

A160

Brushless propulsion motor



INPUT VOLTAGE

45-110 V DC

RATED INPUT

120A

MOTOR MASS

9500±100g

Quality engineering. Service life up to 5000 hours.

Actual life depends on load, temperature, installation and maintenance.

01 / SPECIFICATIONS

Specifications and scope

For brushless motor systems with 45-110 V DC input. This manual provides product, installation and operating guidance.

No.	Parameter	Specification
01	Battery configuration	12S-24S
02	Rated input current	120A
03	No-load current (30V)	22A
04	Maximum current(KV54)	795A±5A
05	Internal resistance (temperature-dependent)	0.09Ω±0.01Ω
06	Motor mass	9500±100g
07	Rotation (shaft-end view)	CW / CCW
08	Operating temperature	-10 °C-65 °C
09	Storage temperature	-10 °C-50 °C
10	Storage humidity	≤85%

Test and inspection conditions

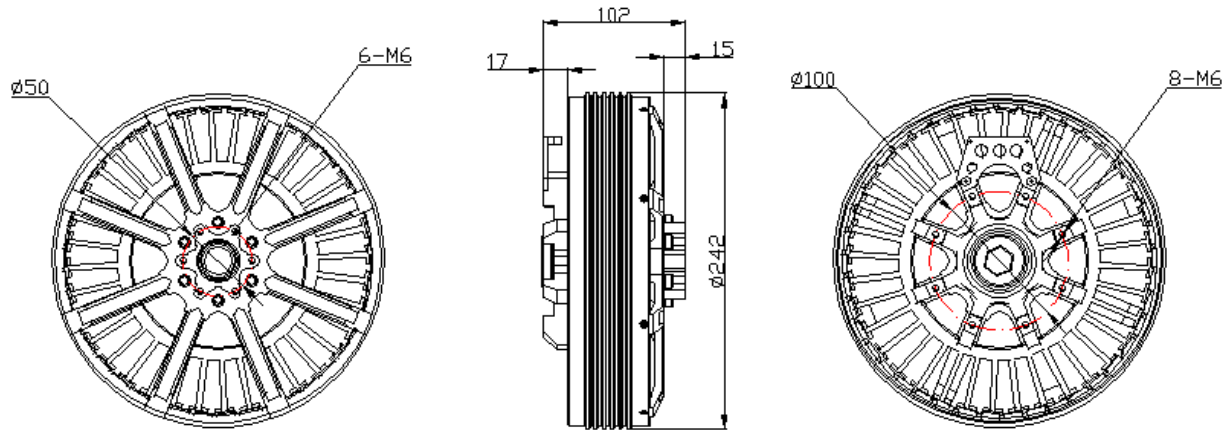
Ambient test temperature: 25 ± 5 °C. Temperature rise: ≤65 °C. No-load vibration velocity: ≤1.8 mm/s.

Dielectric test: source notation DC1000 / 5S / 5mA, between winding and housing, with no flashover.

Factory checks cover supply specification, no-load current, maximum current and resistance. Rated current is sample-tested on a dynamometer; mass is sample-checked with a scale.

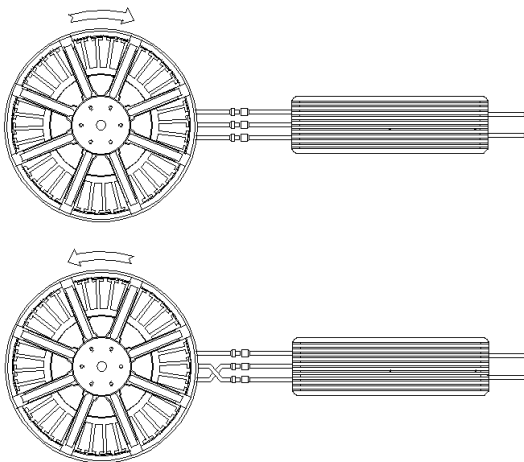
02 / INSTALLATION

Dimensions and wiring



Mounting holes, outline and shaft dimensions are shown above. Dimensions and symbols follow the original drawing.

Changing rotation direction



1. Confirm the rotation required by the propeller.
2. Leave the propeller off and connect the three motor phase leads to the ESC outputs.
3. Check rotation safely. To reverse it, isolate power, then exchange any two phase leads.
4. Install the propeller only after confirming the direction.

03 / PERFORMANCE 01

6015 propeller test

KV: 54 | Mass: 9500 g | Propeller: 6015 | Test voltage: 88.8 V

No.	Current / A	Input / W	Thrust / g	Thrust eff. / g/W
1	11.7	1038.96	11700	11.26
2	27.1	2406.48	20400	8.48
3	45.5	4040.4	31500	7.80
4	62	5505.6	40910	7.43
5	78.9	7006.32	50710	7.24
6	106.7	9474.96	62090	6.55
7	124.2	11028.96	70100	6.36
8	160.8	14279.04	80400	5.63
9	192.6	17102.88	90500	5.29
10	210.7	18710.16	99030	5.29
11	256	22732.8	110310	4.85
12	290	25752	113000	4.39
13	331	29392.8	119000	4.05
14	373	33122.4	131000	3.96
15	472	41913.6	137000	3.27
16	574	50971.2	147000	2.88
17	680	60384	151000	2.50
18	795	70596	153000	2.17

Test data are retained row by row from the source. The curve plots the listed input power and thrust. Test points do not establish continuous-duty ratings. Propeller notation follows the source.

03 / PERFORMANCE 02

5195 propeller test

KV: 54 | Mass: 9500 g | Propeller: 5195 | Test voltage: 88.8 V

No.	Current / A	Input / W	Thrust / g	Thrust eff. / g/W
1	14.7	1305.36	11210	8.59
2	27	2397.6	19500	8.13
3	50.9	4519.92	31000	6.86
4	66.2	5878.56	39220	6.67
5	92.9	8249.52	48660	5.90
6	146.2	12982.56	64680	4.98
7	161.3	14323.44	71000	4.96
8	189.8	16854.24	82000	4.87
9	226.4	20104.32	91280	4.54
10	267.9	23789.52	105400	4.43
11	290	25752	110000	4.27
12	331	29392.8	121000	4.13
13	373	33122.4	125000	3.80
14	420	37296.00	134000	3.59
15	490	43512.00	139000	3.19

Test data are retained row by row from the source. The curve plots the listed input power and thrust. Test points do not establish continuous-duty ratings. Propeller notation follows the source.

04 / OPERATION & CARE

Safety, operation and care

Installation, wiring and commissioning require competent personnel. Isolate power and confirm safe discharge before changing connections.

- 01** Supply voltage, service life and environmental conditions can lead to short circuits, fire or smoke. Provide appropriate electrical protection and guarding in the complete system. Stop use and contact technical support if safety is in doubt.
- 02** Do not damage windings, leads, edges or insulation during installation and wiring. Damage can cause electric shock, burnout or fire. Never touch rotating parts while energized.
- 03** This motor is intended for integration into other equipment. It does not carry a complete set of machine-level warning labels. The integrator must provide the necessary labels and guarding.
- 04** Keep the worst-case bearing temperature below the allowable upper limit of 100 °C. If it cannot be measured, verify service life in the complete system. Do not maintain a locked rotor or sustained high bearing temperature.
- 05** For custom speed control, verify the voltage range, load variation and control strategy. Check for abnormal noise, overheating and stalling.
- 06** Mount the motor correctly. Incorrect mounting can cause noise and vibration and shorten bearing life.
- 07** Do not lift or carry the motor by its leads or shaft. After a drop or equivalent impact, stop use and inspect for insulation and bearing damage.
- 08** Do not disassemble the motor. Safety and other performance are not assured after unauthorized disassembly.
- 09** Avoid corrosive or harmful gases and substances. The source lists H₂O, SO₂, NO₂, Cl₂, and silicone-, cyano- and phenol-based substances. Check compatibility with materials and conditions inside the complete machine to prevent corrosion and reduced life.
- 10** Store away from harmful gases at -10 to 50 °C and no more than 85% relative humidity. The source specifies sealed storage for up to six months under normal temperature and humidity conditions.

05 / TECHNICAL SUPPORT

Specification notes and support

- 01** The integrator must confirm compatibility with the complete machine in structure, dimensions, service life, noise, vibration and performance.
- 02** Operation outside the specified limits is outside the original specification guarantee.
- 03** Contact technical support before changing the machine specification or using the motor in another product.
- 04** Specification changes affecting performance or characteristics require samples and verification against mutually confirmed documents before implementation.
- 05** Components may be adjusted for performance improvements while meeting agreed specifications. Record critical delivery requirements in the mutually confirmed documents.
- 06** Agree in advance on any necessary requirements not addressed in this manual.
- 07** Resolve compatibility issues by mutual agreement using the confirmed specification documents as the basis.

Business enquiries

Product selection · Project enquiries · Technical support

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Quality engineering. Service life up to 5000 hours.

Actual life depends on load, temperature, installation and maintenance.