

UKROC Approved Motor List 2025

Only motors from this list may be used in the UKRoC competition.

Notes:

- This list covers all the motors which can be used it **does not guarantee that vendors will be able to supply them all.**
- When you have a preliminary design for your rocket approach the vendors to establish availability of a particular motor. Procurement timescales can be months!! Consider using motors which are available and adjust your design.
- When you talk to vendors particularly for Estes and Klima motors establish that the batches you have or intend to procure do not come from the batches which may have uncertain performance the vendors have the latest information.
- Designation: The number after the letter indicates the average thrust in Newtons. Fliers should aim to have a thrust at least five times the weight of the rocket. For example, a rocket weighing 2N (approximately 200g) should have an average thrust of 10N or higher.
- Diameter: Standard motor diameters are 18mm, 24mm and 29mm. Please check your design/kit to see which motor diameter is suitable. A smaller motor may be installed in a larger motor mount (e.g. 24mm in a 29mm) if a suitable adapter is used.
- Type: Single-use motors are a fully self-contained motor where the entire purchased motor is disposable. A reloadable motor has a separate reusable casing and the 'reload' is a separately purchased propellant. Typically a single-use motor is more expensive than the 'reload' of an equivalent reloadable, however the entire motor is disposable and there is no need to purchase, rent or borrow the reloadable motor casing.
- Total Impulse: The total impulse listed above has been rounded to the nearest Newton-second.
- Delay: Most reloadable motors have adjustable delays, the delays listed here are illustrative rather than limited. A zero delay means that the motor will immediately burn through to ignite an upper stage motor after the propellant has burned through. A plugged (or P) delay means that the motor has no ejection charge or delay grain. Ejection delays may vary by up to one second from the advertised delay.
- Total Weight: The total weight is the full weight of the motor at lift-off.
- Storage of motors is important to maintain correct functioning look at Vendors and makers sites for advice.

Manufacturer	Designation	Diameter	Type	Total Impulse	Burn Time	Delay (s)	Total Weight (g)	Propellant
Klima	A6	18mm	Single-use	2.5 Ns	0.6s	4	14.5g	Potassium Perchlorate
Estes	A8	18mm	Single-use	2.5 Ns	0.5s	3,5	16g	Black Powder
Quest	A3	18mm	Single-use	2.5 Ns	0.8s	4,6	18g	Black Max
Estes	B4	18mm	Single-use	5 Ns	1.1s	2,4	20-21g	Black Powder
Klima	B4	18mm	Single-use	5 Ns	1.3s	0,4	16-17g	Potassium Perchlorate
Estes	B6	18mm	Single-use	5 Ns	0.8s	0,2,4,6	16-22g	Black Powder
Quest	B4	18mm	Single-use	5 Ns	1.1s	4,6	20g	Black Max
Quest	B6	18mm	Single-use	5 Ns	1.2s	4,6	19g	White Lightning
Estes	C11	24mm	Single-use	10 Ns	0.8s	0,3	32g	Black Powder
Klima	C2	18mm	Single-use	10 Ns	5.0s	0,P	22-23g	Potassium Perchlorate
Estes	C6	18mm	Single-use	10 Ns	1.6s	0,3,5,7	23-27g	Black Powder
Klima	C6	18mm	Single-use	10 Ns	1.6s	0,3,5,7,P	19-22g	Potassium Perchlorate
Quest	C12	18mm	Single-use	10 Ns	0.8s	4,6,8	24g	Black Max
Quest	C18	18mm	Single-use	10 Ns	0.5s	4,6,8	21g	White Lightning
Quest	D16	18mm	Single-use	12 Ns	0.8s	4,6,8	26g	Black Max
Quest	D20	18mm	Single-use	14 Ns	0.8s	4,6,8	24g	White Lightning
Klima	D3	18mm	Single-use	19 Ns	6.0s	0,P	28g	Potassium Perchlorate
Quest	D22	24mm	Single-use	19 Ns	0.9s	4,7,10	38g	White Lightning
TSP	D12	24mm	Single-use	19 Ns	1.4s	0,2,4,6,8	46g	Potassium Perchlorate
Estes	D12	24mm	Single-use	20 Ns	1.6s	0,3,5,7	41-44g	Black Powder
Aerotech	D13	18mm	Reloadable	20 Ns	1.5s	2,4,6,8,10	33g	White Lightning
Aerotech	D24	18mm	Reloadable	20 Ns	1.2s	2,4,6,8,10	31g	Blue Thunder
Klima	D9	18mm	Single-use	20 Ns	2.1s	0,3,5,7,P	26-28g	Potassium Perchlorate
TSP	D20	24mm	Single-use	20 Ns	1.0s	0,2,4,6,8	46g	Potassium Perchlorate
Cesaroni	E22 (24E22)	24mm	Reloadable	24 Ns	1.0s	4,6,8,10,13	56.5g	Smoky Sam
Cesaroni	E31 (26E31)	24mm	Reloadable	26 Ns	0.9s	6,8,10,12,15	52g	White Thunder
Quest	E26	24mm	Single-use	28 Ns	1.2s	4,7,10	44g	White Lightning
Aerotech	E30	24mm	Single-use	34 Ns	1.0s	4,7	47g	Blue Thunder
Aerotech	E23	29mm	Single-use	35 Ns	1.6s	5,8	104g	Blue Thunder
Aerotech	E20	24mm	Single-use	35 Ns	1.6s	4,7	49g	White Lightning

Manufacturer	Designation	Diameter	Type	Total Impulse	Burn Time	Delay (s)	Total Weight (g)	Propellant
TSP	E20	24mm	Single-use	36 Ns	2.0s	0,2,4,6,8	64g	Potassium Perchlorate
Aerotech	E18	24mm	Reloadable	37 Ns	2.1s	1,2,3,4,5,7	59g	White Lightning
Aerotech	E16	29mm	Reloadable	38 Ns	2.0s	1,2,3,4,5,7	108g	White Lightning
Aerotech	E6	24mm	Reloadable	38 Ns	7.1s	Plugged	53g	Blue Thunder
TSP	E12	24mm	Single-use	39 Ns	3.3s	0,2,4,6,8	64g	Potassium Perchlorate
Aerotech	E28	24mm	Reloadable	40 Ns	1.2s	1,2,3,4,5,7	55g	Blue Thunder
Quest	E35	24mm	Single-use	40 Ns	1.1s	5,8,11	55g	White Lightning
Aerotech	F23	29mm	Single-use	41 Ns	2.2s	4,7	82g	Black Max
Cesaroni	F36 (41F36)	29mm	Reloadable	41 Ns	1.1s	2,4,6,8,11	104g	Smoky Sam
Aerotech	F44	24mm	Single-use	42 Ns	1.0s	4,8	48g	White Lightning
Aerotech	F12	24mm	Reloadable	43 Ns	2.9s	1,3,5	66g	Black Jack
Aerotech	F24	24mm	Reloadable	47 Ns	2.1s	1,2,3,4,5,7	63g	White Lightning
Aerotech	F30	24mm	Single-use	47 Ns	1.6s	4,6,8	71g	Black Max
Aerotech	F27	29mm	Single-use	50 Ns	2.0s	4,8	80g	Redline
Aerotech	F39	24mm	Reloadable	50 Ns	1.3s	1,2,3,4,5,6,7,9	61g	Blue Thunder
Cesaroni	F51 (50F51)	24mm	Reloadable	50 Ns	1.0s	4,6,8,10,13	73g	Blue Streak
Cesaroni	F36 (51F36)	29mm	Reloadable	51 Ns	1.4s	5,7,9,11,14	101g	Blue Streak
Aerotech	F20	29mm	Single-use	52 Ns	2.5s	4,7	80g	White Lightning
Aerotech	F42	29mm	Single-use	53 Ns	1.3s	4,8	76g	Blue Thunder
Cesaroni	F32 (53F32)	29mm	Reloadable	53 Ns	1.7s	3,5,7,9,12	107g	White
Cesaroni	F70 (53F70)	24mm	Reloadable	53 Ns	0.8s	5,7,9,11,14	73g	White Thunder
Cesaroni	F31 (56F31)	29mm	Reloadable	56 Ns	1.8s	3,5,7,9,12	102g	Classic
Aerotech	F32	24mm	Single-use	57 Ns	1.7s	4,6,8	64g	Blue Thunder
Cesaroni	F59 (57F59)	29mm	Reloadable	57 Ns	1.0s	3,5,7,9,12	99g	White Thunder
Aerotech	F67	29mm	Single-use	61 Ns	0.9s	4,6,9	81g	White Lightning
Aerotech	F22	29mm	Reloadable	65 Ns	3.3s	1,3,5,7	133g	White Lightning
TSP	F35	29mm	Single-use	65 Ns	2.0s	0,2,4,6,8	92g	Potassium Perchlorate
Cesaroni	F79 (68F79)	24mm	Reloadable	68 Ns	0.9s	4,6,8,10,13	107.5g	Smoky Sam
Cesaroni	F30 (73F30)	24mm	Reloadable	73 Ns	2.4s	2,4,7	102.2g	White Longburn
Aerotech	F52	29mm	Reloadable	73 Ns	1.4s	5,8,11	122g	Blue Thunder

Manufacturer	Designation	Diameter	Type	Total Impulse	Burn Time	Delay (s)	Total Weight (g)	Propellant
Cesaroni	F85 (74F85)	24mm	Reloadable	74 Ns	0.9s	6,8,10,12,15	96g	White Thunder
NEW: Cesaroni	F51	24mm	Reloadable	75NS	1.5	3-12	95g	Classic
Aerotech	F50	29mm	Single-use	77 Ns	1.4s	4,6,9	85g	Blue Thunder
Aerotech	F25	29mm	Single-use	78 Ns	3.1s	4,6,9	90g	White Lightning
Aerotech	F40	29mm	Reloadable	78 Ns	2.1s	2,4,6,8,10	126g	White Lightning