®schlumpf innovations

Shiftable Unicycle Hub
Type KH Model 2023

2023/05



schlumpf innovations gmbh CH - 7203 Trimmis - Switzerland
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Warranty

schlumpf innovations gmbh grants a warranty of 5 years following the purchase date for hub material and workmanship including all internal components such as gears, axle, shifting shaft, clutch, internal bearings.

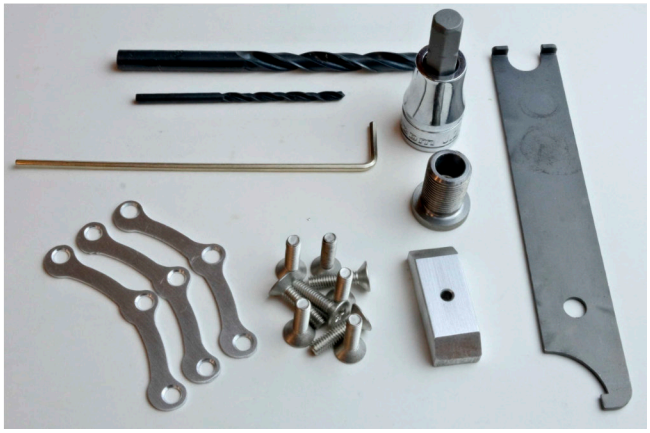
The warranty is **not** granted for the following damages:

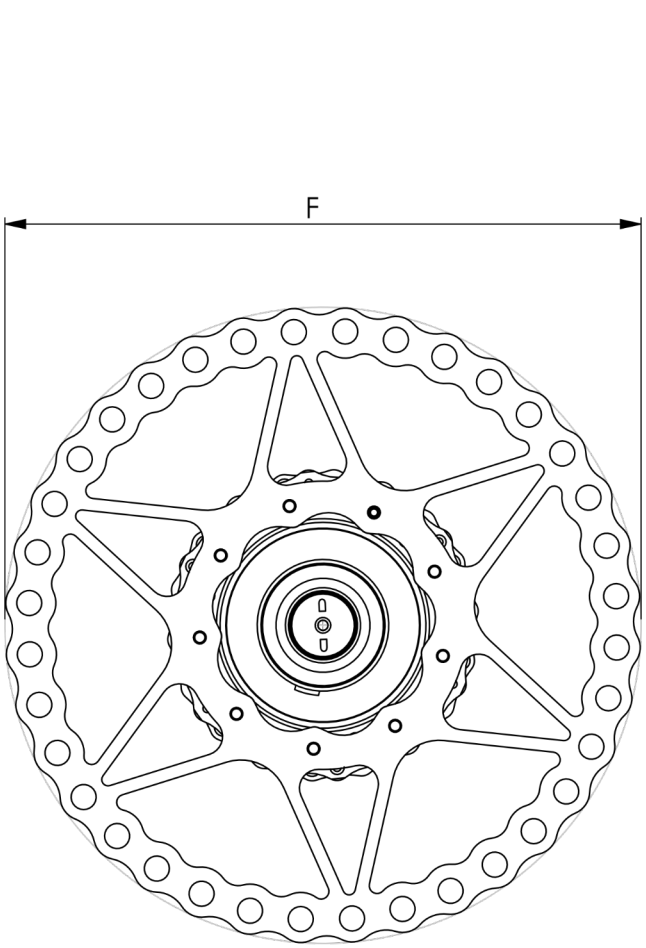
- Corrosion caused by improper cleaning (no high pressure water)
- Damages caused by lack of lubrication (please remember, that the hub has to be lubricated once or twice a year with some bicycle oil or our special grease)
- Material defects caused by excessive load (e.g. high drops / limit is 1 m)
- Damage due to impact by hard objects (e.g. gear shift buttons hitting rock)
- Damages caused by improper installation of crankarms
- Damages of the axle bearings caused by excessive tightening (always use torque wrench!)
- Damages caused by wrong adjusment of gear shift buttons
- Damages caused by general wear and tear, such as bearings wearing out
- Damage to any components other than the hub, that may be covered by other warranties (e.g. crank arms)

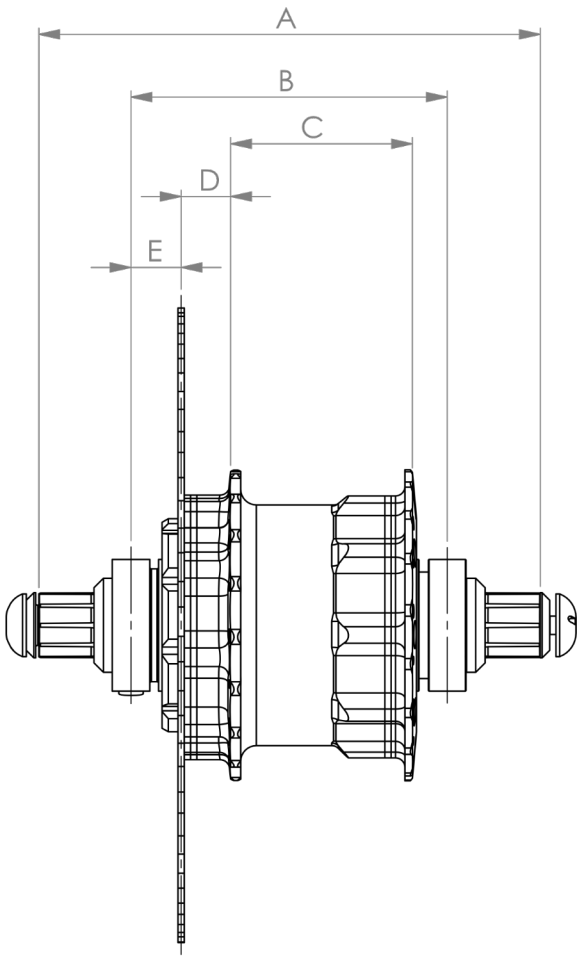
Please notice: warranty expires if housing is opened!

Tools included in shipment

- Drilling gauge
- Drill d3mm
- Drill d6.2mm
- Allen wrench 8mm with 3/8" socket
- Holding key for shift buttons
- Allen wrench 2mm for gear shift buttons
- Special screw to protect shifting shaft when pulling off a crankarm
- Ampoule of special grease
- 3 Spacers + 9x countersunk screws M4x16







Spezifikationen / Specifications

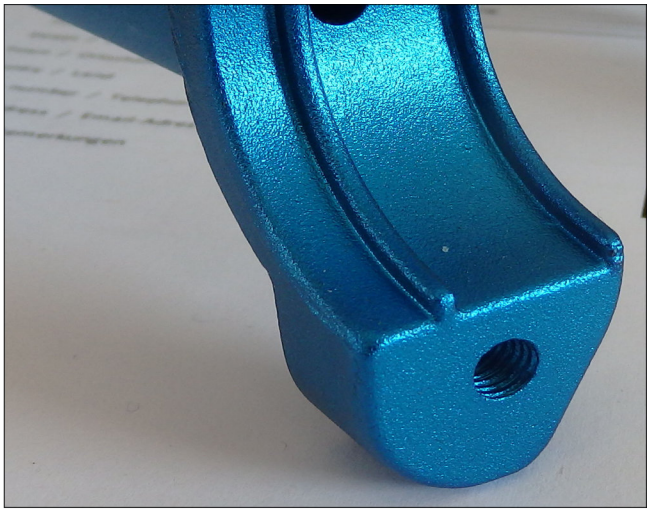
Axle length / Achslänge		"A
Mid distance between bearings / Mittlerer Abstand Kugellager		B
Distance between outerside of spoke flanges / Abstand Speichenflansche		C
Distance from midth of brake disk to outer side of spoke flange / Abstand von Mitte Bremsscheibe bis Aussenseite Speichenflansch		D
Distance from midth of bearing to midth of brake disk / Abstand Kugellagermitte zu Mitte Bremsscheibe		E
Diameter of brake disk / Durchmesser Bremsscheibe		F

A	B	C	D	E	F
160	100	58	16	16	160 / 180 / 190 / 203
185	125	82	17	16	160 / 180 / 190 / 203

Installation

1. Check the size of the lateral shoulders.

Check that the lateral shoulders have a minimum inner diameter of 36mm.



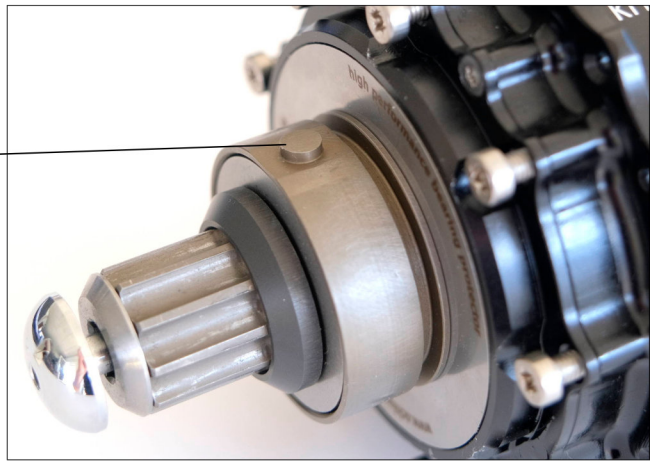
2. Spoke holes countersink

Please note that the countersink for the spoke holes is intended for the rounding of the spoke, not for the head of the spoke nipple!



3. Anti-twist pin

The 2023-generation gearbox features an essential improvement to prevent accidental slippage of the gearbox in high gear, especially on hard titanium frames. For this purpose, there is a pin with diameter 6mm.



4. Drilling jig for spot drilling d 3mm.

The drilling jig is positioned by hand so that the hole to be drilled does not collide with any existing hole.

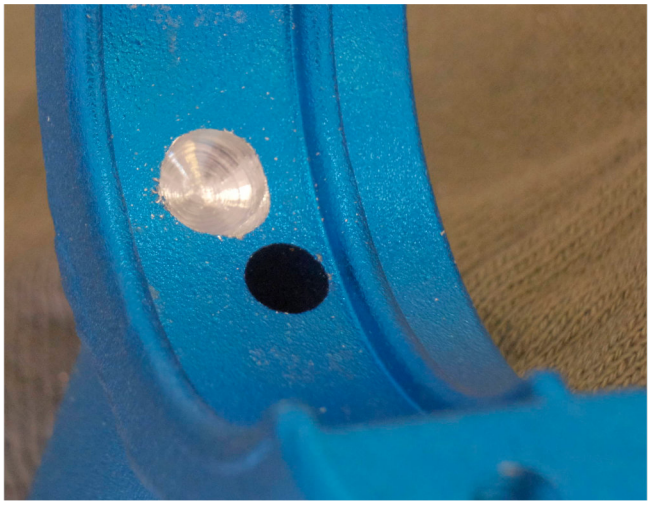
A center is now marked with the supplied 3mm drill.



5. Drill hole d 6.2mm

Then use the 6.2mm drill to deepen the hole by approx. 2mm.

Tip: Do not drill through, only drill as deep as the pin protrudes (approx. 2mm).



6. Tightening the bearing shells

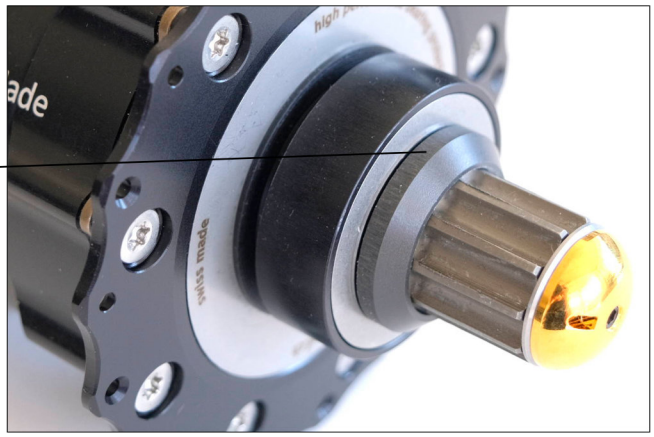
If a torque wrench is available, the bearing shell should be tightened to 5-6 Nm.

This ensures that the ball bearings are not damaged by excessive preload forces.



7. Pressure rings

Make sure that the pressure rings are mounted on both sides, which guide the pressure of the cranks to the snap rings underneath and thus prevent possible damage to the ball bearing due to axial load.



8. Mounting the cranks

Fit the crank and screw in the axle bolt. The shifting shaft can be pushed through using the 8mm Allen key if it protrudes.

Again, best results and security against loosening the crank by using a torque wrench.

Torque: 45-55 Nm



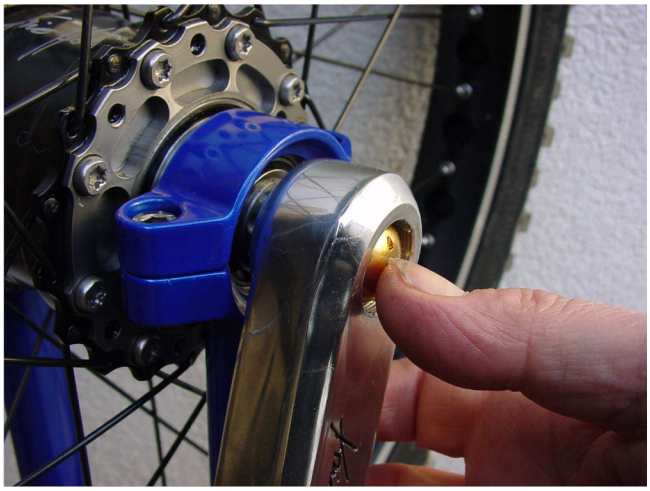
9. Adjust gear shift buttons

The correct setting of the gear shift buttons is very important for reliable operation!!!!

-> Slightly screw-in the button.

-> Now press the button and move the crank so that the gear engages.

-> Now screw-in the button only so far that there is still some play between the button and the axle screw.



10. Check gear shift buttons again before tightening!!!!

In the depressed position, some play must still be noticeable under the button, no matter how much.

Again, without play, the clutch cannot fully engage, which can lead to sudden gear jumping out and also damage to the transmission parts!!!

Very important!!! Very important!!!



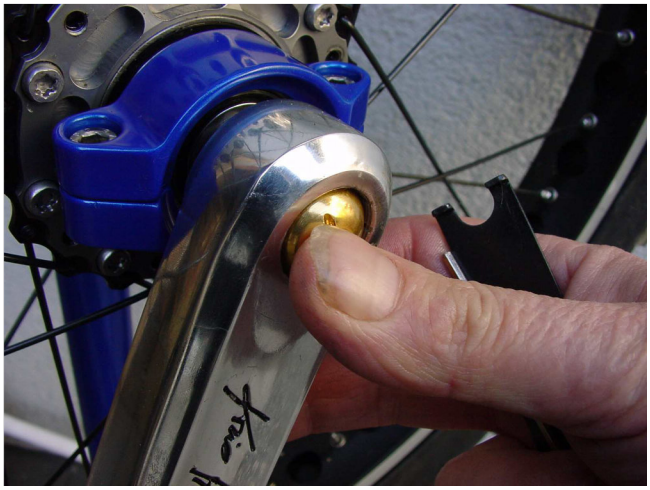
11. Tighten the gear shift button

This step is also very important, because a properly tightened shift button is captive!

Use the black holder to secure the shift button against rotation and tighten the grub screw with the 2mm Allen key.

Again: the perfect solution is to use a torque screwdriver (available again as an accessory).

Torque: 2 Nm



12. Follow-up check

After finishing the adjustment, please check both shift buttons again:

-> Press, move the crank so that the gear engages, and now a small amount of play must still be noticeable underneath.

13. Disk brake

The hub generation 2023 can be combined with disk brake.

In order to be able to optimally adjust the distance of the brake disk to the spokes or the frame, spacers of 1mm thickness are available (3 spacers are included in the shipment).



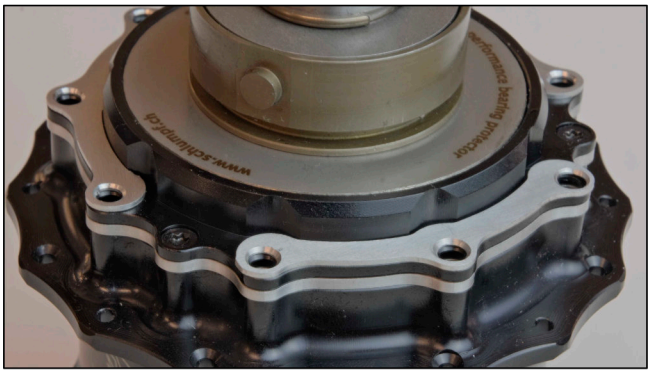
14. Spacers

Normally, the position of the brake disk should fit without using spacers.

A maximum of 3 layers of these spacers may be added, so the brake disk may be displaced outward by a maximum of 3mm.

When using spacer segments, longer M4x16 screws must be used!

A set of longer screws is included in the scope of delivery.



15. Brake disk

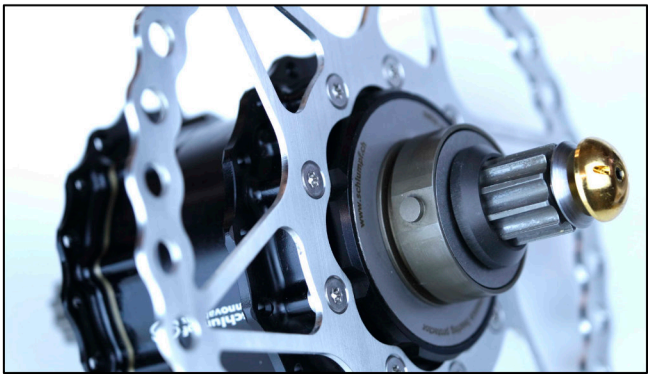
Finally, the brake disk is tightened with the 9 supplied Torx countersunk screws M4x12 (or M4x16 if spacers are used).

Torque: 4 - 5 Nm



Available brake disks:

160 / 180 / 190 / 203 mm



Safety

1. What do I have to consider during operation?

The use of a shiftable and geared hub carries various risks, especially a risk of injury or even death due to higher speed, longer braking distances, material failure, improper operation or incorrect installation.

Never ride without proper safety precautions such as helmet, knee, wrist and elbow pads.

Do not shift gears while riding until you can ride in high gear with absolute confidence. The gear shifting is a big challenge at the beginning, the riding experience a completely new one!!! Get off to shift when you are in dangerous environments (traffic, inclines, declines).

The hub has been extensively tested both off-road with jumps up to 1 meter and on the road. Please note that differences in body weight, riding style, riding ability and also terrain conditions make it impossible to guarantee a maximum jump height. Designed for mountain unicycling, the hub is not intended for aggressive free riding with extreme jumps or trials.

Jumps over 1.5 meters are not allowed!

Always keep common sense and ride within the limits of your ability!

The hub has been designed, manufactured and assembled with the utmost care. Nevertheless, errors can occur with every human action. Invisible cracks can occur during the complex hardening processes, unpredictable material fatigue can occur.

Therefore, never go to the extreme limit, for your own safety and that of other road users!

2. Check the gearshift regularly

Check regularly if the shift button still has some play to the axle screw when pressed, i.e. if it can still be pressed in slightly.

Also check whether the gears shift properly and whether the gear jumps from one position to the other without jamming!
Proceed as follows (see figure on the right):
With the wheel stationary, press the shift button on the left, turn the crank, press the shift knob on the right, turn the crank, etc.
After 24 switching operations, one crank revolution is completed.
All shift positions must engage properly without the shift knob getting stuck in the middle or not audibly engaging.



Never drive if there is the slightest doubt that the gearshift will work properly!

Maintenance

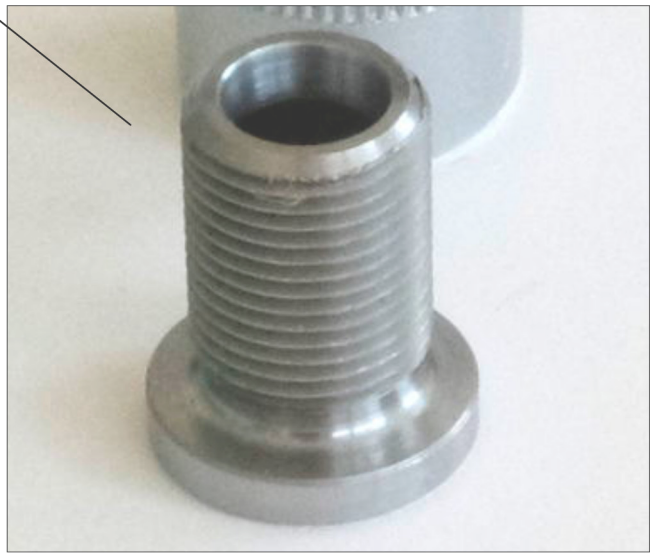
1. How do I change a crank?

a) Hold the shift button with the hook wrench and loosen the grub screw with the 2mm Allen key. Unscrew the shift knob.

b) Loosen the axle screw with an 8mm Allen key.

c) Very important: put the supplied special screw on the axle, which ensures that the extractor does not damage the shift shaft!





2. Cleaning

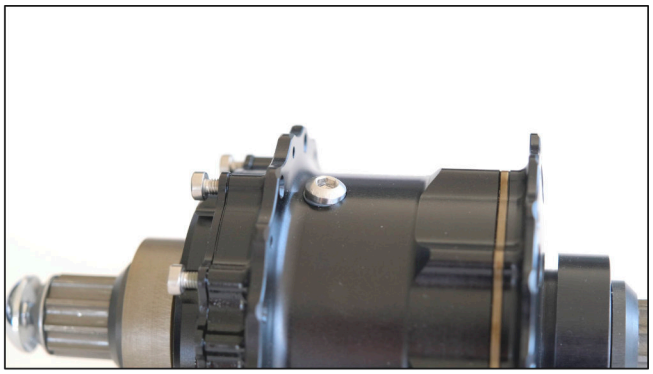
The KH hub is equipped with sealed ball bearings and additional stainless steel protectors, which reliably protect against splash water and dust.

A high pressure water jet will weaken any seal over time, so we advise not to clean the hub with direct water jets or steam.

Instead, use a wet sponge, brush or rag to wipe the hub.

Take special care that no dirt is pressed into the shift knobs. If in doubt, always check the correct function of the shift knobs!

3. Lubrication



Between the spoke flanges there is a sealed allen screw through which some bicycle oil or about 1/3 of an ampoule of our special lubricant can be added 1-2 times a year.

Oil is basically a very good lubrication. The disadvantage is that with too much oil leakage can occur.

So do not store the hub on the expensive oriental carpet!!!

LOTS OF GOOD RIDES AND HAVE FUN WITH THE HUB!

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