

Velotechnic DS1 – Transform Your Ride

THANK YOU for choosing the Velotechnic DS hubs! We are confident that these hubs will exceed your expectations for performance. We designed these hubs specifically for riders' needs and durability for many riding miles. For the ease of routine maintenance, no special tools will be required.

The Velotechnic DS hubs are manufactured by cold forging aluminium billets and lathe with high precision CNC machines. The drive mechanism encompasses 4 unique magnetic pawls for an ultra-low friction drive system. We select the bearing sizes and design the axle to maximise strength, stiffness, stability and smoothness. Both front & rear hubs contain bearing preload collar which can be set for optimal bearing & hub performance. The hubs will exhibit exceptional smoothness from their first use and it will continue to improve after some rides as the sealed bearings & sleeve bearing are break-in.

We wrote this instruction manual to be as concise and easy understanding as we can. While great care and (tonnes of) corrections were taken during the composition of this manual, we apologise if errors such as typo or numerical errors are still found. We hope you will find this manual helpful and enjoyable as much as we enjoy writing it!

IMPORTANT READ BEFORE USE

1. The Velotechnic hubs are designed to be used with quick release for most modern rim brake road bikes with 100mm width spacing front fork and 130mm frame spacing spec. Using other widths spacing are up to your own risk.
2. The Velotechnic DS1D hubs are designed to be used with Thru' Axle for most modern disc brake bikes with 100mm width spacing front fork and 142mm frame spacing spec. Using other widths spacing are up to your own risk.
3. For any reasons should the hubs fail to function properly or cease to spin, please stop using them immediately and bring to a qualified mechanic for checks.
4. **LUBRICATE** the free hub body, pawls and ratchet ring with very low viscous grease / oil only. We use Dumonde Tech freehub lubricants. The magnetic pawls are designed with room to fall back into a closed position between engagements. The wrong type of grease such as high viscous grease can prevent the pawls from engaging the ratchet ring resulting in lost of engagement and pedal control. Heavy grease can also coat the magnets in the pawls rendering weaker or no attraction to the ratchet ring which causes slippages between engagements and result in lost of control.
5. **DO NOT APPLY DEGREASER** to clean the cassette on the free hub body or any parts of the hubs. Chemicals from the degreaser can penetrate the interiors of the hubs and bearings, damaging the lubricants protecting them and cause pre-mature rust and corrosion.

INSTRUCTIONS FOR WHEEL BUILDING

Wheel building is a very specialised skill that may involves many years of experience. An improper wheel build can produce wheel failures like hub flange breakages, spoke breakages, nipple pull-through and even a collapse wheel. Your wheels must always be built by a qualified wheel builder.

Front Hub

- Radial lacing allowed
- Max spoke tension 125kgf

Rear Hub

- Radial lacing NOT allowed on Drive Side
- Minimum 2-cross pattern lacing on Drive Side
- Maximum spoke tension on Drive Side 145kgf
- Radial lacing allowed on Non-Drive Side
- Recommend lacing pattern for 24H, 1 : 1 hub - 2 crosses on both sides
- Recommend lacing pattern for 21H, 2 : 1 hub - 3 cross on drive side and 0x for non-drive side

HUB SPECIFICATIONS

Front Hub - 100mm O.L.D

Centre to Flange	36.4mm
Flange Diameter (PCD)	39.0mm
Weight	115g

Rear Hub - 131mm O.L.D

DS Centre to Flange	17.3mm
NDS Centre to Flange	37.5mm
DS Flange Diameter (PCD)	56.6mm
NDS Flange Diameter (PCD)	40.9mm
Weight	252g

Bearing Sizes

Front Hub	2 x 6802
Rear Hub	2 x 17287 1 x 18307

Before we begin...

All hub maintenance, assembly and disassembly should only be done by a professional. If you have no experience servicing hubs, you may encounter many problems in the process. In some instances, it may lead to damages and cause accidents during use.

DISASSEMBLY

Front Hub Disassembly

1. Insert two 5mm hex wrenches and loosen one of the end caps.
2. With the 5mm hex wrench remaining in one of the end caps, insert a 6mm hex wrench **COMPLETELY INTO THE AXLE** to loosen the remaining end cap. The hex wrenches have to be completely insert into the slots before applying force.
3. To remove the preload adjustor, turn it *clockwise* with hands. It is designed with a reverse threading.
4. Apply some force and push the axle out of the 2 bearings.
5. All bearings can be remove using the suitable size bearing pullers or extractors.

Rear Hub Disassembly

1. Insert two 5mm hex wrenches and loosen one of the end caps.
2. With the 5mm hex wrench remaining in one of the end caps, insert a 10mm hex wrench **COMPLETELY INTO THE AXLE** to loosen the end cap. The hex wrenches has to be completely insert into the slots before applying force.
3. To remove the preload adjustor, turn it *clockwise* with hands. It is designed with a reverse threading.
4. Apply some force towards the drive side & push the axle along with the freehub out of the hub shell. Some or all of the magnetic pawls may remain in the ratchet ring. You may extract them.
5. Use a small flat tip screwdriver to extract the rubber gasket surrounding the ratchet ring.
6. All sealed bearings can be remove using the suitable size bearing pullers or extractors.

We DO NOT recommend the freehub sleeve bearing to be removed and it should not be damage under usual riding circumstances. It should remain intact under normal usage and there should not be any needs for replacement. A simple wipe to clean away any dirt or tainted oil can be done during routine maintenance.

ASSEMBLY

FRONT HUB ASSEMBLY

1. Install the bearings using suitable bearing presses. Bearing sizes can be found in Page 2.
2. You may like to apply waterproof grease on the outer bearings seals to prevent contaminations.
3. Tightened the non-preload end cap into the correct end of the axle (single-diameter thread) using 5mm & 6mm hex wrench.
4. Slide the axle through the bearings. Make sure the axle is insert completely.

Making Preload Bearing Adjustment for Front Hub

5. The preload collar is designed with reverse threading. Install the preload collar by turning it **REVERSE CLOCKWISE**.
6. Stop turning once the preload collar has contact (barely) with the bearing.
7. Install the remaining end cap. You may do so with hands only. Once it makes contact, *undo about 1/8 turn*.
8. Loosen the preload collar slightly with 1/8 turn **clockwise**. It should make contact with the end cap.
9. Insert 5mm hex wrenches into both end caps and tighten it firmly. Over tightening and excessive force is not necessary.
10. If free play occurs after securing with quick release on the bike, the settings could be too loose. If the hub does not spin smoothly after securing with quick release, the settings could be too tight. Repeat the preload adjustment steps and adjust accordingly.

REAR HUB ASSEMBLY

1. Install the bearings using suitable bearing presses. Bearing sizes can be found at Page 2.
2. Press the rubber gasket onto the hub shell above the ratchet ring if they were removed earlier. Make sure it is seated completely to prevent binding.
3. You may like to apply waterproof grease on the outer bearings seals to prevent contaminations.
4. Apply only LIGHT VISCOUS GREASE / OIL on the ratchet ring and the seats of the pawls. We recommend using Dumonde Tech Pro X Freehub Oil. Do not use high viscous grease.
5. Also apply LIGHT VISCOUS GREASE / OIL on the sleeve bearing found on the inner side of the freehub.
6. Install the axle into the freehub, it should fit snugly into the sleeve bearing. Rotate the freehub to make sure it turns smoothly.
7. Install & tighten the Drive Side end cap using 5mm and 10mm hex wrench on each side.
8. Insert the 4 magnetic pawls (and springs) into the correct pockets on the freehub. Please ensure that the magnets on the pawls are facing outwards.



9. Position the freehub / axle horizontally so the pawls do not drop out. Insert the module into the hub shell bearings. It should fit easily.

Making Preload Bearing Adjustment for Rear Hub

1. The preload bearing adjustment for the rear hub is the same as the front hub.

MAINTENANCE

The VELOTECHNIC DS hubs are designed to perform for miles after miles with low maintenance.

Regular Checks:

1. Can be performed anytime.
2. To check if the preload settings are correct – rock the wheels on the bike laterally to spot for free play occurring. If so, perform the instructions for the preload adjustment. A very slight freeplay is normal as this is due to the micro difference in diameters between the sleeve bearing and the axle. It will not have an effect on performance.
3. To check for bearing wear or damage – turn the axle ends with your hands. If the feel of grittiness occurs, some or all of the sealed bearings may need replacement.

Routine Maintenance:

1. To be performed by qualified personnel only.
2. A routine maintenance can be performed between 3000km to 4000km of riding. If wet rides occur regularly, routine maintenance can be done earlier.
3. No special tools are required to carry out routine maintenance.
4. Bearings can be replaced with the appropriate bearing pullers / extractors and presses.
5. Used oil and grease can be removed with paper wipes. Do not use degreaser.
6. Apply only LIGHT VISCOUS GREASE / OIL on the ratchet ring and the seats of the pawls. We recommend using Dumonde Tech Pro X Freehub Oil.
7. You may like to apply waterproof grease on the outer bearings seals to prevent contaminations.

SUPPORT

Contact us or your closest dealers if you require further support.

Email: contactme@velotechnic.com

Web: www.velotechnic.com

LIMITED WARRANTY

We manufacture our hubs using high precision machines, tools and methods to ensure only the best quality from the production land in our customers' hands.

All maintenance, assembly, disassembly and wheel building with the Velotechnic DS hubs should be done by qualified personnel only.

Wheel Angel Singapore Pte Ltd warranties the original owner of Velotechnic DS hubs under normal and intended usage to be free from manufacture & workmanship defects with the following period for the specific parts of the hubs.

Hub Body	TWO Years from date of purchase
Axle	
End Caps	
Preload Collar	
Free Hub	
Pawls	
Pawl Springs	
Ratchet Rings	

Bearings	SIX months from date of purchase
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Not limited to the conditions below, all warranties are not covered by:

1. Lack of maintenance
2. Water / chemical contamination & damage
3. Damages from repairs, assembly & disassembly & wheel building works by unqualified personnel
4. Loss of smoothness in bearings due to contamination, rust, corrosion or similar factors.
5. Corrosions on any parts of the hubs.
6. Wear and tear, abuse, and using the product other than for its original intent.
7. Variation in colour tones for all parts.
8. Discolouration.

In the event of a warranty claim....

Contact us or your local bike shop where you purchased these hubs. Produce the original receipt or invoice stating the date of purchase and the defective parts.

Customers who are not based in Singapore will bear all postage sent to or return from us.

If the warranty claim is deemed valid, Wheel Angel Singapore Pte Ltd will repair or replace the defective part with an identical, updated or similar part. The customer will understand and bear all responsible if,

- The return postage to us is lost, untraceable or damage during freight.
- Replacement parts being not available where in such a case, we may need to replace with a similar or refurbish part.
- All reasonable amount of lead time needed to replace and / or repair the defective parts.
- All original parts which has been replaced will become the property of Wheel Angel Singapore Pte Ltd.

The repaired or replaced product will be continued to be warranted for the remaining period of the original warranty.

LAW

All transactions made with Wheel Angel Singapore Pte Ltd will be in accordance to the governing rule and law of Singapore. Any further disputes arising will be settled in a court of law in Singapore.

CONFIDENTIALITY

Wheel Angel Singapore Pte Ltd is committed to maintaining the confidentiality of the customer's personal information and undertakes not to divulge any of the customers' personal information to any third party without the prior written consent of the customer. Customers' particulars are solely for the purposes of completing sales transactions or for other legitimate purposes.