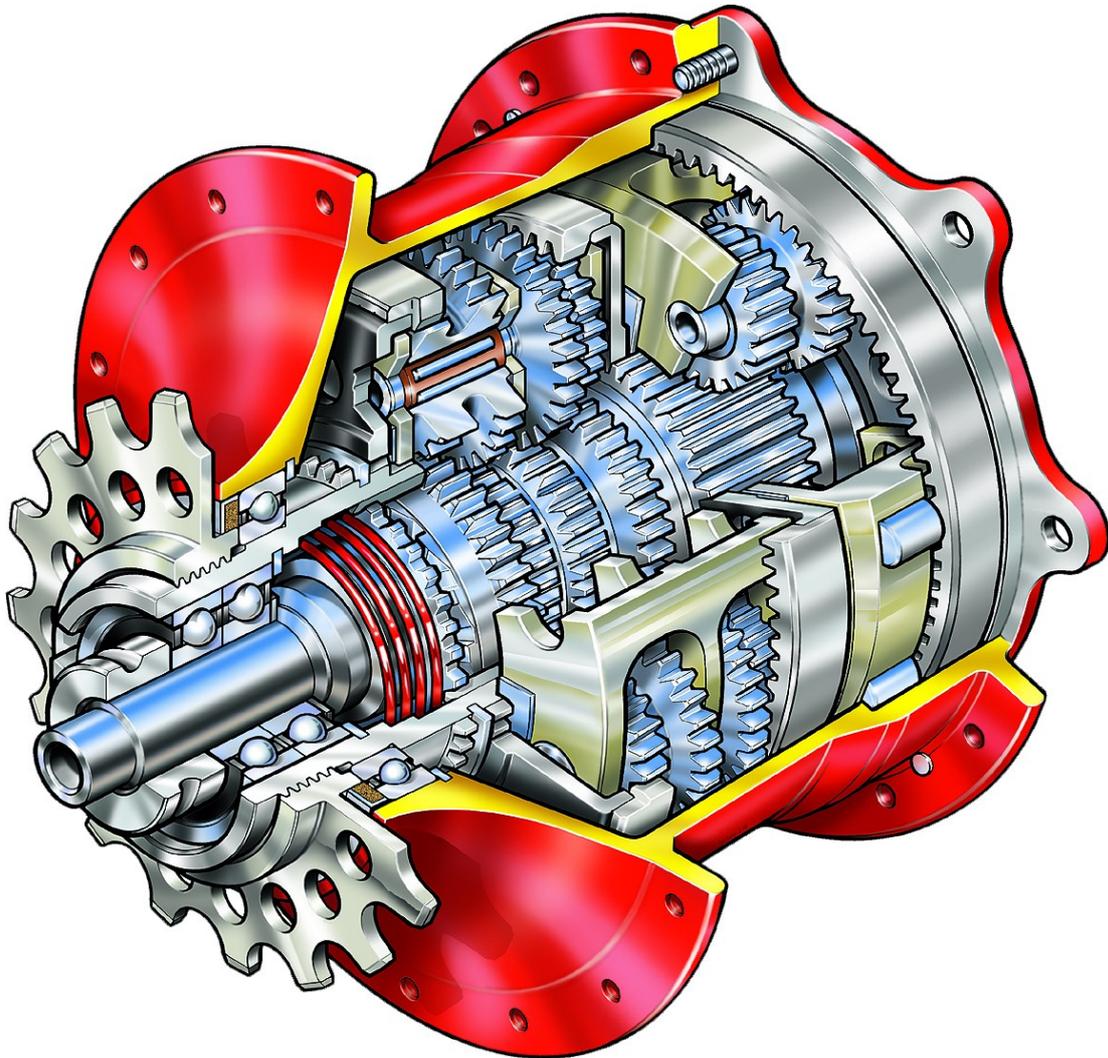


Rohloff



SPEEDHUB



OEM Literature for Manufacturers

Rohloff *SPEEDHUB* 500/14

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*The Rohloff AG reserves the right to change technical specifications without prior warning
(EN 09/2019).*



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- 01. Version No. 1** **OEM axleplate;** specially designed left dropout for the *Rohloff SPEEDHUB 500/14*. Recommended when mounting in a **full suspension frame** or **frames with eccentric BBs**

- 02. Version No. 2-1** **OEM axleplate;** specially designed dropouts (pair) for the *Rohloff SPEEDHUB 500/14*. **Provides chain tension adjustment within the dropouts**

- 03. Version No. 2-2** **OEM axleplate;** specially designed *Rohloff SPEEDHUB 500/14* adjustable dropout insert with derailleur hanger for the installation of the *Rohloff SPEEDHUB 500/14* or rear derailleur (modular system)

- 04. Version No. 3** **OEM2 axleplate;** for mounting to frames with disc brake mounts of International Standard –IS-1999 but **using rim brakes** as opposed to a mounted caliper

- 05. Version No. 4** **OEM2 axleplate;** for mounting to frames with disc brake mounts of International Standard –IS-1999 **and using disc brakes**

- 06. Version No. 3 + 4** **General conditions** concerning frames with disc brake mounts of International Standard –IS-1999
General conditions concerning frames with disc brake mounts of Postmount direct Standard

- 07. All versions** **Disc Brake version (DB)** with **External Gear Mechanism**

- 08. All versions** **Internal Gear Mechanism** - disc brake use is not permitted

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- 17. Info Sheet** **OEM2 use with M5 luggage rack adapter**

Different types of SPEEDHUBS and their assembly

- 1. Version 1:** OEM Axleplate with a specially designed *Rohloff SPEEDHUB 500/14* compatible dropout

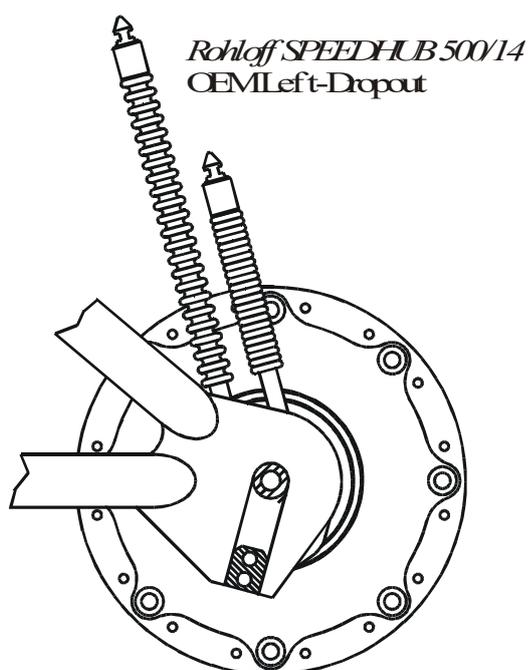


Fig. 1: Left dropout mounted with 500/14 *Rohloff SPEEDHUB 500/14*

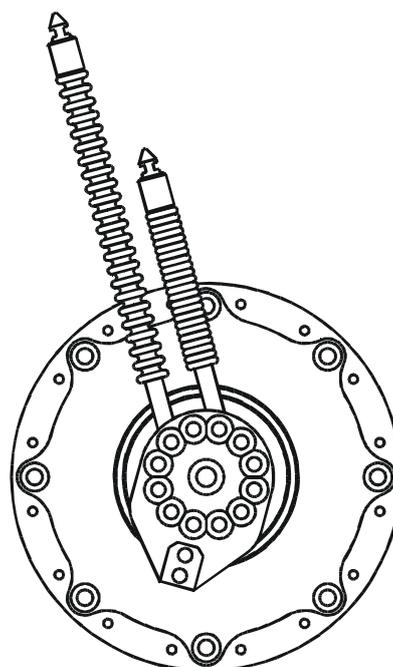


Fig. 2: *Rohloff SPEEDHUB* with CC OEM axle plate



Fig. 3: CC OEM axle plate (also available as a TS OEM axle plate)

This version is particularly suitable for rear suspension frames. In order to compensate for the altering chain length as the rear triangle moves, an external chain tensioner will also be required (Rohloff accessories, Article No. 8250).

All necessary measurements can be found on the accompanying diagram OA11.

It is important to ensure the measurement '32 -0.5mm' is not exceeded to ensure there won't be any clearance issues when mounting an EX cable box (see right-hand illustration of fig 15). Both CC (hollow, quick-release) and TS (M10x1 threaded) axle versions can be used with this style dropout

Different hub types and their assembly instructions

2. Version No 2-1: OEM axle plate (brazed on section) for adjustable dropouts

Version 2 - 1: Steel or aluminum dropout

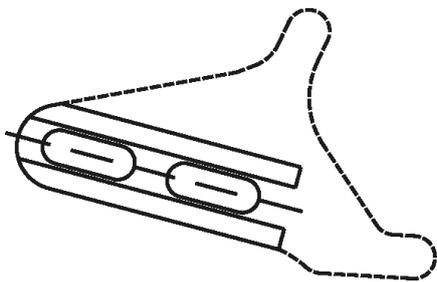


Fig.4: Steel or aluminum cluster (seat),
Left-hand side

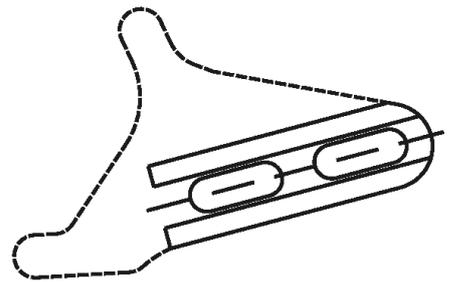
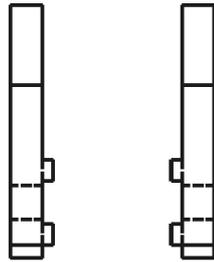


Fig. 5: Steel or aluminum cluster (seat),
right-hand side

The exact dimensions are shown on the technical drawing #OA04.

Different hub types and their assembly instructions

- 3. Version No. 2-2:** Adjustable dropout insert with derailleur hanger, for installing either a *Rohloff SPEEDHUB 500/14* or a rear derailleur

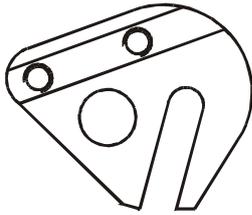


Fig. 6: left-hand dropout
OA13

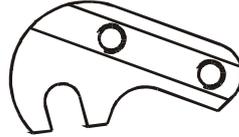


Fig. 7: right-hand dropout
OA14

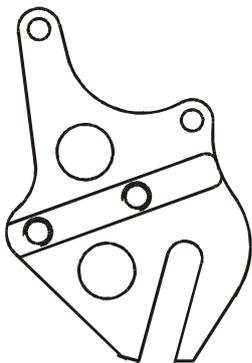


Fig. 8: right-hand dropout
with derailleur hanger
#OA28

The dropout as in shown Fig. 8 must be fitted to all full suspension bikes where the chain length changes.

This dropout also allows the mounting of a rear derailleur. It can therefore be used with the *Rohloff SPEEDHUB 500/14* or a conventional derailleur system.

Fig. 6 & 7 show the left-hand & right-hand dropout inserts designed solely for SPEEDHUB 500/14 use.



With regards to the installation of a disc brake, the following dropout will be necessary:

Fig. 9: OEM dropout insert (DB),
disc brake mount on left-hand side

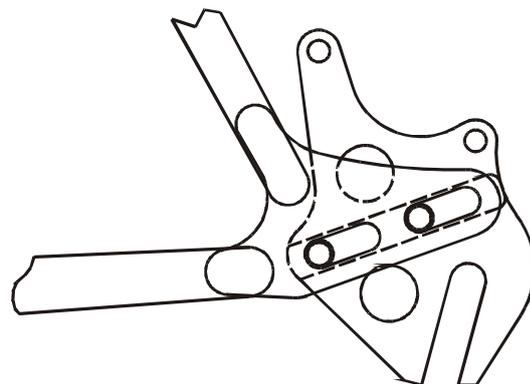


Fig. 10: OEM dropout DB,
fully assembled

Different hub types and their assembly instructions

4. Version 3: OEM2 axle plate; bicycle frame with disc brake mount (International Standard IS-1999) – rim brake use

Dropout with disc brake mount (International Standard IS-1999):

If a disc brake is not mounted, the rear disc brake mount can be used instead of a standard long torque arm. The Axle plate CC/TS-OEM2 and its components will be required. From the inside of the frame, a bolt has is inserted into the lower disc brake caliper mounting point. The axle plate CC/TS-OEM2 can lock itself around this bolt.

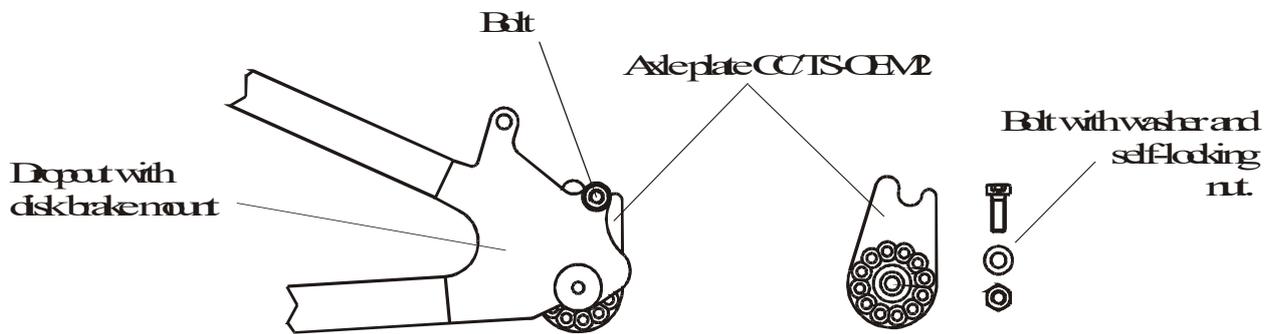


Fig. 11: Dropout with disc brake mount (International Standard IS-1999)

The OEM2 axleplate cannot be used to mount a *Rohloff SPEEDHUB 500/14* into frames with vertical dropout slots where the IS or Postmount disc brake mount is positioned on the chainstay. The only exception to this rule is when an additional hole is positioned in the dropout behind a vertical line through the axle (Fig. 12b).

This hole must accept an M6 bolt or an M5 bolt in connection with the special M5-OEM2 adapter (Article #8552).

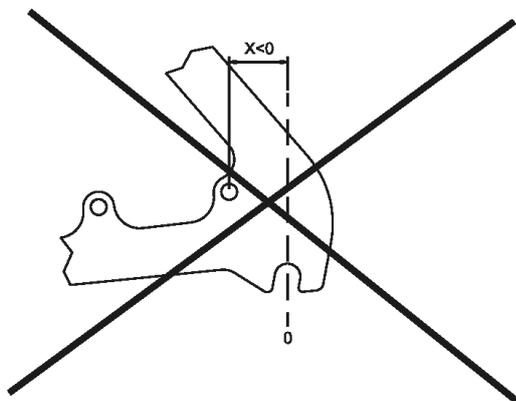


Fig. 12a:

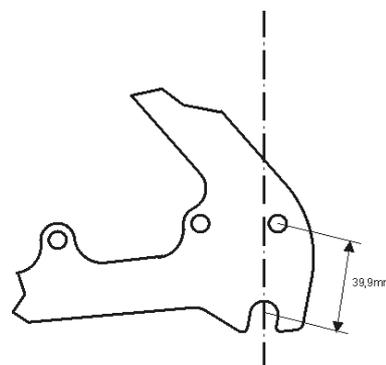


Fig. 12b:



Fig. 12c:

Different hub types and their assembly instructions

5. Version 4: OEM2 axle plate; bicycle frame with disc brake mounts of International Standard (IS-1999)*, and a mounted disc brake

***Dropouts built to International Standard IS-1999 feature 16.3mm distance between the inner face of the dropout and the brake disc itself.**

Dropout with disc brake mount (International Standard IS-1999):

If a disc brake is mounted, the torque can be anchored to the frame using the CC OEM2 or TS OEM2 axleplate, in conjunction with either the SPEEDBONE or Monkeybone.

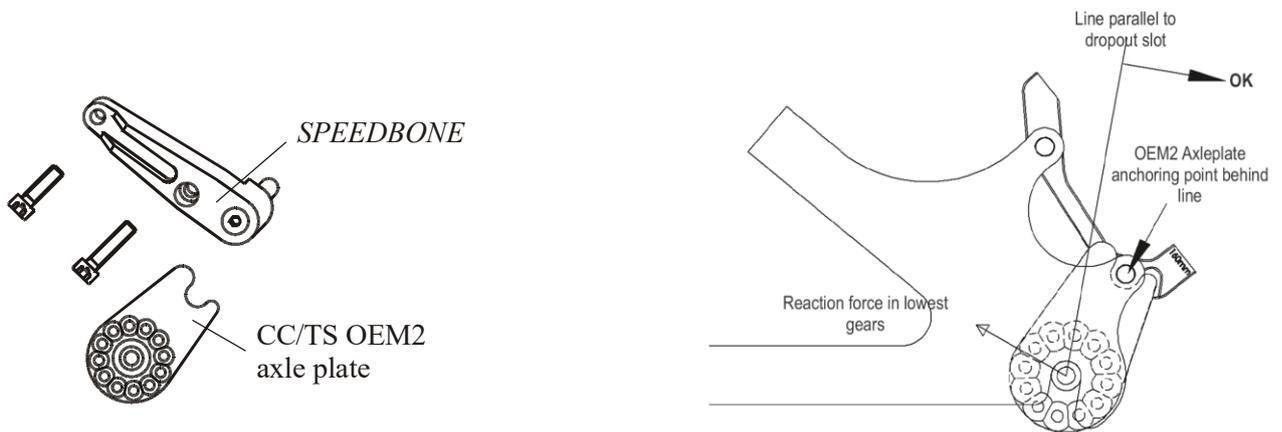
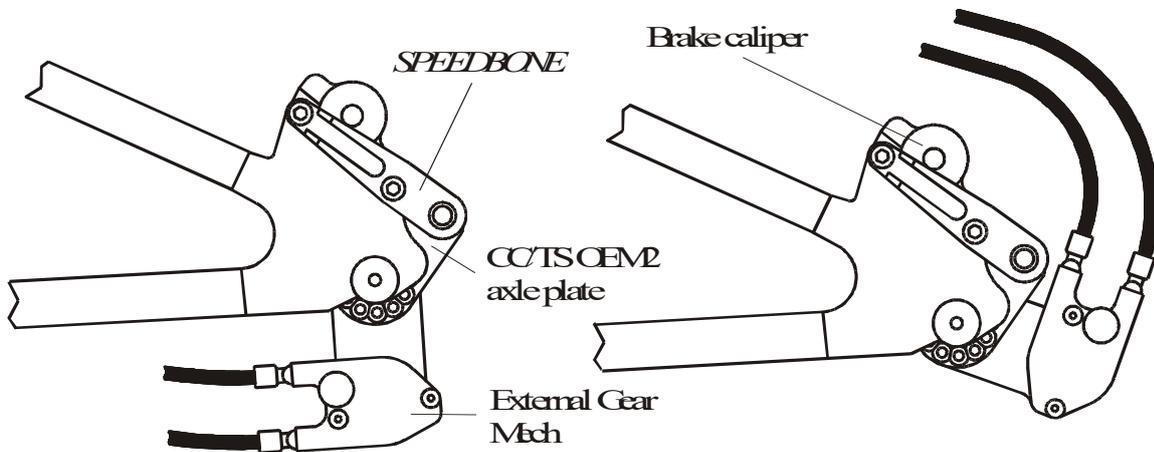
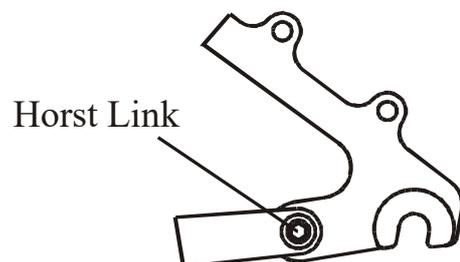


Fig. 12d: Mounting the OEM2 axleplate with SPEEDBONE

Fig. 12e: Mounting the OEM2 axleplate with Monkeybone

Fig. 13: The *ROHLOFF SPEEDHUB 500/14* can also be fitted on full suspension frames which feature a 'Horst-Link' and disc brake mounts (International Standard IS-1999) by using an OEM2 axleplate together with a SPEEDBONE or Monkeybone.



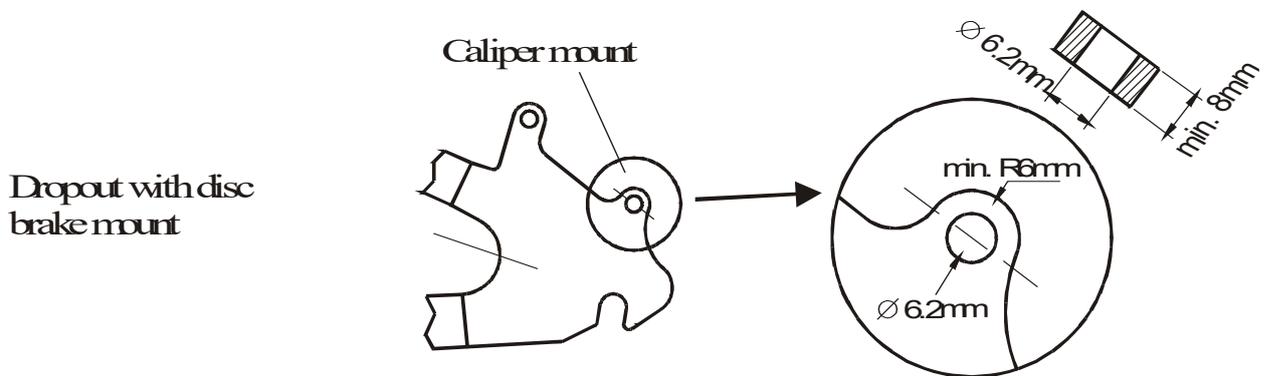
Different Hub types and their assembly instructions

6. Versions 3 and 4: General requirements for frames with International Standard (IS-1999) disc brake mounts:

Frames with International Standard (IS-1999) disc brake mounts:

If the disc brake mount on the frame is used to anchor the SPEEDHUB torque, then this area must have the following dimensions.

Fig. 14: Dropouts with a disc brake mount of International Standard (IS 1999) 16,3mm.

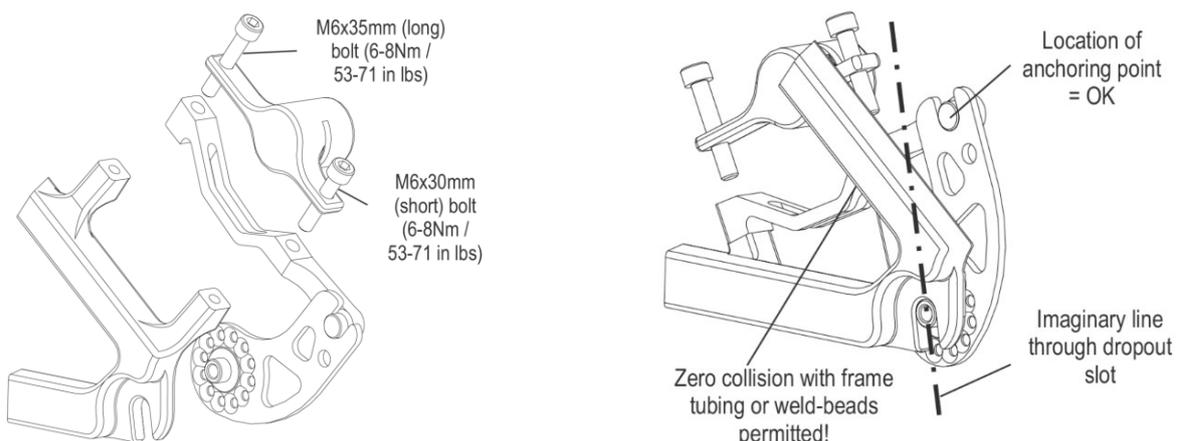


If the above dimensions are kept and the frame material is faultless, the manufacturer may safely install the *Rohloff SPEEDHUB 500/14*, as described for versions 3 and 4 below. The technical OEM2 data sheet must be referred to when using this product!

Furthermore, it is necessary to grant retailers permission to use this method of supporting the output torque produced by the *Rohloff SPEEDHUB 500/14*!

6.1 General requirements for frames with a **Postmount (PM) direct caliper mount**

The Rohloff PM Axleplate in combination with the PM Bone offers an alternative method of anchoring the hub torque to frames with a 135mm, 142mm, 148mm, 170mm or 177mm spacing. The PM Axleplate/PM Bone combination is recommended when mounting a SPEEDHUB to frames with an integrated Postmount direct caliper mount. The threaded holes of the direct caliper mount will be used to secure the PM Bone.



Different hubs and their assembly instructions

7. All Versions: Disc brake version **DB**, External Gear Mechanism **EX**.

The External Gear Mechanism (**EX**) must be used when equipping a bicycle with a *Rohloff SPEEDHUB 500/14* and Disc Brakes (**DB**).

The external transfer box must be positioned so that an optimal cable routing is achieved.

The shifting box can be rotated in 30° increments to achieve this perfect cable routing.

Cables should be routed as close to the pivot point as possible when mounting a *Rohloff SPEEDHUB 500/14* into a full-suspension bike. This helps reduce the additional friction created in the cables as they try to move as the rear triangle is activated. Generally we recommend routing the cables along the downtube and chainstay for full-suspension bicycles.

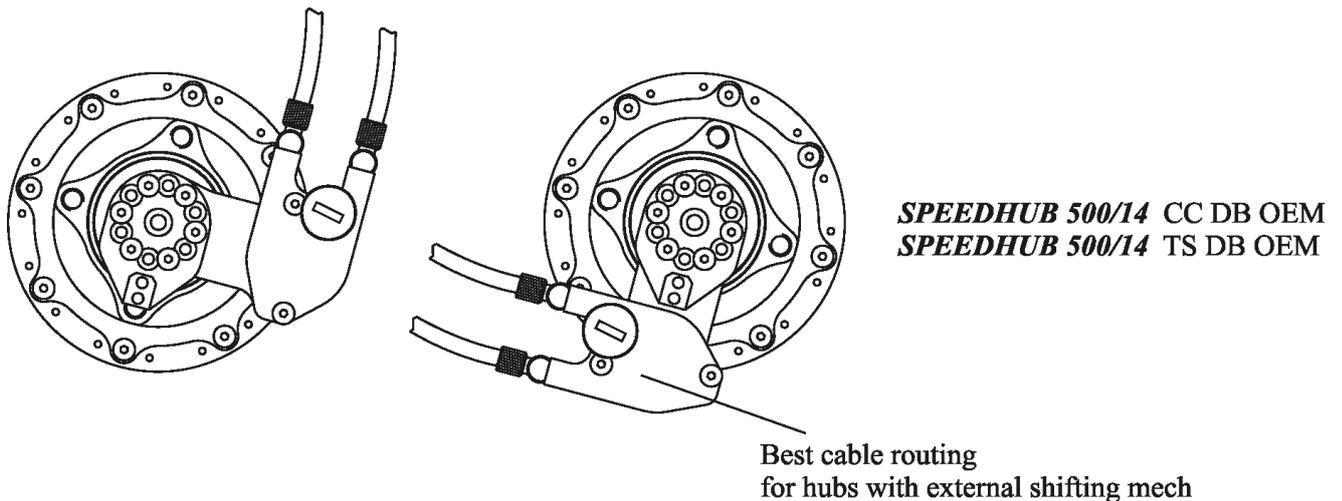


Fig. 15: External Gear Mechanism

The external gear mechanism should be used when internal routing is not possible for any reason e.g. an extremely short rear triangle where there the possibility to mount a cable guide is not foreseen. This is also the preferred gear mechanism for long distance expedition/touring bikes due to the easy availability and replacement of the inner shifter cables.

Different hub types and their assembly instructions

8. All versions: Internal Gear Mechanism – disc brake mounting not permitted

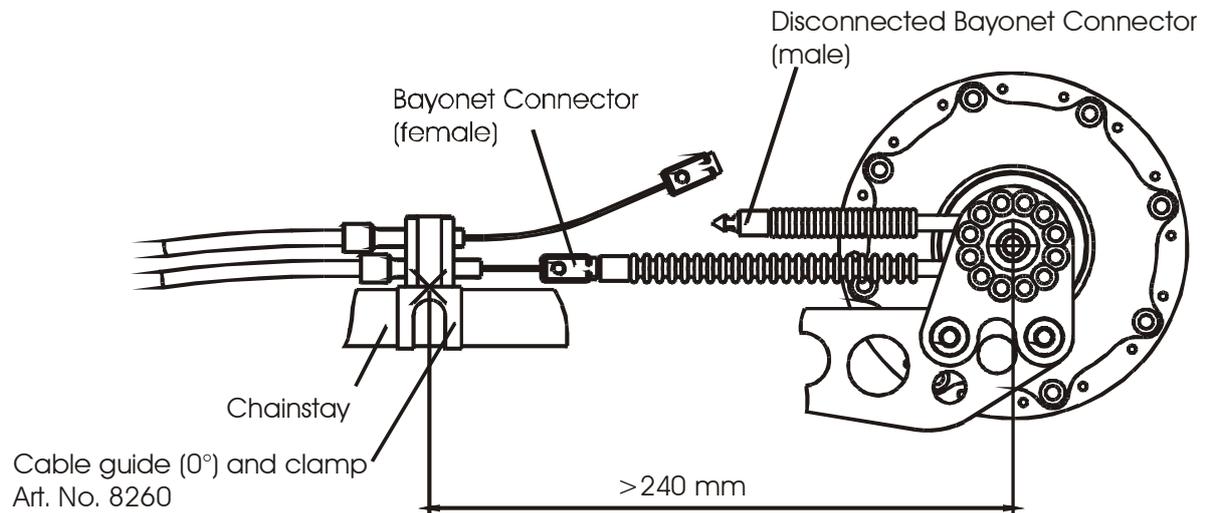


Fig. 16: Internal cable routing via chainstay

The Internal Gear Mechanism can be chosen whenever rim brakes are used and a cable guide can be installed - with regards to the given dimensions - either onto the brake boss or clamped to the chainstay.

If routing the cables via the chainstay, please order the 0° cable guide (Article # 8260). It is important to ensure that this guide is mounted avoiding any unnecessary angles between the guide and the SPEEDHUB 500/14 as these could lead to premature cable wear!

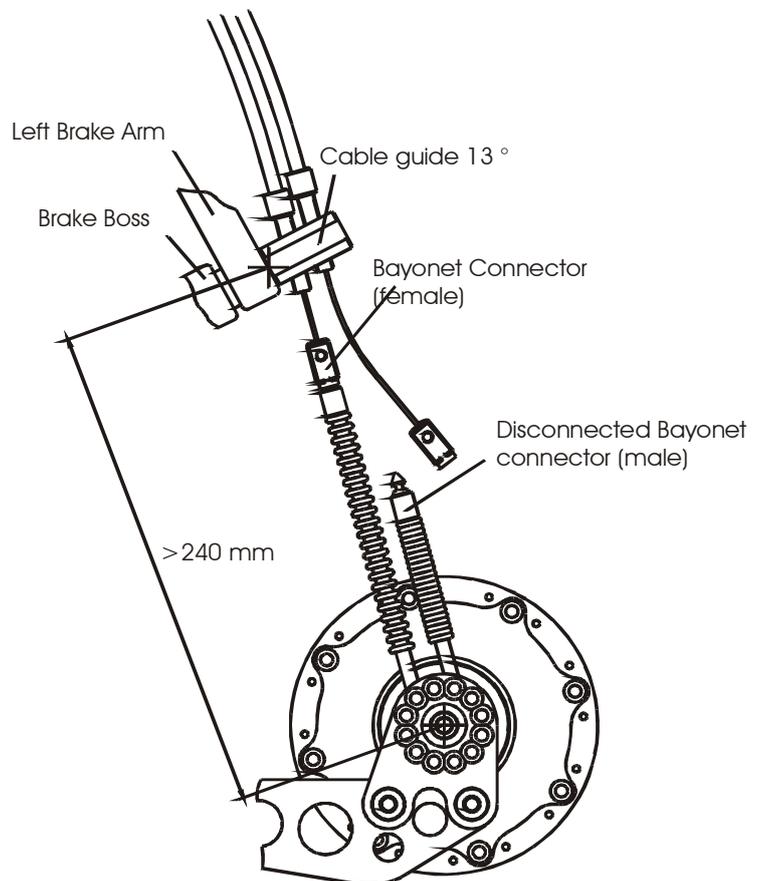


Fig. 17: Internal Gear Mech cable routing via brake boss.



SPEEDHUB 500/14

Different hub types and their assembly instructions

09. Spoke lengths and rim ERD values: 29" - 28" - 650B - 26" - 24" - 20" - 18"

The Rohloff SPEEDHUB 500/14 is available with either 32, or 36 spoke holes forming a hole diameter of 100mm. 26"-wheels therefore, require shorter spokes which are slightly more difficult to source. Along with the SPEEDHUB, we are also able to provide Sapim Race spokes 2.0/1.8/2.0mm with **spoke bend length 2,9mm** in all even lengths between **220mm and 282mm**. These are available in **silver and black**. The table below shows the required spoke lengths for the most commonly used ERD values. As the hub flange is symmetric, all spokes required for lacing the Rohloff SPEEDHUB 500/14 will be the same length:

32-Loch Gehäuse Speichenlänge
32-hole Hub-shell Spoke lengths

Lauf- rad größe / Wheel Size	Anzahl Kreuzungen / Number of Spoke Crosses	ERD*	32-Loch Speichen- länge / 32- hole Spoke lengths	
18"	1-X	341-343	128	
		344	130	
20"	1-X	372-373	142	
		374-377	144	
		378-381	146	
		382-385	148	
		386-389	150	
		390-394	152	
24"	1-X	472-476	192	
		477-480	194	
		481-484	196	
		485-489	198	
		490-493	200	
		494-497	202	
		498-501	204	
		502-503	206	
		26"	2-X	516-519
520-523	228			
524-527	230			
528-531	232			
532-535	234			
536-539	236			
540-543	238			
544-547	240			
548-551	242			
552-555	244			
650B	2-X		556-559	246
			560-563	248
			564-567	250
			568-571	252
			572-575	254
			576-579	256
			580-583	258
			584-587	260
			588-592	262
			593-596	264
28"	2-X	597-600	266	
		601-604	268	
		605-608	270	
		609-612	272	
		613-616	274	
		617-620	276	
29"	2-X	621-624	278	
		625-628	280	
		629-632	282	

36-Loch Gehäuse Speichenlänge
36-hole Hub-shell Spoke lengths

Lauf- rad größe / Wheel Size	Anzahl Kreuzungen / Number of Spoke Crosses	ERD*	36-Loch Speichen- länge / 36- hole Spoke lengths	
18"	1-X	341-342	126	
		343-344	128	
20"	1-X	372-375	142	
		376-379	144	
		380-383	146	
		384-387	148	
		388-392	150	
		393-396	152	
24"	1-X	472-474	190	
		475-478	192	
		479-482	194	
		483-486	196	
		487-490	198	
		491-494	200	
		495-498	202	
		499-502	204	
		503	206	
26"	2-X	516-517	222	
		518-522	224	
		523-526	226	
		527-530	228	
		531-534	230	
		535-538	232	
		539-542	234	
		543-546	236	
		547-550	238	
		551-554	240	
	650B	2-X	555-558	242
			559-562	244
			563-566	246
			567-570	248
			571-574	250
			575-578	252
			579-582	254
			583-586	256
			587-590	258
			591-594	260
28"	2-X	595-598	262	
		599-602	264	
		603-607	266	
		608-611	268	
		612-615	270	
		616-619	272	
29"	2-X	620-623	274	
		624-627	276	
		628-631	278	

empfohlene Größe / recommended rim size

36-Loch ab Serien Nr.: silber/silver > 159293
36-hole from Serial-No.: schwarz/black > 159308
rot/red > 155001

* ERD Messung - siehe Rohloff Handbuch 'Bestimmen des Felgeninnendurchmessers'.

* ERD Measurement - please refer to the Rohloff SPEEDHUB Owners Manual - 'Determining the effective rim diameter'.



Different hub types and their assembly instructions

Small wheels:

Wheels smaller than 26" must be laced using a single cross lacing pattern in order to guarantee the spokes will have the correct angle of entry to the rim.

Radial lacing the Rohloff SPEEDHUB 500/14 is not permitted!

The *Rohloff SPEEDHUB 500/14* should not be used with rims smaller than 18" as the angle between rim and the high hub flange would become too acute, causing spokes to kink where they enter the nipples leading to premature spoke failure.

Wheel stability:

The *Rohloff SPEEDHUB 500/14*, when laced into a 32 or 36 spoke rim, will create a stronger wheel than a traditional dished derailleur hub wheel.

The *SPEEDHUB 500/14* wheel stability corresponds to that of a Tandem wheel with 48 spokes!

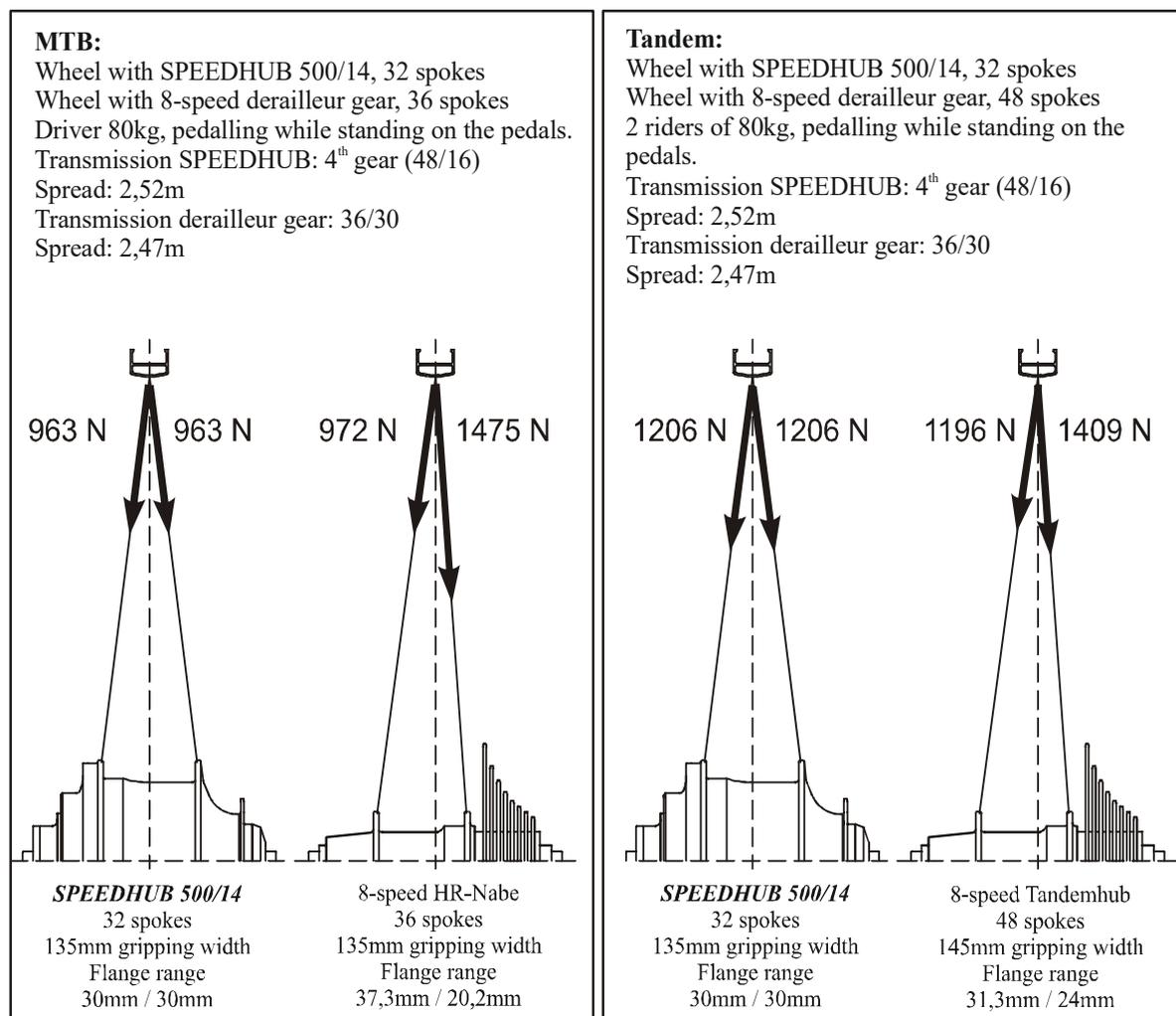
- The **spoke flanges** of the *Rohloff SPEEDHUB 500/14* are **symmetrical**. The rim is therefore centrally placed between the hub flanges, the spokes radiate from both sides of the hub at an equal angle to the rim and the resulting wheel is not dished. All spokes from a *Rohloff SPEEDHUB 500/14* wheel will therefore be of the same length and should have exactly the same **spoke tension (min. 1000-1300N)**.
- To build a strong, long lasting wheel, quality spokes should be pre-tensioned with a minimum tension of **1000N (measured with an inflated tire)** or **1300N (measured without a tire fitted)**. This value cannot always be reached with an un-dished wheel, because the spokes on the sprocket side of the hub have to be tensioned to around 1475N which can cause problems with the nipple seat at the rim. The spoke tension on an 8-speed cassette hub is usually only 600N on the opposing flange side. See the comparison to an MTB 8-speed wheel overleaf.
- Because of the larger diameter hub flange, the spokes have, despite only being double crossed, approximately the same angle to the rim as the spokes of a triple cross laced wheel with a low-flange hub. Due to the fact that the spokes coming from the *Rohloff SPEEDHUB 500/14* radiate from a larger circle, they are not subjected to the same amounts of stress. It therefore follows that the force passed on to the rim is far less, in comparison to that passed on by the spokes of a traditional low-flange hub (Torque = Force x Lever).
- **Spokes with a 2.9mm Neck/J-bend MUST be used when lacing SPEEDHUB wheels!**
Double butted spokes from quality manufacturers such as SAPIM and DT-Swiss, were supplied with a 2.9mm neck/J-bend as standard, up until 2015. This standard dimension was thereafter reduced to 2.6mm.
A spoke neck/J-bend of less than 2.9mm will apply excessive forces to the *SPEEDHUB* flange which will lead to flange failure over time.

It is imperative that OEM bicycle manufacturers source quality spokes with a 2.9mm neck/J-bend for lacing SPEEDHUB wheels!

Different hub types and their assembly instructions

Comparison of spoke tensions measured during our tests:

(Values in brackets show spoke tension with quality spokes and an inflated tire)



The values for the Tandem 8-speed hub turn out more favorable despite there being 2 riders, because there are 48 spokes and because more symmetric flange width than the values for the MTB wheel. However, the values of the Rohloff SPEEDHUB 500/14 wheel are, with 1.206N in comparison to 1.409N, still better.

Rohloff SPEEDHUB 500/14 on Tandems:

All versions of the **Rohloff SPEEDHUB 500/14** are certified for tandem use long as the frame spacing remains 135mm. The Article number/description is extended by the appendix 'T' (Example: CC-T or TS-EX-T). All SPEEDHUB 500/14 versions are supplied with spoke holes of 2.7mm and are drilled for either 32 or 36 spokes. The tandem versions differ to the regular **Rohloff SPEEDHUB 500/14** only through the length of cable supplied in the kit. All tandem versions are supplied with cables of 2.8m in length. As the only difference is the cable length, these hubs are also suitable for recumbents, HPVs and other applications where longer cables are required. A special, reinforced CC OEM Tandem Axleplate (Art. #8234T) is also available upon request. This Axleplate permits only one mounting orientation.



Different hub types and their assembly instructions

10. Drive: - General Info

The hub will be delivered from us with a 16-tooth steel sprocket and standard splined carrier, unless otherwise requested (sizes 13, 14, 15, 17, 18, 19 and 21 teeth are also available, as is the option of a no sprocket (Carbon Drive applications) or slim splined carrier). We recommend front chainrings with a size of 38, 42, 44 or 46 teeth, depending on how the bike will be used. We offer a special sprocket with 13 or 14 teeth for use with the *Rohloff SPEEDHUB 500/14* on bikes with small rear wheels (for example 20" recumbent or folding bicycles). By using this sprocket, a greater overall gear ratio can be achieved even with this size wheel. The chainline of all splined sprockets used on 135mm/142mm SPEEDHUB units, is **57mm** when mounted to a standard splined carrier, or **55mm** when mounted to a slim splined carrier. All splined sprockets are designed as reversible sprockets.

The *Rohloff SPEEDHUB 500/14* is constructed for use in races, the high loads which arise during races are therefore not sufficient to overload the *Rohloff SPEEDHUB 500/14*. The high gear-ratio (for example 42/16) transforms the low revolutions at the crank to higher revolutions at the rear sprocket and thereby reduces the input torque for the hub. For safety reasons and in order to guarantee that the SPEEDHUB gear-unit cannot be overloaded, there are certain primary transmission ratios which may not be undercut. **The lowest permitted gear ratios (transmission factor 1.9 for solo cyclists under 100kg) are 32:17, 30:16, 28:15 and 26:13** when mounted in a normal bicycle (i.e. not a tandem). The smallest gear of the *Rohloff SPEEDHUB 500/14* corresponds in each case to a 20:40 ratio with derailleur gears. There are no upper limits concerning the choice of the chainring size. The lowest permitted sprocket ratios for the Gates Carbon drive system can be found at:

<http://www.g-boxx.com/pdf/Gates-Rohloff-manual-en.pdf>

Comination with electric motors:

The motor needs to be programmed to reduce power when cranks are at the dead point (12:00 and 6:00 o'clock positions) as well as to not exceed the **maximum 130Nm input torque value at the rear sprocket**. The SPEEDHUB 500/14 is a force dependent transmission so if the additional force of a motor is not reduced at the crank dead-point, then the internal shifting elements will not be able to function correctly. This will result in a harsh shift, far from comfortable for the cyclist. The Rohloff AG will require all the technical data over the transmission in order to permit the SPEEDHUB for use in the Pedelec/electric bicycle.

Use with two chain rings:

It is possible to use two chainrings, a front derailleur and a handlebar shifter in order to extend the gear ratio for extreme use. Please regard that the chainrings must possess a tooth difference of 13% in order to actually create one additional gear, or approximately 29% for two additional gears. When for example, you use a 50-tooth chainring and an additional 39-tooth chainring, the total transmission range would result in 678 %.

Chainline:

The optimum chainline for a 135mm/142mm *Rohloff SPEEDHUB 500/14* with sprockets of 15, 16, 17, 18, 19 & 21 teeth is **55mm (splined carrier slim - S)**. The optimum chainline with sprockets of 13, 14, 15, 16, 17, 18, 19 & 21 teeth is **58mm (splined carrier - standard)** measured from the center of the frame.

Different hub types and their assembly instructions

11. All versions: Accessories for the SPEEDHUB 500/14

Chain tensioner:

An external chain tensioner is necessary for frames where there is no other possibility to tension the chain (i.e. via an adjustable dropout, a dropout with a long slot, or an EBB). A chain tensioner is also required with dropouts where the axle has less than 25mm room for adjustment (fig. 20). This also refers to bikes with rear suspension (except models with transmission swing arms), as the chain length changes as the rear shock is activated. The tension capacity of our chain tensioner is 10 links.

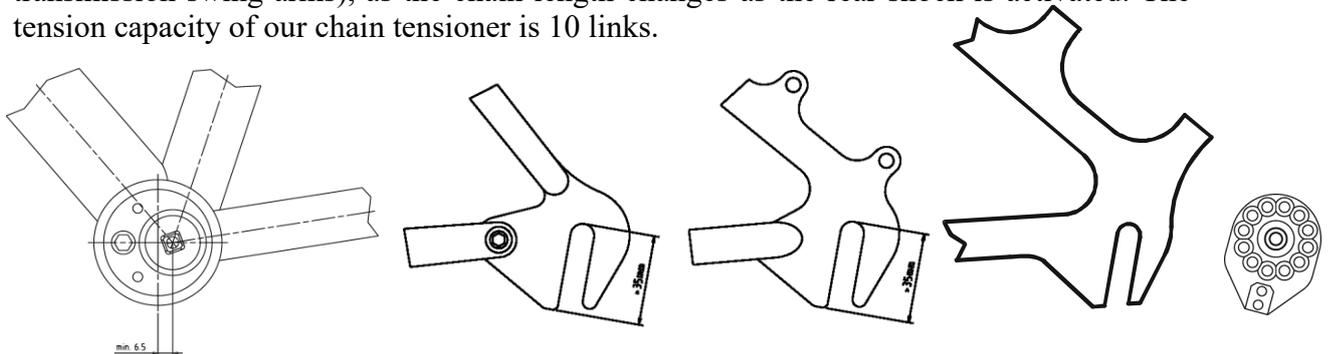


Fig. 18: Adjustment of chain length using an EBB (min. 13mm adjustability) in combination with an OEM dropout.

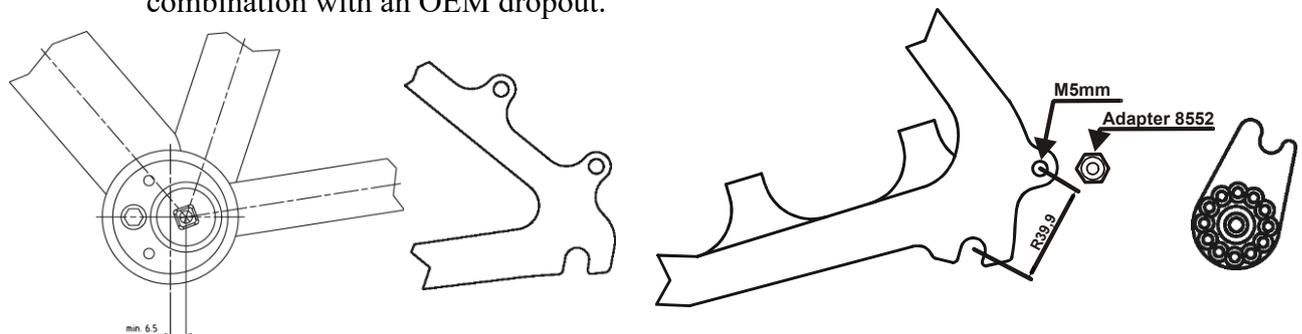


Fig.19: Adjustment of chain length using an EBB (min 13mm) in combination with a standard dropout with disc brake mounts (IS-1999) and an OEM2 axleplate.

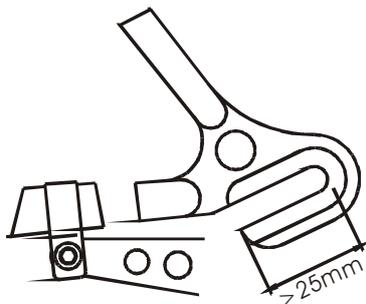


Fig. 20: Dropouts with adjustment room > 25 mm - an external chain tensioner is not necessary.

Dropouts with adjustment room < 25 mm - an external chain tensioner will be required!

Different hub types and their assembly instructions

Use of a Disc Brake (DB):

Disc Brake versions of the *Rohloff SPEEDHUB 500/14* are fitted with a special hub cap and an External Gear Mech. The flange of the hub cap has 4 tapped holes **M8x0.75** onto which the brake rotor can be mounted. Only brake rotors with a special 4-bolt pattern for the *Rohloff SPEEDHUB 500/14* can be used, (65mm diameter bolt diameter, inner circle diameter 52 mm).

The Rohloff AG is able to offer (at time of press) suitable brake discs for:

160/2.0mm	for Magura (Art. #8282)
180/2.0mm	for Magura (Art. #8283)
203/2.0mm	for Magura (Art. #8284)
160/1.8mm	for Shimano, Hayes, Formula, Avid (Art. #8281)
180/1.8mm	for Shimano, Formula, Hayes, Avid (Art. #8287)
203/1.8mm	for Shimano, Hayes, Shimano, Avid (Art. #8286)

Magura, Avid, Hope and Formula can deliver manufacturers with disc brake packages direct with the corresponding rear disc.

Contact the brake manufacturer directly for compatibility information regarding brands other than those listed above. Brake rotors with a diameter smaller than 150mm are incompatible as the caliper will collide with the SPEEDHUB shell itself.

Chain guide:

Rohloff also offers a chain guide that may be mounted additionally. This is necessary on full-suspension bikes and bikes used for hard cross-country riding should also have a chain guide in order to prevent the chain from jumping off of the chainring. We would actually advise this component is mounted to all bikes that use a spring loaded, self-adjusting chain tensioning system.

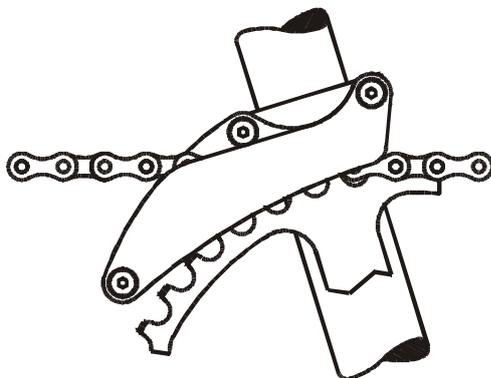
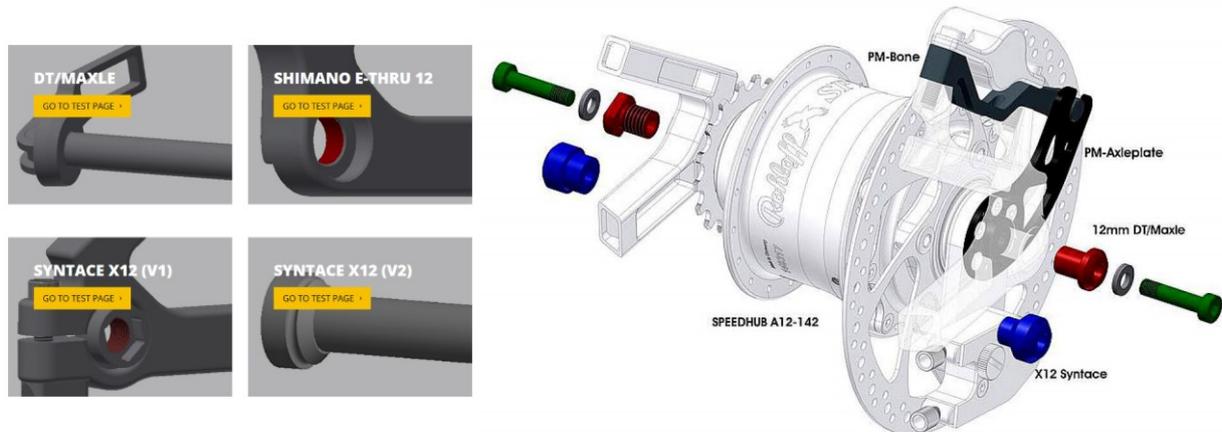


Fig. 21: Chain guide *Rohloff SPEEDHUB 500/14*

Different hub types and their assembly instructions

11.1: Mounting criteria for fitting SPEEDHUBS to 12mm Thru-axle frames.

<https://www.rohloff.de/en/service/handbook/a12-thru-axle>



12. Package contents of the Rohloff SPEEDHUB 500/14

The OEM SPEEDHUB will be supplied in non-branded, OEM packaging and comes assembled with the correct axleplate, a standard splined carrier and 16 tooth sprocket (13, 15, 17, 18, 19 or 21-tooth sprocket or slim splined carrier as options).

If ordering a Gates Carbon Drive compatible SPEEDHUB, the splined sprocket carrier will be replaced with the lock-ring splined carrier (Art. #8540L). Supply of such hubs will only be supplied to manufacturers for fitting into a stiffness test approved frames. We will require a copy of the test protocol before we are able to supply these products.

The Carbon Drive sprocket will need to be secured to the lock-ring carrier, by tightening the lock-ring to 30Nm using the Rohloff Lock-Ring Tool (Art.#8518).

OEM supplied SPEEDHUBS are dispatched to EU addresses, pre-filled with SPEEDHUB all-season-oil (green flyer included in hub documentation)!

Also contained in the package are all components required for the respective hub version:

- twist shifter,
- gear cables in the required length (225 cm and/or 305 cm)
- internal cable routing
- bayonet fixing
- cable guide
- external cable box
- etc.

Also included in a clear plastic bag for the consumer are:

- Owners Manual,
- Warranty Card
- Information on the Rohloff SPEEDHUB 500/14.

These last 3 items must be forwarded to the consumer when the complete bicycle is shipped.

Different hub types and their assembly instructions

13. General information

Maintenance:

In comparison to a derailleur gear system, the *Rohloff SPEEDHUB 500/14* is relatively maintenance-free. The internal gearing runs encapsulated in an oil bath; it is protected by seals against dirt and moisture and is completely maintenance-free. All bearings are either sealed cartridge bearings or run also inside the hub within the oil bath. Therefore, maintenance of the *Rohloff SPEEDHUB 500/14* is reduced to an annual oil change.

The indexed gearing of the *Rohloff SPEEDHUB 500/14* is located directly within the hub. The cable tension has no effect on the gear shift precision.

On the *Rohloff SPEEDHUB 500/14* the chain is running straight and is only driven by one large chainring. Therefore, the wear on the drive chain is fundamentally lower than with a comparable derailleur system.

Brake-in period:

All gears and coupling elements of the *Rohloff SPEEDHUB 500/14* are manufactured from hardened steel and are machined to a high precision. The break-in period is approximately 1.000km due to the high wear resistance of all parts. The gears get finally smoothed out by the moving of the parts under pedaling force. The result of this process is less operational noise and a much smoother operation. The hub shell of the *Rohloff SPEEDHUB 500/14* has specially constructed seals. These also take about 1.000 km to break-in; it is quite normal with a new hub, for the cranks to rotate when the bicycle is pushed, this is because the new hub seals force the sprocket to rotate with the hub. This effect recedes over time and has no influence upon riding comfort.

Operational Noise:

On the *Rohloff SPEEDHUB 500/14* three sets of planetary gears work in line to achieve 14 different speeds. The first two sets of planet gears produce seven gears (8th to 14th). When these seven gears are set against the third set of planet gears, then gears from 1st to 7th are produced. The third set of planetary gears rotate at extreme speeds, the highest RPM being in the 7th gear. The rotation of these planetary gears can be heard as a humming noise which is transmitted via the axle into the frame. Depending on frame type, material and other components fitted around the axle (fenders, luggage racks, kickstand etc) this noise is either more or less audible. The more the hub is ridden, the quieter these noises become. These high RPM planetary gears are not in use and the upper 7 speeds and the result is an almost silently running SPEEDHUB. When coasting along, different freewheels may work depending on the gear selected. This too can result in different noises.

Oil change:

The *Rohloff SPEEDHUB 500/14* is filled with 25ml of special gear oil (all season oil). This ensures:

- a) moving parts lubricated.
- b) steel parts protected from corrosion.
- c) freewheeling and gear noises subdued.



Gates Carbon Drive:

The following points must be addressed and adhered to when mounting the Rohloff SPEEDHUB 500/14 together with a Gates Carbon Drive system. Failure to adhere to these points will result in partial loss of guarantee and warranty cover of the SPEEDHUB 500/14.

1. Manufacturers conditions/instructions for use

Read the Owners Manual for both Gates Carbon Drive and the Rohloff SPEEDHUB 500/14 and ensure these products are correctly implemented on the bicycle as described within the manuals.

[Gates Carbon Drive Owners Manual](#)

Rohloff SPEEDHUB 500/14 Owners Manual

- [General Info](#)
- [Mounting](#)
- [Service and Repairs](#)

2. Frame Approval

Safe operation of a SPEEDHUB using Gates Carbon Drive system is only possible if the frames rear-triangle retains a minimum stiffness level. Frame manufacturers must prove frame stiffness levels on a specialist testing jig in order to receive type approval for SPEEDHUB use. A list of approved frames can be found online under the link below.

[Carbon Drive stiffness test approved bicycle frames](#)

Please enquire with the frame manufacturer directly should your chosen bicycle frame not be listed. Universal Transmissions (Gates Carbon Drive EU distribution) are able to issue frame certifications on an individual basis should you still wish to use that particular frame.

[Frame testing for Rohloff SPEEDHUB 500/14](#)

3. Use of a Snubber

The Rohloff AG insist that a Snubber is additionally mounted to the bicycle. A Snubber prevents the belt from ratcheting over sprocket teeth when belt tension is lost. Subsequently this small component greatly reduces the accident risk level. Please enquire with the frame manufacturer directly should your chosen bicycle not be fitted with a Snubber.

Informationen für Europa:

Universal Transmissions GmbH

Külfalstr. 18

D-31093 Lübbrechtsen

Tel: +49 5185 60266-50

Fax: +49 5185 957192

info@carbondrive.net

www.carbondrive.net



Informationen für Nord- und Südamerika:

Gates Carbon Drive - Colorado

331 Corporate Circle Ste A

Golden, CO 80401

Tel: 720.524.7206

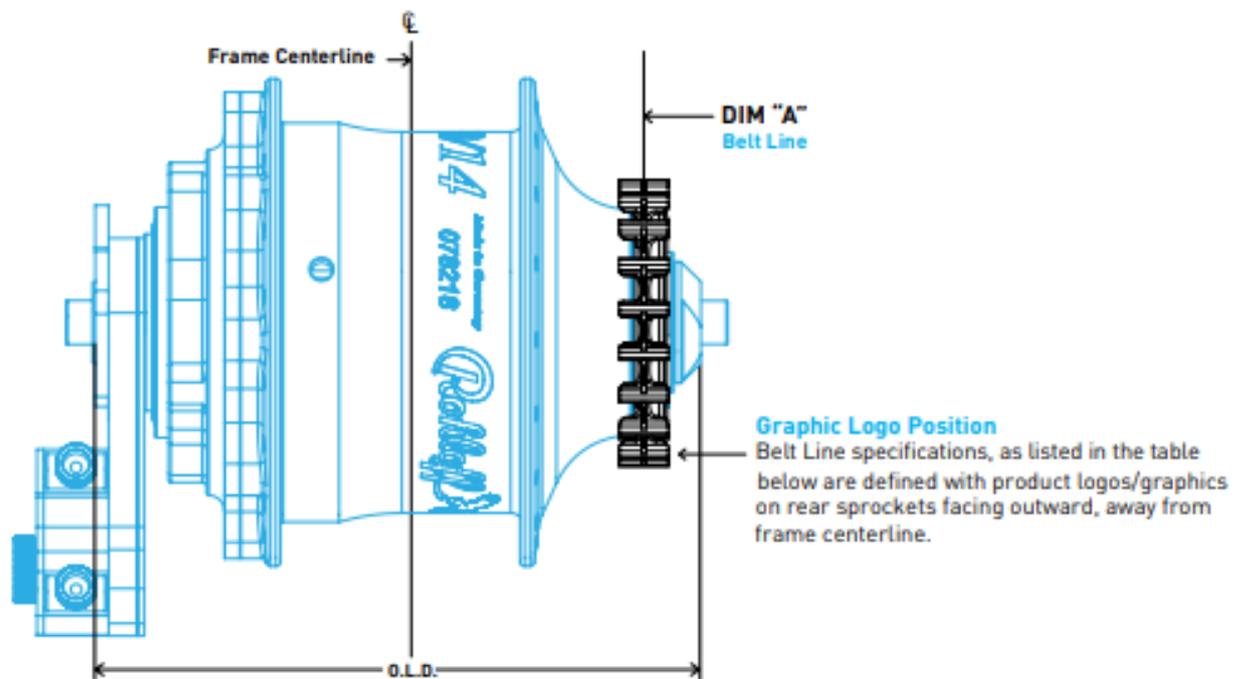
carbondrive@gates.com

www.gatescarbondrive.com

Exerpt from Gates Carbon Drive technical documentation:

BELT LINE SPECIFICATION

ROHLOFF



CDX INTERNAL GEAR HUB BELT LINE: ROHLOFF

MANUFACTURER	HUB DESCRIPTION	OLD	BRAKE TYPE	HUB PRODUCT NUMBERS	DIM "A" BELT LINE	REAR SPROCKET CARBON DRIVE GROUP
Rohloff	SpeedHUB	135/142	Disc, Rim	500/14	54.7	RMN-E / RSMN*
		148			51.7	
		177		XL 500/14	72.2	

Note: Rohloff integrations require a snubber. See Gates® Rohloff specific manual for additional information.

*RSMN sprockets require the Rohloff Splined Carrier 'L' (Art.#8540L), which secures the sprocket using a threaded lock-ring.



14. Different hub types and their assembly instructions

The minimal requirements laid down by the Rohloff AG must be met when mounting a *Rohloff SPEEDHUB 500/14* OEM2 version in connection with a support bolt, Speedbone, Monkeybone (mounted to the disc brake mount) or M5 bolt adapter (for luggage rack/fender mount tapped hole). Likewise, when mounting a *Rohloff SPEEDHUB 500/14* PM version with a PM Bone mounted to a Postmount direct brake mount.

Faultless materials and first grade workmanship must be guaranteed.

Mounting a *Rohloff SPEEDHUB 500/14* with an OEM2/ PM axleplate into an eBike or Tandem is only permitted when using a Speedbone, Monkeybone or PM Bone.

Release from liability – *Speedbone* or *Monkeybone* (OEM2 Axleplate)
PM-Bone (PM Axleplate)

Manufacturer:

I hereby declare that the OEM2 Axleplate with or without either a Speedbone, Monkeybone, or M5 adapter bolt, and/or the PM Axleplate with PM Bone, is fitted to the following bicycles:

I herewith release the company ‘Rohloff AG’ from product liability concerning possible arising damages to the disc brake mount of the frame, as well as from resulting damages or injuries to persons or items caused by the use of the OEM2/SPEEDBONE/Monkeybone/M5 Adapter or PM/PM Bone version.

Date, Signature (responsible)

Stamp