

# Operating instructions

## Cleanox 5.0 EP-01-015

Electrochemical cleaning, polishing and signing



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## 1 Preface

This operating manual is intended to teach you how to handle and operate the Cleanox 5.0 safely as well as general instructions for cleaning. The user is taught the basic concepts, possible applications and practical information in order to avoid operating errors. Please read this instruction manual carefully before commissioning. We wish you a lot of fun and successful work with our devices.

### 1.1 Validity of these instructions

These instructions refer to the following devices:

- Cleanox 5.0 EP-01-015

### 1.2 Target group of this manual

These operating instructions are intended for the operator and the operating personnel of the cleaning device. Before using the device, familiarize yourself with the contents of these operating instructions. In this way, you achieve better work results and work safely. We reserve the right to make technical changes that contribute to the improvement of our electrochemical cleaning equipment.

### 1.3 Intended use

The Cleanox 5.0 is a device for electrochemical cleaning / polishing of stainless-steel welds. In addition, it is possible to sign metals dark / light.

### 1.4 Observance of the operating instructions

The operating instructions are part of the device and can be downloaded from our homepage under the "Download" menu. The instructions must be available to the operating personnel at all times. The operating instructions must be read by the operator before commissioning the equipment. The operator must have understood the content of the instructions before putting the equipment into service. When passing on or reselling the device, all operating instructions and documentation belonging to the device must be handed over to the new owner.

## 1.5 EC and VDE directives



The electrochemical processing equipment complies with the CE certificate of conformity:

- 2014/35/EU Low Voltage Directive
- 2014/30/EU EMC Directive
- 2011/65/EU RoHS Directive

## 1.6 Accident prevention (UVV)

- **Hazards can occur due to:**
  - Electricity
  - Pollutants
  - Gases
  - Electrolytes
  - Carelessness
- Read our safety data sheets on the electrolytes we use.
- Observe the hazard warnings.
- Please observe the following UVV regulations and information:
  - DGUV 1 Principles of prevention
  - DGUV 3 Electrical installations and equipment
  - DGUV 4 Electrical installations and equipment
  - DGUV 6 Occupational health care
  - DGUV 9 Safety and health labelling in the workplace
  
  - DGUV 209-074 Industrial robots
  
  - DGUV 109-602 Electroplating industry
  - DGUV 209-009 Electroplating
  
  - DGUV 209-073 Workplace Ventilation-Decision support for operational practice
  
  - DGUV 204-007 First aid manual
  - DGUV 204-022 First aid at work
  - DGUV 251-003 Up-to-date occupational safety and health
  
  - SDS's Safety Data Sheets
  
  - ChemG Act on Protection against Hazardous Substances (Chemicals Act)
- TRGS528 Technical Rules for Hazardous Substances



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### **Hint**

From 01.05.2014 all UVV regulations and regulations have been renumbered and named.

Examples such as: BGV/GUV-V, BGR/GUV-R, BGI/GUV-I/BGG/GUV-G or GUV-SI will no longer exist.

The fonts are consistently divided into four categories.

- DGUV regulations
- DGUV Rules
- DGUV Information
- DGUV Principles

Detailed information can be found e.g. Under [www.dguv.de](http://www.dguv.de)

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## 2 For your safety

Read this instruction manual carefully.

The following chapter explains the pictograms used in this manual.

### 2.1 Convention

#### 2.1.1 Pictograms

The pictograms used in these instructions shall have the following meanings:



##### Warning sign

- Information on possible dangers when handling the device and accessories.
- Warning signs are indicated by a yellow triangle with a black border or a white square with a red border and a symbol in the middle, which indicates a special dangerous situation.



##### Prohibition signs

- References to prohibitions in the handling of the device and accessories
- Warning signs are marked by a white circle with a red border and a symbol in the middle, which indicates a special prohibition.



##### Mandatory sign

- Indications for the use of protective equipment.
- Mandatory signs are characterized by a blue circle with a thin, black border and a symbol in the middle, which indicates a special commandment, e.g.: Wearing protective clothing



##### Sentinel

- References to sections of these operating instructions to be observed in particular.

#### 2.1.2 Display Types

All normal descriptions in the owner's manual are displayed in the default font size " Arial 10.5".

- Special safety instructions to be observed are shown as shown in the following example:




---

##### Security

Here is the corresponding text...

---

- Tips that make it easier to work with or handle the device or accessory are shown as shown in the following example:




---

##### Tip

Here is the corresponding text...

---

**2.1.3 Warning sign**



Electromagnetic field warning



Hot surface warning



Warning of explosive substances



Warning against harmful substances



Warning of dangerous electrical voltage



Warning of danger to life and limb



"Warning" warning about corrosive chemicals

**2.1.4 Prohibition signs**



Ban on people with pacemakers

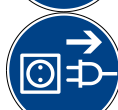
**2.1.5 Mandatory sign**



Use eye protection



Use protective gloves



Unplug before opening



Use protective clothing

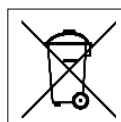
**2.1.6 Note Characters**



Indication of general sources of danger. Be sure to read this section!



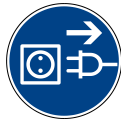
Reference to tips or important information about working with the device and accessories. Be sure to read this section!



Disposal of old electrical and electronic equipment (valid in the European Union and other European countries with separate collection system). This symbol on the product or on the packaging means that this product must not be treated as household waste. This product must be disposed of properly.



## 2.2 Safety measures in the event of a malfunction



Turn off the device immediately and unplug it.



Secure and mark the device against turning it back on.

- Restore the device to full functionality after each repair.
- Inspect cables for damage.
- Check all safety devices for function.



If electrolyte fluid gets into the eyes, rinse the eyes immediately with plenty of water.

- Consult the ophthalmologist immediately.



Secure heated workpieces from unauthorized access.

### 2.2.1 Safety-relevant environmental conditions



- **The use of the device is:**

- limited to closed industrial and commercial areas.
- expressly prohibited in fire and explosion hazard environments.
- expressly prohibited in humid environments.

- Cover stone and concrete floors well.

- Acids react with alkaline soil coverings such as:
  - Granite
  - Marble
  - Limestone sandstone
  - Stoneware
  - Tile
  - Screed
  - ...



- Wash electrolyte splashes or stains immediately with plenty of Water and/or neutralite.

- The device may:

- can only be operated in well-ventilated rooms.

- Chlorine-containing solvents must be removed from the workspace.

- When operating the device, chemical

Reactions harmful vapours are produced.

- For details, please refer to our SDS's of the respective electrolytes.




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### Security

The operator is obliged to ensure sufficient ventilation of the work area. It is the responsibility of the operator to remove the corresponding vapours from the work area with a suitable extraction system if necessary. Suction is not mandatory!

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## 2.3 Possible sources of danger and protective measures

### 2.3.1 Possible sources of danger



Improper handling of the device and its components.

- The handle lies on the workpiece or work surface in such a way that the carbon fiber brush comes into contact with the metal surface. In this case, electricity continues to flow.



If the components are connected incorrectly, stray currents can lead to the destruction of electrical protective conductors.

- Defective live cables.
- Damaged or defective switching elements.
- Defective connectors.
- Non-existent or damaged Teflon insulations.
- Wrong work environment.



Do not use protective clothing.



- Goggles
- Apron or overalls
- Gloves



The carbon fiber brush or the electrode and the workpiece can be heated to approx. 200°C. **Risk of burns!**



Improper handling of chemicals.

- Electrolyte splashes can cause burns to the eyes.
- Electrolyte splashes can lead to skin burns.
- Spilled electrolyte liquid can be found on stone floors or cause chemical burns to other materials.



Electromagnetic fields may affect pacemakers.



### 2.3.2 Protective measures



Repairs to electrical parts of the equipment or to power lines may only be carried out by qualified electricians.

- Have the device checked immediately by a qualified electrician after a short circuit or malfunction.
- Use the device and accessories only as intended.
- Use the device only in the designated working environment.



Avoid wandering currents.

- Connect the ground cable directly to the workpiece or to the holder intended for the workpiece.
- Place the cleaning electrode or handle on the workpiece or work surface so that the electrode does not come into contact with the metal surface. Otherwise, electricity will continue to flow, which can lead to damage or hazards.



In the event of an accident, disconnect the device immediately. Always unplug during maintenance.



Only use appropriate personal, acid-resistant protective equipment [protective gloves, apron and goggles].



Always turn off the device before changing the editing tools (brushes).



Secure hot objects against accidental touching.



Never eat or drink at work! It is forbidden!



After working with electrolytes, always wash your hands thoroughly with soap and plenty of water.

- Wipe away any spilled electrolyte fluid immediately with plenty of water.



Please note the detailed instructions of our EC safety data sheet for the electrolytes used.

- Store the device, accessories, or chemicals in such a way that neither accessories nor chemicals can get into children's hands.



Wearers of pacemakers may:

- do not work with the device and do not be in the immediate vicinity of the device!

### 2.3.3 Check before each start of work



- All live cables and wires for damage to the insulation.
- All live cables and wires on breaks and kinks of the strands within the insulation.
- All Plugs and connectors for damage.
- All switches for damage, e.g. chipped housing parts.
- The ground clamp for external damage.
- Whether all accessible insulation is present and undamaged.
- Make sure that you do not draw or lay electrical wiring over sharp edges.
- Your workplace must be freely accessible
- Make sure that there are no tripping hazards.

### 2.4 Possible misuse



- Connecting to an incorrect mains voltage can lead to the destruction of the device.
- The connection of foreign components that are not released may be:
  - the destruction of the device.
  - ta danger to persons.
- The use of chemicals that are not approved by Reuter GmbH & Co. KG may:
  - lead to damage to health,
  - worsen the work result
  - Endangering persons
  - Destruction of components by the wrong chemicals

### 2.5 Residual risks

Possible risk	Effect	Remedy
Electrolytes get into the hands of children or people who are inexperienced in handling chemicals.	Depending on the misuse <ul style="list-style-type: none"> <li>– Skin burns</li> <li>– Burns of clothing</li> <li>– Burns of other objects</li> <li>– Severe internal injuries when ingesting the chemicals</li> </ul>	Store electrolytes and other chemicals in such a way that the substances are only accessible to authorized persons.
Device is used by unauthorized persons (curiosity, play instinct)	<ul style="list-style-type: none"> <li>– Burns of the skin due to excessive heat generation of the electrode or workpiece</li> <li>– Inhalation of vapors with corresponding health damage</li> </ul>	Make sure that the device can only be used by authorized persons. Secure the device against improper use after use.

Table 1 Residual risks

### 3 Requirements for personnel and operators

#### 3.1 Operator



- The following knowledge is required:
  - Read and understand the user manual.
  - Safety instruction about the dangers of handling electrical equipment.
  - Safety instruction on the dangers of handling chemicals.
- The following activities may be carried out:
  - Operating the device.
  - Selection and use of electrolytes for appropriate applications. (Only electrolytes from Reuter GmbH & Co. KG)
  - Change of carbon fiber brush and wear parts.
  - Turn the device on and off.
  - Correction of slight disturbances after instruction.

This knowledge is imparted either by this operating manual, Reuter GmbH & Co. KG or other authorized persons or institutions.

#### 3.2 Operator



- The operator must regularly instruct the personnel in accordance with the legal requirements.
- Untrained personnel or unauthorized persons may not use the device.

### 4 Warranty and liability

Warranty and liability claim for personal injury and property damage are excluded if the damage is due to one or more of the following causes:



- **Improper use**
  - of the device.
  - the components belonging to the device.
  - the chemicals belonging to the electrochemical processing equipment.
  - Use of unsuitable chemicals.
  - Use of non-releasing accessories.
- **Failure to comply with the**
  - Work and safety instructions in this manual.
  - Operating instructions of the device or components.
- **Improper**
  - Commissioning of the device.
  - Putting the equipment into service in the event of improperly fitted protective devices.
  - Operation of the device
  - Maintenance of the device.
  - repairs carried out on the device.
  - Repair by unqualified personnel.
- **Use**
  - of the device in residential and office premises.
  - of the equipment in a fire and explosion hazard environment.
  - of the device in a humid environment.
  - A device with powerful structural changes
- **Noncompliance**
  - the prescribed maintenance intervals

**Hint**

For damages and disturbances caused by the operation of the device with components and chemicals from other manufacturers, no claims whatsoever can be made against Reuter GmbH & Co. KG. Unless it is clearly proven that the damage was clearly caused by negligent design or production by Reuter GmbH & Co. KG and was foreseeable at the time of construction.

**4.1 Material defects**

- The customer must notify the supplier of material defects immediately within 14 days in writing.
- If no limitation periods for claims for material defects have been agreed by the supplier and consumer, the statutory provisions shall apply.
- In the case of a claim for material defects, submit a certificate showing that the limitation period has not been exceeded.

**5 Terms****Distilled water**

Distilled water contains no minerals and is therefore very "soft". It is obtained by distillation.

**Demineralized water**

Demineralized water is obtained by filtration. It contains hardly any minerals and is also very "soft".

**Electrolyte**

Electrolytes are electrically conductive chemicals used to clean welds.

**Carbon Fiber Brush**

Carbon fiber brushes consist of up to 1.5 million individual carbon fibers. During the cleaning process, the current is distributed over the individual fibers.

A small arc (~3 - 7µm in size) forms on each fiber that comes into contact with the workpiece surface.

**Passivate**

Passivation is the inactivation of oxidation processes on the workpiece surface by chemical treatment.

**Water hardness**

The mineral content in the water determines the degree of hardness. The higher the concentration of certain minerals in the water, the higher the degree of hardness. The degree of hardness is given in "degree of German hardness" [°dH].

## 6 Delivery, internal transport, unpacking

The complete device set is delivered in a sturdy Euro plastic box. This box is closed with two plastic cable ties and a metal cable tie before shipment in our factory. The lid can only be opened by destroying and removing the cable ties.



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### Security

In principle, all activities required for delivery, transport, unpacking and storage must be carried out with the utmost care and all rules and regulations required for safety must be complied with.

Failure to comply with safety rules and regulations can lead to severe cuts, bruises, and bone fractures.

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### 6.1 Delivery

- The delivery of the device set takes place in a euro plastic box.

### 6.2 Unwrap



- Cut the cable ties
- Make sure you don't cut yourself on the metal cable tie!
- Open the plastic box carefully.

#### 6.2.1 Opening the euro plastic box



- Remove the three cable ties.
- Open the transport box.
- Check the scope of delivery for completeness based on the delivery note.
- Complain about missing, damaged or undelivered goods immediately.

## 7 Scope of delivery Cleanox 5.0 device set



- 
- When unpacking the delivery, check the completeness of the device set.
  - Complain about missing or damaged parts immediately.
-

## 7.1 Delivery listcleaning set "Cleanox 5.0"

Description	Contain	Quantity	Order no.	Illustration
Cleaning Cleanox 5.0		1	EP-01-015	
Single parts cleaning set	Contain	Quantity	Order no.	Illustration
Cleanox 5.0	✓	1	EP-01-115	
AutoFeedHandle with 4 m long 10 mm <sup>2</sup> cable, brush and Teflon sleeve	✓	1	EP-07-951	
Performance AutoFeed Brush XL		1	EP-02-960	
Teflon sleeve Performance XL without slots		1	EP-02-928- OS	
Plastic tubes / brush tubes orange 80mm		1	EP-02-817	
Ground cable 4m, with 200A pliers (Installed on 1.0)	✓	1	EP-07-605	
Cleaner 1l bottle	✓	1	EP-04-130	
Polisher 1l bottle	✓	1	EP-04-132	



<b>Spray bottle for water 500 ml</b>	✓	1	EP-07-002	
<b>Wrench SW 10</b>	✓	1	AB-02-932	
<b>Mounting pins 5x100</b>	✓	2	EP-07-223	
<b>Euro plastic box</b>	✓	1	EP-07-019	
<b>Teflon handle with 4m cable 10mm<sup>2</sup></b>		1	EP-07-600	
<b>Performance-Brush Carbon Brush L Set of 5</b>		1	EP-02-939	
<b>Performance-Brush Carbon Brush XL Set of 5</b>		1	EP-02-929	
<b>Performance-Brush - Teflon sleeve XL</b>		1	EP-02-928	
<b>Performance-Brush Adapter M10 to M10</b>		1	EP-02-930	
<b>Wide neck container 500 ml</b>		1	EP-07-100	

Table 2 Delivery list

## 8 Storage



For safe and gentle storage of the "Cleanox" and accessories, observe the following measures:

- Leave the device set in the closed transport box.
- Protection against moisture and dust.
- Ambient temperature 5°C to 40°C.
- Do not store outdoors.
- Protect against the effects of acids and alkalis.
- Store only in a normal position.
- Do not expose to ionising or non-ionising radiation.
- The equipment set must not be subjected to vibration, shock, or continuous shock.



### Security

Chemicals must not get into the hands of children!  
**Keep them under lock and key!**

## 9 Installation conditions

### 9.1 Safety



The "Cleanox" and the accessories may only be installed and operated in a place corresponding to the installation conditions.

All electrical connections must comply with the applicable safety regulations and standards.

## 10 Decommissioning / Storage



- Turn off the device.
- Wash the carbon fiber brush and handle thoroughly with water. Do not loosen the screw connections.
- Dry the components thoroughly.
- Put the orange protective cap over the brush.
- Wipe the cables with a damp cloth.
- Clean the device and accessories thoroughly. Have maintenance work carried out by a specialist.
- Detailed instructions for cleaning the device and accessories can be found in Chapter 23.
- Close the electrolyte containers carefully so that no electrolyte can leak. Store the device and accessories in the transport box.
- Close the transport box and secure it with a cable tie against accidental opening

## 11 Storage

- Store the sealed transport box dry and frost-free.
- Make sure that the locked transport box cannot get into the hands of children or unauthorized persons.

## 12 Equipment technology

The devices of the "Cleanox" series are compact electrochemical high-current brush weld seam cleaning devices. They were developed for commercial use in trade and industry. The simple operation makes the devices ideal for construction sites and installation in pipeline construction.

- They are suitable for:
  - Cleaning and polishing of TIG and MAG welds.
  - Due to the performance levels, the Cleanox can also clean and polish throttled.
- Together with our signing set, the devices are also suitable for light and dark signing.
  - With dark signing, dark labels can be applied – e.g. batch no. or nameplates.
  - Light signing is used for aluminum materials (these cannot be signed darkly) and preferably for high-gloss surfaces.
- Toxic hydrofluoric, sulfuric, or nitric acids, as in conventional pickling processes, are not used here.
- The electrochemical processing equipment works with low DC and AC voltages that are harmless to humans.



### Hint

Our cleaning and polishing electrolytes are guaranteed to be non-toxic!

Type	Cleaning and polishing with	Cleaning with	signing with optional signing set		<b>Attention! The Cleanox is only designed for cleaning + polishing welds with the carbon fiber brush.</b>
			bright	dark	
Cleanox 5.0	Carbon Fiber Brush	Carbon electrode			
	<b>M, XL</b>	<b>Never use!</b>			
	✓		✓	✓	

### 12.1 Cleanox 5.0

The Cleanox 5.0 is the only electrochemical cleaning and polishing device with integrated, automatic electrolyte supply from Reuter GmbH & Co. KG. This device offers the possibility to clean and polish welds with fully automatic electrolyte supply. In both processes, the passive layer of the stainless steel is rebuilt.

- Power 1250 VA AC/DC.
- 80A continuous current (100% ED) and over 200 A pulse current.
- One performance level each for cleaning and polishing:
  - Cleaning and polishing of TIG-welded thin sheets
  - up to MAG welded beams, you can clean and polish all welds.
- Sign Dark
- Bright signing

The electrochemical processing equipment works with low DC and AC voltages that are harmless to humans.

## 12.2 Application







	Cleaning with carbon fiber brush	Polishing with carbon fiber brush	Cleaning with AutoFeed	Polishing with AutoFeed	Sign	
<b>Tools</b>	M, XL 	M, XL 	AutoFeed XL 	AutoFeed XL 	dark 	bright 
<b>Cleanox 5.0</b> Power: 1250VA	●	●	●	●	●	●
		● Fully operational    ○ conditional operational -- not operational				

Table 3 Area of application

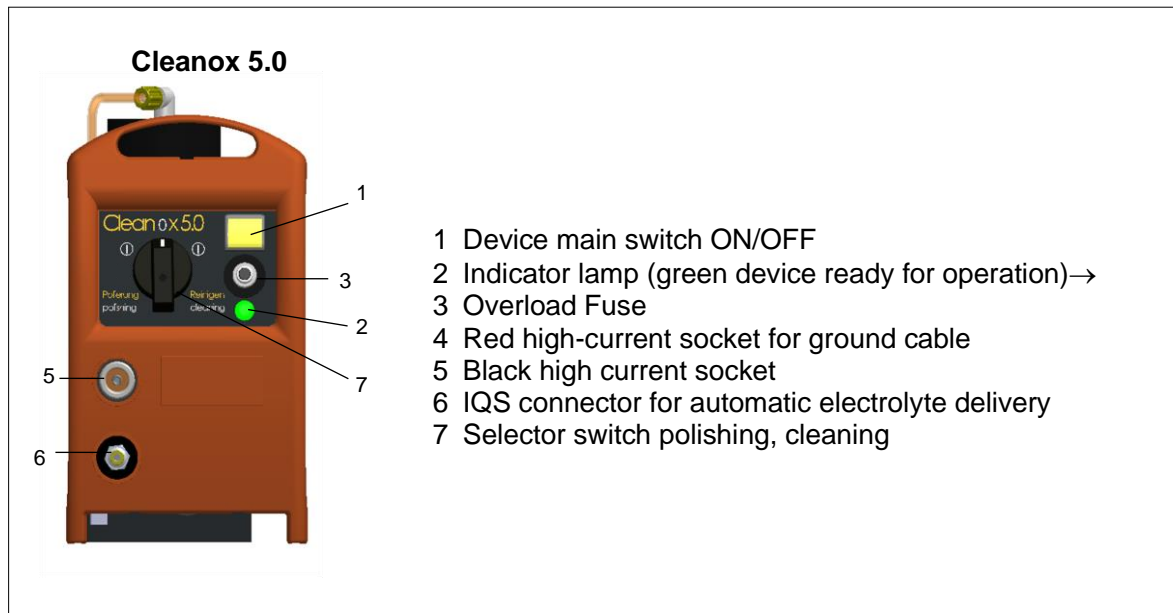
## 12.3 Cooling and safety shutdown

Cleanox 5.0:

- Active cooling by thermostatically controlled fan
  - Fan turns on at 60°C internal temperature
- The Cleanox 5.0 has an internal temperature switch-off. If the temperature rises too much during operation, switch off the device to protect the components.

If the device switches off during operation, i.e., the green LED at the front goes out, the device has probably become too warm. Do not turn off the device to keep the fan running. Cooling may take a few minutes because the reactivation temperature is below the activation temperature of the temperature protection circuit. Once the green LED lights up again, you can continue working.

## 13 Front panel controls and controls

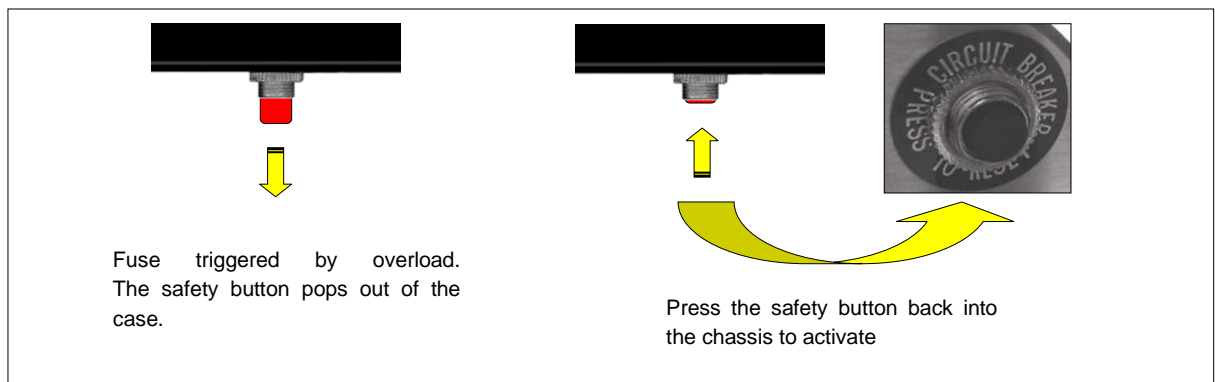


### 13.1 Circuit breaker (Overload FUSE)



The Cleanox is equipped with a circuit breaker.

- In the event of overload or electrical short circuit, the circuit breaker interrupts the circuit.



#### Security

Wait a moment for the fuse to cool down. Before activating the safety button:

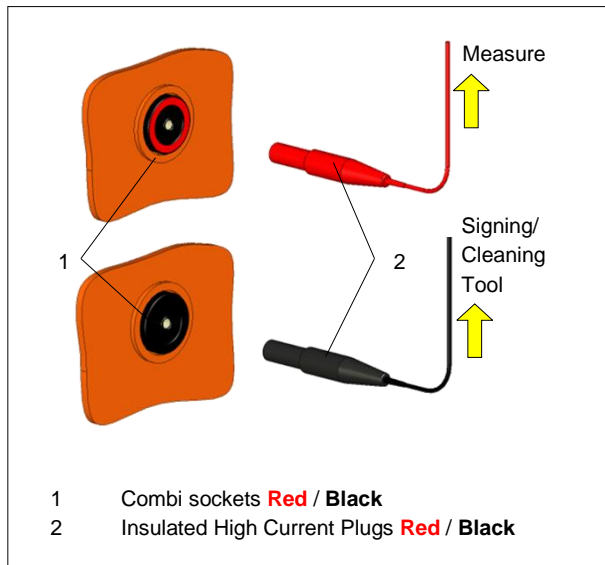
- Turn off the device or set the selector switch to position "0".
- The brush must not be in contact with the workpiece or mass.

If the backup is triggered again, check your way of working!

- Immerse brushes more often and longer in the wide-neck container and cool!
- Do not press brush to the workpiece!



### 13.2 High-current sockets



The device is equipped with combination sockets for the safe transmission of the cleaning current.

- High-current socket "**red**"
  - **Always** for connecting the high current plug with cable 10mm<sup>2</sup> "**red**".
  - **Always** for connecting the ground terminal
- High-current socket "**black**"
  - **Always** for connecting the high current plug with cable 10mm<sup>2</sup> "**black**".
  - Always to connect to connect the cleaning signing tools (Teflon handle, carbon fiber brush).

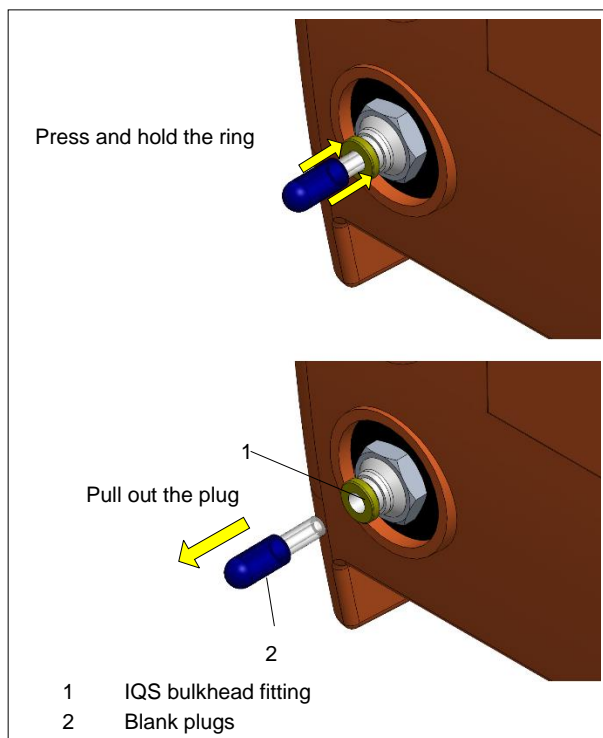


#### Hint

The 10mm<sup>2</sup> high-current plugs lock automatically when plugged into the high-current sockets and can only be released by pressing them lightly.



### 13.3 IQS-Connector

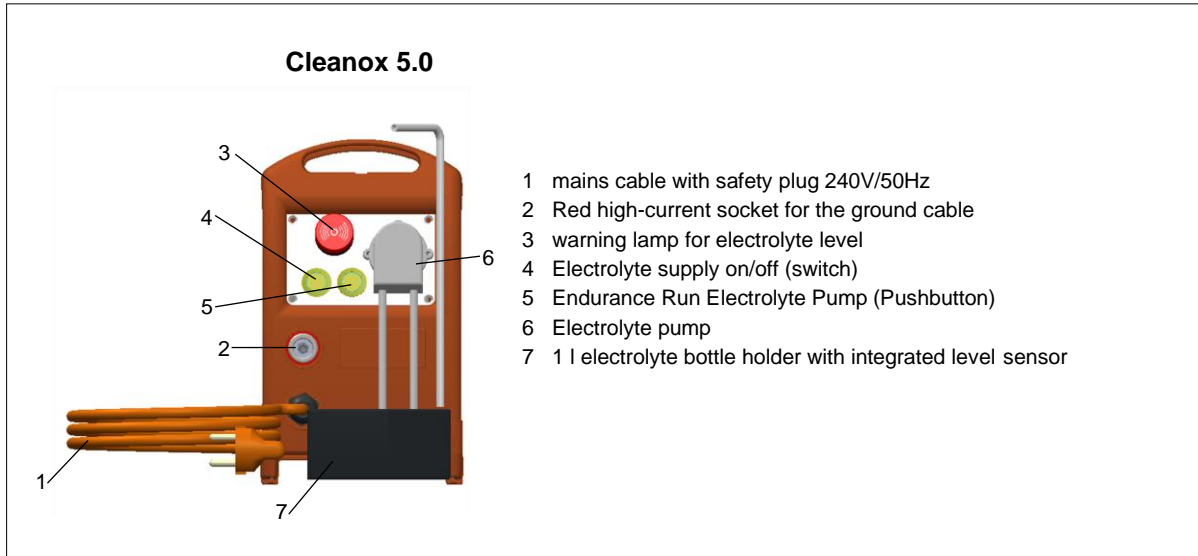


- IQS bulkhead fitting for Teflon hose  
Ø4 mm
  - Connection to the hose package
- Blank plugs
  - Leak protection

To remove the blind plug, press the ring of the bulkhead fitting towards the device and maintain the pressure. Now push the plug slightly forward and then pull it out of the connector.

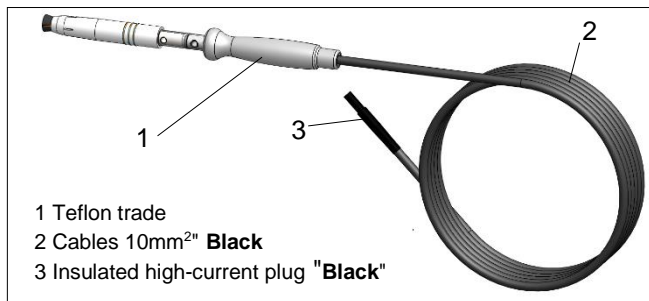
- When loosening the blank plug on the device as well as the cap on the hose package, electrolyte can run out of the IQS connector/hose. Wear a cloth underneath it to catch it.

### 13.4 Elements on the back



## 14 Accessories

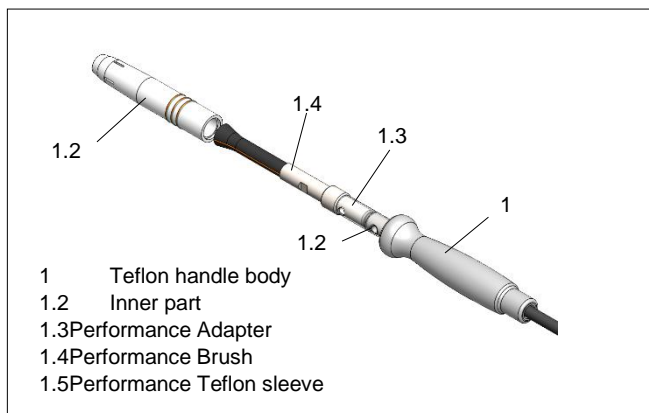
### 14.1 Teflon handle with cable and plug for manual operation



The standard Handle you can use with all Cleanox devices. With the Cleanox 5.0 there is also the possibility in automatic mode with a AutoFeed-Handle to work. You can find out more about this in the following chapter.

- The Teflon handle (1) is firmly connected to the black 10mm<sup>2</sup> cable (2) and the **black** high-current plug (3).
  - **Always** plug the black high-current plug (3) into the **black** high-current socket.
- Tool connections are always **black**.

The Teflon handle consists of the following components:



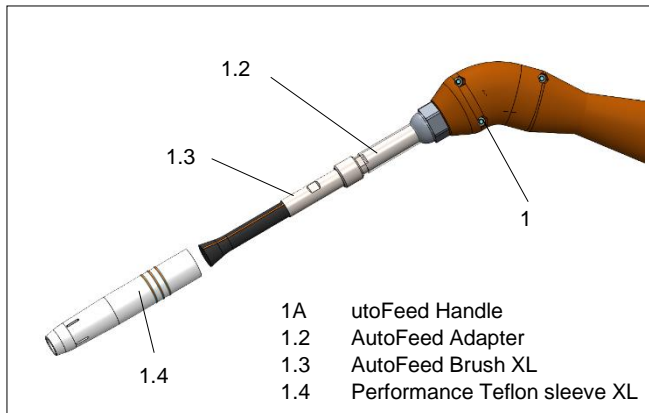
- Teflon Handle Body (1)
  - Electrical insulation
  - Thermal insulation
- Inner part (1.2)
  - Electrical transmission
  - Heat dissipation
- Performance Adapter (1.3)
  - Electrical transmission
  - Connection handle ↔ brush
  - Protection of the inner part
- Performance Brush (1.4)
  - Electrical transmission
  - Cleaning tools
- Performance Teflon Sleeve (1.5)
  - Wear compensation

## 14.2 AutoFeed handle for Cleanox 5.0



The AutoFeed Handle can only be used on Connect Cleanox 5.0, unless you are using a Reuter MagicBox.

- AutoFeed Handle (1)
- Cable + Teflon Hose (2)
  - To work, plug the high-current plug and Teflon hose into the device

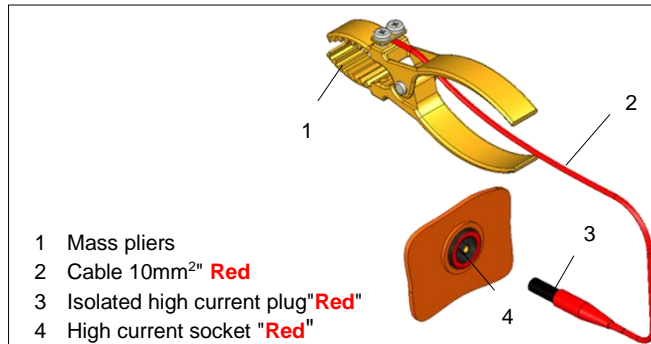


To be able to work with the handle you need the AutoFeed Components

- AutoFeed Adapter
  - Connection between brush and handle
  - Transmission
  - Electrolyte channel
- AutoFeed Brush XL
  - Transmission
  - Electrolyte channel
  - Cleaning tools
- Performance Teflon sleeve XL
  - Wear compensation
  - Focusing the carbon fibers

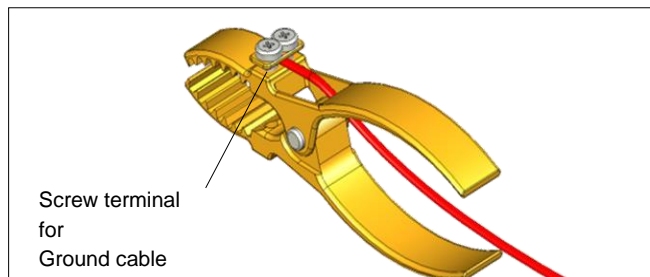


### 14.3 Groundpliers with cable and plug



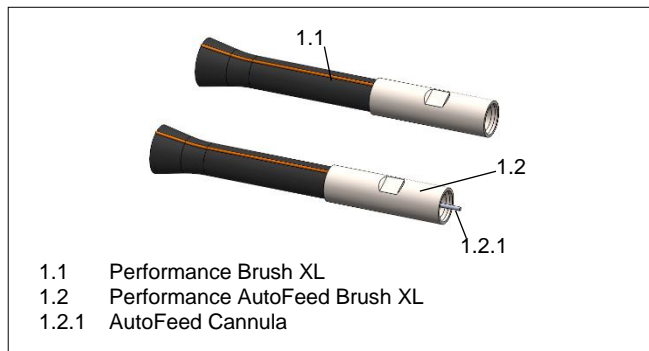
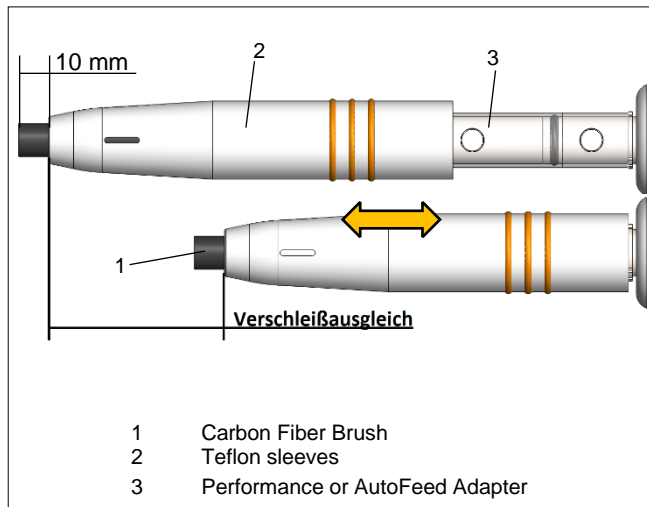
The groundpliers is always connected to the red high-current socket of the device. With the Cleanox 5.0, the red high-current beech is located on the back above the mains cable.

- The ground clamp (1) is firmly connected to the red 10mm<sup>2</sup> cable (2) and the red high-current plug (3).
  - **Always** plug the red high-current plug (3) into the red high-current socket (4).
- Ground connections are always "red".



- The mass pliers (brass cast tongs) establish the electrical contact between the workpiece and the electrochemical cleaning device.

## 14.4 Performance Brush XL and Performance Brush AutoFeed XL



Use the included carbon fiber brushes type Performance XL for cleaning Welds.

- For manual operation, use the Performance Brush XL
- For automatic operation, use the Performance AutoFeed Brush XL

The Performance Brushes consists of the following components:

- ~ 1.5 million individual carbon fibers
  - at the ends of which the arcs important for cleaning are created
- Female threaded connector (3)
  - Attachment of the brush to the Teflon handle and power transmission: handle <--> carbon fibers
- Teflon sleeve (2)
  - Wear compensation
  - The burning of the carbon fibers is compensated by shifting

Der Performance AutoFeed Brush XL has additional one (1.2.1) Cannula for conveying the Electrolyte

In addition to the supplied carbon fiber brush, you will find a variety of special brushes for different applications in our accessories catalog.

We are also happy to help with special requests.



### Hinweis

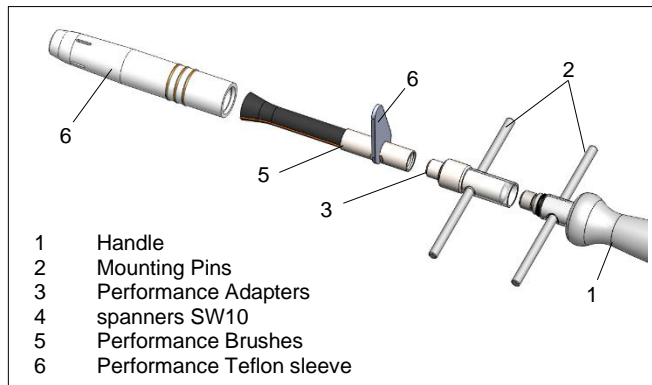
The Performance AutoFeed brushes do not fit on the normal Performance Adapter and vice versa.

The attempt may result in damage to the components.

## 14.5 Mounting Carbon Fiber Brush XL / Handle

Before you start working, you need to mount a brush on your cleaning handle.

### 14.5.1 Mount Performance Brush to normal Handle



To mount a brush correctly on the handle, follow these steps:

- Connect the adapter to the handle
  - Use the mounting pins
  - Tighten the adapter so that the pins bend slightly
  - The pins are soft annealed so you can create the right tightening torque
- Connect the brush to the adapter
  - Use a key SW 10 and a mounting pin
  - Tighten the brush properly
- Thread the Teflon sleeve over the brush and gently screw it onto the adapter



#### Note:

Only loosen the screw connections when replacing the components! It is not necessary to clean the individual parts.

With each loosening there is the possibility to drag electrolyte into one of the threads. This leads to oxidation and contact problems! Always make sure that the components are mounted correctly.



#### Security:

Make sure that the carbon fiber brush and adapter are firmly screwed on. A loose screw connection can stew and damage the thread.

- The Teflon insulation must be present on both the handle and the adapter, otherwise the high currents could lead to shunts with the workpiece. In addition, you need the Teflon sleeve as insulation and focus.

#### Indication of possible malfunction

At the front of the brush there is no or insufficient power. However, the green LED on the front panel lights up.

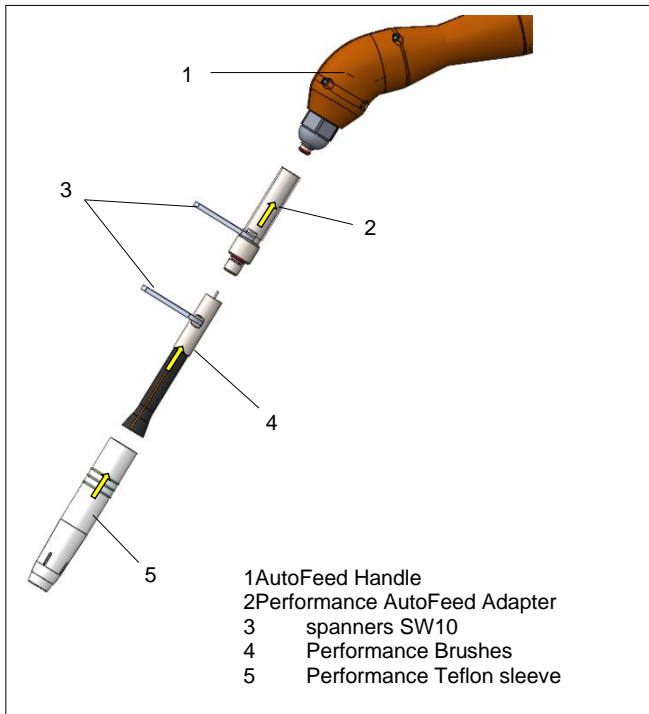
- Cause: There is a 99% probability that there is not enough contact between the threaded piece and the brush.

#### Assistance:

Check threads for:

- Oxidation, damage, loose fit.
- Clean threads with wire brush.
- Some copper paste or molykote grease on thread.
- Screw all threads tightly. **NOT TANGIBLE!**
- Use the supplied mounting pins/spanners.

### 14.5.2 Performance Brush Mount AutoFeed XL to the AutoFeed handle



Perform the following steps to mount a AutoFeed Brush correctly on AutoFeed Handle to mount:

- Connect the AutoFeed Adapter to the AutoFeed Handle
  - Use a spanner SW10
  - Tighten the adapter
  - At the first resistance you notice, you slide over an O-ring
- Connect the AutoFeed Brush to the AutoFeed Adapter
  - Thread the cannula into the hole in the AutoFeed adapter. The cannula is sealed by an O-ring
  - Use two wrenches SW 10 and tighten the brush properly.
- Thread the Teflon sleeve over the brush and carefully screw the sleeve onto the adapter.

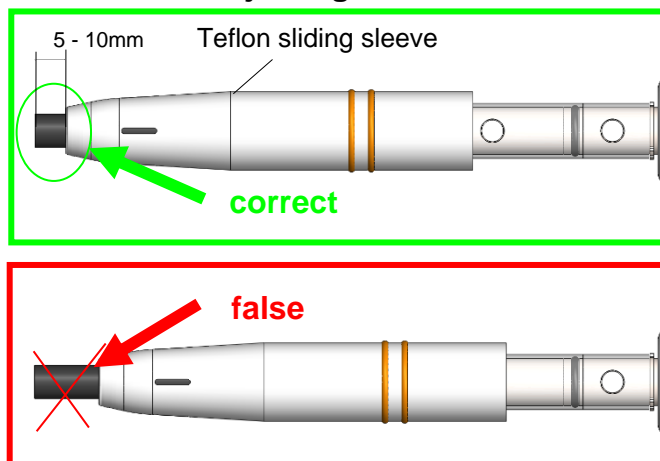
#### Security:



Before you change the brush, pump the electrolyte hose with the autorun function until its empty! To do this, carefully work clean. In practice, I wouldn't do it that way either, but there is always the danger of electrolyte getting into the thread and then destroying it over time! That's why it says so in the instructions. Ily remove the conveying hose from the electrolyte Bottle. When the hose is empty, hold the sieve in a container of water and convey water until it runs out of the front of the brush. (Hold the brush over another container). Rinse the accessory for one minute. After one minute, remove the sieve from the water tank and pump the hose empty again. Now change the brush. Be sure to counter the adapter so that you do not loosen the connection between the adapter and the handle.

Please also note the instructions for mounting a normal performance brush

### 14.5.3 Adjusting the Teflon sleeve



- During the cleaning process, the carbon fiber tips of the carbon fiber brush wear off.
- With the Teflon sleeve you compensate for the wear on the carbon fibers.
  - Set the Teflon sleeve on the carbon fiber brush so that the carbon fiber tips protrude about 5-10 mm.
  - This is the only way to form the many small arcs between the carbon fiber ends and the workpiece!
  - This guarantees an optimal cleaning effect.
  - If the Teflon sleeve hits the handle, you need to replace the brush.

## 14.6 Electrolyte



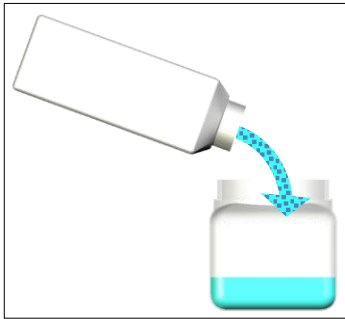
### Note:

For the different applications and materials, we have a variety of suitable electrolytes ready for you.

When using the electrolytes, follow our operating instructions exactly. Observe all safety data sheets and general safety regulations.

If you have any questions about the use of our electrolytes, please contact Reuter GmbH und Co. KG or one of our sales partners directly. We will be happy to advise you.

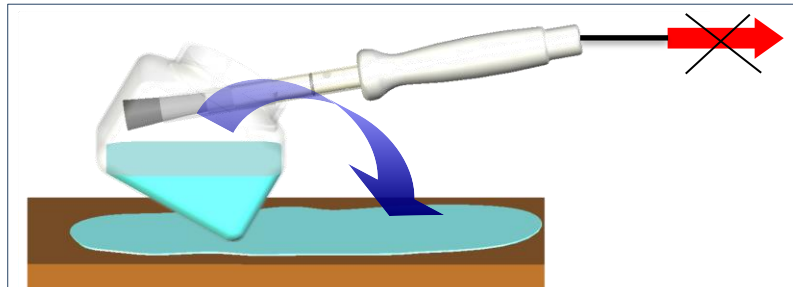
### 14.6.1 Transfer to wide-neck containers (manual operation)



- Use the one wide-neck container (EP-07-100)!
- Unscrew the cap of the electrolyte bottle / electrolyte canister.
- Fill the wide-neck container with electrolyte to the first lower mark.
  - This corresponds to 2cm filling height.
- Never fill the wide-neck container too high.
  - The electrode handle remains dry and electrolyte cannot get to your hands.

### Security

The wide-neck container can tip over due to the weight of the handle or accidentally pulling on the supply line. Electrolyte may leak.



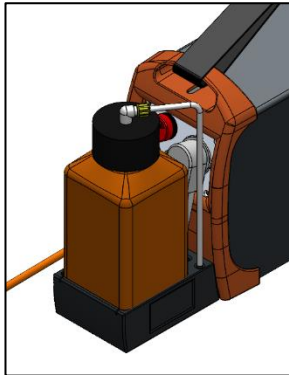
### Tipp

We recommend using our safety holder for the wide-neck container.



- Product no.: EP-07-102

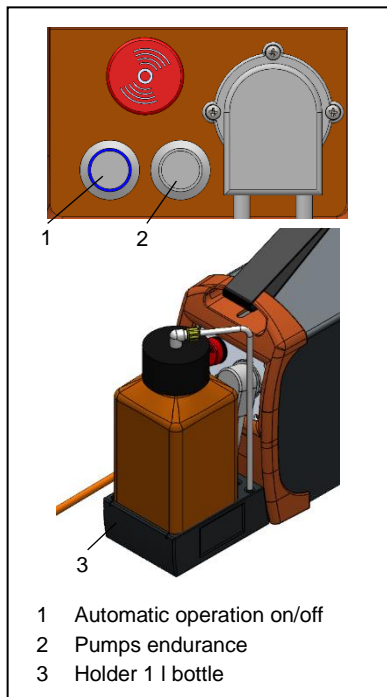
### 14.6.2 Placing the electrolyte bottle for automatic operation



If you use the automatic operation of the Cleanox 5.0, you must place the 1 l electrolyte bottle in the permanently installed holder of the Cleanox 5.0.

- Place the bottle in the receptacle
- Insert the hose into the bottle with the filter attached
- Close the lid

### 14.6.3 Electrolyte change Cleanox 5.0 in automatic mode



- Turn on the device at the main switch.
- Connect an AutoFeed handle with mounting accessories or leave the used one connected.
- Activate automatic mode
- Remove the electrolyte tube from the used 1 l bottle
- Dry the hose with a cloth
  - Wear protective gloves
- Hold the brush of the AutoFeed handle over a container
- Press and hold the endurance button of the Cleanox 5.0
- When no more electrolyte runs out of the brush Stop the endurance run
- Dispose of the collected electrolyte professionally
- Place the new electrolyte 1 L bottle in the holder and attach the lid
- Hold the brush over a collection container again
- Convey in continuous operation until electrolyte runs out of the brush.

If you change the electrolyte because the bottle is empty and you do not want to change the type of electrolyte, you only must replace the bottles and, if necessary, transfer the rest from the empty bottle into the full one.

### 14.6.4 Information on non-toxicity



- We only use non-toxic mineral acids in different concentrations as cleaning electrolytes.
- Our electrolytes are also used as acidifiers and preservatives in food in low concentrations, for example in cola as acidifier E338.

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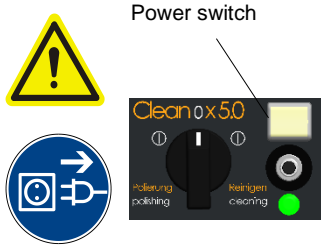
**We hereby confirm that our cleaning electrolytes  
CLEANER / SUPERCLEANER / POLISHER  
are non-toxic!**

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### 14.6.5 Scope of delivery information

- We supply cleaning and polishing electrolytes in the following packaging sizes:
  - 1 liter bottle, 5 liter canister, 25 liter canister.
- Our containers are provided with safety locks and thus leak-proof sealed until opening.

## 15 Commissioning



### Security

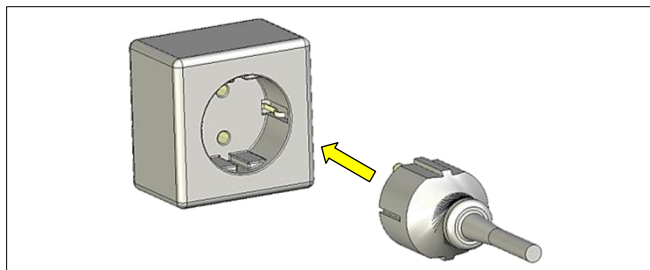
The Cleanox must be switched off when connecting the cables and changing the handles, brushes, carbon electrodes or felts.

- Rotary switch to 0
- Power switch.

The Cleanox is equipped for one-phasic connection to 230V/50Hz schuko socket and equipped with a commercially available schuko plug.

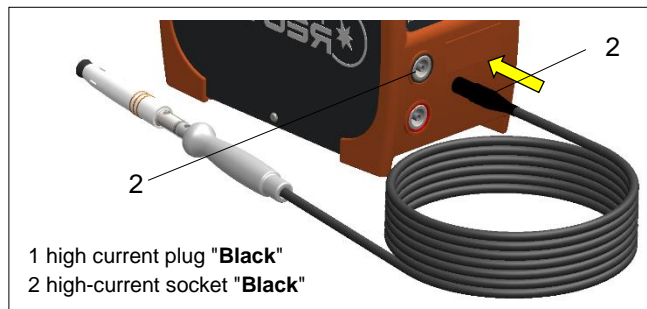
## 16 Connection

### 16.1 Mains connection



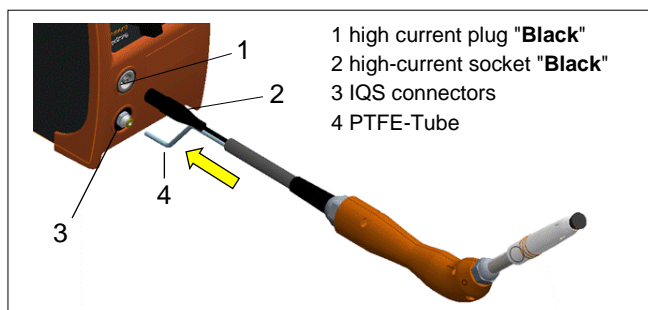
- Connect the power plug of the Cleanox to a suitable 230V mains socket.
  - Observe the safety instructions.

### 16.2 Connection Teflon handle with carbon fiber brush manual operation



- Connect the Carbon Fiber Brush
- Connect the black high-current plug (1) to the **black** high-current socket (2) on the device.

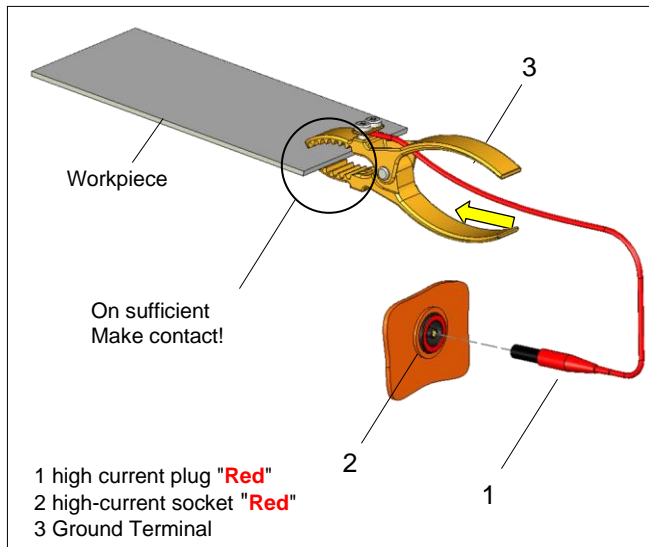
### 16.3 Connection AutoFeed handle with carbon fiber brush



- Mount the carbon fiber brush
- Connect the black high-current plug (2) to the **black** high-current socket (1) on the device.
- Connect the PTFE-Tube (4) with the IQS connector (3)
  - When loosening the plugs, there is always some electrolyte coming out, catch this with a cloth.



## 16.4 Connection ground terminal



- The ground terminal (3) provides the electrical contact between the workpiece and the electrochemical cleaning device here.
- Ensure good electrical contact between ground terminal (3) and workpiece.
- If necessary, clean the contact point.
- Connect the red high-current plug (1) to the red high-current socket (2) on the device.
- The red high-current socket of the Cleanox 5.0 is located on the back of the device above the connecting cable



### Security

Very high currents flow during cleaning.

- Connect the ground terminal directly to the workpiece, you avoid bypass circuits.

### 16.4.1 Locking / unlocking high-current plugs

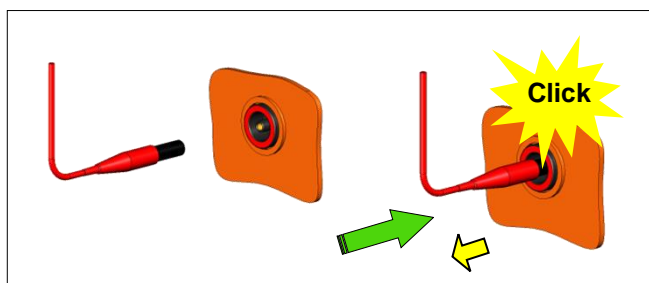


### Hint

The high-current plugs lock automatically when plugged into the high-current sockets and can only be unlocked by pressing them in again! Make sure you have correct connections.

- **Red high-current** plug into red high-current socket.
- **Black high-current** plug into black high-current socket.

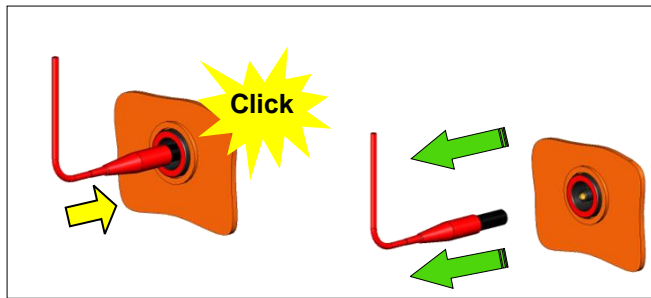
The procedure described below applies to **red** and **black** high-current connectors.





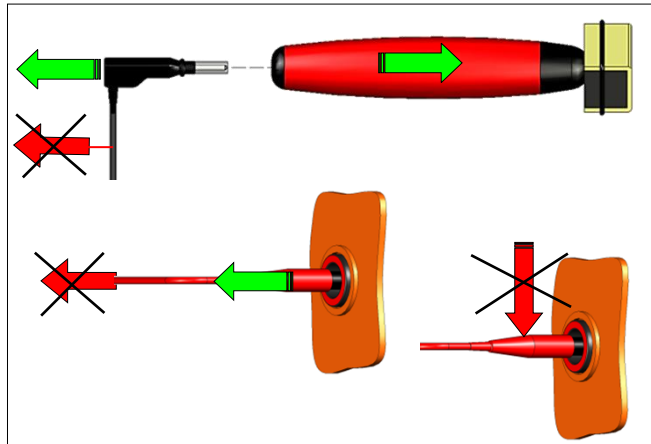
- Slide the high-current plug as far as in the high-current socket until you feel a clear latch.
- Check the correct fit of the high-current plug by pulling it back slightly.
  - The plug must not come loose.



### 16.4.2 Unlocking the high-current plug



- To unlock, lightly push the high-current plug into the High current Socket until you feel resistance (light clicking). 
- The latch is released. 
- Now unplug the high-current plug from the high-current socket.



#### Security

- Never pull the plugs out of the cable on the cable!
- The cables may be damaged.
- Never load the plugs crosswise.
- Jacks can easily break out at the edges

## 17 Cleaning with the carbon fiber brush by hand

### 17.1 Preparation

- Teflon handle with Performance Brush XL.
- Mass pliers
- Cleaning electrolyte
- Protective clothing



#### Security:

Make sure that the automatic operation of the Cleanox 5.0 is deactivated!




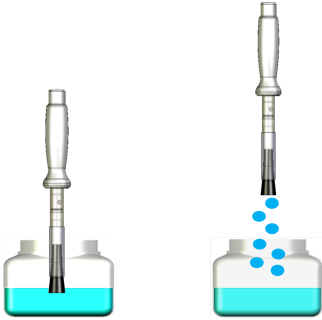


#### Security

Are all components installed and connected correctly?  
Do you wear your personal protective equipment?



## 17.2 Carbon Fiber Brush Cleaning Workflow

	Workflow - Cleaning -	Remark
1		<ul style="list-style-type: none"> <li>● Turn on the device. <ul style="list-style-type: none"> <li>➤ The power button is lit.</li> <li>➤ The green indicator light only lights up when the selector switch is no longer set to "0".</li> </ul> </li> </ul>
2		<p><b>Security</b></p> <ul style="list-style-type: none"> <li>➤ <b>Never</b> switch the device several times in quick succession via the power switch on/off.</li> <li>➤ The devices are equipped with an inrush current limiting device which prevents circuit breakers from tripping too quickly.</li> <li>➤ By switching on/off too quickly one after the other the electronics in the device can be damaged. Wait at least 30 seconds after switching off before turning the device back on.</li> </ul>
3		<ul style="list-style-type: none"> <li>● Set the selector switch to level "I" Clean <ul style="list-style-type: none"> <li>➤ LED lights up</li> </ul> </li> </ul>
4		<ul style="list-style-type: none"> <li>● Dip the carbon fiber brush into the wide-neck container.</li> <li>● Pull the carbon fiber brush out again and drain excess electrolyte.</li> </ul>

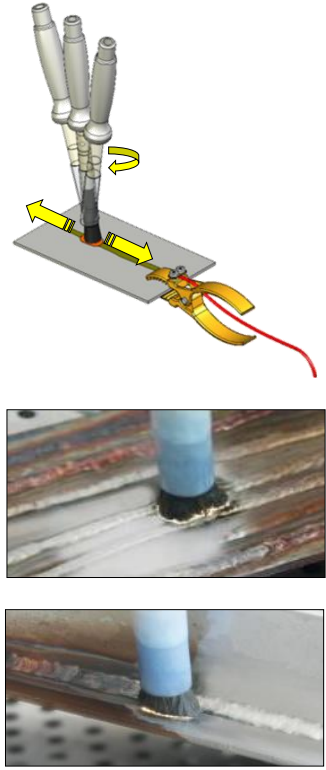

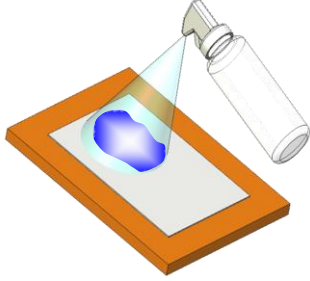
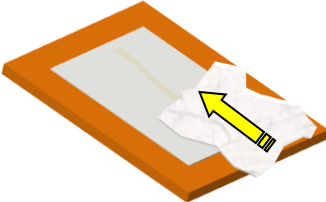
<p>5</p>		<ul style="list-style-type: none"> <li>● Place the brush <b>vertically</b>.</li> <li>● Now lightly stroke the weld seam with the brush. <ul style="list-style-type: none"> <li>➢ Move the carbon fiber brush as you would when painting with a normal brush.</li> </ul> </li> <li>● <b>Never</b> push the carbon fiber brush too hard <ul style="list-style-type: none"> <li>➢ Only slightly circular with 1-2cm diameter and slide very slowly over the workpiece surface.</li> </ul> </li> <li>● Maximum cleaning effect when the carbon fibers are perpendicular to the workpiece surface. <ul style="list-style-type: none"> <li>➢ This is the only way to create the arcs that are decisive for the cleaning process at the carbon fiber tips.</li> </ul> </li> <li>● Depending on the nature of the weld, you must brush over it several times to achieve the desired cleaning effect. <ul style="list-style-type: none"> <li>➢ The darker the tarnish colors of the welds, the longer the cleaning phase.</li> <li>➢ They increase the cleaning effect on highly oxidized seams by using our <b>SUPERCLEANER</b> or <b>POLISHER</b>.</li> </ul> </li> </ul>
<p>6</p>		<ul style="list-style-type: none"> <li>● Dip the carbon fiber brush regularly into the wide-neck container. <ul style="list-style-type: none"> <li>➢ Move the carbon fiber brush back and forth in the wide-neck container 2-3 times.</li> <li>➢ dissolved oxides are removed</li> <li>➢ the carbon fibers can absorb fresh electrolyte.</li> <li>➢ They achieve maximum cooling of the electrode and increase the service life.</li> </ul> </li> </ul>
<p>7</p>		<ul style="list-style-type: none"> <li>● Spray the surface immediately after cleaning with water. <ul style="list-style-type: none"> <li>➢ Use the supplied spray bottle</li> <li>➢ Use distilled or demineralized water.</li> <li>➢ This way you avoid unsightly white limescale edges.</li> <li>➢ The water hardness must be less than 10° dH.</li> <li>➢ The abruptly evaporating water carries away the dissolved impurities and electrolyte residues.</li> </ul> </li> </ul>
<p>8</p>		<ul style="list-style-type: none"> <li>● Dry the surface. <ul style="list-style-type: none"> <li>➢ Use clean paper towels.</li> <li>➢ This gives you a stain-free, dry surface.</li> </ul> </li> </ul>
<p><b>Further information on how to improve the cleaning result can be found in the "Tips".</b></p>		

Table 4 Cleaning workflow

## 18 Polishing with carbon fiber brush by hand

You can previously clean welds:

- High gloss polishing or adjust the gloss burr to the surrounding surface as desired.
  - Oxides, silicates, and scaling that could not be completely removed during cleaning can be removed almost completely with polishing.
  - However, this creates a slightly shiny surface.

**Use only our components** for polishing stainless steel surfaces or welds.

### 18.1.1 Preparation

- Teflon handle with carbon fiber brush XL
- POLISHER electrolyte.
- Ground connection
- Protective clothing



#### Security:

Make sure that the automatic operation of the Cleanox 5.0 is deactivated!





#### Security

Are all components installed and connected correctly?  
Do you wear your personal protective equipment?



### 18.1.2 Polishing workflow

Workflow - Polishing -	
1	 <ul style="list-style-type: none"> <li>● Turn on the device.                             <ul style="list-style-type: none"> <li>➢ The power button is lit.</li> </ul> </li> </ul>
2	 <p><b>Security</b></p> <ul style="list-style-type: none"> <li>➢ <b>Never</b> turn the device on/off several times in quick succession using the power switch.</li> <li>➢ The devices are equipped with an inrush current limiting device which prevents circuit breakers from tripping too quickly.</li> <li>➢ Switching on/off too quickly one after the other can damage the electronics in the device.</li> <li>➢ Wait at least 30 seconds after switching off before turning the device back on.</li> </ul>



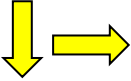
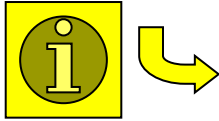
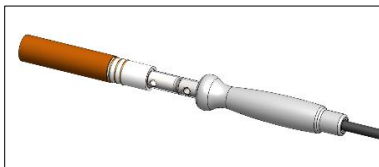
		<ul style="list-style-type: none"> <li>● Set the selector switch to power level "I" <ul style="list-style-type: none"> <li>➢ normal polishing</li> <li>➢ LED lights up</li> </ul> </li> </ul>
4		<ul style="list-style-type: none"> <li>● Use our polisher electrolyte to polish.</li> </ul>
5		<ul style="list-style-type: none"> <li>● <b>The polishing workflow is the same as the cleaning process</b></li> </ul>
6		<p><b>Hint</b> If necessary, you can still seal the surface with our Neutralyt (see catalogue).</p> <ul style="list-style-type: none"> <li>➢ The surface becomes less sensitive to renewed contamination such as fingerprints.</li> <li>➢ prevents subsequent rusting on corrosion-sensitive surfaces</li> </ul>
<p><b>For more information, see the tips for "Cleaning" and "Polishing".</b></p>		

Table 5 Polishing Workflow

## 18.2 Procedure after work



- Turn off the device at the power button and unplug it from the wall outlet
- Rinse the brush at the tip with ultrapure water
  - Do not dismantle the Teflon sleeve
- Rinse the bulk tongs with ultrapure water
- Dry the tool with cloths
- Put the orange protective cap on the brush
  - Do not loosen the screw connections between brush, adapter, and handle
- Close open electrolyte containers
- Clean your workplace.
- Dispose of wastewater and waste properly.
- Store the components in such a way that no danger can arise for other people and yourself.

## 19 Cleaning with the carbon fiber brush in automatic mode

### 19.1 Preparation

- AutoFeed handle with Performance Brush AutoFeed XL
- Earth terminal
- Cleaning electrolyte
- Protective clothing


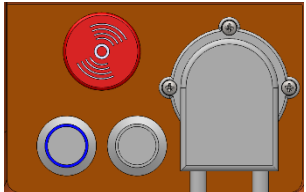
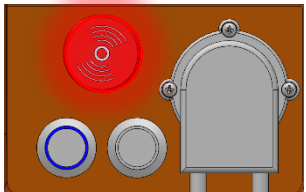




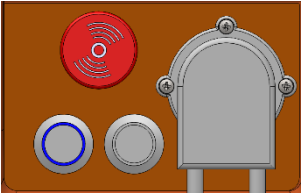
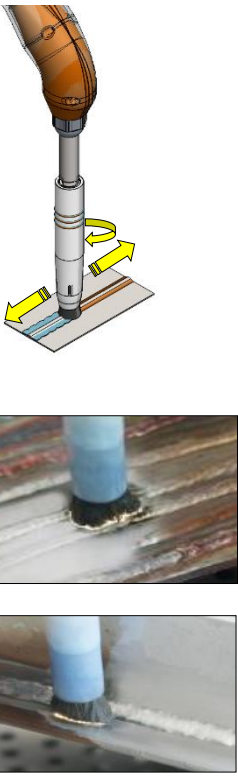
#### Security

Are all components installed and connected correctly?  
Do you wear your personal protective equipment?



### 19.2 Carbon Fiber Brush Cleaning Workflow

	Workflow - Cleaning -	Remark
1		<ul style="list-style-type: none"> <li>● Turn on the device. <ul style="list-style-type: none"> <li>➢ The power button is lit.</li> <li>➢ The green indicator light only lights up when the selector switch is no longer set to "0".</li> </ul> </li> </ul>
		<ul style="list-style-type: none"> <li>● Switch on the automatic mode of the Cleanox 5.0. <ul style="list-style-type: none"> <li>➢ Press the button on the back.</li> <li>➢ The button lights up blue</li> </ul> </li> <li>● A beep sounds <ul style="list-style-type: none"> <li>➢ The automatic mode is on</li> </ul> </li> </ul>
		<ul style="list-style-type: none"> <li>● If the warning light permanently emits a warning tone and flashes. <ul style="list-style-type: none"> <li>➢ Replace the electrolyte bottle → It is almost empty</li> </ul> </li> </ul>
2		<h4>Security</h4> <ul style="list-style-type: none"> <li>➢ <b>Never</b> switch the device several times in quick succession via the power switch on/off.</li> <li>➢ The devices are equipped with an inrush current limiting device which prevents circuit breakers from tripping too quickly.</li> <li>➢ By switching on/off too quickly one after the other the electronics in the device can be damaged. Wait at least 30 seconds after switching off before turning the device back on.</li> </ul>

3		<ul style="list-style-type: none"> <li>● Set the selector switch to level "I" Clean <ul style="list-style-type: none"> <li>➢ LED lights up</li> </ul> </li> </ul>
4		<ul style="list-style-type: none"> <li>● Press the button on the back of the Cleanox 5.0 until electrolyte escapes from the brush <ul style="list-style-type: none"> <li>➢ Hold the brush over a vessel so that you do not drip electrolyte onto other parts</li> </ul> </li> </ul>
5		<ul style="list-style-type: none"> <li>● Place the brush <b>vertically</b>. <ul style="list-style-type: none"> <li>➢ As soon as the current starts flowing, the pump starts</li> <li>➢ The flow rate is automatically regulated according to the process current!</li> </ul> </li> <li>● Now lightly stroke the weld seam with the brush. <ul style="list-style-type: none"> <li>➢ Move the carbon fiber brush as you would when painting with a normal brush.</li> </ul> </li> <li>● <b>Never</b> push the carbon fiber brush too hard <ul style="list-style-type: none"> <li>➢ Only slightly circular with 1-2cm diameter and slide very slowly over the workpiece surface.</li> </ul> </li> <li>● Maximum cleaning effect when the carbon fibers are perpendicular to the workpiece surface. <ul style="list-style-type: none"> <li>➢ This is the only way to create the arcs that are decisive for the cleaning process at the carbon fiber tips.</li> </ul> </li> <li>● Depending on the nature of the weld, you have to brush over it several times to achieve the desired cleaning effect. <ul style="list-style-type: none"> <li>➢ The darker the tarnish colors of the welds, the longer the cleaning phase.</li> <li>➢ They increase the cleaning effect on highly oxidized seams by using our <b>SUPERCLEANER</b> or <b>POLISHER</b>.</li> </ul> </li> </ul>
6		<ul style="list-style-type: none"> <li>● The exchange of the brush is eliminated in automatic mode. <ul style="list-style-type: none"> <li>➢ The brush is continuously rinsed from the inside through clean electrolyte.</li> <li>➢ The carbon fibers and other components are continuously cooled by the clean electrolyte.</li> </ul> </li> </ul>

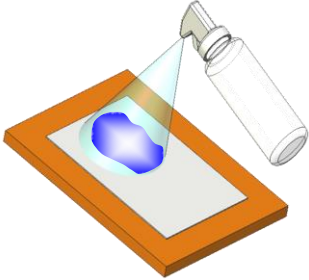
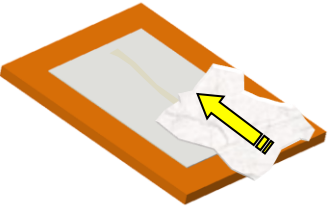
7		<ul style="list-style-type: none"> <li>● Spray the surface with plenty of water immediately after cleaning.             <ul style="list-style-type: none"> <li>➤ Use the supplied spray bottle</li> <li>➤ Use distilled or demineralized water.</li> <li>➤ This way you avoid unsightly white limescale edges.</li> <li>➤ The water hardness must be less than 10° dH .</li> <li>➤ The abruptly evaporating water carries away the dissolved impurities and electrolyte residues.</li> </ul> </li> </ul>
8		<ul style="list-style-type: none"> <li>● Dry the surface.             <ul style="list-style-type: none"> <li>➤ Use clean paper towels.</li> <li>➤ This gives you a stain-free, dry surface.</li> </ul> </li> </ul>
<p><b>Further information on how to improve the cleaning result can be found in the "Tips".</b></p>		

Table 6 Cleaning workflow



## 20 Polishing with carbon fiber brush in automatic mode

You can previously clean welds:

- High gloss polishing or adjust the gloss burr to the surrounding surface as desired.
  - Oxides, silicates, and scaling that could not be completely removed during cleaning can be removed almost completely with polishing.
  - However, this creates a slightly shiny surface.

**Use only our components** for polishing stainless steel surfaces or welds.

### 20.1.1 Preparation


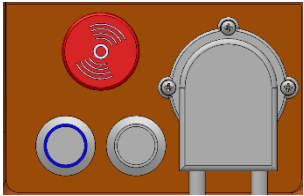

- AutoFeed handle with Performance Brush AutoFeed XL
- POLISHER electrolyte.
- Ground connection
- Protective clothing

#### Security

Are all components installed and connected correctly?  
Do you wear your personal protective equipment?



### 20.1.2 Polishing workflow

Workflow - Polishing -	
	 <ul style="list-style-type: none"> <li>● Turn on the device.                             <ul style="list-style-type: none"> <li>➢ The power button is lit.</li> </ul> </li> </ul>
	 <ul style="list-style-type: none"> <li>● Switch on the automatic mode of the Cleanox 5.0.                             <ul style="list-style-type: none"> <li>➢ Press the button on the back.</li> <li>➢ The button lights up blue</li> </ul> </li> <li>● A beep sounds The automatic mode is on.</li> </ul>
2	 <h4>Security</h4> <ul style="list-style-type: none"> <li>➢ <b>Never</b> turn the device on/off several times in quick succession using the power switch.</li> <li>➢ The devices are equipped with an inrush current limiting device which prevents circuit breakers from tripping too quickly.</li> <li>➢ Switching on/off too quickly one after the other can damage the electronics in the device.</li> <li>➢ Wait at least 30 seconds after switching off before turning the device back on.</li> </ul>



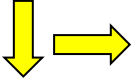
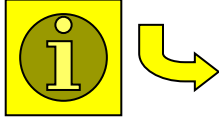
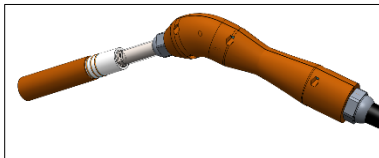
3		<ul style="list-style-type: none"> <li>● Set the selector switch to power level "I" <ul style="list-style-type: none"> <li>➢ normal polishing</li> <li>➢ LED lights up</li> </ul> </li> </ul>
4		<ul style="list-style-type: none"> <li>● For polishing, use our Polisher electrolyte.</li> </ul>
5		<ul style="list-style-type: none"> <li>● <b>The polishing workflow is the same as the cleaning process</b></li> </ul>
6		<p><b>Hint</b> If necessary, you can still seal the surface with our Neutralyt (see catalogue).</p> <ul style="list-style-type: none"> <li>➢ The surface becomes less sensitive to renewed contamination</li> <li>➢ such as fingerprints.</li> <li>➢ prevents subsequent rusting on corrosion-sensitive surfaces</li> </ul>
<p><b>For more information, see the Cleaning and Polishing Tips.</b></p>		

Table 7 Polishing Workflow

## 20.2 Procedure after work



- Disable automatic mode
  - This prevents unintentional pumping of the pump
- Turn off the device at the power button and unplug it from the wall outlet
- Rinse the brush at the tip with ultrapure water
  - Do not dismantle the Teflon sleeve
- Rinse the bulk tongs with ultrapure water
- Dry the tool with cloths
- Put the orange protective cap on the brush
  - Do not loosen the screw connections between brush, adapter and handle
- Close open electrolyte containers
- Clean your workplace.
- Dispose of wastewater and waste properly.
- Store the components in such a way that no danger can arise for other people and yourself.



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### Tips to improve the cleaning result

- Long-lasting cleaning without rewetting the carbon fiber brush with electrolyte leads to strong heating of the electrode and the workpiece.
  - This increases the wear of the carbon fiber brush and reduces the service life and cleaning effect!
  - Never clean on one spot for too long
- Sometimes, after cleaning, matte spots remain to the right and left of the weld, around the heat-affected zone. The matt areas are created by the welding process (chrome depletion).
  - This is process-related and cannot be eliminated by more intensive cleaning!
  - Switching to "polishing" for a short time can neutralize chrome depletion.
- You can adjust the gloss level by specifically polishing the matte areas.
  - Spray the surface immediately after cleaning with water, The abruptly evaporating water tears away the dissolved impurities and electrolyte residues. This gives you a stain-free, dry surface.
- For this purpose, each device set comes with a spray bottle.
- It is best to use demineralized water.
  - This way you avoid unsightly white limescale edges.
  - The water hardness must be less than 10° dH.
- Clean the surface dry with clean paper towels.
- If necessary, finish your workpiece with a commercially available stainless steel care product.
- This makes the surface less sensitive to renewed contamination such as fingerprints.

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***We recommend our  
"FPR" Fingerprint Remover!***

***White stains that sometimes appear on the  
surface after cleaning can be removed with  
our SFC (Stainless Finishing Cleaner)!***

## 21 Possible errors and their remedy

Fault / error message	Possible cause(s)	Remedy
No cleaning effects although the green control LED is lit	<ul style="list-style-type: none"> <li>- Tap clamp not connected</li> <li>- Workpiece/electrolyte temperature too low</li> <li>- Thread M10 on the cleaning handle oxidized or dirty</li> </ul>	<ul style="list-style-type: none"> <li>- Turn on your device</li> <li>- Connecting mass pliers</li> <li>- Cleaning with wire brush</li> </ul>
Weld seam or surface becomes matt	<ul style="list-style-type: none"> <li>- Do not stay on one spot for too long when cleaning →Surface too hot</li> <li>- Too little electrolyte</li> <li>- Electrolyte quality too poor or used</li> </ul>	<ul style="list-style-type: none"> <li>- Do not stay in one place for too long when cleaning</li> <li>- Cool the surface (spray water on the surface)</li> <li>- Increase the amount of electrolytes</li> <li>- use unused electrolyte or take higher concentrated electrolyte (SuperCleaner o. Polisher)</li> </ul>
Felt / carbon fiber brush burn and electrode gets hot	<ul style="list-style-type: none"> <li>- Too little electrolyte used</li> <li>- Incorrect switching stage (II) used</li> </ul>	<ul style="list-style-type: none"> <li>- more often dip the electrode into the wide-neck container and cool it</li> <li>- Use Tier I</li> </ul>
Polished workpiece surface becomes matt again	<ul style="list-style-type: none"> <li>- Surface temperature too high</li> </ul>	<ul style="list-style-type: none"> <li>- Do not polish in one place for too long</li> <li>- use electrolyte more often and more</li> <li>- cool with water in between</li> </ul>
Felts/carbon fiber brushes wear out too quickly	<ul style="list-style-type: none"> <li>- too rough welds</li> <li>- too little cooled in the wide-neck container</li> <li>- too high pressure when working</li> <li>- too little electrolyte used</li> </ul>	<ul style="list-style-type: none"> <li>- Water calcareous (use distilled water)</li> <li>- Cool longer in the wide-neck container</li> <li>- Work with less pressure</li> <li>- use more electrolyte</li> </ul>
Signing doesn't work	<ul style="list-style-type: none"> <li>- no electrolyte between stencil and workpiece</li> <li>- for aluminum, possibly anodized surface</li> <li>- wrong electrolyte</li> </ul>	<ul style="list-style-type: none"> <li>- Wet felt with electrolyte</li> <li>- Remove anodized surface or use non-anodized material</li> <li>- Use suitable electrolyte</li> </ul>
Stains after cleaning, polishing, rinsing	<ul style="list-style-type: none"> <li>- not rinsed thoroughly enough with water</li> <li>- Limescale residues due to excessive water hardness</li> <li>- surface that is too hot due to too long polishing</li> <li>- Electrolyte residues</li> <li>- Electrolyte carry-over due to marking residues or electrolytes</li> </ul>	<ul style="list-style-type: none"> <li>- rinse thoroughly with water</li> <li>- Use lower hardness water</li> <li>- shorter polishing time</li> <li>- clean</li> <li>- clean</li> </ul>

Table 8 Possible errors and their elimination

## 22 Specifications

Product no.:	EP-01-115
Power [VA]	1250
Weight [kg]	8,7
Set weight incl. accessories [kg]	19
Dimensions [mm]	250x150x500
Line voltage	230V / 50Hz / 6A
Secondary voltage	9.5 – 12.5 V AC/DC
Protection	IP 21

Table 9 Technical data

## 23 Clean containers, handles and workstations



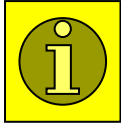
- Clean all accessories with plenty of water after each use.
- Rinse the electrode handles, carbon fiber brushes and coals thoroughly under running water.
- If necessary, wipe the device housing with a slightly damp cloth.
- Neutralize the diluted electrolyte residues.
- Clean the workplace thoroughly with plenty of water.
- Electrolyte residues can lead to skin or clothing burns.
- Electrolyte residues can cause damage to surface lead.
- Remove the felts and dispose of them professionally.
- Wipe the cables and the mass pliers wet with water and a cloth.
- Fill the wide-neck container with the contaminated electrolyte with water.
- Dispose of the neutralized electrolyte residues properly.
- Then rinse the wide-neck container thoroughly with water inside and outside.
- Remove all electrolyte residues in the vicinity of the workplace, the workbench, and the floor with plenty of water.
- Add commercial household cleaner or soap to the cleaning water.



### Security

Always unplug the power before starting maintenance, servicing, and repair work!

## 24 Maintain



### Hint

The following maintenance operations may be carried out by the operator of the equipment himself:

- All cleaning work on the device housing.
- All cleaning work on accessories.
- Replacement of wear parts
  - Felts, Teflon handles, carbon electrodes, ground terminals, ground cables, signing



### Security

The following maintenance work may only be carried out by a qualified electrician:

- Replacement of defective power plugs.
- Replacement of defective power cords.
- Replace the ground and signing sockets on the device.
- Replacement or repair of all components in the device housing.

### 24.1 Inspection and maintenance plan

- The maintenance of the device consists of a thorough cleaning and inspection by a qualified electrician.
- The frequency depends on the degree of contamination.
- Follow the suggested maintenance intervals.
- Before starting inspection or maintenance, unplug the device.
- Remove dust deposits with a vacuum cleaner.
- Wipe the components with a dry cloth.
- Use only degreasers that are suitable for electrical equipment.
- Follow the instructions for cleaning the device and accessories.

#### Inspection and maintenance plan

before start = before each start, t = daily, w = weekly, monthly = monthl., 1/4 year = every 3 months,

1/2 yearly. = every 6 months, annual = every 12 months

Work to be carried out	before start	t	w	monthl. y.	1/4 year	1/2 year	Annual
Security check as described in Chapter 2.3 and below	X		X				
Check the marking felt for wear, replace it if necessary	X	X					
Check the marking felt for soiling, replace it if necessary	X	X					
Check stencil for contamination, replace if necessary	X	X					
Clean the signing handle	X	X					
Check carbon electrodes for contamination and wear, clean or replace them if necessary	X						
Cleaning ground terminals		X					
Check ground terminals for oxidation, clean if necessary			X				
Check electrolyte if consumed-->renew	X	X					
Cleaning power unit			X				
Maintenance of the device						X	
Repeat tests according to VDE 701 A02							X

Table 10 Inspection and maintenance plan

## 24.2 Disposal

### 24.3 Disposing of contaminated electrolytes



- Dispose of **never** contaminated electrolytes undiluted into the sewer system or environment.
- In the contaminated electrolytes, heavy metal residues from oxidized welds and metal surfaces may be dissolved.
- These must be filtered and disposed of properly.
- Before disposal, dilute electrolytes with plenty of water, lime or neutralize to a pH greater than 5.



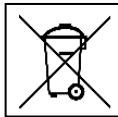
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#### Hint

We are happy to provide you with a concept for professional water treatment.  
Get in touch with us.

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### 24.4 Disposal of e-waste



- Old appliances and batteries must not be disposed of with normal household waste.
- This device, as well as all components, must be disposed of in an orderly manner at the end of its service life.
- Return the old device and components to an electronic waste collection point.
- Contact your local waste management company or municipal administration for more information.

## 25 Ordering spare and wear parts



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#### Tip for ordering spare and wear parts

Our complete product range including all spare and wear parts can be found in our general catalogue at:

<http://www.reuter.works>

You are also welcomed to contact us or one of our sales partners directly.

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## 26 EC – Declaration of conformity

### Original declaration of conformity

Manufacturer Reuter GmbH & Co. KG  
Schimmelbuschstrasse 9e  
D-40699 Erkrath, Germany  
Germany



### Plenipotentiary for the compilation of the technical documentation

Olaf Reuter

The general responsibility for drawing up this declaration of conformity lies with the manufacturer.

### Product

Description	Electrochemical weld cleaning device
Designation	Cleanox 5.0
Function	Device for cleaning, polishing, signing and Passivation of welds.

The object of the declaration described above fulfils the relevant essential health and safety requirements of the EC directives mentioned below due to its design and construction in the version we have placed on the market. In the event of a change to the products not agreed with us, this declaration loses its validity.

<b>Relevant Harmonization Directive Regulations of the EU</b>	2014/35/EU Low Voltage Directive 2014/30/EU EMC Directive 2011/65/EU RoHS Directive
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<b>Applied harmonized Standards</b>	EN 61558-1; VDE 0570-1:2019-12 EN 55014-1; VDE 0875:2018-08 EN 61000-3-2; VDE 0838-2:2019-12 EN 61000-3-3; VDE 0838-3:2020-07 EN 61000-6-2; VDE 0839-6-2:2019-11 EN 50581:2012-09 EN 60974-1:2018-12 EN 60974-10: 2016-10
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Erkrath, 03/03/2021

Dipl.-Ing. Olaf Reuter, Managing Director