

VERMEIREN

Maintenance manual
V-drive



Contents

Contents	1
Preface	2
1 General safety instructions	3
1.1 Expected lifespan.....	3
1.2 Transport and storage.....	3
1.3 Reuse.....	3
1.4 End of use.....	3
2 Cleaning and disinfection	4
2.1 Cleaning.....	4
2.2 Disinfection.....	4
3 Inspection and maintenance	5
3.1 Troubleshooting.....	6
3.2 Tightening torques.....	7
4 Warranty	7



Preface

If you have any questions regarding this manual, do not hesitate to contact your closest Vermeiren facility.

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

Information available

On our website <http://www.vermeiren.com/> you will always find the most recent version of following information. 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.

1 General safety instructions



CAUTION

Risk of injuries and/or damage

- Maintenance, repairs and replacements may only be undertaken by trained persons.
- Only genuine replacement parts of Vermeiren may be used. Contact the nearest Vermeiren facility for more information.
- Carefully read and follow the instructions in this manual. Otherwise the user may get injured or the V-drive may get damaged.
- Take safety measures such as protective clothing when undertaking reparations, maintenance or disinfection of the V-drive.
- Use only undamaged equipment.
- The warranty on the product is based on normal use and maintenance as described in the manual. Damage to the product caused by improper use or lack of maintenance will cause the warranty to lapse.

1.1 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.

1.2 Transport and storage

The shipping and storage of V-drive should happen according to the following instructions:

- Store in a dry environment (temperature between +5°C and +41°C, humidity between 30% and 70%).
- Provide sufficient covering or packaging to protect the V-drive from rust, mould and foreign bodies. (e.g. salt water, sea air, sand, dust).
- Components must be stored without being subjected to strains: do not put too heavy loads on the V-drive, no clamping between something, ...
- Make sure the control panel is switched "OFF".

If you remove and store the batteries, note the following:

- Remove the cable clamps from the poles of the battery.
- Make sure that no objects can make contact with both poles during the time of storage (danger of short circuits!).
- Batteries should only be stored in dry, well-ventilated spaces at a temperature between 5°C and +40°C. (Preferred storage temperature: **+20°C**).
- Protect the plugs and sockets against corrosion.
- Protect the batteries against deep discharging. Charge the battery to full capacity before removal and storage.

If you have any further questions, please don't hesitate to contact your nearest Vermeiren facility.

1.3 Reuse

Before each reuse, the V-drive must be disinfected, inspected and serviced according to the instructions in this manual.

1.4 End of use

At end of life, you need to dispose of the 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.



2 Cleaning and disinfection

2.1 Cleaning

2.1.1 Wheels

Keep the wheels free of wires, hair, sand and fibres.

2.1.2 Plastic parts

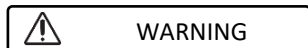
Clean plastic parts of the V-drive with commercial plastic cleaners. Please comply with special product information. Only use a soft brush or sponge.

2.1.3 Metal parts

When cleaning, only use warm water, normal household detergents and soft brushes or cloths. Ensure that the inside of the tubes or other metal parts does not get wet.

Chrome components only require rubbing with a dry cloth. Dull places or stubborn dirt can best be removed by using a suitable commercial chrome polish.

2.1.4 Electronics

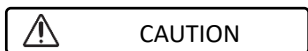


Risk of injuries

To avoid involuntary conduction of currents, remove the batteries before performing any maintenance.

Use a moist cloth with a few drops of a commercial domestic cleaner to wipe the steering unit. Do not use any abrasive cleaning agents or sharp-edged polishing equipment like a metal scrubber or brush, since these can scratch the surface of the steering unit. Do not soak the electronics by splashing or pouring water on it.

2.2 Disinfection



Risk of injuries or damage

- Disinfection may only be undertaken by trained persons.
- You should wear suitable protective clothing because the disinfectant could irritate your skin. For this purpose you should also take note of the product information of the solutions concerned.

All parts of the V-drive can be treated by scrubbing with a common household disinfectant.

All steps taken to disinfect rehabilitation equipment, their components or other accessory parts are to be recorded in the service registration form containing a minimum of the following information:

Date of the disinfection	Reason	Specification	Substance and concentration	Signature
--------------------------	--------	---------------	-----------------------------	-----------

Table 1: Example of a disinfection book

The recommended disinfectants for scrubbing are based on the list provided by the Robert Koch Institute, RKI. The current state of the disinfectants included in the RKI list can be obtained from the Robert Koch Institute (RKI) (homepage: www.rki.de).

3 Inspection and maintenance

The V-drive should be inspected and serviced by a specialist dealer at least once a year or more often. The minimum maintenance frequency depends on the intensity of use and the potentially faster wear and tear of certain components.

Before performing any maintenance activities, make sure that the V-drive is switched OFF and that the battery charger has been disconnected from the charger plug.

PART	INSPECTION	MAINTENANCE
Frame parts	No deformations, cracks or impaired functioning.	Replace in case of damage.
Plastic parts	No cracks or brittle spots	Replace in case of severe damage.
Wheels	Free running, level rolling	
	No axle play	Tighten the axle. Replace the flange in case of damage.
	Good tyre profile	Replace if tyre profile is less than 0,5 mm.
Screws and bolts	Solidity and seating: securely fixed	Tighten loose screws or bolts.
Metal joints	Well lubricated	⚠ Do not use WD40 lubricating agents
Operating console	Clean, intact	In case of damage, replace covering or buttons that may lead to ingress of fluids into the console.
Cables	No crushing, abrasions, cuts, visible insulation or inner conductor/metallic veins, kinks, lumpiness, colour changes or brittle spots.	Replace in case of severe damage.
Cable connectors	Good connection	
Motor	Carbon brushes: clean and intact	Remove carbon dust off carbon brushes. Replace carbon brushes in case of severe wear.
	Correct speed, no strange noises,	If necessary, measure the performance first with no load and then with the nominal load, to check for wear and tear of the motor by comparing the values of the electric current with the values when the V-drive was delivered. Replace if necessary.
Battery box	Fixation of battery is working correctly; PUSH button (to release battery) is working correctly.	
Batteries	Undamaged, clean	Clean the batteries, battery poles and battery cover.



PART	INSPECTION	MAINTENANCE
	Sufficient capacity	If necessary, replace the batteries as a pair.
Charger	Functioning properly ; no damaged cables or connectors	If necessary, replace the charger.

Servicing and maintenance may only be confirmed in the maintenance plan if any of the above-mentioned aspects have been checked.

3.1 Troubleshooting

3.1.1 Driving anomalies

Problem	Possible causes	Possible solutions	
The V-drive won't switch ON.	Battery plug is not connected.	Connect the battery. Securely fix the battery into place.	
	The battery is completely discharged.	Charge the battery.	
	The battery is defective.	Check the battery capacity. Change the batteries if necessary.	
	Faulty / Disconnected / Defective wiring.	Check cables and plugs. Replace if necessary.	
	Control unit is defective.	Check the cables running to/from the control unit.	Make sure that the power cord isn't defective.
		Replace the operating console.	
Power module is defective.	Replace the power module.		
The V-drive switches ON but will not move.	The wheelchair brakes are applied.	Release the wheelchair brakes.	
	The V-drive is not in contact with the ground.	Lower V-drive to the ground.	
The V-drive is switched ON, but moves very slowly.	The speed setting is set too low.	Change the speed setting.	
	The battery is discharged.	Charge the battery.	
	The wheelchair brakes are applied.	Release the wheelchair brakes.	
	Throttle lever can not be pressed fully (operating console is placed in wrong angle), or throttle lever is blocked.	Adjust the position of the operating console. Do not obstruct throttle lever.	
The V-drive moves, but slows down after a while.	Battery voltage is too low.	Recharge the battery.	
		Replace the battery if necessary.	
	Thermal rollback is activated as overheat protection.	Check the controller program.	
Wheelchair deflects to one side.	V-drive is not installed parallel to the wheelchair driving direction.	Adjust V-drive attachment points.	

Problem	Possible causes	Possible solutions
	Bent forks, bent frame, bent axle, punctured tyre, ...	Replace the damaged part.
Battery can not be charged.	Battery is not fitted correctly.	Check that the battery is placed and connected correctly.
	Charging socket is defective.	Replace the charging socket.
	The wrong charger is used.	Use the correct charger.
	The charger is defective.	Replace the charger.

3.1.2 Problem codes

Problem	Possible solutions
Low battery voltage (V-drive slows down)	Recharge the batteries.
Battery problem	Check the cables between the motor and controller.
	Check the connections between the motor and controller.
Short circuit	
Battery charger	Disconnect the battery charger from the V-drive.
Throttle problem	Make sure that the throttle lever is released before switching on the V-drive. If this was not the case, switch off the V-drive, release the throttle lever, wait 5 seconds and switch the V-drive on again.
	Check the cables and connections.
Controller problem	Replace the controller.
Controller high voltage	Check the cables and connections between the batteries and controller.

3.2 Tightening torques

 CAUTION Risk of injuries or damage

- Do not overtighten the screw bolt-nut connection to prevent damage.
- Only use genuine parts or parts approved by Vermeiren.
- Only use suitable, undamaged tools to tighten the bolt-nut connection.

The following table comprises the maximum tightening torques of dry, non-lubricated, M-threaded screw bolts in relation to their thread diameter. All other screw bolt-nut connections must be hand-tightened.

	Thread diameter						
	M4	M5	M6	M8	M10	M12	M14
Tightening torque (in Nm)	3	5.9	10	25	49	85	120

4 Warranty

The warranty on this product is subject to the general terms and conditions of each country.



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: A, 2020-10

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 2020