

OPERATOR'S MANUAL

GECKO (HS) WELDING CARRIAGE



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1. GENERAL INFORMATION

1.1. Application

The GECKO (HS) is a welding carriage designed to make continuous butt and fillet welds. The carriage allows MIG/MAG torches and is clamped with permanent magnets.

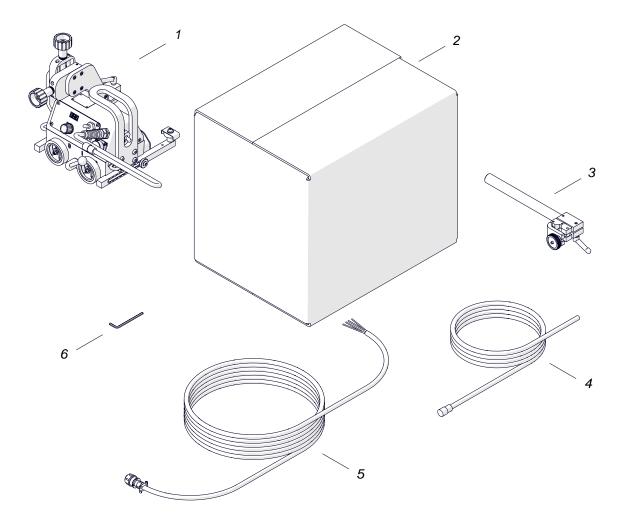
Accessories allow using torches with a larger diameter and using two torches at the same time. They also allow the carriage to move along outside edges, lap joints and templates, walls that are low or have holes, and on ceilings, pipes, and tanks.

Using an optional flexible trackway set allows the carriage to move on a flexible rail. You can clamp the rail to the surface by using magnetic units or by using vacuum units and a vacuum track system.

		GECKO	GECKO HS
Veltage		1~ 115–230 V, 50–60 Hz	1~ 115–230 V, 50–60 Hz
Voltage		1~ 42 V, 50–60 Hz (60 V DC)	1~ 42 V, 50–60 Hz (60 V DC)
Power		20 W	20 W
Welding position (according to EN ISO 6947	Horizontal	PA/1F/1G PB/2F PC/2G PD/4F	PA/1F/1G PB/2F PC/2G PD/4F
and AWS/ASME)		PE/4G	PE/4G
	Vertical	PF/3G	N/A
Minimum path curve radius		1000 mm (3.5 ft)	1000 mm (3.5 ft)
Torch type		MIG/MAG	MIG/MAG
Torch diameter		16–22 mm (0.63–0.87")	16–22 mm (0.63–0.87")
Maximum torch reach		70 mm (2.76″)	70 mm (2.76″)
Maximum allowed	Horizontal work	8 kg	8 kg
cable weight	Vertical work	6 kg	N/A
Minimum workpiece this	ckness	4 mm (0.16″)	4 mm (0.16″)
Ground clearance		4 mm (0.16″)	4 mm (0.16″)
Horizontal pulling force		150 N	150 N
Vertical pulling force		100 N	N/A
Cross slide adjustment range		0–35 mm (0–1.38″) up-down, left-right	0–35 mm (0–1.38″) up-down, left-right
Guide arm adjustment range		0–100 mm (0–3.93″)	0–100 mm (0–3.93")
Horizontal speed		0–110 cm/min (0–43.3 in/min)	5–220 cm/min (1.5–86.6 in/min)
Vertical speed		0–100 cm/min (0–39.4 in/min)	N/A
Weight		8 kg (18 lbs)	8 kg (18 lbs)

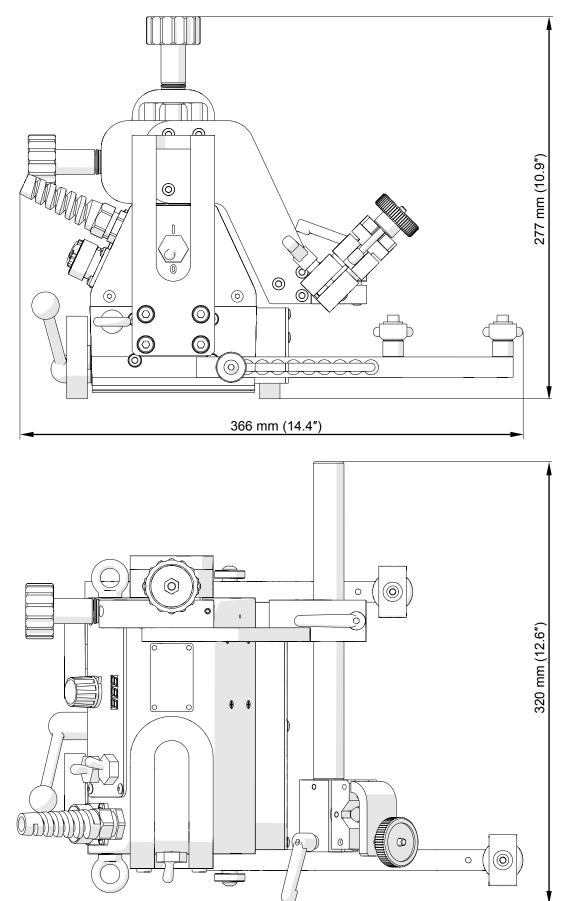
1.2. Technical data

1.3. Equipment included



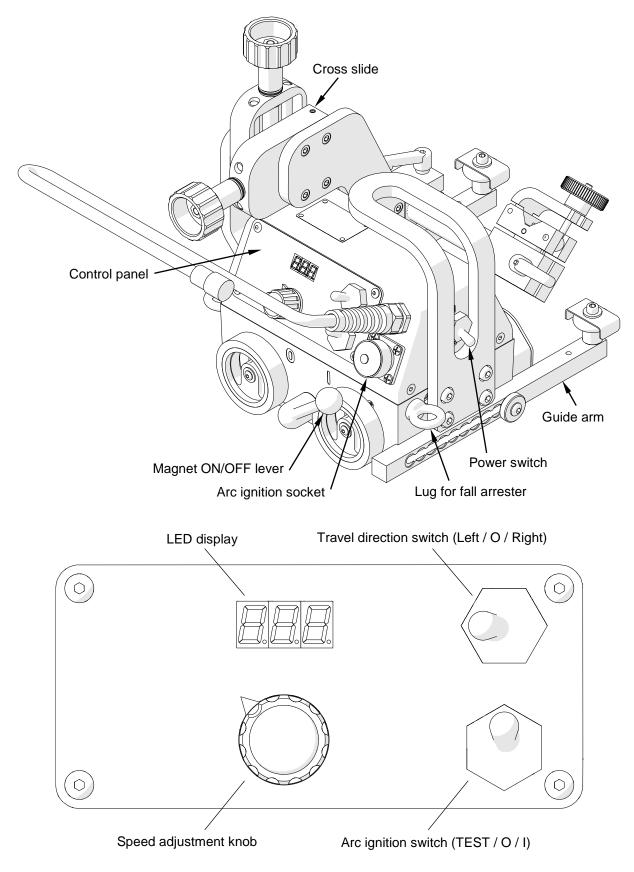
1	Carriage	1 unit
2	Cardboard box	1 unit
3	Long rod torch holder with clamp	1 unit
4	3 m (10 ft) power cord	1 unit
5	6.5 m (21 ft) arc ignition cable	1 unit
6	4 mm hex wrench	1 unit
_	Operator's Manual	1 unit

1.4. Dimensions



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1.5. Design



2. SAFETY PRECAUTIONS

- 1. Before use, read this Operator's Manual and complete a training in occupational safety and health.
- 2. Use only in applications specified in this Operator's Manual.
- 3. Make sure that the carriage has all parts and they are genuine and not damaged.
- 4. Make sure that the specifications of the power source are the same as those specified on the rating plate.
- 5. Connect the carriage to a correctly grounded power source.
- 6. Do not carry the carriage by the cords or arc ignition cable, and do not pull them. This can cause damage and electric shock.
- 7. Keep untrained bystanders away from the carriage.
- 8. Before each use, ensure the correct condition of the carriage, power source, cords, arc ignition cable, plugs, control panel, and wheels.
- 9. Before each use, make sure that no part is cracked or loose. Make sure to maintain correct conditions that can have an effect on the operation of the carriage.
- 10. Keep the carriage dry. Do not expose the carriage to rain, snow, or frost.
- 11. Keep the work area well lit, clean, and free of obstacles.
- 12. Do not use near flammable materials, or in explosive environments.
- 13. Make sure that the rubber of the wheels is clean and not damaged.
- 14. Do not remove the cover of the wheels.
- 15. Remove objects attracted to the chassis by the magnet.
- 16. Transport and position the carriage by using the carrying handle and only after you set the magnet ON/OFF lever to 'O'.
- 17. Put the carriage so that four wheels are on the surface. Make sure that no contact is between the surface and chassis.
- 18. Do not stay below the carriage that is put at heights.
- 19. Connect the cords and arc ignition cable only after you set the power switch to 'O'.
- 20. Keep the sockets clean. Do not use high pressure during cleaning.
- 21. Install only MIG/MAG torches whose diameter matches the diameter of the torch holder.
- 22. Do not put the torch more than 70 mm (2.76") outward from the left or right side of the carriage.

- 23. Keep the torch cables away from the surface. Hang them to decrease the load applied on the carriage. Use only cables whose weight is not more than 8 kg (18 lbs) for horizontal work and 6 kg (13 lbs) for vertical work.
- 24. Do not work on curves with convex or concave radius less than 1000 mm (3.5 ft).
- 25. Use the HS version of the carriage in horizontal positions only.
- 26. At heights, use a fall arrester not to let the carriage fall.
- 27. Use eye protection (helmet, shield, and screen), ear protection, gloves, and protective clothing. Do not use loose clothing.
- 28. Do not stop the carriage by hand. To stop, set the travel direction switch to 'O'.
- 29. Do the maintenance only after you unplug the carriage from the power source.
- 30. Repair only in a service center appointed by the seller.
- 31. If the carriage falls, is wet, or has any damage, stop the work and promptly send the carriage to the service center for check and repair.
- 32. Do not leave the carriage unattended during work.
- 33. If you are not going to use the carriage, remove it from the worksite and keep in a safe and dry place.

3. STARTUP AND OPERATION

3.1. Preparing

Use the carrying handle to transport the carriage to the worksite. Then, set to 'O' all switches (power, travel direction, and arc ignition switch) and the magnet lever. Next, connect the carriage to the power source, and then put the torch into the torch holder and tighten with the knob.

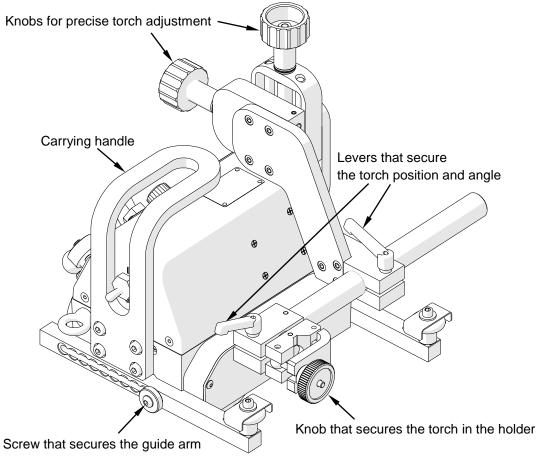


Fig. 1. View from the back side

3.2. Connecting to the welding circuits

The carriage can control two torches by using the arc ignition cable plugged into the arc ignition socket. To do this, refer to the diagram from Fig. 2 and connect one blue-jacketed wire to one terminal of the welding circuit. Then, connect the other blue-jacketed wire to the other terminal of the same circuit. To control the second torch, connect the green-jacketed wires to the terminals of the second welding circuit.

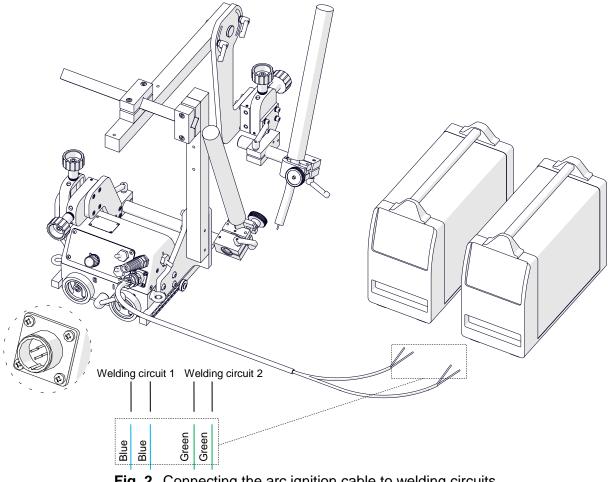
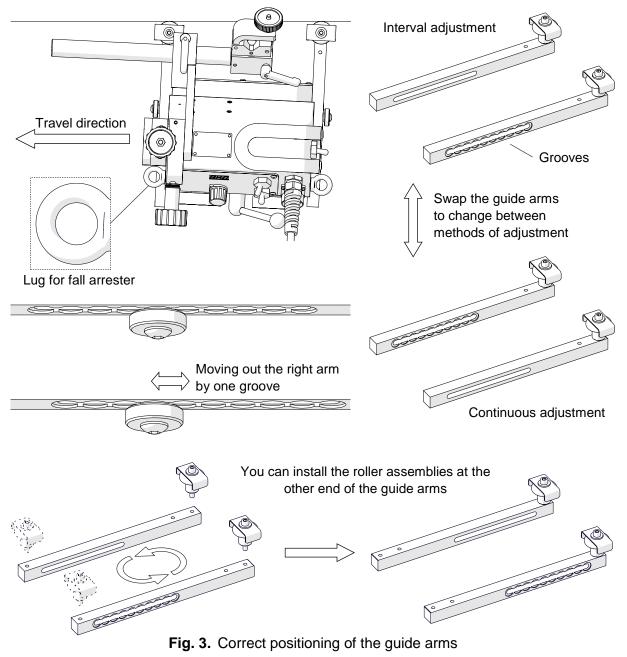


Fig. 2. Connecting the arc ignition cable to welding circuits

Make sure that the arc ignition cable is connected correctly. To do this, turn on the power of the carriage, and then set the arc ignition switch to TEST. This should enable the arc for a while.

3.3. Positioning at the worksite

Put the guide arms so that the carriage is in constant contact with the workpiece. You can set them by a constant step (interval adjustment), or continuously after you swap them (continuous adjustment). To set them correctly when the carriage moves to the left, use the 4 mm hex wrench to loosen the screw that secures the right guide arm. Next, move out the right arm about 10 mm (0.4") or one groove more than the left arm (Fig. 3), and then tighten the screw again.



To put the carriage closer to the workpiece, use the 4 mm hex wrench to remove the roller assemblies. Next, install them at the other end of the guide arms, and then swap the guide arms (Fig. 3).

Switch the magnet ON/OFF lever from left ('O') to right ('I'). This will change the clamping force from minimum to maximum. Loosen the levers to adjust the position and angle of the torch. Use two knobs at the cross slide to precisely set the torch position.

At heights, attach a fall arrester (not included) to a lug (Fig. 3) to prevent fall of the carriage. This will avoid possible injury to the operator in case the carriage loses the clamping. Do not stay below the carriage that is put at heights.

3.4. Operating

Set the power switch to 'I' to turn on the power. Then, the display comes on (8.8.8.). Next, if the unit of speed is set to centimeters per minute, $E \omega r$ shows. If the unit is set to inches per minute, US shows. Next, the carriage speed shows. Use the speed knob to set the required speed. To control the torch through the carriage, set the arc ignition switch to 'I'.

If the arc ignition switch is set to 'I', the torch starts welding promptly after you select a travel direction.

Use the travel direction switch to select a direction of travel. Then, the travel starts with the speed that is shown. You can adjust the speed at any time.

To stop the travel, set the travel direction switch to 'O'.

After the work is finished, use the power switch to turn off the carriage. Then, unplug the carriage from the power source.

3.5. Changing the unit of speed

To change the unit of speed between centimeters per minute and inches per minute, unplug the carriage from the power source and follow the steps shown in Fig. 4.

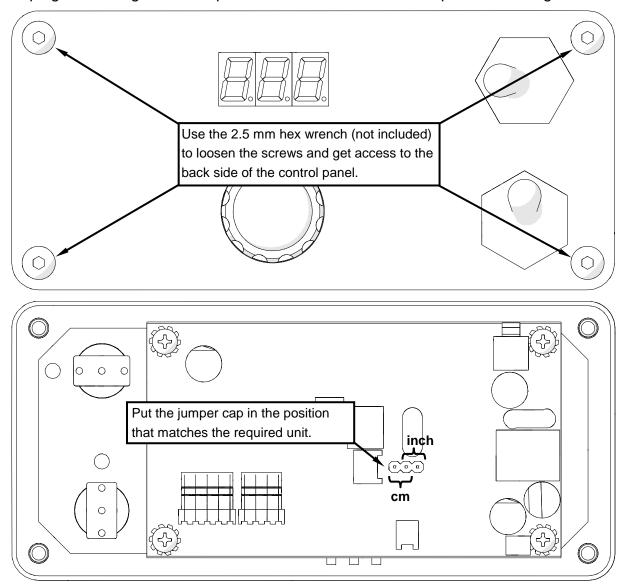


Fig. 4. Changing the unit of speed

After you change the unit and supply the power to the carriage, the current unit of measure shows. When the jumper cap connects the left and center pin, the display shows EUr and the speed is shown in centimeters per minute. When the jumper cap connects the center and right pin, the display shows USR and the speed is shown in inches per minute.

3.6. Troubleshooting

Message	Problem	Solution
<u>].55</u> .	Display not fully on after powering.	Contact service center for check and repair.
EUr	Speed shown in centimeters per minute instead of inches per minute.	Refer to the section "Changing the unit of speed."
USA	Speed shown in inches per minute instead of centimeters per minute.	Refer to the section "Changing the unit of speed."
Er.5.	Travel direction switch not set to 'O' when powering.	Set the travel direction switch to 'O'. If the message still shows, contact service center for check and repair.
	Shown during travel indicates a malfunction.	Contact service center for check and repair.
crL	Motor overload. The carriage stops.	Use the welding cables whose weight is not more than the maximum weight specified in the technical data.
		Adjust the position of the cables so that they do not block the carriage.
		Remove other objects that block the carriage or its wheels.
		If this message still shows, contact service center for check and repair.

4. MAINTENANCE

Each day:

- 1. Clean the chassis and wheels.
- 2. Clean the rollers of the guide arms. Make sure that the rollers rotate freely.
- 3. Clean the torch nozzle and replace if damaged.

Each month:

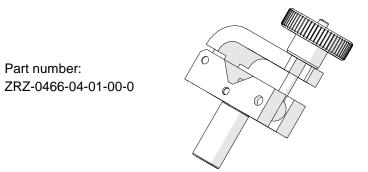
- 1. Make sure that the knob and the switches work as intended. Replace if they are loose or damaged.
- 2. Examine cables and cords, and replace if damaged.
- 3. Tighten screws if loose.

5. ACCESSORIES

5.1. Torch clamps

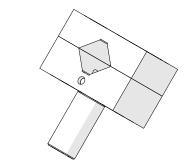
5.1.1.16-22 mm torch clamp

Allows using a torch with the diameter of 16–22 mm (0.63–0.87").



5.1.2. 16-22 mm torch clip

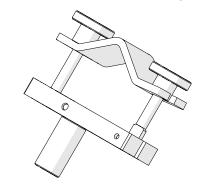
Allows using a torch with the diameter of 16–22 mm (0.63–0.87"). Use the 4 mm hex wrench to tighten the torch in the clip.



Part number: ZCS-0476-06-01-00-0

5.1.3. 22-35 mm torch clamp

Allows using a torch with the diameter of 22-35 mm (0.87-1.38").

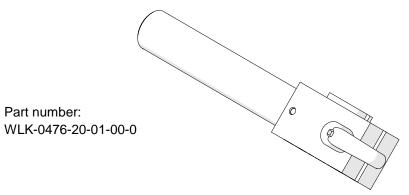


Part number: ZRZ-0466-19-00-00-0

5.2. Rods

5.2.1. Short rod

Provides a 120 mm (4.72") reach.



5.2.2. Long rod

Provides a 240 mm (9.45") reach.

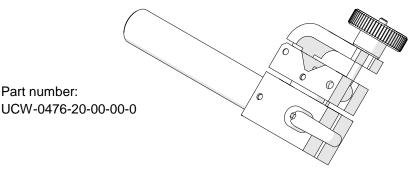
Part number: WLK-0466-04-10-00-0

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5.3. Torch holders

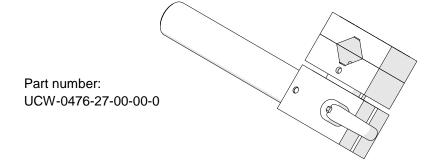
5.3.1. Short rod torch holder with clamp

Allows using a torch with the diameter of 16–22 mm (0.63–0.87").



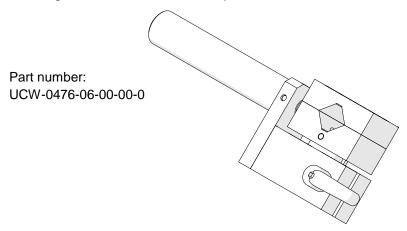
5.3.2. Short rod torch holder with clip

Allows using a torch with the diameter of 16–22 mm (0.63–0.87"). Use the 4 mm hex wrench to tighten the torch in the clip.



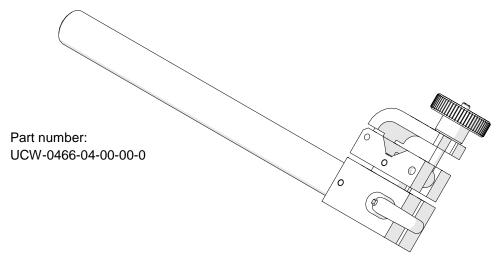
5.3.3. Short rod low torch holder with clip

Allows using a torch with the diameter of 16–22 mm (0.63–0.87"). Use the 4 mm hex wrench to tighten the torch in the clip.



5.3.4. Long rod torch holder with clamp

Allows using a torch with the diameter of 16–22 mm (0.63–0.87").



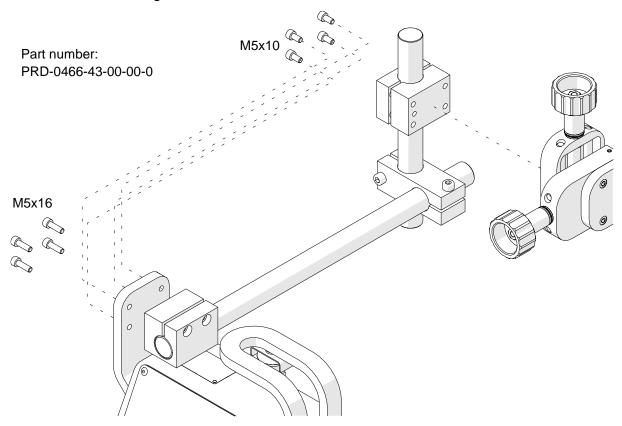
5.3.5. Long rod torch holder with clip

Allows using a torch with the diameter of 16–22 mm (0.63–0.87"). Use the 4 mm hex wrench to tighten the torch in the clip.

Part number: UCW-0466-22-00-00-0 o

5.4. Torch extension arm

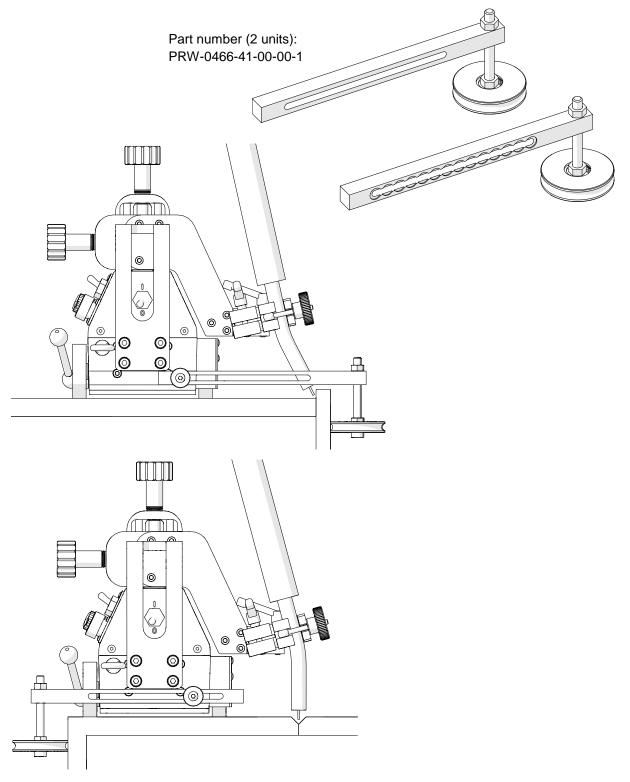
Increases the reach of the torch. Use the 4 mm hex wrench to remove the M5x10 screws that attach the cross slide. Next, use the same screws to attach the cross slide at the end of the arm as shown in the figure. Then, use M5x16 screws to attach the arm to the carriage.



5.5. Guide arms

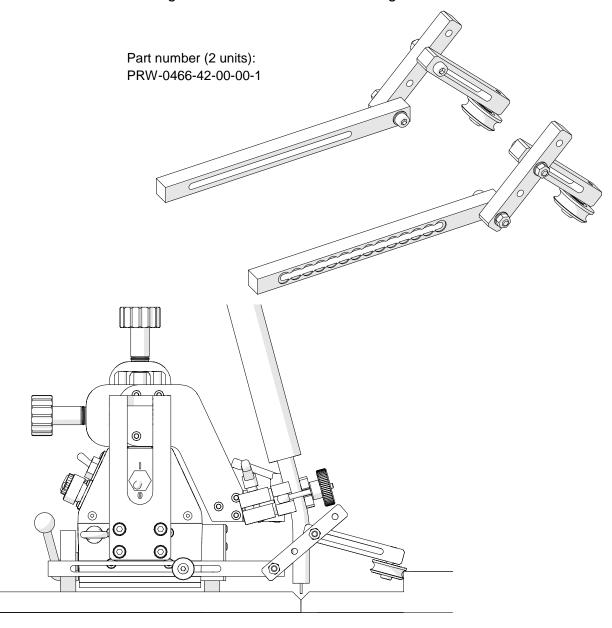
5.5.1. Edge following guide arms

Allow guiding the carriage along outside edges. Use the 4 mm hex wrench to remove the standard guide arms and install the new guide arms.



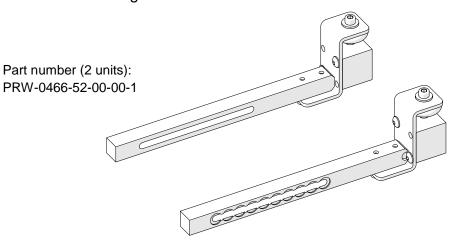
5.5.2. Adjustable guide arms

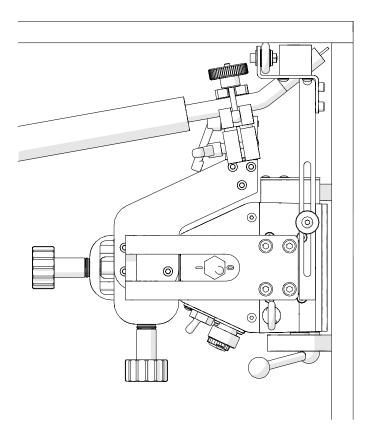
Allow guiding the carriage along lap joints and templates. Use the 4 mm hex wrench to remove the standard guide arms and install the new guide arms.



5.5.3. Magnet guide arms

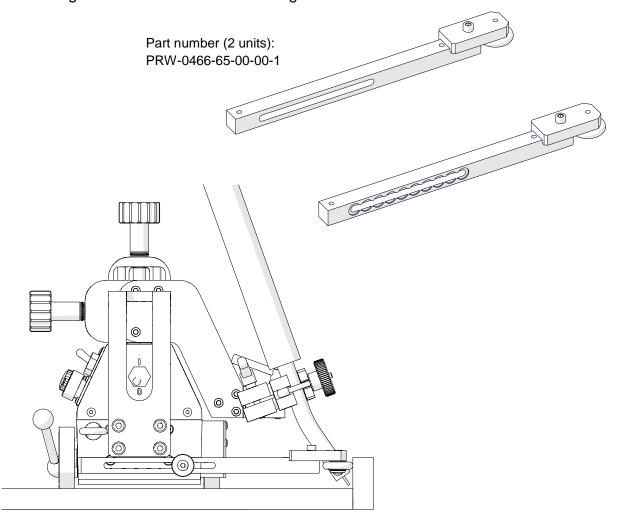
Allow guiding the carriage on ceilings. Use the 4 mm hex wrench to remove the standard guide arms and install the new guide arms.



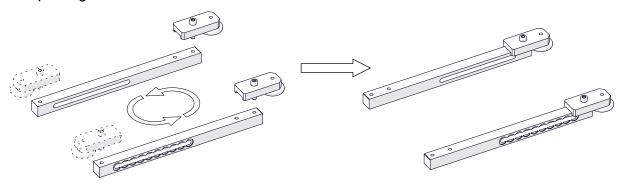


5.5.4. Low guide arms

Allow guiding the carriage along low walls. Use the 4 mm hex wrench to remove the standard guide arms and install the new guide arms.

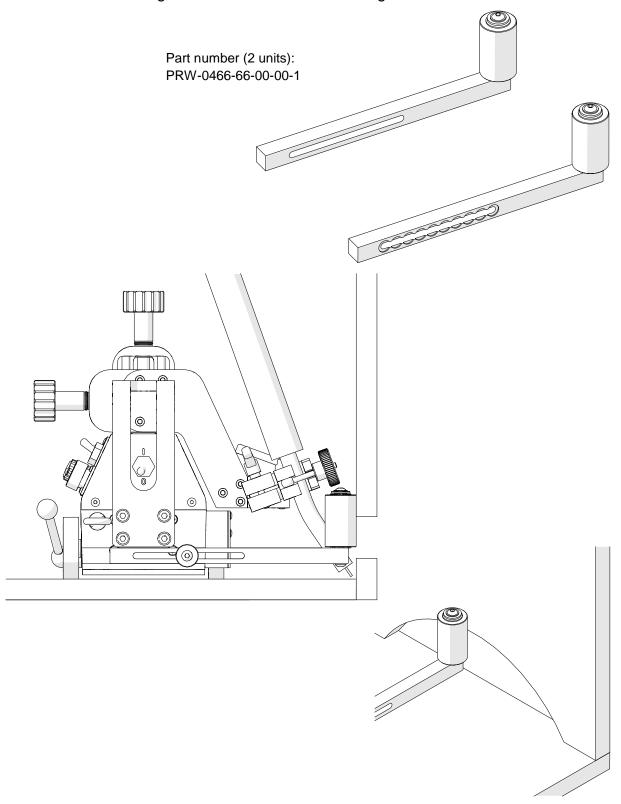


To put the carriage closer to the workpiece, use the 4 mm hex wrench to remove the roller assemblies. Next, install them at the other end of the guide arms, and then swap the guide arms.



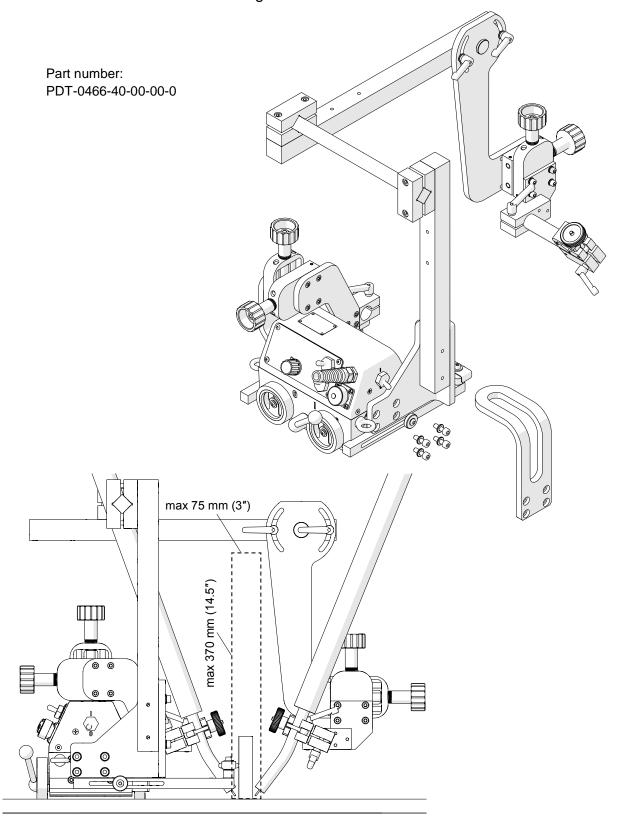
5.5.5. High guide arms

Allow guiding the carriage along walls that have holes. Use the 4 mm hex wrench to remove the standard guide arms and install the new guide arms.



5.6. Dual torch mount

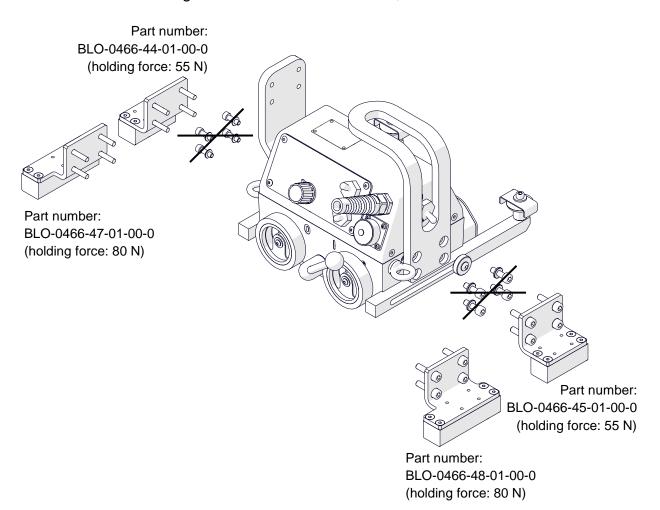
Allows using a second torch. Use the 5 mm hex wrench to remove the M6x20 screws and washers that attach the carrying handle. Next, use the same screws and washers to attach the mount to the carriage.



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5.7. Auxiliary magnet blocks

The blocks increase the clamping force of the carriage. Use the 4 mm and 5 mm hex wrenches to remove eight screws and washers. Next, install the blocks.

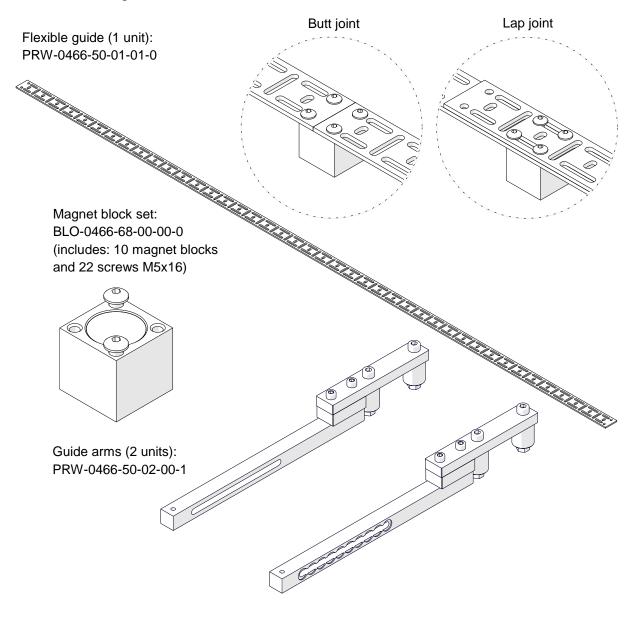


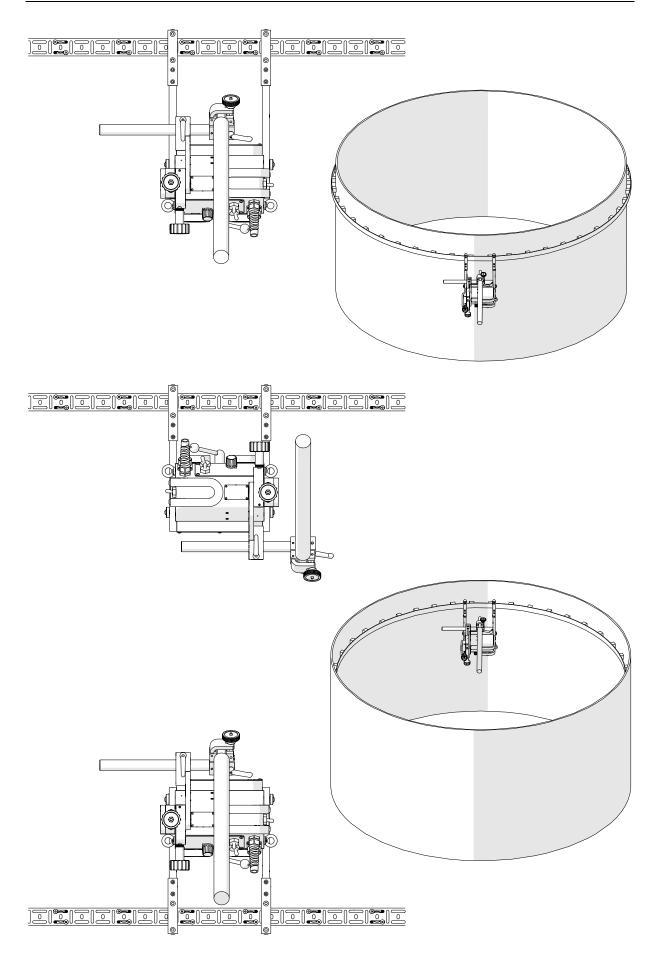
5.8. Flexible guide set

Allows guiding the carriage on planes along a straight line, and on pipes and tanks. A single flexible guide is 1.85 m (6 ft) long. Its minimum curve radius is 1 m (3.3 ft).

Holding force on a 5 mm (0.2") thick surface	Temperature
100% (90 N)	20°C (68°F)
75% (68 N)	80°C (176°F)
50% (45 N)	120°C (248°F)

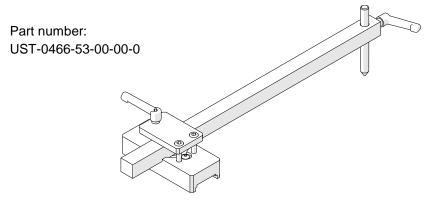
Connect two guides with the 3 mm hex wrench and M5x16 screws to form a butt or lap joint. Next, use the 4 mm hex wrench to remove the standard guide arms and install the new guide arms.



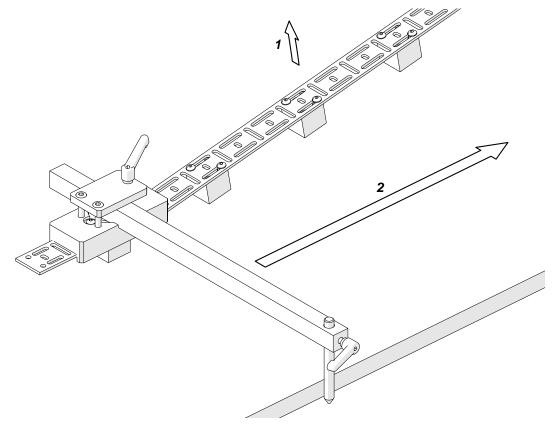


5.9. Guide adjustment tool

Allows the guide to be put parallel to an outside edge or a groove.



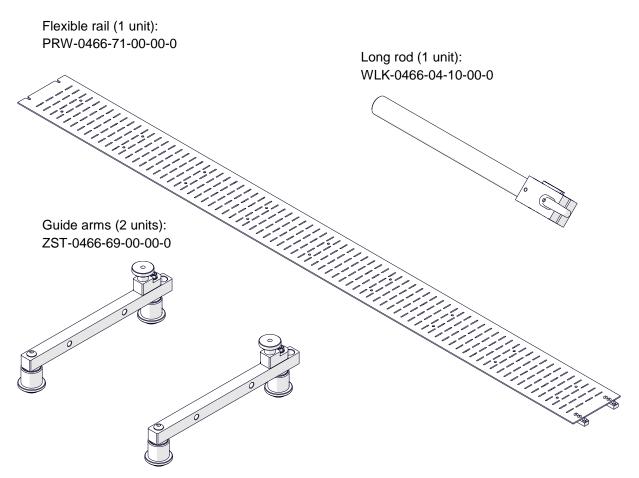
Attach the magnets to the guide, and put the guide on the workpiece along the direction of welding. Loosen the levers and put the tool onto the first magnet, resting the side of the pilot pin on an outside edge or placing the tip of the pilot pin in a groove. Then, lock the levers in this position and pull the further part of the guide off the workpiece (1). Next, start moving the tool along the guide (2) to clamp the successive magnets to the workpiece.



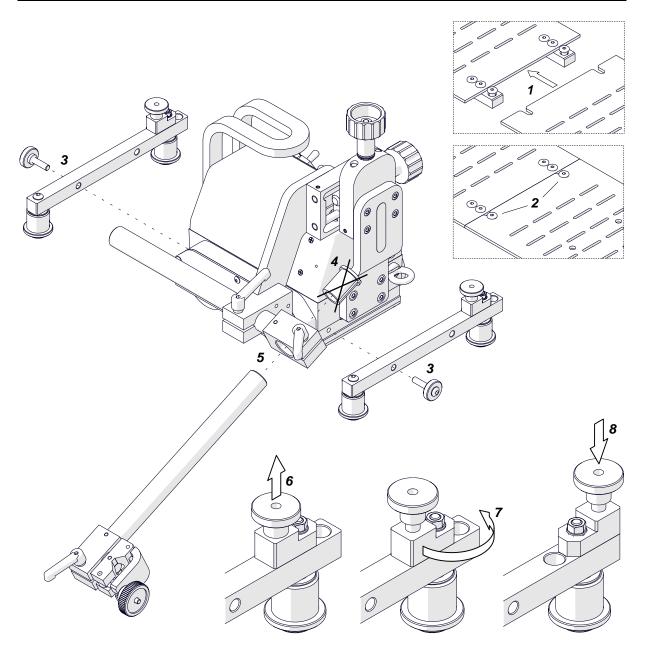
5.10. Flexible trackway set

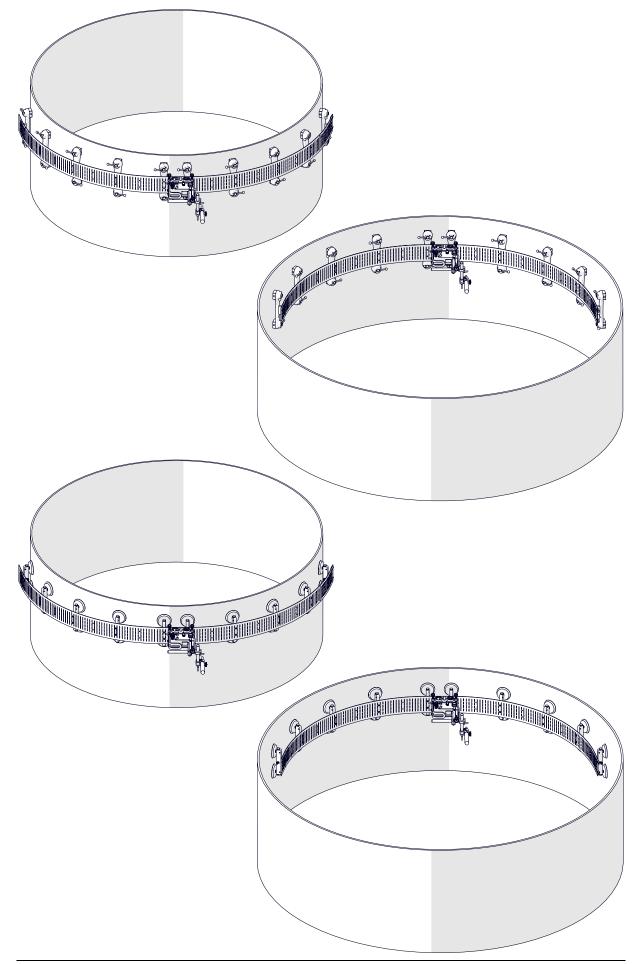
Allows the carriage to move on a flexible rail that is clamped to planes, pipes, or tanks. A single flexible rail is 1.88 m (6.1 ft) long, and its minimum curve radius is 1.25 m (4.1 ft). In all work positions, clamp each rail to the surface by using nine narrow magnetic units or at least five magnetic/vacuum units.

Before use, remove the anti-corrosion material from the rail.



Connect two rails with the 3 mm hex wrench (1, 2). Use the 4 mm hex wrench to remove the standard guide arms and install the guide arms of the set (3). Remove the sleeve from the long rod (4) and install the rod into the carriage. Next, install the torch holder into the rod (5) and move the rollers outward (6, 7, 8). Then, put the carriage onto the rail and set the rollers as before.

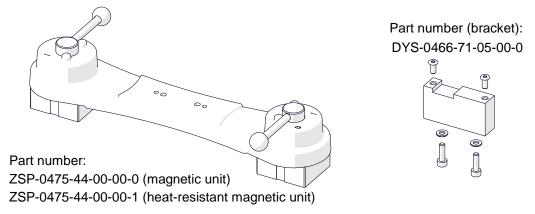




5.11. Magnetic units for flexible trackway

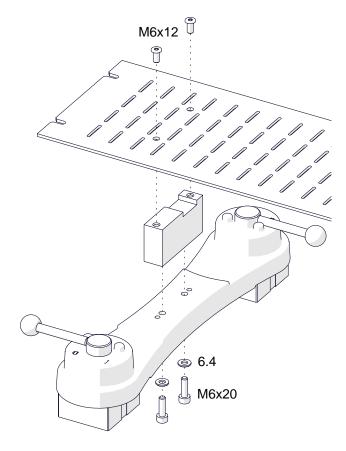
5.11.1. Magnetic unit

Allows clamping a flexible trackway to ferromagnetic surfaces.



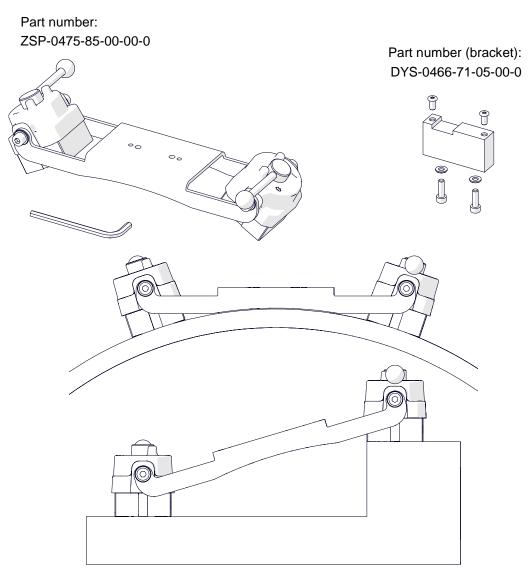
Holding force on a	Temperature		
5 mm (0.2") thick surface	Magnetic unit	Heat-resistant magnetic unit	
100% (1200 N)	20°C (68°F)	20°C (68°F)	
75% (900 N)	80°C (176°F)	160°C (320°F)	
50% (600 N)	120°C (248°F)	200°C (392°F)	

Use a torx screwdriver and the 5 mm hex wrench to attach the unit to the trackway.



5.11.2. Pivoting magnetic unit

Allows clamping a flexible trackway to ferromagnetic surfaces that are concave or convex, to pipes with outer diameters of at least 800 mm (31.5"), and to surfaces that differ in height up to 80 mm (3.1").

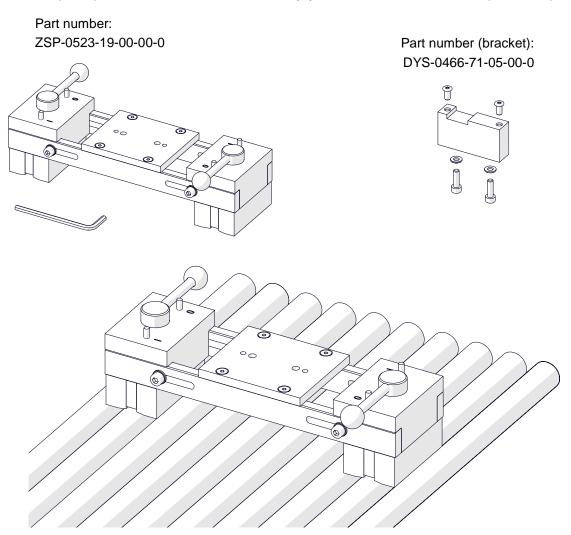


Holding force on a 5 mm (0.2") thick surface	Temperature
100% (1200 N)	20°C (68°F)
75% (900 N)	80°C (176°F)
50% (600 N)	120°C (248°F)

Install the unit in the same way as the magnetic unit is installed. To adjust the angle, use the 6 mm hex wrench and loosen four side screws.

5.11.3. Spacing-adjustable magnetic unit

Allows clamping a flexible trackway to two ferromagnetic pipes with diameters of 25-230 mm (1-9'') and with distance between pipe axes of 170-230 mm (6.7-9.1'').

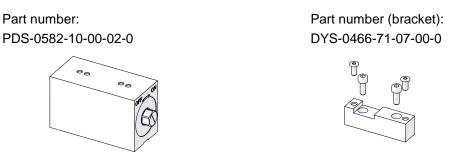


Holding force on a 5 mm (0.2") thick surface	Temperature
100% (1200 N)	20°C (68°F)
75% (900 N)	80°C (176°F)
50% (600 N)	120°C (248°F)

Install the unit in the same way as the magnetic unit is installed. To adjust the spacing, use the 5 mm hex wrench and loosen four side screws.

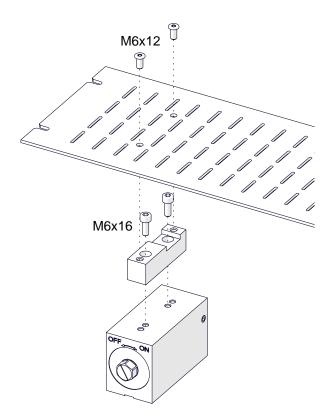
5.11.4. Narrow magnetic unit

Allows clamping a flexible trackway to ferromagnetic surfaces.



Holding force on a 5 mm (0.2") thick surface	Temperature
100% (1000 N)	20°C (68°F)
75% (750 N)	80°C (176°F)
50% (500 N)	120°C (248°F)

Use a torx screwdriver and the 5 mm hex wrench to attach the unit to the trackway.

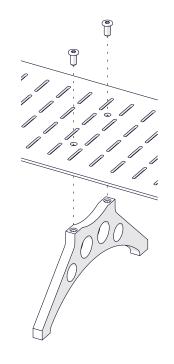


To clamp the unit to the surface, use the 17 mm flat wrench (not included) and set the side screw to ON.

5.12. Support for trackway with magnetic units

Allows supporting a trackway used with at least five magnetic units, by filling the gaps between the units. To attach the support, use a torx screwdriver and M6x12 screws.

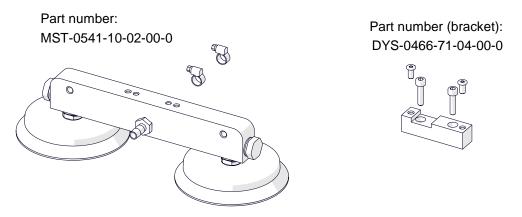
Part number: WSP-0466-71-06-00-0 9 0



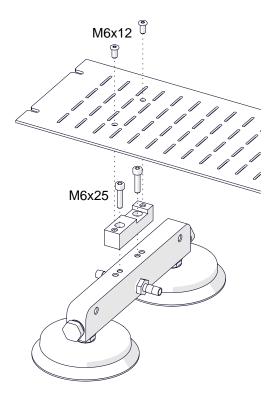
5.13. Vacuum unit

When used with a vacuum pump, the vacuum unit allows clamping a flexible trackway to non-ferromagnetic surfaces. The holding force of the vacuum unit is 1400 N at gauge pressure of -0.7 bar (-10 psig) and atmospheric pressure at sea level. The force decreases with increase in height above sea level. To increase the holding force of the trackway, use more vacuum units if possible.

Make sure that the ambient temperature is between -20° C and 200° C. Keep the flame at least 100 mm (4") away from the vacuum pads.

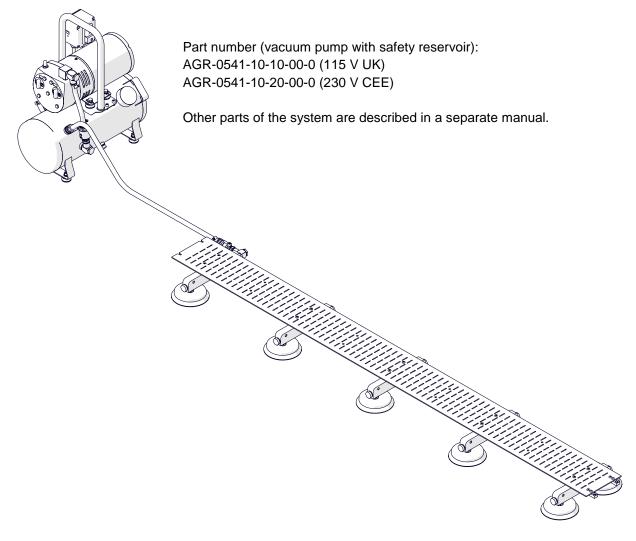


Use a torx screwdriver and the 5 mm hex wrench to attach the unit to the trackway.



5.14. Vacuum track system

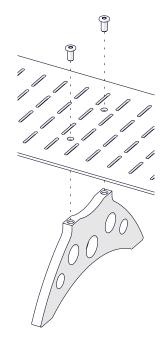
Dedicated to clamping a trackway to non-ferromagnetic surfaces.



5.15. Support for trackway with vacuum units

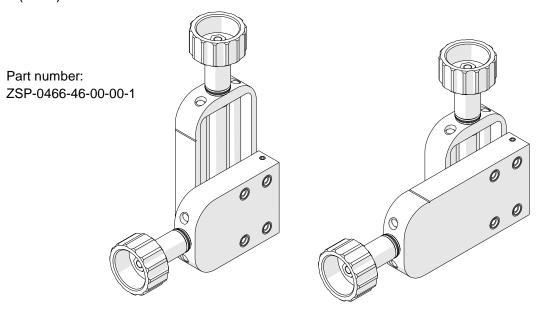
Allows supporting a trackway used with at least five vacuum units, by filling the gaps between the units. To attach the support, use a torx screwdriver and M6x12 screws.

Part number: WSP-0466-71-03-00-0 9 9 00 \bigcirc

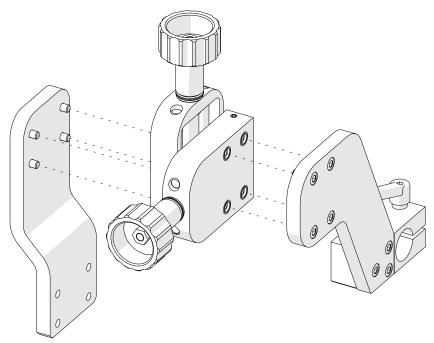


5.16. 76 mm cross slide

Increases the up-down or left-right adjustment range from 0-35 mm (0-1.38'') to 0-76 mm (0-3'').

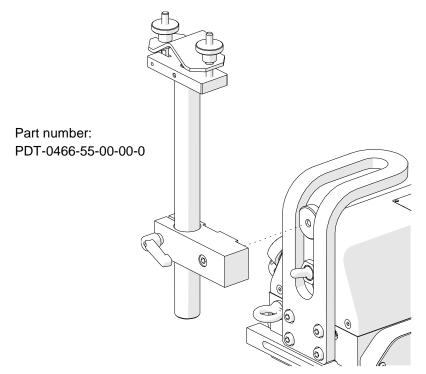


Use the 4 mm hex wrench to remove the standard cross slide and install the new cross slide.



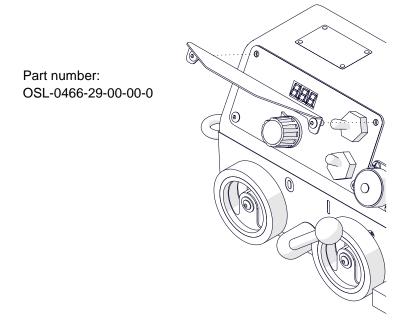
5.17. Cable anchor

Attaches the gas cables and the power cord to decrease the load applied on the torch holder. Use the 5 mm hex wrench to install the anchor on the carrying handle.



5.18. Display protection shield

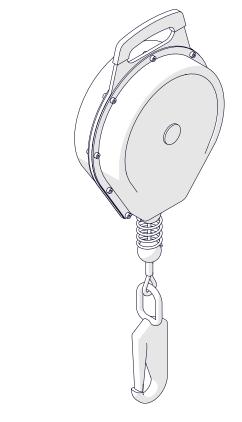
Protects the display from dirt. Use the 2.5 mm hex wrench to remove the top screws of the panel, and use them to attach the shield.



5.19. Fall arrester

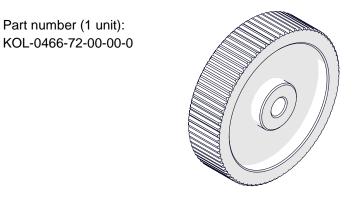
Part number: URZ-000001

Protects the carriage from falling. The length of the line is 10 m (33 ft).

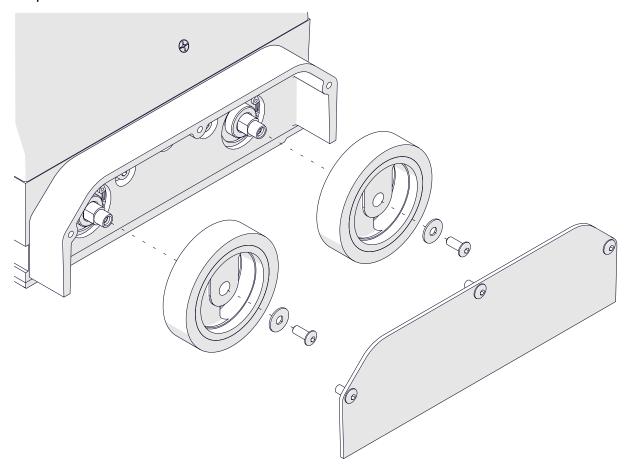


5.20. Stainless steel wheels

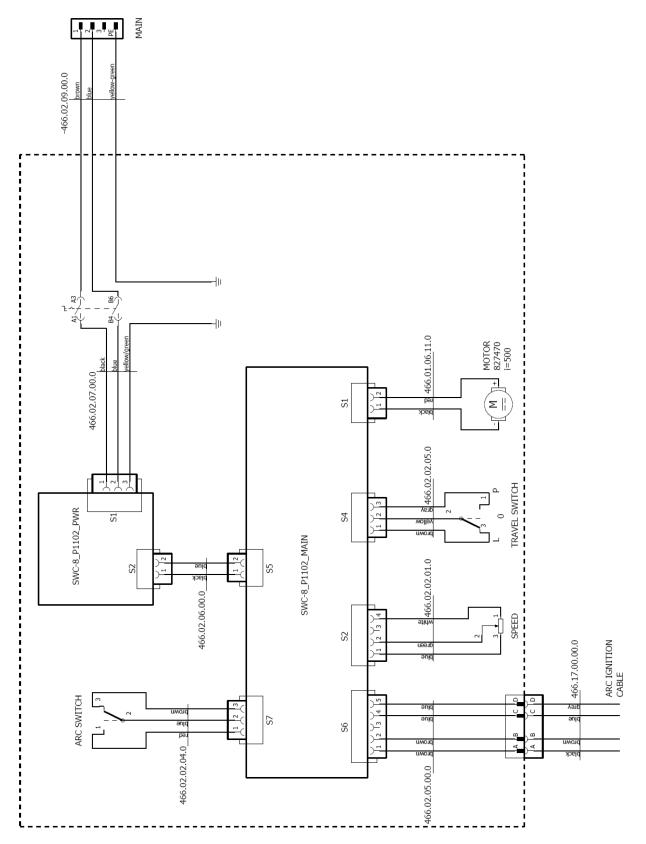
Allow working in horizontal position on a preheated plate.



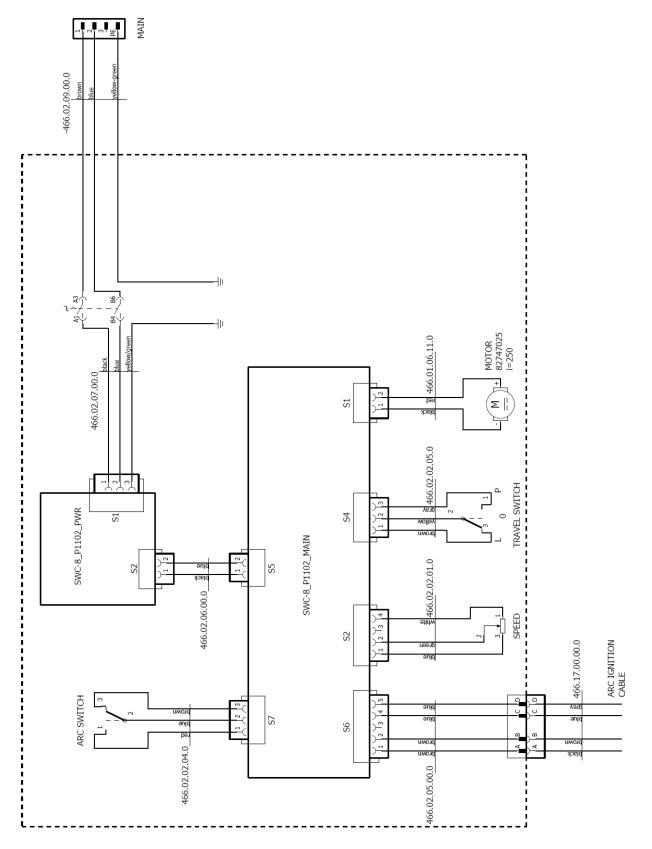
Use the 2.5 mm hex wrench to remove the cover and four wheels. Install in reverse sequence.



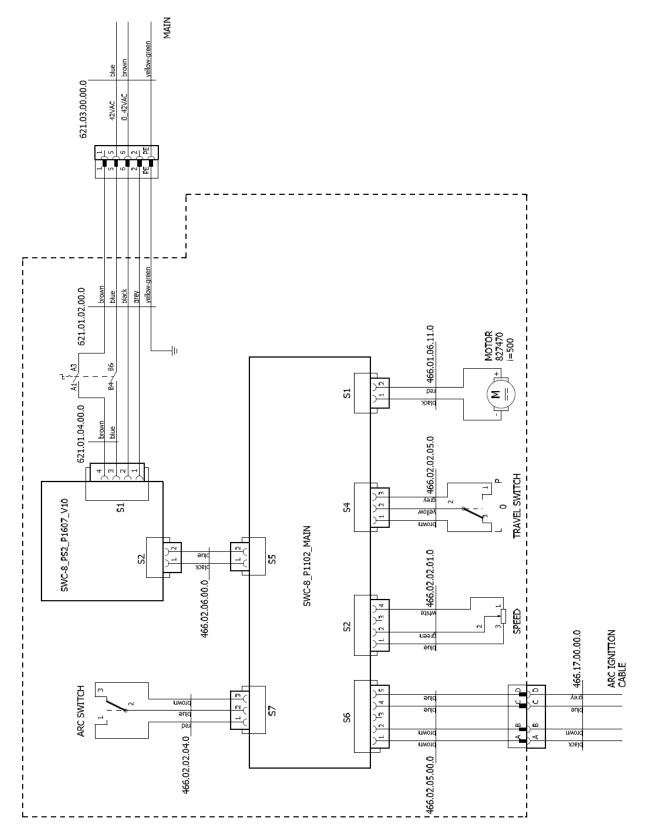
6. 115-230 V WIRING DIAGRAM



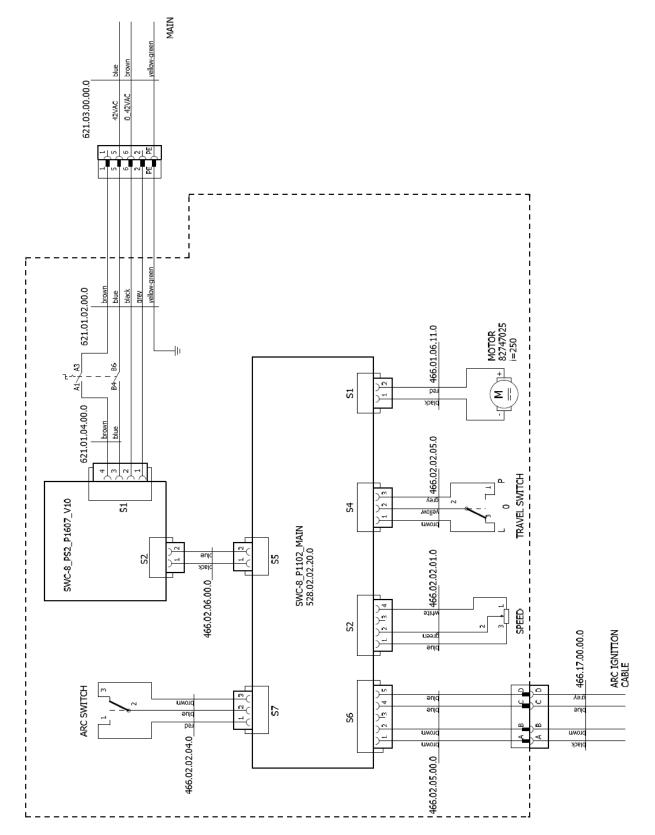
7. 115–230 V HS WIRING DIAGRAM



8. 42 V WIRING DIAGRAM



9. 42 V HS WIRING DIAGRAM



10. DECLARATION OF CONFORMITY

Declaration of Conformity

JEI Group Ltd Unit 21 Empire Business Park Enterprise Way, Burnley Lancs, BB12 6LT

We declare with full responsibility that:

GECKO (HS) WELDING CARRIAGE

is manufactured in accordance with the following standards:

- EN 50144-1
- EN 60974-10

and satisfies regulations of the guidelines: 2004/108/EC, 2006/95/EC, 2006/42/EC.

Person authorized to compile the technical file: David McFadden, JEI Group Ltd, Burnley

idd

David McFadden Managing Director

Burnley, 30 January 2012

11. WARRANTY CARD

WARRANTY CARD No.....

the GECKO (HS) Welding Carriage to be free of defects in material and workmanship under normal use for a period of 12 months from the date of sale.

This warranty does not cover wheels as well as damage or wear that arise from misuse, accident, tempering, or any other causes not related to defects in workmanship or material.

Serial number

Date of sale

Signature of seller.....

1.20 / 28 March 2019

WE RESERVE THE RIGHT TO MAKE CHANGES IN THIS MANUAL WITHOUT NOTICE