

Updated 01.06.2020

Use with caution. Many of the setups are on edge and care must be taken. All columns have an impact on a test. Hotter batteries or temp. outside WILL make a difference.

	Weight	KV	Battery	Prop	Max amp	Climb amp	Straight amp	Sec. to 200m	Max m 30sek	Max climb m/s	Temp c	Temp moto	Temp batt	Altitude MASL	Weight mod	Zoom m
35 AXI 2217/12 V2 Long	74g	1380	3S 1800 Tattu	GM11X5	30	27	23,0	31,0	190,0	6,5	-5		20	340	1650	1
123 AXI 2217/12 V2 Long	74g	1380	3S 1300 25C	RF12x6				22,0	270,0	9,1	15	<30	25	100	1250	5
47 AXI 2217/12 V2 Long	74g	1380	3S 1300 25C	RF12x6				22,0	270,0	9,5	15	<30	25	340	1250	10
5 AXI 2217/12 V2 Long	74g	1380	3S 850 R-line	VM11x7	47	36,0		22,0	275,0	9,5	2	?	15	400	1650	8
11 AXI 2217/12 V2 Long	74g	1380	3S 1800 Tattu	GM11x6	46	37,0		20,0	290,0	10,0	-6		20	400	1750	10
12 AXI 2217/12 V2 Long	74g	1380	3S 1800 Tattu	VM11x7	45	39,0		20,0	290,0	10,0	-6		20	400	1750	9
10 AXI 2217/12 V2 Long	74g	1380	3S 1800 Tattu	RF12x6	53	41,0		19,0	300,0	10,5	-6	Hot	20	400	1750	12
13 AXI 2217/12 V2 Long	74g	1380	3S 1800 Tattu	VM12x8	57	45,0		19,0	300,0	10,5	-6	Too hot...	20	400	1750	10
7 AXI 2217/12 V2 Long	74g	1380	3S 850 R-line	VM12x8	54	45,0		21,0	304,0	10,5	2	Hot	15	400	1650	7
9 AXI 2217/12 V2 Long	74g	1380	3S 1800 Tattu	VM11x7	50	41,0	39,0	18,0	319,0	11,0	2	Hot	15	400	1750	6
8 AXI 2217/12 V2 Long	74g	1380	3S 1800 Tattu	VM12x8	61	47,0		17,0	333,0	11,5	2	Hot	15	400	1750	8
38 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM9X5	32	27		24,0	245,0	8,5	-5		20	340	1650	9
39 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	RF10X6	38	31		22,0	275,0	9,5	-5		20	340	1650	8
40 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM9X6	36	30		20,0	290,0	10,0	-5		20	340	1650	12
36 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM11X5	28	31	30,0	21,0	305,0	10,5	-5		20	340	1650	4
37 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM11X6	42	35		17,0	333,0	11,5	-5		20	340	1650	10
268 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM9X6	?	?		15,5	390,0	13,0	2	?	25	340	1650	10
269 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM11x6	?	?		14,0	423,0	14,0	2	?	25	340	1650	10
265 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM11x6	?	?		13,0	477,0	16,0	2	?	25	340	1250	7
264 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM11x6	?	?		12,0	495,0	16,5	2	?	25	340	1250	7
266 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM9X6	?	?		12,0	513,0	17,2	2	?	25	340	1250	7
107 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM10x5	44	37	30,0	19,0	300,0	10,5	25		30	800	1650	3
108 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM10x6	52	42	40,0	14,0	420,0	14,5	25		30	800	1650	10
109 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM11x5	57	44	40,0	16,0	362,0	12,5	25	Hot	30	800	1650	6
111 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM9X6	44	37	30,0	20,0	290,0	10,0	25		30	800	1650	6
112 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM11x6	58	50	48,0	16,5	348,0	12,0	25	Hot	30	800	1650	5
113 AXI 2217/12 V2 Long	74g	1380	4S Turnigy 650	GM9X5	43	36	32,0	19,0	300,0	10,5	25		30	800	1650	4

Motor	Weight	KV	Battery	Prop	Max amp	Climb amp	Straight amp	Sec. to 200m	Max m 30sek	Max climb m/s	Temp c	Temp moto	Temp batt	Altitude MASL	Weight mod	Zoom m
19 AXI 2220/12 V2 Long	91g	1200	3S 1800 Tattu	GM9X6	24	21,0		36,0	159,0	5,5	-7	<30	25	340	1650	4
245 AXI 2220/12 V2 Long	91g	1200	3S R-line 850 95	GM11x6	31	26,0		30,0	200,0	6,7	10		15	340	1650	4
18 AXI 2220/12 V2 Long	91g	1200	3S 1800 Tattu	GM9X6	25	22,0		26,0	217,0	7,5	-7	<30	25	340	1250	5
242 AXI 2220/12 V2 Long	91g	1200	3S R-line 850 95	GM14x7	54	43,0		23,0	270,0	9,0	-5		25	340	1650	9
241 AXI 2220/12 V2 Long	91g	1200	3S R-line 850 95	GM13x8	52	42,0		22,0	270,0	9,5	-5		25	340	1650	8
22 AXI 2220/12 V2 Long	91g	1200	3S R-line 850 95	VM11X7	39	31,0		18,2	319,0	11,0	-8	<30	25	340	1250	9
25 AXI 2220/12 V2 Long	91g	1200	3S R-line 850 95	VM12X8	47	37,0		17,4	333,5	11,5	-8	<30	25	340	1250	6
175 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	Vita9x6		42		27,0		8,5					1650	
176 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	Vita9x6		44	35,0	23,0		9,0					1650	
240 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	GM9X6	33	28,0		25,0	245,0	10,0	0	40	25	340	1650	10
20 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	GM9X6	34	28,0		21,0	280,0	10,0	-7	<30	25	340	1650	7
174 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	Vita11x6		42		20,0		10,6					1650	
177 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	Vita11x6		43	32,0	22,0		11,0					1650	
21 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	GM9X6	32	27,0		18,2	319,0	11,0	-8	<30	25	340	1250	11
AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	RF11x6,5	50-58	32-35	32-35	19,0	335,0	12,5					1650	
239 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	GM11x6	47	36,0		17,0	335,0	12,5	0	50	25	340	1650	9
172 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	GM12x8		62?		16,0		13,4					1650	
24 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	VM11X7	49	39,0		14,8	391,5	13,5	-8	<30	25	340	1250	15
AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	RF10x6	ot tested yet										1650	
55 AXI 2220/12 V2 Long	91g	1200	4S Turnigy 650	GM11x5	36	29,0		18,0	319,0	11,0	5	<30	25	340	1650	7

Motor	Weight	KV	Battery	Prop	Max amp	Climb amp	Straight amp	Sec. to 200m	Max m 30sek	Max climb m/s	Temp c	Temp moto	Temp batt	Altitude MASL	Weight mod	Zoom m
247 Dualsky XM3040EG-9	104g	1350	3S R-line 850 95	GM10x6				25,0	230,0	8,0	0	<30	25	340	1650	8
244 Dualsky XM3040EG-9	104g	1350	3S R-line 850 95	CAM11x6	48	38,0	35,0	23,0	250,0	9,0	5	<30	25	340	1650	8
26 Dualsky XM3040EG-9	104g	1350	3S R-line 850 95	GM12x8	45	40,0		22,0	261,0	9,5	2		5	340	1650	8
243 Dualsky XM3040EG-9	104g	1350	3S R-line 850 95	GM11x6	45	37,0		19,0	305,0	10,5	5	<30	25	340	1650	10
33 Dualsky XM3040EG-9	104g	1350	3S tattu 1800ma	GM11x5	46	38,0	30,0	19,0	304,0	10,5	0	<30	25	340	1650	8
275 Dualsky XM3040EG-9	104g	1350	3S R-line 850 95	VM11x7	64	42,0		18,0	350,0	11,5	8	<30	25	400	1650	12
275 Dualsky XM3040EG-9	104g	1350	3S R-line 850 95	VM12x8				17,0	360,0	12,2	8	<30	25	400	1650	13
248 Dualsky XM3040EG-9	104g	1350	3S R-line 850 95	GM12x8				16,0	390,0	12,5	0	<30	25	340	1650	8
27 Dualsky XM3040EG-9	104g	1350	3S R-line 850 95	GM12x8	48	43,0		15,0	377,0	13,5	2		30	340	1650	12
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	Vita 9x6	52	44		22,0	295,0	9,5	2		25		1650	
228 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	Cam 9x6	42	37,0		18,0	350,0	10,7	5	<30	15	50	1650	10
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	Vita 9x6	60	41	40,0	21,0	320,0	11,5	10	<30C	20		1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	CAM9x6	45	37,0		16-19		11,5	5		5	100	1650	10
31 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	GM11x5	42	36,0	33,0	18,0	340,0	11,5	0	<30	25	340	1650	15
226 Dualsky XM3040EG-9	104g	1350	4S Hyperion	Cam10x6	45	39,0				11,8	5	<30	25	350	1650	10
233 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	GM9X6	45	37,0	36,0	17,0	355,0	12,0	-4	<30	25	340	1650	15
227 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	Cam 10x6				18,0		12,3	5	<30	25	350	1650	10
231 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF10x6	50	41,0		16,0		12,3	5		25	50	1650	10
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF10x6	50	41		16,0	370,0	12,6	2		25		1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF10x6	50	37	34,0	19,0	355,0	12,6	10	31C	20		1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF10x6	50	40		19,0	355,0	12,6	5		25	100	1650	10
230 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF10x6	50	40,0				12,6	5		25	50	1650	10
229 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	Cam 9x6	45	39,0		16,0		12,8	5	<30	25	50	1650	10
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	CAM9x6	46	40,0		16,0	375,0	13,0	5		25		1650	
237 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	GM11x6	57	50,0		15,5	Too much?	13,0	0		25	340	1650	24
246 Dualsky XM3040EG-9	104g	1350	4S Hyperion 850	GM10x6				15,0	400,0	13,5	0	<30	25	340	1650	8
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF11x6,5	65	48	43,0	17,0	Too much?	13,7	10	34C	20		1650	
234 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	GM11x6	60	49,0		14,0	Too much?	14,0	-4	<30	25	340	1650	20
235 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	GM11x6	58	49,0		14,0	Too much?	14,0	-4	<30	25	340	1650	15
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF11x6,5	60	53		13,0	Too much?	15,2						

Topmodel F2919/10	83	1480	4S	Turnigy 650	GM9x5	ot tested yet												1650
Topmodel F2919/10	83	1480	4S	Turnigy 650	GM10x5	ot tested yet												1650
Topmodel F2919/10	83	1480	4S	Turnigy 650	GM11x5	ot tested yet												1650
Topmodel F2919/10	83	1480	4S	Turnigy 650	RF11x6.5	ot tested yet												1650

Motor	Weight	KV	Battery	Prop	Max amp	Climb amp	Straight amp	Sec. to 200m	Max m 30sek	Max climb m/s	Temp c	Temp moto	Temp batt	Altitude MASL	Weight mod	Zoom m
84 Tenshock FSJ 4S	107	3550	4S Turnigy 650	14x10 com	38	30,0		18,0	330,0	12,0	10	<30	30	450	1650	11
85 Tenshock FSJ 4S	107	3550	4S CNHL 1100	14x10 com	38	32,0		16,0	360,0	12,5	10	<30	30	450	1650	11
88 Tenshock FSJ 4S	107	3550	4S Turnigy 650	14x10F	39	31,0		18,0	305,0	12,0	10	<30	30	450	1650	10
197 Tenshock FSJ 4S	107	3550	4S Turnigy 650	14x10F	34	30,0		18,0	330,0	11,5	10	40	15	500	1650	13
199 Tenshock FSJ 4S	107	3550	4S Turnigy 650	13x10C	33	28,0		17,0	320,0	11,5	10	40	15	500	1650	10
200 Tenshock FSJ 4S	107	3550	4S Turnigy 650	12x10C	28	24,0	17,0	21,0	265,0	9,5	10	<30	15	500	1650	5
216 Tenshock FSJ 4S	107	3550	4S Turnigy 650	GM16x10	45	37,0	32,0	18,0	348,0	12,0	20	40	20	500	1700	12
217 Tenshock FSJ 4S	107	3550	4S Turnigy 650	GM15x8	35	31,0	25,0	19,0	305,0	10,5	20	35	20	500	1700	12
91 Tenshock FSJ 3S	107	4650	3S R-line 850	14x10 com	46	39,0		19,0	305,0	10,5					1650	
92 Tenshock FSJ 3S	107	4650	3S R-line 850	14x10 com	44	38,0		19,0	305,0	10,5	10		20	100	1650	8
207 Tenshock FSJ 3S	107	4650	3S Tattuu 1800	GM13x10				21,0	164,0	9,5						
208 Tenshock FSJ 3S	107	4650	3S Tattuu 1800	GM14x10F	50	41,0		18,0	348,0	12,0	20		25	500	1700	12
210 Tenshock FSJ 3S	107	4650	3S Tattuu 1800	GM15x8	45	38,0		21,0	260,0	9,0	20		25	500	1700	6
211 Tenshock FSJ 3S	107	4650	3S Tattuu 1800	GM16x8	46	37,0		20,0	300,0	10,5	20		25	500	1700	10
213 Tenshock FSJ 3S	107	4650	3S Tattuu 1800	GM16x10	54	46,0		15,0	377,0	13,0	20		25	500	1700	8
114 Tenshock FSJ 3S	107	4650	4S Turnigy 650	GM10x6	25	24,0	17,0	23,0	261,0	9,0	20		25	800	1700	
115 Tenshock FSJ 3S	107	4650	4S Turnigy 650	GM11x6	33	25,0	21,0	22,0	275,0	9,5	20		25	800	1700	
116 Tenshock FSJ 3S	107	4650	4S Turnigy 650	GM12x8	48	40,0	35,0	14,0	406,0	14,0	20		25	800	1700	
117 Tenshock FSJ 3S	107	4650	4S Turnigy 650	GM12x8	47	40,0	30,0	15,0	391,0	13,5	20		25	800	1700	
118 Tenshock FSJ 3S	107	4650	4S Turnigy 650	VM11x7	35	28,0		18,0	319,0	11,0	20		25	800	1700	
119 Tenshock FSJ 3S	107	4650	4S Turnigy 650	VM12x8	44	38,0	34,0	14,0	406,0	14,0	20		25	800	1700	

**Speedtesting forward**

Motor	Weight	KV	Battery	Prop	Max amp	Climb amp	Straight amp	Max range 20	Weight model	Zoom m	Temp c	Temp moto	Temp batt	Altitude start	Altitude MA	speed
233 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF11x6,5	60	45		700,0	1650	18	-2		25	248	340	23ms
232 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF11x6,5	59	45		650	1650	25	-2		25	224	340	20ms
217 Tenshock FSJ 4S	107	3550	4S Turnigy 650	GM15x8	35	31,0	25	500	1700	15	20	35	20	210	500	17ms
216 Tenshock FSJ 4S	107	3550	4S Turnigy 650	GM16x10	45	37,0	32,0	580	1700	15	20	40	20	180	500	20ms

Updated 06.05.2020

These are my personal findings and scores are according to what I feel.

Some small adjustments to spinners might have to be done.

Some props are wider than others. That is mainly not taken into consideration.

Some combinations could deserve a 7 but I have not opted for a best score.

- 1 Bad fit and does not fold to fuse
- 2 Not folding properly
- 3 Folds but not perfect
- 4 Folds and fits decent
- 5 Folds good and fit is good
- 6 Folds almost perfect and fit is good

30mm Prestige nose - 30mm spinners

Propeller	Spinner		Hyperspinner	GM 28mm yoke	GM 30mm yoke	GM 32mm yoke	GM 34mm yoke	GM comp	GM comp(big)
	VM PRO	VM PRO Yoke fr 32mm							
GM9x5	1	2	5	6	6		5		
GM13x8	1	2	5	6	5		5		
GM12x8	1	1	5	6	6		4		
GM11x5	1	1	6	6	6		5		
GM15x8	1	1	5	6	6		5		
GM16x8	1	1	5	6	5		4		
GM14x7	1	1	5	6	6		4		
GM10x6	1	1	6	6	6		5		
GM10x5	1	1	6	6	6		5		
GM9x6	1	1	6	6	6		5		
GM11x6	1	1	6	6	6		5		
RF10x6	4	5	4	5	5		4		
RF12x6	3	5	3	5	5		3		
RF11x6,5	1	5	3	6	6		5		
VM12x8	5	5	5	5	5		4		
VM11x7	5	6	5	6	6		4		
Vita11x6	1	4	5	5	5		4		
Vita9x6	1	2	4	3	3		4		
CAM13x7	1	1	2	4	4		4		
CAM10x6	1	1	3	3	3		4		
CAM11x6	1	1	2	4	4		4		
CAM12x6	1	1	2	4	4		4		
GM14x10F				5	6				
GM 12x10 Comp								4	6
GM 13x10C								4	6
GM 14x10C								4	6
		4	6						

32mm Prestige nose - 32mm spinners

	VM PRO	Hyperspinner	RF Z 23mm yoke	GM 28mm yoke	GM 30mm yoke	GM 32mm yoke	GM 34mm yoke
	GM9x5	1	5	2	3	3	6
GM13x8	1	5	3	3	6	6	5
GM12x8	1	6	2	3	6	6	5
GM11x5	1	6	2	2	3	6	6
GM15x8	1	6	3	3	6	6	5
GM16x8	1	6	2	3	6	6	6
GM14x7	1	6	2	3	3	6	6
GM10x6	1	6	2	2	3	5	6
GM10x5	1	6	2	3	3	6	6
GM9x6	1	6	2	3	3	5	6
GM11x6	1	6	2	3	3	5	6
RF10x6	5	5	6	3	5	5	4
RF12x6	4	5	6	4	5	5	4
RF11x6,5	2	6	4	3	4	6	6
VM12x8	3	5	2	2	2	3	5
VM11x7	2	5	2	2	2	5	5
Vita11x6	2	5	3	3	6	6	4
Vita9x6	1	6	1	1	2	2	2
CAM13x7	1	4	1	1	3	5	4
CAM10x6	1	3	1	1	3	5	4
CAM11x6	1	4	2	2	4	5	4
CAM12x6	1	5	1	1	5	5	4
GM 14x10F						4	
RF 10x16						1	
GM 16x10						5	

## May 2020 – Tenshock new motors

Sooo.. another update and why some of you might be interested.

As many know I have been doing motor/prop/battery testing since winter. Not really scientific but good enough so I can be confident on my motor combos. I have off course no time or money to test all out there but a selection of what i have or got. This time the update is after I got some new Tenshock motors. [http://www.tenshock.com/ts-gdm1510a-planetary-gear-drive-motor-4-75-1.html?fbclid=IwAR04m3GeYOITKk\\_ScTHNVuT-ZFQCTjDzp1p0CxM9PjDAcc3ph7dsdTU74fw](http://www.tenshock.com/ts-gdm1510a-planetary-gear-drive-motor-4-75-1.html?fbclid=IwAR04m3GeYOITKk_ScTHNVuT-ZFQCTjDzp1p0CxM9PjDAcc3ph7dsdTU74fw). They have made their own gears and two new motors specially designed for F5J 3 and 4 cell setups. Looking nice, good weights and a nice feature of motor front screw that means you will not destroy it by using too long screws. It also has so many holes that it will fit even if you have used 3 screw reisenauer before. Just make some new holes and one can switch back and forth.

The motors run very quiet and together with some quiet props you are almost stealth compared to some others ;-)

I dont think I have found the best setup yet as I have only reached 13m/s as best. But forward speed is decent for windy conditions (Reaching 5-600m forward in 5-6m/s wind). I might want to use the 3S motor with 4cell?.. Need to complete more props before I do that as it is more than it is spec'ed for.

On my motors there are some improvement points that I think they will adrese. They had forgotten to put some loctite on the gear case and I think the later produced shafts will be "D" connection. We pilots like very fast start and hard braking. That is hard on the gears..

So a small conclusion on these two Tenshock motors:

Quiet. Runs smooth and within specs they do not get too hot.

Design and fit is good. And it fits small fuses that had previously had other screw holes.

Performance could be better for heavier models. 2kg and launching to 200m far forward is ok but not more. Might be different view when/if I do more testing. Using more cells than spec might probably be good as rpm on gear is not at max (speced 70000rpm)

Assembly gears had some faults that they should have fixed on later deliveries (I got early birds).

## March 2020

So time to release all my test results.. though I am far from finished 😊

In F5J your means of start is a motor and 30seconds to use that. You want enough power for 30seconds but also some extra for practice and an hour of two flying. We dont want to getvas much altitude as possible because the lower we launch and fly 10min the better score we get. Over 200m we get extra penalty so to use the 30sec motortime properly is important. Last year I started to use some really small and powerful 4 cell batteries from Turnigy. They have been great and one can push them far even cold (some increase though heated)

Last year I used several different gear motors but I was fairly impressed by the cheap AXI 2217/12 v2 Long that gave me some good results in competitions even at 2100g flying weight on my Prestige 2PK (empty weight 1250g).

So I bought 2 pcs of the brother 2220/12 long and upped the power to 4 cells after some messages from the producer this was possible (30A continuous and 35A short term no issues). The reason for 2 was to use it over the limit and possibly burn it. It has not yet burned though it has been warm (upwards of 60A/30sec) Results have been good but also not so good depending on propellers. So I ordered a lot of different propellers from different producers and also got my hands on some new smaller GM props (Georgi Mirov) <https://www.gmpropellers.com/> he sent me for free. Result after many props is that this is a very nice and cheap alternative to a geared motor. No gear to break, 4 cells means temperature of battery is not so important and the props are smaller = less drag.

Then a second motor came in that was interesting. Ivan Horejsi from <https://horejsi.cz/> suggested sending me a Dualsky motor designed for our purpose for free.

Motor is outrunner but with case so there is no outside can turning and the motor wires out the back. Dualsky XM3040RG-9 was the cryptic name as part of a series newly developed motors from Dualsky <http://www.dualsky.com/motor/67f3bf8a-9b1d-266d-41e6-8960fc50f8ee.shtml>

First test was fantastic so I bought 2 more in the local hobby shop to also with these try and find the limit. With this motor I could also install a temperature probe on the case and monitor it thru the telemetry.

I also bought two pieces of the new Aerobtec power sensor so I could log amperage together with the Alti altimeter, This meant I had full control of initial power and thru the full climb phase of a typical F5J start.

So what am I looking for? Well most F5J starts end up in 100-150m and you know were to start searching. But sometimes the thermals are low and strong so you need to use the 30seconds to search in low altitude for 20sec with motor on 1/3 throttle or even lower. Then if you dont find it you might want to climb 100m the last seconds. That again means you want a fast and powerful climb for 5 seconds in worst case.

Another case might be the wind speed is high and you want to reach a treeline 500m in front. You then need to fly faster than the wind forward and also climb to whatever height you feel necessary in those 30sec. Here an outrunner (or innrunner) with small prop have an advantage as it often runs on higher rpm with the same pitch as their geared counterparts.

The motor combo also needs to perform with full ballast and it would be nice if it is so light one consider it in the lightest models were you try to save every gram. Most tests were done with 1650g windy Prestige with some tests full ballast and some speeding forward.

Looking at the results I put into an excel sheet I find extreme values both on AXI and Dualsky motor but I also want the motors to run for many seasons without service so it is always nice to take a step back. Motor efficiency also goes down when using a "too big prop" so sometimes it is no point in going bigger prop just for a few % better performance.

As a results of all this testing (>100 logs with many of the multiple climbs. many for double testing) I am happy to say both AXI2220/12 long and the Dualsky XM3040EG-9 perform well for F5J flying as I see it.

The Dualsky XM3040EG-9 have really performed the extra mile as it has never been above 34Celcius temperature on the outside and performs above 15m/s climb if you want.

All tests have been double checked with 30sec first climb and then extra climb(s) on same battery so that any heat build up will show and simulate summer conditions/worst case.

I am still waiting for some new propellers and spinners (VM and GM) to tweak and also to get the best aerodynamic nose. Flying F5J means flying a lot slow and also a lot sideways (sideslip) in the wind. So drag is important. More on that later.

So for propeller I am now currently "in love" with the new GM small series. Very little sound and it seems to outperform what I had available of props.

Gear:

- Plane is Samba Model, Prestige 2PK windy designed by Philip Kolb (1650g with F3J tips). 32mm nose cone (new 30mm nose just barely fits the Dualsky but needs sanding or cutting to 32mm)
- Motors AXI2220/12 long and the Dualsky XM3040EG-9
- Battery: mostly Turnigy 4s650 75C and 3STattu R-line 4s850 95C
- Controller DYS40 mediumhigh timing
- BEC CC10A
- Altimeter/powerlog Aerobtec nano and powersensor. For range test the Aerobtec GPS was used as extra logger.
- As a backup I read and log also most data on a Unisense-E from SM-modelbau
- Tx and telemetry JR XG11

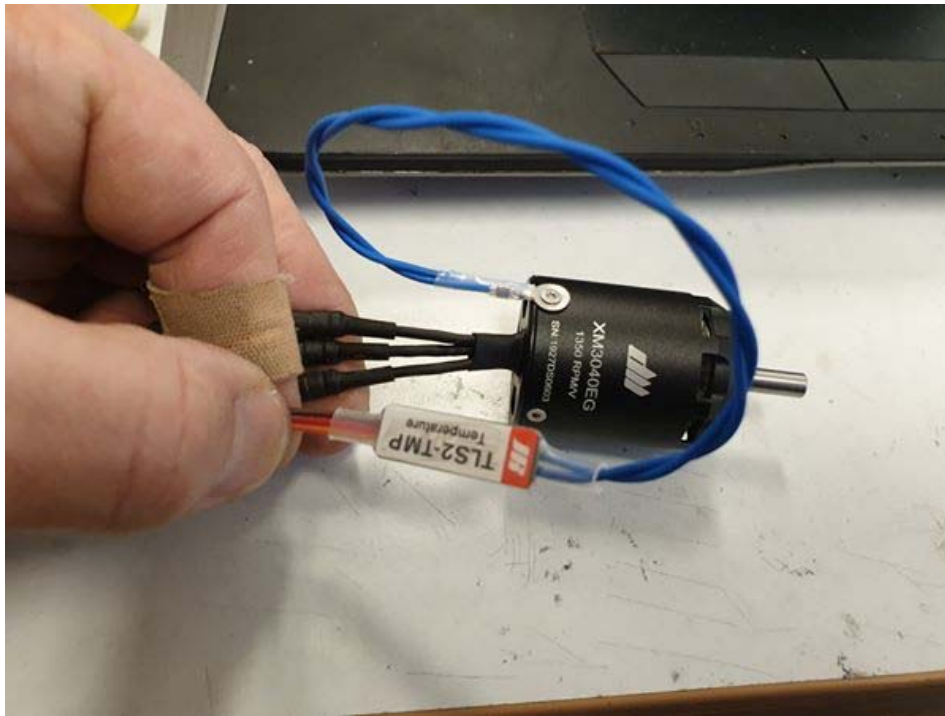
All results from my excel sheet here (pdf) <http://www.jojoen.no/div/2020testingmotor.pdf>

Edit and disclaimer: to all of you following.. i am doing all these tests to find something that works for me in any condition with any weight in my models. Dont expect the exact results if you change something. An example of this is todays GM11x6 that uses around 50A on this Dualsky setup. But i also see that warmer battery makes higher amps. A bigger battery with same C will outperform the battery i use and that means you will draw even more and "might" be too much for the motor. A second climb almost always gives better climb because of heated battery. So I have tried to discard those but oftem perform them to check. I also might need to go thru the logs again to recheck. There might be things that went wrong (example one bad battery of the 12-15pcs I have)

That is why my favourite is not the propeller that gives highest climb. It should also fit fuse for less drag and be a good setup in both cold and warm weather (warmer/colder batteries). And i want the setup to last many seasons.

These test have been performed without any sponsorship. I have had one motor and some props sent to me but I have bought most of it with own money. Though the testing have sparked producers sending me stuff i try to not get influenced in the testing.

Jo Grini



Motor	Weight	KV	Battery	Prop	Max amp	Climb amp	Straight amp	Sec. to 200m	Max m 30clk	Max climb m/s	Temp outside	Temp motor	Temp batt	Altitude MASL	Weight model	Zoom m
172 AXI 2220/12	91g	1200	4S Turnigy 650	GM12x8		62		16.0		13.4						1650
174 AXI 2220/12	91g	1200	4S Turnigy 650	Vita11x6		42		20.0		10.6						1650
175 AXI 2220/12	91g	1200	4S Turnigy 650	Vita9x6		42		27.0		8.5						1650
176 AXI 2220/12	91g	1200	4S Turnigy 650	Vita9x6		44	35.0	23.0		9.0						1650
177 AXI 2220/12	91g	1200	4S Turnigy 650	Vita11x6		43	32.0	22.0		11.0						1650
AXI 2220/12	91g	1200	4S Turnigy 650	RF11x6.5	50-58	32-35	32-35	19.0	355.0	12.5						1650
AXI 2220/12	91g	1200	4S Turnigy 650	RF10x6												1650
180 AXI 2220/12	91g	1200	4S Turnigy 650	GM9x6	33	28.0		25.0	245.0	10.0	0	40	25	340	1650	10
239 AXI 2220/12	91g	1200	4S Turnigy 650	GM11x6	47	36.0		17.0	335.0	12.5	0	50	25	340	1650	9
241 AXI 2220/12	91g	1200	3S 8-line 850 9	GM13x8	52	42.0		22.0	270.0	9.5	-5	25	340	1650	8	
242 AXI 2220/12	91g	1200	3S 8-line 850 9	GM14x7	54	43.0		23.0	270.0	9.0	-5	25	340	1650	9	
245 AXI 2220/12	91g	1200	3S 8-line 850 9	GM11x6	31	26.0		30.0	200.0	6.7	10	15	340	1650	4	

Motor	Weight	KV	Battery	Prop	Max amp	Climb amp	Straight amp	Sec. to 200m	Max m 30clk	Max climb m/s	Temp outside	Temp motor	Temp batt	Altitude MASL	Weight model	Zoom m	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	Vita 9x6	52	44		22.0	295.0	9.5	2	25				1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	Vita 9x6	60	41	40.0	21.0	320.0	11.5	10	<0C	20			1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF10x6	50	41		16.0	370.0	12.6	2	25				1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF10x6	50	37	34.0	19.0	355.0	12.6	10	31C	20			1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF11x6.5	60	55		13.0	446.0	15.2	2	25				1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF11x6.5	65	48	43.0	17.0	374.0	15.7	10	34C	20			1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	CAM9x6	46	40.0		16.0	375.0	13.0	5	25				1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	CAM9x6	45	37.0		18-19		11.5	5	5	100			1650	
Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF10x6	50	40		19.0		12.6	5	25	100			1650	
226 Dualsky XM3040EG-9	104g	1350	4S Hyperion	Cam10x6	45	39.0				11.8	5	<30	25	350		1650	
227 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	Cam 10x6				18.0		12.3	5	<30	25	350		1650	
228 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	Cam 9x6	42	37.0		18.0		10.7	5	<30	15	50		1650	
229 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	Cam 9x6	45	39.0		16.0		12.8	5	<30	25	50		1650	
231 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF10x6	50	41.0		16.0		12.3	5	25	50			1650	
230 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF10x6	50	40.0				12.6	5	25	50			1650	
233 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	GM9x6	45	37.0	36.0	17.0	355.0	12.0	-4	<30	25	340	1650	15	
234 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	GM11x6	60	49.0		14.0	415.0	14.0	-4	<30	25	340	1650	20	
234/2 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	GM11x6	65	52.0		12.0	480.0	16.5	-4	<30	35	340	1650	20	
235 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	GM11x6	58	49.0		14.0	360.0	14.0	-4	<30	25	340	2100	15	
237 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	GM11x6	57	50.0		15.5	400.0	13.0	0	25	340	1650	24		
238 Dualsky XM3040EG-9	104g	1350	4S Hyperion 85	GM11x6	65	52.0		13.0	466.0	15.0	0	25	340	1650	20		
243 Dualsky XM3040EG-9	104g	1350	3S 8-line 850 9	GM11x6	45	37.0		19.0	305.0	10.5	5	<30	25	340	1650	10	
244 Dualsky XM3040EG-9	104g	1350	3S 8-line 850 9	CAM11x6	48	38.0	35.0	23.0	250.0	9.0	5	<30	25	340	1650	8	

Speedtesting forward

Motor	Weight	KV	Battery	Prop	Max amp	Climb amp	Straight amp	Max range 200m	Weight mode	Zoom m	Temp outside	Temp motor	Temp batt	Altitude start	Altitude MASL
231 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF11x6.5	60	45		700.0	1650	18	-2	25	248	340	
232 Dualsky XM3040EG-9	104g	1350	4S Turnigy 650	RF11x6.5	59	45		650	1650	25	-2	25	224	340	





