



EN

welding torch

TIG 200 GRIP GD CW
TIG-SR 18 GRIP WD CW, -HW
TIG 260 GRIP WD CW, -HW
TIG 450 GRIP WD CW, -HW

099-500091-EW501

Observe additional system documents!

23.02.2023

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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.

1 Contents

1	Contents	3
2	For your safety	5
2.1	Notes on using these operating instructions	5
2.2	Explanation of icons	6
2.3	Safety instructions	7
2.4	Transport and installation	10
3	Intended use	12
3.1	Applications	12
3.2	Use and operation solely with the following machines	12
3.3	Documents which also apply	12
3.3.1	Warranty	12
3.3.2	Declaration of Conformity	12
3.3.3	Service documents (spare parts)	12
3.3.4	Part of the complete documentation	13
4	Machine description – quick overview	14
4.1	Overview of device types	14
4.2	TIG 450 GRIP WD HW	14
4.3	Ways of combination	16
5	Design and function	17
5.1	General	17
5.2	Scope of delivery	17
5.3	Transport and installation	18
5.3.1	Ambient conditions	18
5.3.2	Welding torch cooling system	18
5.3.2.1	Permitted torch coolant	18
5.3.2.2	Maximal hose package length	19
5.3.3	Welding torch connection	20
5.3.3.1	Control cable pin configuration	21
5.4	Equipment recommendations	22
5.5	Equipping the welding torch	24
5.5.1	Convert welding torch	25
5.5.1.1	Standard version delivery state	25
5.5.1.2	Converting to jumbo version	27
5.5.1.3	Converting to bottle neck	29
5.5.2	Assemble the wire guide	30
5.5.2.1	Replace steel liner	31
5.5.2.2	Plastic liner	35
5.5.3	Configuring the welding machine for mechanical arc fusion welding	40
5.6	Machine control – Operating elements	40
5.6.1	Operating modes (functional sequences)	41
5.6.1.1	Explanation of symbols	41
5.6.1.2	Non-latched Manual	42
5.6.1.3	Latched manual	43
5.6.1.4	Non-latched automatic	44
5.6.1.5	Latched automatic	45
5.6.1.6	Tack welding	46
5.6.1.7	superPuls	47
6	Maintenance, care and disposal	48
6.1	General	48
6.1.1	Identifying damage or worn components	48
6.1.2	Maintenance and care before each use	49
6.1.3	Regular maintenance	50
6.2	Disposing of equipment	51
7	Rectifying faults	52
7.1	Checklist for rectifying faults	52
7.2	Vent coolant circuit	54

8	Technical data	55
8.1	TIG 200 GD	55
8.2	TIG 18, -260, -450, -CW / HW	56
9	Accessories	57
9.1	Welding torch cooling system	57
9.1.1	Coolant - type blueCool	57
9.1.2	Coolant - type KF	57
10	Replaceable parts	58
10.1	TIG 18	58
10.2	TIG 260	60
10.3	TIG 200 / TIG 450	61
11	Service documents	63
11.1	Circuit diagram	63
12	Appendix	64
12.1	Searching for a dealer	64

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 6.1.3 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.

3.2 Use and operation solely with the following machines

	TIG 200 GRIP GD CW U/D HFL	TIG 260 GRIP WD CW U/D HFL WO	TIG 260 GRIP WD HW U/D HFL WO	TIG 450 GRIP WD CW U/D HFL WO	TIG 450 GRIP WD HW U/D HFL WO
tigSpeed drive 45 hotwire	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
tigSpeed drive 45 coldwire	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Tetrix drive 4L	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Tetrix 270 hot- wire	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.3 Documents which also apply

3.3.1 Warranty

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

3.3.2 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).

3.3.3 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.

3.3.4 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.

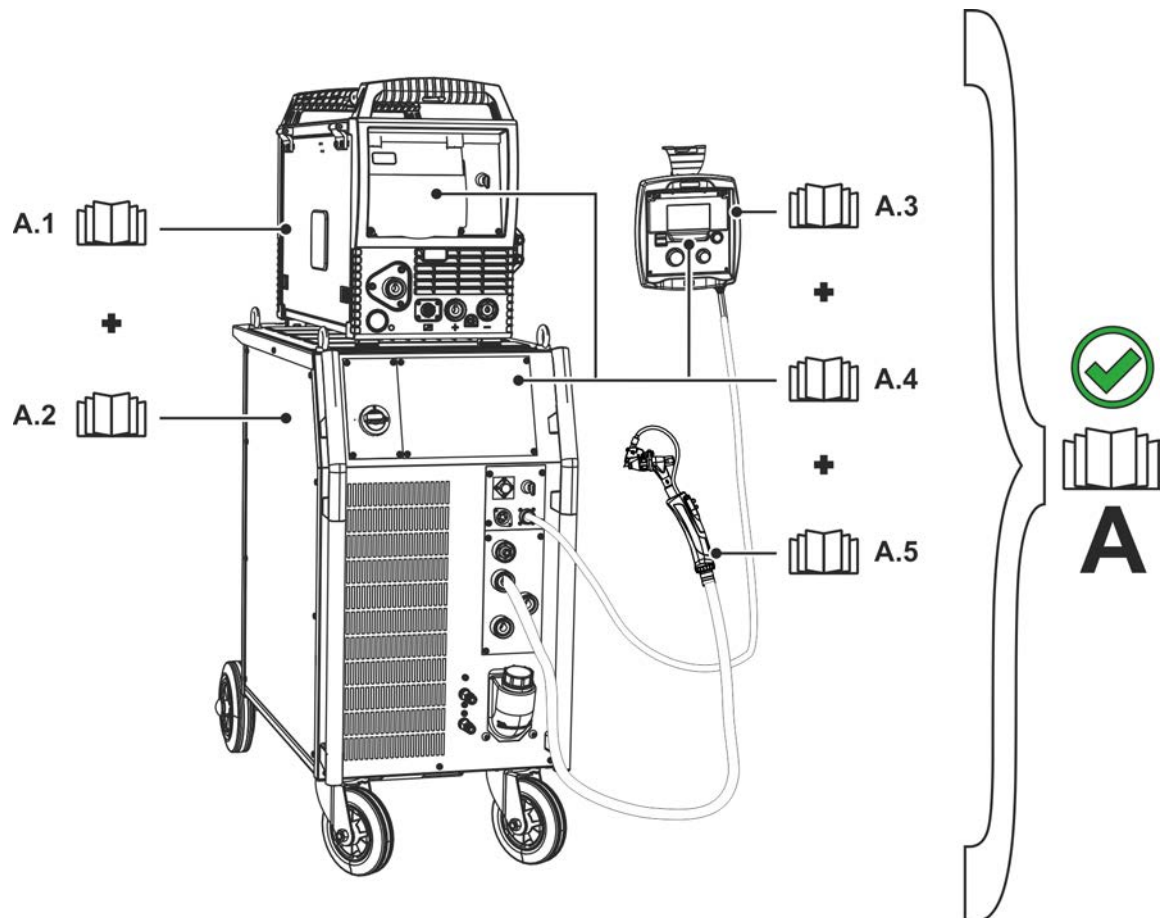


Figure 3-1

Item	Operating instructions
A.1	Wire feeder
A.2	Power source
A.3	Remote control
A.4	Control
A.5	Welding torch
A	Complete documentation

4 Machine description – quick overview

4.1 Overview of device types

Version	Functions	Torch type
CW	Cold wire Cold wire welding.	TIG 200, TIG 260, TIG 450, TIG-SR 18
GRIP	Grip Ergonomic grip for secure handling.	TIG 200, TIG 260, TIG 450, TIG-SR 18
GD	Standard Gas-cooled with decentral connection.	TIG 200
HFL	Highly flexible hose package	TIG 200, TIG 260, TIG 450, TIG-SR 18
HW	Hot wire Hot-wire welding.	TIG 260, TIG 450 TIG-SR 18
WD	Standard Water-cooled with decentral connection.	TIG 260, TIG 450 TIG-SR 18
U/D	Up/down torch Setting and display of welding current, programs or JOB.	TIG 200, TIG 260, TIG 450, TIG-SR 18
WO	Wire outside External wire feed for particularly soft or hard welding wires	TIG 260, TIG 450 TIG-SR 18

4.2 TIG 450 GRIP WD HW

The illustration serves as an example only.

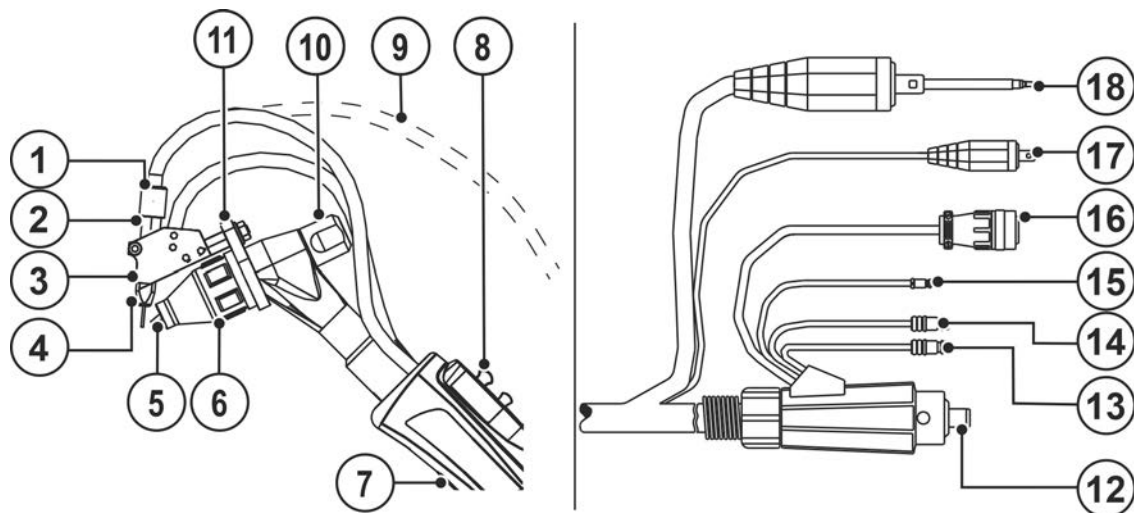



Figure 4-1

Item	Symbol	Description
1		Crown nut
2		Connecting sleeve
3		Contact tip (wire guide)
4		Filler wire guide
5		Tungsten electrode
6		Gas nozzle
7		Torch body
8		Operating elements > see 5.6 chapter
9		Filler wire guide - WO version
10		Back cap

Item	Symbol	Description
11		Support plate
12		Welding current connector plug (hot wire) - HW version Minus potential
13		Rapid-action closure nipple, red - WD version Coolant return
14		Rapid-action closure nipple, blue - WD version Coolant supply
15		Connecting nipple, shielding gas Rapid-action closure
16		Control lead cable plug
17		Welding current connection (TIG) decentralised, minus potential
18		Wire guide connector plug

4.3 Ways of combination

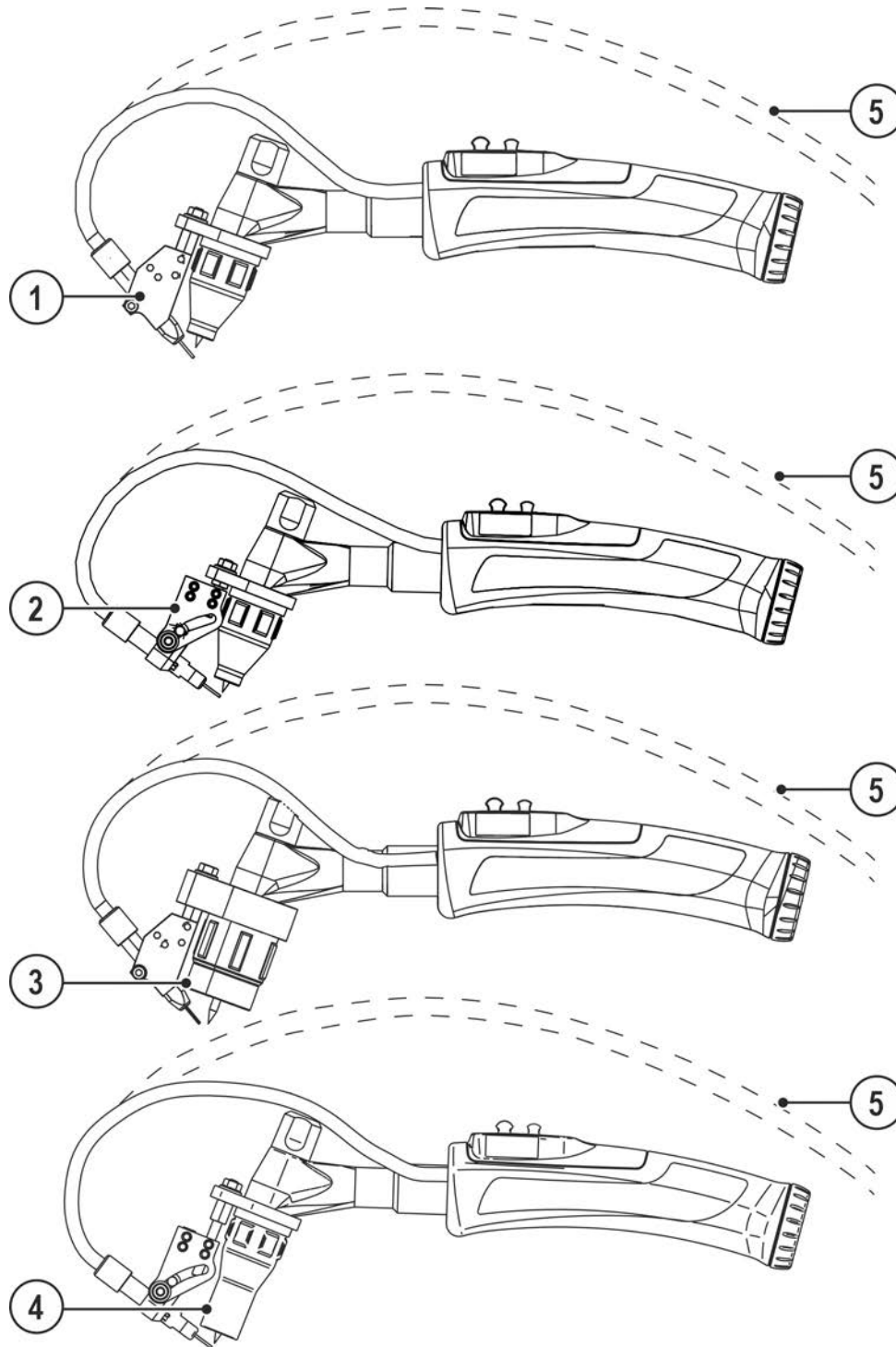


Figure 4-2

Item	Symbol	Description
1		Filler wire guide Fix 30°/39°/42°
2		Flexible filler wire guide (15°–41°)
3		Gas nozzle for jumbo version > see 5.5.1.2 chapter
4		Bottle neck gas nozzle version > see 5.5.1.3 chapter
5		Filler wire guide - WO version

5 Design and function

5.1 General

WARNING



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!

CAUTION



Risk of injury due to moving parts!

The wire feeders are equipped with moving parts, which can trap hands, hair, clothing or tools and thus injure persons!

- Do not reach into rotating or moving parts or drive components!
- Keep casing covers or protective caps closed during operation!



Risk of injury due to welding wire escaping in an unpredictable manner!

Welding wire can be conveyed at very high speeds and, if conveyed incorrectly, may escape in an uncontrolled manner and injure persons!

- Before mains connection, set up the complete wire guide system from the wire spool to the welding torch!
- Check wire guide at regular intervals!
- Keep all casing covers or protective caps closed during operation!



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!**

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 6.1.3 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: P_{max} = 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: P_{max} = 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.

5.3.3 Welding torch connection



Equipment damage due to improperly connected coolant pipes!

If the coolant pipes are not properly connected or a gas-cooled welding torch is used, the coolant circuit is interrupted and equipment damage can occur.

- **Connect all coolant pipes correctly!**
- **Completely unroll the hose package and the torch hose package!**
- **Observe maximal hose package length > see 5.3.2.2 chapter.**
- **When using a gas-cooled welding torch, use a hose bridge to establish the coolant circuit > see 9 chapter.**

Prepare welding torch according to the welding task in hand (see operating instructions for the torch).

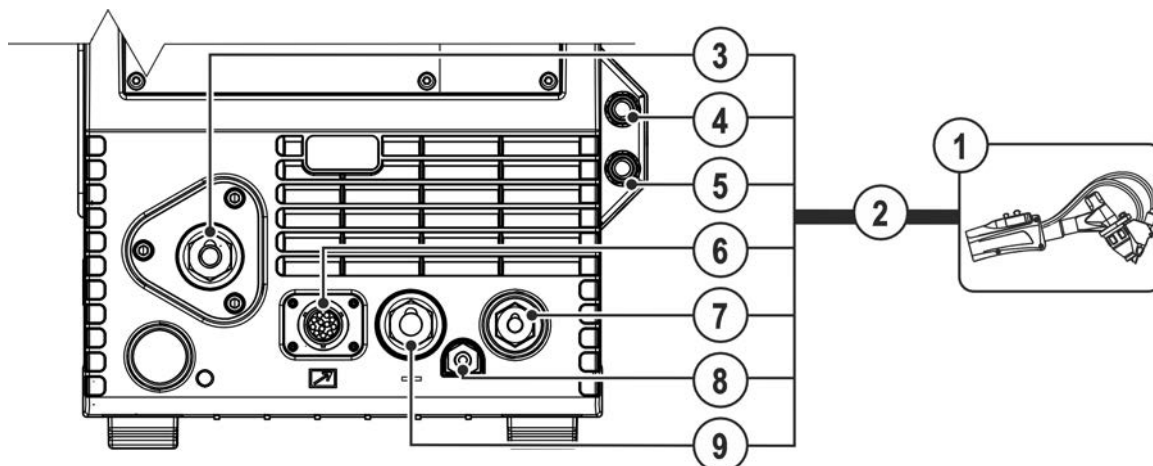


Figure 5-1

Item	Symbol	Description
1		Welding torch Observe additional system documents!
2		Welding torch hose package
3		Wire electrode connection Welding torch wire feed
4		Quick connect coupling (red) coolant return
5		Quick connect coupling (blue) coolant supply
6		Connection socket (12-pole) Welding torch control lead
7		Connection socket (TIG hot wire) Hot wire power, minus potential
8		Quick connect coupling Shielding gas
9		Connection socket (TIG) Welding current, minus potential

- Extend and lay out the torch hose package.
- Insert the wire feed plug of the welding torch into the wire electrode connector and lock by turning to the right.
- Push the cable plug for the welding current (TIG) onto the connection socket (TIG) and lock by turning to the right.
- Insert shielding gas rapid-action closure nipple in the quick connect coupling and engage.
- Insert welding torch control lead into the 12-pole connection socket and secure with the crown nut.

If fitted:

- Lock connecting nipples of the cooling water tubes into the corresponding quick connect couplings:
Return line red to quick connect coupling, red (coolant return) and
supply line blue to quick connect coupling, blue (coolant supply).
- Push the cable plug for the hot wire current onto the connection socket (TIG hot wire) and lock by turning to the right.

5.3.3.1 Control cable pin configuration

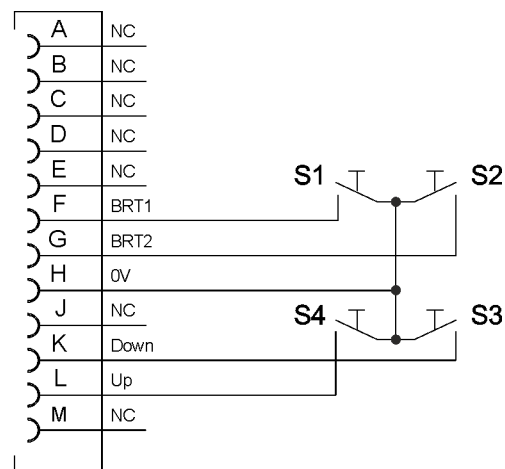
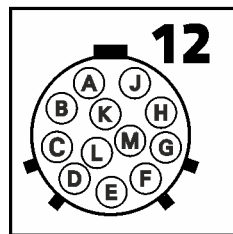


Figure 5-2

5.4 Equipment recommendations

	Material	Wire diameter	Contact tip	Wire guide diameter	Liner	Brass liner length	Equipment side	Wire feed rolls
Wire fed	Low-alloy	0.8	EWM Cu-CrZr	1.5 x 4.0	Liner		Dinse connector	V-groove
		1.0		1.5 x 4.0				
		1.2		2.0 x 4.0				
	Medium-alloy	0.8	EWM Cu-CrZr	1.5 x 4.0	Combined PA liner	30 mm	Torch neck	V-groove
		1.0		1.5 x 4.0				
		1.2		2.0 x 4.0				
	Hardfacing	0.8	EWM Cu-CrZr	1.5 x 4.0	Combined PA liner	30 mm	Torch neck	V-groove
		1.0		1.5 x 4.0				
		1.2		2.0 x 4.0				
	High-alloy	0.8	EWM Cu-CrZr	1.5 x 4.0	Combined PA liner	30 mm	Torch neck	V-groove
		1.0		1.5 x 4.0				
		1.2		2.0 x 4.0				
	Aluminium	0.8	EWM Alu E-Cu	1.5 x 4.0	Combined PA liner	30 mm	Torch neck	U-groove
		1.0		1.5 x 4.0				
		1.2		2.0 x 4.0				
	Copper alloy	0.8	EWM Cu-CrZr	1.5 x 4.0	Combined PA liner	30 mm	Torch neck	V-groove
		1.0		1.5 x 4.0				
		1.2		2.0 x 4.0				
Flux cored wire fed	Low-alloy	0.8	EWM Cu-CrZr	1.5 x 4.0	Liner		Dinse connector	V-groove/knurled
		1.0		1.5 x 4.0				
		1.2		2.0 x 4.0				
	High-alloy	0.8	EWM Cu-CrZr	1.5 x 4.0	Combined PA liner	30 mm	Torch neck	V-groove/knurled
		1.0		1.5 x 4.0				
		1.2		2.0 x 4.0				

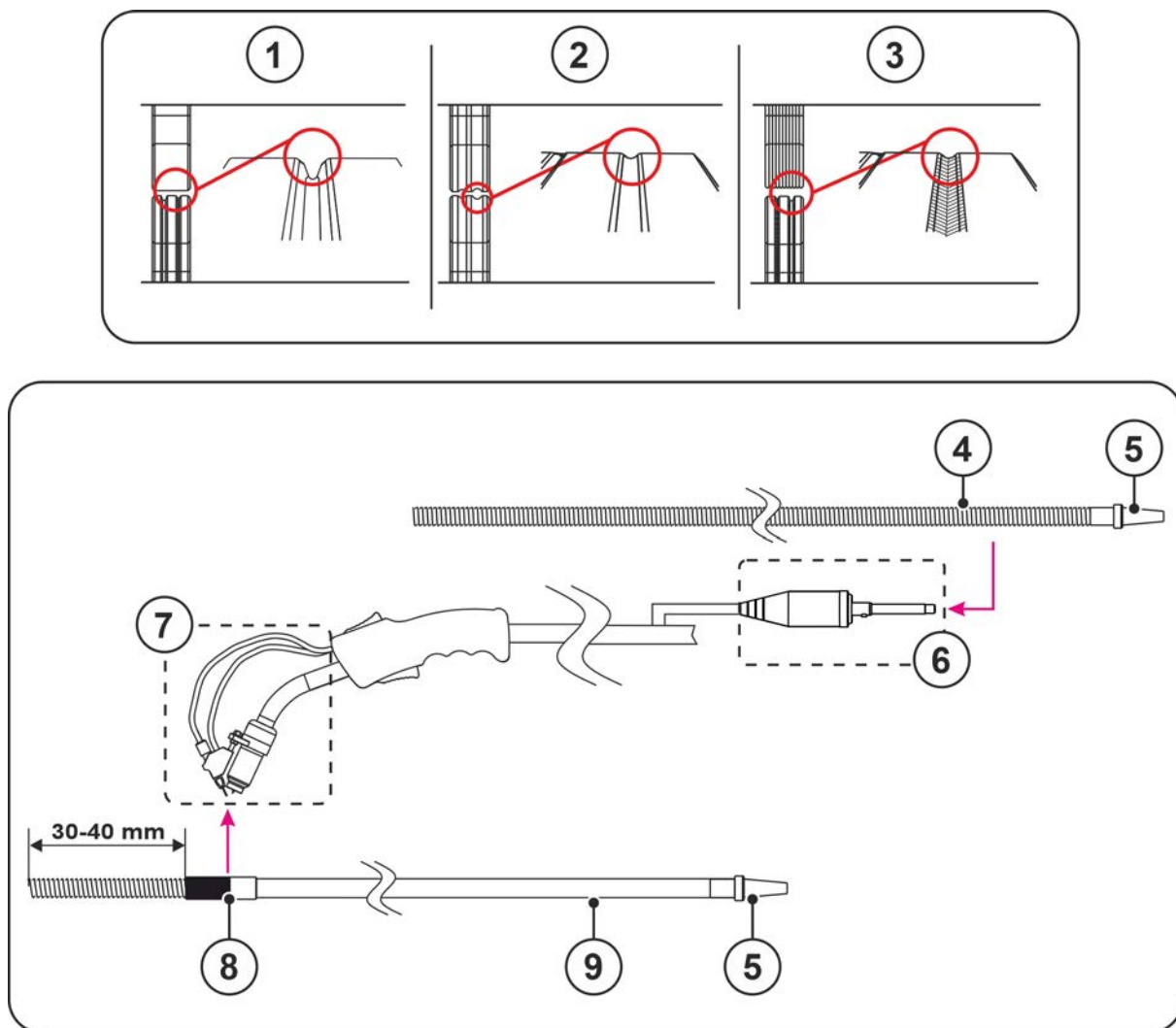


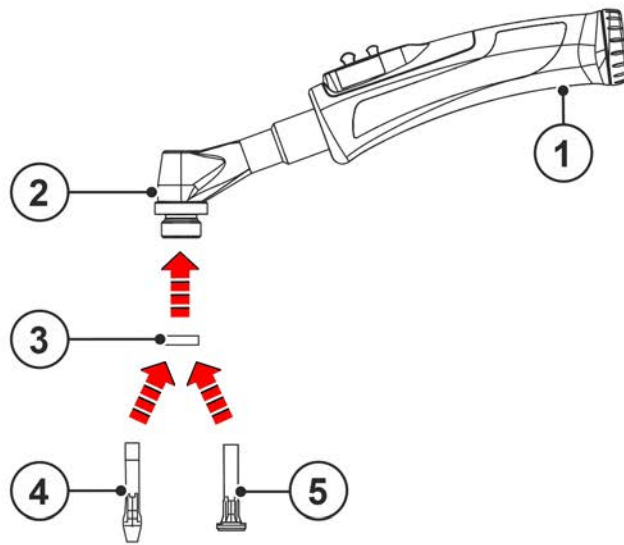
Figure 5-3

Item	Symbol	Description
1		V-groove
2		U-groove
3		Knurled V-groove
4		Steel liner
5		Wire feed nipple
6		Equipment side – Dinse connector
7		Equipment side – torch neck
8		Connecting sleeve
9		Combined liner

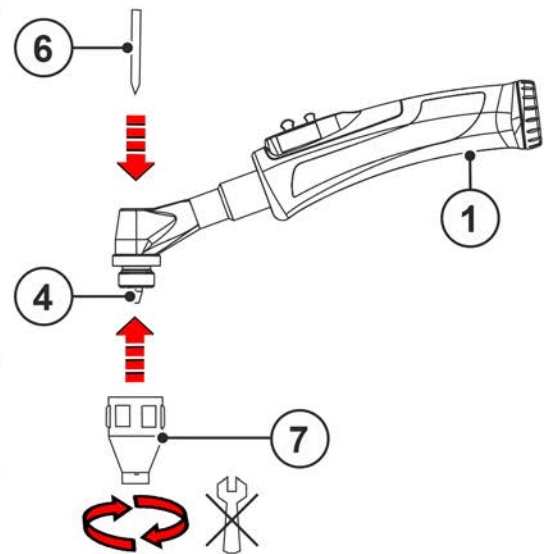
Equipment side for steel liner or liner > see 5.4 chapter.

5.5 Equipping the welding torch

A



B



C

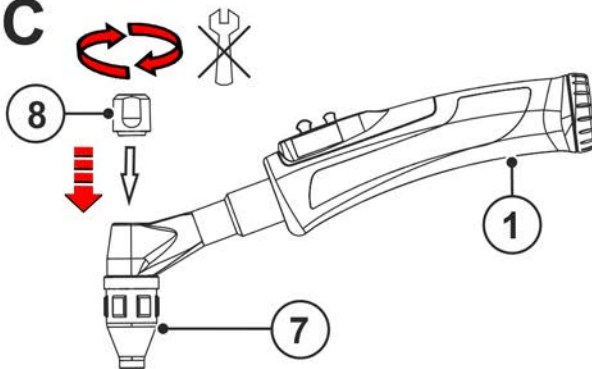


Figure 5-4

Item	Symbol	Description
1		Torch body
2		Torch body
3		Insulation
4		Gas lens Area of application: high-alloy steels and aluminium materials
5		Collet
6		Electrode
7		Gas nozzle
8		Back cap

5.5.1 Convert welding torch

5.5.1.1 Standard version delivery state

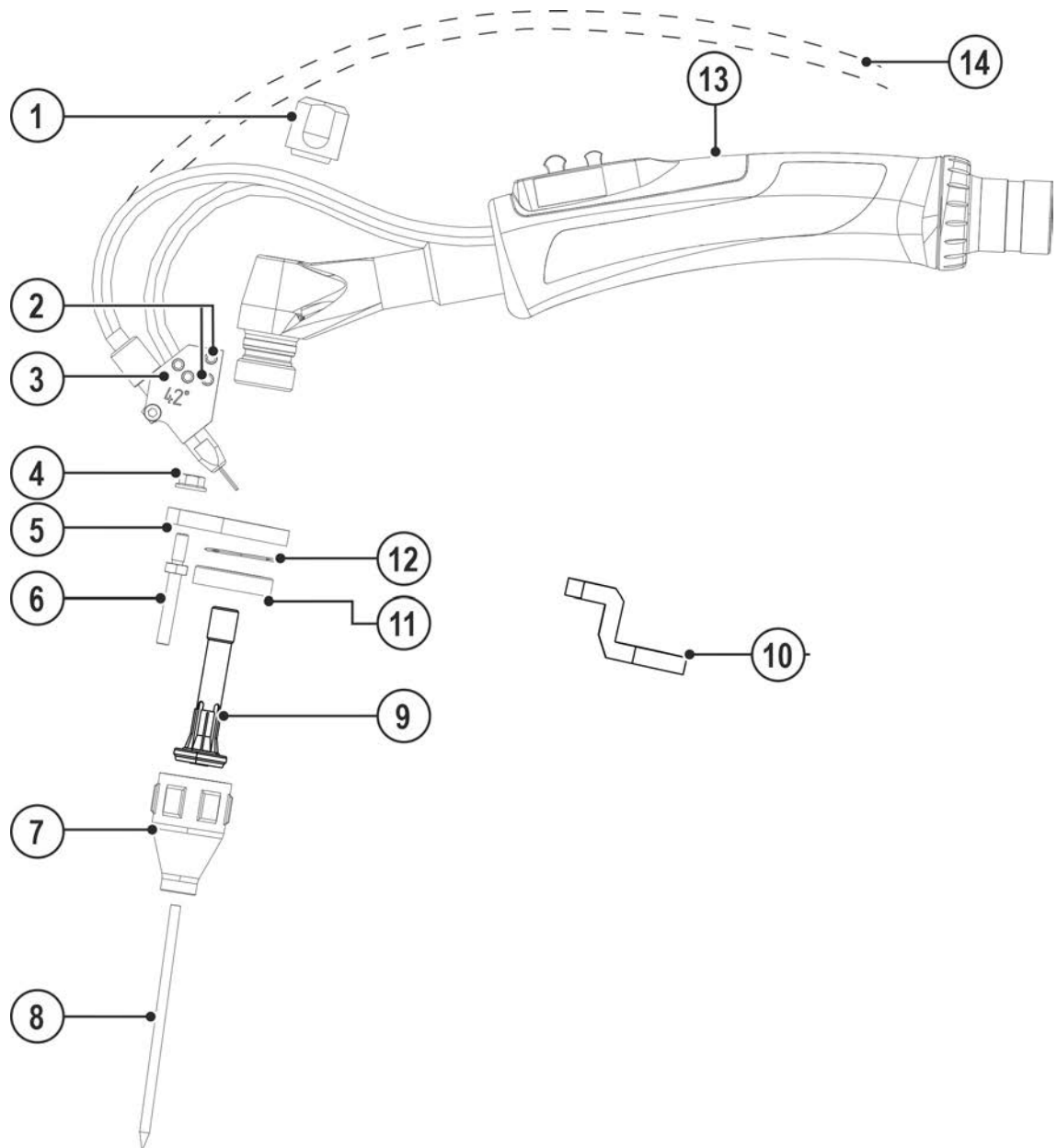


Figure 5-5

Item	Symbol	Description
1		Back cap
2		Allen screw
3		Filler wire guide
4		Hexagon nut
5		Support plate - TIG 200 / 450 version
6		Stud bolts, M4 x 10 SW7 L26 MM, - L36 MM, - L41 MM
7		Gas nozzle
8		Tungsten electrode
9		Gas diffuser
10		Support plate - TIG 260 version
11		Plastic insulation
12		O-ring
13		Grip plate
14		Filler wire guide - WO version

- Unscrew back cap and remove electrode.
- Loosen the hexagonal socket screw of the filler wire guide and remove the filler wire guide from the stud bolt.
- Unscrew the gas nozzle and remove the gas diffuser from the torch body.
- Loosen the stud bolt nut and unscrew the stud bolt from the support plate.
- Unscrew the insulation and support plate from the torch body.

5.5.1.2 Converting to jumbo version

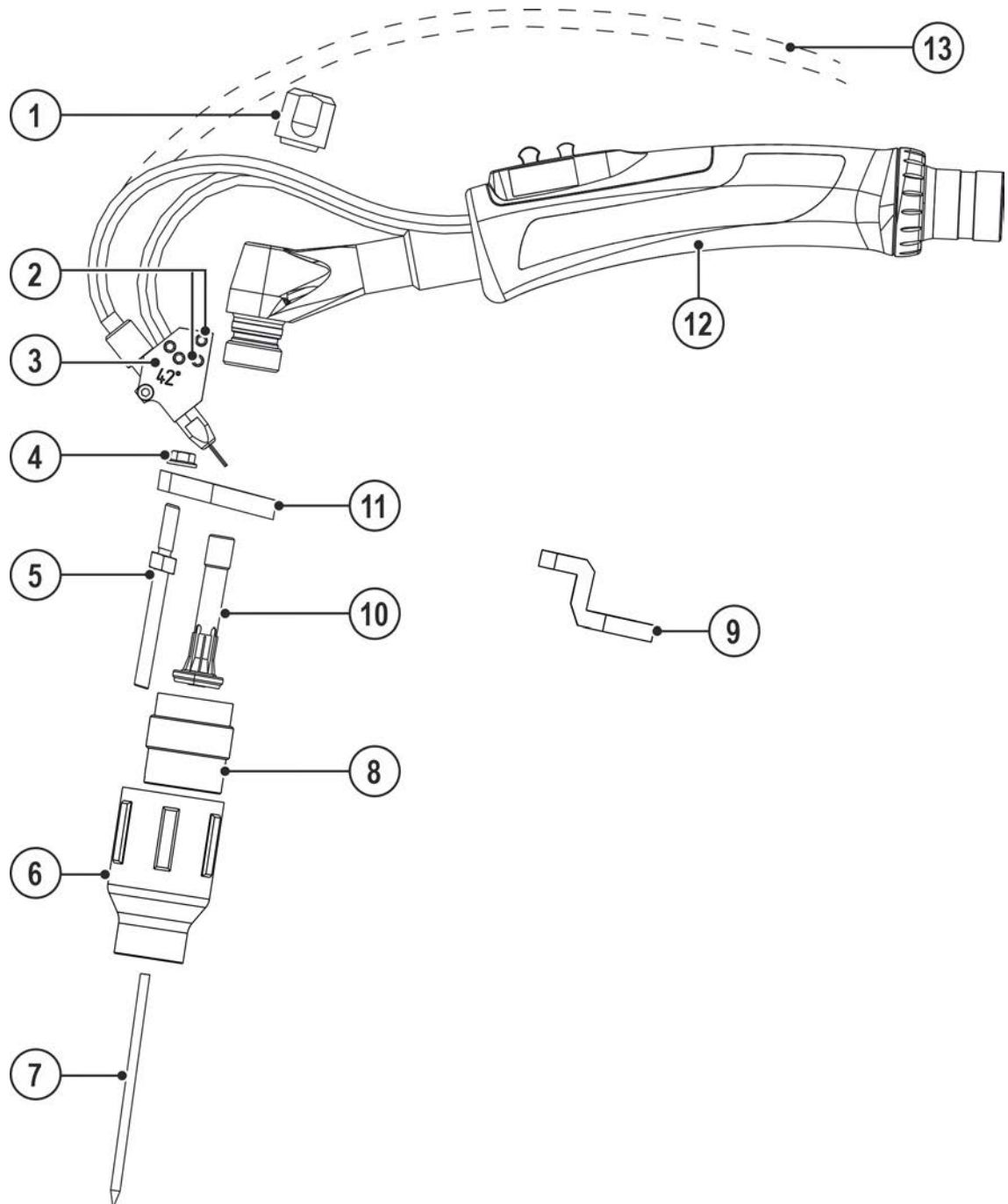


Figure 5-6

Item	Symbol	Description
1		Back cap
2		Allen screw
3		Filler wire guide
4		Hexagon nut
5		Stud bolt, M4X15 L56MM SW7
6		Gas nozzle for jumbo version > see 5.5.1.2 chapter
7		Tungsten electrode
8		Gas diffuser for jumbo version
9		Support plate - TIG 260 version
10		Gas diffuser
11		Support plate - TIG 200 / 450 version
12		Grip plate
13		Filler wire guide - WO version

- Screw the jumbo gas nozzle bracket with the plane side onto the torch body.
- Insert the gas diffuser into the torch body.
- Screw the jumbo gas nozzle gas diffuser onto the torch body.
- Screw the jumbo gas nozzle stud bolts into the jumbo gas nozzle bracket and secure with the nut.
- Screw the jumbo gas nozzle onto the torch body.
- Plug the filler wire guide onto the stud bolt and secure with the hexagonal socket screws.
- Insert the electrode into the torch body and secure with the back cap.

5.5.1.3 Converting to bottle neck

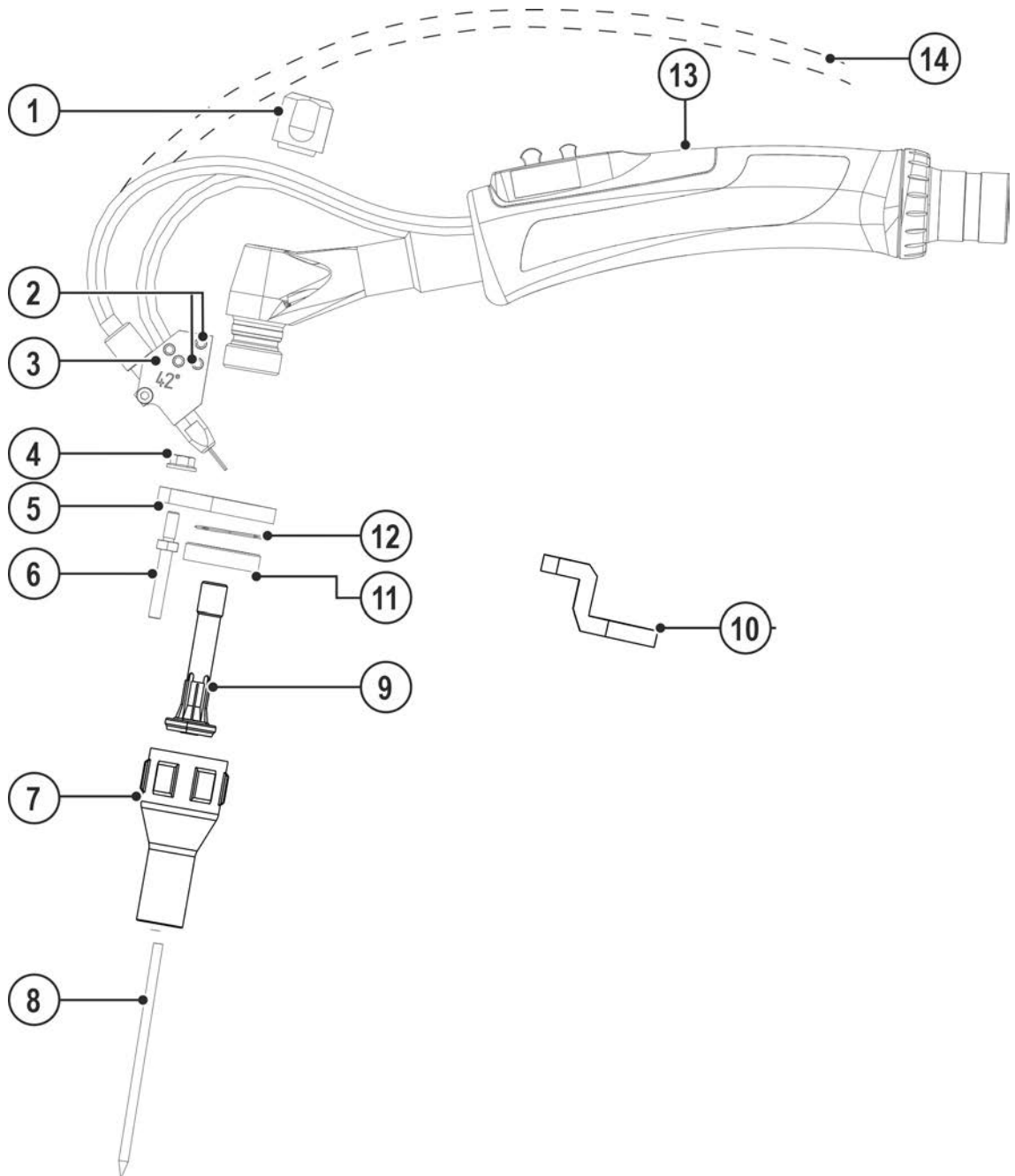


Figure 5-7

Item	Symbol	Description
1		Back cap
2		Allen screw
3		Filler wire guide
4		Hexagon nut
5		Support plate - TIG 200 / 450 version
6		Stud bolt, M4X10 L44MM SW7
7		Gas nozzle
8		Tungsten electrode
9		Gas diffuser
10		Support plate - TIG 260 version
11		Plastic insulation
12		O-ring
13		Grip plate
14		Filler wire guide - WO version

- Insert the o-ring into the bracket and plug the bracket with the plane side onto the torch body.
- Screw the insulator with the plane side onto the torch body.
- Screw the stud bolt into the bracket and secure with the nut.
- Insert the gas diffuser into the torch body.
- Screw the gas nozzle onto the torch body.
- Plug the filler wire guide onto the stud bolt and secure with the hexagonal socket screws.
- Insert the electrode into the torch body and secure with the back cap.

5.5.2 Assemble the wire guide

Depending on the wire electrode diameter or type, either a steel liner or liner with the correct inner diameter must be inserted in the torch!

Recommendation:

- Use a steel liner when welding hard, unalloyed wire electrodes (steel).
- Use a chrome nickel liner when welding hard, high-alloy wire electrodes (CrNi).
- Use a plastic or teflon liner when welding or brazing soft wire electrodes, high-alloy wire electrodes or aluminium materials.

Always make sure the hose package is straight when replacing the wire guide.

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

5.5.2.1 Replace steel liner

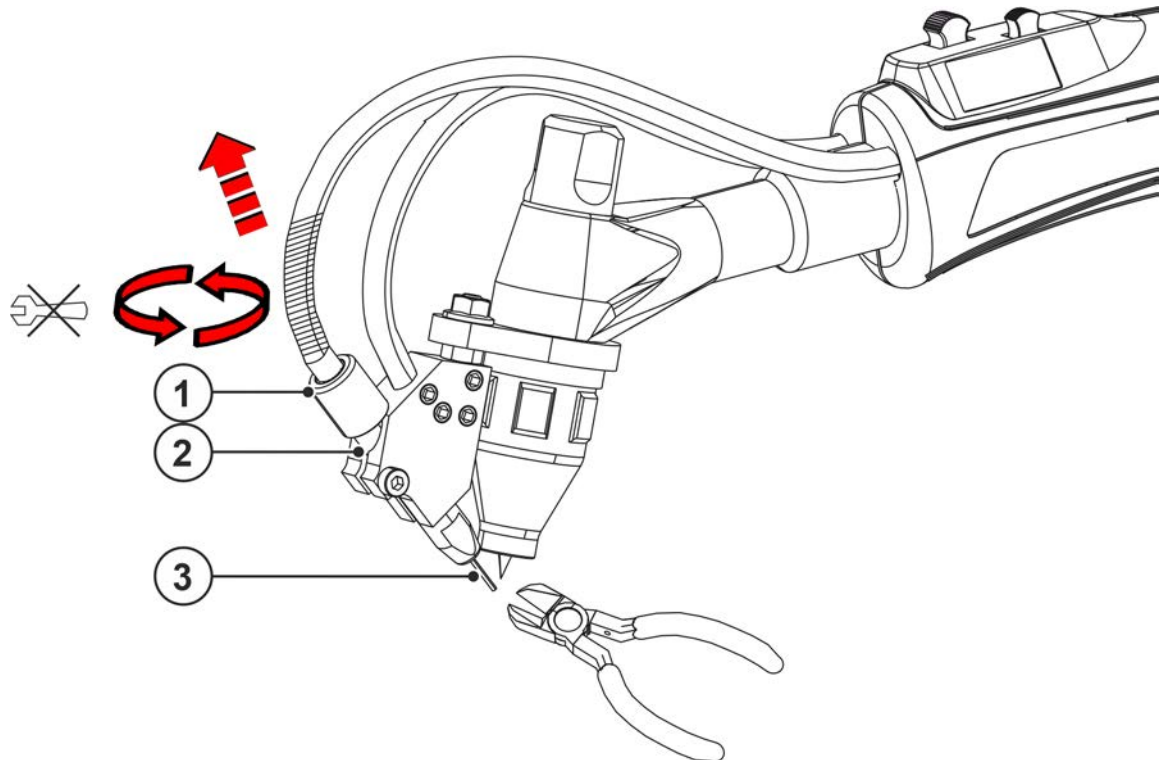


Figure 5-8

Item	Symbol	Description
1		Crown nut
2		Connecting sleeve
3		Welding wire
4		Collet chuck
5		Insulation piece
6		Steel liner
7		Wire feed tube
8		New steel liner
9		Wire feed nipple

- Cut off the welding wire tip.
- Loosen the crown nut of the jointing sleeve.
- Pull out steel liner
- Remove the welding wire up to the wire feeding from the steel liner.

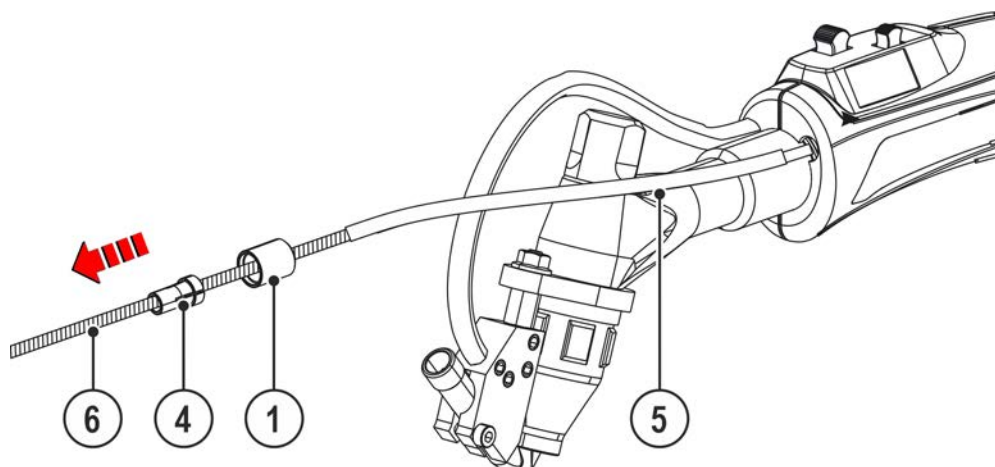


Figure 5-9

- Remove the crown nut, collet chuck and insulating tube from the steel liner.

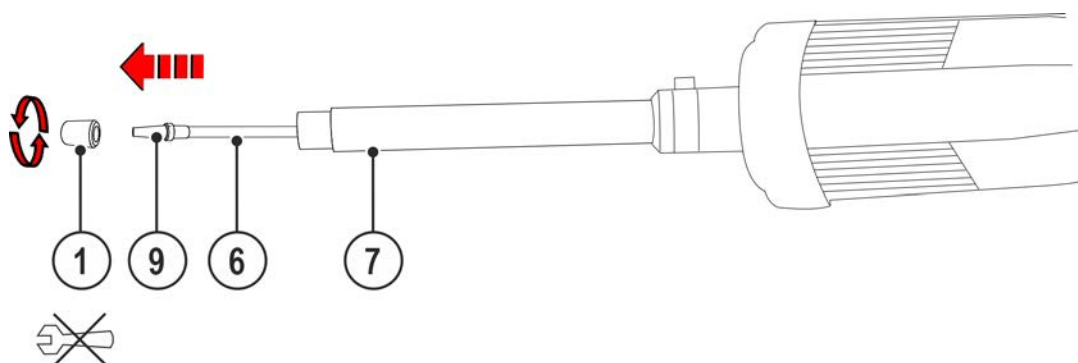


Figure 5-10

- Disconnect the torch connector from the wire feeding.
- Unscrew the crown nut from the inlet tube.
- Extend and lay out the torch hose package.
- Pull out steel liner

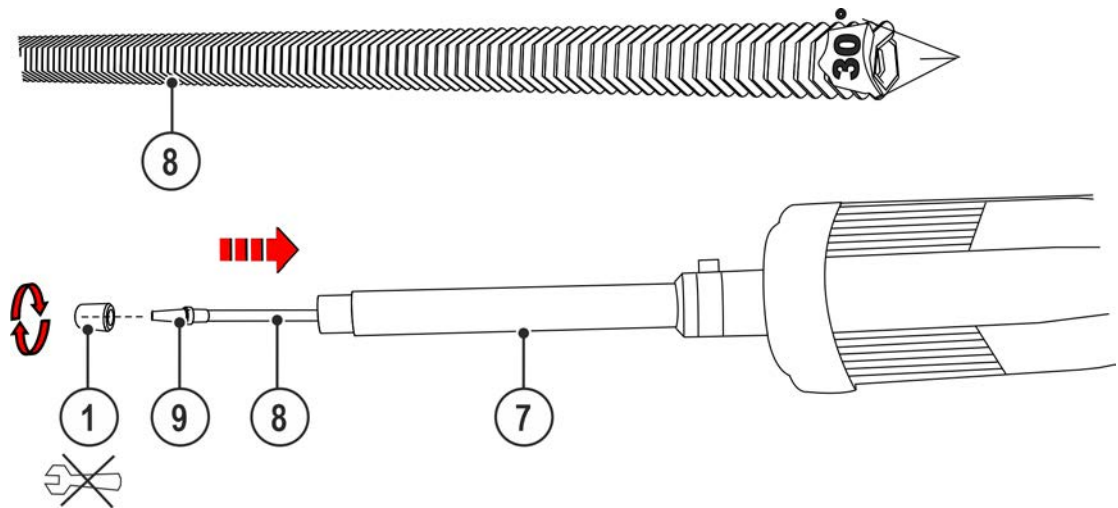


Figure 5-11

- Chamfer the steel liner on one side at 30°.
- Screw a suitable inlet guide tightly to the new steel liner on the side that is not chamfered, if necessary.
- Blow out the new steel liner with shielding gas or water- and oil-free compressed air.
- Insert the new steel liner with the chamfered side into the inlet tube and push through with slight pressure.
- Tighten the crown nut by hand.

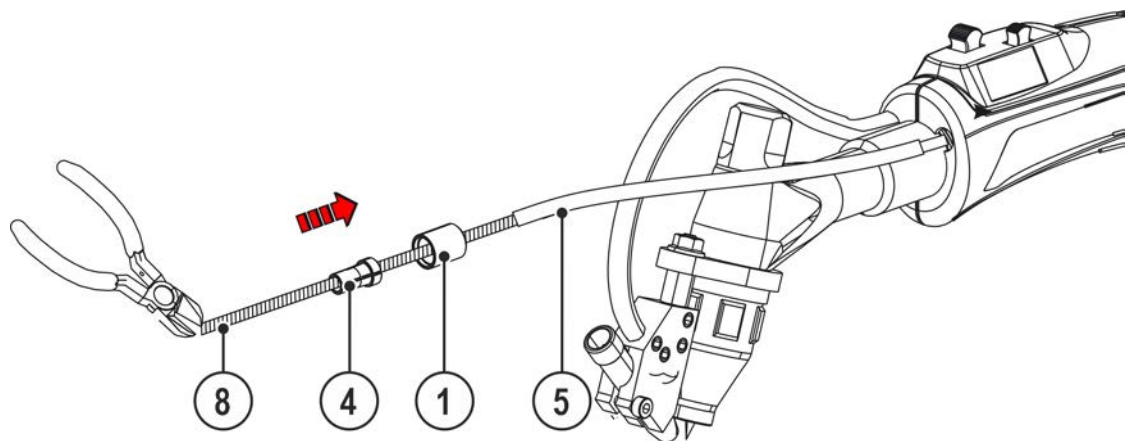


Figure 5-12

- Cut off the new steel liner so that it has a length of at least 250 mm.
- Plug the insulating tube onto the new steel liner.
- Plug the crown nut onto the new steel liner.
- Screw the collet chuck onto the new steel liner until the new steel liner protrudes 7 mm.

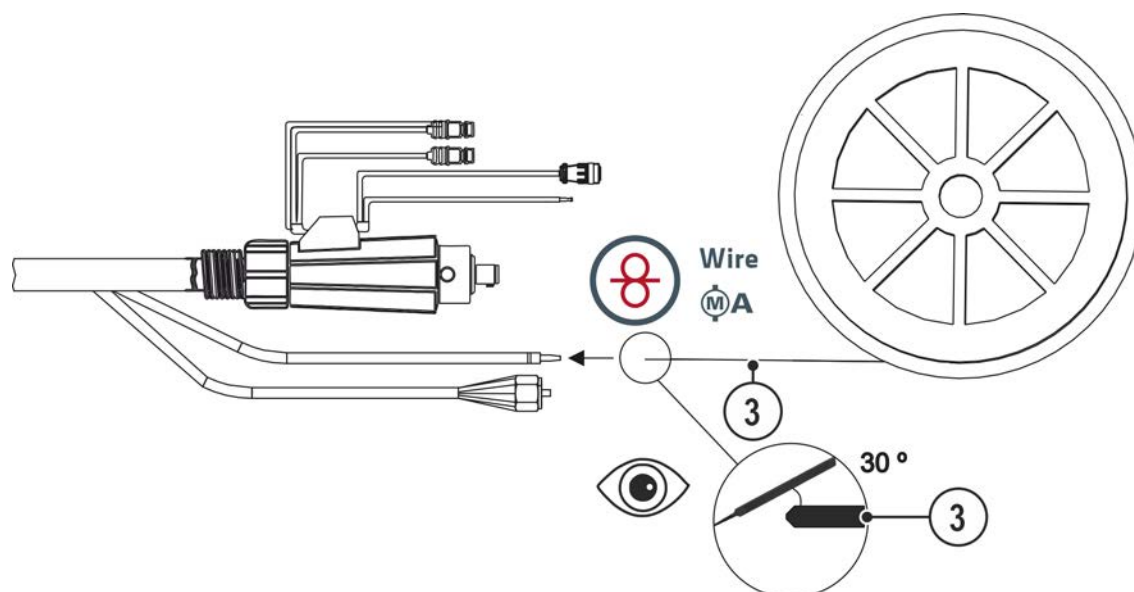


Figure 5-13

- Chamfer the welding wire at 30° before inserting into the new steel liner.
- Connect the torch connector to the wire feeding > see 5.3.3 chapter.
- Using the wire feeding, insert the welding wire into the new steel liner until it protrudes 40 mm at the end of the steel liner.

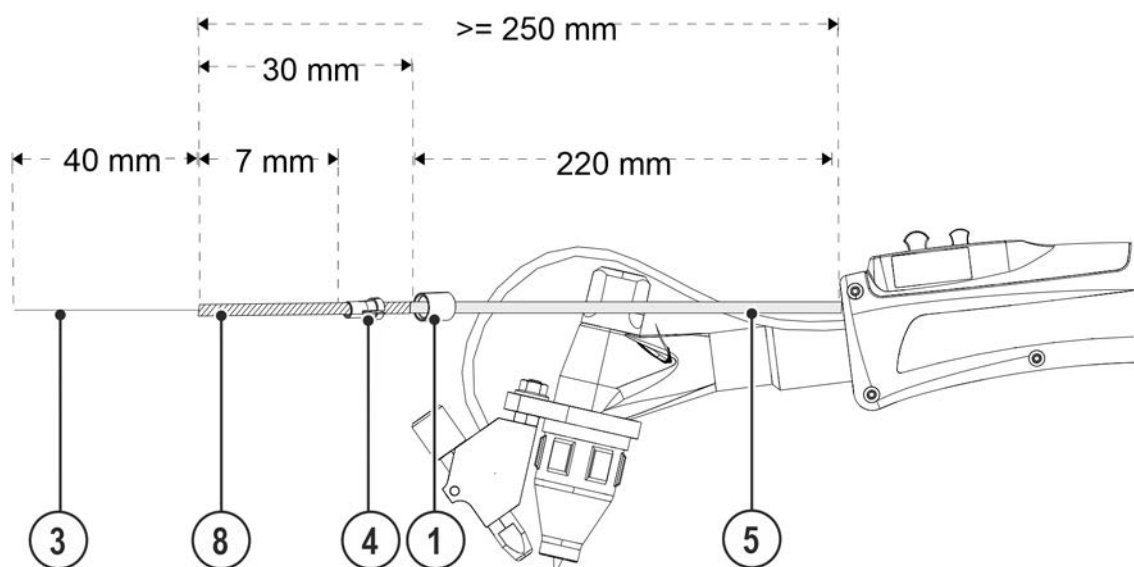


Figure 5-14

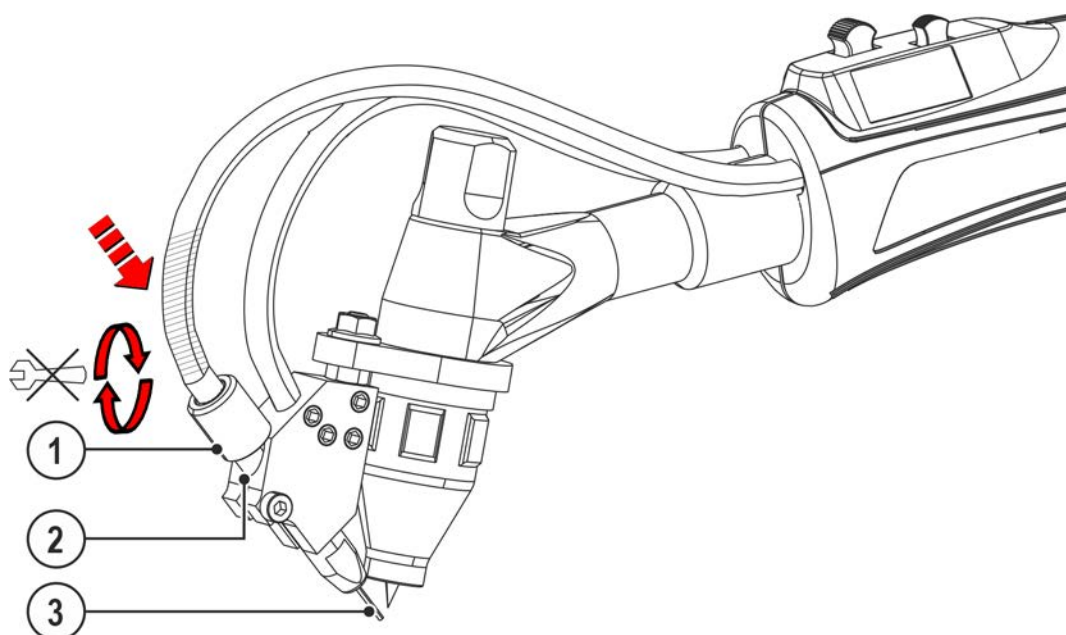


Figure 5-15

- Insert the new steel liner into the jointing sleeve as far as it goes.
- Tighten the crown nut by hand.

5.5.2.2 Plastic liner

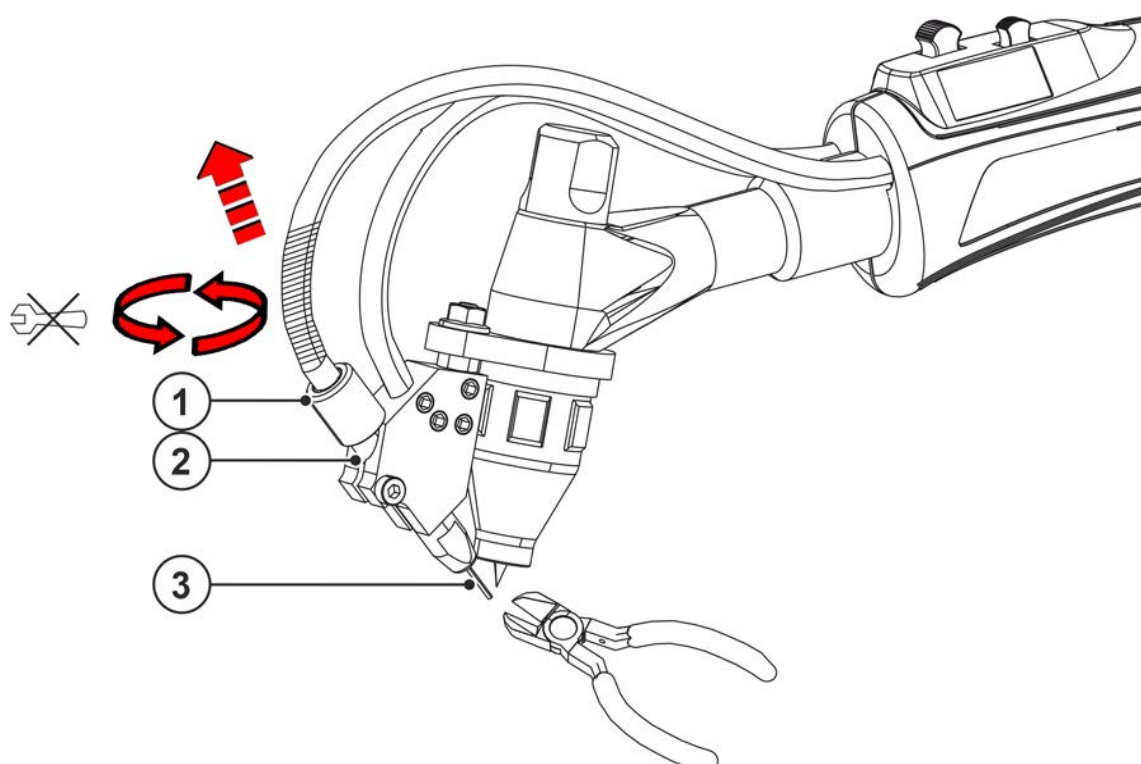


Figure 5-16

Item	Symbol	Description
1		Crown nut
2		Connecting sleeve
3		Welding wire
4		Collet chuck
5		Insulation piece
6		Combined liner

Item	Symbol	Description
7		Wire feed tube
8		New combined liner
9		Wire feed nipple

- Loosen the crown nut of the jointing sleeve.
- Cut off the welding wire tip.
- Remove the combined liner from the jointing sleeve.
- Remove the welding wire completely from the torch hose package.

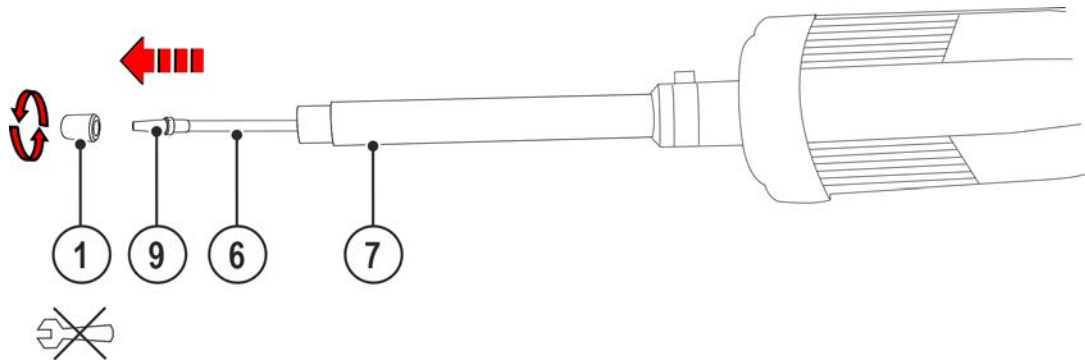


Figure 5-17

- Disconnect the torch connector from the wire feeding.
- Unscrew the crown nut from the inlet tube.
- Remove existing wire feed nipple.

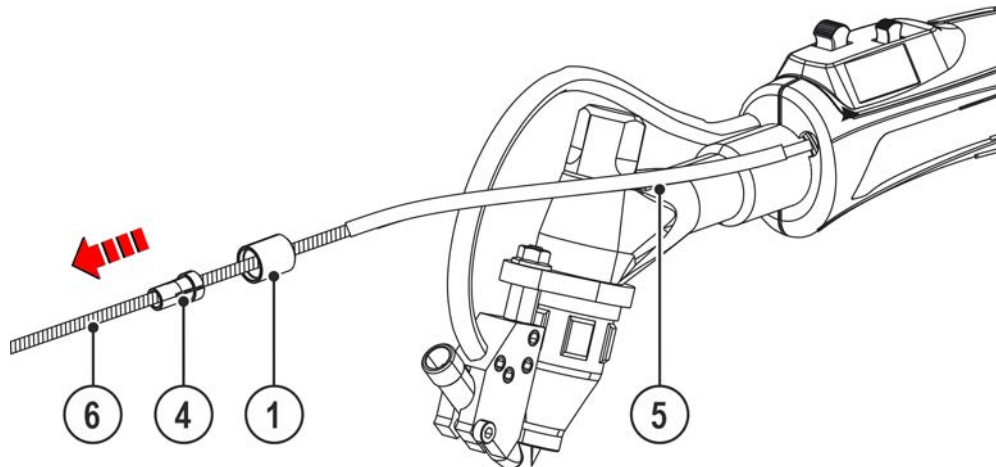


Figure 5-18

- Remove the crown nut, collet chuck and insulating tube from the combined liner.
- Extend and lay out the torch hose package.
- Remove the combined liner completely from the torch hose package.

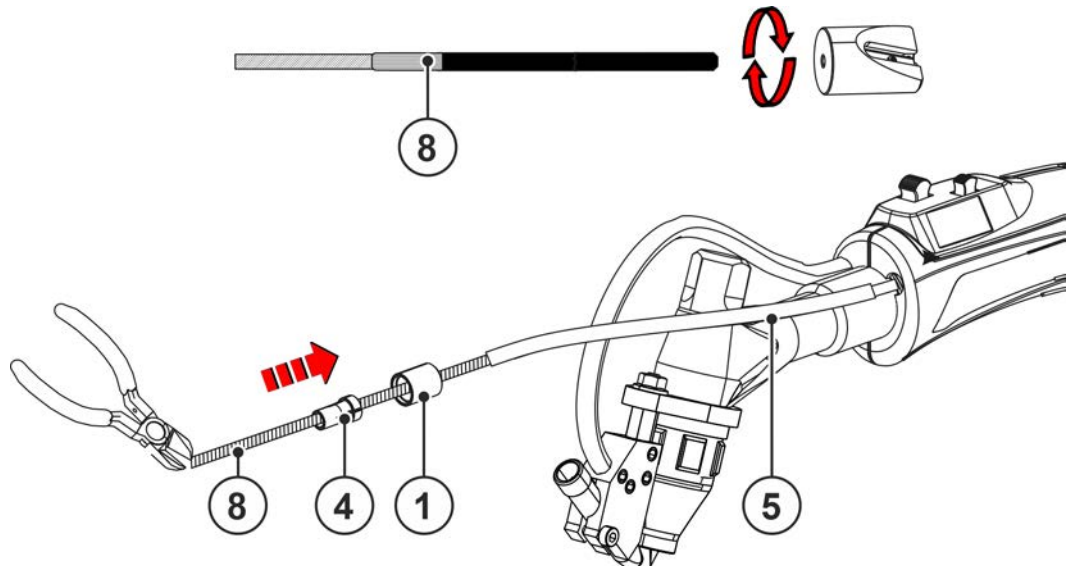


Figure 5-19

- Sharpen the new combined liner with a liner sharpener.
- Cut off the new combined liner to a length of at least 250 mm.
- Push the new combined liner through the welding torch and the torch hose package as far as it goes.
- Plug the insulating tube and crown nut onto the new combined liner.
- Screw the collet chuck onto the new combined liner until the new combined liner protrudes 7 mm.

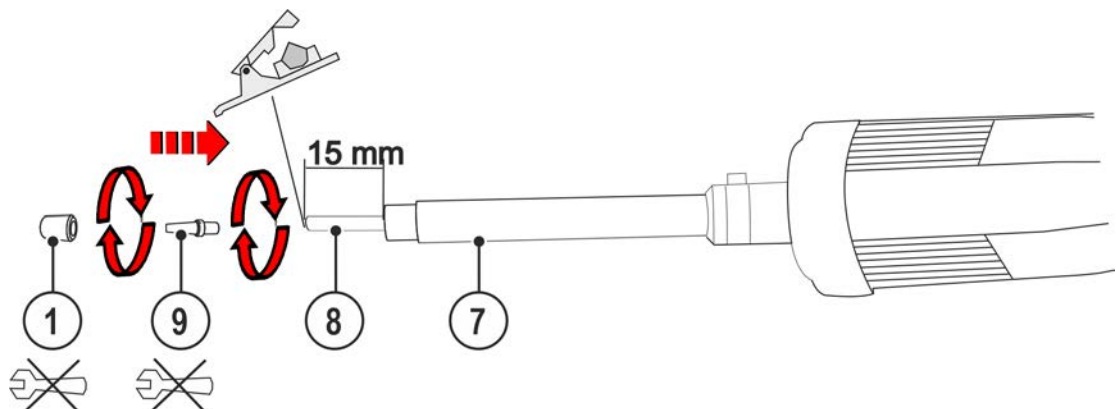


Figure 5-20

- Cut off the new combined liner with a tube cutter to a length of 15 mm.
- Manually screw the inlet guide onto the new combined liner.
- Plug the crown nut onto the inlet guide and manually screw to the inlet tube.
- Blow out the new combined liner with shielding gas or water- and oil-free compressed air.

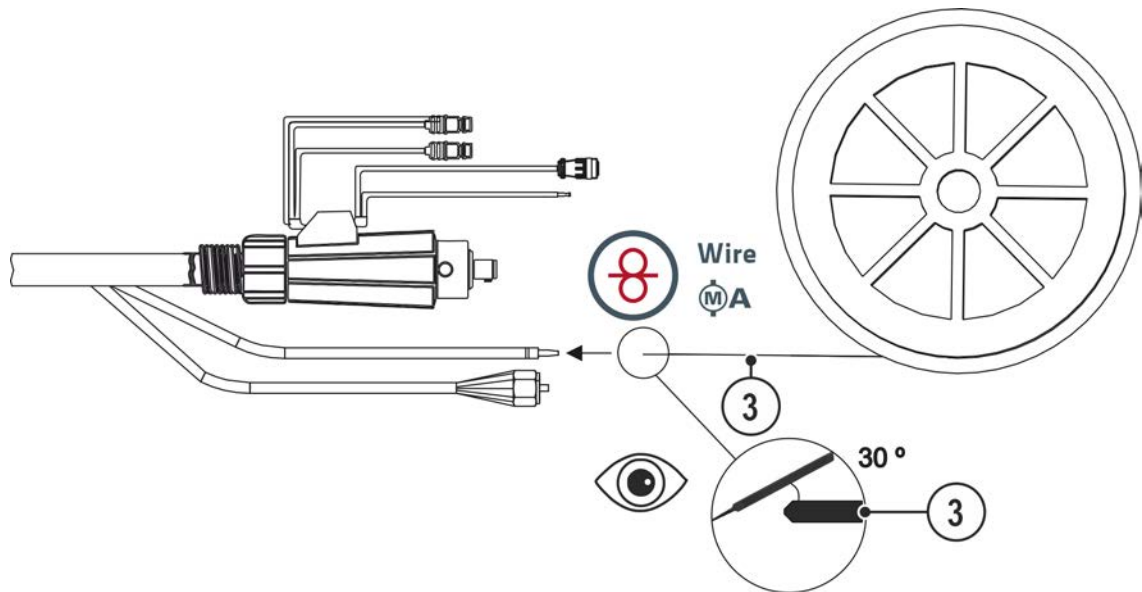


Figure 5-21

- Chamfer the welding wire at 30° before inserting into the new combined liner.
- Connect the torch connector to the wire feeding > see 5.3.3 chapter.
- Using the wire feeding, insert the welding wire into the new combined liner until it protrudes at the welding torch.

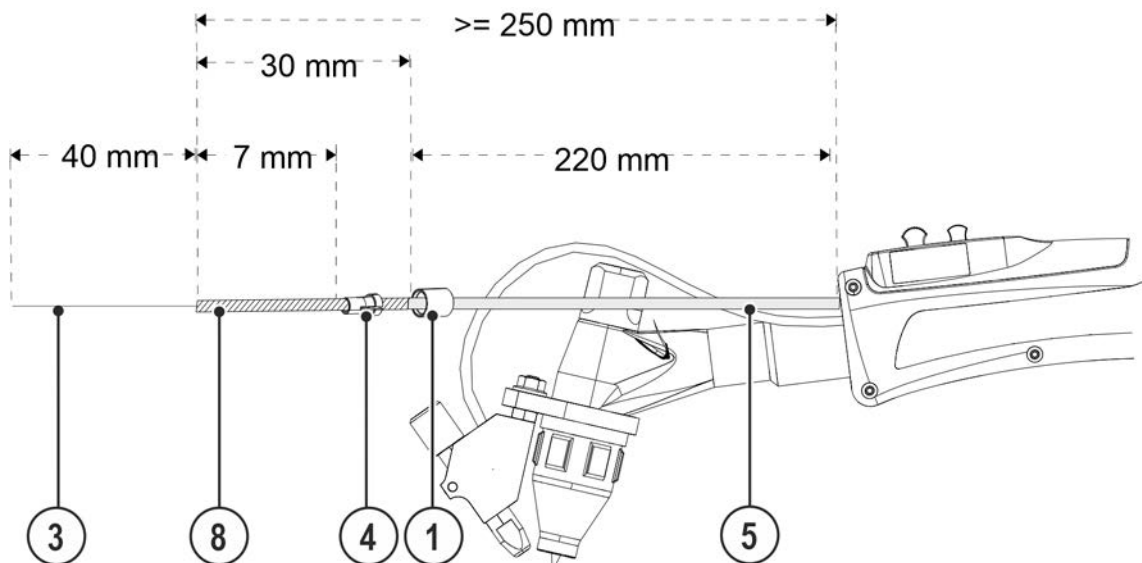
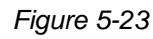


Figure 5-22



-

Figure 5-24

- Insert the new combined liner into the jointing sleeve as far as it goes.
- Tighten the crown nut by hand.

5.5.3 Configuring the welding machine for mechanical arc fusion welding

The welding machine must be configured before commissioning for the first time for mechanical arc fusion welding (cold or hot wire welding). The basic settings are configured directly at the welding machine control.

1. Cold or hot wire welding process (Hotwire = on/off)
2. Forward/backward motion selection (Freq = on/off)

In addition, the wire return can be adjusted if necessary.

5.6 Machine control – Operating elements

Up to four functions can be controlled with the two torch rockers (torch triggers BRT 1 to BRT 4).

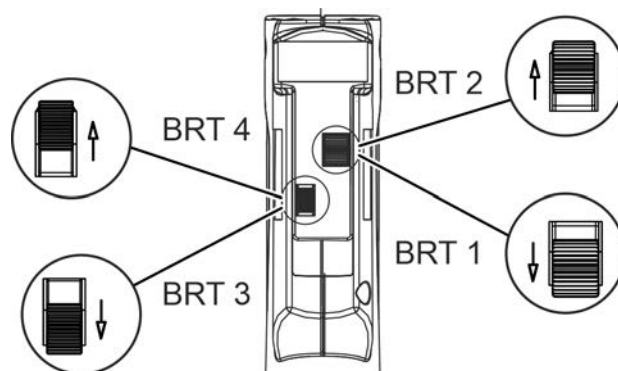


Figure 5-25

Torch trigger	Function
BRT 1	Welding current (start/stop)
BRT 2	Wire control (start/stop)
BRT 3	Increase welding current (up function)
BRT 4	Reduce welding current (down function)

Torch trigger 1 (BRT 1) switches the welding current on or off.










Torch trigger 2 (BRT 2) switches the wire feeding on or off.

In addition, you can inch the wire by pressing torch trigger 2 (BRT 2) or reverse inch the wire by tapping it.

You can choose between four operating modes (see the following functional sequences). Wire feeding is infinitely adjustable by means of torch triggers 3 and 4 (BRT 3 and BRT 4).

5.6.1 Operating modes (functional sequences)

5.6.1.1 Explanation of symbols

Symbol	Meaning
	Press torch trigger
	Release torch trigger
	Tap torch trigger (quick pressing and releasing)
	Shielding gas flowing
I	Welding performance
	Non-latched, manual
	Latched, manual
	Non-latched automatic
	Latched automatic
t	Time
P _{START}	Start program
P _A	Main program
P _B	Reduced main program
P _{END}	End program
	Wire feeding

5.6.1.2 Non-latched Manual

The welding machine (power source) must be set to operating mode “latched”.

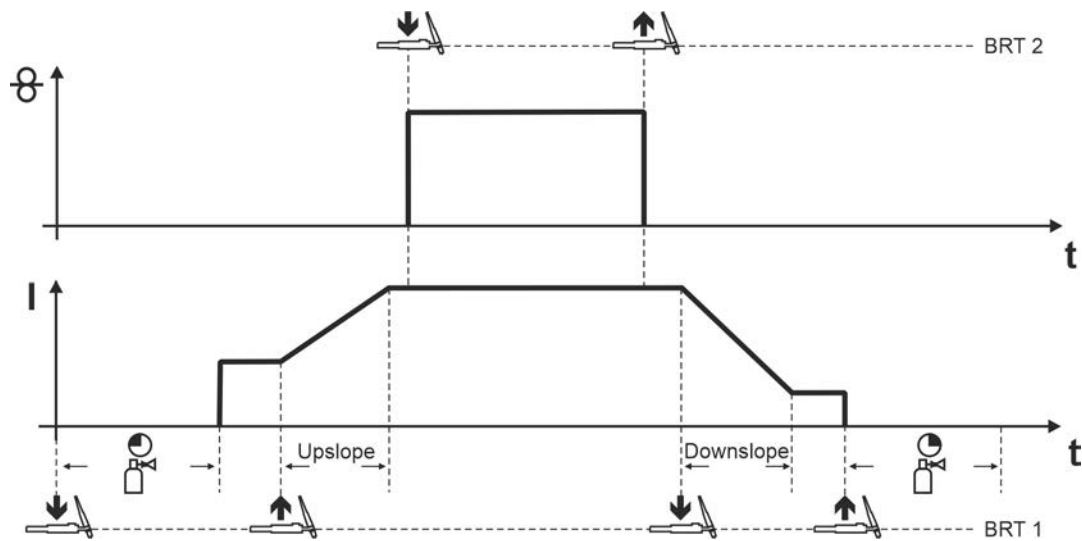


Figure 5-26

First cycle (current)

- Press torch trigger 1 (BRT 1), the gas pre-flow time elapses.
- HF ignition pulses jump from the tungsten electrode to the workpiece. The arc ignites.
- Welding current flows.

Second cycle (current)

- BRT 1 Release .
- The welding current ramps up to the main current AMP in the selected up-slope time.

First cycle (wire)

- Press torch trigger 2 (BRT 2).
Wire electrode is fed.

Second cycle (wire)

- BRT 2 Release .
Wire electrode feeding is stopped, wire electrode is returned by the set wire return value.

Third cycle (current)

- BRT 1 Press .
- The main current is reduced in the selected down-slope time.

Fourth cycle (current)

- BRT 1 Release , the arc extinguishes.
- Shielding gas continues to flow in the selected gas post-flow time.

5.6.1.3 Latched manual

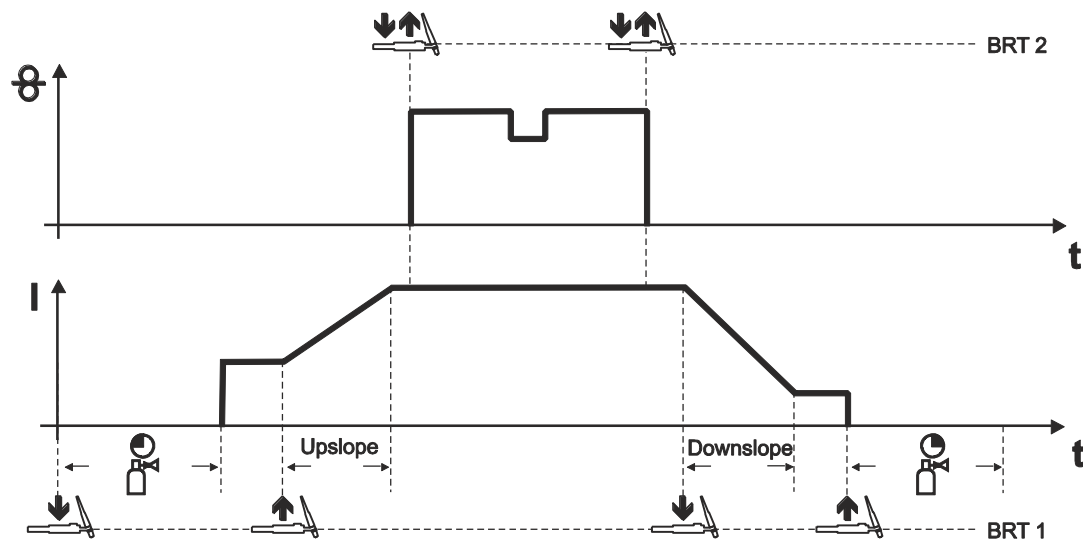


Figure 5-27

This operating mode differs from non-latched operation in the following ways:

- Wire feeding is started by pressing and releasing (tapping) BRT 2.
- By tapping you can switch to the reduced wire feeding.
- By pressing and releasing (tapping) BRT 2 again, wire feeding will stop. (It is not necessary to keep the torch trigger pressed. This is especially helpful with long welding seams.)

Stopping the welding process:

- Keep BRT 1 pressed for a period longer than the set tapping time.

Swiftly tap the torch trigger to change the function.

The tapping time set determines the functionality of the tapping function.

5.6.1.4 Non-latched automatic

The welding current has to be set to a non-latched operating mode at the welding machine.

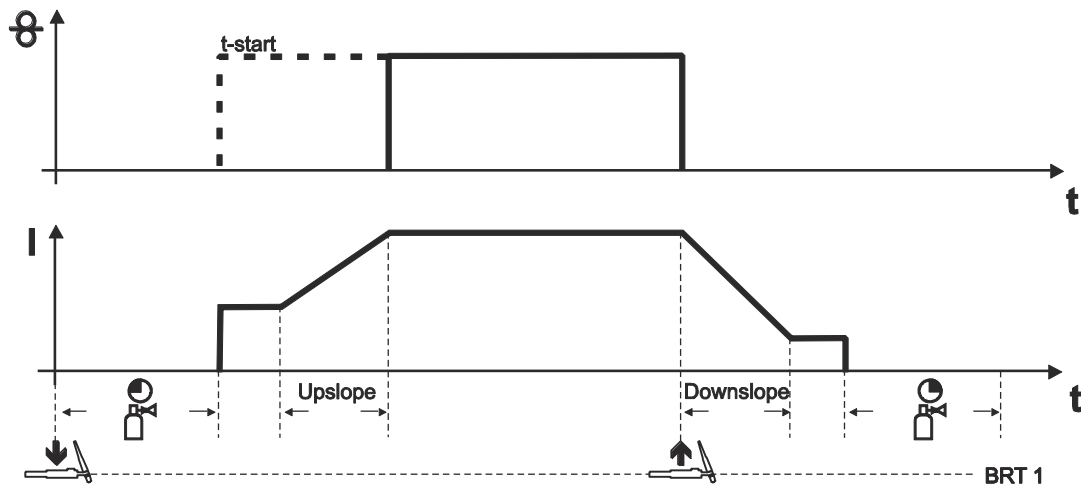


Figure 5-28

First cycle (current)

- Press torch trigger 1 (BRT 1) and keep pressed.
- The gas pre-flow time elapses.
- HF ignition pulses jump from the electrode to the workpiece. The arc ignites.
- The welding current flows and immediately assumes the value of the starting current I_{start} .
- HF switches off.
- The welding current increases in the set up-slope time to the main current AMP.
- The wire electrode is fed once the delay time (t-start) has elapsed.

Second cycle (current)

- Release BRT 1.
- Wire electrode feeding is stopped, wire electrode is returned by the set wire return value.
- The main current is reduced in the selected down-slope time, the arc is extinguished.
- Shielding gas continues to flow in the selected gas post-flow time.

5.6.1.5 Latched automatic

The welding machine (power source) must be set to operating mode “latched”.

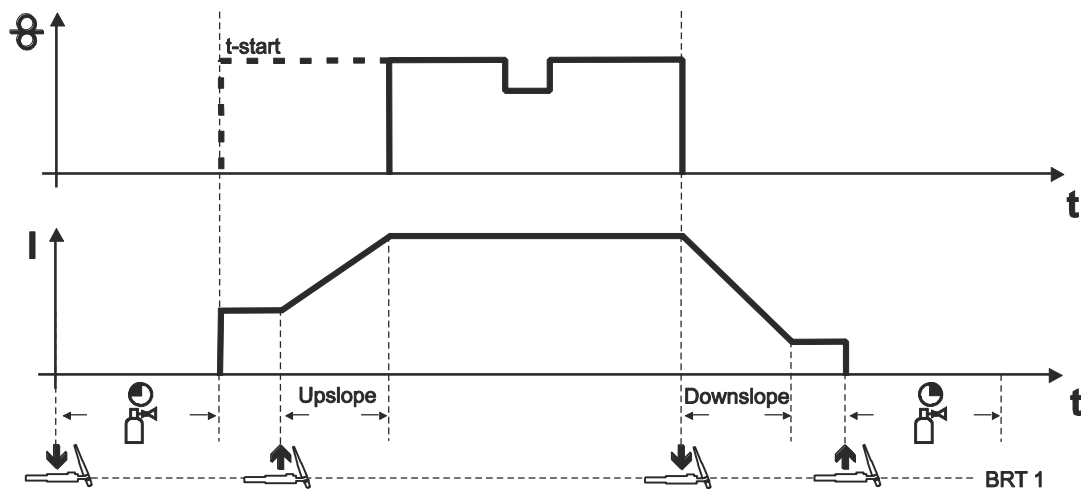


Figure 5-29

1. cycle (current)

- Press torch trigger 1 (BRT 1), the gas pre-flow time elapses.
- HF ignition pulses jump from the tungsten electrode to the workpiece. The arc ignites.
- Welding current flows.

2. cycle (current)

Release BRT 1.

- The welding current ramps up to the main current AMP in the selected up-slope time.

1. cycle (wire)

- The wire electrode is fed once the delay time (t-start) has elapsed.

3. cycle (current)

- Press BRT 1.
- The main current is reduced in the selected down-slope time.

2. cycle (wire)

- Wire electrode feeding is stopped, wire electrode is returned by the set wire return value.

4. cycle (current)

- Release BRT 1, the arc extinguishes.
- Shielding gas continues to flow in the selected gas post-flow time.
- By tapping you can switch to the reduced wire feeding.
- By pressing and releasing (tapping) BRT 1 again, wire feeding will stop. (It is not necessary to keep the torch trigger pressed. This is especially helpful with long welding seams.)

Stopping the welding process:

- Keep BRT 1 pressed for a period longer than the set tapping time.

5.6.1.6 Tack welding

The welding current has to be set to a non-latched operating mode at the welding machine.

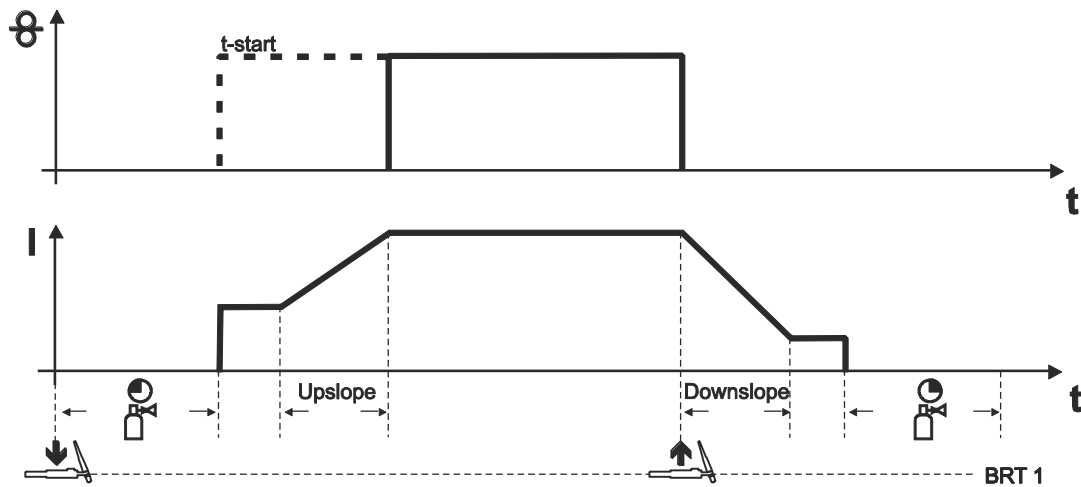


Figure 5-30

Sequence:

- Press torch trigger 1 (BRT 1) and keep pressed.
- The gas pre-flow time elapses.
- HF ignition pulses jump from the electrode to the workpiece. The arc ignites.
- The welding current flows and immediately assumes the value of the starting current I_{start} .
- HF switches off.
- The welding current increases in the set up-slope time to the main current AMP.
- The wire electrode is fed once the delay time (t-start) has elapsed.
- Release BRT 1.
- Wire electrode feeding is stopped, wire electrode is returned by the set wire return value.
- The main current is reduced in the selected down-slope time, the arc is extinguished.
- Shielding gas continues to flow in the selected gas post-flow time.

5.6.1.7 superPuls

The two functions superPulse and the superimposed forward/backward movement of the wire cannot be used simultaneously.

The EWM superPuls function enables automatic switching between two operating points in a process.

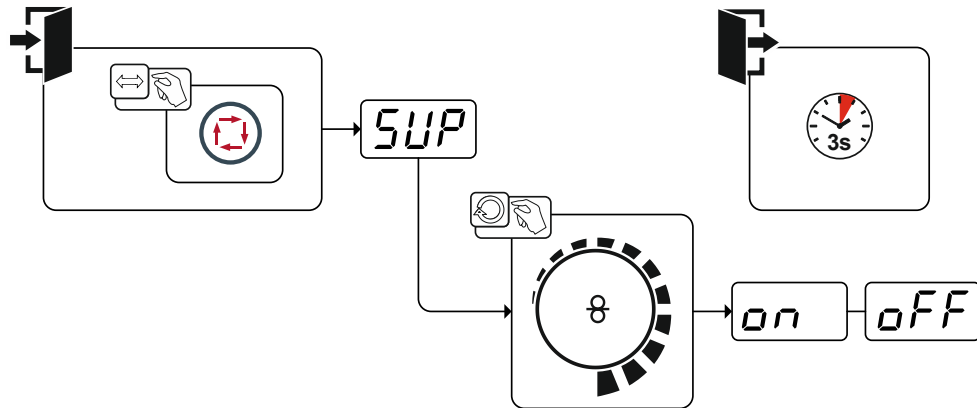
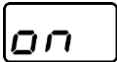
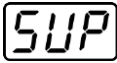
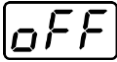


Figure 5-31

Display	Setting/selection
	Switch on Switching on machine function
	Selects superPuls Switches function on or off.
	Switch off Switching off machine function

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 6.1.3 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.

6.1.1 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

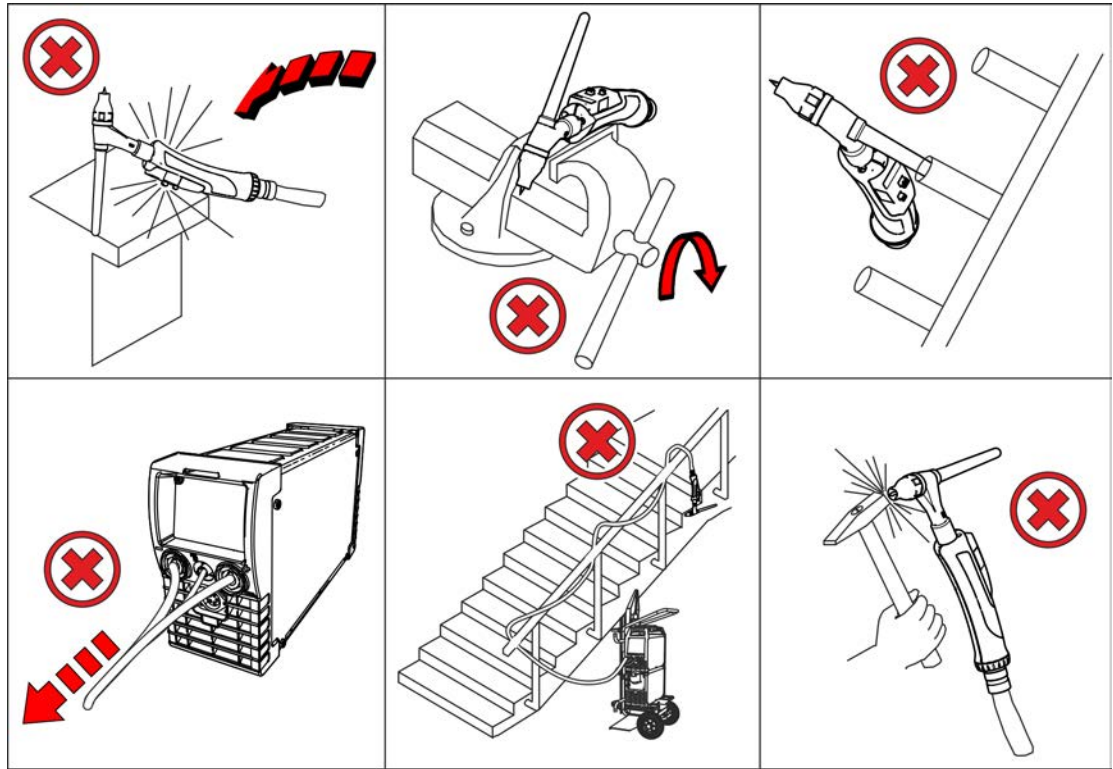


Figure 6-1



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!**

6.1.2 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.

6.1.3 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.

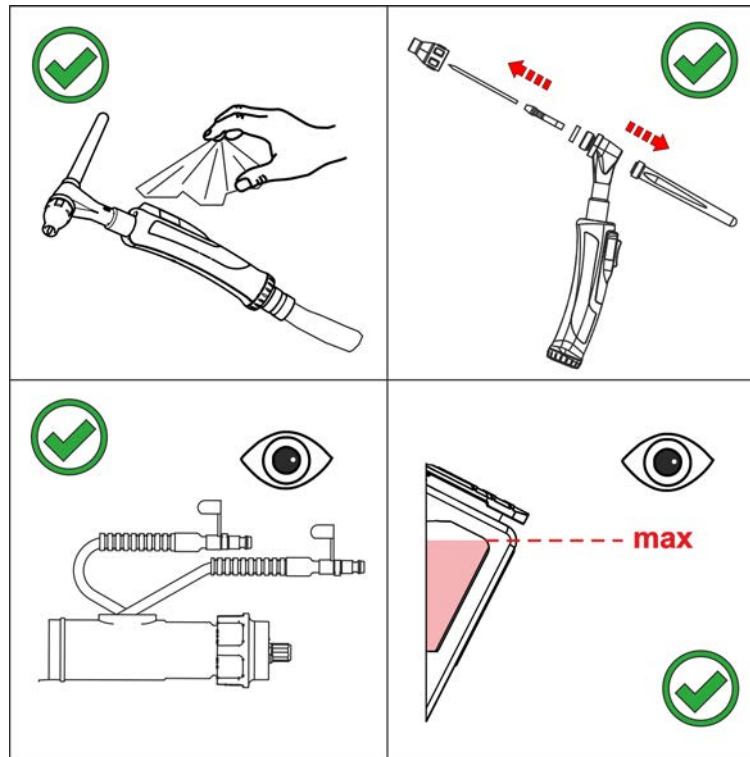


Figure 6-2

- 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).

6.2 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)
 - ✕ Completely unroll the hose package and the torch hose package
 - ✕ Observe maximal hose package length > see 5.3.2 chapter
 - ✕ 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
 - ✕ Adjust contact tip (cold wire/hot wire) to wire diameter, blow through and replace if necessary
 - ✕ Enlarge liner or steel liner radius
 - ✕ 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.

Wire feed problems

- ✓ Unsuitable or worn welding torch equipment
 - ✗ Adjust contact tip (cold wire/hot wire) to wire diameter, blow through and replace if necessary
 - ✗ Adjust wire guide to material in use, blow through and replace if necessary
 - ✗ Enlarge liner or steel liner radius
- ✓ Kinked hose packages
 - ✗ Extend and lay out the torch hose package
- ✓ Incompatible parameter settings
 - ✗ Check settings and correct if necessary
- ✓ Lose inlet guide
 - ✗ Tighten inlet guide
- ✓ Torn or worn inlet guide
 - ✗ Replace inlet guide
- ✓ Torn jointing sleeve of the combined liner
 - ✗ Replace or reattach jointing sleeve
- ✓ Setting the spool brake
 - ✗ Check settings and correct if necessary
- ✓ Setting pressure units
 - ✗ Check settings and correct if necessary

Unstable arc

- ✓ Unsuitable or worn welding torch equipment
 - ✗ Adjust contact tip to wire diameter and -material and replace if necessary
 - ✗ Adjust wire guide to material in use, blow through and replace if necessary
- ✓ Material inclusions in the tungsten electrode due to contact with filler material or workpiece
 - ✗ Regrind or replace the tungsten electrode
- ✓ Arc between gas nozzle and workpiece (metal vapour on the gas nozzle)
 - ✗ Replace gas nozzle
- ✓ Incompatible parameter settings
 - ✗ Check settings and correct if necessary

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)
 - ✗ Use gas lens for aluminium applications and high-alloy steels
 - ✗ Check the O-rings on the Euro torch connector and torch neck and replace them if necessary.
- ✓ Unsuitable or worn welding torch equipment
 - ✗ Check size of gas nozzle and replace if necessary
 - ✗ Check the O-ring on the Euro torch connector and if necessary replace.
- ✓ Condensation in the gas tube
 - ✗ Purge hose package with gas or replace
 - ✗ Check the O-rings on the Euro torch connector and torch neck and replace them if necessary.

7.2 Vent coolant circuit

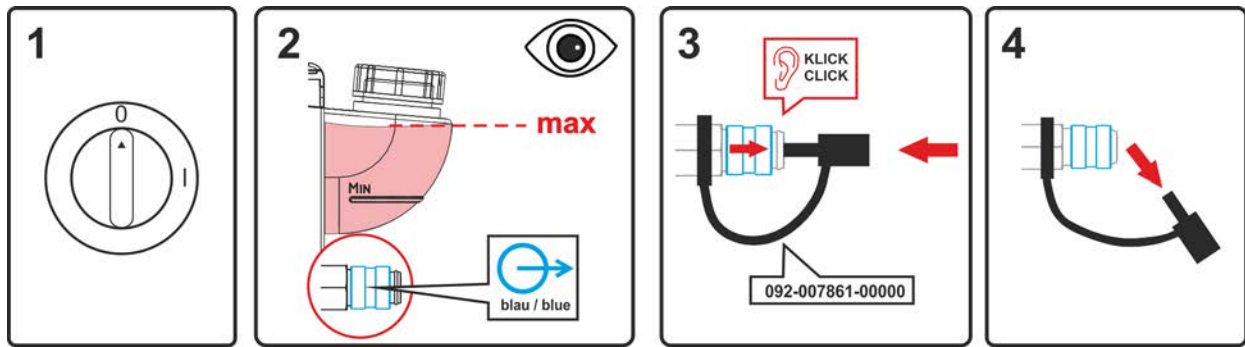


Figure 7-1

- 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)!

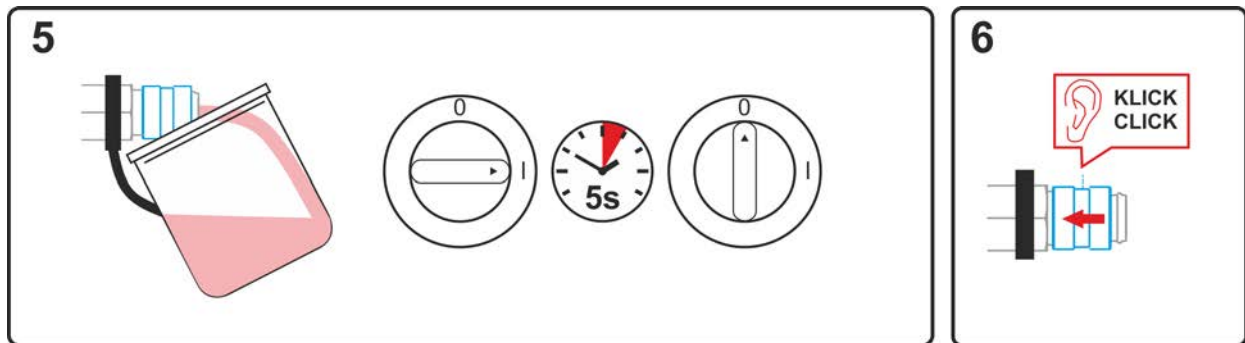


Figure 7-2

- 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 200 GD

Welding torch polarity	Normally negative
Guide type	Manually operated
Voltage type	Direct voltage DC or Alternating voltage AC
Shielding gas according to ISO 14175	Argon
Duty cycle DC at 40° C ^[1]	35 %
Maximum welding current Direct voltage	200 A
Maximum welding current Alternating voltage	140 A
Electrode types	Standard tungsten electrodes
Electrode diameter	1,6 - 3,2 mm
Switching voltage Push-button	0,02 - 42 V (DC and AC)
Switching current Push-button	0,01 - 100 mA
Switching capacity Push-button	max. 1 W
max. Arc striking and voltage rating 50 Hz	12 kV
Ambient temperature ^[2]	-10 °C to + 40 °C
Voltage measurement	113 V (Peak value)
Protection classification for the machine connections (EN 60529)	IP3X
Gas flow	10 - 20 l/min
Hose package length	3-, 4 m
Connection	Decentralised connection
Standards used	See declaration of conformity (appliance documents)
Test mark	CE / ENEC / UK

^[1] Load cycle: 10 min. (60 % DC \triangleq 6 min. welding, 4 min. pause)

^[2] Ambient temperature dependent on coolant! Observe coolant temperature range!

8.2 TIG 18, -260, -450, -CW / HW

	TIG 18 WD	TIG 260 WD	TIG 450 WD
Welding torch polarity (Direct voltage)	Normally negative		
Guide type	Manually operated		
Voltage type	DC / Alternating voltage AC		
Voltage measurement	113 V (Peak value)		
max. Arc striking and voltage rating	12 kV		
Maximum welding current 100 % Duty cycle DC at 40° C ^[1] (Direct voltage / Alternating voltage)	300 A / 210 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 ^[2]	-10 °C to +40 °C		
Torch input pressure, coolant	2,5 to 3-5 bar		
Flow volume	0,9 l/min	0,7 l/min	
max. Coolant conductance	250 µS/cm		
Cooling capacity	min. 800 W		
max. Flow temperature	40 °C		40 °C
Electrode diameter	1,0 - 4,0 mm	1,0 - 3,2 mm	1,6 - 4,8 mm
Protection classification for the machine connections (EN 60529)	IP3X		
Shielding gas	Shielding gas Shielding gas according to ISO 14175		
Gas flow	10-20 l/min		
Hose package length	3, 4 m		
Operating weight*	1,05 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 / UK		

^[1] Load cycle: 10 min. (60 % DC \triangleq 6 min. welding, 4 min. pause)

^[2] Ambient temperature dependent on coolant! Observe coolant temperature range!]

9 Accessories

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

9.1 Welding torch cooling system

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

9.1.1 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

9.1.2 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

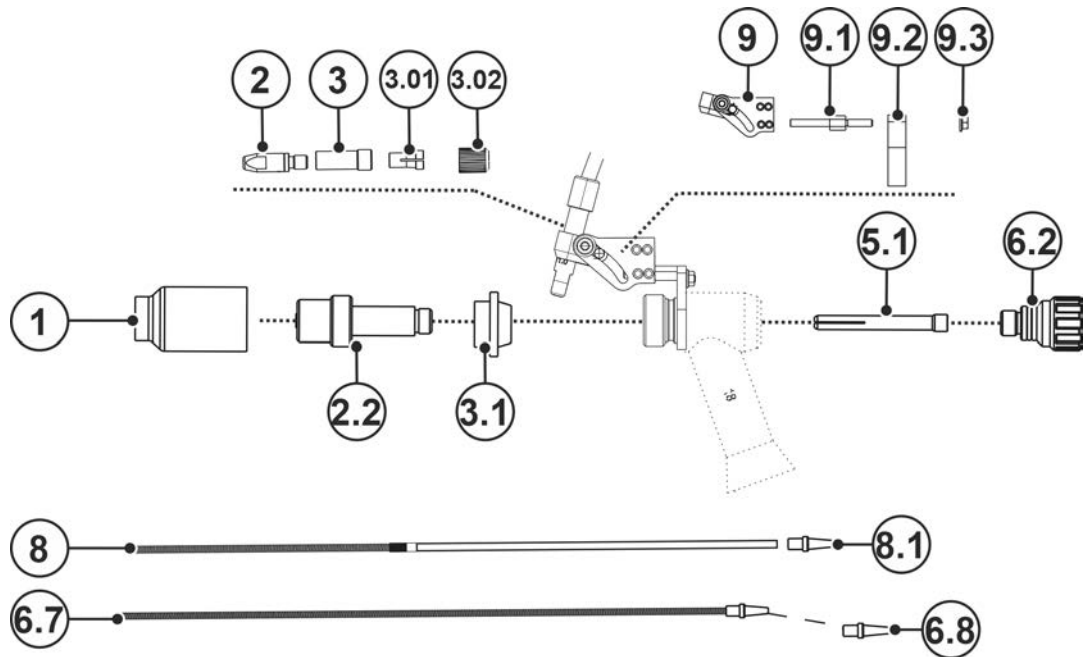


Figure 10-1

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 12.5x42mm	Gas nozzle for gas lens
1.3	094-001196-00000	GNDIF TIG 17/18/26/18SC 12.5x42mm	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
2	094-013071-00000	CT CuCrZr M6 x 28mm Ø 0.8 mm	Contact tip
2	094-013072-00000	CT CuCrZr M6 x 28mm Ø 1.0mm	Contact tip
2	094-013122-00000	CT CuCrZr M6 x 28mm Ø 0.9mm	Contact tip
2	094-014317-00000	CT CuCrZr M6 x 28mm Ø 1.2mm	Contact tip
2	094-016105-00000	CTAL E-Cu M6 X 28 mm Ø 0.8 mm	Contact tip, aluminium welding
2	094-016106-00000	CTAL E-Cu M6 X 28 mm Ø 0.9 mm	Contact tip, aluminium welding
2	094-016107-00000	CTAL E-Cu M6 X 28 mm Ø 1.0 mm	Contact tip, aluminium welding
2	094-016108-00000	CTAL E-Cu M6 X 28 mm Ø 1.2 mm	Contact tip, aluminium welding
2.2	094-001192-00000	COLB DIF TIG-SR 17/18/26 Ø 2.0-2.4mm	Collet body with gas lens

Item	Order number	Type	Designation
2.2	094-001193-00000	COLB DIF TIG-SR 17/18/26 Ø 3.2mm	Collet body with gas lens
2.2	094-001325-00000	COLB DIF TIG-SR 17/18/26 Ø 1.6mm	Collet body with gas lens
2.2	094-001326-00000	COLB DIF TIG-SR 17/18/26 Ø 4.0mm	Collet body with gas lens
3	094-019544-00000	VH M6/M9X0,75 L=24,5	Connecting sleeve
3.01	094-001082-00000	CO LINER D=4.0MM	Collet chuck
3.02	094-009034-00002	UEM M9X0,75MM	Crown nut
3.1	094-001194-00000	INS TIG 17/18/26 XL	Adapter
5.1	094-000931-00000	COL TIG-SR 17/18/26/18SC 1.6x50mm	Collet
5.1	094-000932-00000	COL TIG-SR 17/18/26/18SC 2.4x50mm	Collet
5.1	094-000935-00000	COL TIG-SR 17/18/26/18SC 3.2x50mm	Collet
5.1	094-001312-00000	COL TIG-SR 17/18/26/18SC 4.0x50mm	Collet
6.2	094-001120-00000	TCS TIG 17/18/26	Back cap, short
6.7	092-018693-00003	D=2,0 x 4,0 mm, 3,5 m, St	Steel liner, steel
6.7	092-018693-00004	D=2,0 x 4,0 mm, 4,5 m, St	Steel liner, steel
6.7	092-018694-00003	D=2,0 x 4,0 mm, 3,5 m, CrNi	Steel liner, stainless steel
6.7	092-018694-00004	D=2,0 x 4,0 mm, 4,5 m, CrNi	Steel liner, stainless steel
6.7	092-018694-00005	DFS 2,0MM/4,0MM L=5,5M CRNI	Steel liner, stainless steel
6.7	092-018695-00003	D=1,5 x 3,3 mm, 3,5 m, St	Steel liner, steel
6.7	092-018695-00004	D=1,5 x 3,3 mm, 4,5 m, St	Steel liner, steel
6.7	092-018696-00003	D=1,5 x 3,3 mm, 3,5 m, CrNi	Steel liner, stainless steel
6.7	092-018696-00004	D=1,5 x 3,3 mm, 4,5 m, CrNi	Steel liner, stainless steel
6.7	092-018697-00003	D=2,0 x 4,0 mm, 3,5 m, CuZn	Steel liner, brass
6.7	092-018697-00004	D=2,0 x 4,0 mm, 4,5 m, CuZn	Steel liner, brass
6.8	094-020069-00000	ES 4,0MM	Inlet guide for spiral
6.8	094-020159-00000	ES 3,3MM	Inlet guide for spiral
8	092-018706-00003	LPA COMBI 2.0mm x 4.0mm 3.5m	Combined liner, PA
8	092-018706-00004	LPA COMBI 2.0mm x 4.0mm 4.5m	Combined liner, PA
8.1	094-014032-00001	WFN 4.0mm	Inlet guide for liner
9	094-019613-00000	FH KPL	Flex bracket (15–41°)
9.1	094-019547-00000	M4X15 L=36MM SW7	Stud bolt
9.2	094-019481-00001	HP WIG AWS D=16,65 T=10 X=18	Holder for wire feed
9.3	074-000071-00000	M4 / 7 / Zn	Hexagonal nut
25	094-019387-00000	WCe 20; 1.6 x 75 mm	Tungsten electrode, grey
25	094-019388-00000	WCe 20; 2.4 x 75 mm	Tungsten electrode, grey
25	094-019389-00000	WCe 20; 3.2 x 75 mm	Tungsten electrode, grey
25	094-019390-00000	WCe 20; 4.0 x 75 mm	Tungsten electrode, grey
25	094-020276-00000	E3; 1,6 x 75 mm	Tungsten electrode, purple

Item	Order number	Type	Designation
25	094-020277-00000	E3; 2,4 x 75 mm	Tungsten electrode, purple
25	094-020278-00000	E3; 3,2 x 75 mm	Tungsten electrode, purple

10.2 TIG 260

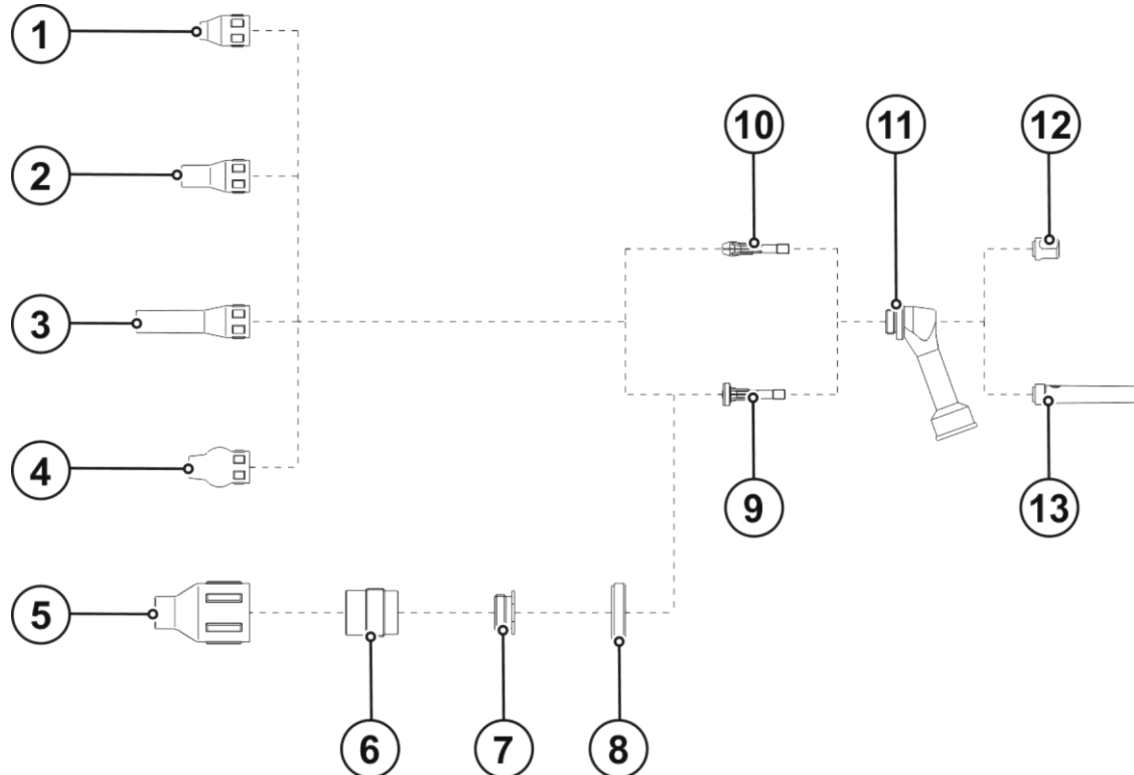


Figure 10-2

Item	Order number	Type	Designation
1	094-012672-00000	GN TIG 150/260 S 6.5x26mm	Gas nozzle
1	094-012405-00000	GN TIG 150/260 S 8.0x26mm	Gas nozzle
1	094-012405-00000	GN TIG 150/260 S 11.5x26mm	Gas nozzle
1	094-011756-00000	GN TIG 150/260 S 9,5x26mm	Gas nozzle
1	094-011980-00000	GN TIG 150/260 S 11.5x26mm	Gas nozzle
2	094-012673-00000	GN TIG 150/260 6.5x36mm	Gas nozzle
2	094-012674-00000	GN TIG 150/260 8.0x36mm	Gas nozzle
2	094-011982-00000	GN TIG 150/260 10.0x26mm	Gas nozzle
2	094-011757-00000	GN TIG 150/260 11.5x36mm	Gas nozzle
3	094-015451-00000	GN 150/260 D=6.5MM L=60MM	Gas nozzle
3	398-000191-00000	GN 150/260 D=8MM L=60MM	Gas nozzle
4	094-019610-00000	GD D=6,5 mm L=32 mm	Gas nozzle, ball design
4	394-000156-00000	GN 150/260 D=8MM L=32MM	Gas nozzle, ball design
4	394-000155-00000	GN 150/260 D=9,5MM L=32MM	Gas nozzle, ball design
4	094-019609-00000	GD D=11 mm L=32 mm	Gas nozzle, ball design
5	094-009663-00000	GN DIF TIG 150-450/450SC, 12,5 x 50 mm	Gas nozzle for gas diffuser, JUMBO
5	094-009664-00000	GN DIF TIG 150-450/450SC, 16 x 50 mm	Gas nozzle for gas diffuser, JUMBO
5	094-009665-00000	GN DIF TIG 150-450/450SC, 19,5 x 50 mm	Gas nozzle for gas diffuser, JUMBO

Item	Order number	Type	Designation
1	094-012672-00000	GN TIG 150/260 S 6.5x26mm	Gas nozzle
6	094-009658-00000	DIF TIG 150-450/450SC, D=1,6 mm	Gas diffuser, JUMBO
6	094-009659-00000	DIF TIG 150-450/450SC, D=2,4 mm	Gas diffuser, JUMBO
6	094-009660-00000	DIF TIG 150-450/450SC, D=3,2 mm	Gas diffuser, JUMBO
7	094-011758-00000	ADAPT 150/260 XL	Gas diffuser, JUMBO
8	094-011760-00000	ISO TIG 150/260 XL	Insulator, JUMBO
9	094-012669-00000	COL DIF 150/260 D=1.6MM	Gas diffuser
9	094-011984-00000	COL DIF 150/260 D=2.4MM	Gas diffuser
9	094-012671-00000	COL DIF 150/260 D=3.2MM	Gas diffuser
10	094-012406-00000	COL 150/260 D=1.6MM	Electrode holder
10	094-011755-00000	COL 150/260 D=2.4MM	Electrode holder
10	094-012667-00000	COL 150/260 D=3.2MM	Electrode holder
11	094-011979-00000	ISO TIG 150/260	Insulator
12	094-011752-00000	TCS TIG 150/260	Back cap, short
13	094-011753-00000	TCM TIG 150/260	Back cap, long

10.3 TIG 200 / TIG 450

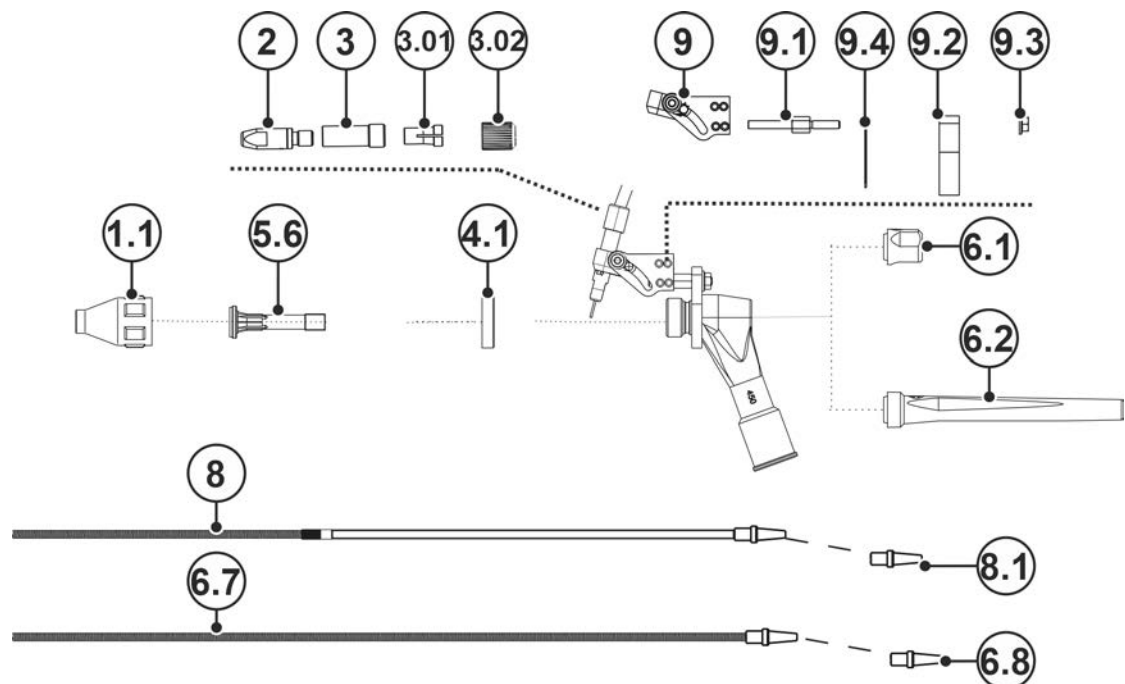


Figure 10-3

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
2	094-013071-00000	CT CuCrZr M6 x 28mm Ø 0.8 mm	Contact tip

Item	Order number	Type	Designation
2	094-013072-00000	CT CuCrZr M6 x 28mm Ø 1.0mm	Contact tip
2	094-013122-00000	CT CuCrZr M6 x 28mm Ø 0.9mm	Contact tip
2	094-014317-00000	CT CuCrZr M6 x 28mm Ø 1.2mm	Contact tip
2	094-016105-00000	CTAL E-Cu M6 X 28 mm Ø 0.8 mm	Contact tip, aluminium welding
2	094-016106-00000	CTAL E-Cu M6 X 28 mm Ø 0.9 mm	Contact tip, aluminium welding
2	094-016107-00000	CTAL E-Cu M6 X 28 mm Ø 1.0 mm	Contact tip, aluminium welding
3	094-019544-00000	VH M6/M9X0,75 L=24,5	Connecting sleeve
3.01	094-001082-00000	CO LINER D=4.0MM	Collet chuck
3.02	094-009034-00002	UEM M9X0,75MM	Crown nut
4.1	094-011759-00000	INS TIG 200/450/450SC	Insulator
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
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
6.7	092-018693-00003	D=2,0 x 4,0 mm, 3,5 m, St	Steel liner, steel
6.7	092-018693-00004	D=2,0 x 4,0 mm, 4,5 m, St	Steel liner, steel
6.7	092-018694-00003	D=2,0 x 4,0 mm, 3,5 m, CrNi	Steel liner, stainless steel
6.7	092-018694-00004	D=2,0 x 4,0 mm, 4,5 m, CrNi	Steel liner, stainless steel
6.7	092-018694-00005	DFS 2,0MM/4,0MM L=5,5M CRNI	Steel liner, stainless steel
6.7	092-018695-00003	D=1,5 x 3,3 mm, 3,5 m, St	Steel liner, steel
6.7	092-018695-00004	D=1,5 x 3,3 mm, 4,5 m, St	Steel liner, steel
6.7	092-018696-00003	D=1,5 x 3,3 mm, 3,5 m, CrNi	Steel liner, stainless steel
6.7	092-018696-00004	D=1,5 x 3,3 mm, 4,5 m, CrNi	Steel liner, stainless steel
6.7	092-018697-00003	D=2,0 x 4,0 mm, 3,5 m, CuZn	Steel liner, brass
6.7	092-018697-00004	D=2,0 x 4,0 mm, 4,5 m, CuZn	Steel liner, brass
6.8	094-020069-00000	ES 4,0MM	Inlet guide for spiral
6.8	094-020159-00000	ES 3,3MM	Inlet guide for spiral
8	092-018706-00003	LPA COMBI 2.0mm x 4.0mm 3.5m	Combined liner, PA
8	092-018706-00004	LPA COMBI 2.0mm x 4.0mm 4.5m	Combined liner, PA
8.1	094-014032-00001	WFN 4.0mm	Inlet guide for liner
9	094-019613-00000	FH KPL	Flex bracket (15–41°)
9.1	094-019543-00000	M4X10 L=26MM SW7	Stud bolt
9.2	094-017907-00002	HP WIG AWS D=18,9MM/T=5MM	Holder for wire feed
9.3	074-000071-00000	M4 / 7 / Zn	Hexagonal nut
9.4	094-019391-00000	O-RING 22X1MM	Sealing ring

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"