

## Warranty Terms for TORCMAN Motors:

For TORCMAN motors the extent of warranty is as follows:

1) **Klaus Kraft electronic** will, according to terms 2-5, repair damaged or defective motors within 24 months after delivery to end customer, if those damages or defects are a proven result of faulty manufacturing and customer immediately informs **Klaus Kraft electronic** of such damages or defects. There will be no repair or replacement in case of minor tolerance of the published condition of the product(s), given that the tolerances have no negative impact on the usability of the product(s). The same applies for damages, caused by chemical and electro chemical impact, exposure to water as well as damages caused by other improper handling and/or operation.

2) Warranty fulfillment will either be done at our own decision by replacement or repair. In case of a warranty claims, please send the motor to your dealer or directly to **Klaus Kraft electronic** together with a receipt or note of delivery and a thorough description of the defective product. Replaced parts will not be sent back to customers.

3) Warranty will not apply if :  
a) repair or any change to the product has been made by unauthorized personnel or  
b) original parts have been replaced with third party vendors parts or  
c) the motors have been overloaded by improper configuration.

4) Replace or repair during warranty does not affect the duration of the warranty period for the entire product or the replaced/repaired parts.

5) Liability for damages outside is excluded if not legally compulsory.

## About us:

We are putting our best efforts in providing leading edge quality of our products and documentation.  
If you encounter problems or are aware of any defects in our products, please get back to us.  
We will do our best to incorporate your feedback into our ongoing development efforts



# Manual of Operation Tm200-5 / TM200-10



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Please read this manual carefully before using our motors and follow the instructions. The manual describes all necessary hints for Maintenance, Service and Operation. If you do not follow these instructions you take the risk of damage or destruction of this product.

## Welcome to TORCMAN

Thank you for buying this TORCMAN product and welcome to the community. We wish you a lot of success and fun with this high torque motor.

Your Torcman Team

### General Hints :

All TORCMAN motors are brushless motors and therefore need an electronic commutation by a controller. The Controllers sold by TORCMAN, are the recommended choice, since they are tested and optimized for TORCMAN motors. Other controllers can also be used. Please check our website ([www.torcman.de](http://www.torcman.de)) or the website of the respective controller manufacturer for more information.

Please make sure to use the correct timing (18-30°) if the controller allows manual setting, since the motor will only then work efficient and in a safe temperature range. If you are using a Hacker Master controller, use timing #3 or #4 and a switching frequency of 8kHz.

**Caution: Using a standard controller for motors with brushes will destroy the motor.**

### Connecting Motor and Controller:

Please connect all three wires of motor with their counterparts on the controller side. Check the direction of rotation. You can change the direction by exchanging two of the three wire connections. Please make sure that you use only plugs, which can stand the currents of your motor and configuration. Since the wires that are coming out of the motor are the ends of the coil it is recommended to avoid shortening or bending them.

### Installation and operation of TORCMAN motors of Tm200 Series

When mounting your motor, please make sure that the maximum intrusion depth of the 2 screws M2 into the thread of the motor is not beyond the limits. The limit for the Tm200is 3,5 mm. When using longer screws, the copper winding may get damaged, resulting in destruction of the motor. Shortening the wires on the motor side has to be avoided by any means. They cannot get tinned properly afterwards.

TORCMAN motors can stand temperatures up to 80° Celsius. Higher temperatures may cause damage inside the motor. Especially efficient cooling as well as proper layout of the propulsion system (motor-propeller-battery-controller) helps avoiding such situations.

Following circumstances can (individually or in combination) cause overheating:

- Usage of improper controllers or bad setup of such controllers can cause
- Blocked shaft or rotor unit of the motor
- Defective ball bearings
- Too lengthy power on ramp up time

Please check that moving parts are not blocked and do not touch any other parts inside the motor before EACH run. Make sure that the propeller is not overloading the motor. If you are not sure that your configuration will result in safe operating conditions, please monitor the motor temperature and gradually increase the load by increasing Voltage or propeller size.

By no means you should try to open the motor violently. The sensitive components inside the TORCMAN motor may get damaged. Opening is not necessary anyway, since a TORCMAN motor is a brushless motor, needing no further maintenance.

**Please read this information carefully before using or installing your TORCMAN motor!!!**



## The following safety instructions are mandatory:

The maximum revolution speed of a TORCMAN motor is 16000 U/min and may not be exceeded for safety reasons. The best efficiency of the 14pole type however is achieved between 5000 and 10000 rpm, the 10pol versions are reaching the maximum efficiency between 8000 and 16000 rpm. Using the motors at higher revolution speed is possible for very short time, but we do not recommend doing so. In this case we will not fulfill any warranty claims.

As soon as you connect the battery pack to the controller the motor may start running (power setting on the RC transmitter is not zero, defective electrical or electronic parts). Therefore we strongly recommend being very careful when doing this. An electric motor (especially with propeller attached to it) can cause serious injuries. Parts, breaking apart can do so as well. Therefore TORCMAN motors shall only be used where damage or injuries are very unlikely to occur.

In case you discover any damage to the motor (e.g. mechanical defects, electrical impact or water intrusion), please refrain from using the motor immediately. A massive damage to the motor and/or controller may occur otherwise. TORCMAN motors may only be operated with qualified power supply (battery and proper controller). By no means it is allowed to attach the motors to the 230V/110V power line. **YOU WILL BE IN SERIOUS DANGER OF LIFE IF YOU TRY TO DO THIS!!**

TORCMAN motors are designed for environments where electrostatic discharge is not occurring.

**Using our motors in real airplanes or other manned vehicle is not allowed.**

### CE Regulations :

The products mentioned are fully compliant with the mandatory EU regulations

EMC regulations	89/336/EWG
	92/31/EWG
	93/68/EWG

If reception problems occur anyhow, the reason can be found in most cases in the combination and/or location of the electrical and RC components.

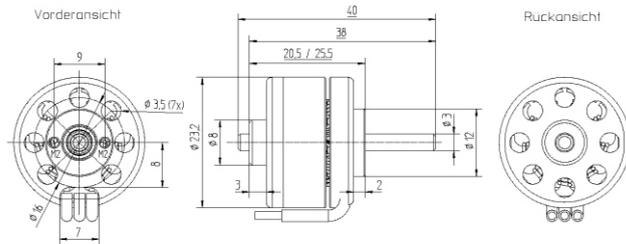
**Please read this information carefully before using or installing your TORCMAN motor!!!**



### Hints for Installation :

For installation of the Series TM200 Motors you need 2 screws M2 with a maximum length of 3.5mm + Thickness of mounting plate (for ex. M2x6 for a plate with 2.5mm). The screws must be made out of brass or steel and have enough strength. The distance between the 2 M2 threaded holes is 9mm, the centerhole for the shaft should be at least 4mm to leave the front bearing enough room for operation.

### Dimensions :



### Integration and Operation of TORCMAN Series TM200 Motors :

The mounting frame must be supplied with sufficient holes to allow good air cooling of the motor, controller and battery. It must also provide enough rigidity to avoid vibrations. Attaching the prop can be done with commercially available prop adapters (3mm shaft). We recommend using TORCMAN Propsavers which protect the motor and the prop from being damaged by crashes or other ground contacts.

The winding of the TM200-5 are optimized for use with 2 Lipo-Cells (7.2Volt) and prop 6x3" to 7x5", the TM200-10 can be used with 2 or 3 Lipo-Cells with prop sizes of 8x3.8 to 10x4.7 with best efficiency. Depending on ontime and cooling the TM200-5 can operate between 25 and 50Watts, the TM200-10 between 40 and 100Watts. In any case a ground test run has to be performed to control the temperature of motor, controller and battery and to avoid damages by overheating.

More information and technical data can be found on our Website : [www.torcman.de](http://www.torcman.de)

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