XTOOL

MetalFab Laser Welder 800W

Quick Start Guide

02

* The English version is the original instructions verified by the manufacturer.

List of items

For the main unit:

① Main unit

② Key

③ USB flash drive

④ Tube (external diameter: 10 mm)

⑤ Power cable

The power cable varies according to the region in which the product is delivered.

⑥ Workpiece sensing cable

⑦ 304 stainless steel sheet (thickness: 2 mm)

For the welding head:

⑧ Components for welding head cradle

⑨ Cutting tip

⑩ Welding nozzle (for autogenous welding)

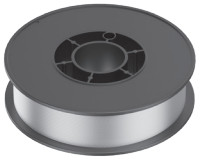
⑪ Cleaning nozzle (for handheld use)

The factory-installed nozzle on the welding head is typically used for wire-filled welding.

⑫ Lens protector (spare part)

For wire feeding:

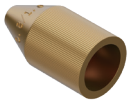
13 Wire feeding tube



14 Stainless steel wire 1 mm

15 Drive roll 0.8 mm / 1.0 mm

16 Drive roll 1.2 mm / 1.6 mm



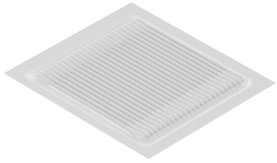
17 Wire feeding nozzle 1.2 mm / 1.6 mm

The wire feeding tube is pre-installed with a 0.8 mm / 1.0 mm wire feeding nozzle.

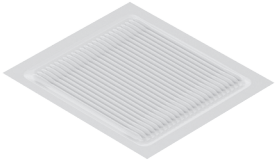
Tools:

18 Hex key 2 mm

19 Hex key 2.5 mm



20 Round tip cotton swab



21 Pointed tip cotton swab

Personal protective equipment (PPE):

22 Heat-resistant gloves

23 1080 nm laser safety goggles

The provided safety goggles protect not only against laser radiation in the vicinity of the 1080 nm wavelength range (OD6+) but also against secondary radiation such as ultraviolet and blue light (OD5+).

Product documentation:

24 Safety Instructions

25 Quick Start Guide

Meet xTool MetalFab Laser Welder 800W

Structure of the main unit

Front panel:

Emergency stop button

Status indicator

Knob

Port for USB cable

Port for key

Port for workpiece sensing cable

Wire feeding tube connector

Earthing rod

Back panel:

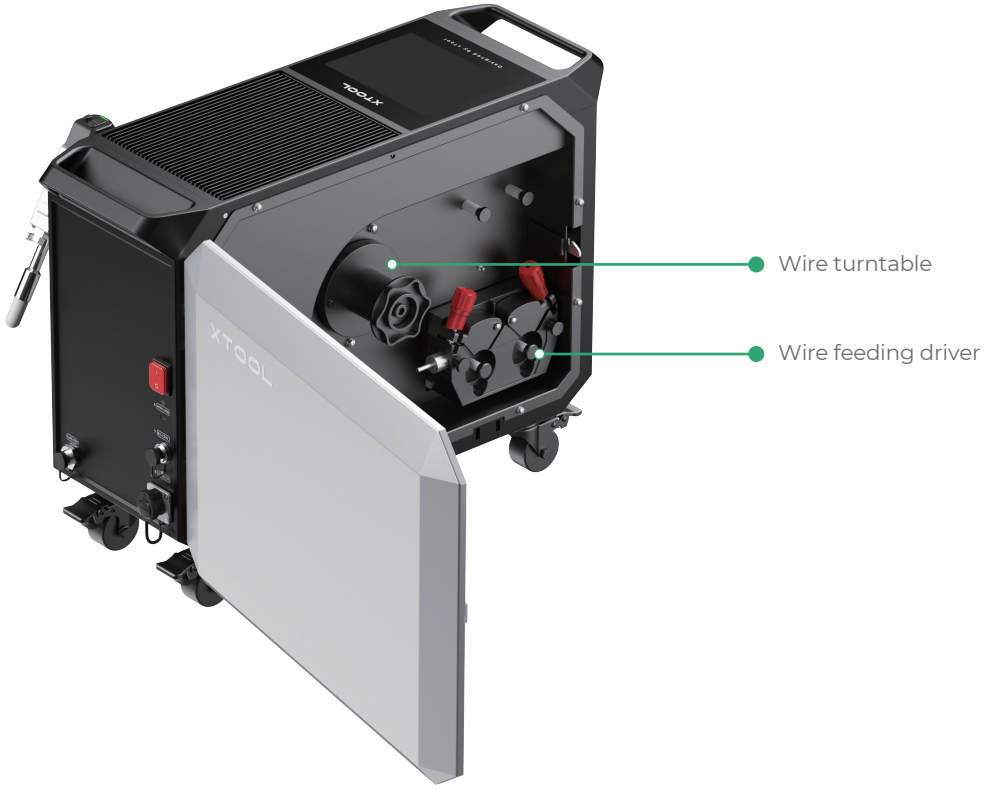
Power switch

Extension port

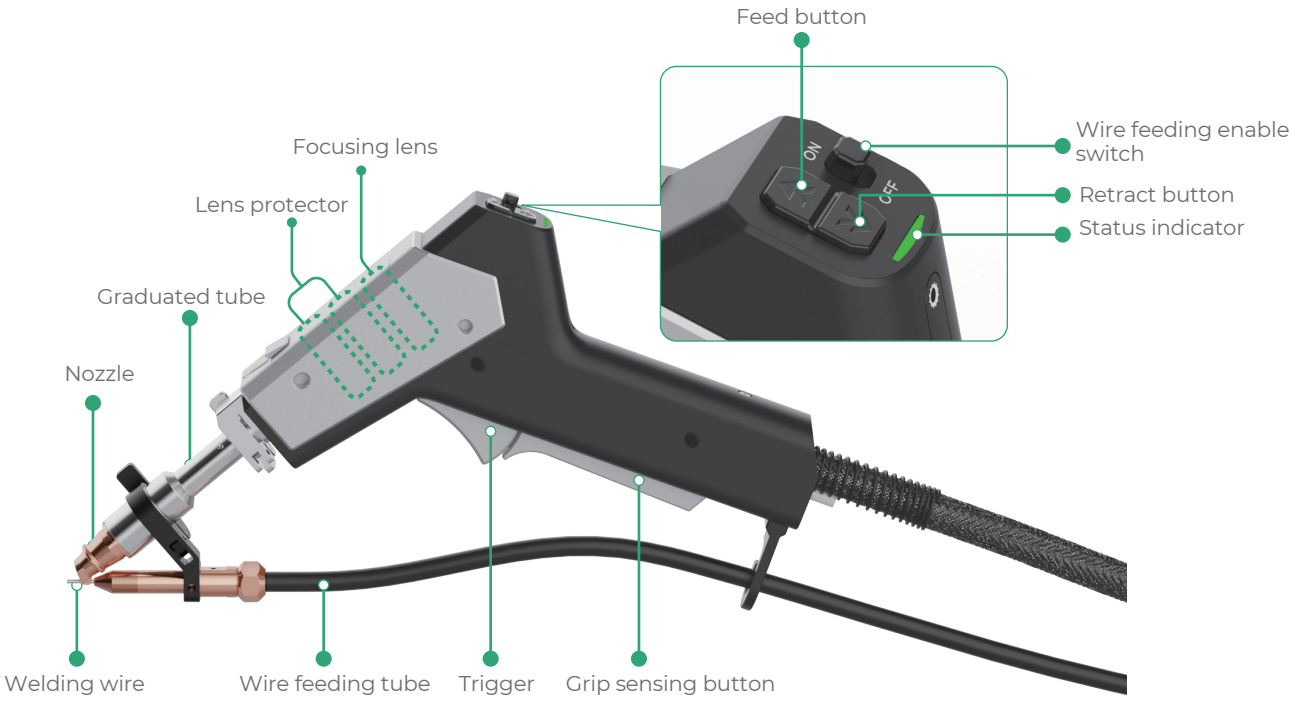
Port for CNC cutter

Shielding gas inlet

Power port



Structure of the welding head



Indicator and buzzer explained

Buzzer	Status indicators	Device status
/	Solid white	Powered on, but not ready for laser emission. To emit laser beams, the device must meet all of the following requirements: ▪ Safety interlock loop closed ▪ Lasering function enabled ▪ Grip sensing button pressed
	Blinking green slowly	Ready for laser emission. You can press the trigger on the welding head to emit laser beams.
	Solid green	Emitting laser.
Three consecutive beeps	Solid red	Exceptions occur or device malfunctions.

The indicators on the main unit and the welding head are synchronized and indicate the same status.

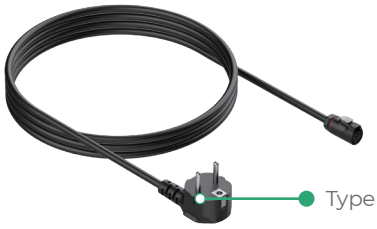
Specifications

Main unit	Product name	xTool MetalFab Laser Welder 800W
	Model	MHJ-K006-240
	Dimensions (W × D × H)	306 mm × 632.3 mm × 472 mm
	Weight	35 kg
	Rated voltage	220 V to 240 V
	Full load current	13.5 A
	Full load power	3 kW
	Working temperature	–10℃ to +40℃
	Storage temperature	–10℃ to +60℃
	Ambient humidity	10% to 85%
	Cooling mode of the laser module	Forced air cooling
Laser	Working mode	Continuous wave (CW) / Modulated wave (MW)
	Laser wavelength	1080 ± 10 nm
	Output power	800 W
	Length of the welding head cable	3.5 m
	Bend radius of the welding head cable	≥ 150 mm
Wire feeding	Wire feeding speed	2 mm/s to 100 mm/s
	Maximum wire spool weight supported	5 kg
	Maximum external diameter of wire spool supported	200 mm
	Maximum thickness of wire spool supported	60 mm
	Supported wire diameters	0.8 mm, 1.0 mm, 1.2 mm, 1.6 mm
	Length of the wire feeding tube	3 m

Prepare for installation

Power supply

xTool MetalFab Laser Welder 800W requires a 220 V – 240 V AC power supply, and works at a full load power of 3 kW. An individual branch circuit with a current-carrying capacity of 20 A or above is recommended.
Requirements on electrical facilities vary with power cables. Please consult a qualified electrician before installing the device to ensure that the device is installed in accordance with local electrical codes.

US standard  NEMA 6-20P	Use a NEMA 6-20R power outlet:  (For reference only)
EU standard  Type F plug	Use a Type F power outlet:  (For reference only)

For the electrical requirements of other types of power cables, scan the QR code or visit the link.

support.xtool.com/article/2099

- Ensure that the welder is powered separately. Do not use it with other high power equipment on the same circuit.
- To ensure safety, it is recommended that you install a 20 A air circuit breaker between the power supply and xTool MetalFab Laser Welder 800W.

Workroom

Ensure that the workroom is well ventilated.

Shielding gas

xTool MetalFab Laser Welder 800W requires the use of shielding gas. Supported gas types include nitrogen and argon, and the gas purity must be over 99.99%.
Different processing types have different requirements on gas supply:

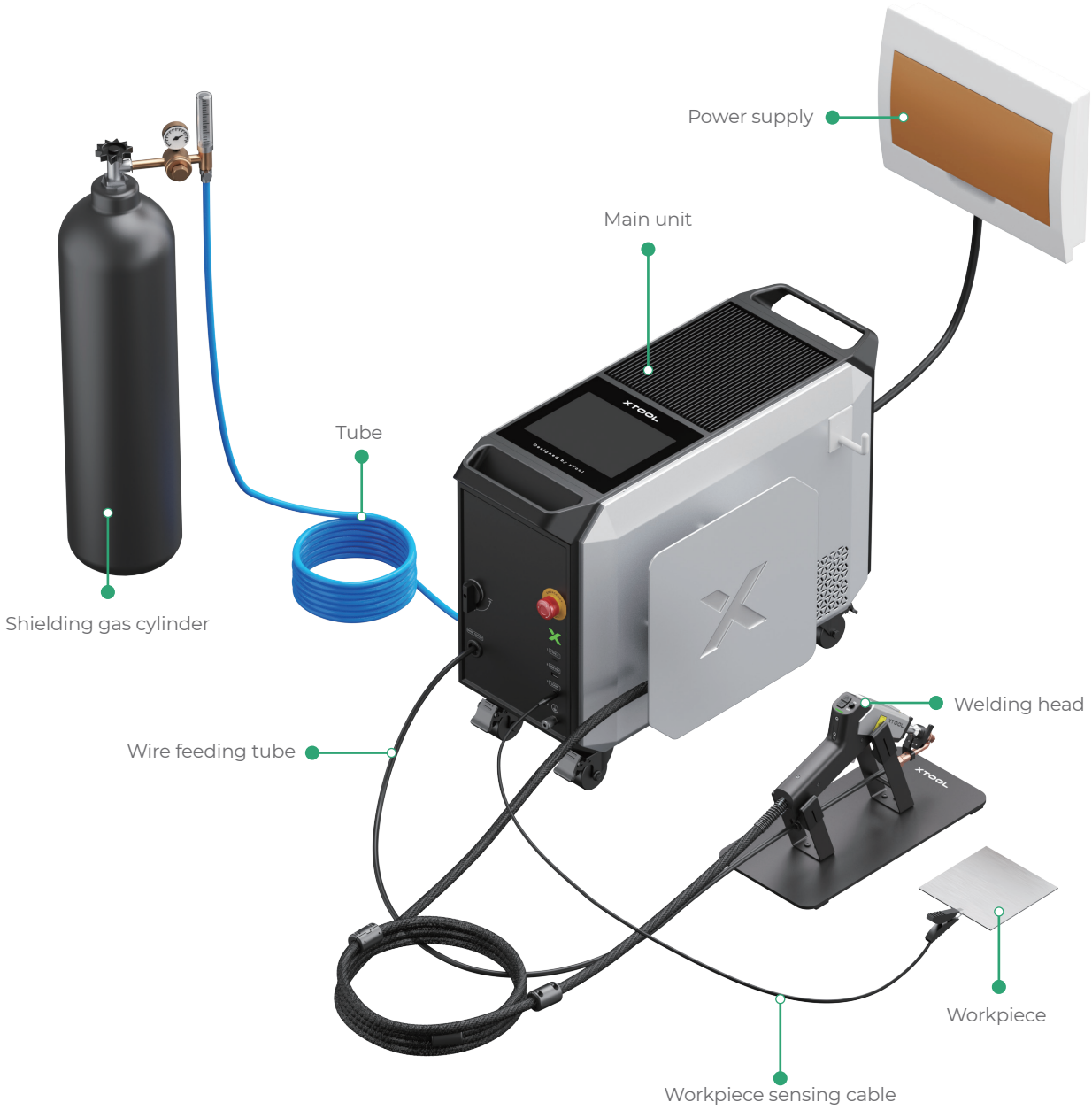
Processing type	Gas flow/pressure requirement	Necessary accessory
Laser welding	Flow rate: 15 L/min – 30 L/min	Gas flow meter
Laser cleaning	Gas pressure: 100 kPa – 200 kPa Flow rate: 20 L/min – 30 L/min (Both conditions need to be met)	Gas pressure regulator + gas flow meter
Laser cutting	Gas pressure: 800 kPa – 1200 kPa	Gas pressure regulator

xTool MetalFab Laser Welder 800W does not come with gas cylinders, gas generators, or related accessories. Please prepare them separately.

Install xTool MetalFab Laser Welder 800W

Cabling diagram

The following picture shows the cabling diagram of xTool MetalFab Laser Welder 800W. Please follow the detailed step-by-step instructions to complete the installation.



1 Place the main unit

Pull up the pedals on all four caster wheels, then move the main unit to the desired position, ensuring at least 10 cm of clearance at the front and back (to ensure good ventilation and heat dissipation).
Step on the pedals to lock the casters and secure the main unit.

1 Main unit

Pedals UP – main unit movable

Pedals DOWN – main unit secured

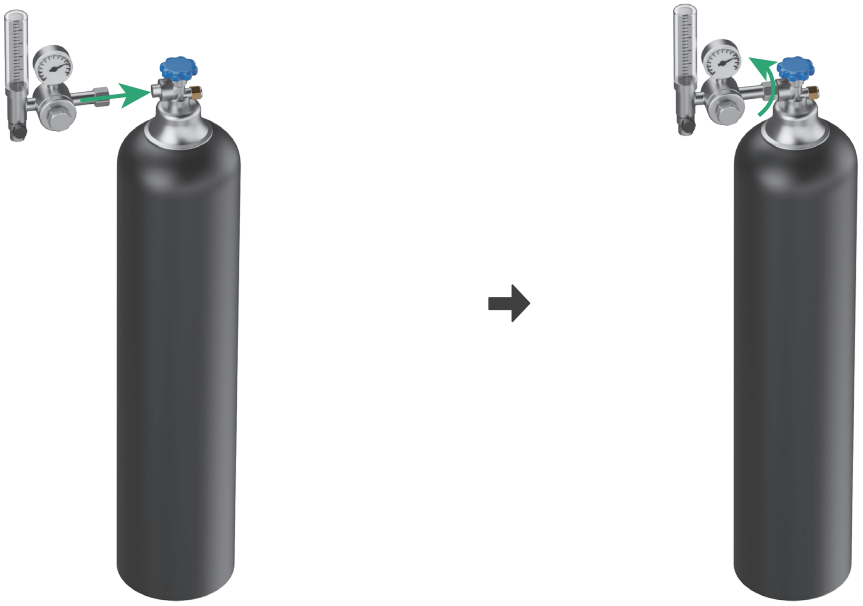
2 Connect the shielding gas cylinder

(1) Install a gas regulator on the shielding gas cylinder (or gas generator).


Shielding gas cylinder (not provided)


Gas flow meter (not provided)

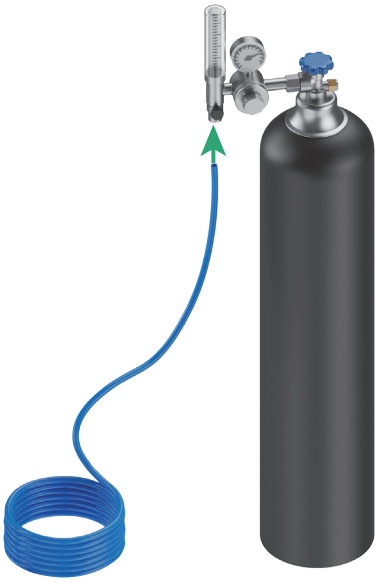
- Laser welding requires a gas flow meter, laser cleaning a pressure regulator and gas flow meter, and laser cutting a pressure regulator.
- Installing a gas flow meter on a cylinder is used as an example here.



Tighten the nut to prevent gas leakage.

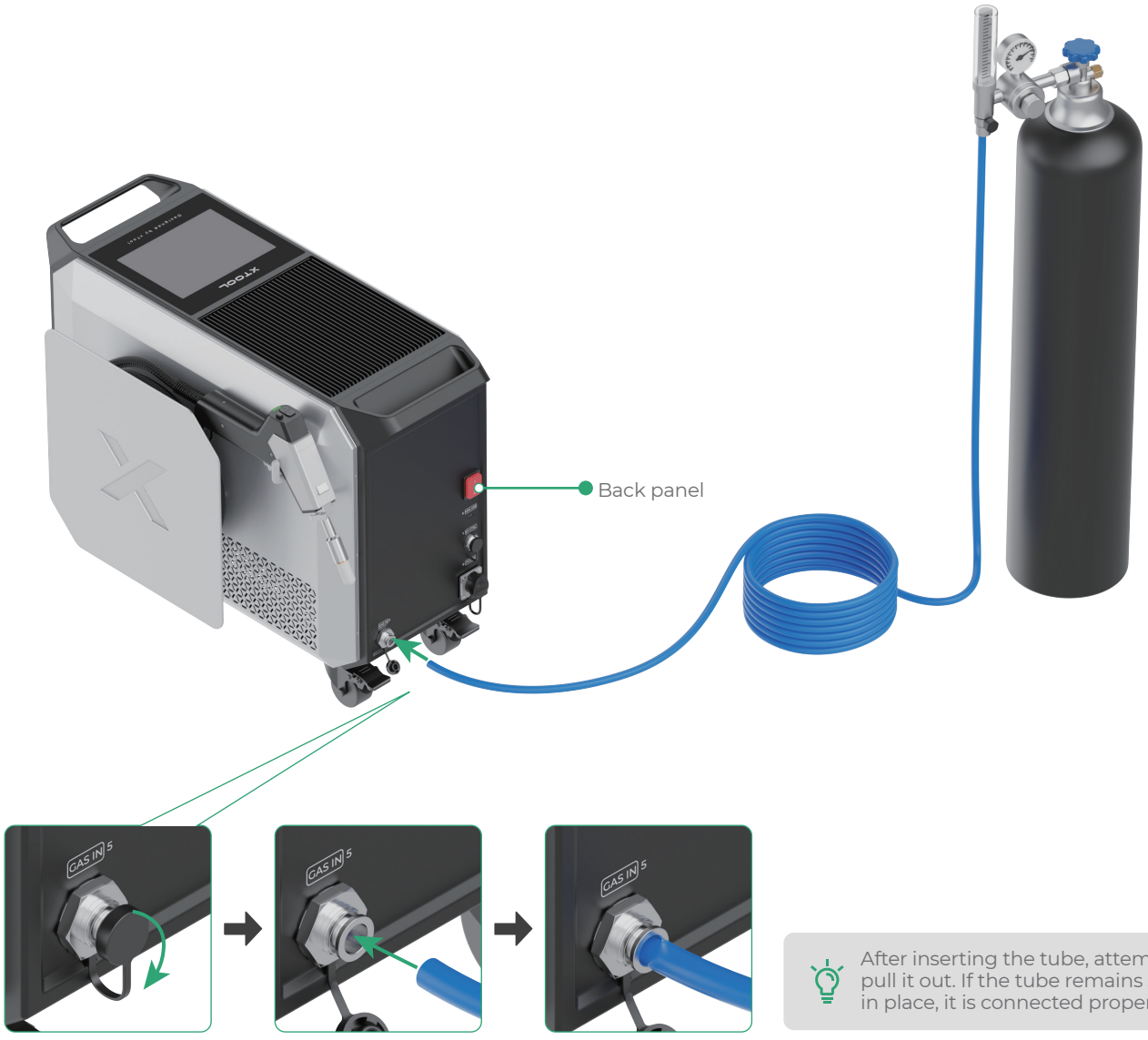
(2) Connect one end of the tube to the cylinder (or gas generator).


④ Tube (external diameter: 10 mm)

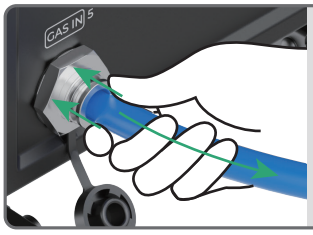


Do not open the gas cylinder valve yet. Open it only before laser processing.

(3) Insert the other end of the tube into the shielding gas inlet on the main unit.



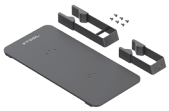
After inserting the tube, attempt to pull it out. If the tube remains securely in place, it is connected properly.



To remove the tube, push and hold the collet of the shielding gas inlet and pull out the tube.

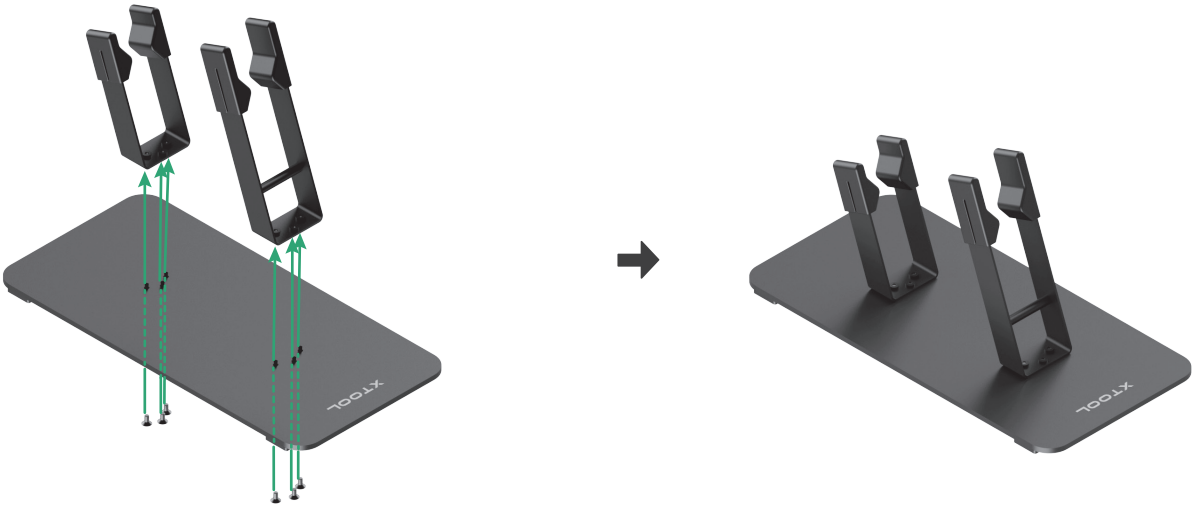
3 Place the welding head

(1) Assemble the welding head cradle.



⑧ Components for welding head cradle

⑲ Hex key 2.5 mm



(2) Take the welding head off the main unit and place it on the cradle.

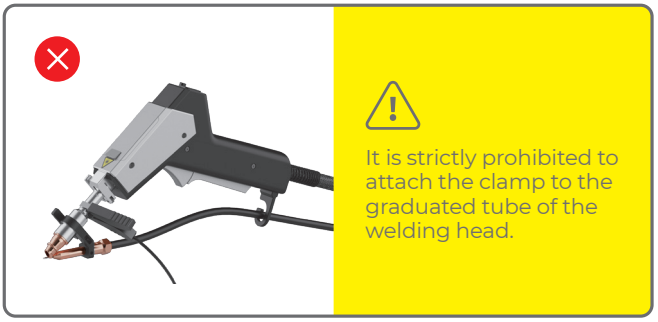
⚠ The taller holder sits in the front.

⚠ Do not pull the cable forcefully when taking the welding head off, as this can damage the optical fiber.

4 Connect the workpiece sensing cable

Insert the connector end into the port for the workpiece sensing cable, and attach the clamp to the worktable for now.

⑥ Workpiece sensing cable



It is strictly prohibited to attach the clamp to the graduated tube of the welding head.

Safety interlock loop

The workpiece sensing cable is used to connect the main unit with the workpiece, forming a safety interlock loop. The cable clamp needs to be connected to the workpiece before welding. During welding, when the welding head is in contact with the workpiece, the safety interlock loop will be closed and allow laser emission.

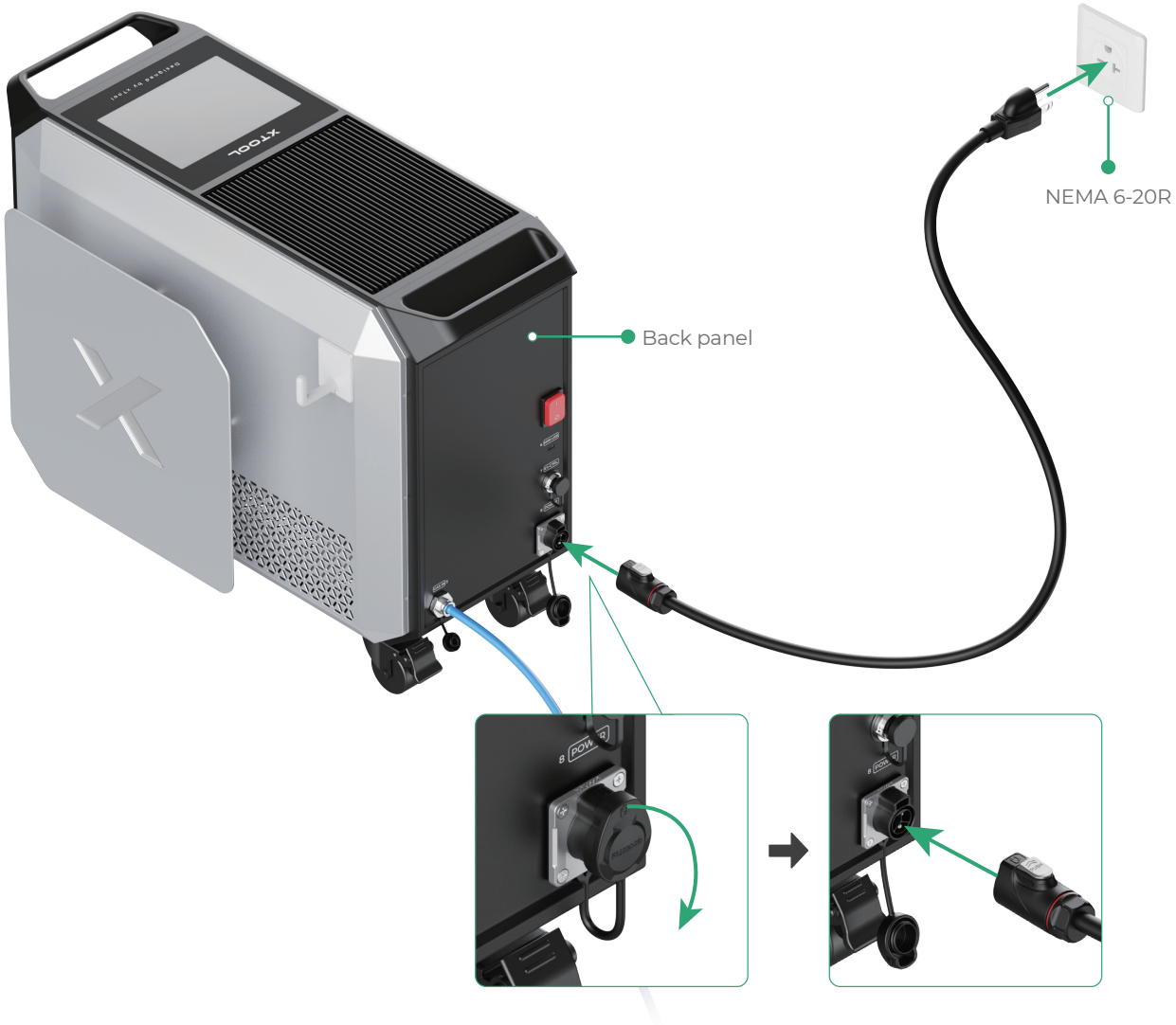
5 Connect to a power supply

- Ensure that the welder is powered separately. Do not use it with other high power equipment on the same circuit.
- To ensure safety, it is recommended that you install a 20 A air circuit breaker between the power supply and xTool MetalFab Laser Welder 800W.

The connection of power cables varies with their standards. The following instructions are for US standard power cables only. Power cables of other standards should be connected in accordance with local electrical codes.

Insert the connector with a PUSH button to the power port of the main unit, and attach the other end to the power supply.

⑤ Power cable



To remove the connector, press and hold the PUSH button and pull the connector out.

Ensure that the device is grounded. If the power supply is not grounded, please use an earth cable (not provided) to connect the device to a grounded object.

Earth cable (Not provided. For reference only.)

6 Check the emergency stop button

Ensure that the emergency stop button is released. If it is pressed, rotate to release it.

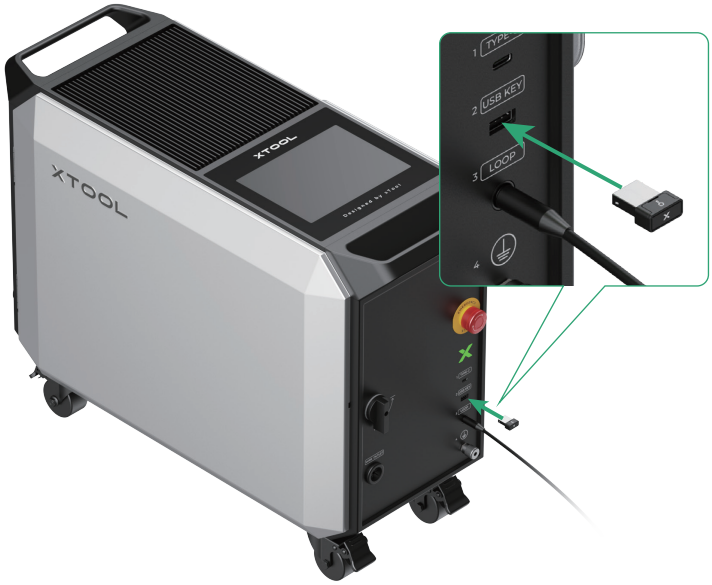
Emergency stop button

If an emergency occurs, press the emergency stop button to shut off the laser module and stop laser emission.

After dealing with the emergency, rotate the emergency stop button to release it.

7 Insert the key into its designated port

② Key



You can use the key either as an access-control key or a remote interlock connector.

- Access-control key

  Removing the key can disable the machine's processing and related functions.

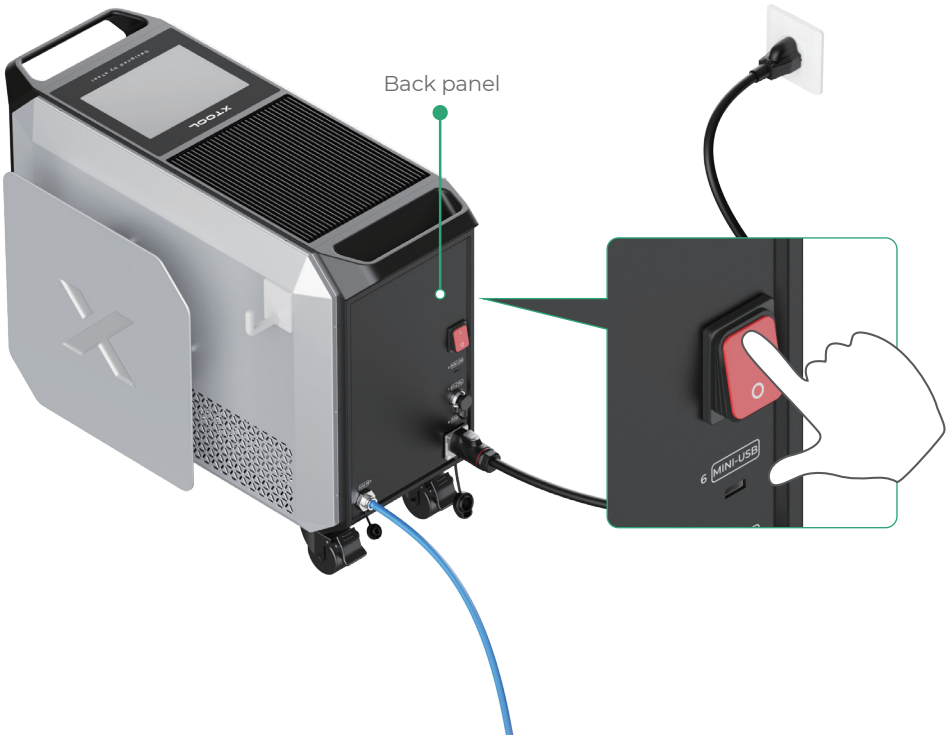
- Remote interlock connector

  For detailed instructions, scan the QR code or visit the link.

support.xtool.com/article/1367

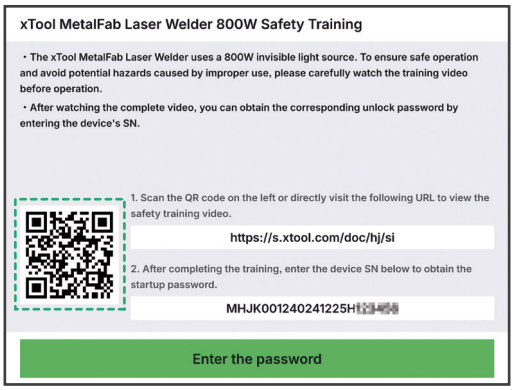
8 Power on

On the back panel of the main unit, turn on the power switch to power on the device.

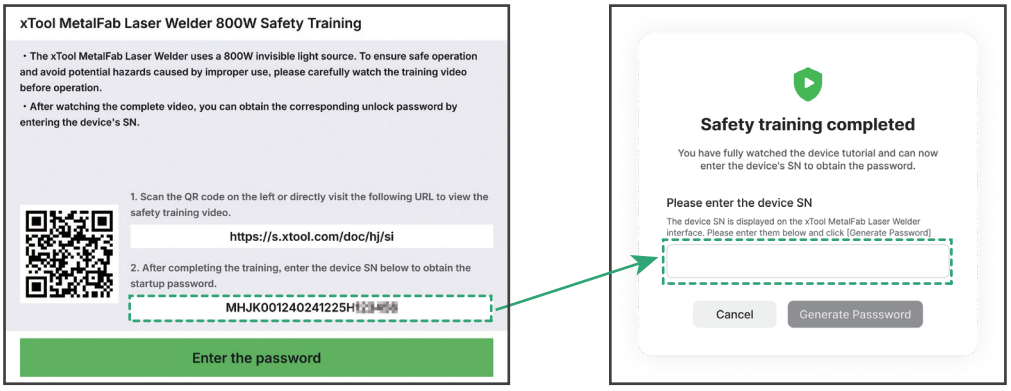


9 Unlock the device

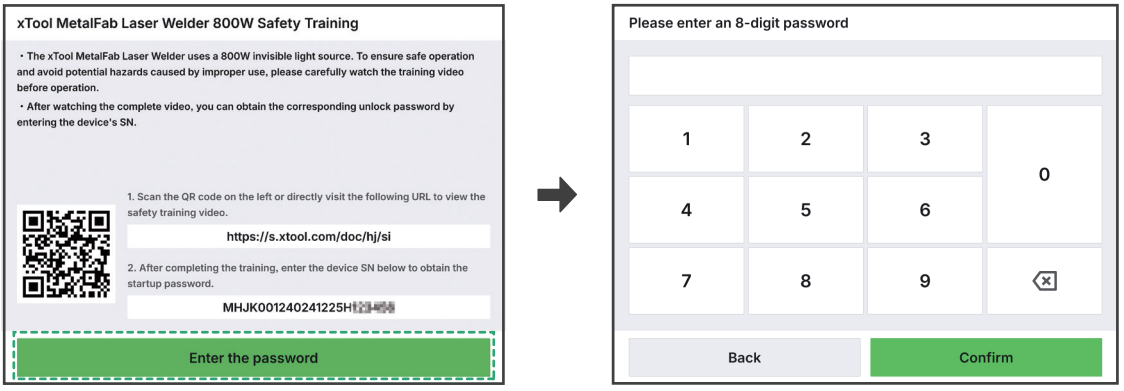
(1) The first time you turn on the device, you will see a QR code displayed on the touchscreen. Scan the QR code or visit s.xtool.com/doc/hj/si to watch the safety training videos.



(2) After watching the video, input the serial number (SN) shown on the touchscreen to the web to generate an unlock password for your device.



(3) On the touchscreen of your device, tap Enter the password. Then, enter the password generated to unlock your device.

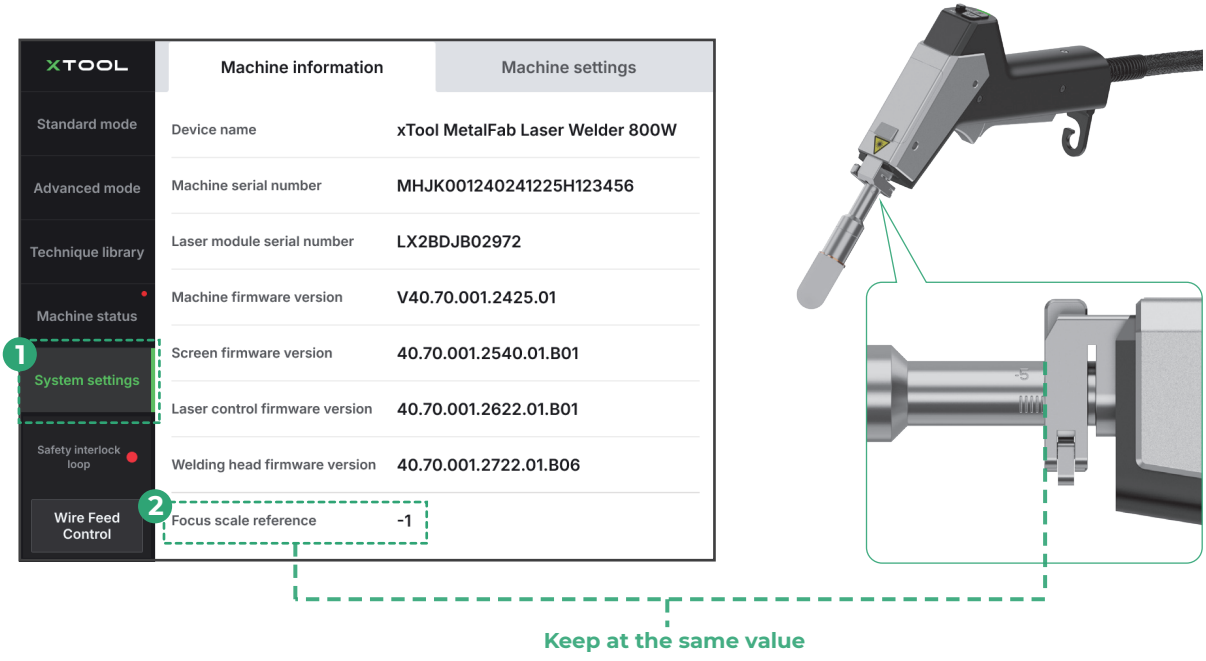


Ensure that all users watch the safety training videos before using the device. You can access the videos by scanning the QR code or visiting the link.

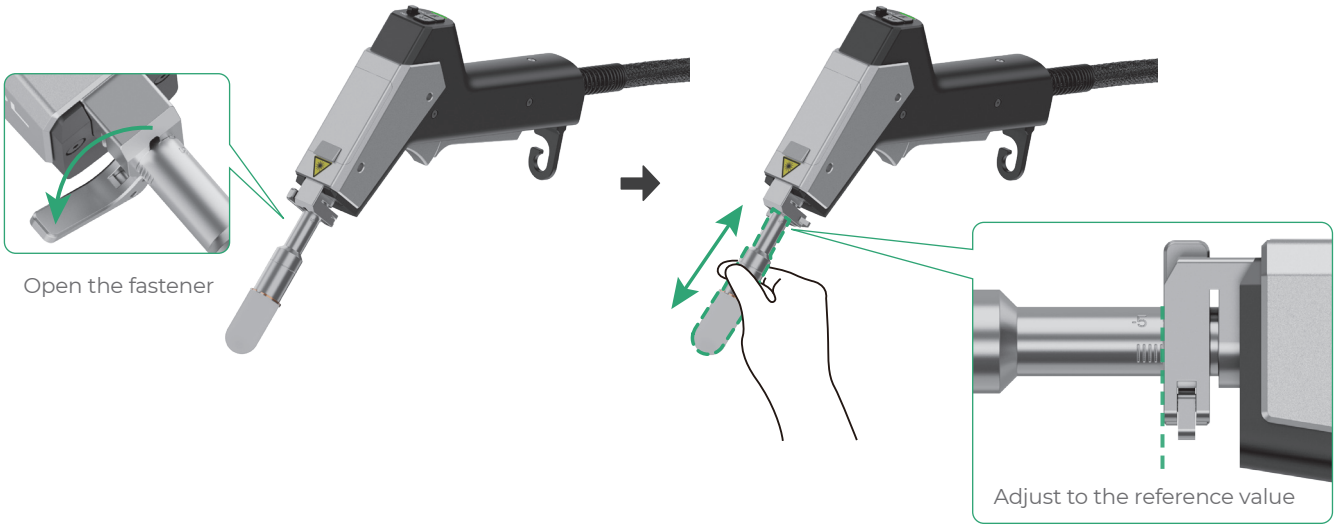
s.xtool.com/doc/hj/si

10 Calibrate the focus for the welding head

(1) On the home page of the touchscreen, tap System settings and check whether the Focus scale reference is the same as the actual value on the graduated tube. If the values are the same, no calibration is needed; if they are not, go to step (2).



(2) Open the fastener, and push or pull the graduated tube to adjust it to the reference value shown on the touchscreen.



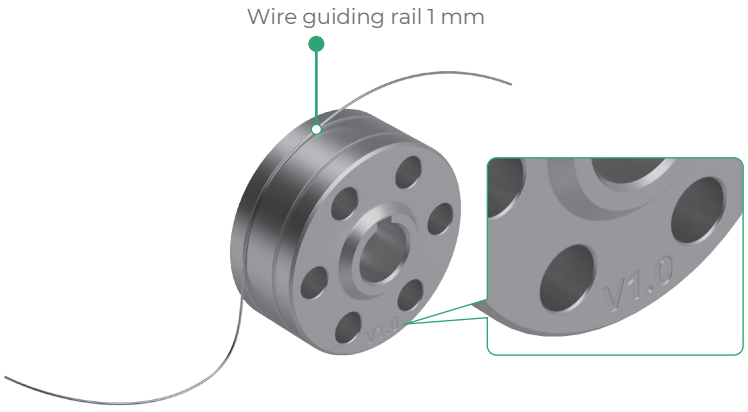
Install wire feeding accessories

- Only wire-filled welding requires the use of welding wire. Other scenarios (including autogenous welding, laser cleaning, and laser cutting) do not use welding wire.
- This guide exemplifies installing 1 mm welding wire (provided) on the 1 mm guiding rail.

1 Install the drive rolls

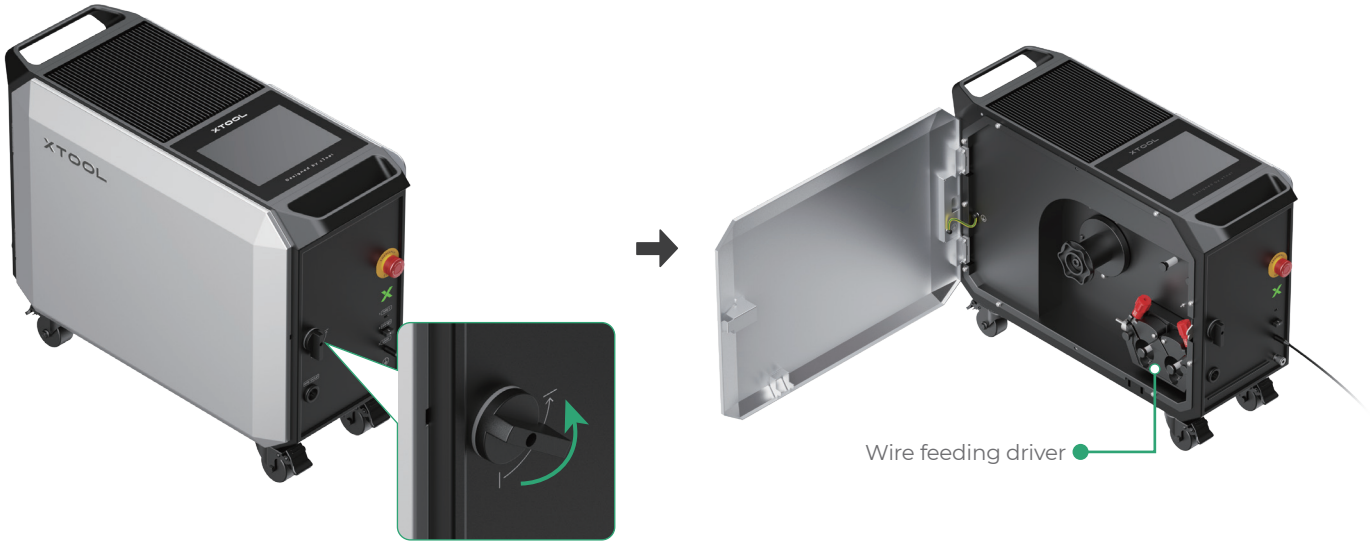
How to check the specifications of the drive roll

Each drive roll has two rails, and the size of each rail is marked on the cross-section that is not adjacent to the rail. When the drive roll is installed on the wire feeding driver, its inner rail is used to guide wire, while its outer side shows the rail size.

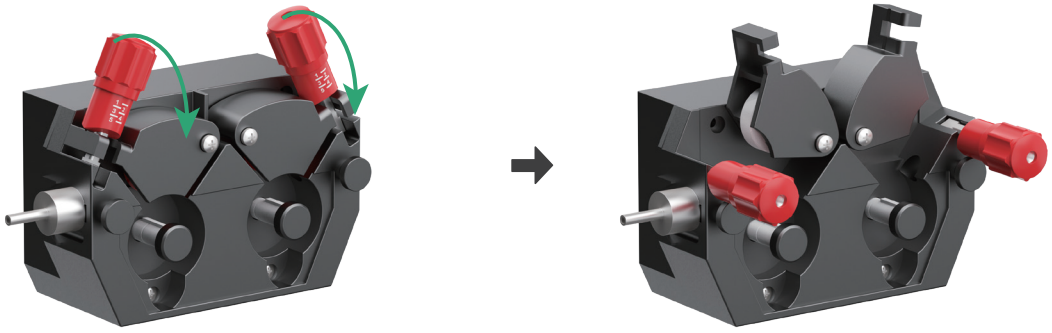


Determine the specifications of drive rolls based on the diameter of the welding wire to be used.

(1) Open the door.

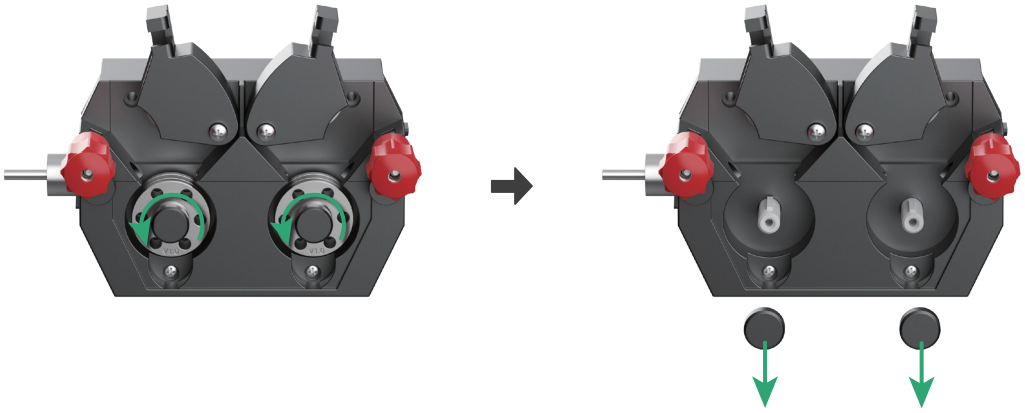


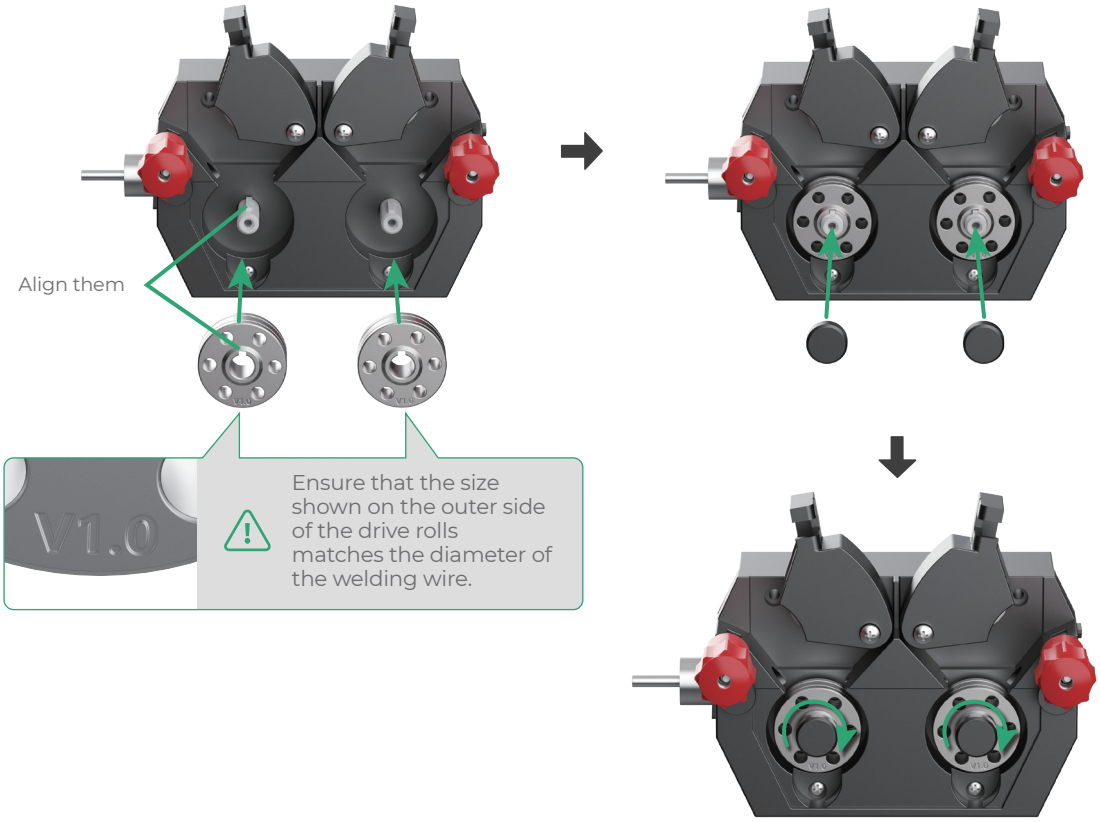
(2) Open the wire feeding driver.



(3) Install the drive rolls

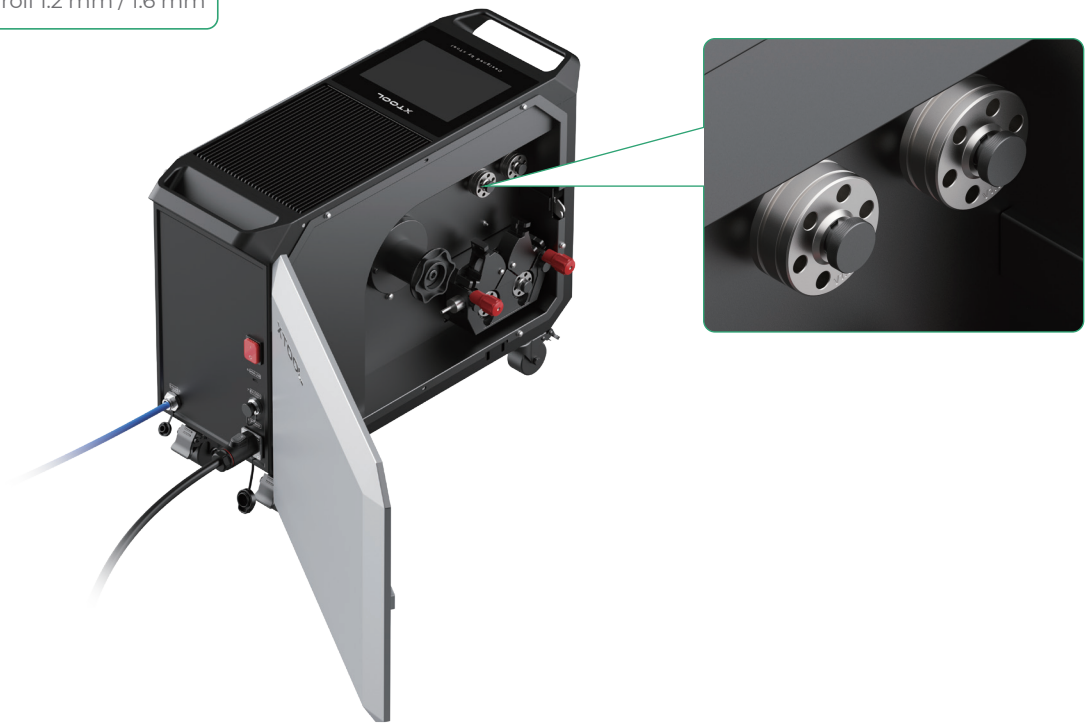
(15) Drive roll 0.8 mm / 1.0 mm





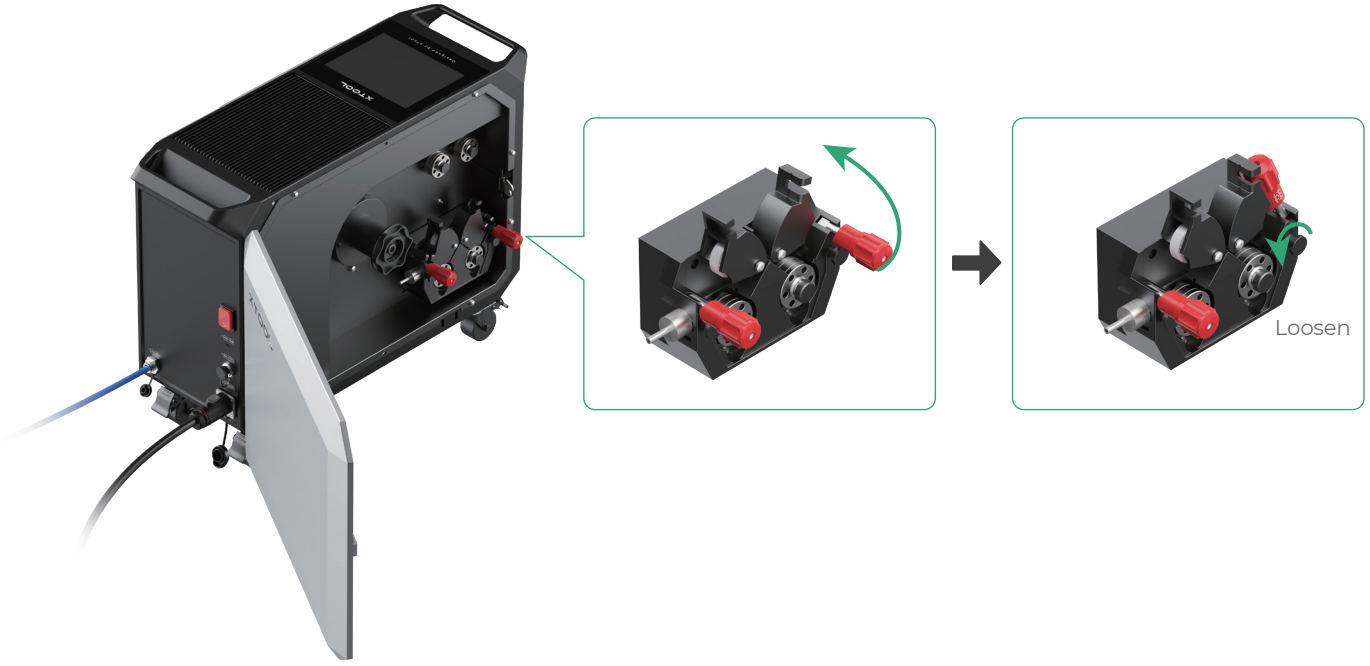
The other pair of drive rolls supplied with this product can be stored in the wire feeder for replacement.

⑯ Drive roll 1.2 mm / 1.6 mm

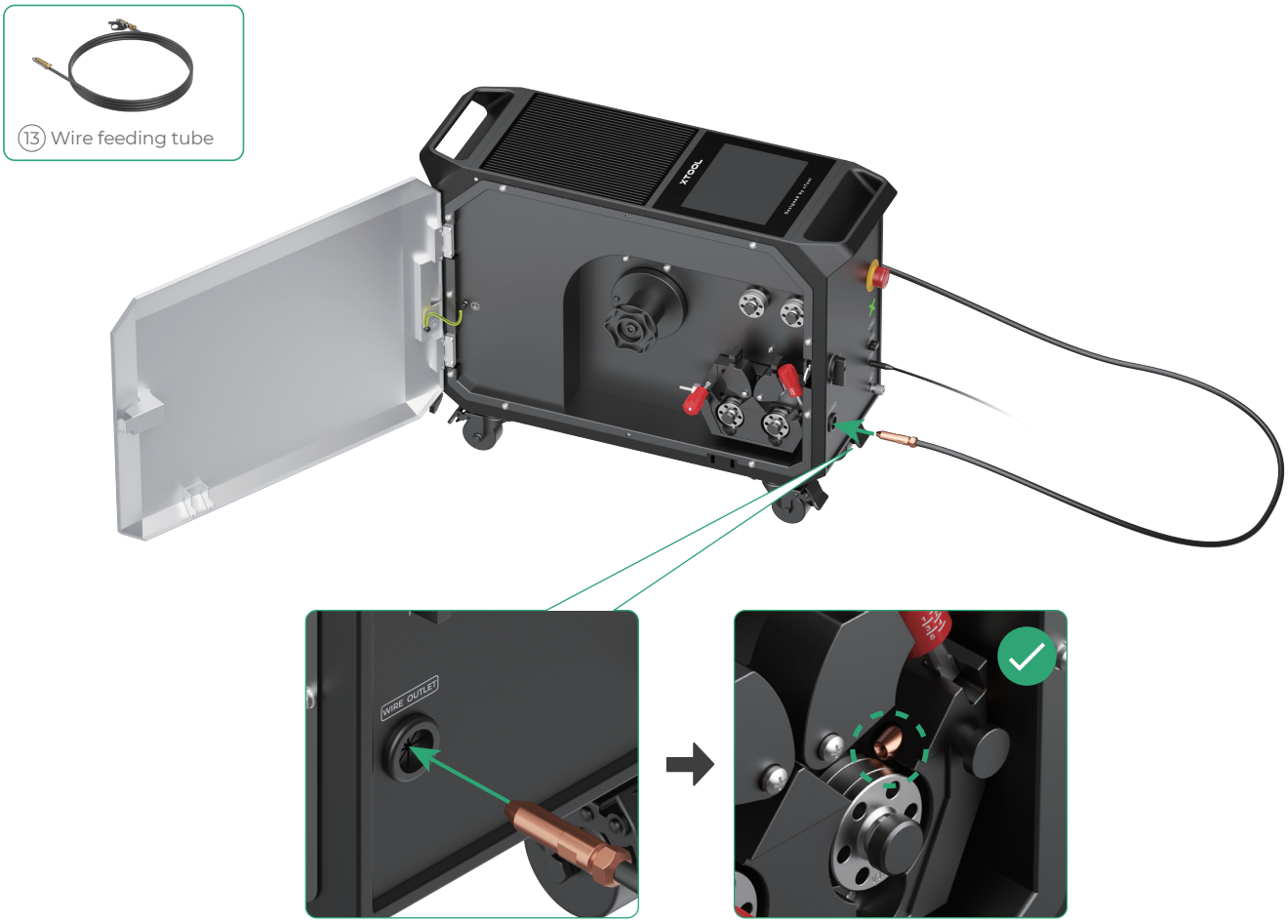


2 Install the wire feeding tube on the main unit

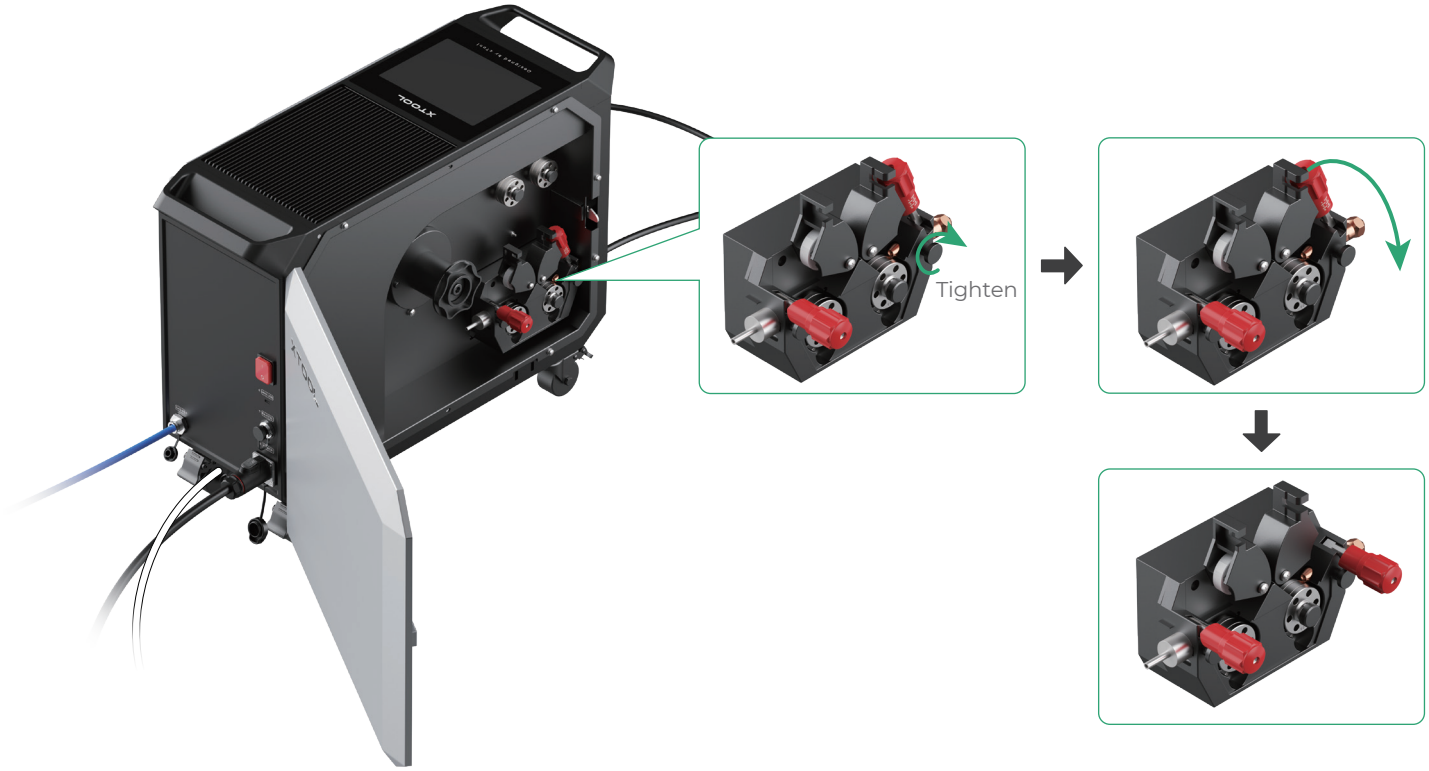
(1) Close the right tensioner, and loosen the screw on the right side of the wire feeding driver.



(2) Insert the end of the wire feeding tube without a fastener to the main unit. Ensure that the wire feeding nozzle shows up at the upper right side of the drive roll.



(3) Tighten the screw to fix the nozzle. Then, open the right tensioner.



3 Load the welding wire

Select a proper wire

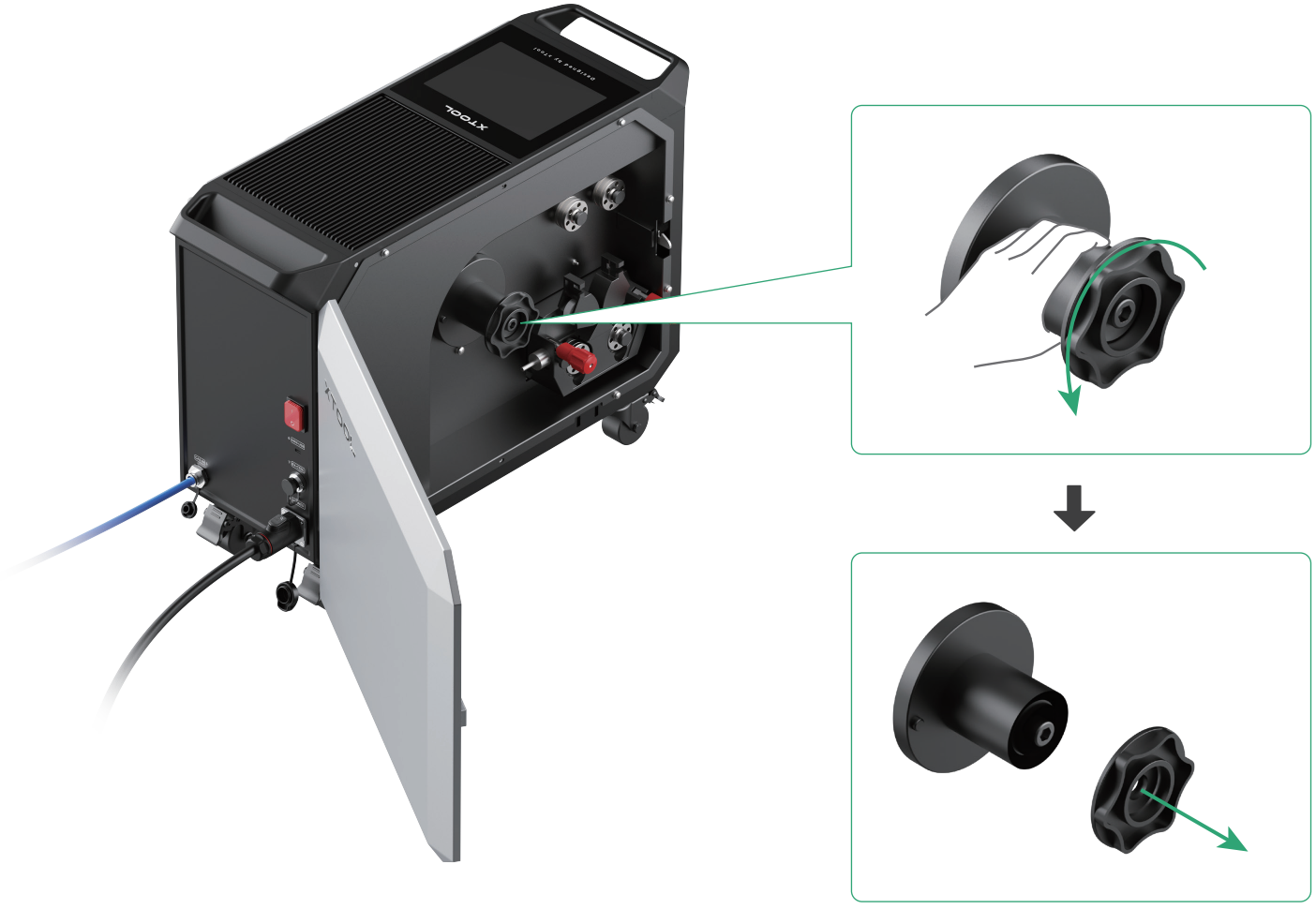
Refer to the following table to select a proper wire based on the material type of the workpiece to be welded.

Workpiece material type	Recommended welding wire
Stainless steel	Stainless steel wire
Carbon steel	Solid iron wire
Galvanized steel	Solid iron wire
Brass	Tin brass wire
Aluminum	Aluminum wire

A roll of 1 mm stainless steel wire is included with this product. Use it as needed.

For aluminum welding, use wire thicker than 1.0 mm. Thinner wires (0.8 or 1.0 mm) are too soft and may cause clogging.

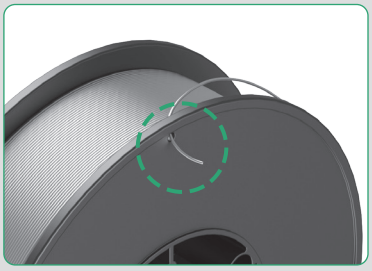
(1) Unscrew the cap of the wire turntable.



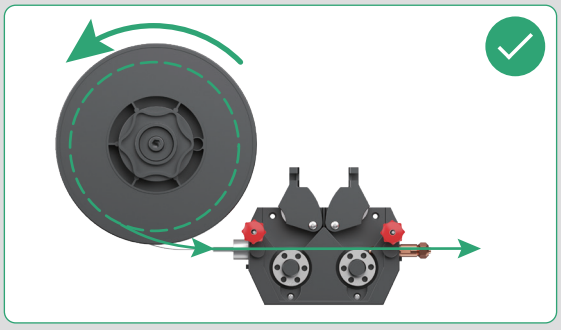
(2) Install the wire spool to the turntable.

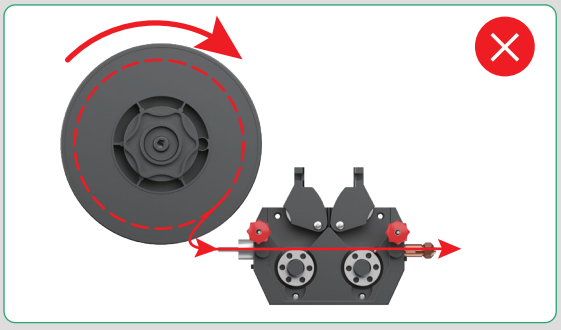
⑭ Stainless steel wire 1 mm

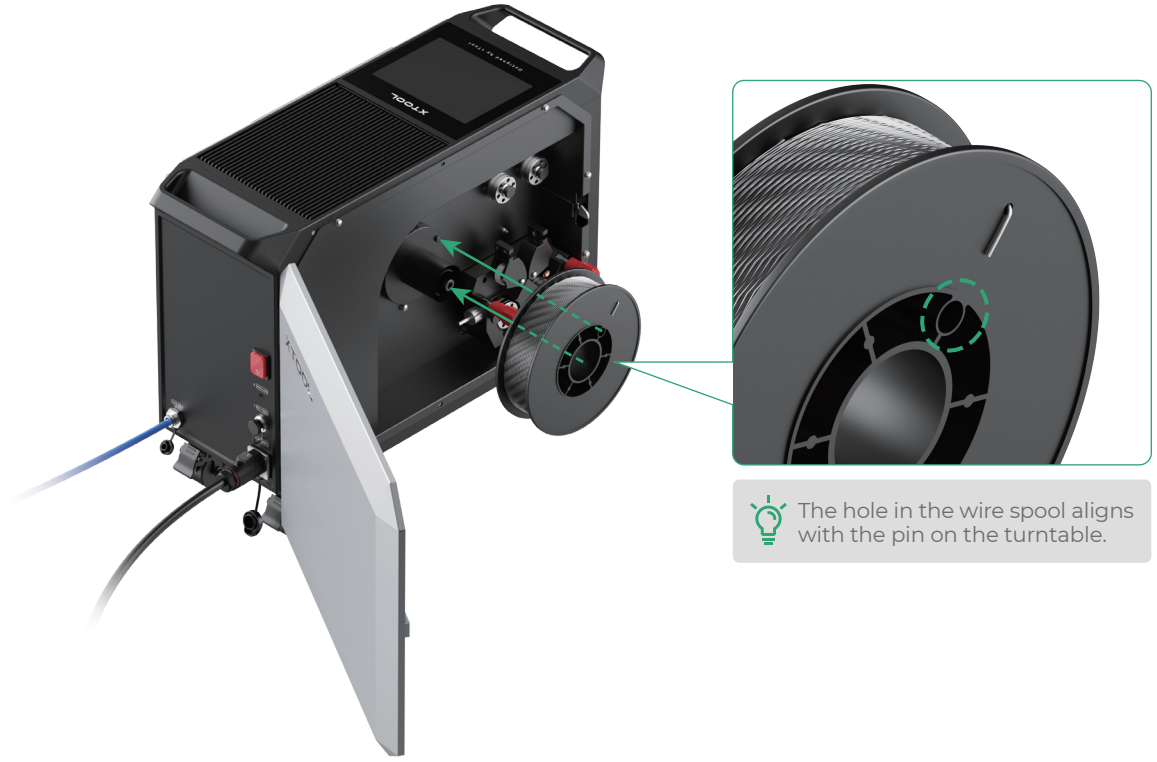
- When installing the wire spool, keep the end of the wire fixed. Do not release the wire yet, as it may unravel and become unusable.



- Ensure that the wire spool is installed in the correct direction. After released, the wire comes out from the bottom of the wire spool to enter the wire feeding driver. During wire feeding, the wire spool rotates counterclockwise.

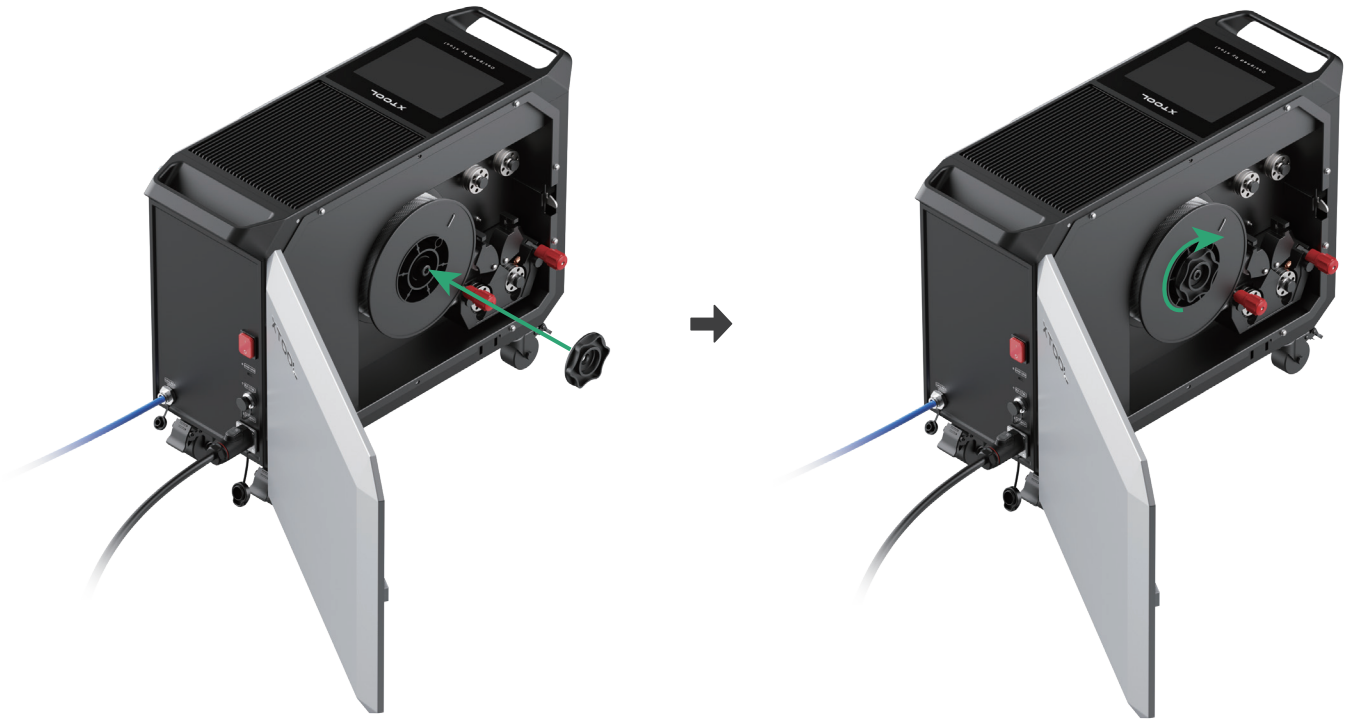






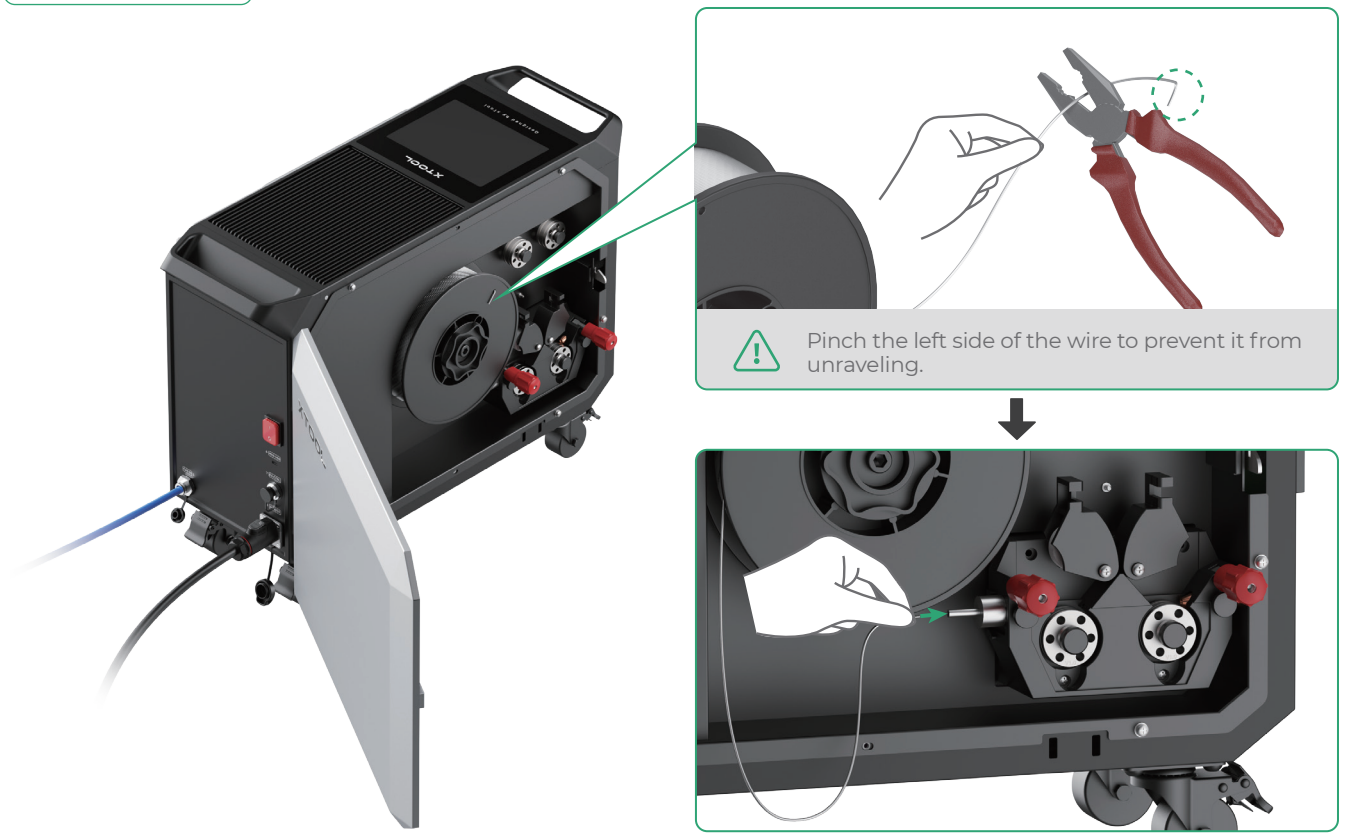
The hole in the wire spool aligns with the pin on the turntable.

(3) Screw the cap back.



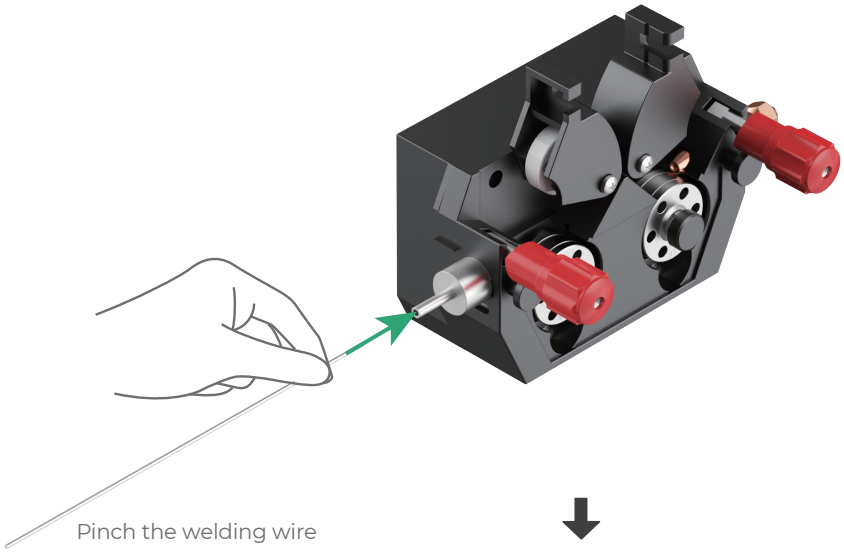
(4) Take out the wire end, cut off the bent part, and thread the wire into the wire feeding driver.

Pliers (not provided)

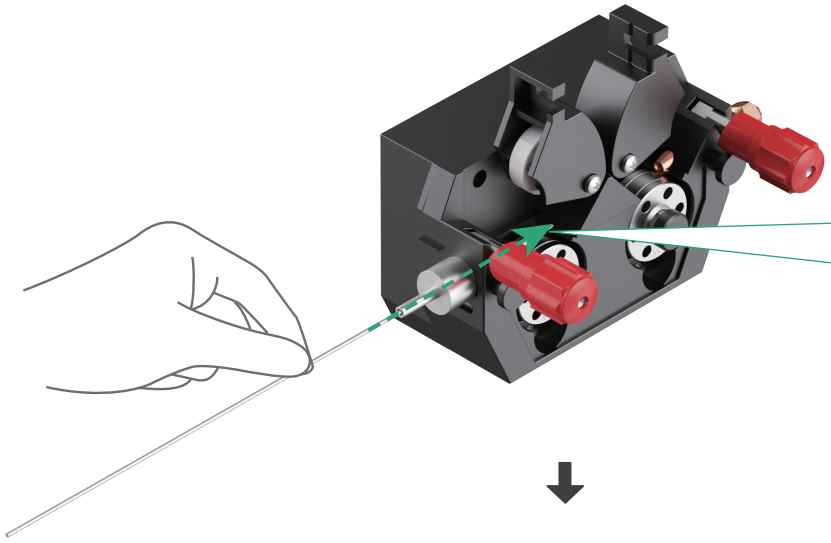


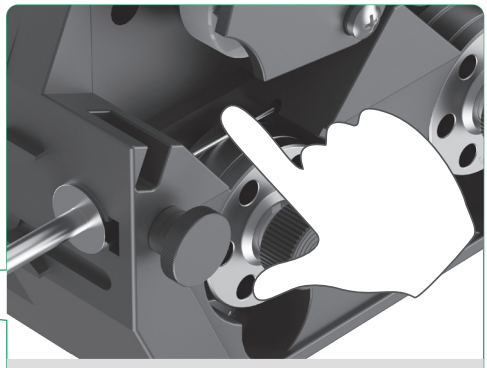
Pinch the left side of the wire to prevent it from unraveling.

When inserting the wire, pinch the wire to prevent it from moving backward and unraveling.

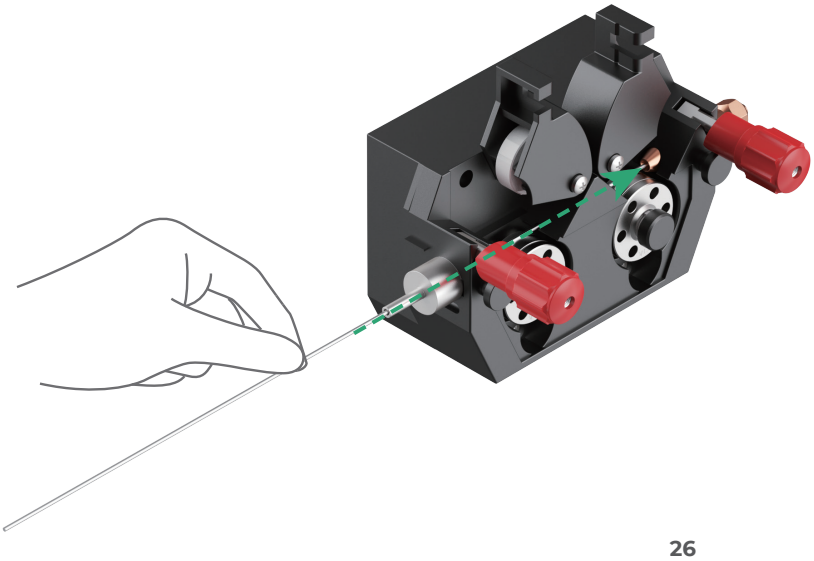


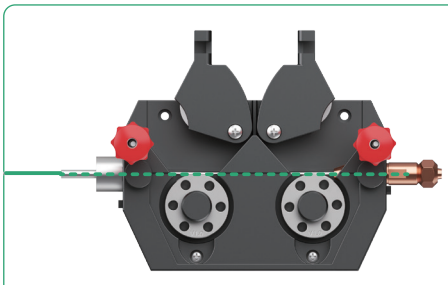
Pinch the welding wire





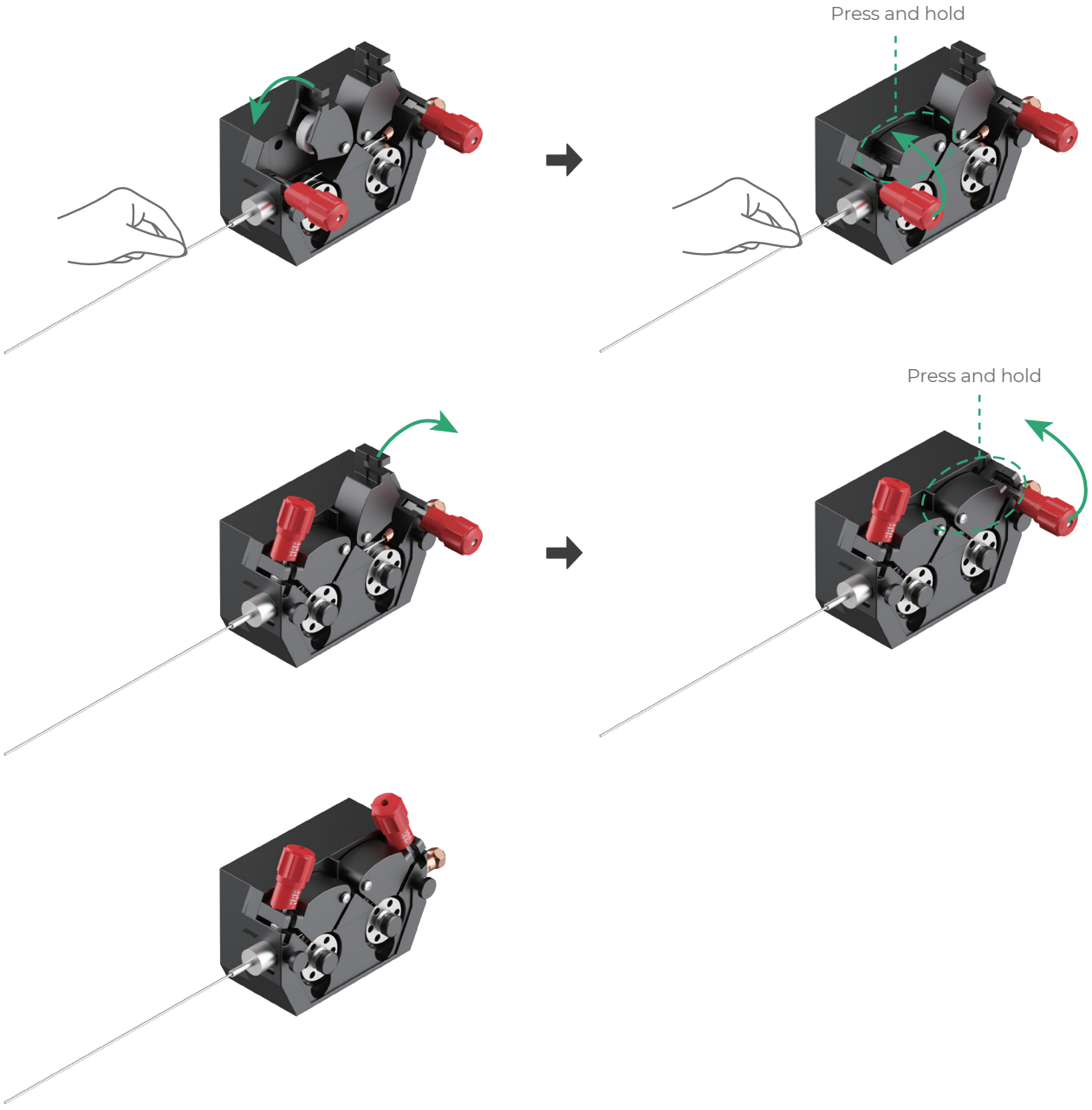
When the wire passes over a drive roll, press the wire slightly to make it pass through.



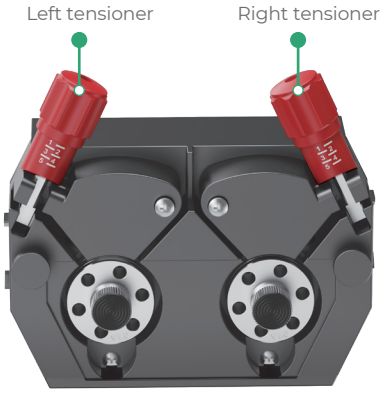


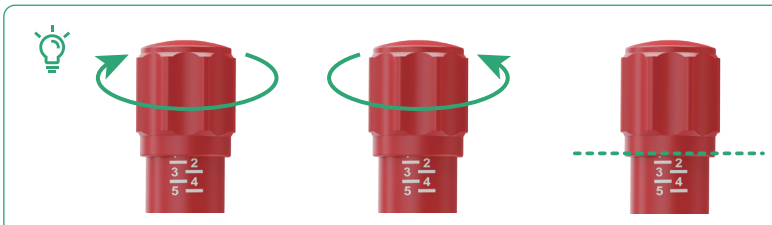
Ensure that the wire passes through the drive rolls into the wire feeding nozzle.

Pinch the wire until you close a tensioner.



(5) Rotate the tensioners' knobs to adjust the wire feed tension.





The knob moves down and tension increases.

The knob moves up and tension decreases.

The number reached by the knob indicates the tension level. A larger number indicates a higher tension.

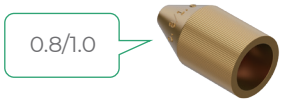
Adjust the roller tensioners based on the wire diameter by referring to the table below. Then, fine-tune the tension according to the actual situation.

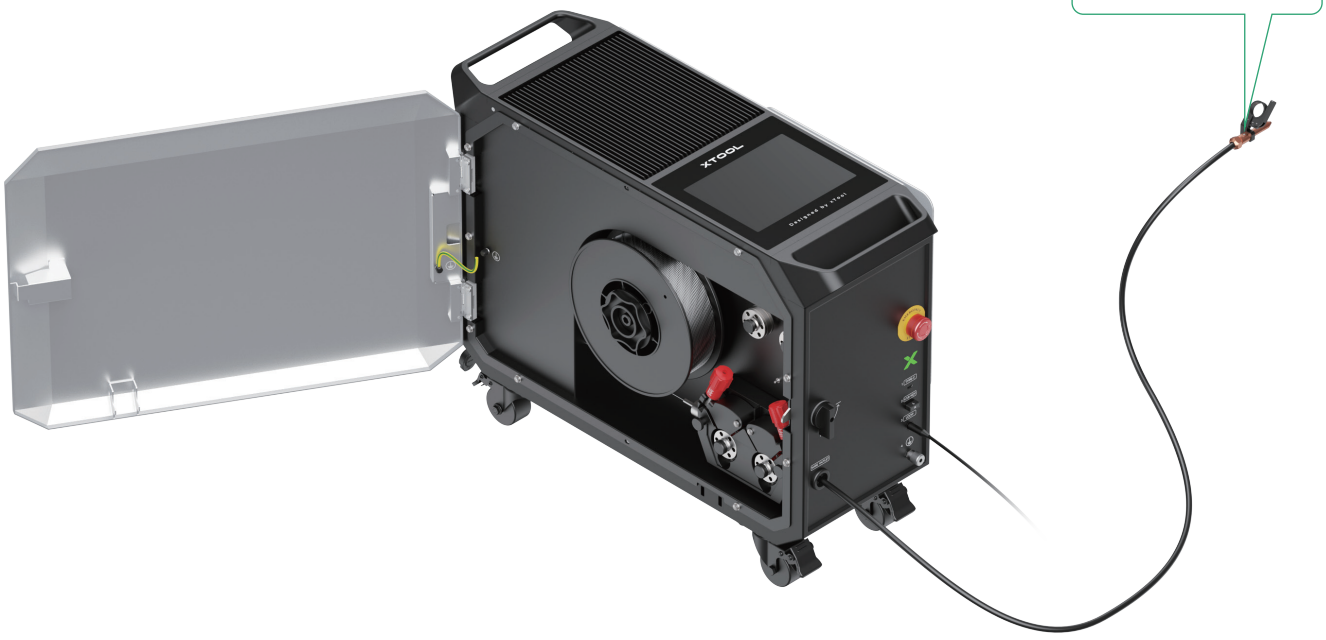
Welding wire diameter (mm)	Left tension level	Right tension level
0.8	2.5	2
1	2.5	2
1.2	2	1.5
1.6	2.5	2

4 Feed the welding wire

To feed wire electrically, ensure that the main unit is turned on.

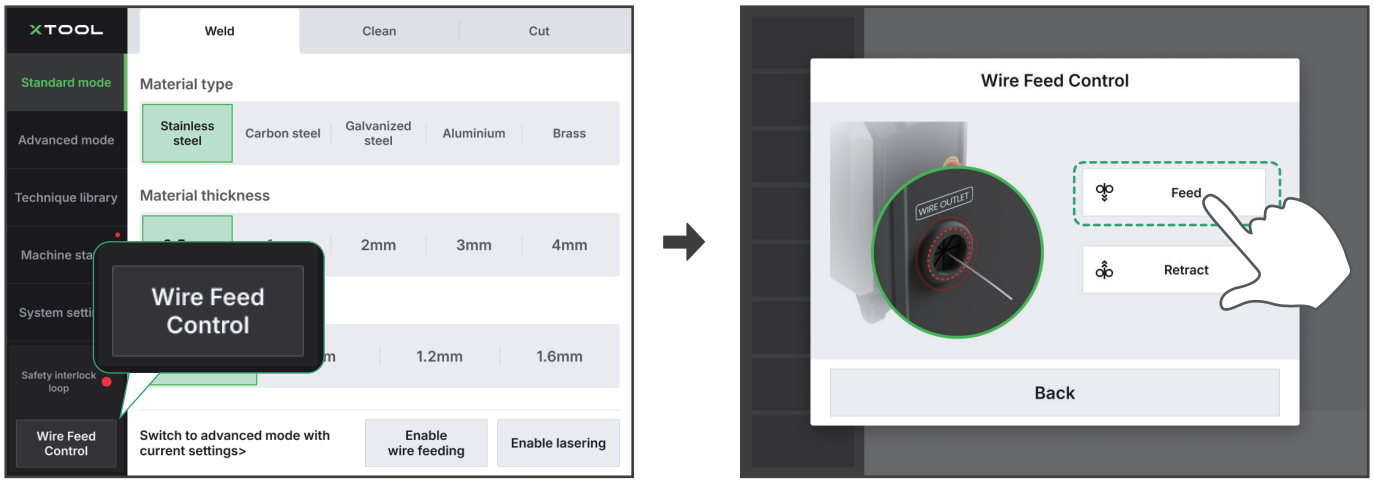
(1) Based on the table below, check if the wire feeding nozzle is of the right size to feed the wire you use.

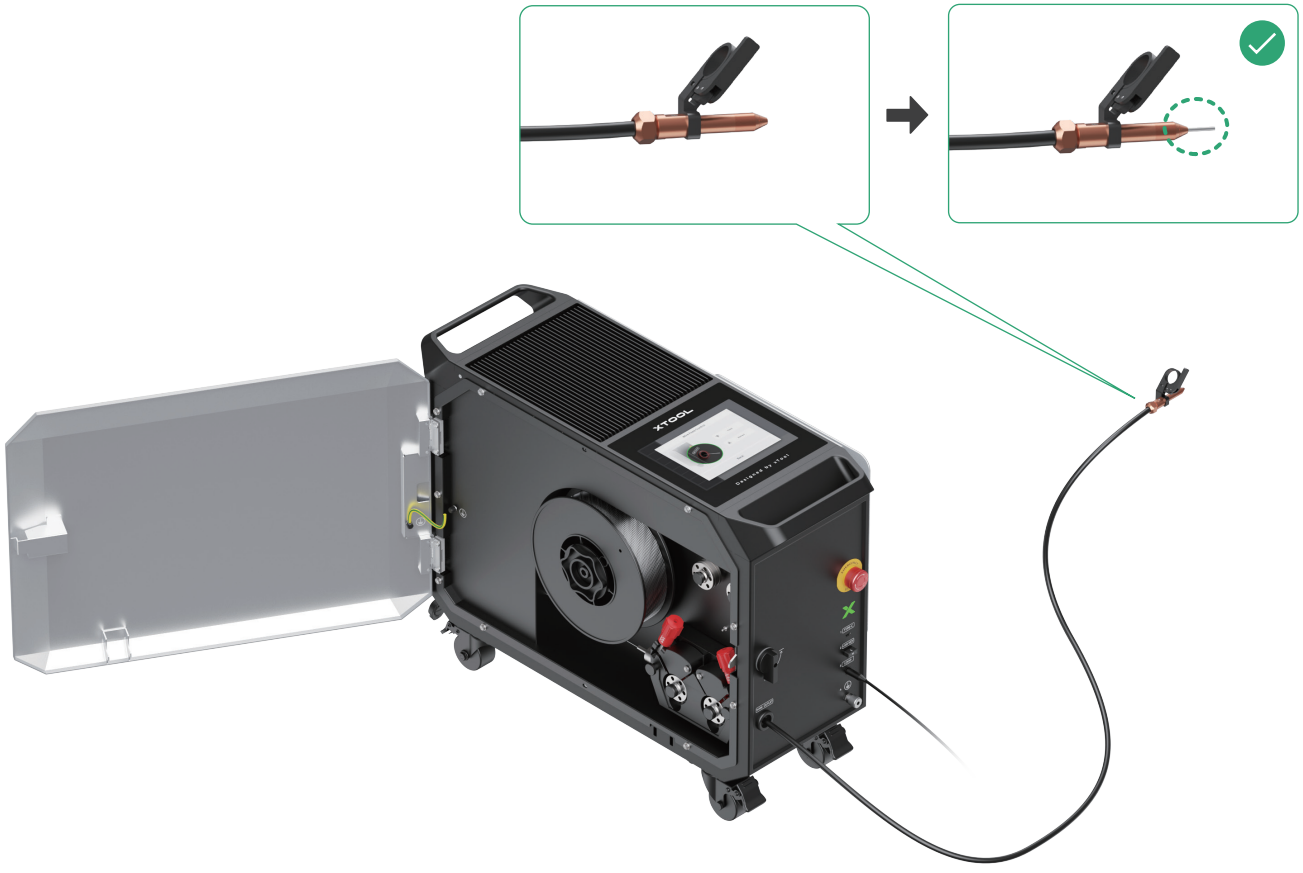
Wire feeding nozzle	Supported wire diameter
	0.8 mm / 1.0 mm
	1.2 mm / 1.6 mm



When delivered, the wire feeding tube is installed with a 0.8 mm / 1.0 mm nozzle at the end with a fastener, and can feed either 0.8 mm or 1.0 mm wire. If you use a 1.2 mm or 1.6 mm wire, please replace the 0.8 mm / 1.0 mm nozzle with the provided 1.2 mm / 1.6 mm wire feeding nozzle. For more replacement instructions, see the "Maintenance" chapter.

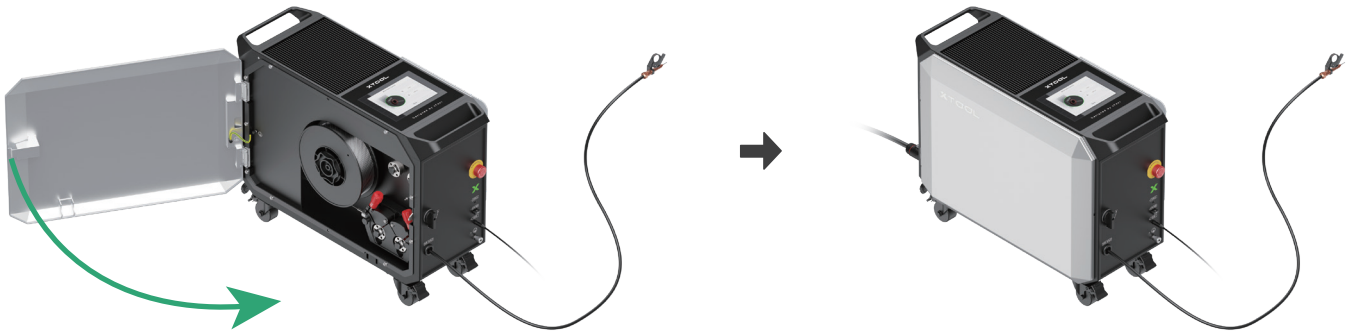
(2) On the touchscreen, tap Wire Feed Control. Press and hold the Feed button until the wire extends out of the nozzle.





When feeding the wire, observe the inside of the wire feeder. If the wire spool rotates counterclockwise at a constant speed, the wire feeder is working properly.

(3) Close the door.



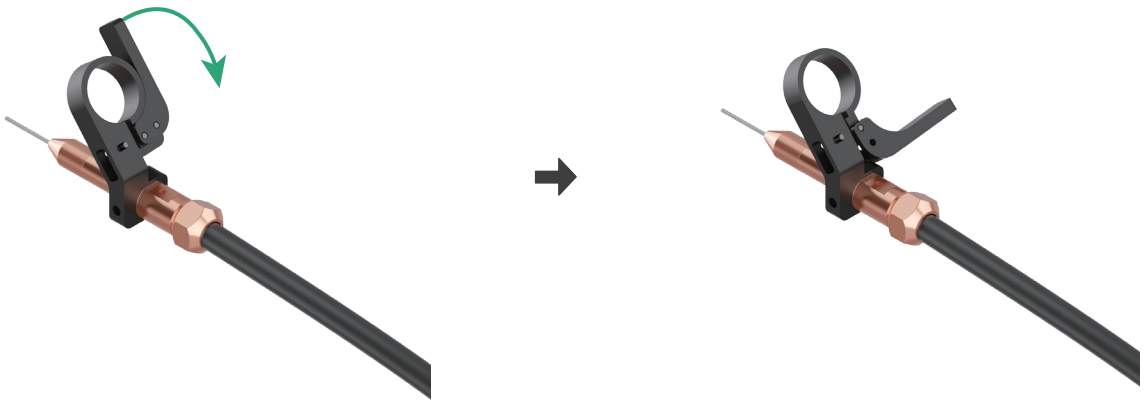
5 Install the wire feeding tube on the welding head

> ⚠ To prevent accidentally triggering laser emission, ensure that Enable lasering is off on the touchscreen before operations.

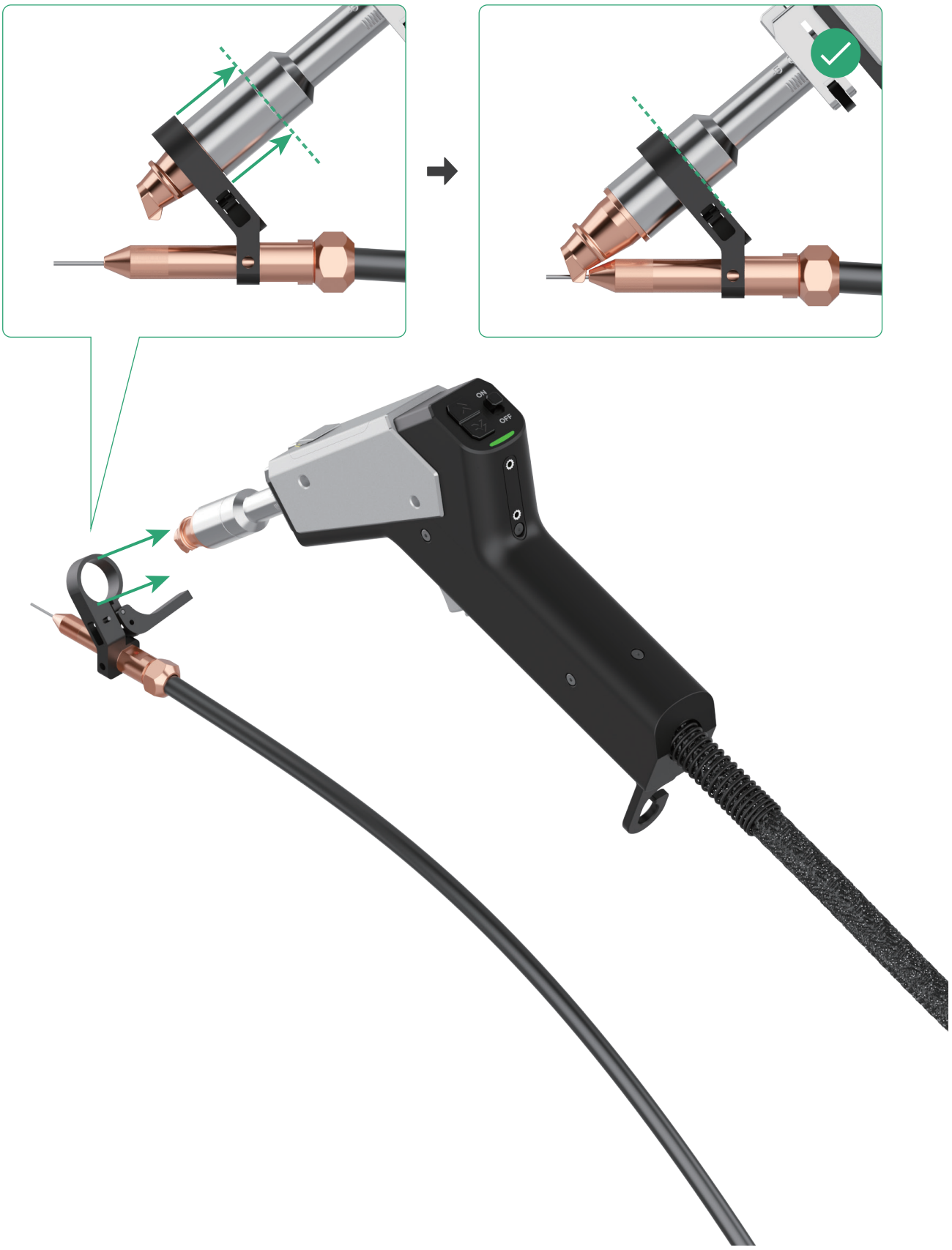
(1) Pick up the welding head and remove the dustproof cap.

> ⚠ Keep the dustproof cap properly. When you are not using the welding head, cover the welding tip with the cap to prevent dust from getting inside and damaging the welding head.

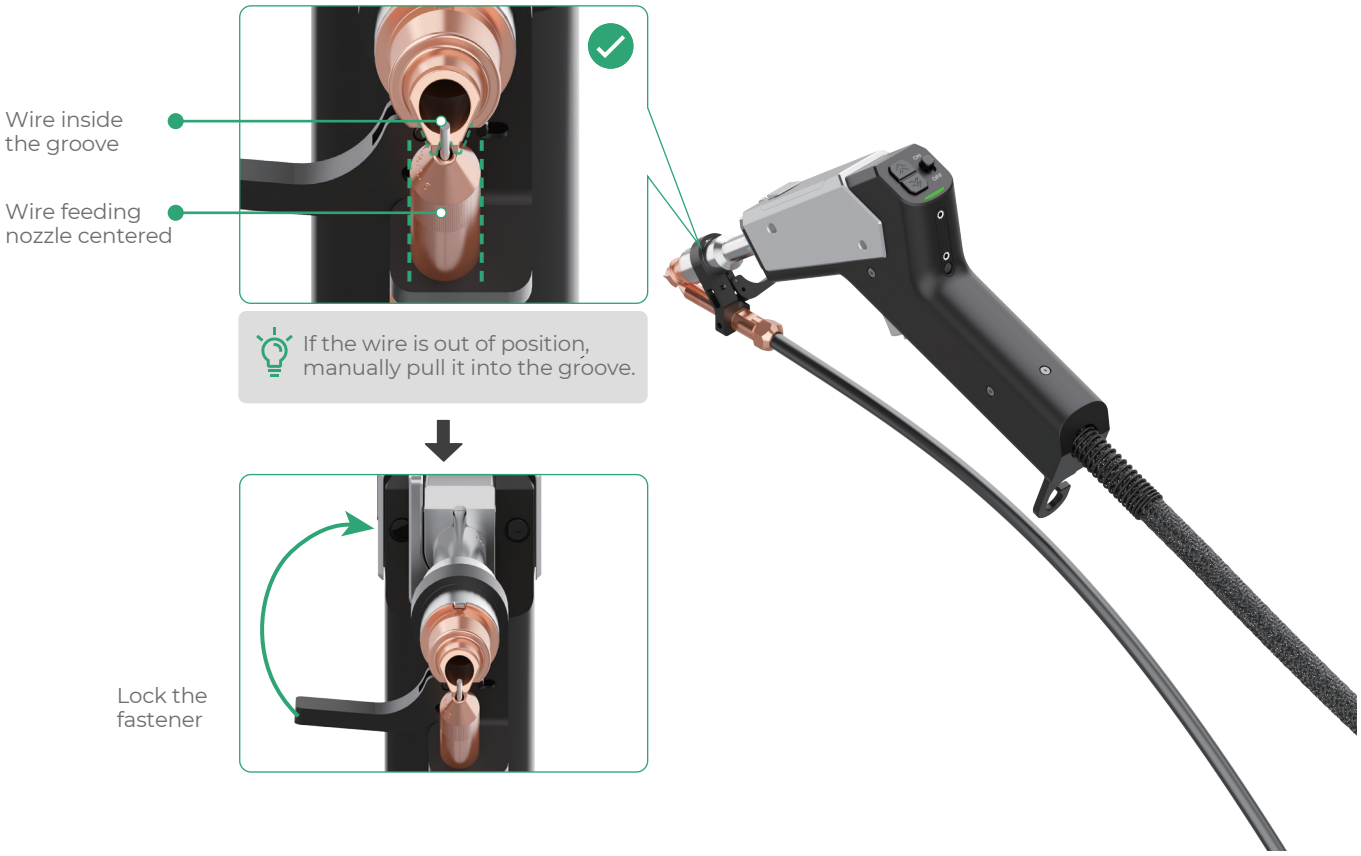
(2) Open the fastener on the wire feeding tube.



(3) Slide the fastener onto the welding head until the ring reaches the marking line. (You can further fine tune its position as needed.)



(4) Ensure that the wire feeding nozzle is centered and that the wire comes out from the groove of the welding nozzle. Then, lock the fastener.



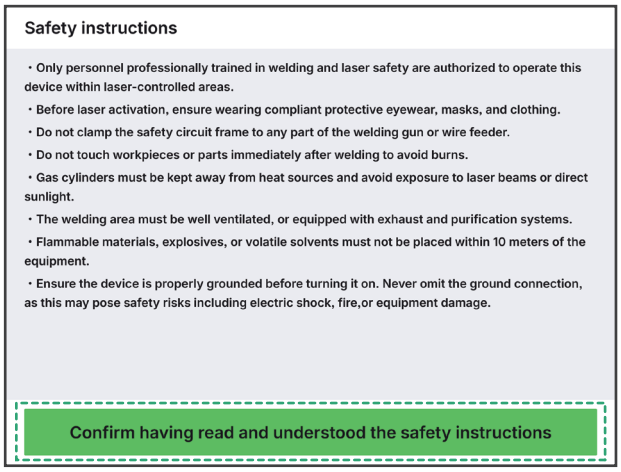
(5) Secure the wire feeding tube in the wire clamp of the welding head. Then, place the welding head back to the cradle.

Use xTool MetalFab Laser Welder 800W

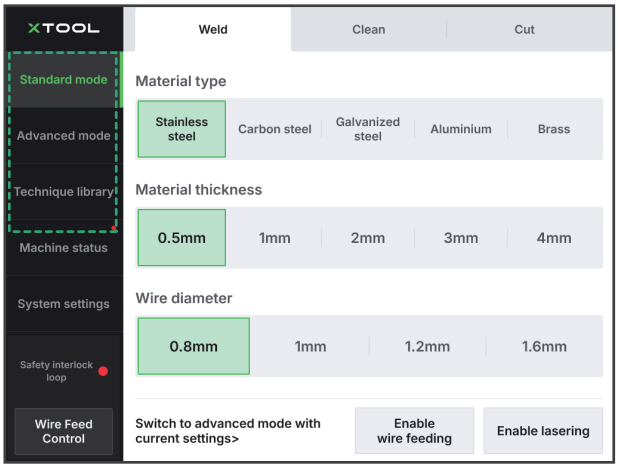
Before operating the device, please follow the Safety Instructions to put on PPE and take proper safety precautions. Necessary PPE includes: laser safety goggles, welding helmets, dust mask, laser and heat resistant gloves, clothing, and aprons.

Safety instructions

Each time you turn on the device (except for the first time you unlock it), the touchscreen will display the safety instructions. Please read and familiarize yourself with all the safety instructions, and then tap **Confirm having read and understood the safety instructions** to enter the operation interface.



Operation interface



- Standard mode:

Allows you to switch between welding, cleaning, and cutting modes, set basic processing parameters, and quickly start processing.

- Advanced mode:

Offers more welding modes, and allows you to adjust more processing parameters and save the parameter settings to the technique library.

- Technique library:

Stores parameter settings categorized by processing modes and processing scenarios. You can quickly apply these settings to processing.

For more information about the touchscreen and processing parameters, scan the QR code or visit the link.

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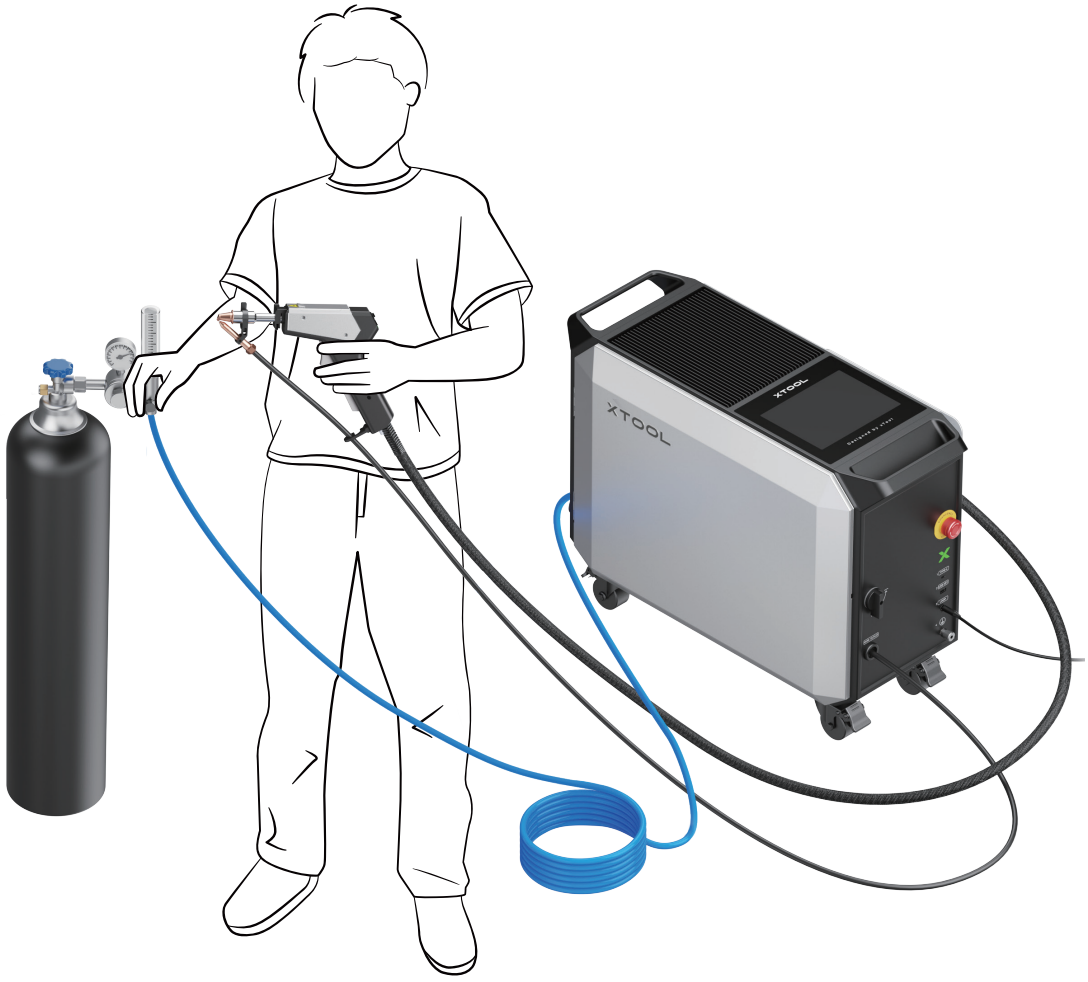
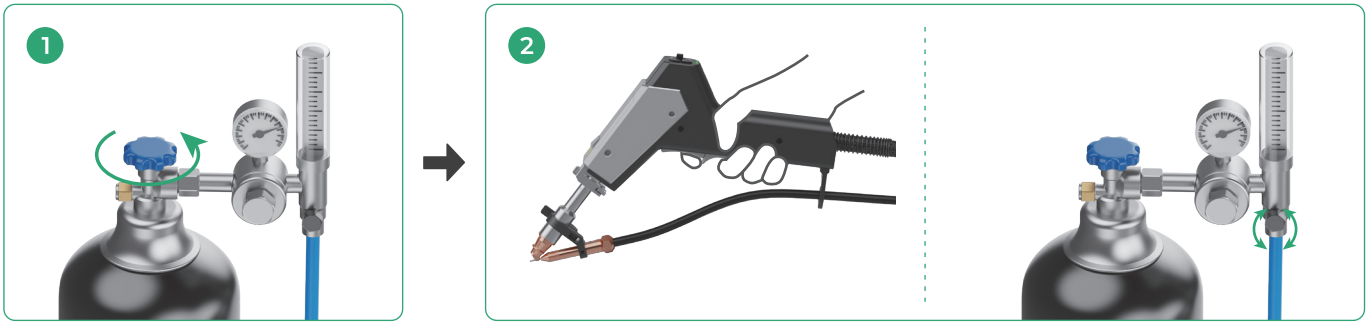
Laser welding (in standard mode)

1 Supply the shielding gas and adjust the gas flow rate.

- Ensure that a gas flow meter is fitted to the gas cylinder (or gas generator) to control the gas flow rate for welding.
- The way of opening the valve may differ for different types of gas cylinders. The picture is for illustration only.

To prevent accidentally triggering laser emission, ensure that Enable lasering is off on the touchscreen before operations.

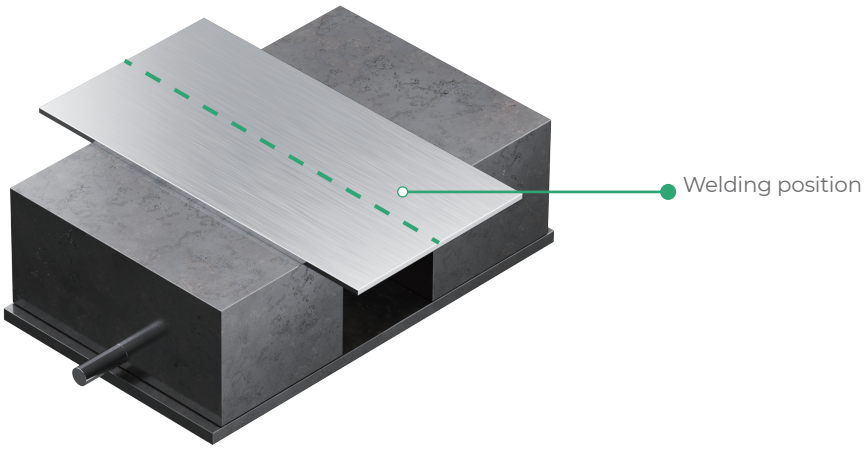




(1) Open the gas cylinder valve

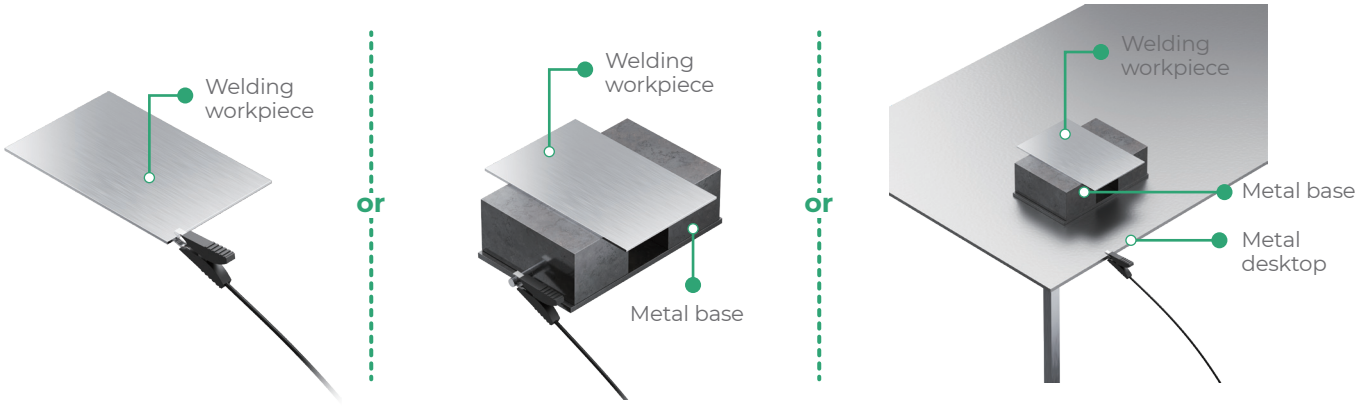
(2) Press and hold the grip sensing button and trigger to allow gas flow. Meanwhile, adjust the gas flow rate to 15 L/min – 30 L/min.

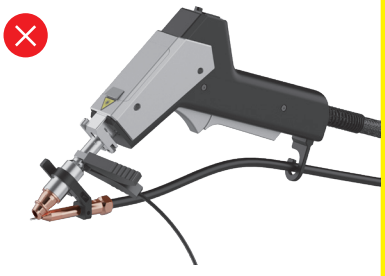
2 Place the workpiece stably on a metal base or other support.



Ensure that the welding part is suspended without touching the support. Otherwise, the material melted at high temperatures during welding may stick to the support.

3 Attach the clamp of the workpiece sensing cable to the workpiece or to a conductive object connected with the workpiece, such as a metal base or a metal desktop.



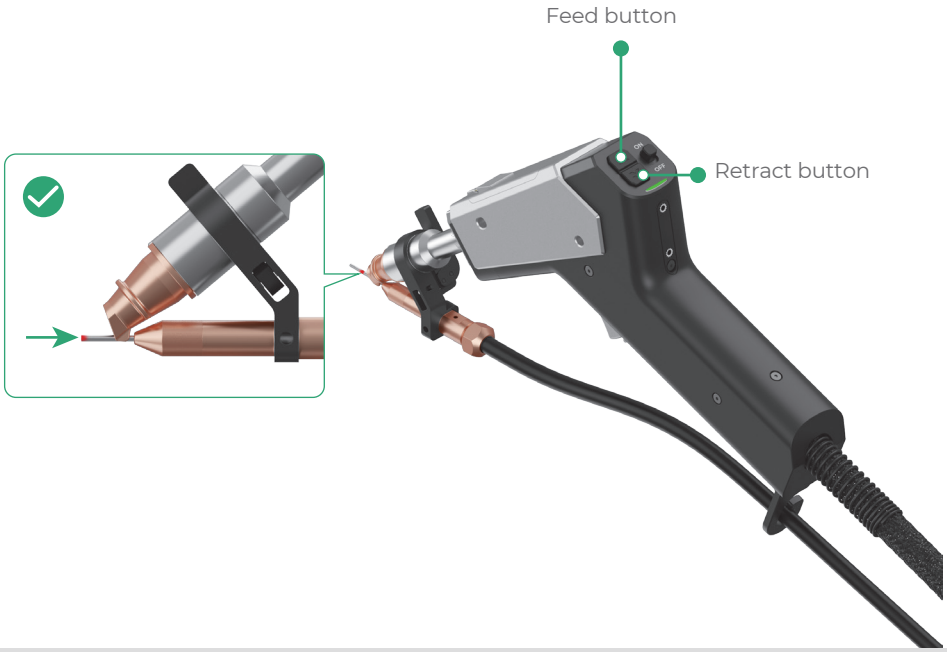


It is strictly prohibited to attach the clamp to the graduated tube of the welding head.

Safety interlock loop

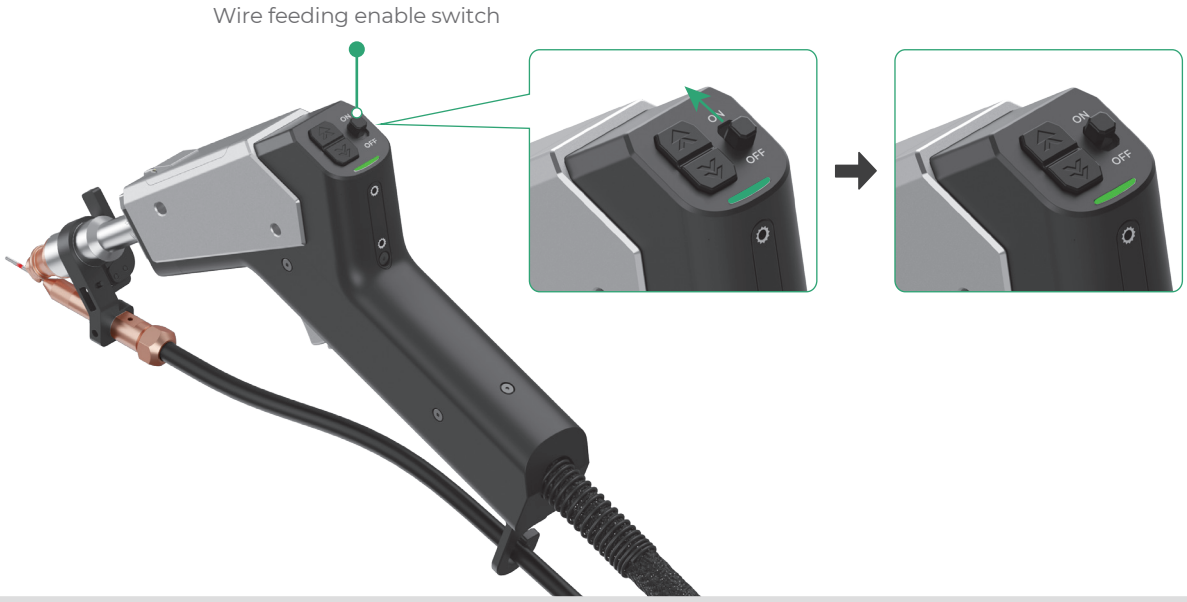
A safety interlock loop exists between the welding head, the workpiece, and the main unit. Only when the welding head is in contact with the workpiece can the safety interlock loop be closed and allow the welding head to emit laser beams.

4 Press the feed and retract buttons on the welding head to adjust the wire until its tip coincides with the red spot.



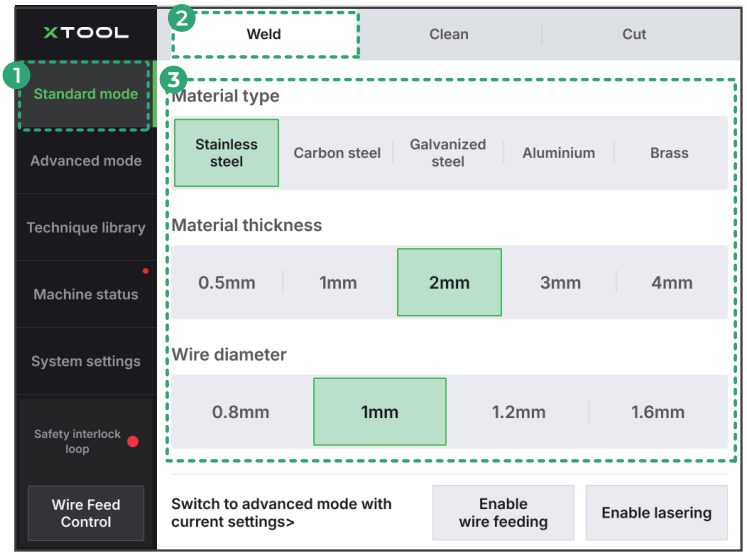
Calibrate the welding head if the red spot falls at the left or right side of the extended wire or if the spot is not visible or blurred. Refer to the "Maintenance" chapter to calibrate the position of the red spot before welding.

5 Turn on the wire feeding enable switch to enable the auto feeding function.

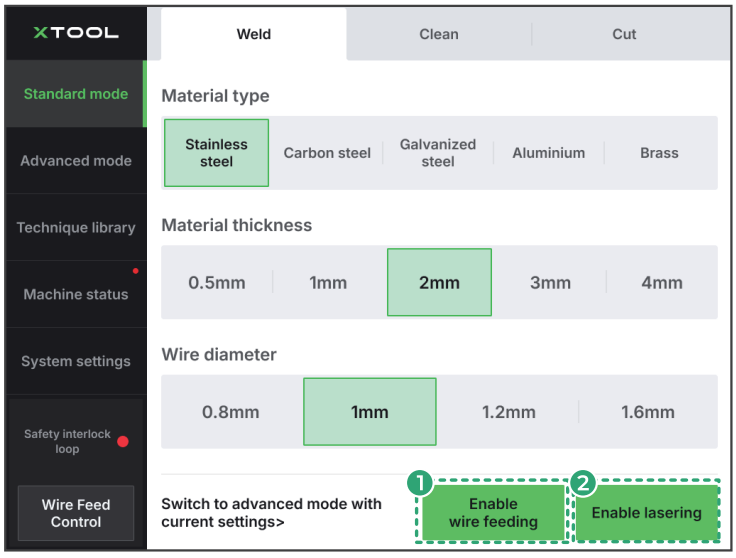


Wire feeding enable switch:
The welding head feeds wire automatically only after you turn on the wire feeding enable switch.

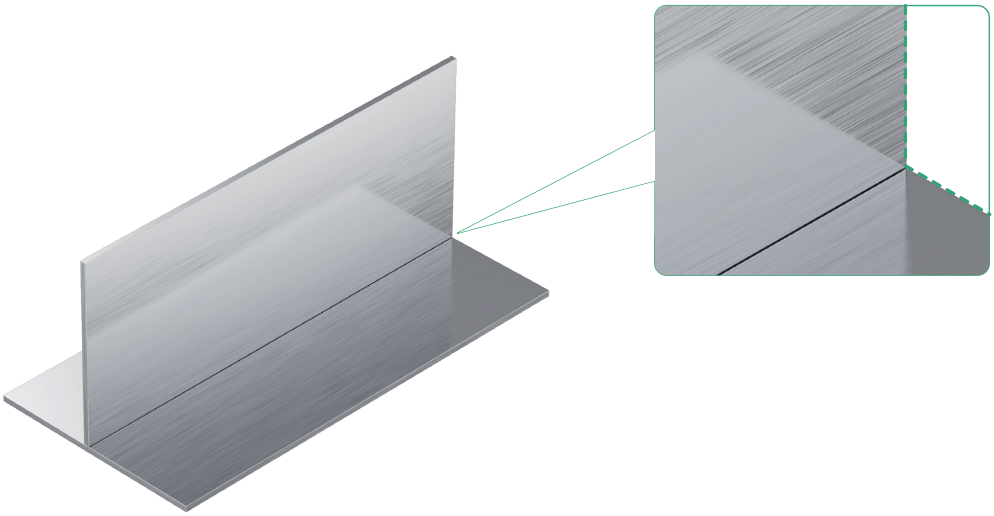
6 On the touchscreen, choose **Standard mode** > **Weld**. Select the material type, material thickness, and wire diameter according to the actual situation.



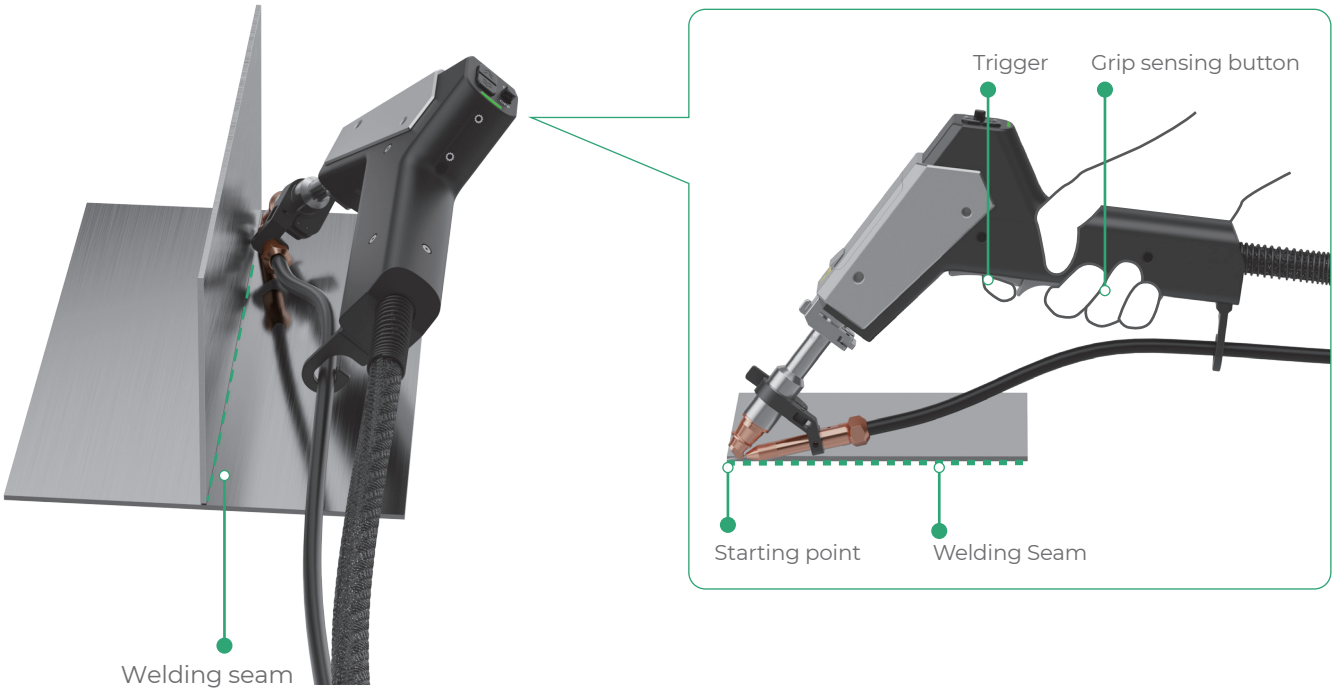
7 On the touchscreen, tap **Enable wire feeding** to allow wire feeding and **Enable lasering** to allow laser emission.



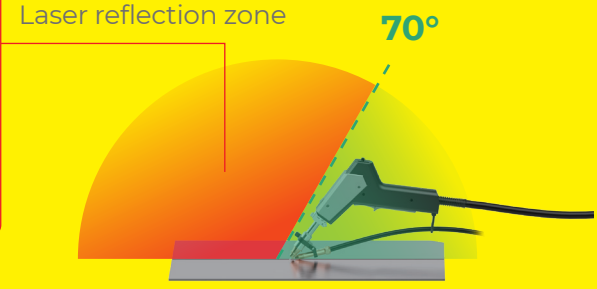
8 Align the welding parts.



9 Aiming the welding nozzle at the starting point, press and hold the grip sensing button and trigger to start welding. Ensure that the welding head moves in the same direction as the welding seam.



- Ensure that the welding head tip contacts with the welding target, so that the safety interlock loop can be closed and the welding head can emit laser.
- As the welding head feeds the wire forward, a reaction force is generated from the welding point that pushes the welding head backward. Simply hold the welding head steady and guide the direction. To avoid wire sticking or clogging, do not press the welding head downward.
- During welding, ensure that no one stands in the laser reflection zone, watches from the reflection zone, or places a hand to the reflection zone.



- After the welding is completed, the workpiece and parts of the welding head (such as the nozzle and the graduated tube) will remain hot for some time. Do not touch the hot areas without protection.
- After the welding is completed, turn off **Enable lasering** on the touchscreen to prevent accidental laser emission.

For more information about the processing modes and operating instructions, scan the QR code or visit the link.

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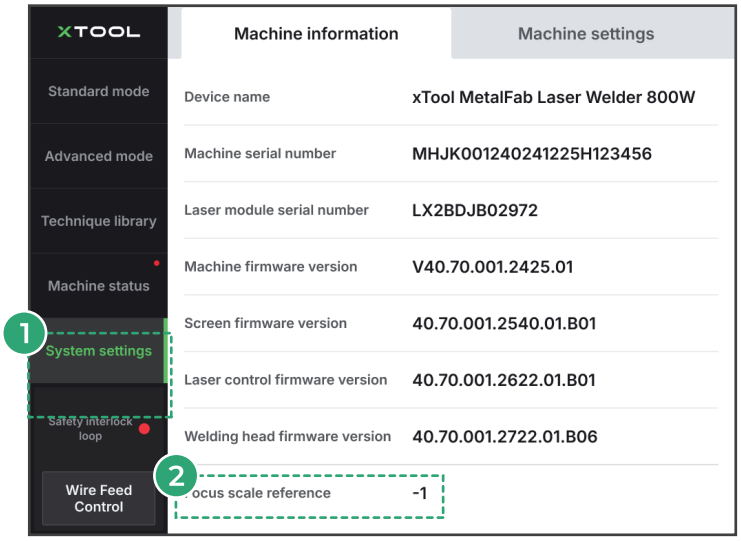
Maintenance

Turn off the power before replacing accessories.

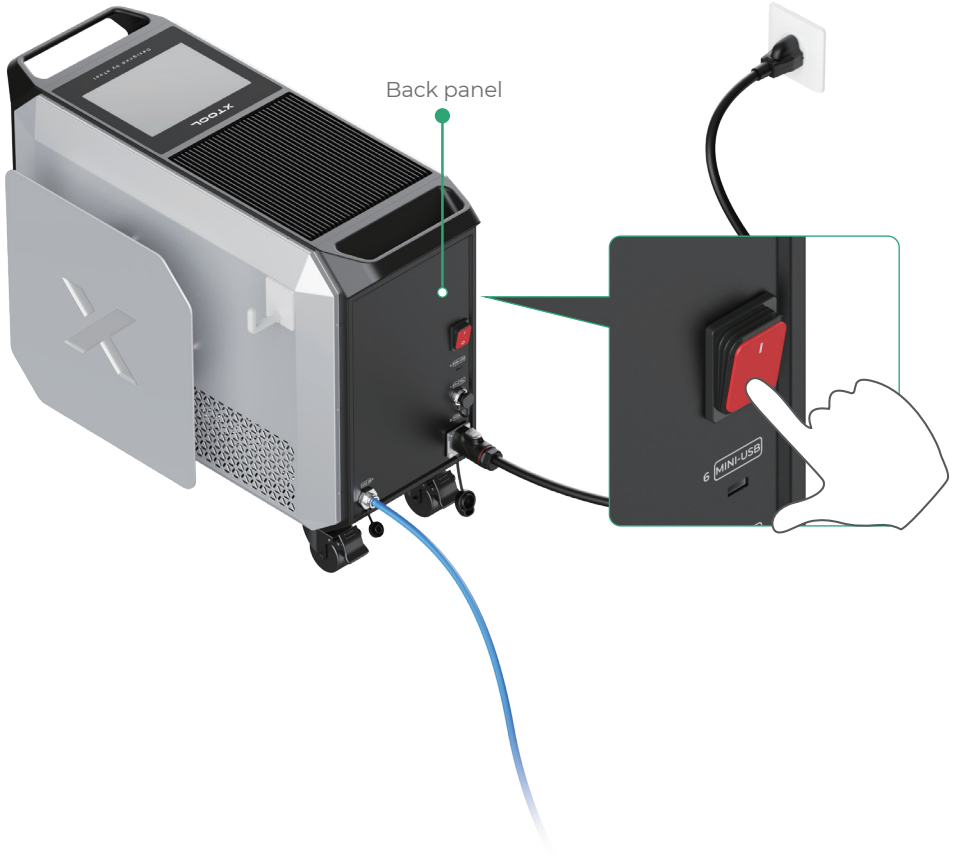
Replace the welding head nozzle

▪ Replace with cutting nozzle

(1) On the touchscreen, tap **System settings** and take down the value of **Focus scale reference.**

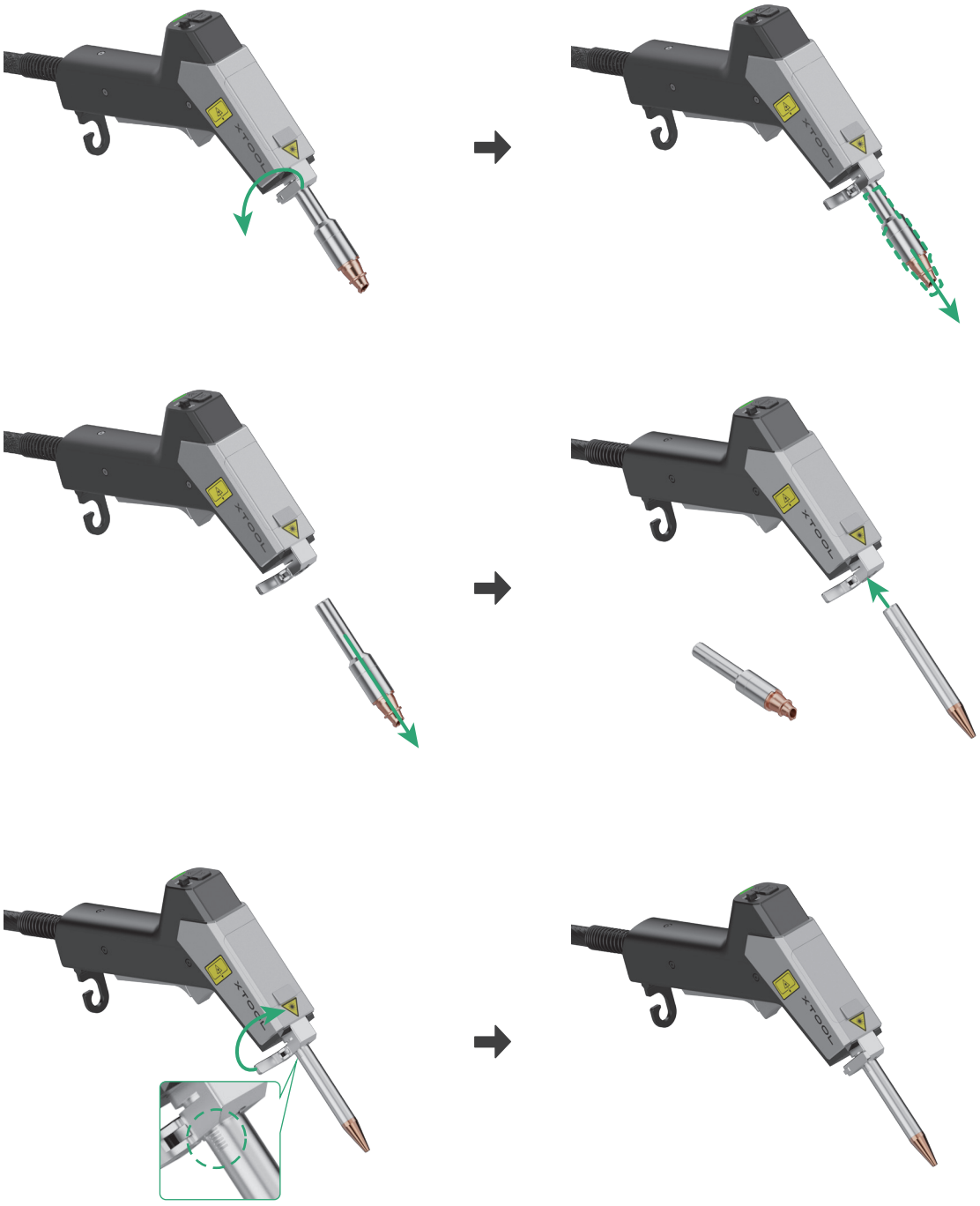


(2) Turn off the device.



(3) Replace the nozzle.

⑨ Cutting tip



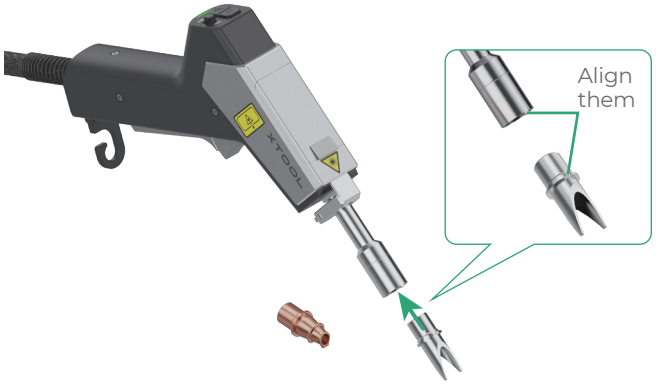
Keep consistent with **Focus scale reference** on the touchscreen

After installing the cutting tip, turn on the device and check if the welding head emits a clear and integral red spot. If not, please calibrate the red spot position, so as to avoid burning the nozzle during laser cutting.

▪ Replace with welding or cleaning nozzle

⑪ Cleaning nozzle (for handheld use)

The welding and cleaning nozzles can be replaced in the same way.

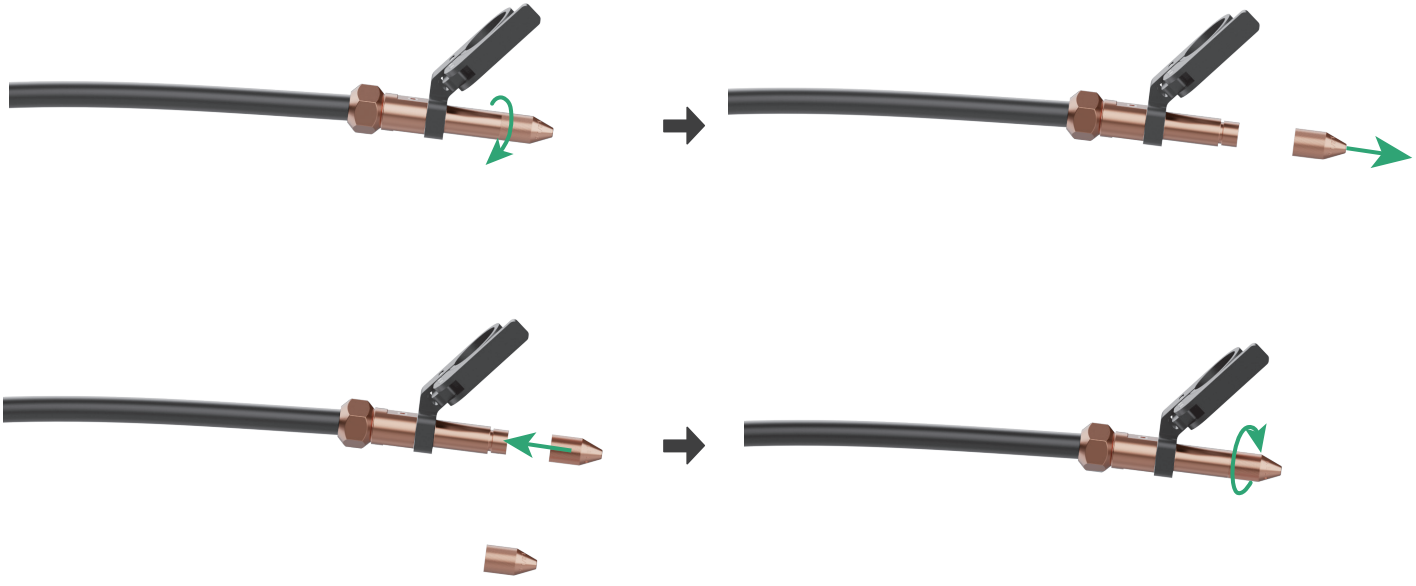


Replace the wire feeding nozzle

⑰ Wire feeding nozzle 1.2 mm / 1.6 mm

The wire feeding tube has an end with a fastener and a replaceable nozzle. You need to replace the nozzle based on the diameter of the welding wire.

Wire feeding nozzle	Supported wire diameter
0.8/1.0 	0.8 mm / 1.0 mm
1.2/1.6 	1.2 mm / 1.6 mm

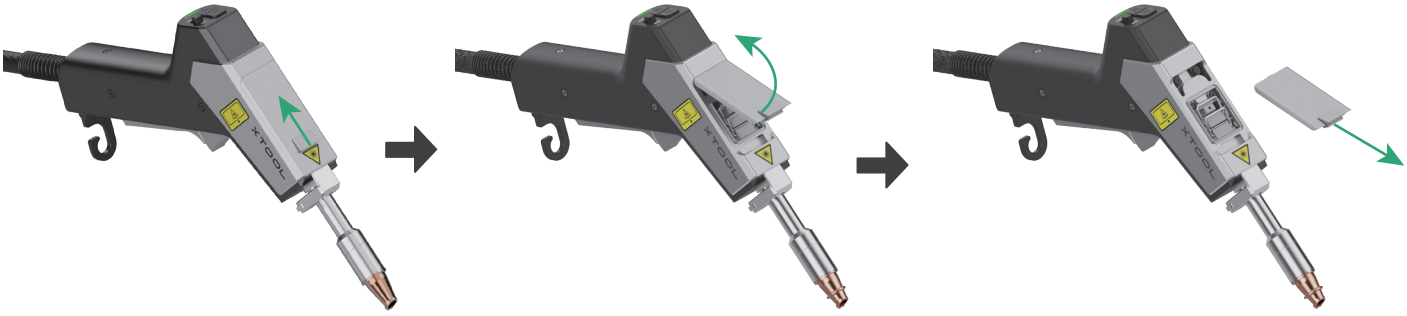


Clean or replace the lens protector in the welding head

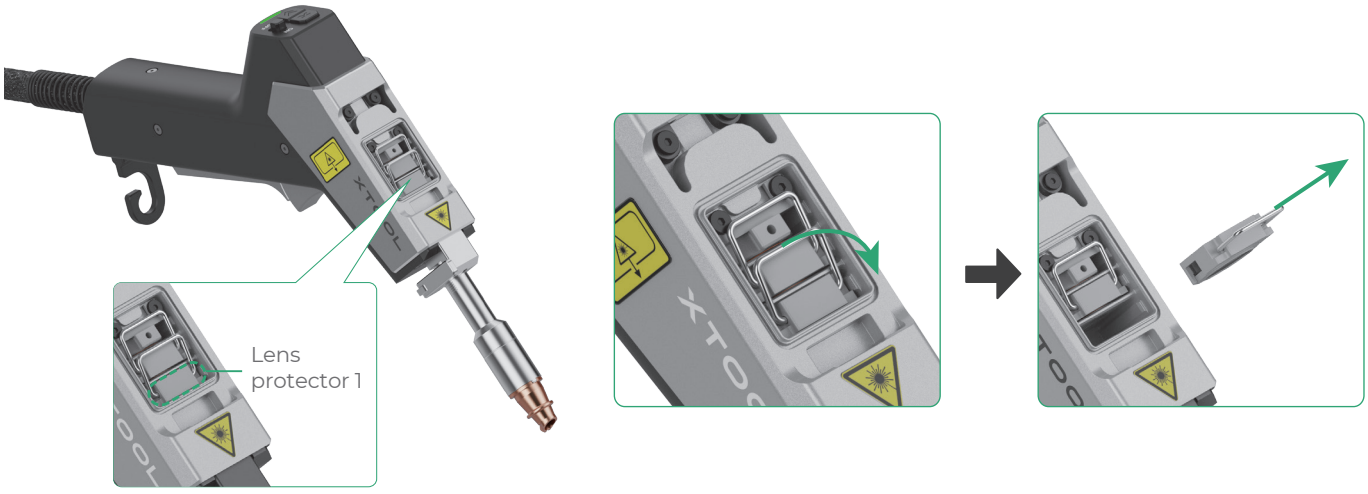
If the laser power decreases and the welding spark weakens, the welding head's lens protector may get dirty or damaged. Clean or replace it as needed.

> Please clean or replace the lens protector in a dust-free or relatively clean environment. Before operations, clean the welding head with lint-free paper or lint-free cloth, and wash your hands or wear lint-free gloves (not provided).

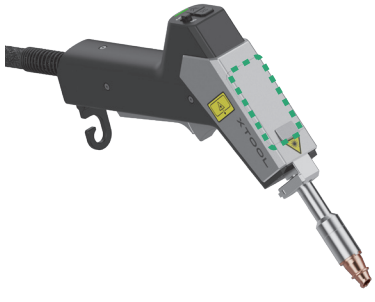
(1) Remove the cover on the top of the welding head.



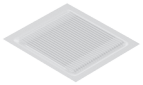
(2) Remove the lens protector 1.



> After the lens protector is removed, it is recommended that you put the cover back to prevent dust from falling inside the welding head and causing damage.

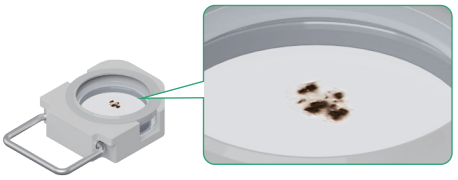


(3) Check the lens protector.



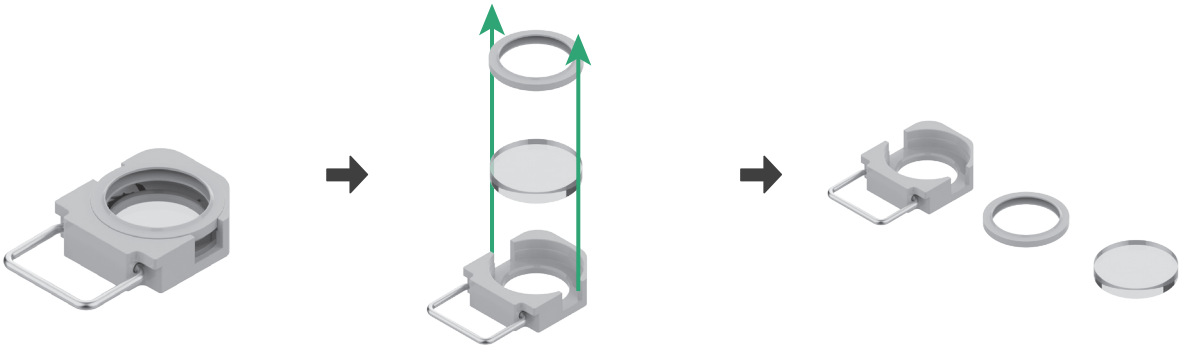
⑳ Round tip cotton swab

■ If the lens protector is slightly dirty, use a cotton swab dipped with alcohol to clean it. Then, install it back to the welding head.



■ If the lens protector is burned or heavily dirty and uncleanable, it needs to be replaced.

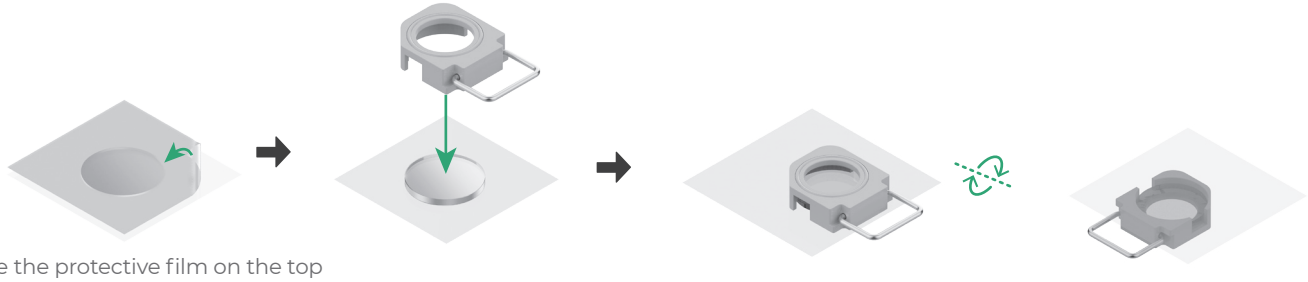
(4) Keep your hands clean or wear lint-free gloves to remove the gasket and lens protector.



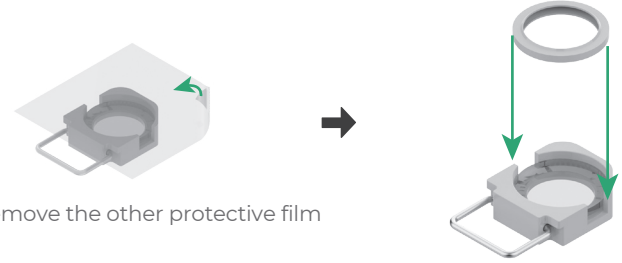
(5) Install a new lens protector.

⑫ Lens protector (spare part)

⚠ Do not touch the glass with your fingers or other tools during replacement as the glass may get dirty. If the glass accidentally gets dirty or dusty, use a cotton swab to clean it.



Remove the protective film on the top



Remove the other protective film

After replacing the glass, install the lens protector back to the welding head.

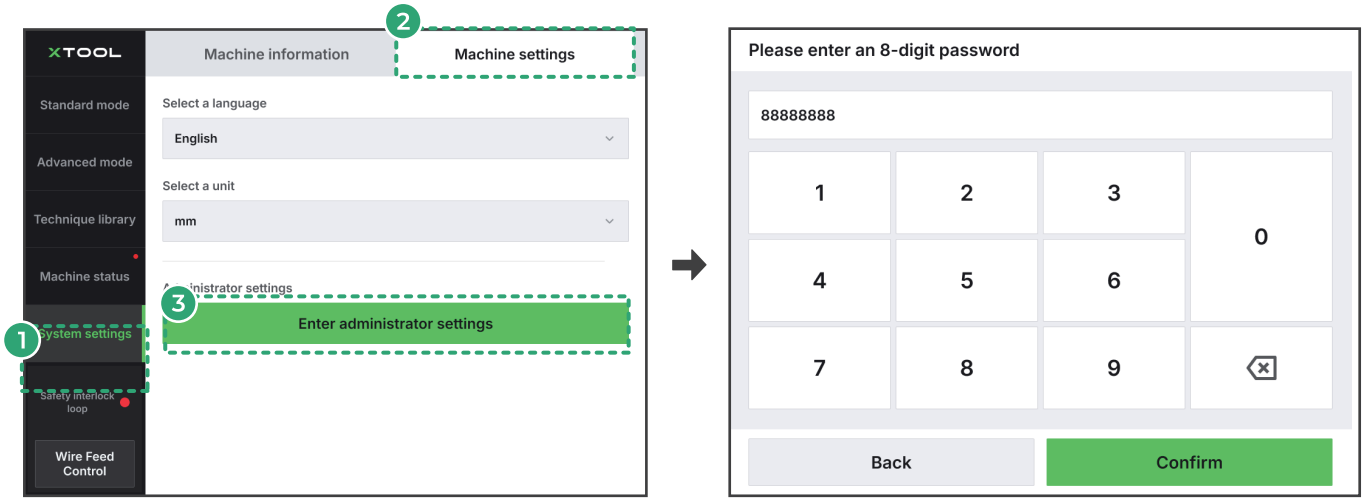
Calibrate the red spot position for the welding head

Red spot offset

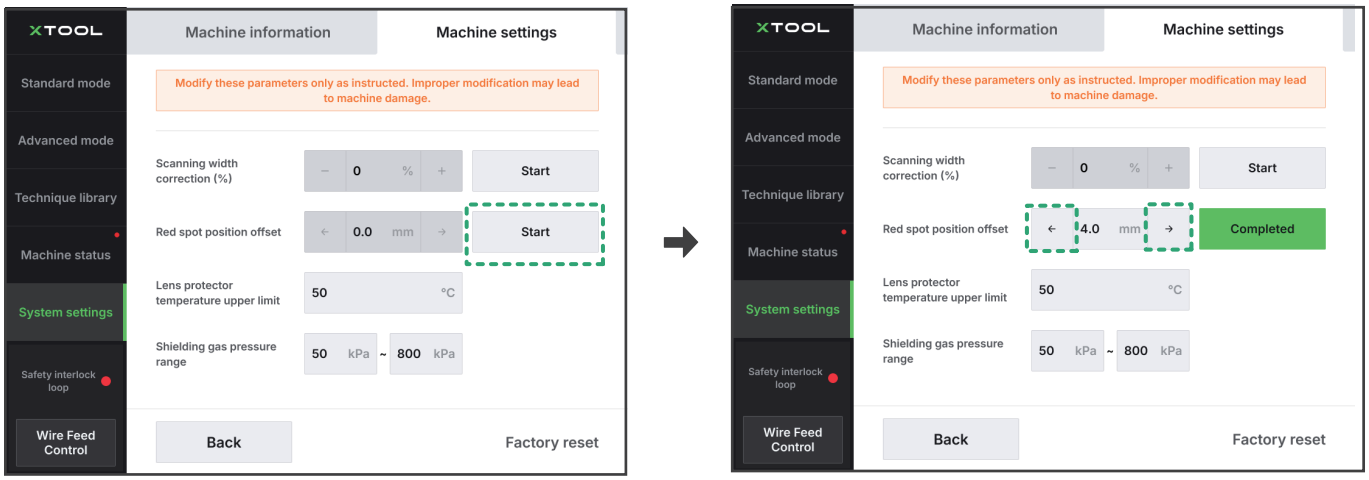
- Perform left/right offset calibration when the laser spot deviates left or right from the wire, despite proper nozzle installation.
- If the red spot is not visible or blurred, the light beam may deviate too much that it hits on the inner wall of the nozzle, getting blocked or reflected. Try calibrating the left/right offset. If the problem persists, reset the red spot position offset to zero and try calibrating the up/down offset.

Calibrate the left/right offset

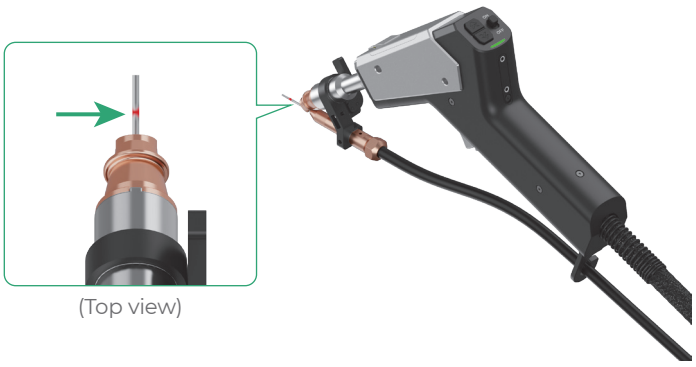
(1) On the touchscreen of the main unit, tap **System settings** > **Machine settings** > **Enter administrator settings**. Then, input the 8-digit password: 88888888, and click **Confirm**.



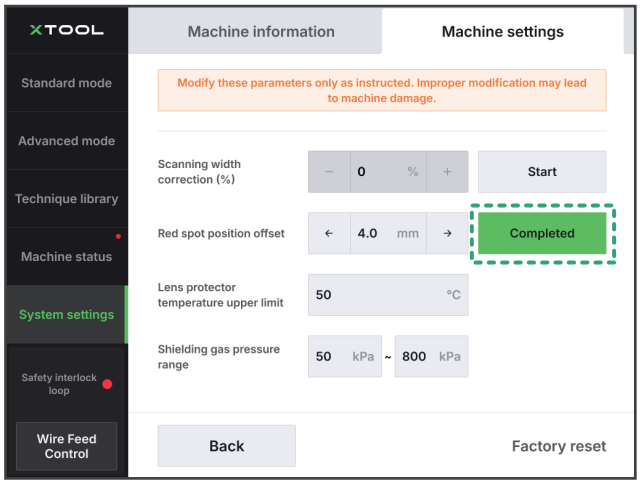
(2) To the right of Red spot position offset, tap Start. Then, tap the left arrow to decrease the offset and move the red spot leftward; tap the right arrow to increase the offset and move the red spot rightward.



(3) When the center of the red spot falls at the welding wire, tap **Completed** to save the calibration result.



(Top view)

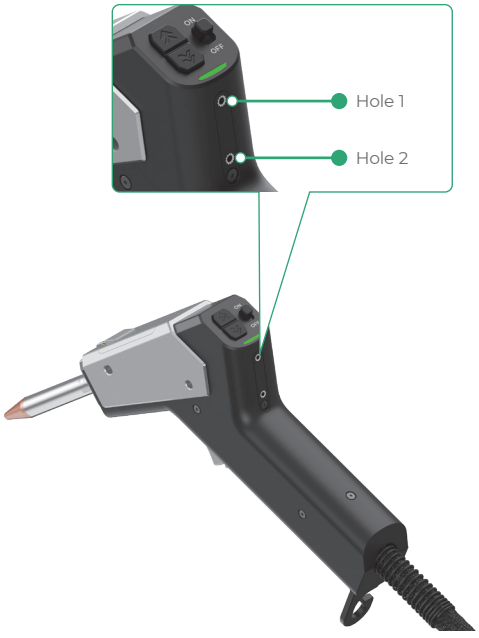


If the red spot remains invisible or blurred no matter how much you increase or decrease the offset, the red spot may deviate upward or downward. Reset the red spot position offset to zero and try calibrating the up/down offset.

Calibrate the up/down offset

When a cutting nozzle is used, the laser beam may strike the nozzle's inner wall, resulting in either blockage (no visible spot) or reflection (blurred spot). In such cases, perform up/down offset calibration. (Welding and cleaning nozzles have larger apertures and typically do not require such adjustment.)

On the back of the welding head, you can find two small holes. By rotating the screws inside the holes, you can move the red spot upward or downward.



Holes	Rotate direction	Red spot movement
Hole 1		
		
Hole 2		
		

Refer to the following steps to calibrate the up/down offset:

Hex key 2 mm

(1) Insert the hex key into hole 1, and slowly turn the screw counterclockwise to loosen it while observing the light emitting from the nozzle.

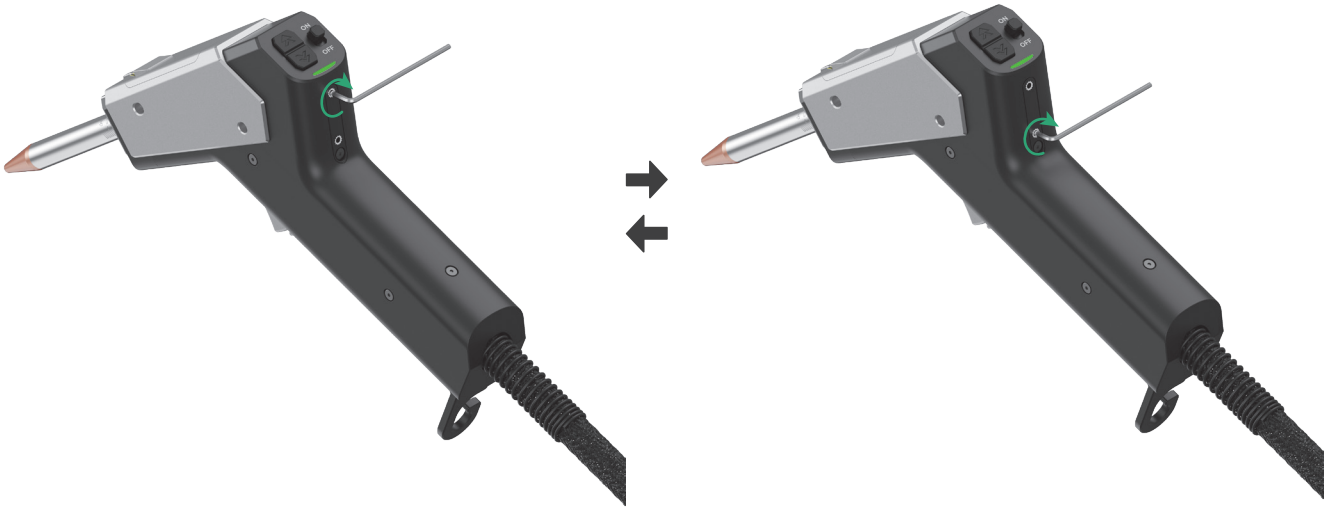
- If a clear red spot appears, stop turning the screw and go to step (4).
- If the screw cannot be loosened further but no clear red spot appears, go to step (2).

(2) Retighten the screw in hole 1 clockwise.

(3) Insert the hex key into hole 2, and slowly turn the screw counterclockwise to loosen it while observing the light emitting from the nozzle. When a clear red spot appears, stop turning the screw.

(4) Turn the screws in holes 1 and 2 clockwise alternately to slowly tighten them, while keeping the red spot visible and clear.

Tighten only a little bit each time. Otherwise, the light beam may shift significantly and hit on the inner wall of the nozzle.



Scan the QR code or visit the link to watch the video tutorial on calibrating the position of the welding head red dot.

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