

MICRO EDITION 5:1

Operating Instructions + Security



The unit is now ready for operation.

Thank you for purchasing our product! This gearbox was developed by us for the special requirements of electric flight. The set goal of lowest weight with maximum performance, particularly quiet running and best possible efficiency through computer-calculated tooth geometries is clearly achieved. The compatibility with most motors, through the use of different flanges, allows effective use in small and large models. We wish you a lot of pleasure with your drive and a good flight at all times!

Please read the following instructions carefully before commissioning!

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1. Product description

High-strength planetary gear with plasma-hardened steel gears and planet carrier/shaft made of titanium. With flat and inject (hollow-bored shaft, regreasing without spinner removal). The ring gear of the Edition N gearbox is made of tempered high-performance steel. The ring gear of the Edition NL is surface-hardened and extremely light.



2. Technical Data

	5:1N	5:1NL	5:1N-25	5:1NL-25	5:1N-4-plus
Weight (g)	27,5	20,4	28,3	22,3	42,2
Ø (mm)	22	22	22	22	21
Length w.o. shaft (mm)	21,2	21,2	21,2	21,2	24,6
Ø Shaft (mm)	6	6	6 with flat	6 with flat	6 (steel)
Shaft length (mm)	17	17	17	17	18
Reinforced shaft bearing	-	-	yes	yes	yes
Bolt circle (mm)	14	14	25	25	25
Screws	3xSK M2,5x8 Tx8	3xSK M2,5x8 Tx8	4xM3x8- Tx8	4xM3x8- Tx8	4xM3
Planetenräder, Nadellager	3	3	3	3	4
Max. input speed (U/min)	50.000	50.000	50.000	50.000	50.000
Max. power throughput 30 sec. (watts)	1000	700	1000	700	2000
Possible motor pinion (mm)	2,0/2,3/3,0 /3,17	2,0/2,3/3,0 /3,17	2,0/2,3/3,0 /3,17	2,0/2,3/3,0 /3,17	2,0/2,3/3,0 /3,17

3. Safety Instructions

It is essential to remove the propeller when programming the transmitter or controller!

Avoid the turning circle of the propeller - risk of injury!

Slowly (2-3 seconds) increase and slowly decrease the speed of the drive unit with the propeller mounted ONLY with a speed controller!

Do not use propellers that are out of balance or damaged! Use propeller stop nuts only once - make sure that no persons are in front of or next to a running propeller! Check propellers for damage and tight fit after each landing!

Gearboxes that are screwed on too loosely can untwist during operation! If necessary, use a loosening agent such as Loctite 222.

Check the 3 frame fastening and the 6 outer screws (TX6) of the ring gear for tightness, as well as the connection hub to gear shaft!

The maximum immersion depth of the 3 face fixing screws is 5mm! Exceeding this length will block or destroy the rotating planet carrier!

When accelerating, a torque is generated. To prevent the gearbox from loosening from the motor, a tight screw connection to the motor flange is necessary. This can be done optimally with two of our 17-2 assembly spanners. A light and then a firm jerk secure the connection even for high performance. The maximum effort of a 9-year-old is sufficient. With the Edition 5:1N 4-plus, a single 17-2 assembly spanner is sufficient. A locking device is not necessary for a tight screw connection, but can be used additionally. Of course, it should be detachable, i.e. only light to medium strength.



4. General Notes

Please do not let it run in, this has no advantages but the disadvantage of unnecessary lubricant wear. The initially higher rotational resistance due to the 4-plus high-performance grease is reduced quite considerably after a short period of operation due to heating and spreading.

5. Installation and Operation

Commissioning

If you have received a complete drive unit from us, the motor and gearbox are always separate. The unit was previously assembled and adjusted by us and had a test run on the test bench.

When mounting the gearbox, hold it so that the shaft points downwards. The thin steel thrust washer must now lie on the planet wheels inside the ring gear teeth, otherwise it can be damaged when the motor is screwed on. When dismantling the motor, the thrust washer often sticks to the flange. For reassembly, please insert it centrally into the gearbox and only then tighten it. The steel thrust washer protects the aluminium flange from the plasma-hardened planetary gears. Gently bring the motor together from above and the gearbox from below and tighten them clockwise. Caution! Gearboxes that are too loosely tightened can untwist during hard acceleration!

If you want to mount the gearbox yourself on one of your engines

Check pinion

For assembly you need a pinion and a motor flange. Check the diameter of the pinion: 3:1=8,55mm, 3,5:1=7,5mm, 4:1=6,7mm, 4,5:1=5,78mm, 5:1=5,36mm, 3:1=7,5mm

The maximum length from the end of the motor shaft to the motor face (not to the bearing collar) is 17mm for motors up to 4mm shaft diameter. Motors with thicker shafts must be shortened to 12mm or 15.7mm. This works well with the small cutting discs for mini tools. To shorten, it is best to put the motor shaft through a plastic bag to protect the motor from grinding dust. Do not forget to deburr afterwards.

Degreasing

Roughen the motor shaft slightly and then degrease the motor shaft and the pinion. Acetone/brake cleaner, for example, is well suited for this.

Gluing

Apply a little Loctite 648 (no superglue!) to the pinion bore and the shaft. Now screw the pinion onto the shaft until it floats on an even film. The end of the pinion may be max. 12mm (Speed700 15.7mm) in front of the engine face.

After a drying time of 10-12 minutes, let the engine rev briefly at idle speed to spin off the excess Loctite. Hardened adhesive residues in the pinion lead to a rattling gear.

Attention: It is essential that the pinion hardens for at least 1-2 hours at room temperature before it is put into operation with the Propeller.

Adjust Flange

Clean the flange of any machining residues and then screw it loosely (approx. ¼ - ½ turn open) onto the motor.

Now hold the drive unit vertically (shaft up) and slowly raise the motor. The gearbox should now centre itself and run quietly. If necessary, the flange can also be moved slightly with the fingers. An interconnected ammeter can be very useful. The no-load current of the motor should not increase by more than 0.5 amperes with the gearbox. If you have a flange with internal fixing screws, you can fix it with a little superglue when the motor is switched off. After this unscrew the gearbox and **tighten the flange screws**. If the mounting bolts are on the outside (all or 500, 600 Lehner and others of this size), the flange bolts can of course be tightened sensitively from the outside while the engine is running. **Precise adjustment is absolutely necessary for quiet and low-loss running!**

Remove Motor Pinion

By applying temperatures above 200° Celsius (caution: bearings) with a soldering iron, hot air or small gas flame.

Maintenance

Since 2018, all gearboxes have been filled with our 4 Plus high-performance grease and delivered ready for operation. The 4 Plus high-performance grease with enormous shear stability guarantees particularly smooth and quiet running for many years. Regreasing makes sense, because every grease wears out or ages due to pressures and high speeds. We therefore recommend to refill 0.3ml with the cannula through the shaft every 40-60 battery charges. If not used for a longer period of time, please also regrease before putting into operation. Regreasing works with minimum effort, without spinner removal after opening the (M2.5 Tx8) screw at the shaft end. Precise adjustment is absolutely necessary!

Regular re-greasing prevents the grease boundary layer from being broken through and the gearbox runs practically wear-free without direct metal contact. For inspection or overall cleaning, it is possible to pull the shaft with planet carrier including ball bearing completely out of the ring gear after loosening the outer screws (M2 Tx6).

Note! This option is **not possible for the Edition gear 3-4.5:1**. These should be opened and cleaned. Please lubricate the gear wheels and especially the 3 axles of the planetary gears exclusively with our 4 Plus high performance lubricant with 0.5ml.

Attention! Avoid too much grease, otherwise the gearbox will run sluggishly and grease will be pressed out through the ZZ bearings and into the motor.

6. Exclusion of Liability

Since it is not possible for us to check the handling, the compliance with the assembly and operating instructions as well as the use of the product and its maintenance, Reisenauer Präzisionsantriebe cannot accept any liability for loss, damage or costs. Any claim for damages which may result from the operation, failure or malfunction, or in any way connected therewith, is rejected. We accept no liability for personal injury, damage to property or the consequences thereof arising out of our supply or work. To the extent permitted by law, the obligation to pay damages, on whatever legal grounds, shall be limited to the invoice value of our product directly affected by the event. This does not apply insofar as we must assume unlimited liability according to mandatory statutory provisions or gross negligence.

7. Contact

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