

Number of Motors

4

Per Motor Thrust

113.6364 250

Thrust

| | Kg | Lbs | number | Total Kg | Total Lbs |
|-----------|----------|----------|--------|----------|-----------|
| Payload | 25 | 55 | 1 | 25 | 55 |
| Tanks | 5.212537 | 11.46758 | 8 | 41.70029 | 91.74064 |
| Structure | 22.72727 | 50 | 1 | 22.72727 | 50 |
| Motors | 3.787879 | 8.333333 | 4 | 15.15152 | 33.33333 |
| Ignitors | 1 | 2.2 | 4 | 4 | 8.8 |
| Valves | 1.2 | 2.64 | 8 | 9.6 | 21.12 |
| Batteries | 2 | 4.4 | 1 | 2 | 4.4 |
| Avionics | 2 | 4.4 | 1 | 2 | 4.4 |
| Ptank | 4.090909 | 9 | 2 | 8.181818 | 18 |
| Regulator | 4 | 8.8 | 1 | 4 | 8.8 |
| Fuel | 31.47108 | 69.23637 | 8 | 251.7686 | 553.891 |

Thrust Thrust to w

1000 1.177184

Wt Full

386.1295 849.485

Wt empty

134.3609 295.594

MR

2.873824 2.873824

DV

1874.411 1874.411

Hover Secs

191.0715 191.0715

ISP

181

Feed

250

Fuel Density

0.8 gm/cc

TubeDia

8

Tube length

50

Thickness

0.072

SphereThickness

0.125

ISP table from Cpropep for reference

| Cp | Isp | Eff Isp | Feed |
|-----|-----|---------|--------|
| 100 | 199 | 159.2 | 125 |
| 140 | 214 | 171.2 | 175 |
| 197 | 227 | 181.6 | 246.25 |
| 277 | 239 | 191.2 | 346.25 |
| 389 | 250 | 200 | 486.25 |
| 547 | 260 | 208 | 683.75 |

Tube Al Vol

90.47787 in³

Tube Int volume

2423.611 in³

Sphere Al volume

24.35552 in³

Sphere Int Volume

243.727 in³

Total Al

114.8334 1881.782 cc

Al dnsity

2.77 5212.537 kg

Volume

2667.338 43709.83 cc

Tanks Fill ratio

0.9

Fuel per tank

31471.08 gm

Burst Calcs

Tank Yield

31000 psi

Tube burst

558 psi

Tube Safety Factor

2.232

Sphere Burst

1937.5 psi

Sphere SF

7.75

Total Volume All tanks

349.6787 l

PV to 60 fill, blow down from there

34967.87

Liters needed at 2200 psi

15.89448

Number of CF wrapped cylinder

2

eight