



**EN**

## Welding machine

**Taurus 355-505 Basic S**  
**Taurus 355-505 Steel Synergic S**  
**Taurus 355-505 Steel puls S**

099-005589-EW501

Observe additional system documents!

9.02.2023

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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](http://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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### **Data security**

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

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## 2 For your safety

### 2.1 Notes on using these operating instructions

#### **DANGER**

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

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

#### **WARNING**

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

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

#### **CAUTION**

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

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



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

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

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

## 2.2 Explanation of icons

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

## 2.3 Safety instructions

### **WARNING**



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

**Non-compliance with the safety instructions can be fatal!**

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



**Risk of injury from electrical voltage!**

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

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



**Hazard when interconnecting multiple power sources!**

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

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

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



**Risk of injury due to radiation or heat!**

**Arc radiation can lead to skin and eye injuries.**

**Contact with hot workpieces and sparks can lead to burns.**

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

**⚠ WARNING****Risk of injury due to improper clothing!**

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

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

**Explosion risk!**

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

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

**Fire hazard!**

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

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

## ⚠ CAUTION



### Smoke and gases!

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

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



### Noise exposure!

**Noise exceeding 70 dBA can cause permanent hearing damage!**

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



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



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



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

### Setting up and operating

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

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

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

### Recommendations for reducing interference emission

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



### Electromagnetic fields!

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



- Follow the maintenance instructions > see 6 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

#### 3.1.1 Taurus Steel Puls S

MMA welding system for GMAW-pulse and standard welding as a MMA welding secondary process. It may be possible to expand the range of functions by using accessories (see the documentation in the relevant chapter).

#### 3.1.2 Taurus Synergic S; Taurus Basic S

MMA welding system for GMAW standard welding as a MMA welding secondary process. It may be possible to expand the range of functions by using accessories (see the documentation in the relevant chapter).

### 3.2 Use and operation solely with the following machines

**A suitable wire feed unit (system component) is required in order to operate the welding machine!**

The following system components can be combined:

	Drive 4 Basic S, -D200	Drive 4X Steel Synergic S, -D200	Drive 4X Steel puls S, -D200
Taurus xx5 Basic S	✔	✘	✘
Taurus xx5 Steel Synergic S	✘	✔	✘
Taurus xx5 Steel puls S	✘	✘	✔

## 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](http://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 Welding in environments with increased electrical hazards



Power sources with this marking can be used for welding in an environment with increased electrical hazard (e.g. boilers). For this purpose, appropriate national or international regulations must be followed. The power source must not be placed in the danger zone!

### 3.3.4 Service documents (spare parts and circuit diagrams)



#### **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.

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

Spare parts can be obtained from the relevant authorised dealer.

### 3.3.5 Calibration/Validation

An original certificate is enclosed with the product. The manufacturer recommends calibration / validation at intervals of 12 months (from commissioning).

### 3.3.6 Part of the complete documentation

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

The illustration shows a general example of a welding system.

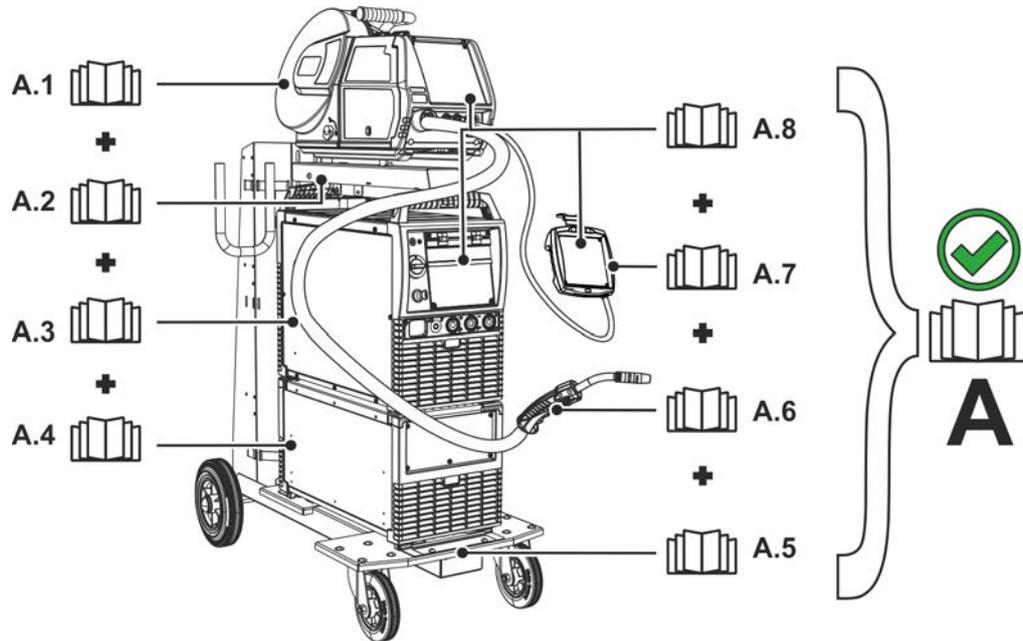


Figure 3-1

Item	Documentation
A.1	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

## 4 Machine description – quick overview

### 4.1 Front view / rear view

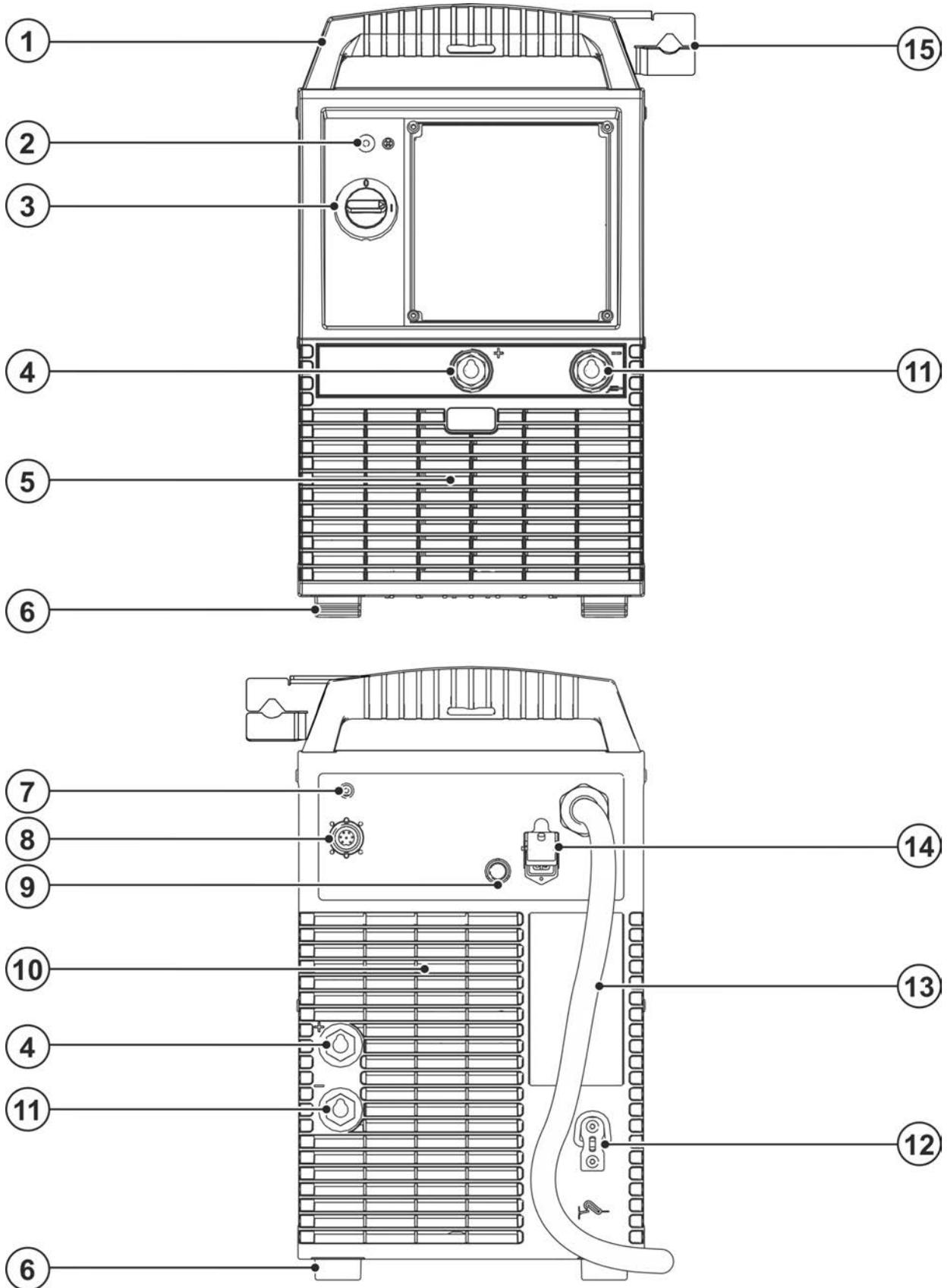


Figure 4-1

Item	Symbol	Description
1		<b>Carrying handle</b>
2		<b>Ready for operation signal light</b> Signal light on when the machine is switched on and ready for operation
3		<b>Main Switch</b> Switching the machine on or off.
4		<b>Connection socket, “+” welding current</b> How to connect the accessories depends on the welding procedure. Please observe the connection description for the corresponding welding procedure > see 5 chapter.
5		<b>Cooling air inlet</b>
6		<b>Machine feet</b>
7		<b>Key button, Automatic cutout</b> Wire feed motor supply voltage fuse (press to reset a triggered fuse)
8		<b>7-pole connection socket (digital)</b> Wire feed unit connection
9		<b>8-pole connection socket</b> Cooling unit control lead
10		<b>Cooling air outlet</b>
11		<b>Connection socket, “-” welding current</b> How to connect the accessories depends on the welding procedure. Please observe the connection description for the corresponding welding procedure > see 5 chapter.
12		<b>Stirrup</b> Intermediate hose package strain relief
13		<b>Mains connection cable &gt; see 5.1.7 chapter</b>
14		<b>4-pole connection socket</b> Cooling unit voltage supply
15		<b>Torch holder</b>

## 5 Design and function

### 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 from electrical current!**

**If welding is carried out alternately using different methods and if a welding torch and an electrode holder remain connected to the machine, the open-circuit/welding voltage is applied simultaneously on all cables.**

- The torch and the electrode holder should therefore always be placed on an insulated surface before starting work and during breaks.

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

## 5.1 Transport and installation

### 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



**The 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.



**Equipment damage due to contamination!**

**Unusually high amounts of dust, acids, corrosive gases or substances can damage the machine (observe maintenance intervals > see 6.2 chapter).**

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

#### In operation

Temperature range of the ambient air:

- -25 °C to +40 °C (-13 °F to 104 °F) <sup>[1]</sup>

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 room, temperature range of the ambient air:

- -30 °C to +70 °C (-22 °F to 158 °F) <sup>[1]</sup>

Relative humidity

- up to 90 % at 20 °C (68 °F)

<sup>[1]</sup> Ambient temperature dependent on coolant! Observe the coolant temperature range of the torch cooling

## 5.1.2 Machine cooling



**Insufficient ventilation results in a reduction in performance and equipment damage.**

- **Observe the ambient conditions!**
- **Keep the cooling air inlet and outlet clear!**
- **Observe the minimum distance of 0.5 m from obstacles!**

## 5.1.3 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!

## 5.1.4 Welding torch cooling system

### 5.1.4.1 Cooling unit connection

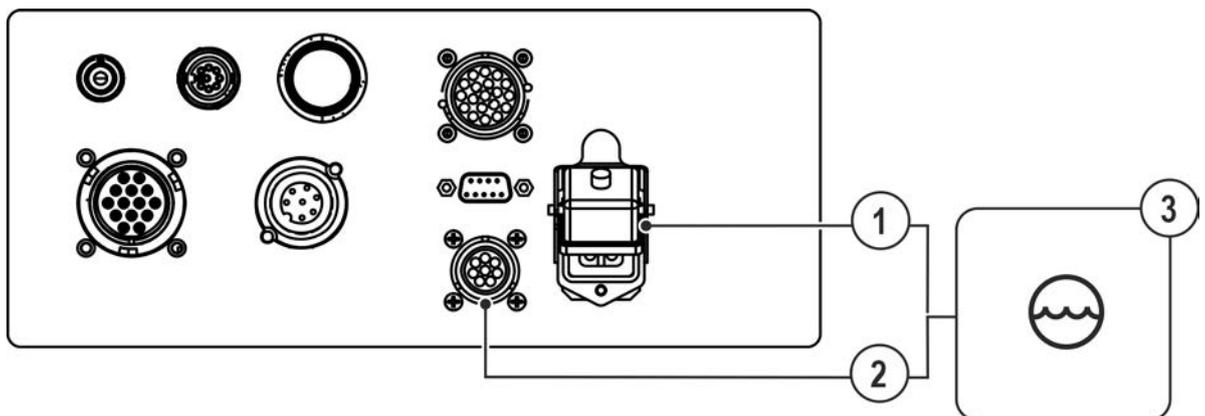


Figure 5-1

Item	Symbol	Description
1		<b>4-pole connection socket</b> Cooling unit voltage supply
2		<b>8-pole connection socket</b> Cooling unit control lead
3		<b>Cooling module</b>

- Insert and lock the 4-pole supply plug on the cooling unit into the 4-pole connection socket on the welding machine.
- Insert and lock the 8-pole control lead plug on the cooling unit into the 8-pole connection socket on the welding machine.

## 5.1.5 Connecting the intermediate hose package to the power source

### 5.1.5.1 Intermediate hose package strain relief



**Missing or incorrectly fitted strain relief!**

Connection sockets or connection plugs on the machine, or the intermediate tube package, may be damaged if the strain relief is missing or incorrectly fitted. The strain relief takes the strain from cables, plugs and sockets.

- Check the strain relief function by pulling in all directions. Cables and hoses must have sufficient play when the relief cord is fully stretched!

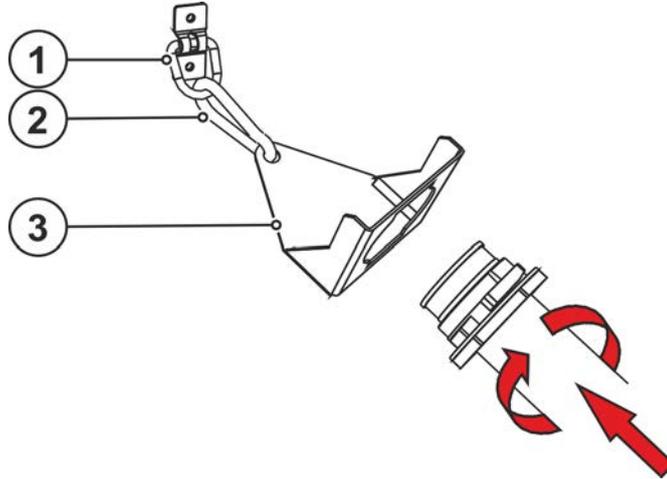


Figure 5-2

Item	Symbol	Description
1		<b>Stirrup</b> Intermediate hose package strain relief
2		<b>Snap hooks</b>
3		<b>Intermediate hose package strain relief &gt; see 5.1.5.1 chapter</b>

- Secure hose package end with the strain relief > see 5.1.5.1 chapter.

## 5.1.5.2 Intermediate hose package connection



**With this machine series, the earth cable on the intermediate hose package must not be connected to the welding machine or wire feeder! Remove the earth cable or push back into the hose package!**

Some wire electrodes (e.g. self-shielding cored wire) are welded using negative polarity. In this case, the welding current lead should be connected to the "-" welding current socket, and the workpiece lead should be connected to the "+" welding current socket. Observe the information from the electrode manufacturer!

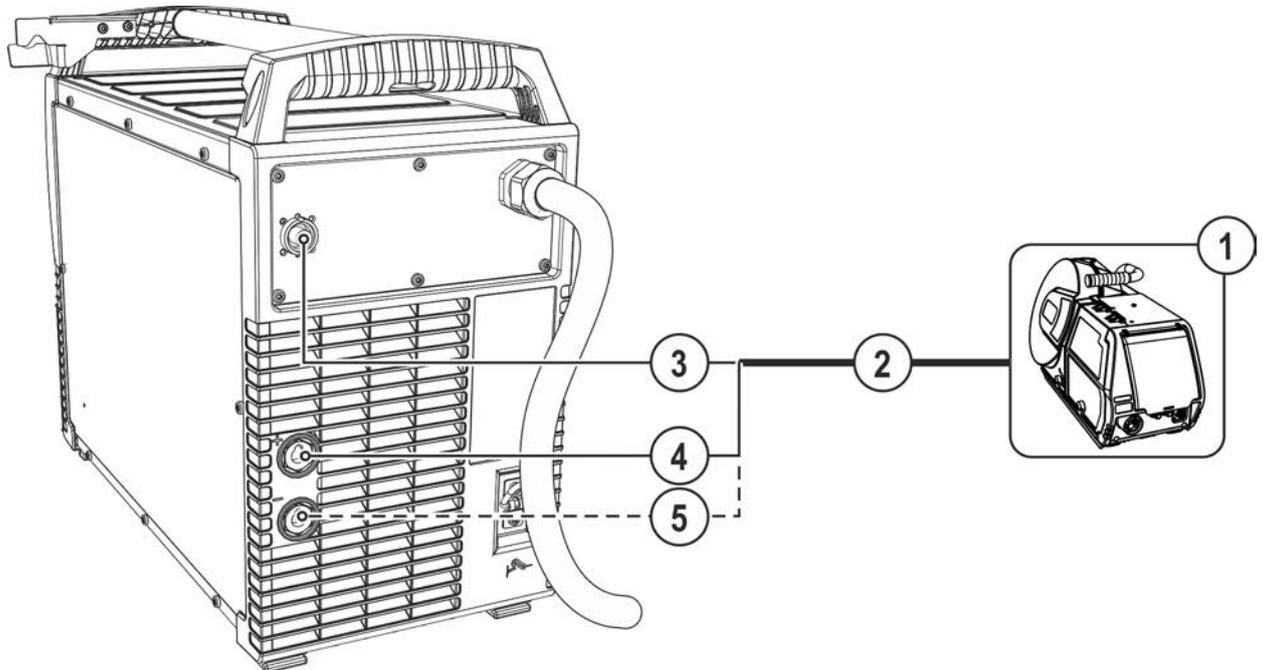


Figure 5-3

Item	Symbol	Description
1		Wire feed unit
2		Intermediate hose package
3		7-pole connection socket (digital) Wire feed unit connection
4		Connection socket, "+" welding current • Standard MIG/MAG welding (intermediate hose package)
5		Connection socket, "-" welding current • MIG/MAG cored wire welding:      Welding current to wire feed/torch

- Secure hose package end with the strain relief > see 5.1.5.1 chapter.
- Insert the plug of the welding current lead into the welding current connection socket and lock in place by turning to the right.
- Insert cable plug on the control lead into the 7-pole connection socket and secure with crown nut (the plug can only be inserted into the connection socket in one position).

## 5.1.6 Welding torch holder

The item described in the following is part of the machine's scope of delivery.

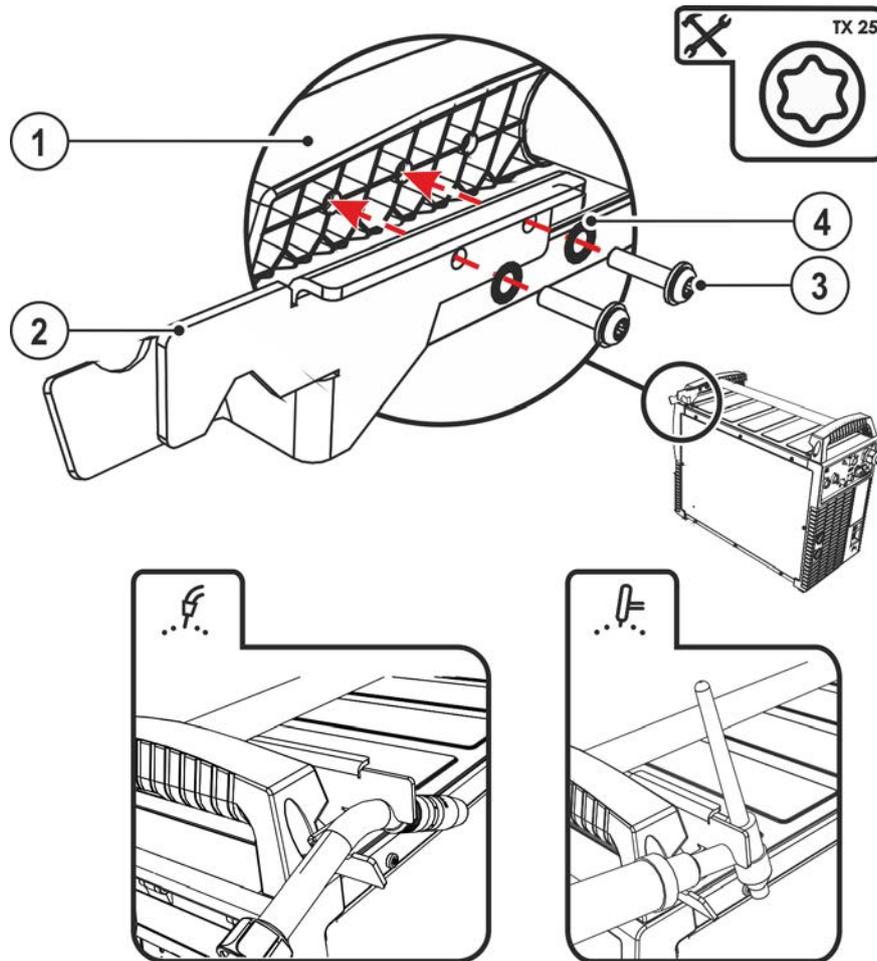


Figure 5-4

Item	Symbol	Description
1		Crossmember of the transport handle
2		Torch holder
3		Fixing screws (x 4)
4		Fan-type lock washers

- Use the mounting screws to screw the torch holder onto the crossmember of the transport handle.
- Insert the welding torch into the welding torch holder as shown.

## 5.1.7 Mains connection

### DANGER



#### Hazards caused by improper mains connection!

#### An improper mains connection can cause injuries or damage property!

- The connection (mains plug or cable), the repair or voltage adjustment of the device must be carried out by a qualified electrician in accordance with the respective local laws or national regulations!
- The mains voltage indicated on the rating plate must match the supply voltage.
- Only operate machine using a socket that has correctly fitted protective earth.
- Mains plug, socket and lead must be checked by a qualified electrician on a regular basis!
- When operating the generator, always ensure it is earthed as stipulated in the operating instructions. The network created must be suitable for operating machines according to protection class I.

### 5.1.7.1 Mains configuration

The machine may be connected to:

- a three-phase system with four conductors and an earthed neutral conductor
- a three-phase system with three conductors of which any one can be earthed, e.g. the outer conductor

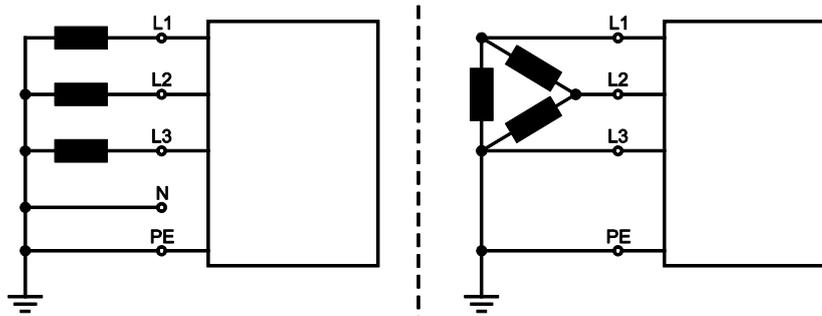


Figure 5-5

#### Legend

Item	Designation	Colour code
L1	Outer conductor 1	brown
L2	Outer conductor 2	black
L3	Outer conductor 3	grey
N	Neutral conductor	blue
PE	Protective conductor	green-yellow

- Insert mains plug of the switched-off machine into the appropriate socket.

## 5.1.8 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).

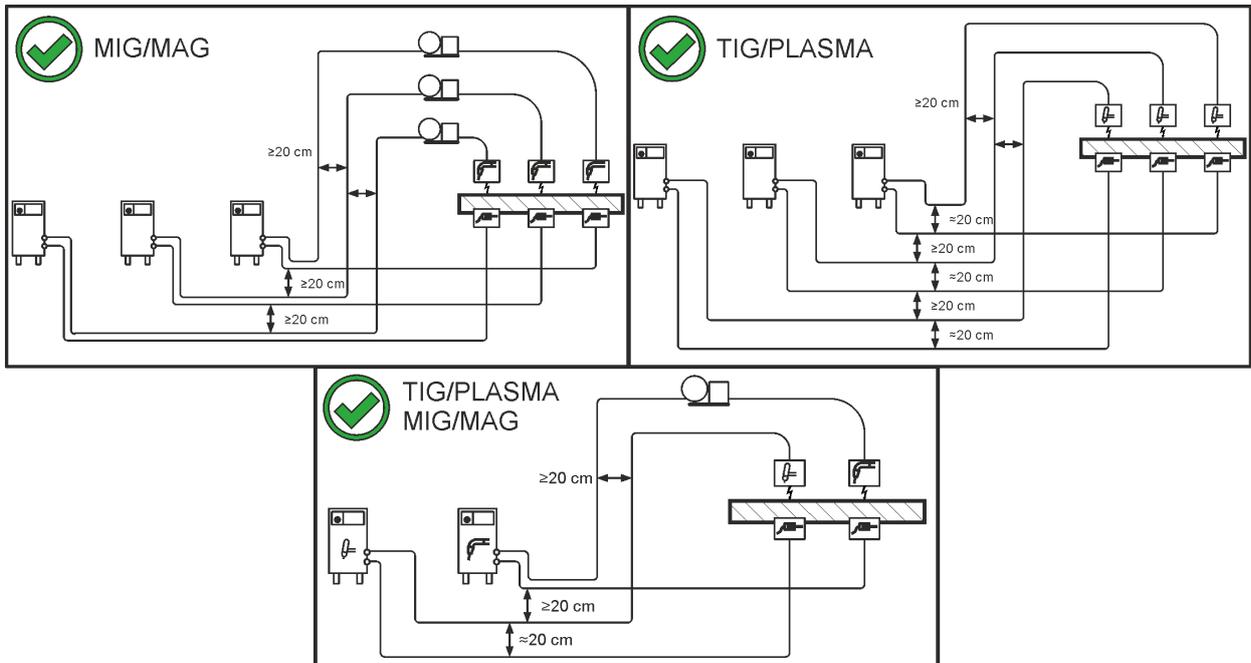


Figure 5-6

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

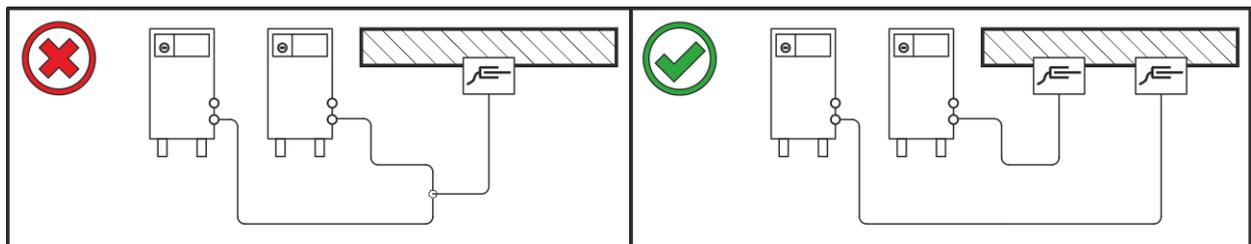


Figure 5-7

- 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.**

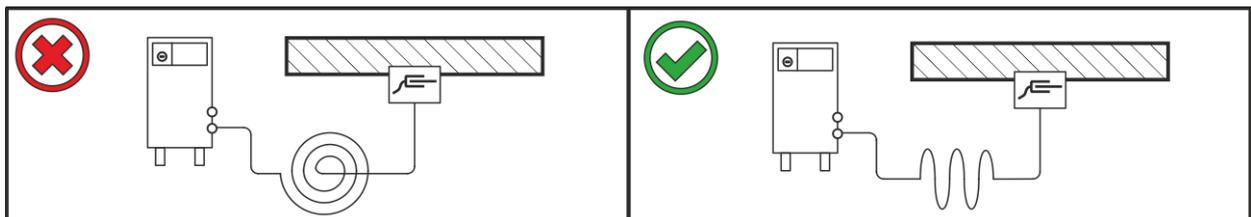


Figure 5-8

## 5.1.9 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.

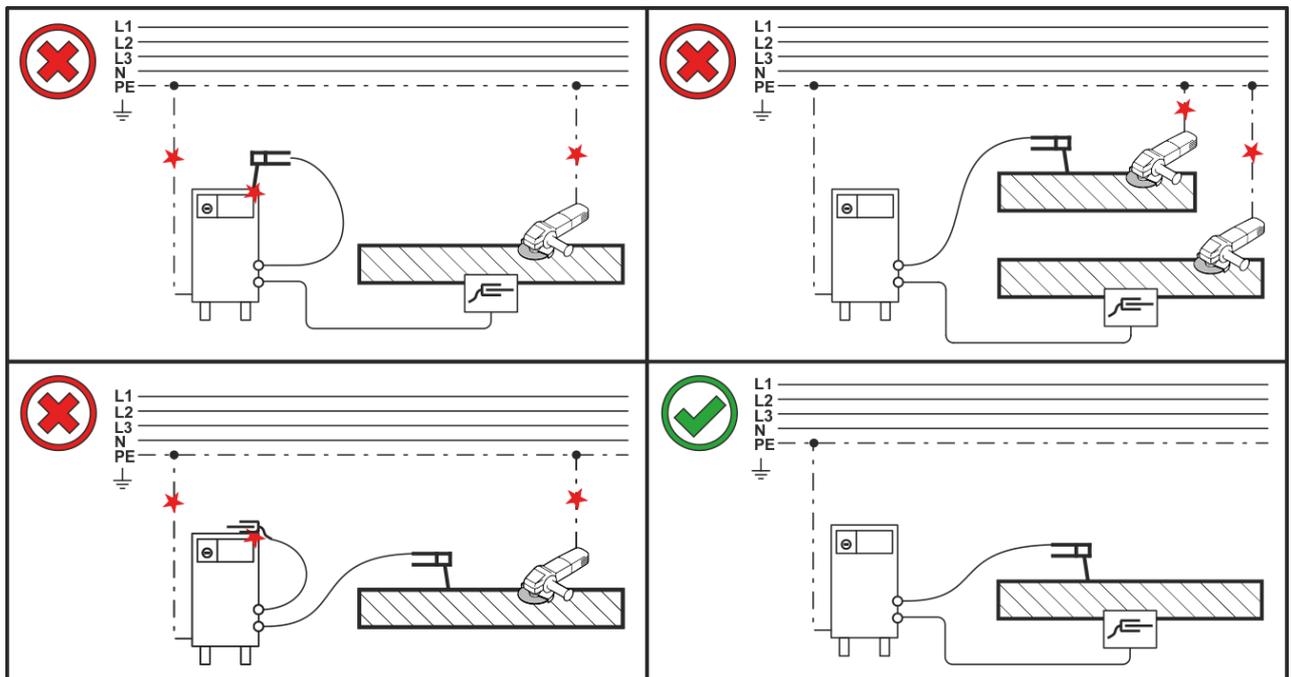


Figure 5-9

## 5.2 MIG/MAG welding

### 5.2.1 Connection for workpiece lead

Some wire electrodes (e.g. self-shielding cored wire) are welded using negative polarity. In this case, the welding current lead should be connected to the "-" welding current socket, and the workpiece lead should be connected to the "+" welding current socket. Observe the information from the electrode manufacturer!

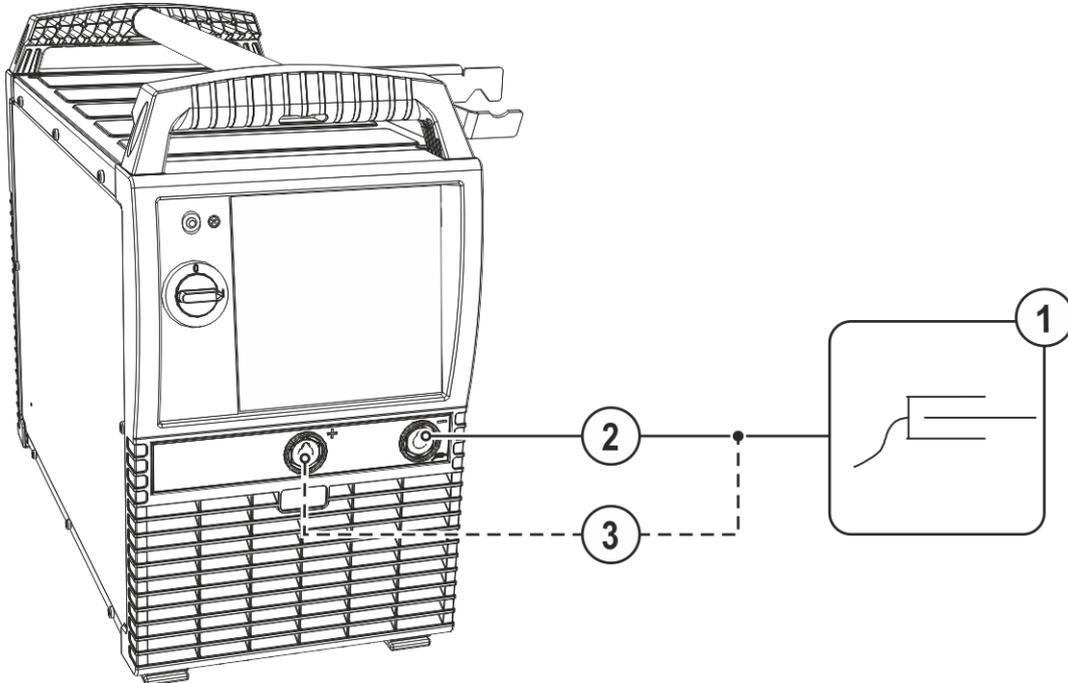


Figure 5-10

Item	Symbol	Description
1		Workpiece
2		"-" welding current connection socket • ----- MIG/MAG welding: Workpiece connection
3		Connection socket, "+" welding current • ----- MIG/MAG cored wire welding: Workpiece connection

- Insert the plug on the workpiece lead into the "-" welding current connection socket and lock.

### 5.2.2 Welding torch connection

For connection description, see the relevant "Wire feeder" operating instructions.

### 5.2.3 Welding task selection

For selection of the welding task and for general operation see the relevant Control operating instructions.

## 5.3 MMA welding

### ⚠ CAUTION



**Risk of crushing and burns!**

**When changing stick electrodes there is a risk of crushing and burns!**

- Wear appropriate and dry protective gloves.
- Use an insulated pair of tongs to remove the used stick electrode or to move welded workpieces.

### 5.3.1 Connection for workpiece lead

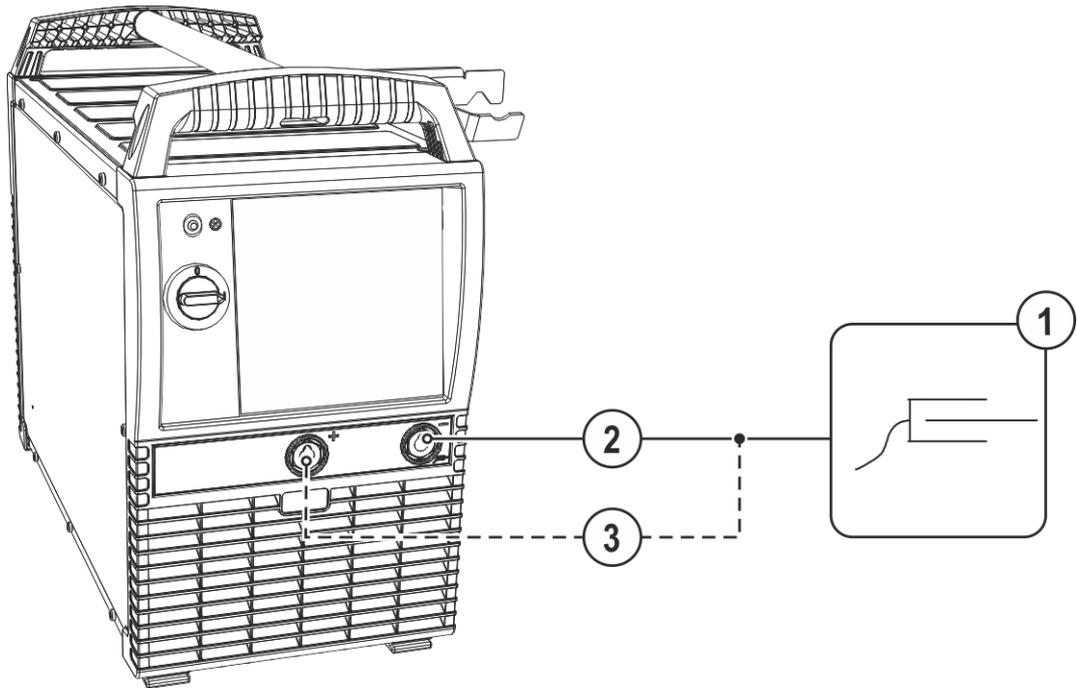


Figure 5-11

Item	Symbol	Description
1		Workpiece
2		Connection socket, welding current “-”
3		Connection socket, “+” welding current

- Insert the electrode holder plug and workpiece lead into the welding current socket depending on application and lock in place by turning to the right. The corresponding polarity will be based on the information of the electrode manufacturer on the electrode packaging.

### 5.3.2 Electrode holder connection

For connection description, see the relevant “Wire feeder” operating instructions.

### 5.3.3 Welding task selection

For selection of the welding task and for general operation see the relevant Control operating instructions.

## 5.4 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.

### 5.4.1 Connection for workpiece lead

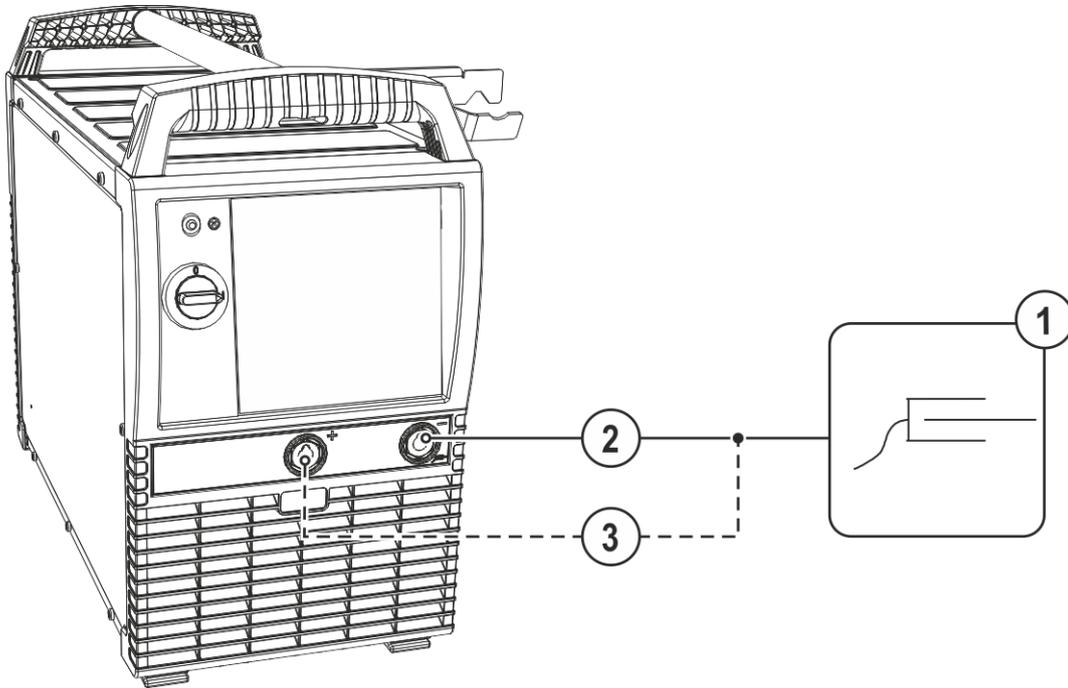


Figure 5-12

Item	Symbol	Description
1		Workpiece
2		Connection socket, welding current “-”
3		Connection socket, “+” welding current

- Insert cable plug on the workpiece lead into the “-” welding current socket and lock by turning to the right.

### 5.4.2 Connecting gouging torch

For connection description, see the relevant “Wire feeder” operating instructions.

### 5.4.3 Welding task selection

For selection of the welding task and for general operation see the relevant Control operating instructions.

## 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 last 4 minutes until the capacitors have discharged!

#### WARNING



**Improper maintenance, testing and repairs!**

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

- Follow the maintenance instructions > see 6.2 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.

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.

#### 6.1.1 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.

#### 6.1.2 Dirt filter

When using a dirt filter, the cooling air throughput is reduced and the duty cycle of the machine is reduced as a result. The duty cycle decreases with the increasing contamination of the filter. The dirt filter must be removed at regular intervals and cleaned by blowing out with compressed air (depending on the level of soiling).

## 6.2 Maintenance work, intervals

### 6.2.1 Daily maintenance tasks

#### 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

#### 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).

### 6.2.2 Monthly maintenance tasks

#### 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

#### Functional test

- Selector switches, command devices, emergency stop devices, voltage reducing devices, message and control lamps
- Check wire guide elements (wire feed roll holder, wire feed nipple, wire guide tube) for tight fit. Recommendation for replacing the wire feed roll holder (eFeed) after 2000 hours of operation, see replacement parts).
- 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.

### 6.2.3 Annual test (inspection and testing during operation)

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. For more information refer to the "Warranty registration" brochure supplied and our information regarding warranty, maintenance and testing at [www.ewm-group.com](http://www.ewm-group.com)!

## 6.3 Disposing of equipment



### Proper disposal!

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

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

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

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

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

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

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

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

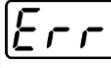
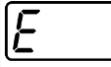
## 7 Rectifying faults

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

### 7.1 Error messages (power source)

**The possible error numbers displayed depend on the machine series and version!**

Depending on the options of the machine display, a fault is shown as follows:

Display type - machine control	Display
Graphic display	
two 7-segment displays	
one 7-segment display	

The possible cause of the fault is signalled by a corresponding fault number (see table). In the case of an error, the power unit shuts down.

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

#### Reset error (category legend)

<sup>A</sup> The error message disappears when the error is eliminated.

<sup>B</sup> The error message can be reset by pressing a push-button ◀.

All other error messages can only be reset by switching the machine off and on again.

#### Error 3: Tacho error

Category A, B

- ✓ Fault in the wire feeder.
  - ✘ Check the electrical connections (connectors, lines).
- ✓ Permanent overload of the wire drive.
  - ✘ Do not lay the liner in tight radii.
  - ✘ Check the wire in the liner for ease of movement.

#### Error 4: Excess temperature

Category A

- ✓ The power source is overheating.
  - ✘ Allow the switched-on machine to cool.
- ✓ Fan is blocked, dirty or defective.
  - ✘ Check the fan and clean or replace.
- ✓ Air inlet or outlet is blocked.
  - ✘ Check the air inlet and outlet.

#### Error 5: Mains overvoltage

- ✓ Mains voltage is too high.
  - ✘ Check the mains voltages and compare them with the connection voltages of the power source.

#### Error 6: Mains undervoltage

- ✓ Mains voltage is too low.
  - ✘ Check the mains voltages and compare them with the connection voltages of the power source.

**Error 7: Low coolant level**

Category B

- ✓ Low flow rate.
  - ✗ Fill with coolant.
  - ✗ Check coolant flow - remove kinks in the hose package.
  - ✗ Adjust the flow threshold <sup>[1]</sup>.
  - ✗ Clean the cooler.
- ✓ Pump does not turn.
  - ✗ Turn the pump shaft.
- ✓ Air in the coolant circuit.
  - ✗ Vent the coolant circuit.
- ✓ The hose package is not filled with coolant.
  - ✗ Switch the machine off and on > pump running > filling process.
- ✓ Operation with a gas-cooled welding torch.
  - ✗ Deactivate the torch cooling.
  - ✗ Connect the coolant feed and return with a hose bridge.

**Error 8: Shielding gas error**

Category A, B

- ✓ No gas.
  - ✗ Check the gas supply.
- ✓ The pre-pressure is too low.
  - ✗ Remove kinks in the hose package (nominal value: 4-6 bar pre-pressure).

**Error 9: Secondary overvoltage**

- ✓ Overvoltage at the output: Inverter error.
  - ✗ Request service.

**Error 10: Earth fault (PE error)**

- ✓ Connection between welding wire and machine casing.
  - ✗ Remove the electrical connection.
- ✓ Connection between welding circuit and machine casing.
  - ✗ Check the connection and routing of the earth wire / welding torch.

**Error 11: Fast shut-down**

Category A, B

- ✓ Remove the logical signal "Robot ready" during the process.
  - ✗ Eliminate errors on the higher-level control.

## **Error 16: Pilot arc power source - collective error**

Category A

- ✓ The external emergency stop circuit has been interrupted.
  - ✘ Check the emergency stop circuit and eliminate the cause of the error.
- ✓ The emergency stop circuit of the power source has been activated (internally configurable).
  - ✘ Deactivate the emergency stop circuit.
- ✓ The power source is overheating.
  - ✘ Allow the switched-on machine to cool.
- ✓ Fan is blocked, dirty or defective.
  - ✘ Check the fan and clean or replace.
- ✓ Air inlet or outlet is blocked.
  - ✘ Check the air inlet and outlet.
- ✓ Short circuit on welding torch.
  - ✘ Check the welding torch.
  - ✘ Request service.

## **Error 17: Cold wire error**

Category B

- ✓ Fault in the wire feeder.
  - ✘ Check the electrical connections (connectors, lines).
- ✓ Permanent overload of the wire drive.
  - ✘ Do not lay the liner in tight radii.
  - ✘ Check the liner for ease of movement.

## **Error 18: Plasma gas error**

Category B

- ✓ No gas.
  - ✘ Check the gas supply.
- ✓ The pre-pressure is too low.
  - ✘ Remove kinks in the hose package (nominal value: 4-6 bar pre-pressure).

## **Error 19: Shielding gas error**

Category B

- ✓ No gas.
  - ✘ Check the gas supply.
- ✓ The pre-pressure is too low.
  - ✘ Remove kinks in the hose package (nominal value: 4-6 bar pre-pressure).

**Error 20: Low coolant level**

Category B

- ✓ Low flow rate.
  - ✗ Fill with coolant.
  - ✗ Check coolant flow - remove kinks in the hose package.
  - ✗ Adjust the flow threshold <sup>[1]</sup>.
  - ✗ Clean the cooler.
- ✓ Pump does not turn.
  - ✗ Turn the pump shaft.
- ✓ Air in the coolant circuit.
  - ✗ Vent the coolant circuit.
- ✓ The hose package is not filled with coolant.
  - ✗ Switch the machine off and on > pump running > filling process.
- ✓ Operation with a gas-cooled welding torch.
  - ✗ Deactivate the torch cooling.
  - ✗ Connect the coolant feed and return with a hose bridge.

**Error 22: Excess coolant temperature**

Category B

- ✓ Coolant is overheating <sup>[1]</sup>.
  - ✗ Allow the switched-on machine to cool.
- ✓ Fan is blocked, dirty or defective.
  - ✗ Check, clean or replace the fan.
- ✓ Air inlet or outlet is blocked.
  - ✗ Check the air inlet and outlet.

**Error 23: Excess temperature of the HF choke**

Category A

- ✓ External XF ignition unit is overheating.
  - ✗ Allow the switched-on machine to cool.

**Error 24: Pilot arc ignition error**

Category B

- ✓ The pilot arc cannot ignite.
  - ✗ Check the welding torch equipment.

**Error 25: Forming gas error**

Category B

- ✓ No gas.
  - ✗ Check the gas supply.
- ✓ The pre-pressure is too low.
  - ✗ Remove kinks in the hose package (nominal value: 4-6 bar pre-pressure).

**Error 26: Excess pilot arc module temperature**

Category A

- ✓ The power source is overheating.
  - ✗ Allow the switched-on machine to cool.
- ✓ Fan is blocked, dirty or defective.
  - ✗ Check the fan and clean or replace.
- ✓ Air inlet or outlet is blocked.
  - ✗ Check the air inlet and outlet.

## **Error 32: Error I>0**

- ↙ Current recording is faulty.
- ✘ Request service.

## **Error 33: Error UIST**

- ↙ Voltage recording is faulty.
- ✘ Eliminate the short circuit in the welding circuit.
- ✘ Remove the external sensor voltage.
- ✘ Request service.

## **Error 34: Electronics error**

- ↙ A/D channel error
- ✘ Switch the machine off and on.
- ✘ Request service.

## **Error 35: Electronics error**

- ↙ Slope error
- ✘ Switch the machine off and on.
- ✘ Request service.

## **Error 36: [S] errors**

- ↙ [S] conditions violated.
- ✘ Switch the machine off and on.
- ✘ Request service.

## **Error 37: Electronics error**

- ↙ The power source is overheating.
- ✘ Allow the switched-on machine to cool.
- ↙ Fan is blocked, dirty or defective.
- ✘ Check the fan and clean or replace.
- ↙ Air inlet or outlet is blocked.
- ✘ Check the air inlet and outlet.

## **Error 38: Error IIST**

- ↙ Short circuit in the welding circuit before welding.
- ✘ Eliminate the short circuit in the welding circuit.
- ✘ Request service.

## **Error 39: Electronics error**

- ↙ Secondary overvoltage
- ✘ Switch the machine off and on.
- ✘ Request service.

## **Error 40: Electronics error**

- ↙ Error I>0
- ✘ Request service.

## **Error 47: Radio link (BT)**

Category B

- ↙ Connection error between welding machine and peripheral unit.
- ✘ Note the documentation for the data interface with radio transmission.

**Error 48: Ignition error**

Category B

- ✓ No ignition at process start (automated machines).
  - ✘ Check the wire feeding
  - ✘ Check the load cable connections in the welding circuit.
  - ✘ Clean corroded surfaces on the workpiece before welding if necessary.

**Error 49: Arc interruption**

Category B

- ✓ An arc interruption occurred during welding with an automated system.
  - ✘ Check the wire feeding.
  - ✘ Adjust the welding speed.

**Error 50: Program number**

Category B

- ✓ Internal error.
  - ✘ Request service.

**Error 51: Emergency stop**

Category A

- ✓ The external emergency stop circuit has been interrupted.
  - ✘ Check the emergency stop circuit and eliminate the cause of the error.
- ✓ The emergency stop circuit of the power source has been activated (internally configurable).
  - ✘ Deactivate the emergency stop circuit.

**Error 52: No wire feeder**

- ✓ After switching on the automated system, no wire feeder (DV) was detected.
  - ✘ Check or connect the control cables of the wire feeders.
  - ✘ Check the identification number of the automated wire feeder (for 1DV: number 1, for 2DV: each a wire feeder with number 1 and a wire feeder with number 2).

**Error 53: No wire feeder 2**

Category B

- ✓ Wire feeder 2 was not detected.
  - ✘ Check the control cable connections.

**Error 54: VRD errors**

- ✓ Error in the open-circuit voltage reduction.
  - ✘ If necessary, disconnect the external machine from the welding circuit.
  - ✘ Request service.

**Error 55: Excess wire feeder current**

Category B

- ✓ Excess current detected in the wire feed mechanism.
  - ✘ Do not lay the liner in tight radii.
  - ✘ Check the liner for ease of movement.

**Error 56: Mains phase failure**

- ✓ One phase of the mains voltage has failed.
  - ✘ Check mains connection, mains plug and mains fuses.

## **Error 57: Slave tacho error**

Category B

- ✓ Fault in the wire feeder (slave drive).
  - ✘ Check the connections (connectors, lines).
- ✓ Permanent overload of the wire drive (slave drive).
  - ✘ Do not lay the liner in tight radii.
  - ✘ Check the liner for ease of movement.

## **Error 58: Short circuit**

Category B

- ✓ Short circuit in the welding circuit.
  - ✘ Eliminate the short circuit in the welding circuit.
  - ✘ Place the welding torch on an insulated surface.

## **Error 59: Incompatible machine**

- ✓ A machine connected to the system is not compatible.
  - ✘ Disconnect the incompatible machine from the system.

## **Error 60: Incompatible software**

- ✓ The software of a machine is not compatible.
  - ✘ Disconnect the incompatible machine from the system
  - ✘ Request service.

## **Error 61: Welding monitoring**

- ✓ The actual value of a welding parameter is outside the specified tolerance range.
  - ✘ Maintain the tolerance ranges.
  - ✘ Adjust the welding parameters.

## **Error 62: System component**

- ✓ The system component was not found.
  - ✘ Request service.

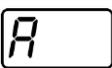
## **Error 63: Mains voltage error**

- ✓ Operating and mains voltage are incompatible.
  - ✘ Check or adjust the operating and mains voltage.

[1] See technical data for values and other switching thresholds > see 8 chapter.

## 7.2 Warnings

Depending on the display options of the machine display, a warning message is displayed as follows:

Display type - machine control	Display
Graphic display	
two 7-segment displays	
one 7-segment display	

The cause of the warning is indicated by a corresponding warning number (see table).

- In case of multiple warnings, these are displayed in sequence.
- Document machine warning and inform service personnel, if required.

Warning	Potential cause / remedy
1   Excess temperature	A shutdown is imminent due to excess temperature.

Warning		Potential cause / remedy
2	Half-wave failures	Check process parameters.
3	Torch cooling warning	Check coolant level and top up if necessary.
4	Shielding gas	Check shielding gas supply.
5	Coolant flow	Check min. flow rate. <sup>[2]</sup>
6	Wire reserve	Only a small amount of wire is left on the spool.
7	CAN bus failure	Wire feeder not connected; automatic circuit-breaker of wire feed motor (reset the tripped automatic circuit-breaker by actuating).
8	Welding circuit	The inductance of the welding circuit is too high for the selected welding task.
9	WF configuration	Check WF configuration.
10	Partial inverter	One of several partial inverters is not supplying welding current.
11	Excess temperature of the coolant <sup>[1]</sup>	Check temperature and switching thresholds. <sup>[2]</sup>
12	Welding monitoring	The actual value of a welding parameter is outside the specified tolerance field.
13	Contact error	The resistance in the welding circuit is too high. Check earth connection.
14	Alignment error	Switch the machine off and on. If the error persists, notify Service.
15	Mains fuse	The power limit of the mains fuse is reached and the welding power is reduced. Check the fuse setting.
16	Shielding gas warning	Check the gas supply.
17	Plasma gas warning	Check the gas supply.
18	Forming gas warning	Check the gas supply.
19	Gas warning 4	reserved
20	Coolant temperature warning	Check coolant level and top up if necessary.
21	Excess temperature 2	reserved
22	Excess temperature 3	reserved
23	Excess temperature 4	reserved
24	Coolant flow warning	Check coolant supply. Check coolant level and top up if necessary. Check flow and switching thresholds. <sup>[2]</sup>
25	Flow 2	reserved
26	Flow 3	reserved
27	Flow 4	reserved
28	Wire stock warning	Check wire feeding.
29	Low wire 2	reserved
30	Low wire 3	reserved
31	Low wire 4	reserved
32	Tacho error	Fault of wire feeder - permanent overload of the wire drive.
33	Excess current on the wire feed motor	Excess current detected on wire feed motor.

Warning	Potential cause / remedy
34 JOB unknown	JOB selection was not carried out because the JOB number is unknown.
35 Excess current on the wire feed motor slave	Excess current detected on wire feed motor slave (push/push system or intermediate drive).
36 Slave tacho error	Fault of wire feeder - permanent overload of the wire drive (push/push system or intermediate drive).
37 FAST bus failure	Wire feeder not connected (reset by actuating the automatic circuit-breaker of the wire feed motor).
38 Incomplete component information	Check the XNET component management.
39 Mains half-wave failure	Check supply voltage.
40 Weak power grid	Check supply voltage.
41 Cooling unit not recognised	Check the cooling unit connection.
47 Battery (remote control, type BT)	Battery level is low (replace battery)

<sup>[1]</sup> only for the XQ machine series

<sup>[2]</sup> See technical data for values and other switching thresholds > see 8 chapter.

## 7.3 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

### Functional errors

- ↘ Mains fuse triggers - unsuitable mains fuse
  - ✘ Set up recommended mains fuse > see 8 chapter.
- ↘ Machine does not start up after switching on (device fan and possibly coolant pump have no function).
  - ✘ Connect the control cable of the wire feeder.
- ↘ 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)
- ↘ Machine restarts continuously
- ↘ Wire feeder without function
- ↘ System does not start up
  - ✘ 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
  - ✘ Properly fasten the contact tip and contact tip holder.

### 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 and, if necessary, replace.
- ✓ Setting the spool brake
  - ✗ Check settings and correct if necessary
- ✓ Setting pressure units
  - ✗ 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

## 7.4 Vent coolant circuit

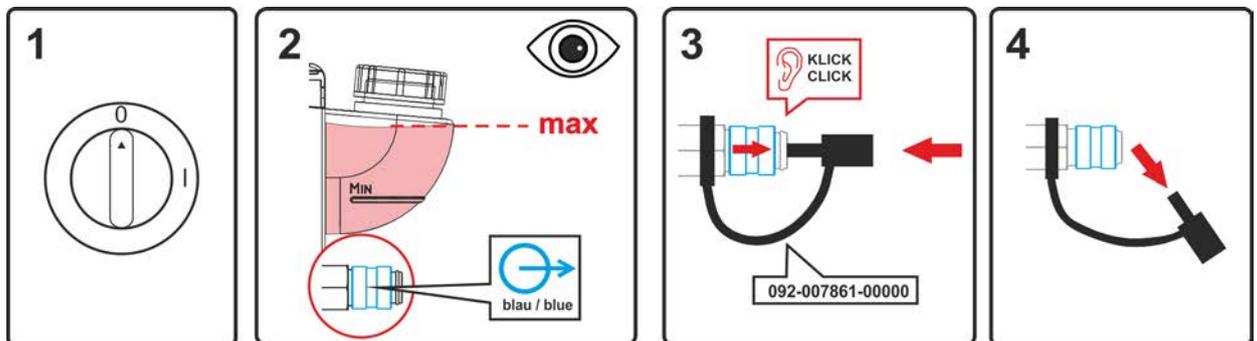


Figure 7-1

- 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)!**

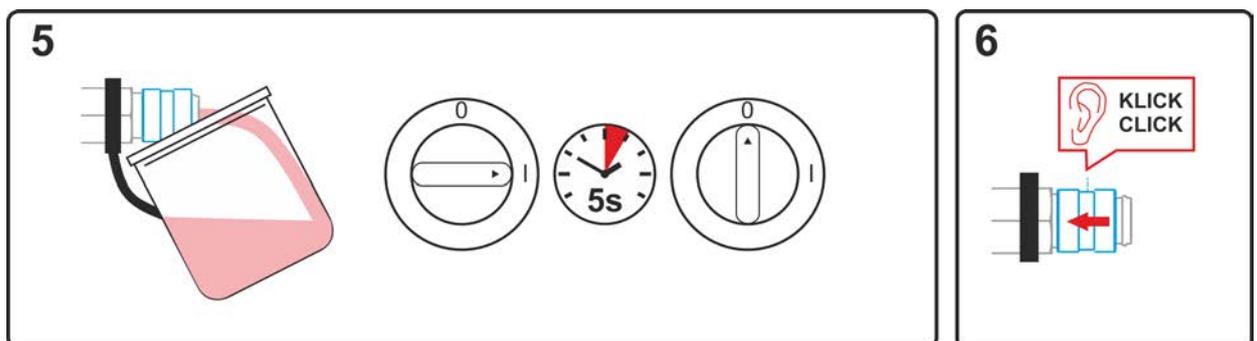


Figure 7-2

- 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 Taurus 355

	MIG/MAG	MMA
Welding current (I <sub>2</sub> )	5 A to 350 A	
Welding voltage according to standard (U <sub>2</sub> )	14,3 V to 31,5 V	20,2 V to 34,0 V
Duty cycle DC at 40° C <sup>[1]</sup>	350 A (60 %) / 300 A (100 %)	
Open circuit voltage (U <sub>0</sub> )	79 V	
Mains voltage (Tolerance)	3 x 400 V (-25 % to +20 %)	
Frequency	50/60 Hz	
mains fuse <sup>[2]</sup>	3 x 16 A	3 x 20 A
Mains connection cable	H07RN-F4G6	
max. Connected load (S <sub>1</sub> )	13,9 kVA	15,0 kVA
Generator rating (Rec.)	20,3 kVA	
Cos φ / efficiency	0,99 / 88 %	
Protection class / Overvoltage category	I / III	
Contamination level	3	
Insulation class / protection classification	H / IP 23	
Residual current circuit breaker	Type B (recommended)	
Noise level <sup>[3]</sup>	<70 dB(A)	
Ambient temperature <sup>[4]</sup>	-25 °C to +40 °C	
Machine cooling / Torch cooling	Fan (AF) / gas or water	
Workpiece lead (min.)	70 mm <sup>2</sup>	
EMC class	A	
Test mark	 /  /  / 	
Standards used	See declaration of conformity (appliance documents)	
Dimensions (l x b x h)	625 x 298 x 531 mm / 24.6 x 11.7 x 20.9 inch	
Weight	41 kg / 90.4 lb.	

<sup>[1]</sup> Load cycle: 10 min. (60 % DC  $\pm$  6 min. welding, 4 min. pause)

<sup>[2]</sup> Safety fuses are recommended DIAZED xxA gG. When using automatic cutouts, the "C" trigger characteristic must be used.

<sup>[3]</sup> Noise level during idle mode and operation under standard load according to IEC 60974-1 at the maximum operating point.

<sup>[4]</sup> Ambient temperature dependent on coolant! Observe coolant temperature range!

## 8.2 Taurus 405

	MIG/MAG	MMA
Welding current ( $I_2$ )	5 A to 400 A	
Welding voltage according to standard ( $U_2$ )	14,3 V to 34 V	20,2 V to 36,0 V
Duty cycle DC at 40° C <sup>[1]</sup>	400 A (100 %)	
Open circuit voltage ( $U_0$ )	79 V	
Mains voltage (Tolerance)	3 x 400 V (-25 % to +20 %)	
Frequency	50/60 Hz	
mains fuse <sup>[2]</sup>	3 x 25 A	3 x 32 A
Mains connection cable	H07RN-F4G6	
max. Connected load ( $S_1$ )	17,2 kVA	18,2 kVA
Generator rating (Rec.)	24,6 kVA	
Maximum mains impedance (@PCC) <sup>[3]</sup>	70,5 mOhm	
Cos $\varphi$ / efficiency	0,99 / 90 %	
Protection class / Overvoltage category	I / III	
Contamination level	3	
Insulation class / protection classification	H / IP 23	
Residual current circuit breaker	Type B (recommended)	
Noise level <sup>[4]</sup>	<70 dB(A)	
Ambient temperature <sup>[5]</sup>	-25 °C to +40 °C	
Machine cooling / Torch cooling	Fan (AF) / gas or water	
Workpiece lead (min.)	70 mm <sup>2</sup>	
EMC class	A	
Test mark	 /  /  / 	
Standards used	See declaration of conformity (appliance documents)	
Dimensions (l x b x h)	625 x 298 x 531 mm / 24.6 x 11.7 x 20.9 inch	
Weight	41 kg / 90.4 lb.	

<sup>[1]</sup> Load cycle: 10 min. (60 % DC  $\triangleq$  6 min. welding, 4 min. pause)

<sup>[2]</sup> Safety fuses are recommended DIAZED xxA gG. When using automatic cutouts, the "C" trigger characteristic must be used.

<sup>[3]</sup> This welding equipment does not comply with IEC 61000-3-12. When connecting a welding machine to a public low-voltage supply system, the manufacturer or operator has to consult the electricity utilities to make sure the welding machine may be connected.

<sup>[4]</sup> Noise level during idle mode and operation under standard load according to IEC 60974-1 at the maximum operating point.

<sup>[5]</sup> Ambient temperature dependent on coolant! Observe coolant temperature range!

## 8.3 Taurus 505

	MIG/MAG	MMA
Welding current (I <sub>2</sub> )	5 A to 500 A	
Welding voltage according to standard (U <sub>2</sub> )	14,3 V to 39,0 V	20,2 V to 40,0 V
Duty cycle DC at 40° C <sup>[1]</sup>	500 A (60 %) / 430 A (100 %)	
Open circuit voltage (U <sub>0</sub> )	79 V	
Mains voltage (Tolerance)	3 x 400 V (-25 % to +20 %)	
Frequency	50/60 Hz	
mains fuse <sup>[2]</sup>	3 x 32 A	
Mains connection cable	H07RN-F4G6	
max. Connected load (S <sub>1</sub> )	24,6 kVA	25,2 kVA
Generator rating (Rec.)	34,0 kVA	
Maximum mains impedance (@PCC) <sup>[3]</sup>	98 mOhm	
Cos φ / efficiency	0,99 / 90 %	
Protection class / Overvoltage category	I / III	
Contamination level	3	
Insulation class / protection classification	H / IP 23	
Residual current circuit breaker	Type B (recommended)	
Noise level <sup>[4]</sup>	<70 dB(A)	
Ambient temperature <sup>[5]</sup>	-25 °C to +40 °C	
Machine cooling / Torch cooling	Fan (AF) / gas or water	
Workpiece lead (min.)	95 mm <sup>2</sup>	
EMC class	A	
Test mark	 /  /  / 	
Standards used	See declaration of conformity (appliance documents)	
Dimensions (l x b x h) L / B / H	625 x 298 x 531 mm / 24.6 x 11.7 x 20.9 inch	
Weight	45 kg / 99.2 lb.	

<sup>[1]</sup> Load cycle: 10 min. (60 % DC  $\triangleq$  6 min. welding, 4 min. pause)

<sup>[2]</sup> Safety fuses are recommended DIAZED xxA gG. When using automatic cutouts, the "C" trigger characteristic must be used.

<sup>[3]</sup> This welding equipment does not comply with IEC 61000-3-12. When connecting a welding machine to a public low-voltage supply system, the manufacturer or operator has to consult the electricity utilities to make sure the welding machine may be connected.

<sup>[4]</sup> Noise level during idle mode and operation under standard load according to IEC 60974-1 at the maximum operating point.

<sup>[5]</sup> 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 System components

Type	Designation	Item no.
Drive 4X Steel puls S	Wire feeder, water cooled, Euro torch connector	090-005593-00502
Drive 4X Steel Synergic S	Wire feeder, water cooled, Euro torch connector	090-005595-00502
Drive 4 Basic S	Wire feeder, water cooled, Euro torch connector	090-005597-00502

### 9.2 Voltage converter

Type	Designation	Item no.
voltConverter 230/400	Voltage converter	090-008800-00502

### 9.3 Welding torch cooling system

Type	Designation	Item no.
cool50-2 U40	Cooling module	090-008603-00502
cool50-2 U42	Cooling unit with reinforced pump	090-008796-00502

### 9.4 Transport system

Type	Designation	Item no.
Trolley 35.2-2	Transport vehicle	090-008296-00000
Trolley 35-6	Transport cart	090-008827-00000
Type	Designation	Item no.
Trolley 55-5	Transport cart, assembled	090-008632-00000
Trolley 55-6	Transport cart, assembled	090-008825-00000
ON TR Trolley 55-5 / 55-6	Cross arm and holder for wire feeder	092-002700-00000
ON PS Trolley 55-5 / 55-6	Pivot support	092-002712-00000
ON Case	Tool box for mounting to Trolley 55-5/6	092-002899-00000

### 9.5 Options

Type	Designation	Item no.
ON WAK TG.03/TG.04/TG.09/K.02	Wheel assembly kit	092-001356-00000
ON Filter TG.04/K.02	Contamination filter for air inlet	092-002698-00000
ON FC CS 405/505	Pedestal for transport with floor conveyors	092-007896-00000
ON WAK CS 405/505	Wheel assembly kit for CS 505	092-007897-00000
ON CS TG.0004	Crane console, transport/ram protection	092-007895-00032

### 9.6 General accessories

Type	Designation	Item no.
32A 5POLE/CEE	Machine plug	094-000207-00000
DM 842 Ar/CO2 230bar 30l D	Pressure regulator with manometer	394-002910-00030

## 10 Appendix

### 10.1 Searching for a dealer

Sales & service partners  
[www.ewm-group.com/en/specialist-dealers](http://www.ewm-group.com/en/specialist-dealers)



"More than 400 EWM sales partners worldwide"