DELTA IV

For more than half a century, the Delta family of launch vehicles has achieved unparalleled success in providing access to space for our Department of Defense (DOD), NASA, and commercial customers. From the earliest Delta rockets to the industry workhorse Delta II, continual upgrades and improvements have led to the Delta IV, the most advanced Delta yet. Developed with the U.S. Air Force, the Delta IV offers five configurations for launching all spacecraft types to all orbits. The common booster core (CBC) first stage, the Delta cryogenic second stage, and a 4-m-diameter or 5-m-diameter payload fairing are common to all configurations. For additional performance at liftoff, two or four solid rocket motors can be added. For the most demanding missions, the Delta IV Heavy, which launches with two additional CBCs, provides the most performance of any U.S. launch vehicle available today. With a commitment to mission success, the Delta IV continues its legacy of launching our nation's mission-critical national security payloads.

Join the conversation:

Product information as of 3/13. For mission-specific information, please refer to the Atlas V and Delta IV User's Guides available at www.ulalaunch.com or contact your ULA representative.

ULA®
United Launch Alliance

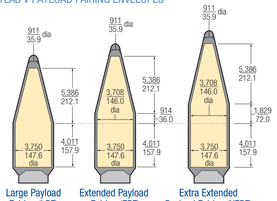
ATLAS V AND DELTA IV

TECHNICAL SUMMARY

ATLAS V

Since 1957, the Atlas rocket has been an integral part of the United States' space program, supporting national defense missions, launching Mercury astronauts to orbit, and sending spacecraft to the farthest reaches of the solar system. For nearly six decades, the Atlas booster has undergone a series of continuous improvements, culminating in the current Atlas V Evolved Expendable Launch Vehicle (EELV). Designed in partnership with the U.S. Air Force, the Atlas V's modular design approach allows for multiple configurations to meet specific customer requirements. All Atlas V launch vehicles consist of a common core booster first stage, a Centaur second stage, and either a 4-m-diameter or a 5-m-diameter payload fairing. To accommodate larger spacecraft requiring additional thrust at liftoff, one to three solid rocket boosters (SRB) can be added to the Atlas V 4-m vehicle, while the Atlas V 5-m vehicle can support up to five SRBs. Flexibility, reliability and 100% mission success are the hallmarks of the Atlas V system, making it the launch vehicle of choice for the full range of customer requirements.

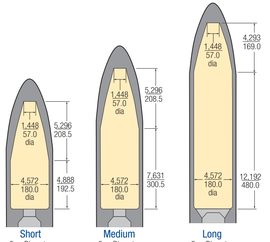
ATLAS V PAYLOAD FAIRING ENVELOPES



Large Payload Fairing (LPF)
4-m Diameter

Extended Payload Fairing (EPF)
4-m Diameter

Extra Extended Payload Fairing (XEPF)
4-m Diameter

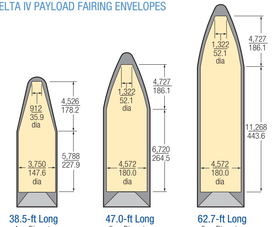


Short
5-m Diameter

Medium
5-m Diameter

Long
5-m Diameter

DELTA IV PAYLOAD FAIRING ENVELOPES

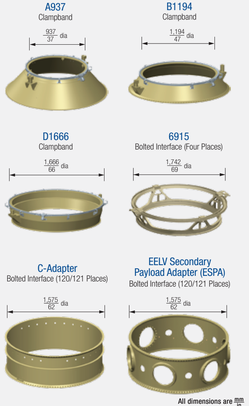


38.5-ft Long
4-m Diameter

47.0-ft Long
5-m Diameter

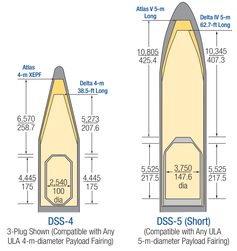
62.7-ft Long
5-m Diameter

PAYLOAD ADAPTERS



All dimensions are mm in

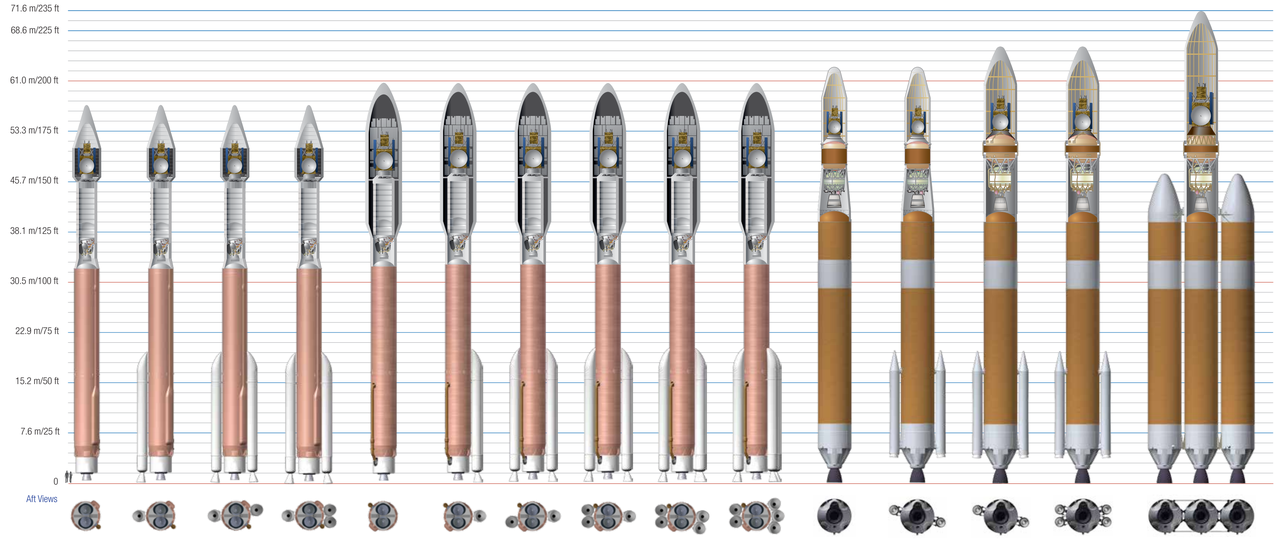
DUAL SPACECRAFT SYSTEM (DSS) ENVELOPES



DSS-4
3-Plug Shown (Compatible with Any ULA 4-m-diameter Payload Fairing)

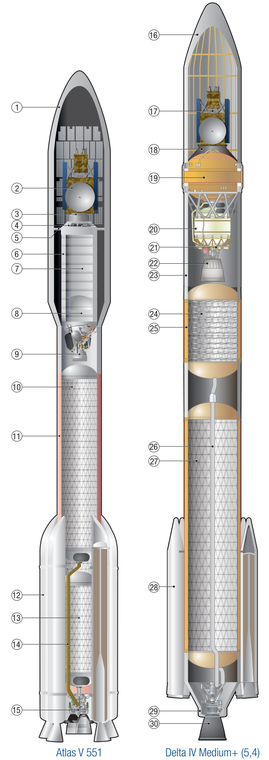
DSS-5 (Short)
(Compatible with Any ULA 5-m-diameter Payload Fairing)

All dimensions are mm in



	Atlas V 401	Atlas V 411	Atlas V 421	Atlas V 431	Atlas V 501	Atlas V 511	Atlas V 521	Atlas V 531	Atlas V 541	Atlas V 551	Delta IV Medium	Delta IV Medium+ (4,2)	Delta IV Medium+ (5,2)	Delta IV Medium+ (5,4)	Delta IV Heavy
PERFORMANCE (kg/lb)															
GEO	N/A	N/A	2,850/6,280	3,290/7,270	N/A	N/A	2,540/5,610	3,080/6,800	3,530/7,800	3,850/8,500	1,030/2,280	2,080/4,590	1,840/4,060	2,710/5,970	6,300/13,890
GTO	4,750/10,470	5,950/13,110	6,890/15,180	7,700/16,970	3,780/8,330	5,250/11,570	6,480/14,280	7,450/16,420	8,290/18,270	8,900/19,620	4,210/9,280	6,160/13,580	5,080/11,200	6,890/15,190	13,810/30,440
LEO-Reference	9,800/21,600	12,030/26,530	13,600/29,980	15,260/33,660	8,210/18,100	11,000/24,250	13,500/29,760	15,530/34,250	17,410/38,400	18,850/41,570	9,190/20,250	12,900/28,440	11,060/24,380	13,730/30,250	28,370/62,540
LEO-ISS	8,910/19,640	10,670/23,530	12,060/26,600	13,250/29,220	7,540/16,630	10,160/22,410	12,510/27,590	14,480/31,920	16,290/35,920	17,720/39,080	8,510/18,760	12,000/26,450	10,220/22,530	12,820/28,270	25,980/57,280
LEO-Polar	8,080/17,820	9,980/22,020	11,140/24,560	12,130/26,750	6,770/14,930	9,060/19,990	11,160/24,610	12,880/28,410	14,480/31,940	15,760/34,750	7,690/16,960	10,530/23,210	9,610/21,180	11,600/25,580	23,560/51,950

GEO (Geosynchronous Earth Orbit) = 35,786 km circular at 0 deg | **GTO (Geosynchronous Transfer Orbit)** = 35,786 km x 185 km at 27.0 deg | **LEO-Reference (Low Earth Orbit-Reference)** = 200 km circular at 28.7 deg | **LEO-ISS (Low Earth Orbit-International Space Station)** = 407 km circular at 51.6 deg | **LEO-Polar (Low Earth Orbit-Polar)** = 200 km circular at 90 deg



Atlas V 551

Delta IV Medium+ (5,4)

ATLAS V

1. Payload Fairing (5-m Diameter)
2. Spacecraft
3. Payload Adapter
4. Centaur Forward Adapter
5. Centaur Forward Load Reactor Deck
6. Centaur Second-Stage
7. Centaur Second-Stage Fuel (LH_2) Tank
8. Centaur Second-Stage Oxidizer (LO_2) Tank
9. Centaur Second-Stage Engine (RL10)
10. First-Stage Oxidizer (LO_2) Tank
11. Common Core Booster
12. Solid Rocket Booster (0-5)
13. First-Stage Fuel (RP-1) Tank
14. First-Stage Oxidizer (LO_2) Feedline
15. First-Stage Engine (RD-180)

DELTA IV

16. Payload Fairing (5-m Diameter)
17. Spacecraft
18. Payload Attach Fitting (PAF)
19. Second-Stage Fuel (LH_2) Tank
20. Second-Stage Oxidizer (LO_2) Tank
21. Second-Stage Equipment Shelf
22. Second-Stage Engine (RL10B-2)
23. Interstage Adapter
24. First-Stage Oxidizer (LO_2) Tank
25. Common Booster Core (CBC)
26. First-Stage Oxidizer (LO_2) Feedline
27. First-Stage Fuel (LH_2) Tank
28. Solid Rocket Motors
29. Thermal Shield
30. First-Stage Engine (RS-68A)

ATLAS V NAMING CONVENTION

Atlas V 551
- Payload Fairing Diameter (Meters)
- Number of Solid Rocket Boosters (0-5)
- Number of Centaur Engines (1-2)

DELTA IV NAMING CONVENTION

Delta IV M+ (5,4)
- Vehicle Class
- Payload Fairing Diameter (Meters)
- Number of Solid Rocket Motors (0, 2 or 4)

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