



EN

welding torch

TIG 18 WD
TIG 20 WD
TIG 260 WD
TIG 450 WD

099-011445-EW501

Observe additional system documents!

20.03.2023

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General instructions

WARNING



Read the operating instructions!

The operating instructions provide an introduction to the safe use of the products.

- Read and observe the operating instructions for all system components, especially the safety instructions and warning notices!
- Observe the accident prevention regulations and any regional regulations!
- The operating instructions must be kept at the location where the machine is operated.
- Safety and warning labels on the machine indicate any possible risks. Keep these labels clean and legible at all times.
- The machine has been constructed to state-of-the-art standards in line with any applicable regulations and industrial standards. Only trained personnel may operate, service and repair the machine.
- Technical changes due to further development in machine technology may lead to a differing welding behaviour.

In the event of queries on installation, commissioning, operation or special conditions at the installation site, or on usage, please contact your sales partner or our customer service department on +49 2680 181-0.

A list of authorised sales partners can be found at www.ewm-group.com/en/specialist-dealers.

Liability relating to the operation of this equipment is restricted solely to the function of the equipment. No other form of liability, regardless of type, shall be accepted. This exclusion of liability shall be deemed accepted by the user on commissioning the equipment.

The manufacturer is unable to monitor whether or not these instructions or the conditions and methods are observed during installation, operation, usage and maintenance of the equipment.

An incorrectly performed installation can result in material damage and injure persons as a result. For this reason, we do not accept any responsibility or liability for losses, damages or costs arising from incorrect installation, improper operation or incorrect usage and maintenance or any actions connected to this in any way.

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The content of this document has been prepared and reviewed with all reasonable care. The information provided is subject to change; errors excepted.

Data security

The user is responsible for backing up data of all changes from the factory setting. The user is liable for erased personal settings. The manufacturer does not assume any liability for this.

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2 For your safety

2.1 Notes on using these operating instructions

DANGER

Working or operating procedures which must be closely observed to prevent imminent serious and even fatal injuries.

- Safety notes include the "DANGER" keyword in the heading with a general warning symbol.
- The hazard is also highlighted using a symbol on the edge of the page.

WARNING

Working or operating procedures which must be closely observed to prevent serious and even fatal injuries.

- Safety notes include the "WARNING" keyword in the heading with a general warning symbol.
- The hazard is also highlighted using a symbol in the page margin.

CAUTION

Working or operating procedures which must be closely observed to prevent possible minor personal injury.

- The safety information includes the "CAUTION" keyword in its heading with a general warning symbol.
- The risk is explained using a symbol on the edge of the page.



























Technical aspects which the user must observe to avoid material or equipment damage.

Instructions and lists detailing step-by-step actions for given situations can be recognised via bullet points, e.g.:

- Insert the welding current lead socket into the relevant socket and lock.

2.2 Explanation of icons

Symbol	Description	Symbol	Description
	Indicates technical aspects which the user must observe.		Activate and release / Tap / Tip
	Switch off machine		Release
	Switch on machine		Press and hold
	Incorrect / Invalid		Switch
	Correct / Valid		Turn
	Input		Numerical value – adjustable
	Navigation		Signal light lights up in green
	Output		Signal light flashes green
	Time representation (e.g.: wait 4 s / actuate)		Signal light lights up in red
	Interruption in the menu display (other setting options possible)		Signal light flashes red
	Tool not required/do not use		Signal light lights up in blue
	Tool required/use		Signal light flashes blue

2.3 Safety instructions

WARNING



Risk of accidents due to non-compliance with the safety instructions!

Non-compliance with the safety instructions can be fatal!

- Carefully read the safety instructions in this manual!
- Observe the accident prevention regulations and any regional regulations!
- Inform persons in the working area that they must comply with the regulations!



Risk of injury from electrical voltage!

Voltages can cause potentially fatal electric shocks and burns on contact. Even low voltages can cause a shock and lead to accidents.

- Never touch live components such as welding current sockets or stick, tungsten or wire electrodes!
- Always place torches and electrode holders on an insulated surface!
- Wear the full personal protective equipment (depending on the application)!
- The machine may only be opened by qualified personnel!
- The device must not be used to defrost pipes!



Hazard when interconnecting multiple power sources!

If a number of power sources are to be connected in parallel or in series, only a technical specialist may interconnect the sources as per standard IEC 60974-9:2010: Installation and use and German Accident Prevention Regulation BVG D1 (formerly VBG 15) or country-specific regulations.

Before commencing arc welding, a test must verify that the equipment cannot exceed the maximum permitted open circuit voltage.

- Only qualified personnel may connect the machine.
- When taking individual power sources out of operation, all mains and welding current leads must be safely disconnected from the welding system as a whole. (Hazard due to reverse polarity voltage!)
- Do not interconnect welding machines with pole reversing switch (PWS series) or machines for AC welding since a minor error in operation can cause the welding voltages to be combined, which is not permitted.



Risk of injury due to radiation or heat!

Arc radiation can lead to skin and eye injuries.

Contact with hot workpieces and sparks can lead to burns.

- Use hand shield or welding helmet with the appropriate safety level (depends on the application).
- Wear dry protective clothing (e.g. hand shield, gloves, etc.) in accordance with the applicable regulations of your country.
- Persons who are not directly involved should be protected with a welding curtain or suitable safety screen against radiation and the risk of blinding!

WARNING



Risk of injury due to improper clothing!

During arc welding, radiation, heat and voltage are sources of risk that cannot be avoided. The user has to be equipped with the complete personal protective equipment at all times. The protective equipment has to include:

- Respiratory protection against hazardous substances and mixtures (fumes and vapours); otherwise implement suitable measures such as extraction facilities.
- Welding helmet with proper protection against ionizing radiation (IR and UV radiation) and heat.
- Dry welding clothing (shoes, gloves and body protection) to protect against warm environments with conditions comparable to ambient temperatures of 100 °C or higher and arcing and work on live components.
- Hearing protection against harming noise.



Explosion risk!

Apparently harmless substances in closed containers may generate excessive pressure when heated.

- Move containers with inflammable or explosive liquids away from the working area!
- Never heat explosive liquids, dusts or gases by welding or cutting!



Fire hazard!

Due to the high temperatures, sparks, glowing parts and hot slag that occur during welding, there is a risk of flames.

- Be watchful of potential sources of fire in the working area!
- Do not carry any easily inflammable objects, e.g. matches or lighters.
- Ensure suitable fire extinguishers are available in the working area!
- Thoroughly remove any residue of flammable materials from the workpiece prior to starting to weld.
- Only further process workpieces after they have cooled down. Do not allow them to contact any flammable materials!

CAUTION



Smoke and gases!

Smoke and gases may lead to shortness of breath and poisoning! The ultraviolet radiation of the arc may also convert solvent vapours (chlorinated hydrocarbon) into poisonous phosgene.

- Ensure sufficient fresh air!
- Keep solvent vapours away from the arc beam field!
- Wear suitable respiratory protection if necessary!
- To prevent the formation of phosgene, residues of chlorinated solvents on workpieces must first be neutralised using appropriate measures.



Noise exposure!

Noise exceeding 70 dBA can cause permanent hearing damage!

- Wear suitable ear protection!
- Persons located within the working area must wear suitable ear protection!



According to IEC 60974-10, welding machines are divided into two classes of electromagnetic compatibility (the EMC class can be found in the Technical data) > see 8 chapter:



Class A machines are not intended for use in residential areas where the power supply comes from the low-voltage public mains network. When ensuring the electromagnetic compatibility of class A machines, difficulties can arise in these areas due to interference not only in the supply lines but also in the form of radiated interference.



Class B machines fulfil the EMC requirements in industrial as well as residential areas, including residential areas connected to the low-voltage public mains network.

Setting up and operating

When operating arc welding systems, in some cases, electro-magnetic interference can occur although all of the welding machines comply with the emission limits specified in the standard. The user is responsible for any interference caused by welding.

In order to **evaluate** any possible problems with electromagnetic compatibility in the surrounding area, the user must consider the following: (see also EN 60974-10 Appendix A)

- Mains, control, signal and telecommunication lines
- Radios and televisions
- Computers and other control systems
- Safety equipment
- The health of neighbouring persons, especially if they have a pacemaker or wear a hearing aid
- Calibration and measuring equipment
- The immunity to interference of other equipment in the surrounding area
- The time of day at which the welding work must be carried out

Recommendations for reducing interference emission

- Mains connection, e.g. additional mains filter or shielding with a metal tube
- Maintenance of the arc welding system
- Welding leads should be as short as possible and run closely together along the ground
- Potential equalization
- Earthing of the workpiece. In cases where it is not possible to earth the workpiece directly, it should be connected by means of suitable capacitors.
- Shielding from other equipment in the surrounding area or the entire welding system



Electromagnetic fields!

The power source can create electrical or electromagnetic fields that may impair the function of electronic systems such as EDP and CNC devices, telecommunication, power and signal lines as well as pacemakers and defibrillators.



- Follow the maintenance instructions > see 6.2.1 chapter!
- Unwind the welding leads completely!
- Shield radiation-sensitive equipment or facilities appropriately!
- The function of pacemakers may be impaired (seek medical advice if necessary).

CAUTION



Obligations of the operator!

The respective national directives and laws must be complied with when operating the machine!

- Implementation of national legislation relating to framework directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work and associated individual guidelines.
- In particular, directive 89/655/EEC concerning the minimum safety and health requirements for the use of work equipment by workers at work.
- The regulations applicable to occupational safety and accident prevention in the country concerned.
- Setting up and operating the machine as per IEC 60974.-9.
- Brief the user on safety-conscious work practices on a regular basis.
- Regularly inspect the machine as per IEC 60974.-4.



The manufacturer's warranty becomes void if non-genuine parts are used!

- ***Only use system components and options (power sources, welding torches, electrode holders, remote controls, spare parts and replacement parts, etc.) from our range of products!***
- ***Only insert and lock accessory components into the relevant connection socket when the machine is switched off.***

Requirements for connection to the public mains network

High-performance machines can influence the mains quality by taking current from the mains network. For some types of machines, connection restrictions or requirements relating to the maximum possible line impedance or the necessary minimum supply capacity at the interface with the public network (Point of Common Coupling, PCC) can therefore apply. In this respect, attention is also drawn to the machines' technical data. In this case, it is the responsibility of the operator, where necessary in consultation with the mains network operator, to ensure that the machine can be connected.

2.4 Transport and installation

WARNING



Risk of injury due to improper handling of shielding gas cylinders!

Improper handling and insufficient securing of shielding gas cylinders can cause serious injuries!

- Observe the instructions from the gas manufacturer and any relevant regulations concerning the use of compressed air!
- Do not attach any element to the shielding gas cylinder valve!
- Prevent the shielding gas cylinder from heating up.

⚠ CAUTION**Risk of accidents due to supply lines!**

During transport, attached supply lines (mains leads, control cables, etc.) can cause risks, e.g. by causing connected machines to tip over and injure persons!

- Disconnect all supply lines before transport!

**Risk of tipping!**

There is a risk of the machine tipping over and injuring persons or being damaged itself during movement and set up. Tilt resistance is guaranteed up to an angle of 10° (according to IEC 60974-1).

- Set up and transport the machine on level, solid ground.
- Secure add-on parts using suitable equipment.

**Risk of accidents due to incorrectly installed leads!**

Incorrectly installed leads (mains, control and welding leads or intermediate hose packages) can present a tripping hazard.

- Lay the supply lines flat on the floor (avoid loops).
- Avoid laying the leads on passage ways.

**Risk of injury from heated coolant and its connections!**

The coolant used and its connection or connection points can heat up significantly during operation (water-cooled version). When opening the coolant circuit, escaping coolant may cause scalding.

- Open the coolant circuit only when the power source or cooling unit is switched off!
- Wear proper protective equipment (protective gloves)!
- Seal open connections of the hose leads with suitable plugs.



The units are designed for operation in an upright position!

Operation in non-permissible positions can cause equipment damage.

- ***Only transport and operate in an upright position!***



Accessory components and the power source itself can be damaged by incorrect connection!

- ***Only insert and lock accessory components into the relevant connection socket when the machine is switched off.***
- ***Comprehensive descriptions can be found in the operating instructions for the relevant accessory components.***
- ***Accessory components are detected automatically after the power source is switched on.***



Protective dust caps protect the connection sockets and therefore the machine against dirt and damage.

- ***The protective dust cap must be fitted if there is no accessory component being operated on that connection.***
- ***The cap must be replaced if faulty or if lost!***

3 Intended use

WARNING



Hazards due to improper usage!

The machine has been constructed to the state of the art and any regulations and standards applicable for use in industry and trade. It may only be used for the welding procedures indicated at the rating plate. Hazards may arise for persons, animals and material objects if the equipment is not used correctly. No liability is accepted for any damages arising from improper usage!

- The equipment must only be used in line with its designated purpose and by trained or expert personnel!
- Do not improperly modify or convert the equipment!

3.1 Applications

Welding torch for TIG welding with arc welding machines.



Notes for welding torches with flexible torch necks (Type F):

Flexible torch necks offer the advantage that they can be bent to suit the welding task. However, the torch neck is weakened by each bend made. Therefore, the bending cycles are limited.

The smallest bend radius is 25 mm with a maximum bend angle of 45 °. As a guideline, we recommend a maximum of 50 cycles for water-cooled and a maximum of 80 cycles for gas-cooled welding torches.

We define the bend back to the starting position as 1 cycle.

3.2 Documents which also apply

3.2.1 Warranty

For more information refer to the "Warranty registration" brochure supplied and our information regarding warranty, maintenance and testing at www.ewm-group.com!

3.2.2 Declaration of Conformity



This product corresponds in its design and construction to the EU directives listed in the declaration. The product comes with a relevant declaration of conformity in the original.

The manufacturer recommends carrying out the safety inspection according to national and international standards and guidelines every 12 months (from commissioning).

3.2.3 Service documents (spare parts)

WARNING



No improper repairs and modifications!

To prevent injuries and damage to the machine, only competent personnel (authorised service personnel) are allowed to repair or modify the machine.

Unauthorised manipulations will invalidate the warranty!

- Instruct competent personnel (authorised service personnel) to repair the machine.

Spare parts can be obtained from the relevant authorised dealer.

3.2.4 Part of the complete documentation

This document is part of the complete documentation and valid only in combination with all other parts of these instructions! Read and observe the operating instructions for all system components, especially the safety instructions!

The illustration shows a general example of a welding system.

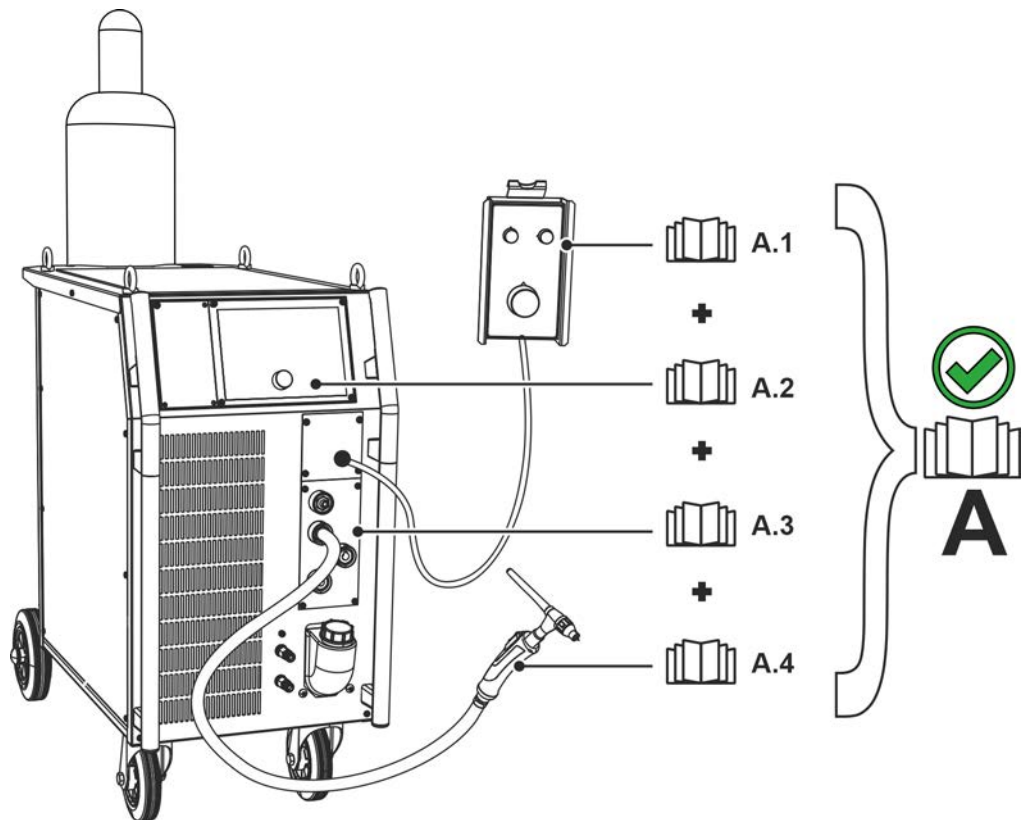


Figure 3-1

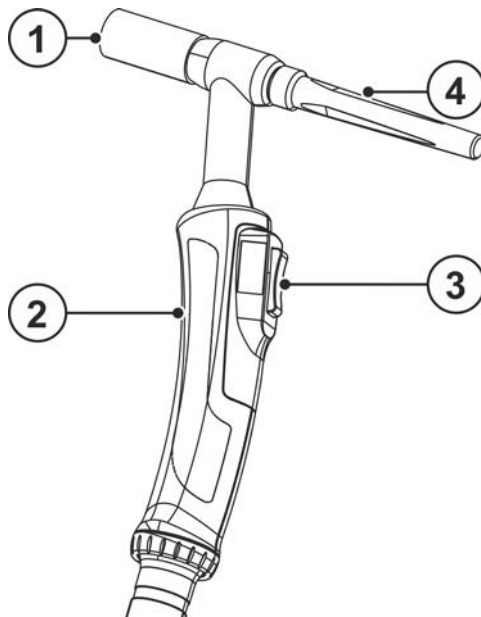
Item	Documentation
A.1	Remote control
A.2	Control
A.3	Power source
A.4	Welding torch
A	Complete documentation

4 Machine description – quick overview

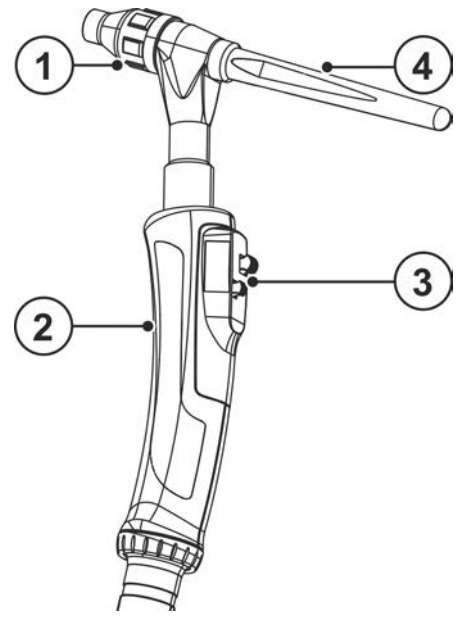
4.1 Machine variants

Version	Functions
SR	Silicone rubber Standard torch for simple welding tasks
GD	Gas-cooled with decentral connection
WD	Water-cooled with decentral connection
HD	Heavy-duty Designed for heavy-duty use
GDV	Rotary gas valve To regulate the gas volume
GRIP	GRIP Handle Ergonomic grip for secure handling
KOMBI	Hose package Euro torch connector with additional welding current lead for polarity change.
SC	SuperCool Higher load capacity thanks to improved design of the hose package.
F	Flexible torch neck
HFL	Highly flexible hose package
U/D	Up-/Down control The welding power (welding current) can be infinitely increased or decreased during the welding process.
RETOX	RETOX control U/D functions with an additional display of the set welding current or the selected JOB number.
RETOX XQ	RETOX XQ control TIG function torch for the machine series Tetrax XQ
EZA	Euro torch connector

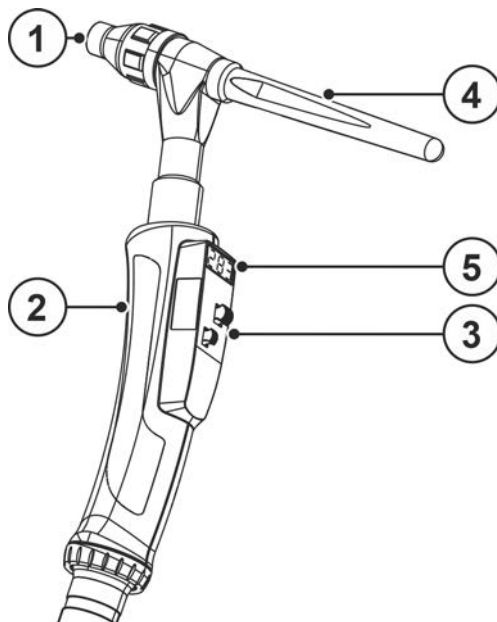
The TIG torches are available in different model versions. The up/down and Retox versions add extra operating elements to the torches.



TIG 18, TIG 20




TIG 260 U/D, TIG 450 U/D



TIG 260 Retox, -Retox XQ, TIG 450 Retox

Figure 4-1

Item	Symbol	Description
1		Gas nozzle
2		Torch body
3		Operating elements > see 5.5.2 chapter
4		Back cap
5		Display

4.2 Connection variants

4.2.1 Decentral connection

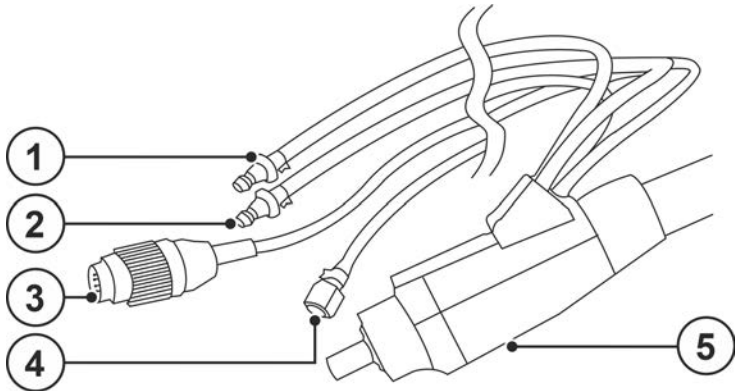


Figure 4-2

4.2.2 Euro central connection

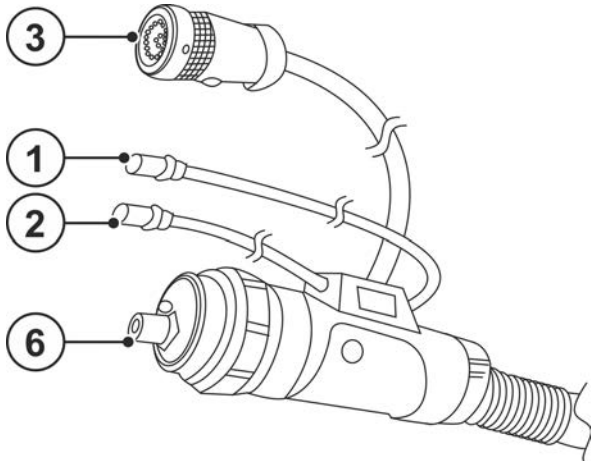


Figure 4-3

4.2.3 Euro central connection - KOMBI

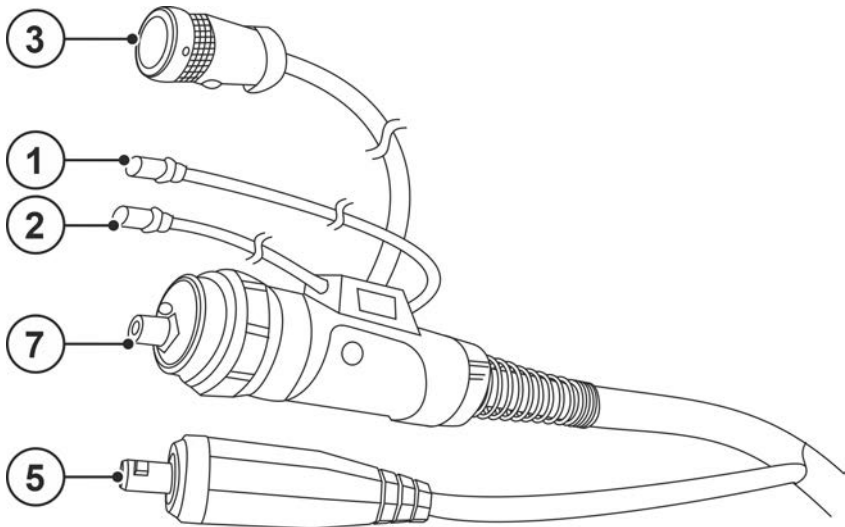




Figure 4-4

Item	Symbol	Description
1		Quick connect coupling, NW 5 Coolant return (red)

Item	Symbol	Description
2		Quick connect coupling, NW 5 Coolant feed (blue)
3		Control lead cable plug
4		Shielding gas hose Crown nut G 1/4"
5		Welding current connection Decentral
6		Euro central connection Welding current and shielding included.
7		Euro torch connector – combination Shielding gas integrated, decentral welding current

5 Design and function

5.1 General

WARNING



Risk of burns and electric shock on the welding torch!

Welding torch (torch neck or torch head) and coolant (water-cooled version) heat up strongly during the welding process. During assembly work, you may come into touch with electrical voltage or hot components.



- Wear proper protective equipment!
- Switch off the power source or torch cooling and allow the welding torch to cool!



Risk of injury from electrical voltage!

Contact with live parts, e.g. power connections, can be fatal!

- Observe the safety information on the first pages of the operating instructions!
- Commissioning must be carried out by persons who are specifically trained in handling power sources!
- Connect connection or power cables while the machine is switched off!



Accessory components and the power source itself can be damaged by incorrect connection!

- **Only insert and lock accessory components into the relevant connection socket when the machine is switched off.**
- **Comprehensive descriptions can be found in the operating instructions for the relevant accessory components.**
- **Accessory components are detected automatically after the power source is switched on.**



Protective dust caps protect the connection sockets and therefore the machine against dirt and damage.

- **The protective dust cap must be fitted if there is no accessory component being operated on that connection.**
- **The cap must be replaced if faulty or if lost!**



Machine damage due to incompletely assembled welding torch!

Incomplete assembly may destroy the welding torch.

- **Always assemble the welding torch completely.**



After each opening of the welding torch, using the "gas test" "gas flush" function and increased flow rates, remove moisture, atmospheric oxygen and any impurities from the welding torch.

Read and observe the documentation to all system and accessory components!

5.2 Scope of delivery

The delivery is checked and packaged carefully before dispatch, however it is not possible to exclude the possibility of damage during transit.

Receiving inspection

- Check that the delivery is complete using the delivery note!

In the event of damage to the packaging

- Check the delivery for damage (visual inspection)!

In the event of complaints

If the delivery has been damaged during transport:

- Please contact the last haulier immediately!
- Keep the packaging (for possible checking by the haulier or for the return shipment).

Packaging for returns

If possible, please use the original packaging and the original packaging material. If you have any queries on packaging and protection during transport, please contact your supplier.

5.3 Transport and installation

⚠ CAUTION



Risk of accidents due to supply lines!

During transport, attached supply lines (mains leads, control cables, etc.) can cause risks, e.g. by causing connected machines to tip over and injure persons!

- Disconnect all supply lines before transport!

5.3.1 Ambient conditions



Equipment damage due to contamination!

Unusually high amounts of dust, acids, corrosive gases or substances can damage the machine (observe maintenance intervals > see 6.2.2 chapter).

- **Avoid large amounts of smoke, steam, oily fumes, grinding dust and corrosive ambient air!**

In operation

Temperature range of the ambient air:

- -10 °C to +40 °C (-13 F to 104 F) ^[1]

Relative humidity:

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

Transport and storage

Storage in a closed area, temperature range of the ambient air:

- -25 °C to +55 °C (-13 F to 131 F) ^[1]

Relative humidity

- up to 90 % at 20 °C (68 F)

^[1] Ambient temperature dependent on coolant! Observe the coolant temperature range of the torch cooling

5.3.2 Welding torch cooling system



Material damage due to unsuitable coolants!

Unsuitable coolant, coolants mixed with other types / liquids or use in an unsuitable temperature range will result in material damage and loss of the manufacturer's warranty!

- **Operation without coolant is not permitted! Dry running will destroy the cooling components such as the coolant pump, welding torch and hose packages.**
- **Only use the coolants described in these instructions for the specified ambient conditions (temperature range) > see 5.3.2.1 chapter.**
- **Do not mix coolants of different types (including those described in these instructions).**
- **When changing the coolant, all liquid must be replaced and the cooling system flushed.**

Dispose of the coolant in accordance with local regulations and the material safety data sheets.


















5.3.2.1 Permitted torch coolant

Coolant	Temperature range
blueCool -10	-10 °C to +40 °C (14 °F to +104 °F)
KF 23E (Standard)	-10 °C to +40 °C (14 °F to +104 °F)
KF 37E	-20 °C to +30 °C (-4 °F to +86 °F)
blueCool -30	-30 °C to +40 °C (-22 °F to +104 °F)


















5.3.2.2 Maximal hose package length

All information relates to the total hose package length of the complete welding system and presents exemplary configurations (of components of the EWM product portfolio with standard lengths). A straight kink-free installation is to be ensured, taking into account the max. delivery height.

Pump: Pmax = 3,5 bar (0.35 MPa)

Power source	Hose package	Wire feeder	miniDrive	Welding torch	Max.
Compact			 (25 m / 82 ft.)	 (5 m / 16 ft.)	30 m 98 ft.
	 (20 m / 65 ft.)			  (5 m / 16 ft.)	
Decompact	 (25 m / 82 ft.)			 (5 m / 16 ft.)	
	 (15 m / 49 ft.)		 (10 m / 32 ft.)	 (5 m / 16 ft.)	

Pump: Pmax = 4.5 bar (0.45 MPa)

Power source	Hose package	Wire feeder	miniDrive	Welding torch	Max.
Compact			 (25 m / 82 ft.)	 (5 m / 16 ft.)	30 m 98 ft.
	 (30 m / 98 ft.)			  (5 m / 16 ft.)	40 m 131 ft.
Decompact	 (40 m / 131 ft.)			 (5 m / 16 ft.)	45 m 147 ft.
	 (40 m / 131 ft.)		 (25 m / 82 ft.)	 (5 m / 16 ft.)	70 m 229 ft.

5.4 Equipping the welding torch

5.4.1 TIG 18, 20

Equipping the torch using the example of the TIG 18 torch. Procedure is similar for other models as appropriate.

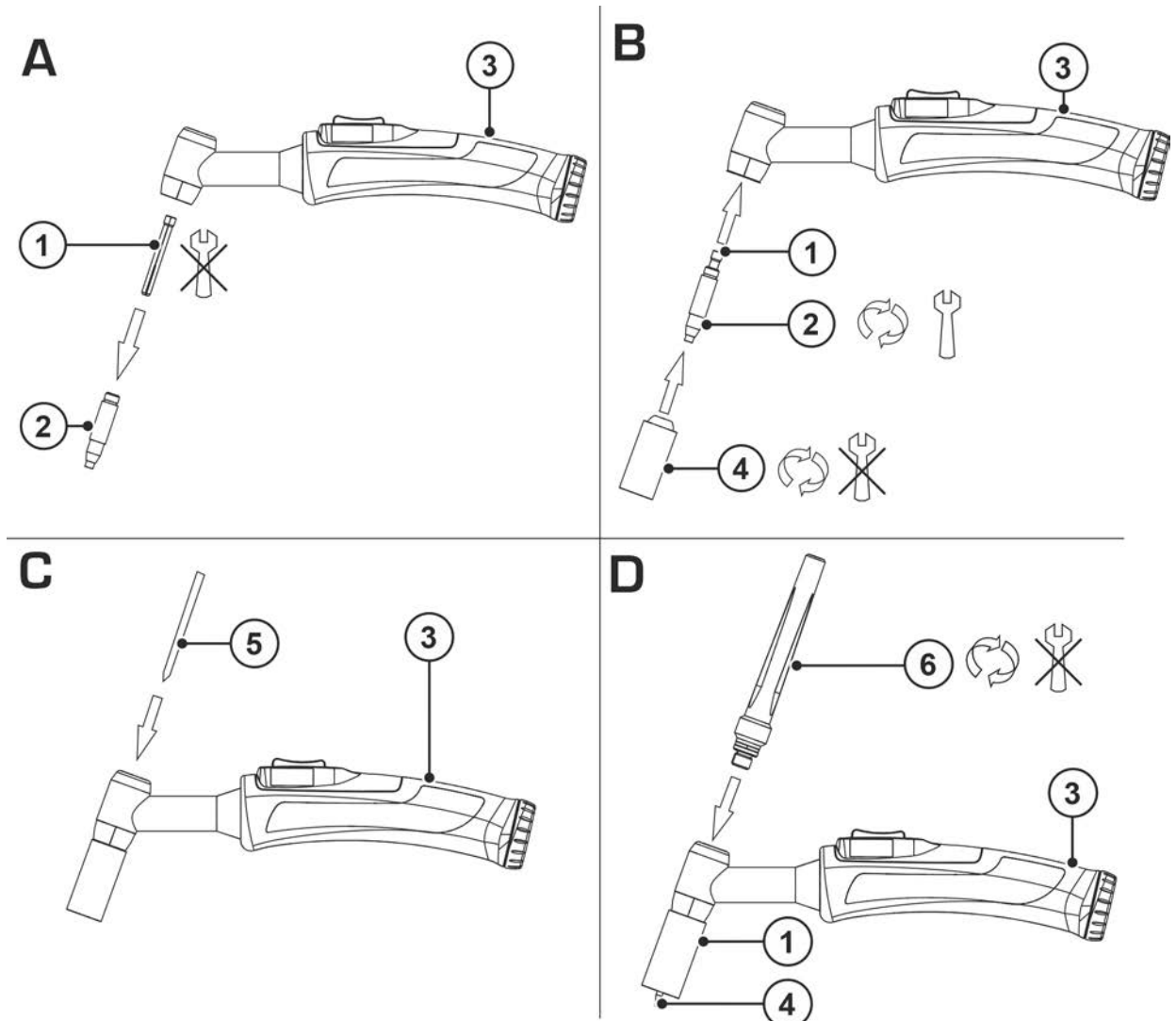


Figure 5-1

Item	Symbol	Description
1		Collet
2		Collet casing
3		Torch body
4		Gas nozzle
5		Electrode
6		Back cap

- Insert the collet from above into the collet body.
- Use the tool to screw the collet body with collet into the torch head from below.
- Screw in the gas nozzle by hand.
- Insert the electrode with the pointed side from above into the welding torch and position it.
- Tighten the back cap by hand.

5.4.2 TIG 260, 450

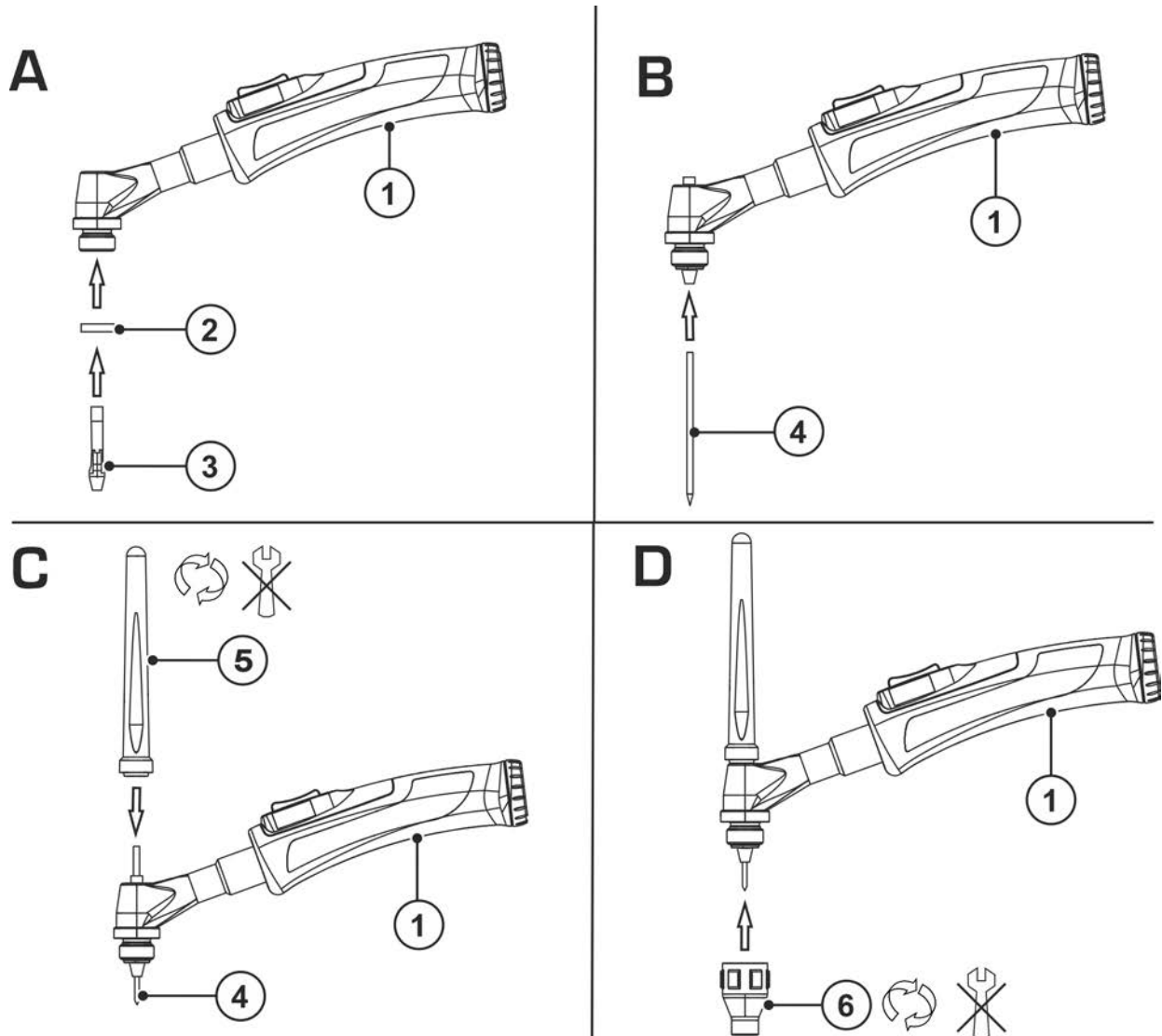


Figure 5-2

Item	Symbol	Description
1		Torch body
2		Insulation
3		Collet
4		Electrode
5		Back cap
6		Gas nozzle

- Slide the insulator onto the torch head from below.
- Guide the collet body into the torch head from below.
- Insert the electrode into the welding torch with the blunt side from below.
- Screw on the back cap.
- Screw on the gas nozzle by hand.
- Loosen the back cap slightly. Position the electrode correctly and tighten the back cap by hand.

5.5 Function specification

5.5.1 General

TIG torches are connected to the power source via the hose package. The following components are guided through the hose package:

- welding current lead
- shielding gas supply
- control cable

With water-cooled TIG welding torches, the

- coolant supply and
- coolant return

are also guided through the hose package.

With TIG welding, the welding consumable is usually added manually in form of a stick. With fully automatic machines, the welding consumable is usually added as a wire by a separate wire feeder.

5.5.2 Operating elements

5.5.2.1 Standard TIG torch (5-pole)

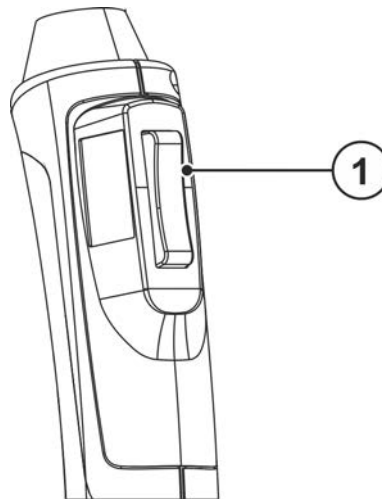


Figure 5-3

Item	Symbol	Description
1		Torch trigger

TIG torches are equipped with a torch trigger. This trigger is used to:

- switch the welding current on and off,
- reduce the current during welding to a secondary current by tapping it.

Tapping function: Swiftly tap the torch trigger to change the function. The set torch mode determines the operating mode.

5.5.2.2 TIG Up/Down torch

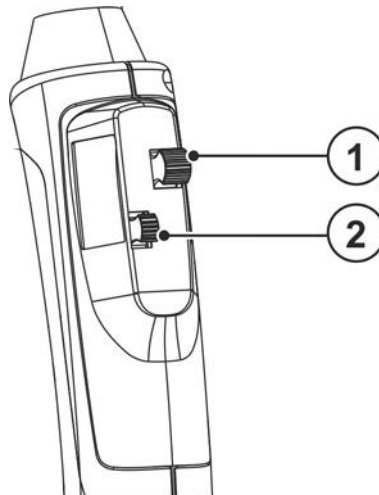
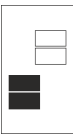
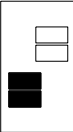


Figure 5-4

Item	Symbol	Description
1		Torch trigger Welding current ON/OFF
2		Torch trigger Up/Down function

TIG Up/Down torches are equipped with two torch triggers. These triggers are used to:

- switch the welding current on and off,
- reduce the current to a secondary current by tapping it,
- infinitely increase the welding current during welding (UP function) or
- infinitely decrease the welding current (DOWN function).

Tapping function: Swiftly tap the torch trigger to change the function. The set torch mode determines the operating mode.

5.5.2.3 TIG Retox, Retox XQ welding torch

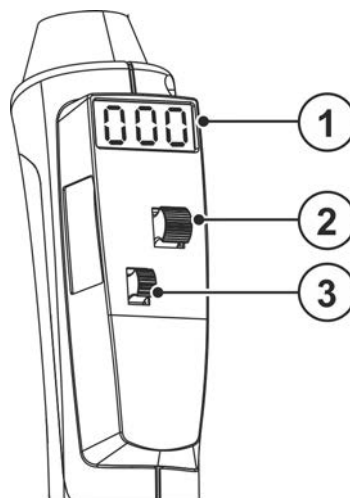

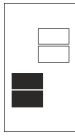
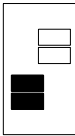


Figure 5-5

Item	Symbol	Description
1		Display

Item	Symbol	Description
2		Torch trigger Welding current ON/OFF
3		Torch trigger Up/Down function

In addition to the display, Retox torches are equipped with two torch rocker switches. Which functions are assigned to the individual operating elements depends on the welding machine used.

In most cases:

- the right-hand torch trigger is used to switch the welding current on and off and, by tapping it, to reduce the current to a secondary current
- the left-hand torch trigger is used to infinitely decrease the welding current (Down function) or increase it (Up function).

In addition, Retox torches can access JOBs supplied by the welding machine.

Depending on the function set at the welding machine, the Retox torch display shows

- the welding current set or
- the selected JOB number.

Tapping function: Swiftly tap the torch trigger to change the function. The set torch mode determines the operating mode.

6 Maintenance, care and disposal

6.1 General

DANGER



Risk of injury due to electrical voltage after switching off!

Working on an open machine can lead to fatal injuries!

Capacitors are loaded with electrical voltage during operation. Voltage remains present for up to four minutes after the mains plug is removed.

1. Switch off machine.
2. Remove the mains plug.
3. Wait for at least 4 minutes until the capacitors have discharged!

WARNING



Improper maintenance, testing and repairs!

Maintenance, testing and repair of the machine may only be carried out by skilled and qualified personnel (authorised service personnel). A competent person is someone who, based on training, knowledge and experience, can recognize the hazards and possible consequential damage that may occur when testing power sources and can take the necessary safety precautions.

- Follow the maintenance instructions > see 6.2.1 chapter.
- If any of the test requirements below are not met, the unit must not be put back into operation until it has been repaired and tested again.

Repair and maintenance work may only be performed by qualified authorised personnel; otherwise the right to claim under warranty is void. In all service matters, always consult the dealer who supplied the machine. Return deliveries of defective equipment subject to warranty may only be made through your dealer. When replacing parts, use only original spare parts. When ordering spare parts, please quote the machine type, serial number and item number of the machine, as well as the type designation and item number of the spare part.

The welding torch is one of the most stressed components of the welding system. Due to the high thermal load and contamination, regular maintenance and care not only extends the service life of the system but also saves costs in the long term through the use of fewer replacement parts and less downtime. Perfect welding results can only be achieved with a properly maintained welding torch.

For maintenance and care, use only the tools, aids and tightening torques specified in the operating instructions.

6.2 Identifying damage or worn components

Electrode holder/collet body

- Clinging weld spatter that can no longer be removed.
- Penetration or burn-off; damage to thread

Gas nozzle/extraction nozzle

- Clinging weld spatter, cracks or lack of fusion, damage to thread

Insulator

- Cracks, lack of fusion or burnt-off outer edges

Back cap

- Damage to thread, cracks or lack of fusion

Electrode

- Blunt, lack of fusion, burn-off

Torch neck

- Penetration or burn-off of insulation
- Cracks or lack of fusion of the insulation

Torch connection

- The thread of the crown nut is dirty or damaged.
- For water-cooled welding torches, check the coolant connections for damage.

Grip

- Cracks, penetration

Hose package

- Cracks, penetration

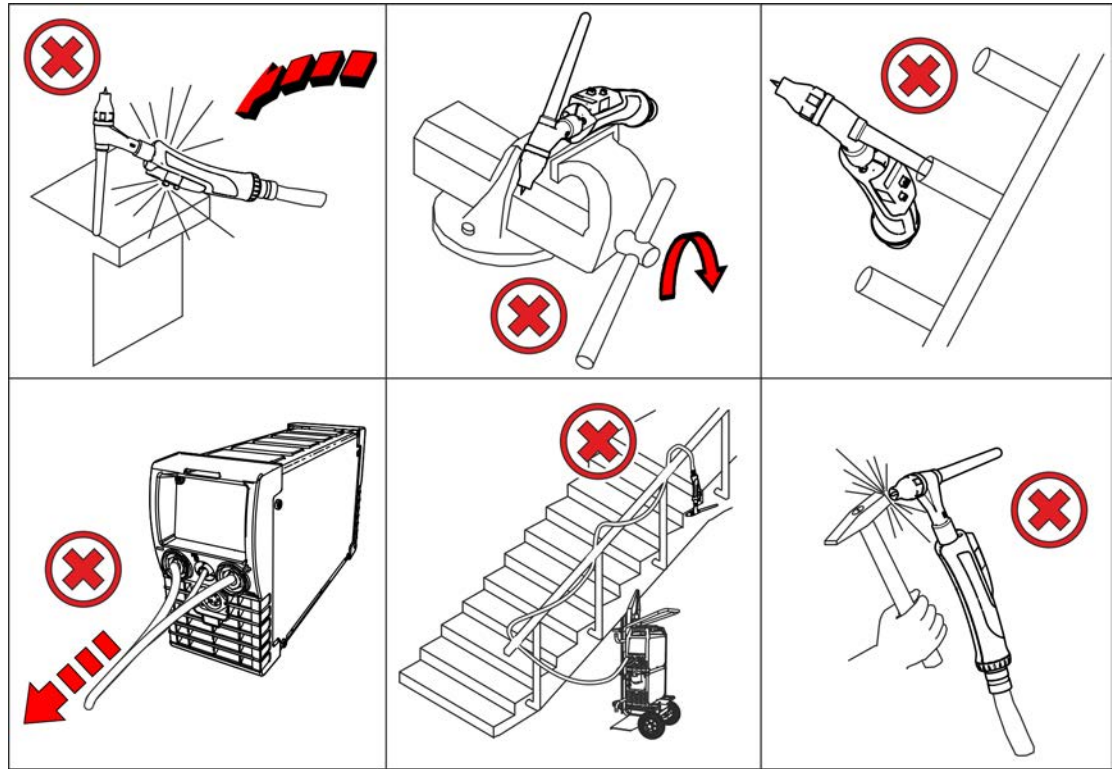


Figure 6-1



To prevent damage and malfunction of the welding torch:

- **Never hit hard objects (hammering)!**
- **Do not use the welding torch for levering or straightening!**
- **Do not bend the torch neck! Bending flexible torch necks is possible considering the maximum bending cycles.**
- **During breaks or after work, place the welding torch in the torch holder provided on the welding machine or at the workplace!**
- **Never throw the welding torch!**
- **Do not pull welding machines / wire feeders with the welding torch!**
- **Do not wind the hose package around the body and particularly the forearms!**

6.2.1 Maintenance and care before each use

- Loosen the gas nozzle, check the replacement parts for damage, replace if necessary and ensure a tight fit.
- Clean and remove soiling and welding spatter from the welding torch and, particularly, the wear parts; replace any worn or defective parts, if necessary.
- With water-cooled welding torches, check the coolant connections for tightness and flow. Check the coolant fill level at the cooling unit.
- Check the grip and hose package for cracks and damage.

6.2.2 Regular maintenance

The regular maintenance of a welding torch depends heavily on the duration of use and the stress and must be specified by the operator / owner. As a rule of thumb, every time the wire spool or wire basket is replaced or, if necessary, at a change of shift.

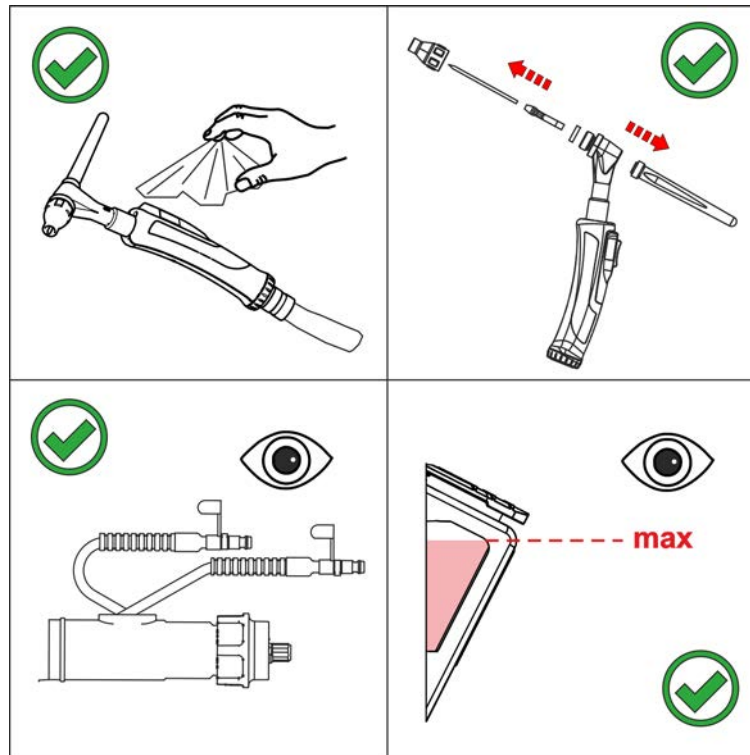


Figure 6-2

- Disconnect the welding torch from the machine, remove the replacement parts and blow out the wire duct and gas connection of the torch alternately with compressed air (max. 4 bar) free of oil and condensed water.
- Mount the replacement parts, connect the welding torch to the machine and purge twice with shielding gas (gas test).

6.3 Disposing of equipment



Proper disposal!

The machine contains valuable raw materials, which should be recycled, and electronic components, which must be disposed of.

- **Do not dispose of in household waste!**
- **Observe the local regulations regarding disposal!**
- According to European provisions (Directive 2012/19/EU on Waste of Electrical and Electronic Equipment), used electric and electronic equipment may no longer be placed in unsorted municipal waste. It must be collected separately. The symbol depicting a waste container on wheels indicates that the equipment must be collected separately.
This machine has to be disposed of, or recycled, in accordance with the waste separation systems in use.

According to German law (law governing the distribution, taking back and environmentally correct disposal of electrical and electronic equipment (ElektroG)), used machines are to be placed in a collection system separate from unsorted municipal waste. The public waste management utilities (communities) have created collection points at which used equipment from private households can be disposed of free of charge.

The deletion of personal data is the responsibility of the end user.

Lamps, batteries or accumulators must be removed and disposed of separately before disposing of the device. The type of battery or accumulator and its composition is marked on the top (type CR2032 or SR44). The following EWM products may contain batteries or accumulators:

- **Welding helmets**
Batteries or accumulators are easy to remove from the LED cassette.
- **Device controls**
Batteries or accumulators are located on the back of these in corresponding sockets on the circuit board and are easy to remove. The controls can be removed using standard tools.

Information on returning used equipment or collections can be obtained from the respective municipal administration office. Devices can also be returned to EWM sales partners across Europe.

Further information on the topic of the disposal of electrical and electronic equipment can be found on our website at: <https://www.ewm-group.com/de/nachhaltigkeit.html>.

7 Rectifying faults

All products are subject to rigorous production checks and final checks. If, despite this, something fails to work at any time, please check the product using the following flowchart. If none of the fault rectification procedures described leads to the correct functioning of the product, please inform your authorised dealer.

7.1 Checklist for rectifying faults

The correct machine equipment for the material and process gas in use is a fundamental requirement for perfect operation!

Legend	Symbol	Description
	↗	Fault/Cause
	✕	Remedy

Welding torch overheated

- ↗ Insufficient coolant flow
 - ✕ Check coolant level and refill if necessary
 - ✕ Eliminate kinks in conduit system (hose packages)
 - ✕ Vent coolant circuit > see 7.2 chapter
 - ✕ Check coolant lines for secure connection and lock in place, if required.
 - ✕ Check correct connection of the welding torch cooling unit
- ↗ Loose welding current connections
 - ✕ Tighten power connections on the torch and/or on the workpiece
- ↗ Overload
 - ✕ Check and correct welding current setting
 - ✕ Use a more powerful welding torch

Functional error with the welding torch operating elements

- ↗ Connection problems
 - ✕ Make control lead connections and check that they are fitted correctly.

Unstable arc

- ↗ Material inclusions in the tungsten electrode due to contact with filler material or workpiece
 - ✕ Regrind or replace the tungsten electrode
- ↗ Incompatible parameter settings
 - ✕ Check settings and correct if necessary
- ↗ Metal vapour on the gas nozzle
 - ✕ Clean and change gas nozzle

Pore formation

- ↗ Inadequate or missing gas shielding
 - ✕ Check shielding gas setting and replace shielding gas cylinder if necessary
 - ✕ Shield welding site with protective screens (draughts affect the welding result)
- ↗ Unsuitable or worn welding torch equipment
 - ✕ Check size of gas nozzle and replace if necessary
- ↗ Condensation in the gas tube
 - ✕ Purge hose package with gas or replace

7.2 Vent coolant circuit

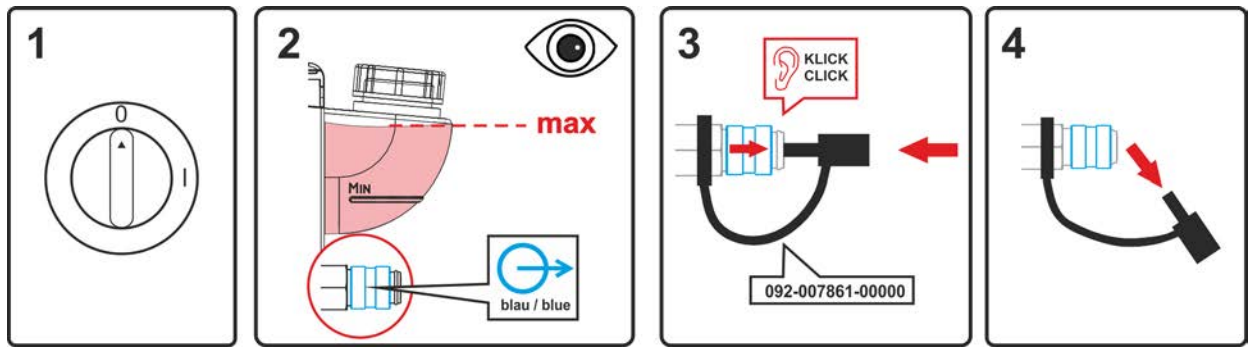


Figure 7-1

- Switch off the machine and fill the coolant tank to the maximum level.
- Unlock the quick-connect coupling with a suitable tool (connection open).

To vent the cooling system always use the blue coolant connection, which is located as deep as possible inside the system (close to the coolant tank)!

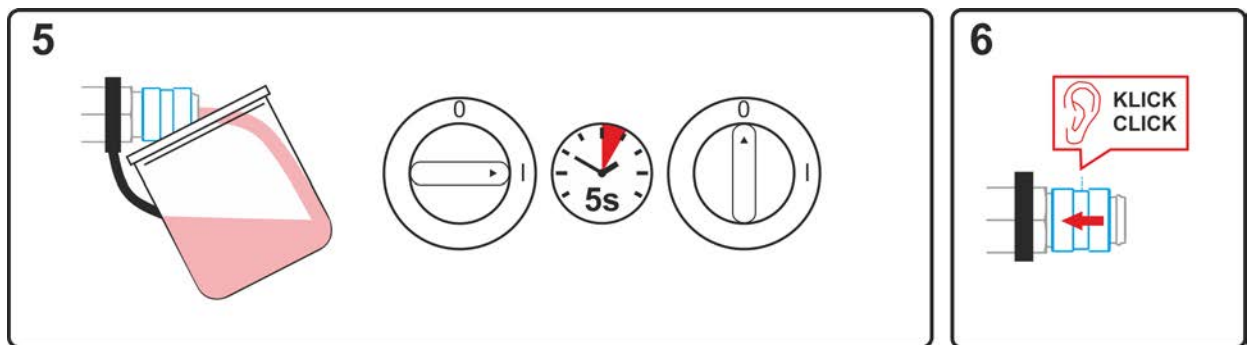


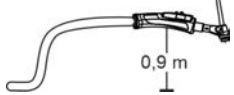
Figure 7-2

- Position a suitable collection container for collecting the escaping coolant at the quick-connect coupling and switch on the machine for approx. 5s.
- Lock the quick-connect coupling by pushing back the locking ring.

8 Technical data

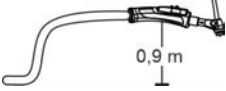
Performance specifications and guarantee only in connection with original spare and replacement parts!

8.1 TIG 18, -20, -260, -450 WD

	TIG 18	TIG 20	TIG 260	TIG 450
Welding torch polarity (Direct voltage)	Normally negative			
Guide type	Manually operated			
Voltage measurement	113 V (Peak value)			
max. Arc striking and voltage rating	12 kV			
Maximum welding current 100 % Duty cycle DC at 40° C (Direct voltage / Alternating voltage)	320 A / 230 A	240 A / 170 A	260 A / 185 A	400 A / 280 A
Switching voltage Push-button	0,02 - 42 V			
Switching current Push-button	0,01 - 100 mA			
Switching capacity Push-button	max. 1 W			
Electrode types	Standard tungsten electrodes			
Ambient temperature	-10°C to +40°C			
Torch input pressure, coolant	2,5 to 3,5 bar			
max. Coolant conductance	250 µS/cm			
Cooling capacity	min. 800 W			
Electrode diameter	0,5 - 4,0 mm	0,5 - 3,2 mm	1,0 - 3,2 mm	1,6 - 4,8 mm
Protection classification for the machine connections (EN 60529)	IP3X	IP2X	IP3X	IP3X
Shielding gas	Shielding gas DIN EN 439			
Gas flow	7-20 l/min	8-20 l/min	7-18 l/min	7-20 l/min
Hose package length	4-, 8 m			
Operating weight* 	1,05 kg	1,0 kg	0,9 kg	1,05 kg
Welding torch connection	Decentralised connection / Euro torch connector			
Standards used	See declaration of conformity (appliance documents)			
Test mark	CE / ENEC / UKCA			

* A standard TIG welding torch TIG XX WD 5P 2T 4M is available as a reference. The weights of the other TIG welding torches differ slightly.

8.2 TIG 18SC WD, -450SC WD

	TIG 18 SC	TIG 450 SC
Welding torch polarity	Normally negative	
Direct voltage		
Guide type	Manually operated	
Voltage measurement	113 V (Peak value)	
max. Arc striking and voltage rating	12 kV	
Maximum welding current 100 % Duty cycle DC at 40° C (Direct voltage / Alternating voltage)	400 A / 280 A	450 A / 320 A
Switching voltage Push-button	0,02 - 42 V	
Switching current Push-button	0,01 - 100 mA	
Switching capacity Push-button	max. 1 W	
Electrode types	Standard tungsten electrodes	
Ambient temperature	-10°C to +40°C	
Torch input pressure, coolant	2,5 to 3,5 bar	
max. Coolant conductance	250 µS/cm	
Cooling capacity	min. 800 W	
Electrode diameter	0,5 - 4,0 mm	1,6 - 4,8 mm
Protection classification for the machine connections (EN 60529)	IP3X	
Shielding gas	Shielding gas DIN EN 439	
Gas flow	7 - 20 l/min	
Hose package length	4-, 8 m	
Operating weight*	1,25 kg	1,25 kg
		
Welding torch connection	Decentralised connection / Euro torch connector	
Standards used	See declaration of conformity (appliance documents)	
Test mark	CE / ENEC / UKCA	

* A standard TIG welding torch TIG XXSC WD 5P 2T 4M is available as a reference. The weights of the other TIG welding torches differ slightly.

9 Accessories

Performance-dependent accessories like torches, workpiece leads, electrode holders or intermediate hose packages are available from your authorised dealer.

9.1 General accessories

Type	Designation	Item no.
original FIX®	TIG torch holder	098-003552-00000
GH L85MM GR1	Grinding aid	098-000704-00000

9.2 Welding torch cooling system

Type	Designation	Item no.
HOSE BRIDGE UNI	Tube bridge	092-007843-00000

9.2.1 Coolant - type blueCool

Type	Designation	Item no.
blueCool -10 5 l	Coolant up to -10 °C (14 °F), 5 l	094-024141-00005
blueCool -10 25 l	Coolant up to -10 °C (14 °F), 25 l	094-024141-00025
blueCool -30 5 l	Coolant up to -30 °C (22 °F), 5 l	094-024142-00005
blueCool -30 25 l	Coolant up to -30 °C (22 °F), 25 l	094-024142-00025
FSP blueCool	Frost protection tester	094-026477-00000

9.2.2 Coolant - type KF

Type	Designation	Item no.
KF 23E-5	Coolant up to -10 °C (14 °F), 5 l	094-000530-00005
KF 23E-200	Coolant (-10 °C), 200 litres	094-000530-00001
KF 37E-5	Coolant up to -20 °C (4 °F), 5 l	094-006256-00005
KF 37E-200	Coolant (-20 °C), 200 l	094-006256-00001
TYP1	Frost protection tester	094-014499-00000

10 Replaceable parts



The manufacturer's warranty becomes void if non-genuine parts are used!

- Only use system components and options (power sources, welding torches, electrode holders, remote controls, spare parts and replacement parts, etc.) from our range of products!
- Only insert and lock accessory components into the relevant connection socket when the machine is switched off.

10.1 TIG 18

The welding torch shown is an example only. Depending on the type used, torches may vary.

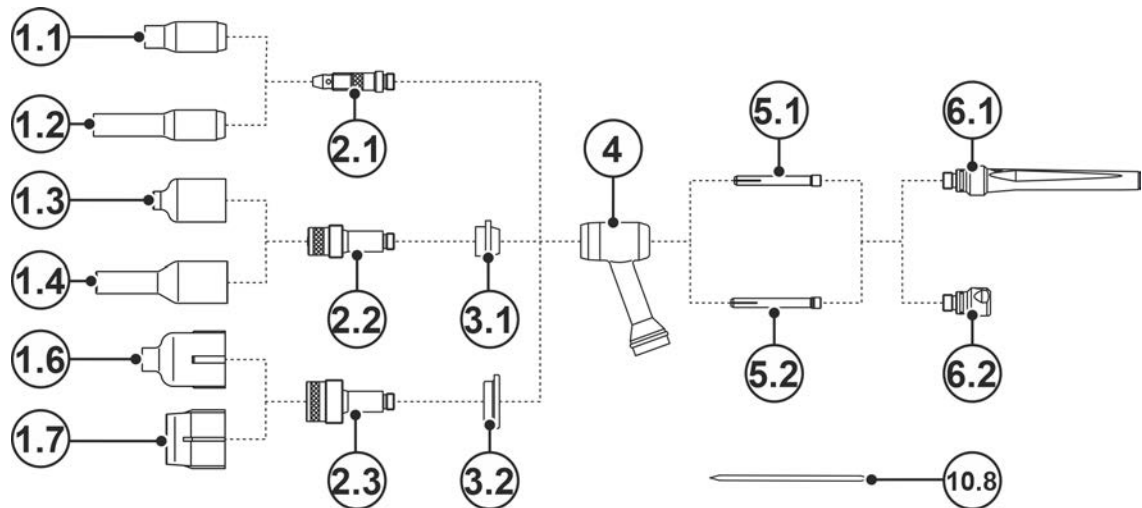


Figure 10-1

Item	Order number	Type	Designation
1.1	094-000926-00000	GN GD TIG 17/18/26 8.0x47.0mm	Gas nozzle
1.1	094-000927-00000	GN GD TIG 17/18/26 11x47mm	Gas nozzle
1.1	094-000929-00000	GN GD TIG 17/18/26 12.5x47mm	Gas nozzle
1.1	094-001316-00000	GN GD TIG 17/18/26 6.5x47mm	Gas nozzle
1.1	094-001317-00000	GN GD TIG 17/18/26 9.5x47mm	Gas nozzle
1.1	094-001318-00000	GN GD TIG 17/18/26 16x47mm	Gas nozzle
1.1	094-001319-00000	GN GD TIG 17/18/26 19.5x50mm	Gas nozzle
1.2	094-012691-00000	GN TIG 17/18/26 8.0x76mm	Gas nozzle
1.2	094-012692-00000	GN TIG 17/18/26 9.5x76mm	Gas nozzle
1.2	094-012693-00000	GN TIG 17/18/26 11.0x76mm	Gas nozzle
1.3	094-001195-00000	GNDIF TIG 17/18/26/18SC 11x47mm	Gas nozzle for gas lens
1.3	094-001196-00000	GNDIF TIG 17/18/26/18SC 12.5x47mm	Gas nozzle for gas lens
1.3	094-001320-00000	GNDIF TIG 17/18/26/18SC 6.5x42mm	Gas nozzle for gas lens
1.3	094-001321-00000	GNDIF TIG 17/18/26/18SC 8x42mm	Gas nozzle for gas lens
1.3	094-001322-00000	GNDIF TIG 17/18/26/18SC 9.5x42mm	Gas nozzle for gas lens
1.3	094-001323-00000	GNDIF TIG 17/18/26/18SC 16x42mm	Gas nozzle for gas lens
1.4	094-011135-00000	GNDIF TIG 17/18/26/18SC 8.0x76.0mm	Gas nozzle for gas lens
1.4	094-011136-00000	GNDIF TIG 17/18/26/18SC 9.5x76.0mm	Gas nozzle for gas lens
1.4	094-012694-00000	GNDIF TIG 17/18/26/18SC 11.0x76.0mm	Gas nozzle for gas lens
1.6	094-003136-00000	GNDIFJ TIG 9/17/18/20/26 19.5x48.0mm	Ceramic gas nozzle for gas lens, JUMBO

Item	Order number	Type	Designation
1.6	094-011642-00000	GNDIFJ TIG 9/17/18/20/26 9.5x48.0mm	Ceramic gas nozzle for gas lens, JUMBO
1.6	094-011643-00000	GNDIFJ TIG 9/17/18/20/26 12.5x48.0mm	Ceramic gas nozzle for gas lens, JUMBO
1.6	094-011644-00000	GNDIFJ TIG 9/17/18/20/26 16.0x48.0mm	Ceramic gas nozzle for gas lens, JUMBO
1.7	094-012686-00000	GNDIFJ TIG 9/17/18/20/26 24.0x34.0mm	Ceramic gas nozzle for gas lens, JUMBO
2.1	094-000936-00000	COLB TIG 17/18/26 D=1.6MM	Collet body
2.1	094-000937-00000	COLB TIG 17/18/26 D=2.0-2.4MM	Collet body
2.1	094-000940-00000	COLB TIG 17/18/26 D=3.2MM	Collet body
2.1	094-001315-00000	COLB TIG 17/18/26 D=4.0MM	Collet body
2.2	094-001192-00000	COLB DIF TIG 17/18/26 D=2.0-2.4MM	Collet body with gas lens
2.2	094-001193-00000	COLB DIF TIG 17/18/26 D=3.2MM	Collet body with gas lens
2.2	094-001325-00000	COLB DIF TIG 17/18/26 D=1.6MM	Collet body with gas lens
2.2	094-001326-00000	COLB DIF TIG 17/18/26 D=4.0MM	Collet body with gas lens
2.3	094-000000-00000	COLB DIF JUMBO TIG 17/18/26 D=3.2MM	Collet body with gas lens, JUMBO
2.3	094-003137-00000	COLB DIF JUMBO TIG 17/18/26 D=2.4MM	Collet body with gas lens, JUMBO
2.3	094-003137-00010	COLB DIF JUMBO TIG 17/18/26 D=1.6MM	Collet body with gas lens, JUMBO
2.3	094-011641-00000	COLB DIF JUMBO TIG 17/18/26 D=4.0MM	Collet body with gas lens, JUMBO
3.1	094-001194-00000	INS TIG 17/18/26 XL	Adapter
3.2	094-003138-00000	INS TIG 17/18/26 XXL	Adapter, JUMBO
4	094-001307-00000	INS TIG-SR 17/18/26	Insulator
5.1	094-000931-00000	COL TIG 17/18/26/18SC D=1.6MM	Collet
5.1	094-000932-00000	COL TIG 17/18/26/18SC D=2.4MM	Collet
5.1	094-000935-00000	COL TIG 17/18/26/18SC D=3.2MM	Collet
5.1	094-001312-00000	COL TIG 17/26/18 D=4.0MM	Collet
5.1	094-022725-00000	COL 17/18/26 50 mm Ø 1.0mm	Collet, long life
5.1	094-022726-00000	COL 17/18/26 50 mm Ø 1.6 mm	Collet, long life
5.1	094-021663-00000	COL 17/18/26 50 mm Ø 2.4mm	Collet, long life
5.1	094-022727-00000	COL 17/18/26 50 mm Ø 3.2 mm	Collet, long life
5.1	094-022728-00000	COL 17/18/26 50 mm Ø 4.0 mm	Collet, long life
5.2	094-003241-00000	COLLET D2.4 L52.0	Collet
5.2	094-003242-00000	COLLET D3.2 L52.0	Collet
5.2	094-003402-00000	COLLET D1.6 L52.0	Collet
5.2	094-008583-00000	COLLET D4.0 L52.0	Collet
6.1	094-001114-00000	TCL TIG 17/18/26	Back cap, long
6.2	094-001120-00000	TCS TIG 17/18/26	Back cap, short
10.8	094-019691-00000	E3; 1,0 x 175 mm	Tungsten electrode, purple

Item	Order number	Type	Designation
10.8	094-019692-00000	E3; 1,6 x 175 mm	Tungsten electrode, purple
10.8	094-019693-00000	E3; 2,0 x 175 mm	Tungsten electrode, purple
10.8	094-019694-00000	E3; 2,4 x 175 mm	Tungsten electrode, purple
10.8	094-019695-00000	E3; 3,2 x 175 mm	Tungsten electrode, purple
10.8	094-019696-00000	E3; 4,0 x 175 mm	Tungsten electrode, purple

10.2 TIG 18 SC

The welding torch shown is an example only. Depending on the type used, torches may vary.

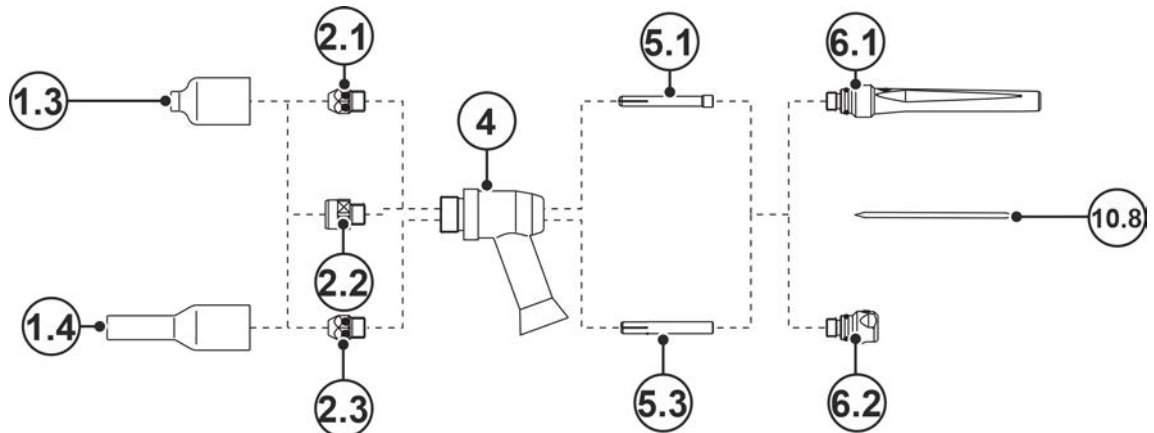


Figure 10-2

Item	Order number	Type	Designation
1.3	094-001195-00000	GNDIF TIG 17/18/26/18SC 11x47mm	Gas nozzle for gas lens
1.3	094-001196-00000	GNDIF TIG 17/18/26/18SC 12.5x47mm	Gas nozzle for gas lens
1.3	094-001320-00000	GNDIF TIG 17/18/26/18SC 6.5x42mm	Gas nozzle for gas lens
1.3	094-001321-00000	GNDIF TIG 17/18/26/18SC 8x42mm	Gas nozzle for gas lens
1.3	094-001322-00000	GNDIF TIG 17/18/26/18SC 9.5x42mm	Gas nozzle for gas lens
1.4	094-011135-00000	GNDIF TIG 17/18/26/18SC 8.0x76.0mm	Gas nozzle for gas lens
1.4	094-011136-00000	GNDIF TIG 17/18/26/18SC 9.5x76.0mm	Gas nozzle for gas lens
1.4	094-012694-00000	GNDIF TIG 17/18/26/18SC 11.0x76.0mm	Gas nozzle for gas lens
2.1	094-011137-00000	COLB 18SC D=0.5-3.2MM	Collet body
2.2	094-001362-00000	COLB DIF 18SC D=3.2MM	Collet body with gas lens
2.2	094-012698-00000	COLB DIF 18SC D=1.6MM	Collet body with gas lens
2.2	094-012699-00000	COLB DIF 18SC D=2.4MM	Collet body with gas lens
2.3	094-001117-00000	COLB 18SC D=3.2-4.8MM	Collet body
4	094-001360-00000	INS TIG-SR 18SC	Insulator
5.1	094-000931-00000	COL TIG 17/18/26/18SC D=1.6MM	Collet
5.1	094-000932-00000	COL TIG 17/18/26/18SC D=2.4MM	Collet
5.1	094-000935-00000	COL TIG 17/18/26/18SC D=3.2MM	Collet
5.1	094-022725-00000	COL 17/18/26 50 mm Ø 1.0mm	Collet, long life
5.1	094-022726-00000	COL 17/18/26 50 mm Ø 1.6 mm	Collet, long life
5.1	094-021663-00000	COL 17/18/26 50 mm Ø 2.4mm	Collet, long life

Item	Order number	Type	Designation
5.1	094-022727-00000	COL 17/18/26 50 mm Ø 3.2 mm	Collet, long life
5.3	094-001115-00000	COL HL TIG 18SC D=4.8MM	Collet, high-performance
5.3	094-001116-00000	COL HL TIG 18SC D=4.0MM	Collet, high-performance
5.3	094-001361-00000	COL HL TIG 18SC D=3.2MM	Collet, high-performance
6.1	094-001114-00000	TCL TIG 17/18/26	Back cap, long
6.2	094-001120-00000	TCS TIG 17/18/26	Back cap, short
10.8	094-019691-00000	E3; 1,0 x 175 mm	Tungsten electrode, purple
10.8	094-019692-00000	E3; 1,6 x 175 mm	Tungsten electrode, purple
10.8	094-019693-00000	E3; 2,0 x 175 mm	Tungsten electrode, purple
10.8	094-019694-00000	E3; 2,4 x 175 mm	Tungsten electrode, purple
10.8	094-019695-00000	E3; 3,2 x 175 mm	Tungsten electrode, purple
10.8	094-019696-00000	E3; 4,0 x 175 mm	Tungsten electrode, purple

10.3 TIG 20

The welding torch shown is an example only. Depending on the type used, torches may vary.

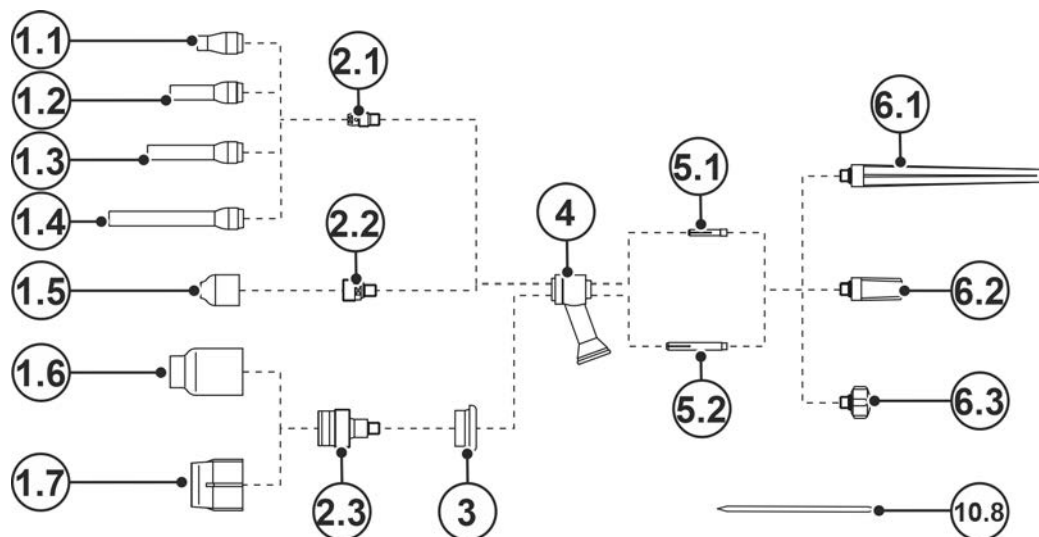


Figure 10-3

Item	Order number	Type	Designation
1.1	094-000930-00000	GN TIG 9/20 11x30mm	Gas nozzle
1.1	094-001122-00000	GN TIG 9/20 12.5x30mm	Gas nozzle
1.1	094-001343-00000	GN TIG 9/20 6.5x30mm	Gas nozzle
1.1	094-001344-00000	GN TIG 9/20 8.0x30mm	Gas nozzle
1.1	094-001345-00000	GN TIG 9/20 9.5x30mm	Gas nozzle
1.1	094-001346-00000	GN TIG 9/20 16.0x30m	Gas nozzle
1.2	094-001347-00000	GN TIG 9/20 L 6.5x48mm	Gas nozzle
1.2	094-001348-00000	GN TIG 9/20 L 8.0x48mm	Gas nozzle
1.2	094-001349-00000	GN TIG 9/20 L 9.5x48mm	Gas nozzle
1.3	094-012683-00000	GN TIG 9/20 XL 6.5x63mm	Gas nozzle
1.3	094-012684-00000	GN TIG 9/20 XL 8.0x63mm	Gas nozzle
1.4	094-012685-00000	GN TIG 9/20 XL 6.5x89mm	Gas nozzle

Item	Order number	Type	Designation
1.5	094-001356-00000	GNDIF TIG 9/20 6.5x25.5mm	Gas nozzle for gas lens
1.5	094-001357-00000	GNDIF TIG 9/20 8.0x25.5mm	Gas nozzle for gas lens
1.5	094-001358-00000	GNDIF TIG 9/20 9.5x25.5mm	Gas nozzle for gas lens
1.5	094-001359-00000	GNDIF 9/20 D=11.0 L=25.5MM S=7	Gas nozzle for gas lens
1.5	094-017595-00000	GNDIF TIG 9/20 12.5x25.5mm	Gas nozzle for gas lens
1.6	094-003136-00000	GNDIFJ TIG 9/17/18/20/26 19.5x48.0mm	Ceramic gas nozzle for gas lens, JUMBO
1.6	094-011642-00000	GNDIFJ TIG 9/17/18/20/26 9.5x48.0mm	Ceramic gas nozzle for gas lens, JUMBO
1.6	094-011643-00000	GNDIFJ TIG 9/17/18/20/26 12.5x48.0mm	Ceramic gas nozzle for gas lens, JUMBO
1.6	094-011644-00000	GNDIFJ TIG 9/17/18/20/26 16.0x48.0mm	Ceramic gas nozzle for gas lens, JUMBO
1.7	094-012686-00000	GNDIFJ TIG 9/17/18/20/26 24.0x34.0mm	Ceramic gas nozzle for gas lens, JUMBO
2.1	094-000939-00000	COLB 9/20 D=2.4MM	Collet body
2.1	094-001340-00000	COLB 9/20 D=1.6MM	Collet body
2.1	094-001342-00000	COLB 9/20 D=3.2MM	Collet body
2.2	094-001352-00000	COLB DIF TIG 9/20 D=1.6MM	Collet body with gas lens
2.2	094-001354-00000	COLB DIF TIG 9/20 D=2.4MM	Collet body with gas lens
2.2	094-001355-00000	COLB DIF TIG 9/20 D=3.2MM	Collet body with gas lens
2.3	094-012680-00000	COLB DIF JUMBO TIG 9/20 D=1.6MM	Collet body with gas lens, JUMBO
2.3	094-012681-00000	COLB DIF JUMBO TIG 9/20 D=2.4MM	Collet body with gas lens, JUMBO
2.3	094-012682-00000	COLB DIF JUMBO TIG 9/20 D=3.2MM	Collet body with gas lens, JUMBO
3	094-011916-00000	INS TIG 9/20 XL	Adapter
4	094-001331-00000	INS TIG-SR 9/20	Insulator
5.1	094-000934-00000	COL TIG 9/20 D=2.4MM	Collet
5.1	094-001121-00000	COL TIG 9/20 D=1.6MM	Collet
5.1	394-001337-00000	SR-9/20 L= 25.4 mm Ø 3.2 mm 13N24	Collet, brass
5.1	094-022702-00000	COL SR 9/20 25.5 mm Ø 1.0 mm	Collet, long life
5.1	094-022703-00000	COL SR 9/20 25.5 mm Ø 1.6 mm	Collet, long life
5.1	094-022705-00000	COL SR 9/20 25.5 mm Ø 2.4 mm	Collet, long life
5.1	094-022706-00000	COL SR 9/20 25.5 mm Ø 3.2 mm	Collet, long life
5.2	094-002971-00000	COL TIG 9/20 JUMBO D=2.4MM	Collet, JUMBO
5.2	094-012677-00000	COL TIG 9/20 JUMBO D=1.6MM	Collet, JUMBO
5.2	094-012678-00000	COL TIG 9/20 JUMBO D=3.2MM	Collet, JUMBO
6.1	094-001327-00000	TCL TIG 9/20	Back cap, long
6.2	094-001329-00000	TCM TIG 9/20	Back cap, medium
6.3	094-001328-00000	TCS TIG 9/20	Back cap, short

Item	Order number	Type	Designation
10.8	094-019691-00000	E3; 1,0 x 175 mm	Tungsten electrode, purple
10.8	094-019692-00000	E3; 1,6 x 175 mm	Tungsten electrode, purple
10.8	094-019693-00000	E3; 2,0 x 175 mm	Tungsten electrode, purple
10.8	094-019694-00000	E3; 2,4 x 175 mm	Tungsten electrode, purple
10.8	094-019695-00000	E3; 3,2 x 175 mm	Tungsten electrode, purple

10.4 TIG 260

The welding torch shown is an example only. Depending on the type used, torches may vary.

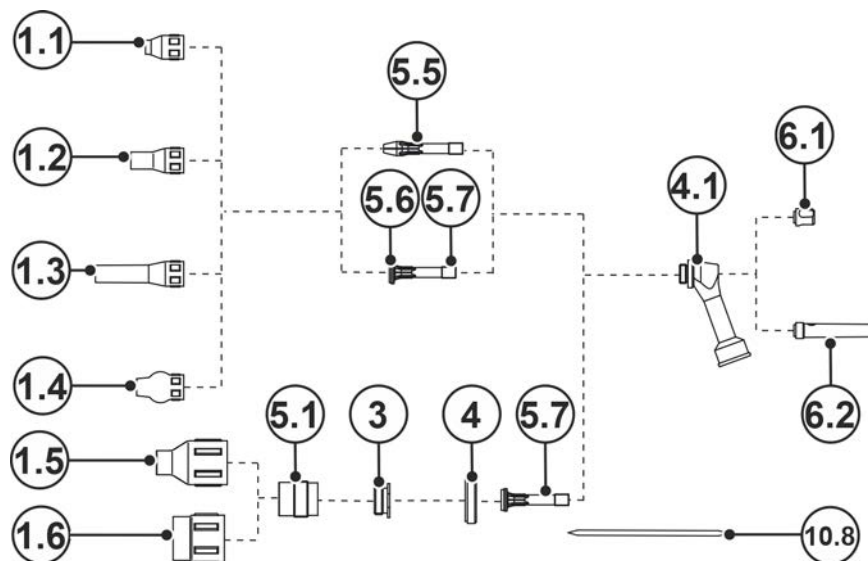


Figure 10-4

Item	Order number	Type	Designation
1.1	094-011756-00000	GN TIG 150/260 S 9,5x26mm	Gas nozzle
1.1	094-011980-00000	GN TIG 150/260 S 11.5x26mm	Gas nozzle
1.1	094-012405-00000	GN TIG 150/260 S 8.0x26mm	Gas nozzle
1.1	094-012672-00000	GN TIG 150/260 S 6.5x26mm	Gas nozzle
1.2	094-011757-00000	GN TIG 150/260 11.5x36mm	Gas nozzle
1.2	094-011982-00000	GN TIG 150/260 10.0x26mm	Gas nozzle
1.2	094-012673-00000	GN TIG 150/260 6.5x36mm	Gas nozzle
1.2	094-012674-00000	GN TIG 150/260 8.0x36mm	Gas nozzle
1.3	094-015451-00000	GN 150/260 D=6.5MM L=60MM	Gas nozzle
1.3	398-000191-00000	GN 150/260 D=8MM L=60MM	Gas nozzle
1.4	094-019609-00000	GD D=11 mm L=32 mm	Gas nozzle, ball version
1.4	094-019610-00000	GD D=6,5 mm L=32 mm	Gas nozzle, ball version
1.4	394-000155-00000	GN 150/260 D=9,5MM L=32MM	Gas nozzle, ball version
1.4	394-000156-00000	GN 150/260 D=8MM L=32MM	Gas nozzle, ball version
1.5	094-009663-00000	GN DIF TIG 150-450/450SC, 12,5 x 50 mm	Gas nozzle for gas diffuser, JUMBO
1.5	094-009664-00000	GN DIF TIG 150-450/450SC, 16 x 50 mm	Gas nozzle for gas diffuser, JUMBO

Item	Order number	Type	Designation
1.5	094-009665-00000	GN DIF TIG 150-450/450SC, 19,5 x 50 mm	Gas nozzle for gas diffuser, JUMBO
1.6	094-011999-00000	GN TIG Ø 24 mm, L 34 mm	Gas nozzle for gas diffuser, JUMBO
3	094-011758-00000	ADAPT 150/260 XL	Adapter ring, JUMBO
4	094-011760-00000	ISO TIG 150/260 XL	Insulator, JUMBO
4.1	094-011979-00000	ISO TIG 150/260	Insulator
5.1	094-009658-00000	DIF TIG 150-450/450SC, D=1,6 mm	Gas diffuser, JUMBO
5.1	094-009659-00000	DIF TIG 150-450/450SC, D=2,4 mm	Gas diffuser, JUMBO
5.1	094-009660-00000	DIF TIG 150-450/450SC, D=3,2 mm	Gas diffuser, JUMBO
5.1	094-022685-00000	DIF TIG 150-450/450SC Multilayer Ø 2.4 mm	Gas diffuser, multi-layer
5.1	094-023020-00000	DIF TIG 150-450/450SC Multilayer Ø 1.6 mm	Gas diffuser, multi-layer
5.1	094-023021-00000	DIF TIG 150-450/450SC Multilayer Ø 3.2 mm	Gas diffuser, multi-layer
5.1	094-023022-00000	DIF TIG 150-450/450SC Multilayer Ø 4.0 mm	Gas diffuser, multi-layer
5.5	094-011755-00000	COL 150/260 D=2.4MM	Electrode holder
5.5	094-012406-00000	COL 150/260 D=1.6MM	Electrode holder
5.5	094-012667-00000	COL 150/260 D=3.2MM	Electrode holder
5.6	394-002038-00000	CDIF TIG 150/260 Multilayer 2.4 mm	Gas diffuser, multi-layer
5.6	394-002357-00000	CDIF TIG 150/260 Multilayer 1.6 mm	Gas diffuser, multi-layer
5.6	394-002358-00000	CDIF TIG 150/260 Multilayer 3.2 mm	Gas diffuser, multi-layer
5.7	094-011984-00000	COL DIF 150/260 D=2.4MM	Gas diffuser
5.7	094-012669-00000	COL DIF 150/260 D=1.6MM	Gas diffuser
5.7	094-012671-00000	COL DIF 150/260 D=3.2MM	Gas diffuser
6.1	094-011752-00000	TCS TIG 150/260	Back cap, short
6.2	094-011753-00000	TCM TIG 150/260	Back cap, medium
10.08	094-019691-00000	E3; 1,0 x 175 mm	Tungsten electrode, purple
10.08	094-019692-00000	E3; 1,6 x 175 mm	Tungsten electrode, purple
10.08	094-019693-00000	E3; 2,0 x 175 mm	Tungsten electrode, purple
10.08	094-019694-00000	E3; 2,4 x 175 mm	Tungsten electrode, purple
10.08	094-019695-00000	E3; 3,2 x 175 mm	Tungsten electrode, purple
10.08	094-019696-00000	E3; 4,0 x 175 mm	Tungsten electrode, purple

10.5 TIG 450, -450 SC

The welding torch shown is an example only. Depending on the type used, torches may vary.

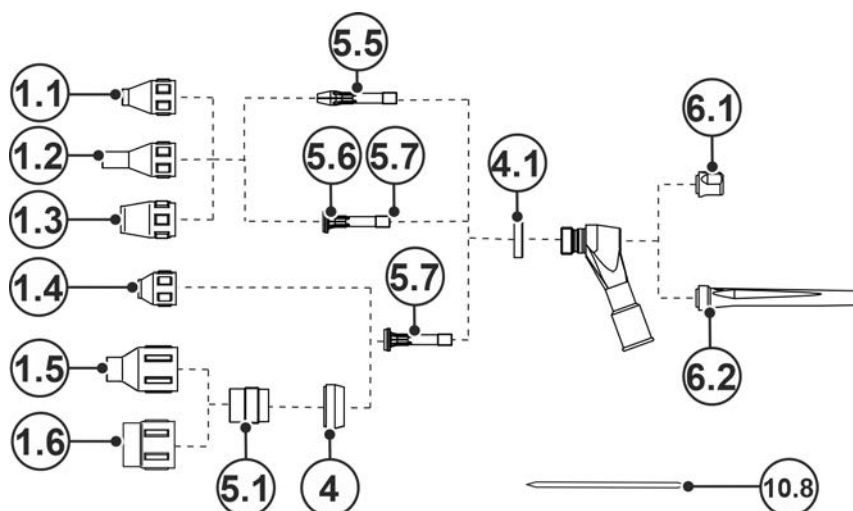


Figure 10-5

Item	Order number	Type	Designation
1.1	094-009646-00000	GN TIG 200/450/450SC, 7,5 x 37,4 mm	Gas nozzle
1.1	094-009647-00000	GN TIG 200/450/450SC, 10 x 37,4 mm	Gas nozzle
1.1	094-009648-00000	GN TIG 200/450/450SC, 13 x 37,4 mm	Gas nozzle
1.1	094-009649-00000	GN TIG 200/450/450SC, 15 x 37,4 mm	Gas nozzle
1.2	094-009650-00000	GN TIG 200/450/450SC, 7,5 x 51,5 mm	Gas nozzle
1.2	094-009651-00000	GN TIG 200/450/450SC, 10 x 51,5 mm	Gas nozzle
1.2	094-009653-00000	GN TIG 200/450/450SC, 13 x 51,5 mm	Gas nozzle
1.2	094-009654-00000	GN TIG 200/450/450SC, 15 x 51,5 mm	Gas nozzle
1.3	094-011997-00000	GN TIG 200/450 13.0x37mm RF	Gas nozzle, reinforced
1.3	094-011998-00000	GN TIG 200/450 15.0x37mm RF	Gas nozzle, reinforced
1.4	094-009655-00000	GN TIG 200/450 S 10.0x26mm	Gas nozzle for gas diffuser
1.4	094-009656-00000	GN TIG 200/450 S 13.0x26mm	Gas nozzle for gas diffuser
1.5	094-009663-00000	GN DIF TIG 150-450/450SC, 12,5 x 50 mm	Gas nozzle for gas diffuser, JUMBO
1.5	094-009664-00000	GN DIF TIG 150-450/450SC, 16 x 50 mm	Gas nozzle for gas diffuser, JUMBO
1.5	094-009665-00000	GN DIF TIG 150-450/450SC, 19,5 x 50 mm	Gas nozzle for gas diffuser, JUMBO
1.6	094-011999-00000	GN TIG Ø 24 mm, L 34 mm	Gas nozzle for gas diffuser, JUMBO
4	094-009657-00000	INS TIG 200/450 XL	Insulator, JUMBO
4.1	094-011759-00000	INS TIG 200/450/450SC	Insulator

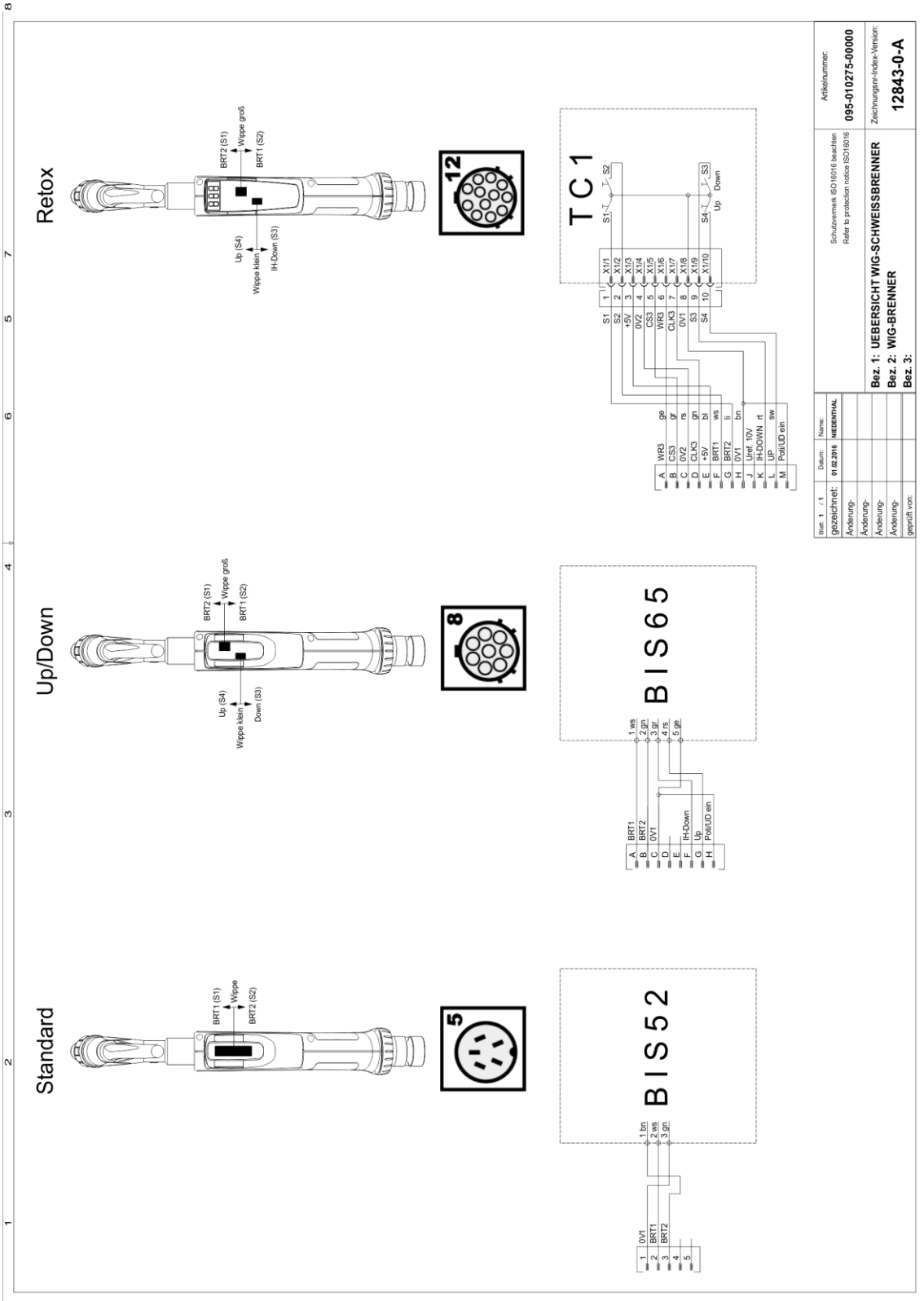
Item	Order number	Type	Designation
5.1	094-009658-00000	DIF TIG 150-450/450SC, D=1,6 mm	Gas diffuser, JUMBO
5.1	094-009659-00000	DIF TIG 150-450/450SC, D=2,4 mm	Gas diffuser, JUMBO
5.1	094-009660-00000	DIF TIG 150-450/450SC, D=3,2 mm	Gas diffuser, JUMBO
5.1	094-009661-00000	DIF TIG 150-450/450SC, D=4,0 mm	Gas diffuser, JUMBO
5.1	094-022685-00000	DIF TIG 150-450/450SC Multilayer Ø 2.4 mm	Gas diffuser, multi-layer
5.1	094-023020-00000	DIF TIG 150-450/450SC Multilayer Ø 1.6 mm	Gas diffuser, multi-layer
5.1	094-023021-00000	DIF TIG 150-450/450SC Multilayer Ø 3.2 mm	Gas diffuser, multi-layer
5.1	094-023022-00000	DIF TIG 150-450/450SC Multilayer Ø 4.0 mm	Gas diffuser, multi-layer
5.5	094-009634-00000	COL 200/450 D=1.6MM	Electrode holder
5.5	094-009636-00000	COL 200/450 D=2.4MM	Electrode holder
5.5	094-009637-00000	COL 200/450 D=3.2MM	Electrode holder
5.5	094-009638-00000	COL 200/450 D=4.0MM	Electrode holder
5.6	094-004969-00000	200/450/SC Multilayer Ø 2.4 mm	Gas diffuser, multi-layer
5.6	094-006255-00000	200/450/SC Multilayer Ø 3.2 mm	Gas diffuser, multi-layer
5.6	094-023018-00000	200/450/SC Multilayer Ø 1.6 mm	Gas diffuser, multi-layer
5.7	094-009640-00000	COL DIF TIG 200/450/450SC, D=1,6 mm	Gas diffuser
5.7	094-009642-00000	COL DIF TIG 200/450/450SC, D=2,4 mm	Gas diffuser
5.7	094-009643-00000	COL DIF TIG 200/450/450SC, D=3,2 mm	Gas diffuser
5.7	094-009644-00000	COL DIF TIG 200/450/450SC, D=4,0 mm	Gas diffuser
6.1	094-010723-00000	TCS TIG 200/450/450SC	Back cap, short
6.2	094-010601-00000	TCL TIG 200/450	Back cap, long
10.08	094-019691-00000	E3; 1,0 x 175 mm	Tungsten electrode, purple
10.08	094-019692-00000	E3; 1,6 x 175 mm	Tungsten electrode, purple
10.08	094-019693-00000	E3; 2,0 x 175 mm	Tungsten electrode, purple
10.08	094-019694-00000	E3; 2,4 x 175 mm	Tungsten electrode, purple
10.08	094-019695-00000	E3; 3,2 x 175 mm	Tungsten electrode, purple
10.08	094-019696-00000	E3; 4,0 x 175 mm	Tungsten electrode, purple

11 Service documents

11.1 Circuit diagram

The circuit diagrams are only intended for authorised service personnel!

11.1.1 Standard up/down Retox welding torch



11.1.2 Retox XQ welding torch

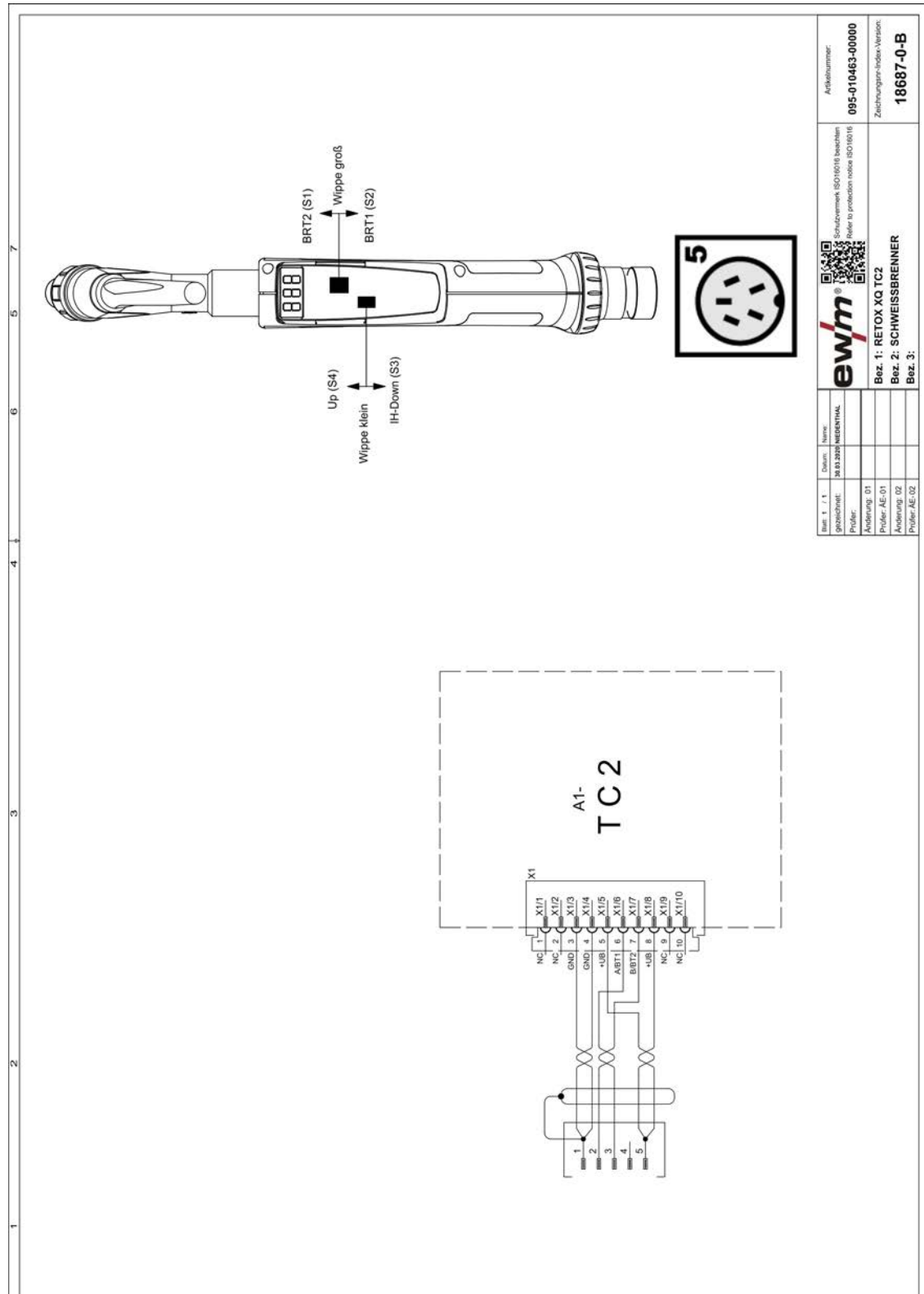


Figure 11-2

12 Appendix

12.1 Searching for a dealer

Sales & service partners

www.ewm-group.com/en/specialist-dealers



"More than 400 EWM sales partners worldwide"