# Pegasus

Rocket for reference is Pegasus(rocket) has had a success rate of 89%, first flight in 1990 had 45 total launches, 3 failures and 2 partial failures. This was also the first rocket to be flown from ATOL. Dual payload’s is an option for this model by mounting other payloads in between in canisters. Plane that carried the rockets at the start was a repurposed B-52 and later on

### First Stage

Orion50S engine-propellent HTPB polymer.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | **ISP** | **Thrust (Avg Burn Time)** | **Mass** | **Burn Time** |
| Orion 50S | 293.67s | 465.22kN | 13,532kg | 75.3s |
| Orion 50SXL | 295s | 626.4kN | 16,173.3kg | 69.1s |

Orion 50S was later superseded by the Orion 50SXL

ISP worked out as

Impulse = 35,039,000 N/s, propellant mass is 12,162.6kg for Orion 50S

### Second Stage

Orion50S engine-propellent HTPB polymer.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | **ISP** | **Thrust (Avg Burn Time)** | Mass | **Burn Time** |
| Orion 50 | 290.82s | 114.6 kN | 3,369kg | 75.6s |
| Orion 50XL | 290.95s | 160.6 kN | 4,306 kg | 69.7s |

11,200,000 N·s impulse and 3,924 Kg for Isp for Orion 50

This engine would also have a TVC (Thrust vector control) with a ± 5 degree

### Third Stage

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | **ISP** | **Thrust (Avg Burn Time)** | Mass | **Burn Time** |
| Orion 38 | 288.89s | 32.2 kN | 891.76 | 67.7 |

This engine would also have a TVC (Thrust vector control) with a ± 5 degree

<https://web.archive.org/web/20180730082316/http://www.ltas-vis.ulg.ac.be/cmsms/uploads/File/DataSheetSolidATK.pdf> for numbers on engine used.