



Operating Manual  
for Hands-On-Cycle hand drive

# Introduction

**Dear customer,**

thank you for purchasing a HP VELOTECHNIK recumbent! With the this high-quality recumbent bike you will enjoy many years of exhilarating riding pleasure.

In this manual you will find information on the individual adjustment and handling of your recumbent with the Hands-On-Cycle manual drive. The instructions are in addition to the original operating manual that you also received with your recumbent. Please take your time to familiarize yourself with your new bike, read and observe all associated instructions.

Enjoy yourselves and have a great ride!

Your HP VELOTECHNIK-team

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For latest instructions and product information, please visit:

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# Part designation



- 1 - cover for input box
- 2 - input shaft
- 3 - support
- 4 - support clamp
- 5 - crank
- 6 - hand pedal
- 7 - mast
- 8 - cover for output box
- 9 - chainring with chainring adapter
- 10 - leg rest
- 11 - front boom
- 12 - leg rest mesh
- 13 - chain with chain protection tube

# General safety instructions

This manual explains the setup and use of the Hands-On-Cycle manual drive.

This manual comes with the original instructions for your HP VELOTECHNIK trike and other component manufacturers. If your trike is equipped with an electric auxiliary drive, instructions for this are included as well. These instructions explain the operation and maintenance of the components in detail.

Before riding your Hands-On-Cycle, read this manual, the original operating instructions for your trike, and the component manufacturer's instructions.

Also pass the manual on to any other user of your trike.

Some of the maintenance and adjustment work to be performed on this recumbent require special tools and expertise. Only carry out work that you are confident you can do. If in doubt, contact your specialized dealer.

Carefully get used to the unfamiliar handling of the recumbent trike on a paved area away from traffic.

## Warnings

Two different types of warnings are used in these instructions. Read these warnings very carefully and follow the instructions for action.



## **Danger!**

Notes with the signal word "Danger" indicate dangerous situations that can result in minor injuries, serious injuries or even death.



## **Attention!**

Notes with the signal word "Attention" indicate dangerous situations which may result in minor injury or damage to property.

## **Models with Hands-On-Cycle**

The Hands-On-Cycle hand drive must only be mounted on the HP VELOTECHNIK models Scorpion fs 20 and Gekko fx 26.

## **Description**

The trike is driven by arm muscles. The arm motion is transmitted via the crank to the drivetrain.

The legs are placed on the leg rest. The steering is done by a swiveling and rotating movement of the mast.

# General safety instructions

## Intended use

Use your HP VELOTECHNIK trike only for its intended purpose: Your recumbent trike with Hands-On-Cycle is a trike for use on roads and paved paths. It is not designed for racing, off-road sports, jumping or riding over curbs, stairs, roots, etc.

The Hands-On-Cycle equipment enables people with certain limitations (see indications) to move independently. The physiotherapeutic treatment is supported and the support and balance reactions as well as movement coordinations are trained.

Your bike must only be used in road traffic in compliance with the road traffic regulations in force in the respective country and with the appropriate accessories.

In the event of damage resulting from improper use, assembly errors, intent, accidents or similar, neither warranty nor liability claims can be asserted against HP VELOTECHNIK. Intended use also includes compliance with the prescribed operating, maintenance and servicing instructions.

## Indications

An HP VELOTECHNIK recumbent trike with the Hands-On-Cycle hand drive can be used to restore mobility in cases of balance and coordination disorders as well as restricted natural movements.

According to the therapist's recommendation, possible indications for riding this tricycle are:

Balance disorders / dizziness, joint mobilization e.g. in osteoarthritis, neuromuscular diseases e.g. cerebral palsy or muscular dystrophy paralysis e.g. stroke with partial paralysis of one or both legs, amputations, muscle development, back pain.

## Contraindications

The trike must not be used by persons who are not fit to ride a trike safely and independently, e.g. in case of blindness, or inability to move necessary limbs in a controlled manner.

## Individualisation

The recumbent trike with Hands-On-Cycle hand drive can be adapted to individual requirements. For this purpose, HP VELOTECHNIK offers a wide range of optional accessories, e.g. e-drive, pelvic support belt, foot plates and lower leg fixation.

Please contact your specialized dealer or HP VELOTECHNIK if you have any questions about adapting the trike or accessories to your needs.

## Reuse

An HP VELOTECHNIK recumbent trike with Hands-On-Cycle hand drive is suitable for reuse if used as intended and after inspection by a specialized dealer.

# General safety instructions

## Regulation of the European Union

All suspected serious incidents occurring in connection with the trike and accessories should be reported to the physician or HP VELOTECHNIK. In addition, you can also contact the responsible authority directly. Suspected serious incidents are incidents resulting in death, worsening of health condition or serious danger to public health.

## The first ride

Before the first ride, the trike must be adjusted to you (see page 9)



### **Danger!**

If the legs slip off the leg rest, they can be rolled over. Your legs must rest securely on the leg rest and be secured against falling off. Check whether you need HP VELOTECHNIK accessories for this purpose (lower leg fixation, foot plate).

It is important that you sit securely in the seat. Use HP VELOTECHNIK pelvic support belt if you need extra support.

If you are considering using an additional seat cushion, test it first outside of traffic on paved terrain: Do your arms have enough room to move? Are you sitting securely in the seat? Does the cushion not slide on the seat in any driving situations? Do your legs rest securely on the leg rest?

The seat cushion shifts the center of gravity upward; familiarize yourself with the change in driving behavior.

A trained assistant should be present on your first ride to make adjustments, provide assistance, and advise you.

Practice first on a paved area without traffic to get used to the still unfamiliar trike.

Familiarize yourself with all the elements of operation. These include gear shifting, brakes, operation of the electric drive system, lights and bell.

Familiarize yourself with the crank arms:

The crank arms, if not held or if the trike is moved backwards, can swing down towards the rear, that is towards the rider.

When the trike is moved forward, the freehub prevents the crank arms from moving on their own.

Familiarize yourself with the following feature of the Hands-On-Cycle: steering requires less force when the cranks are up, steering requires more force when the cranks are down.

Practice making hand signals or using the turn signal (optional part) to indicate a turn.

Try out how you can turn or maneuver if there is little space available for this. Get help if necessary. Note that the crank arms rotate backwards when you move the trike backwards. The crank arms, if not held, can swing backwards downwards, that is in your direction.

# General safety instructions



## **Danger!**

Moving parts on the trike can squeeze your fingers or other body parts.

When maneuvering, do not reach into the spokes, onto the inside of the wheels or underneath a mudguard.

Note that the crank arms can move along or swing over.

If you have to push yourself off the floor or the wall with your hands or pull yourself towards it when maneuvering, check beforehand whether there is any possibility of injury there. Move yourself and the trike carefully.

If you need to move the wheels with your hands, carefully grasp the tire and rim from the outside only, move yourself and the trike carefully.

At high speeds, the steering response may change. Practice driving at different speeds.

Do not participate in road traffic until you can ride your bike safely and handle all operating elements safely.

## **All rides**

### Handling

The trike is equipped with moving parts and adjustments. There is a risk of squeezing your fingers or other parts of your

body. Be careful when handling, adjusting and maintaining the trike and while riding.

### Parking

When parking your trike, always secure it with the parking brake to prevent it from rolling away (see page 8, fig. 1).

### Ways and weather conditions

When planning your route, keep in mind that your tricycle is wider than a wheelchair.

Be aware of the influence of the weather and a wet or even icy road on riding safety. HP VELOTECHNIK recommends not to ride in icy conditions.

Ride on paved roads only.

There is a risk of tipping over if the trike is inclined sideways, e.g. on slopes. Therefore, avoid driving on routes with a significant lateral inclination.

Only drive over low obstacles.

Always drive over obstacles forward and at low speed. For example, only use lowered curbs to enter or cross a sidewalk.

Please note that trike parts can heat up considerably in strong sunlight.

### Riding

Ride at an appropriate speed.

HP VELOTECHNIK recommends always riding with your lights on.

Always be ready to brake.

# General safety instructions

The parking brake is not a service brake. It must not be used for braking while riding.

## Several users

Before being used by other persons, your trike must be adapted to them. Check whether the adjustments must be carried out by specialized dealer, see page 9.

Hand out the manuals to each user before the first ride. Each user must familiarize themselves with the trike as described above.

## Carrying the recumbent

The recumbent must not be lifted when a person is on the seat.

## Breakdown

Before each ride, plan how to handle a breakdown. A breakdown can be caused, for example, by a flat tire or the chain coming off, making it impossible to continue without repair. If you cannot move without the trike, ride with an accompanying person. If you want to rely on the ability to call for assistance on your cell phone, ride only in areas with cell phone reception.

## Lighting system and turn signal

If equipped with an electric drive system, the lighting system and the optional turn signal only function when the drive system is switched on.

# Getting in and out

Block the trike with the parking brake. The lever for locking the parking brake is located on the left under the seat.



*Abb. 1: Parking brake: Move the lever forward to lock the parking brake. Move the lever back to release the parking brake.*

To make it easier to get in and out, you can bring the mast to a higher position. To do this, release the quick-release lever of the support (see page 10, fig. 1), prop up the mast with one hand and push the mast upwards, close the quick-release lever again.

## **Danger!**

When opening the quick release of the support, the mast falls down. This can lead to injuries. Prop up the mast with one hand, bring it into the desired position and close the quick release lever carefully.

Never loosen the quick release lever of the support while driving.

After you get on, return the mast to your favourite riding position. see page 10, fig. 1.

# Individual Adjustment



## Danger!

Loose bolts and open quick-release levers lead to insufficiently fastened bicycle parts. This can lead to accidents with injuries or even death.

Always make adjustments to your trike while it is standing still. Only ride when all screws and quick-release levers are correctly closed. Observe the specified tightening torques on page 17.

Your trike is equipped with an HP VELOTECHNIK ErgoMesh seat.

The HP VELOTECHNIK BodyLink seat must not be used together with the Hands-On-Cycle hand drive.

In the order list for Hands-On-Cycle some add-on parts are listed. From the HP VELOTECHNIK range, only these add-on parts are suitable for your trike.

Electrical devices from other producers, e.g. auxiliary drives, must not be mounted on the trike.

Attachments that change the intended use of the trike with Hands-On-Cycle hand drive must not be mounted.

No modifications must be made to load-bearing components.

The seating position is essential for riding comfort, your well-being and efficient performance on the recumbent trike. Therefore, adjust the seat, frame and suspension exactly to your needs. You will find de-

tailed information on the adjustment options in the original trike manual.

The adjustment of the manual drive is described in the following.



## Danger!

Moving the front boom in or out has an effect on the steering and on safety. Errors in adjustment can lead to accidents. Modifications must only be carried out by a specialized dealer.



## Danger!

Loose screws can cause attachment parts to twist or come loose. This can lead to accidents. Tighten all screws to the specified torque. Use a torque wrench for this purpose.

The adjustment of the front boom must be carried out by a specialized dealer. The adjustment of the seat, the leg rest, the foot plates and the lower leg fixation as well as the height adjustment of the mast can be done by end users.

## Seat adjustment

Adjustment options on the seat of your trike can be found in the original trike manual. The seating position should allow enough arm room, be comfortable and al-

# Individual Adjustment

low a good view. After adjustment, close the quick-release levers.

## For specialized dealer only: Adjustment of the front boom

Part designation:

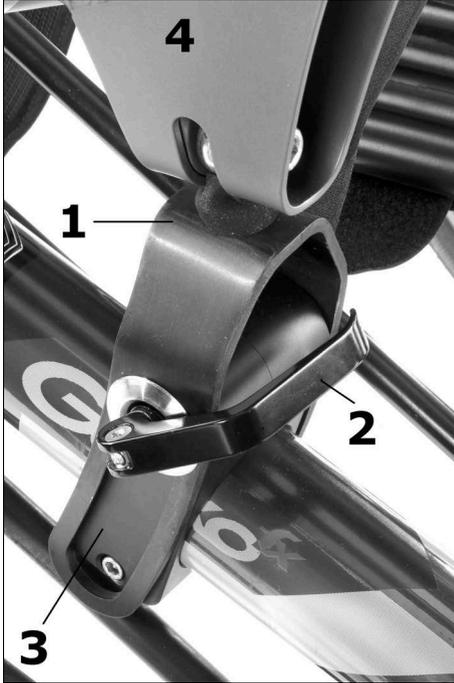


Fig. 1: Support: support bracket and clamp lie matching on top of each other

- 1 - support bracket
- 2 - quick-release lever
- 3 - support clamp
- 4 - rod end mount

Together with the rider first adjust the seat as described above. Then check the boom length. The boom is well adjusted when the driver is sitting

driver sits leaning against the seat and can grip the cranks with slightly bent cranks when they are in the foremost (furthest away) position.

1. Open the quick-release lever of the support and bring the mast to a middle position. Close the support's quick-release lever.
2. Open the clamping screws of the front boom (see page 10, fig. 2) and of the push rod (see page 10, fig. 3).



Fig. 2: Front boom adjusting clamp



Fig. 3: Clamping screw for adjusting the push rod length

3. If the front boom is adjusted in a range of 1 cm, the support clamp on the main frame can remain in position. If it is necessary to move the front boom in or out more than 1 cm, the support clamp on the main frame must be moved as well.
- 3a. Secure the mast so that you can work

# Individual Adjustment

on the the support.

- 3b. To move the support clamp, remove the quick-release clamp, quick-release nut and quick-release mount (part designation see page 10, fig. 1 and see page 11, fig. 5). Then loosen the 2 fastening screws of the support clamp.
- 3c. Adjust the support clamp, so that
- the support clamp is located under the support bracket see page 10, fig. 1.
  - the rod end does not touch the the rod end mount, see page 11, fig. 4.

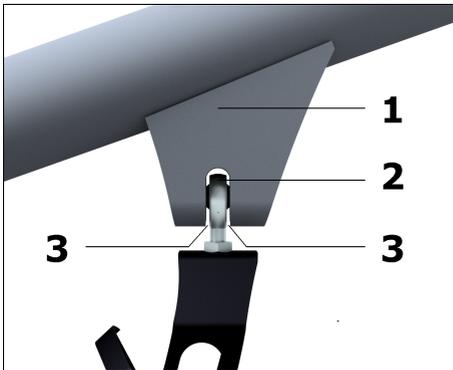


Fig. 4: The rod end (2) must not touch the rod end mount (1)

1 - Rod end mount

2 - Rod end

3 - Clearance between rod end and rod end mount

- 3d. When tightening the support clamp, first tighten the upper screw to the stop (7–9 Nm), then tighten the lower screw (7–9 Nm).

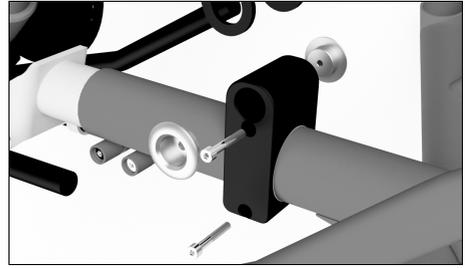


Fig. 5: Support clamp

The support clamp consists of a left and a right part. With 2 screws they are connected and clamped on the frame. When tightening, first the upper and then the lower screw must be tightened (7–9 Nm). Also in the picture: quick release mount (left) and quick release nut (right).

- 3e. Mount the quick release clamp, quick-release nut and quick-release mount (see page 11, fig. 5 and see page 11, fig. 6).

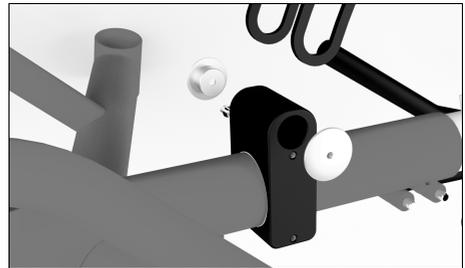


Fig. 6: Support clamp with quick-release mount (left) and quick-release nut (right) as seen from the right side.

4. Tighten the front boom clamping screws (11–12 Nm).
5. Set the front wheels of the trike and the mast in a straight position and tighten the screws of the push rod (7–8 Nm).

# Individual Adjustment



## Danger

If the rod end slides on the rod end mount, the steering system is not free. This can lead to serious accidents. Install the support clamp as described above. The rod end must not touch the rod end mount (see page 11, fig. 4).

## Positioning of legs and feet

### Setting of the leg rest

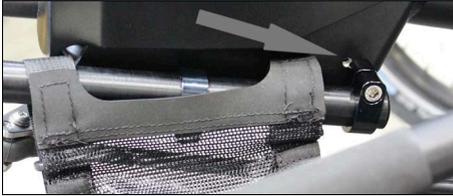


Fig. 7: Leg rest: setting of the inclination

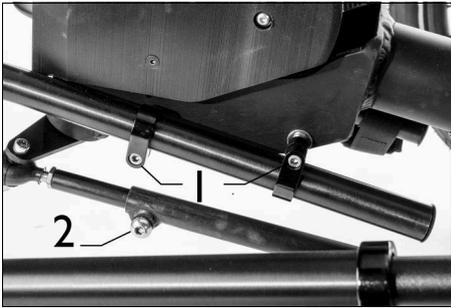


Fig. 8:  
1 - Leg rest :adjustment of length  
2 - push rod: setting of length.

The inclination and length of the leg rest can be adjusted.

Adjusting the inclination (see page 12, fig. 7): The screws of the two rear clamps can be screwed either into the upper or lower thread (7–9 Nm).

Adjusting the length: Loosen the screws of all the 4 clamps that secure the leg rest to the front boom. Adjust the leg rest to your leg length. Tighten the fastening screws again (7–9 Nm).

### Adjustment of the leg rest mesh



## Danger!

If the legs slip off the leg rest, they can be rolled over. Your legs must rest securely on the leg rest and be secured against falling off. Check whether you need HP VELOTECHNIK accessories for this purpose (lower leg fixation, foot plate).

The leg rest mesh can be attached in 2 positions



Fig. 9: The leg rest mesh is fixed in front of the clamps.

# Individual Adjustment



Fig. 10: The leg rest mesh is fixed behind the clamps

## Adjustment of the foot plates



Fig. 11: Leg rest with foot plate and lower leg fixation  
1 - Fixation and adjustment of foot plates  
2 - Fixation and adjustment of the lower leg fixation

You can move the foot plates sideways and adjust the inclination. To do this, loosen the fastening screws and tighten them again after the adjustment (6 Nm).

## Use of the retaining strap:

Open the retaining strap on the foot plate by pulling the blue flag and undoing the Velcro fastener. The integrated spring sheet lifts the belt. If you are able to pass your foot through, you do not need to pull the strap out of the strap bracket

Tighten the retaining strap(s) and place the Velcro partners on top of each other.

## Retaining options of the retaining straps

You can adjust the position of the retaining strap using the various holes in the sidesheets of the footplate.

Remove the lock nuts and remove the retaining strap and strap bracket. Use a light hammer blow on the press-fit threaded bolts to loosen them from the holes.

Mount the strap bracket on the inside of the footplate and the retaining strap on the side part in the position that suits you. To do this, insert the bolt into the hole and prevent it from falling out again by applying light pressure with one finger while you put on and tighten the strap bracket/retaining strap, washer and self-locking nut. In doing so, the threaded bolt secures itself against twisting. Make sure that the end of the threaded bolt is not pulled below the surface of the side part.

If the threaded bolt is carried by the self-locking nut and turns, you can first use an M5 nut without threadlocker to pull the threaded bolt into the hole until it is secured against turning.

## Adjusting and using the lower leg fixation (see page 13, fig. 11)

The holding rod of the lower leg fixation is placed into the outer tube end of the leg rest, turned into the appropriate position and fixed with the clamp (7–9 Nm).

Open the Velcro strap on the calf pad, place it around the leg and reattach it to the calf support.

# Individual Adjustment

## Adjustment of the hand cranks

Grab the hand cranks and test that the brake levers, shift levers, and bell are within easy reach and that the distance between right and left hand cranks is comfortable.

A qualified person can make the following adjustments:



Fig. 12: Adjustments cranks and hand pedal  
1 - Correct the distance between the cranks  
2 - Shorten the hand pedal

To reduce the distance between the hand cranks, the cranks can be moved side-wards on the input shaft. The input shaft can also be shortened.

The hand pedal tube can be shortened if necessary, but only on the open end side.

The grip width of the brake lever can be adjusted. The bell can be moved (also by user).

## Adjustment of the steering



Fig. 13: For the attachment of the push rod and adjustment of the steering there are 2 threads on the steering lever to choose from.

The force required for steering can be adjusted:

If the push rod is fastened in the inner position, the force required for steering is reduced. At the same time, the full steering range cannot be used.

If the push rod is fastened in the outer position, the force required for steering increases. The full steering angle can be used. This means that somewhat tighter turns can be made than when using the inner thread.

The adjustment must be carried out by a qualified person.

Tightening torque: 9–10 Nm.

# Folding

## Restricted foldability

Various attachments, for example an electric drive system or a rack, only allow limited folding of the recumbent.

Proceed as described in the folding instructions and fold the trike as far as possible.

Example: fold the rear wheel up to the cranks and attach the rack there with the enclosed Velcro strap.

## Gekko fx 26

Detailed folding instructions can be found in the original manual of the trike.



*Fig. 1: Folded Gekko fx 26 with Hands-On-Cycle hand drive.*

## Scorpion fs 20

Detailed folding instructions can be found in the original manual of the trike.

Additional note for your trike with Hands-On-Cycle: Loosen the folding joint as described. Steer to the right. Swing the rear of the frame up and guide the rear wheel past the mast on the left.



*Fig. 2: Folded Scorpion fs 20 with Hands-On-Cycle hand drive. The seat was taken off.*



## Attention!

If the restricted folded Scorpion fs 20 is tilted onto the rear wheel and folding joint, the folding joint may be damaged. Place the folded Scorpion fs 20 securely on the front wheels and leg rest.

# Labeling

	<ul style="list-style-type: none"> <li>• Medizinische Hilfsmittel sind gekennzeichnet mit Symbolen entsprechend der DIN EN ISO 15223-1.</li> <li>• Medical aids are marked with symbols according to DIN EN ISO 15223-1.</li> <li>• Les aides médicales sont identifiées par des symboles conformes à la norme DIN EN ISO 15223-1</li> </ul>
	<ul style="list-style-type: none"> <li>• kennzeichnet Produkte, die die Anforderungen der Verordnung 2017/745/EU über Medizinprodukte erfüllen</li> <li>• identifies products that comply with the requirements of Regulation 2017/745/EU on medical devices</li> <li>• identifie les produits conformes aux exigences du Règlement (UE) 2017/745 relatif aux dispositifs médicaux</li> </ul>
	<ul style="list-style-type: none"> <li>• zeigt an, dass es sich um ein Medizinprodukt handelt</li> <li>• indicates that it is a medical device</li> <li>• indique qu'il s'agit d'un dispositif médical</li> </ul>
	<ul style="list-style-type: none"> <li>• zeigt den Hersteller des Medizinproduktes an</li> <li>• shows the manufacturer of the medical device</li> <li>• identifie le fabricant du dispositif médical</li> </ul>
	<ul style="list-style-type: none"> <li>• zeigt das Datum an, an dem das Medizinprodukt hergestellt wurde</li> <li>• shows the date when the medical device was made</li> <li>• indique la date à laquelle le dispositif médical a été fabriqué</li> </ul>
	<ul style="list-style-type: none"> <li>• zeigt die Seriennummer an</li> <li>• shows the serial number</li> <li>• indique le numéro de série</li> </ul>
	<ul style="list-style-type: none"> <li>• zeigt die Artikelnummer an</li> <li>• shows the item number</li> <li>• indique la référence de l'article</li> </ul>
	<ul style="list-style-type: none"> <li>• Gebrauchsanweisung beachten</li> <li>• observe operating instructions</li> <li>• se conformer au mode d'emploi</li> </ul>

# Tightening torques

*The values indicated are meant for a friction value  $\mu=0,125$  (greased threads and screw heads). They only refer to the indicated parts. Please do always follow the values given in the manuals of the parts manufacturers since the following values may not be up to date due to changes in the product line!*

<b>part</b>	<b>Connection</b>	<b>Bolt</b>	<b>Tightening torques</b>
support clamp	right part/left part	M6 size 5	7–9 Nm
frame	front boom clamping	M8 size 6	11–12 Nm
leg rest	leg rest/cover for output box	M6 size 5	7–9 Nm
foot plate	foot plate/leg rest	M5 size 3	6 Nm
crank	crank/input-shaft	size 5	12–14 Nm
hand pedal	hand pedal/crank	M6 size 8	35–40 Nm
steering rod	length adjustment	M6 size 5	7–8 Nm
steering rod	steering rod/steering lever	M6 size 5	9–10 Nm
steering rod	steering rod/stem adapter	M8 size 5/13	13–15 Nm
lower leg fixation	lower leg fixation/leg rest	M6 size 5	7–9 Nm

Also observe the torque specifications in the original operating manual of your trike.

# Technical data

Weight of the Hands-On-Cycle hand drive	7,5 kg/ 16,5 lbs
Folding dimensions, L x W x H: Note that depending on the attachments, your bike may have restricted folding capabilities.	
Gekko fx 26 Hands-On-Cycle hand drive	cm: 120 x 83 x 100 inch: 48 x 33 x 40
Scorpion fs 20 Hands-On-Cycle hand drive	cm: 105 x 83 x 98 inch: 42 x 33 x 39

# INFO

recumbent-  
technology



# HP

VELOTECHNIK