BRUSHLESS PROPULSION / TECHNICAL MANUAL

A77

Low-voltage brushless motor



INPUT VOLTAGE	RATED INPUT	MOTOR MASS
45-110 V DC	**120 A**	**4800 ± 10 g**

Quality engineering. Service life up to 5000 hours.

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

01 / SPECIFICATIONS

Specifications and inspection

Input voltage range: 45-110 V DC. Product, installation and operating guidance for brushless motor systems.

No.	Parameter	Specification	Source inspection notes
1	Battery configuration	12-24S	Factory inspection
2	Rated input current	120 A	Factory sampling: dynamometer
3	No-load current (10 V)	4.8 A	Factory inspection: ammeter
4	Maximum current (KV 70)	370 ± 5 A	Factory inspection: tachometer (source wording)
5	Internal resistance (temperature-dependent)	6.9 ± 0.1 mΩ	Factory inspection: DC low-resistance sorter
6	Motor mass	4800 ± 10 g	Factory sampling: electronic counting scale
7	Rotation (shaft-end view)	CW / CCW	
8	Operating temperature	-10 to 65 °C	
9	Storage temperature	-10 to 50 °C	
10	Storage humidity	≤85%	

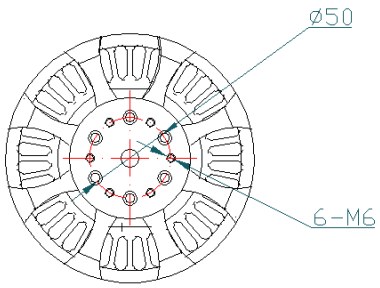
Test and inspection conditions

Ambient temperature: 25 ± 5 °C. Temperature rise: ≤65 °C. Conduct mechanical vibration testing as required; no-load vibration velocity must not exceed 1.8 mm/s.

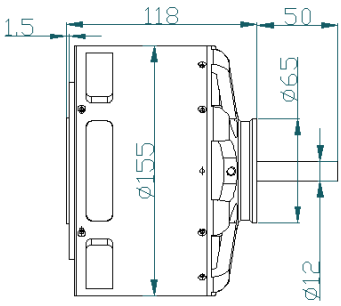
After insulation treatment, apply DC1000 / 5S / 5mA between the winding ("rotor winding" in the source) and housing, with no flashover. Test notation and inspection equipment names follow the source.

02 / DIMENSIONS

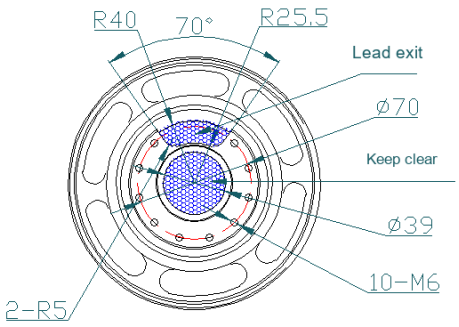
Dimensions and mounting



Propeller mounting holes



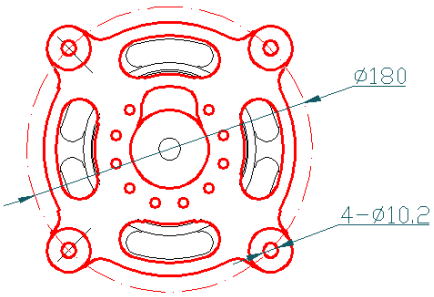
Motor outline



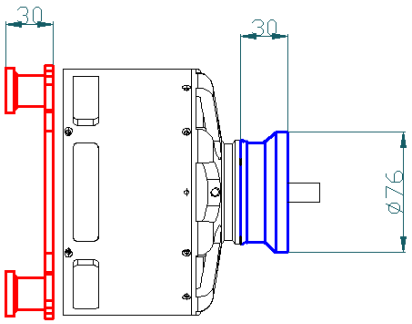
Motor mounting / lead exit

Geometry, hole patterns, threads and angles follow the revised source drawing. Check the actual model, propeller mount and approved drawing before installation. Do not infer dimensions from the illustration scale.

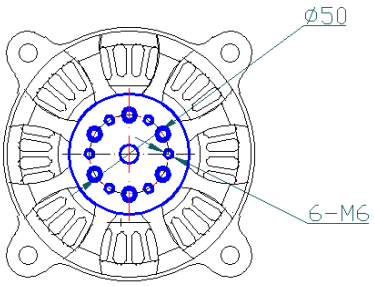
Optional base and accessories



Optional base



Accessory arrangement

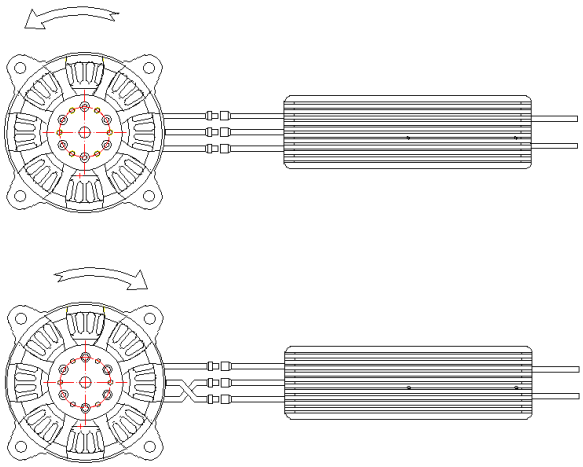


Optional propeller mount

Whether optional accessories are supplied depends on the mutually confirmed configuration.

02 / WIRING

Wiring and rotation



1. Confirm the rotation required by the propeller.

2. Leave the propeller off. Connect the three motor phase leads to the ESC outputs.

3. Check rotation safely. To reverse it, isolate power and confirm safe discharge, then swap any two phase leads.

4. Install the propeller only after verifying rotation.

Installation and system verification

01 After installation, increase load gradually in a controlled test area. Record voltage, current, speed, thrust, vibration and temperature, and check fasteners.

02 Match the motor, ESC, propeller and power supply. Recheck the operating point and temperature rise after changing the propeller or supply conditions.

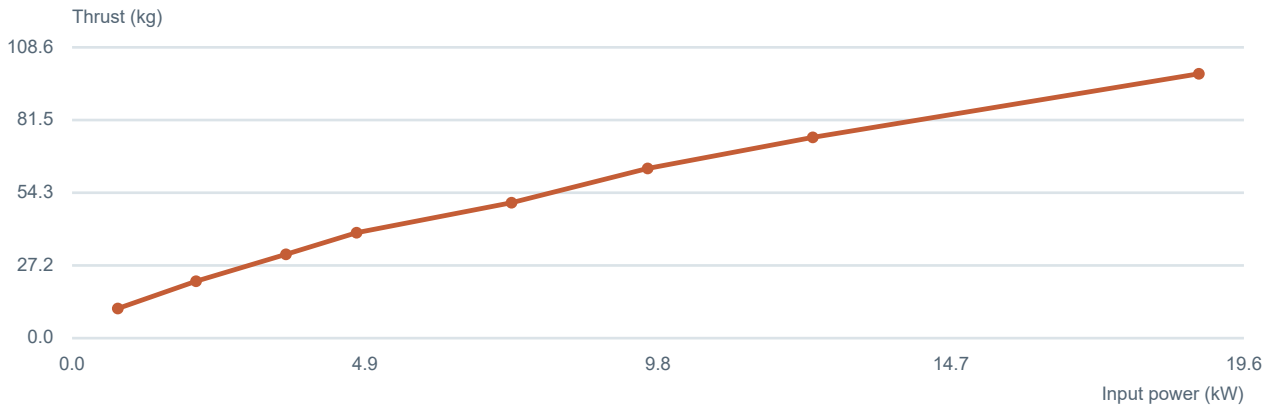
03 Stop immediately if abnormal noise, vibration, overheating or binding occurs. Maximum test values are not continuous-duty ratings.

03 / PERFORMANCE 01

Performance test / 01

KV: 43 | Mass: 4800 g | Propeller: 5195 (carbon) | Test voltage: 85 V

No.	Current / A	Input / W	Thrust / g	Speed / rpm
1	9	765	11070	1139
2	24.4	2074	21260	1574
3	42.1	3578.5	31310	1861
4	56	4760	39390	2057
5	86.5	7352.5	50600	2387
6	113.3	9630.5	63400	2772
7	145.8	12393	75010	3258
8	221.8	18853	98770	3629



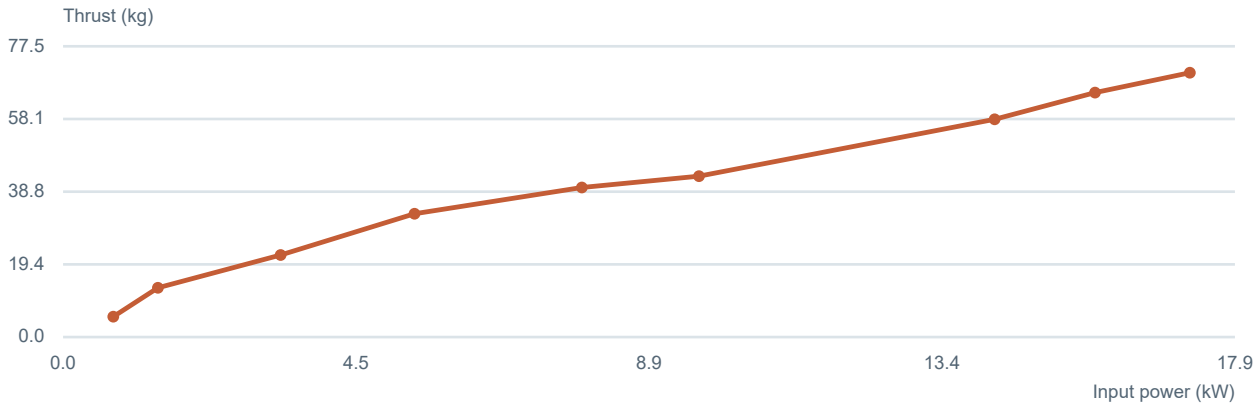
Rows retain the revised source values. The curve plots listed input power and thrust. Test points do not establish continuous-duty ratings; propeller notation follows the source.

03 / PERFORMANCE 02

Performance test / 02

KV: 60 | Mass: 4800 g | Propeller: 46x14 (wood) | Test voltage: 85 V

No.	Current / A	Input / W	Thrust / g	Speed / rpm
1	9	765	5440	889
2	17	1445	13140	1299
3	39	3315	21880	1790
4	63	5355	32880	2165
5	93	7905	39880	2395
6	114	9690	42900	2564
7	167	14195	58060	2892
8	185	15725	65180	2938
9	202	17170	70480	3074



Rows retain the revised source values. The curve plots 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 may cause short circuits, fire or smoke. Provide appropriate protection in the complete machine. If safety is in doubt, stop use and contact technical support for inspection.

02 Do not damage windings, leads, edges or insulation during installation and wiring; damage may cause electric shock, burnout or fire. Never touch rotating parts with hands or fingers while energized; injury may result.

03 The motor is intended for installation in other equipment and does not carry machine-level warning labels. Contact technical support if labels are needed and provide guarding appropriate to the complete machine.

04 Temperature strongly affects service life. Keep the worst-case bearing temperature below the allowable upper limit of 100 °C. If measurement is not possible, verify life in the complete machine. Do not sustain a locked rotor or high bearing temperature: bearing deterioration causes noise, vibration and reduced life.

05 For custom speed control, check supply-voltage range, load variation and other changing conditions for abnormal noise, overheating or stalling.

06 Use the correct mounting method. Incorrect mounting causes noise and vibration and can shorten bearing life.

07 Never carry the motor by its leads or shaft. After a drop or equivalent impact, do not continue using it: insulation or bearings may be damaged.

08 Do not disassemble the motor. Safety and other performance are not assured after unauthorized disassembly.

09 Avoid the corrosive or harmful substances listed in the source: H2O, SO2, NO2, Cl2, and silicone-, cyano- and phenol-based substances. Check for these substances inside the complete machine before installation to prevent rust and reduced life.

10 Store away from those gases and harmful environments at -10 to 50 °C and no more than 85% relative humidity. Take particular care during extended storage. Sealed storage is required, for no more than six months under normal temperature and humidity conditions.

05 / SPECIFICATION AGREEMENT

Specification agreement and notes

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 Within the agreed specification limits, components may be changed to improve performance without separate notice. 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.

Source-data notes

The maximum-current specification refers to KV70; the test tables refer to KV43 and KV60. Select the appropriate winding version.

Source basis: revised manual supplied on 28 September 2026. Values, units and tolerances follow that edition. Use mutually confirmed delivery documents for ordering and acceptance.

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.