured by 50+ flights of Minotaur IV stages

For technical details, please contact:

480.814.6566
 minotaur@orbital.com
 www.orbital.com

Additional information should be obtained from the USAF OSP Office

USAF SMC Space Development and Test Wing (SDTW)
 Launch Test Squadron (LTS)
 3548 Aberdeen Avenue S.E.
 Kirtland AFB, NM 87117-5778
 505.846.6489 505.846.5113