



Installation and operation manual

# LANDING GEARS

eLEG



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### Revision summary

Date	Revision number	Comment
February 2020	01	Initial version
April 2020	02	Updatet warranty commitment
September 2020	03	Add install motor and controller (6.3 and 6.4)

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## **Preface**

### **Use of this manual**

This Manual is intended for trained and for qualified persons to enable them to perform design, installation and repair tasks on VALX products in an efficient, safe and environmentally sound way.

**TAKE THE TIME TO READ THIS MANUAL THOROUGHLY BEFORE STARTING WORK ON THE TRAILER, LANDING GEAR AND/OR ON OTHER VALX COMPONENTS.**

**KEEP THIS MANUAL IN A SAFE PLACE, BUT READY TO USE WHEN NEEDED.**

**THIS MANUAL REPLACES ALL PREVIOUS VERSIONS, IF ANY.**



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## Pictograms in this manual

### Pictograms for general alerts

In this manual the following pictograms and symbols may be used for general alerts:



#### NOTE

Important instruction, recommendation or tip that you must always observe.



If the safety instruction is not observed, a potential hazardous situation can occur, causing personal injury or damage to the landing gear, the workshop or the environment.

### Pictograms for specific alerts

In this manual the following pictograms and symbols are used for specific alerts:



#### CAUTION

Risk of injury due to heavy weight.



#### CAUTION

Risk of injury: crushing of fingers.



#### CAUTION

Weight exceeds 25 kg.

## Symbols

Sometimes, a picture or a pictogram tells more than text can. For that reason, the maintenance, assembly and disassembly procedures in the chapters 5 through 10 mainly consist of graphical instructions.

In these graphical instructions the following pictograms may be used:

### Tools



#### Use an appropriate torque wrench

Tighten the fastener to the torque (in Nm) given in the left-hand corner.



#### Use an Allen key

The value in the left-hand corner is the Allen key size.



#### Use an Torx key

The value in the left-hand corner is the Torx key size.



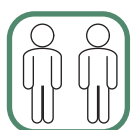
#### Welding

### Lubricants



#### Mobil XHP 222

### Miscellaneous



This step requires two trained and qualified service technicians



Measure with caliper



Measure with tape

## **1 General safety instructions and regulations**

### **1.1 General**

- VALX accepts no liability for any damage or physical injury caused by non-compliance with the safety instructions and regulations in this manual, or by carelessness during any maintenance or repair task on the VALX trailer landing gears.
- Depending on the trailer type, the specific repair or maintenance task(s) that have to be carried out, the workshop conditions, the environmental circumstances and the cargo that may be loaded, additional safety instructions may be applicable. As VALX has no direct control over these specific working conditions or trailer configurations, it is the workshop's sole responsibility to ensure that the national accident prevention guidelines and the local Health and Safety regulations are adhered to. Please inform VALX immediately if you have dealt with unsafe situations that have not been described.

### **1.2 This manual**

- Read this manual thoroughly before performing any maintenance or repair task on the trailer landing gears.
- Keep this manual for future reference. Retain the manual in a safe place in the workshop.
- Carry out the procedures in the order given. Do not change the order of the steps.

### **1.3 Decals and instructions on the trailer landing gear**

- Decals or instructions fitted on the trailer landing gear are part of the safety features provided. They must not be covered or removed, but must be present and legible throughout the entire life of the trailer landing gear. Damaged or illegible decals and instructions must be replaced or repaired immediately.

### **1.4 Warranty and original VALX parts**

- All products of VALX are covered by warranty as stipulated in the "VALX Warranty Conditions". The "VALX Warranty Conditions" can be downloaded from our website [www.valx.eu](http://www.valx.eu).
- Modification and / or conversion of the product without the written consent of VALX is not allowed at the risk of forfeiting all warranty rights.
- When replacing parts, ONLY use original VALX spare parts. Parts approved by VALX for use in trailer landing gears periodically undergo severe tests. As a result, VALX is able to guarantee the quality of these parts.
- VALX can not assess for every single third-party product whether it can be used for VALX trailer landing gears without any safety risk. This applies even if such products have already been tested by an accredited test authority. Therefore, the guarantee becomes null and void if spare parts other than original VALX parts are used.

### **1.5 Maintenance and repair**

- In order to maintain the safe operation and the road worthiness of the trailer, all maintenance tasks must be carried out according to the prescribed VALX service intervals (see the maintenance chart in chapter 6), and in accordance with the operation and service instructions of the trailer builder.
- Maintenance and repair is strictly reserved to trained and qualified service technicians.

#### **1.5.1 Before starting work**

- Make sure that the trailer is properly secured against rolling.
- Support the trailer close to the landing gear so it can't fall down.
- Make sure that unauthorized persons have no access to the working area.
- Make sure that the working area is sufficiently lit and ventilated.
- Dress properly. Do not wear torn or loose fitting clothes, but wear protective clothing. Remove jewelry, watches, etc. to prevent them from being caught in moving parts.
- Wear protective shoes and keep long hair out of the way.

**1.5.2 During work**

- Stay alert and watch what you are doing. Use common sense. Do not work on the trailer landing gear when you are tired or have been taking alcohol, medicine or drugs. Do not smoke.
- Use a hoist when lifting 25 kg or more. Only use suitable and technically perfect lifting devices with adequate lifting capacity built in compliance with all safety measures. Fastening of loads and instructions to the operator of the lifting device are restricted to experienced personnel who are within sight or sound of the operator of the lifting device.
- Only use tools, parts, materials, lubricants and service techniques that were approved by VALX. Do not use contaminated or used lubricants. Used lubricants, cleansing agents and expended landing gear parts must be disposed of in an environmentally safe way.
- Avoid bodily contact with lubricants.
- Never use worn tools and do not leave tools behind on the trailer landing gears or on the trailer.
- Never weld on any part of the trailer landing gear without the prior written permission of VALX.
- Never re-use self-locking fixing materials. Always replace them.

**1.5.3 When work is finished**

- Inspect the landing gear. Check for damage, leakage or defects. Any part removed for maintenance or repair purposes must be refitted and checked immediately upon completion of the work.
- Do not clear a trailer landing gear for operation unless it was established that it is absolutely safe and in perfect working order.

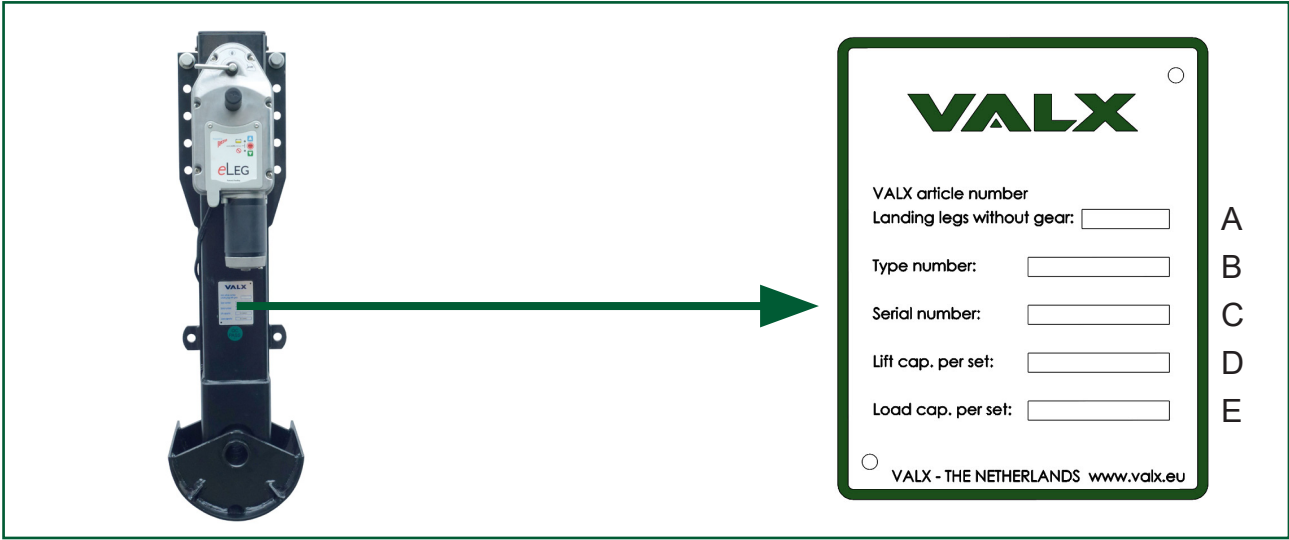
**1.6 A contribution to the protection of our environment**

Please obtain information about recycling or environmentally friendly processing of parts and materials that have been replaced during maintenance or repair tasks.

Almost all used lubricants are considered to be chemical waste. For the disposal of these a specialized company must be contacted.

2 Explanation of the landing gear type code

2.1 Location of the identification plate



2.2 Information on the identification plate

The identification plate consists of the following fields:

- A VALX article number Landing leg
- B Type number (see table next page)
- C Serial number
- D Lift capacity per set
- E Load capacity per set

2.3 Ordering of parts

See [www.valx.eu](http://www.valx.eu) or contact at +31 (0)88-40 58 800.

	Exclusively use genuine spare parts!
	Otherwise, warranty regulations might be violated and product liability risks incurred.

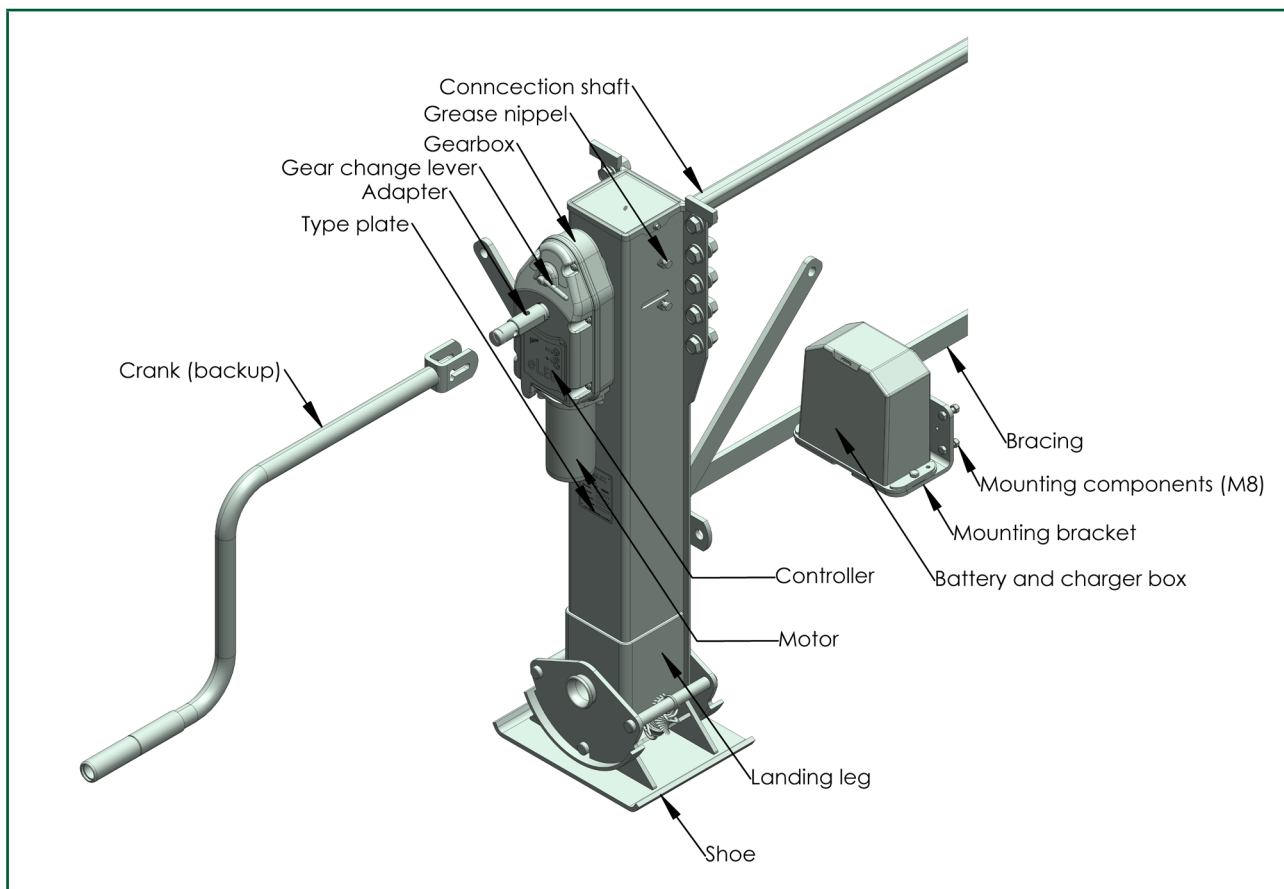
**Landing leg type code**

The landing leg type code is built up as shown in the table below.

Description	Type	Stroke	Mounting plate	Gear	-	Shoe	-	Connection shaft	-	Crank
eLEG (60.000 kg)	E									
Stroke 350 mm		350								
Stroke 400 mm		400								
Stroke 430 mm		430								
Stroke 450 mm		450								
Stroke 470 mm		470								
Stroke 500 mm		500								
Stroke 520 mm		520								
Stroke 550 mm		550								
Stroke 560 mm		560								
Top mounting plate			T							
Bottom mounting plate			B							
Full mounting plate			F							
Landing leg set										
Landing leg with gear				G						
Landing leg without gear				W						
Rocking shoe						A				
Roller shoe						R				
Compensating shoe						S				
Sand shoe						T				
Low sand shoe (= LT)						L				
No shoes										
Connection shaft								1500		
Crank										465
Example	S	450	F	G	-	S	-	1500	-	465

### 3. Landing gears complete

#### 3.1 Overview



#### NOTE

The landing gears are intended for installing on a trailer vehicle. They provide support during the coupling and uncoupling, as well for adjusting the height of the laden or unladen trailer.

The landing gear may only be used if the relevant operating and service regulations of the vehicle manufacturer and the landing gear are observed. Operating the vehicle with a damaged landing gear is prohibited.

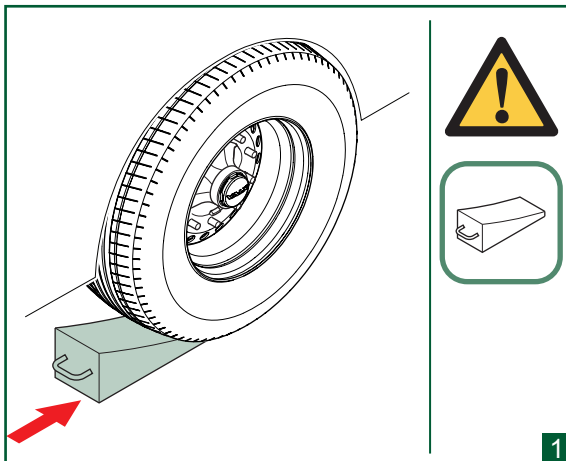
Safe operating and functioning can only be guaranteed if all the instructions, settings and performance limits for the product will not be exceeded.

Any other usage requires the written approval of Valx B.V.



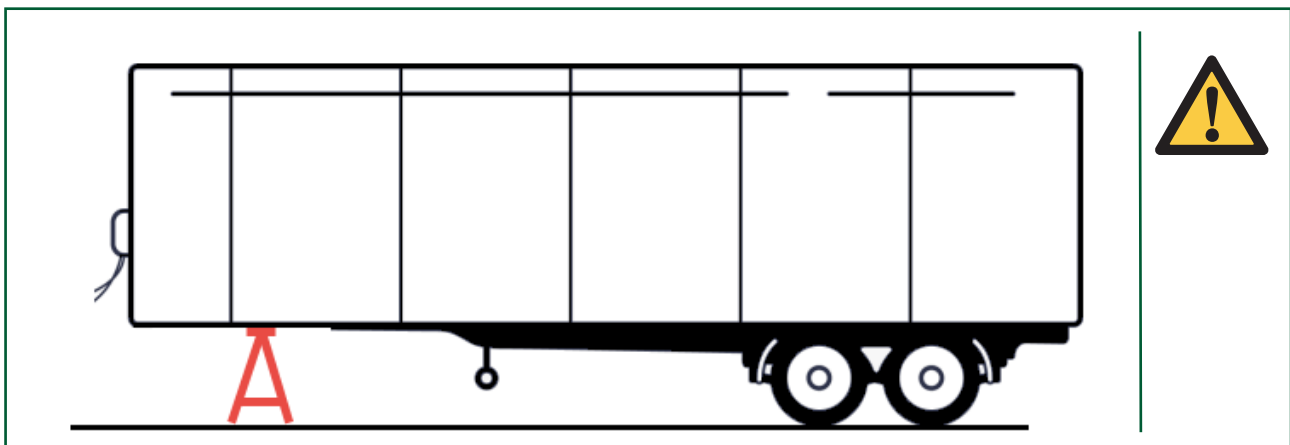
## 4. Installation

### 4.1 Place the wheel chocks



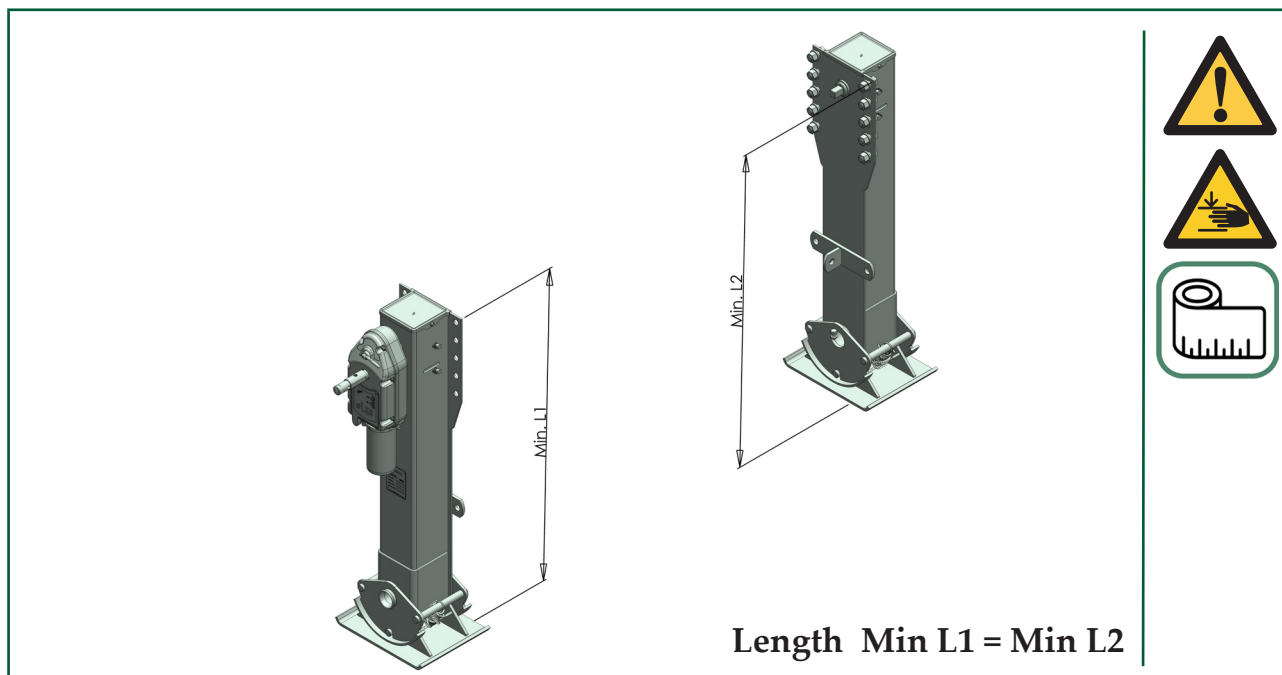
Position the trailer on an even surface and use wheel chocks to secure the trailer against rolling away.

### 4.2 Support trailer



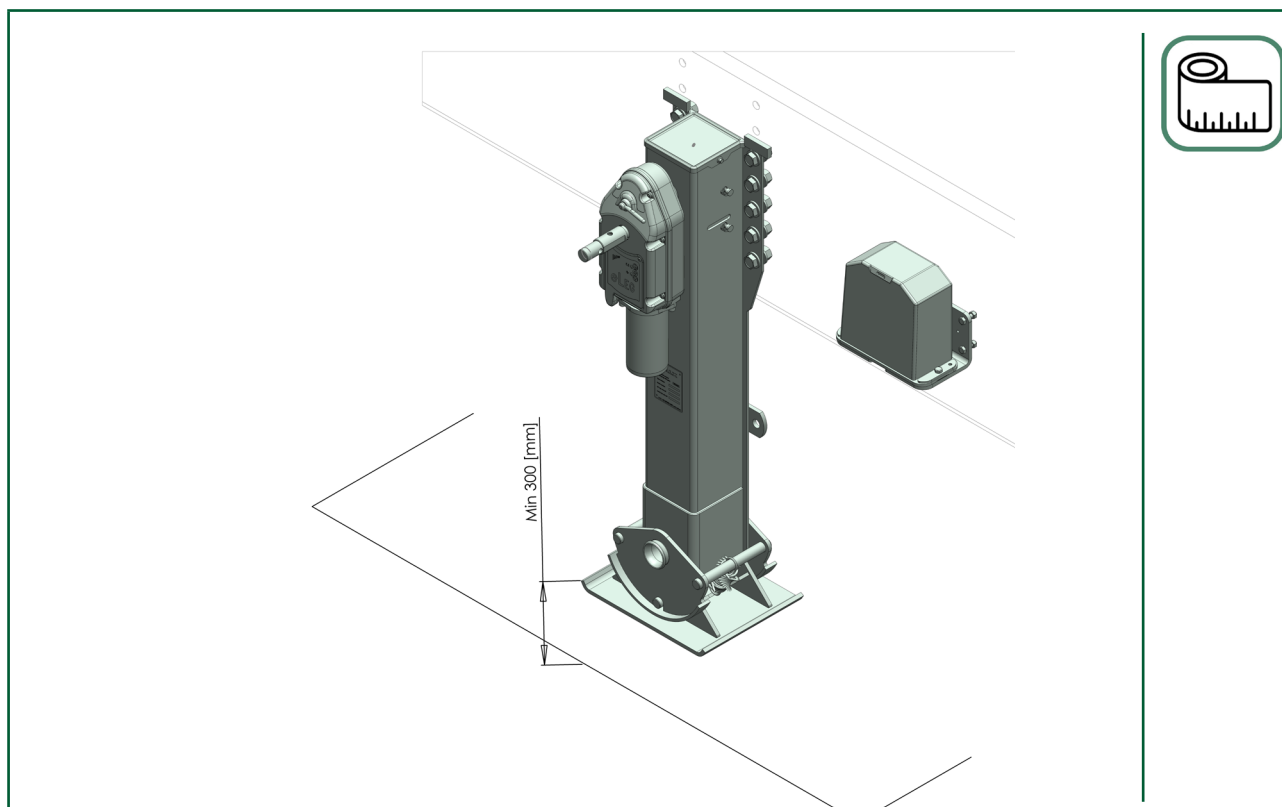
Support the trailer so it cannot fall down.

## 4.3 Retract both landing legs

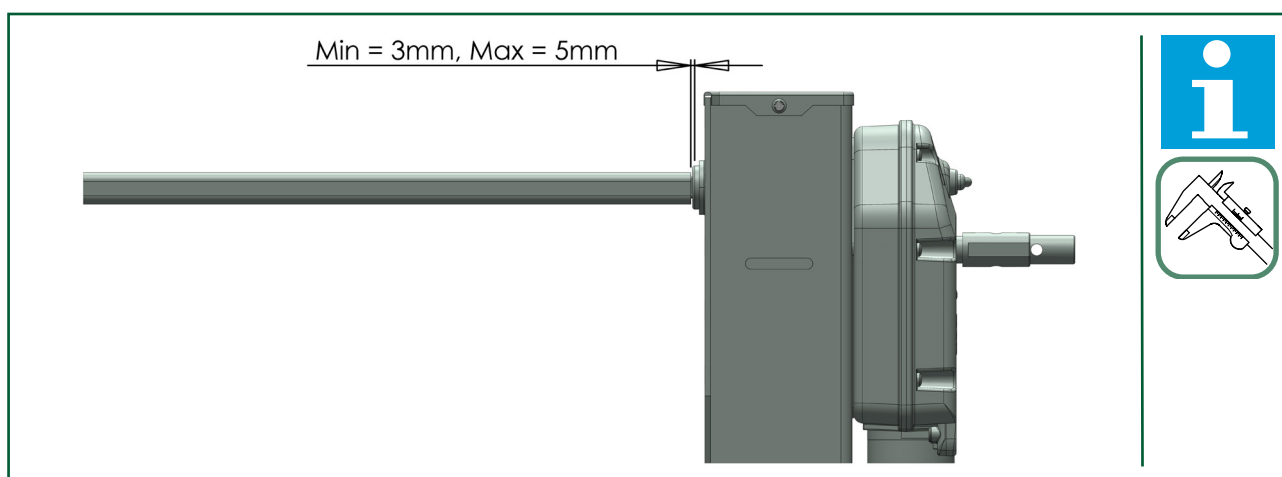
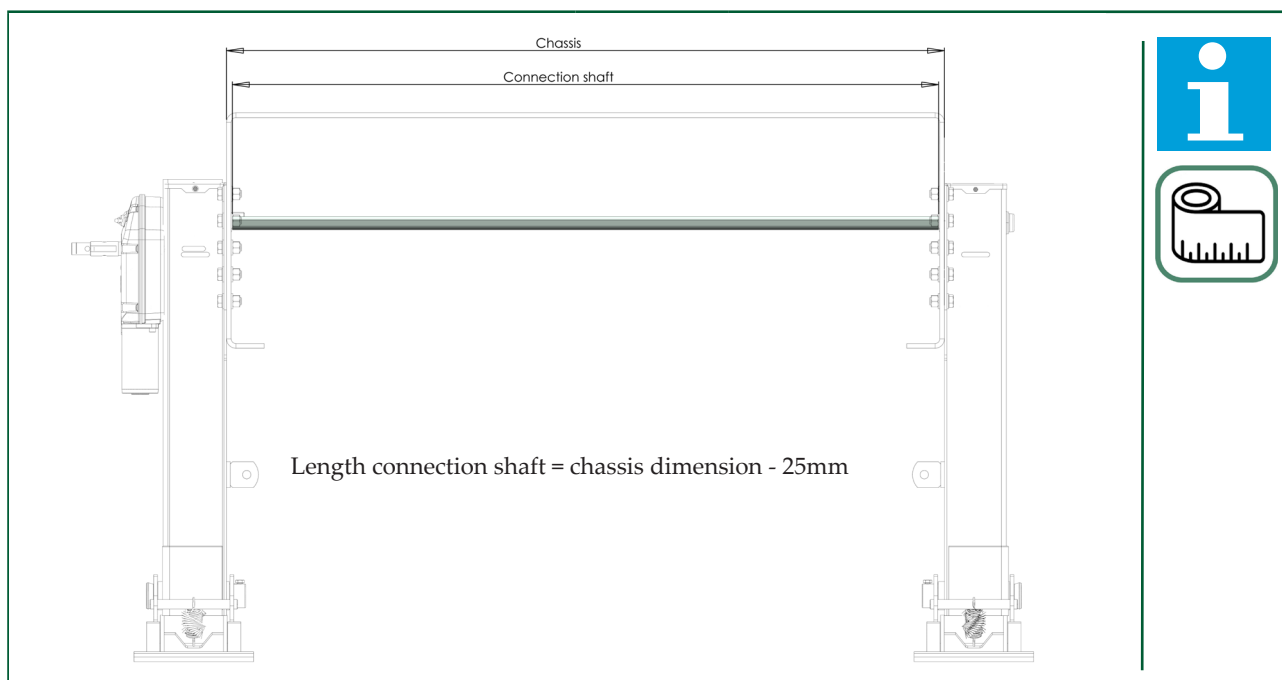



Loading the legs unevenly will lead to damage.

## 4.4 Set minimum ground clearance

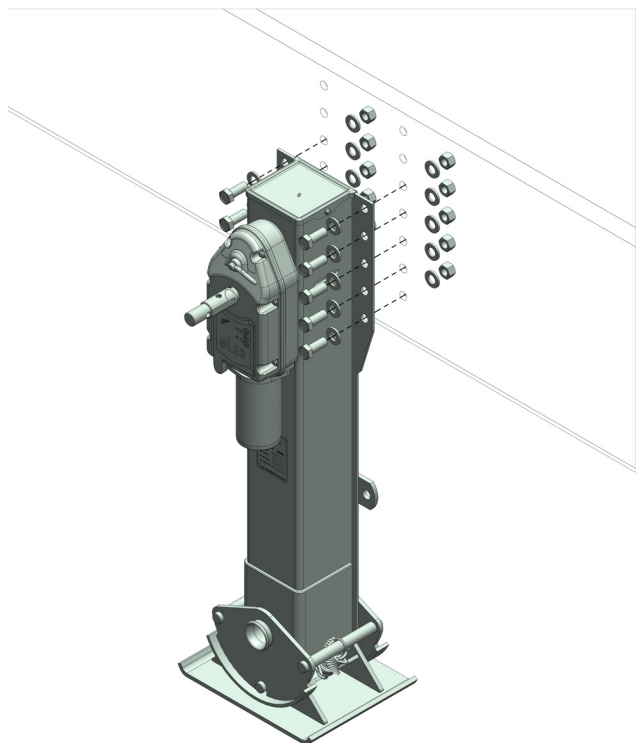







#### 4.5 Measure and adjust the connection shaft



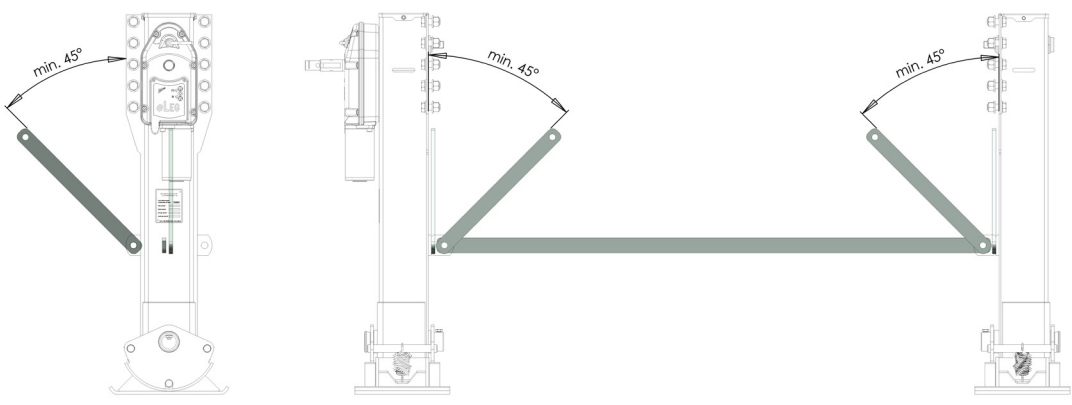
	Check/measure the length of the connection shaft and adapt if necessary.
	A sliding gap of 3-5mm must be maintained.



4.6 Mounting the landing legs






**Bolt amount: 2x10**





**Bolt amount: 18**



Use at least 10 bolts per landing leg.

All bolts, nuts and washers must be class 10.

Torques

Item	Size	Amount	Width across flats	Torque (Nm)
Landing legs	M16 x 1.5	2x10	24	300 Nm ± 10 Nm
Bracing	M16 x 1.5	1x8	24	300 Nm ± 10 Nm

## 4.8 eLEG additional installation

Please note the following before carrying out any work to the electrical system:

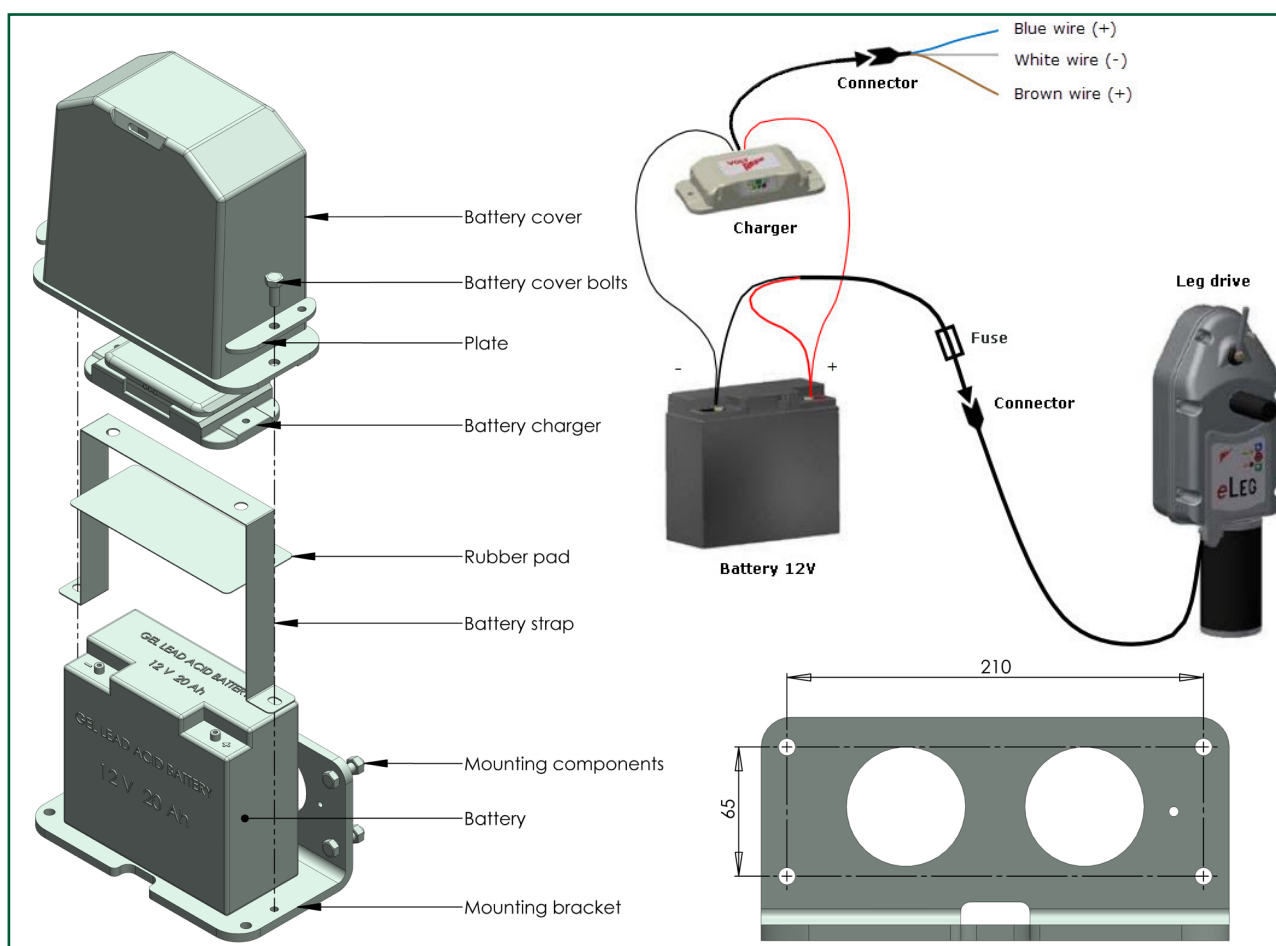
- Disconnect the semi-trailer from the electrical power supply.
- Disconnect the negative terminal of the vehicle battery (if there is one).
- Avoid damaging the housing and cables of the electric landing gear when installing.

Take the following into account when installing the electrical cables:

- The electrical cables must not be secured to brake lines.
- The electrical cables must be routed at an adequate distance from heat sources and moving parts of the semi-trailer.
- The electrical cables must be routed so that they have no kinks and cannot chafe.
- The electrical cables need to be secured using cable ties.

### Installing

- Locate a solid point on the trailer to mount the powerkit. It must be mounted close to the landing gear and has to be connected with the harness supplied.
- Bolt the battery bracket to the trailer.
- Connect the white wire to the negative/ earth (-).
- Connect the brown wire (recommended via fuse) to a positive (+) (lights).
- Connect the blue wire (recommended via fuse) to a positive (+) (auxiliary).
- Connect the drive unit to the battery harness via the harness supplied.




	The battery (charger) should be mounted in the orientation so the indication LED is always visible.
	Make sure a proper earth is established between battery negative and the trailer circuit.
	Ensure the electrical connections are robust, sealed and protected as appropriate to minimize damage.
	The cables from the harness are not allowed to be shortened.

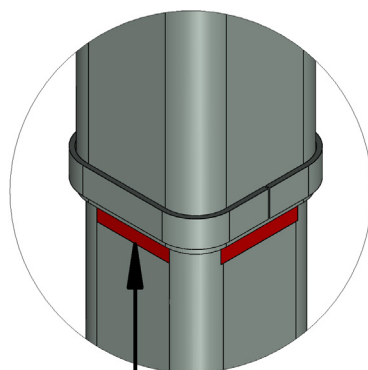
## 5. Operation

### 5.1 Safety instructions

Carry out the following safety instructions before taking the landing gear into operation.

- The landing gear must only be operated by authorized personnel.
- Before operating the landing gear, the vehicle need to be secured to prevent it rolling away.
- Make sure no person is under the trailer vehicle when coupling and uncoupling.
- Make sure no person is under the trailer vehicle when it is being supported.
- Make sure no person is under the trailer vehicle during operating the landing gear.
- Only park the trailer vehicle on an even surface
- When supporting the vehicle, make sure the ground underneath is sufficiently firm, with a suitable base being provided if necessary.
- The landing gear shoe must be freely movable.
- Low or high gear must always be engaged.
- The landing legs always need to be fully retracted before the vehicle comes in motion.
- The landing gear must be in proper condition, driving with a damaged landing gear is prohibited.
- Do not exceed the lower lifting limit of the landing legs (red line).

	Please observe the general safety instructions for operation!
	Always check the landing gear for damage before use.
	Do not move the uncoupled trailer.



Max extension mark




## 5.2 Operation eLEG

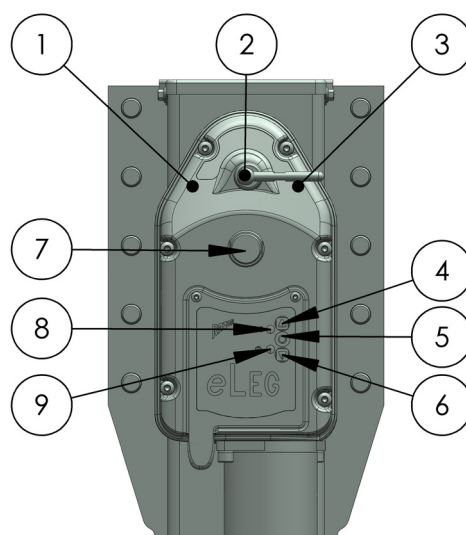
### 5.2.1 General operations eLEG

- Select the required gear by rotating the gear change lever by hand.
- Initiate (wake up) controller by hold the Stop button 4 seconds.
- Operate the legs by pressing the green (down) or up (blue) button.
- The legs will continue travel in the direction selected until the preset load is reached.


LED colour	Indication	Solution
Red	One Flash	A button activation is acknowledged by one flash. Note: this is only once the controller is initiated as elsewhere described. One flash also indicates that the pre-set maximum increase in load has been exceeded and the motor has been stopped (for low gear).
	Two Flashes	Indicates that the pre-set maximum load has been reached and the motor has been stopped (for high gear).
	Three Flashes	This indicates a locked mechanical condition such as a gear failure or motor failure.
	Continuous	Indicates that the gear lever is in the neutral position and you cannot operate the eLEG in that condition. You must change the lever to a gear setting before you can operate the eLEG.
Yellow	Five Flashes	This indicates that the battery is low and requires to be charged. Note: this will only flash once the controller is initiated.
Red + Yellow	Two Flashes	Both LED's will flash twice upon controller initiation. Refer operation instructions.
	Five Flashes	An over temperature condition has been reached. Allow time to cool down before operating again.

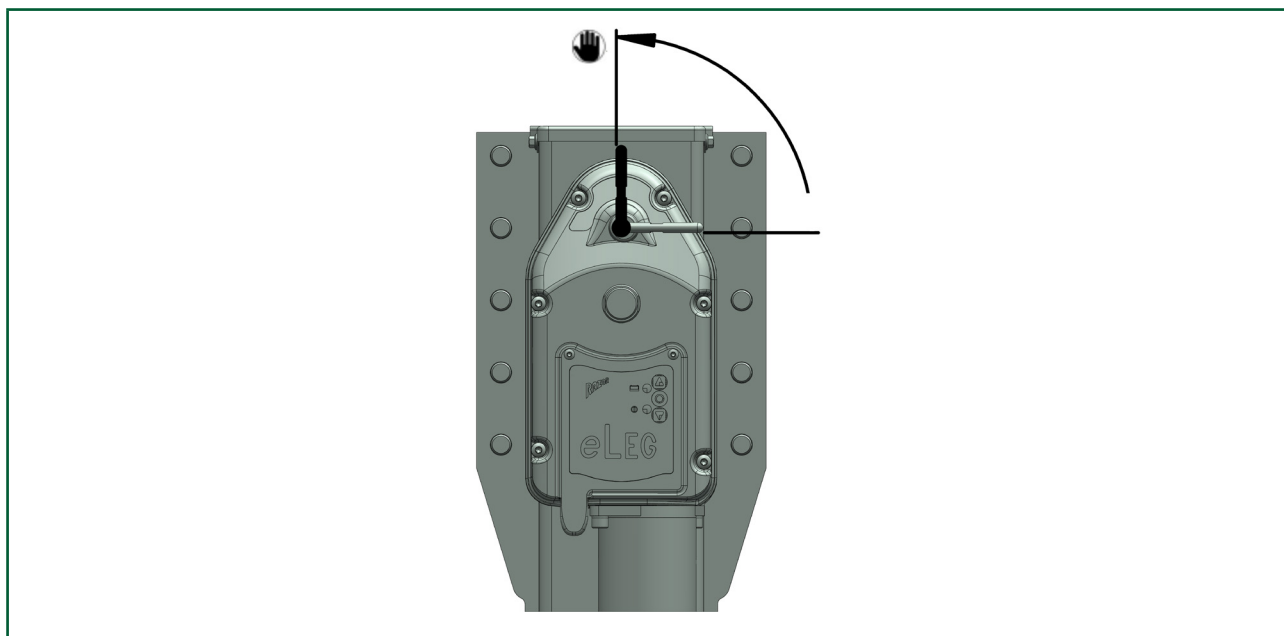
### 5.2.2 Overview

Number	Item	Function	Symbol
1	Gear change lever left	Low gear / Heavy lift	
2	Gear change lever center	Neutral / manual crank	
3	Gear change lever right	High gear / fast speed	
4	Button blue	Raise	
5	Button red	Stop	
6	Button green	Lower	
7	Backup manual crank	Manual crank	
8	LED indicator Yellow	Status indication	
9	LED indicator RED	Status indication	



## 5.2.3 Manual operation

- Remove the plastic protective sleeve.
- Put the gear selection in neutral position .
- Attach a loose supplied crank handle to the adapter on the shaft.
- When releasing the crank, remember it may recoil.



Note that the crank is not mounted standard, only for backup usage.



## 5.2.4 Battery charger

The battery charger has three LED lights, for indication of the condition of the battery and of power supply from the trailer.




Colour	Indicates
LED Red	Supply connected
LED Yellow	Battery is charging
LED Green	Battery is fully charged



### 5.3 Un coupling the trailer vehicle

- Check the landing gear for damage and have any damage repaired before use.
- Park the trailer on a firm and level surface, using a base if necessary.
- Secure the vehicle from rolling away.
- Engage high gear and wind down until it touches the ground .
- Switch to low gear and adjust height if needed .
- Uncouple the towing vehicle.

### 5.4 Coupling the trailer vehicle

- Engage low gear .
- Adjust the coupling height by pushing the raise or lower button.
- Couple the towing vehicle.
- Fully retract the landing gear, low gear  till shoe is free from the ground, then high gear .



Please observe the general safety instructions before operation!

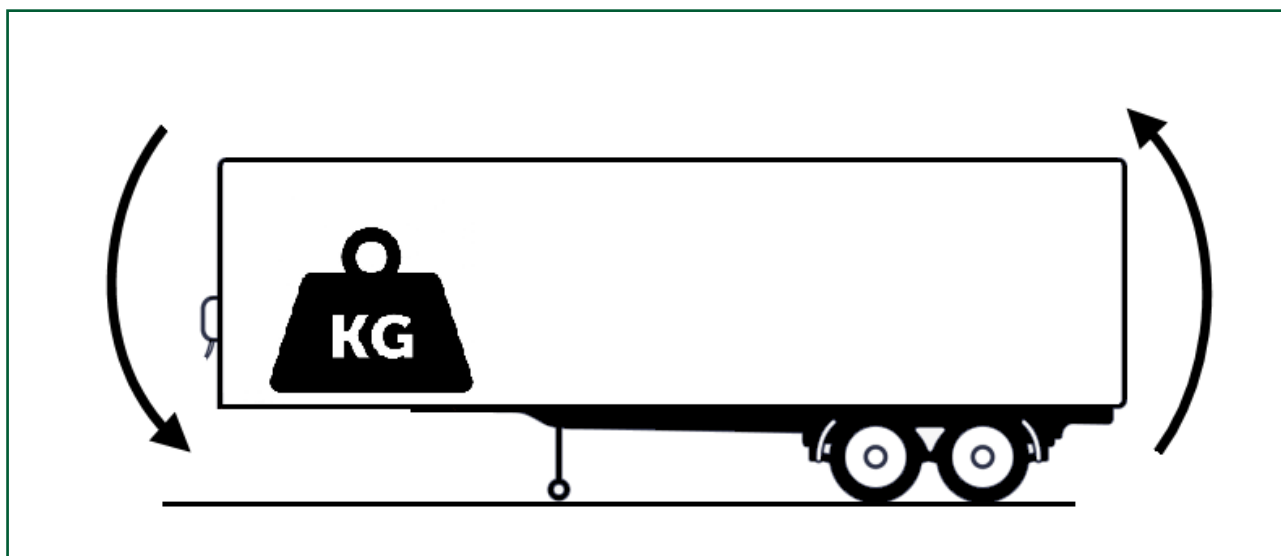
Always check the landing gear for damage before use.

Always position the gear change lever in the low or high gear when the landing gear is not operated.

Do not move the uncoupled trailer!

### 5.5 Loading the supported vehicle

The supported trailer vehicle may only be loaded using a crane or forklift. Do not exceed the centre of gravity of the vehicle during the loading procedure.



## 6. Maintenance

### 6.1 Periodic maintenance and inspection



#### NOTE

As road conditions may vary from one country to another, and specific use of the trailer landing gear may differ per haulier, the maintenance intervals given below are only indicative. The maintenance tables differentiate between normal use (X) and frequent- or off road use (0).

On-road use is when a vehicle drives on roads with sealed and metalled surfaces (like concrete or asphalt). Off-road use is when a vehicle is leaving the road with sealed and metalled surfaces (like a gravel road), even if it is for a short period of time.

Frequent use is when the the landing legs are turned up and down more than once a day.

The specified maintenance intervals are reference values. They must be adhered to as minimum values. External influences as a result of use or climatic conditions may make it necessary to shorten these intervals.

Inspection item	Maintenance task	maintenance interval				
		every use	every 3 months	every 6 months	every year	Annually after the first 3 years
Landing gear complete	Visual check for cracks an deformation	X/0				
Crank handle and bolts	Check for loss	X/0				
Spindle and spindle nut	Check for wear, play and damage			0	X	
Spindle and spindle nut	Grease the spindle and spindle nut				0	X
Securing bolts	Torque check			0	X	



Damaged landing gear must be repaired or replaced immediately.

Operating with defective landing gear is not permitted.

In case of hard turning, the spindle and spindle nut must be relubricated immediately.

Be aware of electrical hazards during maintenance work.

### 6.2 Cleaning

The landing gear is cleaned along with the vehicle, no special cleaning is required. Do not aim high-pressure cleaner directly at the area around the gear. Make sure that no high-pressure jet is directly spayed onto electrical components. Keep a minimum distance of 50 centimeter.



Any loose stones and course dirt must be removed from the landing gear immediately.

### 6.3 Remove and/or install the electric motor

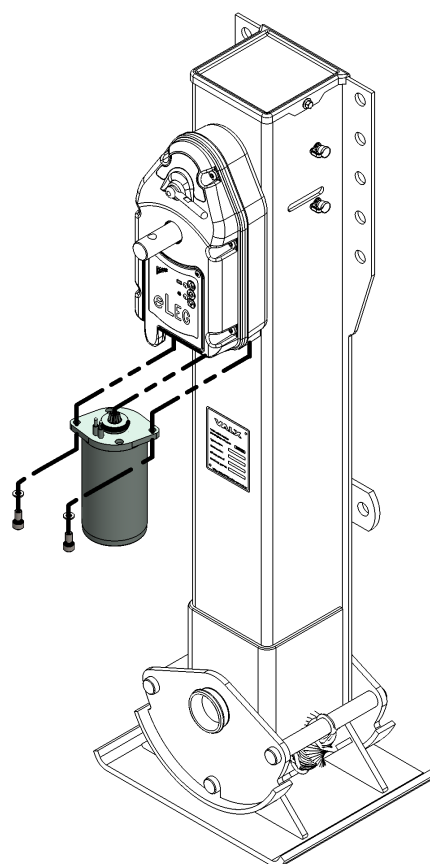
#### Remove

- Disconnect the electrical connector.
- Remove two M8 bolts (allen key 6 [mm]) and washers.
- Pull the motor out from the gearbox.



#### Install

- Push the motor into the gearbox (rotate the teeth if necessary).
- Make sure the electrical connection pins are at the correct side.
- Install the two M8 bolts (allen key 6 [mm]) and washers (torque 20 [Nm]).
- Connect the electrical connector.



## 6.4 Remove and/or install the controller unit

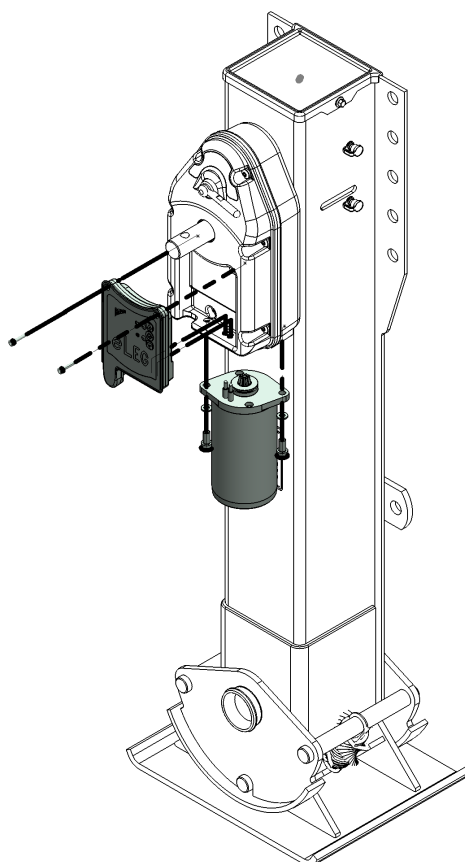
### Remove

- Disconnect the electrical connector. ———
- Remove the electric motor, see chapter 6.3.
- Remove two T20 screws.
- Lift out the controller carefully.



### Install

- Place the controller carefully.
- Install the two T20 screws (torque 2 [Nm]).
- Install the electric motor, see chapter 6.3.



## 6.5 Lubricants

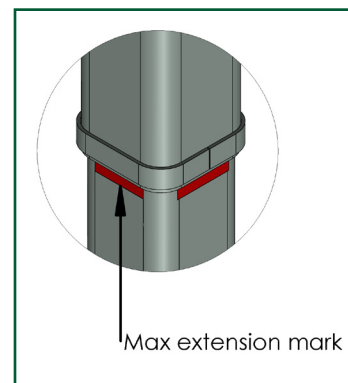
### Greasing the spindle and spindle nut.

Initially after 3 years, then annually.

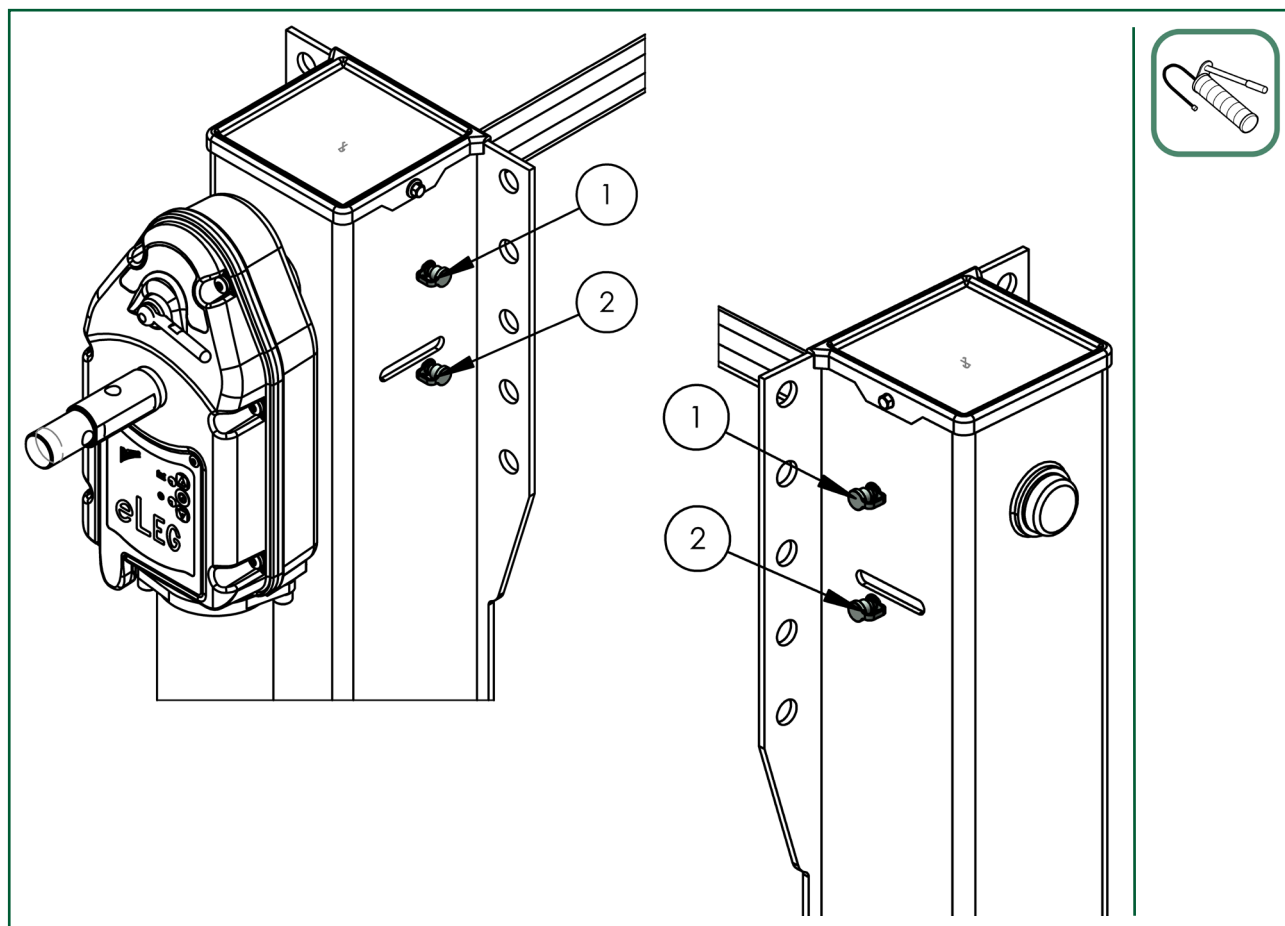
- Screw out the leg as far as possible, till the red line.
- Remove the grease nipple cover (1 and 2).
- Fill the lubrication point (1 and 2).
- Wind the spindle in as far as it will go, then out and in again.
- Re-attach the grease nipple covers on both lubrication points (1 and 2).

### Greasing amount:

- Lubrication point 1: 200 [g]
- Lubrication point 2: 100 [g]



Do not open the gearbox!



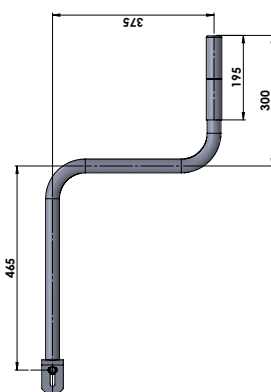
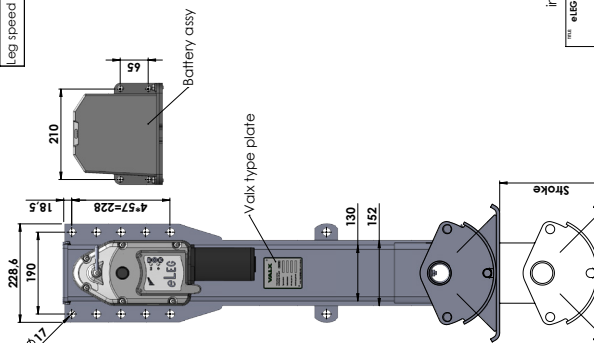
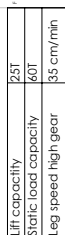
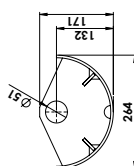
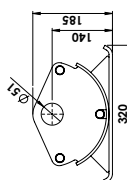
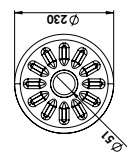
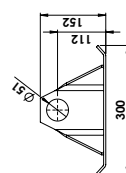
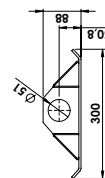
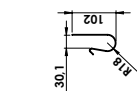
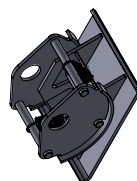
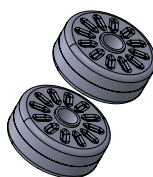
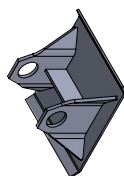
## 6.6 Troubleshooting mechanical

Problem	Possible cause	Solution
The landing legs cannot be extended or retracted	Defect spindle or nut	Replace the landing leg
	Defect gearbox	Replace the landing leg
	Bent landing leg or outer tube	Replace the landing leg
The landing leg can only be extend or retract with difficulty	Too much friction between spindle and nut	Lubricate the spindle
	Dirt between inner and outer leg	Clean the support device
	Bent landing leg	Replace the landing leg
	Connection rod stuck	Shorten connection rod
Landing gear can only be lowered until it touches the ground	Incorrect gear	Engage low gear after contacting with the ground
Gear cannot be changed	Defect gearbox	Replace the landing leg

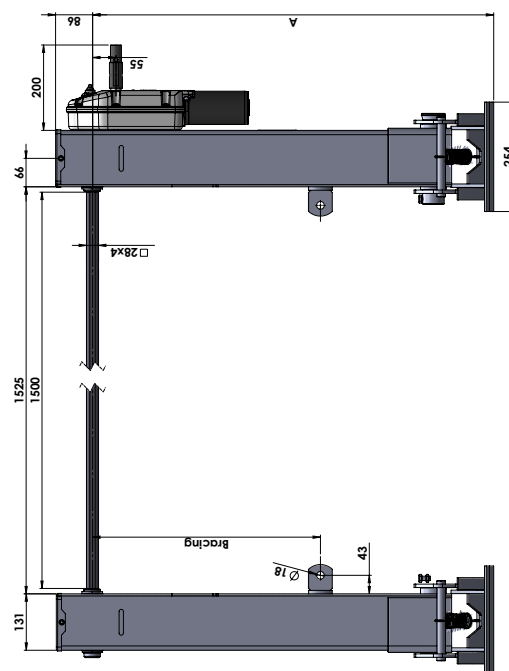
## 6.7 Troubleshooting electrical

Problem	Possible cause	Solution
The unit will not initiate	Low battery voltage	Refer to low battery voltage symptom
	Failed electronics	Contact Valx
	Damaged/deteriorated harness/connectors	Check condition of connectors and wiring, repair/replace as appropriate
	Fuse blown	Replace blown 30 amp Fuse. If this blows again then the controller may be faulty.
The unit will only run in one direction	The keypad is damaged	Contact Valx
	Failed electronics	Contact Valx
Yellow LED flashes 5 times	Low battery voltage	Refer to low battery voltage problem
	Voltage loss across connectors/fuse holder	Clean and lubricate all connectors and fuse holder
Blown Fuse	Battery connected in reverse	Connect correctly and replace fuse
	Failed electronics	Contact Valx
Motor stops prematurely	Mechanical leg issue	See chapter 6.6.
	Controller sensitivity not suitable for application	Contact Valx to adjust the controller sensitivity
	5 minute run timer has been exceeded	Restart leg as required
	Low battery voltage	Refer to low battery voltage problem
Low Battery Voltage	Charge not been received - This is confirmed by the red LED on the charger above the battery.	Confirm integrity of supply power. check connections. It is required to be above 9Vdc. You may need to turn on the lights to activate.
	Failed battery cell	This is typically indicated by a rapid drop in voltage when the drive is in use. Alternatively have the battery tested. Replace the 12 volt 20 amp battery if required.
	Charge cycle lower than required for the application/use	Typically the charger will be connected to the lights, if they are infrequently used then turn them on for longer. If this doesn't suit, add an extra supply from either the brake light circuit or the auxiliary circuit as appropriate to the vehicle arrangement.
Motor runs but output not turning	Failed gear train internally within the gearbox	Contact Valx
Red LED flashes 3 times	Indicates a jammed motor, gearbox or leg(s)	Try manual handle to see if there is any mechanical binding. If damage refer to Valx for replacement parts
Red LED flashes 4 times	Over temperature has been reached	Allow a few minutes to cool down and then try again. Repeats may mean a fault with mechanically or Electrically
Motor attempts to start	Low battery voltage	Refer to low battery voltage symptom
	Poor condition of connectors/fuse holder	Clean and lubricate all connectors and fuse holder

## 7.1 eLEG

Crank holder

**Crank info:**  
The crank is only for backup (for instance when the battery is defect) and doesn't need to be assembled to the e-LEG.  
The crank can be stored in the toolbox or mounted underneath the trailer floor.



information purpose only

DATE	eLEG	
ISSUE DATE	30-04-2020	ORDER NO.
<b>VALX</b>		DOC NO.
		19014850
		eLEG Green Book

Dimensions are in mm

20071041	PL: JPN
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