

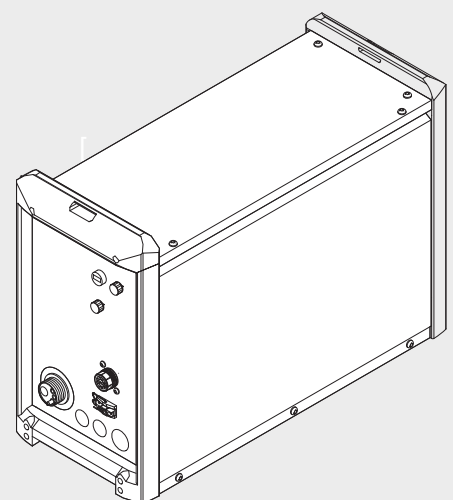


KD 7000

Operating Instructions

EN

Wire-feed unit



42,0426,0028,EN 004-20052020

Dear reader,

Introduction

Thank you for the trust you have placed in our company and congratulations on buying this high-quality Fronius product. These instructions will help you familiarise yourself with the product. Reading the instructions carefully will enable you to learn about the many different features it has to offer. This will allow you to make full use of its advantages.

Please also note the safety rules to ensure greater safety when using the product. Careful handling of the product will repay you with years of safe and reliable operation. These are essential prerequisites for excellent results.

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.

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Safety rules

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.

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

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 ^{*)}
- Criteria with regard to the minimum short-circuit power requirement ^{*)}

^{*)} 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.

Noise emission values

The device generates a maximum sound power level of <80 dB(A) (ref. 1pW) when idling and in the cooling phase following operation at the maximum permissible operating point under maximum rated load conditions according to EN 60974-1.

It is not possible to provide a workplace-related emission value during welding (or cutting) as this is influenced by both the process and the environment. All manner of different welding parameters come into play, including the welding process (MIG/MAG, TIG welding), the type of power selected (DC or AC), the power range, the type of weld metal, the resonance characteristics of the workpiece, the workplace environment, etc.

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 m³ 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 wirespool, 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 touch the electrode when the power source is switched on.

Double the open circuit voltage of a power source can occur between the welding electrodes of two power sources. 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.

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, appoint a second person to 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
- Irreparable 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, e.g. Insulation against conductive floor or insulation to conductive racks.

If 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 wirepool 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
 - Power, 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 correct mains connection, additional measures are necessary (e.g. use a suitable line filter).
 2. Welding power leads
 - must be kept as short as possible
 - must run 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. Shielding, if necessary
 - Shield off other nearby devices
 - Shield off entire welding installation
-

EMF measures

Electromagnetic fields may pose as yet unknown risks to health:

- effects on the health of others in the vicinity, e.g. wearers of pacemakers and hearing aids
- wearers of pacemakers must seek advice from their doctor before approaching the device or any welding that is in progress
- for safety reasons, keep distances between the welding cables and the welder's head/torso as large as possible
- do not carry welding cables 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
- Wirespools 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 away from the body (devices with wire-feed unit) 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.

Power sources for work in areas with increased electric risk (e.g. near boilers) must carry the "Safety" sign. However, the power source 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 and/or ropes onto all suspension points provided on the load-carrying equipment.
 - Chains and ropes must be at the smallest angle possible to the vertical.
 - Remove gas cylinder and wire-feed unit (MIG/MAG and TIG devices).
-

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

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, counterbalanced lift truck or other mechanical hoist.

All lifting accessories (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/m³

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.

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 devices 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 is performed at least once every 12 months.

The manufacturer recommends that the power source 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 has been 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 on request with any documents you may require.

Disposal

Do not dispose of this device with normal domestic waste! To comply with the European Directive on Waste Electrical and Electronic Equipment and its implementation as national law, electrical equipment that has reached the end of its life must be collected separately and returned to an approved recycling facility. Any device that you no longer require must either be returned to your dealer or given to one of the approved collection and recycling facilities in your area. Ignoring this European Directive may have potentially adverse effects on the environment and your health!

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 protection

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

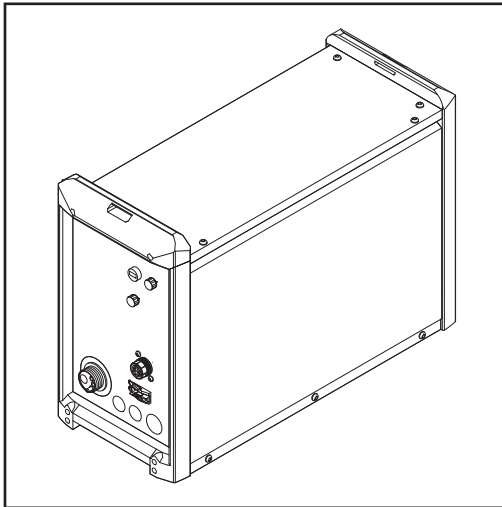
Copyright

Copyright of these operating instructions remains with the manufacturer.

The text and illustrations are all technically correct at the time of printing. We reserve 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 instructions, we will be most grateful for your comments.

General

Device concept



The KD 7000 cold-wire wire-feed unit has been developed specifically for the Magic-Wave 2600/2600 CEL and TransTig 2600 CEL/3000 power sources.

At the same time, the flexible design of the KD 7000 with its own mains cable and integrated drive control allows for combination with more or less any TIG power source or laser welding system.

The wire speed is specified either using the controls on the KD 7000 itself or by means of an analogue signal from an external robot or machine controller. The drive control on the KD 7000 ensures precise adherence to the specified wire speed.

The TIG-KD manual torch can be used for manual cold wire TIG welding.

For robot applications with the TIG cold-wire welding process, the TIG-KD connection box acts as a central node to network the robot control to the power source and the KD 7000. To set the welding parameters for the power source on the robot, the TIG-KD connection box supports the simulation of various remote controls.

All other communication with the power source takes place via the analogue/digital robot interface that is required for the MagicWave 2600/2600 CEL and TransTig 2600 CEL/3000 TIG power sources.

The TIG-KD connection box is not intended for cold wire TIG welding applications with laser welding systems. In this case, external control of the KD 7000 is via the robot controller.

The Robacta Drive KD is recommended as a wire drive for the KD 7000 in the case of aluminium applications. This is an external drive system that draws the wire during the welding process itself. The Robacta Drive provides for exceptionally smooth wire travel.

The 4 roller drive integrated in the KD 7000 - that pushes the wire - is designed for use when working with unalloyed/high-alloy steels. The VR 1530 KD external 4 roller drive is recommended for robot applications with unalloyed/high-alloy steels.

If it is combined with an external wire drive and an external wirespool holder, the KD 7000 can be used as a flexible control and adjustment unit with unlimited siting options. Because there is no need for a connection to the hosepack, the KD 7000 can be set up in virtually any position.

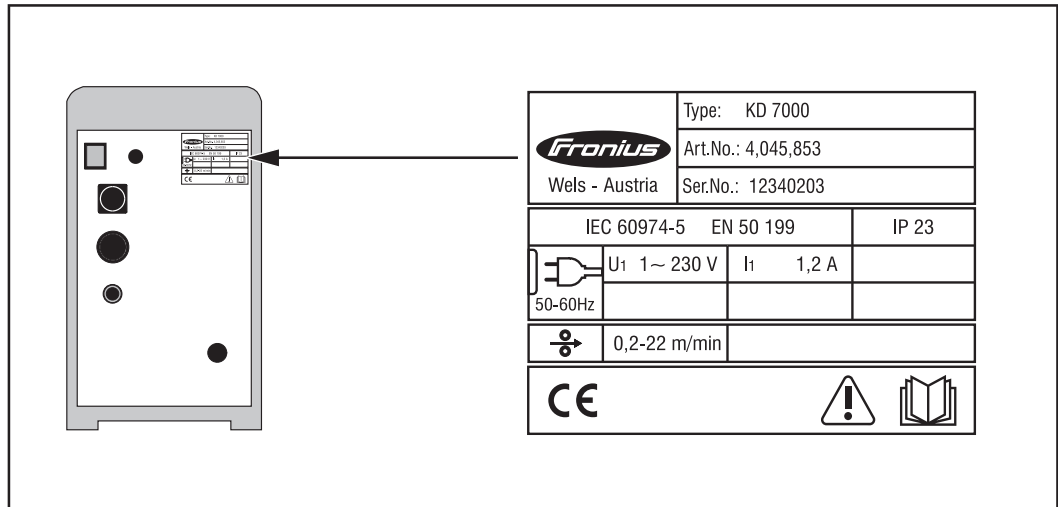
Application areas

The KD 7000 cold wire wire-feed unit is ideally suited for automated and robotic welding tasks, however it can also be used for special applications in manual welding. The KD 7000 can be used for an extremely varied range of applications both for TIG and laser welding.

Depending on the design of the welding machine or the welding robot and the system components, the flexible design of the KD 7000 means the layout of the wirefeed components can be customised. The various configuration options are explained in the "Application" section below.

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.



Welding is dangerous. The following basic requirements must be met to ensure the equipment is used properly:

- Welders must be sufficiently qualified
- Suitable protective equipment must be used
- All persons not involved must be kept at a safe distance from the wire-feed unit and the welding process

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

Application

General

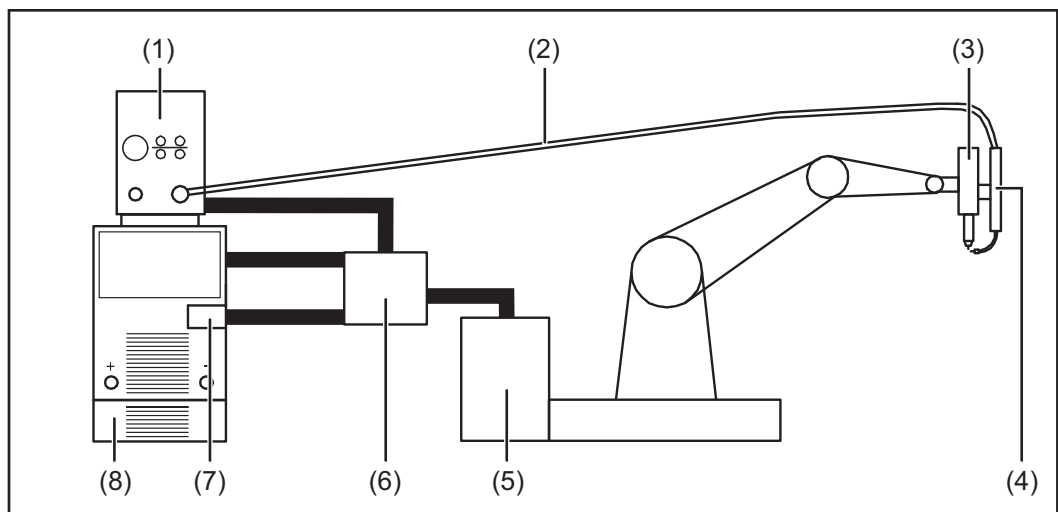
IMPORTANT! The figures below show configuration examples for the KD 7000 with an industrial robot and a Fronius TIG power source. The configuration examples shown apply by analogy to welding machines and cold wire TIG welding applications with laser welding systems.

Figures 1 and 2 apply by analogy to manual TIG welding with cold-wire feed.

Recommended for welding machines

- Wirespool and 4 roller drive integrated in KD 7000
- Wire pushed by integrated 4 roller drive
- Length of the wirefeed hosepack: up to 3.5 m

Configuration 1: unalloyed/high- alloy steels (Push/Internal)



Configuration 1 - Wirespool and wire drive on KD 7000, wire pushed

- (1) KD 7000 with wirespool holder and 4 roller drive
- (2) Wirefeed hosepack
- (3) Welding torch
- (4) Wirefeed
- (5) Robot control
- (6) TIG-KD connection box
- (7) Power source robot interface
- (8) Power source

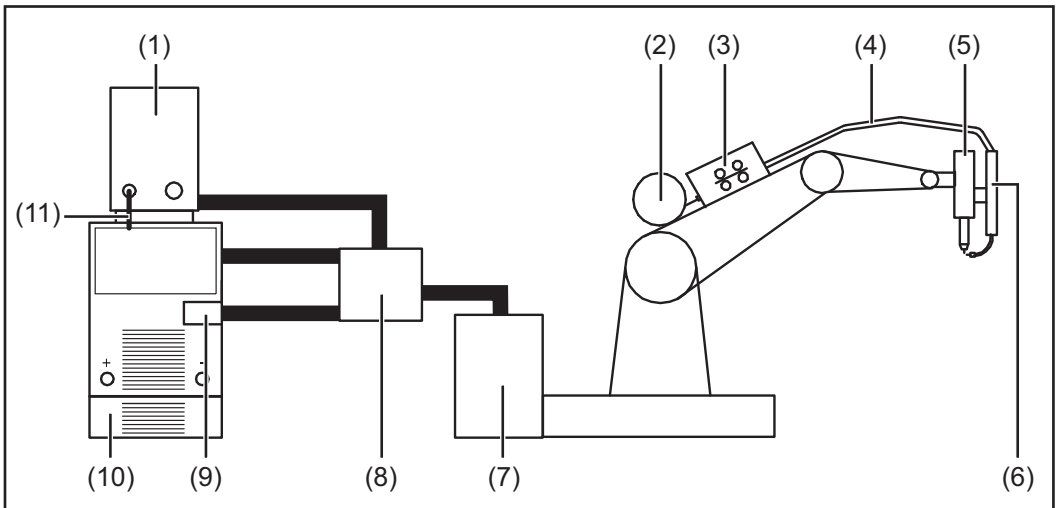
Limitation in the case of aluminium:

- Length of hosepack may not exceed 1 m

Configuration 2: unalloyed/high- alloy steels (Push VR 1530/External)

Recommended for robots

- KD 7000 without wirespool and wire drive
- Wirespool on external wirespool holder on the robot
- Wire pushed by external 4 roller drive (VR 1530 KD)
- Length of the wirefeed hosepack: up to 3.5 m



Configuration 2 - Wirespool and wire drive external, wire pushed

- (1) KD 7000
- (2) Wirespool holder and wirespool external
- (3) 4 roller drive external VR 1530 KD
- (4) Wirefeed hosepack
- (5) Welding torch
- (6) Wirefeed
- (7) Robot control
- (8) TIG-KD connection box
- (9) Power source robot interface
- (10) Power source
- (11) Connection cable for external wire drive control (VR 1530 KD)

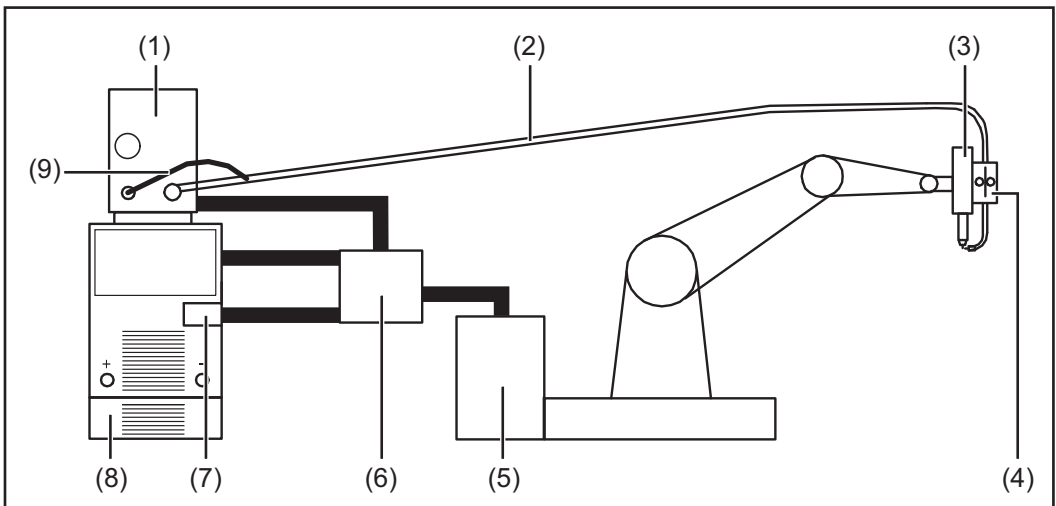
Limitation in the case of aluminium:

- Length of hosepack may not exceed 1 m

**Configuration 3:
Aluminium (Pull/
Internal)**

Recommended for welding machines

- KD 7000 with integrated wirespool, without wire drive
- Wire pulled through external 2-roller drive (Robacta Drive KD) during the welding process itself
- Length of the Robacta Drive KD hosepack: up to 3.5 m



Configuration 3 - Wirespool in the KD 7000, wire pulled by external wire drive

- (1) KD 7000 with wirespool holder
- (2) Robacta Drive KD hosepack
- (3) Welding torch
- (4) 2 roller drive external Robacta Drive KD
- (5) Robot control
- (6) TIG-KD connection box
- (7) Power source robot interface
- (8) Power source
- (9) Connection cable for external wire drive control (Robacta Drive KD)

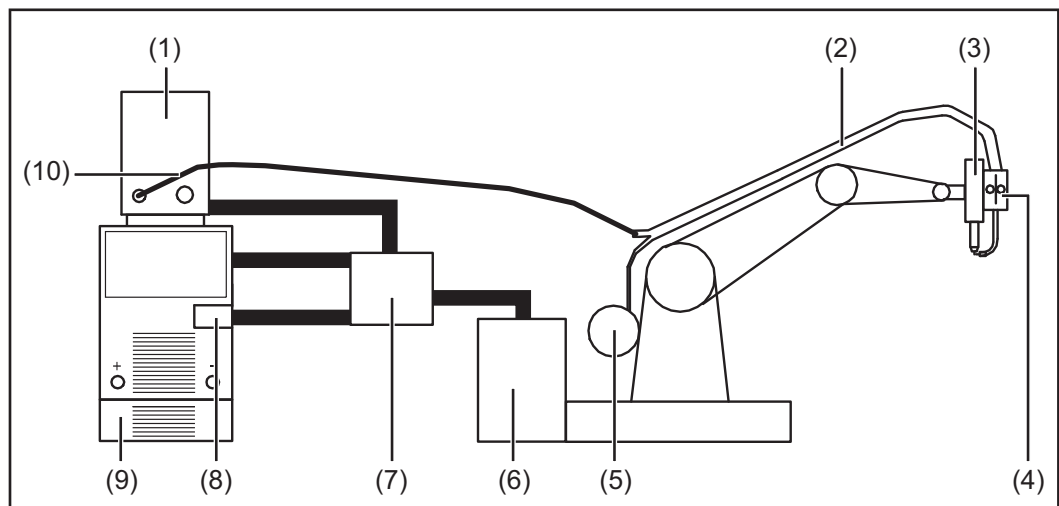
Limitations in the case of unalloyed/low-alloy steels:

- Length of hosepack may not exceed 2 m
- Wire speed may not exceed 5 m/min
- The braking force of the wirespool brake should be reduced as much as possible so that the wirespool does not continue unreeling at the end of welding

**Configuration 4:
Aluminium (Pull/
External)**

Recommended for robots

- KD 7000 without wirespool and wire drive
- Wirespool on external wirespool holder on the robot
- Wire pulled through external 2-roller drive (Robacta Drive KD) during the welding process itself
- Length of the Robacta Drive KD hosepack: up to 3.5 m



Configuration 4 - Wirespool and wire drive external, wire pulled

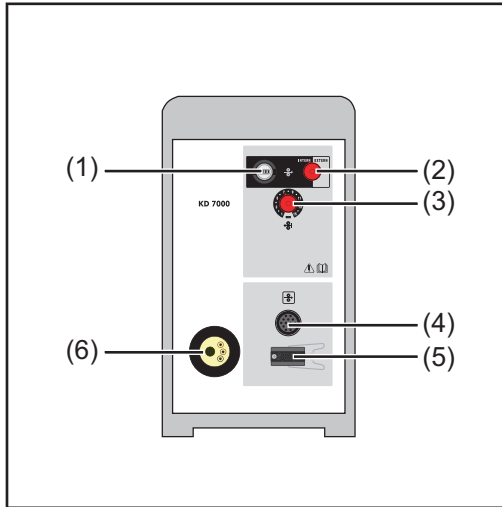
- (1) KD 7000
- (2) Robacta Drive KD hosepack
- (3) Welding torch
- (4) 2 roller drive external Robacta Drive KD
- (5) Wirespool holder and wirespool external
- (6) Robot control
- (7) TIG-KD connection box
- (8) Power source robot interface
- (9) Power source
- (10) Connection cable for external wire drive control (Robacta Drive KD)

Limitations in the case of unalloyed/low-alloy steels:

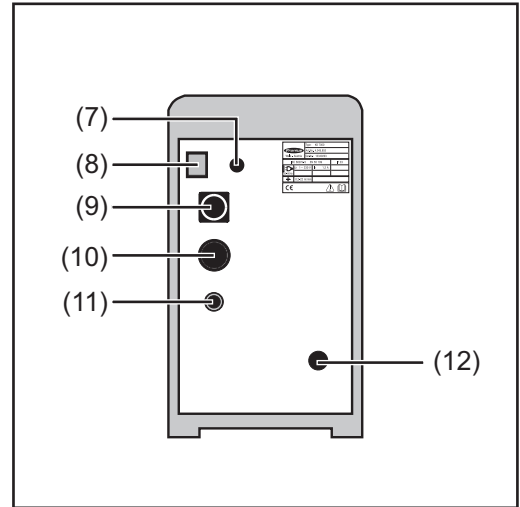
- Length of hosepack may not exceed 2 m
- Wire speed may not exceed 5 m/min
- The braking force of the wirepool brake should be reduced as much as possible so that the wirepool does not continue unreeling at the end of welding

Controls, connections and mechanical components

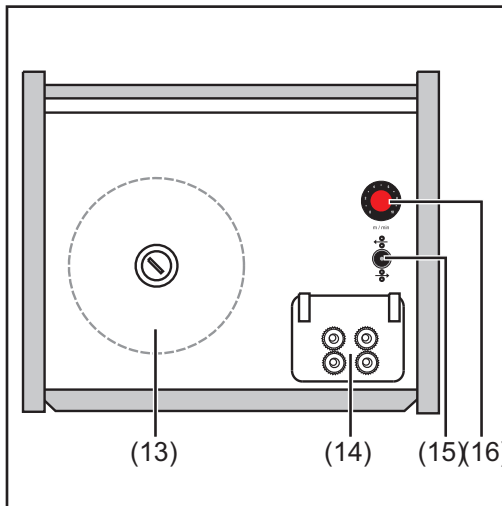
KD 7000



Front view



Rear view



Side view

Item	Designation
(1)	Indication/wire speed adjustment dial to display and set the wire speed
IMPORTANT! The actual wire speed will depend on the wire drive used.	
[1]	Check the sticker on the KD 7000 for details of which wire drive is used (e.g. wire drive "0 - 10 m/min")
[2]	Use the table below to determine the actual wire speed e.g.: "719" on the display means 7.19 m/min with the "0 - 10 m/min" wire drive Adjustment range: 0.2 m/min up to maximum wire speed
[3]	If you want to keep the set wire speed: set the Internal/External (2) selector switch to "Internal"
(2)	Internal/External selector switch to select internal/external wire speed - on the KD 7000 ("Internal") or - via a machine or robot controller ("External")

Item	Designation
(3)	<p>Wire retraction length adjuster to set the length of wire retracted at the end of welding</p> <p>Scale from 0 to 10: - 0 1 mm - 10 50 mm</p>
(4)	<p>Connection for external wire drive (14-pin plastic CPC socket) to control an external wire drive (VR 1530 KD/Robacta Drive KD)</p>
(5)	<p>Torch control connection to connect the control plug for the TIG-KD manual torch</p>
(6)	<p>Welding torch central connector (only in combination with internal wirespool holder or integrated 4 roller drive) for the wirefeed/Robacta Drive KD/TIG-KD manual torch hosepack</p>
(7)	<p>Mains fuse protection 2 A</p>
(8)	<p>Mains switch lights up when the KD 7000 is switched on</p>
(9)	<p>LocalNet connection socket standardised connection socket for the system defaults</p>
(10)	<p>KD control interface (37-pin plastic CPC socket) for external control of the KD 7000 using analogue and digital signals</p>
(11)	<p>Mains cable</p>
(12)	<p>External welding wire feed can be used for external wirefeeding</p>
(13)	<p>Wirespool holder with deceleration device accepts standardised welding wirespools up to max. 16 kg (with internal wirespool holder)</p>
(14)	<p>4 roller drive (only with internal wire drive)</p>
(15)	<p>Wire threading/feeding out button to thread and feed the wire out of the hosepack</p> <ul style="list-style-type: none"> - Wire threading: Push button down and hold - Feed out: Push button up and hold <p>The feeder inching speed adjuster is used to set the wire threading and feed-out speed</p>
(16)	<p>Feeder inching speed adjuster to display and set the wire threading and feed-out speed (0.2 m/min up to maximum wire speed)</p>

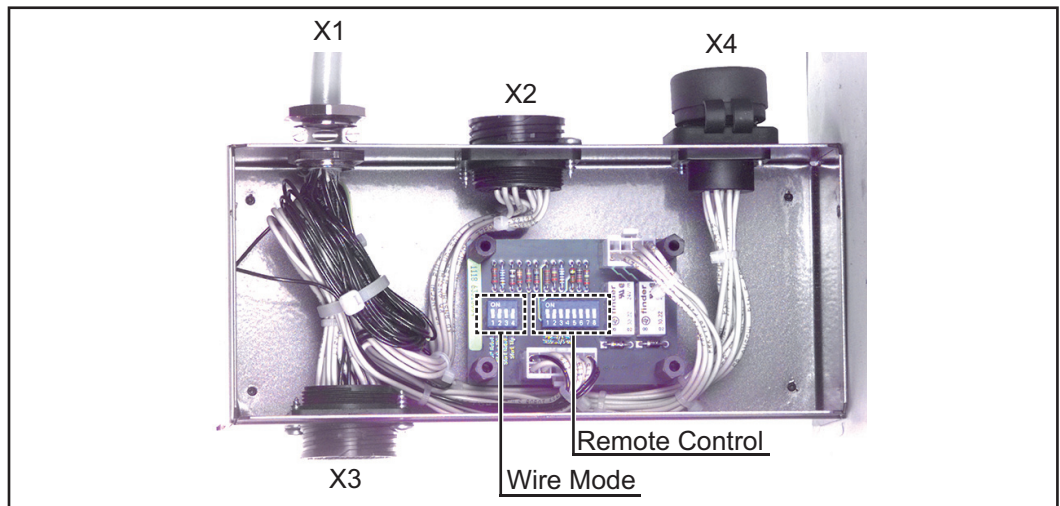
Wire drive	0 - 5 m/min	0 - 10 m/min	0 - 22 m/min
Wire speed (m/min)	Set value		
1	200	100	45
2	400	200	90
3	600	300	136
4	800	400	181
5	1000	500	227
6	-	600	272
7	-	700	318
8	-	800	363
9	-	900	409
10	-	1000	454
11	-	-	500
12	-	-	545
13	-	-	591
14	-	-	636
15	-	-	682
16	-	-	727
17	-	-	773
18	-	-	818
19	-	-	864
20	-	-	909
21	-	-	955
22	-	-	1000

Actual wire speed

TIG-KD connection box

For robot applications with the TIG cold-wire welding process, the TIG-KD connection box acts as a central node to network the robot controller to the power source and the KD 7000.

IMPORTANT! If it is not necessary to control a power source via the robot controller, the TIG KD connection box is not required (direct connection between robot controller and the KD 7000). There is also the option of controlling the KD 7000 manually only.



Inside the TIG-KD connection box

Connections

-
- X1 To the robot interface for the power source:**
transmits signals between the robot or machine controller and the power source using analogue and digital signals
-
- X2 To the KD control interface:**
controls the KD 7000
- using analogue and digital signals
 - via the robot or machine controller and the power source
-
- X3 To the robot or machine controller:**
at X3 the signal lines are bundled for
- analogue and digital signals from and to X1
 - analogue and digital signals to X2
 - analogue signals to X4
-
- X4 To the "connection socket for remote control" interface for the power source:**
to set the welding parameters on the power source
- via analogue signals
 - via the robot or machine controller
 - by simulating various power source remote controls
-

Settings on the "Wire Mode" dip switches

NOTE!

Only the settings described below may be set on the "Wire Mode" dip switches.

IMPORTANT! Before changing a setting, turn all dip switches to "off"

The function of the individual dip switches is described below the various settings.

	Wire Mode	Remote Control																																				
	<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 5px;">on</div> <table border="1" style="border-collapse: collapse;"> <tr><td style="width: 20px;">1</td><td style="width: 20px;">2</td><td style="width: 20px;">3</td><td style="width: 20px;">4</td></tr> <tr><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td></tr> <tr><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td></tr> </table> </div>	1	2	3	4									<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 5px;">on</div> <table border="1" style="border-collapse: collapse;"> <tr><td style="width: 20px;">1</td><td style="width: 20px;">2</td><td style="width: 20px;">3</td><td style="width: 20px;">4</td><td style="width: 20px;">5</td><td style="width: 20px;">6</td><td style="width: 20px;">7</td><td style="width: 20px;">8</td></tr> <tr><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td></tr> <tr><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td><td style="background-color: black;"></td></tr> </table> </div>	1	2	3	4	5	6	7	8																
1	2	3	4																																			
1	2	3	4	5	6	7	8																															
Puls Robot	on / off	on / off / on / on																																				
Puls Synch TIG	off / on	on / off / on																																				
Start Robot	on / off / on	on / off																																				
Start TIG	on / off / on	off / on																																				
		<table border="1" style="border-collapse: collapse; width: 100%;"> <tr> <td style="width: 20px;">TR 55 r</td> <td>off</td><td>off</td><td>on</td><td>off</td><td>on</td><td>off</td><td>off</td><td>off</td> </tr> <tr> <td>TR 50 mc</td> <td>on</td><td>off</td><td>off</td><td>on</td><td>off</td><td>off</td><td>off</td><td>off</td> </tr> <tr> <td>TP mc</td> <td>off</td><td>on</td><td>off</td><td>on</td><td>off</td><td>off</td><td>off</td><td>off</td> </tr> </table>	TR 55 r	off	off	on	off	on	off	off	off	TR 50 mc	on	off	off	on	off	off	off	off	TP mc	off	on	off	on	off	off	off	off									
TR 55 r	off	off	on	off	on	off	off	off																														
TR 50 mc	on	off	off	on	off	off	off	off																														
TP mc	off	on	off	on	off	off	off	off																														

Settings on the "Wire Mode" and "Remote Control" dip switches

"Puls Robot" and "Start Robot" setting:

- Dip switch for "Puls Robot" to "on"
- Dip switch for "Start Robot" to "on"

"Puls Synch TIG" and "Start TIG" setting:

- Dip switch for "Puls Synch TIG" to "on"
- Dip switch for "Start TIG" to "on"

"Puls Robot" and "Start TIG" setting:

- Dip switch for "Puls Robot" to "on"
- Dip switch for "Start TIG" to "on"

"Puls Synch TIG" and "Start Robot" setting:

- Dip switch for "Puls Synch TIG" to "on"
- Dip switch for "Start Robot" to "on"

"Puls Robot":

The signal for pulsing the cold wire is set by the robot or machine controller.

- The wire speed switches between 0 and the entered set value, according to the signal for pulsing.

"Puls Synch TIG":

Pulsing of the cold wire is set by the power source.

- The wire speed switches between 0 and the entered set value, synchronous with pulsing of the welding current.

"Start Robot":

Wirefeeding is initiated by the robot controller.

- Irrespective of the operating status of the power source

"Start TIG":

Wirefeeding begins when the welding current has reached the main current phase.

- The main current phase is between the start current and final current phase

Settings on the "Remote Control" dip switches**NOTE!**

Only use the dip switch settings appropriate for "Remote Control".

The "Remote Control" dip switches are used to select the power source remote control whose functionality needs to be simulated for the robot or machine controller. The parameters for the following remote controls can be simulated:

- TR 55 r
- TR 50 mc
- TP mc

Setting wire speed externally

Setting wire speed externally

If the Internal/External selector switch is set to "External", the wire speed will be specified by an analogue signal.

The "TIG-KD connection box wiring diagram" section shows connection of the "Vd Command Value+" and "Vd Command Value-" analogue signals.

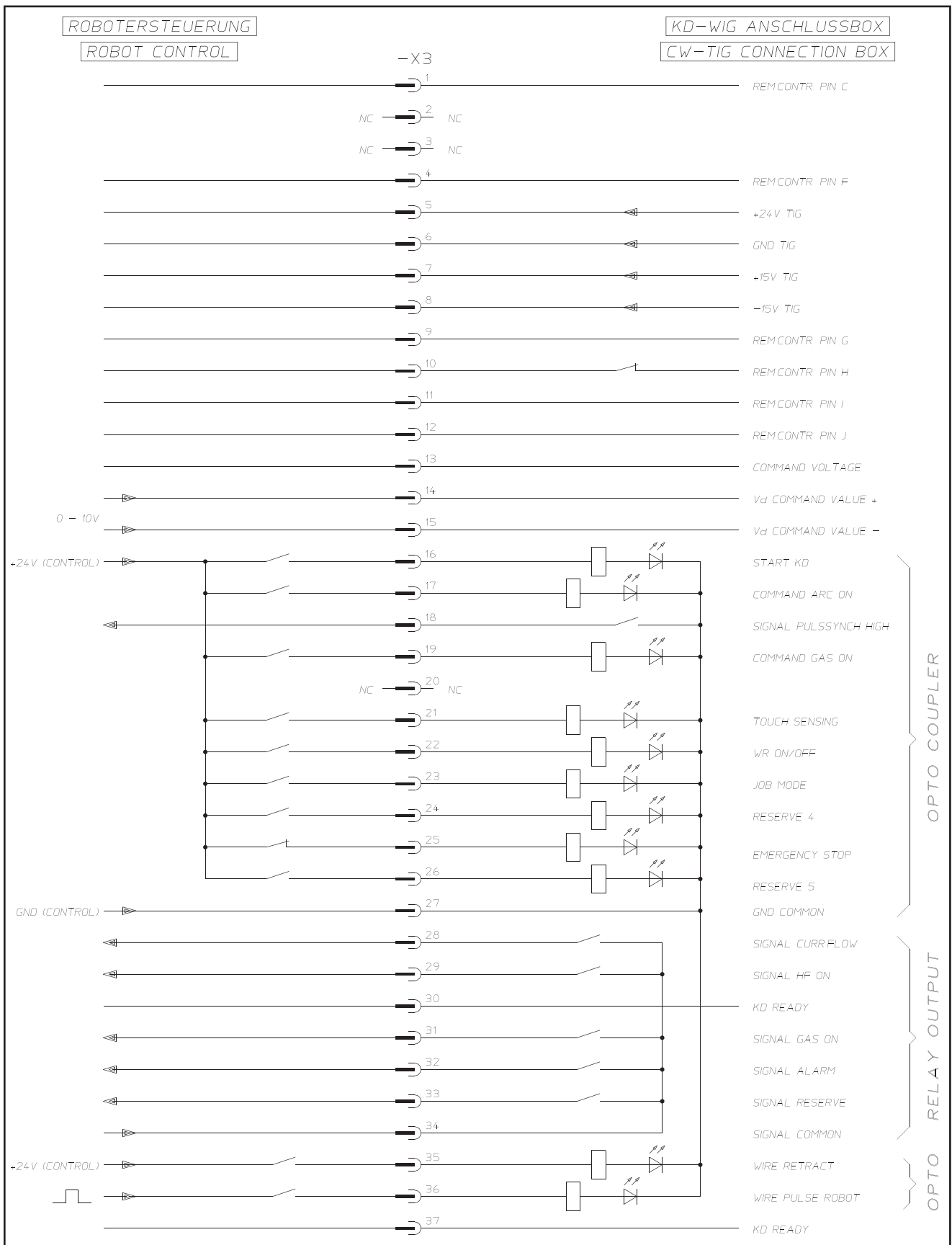
The table below shows the signal voltage to be created for the relevant wire speed.

IMPORTANT! The wire speed will depend on the wire drive used.

- 1 Check the sticker on the KD 7000 for details of which wire drive is used (e.g. wire drive "0 - 10 m/min")
- 2 Use the table below to determine the signal voltage for the relevant wire speed
e.g.:
10 V for 10 m/min, with "0 - 10 m/min" wire drive

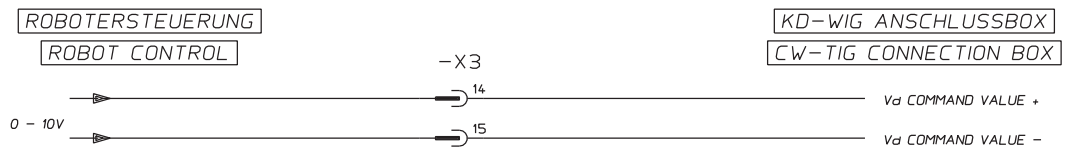
Wire drive	0 - 5 m/min	0 - 10 m/min	0 - 22 m/min
Wire speed (m/min)	Set value		
1	2.0 V	1.0 V	0.454 V
2	4.0 V	2.0 V	0.909 V
3	6.0 V	3.0 V	1.364 V
4	8.0 V	4.0 V	1.819 V
5	10.0 V	5.0 V	2.274 V
6	-	6.0 V	2.729 V
7	-	7.0 V	3.184 V
8	-	8.0 V	3.639 V
9	-	9.0 V	4.094 V
10	-	10.0 V	4.549 V
11	-	-	5.004 V
12	-	-	5.459 V
13	-	-	5.914 V
14	-	-	6.369 V
15	-	-	6.824 V
16	-	-	7.279 V
17	-	-	7.734 V
18	-	-	8.189 V
19	-	-	8.644 V
20	-	-	9.099 V
21	-	-	9.554 V
22	-	-	10.009 V

TIG-KD connection box wiring diagram



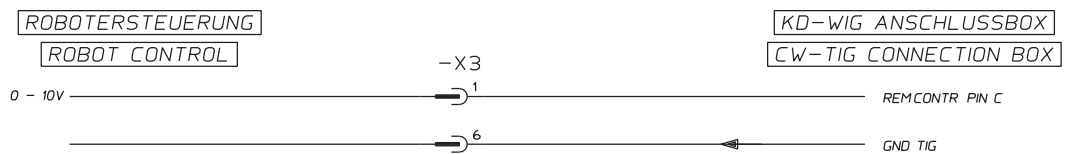
"Minimum start-up requirements" wiring diagram

Analogue signals Analogue input signal for setting wire speed externally



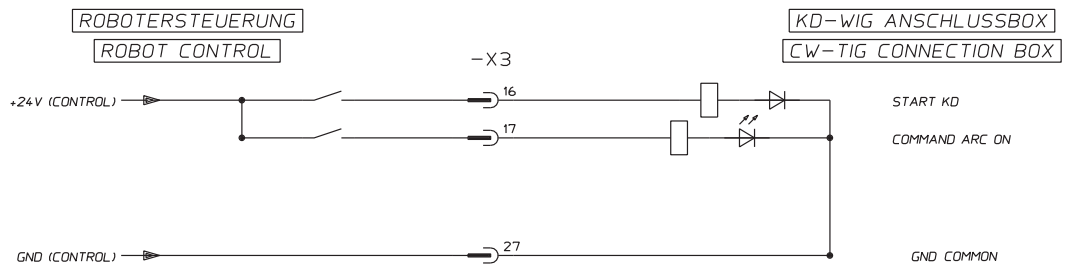
X3:14 ... Vd Command Value +
 X3:15 ... Vd Command Value -

Analogue input signal for setting main current externally



X3:1 ... Rem.contr. Pin C
 X3:6 ... GND TIG

Digital signals



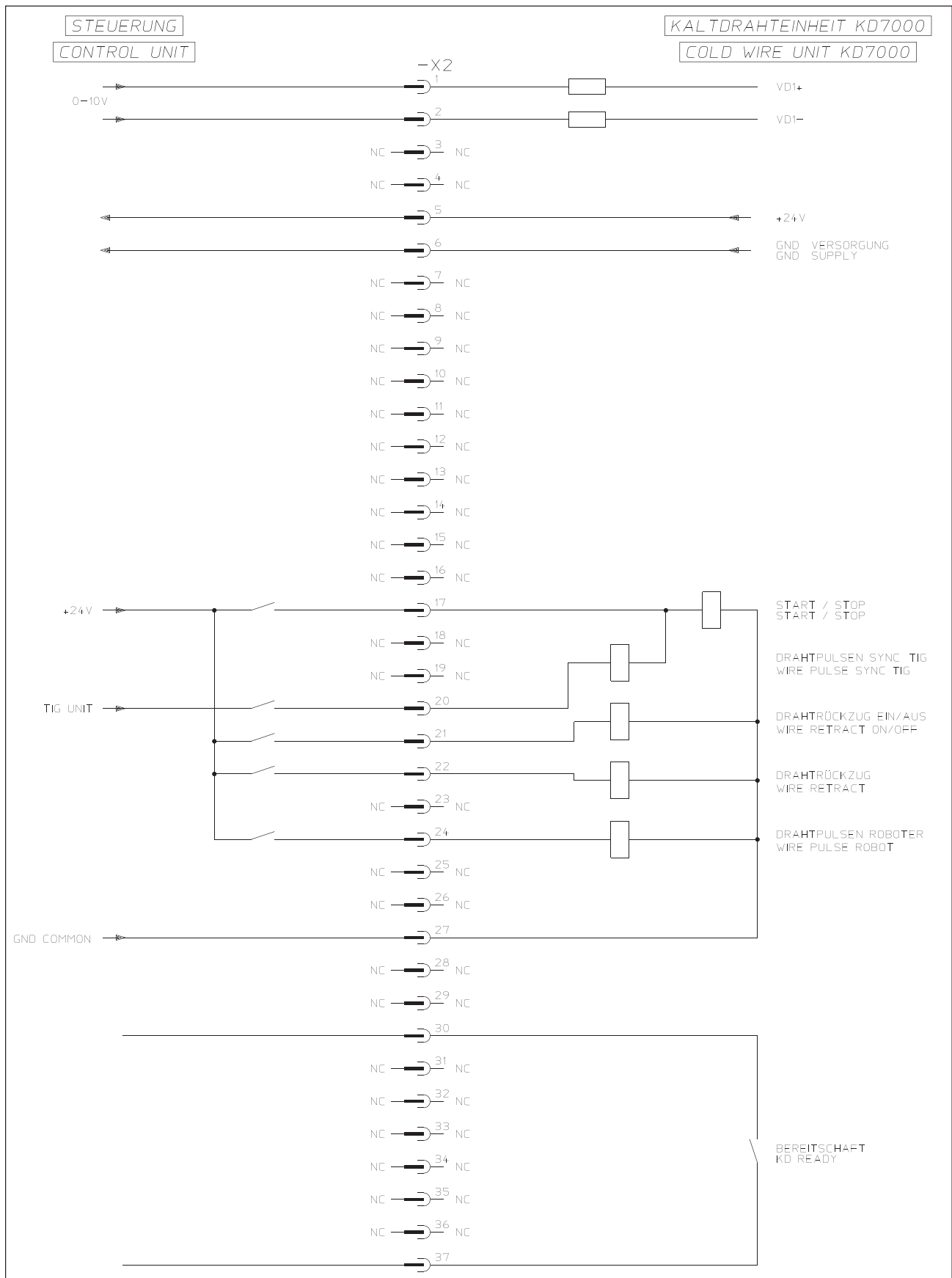
Digital input signal for arc on

X3:17 ... Command Arc on
 X3:27 ... GND Common

Digital input signal for "Start wirefeeding"

X3:16 ... Start KD
 X3:27 ... GND Common

KD 7000 wiring diagram



Supply voltages

Supply voltages



WARNING!

An electric shock can be fatal.

Never connect the robot controller supply to the power supply for the KD 7000 or the power source.

Plug X3/pin 5 ("+ 24 V TIG")	24 V
Plug X3/pin 6 ("GND TIG")	GND (power supply)
Plug X3/pin 7 ("+ 15 V TIG")	15 V
Plug X3/pin 8 ("- 15 V TIG")	- 15 V

IMPORTANT! The voltages listed above may only be used to supply a robot control output card. The output cards are usually supplied by an internal power supply on the robot controller. For this reason, pins 5 to 8 are usually unoccupied.

Digital input signals (signals from robot)

Signal level

- LOW 0 - 2.5 V
- HIGH 18 - 30 V

Ground When connecting to the TIG-KD connection box:
GND Common = X3/pin 27

When connecting directly to the KD7000:
GND Common = X2/pin 27

All digital inputs are electrically isolated using optical couplers.

Start KD TIG-KD connection box:

Plug X3/pin 16	24 V
Plug X3/pin 27	GND

Connection option direct to the KD 7000:

Plug X2/pin 17	24 V
Plug X2/pin 27	GND

The "Start KD" signal starts wirefeeding at the specified wire speed when "Start Robot" is selected on the "Wire-Mode" dip switches

IMPORTANT! If "Start TIG" mode has been selected on the "Wire-Mode" dip switches,

- it is not possible to start wirefeeding using the "Start KD" signal,
- wirefeeding starts when the welding current has reached the main current phase.
The main current phase takes place between the start current and final current phase

Arc on (Command arc on) TIG-KD connection box:

Plug X3/pin 17	24 V
Plug X3/pin 27	GND

The "Arc on" signal starts the power source. The gas flow is controlled from the power source. Therefore, the "Gas on" signal does not need to be additionally set.

Gas on (Command gas on) TIG-KD connection box:

Plug X3/pin 19	24 V
Plug X3/pin 27	GND

The "Gas on" signal starts the "Gas test" function on the power source. The required gas flow can be set on the pressure regulator on the gas cylinder.

The "Gas on" signal can be used to create an additional gas pre-flow during positioning.

IMPORTANT! Throughout the welding process, the gas pre-flow and post-flow time is controlled by the power source. Therefore, the "Gas test" signal does not need to be set during the welding process.

Touch sensing

TIG-KD connection box:

Plug X3/pin 21	24 V
Plug X3/pin 27	GND

IMPORTANT! If a remote control is directly connected to the power source, the "Touch sensing" function will be disabled.

The "Touch sensing" signal can be used to indicate that the tungsten electrode has made contact with the workpiece (short-circuit between workpiece and electrode).

If the "Touch sensing" signal is set, the power source switches to "TouchSensing" mode. There will be a low voltage on the tungsten electrode (current limited to a low value).

The fact that a short-circuit has occurred is transmitted to the robot control via the current flow signal (see the "Digital output signals" chapter).

No welding can take place while the "Touch sensing" signal is set. If the robot control sets the "Touch sensing" signal during a welding operation, welding is stopped. Position detection can be carried out.

Wire retract on/off (WR on/off)

TIG-KD connection box:

Plug X3/pin 22	24 V (connection box)
Plug X3/pin 27	GND

Connection option direct to the KD 7000:

Plug X2/pin 21	24 V
Plug X2/pin 27	GND

"Wire retract on" is LOW active

- 24 V not present: the wire is automatically retracted at the end of welding.

"Wire retract off" is HIGH active

- 24V is required for wire retraction to be automatically disabled.

"Wire retract on/off" is different to the "Wire retract" signal, which instantly enables wire retraction irrespective of the end of welding.

Job recall (Job mode)

TIG-KD connection box:

Plug X3/pin 23	24 V
Plug X3/pin 27	GND

If the "Job recall" signal is set, the power source switches to "Job mode" providing the "Job memory" option has been installed.

The "Job memory" option (4,100,189) is a prerequisite for Job mode.
 Robot torches used for applications with the KD 7000 do not normally have a torch trigger, which is required for programming jobs.
 The torch trigger simulator (4,100,560) is available if you want to be able to program jobs.

The "Job recall" signal must be set to recall saved jobs via the robot control. Two analogue channels are required to select jobs to recall.

These are linked to the TIG-KD connection box using plug X3 as follows:

- X3/pin 1.....GND
- X3/pin 1..... Recall the tens
- X3/pin 9..... Recall the units

Jobs are recalled in 1 V steps. For example, to recall job 24 the following voltages are applied to pin C and pin G:

- X3/pin 1..... 2 V (tens)
- X3/pin 9..... 4 V (units)

It is possible to switch between the individual jobs during welding.

Reserve 4, reserve 5

TIG-KD connection box:

Plug X3/pin 24/26	24 V
Plug X3/pin 27	GND

These pins are not assigned and therefore do not have any function.

Emergency stop

TIG-KD connection box:

Plug X3/pin 25	24 V
Plug X3/pin 27	GND

"Emergency stop" is LOW active
 - 24 V missing: "Emergency stop" is set

The "Emergency Stop" signal stops the welding process immediately.

Alternative: emergency stop via Setup menu

If "E-S" is set to "on" in the power source setup menu, the emergency stop can be enabled on the socket for the torch trigger.

Pin 7 24 V
 Pin 9 GND

Wire retract

TIG-KD connection box:

Plug X3/pin 35	24 V
Plug X3/pin 27	GND

Connection option direct to the KD 7000:

Plug X2/pin 22	24 V
Plug X2/pin 27	GND

The wire moves backwards at the specified wire speed for as long as the "Wire retract" signal is set.

IMPORTANT! It is not possible to send a command to the KD 7000 using the "Start KD" or "Robot wire-pulsing" signals while the "Wire retract" signal is enabled.

"Wire retract" is different to the "Wire retract on/off" signal, which disables automatic wire retraction at the end of welding.

Robot wire-pulsing (Wire pulse robot)

TIG-KD connection box:

Plug X3/pin 36	24 V
Plug X3/pin 27	GND

Connection option direct to the KD 7000:

Plug X2/pin 24	24 V
Plug X2/pin 27	GND

The "Wire pulse robot" signal sets pulsing of the cold wire by the robot control.

- "Puls Robot" mode must have been selected on the "Wire-Mode" dip switches.
- The wire speed switches between 0 and the entered set value, according to the signal for pulsing.
- 24 V set ==> wirefeeding stops
- 24 V missing ==> wirefeeding at set wire speed value

IMPORTANT! If "Puls Synch Tig" mode has been selected on the "Wire-Mode" dip switches,

- it is not possible to send a command to the KD 7000 via the "Wire pulse robot" signal, pulsing of the cold wire is set by the power source.
- The wire speed switches between 0 and the entered set value, synchronous with pulsing of the welding current.

Analogue input signals (signals from robot)

General



WARNING!

An electric shock can be fatal.

Never connect the GND for the robot control analogue output signal to the GND Common for the digital input and output signals.

Ground: GND = X3/pin 6

The analogue input on the robot interface has its own negative or GND potential.

IMPORTANT! Connect the GND for the analogue robot control output signal to the negative potential of the "Wire speed set value" analogue input signal ("Vd command value -" or "VD1 -").

The "Wire speed set value" analogue input signal described below is active at voltages of 0-10 V.

Wire speed ("Vd command value" or "VD1")

TIG-KD connection box:

Plug X3/pin 14	Analogue in + 0 to + 10 V
Plug X3/pin 15	Analogue in - (minus)

Connection option direct to the KD 7000:

Plug X2/pin 1	Analogue in + 0 to + 10 V
Plug X2/pin 2	Analogue in - (minus)

A voltage of 0 - 10 V is specified for the "Wire speed set value".

0 V Minimum wire speed (0.2 m/min)

10 V Maximum wire speed (10 m/min)

IMPORTANT! The table for determining the required signal voltage for the wire speed you want can be found in the "Setting wire speed externally" section.

Specifying power source set value for standard welding

Select simulation of TP mc remote control on the "Remote Control" dip switches (see "TIG-KD connection box").

TIG-KD connection box:

Plug X3/pin 1	Main current (+ 0 to + 10 V)
Plug X3/pin 6	GND

A voltage of 0 - 10 V is specified for the "Welding current set value".

0 V Minimum welding current

10 V Maximum welding current

Specifying power source set value for pulsed-arc welding

If the robot controller has at least 5 analogue line voltages (0 - 10 V), all welding parameters required for pulsed-arc welding can be specified via the robot control.
 TransTig power source ... 5 analogue line voltages
 MagicWave power source ... 6 analogue line voltages

Select simulation of TR 55 r remote control on the "Remote Control" dip switches (see "TIG-KD connection box").

TIG-KD connection box:

Plug X3/pin 1	Main current or pulse current (+ 0 to + 10 V)
Plug X3/pin 4	AC balance (MagicWave only) (+ 0 to + 10 V)
Plug X3/pin 9	Base current (+ 0 to + 10 V)
Plug X3/pin 10	frequency range switchover (+ 0 to +10 V)

IMPORTANT! Frequency range switchover takes place in 0.8 V steps.

Plug X3/pin11	Pulse frequency (+ 0 to + 10 V)
Plug X3/pin 12	Pulse width (+ 0 to + 10 V)
Plug X3/pin 6	GND

Connection option direct to the KD 7000:

Plug X2/pin 17	24 V
Plug X2/pin 27	GND

A voltage of 0 - 10 V is specified for the set values for the listed welding parameters.
 0 V Minimum parameter set value
 10 V Maximum parameter set value

Digital output signals (signals to robot)

General

The digital outputs have been implemented as relay outputs. This provides for electrical isolation of the digital output signals.

Pulssynch HIGH

TIG-KD connection box:

Plug X3/pin 18	24 V
Plug X3/pin 27	GND

"Pulssynch High" informs the robot control of the moment at which the welding current is in the pulsing current phase.

The digital output for the "Pulssynch High" signal is "open collector". For this reason, a "10 kOhm pull-up resistor" must be connected to the 24 V of the robot control for the "Pulssynch High" signal on the digital output.

Common signal (Signal common)

TIG-KD connection box:

Plug X3/pin 34	24 V
----------------	------

Pin 34 serves as a common root for the "Current flow signal", "HF on", "Gas on", "Alarm" and "Reserve" digital output signals (see "Digital output signals").

Current flow signal (Signal current flow)

TIG-KD connection box:

Plug X3/pin 28	24 V
Plug X3/pin 27	GND

The current flow signal is set as soon as a stable arc is present.

HF on signal (Signal HF on)

TIG-KD connection box:

Plug X3/pin 29	24 V
Plug X3/pin 27	GND

The "HF on" signal is active for as long as the high frequency start arc current is enabled, before ignition of the arc itself.

The "HF on" signal can be used to send commands to an external high frequency generator, for example.

Gas on signal (Signal gas on)

TIG-KD connection box:

Plug X3/pin 31	24 V
Plug X3/pin 27	GND

If the robot control sets the "Arc on" ("Command arc on") digital input signal, the welding process starts with the gas pre-flow.

The power source sets the "Gas on" signal from the start of the gas pre-flow to the end of the gas post-flow.

The "Gas on" signal can be used to ensure the best possible gas shield by allowing adequate dwell time for the robot at the start and end of the weld seam.

Furthermore, the "Gas on" signal can be used to send commands to the external gas solenoid valve (this is useful if a long torch hosepack is used).

Use of the "Gas on" signal as a "Process active" signal represents a further application option.

Alarm signal

TIG-KD connection box:

Plug X3/pin 32	24 V
Plug X3/pin 27	GND

The "Alarm" signal is set if the power source is switched off due to overtemperature or mains overvoltage/undervoltage. The "Alarm" signal may initiate an emergency stop of the robot or the output of an error message.

Reserve signal

TIG-KD connection box:

Plug X3/pin 33	24 V
Plug X3/pin 27	GND

This pin is not assigned and therefore does not have any function.

Signal KD ready

TIG-KD connection box:

Plug X3/pin 30	Floating connection
Plug X3/pin 37	Floating connection

Connection option direct to the KD 7000:

Plug X2/pin 30	Floating connection
Plug X2/pin 37	Floating connection

Meaning of the "KD ready" digital output signal:
KD 7000 switched on and ready for operation

If the "KD ready" signal is not present even though the system has been switched on, the following errors may be present:

- Motor overcurrent
- Short circuit/interruption in the actual value pick-up lines
- Actual value pick-up faulty
- Earth current watchdog has tripped

Reset: Switch the mains switch off and back on again

Main current signal

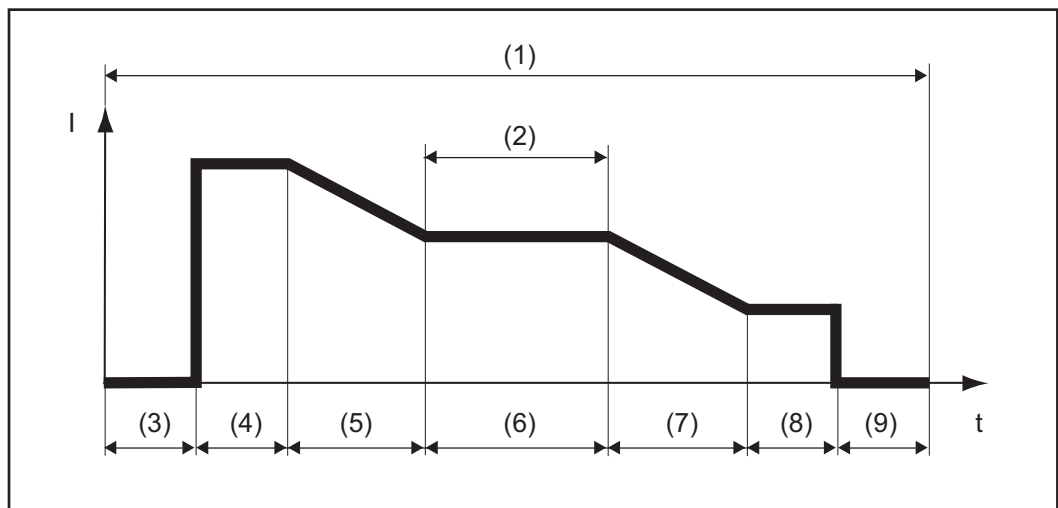
Digital output signal, direct from the power source robot interface to the TIG-KD connection box.

The main current signal is set between the starting current and final current phase. If the setting "Start TIG" has been selected on the "Wire Mode" dip switches, wirefeeding starts with the main current signal.

NOTE!

Select "Start TIG" on the "Wire Mode" dip switch.

If the setting "Start KD" is selected instead, it is not possible to start wirefeeding with the main current signal.



Digital output signals "Gas on" (1) and "Main current signal" (2)

- | | |
|-------------------------|------------------------|
| (1) Gas on | (6) welding current |
| (2) Main current signal | (7) Slope |
| (3) Gas pre-flow time | (8) Final current |
| (4) Starting current | (9) Gas post-flow time |
| (5) Slope | |

Safety



WARNING!

Danger due to incorrect operation and incorrectly performed work.

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

- ▶ All the functions described may only be used by trained and qualified personnel.
- ▶ Fully read and understand this document.
- ▶ Fully read and understand all the Operating Instructions for the system components, especially the safety rules.

Proper use

The KD 7000 cold wire wire-feed unit should exclusively be used as a wire-feed unit for the cold wire TIG and laser cold wire welding processes. 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 also includes:

- Complying with all the instructions in the operating instructions
- performing all stipulated inspection and maintenance work

Setup regulations



WARNING!

A wire-feed unit that topples over could easily kill someone!

The KD 7000 must be installed or mounted on a suitable fixture or on a solid, level surface so that it remains stable.

The KD 7000 is tested to IP23, meaning:

- protection against penetration by solid foreign bodies greater than 12 mm in diameter
- protection against spraywater at any angle up to 60° to the vertical

The KD 7000 can be set up and operated outdoors in accordance with protection class IP23.

However, the built-in electrical components must be protected against direct wetting.

The cooling is a very important safety feature. When choosing the installation site, ensure that the cooling air can enter and exit unhindered through the relevant air openings. Electroconductive metallic dust (e.g. from grinding work) must not be allowed to enter the device.

Mains connection

The KD 7000 is designed to run on the mains voltage indicated on the rating plate. The mains cable and plug are ready-fitted. For details of fuse protection of the mains lead, please see the technical data.

Connecting the VR 1530 KD wire drive

- 1 Plug the connecting cable control plug into the connection socket for the external wire drive of the KD 7000
- 2 Tighten the union nut by hand to fix the torch in place

- 3 Plug the connecting cable control plug into the VR 1500 KD control connection and twist it to fasten it
- 4 Tighten the union nut by hand to fix the torch in place

Connecting the TIG-KD manual torch

- 1 Move the mains switch to the O position
- 2 Check that the welding torch has been completely tooled up. Insert it - infeed tube first - into the central connector
- 3 Tighten the union nut by hand to fix the torch in place
- 4 Plug the control plug of the welding torch into the torch control connection and latch it in place

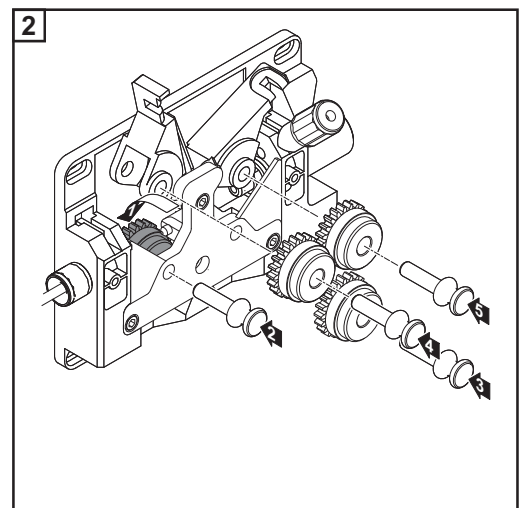
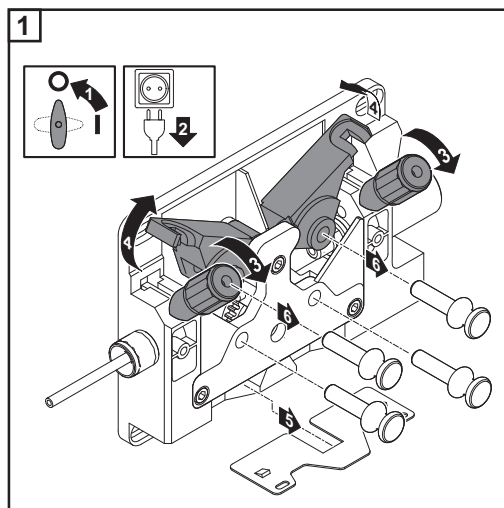
Connecting the wirefeed for TIG robot torches

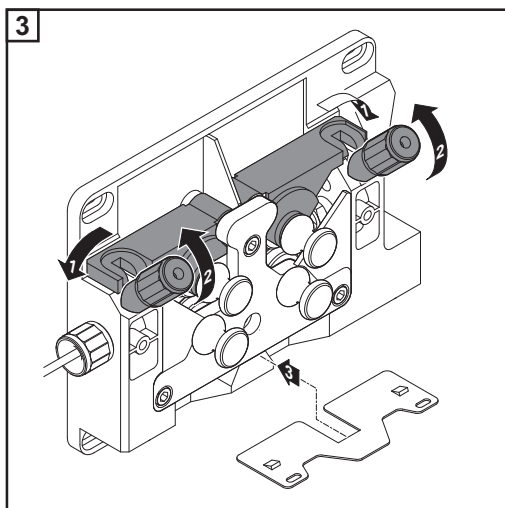
- 1 Move the mains switch to the O position
- 2 Check that the wirefeed hosepack has been completely tooled up. Insert it - infeed tube first - into the central connector
- 3 Tighten the union nut by hand to fix the torch in place

Connecting Robacta Drive KD wire drive

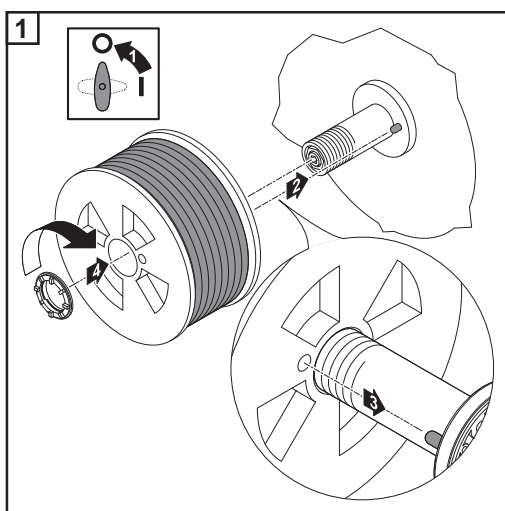
- 1 Move the mains switch to the O position
- 2 Insert the Robacta Drive KD hosepack - infeed tube first - into the central connector and secure to the external wire-feed unit holder
- 3 Tighten the union nut by hand to fix the torch in place
- 4 Plug the Robacta Drive KD control plug into the connection socket for the external wire drive
- 5 Tighten the union nut by hand to fix the torch in place

inserting/replacing feed rollers





Inserting the wire-spool



Inserting the basket-type spool

NOTE!

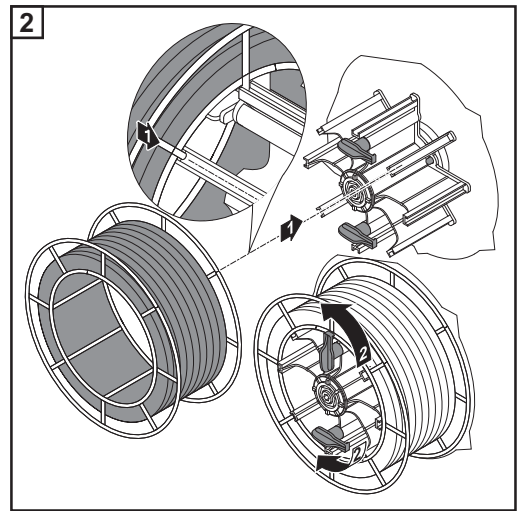
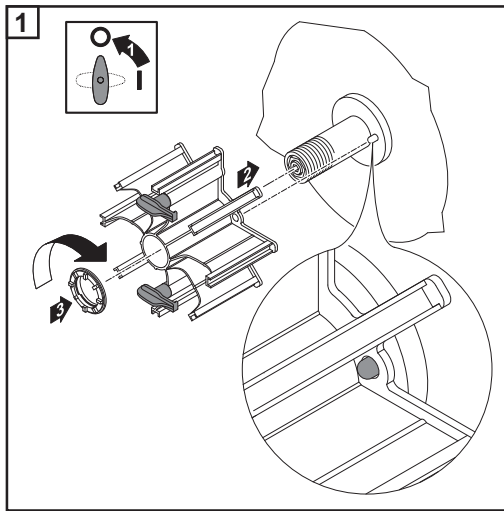
When working with basket-type spools, use only the basket-type spool adapter supplied with the wire-feed unit! USA wire-feed units are supplied without basket-type spool adapters.



CAUTION!

Risk of injury from falling basket-type spool.

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 welding wire

⚠ CAUTION!

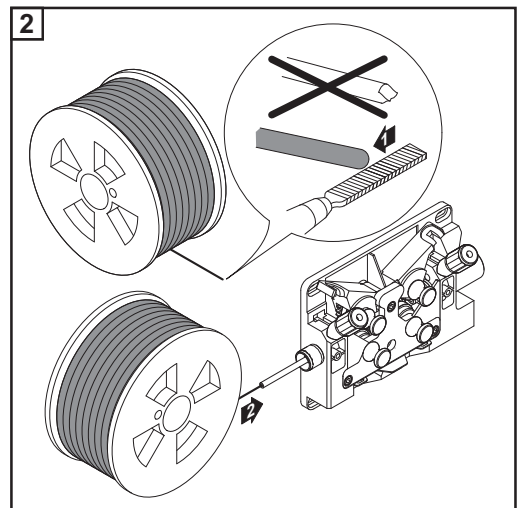
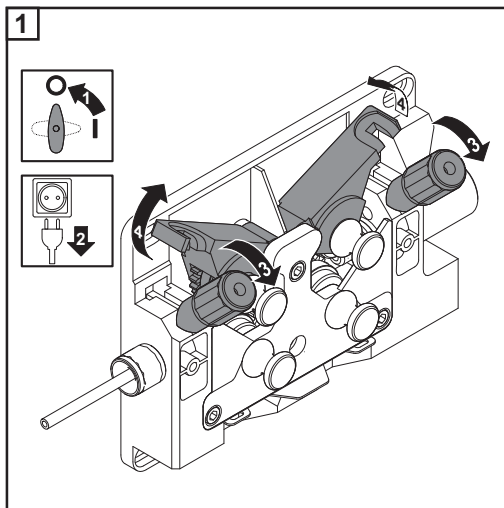
Risk of injury from springiness of spooled welding wire.

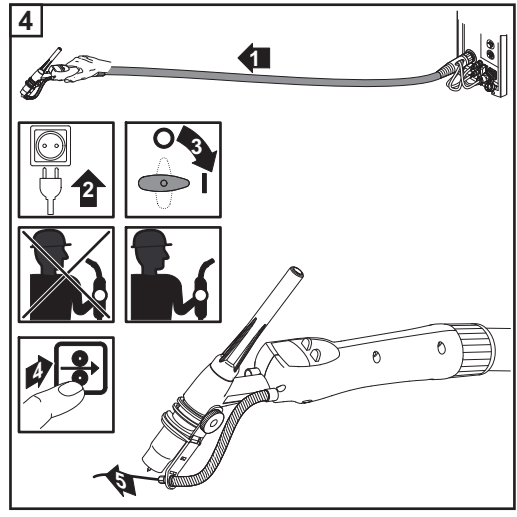
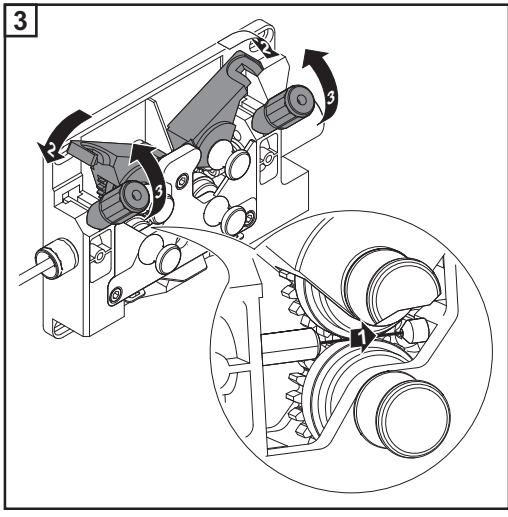
While inserting the welding wire into the 4 roller drive, hold the end of the wire firmly to avoid injuries caused by the wire springing back.

⚠ CAUTION!

Risk of damage to the welding torch from sharp end of welding wire.

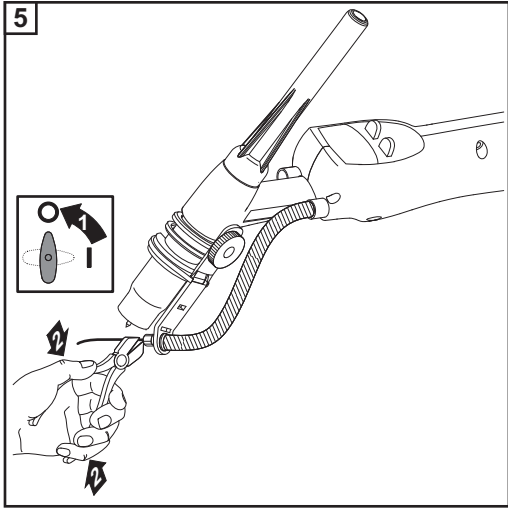
Thoroughly deburr the end of the welding wire before threading.





⚠ CAUTION!

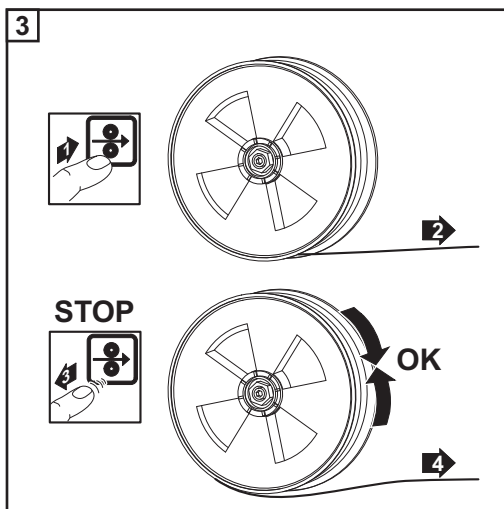
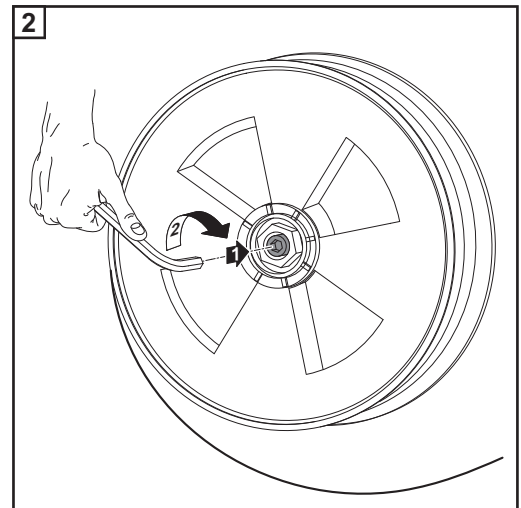
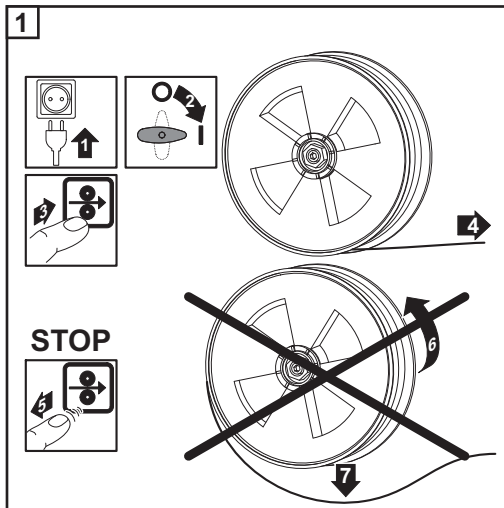
Risk of injury from emerging welding wire.
Keep the welding torch away from your face and body, and wear suitable protective goggles.



Adjusting the brake

NOTE!

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

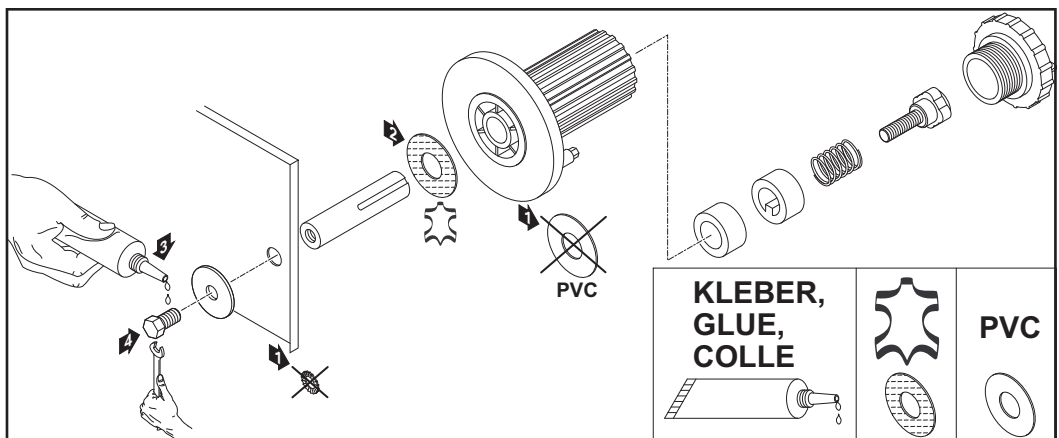


**Design of the
brake**

⚠ CAUTION!

Risk of injury and damage from falling wirespool.

To ensure that the wirespool is properly in place and that the brake works properly, fit the brake according to the following diagram.



Troubleshooting



WARNING!

An electric shock can be fatal.

Before opening up the KD 7000, turn the mains switch into the - O - position, unplug the machine from the mains and put up a warning sign to stop anybody inadvertently switching the machine back on again.

Make a note of the serial number and configuration of the device and contact our After-Sales Service team with a detailed description of the error, if

- errors occur that are not listed below
 - the troubleshooting measures listed are unsuccessful
-

KD 7000 is not functioning

Mains switch switched on

Cause: There is a break in the mains lead; the mains plug is not plugged in

Remedy: Check the mains lead, ensure that the mains plug is plugged in

Cause: Mains fuse is faulty

Remedy: Change the mains fuse

Cause: Mains outlet socket or plug is faulty

Remedy: Remedy: Change faulty components

Irregular wire speed

The welding wire forms a loop between the feed rollers and the wire inlet nozzle of the welding torch

Cause: Braking force has been set too high

Remedy: Loosen the brake

Cause: Hole in the wire centring case is too narrow

Remedy: Use suitable wire centring case

Cause: Inner liner in the welding torch is faulty

Remedy: Check the inner liner for kinks, dirt, etc.

Cause: The feed rollers are unsuitable for the welding wire being used

Remedy: Use suitable feed rollers

Cause: The feed rollers have the wrong contact pressure

Remedy: Optimise the contact pressure

Care, maintenance and disposal

General

Under normal operating conditions, the device requires only a minimum of care and maintenance. However, it is vital to observe some important points to ensure the welding system remains in a usable condition for many years.

Care and maintenance



WARNING!

An electric shock can be fatal.

Before opening up the KD 7000, turn the KD 7000 off at the mains switch, unplug the machine from the mains and put up a warning sign to stop anybody inadvertently switching the machine back on again.

Observe the following points to ensure the KD 7000 gives you years of troublefree operation:

- Carry out safety inspections at the stipulated intervals (see "Safety rules")
 - Depending on the installation location, but in any event at least twice a year, remove the side panels and clean the KD 7000 with dry, reduced compressed air. 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

KD 7000

Mains voltage	200 - 240 V AC
Nominal current	1,2 A
Mains fuse protection	slow-blow 2 A
Types of wirespool	all standard
Max. permitted wirespool weight	16 kg (35.27 lb.)
Wirespool diameter	300 mm (11.81 in.)
Wire speed	0,2 - max. m/min 7.87 - max. 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.
Degree of protection	IP 23
Dimensions l x w x h	640 / 260 / 430 mm 25.2 / 10.2 / 16.9 in.
Weight	17 kg 37.4 lb.
EMC device class (in accordance with EN/IEC 60974-10)	A
Mains connection	Restrictions possible

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