

UKROC Rocket Indicative Materials List 2025

Detailed on this page are indicative materials and costs which could be useful in your rocket project.

Quantity	Item	Approx cost per Item-£	Description/Comments
1	Body Tube (motor section)	As payload section	34inch (86cm) tube cut to suit
1	Coupler	2	Vendor or make your own
1	Nose Cones	6.50-16	Various designs from vendors or make yourself from your designs
1	Body Tube (payload section)	7.25 6.75	34inch (86cm) tube cut to suit Estes two tubes 15inch (38cm)
1	Tube Coupler.	2.25	Vendor or make your own
1	Transition (only if design requires this item)	12-15	Vendor or make own bodies see note 3
2	Parachute (Diameter TBD)	Estes chutes plastic 3-4 Nylon chutes 8-12	Vendor or custom made. This year's competition payload and main body descend separately under their own parachutes
2	Parachute Protection	4-8	Nomex sheet, wadding, mechanical means ie piston or baffle
2	Launch Lugs	1-7	Button, rail guide or 6mm launch lugs from vendors or own custom alternatives
1 per motor	Motor Mount Tube (18 mm, 24mm or 29 mm)	2.5-6.5	18mm Klima D 24mm Estes D 24mm Cesaroni 29mm Cesaroni 24mm Aerotech 29mm Aerotech Klima & Estes need motor stops & motor retention. Friction fit is not acceptable Cesaroni/Aerotech need motor retention plastic screw-on (24mm or 29mm) provided by Estes All these items will be sized to the length of the motor and several motor mounts can be cut from supplied tube
2	Motor Centering Rings	3.5-5.50	From vendors or laser cut your own from Lite Ply or Bass wood
1-2	Bulk Head	2-4	As above
1	Fin Material – 1/8" Balsa 4" x18"	2.5 per sheet	Cut to suit your design. Other materials can be used
5 metres	Shock Cord	10	To suit design - wire/Kevlar/elastic
1	Altimeter Bay	0	To house altimeter. Bay needs to be custom made & be capable of holding an APRA or Pnut altimeter, or your own if larger
1	Any commercially available altimeters are useable	30-150	These altimeters are all approved for UKRoC: Perfectflite APRA (this altimeter is out of production. If you have any, or find a supply, they are still useable) Perfectflite Pnut, Perfectflite Firefly Micro Peak, Jolly Logic Estes Other altimeters are useable Ask ADS (make sure you know how they operate)

Notes:

This is a suggested parts list, NOT A KIT LIST: your design may need additional parts

1. Teams are strongly advised to make their own design decisions. The competition is intended to encourage innovation and use of available/novel technology. Whilst not all teams will be able to access all the latest technology, thinking outside the box with locally sourced parts can provide inexpensive designs.
2. Teams are encouraged to look at vendors' websites and to discuss directly with them to verify parts availability and ordering lead times.
3. See mission statement and rules on overall rocket design constraints. This year's payload is two eggs to be mounted with long axis horizontal. Egg mounting is your own choice. However, Apogee components in USA manufacture custom egg nests. Innovation is encouraged
4. The numbers are for one rocket. Teams should consider having sufficient spares for a second rocket spares to cover loss /damage.
5. **Estes D12-5 motors** approx £5.50 each. Assume minimum five flights (two trial & three at regional finals), with three motors per flight. This does not include the one to two flights you may need for the national final
6. **Klima D motors** approx £5.00 each. Assume minimum five flights (two trial & three at regional finals) with three motors per flight. This does not include one to two flights you may need for the national final.
7. **Cesaroni Reloads** 24mm 2G, or 29mm 1G approx £20 to £25 each. Assume minimum five flights (two trial & three at regional finals) with one motor per flight. This does not include one to two flights you may need for the national final.
8. **Aerotech Single use 24mm** £12.5 each pack of two. Assume minimum five flights (two trial & three at regional finals) with one motor per flight. This does not include one to two flights you may need for the national final.
9. **Aerotech Single use 29mm** £28 each. Assume minimum five flights (two trial & three at regional finals) with one motor per flight. This does not include one to two flights you may need for the national final.
10. **Cesaroni hardware** 24mm 2G casing approx £20. 29mm 1G – similar price. 24/29mm closure approx £11.50. Prodat delay cutter £16.50 with 24mm insert at £2.75. With 29mm insert £2.75.
11. **Aerotech 24mm** Hardware for reloadable motor £60
12. **Aerotech 29mm** Hardware for reloadable motor £74
13. Other motors are available see the current approved motor list
14. Motors identified in section 5-13 are sourced from overseas manufactures and may have long delivery lead times if not in stock. You will need to discuss availability and delivery with vendors. A month for out of stock motors is a minimum timescale and may be much longer. Be warned.
15. Igniters for single motors are included by the manufacturer. For multiple motors, see the UKRoC website on ignition. Cost for kit for multi-motor launches using tape match and fast visco fuse or klima sticks is approx £40 for about 100 launches. Teams should consider sharing.
16. Miscellaneous items sourced from fishing or hardware stores: wire trace swivels & eye bolts £10

17. Adhesives including PVA Epoxy and superglue - typically £10-20 - No hot glue to be used
18. Paint is included in this year's rules (£0-20)
19. BMFA Membership is mandatory. The youth group insurance requires one adult at £47 and at least four unnamed young people at 1/3 of the junior (£20 rate ie £6.66). Insurance runs from year end to year end. As the BMFA cover is not named for the students, suggest you apply for one adult and the minimum four students. (approx £ 75). If you had BMFA for this year, then the membership is valid up to Jan 1st 2025
20. Launch and ignition system: Simple 6mm rod system with Estes D ignition system, approx £30. Rail with stand and Estes pro ignitions system approx £150. (The organiser will provide rods, rails and ignition systems for the regional/national finals)
21. On project costing, it is very dependent on motor selection, how much material you have from previous projects & how much you are able to make yourself. It is therefore suggested that an early activity will be to prepare a project cost estimate for your particular circumstances.
22. Some or most of the parts can be 3D printed. Make sure the 3D printed parts are fit for purpose ie exposure to heat and loading.
23. Teams are encouraged to use a single motor design (but not mandated) to simplify ignition and be compliant with international final rules should they win the national competition.