

En internet	Degauss 600 RT DGS1	
099-002065-EW501	Observe additional system documents!	18.02.2020



www.ewm-group.com



# **General instructions**

# \land WARNING



#### Read the operating instructions!

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

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

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

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

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

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

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# 2 For your safety

# 2.1 Notes on using these operating instructions

# **A 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.

# \land 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.

### **A**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.



#### Explanation of icons 2.2

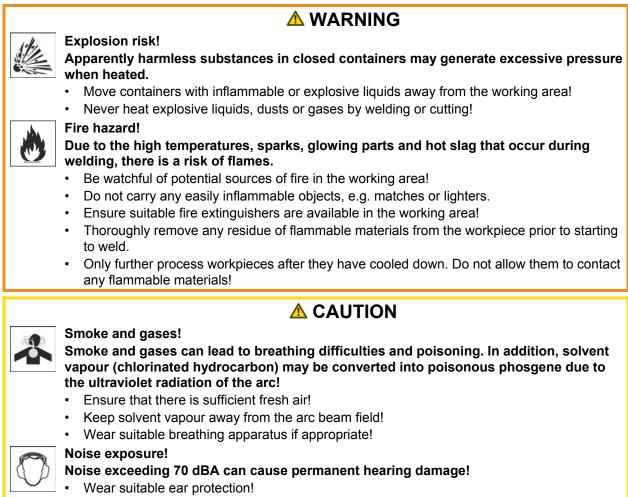
ymbol	Description	Symbol	Description
R <sup>2</sup>	Indicates technical aspects which the user must observe.	)	Activate and release / Tap / Tip
	Switch off machine	ÞÐ	Release
	Switch on machine		Press and hold
		ÛŊ	Switch
	Incorrect / Invalid	ØÐ	Turn
	Correct / Valid	$\angle$	Numerical value – adjustable
÷	Input	-)	Signal light lights up in green
	Navigation	•••••	Signal light flashes green
	Output	-)	Signal light lights up in red
45	Time representation (e.g.: wait 4 s / actuate)	•••••	Signal light flashes red
-11	Interruption in the menu display (other setting options possible)		
*	Tool not required/do not use		
	Tool required/use		



	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!
	<ul> <li>Observe the accident prevention regulations and any regional regulations!</li> <li>Inform persons in the working area that they must comply with the regulations!</li> </ul>
_	Risk of injury from electrical voltage!
4	Voltages can cause potentially fatal electric shocks and burns on contact. Even low vol- tages can cause a shock and lead to accidents.
	<ul> <li>Never touch live components such as welding current sockets or stick, tungsten or wire electrodes!</li> </ul>
	<ul> <li>Always place torches and electrode holders on an insulated surface!</li> </ul>
	<ul> <li>Wear the full personal protective equipment (depending on the application)!</li> </ul>
	<ul> <li>The machine may only be opened by qualified personnel!</li> </ul>
	The device must not be used to defrost pipes!
	Hazard when interconnecting multiple power sources!
<b>V</b> _	If a number of power sources are to be connected in parallel or in series, only a techni- cal specialist may interconnect the sources as per standard IEC 60974-9:2010: Installa- tion 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.
	<ul> <li>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!)</li> </ul>
	<ul> <li>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 com- bined, which is not permitted.</li> </ul>
000	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.
	<ul> <li>Welding helmet with proper protection against ionizing radiation (IR and UV radiation) and heat.</li> </ul>
	<ul> <li>Dry welding clothing (shoes, gloves and body protection) to protect against warm environ- ments with conditions comparable to ambient temperatures of 100 °C or higher and arcing and work on live components.</li> </ul>
	Hearing protection against harming noise.
	Risk of injury due to radiation or heat!
1 A	Arc radiation can lead to skin and eye injuries.
-	Contact with hot workpieces and sparks can lead to burns.
	<ul> <li>Use hand shield or welding helmet with the appropriate safety level (depends on the application).</li> </ul>
	<ul> <li>Wear dry protective clothing (e.g. hand shield, gloves, etc.) in accordance with the applicable regulations of your country.</li> </ul>
	<ul> <li>Persons who are not directly involved should be protected with a welding curtain or suitable</li> </ul>
	safety screen against radiation and the risk of blinding!

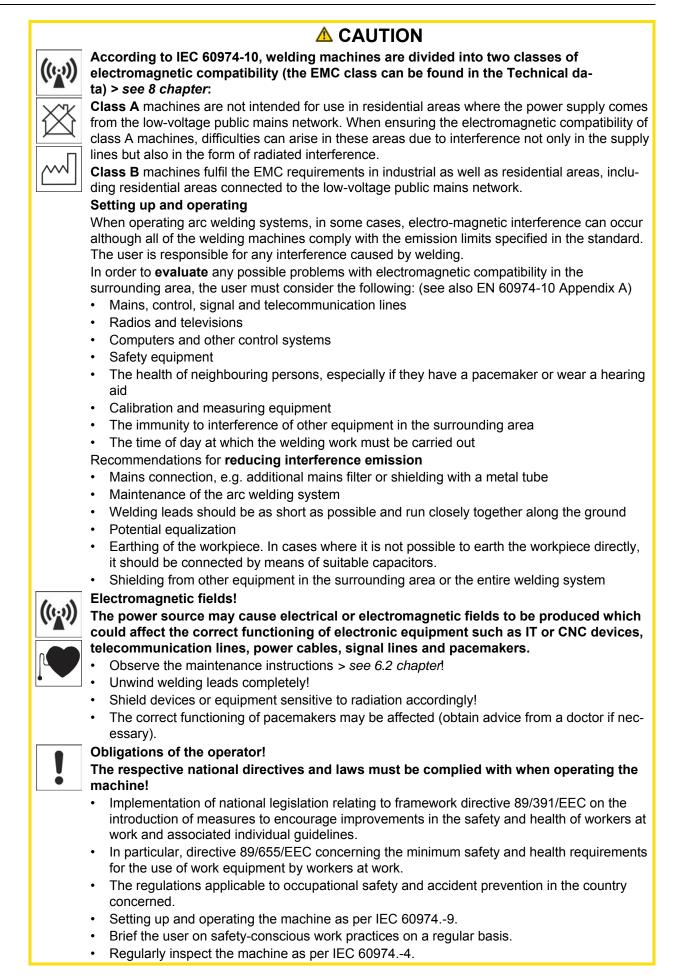
Safety instructions





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







- 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

### 



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.

# **A** 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° (ac-cording 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

§



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

Demagnetization machine to demagnetize ferromagnetic workpieces in welding operations. The RT DGS1 remote control activates the additional activgauss function to generate an opposing magnetic field during the welding process.

### 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 <u>www.ewm-group.com</u>!

#### 3.2.2 Declaration of Conformity

The labelled product 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 the manufacturer, this declaration shall be voided. An original document of the specific declaration of conformity is included with every product.

#### 3.2.3 Welding in environments with increased electrical hazards



In compliance with IEC / DIN EN 60974, VDE 0544 the machines can be used in environments with an increased electrical hazard.

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

### \land 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.

#### 3.2.5 Calibration/Validation

We hereby confirm that this product was tested with calibrated measuring equipment according to the applicable standards IEC/EN 60974, ISO/EN 17662 and complies with the permissible tolerances. Recommended calibration interval: 12 months.



# 4 Machine description – quick overview

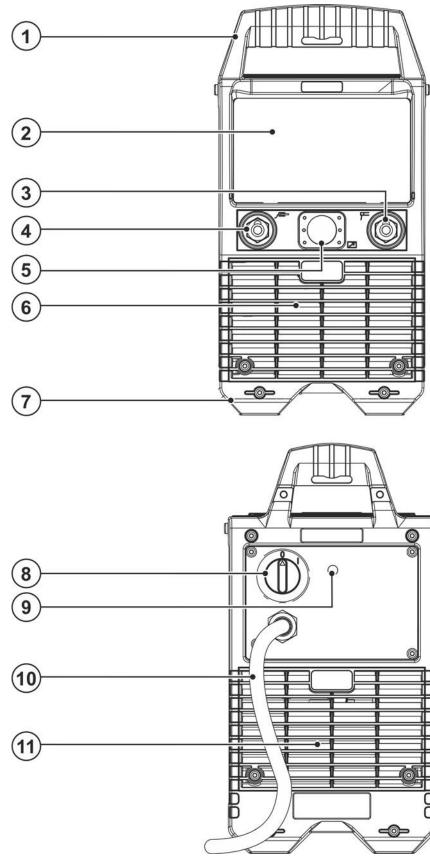
# 4.1 Scope of delivery

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

Position	Quantity	Type and designation	Item number
		Degauss 600 Degaussing machine	090-002065-00502
Q	2	WKL H01N2-D 5m 35mm <sup>2</sup> 13mm Welding extension cable	092-002888-00005
		LC 35qmm 20m Load cable (plug/plug)	092-002889-00020
$\bigcirc$	1	RT DGS1 Degauss remote control	090-008806-00000
	1	RA5 19POL 5m Connection cable	092-001470-00005



#### 4.2 Front view / rear view









ltem	Symbol	Description		
1		Transport elements		
		Transport handle and transport belt > see 5.1.4 chapter		
2		Operating elements		
		Device control > see 4.3 chapter and protective cap > see 5.1.7 chapter		
3		Connection socket, potential –		
4	╉	Connection socket, "+" potential		
5		Connection socket, 19-pole		
		Remote control connection		
6		Cooling air inlet		
		Dirt filter optional > see 6.1.2 chapter		
7		Machine feet		
8	$\bigcirc$	Main switch, machine on/off		
9	-17	Push-button of automatic circuit-breaker for pole reversing switch		
10	5	Mains connection cable > see 5.1.8 chapter		
11		Cooling air outlet		

#### Machine control – Operating elements 4.3

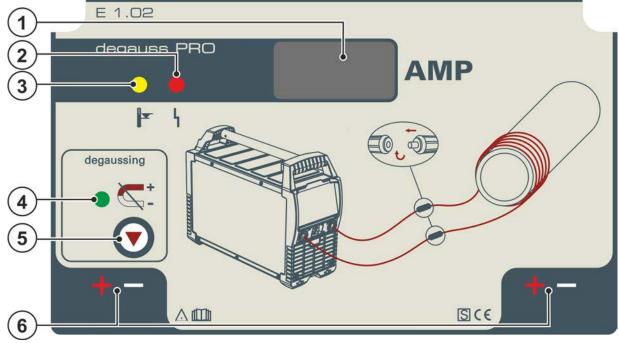


Figure 4-2

Item	Symbol	Description
1		Three-figure display Presentation of process parameters.
2		Collective interference signal light For error messages, > see 7.2 chapter
3		Excess temperature signal light / Welding torch cooling failure For error messages > see 7.2 chapter
4	+	Signal light of degaussing (degauss) The signal light degauss flashes during degaussing.
5		<b>Degaussing push-button</b> Use this push-button to start and stop the degaussing process.
6	+ -	Welding current polarity signal light The signal light shows the selected polarity at the welding current socket below.





#### 4.3.1 **RT DGS1**

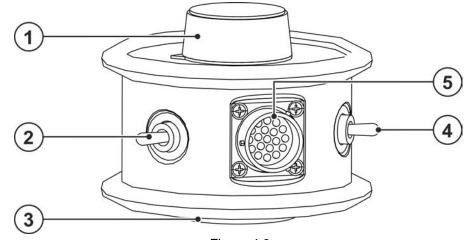


Figure 4-3

Item	Symbol	Description
1		Rotary knob for degaussing current
		Infinitely variable adjustment of the degaussing current.
2	5	Polarity switch (pole reversal)
	Ð	The changeover switch allows reversal of the current polarity (+/-) at the connection sockets.
3		Fixing magnet
		For fixing to the power source
4	Procedure of the changeover switch activgauss	
	L	ON Switched on
		OFF Switched off
5	7	19-pole connection socket (analogue)
	<b>/</b>	For connecting the control lead.

Transport and installation



# 5 Design and function

### \land 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!

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

### 5.1 Transport and installation



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.

\land WARNING

#### 5.1.1 Ambient conditions

- The machine may only be placed and operated on a suitable, load-bearing and even surface (according to IP 34s in case of outside operation as well)!
  - Ensure the machine is operated on an even, anti-slip floor and provide sufficient lighting of the work area.
  - 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!

#### 5.1.1.1 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)

#### 5.1.1.2 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



# **A**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 Transport belt

#### 5.1.4.1 Adjusting the length of the carrying strap

To demonstrate adjustment, lengthening the strap is shown in the figure. To shorten, the strap's loops must be inched in the opposite direction.

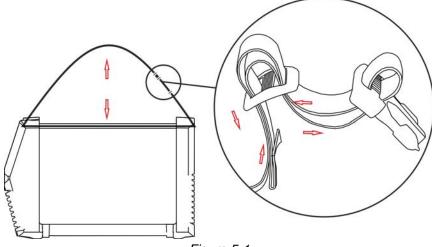


Figure 5-1



#### 5.1.5 Cable strap

In the delivery state, the machine has a cable strap for easy and orderly transport of earth lead, welding torch, electrode holder etc. The following figure shows the fastened strap and how the components can be secured.

The machine itself may not be transported with this cable strap!

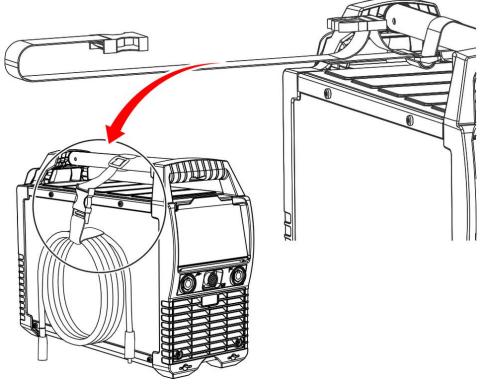


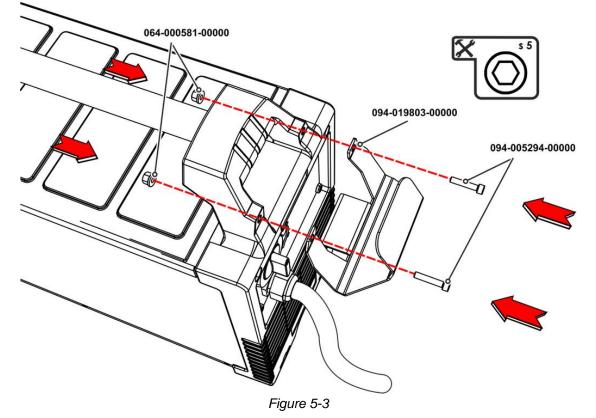
Figure 5-2



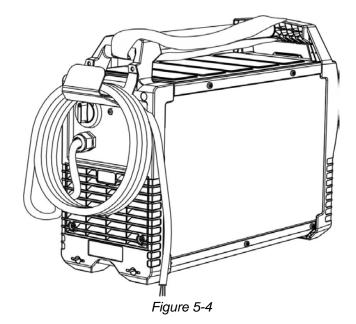
#### 5.1.6 Cable holder

The machine is supplied with a cable holder with mounting material. This cable holder can be used to coil and conveniently transport the mains cable. Install the cable holder as shown in the figure.

#### 5.1.6.1 Deinstallation/Installation



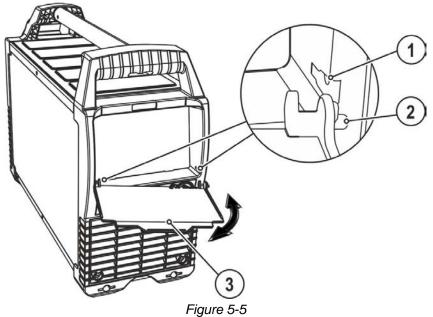
5.1.6.2 Application





#### Protective flap, welding machine control 5.1.7

#### Deinstallation/Installation 5.1.7.1



ltem	Symbol	Description
1		Seating hole for mounting nipple
2		Mounting nipple, protective cap
3		Protective cap

Remove the protective cap by gently pressing from the side while simultaneously pulling. To attach, ٠ insert and snap into place.



#### 5.1.8 Mains connection



# **A** 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.

#### 5.1.8.1 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

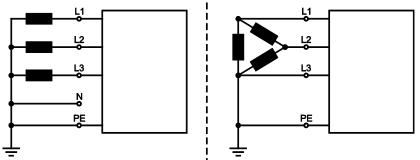


Figure 5-6

#### Legend

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

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

# 5.2 Process data display

The process data display shows the set degaussing current. Error messages for identifying device malfunctions are also displayed > see 7.2 chapter. Degaussing



### 5.3 Degaussing

((:))



Movement forces due to electromagnetic fields!

Electromagnetic fields may exert movement forces on unsecured metal objects! This may result in injury for example by tools that are set in motion uncontrolled, etc.

Remove metal objects lying around from the working area or secure against movement.

#### 5.3.1 Description of procedure

The degaussing of ferromagnetic workpieces in welding technology is intended to reduce arc deflection, arc instability, uneven droplet detachment, spatter and irregular flank connections.

To degauss the workpiece successfully and demonstrably, the magnetic flux density must be measured in millitesla (mT). This requires a field strength or magnetic flux density meter.

This device offers two methods for degaussing a workpiece:

Method degauss - degaussing the workpiece before welding.

With this method, an alternating magnetic field is applied to the component. The magnetic field decreases with each change of polarity (+/-) ensuring that the workpiece can be completely degaussed along the hysteresis curve.

It does not make economic sense to completely degauss long components such as pipes. In this case, the remaining magnetic field moves towards the degaussed area and we recommend using the activgauss method.

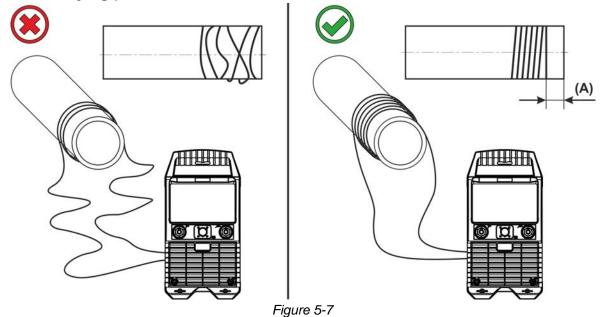
• Method activgauss - generating an opposing magnetic field during welding.

With this method, an adjustable direct current generates an opposing magnetic field. The opposing magnetic field is applied during the welding process and counteracts the magnetism present in the workpiece. This reduces arc deflection (arc instability) irregular droplet detachment, spatter and irregular flank connections.

When using the activgauss method, only the magnetic fields in which the opposing field is identical are compensated. The magnetic field along the welding joint is usually not constant. This means that in practical use the field around the welding start should be compensated. The welder begins to weld. If the arc becomes unstable, the magnetic flux density must be measured and re-compensated. Continue until the pipe root welding is complete. Experience has shown that this process must be carried out 3 to 4 times over the circumference. As the root welding progresses, the existing magnetic field decreases to 0.



#### 5.3.2 Notes on laying power cables



- Lay power cables close together around the component.
- The greater the distance to the welding-relevant area (A), the greater the number of turns you must select. Using the activgauss method, it is possible to increase the degaussing current as an alternative or in addition.

#### Large or long workpieces



- Lay power cables close together around the component.
- · Lay power cables up to the welding-relevant area, such as the sidewall of the joint.

With too little space, the turns can also be laid on top of each other. This has no significant influence on the degaussing process.

As the distance between the individual turns (B) increases, the current must be corrected upwards to achieve the desired result.



### 5.3.3 Degaussing the workpiece before welding (degauss)

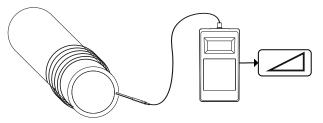


Figure 5-9

Measure the magnetic flux density.

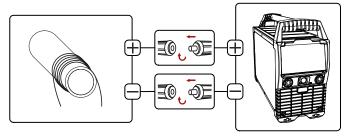


Figure 5-10

- Determine power cables with the corresponding number of turns according to table "Magnetic flux density adjustment aid" > see 10.1 chapter and lay them around the component accordingly > see 5.3.2 chapter.
- Connect power cables to the power source (the polarity is freely selectable).

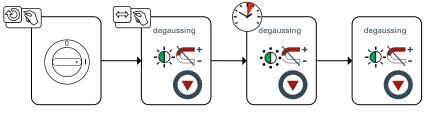


Figure 5-11

- Switch on the power source.
- Press the degaussing pushbutton.
- The signal light flashes.
   The degaussing process is completed when the signal light degauss is on permanently.

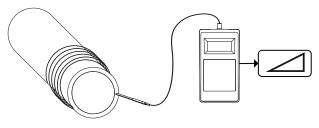


Figure 5-12

- Measure the magnetic flux density.
- Compare the measured magnetic flux density with the table "Guide values for residual flux density" > see 10.2 chapter for the corresponding welding process.

If the residual field strength is too high, the process of degaussing can be repeated as often as desired (increase the number of turns if necessary).



### 5.3.4 Generating an opposing magnetic field during welding (activgauss) To activate this procedure, the remote control RT DGS 1 must be connected.

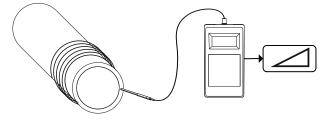


Figure 5-13

• Measure the magnetic flux density.

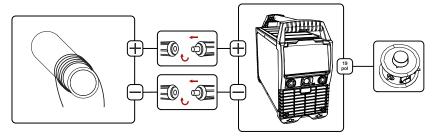


Figure 5-14

- Determine power cables with the corresponding number of turns according to table "Magnetic flux density adjustment aid" > see 10.1 chapter and lay them around the component accordingly > see 5.3.2 chapter.
- Connect power cables to the power source (the polarity is freely selectable).

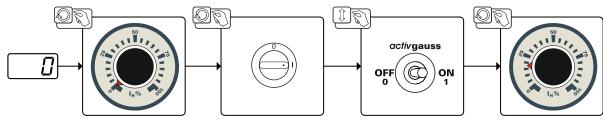


Figure 5-15

- Turn the rotary knob on the remote control to "0".
- Activate the procedure activgauss on the remote control (changeover switch to position "ON").
- Increase the current on the remote control until the field strength in the workpiece decreases towards "0".

#### If the field strength increases in the workpiece:

- Deactivate the procedure activgauss on the remote control (changeover switch to position "OFF").
- Reverse the polarity (+/-) on the remote control.
- · Activate the procedure activgauss on the remote control (changeover switch to position "ON").
- Increase the current on the remote control until the field strength in the workpiece decreases towards "0".

#### 5.3.4.1 Automatic cut-out

The demagnetization process is stopped within 5 seconds if no current flow can be established. The display shows the message brE (interruption). Check all circuit connections and repeat the process.

# **Design and function** Decommissioning



# 5.4 Decommissioning

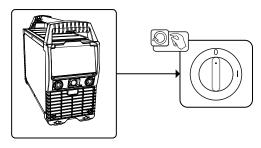


Figure 5-16

- Switch off machine at the main switch.
- Remove all connections.

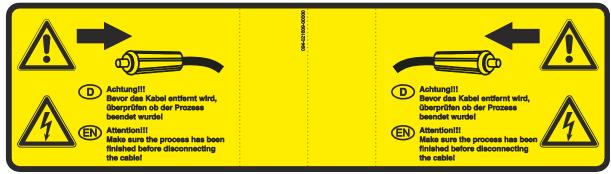


Figure 5-17



# 6 Maintenance, care and disposal

### 6.1 General

# 

- 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!

# **MARNING**

Incorrect maintenance, testing and repair!

Maintenance, testing and repair of the machine may only be carried out by skilled and 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.

- Observe the maintenance instructions > see 6.2 chapter.
- In the event that the provisions of one of the below-stated tests are not met, 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 parts.

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

The duty cycle of the welding machine decreases as an effect of the reduced cooling air volume. The dirt filter must be remove at regular intervals and cleaned by blowing out with compressed air (depending on the level of soiling).

Maintenance work, intervals



### 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 <u>www.ewm-group.com</u>!





# 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 electric 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.
- Information about returning used equipment or about collections can be obtained from the respective municipal administration office.
- In addition to this, returns are also possible throughout Europe via EWM sales partners.



# 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

#### Excess temperature signal light illuminates

- ✗ Excess temperature, welding machine
  - lpha Allow the machine to cool down whilst still switched on

#### **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
  - ℜ Phase failure > check mains connection (fuses)
- ✗ Connection problems
  - $\boldsymbol{x}$  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
  - ℜ Tighten contact tip correctly



# 7.2 Error messages (power source)

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.

Error message	Possible cause	Remedy
E 0	Start signal set in the event of errors	Do not press the torch trigger or the foot- operated remote control
E 4	Temperature error	Allow the machine to cool down
E 5	Mains overvoltage	Switch off the machine and check the mains vol-
E 6	Mains undervoltage	tage
E 7	Electronics error	Switch the machine off and on again.
E 9	Secondary overvoltage	If the error persists, notify service department
E12	Voltage reduction error (VRD)	
E13	Electronics error	
E14	Adjustment error in current record- ing	Switch off the machine, place the electrode hol- der in an insulated position and switch the ma- chine back on. If the error persists, notify service department
E15	Error in one of the electronics supply voltages	Switch the machine off and on again. If the error persists, notify service department
E23	Temperature error	Allow the machine to cool down
E32	Electronics error	Switch the machine off and on again. If the error persists, notify service department
E33	Adjustment error in voltage record- ing	Switch off the machine, place the electrode hol- der in an insulated position and switch the ma- chine back on. If the error persists, notify service department
E34	Electronics error	Switch the machine off and on again. If the error persists, notify service department
E37	Temperature error	Allow the machine to cool down
E40	Motor fault	Check wire feed mechanism, switch the machine off and on again, inform the service department if the fault persists.
E55	Failure of a mains phase	Switch off the machine and check the mains vol- tage
E58	Short circuit in welding circuit	Switch off the machine and check welding curre leads for correct installation, e.g. by placing the electrode holder in an insulated position; detach current lead from degaussing.
<u>b-E</u>	Circuit interruption	Check current lead.

Degauss 600



# 8 Technical data

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

### 8.1 Degauss 600

Degaussing current	10 A to 600 A		
Degaussing current - activgauss	10 A to 250 A		
Open circuit voltage (U <sub>0</sub> )	41 V		
Mains voltage (Tolerance)	3 x 400 V (-25 % to +20 %)		
Frequency	50/60 Hz		
mains fuse <sup>[1]</sup>	3 x 16 A		
Mains connection cable	H07RN-F4G2,5		
max. Connected load (S1)	11,1 kVA		
Generator rating (Rec.)	15,0 kVA		
Cos φ / efficiency	0,99 / 90 %		
Protection class / Overvoltage category	I / III		
Contamination level	3		
Insulation class / protection classification	H / IP 34s		
Residual current circuit breaker	Type B (recommended)		
Noise level <sup>[2]</sup>	<70 dB(A)		
Ambient temperature <sup>[3]</sup>	-25 °C to +40 °C		
Machine cooling	Fan (AF)		
Workpiece lead (min.)	50 mm <sup>2</sup>		
EMC class	A		
Safety marking	CE/S/H		
Standards used	See declaration of conformity (appliance documents)		
Dimensions L / B / H	539 x 210 x 415 mm		
	21.2 x 8.3 x 16.3 inch		
Weight	25 kg		
	55.1 lb.		

<sup>[1]</sup> Safety fuses are recommended DIAZED xxA gG. When using automatic cutouts, the "C" trigger characteristic must be used.

<sup>[2]</sup> Noise level during idle mode and operation under standard load according to IEC 60974- 1 at the maximum operating point.

<sup>[3]</sup> Ambient temperature dependent on coolant! Observe coolant temperature range!

# 8.2 RT DGS1

Dimensions	118 x 118 x 94 mm 4.6 x 4.6 x 3.7 inch
Weight	0,42 kg 0.93 lb.



# 9 Accessories

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

### 9.1 Options

Туре	Designation	ltem no.
ON Filter TG.0001	Dirt filter for air inlet	092-002756-00000

# 9.2 General accessories

Туре	Designation	Item no.
HP FIM1-4	Hall probe for fieldmeter	094-021021-00000
FSMG	Fieldmeter	094-021020-00000
16A 5POLE/CEE	Mains plug	094-000712-00000

# 9.3 Remote control / connection cable

Туре	Designation	Item no.
RT DGS1	Degauss remote control	090-008806-00000
RA10 19POL 10m	Remote control e.g. connection cable	092-001470-00010
RA20 19POL 20m	Remote control e.g. connection cable	092-001470-00020



# 10 Appendix

# 10.1 Magnetic flux density - adjustment aid

Depending on the material used, the thickness of workpieces and the measuring instrument used, the winding numbers or current values may vary. Ideally, the measured flux density should be in the middle of the parameter field.

Number of turns	Degaussing current						
	50 A	100 A	125 A	150 A	175 A	200 A	250 A
			Magne	etic flux dens	sity mT		
2	3	4	5	5	6	6	8
3	4	6	7	8	9	10	10
4	4	7	8	9	10	12	13
5	5	8	9	11	12	14	16
6	5	9	11	12	14	16	18
7	5	10	12	14	16	19	21
8	7	12	15	18	21	24	27
9	8	13	17	22	25 <sup>[1]</sup>	29	34
10	10	15	20	26	30	34	40
11	12	16	23	27	35	39	46
12	15	18	26	29	39	45	53
13	16	20	29	30	44	50	59
14	18	22	32	32	48	55	66
15	18	24	35	33	53	61	72

[1] Example of use:

The measured value is 25 mT. This results in a number of turns of 9 and a degaussing current of 175 A if the activgauss process is used.

# 10.2 Guide values of magnetic flux density, weldability

TIG welding		GMAW welding		
Magnetic flux density	Weldability	Magnetic flux density	Weldability	
<0.5 mT	very good	<3 mT	very good	
0.5-1 mT	good	3-4 mT	good	
1-2 mT	possible	4-6 mT	possible	
2-5 mT	poor	6-8 mT	poor	
>5 mT	unsuitable	>8 mT	unsuitable	



# 10.3 Searching for a dealer

Sales & service partners www.ewm-group.com/en/specialist-dealers



"More than 400 EWM sales partners worldwide"