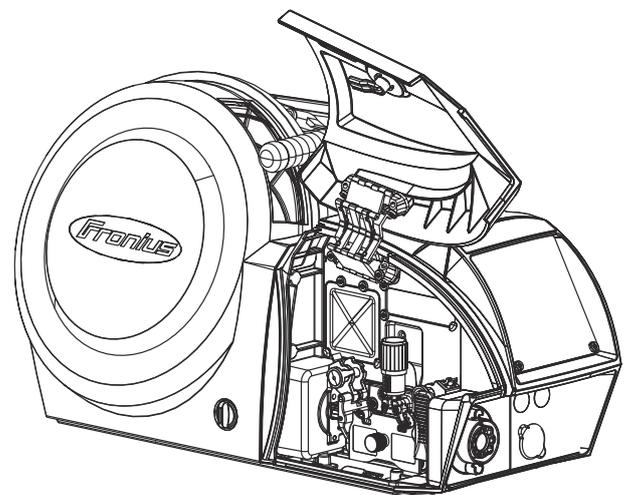


Operating Instructions

CWF 25i



EN-US | Operating instructions



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Safety Instructions

Explanation of Safety Instructions

 **DANGER!**

Indicates an immediate danger.

- ▶ Death or serious injury may result if appropriate precautions are not taken.

 **WARNING!**

Indicates a possibly dangerous situation.

- ▶ Death or serious injury may result if appropriate precautions are not taken.

 **CAUTION!**

Indicates a situation where damage or injury could occur.

- ▶ Minor injury or damage to property may result if appropriate precautions are not taken.

NOTE!

Indicates the possibility of flawed results and damage to the equipment.

General

The device has been manufactured using state-of-the-art technology and according to recognized safety standards. If used incorrectly or misused, however, it can cause

- Injury or death to the operator or a third party
- Damage to the device and other material assets belonging to the operating company
- Inefficient operation of the equipment

All persons involved in the commissioning, operation, maintenance, and servicing of the device must

- Be suitably qualified
- Have knowledge of welding
- Have completely read and followed these Operating Instructions

The Operating Instructions must always be at hand wherever the device is being used. In addition to the Operating Instructions, all applicable local rules and regulations regarding accident prevention and environmental protection must also be followed.

All safety and danger notices on the device must

- Be kept in a legible state
- Not be damaged/marked
- Not be removed
- Not be covered, pasted, or painted over

For the location of the safety and danger notices on the device, refer to the section headed "General" in the Operating Instructions for the device.

Before switching on the device, remove any faults that could compromise safety.

Your personal safety is at stake!

Intended Use

The device is to be used exclusively for its intended purpose.

The device is intended exclusively for the welding process specified on the rating plate.

Utilization for any other purpose, or in any other manner, shall be deemed to be "not in accordance with the intended purpose." The manufacturer is not responsible for any damage resulting from improper use.

Proper use also means

- Completely reading and obeying all instructions in the Operating Instructions
- Completely reading and obeying all safety instructions and danger notices
- Carrying out all the specified inspection and servicing work

Never use the device for the following applications:

- Thawing pipes
- Charging batteries
- Starting motors

The device is designed for operation in industry and business. The manufacturer shall not be liable for any damage resulting from use in a living area.

The manufacturer shall also not be liable for faulty or incorrect work results.

Environmental Conditions

Operation or storage of the device outside the stipulated area will be deemed as not in accordance with the intended purpose. The manufacturer accepts no liability for any damage resulting from improper use.

Temperature range of the ambient air:

- During operation: -10°C to +40°C (14°F to 104°F)
- During transport and storage: -20°C to +55°C (-4°F to 131°F)

Relative humidity:

- Up to 50% at 40°C (104°F)
- Up to 90% at 20°C (68°F)

Ambient air: free of dust, acids, corrosive gases or substances, etc.

Altitude above sea level: up to 2000 m (6561 ft. 8.16 in.)

Obligations of the Operating Company

- The operating company must only allow persons to work with the device if they
- Are familiar with the basic occupational safety and accident prevention regulations and are trained in handling the device
 - Have read and understood these Operating Instructions, especially the section "Safety Rules," and have confirmed this with their signature
 - Are trained according to the requirements for the work results

The safety-conscious work of the personnel must be checked regularly.

Obligations of Personnel

All persons who are assigned to work with the device must do the following before beginning the work:

- Follow the basic regulations for occupational safety and accident prevention
- Read these Operating Instructions, especially the section "Safety Rules," and confirm that they have understood and will follow them by signing

Before leaving the workplace, ensure that no personal injury or property damage can occur in one's absence.

Grid Connection	<p>Devices with a high output can influence the energy quality of the grid due to their current consumption.</p> <hr/> <p>This may affect a number of device types in terms of:</p> <ul style="list-style-type: none"> - connection restrictions - criteria regarding maximum permissible grid impedance ^{*)} - criteria regarding the minimum required short-circuit power ^{*)} <p>^{*)} both at the interface with the public grid See technical data</p> <hr/> <p>In this case, the operator or the person using the device should check whether or not the device is allowed to be connected, where appropriate through discussion with the power supply company.</p> <hr/> <p>IMPORTANT! Ensure secure grounding of the grid connection!</p>
Personal Protection and Protection of Others	<p>You are exposed to numerous hazards while handling the device, for example:</p> <ul style="list-style-type: none"> - Flying sparks and pieces of hot metal - Arc radiation that poses a risk of injury to the eyes and skin - Hazardous electromagnetic fields that pose a risk of death for individuals with pacemakers - Electrical risks from grid current and welding current - Increased noise exposure - Harmful welding fumes and gases <hr/> <p>Wear suitable protective clothing when dealing with the device. The protective clothing must have the following properties:</p> <ul style="list-style-type: none"> - Flame resistant - Insulating and dry - Covering the entire body and in good condition with no damage - Safety helmet - Cuffless pants <hr/> <p>Protective clothing involves the following:</p> <ul style="list-style-type: none"> - Protecting the face and eyes from UV radiation, heat and flying sparks with a face guard featuring a regulation-compliant filter - Wearing regulation-compliant protective goggles with side protection behind the face guard - Wearing rigid, wet-insulating footwear - Protecting hands with appropriate gloves (featuring electrical insulation and thermal protection) - Wearing ear protection to reduce noise exposure and protect against injury <hr/> <p>Keep persons, especially children, away during the operation of the devices and during the welding process. If persons are in the vicinity, however:</p> <ul style="list-style-type: none"> - Instruct them about all hazards (blinding hazard due to arcs, risk of injury from flying sparks, welding fumes hazardous to health, noise exposure, possible hazard due to grid current or welding current, etc.) - Provide suitable protective equipment or - Construct suitable protective walls and curtains.
Data on noise emission values	<p>The device produces a maximum noise level of <80 dB(A) (ref. 1pW) when idling and in the cooling phase following operation in relation to the maximum permitted operating point at standard loading in accordance with EN 60974-1.</p>

A workplace-specific emission value for welding (and cutting) cannot be specified because this value depends on the welding process and the environmental conditions. It is influenced by a wide range of parameters, such as the welding process itself (MIG/MAG, TIG welding), the selected current type (direct current, alternating current), the power range, the type of weld metal, the resonance properties of the workpiece, the workplace environment, and many other factors.

Danger from toxic gases and vapors

The fumes produced during welding contain toxic gases and vapors.

Welding fumes contain substances that cause cancer, as stated in monograph 118 from the International Agency for Research on Cancer.

Use at-source extraction source and a room extraction system.
If possible, use a welding torch with an integrated extraction device.

Keep your head out of the welding fumes and gases.

Take the following precautionary measures for fumes and harmful gases:

- Do not breathe them in.
- Extract them from the work area using appropriate equipment.

Ensure that there is a sufficient supply of fresh air. Ensure that there is a ventilation flow rate of at least 20 m³ per hour.

Use a welding helmet with air supply if there is insufficient ventilation.

If there is uncertainty as to whether the extraction capacity is sufficient, compare the measured toxic emission values against the permissible limit values.

The following components are factors that determine how toxic the welding fumes are:

- The metals used for the workpiece
- Electrodes
- Coatings
- Cleaning agents, degreasers, and the like
- The welding process used

Consult the corresponding material safety data sheets and manufacturer's instructions for the components listed above.

Recommendations for exposure scenarios, risk management measures and identifying working conditions can be found on the European Welding Association website under Health & Safety (<https://european-welding.org>).

Keep flammable vapors (such as solvent vapors) out of the arc radiation range.

When no welding is taking place, close the valve of the shielding gas cylinder or the main gas supply.

Danger from Flying Sparks

Flying sparks can cause fires and explosions.

Never undertake welding near flammable materials.

Flammable materials must be kept at least 11 meters (36 ft. 1.07 in.) from the arc or protected with a certified cover.

Keep suitable, tested fire extinguishers on hand.

Sparks and pieces of hot metal may also get into surrounding areas through small cracks and openings. Take appropriate measures to ensure that there is no risk of injury or fire.

Do not undertake welding in areas at risk of fire and explosion, or on sealed tanks, drums, or pipes if these have not been prepared in accordance with corresponding national and international standards.

Do not undertake welding on containers in which gases, fuels, mineral oils, and the like are/were stored. Residues pose a risk of explosion.

Risks from grid current and welding current

An electric shock can be fatal.

Do not touch voltage-carrying parts inside or outside the device.

During MIG/MAG welding and TIG welding, the welding wire, the wirespool, the feed rollers, as well as all pieces of metal that are in contact with the welding wire, are live.

Always place the wirefeeder on a sufficiently insulated base or use a suitable insulating wirefeeder holder.

Ensure suitable personal protection with dry temporary backing or cover with sufficient insulation against the ground potential. The temporary backing or cover must completely cover the entire area between the body and the ground potential.

All cables and leads must be secured, undamaged, insulated, and adequately dimensioned. Replace loose connections and scorched, damaged, or inadequately dimensioned cables and leads immediately.

Before every use, check power connections for secure fit by hand.

In the case of power cables with bayonet connectors, turn the power cable by at least 180° around the longitudinal axis and pretension.

Do not wrap cables or leads around your body or parts of the body.

Concerning the electrode (rod electrode, tungsten electrode, welding wire, etc.)

- Never immerse it in liquids to cool it
 - Never touch it when the power source is switched on.
-

The open circuit voltage of a welding system may double, for example, between the electrodes of two welding systems. Touching the potentials of both electrodes at the same time may be life-threatening in some cases.

Have the grid and device supply lead regularly inspected by an electrician to ensure that the ground conductor is functioning properly.

Protection class I devices require a grid with a ground conductor and a connector system with ground conductor contact for proper operation.

Operation of the device on a grid without a ground conductor and on a socket without a ground conductor contact is only permitted if all national regulations for protective separation are observed.

Otherwise, this is considered gross negligence. The manufacturer accepts no liability for any damage resulting from improper use.

Use suitable equipment to ensure that the workpiece is sufficiently grounded if necessary.

Switch off unused devices.

When working at elevated heights, wear a safety harness to prevent falls.

Before working on the device, switch off the device and remove the grid plug.

Secure the device to prevent the grid plug from being connected and switched on again by applying a clearly legible and understandable warning sign.

After opening the device:

- Discharge all electrically charged components
 - Ensure that all components are disconnected from the power supply.
-

If work is needed on voltage-carrying parts, bring in a second person who will switch off the main switch at the correct time.

Stray welding currents

If the following instructions are not observed, stray welding currents may occur, which pose a risk of the following:

- Fire
 - Overheating of parts connected to the workpiece
 - Irreparable damage to ground conductors
 - Damage to the device and other electrical equipment
-

Ensure that the workpiece clamp is securely connected to the workpiece.

Secure the workpiece clamp as close to the spot to be welded as possible.

Position the device with sufficient insulation against electrically conductive environments, e.g., insulation against electrically conductive floors or electrically conductive mounts.

Observe the following when using power distribution boards, twin-head mounts, etc.: Even the electrode of the welding torch/electrode holder not in use carries electric potential. Ensure that there is sufficient insulation when the unused welding torch/electrode holder is stored.

EMC Device Classifications

Devices in emission class A:

- Are only designed for use in industrial settings
 - Can cause line-bound and radiated interference in other areas
-

Devices in emission class B:

- Satisfy the emissions criteria for residential and industrial areas. This is also true for residential areas in which the energy is supplied from the public low-voltage grid.
-

EMC device classification as per the rating plate or technical data.

EMC measures

In certain cases, even though a device complies with the standard limit values for emissions, it may affect the application area for which it was designed (e.g., when there is sensitive equipment at the same location, or if the site where the device is installed is close to either radio or television receivers).

If this is the case, then the operating company is obliged to take appropriate action to rectify the situation.

Test and assess the immunity of equipment in the vicinity of the device in accordance with national and international provisions. Examples of interference-prone equipment that could be affected by the device:

- Safety devices
 - Grid power lines, signal lines, and data transfer lines
 - IT and telecommunications equipment
 - Devices for measuring and calibrating
-

Supporting measures to avoid EMC problems:

1. Grid power supply
 - If electromagnetic interference occurs despite a grid connection that complies with regulations, take additional measures (e.g., use a suitable grid filter).
2. Welding power-leads
 - Keep them as short as possible
 - Route them close together (also to avoid EMF problems)
 - Route them far from other lines
3. Equipotential bonding
4. Workpiece grounding
 - If necessary, establish grounding using suitable capacitors.
5. Shield, if necessary
 - Shield other devices in the vicinity
 - Shield the entire welding installation

EMF measures

Electromagnetic fields may cause health problems that are not yet known:

- Effects on the health of persons close by, e.g., those with pacemakers and hearing aids
- Persons with pacemakers must seek advice from their doctor before staying in the immediate vicinity of the device and the welding process
- Keep distances between welding power-leads and the head/torso of the welder as great as possible for safety reasons
- Do not carry welding power-leads and hosepacks over your shoulder or wrap them around your body or body parts

Particular hazard areas

Keep hands, hair, loose clothing, and tools away from moving parts, such as:

- Fans
- Gears
- Rollers
- Shafts
- Wirespools and welding wires

Do not reach into rotating gears of the wire drive or into rotating drive parts.

Covers and side panels must only be opened/removed during maintenance and repair work.

During operation

- Ensure that all covers are closed, and all side parts have been mounted properly.
- Keep all covers and side parts closed.

The protrusion of welding wire from the welding torch represents a high risk of injury (cuts to the hand, facial and eye injuries, etc.).

Therefore, always hold the welding torch away from the body (devices with wirefeeder) and use suitable protective goggles.

Do not touch the workpiece during or after welding – risk of burns.

Slag may fly off cooling workpieces. Therefore, also wear regulation-compliant protective equipment when reworking workpieces and ensure that other persons are sufficiently protected.

Leave the welding torch and other parts with a high operating temperature to cool before working on them.

Special regulations apply in areas at risk of fire or explosion
– follow the appropriate national and international regulations.

Power sources for work in areas with increased electrical hazard (e.g., boilers) must be labeled with the symbol (Safety). However, the power source may not be located in such areas.

Risk of scalding due to leaking coolant. Switch off the cooling unit before disconnecting connections for the coolant supply or return.

When handling coolant, observe the information on the coolant safety data sheet. The coolant safety data sheet can be obtained from your service center or via the manufacturer's website.

Only use suitable load-carrying equipment from the manufacturer to transport devices by crane.

- Attach chains or ropes to all designated attachments of the suitable load-carrying equipment.
 - Chains or ropes must be the smallest angle possible from vertical.
 - Remove gas cylinder and wirefeeder (MIG/MAG and TIG devices).
-

In the event of crane attachment of the wirefeeder during welding, always use a suitable, insulating wirefeeder hoisting attachment (MIG/MAG and TIG devices).

If the device is equipped with a carrier belt or handle, then this is used exclusively for transport by hand. The carrier belt is not suitable for transport by crane, counterbalanced lift truck, or other mechanical lifting tools.

All lifting equipment (belts, buckles, chains, etc.), which is used in association with the device or its components, must be checked regularly (e.g., for mechanical damage, corrosion, or changes due to other environmental influences). The test interval and scope must at least comply with the respective valid national standards and guidelines.

There is a risk of colorless, odorless shielding gas escaping without notice if an adapter is used for the shielding gas connection. Use suitable Teflon tape to seal the thread of the shielding gas connection adapter on the device side before installation.

Requirement for the shielding gas

Especially with ring lines, contaminated shielding gas can cause damage to equipment and reduce welding quality.

Meet the following requirements regarding shielding gas quality:

- Solid particle size < 40 µm
 - Pressure condensation point < -20 °C
 - Max. oil content < 25 mg/m³
-

Use filters if necessary.

Danger from Shielding Gas Cylinders

Shielding gas cylinders contain compressed gas and may explode if damaged. Shielding gas cylinders are an integral part of the welding equipment, so they must be handled very carefully.

Protect shielding gas cylinders with compressed gas from excessive heat, mechanical impact, slag, open flames, sparks, and arcs.

Mount the shielding gas cylinders vertically and secure them in accordance with instructions so they cannot fall over.

Keep shielding gas cylinders away from welding or other electrical circuits.

Never hang a welding torch on a shielding gas cylinder.

Never touch a shielding gas cylinder with an electrode.

Risk of explosion: Never weld on a compressed shielding gas cylinder.

Always use suitable shielding gas cylinders for the application in question and the correct matching accessories (controller, hoses, and fittings, etc.) Only use shielding gas cylinders and accessories that are in good condition.

If a valve on a shielding gas cylinder is open, turn your face away from the outlet.

When no welding is taking place, close the valve of the shielding gas cylinder.

Leave the cap on the valve of the shielding gas cylinder when the cylinder is not connected.

Follow the manufacturer's instructions and applicable national and international provisions for shielding gas cylinders and accessories.

Danger Posed by Shielding Gas Leak

Risk of asphyxiation due to uncontrolled shielding gas leak

Shielding gas is colorless and odorless and may suppress the oxygen in the ambient air in the event of leakage.

- Ensure there is a sufficient supply of fresh air with a ventilation flow rate of at least 20 m³ per hour.
- Please observe the safety and maintenance information for the shielding gas cylinder or the main gas supply.
- When no welding is taking place, close the valve of the shielding gas cylinder or the main gas supply.
- Always check the shielding gas cylinder or main gas supply for uncontrolled gas leakage before each start-up.

Safety Measures at the Setup Location and During Transport

A toppling device can be deadly! Set up the device securely on an even, solid surface

- The maximum permitted tilt angle is 10°.

Special regulations apply in areas at risk of fire or explosion

- Follow the appropriate national and international regulations.

Use instructions and checks within the company to ensure that the vicinity of the workplace is always clean and organized.

Only set up and operate the device in accordance with the protection class shown on the rating plate.

When setting up the device, ensure that there is an all-round clearance of 0.5 m (1 ft. 7.69 in.) to allow cooling air to circulate unhindered.

Take care to ensure that the applicable national and regional guidelines and accident prevention regulations are observed when transporting the device, especially guidelines concerning hazards during transport and shipment.

Do not lift or transport any active devices. Switch off devices before transport or lifting.

Before transporting the device, completely drain the coolant and dismantle the following components:

- wirefeeder
- wirepool
- shielding gas cylinder

It is essential to conduct a visual inspection of the device to check for damage after it has been transported but before commissioning. Have any damage repaired by trained service technicians before commissioning the device.

Safety Measures in Normal Operation

Only operate the device when all safety devices are fully functional. If the safety devices are not fully functional, there is a danger of:

- Injury or death to the operator or a third party
 - Damage to the device and other material assets belonging to the operating company
 - Inefficient operation of the device
-

Safety devices that are not fully functional must be repaired before the device is switched on.

Never bypass or disable safety devices.

Before switching on the device, ensure that no one can be put in danger.

The device must be examined at least once a week for externally detectable damage and functionality of the safety devices.

Always secure the shielding gas cylinder well and remove before transporting by crane.

Only the original coolant from the manufacturer is suitable for use in our devices due to its properties (electrical conductivity, anti-freeze, material compatibility, flammability, etc.)

Only use appropriate original coolant from the manufacturer.

Do not mix original coolant from the manufacturer with other coolants.

Only connect system components from the manufacturer to the cooling unit circuit.

If there is damage due to use of other system components or other coolants, the manufacturer accepts no liability for this and all warranty claims are forfeited.

Cooling Liquid FCL 10/20 is not flammable. The ethanol-based coolant is flammable in certain conditions. Only transport the coolant in closed original containers and keep away from sources of ignition.

Properly dispose of used coolant according to national and international regulations. The coolant safety data sheet can be obtained from your service center or via the manufacturer's website.

When the system is cool, always check the coolant level before starting welding.

Maintenance and repair

It is impossible to guarantee that bought-in parts are designed and manufactured to meet the demands made of them, or that they satisfy safety requirements.

- Use only original spare and wearing parts (also applies to standard parts).
 - Do not carry out any modifications, alterations, etc. to the device without the manufacturer's consent.
 - Components that are not in perfect condition must be replaced immediately.
 - When ordering, please give the exact designation and part number as shown in the spare parts list, as well as the serial number of your device.
-

The housing screws provide the ground conductor connection for earthing the housing parts.

Only use original housing screws in the correct number and tightened to the specified torque.

Safety Inspection

The manufacturer recommends that a safety inspection of the device be performed at least every 12 months.

The manufacturer recommends calibrating power sources within the same 12-month interval.

A safety inspection by a certified electrician is recommended:

- After changes
- After alterations
- After repair, care, and maintenance
- At least every 12 months

For the safety inspection, follow the appropriate national and international standards and guidelines.

You can obtain more information about the safety inspection and calibration from your service center. The service center will provide the necessary documents upon request.

Disposal

Waste electrical and electronic equipment must be collected separately and recycled in an environmentally sound manner in accordance with the European Directive and national law. Used equipment must be returned to the distributor or through a local authorized collection and disposal system. Proper disposal of the used device promotes sustainable recycling of material resources. Failure to observe this may lead to potential health/environmental impacts.

Packaging materials

Separate collection. Check your municipality's regulations. Reduce the volume of the box.

Safety symbols

Devices with the CE label satisfy the essential requirements of the low-voltage and electromagnetic compatibility directive (e.g., relevant product standards of the EN 60974 series).

Fronius International GmbH declares that the device complies with Directive 2014/53/EU. The full text of the EU Declaration of Conformity is available on the following website: <http://www.fronius.com>

Devices marked with the CSA test mark satisfy the requirements of the relevant standards for Canada and the USA.

Data backup

The user is responsible for backing up any changes made to the factory settings. The manufacturer accepts no liability for any deleted personal settings.

Copyright

Copyright of these Operating Instructions remains with the manufacturer.

Text and illustrations were accurate at the time of printing. Fronius reserves the right to make changes. The contents of the Operating Instructions shall not provide the basis for any claims whatsoever on the part of the purchaser. If you

have any suggestions for improvement, or can point out any mistakes that you have found in the Operating Instructions, we will be most grateful for your comments.

- These Operating Instructions
- All system component Operating Instructions, especially the safety rules



Welding is dangerous. To ensure that this device can be used correctly and safely, the following basic requirements must be met:

- Adequate welding qualifications
- Appropriate protective equipment
- Keep unauthorized people away from the wirefeeder and the welding process



Dispose of old devices in accordance with safety rules and not in normal domestic waste.



Keep hands, hair, loose clothing, and tools away from moving parts, such as:

- Gears
- Feed rollers
- Wirespools and welding wires

Do not reach into rotating gears of the wire drive or into rotating drive parts.

Covers and side panels must only be opened/removed during maintenance and repair work.

During operation

- Ensure that all covers are closed, and all side parts have been mounted properly.
- Keep all covers and side parts closed.

Operating controls, connections and mechanical components

Safety

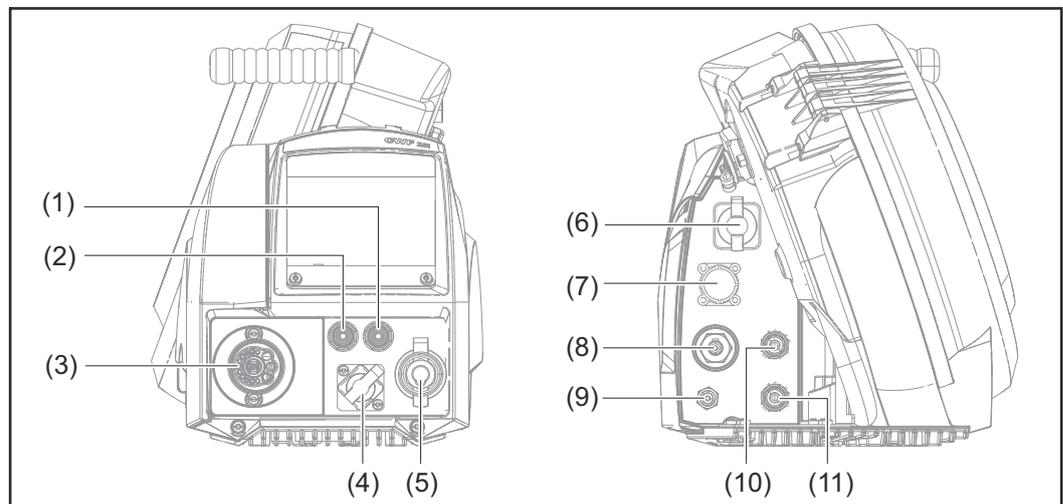
⚠ WARNING!

Danger from incorrect operation and work that is not carried out properly.

This can result in serious personal injury and damage to property.

- ▶ All the work and functions described in this document must only be carried out by technically trained and qualified personnel.
- ▶ Read and understand this document in full.
- ▶ Read and understand all safety rules and user documentation for this equipment and all system components.

Front, back



(1) Coolant return connection (red)

Option *

(2) Coolant supply connection (blue)

Option *

(3) Wirefeed connection

FSC-T connection

(4) TMC connection

Option *

Standardized connection socket for system add-ons (e.g., remote control, JobMaster welding torch, etc.)

(5) Welding torch connection / gas/current socket with bayonet latch

Option *

In combination with an iWave 300i - 500i AC/DC power source to connect:

- a TIG welding torch
- the electrode cable for manual metal arc welding

In combination with an iWave 300i - 500i DC power source to connect:

- a TIG welding torch
- the electrode cable or grounding cable for manual metal arc welding (depending on the type of electrode used)

(6) SpeedNet connection

For connecting the SpeedNet cable from the interconnecting hosepack

(7) Position for options

For example, wire end sensor

(8) Gas/current socket with bayonet latch

For connecting the gas/power cable from the interconnecting hosepack

(9) Shielding gas connection socket

For connecting the shielding gas hose from the interconnecting hosepack

(10) Coolant return connection (red)

Option *

For connecting the coolant return hose from the interconnecting hosepack

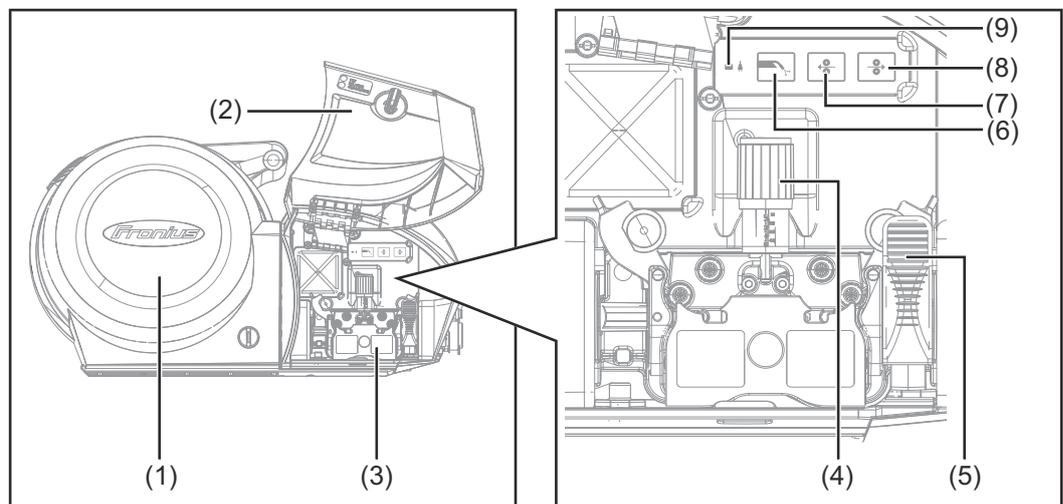
(11) Coolant supply connection (blue)

Option *

For connecting the coolant supply hose from the interconnecting hosepack

* The optional connections are present if the "OPT/i CWF TMC Torch" option is installed on the wirefeeder.

Left side, bottom



CWF 25i – left side

(1)	Wirespool cover
(2)	Wire drive cover
(3)	4-roller drive with red protective cover
(4)	Pressure lever For adjusting the contact pressure
(5)	Clamping lever
(6)	Gas-test button For setting the required quantity of gas on the gas pressure regulator.

After pressing the gas-test button, gas is released for 30 s. Pressing the button again ends the process early.

- (7) Wire-return button**
For retracting the welding wire without gas or current

There are two options available for retracting the welding wire:

Option 1

Retract the welding wire at the preset wire-return speed:

Press and hold the wire-return button

- After pressing the wire-return button, the welding wire is retracted by 1 mm (0.039 in.)
- After a brief pause, the wirefeeder continues retracting the welding wire – if the wire-return button is kept pressed down, then the speed increases with each further second by 10 m/min (393.70 ipm) until the preset wire-return speed is reached

Option 2

Retract the welding wire in 1 mm steps (0.039 in. steps) – always press the wire-return button for less than 1 second (tap)

- (8) Wire-threading button**
For threading the welding wire into the torch hosepack without gas or current

There are two options available for the wire threading:

Option 1

Thread the welding wire at the preset feeder inching speed:

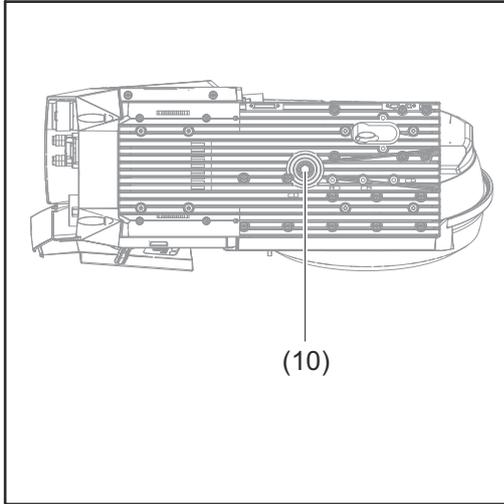
- Press and hold the wire-threading button
- After pressing the wire-threading button, the welding wire will be threaded in by 1 mm (0.039 in.)
- After a brief pause, the wirefeeder continues threading in the welding wire – if the wire-threading button is kept pressed down, then the speed increases with each further second by 10 m/min (393.70 ipm) until the preset feeder inching speed is reached

Option 2

Thread the welding wire in 1 mm steps (0.039 in. steps) – always press the wire-threading button for less than 1 second (tap)

(9) Operating status LED

Lights up green when the device is ready for operation



(10) Swivel pin holder

Before installation and initial operation

Safety

WARNING!

Danger from incorrect operation and work that is not carried out properly.

This can result in serious personal injury and damage to property.

- ▶ All the work and functions described in this document must only be carried out by technically trained and qualified personnel.
 - ▶ Read and understand this document in full.
 - ▶ Read and understand all safety rules and user documentation for this equipment and all system components.
-

Intended use

The device is intended exclusively for wirefeeding with TIG welding in combination with Fronius system components.

Any other use does not constitute proper use.

The manufacturer shall not be held liable for any damage resulting from improper use.

Intended use also means

- Reading these Operating Instructions in their entirety
 - Following all instructions and safety rules in these Operating Instructions
 - Carrying out all the specified inspection and maintenance work
-

Setup regulations

WARNING!

Danger from devices falling or toppling over.

This can result in severe personal injury and damage to property.

- ▶ Set up all system components, upright brackets, and trolleys so that they are stable on a flat and solid surface.
 - ▶ When using a swivel pin holder, always ensure that the wirefeeder is firmly seated.
-

The wirefeeder has been tested according to protection class IP 23. This means:

- Protection against the penetration of solid foreign bodies with a diameter of more than 12.5 mm (0.49 in.)
- Protection against spraywater at any angle up to 60° from the vertical

The wirefeeder can be set up and operated outdoors in accordance with protection class IP23. Direct moisture (e.g., from rain) must be avoided.

Placing the wirefeeder on the swivel pin holder

Safety

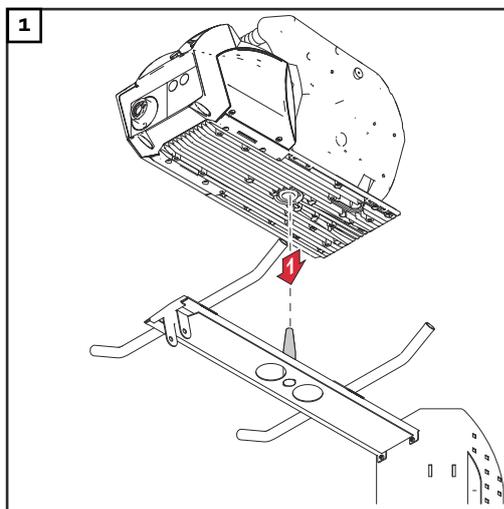
WARNING!

Danger from electrical current.

This can result in serious personal injury and damage to property.

- ▶ Before starting work, switch off all devices and components involved, and disconnect them from the grid.
- ▶ Secure all devices and components involved so they cannot be switched back on.
- ▶ After opening the device, use a suitable measuring instrument to check that electrically charged components (such as capacitors) have been discharged.

Placing the wirefeeder on the swivel pin holder



Connecting the wirefeeder to the power source

Safety

WARNING!

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- ▶ Secure all devices and components involved so they cannot be switched back on.
- ▶ After opening the device, use a suitable measuring instrument to check that electrically charged components (such as capacitors) have been discharged.

General

The wirefeeder is connected to the power source by means of the interconnecting hosepack.

Connecting the wirefeeder to the power source

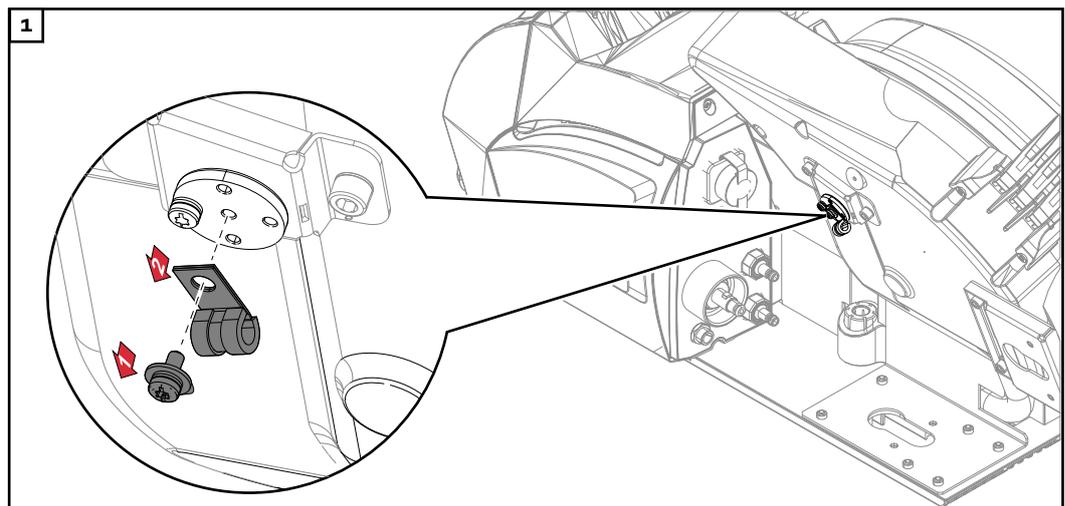
WARNING!

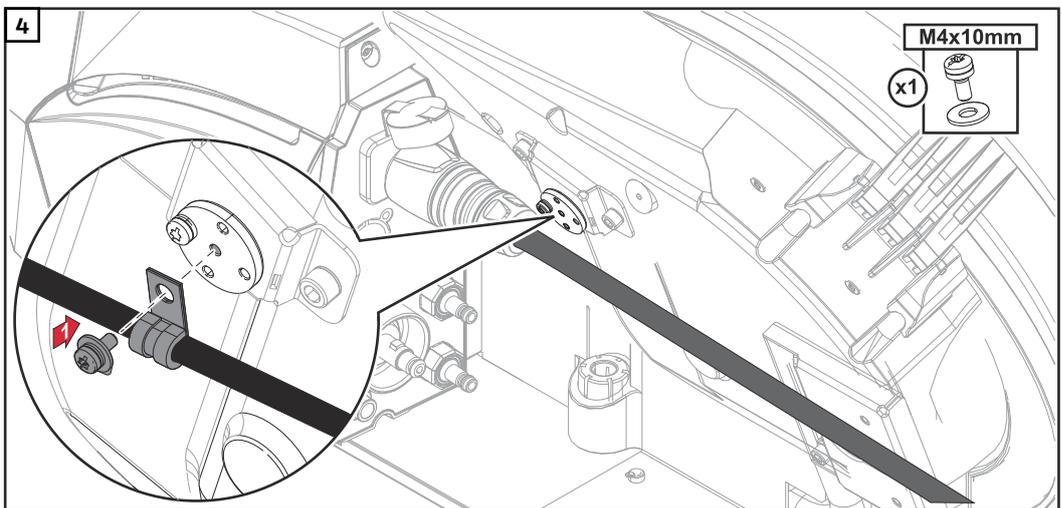
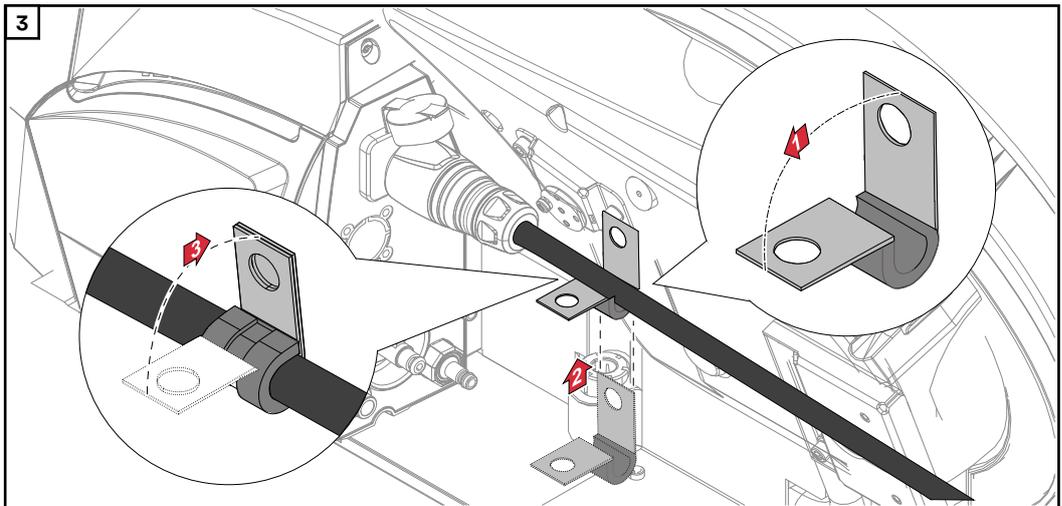
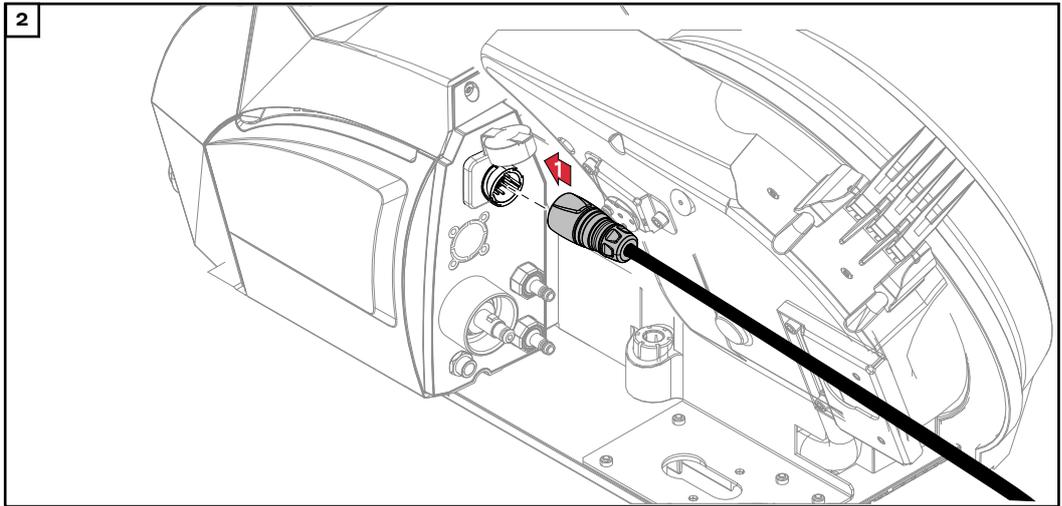
Danger from electric current due to defective system components and incorrect operation.

This can result in serious personal injury and damage to property.

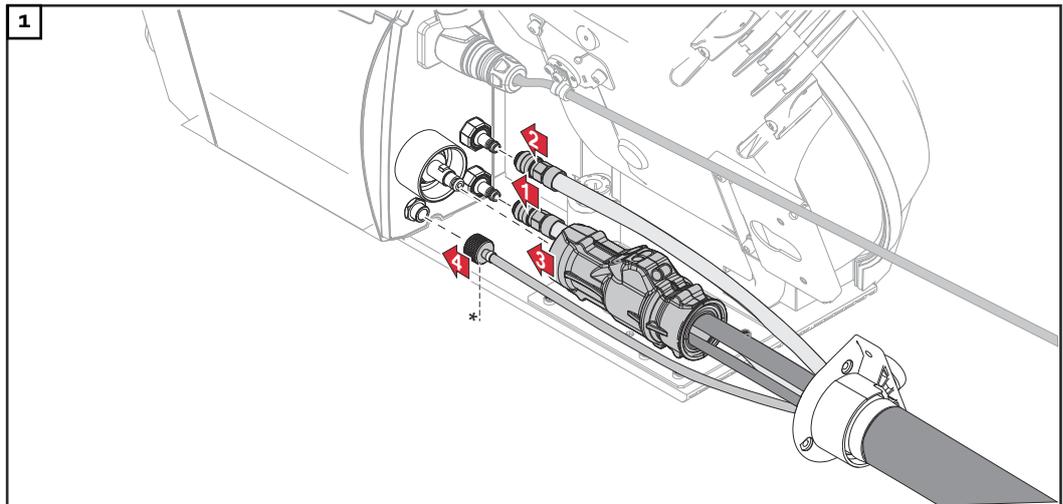
- ▶ All cables, leads, and hosepacks must always be securely connected, undamaged, and correctly insulated.
- ▶ Only use adequately dimensioned cables, leads, and hosepacks.

Connecting the control line

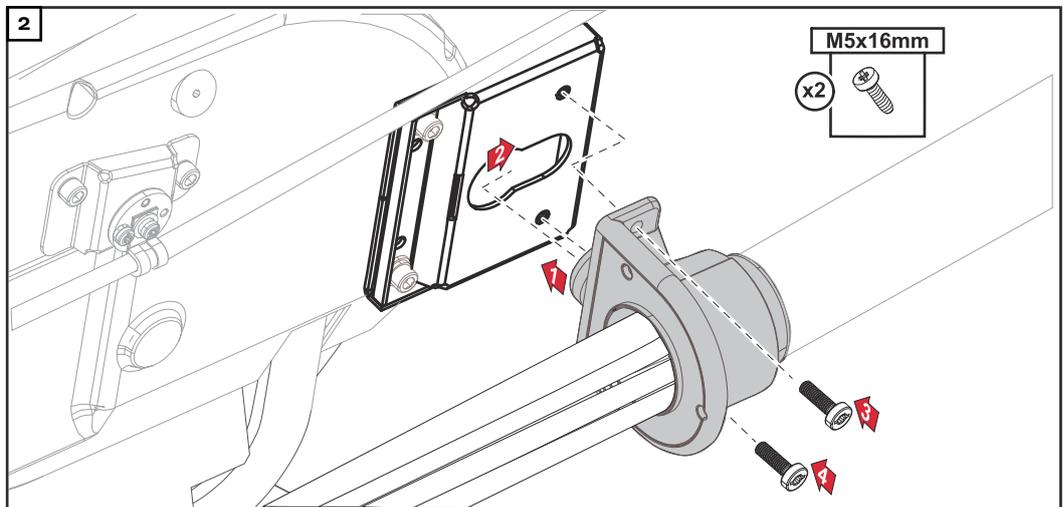




Connecting the interconnecting hosepack (only if OPT/i CWF TMC Torch option is present)



* External gas supply (option)



CAUTION!

Risk due to damage to connections.

This can result in damage to property.

- ▶ For interconnecting hosepacks with a length of 1.2 m (3 ft. 11.24 in.), no strain-relief device is provided.
- ▶ To avoid damage, make sure that the cables form a "loop inwards" (towards the wirefeeder) when installed.

Connecting the wirefeeding hose/welding torch

Safety

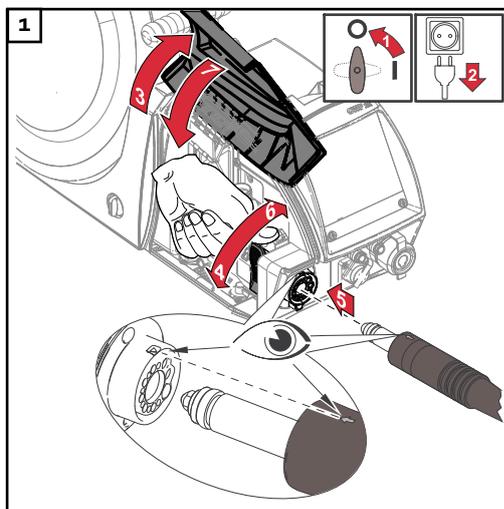
WARNING!

Danger from electrical current.

This can result in serious personal injury and damage to property.

- ▶ Before starting work, switch off all devices and components involved, and disconnect them from the grid.
- ▶ Secure all devices and components involved so they cannot be switched back on.
- ▶ After opening the device, use a suitable measuring instrument to check that electrically charged components (such as capacitors) have been discharged.

Connecting the wirefeeding hose



Connecting the welding torch

If the OPT/i WF TMC option is present on the wirefeeder, the welding torch can be connected directly to the wirefeeder.
If the option is not present, the welding torch is connected to the power source.

WARNING!

Danger from electric current due to defective system components and incorrect operation.

This can result in serious personal injury and damage to property.

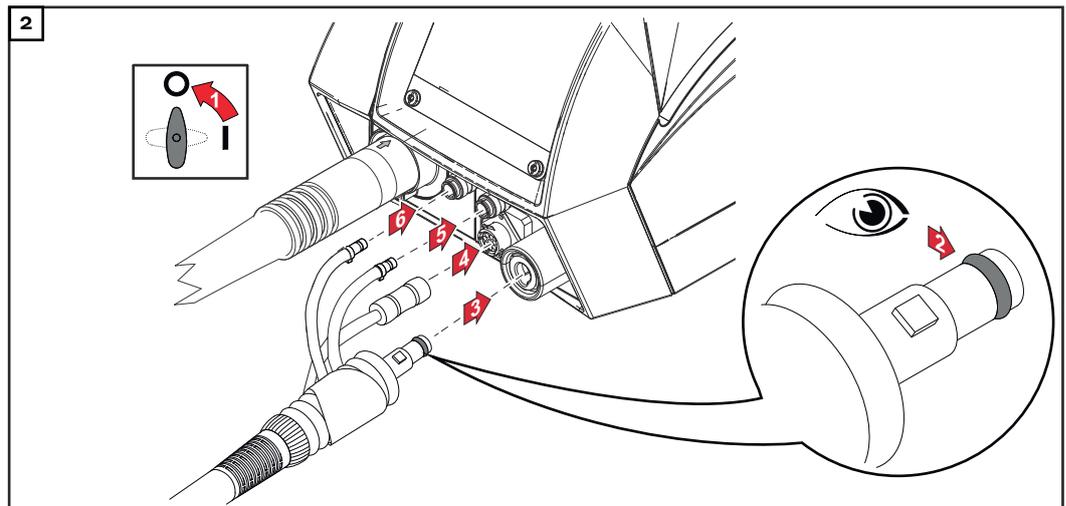
- ▶ All cables, leads, and hosepacks must always be securely connected, undamaged, and correctly insulated.
- ▶ Only use adequately dimensioned cables, leads, and hosepacks.

NOTE!

A damaged O-ring on the welding torch can lead to contamination of the shielding gas, resulting in a defective weld.

- ▶ Before each start-up, ensure that the O-ring on the welding torch is undamaged.

- 1 Fit parts to the welding torch according to the Operating Instructions for the welding torch



Inserting/changing feed rollers

Safety

WARNING!

Danger from electrical current.

This can result in serious personal injury and damage to property.

- ▶ Before starting work, switch off all devices and components involved, and disconnect them from the grid.
- ▶ Secure all devices and components involved so they cannot be switched back on.
- ▶ After opening the device, use a suitable measuring instrument to check that electrically charged components (such as capacitors) have been discharged.

General

The feed rollers are not inserted in the system when first delivered.

In order to achieve optimum welding wire feed, the feed rollers must be suitable for the diameter and alloy of the wire being welded.

NOTE!

Incorrectly designed feed rollers can cause poor weld properties.

- ▶ Only use feed rollers appropriate for the welding wire.

An overview of the available feed rollers and their possible uses can be found in the Spare Parts Lists.

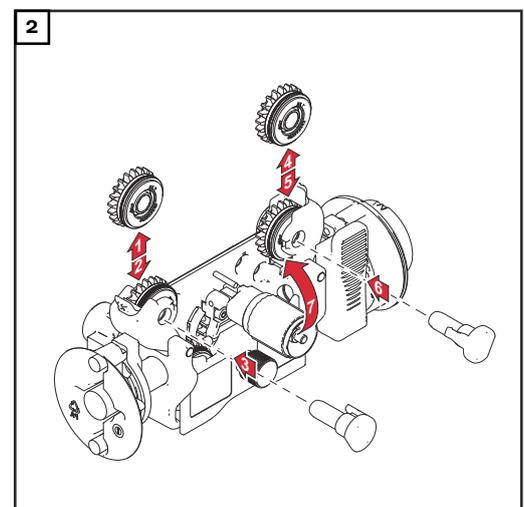
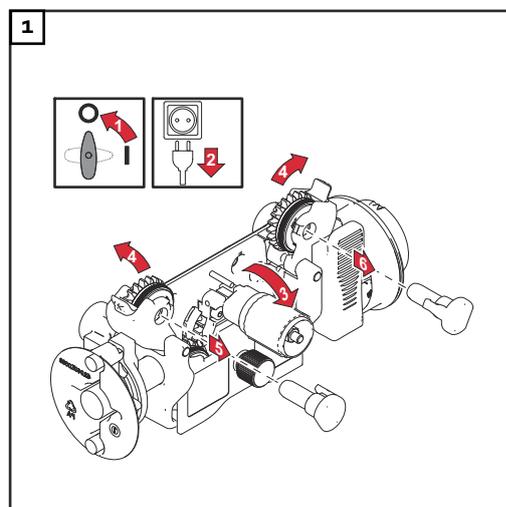
Inserting/changing feed rollers

CAUTION!

Danger due to feed roller holders shooting upwards.

This could result in injury.

- ▶ When unlocking the clamping lever, keep fingers away from the area to the left and right of the clamping lever.

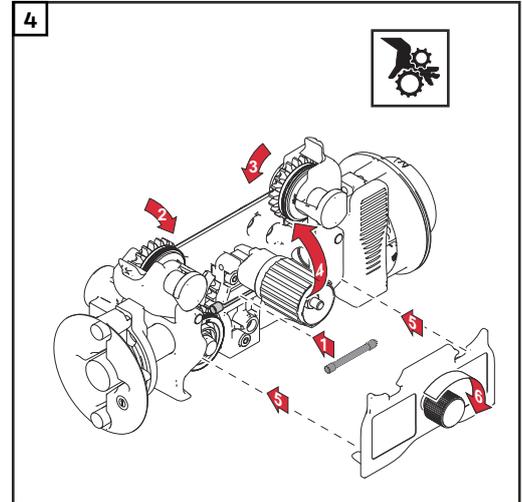
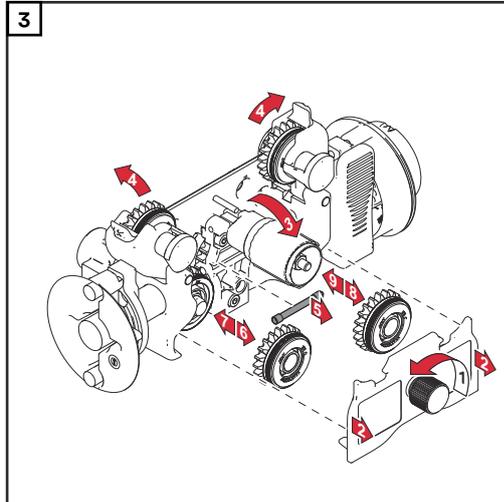


⚠ CAUTION!

Danger due to open feed rollers.

This could result in injury.

- ▶ After inserting/changing the feed rollers, always install the protective cover of the 4-roller drive.



Inserting the wirepool/basket-type spool

Safety

WARNING!

Danger from electrical current.

This may result in serious injuries or death.

- ▶ Before starting work, switch off all the devices and components involved and disconnect them from the grid.
- ▶ Secure all devices and components involved so they cannot be switched back on.

CAUTION!

Danger from springiness of the coiled welding wire.

This could result in injury.

- ▶ Wear safety goggles.
- ▶ When inserting the wirepool/basket-type spool, hold the end of the welding wire firmly to avoid injuries caused by the welding wire springing back.

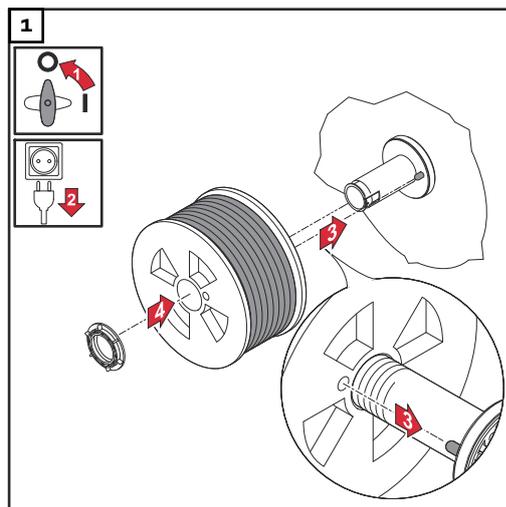
CAUTION!

Danger from falling wirepool/basket-type spool.

Personal injury and damage to property may result.

- ▶ Ensure that the wirepool/basket-type spool including basket-type spool adapter is always firmly seated on the wirepool holder.
- ▶ Always secure the wirepool/basket-type spool including basket-type spool adapter with the supplied securing elements.

Inserting the wirepool

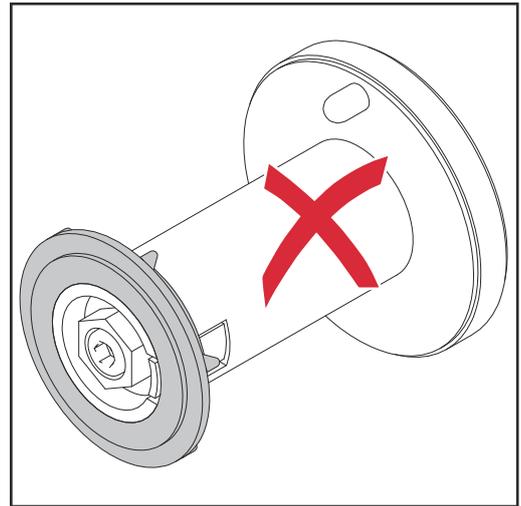
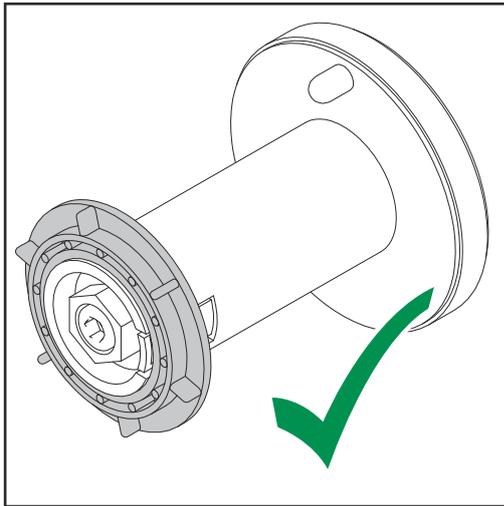


WARNING!

Danger due to falling wirepool as a result of the locking ring being fitted the wrong way round.

This can result in severe personal injury and damage to property.

- ▶ Always position the locking ring as shown below.



Installing the basket-type spool

WARNING!

Danger from falling basket-type spool due to missing basket-type spool adapter.

This can result in severe personal injury and damage to property.

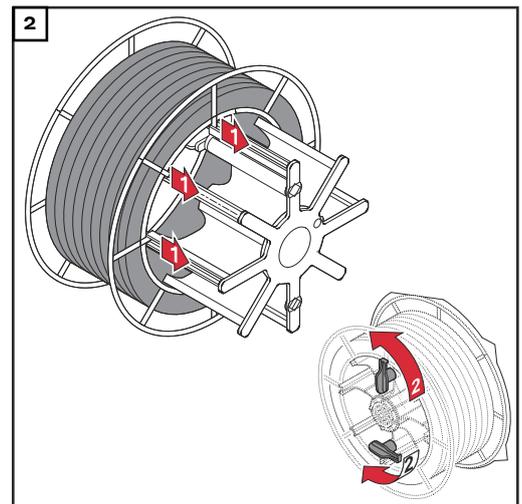
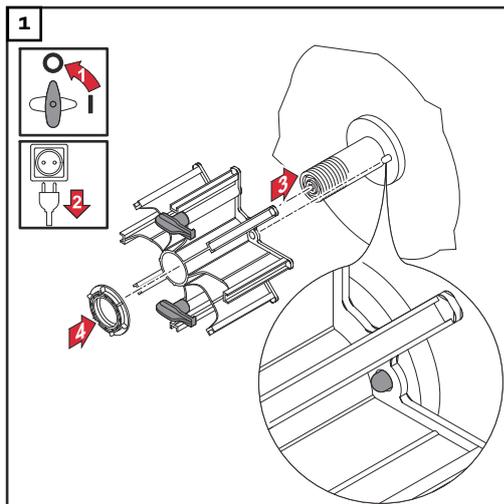
- ▶ When working with basket-type spools, only use the basket-type spool adapter supplied with the device.

WARNING!

Danger from falling basket-type spool.

This can result in severe personal injury and damage to property.

- ▶ Place the basket-type spool on the adapter provided in such a way that the bars on the spool are inside the adapter guideways.

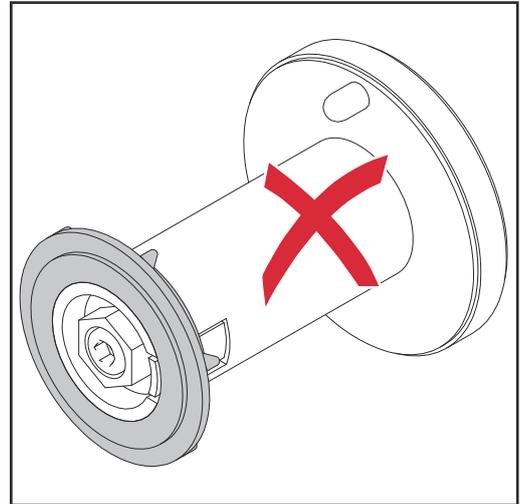
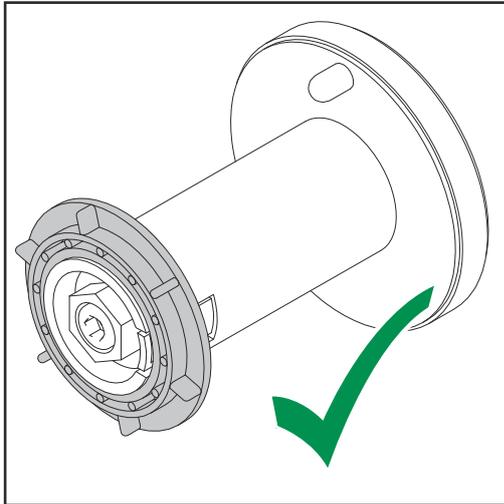


 **WARNING!**

Danger due to falling basket-type spool as a result of the locking ring being fitted the wrong way round.

This can result in severe personal injury and damage to property.

- ▶ Always position the locking ring as shown below.



Threading in the welding wire

Threading in the welding wire

CAUTION!

Danger due to sharp end of the welding wire.

Personal injury and damage to property may result.

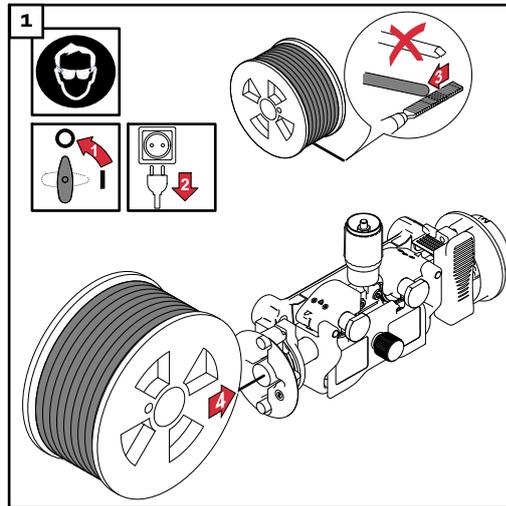
- ▶ Deburr the end of the welding wire before insertion.

CAUTION!

Danger from springiness of the coiled welding wire.

Personal injury and damage to property may result.

- ▶ Wear safety goggles.
- ▶ When inserting the welding wire into the 4-roller drive, hold the end of the welding wire firmly to avoid injuries caused by the welding wire springing back.



NOTE!

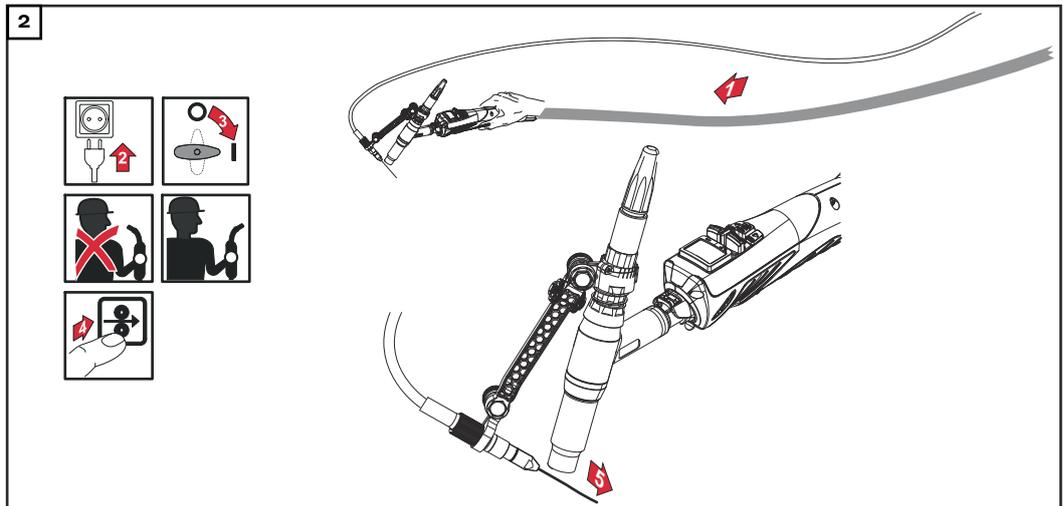
The length of the wirefeeding hose must not exceed 4 m / 13 feet 1.48 inches during active wire movement (Active Wire function).

WARNING!

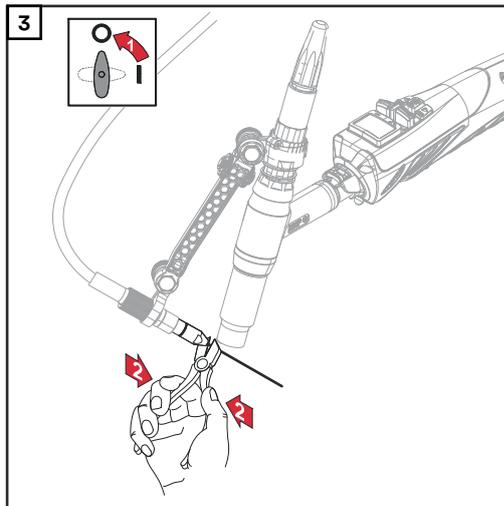
Danger due to emerging welding wire.

This can result in severe personal injury and damage to property.

- ▶ Hold the welding torch so that the tip of the welding torch points away from the face and body.
- ▶ Wear safety goggles.
- ▶ Do not point the welding torch at people.



Threading in the welding wire



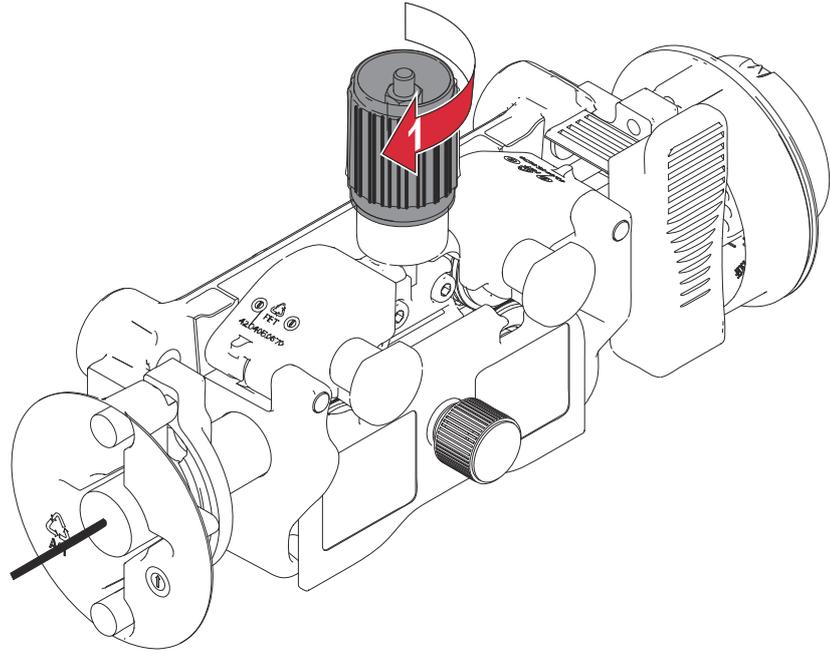
Setting the contact pressure

NOTE!

Excessive contact pressure can result in damage to property and poor weld properties.

- ▶ Set the contact pressure in such a way that the welding wire is not deformed but nevertheless ensures proper wirefeeding.
- ▶ Contact pressure standard values according to the imprint on the red protective cover.

1



EN-US

Adjusting the brake

General

NOTE!

Overrunning of the brake can result in damage to property.

- ▶ After releasing the torch trigger/wire-threading button, the wirespool must stop unreeling.
- ▶ If it continues unreeling, readjust the brake.

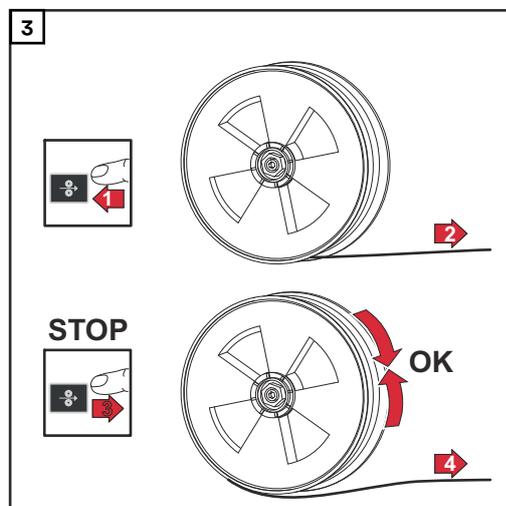
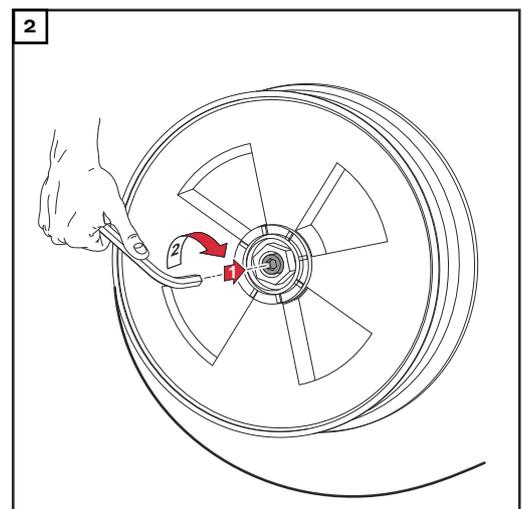
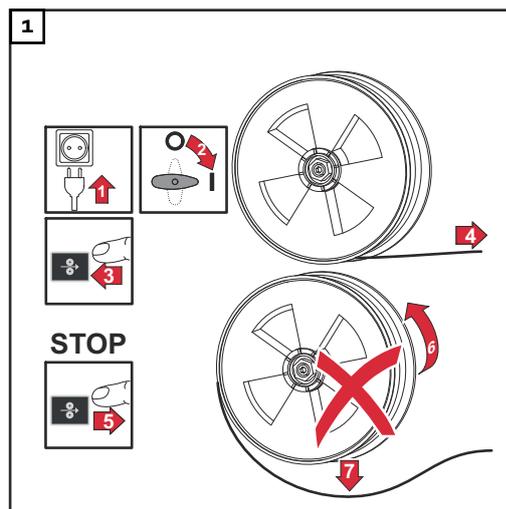
Adjusting the brake

⚠ WARNING!

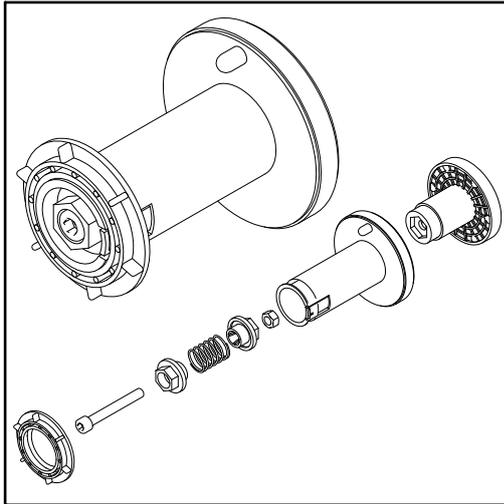
Danger due to emerging welding wire.

This can result in severe personal injury and damage to property.

- ▶ Hold the welding torch so that the tip of the welding torch points away from the face and body.
- ▶ Wear safety goggles.
- ▶ Do not point the welding torch at people.



Design of the brake



⚠ WARNING!

Danger from incorrect installation.
This can result in severe personal injury and damage to property.

- ▶ Do not dismantle the brake.
- ▶ Maintenance and servicing of brakes is to be carried out by trained, qualified personnel only.

The brake is only available as a complete unit.
The illustration of the brake is for information purposes only.

Commissioning

Safety



WARNING!

Danger from incorrect operation and work that is not carried out properly.

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-

Requirements

The following requirements must be fulfilled for commissioning of the wirefeeder:

- Wirefeeder connected to power source by means of interconnecting hosepack
- Welding torch connected to wirefeeder
- Feed rollers inserted into wirefeeder
- Wirespool/basket-type spool and its adapter inserted into wirefeeder
- Welding wire threaded in
- Contact pressure of the feed rollers set
- Red protective cover fitted to the wire drive
- Brake adjusted
- All covers closed, all side parts mounted, and all protection devices in good order and installed in the location intended

The power source must be set to TIG cold wire under Welding process / Process.

Commissioning

The wirefeeder is started up in manual applications by pressing the torch trigger and in automated applications by an active signal to start welding.

The following processes and parameters are available on the power source for operating the wirefeeder:

- TIG DynamicWire
 - Wirefeeder setup
(Process parameters / Common/TIG/MMA/CEL / Wirefeeder setup)
-

TIG DynamicWire

With TIG DynamicWire, the voltage between the workpiece and the welding wire is measured, allowing the wirefeeder to be actively controlled.

The wire speed automatically adapts to the amperage, arc length, weld seam profile, or the air gap to be bridged.

TIG DynamicWire works in Synergic operation. Current and wire speed do not have to be set separately.

The wire speed can be optimized via the "Wire speed correction" process parameter.

The Welding Package TIG DynamicWire provides characteristics for the most common filler metals.

Wire speed setting

Wire speed correction For fine adjustment of the wire speed with TIG DynamicWire

The correction value indicates how quickly the welding wire re-enters the weld pool after the short circuit is broken.

-10 - +10

Factory setting: 0

-10 = slow immersion, +10 = fast immersion

Wire speed 1

Set value for wire speed

off / 0.1 - 50.0 m/min

Factory setting: 5 m/min

Wire speed 2

Wire speed 2

0 - 100% (of wire speed 1)

Factory setting: 50 %

If a value is set for each of the "Wire speed 2" and "Pulse frequency" setup parameters, the wire speed changes between wire speed 1 and wire speed 2 synchronously with the pulse frequency of the welding current.

Main current

Welding current I_1

iWave 300i DC, iWave 300i AC/DC: 3 - 300 A

iWave 400i DC, iWave 400i AC/DC: 3 - 400 A

iWave 500i DC, iWave 500i AC/DC: 3 - 500 A

Factory setting: -

Pulse frequency

off / 0.20 - 5000 Hz, 5000 - 10000 Hz

Factory setting: off

Wire start-up delay

Feed delay of welding wire from start of main current phase

off / 0.1 - 9.9 s

Factory setting: 5.0 s

Wire end delay

Feed delay of welding wire from end of main current phase

off / 0.1 - 9.9 s

Factory setting: 5.0 s

Wire retraction end

How far the welding wire is retracted after the end of welding

off / 1 - 50 mm

Factory setting: 3 mm

Wire position start

How far the welding wire is from the workpiece before welding starts

off / 1 - 50 mm
Factory setting: 3 mm

Feeder inching speed

0.5 - 100.0 m/min
Factory setting: 5.0 m/min

Safety

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- ▶ Secure all devices and components involved so they cannot be switched back on.
- ▶ After opening the device, use a suitable measuring instrument to check that electrically charged components (such as capacitors) have been discharged.

 **WARNING!**

Danger due to hot system components and/or equipment.

This can result in serious burns or scalding.

- ▶ Before starting work, allow all hot system components and/or equipment to cool to +25°C/+77°F (e.g., coolant, water-cooled system components, wirefeeder drive motor, etc.).
- ▶ Wear suitable protective equipment (e.g., heat-resistant gloves, safety goggles, etc.) if cooling down is not possible.

Troubleshooting

Make a note of the serial number and configuration of the device, and provide the service team with a detailed error description if:

- Errors occur that are not covered in this document
- The troubleshooting measures provided in this document are unsuccessful

Power source not working

Power source switched on; displays and indicators do not illuminate

Cause: Mains lead damaged or broken, mains plug not inserted

Remedy: Check mains lead, if necessary insert mains plug

Cause: Mains socket or mains plug faulty

Remedy: Replace faulty parts

Cause: Mains fuse protection

Remedy: Replace mains fuse

Cause: Short circuit on the 24 V power supply of the SpeedNet connection or external sensor

Remedy: Disconnect connected components

No function after pressing torch trigger

Power source power switch is ON and indicators are lit up

Cause: Only for welding torches with an external control plug: Control plug not plugged in

Remedy: Plug in control plug

Cause: Welding torch or welding torch control line faulty

Remedy: Replace welding torch

No welding current

Power source switched on, displays illuminate

Cause: Incorrect ground connection

Remedy: Check ground connection for polarity

Cause: Power cable in welding torch damaged or broken.

Remedy: Replace welding torch

no shielding gas

all other functions present

Cause: Gas cylinder empty

Remedy: Change gas cylinder

Cause: Gas pressure regulator faulty

Remedy: Replace gas pressure reducer

Cause: Gas hose not attached, or damaged

Remedy: Attach or replace gas hose

Cause: Welding torch faulty

Remedy: Change welding torch

Cause: Gas solenoid valve faulty

Remedy: Inform the service team

Irregular wire speed

Cause: Braking force has been set too high

Remedy: Loosen the brake

Cause: Inner liner in the welding torch faulty

Remedy: Check the inner liner for kinks, dirt, etc. and replace if necessary

Cause: Feed rollers not suitable for welding wire used

Remedy: Use suitable feed rollers

Cause: Feed rollers have the wrong contact pressure

Remedy: Optimize contact pressure

Wirefeed issues

For applications with long hosepacks

Cause: Improper laying of the hosepack

Remedy: Lay hosepack as straight as possible while avoiding tight bending radii

Welding torch gets very hot

Cause: Welding torch is inadequately sized

Remedy: Observe duty cycle and load limits

Cause: For water-cooled systems only: Coolant flow too low

Remedy: Check coolant level, coolant flow rate, coolant contamination, etc.
For more detailed information, refer to the Operating Instructions for the cooling unit

Poor-quality weld properties

Cause: Incorrect welding parameters

Remedy: Check settings

Cause: Poor ground earth connection

Remedy: Establish good contact with workpiece

Cause: Too little or no shielding gas

Remedy: Check gas pressure regulator, gas hose, gas solenoid valve, welding torch gas connection, etc.

Cause: Welding torch leaks

Remedy: Change welding torch

Cause: Incorrect wire alloy or incorrect wire diameter

Remedy: Check inserted welding wire

Cause: Incorrect wire alloy or incorrect wire diameter

Remedy: Check the weldability of the parent material

Cause: Shielding gas not suitable for wire alloy

Remedy: Use correct shielding gas

Service, maintenance and disposal

General

The device only requires minimal of service and maintenance under normal operating conditions. However, several points must be observed for the welding system to remain operational for years to come.

Safety



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WARNING!

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- ▶ Before starting work, allow all hot system components and/or equipment to cool to +25°C/+77°F (e.g., coolant, water-cooled system components, wirefeeder drive motor, etc.).
 - ▶ Wear suitable protective equipment (e.g., heat-resistant gloves, safety goggles, etc.) if cooling down is not possible.
-

At every start-up

- Check all hosepacks and the ground earth connection for damage. Replace any damaged components.
 - Check feed rollers and inner liners for damage. Replace any damaged components.
 - Check contact pressure of the feed rollers and adjust if necessary.
-

Every 6 months



CAUTION!

Danger from compressed air at close range.

Electronic parts may be damaged.

- ▶ Do not bring the air nozzle too close to electronic parts.
-

- Open covers, dismantle device side panels, and blow the inside of the device clean with dry, reduced compressed air. After cleaning, restore the system to its original condition.

Disposal

Materials should be disposed of according to valid local and national regulations.

Technical data

CWF 25i	Supply voltage	24 V DC / 60 V DC
	Current consumption	0.5 A / 1.2 A
	Wire speed	0.1 - 25 m/min 3.94 - 984.25 ipm
	Wire drive	4-roller drive
	Wire diameter	0.8 - 1.6 mm 0.03 - 0.06 in.
	Wirespool diameter	max. 300 mm max. 11.81 in.
	Wirespool weight	max. 19 kg max. 41.89 lb.
	Maximum pressure of shielding gas	7 bar 101.53 psi
	Coolant	Original Fronius
	Maximum pressure of coolant	5 bar 72.53 psi
	Protection class	IP 23
	Mark of conformity	S, CE, CSA
	Dimensions l × w × h	658 x 282 x 362 mm 25.91 x 11.10 x 14.25 in.
	Weight (without options)	12.6 kg 27.78 lb.

Water-cooled interconnecting hosepack - HP 70i CWF CON /W

DC welding current at 10 min / 40°C (104°F)	40% ED ¹⁾ / 400 A 60% ED ¹⁾ / 365 A 100% ED ¹⁾ / 320 A
AC welding current at 10 min / 40°C (104°F)	40% ED ¹⁾ / 400 A 60% ED ¹⁾ / 365 A 100% ED ¹⁾ / 320 A
Shielding gas (Standard EN 439)	Argon
Length	2.0 / 5.0 / 10.0 m 6 feet 6.74 inch / 16 feet 4.85 inch / 32 feet 9.70 inch
Minimum coolant flow Q_{min}	1 l/min 0.26 gal. (US) / min
Minimum coolant pressure p_{min}	3 bar 43 psi
Maximum coolant pressure p_{max}	5.5 bar 79 psi
Maximum permitted open circuit voltage (U_o)	113 V
Maximum permitted striking voltage (U_p)	10 kV

1) ED = Duty cycle



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