

## Select the Structure Material for your Telescope

Material	Strength – Weight Limit (units – kg)	Weight – Density of material (Lower the better – units g/cm <sup>3</sup> )	Stress tolerance (Higher the better – units ksi)	Malleability – How easy is it to shape?	Proven Technology?	Mass Produced?	Total Cost (£)
Iron alloy	50,000	10.5	24	Easy	Yes	Yes	10 million
Steel	39,000	8.1	100	Easy	Yes	Yes	39 million
Aluminium alloy	28,000	2.7	19	Moderate	Yes	Yes	13 million
Graphene	12,000,000	2.3	70000	Extremely Easy	No	No	90 million
Carbon fibre	326,000	2.0	250	Easy	Yes	Yes	50 million
Polycarbonate plastic	7,000	1.2	46	Moderate	Yes	Yes	2 million

### You must consider...

- ☆ The material properties (e.g., strength, malleability, weight and stress tolerance).
- ☆ The availability of the material (e.g., new vs proven technology, mass manufacturing).
- ☆ The cost of the material.