KURCHS

COMMERCIAL UAV PROPULSION

4214 380KV

Propulsion for 13-15" inspection, security and mapping platforms.

Measured thrust, electrical load and efficiency are presented from the supplied dynamometer files, with the installation data needed for engineering review.

12N14P | 223 g | 8S



MAXIMUM THRUST	PEAK EFFICIENCY	BATTERY CONFIGURATION	MOTOR MASS
5,755 g	**10.46 g/W**	**8S**	**223 g**
100% throttle / GF1507	30% throttle	1.50A	Ø49×57mm

Values are based on supplied dynamometer files. Aircraft results vary with propeller, battery, ESC and airframe configuration.

PRODUCT SPECIFICATIONS

The essential numbers, in one place.



SELECTED CONFIGURATION

12N14P / 380KV

4 KV profiles available in the supplied data set.

MAXIMUM TEST POWER

1,977 W

Measured test value for this configuration.

MAXIMUM CURRENT

62.47 A

Recorded in the supplied test data.

MOTOR MODEL	Kurchs 4214	CONFIGURATION	12N14P
KV	380KV	BATTERY CONFIGURATION	8S
MAX POWER	1,977 W	MAX CURRENT	62.47A
MOTOR DIMENSIONS	Ø49×57mm	WEIGHT	223 g
RECOMMENDED PROPELLER	GF1507 / GF1310	NO-LOAD CURRENT	1.50A
PHASE RESISTANCE	46 mOhm	SHAFT	5mm

Basic values use the supplied product specification. Performance data is kept separate and reflects the listed test propeller and throttle range.

MEASURED PERFORMANCE

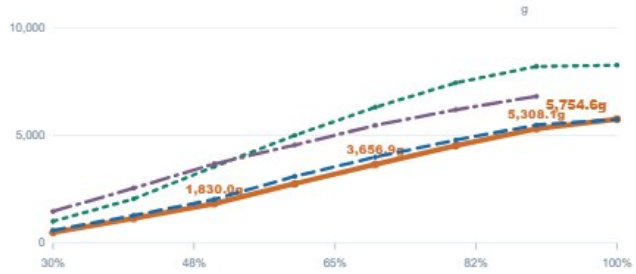
Thrust and efficiency across every KV.

COMPARED PROFILES	DATA MODE	THROTTLE RANGE
4	KV	30-100%

Thrust comparison

Each curve uses the test propeller listed in the legend.

380KV / GF1507 400KV / GF1507 520KV / GF1507 660KV / GF1310



380KV / GF1507 max: 5,754.62 g 400KV / GF1507 max: 5,745.30 g 520KV / GF1507 max: 8,260 g
660KV / GF1310 max: 6,819.73 g

Efficiency comparison

Peak values are taken directly from the supplied test rows.

380KV / GF1507 400KV / GF1507 520KV / GF1507 660KV / GF1310

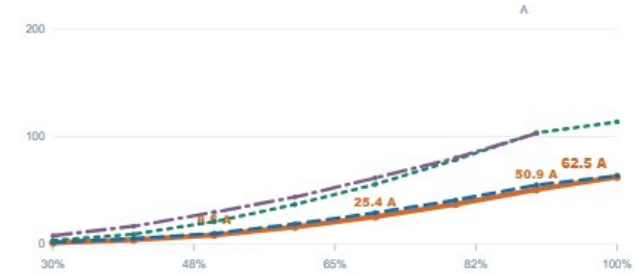


380KV / GF1507 peak: 10.46 g/W 400KV / GF1507 peak: 9.77 g/W 520KV / GF1507 peak: 8.64 g/W
660KV / GF1310 peak: 5.59 g/W

Current comparison

Measured current draw through the supplied throttle range.

380KV / GF1507 400KV / GF1507 520KV / GF1507 660KV / GF1310

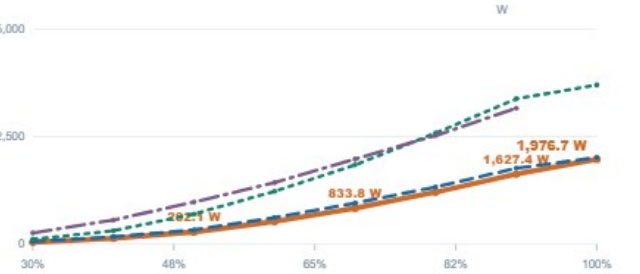


380KV / GF1507 max: 62.47 A 400KV / GF1507 max: 63.53 A 520KV / GF1507 max: 113.60 A
660KV / GF1310 max: 103.08 A

Power comparison

Measured input power stays aligned with each plotted test point.

380KV / GF1507 400KV / GF1507 520KV / GF1507 660KV / GF1310



380KV / GF1507 max: 1,976.68 W 400KV / GF1507 max: 2,016.41 W 520KV / GF1507 max: 3,702.19 W
660KV / GF1310 max: 3,161.49 W

KV SELECTION MATRIX

One platform. 4 working profiles.

380KV SELECTED	400KV	520KV	660KV
GF1507	GF1507	GF1507	GF1310
MAX THRUST 5,755 g	MAX THRUST 5,745 g	MAX THRUST 8,260 g	MAX THRUST 6,820 g
PEAK EFFICIENCY 10.46 g/W	PEAK EFFICIENCY 9.77 g/W	PEAK EFFICIENCY 8.64 g/W	PEAK EFFICIENCY 5.59 g/W
MAX CURRENT 62.5 A	MAX CURRENT 63.5 A	MAX CURRENT 113.6 A	MAX CURRENT 103.1 A
TEST PROPELLER GF1507	TEST PROPELLER GF1507	TEST PROPELLER GF1507	TEST PROPELLER GF1310
MEASURED RANGE 30%-100%	MEASURED RANGE 30%-100%	MEASURED RANGE 30%-100%	MEASURED RANGE 30%-90%

KV / Test	Throttle	Voltage	Current	Thrust	RPM	Power	Efficiency
380KV GF1507	50%	33.32 V	8.47 A	1,830 g	4,252	282.05 W	6.49 g/W
	70%	32.76 V	25.45 A	3,657 g	5,932	833.81 W	4.39 g/W
	90%	32 V	50.86 A	5,308 g	7,056	1,627.39 W	3.26 g/W
	100% - PEAK	31.64 V	62.47 A	5,755 g	7,173	1,976.68 W	2.91 g/W
400KV GF1507	50%	33.31 V	10.00 A	2,026 g	4,297	333.03 W	6.08 g/W
	70%	32.76 V	29.17 A	3,992 g	5,947	955.74 W	4.18 g/W
	90%	31.99 V	55.17 A	5,488 g	6,967	1,764.82 W	3.11 g/W
	100% - PEAK	31.74 V	63.53 A	5,745 g	7,138	2,016.41 W	2.85 g/W
520KV GF1507	50%	33.44 V	20.95 A	3,547 g	6,403	700.74 W	5.06 g/W
	70%	33.12 V	55.62 A	6,314 g	8,375	1,842.17 W	3.43 g/W
	90%	32.69 V	103.36 A	8,208 g	9,401	3,378.94 W	2.43 g/W
	100% - PEAK	32.59 V	113.60 A	8,260 g	9,430	3,702.19 W	2.23 g/W
660KV GF1310	50%	33.07 V	29.61 A	3,678 g	8,270	979.30 W	3.76 g/W
	70%	32.08 V	61.58 A	5,469 g	10,124	1,975.52 W	2.77 g/W
	90% - PEAK	30.67 V	103.08 A	6,820 g	11,260	3,161.49 W	2.16 g/W

Representative points: each row is an actual measured point from the supplied test file.

Missing values: blank entries remain blank; no data is interpolated.

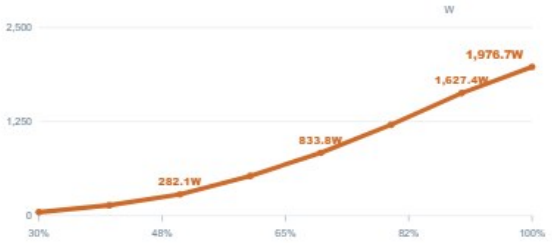
ENGINEERING ANSWERS

Designed around real operating conditions.

POWER DEVELOPMENT

62.5 A measured peak

Power draw increases through the measured throttle range. The curve below keeps electrical load visible instead of reducing the product to one maximum figure.



PEAK EFFICIENCY

10.46 g/W

PEAK POWER

1,977 W

01 THERMAL DESIGN

Class H winding supports sustained output.

High slot-fill copper and controlled winding resistance reduce avoidable heat build-up during longer missions.

Peak efficiency: 10.46 g/W at 30%.

02 ROTATING STABILITY

Balanced construction supports smooth RPM.

The rotor assembly and matched bearings are designed to keep rotation stable through changing throttle demand.

Measured range: 30%-100%.

03 CURRENT DELIVERY

Electrical data is shown with the thrust data.

Voltage, current and power remain visible alongside thrust so buyers can check the complete power path.

Maximum recorded current: 62.47 A.

04 EFFICIENCY AT THE PEAK

Maximum output comes with a different efficiency point.

The page separates the highest efficiency point from the highest throttle point instead of presenting only the peak thrust value.

of presenting only the peak thrust value.

Highest throttle point: 100% · 2.91 g/W.

STRUCTURE AND FIT

Every layer has a functional role.



01 / ROTOR

CNC Rotor Bell and Top Plate

Machined aluminum rotor construction with controlled balance.

02 / STATOR

Stator and Magnets

Class H copper winding paired with high-flux curved magnets.

03 / BASE

Machined Base Flange

Mounting interface for repeatable alignment and installation.

04 / BEARING

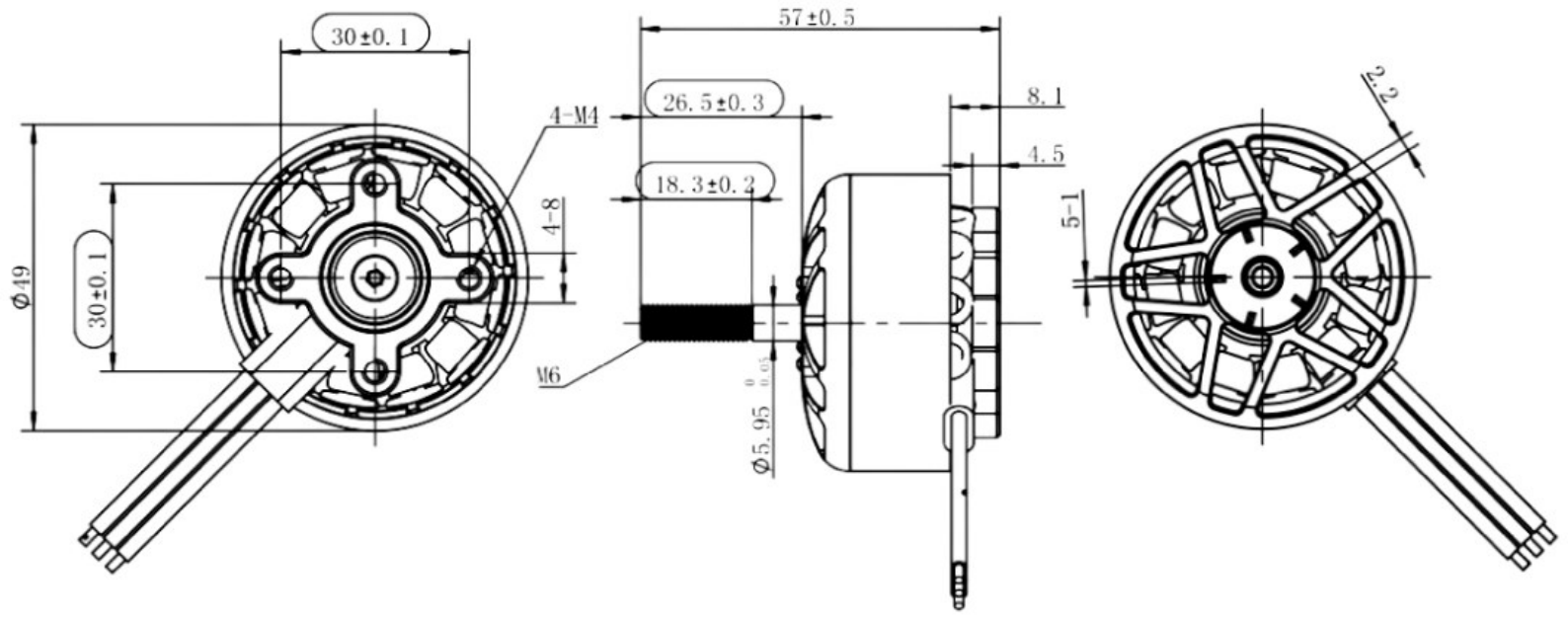
Precision Bearing Stack

Low-friction bearing support for stable shaft rotation.

05 / FASTENER

High-Strength Fastener

Reliable clamping for the rotating assembly.



BODY SIZE	WEIGHT	MOUNT
Ø49×57mm	**223 g**	**See dimensional drawing**

COMPONENT CLOSE-UPS

The motor is the sum of its interfaces.



01 / WINDING

Class H Copper Stator

High slot-fill winding for stable electrical and thermal behavior.



02 / STRUCTURE

CNC Rotor Bell

Machined aluminum structure with balance control.



03 / MAGNETISM

Curved Rotor Magnets

High-flux magnets support torque and magnetic efficiency.



04 / ROTATION

Precision Bearings

Low-friction support for smooth high-speed rotation.



05 / INSTALLATION

CNC Base Flange

Stable mounting geometry for repeatable airframe installation.



06 / FASTENING

High-Strength Fastener

Reliable clamping for rotor-stack alignment.



COMPANY PROFILE

Who We Are

Kurchs is a professional manufacturer of drone brushless motors, integrating R&D, precision machining, assembly and testing. Focused on the power motor industry, we continuously improve product quality with a full in-house production chain from component machining to finished motor delivery.

Our factory covers brushless motor production, CNC machining, wire harness and injection molding, supporting stable supply for global commercial and industrial UAV customers.

R&D & Design | Precision Machining | Assembly & Testing | OEM / ODM

OEM / ODM CUSTOMIZATION

Adapt the platform to your airframe.

Available engineering scope

Motor configuration	12N14P / 380KV selected configuration.
Propeller pairing	GF1507 / GF1310
Mounting	Review the supplied dimensional drawing for interface details.
Electrical system	8S · 1.50A
Engineering files	Dyno report and STEP / IGES files available on request.

5-stage engineering workflow

01 Requirements confirmation
Airframe, propeller, voltage and target thrust are defined.

02 Drawing and materials
Mechanical interface and material requirements are reviewed.

03 Sample making
Evaluation samples are prepared for fit and performance testing.

04 Dyno verification
Thrust, current, RPM, power and efficiency are checked.

05 Batch production
Approved specifications move into scheduled production.

QUALIFICATION AND DELIVERY

Compliance and shipping without guesswork.



CE / EMC



CE / LVD



RoHS

Certificate documents are available for destination-specific compliance review.



Air Freight and Express

Prototype and urgent-order delivery via international express or air freight.



Ocean Freight

FCL or LCL planning for volume production orders.



Land and Railway

Cross-border multimodal delivery where the route is available.

SOURCING QUESTIONS

The final checks before sampling.

Which propeller and battery should I pair with 380KV?

The tested setup uses GF1507 / GF1310 with 8S. Final choice depends on airframe weight, target thrust and flight time.

Are other KV versions shown?

400KV, 520KV, 660KV

What data is shown for this model?

The table lists measured voltage, current, thrust, RPM, power, efficiency and temperature where the supplied data records those fields.

What is the test range?

The selected configuration is plotted from 30% to 100% throttle. No missing points are interpolated or invented.

What sample and engineering files are available?

Evaluation samples are planned at 5-7 business days. Dyno data and STEP / IGES files are available within 24 hours after confirmation.

What is the OEM / ODM MOQ?

Evaluation samples are available from 1-4 units. Custom OEM / ODM production starts at 50 units.