

Comparison - Untitled

20m above Sea Level, 101,3kPa, 20°C

	Untitled	Untitled	Untitled
Motor	Aveox 27/39/3	Mega AC 22/45/3E	Mega AC 22/20/2
Motor Constant (rpm/V)	1041	720	2875
No Load Current (A)	0,77	0,95	3,37
Armature Resistance (Ohms)	0,063	0,044	0,012
Battery	KAN 2000	KAN 2000	KAN 2000
Series Cell Count	12	12	12
Parallel Cell Count	1	1	1
Cell Capacity (mAh)	1950	1950	1950
Pack Capacity (mAh)	1950	1950	1950
Cell Voltage (V)	1,2	1,2	1,2
Pack Voltage (V)	14,4	14,4	14,4
Cell Resistance (Ohms)	0,0055	0,0055	0,0055
Pack Resistance (Ohms)	0,066	0,066	0,066
Speed Control (ESC)	Castle Creations Phoenix 60	Castle Creations Phoenix 60	Castle Creations Phoenix 60
Resistance (Ohms)	0,0012	0,0012	0,0012
Maximum Current (A)	60	60	60
Number of ESCs	1	1	1
Drive System	propeller	propeller	propeller
Gear Ratio	1,00:1	1,00:1	3,00:1
Propeller (in x in)	10x6	11x7	10x6
Series Motors	1	1	1
Parallel Motors	1	1	1
Number of Propellers	1	1	1
Blades per Propeller	2	2	2
Airframe	P51	P51	P51
Wing Span (cm)	127	127	127
Wing Area (dm ²)	27,5	27,5	27,5
Total Weight (g)	2046	2185	2046

Static Predictions

Current (A)	30,7	24,0	34,7
Motor Voltage (V)	12,3	12,8	12,1
Input Power (W)	378,4	306,6	419,1
Input Power Loading (W/kg)	184,8	140,2	204,6
Power Loss (W)	94,5	51,4	73,7
Motor/Gearbox Output (W)	283,9	255,3	345,3
Output Power Loading (W/kg)	138,6	116,7	168,6
Motor/Gearbox Efficiency (%)	75,0	83,2	82,4
Shaft Efficiency (%)	64,3	73,9	69,0
Motor RPM	10406	8402	33323
Propeller RPM	10406	8402	11108
Static Thrust (g)	1247	1267	1421
Pitch Speed (m/s)	26,4	24,9	28,2
Run Time (min:sec)	3.49	4.53	3.22

Flight Predictions

Stall Speed (m/s)	11,1	11,4	11,1
Optimal Flight Speed (m/s)	14,9	15,4	14,9
Throttle for Optimal (%)	61	70	64
Duration at Optimal (m:s)	21.42	22.10	16.27
Motor Temp at Optimal (°C)	26	25	38
Hands-off Speed (m/s)	16,9	17,5	16,9
Throttle for Hands-off (%)	67	78	70
Duration Hands-off (m:s)	19.01	18.13	14.53
Motor Temp Hands-off (°C)	27	25	40
Best Rate of Climb (m/s)	4,75	4,03	5,73
Rate of Sink (m/s)	-1,48	-1,52	-1,48

Note: Motor performance calculations take ambient temperature and heating effects into account.