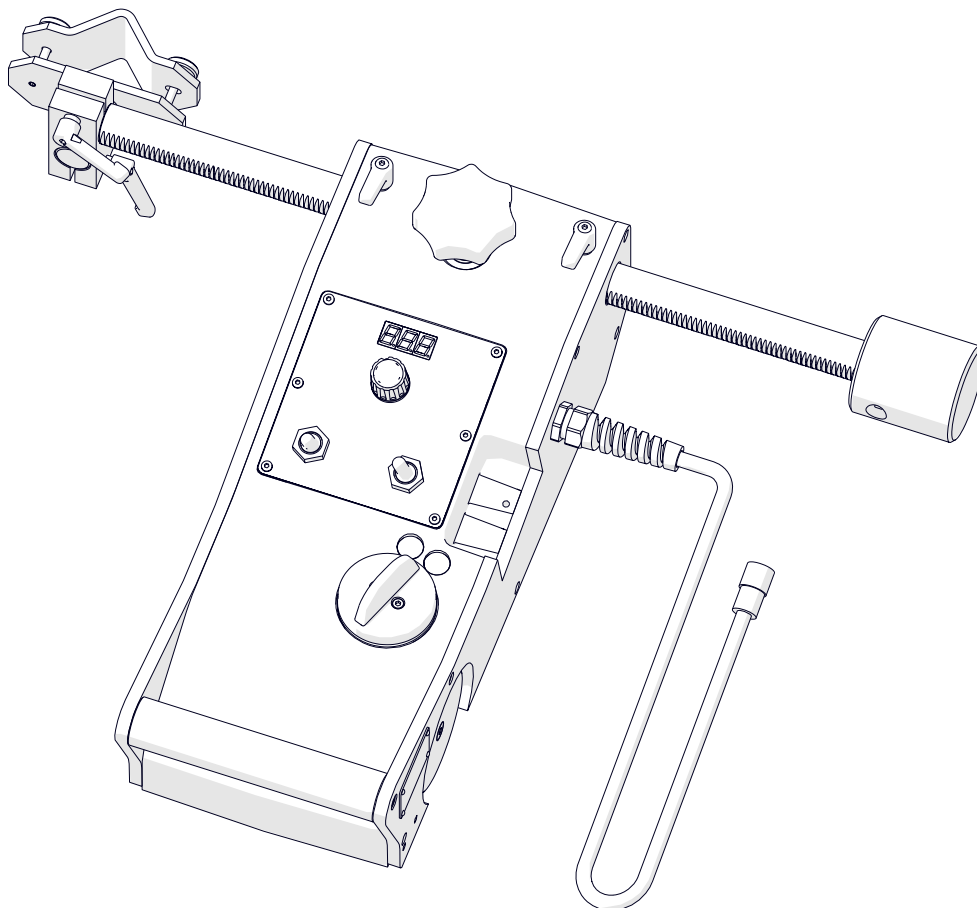


OPERATOR'S MANUAL

DRAGON (HS) CUTTING CARRIAGE



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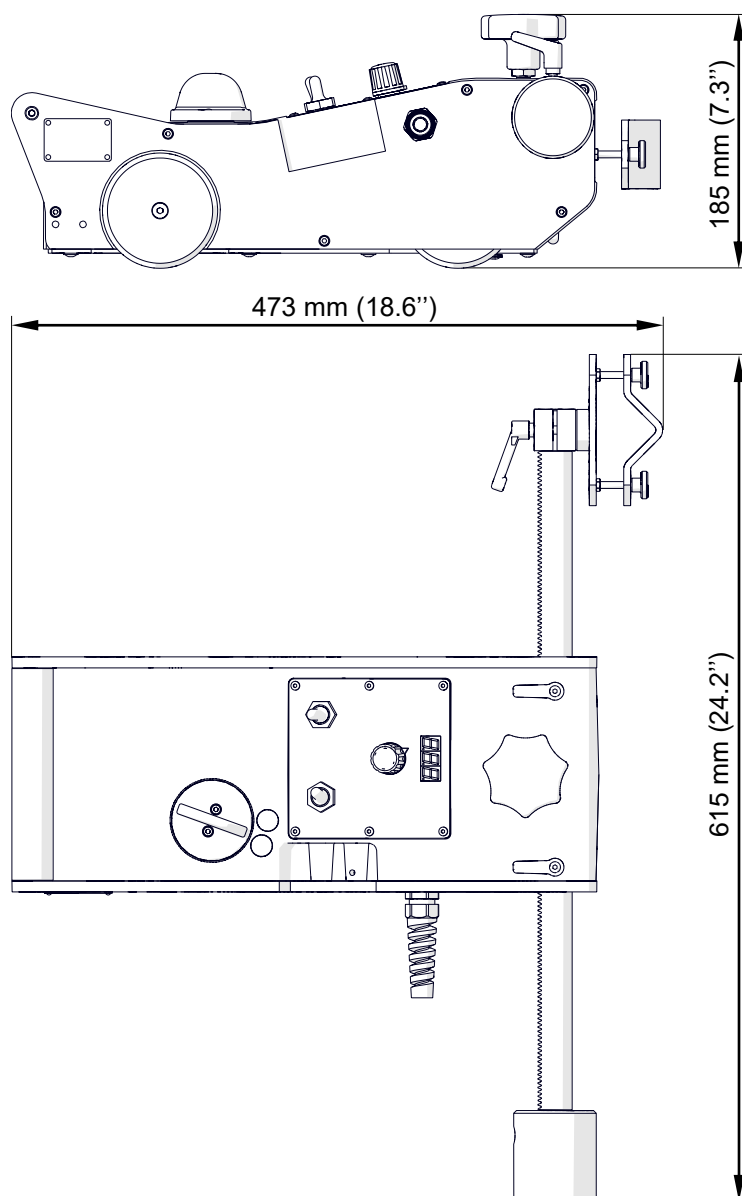
1. GENERAL INFORMATION

1.1. Application

The DRAGON (HS) is a cutting carriage designed to cut steel by using oxy-fuel or plasma torches with the handle diameter of 28–35 mm (1.10–1.38"). The carriage travels horizontally on the workpiece or track with the inclination of up to 10°.

Accessories allow, for example, using torches with different handle diameters, using two torches simultaneously, and cutting holes with the radius of 240–2500 mm (0.8–8.2 ft).

1.2. Technical data



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	DRAGON	DRAGON HS
Voltage	1~ 115–230 V, 50–60 Hz	1~ 115–230 V, 50–60 Hz
Power	20 W	20 W
Operating position	horizontal	horizontal
Torch diameter	28–35 mm (1.10–1.38")	28–35 mm (1.10–1.38")
Ground clearance	8 mm (0.31")	8 mm (0.31")
Speed	0–150 cm/min (0–59 in/min)	10–300 cm/min (4–118 in/min)
Weight	16.8 kg (37 lbs)	16.8 kg (37 lbs)

1.3. Design

The DRAGON (HS) cutting carriage contains a drive system, a controller, a rack, a counterweight, and a standard torch holder. The drive system incorporates a gear-motor that drives two steel wheels.

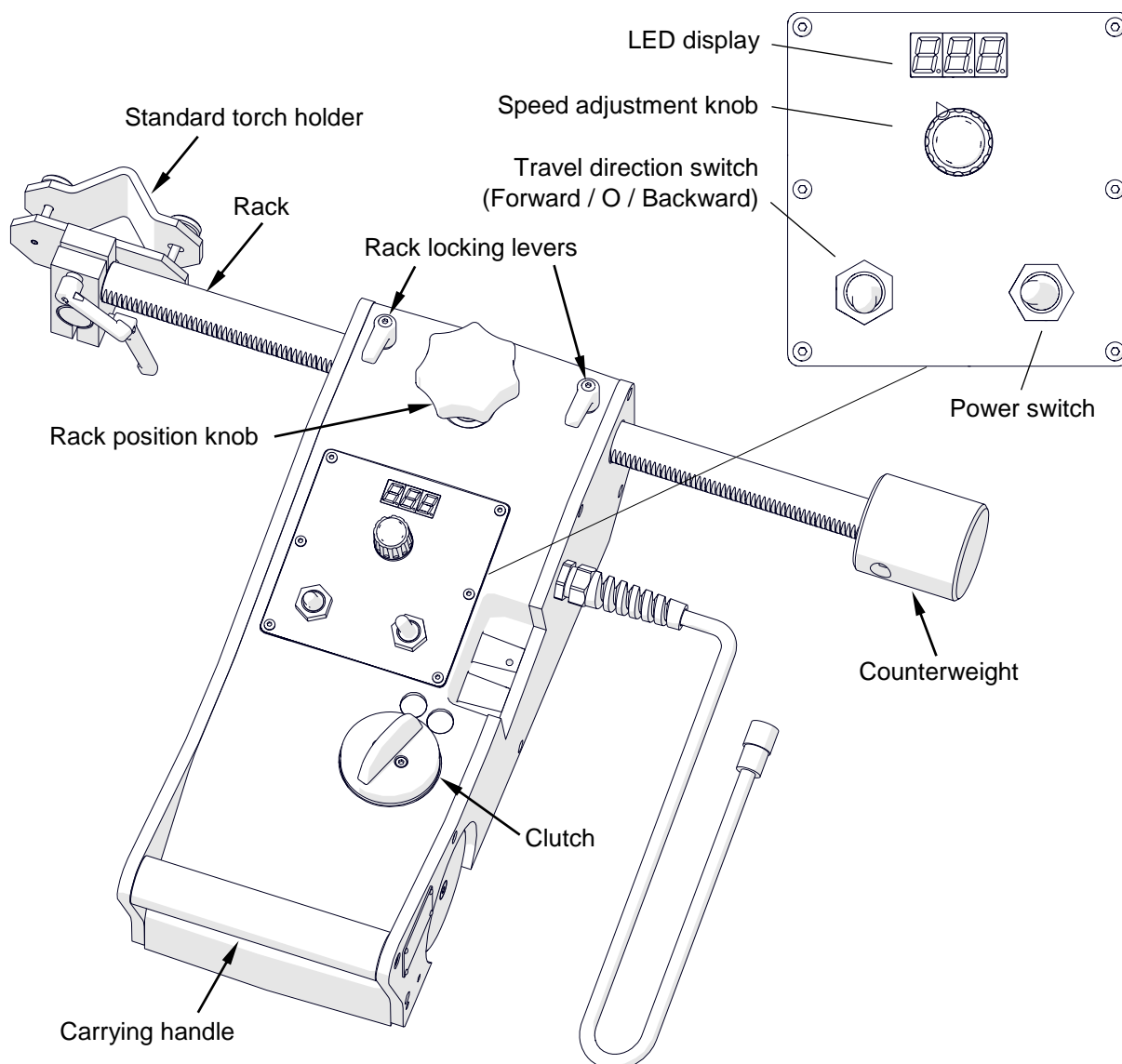


Fig. 1. View of the DRAGON (HS)

1.4. Equipment included

The DRAGON (HS) is supplied including the following elements.

Carriage	1 unit
Foam-filled cardboard box	1 unit
540 mm (21.3") rack	1 unit
1.3 kg (2.9 lbs) counterweight	1 unit
28–35 mm standard torch holder	1 unit
3 m (10 ft) power cord	1 unit
2.5 mm hex wrench	1 unit
3 mm hex wrench	1 unit
4 mm hex wrench	1 unit
5 mm hex wrench	1 unit
Operator's Manual	1 unit

2. SAFETY PRECAUTIONS

1. Before beginning, read this Operator's Manual and complete proper occupational safety and health training.
2. Use the carriage only in applications specified in this Operator's Manual.
3. The carriage must be complete and all parts must be genuine and fully operational.
4. The specifications of the power source must conform to those specified on the rating plate.
5. Plug the carriage into a properly grounded power source.
6. Never carry the carriage by the cords or the arc ignition cable and never pull them as this may damage them and result in electric shock.
7. Untrained bystanders must not be present near the carriage.
8. Before beginning, make sure that the correct is the condition of the carriage, power source, power cords, arc ignition cable, plugs, and control panel.
9. Keep the carriage dry. Exposure to rain, snow, or frost is prohibited.
10. Keep the work area well lit, clean, and free of obstacles.
11. Never use near flammable liquids or gases, or in explosive environments.
12. Transport and position the carriage by using the carrying handle.
13. Do not stay below the carriage placed at heights.
14. Plug the cords and arc ignition cable into sockets only when the power switch is set to the position 'O'.
15. Keep the sockets clean. Do not use compressed air for cleaning.
16. Install only torches whose handle diameter corresponds to the torch holder in use.
17. Keep the torch cables from coming in contact with the surface. They must be suspended to reduce the load of the carriage.
18. Operate the torch according to the torch manual.
19. The carriage must be positioned in the horizontal position during operation.
20. Always use eye protection (helmet, shield, and screen), hearing protection, gloves, and protective clothing during operation. Do not wear loose clothing.
21. Before every use, inspect the carriage to ensure it is not damaged. Check whether any part is cracked or improperly fitted. Make sure to maintain proper conditions that may affect the operation of the carriage.
22. Never try to manually stop the motion of the carriage. To stop, set the clutch to OFF or the travel direction switch to the position 'O'.

23. Maintain only when the carriage is unplugged from the power source.
24. Repair only in a service center appointed by the seller.
25. If the carriage falls from any height, is wet, or has any other damage that could affect the technical state of the carriage, stop the operation and immediately send the carriage to the service center for inspection and repair.
26. Never leave the carriage unattended during operation.
27. Remove from the worksite and store in a secure and dry location when not in use.

3. STARTUP AND OPERATION

3.1. Preparing

Before beginning, clean the wheels of the carriage and remove the anti-corrosion coating from the track. Use the carrying handle to transport the carriage to the worksite. Set the power switch and the travel direction switch to the position 'O', and set the clutch to the position OFF. Then, plug the power cord into the power source, insert the torch into the standard torch holder (Fig. 2), and secure with the knobs.

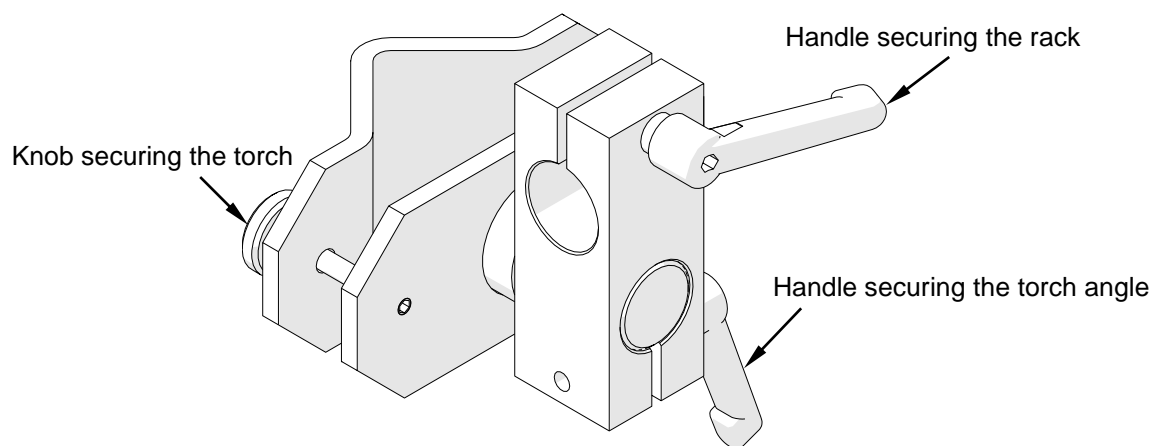


Fig. 2. Standard torch holder design

The holder allows torches with the handle diameter of 28–35 mm (1.10–1.38"). Loosen the lower handle to roughly set the torch angle.

Use the rack position knob to adjust the horizontal position of the torch, and use the rack locking levers to lock the rack in position.

Then, connect the torch to a proper gas source. Depending on the cutting method (oxy-fuel or plasma) install into the carriage slot either a gas manifold or the arc ignition set in the manner described in the subsection of the respective accessory.

Position the carriage on the workpiece or the track so that the torch is placed right above the starting point of the cut. Then, set the clutch to the position ON.

3.2. Operating

Turn on the power by setting the power switch to the position 'I', which will illuminate all segments of the display (888). After a while, the indication will change to *EUR* if the unit of speed is set to centimeters per minute, or to *USA* for inches per minute. Then, the carriage speed will appear, which can be adjusted by rotating the knob located on the panel. If needed, travel the carriage manually after setting the clutch to the position OFF.

To begin the cutting process, light the torch in the manner described in the torch manual. Adhere to all rules included in the torch manual.

Select a direction of motion with the travel direction switch, and then the real speed of the carriage will appear on the display. To stop the motion, set the travel direction switch to position 'O' or the clutch to position OFF. To extinguish the torch flame, proceed according to the torch manual.

After the work is finished, turn off the power with the power switch and unplug the carriage from the power source. Clean the teeth of the rack once a week.

3.3. Changing the unit of speed

To change the unit of speed from inches per minute to centimeters per minute or vice versa, unplug the carriage from the power source and follow the steps shown in Fig. 3.

After changing the unit and powering the carriage again, the actual unit of measure will appear. With the jumper cap connecting the left and center pin, the display shows *EUR* and the speed is given in centimeters per minute. With the jumper cap connecting the center and right pin, the display shows *USA* message and the speed is indicated in inches per minute. The 2.5 mm hex wrench needed to unscrew the control panel is not included in standard equipment.

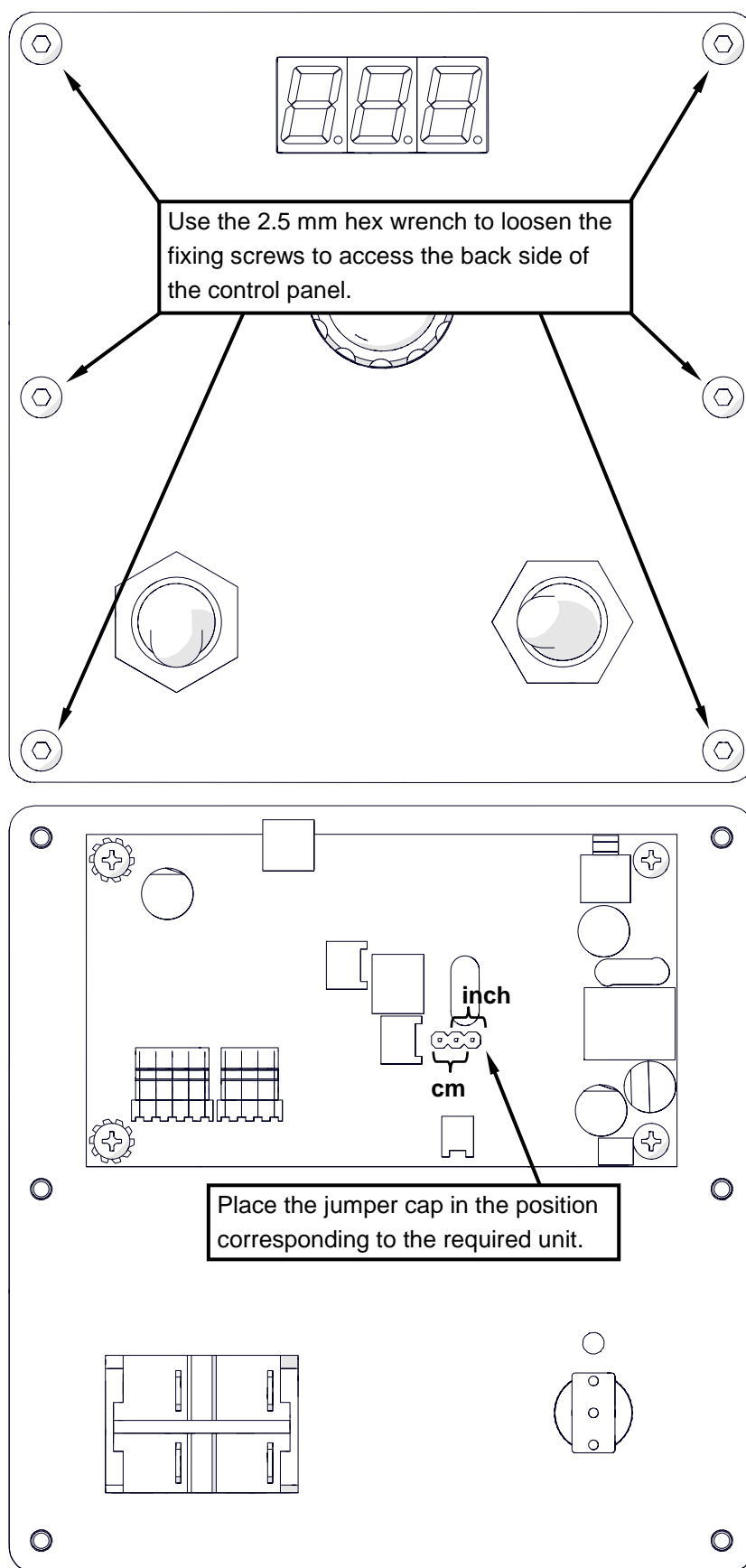


Fig. 3. Changing the unit of speed

3.4. Troubleshooting

Message	Problem	Solution
0.55.	Not all display segments illuminated after powering indicate a problem with the display or controller.	Contact service center for inspection and repair.
EUR	Speed displayed in centimeters per minute instead of inches per minute.	Follow instructions given in the section "Changing the unit of speed."
USA	Speed displayed in inches per minute instead of centimeters per minute.	Follow instructions given in the section "Changing the unit of speed."
Er.5.	<p>1. Travel direction switch not in the position 'O' when powering.</p> <p>2. Displayed during motion indicates a malfunction of the travel direction switch or travel direction identification circuit of the controller.</p>	<p>1. Set the travel direction switch to the position 'O'. If the message still appears, contact service center for inspection and repair.</p> <p>2. Contact service center for inspection and repair.</p>
erL	Motor overload (safe current level exceeded) causing the immediate stop of the carriage.	<p>Adjust the arrangement of the cables that block the motion of the carriage and remove any other elements that block the carriage or its wheels.</p> <p>If this message still appears, contact service center for inspection and repair.</p>

4. MAINTENANCE

Daily:

1. Clean the wheels.
2. Clean the torch nozzle. Replace if damaged.

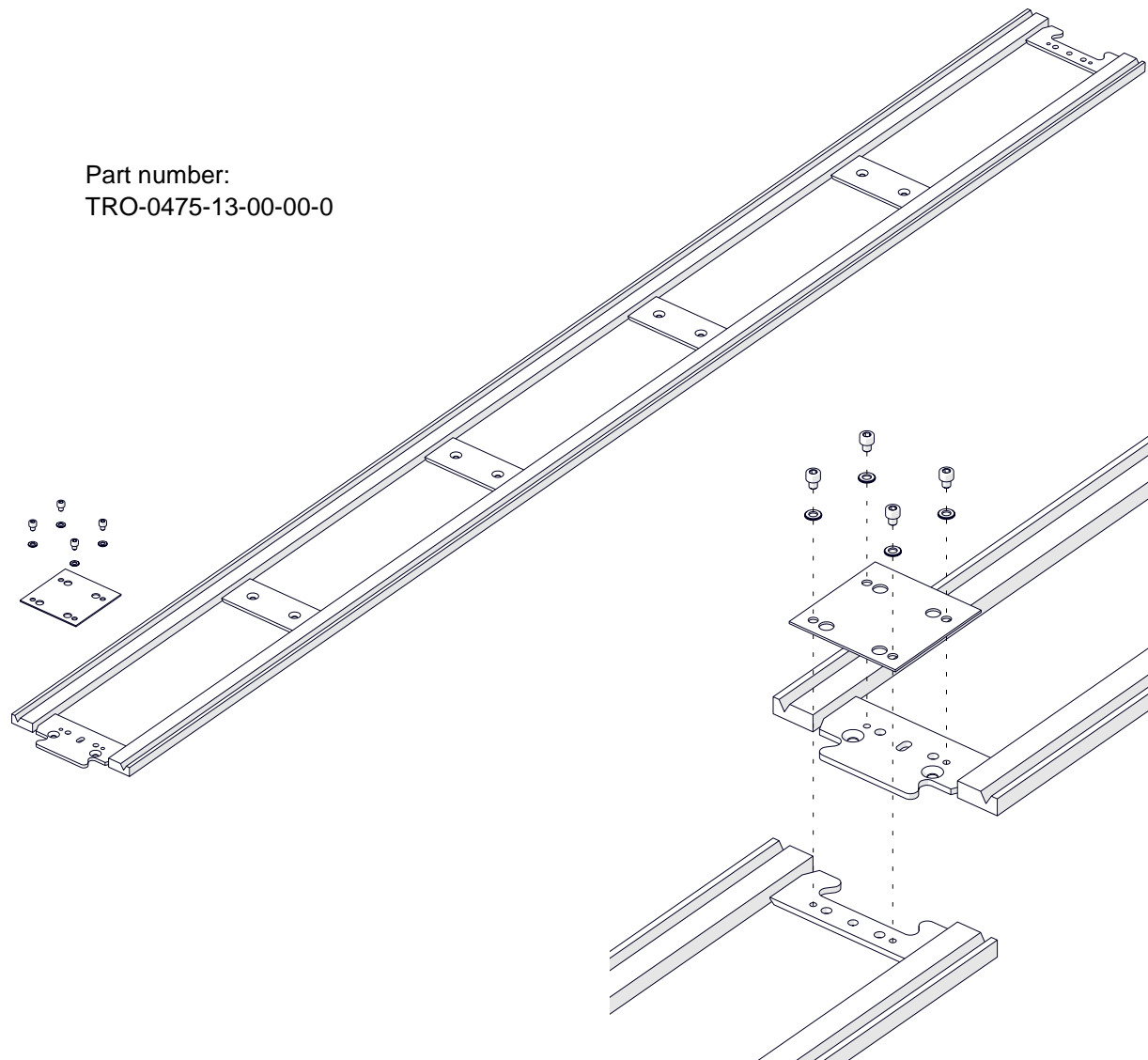
Monthly:

1. Check whether the knob and the switches operate as intended. Replace if loose or damaged.
2. Inspect cables, cords, and hoses. Replace if damaged.
3. Tighten screws if loose.

5. ACCESSORIES

5.1. Track

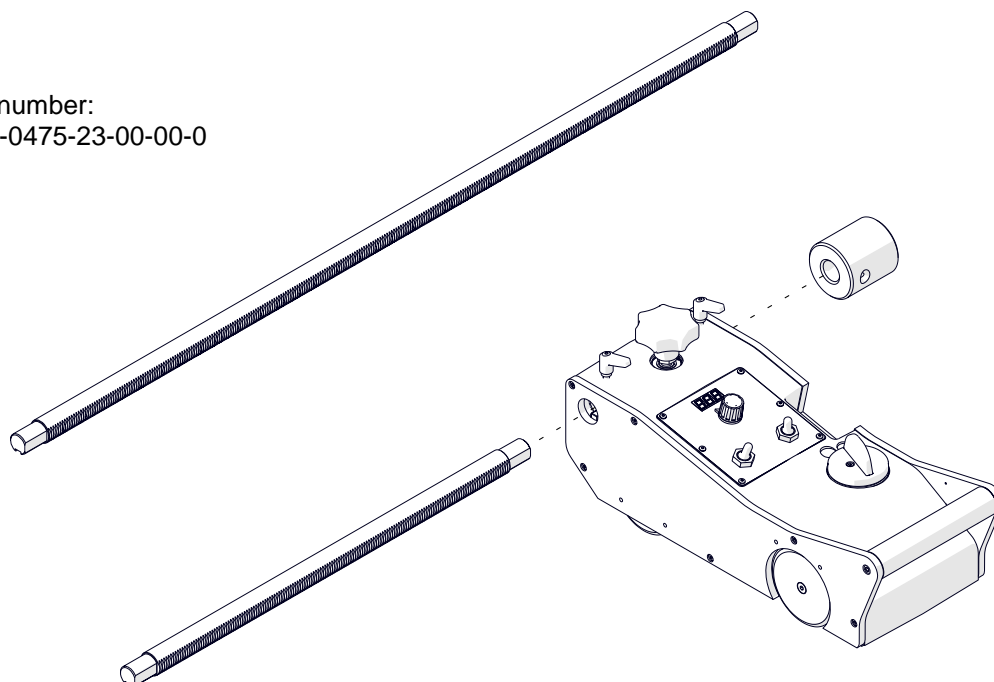
Increases the cutting precision by forcing straight-line motion of the carriage. The length of a single rail is 1800 mm (70.9") and the V-groove centerline is 152 mm (6"). To connect two rails, use the 4 mm hex wrench, connecting plate, M5x6 screws, and 5.3 mm washers as shown in the figure below.



5.2. 1000 mm (39") rack

Increases the reach of the torch holder.

Part number:
RAM-0475-23-00-00-0

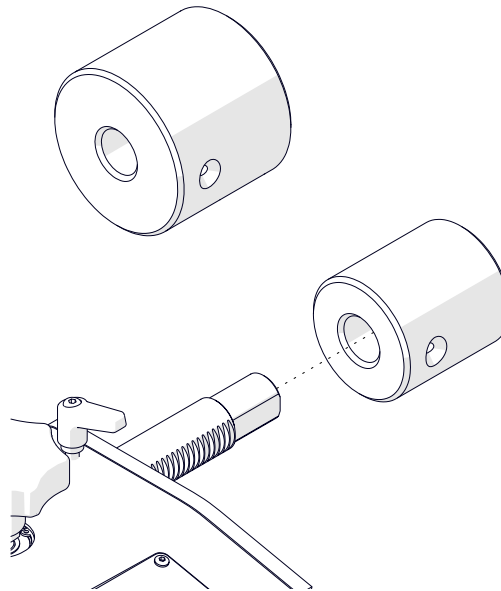


To remove the installed rack, use the 3 mm hex wrench to loosen the set screw and remove the counterweight. Then, loosen the handle of the torch holder and remove the holder. Next, unlock two rack locking levers and rotate the rack position knob to move the rack out of the carriage body. Install in reverse order. Position the rack teeth sideways to engage them with the gear of the knob. Note that using the 1000 mm (39") rack may also require the roller support or 2.6 kg counterweight to balance the carriage.

5.3. 2.6 kg (5.7 lbs) counterweight

Provides balance when using additional holders, 1000 mm (39") rack, or heavier torch. To remove the counterweight, use the 3 mm hex wrench to loosen the set screw. Install in reverse order.

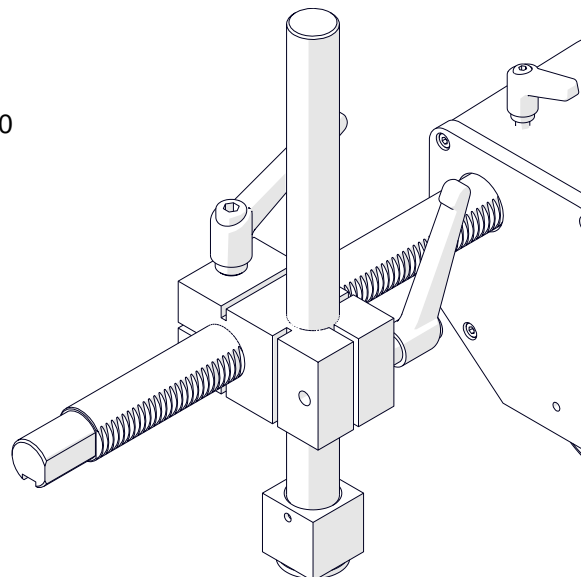
Part number:
PWG-0475-10-00-00-0



5.4. Roller support

Provides balance when using the 1000 mm (39") rack or a heavier torch.

Part number:
PDT-0475-26-00-00-0

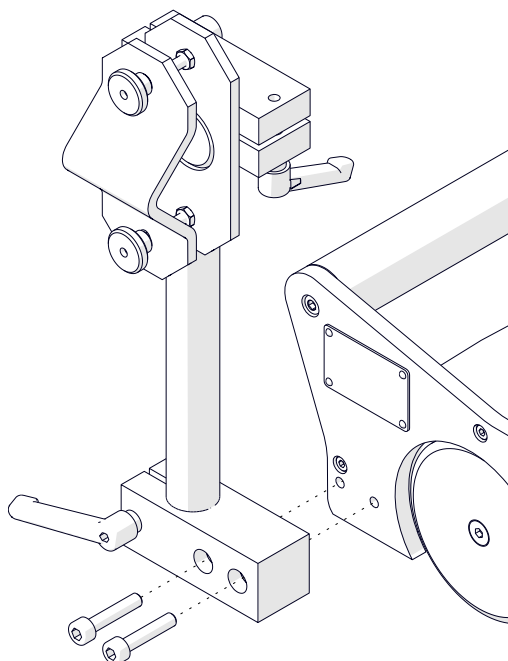


To install, loosen the handle of the torch holder and remove the holder. Then, place the support onto the rack, secure with the handle, and reinstall the holder.

5.5. Cable anchor

Anchors gas cables and power cord to relieve stress for the torch holder. Install the anchor to the side wall with the 5 mm hex wrench and two M6x30 screws.

Part number:
PDT-0475-34-00-00-0

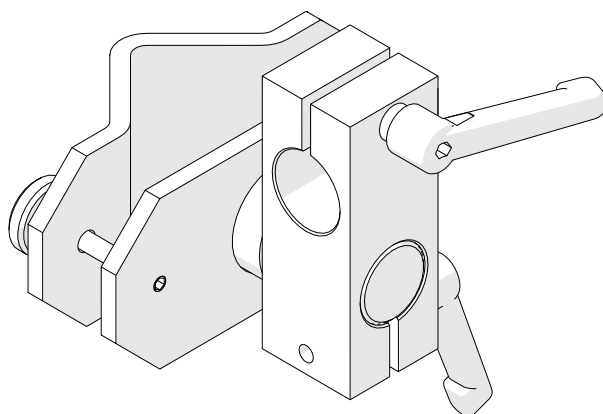


5.6. Torch holder

5.6.1. Standard torch holder

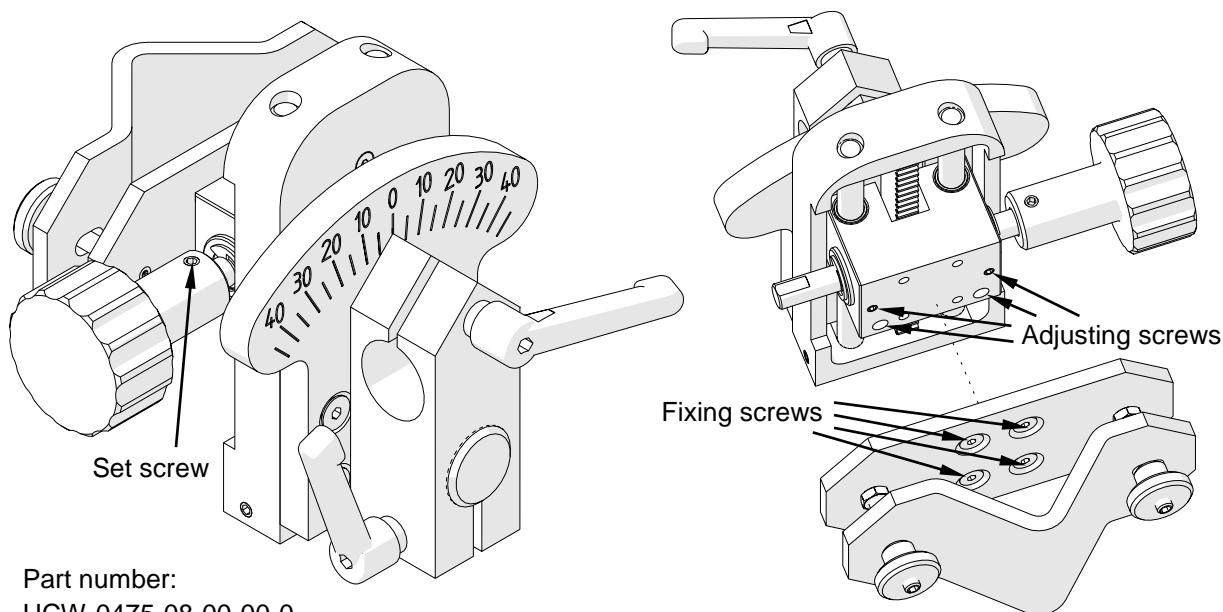
Designed for torches with the handle diameter of 28–35 mm (1.10–1.38”) and allows rough adjustment of the torch angle.

Part number:
UCW-0475-28-00-00-0



5.6.2. Precise torch holder

Designed for torches with the handle diameter of 28–35 mm (1.10–1.38”) and allows precise adjustment of the torch angle. The knob can be installed at either side after loosening the set screw and is used to adjust the vertical position of the torch. To adjust the resistance of the vertical motion, use the 2.5 mm hex wrench and unscrew all fixing screws, and then use the 2 mm hex wrench and adjust the adjusting screws.



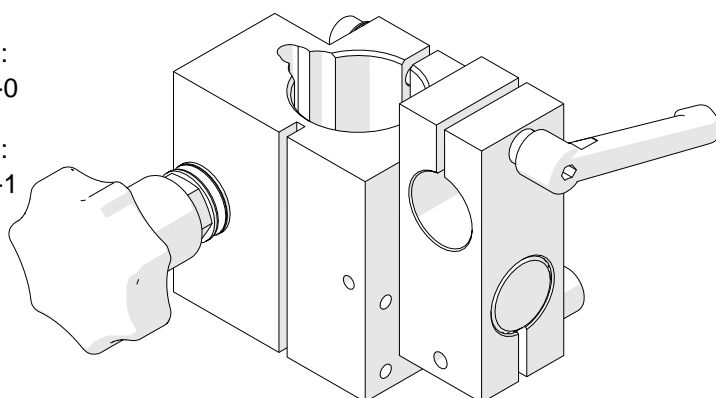
Part number:
UCW-0475-08-00-00-0

5.6.3. Machine torch holder (for oxy-fuel cutting)

Designed for torches with the handle diameter of 30 mm (1.18”) or 35 mm (1.38”) equipped with a rack. The holder allows adjustment of the vertical position of the torch by using the knob and rough adjustment of the angle.

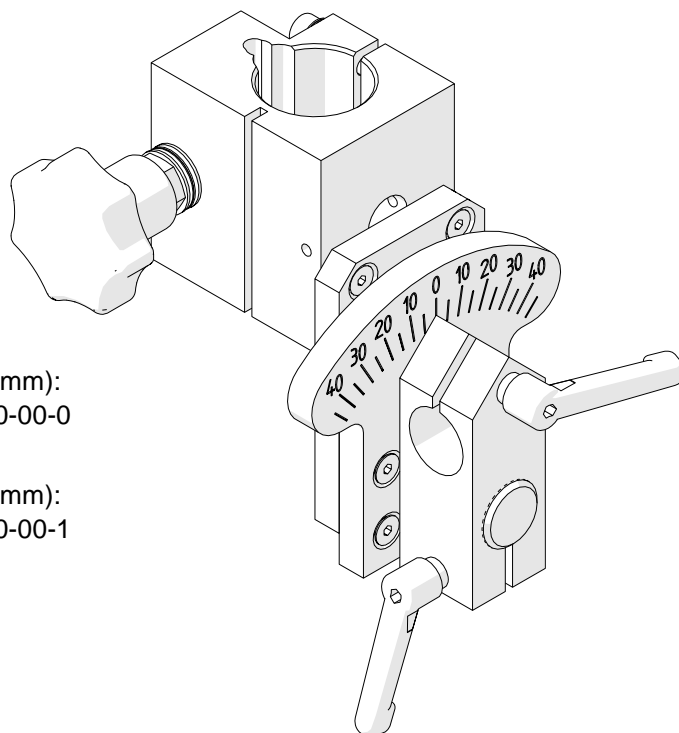
Part number (30 mm):
UCW-0475-61-00-00-0

Part number (35 mm):
UCW-0475-29-00-00-1



5.6.4. Precise machine torch holder (for oxy-fuel cutting)

Designed for torches with the handle diameter of 30 mm (1.18") or 35 mm (1.38") equipped with a rack. It allows adjustment of the vertical position of the torch by using the knob and precise adjustment of the angle.

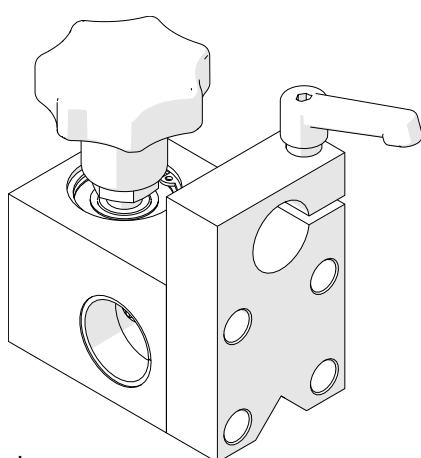


Part number (30 mm):
UCW-0475-59-00-00-0

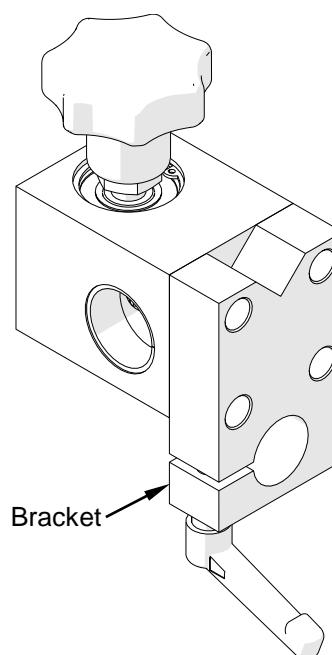
Part number (35 mm):
UCW-0475-42-00-00-1

5.7. Sliding holder

Designed to be combined with other holders, which enables use of a second torch independently of the standard torch.



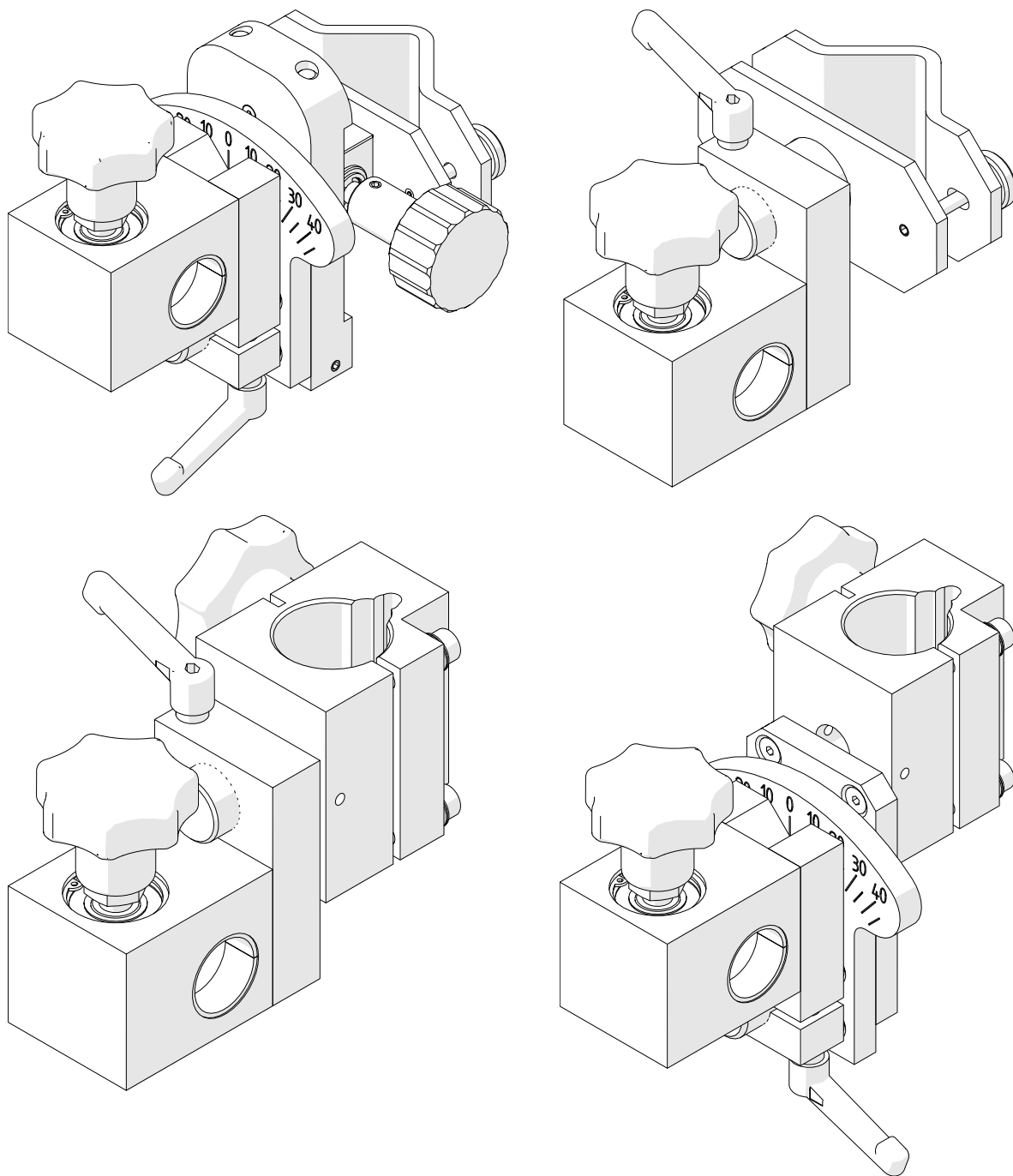
Part number:
UCW-0475-15-00-00-1



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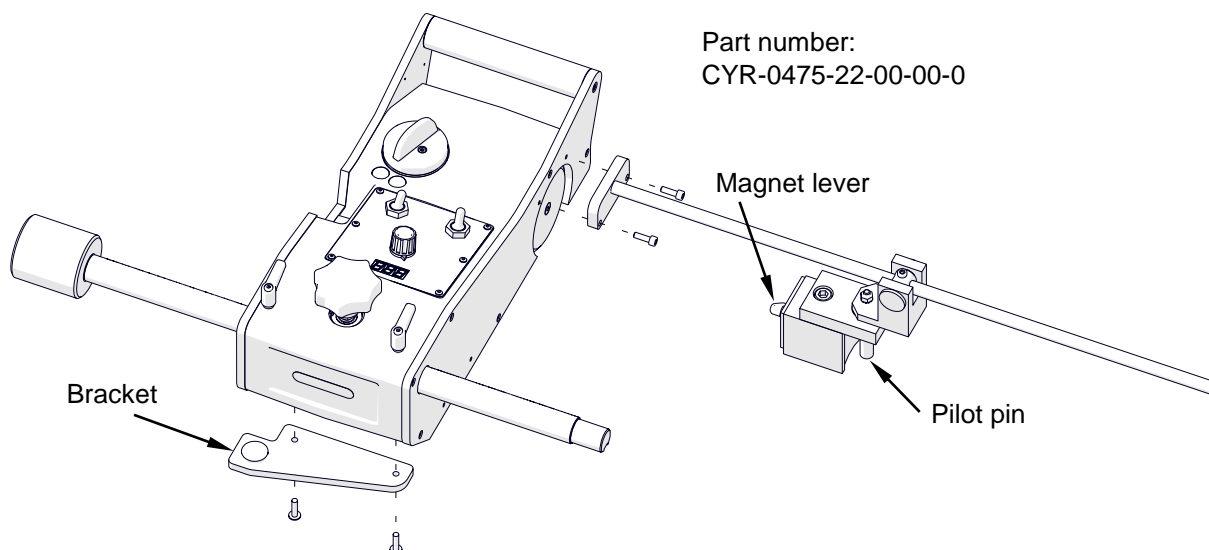
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To adapt the sliding holder for use with a precise holder, use the 4 mm hex wrench to unscrew four screws, rotate the bracket, and secure with the screws. Remove the clamping block of the holder to be installed (part with one or two handles) before linking to the sliding holder. Remove the counterweight or holder in use, and then place the combined holder onto the rack. Next, rotate the knob to set the combined holder in the required position along the rack.



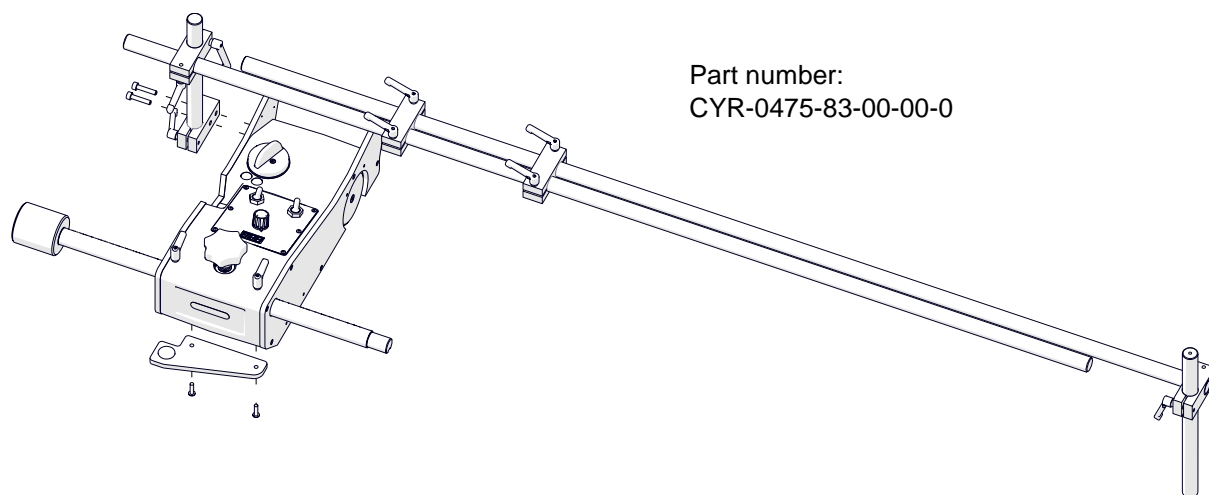
5.8. Circle cutting attachment for 240–1000 mm radius

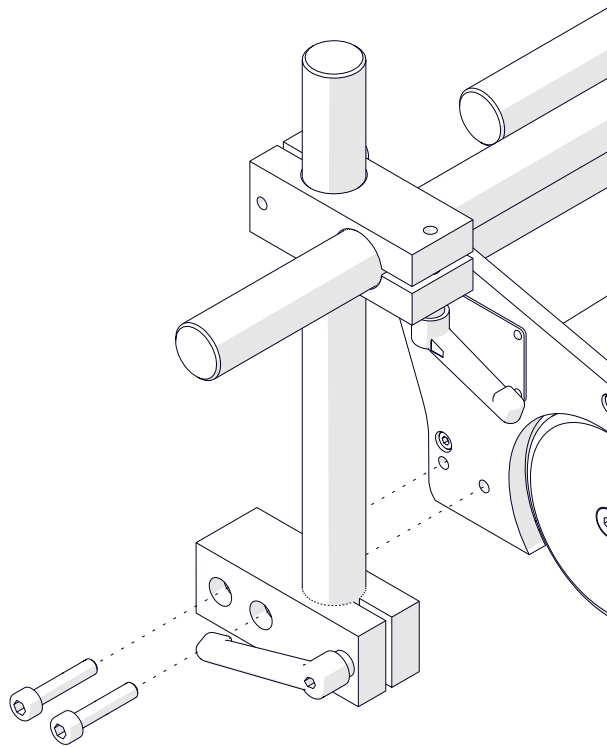
Allows cutting holes with the radius of 240–1000 mm (0.8–3.3 ft; when used with the standard rack). To install, use the 3 mm hex wrench and unscrew two front screws from the bottom plate, and then use them to tighten the bracket to the exposed holes. Next, use the 4 mm hex wrench to fix the arm to the side wall with two M5x16 screws. Set the pilot pin above the center of the circle and turn on the magnet with the magnet lever.



5.9. Circle cutting attachment for 400–2500 mm radius

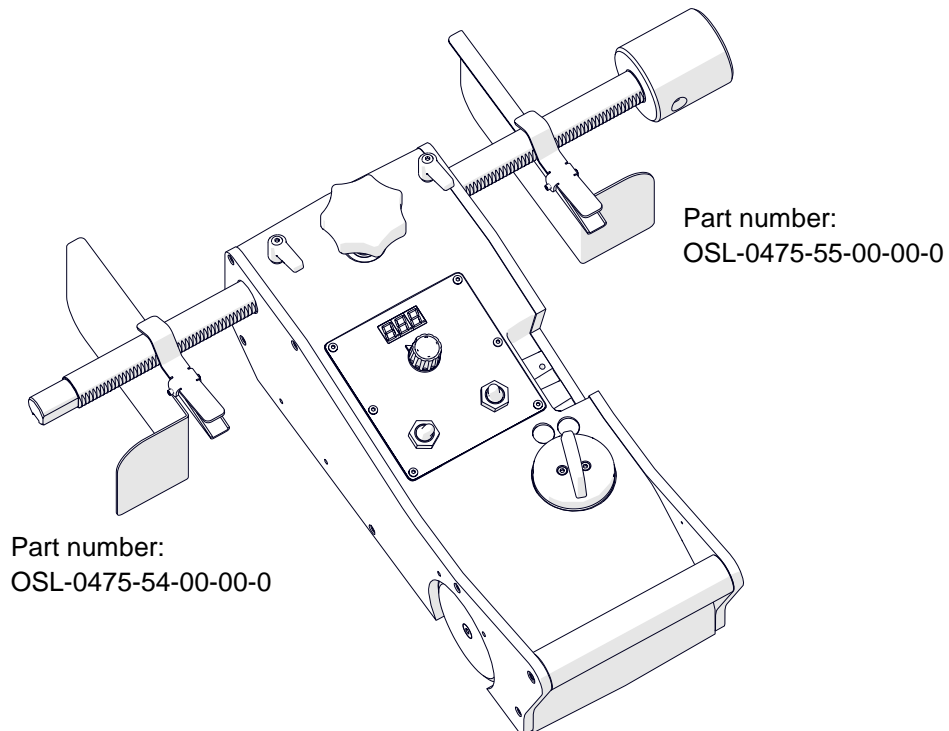
Allows cutting holes with the radius of 400–2500 mm (1.3–8.2 ft; when used with the standard rack). To install, use the 3 mm hex wrench and unscrew two front screws from the bottom plate and use them to install the bracket. Next, use the 5 mm hex wrench to install the arm to the side wall with two M6x30 screws. Place the tip of the pilot pin in the center of the circle and lock the levers of the clamping blocks.





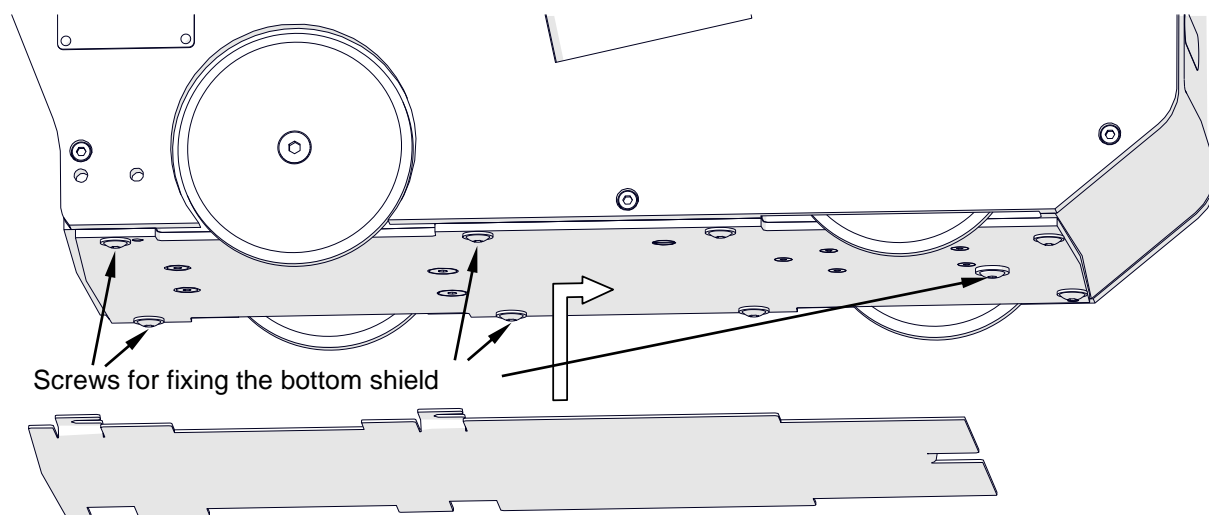
5.10. Left and right heat protection shield

Additionally protect the carriage from the influence of a high temperature. Install as shown in the figure below.



5.11. Bottom heat protection shield

Additionally protects the carriage from the influence of a high temperature. To install, loosen five screws with the 3 mm hex wrench, slide the shield under the heads of the screws according to the direction of the arrow, and then tighten the screws.

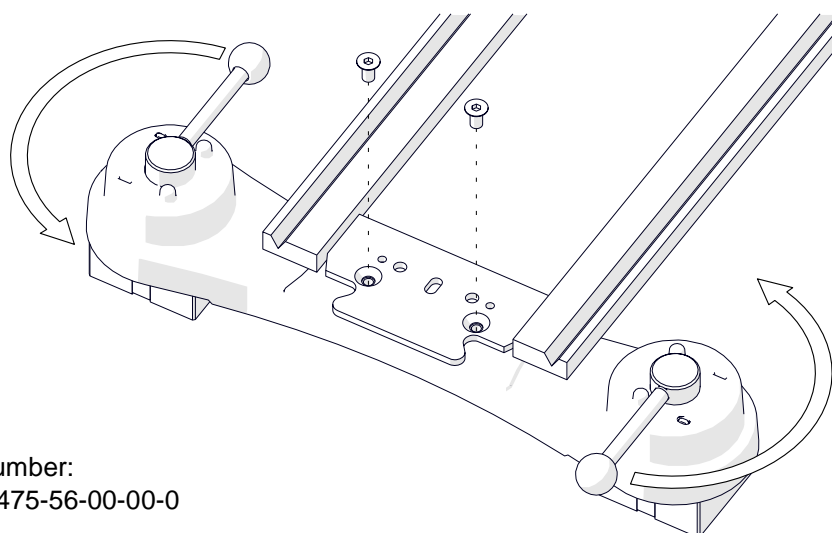


Part number: OSL-0475-53-00-00-0

5.12. Magnetic unit

Allows clamping the track to ferromagnetic surfaces. The holding force on a 5 mm (0.2") thick surface is 900 N up to a temperature of 100°C (212°F). At 180°C (356°F) the force decreases to 540 N.

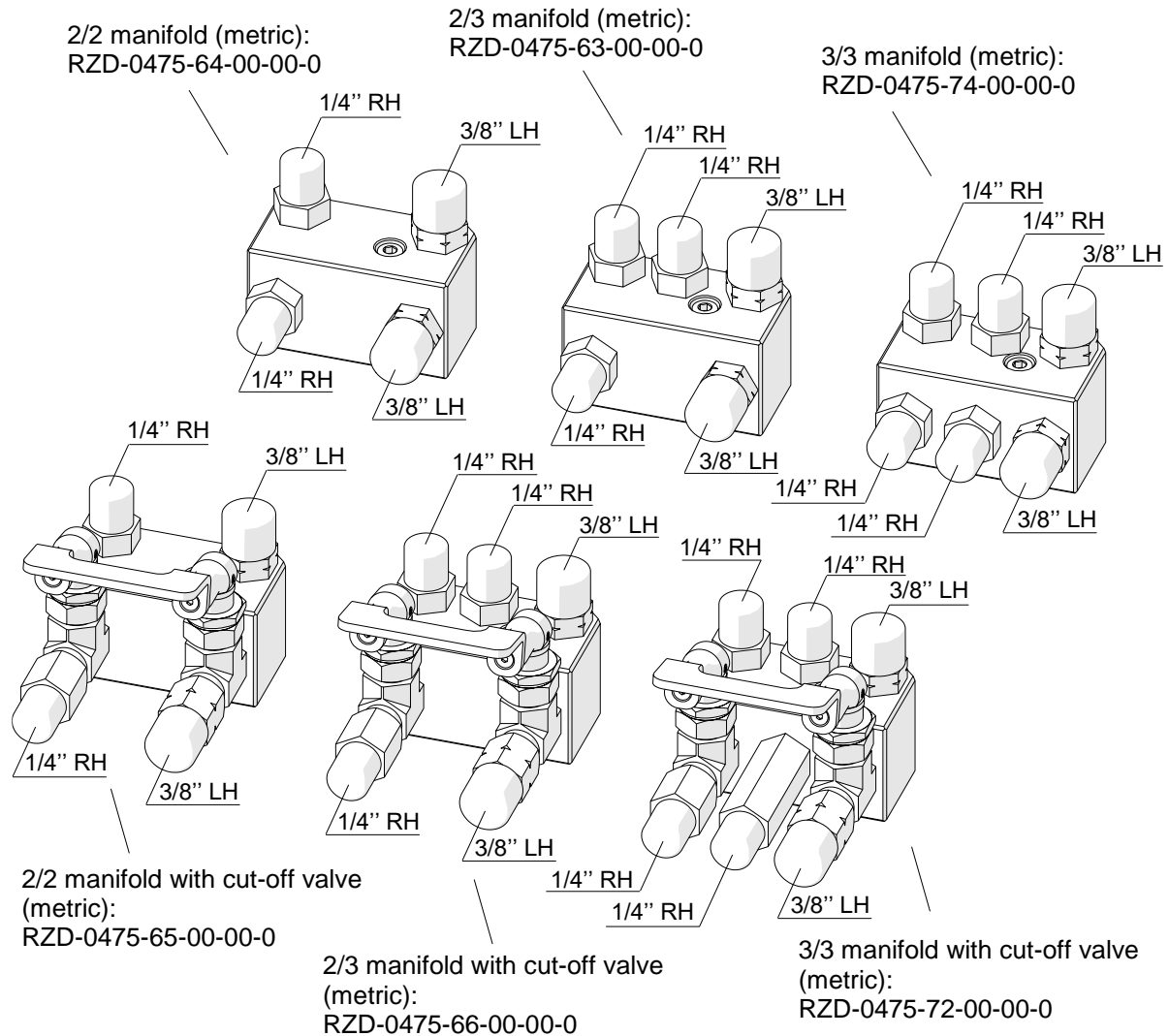
Use the 4 mm hex wrench and two M6x12 screws to tighten the unit to the track, and then set the levers to the position 'I'.



Part number:
ZSP-0475-56-00-00-0

5.13. Gas manifold (for oxy-fuel cutting)

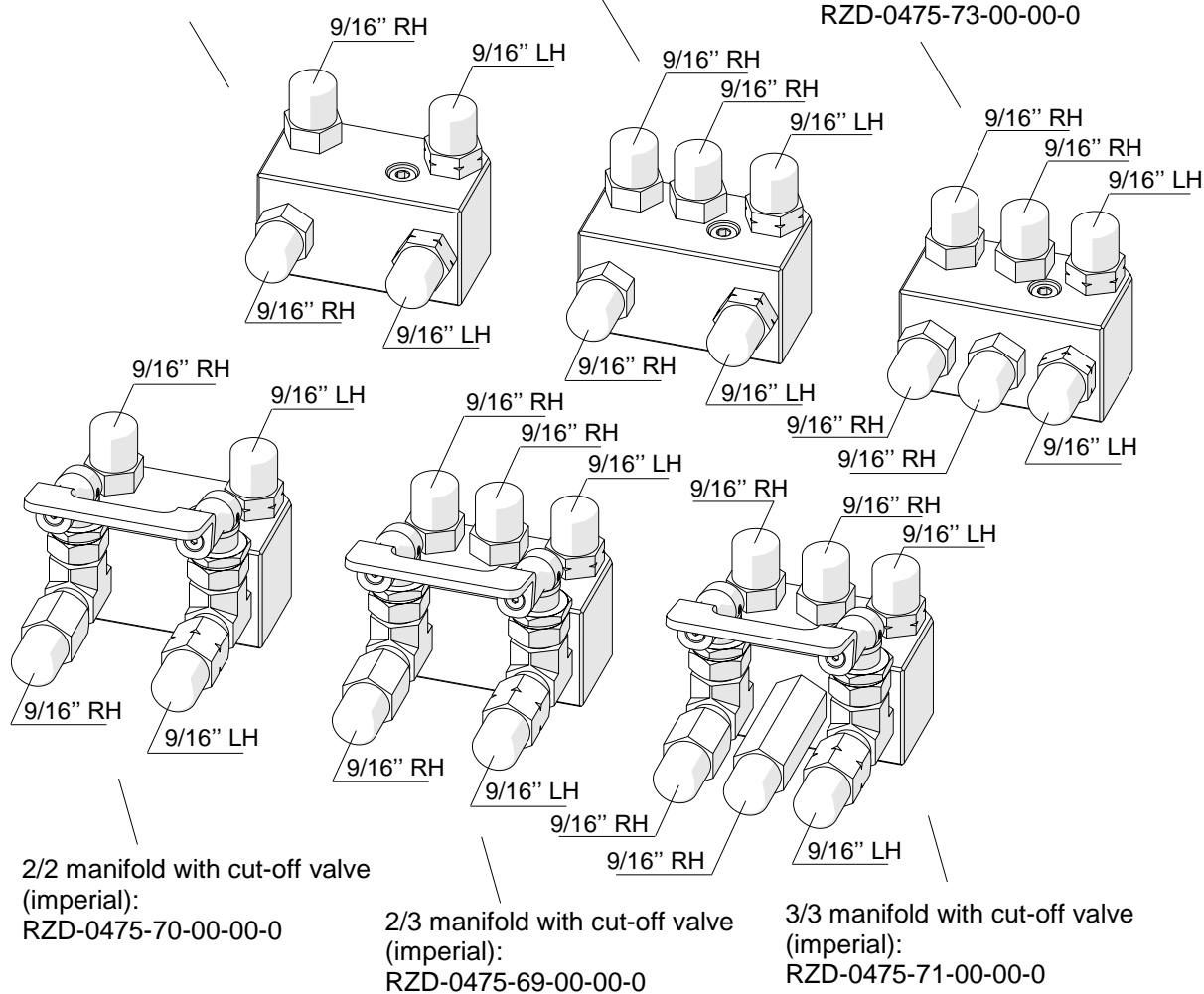
Provides safe gas delivery to 2- or 3-hose torches. Manifolds are available with or without gas cut-off valve in both metric and imperial versions.



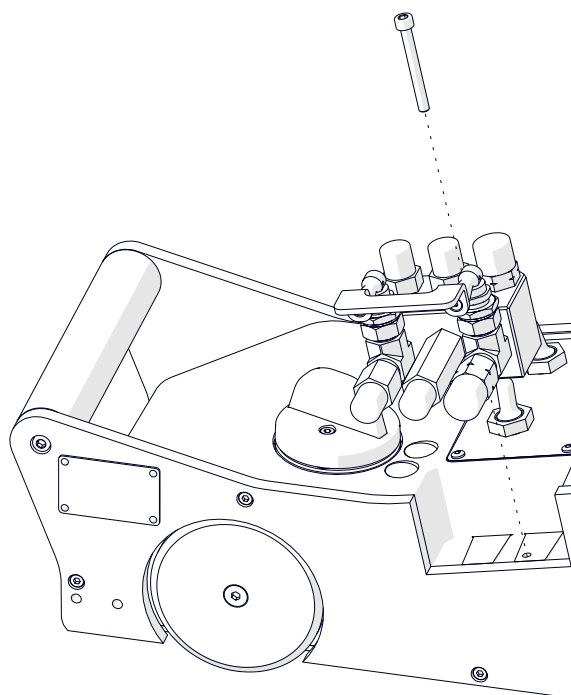
2/2 manifold (imperial):
RZD-0475-68-00-00-0

2/3 manifold (imperial):
RZD-0475-67-00-00-0

3/3 manifold (imperial):
RZD-0475-73-00-00-0



To install, place the manifold into the slot and tighten with the 4 mm hex wrench and the M5x45 screw.

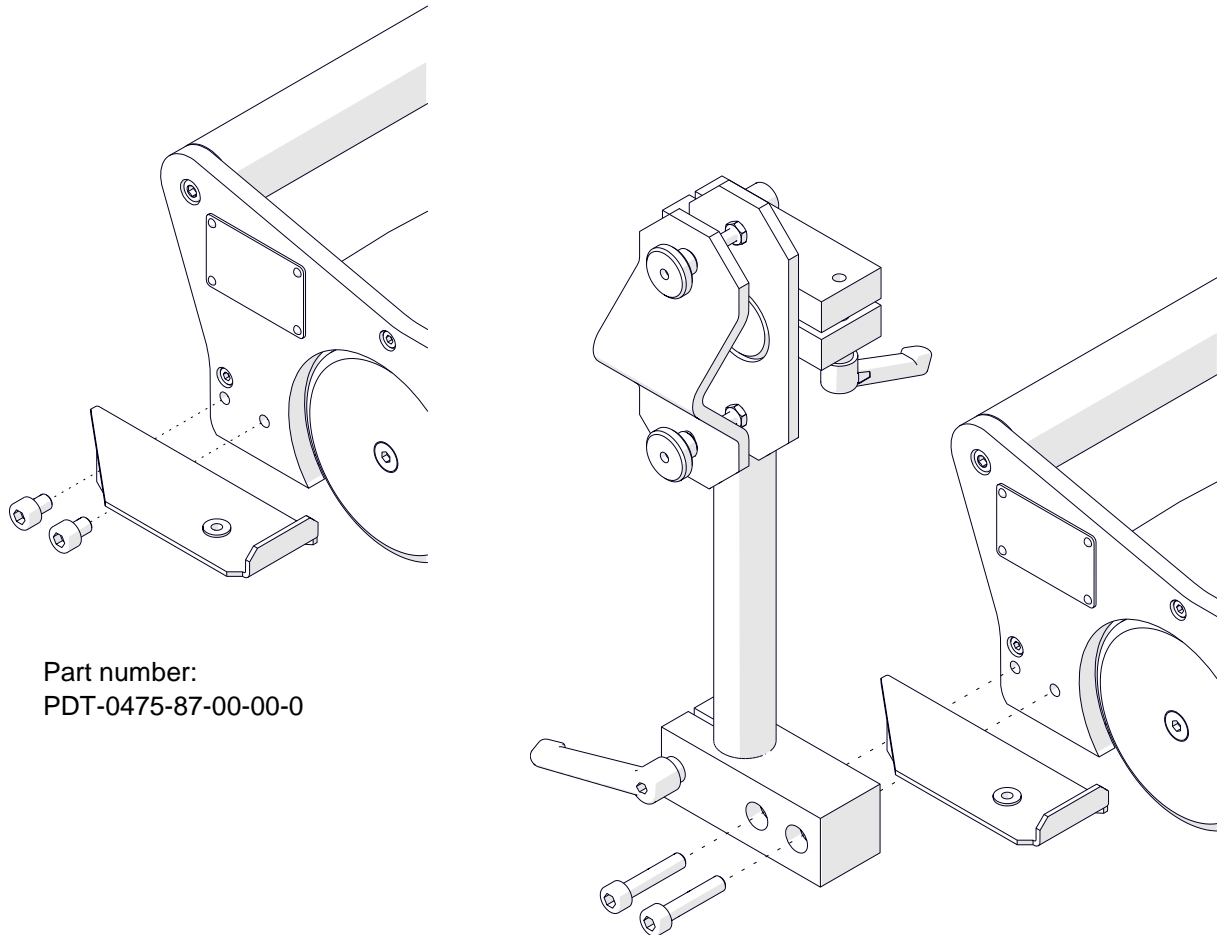


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5.14. Gas manifold bracket (for oxy-fuel cutting)

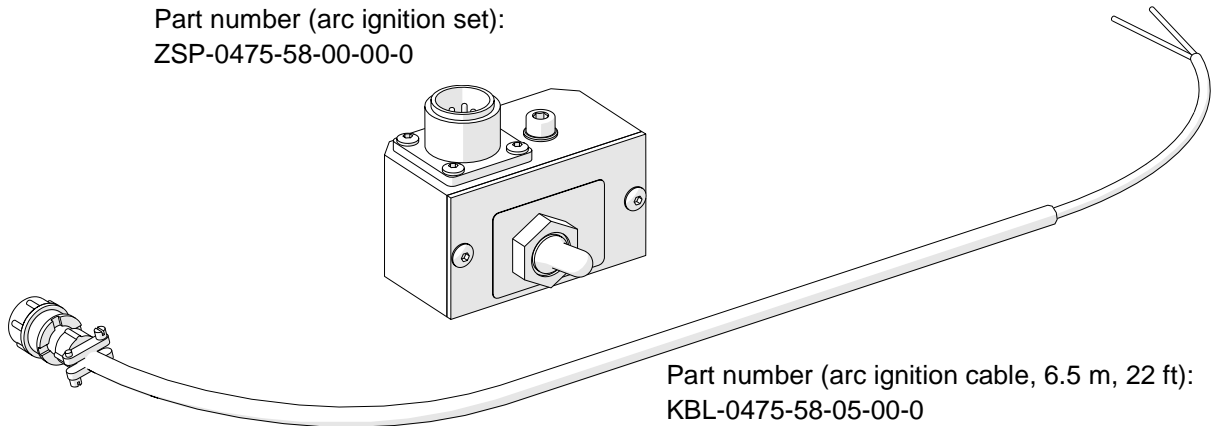
Allows use of a second gas manifold. Use the 5 mm hex wrench and M6x8 screws to tighten the bracket to the side wall or, if used with the cable anchor, use the 5 mm hex wrench and M6x30 screws to tighten the bracket between the cable anchor and the side wall.



5.15. Arc ignition set (for plasma cutting)

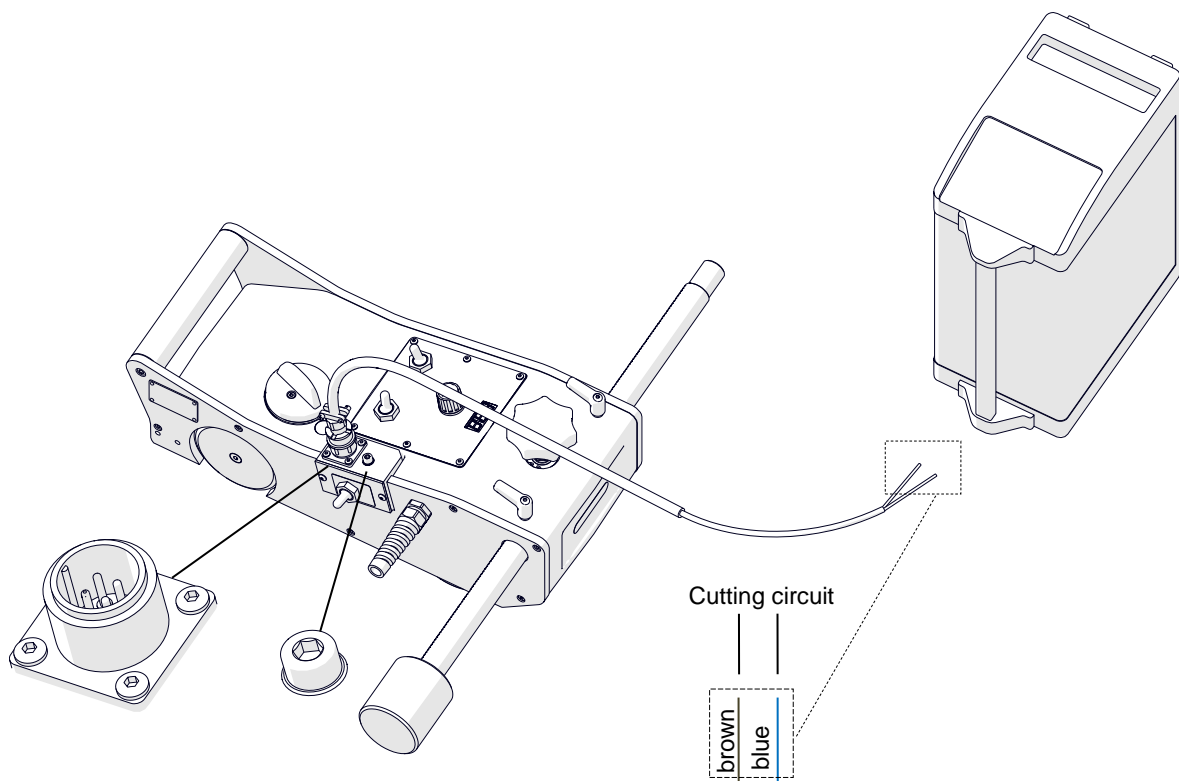
Allows control of one torch by using the arc ignition cable.

Part number (arc ignition set):
ZSP-0475-58-00-00-0



Part number (arc ignition cable, 6.5 m, 22 ft):
KBL-0475-58-05-00-0

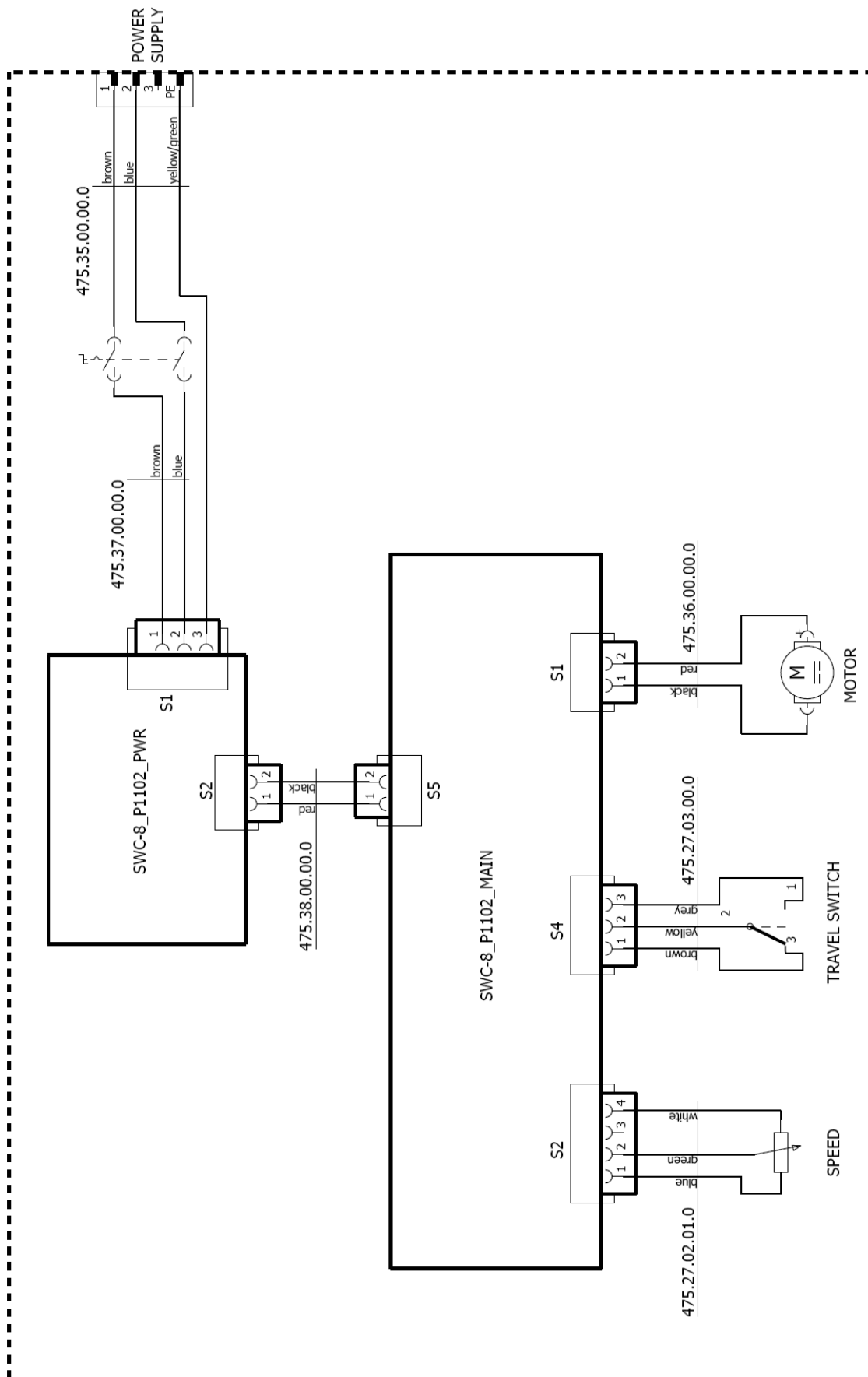
To install, place the arc ignition set into the carriage slot, and then tighten the set with the 4 mm hex wrench and the M5x50 screw. Next, plug the cable into the socket and connect the brown wire to the first terminal of the cutting circuit, and connect the blue wire to the second terminal of the same circuit, according to the diagram shown in the figure.



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6. WIRING DIAGRAM



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7. DECLARATION OF CONFORMITY

EC Declaration of Conformity

We

***PROMOTECH sp. z o.o.
ul. Elewatorska 23/1
15-620 Białystok
Poland***

declare with full responsibility that:

DRAGON (HS) CUTTING CARRIAGE

is manufactured in accordance with the following standards:

- EN 50144-1
- EN 60974-10

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

Białystok, 23 February 2012



Marek Siergiej
CEO

8. QUALITY CERTIFICATE

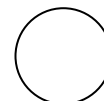
Machine control card DRAGON (HS) CUTTING CARRIAGE

Serial number

Electric test

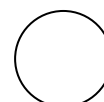
Type of test	Result	Name of tester
Test with sinusoidal voltage (voltage 1000 V, frequency 50 Hz)	 Date
Resistance of the protective circuit Ω Signature

Quality control



Adjustments, inspections

Quality control



9. WARRANTY CARD

WARRANTY CARD No.....

..... in the name of Manufacturer warrants the DRAGON (HS) Cutting 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 damage or wear that arise from misuse, accident, tempering or any other causes not related to defects in workmanship or material.

Date of production

Serial number

Date of sale

Signature of seller.....

1.06 / 14 October 2016

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