RATCHET DEG DF

RATCHET DEG TO DEG DF CONVERSION

DT SWISS

1. GENERAL

1.1 VALIDITY

This manual describes the component specified on the front page and the footer. This manual is valid for the design of the product as of 23.09.25. Deviations are possible and all items are subject to technical changes.

1.2 SAFETY

The safety instructions are classified as follows:

DANGER

...indicates a hazardous situation that, if not avoided, will result in death or serious injury.

CAUTION

... indicates a hazard with a medium level of risk which, if not avoided, may result in minor or moderate injury.

NOTE

... indicates a potentially hazardous situation that may result in damage to property.

1.3 TARGET GROUP

This manual is intended for the user of the component and dealers. This manual offers experienced users the possibility to carry out minor service work themselves. If you have any doubts about your own abilities, you should definitely contact an expert or a DT Swiss Service Center.
Any warranty claims will lapse if work is not carried out properly.

1.4 LAYOUT

The cover page and the footing provide information about the type of product and manual as well as the version of the manual. The DT Swiss contact details can be found on the back. A list of all DT Swiss service centers can be found at www.dtswiss.com.

This manual is intended for being printed as an A5 booklet. Only print this manual if electronic usage is not possible.

1.5 DT SWISS MANUAL CONCEPT

The DT Swiss manuals are split into the following types of manuals:

- User Manual: Information for the end user on how to install and use the component.
- Technical Manual: Detailed information for the end user and the dealer on how to maintain the component, spare parts and technical data.

1.6 GENERAL MAINTENANCE INFORMATION

Unless otherwise specified, moving parts, threads, O-rings and sealings must be greased before assembly.

CLEANING

For an optimal result of the maintenance work, every component that will be disassembled must be cleaned. Only use cleaners and degreasers which do not damage the components. Especially the cleaning of O-rings and sealings requires mild cleaners. Observe the instructions for use of the respective cleaner.

DT Swiss recommends the following cleaners:

- Motorex Rex
- Motorex Swissclean
- Motorex OPAL 2400, 3000 OPAL, OPAL 5000

Use soap water or similar mild cleaners for external cleaning.

TOOLS

To ensure a damage-free mounting and dismounting of the components, only use the tools which are mentioned in this manual. Special tools are indicated at the beginning of a chapter in the table "Required material".
The use of different tools is at the discretion of the user. If components are damaged by the usage of differing tools, the user is liable.

DT Swiss special tools are precision tools. Damage-free mounting and dismounting of the components can only be ensured if the tools are working properly and if the condition of the tools are perfect. Always keep the tools in their original packaging or adequate devices to prevent damage.

1.7 ENVIRONMENTAL PROTECTION

The statutory regulations shall apply. Whenever possible, avoid creating waste. Waste, especially carbon, lubricants, cleaners and any other fluids must be disposed in an environmentally compatible manner.
Only print this manual if electronic usage is not possible.

1.8 EXCLUSION OF LIABILITY

The activities listed in this manual may only be carried out by persons with sufficient specialist knowledge. The user is liable for any damage or consequential damage caused by wrongly maintained or installed components. If you have doubts, please contact an expert or your region's DT Swiss pro level service center.

1.9 WARRANTY

Warranty conditions, see www.dtswiss.com

2. SAFETY

2.1 GENERAL SAFETY INFORMATION

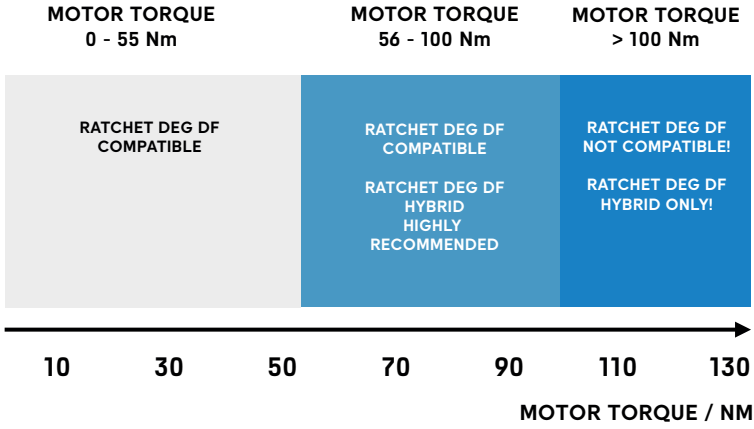
DANGER

Incorrect handling, installation, maintenance or servicing can lead to accidents causing severe injuries or death!

- Compliance with the following provisions is a prerequisite for accident-free use and faultless performance.
- Assembly and maintenance of the hub requires a basic knowledge of handling bicycle components. If in doubt, contact your dealer.
- The hub and the conversion kit may only be used in accordance with their intended use (see section "2.2 Intended use" on page 5). Any use other than the intended use can lead to malfunctions, damage or safety risks. In such cases, all warranty claims expire. In this case, DT Swiss accepts no liability for any resulting damage.
- Only use original DT Swiss spare parts.
- The hub must not be changed or modified.
- The hub must not be used if it is damaged or there are any signs of damage. If in doubt, contact your dealer.

2.2 INTENDED USE

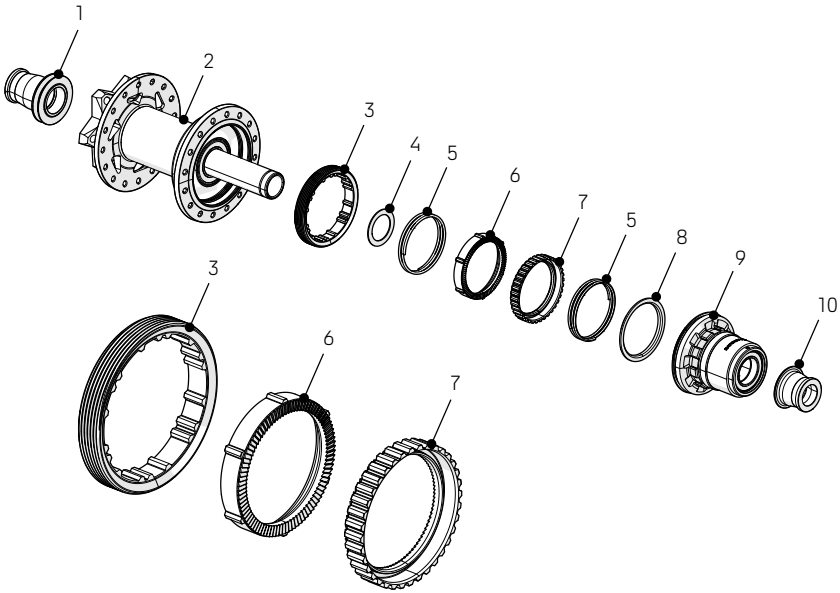
The following matrix provides an orientation for selecting the right freewheel system for e-bikes depending on the motor torque. For motors with a torque of less than 60 Nm, the standard RATCHET DEG DF can be used. The use of the RATCHET DEG DF HYBRID is expressly recommended in the 60 to 100 Nm range, as it is designed for higher loads. For torques above 100 Nm, the standard freewheel system is no longer compatible - in this case, only the HYBRID system may be used to ensure safe and durable operation.



3. CONVERSION FROM RATCHET DEG TO RATCHET DEG DF

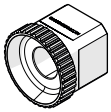
Preparatory Steps	Link
Dismount the brake rotor	
Dismount cassette	
Clean the hub	

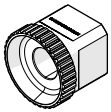
3.1 OVERVIEW



1	end cap non drive side	6	ratchet DEG DF
2	hub	7	ratchet
3	ring nut DEG DF	8	washer
4	shim ring / spacer	9	freewheel body
5	spring	10	end cap drive side

3.2 REQUIRED WEARING PARTS AND MATERIALS

Wearing parts / Materials	Specification	Quantity	Article number
Ratchet DEG DF Conversion Kit	HWYXXX00N6322S (with tool for ring nut)		
consisting of:	HWYXXX00N6976S (without tool for ring nut)		
– DT Swiss special grease		20 g	HXT10032508S
– ring nut DEG DF		1	
– spring		2	
– ratchet DEG DF 90T		1	
– ratchet DEG 90T		1	
– tool for ring nut ratchet DEG DF		1	HXTXXX00N3091S

Wearing parts / Materials	Specification	Quantity	Article number
Ratchet DEG DF Hybrid Conversion Kit consisting of:	HWYXXX00N8719S (with tool for ring nut) HWYXXX00N8722S (without tool for ring nut)		
– DT Swiss special grease		20 g	HXT10032508S
– ring nut DEG DF Hybrid		1	
– spring		2	
– ratchet DEG DF Hybrid		1	
– ratchet DEG Hybrid		1	
– tool for ring nut ratchet DEG DF		1	HXTXXX00N3091S

Wearing parts / Materials	Specification	Quantity	Article number
DT Swiss universal grease		20 g	HXTXXX00NMG20S

3.3 REMOVING END CAP, FREEWHEEL BODY AND FREEWHEEL SYSTEM

NOTE

RISK OF DAMAGING THE ADAPTERS!

To avoid damages, only use grind clamping jaws, aluminum clamping jaws or special tools to clamp the adapters.

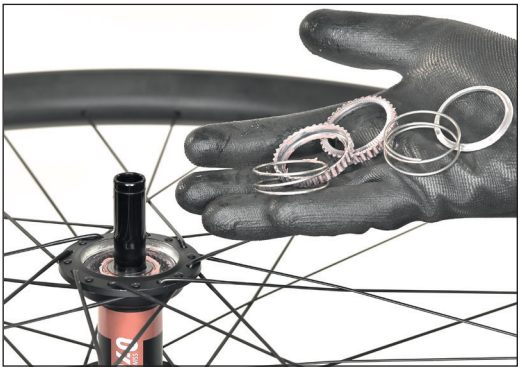
1. Pull off the end cap on the drive side by hand.

If the end cap cannot be pulled off by hand, clamp the end cap carefully into a vise with ground clamping jaws and pull the hub / wheel upwards.

If the hub has been used for a longer period of time, we recommend removing, cleaning and greasing the second end cap as well.

2. Pull the freewheel body off the hub.

3. Remove the springs, ratchets and washer from the hub.



4. Remove the shim ring (180/240) / the spacer (350).

3.4 REMOVING THE RATCHET DEG RING NUT

Due to the torque acting on the ring nut during pedaling, the ring tightens while riding. Therefore, loosening the ring nut requires a high force.

The ring nut can only be loosened when the wheel is complete, as the lever is many times larger and the correspondingly high torque is transmitted evenly to the hub shell via both flanges and the spokes.

1. Clamp the tool for the ring nut in the vise.
2. Push the hub onto the tool with the drive side first.

3. Loosen the ring nut by turning the wheel counterclockwise.
4. Remove the hub from the tool.

5. Remove the ring nut.

3.5 FITTING THE RATCHET DEG DF RING NUT

1. Lightly grease the thread of the ring nut with universal grease.
2. Push the DEG DF ring nut onto the hub with the chamfer facing upwards.

3. Place the tool on the DEG DF ring nut and carefully turn the ring nut a few turns into the hub.
   → Turn the ring nut a little bit counterclockwise and then carefully clockwise.
   → While screwing in, make sure that the ring nut is screwed in straight and does not cant!
   → The ring nut must be able to be screwed in freely. As soon as greater resistance occurs, stop screwing in immediately.

4. Clamp the tool and place the wheel with the DEG DF ring nut screwed in onto the tool.

5. Tighten the DEG DF ring nut firmly with both hands.

3.6 MOUNTING THE FREEWHEEL SYSTEM

DANGER

RISK OF INJURY DUE TO LIMITED FREEWHEEL FUNCTION DUE TO INCORRECT LUBRICATION!

If too much grease is applied on the ratchets, the actuation of the ratchets may not work. The ratchets may slip during pedaling.

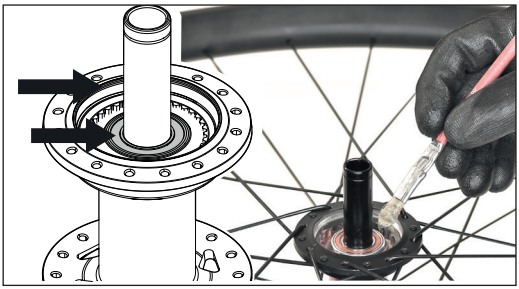
- Only apply a thin, even layer of grease.
- Only use the red DT Swiss special grease.

1. Apply DT Swiss special grease evenly to the outer and the inner toothing of both ratchets using a fine brush.
   → For an optimal functionality of the freewheel system, a thin layer of grease is sufficient.

2. Lightly grease the teeth of the freewheel body with DT Swiss special grease.
   → A thin layer of grease is sufficient for optimum function.
   → Excess grease in the recesses of the toothing should be removed with a brush.

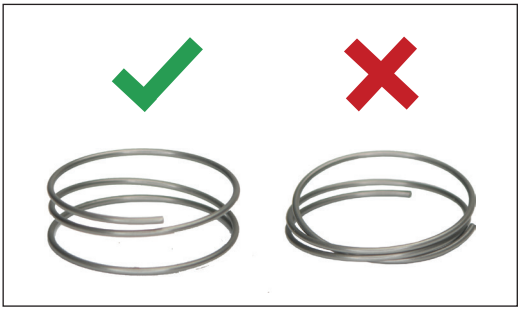
3. Lightly grease the teeth of the ring nut with DT Swiss special grease.
   → Excess grease in the recesses of the toothing should be removed with a brush.

4. Grease the outer surface of the ball bearing and the sealing surface of the rotor seal on the hub with universal grease.



5. Place the shim ring (180/240) / the spacer (350) on the axle.

6. Make sure that both springs are not twisted.

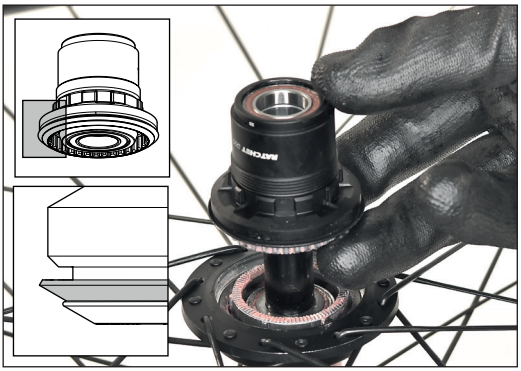


7. Fit the DEG DF ratchet and the first spring.

The DEG DF ratchet can be mounted in various positions. Choose the right position for your riding style and your bike. You can find more information about the DEG DF system and how to select the right position here:

8. Insert the second ratchet and the second spring with washer into the freewheel body.

9. Put the freewheel body onto the hub.
   → Make sure that the seal on the freewheel body is fitted the right way round and is not twisted.
10. Check if the freewheel body can be turned and if the ratchets are engaging.



3.7 MOUNTING THE END CAP

1. Grease the ball bearing and the inside of the end cap with universal grease.

2. Place the end cap on the hub.
3. Press in the end cap by hand.

Closing Steps:	**Link**
Mount the brake rotor	
Assembling the cassette	

4. TROUBLE SHOOTING

Issue	Reason	Solution
Freewheel is blocked	shim ring / spacer was forgotten during assembly.	Check correct assembly, see "2.1 Übersicht", page 5.
	Spacer was compressed by overtightening the thru axle.	Measure the length of the spacer. – 240 DEG Hybrid: 8.77 mm – 350 DEG: 2.95 mm – 350 DEG Hybrid 8.77 mm If the spacer is shorter than 15.4 mm, it must be replaced.
Freewheel does not engage / slips	One or both ratchets are mounted upside down.	Check correct assembly, see "2.1 Übersicht", page 5.
	Too much or wrong grease on the ratchets.	Clean and grease ratchets, see "2.8 Freilaufsystem und Freilaufkörper montieren", page 13.
	One or both springs were forgotten during assembly.	Check correct assembly, see "2.1 Übersicht", page 5.
	Ratchets are worn or damaged.	Check the ratchets for damage and wear.
Anti-pedal kickback function is not provided	DEG DF ratchet was mounted in the 0° position.	Mount the ratchet in a position with a degree of freedom.
	DEG and DEG DF ratchets have been interchanged.	Check correct assembly, see "3.1 Übersicht", page 6.
Notches from the cassette on the freewheel body.	The steel cassette works itself into the alloy web of the freewheel body.	Remove bad notches on the freewheel body using a file.
Freewheel is too noisy / too quiet.	The perception of the freewheel sound is very subjective. While some riders prefer a loud freewheel sound, other riders want a quiet freewheel. In principle, the freewheeling sound can be influenced by the amount of grease between the ratchets. Less grease increases the freewheeling noise. Caution: Too little grease leads to increased wear of the ratchets. Too much grease can result in the freewheel not engaging.	

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