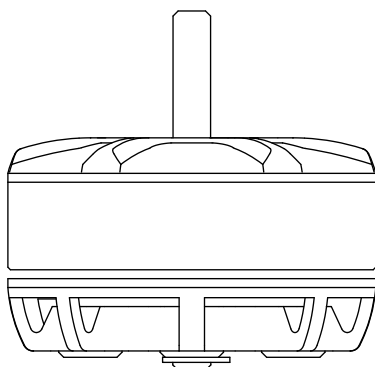


RoboMaster Snail

2305 Brushless DC Motor

User Guide

V1.0 2019.10



Disclaimer

Thank you for purchasing the ROBOMASTER™ Snail 2305 Brushless DC Motor. Read this disclaimer carefully before using this product. By using this product, you hereby agree to this disclaimer and signify that you have read it carefully. Install and use this product in strict accordance with all related documents. SZ DJI TECHNOLOGY CO., LTD. (abbreviated as "DJI"), and its affiliated companies assume no liability for damage(s) or injuries incurred directly or indirectly from using, installing, or modifying this product improperly, including but not limited to using non-designated accessories. DJI™ and ROBOMASTER are trademarks of DJI and its affiliated companies. Names of products, brands, etc., appearing in this document are trademarks or registered trademarks of their respective owner companies. This product and document are copyrighted by DJI with all rights reserved. No part of this product or document shall be reproduced in any form without the prior written consent or authorization of DJI. The final interpretation right of this disclaimer is reserved by DJI.

Warning

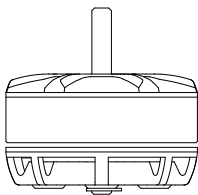
1. Use the motor in a safe environment. To avoid injury, DO NOT approach or touch the motor while it is in operation.
2. Make sure all parts of the motor are in good condition. Replace any worn or damaged parts when necessary.
3. Make sure all cables are properly connected before use.
4. Make sure the motor is securely mounted before use.
5. When used with other electronic speed controllers without the self-protection function, make sure the motor is not stalled for an extended period; otherwise, the motor may be damaged.
6. DO NOT allow any foreign materials to come into contact with the rotors, as this may negatively affect performance.
7. The temperature of the motor increases when the output power is high. Handle carefully to avoid scalding.

Introduction

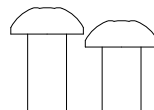
The RoboMaster Snail 2305 is a sensorless external rotor brushless DC motor. The 2305 motor boasts high speed, low noise, excellent heat dissipation, and high power density, and can be used in fields such as multicopter aircraft flights, robotic competitions, and educational research. The high dynamic response and outstanding transmission efficiency of the 2305 motor make it an optimal solution for situations that require high rotational speed, low torque, and direct driving. The 2305 motor has gone through rigorous impact simulation and drop testing to ensure structural strength and reliability.

In the Box

2305 Motor × 1

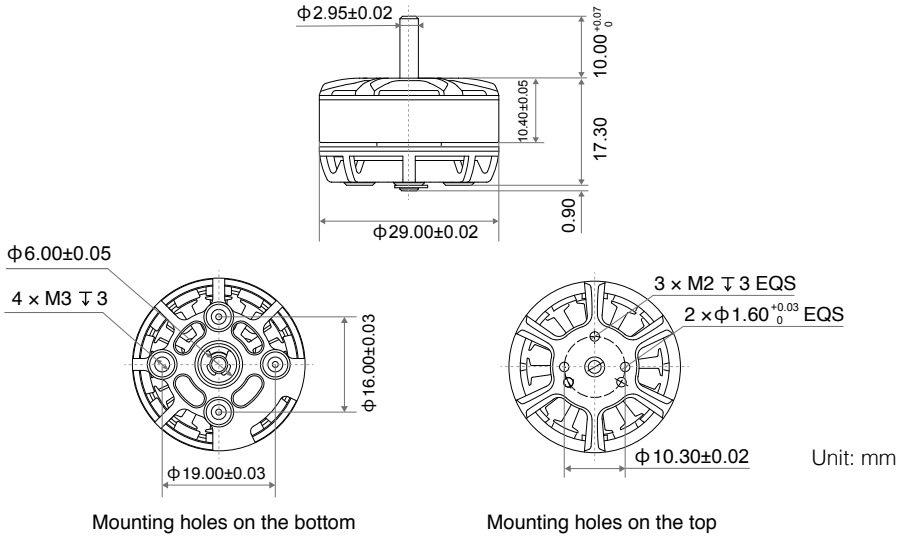


Screws (six M3×5, six M3×6)



Mounting the Motor

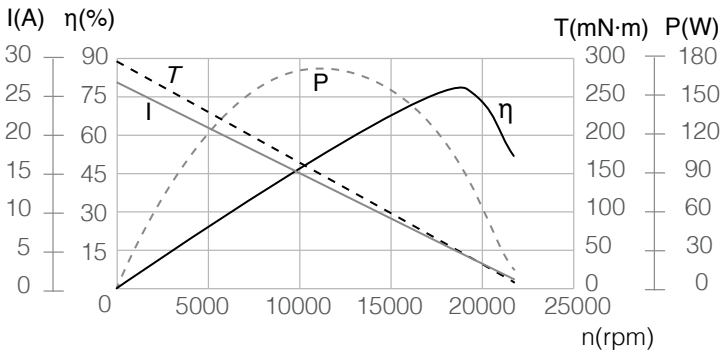
Refer to the dimensions below to mount the motor to an appropriate platform.



Note: Pay attention to the size and the depth of the mounting holes. Use appropriately-sized screws to mount the motor properly according to the depth of the mounting holes and the platform where the motor will be mounted. DO NOT allow any foreign materials to come into contact with the mounting holes on the bottom of the motor when mounting and detaching the motor.

2305 Motor Performance

The following data was generated using the 2305 motor with a RoboMaster C615 Brushless DC Motor Speed Controller.



η - Motor Efficiency, T - Torque, P - Output Power, I - Speed Controller Input Current, n - Rotational Speed

The data above was generated in a laboratory setting with an input voltage of 24 V, at the temperature of 25° C (77° F). These figures should be used for reference only. Make sure to control running time properly in accordance with actual working temperature and dissipation.

Specifications

Dimensions	Outer diameter of motor: $\varnothing 29$ mm Total height: 28.2 mm Output shaft diameter: $\varnothing 2.95$ mm
Weight (without cable)	27.8 g
Rated Voltage	DC 24 V
Pole Pairs	7
Stator Size	23×5 mm
Rotational Speed without Load	21000 rpm
No Load Current	0.4 A
Speed Constant	875 rpm/V
Torque Constant	10.9 mN·m/A
Counter-EMF Constant	0.0012 V/rpm
Mechanical Time Constant	150 ms
Rotor Rotational Inertia	1.84 kg·mm ²
Phase Inductance	25.9 μ H
Phase Resistance	181.5 m Ω

The content is subject to change without prior notice.
Visit the product page on the official RoboMaster website for more information.

<https://www.robomaster.com>