

Preliminary motor report

Note: Pair up motor with gear box obtaining no load speed about 100 rpm.

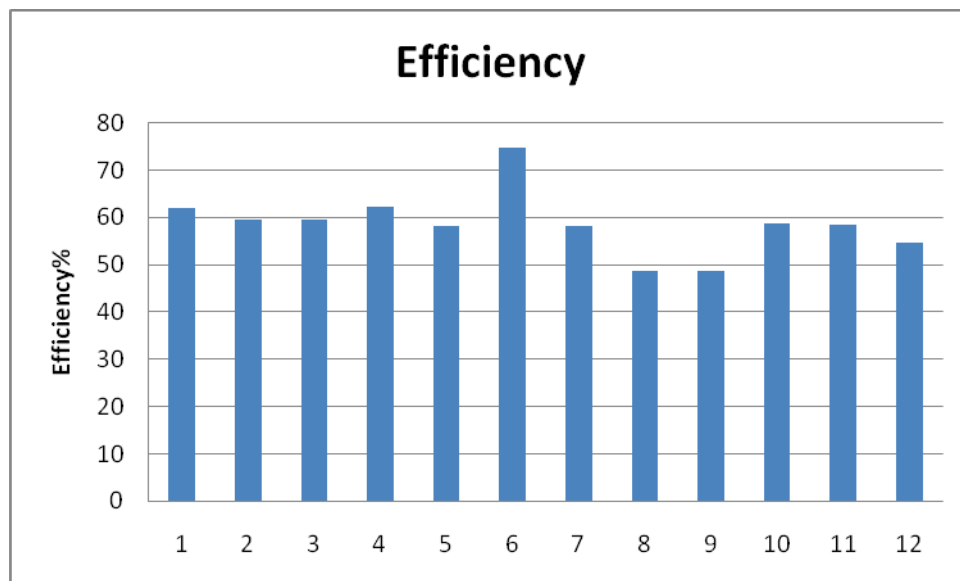
Motor and gear box type	Index used
Faulhauber series 2657 cr(coreless) (64:1)	1
Faulhauber series 2657 cr(coreless) (66:1)	2
Faulhauber series 2657 cr(coreless)(66:1)	3
Faulhauber series 3257 cr(coreless) (46:1)	4
Fauhauber series 3257 cr(coreless)(66:1)	5
Fauhauber series 3257 cr(coreless)(60:1)	6
Faulhauber series 3257 cr(coreless)38/1,38/2	7
Faulhauber brushless DC motor servomotors 3564..(134:1)	8
Faulhauber brushless DC motor servomotors 3564...B (134:1)	9
maxon RE 35 Ø35 mm, Graphite Brushes, 90 Wat(86:1)	10
maxon EC-max 30 Ø30 mm, brushless, 60 Watt(66:1)	11
maxon EC-max 40 Ø40 mm, brushless, 70 Watt(66:1)	12

motor	gearbox	weight	efficiency(motor* gea	torque(N.m)	torque/weight	Torque/power	
series 2657 cr(coreless	26A(64:1)		0.179	62.05	0.8	4.469273743	0.017777778
	156 26/1(66.1)		0.295	59.5	1.5	5.084745763	0.033333333
	30/1(66:1)		0.327	59.5	1.8	5.504587156	0.033333333
series 3257 cr(coreless	32/1(46/1)		0.452	62.25	2.25	4.977876106	0.028481013
	242 32/3(66:1)		0.472	58.1	2	4.237288136	0.025316456
	38A(60:1)		0.572	74.7	2	3.496503497	0.025316456
	38/1,38/2(66:1)		0.51	58.1	2.2	4.31372549	0.027848101
brushless DC motor servomotors							
3564...B	30/1(134:1)		0.513	48.6	3.5	6.822612086	0.032110092
	310 38/1,38/2(134:1)		0.628	48.6	4.5	7.165605096	0.041284404
maxon							
RE 35 Ø35 mm, Graphit	GP 32 HP Ø32 mm,		0.534	58.87	4.5	8.426966292	0.05
	340						
EC-max 30 Ø30 mm,	GP 42 C Ø42 mm, 3		0.731	58.608	28	38.30369357	0.466666667
	271						
	GP 42 C Ø42 mm,						
	3 - 15 Nm, Ceramic						
EC-max 40 Ø40 mm, Version		0.85	54.576	28	32.94117647	0.4	

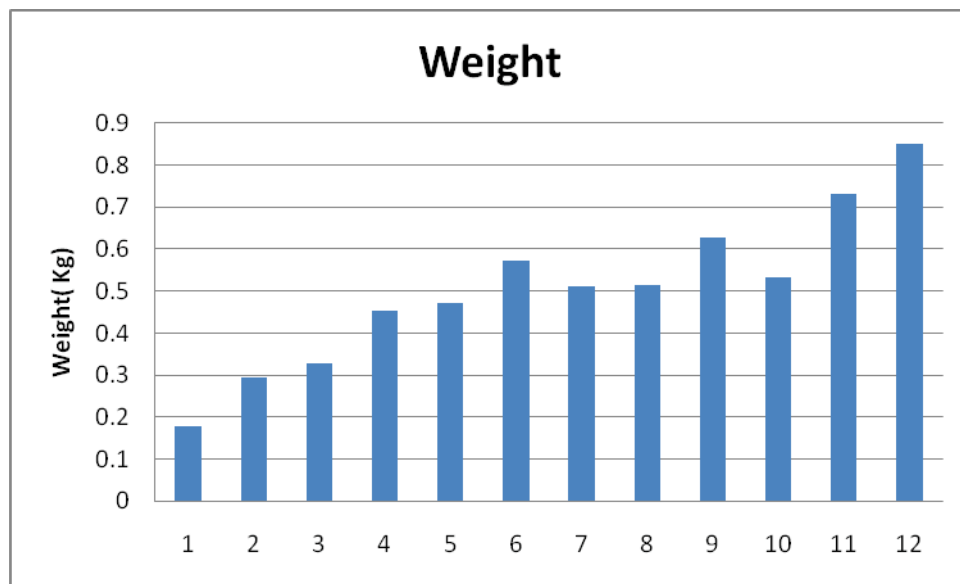
Data from faulhauber and maxon

Efficiency graph

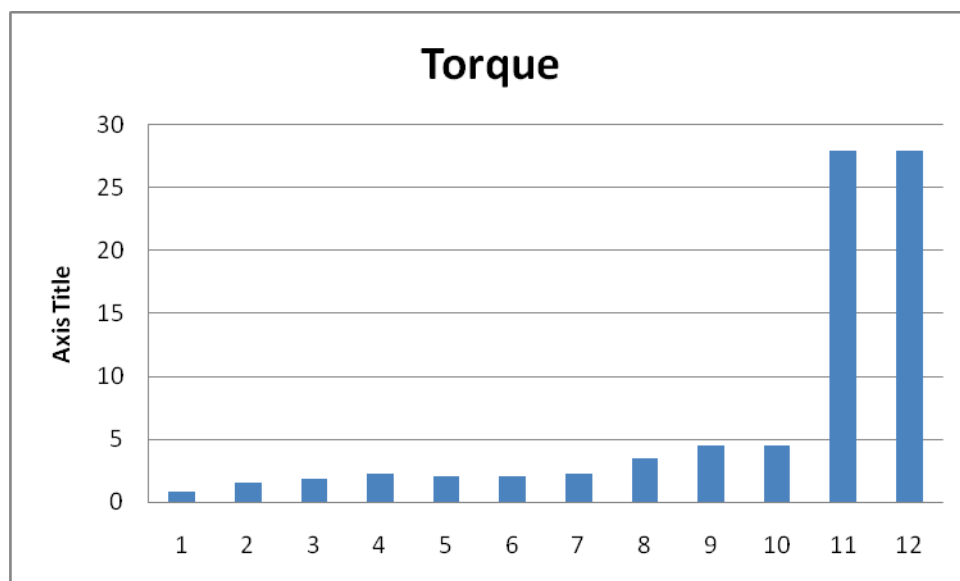
Note: Efficiency = Efficiency of motor* Efficiency of gear box



Weight graph

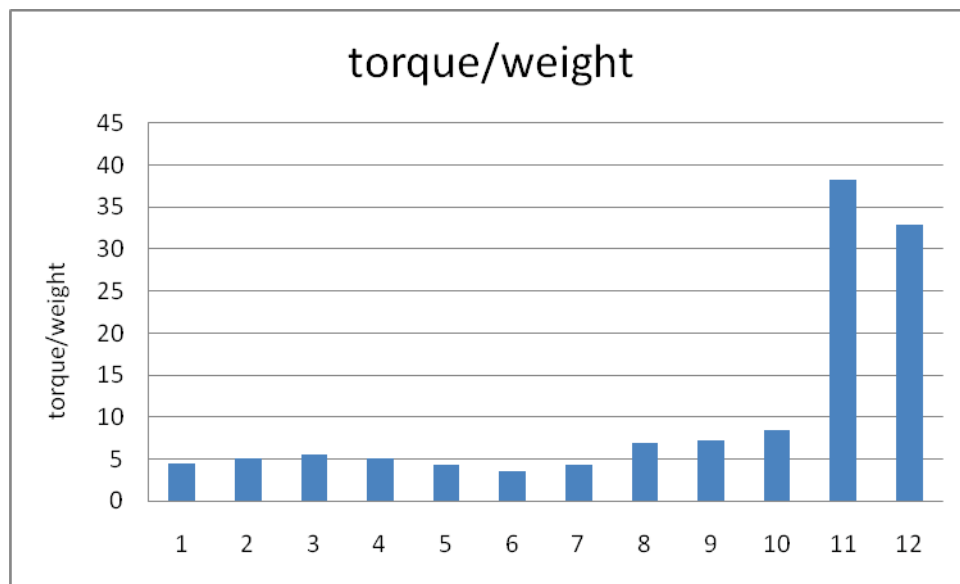


Torque

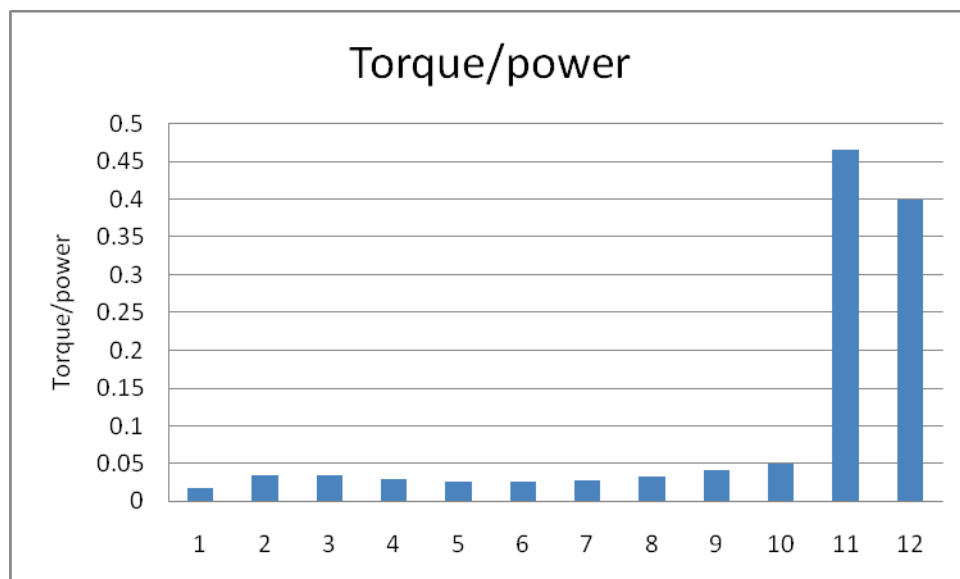


Note: Motor 11 and 12 have relatively high torque

Torque/weight



Torque/power



Data excluding gear box of motors above

model	website	stall torque(mN.m)	commmend torque(mN.m)	rque constant(mN.m/A)	rpm constant(rpm/V)	inertia(gcm ²)	no load current	po
series 2657 cr(coreless)	faulhaber	278	44	17.3	552-136	17	0.115	4
series 3257 cr(coreless)	faulhaber	539	70	47.65	500-125	42	0.258	7
3564...B	faulhaber	346	45.55	25.77	658-258	34	0.206-0.109	1
RE 35 Ø35 mm, Gray	flam's motor	949	92.3	38.9	246	68.1	0.123	9
EC-max 30 Ø30 mm	maxon	381	62.4	14.2	672	21.9	0.268	6
EC-max 40 Ø40 mm	maxon	497	88	28	341	51.2	0.316	7

Remark of AC motor

Maxon EC-max 30 Ø30 mm, brushless, 60 Watt(66:1) and maxon EC-max 40 Ø40 mm, brushless, 70 Watt(66:1) have highest torque but also the most weight.

Maxon RE 35 Ø35 mm, Graphite Brushes, 90 Wat(86:1) can be an alternative with less weight.

Remark of DC motor

Maxon RE 35 Ø35 mm, Graphite Brushes, 90 Wat(86:1), which is also used in flame, seems to be the best candidate from data from all graphs above