

THE VALUE OF PERFORMANCE.

**NORTHROP GRUMMAN**



## *Minotaur I*

### *Space Launch Vehicle*

**T**he Minotaur I Space Launch Vehicle (SLV) provides a responsive, reliable, and cost-effective launch solution for U.S. Government-sponsored spacecraft. It builds on a long background of dependable launch systems and has a demonstrated successful history. The Minotaur I SLV uses residual Minuteman II first and second stage rocket motors along with the upper two stages shared with other Northrop Grumman launch vehicles. The combination of decommissioned ICBM motors with commercial boosters and state-of-the-art hardware is one of Northrop Grumman's unique strengths from experience spanning several decades.

The Minotaur family of launch vehicles are provided via the Orbital/Suborbital Program (OSP) and managed by the U.S. Air Force Space and Missile Systems Center (SMC), Launch Enterprise, Experimental Launch and Test Division (LE/LEX), Rocket Systems Launch Program (RSLP) located at Kirtland Air Force Base, New Mexico.

#### ***Facts At A Glance***

##### **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

Responsive launch solutions available

Mission success is ensured by mature systems and processes that include Northrop Grumman's rigorous mission assurance program and categories of mission assurance to meet customers' needs

- Categories range from a basic FAA licensed launch to full government insight and independent assessment

Multiple spaceport launch capability (California, Florida, Alaska, Mid-Atlantic) using portable ground support equipment

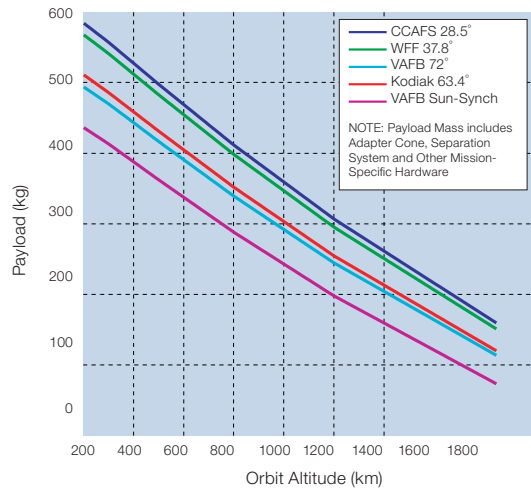
## Performance

Spacecraft mass-to-orbit of up to 580 kg to LEO (28.5°, 185 km).

Typical orbit accuracy better than ±5 km insertion apse, ±45 km non insertion apse, and ±0.1° inclination.

Optional enhanced insertion accuracy better than 5 km in altitude and ±0.05° inclination.

Cold gas attitude control system readily accommodates a variety of spacecraft mission requirements, including precise separation pointing and post-boost maneuvers.



## Payload Accommodations:

Standard 1.27 m (50 in) diameter spacecraft fairing

Optional 1.55 m (61 in) diameter spacecraft fairing for larger and/or multiple spacecraft missions

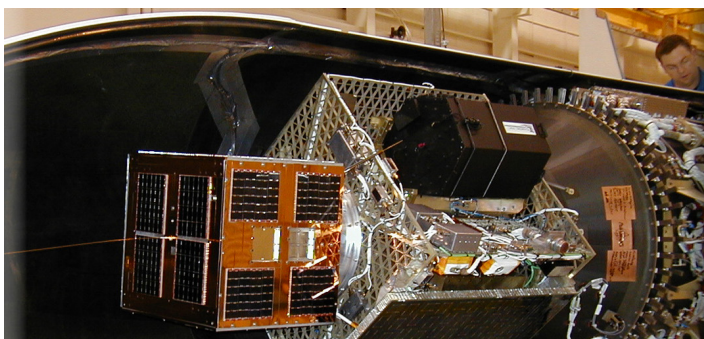
Mission-specific fairing access doors for spacecraft support

Well-defined launch environments validated with flight data

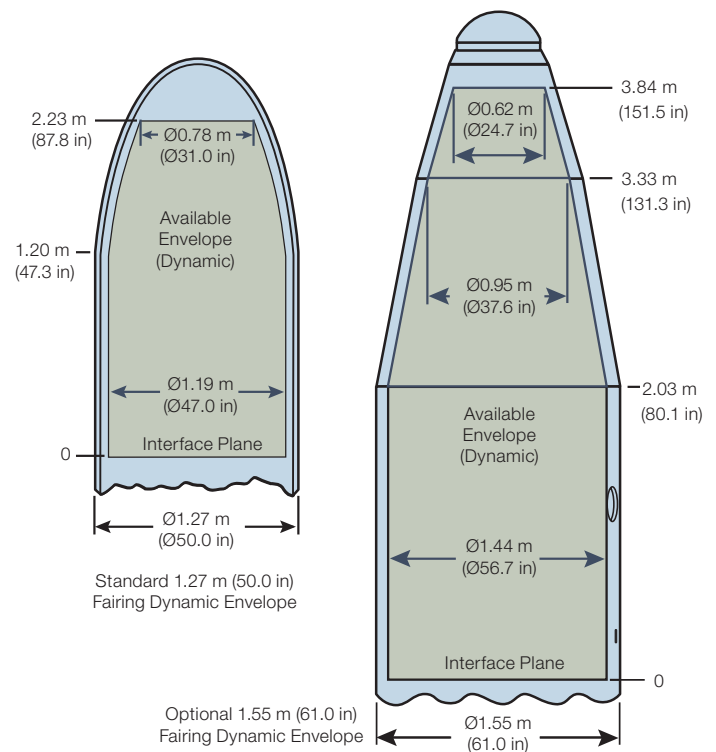
Various flight-proven spacecraft separation systems available, including low-shock designs

Thermally controlled fairing volume with standard ISO 8 (100 k) cleanliness

- Optional ISO 7 (10 k) cleanliness
- Optional spacecraft nitrogen purge



Simplified horizontal payload integration for single spacecraft.



## More Information

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