Operating instructions

EN

Wire feed unit

drive 4 Basic
drive 4 Basic MMA

099-005401-EW501 | Observe additional system documents! | 04.01.2017

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.

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.

Dr. Günter-Henle-Straße 8
56271 Mündersbach
Germany

1 Contents

2 For your safety

2.1 Notes on the use of 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.

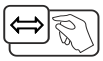
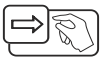
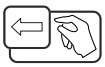
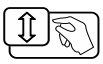
☞ ***Special technical points which users must observe.***

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
	Indicates technical aspects which the user must observe.
	Switch off machine
	Switch on machine
	Wrong
	Correct
	Menu entry
	Navigating the menu
	Exit menu
	Time representation (e.g.: wait 4 s/activate)
	Interruption in the menu display (other setting options possible)
	Tool not required/do not use
	Tool required/use

Symbol	Description
	Activate and release/tap/tip
	Release
	Press and keep pressed
	Switch
	Turn
	Numerical value – adjustable
	Signal light lights up in green
	Signal light flashes green
	Signal light lights up in red
	Signal light flashes red

2.3 Part of the complete documentation

☞ ***These operating instructions are 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.

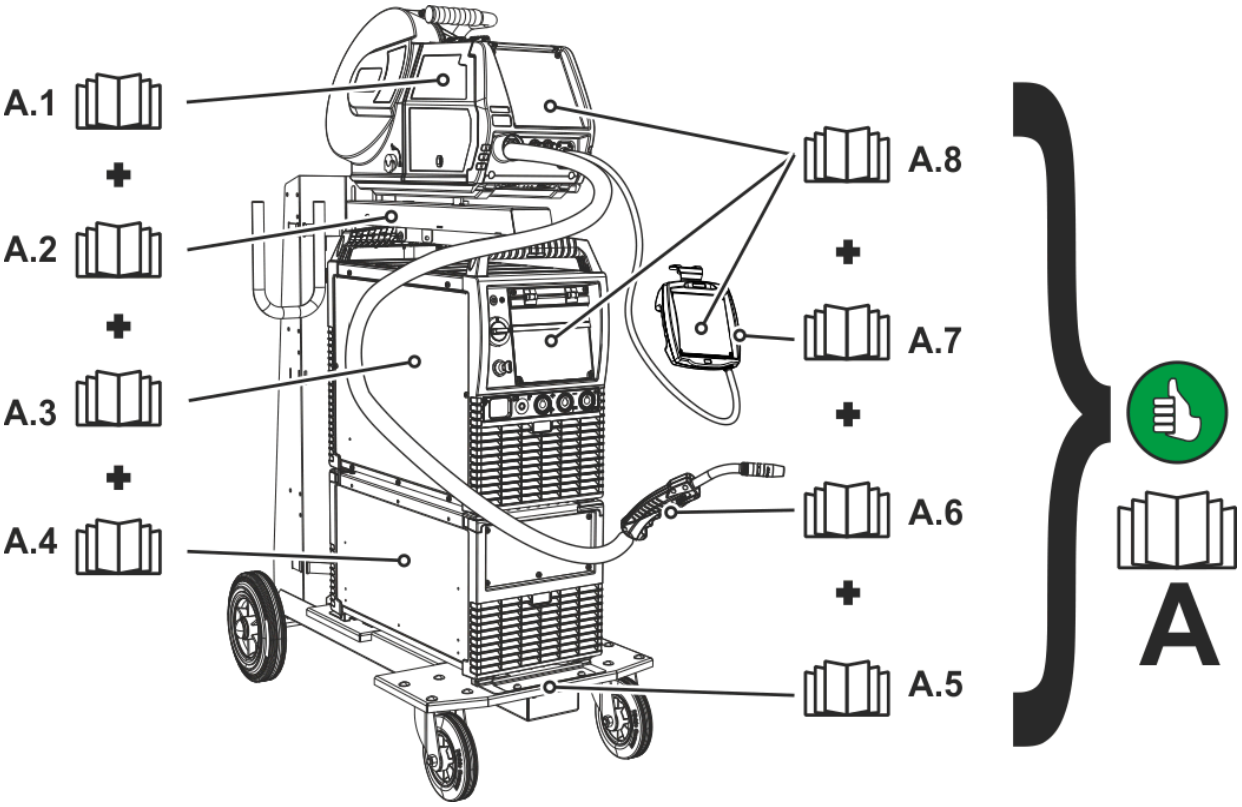


Figure 2-1

Item	*Documentation*
A.1	Wire feeder
A.2	Conversion instructions
A.3	Power source
A.4	Cooling unit, voltage converter, tool box etc.
A.5	Trolley
A.6	Welding torch
A.7	Remote control
A.8	Control
A	Complete documentation

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

Wire feeder to feed wire electrodes for gas-shielded metal-arc welding.

3.1.1 Use and operation solely with the following machines

☞ ***A suitable power source (system component) is required in order to operate the wire feed unit!***

Taurus	**355, 405, 505 Basic 351, 401, 451, 551 Basic**
drive 4 Basic	☑
drive 4 IC Basic	☑
drive 4 Basic MMA	☑
drive 4 IC Basic D200	☑

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

CE **The labelled machine complies with the following EC directives in terms of its design and construction:**

- Low Voltage Directive (LVD)
- Electromagnetic Compatibility Directive (EMC)
- Restriction of Hazardous Substance (RoHS)

In case of unauthorised changes, improper repairs, non-compliance with specified deadlines for "Arc Welding Equipment – Inspection and Testing during Operation", and/or prohibited modifications which have not been explicitly authorised by EWM, this declaration shall be voided. An original document of the specific declaration of conformity is included with every product.

3.2.3 Service documents (spare parts and circuit diagrams)

⚠ WARNING

Do not carry out any unauthorised repairs or modifications!
To avoid injury and equipment damage, the unit must only be repaired or modified by specialist, skilled persons!
The warranty becomes null and void in the event of unauthorised interference.

- Appoint only skilled persons for repair work (trained service personnel)!

Original copies of the circuit diagrams are enclosed with the unit.

Spare parts can be obtained from the relevant authorised dealer.

3.2.4 Calibration/Validation

We hereby confirm that this machine has been tested using calibrated measuring equipment, as stipulated in IEC/EN 60974, ISO/EN 17662, EN 50504, and complies with the admissible tolerances. Recommended calibration interval: 12 months

4 Machine description – quick overview

4.1 Front view

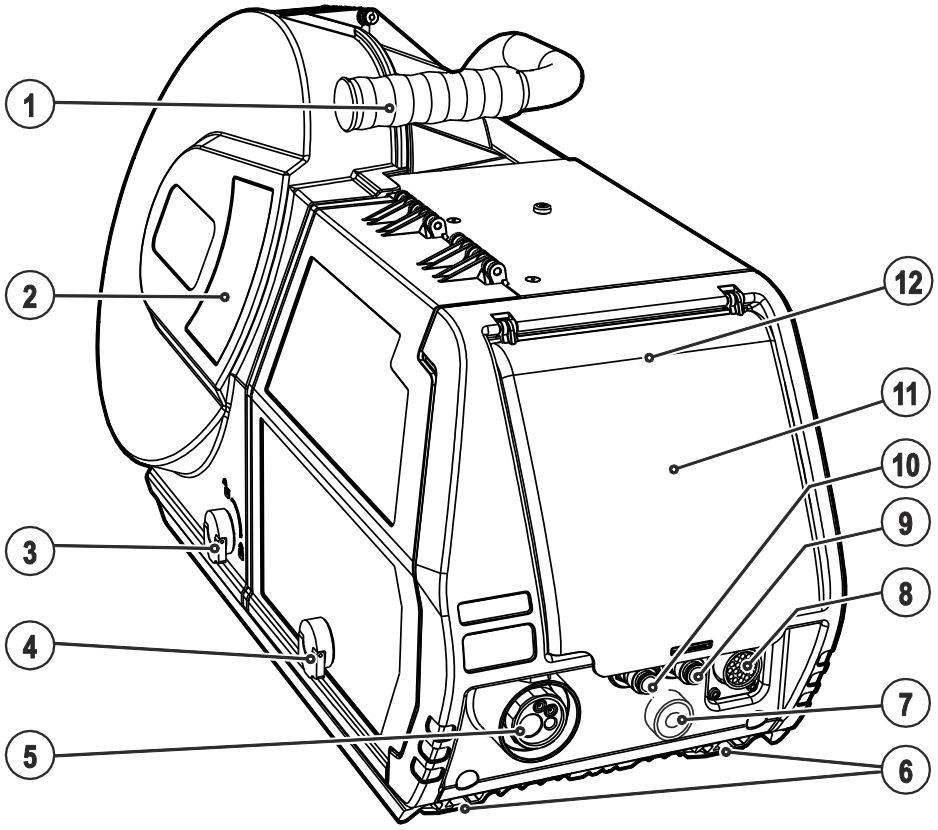


Figure 4-1

Item	Symbol	Description
1		**Carrying handle**
2		**Wire spool inspection window** Check wire supply
3		**Rotary closure** Locking of the protective cap, wire spool
4		**Rotary closure** Locking of the protective cap, wire feed mechanism
5		**Welding torch connection (Euro or Dinse torch connector)** Welding current, shielding gas and torch trigger integrated
6		**Sliding rails**
7		**Welding current connection socket (depending on variant: drive 4X MMA)** Welding current potential of the torch connector for MMA welding or gouging
8		**19-pole connection socket (analogue)** For connecting analogue accessory components (remote control, welding torch control lead, etc.)
9		**Quick connect coupling (red)** coolant return
10		**Quick connect coupling (blue)** coolant supply
11		**Machine control > *see 4.4 chapter***
12		**Protective cap, welding machine control > *see 4.4 chapter***

4.2 Rear view

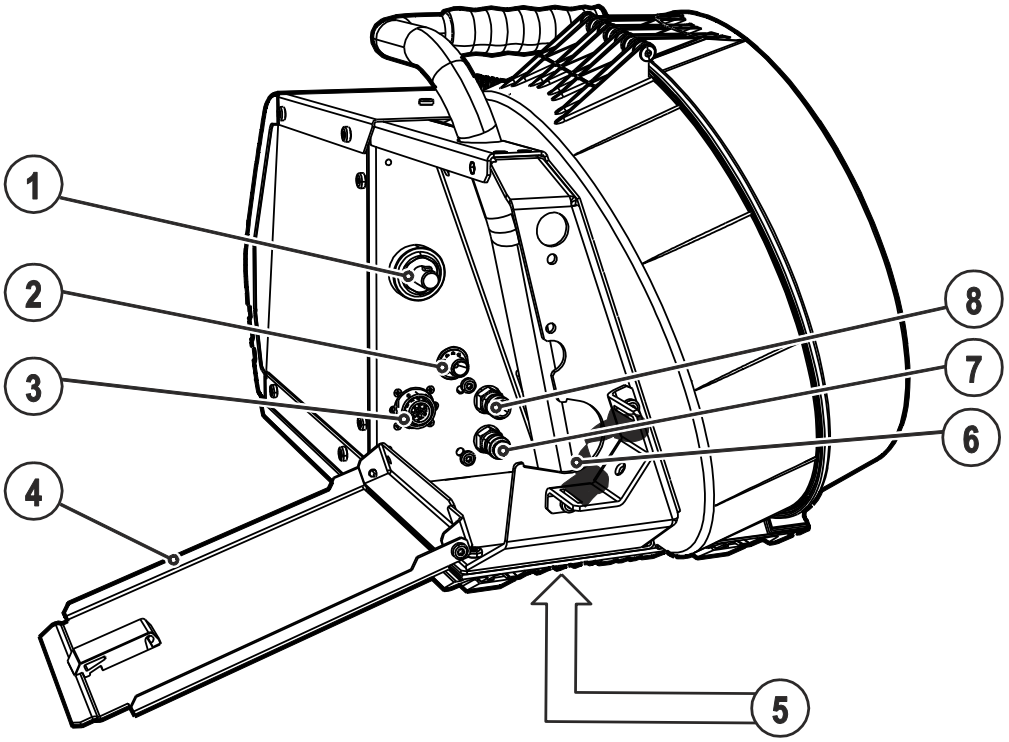


Figure 4-2

Item	Symbol	Description
1		**Power source welding current connector plug** Welding current connection between power source and wire feeder
2		**G¼" connecting nipple, shielding gas connection**
3		**19-pole connection socket (analogue)** Wire feed unit control lead connection
4		**Protective cap**
5		**Turning mandrel support** The wire feeder is placed onto the power source turning mandrel using this support to enable horizontal pivoting of the machine.
6		**Intermediate hose package strain relief**
7		**Quick connect coupling (blue)** coolant supply
8		**Quick connect coupling (red)** coolant return

4.3 Inside view

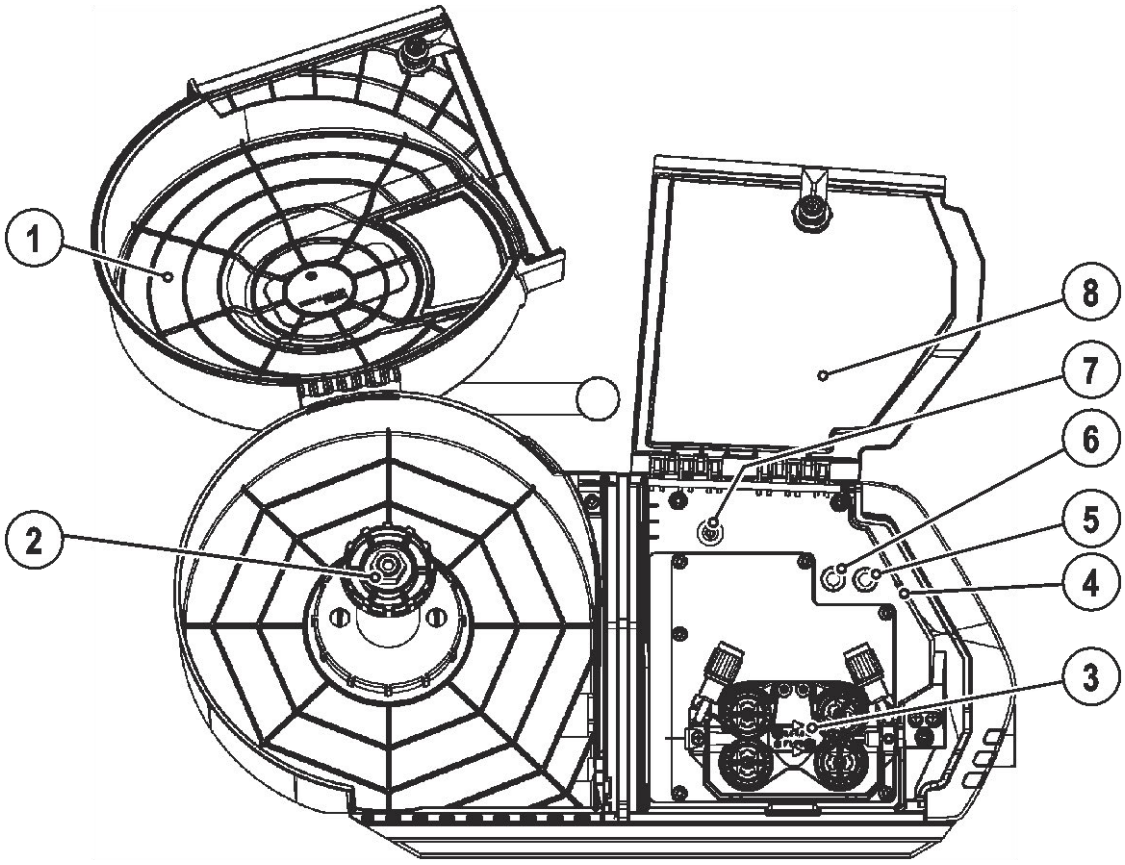


Figure 4-3

Item	Symbol	Description
1		**Wire spool protective cap**
2		**Wire spool holder**
3		**Wire feed unit**
4		**Lighting, inside** In power-saving mode and with MMA or TIG welding, the lighting is switched off.
5		**Push-button gas test / rinse hose package** > ***see 5.1.6.4 chapter***
6		**Push-button, wire inching** Potential- and gas-free inching of the wire electrode through the hose package to the welding torch > *see 5.2.2.4 chapter*.
7		**Changeover switch for machine operation (operating point)** The operating point (wire speed/welding voltage) can be set at the wire feed unit control, with a remote control or using an up/down welding torch. ---- Set operating point with up/down welding torch. ----- Set operating point at the wire feed unit control or remote control (standard).
8		**Protective cap** Cover for the wire feed mechanism and other operating elements. Depending on the machine series, you can find additional stickers with information on the operation and maintenance of the machine on the inside of the cap.

4.4 Machine control – Operating elements

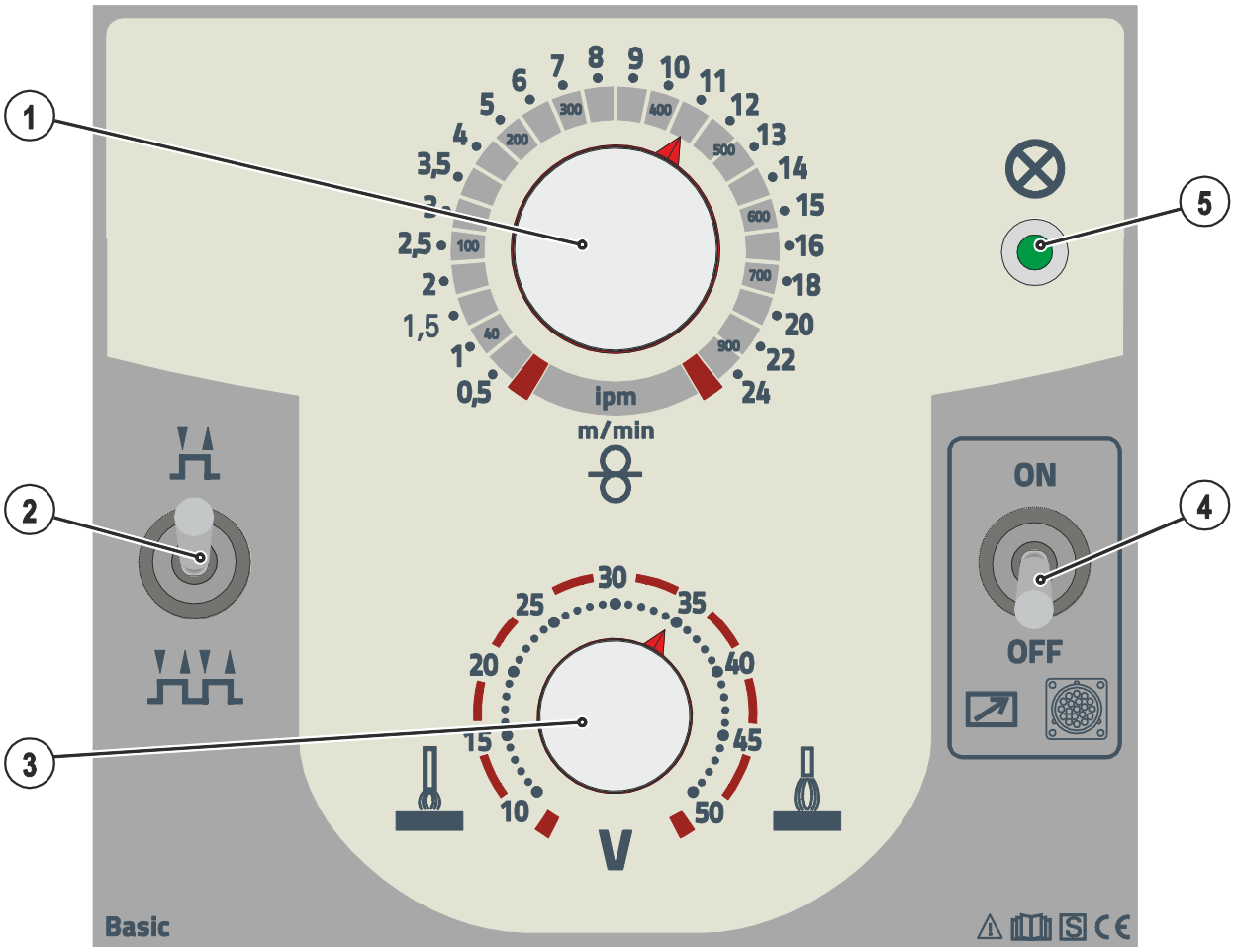


Figure 4-4

Item	Symbol	Description
1		**Rotary dial, wire speed** Wire speed setting
2		**Operating mode changeover switch** Switching between non-latched and latched operating modes H---------- Non-latched operation HHH ------- Latched operation
3		**Rotary dial, welding voltage** Adjustment of the welding voltage from min. to max.
4		**Changeover switch, remote control on/off** ON Set the welding performance via the remote control OFF Set the welding performance via the machine control
5		**Ready for operation signal light** Signal light on when the machine is switched on and ready for operation

5 Design and function

5.1 Transport and installation

⚠ WARNING

Risk of injury from electric shock!
Contact with live parts, e.g. welding current sockets, is potentially fatal!

- Follow safety instructions on the opening pages of the operating instructions.
- Commissioning may only be carried out by persons who have the relevant expertise of working with arc welding machines!
- Connection and welding leads (e.g. electrode holder, welding torch, workpiece lead, interfaces) may only be connected when the machine is switched off!

⚠ WARNING

Risk of accident due to improper transport of machines that must not be lifted!
Do not lift or suspend the machine! The machine can drop and cause injuries! The handles, straps or brackets are suitable for transport by hand only!

- The machine must not be suspended or lifted using a crane.
- Depending on machine type, equipment for lifting by crane or use while suspended is available as a retrofitting option *> see 9 chapter*.

5.1.1 Ambient conditions

☞ ***T he machine must not be operated in the open air and must only be set up and operated on a suitable, stable and level base!***

- ***The operator must ensure that the ground is non-slip and level, and provide sufficient lighting for the place of work.***
- ***Safe operation of the machine must be guaranteed at all times.***

☞ ***Unusually high quantities of dust, acid, corrosive gases or substances may damage the equipment.***

- ***Avoid high volumes of smoke, vapour, oil vapour and grinding dust!***
- ***Avoid ambient air containing salt (sea air)!***

5.1.1.1 In operation

Temperature range of the ambient air:

- -25 °C to +40 °C

Relative air humidity:

- Up to 50% at 40 °C
- Up to 90% at 20 °C

5.1.1.2 Transport and storage

Storage in an enclosed space, temperature range of the ambient air:

- -30 °C to +70 °C

Relative air humidity

- Up to 90% at 20 °C

5.1.2 Workpiece lead, general

⚠ CAUTION

Risk of burning due to incorrect welding current connection!
If the welding current plugs (machine connections) are not locked or if the workpiece connection is contaminated (paint, corrosion), these connections and leads can heat up and cause burns when touched!

- Check welding current connections on a daily basis and lock by turning to the right when necessary.
- Clean workpiece connection thoroughly and secure properly. Do not use structural parts of the workpiece as welding current return lead!

5.1.3 Welding torch cooling system

☞ ***Insufficient frost protection in the welding torch coolant!***
Depending on the ambient conditions, different liquids are used for cooling the welding torch > see 5.1.3.1 chapter.
Coolants with frost protection (KF 37E or KF 23E) must be checked regularly to ensure that the frost protection is adequate to prevent damage to the machine or the accessory components.

- ***The coolant must be checked for adequate frost protection with the TYP 1 frost protection tester .***
- ***Replace coolant as necessary if frost protection is inadequate!***

☞ ***Coolant mixtures!***
Mixtures with other liquids or the use of unsuitable coolants result in material damage and renders the manufacturer's warranty void!

- ***Only use the coolant described in this manual (overview of coolants).***
- ***Do not mix different coolants.***
- ***When changing the coolant, the entire volume of liquid must be changed.***

☞ ***Dispose of the coolant in accordance with local regulations and the material safety data sheets (German waste code number: 70104).***
May not be disposed of in household waste.
Prevent entry into sewers.
Absorb with liquid-binding material (sand, gravel, acid-binding agents, universal binding agents, sawdust).

5.1.3.1 Approved coolants overview

Coolant	Temperature range
KF 23E (Standard)	-10 °C to +40 °C
KF 37E	-20 °C to +10 °C

5.1.3.2 Maximal hose package length

	Pump 3.5 bar	Pump 4.5 bar
Machines with or without separate wire feeder	30 m	60 m
Compact machines with additional intermediate drive (example. miniDrive)	20 m	30 m
Machines with separate wire feeder and additional intermediate drive (example: miniDrive)	20 m	60 m

Data as a rule refer to the entire hose package length including welding torch. The pump output is shown on the type plate (parameter: Pmax).

Pump 3.5 bar: Pmax = 0.35 MPa (3.5 bar)

Pump 4.5 bar: Pmax = 0.45 MPa (4.5 bar)

5.1.4 Notes on the installation of welding current leads

☞ ***Incorrectly installed welding current leads can cause faults in the arc (flickering).***

Lay the workpiece lead and hose package of power sources without HF igniter (MIG/MAG) for as long and as close as possible in parallel.

Lay the workpiece lead and hose package of power sources with HF igniter (TIG) for as long as possible in parallel with a distance of 20 cm to avoid HF sparkover.

Always keep a distance of at least 20 cm to leads of other power sources to avoid interferences

Always keep leads as short as possible! For optimum welding results max. 30 m (welding lead + intermediate hose package + torch lead).

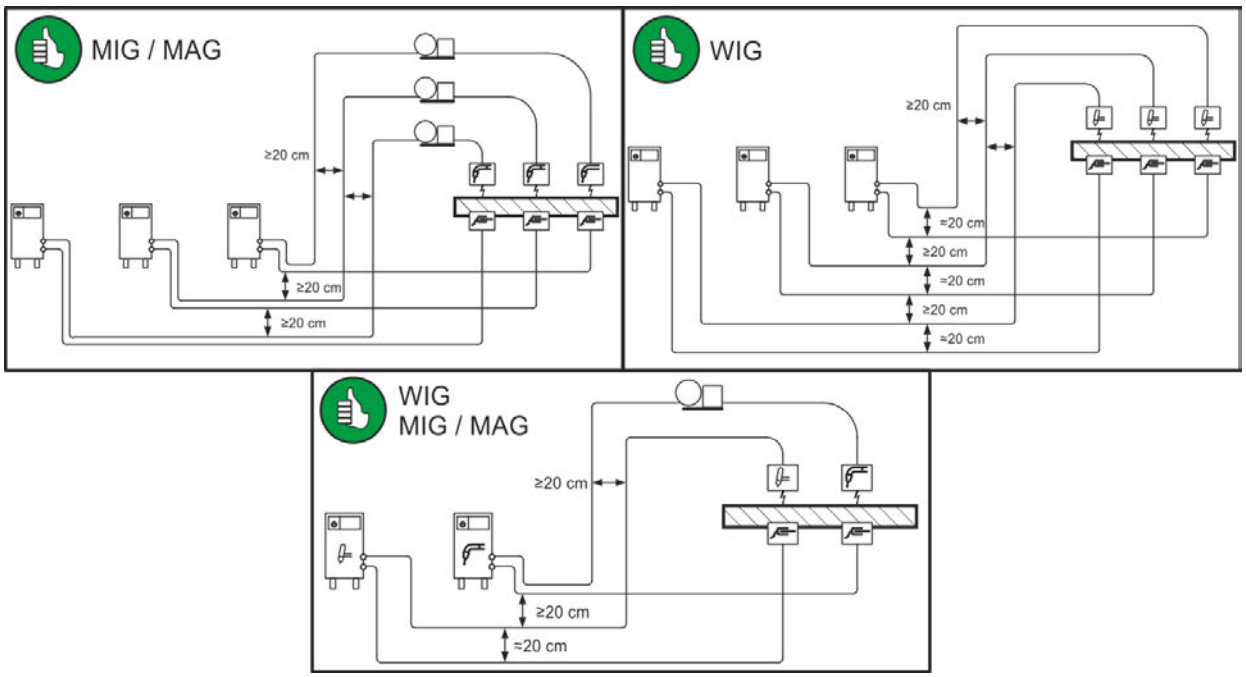


Figure 5-1

☞ ***Use an individual welding lead to the workpiece for each welding machine!***

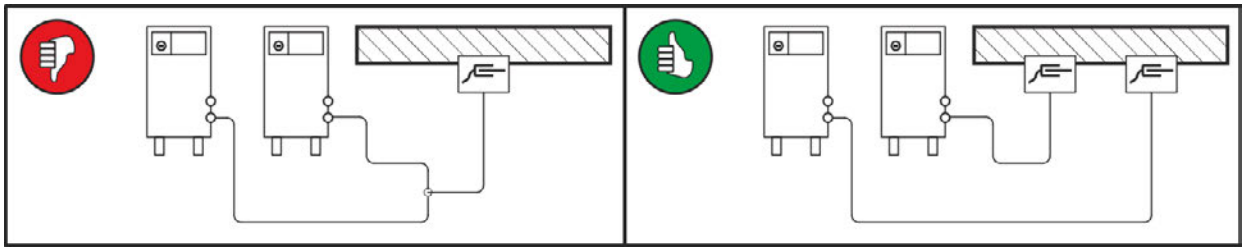


Figure 5-2

☞ ***Fully unroll welding current leads, torch hose packages and intermediate hose packages. Avoid loops!***

☞ ***Always keep leads as short as possible!***

☞ ***Lay any excess cable lengths in meanders.***

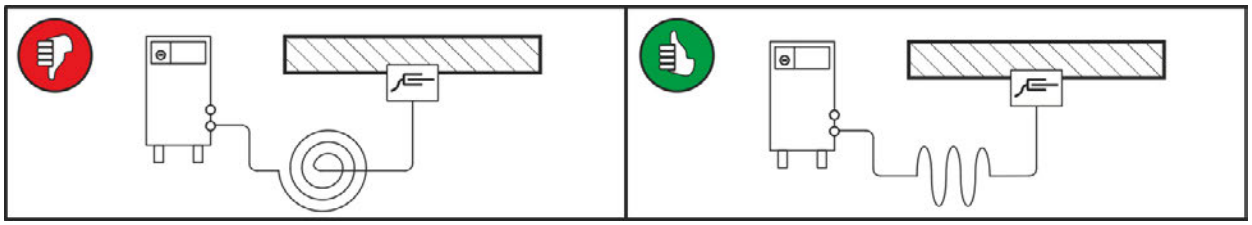


Figure 5-3

5.1.4.1 Stray welding currents

⚠ WARNING

Risk of injury due to stray welding currents!
Stray welding currents can destroy protective earth conductors, damage machines and electronic devices and cause overheating of components, leading to fire.

- Check that all welding current connections are firmly secured and electrical connections are in perfect condition.
- Set up, attach or suspend all conductive power source components such as casing, transport vehicles and crane frames so they are insulated.
- Do not place any other electronic devices such as drills or angle grinders on the power source, transport vehicle or crane frames unless they are insulated.
- Always put welding torches and electrode holders on an insulated surface when they are not in use.

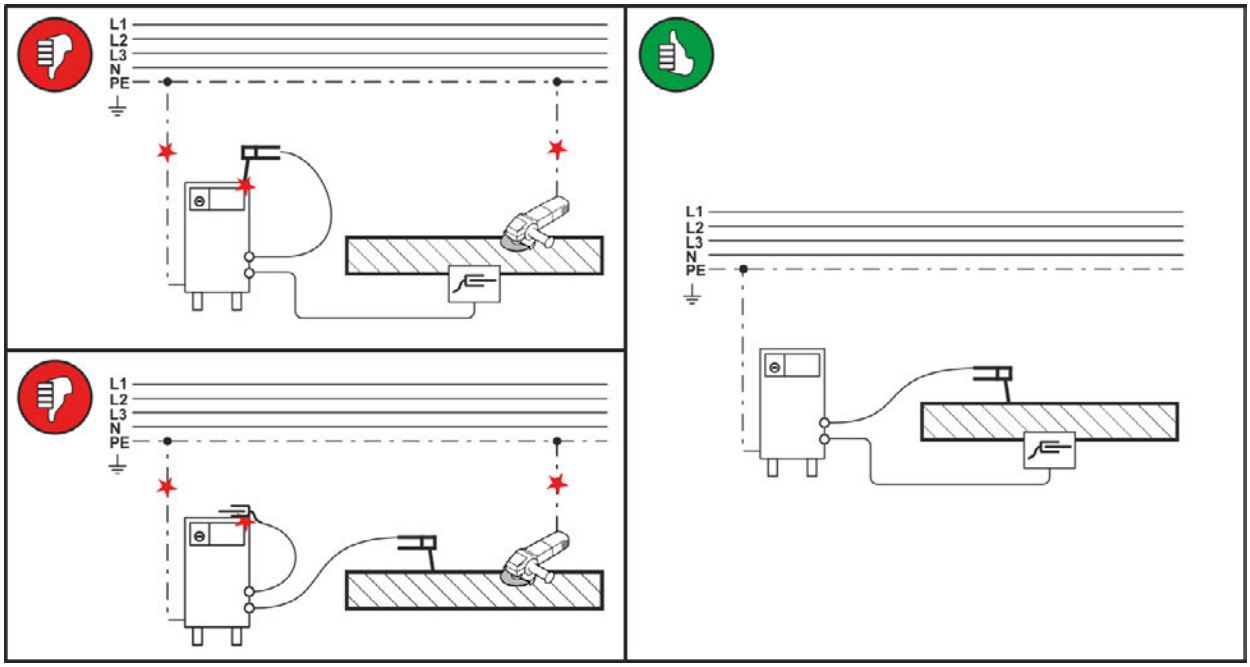


Figure 5-4

5.1.5 Intermediate hose package connection

⚠ CAUTION

Risk of injury due to electrical current!
The earth cable on the intermediate tube package must not be connected to the welding machine or wire feed unit!

- Remove the earth cable or push it back into the tube package.

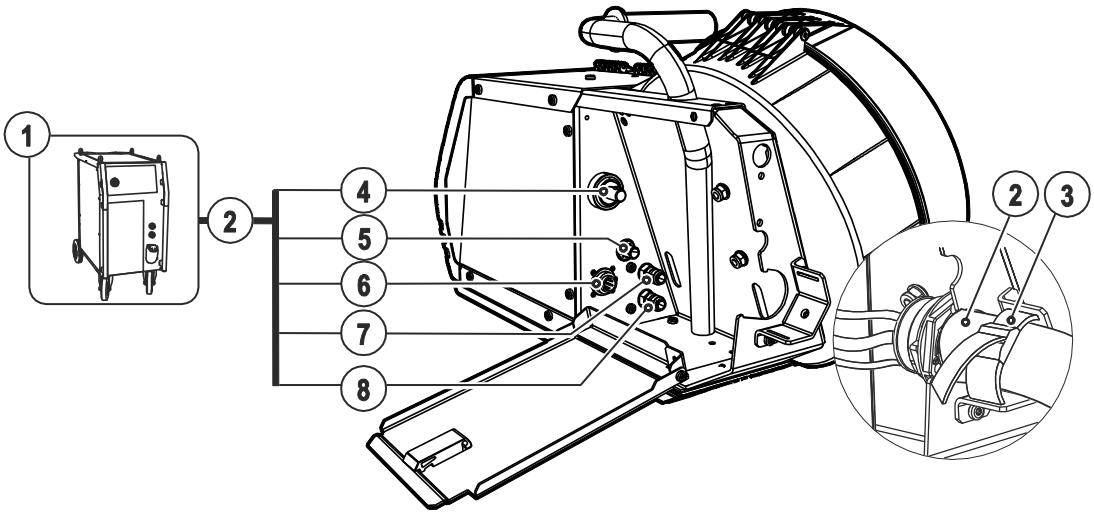


Figure 5-5

Item	Symbol	Description
1		**Power source**
2		**Intermediate hose package**
3		**Safety belt** Intermediate hose package strain relief
4		**Power source welding current connector plug** Welding current connection between power source and wire feeder
5		**G¼" connecting nipple, shielding gas connection**
6		**19-pole connection socket (analogue)** Wire feed unit control lead connection
7		**Quick connect coupling (red)** coolant return
8		**Quick connect coupling (blue)** coolant supply

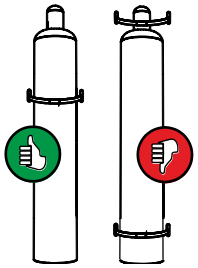
- Insert the hose package end through the intermediate hose package strain relief and secure with the safety belt as shown in the figure.
- Push the welding current cable socket onto the “welding current connecting plug” and lock by turning to the right.
- Connect crown nut of the shielding gas line to the G¼“ connecting nipple.
- Insert cable plug on the control lead into the 19-pole connection socket and secure with crown nut (the plug can only be inserted into the connection socket in one position).
- 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).

5.1.6 Shielding gas supply (shielding gas cylinder for welding machine)

⚠ 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!

- Place shielding gas cylinder into the designated holder and secure with fastening elements (chain/belt)!
- Attach the fastening elements within the upper half of the shielding gas cylinder!
- The fastening elements must tightly enclose the shielding gas cylinder!



☞ ***An unhindered shielding gas supply from the shielding gas cylinder to the welding torch is a fundamental requirement for optimum welding results. In addition, a blocked shielding gas supply may result in the welding torch being destroyed.***

- ***Always re-fit the yellow protective cap when not using the shielding gas connection.***
- ***All shielding gas connections must be gas tight.***

5.1.6.1 Pressure regulator connection

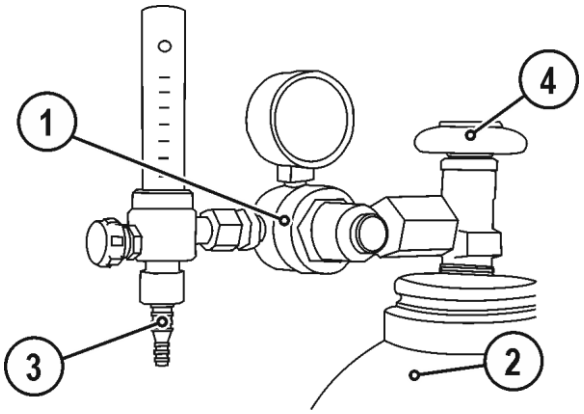


Figure 5-6

Item	Symbol	Description
1		Pressure regulator
2		Shielding gas cylinder
3		Output side of the pressure regulator
4		Cylinder valve

- Before connecting the pressure regulator to the gas cylinder, open the cylinder valve briefly to blow out any dirt.
- Tighten the pressure regulator screw connection on the gas bottle valve to be gas-tight.
- Screw gas hose connection crown nut onto the output side of the pressure regulator.

5.1.6.2 Shielding gas volume settings

⚠ CAUTION

Electric shocks!
When setting the shielding gas quantity, high voltage ignition pulses or open circuit voltage are applied at the welding torch; these can lead to electric shocks and burning on contact.

- Keep the welding torch electrically insulated from persons, animals or equipment during the setting procedure.

If the shielding gas setting is too low or too high, this can introduce air to the weld pool and may cause pores to form. Adjust the shielding gas quantity to suit the welding task!

- Slowly open the gas cylinder valve.
- Open the pressure regulator.
- Switch on the power source at the main switch.
- Trigger gas test > *see 5.1.6.3 chapter* function (welding voltage and wire feed motor remain switched off – no accidental arc ignition).
- Set the relevant gas quantity for the application on the pressure regulator.

Setting instructions

Welding process	Recommended shielding gas quantity
MAG welding	Wire diameter x 11.5 = l/min
MIG brazing	Wire diameter x 11.5 = l/min
MIG welding (aluminium)	Wire diameter x 13.5 = l/min (100 % argon)
TIG	Gas nozzle diameter in mm corresponds to l/min gas throughput

Helium-rich gas mixtures require a higher gas volume!

The table below can be used to correct the gas volume calculated where necessary:

Shielding gas	Factor
75% Ar/25% He	1.14
50% Ar/50% He	1.35
25% Ar/75% He	1.75
100% He	3.16

5.1.6.3 Gas test

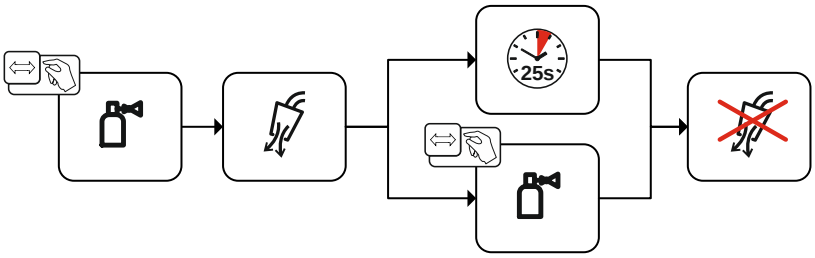


Figure 5-7

5.1.6.4 Purge hose package

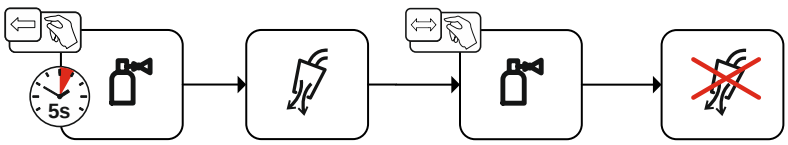


Figure 5-8

5.2 MIG/MAG welding

5.2.1 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 9 chapter.***
- ***When using a gas-cooled welding torch, use a hose bridge to establish the coolant circuit > see 5.1.3.2 chapter.***

☞ ***On delivery, the Euro torch connector is fitted with a capillary tube for welding torches with a steel liner. Conversion is necessary if a welding torch with a liner is used!***

- ***Operate welding torches with a liner > with a guide tube.***
- ***Operate welding torches with a steel liner > with a capillary tube.***

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.

Preparation for connecting welding torches with a spiral guide:

- Check that the capillary tube is correctly positioned in relation to the central connector!

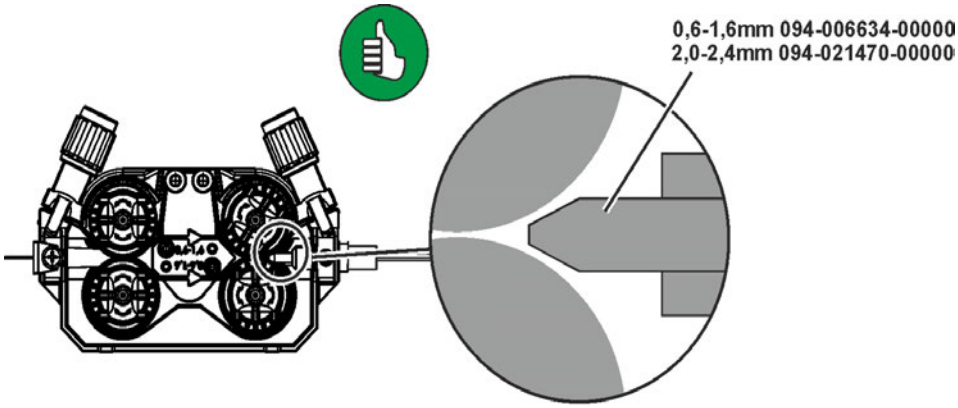


Figure 5-9

Preparation for connecting welding torches with a liner:

- Push forward the capillary tube on the wire feed side in the direction of the Euro torch connector and remove it there.
- Insert the liner guide tube from the Euro torch connector side.
- Carefully insert the welding torch connector with as yet too long a liner into the Euro torch connector and secure with a crown nut.
- Cut off the liner with a liner cutter > *see 9 chapter* just before the wire feed roller.
- Loosen the welding torch connector and remove.
- Carefully chamfer the cut off end of the liner with a liner sharpener > *see 9 chapter* and sharpen.

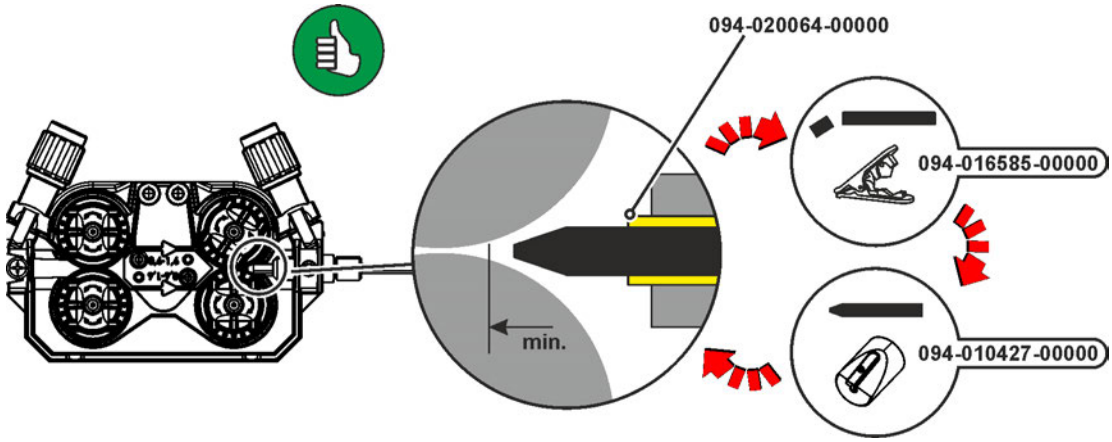


Figure 5-10

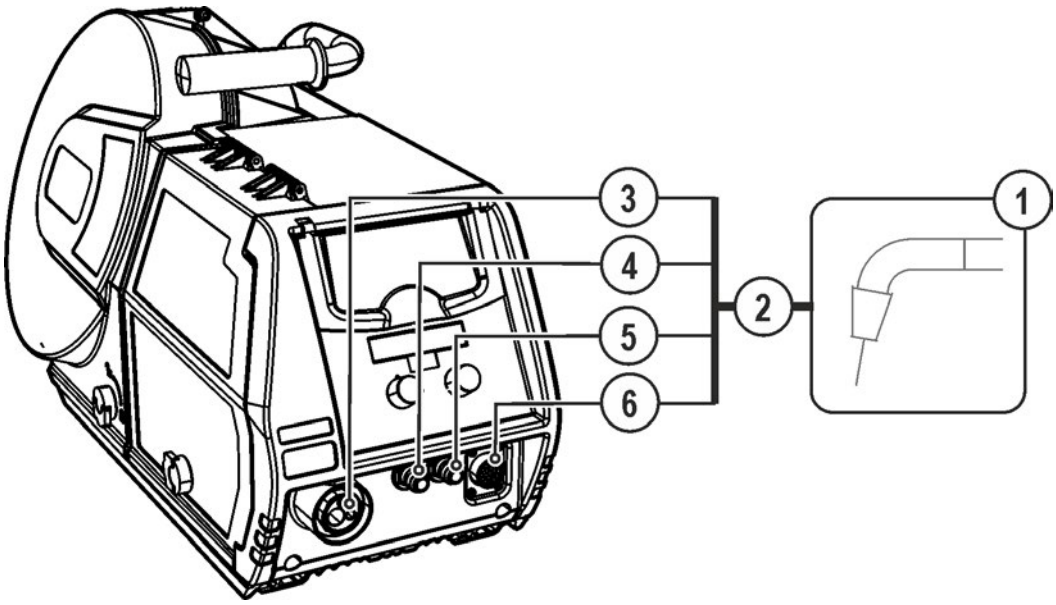


Figure 5-11

Item	Symbol	Description
1		**Welding torch**
2		**Welding torch hose package**
3		**Welding torch connection (Euro or Dinse torch connector)** Welding current, shielding gas and torch trigger integrated
4		**Quick connect coupling (blue)** coolant supply
5		**Quick connect coupling (red)** coolant return
6		**19-pole connection socket (analogue)** For connecting analogue accessory components (remote control, welding torch control lead, etc.)

- Insert the central plug for the welding torch into the central connector and screw together with crown nut.
- 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).
- Insert the welding torch control cable into the 19-pole connection socket and lock (MIG/MAG torches with additional control cables only).

5.2.2 Wire feed

⚠ 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!

5.2.2.1 Open the protective flap of the wire feeder

☞ ***To perform the following steps, the protective flap of the wire feeder needs to be opened. Make sure to close the protective flap again before starting to work.***

- Unlock and open protective flap.

5.2.2.2 Inserting the wire spool

⚠ CAUTION

Risk of injury due to incorrectly secured wire spool.
If the wire spool is not secured properly, it may come loose from the wire spool support and fall to the ground, causing damage to the machine and injuries.

- Make sure to correctly fasten the wire spool to the wire spool support.
- Before you start working, always check the wire spool is securely fastened.

☞ ***Standard D300 wire spool holder can be used. Adapters > see 9 chapter are required when using standardised basket coils (DIN 8559).***

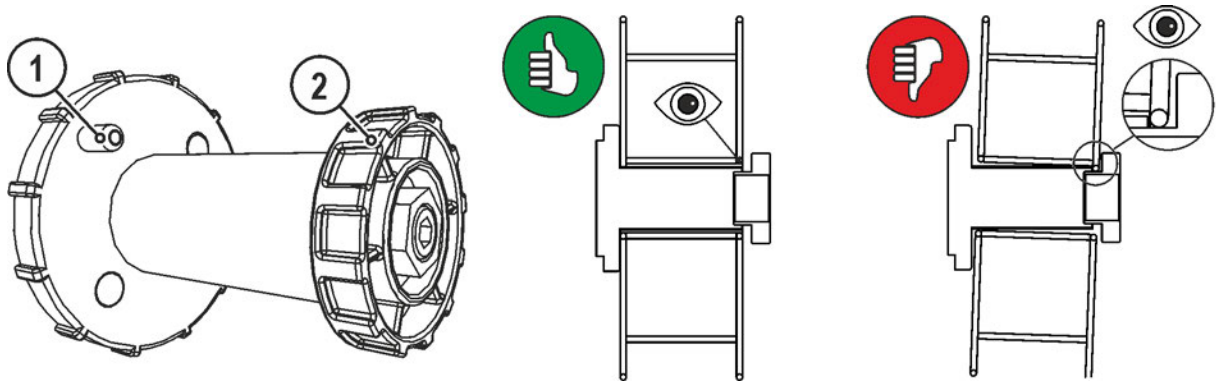


Figure 5-12

Item	Symbol	Description
1		**Carrier pin** For fixing the wire spool
2		**Knurled nut** For fixing the wire spool

- Loosen knurled nut from spool holder.
- Fix welding wire reel onto the spool holder so that the carrier pin locks into the spool bore.
- Fasten wire spool using knurled nut.

5.2.2.3 Changing the wire feed rollers

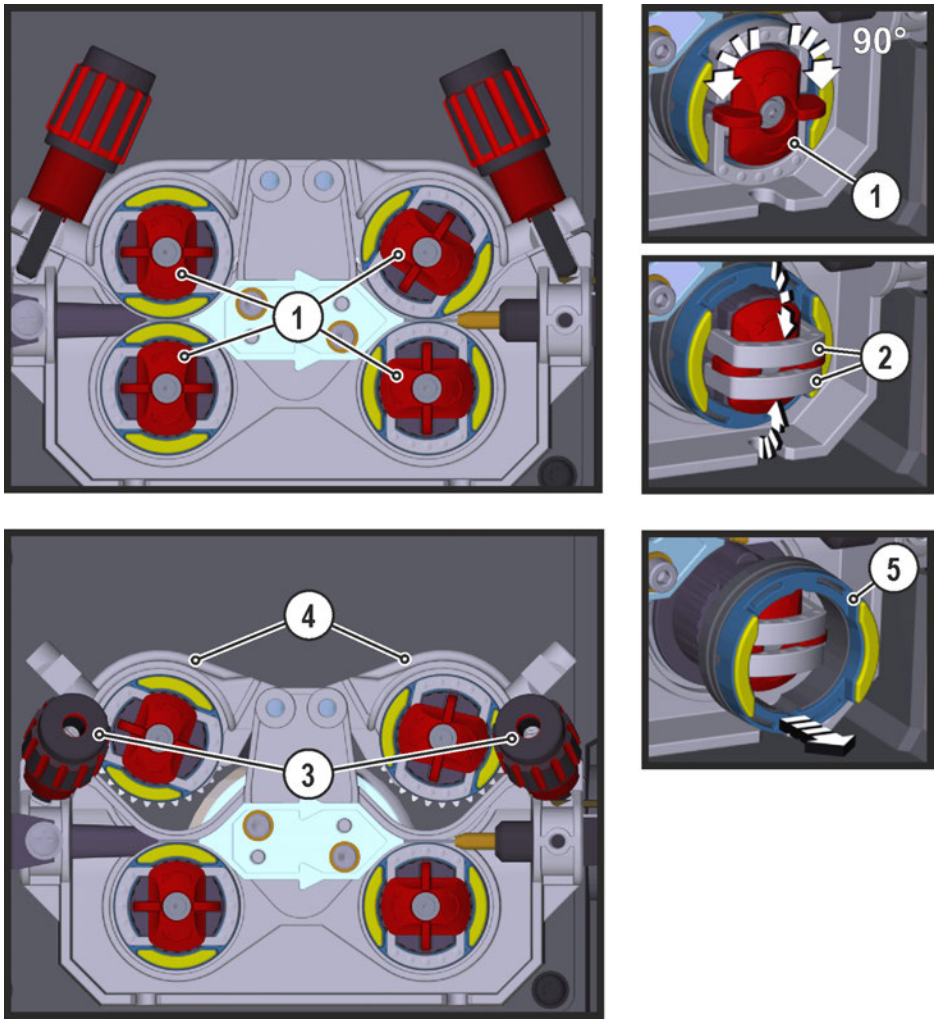


Figure 5-13

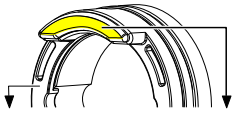
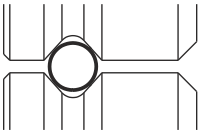
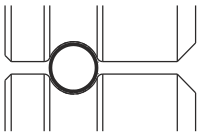
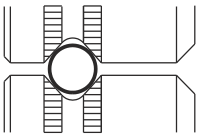
Item	Symbol	Description
1		**Tommy** The tommy is used to secure the closure brackets of the wire feed rollers.
2		**Closure bracket** The closure brackets are used to secure the wire feed rollers.
3		**Feed roll tensioner** Fixing the clamping unit and setting the pressure.
4		**Clamping unit**
5		**Wire feed roller** see the Wire feed roller overview table

- Rotate the tommy by 90° clockwise or anti-clockwise (tommy locks into place).
- Fold the closure brackets outwards by 90°.
- Unfasten pressure units and fold out (clamping units and pressure rollers will automatically flip upwards).
- Remove the wire feed rollers from the roller support.
- Select new wire feed rollers accoridng to the Wire feed roller overview table and reassemble the wire feed mechanism in reverse order.

☞ ***Unsatisfactory welding results due to faulty wire feeding!***

The wire feed rolls must be suitable for the diameter of the wire and the material. The wire feed rolls are colour-coded to facilitate distinction (see the Wire feed roll overview table). When working with a wire diameter of > 1.6 mm the drive has to be converted for the wire feed kit ON WF 2,0-3,2MM EFEED > see 10 chapter.

Wire feed roller overview table

Material	Diameter		Colour code 			Groove form
	∅ mm	∅ inch				
Steel Stainless steel Brazing	0.6	.023	monochrome	light pink	-	 V-groove
	0.8	.030		white		
	0.9/1.0	.035/.040		blue		
	1.2	045		red		
	1.4	052		green		
	1.6	060		black		
	2.0	.080		grey		
	2.4	.095		brown		
	2.8	.110		Light green		
	3.2	.125		purple		
Aluminium	0.8	.030	bichrome	white	yellow	 U-groove
	0.9/1.0	.035/.040		blue		
	1.2	.045		red		
	1.6	.060		black		
	2.0	.080		grey		
	2.4	.095		brown		
	2.8	.110		Light green		
	3.2	.125		purple		
Flux cored wire	0.8	.030	bichrome	white	orange	 V-groove, knurled
	0.9 1.0	.035 .040		blue		
	1.2	.045		red		
	1.4	.052		green		
	1.6	.060		black		
	2.0	.080		grey		
	2.4	.095		brown		

5.2.2.4 Inching the wire electrode

⚠ CAUTION

Risk of injury due to welding wire escaping from the welding torch!
The welding wire can escape from the welding torch at high speed and cause bodily injury including injuries to the face and eyes!

- Never direct the welding torch towards your own body or towards other persons!

☞ ***Incorrect contact pressure will cause extensive wear of the wire feed rollers!***

- ***With the adjusting nuts of the pressure units set the contact pressure so that the wire electrode is conveyed but will still slip through if the wire spool jams.***
- ***Set the contact pressure of the front rollers (in wire feed direction) to a higher value!***

☞ ***The inching speed is infinitely adjustable by simultaneously pressing the wire inching push-button and turning the wire speed rotary knob. The left display shows the wire feed speed selected, the right display shows the current motor current of the wire feed mechanism.***

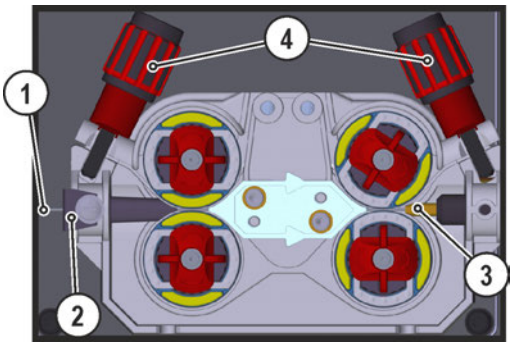


Figure 5-14

Item	Symbol	Description
1		Welding wire
2		Wire feed nipple
3		Guide tube
4		Adjusting nut

- Extend and lay out the torch hose package.
- Carefully unwind the welding wire from the wire spool and insert through the wire feed nipples up to the wire feed rollers.
- Press the inching push-button (the drive catches the welding wire and automatically guides it to the welding torch outlet).

☞ ***A prerequisite for the automatic inching process is the correct preparation of the wire guide, especially in the capillary and wire guide tube area > see 5.2.1 chapter.***

- The contact pressure has to be adjusted separately for each side (wire inlet/outlet) at the feed roll tensioner setting nuts depending on the welding consumable used. A table with the setting values can be found on a sticker near the wire drive.

Version 1: left hand mounting **Version 2: right hand mounting**

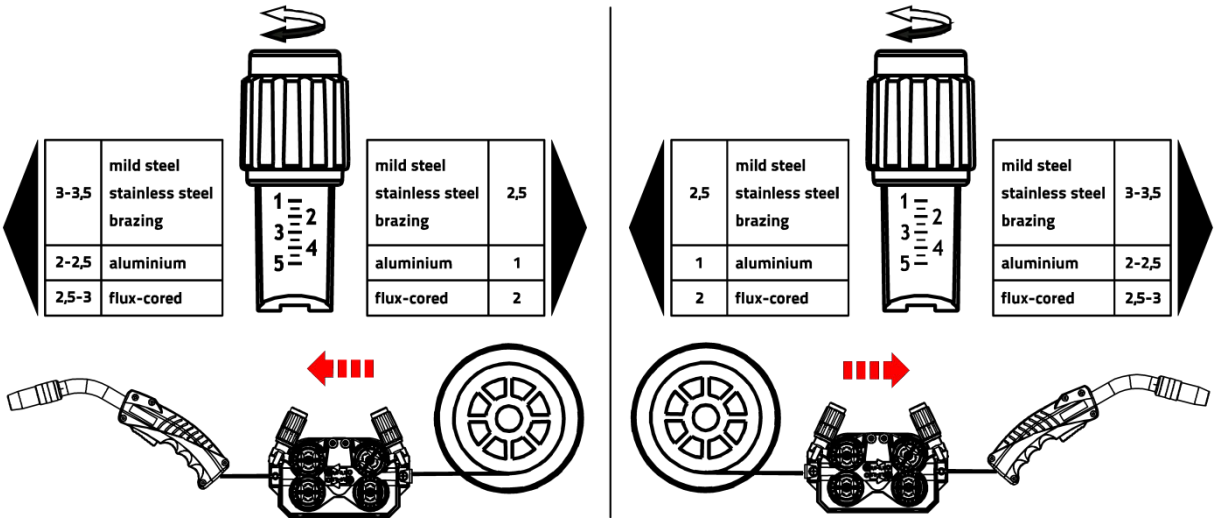


Figure 5-15

Automatic inching stop

Touch the welding torch against the workpiece during inching. Inching of the welding wire will stop as soon it touches the workpiece.

5.2.2.5 Spool brake setting

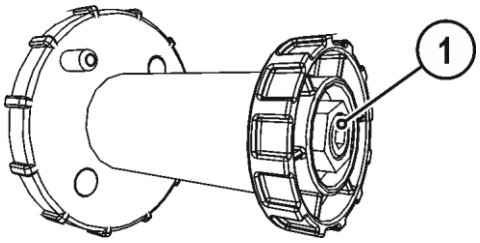


Figure 5-16

Item	Symbol	Description
1		**Allen screw** Securing the wire spool retainer and adjustment of the spool brake

- Tighten the Allen screw (8 mm) in the clockwise direction to increase the braking effect.

☞ ***Tighten the spool brake until the wire spool no longer turns when the wire feed motor stops but without it jamming during operation!***

5.2.3 Welding task selection

☞ ***Selection of a welding task involves the interaction of the controls on the welding machine and the wire feed unit. After the basic settings are made on the welding machine, the operating point and other parameters can be set on the wire feed unit.***

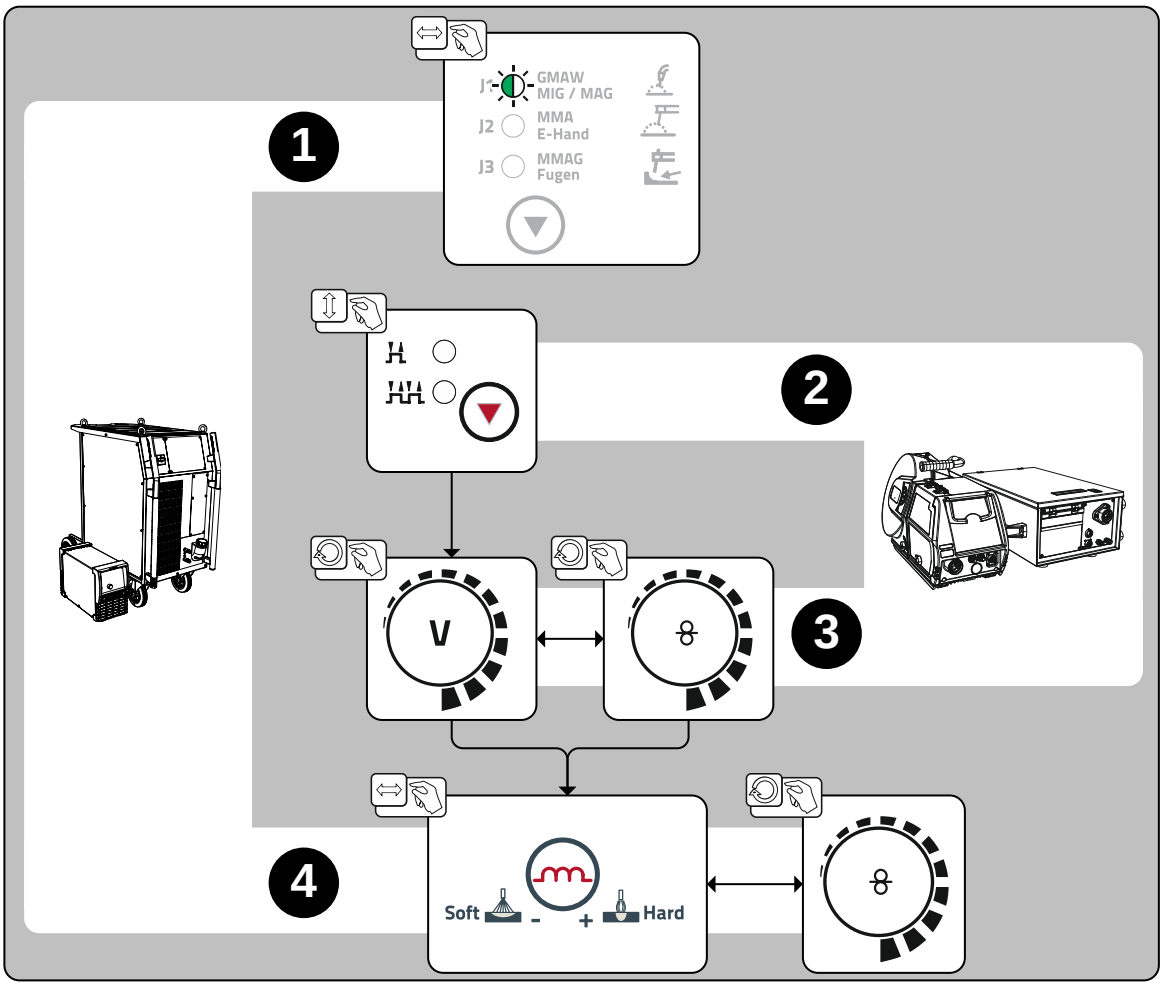


Figure 5-17

5.2.3.1 Accessory components for operating point setting

The operating point setting can also be made with the accessory components

- R11 / RG11 remote control
- Up/Down torch with two rockers (2 U/D)

You will find an overview of accessory components in the "Accessories" chapter. See the operating instructions for the machine in question for a more detailed description of the individual machines and their functions.

> see 9 chapter

5.2.4 Standard MIG/MAG torch

The MIG welding torch trigger is essentially used to start and stop the welding process.

Operating elements	Functions
Torch trigger	• Start/stop welding

5.2.5 MIG/MAG special-torches

Function specifications and more indepth information can be found in the operating manual for the relevant welding torch!

5.3 MMA welding

⚠ CAUTION

Risk of being crushed or burnt.
When replacing spent or new stick electrodes

- Switch off machine at the main switch
- Wear appropriate safety gloves
- Use insulated tongs to remove spent stick electrodes or to move welded workpieces and
- Always put the electrode holder down on an insulated surface.

5.3.1 Connecting the electrode holder and workpiece lead

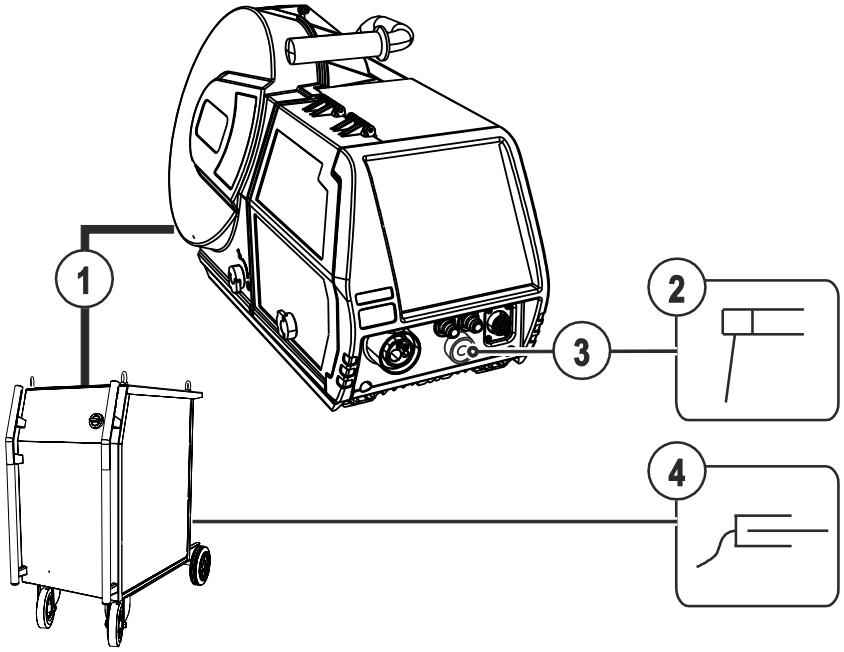


Figure 5-18

Item	Symbol	Description
1		**Intermediate hose package**
2		**Electrode holder**
3		**Welding current connection socket (ex works option)** Welding current potential of the torch connector for MMA welding or gouging
4		**Workpiece**

- Insert the electrode holder plug into the welding current connection socket (wire feeder) and lock in place by turning to the right.
- Insert the workpiece lead plug into the "-" welding current connection socket (welding machine) and lock in place by turning to the right.

5.3.2 Welding task selection

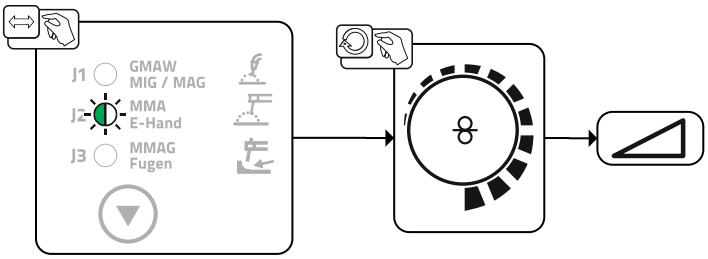


Figure 5-19

5.3.3 Arcforce

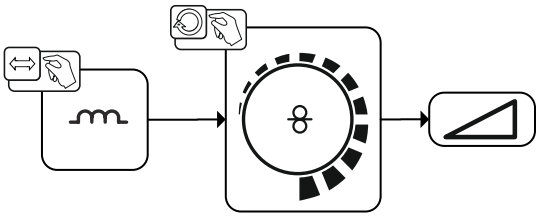


Figure 5-20

Setting:

- Negative values: rutile electrode types
- Values at zero: basic electrode types
- Positive values: cellulose electrode types

5.3.4 Hotstart

The hotstart device improves the ignition of the stick electrodes using an increased ignition current.

a) = Hotstart time
b) = Hotstart current
I = Welding current
t = Time

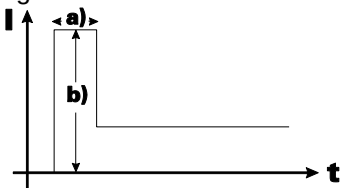
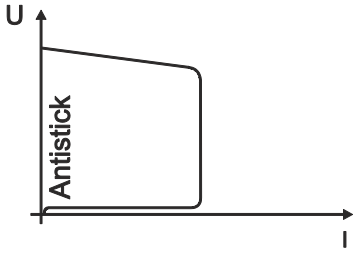


Figure 5-21

5.3.5 Antistick



Anti-stick prevents the electrode from annealing.
If the electrode sticks in spite of the Arcforce device, the machine automatically switches over to the minimum current within about 1 second to prevent the electrode from overheating. Check the welding current setting and correct according to the welding task!

Figure 5-22

5.3.6 Air arc gouging

During gouging, an arc burns between a carbon electrode and the workpiece, heating the workpiece until it is molten. At the same time, the molten metal is blown out with compressed air. Special electrode holders with a compressed-air connection and carbon electrodes are required for gouging.

5.3.7 Gouging torch and workpiece line connection

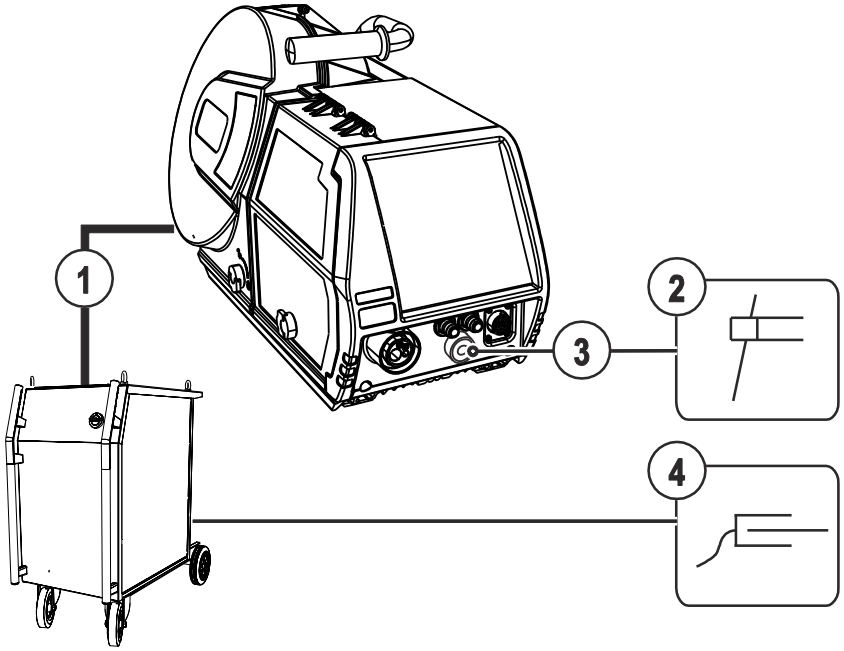


Figure 5-23

Item	Symbol	Description
1		**Intermediate hose package**
2		**Gouging torch**
3		**Welding current connection socket (depending on variant: drive 4X MMA)** Welding current potential of the torch connector for MMA welding or gouging
4		**Workpiece**

- Insert the gouging torch plug into the welding current connection socket (wire feeder) and lock in place by turning to the right.
- Insert the workpiece lead plug into the "-" welding current connection socket (welding machine) and lock in place by turning to the right.

5.3.8 Welding task selection

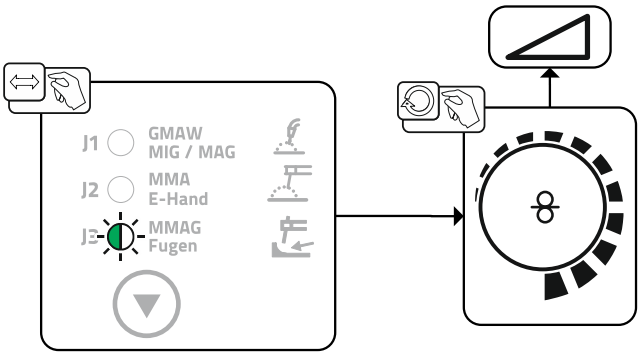


Figure 5-24

5.4 Remote control

☞ ***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.***

☞ ***The remote controls are operated on the 19-pole remote control connection socket (analogue).***

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

The operation of the remote control and its settings are directly dependent on the configuration of the respective welding machine or wire feed unit. The settings are defined by changeover switches or by setting special parameters (dependent on the control).

Infinite adjustment of the operating point (wire speed/welding voltage).

- Switch remote control ON/OFF changeover switch to the ON position.
- Switch machine operation changeover switch (operating point) to  (see corresponding documentation).

6 Maintenance, care and disposal

6.1 General

⚠ DANGER

Incorrect maintenance and testing!
The machine may be cleaned, repaired and tested by skilled and qualified personnel only. A qualified person is one who, due to their training, knowledge and experience, can detect any hazards and possible consequential damage when checking the machine, and can take the necessary safety measures.

- Observe the maintenance instructions > *see 6.3 chapter*!
- The machine may only be put into operation again once the testing has been successful.

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 last 4 minutes until the capacitors have discharged!

⚠ WARNING

Cleaning, testing and repair!
Cleaning, testing and repairing of the welding machine may only be carried out by competent, qualified personnel. A qualified person is one who, because of his or her training, knowledge and experience, is able to recognise the dangers that can occur while testing welding power sources as well as possible subsequent damage, and who is able to implement the required safety procedures.

- In the event of failure of any one of the following tests, the machine must not be operated again until it has been repaired and a new test has been carried out.

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.

Under the specified ambient conditions and normal working conditions this machine is essentially maintenance-free and requires just a minimum of care.

Contamination of the machine may impair service life and duty cycle. The cleaning intervals depend on the ambient conditions and the resulting contamination of the machine. The minimum interval is every six months.

6.2 Cleaning

- Clean the outer surfaces with a moist cloth (no aggressive cleaning agents).
- Purge the machine venting channel and cooling fins (if present) with oil- and water-free compressed air. Compressed air may overspeed and destroy the machine fans. Never direct the compressed air directly at the machine fans. Mechanically block the fans, if required.
- Check the coolant for contaminants and replace, if necessary.

6.3 Maintenance work, intervals

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.

6.3.1 Daily maintenance tasks

6.3.1.1 Visual inspection

- Mains supply lead and its strain relief
- Gas cylinder securing elements
- Check hose package and power connections for exterior damage and replace or have repaired by specialist staff as necessary!
- Gas tubes and their switching equipment (solenoid valve)
- Check that all connections and wearing parts are hand-tight and tighten if necessary.
- Check correct mounting of the wire spool.
- Wheels and their securing elements
- Transport elements (strap, lifting lugs, handle)
- Other, general condition

6.3.1.2 Functional test

- Operating, message, safety and adjustment devices (Functional test)
- Welding current cables (check that they are fitted correctly and secured)
- Gas tubes and their switching equipment (solenoid valve)
- Gas cylinder securing elements
- Check correct mounting of the wire spool.
- Check that all screw and plug connections and replaceable parts are secured correctly, tighten if necessary.
- Remove any spatter.
- Clean the wire feed rollers on a regular basis (depending on the degree of soiling).

6.3.2 Monthly maintenance tasks

6.3.2.1 Visual inspection

- Casing damage (front, rear and side walls)
- Wheels and their securing elements
- Transport elements (strap, lifting lugs, handle)
- Check coolant tubes and their connections for impurities

6.3.2.2 Functional test

- Selector switches, command devices, emergency stop devices, voltage reducing devices, message and control lamps
- Check that the wire guide elements (inlet nipple, wire guide tube) are fitted securely.
- Check coolant tubes and their connections for impurities
- Check and clean the welding torch. Deposits in the torch can cause short circuits and have a negative impact on the welding result, ultimately causing damage to the torch.

6.3.3 Annual test (inspection and testing during operation)

☞ ***The welding machine may only be tested by competent, capable personsl. A capable person is one who, because of his training, knowledge and experience, is able to recognise the dangers that can occur while testing welding power sources as well as possible subsequent damage and who is able to implement the required safety procedures.***

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

A periodic test according to IEC 60974-4 "Periodic inspection and test" has to be carried out. In addition to the regulations on testing given here, the relevant local laws and regulations must also be observed.

6.4 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!***

6.4.1 Manufacturer's declaration to the end user

- According to European provisions (guideline 2012/19/EU of the European Parliament and the Council of Juli, 4th 2021), 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 is to be placed for disposal or recycling in the waste separation systems provided for this purpose.
- According to German law (law governing the distribution, taking back and environmentally correct disposal of electric and electronic equipment (ElektroG) from 16.03.2005), 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.
- Information about giving back used equipment or about collections can be obtained from the respective municipal administration office.
- EWM participates in an approved waste disposal and recycling system and is registered in the Used Electrical Equipment Register (EAR) under number WEEE DE 57686922.
- In addition to this, returns are also possible throughout Europe via EWM sales partners.

6.5 Meeting the requirements of RoHS

We, EWM AG in Mündersbach, Germany, hereby confirm that all products which we supply to you and that are subject to the RoHS directive comply with RoHS requirements (also see applicable EC directives on the Declaration of Conformity on your machine).

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

Coolant error/no coolant flowing

- ↯ Insufficient coolant flow
  - 🛠 Check coolant level and refill if necessary
- ↯ Air in the coolant circuit
  - 🛠 Vent coolant circuit *> see 7.4 chapter*

Wire feed problems

- ↯ Contact tip blocked
  - 🛠 Clean, spray with anti-spatter spray and replace if necessary
- ↯ Setting the spool brake *> see 5.2.2.5 chapter*
  - 🛠 Check settings and correct if necessary
- ↯ Setting pressure units *> see 5.2.2.4 chapter*
  - 🛠 Check settings and correct if necessary
- ↯ Worn wire rolls
  - 🛠 Check and replace if necessary
- ↯ Wire feed motor without supply voltage (automatic cutout triggered by overloading)
  - 🛠 Reset triggered fuse (rear of the power source) by pressing the key button
- ↯ Kinked hose packages
  - 🛠 Extend and lay out the torch hose package
- ↯ Wire guide core or spiral is dirty or worn
  - 🛠 Clean core or spiral; replace kinked or worn cores

Functional errors

- ↯ All machine control signal lights are illuminated after switching on
- ↯ No machine control signal light is illuminated after switching on
- ↯ No welding power
  - 🛠 Phase failure > check mains connection (fuses)
- ↯ Several parameters cannot be set (machines with access block)
  - 🛠 Entry level is blocked, disable access lock
- ↯ Connection problems
  - 🛠 Make control lead connections and check that they are fitted correctly.
- ↯ Loose welding current connections
  - 🛠 Tighten power connections on the torch and/or on the workpiece
  - 🛠 Tighten contact tip correctly

7.2 Error messages (power source)

☞ ***A welding machine error is indicated by an error code being displayed (see table) on the display on the machine control.***
In the event of a machine error, the power unit is shut down.

☞ ***The display of possible error numbers depends on the machine version (interfaces/functions).***

- Document machine errors and inform service staff as necessary.
- If multiple errors occur, these are displayed in succession.

Error (Err)	Category			Possible cause	Remedy
	a)	b)	c)		
1	-	-	x	Mains overvoltage	Check the mains voltages and compare with the welding machine connection voltages
2	-	-	x	Mains undervoltage	
3	x	-	-	Welding machine excess temperature	Allow the machine to cool down (mains switch to "1")
4	x	x	-	Low coolant level	Top up the coolant Leak in the coolant circuit > repair the leak and top up the coolant Coolant pump is not working > check excess current trigger on air cooling unit
5	x	-	-	Wire feeder/tachometer error	Check the wire feeder Speedometer is not emitting a signal, M3.51 defective > inform Service.
6	x	-	-	Shielding gas error	Check shielding gas supply (for machines with shielding gas monitoring)
7	-	-	x	Secondary overvoltage	Inverter error > inform Service
8	-	-	x	Earth fault between welding wire and earth line	Separate the connection between welding wire and casing or an earthed object
9	x	-	-	Fast cut-out Triggered by BUSINT X11 or RINT X12	Rectify error on robot
10	-	x	-	Arc interruption Triggered by BUSINT X11 or RINT X12	Check wire feeding
11	-	x	-	Ignition error after 5 s Triggered by BUSINT X11 or RINT X12	Check wire feeding
13	x	-	-	Emergency stop deactivation	Check the emergency stop circuit at the interface for automated welding
14	-	x	-	Wire feeder not detected. Control cable not connected.	Check cable connections.
				Incorrect ID numbers assigned during operation with multiple wire feeders.	Check ID number assignation
15	-	x	-	Wire feeder 2 not detected. Control cable not connected.	Check cable connections.
16	-	-	x	VRD (open circuit voltage reduction error).	Inform Service.
17	-	x	x	Excess current detection on wire feeder	Check wire feeding
18	-	x	x	No speedometer signal from second wire feeder (slave drive)	Check the connection and particularly the speedometer for the second wire feeder (slave drive).
56	-	-	x	Mains phase failure	Check mains voltages
59	-	-	x	Machine incompatible	Check machine used

Error (Err)	Category			Possible cause	Remedy
	a)	b)	c)		
60	-	-	x	Software update required	Inform Service.

Legend for categories (reset error)

a) The error message will disappear once the error has been rectified.

b) The error message can be reset by pressing a push-button:

Welding machine control	Push-button
RC1 / RC2	
Expert	
Expert 2.0	
CarExpert / Progress (M3.11)	
alpha Q / Concept / Basic / Basic S / Synergic / Synergic S / Progress (M3.71) / Picomig 305	not possible

c) The error message can only be reset by switching the machine off and on again.

The shielding gas error (Err 6) can be reset by pressing the "Welding parameters" key button.

7.3 Welding parameter calibration

When differentiating between the welding parameters set on the wire feed unit/remote control and those shown on the welding machine, they can be calibrated easily with this function.

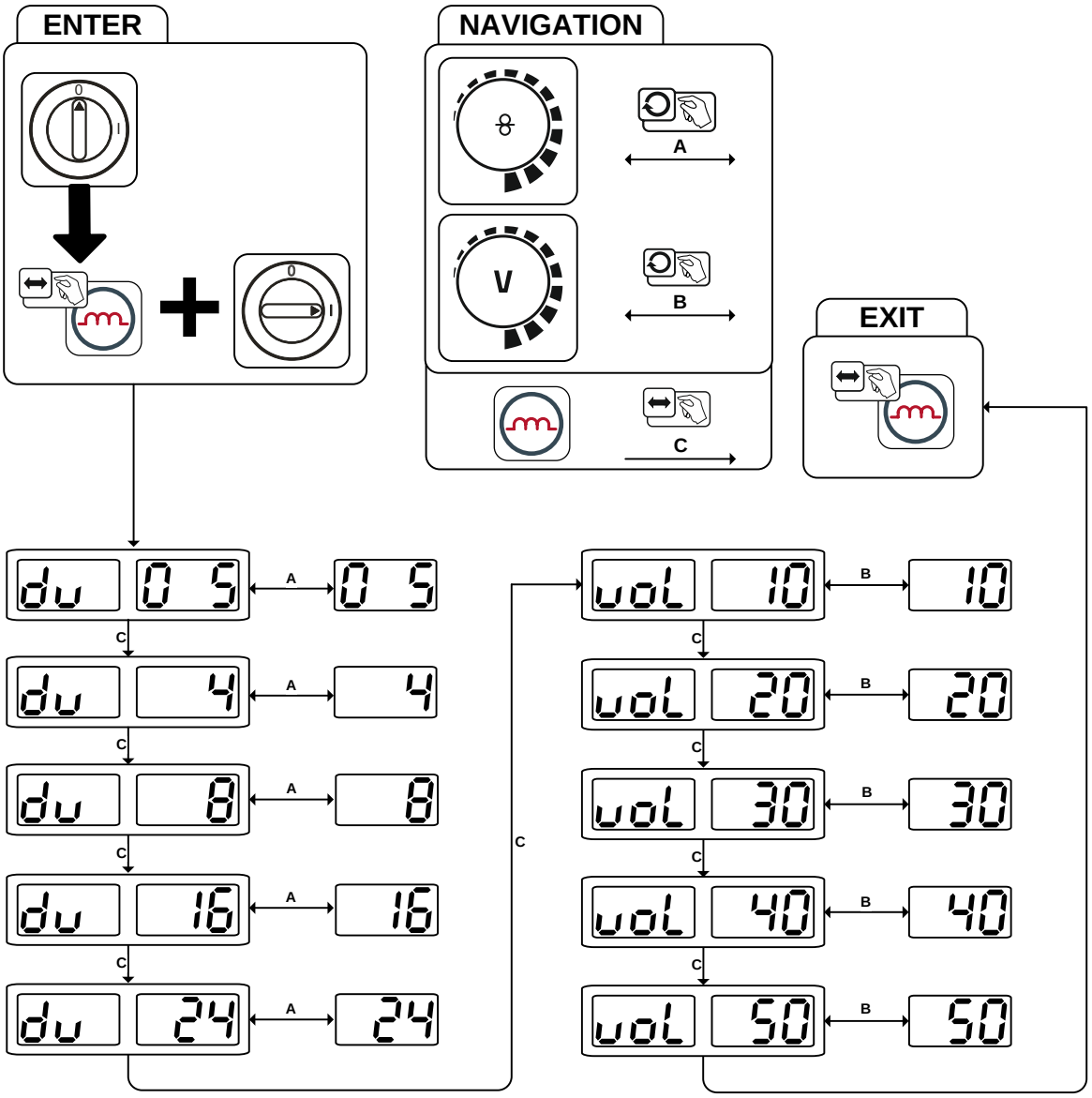


Figure 7-1

7.4 Vent coolant circuit

☞ ***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)!***

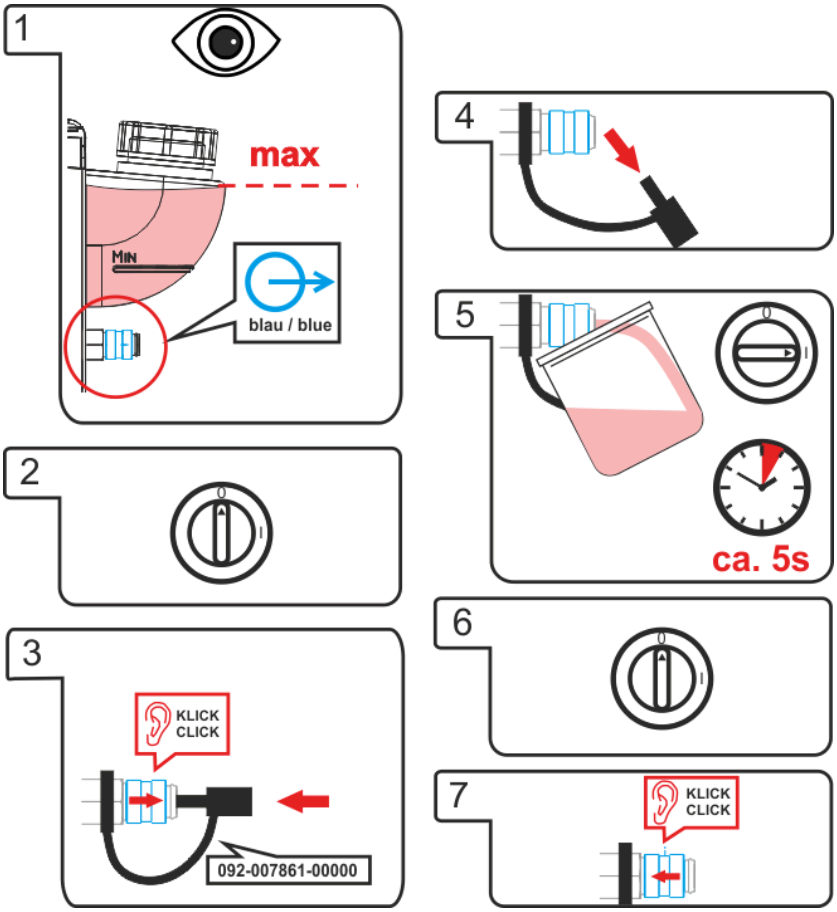


Figure 7-2

8 Technical data

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

8.1 drive 4 Basic

Supply voltage	42 VAC
Maximum welding current at 60% DC	550 A
Maximum welding current at 100% DC	430 A
EMC class	A
Safety identification	CE / EAC
Harmonised standards used	IEC 60974-1, -5, -10
Wire feed speed	0.5 m/min to 25 m/min
Factory-installed roll equipment	1.2 mm (for steel wire)
Drive	4-roll (37 mm)
Wire spool diameter	Standardised wire spools up to 300 mm
Torch connector	Euro torch connector
Protection classification	IP 23
Ambient temperature	–25 °C to +40 °C
Dimensions L x W x H	660 x 280 x 380 mm
	26.0 x 11.0 x 15.0 inch
Weight	14.5 kg
	32.0 lb

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.
DM 842 Ar/CO2 230bar 30l D	Pressure regulator with manometer	394-002910-00030
AK300	Wire spool adapter K300	094-001803-00001
HOSE BRIDGE UNI	Tube bridge	092-007843-00000
SPL	Sharpener for plastic liners	094-010427-00000
HC PL	Hose cutter	094-016585-00000
CA D200	Centering adapter for 5-kg spools	094-011803-00000

9.2 Remote control/connecting and extension cable

9.2.1 19-pole connection

Type	Designation	Item no.
R11 19POL	Remote control	090-008601-00502
RA5 19POL 5M	Remote control e.g. connection cable	092-001470-00005
RA10 19POL 10M	Remote control e.g. connection cable	092-001470-00010
RA20 19POL 20M	Remote control e.g. connection cable	092-001470-00020
RV5M19 19POLE 5M	Extension cable	092-000857-00000
RV5M19 19POL 10M	Extension cable	092-000857-00010
RV5M19 19POL 15M	Extension cable	092-000857-00015
RV5M19 19POL 20M	Extension cable	092-000857-00020

9.3 Options

Type	Designation	Item no.
ON GK drive 4X	Metal runners for drive 4X and drive 4 Basic	092-003030-00000
ON WAK drive 4X	Wheel assembly kit for drive 4X	092-002844-00000
ON PS EXT drive 4X	Retrofit set: Turning mandrel extension, to hold the drive 4X/drive 4 Basic with ON WAK wheel set	092-002871-00000
ON RFAK drive 4X	Rubber feet for drive 4X	092-002845-00000
ON CC drive 4X	Transparent cover cap to protect the whole machine control for drive 4X	092-002834-00000
ON TS drive 4X	Torch holder for drive 4X	092-002836-00000
ON CMF drive 4X	Crane suspension for drive 4X	092-002833-00000
ON TCC drive 4X	Skid cap for drive 4X	092-002835-00000
ON CONNECTOR drive 4X	Connection for wire feeding from drum	092-002842-00000

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 Wire feed rollers

10.1.1 Wire feed rollers for steel wire

Type	Designation	Item no.
FE 4R 0.6 MM/0.023 INCH LIGHT PINK	Drive roll set, 37 mm, 4 rolls, V-groove for steel, stainless steel and brazing	092-002770-00006
FE 4R 0.8 MM/0.03 INCH WHITE	Drive roll set, 37 mm, 4 rolls, V-groove for steel, stainless steel and brazing	092-002770-00008
FE 4R 1,0 MM/0.04 INCH BLUE	Drive roll set, 37 mm, 4 rolls, V-groove for steel, stainless steel and brazing	092-002770-00010
FE 4R 1.2 MM/0.045 INCH RED	Drive roll set, 37 mm, 4 rolls, V-groove for steel, stainless steel and brazing	092-002770-00012
FE 4R 1.4 MM/0.052 INCH GREEN	Drive roll set, 37 mm, 4 rolls, V-groove for steel, stainless steel and brazing	092-002770-00014
FE 4R 1.6 MM/0.06 INCH BLACK	Drive roll set, 37 mm, 4 rolls, V-groove for steel, stainless steel and brazing	092-002770-00016
FE 4R 2.0 MM/0.08 INCH GREY	Drive roll set, 37 mm, 4 rolls, V-groove for steel, stainless steel and brazing	092-002770-00020
FE 4R 2.4 MM/0.095 INCH BROWN	Drive roll set, 37 mm, 4 rolls, V-groove for steel, stainless steel and brazing	092-002770-00024
FE 4R 2.8 MM/0.11 INCH LIGHT GREEN	Drive roll set, 37 mm, 4 rolls, V-groove for steel, stainless steel and brazing	092-002770-00028
FE 4R 3.2 MM/0.12 INCH VIOLET	Drive roll set, 37 mm, 4 rolls, V-groove for steel, stainless steel and brazing	092-002770-00032

10.1.2 Wire feed rollers for aluminium wire

Type	Designation	Item no.
AL 4R 0.8 MM/0.03 INCH WHITE	Drive roll set, 37 mm, for aluminium	092-002771-00008
AL 4R 1.0 MM/0.04 INCH BLUE	Drive roll set, 37 mm, for aluminium	092-002771-00010
AL 4R 1.2 MM/0.045 INCH RED	Drive roll set, 37 mm, for aluminium	092-002771-00012
AL 4R 1.6 MM/0.06 INCH BLACK	Drive roll set, 37 mm, for aluminium	092-002771-00016
AL 4R 2.0 MM/0.08 INCH GREY/YELLOW	Drive roll set, 37 mm, for aluminium	092-002771-00020
AL 4R 2.4 MM/0.095 INCH BROWN/YELLOW	Drive roll set, 37 mm, for aluminium	092-002771-00024
AL 4R 2.8 MM/0.110 INCH LIGHT GREEN/YELLOW	Drive roll set, 37 mm, for aluminium	092-002771-00028
AL 4R 3.2 MM/0.125 INCH VIOLET/YELLOW	Drive roll set, 37 mm, for aluminium	092-002771-00032

10.1.3 Wire feed rollers for cored wire

Type	Designation	Item no.
FUEL 4R 0.8 MM/0.03 INCH WHITE/ORANGE	Drive roll set, 37 mm, 4 rolls, V-groove/knurled for flux cored wire	092-002848-00008

Type	Designation	Item no.
FUEL 4R 1.0 MM/0.04 INCH BLUE/ORANGE	Drive roll set, 37 mm, 4 rolls, V-groove/knurled for flux cored wire	092-002848-00010
FUEL 4R 1.2 MM/0.045 INCH RED/ORANGE	Drive roll set, 37 mm, 4 rolls, V-groove/knurled for flux cored wire	092-002848-00012
FUEL 4R 1.4 MM/0.052 INCH GREEN/ORANGE	Drive roll set, 37 mm, 4 rolls, V-groove/knurled for flux cored wire	092-002848-00014
FUEL 4R 1.6 MM/0.06 INCH BLACK/ORANGE	Drive roll set, 37 mm, 4 rolls, V-groove/knurled for flux cored wire	092-002848-00016
FUEL 4R 2.0 MM/0.08 INCH GREY/ORANGE	Drive roll set, 37 mm, 4 rolls, V-groove/knurled for flux cored wire	092-002848-00020
FUEL 4R 2.4 MM/0.095 INCH BROWN/ORANGE	Drive roll set, 37 mm, 4 rolls, V-groove/knurled for flux cored wire	092-002848-00024

10.1.4 Wire guide

Type	Designation	Item no.
SET DRAHTFUERUNG	Wire guide set	092-002774-00000
ON WF 2,0-3,2MM EFEED	Retrofitting option, wire guide for 2.0–3.2 mm wires, eFeed drive	092-019404-00000
SET IG 4x4 1.6mm BL	Inlet guide set	092-002780-00000
GUIDE TUBE L105	Guide tube	094-006051-00000
CAPTUB L108 D1,6	Capillary tube	094-006634-00000
CAPTUB L105 D2,0/2,4	Capillary tube	094-021470-00000

11 Appendix A

11.1 Setting instructions

Basic						mm	
		SG2/3 G3/4 Si1 Ar82/18		SG2/3 G3/4 Si1 $CO_2$100		CrNi Ar98/2	
mm	mm	m/min	VOLT	m/min	VOLT	m/min	VOLT
0,8	0,8	2,0	15,1	2,0	15,7	2,4	13,6
	1,0	1,5	15,1	1,8	17,4	1,6	13,6
1,0	0,8	2,6	15,4	2,7	16,3	3,0	14,5
	1,0	2,2	15,4	2,1	17,8	2,2	14,2
	1,2	1,2	14,4	1,6	17,8	1,5	13,6
2,0	0,8	5,5	17,4	4,8	19,0	6,9	18,3
	1,0	4,0	18,0	3,2	18,7	4,6	17,2
	1,2	3,2	17,1	2,8	18,7	3,5	16,6
3,0	0,8	8,8	19,2	9,2	26,5	10,5	19,6
	1,0	5,1	18,7	4,6	19,9	6,8	18,4
	1,2	4,3	18,7	3,6	19,6	4,6	17,5
4,0	0,8	10,8	20,8	12,0	28,9	12,8	21,4
	1,0	7,0	19,8	6,3	21,7	8,4	24,0
	1,2	5,0	19,8	4,9	21,7	5,8	18,0
5,0	0,8	14,0	21,9	14,2	30,9	14,6	24,3
	1,0	8,5	21,4	8,2	27,1	9,6	25,9
	1,2	6,2	20,5	6,1	24,3	6,7	19,3
6,0	0,8	17,8	23,2	18,6	32,7	17,5	26,5
	1,0	9,8	24,7	9,5	29,1	11,0	27,6
	1,2	7,8	26,1	7,3	29,7	8,1	23,1
8,0	0,8	22,0	27,1	21,8	34,8	21,0	28,8
	1,0	12,0	28,8	11,6	31,8	13,5	28,8
	1,2	8,5	28,0	9,1	31,8	9,5	27,5
10,0	1,0	14,8	30,6	14,2	34,9	15,5	30,0
	1,2	9,8	29,7	11,3	33,7	11,5	28,9

Basic						inch	
		SG2/3 G3/4 Si1 Ar82/18		SG2/3 G3/4 Si1 $CO_2$100		CrNi Ar98/2	
inch	inch	ipm	VOLT	ipm	VOLT	ipm	VOLT
.030	.030	080	15.1	080	15.7	095	13.6
	.040	060	15.1	070	17.4	065	13.6
.040	.030	100	15.4	105	16.3	120	14.5
	.040	085	15.4	085	17.8	085	14.2
	.045	045	14.4	065	17.8	060	13.6
.080	.030	215	17.4	190	19.0	270	18.3
	.040	155	18.0	125	18.7	180	17.2
	.045	125	17.1	110	18.7	140	16.6
.120	.030	345	19.2	360	26.5	415	19.6
	.040	200	18.7	180	19.9	270	18.4
	.045	170	18.7	140	19.6	180	17.5
.155	.030	425	20.8	470	28.9	505	21.4
	.040	275	19.8	250	21.7	330	24.0
	.045	195	19.8	195	21.7	230	18.0
.195	.030	550	21.9	560	30.9	575	24.3
	.040	335	21.4	325	27.1	380	25.9
	.045	245	20.5	240	24.3	265	19.3
.235	.030	700	23.2	730	32.7	690	26.5
	.040	385	24.7	375	29.1	435	27.6
	.045	305	26.1	285	29.7	320	23.1
.315	.030	865	27.1	860	34.8	825	28.8
	.040	470	28.8	455	31.8	530	28.8
	.045	335	28.0	360	31.8	375	27.5
.395	.040	585	30.6	560	34.9	610	30.0
	.045	385	29.7	445	33.7	455	28.9

	Stahl	mild steel
	Edelstahl	stainless steel

Figure 11-1

12 Appendix B

12.1 Overview of EWM branches

Headquarters

EWM AG
Dr. Günter-Henle-Straße 8
56271 Mündersbach · Germany
Tel: +49 2680 181-0 · Fax: -244
www.ewm-group.com · info@ewm-group.com

Technology centre

EWM AG
Forststraße 7-13
56271 Mündersbach · Germany
Tel: +49 2680 181-0 · Fax: -144
www.ewm-group.com · info@ewm-group.com

Production, Sales and Service

EWM AG
Dr. Günter-Henle-Straße 8
56271 Mündersbach · Germany
Tel: +49 2680 181-0 · Fax: -244
www.ewm-group.com · info@ewm-group.com

EWM HIGH TECHNOLOGY (Kunshan) Ltd.
10 Yuanshan Road, Kunshan · New & Hi-tech Industry Development Zone
Kunshan City · Jiangsu · Post code 215300 · People´s Republic of China
Tel: +86 512 57867-188 · Fax: -182
www.ewm.cn · info@ewm.cn · info@ewm-group.cn

EWM HIGHTEC WELDING s.r.o.
9. května 718 / 31
407 53 Jiříkov · Czech Republic
Tel.: +420 412 358-551 · Fax: -504
www.ewm-jirikov.cz · info@ewm-jirikov.cz

Sales and Service Germany

EWM AG
Sales and Technology Centre
Grünauer Fenn 4
14712 Rathenow · Tel: +49 3385 49402-0 · Fax: -20
www.ewm-rathenow.de · info@ewm-rathenow.de

EWM AG
Rudolf-Winkel-Straße 7-9
37079 Göttingen · Tel: +49 551-3070713-0 · Fax: -20
www.ewm-goettingen.de · info@ewm-goettingen.de

EWM AG
Dieselstraße 9b
50259 Pulheim · Tel: +49 2238-46466-0 · Fax: -14
www.ewm-pulheim.de · info@ewm-pulheim.de

EWM AG
August-Horch-Straße 13a
56070 Koblenz · Tel: +49 261 963754-0 · Fax: -10
www.ewm-koblenz.de · info@ewm-koblenz.de

EWM AG
Eiserfelder Straße 300
57080 Siegen · Tel: +49 271 3878103-0 · Fax: -9
www.ewm-siegen.de · info@ewm-siegen.de

EWM HIGHTEC WELDING GmbH
Centre Technology and mechanisation
Daimlerstr. 4-6
69469 Weinheim · Tel: +49 6201 84557-0 · Fax: -20
www.ewm-weinheim.de · info@ewm-weinheim.de

EWM Schweißtechnik Handels GmbH
Karlsdorfer Straße 43
88069 Tettnang · Tel: +49 7542 97998-0 · Fax: -29
www.ewm-tettnang.de · info@ewm-tettnang.de

EWM Schweißtechnik Handels GmbH
Heinkelstraße 8
89231 Neu-Ulm · Tel: +49 731 7047939-0 · Fax: -15
www.ewm-neu-ulm.de · info@ewm-neu-ulm.de

Sales and Service International

EWM HIGH TECHNOLOGY (Kunshan) Ltd.
10 Yuanshan Road, Kunshan · New & Hi-tech Industry Development Zone
Kunshan City · Jiangsu · Post code 215300 · People´s Republic of China
Tel: +86 512 57867-188 · Fax: -182
www.ewm.cn · info@ewm.cn · info@ewm-group.cn

EWM HIGHTEC WELDING GmbH
Wiesenstraße 27b
4812 Pinsdorf · Austria · Tel: +43 7612 778 02-0 · Fax: -20
www.ewm-austria.at · info@ewm-austria.at

EWM HIGHTEC WELDING UK Ltd.
Unit 2B Coopies Way · Coopies Lane Industrial Estate
Morpeth · Northumberland · NE61 6JN · Great Britain
Tel: +44 1670 505875 · Fax: -514305
www.ewm-morpeth.co.uk · info@ewm-morpeth.co.uk

EWM HIGHTEC WELDING Sales s.r.o. / Prodejní a poradenské centrum
Tyršova 2106
256 01 Benešov u Prahy · Czech Republic
Tel: +420 317 729-517 · Fax: -712
www.ewm-benesov.cz · info@ewm-benesov.cz

Liaison office Turkey

EWM AG Türkiye İrtibat Bürosu
İkitelli OSB Mah. · Marmara Sanayi Sitesi P Blok Apt. No: 44
Küçükçekmece / İstanbul Türkiye
Tel.: +90 212 494 32 19
www.ewm-istanbul.com.tr · info@ewm-istanbul.com.tr

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