

Item	Weight (gr)	Weight (lb)
Balloon	500	1.10
Parachute	32	0.07
Radar Reflector	0	0.00
Payload	658	1.45
Total Weight	1190	2.62

Uninflated Diameter	33"
Burst Dia	15'

was 82gr
3.40

color key
enter info
compare
result

Lift	Grams	Pounds (lb)
Free Lift*	850	1.87
Gross Lift	2040	4.50

(buoyant force)

*Using nearspaceventures.com ascent rate calculator and comparison with kaymont balloon data

Ascent Rate Calculator Input	
Balloon Wt (Gr)	500
Nozzle Lift (lbs)	3.73
Payload Wt (lbs)	1.70
Parachute Wt (oz)	1.13
Estimated Ascent (fpm)	1069
Estimated Ascent (mpm)	326

17.82 ft/sec 12.1 mph
5.43 m/sec

Method Utilized to Calculate the Required Design Quantity of Helium:				
Enter the balloon diameter anticipated at the time of launch as well as the pressure and the temperature as provided from the weather service. To ensure that sufficient lift is achieved, edit the diameter of the balloon until the free lift below equals the free lift above in row 9.				
m=PVM/RT	PV=nRT	where n=m/M		
Balloon Diameter	5.25 ft	1.60	meters	
Balloon Volume	75.77 cu. Ft.	2145	liters	
Pressure inside	0.97 atm	98600	Pascals	986 hPa
Temperature	25 C	298.15	Kelvin	77 F
R (gas constant)	0.082 atm/(K*mol)	8.314472	J/(K*mol)	
Molar Mass	4 helium (g/mol)	28.87	air	
Mass of Helium	0.75 lb	342	grams	
Displaced Air	5.44 lb	2465	grams	
Free Lift =	2.06 lbs			

