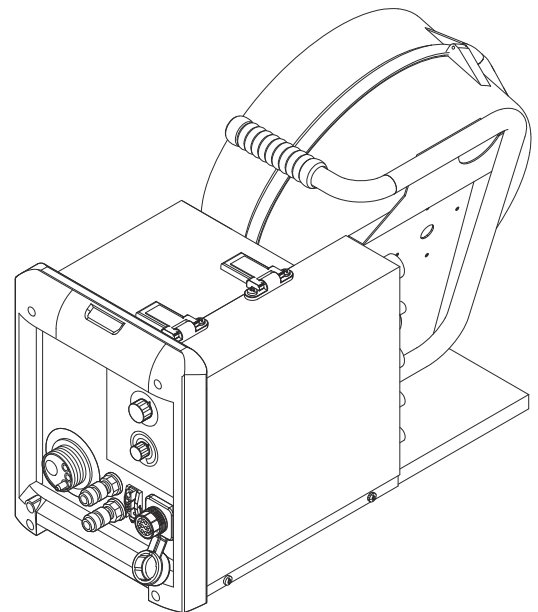


# Operating Instructions

**VR 4000**  
**VR 4000-30 TIME**  
**VR 4000-30**



**EN** | Operating Instructions





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# Safety rules

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## Explanation of safety notices

### **DANGER!**

**Indicates immediate danger.**

- ▶ If not avoided, death or serious injury will result.
- 

### **WARNING!**

**Indicates a potentially hazardous situation.**

- ▶ If not avoided, death or serious injury may result.
- 

### **CAUTION!**

**Indicates a situation where damage or injury could occur.**

- ▶ If not avoided, minor injury and/or damage to property may result.
- 

### **NOTE!**

**Indicates a risk of flawed results and possible damage to the equipment.**

---

## General

The device is manufactured using state-of-the-art technology and according to recognised 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 device.
- 

All persons involved in commissioning, operating, maintaining and servicing the device must:

- be suitably qualified,
  - have sufficient knowledge of welding and
  - read and follow these operating instructions carefully.
- 

The operating instructions must always be at hand wherever the device is being used. In addition to the operating instructions, attention must also be paid to any generally applicable and local regulations regarding accident prevention and environmental protection.

---

All safety and danger notices on the device

- must be in a legible state,
  - must not be damaged,
  - must not be removed,
  - must 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, rectify any faults that could compromise safety.

**This is for your personal safety!**

---

**Proper use**

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

---

The device is intended solely for the welding processes specified on the rating plate.

Any use above and beyond this purpose is deemed improper. The manufacturer shall not be held liable for any damage arising from such usage.

---

Proper use includes:

- carefully reading and following all the instructions given in the operating instructions
  - studying and obeying all safety and danger notices carefully
  - performing all stipulated inspection and maintenance work.
- 

Never use the device for the following purposes:

- Thawing out pipes
  - Charging batteries
  - Starting engines
- 

The device is designed for use in industry and the workshop. The manufacturer accepts no responsibility for any damage caused through use in a domestic setting.

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The manufacturer likewise accepts no liability for inadequate or incorrect results.

---

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**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 shall not be held liable for any damage arising from such usage.

---

Ambient temperature range:

- 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)
- 

The surrounding air must be free from dust, acids, corrosive gases or substances, etc.

Can be used at altitudes of up to 2000 m (6561 ft. 8.16 in.)

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---

**Obligations of the operator**

The operator must only allow persons to work with the device who:

- are familiar with the fundamental instructions regarding safety at work and accident prevention and have been instructed in how to use the device
  - have read and understood these operating instructions, especially the section "safety rules", and have confirmed as much with their signatures
  - are trained to produce the required results.
- 

Checks must be carried out at regular intervals to ensure that operators are working in a safety-conscious manner.

---

---

**Obligations of personnel**

Before using the device, all persons instructed to do so undertake:

- to observe the basic instructions regarding safety at work and accident prevention
  - to read these operating instructions, especially the "Safety rules" section and sign to confirm that they have understood them and will follow them.
-

Before leaving the workplace, ensure that people or property cannot come to any harm in your absence.

---

### **Mains connection**

Devices with a higher rating may affect the energy quality of the mains due to their current consumption.

---

This may affect a number device types in terms of:

- Connection restrictions
- Criteria with regard to the maximum permissible mains impedance <sup>\*)</sup>
- Criteria with regard to the minimum short-circuit power requirement <sup>\*)</sup>

<sup>\*)</sup> at the interface with the public grid  
see "Technical data"

---

In this case, the plant operator or the person using the device should check whether the device may be connected, where appropriate by discussing the matter with the power supply company.

---

**IMPORTANT!** Ensure that the mains connection is earthed properly

---

### **Protecting yourself and others**

Anyone working with the device exposes themselves to numerous risks, e.g.

- flying sparks and hot pieces of metal
- Arc radiation, which can damage eyes and skin
- Hazardous electromagnetic fields, which can endanger the lives of those using cardiac pacemakers
- Risk of electrocution from mains current and welding current
- Greater noise pollution
- Harmful welding fumes and gases

---

Suitable protective clothing must be worn when working with the device. The protective clothing must have the following properties:

- Flame-resistant
- Insulating and dry
- Covers the whole body, is undamaged and in good condition
- Safety helmet
- Trousers with no turn-ups

---

Protective clothing refers to a variety of different items. Operators should:

- Protect eyes and face from UV rays, heat and sparks using a protective visor and regulation filter
- Wear regulation protective goggles with side protection behind the protective visor
- Wear stout footwear that provides insulation even in wet conditions
- Protect the hands with suitable gloves (electrically insulated and providing protection against heat)
- Wear ear protection to reduce the harmful effects of noise and to prevent injury

---

Keep all persons, especially children, out of the working area while any devices are in operation or welding is in progress. If, however, there are people in the vicinity:

- Make them aware of all the dangers (risk of dazzling by the arc, injury from flying sparks, harmful welding fumes, noise, possible risks from mains current and welding current, etc.)
- Provide suitable protective equipment
- Alternatively, erect suitable safety screens/curtains.

---

**Danger from toxic gases and vapours**

The fumes produced during welding contain harmful gases and vapours.

---

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

---

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

---

Keep your face away from welding fumes and gases.

---

Fumes and hazardous gases

- must not be breathed in
- must be extracted from the working area using appropriate methods.

---

Ensure an adequate supply of fresh air. Ensure that there is a ventilation rate of at least 20 m<sup>3</sup> per hour at all times.

---

Otherwise, a welding helmet with an air supply must be worn.

---

If there is any doubt about whether the extraction capacity is sufficient, the measured toxic emission values should be compared with the permissible limit values.

---

The following components are responsible, amongst other things, for the degree of toxicity of welding fumes:

- Metals used for the workpiece
- Electrodes
- Coatings
- Cleaners, degreasers, etc.
- Welding process used

---

The relevant material safety data sheets and manufacturer's specifications for the listed components should therefore be studied carefully.

---

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

---

Flammable vapours (e.g. solvent fumes) should be kept away from the arc's radiation area.

---

Close the shielding gas cylinder valve or main gas supply if no welding is taking place.

---

---

**Danger from flying sparks**

Flying sparks may cause fires or explosions.

---

Never weld close to flammable materials.

---

Flammable materials must be at least 11 metres (36 ft. 1.07 in.) away from the arc, or alternatively covered with an approved cover.

---

A suitable, tested fire extinguisher must be available and ready for use.

---

Sparks and pieces of hot metal may also get into adjacent areas through small gaps or openings. Take appropriate precautions to prevent any danger of injury or fire.

---

Welding must not be performed in areas that are subject to fire or explosion or near sealed tanks, vessels or pipes unless these have been prepared in accordance with the relevant national and international standards.

---



Do not carry out welding on containers that are being or have been used to store gases, propellants, mineral oils or similar products. Residues pose an explosive hazard.

---

**Risks from mains current and welding current**

An electric shock is potentially life threatening and can be fatal.

---

Do not touch live parts either inside or outside the device.

---

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

---

Always set the wirefeeder up on a sufficiently insulated surface or use a suitable, insulated wirefeeder holder.

---

Make sure that you and others are protected with an adequately insulated, dry base or cover for the earth or ground potential. This base or cover must extend over the entire area between the body and the earth or 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.

Use the handle to ensure the power connections are tight before every use.

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

---

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

---

The electrode (rod electrode, tungsten electrode, welding wire, etc.) must

- never be immersed in liquid for cooling
- never be touched when the welding system is switched on.

---

Double the open circuit voltage of a welding system can occur between the welding electrodes of two welding systems. Touching the potentials of both electrodes at the same time may be fatal under certain circumstances.

---

Arrange for the mains cable to be checked regularly by a qualified electrician to ensure the ground conductor is functioning properly.

---

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

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

Otherwise, this is considered gross negligence. The manufacturer shall not be held liable for any damage arising from such usage.

---

If necessary, provide adequate earthing for the workpiece.

---

Switch off unused devices.

---

Wear a safety harness if working at height.

---

Before working on the device, switch it off and pull out the mains plug.

---

Attach a clearly legible and easy-to-understand warning sign to the device to prevent anyone from plugging the mains plug back in and switching it on again.

---

After opening the device:

- Discharge all live components
  - Ensure that all components in the device are de-energised.
-

If work on live parts is required, have a second person switch off the main switch at the right moment.

---

**Meandering welding currents**

If the following instructions are ignored, meandering welding currents can develop with the following consequences:

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

---

Ensure that the workpiece is held securely by the workpiece clamp.

---

Attach the workpiece clamp as close as possible to the area that is to be welded.

---

Position the device with sufficient insulation against electrically conductive environments, such as insulation against conductive floor or insulation to conductive racks.

---

If power distribution boards, twin-head mounts, etc., are being used, note the following: The electrode of the welding torch / electrode holder that is not used is also live. Make sure that the welding torch / electrode holder that is not used is kept sufficiently insulated.

---

In the case of automated MIG/MAG applications, ensure that only an insulated wire electrode is routed from the welding wire drum, large wirefeeder spool or wirespool to the wirefeeder.

---

**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 mains.

---

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 operator is obliged to take appropriate action to rectify the situation.

---

Check and evaluate the immunity to interference of nearby devices according to national and international regulations. Examples of equipment that may be susceptible to interference from the device include:

- Safety devices
  - Network, signal and data transfer lines
  - IT and telecommunications devices
  - Measuring and calibrating devices
-

Supporting measures for avoidance of EMC problems:

1. Mains supply
  - If electromagnetic interference arises despite the correct mains connection, additional measures are necessary (e.g. use of a suitable line filter)
2. Welding power-leads
  - must be kept as short as possible
  - must be laid close together (to avoid EMF problems)
  - must be kept well apart from other leads
3. Equipotential bonding
4. Earthing of the workpiece
  - If necessary, establish an earth connection using suitable capacitors.
5. Shield, if necessary
  - Shield other devices nearby
  - Shield the entire welding installation

---

### EMF measures

Electromagnetic fields may pose as yet unknown risks to health:

- Effects on the health of persons in the vicinity, e.g. those with pacemakers and hearing aids
- Individuals with pacemakers must seek advice from their doctor before approaching the device or any welding that is in progress
- For safety reasons, maintain as large a distance as possible between the welding power-leads and the head/torso of the welder
- Do not carry welding power-leads and hosepacks over the shoulders or wind them around any part of the body

---

### Specific hazards

Keep hands, hair, clothing and tools away from moving parts. For example:

- Fans
- Cogs
- Rollers
- Shafts
- Wire spools and welding wires

---

Do not reach into the rotating cogs of the wire drive or into rotating drive components.

---

Covers and side panels may only be opened/removed while maintenance or repair work is being carried out.

---

During operation

- Ensure that all covers are closed and all side panels are fitted properly.
- Keep all covers and side panels closed.

---

The welding wire emerging from the welding torch poses a high risk of injury (piercing of the hand, injuries to the face and eyes, etc.).

Therefore, always keep the welding torch facing away from the body (devices with wirefeeder) and wear suitable protective goggles.

---

Never touch the workpiece during or after welding - risk of burns.

---

Slag can jump off cooling workpieces. The specified protective equipment must therefore also be worn when reworking workpieces, and steps must be taken to ensure that other people are also adequately protected.

---

Welding torches and other parts with a high operating temperature must be allowed to cool down before handling.

---

Special provisions apply in areas at risk of fire or explosion

- observe relevant national and international regulations.
-

Welding machines for work in areas with increased electrical risk (e.g. near boilers) must carry the 'Safety' sign. However, the welding machine must not be located in such areas.

---

Risk of scalding from escaping coolant. Switch off cooling unit before disconnecting coolant flow or return lines.

---

Observe the information on the coolant safety data sheet when handling coolant. The coolant safety data sheet may be obtained from your service centre or downloaded from the manufacturer's website.

---

Use only suitable load-carrying equipment supplied by the manufacturer when transporting devices by crane.

- Hook chains or ropes onto all suspension points provided on the suitable load-carrying equipment.
  - Chains or ropes must be at the smallest angle possible to the vertical.
  - Remove gas cylinder and wirefeeder (MIG/MAG and TIG devices).
- 

If the wirefeeder is attached to a crane holder during welding, always use a suitable, insulated wirefeeder hoisting attachment (MIG/MAG and TIG devices).

---

Welding with the device during crane transport is only permitted if this is clearly stated in the intended use of the device.

---

If the device has a carrying strap or handle, this is intended solely for carrying by hand. The carrying strap is not to be used if transporting with a crane, counter-balanced lift truck or other mechanical hoist.

---

All lifting tackle (straps, handles, chains, etc.) used in connection with the device or its components must be tested regularly (e.g. for mechanical damage, corrosion or changes caused by other environmental factors).

The testing interval and scope of testing must comply with applicable national standards and directives as a minimum.

---

Odourless and colourless shielding gas may escape unnoticed if an adapter is used for the shielding gas connection. Prior to assembly, seal the device-side thread of the adapter for the shielding gas connection using suitable Teflon tape.

---

---

### **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/m<sup>3</sup>
- 

Use filters if necessary.

---

---

### **Danger from shielding gas cylinders**

Shielding gas cylinders contain gas under pressure and can explode if damaged. As the shielding gas cylinders are part of the welding equipment, they must be handled with the greatest of care.

---

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

---

Mount the shielding gas cylinders vertically and secure according to instructions to prevent them falling over.

---

Keep the shielding gas cylinders well away from any 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 attempt to weld a pressurised shielding gas cylinder.

---

Only use shielding gas cylinders suitable for the application in hand, along with the correct and appropriate accessories (regulator, hoses and fittings). Only use shielding gas cylinders and accessories that are in good condition.

---

Turn your face to one side when opening the valve of a shielding gas cylinder.

---

Close the shielding gas cylinder valve if no welding is taking place.

---

If the shielding gas cylinder is not connected, leave the valve cap in place on the cylinder.

---

The manufacturer's instructions must be observed as well as applicable national and international regulations for shielding gas cylinders and accessories.

---

---

**Danger from escaping shielding gas**

Risk of suffocation from the uncontrolled escape of shielding gas

---

Shielding gas is colourless and odourless and, in the event of a leak, can displace the oxygen in the ambient air.

- Ensure an adequate supply of fresh air with a ventilation rate of at least 20 m<sup>3</sup>/hour.
  - Observe safety and maintenance instructions on the shielding gas cylinder or the main gas supply.
  - Close the shielding gas cylinder valve or main gas supply if no welding is taking place.
  - Check the shielding gas cylinder or main gas supply for uncontrolled gas leakage before every start-up.
- 

**Safety measures at the installation location and during transport**

A device toppling over could easily kill someone. Place the device on a solid, level surface such that it remains stable

- The maximum permissible tilt angle is 10°.
- 

Special regulations apply in rooms at risk of fire or explosion

- Observe relevant national and international regulations.
- 

Use internal directives and checks to ensure that the workplace environment is always clean and clearly laid out.

---

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

---

When setting up the device, ensure there is an all-round clearance of 0.5 m (1 ft. 7.69 in.) to ensure that cooling air can flow in and out freely.

---

When transporting the device, observe the relevant national and local guidelines and accident prevention regulations. This applies especially to guidelines regarding the risks arising during transport.

---

Do not lift or transport operational devices. Switch off and disconnect devices from the grid before transport or lifting.

---

Before transporting the device, allow coolant to drain completely and detach the following components:

- Wirefeeder
- Wirespool
- Shielding gas cylinder

---

After transporting the device, the device must be visually inspected for damage before commissioning. Any damage must be 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 risk of

- injury or death to the operator or a third party
- damage to the device and other material assets belonging to the operator
- inefficient operation of the device

---

Any safety devices that are not functioning properly must be repaired before switching on the device.

---

Never bypass or disable safety devices.

---

Before switching on the device, ensure that no one is likely to be endangered.

---

Check the device at least once a week for obvious damage and proper functioning of safety devices.

---

Always fasten the shielding gas cylinder securely and remove it beforehand if the device is to be transported by crane.

---

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

---

Only use suitable original coolant from the manufacturer.

---

Do not mix the manufacturer's original coolant with other coolants.

---

Only connect the manufacturer's system components to the cooling circuit.

---

The manufacturer accepts no liability for damage resulting from use of other system components or a different coolant. In addition, all warranty claims will be forfeited.

---

Cooling Liquid FCL 10/20 does not ignite. The ethanol-based coolant can ignite under certain conditions. Transport the coolant only in its original, sealed containers and keep well away from any sources of ignition.

---

Used coolant must be disposed of properly in accordance with the relevant national and international regulations. The coolant safety data sheet may be obtained from your service centre or downloaded from the manufacturer's website.

---

Check the coolant level before starting to weld, while the system is still cool.

---

**Commissioning,  
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 once every 12 months.

---

The manufacturer recommends that the welding system be calibrated during the same 12-month period.

---

A safety inspection should be carried out by a qualified electrician

- after any changes are made
  - after any additional parts are installed, or after any conversions
  - after repair, care and maintenance are carried out
  - at least every twelve months.
- 

For safety inspections, follow the appropriate national and international standards and directives.

---

Further details on safety inspection and calibration can be obtained from your service centre. They will provide you with any documents you may require, on request.

---

### **Disposal**

Waste electrical and electronic equipment must be collected separately and recycled in an environmentally responsible manner in accordance with the EU Directive and national law. Used equipment must be returned to the distributor or through a local, authorised collection and disposal system. Correct disposal of the used device promotes sustainable recycling of resources and prevents negative effects on health and the environment.

#### **Packaging materials**

- Collect separately
  - Observe locally valid regulations
  - Compress the cardboard box to reduce volume
- 

### **Safety symbols**

Devices with the CE mark satisfy the essential requirements of the low-voltage and electromagnetic compatibility directives (e.g. relevant product standards of the EN 60 974 series).

Fronius International GmbH hereby declares that the device is compliant with Directive 2014/53/EU. The full text on the EU Declaration of Conformity can be found at the following address: <http://www.fronius.com>

---

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

---

### **Data security**

With regard to data security, the user is responsible for:

- backing up any changes made to the factory settings
  - saving and retaining personal settings
- 

### **Copyright**

Copyright of these operating instructions remains with the manufacturer.

---

Text and illustrations were accurate at the time of printing, subject to change. We are grateful for suggestions for improvement and information regarding any discrepancies in the operating instructions.



# General

## Device concept



VR 4000/VR 4000-30 wire-feed unit



VR 4000-30 TIME wire-feed unit

The wire-feed units are designed to be used with wirepools of max. 300 mm (11.81 in) diameter. The standard 4-roller drive has good wirefeeding properties. The wirefeeders are also suitable for long hosepacks. Due to their compact size, the wirefeeders can be used in many different ways.

The VR 4000-30 TIME wire-feed unit is specially designed for the TIME high-performance welding process. All the important TIME process functions can be set directly on the wire-feed unit control panel using the integrated 3-parameter control. The following functions are not available:

- MIG/MAG standard manual welding
- Job mode
- LocalNet connection (e.g. operation with remote control or JobMaster welding torch)

## REQUIREMENTS

To operate the wirefeeder, it must first be configured for use with the corresponding power source:

	VR 4000	VR 4000-30	VR 4000-30 TIME
TransSynergic 4000/5000	X	X	-
TransSynergic 7200/9000	X	X	-
TransPuls Synergic 3200/4000/5000	X	X	-
TransPuls Synergic 7200/9000	X	X	-
TIME 5000 Digital	-	X	X
TransPuls Synergic 2700 Duo	X	-	-
TransPuls Synergic 2700 Duo TIG	X	-	-

- Application area**
- VR 4000: for all types of MIG/MAG welding
  - VR 4000-30: primarily used with TS/TPS 7200 and TS/TPS 9000 high-performance power sources. In conjunction with the TR 2100 remote control, and also with the TIME 5000 Digital power source
  - VR 4000-30 TIME: in conjunction with the TIME 5000 Digital high-performance power source, for all types of MIG/MAG high-performance welding

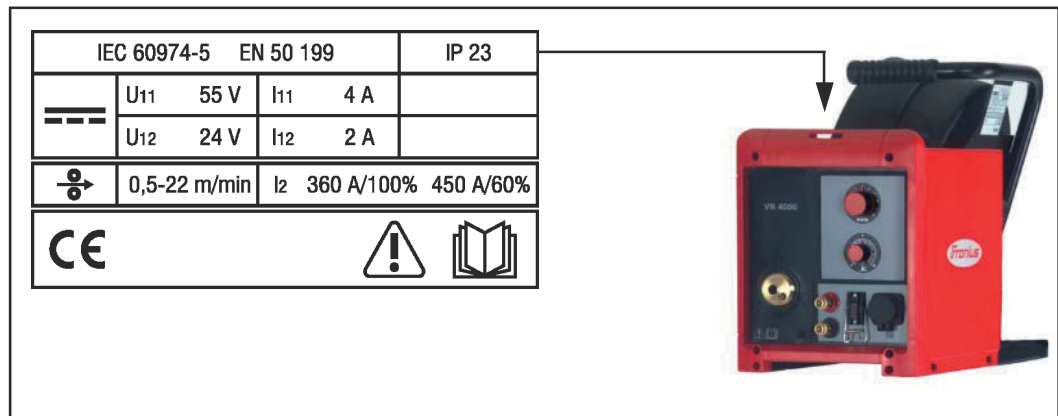
All variants of the VR 4000 are suitable for all standard shielding gases.

**NOTE!**

**The VR 4000 - 30 and VR 4000-30 TIME wire-feed units have a water-cooled electric motor with disc-shaped rotor, and may only be operated in conjunction with an appropriate cooling unit.**

**Warning notices on the device**

The wire-feed unit has safety symbols on the rating plate. The safety symbols must not be removed or painted over. The symbols warn against operating the equipment incorrectly, as this may result in serious injury and damage.



Do not use the functions described here until you have fully read and understood the following documents:

- These operating instructions
- all the operating instructions for the system components, especially the safety rules

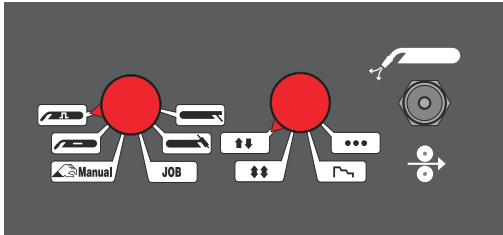


Welding is dangerous. The following basic requirements must be met:

- welders must be sufficiently qualified
- use appropriate protective equipment
- all persons not involved in the welding process must be kept at a safe distance

# Options

## "Mode" switch option for VR 4000/VR 4000-30



Detailed view of "Mode" switch option

The "mode" switch enables the processes and modes to be selected on site; the "gas test" and "wire threading" functions can also be carried out on site.

### NOTE!

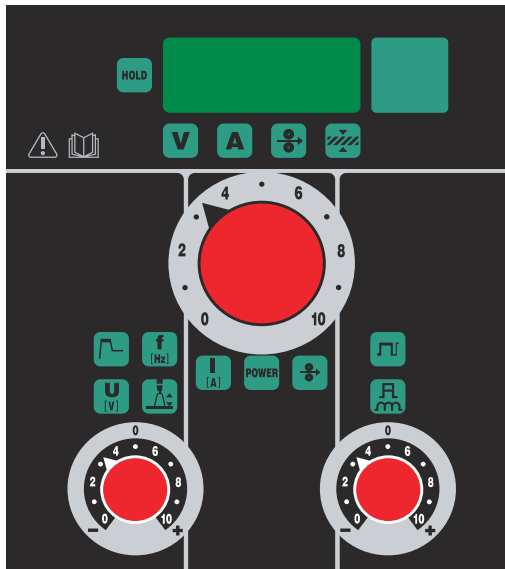
The "Mode selector switch" option cannot be used in conjunction with the VR 4000 digital display control panel.

## Optional control panels for VR 4000/VR 4000-30

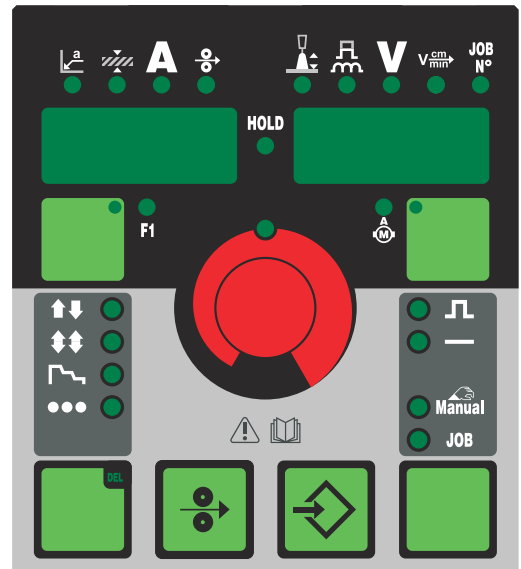
The VR 4000 and VR 4000-30 wire-feed units can, as an alternative to the standard control panel, be fitted with the following control panels:

- VR 4000 Ci control panel
- VR 4000 digital display

Please refer to the installation instructions for a detailed description of the optional control panels



VR 4000 Ci control panel option



VR 4000 digital display option

## Optional installation and conversion kits

### Robacta Drive installation kit

for retrofitting a connection socket for the Robacta Drive robot welding torch

### Push-pull unit installation kit

for subsequent installation of a push-pull unit

---

**Digital gas control**

for subsequent installation of the digital gas control

---

**Gas economiser valve installation kit**

for subsequent installation of a gas economiser valve

---

**Plastic-to-metal adapter installation kit**

for subsequent changeover from plastic to metal connection sockets

---

**Gas test/wire threading installation kit**

for retrofitting of a rocker switch for gas test and wire threading

---

**Trabant**

for installing the wire-feed unit on the Trabant trolley

---

**Fixable tensioning lever installation kit**

for retrofitting a fixable tensioning lever so that contact pressure cannot be accidentally adjusted

---

**Gas nozzle touch sensor installation kit**

for retrofitting with the gas nozzle touch sensor option (recognises when gas nozzle touches workpiece, used mainly in robot welding)

---

**Wire-end connector installation kit**

for subsequent installation of the optional wire-end connector (power source switches off at the end of the wire)

---

**Wire-end check installation kit**

retrofitting of wire end monitoring (advance warning before end of wire electrode)

---

**VR 143-2 intermediate drive adapter installation kit:**

for retrofitting an adapter for the VR 143-2 intermediate drive in conjunction with the push-pull unit

---

**VR mount for upright console**

to hold wire-feed unit when power source is fastened to an upright console

---

**QuickConnect option**

for simple installation of a wirefeeding hose between external wire electrode and wire-feed unit 4-roller drive

---

**Wirefeeding hose option**

for protected transport of the wire electrode to the wire-feed unit 4-roller drive

---

**Insulated crane attachment installation kit**

for fitting an insulated crane attachment

---

# Controls and indicators

## General

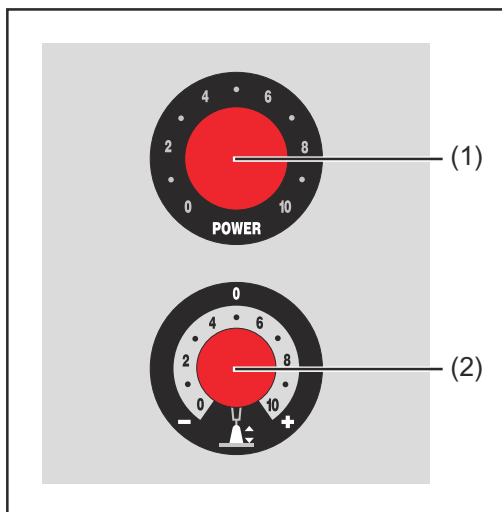
Setting parameters at control panels is only possible in manual welding mode.

In the automated welding mode or in robot welding, the robot control provides the set values for the welding parameters. Specifying command values via control panels is not possible in automated welding mode or in robot welding.

### IMPORTANT!

**Welding parameters that must be entered on a wire-feed unit control panel cannot be changed on the power source. Welding parameters can only be changed on the wire-feed unit.**

## Standard control panel



Standard control panel

### (1) Welding power/wire speed adjuster

- **Setting the welding power** (during MIG/MAG pulse synergic welding, MIG/MAG standard synergic welding)
- **Setting the wire speed** (during MIG/MAG standard manual welding)

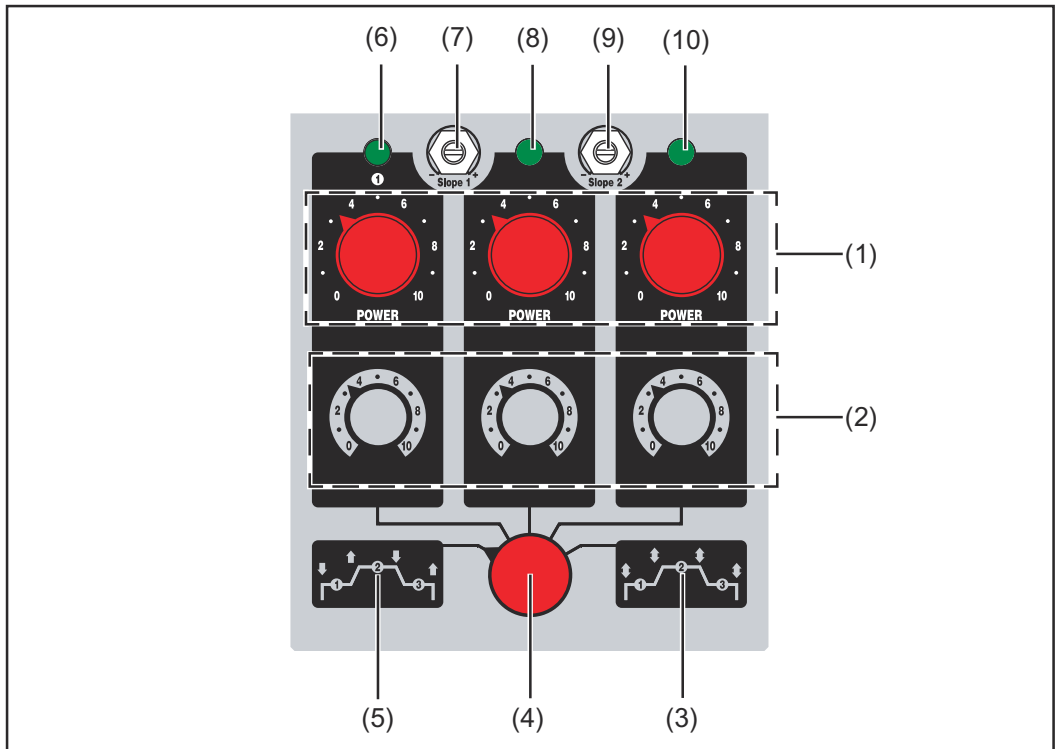
### (2) Arc length/arc-force dynamic adjuster

**has a different function depending on the welding process being used**

- **Correcting the arc length** (during MIG/MAG pulse synergic welding, MIG/MAG standard synergic welding)
  - = shorter arc length
  - 0 = neutral arc length
  - + = longer arc length
- **Setting the welding voltage** (during MIG/MAG standard manual welding)
- **Influencing the short circuit amperage at the instant of droplet transfer** (during MMA welding)
  - 0 = soft, low-spatter arc
  - 100 = harder and more stable arc

## Control panel VR 4000-30 TIME

The VR 4000-30 TIME wire-feed unit is part of the TIME high-performance welding system. The 3-parameter control allows you to set the starting, main and final currents individually, which is necessary for high-performance welding.



Control panel VR 4000-30 TIME

- 
- (1) Welding power adjuster**  
for setting the welding power at the respective operating point
- 
- (2) Arc length correction adjuster**  
for correcting the arc length at the respective operating point:  
0 = short arc  
10 = long arc
- 
- (3) "Run 4-step" mode**  
↕ = Press and release the torch trigger  
The set operating points run automatically
- 
- (4) Selector switch**  
for selecting operating points 1 - 3 and the operating modes.
- If operating point 1, 2 or 3 is selected, the following settings can be made on the power source control panel
- Switching between 2-step and 4-step modes
  - Switching between pulse/standard process
- 
- (5) "Run 2-step" mode**  
↓ = Press the torch trigger  
↑ = Release torch trigger  
The set operating points run according to the 2-step principle
- 
- (6) Operating point 1 indicator**  
illuminates when
- selector switch (4) is set to operating point 1
  - operating point 1 is running
- 
- (7) Slope 1 potentiometer**  
for adjusting the transition time from operating point 1 to operating point 2  
, setting range 0.1 - 9.9 s
-

- 
- (8) Operating point 2 indicator**  
illuminates when
- selector switch (4) is set to operating point 2
  - operating point 2 is running
- 

- (9) Slope 2 potentiometer**  
for adjusting the transition time from operating point 2 to operating point 3  
, setting range 0.1 - 9.9 s
- 

- (10) Operating point 3 indicator**  
illuminates when
- selector switch (4) is set to operating point 3
  - operating point 3 is running
- 

**IMPORTANT!**

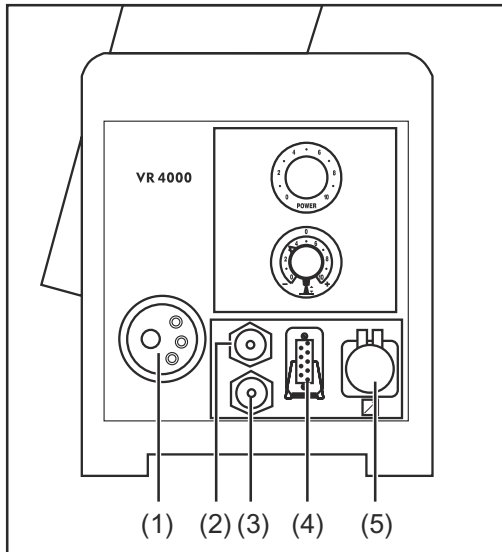
**If using the VR 4000-30 TIME wire-feed unit, the "Job mode" function is not available.**

After connecting the wirefeeder, the only welding processes that can be selected on the power source are as follows:

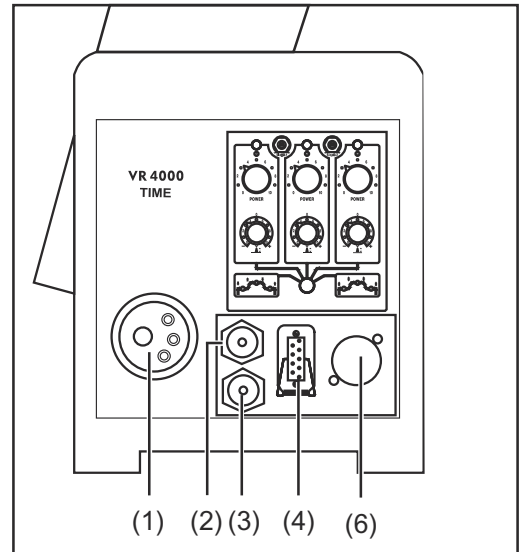
- 
- MIG/MAG Standard
  - MIG/MAG pulse synergic

# Connections and mechanical components

## Front of wirefeeder



VR 4000 - front view



VR 4000-30 TIME - front view

- (1) **Welding torch connection to hold the welding torch**

---

- (2) **Water return connection (red)**

---

- (3) **Water flow connection (blue)**

---

- (4) **Torch control connection for connecting the torch control plug**

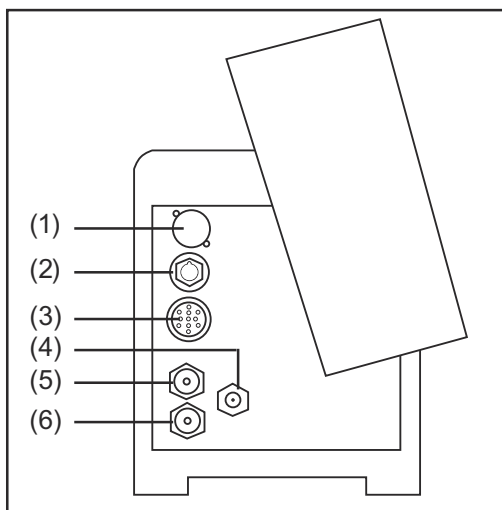
---

- (5) **LocalNet connection standardised connection socket for system add-ons (e.g. remote control, JobMaster torch, etc.)**

---

- (6) **Blanking cover**

## Rear of wire-feed unit



VR 4000 - rear view

- (1) **Blanking cover**

---

- (2) **(+) current socket with bayonet latch**  
for interconnecting hosepack

---

- (3) **LocalNet connection**  
for interconnecting hosepack

---

- (4) **Shielding gas connection**  
for interconnecting hosepack

---

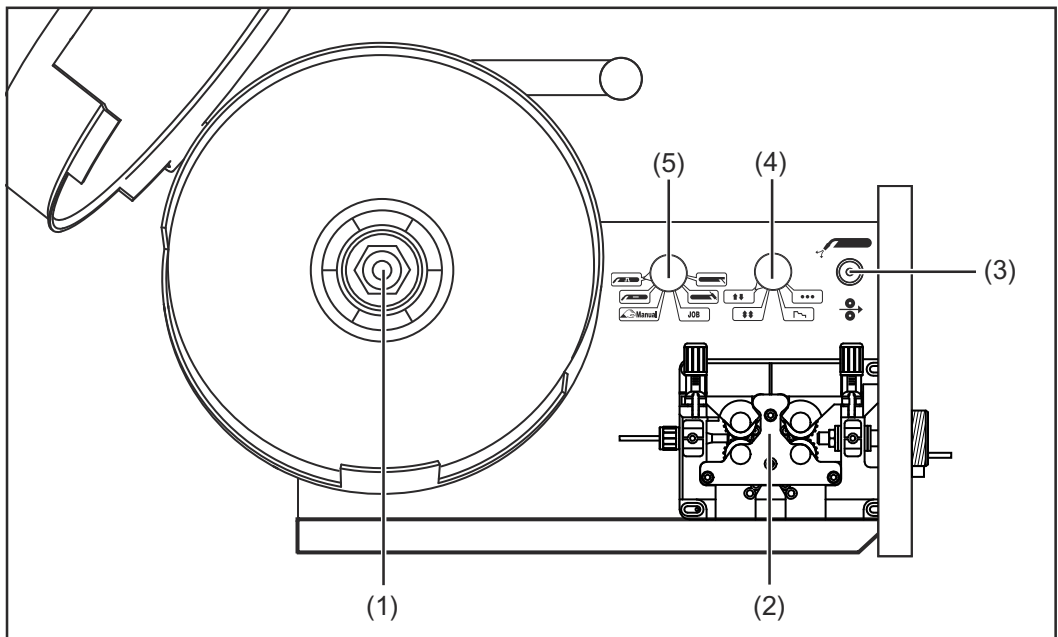
- (5) **Water return connection (red)**  
for interconnecting hosepack

---






- (6) **Water flow connection (blue)**  
for interconnecting hosepack



**Side of wire-feed unit**



VR 4000 - side view

- 
- (1) **Wirepool holder with brake**  
for attaching standardised wirepools up to max.16 kg (35.27 lbs.) and with a maximum diameter of 300 mm (11.81 in.)
- 
- (2) **4-roller drive**
- 
- (3) **"Wire threading/gas test" button<sup>1)</sup>**  
To feed the wire electrode into the torch hosepack with no accompanying flow of gas or current. While the button is held down, the wire-feed unit runs at feeder inching speed.  
Push button upwards  
to set the required gas flow rate at the pressure regulator. As long as the button is pressed up, gas flows out.  
The "wire threading/gas test" button (5) can also be installed as a separate option on the VR 4000.
- 
- (4) **Mode selector switch<sup>1)</sup>**  
for selecting the following modes:  
 ↑↓ 2-step mode  
 ⇕⇕ 4-step mode  
 ⌒ Special 4-step mode (aluminium welding start-up)  
 ●●● Spot welding
- 
- (5) **Process selector switch<sup>1)</sup>**  
for selecting the following processes  
 MIG/MAG Pulse-Synergic  
 MIG/MAG Standard-Synergic  
 Manual MIG/MAG standard manual welding  
**JOB** Job welding  
 TIG welding with touch-down ignition  
 MMA welding
-

1) "Mode selector switch" option

**IMPORTANT!**

**If settings have been selected using the "Mode selector switch" option, they cannot be changed using other controls, for example:**

---

- the control panel on the front of the power source
- on the front of the wire-feed unit
- on the remote control

# Placing wire-feed unit on power source

## General

The wire-feed units can be placed on the power source if a swivel pin holder is available, e.g.:

- "PickUp" swivel pin receptor, for use with the "PickUp" trolley
- "narrow" swivel pin receptor, for use with an upright console
- "wide" swivel pin receptor, for use with two screwed upright consoles and two power sources

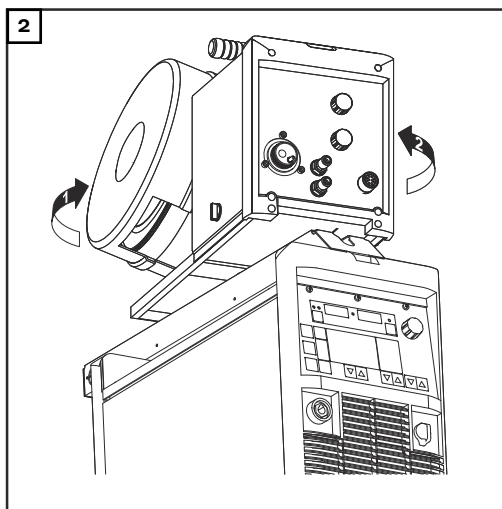
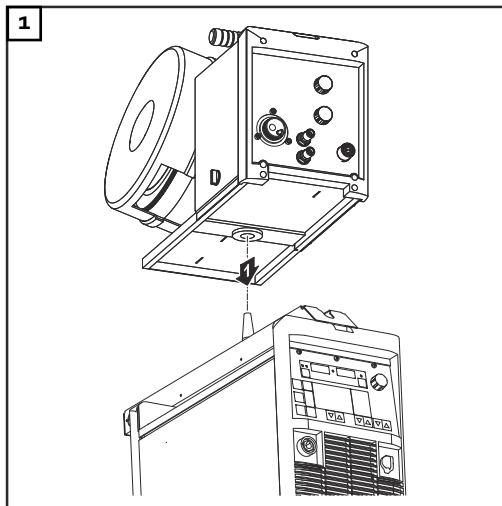
More detailed information on the swivel pin receptors can be found in the "Swivel pin receptors for upright consoles" and "PickUp" operating instructions.

## General

**⚠ CAUTION!**

### **Danger from falling wire-feed unit.**

Check that the wirefeeder is securely placed on the swivel pin.



# Connecting wire-feed unit to power source

## General

The wirefeeder is connected to the power source using the interconnecting hosepack.

## Connecting the wirefeeder to the power source

### **WARNING!**

**An electric shock can be fatal.**

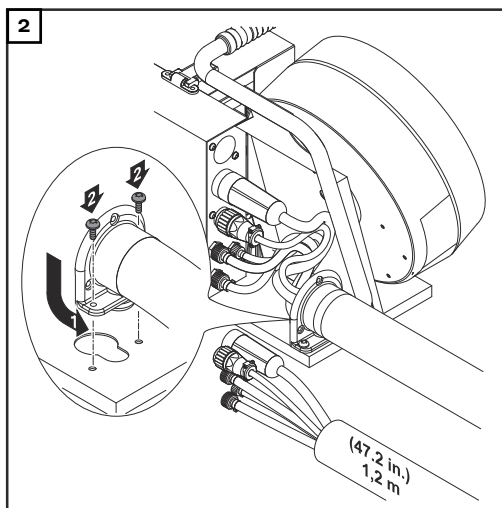
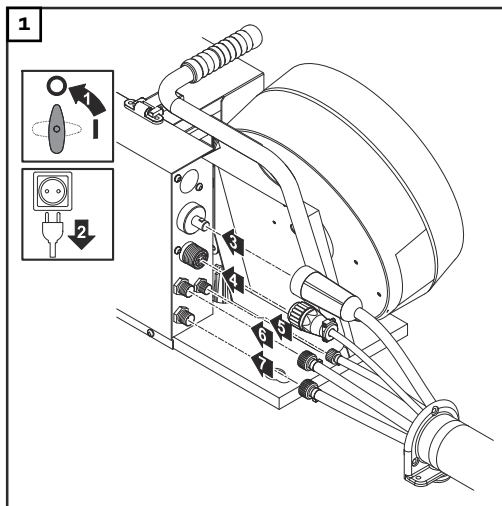
If the machine is plugged in during installation, there is a high risk of very serious injury and damage. Only carry out work on the device when

- ▶ the power source mains switch is in the "O" position
- ▶ the device is unplugged from the mains.

### **NOTE!**

**When connecting the interconnecting hosepack, check that**

- ▶ all connections are connected properly
- ▶ all cables, leads and hosepacks are undamaged and correctly insulated.



**IMPORTANT!**

**To prevent signs of wear and tear, the interconnecting hosepack cables/pipes should be "looped inside".**

A strain-relief device is not provided in the case of 1.2 m (3 ft. 11.24 in.) interconnecting hosepacks.

---

# Connecting the welding torch

## Welding torch connections

	Fronius F++	Euro connection	for Dinse	for Tweco
VR 4000	X	X	X	X
VR 4000-30	X	X	-	-
VR 4000-30 TIME	X	-	-	-

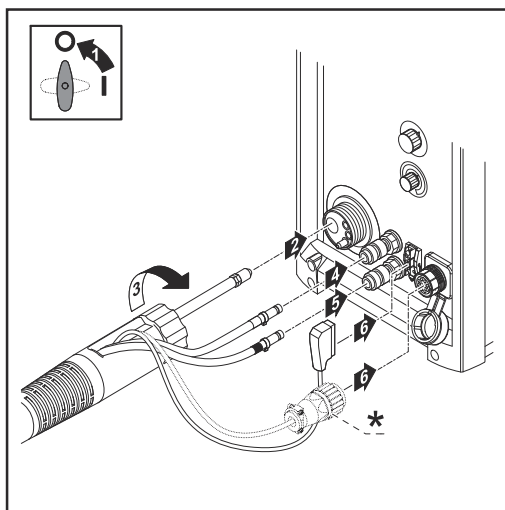
## Safety

### NOTE!

**When connecting the welding torch, check that**

- ▶ all connections are connected properly
- ▶ all cables, leads and hosepacks are undamaged and correctly insulated.

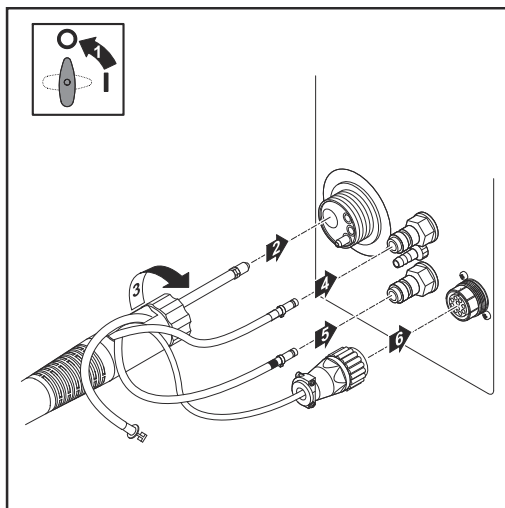
## Connecting MIG/MAG manual welding torch



\* The MIG/MAG manual welding torch control plug comes in two versions:

- as a "Tuchel" plug
- as a LocalNet plug, e.g. on JobMaster welding torches

## Connecting MIG/MAG robot welding torch

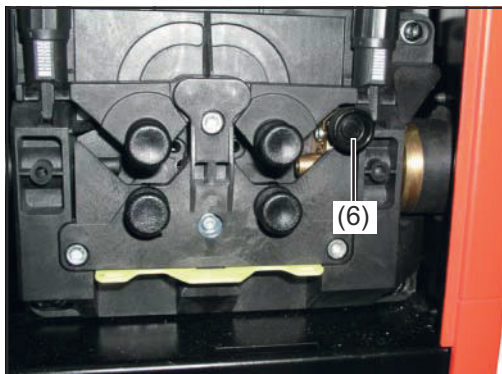


## Connecting the Tweco welding torch



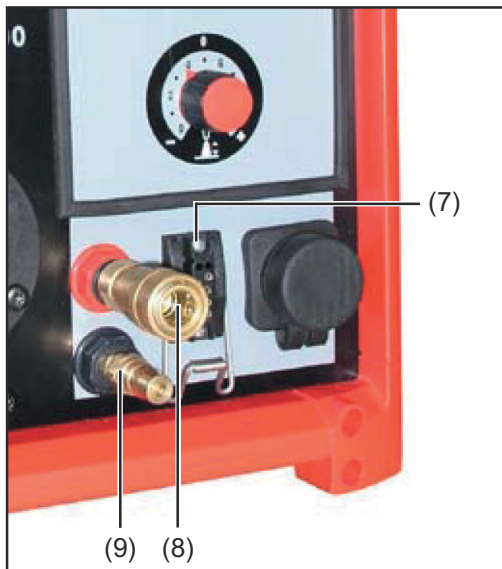
Inserting the welding torch into the connection for Tweco (5)

- 1 Switch the power source mains switch to the "0" position
- 2 Open the wirespool cover
- 3 Insert the welding torch, infeed tube first, into the welding torch connection (5)



Fixing welding torch in place using a knurled screw (6)

- 4 Fix the welding torch in place using a knurled screw (6)



Connecting water connections for water flow and water return (9) (8) (7)

- 5 Plug the control plug of the welding torch onto the torch control connection (7) and twist it to fasten it
- 6 Optional: connect external water connections for water flow (9) and return (8) correctly, matching the colours
- 7 Close wirespool cover

# Inserting/replacing feed rollers

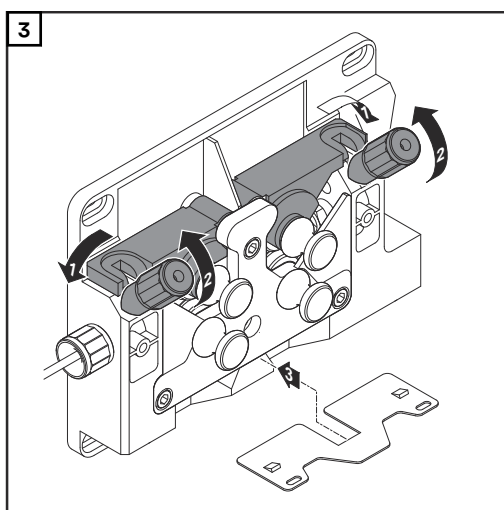
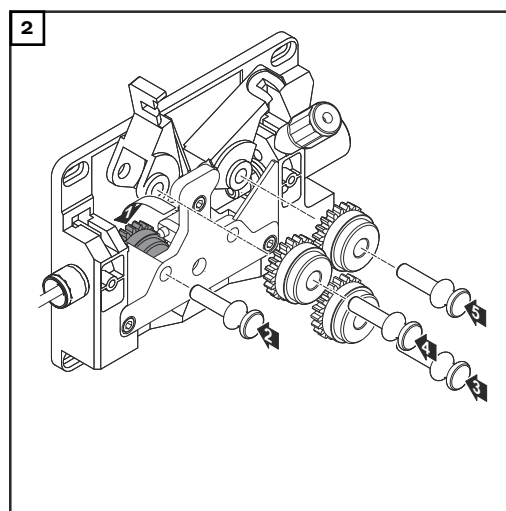
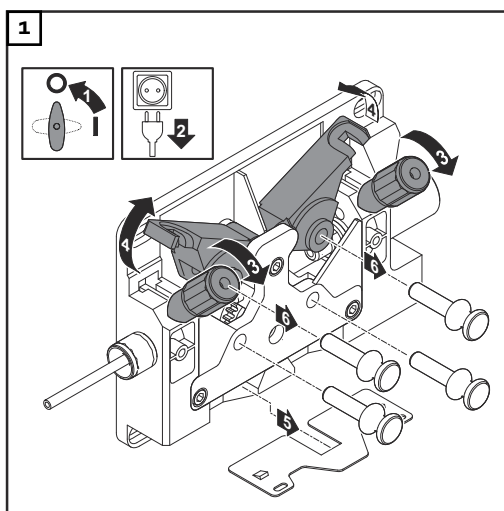
**General remarks** In order to achieve optimum wire electrode feed, the feed rollers must be suitable for the diameter and alloy of the wire being welded.

**IMPORTANT!** Only use feed rollers that match the wire electrode.

An overview of the feed rollers available and their possible areas of use can be found in the spare parts lists.

**USA wirefeeders** In the USA, all wirefeeders are delivered without feed rollers. After inserting the wirespool, the feed rollers must be inserted into the wirefeeder.

## inserting/replacing feed rollers





# Inserting the wirepool, inserting the basket-type spool

## Safety

**⚠ CAUTION!**

**Danger from springiness of spooled wire electrode.**

This can result in severe injuries.

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

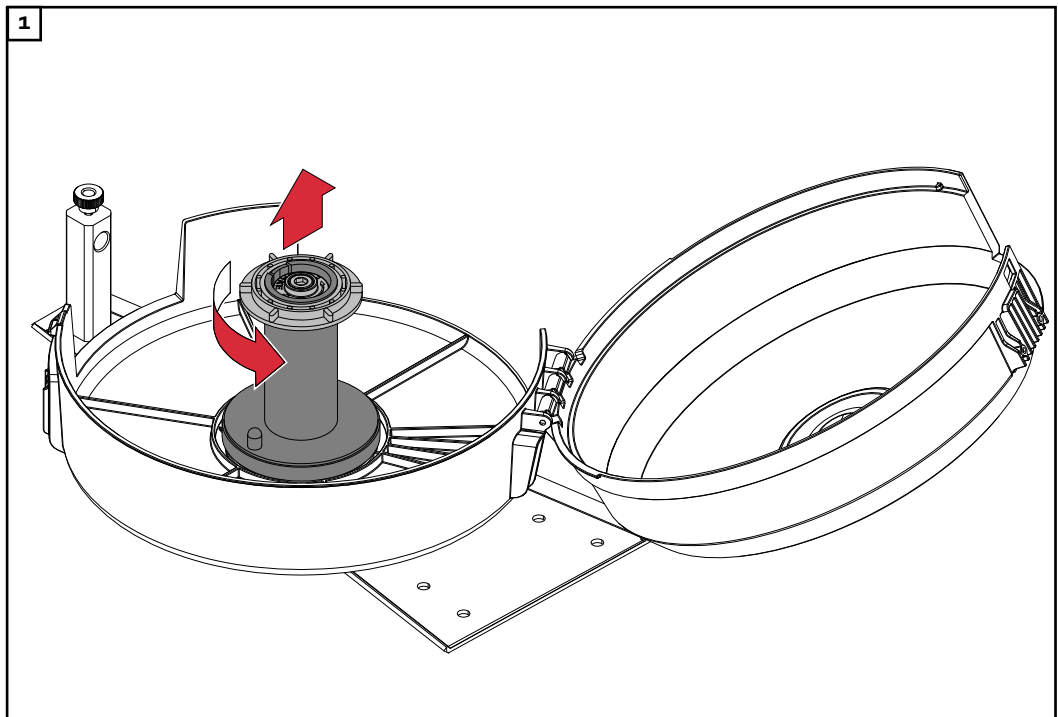
**⚠ CAUTION!**

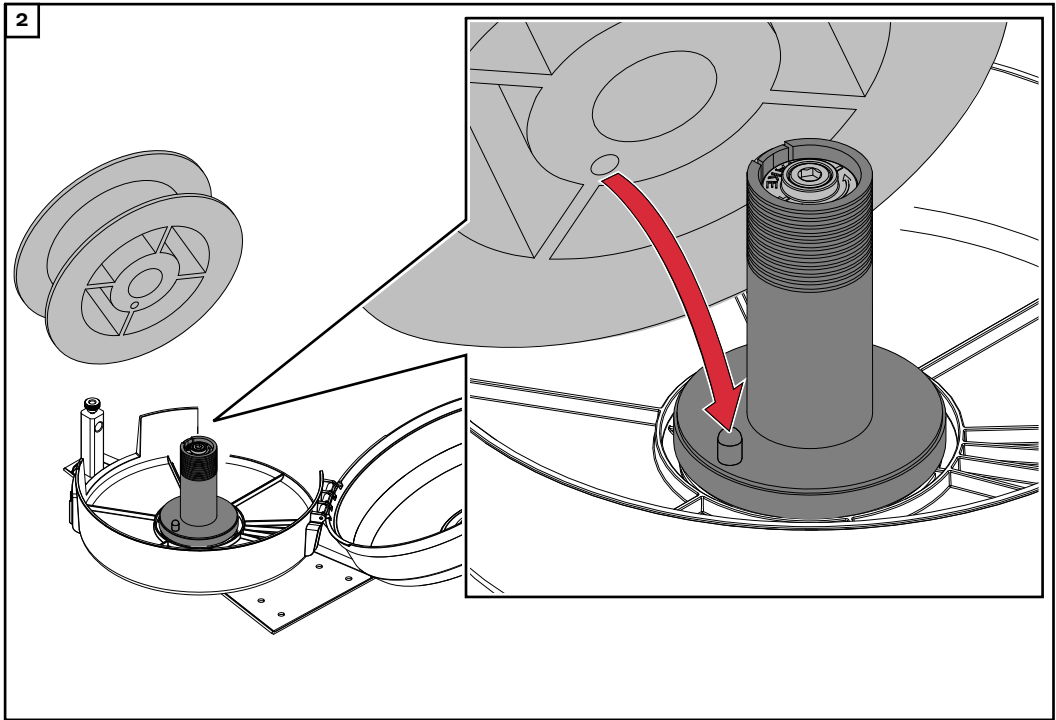
**Danger from falling wirepool/basket-type spool.**

This can result in severe injuries.

- ▶ Make sure that the wirepool or basket-type spool with adapter is fitted securely to the wirepool holder.

## Inserting the wirepool



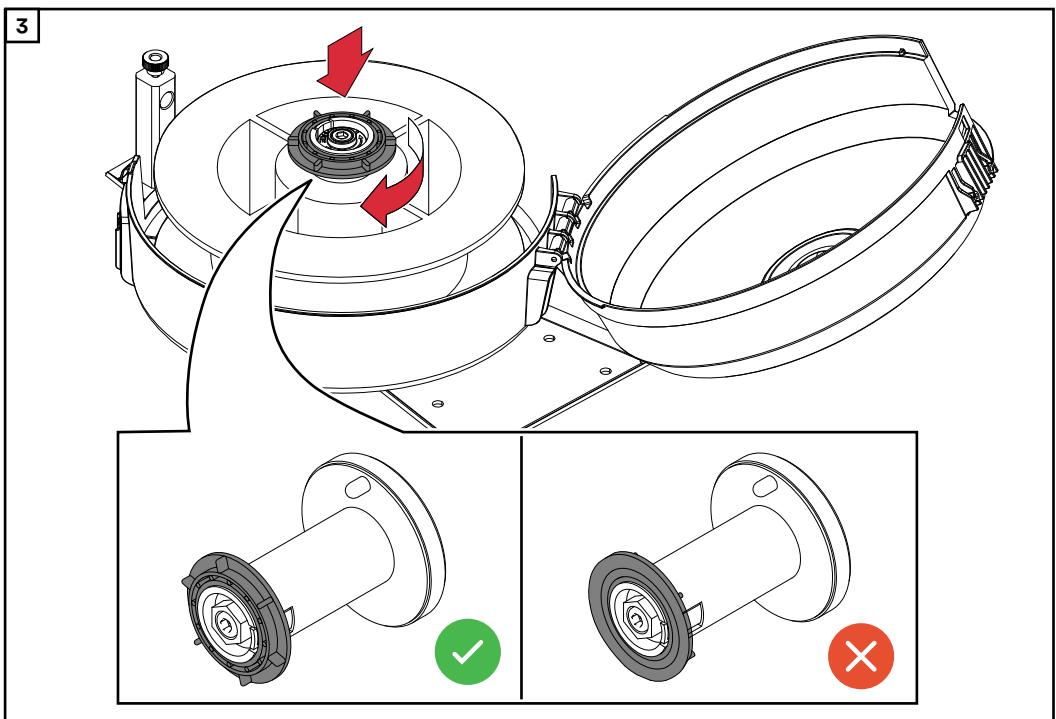


**⚠ WARNING!**

**Danger from falling wirepool/basket-type spool.**

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

- ▶ Ensure that the wirepool/basket-type spool including basket-type spool adapter is always firmly seated on the wirepool holder.



Inserting the basket-type spool

**NOTE!**

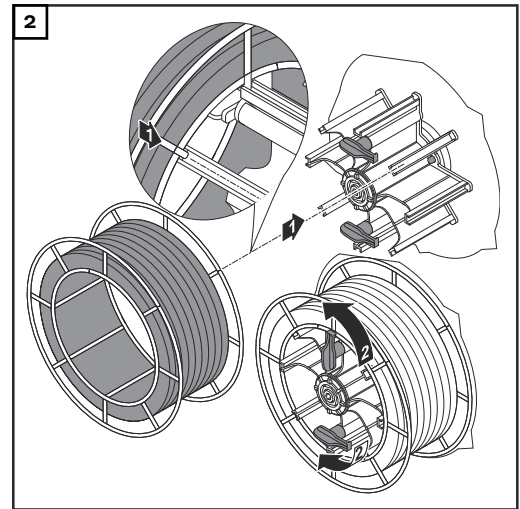
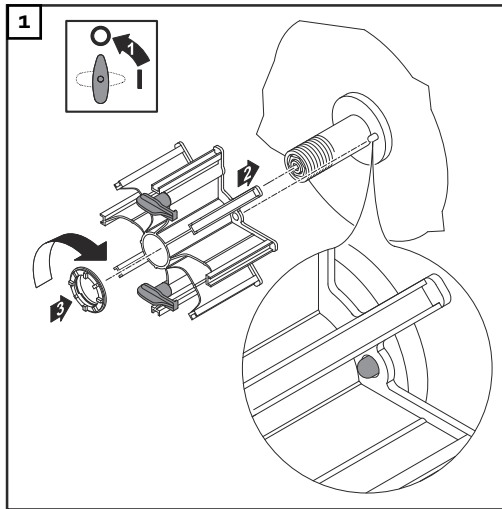
When working with basket-type spools, use only the basket-type spool adapter supplied with the wire-feed unit! USA wire-feed units are supplied without basket-type spool adapters.

**⚠ CAUTION!**

**Danger from falling basket-type spool.**

This can result in serious 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.



# Feeding in the wire electrode

## Feed in the wire electrode

### CAUTION!

#### **Danger from springiness of spooled wire electrode.**

This can result in severe injuries.

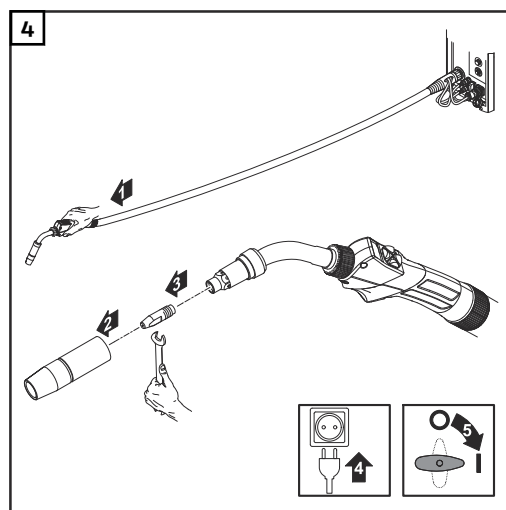
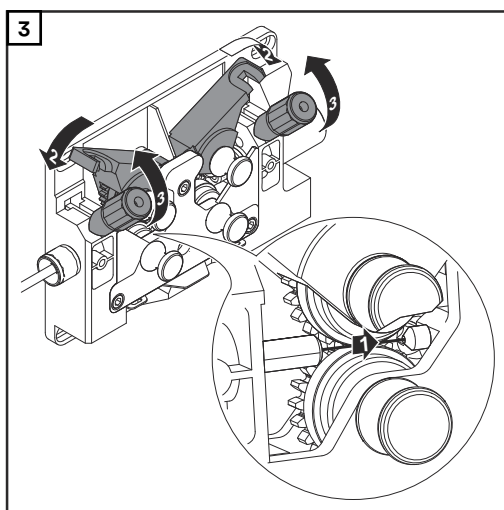
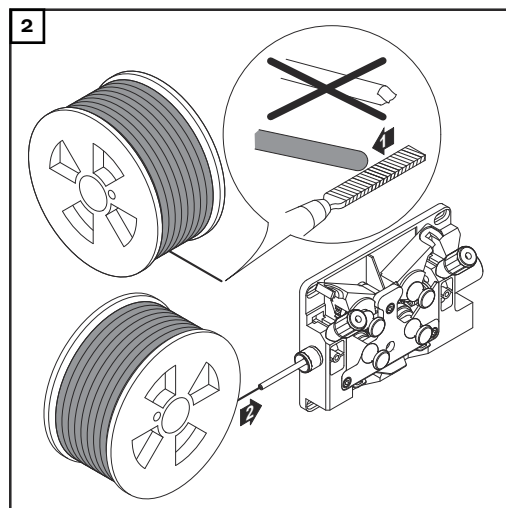
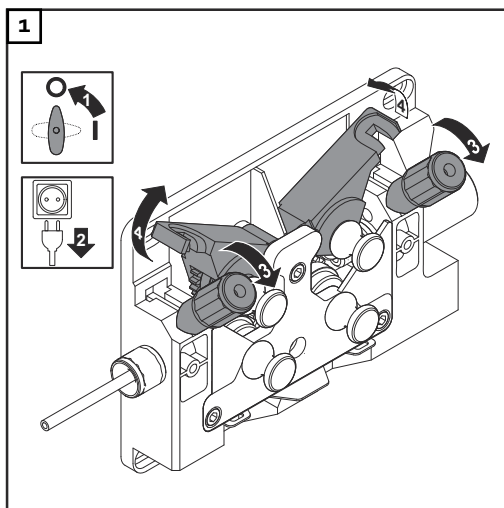
- ▶ When inserting the wire electrode into the 4 roller drive, hold the end of the wire electrode firmly to avoid injuries caused by the wire springing back.

### CAUTION!

#### **Danger from sharp end of wire electrode.**

This may result in damage to the welding torch.

- ▶ Deburr the end of the wire electrode well before feeding in.

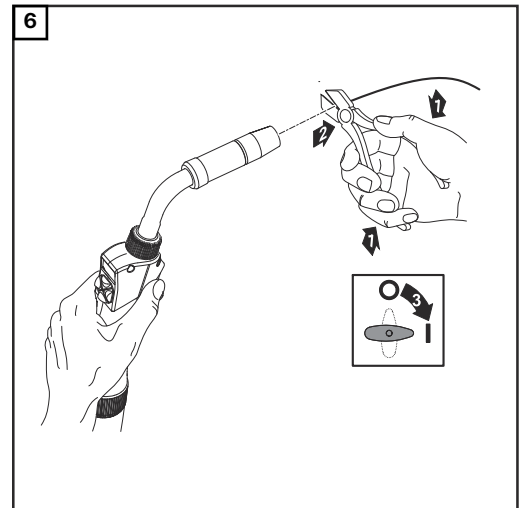
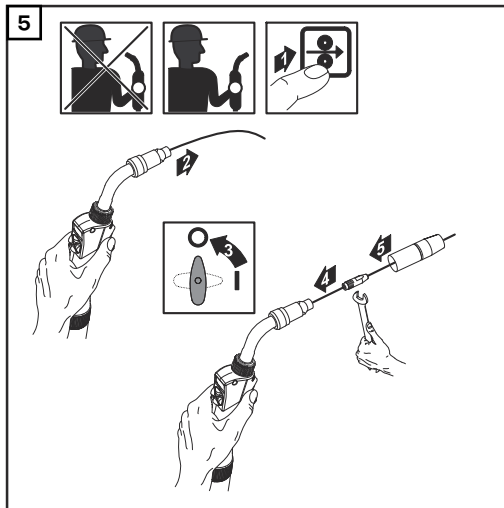


### CAUTION!

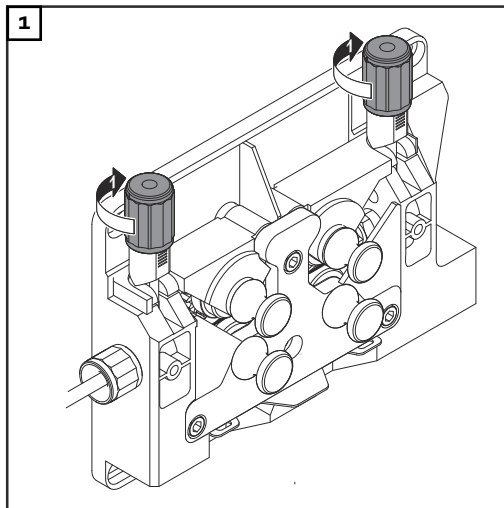
#### **Danger from wire electrode emerging at speed.**

This can result in severe injuries.

- ▶ When pressing the wire threading button or the torch trigger, keep the welding torch away from your face and body, and wear suitable protective goggles.



**Set the contact pressure**



**NOTE!**

Set the contact pressure in such a way that the wire electrode is not deformed but nevertheless ensures proper wirefeeding.

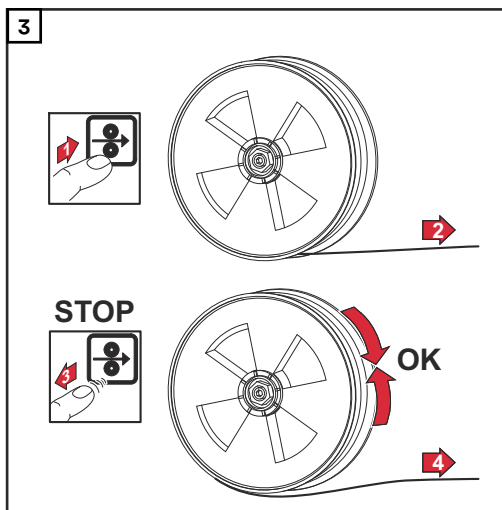
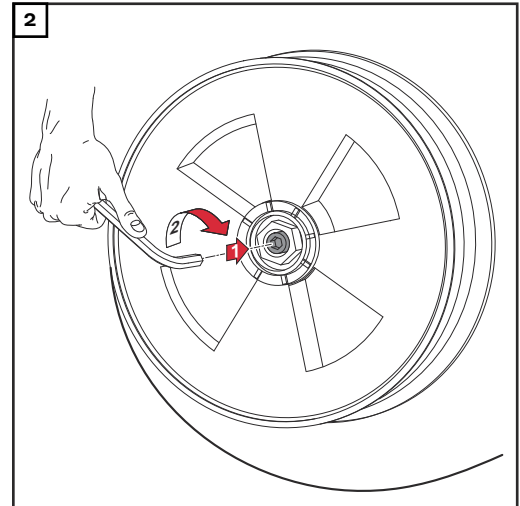
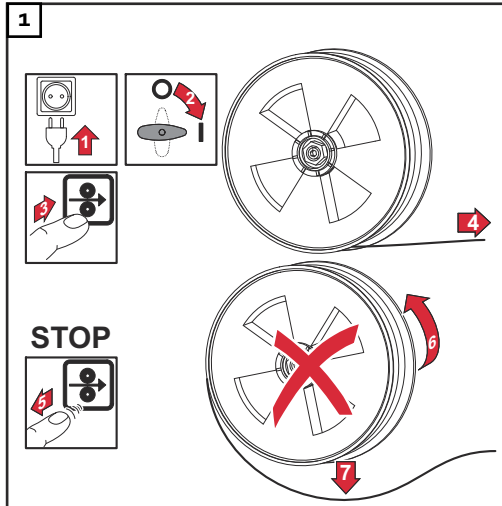
Contact pressure standard values	Semi-cylindrical rolls	Trapeze rolls	Plastic rollers
Aluminium	1.5	-	3.5 - 4.5
Steel	3 - 4	1.5	-
CrNi	3 - 4	1.5	-

# Adjust the brake

## Adjusting the brake

### NOTE!

After releasing the torch trigger the wirepool should stop unreeling.  
Adjust brake if necessary.



# Start-up

---

**General information** The wire-feed unit is commissioned by pressing the torch trigger (for manual applications) or by means of a welding start-up signal (for automatic applications).

---

**Requirements** When commissioning the wire-feed unit, the following requirements must be met:

- Wire-feed unit connected to the power source using the interconnecting hosepack
- Welding torch connected to the wire-feed unit
- Feed rollers inserted into the wire-feed unit
- Wirespool or basket-type spool and adapter inserted in the wire-feed unit
- Wire electrode fed in
- Feed roller contact pressure set
- Brake adjusted
- All covers closed, all side panels in place, all protection devices intact and in their proper place

# Care, maintenance and disposal

---

**General remarks** Under normal operating conditions, the wire-feed unit requires only a minimum of care and maintenance. However, some important points must be noted to ensure that the welding system remains in a usable condition for many years.

 **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.
- 

---

**Every start-up**

- Check welding torch, interconnecting hosepack and ground earth connection for signs of damage
- Perform a visual check on the feed rollers and inner liners for signs of damage
- Check contact pressure of feed rollers and adjust if necessary
- Check brake and adjust if necessary

---

**Every 6 months**

- Dismantle device side panels and clean inside of device with dry, reduced compressed air

 **CAUTION!**

**Danger due to the effect of compressed air.**

This can result in damage to property.

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

---

**Disposal** Dispose of in accordance with the applicable national and local regulations.



# Technical data

## VR 4000

Supply voltage (supply from the power source)	55 V DC
Nominal current	4 A
Wire speed	0.5 - 22 m/min 19.69 - 866.14 ipm
Degree of protection	IP 23
Dimensions l x w x h	650 x 290 x 410 mm 25.59 x 11.42 x 16.14 in.
Weight	16 kg 35.27 lbs.
Types of wirepool	all standardised wirepools
Maximum permitted wirepool weight	16 kg 35.27 lbs.
Wirepool diameter	max. 300 mm max. 11.81 in.
Wire diameter	0.8 - 1.6 mm 0.03 - 0.06 in.
Wire drive	4-roller drive
Maximum shielding gas pressure	7 bar 101 psi
coolant	Original Fronius
Maximum coolant pressure	6 bar 87 psi
LocalNet data rate	57600 Baud

## VR 4000-30

Supply voltage (supply from the power source)	55 V DC
Nominal current	4 A
Wire speed	0.5 - 30 m/min 19.69 - 1181.10 ipm
Degree of protection	IP 23
Dimensions l x w x h	650 x 290 x 410 mm 25.59 x 11.42 x 16.14 in.
Weight	16.5 kg 36.38 lbs.
Types of wirepool	all standardised wirepools
Maximum permitted wirepool weight	16.5 kg 36.38 lbs.
Wirepool diameter	max. 300 mm max. 11.81 in.

Wire diameter	0.8 - 1.6 mm 0.03 - 0.06 in.
Wire drive	4-roller drive
Maximum shielding gas pressure	7 bar 101 psi
coolant	Original Fronius
Maximum coolant pressure	6 bar 87 psi
LocalNet data rate	57600 Baud

**VR 4000-30  
TIME**

Supply voltage (supply from the power source)	55 V DC
Nominal current	4 A
Wire speed	0.5 - 30 m/min 19.69 - 1181.10 ipm
Degree of protection	IP 23
Dimensions l x w x h	650 x 290 x 410 mm 25.59 x 11.42 x 16.14 in.
Weight	16.5 kg 36.38 lbs.
Types of wirespool	all standardised wirespools
Maximum permitted wirespool weight	16.5 kg 36.38 lbs.
Wirespool diameter	max. 300 mm max. 11.81 in.
Wire diameter	0.8 - 1.6 mm 0.03 - 0.06 in.
Wire drive	4-roller drive
Maximum shielding gas pressure	7 bar 101 psi
coolant	Original Fronius
Maximum coolant pressure	6 bar 87 psi
LocalNet data rate	57600 Baud





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At [www.fronius.com/contact](http://www.fronius.com/contact) you will find the contact details  
of all Fronius subsidiaries and Sales & Service Partners.