"Quicker than the surf"

France 1994. The atmosphere at the "Tour de France" was exhilarating and working with the teams and mechanics was exciting too. Our Rohloff S-L-T 99 chain has proven a success with its reliability! So at last, a couple of quiet days on the Atlantic coast. Why not take the Moutain bike on the beach?? Crazy idea, yes! Riding exactly where the surf runs out! After just 200m, total stand still! The rear wheel is stuck fast in the wet sand. Changing the gears impossible! Derailleur gears won’t work when you are stuck! The next wave came and both rider and bike received the first salt-water shower. Chain and sprockets are grinding full of fine sand. The next wave came - now nothing works. The waves were rolling in faster than we could change gears. Still, it must feel great to have the waves roll out under the bottom bracket. This idea didn’t let go of me.

The lights were now burning bright and late into the night. The construction department in the Rohloff Company was working overtime. Successful gear changes and sprocket combinations were investigated. Mountainbike, downhill, touring and everyday riders were asked along with sports physicians: How many gears do you need and what has a gear hub got to be capable of in order to achieve maximum riding fun? 1997: finally we had our answer and put it to the test! Guess where...

The rear wheel is stuck fast in the wet sand. The first wave is coming. Change the gears down while stuck. 1st gear, gentle on the pedals, riding further - 2nd - 3rd - 4th... These gears are quicker than the surf!

30 km of beautiful sandy beach lay ahead of us. It is a great feeling to have the waves roll out under the bottom bracket!

Bernhard Rohloff.

This Owners Manual is also available in a variety of other languages. Should you require a different version, you can download it from our homepage under:

www.rohloff.de > download > description > owners manual

The following languages are available:

- English
- German
- Dutch
- French
- Italian
- Russian

The newest version of this Manual is available on the web under:

www.rohloff.de > download > description > owners manual

Further to the manual, the most important work, service and repairs on the Rohloff SPEEDHUB 500/14 are shown in short films on the web.

www.rohloff.de > videos > workshop ... 

The technology Presentation CD (Art.No. 8296) explains the function and build of the Rohloff SPEEDHUB 500/14 with the use of various animations and further in-depth technical details.
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## Introduction

**ATTENTION**

Each Rohloff SPEEDHUB 500/14 has an individual Serial No. Either on the hub shell sticker (≤ No. 74770) or engraved (≥ No. 74771) upon the hub shell.

SPEEDHUBs without a valid Serial Number will be void of all warranty entitlements. Warranty claims as well as any forms of service will only be completed on hubs presented with a valid Serial Number and the original warranty card.

Further information on the warranty card can be found in the appendix under ‘Pointers on the Serial No.’.

To help us keep tabs on theft, it is advisable to register the Serial No. with us by way of the warranty card.

A more precise explanation of the warranty conditions can be found on the warranty card itself which is included with the paperwork of every Rohloff SPEEDHUB 500/14 purchased.
Introduction

With the Rohloff SPEEDHUB 500/14 in the fast lane

This handbook covers everything of interest about the Rohloff SPEEDHUB 500/14. It contains important information over the use, the component choice, the mounting, the service and the repairs. Should you still have any questions or queries after reading this handbook please contact your local dealer or visit us on the web under www.rohloff.de. Due to us constantly improving our products, the shape of the parts or the contents of the package may vary from those illustrated in this handbook. We kindly ask you to show some consideration.

The first chapter

Riding with the Rohloff SPEEDHUB 500/14

you will find everything you need to know about riding with the Rohloff SPEEDHUB 500/14.

In the following sections
- Technical data
- Securing to the frame
- Shifter cable routing
- Rohloff SPEEDHUB 500/14 variations
- The wheel
- Which components are recommended
- Special applications

you will find all the technical information needed to select the correct version of the Rohloff SPEEDHUB 500/14 for your needs.

In the chapters
- Mounting
- Service
- Repairs

you will find all the technical information needed for the mounting and service of the Rohloff SPEEDHUB 500/14.

Please read the important safety information carefully.

Every bicycle equipped with a Rohloff SPEEDHUB 500/14 should come complete with the following:
- A guarantee card (with dealers stamp and Serial N°).
- An oil filling tube.

Please read the important safety information before riding off!

Safety information

Bike riding is fun but it is also tied up with dangers. When your bike is not regularly maintained and kept in good condition, these dangers increase. These dangers, however, can be prevented when you read this handbook and the following safety information carefully. A incorrect fitment of the vital components could result in a crash, with possible life threatening injuries.

Mounting
- We recommend all fitting and assembly of our products should be carried out by a professionally qualified workshop.
- Improper work and customizing may result in malfunction and this in turn could lead to accidents occurring.
- Please make sure that you have the correct Rohloff SPEEDHUB 500/14 model for your type of bike frame.
- All the bolts must be secured to the given tightening torques.
- The smallest permitted sprocket ratio must not be undercut.
- If a chain tensioner is in use at the rear, a chain guide must be used in conjunction up front to prevent the chain from springing off the chainring.
- On rear suspension frames the chain must be kept at a suitable length that allows the rear triangle to move the full amount of shock travel.
- When filling the Rohloff SPEEDHUB 500/14 with oil for the first time as well as when changing the oil, make sure you use only Rohloff SPEEDHUB oils as recommended for the Rohloff SPEEDHUB 500/14.

Usage
Before riding with your Rohloff SPEEDHUB 500/14 please follow the next few steps in order to truly trust the products service.
- Let your bike be regularly checked by a specialist workshop to make sure that it functions safely.
- When starting off, especially after a gear change, you must check the gear has engaged properly.
- Make sure you carry out the safety checks on all the other mounted components of your bike.
- Before a long journey or tour, a test ride must be taken. Through this process any mounting mistakes or loss of functions can be noticed and corrected. Also see "Transport/Info for the tour".
- When utilizing a bicycle equipped with a “Gates Carbon Drive” belt transmission, it is important to adhere to the manufacturers instructions printed within their Owners Manual.
Check regularly:

- That the Rohloff SPEEDHUB 500/14 is correctly and securely mounted in the frame (quick release lever max. 7Nm) or axle nuts (30Nm-35Nm).

- That all hub cap screws are correctly tightened, especially on DB versions of the Rohloff SPEEDHUB 500/14 that incorporate the use of a brake disc.

- That the hubs torque securing system is correctly fastened to the frame.

- That the brake surfaces are free from oil and grease.

- That the shifter cables and connectors are correctly and securely connected (bayonet connectors or external gear mech).

- That the parts on your bike are not damaged or failing to function properly as the result of an accident. The use of damaged parts can result in further accidents occurring.

**Riding with the SPEEDHUB 500/14**

**Changing gears**

All 14 gears of the Rohloff SPEEDHUB 500/14 are selectable through one twist shifter, so that in one turn it is possible to change up or down by one or more gears.

The mark on the twist shifter casing next to the gear numbers informs the user of which gear has been selected. The assembly instructions show the twist shifter being fitted to the right hand side of the handlebars, however, in special circumstances it is possible to fit the twist shifter to the left hand side. When rotating the twist shifter in the direction of #14, a harder, faster gear is selected. When rotating the twist shifter in the direction of #1, an easier, slower gear is selected.

In contrast to other gear systems on the market, with the Rohloff SPEEDHUB 500/14 there is no delay between gear selection on the twist shifter and gear change in the hub. The moment the notch can be felt in the twist shifter, the gear has been changed. Therefore a quick and failure free gear change is possible whilst riding and also when stationary.

When changing gear, gear coupling elements inside the hub must move and when there is more pressure on the pedals it is obvious there is more pressure on these coupling elements resulting in a harder gear change. Whilst stationary or when there is less pressure on the pedals, the twist shifter has less resistance and therefore a lighter gear change is possible. In a situation whereby it is not possible to reduce the pressure on the pedals (e.g. hill climbing), it is still possible to change gear quickly and smoothly. Simply change gear when the cranks are in a straight up-down position where hardly any pressure is being applied upon the pedals.

**ATTENTION**

Changing gear with the Rohloff SPEEDHUB 500/14 with pressure on the pedals is not necessary when being used appropriately. However due to the robust construction of the Rohloff SPEEDHUB 500/14 changing gear under pressure is possible and is not harmful to the hub. It is however possible that when changing gears under high pressure the hub could accidentally fall into a neutral gear, this is due to the coupling elements not seating correctly into the next elements and therefore rebounding back. If this occurs the rider could lose balance and crash. Changing gears under high pressure is at the riders own risk.

**Particulars:**

If changing up and down slowly or under high pressure between the gears #7 and #8, it is possible to fall momentarily into gear #11 or #14.
Riding noises

When riding in particular gears, one of two different types of riding noise could be heard. Construction characteristics prove that in most gears a free-spinning noise can be heard which is particularly noticeable in gears #5, #6 and #7. When riding with a higher pressure upon the pedals, a higher frequency can be heard through the gears #1 to #7 which is typical for straight-toothed precision gears. Through different frame types these noises can be of different volumes in regard to noise transfer (the tubes of the frames react as a resonator for the sound waves). Different noises are noticable whilst freewheeling depending on which gear you have currently selected. This is due to different parts of the gear mechanism rotating within the hub.

Break in period

All the gears and coupling elements of the Rohloff SPEEDHUB 500/14 are built from specially hardened steel and are precision finished. In the first 1000km use, the Rohloff SPEEDHUB 500/14 loses microscopic particles from all functioning components as part of the hubs last fine filing. After this process is completed the riding noises quieten and the changing of gears becomes easier. During this process it is not necessary to take extra special care.

Pushing the bike

Should the bike be pushed, it is possible that the cranks could also start to turn. This occurs due to the hub seal automatically activating the sprocket. Bad seals and a very light running bottom bracket make it easier for the cranks to turn. A drop of Rohloff lubricant change assistant fluid (Art.No. 8402) through the holes in the sprocket onto the hub seal will reduce this activating effect.

Wearable parts

The wearable parts are: The sprocket, chainring, jockey wheels on the chain tensioner, shifter cables and the brake disc. How quick the parts wear is down to how the product is used and cared for (pressure, dirt, weather and care). To guarantee the safe function, these parts must be replaced as soon as they are no longer capable of performing correctly. Let the workings of your bike be regularly checked over by a professional bike workshop.

Maintenance and care

The gears of the Rohloff SPEEDHUB 500/14 are protected from dust and harmful moisture due to running in a oil bath. The maintenance and care of the Rohloff system is limited to the following points:

- Chain and chain tensioner (where applicable) should in regard to regular use (at the latest after riding in rain) be cleaned and relubricated.
- The cable box of the external gear mech should be demounted approx. every 500km, cleaned and the cable pulley lightly greased from the hub-facing side.
- The shifter cable tension should be regularly checked, and when necessary altered by the cable adjusters.
- The Rohloff shifter cables are made from high-quality stainless steel and run in a nylon liner. They must not be greased or oiled. The stainless steel/nylon combination runs service-free.

Changing the oil in the Rohloff SPEEDHUB 500/14:

The Rohloff SPEEDHUB 500/14 is filled with 25ml of Rohloff SPEEDHUB OIL. This exact amount of oil is optimum for both the bearings and gears of the Rohloff SPEEDHUB 500/14. We suggest that every 5000km or annually, an oil change should be carried out. Therefore we guarantee the balance of used oil and penetrated moisture will exit (see chapter "Service", paragraph 1. "Oil change").

Cleaning the Rohloff SPEEDHUB 500/14:

Clean only with water and gentle cleaning fluids. Do not use brushes or abrasive materials for cleaning purposes.

ATTENTION 😱

When using a high pressure wash or steam cleaning, water may pass through the seals into the hubs centre. For this reason, these cleaning processes are not advisable. Should a high pressure wash be used, the oil should be thoroughly checked to make sure that all possible impregnated water is removed from within the SPEEDHUB 500/14. This is achieved best by repetitively carrying out the oil-change procedure.
Riding with the SPEEDHUB 500/14

Maintenance and care

The shifter cable tension can be altered by the cable adjusters. Winding the cable adjusters out increases cable tension. For the lightest possible gear change, the tension should be just enough that on the twist shifter there is approx. 2mm rotational play when in a selected gear. The mark on the twist shifter body can be aligned to the correct gear number without altering the cable tension by winding one cable adjuster in and the other out.

ATTENTION

amount of friction within the shifter cables and in turn raises the force needed on the twist shifter to select other gears.

When lubricating the chain place a thin thread of lubricant on the outside of the chain over the centre rollers, this process is carried out quicker and easier when running the chain backwards whilst applying the lubricant.

ATTENTION

When using a disc brake in conjunction with the Rohloff SPEEDHUB 500/14, the hub cap screws should be checked that they are correctly tightened before every ride. To reduce the chance of a flange breaking due to unequal spoke tension, we recommend that this is regularly checked by a professional bicycle mechanic.

Riding with the SPEEDHUB 500/14

Transportation

If transporting a bike fitted with a Rohloff SPEEDHUB 500/14, care should be taken that the rear wheel is transported in an upright position. In a car or an aeroplane, there could be great changes in the air temperature/pressure. When the wheel lies on its side, oil could seep out of the seals because the oil is sitting directly over these seals on either the left or the right side. Transportation in the upright position will prevent the air temperature/pressure in having an effect over the Rohloff SPEEDHUB 500/14. If it is not possible to transport the wheel in the upright position due to according packaging requirements, don't worry. The leakage of oil will not cause any damage.

Info for the tour

The Rohloff SPEEDHUB 500/14 has proved from the start that it is the optimum gear system, especially for tours and long journeys due to its durability, long life and the strength of the final wheel itself. Of course, good materials should always be used, so that the other parts on the bike start out not ruined, dirty, over lubricated, worn, so that their function is impaired or even damaged. Therefore, we suggest that in regard to poor parts on the bike you should always carry a few important tools with you. Our service team is on the net and you can Email us at service@rohloff.de. We endeavour to help with any technical problems and, when necessary, ship spare parts out all over the world. However, due to extremely high postage costs or lack of service in some countries, this is not always possible. For this reason you should take into consideration carrying spare parts (in case of accident damage or excessive wear), this handbook and also a range of tools along for the tour.

Tools for on the go:
- 2mm allen key (male/female connectors, cable pulley screws)
- 2.5mm allen key (twist shifter securing screws)
- 3mm allen key (drain screw)
- 5mm allen key (securing bolts for torque arm/chain tensioner)
- 8mm wrench (for turning the shifting rod)
- 15mm wrench (for axle nuts where applicable)
- Chain lubricant and grease
- Torx TX20 (all other bolts of the Rohloff SPEEDHUB 500/14)

For long distance journeys the following should also be taken along:
- Oil change kit (Art.No. 8410)
- Sprocket tool (Art.No. 8501)
- Spare chain and sprocket, spokes and shifter cables
- Internal gear mech: spare hub cables (Art.No. 8271) or with a quick-change axle ring (After Serial No. 25300) Hub cable Easy Set (Art.No. 8573) or the complete axle ring set (Art.No. 8572)

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Emergency repairs on the go

Several repairs can be improvised in case of emergencies.

**Breaking of a hub cable (internal gear mech):**
- Remove the axle plate and the cable pulley, then with an 8mm wrench select a suitable gear (e.g. gear #7). Riding further is now possible using this one gear.

**Breaking of a shifter cable (internal gear mech):**
- Pull a hub cable until a suitable gear is found (e.g. gear #7). Riding further is now possible using this one gear.

**Male or female connector lost or damaged (internal gear mech):**
- Join the hub cable and the shifter cable together with the use of an electric cable connector or binding wire.

**Breaking of a shifter cable (external gear mech):**
- Remove the cable box and use an 8mm wrench select a suitable gear (e.g. gear #7). Riding further is now possible using this one gear.

**Safety ring (and pin) of the quick release on the torque arm (where applicable):**
- Use an M6 nut and bolt or improvise by using binding wire.

**Loss of oil:**
- Loss of oil through sweat oil or the light leakage of oil through the seals is harmless. Therefore, travelling further until the next oil change (at 5000km intervals) is possible. See point 14 of ‘oil leakage’ in the appendix.

**Wheel removal**

To remove the rear wheel, please take note of the following steps:

1. Separate the gear mech .......................................................... 1.1 or 1.2
2. Loosen axle and where appropriate the torque arm ...................... 2.1 or 2.2
3. Removal of the wheel from the frame ..................................... 3.1 and/or 3.2

**1.1 Separating the internal gear mech:**

Separating the gear mech involves opening the bayonet connectors. To do this easily, select a middle gear, so that these connectors are in an easily reachable position. Next, to open the connectors, twist the male and female parts 90° in opposite directions whilst pulling them apart.

**ATENTION!**

When opening the connectors, do not hold the female connector by the spring as this makes separating the connectors considerably more difficult.

**1.2 Separating the external gear mech:**

Separating the gear mech involves removing the cable box. Cable box sits over a hexagonal peg which joins it to the external transfer box. The wheel should be removed in gear #14 to make remounting the wheel easier. Loosen knurled head screw D and remove cable box E.
Riding with the SPEEDHUB 500/14

2. Loosening the torque support on versions with a long torque arm

2.1 CC versions

1. Open the quick release F by pushing the locking pin G from the inside of the frame in an outward direction away from the wheel.

2. Open the axle quick release lever.

3. Pull the torque arm down in the direction of the arrow to release it from the frame.

2.2 TS versions

1. Loosen the torque arm clamp bolt by unscrewing it with a 4mm allen key.

2. Loosen the axle nuts with a 15mm wrench.

3.2 Wheel removal - OEM and OEM2 versions

No loosening of a torque arm is necessary with these versions. Simply open the quick release lever (CC versions) or loosen the axle nuts (TS versions).

3.1 Removal of the wheel from the frame

- A chain tensioner prevents the easy removal of the rear wheel (when mounted). The chain tensioner must be pulled backwards in the direction of the arrow to allow the sprocket to pass the chain tensioner. When, however, it is a DH chain tensioner, the mounting bolt must be loosened before the rear wheel can be removed.

- Remove the wheel from the dropouts and the chain from the sprocket.

- On the OEM versions, the axle and the support block are released together from the OEM dropout.

- On the OEM2 versions with Rohloff SPEEDBONE, the axle falls out of the dropouts at the same time as the axle plate seat falls away from the Rohloff SPEEDBONE support peg.

- On the OEM2 versions with just a support bolt, the axle falls out the dropout at the same time as the axle plate seat falls away from the support bolt.
Wheel installation

Please take note of the following steps when mounting the wheel to the frame:

1. Installation of the wheel into the frame ........................................ 1.1 and/or 1.2
2. Securing of the axle and, where appropriate, the torque arm .............. 2.1 or 2.2
3. Joining of the gear mech ................................................................. 3.1 or 3.2

1.1 Wheel installation

Place the wheel into the dropouts, taking care that the chain is sitting properly on the sprocket and that the hub cables do not get clamped between the dropouts and the axle.

ATTENTION!
A chain tensioner prevents the easy installation of the rear wheel (when mounted). The chain tensioner must be pulled backwards in the direction of the arrow to allow the sprocket to pass the chain tensioner. When, however, it is a DH chain tensioner, then the mounting bolt must be loosened before the rear wheel can be installed.

1.2 Wheel installation - OEM or OEM2 versions

On the OEM or OEM2 versions, the axle and the torque support are installed together.

On the OEM versions, the axle must enter the long OEM dropout first, followed by the support block into the same slot.

On the OEM2 versions with Rohloff SPEEDBONE, take care that the Rohloff SPEEDBONE support peg lines up with the axle plate seat as the axle is entered into the dropouts.

On the OEM2 versions with just a support bolt, take care that the support bolt lines up with the axle plate seat as the axle is entered into the dropouts.

After installing the wheel, close the quick release lever (CC versions - tightening torque: max. 7Nm/62in.lbs.) or tighten the axle nuts (TS versions - tightening torque: max. 35Nm/310in.lbs.).

ATTENTION!
Before closing the quick release lever or tightening the axle nuts, check that both sides of the axle sit properly in the dropouts and that the wheel runs in the center of the frame.

2. Securing the long torque arm

2.1 CC versions

Swing the torque arm into the quick release block in the direction of the arrow shown.

Close the quick release F by pushing the quick release pin G in the direction of the arrow shown.

Close the quick release lever (max. 7Nm)

2.2 TS versions

Swing the torque arm in the direction of the securing clamp until it is possible to push the securing bolt through the holes of the clamp and the torque arm.

Tighten the axle nuts (tightening torque: 35Nm/310in.lbs.). With the nut and washer, tighten the torque arm securing bolt with 4mm allen key (tightening torque: 6Nm/51in.lbs.).

Before closing the quick release lever (max. 7Nm/62in.lbs.) or tightening the axle nuts (max. 35Nm/310in.lbs.), check that both sides of the axle sit properly in the dropouts and that the wheel runs in the center of the frame.
3.1 Joining together of the internal gear mech:

To join the gear mech, the male and female bayonet connectors must be joined back together. Pay attention not to cross these cables over when joining the hub and shifter cables together. Push the male connector into the female connector until the spring locks them together. Take care not to hold the female connector by the spring.

3.2 Joining together of the external gear mech:

Rejoining the gear mech involves remounting the cable box. Place the twist shifter into gear #14 then place cable box E over the hexagonal peg I, so that the two locating pegs H sit into the two holes in the back of the cable box. Turn the twist shifter back and forth around gear #14 until the cable box falls into place over the hexagonal peg. Lastly tighten up the knurled head screw.

**ATTENTION!**

Should all 14 gears not be selectable after fitting the cable box, it will be down to the hub or the twist shifter not being in gear #14. There are two methods to correct this.

**Method 1:**

Remove cable box and turn the twist shifter into gear #1. Refit cable box and shift until it can no longer be turned. If you are not in gear #14 of the twist shifter then disconnect the cable box and turn the twist shifter into gear #14. Now reconnect the cable box to have access to all 14 gears.

**Method 2:**

Remove the cable box and turn the twist shifter into gear #14. Take an 8mm wrench and use it to turn the hexagonal peg on the external transfer box anticlockwise until it reaches the end stop. Now the hub is in gear #14, so the cable box can be remounted.

---

**Technical Data**

- Number of gears: 14
- Gear increases: even 13.6%
- Range of gears: 526%
- Frame spacing: 135mm
- Number of spoke holes: 32
- Spoke flange distance: 60mm, symmetrical
- Spoke hole circle diameter: 0.1000mm
- Spoke hole diameter: 0.027mm
- Spoke flange width: 3.2mm
- Axle diameter at dropout: 9.8mm
- Axle overall width CC: 147mm
- Hollow axle inner diameter: 0.55mm, for quick release lever
- Axle overall width TS: 171mm (with axles plate TS long 179mm)
- Axle thread TS: M10x1
- Center disc mounting diameter: 0.052mm
- Mounting bolt hole circle diameter: 0.065mm
- Brake disc mounting bolts: 4 x M8x0.75
- Distance between dropout and center disc mount: 16.3mm (IS1999)
- Weight: 1700g (CC), 1800g (CC EX), 1825g (CC DB)
- Oil amount: 25ml max.
- Sprocket thread: M3x0.6 P6, tolerance 6H
- Sprocket type: for bicycle chain 1/2" x 3/32" (ISO Nr. 082)
- Number of sprocket teeth: 16 (optional: 13, 15 and 17)
- Chainline: 54mm (58mm with 13oth sprocket)
- Smallest permissible gear ratios (normal): 40/17, 38/16, 36/15, 32/13 (transmission ratio ~2.35)
- (Riders over 100kg/tandem): 42/17, 40/16, 38/15, 34/13 (transmission ratio ~2.50)
- Maximum input torque: 100Nm
- Gear control: via twist shifter
- Twist shifter angle per gear change: 21°
- Gear control transfer: over two shifter cables (pull-pull system)
- Shifter cable movement per gear change: 7.4mm

**Inner gear ratios (hub rotation per sprocket rotation):**

<table>
<thead>
<tr>
<th>Gear</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>0.279</td>
</tr>
<tr>
<td>#2</td>
<td>0.316</td>
</tr>
<tr>
<td>#3</td>
<td>0.360</td>
</tr>
<tr>
<td>#4</td>
<td>0.409</td>
</tr>
<tr>
<td>#5</td>
<td>0.464</td>
</tr>
<tr>
<td>#6</td>
<td>0.528</td>
</tr>
<tr>
<td>#7</td>
<td>0.600</td>
</tr>
<tr>
<td>#8</td>
<td>0.682</td>
</tr>
<tr>
<td>#9</td>
<td>0.774</td>
</tr>
<tr>
<td>#10</td>
<td>0.881</td>
</tr>
<tr>
<td>#11</td>
<td>1.000</td>
</tr>
<tr>
<td>#12</td>
<td>1.135</td>
</tr>
<tr>
<td>#13</td>
<td>1.292</td>
</tr>
<tr>
<td>#14</td>
<td>1.467</td>
</tr>
</tbody>
</table>

We reserve the right to change the technical specifications without prior warning.
Weight comparison

The Rohloff SPEEDHUB 500/14 is with a weight of 120g per gear, the lightest gear hub on the market. The gear range is the same as high quality 27 gear derailleur systems due to the 14 gears within the hub being evenly spaced out at 13.6% increases. With the Rohloff SPEEDHUB 500/14 there is no longer a need for the following parts:

- Front and rear derailleur
- Two shifters including
- Rear hub with cassette
- Small and middle chainrings
- The total average weight of all these components is approx. 1600g.

The weight of a fitted Rohloff SPEEDHUB 500/14 CC OEM including twist shifter, shifter cables and cable guide is approx. 1820g.

The comparison between the Rohloff SPEEDHUB 500/14 and the derailleur system shows only a slight increase in weight. For that, the user receives a:

- Service-free,
- dirt-free full-encapsulated,
- user-friendly gear system and
- high reliability
- alongwith a long life span.

Comparison of mechanical efficiency

The mechanical efficiency* and consequently the size of the loss of the Rohloff SPEEDHUB 500/14 is entirely comparable with that of the derailleur system.

The losses of a derailleur system consist of the friction caused by the bottom bracket, chain, cassette and the hub bearings. The amount of friction loss depends on the size of the sprockets, the angle of the chain line and condition of wear. In reality this proves to be 1 - 5%, leaving the derailleur system with a working efficiency lying between 95% and 99%.

The losses of the Rohloff SPEEDHUB 500/14 are caused by the friction coming from the bottom bracket, chain and gearbox. Here, however, the chain runs in a straight line from just one chaining reducing sideways friction on the sprockets. Most of the friction occurs when all the planetary gear sets are used within the gearbox. The overall average loss of the gears within the Rohloff SPEEDHUB 500/14 is about 1 - 5%, leaving the working efficiency between 95% and 99%.

The Rohloff SPEEDHUB 500/14 is, therefore, consequently an optimum choice for the everyday and sports rider.

* More detailed info over the working efficiency is to be found on the web under www.rohloff.de.
Table of distance travelled per crank revolution 20" wheels (wheel circumference 1.51m)

<table>
<thead>
<tr>
<th>Sprocket Chain ring from to</th>
<th>13 tooth from to</th>
<th>15 tooth from to</th>
<th>16 tooth from to</th>
<th>17 tooth from to</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 tooth 1.04m - 5.45m not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>34 tooth 1.11m - 5.79m not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>36 tooth 1.17m - 6.13m 1.01m - 5.32m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>38 tooth 1.23m - 6.47m 1.07m - 5.61m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>40 tooth 1.30m - 6.81m 1.12m - 5.91m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>42 tooth 1.36m - 7.16m 1.18m - 6.20m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>44 tooth 1.42m - 7.50m 1.23m - 6.50m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>46 tooth 1.49m - 7.84m 1.29m - 6.79m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>48 tooth 1.55m - 8.18m 1.35m - 7.09m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>50 tooth 1.62m - 8.52m 1.40m - 7.38m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>52 tooth 1.68m - 8.86m 1.46m - 7.68m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
</tbody>
</table>

Table of distance travelled per crank revolution 26" wheels (wheel circumference 2.06m)

<table>
<thead>
<tr>
<th>Sprocket Chain ring from to</th>
<th>13 tooth from to</th>
<th>15 tooth from to</th>
<th>16 tooth from to</th>
<th>17 tooth from to</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 tooth 1.41m - 7.44m not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>34 tooth 1.50m - 7.91m not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>36 tooth 1.59m - 8.37m 1.38m - 7.25m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>38 tooth 1.68m - 8.83m 1.45m - 7.65m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>40 tooth 1.77m - 9.30m 1.53m - 8.06m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>42 tooth 1.86m - 9.76m 1.61m - 8.46m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>44 tooth 1.94m - 10.23m 1.68m - 8.86m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>46 tooth 2.03m - 10.69m 1.76m - 9.27m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>48 tooth 2.12m - 11.16m 1.84m - 9.67m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>50 tooth 2.21m - 11.62m 1.91m - 10.07m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>52 tooth 2.30m - 12.09m 1.99m - 10.47m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
</tbody>
</table>

Table of distance travelled per crank revolution 28" wheels (wheel circumference 2.18m)

<table>
<thead>
<tr>
<th>Sprocket Chain ring from to</th>
<th>13 tooth from to</th>
<th>15 tooth from to</th>
<th>16 tooth from to</th>
<th>17 tooth from to</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 tooth 1.49m - 7.87m not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>34 tooth 1.59m - 8.36m not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>36 tooth 1.68m - 8.85m 1.46m - 7.67m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>38 tooth 1.78m - 9.35m 1.54m - 8.10m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>40 tooth 1.87m - 9.84m 1.62m - 8.53m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>42 tooth 1.96m - 10.33m 1.70m - 8.95m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>44 tooth 2.06m - 10.82m 1.78m - 9.38m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>46 tooth 2.15m - 11.31m 1.86m - 9.81m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>48 tooth 2.24m - 11.81m 1.94m - 10.23m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>50 tooth 2.34m - 12.30m 2.03m - 10.66m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
<tr>
<td>52 tooth 2.43m - 12.79m 2.11m - 11.08m</td>
<td>not permitted</td>
<td>not permitted</td>
<td>not permitted</td>
<td></td>
</tr>
</tbody>
</table>
Technical Data

Rohloff SPEEDHUB 500/14 in comparison to derailleur gears

The table shows which smallest and largest sprocket ratio of derailleur gears resembles the existing transmission of the Rohloff SPEEDHUB 500/14.

<table>
<thead>
<tr>
<th>Sprocket ratio (chainring/sprocket)</th>
<th>Gear #1 resembles a derailleur gear sprocket ratio of</th>
<th>Gear #14 resembles a derailleur gear sprocket ratio of</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rohloff SPEEDHUB 500/14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>38/13</td>
<td>22/26</td>
<td>48/11</td>
</tr>
<tr>
<td>40/13</td>
<td>22/25</td>
<td>50/11</td>
</tr>
<tr>
<td>42/13</td>
<td>22/24</td>
<td>52/11</td>
</tr>
<tr>
<td>44/13</td>
<td>22/23</td>
<td>54/11</td>
</tr>
<tr>
<td>46/13</td>
<td>22/22 or 22/24</td>
<td>58/11 or 62/12</td>
</tr>
<tr>
<td>48/13</td>
<td>22/21</td>
<td>60/11</td>
</tr>
<tr>
<td>50/13</td>
<td>22/20</td>
<td>62/11</td>
</tr>
<tr>
<td>52/13</td>
<td>22/19</td>
<td>64/11</td>
</tr>
<tr>
<td>54/13</td>
<td>22/18</td>
<td>68/11</td>
</tr>
<tr>
<td>38/15</td>
<td>22/32</td>
<td>42/11</td>
</tr>
<tr>
<td>40/15</td>
<td>22/30</td>
<td>44/11</td>
</tr>
<tr>
<td>42/15</td>
<td>22/28</td>
<td>46/11</td>
</tr>
<tr>
<td>44/15</td>
<td>22/26</td>
<td>48/11</td>
</tr>
<tr>
<td>46/15</td>
<td>22/25 or 22/24</td>
<td>50/11 or 54/12</td>
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<tr>
<td>48/15</td>
<td>22/24</td>
<td>52/11</td>
</tr>
<tr>
<td>50/15</td>
<td>22/23</td>
<td>54/11</td>
</tr>
<tr>
<td>52/15</td>
<td>22/22</td>
<td>56/11</td>
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<tr>
<td>54/15</td>
<td>22/21</td>
<td>60/11</td>
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<tr>
<td>38/16</td>
<td>22/34</td>
<td>38/11</td>
</tr>
<tr>
<td>40/16</td>
<td>22/30</td>
<td>40/11</td>
</tr>
<tr>
<td>42/16</td>
<td>22/30</td>
<td>42/11</td>
</tr>
<tr>
<td>44/16</td>
<td>22/28</td>
<td>44/11</td>
</tr>
<tr>
<td>46/16</td>
<td>22/27 or 22/30</td>
<td>46/11 or 50/12</td>
</tr>
<tr>
<td>48/16</td>
<td>22/26</td>
<td>48/11</td>
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<tr>
<td>50/16</td>
<td>22/25</td>
<td>50/11</td>
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<tr>
<td>52/16</td>
<td>22/24</td>
<td>52/11</td>
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<tr>
<td>54/16</td>
<td>22/23</td>
<td>54/11</td>
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<tr>
<td>40/17</td>
<td>22/34</td>
<td>38/11</td>
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<tr>
<td>42/17</td>
<td>22/32</td>
<td>40/11</td>
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<tr>
<td>44/17</td>
<td>22/30</td>
<td>42/11</td>
</tr>
<tr>
<td>46/17</td>
<td>22/29 or 22/32</td>
<td>44/11 or 48/12</td>
</tr>
<tr>
<td>48/17</td>
<td>22/27</td>
<td>46/11</td>
</tr>
<tr>
<td>50/17</td>
<td>22/26</td>
<td>48/11</td>
</tr>
<tr>
<td>52/17</td>
<td>22/25</td>
<td>50/11</td>
</tr>
<tr>
<td>54/17</td>
<td>22/24</td>
<td>52/11</td>
</tr>
</tbody>
</table>

Interchangeable parts system

There are basically two different versions of the Rohloff SPEEDHUB 500/14. One with a quick release axle (CC versions) and one with a threaded axle (TS versions). The only other differences are in the components. Due to the wide range of these components, the Rohloff SPEEDHUB 500/14 can be mounted on nearly every type of bicycle.

Securing to the frame

Gear mech (two options)

- Internal gear mech
- External gear mech (EX)

Torque securing (three options)

- Long torque arm for mounting to standard frames
- OEM mounting for special frames with Rohloff OEM dropouts
- OEM2 mounting for frames with international standard disc brake mounts (IS2000)

Hub cap (two options)

- For bikes using a rim brake typ (CC / TS) on the rear wheel
- For bikes using a disc brake Typ (CC DB / TS DB) on the rear wheel with EX - gear mech
Axle types

The Rohloff SPEEDHUB 500/14 is available with two different axle types. The CC versions come with a hollow axle for use with a quick release lever. The TS versions come with a threaded axle for use with standard M10x1 nuts for securing to the frame. The 14 gear mechanism on both the versions is primarily the same.

Torque securing

With all gear hubs the axle tries to turn whilst riding. When riding in a reducing gear, the axle tries to turn backwards. When riding in an increasing gear, the axle tries to turn forwards. The force with which the axle tries to turn is referred to as torque. The amount of torque depends upon the force applied on the pedals and the gear selected. This torque must be secured by some means to the frame.

On the simple three-speed hubs a flat sided axle is sufficient to secure the torque within the dropout. On a high performance internal gear hub like the Rohloff SPEEDHUB 500/14 the method of securing the torque must be considerably more stable due to the wide range of gear ratios.

The amount of torque produced is shown in the following table:

<table>
<thead>
<tr>
<th>Gear</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>98%</td>
<td>82%</td>
<td>68%</td>
<td>55%</td>
<td>44%</td>
<td>34%</td>
<td>25%</td>
<td>18%</td>
<td>11%</td>
<td>5%</td>
<td>0%</td>
<td>5%</td>
<td>9%</td>
<td>12%</td>
</tr>
<tr>
<td>Torque</td>
<td>Backward rotation</td>
<td>Forward rotation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Backwards torque rotation \( \Rightarrow \) see picture below or next page, pictures 1, 2 and 3

When the rider applies 20kg onto the pedal, he produces a crank torque of 34Nm. In gear #8 this results in 6Nm torque on the torque arm (18% of crank torque). With the same crank torque of 34Nm in gear #1 this results in 33Nm torque on the torque arm (98% of crank torque). Gear #11 is the direct drive (1:1) the torque on the torque arm is always zero.
Securing to the frame

Depending on the type of frame one of three options can be used to secure the torque.

1) Standard axle plate with long torque arm
2) OEM axle plate
3) OEM2 axle plate

On all three options the fitment to the frame prevents the axle from rotating around two points. The first point A is the axle peg that is secured to the left side dropout. This is the same for all three options. The difference between the three options is point B. The hole pattern on the axle plates allow for individual adjustment of the gear mechs in steps of 30°, so that nearly every frame type can receive an optimum cable routing.

1) Standard axle plate with long torque arm

The long torque arm is bolted behind the axle plate. The narrow end B is secured to the frame by means of a clamp or a quick release block. The axle is prevented from turning through these two points. When removing the wheel, the torque arm must first be released from the frame at the narrow end B.

2) OEM axle plate

The mounting of hubs with an OEM axle plate is only possible on frames fitted with Rohloff OEM dropouts. The OEM axle plate sits in the dropout slot of the OEM dropout. The axle peg A slides in first followed by the support block B into the same slot. The dropout itself prevents these two parts from turning. When removing the wheel, the two parts fall out the dropout together once the axle has been loosened.

3) OEM2 axle plate

Fitment using an OEM2 axle plate is only permissible on frames with international standard (Is1999) disc brake mounts. The OEM2 axle plate sits with its axle peg A in the dropout. The axle plate seat B secures itself around the supporting peg of the Rohloff SPEEDBONE (when mounted on a bike with disc brakes) or around the support bolt fastened through the disc brake mount hole (when mounted on a bike without disc brakes). When removing the wheel, the axle plate falls away from the support bolt/Rohloff SPEEDBONE and out of the dropout together once the wheel has been loosened.

Frame types

The Rohloff SPEEDHUB 500/14 requires a frame spacing of 135mm, all frames with different frame spacing or for thru axles are not suitable for the Rohloff SPEEDHUB 500/14. The inner side of the left hand dropout must be flat in a diameter of 40mm around the center of the axle so that the axle plate can sit firmly and evenly against the dropout. There are different Rohloff SPEEDHUB 500/14 versions available (for the different dropout types) with the suitable axle and axle plate along with the corresponding parts for mounting. The Rohloff SPEEDHUB 500/14 does not include a brake. To mount a brake (disc or rim), the frame must have the correct brake mounts.

Frame types for the long torque arm:

On frames with horizontal dropout slots, it is only possible to mount the Rohloff SPEEDHUB 500/14 in the TS threaded axle versions (TS and TS EX). The CC versions with a quick release lever will not hold the wheel secure enough and the wheel could be pulled crooked whilst riding.

When the slot length is shorter than 25mm (A), a chain tensioner (Art.No. 8250) must be fitted as there is not enough adjustment room within the slot to tension the chain.

The following versions of the Rohloff SPEEDHUB 500/14 are, therefore, suitable:
- TS*
- TS EX*

When the slot length is longer than 25mm (B), a chain tensioner does not have to be used as there is enough adjustment room within the slot to tension the chain.

The following versions of the Rohloff SPEEDHUB 500/14 are, therefore, suitable:
- TS
- TS EX

On frames with vertical dropout slots (C) the mounting of the Rohloff SPEEDHUB 500/14 normally suggests a CC quick release version (CC or CC EX). This as opposed to the TS versions (TS and TS EX) allows for a quicker wheel removal/installation without the use for tools.

The following versions of the Rohloff SPEEDHUB 500/14 are, therefore, suitable:
- CC
- CC EX
- TS*
- TS EX*

* These versions must be used in conjunction with a chain tensioner (Art.No. 8250) except when an eccentric BB is being used. The chain tensioner should be ordered with the initial product as it is not to be found in the regular package.

Securing to the frame

When the slot length is longer than 25mm ( ), a chain tensioner does not have to be used as there is enough adjustment room within the slot to tension the chain. The following versions of the are, therefore, suitable:

TS* TS EX*

On frames with horizontal dropout slots, it is only possible to mount the Rohloff SPEEDHUB 500/14 in the TS threaded axle versions (TS and TS EX). The CC versions with a quick release lever will not hold the wheel secure enough and the wheel could be pulled crooked whilst riding.

When the slot length is shorter than 25mm (A), a chain tensioner (Art.No. 8250) must be fitted as there is not enough adjustment room within the slot to tension the chain.

The following versions of the Rohloff SPEEDHUB 500/14 are, therefore, suitable:
- TS*
- TS EX*

When the slot length is longer than 25mm (B), a chain tensioner does not have to be used as there is enough adjustment room within the slot to tension the chain.

The following versions of the Rohloff SPEEDHUB 500/14 are, therefore, suitable:
- TS
- TS EX

On frames with vertical dropout slots (C) the mounting of the Rohloff SPEEDHUB 500/14 normally suggests a CC quick release version (CC or CC EX). This as opposed to the TS versions (TS and TS EX) allows for a quicker wheel removal/installation without the use for tools.

The following versions of the Rohloff SPEEDHUB 500/14 are, therefore, suitable:
- CC
- CC EX
- TS*
- TS EX*

* These versions must be used in conjunction with a chain tensioner (Art.No. 8250) except when an eccentric BB is being used. The chain tensioner should be ordered with the initial product as it is not to be found in the regular package.
Securing to the frame

Frame types for OEM2 mounting

For frames with vertical dropouts and international standard disc brake mounts (IS 1999), the use of an OEM2 axle plate is highly recommended. With this, the disc brake mount will be used to secure the torque of the hub. Two mounting possibilities are to be decided between:

1) Mounting with a disc brake on the rear wheel
   The torque is secured through the Rohloff SPEEDBONE (Art.No. 8550 - G.M. 8551), then through the disc brake mounts and screwed tight into the brake disc caliper.

2) Mounting without a disc brake on the rear wheel
   The Rohloff SPEEDBONE is not necessary. A support bolt secured through the lower disc brake mount can be used to support the torque.

ATTENTION

When mounting on Tandems even without the use of a disc brake, the Rohloff SPEEDBONE must be mounted and its supporting peg used to support the torque of the OEM2 axle plate. A chain tensioner must also be mounted in conjunction with the use of the OEM2 mounting, except on frames built around an eccentric BB system.

Securing to the frame

Frame types for OEM mounting

Rigid frames with Rohloff OEM dropouts are specially designed for the mounting of all Rohloff SPEEDHUB 500/14 OEM versions. The long slot in the left hand dropout holds the support block of the OEM axle plate.

ATTENTION

Securing to the frame
Mounting necessities OEM2

**ATTENTION!**

For safe OEM2 mounting with the support bolt or the Rohloff SPEEDBONE, the following points must be well noted:

- The disc brake mounts must be one piece with the dropout itself, be of international standard (IS1999) and have the following minimum dimension requirements:
  - The minimum thickness of material used must not be less than 6mm.

The disc brake mounts must be one piece with the dropout itself, be of international standard (IS1999) and have the following minimum dimension requirements:

- The minimum thickness of material used must not be less than 6mm.

Requiremental for the OEM2 mounting of the Rohloff SPEEDHUB 500/14 with a support bolt is the position of the disc brake mounts. When the mount hole nearest the axle is behind a vertical line C up from the axle center (diagram 1), then the support bolt can be used. When the hole is in front of the vertical line C (diagram 2), then the use of the support bolt is not permitted.

**ATTENTION!**

When permission has not been granted by the frame manufacturer to mount the Rohloff SPEEDBONE or the support bolt through the disc brake mount, then mounting of the OEM2 versions is at your own risk.

When mounting the disc brake Gustav M. from Magura with a 160/190mm brake disc, the Rohloff SPEEDBONE Gustav M. (Art.No. 8551) must be used as the brake cylinder is a different shape and, therefore, will not work with the standard Rohloff SPEEDBONE.

Not possible combinations until 2007:
- Magura Disc Brakes with a Quickmount adapter (160mm discs) and OEM2 Axle plate.
- Magura Disc Brakes with the Adapter 16 for 180mm brake discs.

Further compatibility information can be found under: www.rohloff.de > FAQ > SPEEDHUB > Scheibenbremse

Internal gear mech

With the internal gear mech the shifter cables run from the twist shifter to the cable guide, which can be mounted to the left hand brake boss or clamped to the left hand chainstay. The internal gear mech involves the use of two hub cables. They must be connected to the shifter cables by the use of bayonet connectors which allow a quick separation for wheel removal. The internal gear mech is not compatible with the use of a rear disc brake as the hub cables and bayonet connectors may rub on the disc. The hole pattern in the axle plate allows the adjustment of the gear mech in steps of 30°. Therefore, an optimum cable routing can be achieved for nearly all frame types.

The diagrams show examples of the internal gear mech routed via the brake boss with standard, OEM and OEM2 axle plates.

In the case of larger than 240mm, the cable guide (0°) with frame clamp (Art.No. 8260) is needed for the chainstay.

Cable routing
**External gear mech**

With the external gear mech the shifter cables run directly from the twist shifter to the cable box. There is no separate cable stop necessary. For quick and easy removal of the rear wheel, the cable box can be removed from the external transfer box. All disc brake versions (DB) of the Rohloff SPEEDHUB 500/14 are equipped with the external gear mech. The hole pattern in the axle plate allows the adjustment of the gear mech in steps of 30°. Therefore, an optimum cable routing can be achieved for nearly all frame types.

**Cable routing**

Mounting options with external gear mech and the standard axle plate with long torque arm

Mounting options with external gear mech and an OEM axle plate

Mounting options with external gear mech and an OEM2 axle plate

**Explaining the model codes**

The first part of the model codes (CC/TS) refers to the axle type. Two different axle types are available:

- **CC**: Cross Country
  - Hollow axle for use with a quick release lever (Quick release axle) (axle as shown in pictures 1 and 2*).
- **TS**: Threaded Spindle axle
  - Threaded axle with axle nuts M10x1 (axle as shown in picture 3*).

The following part of the model codes refers to additional hub specifications:

- **EX**: External gear mech
  - With external gear mech (gear mech as shown in pictures 2 and 3*).
- **DB**: Disc Brake
  - With a disc brake hub cap and external gear mech EX (hub cap and gear mech as shown in picture 2*).
- **OEM**: OEM version (official equipped manufacturer)
  - With CC OEM or TS OEM axle plate according axle type only for frames with Rohloff OEM dropouts (axle plate as shown in picture 2*).
- **OEM2**: OEM2 version
  - With CC OEM2 or TS OEM2 axle plate according axle type for frames with international standard (IS1999) disc brake mounts (axle plate as shown in picture 3*).
- **T**: Tandem version.
  - With longer shifter cables (2.5m) for tandem or recumbent use.

All Rohloff SPEEDHUB 500/14 versions are available in three different colors:

- **silver**: polished aluminum
- **red**: anodized
- **black**: anodized

* see next page
SPEEDHUB 500/14 versions

The Rohloff SPEEDHUB 500/14 is available in different versions in accordance to the individual requirements. Pictures 1 to 3 show examples of three possible versions.

1. Rohloff SPEEDHUB 500/14 CC silver
   - Internal gear mech
   - Standard hub cap
   - Quick release axle
   - Standard CC axle plate with long torque arm

2. Rohloff SPEEDHUB 500/14 CC DB OEM black
   - Quick release axle
   - CC OEM axle plate
   - Disc brake hub cap
   - External gear mech

3. Rohloff SPEEDHUB 500/14 TS EX OEM2 red
   - Standard hub cap
   - TS OEM2 axle plate
   - Threaded axle
   - External gear mech

Rohloff SPEEDHUB 500/14 CC mounted with a long torque arm

Rohloff SPEEDHUB 500/14 CC OEM mounted in a frame with adjustable Rohloff OEM dropouts
Rohloff SPEEDHUB 500/14 with a disc brake

The mounting of the Rohloff SPEEDHUB 500/14 with the use of a disc brake requires a frame with disc brake mounts of international standard (IS1999). The hubs are available with the choice of axle, quick release (CC DB versions) or threaded axle (TS DB versions). The particulars of the DB versions are:

1) The hub cap includes a center disc mount. It is on this side that the external gear mech is also to be found. Normal 6-bolt brake discs of international standard are not mountable, a special 4-bolt Rohloff disc with only four securing holes for bolts M8x0.75 must be fitted due to the large diameter of the hub seal. Rohloff offers a range of discs from 160mm to 203mm for nearly every type of disc brake currently on the market. More details are to be found on the web under www.rohloff.de > FAQ > SPEEDHUB > disc brake

2) The disc brake versions of the Rohloff SPEEDHUB 500/14 are only available with the external gear mech, because the brake disc/caliper could interfere with the hub cables of the internal gear mech.

The interchangable parts system allows the conversion of any Rohloff SPEEDHUB 500/14 to a disc brake version (DB versions). The conversion of a hub to a DB version can only be carried out by the Rohloff service department.
Advantages of the separate options

Threaded axle TS
The Rohloff SPEEDHUB 500/14 versions with a threaded axle are required for frames with horizontal dropout slots. It is, however, also possible to mount this hub in dropouts with vertical slots. For downhill riders the possibility of using a more secure TS threaded axle will increase rear wheel stability much like a thru axle.

Quick release axle CC
The Rohloff SPEEDHUB 500/14 versions with quick release axles are exclusively for use on frames with vertical dropout slots. They allow for a quick removal/installation of the wheel without the need for tools.

Internal gear mech
The internal gear mech is on all Rohloff SPEEDHUB 500/14 versions with the exception of EX and DB models. It requires a minimum distance of 240mm between the axle and the cable guide mounting point. To prevent the possibility of the bayonet connectors coming into contact with the brake disc, a combination of disc brake and internal gear mech is not available. The internal gear mech model is the lightest of the two gear mech versions with the Rohloff SPEEDHUB 500/14 CC weighing approx. 1700g.

External gear mech EX
The models with an external gear mech allow the shifter cables to run uninterrupted from the twist shifter to the cable box, so the need for a separate cable stop is also eliminated. Because of this, the external gear mech is especially useful for frames with a short chainstay length (20" wheels) or uncommon rear triangles.

The external gear mech is approx. 100g heavier than the internal gear mech, but, therefore, more robust as no separate hub cables are in use. In the case that the shift cable should break, this system allows the user to select any gear from the outside of the external transfer box making this especially useful for the everyday and the touring rider.

The disc brake versions (DB) of the Rohloff SPEEDHUB 500/14 are equipped with the external gear mech as the hub cables of the internal gear mech would come into contact with the brake disc.

OEM
The Rohloff SPEEDHUB 500/14 OEM versions require the use of Rohloff OEM dropouts where the left hand dropout slot is long enough to house the support block of the OEM axle plate which replaces the long torque arm. On hard tail frames with adjustable Rohloff OEM dropouts, the need for a chain tensioner and chain guide is eliminated, therefore, the system looks cleaner, tidier and also has a higher level of functional safety, ideal for extreme riding situations.

OEM2
With the OEM2 mounting the disc brake mounting holes in the frame are used to prevent the axle from turning (torque securing). The OEM2 axle plate replaces the long torque arm and gives a cleaner and tidier look to the system. However, a disc brake mount of international standard (IS 1999) needs to be used under consideration of the mounting requirements. Through simply replacing the axle plate every version of the Rohloff SPEEDHUB 500/14 can be converted to OEM2 usage. An OEM2 axle plate uses the disc brake mounts to secure the torque of the hub. Therefore, permission must be obtained from the frame manufacturer to ensure that the guarantee is not affected.

Model variations
For a better summary of what comes with each model, below is a list of the model variations and the parts included in the respective package.

Rohloff SPEEDHUB 500/14 CC (silver Art.No. 8000, red Art.No. 8001, black Art.No. 8002)
Contents: Hub with quick release axle, twist shifter, cables, quick release parts, long torque arm and a chain tensioner.

Rohloff SPEEDHUB 500/14 CC OEM (silver Art.No. 8005, red Art.No. 8006, black Art.No. 8007)
Contents: Hub with quick release axle, twist shifter, cables and a CC OEM axle plate for torque support.

Rohloff SPEEDHUB 500/14 CC EX (silver Art.No. 8010, red Art.No. 8011, black Art.No. 8012)
Contents: Hub with quick release axle, twist shifter, cables, quick release parts, external gear mech, CC axle plate with long torque arm and a chain tensioner.

Rohloff SPEEDHUB 500/14 CC EX OEM (silver Art.No. 8015, red Art.No. 8016, black Art.No. 8017)
Contents: Hub with quick release axle, twist shifter, external gear mech, cables and a CC OEM axle plate for torque support.

Rohloff SPEEDHUB 500/14 CC DB (silver Art.No. 8020, red Art.No. 8021, black Art.No. 8022)
Contents: Hub with quick release axle, hub cap with mounting for Rohloff special brake discs (compatible with IS1999), external gear mech, cables, twist shifter, chain tensioner, quick release parts and a CC axle plate with a long torque arm.

Rohloff SPEEDHUB 500/14 CC DB OEM (silver Art.No. 8025, red Art.No. 8026, black Art.No. 8027)
Contents: Hub with quick release axle, hub cap with mounting for Rohloff special brake discs (compatible with IS1999), external gear mech, cables, twist shifter and a CC OEM axle plate for torque support.

Rohloff SPEEDHUB 500/14 TS (silver Art.No. 8040, red Art.No. 8041, black Art.No. 8042)
Contents: Hub with threaded axle, twist shifter, cables and a TS axle plate with long torque arm.

Rohloff SPEEDHUB 500/14 TS OEM (silver Art.No. 8045, red Art.No. 8046, black Art.No. 8047)
Contents: Hub with threaded axle, twist shifter, cables and a TS OEM axle plate for torque support.

Rohloff SPEEDHUB 500/14 TS EX (silver Art.No. 8050, red Art.No. 8051, black Art.No. 8052)
Contents: Hub with threaded axle, twist shifter, cables, external gear mech and a TS axle plate with long torque arm.

Rohloff SPEEDHUB 500/14 TS EX OEM (silver Art.No. 8055, red Art.No. 8056, black Art.No. 8057)
Contents: Hub with threaded axle, twist shifter, cables, external gear mech and a TS OEM axle plate for torque support.

Rohloff SPEEDHUB 500/14 TS DB (silver Art.No. 8060, red Art.No. 8061, black Art.No. 8062)
Contents: Hub with threaded axle, hub cap with mounting for Rohloff special brake discs (compatible with IS1999), twist shifter, cables, external gear mech and a TS axle plate with long torque arm.

Rohloff SPEEDHUB 500/14 TS DB OEM (silver Art.No. 8065, red Art.No. 8066, black Art.No. 8067)
Contents: Hub with threaded axle, hub cap with mounting for Rohloff special brake discs (compatible with IS1999), twist shifter, cables, external gear mech and a TS OEM axle plate for torque support.
All models are also available as tandem versions with cables of 2.5m in length. These versions are simply coded with the letter T after the model code (eg 8025 T).

**Uppgradable/additional parts that can be ordered:**

- CC OEM2 axle plate (Art.No. 8227)
- TS OEM2 axle plate (Art.No. 8228)
- Chain tensioner (Art.No. 8250)
- Chain guide CC (Art.No. 8290)
- Rohloff SPEEDBONE (Art.No. 8550)
- Rohloff SPEEDBONE Gustav M. (Art.No. 8551)
- Sprocket (13 tooth) (Art.No. 8219)
- Sprocket (15 tooth) (Art.No. 8220)
- Sprocket (17 tooth) (Art.No. 8222)
- Downhill-Kit (Art.No. 8293) consisting of:
  - DH chain tensioner (Art.No. 8245)
  - DH chain guide (Art.No. 8291)
  - Cable guide 0° (straight) type with frame clamp (Art.No. 8260)
  - DD spokes (2.0/1.8/2.0mm) for 26"-wheels.
  - Spokes between 228mm and 244mm in increases of 2mm.

Rohloff special 4-hole brake discs for the corresponding brake type.

**ATTENTION!**

When ordering the Rohloff SPEEDHUB 500/14 variation needed, it is necessary to pay attention to which additional parts are needed to mount the Rohloff SPEEDHUB 500/14 to the bike. Example: Rohloff chain tensioner, Rohloff SPEEDBONE, spokes in the correct length and the correct Rohloff special brake disc for the brake type in use.

These include for example:
- Rohloff chain tensioner,
- Rohloff SPEEDBONE,
- spokes in the correct length,
- the correct Rohloff special brake disc for the brake type in use,
- Rohloff Chain guide for either CC or DB,
- Cable guide straight type with frame clamp,
- Long chain tensioner for use with the 13 tooth Sprocket,
- TS axle plate “long”, for use in conjunction with a trailer mount from the company Weber, Pitlocks, or stands which are mounted directly on the axle.

**Wheel stability**

When the Rohloff SPEEDHUB 500/14 is built up into a 32 spoke wheel, it is considerably more robust than the common 36 spoke wheels. The stability is approx. the same as a 48 spoke tandem wheel.

The spoke flanges of the Rohloff SPEEDHUB 500/14 are built symmetrically. This allows the spokes to be at the same angle on both sides of the finished wheel, this in turn leads to a much stronger wheel due to the evenly distributed spoke tension.

To build up a strong wheel, the spokes must be tensioned to a minimum of 900N. On wheels with normal cassette hubs, the tension of the spokes on the cassette side is considerably high (over 1200N) and this can lead to problems with the nipples sitting correctly within their holes of the rim (see the MTB comparison underneath, the pretension in the 8-speed cassette here is just 600N).

Due to the increased diameter of the hub flanges of the Rohloff SPEEDHUB 500/14, the spokes cross only two times but at roughly the same angle as a three cross lacing pattern on smaller flanged hubs. There is less load on the spokes because of the large spoke hole diameter. The spokes pull further away from the axle center, therefore the hub flange has a better lever to pull the wheel around (torque = force x lever length).

The comparison shows the maximum spoke loads (the numbers in brackets are the pretensioned min. force of the spokes after lacing/truing/tensioning):

**MTB:**
- Wheel with Rohloff SPEEDHUB 500/14, 32 spokes
- Wheel with 8-/9-speed derailleur gears, 36 spokes
- Rider 80kg, riding whilst standing
- Transmission SPEEDHUB 500/14: gear #4 (48/16)
- Distance travelled per crank revolution: 2.52m
- Transmission derailleur gears: 36/30
- Distance travelled per crank revolution: 2.47m

**Tandem:**
- Wheel with Rohloff SPEEDHUB 500/14, 32 spokes
- Wheel with 8-/9-speed derailleur gears, 48 spokes
- Two riders 80kg each, riding whilst standing
- Transmission SPEEDHUB 500/14: gear #4 (48/16)
- Distance travelled per crank revolution: 2.52m
- Transmission derailleur gears: 36/30
- Distance travelled per crank revolution: 2.47m

The figures for the 8-speed tandem wheel are better than those of the solo MTB wheel due to the fact that the spokes are not at so steep an angle and there are 48 of them regardless that there are two riders on the tandem. But even here, the Rohloff SPEEDHUB 500/14 wheel with 1206N against 1409N is the better option.
### Spoke lengths

The Rohloff SPEEDHUB 500/14 uses a spoke hole circle diameter of 100mm with 2.7mm diameter spoke holes (2.5mm up until Serial No. 44321). When lacing the Rohloff SPEEDHUB 500/14 into a 26" wheel, the spoke sizes required will usually prove fairly difficult to find in the average bike shop. For this reason silver 'Sapim Race' spokes 2.0/1.8/2.0mm with Polysax 12mm nipples are available from Rohloff in lengths of 228mm to 244mm. The most commonly used spoke length (for 26" wheels) of 238mm is also available in black. Below is a table showing the required spoke lengths for the most common 32 spoke rims on the market. Due to the symmetrical hub flanges of the SPEEDHUB 500/14, the spokes are the same length on both sides of the wheel:

<table>
<thead>
<tr>
<th>Rim diameter</th>
<th>Anzahl der Speichenkreuzung</th>
<th>Felgeninnendurchmesser (in mm)</th>
<th>Spedichtenlänge für Rohloff SPEEDHUB</th>
</tr>
</thead>
<tbody>
<tr>
<td>18&quot;</td>
<td>1-X</td>
<td>341-344</td>
<td>130</td>
</tr>
<tr>
<td>20&quot;</td>
<td>1-X</td>
<td>374-377</td>
<td>146</td>
</tr>
<tr>
<td>24&quot;</td>
<td>1-X</td>
<td>372-375</td>
<td>154</td>
</tr>
<tr>
<td></td>
<td>1-X</td>
<td>476-479</td>
<td>156</td>
</tr>
<tr>
<td></td>
<td>1-X</td>
<td>480-483</td>
<td>198</td>
</tr>
<tr>
<td></td>
<td>1-X</td>
<td>484-487</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>1-X</td>
<td>492-495</td>
<td>222</td>
</tr>
<tr>
<td></td>
<td>1-X</td>
<td>496-499</td>
<td>234</td>
</tr>
<tr>
<td></td>
<td>1-X</td>
<td>500-503</td>
<td>238</td>
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<tr>
<td>26&quot;</td>
<td>2-X</td>
<td>516-519</td>
<td>228</td>
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<td></td>
<td>2-X</td>
<td>520-523</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>2-X</td>
<td>524-527</td>
<td>252</td>
</tr>
<tr>
<td></td>
<td>2-X</td>
<td>528-531</td>
<td>254</td>
</tr>
<tr>
<td></td>
<td>2-X</td>
<td>532-535</td>
<td>256</td>
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<tr>
<td></td>
<td>2-X</td>
<td>536-539</td>
<td>258</td>
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<tr>
<td></td>
<td>2-X</td>
<td>540-543</td>
<td>259</td>
</tr>
<tr>
<td></td>
<td>2-X</td>
<td>544-547</td>
<td>260</td>
</tr>
<tr>
<td>28&quot;</td>
<td>2-X</td>
<td>586-589</td>
<td>262</td>
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<td></td>
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<td>590-593</td>
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<td>598-601</td>
<td>268</td>
</tr>
<tr>
<td></td>
<td>2-X</td>
<td>602-605</td>
<td>270</td>
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<tr>
<td></td>
<td>2-X</td>
<td>606-609</td>
<td>272</td>
</tr>
<tr>
<td>29&quot;</td>
<td>2-X</td>
<td>610-613</td>
<td>274</td>
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<tr>
<td></td>
<td>2-X</td>
<td>614-617</td>
<td>276</td>
</tr>
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<td></td>
<td>2-X</td>
<td>618-621</td>
<td>278</td>
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<tr>
<td></td>
<td>2-X</td>
<td>622-625</td>
<td>280</td>
</tr>
<tr>
<td></td>
<td>2-X</td>
<td>626-629</td>
<td>282</td>
</tr>
</tbody>
</table>

On wheel sizes 26" and 28" the wheel must always be laced in a two cross pattern. Therefore, the table above shows the spoke lengths for a two cross lacing pattern. On wheel sizes 24" and under, the spokes must only be laced in one cross lacing pattern. For this reason, the table above shows the spoke lengths for a one cross lacing pattern.

A constantly updated list of spoke lengths can be found on the internet under www.rohloff.de.

A spoke length calculator can also be found on our homepage to help work out other correct lengths of spokes that may be required (www.rohloff.de/en/technical/speedhub/spoke_lengths/index.html).

### Calculating the spoke length

For the rims not listed in the table, the given formula can be used to calculate the correct spoke length for any rim:

\[
L = \sqrt{\left(0.25 \times d^2\right) + 3400} - (50 \times d \times c)
\]

**Spoke length:**

- \(d\): effective rim diameter in mm
- \(c\): 0.924 with 1 cross pattern; 0.707 with 2 cross pattern

**Calculation example:**

Spoke length for Mavic X517 effective rim diameter: \(d = 539\)mm

2 cross pattern: \(c = 0.707\)

**Spoke length:**

\[
L = \sqrt{\left(0.25 \times 539^2\right) + 3400} - (50 \times 539 \times 0.707)
\]

\(L = 238.69\)mm (always round up/down to the nearest even number. Here: 238mm)

### ATTENTION

It is not permitted to radially lace wheels built with a Rohloff SPEEDHUB 500/14, because the drive force is delivered through this wheel.

Due to the large spoke hole circle diameter of the Rohloff SPEEDHUB 500/14, the entrance angle between the spokes and the rim is considerably small. All 26" and 28" wheels must not be built in more than a 2x lacing pattern. All wheels smaller than 26" (24" and under) are only permitted to be laced in a 1x pattern.
**Determining the effective rim diameter**

Should the effective rim diameter need to be measured because the rim was not listed in the previous table, the following steps can be used to determine this:

- Measure the head height $K$ of the spoke nipples that are intended for use.
- Measure the spoke length $S$ from beginning of the thread to the inside of the 90° bend.
- Thread a spoke through the rim and screw the nipple onto this so that the end of the spoke is level with the head of the spoke nipple.
- Place a second spoke through the spoke hole of the opposing side of the rim and screw the nipple onto this spoke in the same way.
- Pull these two spokes together and measure the distance $X$.

The effective rim diameter can now be determined using the formula: $d = 2S + X - 2K$.

---

**Which components are recommended?**

- **Chains:**
  - All 1/2"x3/32" eight speed chains are suitable for use with the Rohloff SPEEDHUB 500/14. With the Rohloff SLT-99 chains, both the eight and nine speed versions can be used. This is because the Rohloff SLT-99 chains are less elastic, and therefore, causing less wear on the chaining and sprocket due to their identical link plates. All 1/2"x1/8" bicycle chains are compatible with the Rohloff SPEEDHUB 500/14 sprockets. However, these thicker chains are by no means stronger and not recommended for use with the Rohloff SPEEDHUB 500/14. In addition to this, they are too wide to pass through the Rohloff chain tensioner. When using a 15 tooth sprocket, it is important to make sure that the chain does not measure more than 8.5mm in height (over the joint), otherwise it is possible that rub/wear marks could appear on the hub shell.

- **Chain rings:**
  - All chain rings for a 1/2"x3/32" chain can be used for the Rohloff SPEEDHUB 500/14.
  - It is important to check the concentricity of the mounted chaining when utilizing an eccentric BB or adjustable dropouts so that the tension of the chain is correct in all crank positions.

- **Crank (chain line):**
  - The use of sprockets 15, 16 or 17 teeth on the Rohloff SPEEDHUB 500/14 require a chain line of approx. 54mm from the frame center. This needs the use of the outer chaining from triple cranksets such as standard Shimano (Largest chaining: 54mm, middle chaining 47.5mm). The middle and smallest chaining is usable. After the disassembly of the middle and smallest chaining, the bolts for securing the largest chaining are now too long, because they are now only securing one chaining to the crank. For this reason the Rohloff SPEEDHUB 500/14 small parts bag includes five chaining spacers to distance the original bolts. For retrofitting with double chaining cranksets, the outer chaining should definitely be used.

- **Reversibel sprocket with 15, 16 and 17 teeth (Art.No. 8220, 8221 and 8222):**
  - The Rohloff SPEEDHUB 500/14 comes fitted with a 16 tooth sprocket. 15 and 17 tooth reversible sprockets are available as alternatives. Hereby, an individual sprocket/chaining combination can be applied (see "Technical data" - "Chaining"). The 15, 16 and 17 tooth sprockets are reversible, and therefore, can be used from both drive sides. For sprocket removal, a special Rohloff sprocket removal tool (Art.No. 8501) is needed. When using a 15 tooth sprocket, it is important to make sure that the chain does not measure more than 8.5mm in height (over the joint), otherwise it is possible that rub/wear marks could appear on the hub shell.

- **Sprocket with 13 teeth (Art.No. 8219):**
  - For the use of the Rohloff SPEEDHUB 500/14 on small wheeled bicycles (eg 20", folding bikes and recumbants) the special 13 tooth sprocket is needed. It uses a different chain line (58mm instead of 54mm) and is not reversible. When using a Rohloff chain tensioner on frames with dropouts thinner than 7mm, the longer chain tensioner mounting bolt (Art.No. 8235) must be separately ordered. For sprocket removal, a special Rohloff sprocket removal tool (Art.No. 8501) is needed.

- **Rohloff chain tensioner (Art.No. 8250):**
  - Mounting a chaining tensioner is necessary on frame types A, C, D, E and G (see "frame types"), because the chain is not tensionable by simply sliding the wheel within the dropouts. The chain tensioner is just as necessary on frames with rear suspension, this is because the distance between the chaining and sprocket varies as the rear suspension is activated. The span capacity of the Rohloff chain tensioner is 10 links or 20 teeth. The use of the Rohloff chain tensioner also requires the use of a chain guide up front.

- **Rohloff DH chain tensioner (Art.No. 8245):**
  - The Rohloff DH chain tensioner is specially designed for extreme downhill use. As opposed to the regular Rohloff chain tensioner it has a shorter link arm that is not able to swing on the mounting point. This keeps the chain securely in position against the sprocket, guaranteeing a positive run from the chain onto the sprocket even in extreme riding conditions. The use of the Rohloff DH chain tensioner also requires the use of a chain guide up front.

- **Rohloff chain guide CC (Art.No. 8290):**
  - The Rohloff chain guide CC prevents the chain from springing off the chaining on all bikes fitted with a chain tensioner. The Rohloff chain guide is adjustable depending on the chain line (distance between chaining and frame center) between 52mm and 62mm. The chain springing off the chaining in extreme riding conditions is not preventable by a chain tensioner alone.
**Particular options**

**Rohloff DH chain guide (Art.No. 8291)**

The Rohloff DH chain guide is specially designed for extreme downhill use. It eliminates the chain from falling off the sprocket and onto the hub casing which could happen in extreme riding conditions.

**Rims**

The Rohloff SPEEDHUB 500/14 is only available in a 32 spoke version. The ideal rims to be used are triple hollow aluminum rims from known manufacturers with reinforced spoke eyelets (min. 4.4mm) or alternatively, rims which are diagonally drilled or with countersunk nipple eyes (e.g. ANDRA, GRIZZLY and EDGE 7 from Rigida/Ryde or the Ex 19 rim from Exal).

**Spokes/nipples**

Because the spokes have a large say over the stability of the overall wheel, exclusive quality spokes from well known manufacturers should be used. Double thickness spokes from DT-Swiss and Sapim are good examples. When applying a lot of force on the wheel (pannier bags, tandem use, extreme use), the spokes should be fitted with self-locking spoke nipples (lock nipples) during the wheelbuilding process. This reduces the risk of the spokes loosening whilst riding. On rims without reinforced nipple holes, only spoke nipples with rounded heads should be used (Sapim Polymax or DT swiss Prohead), this spreads the spike tension evenly through the nipple head against the rim.

**Quick release lever**

The CC versions of the Rohloff SPEEDHUB 500/14 are supplied with a hollow Q/R axle to secure the hub to the frame. To make sure that the hub is correctly secured into the frame, it is advisable to use a Q/R lever with a steel skewer. The use of lightweight Q/R levers with aluminium or titanium skewers is at the riders own risk! Make sure that the maximum 7Nm closure torque is not exceeded when using a Pitlock or other Q/R systems!

**Racing handlebars**

The twist shifter of the Rohloff SPEEDHUB 500/14 can only be used on straight handlebars with a diameter of 22.2mm and, therefore, is not compatible with regular racing handlebars. Special racing bars (e.g. racing bars from the firm Norwid, www.norwid.de) allow the mounting of the twist shifter. More information is to be found in the FAQs under www.rohloff.de. A further alternative is the special seperable twist shifter for racing handlebars that is available from the company Mittelmeyer (www.mittelmeyer.de). Further information over this can be found on our homepage under the FAQs.

**Use of a rear disc brake**

The Rohloff SPEEDHUB 500/14 DB versions are equipped with an external gear mech and a special hub cap for the mounting of a brake disc. Only brake discs with a Rohloff mounting hole diameter of 65mm and a center hole diameter of 52mm can be used. Information about the various brake discs currently available can be found on the web under www.rohloff.de.

**Axle plates**

The various axle plates are all available separately, and therefore, making it easy to change any version of the Rohloff SPEEDHUB 500/14 over to a different method of torque support. When a longer axle thread (TS) is required, simply add an “L” to the Art. No.

- Axle plate CC (Art.No. 8232)  
  - Axle plate TS (Art.No. 8233)  
  - Axle plate TS - long (Art.No. 8233L)
- Axle plate CC OEM (Art.No. 8234)  
  - Axle plate TS OEM (Art.No. 8235)  
  - Axle plate TS OEM - long (Art.No. 8235L)
- Axle plate CC OEM2 (Art.No. 8227)  
  - Axle plate TS OEM2 (Art.No. 8228)  
  - Axle plate TS OEM2 - long (Art.No. 8228L)
- The CC/TS OEM axle plates are also available as stronger tandem versions (T) with only one mounting option.

**Rohloff SPEEDBONE (Art.No. 8550) and SPEEDBONE Gustav M. (Art.No. 8551)**

The Rohloff SPEEDBONE is an adapter that allows bikes that are fitted with disc brakes to also use the OEM2 method of torque support. The Rohloff SPEEDBONE is compatible with all disc brake types of international standard (IS 1999) with the exception of the Magura Gustav M. The SPEEDBONE Gustav M. will be needed here.

**Gear mech**

The external gear mech (Art.No. 8213) and the internal gear mech (Art.No. 8572) can be ordered separately. This allows an easy change of the gear mech.

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**Special applications**

**Rohloff SPEEDHUB 500/14 on tandems**

All versions of the Rohloff SPEEDHUB 500/14 are available for tandem use (assuming that the frame spacing is 135mm). The typical coding of a tandem version is the letter “T” (eg CC-T or TS EX-T). The Rohloff SPEEDHUB 500/14 tandem versions come with shifter cables of 2.5m in length. The number of spoke holes is still 32 (see wheel stability). For stability reasons the use of double butted DD spokes 2.0-1.8-2.0mm is recommended.

The correct spoke lengths for 26” wheels are readily available from Rohloff dealers. Spokes for 28” are available from a number of quality manufacturers (Sapim /DT Swiss):

**Small wheels**

Wheels with a smaller diameter than 26” should only use one cross lacing pattern, because this helps to keep the spoke at the correct angle against the rim. Radial lacing of the Rohloff SPEEDHUB 500/14 is not permitted. The Rohloff SPEEDHUB 500/14 should not be laced into a wheel smaller than 18” in diameter, because, due to the hubs large flange diameter, the spokes would enter the rim at a too accute of an angle.

**Halfstep**

Through the use of two chainrings with a size difference of approx. 7% (racing cranksets with 39 and 34 tooth chainrings) the change in gear ratio increases could reduce from 13.6% by approx. half. This additional feature is interesting for road racing applications.

**Usage of two chainrings**

In extreme riding conditions, where the use of a greater gear range is necessary, it is possible to use the Rohloff SPEEDHUB 500/14 in conjunction with two chainrings. This increases the number of actual gears by about two. When applying this feature, make sure that there is a difference of approx. 13% between chaining sizes for one additional gear and approx 29% for two additional gears (eg 50/39 chainrings).

**Using the Schlumpf “Speed-drive” or the “High Speed drive”**

The Schlumpf Speed-drive/High Speed drive works like two chainrings with a large difference in size. With the additional transmission of 1:1.65 or 1:2.5 the gear ratio of the Rohloff SPEEDHUB 500/14 used in conjunction with the Schlumpf Speed-drive will be increased to 868% or 1315%. It is still important not to undercut the smallest permitted sprocket ratios (see “sprocket ratios”). The Schlumpf Mountain-drive is not permitted for use with the Rohloff SPEEDHUB 500/14.

**Using the Rohloff SPEEDHUB 500/14 as frame gear box**

Should the Rohloff SPEEDHUB 500/14 be mounted within the frame itself, the smallest permitted sprocket ratios from the cranks to the gearbox must not be undercut (see “sprocket ratios”). Sprockets used for the transmission from the gearbox to the rear wheel can be of any size.

**Using a Bicycle trailer in conjunction with the Rohloff SPEEDHUB 500/14**

The use of a trailer mount in conjunction with the Rohloff SPEEDHUB 500/14 is normally not a problem! However, the problem could arise with different types of trailer models where the long torque arm (when in use) must be carefully adapted. In case of queries please refer back to the manufacturer of the bicycle trailer to find out if they have any experience or special adapters for the mounting in conjunction with the Rohloff SPEEDHUB 500/14. Alternately refer to www.rohloff.de - FAQ > SPEEDHUB > TRAILER.

**Using an axle mounted bicycle stand with the Rohloff SPEEDHUB 500/14**

A bicycle stand which is mounted directly on the rear axle of the SPEEDHUB 500/14 is available from the company Point bike innovation GmbH, phone 0049 2206 95800. (Bicycle stand C693 black, adjustable for 26” - 28”). The SPEEDHUB axleplate “TS long” with the longer thread should be used together with this sort of bicycle stand.

www.rohloff.de > FAQ > SPEEDHUB > TORQUE SUPPORT > AXLE PLATES.