

VERMEIREN

V-Drive

USER MANUAL



Contents

Contents	1
Preface	2
1 Your product	3
1.1 Compatibility	3
2 Before use	4
2.1 Intended use	4
2.2 General safety instructions	4
3 Using V-drive	6
3.1 Assembling V-drive on your wheelchair	6
3.2 Disassembling V-drive for transportation	7
3.3 Handling V-drive when not in use	7
3.4 Operating console functions	8
3.5 Battery status and charging	8
3.6 Adjusting the V-drive module height	10
4 Maintenance	11
4.1 Cleaning.....	11
4.2 Disinfection	11
4.3 Reuse	11
4.4 Expected lifespan.....	11
4.5 End of use.....	11
5 Troubleshooting	12
5.1 Driving anomalies	12
5.2 System codes	12
6 Technical specifications	13

Preface

Congratulations! You are now owner of a Vermeiren product!

This product is made by qualified and committed personnel. It is designed and produced according to high quality standards, guarded by Vermeiren.

Thank you for your trust in the products of Vermeiren. To support you on the use of this device and its operating options, this manual is offered. Please read it carefully; it will help you to get familiar with the operation, capabilities and limitations of your product.

If you still have questions after reading this manual, do not hesitate to contact your specialist dealer. He/she will be glad to help you.

Important note

To ensure your safety and to prolong the lifetime of your product, please take good care of it and have it checked and serviced on a regular basis.

This manual reflects the latest product developments. Vermeiren has the right to implement changes to this type of product without any obligation to adapt or replace similar products previously delivered.

Pictures of the product are used to clarify the instructions in this manual. Details of the depicted product may deviate from your product.

Information available

On our website <http://www.vermeiren.com/> you will always find the most recent version of the information in this manual. Please consult this website regularly for possible updates.

Visually impaired people can download the electronic version of this manual and have it read out by means of a text-to-speech software application.



This user manual
For user and specialist dealer



User manual of wheelchair
For user and specialist dealer



Service manual for wheelchairs
For specialist dealer



Service manual for V-drive
For specialist dealer



EC declaration of conformity

1 Your product

The V-drive is designed to assist wheelchair attendants in case they do not have enough power to push the wheelchair by themselves, or in strenuous situations such as riding a wheelchair up slopes or hills. It provides extra power to aid pushing. The V-drive is compatible with a variety of wheelchairs and several seat widths thanks to the two available versions: a standard version (max. 135kg user weight) and a Heavy Duty version (max. 200kg user weight).

- i** Before using your V-drive, check the technical details and limits of intended use. See chapter 6.



1. Operating console
2. Lifting strap
3. Battery pack
4. V-drive module

1.1 Compatibility

The V-drive is compatible with wheelchairs that comply to the following criteria:

- with a distance between the outer tubing edges of 37cm – 50cm. This is usually, but not always, the same as the wheelchair seat width;
- with a round tubing diameter between 22mm – 25mm.



2 Before use



CAUTION

Risk of injuries and damage

- Do NOT install, maintain or use this product unless you have read and fully understood all instructions in this manual and all relevant manuals regarding the wheelchair equipped with this product.
- Do not try to open or disassemble the V-drive or operating console in any case - there are no user-serviceable parts inside.
- In case of doubts or questions, do not hesitate to contact your local specialist dealer, your care provider, or your technical adviser to help you with this.

For wheelchairs fitted with attendant cable brakes:

- **i** Attendant brake levers should be removed prior to fitting the V-drive operating console. If, because of this, the wheelchair is left without parking brakes, then separate parking brakes should be fitted to the wheelchair.

2.1 Intended use

In this paragraph a brief description of the intended use of your V-drive is given. Additionally, relevant warnings are added to the instructions in the other paragraphs. In this way we would like to make you aware of the possible misuse that may appear.

- Indications and contraindications: The V-drive is designed and produced to be a push aid for wheelchair attendants who do not have enough power to push the wheelchair by themselves. There are no known contraindications.
- V-drive is solely meant to be operated by an attendant, not by the occupant himself.
- V-drive is suitable for indoor and outdoor use.
- V-drive is designed and produced solely to aid in the transport of one (1) person with a maximum weight of 135kg (Standard version) or 200kg (Heavy Duty version).
- Please read all technical details and limits of your V-drive in chapter 6.
- The warranty on this product is based on normal use and maintenance as described in this manual. Damage to your product caused by improper use or lack of maintenance will cause the warranty to lapse.

2.2 General safety instructions

Keep the following general warnings in mind during use:

- Do not use your wheelchair if you are under influence of alcohol, medicines or other substances that may influence your driving abilities.
- V-drive should not become exposed to heavy snow or rainfall, damp conditions, or direct sunlight.
- When connecting / disconnecting the battery from the motor or the charger, make sure that both the power to the charger and V- Drive operating console are switched off.
- Your V-drive has been tested for electromagnetic compatibility on typical, representative vehicles and complies with the appropriate EMC standards (EN 12184: 2014, ISO7176-21: 209). Nevertheless, sources of electromagnetic fields may influence the driving performance of V-drive, such as the fields of mobile phones, power generators or high-power energy sources. On the other hand, the electronics in your V-drive can affect other electronic appliances too, such as alarm systems of shops and automatic doors. We therefore advise you to check your wheelchair and V-drive regularly for damage and wear, since these may enlarge the interference.
- Ensure that the V-drive is installed as far to the rear of the wheelchair as is comfortable for the attendant.



- When V-drive is installed on your wheelchair, please be aware that you need to comply to general road traffic regulations, which may include providing extra reflectors and/or lighting on your wheelchair.

3 Using V-drive


CAUTION

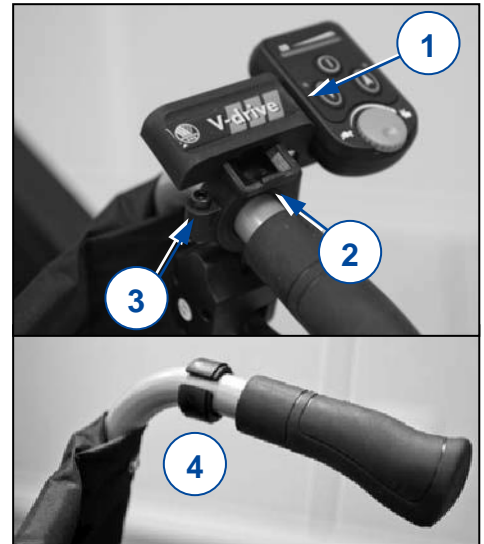
Risk of injuries

- First read previous chapters and inform yourself about the intended use. Do NOT use your wheelchair with V-drive unless you have read and fully understood all instructions.
- Make sure that the anti-tipping on your wheelchair has been lowered.
- In case of doubts or questions, do not hesitate to contact your local specialist dealer, your care provider or technical adviser to help you with this.

3.1 Assembling V-drive on your wheelchair

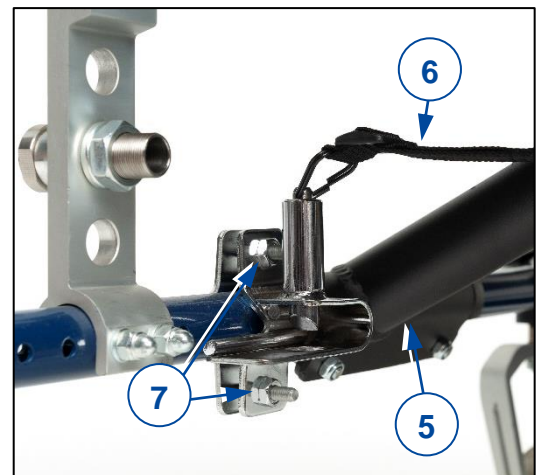
3.1.1 Installing the operating console

1. Push the operating console (1) forwards to remove it from the clamp (2).
2. Loosen both screws (3) of the clamp and position it around the tube of your wheelchair handle. Use the circular rubber (4) if the wheelchair tube is too thin.
3. Tighten the clamp around the wheelchair handle by tightening both screws.
4. Slide the console (1) back on the clamp.



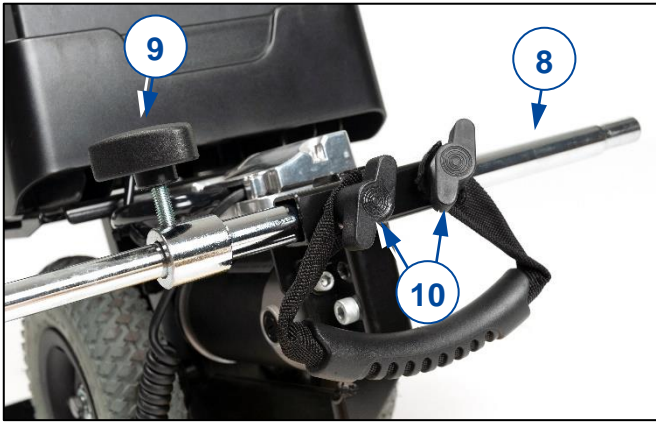
3.1.2 Installing the support brackets

1. Install both brackets on the bottom horizontal tubing of the wheelchair, just behind the cross attachments (5), by firmly tightening the screws.
2. Attach the strap (6) between the brackets.
3. Ensure that the screws (7) are sufficiently tight and do not rotate on the tubing.



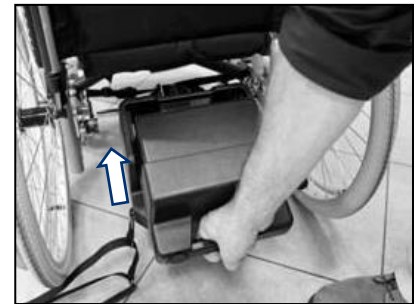
3.1.3 Installing the V-drive module

1. Slide the telescopic bar (8) through the front end of the V-drive module. Loosen the star knob (9) on the bar and adjust to the correct length.
2. Tighten the knobs on the bar (9) and at the front of the V-drive module (10).
3. Place the two ends of the bar on the rear of the brackets, then push the V-drive module forward until it locks into position.
4. Connect the cable from the V-drive module to the one underneath the handset (11).
5. Place the top loop of the lifting strap around the opposite push handle to the handset (12).



3.1.4 Installing the battery pack

1. Place the battery pack into the battery tray as shown in the photo.
2. Secure the battery pack by pushing it all the way in. An audible click will be heard.



3.2 Disassembling V-drive for transportation

i The battery supplied with the V-drive is classified as safe for air travel in compliance with IATA special provision A67.

1. Switch off the V-drive.
2. Disconnect the V-drive module from the operating console (§3.1.3, 11).
3. Remove the lifting strap from the push handle (§3.1.3, 12).
4. Remove the battery pack from the tray by pulling the handle of the battery pack and simultaneously pressing the PUSH button at the bottom of the battery pack (13).
5. Pull up the strap (§3.1.2, 6) to unlock the telescopic bar (§3.1.3, 8). Hold V-drive and push the wheelchair forward a bit so the telescopic bar comes out of the brackets. Remove the V-drive module from the wheelchair.
6. Place all items in the supplied carry holdall to prevent them from getting damaged.
7. If necessary/desired, you can now fold the wheelchair for transportation.



3.3 Handling V-drive when not in use

When you want to push the wheelchair manually and do not wish to use V-drive, restrain the V-drive module off the ground by lifting the red loop on the lifting strap and placing it on the push handle.

To protect V-drive from unauthorised use, you can disconnect the operating console from the V-drive module and remove the console from the clamp so you can take it with you.



3.4 Operating console functions



CAUTION

Risk of injuries

- Always start driving at LOWEST speed.

i When switching on V-drive, there will be a 2-second delay before the wheelchair starts moving.

A. ON/OFF button

Shortly press this button to switch V-drive ON/OFF. The button will light up green when V-drive is switched on.

B. Battery charge indicator

The indicator provides an estimate of the remaining battery capacity. When the indicator is blinking, recharge the battery as soon as possible to prevent shut-down.

C. Rearward moving button

Press this button to move backward. The light will indicate that rearward movement has been activated.

D. Forward moving button

Press this button to move forward. The light will indicate that forward movement has been activated.

E. Speed switch

Determine the maximum speed of your V-drive. Turn the dial clockwise to increase the maximum speed, or counter clockwise to reduce the maximum speed.

F. Throttle lever

Squeeze the lever to propel the V- Drive. The more the trigger is squeezed, the faster V-drive will travel. Release the trigger to stop V-drive.

G. Outer knob

Use this knob to alter the angle of the operating console.



3.5 Battery status and charging



WARNING

Risk of injuries and/or damage due to fire

- Only use the battery charger delivered with the V-drive. The use of any other charger may be dangerous.
- The battery charger is only intended to charge the batteries delivered with the V-drive, not to charge any other batteries.
- Do not adapt any of the delivered parts, such as cables, plugs or battery charger. Never open or change the battery or the connection points.
- Protect the battery and battery charger against flames, high and low temperatures (see chapter 6), moisture, sunshine, severe shocks (for example dropping). Do NOT use the battery if this has been the case.
- Charge the battery with the battery charger, indoors, in a well-ventilated area, out of children's reach.



CAUTION

Risk of damage

- Battery self-discharge and the quiescent current of the connected users will drain the battery charge slowly. The battery may be irreversibly damaged if the battery is fully discharged. Therefore, make sure that the battery is charged on time:

- With intensive use (long distances, daily use): Immediately recharge after use. Do not interrupt the charging cycle.
 - With average use (short distances, daily or a few times a week): Charge when battery indicator shows 50% discharge. Do not interrupt the charging cycle.
 - With little use or storage: Charge once a week. Do not interrupt the charging cycle.
 - Read the storage conditions and maintenance instructions in chapters 4 and 6.
 - Only disconnect the battery charger when the battery is fully charged.
 - Do not charge batteries below -10°C. Move the battery to a warmer place and start charging.
 - Keep the connection point for the battery charger free of dust and other contamination.
 - In case of any problems whereby the battery cannot be charged according to following instructions, please contact your specialist dealer.
 - If you do not use your V-drive for a long time, it should still be charged at least every week to keep the battery in a fully usable condition and to prevent damage to the battery.
- i** When fully charged, the battery charger will still trickle charge the battery to ensure optimum range.
- i** Do not leave the charger plugged into the battery after disconnecting it from the mains. This will cause a temporary power drain and reduction of drive range. It is also recommended to unplug the battery charger from the mains when not in use.

To charge the battery:

1. Switch OFF the V-drive.
2. Lift the battery pack out of the tray as described in §3.2.
3. FIRST connect the battery charger to a 230V AC power socket. Use the battery charger directly, without extension cord, on the power supply (without time switch).
4. Plug the adapter into the charging point of the battery pack.
5. The charger's LED will illuminate orange to indicate that the batteries are charging.
6. The orange LED turns green when charging is complete.
7. Disconnect the battery charger.
8. Remove the battery charger from the socket, let it cool down and store it in the charger pocket.
9. Switch on the V-drive. The battery charge indicator should show that the battery is fully charged.

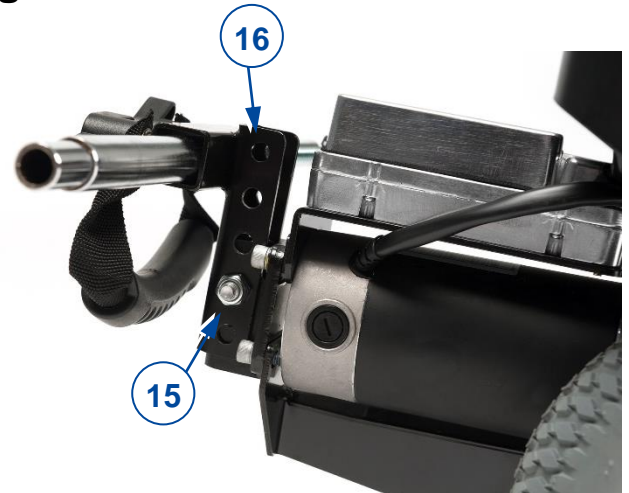
It is recommended to keep charging for a couple of hours after the charger LED has turned green. This will maintain and increase the capacity of your batteries. Using the charger supplied, the charging duration is approximately 8 hours, but to ensure optimum performance a 12-hour charge cycle is recommended. Do not charge the batteries for more than 24 hours.

The charger LED will also illuminate green if the charger is switched on but not connected to the batteries.

3.6 Adjusting the V-drive module height

The height of the V-drive module can be adjusted over a range of 8 cm (5 steps):

1. Remove the V-drive module from the wheelchair as described in §3.2 .
2. Remove the bolt-nut connection (15).
3. Slide the telescopic tube support (16) up/down over the attachment block to the desired height.
4. Replace and firmly tighten the bolt-nut connection (15).
5. Reattach the V-drive module to the wheelchair according to §3.1.3 .



4 Maintenance

- i** Regular care ensures that your V-drive is preserved in a perfectly functional condition. For the maintenance manual, refer to the Vermeiren website: www.vermeiren.com.

 CAUTION Risk of injuries and damage

Repairs and replacements may only be undertaken by trained persons and only genuine replacement parts of Vermeiren should be used.

- i** The last page of this manual contains a registration form for the specialist dealer to record each service.

Before each use

Inspect the following points:

- Battery status: Charge the battery when necessary, see § 3.5.
- All parts: present, undamaged, unworn and clean.
- General condition.

Contact your specialist dealer for possible repairs or part replacements.

Yearly or more often

Have your V-drive inspected and serviced by your specialist dealer at least once a year, or more often. The minimum maintenance frequency depends on the frequency of use and should therefore be commonly agreed upon with your specialist dealer.

4.1 Cleaning

Wipe all rigid parts of the V-drive with a damp cloth (not drenched). If necessary, use a mild soap, suitable for varnishes and synthetics.

4.2 Disinfection

 CAUTION Risk of damage

Disinfections may only be undertaken by trained persons. Consult your specialist dealer.

Use a soft, damp cloth and lukewarm water with a mild household disinfectant to clean V-drive.

4.3 Reuse

Before each reuse, have the V-drive inspected and serviced according to the instructions in this chapter.

4.4 Expected lifespan

The V-drive is designed to have an average lifespan of 5 years. Depending on the frequency of use, driving circumstances and maintenance, the lifespan of your V-drive will increase or decrease.

4.5 End of use

At end of life, you need to dispose your V-drive according to the local environmental legislation. The best way to do so, is to disassemble the V-drive to facilitate the transport of recyclable parts. Usually, batteries are collected separately.

5 Troubleshooting


CAUTION

Risk of injuries and damage

- NEVER attempt to repair the V-drive or operating console yourself.

5.1 Driving anomalies

This paragraph lists a number of problems with possible solutions. If the problem persists, or if you encounter any other problems not listed here, contact your specialist dealer.

1. *The wheelchair does not move when the throttle lever is pressed.*

- Verify that V-drive is switched on.
- Verify that the battery is fully charged.
- Verify that the connection between battery and motor is correct.
- Verify that the wheelchair brakes are not applied.
- Verify that the drive wheel is in contact with the ground.

2. *The wheelchair is difficult to push manually.*

- Verify that the wheelchair brakes are not applied.
- Lift the V-drive module off the ground (§3.3).
- Remove the V-drive module.

3. *The V-drive is too fast/slow.*

- Try varying the speed with the speed dial.
- Recharge the batteries (only if too slow).
- Verify that the wheelchair brakes are not applied.

5.2 System codes

In case of a possible problem, a system code is shown by the blinking of the leftmost LED on the battery charge indicator.

The following table summarises the possible system codes. Some problems can be solved by yourself. For all problems marked in grey, consult your specialist dealer.

Code	Possible problem	Possible effect	Possible solution
1	Low battery	The speed reduces.	Recharge the batteries.
2	Battery problem	The V-drive stops.	Check the cables and connections between the motor and controller.
3	Short circuit	The V-drive stops.	Contact your specialist dealer.
6	Battery charger	The V-drive stops.	Disconnect the battery charger from the V-drive.
7	Throttle problem	The V-drive stops.	Release the throttle lever before switching on the V-drive. Switch off the V-drive for 5 seconds and switch on again.
			Check the cables and connections.
8	Controller problem	The V-drive stops.	Change the controller.
10	Controller high voltage	The V-drive stops.	Check the cables and connections between the batteries and controller.

6 Technical specifications

The technical details below are only valid for this device, at standard settings and optimal ambient conditions. Take these details into account during use. The values are no longer applicable if your device has been modified, damaged, or is severely worn. Be aware that the driving performance is influenced by ambient temperature, humidity, slopes (driving up/down), type of surface and battery status.

Brand	Vermeiren
Type	V-drive

Description	Dimensions
Max. weight, including user and wheelchair	Standard version: 135 kg Heavy Duty version: 200 kg
Max. speed	6 km/h
Energy consumption*	16 km
Total mass (without battery pack)	
Standard version	10 kg
Heavy Duty version	14 kg
Masses of removable parts Battery pack	9 kg
Type of wheels	200 x 50 mm
Dimensions of V-drive module (LxWxH)	450 x 260 x 390 mm
Driving motor	Standard version: 24V 150W DC Heavy Duty version: 24V 200W DC
Battery	2x 12V , 12Ah/20hr, maintenance-free
Charger	2A 24V output
Storage and use temperature	+5 °C ~ +41 °C
Operating temperature for electronics	-10°C ~ +50°C
Storage and use humidity	30% ~ 70%
We reserve the right to introduce technical changes. Measurement tolerance ± 15 mm / 1,5 kg / 1,5° .	
* The theoretical driving distance will be reduced if the wheelchair is used frequently on slopes, rough ground or to climb curbs.	



Service registration form

This product (name):

was inspected (I), serviced (S), repaired (R) or disinfected (D):

By (stamp): Kind of work: I / S / R / D Date:	By (stamp): Kind of work: I / S / R / D Date:	By (stamp): Kind of work: I / S / R / D Date:
By (stamp): Kind of work: I / S / R / D Date:	By (stamp): Kind of work: I / S / R / D Date:	By (stamp): Kind of work: I / S / R / D Date:
By (stamp): Kind of work: I / S / R / D Date:	By (stamp): Kind of work: I / S / R / D Date:	By (stamp): Kind of work: I / S / R / D Date:
By (stamp): Kind of work: I / S / R / D Date:	By (stamp): Kind of work: I / S / R / D Date:	By (stamp): Kind of work: I / S / R / D Date:
By (stamp): Kind of work: I / S / R / D Date:	By (stamp): Kind of work: I / S / R / D Date:	By (stamp): Kind of work: I / S / R / D Date:



Vermeiren GROUP
Vermeirenplein 1 / 15
2920 Kalmthout
BE

website: www.vermeiren.com

Instructions for specialist dealer

This instruction manual is part and parcel of the product and must accompany every product sold.

Version: E, 2021-05

Basic UDI: 5415174 122409V-drive 5F

All rights reserved, including translation.

No part of this manual may be reproduced in any form what so ever (print, photocopy, microfilm or any other process) without written permission of the publisher, or processed, duplicated or distributed by using electronic systems.

© Vermeiren Group 2021