United Launch Alliance

Delta

ULA—One Team for Assured Access to Space

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Family of Launch Systems to Meet Customer Requirements

Today, both Delta II and Delta IV are operational and provide a broad range of capabilities to meet customer needs. The Delta family offers launch vehicle performance from East and West Coast launch sites for nearly every payload class—from 900 kg to 13,000 kg to geosynchronous transfer orbit (GTO).

45-Year Delta Heritage

Since 1960, Delta rockets have carried satellites into orbit that have brought the world closer together and helped deepen our understanding of the universe. The Delta rocket has continuously evolved to meet customer needs. This rich legacy continues under United Launch Alliance.

Delta II: The Industry Standard for Reliability

Since its introduction in 1989, Delta II has become the industry standard for reliability, on-time delivery of payloads to orbit, and customer satisfaction. With a 98.3 percent reliability record for more than 118 launches, Delta II continues to be the vehicle of choice for customers with payloads up to 2,170 kg to GTO.

Delta IV: Flight-Proven Heavy-Lift Capability

The Delta IV family of launch vehicles brings assured access to space. Delta IV is the Delta family's most advanced expendable launch system, combining design simplicity, manufacturing efficiency, and streamlined mission and vehicle integration to meet customer requirements.

The Delta IV family of vehicles offers:

- Commonality in the common-booster core (CBC), built in a new factory equipped with state-of-the-art lean manufacturing techniques.
- A Pratt & Whitney Rocketdyne RS-68 first-stage engine, designed with reduced complexity and costs, that utilizes liquid oxygen/liquid hydrogen propellants for high performance.

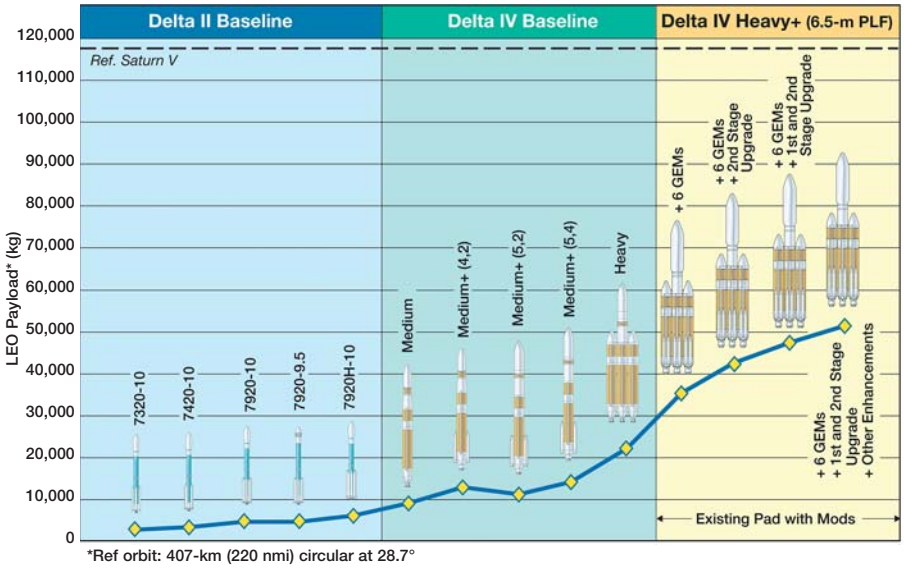
The Delta Family

	GTO	LEO
Delta II	900 kg–2,170 kg (1,980 lb–4,790 lb)	2,700 kg–6,100 kg (5,960 lb–13,440 lb)
Delta IV	4,300 kg–12,980 kg (9,480 lb–28,620 lb)	9,440 kg–22,950 kg (20,800 lb–50,600 lb)

GTO: 35,786 km x 185 km (19,323 nmi x 100 nmi) at 28.7° (Delta II); at 27° (Delta IV)
LEO: 407 km (220 nmi) circular at 28.7°

- Use of proven heritage hardware, software, and processes.
- Efficient launch site processing, with off-pad horizontal integration of the vehicle and parallel processing of the payload.
- Multiple low-risk enhancements available to more than double current maximum capability to low-Earth orbit (LEO). By using existing Delta IV investments operational costs can be spread over a wider business base.

Delta Growth Options



*Ref orbit: 407-km (220 nmi) circular at 28.7°