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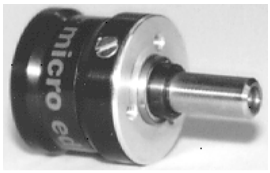
A + M Reisenauer

Effektive Präzisions -Antriebe für den Elektroflug



Monika Reisenauer - Hochfellnstr. 68 - 83346 Bergen - Tel. 08662/409516 - Fax:08662/409517

MICRO EDITION – Operating Instructions + Security

This gearbox has been developed by us for the special requirements of the electric flight.
The objective of minimum weight with maximum efficiency, very quiet running and optimum efficiency by computer-calculated tooth-geometry was clearly achieved! The use of different flanges allows compatibility with most electric motors making it suitable for use with small and large models.
Motors can even be swapped on the airfield, requiring only the removal of the gearbox and attaching another motor – with no tools.
To gain a better understanding of how the gear train works, it is possible to pull out the shaft with the planet carrier together with ball bearing completely after releasing from the external thread of the ring gear.

If you have received from us a complete drive, it will usually come in two parts, motor and gearbox separately. This is deliberate so that removing and installing will not be a secret, which will help when using and carrying out maintenance. The unit was previously installed and adjusted by us and had a test run on the test bench.
To assemble please follow the below:

- While assembling the gear keep the shaft pointing down.
- The thin steel thrust washer must be lying on the planet gears within the ring gear, otherwise it can be bent when screwing on the motor. During disassembly the thrust washer may have moved as it likes to stick on the flange – please locate centrally for assembling and insert into the middle of the gear. (The steel thrust washer protects the alu-flange of the plasma hardened planet gears!)
- Motor from the top, bring the gear box gently from the bottom and tighten clockwise (with whole unit upside down).
- In order to tighten, please do not use pliers, but one of our fiberglass motor mounts, screwed on the front. This will allow you to grip better.

Caution: Too loosely tightened gear box can unfurl by fast acceleration!
Also if the unit is not attached to the front end gear tight enough, the torque from braking can release the motor from the gear box (not recommended!).
Now the unit is operational!
If you want to assemble the gear itself to one of your motors use the following pinions are matched to different gear ratios:

- Pinion-Control – don´t mix up – check diameter!
  3:1 = 8,55mm / 3,5:1 = 7,5mm / 4:1 = 6,7mm / 4,5:1 = 5,78mm / 5:1 = 5,36mm / 13:1 = 7,5mm
- Maximum length from the motor shaft end to motor face (not the bearing collar):
  For motors up to 4mm shaft diameter: 17mm
  For motors with thicker shafts must be shortened to 12mm or 15,7mm (Speed700).
  A mini tool using a small blade works great for this but use a plastic bag to protect the motor from sanding dust. Then deburr!
- Degreasing: Degrease the motor shaft and pinion – e.g. with acetone
- Gluing: Put on some Loctite 648, 638 or 2701 (no superglue!) on pinion bore and shaft. Now turn up the pinion on the shaft, until it floats on an evenly film. The end of the pinion may be away **max. 12mm** (Speed700 15,7mm) from motor front face. After 15 minutes rev up the motor in idle for a short while, to throw off unnecessary Loctite, because cured residues between the teeth flanks can lead to gear rattle.
- Clean the flange of processing residues and then screw on the motor loosely. After approximately 30 minutes drying, the gear can be screwed on the motor as described in paragraph 2. The flange screws must be open a ¼ - ½ turn at this action.

Now hold the drive unit vertically (shaft up) and start the motor slowly.
The gear should now center itself and run quietly. If necessary the flange can be adjusted slightly with your fingers. A good idea is to use a multimeter and measure the current. The no-load current of the motor should increase by a maximum of 0,5 amps with gear. With a flange with internal fixing screws, it can be fixed with some superglue with the engine off. Then unscrew the gear and tighten the flange screws. With external fixing screws (all or 500, 600 Lehner and others of this size) of course the flange screws can be tightened smoothly from outside while motor is running. For quiet and low-loss run, a precise adjustment is absolutely necessary!

The relatively high rotation resistance by the cold and rigid high performance grease reduces considerably after a short run time.
With our in long trials selected MICRO GEAR HIGH PERFORMANCE GREASE, in normal operation almost no metal contact occurs in the gear. However, when starting or braking, the fat boundary can be broken. Therefore switch on slowly over a slow start over 2-3 seconds. When braking (use soft brake on controller) decelerate slowly.

MAINTENANCE - SERVICE

The maintenance of the gearbox is limited to occasional opening and cleaning. The gear wheels and especially the 3 axes of the planet gears should only be greased with our MICRO GEAR HIGH PERFORMANCE GREASE or with performances under 300 watts with our MICRO GEAR SOLAR GREASE (0,5mg).
For replacement of course EVERY PART is available SEPARATELY.
MOTOR PINION REMOVAL: Bringing in temperatures of over 300° C (Caution stock) or by break apart with a gear/pinion remover.

SAFETY INSTRUCTIONS

For programming transmitter or controller necessarily remove the propeller!
Avoid rotational plane of the propeller – risk of injury!
Drive unit with assembled propeller ONLY slowly regulate high with speed controller (2-3 sec.) and decelerate slowly. - Don´t use unbalanced or damaged propellers – Use the stop nuts of the propeller just once – make sure that there are no persons in front or beside the running propeller – Check the propeller after each landing for damage and tight fit! Too loosely screwed gears can loosen during operation! Use possibly releasable securing means, such as Loctite 222. Check more often the 3 frame fittings and the 5 outer screws of the ring gear are a tight fit, as well as the connection hub to gear shaft.
Attention: Maximum immersion depth of the 3 front fixing screws = 5mm!
Exceeding this length, the planet carrier can be blocked or destroyed!

Technical Data: weight: 18 – 29 g – diameter 22mm – length without shaft: 18,6 + flange 3mm – output shaft 6mm high-strength titanium for max. torque transmission: Maximum torque: short 1,2Nm – duration: 0,8NM – maximum performance throughput short 250-300 watts – EDITION 5:1Needle: short: 800 watts – Permissible temperature range: -20 - +80° C. Input rotation spe ed at 150 watts max. 30.000 rpm, at 300 watts max.18.000 rpm at turn on duration 2 minutes.

The Picture shows e.g. the 650 watts strong power package! Ultra-light only 105g! Ultra-strong – brings to 3 lipos over 3000g thrust!! So it is the ideal drive for models like 3 D Katana 1,30m, Easy Glider, all hotliners and gliders up to 2,8m.
Props 13-18“ with 30-60 amps.
Only 5mm longer: RS 228.20..
125g and highest torque for prop. 17-20“ and models of 2,5 – 3,8m span. With small dimensions 30x51or 30x56 even installable in leanest F3J–hulls!