

## ArcRover 22

Translation of original  
Operating Instructions

Operating Instructions

Welding carriage





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# About this document

## Function of this document

These Operating Instructions explain how to commission and operate the carriage. Look after the Operating Instructions carefully; they must always be to hand at the location where the carriage is being used. They can be used as a reference should any operational or functional problems occur in the future.

## Explanation of safety information

### **DANGER!**

Indicates an imminent danger. If not avoided, death or serious injury will result.

### **WARNING!**

Indicates a possibly dangerous situation. If not avoided, death or serious injury may result.

### **CAUTION!**

Indicates a possibly harmful situation. If not avoided, minor or minor injury may result.

### **NOTE!**

Indicates a risk of flawed results and possible damage to the equipment.

**IMPORTANT!** Indicates usage tips and other particularly useful information. It is not a signal word for a harmful or dangerous situation.

Special care is required if you see any of the symbols shown.

## Copyright

Copyright of these Operating Instructions remains with Fronius International GmbH. The text and illustrations are all technically correct at the time of going to press. We reserve the right to make changes. The content of the Operating Instructions shall not give rise to any claims whatsoever on the part of the purchaser.

## Qualified personnel

- These Operating Instructions are designed for trained personnel or persons with practical welding experience. Personnel must be trained through verifiable regular instruction.
- Maintenance and repair of the carriage may likewise only be carried out by trained technicians and in compliance with the specified maintenance activities and maintenance intervals.
- The manufacturer accepts no liability for damage caused by insufficient knowledge of how to use the device.

# General

## Principle

The ArcRover 22 carriage is a portable, battery-powered welding carriage with 4-wheel drive. The carriage is used to execute mechanised butt and fillet welds in horizontal or vertical welding positions, with or without oscillation.

## Device concept



ArcRover 22 carriage

The ArcRover 22 carriage has been designed for flexibility and to improve productivity in the execution of longitudinal weld seams. A spatter guard mounted on the working side and powder coating of all housing components enable use in harsh operating conditions.

A large holding and carrying handle coupled with a robust yet lightweight design allows quick and easy positioning on the workpiece.

The carriage adheres to the workpiece by means of a permanent magnet. This guarantees the best possible traction even in vertical use.

Adjustable guide rollers on the side of the carriage ensure optimal tracking of the weld seam.

The universal torch holder allows use of both manual and machine welding torches.

The carriage can be equipped with a torch oscillation unit.

The carriage, together with the optional oscillation unit, is powered by the interchangeable rechargeable battery pack.

The control unit is integrated into the carriage. The control panel has an illuminated display allowing simple and user-friendly parameter setting for the carriage.

## Application area

The ArcRover 22 carriage can be used in all situations where a high degree of flexibility is required when executing longitudinal weld seams:

- Shipyards
- Bridge construction
- Workshops
- Production halls
- Building sites

## Proper use/ intended purpose

The ArcRover 22 carriage must only be used for performing mechanised butt and fillet welds in horizontal or vertical welding positions. Any other use shall be deemed improper and the manufacturer will assume no responsibility for any resulting damages.

The carriage can be used in the following welding processes:

- MIG / MAG process

Proper use also includes:

- Use of the charger and rechargeable battery pack included with the carriage
- Use of the permanent magnet with a minimum sheet thickness of 5 mm

**Proper use/intended purpose**  
(continued)

- Use of MIG/MAG welding torches with a holder diameter of up to 28 mm
- Use in welding position PA with the "stainless steel drive wheel" option
- Carrying out all maintenance work at the specified maintenance intervals
- Keeping a service book with the most important data (date, operator, activities carried out)
- Using the spare parts stipulated by Fronius
- Following all the instructions contained in the Operating Instructions
- Using this document in conjunction with the operating instructions of the integrated system components (power source, wirefeeder, etc.)

**Foreseeable misuse**

Any use other than for the intended purpose shall be deemed improper use. This includes:

- Operation on preheated components > 50 °C without stainless steel drive wheels
- Transporting people
- Use outside the permitted technical operating limits
- Use in hazardous areas

**Conversions or modifications**

Any unauthorised conversions or modifications made to the carriage by the user shall invalidate all liability or warranty obligations on the part of the manufacturer!  
The electromagnetic characteristics of the carriage can be adversely affected by additions or modifications of any kind. No modifications or additions should therefore be undertaken without first consulting the manufacturer and obtaining written approval.

**Operating Instructions**



The Operating Instructions help you to use the carriage safely and efficiently, and must therefore be to hand at all times:

- The Operating Instructions must always be kept near the carriage.
- Clearly mark the place where the instructions are kept.
- Ensure that all persons using the carriage know where the Operating Instructions are located.
- The Operating Instructions will only be able to help you in the event of a problem if they are at hand!

**IMPORTANT!** The manufacturer shall not be liable for any damage that arises from failure to observe the Operating Instructions!

**Duty to provide instruction**

The operator must inform all people working with the carriage about the following before starting work:

- Theoretical and practical aspects of operation
- Safety regulations

**IMPORTANT!** The duty to provide instruction applies in particular for people who only work on the carriage occasionally.

## Dangers from the rechargeable battery pack



The substances contained in the battery used in this device can be harmful to the environment and to human and animal health. If the device becomes damaged, please observe the following points:

- Make sure that leaking fluids cannot get into the soil or groundwater
- If pollution has already occurred, it must be removed in accordance with relevant national regulations



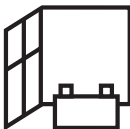
The battery can catch fire if overheated. Do not expose the device to heat (e.g. a permanent heat source or fire).



If the battery is damaged or subjected to improper use, dangerous vapours may be given off which can irritate the airways.

Measures:

- Ensure an adequate supply of fresh air
- Seek medical attention in case of discomfort



With a faulty battery, liquid may leak out of the device.

- Avoid contact with the liquid
- Hand the device over to a Fronius Service Partner for repair
- Clean and check any parts that have come into contact with the liquid



Do not operate or store the device in a potentially explosive atmosphere.

Special regulations apply in rooms at risk of fire or explosion:

- Observe relevant national and international regulations



To comply with European Directive 2006/66/EC on batteries and accumulators and its implementation in national law, batteries and rechargeable batteries that have reached the end of their life must be collected separately and returned to an approved recycling facility.

- Be sure to return any device that you no longer require to your dealer, or find out about the approved collection and recycling facilities in your area. Ignoring this European Directive may be harmful to the environment and your own health!

Devices with mechanically undamaged rechargeable batteries may be returned to the relevant Fronius Service Partner for repair or battery replacement.

As soon as it becomes evident that the rechargeable battery has been mechanically damaged (e.g. electrolyte is escaping), dispose of the device at your nearest recycling centre in accordance with national laws and guidelines.

If anything is unclear or you have any questions about disposal, contact your Fronius Service Partner.



**Use of charger and rechargeable battery pack**

- The charger and the rechargeable battery pack are designed for each other. Therefore you should only ever use the supplied charger to charge the battery pack.
- Recharge the rechargeable battery pack after every discharge. Do not wait until the rechargeable battery pack is completely discharged before recharging it.
- Objects must not be passed through the ventilation openings of the charger.
- Charging/discharging of the battery must be carried out according to the relevant requirements for the environmental conditions (technical data).
- Should unusual temperatures, odours, discolorations or deformations occur during the charging process, halt the process immediately.
- Disconnect the charger from the mains and rechargeable battery pack when not in use.
- When handling the battery, check the packaging and/or the battery itself for obvious signs of damage.
- Do not open, crush, dismantle or drop the rechargeable battery pack from a large height.
- Do not short-circuit the rechargeable battery pack or expose it to high temperatures.
- Keep the rechargeable battery pack away from direct sunlight and other heat sources.
- Do not place the rechargeable battery pack or the charger on moist or wet surfaces.
- Do not operate the rechargeable battery pack and charger in environments where they are exposed to dust, flammable gases, steam or solvents. Do not use in environments with strong vibrations and magnetic fields.

**Environmental conditions**

Operating, storing or transporting the system outside the specified area or environmental ranges is regarded as not complying with the intended purpose. The manufacturer shall not be liable for any damage or loss resulting from this.

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Ambient air temperature range:

- during operation: 0 °C to +40 °C (32 °F to 104 °F)
  - during transport and storage: -10 °C to +45 °C (14 °F to 113 °F)
  - Recommended temperature range during charging: +5 °C to +40 °C (41 °F to 104 °F)
- 

Relative humidity:

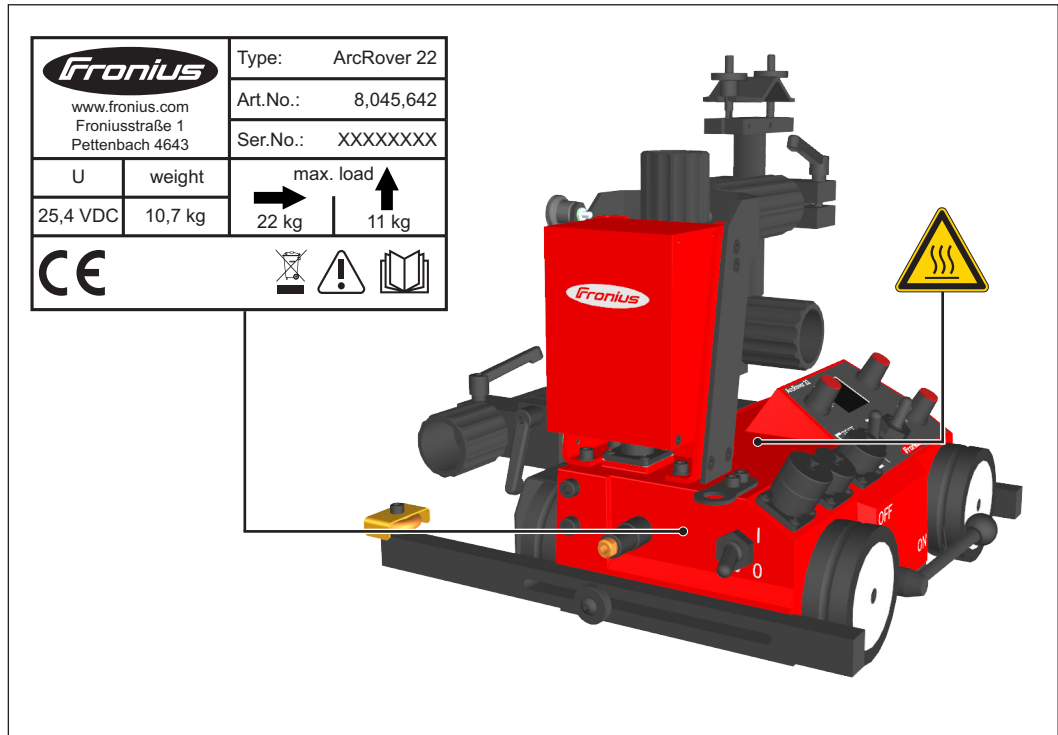
- up to 65% +/- 20%
- 

Environmental conditions:

- Surrounding air is free from dust and flammable vapours, solvents or gases.
- No strong vibrations and magnetic fields around the rechargeable battery pack.
- No direct sunlight on the rechargeable battery pack.
- No storing the rechargeable battery pack on moist or wet surfaces.

**Warning notices on the carriage**

A number of safety symbols can be seen on the rating plate affixed to the carriage. The rating plate and safety symbols must not be removed or painted over.



ArcRover 22



Do not use the functions until you have fully read the Operating Instructions.



Do not dispose of used devices with domestic waste. Dispose of them according to safety rules.



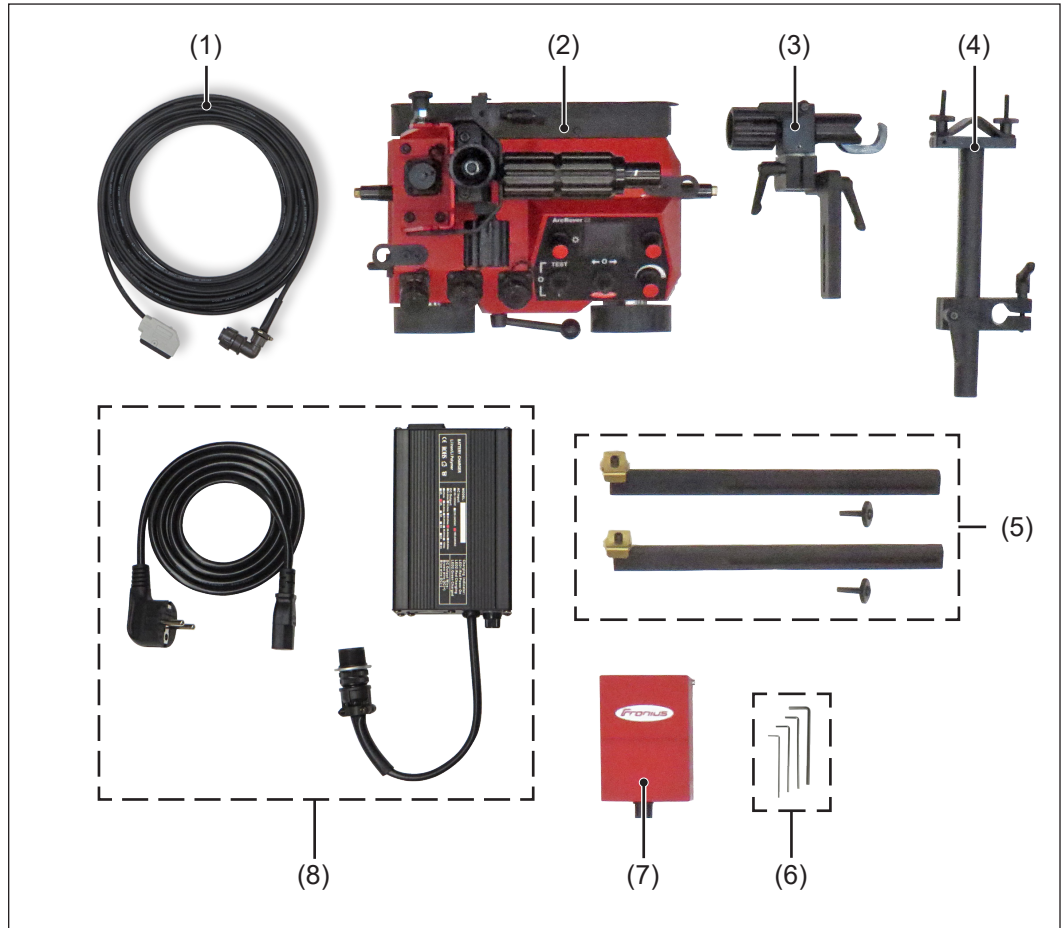
**WARNING!**

**Risk of burns from hot surfaces!**

The protective plate for the wheels heats up during long periods of welding operation. Touching the plate may cause burns.

- Do not touch the protective plate.
- Wear protective gloves and suitable safety goggles or a protective helmet.

## Scope of supply

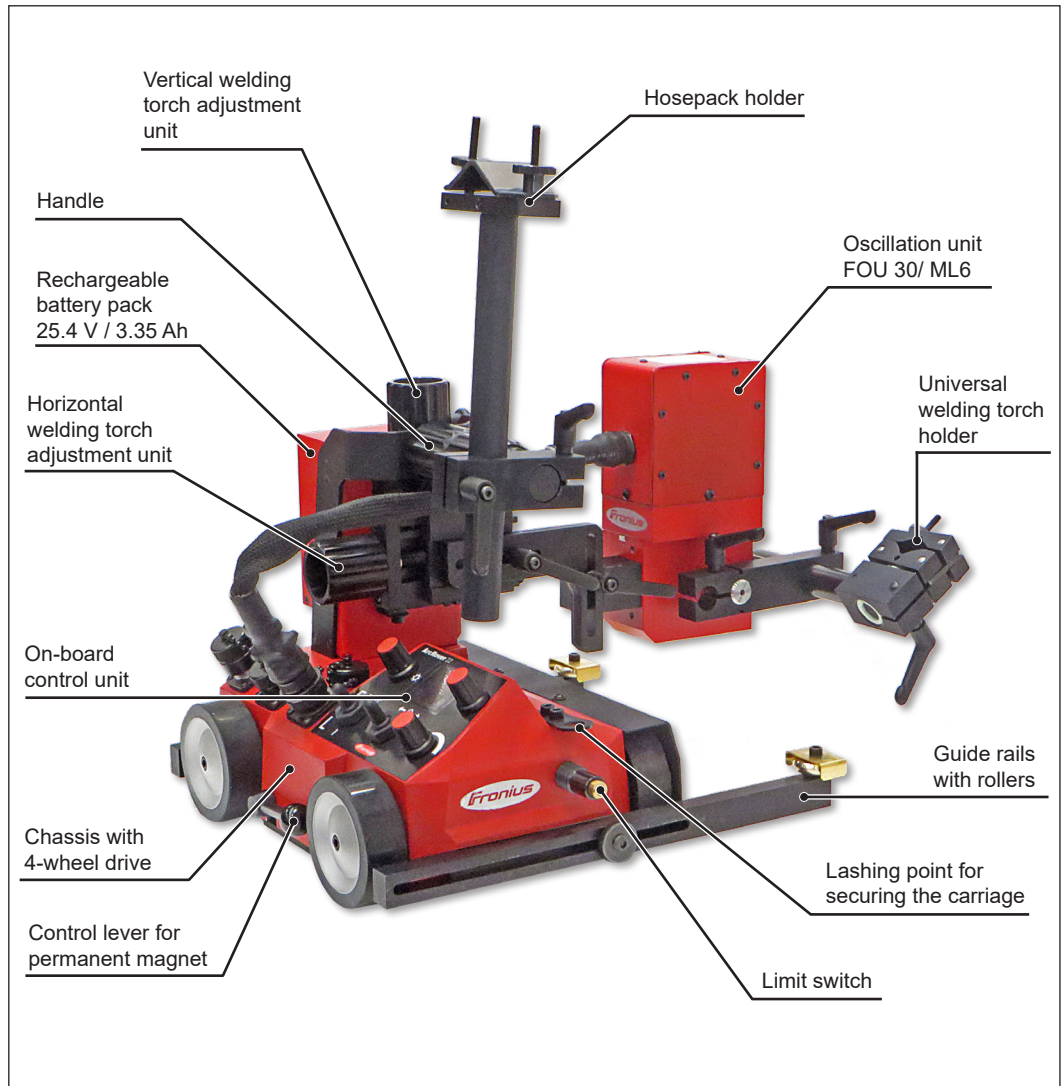


ArcRover 22 scope of supply

- |     |   |
|-----|---|
| (1) | Connecting cable to power source              |
| (2) | ArcRover 22 carriage                          |
| (3) | Universal welding torch holder                |
| (4) | Hosepack holder                               |
| (5) | Guide rails                                   |
| (6) | Allen keys: 2 / 2.5 / 3 / 4                   |
| (7) | Rechargeable battery pack<br>25.4 V / 3.35 Ah |
| (8) | Charger                                       |

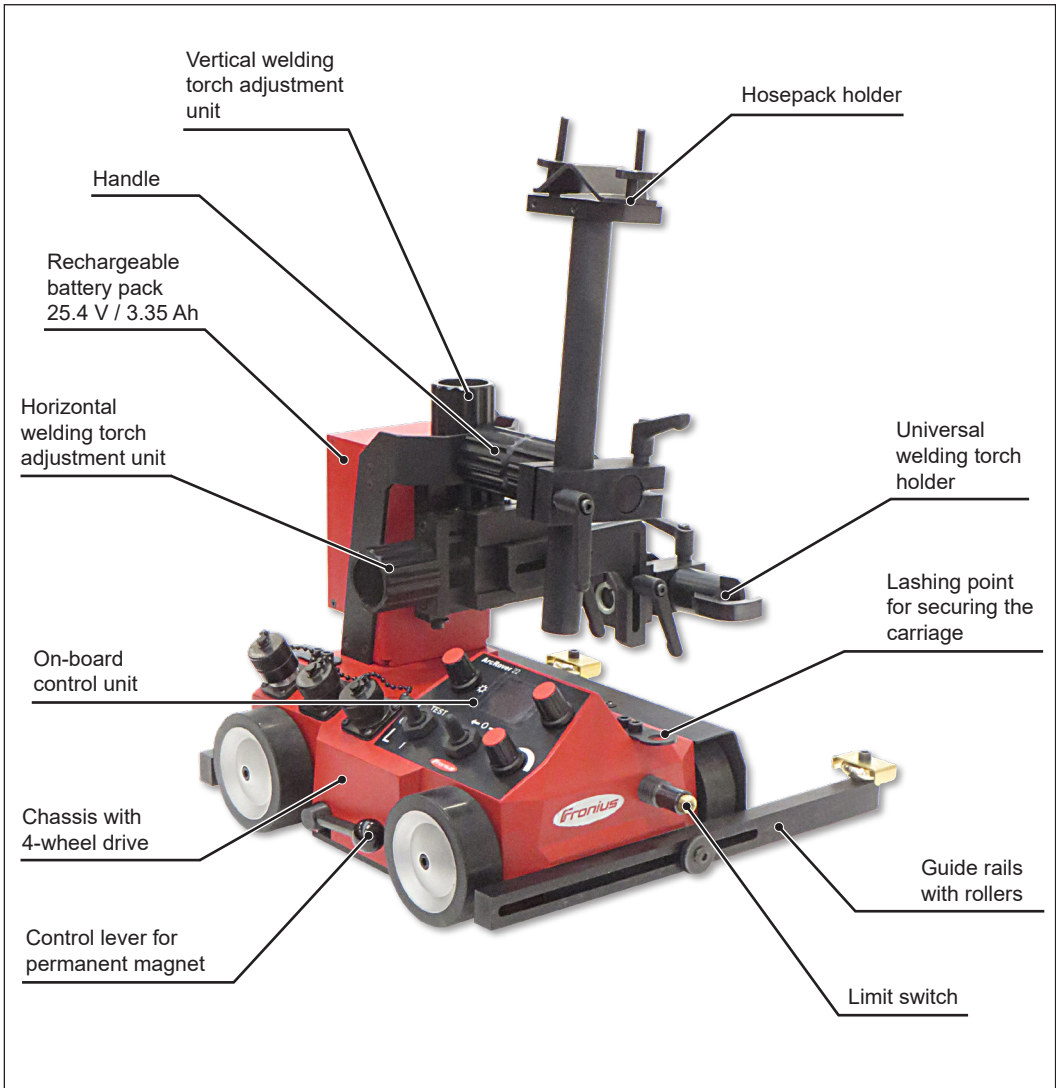
# Carriage components

## ArcRover 22 configuration with oscillation unit



ArcRover 22 carriage with oscillation unit


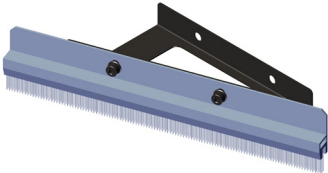




**ArcRover 22  
configuration  
without oscilla-  
tion unit**



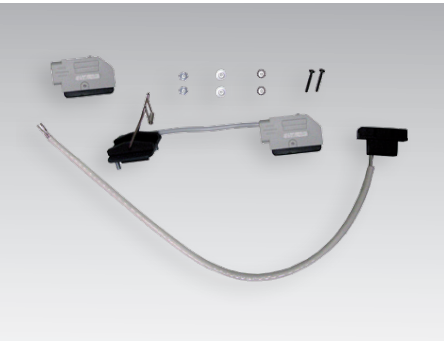
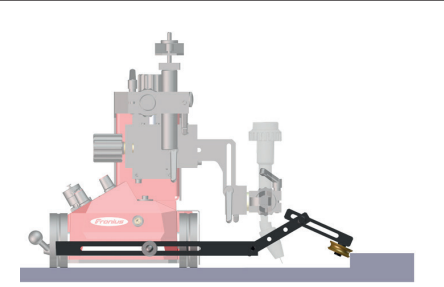
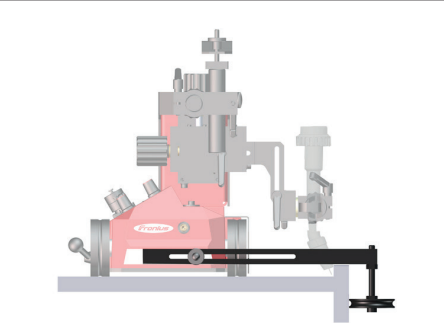
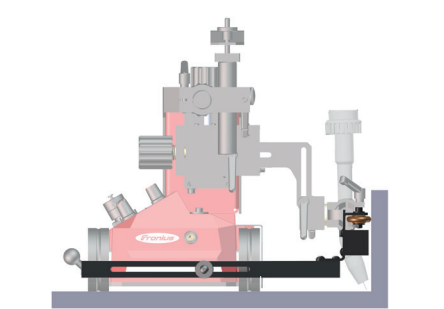
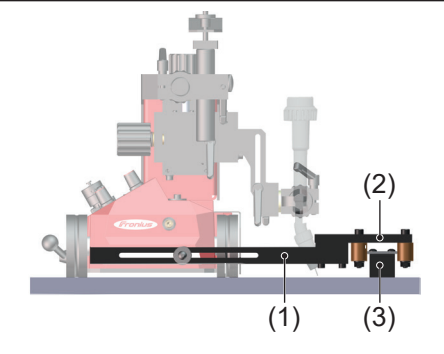
*ArcRover 22 carriage without oscillation unit*

# Accessories and options

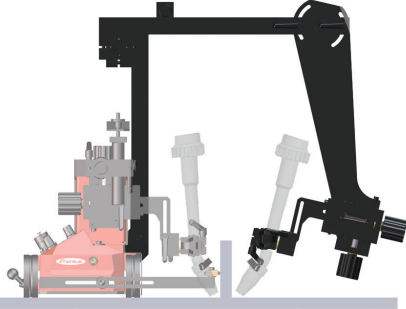
## Accessories

Article:	Item number:	Designation:
	48,0005,2582	Stainless steel drive wheel (for workpieces with particularly rough surfaces).
<p><b>IMPORTANT!</b> Use of the carriage with the "stainless steel drive wheel" accessory is only permitted in the PA welding position. Please seek advice with Fronius service personnel if using pre-heated workpieces.</p>		
	48,0005,2583	Brushes (2 pcs)
	48,0005,2600	Rechargeable battery pack 25.4 V / 6.8 Ah
	48,0005,2601	Charger 100-240 V 50/60 Hz / 29.4 V DC
	48,0005,0165	External power supply 230V AC / 24V DC
<td data-bbox="858 1487 1034 1518">38,0100,0433</td> <td data-bbox="1102 1487 1430 1518">Remote control cable 10 m</td>	38,0100,0433	Remote control cable 10 m
<td data-bbox="858 1576 1034 1608">38,0100,0476</td> <td data-bbox="1102 1576 1361 1608">Extension cable 10 m</td>	38,0100,0476	Extension cable 10 m
	4,100,711	I-set external start signal VR5000  (necessary for use with TransSteel; installed in the wirefeeder)





**Accessories**  
(continued)

Article:	Item number:	Designation:
	4,100,779,IK	OPT/i WF external start signal  (necessary in combination with TPSi; installed in the WF wirefeeder)
	48,0005,2578	Tiltable lateral guide
	48,0005,2577	Lateral guide for edge
	48,0005,2579	Magnetic lateral guide
	(1) 48,0005,2580	Guide arm for rail 1850 mm (2 pcs)
	(2) 48,0005,1894	Flexible guide rail 1850 mm
	(3) 48,0005,1895	Magnetic guide rail base

**Accessories**  
(continued)

Article:	Item number:	Designation:
	48,0005,2581	Additional welding torch holder (for 2nd torch)

**Options**

Article:	Item number:	Designation:
	8,045,644	Oscillation unit FOU 30/ML6/radial
	8,045,599	Motor slide FMS 100/ML15/SE/ACC
	8,045,618	Motor slide FMS 50/ML15/SE/ACC
	38,0100,0459	Connection cable 0,8 m: - FMS/ML15/SE/ACC - FOU 30/ML6/radial



# Control and display elements, connections

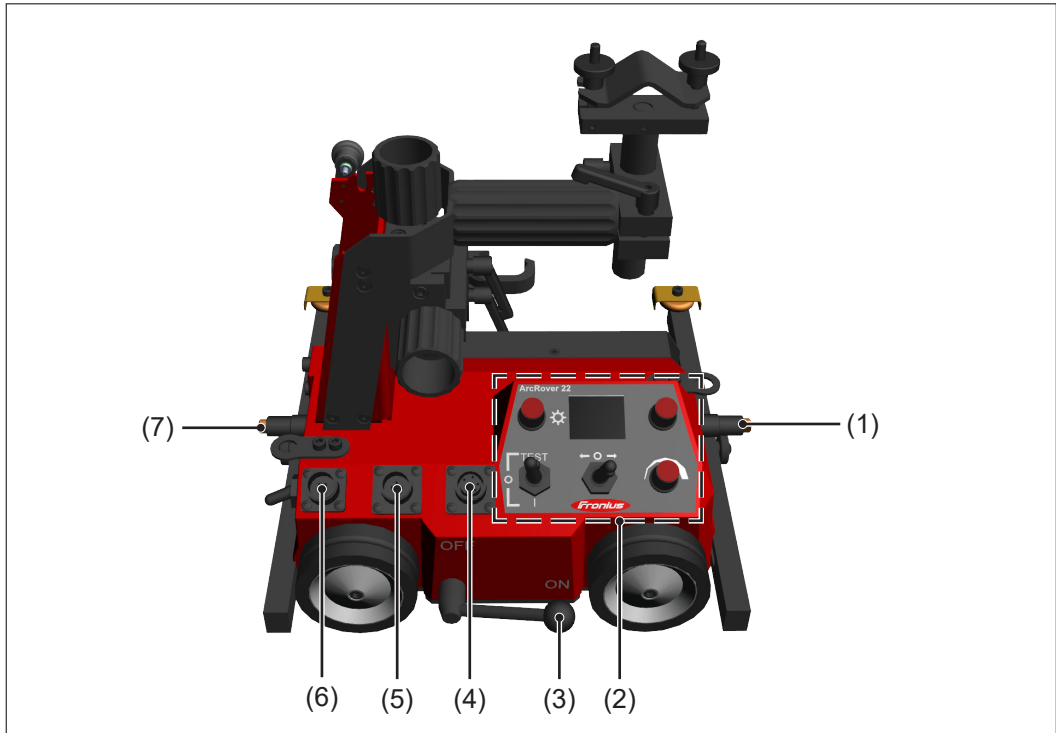
## Carriage

### **WARNING!**

Operating the equipment incorrectly can cause serious injury and damage.

Do not use the functions described here until you have fully read and understood the following documents:

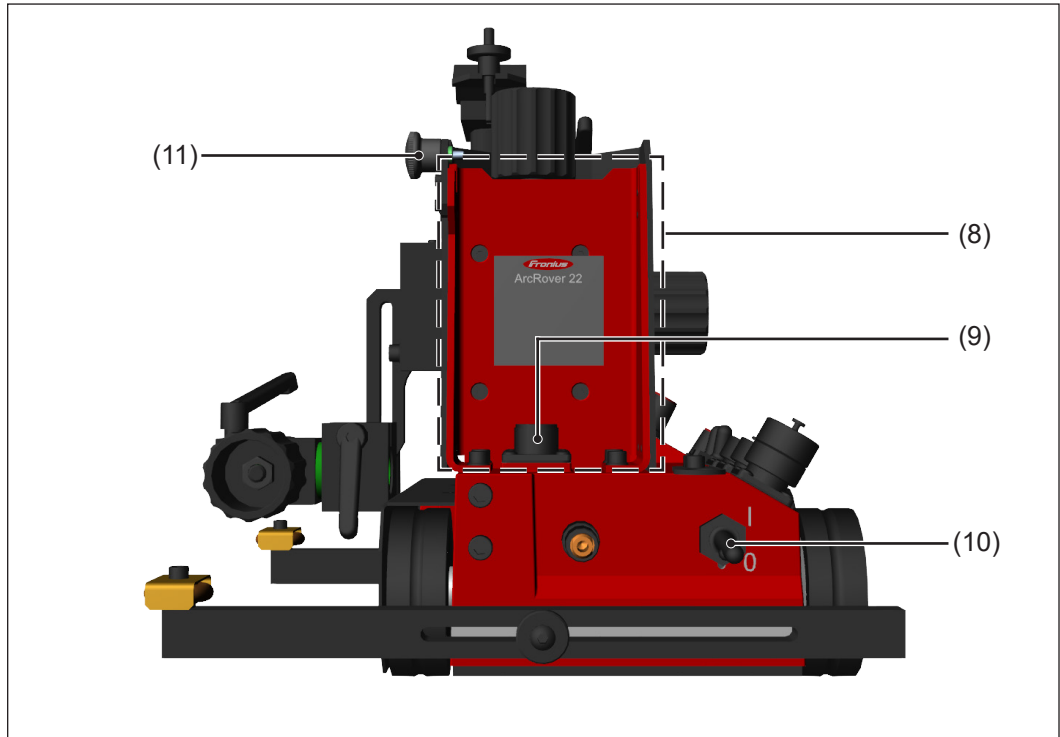
- These Operating Instructions
- All operating instructions for the system components



ArcRover 22 carriage

No.	Function
(1)	Front limit switch
(2)	Control panel <ul style="list-style-type: none"><li>- For the complete operation of the carriage.</li><li>- For configuring carriage parameters and creating programs.</li></ul>
(3)	Permanent magnet control lever ON/OFF For switching the permanent magnet on and off during vertical operation.
(4)	Connecting plug for FOU 30, FMSS 50/100, Service <ul style="list-style-type: none"><li>- For connecting the cable to the optional oscillation unit FOU 30.</li><li>- For connecting the cable to the optional motor slide FMS 50 or FMS 100. Motor slide corrects the position of the welding torch.</li><li>- Connection for diagnostic and service purposes.</li></ul>
(5)	Not used.
(6)	Connecting plug for analogue power source control For connecting the cable to the power source (analogue arc ignition).
(7)	Rear limit switch

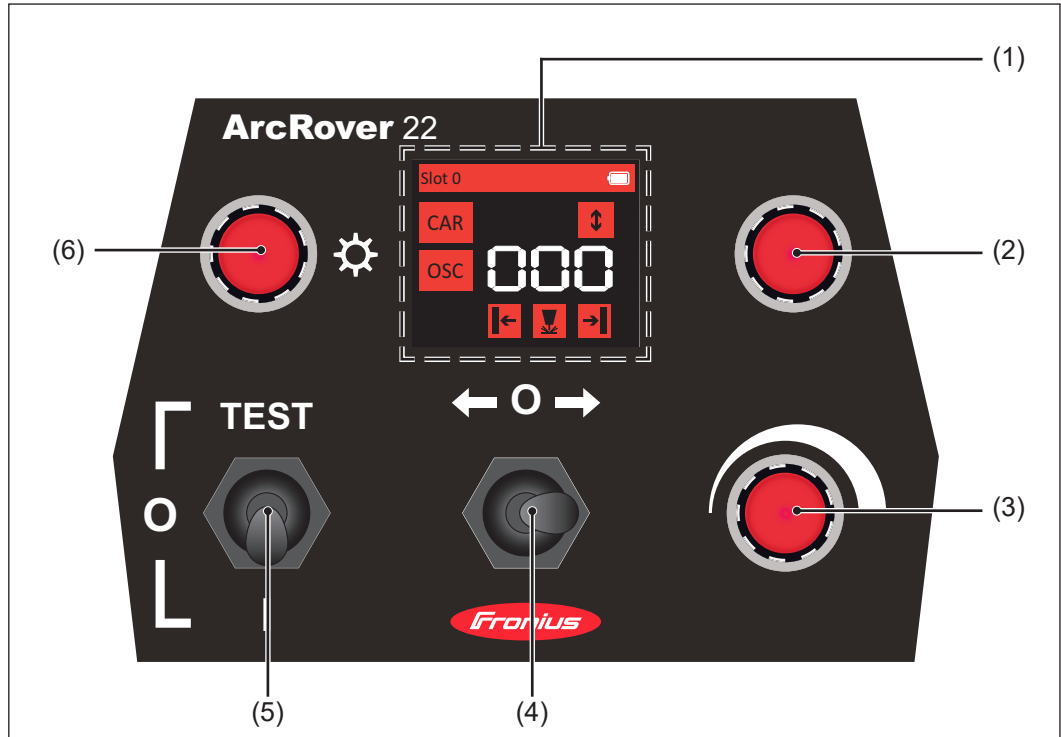
**Carriage**  
(continued)



ArcRover 22 carriage

No.	Function
(8)	<b>Compartment for rechargeable battery pack</b>
(9)	<b>Connecting plug for rechargeable battery pack</b> <ul style="list-style-type: none"><li>- for plugging in the rechargeable battery pack (Li-Ion 25.4V / 3.35Ah)</li><li>- for connecting the connection cable of the control box during mains operation (external power supply)</li></ul>
(10)	<b>Control unit ON/OFF toggle switch</b> For switching the carriage control unit on and off.
(11)	<b>Lock knob for locking the battery</b>

## Control panel



ArcRover 22 control panel

No.	Function
-----	----------

(1)	<b>Display</b>
-----	----------------

(1)	For configuring parameters and creating programs using the menu adjusting dial (6). The digital display is illuminated.
-----	---

(2)	<b>FMS-Offset adjusting dial</b>
-----	----------------------------------

- |     |  |
|-----|--|
| (2) | <ul style="list-style-type: none"><li>- For correcting the welding torch position when a FMS 50 or FMS 100 motor slide is installed.</li><li>- For returning to the main menu.</li></ul> |
|-----|--|

(3)	<b>Travel speed adjusting dial</b>
-----	------------------------------------

(3)	Used to adjust the travel speed of the carriage. The currently set travel speed is shown on the display. Setting range: 5 - 200 cm/min
-----	---

(4)	<b>Toggle switch Start LEFT/ 0/RIGHT</b>
-----	--

(4)	For starting and stopping the automatic program sequence in the relevant welding direction.
-----	---

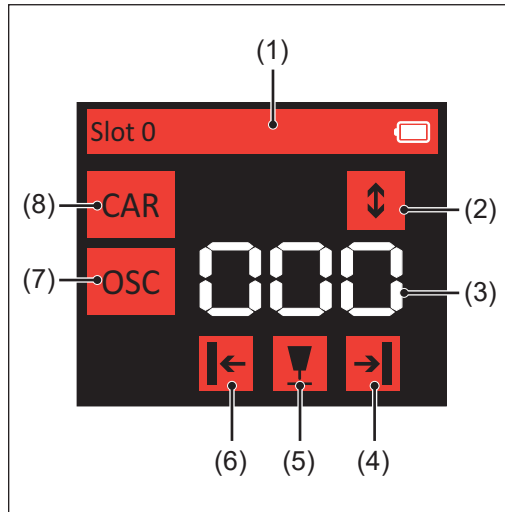
(5)	<b>Welding toggle switch I/0/TEST</b>
-----	---------------------------------------

(5)	For choosing whether to carry out the automatic program sequence with or without welding. I ... Welding on preselection 0 ... Welding off preselection TEST ... Arc immediately active (arc test)
-----	--

(6)	<b>Adjusting dial menu</b>
-----	----------------------------

- |     |  |
|-----|--|
| (6) | <ul style="list-style-type: none"><li>- For menu navigation and parameter entry.</li><li>- Pressing 2 seconds: for returning to the main menu.</li></ul> |
|-----|--|

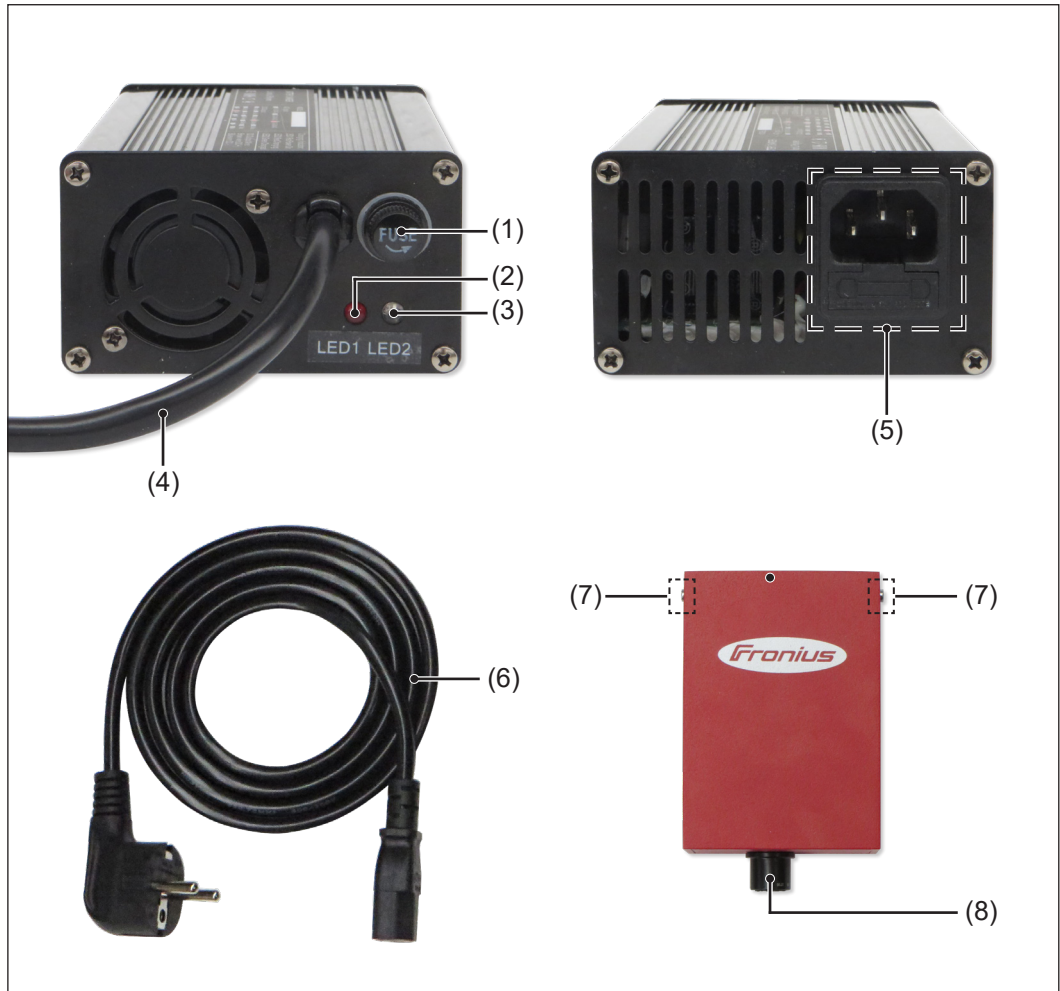
## Main menu



No.	Function
(1)	<b>Header</b> The following information is displayed: - Currently loaded carriage program (program 0 - 9) - Battery power level - In the event of malfunction: Error 1 - 11
(2)	<b>FMS-Offset active status display</b> A correction of the welding torch position is currently being carried out.
(3)	<b>Travel speed display</b> Displays the currently set travel speed in cm/min.

No.	Function
(4)	<b>Front limit switch active display</b>
(5)	<b>Welding ON/OFF display</b>
(6)	<b>Rear limit switch active display</b>
(7)	<b>OSC menu</b> Opens the OSC menu for setting the parameters for the oscillation unit FOU 30.
(8)	<b>CAR menu</b> Opens the CAR menu for setting the carriage parameters.

**Charger and rechargeable battery pack**



Overview of charging set

No.	Function
(1)	<b>Fuse holder with glass-tube fuse</b>
(2)	<b>LED1</b> Steady red light ... Mains on.
(3)	<b>LED2</b> - Steady red light ... Charging process active - Steady green light ... Battery finished charging
(4)	<b>Charging cable with plug</b>
(5)	<b>Mains connection with integrated glass-tube fuse</b>
(6)	<b>Mains cable</b>
(7)	<b>Housing screws (Allen screws)</b> For guiding the rechargeable battery pack into the compartment.
(8)	<b>Connecting plug for charging lead</b>

# Menu navigation and parameter entry

## General

General rules for entering parameters:

- Do not enter numbers; values must be entered using the relevant adjusting dial
- Changed parameters become active after the adjusting dial has been pressed, however they will not yet have been saved

## Turning/pressing the adjusting dial

Turn the adjusting dial to:



- Turning right highlights the next element (menu or parameter).



- Turning left highlights the previous element (menu or parameter).

To change values:



- Turning right increases the value to be set.



- Turning left decreases the value to be set.

Press the adjusting dial once:



- Opens the highlighted menu (white frame)

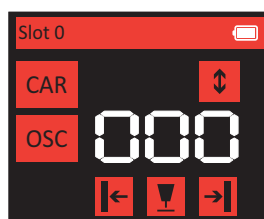


- Activates parameter entry



- Deactivates parameter entry

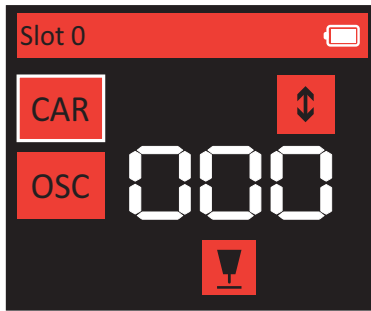
Press the adjusting dial for 2 seconds,  
Press the FMS-Offset adjusting dial once:



- Return to main menu





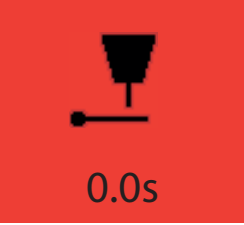
# Carriage parameters

## CAR menu






Menu entry:

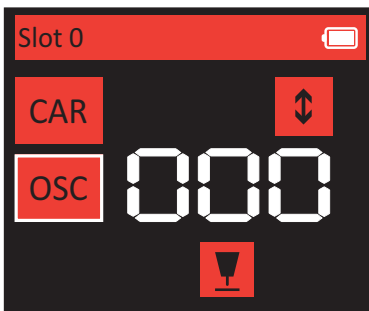
1. Turn menu adjusting dial and highlight the CAR menu (white frame).
2. Press the menu adjusting dial once.

Parameter	Function
 <p>40cm/min</p>	<p><b>Travel Speed</b>            Defines the traversing speed of the carriage in cm/min.            Unit: cm/min            Setting range: 5 to 200 cm/min</p>
 <p>0cm</p>	<p><b>Total Path</b>            The total path for welding. Once this distance has been reached, the program will stop automatically.            Unit: cm            Setting range: 0 to 9999 cm</p>
 <p>0cm</p>	<p><b>Segment Width</b>            Defines the length of the segments to be welded.            Unit: cm            Setting range: 0 to 99.9 cm</p>
 <p>0cm</p>	<p><b>Segment Gap</b>            Defines the length of the segments not to be welded.            Unit: cm            Setting range: 0 to 99.9 cm</p>
 <p>0.0s</p>	<p><b>Start Delay / Flying Start</b>            Unit: s</p> <ul style="list-style-type: none"> <li>- Setting range: 0 to +5 s ... Start Delay:              Defines the time between ignition of the arc and commencement of carriage movement.</li> <li>- Setting range: 0 to -5 s ... Flying Start:              Defines the time between commencement of carriage movement and ignition of the arc.</li> </ul>

**CAR menu**  
(continued)



Parameter	Function
 0.0s	<b>Back Filling</b> Defines for how long the torch should weld backwards at the end of the weld. Setting range: 0 to 5 s / ON / OFF
 0.0s	<b>End Crater Filling</b> Length of time that the carriage pauses at the end of the weld seam to fill the end-crater. Value must be the same or higher than the entered value on the power source (final current duration). Setting range: 0 to 5 s
 Off	<b>Change direction / Stop</b> <ul style="list-style-type: none"> <li>- ON ... Once the limit switch has been reached, the carriage reverses and runs to the other limit switch.</li> <li>- OFF ... Once the limit switch has been reached, the carriage stops</li> </ul>

**OSC menu**








Menu entry:

1. Turn menu adjusting dial and highlight the OSC menu (white frame).
2. Press the menu adjusting dial once.

Parameter	Function
 50%	<b>Oscillation Speed</b> Traversing speed for oscillation in %. Setting range: 5 to 100%
 30%	<b>Oscillation Path</b> Defines the distance between left and right reversal points of the oscillation motion. Setting range: 5 to 100%



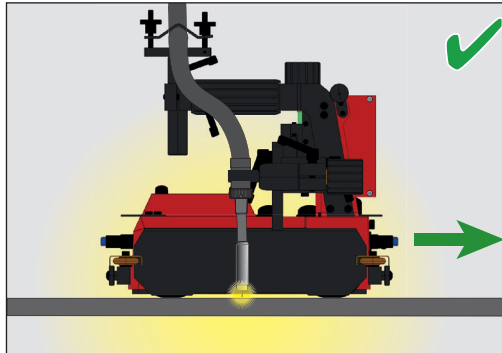
**OSC menu**  
(continued)

Parameter	Function
 1,5s	<b>Dwell time Left</b> Oscillation dwell time in the left-hand limit position. Setting range: 0.0 to 3 s
 1.5s	<b>Dwell time Middle</b> Oscillation dwell time in the middle position. Setting range: 0.0 to 3 s
 1.5s	<b>Dwell time Right</b> Oscillation dwell time in the right-hand limit position. Setting range: 0.0 to 3 s
 Triangle	<b>Oscillation Mode</b> <ul style="list-style-type: none"> <li> No oscillation</li> <li> Trapezoidal oscillation</li> <li> Triangular oscillation</li> <li> Rectangular oscillation</li> </ul>

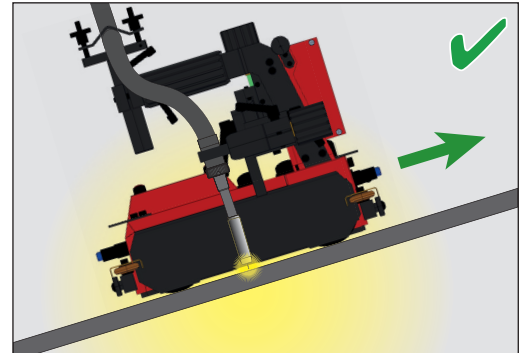
# Welding position and weld seam tracking

## Possible welding positions

The 4-wheel drive and built-in permanent magnet ensure that the carriage adheres to the workpiece and guarantee the best possible traction. The following welding positions are possible:



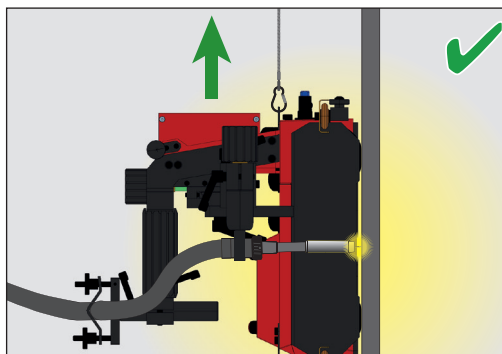
Horizontal



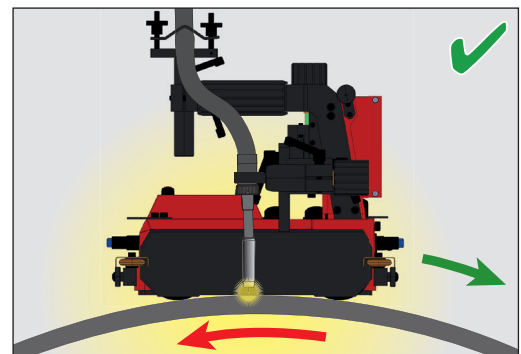
Sloping

### NOTE!

From an angle of 45° upwards, the carriage must be secured by a load securing device with a locking function to prevent it from falling.



Vertical



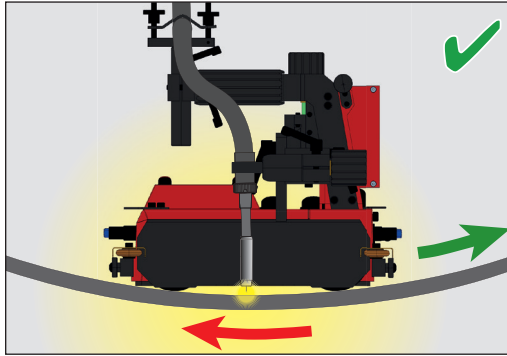
Outside of container with minimum diameter of 1500 mm

**IMPORTANT!** In vertical operation, the carriage must be secured by a load securing device with a locking function to prevent it from falling. The load securing device must be designed for the total weight of the carriage. The manufacturer accepts no liability for any damage to persons or property resulting from vertical use of the carriage without a load securing device.

### NOTE!

When used on the “outside of a container”, the container must be turned in the opposite direction and at the same speed.

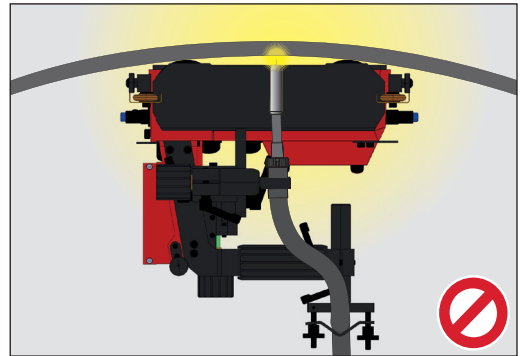
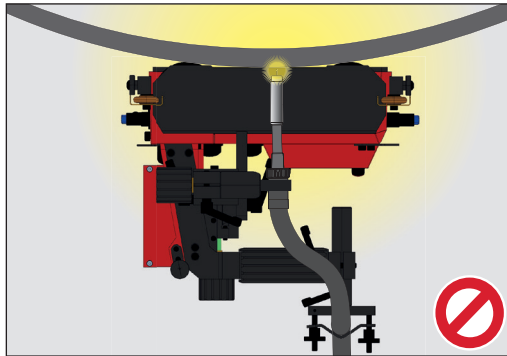
**Possible welding positions**  
(continued)



*Inside of container with minimum diameter of 500 mm*

**NOTE!**

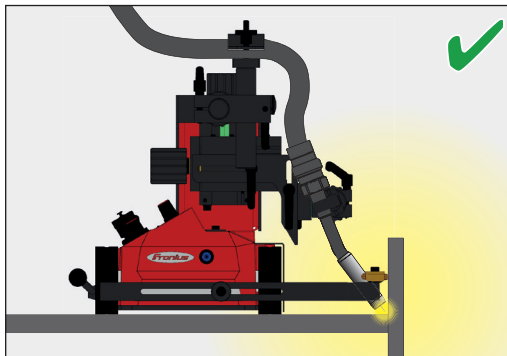
When used on the "inside of a container", the container must be turned in the opposite direction and at the same speed.



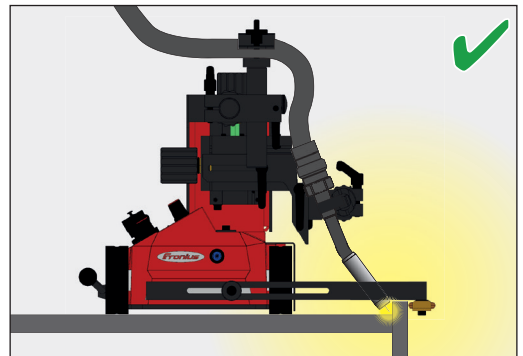
**IMPORTANT!** Use of the carriage in the "PE" overhead position is prohibited.

**Guidance of the carriage**

The adjustable guide wheels on the side of the carriage ensure proper tracking of the weld seam. They can be positioned on either side of the carriage. For detailed information about the correct setting of the guide wheels, see the section "Preparing the carriage". The guide wheels can be set to the following positions:

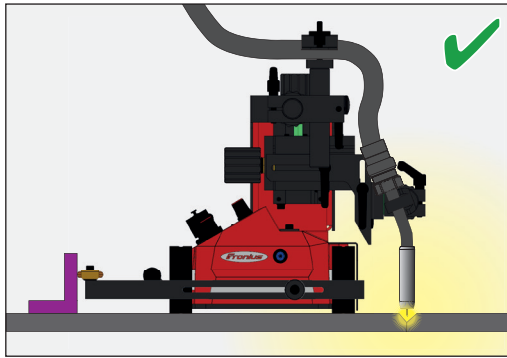


*Guidance on inside vertical surface*

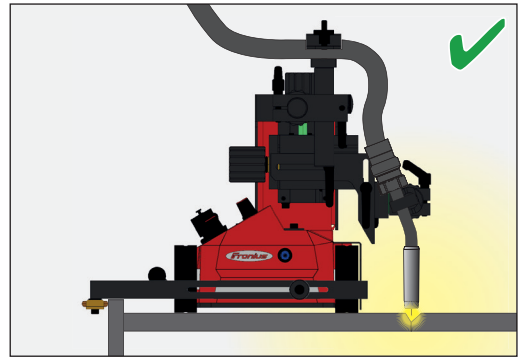


*Guidance on outside vertical surface*

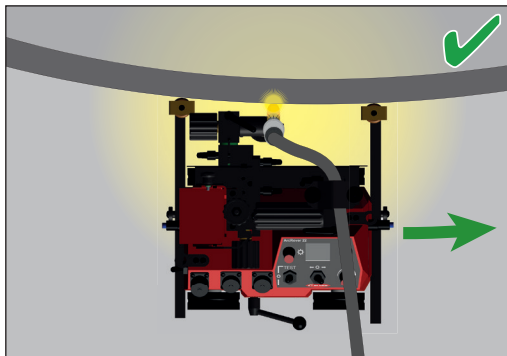
**Guidance of the carriage**  
(continued)



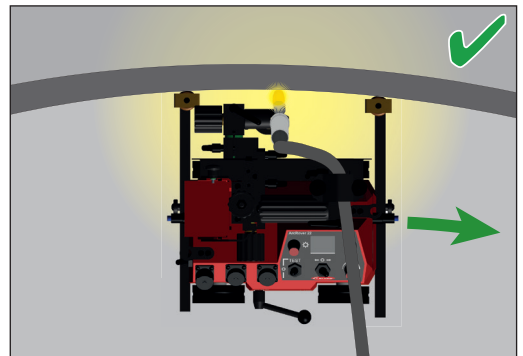
*Guidance on angle piece (vertical) or rail*



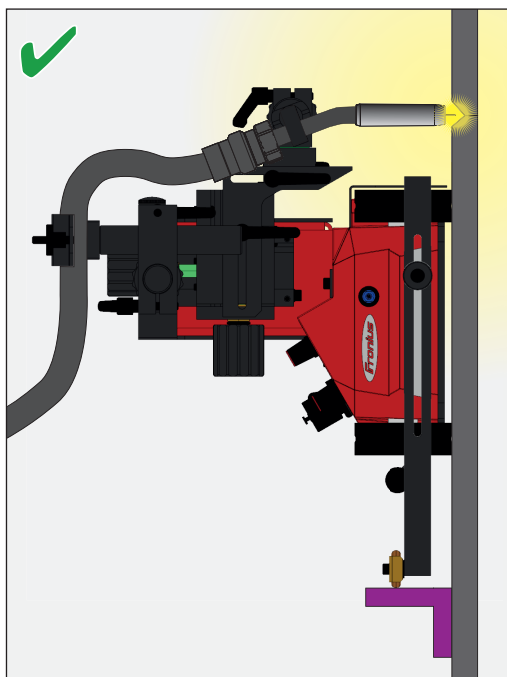
*Guidance on outside vertical surface*



*Outside of container with minimum diameter of 5000 mm*



*Inside of container with minimum diameter of 5000 mm*

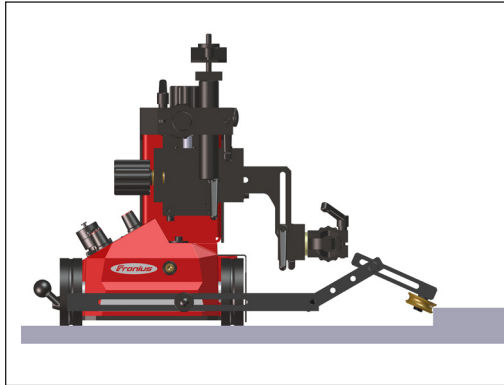


*Guidance on angle piece (horizontal) or rail*

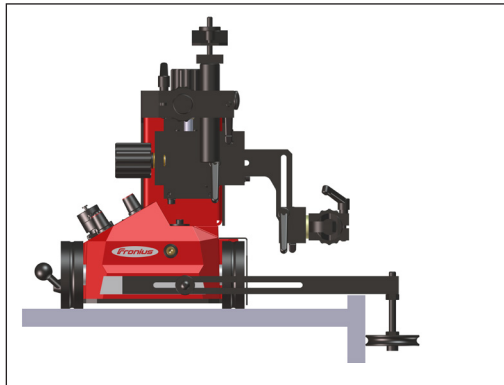
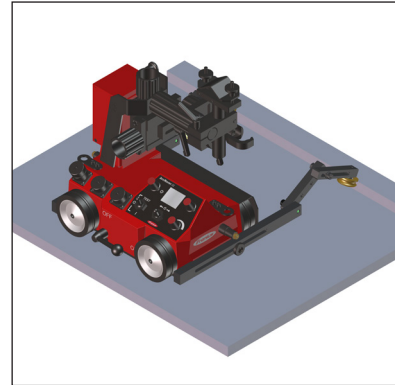
**NOTE!**

When guided on a horizontal angle piece, the welding torch must only be placed on the upper side.

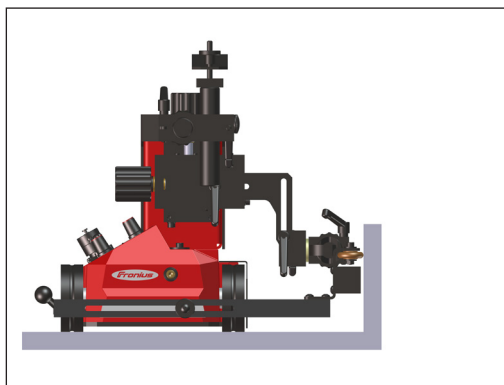
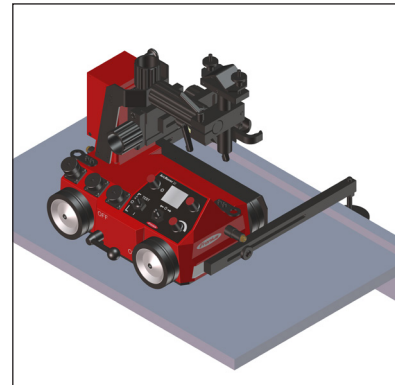
Optional lateral guides



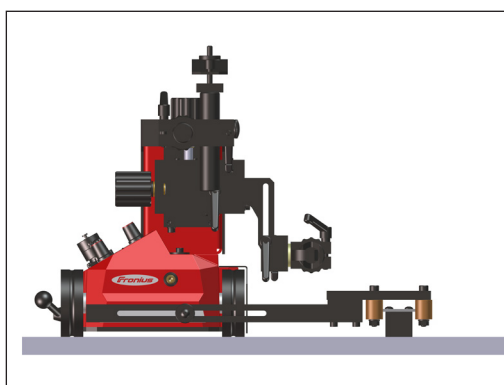
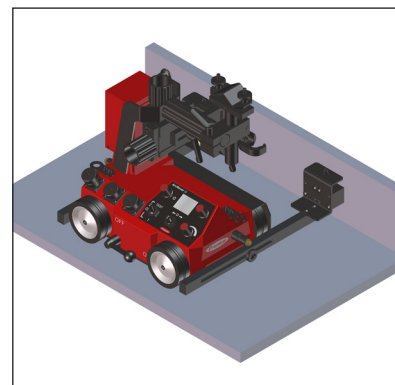
Tiltable lateral guide



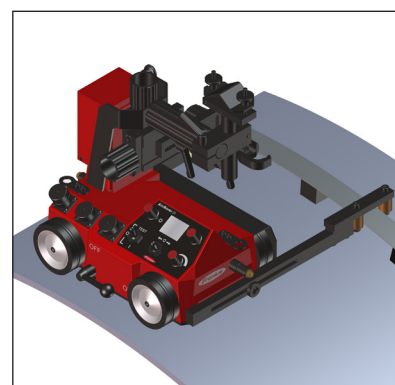
Lateral guide for edge



Standard lateral guide / with magnet



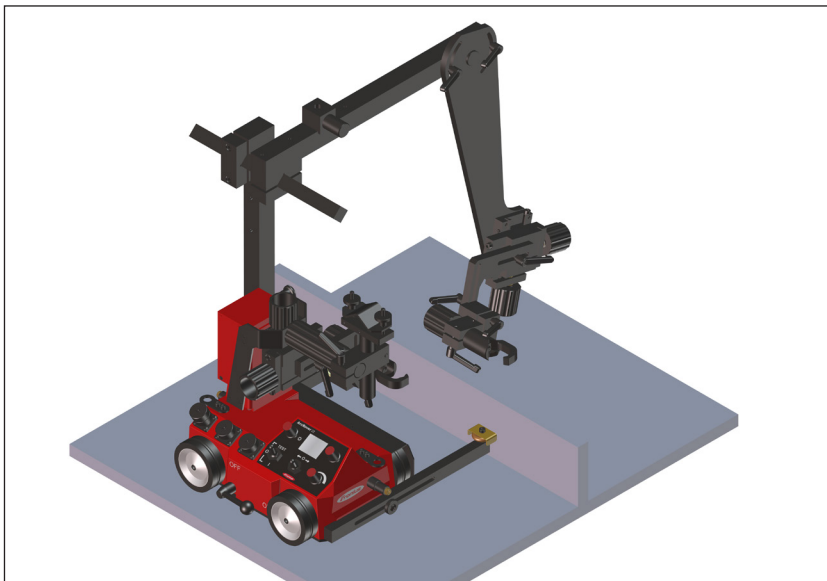
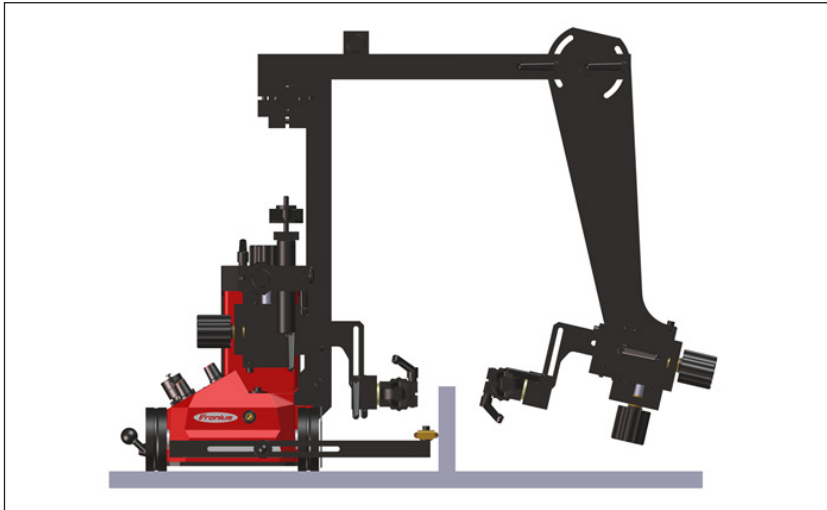
Lateral guide with guide rail



- Guide arm for flexible rail (2 pcs.) (1850 mm)
- Magnetic bases for guide rail
- Flexible guide rail (1850 mm)

**IMPORTANT!** 10 magnetic bases are required for each rail.

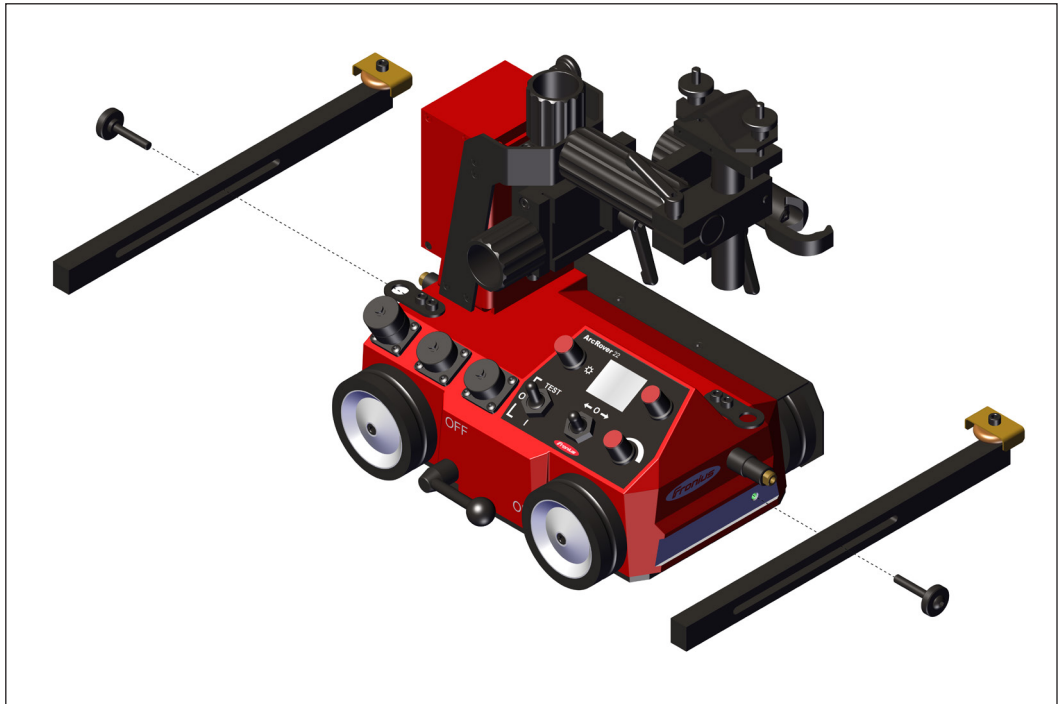
**Additional torch holder**



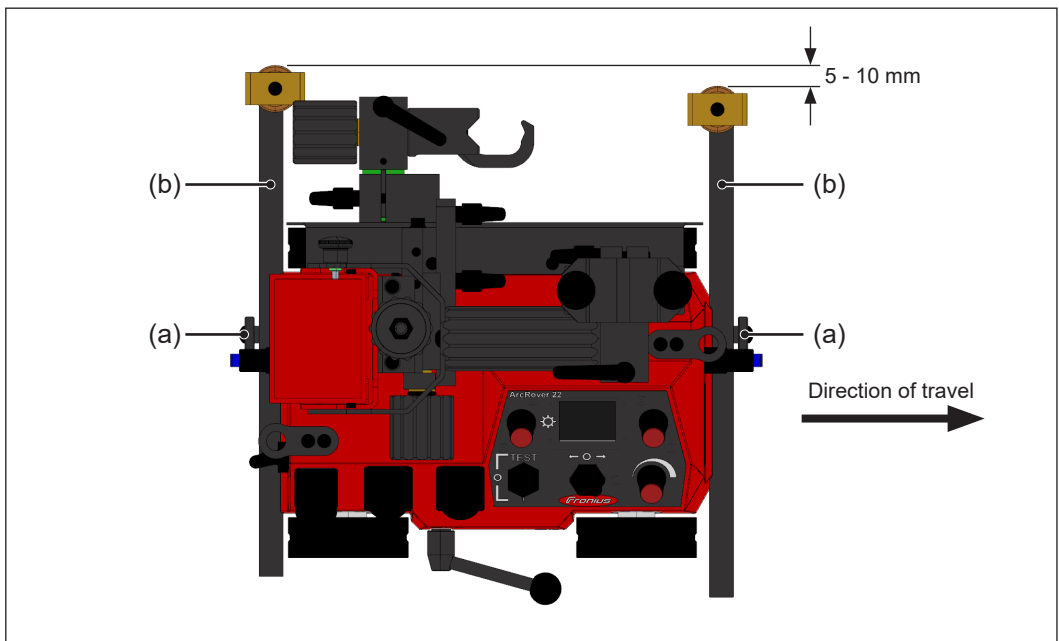
**IMPORTANT!** It is only possible to use two welding torches in a horizontal position.

# Preparing the carriage

## Mounting and setting up the guide rails

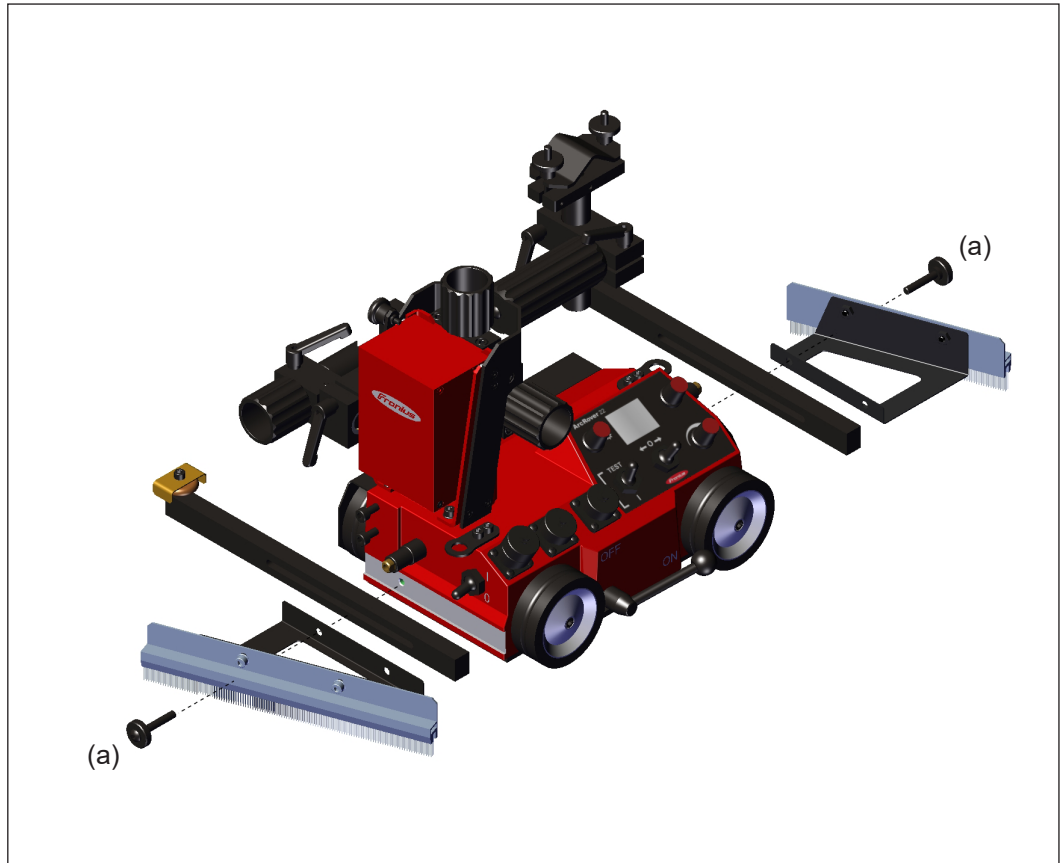


1. Use the M6 knurled screw to attach the guide rails to the carriage.
2. Tighten knurled screws by hand first. Make sure that the guide rails are sat correctly in the appropriate recess on the carriage frame.



3. Undo the knurled screws (a).
4. Extend the guide wheels (b) to the desired length. To ensure that the carriage keeps to the chosen direction, the extended guide wheels must be extended by 5 - 10 mm (see diagram).
5. Tighten the knurled screws (a).

## Fitting the carriage brushes (option)



### NOTE!

The brush may be fitted to either the front or rear of the carriage.

1. Undo the M6 knurled screw (a).
2. Attach the brush brackets as shown.
3. Screw in the M6 knurled screw (a) and tighten by hand.



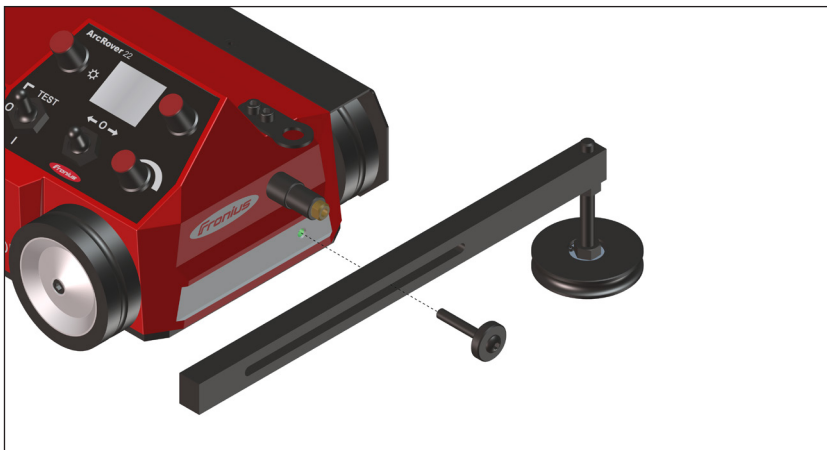
**Fitting the lateral guides (option)**

All optional lateral guides for the ArcRover 22 carriage come with the M6 knurled screw attached. The lateral guides are attached to the end faces of the carriage.

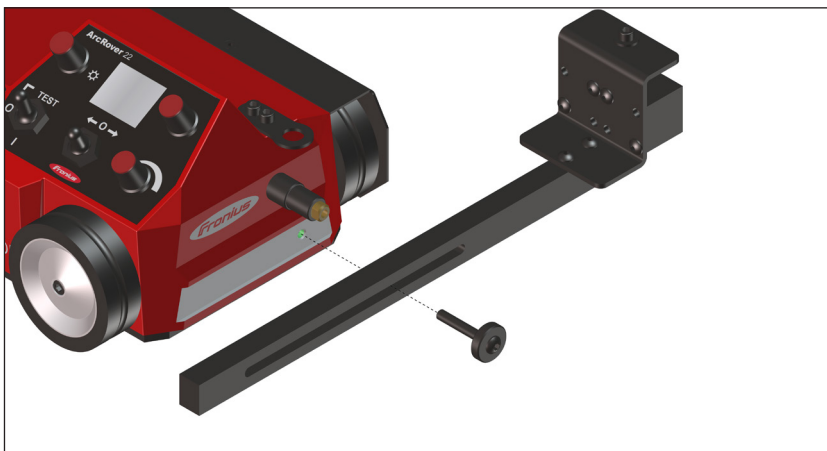
**Tiltable lateral guide**



**Lateral guide for edge**

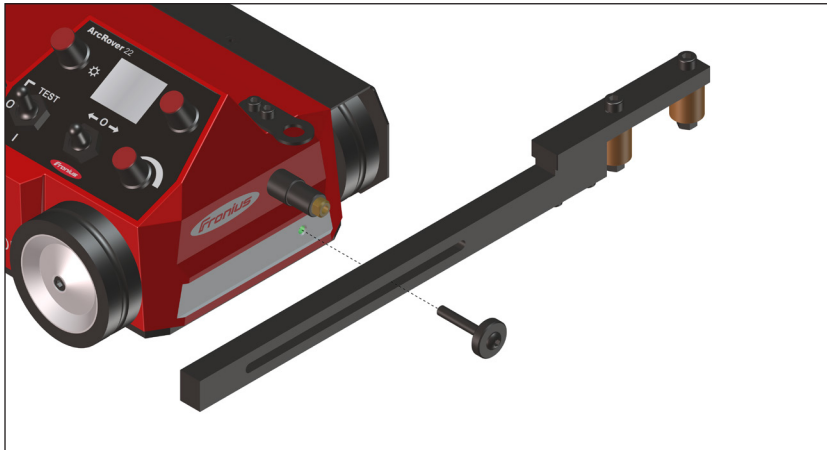


**Standard lateral guide with magnet**



**Fitting the lateral guides (option)**  
(continued)

**Lateral guide with guide rail**

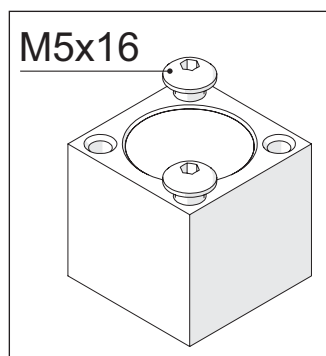
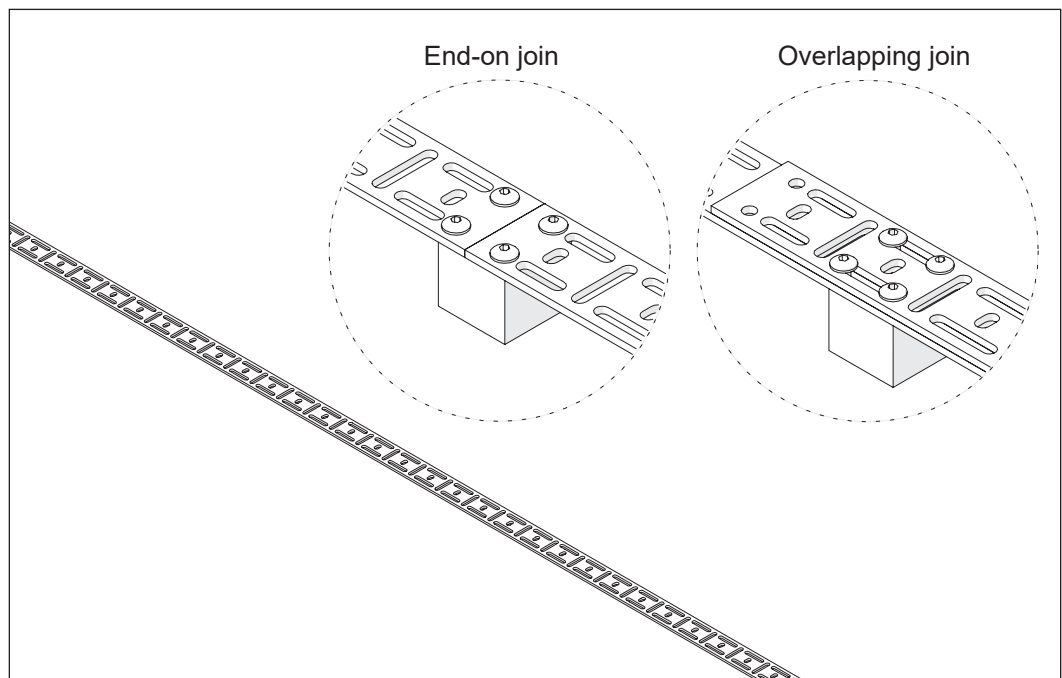


The flexible lateral rail is secured using magnetic bases. Each rail (1850 mm) requires 10 magnetic bases to guarantee a secure hold.

The rail sections can be attached to the magnetic bases in the following ways:

- Placed end-on
- Overlapping

Attach the rails to the magnet block with the provided M5x16 fixing screws.

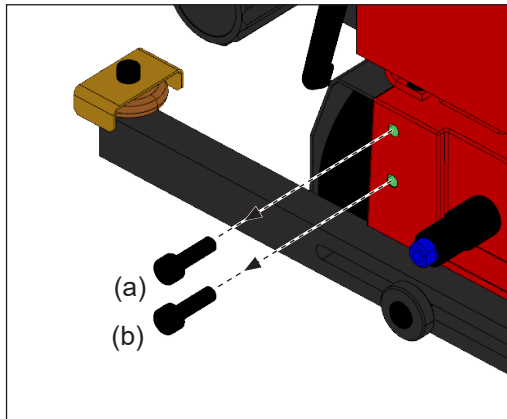


When placed on a 5 mm thick magnetic surface, the magnetic bases have the following holding force:

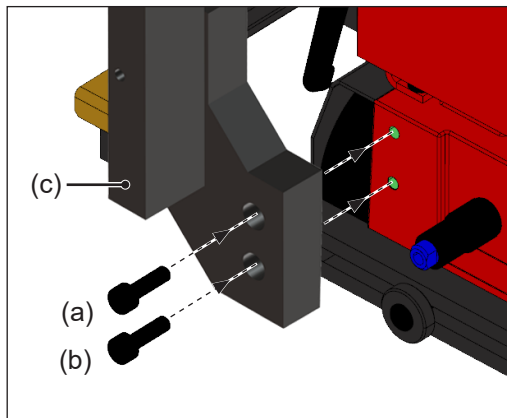
- Up to a temperature of 100 °C (212 °F): 90 N
- From a temperature of 180 °C (356 °F): 54 N

**Fitting the second torch holder (option)**

The second torch holder is attached to the front of the carriage, in front of the control panel.



1. Loosen and remove the Allen screws (a, b).



2. Fit the torch holder (c).
3. Insert and tighten the Allen screws (a, b).

**Charging the rechargeable battery pack**



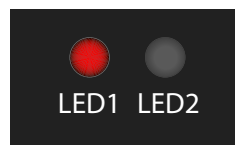
**IMPORTANT!** Recharge the rechargeable battery pack after every discharge. Do not wait until the battery pack is completely discharged before recharging it.

1. Connect the mains cable to the charger.



2. Insert the Schuko plug into a 230 V socket.

LED1 lights up red (mains on).

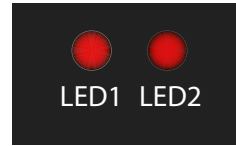


**Charging the rechargeable battery pack**  
(continued)



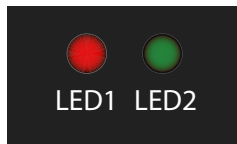
3. Connect the charging plug from the charger to the rechargeable battery pack. The rechargeable battery pack is charging.

LED2 lights up red (charging process active).



**IMPORTANT!** The rechargeable battery pack is fully charged after a charging time of 2 hours.

LED2 lights up green (rechargeable battery pack fully charged).

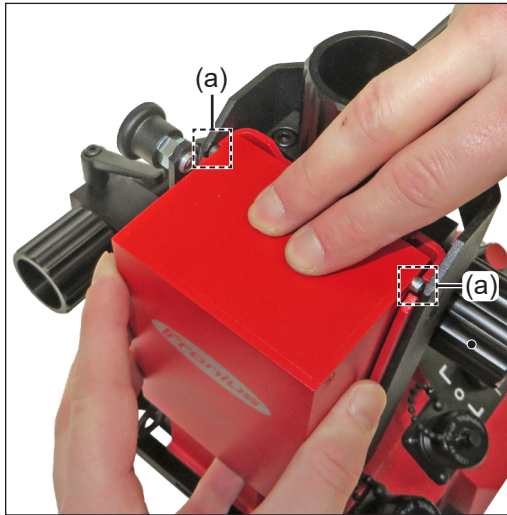


4. Disconnect the Schuko plug.



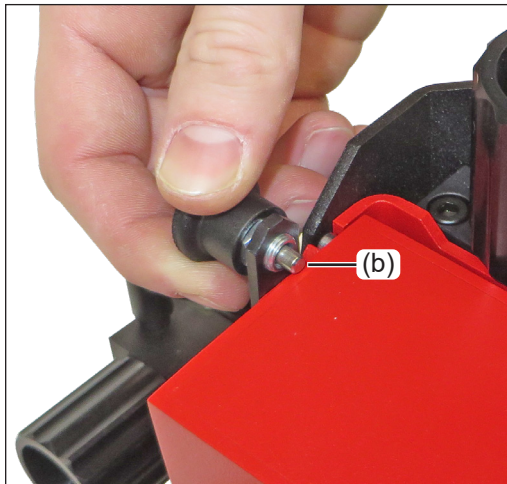
5. Remove charging plug from the rechargeable battery pack.

**Inserting  
rechargeable  
battery pack into  
carriage**



**IMPORTANT!** Before inserting the rechargeable battery pack, check that the connection contacts are not dirty or shorted.

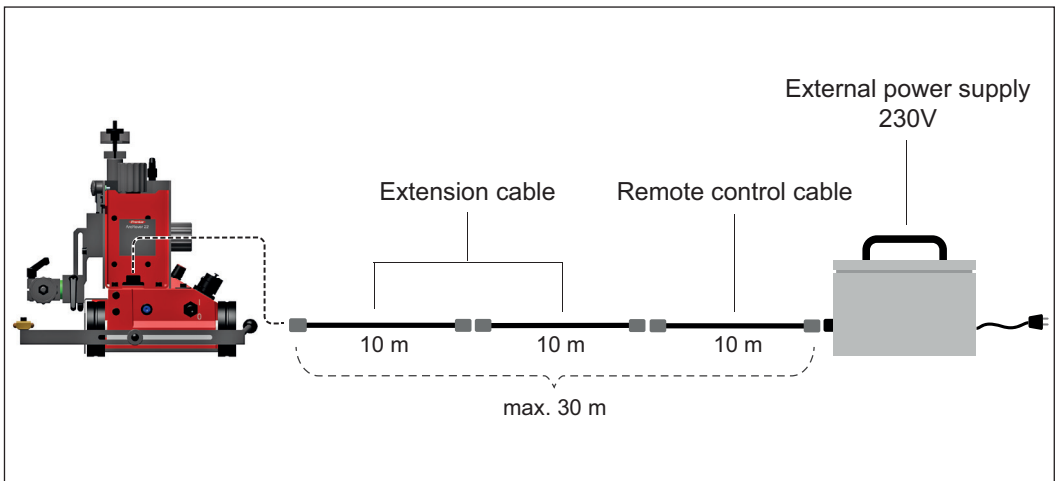
1. Insert the rechargeable battery pack from above into the compartment. The housing screws have to sit in the appropriate recesses on the carriage frame (a).



2. Keep turning the lock knob until the fuse pin (b) locks.

**Connecting the external power supply (option)**

With the „ArcRover 22 mains operation“ option, the carriage can be operated with an external power supply instead of the battery pack.



**IMPORTANT!** When extending the remote control cable, observe the following points:

- use a maximum of 2 extension cables
- do not exceed total length of 30 m
- ensure that all union nuts are tightened at all connection points

# Setting up the carriage

## Checking the workpiece surface and carriage

Before positioning the carriage, check the following:

- The surface of the workpiece must be clean (no sand, shavings, etc.)
- The base plate of the carriage must be free of objects which can be attracted by the magnet
- The rubber elements of the drive wheels must be undamaged and free of swarf
- The guide wheels must be clean, undamaged and free of welding spatter

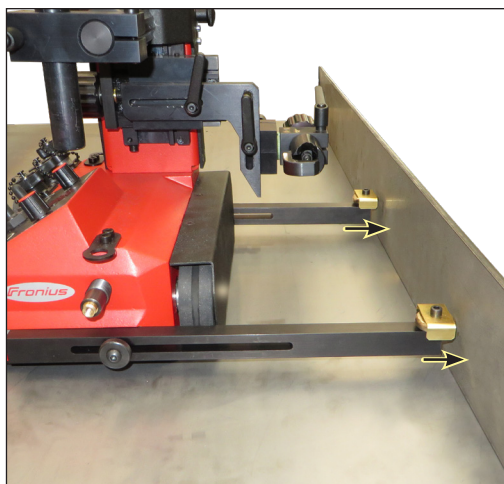
## Placing the carriage

### **WARNING!**

**The activated permanent magnet poses a risk of injury.**

There is a danger of injury to the fingers when positioning the carriage.

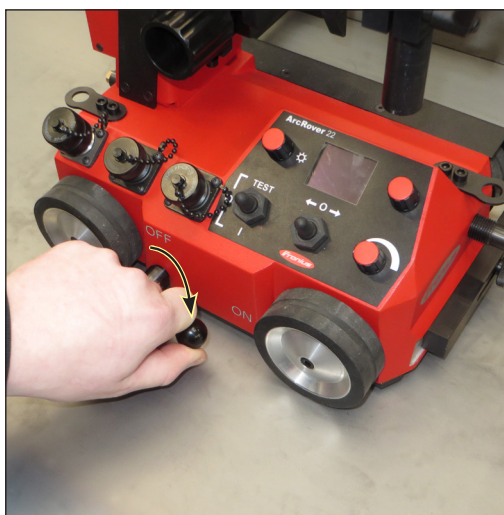
- Only hold the carriage by the handle and not by the base plate.



1. Place the carriage on the workpiece. The side guide wheels must be in contact with the workpiece.
2. If necessary, correct the position of the guide wheels.

### **NOTE!**

Detailed informations on „Setting up the guide rails“ can be found in chapter „Preparing the carriage“.



3. Set the permanent magnet control lever to the "ON" position.

**Attaching fall protection  
(only for vertical operation)**

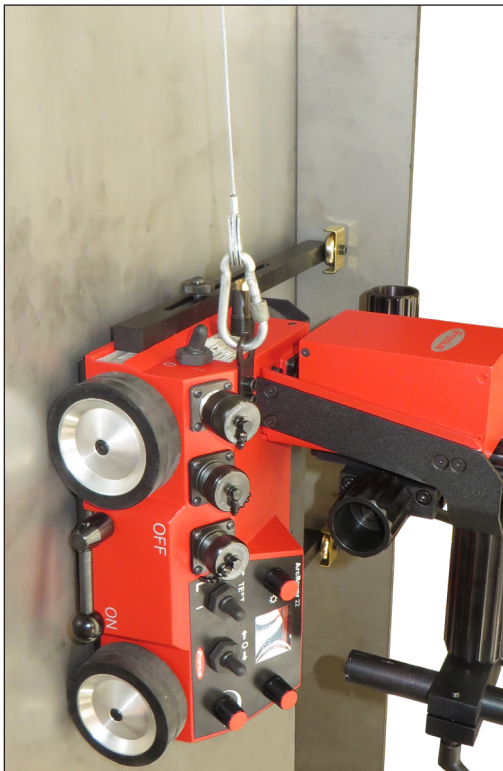
**IMPORTANT!** In vertical operation, the carriage must be secured by a load securing device with a locking function to prevent it from falling. The load securing device must be designed for the total weight of the carriage. The manufacturer accepts no liability for any damage to persons or property resulting from vertical use of the carriage without a load securing device.



1. Attach the snap hook of the load securing device to the lashing point for securing the carriage

**NOTE!**

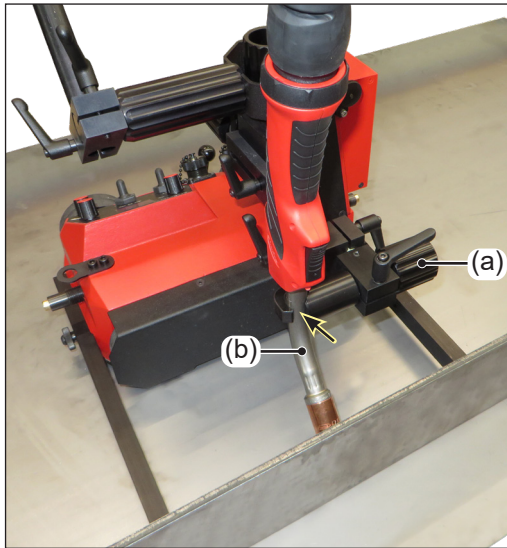
Do not stand beneath a suspended carriage.



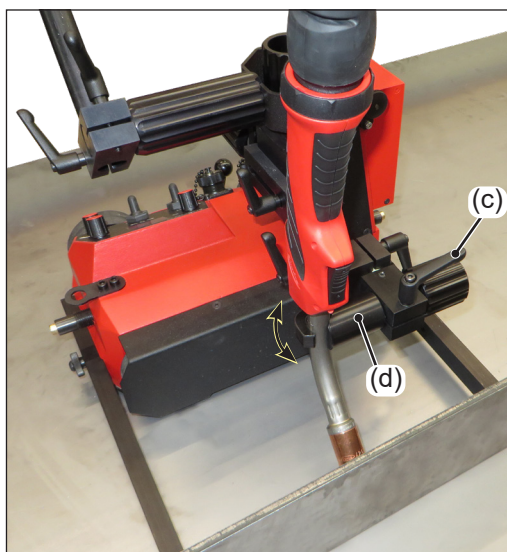
2. Make sure the cable is kept permanently taut



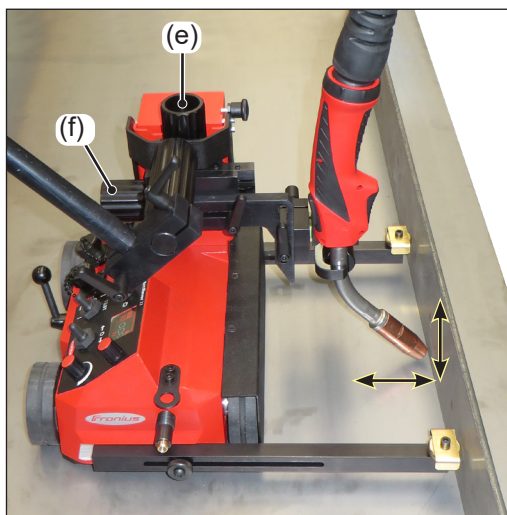
## Mounting and adjusting the welding torch



1. Turn the adjusting dial (a) to the left and release the torch holder.
2. Insert the welding torch (b).
3. Turn the adjusting dial (a) to the right and fix the welding torch in position.



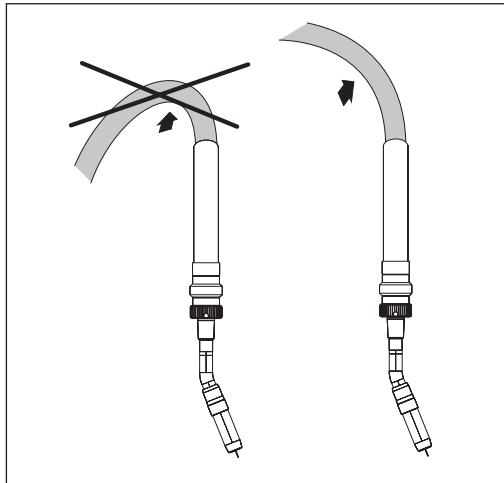
4. Set the welding torch inclination:
  - Loosen the clamping lever (c)
  - Twist the torch holder (d) and set the required inclination
  - Tighten the clamping lever (c)
5. Release all other necessary clamping levers and position the welding torch.



6. Turn the adjusting dial on the relevant mechanical adjustment unit (e, f) until the correct welding torch position is reached.

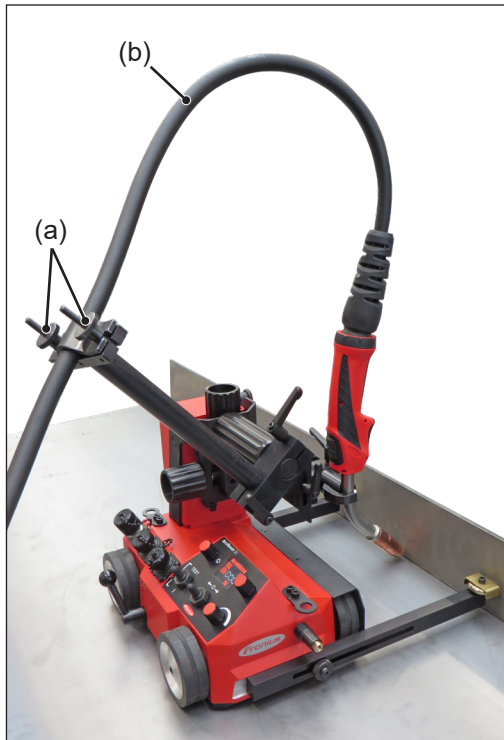
## Disengaging the carriage

To attain correct wirefeed, observe the following when laying the hose pack:



Handling the hosepack

- Do not allow the hosepack to become kinked
- Always lay the hosepack as straight as possible



1. Undo the knurled screws (a) on the clamp.
2. Insert the hosepack (b) as illustrated. **IMPORTANT!** Make sure the hosepack does not become kinked - this can lead to wirefeed problems.
3. Tighten the knurled screws (a).

### NOTE!

Observe the maximum tensile load on the hosepack holder (see the “Technical data” section). This value must not be exceeded.

- If necessary, suspend the hosepack. The hosepack must not come into contact with the floor. Use balancers and hosepack holders (e.g. universal hosepack holder).

# Starting up the carriage

## Checking the connections

The following activities and work steps apply to the fully installed system. Before start-up, check all the connections between, and connection sockets of, the following system components:

- Carriage
- Rechargeable battery pack or control box (external power supply)
- Oscillation unit or motor slide (if used)
- Power source
- Cooling unit
- Gas cylinder
- Wirefeeder
- Welding torch with hosepack

Precise information on the assembly and connection of the system components can be found in the relevant operating instructions for the system component.

## Switching on the system components

### **WARNING!**

#### **Danger of injury from premature arc ignition.**

The arc may be ignited accidentally. This can cause serious eye injuries.

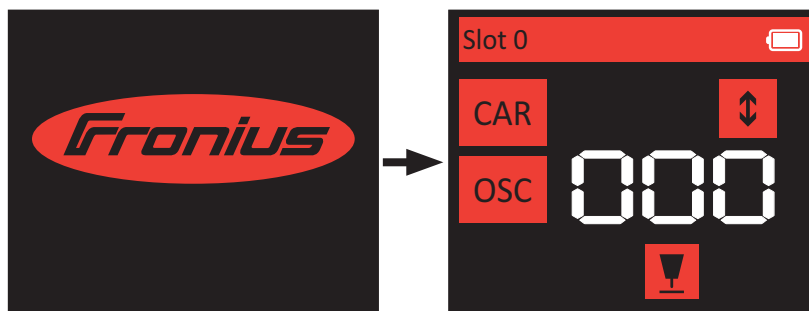
- Before switching on the system components, make sure that the “Start LEFT/0/RIGHT” toggle switch on the carriage control panel is set to the “0” position.

**IMPORTANT!** There are no fixed rules for the sequence in which the system components are switched on. They can be switched on in any order.

Switch on the main switch on the following system components:

- Control box (mains operation via external power supply instead of battery)
- Carriage control unit
- Power source

The start screen appears and the main menu is opened:



# Setting the carriage parameters

## Parameter list

Carriage parameter			
No.	Parameter name	Setting range:	Unit:
(1)	Travel Speed	5 - 200	cm / min
(2)	Total Path	0 - 9999	cm
(3)	Segment Width	0 - 99.9	cm
(4)	Segment Gap	0 - 99.9	cm
(5)	Start Delay	0 - (+5)	s
	Flying Start	0 - (-5)	s
(6)	Back Filling	0 - 5 / ON / OFF	s
(7)	End Crater Filling	0 - 5	s
(8)	Change direction / Stop	ON / OFF	-

Oscillation parameters			
No.	Parameter name	Setting range:	Unit:
(1)	Oscillation Speed	5 - 100	%
(2)	Oscillation Path	5 - 100	%
(3)	Dwell time Left	0.0 - 3	s
(4)	Dwell time Middle	0.0 - 3	s
(5)	Dwell time Right	0.0 - 3	s
(6)	Oscillation Mode	Without, Trapezoidal, Triangular, Rectangular;	-

## Continuous and path welding

### Continuous welding:

For this application, the total path must be set to "0". This means that the welding path variable is ignored.

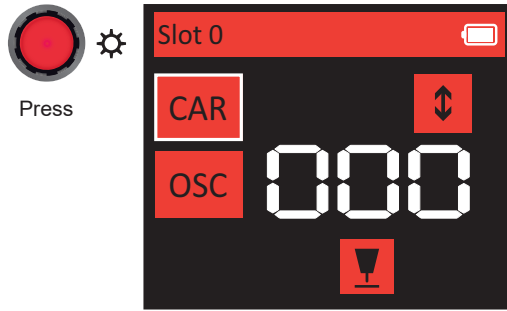
Welding is stopped when:

- The front or back limit switch has been reached; or
- The "Start LEFT/0/RIGHT" toggle switch is actuated on the control panel.

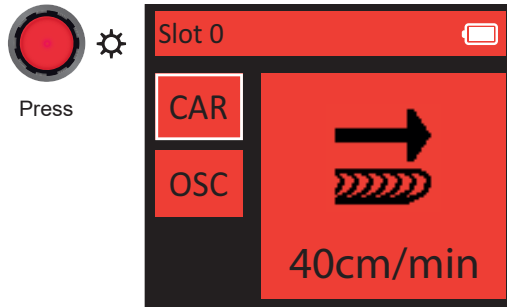
### Path welding:

The total path must be set for this application. The welding path variable will be checked and only the defined distance will be welded. The total welding path can be divided into segments (Segment Width, Segment Gap). The end of welding always occurs after the set total welding path has run.

## Setting the carriage parameters

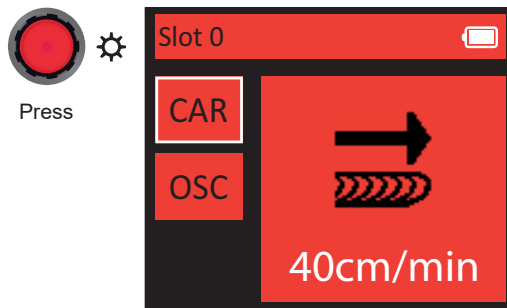


1. Press the adjusting dial once; the menu selection is activated.

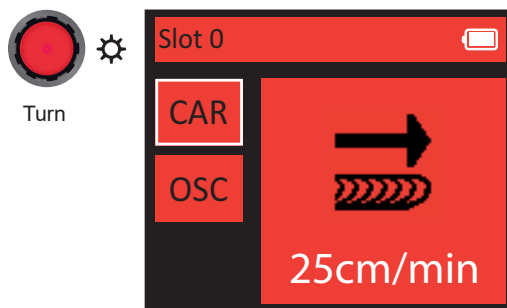


2. Press the menu adjusting dial once; the highlighted CAR menu opens.

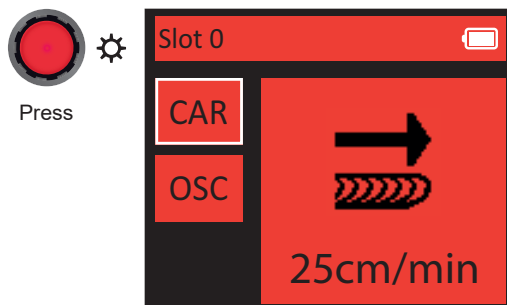
**IMPORTANT!** The most recently used parameter will always be displayed when the menu is opened. Turn the menu adjusting dial left to display the first parameter (Travel Speed).



3. Press the menu adjusting dial once. The adjustment value (40 cm/min) is highlighted white and can be changed.



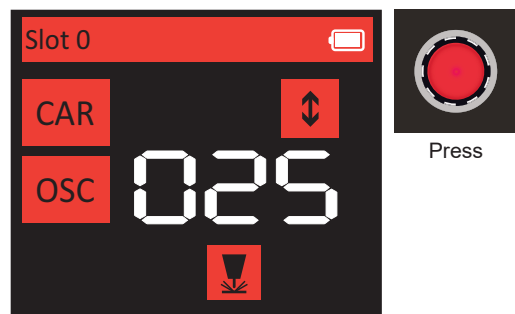
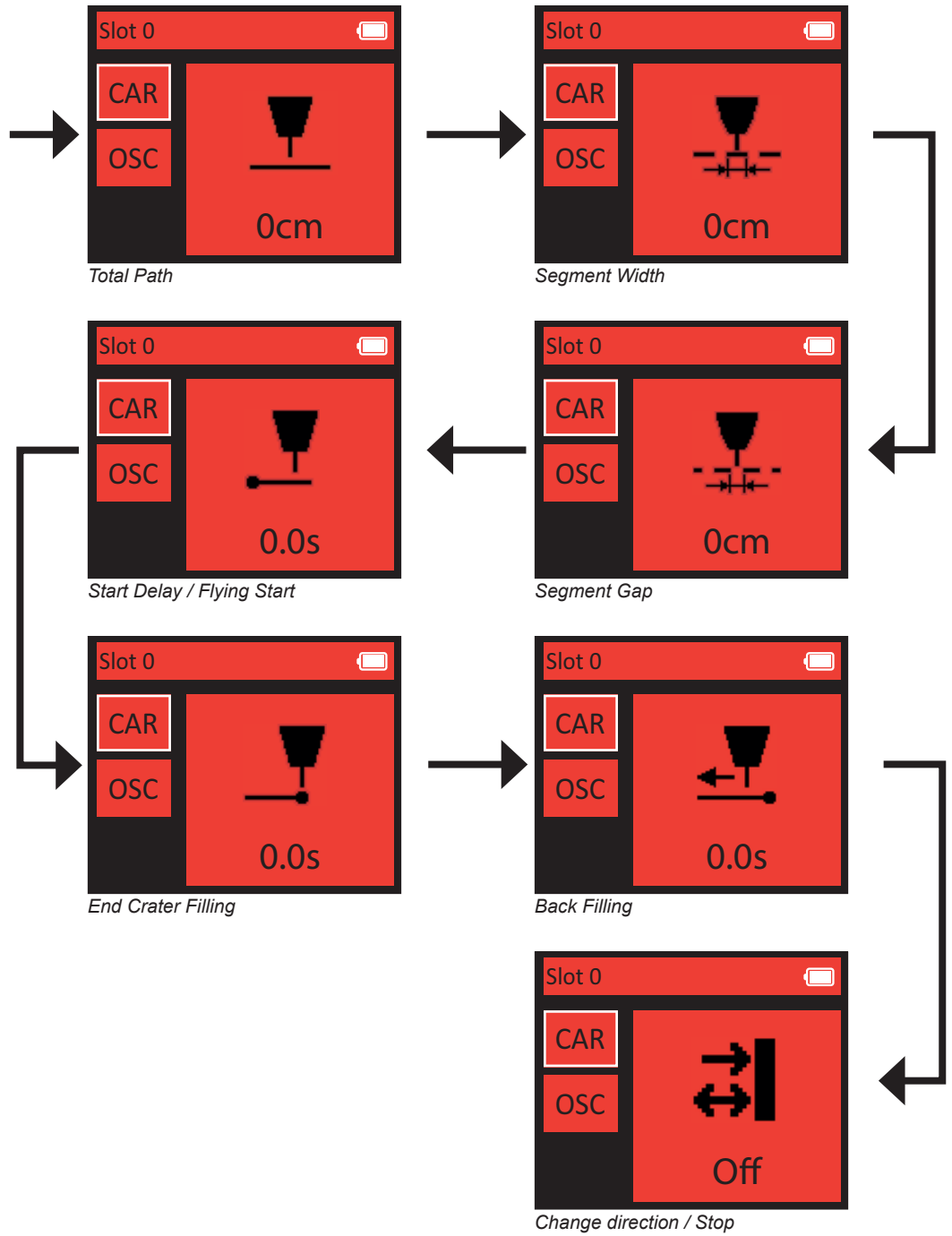
4. Turn the menu adjusting dial and set the desired value (e.g. 25 cm/min).



5. Press the menu adjusting dial once; value takes effect and the input is deactivated.

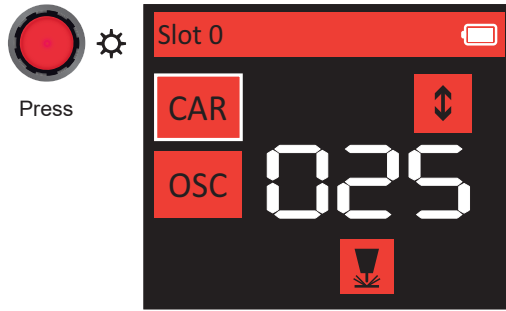
**Setting the carriage parameters**  
(continued)

6. Turn the menu adjusting dial to select and set the next parameter (Total Path).
7. Repeat this process on all further carriage parameters.



8. Press the FMS-Offset adjusting dial once to return to the main menu.

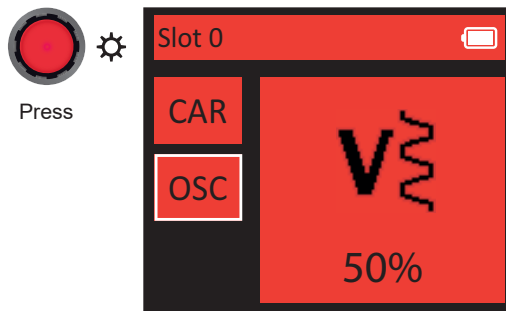
## Setting the oscillation parameters



1. Press the adjusting dial once; the menu selection is activated.

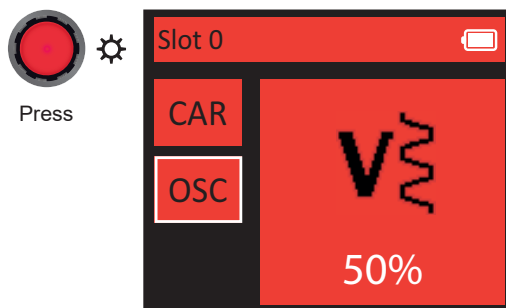


2. Turn adjusting dial menu and highlight the OSC menu item.

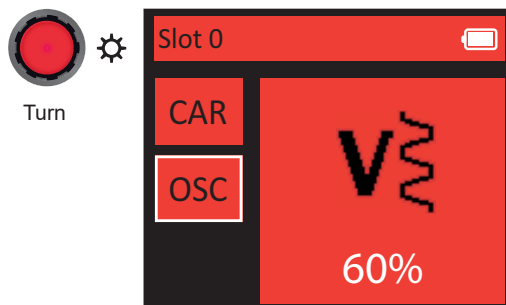


3. Press the menu adjusting dial once; the highlighted OSC menu opens.

**IMPORTANT!** The most recently used parameter will always be displayed when the menu is opened. Turn the menu adjusting dial left to display the first parameter (Oscillation Speed).

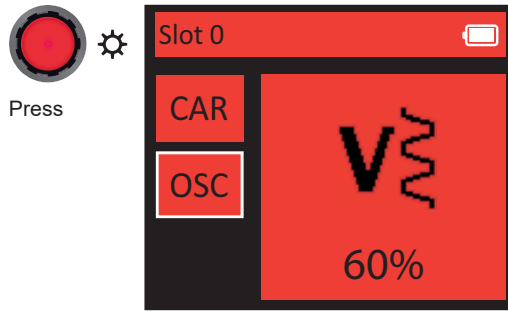


4. Press the menu adjusting dial once. The adjustment value (50%) is highlighted in white and can be changed.



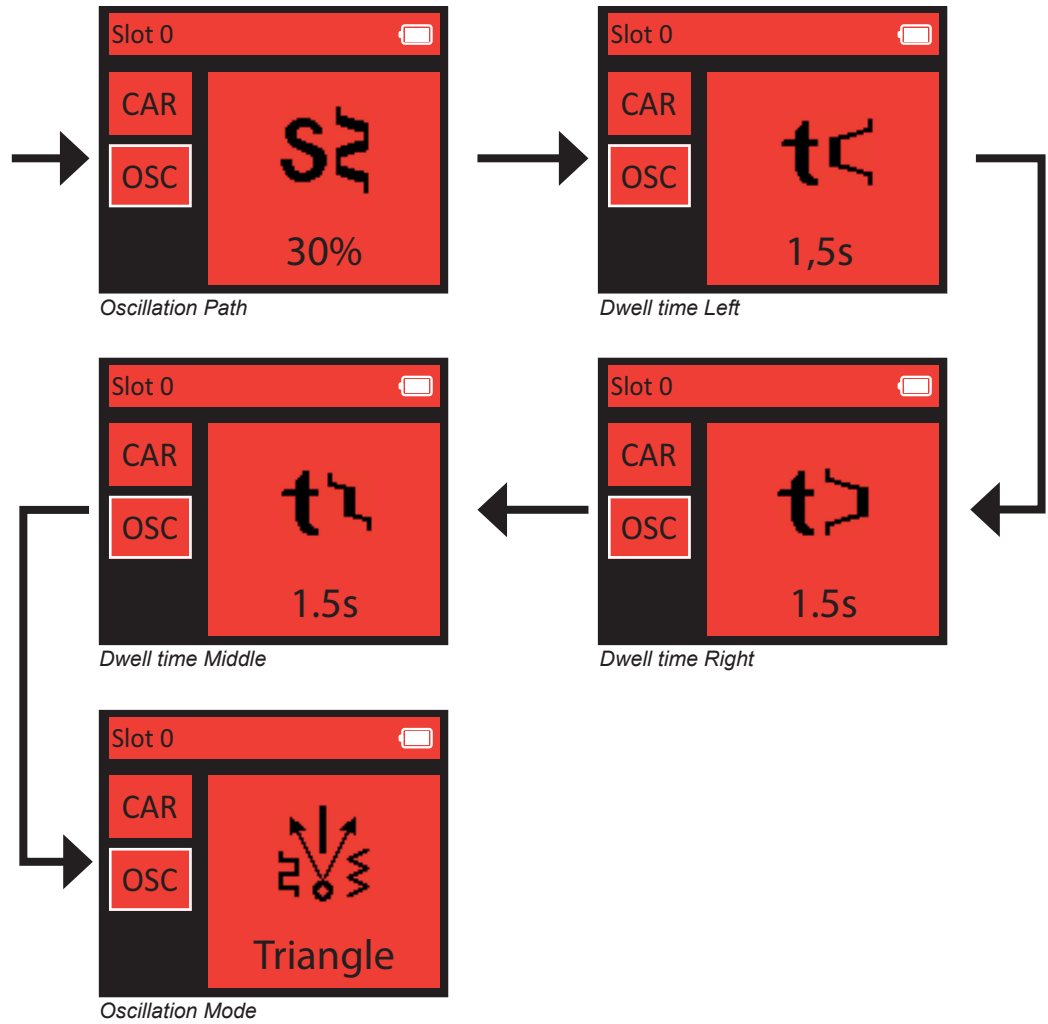
5. Turn the menu adjusting dial and set the desired value (e.g. 60%).

**Setting the oscillation parameters**  
(continued)



6. Press the menu adjusting dial once; value takes effect and the input is deactivated.

7. Turn the menu adjusting dial to select and set the next parameter (Oscillation Path).
8. Repeat this process on all further oscillation parameters.



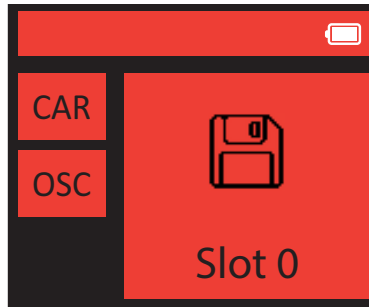
9. Press the FMS-Offset adjusting dial once to return to the main menu.



## Saving a program

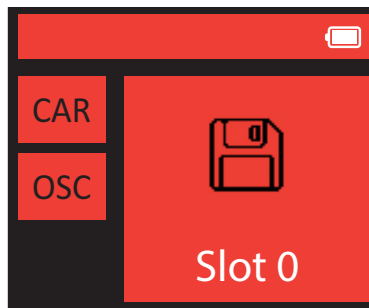


1. Turn welding toggle switch I/O/TEST to "0" position.

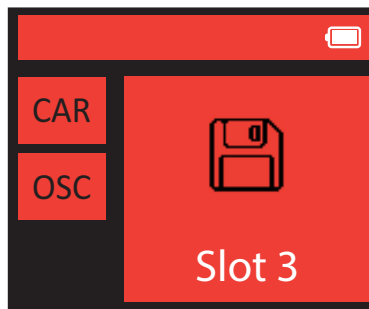
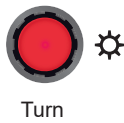


2. Press the menu adjusting dial for 4 seconds, the LOADING/SAVING menu will open.

**IMPORTANT!** The most recently used menu (LOADING or SAVING) will always be displayed when the menu is opened. Turn the menu adjustment dial to the left until the SAVING menu (disk symbol) is displayed.

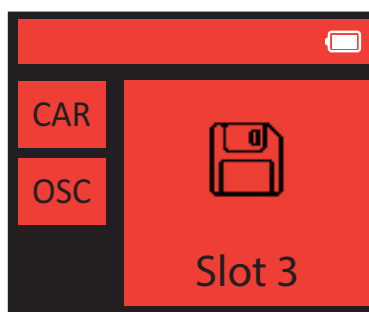


3. Press the menu adjusting dial once. The set value (Slot 0) is highlighted white and can be changed.

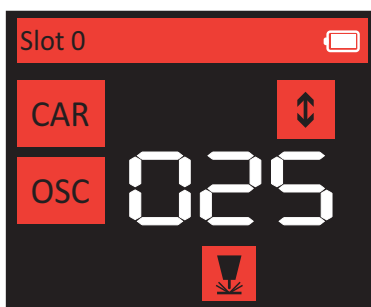


4. Turn the menu adjusting dial and set the desired program location (e.g. Slot 3).

**IMPORTANT!** Program 0 is a factory-set, read-only default program. All carriage parameters and oscillation parameters are contained in this program.



5. Press the menu adjusting dial once; program is saved and the input is deactivated.

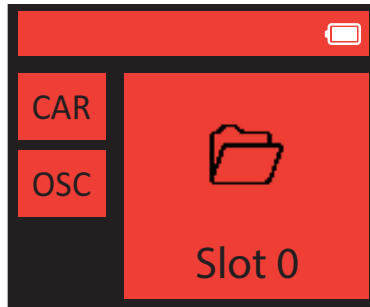


6. Press the FMS-Offset adjusting dial once to return to the main menu.

# Loading a program

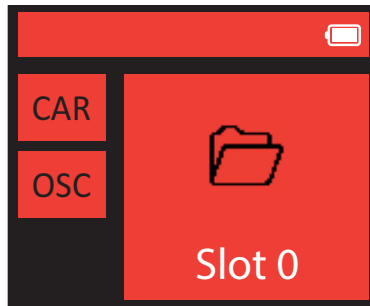


1. Turn welding toggle switch I/0/TEST to "0" position.

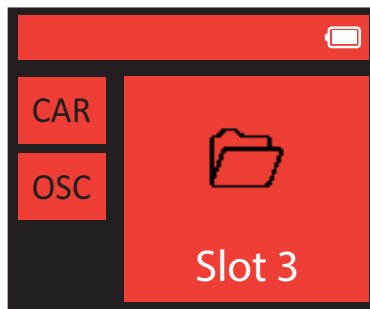


2. Press the menu adjusting dial for 4 seconds, the LOADING/SAVING menu will open.

**IMPORTANT!** The most recently used menu (LOADING or SAVING) will always be displayed when the menu is opened. Turn the menu adjustment dial to the right until the LOADING menu (folder symbol) is displayed.

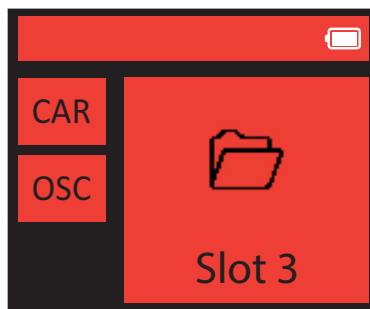


3. Press the menu adjusting dial once. The set value (Slot 0) is highlighted white and can be changed.

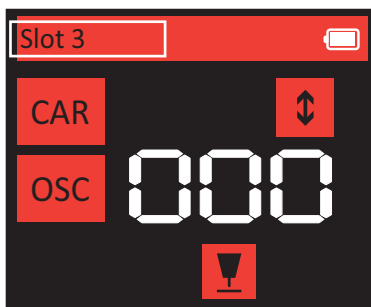


4. Turn the menu adjusting dial and set the desired program location (e.g. Slot 3).

**IMPORTANT!** Program 0 is a factory-set, read-only default program. All carriage parameters and oscillation parameters are contained in this program.



5. Press the adjusting dial once; program is loaded and the input is deactivated.



6. Press the FMS-Offset adjusting dial once to return to the main menu. The loaded program is displayed in the header.

# Welding mode

## Retrieving parameter record (JOB) on the power source

- ▶ Load the relevant job on the control panel for the power source. More detailed information on "Job Mode" can be found in the operating instructions for the power source.

When an analogue power source is being used, the requisite welding parameters must be set manually on the power source.

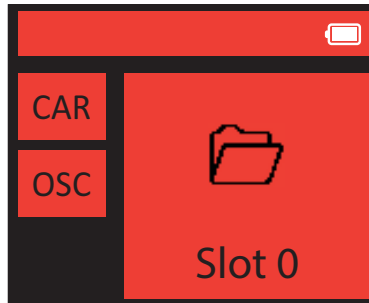
## Loading the carriage program



1. Turn welding toggle switch I/O/TEST to "0".



Press for 4 seconds

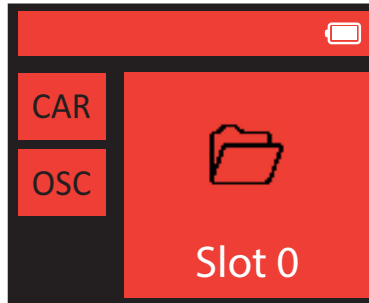


2. Press the menu adjusting dial for 4 seconds, the LOADING/SAVING menu will open.

**IMPORTANT!** The most recently used menu (LOADING or SAVING) will always be displayed when the menu is opened. Turn the menu adjustment dial to the right until the LOADING menu (folder symbol) is displayed.



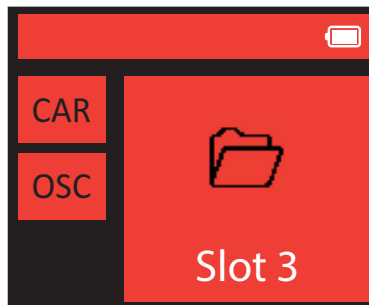
Press



3. Press the menu adjusting dial once. The set value (Slot 0) is highlighted white and can be changed.



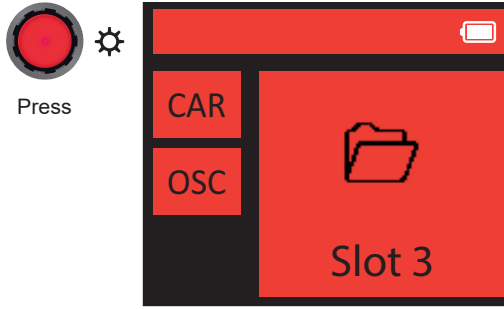
Turn



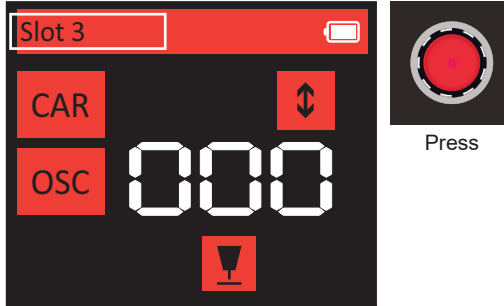
4. Turn the menu adjusting dial and set the desired program location (e.g. Slot 3).

**IMPORTANT!** Program 0 is a factory-set, read-only default program. All carriage parameters and oscillation parameters are contained in this program.

**Loading the carriage program**  
(continued)



5. Press the adjusting dial once; program is loaded and the input is deactivated.



6. Press the FMS-Offset adjusting dial once to return to the main menu. The loaded program is displayed in the header.

**Performing a test run**

Carry out a test run to check that all system components work together correctly. This is performed without an arc and allows the movements during the processes to be checked.

**NOTE!**

Before commencing work in vertical operation, ensure that the switch lever for the permanent magnet is turned to "ON".



1. Turn welding toggle switch I/O/TEST to "0".



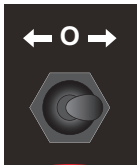
2. Set the "Start LEFT/0/RIGHT" toggle switch to the desired direction - the test run starts. To stop the process early, turn the switch to the "0" position.  
**IMPORTANT!** Never leave the carriage unattended, especially when it is moving automatically.

3. Carry out a visual inspection during the test run.
4. Make any necessary corrections (welding torch position, carriage direction of travel, speed, oscillation motion, etc.)

## Starting the welding process



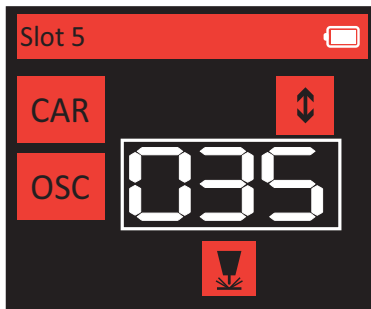
1. Turn welding toggle switch I/0/TEST to "I".



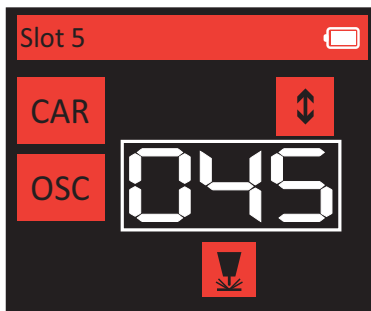
2. Set the "Start LEFT/0/RIGHT" toggle switch to the desired direction - the welding process starts. To stop the process early, turn the switch to the "0" position.

**IMPORTANT!** Never leave the device unattended, especially when it is moving automatically.

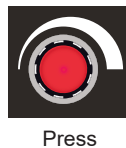
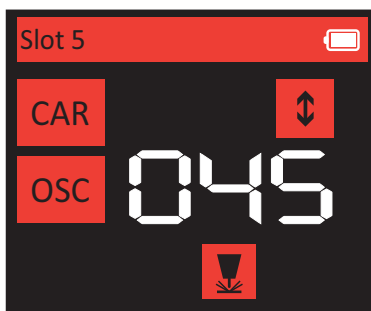
## Correcting the Travel Speed



1. Press speed adjusting dial once; speed is highlighted (white frame).

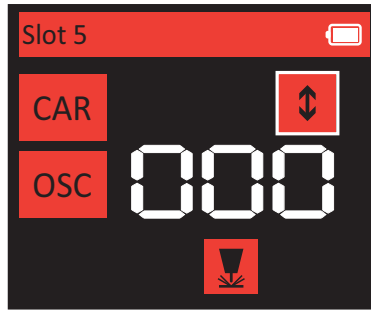


2. Turn the adjusting dial and set the desired speed (e.g. 45 cm/min).



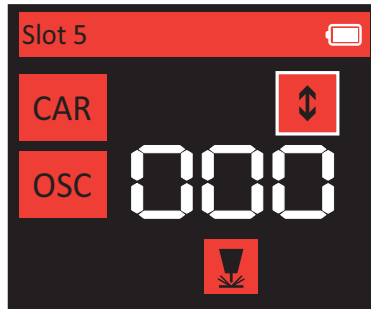
3. Press the adjusting dial once; value takes effect and the input is deactivated.

## Correcting the FMS offset



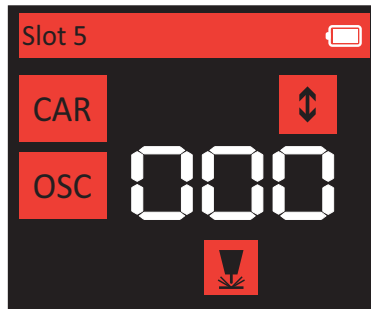
Press

1. Press the FMS offset adjusting dial once; the FMS offset status indicator is highlighted (white frame).



Turn

2. Turn the adjusting dial and apply the desired offset correction.



Press

3. Press the adjusting dial once; value takes effect and the input is deactivated.

## End of welding

Welding stops after the following events:

- After the Total Path has run,
- When the front or back limit switch has started up,
- When the "Start LEFT/0/RIGHT toggle switch is activated on the control panel;

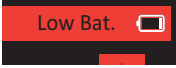






# Troubleshooting

## General



In the event of faults, note that the functioning of the entire system depends on many additional components (power source, wirefeeder, etc.) that are also potential sources of problems.

## Displayed error messages

If an error message that is not described here appears on the display, then the fault can only be fixed by After-Sales Service. Make a note of the error message shown and of the serial number of the carriage, and contact the After-Sales Service team with a detailed description of the error.

Display	Cause	Remedy
<b>BAT</b> 	- Battery warning - the rechargeable battery pack is nearly flat.	▶ Charge up the rechargeable battery pack with the charger.
<b>Error 1</b> 	- CAN communication systems initialisation error.	▶ Contact Fronius service technicians.
<b>Error 2</b> 	- Communication error between the controller and carriage motor controller.	▶ Eliminate short circuit between cables or communication ports.
<b>Error 3</b> 	- Communication error between the controller and oscillation unit motor controller.	▶ Check plug connection. If necessary, tighten union nut. ▶ Check communication cable for signs of damage. Replace if necessary.
<b>Error 4</b>	---	---
<b>Error 5</b> 	- Save/load error. Possible damage of the mobile controller memory.	▶ Contact Fronius service technicians.
<b>Error 6</b>	---	---
<b>Error 7</b> 	- Carriage motor controller internal error.	▶ Contact Fronius service technicians.
<b>Error 8</b> 	- Oscillation unit motor controller internal error. - FOU 30 oscillation unit was disconnected from the carriage when the carriage control unit was switched on.	▶ Contact Fronius service technicians. ▶ Switch carriage control unit off and on. Connect or disconnect the FOU 30 oscillation unit only when carriage control unit is switched off.
<b>Error 9</b>	---	---
<b>Error 10</b>	---	---

**Displayed error messages**  
(continued)

<b>Error 11</b> 	- Communication error between the controller and FMS-motor controller.	<ul style="list-style-type: none"> <li>▶ Check plug connection. If necessary, tighten connecting plug.</li> <li>▶ Check communication cable for signs of damage. Replace if necessary.</li> </ul>
	- FMS 50/100 motor slide was disconnected from the carriage when the carriage control unit was switched on.	▶ Connect or disconnect the FMS 50/100 motor slide only when carriage control unit is switched off.
<b>Error 12</b> 	- FMS-motor controller internal error.	▶ Contact Fronius service technicians.

**Carriage**

Error	Cause	Remedy
<b>Drive wheels slip during travel</b>	- Wheels contaminated.	▶ Clean wheels.
	- Carriage overloaded - hosepack pulls the carriage up.	▶ Relieve load on the carriage. Hang hosepack.
	- Insufficient magnetic force.	▶ Sheet too thin - must be at least 5 mm thick - change welding conditions.
	- Magnetic force too low. Carriage raised from the ground by an obstacle or unevenness.	▶ Reduce clearance (s < 6 mm).
	- Insufficient magnetic force - switch lever is in ON position.	▶ Remove the base plate and check the operation of the mechanism.
	- Magnet is overheated and not effective - working temperature over 150 °C.	<ul style="list-style-type: none"> <li>▶ Change magnet.</li> <li>▶ Change welding conditions (reduce working temperature).</li> </ul>
<b>Play at the welding torch</b>	- Play at the adjustment units.	▶ Eliminate play: tighten pressure screws with allen key.
	- Play at the guide rails.	▶ Tighten knurled screws.
<b>Display does not light up</b>	- Rechargeable battery pack discharged.	▶ Charge rechargeable battery pack with charger.
	- Electronic module - no power.	▶ Check the connections between the compartment and the electronic module.
	- Electronic module damaged.	▶ Change the electronic module.
<b>Display lit but carriage does not work</b>	- Travel Speed is set to "0".	▶ Set Travel Speed.
	- Drive system faulty.	▶ Remove the cover and check the operation of the drive system.



**Carriage**  
(continued)

Error	Cause	Remedy
<b>Power source does not start</b>	- "Welding I/O/TEST" toggle switch is in the "0" position.	▶ Turn toggle switch to the "I" position.
	- Connecting cable between carriage and power source is damaged.	▶ Check connecting cable. Replace if necessary.

**Oscillation unit**

Error	Cause	Remedy
<b>Oscillation does not work</b>	- Oscillation form set to "without oscillation".	▶ Adjust Oscillation Mode (trapezoidal, triangular, rectangular)
	- Oscillation parameters incorrectly set.	▶ Adjust the oscillation parameters.
	- Loose plug connection.	▶ Check plug connection. Tighten union nut if necessary.
	- Connecting cable to the carriage control unit damaged.	▶ Check connecting cable. Replace if necessary.
	- Oscillation arm blocked.	▶ Check that the oscillation arm, linkage and torch holder are moving freely.
	- Device not recognized: FOU 30 oscillation unit was connected to the carriage when the carriage control unit was switched on.	▶ Switch carriage control unit off and on. Connect or disconnect the FOU 30 oscillation unit only when carriage control unit is switched off.
<b>Oscillation unit is not oscillating, motor audible</b>	- Gearing damaged.	▶ Contact Fronius Service Partner (replace gearing).

**FMS 50/100 motor slide**

Error	Cause	Remedy
<b>Motor slide does not work</b>	- Device not recognized: FMS 50/100 motor slide was connected to the carriage when the carriage control unit was switched on.	▶ Switch carriage control unit off and on. Connect or disconnect the FMS 50/100 motor slide only when carriage control unit is switched off.

# Maintenance

## Personnel



### WARNING!

#### Risk of injury and damage from incorrectly performed maintenance work.

It is essential to adhere to the maintenance intervals and maintenance procedures. The manufacturer accepts no liability for any damage caused by inadequate or poorly performed maintenance.

- All maintenance work on the carriage must only be carried out by trained technicians.

## Maintenance record

The operator of the carriage is responsible for correctly keeping a service book with the following information as a minimum:

- Date
- Operator
- Maintenance work carried out

## Cleaning

- Use a clean, dry cloth to clean the components. Only use a different cleaning agent if this is indicated in the maintenance procedure for a specific component.
- Remove the rechargeable battery pack before carrying out any maintenance operations.

## Maintenance intervals

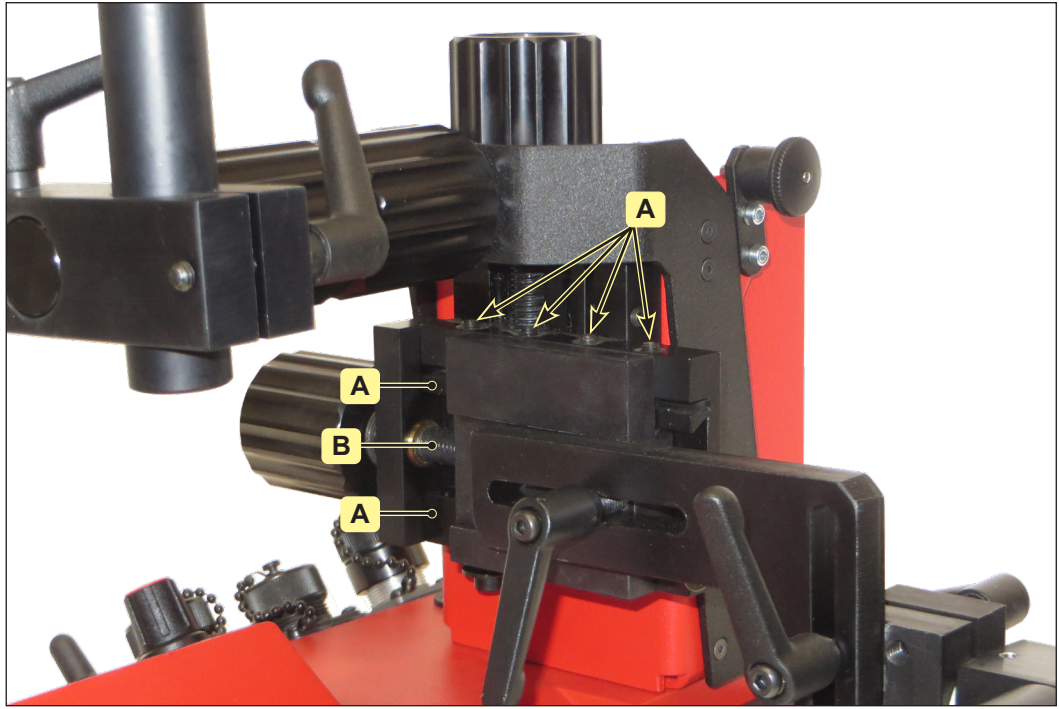
D	Daily
W	Weekly
M	Monthly
1/4 Y	Quarterly
1/2 Y	Half-yearly
Y	Annually

## Recommended lubricants

**IMPORTANT!** Lubricants with solid lubricant additives (e.g. MoS<sub>2</sub>, graphite and PTFE) are not suitable for the guide systems.

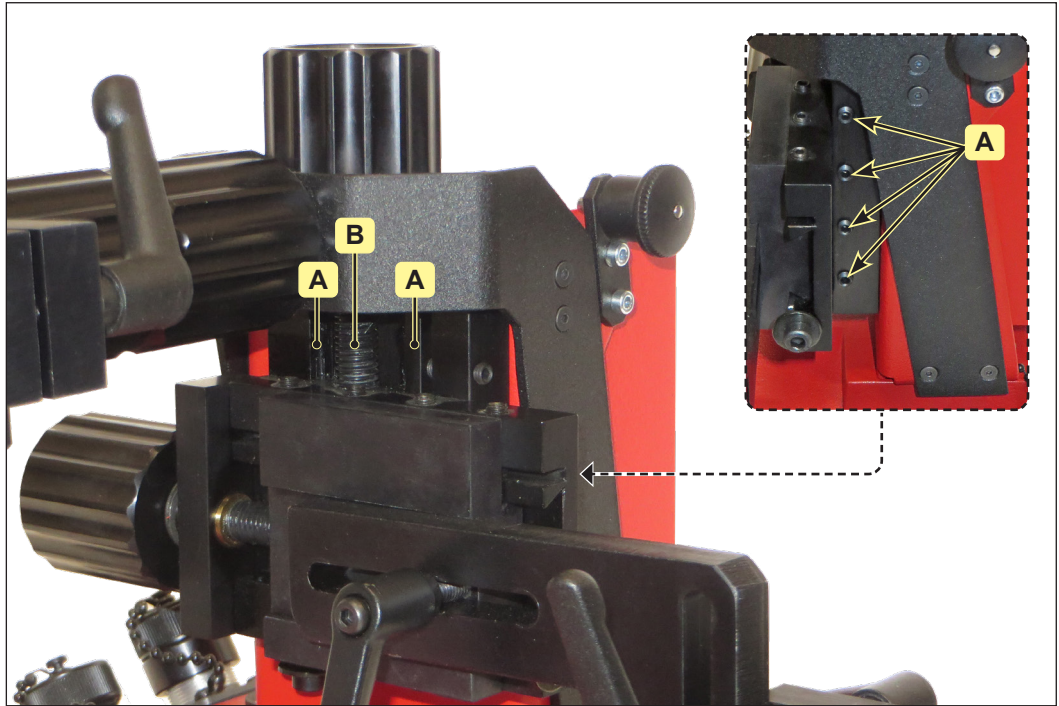
Lubricant	DIN	DIN number	Comment
Grease	KP 2-K	51502/51825	Lithium soap grease
Lubricating oil	CLP32-100	51517 Part 3	ISO VG 32-100

**Horizontal  
welding torch  
adjustment unit**



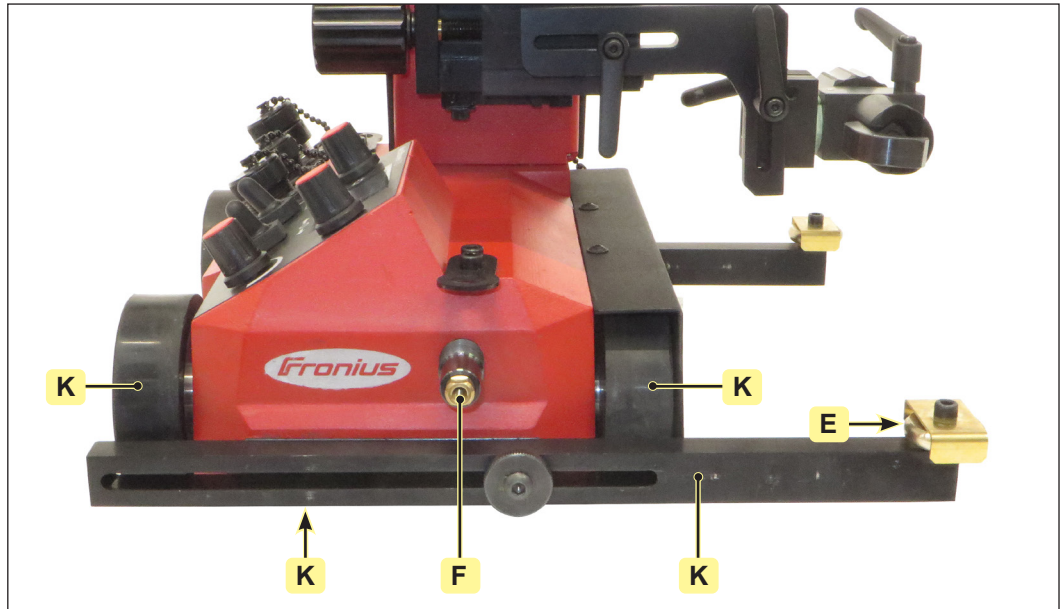
Item	Component	Measure	Interval
<b>A</b>	Linear guides	<ul style="list-style-type: none"> <li>▶ Clean</li> <li>▶ Check oil film</li> <li>▶ Eliminate play: tighten pressure screws with Allen key</li> </ul>	1/2 Y
<b>B</b>	Threaded spindle	<ul style="list-style-type: none"> <li>▶ Check</li> <li>▶ Clean, regrease</li> </ul>	M 1/4 Y

**Vertical  
welding torch  
adjustment unit**



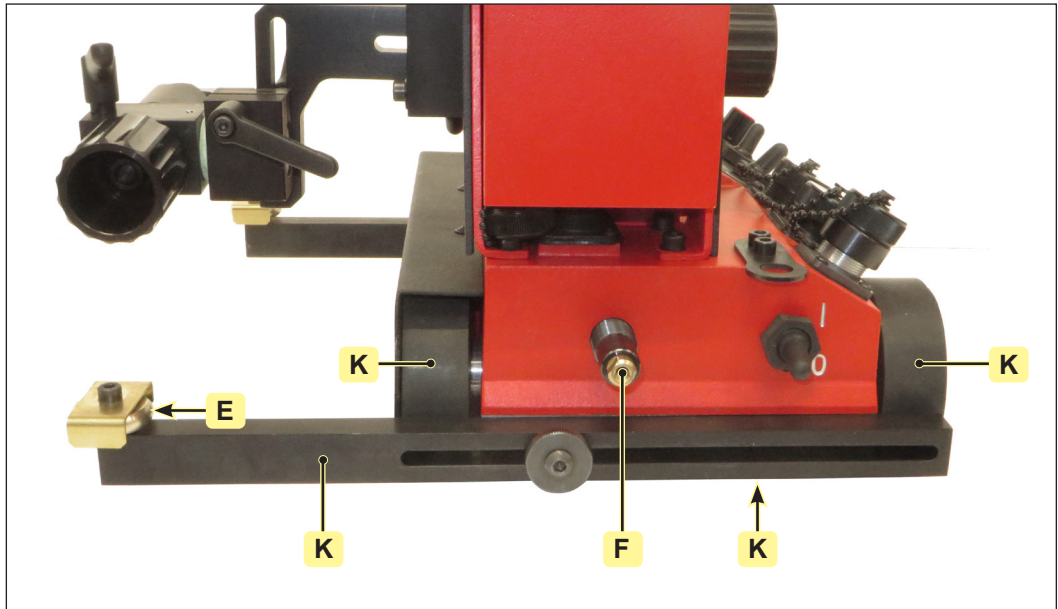
Item	Component	Measure	Interval
<b>A</b>	Linear guides	<ul style="list-style-type: none"> <li>▶ Clean</li> <li>▶ Check oil film</li> <li>▶ Eliminate play: tighten pressure screws with Allen key</li> </ul>	1/2 Y
<b>B</b>	Threaded spindle	<ul style="list-style-type: none"> <li>▶ Check</li> <li>▶ Clean, regrease</li> </ul>	M 1/4 Y

## Carriage front



Item	Component	Measure	Interval
<b>E</b>	Rollers and rails	<ul style="list-style-type: none"> <li>▶ Clean</li> <li>▶ Position check</li> </ul>	1/4 Y
<b>F</b>	Safety measures: - Limit switch	<ul style="list-style-type: none"> <li>▶ Clean</li> <li>▶ Function test</li> </ul>	D
<b>K</b>	Wheels, underbody, guide rails	<ul style="list-style-type: none"> <li>▶ Clean</li> </ul>	D

## Carriage back



Item	Component	Measure	Interval
<b>E</b>	Rollers and rails	<ul style="list-style-type: none"> <li>▶ Clean</li> <li>▶ Position check</li> </ul>	1/4 Y
<b>F</b>	Safety measures: - Limit switch	<ul style="list-style-type: none"> <li>▶ Clean</li> <li>▶ Function test</li> </ul>	D
<b>K</b>	Wheels, underbody, guide rails	<ul style="list-style-type: none"> <li>▶ Clean</li> </ul>	D

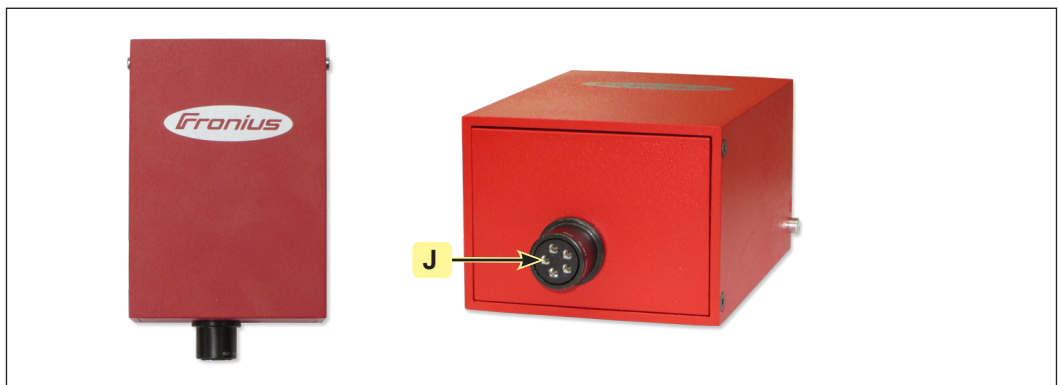
## Charger

These devices are largely maintenance-free. To ensure problem-free operation, observe the following instructions:



Item	Component	Measure	Interval
I	Ventilation openings (air inlet, air outlet)	<ul style="list-style-type: none"> <li>▶ Keep clean to ensure that cooling air is able to circulate. Danger of short circuiting! Make sure that no metal objects, such as metal chips, penetrate the interior of the device through the ventilation openings.</li> </ul>	M
L	Aluminium housing	<ul style="list-style-type: none"> <li>▶ Place in a well-ventilated and dry area.</li> <li>▶ The aluminium housing functions as a heat sink - do not cover.</li> </ul>	-

## Rechargeable battery pack



Item	Component	Measure	Interval
J	Connection contacts	<ul style="list-style-type: none"> <li>▶ Visual inspection before plugging in</li> <li>▶ Protect against contamination</li> </ul>	W

## Disposal of components



### **WARNING!**

#### **Danger of environmental damage!**

Incorrect disassembly and disposal of the individual carriage components can result in serious environmental damage.

- The product must only be disposed of by trained and qualified personnel.
- 

Ensure that:

- All machine components and electrical parts are separated according to type and disposed of properly
- Exhausted or defective battery packs are disposed of by the dealer, Fronius Customer Service or at disposal sites approved by the relevant public authority. The rechargeable battery packs are then recycled.

### **NOTE!**

If you have any further questions about disposal/recycling, please contact the manufacturer.

---

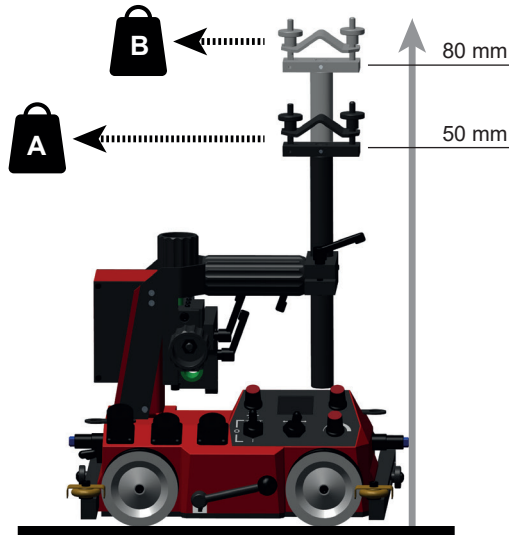


# Technical Data

## ArcRover 22 carriage

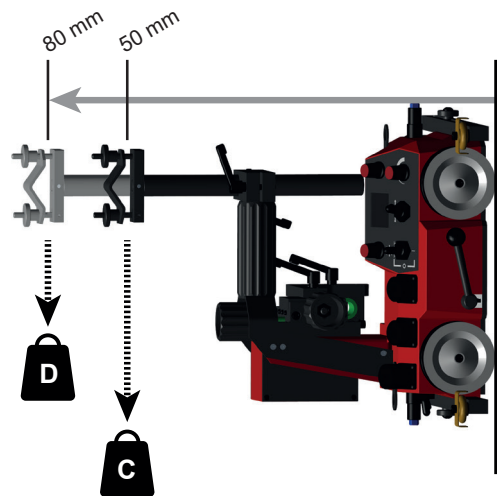
Maximum load capacity (horizontal)	22 kg (48.5 lb)
Maximum load capacity (vertical)	15 kg (33.07 lb)

Max. tensile load on the hosepack holder:



### Horizontal:

A	15 kg (33.07 lb)
B	12 kg (26.46 lb)



### Vertical:

C	10 kg (22.05 lb)
D	8 kg (17.64 lb)

Charger supply voltage (50 - 60 Hz)	230 V AC
Carriage supply voltage (rechargeable battery pack)	25.4 V DC
Energy consumption	49 W
Battery capacity	3.35 Ah
Battery charging time	2 h
Min. battery capacity without oscillation	4 h
Min. battery capacity with oscillation	2 h
Net weight including rechargeable battery pack	10.7 kg (23.59 lb)
Degree of protection (carriage)	IP 23
Degree of protection (rechargeable battery pack)	IP 20
Welding positions (horizontal/vertical)	PA, PB, PC, PF, PG

**ArcRover 22 carriage**  
(continued)

Horizontal speed (load = 85 N)	5 - 200 cm/min (+/- 6%)
Vertical speed (load = 85 N)	5 - 200 cm/min (+/- 6%)
Adjustable range of torch (horizontal/vertical)	30 mm / 30 mm (1.18 in / 1.18 in.)
Welding torch body diameter	max. 28 mm (1.1 in.)
Minimal material thickness	5 mm (0.2 in.)
Clearance	6 mm (0.24 in.)
Max. preheating temperature of the workpiece	150 °C (302 °F)

**Oscillation unit FOU 30/ML6**

Oscillation Speed (at 150 mm radius)	20 - 120 cm/min (7.78 - 47.24 in.)
Oscillation Path (at 150 mm radius)	1 - 30 mm (0.04 - 1.18 in.)
Offset	0 - 50 mm (0 - 1.97 in.)
Dwell time	0 - 3 seconds
Weight (with torch holder)	3.6 kg (7.94 lb)
Protection class	IP 23

**FMS 100/ML15/SE/ACC (optional)**

Max. load capacity	15 kg (33.06 lb)
Control voltage	24 VDC
Power consumption	8 W
Traversing speed (automatic mode)	30 cm/min (11.8 in/min)
Traversing speed (manual mode)	max. 1 m/min (39.37 in/min)
Travel path	0.5 - 100 mm (0.02 - 3.94 in.)
Degrees of sensitivity	1 - 9
Dwell time	1 - 60 s
Degree of protection	IP 23
Unladen weight	2.45 kg (5.40 lb)

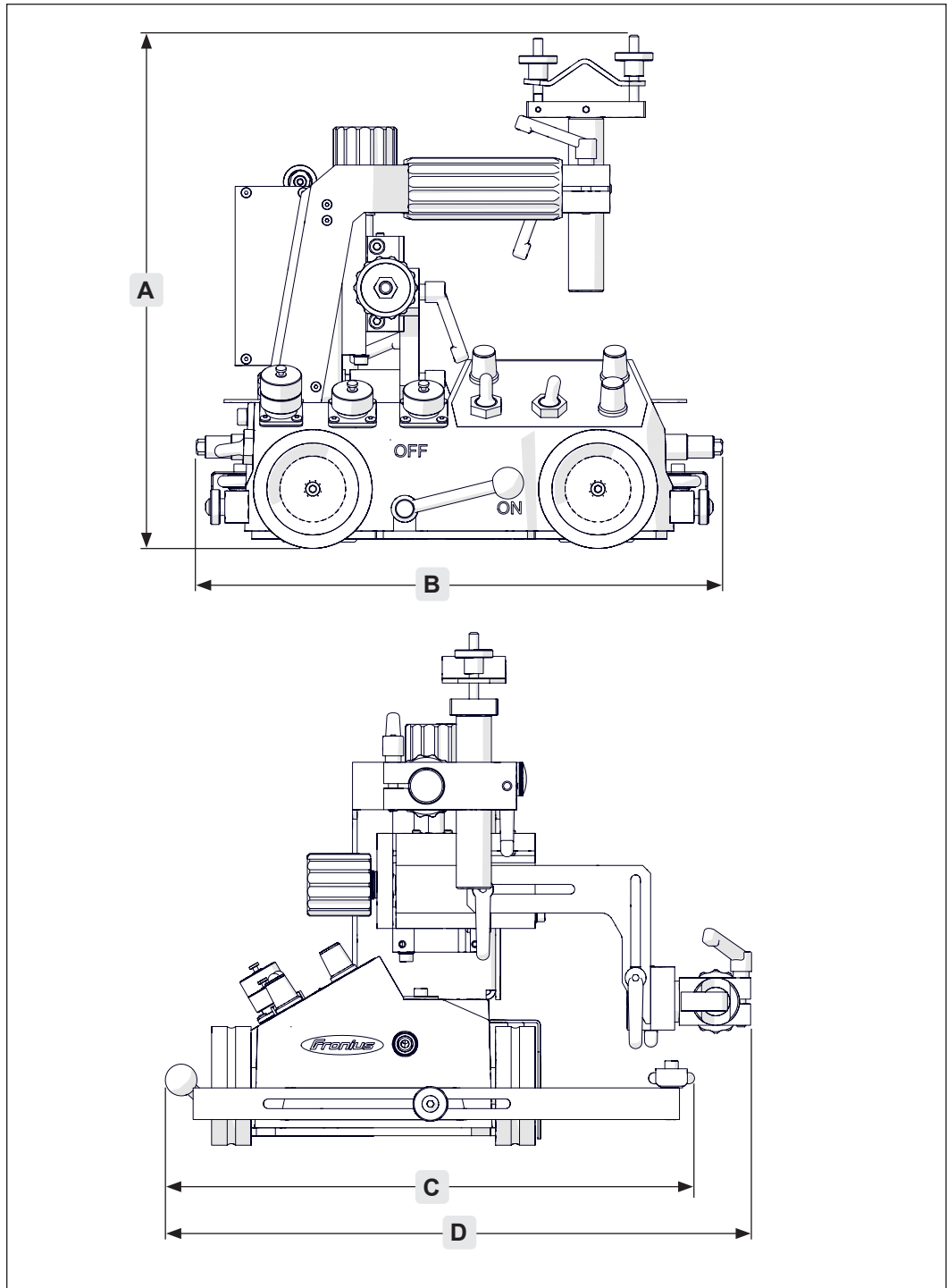
**IMPORTANT!** The ACC module may only be used with the TPS power source.

**FMS 50/ML15/SE/ACC (optional)**

Max. load capacity	15 kg (33.06 lb)
Control voltage	24 VDC
Power consumption	8 W
Traversing speed (automatic mode)	30 cm/min (11.8 in/min)
Traversing speed (manual mode)	max. 1 m/min (39.37 in/min)
Travel path	max. 50 mm (1.97 in.)
Degrees of sensitivity	1 - 9
Dwell time	1 - 60 s
Degree of protection	IP 23
Unladen weight	2 kg (4.40 lb)

**IMPORTANT!** The ACC module may only be used with the TPS power source.

**ArcRover 22  
dimensions**



ArcRover 22 carriage

A	min. 294 mm max. 374 mm	min 11.6 in max 14.7 in
B	332 mm	13.1 in
C	min. 287 mm max. 437 mm	min 11.3 in max 17.2 in
D	min. 315 mm max. 400 mm	min 12.4 in max 15.7 in

**Environmental conditions**

Operating, storing or transporting the system outside the specified area or environmental ranges is regarded as not complying with the intended purpose. The manufacturer shall not be liable for any damage or loss resulting from this.

---

Ambient air temperature range:

- during operation: 0 °C to +40 °C (32 °F to 104 °F)
  - during transport and storage: -10 °C to +45 °C (14 °F to 113 °F)
  - Recommended temperature range during charging: +5 °C to +40 °C (41 °F to 104 °F)
- 

Relative humidity:

- up to 65% +/- 20%
- 

Environmental conditions:

- Surrounding air is free from dust and flammable vapours, solvents or gases.
- No strong vibrations and magnetic fields around the rechargeable battery pack.
- No direct sunlight on the rechargeable battery pack.
- No storing the rechargeable battery pack on moist or wet surfaces.

# Spare parts

## **Spare parts, wearing parts and auxiliary materials**

Using spare parts and wearing parts from third-party manufacturers may pose risks. Use the prescribed Fronius original spare parts only.  
The manufacturer cannot accept any liability for damage resulting from the use of spare or wearing parts or auxiliary materials that are not approved by the manufacturer.

## **Ordering details**

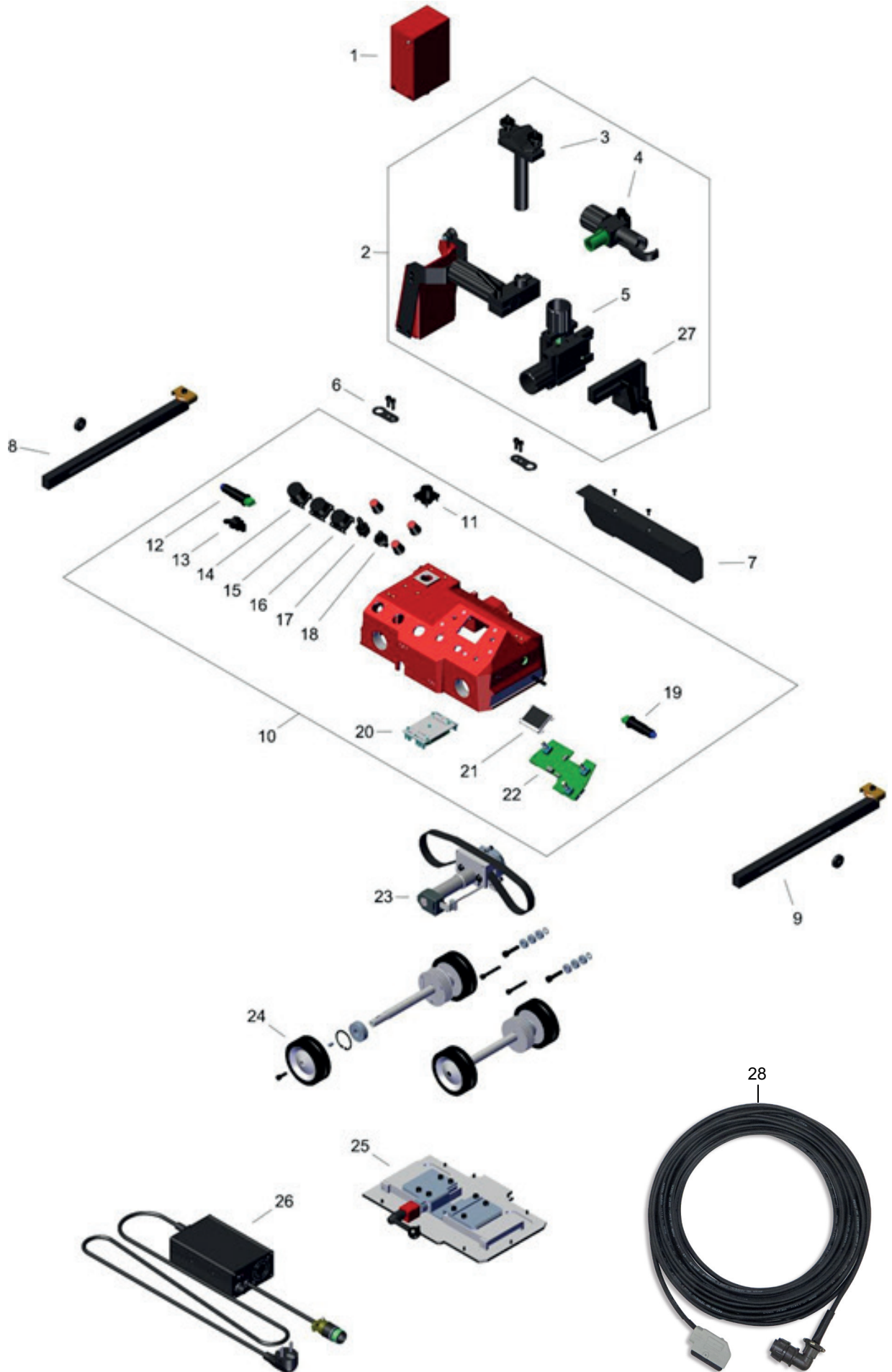
### **NOTE!**

Parts must be replaced by trained personnel only.

---

When ordering spare parts, you should provide the following data:

- Exact designation of the spare part
- Corresponding item number as per Spare Parts List
- Model name of the device
- Serial number of the device (shown on the rating plate)

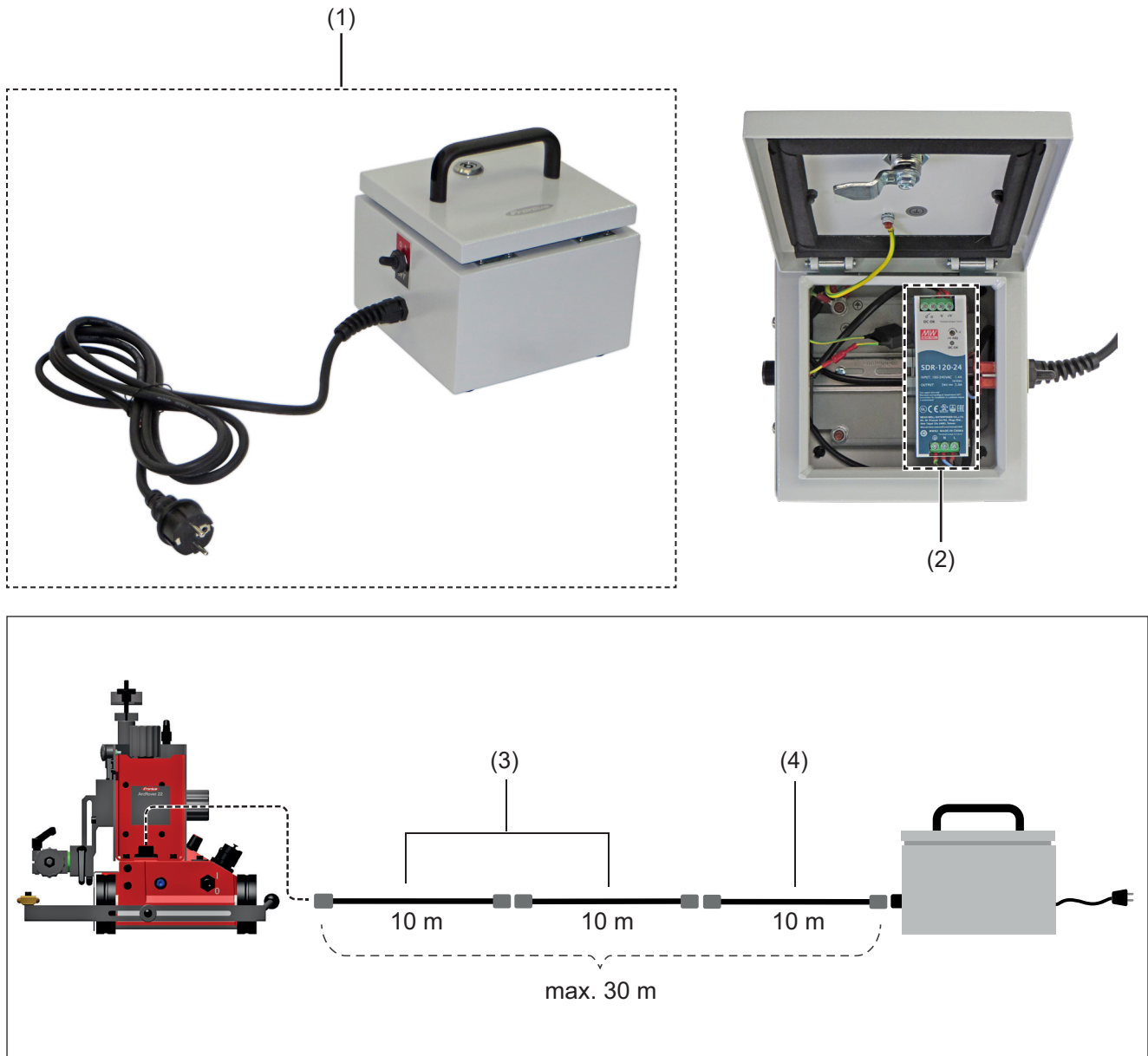


**ArcRover 22 carriage****8,045,642**

<b>Item</b>	<b>Designation</b>	<b>Item number</b>	<b>Pcs</b>
(1)	Rechargeable battery pack	48,0005,2600	1
(2)	Torch body assembly	48,0005,2656	1
(3)	Hosepack holder	48,0005,2657	1
(4)	Universal welding torch holder	48,0005,2638	1
(5)	Welding torch adjustment unit (horizontal, vertical)	48,0005,2639	1
(6)	Lashing point for securing the carriage	48,0005,2640	2
(7)	Protective plate for wheels	48,0005,2658	1
(8)	Guide rail assembly (left)	48,0005,2659	1
(9)	Guide rail assembly (right)	48,0005,2660	1
(10)	Carriage frame assembly	48,0005,2661	1
(11)	Connection set (rechargeable battery pack)	48,0005,2644	1
(12)	Limit switch set (rear)	48,0005,2662	1
(13)	Toggle switch set (control unit ON/OFF)	48,0005,2645	1
(14)	Connection set (power source control)	48,0005,2646	1
(15)	Connection set (FMS 50/100 motor slide)	48,0005,2663	1
(16)	Connection set (oscillation unit FOU30)	48,0005,2664	1
(17)	Toggle switch set (Welding I/O/TEST)	48,0005,2649	1
(18)	Toggle switch set (Start LEFT/0/RIGHT)	48,0005,2648	1
(19)	Limit switch set (front)	48,0005,2665	1
(20)	Drive module	48,0005,2666	1
(21)	Display module	48,0005,2667	1
(22)	Encoder module	48,0005,2668	1
(23)	Drive unit assembly	48,0005,2669	1
(24)	Drive wheel assembly	48,0005,2670	1
(25)	Base assembly	48,0005,2671	1
(26)	Charger	48,0005,2601	1
(27)	Torch holder uptake assembly	48,0005,0134	1
(28)	Connecting cable to power source	48,0005,1216	1
(29)*	Micro SD Card	48,0005,0133	1

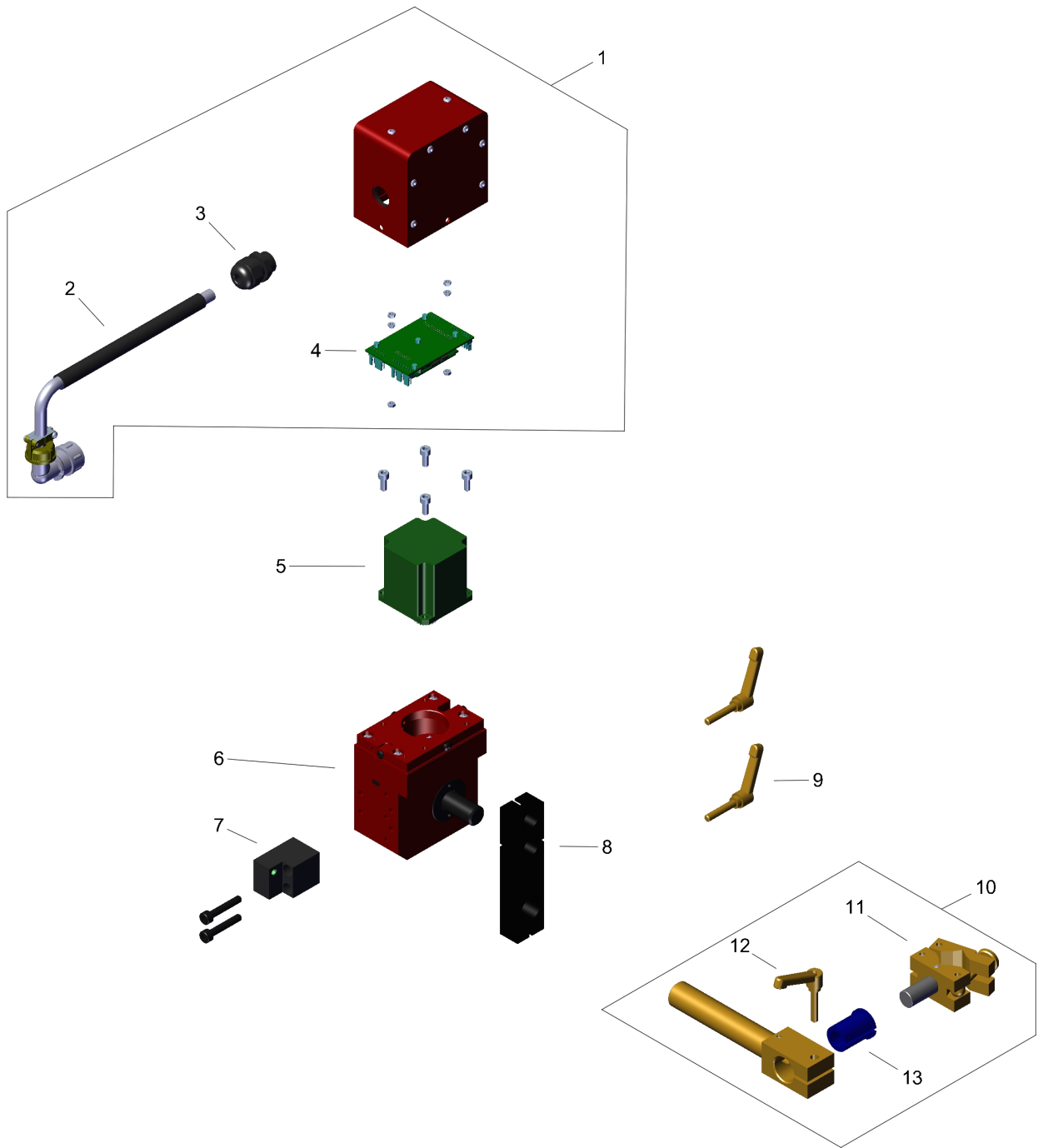
\* not shown in the drawing

„External power supply“ option



Item	Designation	Item number	Pcs
(1)	Control box with external power supply	48,0005,0165	1
(2)	Power supply 230V AC - 24V DC/ 5A	48,0005,1818	1
(3)	Extension cable 10 m	38,0100,0476	1
(4)	Remote control cable 10 m	38,0100,0433	1

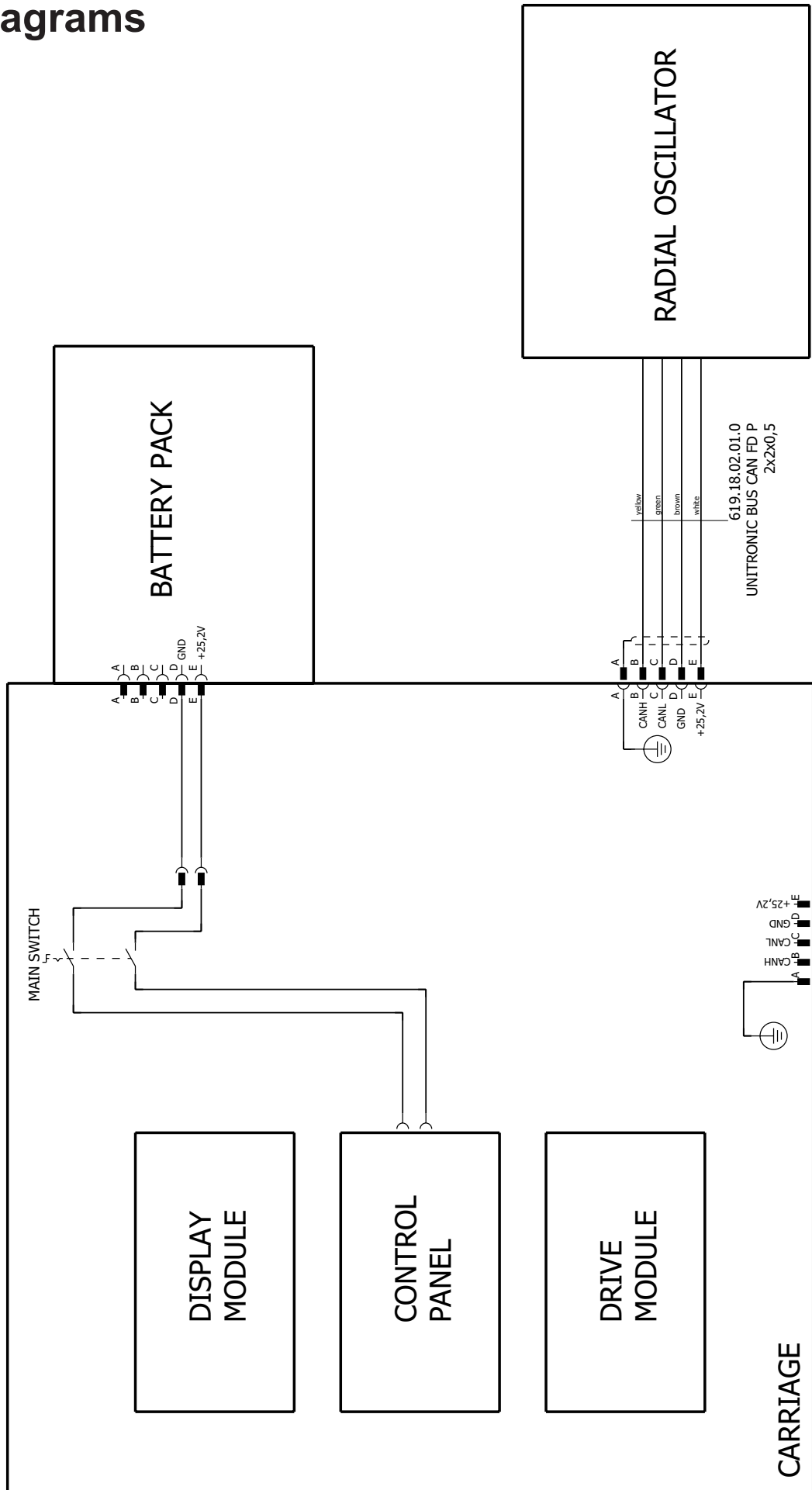


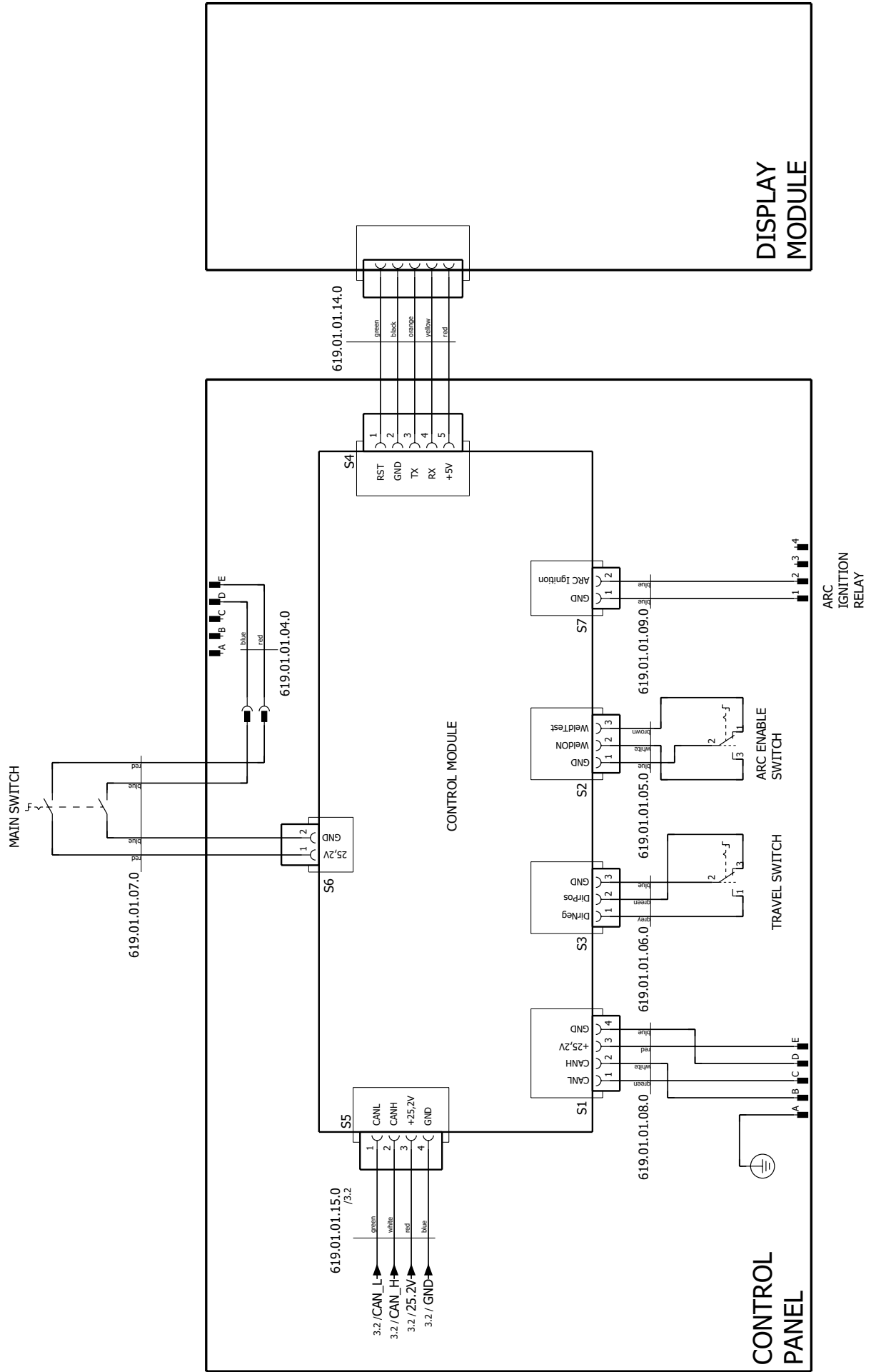


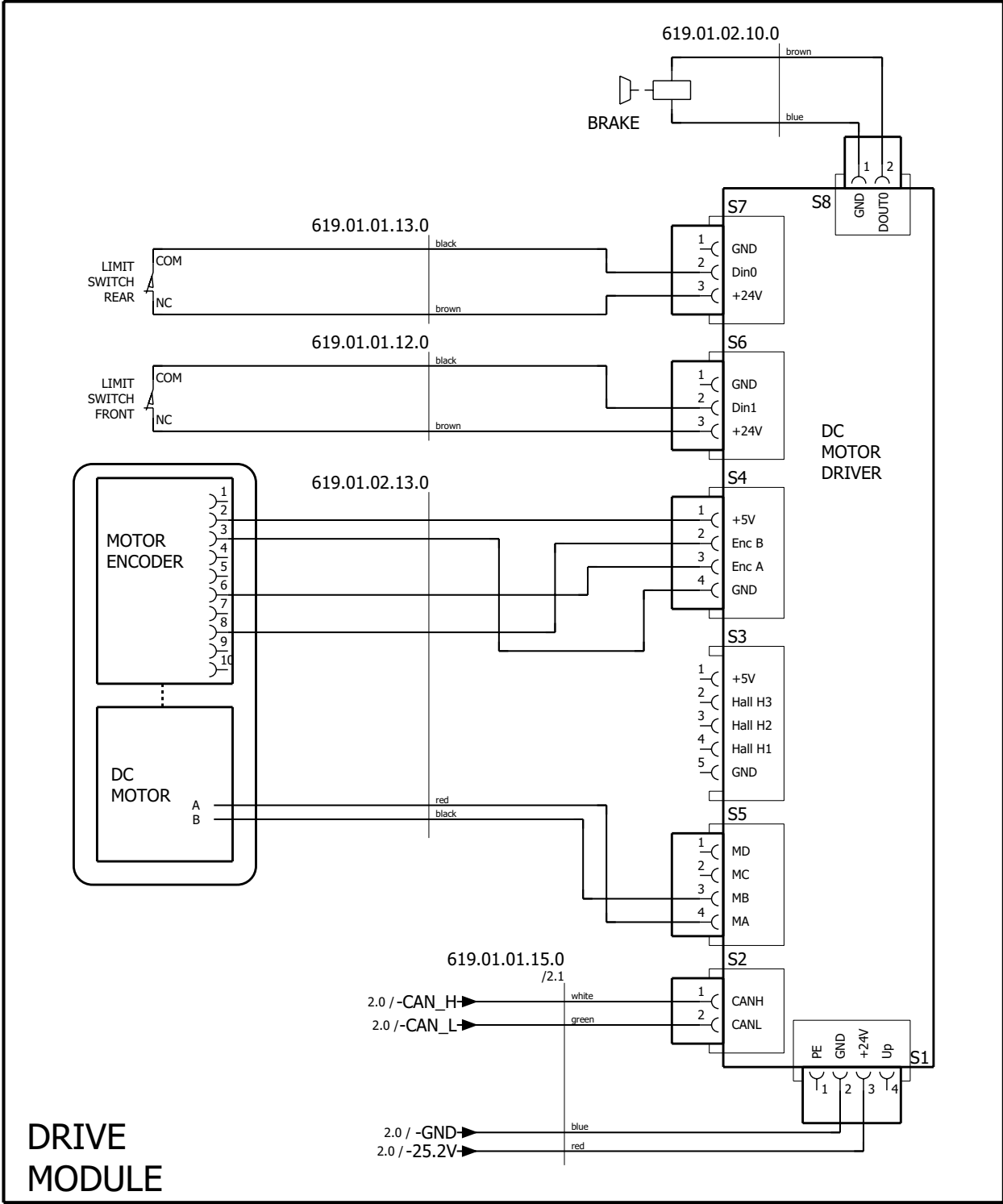
**FOU 30/ML6/radial oscillation unit 8,045,644**

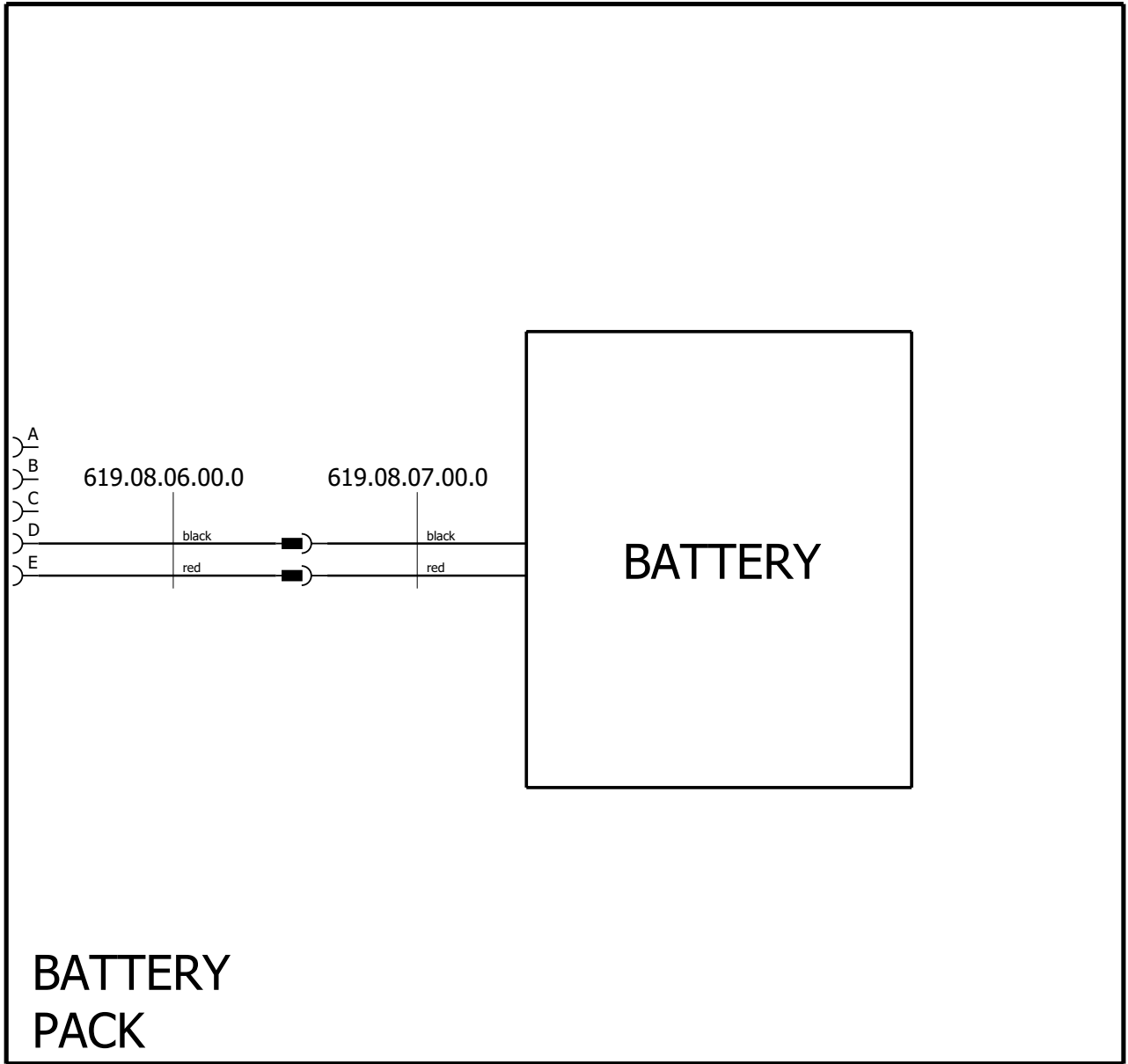
<b>Item</b>	<b>Designation</b>	<b>Item number</b>	<b>Pcs</b>
(1)	Housing assembly	48,0005,0126	1
(2)	Oscillation unit connection set	48,0005,0015	1
(3)	PG11 cable gland	48,0005,1839	1
(4)	Electronic module	48,0005,1935	1
(5)	Motor	48,0005,0024	1
(6)	Gearbox assembly	48,0005,0125	1
(7)	Mounting block	48,0005,0127	1
(8)	Oscillation arm	48,0005,1206	1
(9)	Clamping lever	48,0005,1207	2
(10)	Universal welding torch holder assembly	48,0005,1136	1
(11)	Holder	48,0005,1393	1
(12)	Clamping lever	48,0005,1207	1
(13)	Insulating sleeve	48,0005,1392	1

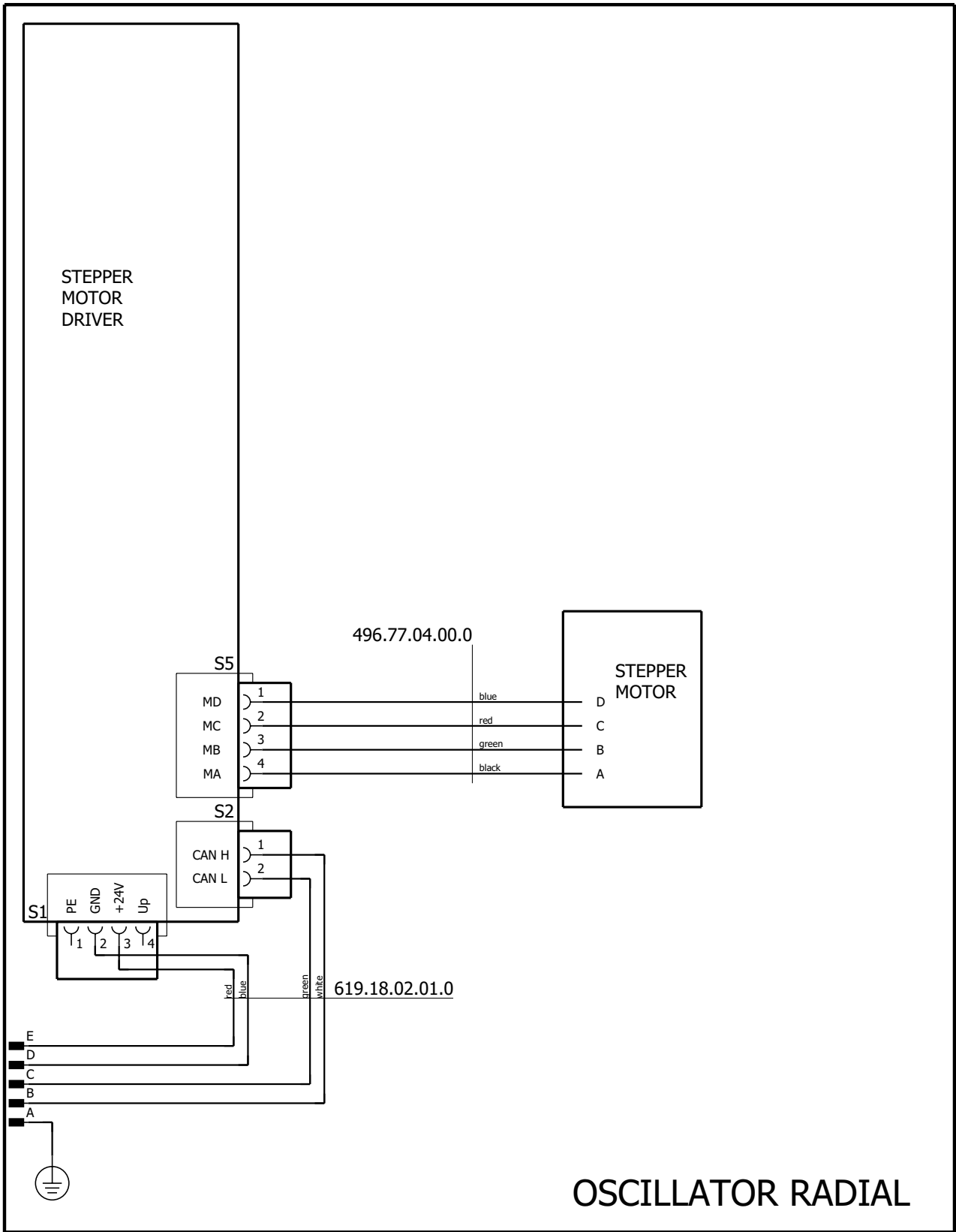
# Circuit Diagrams











# EU Declaration of Conformity



## EU-KONFORMITÄTSERKLÄRUNG 2018 EU-DECLARATION OF CONFORMITY 2018 DÉCLARATION UE DE CONFORMITÉ, 2018

Wels-Thalheim, 2018-03-05

Die Firma

Manufacturer

La compagnie

### FRONIUS INTERNATIONAL GMBH

Froniusstraße 1, A-4643 Pettenbach

erklärt in alleiniger Verantwortung,  
dass folgendes Produkt:

Hereby certifies on its sole  
responsibility that the following  
product:

se déclare seule responsable du fait  
que le produit suivant:

ArcRover 22  
Fahrwerk

ArcRover 22  
Driving vehicle

ArcRover 22  
Chariot de soudage

auf das sich diese Erklärung  
bezieht, mit folgenden Richtlinien  
bzw. Normen übereinstimmt:

which is explicitly referred to by this  
Declaration meet the following  
directives and standard(s):

qui est l'objet de la présente  
déclaration correspondent aux  
suivantes directives et normes:

Richtlinie 2014/30/EU  
Elektromag. Verträglichkeit

Directive 2014/30/EU  
Electromag. compatibility

Directive 2014/30/UE  
Électromag. Compatibilité

Richtlinie 2011/65/EU  
RoHS

Directive 2011/65/EU  
RoHS

Directive 2011/65/UE  
RoHS

Richtlinie 2006/42/EG  
Maschinenrichtlinie

Directive 2006/42/EC  
Machinery Directive

Directive 2006/42/CE  
Directive aux machines

Europäische Normen inklusive  
zutreffende Änderungen  
EN ISO 12100:2010  
IEC 62133:2008  
EN 61000-6-2:2005+AC:2005  
EN 61000-6-4:2007+A1:2011

European Standards including  
relevant amendments  
EN ISO 12100:2010  
IEC 62133:2008  
EN 61000-6-2:2005+AC:2005  
EN 61000-6-4:2007+A1:2011

Normes européennes avec  
amendements correspondants  
EN ISO 12100:2010  
IEC 62133:2008  
EN 61000-6-2:2005+AC:2005  
EN 61000-6-4:2007+A1:2011

Die oben genannte Firma hält  
Dokumentationen als Nachweis der  
Erfüllung der Sicherheitsziele und  
die wesentlichen Schutzanfor-  
derungen zur Einsicht bereit.

Documentation evidencing  
conformity with the requirements of  
the Directives is kept available for  
inspection at the above  
Manufacturer.

En tant que preuve de la satisfaction  
des demandes de sécurité la  
documentation peut être consultée  
chez la compagnie susmentionnée.

Dokumentationsverantwortlicher:  
(technische Dokumentation)

person responsible for documents:  
(technical documents)

responsable documentation:  
(technique documentation)

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Günter Fronius Straße 1  
A - 4600 Wels-Thalheim

Ing. Josef Feichtinger  
Günter Fronius Straße 1  
A - 4600 Wels-Thalheim

**CE** 2018

ppa. T. Herndler, MAS  
Member of Board  
Chief Production Officer

DE German

Deutsch

EN English

English

FR French

Française





**DICHIARAZIONE DI CONFORMITÀ UE, 2018**  
**DECLARACIÓN UE DE CONFORMIDAD, 2018**  
**DECLARAÇÃO UE DE CONFORMIDADE, 2018**

Wels-Thalheim, 2018-03-05

Costruttore

La empresa

A empresa

**FRONIUS INTERNATIONAL GMBH**  
Froniusstraße 1, A-4643 Pettenbach

la sua esclusiva responsabilità  
che il seguente prodotto:

declara bajo su exclusiva  
responsabilidad que el siguiente  
producto:

na qualidade de único responsável,  
declara que o seguinte produto:

**ArcRover 22**  
veicolo

**ArcRover 22**  
vehículo

**ArcRover 22**  
veículo

al quale è esplicitamente riferita  
questa dichiarazione, è conforme  
alle seguenti direttive e agli  
seguenti standard:

al que se refiere la presente  
declaración está conforme con las  
siguientes directivas y normas:

que diz respeito à presente  
declaração, cumpre as seguintes  
directivas e normas:

Direttiva 2014/30/UE  
Compatibilità elettromagnetica

Directiva 2014/30/UE  
Compatibilidad electromagnética

Directiva 2014/30/UE  
Compatibilidade electromagnética

Direttiva 2011/65/UE  
RoHS

Directiva 2011/65/UE  
RoHS

Directiva 2011/65/UE  
RoHS

Direttiva 2006/42/CE  
Direttiva Macchina

Directiva 2006/42/CE  
Directiva sobre máquinas

Directiva 2006/42/CE  
Directiva Máquinas

Norme europee e rispettive  
modifiche

Normas europeas incluídas las  
modificaciones correspondientes

Normas Europeias incluindo  
emendas aplicáveis

EN ISO 12100:2010  
IEC 62133:2008  
EN 61000-6-2:2005+AC:2005  
EN 61000-6-4:2007+A1:2011

EN ISO 12100:2010  
IEC 62133:2008  
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EN 61000-6-4:2007+A1:2011

EN ISO 12100:2010  
IEC 62133:2008  
EN 61000-6-2:2005+AC:2005  
EN 61000-6-4:2007+A1:2011

La documentazione attestante la  
conformità alle richieste delle  
direttive sarà tenuta a disposizione  
per ispezioni presso il sopraccitato  
costruttore.

La empresa mencionada  
anteriormente tiene a disposición  
para inspección los documentos que  
confirman el cumplimiento de los  
objetivos de seguridad y los  
requisitos de protección esenciales.

A empresa acima mencionada  
mantém a documentação para  
consulta disponível, a título de  
comprovação do cumprimento dos  
objectivos de segurança e dos  
requisitos de segurança essenciais.

responsabile tecnico:  
(fascicolo tecnico)

responsable técnico:  
(expediente técnico)

responsável técnico:  
(processo técnico)

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A - 4600 Wels-Thalheim

**CE 2018**

ppa. T. Herndler, MAS  
Member of Board  
Chief Production Officer

IT Italiano

Italiano

ES Spanish

Español

PT Portuguese

Português



**EU-KONFORMITÄTSERKLÄRUNG 2018  
EU-DECLARATION OF CONFORMITY 2018  
DEKLARACJA ZGODNOŚCI UE 2018**

Wels-Thalheim, 2018-03-05

Die Firma

Manufacturer

La compagnie

**FRONIUS INTERNATIONAL GMBH**

Froniusstraße 1, A-4643 Pettenbach

erklärt in alleiniger Verantwortung,  
dass folgendes Produkt:

Hereby certifies on its sole  
responsibility that the following  
product:

oświadcza na własną  
odpowiedzialność, że następujący  
produkt:

ArcRover 22  
Fahrwerk

ArcRover 22  
Driving vehicle

ArcRover 22  
Wózek

auf das sich diese Erklärung  
bezieht, mit folgenden Richtlinien  
bzw. Normen übereinstimmt:

which is explicitly referred to by this  
Declaration meet the following  
directives and standard(s):

do którego odnosi się niniejsza  
deklaracja, jest zgodny z  
następującymi dyrektywami i  
normami:

Richtlinie 2014/30/EU  
Elektromag. Verträglichkeit

Directive 2014/30/EU  
Electromag. compatibility

Dyrektywa 2014/30/UE  
Kompatybilność  
elektromagnetyczna

Richtlinie 2011/65/EU  
RoHS

Directive 2011/65/EU  
RoHS

Dyrektywa 2011/65/UE  
RoHS

Richtlinie 2006/42/EG  
Maschinenrichtlinie

Directive 2006/42/EC  
Machinery Directive

Dyrektywa 2006/42/WE  
Dyrektywa maszynowa

Europäische Normen inklusive  
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European Standards including  
relevant amendments  
EN ISO 12100:2010  
IEC 62133:2008  
EN 61000-6-2:2005+AC:2005  
EN 61000-6-4:2007+A1:2011

Normy europejskie łącznie z  
odpowiednimi zmianami  
EN ISO 12100:2010  
IEC 62133:2008  
EN 61000-6-2:2005+AC:2005  
EN 61000-6-4:2007+A1:2011

Die oben genannte Firma hält  
Dokumentationen als Nachweis der  
Erfüllung der Sicherheitsziele und  
die wesentlichen Schutzanforder-  
ungen zur Einsicht bereit.

Documentation evidencing  
conformity with the requirements of  
the Directives is kept available for  
inspection at the above  
Manufacturer.

Wyżej wymieniona firma jest w  
posiadaniu dokumentacji, stanowiącej  
świadczenie spełnienia norm  
bezpieczeństwa i zapewnienia  
wymaganego poziomu zabezpieczeń,  
i udostępnia ją na żądanie.

Dokumentationsverantwortlicher:  
(technische Dokumentation)

person responsible for documents:  
(technical documents)

Osoba odpowiedzialna za  
dokumentację:  
(dokumentacja techniczna)  
Ing. Josef Feichtinger  
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**CE 2018**

ppa. T. Herndler, MAS  
Member of Board  
Chief Production Officer

DE German

Deutsch

EN English

English

PL Polish

Polska



**FRONIUS INTERNATIONAL GMBH**

**TechSupport Automation**

Froniusplatz 1, A-4600 Wels, Austria

E-Mail: [support.automation@fronius.com](mailto:support.automation@fronius.com)

[www.fronius.com](http://www.fronius.com)

**[www.fronius.com/addresses](http://www.fronius.com/addresses)**

Under <http://www.fronius.com/addresses> you will find all addresses of our Sales & service partners and Locations.

