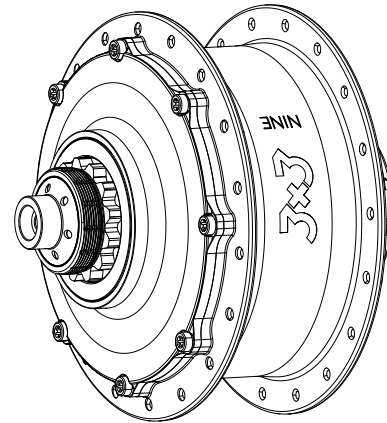




3X3 NINE



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1. General

The 3X3 NINE gear hub is designed for use in a wide variety of applications. For e-bikes as well as for conventional bikes. Whether urban, cargo, trekking or MTB. Our gearbox stands for more freedom, fun and autonomy while biking.

Why?

3X3 offers bike technology that will make riding, and especially shifting, as easy and intuitive as possible in the future. Made in Germany for our highest quality promise.

This manual is an integral part of your 3X3 NINE gear hub and provides the essential technical information and safety instructions for operation, assembly and maintenance. Before using our gearbox, we therefore strongly advise you to read this manual and observe the safety instructions.

When installing the 3X3 NINE gear hub, it is essential to consider the compatibility of all components with each other. Therefore, also pay attention to the manuals of the other components of your bike (belt, wheel, chain, quick release, etc.).

1.1 Target group

The target group of this manual is the original equipment manufacturer / the assembler of the gear hub in the bicycle.

Assembly and maintenance works of the gear hub requires basic knowledge in bicycle technology. If there is any doubt, a trained bicycle mechanic or the 3X3 service team (service@3x3.bike) should be consulted.

Incorrect assembly or incorrect maintenance of the gear hub can lead to serious accidents with fatal consequences!

1.2 Validity

This manual is valid for the technical condition of the 3X3 NINE gear hub on 22.11.2024. Deviations are possible and all items are subject to technical changes. Graphics and technical drawings may vary.

1.3 Tools

Work on the gear hub may only be carried out using suitable tools. Screw connections must be tightened to a defined torque using a torque wrench.

A proper installation and removal of components can only be guaranteed when using perfectly functioning and undamaged tools.

1.4 Warranty and guarantee

All information about warranty and guarantee can be found at www.3x3.bike.

1.5 Wearing parts

The following components are subject to constant wear:

- > sprocket
- > chain / belt
- > chain ring / pulley
- > tension rollers of the chain tensioner
- > brake disc

The wear of these components is strongly dependent on the conditions of use (load, dirt, weather, care). To guarantee functional reliability, the parts must be replaced when they reach their permissible wear limit. Have the drive of your bike checked regularly by a specialist workshop.

1.6 Exclusion of liability

The tasks described in this manual require special knowledge and should only be carried out by people with sufficient expertise.

We are not liable for damages as a result of:

- > Misuse or any other cause beyond the range of the intended use (see „2.5 Intended use“)
- > Exceeding the maximum system weight (see „2.3 Maximum system weight“)
- > Non-compliance with safety regulations
- > Improper assembly, repair and maintenance
- > Use of unapproved replacement parts and accessories

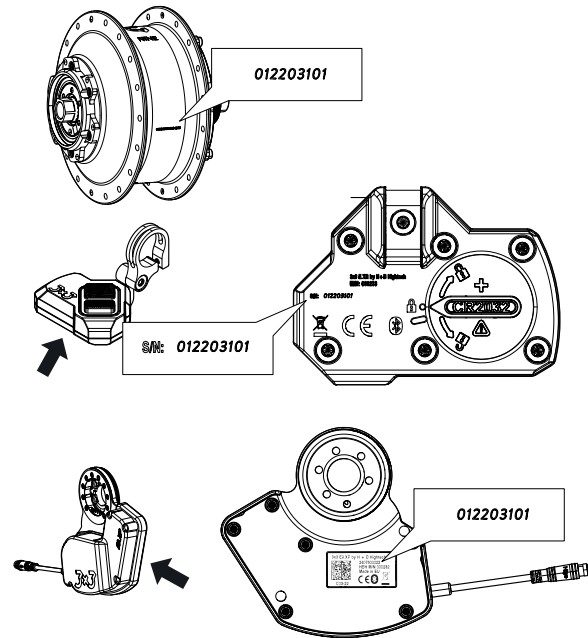
The user is liable for the aforementioned damages. In case of uncertainties or occurrence of problems, the 3X3 service team (service@3x3.bike) or a trained bicycle mechanic must always be consulted!

1.7 Retrofitting

The 3X3 Nine can only be retrofitted in combination with an E-Shift under the following circumstances:

- > Special software is required on the e-bike system.
- > A new complete EMC test of the entire bicycle must be carried out.
- > The bicycle manufacturer must give its approval for the conversion.
- > There must be sufficient installation space available on the rear triangle, especially on the brake disk side in the area of the brake caliper mount and the axle plate.

1.8 Serial number



Each 3X3 NINE gear hub, each trigger and each actuator has a consecutive, individual serial number. Each gear hub also contains a QR code on the hub shell. The serial number and QR code are important for warranty claims, guarantee claims and as proof of ownership. To be able to read the QR code, a separate QR code app must be used, as the integrated QR scanner of the smartphone cannot always read the QR code.

2. Safety

2.1 Explanation signs and symbols used



DANGER

...indicates an immediate hazard that will result in death or serious injury if not avoided.



CAUTION

...indicates a potential hazard that may result in minor injury if not avoided.



NOTE! ... indicates further notes or tips.

2.2 GENERAL SAFETY INFORMATION



CAUTION

Risk of accident due to incorrect or impermissible assembly!

Before mounting, make sure that your bike frame is compatible with the 3X3 NINE gear hub and the selected components. All works and modifications carried out improperly can cause malfunctions and, as a result, accidents. It is therefore essential to ensure proper installation of the gear hub and accessories. The first step must therefore be to read this manual and follow the instructions.

- We recommend that all assembly work be carried out by a qualified specialist workshop.
- The specified torques of the screw connections must be observed.
- The smallest permissible belt or chain transmission ratio must not be undercut (see „6.8 Permissible primary ratio“ on page 27).
- In the case of rear suspensions, a minimum length of the belt or chain must be maintained so that the full compression of the rear end is not restricted. More information on this can be obtained from the bicycle manufacturer.



CAUTION

Risk of accident due to incorrect handling and use of the gear hub!

Compliance with the following provisions is a prerequisite for accident-free use and faultless performance.

- The gear hub is to be used exclusively for the intended use (see „2.5 Intended use“). The user is liable for any improper use.
- The maximum system weight (see „2.3 Maximum system weight“) must not be exceeded.
- The hub must be compatible with all relevant parts of the bike.
- Only use original spare parts.
- The hub must not be changed or modified.
- The hub must not be used if it is damaged or there are any signs of damage. If in doubt, contact the 3X3 service team (service@3x3.bike).



CAUTION

Danger of accident due to incorrectly mounted E-Shift-trigger!

Incorrect installation of the trigger can result in restricted braking and steering maneuvers and poses a risk of accidents.

- The position of the trigger must under no circumstances affect the functionality of the brake lever.



CAUTION

Danger of accident due to contaminated brake disc!

If the brake disc becomes contaminated with oil, grease (including skin grease) or with other lubricating substances, the brake disc cannot achieve its desired braking force.

- Be careful not to contaminate the brake disc during installation.
- Clean the brake disc after assembly with a strongly degreasing, residue-free and flash-off cleaner.



CAUTION

Risk of injury due to accidental activation of the e-bike drive system!

- Before carrying out any work on the e-bike (e.g. inspection, repair, assembly, maintenance, work on the chain, etc.), before transportation (in a car, aircraft, etc.) and before storage, it must be ensured that the system is deactivated and secured against being switched on.



CAUTION

Risk of damage to electrical components!

- The 3X3 components must not be opened. Unauthorized opening of the components voids all warranty claims.
- Never disconnect plug connections when the drive system is switched on, as this could lead to irreparable damage.

2.3 Maximum system weight

The maximum system weight of your bike in conjunction with a 3x3 NINE gear hub is 180 kg.

The system weight is the sum of the rider, bicycle, clothing, luggage and a trailer and its contents.

If your bike is approved for use with a child seat, the weight of the seat and additional passenger will also be added to the maximum system weight.

2.4 Maximum input torque

The 3X3 NINE gear hub is designed for high performance. The maximum torque on the rear sprocket must not exceed 250 Nm. The torque results as follows:

(Torque at crank + maximum engine torque) x primary ratio

See also „6.8 Permissible primary ratio“ on page 27.

2.5 Intended use

The 3X3 NINE gear hub is approved exclusively for use on bicycles that are not considered motor vehicles according to § 1 Para. 3 StVG (German Road Traffic Act) and comply with the generally applicable safety standards. Other types of installation must be checked and approved in advance by H+B Hightech GmbH.

The gear hub may only be used with a torque support.

If the gear hub is used with a belt, only a Gates Carbon Drive belt may be used.

The 3X3 NINE gear hub may only be laced in 20" to 29" rims.

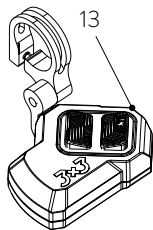
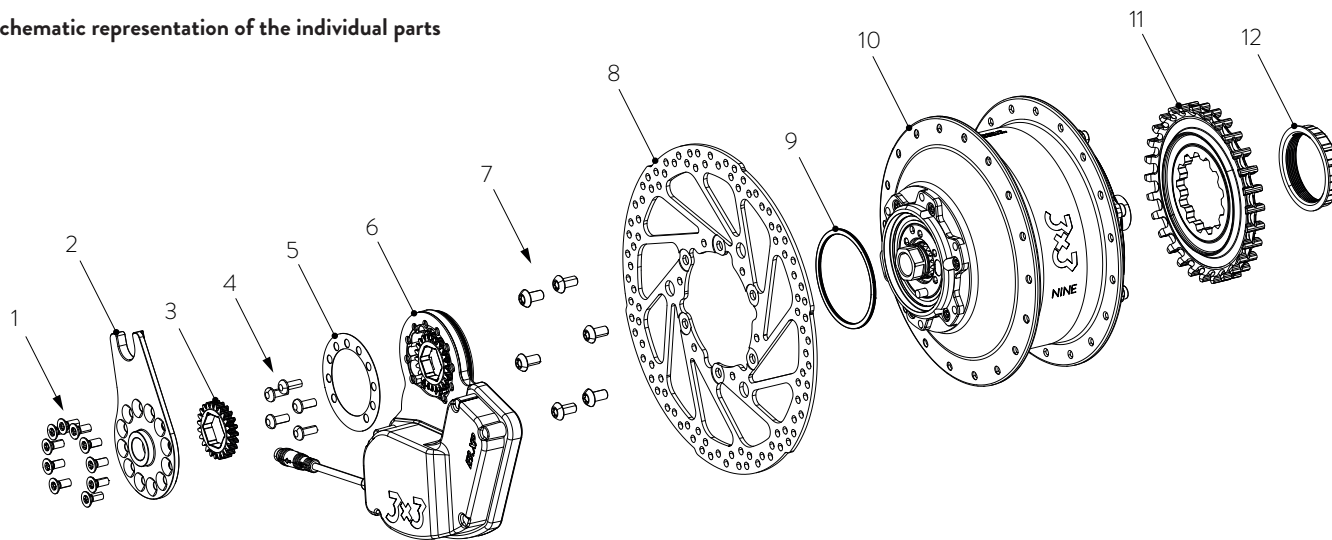
The 3X3 NINE gear hub is not compatible with coaster brakes.

The 3X3 NINE gear hub must not be used under water.



3. Overview

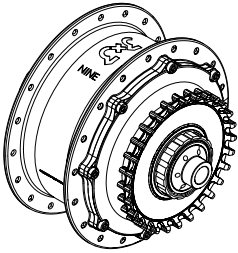
Schematic representation of the individual parts



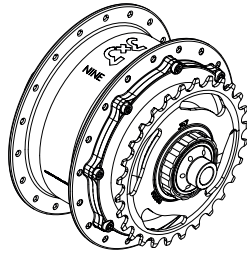
Pos.	Description	Pos.	Description
1	Fixing screw axle plate M4x10 mm countersunk	8	brake disc
2	Axle plate	9	Laminar seal ring
3	Output wheel	10	3X3 NINE gear hub
4	Fastening screw actuator M4x10 mm round head	11	Pulley / sprocket
5	hub seal	12	Lockring
6	Actuator	13	Trigger
7	Mounting screw brake rotor M5x10 mm		

We offer the following configurations:

3.1 Drive unit

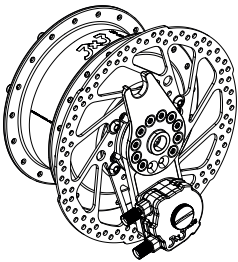


Pulley 3X3 RS.32

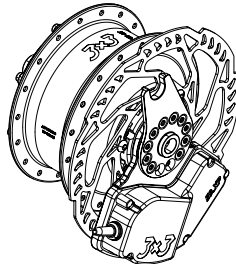


Sprocket 3X3 CS.28

3.2 Gear mech

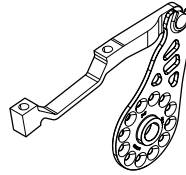


3X3 NINE R.SB

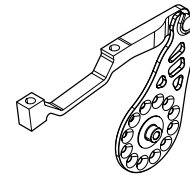


3X3 NINE E9.XP

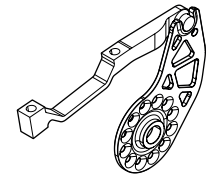
3.3 Torque support



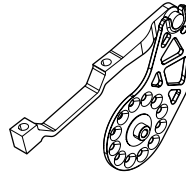
3X3 AP.TA PM.2 with PM adapter



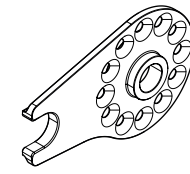
3X3 AP.QR PM.2 with PM Adapter



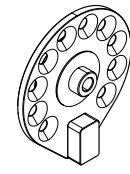
3X3 AP.TA PM.1 with PM adapter



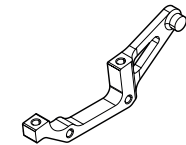
3X3 AP.QR PM1 with PM adapter



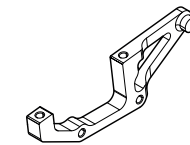
3X3 AP.TA OE.3



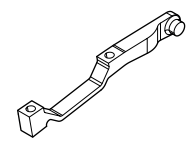
3X3 AP.QR OE.1



Postmount IS2000 - PM180



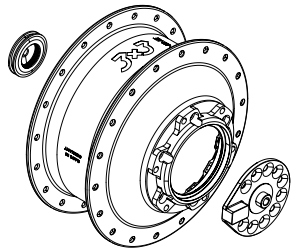
Postmount IS2000 - PM203



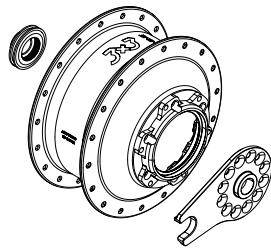
PM Adapter 160 - 180
PM Adapter 180 - 203

In addition to the standard torque supports shown here, individual supports are available to suit specific requirements of some frames.

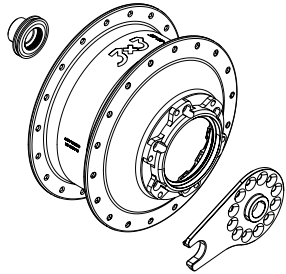
3.4 Frame width



3X3 NINE SP.36.135

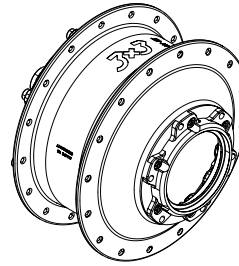


3X3 NINE SP.36.142

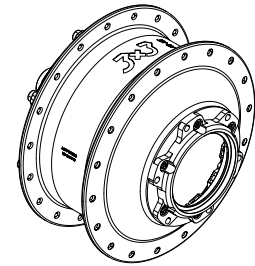


3X3 NINE SP.36.148

3.5 Spoke holes

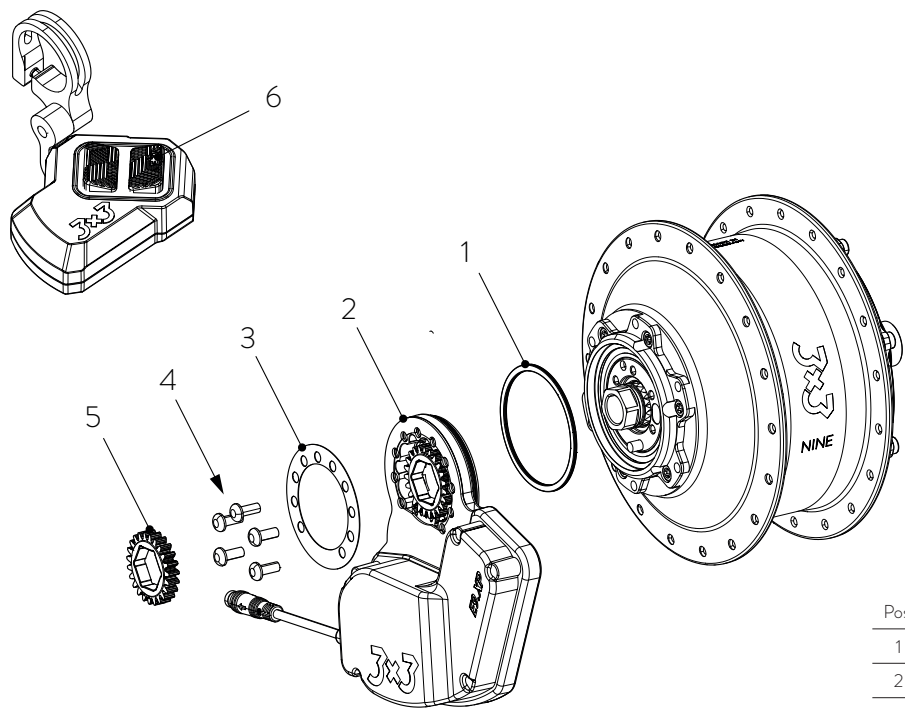


3X3 NINE SP.32.135



3X3 NINE SP.36.135

3.6 Electronic gear mech



Pos.	Description
1	laminar sealing
2	Actuator
3	hub seal
4	Fastening screw gear mech M4x10 mm round head
5	Output wheel
6	Trigger

4. Operation

4.1 Shifting gears

4.1.1. Shifting gears individually

There are two buttons on the 3X3 trigger (control unit on the handlebars) which are used to initiate gear changes.

The upper "+" button shifts the gear hub to ninth gear.

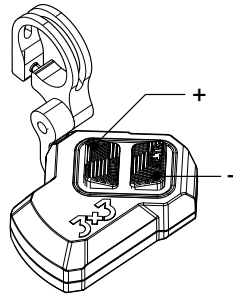
The lower "-" button shifts the gear hub in the direction of first gear.

4.1.2. Auto-Down-Shift

The Auto Down Shift function of the E-Shift actuator allows the 3X3 gear hub to shift to a preselected gear when the bike is stationary (currently only available in combination with Bosch Smart System).

If the e-bike system detects that the bike is stationary, it automatically shifts down to the start gear; to do this, the last gear engaged must be higher than the start gear.

In the factory setting, the auto-downshift function is active and 3rd gear is set as the start gear. Gear selected.



4.2 Riding noise

When riding, different types of riding noise can be heard in certain gears. Due to the design, there are different freewheeling sounds, which change in the gear steps 3 - 4, as well as 6 - 7.

Depending on the frame type, these transmission noises are amplified or transmitted differently (the tubes of the frame / frame material as a resonating body).

4.3 Running-in time

All gears and clutch elements of the 3X3 NINE gear hub are made of hardened special steel and are manufactured with high precision.

Within the first 500 km, the 3X3 NINE gear hub receives its final polish.

This makes riding noises quieter and gearshifts smoother. The run-in period is not associated with any restrictions.

4.4 Pushing the bike

When pushing the bicycle, the crank may rotate with it. This does not represent an error. When pushing the bike, the same noises occur as described in chap. „4.2 Riding noise“. Pushing the bike backwards is not a problem, here the crank inevitably turns with it.



NOTE!

Note: The auto-downshift function and the start gear can be set by the using the 3X3 service tool (see „4.5 3X3 Servicetool“ on page 13).

4.5 3X3 Servicetool

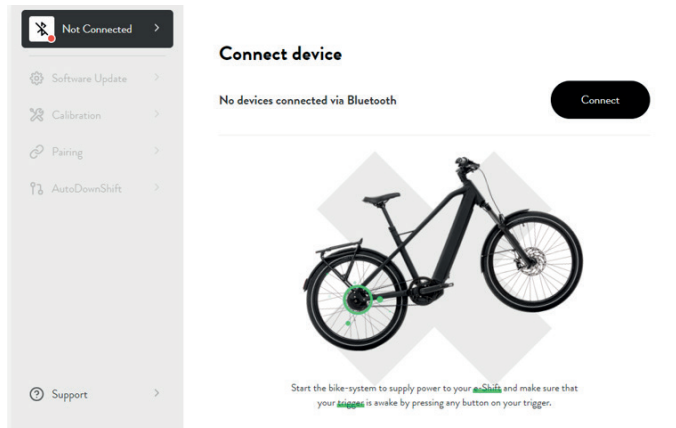
The 3X3 service tool is a web-based tool for making adjustments to your E-Shift gear hub. You can access the service tool via our website <https://service.3x3.bike>. A connection to your E-Shift gear hub or your trigger can be established via your Bluetooth-enabled mobile device (notebook, smartphone, tablet). Various settings and functions are now available to you.

Preparations

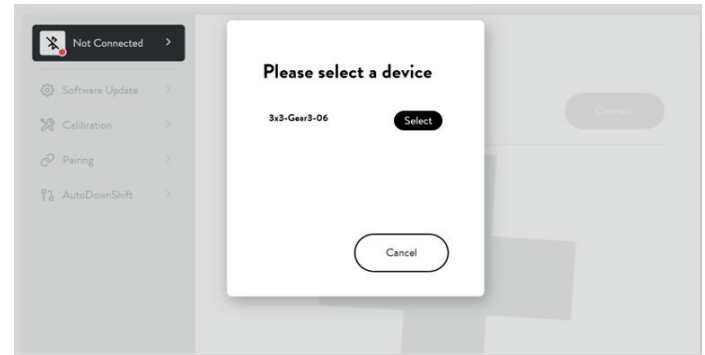
Beforehand, the rear wheel must be mounted and connected to the e-bike system via the cable. The software of the e-bike system must be installed and up-to-date so that the 3X3 NINE gear hub is supplied with power.

Service tool step 1 "Connect"

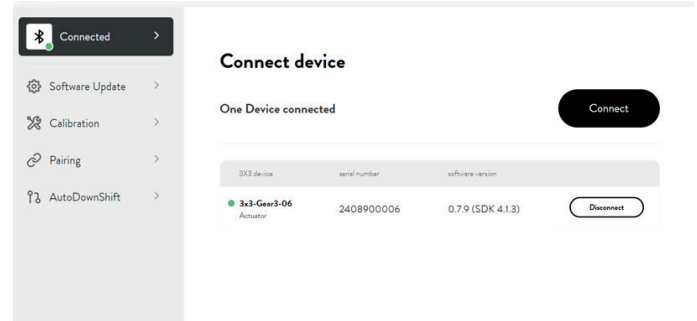
Make sure that the actuator is connected to the e-bike via its cable and switch on your e-bike system. Click on the "Connect" button and connect to the displayed actuator.



When the e-bike is switched on, the actuator should be visible in the list. Click on "Select" to connect to the actuator.

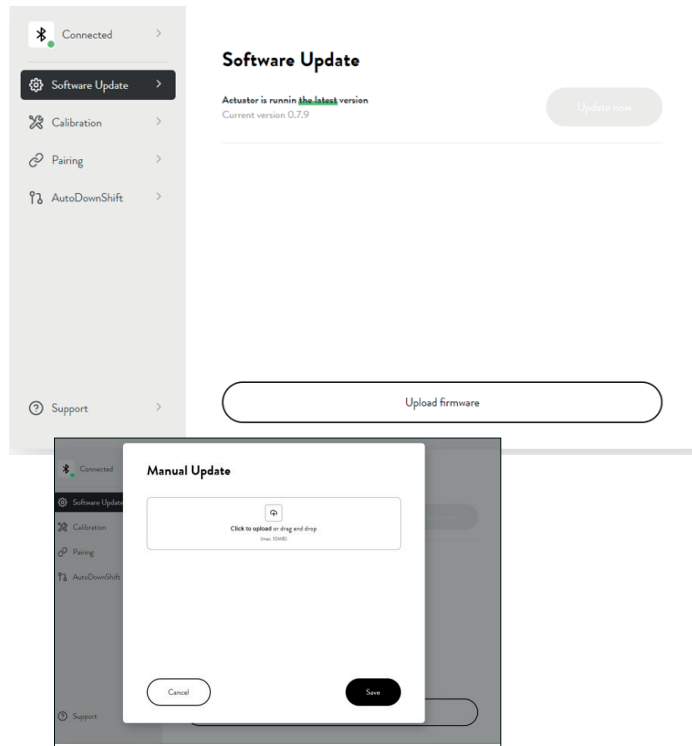


When the actuator is connected, the display in the top left corner changes to "Connected" and the connected devices are displayed.



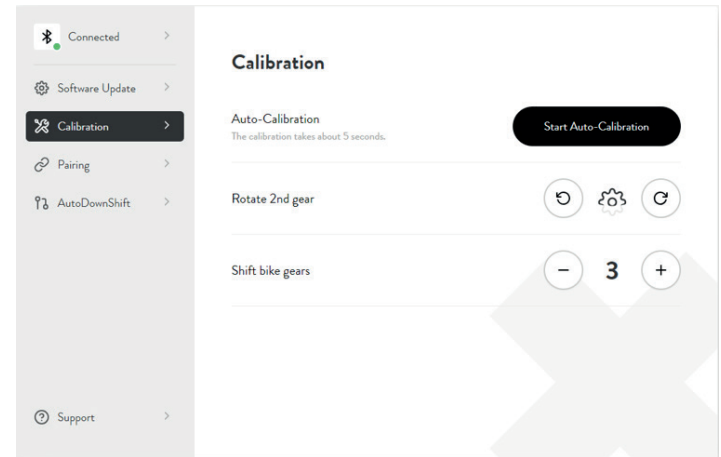
Service tool step 2 "Software update"

The service tool shows which software version of the actuator is installed and whether it is up-to-date. If an update is available, the supplied update package can be uploaded and the actuator updated.



Service tool step 3 "Calibration"

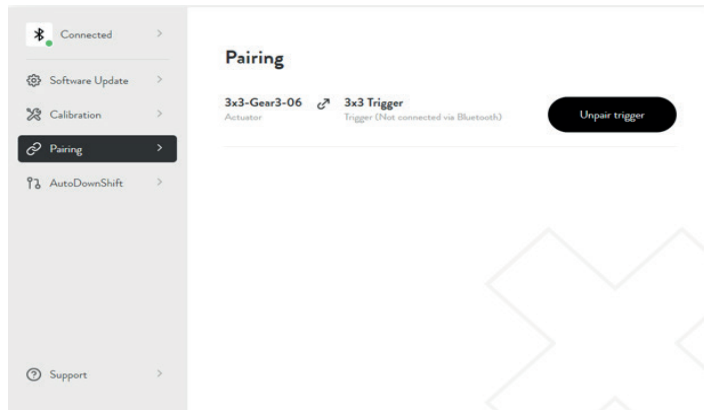
Click on "Start Calibration" to start the EOL run. This is essential to check that all gears are shifting correctly. Ideally, the system shifts through all gears. If this is the case, the system is in perfect condition.



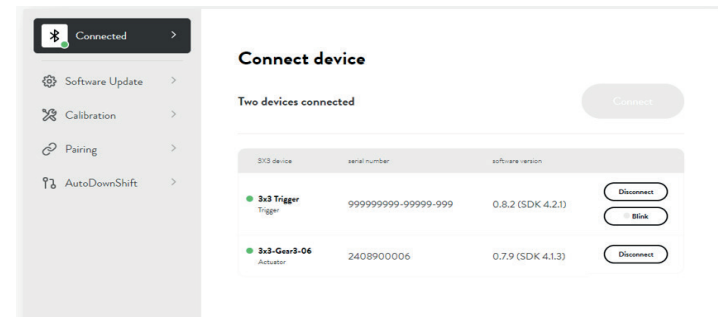
Service tool step 4 "Pairing"

If a new trigger is connected to the actuator, the old trigger must first be deleted from the system. Click "Unpair Trigger" and switch off your e-bike system.

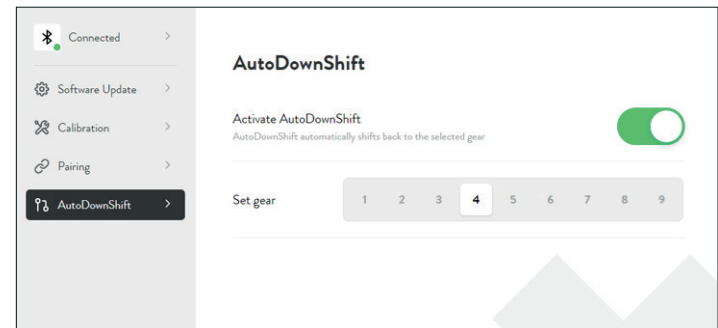
Switch on your e-bike system, then hold the trigger as close as possible to the actuator logo and press both trigger buttons alternately until the actuator starts to switch. Pairing was successful if you can shift through all gears without any problems.



The connected devices are now displayed.



Service tool step 5 "AutoDownShift"



"AutodownshiftGear" is the function of automatically shifting into a gear when the bike comes to a standstill (e.g. traffic lights); this can be freely selected and adjusted. (Recommendation: Gear 2-5)

In the "Set gear" field, you can specify the gear in which the bike should shift when the system is started up and which AutoDownShift gear should be stored.

5. Installation and initial operation

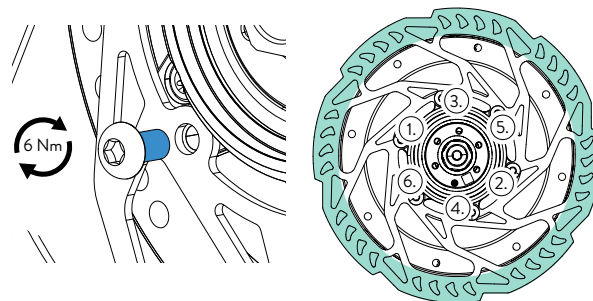
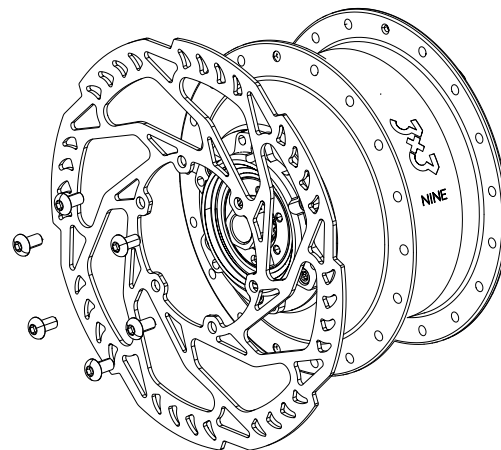
5.1 Mount the brake rotor

Required tools and materials	Specifications
Torx key	TX25
torque wrench	Effective range 6 Nm
threadlocker	medium strength
degreaser / brake cleaner	completely flashing off, e.g. Disc Brake Cleaner from Muc-Off

To mount the brake disc, the gear housing must already be spoked. The shift box or the actuator must not yet be mounted.

Before mounting the brake disc, make sure that the contact surface of the brake disc on the hub is clean and that the threads and screws are free of grease.

1. When using a brake disk speed magnet:
Place the magnet in the hole provided in the brake disk.
2. Clean the contact surfaces of the brake disc and hub.
3. Place the brake disc on the hub.
 - > Pay attention to the direction of rotation (see arrow marking).
4. Degrease the threads of the screws and apply a medium-strength threadlocker.
 - > Some screws are already pre-treated with an encapsulated threadlocker. No additional threadlocker needs to be applied here.
5. Screw in all six screws, but do not tighten them yet.
 - > Only screws with a maximum head height of 2.7 mm may be used!
6. Tighten the screws crosswise (see numbering diagram) first hand-tight and then with a torque of 6 Nm.
7. Check that the brake disc lies flat on the hub.



FETTFREI

SCHRAUBENSICHERUNGSMITTEL

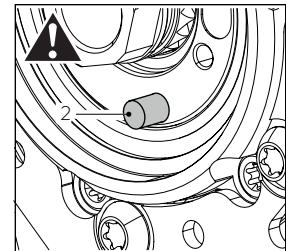
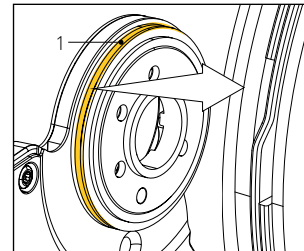
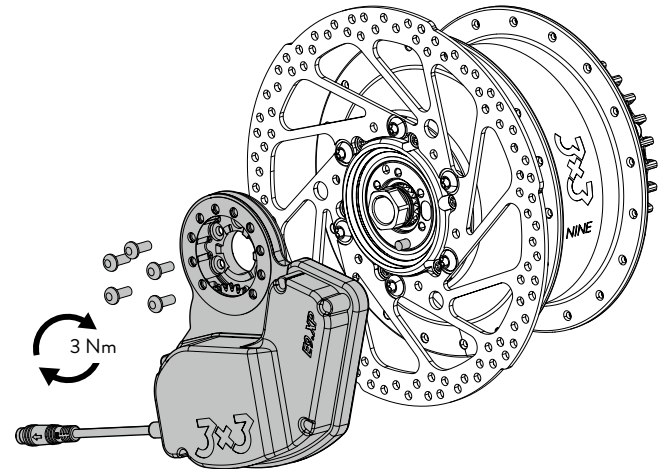
5.2 Mounting the E-Shift

5.2.1. Mounting the actuator

Required tools and materials	Specifications
Torx key	T20
socket/ open-end wrench	17 mm
torque wrench	Effective range 3 Nm
grease	3X3 GEAR GREASE 000395

The brake rotor must already be fitted in order to install the actuator.

1. Clean the contact surfaces of the actuator and the hub.
2. Grease the groove of the sealing ring (1) and insert the sealing ring. Make sure that the overlaps do not lead to thickening.
3. Check whether there is threadlocker on the screws. Apply threadlocker if necessary.
4. Place the actuator on the hub, thread the sealing ring into the housing so that it disappears completely and screw in three of the five screws so that one hole remains free between each screw. The pin (2) of the main axis must be threaded into the hole provided in the actuator.
5. Lightly tighten the three screws crosswise and check that the actuator is sitting straight on the hub.
6. Place the two missing screws and tighten all screws crosswise with a torque of 3 to 4 Nm.
7. Check the free movement of the actuator.
= The gear mech must not collide with any other component during a 360° rotation.

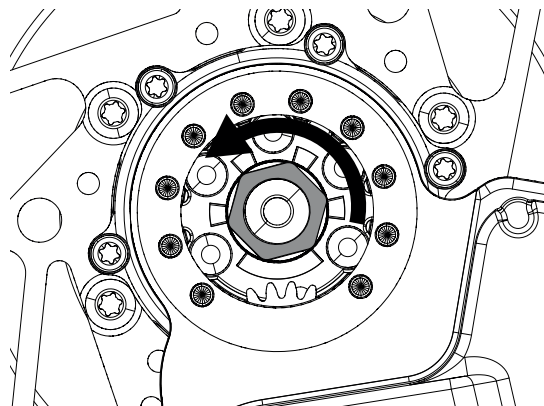
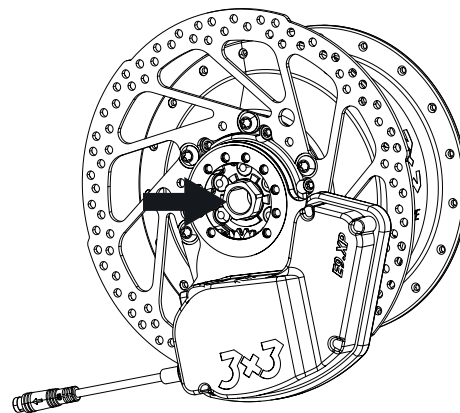


GREASE

Shift hub to first gear

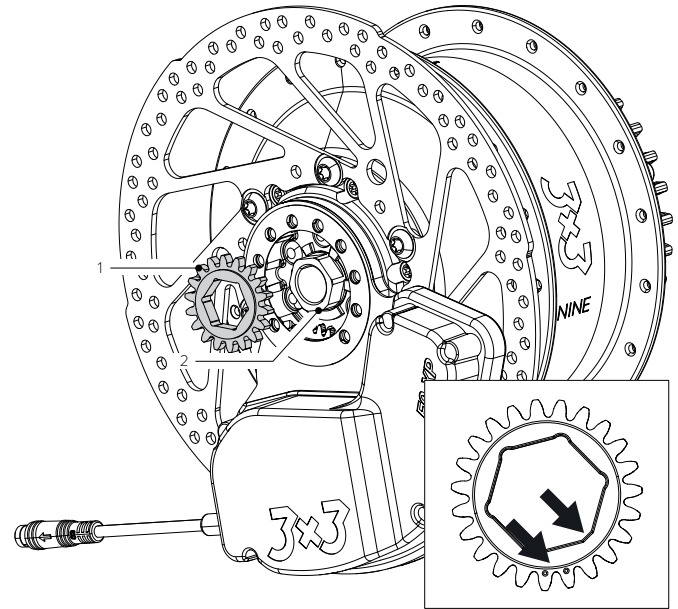
To ensure that the hub is in the starting position for the following assembly steps, the hub must be manually shifted into first gear via the shift drum.

1. Turn the hexagon of the shift drum counterclockwise with a 17 mm socket until it stops.
 - > The hub is now in the first gear.



Mounting the output wheel

1. Clean the output wheel and the mounting surface.
2. Place the output wheel on the shift drum. It is only possible to engage the output gear in a certain position (see flattening on the shift drum and dots on the hexagon gear).



5.3 Mounting the trigger



NOTE!

To connect the trigger to the actuator, the trigger must be removed from the handlebars. If a connection has not yet been established, installation can be carried out later.

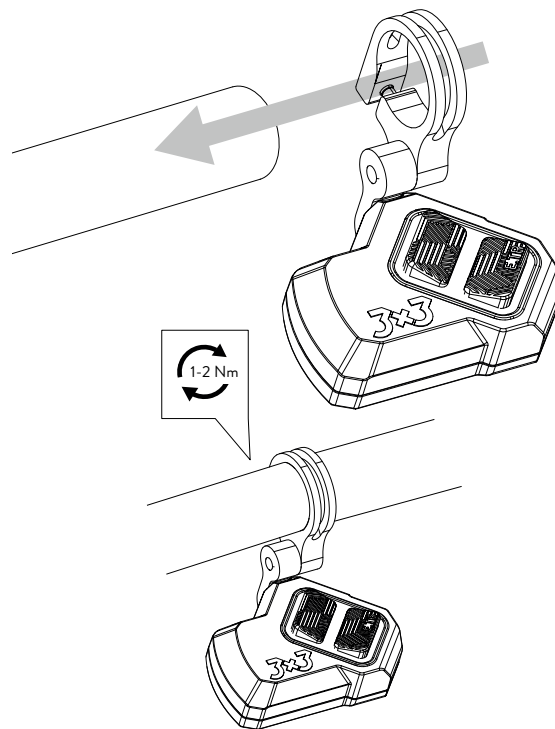
Required tools and materials	Specifications
hex key / hex bit	2.5 mm
torque wrench	Effective range 1 - 2 Nm
Mounting paste (only required for carbon handlebars)	According to the handlebar manufacturer

1. Refer to the handlebar manufacturer's instruction manual and check for specific provisions regarding handlebar clamp tightening torques.
2. First slide the brake lever and then the trigger onto the handlebar.
3. Install the grip according to the manufacturer's instructions.
4. Adjust the position of the brake lever and fix it.
5. Adjust the position of the trigger and tighten the clamp with a 2.5 mm hex key to 1 - 2 Nm.
 - = The trigger must not be restricted in its function and must not restrict other operating elements (brake lever, etc.).
6. Verify the tight fit of the trigger.
 - = It must not be possible to twist the trigger on the handlebars with normal force!
If the trigger can be turned on the handlebar, disassemble it, thoroughly clean and degrease the mounting surfaces and apply a suitable mounting paste. If the clamping force is still too low, the bicycle must not be put into operation. Contact the 3X3 service team if you have any questions.



NOTE!

The CR2032 button cell is not included in the scope of delivery!

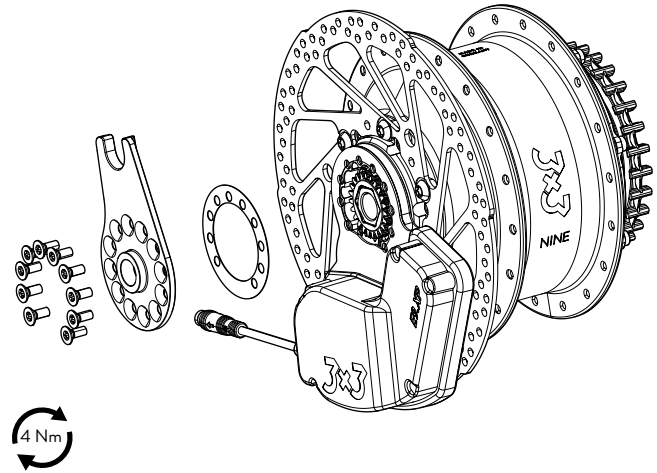


5.4 Mounting the axle plate

Required tools and materials	Specifications
Torx wrench / Torx bit	T20
torque wrench	Effective range 4 Nm
thread locker medium strength	Loctite 243

The axle plate is supported by the torque support of the bicycle frame. Different versions of the axle plate are available. The position of the axle plate must be aligned with the position of the torque support on the bike.

1. Place the paper seal on the actuator. Align the paper seal with the screw holes.
2. Place the matching axle plate on the shift box at the angle that matches the bicycle.
3. Apply medium strength thread locker to the threads of the screws.
4. Secure the actuator against rotation and tighten the screws crosswise with a torque of 4 Nm.



5.5 Mounting the sprocket/ pulley

Required tools and materials	Specifications
strap wrench (pulley)	e.g. Gates GCD241236 / STRAP WRENCH
chain whip (chain sprocket)	e.g. BBB Cycling BTL 12 S
locking tool	BSA Hollowtech II tool
torque wrench	Effective range 40 Nm
Cleaner	Solvent-free cleaner, e.g. Muc Off

A chain sprocket or a pulley can be mounted.

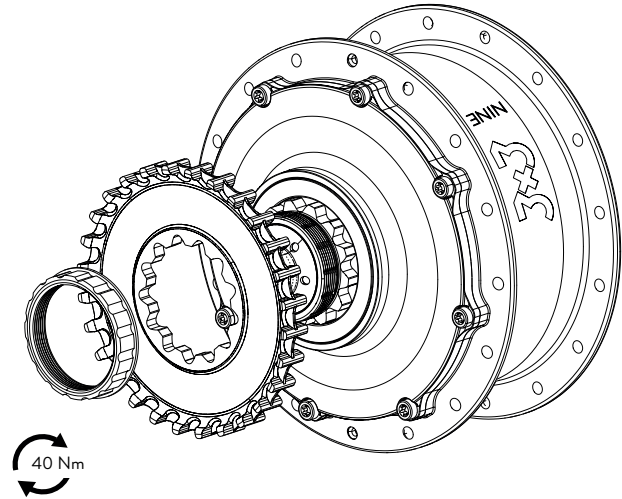
The chain/belt line is determined by the hub. The front chainring or pulley must be adjusted to the appropriate position.

1. Clean the driver on the hub and the sprocket or pulley.
2. Make sure that the seal carrier is fully inserted in the housing cover.
3. Slide the sprocket or pulley onto the hub driver.



NOTE! The labeling of the sprocket must not face the hub.

4. Turn the locking onto the driver.
5. Hold the sprocket with a chain whip or the pulley with a strap wrench and tighten the locking with an bottom bracket tool to 40 Nm.



5.6 Assembling the wheel

In addition to the specifications given by the bicycle manufacturer for the installation of the wheel, the following things must be observed:

1. When installing the rear wheel, make sure that the torque support is properly engaged.
2. The actuator cable must not be kinked on the brake rotor or frame.
3. Check that the rear wheel turns freely.
4. Connect the plug of the actuator to the eBike.

5.7 Removing the wheel

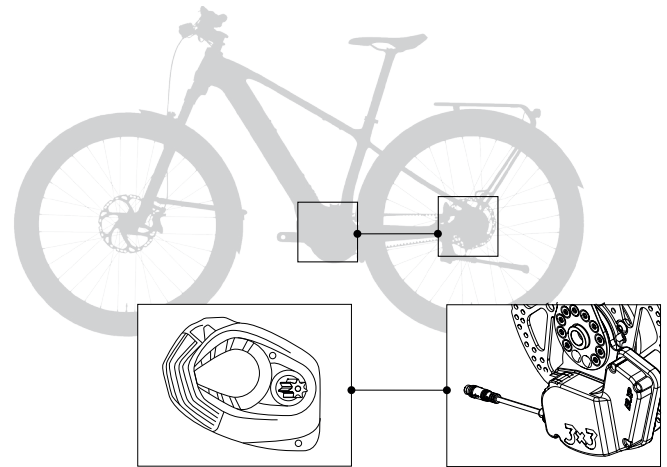


NOTE!

Before disassembly, shift the hub to first gear, which facilitates later reassembly.

1. Switch off the eBike system and disconnect the plug of the actuator from the eBike system.
2. Loosen the knurled screw on the shift box and pull the shift box off the gear mech.
3. Open or loosen the rear wheel attachment according to the bicycle manufacturer's instructions.
4. Remove the rear wheel from the bike, making sure that the torque support does not jam.
5. Remove the belt / chain from the sprocket.

5.8 Initial operation



1. Connect your E-Shift actuator with the connection cable to the eBike system (currently only available for Bosch Smart System). Make sure the connectors are clean and dry. Now lay the connection cable on or in the frame and plug it into the HPP (HighPowerPort) of the drive unit.
 - = When routing the connection cable, make sure that it cannot rub against the wheel or restrict the wheel's functions
2. Make sure that a battery is inserted in the trigger (see „7.5 Battery change“ on page 29).
3. Switch on the eBike system.
4. Now perform the pairing with the trigger (see „4.5 3X3 Servicetool“ on page 13).
5. Carry out the initial ride (see „4.5 3X3 Servicetool“ on page 13).

6. Technical data

6.1 Interfaces with the bicycle

Maximum input torque	250 Nm
Axle diameter	5 mm (for 135 mm installation width, only as quick release version) 12 mm (for 142/148 mm installation width)
Total axle width with 135 mm installation width	145 mm
Axle bore diameter	for 135 mm installation width 5.2 mm for thru axle 12.2 mm
Installation widths in the frame	135 mm, 142 mm, 148 mm
Brake rotor diameter	180 mm, 203 mm

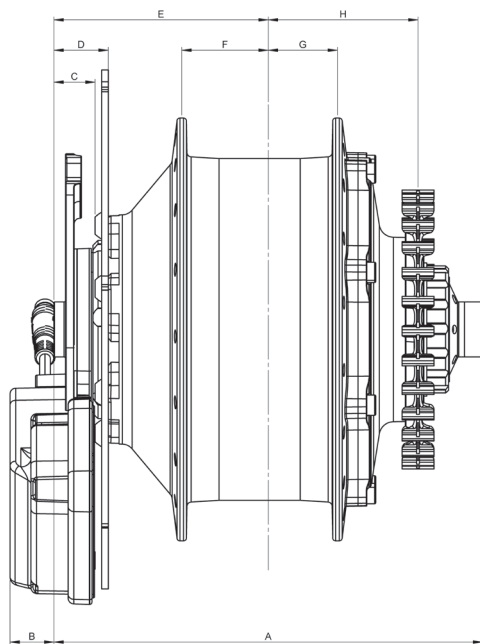
6.2 Wheel Building

Number of spokes	32 or 36 hole
Hub flange distance	Distance flange left: 135 mm installation width: 26.74 mm 142 mm installation width: 26.77 mm 148 mm installation width: 29.77 mm Distance flange right: 135 mm installation width: 26.97 mm 142 mm installation width: 26.76 mm 148 mm installation width: 23.94 mm
Hub flange diameter	134 mm (left and right)
Spoke hole diameter	2.8 mm
Hub flange width	In the center of a spoke hole: 4 mm
Maximum spoke tension	1500 N
Preferred lacing pattern	24-29": two-cross with 12 mm nipples 20": 1-cross

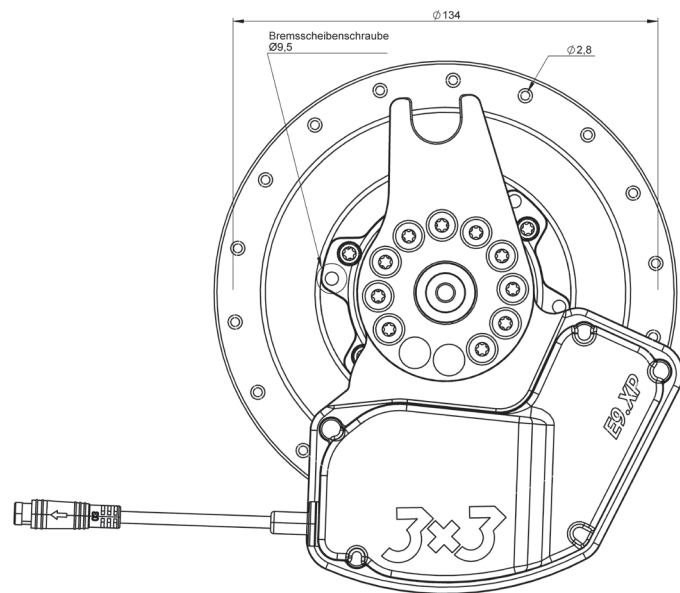
6.3 General technical data

Number of gears	9
Gear steps	approx. 24 %
Total transmission	554 %
Weight	2 kg
Brake rotor centering diameter	Ø61.5 mm +0.2/0
Bolt circle diameter of the brake disc mount	Ø72.25 mm ±0.1
Brake rotor mounting screws	6 x M5 x 10 (TX25)
sprocket toothing	For bicycle chains 1/2 x 11/128" (ISO No. 082); corresponds to 10-speed chains
sprocket number of teeth	Chain: 24, 26, 28, 30 Belt: 28, 30, 32, 34
Belt/chain line	135/ 142 mm installation width: 54.7 mm 148 mm installation width: 51.7 mm
Shift operation	Via rotary shift (right or left possible) and e-shift (only right possible)

6.4 Dimensions:



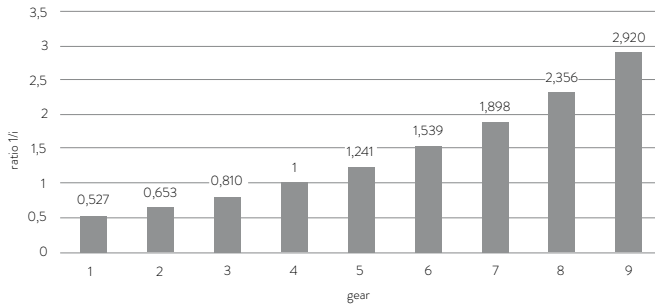
	135 mm installation width	142 mm installation width	148 mm installation width
A	135	142	148
B	18.6	15.1	15.1
C	10.6	14.1	14.1
D	15.3	18.8	18.8



	135 mm installation width	142 mm installation width	148 mm installation width
E	67.5	71	74
F	26.9	26.9	29.9
G	26.9	26.9	23.9
H	54.7	54.7	51.7

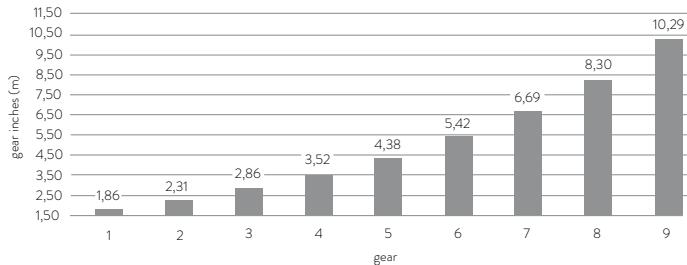
6.5 Gear ratio

The internal ratio refers to the ratio or reduced ratio of only the gearbox. From this and from the primary ratio, the desired gear inches can be calculated.



6.6 Gear inches

The values are based on a 55-622 tire, a 46T pulley and a 30T sprocket at one crank revolution.



6.7 Torques

Quick release	Observe the manufacturer's specifications
Thru axle	Observe the manufacturer's specifications
Torque support/axle plate	3,5 – 4 Nm
Adapter	35 – 40 Nm
Actuator on main axle	3 Nm
Pulley / sprocket	40 Nm
Brake rotor bolt	6 Nm
Trigger clamp	1 – 2 Nm

6.8 Permissible primary ratio

To protect the 3X3 NINE gear hub from overload, select the primary gear ratio so that the max. input torque of 250 Nm is not exceeded.



NOTE!

Contact our service department for primary translation recommendations (service@3x3.bike).

7. Activities before the ride and care

The 3X3 NINE gear hub is protected from dirt and water by a special sealing concept and is low maintenance. Therefore, the care and maintenance work is mainly limited to the chain, or the belt drive and the associated tensioner, as well as the actuator.

The intervals at which care and maintenance work becomes necessary on the 3X3 NINE gear hub itself depend greatly on the frequency of use and the effects of the weather. The more extreme the conditions under which the gear hub is used (water, dirt, kilometers driven, etc.), the more frequently care and maintenance work is also required here.

7.1 Activities before the ride

The following table shows the specific activities that must be performed before the first ride or before each ride. In addition, please note the activities that affect your bike.

Task	Before your first ride	Before each ride
Check all screws for tightness and tighten to specific torque if necessary.	X	
Clean the hub (see „7.2 Cleaning“).	X	
Check that the brake disc is free of oil and dirt.	X	X
Check the proper function of the brake.	X	X
Check the tight fit of the quick release / thru axle.	X	X
Verify the tight fit of the actuator.	X	X
Check if all gears can be shifted.	X	
Check the chain / belt for wear.		X

7.2 Cleaning

The 3X3 NINE gear hub is protected against moisture penetration according to the latest standards. However, it is strongly discouraged to clean the bike with a pressure washer. Aggressive cleaners can also cause damage to the hub. Use qualified bicycle cleaners for cleaning and follow the cleaner's application instructions.

Be careful with the disc brake! Contaminants on the brake system, including cleaning agents, can massively impair braking behavior.

7.3 Lubrication

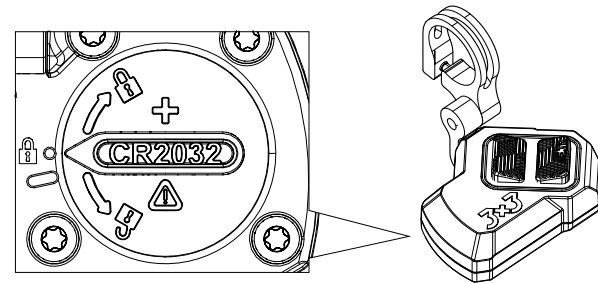
The 3X3 NINE gear hub is factory filled with a high performance grease.

7.4 Regular checks

The following checks should be performed at regular intervals:

Task	Interval
Check all screws for tightness and tighten to specific torque if necessary.	monthly
Check the housing screws for tightness. If they have loosened, tighten them crosswise with 1.4 Nm.	monthly
Clean the hub (see „7.2 Cleaning“).	as required
Check the fastening of the shift cables and shift sleeves.	monthly
Check the brake disc for wear. The wear limit is indicated on the brake disc. Replace the brake disc if necessary (see „8.4 Replacing brake rotor“ on page 31).	3 months
Check the brake pads for wear. The brake pad specifies the wear limit.	monthly
Check the chain / belt for wear. Refer to the chain or belt manufacturer's specifications.	monthly
Check the pulley for wear. Refer to the chain or belt manufacturer's specifications.	3 months

Task	Interval
<p>Check the sprocket for wear.</p> <p>The sprocket is at its wear limit when the teeth have a severe degree and are deformed.</p> <p>Replace the sprocket if necessary (see „5.5 Mounting the sprocket/ pulley“ on page 23).</p> <p>If in doubt, contact the 3X3 service team.</p>	<p>3 months</p>



7.5 Battery change



CAUTION

Danger from swallowing button cells!

If children swallow button cell batteries, this can cause serious damage to the oesophagus, such as burns or chemical burns.

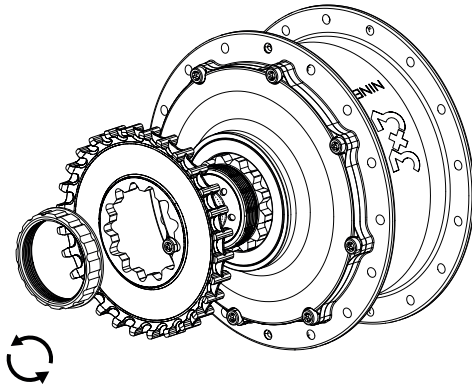
- Keep the battery out of the reach of children.
- If a battery is swallowed, seek medical advice immediately.

1. Open the cover of the battery compartment by turning it counterclockwise as far as it will go. Use a suitable object to avoid damaging the housing and the recess.
 - = The rear of the housing must not be opened under any circumstances, as this will invalidate the warranty.
2. Remove the battery and replace it with a new one.
 - = Only use clean gloves when touching the battery and the open trigger. Contact with moisture, lubricants, cleaning agents or skin care products must be avoided at all costs.
 - = Only use batteries of type CR2032.
 - = Do not use sharp or conductive objects to remove the batteries. The "+" symbol on the battery must point towards the cover after insertion.
3. Close the battery compartment cover by turning it clockwise as far as it will go.
 - = Before closing the cover, check that the O-ring is correctly seated and intact. If necessary, replace it with a new O-ring 21 x 1 mm.
 - = The arrow must point to the "Locked" mark.

8. Exchanging components

8.1 Changing the sprocket / pulley

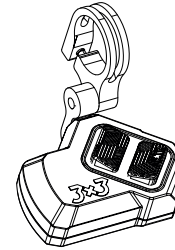
1. Clean the sprocket / pulley and the hub housing in the area of the sprocket / pulley.
2. Hold the sprocket with a chain whip or the pulley with a strap wrench and open the nut counterclockwise with a BSA bottom bracket tool.
3. Remove the locking and pull the sprocket or pulley off the tooting.
4. Clean the teeth and thread and check both for damage.



5. Install the sprocket or pulley (see 5.5 on page 23).

8.2 Changing the trigger

To replace the trigger, the handlebar clamp can remain fitted, only the screw that connects the trigger to the handlebar clamp needs to be loosened.



1. Loosen the hexagon socket screw that connects the trigger to the handlebar clamp.
2. Fit a new trigger by tightening the hexagon socket screw again. Make sure that the screw is tightened to the correct torque.

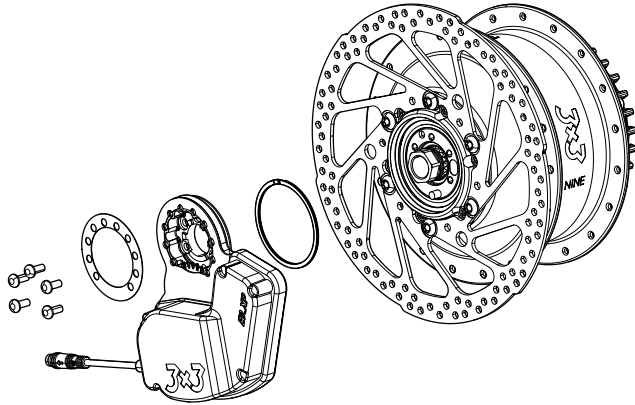
To replace the handlebar clamp, the handlebar grip must be removed. Follow the manufacturer's instructions.

3. Loosen the clamping screw on the handlebar clamp. Check the shifter body (1) for damage.
4. Fit a new handlebar clamp by mounting the handlebar clamp on the handlebar using the clamping screw. Make sure that the clamping screw is tightened to the correct torque (see also „5.3 Mounting the trigger“ on page 21).
5. The new trigger must then be paired with the actuator (see „4.5 3X3 Servicetool“ on page 13).
6. Check the controls on the handlebars that may be affected by the position of the new trigger (e.g. brake lever).



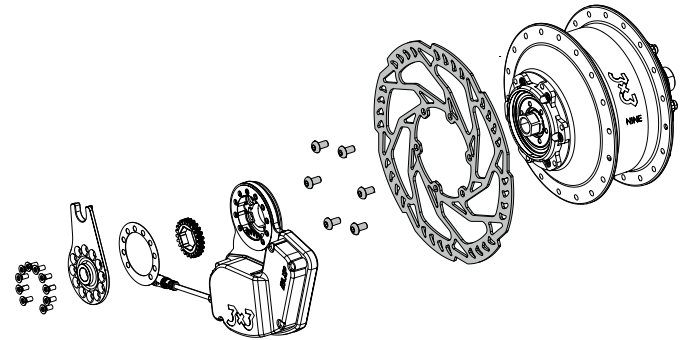
NOTE! Check the function of the brake after replacing the trigger!

8.3 Replacing the actuator



1. Shift the gear hub into first gear.
2. Disconnect the cable connection on the actuator.
3. Dismount the wheel, observing the manufacturer's instructions.
4. Mark the position of the axle plate and the input wheel. This facilitates the reassembly.
5. Remove the axle plate.
6. Remove the input wheel.
7. Dismantle the actuator by loosening the five screws.
8. Install a new actuator (see „5.2 Mounting the E-Shift“ on page 18).

8.4 Replacing brake rotor



1. Dismount the actuator (see „8.3 Replacing the actuator“ on page 31).
2. Loosen the fixing screws and disassemble the brake rotor.
3. Mount the brake rotor („5.1 Mount the brake rotor“ on page 17).
4. Mount the actuator (see „5.2 Mounting the E-Shift“ on page 18) and the axle plate (see „5.4 Mounting the axle plate“ on page 22).

8.5 Replacing the gearbox assembly

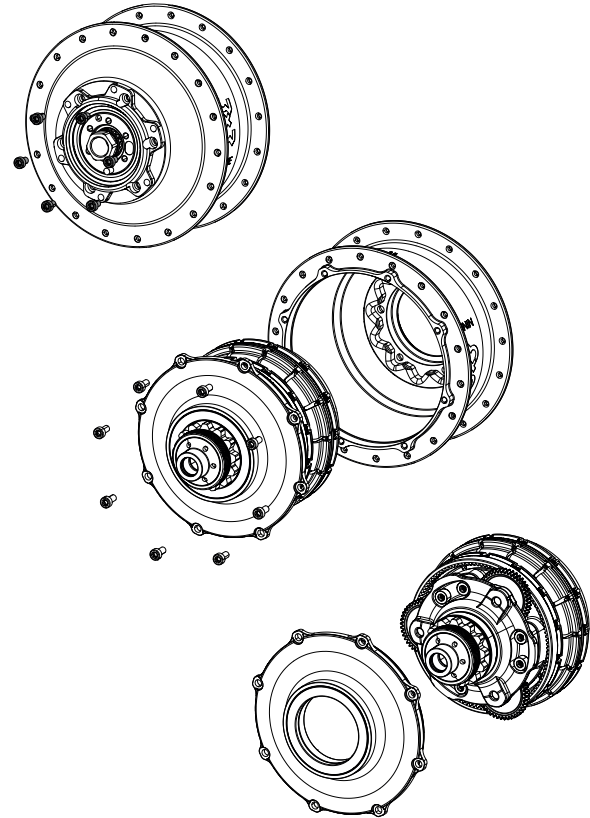
Required tools and materials	Specifications
torque wrench	Effective range 2 Nm
Cleaner	Solvent-free cleaner, e.g. Muc Off
thread locker medium strength	Loctite 243

Preparations

1. Dismount the sprocket/pulley, see 8.1 on page 30.
2. Dismount the gear mech, see 8.3 on page 31.
3. Mark the axle plate position, then remove the axle plate.
4. If applicable. Dismount the brake rotor, if needed.
5. The wheel can remain spoked.

Dismounting the gearbox assembly

1. Loosen and remove the six screws on the housing on the non drive side.
2. Loosen and remove the eight screws from the housing cover.
3. Remove the gearbox assembly from the hub shell by pressing lightly on the main axle in the direction of the cover.
4. Remove the housing cover from the driver by hand. Avoid tilting the fit in the bearing seat.
5. Pack the removed gearbox assembly to protect it from dirt.
6. Check the inside of the housing for dirt and clean it if necessary.
7. Clean the sealing surface of the gear mech on the housing.
8. Check the sealing ring in the lid for damage.

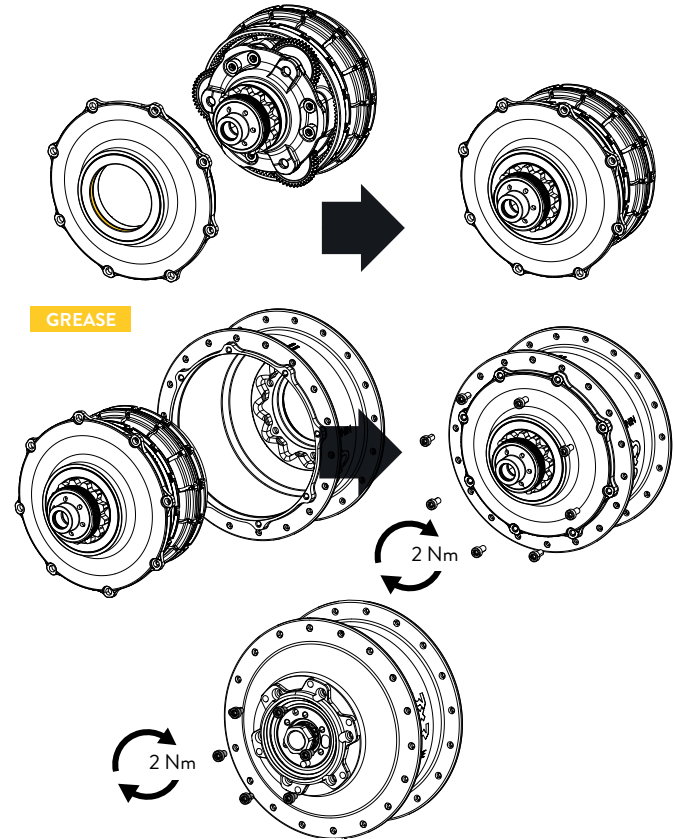


Fitting the gearbox assembly

1. Take the new gearbox assembly out of the packaging.
2. Scan the QR code on the gearbox assembly and the QR code on the hub shell and send the number to service@3x3.bike.
 - = The new combination of hub shell and gearbox assembly is saved in the 3X3 service database.
3. Grease the sealing ring and push the housing cover onto the driver. Push the bearing as far as it will go onto the fit.
4. Insert the gearbox assembly into the housing.
 - = Turn the housing cover so that the holes and threads are on top of each other.
 - = Make sure that the tothing of the output matches the tothing of the housing and that the six threaded holes of the output match the six holes in the housing.
5. Coat the eight M4x6 mm TX20 screws with medium-strength threadlocker and screw them into the threads on the non drive side. Check that there is no gap between the bearing and the housing. Tighten the screws crosswise to 2 Nm.
6. Apply medium-strength threadlocker to the six M4x8 mm TX20 screws and screw them crosswise into the housing cover. Check that the housing cover is fully inserted into the housing. Tighten the screws crosswise with a torque of 2 Nm.

Final steps

1. Install the sprocket/pulley, see 8.1 on page 30.
2. Install the gear mech, see 8.3 on page 31.
3. Mark the position of the axle plate then fit the axle plate.
4. If applicable. Mount the brake rotor if needed, see . Clean the brake disk.
5. If servicing is required, pack up the old/defective gearbox assembly, contact the service department and return them, quoting the service case number.



9. Declaration of conformity

EU declaration of conformity



Das Produkt funkgesteuerter motorischer E-Bike Aktor, bestehend aus Aktor 143035-xx und Schalter 142729-xx, entspricht den Vorschriften des Gesetzes über elektrische Betriebsmittel für elektromagnetische Verträglichkeit (EMV) und der Richtlinie des Rates zur Harmonisierung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit:

RICHTLINIE 2014/30/EU DES EUROPÄISCHEN PARLAMENTS UND DES RATES (vom 26. Februar 2014)

The product wireless controlled motor drive E-Bike actuator, consisting of actuator 143035-xx and trigger 142729-xx, is conform to the regulations of the law of electrical equipment for electromagnetic compatibility (EMC) and the council directive for approximation of legal provisions on the harmonisation of the laws of the Member States relating to electromagnetic compatibility.

DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (valid from 26th February 2014)

Durchgeführte Prüfung / Test performed:	Norm / Standard:	Ergebnis / Result:
Störfeldstärke / Interference field strength	DIN EN 55011:2022-05	I.O. / passed
Entladung statischer Elektrizität (ESD) / Electrostatic discharge	DIN EN 61000-4-2:2009-12	I.O. / passed
Hochfrequente Elektromagnetische Felder / High frequency electromagnetic fields	DIN EN IEC 61000-4-3:2021-11	I.O. / passed

ETO MAGNETIC Sp. z o.o.
ul. Eugeniusza Kwiatkowskiego 7
52-407 Wrocław
POLAND

Stockach, den 14.03.2024

ppa Lutz Mantsch

I.A. Achim Riedle



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