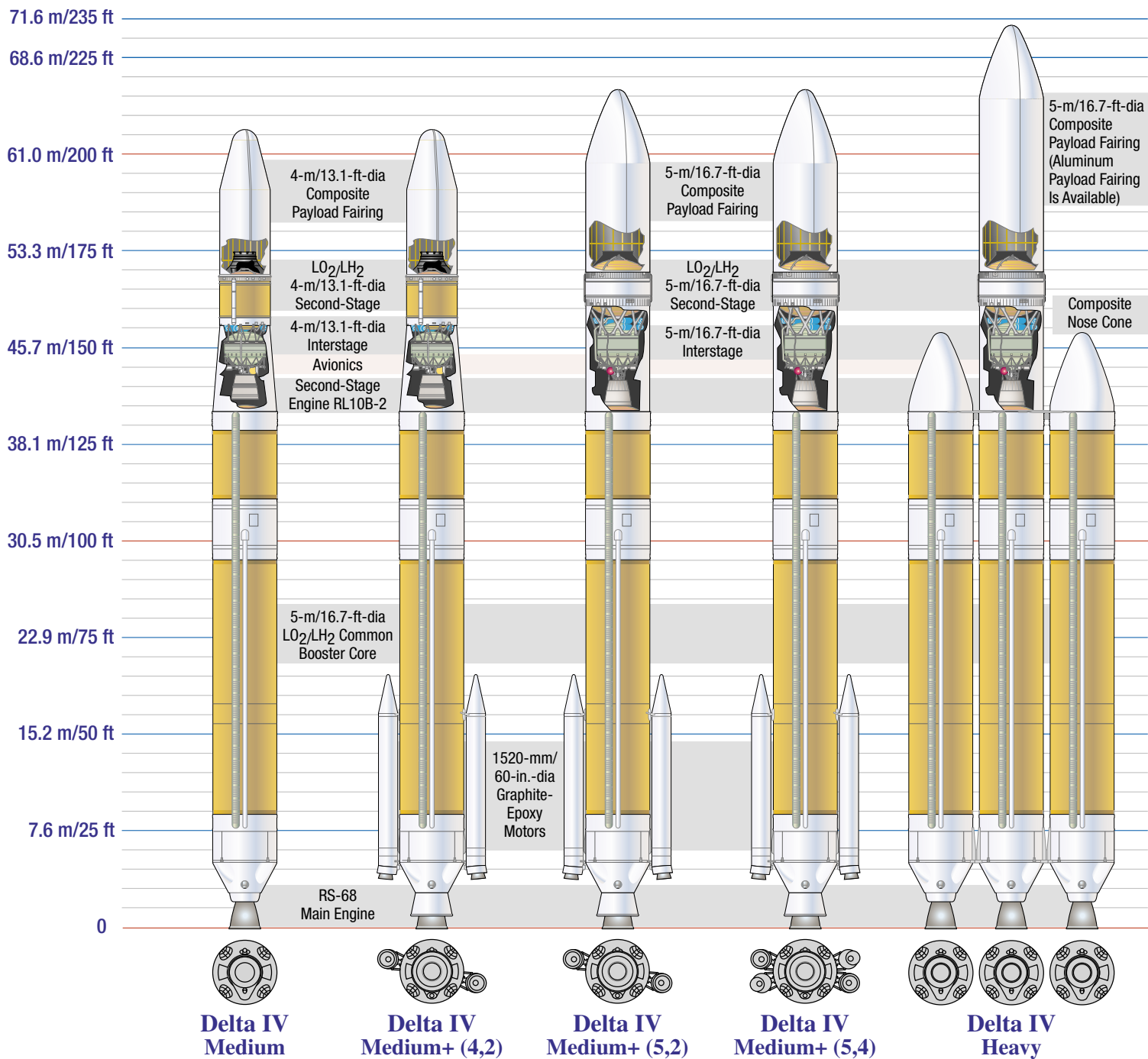




# Delta IV Technical Summary

*Delta Launch Vehicles*

The Space Access Solution for the 21st Century



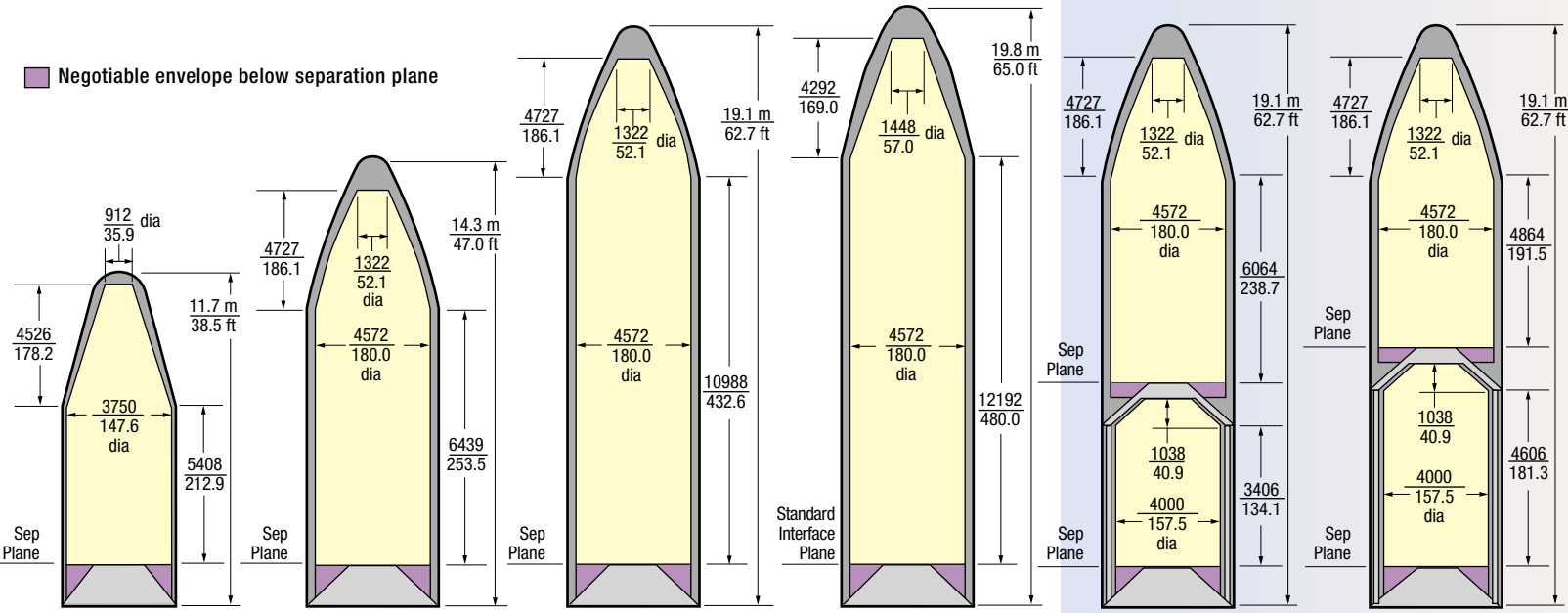
### Vehicle Performance (kg/lb)

	Delta IV Medium	Delta IV Medium+ (4,2)	Delta IV Medium+ (5,2)	Delta IV Medium+ (5,4)	Delta IV Heavy
<b>GEO</b> 35,786 km circular at 0 deg	1,138/2,508	2,036/4,489	1,686/3,717	2,786/6,142	6,276/13,837
<b>GTO</b> 185 km x 35,786 km at 27.0 deg	4,231/9,327	5,941/13,098	4,869/10,733	6,822/15,039	12,757/28,124
<b>LEO (Reference)</b> 407 km circular at 28.7 deg	9,106/20,075	12,300/27,116	10,616/23,403	13,869/30,575	21,892/48,264
<b>LEO (ISS)</b> 407 km circular at 51.6 deg	8,501/18,741	11,455/25,254	9,782/21,565	12,894/28,425	21,892/48,264
<b>C3 (Mars)</b> 10.0 km <sup>2</sup> /sec <sup>2</sup> at 27.0 deg	2,347/5,173	3,465/7,640	2,743/6,047	3,792/8,361	8,005/17,648
<b>C3 (Reference)</b> 0.0 km <sup>2</sup> /sec <sup>2</sup> at 27.0 deg	2,996/6,605	4,271/9,417	3,466/7,642	4,669/10,294	9,588/21,138
<b>C3 (TLI)</b> -2.0 km <sup>2</sup> /sec <sup>2</sup> at 27.0 deg	3,132/6,905	4,445/9,798	3,623/7,987	4,858/10,709	9,956/21,949

## Existing Capabilities

## Growth Options

■ Negotiable envelope below separation plane



(1194-4 PAF)  
**Medium  
Medium+ (4,2)  
4-m Payload  
Fairing**

(1194-5 PAF)  
**Medium+ (5,2)  
Medium+ (5,4)  
5-m Payload  
Fairing**

(1194-5 PAF)  
**Heavy  
5-m Payload  
Fairing**

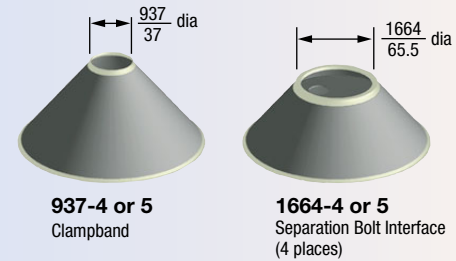
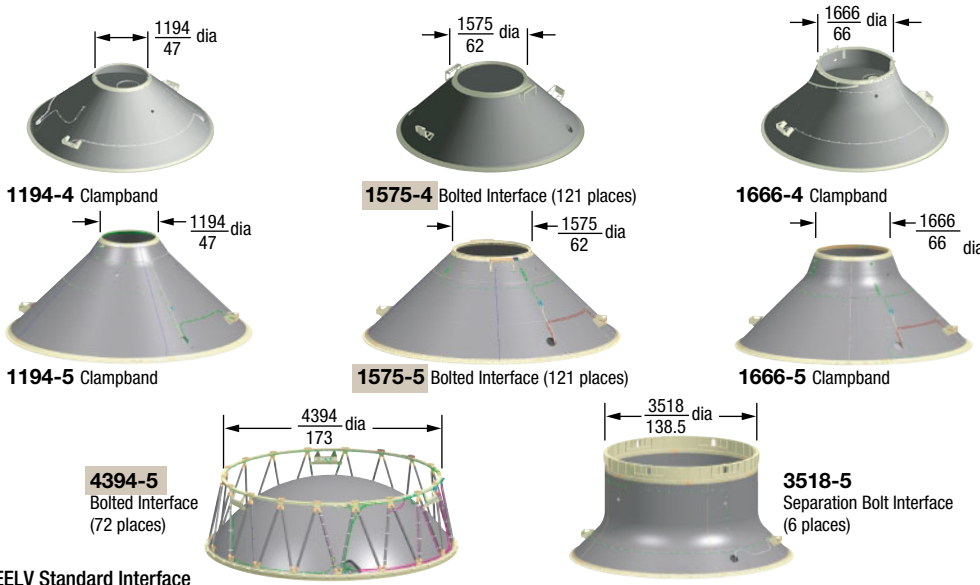
(4394-5 PAF)  
**Heavy  
5-m Payload  
Fairing  
(Aluminum Isogrid)**

### Delta IV Payload Fairing Envelopes

(1194 Interfaces)  
**Heavy  
5-m Payload  
Fairing  
Dual-Manifest  
(Short)**

(1194 Interfaces)  
**Heavy  
5-m Payload  
Fairing  
Dual-Manifest  
(Long)**

## Growth Options



## Delta IV Payload Attach Fittings

All dimensions are in mm/in., unless noted.  
GEO – Geosynchronous Earth Orbit  
GTO – Geosynchronous Transfer Orbit  
ISS – International Space Station  
LEO – Low Earth Orbit  
TLI – Trans Lunar Injection

### Boeing Launch Services

5301 Bolsa Avenue  
Huntington Beach, CA 92647-2099  
714-896-5195  
Fax: 714-372-0886  
E-mail: [launchservices@boeing.com](mailto:launchservices@boeing.com)  
[www.boeing.com/launch](http://www.boeing.com/launch)  
Boeing Launch Hotline: 714-896-4770

# Delta IV Medium+ (5,2)/(5,4)

1. Composite Fairing (5-m/16.7-ft dia by 14.34-m/47-ft length)
2. Spacecraft (Typical)
3. Payload Attach Fitting/Dispenser
4. Second-Stage LH<sub>2</sub> Tank
5. Second-Stage Intertank Structure
6. Second-Stage LO<sub>2</sub> Tank
7. Second-Stage Equipment Shelf
8. Second-Stage Engine (RL10B-2)
9. Interstage
10. Common Booster Core
11. LO<sub>2</sub> Tank
12. Utility Tunnel
13. Centerbody
14. LO<sub>2</sub> Feedline
15. LH<sub>2</sub> Tank
16. Graphite-Epoxy Motor (GEM-60)
17. Engine Section
18. First-Stage Engine (RS-68)
19. Aeroskirt

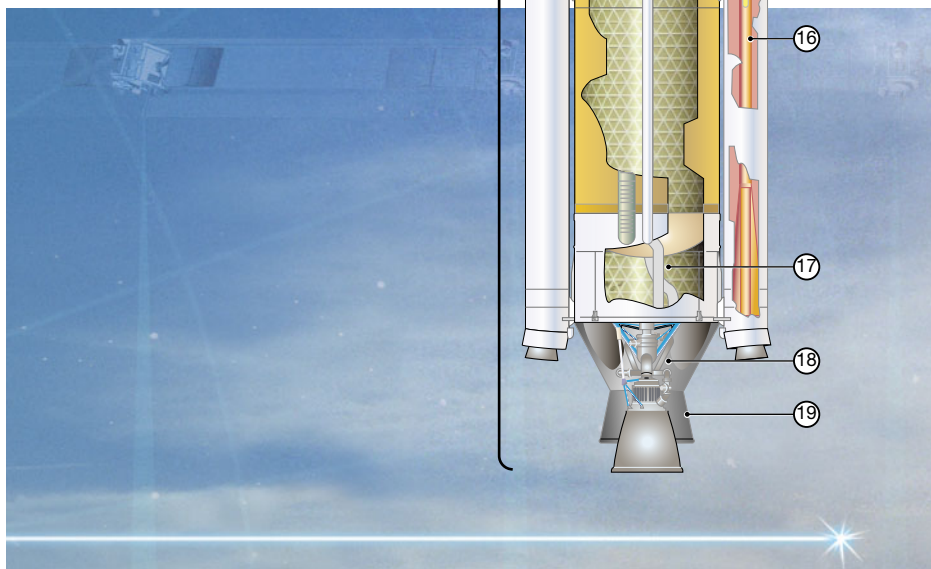
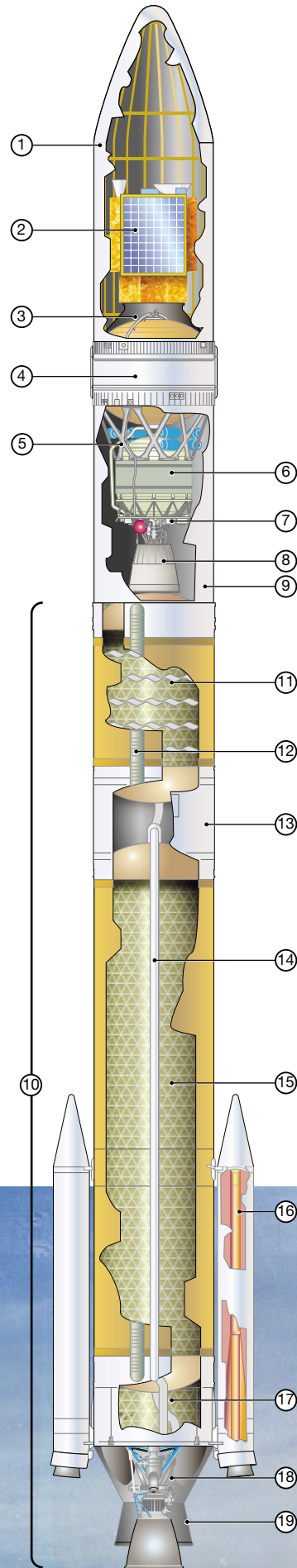
## Delta IV Medium Plus Naming Convention:

Delta IV M+ (5, 4)

Vehicle Class

Payload Fairing (PLF)  
Diameter (meters)

Number of Graphite-Epoxy  
Motors (GEM)



# Delta IV: A National Asset



**Existing Heavy Lift Capability**



**Fully Activated CCAFS Launch Facilities**



**Fully Activated VAFB Launch Facilities**



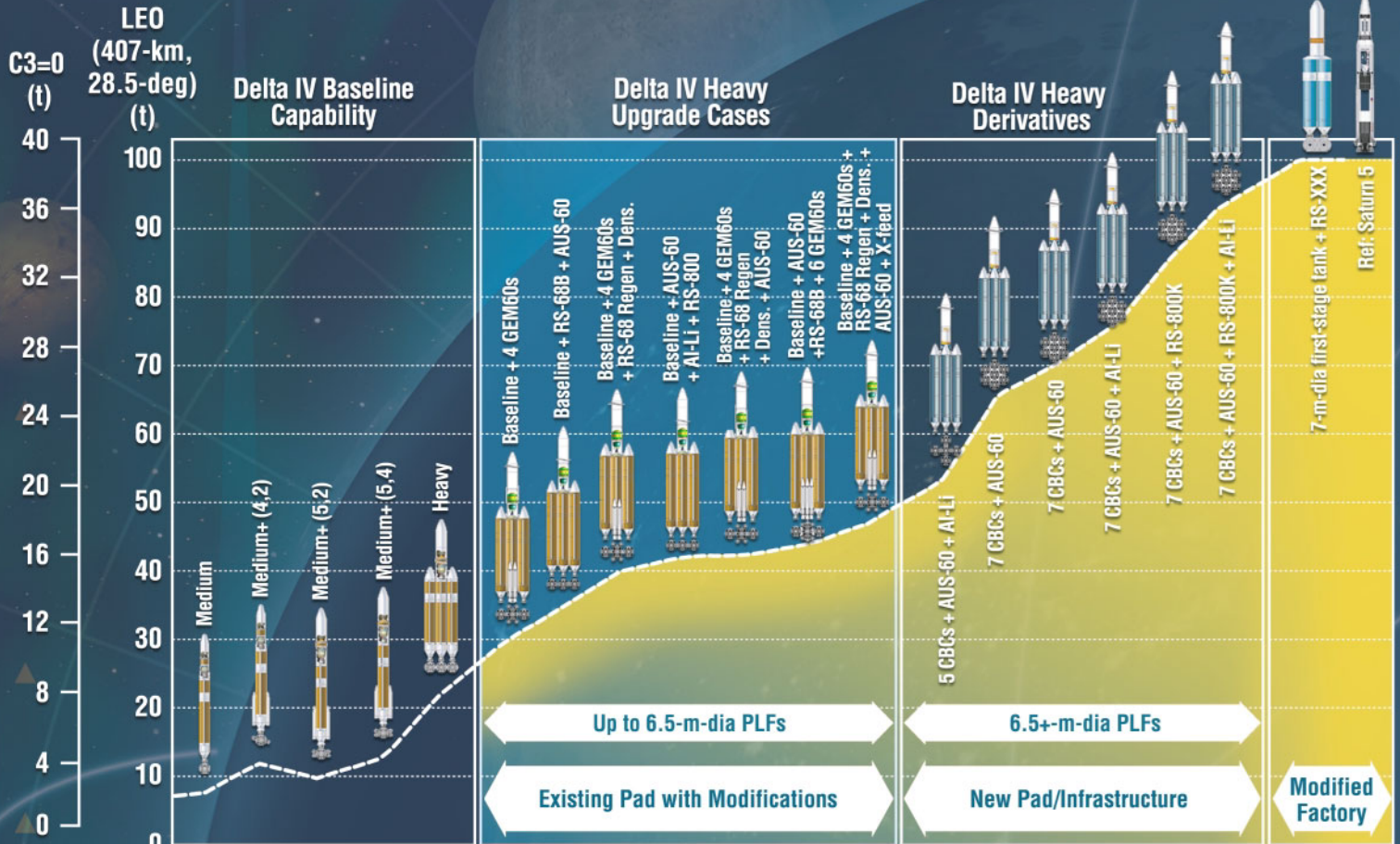
**State-of-the-Art Manufacturing Facility in Decatur, Ala.**



**RS-68 — First U.S.-Built Heavy Lift, Liquid Booster Engine in Over 20 Years**

Boeing Launch Services

# Delta IV Can Meet Future Heavy Lift Needs



AUS-60: Advanced Upper Stage, 60,000-lb thrust  
 RS-68 Regen: RS-68 main engine with regenerative nozzle  
 Dens: Cryogenic propellant densification  
 RS-68B: Upgraded RS-68 main engine  
 AI-Li: Aluminum lithium lightweight material

X-feed: Cryogenic propellant cross-feed from liquid strap-ons to center core  
 RS-800: New main engine  
 GEM60: 60 in. (1.5 m) dia graphite-epoxy motor  
 PLF: Payload Fairing

## Delta IV

### The 21st Century Launch Solution

Developed in partnership with the U.S. Air Force's Evolved Expendable Launch Vehicle (EELV) program, the Boeing Delta IV continues to satisfy government requirements for access to space.

Delta IV offers design simplicity, manufacturing efficiency, and streamlined off-pad mission and vehicle integration, enabling rapid turnaround, near day-of-launch spacecraft access, and a 100 percent success rate for its first three launches. Delta IV was designed for producibility, resulting in a production capacity that far exceeds current and expected customer needs.

Product information as of 7-04. For mission-specific information, please contact your Boeing representative or refer to the Payload Planners Guide.