X8 MIG Welder

OPERATING MANUAL

KEMPPI

Contents

1 Read first

Kemppi takes special care in informing its customers about the safety of our products. We also mind the environment and aspire to disposing of our products according to specified European Directives.

1.1 Symbols

Items in the manual that require particular attention, to minimize damage and personal harm, are indicated with a three-level notification and warning system.

Convention	Used for
ⓘ **Note:** Note text here.	Gives the user a piece of information of particular importance.
⚠ **Caution:** Caution text here.	Describes a situation that may result in damage to the equipment or system.
⚠ **Warning:** Warning text here.	Describes a potentially dangerous situation that may result in personal damage or fatal injury.

Kemppi symbols

Table 1: Kemppi symbols used in this documentation

Symbol	Description
$C\epsilon$	CE mark
	EMC Class A
	This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment.
	Coolant input

Symbol	Description
	Coolant output
	Gas input
	Gas output
	High voltage
	Protective earth
	1-MIG
	DPulse MIG
	Carbon arc gouging
	MIG
	MMA
	Pulse MIG

Symbol	Description
	DProcess
	WiseRoot+
	WiseThin+
	WiseFusion
	WiseSteel
	WisePenetration+
	Creep Start
	Hot Start
	Upslope
	Crater Fill with Downslope
	Crater Fill with Downlevel

Symbol	Description
2T	2T
4T	4T
⬇⬆	WP Switch
	Touch Sense Ignition
	User manual

2 X8 MIG Welder

These instructions describe the use of Kemppi's X8 MIG Welder, the top-class welding system for demanding industrial use. The system consists of a power source, wire feeder, welding gun, Control Pad and various welding software components and connectivity to Kemppi cloud services. Read the instructions through carefully.

Disclaimer

While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions. Kemppi reserves the right to change the specification of the product described at any time without prior notice. Do not copy, record, reproduce or transmit the contents of this guide without prior permission from Kemppi.

2.1 System introduction

X8 MIG Welder is a multi-process welding equipment intended for demanding professional use in general or heavy fabrication. The welding system is suitable for various MIG/MAG processes (MIG, 1-MIG, Pulse, DPulse, WiseRoot+, WiseThin+) as well as MMA welding and gouging, cladding and brazing.
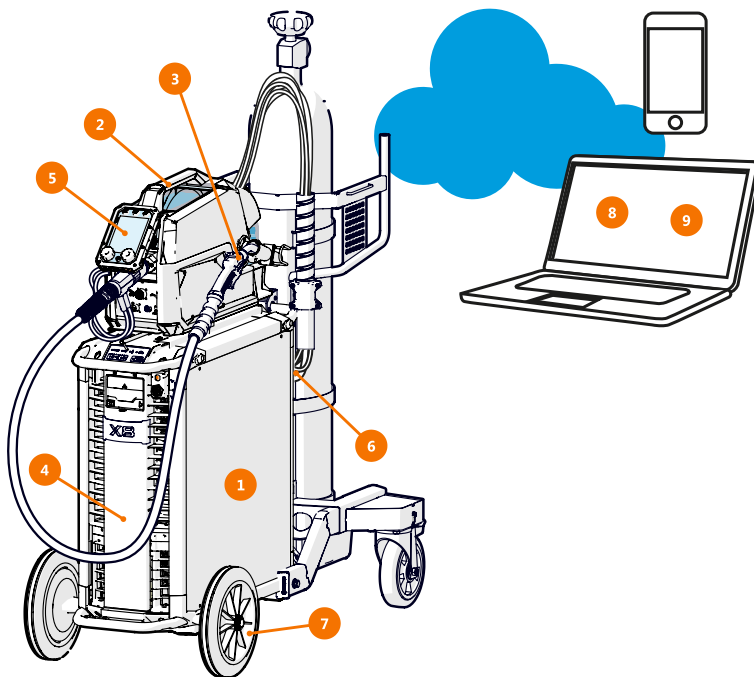
1. X8 Power Source 400/500/600

- Includes all the software, welding programs and memory channels for the welding system
- Connects to one or two X8 Wire Feeders

2. X8 Wire Feeder

- Operates with several wire spool types (some of which require an adapter)
- Connects to an external wire drum

- Contains a control panel for basic adjustment of welding parameters, memory channels and settings

3. X8 MIG Gun 200/300/400-g, 420/520/600-w, X8 MIG Gun WS 420-w

- Connects to the wire feeder with Kemppi Gun Adapter
- Gas-cooled models feature a rotating, changeable neck
- Remote control for selecting memory channels and adjusting settings (optional)
- Ergonomic pistol grip handle

4. X8 Cooler (optional)

- Optionally included in the power source delivery
- Can also be purchased separately
- Essential for welding with a current over 400 A

5. Control Pad

- Wireless remote interface for operating X8 MIG Welder

6. Interconnection Cable 70/95-w/-g (several options)

- Bundle of cables connecting the wire feeder to the power source
- Transfers the welding current, control signals, shielding gas and coolant from the power source to the wire feeder

7. X8 Wheel Set (several options)

- The wheel set is included in the power source delivery
- The gas cylinder cart is optionally included in the power source delivery

8. My Fleet web service

- Cloud-based service for viewing and managing various information about your X8 MIG Welder
- Provides manufacturer's validation certificate

9. WeldEye (optional)

- Cloud-based service for creating and managing digital WPS documents and other welding-related information

In addition:

- Several accessories (optional)
- Several welding software products (optional)

2.1.1 Introduction to WeldEye for welding procedure and qualification management

Welding procedure and qualification management

WeldEye for Welding procedure and qualification management is a cloud-based tool for creating, managing and storing various welding-related documents and qualification certificates. WeldEye is an end-to-end solution for handling pWPS, WPQR and WPS documents as well as welder qualification certificates. The software contains procedure and certificate templates to match all major welding standards. Together with its integrated drawing tool, WeldEye is swift and easy to use.

The software enables you to keep track of qualification certificates and their expiration dates, and to easily extend their validity. Revision history helps you track the changes made to the documents. With a flexible search functionality, you can easily find the welding procedures, personnel, and certificates you need. You

can print out documents or, for example, a list of welders with a certain qualification certificate. Attachments can be added to any document.

Discover WeldEye – universal welding management software

WeldEye is your primary tool and storage space for keeping your welding-related documents in order.

There is even more to WeldEye than welding document management. WeldEye is a universal solution for managing welding production. Fitting any size and type of organization that performs welding within the requirements of international welding standards like ISO, ASME and AWS, WeldEye provides control in all processes - including welding procedures, welder and inspector qualifications, documentation, reporting and administration. Most importantly, you get 100% traceability for every weld you ever make.

WeldEye's modular structure is based on various useful functions that serve the needs of wide-ranging industries and welding-related tasks:

Welding procedures

Includes the digital library and management of pWPS, WPQR and WPS templates according to the most important welding standards.

Personnel and qualifications

Includes the management and renewal processes of all personnel - welders and inspectors - qualification certificates.

Quality management

Includes quality verification functionalities with digital WPS and qualification compliance control against automatically collected digital welding data.

Welding management

Includes document register functionalities and features for comprehensive welding project documentation and management.

For more information on the full system and other modules, see www.weldeye.com.

2.2 System structure

The parts of X8 MIG Welder are in close co-operation with each other. The information transfer is efficient and quick, and the different functions, for example, the use of displays, follow the same principles.

⚠️   **Caution:**

Do not modify the welding equipment in any way, except for the changes and adjustments covered in the manufacturer's instructions.
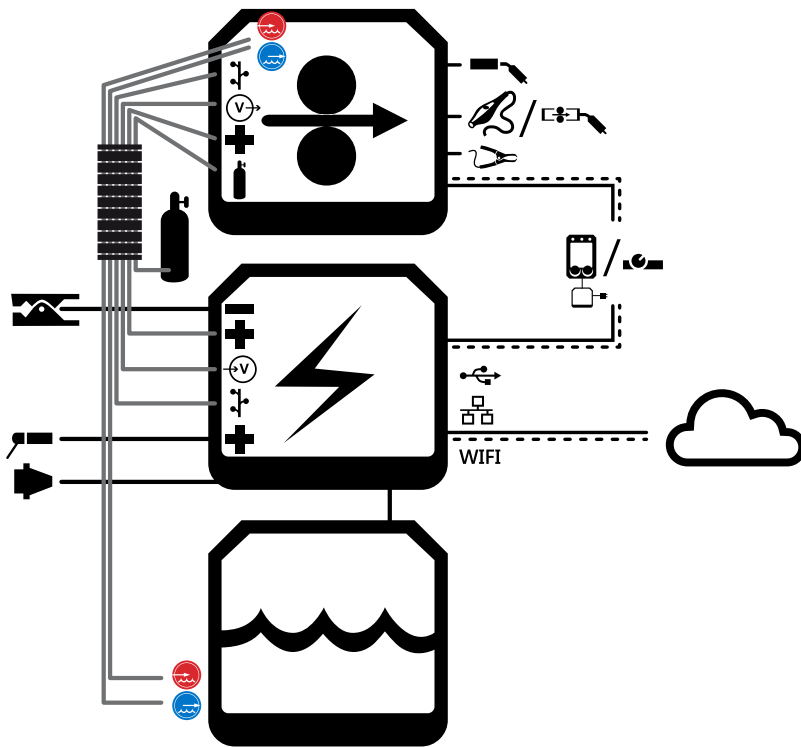
Figure 1: A chart of the connections between the different parts of X8 MIG Welder

2.2.1 X8 Power Source

This section describes the structure of X8 Power Source.

Front
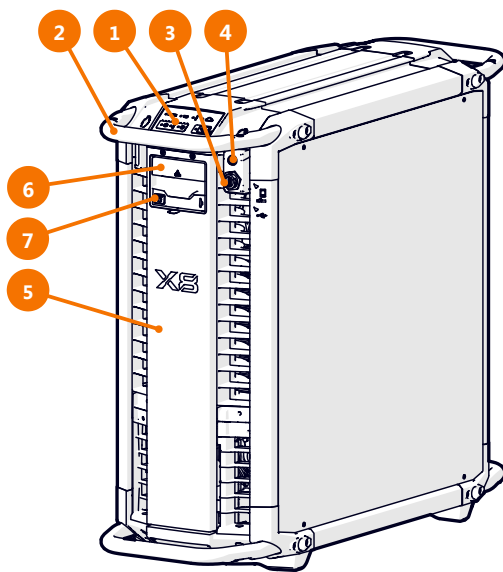
1. Indicator panel

2. Transportation handle

3. USB connector

Connect a USB memory stick to upload the welding procedures (WPS) or Wise features to the power source or update firmware if a wireless connection is unavailable.

4. Control Pad connector

Connect Control Pad to the power source with a cable to charge its battery or to use it in wired mode.

5. Front panel

6. Front panel latch

Pull to open the front panel and reveal the coolant container.

7. Coolant circulation button

Press to pump the coolant through the system.

Rear
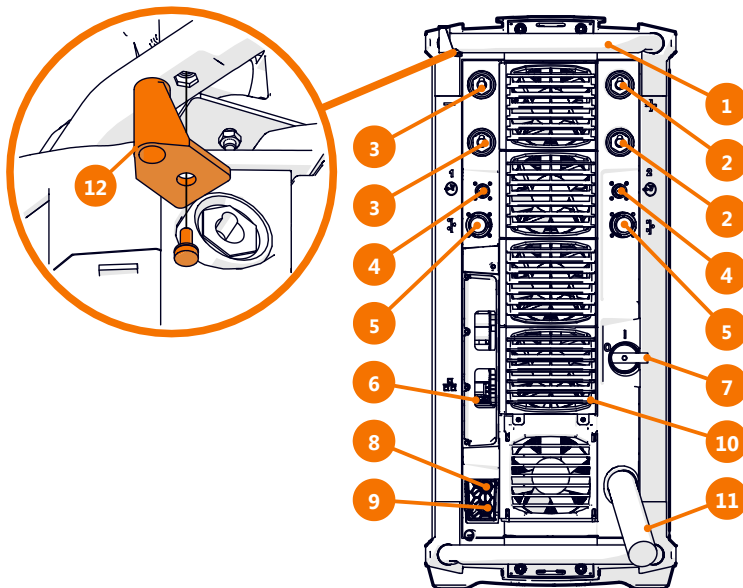
1. Transportation handle

2. Welding current cable connectors (positive pole)

3. Earth return cable connectors (negative pole)

4. Measurement cable connectors

Connectors for wire feeder 1 on the left, wire feeder 2 on the right side of the power source.

5. Control cable connectors

Connectors for wire feeder 1 on the left, wire feeder 2 on the right side of the power source.

6. Ethernet connector

7. Power switch

8. Coolant outlet hose connector

9. Coolant inlet hose connector

10. Rear panel

11. Mains cable

12. Strain relief holder

Indicator panel
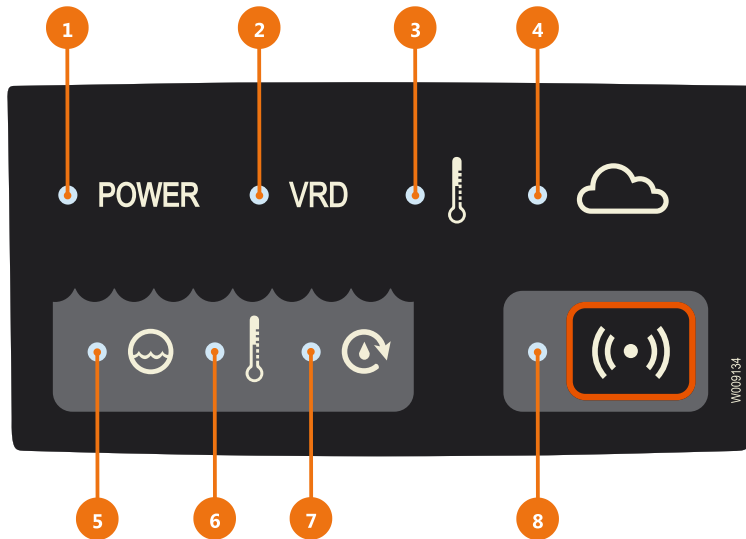
1. Power indicator

The LED is green when the unit is on.

2. Voltage Reduction Device (VRD) indicator

The LED is green when VRD is switched on and the no-load voltage is under 35 V.

The LED blinks red when VRD is switched on and the no-load voltage is above 35 V.

The LED is off when VRD is switched off or during welding.

ⓘ   **Note:**

VRD is in use with MMA and Gouging modes only.

3. Overheat indicator

The LED is yellow when the unit is overheating.

⚠   **Caution:**

If the power source overheats, a thermal cutoff switches the unit off and does not allow it to be used until it has cooled down.

4. Kemppi cloud connection

The LED is blue when the wire feeder or power source is connected to Kemppi cloud services.

The LED blinks blue when the wire feeder or power source is connecting to Kemppi cloud services.

5. Coolant level warning

The LED is yellow when the coolant level is too low.

6. Coolant temperature warning

The LED is yellow when the cooler is overheating.

⚠   **Caution:**

If the coolant liquid overheats, a thermal cutoff switches the welding system off and does not allow it to be used until the coolant liquid has cooled down.

7. Coolant circulation warning

The LED is green when the coolant circulation is working normally.

The LED is red when there is a problem in the coolant circulation.

The LED blinks green and red in turns when the circulation of the coolant liquid has been obstructed too long.

⚠️ **Caution:**

If the circulation of the coolant liquid is obstructed, a thermal cutoff switches the welding system off. Check and fix the error before using the welding system again.

If the error was caused in an unsuccessful filling of the cooler, refill the cooler. In other cases, the error disappears automatically in 30 seconds.

8. Wireless pairing button

To pair the wire feeder or power source with Control Pad, press the button. If the power source is connected to wire feeder(s), the wire feeder(s) pairs with Control Pad. If the power source is not connected to a wire feeder, the power source pairs with Control Pad.

The LED is blue when the wire feeder or power source is wirelessly connected to Control Pad.

The LED blinks blue when the wire feeder or power source is pairing with Control Pad.

Interconnection cable
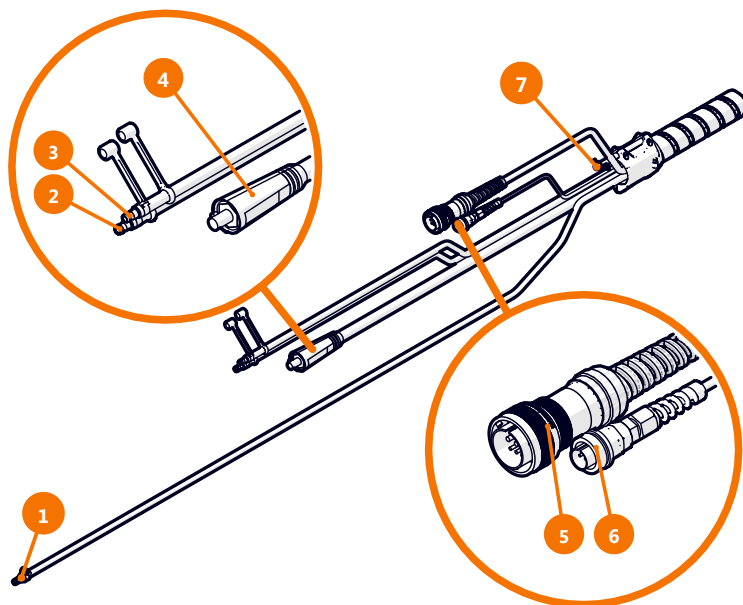
1. Shielding gas hose

2. Coolant inlet hose

3. Coolant outlet hose

4. Welding current cable

5. Control cable

6. Measurement cable

7. Strain relief pin

2.2.2 X8 Wire Feeder

This section describes the structure of X8 Wire Feeder.

Main parts
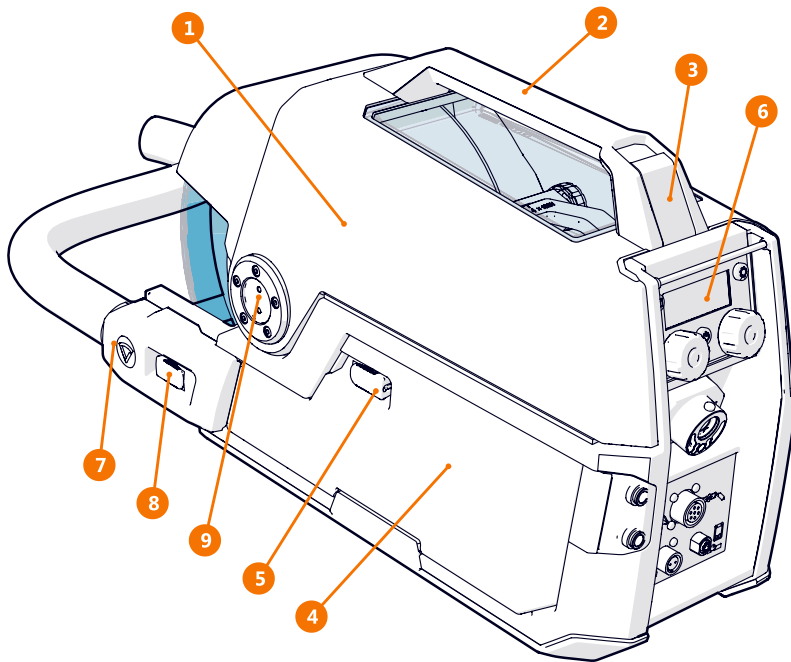
1. Top cover

> ⚠ **Caution:**
>
> Keep the wire feeder top cover closed during welding to reduce the risk of injury or an electric shock. Keep the top cover closed also at other times to keep the wire feeder insides clean.

2. Handle

> ⚠ **Caution:**
>
> The handle is only intended for short distance manual carrying. Use Wire Feeder Hanger for Boom for lifting or hanging the wire feeder.

3. Top cover latch

4. Cable cabinet door

5. Cable cabinet latch

6. Control panel

7. Strain relief

8. Strain relief latch

9. Gun holder mount
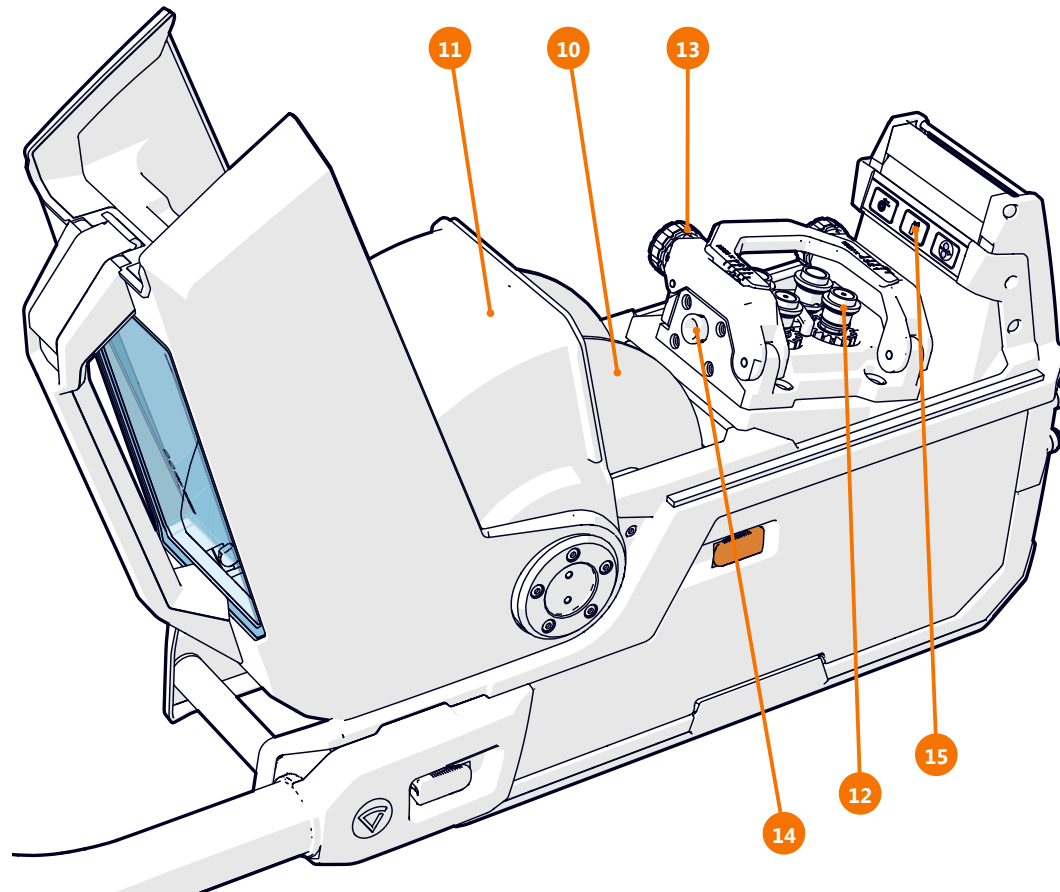
Figure 2: The warning sticker inside the wire feeder

10. **Wire spool**

11. **Wire spool locking cover**

12. **Feed rolls**

13. **Pressure handle**

14. **Wire guide**

15. **Inside control buttons**

Control panel
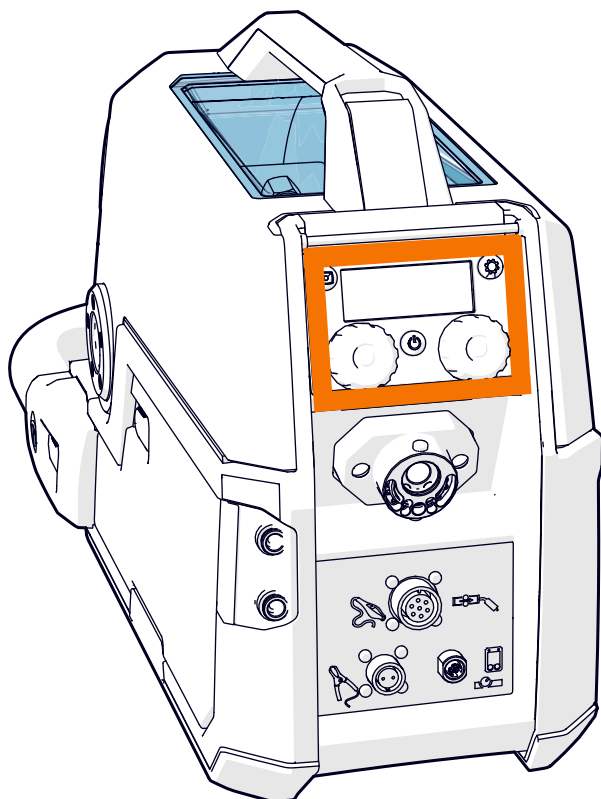
The control panel on the front of the wire feeder enables easy control of the wire feeder's basic features. Although Control Pad is the main control of the welding system, you can also use the wire feeder control panel or the welding gun remote control.
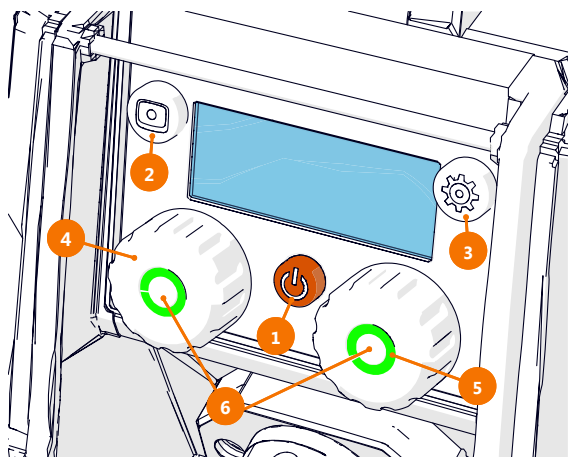
The wire feeder control panel parts are:

1. Locking button

Press and hold for 2 seconds to lock or release the display and buttons.

2. Channel button

The button lights up blue, when the view is activated.

3. Settings button

The button lights up orange, when the view is activated.

4. Left control knob

5. Right control knob

6. Left and right button

For more information on the use and features of the control panel, see Wire feeder views on page 96.

Control buttons on the inside

The wire feeder has control buttons inside the wire cabinet.
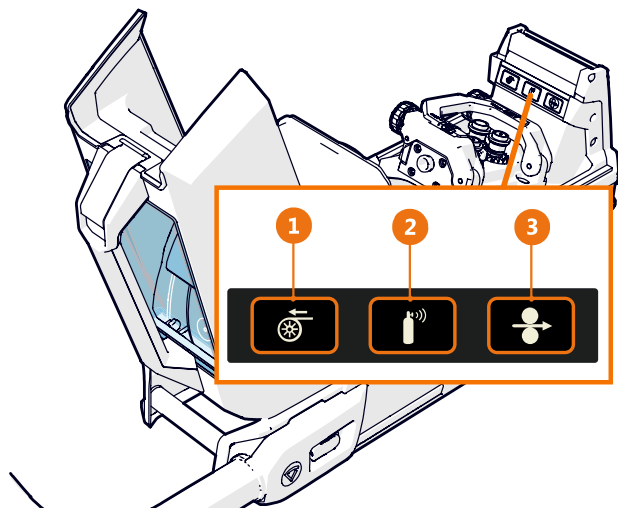
1. Wire retract button

Drive the filler wire backward with arc off.

2. Gas test button

Test the shielding gas flow, or flush out the remainder of the previous gas.

3. Wire inch button

Drive the filler wire forward with arc off.

Interconnection cable connectors
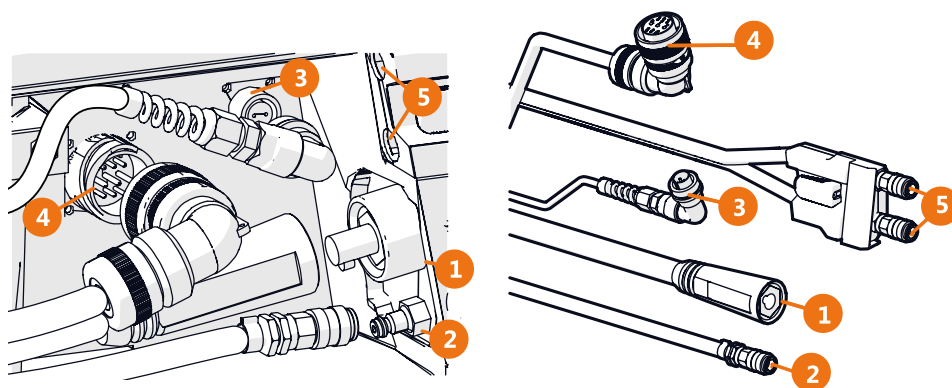
1. Welding current

Supplies current from the power source to the wire feeder.

2. Shielding gas

Supplies shielding gas to the welding gun.

3. Measurement

Supplies the welding parameters measured during welding.

4. Control

Supplies data and operating voltage to the wire feeder.

5. Coolant outlet and inlet

Circulates coolant to and from the welding gun.

For information on the installation of the cables, see Cables installation on page 50.

External component connectors
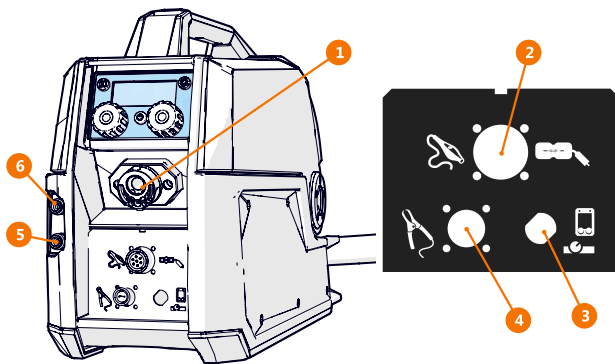
1. Kemppi Gun Adapter

Connects to the welding gun.

> ⓘ **Note:**
>
> The wire feeder is supplied with Kemppi Gun Adapter.

2. Subfeeder

Provides control to optional SuperSnake subfeeder or a motorized welding gun.

3. Remote control

Connects to remote control devices (Control Pad). Supplies power and data connection with 12 V voltage.

4. Voltage sensing

Connects to the welding piece and measures arc voltage in real time.

5. Coolant outlet

Delivers cold coolant to the welding gun.

6. Coolant inlet

Receives heated coolant from the welding gun.

2.2.3 X8 MIG Guns

Gas-cooled gun
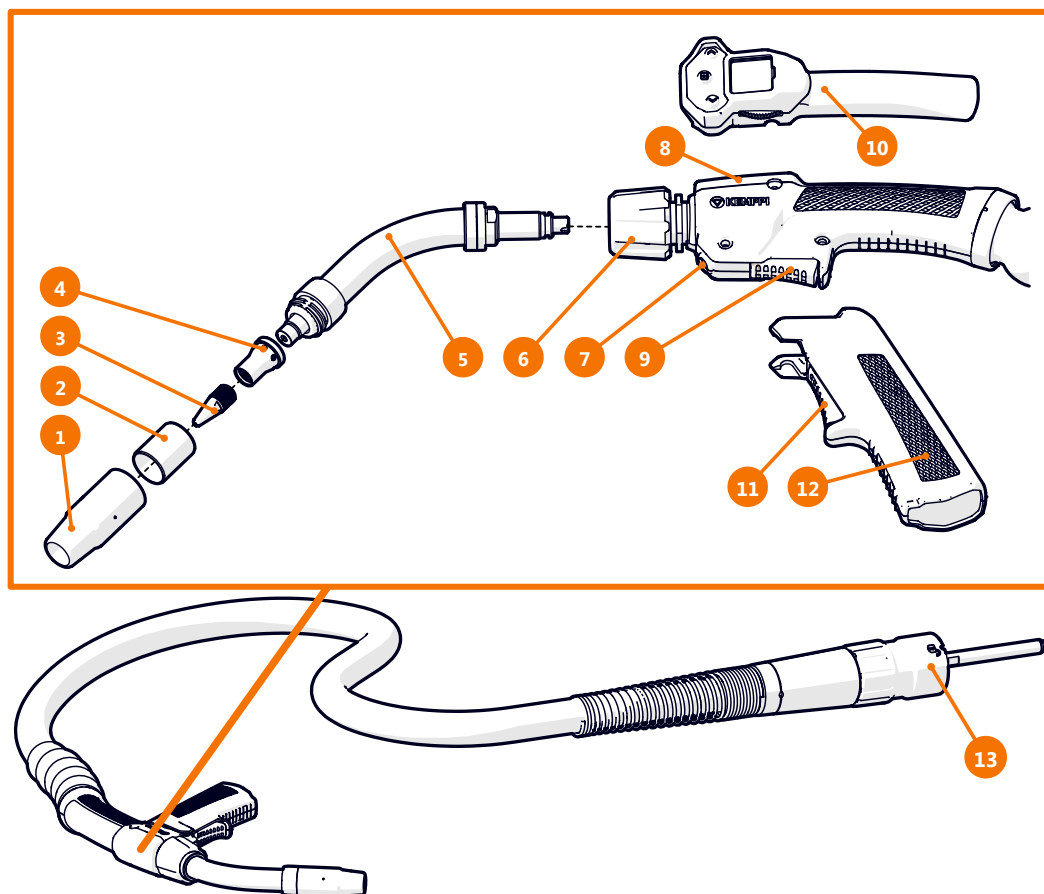
1. **Gas nozzle**

2. **Insulating bush**

3. **Contact tip**

4. **Contact tip adapter**

5. **Neck**

6. **Neck tightener**

7. **Work light**

   Press the trigger lightly to switch on the light.

8. **Handle cover plate**

   Covers the handle if the remote control is not used.

9. **Trigger**

10. **X8 Gun Remote Control**

    The remote control is an optional accessory.

11. **Trigger on the pistol grip handle**

12. Pistol grip handle

Quick to attach and detach.

13. Kemppi Gun Connector

Water-cooled gun
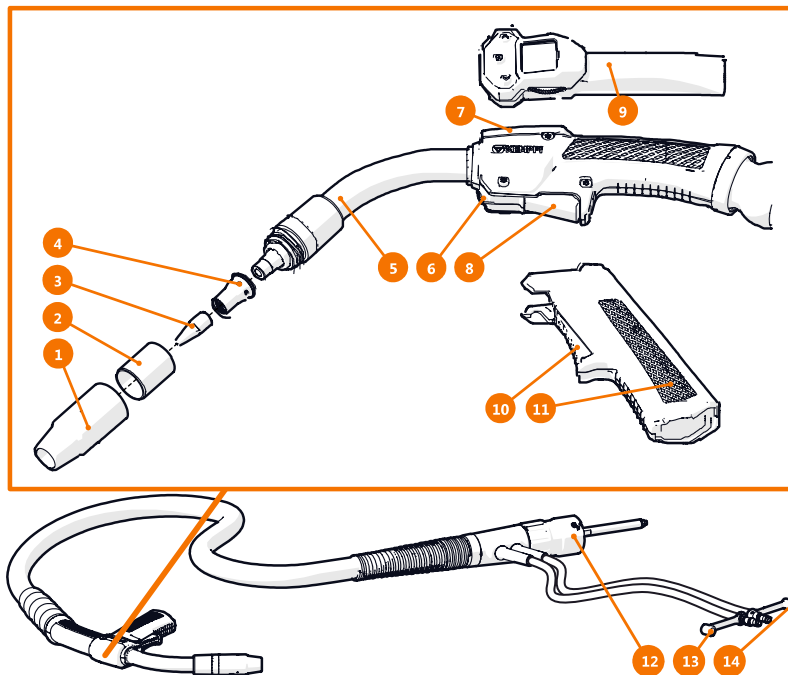
1. Gas nozzle

2. Insulating bush

3. Contact tip

4. Contact tip adapter

5. Neck

6. Work light

Press the trigger lightly to switch on the light.

7. Handle cover plate

Covers the handle if the remote control is not used.

8. Trigger

9. X8 Gun Remote Control

The remote control is an optional accessory.

10. Trigger on the pistol grip handle

11. Pistol grip handle

Quick to attach and detach.

12. Kemppi Gun Connector

13. Coolant inlet hose

14. Coolant outlet hose

2.2.4 Control Pad

This section describes the structure of Control Pad.
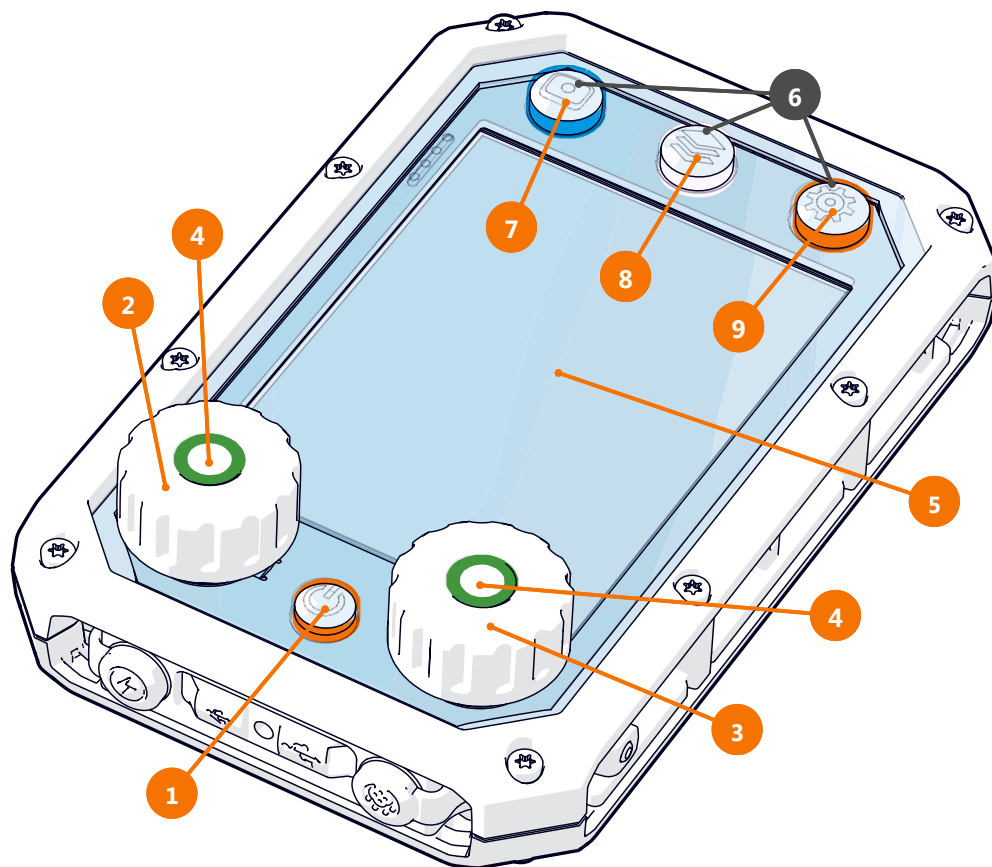
1. **Power button**

   The button lights up orange, when you switch Control Pad on.

2. **Left control knob**

3. **Right control knob**

4. **Left and right button**

   When the button lights up green, you can press the button to confirm an action.

5. **Display**

6. **View buttons**

7. **Channel button**

   The button lights up blue, when the view is activated.

8. **Menu button**

   The button lights up white, when the view is activated.

9. **Settings button**

   The button lights up orange, when the view is activated.
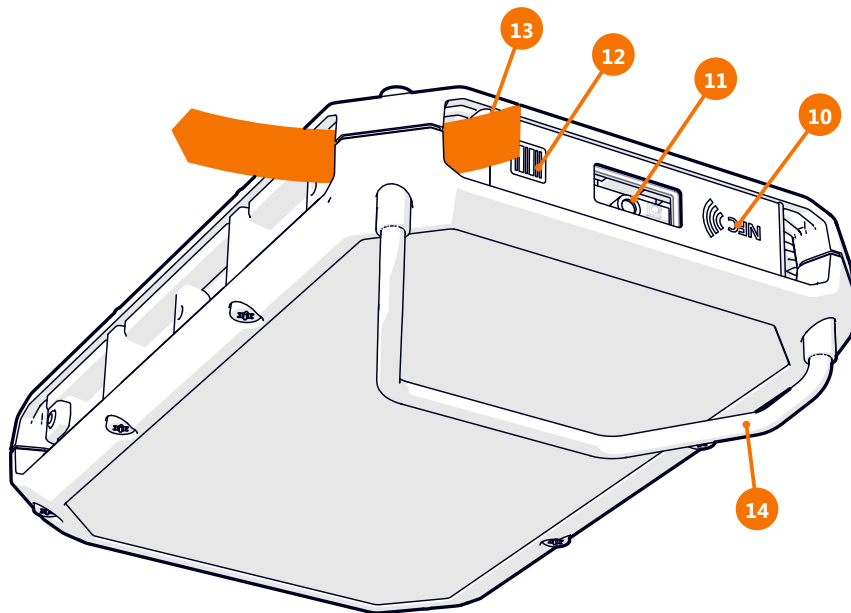
10. NFC reader

11. Barcode reader

12. ON/OFF button for NFC and barcode readers

   The button also acts as a shortcut button for reading a barcode in any Control Pad view.

13. Loop for the carrying strap

14. Hook

   When you connect or disconnect the charger, Control Pad shows you the charge level.

CHANNEL	WELDING	SETTINGS

SYSTEM SETTINGS

#Sub feeder selection — None

WF Motor — **70 %**

5.0 A

Voltage dis... mode — Arc voltage

#Safety wi... — Off

PANEL SETTINGS

CHARGER CONNECTED

CHANNEL	WELDING	SETTINGS

PSNK12345678 • WF 1 • Demo User

0 MIG F000 All — MIG

Mode — MIG

WELDING...

TRIGGER L...

START AND... C

PARAMETE...

SYSTEM SETTINGS — **100 %**

CHARGER DISCONNECTED
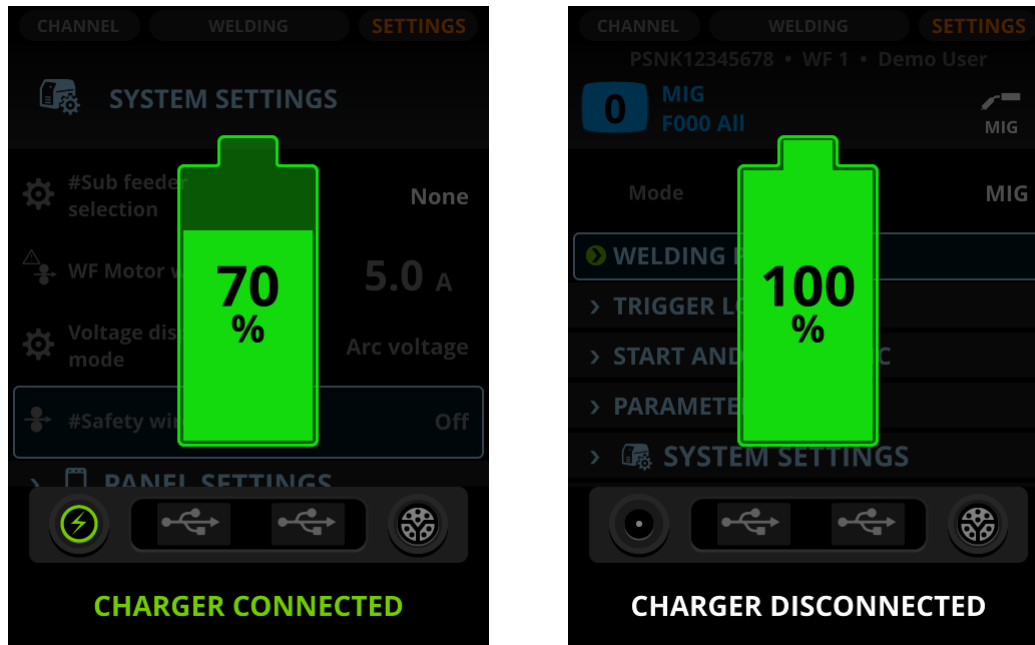
When Control Pad is charging, green leds on the left side of the display indicate ongoing charging. The lowest led turns red when the charge level is low.
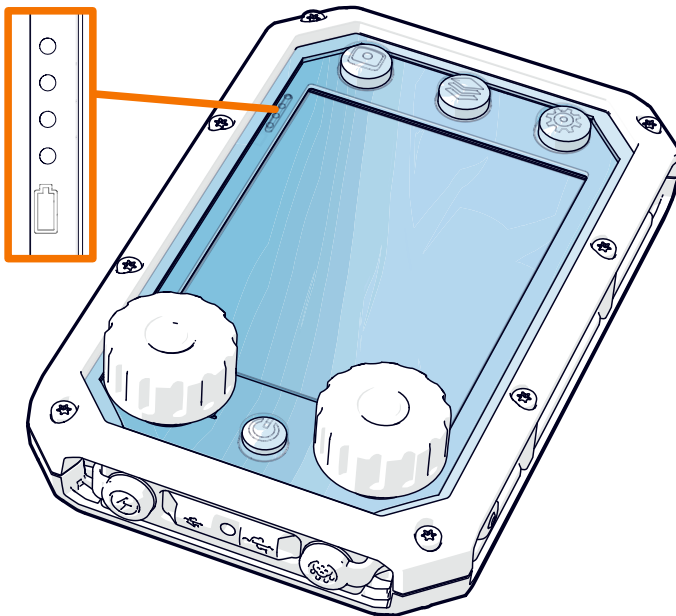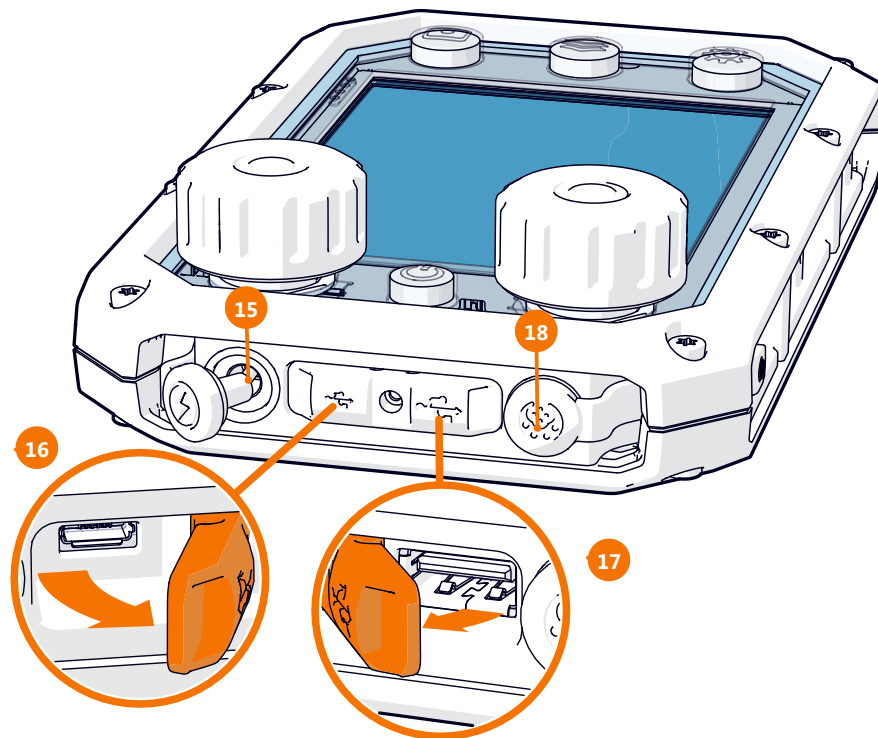
15. **Charger cable port**

A stopper shields the charger cable port.

16. **Micro USB port**

A cover shields the micro USB port and the USB cable port.

17. **USB cable port**

18. **Combo cable port**

Combo cable port transfers both data and power. A stopper shields the combo cable port.

2.3 Installation

Perform this installation procedure to prepare your X8 MIG Welder for use.

Read the instructions carefully and follow them closely.

2.3.1 Before installation

Make sure to acknowledge and follow the local and national requirements on installation and the use of high voltage units.

Before installation, check the contents of the packages and make sure the parts are not damaged.

Before you remove the power source completely from its packaging, install the wheel set.

Before you install the power source on the site, see the following requirements regarding the mains cable type and fuse rating.

⚠️ **Warning:**

The mains cable must be installed by an authorized electrician.

⚠️ **Warning:**

Provided that the public low voltage short circuit power at the point of common coupling is higher than or equal to 5.1 MVA, this equipment is compliant with IEC 61000-3-11 and IEC 61000-3-12 and can be connected to public low voltage systems. It is the responsibility of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the system impedance complies with the impedance restrictions.

Table 2: Cable type and fuse rating requirements

Unit amperage	High voltage version (380-460V)		Multi-voltage version (220-230/380-460V)	
	Cable type	Fuse rating	Cable type	Fuse rating
400 A	6 mm^2	25 A	-	-
500 A	6 mm^2	32 A	16 mm^2	63 A
600 A	6 mm^2	35 A	16 mm^2	63 A

2.3.2 Power Source installation

For power source cable connections, see Installing interconnection cable and Installing or replacing mains cable. For operating the power source, see Preparing welding system for use.

2.3.2.1 Installing wheels

To have turning wheels in the front and the back, install the front wheel assembly to the front of the unit. To have fixed wheels in the front, install the rear wheel assembly to the front of the unit. See also Installing optional gas cylinder cart.

Proceed as follows:

Install the rear wheels:

1. Remove the packaging from the sides but leave the power source resting on the pallet.
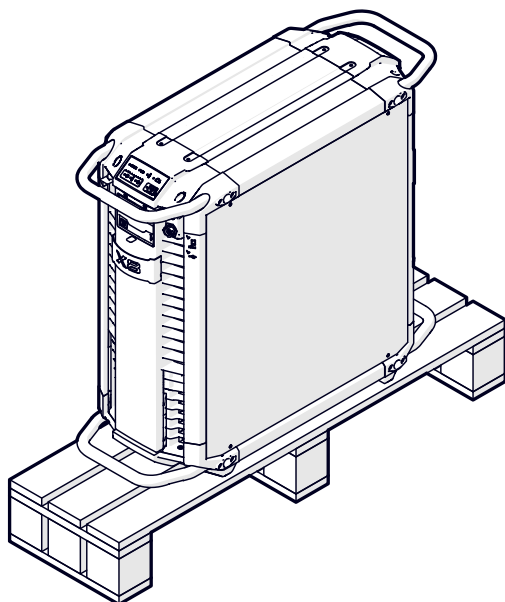
2. Push the rear axle through the opening in the bottom of the rear side of the unit and set the axle in the middle.
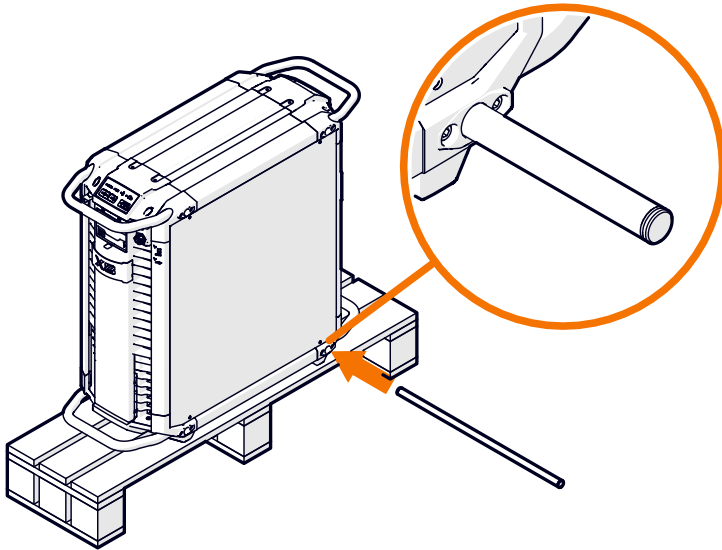
3. Slide the two wheel spacers (**1**) onto the axle.

4. Slide the two wheels (**2**) onto the axle.

5. Slide the two washers (**3**) onto the axle.

6. Slide the two retaining rings (**4**) on the axle, until they lock into the groove on the axle.
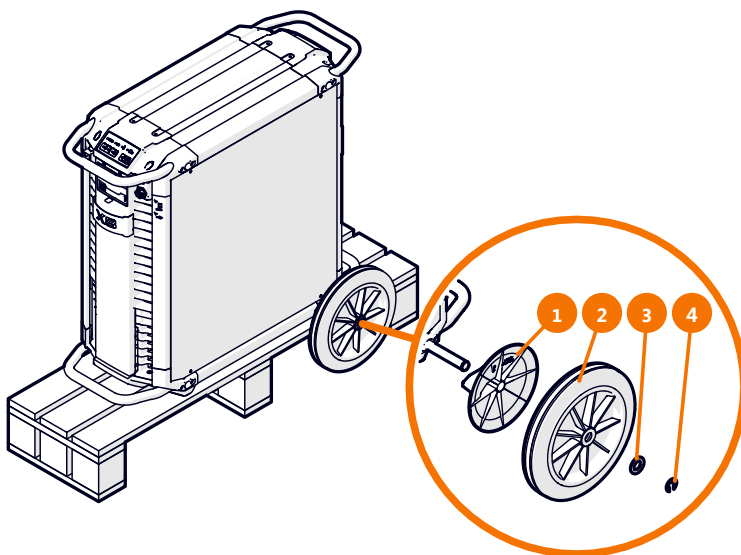
Install the front wheels:

7. Push the front axle through the opening in the bottom of the front side of the unit and set the axle in the middle.
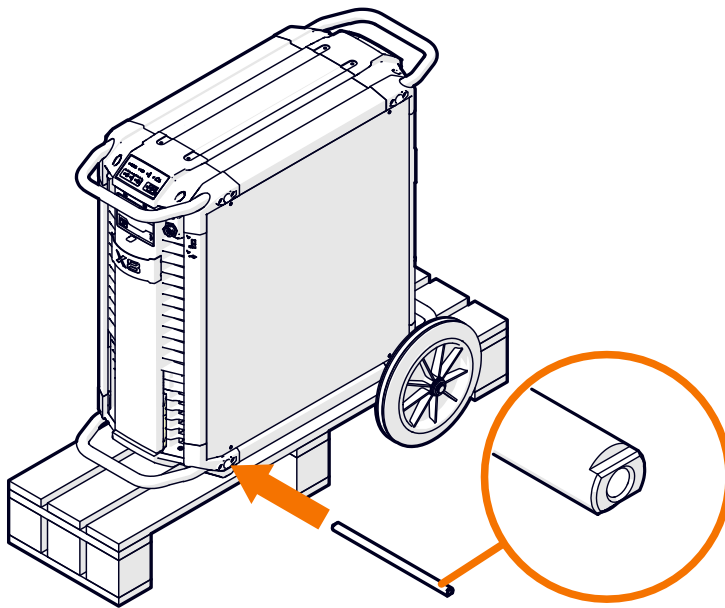
8. Place the transportation handle over the ridge in the wheel assembly and align the holes in the wheel assembly with the ends of the axle.

9. Attach the front wheel assembly to the end of the axle with a bolt (**1**) and washer (**2**) from both sides.

Max. 20 Nm
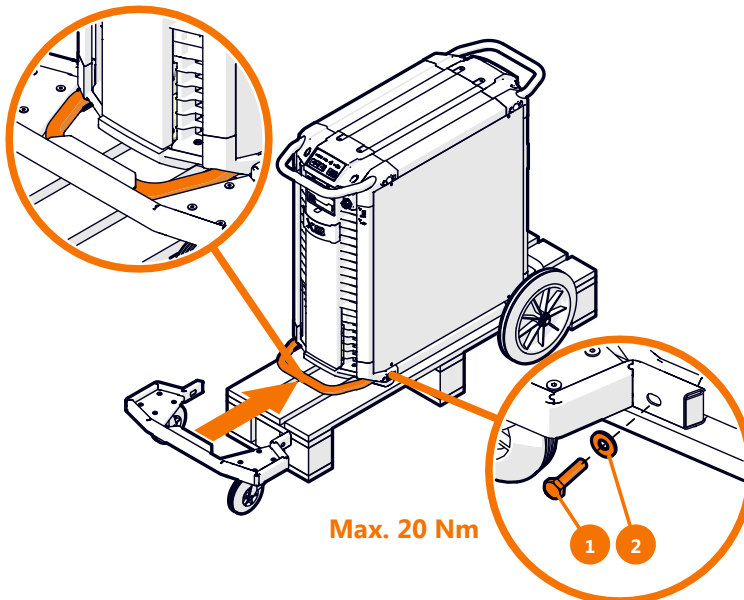
10. When the wheels are attached, lift the power source off the pallet.
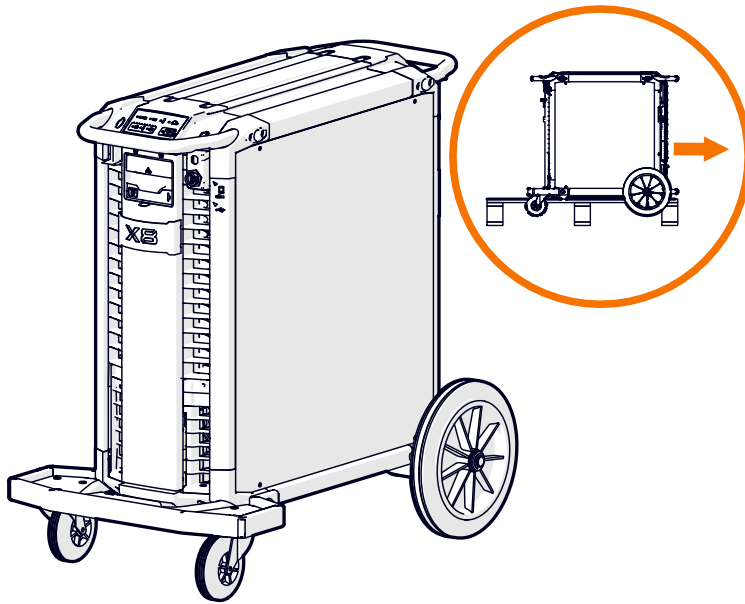
   ⓘ   **Note:**

       If your setup includes X8 Gas Cylinder Cart, proceed to Installing optional gas cylinder cart.

2.3.2.2 Installing optional gas cylinder cart

To transport a larger gas cylinder with the power source, install X8 Gas Cylinder Cart. For detailed instructions, see *X8 Gas Cylinder Cart Mounting Instructions*. If your setup does not include the gas cylinder cart, proceed to Installing optional X8 Cooler.

1. Remove the packaging from the sides but leave the power source resting on the pallet.

2. Attach a wheel set to the front of the unit.

   • To have turning wheels in the front and the back, install the front wheel assembly to the front of the unit.

      For more information, see Installing wheels on page 26.
   • To have fixed wheels in the front, install the rear wheel assembly to the front of the unit.

      For more information, see Installing wheels on page 26.

Attach the gas cylinder cart to the rear of the unit:

3. Push the axle through the opening in the bottom of the rear side of the unit.
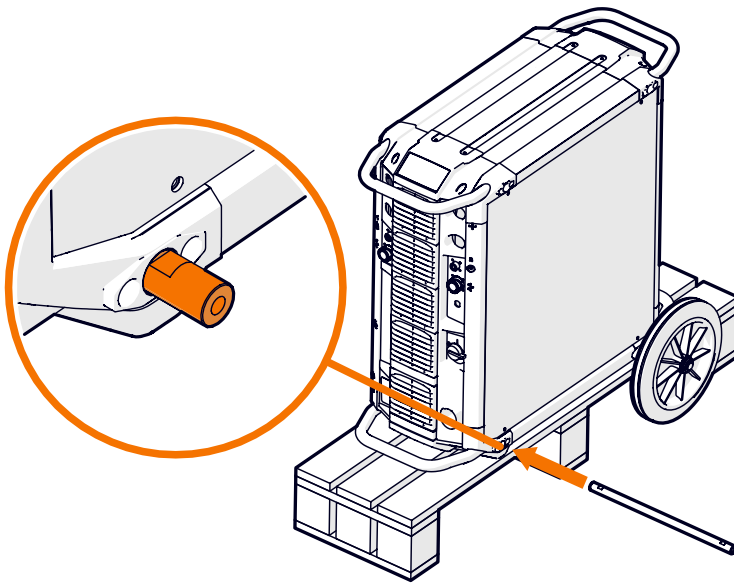
4. Attach the wheel set of the gas cylinder cart to the axle with a bolt (1) and washers (2, 3, 4) from both sides.
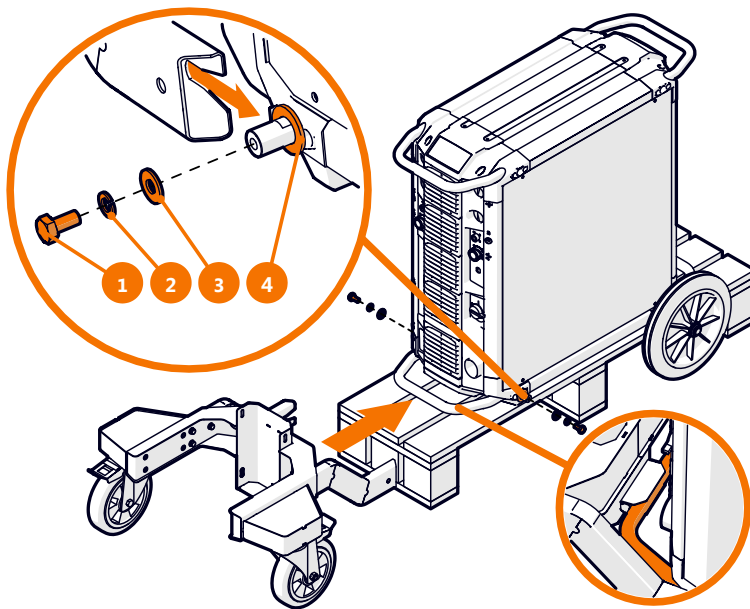
5. Insert cover plugs to the open ends of the wheel set.
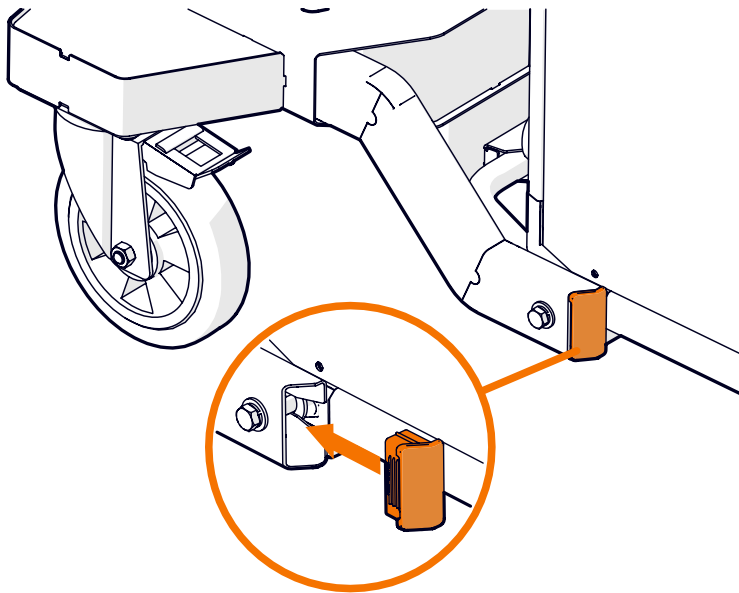
6.   Place the upper part of the gas cylinder cart on the wheel set, and push it down until the claw fastens over the transportation handle.
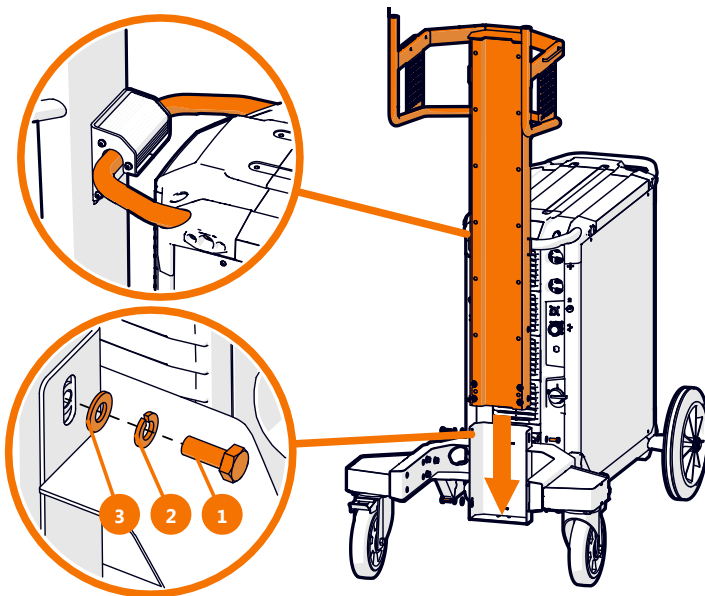
7.   Attach the upper part of the gas cylinder cart to the wheel set with two bolts (1) and washers (2, 3) from both sides.

8.   Attach the bottom of the gas cylinder cart to the wheel set with six bolts (1) and washers (2, 3).

      The gas cylinder cart bottom has two alternative settings (the lower setting described in the figure). The higher setting gives a better ground clearance, but you must lift the gas cylinder higher.

Max. 20 Nm
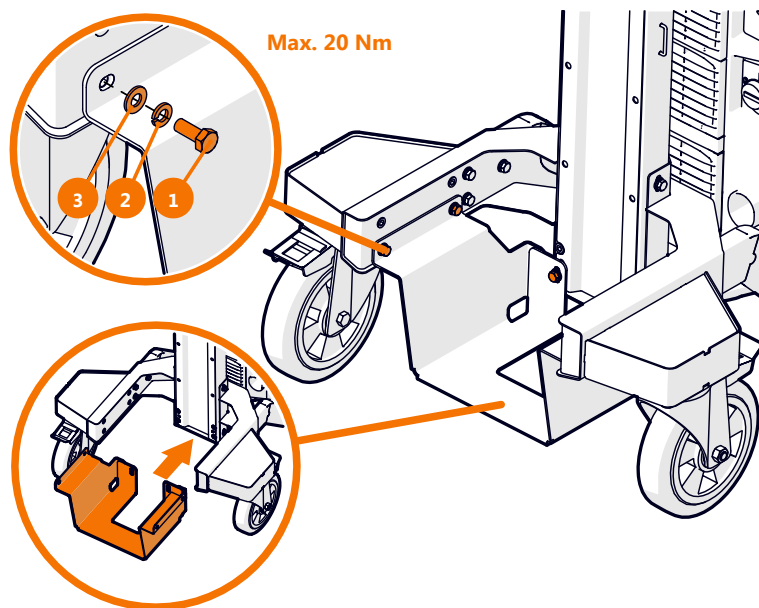
9. Place the gas cylinder on the cart.
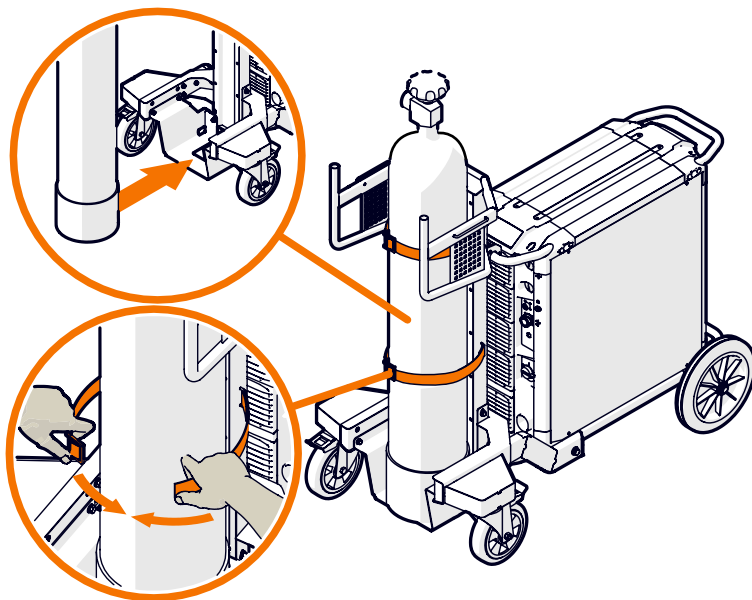
10. Fasten the straps in the cart around the gas cylinder.

2.3.2.3 Installing optional X8 Cooler

If your setup does not include X8 Cooler, you can skip these instructions.

⚠ **Caution:**

X8 Cooler must be installed by authorized service personnel. Do not open the covers of X8 Power Source.
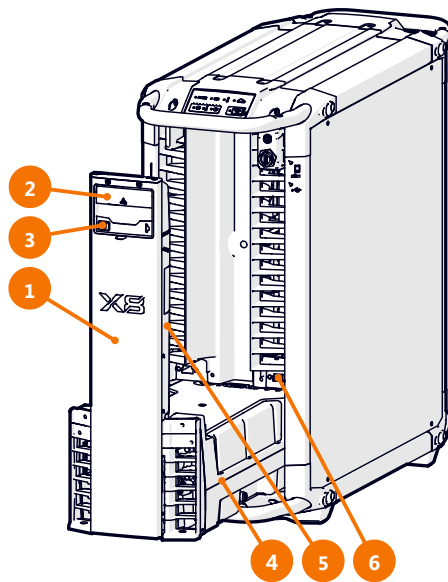
1. **Front panel**
2. **Front panel latch**
3. **Coolant circulation button**
4. **Cooler**
5. **Coolant container**
6. **Connectors for the liquid cooling unit**

Proceed as follows:
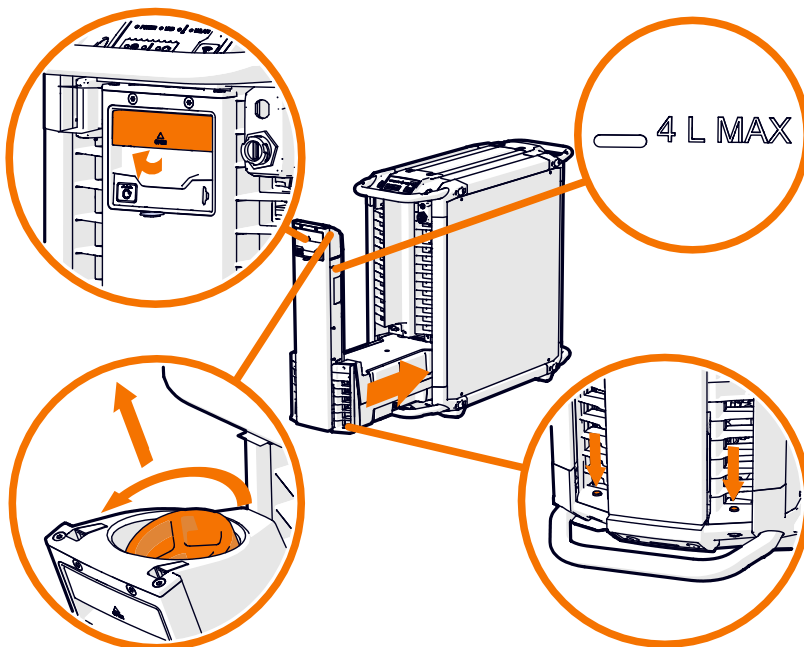
1. Detach the two screws in the front panel of the power source.

2. Pull the front panel outwards from the lower edge.

3. Remove the lower left cover from the rear of the power source.

4. Push the cooler inside the power source from the opening in the front.

   ⓘ **Note:**

   Do not use force, but make sure the connectors on the cooler and the power source are properly connected.

5. Fill the coolant container with applicable coolant solution. For more information, see Filling cooler on page 103.

6. Attach the two screws in the front panel of the power source.

2.3.2.4 Installing or replacing mains cable

The power source is supplied with a 5-meter mains cable without a plug installed.

⚠ **Warning:**

The mains cable must be installed by an authorized electrician.

For high voltage versions, install the 6 mm^2 cable. For multi-voltage versions, install the 16 mm^2 cable.

The mains cable includes the following wires:

1. Brown: L1
2. Black: L2
3. Grey: L3
4. Yellow-green: Protective earth

2.3.3 Wire Feeder installation

This chapter describes the wire feeder installation.

For wire feeder cable connections, see Installing interconnection cable. For information on operating the wire feeder, see Wire feeder control panel on page 96.

⚠ **Caution:**

Welding quality and efficiency are greatly dependent on the consumable parts used on the wire line. These include the wire guide tubes, feed rolls, wire liners, gas nozzles and contact tips. Always ensure that you are using the correct consumable parts suitable for the filler wire size and material.

For more information, visit Kemppi consumable kit selection site at kitselect.kemppi.com.

2.3.3.1 Installing wire feeder

The installation of the Wire Feeder Rotating Plate and Double Wire Feeder Rotating Plate is identical, as is installing one or two wire feeders.

Install the wire feeder on the power source with a Wire Feeder Rotating Plate. To install two wire feeders, use a Double Wire Feeder Rotating Plate.

ⓘ **Note:** To set up the system for double wire feeder configuration, you need certain assembly parts. For more information, see Double wire feeder assembly parts.

Proceed as follows:

1. Place the wire feeder rotating plate or double rotating plate on top of the power source, with the orange claw at the rear of the unit.
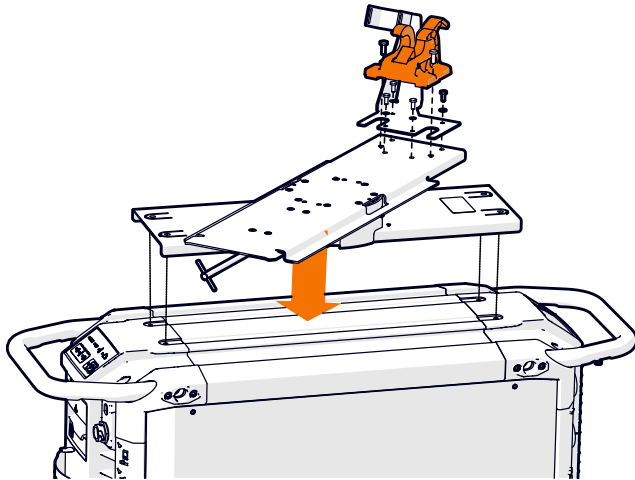
2. Pull the release lever at the front of the wire feeder rotating plate, and turn the top sideways to allow access to the bottom half.
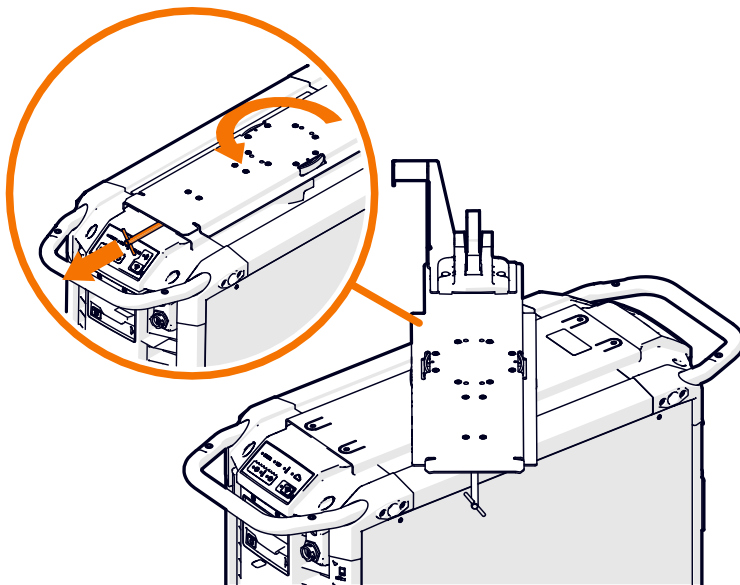
3. Attach the bottom of the wire feeder rotating plate to the power source with four screws (**1**) and washers (**2**).
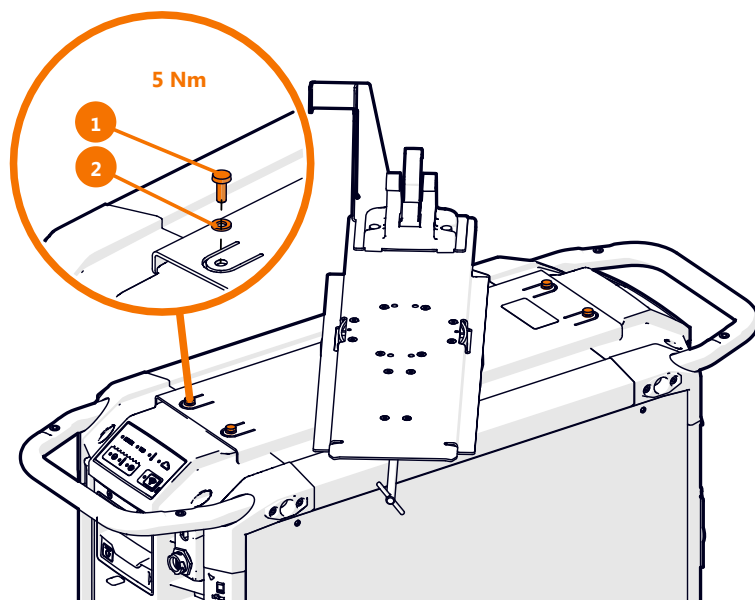
4. With the control panel facing the same way as the power source front panel, place the wire feeder in the corresponding grooves on the wire feeder rotating plate.

5. Slide the wire feeder from front to back until the bar in the back of the unit locks to the orange claw at the back of the wire feeder rotating plate.
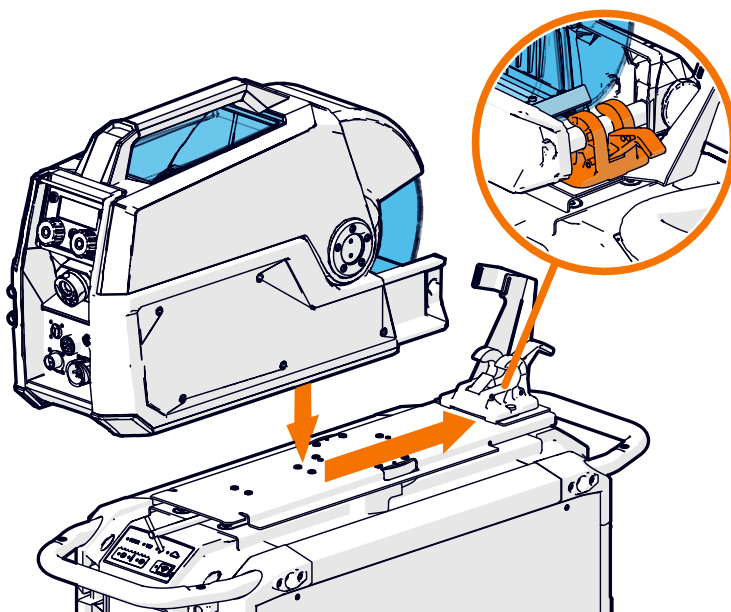
2.3.3.2 Installing welding gun holder

Install the welding gun holder to either side of the wire feeder.
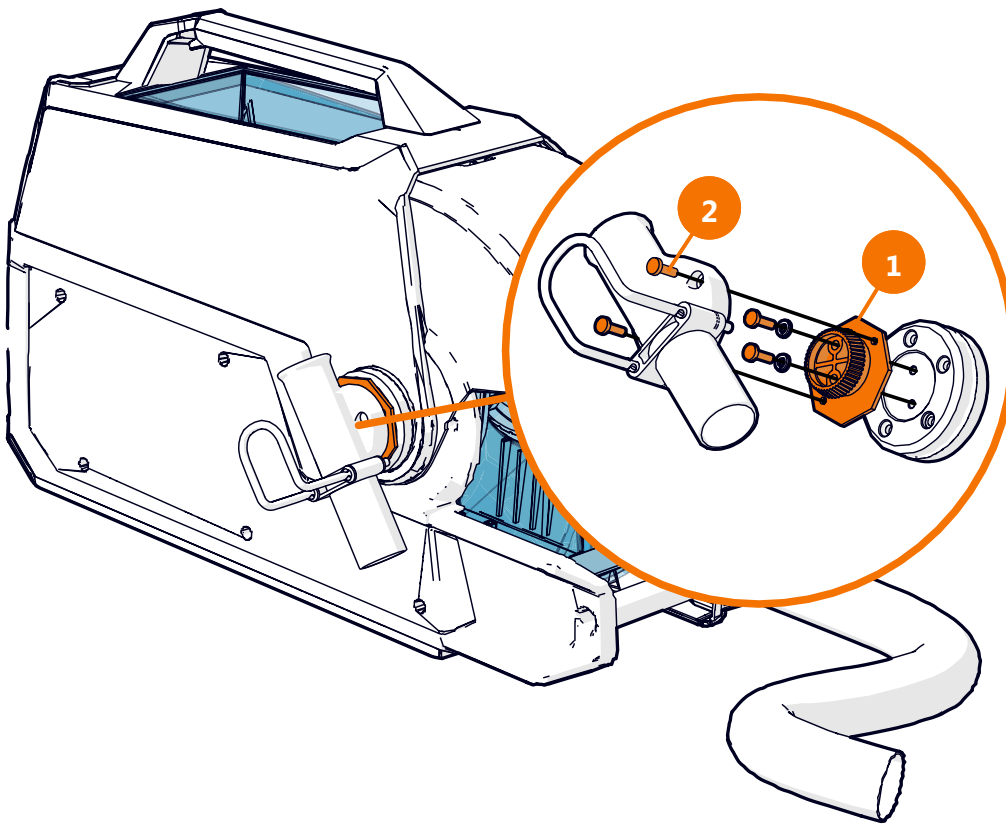
Proceed as follows:

1. Install the welding gun holder mount to the wire feeder with 2 screws going to the corresponding holes on the wire feeder upper cover hinge.

2. Attach the welding gun holder to the mount with 2 screws.

2.3.3.3 Replacing feed rolls

Replace the feed rolls when the material and diameter of the filler wire changes.

Proceed as follows:

1. Open the top cover and lift the pressure handle.
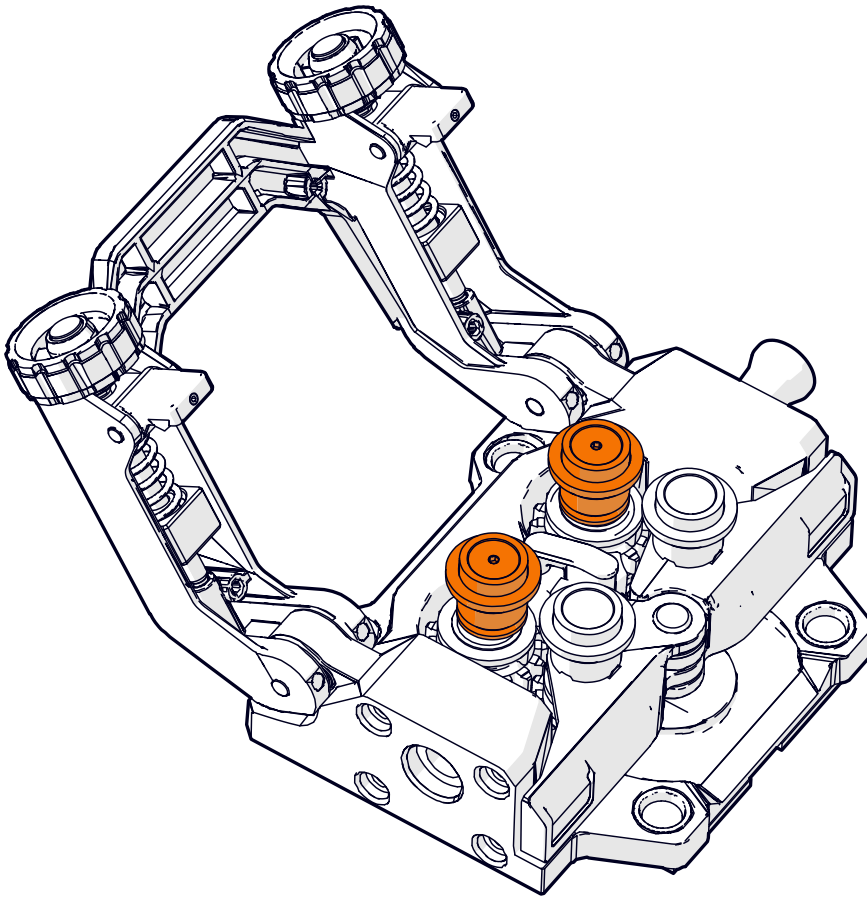
2. Push the collars on the mounting pins of the feed rolls up to pull the mounting pins off.
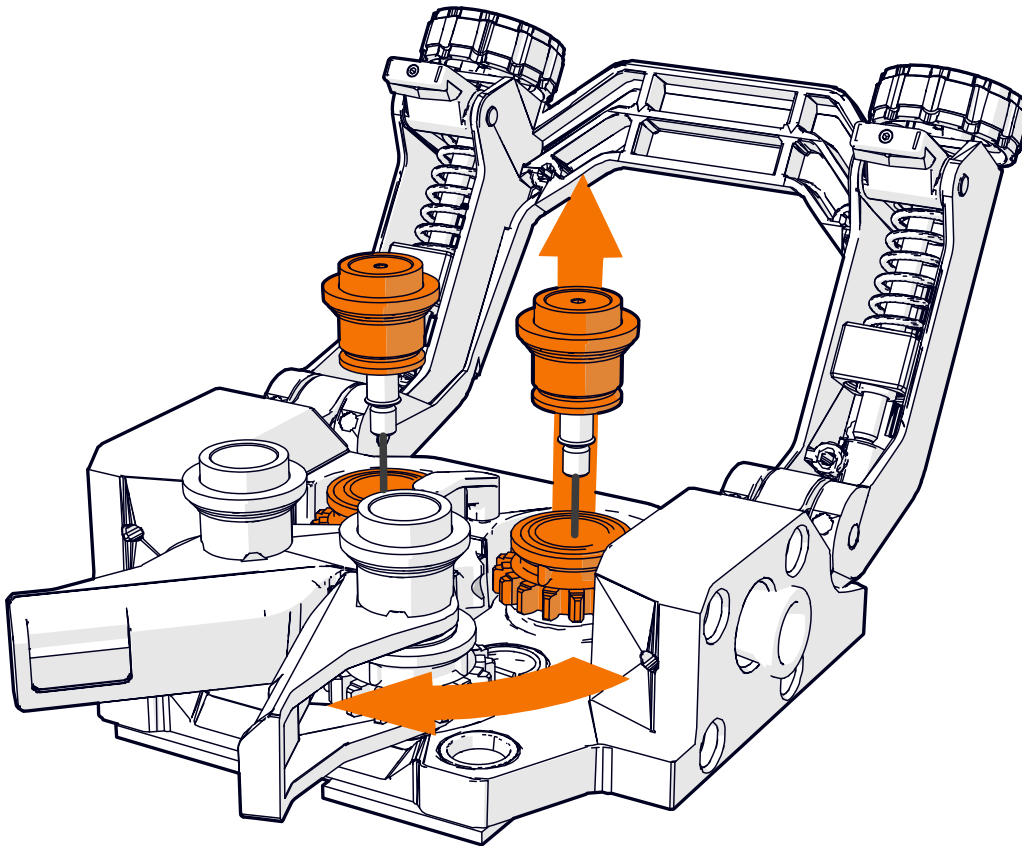
ⓘ **Note:**

The mounting pins are different: The drive rolls' mounting pins have a circular mark on the top, while the pressure rolls' mounting pins have no marks. The pressure rolls' mounting pins have central axles attached to them, so the drive and pressure rolls' mounting pins cannot be confused with each other.

3. Pull the drive rolls upwards (1) and the pressure rolls out of their slots (2).
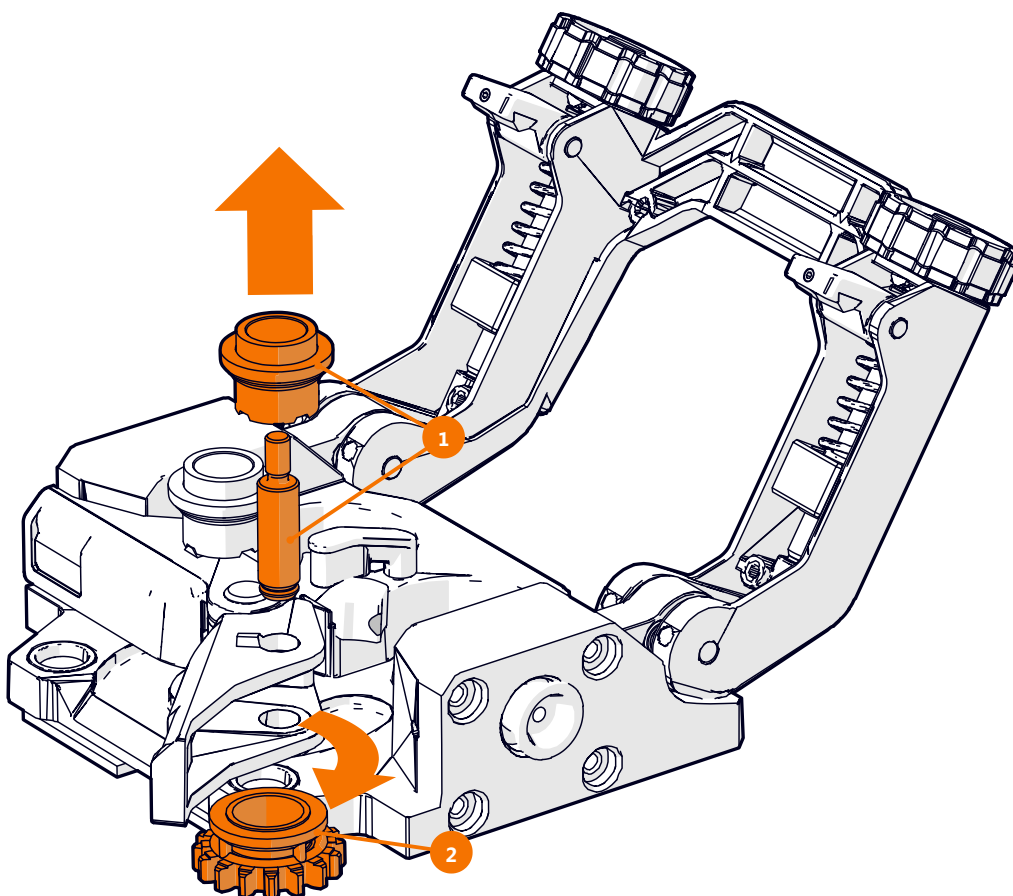
4. Select the feed rolls according to the tables below.

Wire feed rolls, plastic					
Filler wire material	Feed roll profile	Filler wire diameter (mm)	Feed roll identification	Drive roll code	Pressure roll code
Fe, Ss (Al, Mc, Fc)	V-groove V	0.6		W001045	W001046
		0.8−0.9		W001047	W001048
		1.0		W000675	W000676
		1.2		W000960	W000961

Wire feed rolls, plastic					
		1.4		W001049	W001050
		1.6		W001051	W001052
		2.0		W001053	W001054
		2.4		W001055	W001056
Fc, Mc (Fe)	V-groove, knurled $\bigvee\!\!\equiv$	1.0		W001057	W001058
		1.2		W001059	W001060
		1.4−1.6		W001061	W001062
		2.0		W001063	W001064
		2.4		W001065	W001066
Al (Fc, Mc, Ss, Fe)	U-groove	1.0		W001067	W001068
		1.2		W001069	W001070

Wire feed rolls, plastic				
	1.6		W001071	W001072

Wire feed rolls, metal				
Filler wire material	Feed roll profile	Filler wire diameter (mm)	Feed roll identification	Drive roll code	Pressure roll code
Fe, Ss (Al, Mc, Fc)	V-groove V	0.8−0.9	See the text on the roll	W006074	W006075
		1.0		W006076	W006077
		1.2		W004754	W004753
		1.4		W006078	W006079
Fc, Mc (Fe)	V-groove, knurled V≡	1.0		W006080	W006081
		1.2		W006082	W006083
		1.4−1.6		W006084	W006085
		2.0		W006086	W006087
Al (Fc, Mc, Ss, Fe)	U-groove	1.0		W006088	W006089
		1.2		W006090	W006091
		1.6		W006092	W006093

5. Place the feed rolls back to their places. Align the cut on a drive roll's bottom with the pin on the drive shaft.
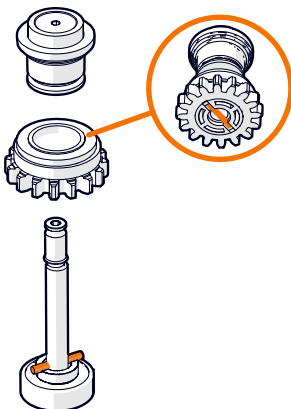
6. Reattach the mounting pins to lock the drive and pressure rolls to their places. Align one of the cuts on the bottom of the pressure rolls' mounting pin with the stud on the mount.

7. Lower the pressure handle on the feed rolls and close the top cover.

2.3.3.4 Replacing wire guides

The wire feed mechanism includes two wire guide tubes. Replace them when the filler wire diameter grows or the material changes.
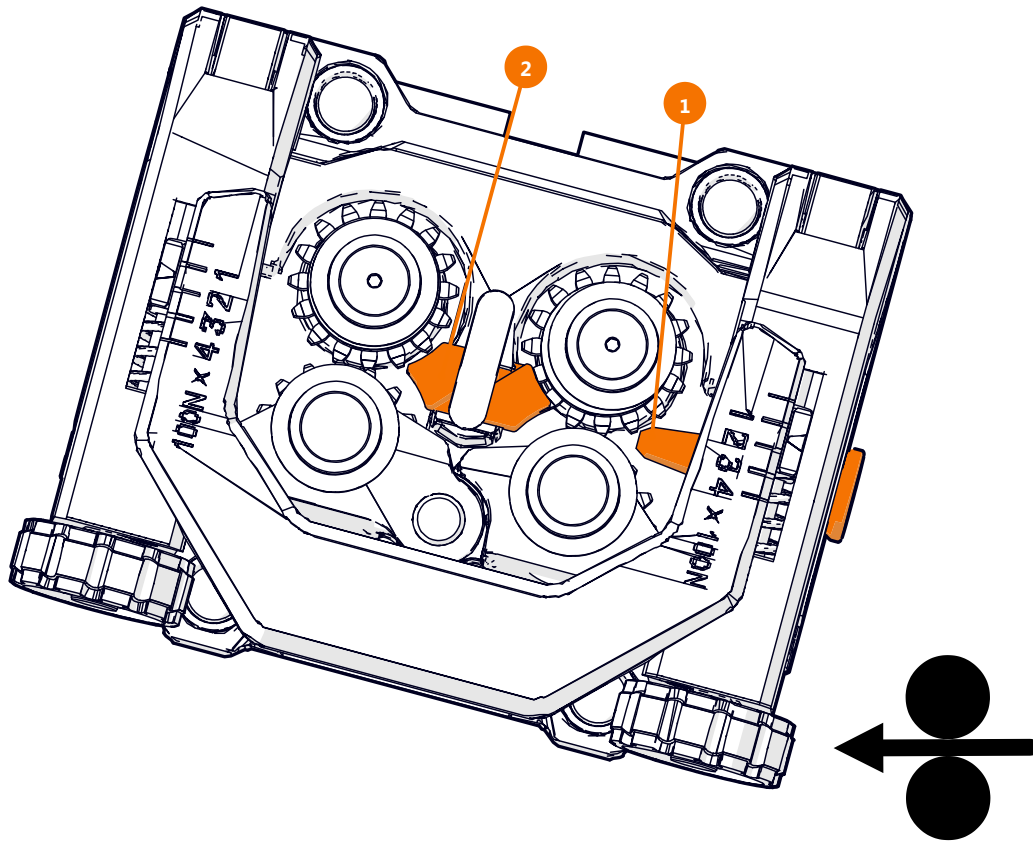
1. Inlet tube

Pull out the inlet tube and insert a new one. There is no additional locking.

2. Middle tube

A metal piece locks the middle wire guide tube in its place. Turn the piece aside to free the middle wire guide tube for replacement. Turn it back to lock down the new middle wire guide tube.

2.3.3.5 Changing wire spool

ⓘ   **Note:**

Install the welding gun to the wire feeder before installing the wire spool.

⚠   **Caution:**

If you change the filler wire to a different diameter or material, change the feed rolls accordingly.

Proceed as follows:

Remove the wire spool:
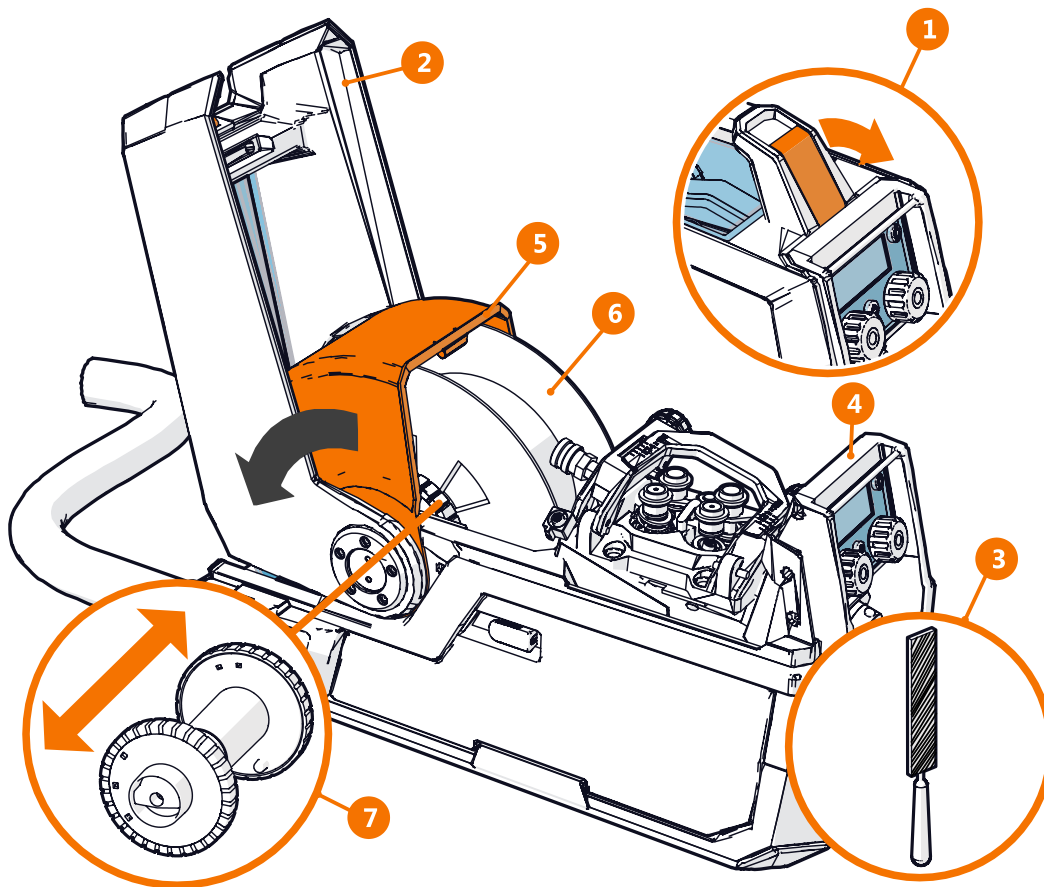
1.   Open the top cover latch.

2.   Lift the top cover up.

3.   Cut and file the tip of the filler wire.

     ⓘ   **Note:**

        The sharp cut tip of the filler wire may cause damage to the wire liner, if not filed.

4.   Press Wire retract to pull back the remaining filler wire from the welding gun.

5.   Push the wire spool locking cover aside.

6.   Lift the wire spool from the wire feeder.

7.   Loosen and pull the wire spool brake halves apart.

Install a new wire spool:
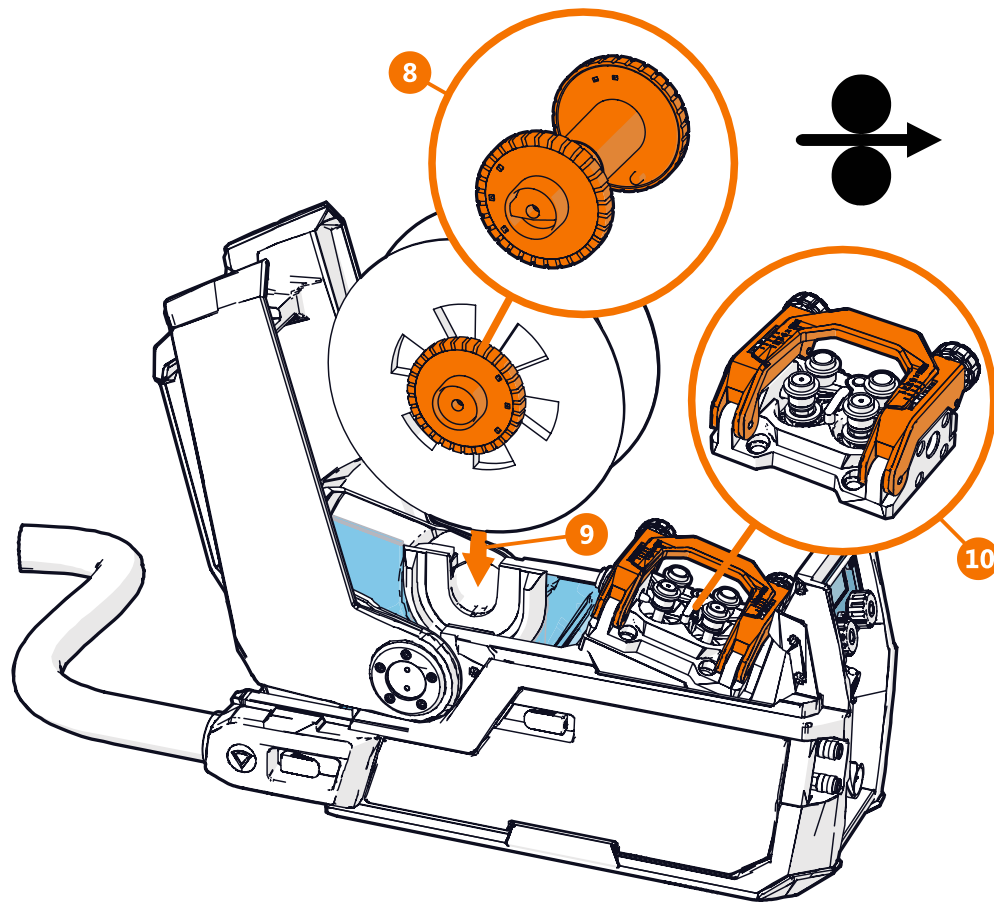
8. Attach the wire spool brake halves to the new wire spool by pushing them together inside the wire spool. Tighten if necessary.

   ⓘ **Note:**

   The spool brake is equipped with an optional wire tensioning feature, which keeps the wire feed steady in short repeated welds and with heavy wire spools. To enable wire tensioning, attach the spool brake hub to the wire spool so that the tightening knob is on the right, seen from the front.

9. Lower the wire spool to its socket.

   ⓘ **Note:**

   Ensure that the wire spool is facing the right direction, the filler wire running from the top of the spool to the feed rolls.

10. Lift the pressure handle off of the feed rolls.

Install the filler wire:
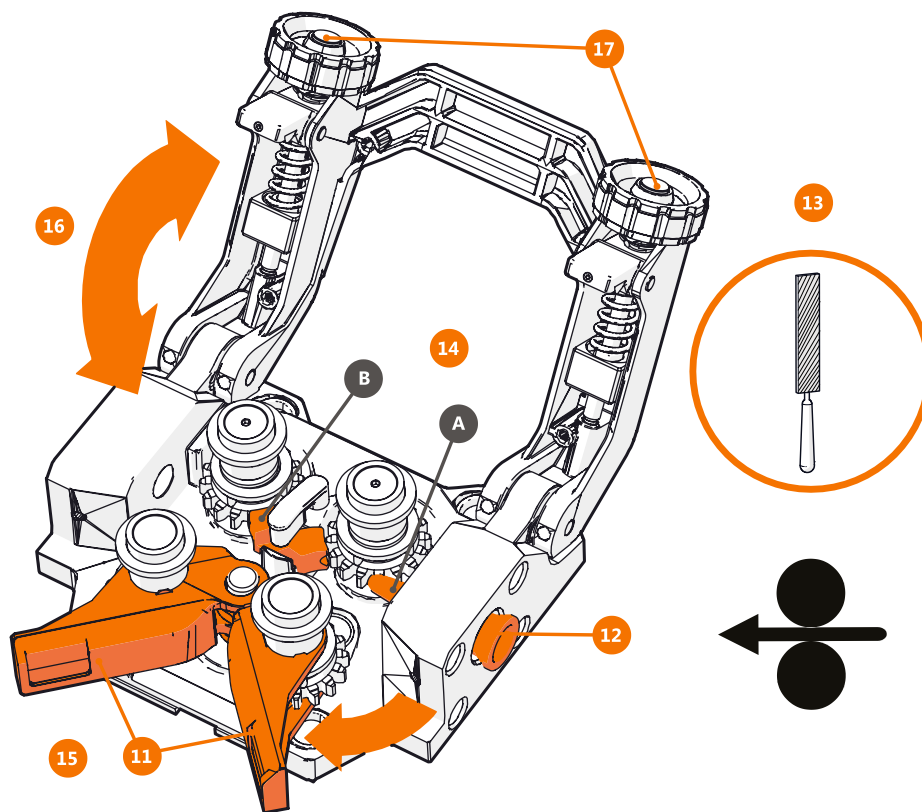
11. Release the pressure arms to move the feed rolls apart. This opens a gap between the feed rolls.

12. Release the filler wire end from the spool and cut off any deformed section so that the end is straight.

   (i) **Note:**

   Ensure that the filler wire does not spill from the spool when it is released.

13. File the tip of the filler wire smooth.

   ⚠ **Caution:**

   Sharp edges on the filler wire tip may damage the wire liner.

14. Guide the filler wire through the inlet tube (A) and middle wire guide tube (B) to the outlet, which feeds the filler wire to the welding gun. Push the filler wire by hand inside the gun so that the wire reaches the wire liner (about 20 cm).

15. Close the pressure arms so that the filler wire is locked between the feed rolls. Ensure that the filler wire sits in the feed roll grooves.

16. Lower the pressure handle on the feed rolls.

17. Adjust the pressure of the feed rolls with the pressure adjustment wheels. The pressure is the same for both feed roll pairs.

   The graduated scales on the pressure handle indicate the pressure applied to the feed rolls. Adjust the pressure of the feed rolls according to the table below.

Filler wire material	Feed roll profile	Filler wire diameter (mm)	Adjustment (x100N)
Fe/Ss solid	V-groove ∨	0.8–1.0	1.5–2.0
		≥ 1.2	2.0–2.5
Metal and flux cored	V-groove, knurled ∨≡	≥ 1.2	1.0–2.0
Self-shielded	V-groove, knurled ∨≡	≥ 1.6	2.0–3.0
Aluminium	U-groove ⌣	1.0	0.5 1.0
		1.2	1.0–1.5
		1.4	1.5–2.0
		≥ 1.6	2.0–2.5

⚠ **Caution:**

Excessive pressure flattens the filler wire and may damage coated or cored filler wires. Excessive pressure also unnecessarily wears the feed rolls and increases gearbox load.

18. Press Wire inch to drive the filler wire to the welding gun's contact tip. To speed up the wire feed speed, turn the left control knob on the control panel.
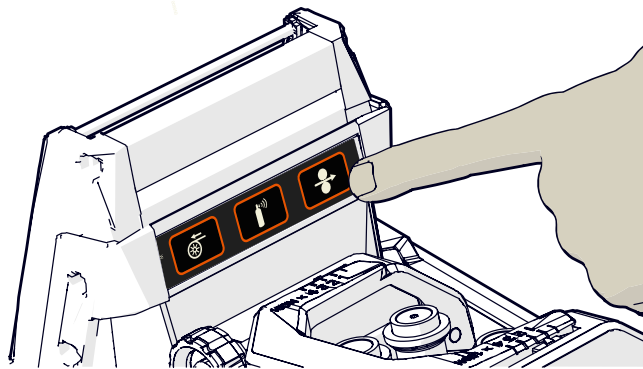
ⓘ **Note:**

The control panel shows how much the filler wire has run.

Finalize the installation:

19. Select the shielding gas and attach the gas cylinder to the wire feeder.

20. Press Gas test to flush the former shielding gas from the system.

ⓘ **Note:**

You can also use this button to test that the gases flow through the system properly.

21. Close the top cover.

Wire spools
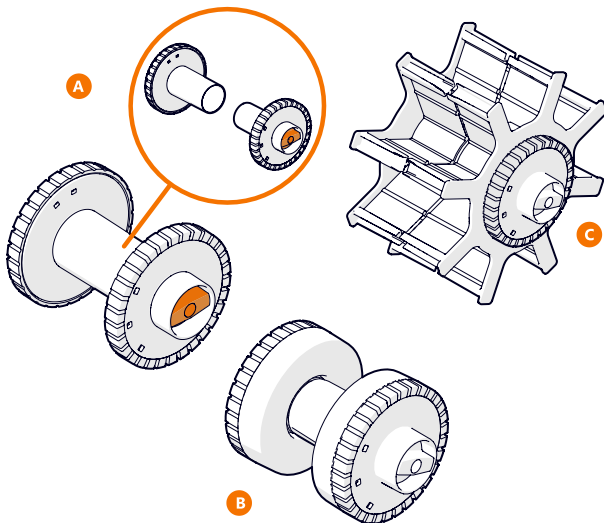
X8 MIG Welder has three different wire spool hub options available for different wire spools:

A. Standard spool

B. Spool hub for the small wire spool

Attach the extension pieces to the standard spool halves.

C. Spool hub for the wire spool with a large center hole

All parts are delivered with the wire feeder.

Loosen and pull the spool halves to detach them.

2.3.3.6 Attaching interconnection cable to strain relief

To ease the installation of the interconnection cable and to prevent any unnecessary strain on the cable connectors, attach both ends of the interconnection cable bundle to a strain relief.

Proceed as follows:

1. Attach the strain relief holder to the transportation handle at the rear of the power source. Fasten the strain relief holder with a bolt from below.

2. Take the power source end of the interconnection cable and insert the strain relief pin to the strain relief holder.

   ⓘ **Note:**

   If the wire feeder is detached from the power source, insert the strain relief pin to the holder from below.
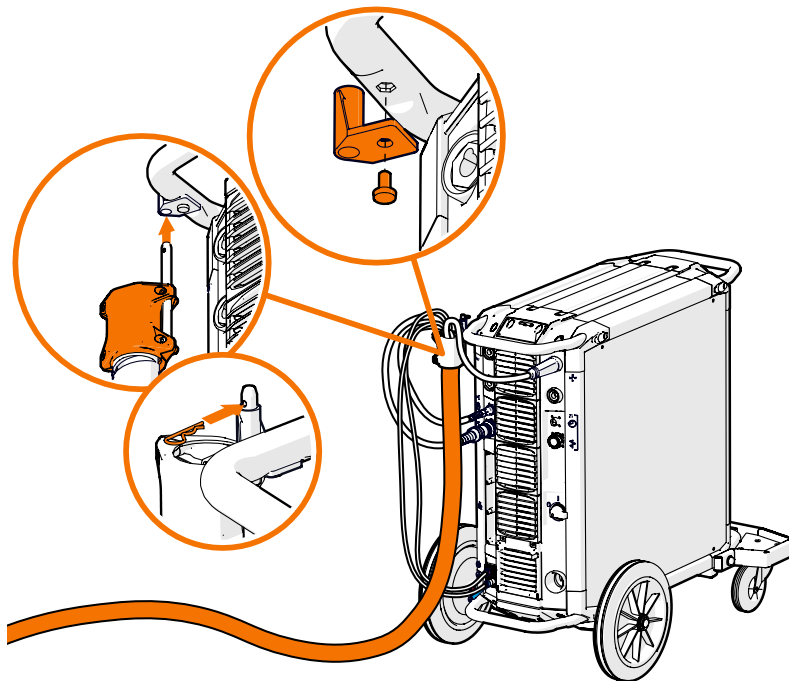
ⓘ **Note:**

If the wire feeder is on the power source, insert the strain relief pin to the holder from above.
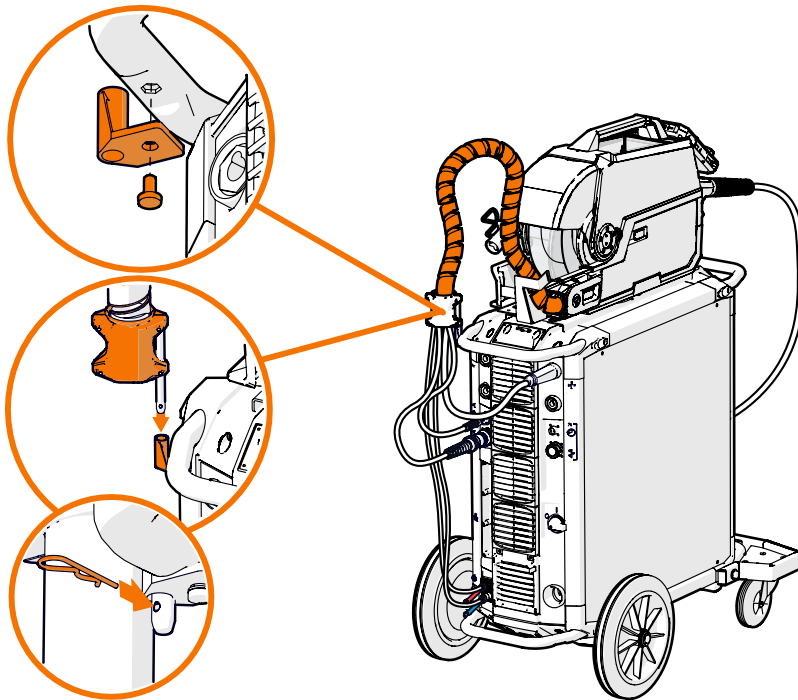
3. Insert the supplied locking pin through the hole in the strain relief pin.

4. Route the cable bundle from the back of the power source and attach the strain relief in the other end of the cable to the left-hand side of the wire feeder. For more information, see .

2.3.4 Cables installation

For a detailed description of the power source and wire feeder cabling, see Installing interconnection cable. For a full overview of the cabling, see Cabling diagram.

2.3.4.1 Installing interconnection cable

Install the interconnection cable first to the the wire feeder and then to the power source.

Proceed as follows:
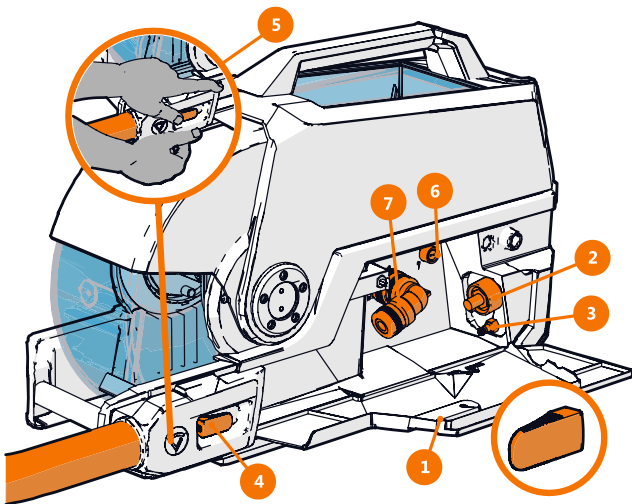
Connect the interconnection cable to the wire feeder:

1. Lift the cable cabinet latch to reveal the connectors.

2. Connect the welding current cable to the wire feeder. Push the cable as far as it goes and turn the connector clockwise to tighten the cable to its place.

   ⚠ **Caution:**

   Tighten the welding current cable as much as you can by hand. If the welding current cable connection is loose, it may overheat.

3. Push the shielding gas hose towards the shielding gas hose connector base until it locks down.

4. Attach the strain relief to the slot on the wire feeder.

5. Lock the strain relief latch to secure the strain relief.

6. Connect the control cable to the connector. Rotate the collar clockwise to lock it in place.

7. Connect the measurement cable to the connector. Rotate the collar clockwise to lock it in place.

8. If you have the optional cooler, pull the cover over the cooling water hoses' slot to remove it.
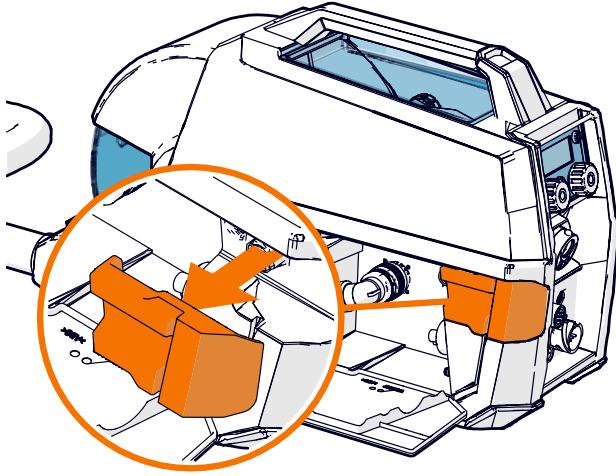
9. Connect the cooling water hoses to the slot.
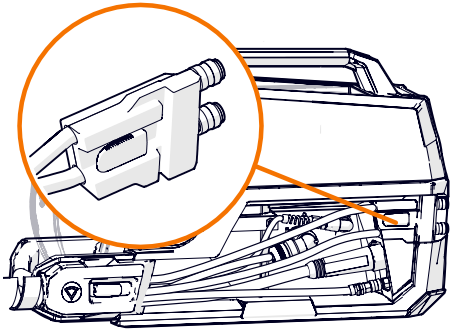
10. Close and lock the cable cabinet door.

ⓘ **Note:**

When connecting the cables to the wire feeder, route the cables neatly so that the cable cabinet door closes properly.

Connect the interconnection cable to the power source:
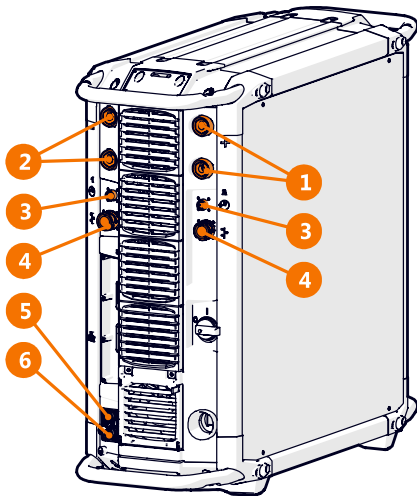
11. Connect the welding current cable to the plus (**+**) side connector (1) on the power source.
The interconnection cable crosses from the wire feeder to the power source connector diagonally.

   ⓘ **Note:**

   If two wire feeders are connected to a power source, connect the interconnection cable upright: from the wire feeder on the left to the connector (1) on the left.

12. Connect the earth return cable to the minus (**-**) side connector (2).

13. Connect the measurement cable to the measurement cable connector (4).

14. Connect the control cable to the control cable connector (3) on the same side as the measurement cable.

15. If the water cooler is present, use the red connector (5) for the hose that goes to the cooler.

16. If the water cooler is present, use the blue connector (6) for the hose that comes from the cooler.

17. If you need shielding gas, connect the shielding gas hose to the gas cylinder.
The power source can be connected to two wire feeders at the same time.

   ⚠ **Caution:**

   Ensure that you have connected and tightened all the cables properly.

2.3.4.2 Cabling diagram

Connect the interconnection cables to power source and wire feeder. The figure below shows the cables with colors to facilitate the identification.
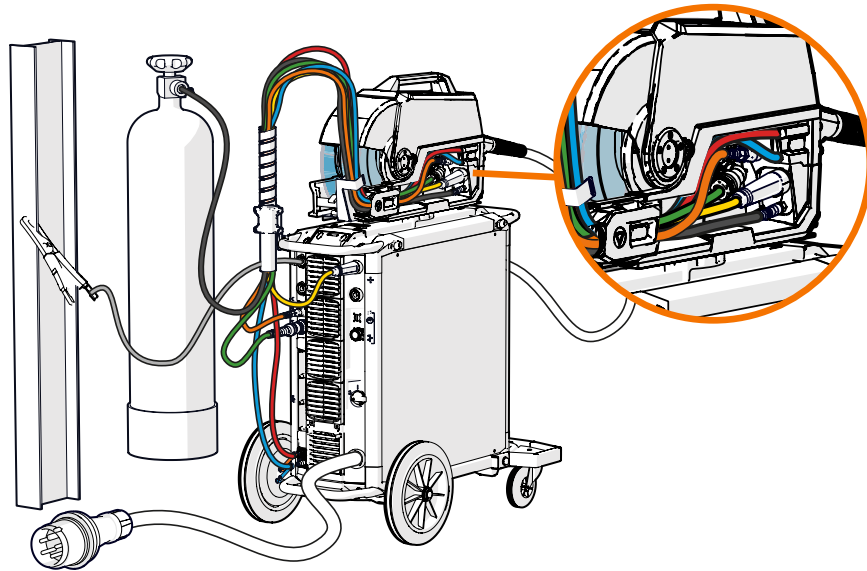
Figure 3: Interconnection cabling for power source and wire feeder

Table 3: Color codes

▮	Welding current cable
▮	Shielding gas hose
▮	Control cable
▮	Measurement cable
▮ ▮	Coolant input and output hoses

Earth return cable

2.3.5 Control Pad installation

This chapter describes the control pad installation.

For information on operating Control Pad, see Control Pad on page 84.

2.3.5.1 Wireless connection

Control Pad connects wirelessly to X8 Wire Feeder. If there are two wire feeders in the system, choose which one to connect to. Control Pad can be connected to X8 Power Source in applications where no wire feeder is needed, such as stick welding or gouging.

To set up a wired connection between Control Pad and the power source or the wire feeder, see Wired connection on page 57.

If Control Pad is not connected, you see this info message on the display.
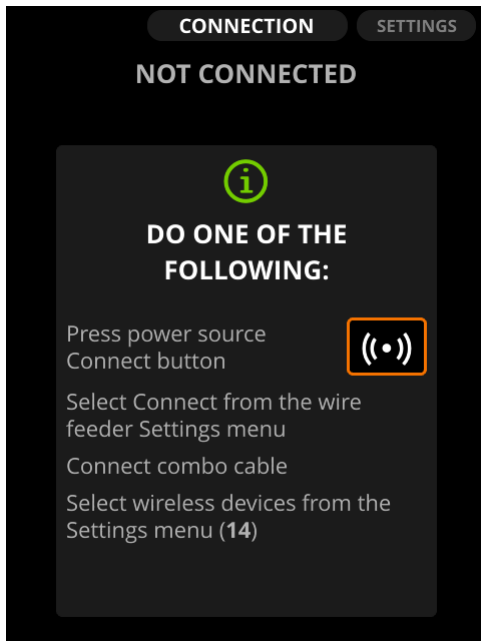
Proceed as follows:

1. To connect Control Pad wirelessly to a wire feeder or power source:

   a) Press the wireless pairing button on the power source indicator panel.
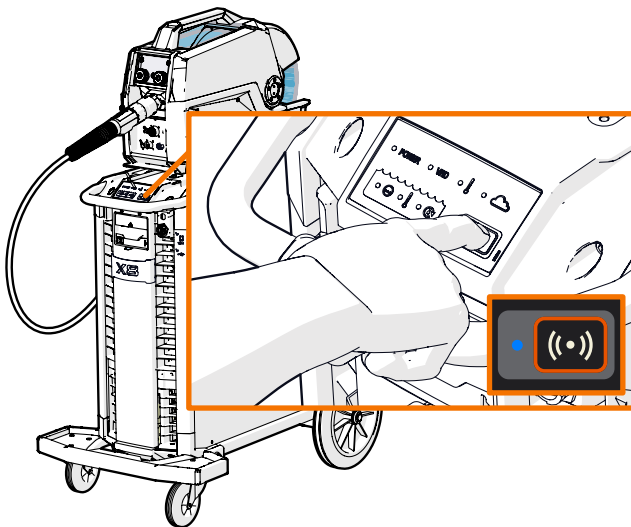
The led on the power source begins to blink when it is searching for Control Pad.

The serial numbers of the nearby available wire feeders or power sources appear on Control Pad's display.

ⓘ   **Note:**

When there are wire feeders connected to the welding system, pressing the wireless pairing button allows you to connect Control Pad to a wire feeder. When there are no wire feeders connected to the system, Control Pad allows you to connect to a power source.
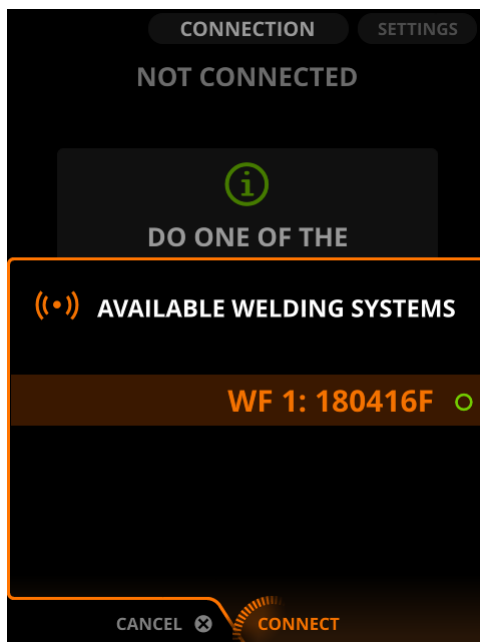
Figure 4: Connecting to wire feeder
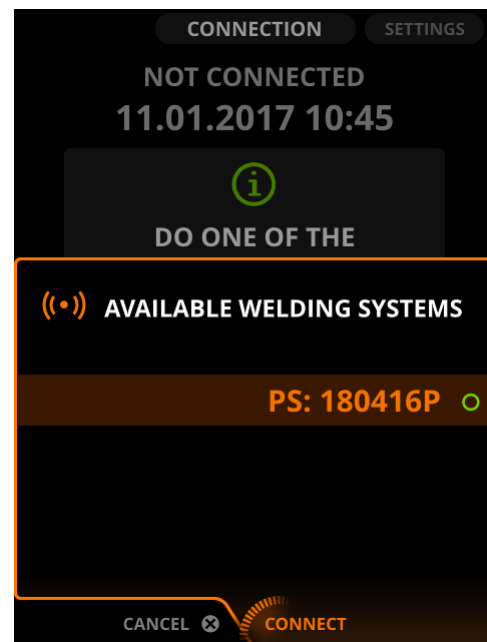
Figure 5: Connecting to power source

b) Move focus to select the connection and press the green button.

ⓘ   **Note:**

The connection list shows the serial numbers of the available wire feeders and a power source. Check the serial number on the device rating plate.

A connection forms between the wire feeder or power source and Control Pad. The led on the power source lights up permanently.

ⓘ   **Note:**

Once you have created the connection, Control Pad tries to reconnect if you take it out of the connection distance. Select **Disconnect** on Control Pad to disconnect the connection.

2. You can also connect Control Pad to the wire feeder through the wire feeder control panel if the wire feeder is far from the power source.

   a) Go to **Settings** > **Wireless devices** > **Connect**.

   The wire feeder connects automatically to Control Pad.

3. If the buttons of the power source and wire feeder are unreachable:

   a) Go to **Settings** > **WirelessDevicesAvailable** in Control Pad.

   b) Move focus to a wire feeder or a power source.

   c) Press the green button.

2.3.5.2 Wired connection

Control Pad makes a wired connection with X8 Power Source and X8 Wire Feeder. Connect Control Pad to a wired connection, when wireless connection is unavailable.

Proceed as follows:

1. To make a wired connection between Control Pad and the power source:

   a) Plug the combo cable to the Control Pad connector of the power source.

   The connector is marked with a Control Pad icon.

---
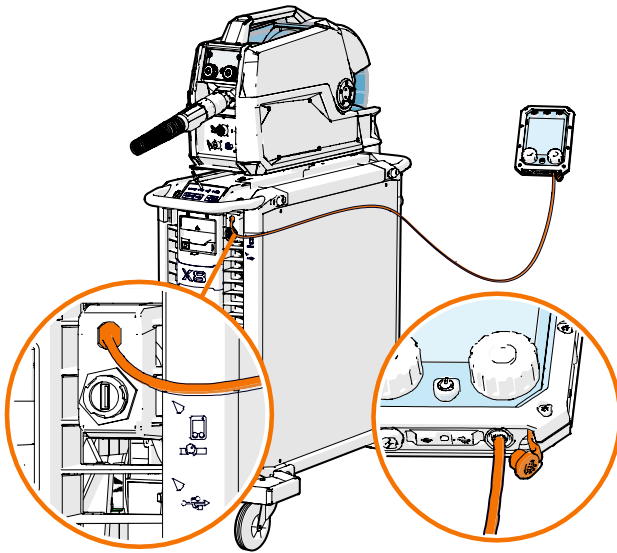
b) Plug the combo cable to the combo cable port on the bottom of Control Pad.

2. To make a wired connection between Control Pad and the wire feeder:
   a) Plug the combo cable to the remote control connector of the wire feeder.
      The connector is marked with a Control Pad icon.
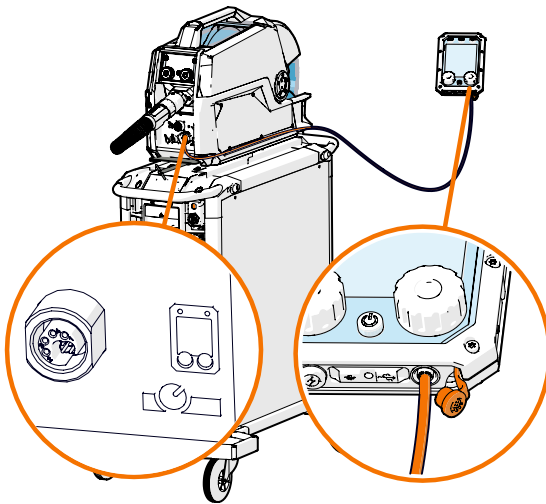
b) Plug the combo cable to the combo cable port on the bottom of Control Pad.

ⓘ **Note:**

Use mainly the external charger to charge Control Pad.

2.3.5.3 Suspending Control Pad

Control Pad has a hook, which you can use to suspend it on the welding machine or other suitable place. Control Pad also has a loop in each corner, which you can use for the carrying strap.
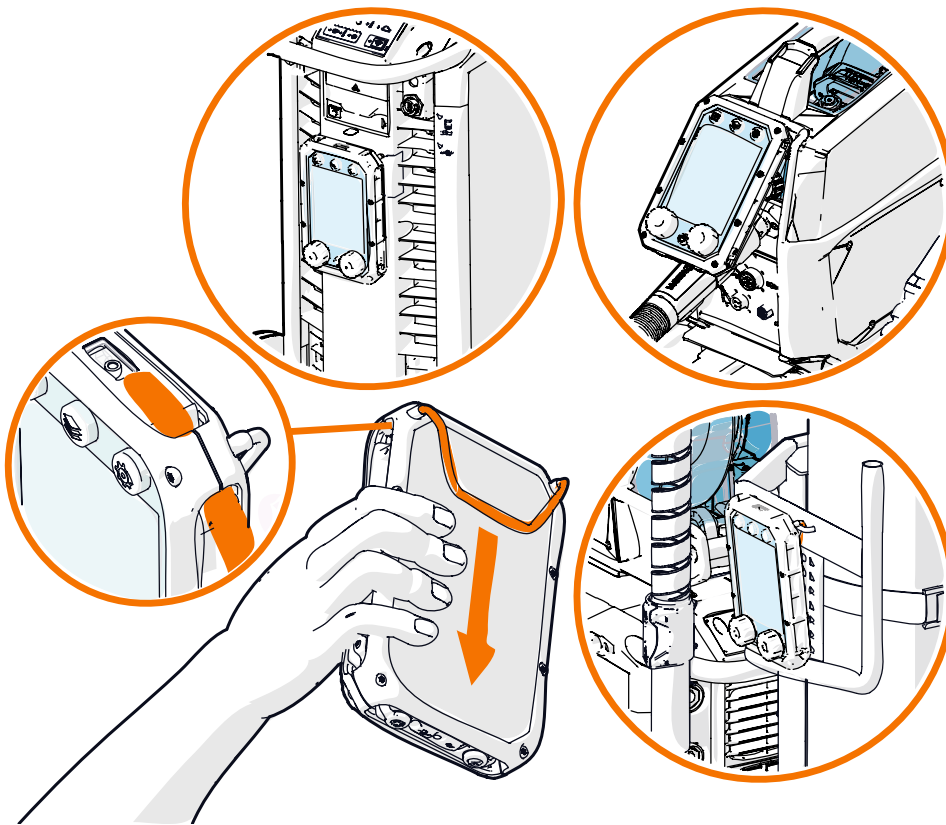
2.3.6 Welding gun installation

2.3.6.1 Preparing and connecting welding gun

X8 MIG Gun has been preassembled by the manufacturer: the wire liner, contact tip and gas nozzle are premounted. To start using the gun, proceed as follows:

1. Check that the wire liner, contact tip and gas nozzle are suitable for the job. Change if needed. If your setup includes a gas-cooled gun, you can also change the neck.

2. Attach the pistol grip handle, if suitable for the job.

3. Attach X8 Gun Remote Control, if suitable for the job (optional accessory).

4. Connect the welding gun to the wire feeder: Push the welding gun connector into the wire feeder gun adapter, and hand-tighten the collar.
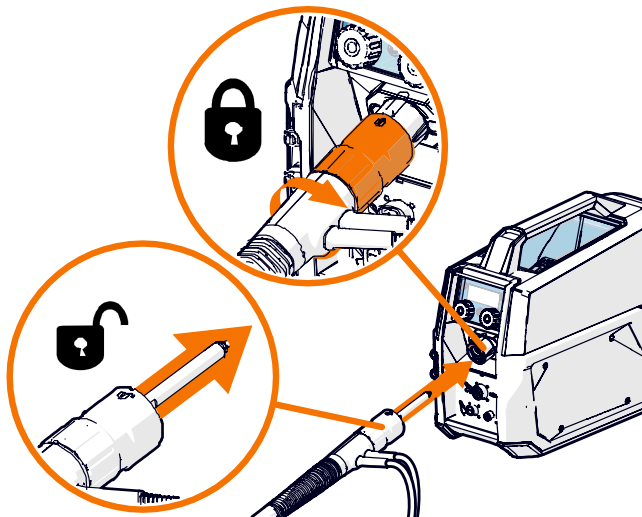
ⓘ   **Note:**

       X8 MIG Guns connect to X8 Wire Feeder with Kemppi Gun Adapter that enables, among other
       things, accurate measurement of the actual arc voltage and the usage of the remote control.
       Therefore, X8 MIG Guns are only compatible with X8 Wire Feeder.

5.   If your setup includes a water-cooled gun, connect the cooling hoses to the wire feeder. The coolant
       inlet hose is marked with blue and the coolant outlet hose with red color.
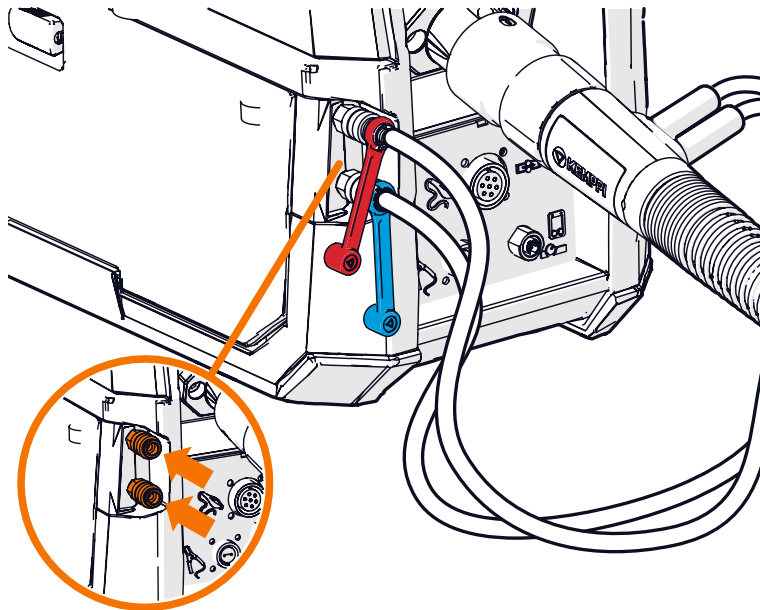
6.   Dress the sharp filler wire tip before loading to improve wire loading and to lengthen consumables'
       lifetime.

7.   Press the Wire inch button to load the filler wire.
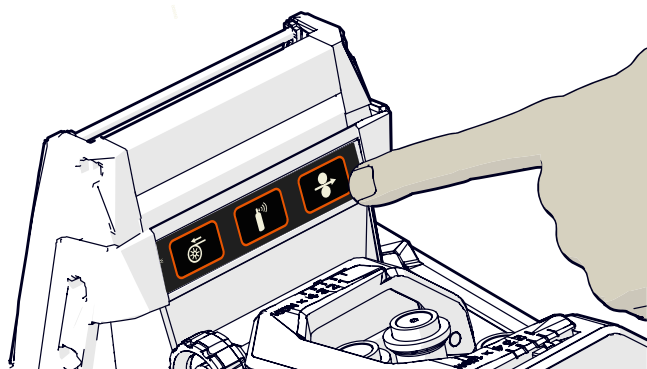
8. Trim the excess filler wire at a slight angle to improve ignition.

9. Check the gas flow rate.

The welding gun is now ready for use. When not using the gun, keep it in the welding gun holder on the wire feeder.

2.3.6.2 Replacing consumable parts of welding gun

Select a suitable contact tip, gas nozzle, neck and wire liner according to the job. See also how to change the feed rolls of the wire feeder accordingly: Replacing feed rolls on page 37.

Standard delivery set of consumable parts

The tables below list the consumable parts that are delivered with the welding gun. To find other compatible parts for various materials, use Kemppi's Consumable Kit Selector at kitselect.kemppi.com.

Gas-cooled guns

X8 MIG Gun 200-g (3.5 m)	**X8301203500**
X8 MIG Gun 200-g (5.0 m)	**X8301205000**
X8 MIG Gun 300-g (3.5 m)	**X8301303500**
X8 MIG Gun 300-g (5.0 m)	**X8301305000**
Contact tip	W012132
Contact tip adapter	W011483
Gas nozzle	W011478
Wire guide tube	SP011868
X8 MIG Gun 200-g (3.5 m)	**X8301203500**
X8 MIG Gun 300-g (3.5 m)	**X8301305000**
Wire liner	W012361
X8 MIG Gun 200-g (5.0 m)	**X8301205000**
X8 MIG Gun 300-g (5.0 m)	**X8301305000**
Wire liner	W012362

X8 MIG Gun 400-g (3.5 m)	**X8301403500**
X8 MIG Gun 400-g (5.0 m)	**X8301405000**
Contact tip	W012134
Contact tip adapter	W011483
Gas nozzle	W011472
Wire guide tube	SP011869
X8 MIG Gun 400-g (3.5 m)	**X8301403500**
Wire liner	W012361
X8 MIG Gun 400-g (5.0 m)	**X8301405000**
Wire liner	W012362

Water-cooled guns

X8 MIG Gun 420-w (3.5 m)	**X8300423500**
X8 MIG Gun 420-w (5.0 m)	**X8300425000**
Contact tip	W012132
Contact tip adapter	W011483
Gas nozzle	W011478
Liner guide tube	SP011868
X8 MIG Gun 420-w (3.5 m)	**X8300423500**
Wire liner	W013628
X8 MIG Gun 420-w 5.0 m	**X8300425000**
Wire liner	W013632

X8 MIG Gun 520-w (3.5 m)	**X8300523500**
X8 MIG Gun 520-w (5.0 m)	**X8300525000**
Contact tip	W012134
Contact tip adapter	W011483
Gas nozzle	W011472
Liner guide tube	SP011869
X8 MIG Gun 520-w (3.5 m)	**X8300523500**
Wire liner	W013628
X8 MIG Gun 520-w (5.0 m)	**X8300525000**
Wire liner	W013632

Changing wire liner (gas-cooled gun)

⚠️   **Caution:**

Use the correct wire liner. The tip of the filler wire may damage an incorrect liner.

1.   Lay the welding gun cable straight on a flat surface.

2.   Loosen the neck tightener by rotating it half a turn, and remove the neck.
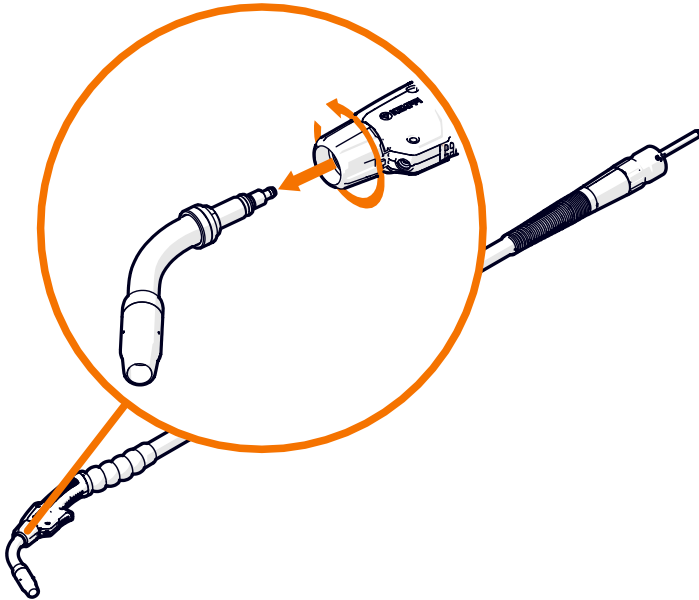
3.   Remove the guide nut from the tip of the sleeve.
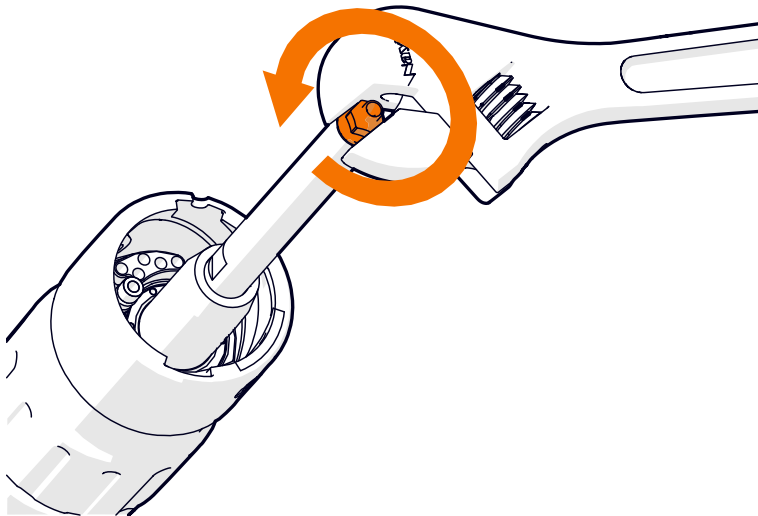
4.   Remove the sleeve and pull out the liner. Make sure the cone and the seal slide out with the liner.
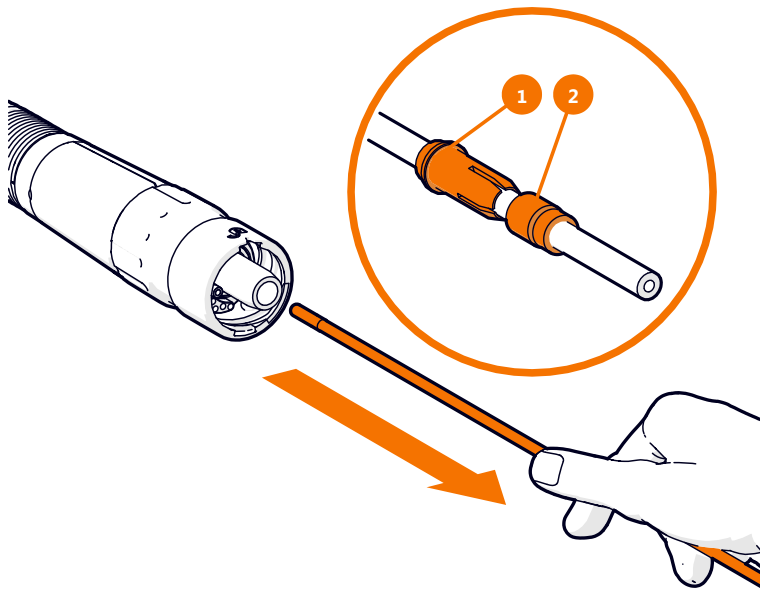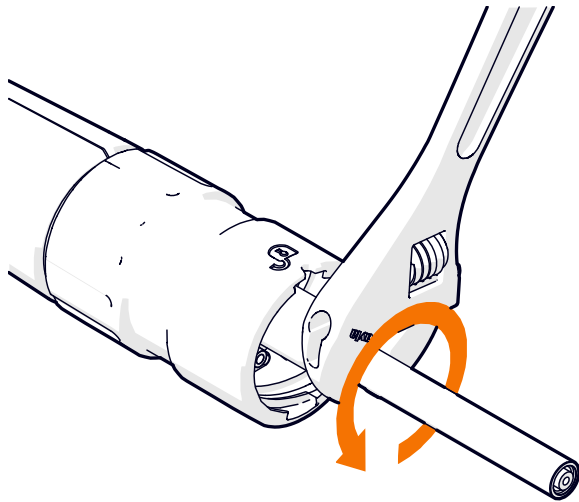
5. Load the new liner through the welding gun connector as far as it goes. Check that you have pushed the liner far enough: the liner must be visible at the tip of the gun.
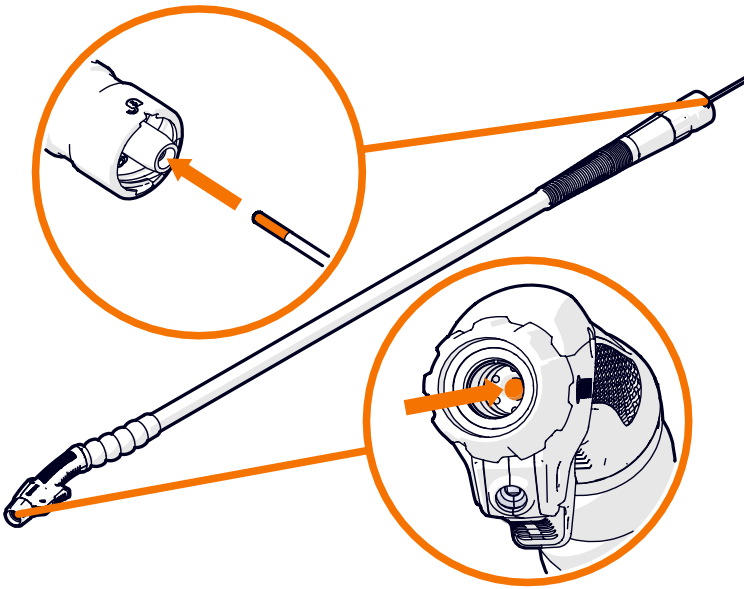
6. Assemble the cone (1), seal (2) and sleeve (3) (supplied with the new liner) over the liner protruding from the welding gun connector. Tighten the sleeve as tight as possible with a spanner.
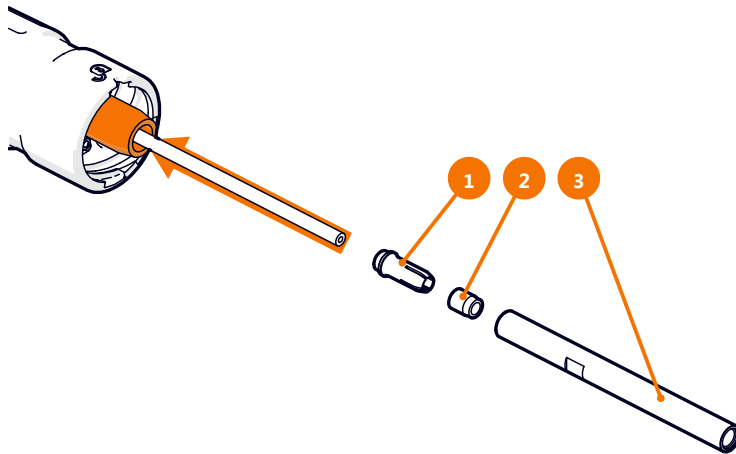
7. Cut the excessive liner leaving 1 - 2 mm. Use side cutting pliers for spiral liner and carpet knife for DL Chili liner.
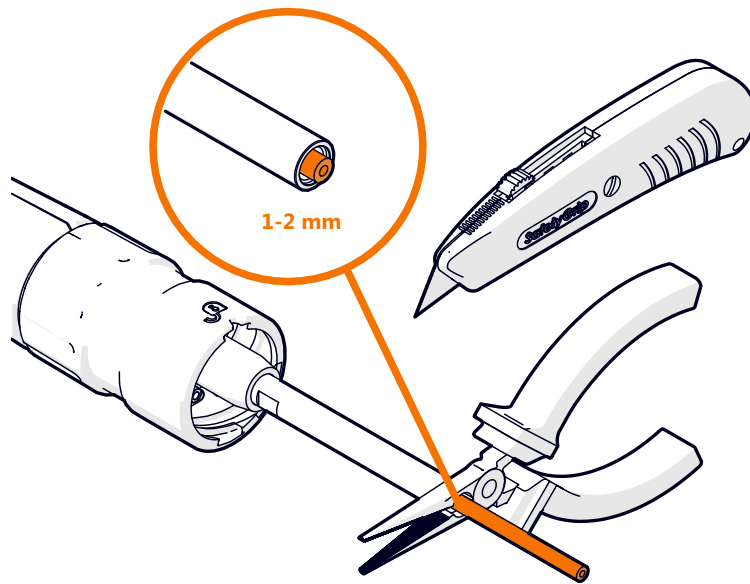
8. Attach the guide nut at the tip of the sleeve.
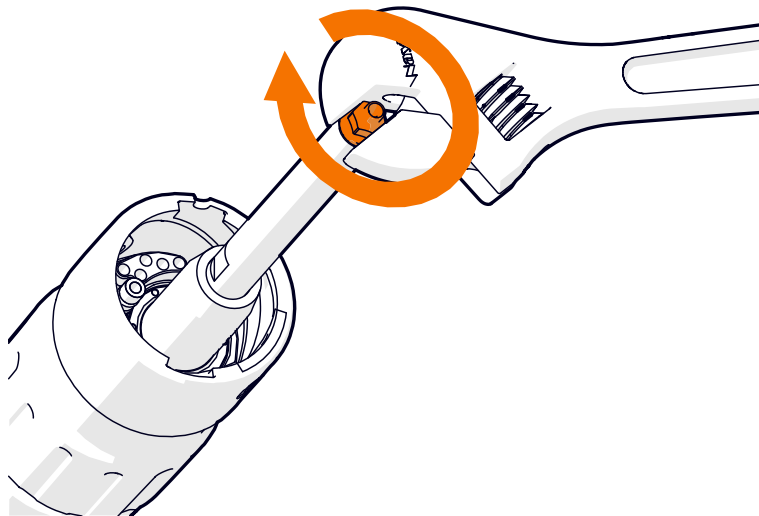
9. Re-assemble the neck and tighten the neck tightener to secure.

Changing neck (gas-cooled gun)

You can change the neck without tools.

1. Turn the neck tightener half a turn counter-clockwise to loosen it, and pull the neck out.
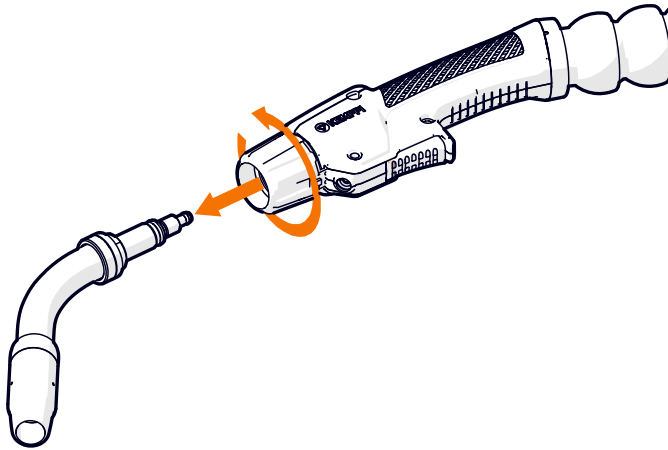
2. Push in the new neck and turn the neck tightener half a turn clockwise to secure it. Make sure you push the neck deep enough: When the neck is correctly inserted, the groove on the neck is completely hidden under the neck tightener.
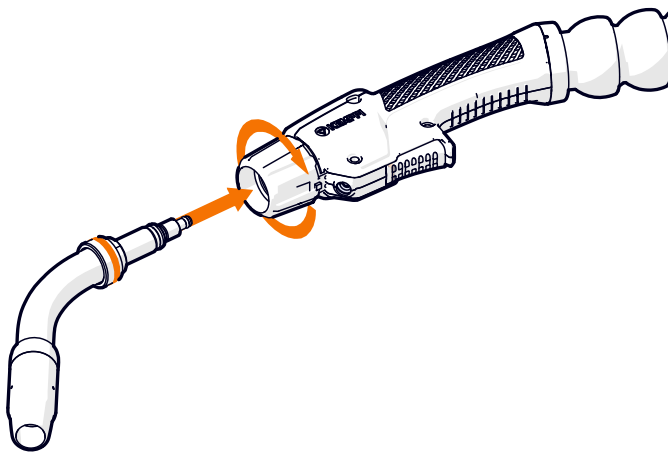
ⓘ   **Note:**

You can rotate the neck into different positions without loosening the neck tightener.

Changing gas nozzle (gas-cooled gun)

Screw the gas nozzle into its place.
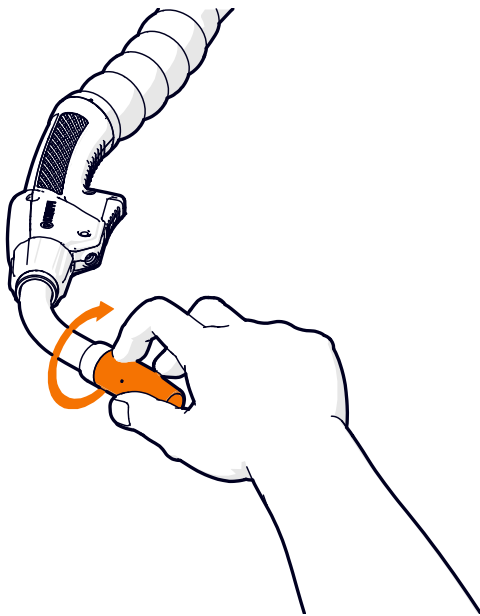
Changing contact tip (gas-cooled gun)

1. Remove the contact tip.
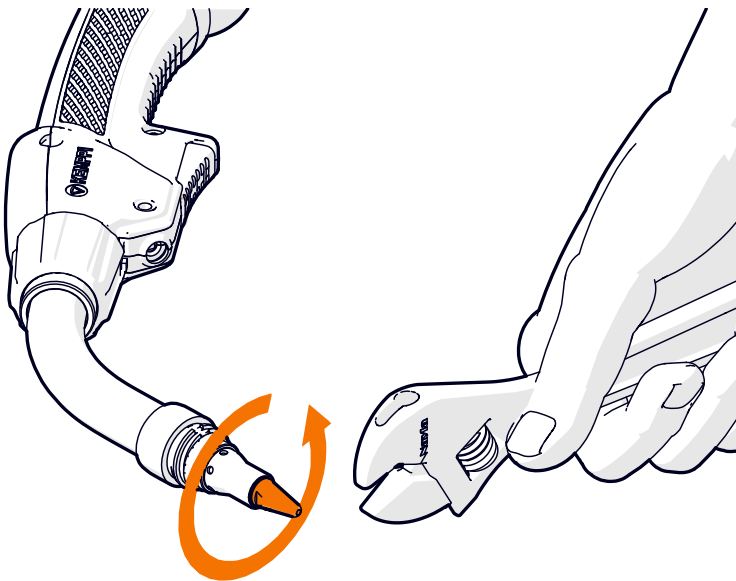
2. Replace the contact tip adapter / gas diffuser, if needed. Screw in and hand-tighten the new adapter as tight as possible (no tool is needed). Make sure there is no gap between the contact tip adapter and the black plastic bushing.

   ⓘ **Note:**

   It is important to tighten the adapter properly to enable a tight connection of the contact tip to the gun.
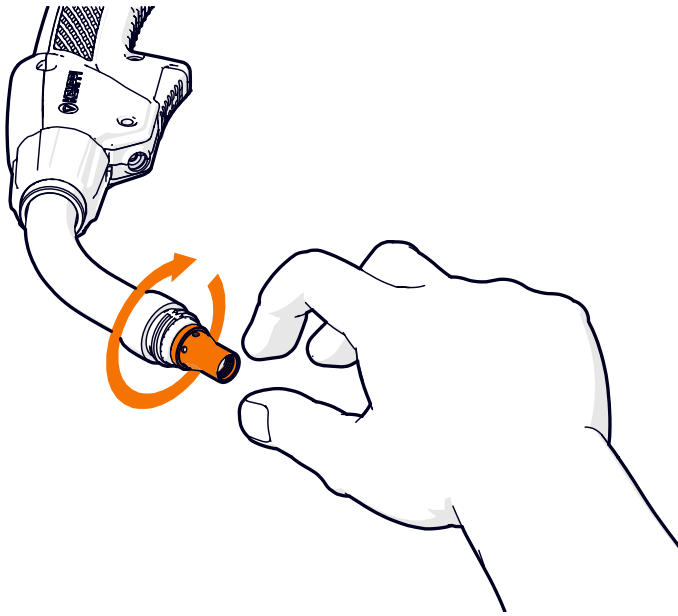
3. Screw in a new contact tip and tighten it with an appropriate tool. Some thread grooves on the contact tip remain visible when the contact tip is properly connected to the gun.
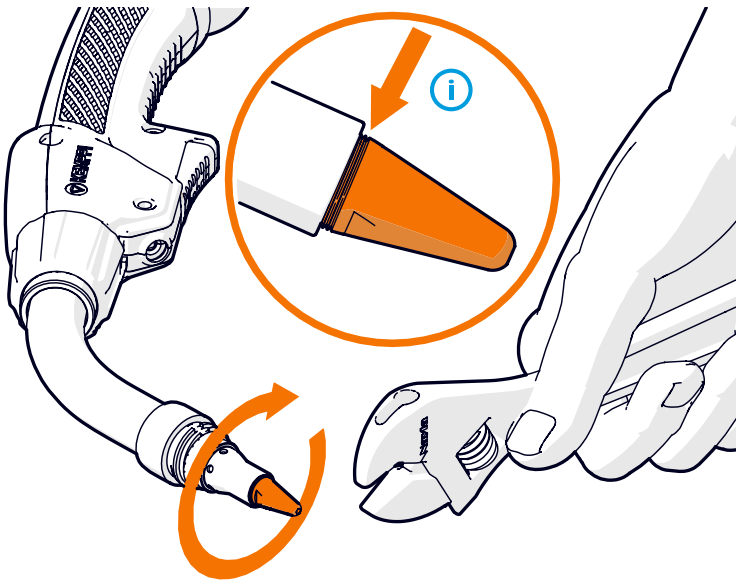
Changing wire liner (water-cooled gun)

⚠️ **Caution:**

Use the correct wire liner. The tip of the filler wire may damage an incorrect liner.

1. Lay the welding gun cable straight on a flat surface.
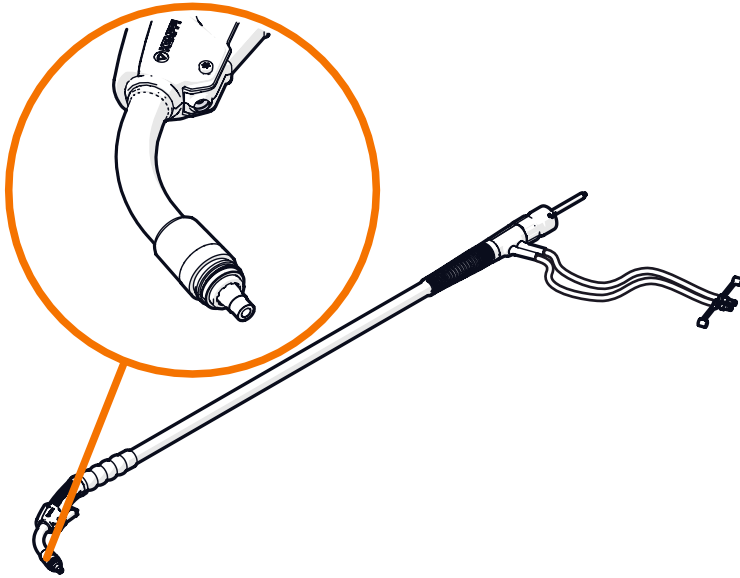
2.   Remove the guide nut from the tip of the sleeve.
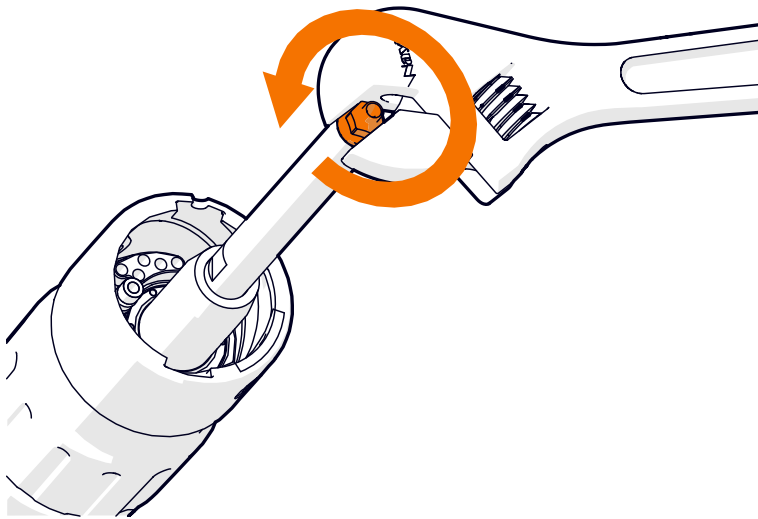
3.   Remove the sleeve and pull out the liner together with the cone .
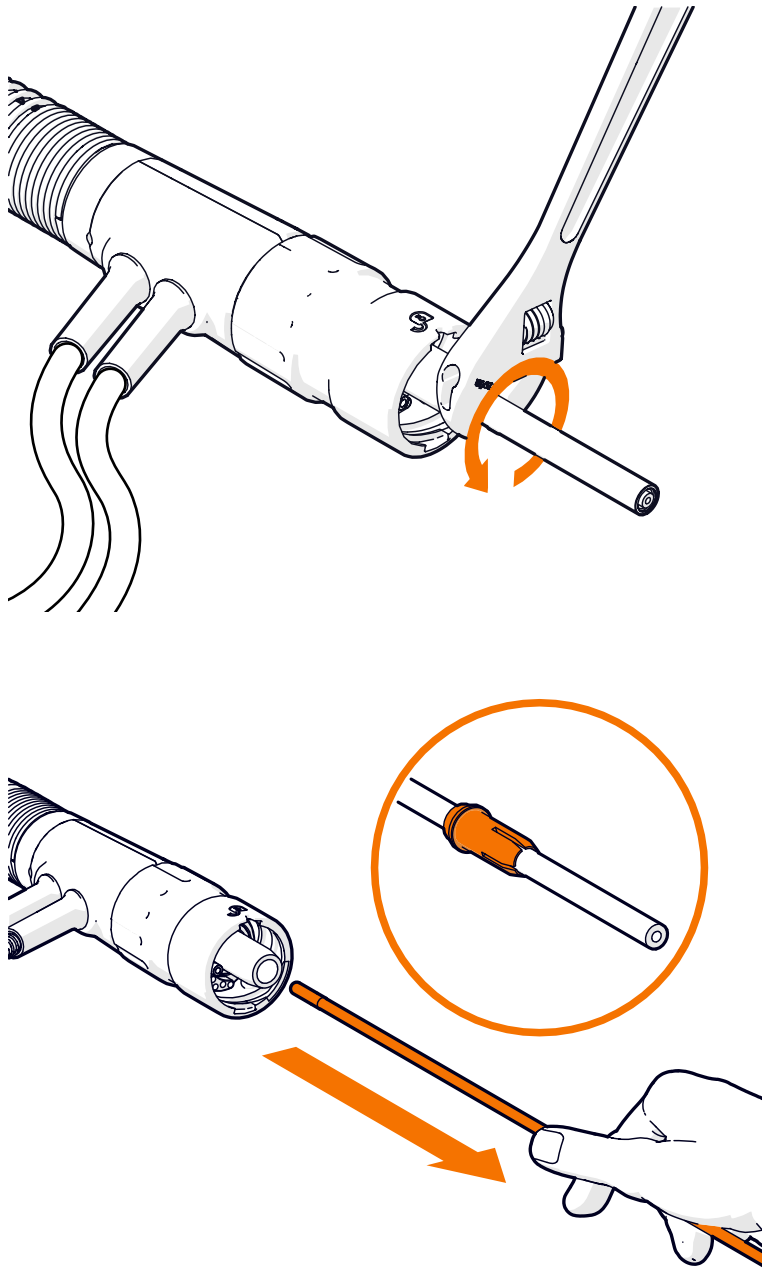
4. Load the new liner through the welding gun connector as far as it goes The liner should be just visible, a couple of millimeters from the tip of the gun.

ⓘ **Note:**

Make sure the liner is properly inside the contact tip adapter before you cut the liner at the connector end.
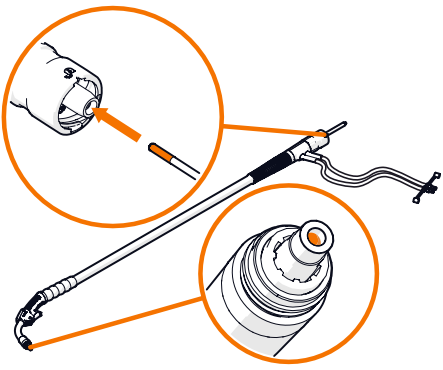
5. Assemble the cone (1) and sleeve (2) (supplied with the liner) over the liner protruding from the welding gun connector. Tighten the sleeve with a spanner to secure.
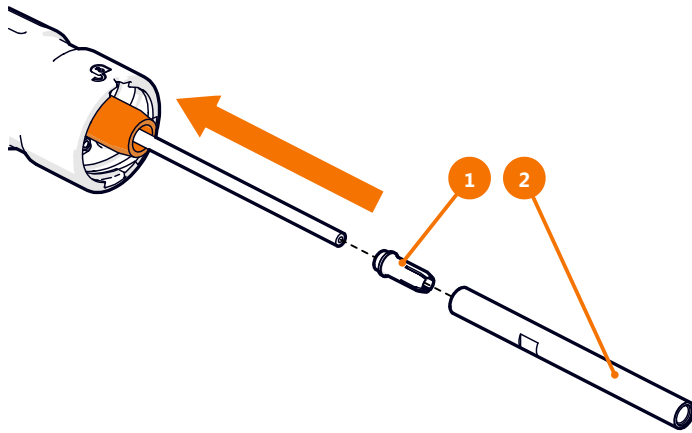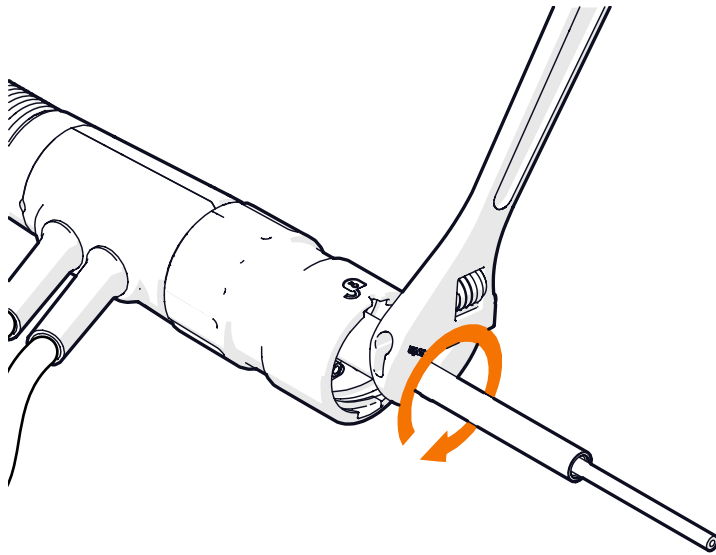
6. Cut the excessive liner leaving 1 - 2 mm. Use side cutting pliers for spiral liner and carpet knife for DL Chili liner.

1-2 mm
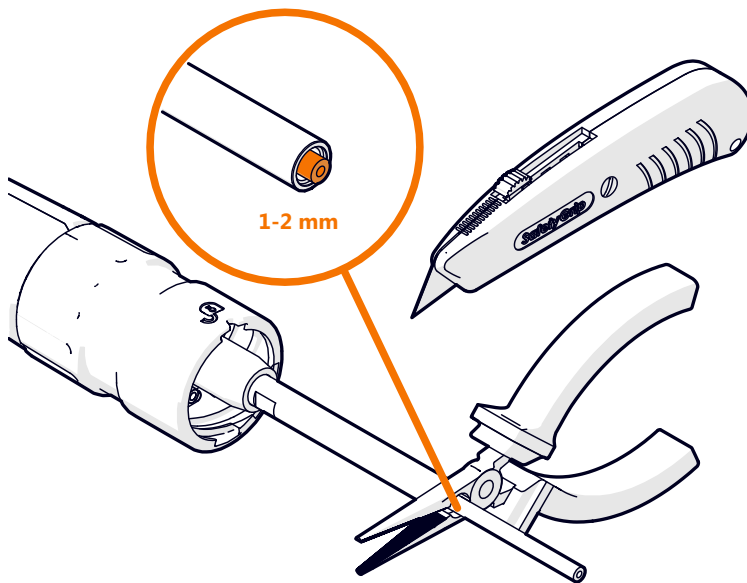
7. Attach the guide nut at the tip of the sleeve.
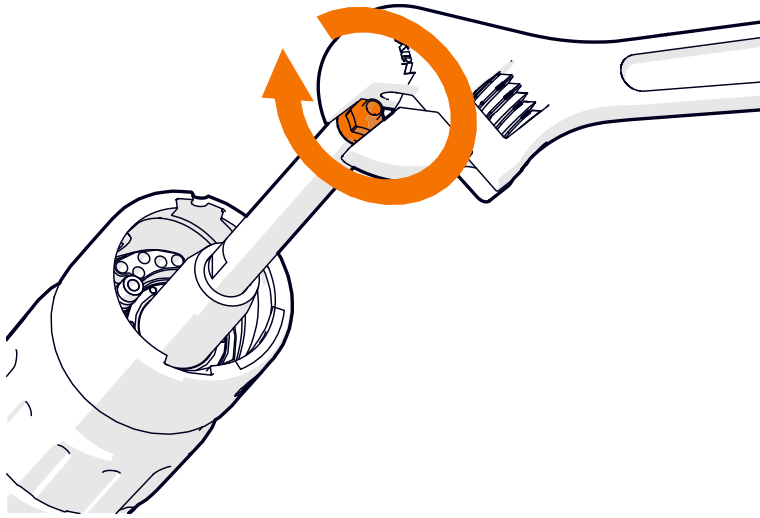
Changing gas nozzle (water-cooled gun)

Screw the gas nozzle into its place.
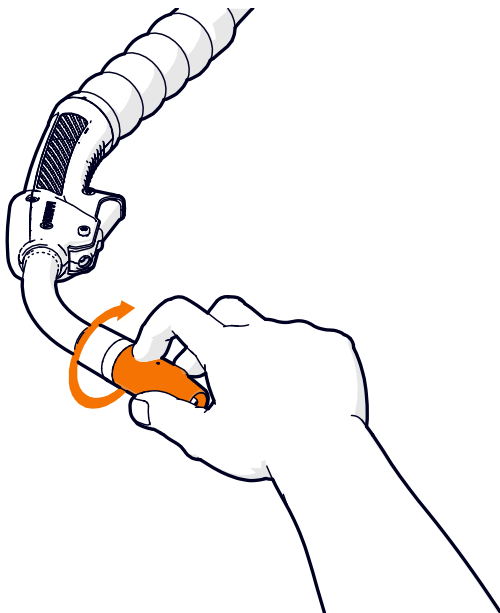
Changing contact tip (water-cooled gun)

1. Remove the contact tip.
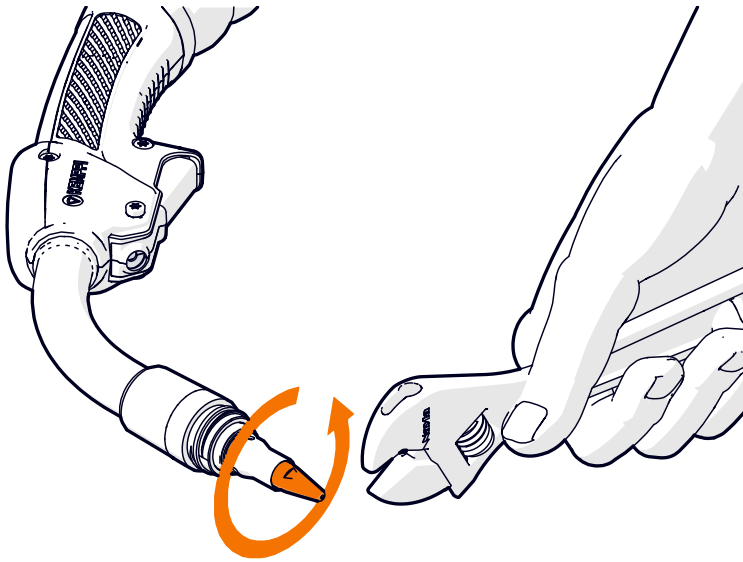
2. Replace the contact tip adapter/gas diffuser , if needed. Screw in and hand-tighten the new adapter as tight as possible (no tool is needed).

   ⓘ **Note:**

   It is important to tighten the adapter properly to enable a tight connection of the contact tip to the gun.
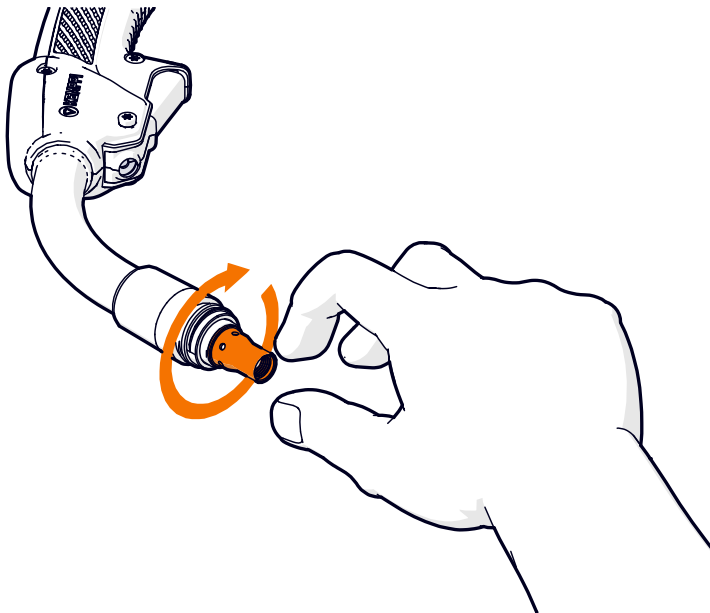
3. Screw in a new contact tip and tighten it properly with a tool. Some thread grooves on the contact tip remain visible when the contact tip is properly connected to the gun.
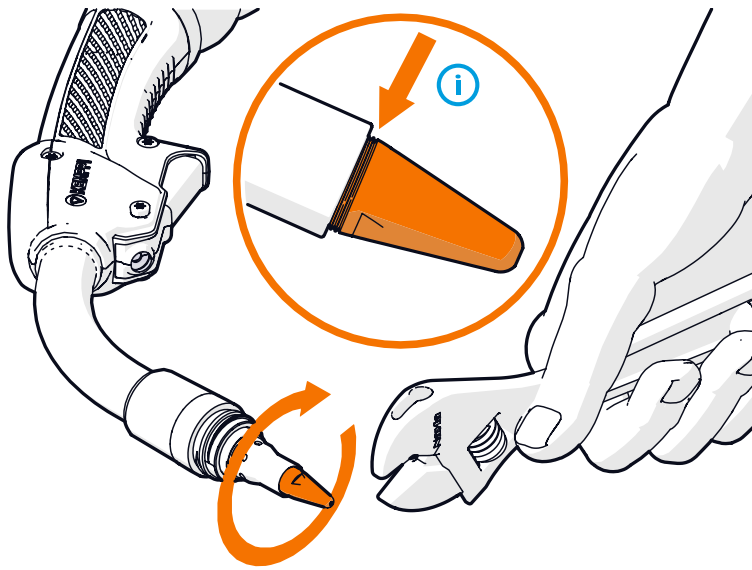
2.3.6.3 Installing pistol grip handle

The pistol grip handle is suitable for all X8 MIG Guns. The handle improves the ergonomics of many welding positions.

To attact the pistol grip handle, align the grooves and pull the handle forward to attach the front side (1), and then push the handle back to snap-lock it into its place (2).
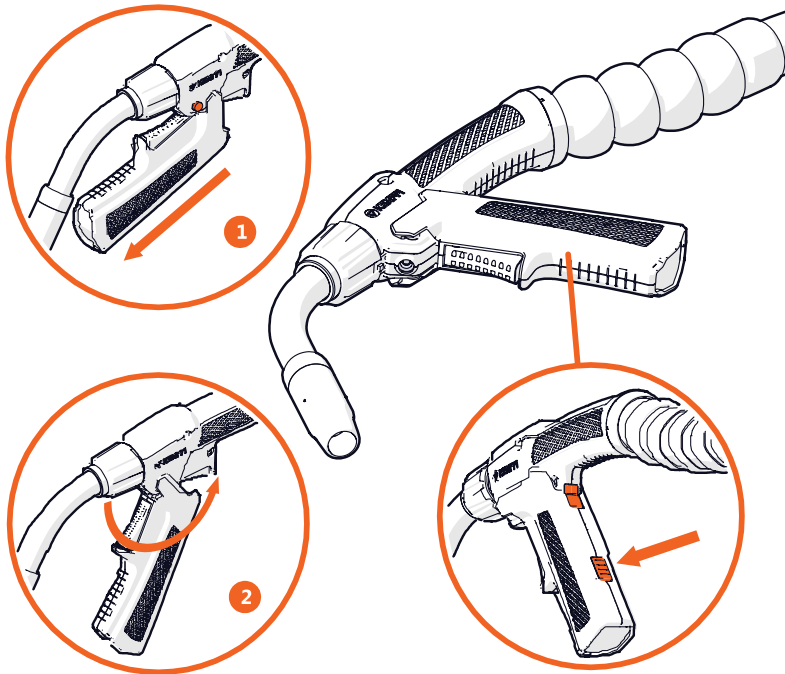
To detach the pistol grip handle, press the lock button at the back of the handle.

2.3.6.4 Installing remote control

X8 Gun Remote Control is an optional accessory for X8 MIG Gun.

For operation instructions, see Gun remote control on page 99.

1. Unscrew the two screws that attach the cover to the gun.

2. Remove the protective cover from the gun by pushing it forwards and lifting it up.

TORX 20
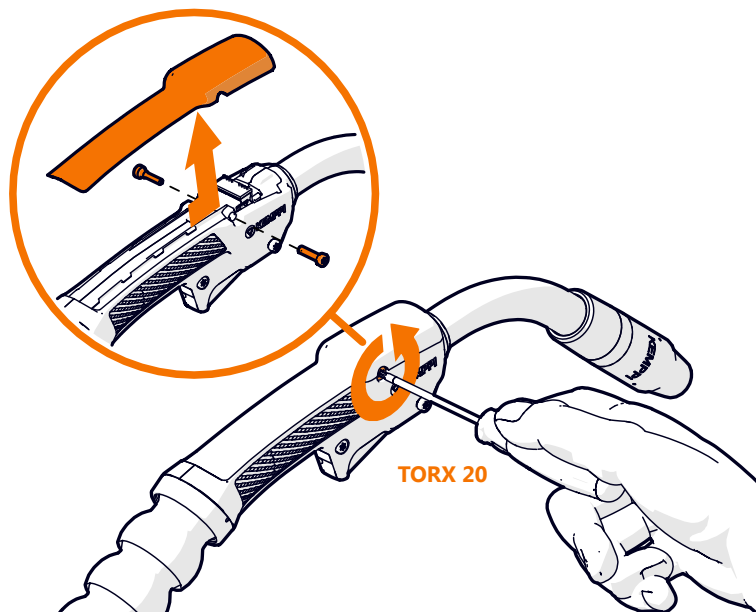
3. Remove the interface card that covers the connectors.
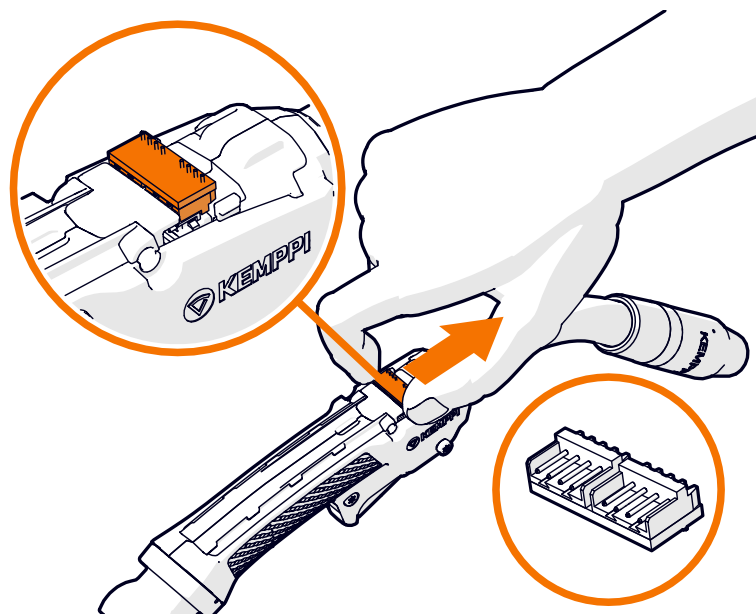
ⓘ **Note:**

Store the interface card in case you want to remove the remote control later. If you remove the remote control, re-mount the interface and the cover on the gun.

4. Attach the remote control by pushing it down and backwards into its place so that the connectors align.
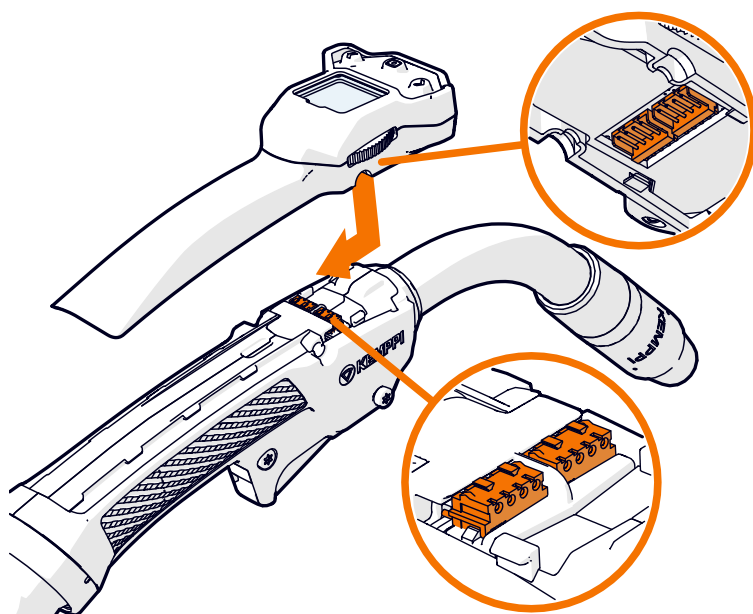
5. Screw in the two screws.
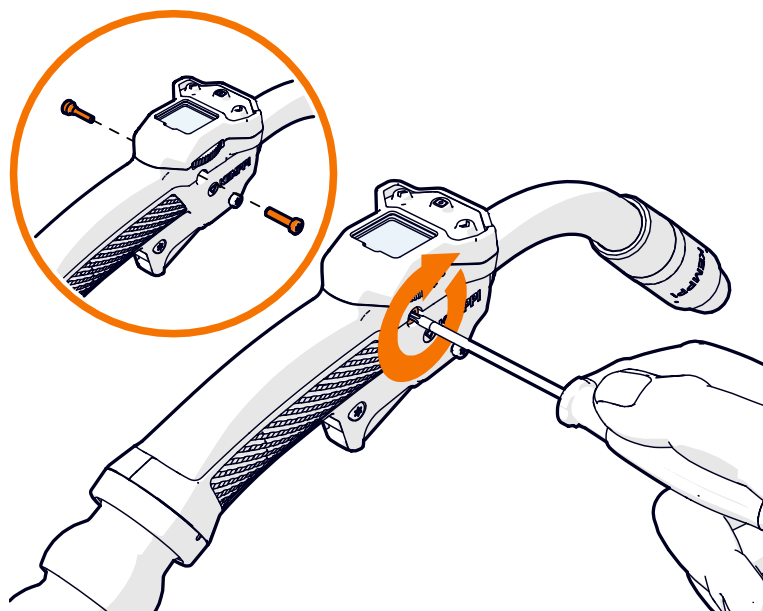
2.3.7 Lifting X8 MIG Welder

If you need to lift X8 MIG Welder, pay special attention to the safety measures. Follow the local regulations.

⚠️ **Warning:**

Do not lift the welder with the gas cylinder.

Proceed as follows:
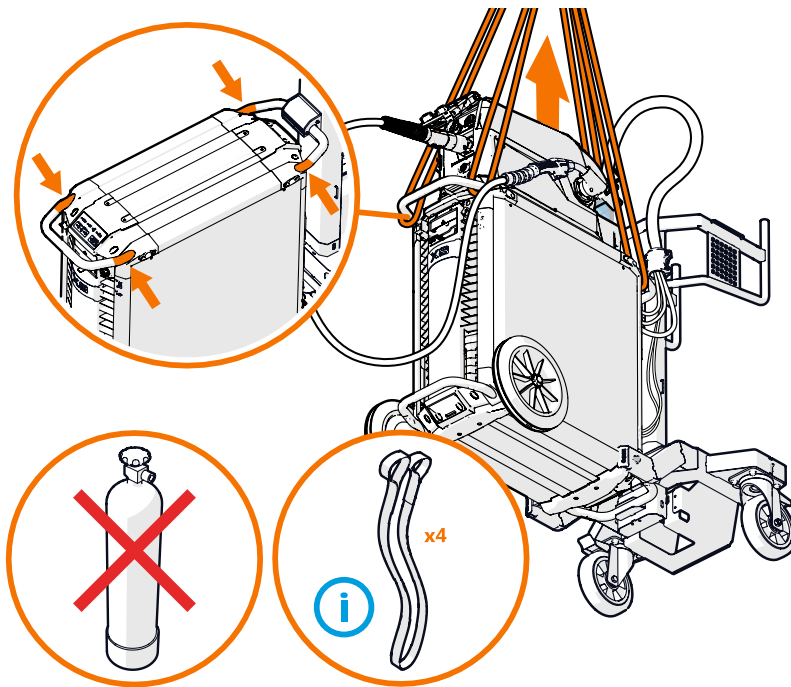
1. Loop two lifting straps through the handle at the front and two straps through the handle at the back of the power source.

   ⚠ **Caution:**

   Place the straps as close to the power source as possible.

2. Lift steadily straight up.

2.3.8 Purchasing and managing welding software

You can purchase Kemppi welding software licenses to X8 MIG Welder. Installed licenses can be viewed with Control Pad.

For more information, visit www.kemppi.com.

2.3.9 Optional accessories

X8 MIG Welder has several accessories to facilitate its use and improve welding quality.

Wire Drum Kit

To use the wire drum kit, drill a hole at the back of X8 Wire Feeder's transparent cover.
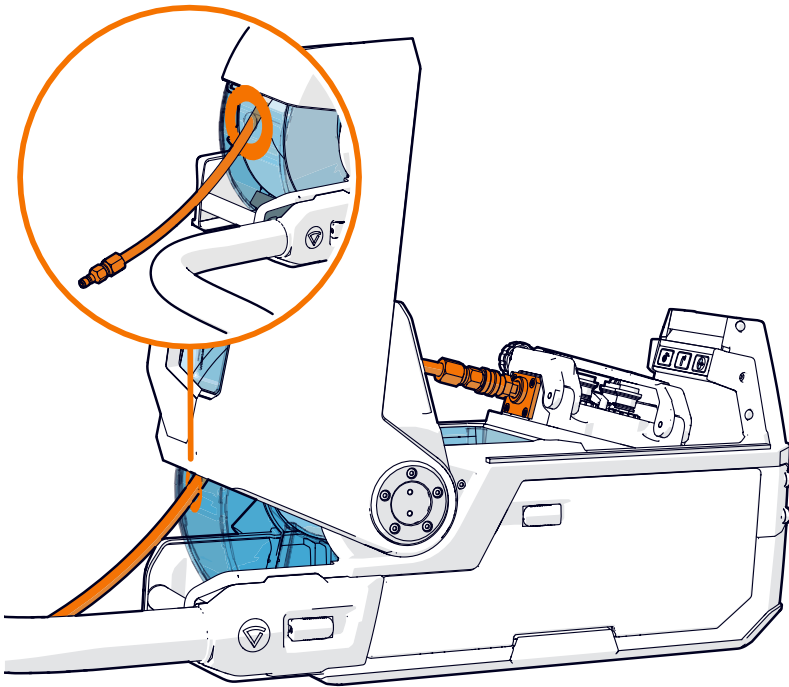
Wire Feeder Hanger for Boom

The wire feeder hanger for boom facilitates welding where it is difficult to bring the full X8 MIG Welder welding system. The hanger allows more fluent transitions in constricted spaces.

⚠ **Caution:**

Do not hang the wire feeder from the handle. Use the wire feeder hanger for boom instead.
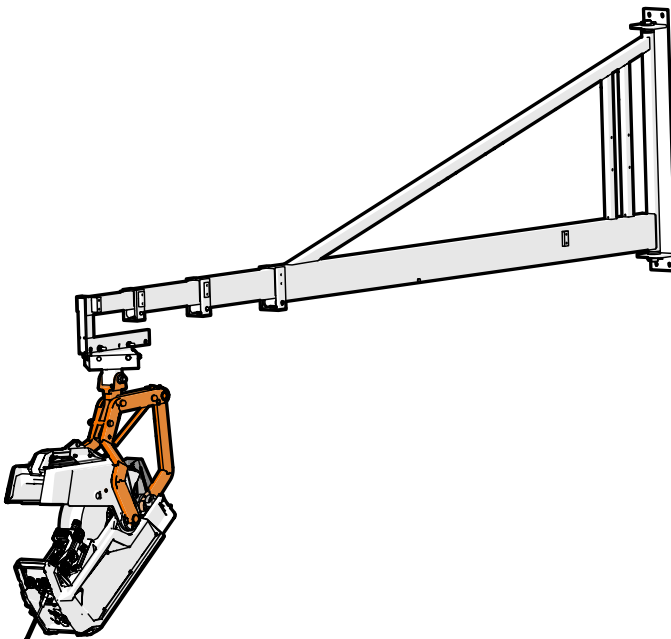
Wire Feeder Counterbalance Arm

The wire feeder counterbalance arm reduces the weight of the cable bundle over the working area.
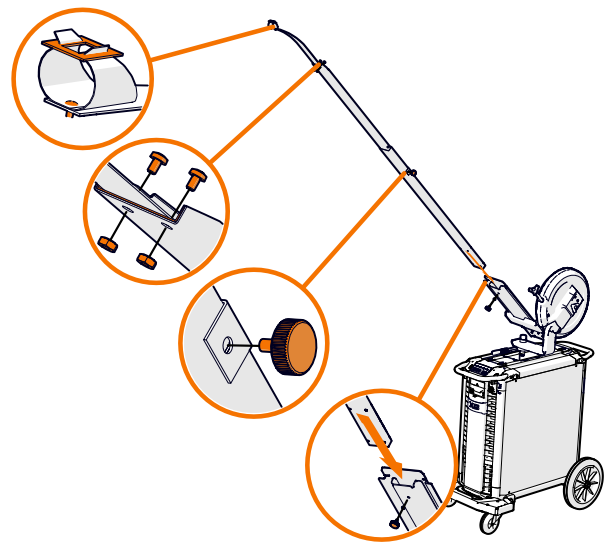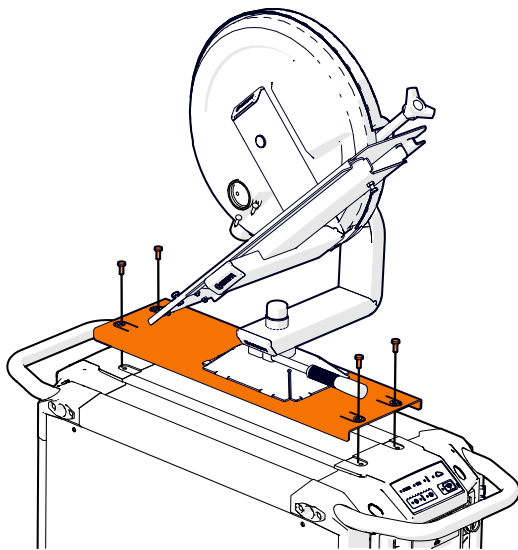
Proceed as follows:
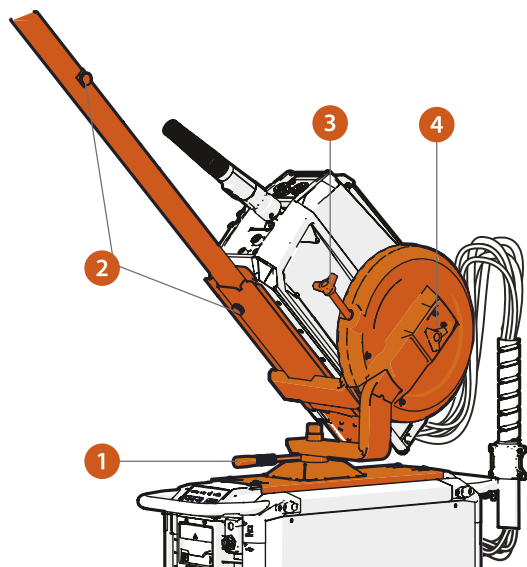
1. Lock the rotating plate to its position.
2. Adjust the length of the arm. Tighten the screws to lock to position.
3. Turn to adjust the tension of the counterbalance spring.
4. Turn to adjust the damping of the up and down movement.

Wire Feeder Cabinet Heater

The wire feeder cabinet heater prevents moisture from condensing inside the wire feeder cabinet so that the wire spool stays dry.

Double Wire Feeder Rotating Plate

The double wire feeder rotating plate allows the use of two wire feeders on one power source.
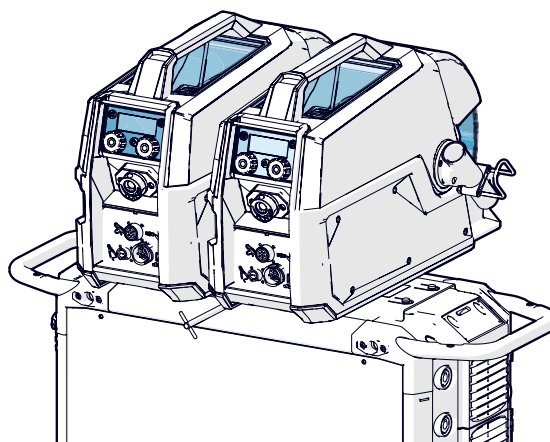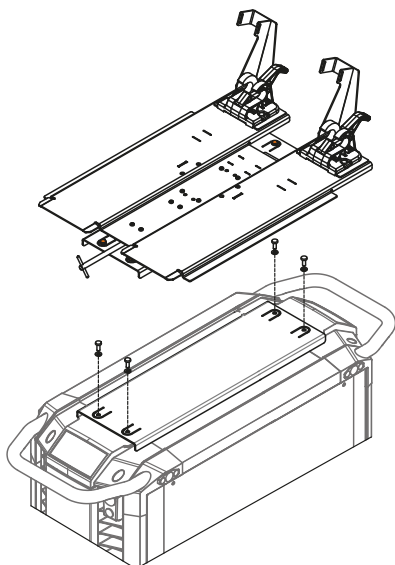
X8 Cable Rack

The cable rack holds the interconnection cable during transportation or storage.

ⓘ   **Note:**

   This is an alternative accessory for the gas cylinder cart. Both cannot be installed at the same time.
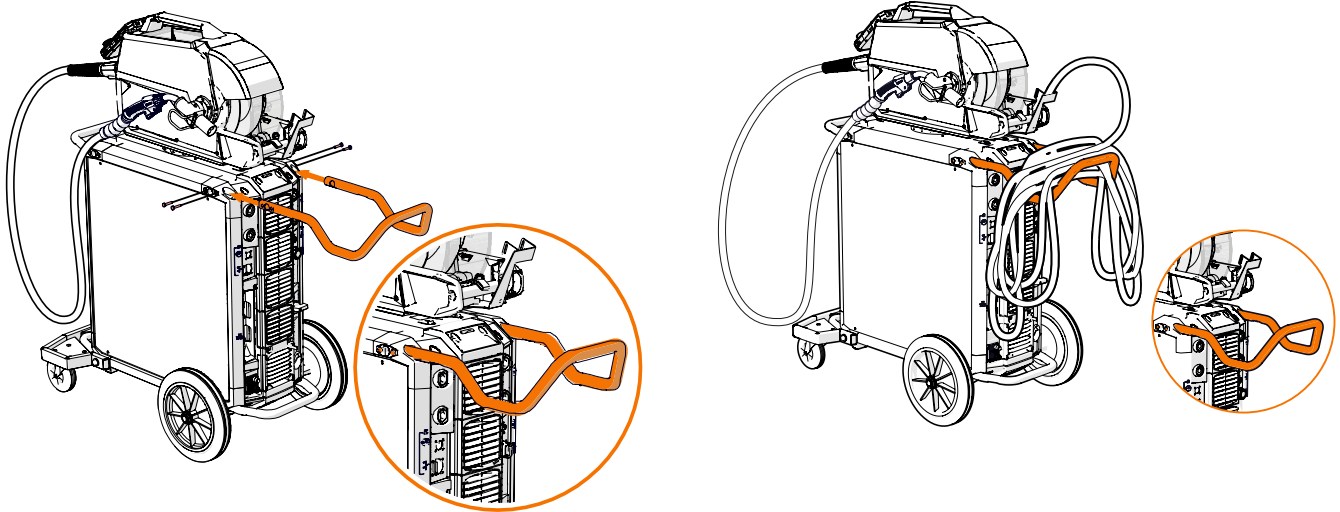
X8 Accessory Tray

The accessory rack holds the small parts and tools needed for welding. Install it on the side of the welding machine.
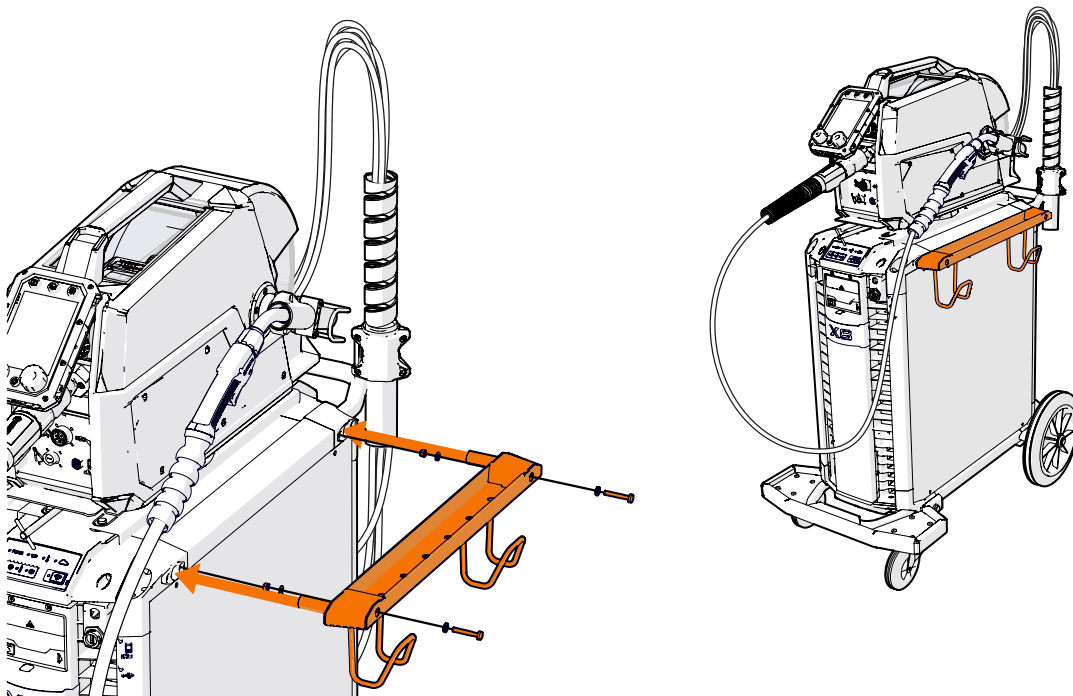
2.4 Operation

Follow these operating instructions carefully to have full advantage of your X8 MIG Welder and to minimize the risk of malfunctions.

2.4.1 X8 MIG Welder control devices

Welding with X8 MIG Welder can be controlled through three different control panels, which offer slightly different features for adjusting the welding parameters.

The actual features vary according to the functions and usability of the control panel.
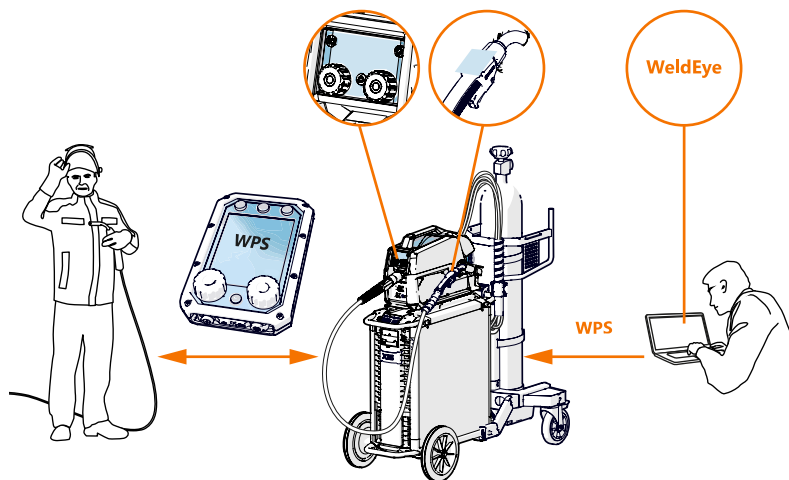
2.4.1.1 Control Pad

Control Pad is a window to X8 MIG Welder: Control Pad shows you all the settings and licenses installed in the welding system.

You can adjust the welding parameters and their values remotely with the one-knob navigation, and connect Control Pad to any X8 MIG Welder nearby.

Navigation

Above the display, Control Pad has three view buttons. Press these buttons to change the view on Control Pad's display. Press the **Menu** button twice to open the **View** menu.

Use the knobs under the display to move in the display and to adjust the values. When there is a green light in the center of the knob, the knob also functions as a push button.

Figure 6: The View menu

In the **Welding** view, adjust the welding power with the left knob and the fine tuning with the right knob. In most welding processes, this secondary parameter is voltage.

In all other views, move up and down in the menus with the right knob. Press the green button in the center of the knob to open an item.

If you need to perform a reversing action, such as **Cancel** or **Default**, press the green button to accept.

Header and footer

Control Pad's header displays the serial number of the welding machine, the selected wire feeder, and the name of the user:
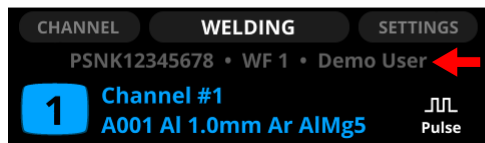
There is an instruction on the footer above the knob, when the knob has a specific function. A green circle in the footer prompts the push of the button on the control knob. The adjustable parameter or value in focus is highlighted with orange.
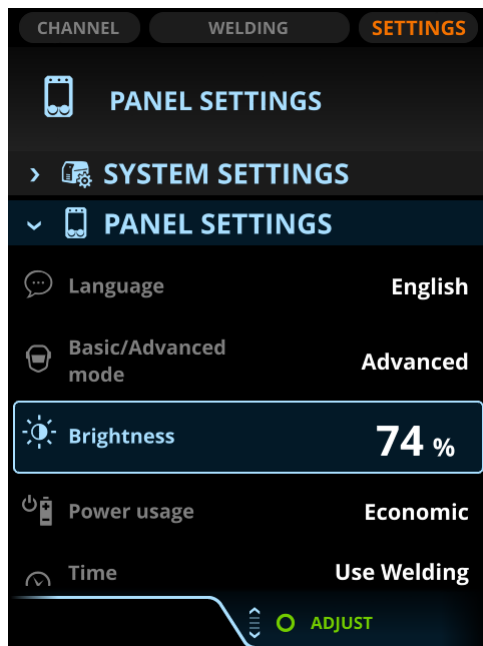
Figure 7: Control Pad display with the Adjust footer
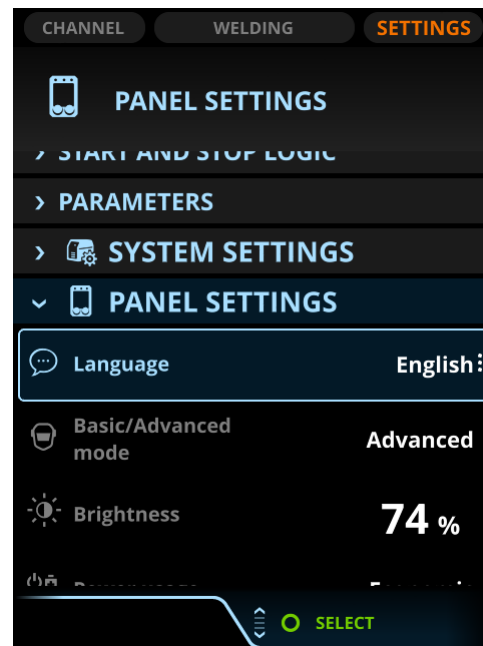
Figure 8: Control Pad display with the Select footer

If the selection of the toggle button comes into effect right away, the footer command is **Close**. If the change comes into effect after pressing the green button, the footer command is **OK**.

Control Pad views

There are three main views on Control Pad display: **Channel** (memory channels), **Welding**, and **Settings**. Toggle between the views with the view buttons. The **View** menu inside **Welding** opens, when you press the **Menu** button again in the **Welding** view.
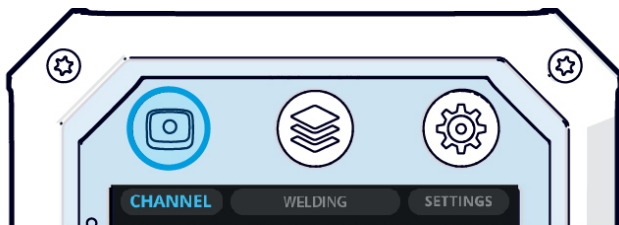
Figure 9: The Channel button
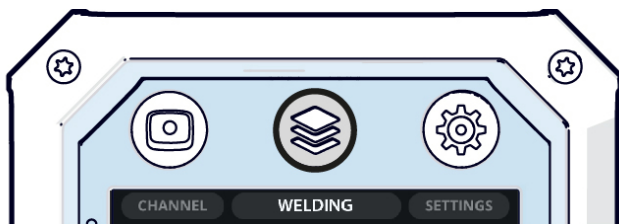
Figure 10: The Menu button
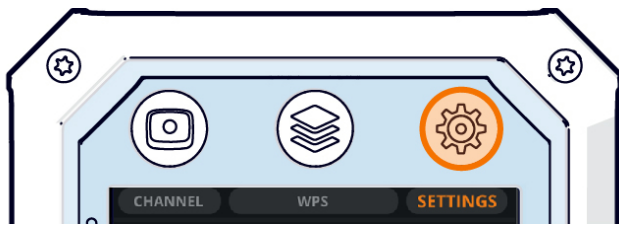
Figure 11: The Settings button

Welding view

In the **Welding** view, you can:

- See an overview of the settings of the selected welding program
- Adjust the main parameters (welding power and fine tuning)
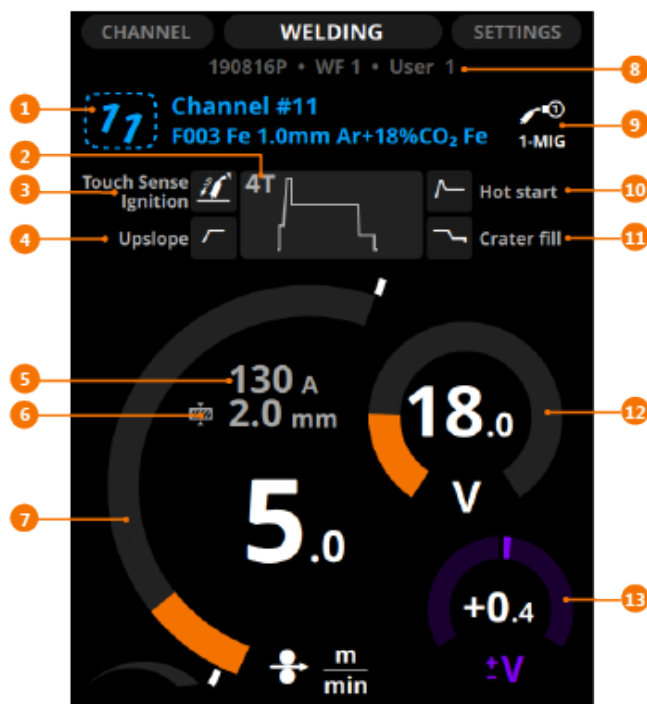
Depending on the selected welding process, function and program, some or all of the following information is shown:

1. Memory channel, its number and the welding program

The first row shows the memory channel's name.

The second row shows the welding program's name, which consists of the filler wire material and diameter and the shielding gas.

If you have modified the welding settings, the channel number tilts to the right. To save changes, press and hold the **Channel** button until the number returns to its normal position.

2. Operation mode of the welding gun (trigger logic)

2T, 4T or WP Switch. For more information, see Trigger logic functions on page 133.

3. Touch sense ignition

Option for smooth ignition with less spatter.

4. Upslope

The selected start and stop logics.

5. Estimated welding current

6. Estimated plate material thickness

7. Wire feed speed

8. Serial number of the power source, wire feeder's number (1 or 2) and user name

9. Welding process

10. Hot start

The selected start and stop logics.

11. Crater fill

The selected start and stop logics.

12. Voltage

13. Voltage/Fine tuning

Adjust the welding power with the left control knob.

Fine tune the secondary welding parameter with the right control knob. The adjustable secondary parameter varies according to the welding process and function.

The welding power graph shows with grey raster pattern the area, where the selected values result in globular transfer.

Figure 12: Raster pattern in the wire feed arc

In DPulse, WP Switch and DProcess, you can adjust two value sets: the first level and the second power level. Press the left green button to toggle between them. Adjust the values with the control knobs. The other power level is shown with gray line on the wire feed speed diagram.
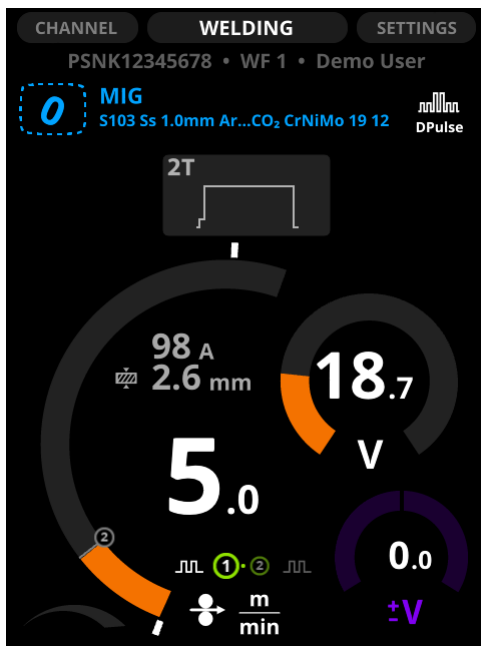
Figure 13: Toggling DPulse (1)
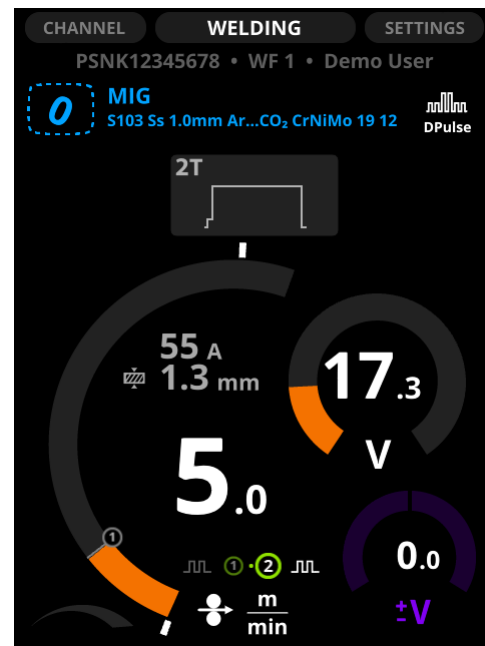
Figure 14: Toggling DPulse (2)

You can specify the minimum and maximum values of the wire feed speed. They are displayed as white stoppers beside the wire feed speed diagram.
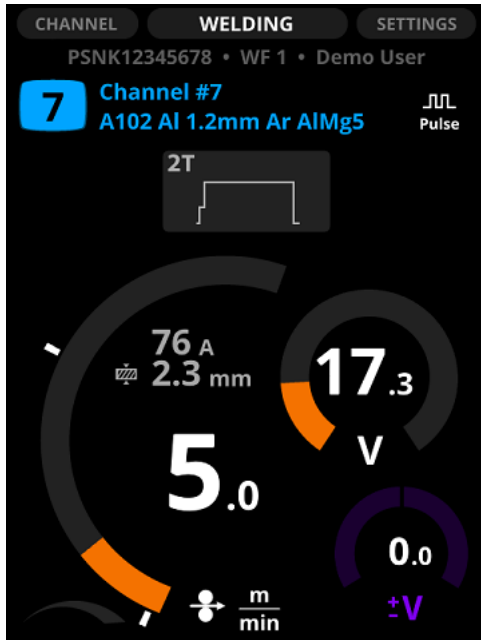
Figure 15: The minimum and maximum stoppers

The value range of the welding power and voltage graphs specified by the Welding Procedure Specification (WPS) are displayed with a green arc between the stoppers. The stoppers are by default at the top and bottom of the specified WPS area, but you can adjust them to your preferences: to narrow the area or to weld outside the specified area.
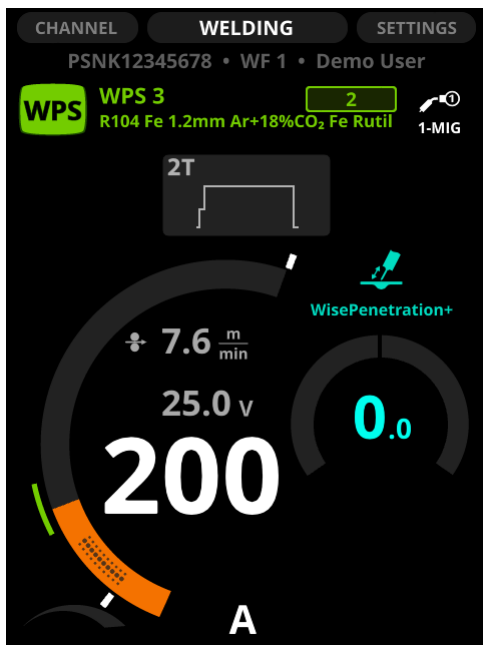
Figure 16: The minimum and maximum stoppers for WPS

If you adjust the wire feed speed or voltage to a level outside the WPS range, the parameter graph turns red and a warning symbol appears on the display.

ⓘ **Note:**

If you have installed WeldEye, it saves the data as unsuitable use, even if the welding job requires such values.
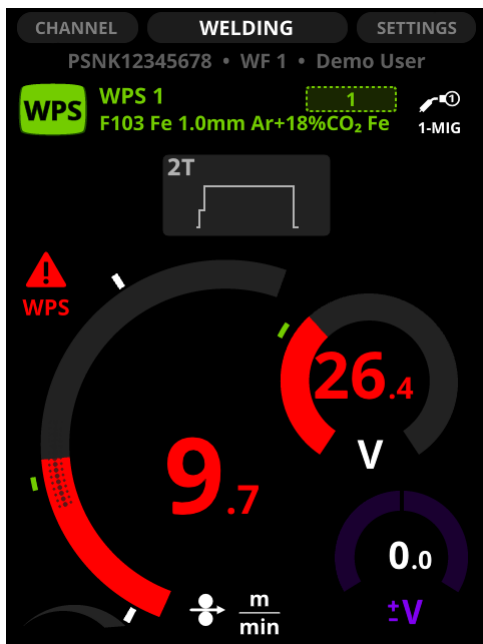
Figure 17: Values outside the range specified by WPS

Settings view

Settings displays all the welding parameters and other settings of the selected program. The contents under the titles are collapsed by default. Press the green button to expand the columns. There are two modes, Basic and Advanced. This section describes the Settings view in the Advanced mode.
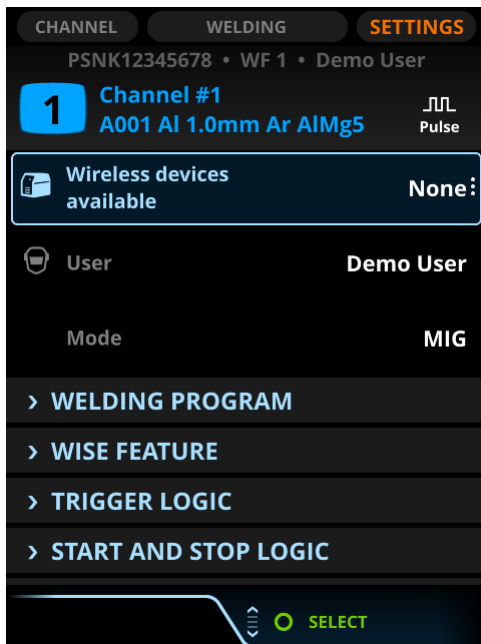
Figure 18: The Settings view menu in the Advanced mode

For more information on welding programs, see Welding programs in Control Pad on page 93.

DPulse menu

With the DPulse process in a welding program, **Settings** features an additional menu, **DPulse**.

For more information, see Standard MIG welding processes in X8 MIG Welder on page 119.

DProcess menu

If the welding program includes the DProcess process, the DProcess menu appears in the Settings view.

For more information, see Standard MIG welding processes in X8 MIG Welder on page 119.

Wise feature menu

Wise feature displays the Wise features available for use with the welding program.

For more information, see Wise features on page 127.

Trigger logic menu

Trigger logic displays the trigger logic options: 2T, 4T and WP Switch.

For more information, see Trigger logic functions on page 133.

Start and stop logic menu

Start and stop logic displays several options. For more information, see

Parameters

The parameters available vary according to the welding process used:

- **Wire feed speed**

    In addition to wire feed speed, you can adjust the minimum and maximum values of wire feed speed here.
- **Voltage**
- **Fine tuning**
- **Dynamics**
- **Pulse current percent**
- **Start power**
- **Start level**
- **Stop power**

For more information, see the description of the processes.

System settings

The options under **System settings** are:

1. Water cooling

Set water cooling ON, OFF or on AUTO.

In ON mode, the water cooling is continuous. In OFF mode, the water cooling is fully stopped. In AUTO mode, the water cooling is on when needed.

2. Sub feeder selection

Select the sub feeder you are using and its length, or the motorized gun.

3. WF Motor warning level

Select a limit for the welding current. The system warns you, if the value exceeds the limit.

4. Voltage display mode

Select the welding voltage: terminal or arc voltage.

5. Safe wire inch

Set the Safe wire inch ON or OFF. If the Safe wire inch is ON, the wire feeder feeds maximum 5 cm of the wire, if the arc does not ignite until then. If the Safe wire inch is OFF, the wire feeder feeds maximum 5 m of the wire. This is to prevent the wire from hitting the welder.

6. Voltage reduction device (VRD)

Switch VRD ON or OFF if you are using MMA or gouging process. VRD reduces the maximum unloaded open circuit voltage across the output terminals of the welding machine to a safe voltage.

7. Factory reset

Restore the settings back to factory default settings.

Panel settings

Panel settings display Control Pad's mechanical settings:

1. PIN lock

Lock Control Pad with a 4-digit PIN code. When PIN lock is on, PIN code is required every time when Control Pad is turned on. PIN lock does not prevent welding.

2. Change PIN code

Change the 4-digit PIN code.

3. Language

Choose the language out of 13 options.

4. Basic/Advanced mode

(User interface mode)

5. Brightness

Brightness of the display in percents.

6. Power usage

The settings available are Minimum, Economic and Normal.

Welding programs in Control Pad

Select the mode in **Settings** > **Mode**. Then select one of the welding programs in **Welding program**. The MMA and GOUGING modes have one welding program each, and you can adjust their settings in **Parameters**.
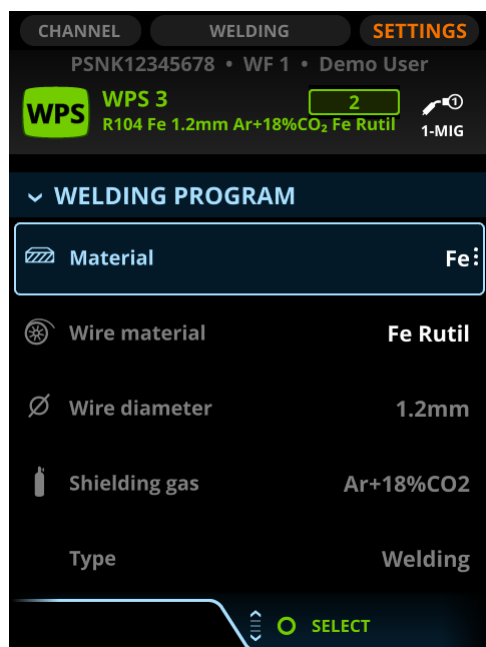
Figure 19: The Welding program menu in Settings

You can use the filters under **Welding program** to filter the welding programs on the selection list. You can also select the needed welding program without using the filters.

The parameters available in **Settings** vary according to the selected welding process and the Basic/Advanced mode.

Welding program menu

The filters under **Welding program** are:

1. **Material**

    Select the material of the welding piece.

2. **Wire material**

3. **Wire diameter**

4. **Shielding gas**

5. **Type**

    Select welding/brazing or cladding.

6. **Process**

7. **Polarity**

    Not available for all materials.

    Which polarity is in use. If the polarity is positive (**+**), connect the **+** side to the wire feeder.

8. **Welding program**

    After filtering, this column displays the suitable welding programs.

 Channel view

Welding parameters are stored in the memory channels. The memory channel displays the same information of the welding parameters as the **Welding** view. To take a channel into use, move the focus to it. Each user has their own memory channels.

Figure 20: The Channel view

To adjust the welding parameters of the channel in focus, press the **Menu** or **Settings** button. When you adjust a parameter, the number of the memory channel tilts to the right to indicate a difference from the saved settings.

A WPS defines a range of values for welding parameters. If a WPS is used to create a memory channel, the parameters are set in the middle of the range.

View menu

In the **Welding** view, press the **Menu** button again to see the list of the available additional views.

Figure 21: The list of the additional views

The **View** menu displays the following views:

1. Welding

Press to return to the **Welding** view.

2. Weld data

Displays information on the last welds.

3. WPS

For more information on WPSs, see Using digital WPSs on page 137.

4. Licenses

Displays the licenses installed into the welding system.

5. Error log

Displays the error occurred previously and its point of time. Select the error and press the green button to view the details.

6. Date & time

Set the date, time and the time zone.

7. System

Displays information on the welding system.

8. Cloud services

Connect to Kemppi cloud services.

2.4.1.2 Wire feeder control panel

The control panel of the wire feeder has a one-knob navigation and push buttons for selecting parameters or values. You can, for example, adjust the welding parameters and save settings on memory channels.

 Wire feeder navigation

The three main views on the wire feeder display are the same as in Control Pad: **Channel**, **Welding**, and **Settings**.
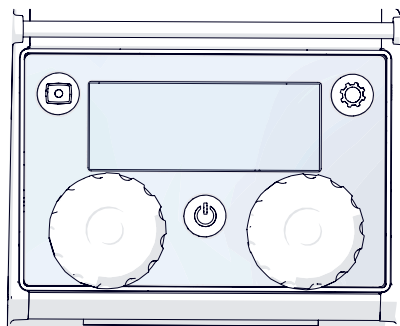
ⓘ   **Note:**

You can press the **Power** button to lock the wire feeder and avoid starting welding accidentally.

The wire feeder has a memory channels button on the left and the **Settings** button on the right side of the display. Press these buttons to change the view on the wire feeder's display. Press the button again to return to the **Welding** view.

Use the knobs under the display to move focus in the display and to adjust the values. When there is a green light in the center of the knob, the knob also functions as a push button.

In the **Welding** view, adjust the welding power with the left knob and the fine tuning with the right knob. In most welding processes, this secondary parameter is voltage.

In all other views, move up and down in the menus with the right knob. Press the green button in the center of the knob to open an item.

 Wire feeder views

Welding view

In the **Welding** view, you can:

- See an overview of the settings of the selected welding program
- Adjust the main parameters (welding power and fine tuning)
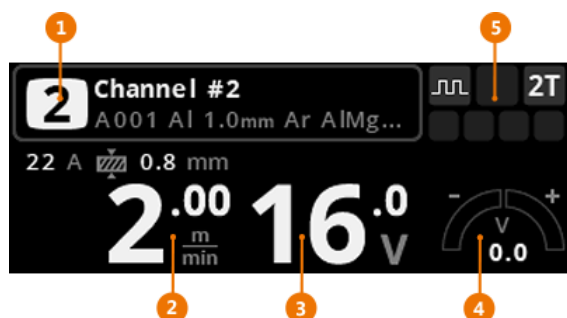
1. Memory channel

2. Welding power

The unit of the parameter varies according to the welding process.

3. Voltage

ⓘ   **Note:**

Not all processes have this parameter.

4. Fine tuning

The unit of the parameter varies according to the welding process.

5. Applied settings displayed in symbols

For more information on symbols, see Kemppi symbols.

Adjust the welding power with the left control knob.

ⓘ   **Note:**

The welding parameter shown is **Wire feed speed**, **Current** or **Plate Thickness**.

Fine tune the secondary welding parameter with the right control knob. The adjustable secondary parameter varies according to the welding process and function.

Memory Channels view

Welding parameters are stored in the memory channels. The memory channel displays the same information of the welding parameters as the **Welding** view. Each user has their own memory channels.

Press the **Channel** button on the left to see the **Channel** view. A menu of the memory channels appears on the left side of the display. To take a channel into use, move focus to it with the right control knob. A tilted number of the memory channel indicates that the parameters of the original memory channel have been modified.

To save a modified channel, press and hold the **Channel** button or press **Save** on the green button of the right knob.

Settings view

For more information on wire feeder's settings, see Wire feeder settings view on page 97.

 Wire feeder settings view

You can adjust the selected memory channel or the settings of the wire feeder through the **Settings** view.

Press the **Settings** button to access the wire feeder settings. When the settings view is open, the **Settings** button lights up orange.

⚙

Modify the parameters with the right knob. Press the green button in the center of the knob to select and turn the right knob to adjust a parameter.

Table 4: Wire feeder settings

Trigger	Change the welding gun trigger mode (2T/4T).

WP Switch ON/OFF	Switch the WP Switch feature ON or OFF.
Dynamics	Adjust the dynamics setting for MIG, 1-MIG, Pulse, DPulse and WiseThin+.
	DPulse and WP Switch also have a **Dynamics2** setting for adjusting the second level dynamics.
Touch sense ignition	Switch the optimized ignition feature ON or OFF.
Hot start	Switch the HotStart feature ON or OFF.
Crater fill	Switch the crater fill feature ON or OFF.
Weld data	Shows you the information on the latest weld.
	Press the green button on the right knob to view more information.
Device information	Shows you the serial number and software versions of the welding system.
	Press the green button on the right knob to view more information.
Wireless devices	Press the **Connect** button on the right to set a wireless connection to Control Pad.
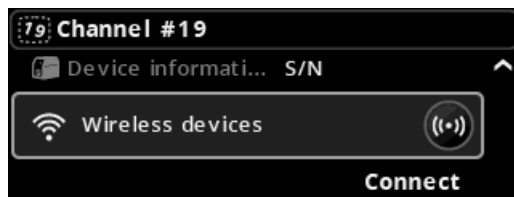
2.4.1.3 Gun remote control

With the remote control, you can select memory channels and WPSs, and adjust wire feed speed, fine tuning and dynamics.
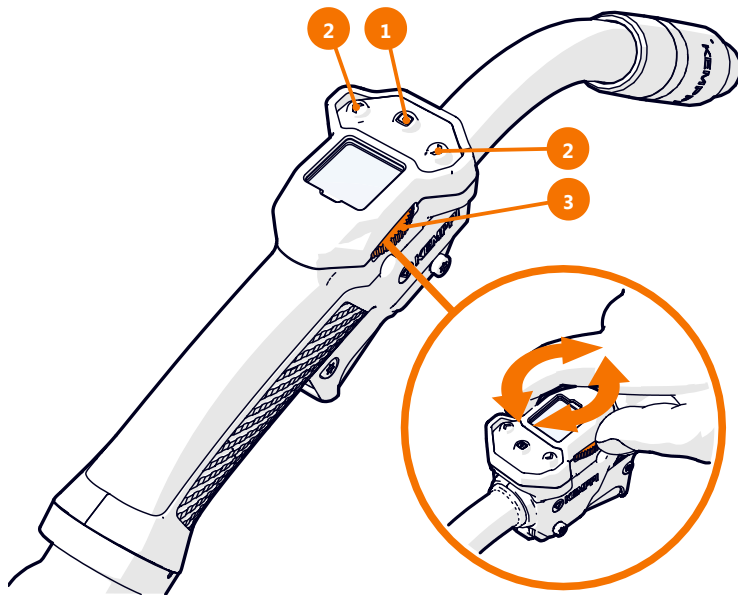
Figure 22: Control buttons of the remote control

1. Channel button

2. Arrow buttons

3. Adjustment roll

The remote control has two views: **Channel** view and **Settings** view. Use the **Channel** button to move between the views.

Figure 23: Moving between Channel view and Settings view

Selecting a memory channel or WPS

In the **Channel** view, use the **arrow** buttons to move between the channels. There are two kinds of channels:

- Memory channels. The view shows the number of the memory channel, the name of the welding program, and the process symbol.
- WPS channels. The view shows the WPS name and the pass name. If the WPS covers several passes, use the arrow buttons to move between the passes.

Figure 24: Channel view: memory channel and WPS channel

Adjusting welding parameters

In the **Settings** view, you can view and adjust wire feed speed, fine tuning and dynamics. Use the **arrow** buttons to move between the parameters. Use the **adjustment roll** to adjust the parameter value.

Figure 25: Parameters in the Settings view

You can save the changes in the channel by pressing and holding the channel button for more than 3 seconds.

Example

To select a channel and adjust its settings, proceed as follows:

1. Press the **Channel** button to open the **Channel** view.

2. Browse the channels with the **arrow** buttons until you find the channel you want to use.

3. Press the **Channel** button to open the **Settings** view.

4. Use the **arrow** buttons to go the the parameter you want to adjust.

5. Use the **adjustment roll** to change the parameter value.

ⓘ **Note:**

   The remote control is disabled if MMA or Gouging mode is selected.

ⓘ **Note:**

   For information on warning and error icons, see Error codes on page 170.

2.4.2 Preparing welding system for use

Switching on the welding system

To switch on the power source and wire feeder, turn the power source main switch to ON (**I**) position. When the power source is on, the power indicator LED in the indicator panel is green.
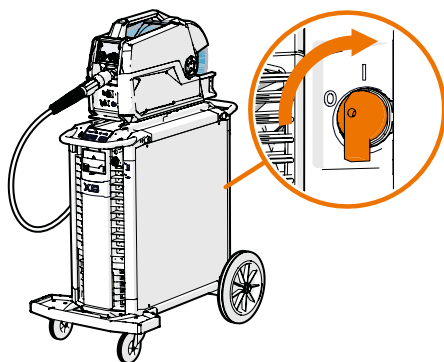
Figure 26: Switching on the welding system

The wire feeder starts to the same operation state where it was before the last shutdown. Turn the main switch to start and shut down the welder. Do not use the mains plug as a switch.

ⓘ **Note:**

   If the welder is left unused for a longer period, detach the mains plug to disconnect it from the mains.

Switching on Control Pad

To switch on Control Pad, press and hold the power button for a few seconds.

Preparing cooler

Fill the coolant container inside the cooler with Kemppi coolant liquid. To weld, you must pump the coolant through the system. Press the coolant circulation button in the front panel of the power source. It activates the motor, which pumps the coolant to the hoses and to the welding gun.

When you press and hold the coolant circulation button, the pump begins to circulate the coolant. The line continues to fill up automatically even if you release the button. Press the coolant circulation button again during the automatic filling to interrupt the fill-up, for example, if any coupling is loose. If the line does not fill up during 1 minute after the button has been released, the automatic filling stops and the indicator LED blinks green and red in turns.

The indicator panel also includes indicator LEDs which are yellow if the coolant level is too low or the coolant temperature is too high. When the circulation is defectless, the indicator LED is green.
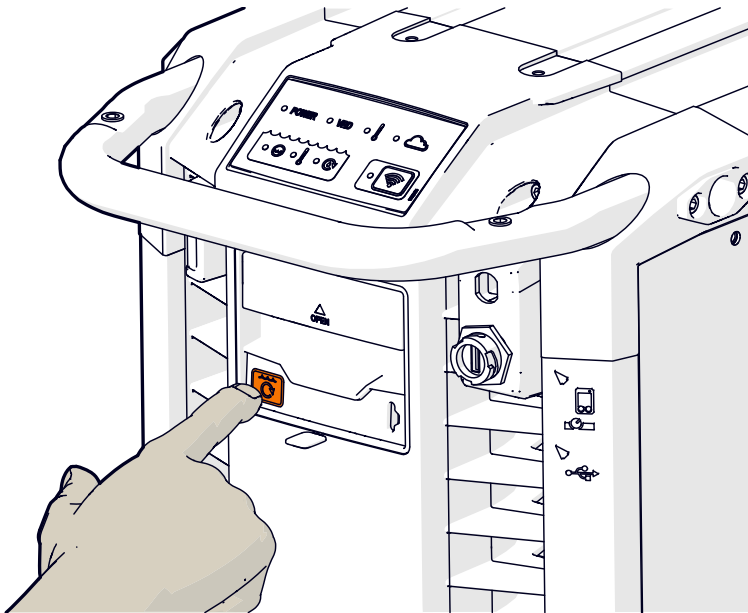
Press the coolant circulation button after each time you change the welding gun.

For instructions on filling the cooler, see Filling cooler.

Connecting earth return cable

⚠️ **Warning:**

Keep the welding piece bonded or connected to earth to reduce the risk of injury to users or damage to electrical equipment.
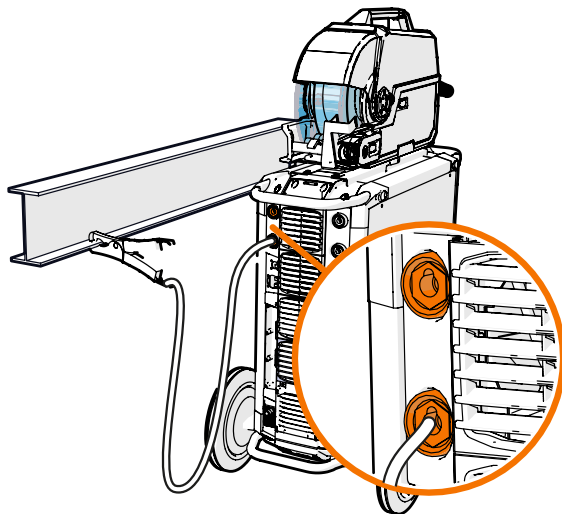
Figure 27: The earth return cable connector on the power source

Attach the earth return cable clamp on the welding piece.

Ensure that the surface contact to the table is clean of metal oxide and paint and that the clamp is firmly secured.

2.4.2.1 Filling cooler

Fill the cooler with 20-40 % coolant solution, for example, Kemppi cooling liquid.

Proceed as follows:

1. Pull the front panel latch and open the front panel of the power source.
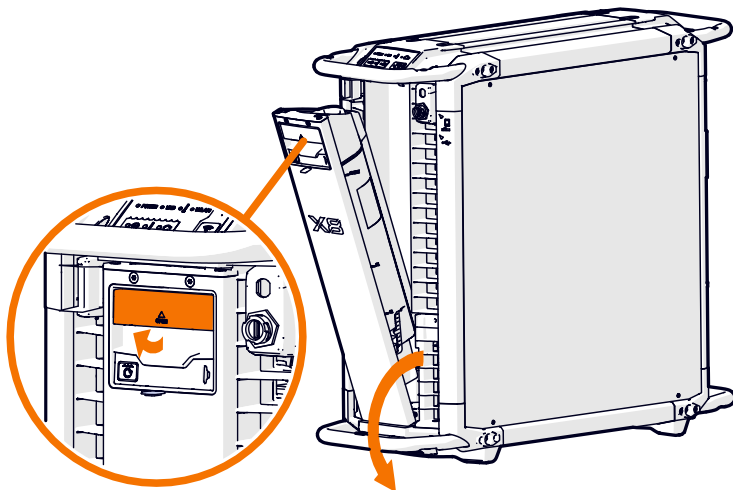
2. Unscrew the lid on top of the cooler.
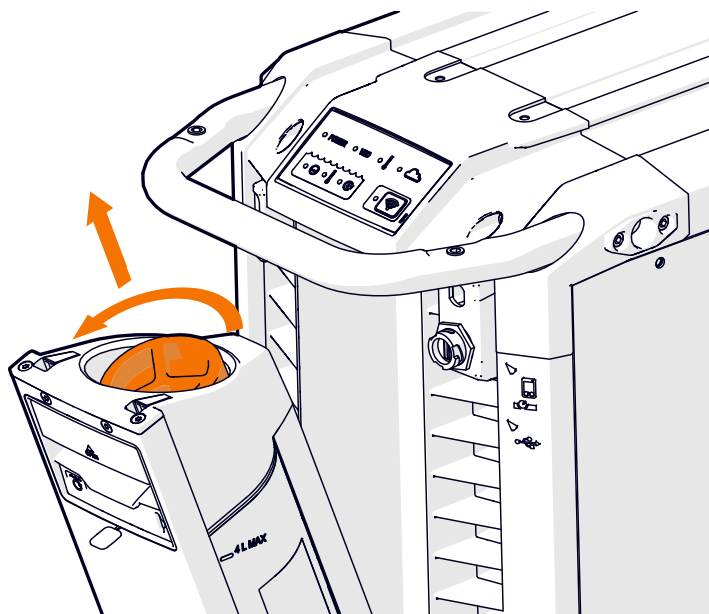
3. Fill the cooler with coolant solution. Do not fill over the line.

4 L MAX

Kemppi
cooling
liquid

20-40 % Glycol

2 L

1 L
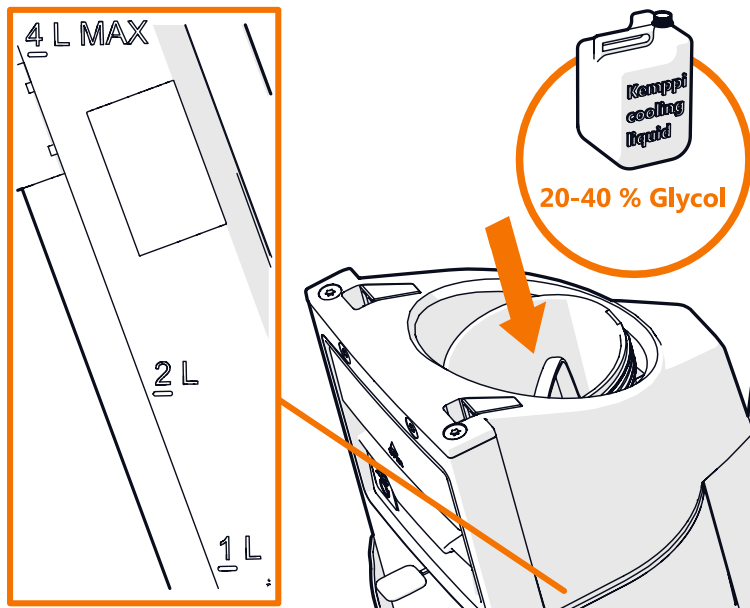
4. Screw the lid back on the cooler.
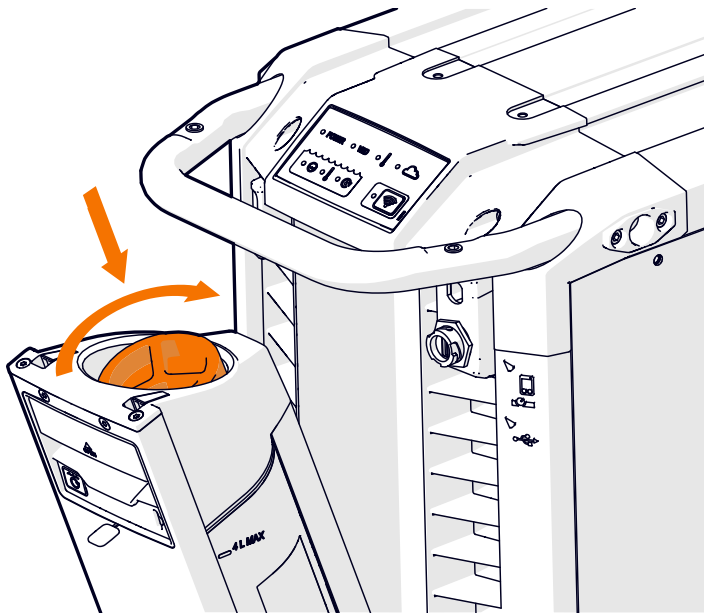
5. Push to close the front panel of the power source.
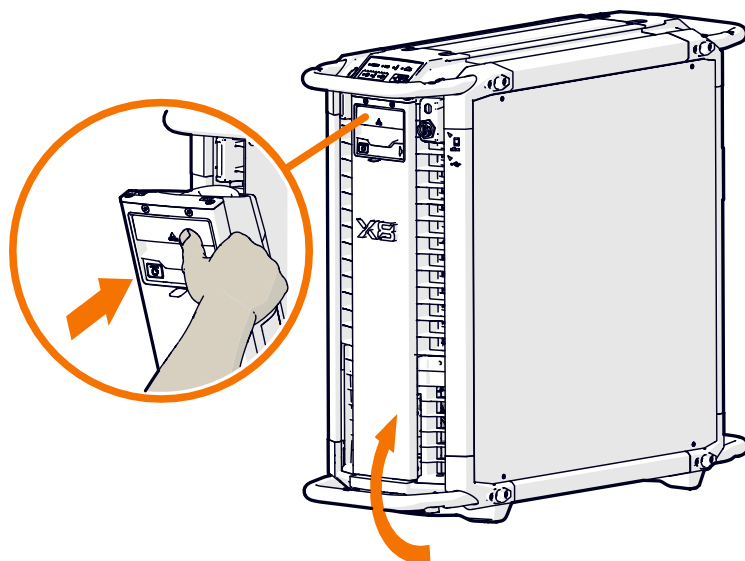
2.4.2.2 Calibrating arc voltage

X8 MIG Welder measures the voltage of the welding arc and the voltage loss in the interconnection cable and welding gun. After calibration, the power source calculates the arc voltage, if the voltage sensing cable is not connected.
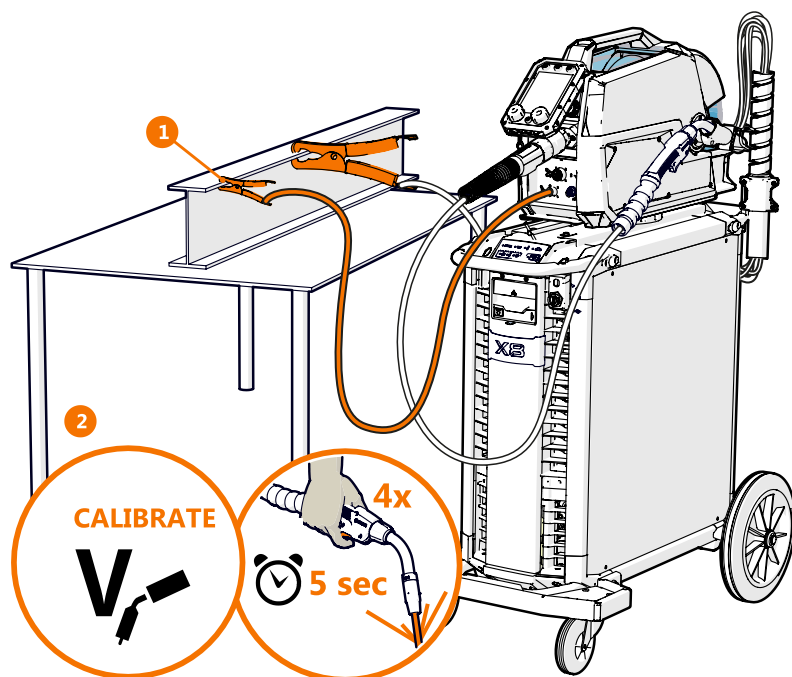
Figure 28: Calibration of the welding cables

Proceed as follows:

1. Ensure that the measurement cable connects the wire feeder and the power source.

2. Connect the voltage sensing cable from the wire feeder to the welding piece.

3. Adjust the welding parameters.

4. Weld for at least 4 welds of 5 seconds.

   With several welds, the measurement result is more accurate.

   The welder calibrates to the length of the interconnection cable. The values are saved, so you only need to calibrate once after installing the welder package.

5. After the calibration, you can view arc voltage on Control Pad and the wire feeder control panel during and after welding. To view the arc voltage on Control Pad display, select **Voltage display mode**. **Arc voltage** is the default setting.

   ⓘ **Note:**

   It is recommendable to keep the voltage sensing cable connected at all times. However, if the cable is not connected, the power source calculates the arc voltage according to the calibrating values.

   ⓘ **Note:**

   Repeat steps 1-4 every time you change the length of the interconnection or earth return cable.

2.4.2.3 Connecting to Kemppi cloud services

To use the Kemppi cloud services, connect the welding machine to the Internet either through a WLAN or a wired connection. Form the connection by using the **Cloud services** view in the **View** menu. You can also see the status of the Cloud services there.

ⓘ **Note:**

Cloud communication requires that your network firewall allows outbound data through ports 80 (HTTP), 123 (NTP), 443 (HTTPS) and 8883 (Secure MQTT).

Kemppi cloud services include, for example, My Fleet and WeldEye.

For more information on My Fleet, see My Fleet. For more information on WeldEye, see Introduction to WeldEye for welding procedure and qualification management on page 9 . For more information on operating Control Pad, see Control Pad on page 84.

WLAN connection

Proceed as follows:

1. Go to the **View** menu > **Cloud services** > **WiFi settings**.
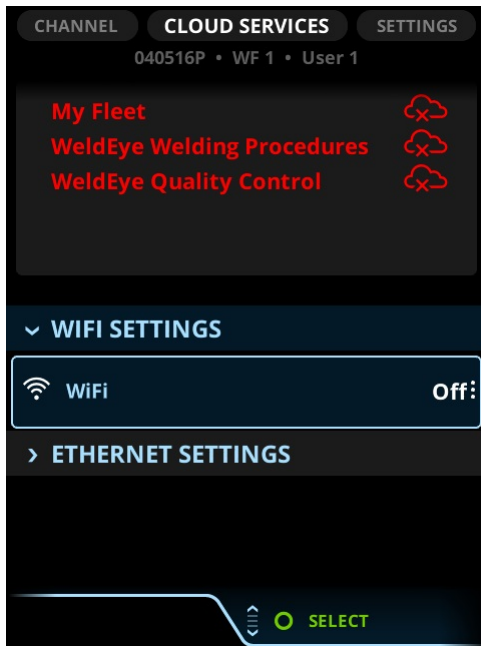
2. Switch the WiFi on.
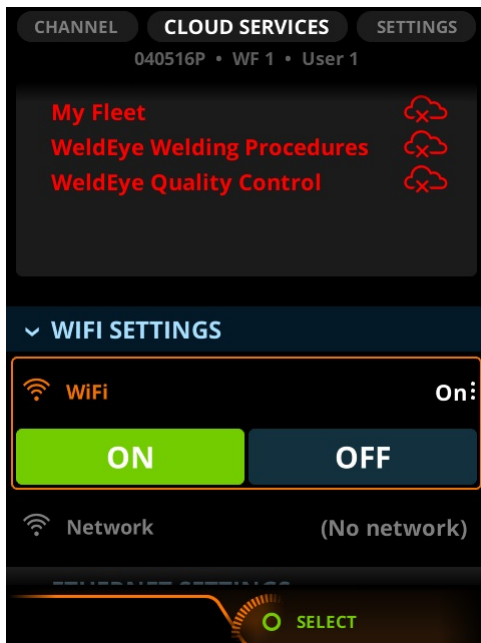
3. Select the WLAN network.
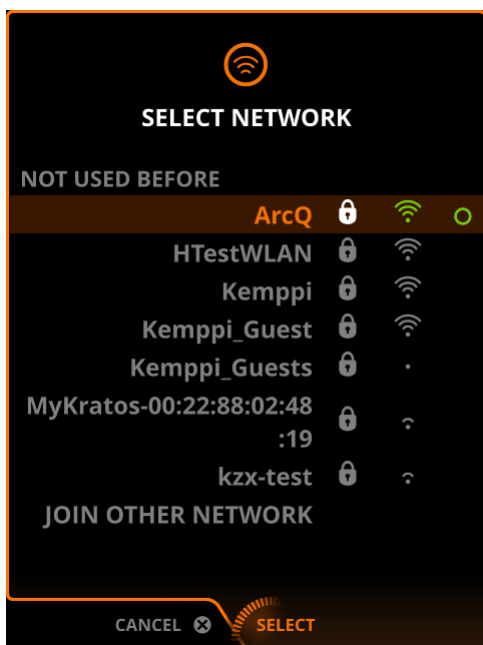
4. Fill in the password, if needed.
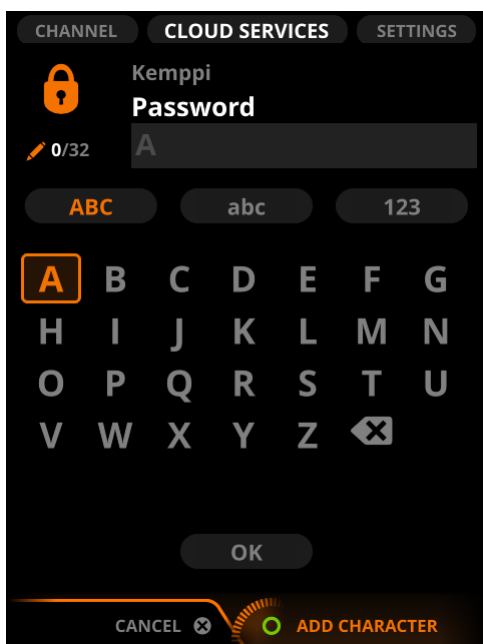
5. Network details are shown in **WiFi settings**, when the WLAN connection is created.
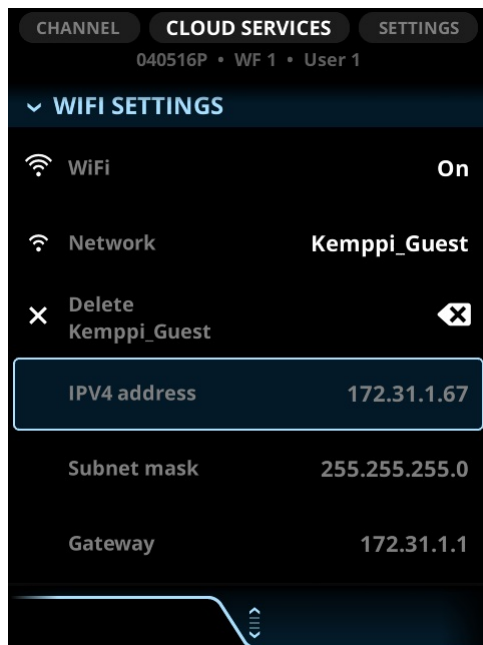
Wired connection

The Ethernet connection is automatically created when you connect the Ethernet cable to X8 MIG Welder. The Ethernet connection details are shown in **Ethernet settings** when the connection is created.

Set **DHCP** to OFF to configure the Ethernet settings manually.
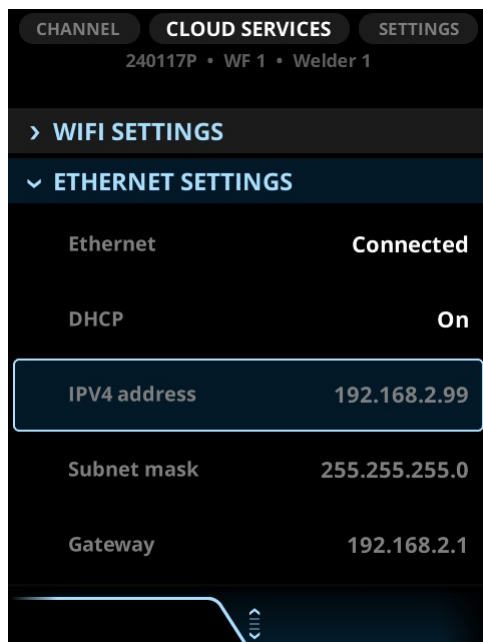
Cloud services status

The different icons for cloud services are in the table below.

Table 5: Cloud services icons

	Connection to the service
	No connection to the service
	No user rights to the service
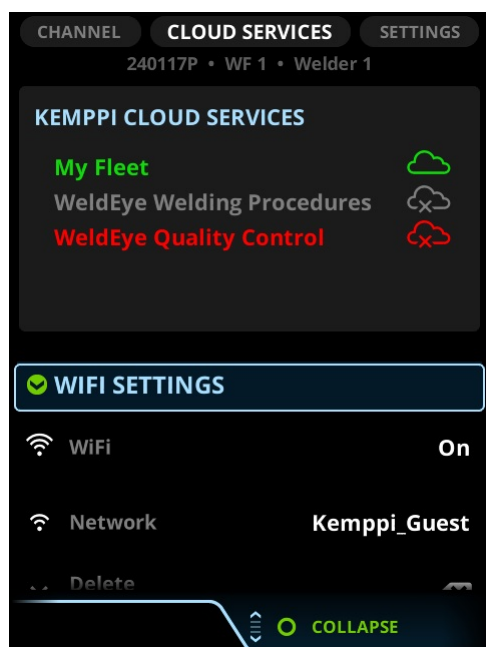
2.4.3 How to use welding system

Choosing the optimal welding program with the most suitable process and other parameters facilitates the use of X8 MIG Welder. Programs can be saved in memory channels for easy reach. Digital WPSs automatically adjust the welding machine settings.

2.4.3.1 Using memory channels

When you start using the X8 MIG Welder, select the memory channel where the correct welding program with pre-selected process and parameter values is stored and adjust the parameters.

For general information on memory channels, see Channel view on page 94.

To select a memory channel through Control Pad or wire feeder display, see Selecting memory channel on page 111.

To create a memory channel, see Creating new memory channel settings on page 113.

Selecting memory channel

You can select a memory channel through Control Pad, wire feeder display or gun remote control.

Proceed as follows:

1. To select a memory channel through Control Pad or wire feeder display:
   a) Press the **Channel** button.
   b) Scroll with the right knob to a memory channel.
      The selection activates immediately.

2. To select a memory channel through the gun remote control, see

Saving modified memory channel settings

Proceed as follows:

1. To save modified settings in Control Pad or on the wire feeder display over the current settings of a memory channel:
   a) In the **Welding** view, press and hold the **Channel** button.
      OR

2. To save modified settings in Control Pad over the current settings of a memory channel:
   a) Press **Channel**.
   b) Open **Actions**.
   c) Select **Save changes** and press the green button.

3. To save modified settings in Control Pad on a different memory channel:
   a) Press **Channel**.
   b) Open **Actions**.
   c) Select **Save to** and press the green button.

d) Scroll to the channel where to save the new settings.

e) Press the green button.
   The name of the memory channel changes to the name of the welding program.
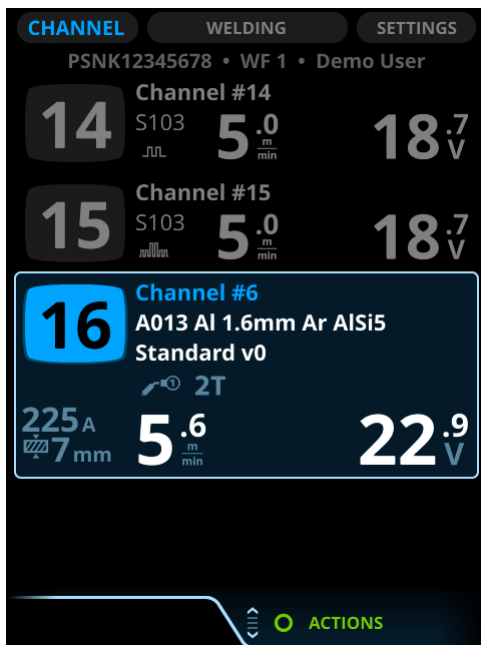
Creating new memory channel settings

When you create a welding program to a memory channel, always select an existing program as a basis for the modifications.

Proceed as follows:

1. Go to **Channels** and select a memory channel where to start modifications.

2. Press the green button to open the **Actions** menu.

3. Select **Save to** and press the green button.

4. Select the target channel and press the green button.

When you save the welding parameters, the channel name changes to the program name.

5. Modify the parameters.

6. Save the modified parameters. See Saving modified memory channel settings on page 111.

Saving new welding programs

When you install new welding programs, you need to create a memory channel for each of them before use.

Proceed as follows:

1. Install the new welding programs as instructed.
   The welding programs automatically transfer into the memory of the welding system.

   ⓘ   **Note:**

   You can also transfer the welding programs through the power source USB port, if a wireless connection is unavailable.

2. Select the **Channel** view.

3. Select a memory channel.

4. Press the green button to open the **Actions** menu.

5. Select **Create all** and press the green button.
   Control Pad creates a memory channel to each new welding program.

Renaming channel

Proceed as follows:

1. Go to the **Channel** view.

2. Press the green button to open **Actions**.

3. Select **Rename** and press the green button.
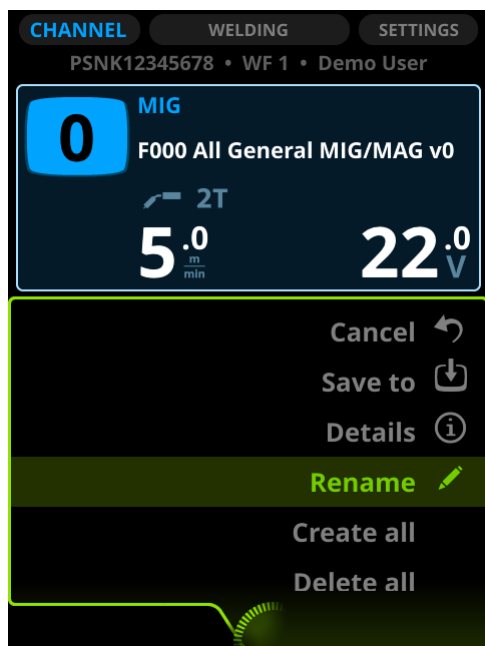
Control Pad shows you a keypad.
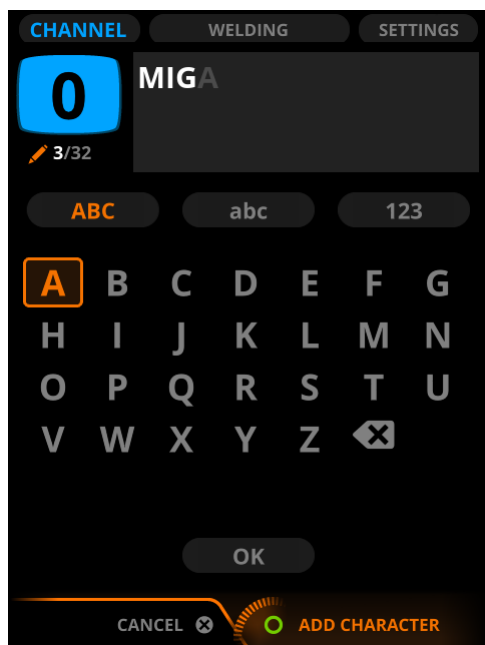
4. Turn the knob to go to the eraser and press **Erase character** on the right knob to delete the former name.
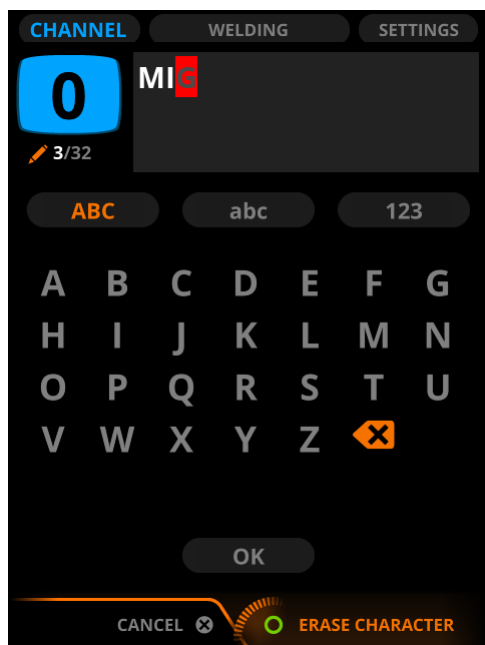
5. Turn the right knob and press the green button on it to select letters.
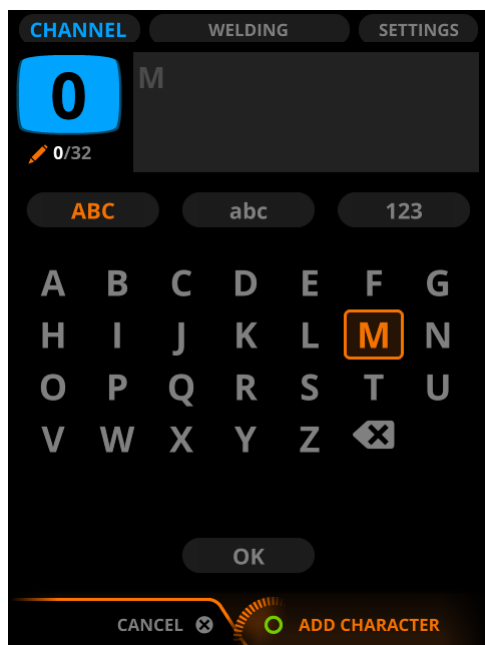
6. Move focus to **OK** and press the green button to return to the **Channel** view.
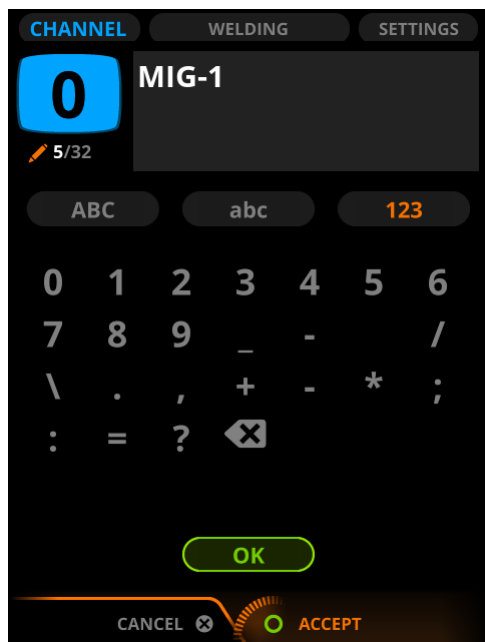
2.4.3.2 Using welding processes, programs and features
Selecting a welding program

A welding program combines the optimal welding settings for a given welding job. Welding programs are saved in the memory of the power source. Welding programs and memory channels are managed through Control Pad. For more information on saving welding programs, see Saving new welding programs on page 114.

The welding programs in X8 MIG Welder suit the most common wire types, wire diameters, shielding gases and different base materials. Programs can be purchased at Kemppi DataStore. Kemppi also offers Synergic

Customized Welding programs which are designed and created according to customer-specific welding applications. For more information, contact your local Kemppi dealer.

Selecting a welding program through Channel view

The easiest way to select a welding program is to browse through the memory channels in the **Channel** view and select the memory channel that has the appropriate program saved in it. For more information, see

Selecting a welding program through Settings view

You can find the optimal welding program for the job at hand by using the search filters.

First, select the welding mode (MIG/MMA/GOUGING) in **Settings** > **Mode**.

If you select the MIG mode, you can see a list of filters (for example, Material and Wire material) under the title **Welding program**.
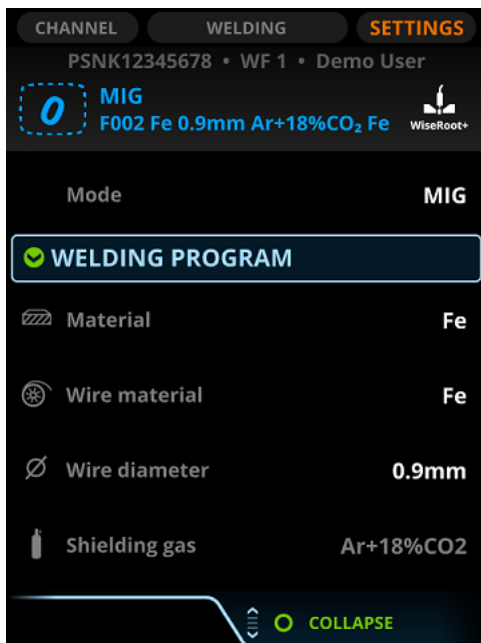
Select appropriate filters to narrow down the list of welding programs. You will see the programs matching your filter selection as the last item on the list. It is possible that there is just one program matching your filter selection.

Type	Welding
Process	WiseRoot+
Welding program	F002 Fe 0.9mm Ar +18%CO_2 Fe
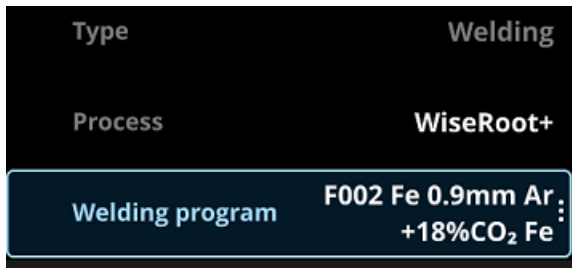
The MMA and GOUGING modes just have one pre-installed welding program each.

 Standard MIG welding processes in X8 MIG Welder

The processes described in this chapter are available when the MIG mode is selected. For more information on selecting the MIG mode, see Selecting a welding program.

The easiest way to take a certain process into use is to select a memory channel with a welding program that uses that process. For more information, see Channel view on page 94.

The list of adjustable welding parameters in **Settings** > **Parameters** varies according to the selected welding program.

MIG

MIG is a conventional 2-knob MIG/MAG welding process that enables adjusting the wire feed speed and voltage independently. MIG does not support the Wise features.

To adjust the wire feed speed, in the Control Pad's **Welding** view, turn the left knob.

To adjust the voltage, in the Control Pad's **Welding** view, turn the right knob.

Figure 29: MIG Welding view

When using MIG, you can adjust the following welding parameters through **Settings** > **Parameters**:

- Wire Feed Speed

    - min: adjusts the minimum set value for wire feed speed
    - max: adjusts the maximum set value for wire feed speed
- Voltage: adjusts the voltage (arc length).
- Dynamics: -10...+10. Adjusts the short circuit behavior. On the minus side, the arc is softer (less spatter). On the plus side, the arc is harder (the arc is more stable).
- StartPower: -30...+30. Adjusts the power level for arc ignition.

1-MIG

1-MIG is a synergic MIG/MAG welding process: when you adjust the wire feed speed, the power source adjusts the voltage accordingly. The process is suitable for all materials, shielding gases and welding positions. 1-MIG supports WiseSteel, WisePenetration+ and WiseFusion features, as well as various optimized welding programs.

To adjust the welding power / wire feed speed while welding, in the Control Pad's **Welding** view, turn the left knob.

To fine tune the voltage while welding, in the Control Pad's **Welding** view, turn the right knob.
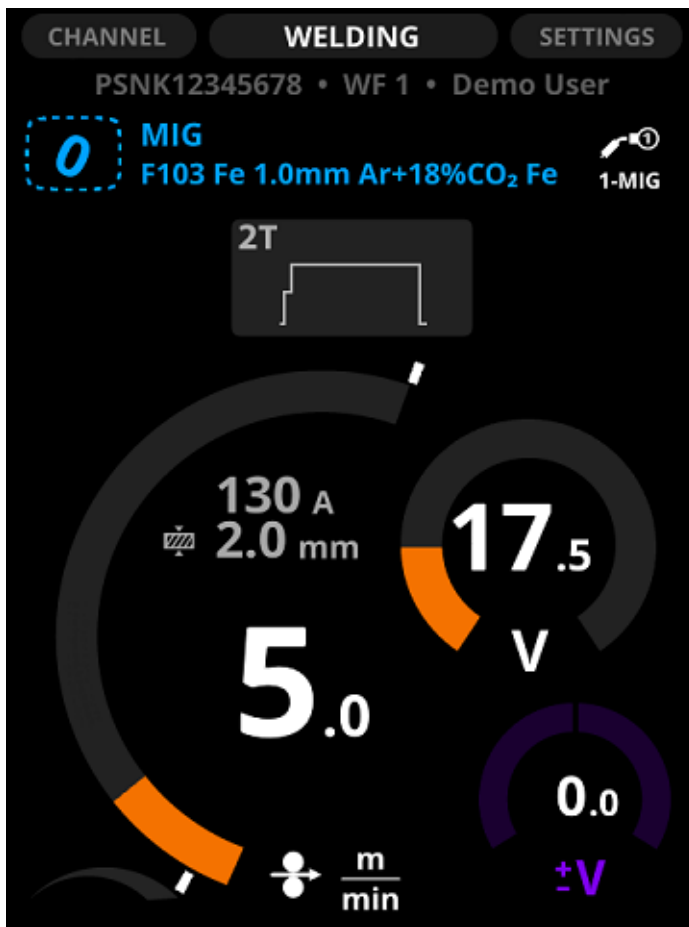
Figure 30: 1-MIG Welding view

When using 1-MIG, you can adjust the following welding parameters through **Settings** > **Parameters**:

- Wire Feed Speed

    - min: adjusts the minimum set value for wire feed speed
    - max: adjusts the maximum set value for wire feed speed
- Fine tuning: adjusts the voltage (arc length).
- Dynamics: -10...+10. Adjusts the short circuit behavior. On the minus side, the arc is softer (less spatter). On the plus side, the arc is harder (the arc is more stable).
- StartPower: -30...+30. Adjusts the power level for arc ignition.
- StartLevel: -30...+30. Fine tunes the arc length for arc ignition.
- StopPower: -30...+30. Adjusts the power level for arc stop.

Pulse

Pulse is a synergic MIG/MAG welding process where the current is pulsed between the base current and the pulse current. The advantages of Pulse are a higher welding speed and deposition rate compared to short-arc welding, lower heat input compared to spray-arc welding, a spatter-free globular arc and smooth

appearance of the weld. Pulse is suitable for all position welding. It is excellent for welding aluminium and stainless steel, especially when the material thickness is small.

Pulse supports WisePenetration+ and WiseFusion features, as well as various optimized welding programs.

To adjust the welding power / wire feed speed while welding, in the Control Pad's **Welding** view, turn the left knob.

To fine tune voltage while welding, in the Control Pad's **Welding** view, turn the right knob.
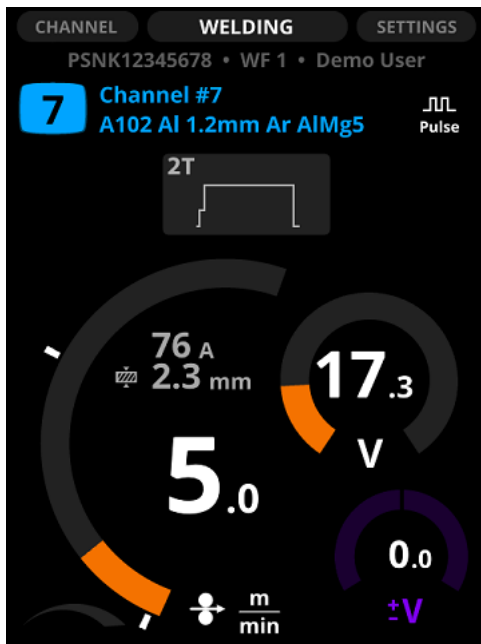
Figure 31: Pulse Welding view

When you set the wire feed speed, the power source adjusts the voltage and other parameters accordingly (for example, base current, pulse current, and frequency). In addition, you can adjust the following parameters through **Settings** > **Parameters**:

- Wire Feed Speed

  - min: adjusts the minimum set value for wire feed speed
  - max: adjusts the maximum set value for wire feed speed
- Fine tuning: adjusts the voltage (arc length).
- Pulse current %: Adjusts the pulse peak current. Use for controlling the droplet detachment.
- Dynamics: Adjusts the short circuit behavior. On the minus side, the arc is softer (less spatter). On the plus side, the arc is harder (the arc is more stable).
- StartPower: -30...+30. Adjusts the power level for arc ignition.
- StartLevel: -30...+30. Fine tunes the arc length for arc ignition.
- StopPower: -30...+30. Adjusts the power level for arc stop.

DPulse

DPulse is a pulse welding process with two separate power levels. The welding power varies between these two levels, and the parameters of each level are controlled independently. In the **Welding** view, toggle between level 1 and level 2 by pressing the left Control Pad button. The inactive power level is shown with a gray line on the wire feed speed diagram.
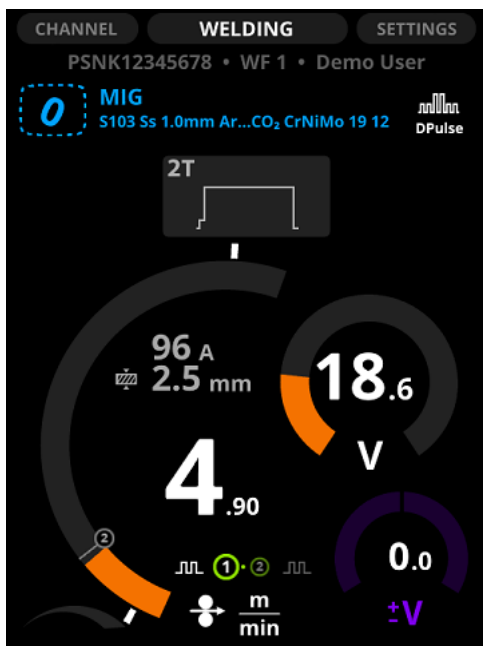
Figure 32: DPulse Welding view

To adjust the welding power / wire feed speed while welding, in the Control Pad's **Welding** view, turn the left knob.

To fine tune voltage while welding, in the Control Pad's **Welding** view, turn the right knob.

When using DPulse, you can adjust the following parameters through **Settings** > **Parameters**:

- Wire Feed Speed: adjusts the wire feed speed for level 1.

  - min: adjusts the minimum set value for wire feed speed
  - max: adjusts the maximum set value for wire feed speed
- Fine tuning: adjusts the voltage (arc length).
- Dynamics: Adjusts the short circuit behavior. On the minus side, the arc is softer (less spatter). On the plus side, the arc is harder (the arc is more stable).
- Pulse current %: -10...+15. Adjusts the pulse peak current. Use for controlling the droplet detachment.
- StartPower: -30...+30. Adjusts the power level for arc ignition.
- StartLevel: -30...+30. Fine tunes the arc length for arc ignition.
- StopPower: -30...+30. Adjusts the power level for arc stop.

You can adjust the following parameters through **Settings** > **DPulse**:
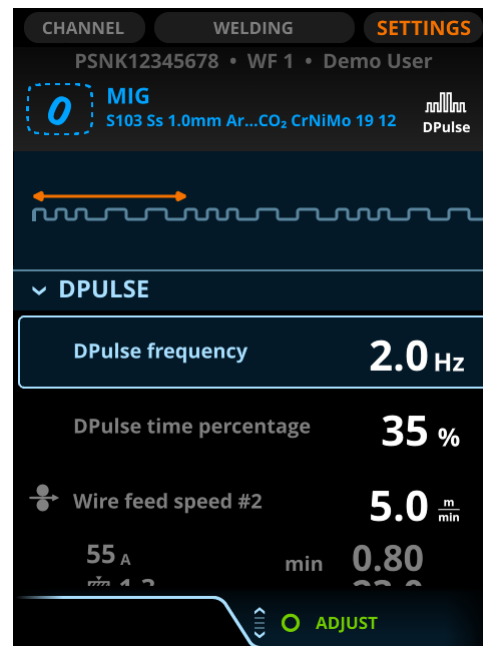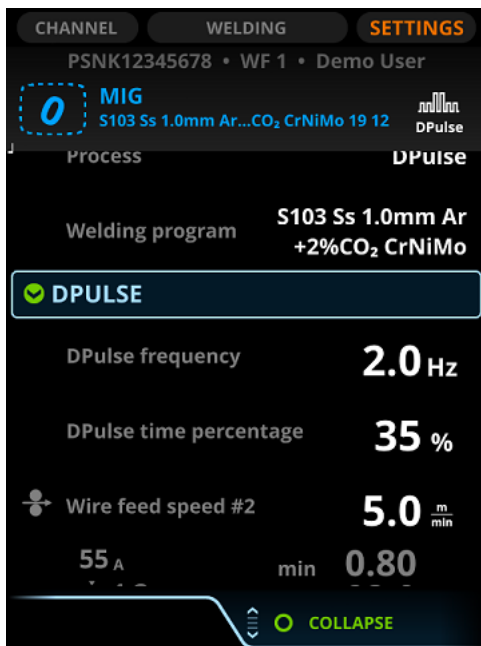
- DPulse frequency: the frequency on which the power fluctuates between the levels.
- DPulse time percentage: the relative time of the power level on the wire feed speed level 1.
- Wire Feed Speed 2: adjusts the wire feed speed for level 2.

  - min: adjusts the minimum set value for wire feed speed
  - max: adjusts the maximum set value for wire feed speed
- Fine tuning #2: fine tunes voltage for level 2

DPulse supports the WiseFusion feature and various optimized welding programs.

 Wise processes

Kemppi's Wise products are welding processes and features designed to ease the user's work and increase the productivity by controlling the welding arc. For more information, visit www.kemppi.com.

 Before welding with WiseRoot+ or WiseThin+

Before welding, attach the voltage sensing cable to the workpiece. For optimal voltage measurement, connect the earth return cable and the voltage sensing cable close to each other and away from the other welding units' cables. If the voltage measurement cable is not connected or it is broken, an error message is displayed.
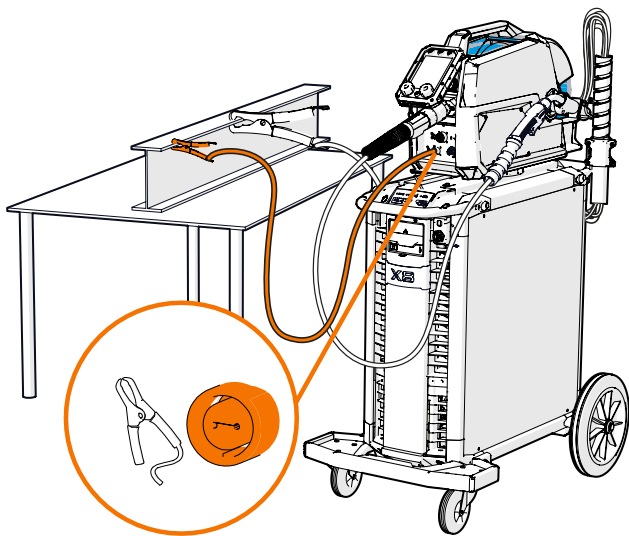
Figure 33: Voltage sensing cable

Using DProcess

DProcess is a welding process that lets you combine two completely different sets of welding parameters that may even include different welding processes. This way you can optimize the welding arc for the desired application, such as vertical up welding.

To use DProcess, you need to define an alternative set of welding parameters (set 2), which will then be combined with the currently selected values (set 1). You can do this by selecting the DProcess menu in the **Settings** view of your Control Pad:

- DProcess frequency: Define the frequency of the DProcess cycle.
- DProcess time percentage: Define the relative time portion of set 1 throughout the DProcess cycle.
- Welding program #2: Select the welding program to be used in set 2. The list contains all welding programs that are based on suitable materials.
- Wire Feed Speed #2: Define the wire feed speed for set 2.

  - min: Define the minimum set value for wire feed speed.
  - max: Define the maximum set value for wire feed speed.

- Fine tuning #2: Fine tune the voltage for set 2.

  - Dynamics: -10...+10. Adjusts the short circuit behavior. On the minus side, the arc is softer (less spatter). On the plus side, the arc is harder (the arc is more stable).

During welding, X8 MIG Welder uses both welding parameter sets in the manner that you have chosen in the frequency and time percentage settings.

In the **Welding** view, you can change the welding values separately for set 1 and set 2. To select which set is active, press the left knob button.

The best way to get full benefit from the DProcess process is to use Kemppi's ready-made welding parameter tables.

ⓘ   **Note:**

   With DProcess, you can use the following welding processes and their combinations: 1-MIG, Pulse, WiseRoot+ and WiseThin+. Also, WiseFusion function can be used, if you are using 1-MIG or Pulse or their combination.

Using WiseRoot+

WiseRoot+ is a synergic MIG/MAG process optimized for open-gap root pass welding. The process is based on precise measurement of voltage between the welding gun nozzle and the workpiece. The measurement data serves as input for the current control. The process is suitable for root pass welding in all positions, and provides a smooth and spatter-free arc.

To adjust the welding power / wire feed speed, in the Control Pad's **Welding** view, turn the left knob.

To fine tune the heat while welding, in the Control Pad's **Welding** view, turn the right knob.
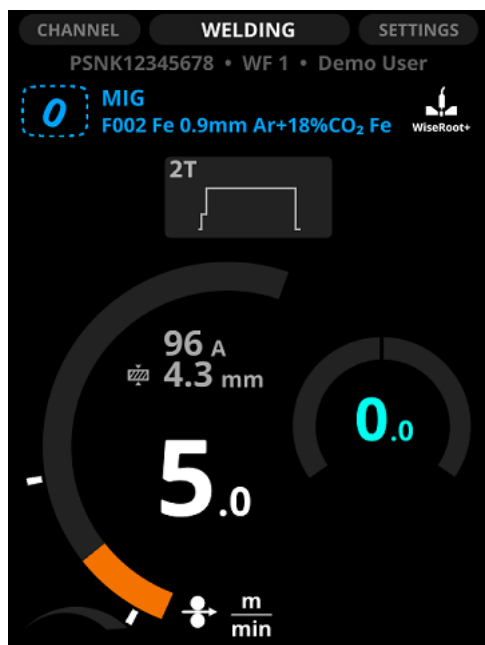
Figure 34: WiseRoot+ Welding view

When using WiseRoot+, depending on the welding program, you can adjust the following parameters through **Settings** > **Parameters**:

- Wire Feed Speed

  - min: adjusts the minimum set value for wire feed speed
  - max: adjusts the maximum set value for wire feed speed
- Fine tuning: adjusts the heat of the arc.
- Dynamics: -10...+10. Adjusts the short circuit behavior. On the minus side, the arc is softer. On the plus side, the arc is harder.
- StartPower: -30...+30. Adjusts the power level for arc ignition.
- StartLevel: -30...+30. Fine tunes the arc length for arc ignition.
- StopPower: -30...+30. Adjusts the power level for arc stop.

Using WiseThin+

WiseThin+ is a synergic MIG/MAG process whose short-arc features are optimal for welding sheet metals (plate thickness 0.8 - 3.0 mm). It is based on precise measurement of voltage between the welding gun nozzle and the workpiece. The measurement data serves as input for the voltage control. The process reduces heat input, deformation and spatter. WiseThin+ is also optimal for position welding with thicker plates.

To adjust welding power / wire feed speed, in the Control Pad's **Welding** view, turn the left knob.

To fine tune the voltage while welding, in the Control Pad's **Welding** view, turn the right knob.
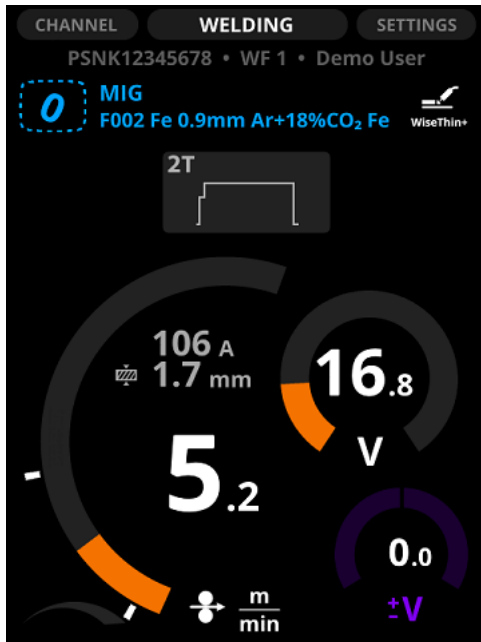
Figure 35: WiseThin+ Welding view

When using WiseThin+, depending on the welding program, you can adjust the following welding parameters through **Settings** > **Parameters**:

- Wire feed speed

  - min: adjusts the minimum set value for wire feed speed
  - max: adjusts the maximum set value for wire feed speed
- Fine tuning: adjusts the voltage (arc length).
- Dynamics: -10...+10. Adjusts the short circuit behavior. On the minus side, the arc is softer (less spatter). On the plus side, the arc is harder (the arc is more stable).
- StartPower: -30...+30. Adjusts the power level for arc ignition.
- StartLevel: -30...+30. Finetunes the arc length for arc ignition.
- StopPower: -30...+30. Adjusts the power level for arc stop.

 Wise features

Kemppi Wise features improve the quality of welds. For more information on Wise products, visit www.kemppi.com.

 Introduction to WiseFusion

The WiseFusion welding function enables adaptive arc length control, which keeps the arc optimally short and focused. WiseFusion increases the welding speed and penetration and decreases heat input. WiseFusion can be used throughout the power range (short arc, globular arc, spray arc and pulsed arc). WiseFusion is compatible with 1-MIG, Pulse and DPulse welding processes.

 Using WiseFusion

To take WiseFusion into use, select **Settings** > **Wise features** > **WiseFusion**.

To adjust the welding power / wire feed speed, in the Control Pad's **Welding** view, turn the left knob.

To fine tune heat output, in the Control Pad's **Welding** view, turn the right knob.
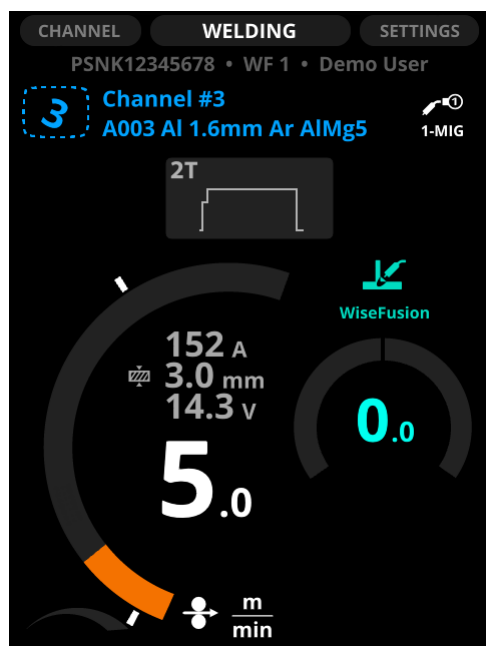
Figure 36: WiseFusion Welding view

Introduction to WiseSteel

The WiseSteel function is based on modifying the conventional MIG/MAG arcs to enable higher quality of welds. WiseSteel improves the arc control, reduces spatter and helps create an optimally-formed weld pool.

When using WiseSteel, different adjustment methods are applied at different power ranges (different arcs). Within the short arc range, WiseSteel is based on adaptive short arc control; that is, the process adjusts the short circuit ratio. This creates an easily-adjustable arc and less spatter. Within the short arc range, the shape of the current is similar to the traditional short arc welding. When a short arc is used in vertical up welding where weaving motion is applied, WiseSteel ensures good quality through adapting to the changes in the stick-out length.

Using WiseSteel on globular arc range means that WiseSteel fluctuates the power between short arc and spray arc at a low frequency, so that the average power stays within the globular arc range. This results in less spatter than conventional globular arc welding, and a welding pool that enables excellent structural durability.

Within the spray arc range, WiseSteel is based on adaptive arc length control, which keeps the arc optimally short. WiseSteel also utilizes micro-pulsed welding current. This creates a well-formed weld pool that enables excellent bead geometry and optimal penetration with smooth and durable joints, and speeds up the work. The pulsing is not noticeable to the welder. The shape and control of the current are close to the conventional spray arc welding.

Using WiseSteel

To take WiseSteel into use, select **Settings** > **Wise features** > **WiseSteel**.

To adjust the welding power/wire feed speed while welding, in the Control Pad's **Welding** view, turn the left knob.

To fine tune heat output while welding, in the Control Pad's **Welding** view, turn the right knob.


Figure 37: WiseSteel Welding view

ⓘ   **Note:**

The wire feed speed / current indicator shows the arc range:

1. Short arc
2. Globular arc
3. Spray arc

The adjustment method is different for each range.

Introduction to WisePenetration+

In standard MIG/MAG welding, changes in stick-out length cause welding current to fluctuate. WisePenetration+ maintains constant welding current by controlling the wire feed speed according to the stick-out length. This ensures stable and effective penetration and prevents burn through. WisePenetration + also adjusts the voltage adaptively, which keeps the arc focused and optimally short. WisePenetration+ enables welding with Reduced Gap Technolology (RGT) and is compatible with 1-MIG and Pulse welding processes.

Using WisePenetration+

To take WisePenetration+ into use, select **Settings** > **Wise features** > **WisePenetration+**.

To adjust the welding current, in the Control Pad's **Welding** view, turn the left knob.

To fine tune heat output, in the Control Pad's **Welding** view, turn the right knob.

Figure 38: WisePenetration+ Welding view

 MMA welding

To use X8 MIG Welder in MMA mode, in Control Pad:

1. Select **Settings** > **Mode** > **MMA**.
2. Select the MMA welding program. An all-around MMA welding program pre-installed.

ⓘ **Note:**

X8 MIG Welder features a voltage reduction device (VRD). When the welding machine is on but the welding arc is not ignited, the welding machine is on open circuit voltage (50 V). If the VRD is in use, it keeps the open circuit voltage on a lower, pre-set level (20 V/12 V).

For MMA welding, both DC+ and DC- mode are available.

To adjust the welding current while welding, in the Control Pad's **Welding** view, turn the left knob.

To adjust the dynamics while welding, in the Control Pad's **Welding** view, turn the right knob.
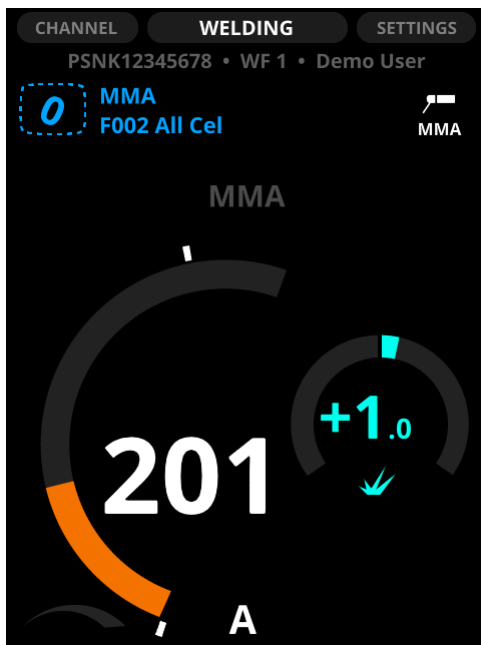
Figure 39: MMA Welding View

You can adjust the following parameters through **Settings** > **Parameters**:

- Welding current
- Dynamics: adjusts the short circuit behaviour. On the minus side, the arc is softer (less spatter). On the plus side, the arc is harder (the arc is more stable).
- StartPower: Adjusts the power level for arc ignition. You can use this parameter to give extra power or less power for the arc ignition.

Gouging

Carbon-arc gouging refers to a method where metal is removed by melting it with a welding arc and blowing the melted metal away with compressed air. Carbon-arc gouging can be used with the majority of metals, such as steel, stainless steel, cast iron, nickel, copper, magnesium and aluminium. The equipment used in carbon-arc gouging comprises the power source, a carbon holder and its cables, and the gouging carbon. Also a sufficient compressed air supply must be available.

The gouging (carbon arc gouging) functionality is available in the 500A and 600A models.

To use gouging, in Control Pad, select **Settings** > **Mode** > **Gouging**.

ⓘ   **Note:**

X8 MIG Welder features an integrated voltage reduction device (VRD). When the welding machine is on but the welding arc is not ignited, the welding machine is on open circuit voltage (50 V). When the VRD is in use, it keeps the open circuit voltage on a pre-set level (20V /12 V).

To adjust the welding current while welding, in the Control Pad's **Welding** view, turn the left knob.

To adjust the dynamics while welding, in the Control Pad's **Welding** view, turn the right knob.
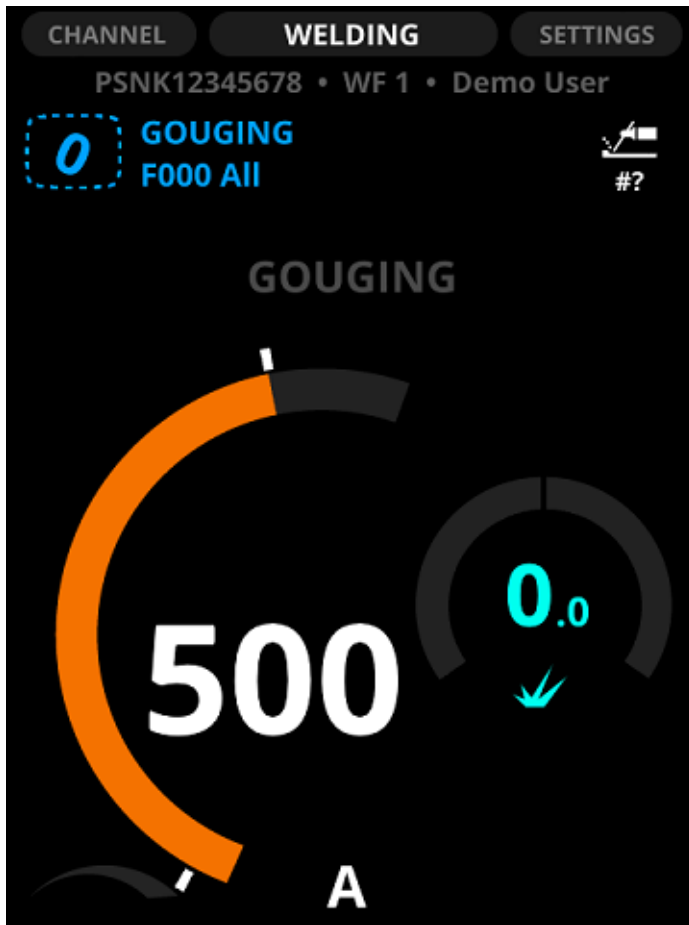
Figure 40: Gouging Welding view

You can adjust the following parameters through **Settings** > **Parameters**:

- Gouging welding program: gouging program selection
- Current: adjusts the gouging current
- Dynamics: adjusts the short circuit behaviour. On the minus side, the arc is softer. On the plus side, the arc is harder (the arc is more stable).

Cladding and brazing

Cladding

Cladding (surfacing) means depositing a layer of filler material on the workpiece to achieve certain properties or dimensions.

To use X8 MIG Welder for cladding, in **Settings**, select the mode (MMA/MIG), and in the filter list, for **Type**, select **Cladding** to see the suitable welding programs.

X8 MIG Welder has a variety of optimized welding programs for cladding.

Brazing

In brazing, only the filler material is melted while the base material stays solid. With X8 MIG Welder, you can use a variety of welding programs and filler materials for brazing.

To use X8 MIG Welder for brazing, in **Settings**, select the mode (MMA/MIG), and in the filter list, for **Type**, select **Brazing** to see the suitable welding programs.

Trigger logic functions

You can select the trigger logic through Control Pad in **Settings** > **Trigger logic**.

- **2T**: Pressing the trigger (1) ignites the arc. Releasing the trigger (2) switches the arc off.

Figure 41: 2T trigger logic

- **4T**: Pressing the trigger (1) starts the Pregas, and releasing the trigger (2) ignites the arc. Pressing the trigger again (3) switch the arc off. Releasing the trigger (4) ends the Postgas.

Figure 42: 4T trigger logic

- **WP Switch**: The WP Switch trigger logic is similar to the 4T logic, but it includes a secondary welding power selection. When the arc is ignited, you can change between two pre-adjusted power levels.

  Pressing the trigger (1) starts the Pregas, and releasing the trigger (2) ignites the arc. During the welding, pressing the trigger briefly (for less than 0.5 seconds) (3 and 5) and releasing (4 and 6) it changes the current level. Pressing the trigger long again (7) switches the arc off. Releasing the trigger (8) ends the Postgas.
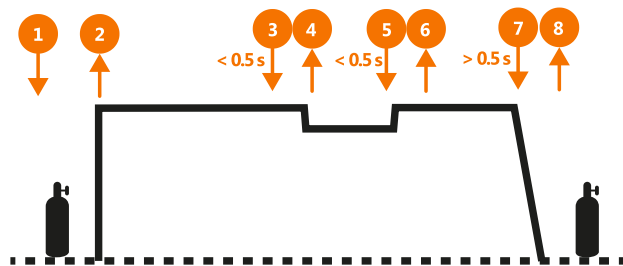
Figure 43: WP Switch trigger logic

Start and stop functions

Touch Sense Ignition

Touch Sense Ignition delivers minimum spatter and stabilizes the arc immediately after ignition.

To set Touch Sense Ignition ON or OFF with Control Pad, go to **Settings** > **Start and stop logic** > **Touch Sense Ignition**.

Upslope

The UpSlope function gradually increases the welding power / wire feed speed up to the desired level. The user sets the function ON/OFF and sets the initial value for the Upslope power / wire feed speed.
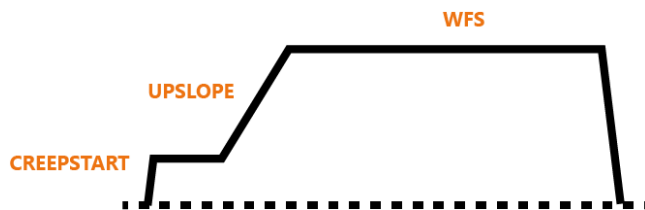
To adjust Upslope, with Control Pad, go to **Settings** > **Start and stop logic** > **Upslope**. When you select **ON**, the options for adjusting **Time** and **Level** appear on the screen.

Hot start

When you use the Hot start function, welding starts with parameter values that are different from the values used for the rest of the welding job. The Hot start function values are automatically set to the normal welding values after a predefined period of time. The functionality can be used, for example, when welding thick materials, where using extra power (heat) at the start helps ensure the high quality of the weld.

When the 2T trigger logic is in use, Hot start lasts for the predefined period of time.
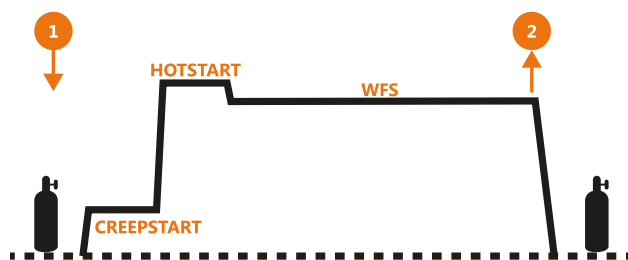
Figure 44: 2T Hot Start

1. Trigger is pressed.
2. Trigger is released.

When the 4T or WP Switch trigger logic is in use, the Hot start starts when the trigger is pressed, and lasts until the trigger is released.
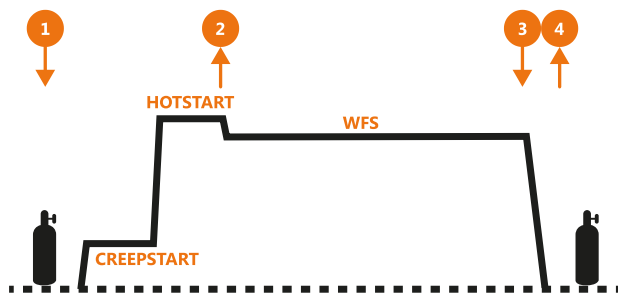
Figure 45: 4T/WP Switch Hot start

1. Trigger is pressed.
2. Trigger is released.
3. Trigger is pressed.
4. Trigger is released.

To adjust Hot start, with Control Pad, go to **Settings** > **Start and stop logic** > **Hot start**. When you select **ON**, the options for adjusting **Time** and **Level** appear on the screen. The default setting for Hot start is OFF.

Crater fill

When welding with high power, a crater is usually formed at the end of the weld. The Crater fill function gradually decreases the welding power/ wire feed speed at the end of the welding job so that the crater can be filled using a lower power level.

When the 2T trigger logic is in use, releasing the trigger launches the Crater fill sequence.
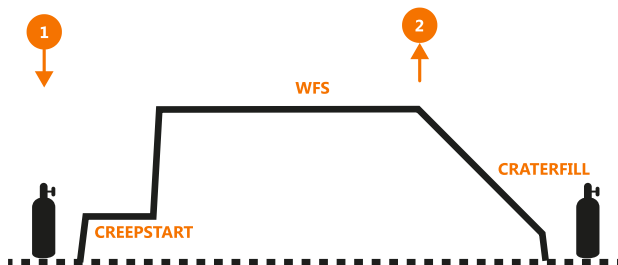
Figure 46: 2T Crater fill

1. Trigger is pressed.
2. Trigger is released.

When the 4T or WP Switch is in use, pressing the trigger during the welding (in the case of WP Switch, pressing > 0.5 s) launches the Crater fill sequence. The system stays on the Crater fill finishing level until the trigger is released. Releasing the trigger immediately finishes the Crater fill sequence.
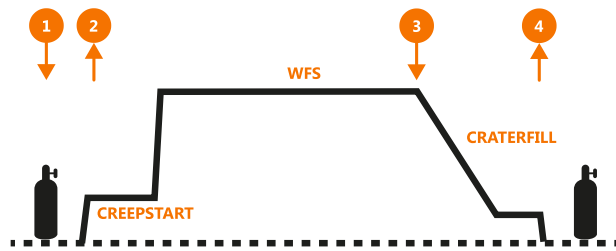
Figure 47: 4T/WP Switch Crater Fill

1. Trigger is pressed.
2. Trigger is released.
3. Trigger is pressed.
4. Trigger is released.

To adjust the Creater Fill parameters, with Control Pad, go to **Settings** > **Start and stop logic** > **Crater fill**. When you select **ON**, the options for adjusting **Time**, **Start Level** and **End level** appear on the screen.

- Time: For 2T, this defines the period of time that the Crater Fill sequence takes. For 4T/WP Switch, this defines the period of time it takes to move from the start level to the finishing level.
- Start level: the level where the Crater Fill is launched.
- Stop level: the level on which the Crater Fill is finished.

When the **4T Timer** is in use, pressing the trigger (in the case of WP Switch, > 0.5 s) launches the Crater Fill sequence, and the sequence lasts at least for the period of time defined for the 4T Timer, even if the trigger is released before that time has passed.

Pregas

The Pregas function ensures that the work piece is protected by shielding gas at the moment of the arc ignition so that the molten metal does not come into contact with air. This is essential with materials that require a good gas shield, like stainless steels, aluminium and titanium.

When the 2T trigger logic is in use, the Pregas lasts for the defined period of time. When the 4T or WP Switch trigger logic is in use, the Pregas lasts until the trigger is released.

To adjust the pregas time, in Control Pad, go to **Settings** > **Start and stop logic** > **Pregas time**.

Postgas

The Postgas functions ensures that the work piece is protected by gas after the arc is switched off so that the molten metal does not come into contact with air. The workpiece is protected by shielding gas until it has sufficiently cooled down. This is especially useful with materials that require excellent gas shield, like stainless steels and titanium.

When the 2T trigger logic is in use, the Postgas lasts for the predefined period of time. When the 4T or WP Switch trigger logic is in use, the Postgas lasts until the trigger is released; however, at least for the predefined period of time.

To adjust the Postgas function, go to **Settings** > **Start and stop** > **Postgas**. Select **Set time** > **Postgas time** to define the period of time that the Postgas lasts, or **Set to default** to select the pre-set time.

Creep start

The Creep start function defines the wire feed speed before the welding arc ignites, that is, before the filler wire comes in contact with the workpiece. When the arc ignites, the wire feed speed is automatically switched to the normal user-set speed. The Creep start function is always on.

To adjust the Creep start level, in Control Pad, go to **Settings** > **Start and stop logic** > **Creep start level**. The adjustment range is 10%...90%.

Figure 48: Creep start

WF end step

Immediately after the arc is switched off, the wire feeder feeds a few extra millimeters of filler wire, so that the wire does not stick into the contact tip.

To set the WF end step ON or OFF, in Control Pad, go to **Settings** > **Start and stop logic** > **WF end step**.

2.4.3.3 Using WeldEye services

The WeldEye cloud service consists of several independent modules. When Quality Control or Welding Production Analysis has been activated, you can use Control Pad and X8 MIG Welder to collect the welding data for the WeldEye service. For more information on Weldeye, see www.weldeye.com.

ⓘ   **Note:** To use the WeldEye services, connect the welding machine to the Internet through a WLAN or a wired connection. For more information, see Connecting to Kemppi cloud services on page 106.

 Using digital WPSs

When you select a digital WPS, the welding machine settings are automatically adjusted accordingly.

ⓘ   **Note:**

       This feature is only available if the welding machine is registered in Kemppi's WeldEye cloud service. For more information, see Introduction to WeldEye for welding procedure and qualification management on page 9.

 Introduction to digital WPS (dWPS)

A Digital Welding Procedure Specification (dWPS) is a WPS in digital format that automatically adjusts the settings of X8 MIG Welder when selected.

A WPS is a document that describes how a particular type of weld is to be carried out. It defines the welding parameters, and provides direction to the welder or welding operator. The goal is to achieve quality welds and repeatability in production. A separate WPS is developed for each material alloy and each welding type.

Kemppi's WeldEye cloud service provides tools for creating and editing WPSs. When the welding system is connected to WeldEye, dWPSs are automatically transferred to the power source memory of all welding

machines connected to WeldEye. If no Internet connection is available, it is possible transfer the dWPSs on a USB stick. The user can then view, activate and select the dWPSs with Control Pad. It is also possible to select dWPSs through the wire feeder display or the welding gun remote control.

When a dWPS is selected, the welding system settings are automatically adjusted accordingly. This decreases the possibility of errors and makes the work faster and easier as manual adjustments are not necessary. However, fine tuning of the parameters is still possible. The user can see the detailed information about the dWPS as well as the related joint design and welding sequence drawings on the Control Pad. No paper copy of the WPS is needed. As the same dWPSs can be automatically transferred to several welding machines, it is easy to have the same settings in all the machines.
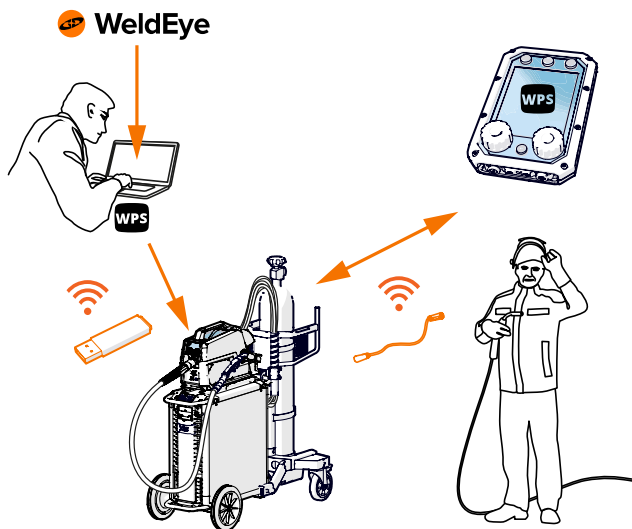
Figure 49: dWPS process

For more information on WeldEye, see Introduction to WeldEye.

 Activating WPS

Proceed as follows:

1. Go to the **View** menu (in the **Welding** view, press the **Menu** button) and select **WPS**.

    If no WPS is currently active, the following view opens:
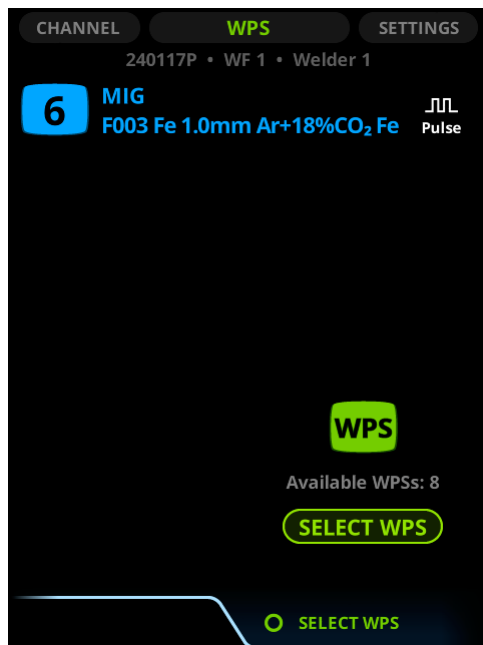
2. To see the list of available WPSs, press the green button. The WPS list opens.
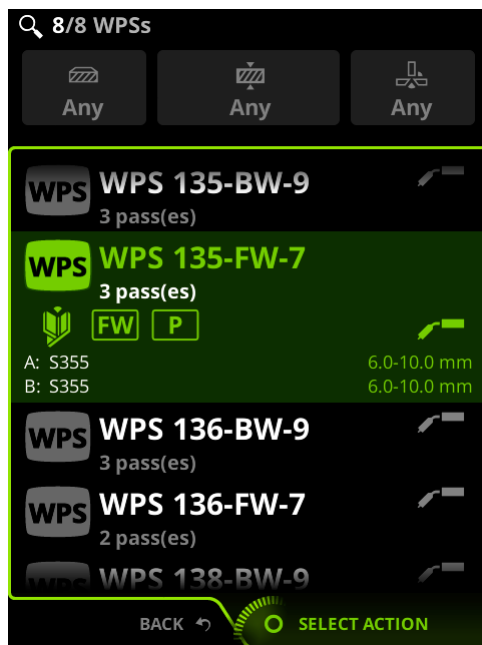
Figure 50: Advanced mode
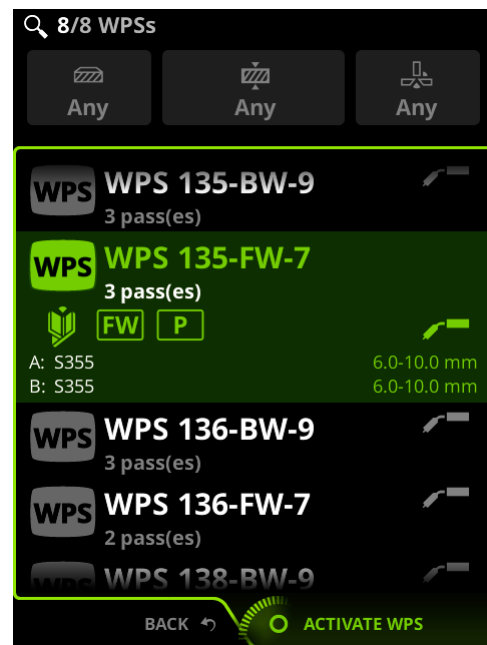
Figure 51: Basic mode

3. Move the focus to the WPS that you want to activate.

4. Depending on the mode of Control Pad, select one of the following options:

   a) If the Control Pad is in the Advanced mode, press the green button to open the **Actions** menu. Select **Activate WPS**.
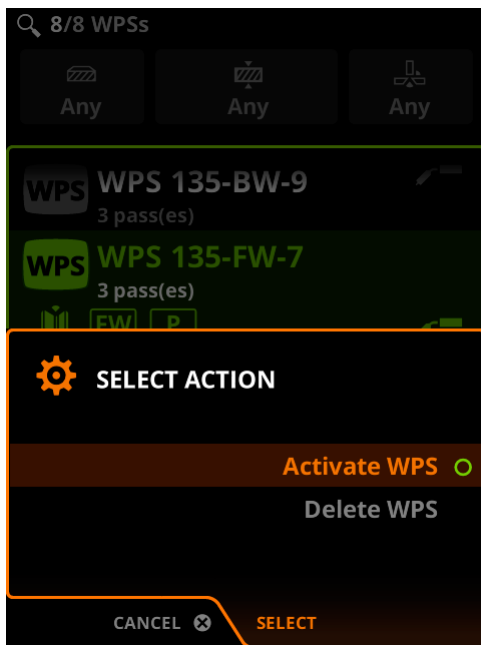
b) If the Control Pad is in the Basic mode, press the green button to activate the WPS.
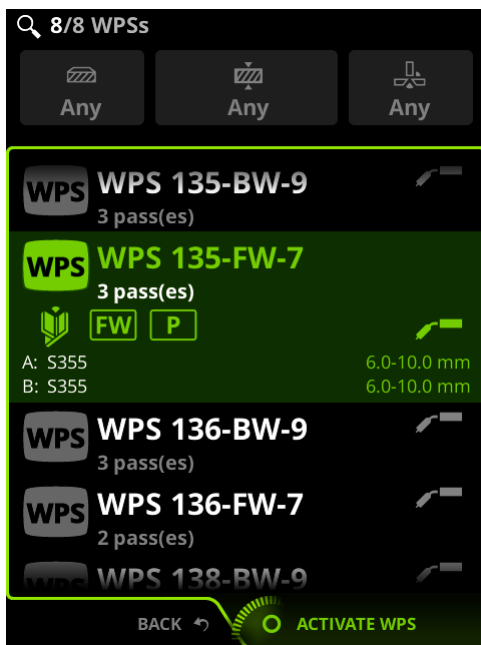
Control Pad opens the WPS view. Here you can see all the WPS details that the welder needs to know for the job, including the pictures and details of the filler and the gas.

If the WPS includes several passes, select the pass in **Active pass**. See Selecting WPS pass in WPS view on page 141.

5. Press a view button to leave the WPS view.

ⓘ **Note:**

You can also change WPS or the pass in **Channel** view. See Selecting WPS or pass in Channel view on page 143.

Selecting WPS pass in WPS view

Proceed as follows:

1. Go to the **View** menu > **WPS**.

Control Pad shows the active WPS in the WPS view.

If there is no active WPS, Control Pad shows the WPS list. Select the WPS.

2. Move focus to **Active pass**.

The information under **Active pass** is pass-specific and varies according to the pass.
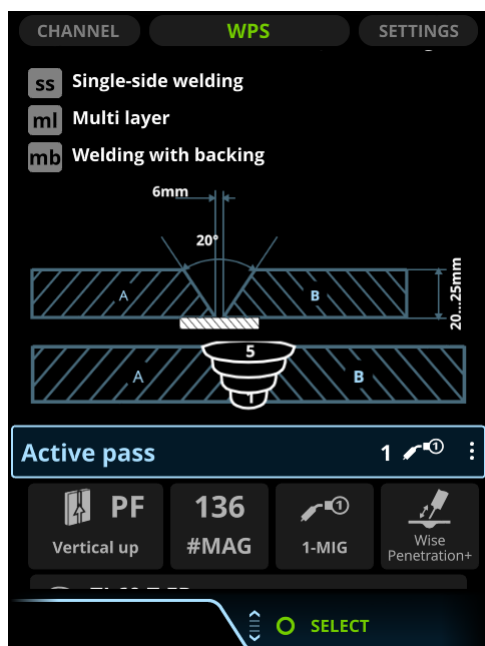
3. Press the green button to open the menu.
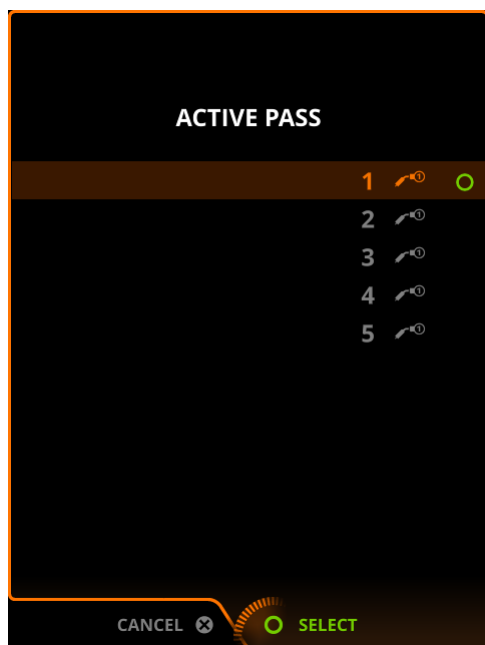
4. To change the pass selection, scroll to a pass in a list.

5. Press the green button to select the pass and to return to the WPS View.

> ⓘ **Note:**
>
> You can also select the WPS or pass in the **Channel** view. See Selecting WPS or pass in Channel view on page 143.

Selecting WPS or pass in Channel view

Proceed as follows:

1. Go to **Channel** view.

   Channel displays the memory channel or WPS and the pass you are currently using.

2. Scroll through the list of WPSs and passes to move the focus to the pass you want to take into use.

    The pass immediately activates.

    ⚠️ **Caution:**

    After changing WPS or pass, check the pass details to make sure you are using the correct filler wire and gas.

3. To see all the details of the selected WPS, press the **Menu** button twice and select **WPS**. To fine tune WPS parameters in the **Welding** view, press the **Menu** button once.

Selecting WPS or WPS pass through wire feeder display
You can select a WPS or change the WPS pass through the wire feeder display.

ⓘ **Note:**

The first time you use a WPS, you must activate it with Control Pad. After the activation, you can also use the wire feeder display or the gun remote control to select the WPS.

Selecting WPS through gun remote control
You can select a WPS using the welding gun remote control.

ⓘ **Note:**

The first time you use a WPS, you must activate it with Control Pad. After the activation, you can also use the wire feeder display or the gun remote control to select the WPS.

1. Press the **Channel** button to go to the **Channel** view.

2. Use the arrow buttons to go to the desired WPS channel.

The view shows the WPS name and the pass name. If the WPS covers several passes, use the arrow buttons to move between the passes.

For a description of the remote control buttons, and information on adjusting the WPS parameters with the remote control, see Gun remote control on page 99.
Adjusting WPS parameters

You can adjust all parameters through Control Pad or the wire feeder display. Through the gun remote control, you can adjust wire feed speed, fine tuning and dynamics.

If you adjust a parameter whose correct value is essential for the process (the current, voltage or wire feed speed) beyond the range defined in the WPS, the system displays a warning on Control Pad and on the wire feeder display. The parameter for which the warning is shown depends on the process in use. For more information on the parameters related to various processes, see Standard MIG welding processes in X8 MIG Welder on page 119 and Wise processes on page 124.

ⓘ **Note:**

Depending on the welding program and process in use, it is possible that the welding machine cannot adjust all the settings according to the WPS. Current, voltage and wire feed speed depend on each other, so a controversy between WPS and welding program or process may arise, in which case the parameters are not adjusted according to the WPS.

For information on adjusting the parameters with Control Pad, see Welding view on page 87.

For information on adjusting the parameters through the wire feeder display, see Wire feeder views on page 96.

Transferring dWPSs to the welding machine

Digital WPSs are created with the WeldEye tool and transferred to the welding machine via Internet or on a USB stick. For more information on WeldEye, see Introduction to WeldEye for welding procedure and qualification management on page 9 and www.weldeye.com.

ⓘ   **Note:**

> The WPSs must be approved in WeldEye before they can be transferred to the welding machine.

Welding machines are connected to WeldEye in the WeldEye settings. You will need the serial number and security code on the X8 Power Source rating plate. You can find more detailed instructions in the WeldEye Help. Once the welding machine has been connected to WeldEye, within an hour, WPSs are automatically transferred to the welding machine. When new WPSs are created, if the welding machine is online, the WPSs are automatically transferred to the welding machine within 15 minutes after the WPS has been approved.

For information on connecting the welding machine to the Internet, see Connecting to Kemppi cloud services on page 106.

All the welding machines of the company can be connected to WeldEye. You can see a list of all the connected machines. If My Fleet is also in use, the services share the same list of machines. For more information on My Fleet, see About My Fleet.

Transferring dWPSs without a connection to Kemppi Cloud Services

1. In WeldEye, open a WPS.

2. Click the welding machine icon on the toolbar.

3. A dialog opens. Click **Download dWPS**. You get the WPS in a file format.

4. Save the WPS on a USB stick.

5. Insert the USB stick in the USB port of the X8 Power Source. All the WPSs on the USB stick are saved in the welding machine and are available in the WPS lists, after you have confirmed the copying through Control Pad.

Deleting WPS

You can only delete WPSs in the Advanced mode of Control Pad. To set the Control Pad to Advanced mode, go to **Settings view** > **Panel settings** > **Basic/Advanced mode**.

Proceed as follows:

1. Go to the **View** menu > **WPS**.

2. Press the green button.

3. Select a WPS from the list.
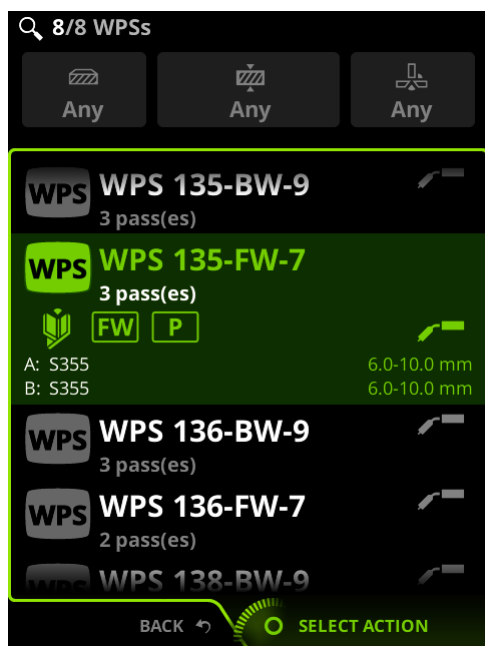
4. Press the green button to open the command menu.

5. Select **Delete WPS** and press the green button.
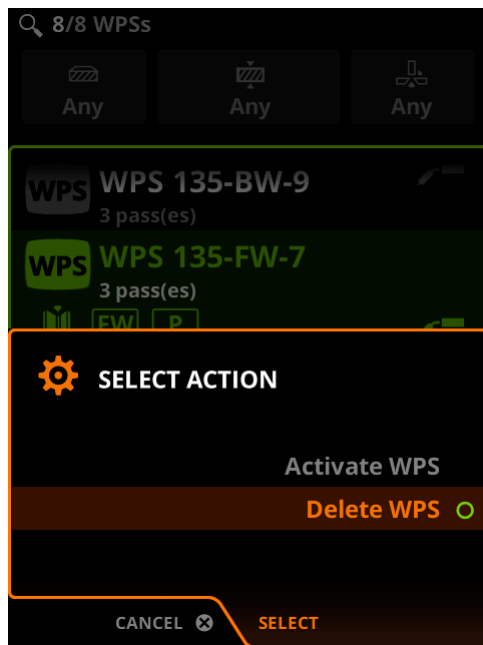
Filtering WPSs
If more than 5 WPSs are available, you can filter the WPSs to narrow down the list. You can filter by material, thickness and joint type.

Proceed as follows:

1.   Go to the **View** menu > **WPS**.

2.   Scroll up to move the focus to the filter header.
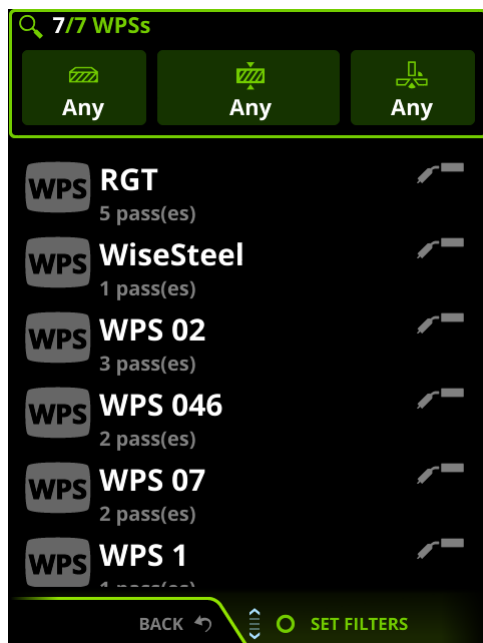
3.   Press the green button to open the filter wizard.

4.   Turn the knob to move focus. Press the green button to select the material of the welding piece.

FILTER WPS LIST

7/7 WPSs meet the criteria

MATERIAL

Any ○

Fe

Ss

BACK   NEXT
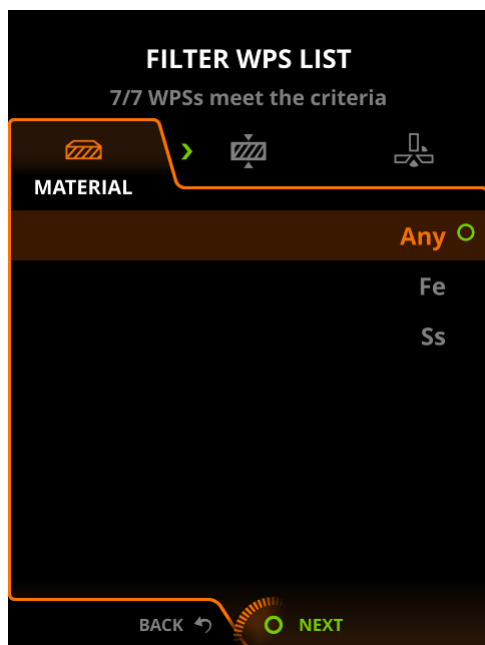
5. Turn the knob to move focus and press the green button to select the thickness of the wire.

FILTER WPS LIST

4/7 WPSs meet the criteria

THICKNESS

Any

≤3 mm

3-6 mm ○

6-10 mm

10-20 mm

≥20 mm

BACK   NEXT

6. Turn the knob to move focus and press the green button to select the weld type.
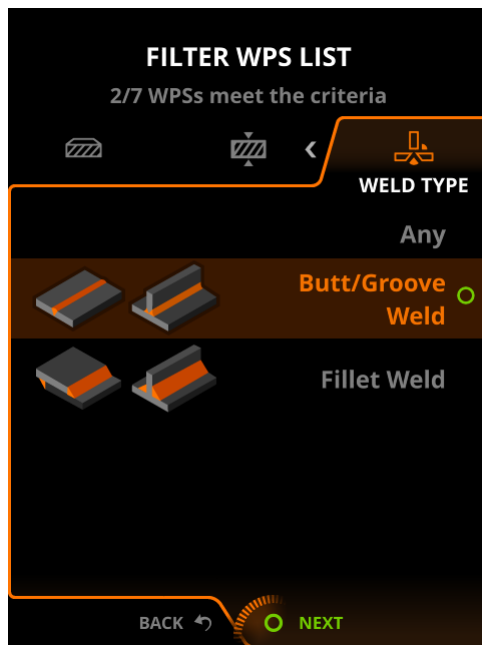
7. When you have selected all values, the wizard returns you to the WPS list and displays the WPSs available with the filters you have selected.
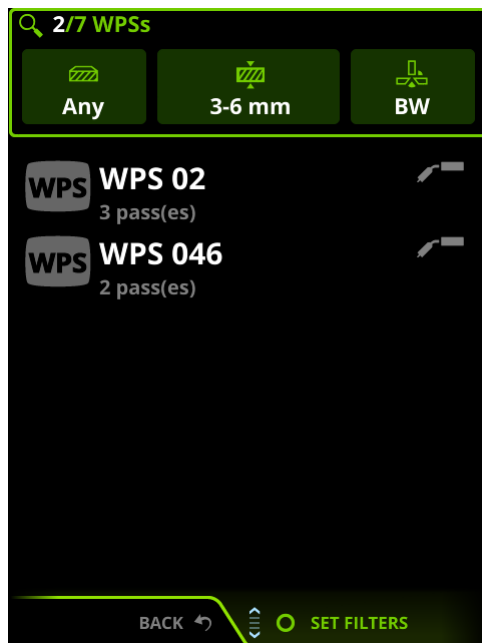
The settings show ISO/ANSI and metric/imperial terms concurrently.

Using welding data collection

X8 MIG Welder can be used for automated monitoring of quality and productivity of arc welding. The device records welding parameter data and transmits it to the WeldEye cloud service through a wired or wireless network.

Control Pad is the welder's user interface for connecting to WeldEye and entering identifying information, such as the welder's ID, the WPS in use, the weld or welding piece and the filler material batch number.

Enabling welding data collection

This functionality is available only if your company has acquired WeldEye for Welding Quality Management or WeldEye for Welding Production Analysis. You must connect X8 MIG Welder to Internet and to the WeldEye cloud service to use the functionality on this device. For more information, see WeldEye operating manual.

When welding data collection is enabled, press the green button on Control Pad's right control knob to access the **Task** view.
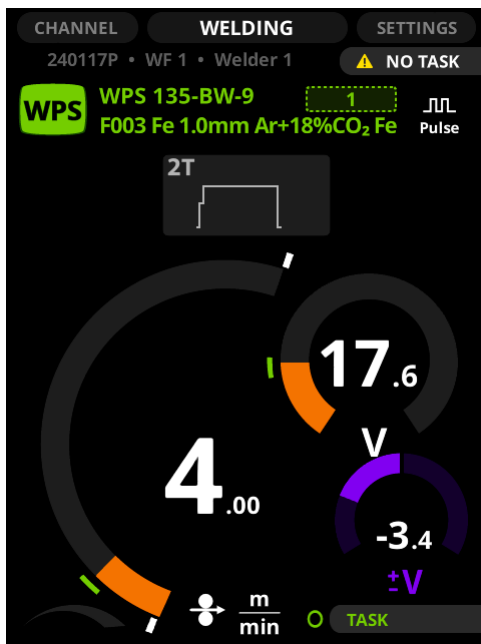
Recording data

X8 MIG Welder collects welding parameter data automatically. It records every weld and stores the data. It collects the values for parameters such as current, voltage, and wire feed speed for each individual welding run.

The device stores the welding parameter values in the power source memory. At the end of each welding run, it sends the data to the WeldEye cloud service for analysis and reporting. It usually takes a few seconds until the welding data shows up in WeldEye after the welding run ends. WeldEye never shows values for ongoing welding, because the data is transmitted only after the welding ends.

If the device is not connected to Internet, the data is buffered until the connection is available again. The power source has enough storage space for storing welding data for several months for three-shift welding 24/7. When the Internet connection opens again, the device immediately sends the data to WeldEye.

The device collects the welding parameter values with the rate of 10 samples per second. The WeldEye service averages the data to reduce the natural jitter in welding data.

Fluctuation and averaging

Welding parameters always fluctuate during welding. To show parameter data in a useful format, WeldEye uses averaging to filter out extremes and to show the average graph of the welding performance. You can modify the averaging operation in the **Settings** view of the WeldEye cloud service.

Identifier database

X8 MIG Welder can provide 100 % traceability for every weld. For this, enter various identifiers in the system before welding, for example, the welder's identity, WPS, and the number of the weld.

This identification data resides in the WeldEye cloud service, from where the device takes the data and matches it with the identifiers that the welder has entered either manually or using barcodes.

The identification database is synchronized from WeldEye to the device every 15 minutes when the welding system is online. A local database is stored in the power source's internal memory to ensure reliable WeldEye functionality also in poor connectivity situations.

If you enter a new barcode in Control Pad, for example, a new filler batch number, it appears also in the WeldEye cloud service, and is available for use by all welding systems connected to the service.

The 15-minute delay in updating the identifier database means that it takes up to 15 minutes for the device to recognize any new identifiers added to the WeldEye database.

 Time-keeping

To provide accurate information about the welding activities, the device uses an internal real-time clock. It records the exact time when welding starts and stops, when parameter samples are taken, and other functions. It is automatically synchronized with the WeldEye cloud service.

Internally, the device uses global UTC time (Coordinated Universal Time) adjusted to the time zone of the welder. The time zone is managed site-wide in the WeldEye cloud service.

The time is displayed as the welder's local time on Control Pad's display and in the WeldEye cloud service, where you can search welding runs based on the time when the welding took place.

 Welder's workflow

Proceed as follows:

Before welding

1. Press the green button to select **Task**.
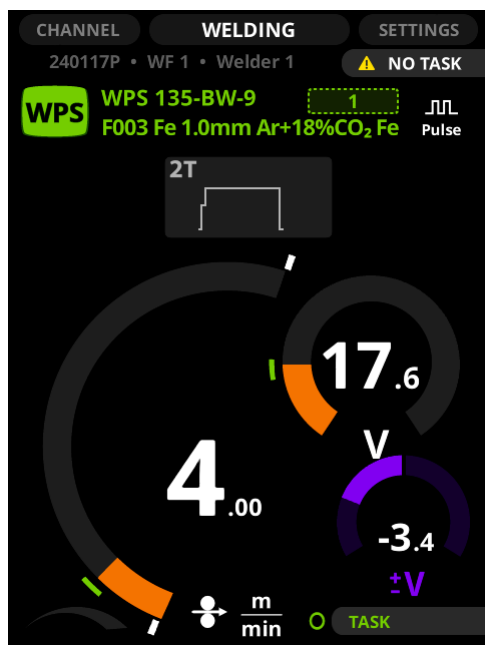
2. Switch the barcode reader ON at the front of Control Pad, if you want to use it to read a barcode. You can also enter the barcode manually.

3. To enter your personal ID to the system, select:

- **Activate code reader** to read the barcode or QR code on your ID card

  OR
- **Enter barcode** to enter the barcode manually
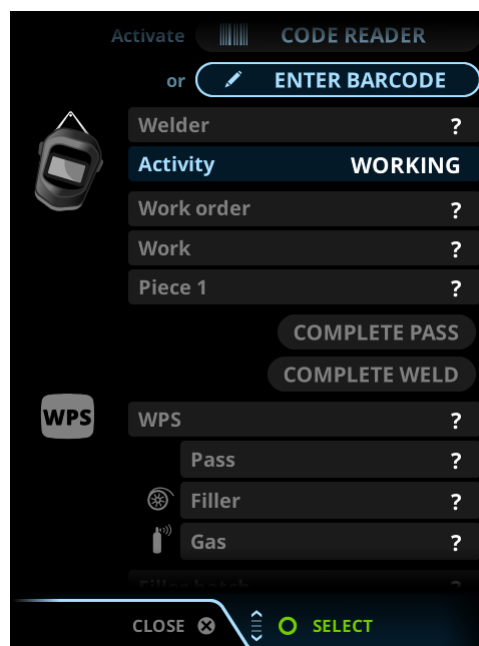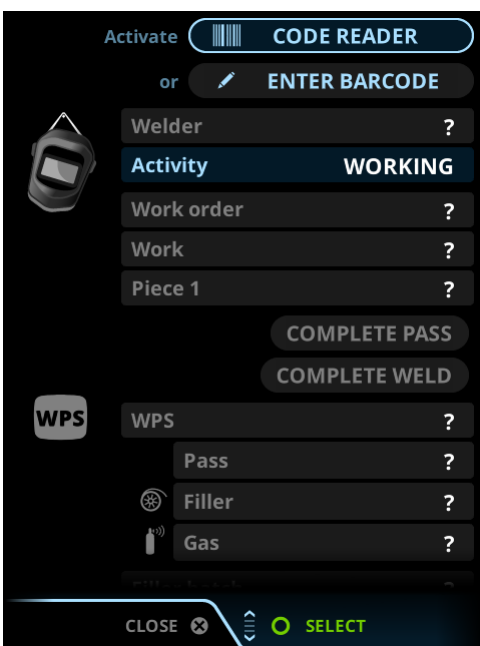
4. Read the barcode or QR code on your ID card or enter the barcode manually.
   For more information, see Control Pad.

Enter barcode

0/31 A

ABC   abc   123

A B C D E F G
H I J K L M N
O P Q R S T U
V W X Y Z ⌫

CANCEL ⊗   ○ ADD CHARACTER
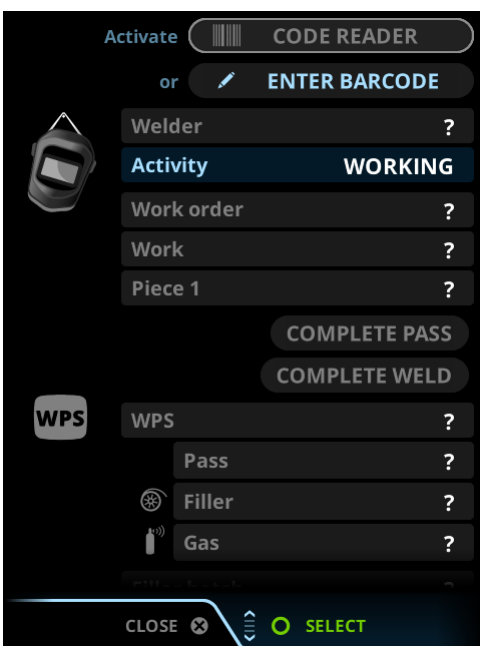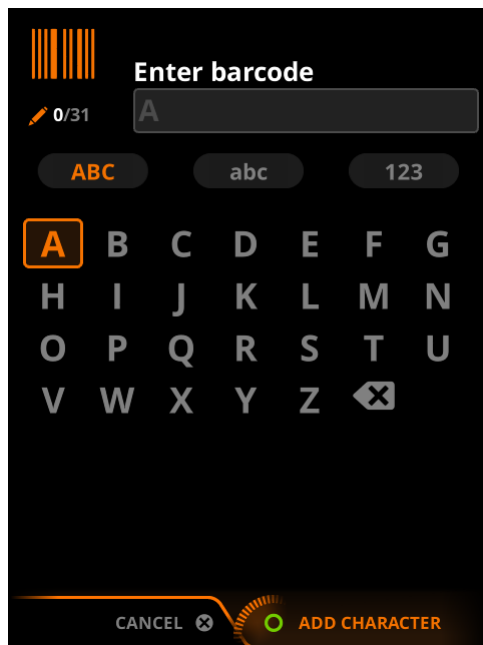
5. Identify the WPS to be used.

Select the WPS in the **Task** view or read the barcode on the printed document. The first pass of the WPS is selected automatically. For more information, see Selecting WPS pass in WPS view.

Read code or   **ENTER BARCODE**

Welder   Tammy Arnold
Activity   WORKING
Weld   ?

COMPLETE PASS
COMPLETE WELD

WPS   **WPS 135-BW-9** ⋮
Pass   1
Filler   ?
Gas   ?
Filler batch   ?

CLOSE ⊗   ○ SELECT
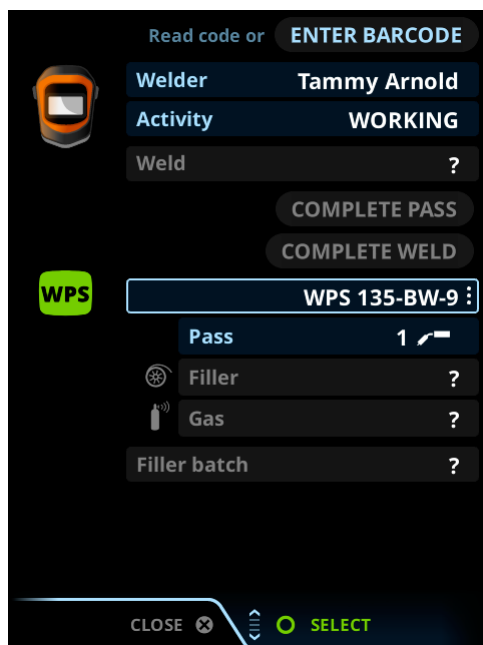
6. Identify the weld.

Read the weld's barcode from a printed work order or select the information on the display. Information about the weld appears on Control Pad's display. During welding, the recorded welding data is linked to the weld in WeldEye.
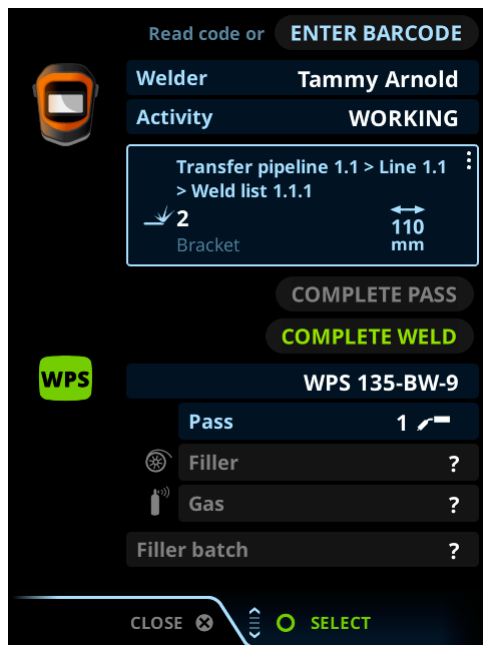
7.   Record the filler material batch number to provide traceability.

Read the barcode from the filler wire package. If there is no barcode available, select **Enter barcode** in the **Task** view. Use the virtual keyboard to enter the barcode number by hand.

When you read or enter the barcode for the first time, Control Pad does not recognize it. Select **Filler batch** to indicate that the barcode refers to the filler batch number.
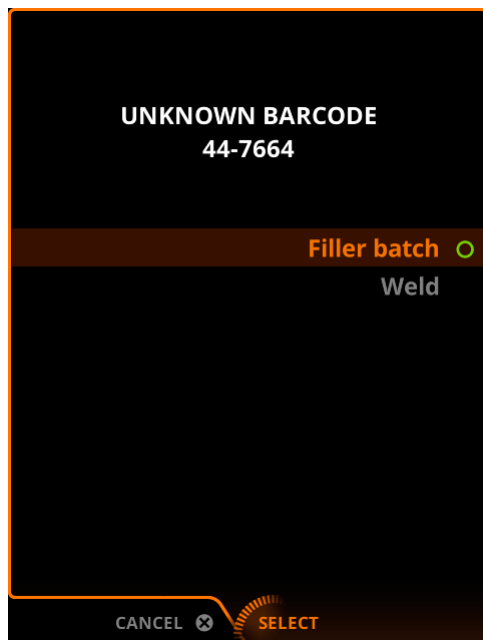
8.   To select a different weld pass from the WPS, use pass selection in the **Task** view.

After welding

9.   When the weld is complete, select **Complete weld**.

ⓘ　　**Note:**　This function is available only if the weld has been identified. The availability is controlled in the WeldEye cloud service settings.

If heat input tracking is enabled, enter the length of the weld, which is used for heat input calculation. For more information, see Tracking heat input.

Read code or **ENTER BARCODE**

Welder	**Tammy Arnold**
Activity	**WORKING**

Transfer pipeline 1.1 > Line 1.1 > Weld list 1.1.1

⤵ **2**　　　　↔
Bracket　　　**110 mm**

COMPLETE PASS

COMPLETE WELD

WPS　　**WPS 135-BW-9**

Pass	**1** ⤏
⊛ Filler	**?**
🔥 Gas	**?**
Filler batch	**?**

CLOSE ⊗　　◯ **SELECT**
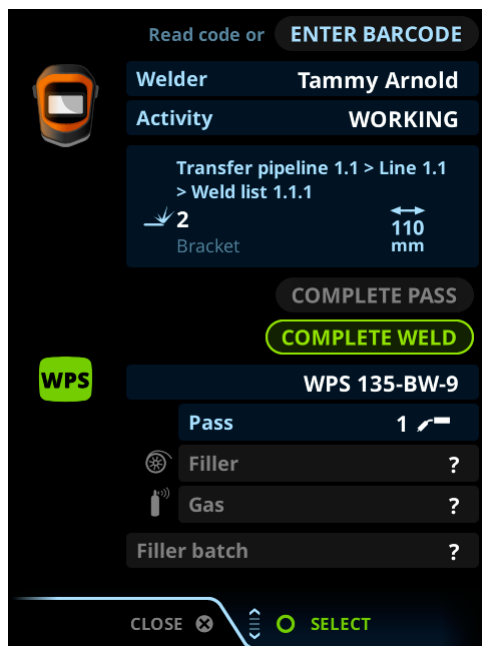
⑩　When you finish using the welding machine, log out of the system.
Power off the machine or scroll to **Welder**, press the green button, and select **Log out**.

ⓘ　　**Note:**　Log out of the system to avoid the next welding data getting registered under your name.

Activate ▥ **CODE READER**

or ✎ **ENTER BARCODE**

Welder	**Harry Welder** ⋮
Activity	**WORKING**
Work order	**?**
Work	**?**
Piece 1	**?**

COMPLETE PASS

COMPLETE WELD

WPS	**?**
Pass	**?**
⊛ Filler	**?**
🔥 Gas	**?**

CLOSE ⊗　　◯ **LOG OUT**
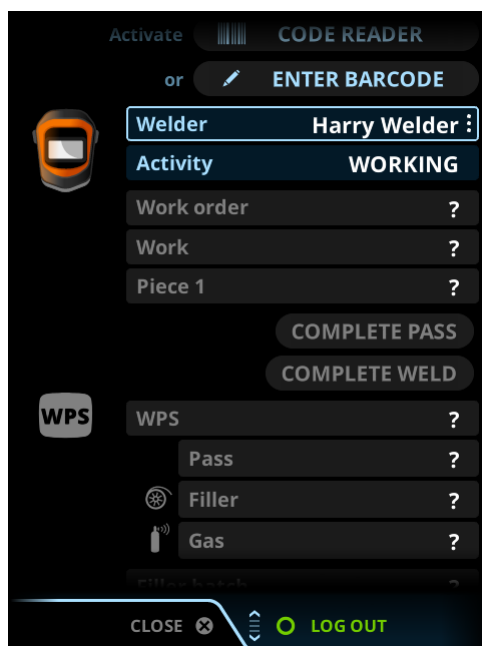
In the WeldEye cloud service settings, you can filter the items that Control Pad shows to be identified. For example, you can have the WPS and the filler batch number shown, but not the filler material or shielding gas. This does not prevent you from scanning also other identifiers with the barcode reader.

Alarms in WeldEye services

Before welding, Control Pad shows alarms for insufficient welder qualifications, wrong filler material, and wrong shielding gas. After welding, it shows an alarm if there are nonconforming welding parameters or heat input values.

Each welder's qualifications are stored in their personal qualification certificates in WeldEye. If a welder's certificate lacks the necessary qualifications required by the WPS, the system raises an alert. If the welder restrains from welding, the system drops the alert. However, if the welder starts to weld despite the alert, the system records the alert in the WeldEye cloud service.

WeldEye also compares the filler material information and shielding gas information that the welder enters with Control Pad to the filler and shielding gas defined in the WPS. If these do not match, the system raises an alert.
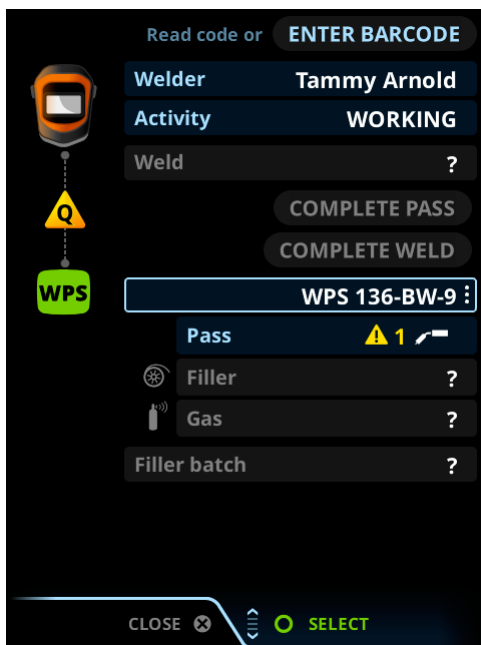
Figure 52: The welder is not qualified for welding with the selected WPS

Control Pad shows the welding current and voltage during welding and indicates whether the values are within the limits of the WPS. This information may be useful for the bystanders observing the welding. The values are shown in white, yellow or red.
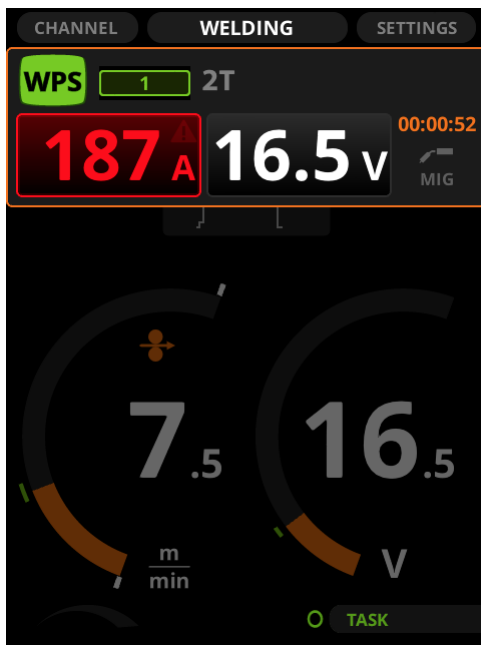
White: The measured value is within the WPS limits or the WPS is not identified.

Yellow: The measured value is near the WPS limits. (Warning)

Red: The measured value is outside the WPS limits. (Alert)

There is a short reaction time, usually a few seconds, before the color changes. This makes the display easier to read and enables monitoring of the overall welding quality.

For more information, see WeldEye help on Real-time WPS monitoring.

 Entering information about non-welding activity

The device uses activities to track non-welding time or events causing pauses in the production. Activities are divided into expected pauses (for example, lunch breaks) and unexpected pauses (for example, waiting for a material delivery). Activities are defined in the WeldEye cloud service, and you can identify bottlenecks in your production with them.

Select an activity with Control Pad. WeldEye registers and stores the code.

Proceed as follows:

1. In the **Task** view, scroll to **Activity** and press the green button.

2. Select the activity from the menu.
   The activity becomes visible in Control Pad's **Task** view. The selected activity remains active until the device detects welding or you select another activity.
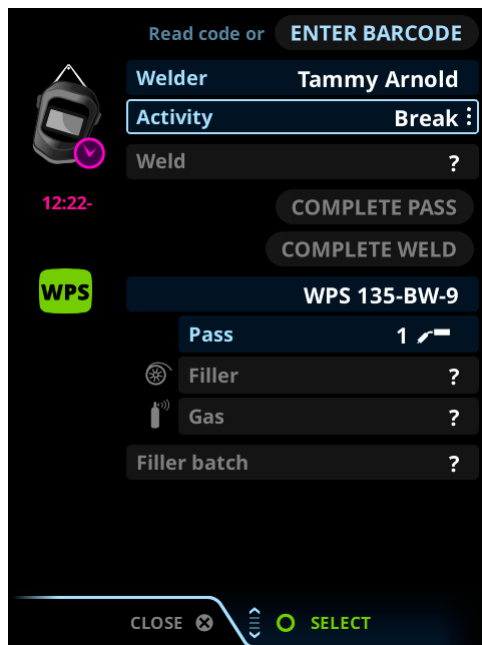
Tracking heat input

You can set the device to track the heat input of each weld and provide the welder with heat input values.

To get the heat input value, select **Complete Pass**. Identify the weld and perform at least one welding run. After this, the **Complete Pass** selection appears in Control Pad's **Task** view.

In heat input calculation the system uses travel speed, welding current, voltage, and welding process information. To calculate the right value for travel speed, enter the length of the weld.

Proceed as follows:

1. Log in to Control Pad. Identify the WPS and the weld.

   The device considers all subsequent welding to be part of a pass and takes it into account in heat input calculation.

2. When you have finished welding, select **Complete Pass**.

   ⓘ   **Note:** You can also weld several runs, select **Complete pass** after the last run, and enter the total length of the runs.

   ⓘ   **Note:** Before you can change to another weld or WPS, Control Pad prompts you to complete the pass to ensure that all data is recorded and documented. This may also happen if you try to select **Weld complete**, but the pass is not yet completed.

3. Enter the welded length (mm). Use the right control knob to change the pass length.

   ⓘ   **Note:** The length may be preset in WeldEye, but you can change it if needed.
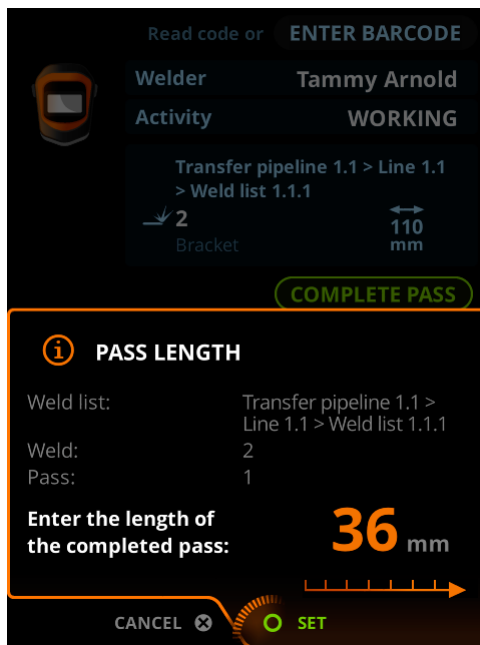
After you mark the pass complete, Control Pad shows the average heat input and travel speed values and indicates whether they are within the WPS limits. You can use this feedback to adjust the parameters or welding technique. The device also sends the data to the WeldEye cloud service for documentation.
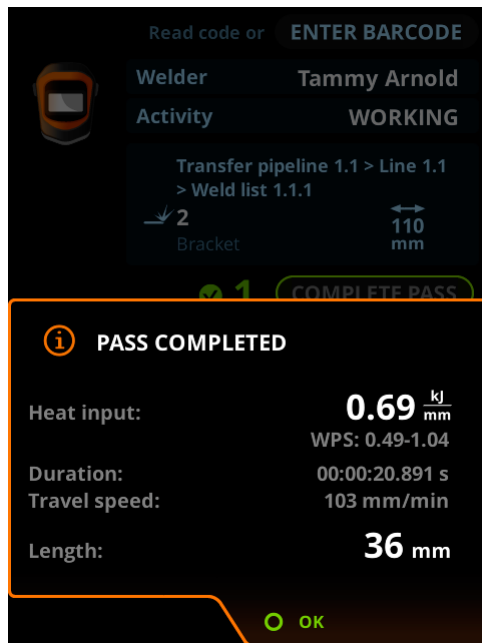
Control Pad displays the number of completed passes with a round green checkmark next to it.

Enable heat input tracking in the WeldEye cloud service.

Digital work order

ⓘ   **Note:** This function is available only if the device includes WeldEye for Welding Quality Management and the function is enabled in WeldEye settings.

Select digital work orders with Control Pad before welding. After this, all welding data is associated with the particular work order, and it is also visible in WeldEye.

Create work orders in the WeldEye cloud service, and once released, they become automatically available to welding machines within 15 minutes. You can restrict the visibility of the work orders to individual persons or welding machines.

For more information about the automated collection of welding data, see Using welding data collection.

Using work orders

Digital work orders provide a simple way to achieve traceability in WeldEye and to reduce the amount of printed paper. Normally you would have to use printed weld lists with barcodes and deliver them to each welding station.

With digital work orders, you no longer need to print weld lists on paper, as they are delivered digitally to each welding station, where each welder can see the necessary information. Rather than reading barcodes, the welders select the weld they are about to perform.

Selecting work order and weld

Select the work order before welding to indicate that it is being worked on and to associate welding data with it. When selected, the work order is marked as started in the WeldEye cloud service. The start time and the logged in welder is recorded.

Proceed as follows:

1. Before welding, open the **Task** view in Control Pad and select **Work order**.
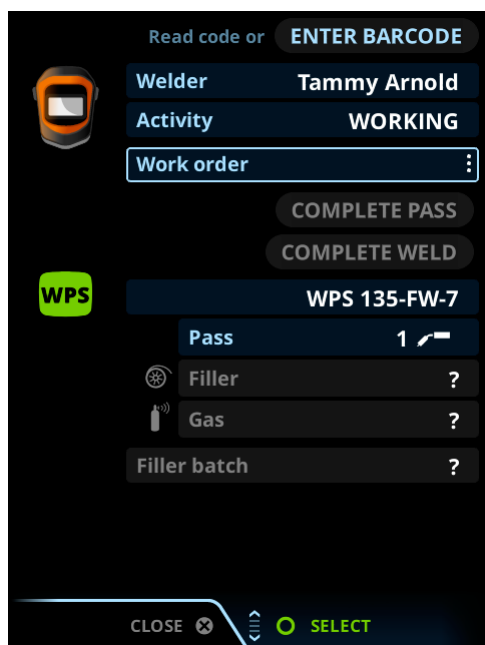
2. Select the work order from the list.

ⓘ **Note:** If the work order does not open, check that:
- The work order is released in WeldEye
- There are no welder or welding machine restrictions in the work order
- The device has been online for at least 15 minutes
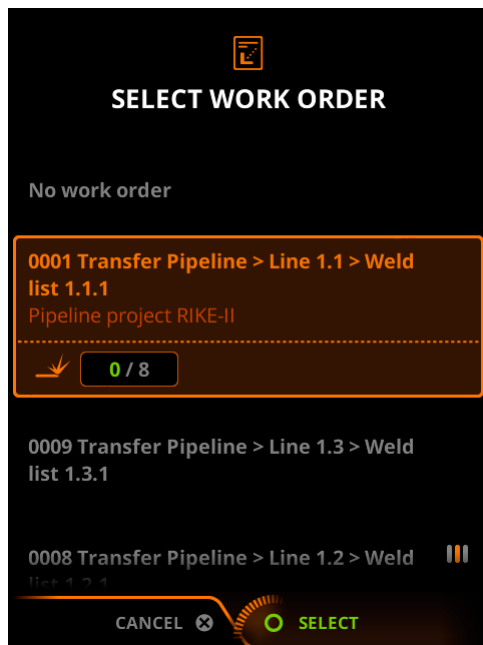
3. Activate the work order or a weld.

   If the work order contains a list of welds, scroll to the desired weld and press the green button on the right control knob to select it.
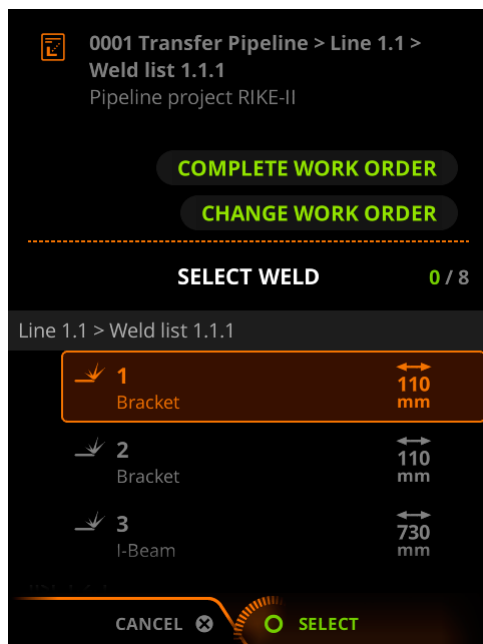
   If the work order does not contain welds, scroll to **Activate work order** and press the green button on the right control knob to select it.
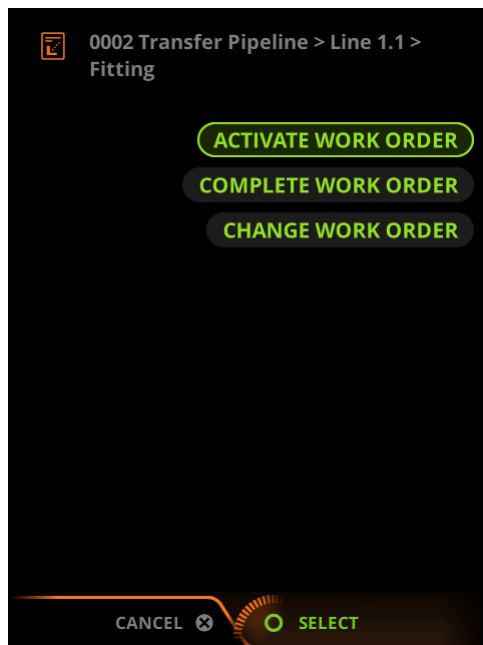
4. If the active work order or weld has predefined WPSs in WeldEye, Control Pad promps you to select one of them.

The work order is now selected and visible in the **Task** view. You can start welding.
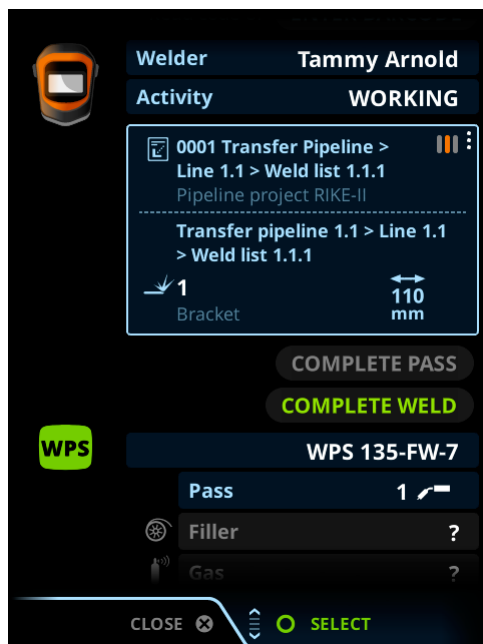
Completing work order

When you have completed the work defined by the work order, mark it as completed. When you do that, Control Pad stores the end time in the WeldEye cloud service and the status of the work order changes to Completed.

If the work order contains several welds, you must mark each weld completed before you can complete the work order.

Proceed as follows:

1. In Control Pad's **Task** view, select the work order and press the green button on the right control knob.

2. Select **Complete work order**.
   Control Pad marks the work order completed with a green checkmark icon.
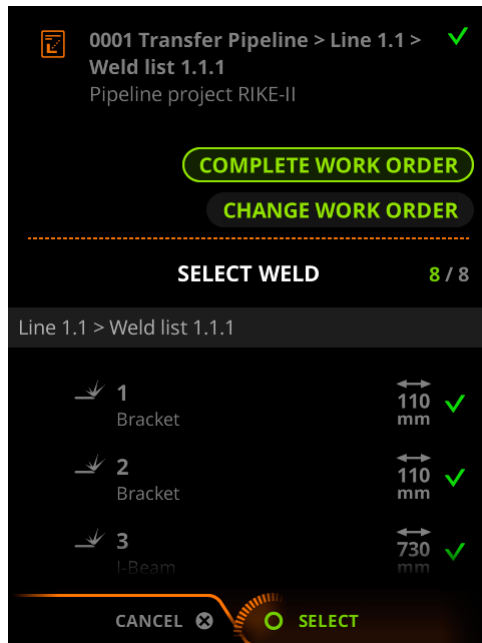
3. You can deselect the work order.
   For more information, see Changing work order.

   Once completed, the work order is automatically removed from the work order list in Control Pad within 15 minutes or as soon as X8 MIG Welder is connected to Internet.

Changing work order

If you deselect the active work order or change it to another work order, the welding data is no longer associated with it and the time tracking stops.

Proceed as follows:

1. In Control Pad's **Task** view, select **Work order** and press the green button on the right control knob.

2. Select **Change work order**.
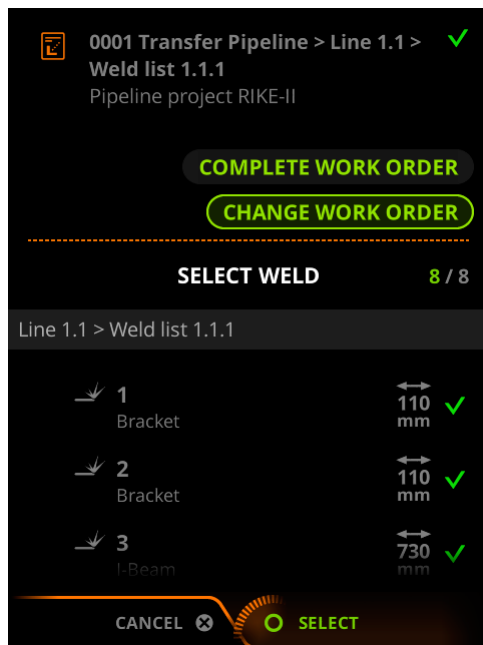
3. A list of work orders appears.

   To select another work order, select it from the list.

   To deselect the current work order, scroll up to the list and select **No work order**.

 Recommended WPSs

Work orders and welds can include recommended Welding Procedure Specifications (WPSs). They help welder to choose the correct WPS for the job, which reduces the risk of errors.

When you use Control Pad to select a work order or a weld that has recommended WPSs, Control Pad shows a list of recommended WPSs and prompts you to select one of them.

The WPS recommendations are managed in WeldEye.
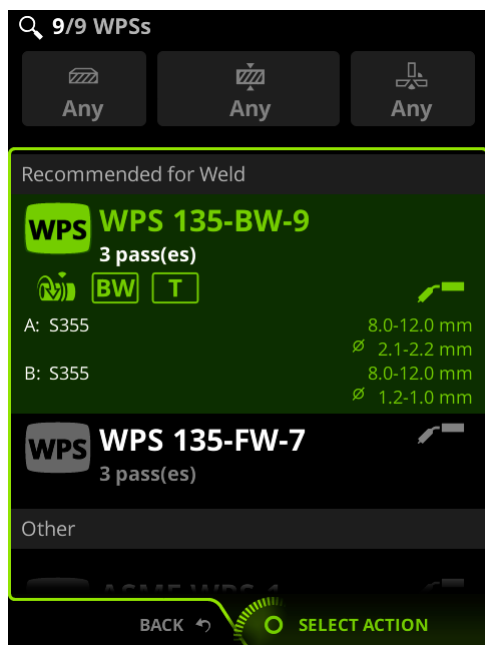
Time tracking

Digital work orders can be used to track lead times at work order level.

X8 MIG Welder automatically records the exact time when the work order is started, stopped, and completed. With this information, WeldEye calculates for each work order the lead time (total time from start to finish) and the active working time (lead time exclusive of pauses and breaks). These times are available for reporting in the WeldEye cloud service.

2.5 Troubleshooting

ⓘ   **Note:**

The problems listed and the possible causes are not definitive, but suggest some typical situations that may turn up during normal use of the welding system.

Table 6: Welding system

Problem	Recommended actions
The welding system does not power up	• Check that the mains cable is plugged in properly. • Check that the mains switch of the power source is at the ON position. • Check that the mains power distribution is on. • Check the mains fuse and/or the circuit breaker. • Check that the interconnection cable between the power source and the wire feeder is intact and properly attached. • Check that the earth return cable is connected.

Problem	Recommended actions
The welding system stops working	• Gas-cooled gun may have overheated. Wait for it to cool down. • Check that none of the cables is loose. • The wire feeder may have overheated. Wait for it to cool down and see that the welding current cable is properly attached. • The power source may have overheated. Wait for it to cool down and see that the cooling fans work properly and the air flow is unobstructed.

Table 7: Wire feeder

Problem	Recommended actions
The filler wire on the spool unravels	• Check that the spool locking cover is closed.
The wire feeder does not feed the filler wire	• Check that the filler wire has not run out. • Check that the filler wire is properly routed through the feed rolls to the wire liner. • Check that the pressure handle is properly closed. • Check that the feed roll pressure is adjusted correctly for the filler wire. • Check that the Kemppi Gun Adapter is properly connected to the wire feeder. • Blow compressed air through the wire liner to check that it is not blocked.

Table 8: Gas-cooled welding guns

Problem	Recommended actions
The wire burns into the contact tip	• Make sure the size and type of the current tip and liner are suitable for the filler wire. • Make sure the wire liner is clean. • Make sure the wire liner does not make any steep loops. • Check the motor current level. If the current is too high, there may be problems in the wire liner. • Check the tightness of the feeding rolls. Too tight feeding rolls may affect soft filler wires, such as aluminium and flux-cored wires.

Problem	Recommended actions
The gun overheats	• Make sure the gun's neck is correctly connected to the handle: push the neck deep enough and check that the neck tightener is properly tightened. • Make sure that the contact tip adapter is properly hand-tightened and the contact tip properly attached to it. • Make sure that the welding parameters are within the range of the welding gun and the neck. The gun and the neck have separate limits for the maximum current; the lower one of these is the maximum current that can be used.
The gun neck overheats	• Make sure you are using original Kemppi consumable and spare parts. Incorrect spare part materials may cause the overheating of the neck.
The welding gun connector overheats	• Make sure the connector is properly connected to the wire feeder. • Make sure the current transfer surface and the connector pins of the gun connector are clean and undamaged.
The gun vibrates too much during welding	• Check the tightness of the contact tip adapter and contact tip. • Check the motor current. • Check the wire liner. • Check the filler wire. It must be straight and start coiling when it comes out from the contact tip. If not, check the tightness of the feeding rolls.
Gun remote control displays a warning/error symbol	Check the Control Pad or Wire feeder control panel to see more information about the error. For more information, see Error codes on page 170.

Table 9: Water-cooled welding guns

Problem	Recommended actions
The wire burns into the contact tip	• Make sure the size and type of the current tip and wire liner are suitable for the filler wire. • Make sure the wire liner is clean. • Make sure the wire liner does not make any steep loops. • Check the motor current level. If the current is too high, there may be problems in the wire liner. • Check the tightness of the feeding rolls. Too tight feeding rolls may affect soft filler wires, such as aluminium and flux-cored wires.

Problem	Recommended actions
The gun overheats	• Make sure the coolant circulation is working normally (see the coolant circulation warning LED in the power source). • Measure the coolant circulation speed: detach the coolant output hose from the wire feeder while the power source is on, and let the coolant run into a measurement cup. The circulation must be at least 0.5 l/min. • Make sure that the welding parameters are within the range of the welding gun and the neck. The gun and the neck have separate limits for the maximum current; the lower one of these is the maximum current that can be used.
The welding gun connector overheats	• Make sure the connector is properly connected to the wire feeder. • Make sure the current transfer surface and the connector pins of the gun connector are clean and undamaged.
The gun vibrates too much during welding	• Check the tightness of the contact tip adapter and contact tip. • Check the motor current. • Check the wire liner. • Check the filler wire. It must be straight and start coiling when it comes out from the contact tip. If not, check the tightness of the feeding rolls.
Gun remote control displays a warning/error symbol	Check the Control Pad or Wire feeder control panel to see more information about the error. For more information, see Error codes on page 170.

Table 10: Quality of welds

Problem	Recommended actions
Dirty and/or poor quality weld	• Check that the shielding gas has not run out. • Check that the shielding gas flow is unobstructed. • Check that the gas type is correct for the application. • Check the polarity of the gun/electrode. • Check that the welding procedure is correct for the application.
Varying welding performance	• Check that the wire feed mechanism is adjusted properly. • Blow compressed air through the wire liner to check that it is not blocked. • Check that the wire liner is correct for the selected wire size and type. • Check the welding gun contact tip's size, type and wear. • Check that the welding gun is not overheating. • Check that the earth return clamp is properly attached to a clean surface of the workpiece.

Problem	Recommended actions
High spatter volume	• Check the welding parameter values and welding procedure. • Check the gas type and flow. • Check the polarity of the gun/electrode. • Check that the filler wire is correct for the current application.

2.5.1 Error codes

Control Pad

In error situations, Control Pad displays the number and title of the error, a description of the possible cause (**Reasons**) and the **Actions** to fix the error. Go to **View** > **Error log** to see the error history.

Wire feeder control panel

The wire feeder control panel displays the number and title of the error.

Gun remote control display

The gun remote control display does not display the error code, just an error/warning symbol. Check the Control Pad or Wire feeder control panel to see more information.

Symbol in gun remote control display	Meaning
	System warning. The warning concerns an error in the system, for example, low liquid level. The symbol first blinks for 10 seconds, then stays solid. Welding is enabled even though the symbol is displayed.
	WPS warning. One of the most essential welding parameters has been adjusted beyond the limits of the WPS in use. The parameter in question is displayed in red. Welding is enabled even though the symbol is displayed.
	System error. Welding is disabled.

2.6 Maintenance

When considering and planning routine maintenance, consider the operating frequency of the welding system and the working environment.

Correct operating of the welding machine and regular maintenance helps you avoid unnecessary downtime and equipment failure.

2.6.1 Daily maintenance

⚠ **Caution:**

Disconnect the power source from the mains before handling electrical cables.

Maintenance of power source and wire feeder

Follow these maintenance procedures to maintain the proper functioning of the welding system:

- Check that all covers and components are intact.
- Check all the cables and connectors. Do not use them if they are damaged and contact service for replacements.
- Check the wire feeder's feed rolls and the pressure handle. Clean and lubricate with a small quantity of light machine oil if needed.

Maintenance of guns

- Check regularly that all the components are tightly fastened.
- Check that the current transfer surface on the Kemppi gun adapter is clean and unscratched, and the connector pins are straight and undamaged.
- Check the protective hose on the cable for damage.
- Check the two O-rings between the neck and the handle for wear and damage.

  ⓘ **Note:**

  Only the gas-cooled gun has the O-rings.
- Clean dust from the liner with pressurized air every time you change the wire spool, or every day during heavy use.
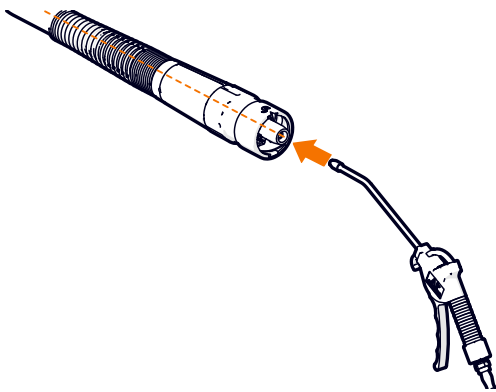
Figure 53: Gas-cooled gun
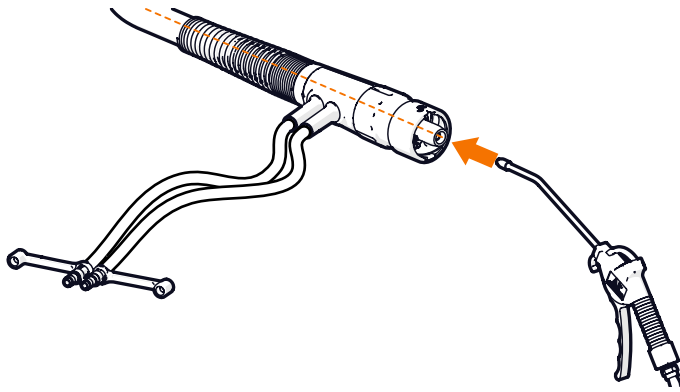
Figure 54: Water-cooled gun

- Check and remove any spatter build-up from the nozzle.
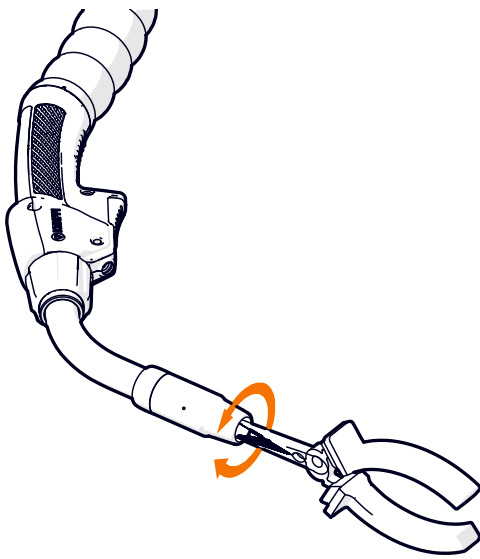
Figure 55: Gas-cooled gun
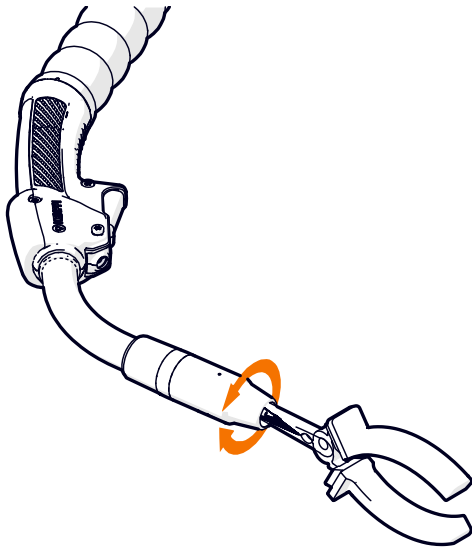
Figure 56: Water-cooled gun

- When not using the gun, keep it in the welding gun holder on the wire feeder.

Maintenance of Control Pad

Control Pad is water resistant and can be wiped clean with a moist cloth. Do not use detergents.

For repairs, contact Kemppi at www.kemppi.com or your dealer.

2.6.2 Periodic maintenance of power source and wire feeder

⚠ **Caution:**

Only qualified service personnel is allowed to carry out periodic maintenance.

⚠ **Warning:**

Only an authorized electrician is allowed to carry out electrical work.

⚠ **Caution:**

Before removing the cover plate, disconnect the power source from the mains and wait for about 2 minutes before discharging the capacitor.

Check the electric connectors of the unit at least every six months. Clean oxidized parts and tighten loose connectors.

ⓘ **Note:**

Use the correct tension torque when fastening loose parts.

Clean the outside parts of the unit from dust and dirt, for example, with a soft brush and vacuum cleaner. Also clean the ventilation grill at the back of the unit. Do not use compressed air, there is a risk that the dirt will compact even more tightly into gaps of cooling profiles.

ⓘ **Note:**

Do not use pressure washing devices.

Update the wire feeder to the latest firmware version and load new welding software.

2.6.3 Service workshops

Kemppi Service Workshops complete the welding system maintenance according to the Kemppi service agreement.

The main aspects in the service workshop maintenance procedure are:

- Cleanup of the machine
- Maintenance of the welding tools
- Checkup of the connectors and switches
- Checkup of all electric connections
- Checkup of the power source mains cable and plug
- Repair of defective parts and replacement of defective components
- Maintenance test
- Test and calibration of operation and performance values when needed

Find your closest service workshop at Kemppi website.

2.7 Technical data

This section contains the technical details of the welding system.

2.7.1 X8 Power Source 400 A / 400 A MV

Feature	Description	Value	
		400 A	**400 A MV**
Mains connection cable	H07RN-F	6 mm^2	16 mm^2
Mains connection voltage 3~ 50/60 Hz		-	220 - 230 V ±10 %
		380 - 460 V ±10 %	380 - 460 V ±10 %
Rated power	40 % ED	-	-
	60 % ED	19 kVA	19 kVA
	100 % ED	14 kVA	14 kVA
Supply current (maximum)	I_{1max} @ 220 - 230 V	-	52 - 49 A
	I_{1max} @ 380 - 460 V	28 - 25 A	28 - 25 A
Supply current (effective)	I_{1eff} @ 220 - 230 V	-	40 - 38 A
	I_{1eff} @ 380 - 460 V	22 - 19 A	22 - 19 A
Idle power without cooler and wire feeder (MIG)	P_i	45 - 52 W	40 - 52 W
Idle power with cooler, without wire feeder (MIG)	P_i	51 - 58 W	48 - 58 W

Feature	Description	Value	
		400 A	**400 A MV**
Open circuit voltage (MMA)	U_{av}	50 V	50 V
Open circuit power (MMA) (without cooler and wire feeder, fans OFF)	P_i	44 - 53 W	44 - 53 W
Open circuit power (MMA) (without cooler and wire feeder, fans ON)	P_{oc}	107 - 111 W	99 - 111 W
Open circuit power (MMA) (with cooler, without wire feeder, fans ON)	P_{oc}	132 - 137 W	121 - 137 W
No-load voltage (MIG & MMA)	$U_{0\ peak}$	76 - 92 V DC	76 - 92 V DC
No-load voltage (MMA)	$U_{r\ peak}$	72 - 86 V DC	72 - 86 V DC
Fuse	220 - 230 V	-	63 A
	380 - 460 V	32 A	32 A
Output	40 % ED	-	-
	60 % ED	400 A	400 A
	100 % ED	320 A	320 A
Welding current and voltage range	MIG @ 220 V	-	20 A/14 V - 400 A/50 V
	MIG @ 380 V	20 A/14 V - 400 A/50 V	20 A/14 V - 400 A/50 V
Welding current and voltage range	MMA @ 220 V	-	15 A/20 V - 400 A/58 V
	MMA @ 380 V	15 A/20 V - 400 A/58 V	15 A/20 V - 400 A/58 V
Welding voltage (max)		58 V	58 V
Power factor at max current	P.F.	0.80 - 0.88	0.80 - 0.88
Efficiency at max current	η	89 - 91 %	89 - 90 %
Operating temperature range		-20...+40 °C	-20...+40 °C
Storage temperature range		-40...+60 °C	-40...+60 °C
EMC class		A	A
Minimum short-circuit power S_{SC} of supply network	S_{SC}	5.1 MVA	5.1 MVA
Degree of protection		IP23S	IP23S
External dimensions LxWxH		921 x 348 x 795 mm	921 x 348 x 795 mm
Weight without accessories		95 kg	95 kg
Voltage supply for auxiliary devices	U_{aux}	48 V/500 W	48 V/500 W
Voltage supply for cooling unit	U_{cu}	-	220 - 230 V ±10 %
		380 - 460 V ±10 %	380 - 460 V ±10 %
Recommended generator power (min)	S_{gen}	25 kVA	25 kVA

Feature	Description	Value	
		400 A	**400 A MV**
Wireless communication type • Transmitter frequency and power		2.4 GHz WiFi & Bluetooth 2.4 GHz Bluetooth and WLAN • 2400-2483.5 MHz 20 dBm	2.4 GHz WiFi & Bluetooth 2.4 GHz Bluetooth and WLAN • 2400-2483.5 MHz 20 dBm
Wired communication type		Ethernet & USB	Ethernet & USB
Standards		IEC 60974-1, -10	IEC 60974-1, -10

2.7.2 X8 Power Source 500 A / 500 A MV

Feature	Description	Value	
		500 A	**500 A MV**
Mains connection cable	H07RN-F	6 mm^2	16 mm^2
Mains connection voltage 3~ 50/60 Hz		-	220 - 230 V ±10 %
Mains connection voltage 3~ 50/60 Hz		380 - 460 V ±10 %	380 - 460 V ±10 %
Rated power	40 % ED	-	-
	60 % ED	26 kVA	26 kVA
	100 % ED	18 kVA	18 kVA
Supply current (maximum)	I_{1max} @ 220 - 230 V	-	67 - 66 A
	I_{1max} @ 380 - 460 V	38 - 33 A	38 - 33 A
Supply current (effective)	I_{1eff} @ 220 - 230 V	-	52 - 51 A
	I_{1eff} @ 380-460 V	29 - 26 A	29 - 26 A
Idle power without cooler and wire feeder (MIG)	P_i	45 - 52 W	40 - 52 W
Idle power with cooler, without wire feeder (MIG)	P_i	51 - 58 W	48 - 58 W
Open circuit voltage (MMA)	U_{av}	50 V	50 V
Open circuit power (MMA) (without cooler and wire feeder, fans OFF)	P_i	44 - 53 W	44 - 53 W
Open circuit power (MMA) (without cooler and wire feeder, fans ON)	P_{oc}	107 - 111 W	99 - 111 W
Open circuit power (MMA) (with cooler, without wire feeder, fans ON)	P_{oc}	132 - 137 W	121 - 137 W

Feature	Description	Value	
		500 A	**500 A MV**
No-load voltage (MIG & MMA)	$U_{0\ peak}$	76 - 92V DC	76 - 92V DC
No-load voltage (MMA)	$U_{r\ peak}$	72 - 86 V DC	72 - 86 V DC
Fuse	220 - 230 V	-	63 A
	380 - 460 V	32 A	32 A
Output	40 % ED	-	-
	60 % ED	500 A	500 A
	100 % ED	400 A	400 A
Welding current and voltage range	MIG @ 220 V	-	20 A/14 V - 500 A/55 V
	MIG @ 380 V	20 A/14 V - 500 A/55 V	20 A/14 V - 500 A/55 V
Welding current and voltage range	MMA @ 220 V	-	15 A/20 V - 500 A/57 V
	MMA @ 380 V	15 A/20 V - 500 A/57 V	15 A/20 V - 500 A/57 V
Welding voltage (max)		57 V	57 V
Power factor at max current	P.F.	0.82 - 0.90	0.80 - 0.90
Efficiency at max current	η	89 - 91 %	89 - 91 %
Operating temperature range		-20...+40 °C	-20...+40 °C
Storage temperature range		-40...+60 °C	-40...+60 °C
EMC class		A	A
Minimum short-circuit power S_{SC} of supply network	S_{SC}	5.1 MVA	5.1 MVA
Degree of protection		IP23S	IP23S
External dimensions LxWxH		921x348x795 mm	921 x 348 x 795 mm
Weight without accessories		95 kg	95 kg
Voltage supply for auxiliary devices	U_{aux}	48 V/500 W	48 V/500 W
Voltage supply for cooling unit	U_{cu}	-	220 - 230 V ±10 %
		380 - 460 V ±10 %	380 - 460 V ±10 %
Recommended generator power (min)	S_{gen}	35 kVA	35 kVA
Wireless communication type • Transmitter frequency and power		2.4 GHz WiFi & Bluetooth 2.4 GHz Bluetooth and WLAN • 2400-2483.5 MHz 20 dBm	2.4 GHz WiFi & Bluetooth 2.4 GHz Bluetooth and WLAN • 2400-2483.5 MHz 20 dBm
Wired communication type		Ethernet & USB	Ethernet & USB

Feature	Description	Value	
		500 A	**500 A MV**
Standards		IEC 60974-1, -10	IEC 60974-1, -10

2.7.3 X8 Power Source 600 A / 600 A MV

Feature	Description	Value	
		600 A	**600 A MV**
Mains connection cable	H07RN-F	6 mm²	16 mm²
Mains connection voltage 3~ 50/60 Hz			220 - 230 V ±10 %
Mains connection voltage 3~ 50/60 Hz		380 - 460 V ±10 %	380 - 460 V ±10 %
Rated power	40 % ED	33 kVA	33 kVA
	60 % ED	27 kVA	27 kVA
	100 % ED	21 kVA	21 kVA
Supply current (maximum)	$I1max$ @ 220-230 V	-	86 - 83 A
	$I1max$ @ 380 - 460 V	50 - 42 A	50 - 42 A
Supply current (effective)	I1eff @ 220 - 230 V	-	57 - 53 A
	I1eff @ 380 - 460 V	33 - 27 A	33 - 27 A
Idle power without cooler and wire feeder (MIG)	P_i	45 - 52 W	40 - 52 W
Idle power with cooler, without wire feeder (MIG)	P_i	51 - 58 W	48 - 58 W
Open circuit voltage (MMA)	U_{av}	50 V	50 V
Open circuit power (MMA) (without cooler and wire feeder, fans OFF)	P_i	44 - 53 W	44 - 53 W
Open circuit power (MMA) (without cooler and wire feeder, fans ON)	P_{oc}	107 - 111 W	99 - 111 W
Open circuit power (MMA) (with cooler, without wire feeder, fans ON)	P_{oc}	132 - 137 W	121 - 137 W
No-load voltage (MIG & MMA)	$U_{0\ peak}$	76 - 92 V DC	76 - 92 V DC
No-load voltage (MMA)	$U_{r\ peak}$	72 - 86 V DC	72 - 86 V DC
Fuse	220 - 230 V	-	63 A

Feature	Description	Value	
		600 A	**600 A MV**
	380 - 460 V	35 A	35 A
Output	40 % ED	600 A	600 A
	60 % ED	530 A	530 A
	100 % ED	440 A	440 A
Welding current and voltage range	MIG @ 220 V	-	20 A/14 V - 600 A/46 V
	MIG @ 380 V	20 A/14 V - 600 A/55 V	20 A/14 V - 600 A/55 V
Welding current and voltage range	MMA @ 220 V	-	15 A/20 V - 600 A/46 V
	MMA @ 380 V	15 A/20 V - 600 A/55 V	15 A/20 V - 600 A/55 V
Welding voltage (max)		55 V	55 V
Power factor at max current	P.F.	0.88 - 0.90	0.90
Efficiency at max current	η	88 - 91 %	88 - 90 %
Operating temperature range		-20...+40 °C	-20...+40 °C
Storage temperature range		-40...+60 °C	-40...+60 °C
EMC class		A	A
Minimum short-circuit power S_{SC} of supply network	S_{SC}	5.1 MVA	5.1 MVA
Degree of protection		IP23S	IP23S
External dimensions LxWxH		921x348x795 mm	921 x 348 x 795 mm
Weight without accessories		95 kg	95 kg
Voltage supply for auxiliary devices	U_{aux}	48 V/500 W	48 V/500 W
Voltage supply for cooling unit	U_{cu}	-	220 - 230 V ±10 %
		380 - 460 V ±10 %	380 - 460 V ±10 %
Recommended generator power (min)	S_{gen}	40 kVA	40 kVA
Wireless communication type • Transmitter frequency and power		2.4 GHz WiFi & Bluetooth • 2400 - 2483.5 MHz 20 dBm	2.4 GHz WiFi & Bluetooth • 2400 - 2483.5 MHz 20 dBm
Wired communication type		Ethernet & USB	Ethernet & USB

Feature	Description	Value	
		600 A	**600 A MV**
Standards		IEC 60974-1, -10	IEC 60974-1, -10

2.7.4 X8 Cooler

Feature	Description	Value
Operating voltage, U_1	3~50/60 Hz	220 - 230 V ±10 %
		380 - 460 V ±10 %
Supply current (maximum)	I_{1max}	1.0 A
Supply current (effective)	I_{1eff}	0.6 A
Rated cooling power at 1 l/min		1.4 kW
Rated cooling power at 1.6 l/min		1.9 kW
Recommended coolant		MPG 4456 (Kemppi mixture)
Coolant pressure (max)		0.4 MPa
Tank volume		4 l
Operating temperature range *		-10...+40 °C
Storage temperature range		-40...+60 °C
EMC class		A
Degree of protection **		IP23S
Weight without accessories		15.5 kg
Standards		IEC 60974-2, -10

* With recommended coolant

** When mounted

2.7.5 X8 Wire Feeder

Feature	Description	Value
Operating voltage	U_1	48 V DC
Supply current at max load	I_{1max}	6 A
Idle power	P_i	6 W
Idle power with cabinet heater	P_i	30 W
Welding current, I_2	40 % ED	600 A
	60 % ED	530 A
	100 % ED	440 A

Feature	Description	Value
Gun connection		Kemppi
Wire feed mechanism		4-roll, twin-motor
Diameter of feed rolls		32 mm
Filler wires	Fe	0.6 - 2.4 mm
	Ss	0.6 - 2.4 mm
	MC/FC	0.8 - 2.4 mm
	Al	0.8 - 2.4 mm
Wire feed speed		0.5 - 25 m/min
Wire spool weight (max)		20 kg
Wire spool diameter (max)		300 mm
Shielding gas pressure (max)	p_{max}	0.5 MPa
Operating temperature range		-20...+40 °C
Storage temperature range		-40...+60 °C
EMC class		A
Degree of protection		IP23S
External dimensions LxWxH		640 x 220 x 400 mm
Weight without accessories		11.2 kg
Wireless communication type		2.4 GHz Bluetooth
• Transmitter frequency and power		• 2402-2480 MHz 19 dBm
Standards		IEC 60974-5, 10

2.7.6 X8 Control Pad

Feature	Description	Value
Operating voltage	U_1	12 V
Operating temperature range		-20...+40 °C
Storage temperature range		-40...+60 °C
Degree of protection		IP54
External dimensions LxWxH		200 x 130 x 33 mm
Weight without accessories		0.89 kg
Typical battery operation time		15 - 24 h
Battery type		Li-ion
Rated battery voltage		7.2 V
Rated battery capacity		6.2 Ah
Rated charging current		1 A

Feature	Description	Value
Typical battery charging time		5 h
Power supply output voltage		12 V
Power supply output current		2.5 A
Wireless communication type • Transmitter frequencies and powers		2.4 GHz Bluetooth • 2400-2483.5 MHz 14 dBm • 13.56 MHz -1.3 dBμA/m
Typical wireless communication range		15 m
Wired communication type		USB
Display type		TFT LCD
Display size		5.7"
Standards		• IEC 60950-1 • EN 62368-1 • EN 300 328 v2.1.1 • EN 300 330 v2.1.1 • EN 301 489-1 v2.1.1 • EN 301 489-3 v2.1.0 • EN 301 489-17 v3.1.1

2.7.7 X8 MIG Gun 200-g

Feature	Description	Value
Welding process		MIG/MAG
Method of guidance		Manual
Type of cooling		Gas
Type of connection		Kemppi
Wire diameters		0.8 - 1.2 mm
Load capacity	@ 60 % (MIXED GAS)	200 A
	@ 100 % (MIXED GAS)	-
	@ 60 % (CO_2)	-
	@ 100 % (CO_2)	-
Filler wires	Fe	0.8 - 1.2 mm
	Fe-MC/FC	0.9 - 1.2 mm
	Ss	0.8 - 1.2 mm
	Ss-MC/FC	0.9 - 1.2 mm
	Al	0.8 - 1.2 mm

Feature	Description	Value
Operating temperature range		-20...+40 °C
Storage temperature range		-40...+60 °C
Pistol grip handle		Yes
Changeable neck		Yes
Rotating neck		Yes
Neck dimensions	Length x (see figure below)	101 mm
	Height y (see figure below)	86 mm
Neck angle	α (see figure below)	50°
Standards		IEC 60974-7
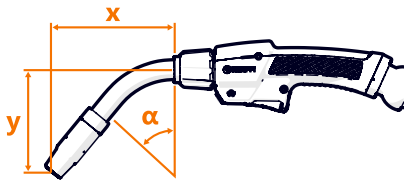
Figure 57: Neck dimensions and angle

2.7.8 X8 MIG Gun 300-g

Feature	Description	Value
Welding process		MIG/MAG
Method of guidance		Manual
Type of cooling		Gas
Type of connection		Kemppi
Wire diameters		0.8 - 1.2 mm
Load capacity	@ 60 % (MIXED GAS)	300 A
	@ 100 % (MIXED GAS)	-
	@ 60 % (CO_2)	-
	@ 100 % (CO_2)	-
Filler wires	Fe	0.8 - 1.2 mm
	Fe-MC/FC	0.9 - 1.2 mm
	Ss	0.8 - 1.2 mm
	Ss-MC/FC	0.9 - 1.2 mm
	Al	0.8 - 1.2 mm

Feature	Description	Value
Operating temperature range		-20...+40 °C
Storage temperature range		-40...+60 °C
Pistol grip handle		Yes
Changeable neck		Yes
Rotating neck		Yes
Neck dimensions	Length x (see figure below)	117 mm
	Height y (see figure below)	97 mm
Neck angle	α (see figure below)	50°
Standards		IEC 60974-7
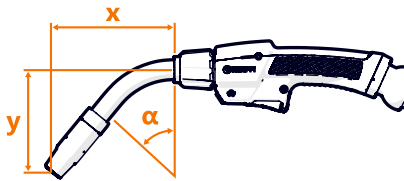
Figure 58: Neck dimensions and angle

2.7.9 X8 MIG Gun 400-g

Feature	Description	Value
Welding process		MIG/MAG
Method of guidance		Manual
Type of cooling		Gas
Type of connection		Kemppi
Wire diameters		0.8 - 1.6 mm
Load capacity	@ 60 % (MIXED GAS)	400 A
	@ 100 % (MIXED GAS)	-
	@ 60 % (CO_2)	-
	@ 100 % (CO_2)	-
Filler wires	Fe	0.8 - 1.6 mm
	Fe-MC/FC	0.9 - 1.6 mm
	Ss	0.8 - 1.6 mm
	Ss-MC/FC	0.9 - 1.6 mm
	Al	0.8 - 1.6 mm

Feature	Description	Value
Operating temperature range		-20...+40 °C
Storage temperature range		-40...+60 °C
Pistol grip handle		Yes
Changeable neck		Yes
Rotating neck		Yes
Neck dimensions	Length x (see figure below)	132 mm
	Height y (see figure below)	110 mm
Neck angle	α (see figure below)	50°
Standards		IEC 60974-7
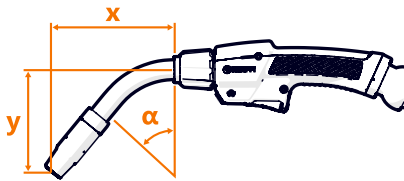
Figure 59: Neck dimensions and angle

2.7.10 X8 MIG Gun 420-w

Feature	Description	Value
Welding process		MIG/MAG
Method of guidance		Manual
Type of cooling		Liquid
Coolant flow rate		1 l/min
Coolant pressure (max)		5 bar
Type of connection		Kemppi
Wire diameters		0.8 - 1.6 mm
Load capacity	@ 60 % (MIXED GAS)	-
	@ 100 % (MIXED GAS)	420 A
	@ 60 % (CO_2)	-
	@ 100 % (CO_2)	-
Filler wires	Fe	0.8 - 1.6 mm
	Fe-MC/FC	0.9 - 1.6 mm
	Ss	0.8 - 1.6 mm

Feature	Description	Value
	Ss-MC/FC	0.9 - 1.6 mm
	Al	0.8 - 1.6 mm
Operating temperature range		-20...+40 °C
Storage temperature range		-40...+60 °C
Minimum cooling power at 1.6 l/min *		1.9 kW
Minimum flow rate		1.6 l/min
Pistol grip handle		Yes
Changeable neck		No
Rotating neck		No
Neck dimensions	Length x (see figure below)	132 / 232 mm
	Height y (see figure below)	104 mm
Neck angle	α (see figure below)	50°
Standards		IEC 60974-7

*Gun length 5 m
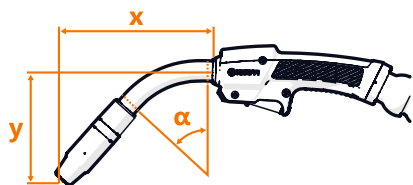
Figure 60: Neck dimensions and angle

2.7.11 X8 MIG Gun 520-w

Feature	Description	Value
Welding process		MIG/MAG
Method of guidance		Manual
Type of cooling		Liquid
Coolant flow rate		1 l/min
Coolant pressure (max)		5 bar
Type of connection		Kemppi
Wire diameters		0.8 - 1.6 mm
Load capacity	@ 60 % (MIXED GAS)	-

Feature	Description	Value
	@ 100 % (MIXED GAS)	520 A
	@ 60 % (CO_2)	-
	@ 100 % (CO_2)	-
Filler wires	Fe	0.8 - 1.6 mm
	Fe-MC/FC	0.9 - 1.6 mm
	Ss	0.8 - 1.6 mm
	Ss-MC/FC	0.9 - 1.6 mm
	Al	0.8 - 1.6 mm
Operating temperature range		-20...+40 °C
Storage temperature range		-40...+60 °C
Minimum cooling power at 1.6 l/min *		1.9 kW
Minimum flow rate		1.6 l/min
Pistol grip handle		Yes
Changeable neck		No
Rotating neck		No
Neck dimensions	Length x (see figure below)	145 / 245 mm
	Height y (see figure below)	111 mm
Neck angle	α (see figure below)	50°
Standards		IEC 60974-7

*Gun length 5 m
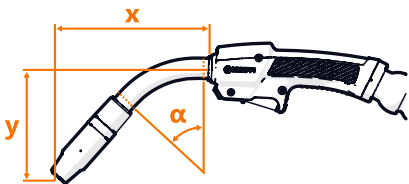
Figure 61: Neck dimensions and angle

2.7.12 X8 MIG Gun 600-w

Feature	Description	Value
Welding process		MIG/MAG
Method of guidance		Manual

Feature	Description	Value
Type of cooling		Liquid
Coolant flow rate		1 l/min
Coolant pressure (max)		5 bar
Type of connection		Kemppi
Wire diameters		1.2 - 2.4 mm
Load capacity	@ 60 % (MIXED GAS)	-
	@ 100 % (MIXED GAS)	600 A
	@ 60 % (CO_2)	-
	@ 100 % (CO_2)	-
Filler wires	Fe	1.2 - 2.4 mm
	Fe-MC/FC	1.2 - 2.4 mm
	Ss	1.2 - 1.6 mm
	Ss-MC/FC	1.2 - 1.6 mm
	Al	1.2 - 2.4 mm
Operating temperature range		-20...+40 °C
Storage temperature range		-40...+60 °C
Minimum cooling power at 1.6 l/min *	IEC 60974-7	1.9 kW
Minimum flow rate		1.6 l/min
Pistol grip handle		Yes
Changeable neck		No
Rotating neck		No
Neck dimensions		251 mm
		72 mm
Neck angle		30°
Standards		IEC 60974-7

*Gun length 5 m
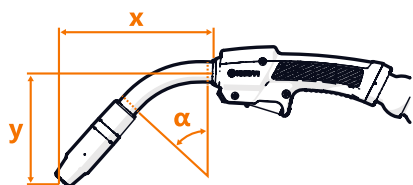
Figure 62: Neck dimensions and angle

2.7.13 X8 MIG Gun WS 420-w

Feature	Description	Value
Welding process		MIG/MAG
Method of guidance		Manual
Type of cooling		Liquid
Coolant flow rate		1 l/min
Coolant pressure (max)		5 bar
Type of connection		Kemppi
Wire diameters		1.2 - 1.6 mm
Load capacity	@ 60 % (MIXED GAS)	-
	@ 100 % (MIXED GAS)	300 A
	@ 60 % (CO_2)	-
	@ 100 % (CO_2)	-
Filler wires	Ss	1.2 - 1.6 mm
	Al	1.2 - 1.6 mm
Operating temperature range		-20...+40 °C
Storage temperature range		-40...+60 °C
Minimum cooling power at 1.6 l/min *		1.9 kW
Minimum flow rate		1.6 l/min
Pistol grip handle		Yes
Changeable neck		No
Rotating neck		No
Neck dimensions	Length x (see figure below)	132 mm
	Height y (see figure below)	104 mm
Neck angle	α (see figure below)	50°
Standards		IEC 60974-7

*Gun length 8 m

Figure 63: Neck dimensions and angle

2.8 Ordering codes

Table 11: X8 Power Source

Part	Ordering code
X8 Power Source without software	
X8 Power Source 400	X8100400000
X8 Power Source 400 + X8 Cooler	X8100401000
Power upgrade 500 for X8 Power Source	X8550000
X8 Power Source 500 + X8 Cooler	X8100501000
X8 Power Source 500 MV *	X8100500100
X8 Power Source 500 MV + X8 Cooler	X8100501100
X8 Power Source 500 + X8 Cooler + Software Pack 1 **	X8100501010
Power upgrade 600 for X8 Power Source	X8560000
X8 Power Source 600 with Cooler *	X8100601000
X8 Power Source 600 with Cooler and Software Pack 1 *	X8100601010
X8 Cooler	X8600000000
X8 Wheel Set	X8701010000
X8 Power Source with Welding Programs and Processes	
X8 Power Source 400, custom	X8100400001
X8 Power Source 400 + X8 Cooler, custom	X8100401001
X8 Power Source 400 MV, custom	X8100400101
X8 Power Source 500 + X8 Cooler, custom	X8100501001
X8 Power Source 500 MV + X8 Cooler, custom	X8100501101
X8 Power Source 500+ X8 Cooler + Software Pack 1 **	X8100501010

X8 Power Source includes Control Pad, X8 Wheel Set and X8 Wire Feeder Rotating Plate.

** Software Pack 1 includes X8 Work Pack and WiseFusion.

Table 12: X8 Wire Feeder

Part	Ordering code
X8 Wire Feeder	X8200000002
X8 Wire Feeder + Cabinet Heater	X8200000001
Wire Drum Kit 5 m	W012757
Wire Drum Kit 10 m	W012758
Wire Drum Kit 20 m	W012759
Wire Drum Kit 27 m	W012760

Table 13: Double wire feeder assembly parts

Part	Ordering code
Connecting sleeve holder, X8	SP012058
Cooling hose assy KV200 female-female	SP4308080

Table 14: Welding guns

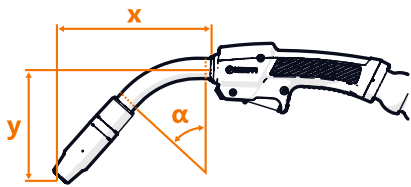| Welding gun	Neck dimensions	Ordering code
X8 MIG Gun 200-g (3.5 m)	x = 101 mm, y = 86 mm	X8301203500
X8 MIG Gun 200-g (5.0 m)	x = 101 mm, y = 86 mm	X8301205000
X8 MIG Gun 300-g (3.5 m)	x = 117 mm, y = 97 mm	X8301303500
X8 MIG Gun 300-g (5.0 m)	x = 117 mm, y = 97 mm	X8301305000
X8 MIG Gun 400-g (3.5 m)	x = 132 mm, y = 110 mm	X8301403500
X8 MIG Gun 400-g (5.0 m)	x = 132 mm, y = 110 mm	X8301405000
X8 MIG Gun 420-w (3.5 m)	x = 132 mm, y = 104 mm	X8300423500
X8 MIG Gun 420-w (5.0 m)	x = 132 mm, y = 104 mm	X8300425000
X8 MIG Gun 520-w (3.5 m)	x = 145 mm, y = 111 mm	X8300523500
X8 MIG Gun 520-w (5.0 m)	x = 145 mm, y = 111 mm	X8300525000
X8 MIG Gun 600-w (5.0 m)	x = 152 mm, y = 104 mm	X8300605000
X8 MIG Gun 420-w (3.5 m)	x = 232 mm, y = 104 mm	X8300423501
X8 MIG Gun 420-w (5.0 m)	x = 232 mm, y = 104 mm	X8300425001
X8 MIG Gun 520-w (3.5 m)	x = 245 mm, y = 111 mm	X8300523501
X8 MIG Gun 520-w (5.0 m)	x = 245 mm, y = 111 mm	X8300525001
X8 MIG Gun WS 420-w (8.0 m)	x = 132 mm, y = 104 mm	X8300428000
X8 Mounting Ring Tool		SP012703

Figure 64: Neck dimensions and angle

Table 15: Interconnection cables, gas-cooled

Interconnection cable cross section	Cable length	Ordering code
95 mm^2	2 m	X8801950200
70 mm^2	5 m	X8801700500
95 mm^2	5 m	X8801950500
70 mm^2	10 m	X8801701000
95 mm^2	10 m	X8801951000
70 mm^2	20 m	X8801702000
95 mm^2	20 m	X8801952000
70 mm^2	30 m	X8801703000
95 mm^2	30 m	X8801953000

Table 16: Interconnection cables, water-cooled

Interconnection cable cross section	Cable length	Ordering code
95 mm^2	2 m	X8800950200
70 mm^2	5 m	X8800700500
95 mm^2	5 m	X8800950500
70 mm^2	10 m	X8800701000
95 mm^2	10 m	X8800951000
70 mm^2	20 m	X8800702000
95 mm^2	20 m	X8800952000
70 mm^2	30 m	X8800703000
95 mm^2	30 m	X8800953000

Table 17: Control Pad

Control Pad	Ordering code
Control Pad	X8400110001

Table 18: Accessories

Accessory	Ordering code
X8 Accessory Tray	X8701040000
X8 Cable Rack	X8701030000
X8 Gas Cylinder Cart	X8701020000
Wire Feeder Rotating Plate	X8702010000
Double Wire Feeder Rotating Plate	X8702020000
Wire Feeder Hanger for Boom	X8702040000
Wire Feeder Counterbalance Arm	X8702030000

Table 19: Software products

Software products	Ordering code
DProcess	
WeldEye WP & PQ Cloud Package (Enabling digital WPS)	6800010
WiseFusion	X8500000
WisePenetration+	X8500002
WiseRoot+	X8500003
WiseSteel	X8500001
WiseThin+	X8500004

For the ordering codes of consumable kits for the guns and wire feeder, see kitselect.kemppi.com. For the ordering codes of welding program packs, see Kemppi DataStore.

2.9 Disposal of unit

ⓘ   **Note:**

Do not dispose of any electrical equipment with normal waste!

At the end of the useful working life of the unit and its accessories, make sure that you follow national and local regulations regarding the disposal of the unit. The unit includes some parts that include or are made of non-environmentally friendly or hazardous materials.

In observance of WEEE Directive 2012/19/EU on waste of electrical and electronic equipment and European Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment, and their implementation in accordance with national law, electrical equipment that has reached the end of its life must be collected separately and taken to an appropriate environmentally responsible

recycling facility. The owner of the equipment is obliged to deliver a decommissioned unit to a regional collection centre, as per the instructions of local authorities or a Kemppi representative. By applying these European Directives you improve the environment and human health.