Untitled

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Engine | Mass | Thrust, vacuum |  | Thrust-to- weight ratio |
| (kN) | (lbf) |  |  |  |
| [RD-0410](https://en.wikipedia.org/wiki/RD-0410) nuclear rocket engine15([https://en.wikipedia.org/wiki/Thrust-to-weight\_ratio)[[16]](https://en.wikipedia.org/wiki/Thrust-to-weight\_ratio](https://en.wikipedia.org/wiki/Thrust-to-weight_ratio)%5B%5B16%5D%5D(https://en.wikipedia.org/wiki/Thrust-to-weight_ratio)) | 2,000 kg (4,400 lb) | 35.2 | 7,900 | 1.8 |
| [Pratt & Whitney J58](https://en.wikipedia.org/wiki/Pratt_%26_Whitney_J58) jet engine ([Lockheed SR-71 Blackbird](https://en.wikipedia.org/wiki/Lockheed_SR-71_Blackbird))17([https://en.wikipedia.org/wiki/Thrust-to-weight\_ratio)[[18]](https://en.wikipedia.org/wiki/Thrust-to-weight\_ratio](https://en.wikipedia.org/wiki/Thrust-to-weight_ratio)%5B%5B18%5D%5D(https://en.wikipedia.org/wiki/Thrust-to-weight_ratio)) | 2,722 kg (6,001 lb) | 150 | 34,000 | 5.6 |
| [Pratt & Whitney F119](https://en.wikipedia.org/wiki/Pratt_%26_Whitney_F119)20(<https://en.wikipedia.org/wiki/Thrust-to-weight_ratio>) | 1,800 kg (4,000 lb) | 91 | 20,500 | 7.95 |
| [RD-0146](https://en.wikipedia.org/wiki/RD-0146) rocket engine22(<https://en.wikipedia.org/wiki/Thrust-to-weight_ratio>) | 260 kg (570 lb) | 98 | 22,000 | 38.4 |
| [Rocketdyne](https://en.wikipedia.org/wiki/Aerojet_Rocketdyne) [RS-25](https://en.wikipedia.org/wiki/RS-25) rocket engine (Space Shuttle Main Engine)23(<https://en.wikipedia.org/wiki/Thrust-to-weight_ratio>) | 3,177 kg (7,004 lb) | 2,278 | 512,000 | 73.1 |
| [F-1](https://en.wikipedia.org/wiki/F-1_(rocket_engine)) ([Saturn V](https://en.wikipedia.org/wiki/Saturn_V) first stage)25(<https://en.wikipedia.org/wiki/Thrust-to-weight_ratio>) | 8,391 kg (18,499 lb) | 7,740.5 | 1,740,100 | 94.1 |
| [SpaceX Raptor](https://en.wikipedia.org/wiki/SpaceX_Raptor) 2 rocket engine27(<https://en.wikipedia.org/wiki/Thrust-to-weight_ratio>) | 1,600 kg (3,500 lb) | 2,256 | 507,000 | 143.8 |
| [Merlin 1D](https://en.wikipedia.org/wiki/Merlin_1D) rocket engine, full-thrust version28([https://en.wikipedia.org/wiki/Thrust-to-weight\_ratio)[[29]](https://en.wikipedia.org/wiki/Thrust-to-weight\_ratio](https://en.wikipedia.org/wiki/Thrust-to-weight_ratio)%5B%5B29%5D%5D(https://en.wikipedia.org/wiki/Thrust-to-weight_ratio)) | 467 kg (1,030 lb) | 914 | 205,500 | 199.5 |