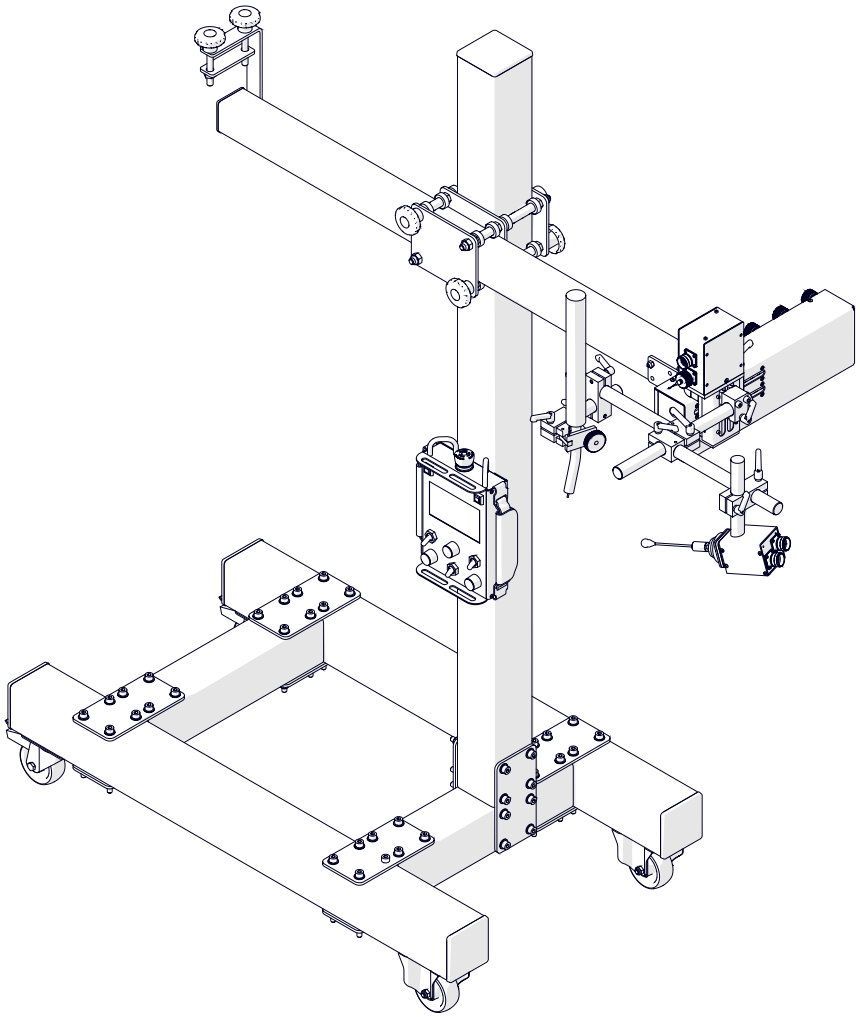
OPERATOR'S MANUAL

MINI COLUMN AND BOOM SYSTEM (SWSO)



801 W. Mineral Ave. Suite 103 Littleton, CO 80120
Phone: 303-690-9146, Fax 303-690-9172
www.steelmax.com e-mail: sales@steelmax.com

Contents

1. GENERAL INFORMATION

1.1. Application

The MINI COLUMN AND BOOM system allows welding with oscillation and joint tracking. The system is designed primarily for operation with the welding positioners PRO-WP 300P (PZY-0730-10-20-00-0) and PRO-WP 750P (PZY-0736-10-40-00-0), however, it may also be operated in standalone mode.
The system is designed for use by a professional operator only.

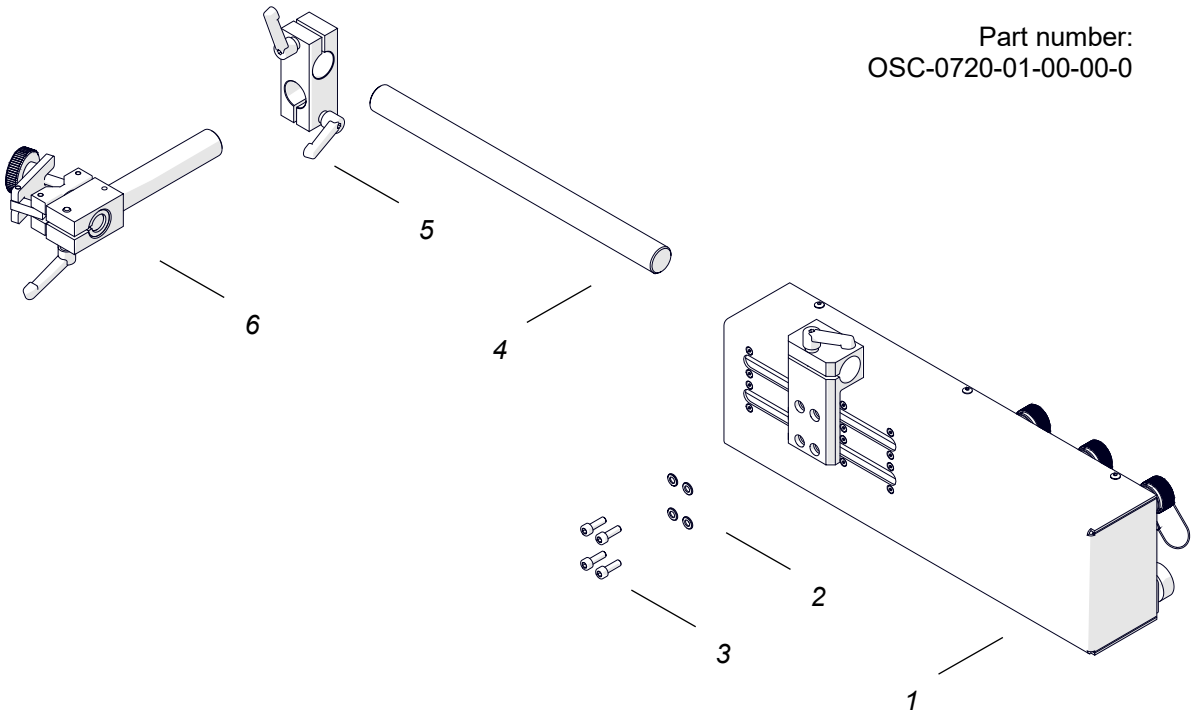
1.2. Description of system components

The equipment included depends on the configuration ordered from the seller.

1.2.1. Linear oscillator

Allows oscillation of MIG/MAG torches with the diameter of 5/8 – 55/64 in (16–22 mm).

Part number:
OSC-0720-01-00-00-0



1	Oscillator	(x1)
2	Washer Ø 5.3 mm	(x4)
3	M5x16 screw	(x4)
4	Support	(x1)
5	Clamping block	(x1)
6	Short torch holder	(x1)

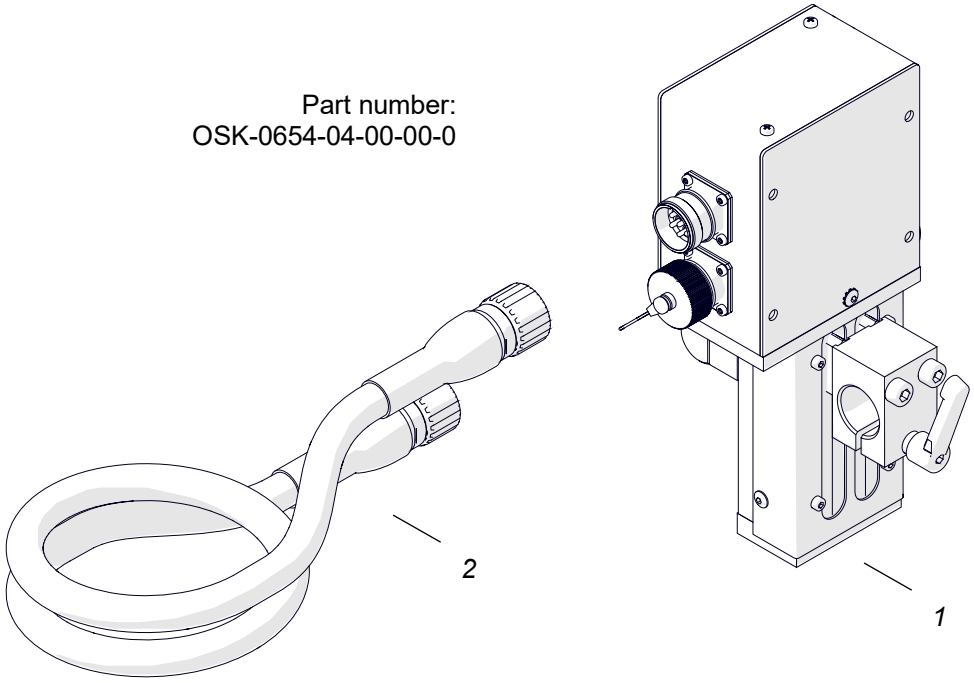
Technical data

Voltage	24 V DC
Power	67.2 W
Current	2.8 A
Protection level	IP 20
Protection class	I
Required ambient temperature	32-104°F (0-40°C)
Weight	10 lbs (4.9 kg)

1.2.2. Motorized vertical slide

Allows the vertical position of the torch to be controlled.

Part number:
OSK-0654-04-00-00-0



1	Motorized vertical slide	(x1)
2	Transmission cable 0,8 m	(x1)

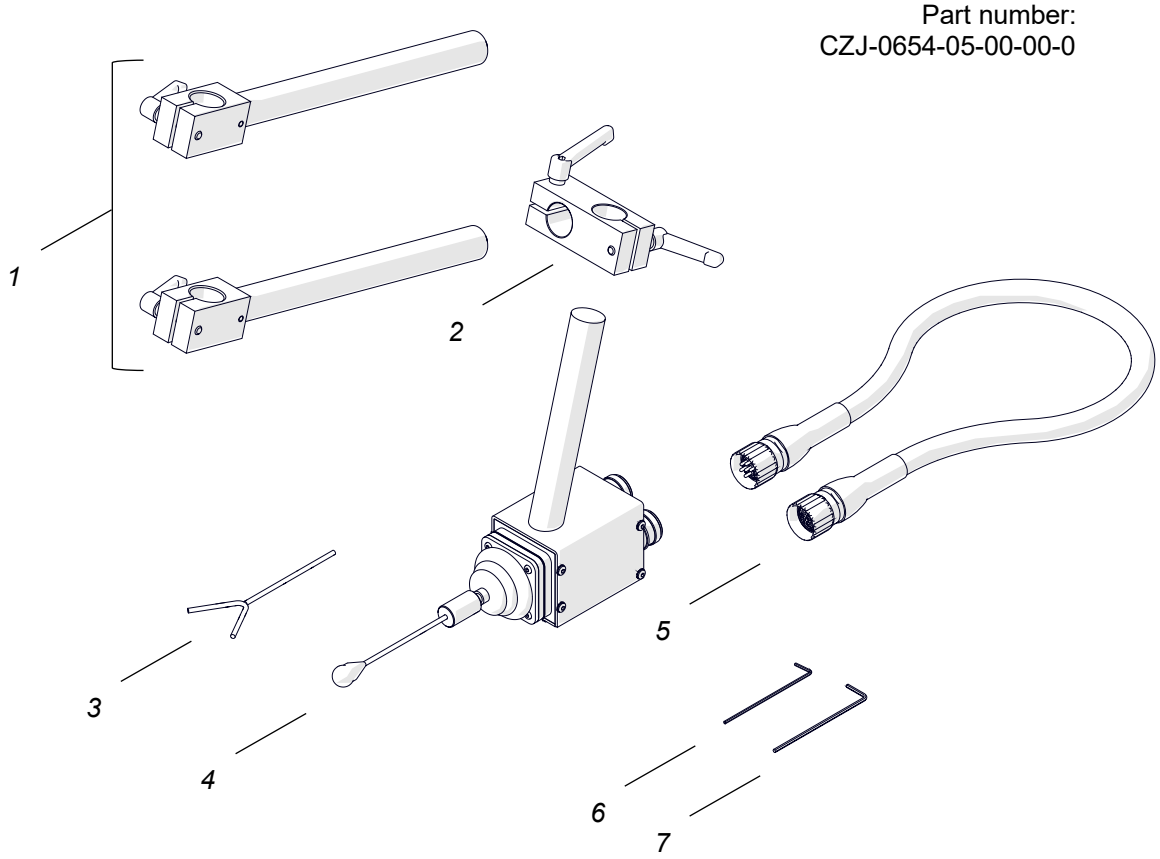
Technical data

Voltage	24 V DC
Current	1.5 A
Protection level	IP 20
Protection class	I
Required ambient temperature	32-104°F (0-40°)
Weight	4.4 lbs (2kg)

1.2.3. Seam tracking attachment

Allows the carriage to track the welding seam.

Part number:
CZJ-0654-05-00-00-0



1	Sensor support	(x2)
2	Clamping block	(x1)
3	Fork tip	(x1)
4	Tracking sensor	(x1)
5	Transmission cable 1 m	(x1)
6	1.5 mm hex wrench	(x1)
7	2 mm hex wrench	(x1)

Technical data

Voltage	24 V DC
Current	0,1 A
Protection level	IP 20
Protection class	I
Required ambient temperature	32-104°F (0-40°C)
Weight	2.2 lbs (1kg)

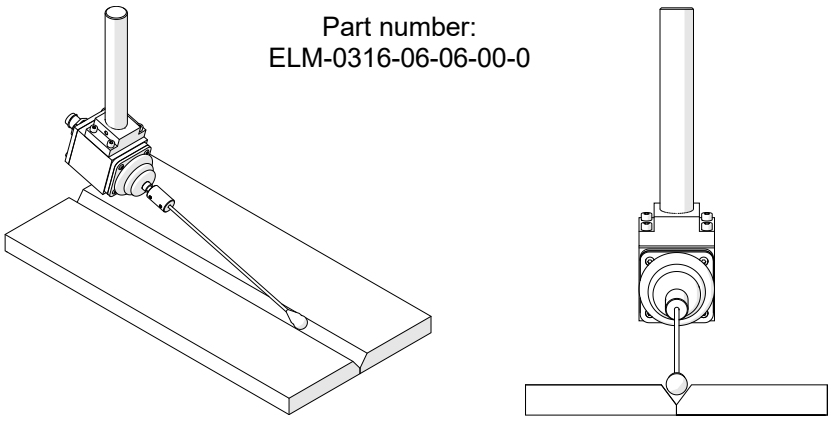
1.2.4. Tracking sensor tips

Allow joint tracking in various applications.

Ball tip

Used for tracking of butt and fillet welds without tacking. The geometry of joint prepared for welding must allow for stable ball movement.

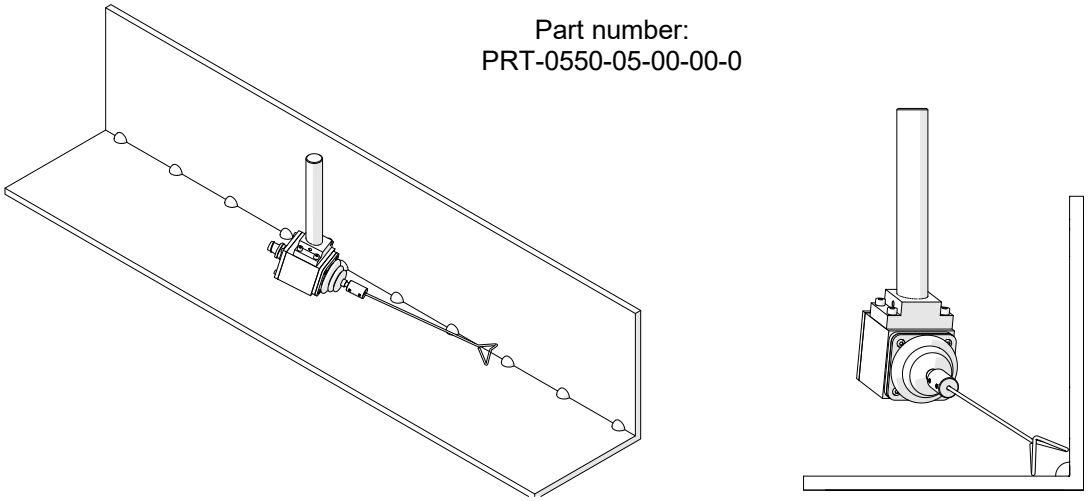
Part number:
ELM-0316-06-06-00-0



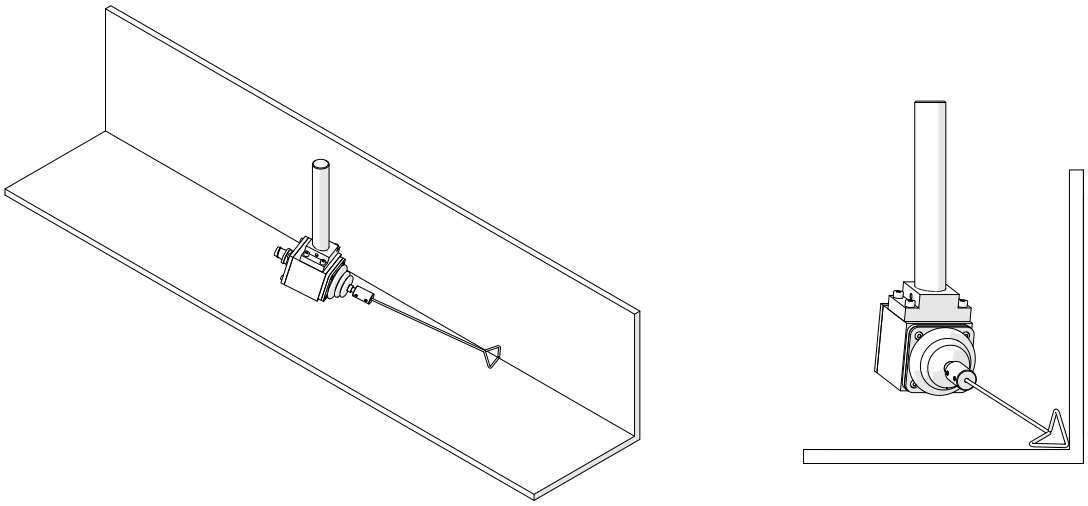
Bent tip

Used for tracking of fillet welds with tacking.

Part number:
PRT-0550-05-00-00-0



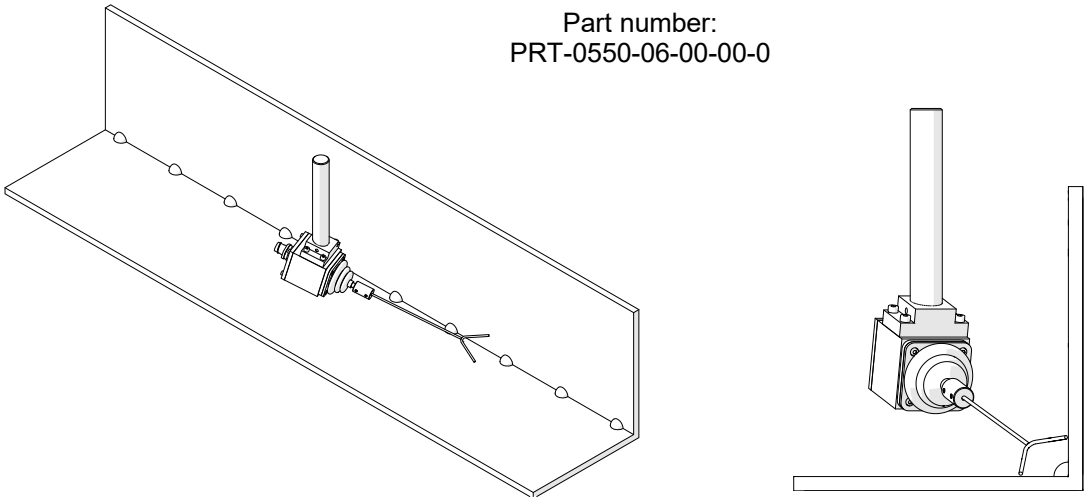
After proper positioning it may be also used for fillet welds without tacking.



Fork tip

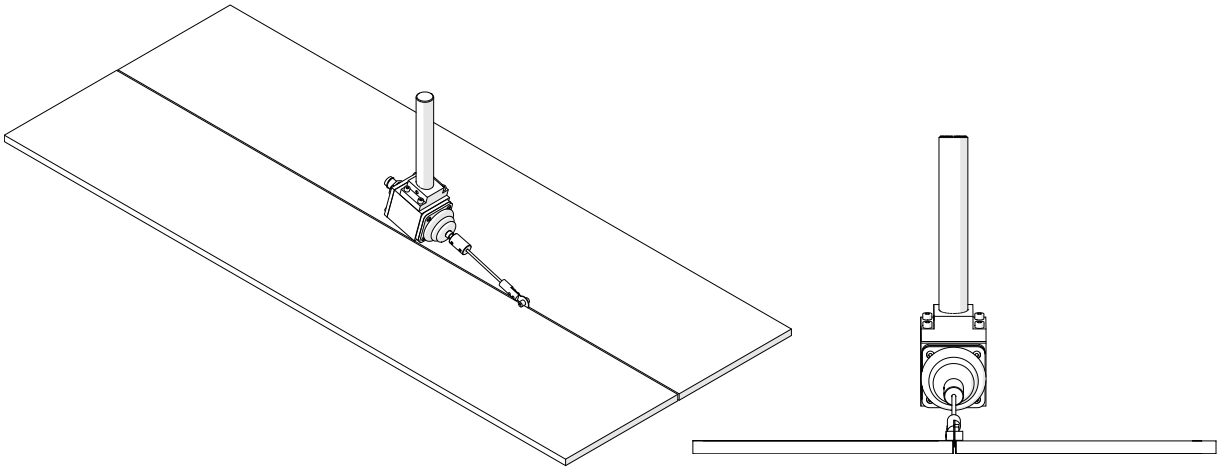
Used for tracking of fillet welds with tacking and for multi-run welding.

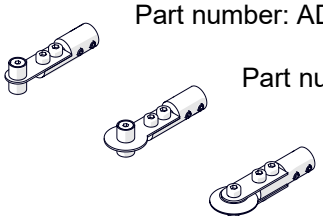
Part number:
PRT-0550-06-00-00-0



Adapter tips

Used for tracking of butt welds of small dimensions not allowing for using the ball tip. In such case no tacking should be used.

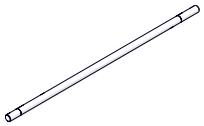




Part number: ADT-0506-40-00-00-0 (including rod)

Part number: ADT-0506-41-00-00-0 (including rod)

Part number: ADT-0506-43-00-00-0 (including rod)

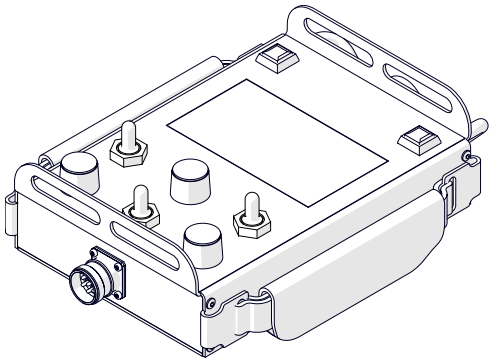


Part number: WSP-0523-07-01-13-0
(rod for sensor tips)

1.2.5. Controller

Allows to set welding parameters.

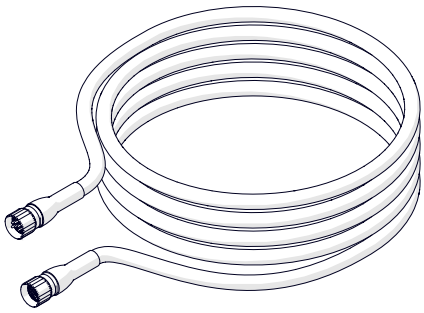
Part number:
PNL-0736-23-00-00-0



1.2.6. Transmission cable

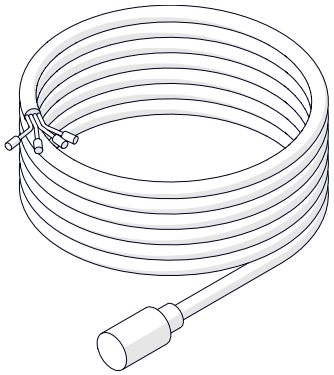
Used to connect the controller to the oscillator. It can also be used to connect other accessories: tracking sensor / motorized vertical slide / power supply.

Part number:
PWD-0736-30-00-00-0 (3 m)
PWD-0736-30-00-01-0 (5 m)
PWD-0736-30-00-02-0 (10 m)



1.2.7. Arc ignition cable

Enables control of welding start and stop in 2T (two-stroke) mode.

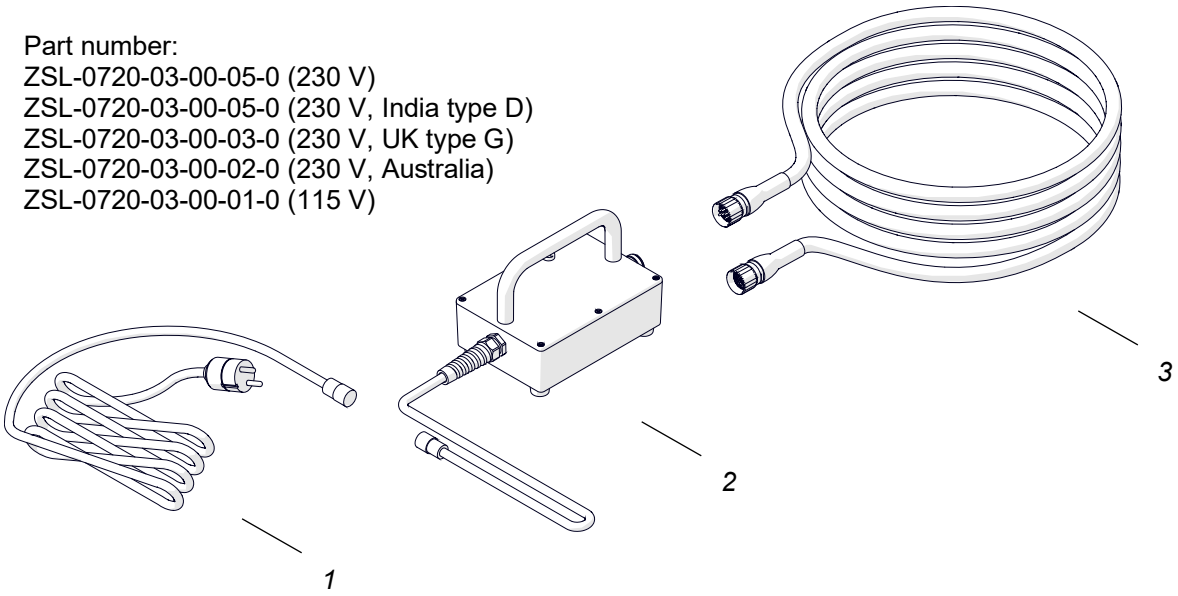


Part number:
KBL-0466-17-00-00-0 (6.5 m)
KBL-0466-17-00-04-0 (13 m)

1.2.8. Power supply

Supplies electrical power. Required if the system is used standalone.

Part number:
ZSL-0720-03-00-05-0 (230 V)
ZSL-0720-03-00-05-0 (230 V, India type D)
ZSL-0720-03-00-03-0 (230 V, UK type G)
ZSL-0720-03-00-02-0 (230 V, Australia)
ZSL-0720-03-00-01-0 (115 V)



1	Power cable	(x1)
2	Power supply	(x1)
3	Transmission cable 5 m	(x1)

Technical data

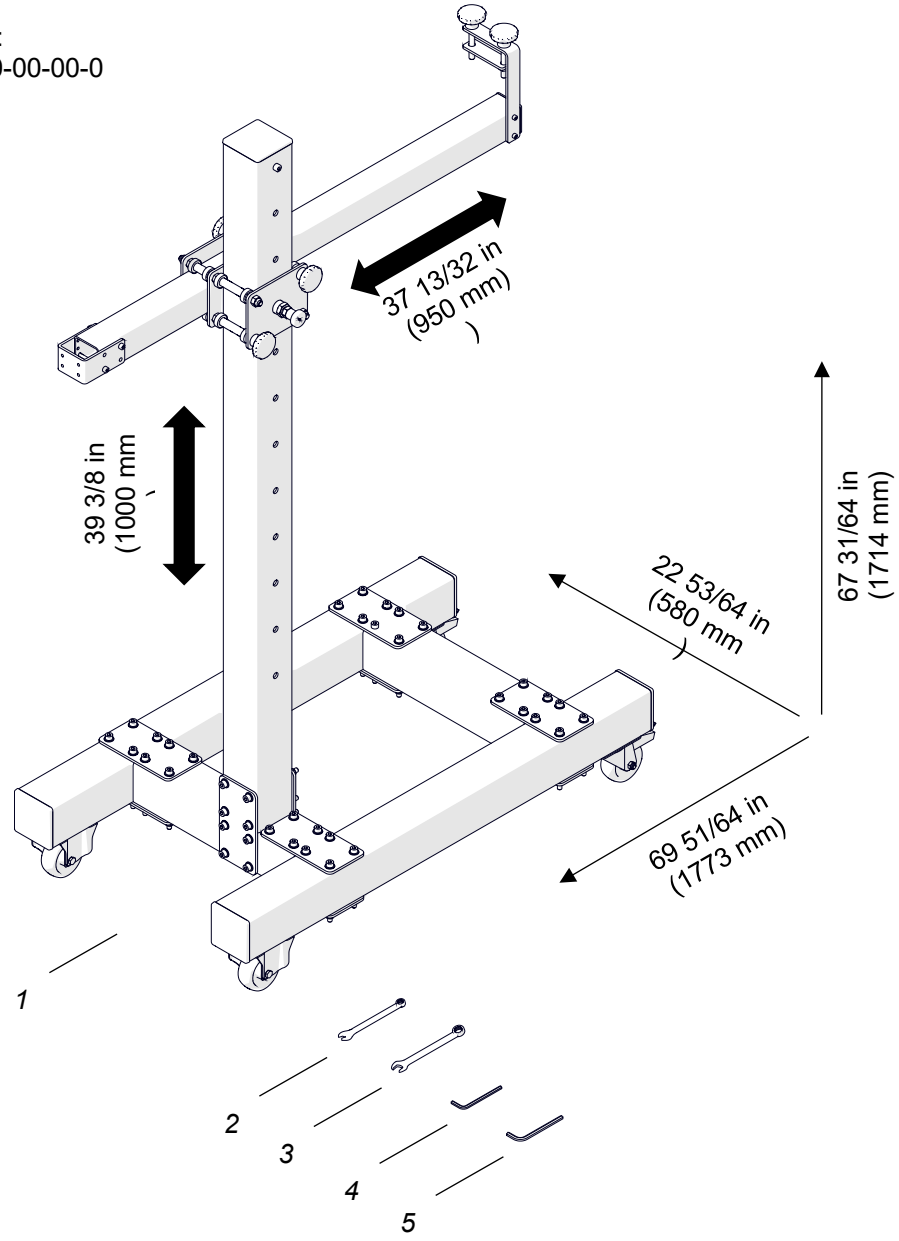
Input voltage and current	115-264 V AC, 50-60 Hz, 1-2 A
Output voltage and current	24 V DC, 5.4 A
Power	130 W
Protection level	IP 20
Protection class	I
Required ambient temperature	32-104°F (0-40°C)
Weight	3.3 lbs (1.5 kg)

1.2.9. Stand

Used to install MIG/MAG torches and components of the MINI COLUMN AND BOOM system (SWSO).

a)

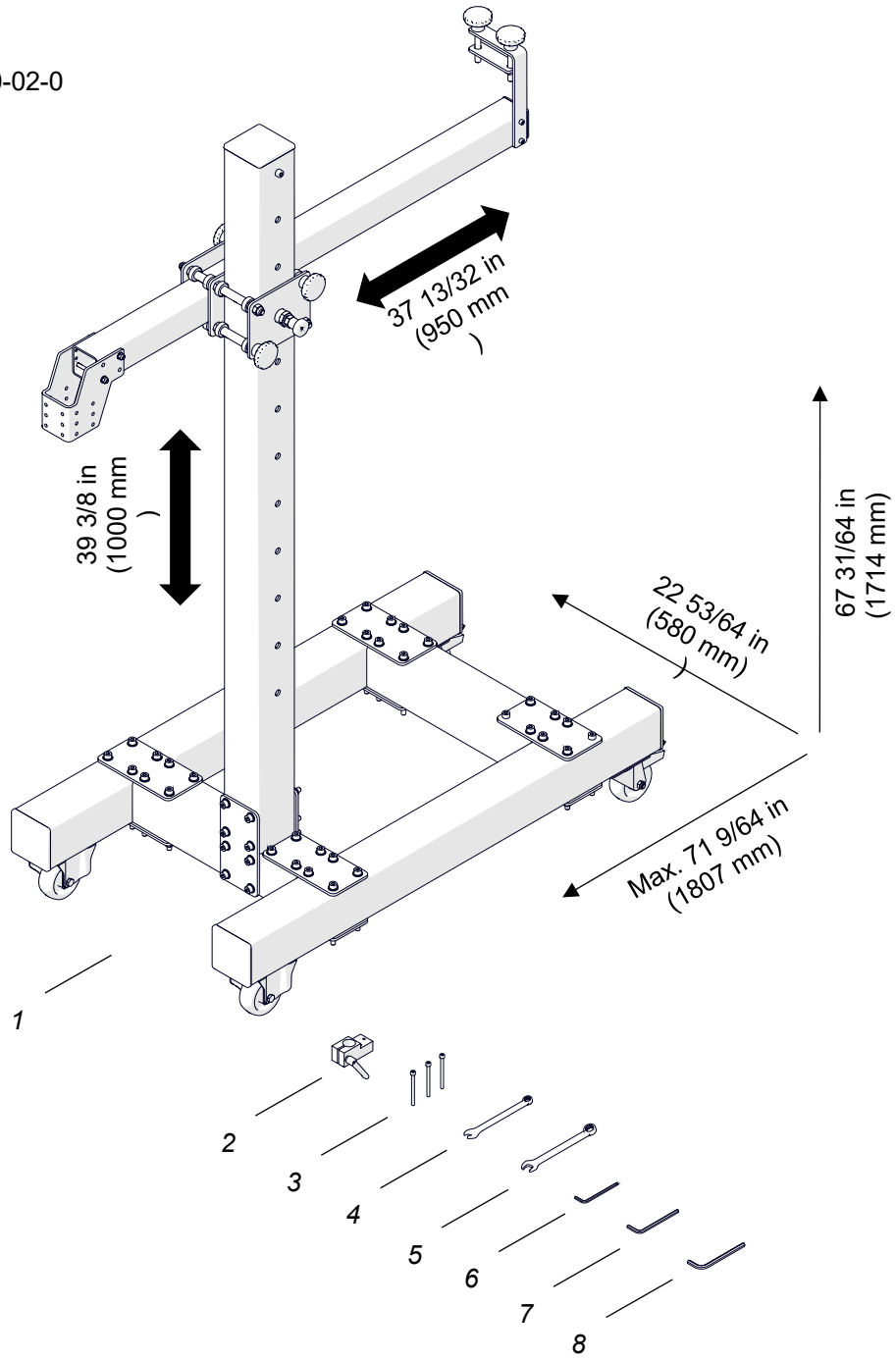
Part number:
STJ-0744-10-00-00-0



1	Stand	(x1)
2	10 mm flat wrench	(x1)
3	13 mm flat wrench	(x1)
4	5 mm hex wrench	(x1)
4	6 mm hex wrench	(x1)
–	Operator’s Manual	(x1)

b)

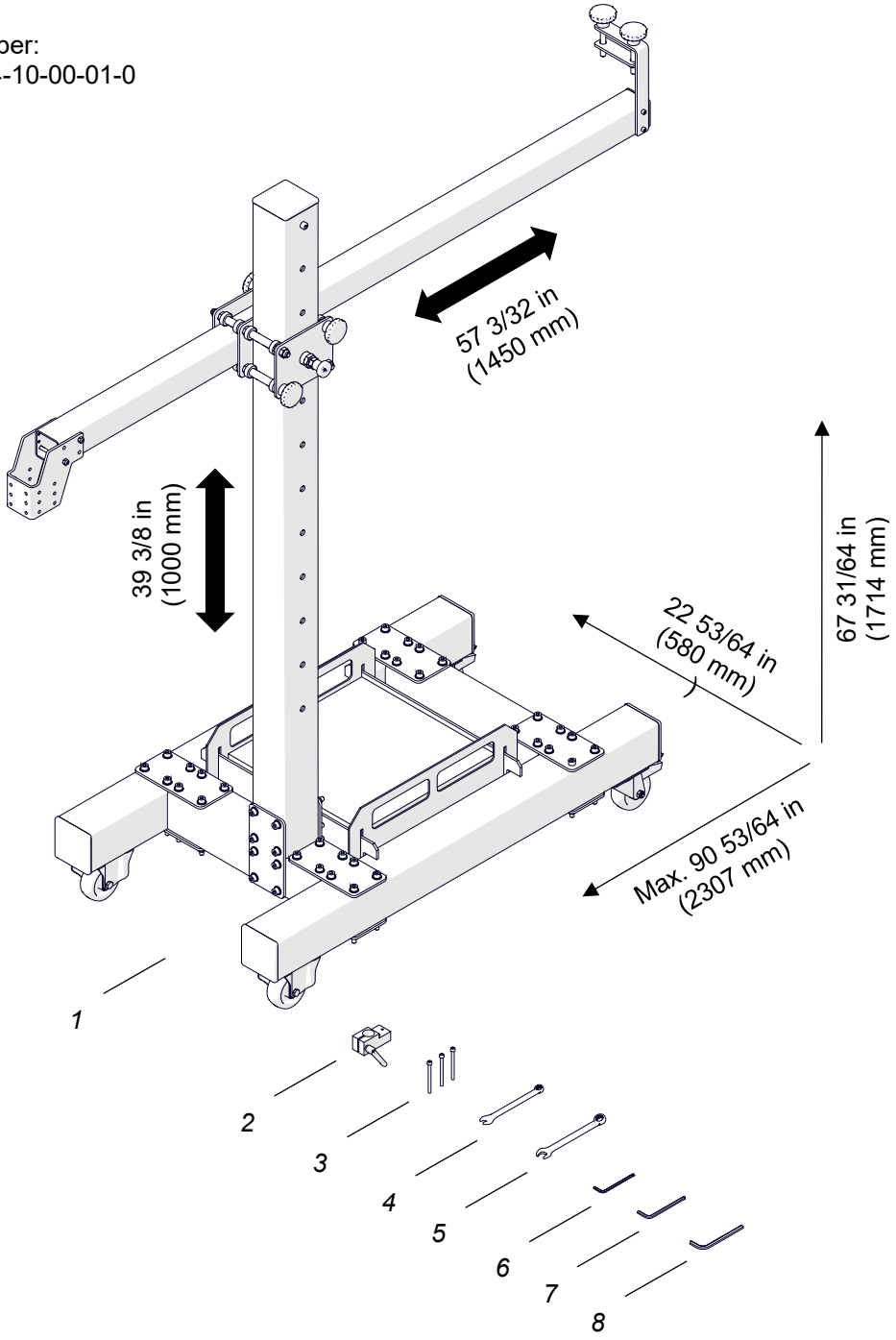
Part number:
STJ-0744-10-00-02-0



1	Stand	(x1)
2	Mounting block Ø 55/64 in (22 mm)	(x1)
3	M5x65 screw	(x3)
4	10 mm flat wrench	(x1)
5	13 mm flat wrench	(x1)
6	4 mm hex wrench	(x1)
7	5 mm hex wrench	(x1)
8	6 mm hex wrench	(x1)
–	Operator's Manual	(x1)

c)

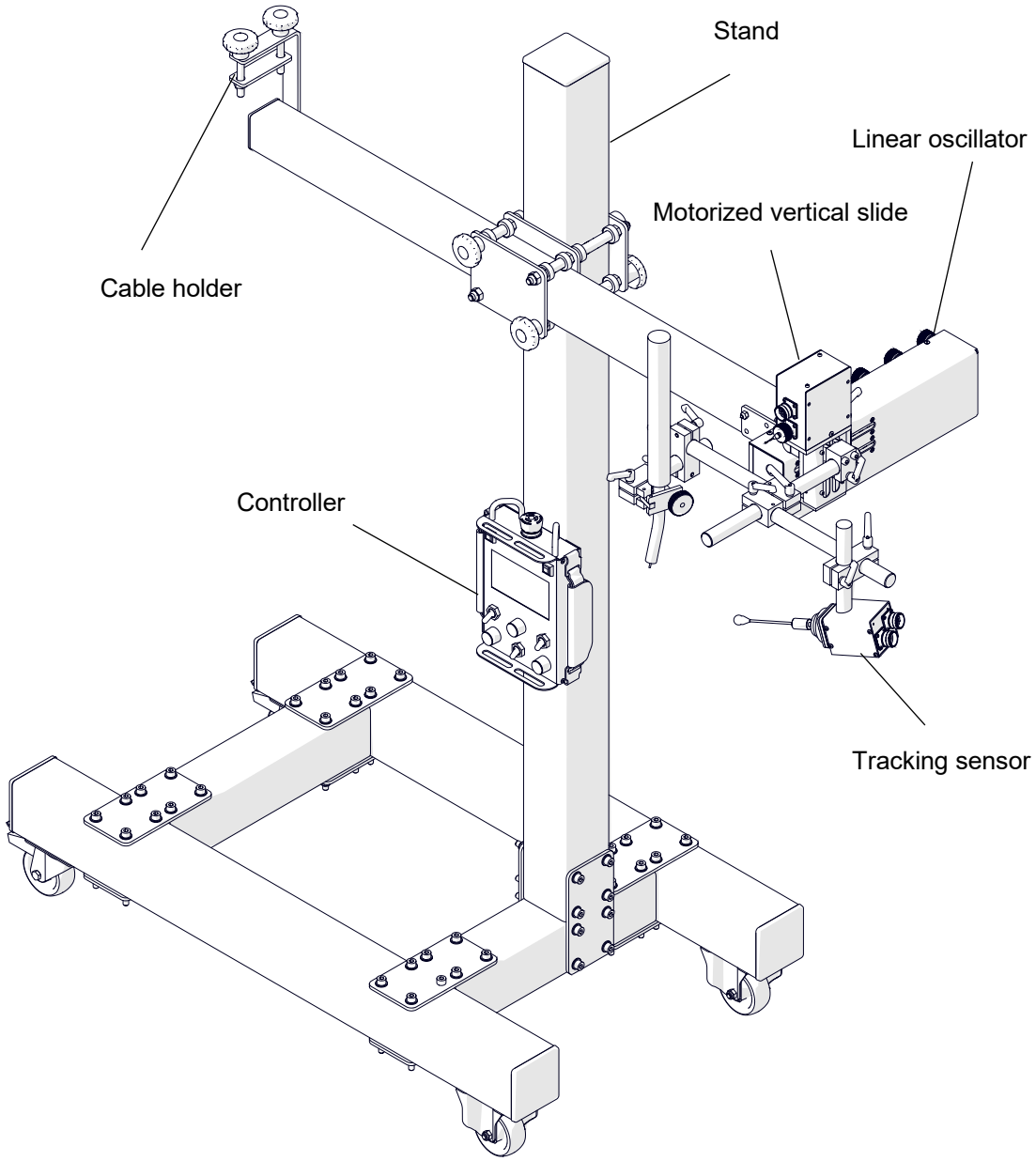
Part number:
STJ-0744-10-00-01-0

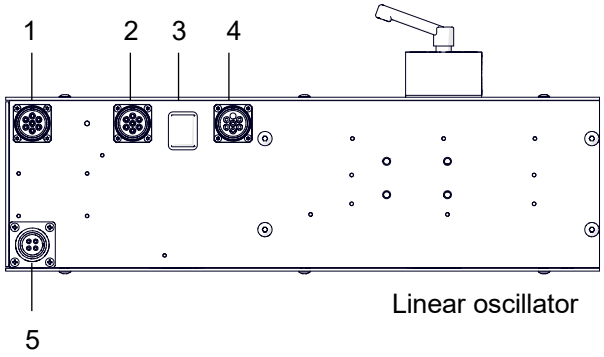


1	Stand	(x1)
2	Mounting block Ø 55/64 in (22 mm)	(x1)
3	M5x65 screw	(x3)
4	10 mm flat wrench	(x1)
5	13 mm flat wrench	(x1)
6	4 mm hex wrench	(x1)
7	5 mm hex wrench	(x1)
8	6 mm hex wrench	(x1)
–	Operator's Manual	(x1)

1.3. Design

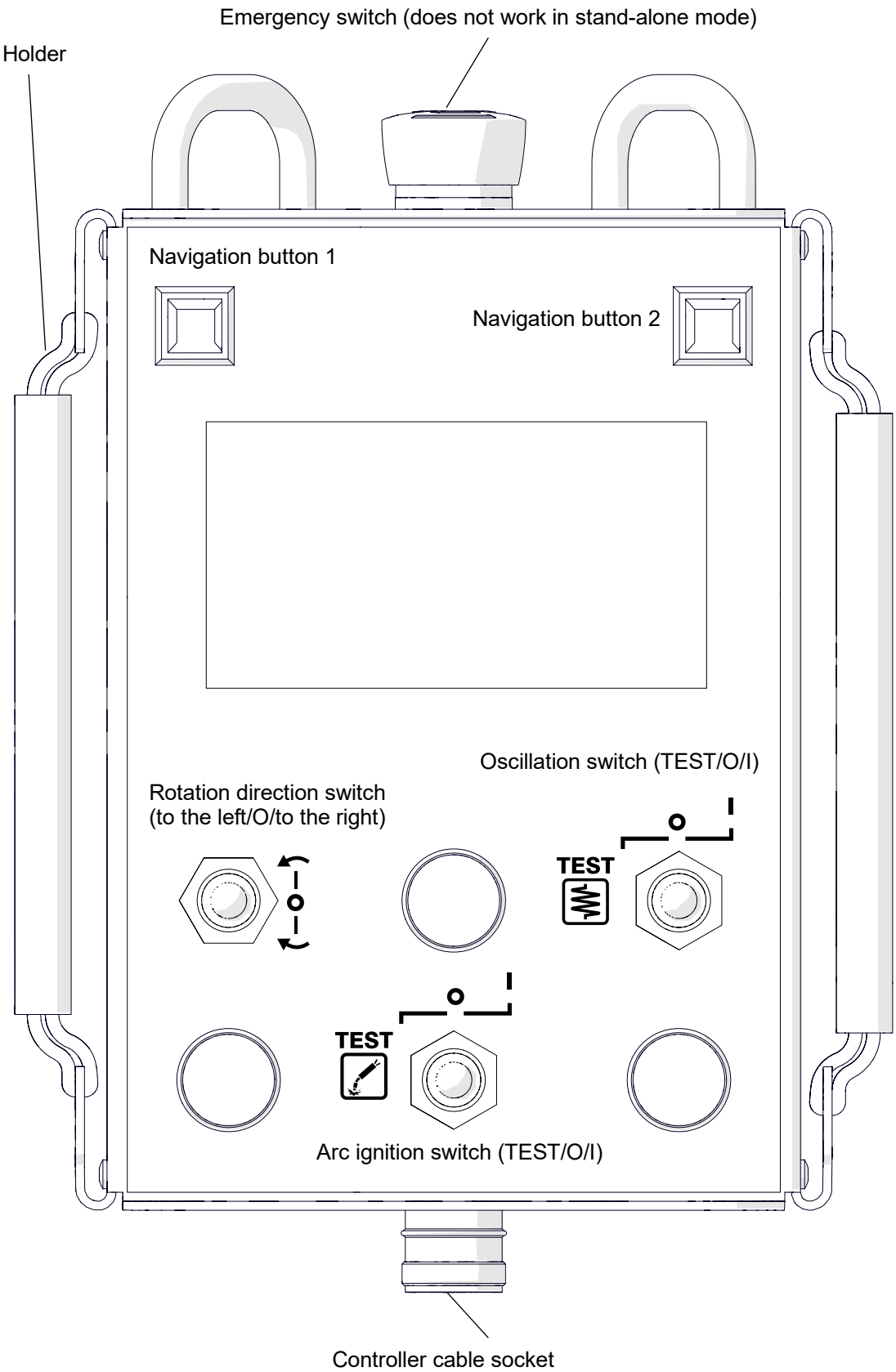
1.3.1. Overview





1 – Motorized vertical slide socket
2 – Controller socket
3 – Power switch
4 – Power supply socket
5 – Arc ignition socket

1.3.2. Controller



2. SAFETY PRECAUTIONS


Refer to instruction manual.


Wear protective clothing.


Wear foot protection.


Be careful!


Warning of moving parts.


Warning of electrical voltage.


Warning of hot surface.

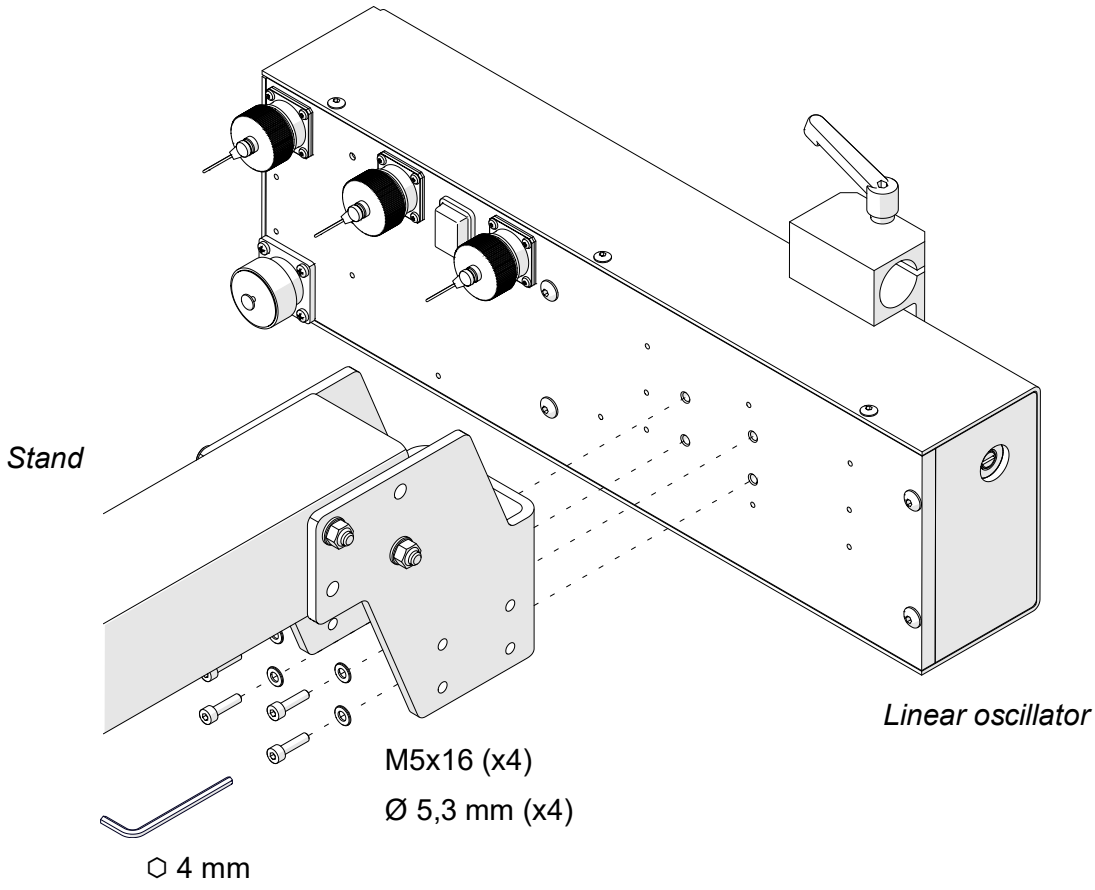

Warning of crush.

1. Before use, read this Operator's Manual and complete training in occupational health and safety.
2. Use only in applications specified in this operator's manual.
3. Only qualified and trained employees can connect and operate the machine. The operator of the machine must be certified as a welder.
4. Make sure that the machine has all parts and they are genuine and not damaged.
5. Make sure that the specifications of the power source are the same as those specified on the rating plate.
6. Connect cables, maintain and transport the machine only after unplugging from the power source.
7. Before each use, ensure the correct condition of the machine, power source, cables, plugs and control parts.
8. Do not pull the cables! This can cause damage and electrical shock.
9. Do not use near flammable materials or in explosive environments.
10. Use eye protection (helmet, shield, and screen), ear protection, gloves, and protective clothing. Do not use loose clothing.
11. Do not touch moving parts. Do not let anything to be caught in moving parts.
12. Before each use, make sure that the welding cable cannot be caught by moving parts.
13. Before installing/removing the workpiece, set the main switch to "O".
14. Ensure that the workpiece is correctly and securely installed.

15. Keep the machine dry. Do not expose the machine to rain, snow, or frost.
16. If the machine is wet or has any damage, stop the work and immediately contact the service center for check and repair.
17. Repairs can only be carried out by the service specified by the seller.
18. Make sure that access to the work area is easy and safe. Keep the work area well-lit, clean, and free of obstacles.
19. Do not leave the machine when it operates.
20. After each use, clean the machine with dry cotton cloth and no chemical agents. Do not remove spatter with bare hands.
21. If you are not going to use the machine for an extended period, keep it in a safe and dry place, and put anti-corrosion material on the steel parts.

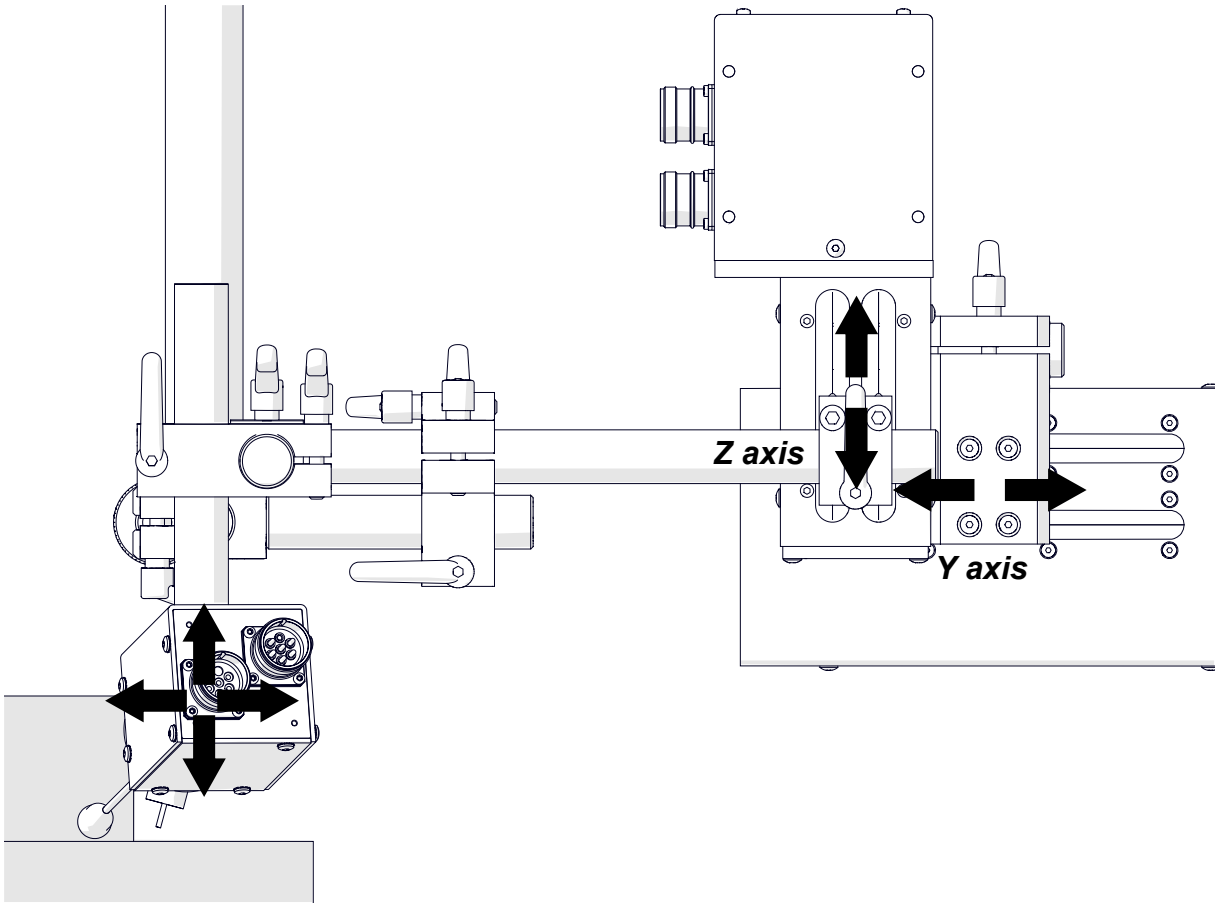
3. STARTUP AND OPERATION

3.1. Mounting the linear oscillator to a stand



3.2. Selection and installation of system components

You can customize the machine by connecting components.

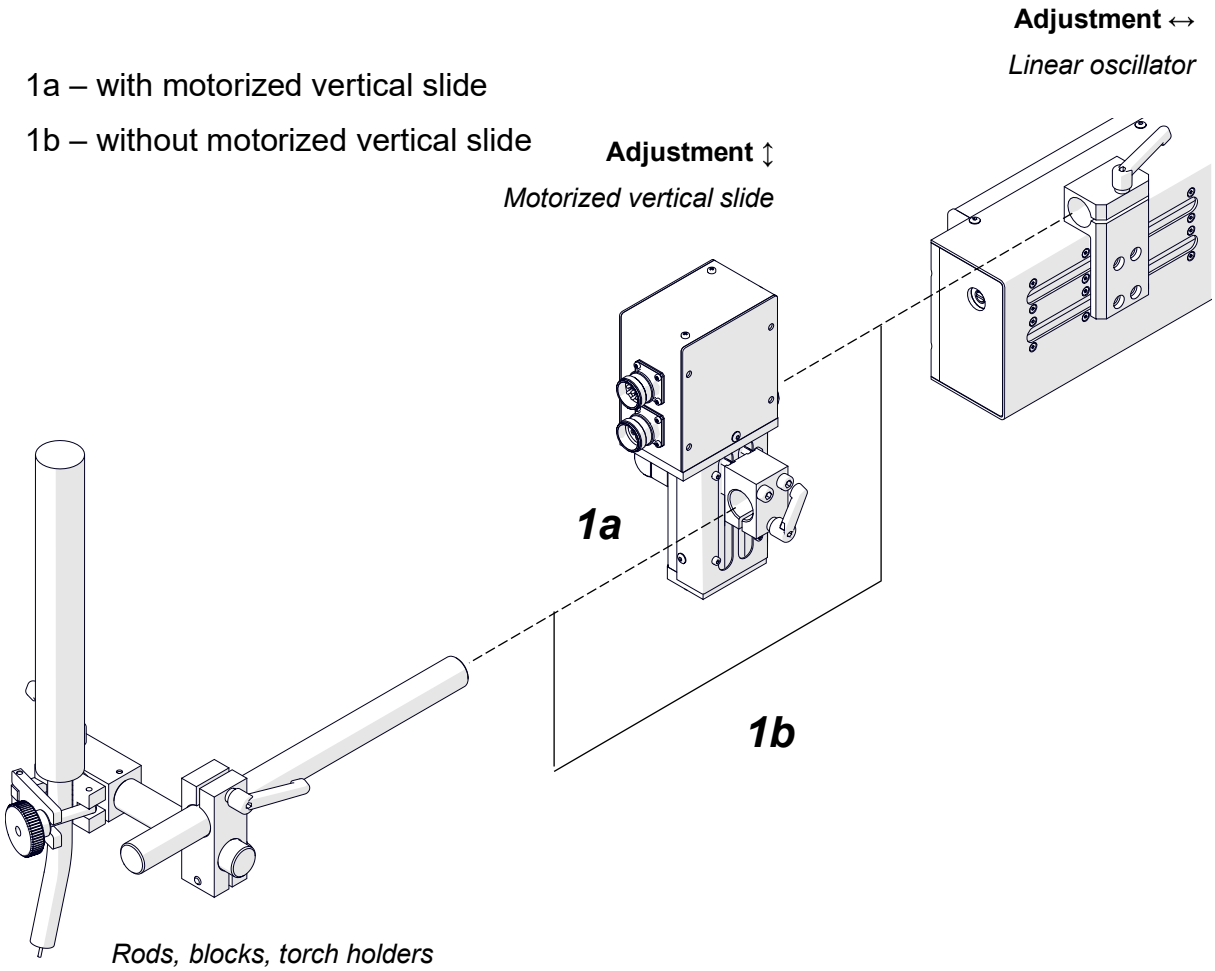


Component	Function
Oscillator	Oscillation. Adjustment of the torch in Y axis with the controller.
Motorized vertical slide (option)	Adjustment of the torch in Z axis with the controller.
Tracking sensor (option)	Tracking seam geometry. When the tip of the sensor moves, the system senses any small change in position of the seam. The oscillator / motorized vertical slide are **automatically** moved to maintain the correct position of the torch above the seam.

3.2.1. Configuration without tracking the welding seam

1a – with motorized vertical slide

1b – without motorized vertical slide

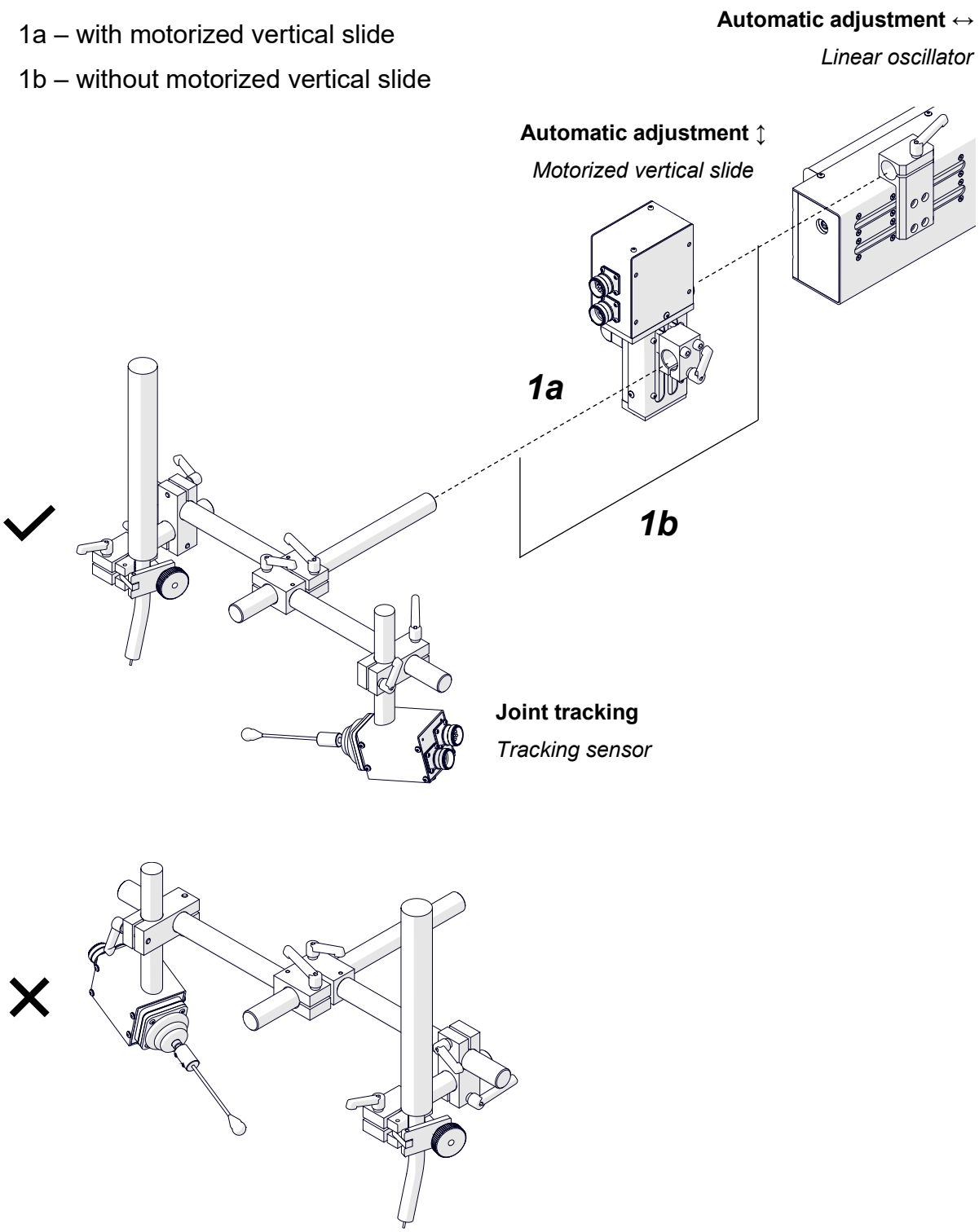


3.2.2. Configuration with tracking the welding seam

Pay special attention to the orientation of the tracking sensor relative to the oscillator. Incorrect orientation will result in erroneous operation of the system.

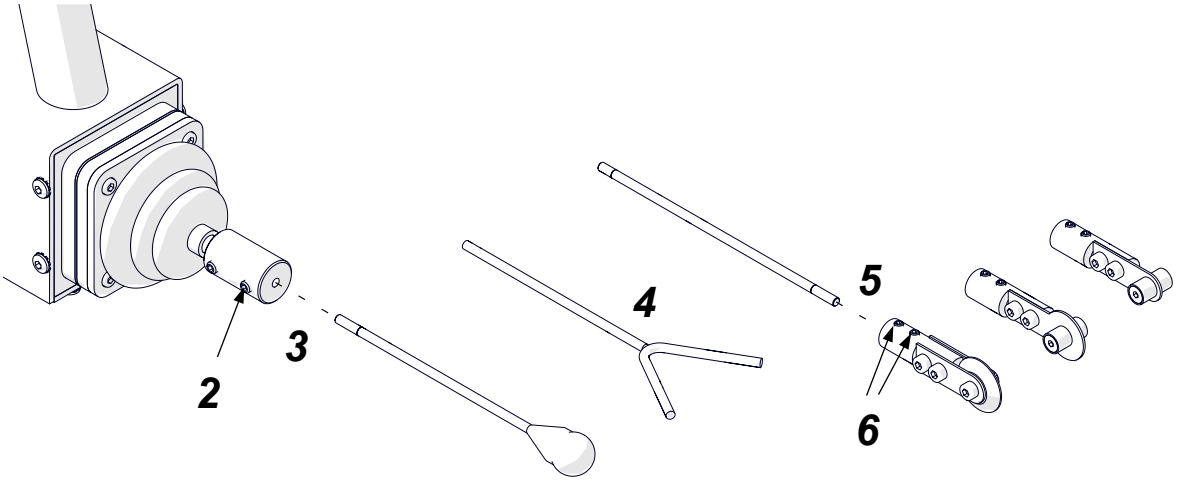
1a – with motorized vertical slide

1b – without motorized vertical slide



Changing the sensor tip:

Use a 2 mm hex wrench to loosen the screw (2) and remove the installed sensor rod (3). Install the sensor rod with fork tip (4). You can also attach one of three tips to separate rod (5) by tightening the screws (6) with the 1.5 mm hex wrench. Install the rod in the tracking sensor and tighten the screw (2).



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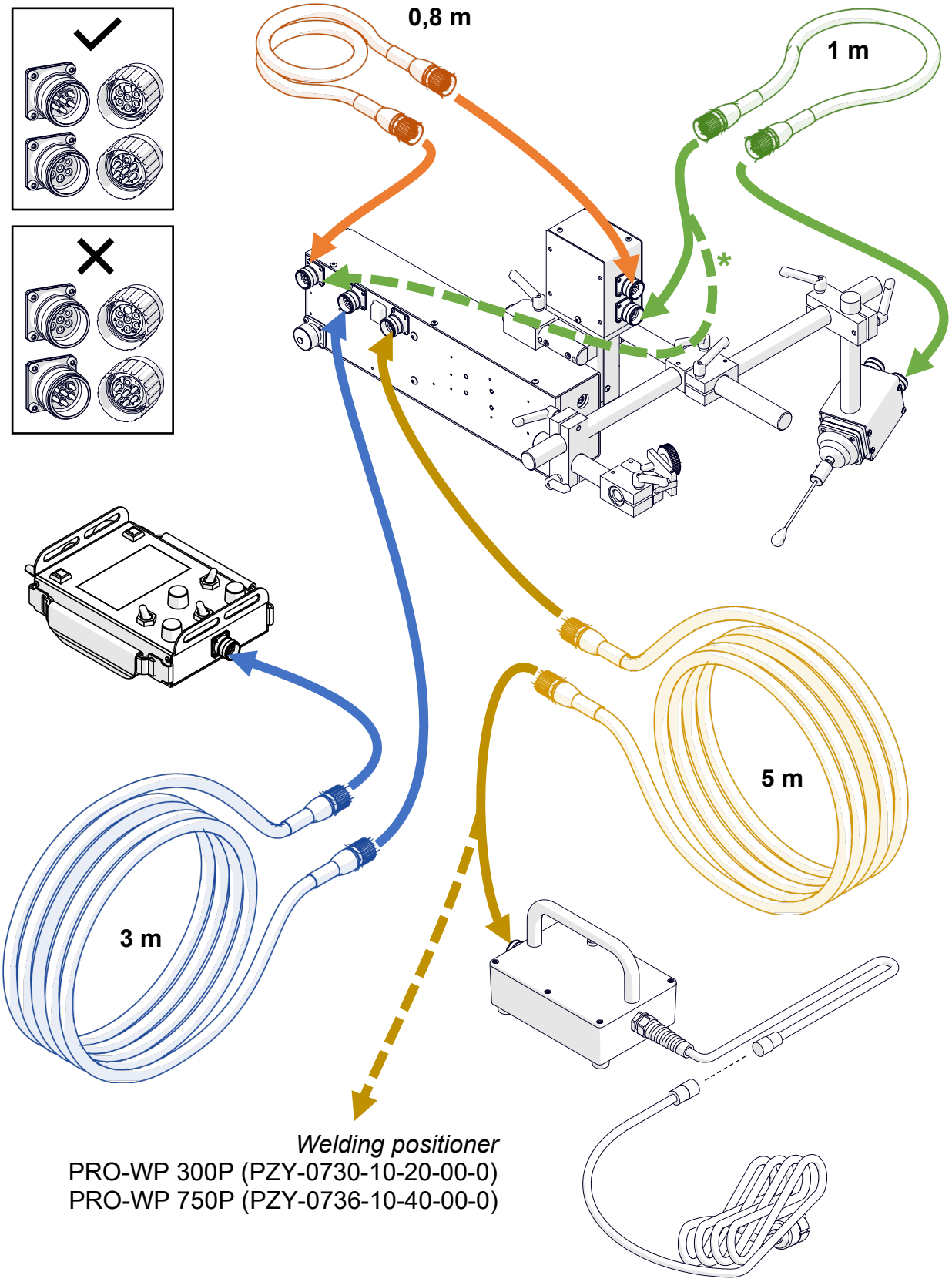
3.3. Connecting system components

Set the oscillator power switch to ‘O’. Connect the components of system as shown in the figure below. Set the oscillator power switch to ‘I’.

Make sure that all cables are connected correctly.
Organize the cables so that they do not block the movement of the machine.



Welding positioner
PRO-WP 300P (PZY-0730-10-20-00-0)
PRO-WP 750P (PZY-0736-10-40-00-0)

* When the motorized vertical slide is not in use

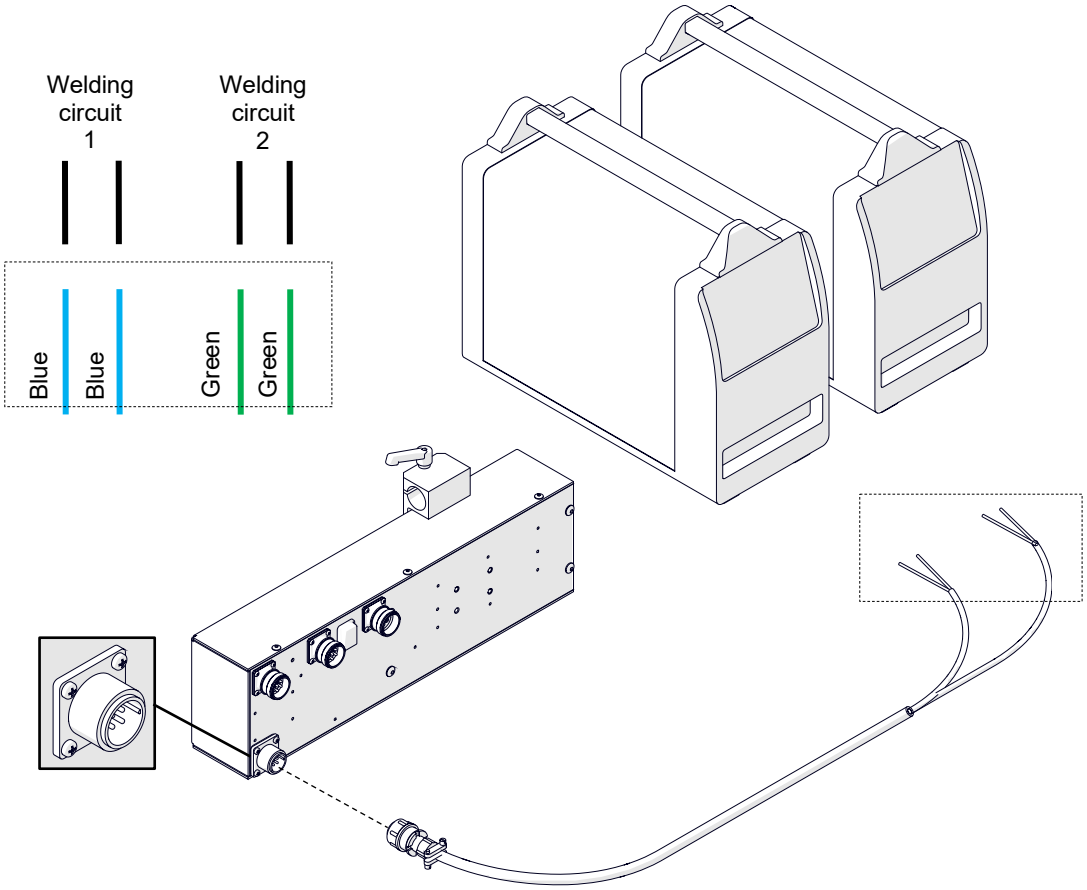
3.4. Connecting to the welding circuits

Before connecting, read the operator's manual of the welding device and make sure that it provides such option. Connect the arc ignition cable only to the arc ignition control contacts in the welding device remote control socket. Make sure that the welding cycle control of the welding device is set to 2-stroke. If you set it to 4-stroke, arc ignition control will work incorrectly.

Do not connect to sockets other than the arc ignition remote control socket, specified by the manufacturer of the welding device. Incorrect connection of the arc ignition cable to the welding device may result in permanent damage to the machine!

The machine can be connected to a welding device (welding machine, wire feeder). Make sure that the device provides a start-stop signal (see the operator’s manual provided by the manufacturer).

The system can control two torches by using the arc ignition cable plugged into the arc ignition socket. To do this, refer to the diagram 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.

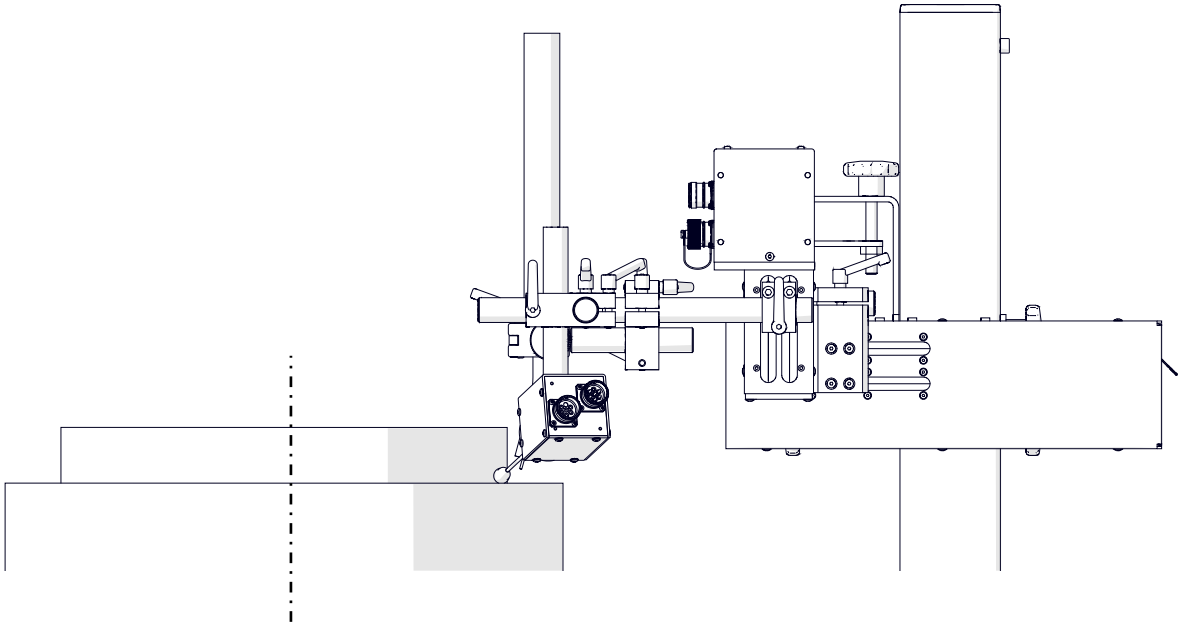


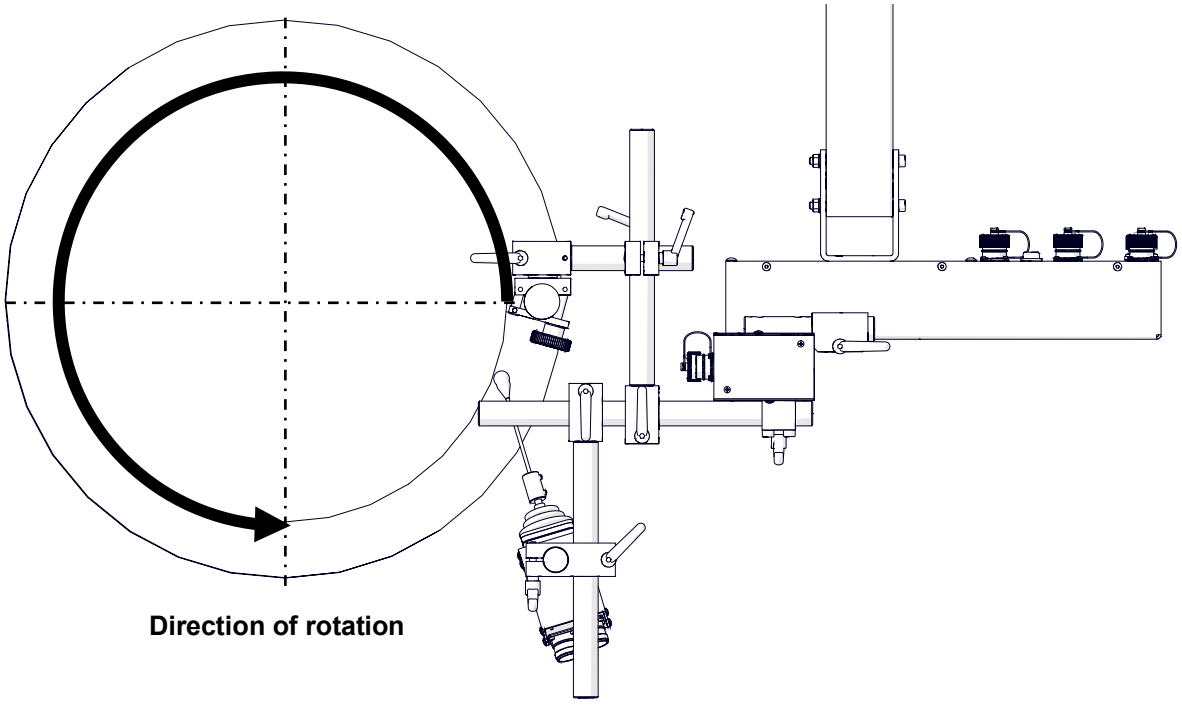
Make sure that the cable is connected correctly. Set the power switch to ‘I’ to turn on the power. Make sure that all emergency switches are unlocked. Set all the controller switches (rotation direction, arc ignition, oscillation) to ‘O’. Set the arc ignition switch to TEST. This should enable the arc. Set the arc ignition switch to ‘O’ to turn off the arc.

3.5. Positioning relative to the workpiece

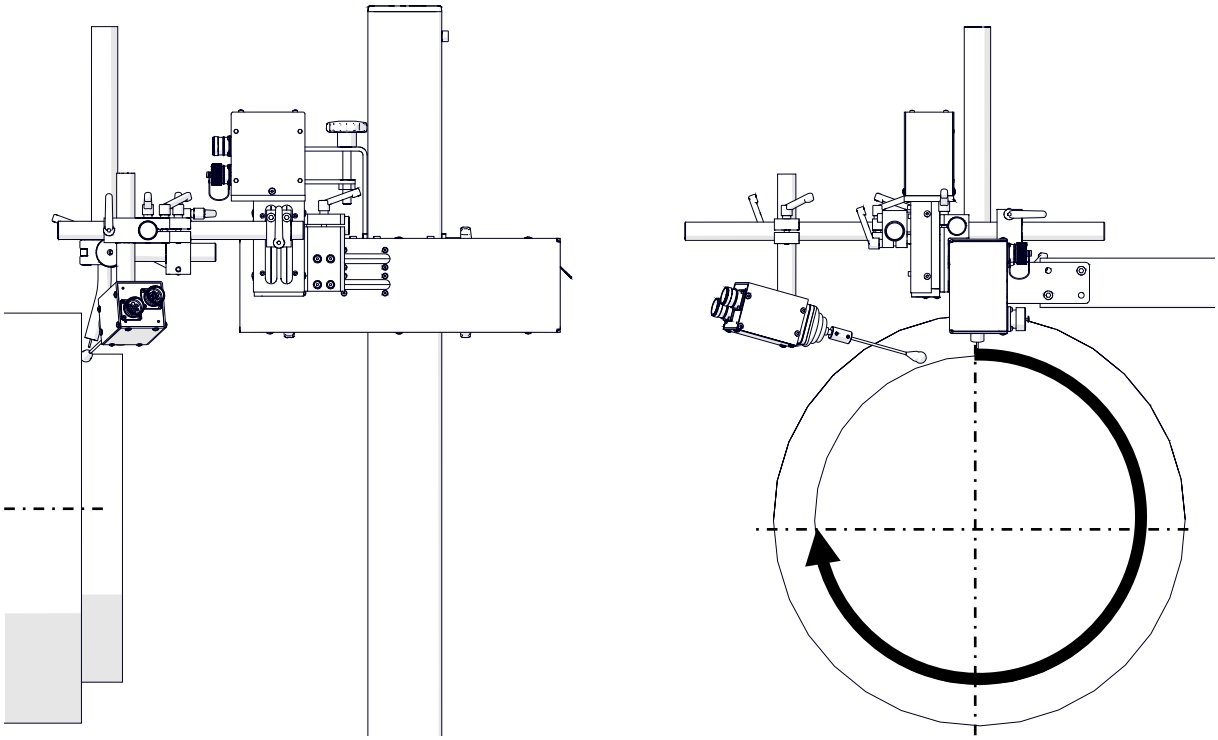
Set the mini column and boom system to the workpiece (A, B). Pay attention to choosing the correct direction of rotation of the workpiece. Install the torch into the torch holder. Keep a distance between the torch and the sensor to protect the top from welding spatter.

A)



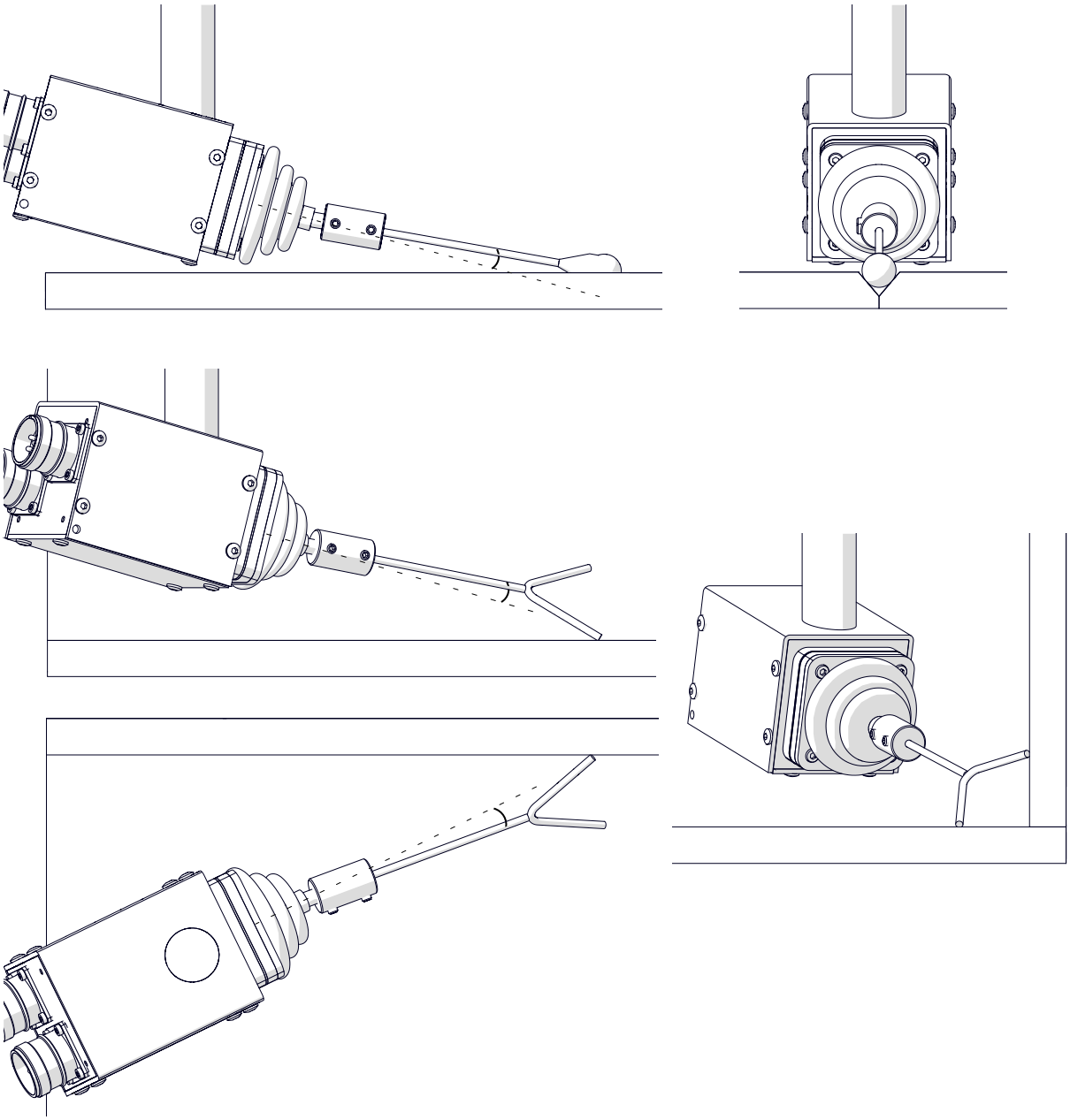


B)



Direction of rotation

Tilt the rod of the sensor against the joint so that there is tension in the rod. Next, put the tip as shown.

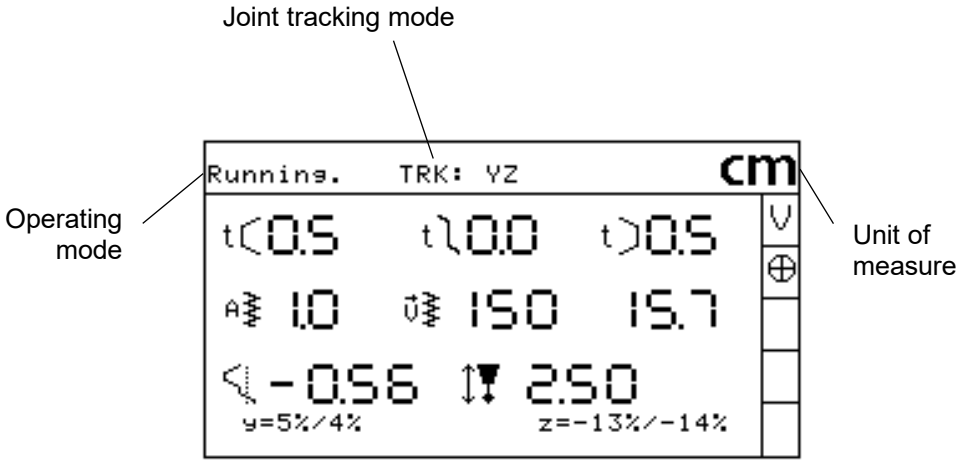


3.6. Operating

Set the power switch to ‘I’ to turn on the power. Make sure that all emergency switches are unlocked. Set all the controller switches (rotation direction, arc ignition, oscillation) to ‘O’.

When connected to a positioner: Press START button to turn on the control system. The button light will come on.

To pause loading to check the firmware version, press and hold one of the controller navigation buttons. After you release the button, the control system loads and the main screen shows.



Panel view with connected SWSO

Tab. 1 explains the symbols shown on the right of the main screen.

Tab. 1. Symbols of connected modules

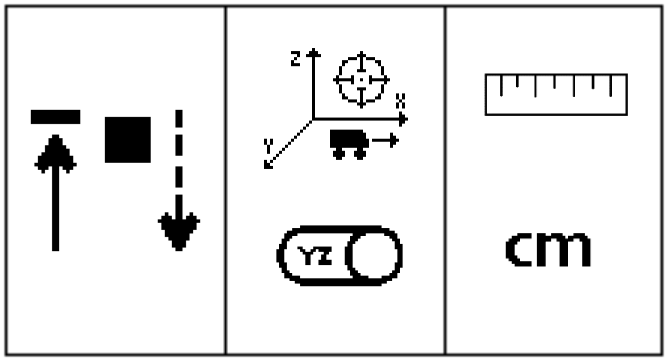
Symbol	Description
⋁	Motorized vertical slide (option).
⊕	Tracking sensor (option).

Use the knobs to set the required values of parameters (Tab. 3). Rotate to the right to increase the value of the parameter. Rotate to the left to decrease the value.

Tab. 3. Parameters shown on the main screen

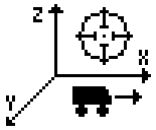
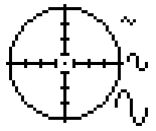
Parameter	Value	Description	Method of control	Required accessories
	From –2.2 to +2.2 in - From 5.60 to +5.60 cm [step: 0.02/0.01]	Oscillation offset.	Rotate F1	Oscillator
	0–5.0 s [step: 0.1] (with tracking off) 0.2–5.0 s [step: 0.1] (with tracking on)	Oscillation dwell time in left position.	Press and hold  and rotate F1	Oscillator
	0–5.0 s [step: 0.1]	Oscillation dwell time in center position.	Press and hold  and rotate F2	Oscillator
	0–5.0 s [step: 0.1] (with tracking off) 0.2–5.0 s [step: 0.1] (with tracking on)	Oscillation dwell time in right position.	Press and hold  and rotate F3	Oscillator
	0.04 – 4.6 in (0.1–11.8 cm) [step: 0.1]	Oscillation width.	Press and release F1 (activates SHIFT) and rotate F1	Oscillator
	3.9 – 78.7 in/min (10–200 cm/min) [step: 5/1]	Oscillation speed (when the vertical slide is not connected).	Rotate F2	Oscillator
		Oscillation speed (when the vertical slide is connected).	Press and release F2 (activates SHIFT) and rotate F2	
	From -1 to +1 in (-2.50 to +2.50 cm) [step: 0.02/0.01]	Torch height (when the vertical slide is connected).	Rotate F2	Motorized vertical slide
y=5%/4%	From -100 to 100%	Sensor rod tilt in the axis Y (current/initial).	Current tilt is adjusted automatically. Initial tilt is set when the rod of the sensor is tensioned.	Oscillator Tracking sensor
z=-13%/-14	From -100 to 100%	Sensor rod tilt in the axis Z (current/initial).	Current tilt is adjusted automatically. Initial tilt is set when the rod of the sensor is tensioned.	Motorized vertical slide Tracking sensor

To set the rest of the parameters, make sure that the rotation direction switch is set to ‘O’. Press and hold the two navigation buttons for three seconds to show the first setup screen.



Use the knobs to set the required values of parameters (Tab. 4).

Tab. 4. Parameters shown on the setup screens

Parameter	Value	Description	Method of control
		Automatic tracking of the welding seam (control of parameter possible only when the tracking sensor is used). When Z, YZ (require the motorized vertical slide), or Y is set, you can adjust the initial torch position from the main screen with F1 and F2.	Rotate F3
		Off. The welding joint will not be tracked automatically. However, you can adjust the torch position in the Y axis from the main screen during welding (also in the Z axis when the motorized vertical slide is used). Joint tracking mode: TRK: OFF.	
		Automatic tracking in the Y axis only. Joint tracking mode: TRK: Y.	
		Automatic tracking in the Z axis only. Joint tracking mode: TRK: Z.	
		Automatic tracking in the Y and Z axis. Joint tracking mode: TRK: YZ.	
		Sensitivity of the tracking system.	Press and rotate F3
		Normal.	
		Low. The torch adjusts slower to the welding joint.	
		High. The torch adjusts faster to the welding joint.	

To go back to the main screen, press and hold the two navigation buttons for three seconds.

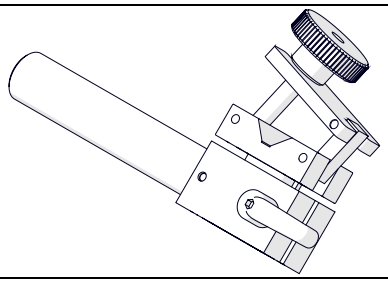
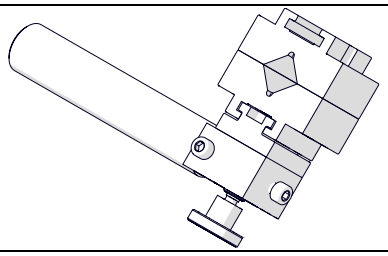
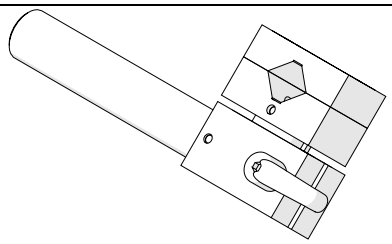
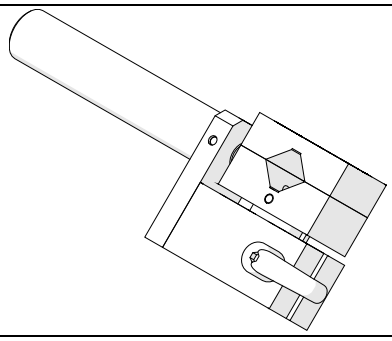
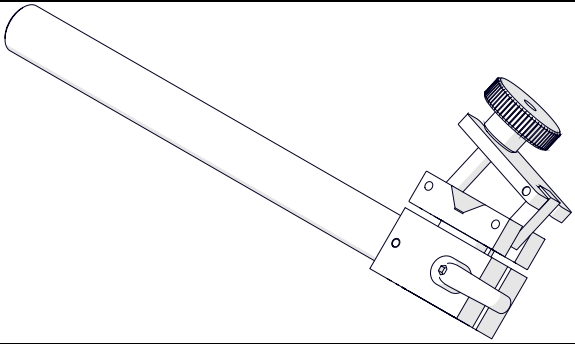
To start the process, set the direction switch to any direction.

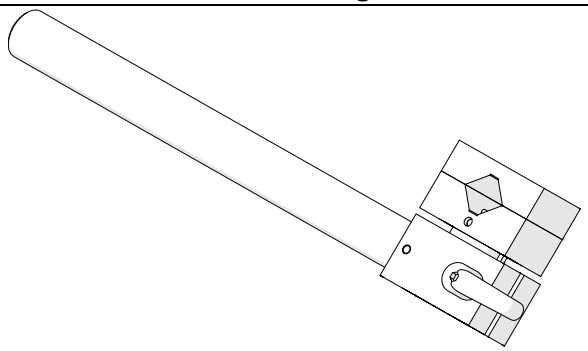
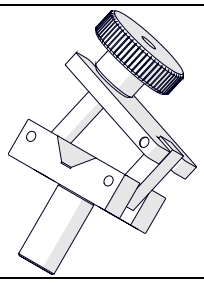
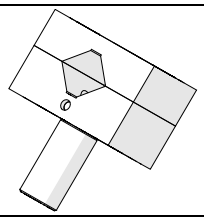
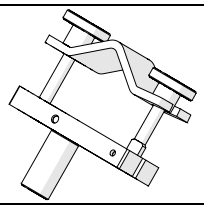
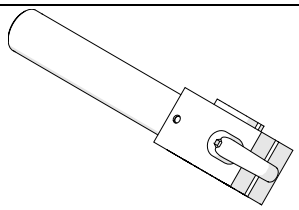
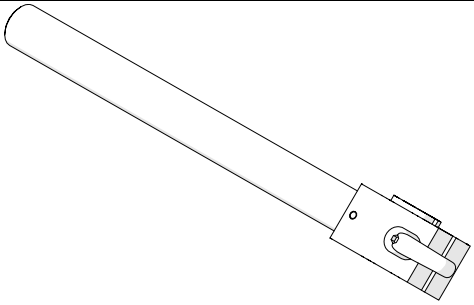
3.7. Troubleshooting

Message	Problem	Solution
 WARNING #1	Rotation direction switch not set to ‘O’ when powering.	Set the rotation direction switch to ‘O’.
 WARNING #3	Arc ignition switch set to TEST when powering.	Set the arc ignition switch to ‘O’.
 WARNING #4	Oscillation switch set to TEST when powering.	Set the oscillation switch to ‘O’.
 ERROR #1	No communication.	Make sure that all cables are connected correctly.
	Control systems failure.	Contact service center for check and repair.

4. ACCESSORIES

4.1. Torch holders, clamps, and rods

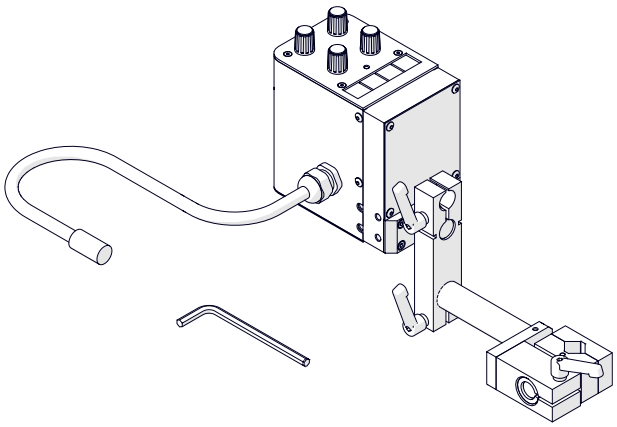
Short rod torch holder with clamp 16–22 mm	
	Part number: UCW-0754-07-00-00-0
Quick-release short rod torch holder with clip 16–22 mm	
	Part number: UCW-0523-84-00-00-0
Short rod torch holder with clip 16–22 mm	
	Part number: UCW-0476-27-00-00-0
Short low rod torch holder with clip 16–22 mm	
	Part number: UCW-0476-06-00-00-0
Long rod torch holder with clamp 16–22 mm	
	Part number: UCW-0752-07-00-00-0

Long rod torch holder with clip 16–22 mm	
	Part number: UCW-0466-22-00-00-0
Torch clamp 16–22 mm	
	Part number: ZRZ-0752-07-01-00-0
Torch clip 16–22 mm	
	Part number: ZCS-0476-06-01-00-0
Torch clamp 22–35 mm	
	Part number: ZRZ-0466-19-00-00-0
Short rod	
	Part number: WLK-0476-20-01-00-0
Long rod	
	Part number: WLK-0466-04-10-00-0

4.2. Pendulum oscillator

Allows pendulum oscillation of MIG/MAG torches.

The operation and installation is described in the separate manual.



Part number (oscillator):
OSC-0799-01-00-00-0

5. DECLARATION OF CONFORMITY

Declaration of conformity

We

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

We declare with full responsibility that:

MINI COLUMN AND BOOM SYSTEM (SWSO)

Including

- Power supply
- Controller
- Oscillator
- Motorized vertical slide
- Tracking sensor
- Cables

is manufactured in accordance with the following standards:

- EN ISO 12100:2010
- EN 60204-1:2018
- EN IEC 60974-10:2021

and satisfies the regulations of the guidelines: 2014/30/EU, 2006/42/EC, 2011/65/EU.

Person authorized to compile the technical file:

Artur Zawadzki, ul. Elewatorska 23/1, 15-620 Białystok, Poland

Białystok, 2024-01-31

Artur Zawadzki
CEO

6. ENVIRONMENTAL PROTECTION

In accordance with the European Directive 2012/19/EU, this device is marked with the symbol of the crossed-out waste bin. This marking means that the equipment must not be disposed of with other household waste after the service life. The user must return the product to a collection point for used electrical and electronic equipment. The collectors of used equipment, including local collection points, shops and municipal units create an appropriate system for returning such equipment. Correct handling of used electrical and electronic equipment helps in avoiding damage to health and the environment, which may result from the presence of dangerous components and incorrect storage and processing of such equipment.

7. WARRANTY CARD

WARRANTY CARD No.....

..... in the name of Manufacturer warrants the machine to be free of defects in material and workmanship under normal use for a period of 3 years (36 months) from the date of sale, except electronic parts which are covered with 2 years (24 months) warranty from date of sale and except batteries (if applicable) which are covered with 2 years (24 months) warranty from their manufacturing date.

This warranty does not cover tools and accessories 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 and stamp of the seller .....

0.04 / 7 July 2025

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