



**EN**

## Degaussing machine

Degauss 600  
RT DGS1

099-002065-EW501

Observe additional system documents!

16.08.2021

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

### **Data security**

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

|          |   |           |
|----------|---|-----------|
| <b>1</b> | <b>Contents</b>   | <b>3</b>  |
| <b>1</b> | <b>Contents</b>   | <b>3</b>  |
| <b>2</b> | <b>For your safety</b>  | <b>5</b>  |
| 2.1      | Notes on using these operating instructions                       | 5         |
| 2.2      | Explanation of icons  | 6         |
| 2.3      | Safety instructions   | 7         |
| 2.4      | Transport and installation  | 10        |
| <b>3</b> | <b>Intended use</b>   | <b>12</b> |
| 3.1      | Applications  | 12        |
| 3.2      | Documents which also apply  | 12        |
| 3.2.1    | Warranty  | 12        |
| 3.2.2    | Declaration of Conformity   | 12        |
| 3.2.3    | Welding in environments with increased electrical hazards         | 12        |
| 3.2.4    | Service documents (spare parts and circuit diagrams)              | 12        |
| 3.2.5    | Calibration/Validation  | 12        |
| <b>4</b> | <b>Machine description – quick overview</b>                       | <b>13</b> |
| 4.1      | Scope of delivery   | 13        |
| 4.2      | Front view / rear view  | 14        |
| 4.3      | Machine control – Operating elements                              | 16        |
| 4.3.1    | RT DGS1   | 17        |
| <b>5</b> | <b>Design and function</b>  | <b>18</b> |
| 5.1      | Transport and installation  | 18        |
| 5.1.1    | Ambient conditions  | 18        |
| 5.1.1.1  | In operation  | 18        |
| 5.1.1.2  | Transport and storage   | 18        |
| 5.1.2    | Machine cooling   | 18        |
| 5.1.3    | Workpiece lead, general   | 19        |
| 5.1.4    | Transport belt  | 19        |
| 5.1.4.1  | Adjusting the length of the carrying strap                        | 19        |
| 5.1.5    | Cable strap   | 20        |
| 5.1.6    | Cable holder  | 21        |
| 5.1.6.1  | Deinstallation/Installation                                       | 21        |
| 5.1.6.2  | Application   | 21        |
| 5.1.7    | Protective flap, welding machine control                          | 22        |
| 5.1.7.1  | Deinstallation/Installation                                       | 22        |
| 5.1.8    | Mains connection  | 23        |
| 5.1.8.1  | Mains configuration   | 23        |
| 5.2      | Process data display  | 23        |
| 5.3      | Degaussing  | 24        |
| 5.3.1    | Description of procedure  | 24        |
| 5.3.2    | Notes on laying power cables                                      | 25        |
| 5.3.3    | Degaussing the workpiece before welding (degauss)                 | 26        |
| 5.3.4    | Generating an opposing magnetic field during welding (activgauss) | 27        |
| 5.3.4.1  | Automatic cut-out   | 27        |
| 5.4      | Decommissioning   | 28        |
| <b>6</b> | <b>Maintenance, care and disposal</b>                             | <b>29</b> |
| 6.1      | General   | 29        |
| 6.1.1    | Cleaning  | 29        |
| 6.1.2    | Dirt filter   | 29        |
| 6.2      | Maintenance work, intervals                                       | 30        |
| 6.2.1    | Daily maintenance tasks   | 30        |
| 6.2.2    | Monthly maintenance tasks   | 30        |
| 6.2.3    | Annual test (inspection and testing during operation)             | 30        |
| 6.3      | Disposing of equipment  | 31        |
| <b>7</b> | <b>Rectifying faults</b>  | <b>32</b> |
| 7.1      | Checklist for rectifying faults                                   | 32        |
| 7.2      | Error messages (power source)                                     | 32        |

---

|           |   |           |
|-----------|---|-----------|
| <b>8</b>  | <b>Technical data</b> .....                             | <b>34</b> |
| 8.1       | Degauss 600 .....                                       | 34        |
| 8.1.1     | RT DGS1 .....   | 34        |
| <b>9</b>  | <b>Accessories</b> .....                                | <b>35</b> |
| 9.1       | Options .....   | 35        |
| 9.2       | General accessories .....                               | 35        |
| 9.3       | Remote control / connection cable.....                  | 35        |
| <b>10</b> | <b>Appendix</b> .....                                   | <b>36</b> |
| 10.1      | Magnetic flux density - adjustment aid .....            | 36        |
| 10.2      | Guide values of magnetic flux density, weldability..... | 36        |
| 10.3      | Searching for a dealer.....                             | 37        |

## 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                   |
|        |   |        | Switch                           |
|        | Incorrect / Invalid   |        | Turn                             |
|        | Correct / Valid   |        | Numerical value – adjustable     |
|        | Input   |        | Signal light lights up in green  |
|        | Navigation  |        | Signal light flashes green       |
|        | Output  |        | Signal light lights up in red    |
|        | Time representation (e.g.: wait 4 s / actuate)                    |        | Signal light flashes red         |
|        | Interruption in the menu display (other setting options possible) |        |                                  |
|        | Tool not required/do not use                                      |        |                                  |
|        | Tool required/use   |        |                                  |

## 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 can lead to breathing difficulties and poisoning. In addition, solvent vapour (chlorinated hydrocarbon) may be converted into poisonous phosgene due to the ultraviolet radiation of the arc!**

- Ensure that there is sufficient fresh air!
- Keep solvent vapour away from the arc beam field!
- Wear suitable breathing apparatus if appropriate!

**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 may cause electrical or electromagnetic fields to be produced which could affect the correct functioning of electronic equipment such as IT or CNC devices, telecommunication lines, power cables, signal lines and pacemakers.**



- Observe the maintenance instructions > see 6.2 chapter!
- Unwind welding leads completely!
- Shield devices or equipment sensitive to radiation accordingly!
- The correct functioning of pacemakers may be affected (obtain advice from a doctor 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

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 [www.ewm-group.com](http://www.ewm-group.com)!

#### 3.2.2 Declaration of Conformity



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

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

#### 3.2.3 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!

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

### **WARNING**



**Do not carry out any unauthorised repairs or modifications!**

**To avoid injury and equipment damage, the unit must only be repaired or modified by specialist, skilled persons!**

**The warranty becomes null and void in the event of unauthorised interference.**

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

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

Spare parts can be obtained from the relevant authorised dealer.






#### 3.2.5 Calibration/Validation

An original certificate is enclosed with the product. The manufacturer recommends calibration / validation at intervals of 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      |
|--|----------|--|------------------|
|   | 1        | <b>Degauss 600</b><br>Degaussing machine                               | 090-002065-00502 |
|   | 2        | <b>WKL H01N2-D 5m 35mm<sup>2</sup> 13mm</b><br>Welding extension cable | 092-002888-00005 |
|   | 1        | <b>LC 35qmm 20m</b><br>Load cable (plug/plug)                          | 092-002889-00020 |
|   | 1        | <b>RT DGS1</b><br>Degauss remote control                               | 090-008806-00000 |
|  | 1        | <b>RA5 19POL 5m</b><br>Connection cable                                | 092-001470-00005 |

## 4.2 Front view / rear view

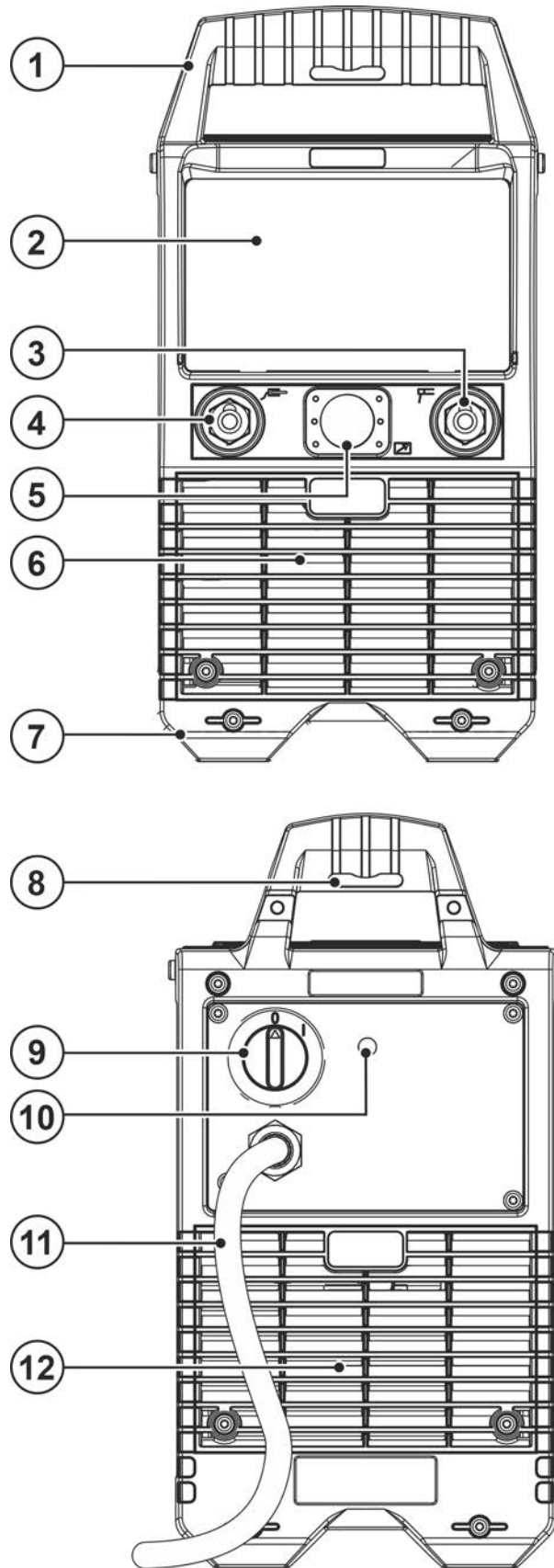





Figure 4-1

| Item | Symbol | Description  |
|------|--------|--|
| 1    |        | <b>Transport elements</b><br>Transport handle and transport belt > see 5.1.4 chapter |

| Item | Symbol  | Description  |
|------|---|--|
| 2    |   | <b>Operating elements</b><br>Device control > see 4.3 chapter and protective cap > see 5.1.7 chapter |
| 3    | —   | <b>Connection socket, potential –</b>  |
| 4    | +   | <b>Connection socket, “+” potential</b>  |
| 5    |  | <b>Connection socket, 19-pole</b><br>Remote control connection                                       |
| 6    |   | <b>Cooling air inlet</b><br>Dirt filter optional > see 6.1.2 chapter                                 |
| 7    |   | <b>Machine feet</b>  |
| 8    |   | <b>Carrying strap</b>  |
| 9    |   | <b>Main Switch</b><br>Switching the machine on or off.   |
| 10   |  | <b>Push-button of automatic circuit-breaker for pole reversing switch</b>                            |
| 11   |  | <b>Mains connection cable &gt; see 5.1.8 chapter</b>   |
| 12   |   | <b>Cooling air outlet</b>  |

## 4.3 Machine control – Operating elements

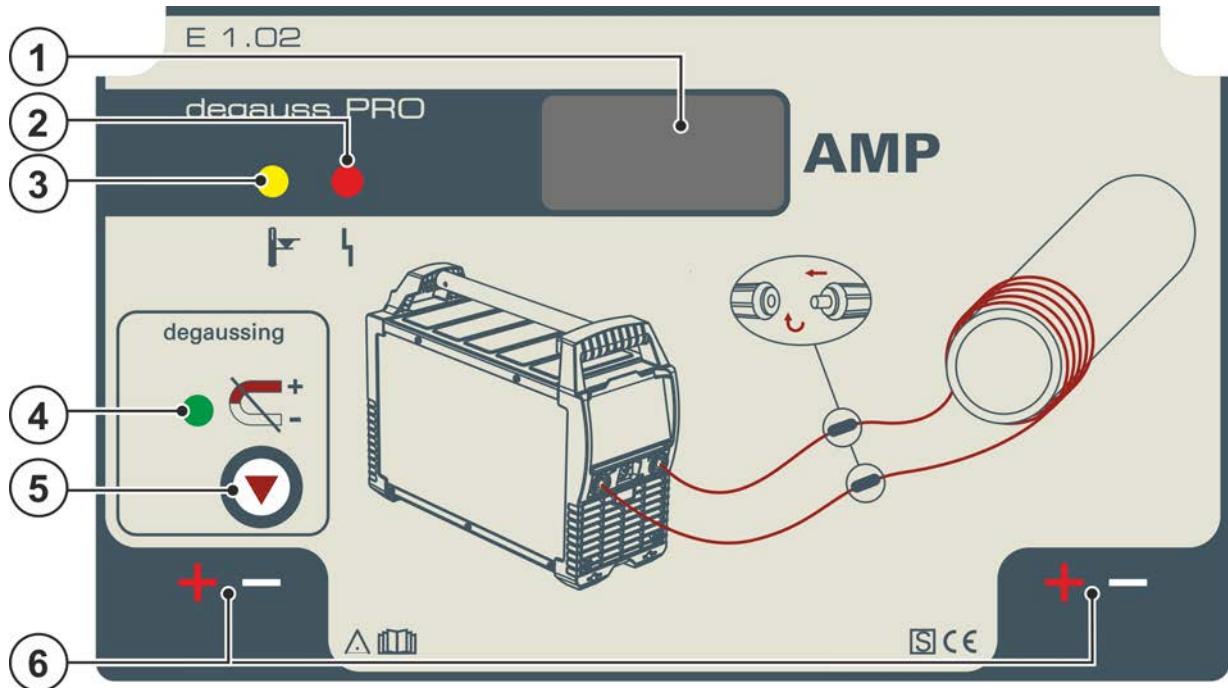


Figure 4-2

| Item | Symbol | Description   |
|------|--------|---|
| 1    |        | <b>Three-figure display</b><br>Presentation of process parameters.  |
| 2    |        | <b>Collective interference signal light</b><br>For error messages, > see 7.2 chapter  |
| 3    |        | <b>Excess temperature signal light / Welding torch cooling failure</b><br>For error messages > see 7 chapter                      |
| 4    |        | <b>Signal light of degaussing (degauss)</b><br>The signal light degauss flashes during degaussing.                                |
| 5    |        | <b>Degaussing push-button</b><br>Use this push-button to start and stop the degaussing process.                                   |
| 6    |        | <b>Welding current polarity signal light</b><br>The signal light shows the selected polarity at the welding current socket below. |



## 4.3.1 RT DGS1

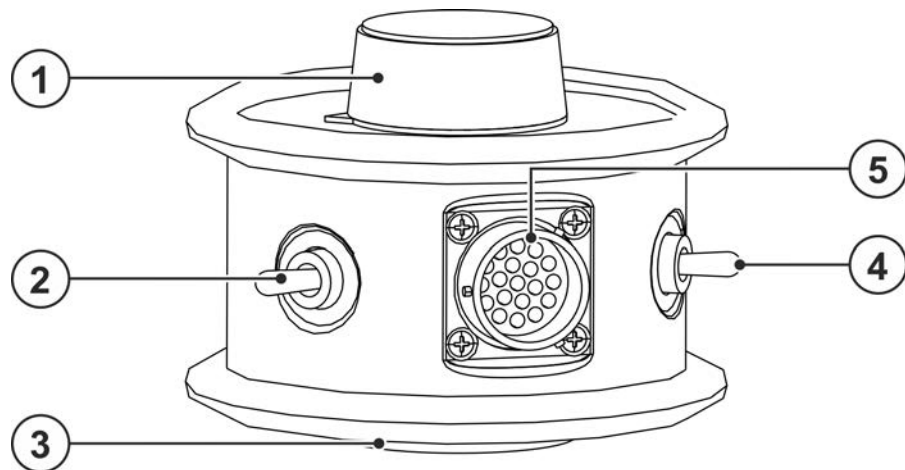


Figure 4-3

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

## 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!

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.

#### 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

#### ⚠ 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.

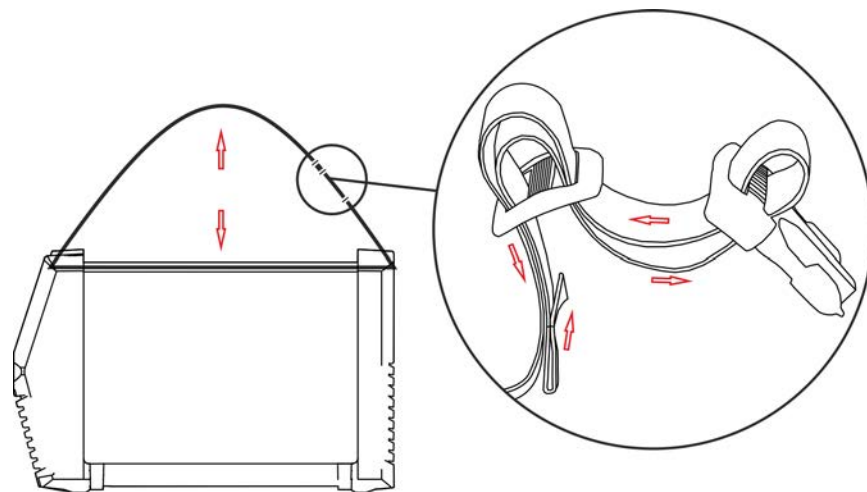


Figure 5-1

## 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!

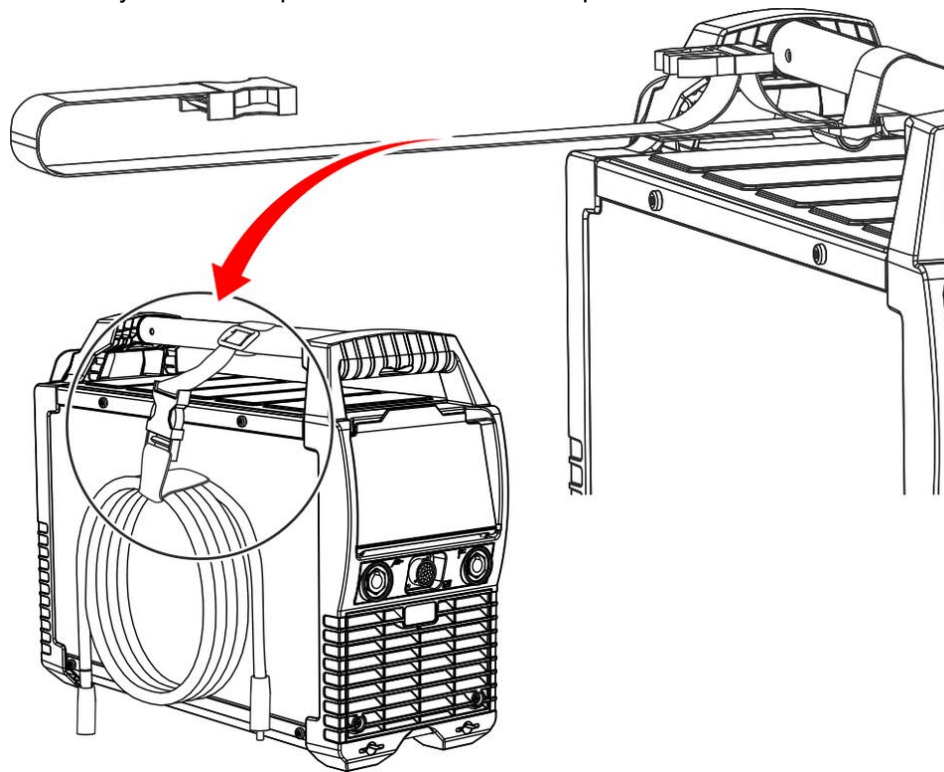


Figure 5-2

## 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

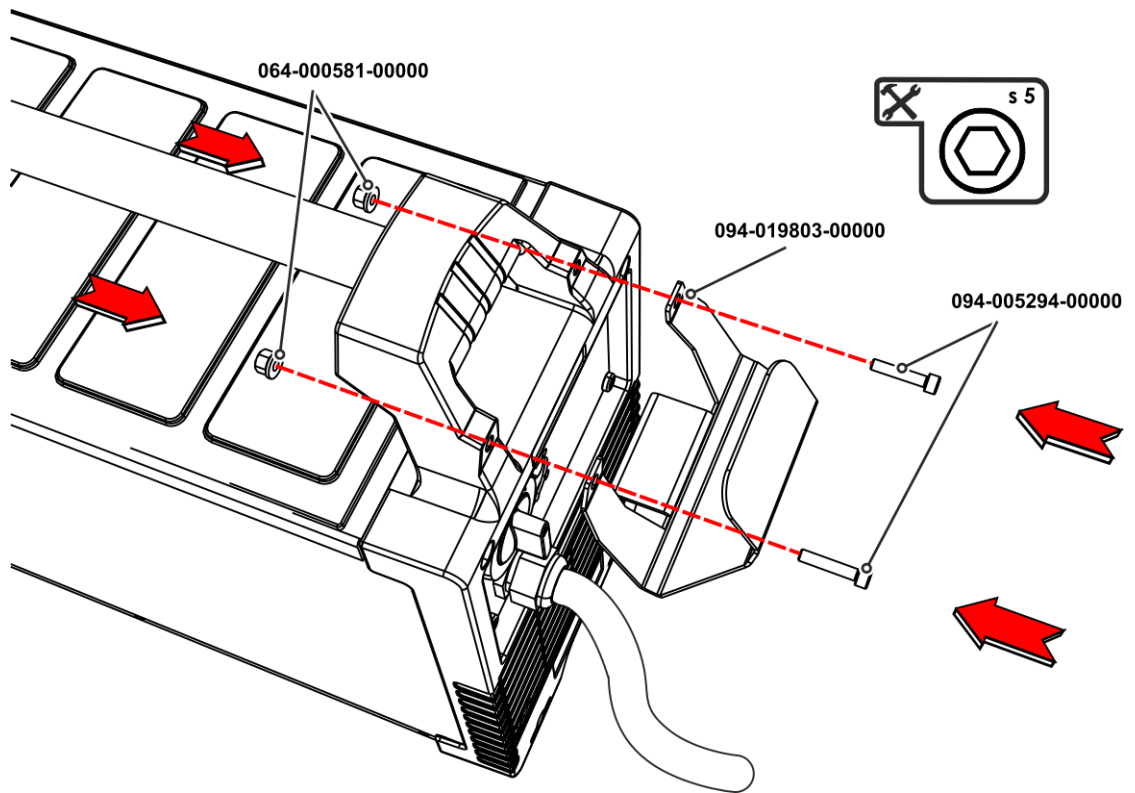


Figure 5-3

### 5.1.6.2 Application

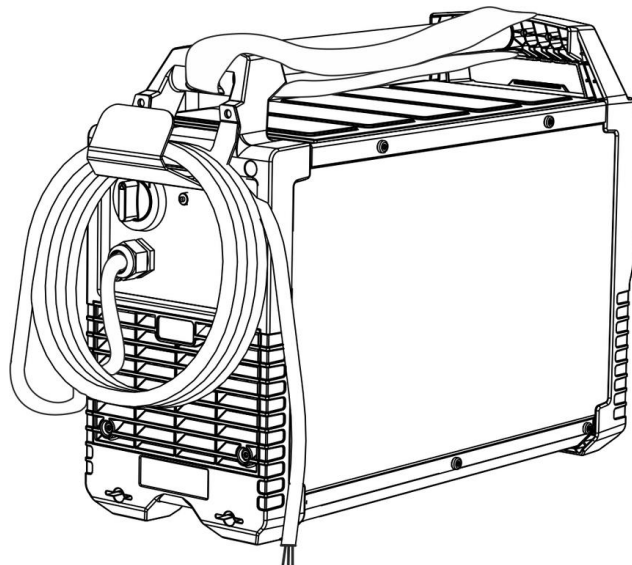


Figure 5-4

## 5.1.7 Protective flap, welding machine control

### 5.1.7.1 Deinstallation/Installation

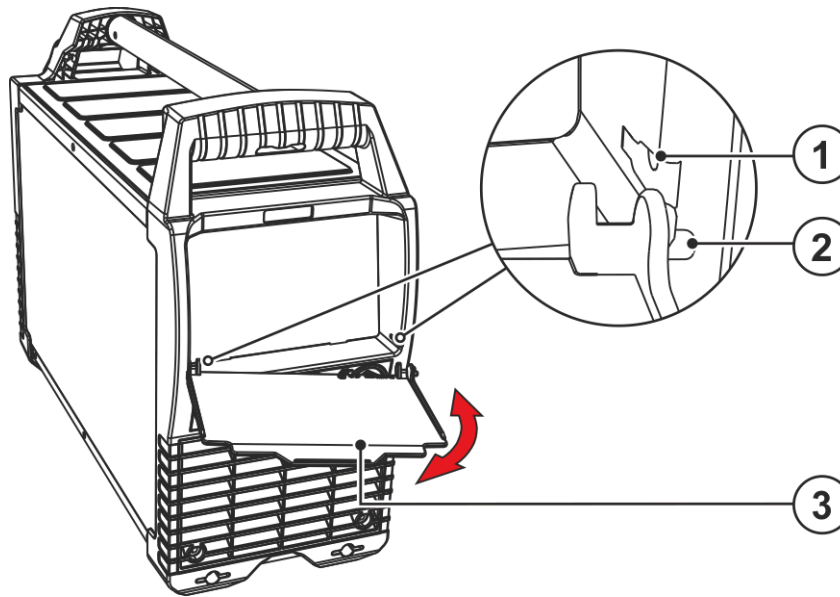


Figure 5-5

| Item | 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, insert and snap into place.

## 5.1.8 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.

### 5.1.8.1 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

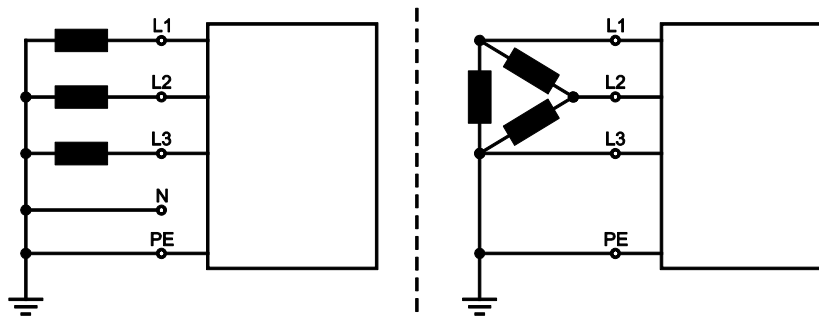


Figure 5-6

#### Legend

| 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.

## 5.2 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.

## 5.3 Degaussing

### ⚠ CAUTION



#### **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

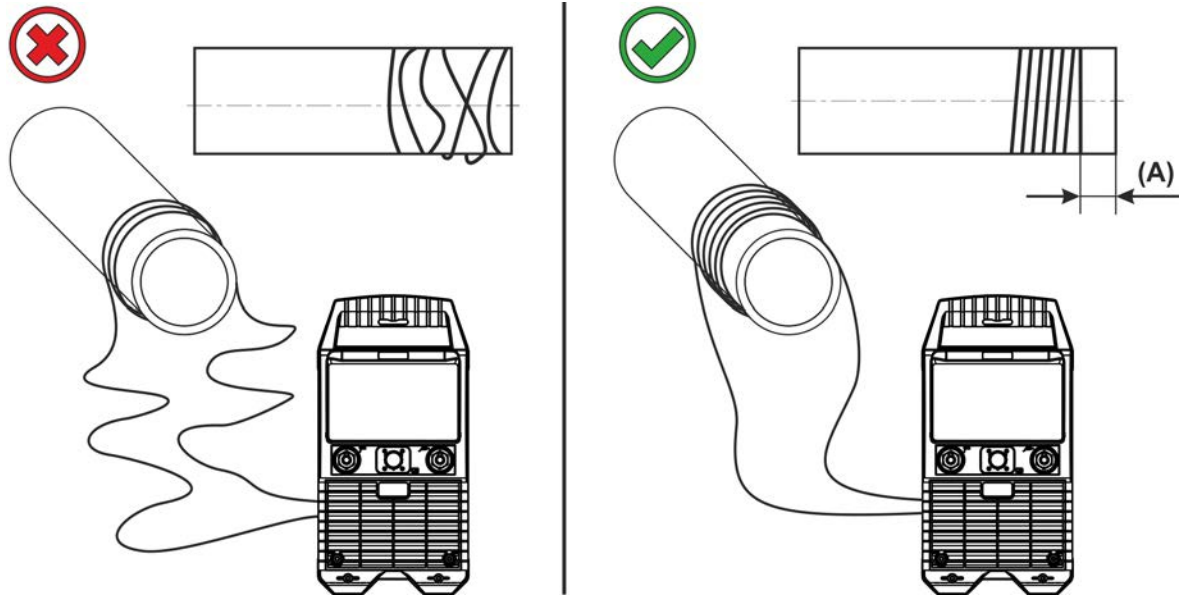


Figure 5-7

- 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

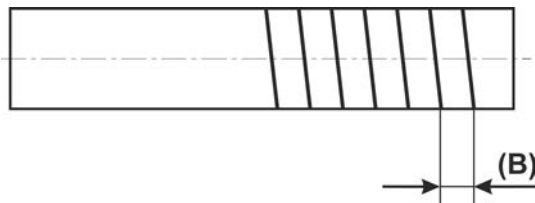


Figure 5-8

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

**If the space required by the power lines is too large, the turns can also be placed 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)

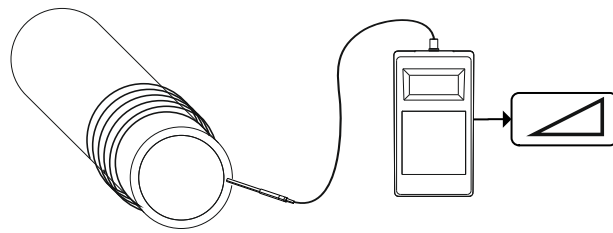


Figure 5-9

- Measure the magnetic flux density.

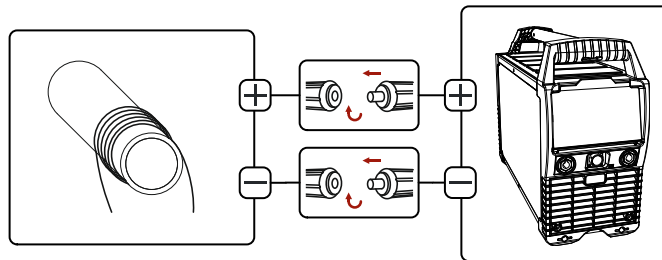


Figure 5-10

- 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).

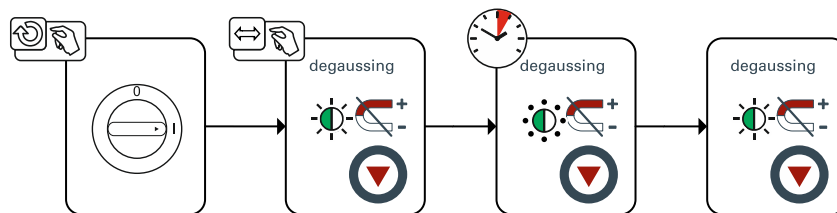


Figure 5-11

- 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.

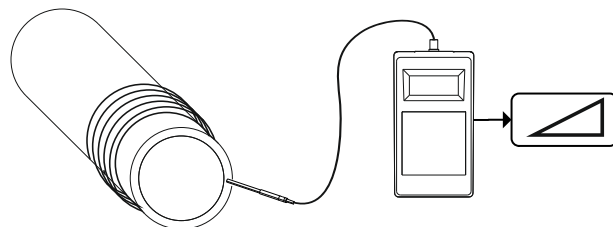


Figure 5-12

- 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.

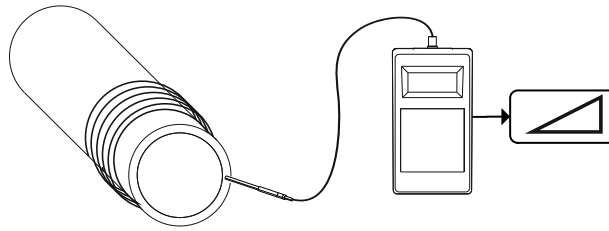


Figure 5-13

- Measure the magnetic flux density.

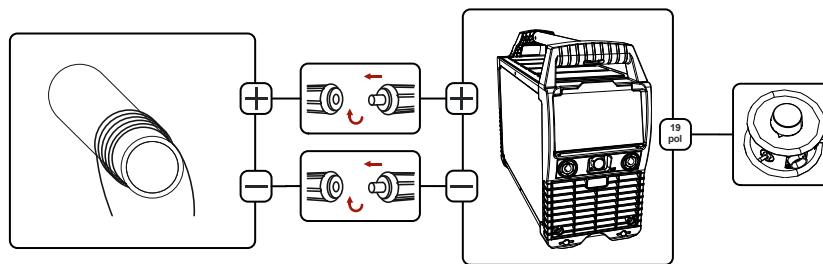


Figure 5-14

- 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).

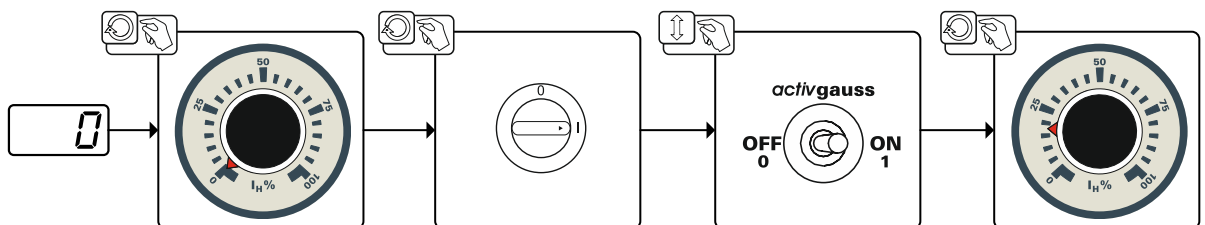


Figure 5-15

- 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  $b r E$  (interruption). Check all circuit connections and repeat the process.

### 5.4 Decommissioning

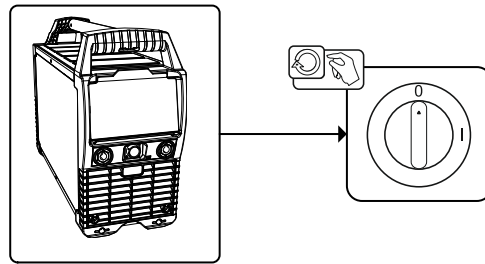


Figure 5-16

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

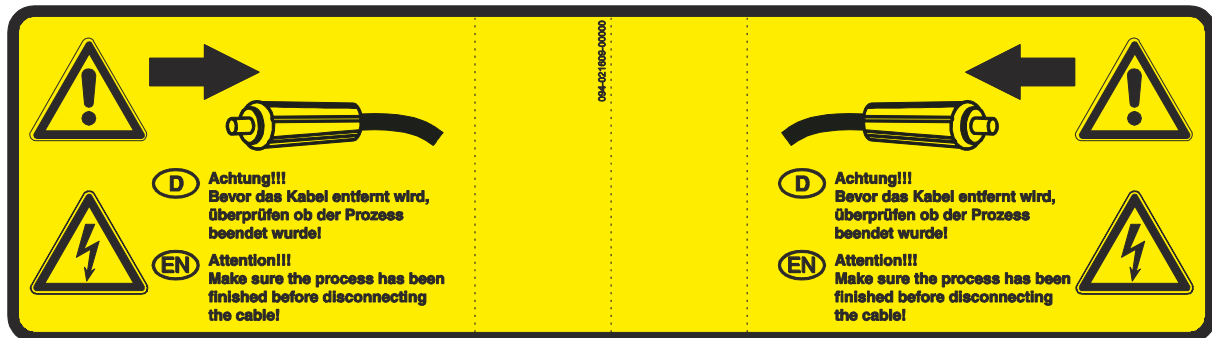


Figure 5-17

## 6 Maintenance, care and disposal

### 6.1 General

#### 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



**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 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 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


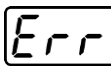
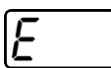
- ↘ Excess temperature, welding machine
- ✘ Allow the machine to cool down whilst still switched on

#### 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
  - ✘ Phase failure > check mains connection (fuses)
- ↘ Connection problems
  - ✘ Make control lead connections and check that they are fitted correctly.
- ↘ Loose welding current connections
  - ✘ Tighten power connections on the torch and/or on the workpiece
  - ✘ Tighten contact tip correctly

### 7.2 Error messages (power source)

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.

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

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



| <b>Error message</b> | <b>Possible cause</b>                           | <b>Remedy</b>  |
|----------------------|---|--|
| <b>E 0</b>           | Start signal set in the event of errors         | Do not press the torch trigger or the foot-operated remote control   |
| <b>E 4</b>           | Temperature error                               | Allow the machine to cool down   |
| <b>E 5</b>           | Mains overvoltage                               | Switch off the machine and check the mains voltage   |
| <b>E 6</b>           | Mains undervoltage                              |  |
| <b>E 7</b>           | Electronics error                               | Switch the machine off and on again.<br>If the error persists, notify service department   |
| <b>E 9</b>           | Secondary overvoltage                           |  |
| <b>E12</b>           | Voltage reduction error (VRD)                   |  |
| <b>E13</b>           | Electronics error                               |  |
| <b>E14</b>           | Adjustment error in current recording           | Switch off the machine, place the electrode holder in an insulated position and switch the machine back on. If the error persists, notify service department                         |
| <b>E15</b>           | Error in one of the electronics supply voltages | Switch the machine off and on again.<br>If the error persists, notify service department   |
| <b>E23</b>           | Temperature error                               | Allow the machine to cool down   |
| <b>E32</b>           | Electronics error                               | Switch the machine off and on again.<br>If the error persists, notify service department   |
| <b>E33</b>           | Adjustment error in voltage recording           | Switch off the machine, place the electrode holder in an insulated position and switch the machine back on. If the error persists, notify service department                         |
| <b>E34</b>           | Electronics error                               | Switch the machine off and on again.<br>If the error persists, notify service department   |
| <b>E37</b>           | Temperature error                               | Allow the machine to cool down   |
| <b>E40</b>           | Motor fault                                     | Check wire feed mechanism, switch the machine off and on again, inform the service department if the fault persists.   |
| <b>E51</b>           | Earth fault (PE error)                          | Connection between welding wire and machine casing   |
| <b>E55</b>           | Failure of a mains phase                        | Switch off the machine and check the mains voltage   |
| <b>E58</b>           | Short circuit in welding circuit                | Switch off the machine and check welding current leads for correct installation, e.g. by placing the electrode holder in an insulated position; detach current lead from degaussing. |

## 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 (S <sub>1</sub> )        | 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 / IP34  |
| 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.)                        | 35 mm <sup>2</sup>                                  |
| EMC class                                    | A   |
| Safety marking                               | ☐ / CE / EAC  |
| Standards used                               | See declaration of conformity (appliance documents) |
| Dimensions (l x b x h) L / B / H             | 539 x 210 x 415 mm<br>21.2 x 8.3 x 16.3 inch        |
| Weight                                       | 25 kg<br>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!

#### 8.1.1 RT DGS1

|                               |   |
|-------------------------------|---|
| <b>Dimensions (l x b x h)</b> | 118 x 118 x 94 mm<br>4.6 x 4.6 x 3.7 inch |
| <b>Weight</b>                 | 0,42 kg<br>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

| Type              | Designation               | Item no.         |
|-------------------|---------------------------|------------------|
| ON Filter TG.0001 | Dirt filter for air inlet | 092-002756-00000 |

### 9.2 General accessories

| Type          | 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

| Type           | 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 |
|                 | Magnetic flux density 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](http://www.ewm-group.com/en/specialist-dealers)



"More than 400 EWM sales partners worldwide"