Operation instruction

MagicBox

EP-01-160

Automatic electrolyte supply

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CE

Contents

1 Introduction

Thank you for choosing the "MagicBox" electrochemical high-current brush weld cleaner made by REUTER GmbH & Co. KG.
The purpose of this manual is to provide you with information concerning the safe handling and operation of the " MagicBox “ as well as general information on cleaning and marking.
The user is given information concerning basic concepts and applications, as well as practical advice and help in the selection of settings, so that operating errors can be avoided.
Your specialist dealer will be happy to support and advise you with regard to commissioning, applications or problems.
Our telephone hotline is always available with expert advice on +49 (0) 171-5450200.
Please read through these operating instructions carefully before commissioning.
We hope you enjoy working with our appliances and wish you every success.

Safety Notice
These operating instructions do not replace the detailed instructions for the cleaning devices and only serve as a supplement.

Please refer to all safety instructions in the operating instructions of the devices, e.g .:

- SuperCleanox
- Cleanox
- HybridCleanox
- AkkuCleanox

2 Delivery

- The complete appliance set is delivered in a sturdy Euro plastic box.
  - ➢ This box is secured with a lead seal in our factory before shipment.
  - ➢ The lid can only be opened by destroying and removing the lead seal.
  - ➢ In addition, the lid latches are secured on both sides with cable ties to prevent accidental opening.
- Alternatively, the MagicBox can also be sent in a cardboard box.
  - ➢ In this case, the box is not sealed.

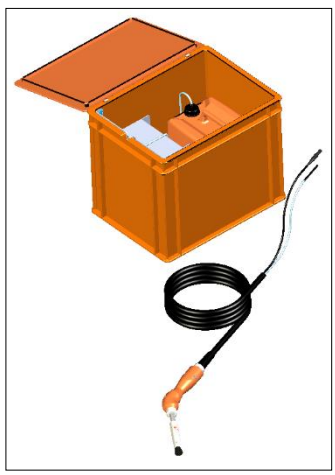
2.1 Opening the Euro plastic box

- First cut through the lead seal with metal shears.
- Remove the lead seal carefully.
- Remove the cable ties on the right and left of the lid latches.
- Unlock the lid latches
  - ➢ To do this, slide the lid latches to the left or the right. Open the transport box.
- Check the delivery against the delivery note for completeness.
- Report missing, damaged or undelivered goods immediately.

Safety information
Cut the lead seal with the metal shears can cause sharp edges. Wear gloves when removing the lead seal to avoid cuts!

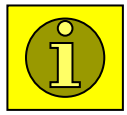
3 Getting ready to start

3.1 Opening MagicBox

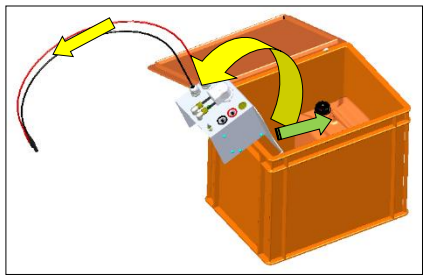


- Open the MagicBox
- Take the AutoFeed hose package out of the box

Hinweis



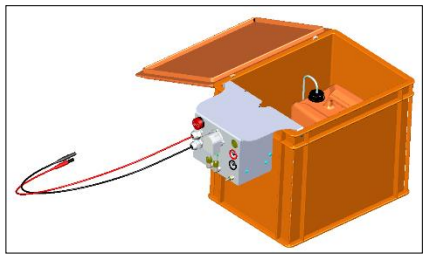
The AutoFeed hose package and electrolyte canister must be ordered separately.
These are not included in the delivery.



- Flip the control housing outwards.
  - ➢ Pull the red and black cables until the control housing is unfolded.

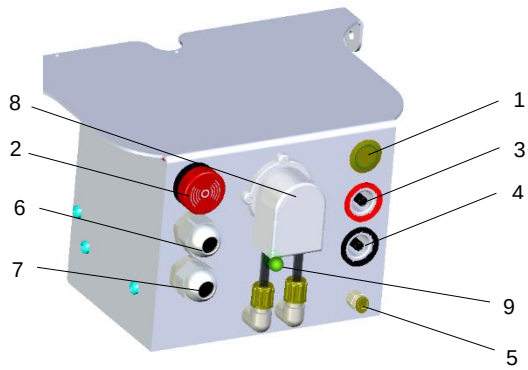
Hinweis

Push the canister slightly backwards so that the control housing can be flipped out within enough space.



- The control case is flipped out.

4 Description of the control, operating and connection elements

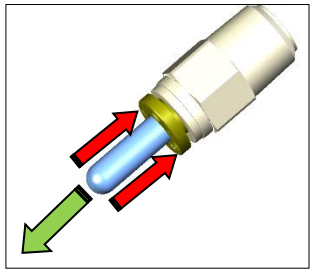


1	Button for manual supply of electrolyte
2	Warning indicator of electrolyte level
3	High current socket (red) for earth clamp
4	High current socket (black) for Autofeed power cable
5	Connecting hub if electrolyte supply hose (AutoFeed)
6	Ground connection of cleaning machine
7	Power connection of cleaning machine
8	Pump
9	On/off LED indicator

4.1 Connection for hose package

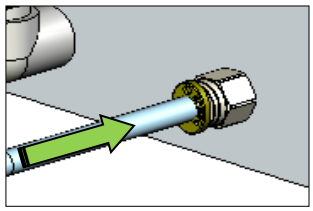
Note
The straight plug connection locks the electrolyte supply hose automatically when it is plugged in.
The hose coupling must be released before removing the electrolyte supply hose.

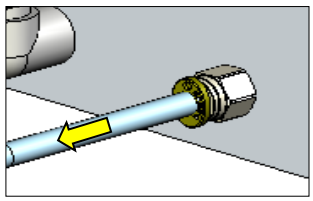
4.1.1 Removing blind plug / electrolyte supply hose



- To remove the blind plug / electrolyte supply hose, the plug connection must be unlocked.
  - ➢ Press the release flange in the direction of the coupling.
  - ➢ Press and hold the release flange.
  - ➢ Pull out the blind plug / electrolyte supply hose.

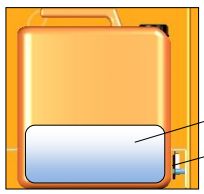
4.1.2 Fasten the blind plug / electrolyte supply hose

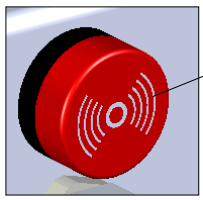




- Insert the blind plug / electrolyte supply hose in the plug connection to the bottom.
- Check whether it is firmly seated by pulling it lightly.

4.2 Monitoring electrolyte level



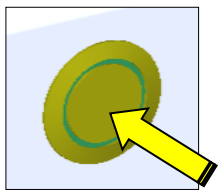


The sensor for monitoring the electrolyte level is attached to the base plate.

- When the level is low:
  - ➢ the level indicator turns on with a warning tone

Note
Replace the empty canister with a full one and pour the rest into the new one.

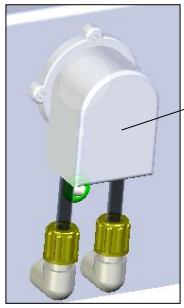
4.3 Manuel supply of electrolyte



- Hold down the push button
  - ➢ The pump runs and supplies electrolyte
- Release the push button
  - ➢ The pump stops supplying electrolyte

Note
This function is only required to empty or fill the hose manually.
Supply only enough electrolyte until the brush is moistened!

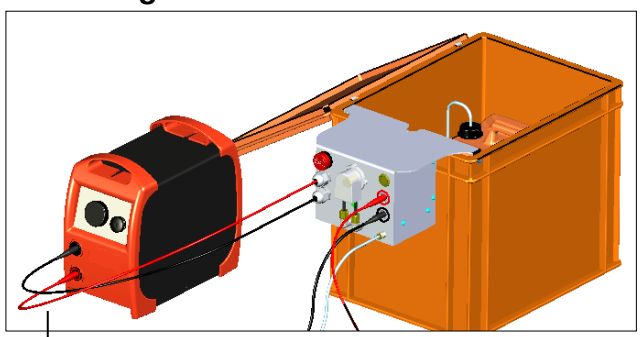
4.4 Electrolyte pump



- The electrolyte pump is driven by a stepper motor and the control ensures an optimal amount of electrolyte on the brush during a normal operation.
  - ➢ This works with a load-dependent control of the pump.
- The operation of the pump can occur noises and slightly jerky movements.
  - ➢ This is normal and indicates that the load-dependent control of the stepper motor is working.

5 Connect machine / accessories

5.1 Cleaning machine



- Connect the red earth cable to the red high-current socket of the cleaning machine.
- Connect the black power cable to the black high-current socket on your cleaning device.
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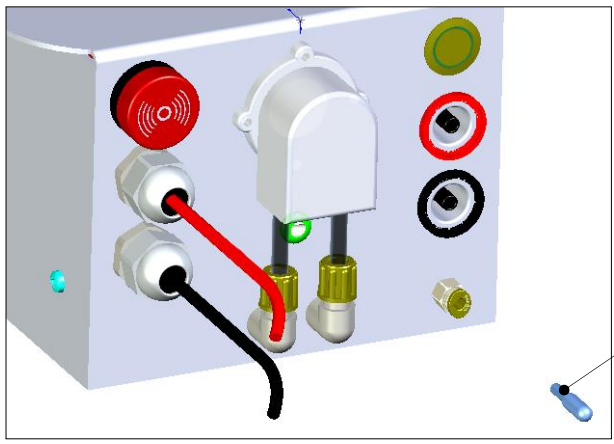
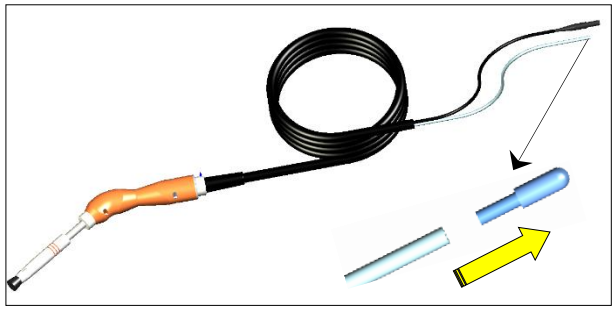
Note
The extension cable can be installed up to 100m between the cleaning device and the MagicBox.

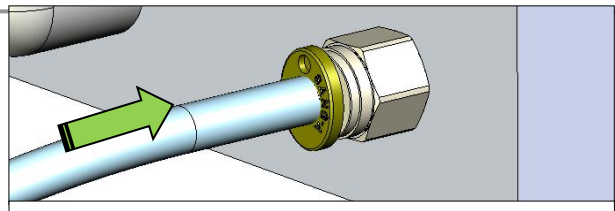
5.2 AutoFeed



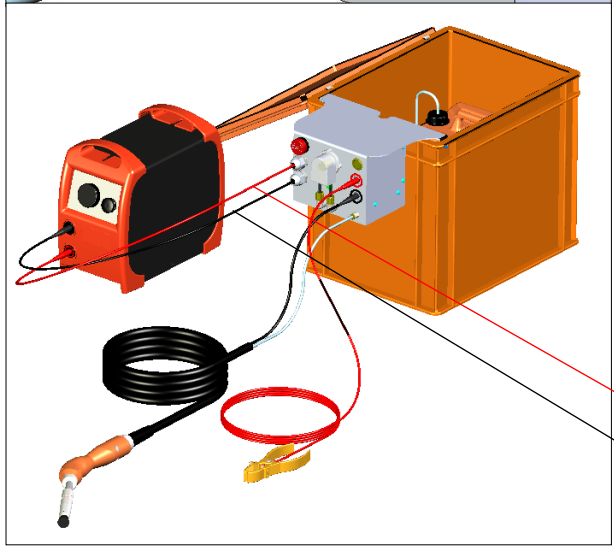
- Remove the blind plug together with the hose section from the IQSG184PP hose coupling.



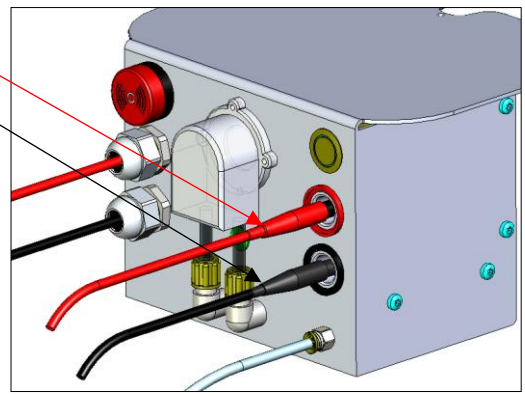
- Remove the blind plug from the AutoFeed electrolyte supply hose.



- Insert the electrolyte supply hose into the hose coupling to the bottom.



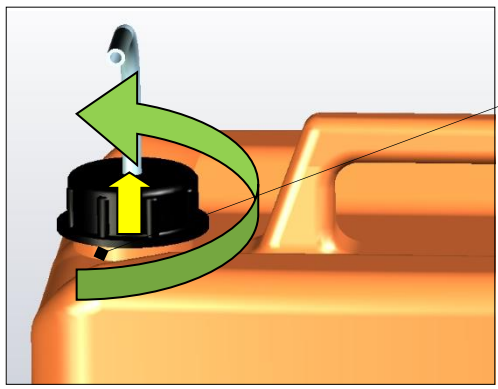
- Connect the black power cable of the AutoFeed handle to the black high-current socket on the control unit.
- Connect the red earth cable of the earth clamp to the red high-current socket on the control unit.



Note
The Hose packages must be ordered separately. The extension can be customized up to 10m by request.

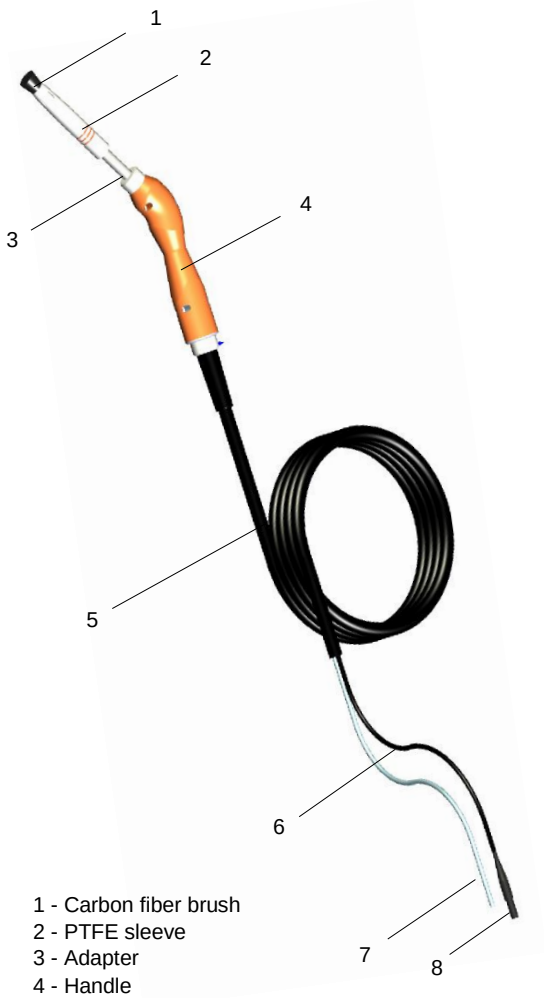
5.3 Electrolyte canister

Note
Open the lid of the electrolyte canister before starting work.
➢ Turn the lid slighty to prevent the vacuum formation
Close the lid after usage.



Open (turn) the lid slightly

5.4 Autofeed hose package



1 - Carbon fiber brush
2 - PTFE sleeve
3 - Adapter
4 - Handle
5 - Cable and hose protection
6 - Power cable
7 - Electrolyte supply hose
8 - High current plug

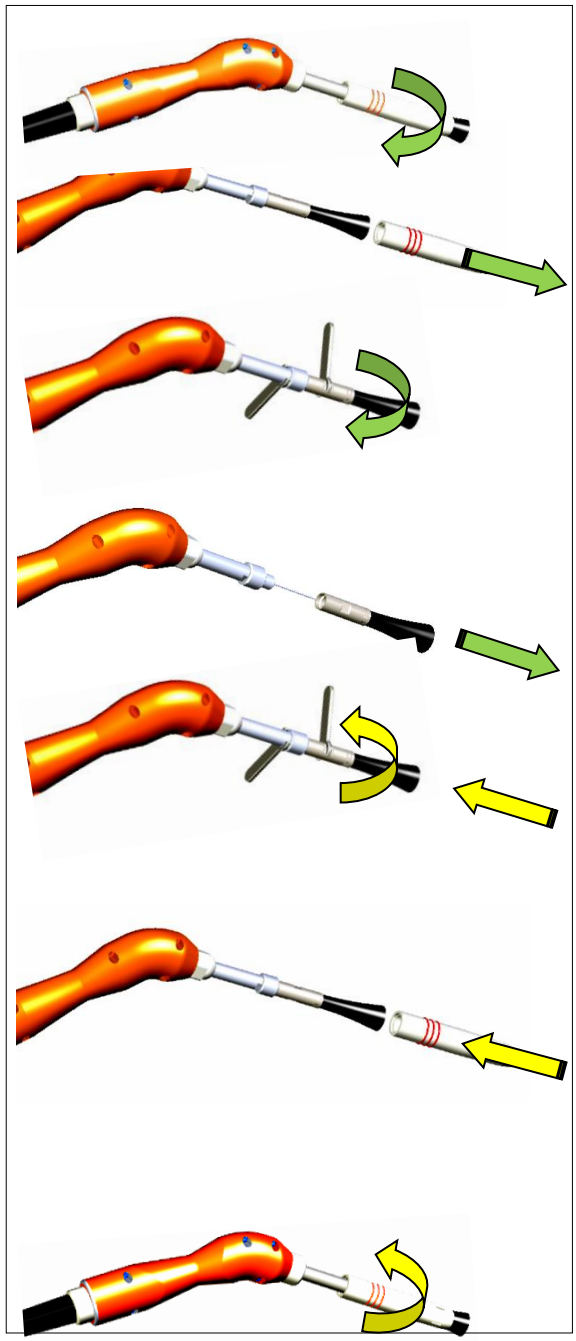
The AutoFeed handle (3) is firmly connected to the **black** 10mm² cable (5) and the **black** high-current plug (7).

The AutoFeed handle (3) consists of the following components:

- Connector with threaded part
  - Mounting of the brush
  - Power transmission
- PP handle in orange (3)
- Performance AutoFeed carbon fiber brush
  - XL or XXL
  - EP-02-960 or EP-02-961
- PTFE sleeve
  - XL or XXL
  - EP-02-928 or EP-02-948
- Hose and cable package (4,5,6,7)
  - 2,5m 10mm² highly flexible cable with PTFE supply hose and siliconized glass fiber hose (4)

Hinweis
In the delivery, the adapter, brush and PTFE sleeve are already firmly attached.

5.4.1 Change brush



- Unscrew the PTFE sleeve completely.
- Remove the PTFE sleeve.
- Loosen the brush with the help of the spanner (SW10).
  - ➢ To do this, insert the open-end wrench into the wrench surface of the brush and the adapter.
- Unscrew the old brush.
- Screw on a new brush.
  - ➢ Clean the thread of electrolyte residues with distilled water.
- Now slide the PTFE sleeve over the new brush again.
  - ➢ Tip: moisten the brush with electrolyte

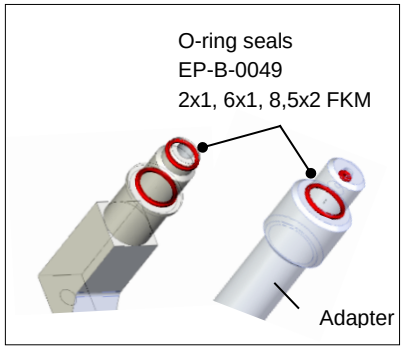
Note

Make sure that the PTFE sleeve is not screwed onto the thread at an angle.

- Screw the PTFE sleeve onto the adapter until the working dimension (a = 10-15mm) is reached.
  - ➢ Please refer to chapter 4.4.2.

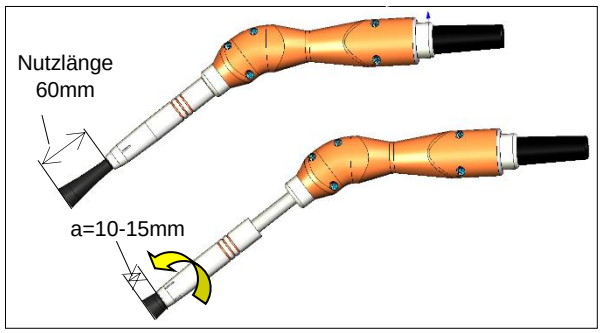
Note

When replacing the brush, check the O-rings of the adapter and inner part for damage.



- Only remove the adapter if the front contact surface or the thread are charred.
- Replace the damaged O-rings if necessary.
- In this case, the O-ring seals set EP-B-0049 are needed.

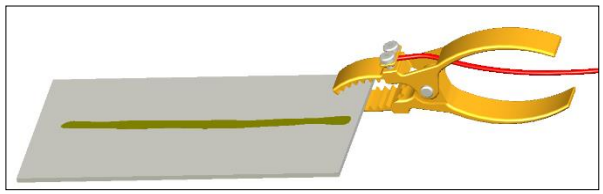
5.4.2 Adjusting the PTFE sleeve



- During the cleaning process, the carbon fiber tips of the carbon fiber brush wear off.
- Use the PTFE sleeve to compensate for the wear and tear on the carbon fibers.
  - ➢ Adjust the PTFE sleeve on the carbon fiber brush so that the carbon fiber tips protrude approx. **A = 10-15 mm**
  - ➢ Turn the PTFE sleeve clockwise to increase the distance [a]
  - ➢ Turn the PTFE sleeve anti-clockwise to decrease the distance [a]

This is the only way to create arcs between the carbon fiber and the workpiece! This guarantees an optimal work result.

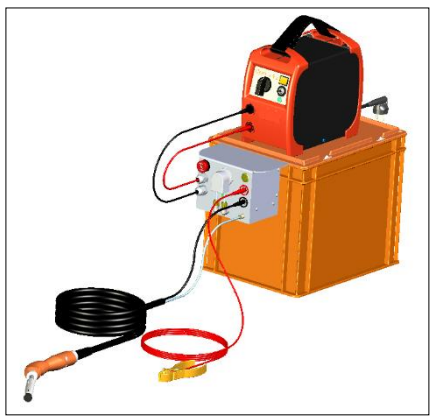
5.4.3 Connection of earth clamp - workpiece



- The earth clamp establishes the electrical contact to the cleaning device.
  - ➢ Make sure there is good electrical contact between the earth clamp and the workpiece.
  - ➢ Clean the contact point if necessary.

Security notice
Very high currents flow during cleaning.
- ➢ Connect the earth clamp directly to the workpiece.
- ➢ In this way you avoid shunt shortages.

5.4.4 Tip for setting up



- After all preparations for working with the MagicBox, we recommend the following:
  - ➢ Close the lid of the euro box.
  - ➢ Place the cleaning device on the euro box.
  - ➢ In this way,the internal parts are protected from soiling or unintentional damage.

6 Working with the AutoFeed Brush

- Have all the preparations been done correctly?
- Are all parts connected correctly??
- Is the electrolyte canister filled with electrolyte?
- Is the distance a = 10-15mm between the carbon fibers on the brush set correctly?
- is the canister lid opened slightly?

- Switch on the cleaning machine.

- Set the cleaning machine on any level.
  - Cleaning or polishing

- MagicBox activates itself and signals through the following:
  - a beep
  - the green LED lights up

Note
If you have installed a new hose package, press the button on the control unit until electrolyte emerges from the brush.

- Please work as advised in the operating instructions of the cleaning machine. Please note that the brush doesn't need to be immersed in the electrolyte. This is supplied through the electrolyte pump.
  - The electrolyte begins to flow automatically as soon as the carbon fiber tips touch the material surface.
  - As soon as you lift the brush off the workpiece, the electrolyte supply stops automatically without any more electrolyte flowing out of the supply hose.
  - The control unit automatically regulates the correct amount of electrolyte.
    (The harder (higher current) you press the brush, the more electrolyte gets into the brush.)
  - The more current flows, the more electrolyte is pumped.

Note
The larger the workpieces, the contact area of the brush or the voltage of the device:
- the more current flows
- the more electrolyte is automatically pumped into the brush

The regulation depends on the process current!
The current can be limited with the Hybrid- and AkkuCleanox.

With the model:
HybridCleanox,
AkkuCleanox

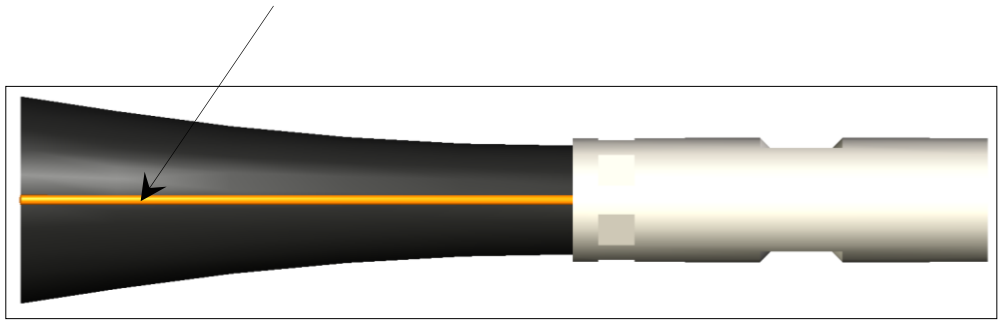
the voltage must be set to at least 10V to activate the MagicBox!!
After you have "woken up" the box, you can reduce the voltage again!

Attention
The AutoFeed Performance brushes are equipped with pressed-in capillary tubes and special sealing surfaces so that the electrolyte reaches the center of the carbon fiber brush. Therefore, the general performance brushes are not compatible with this!

Non-Reuter brushes will damage the AutoFeed handle.

- **Cleaning performance is not given and the guarantee is no longer valid!**

- **Original Reuter brushes can be identified through the orange string**



Safety Notice:
Since it is possible to work without interruption (100% ED), there is a risk of overheating the material and burning the operator in case of skin contact.

- Therefore rinse/cool regularly with plenty of water.
- If possible, use distilled or deionized water.

7 Service Work

7.1 Replace the electrolyte canister

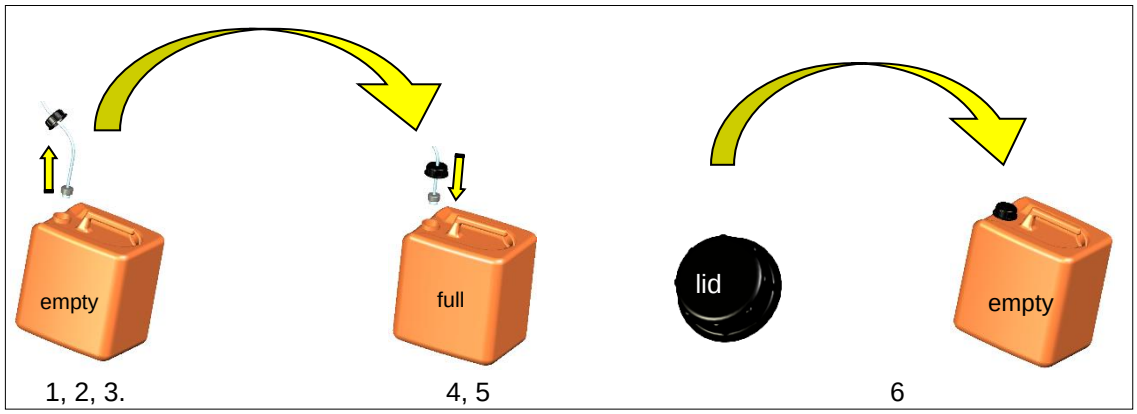
Security notice
The MagicBox is normally delivered with an empty electrolyte canister.

- Make sure that you are using the correct electrolyte for your application.

The following electrolytes can be ordered separately in a 5 liter canister:

- **EP-04-041 Cleaner Elektrolyte**
- **EP-04-042 SuperCleaner Elektrolyte**
- **EP-04-043 Polisher Elektrolyte**

1. Unscrew the cover with the supply hose from the empty canister.
2. Remove the supply tube from the empty canister.
3. Remove the empty canister from the MagicBox.
4. Place the full electrolyte canister in the MagicBox.
5. Insert the supply hose into the full electrolyte canister and screw on the lid.
6. Remove the lid (without a hole) from the full canister and screw it onto the empty electrolyte canister.



If you want to work immediately, leave the lid open with one turn.

7.2 Fill the electrolyte canistern

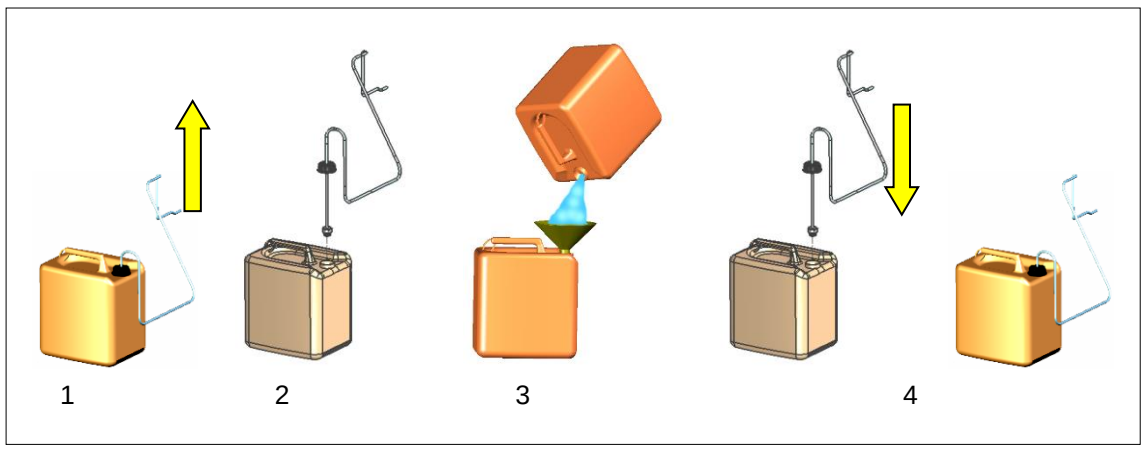
If you order the "MagicBox" with an empty electrolyte canister, the canister needs to be filled on your own.

Security notice

Be aware of all safety regulations when handling chemicals.
Use your personal protective equipment

- Safety glasses
- Protective gloves
- Protective clothing

1. Take the electrolyte canister out of the MagicBox.
2. Unscrew the cover with the supply hose.
3. Fill the canister with the appropriate electrolyte.
4. Screw the lid and the hose back onto the canister.

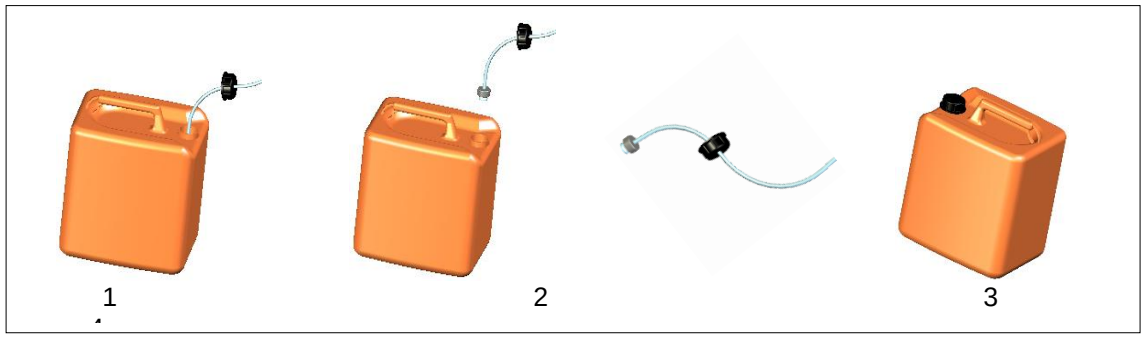


If you want to work immediately, leave the lid open with one turn.

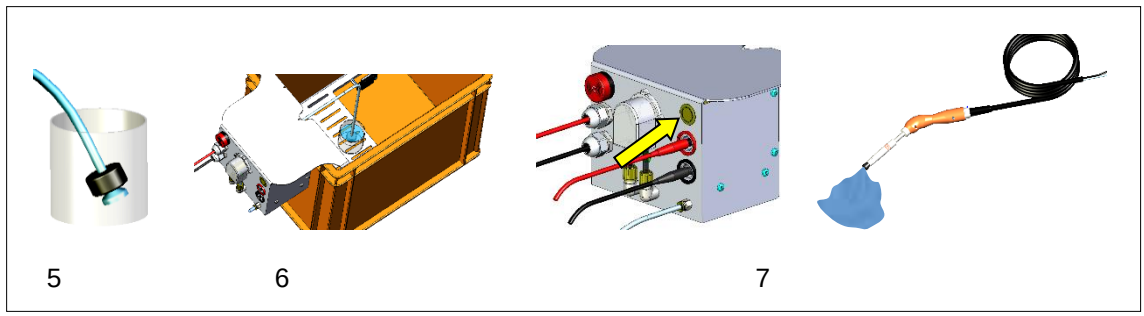
7.3 Measures when the device is not used for a long period

In the event of long periods of non-use or transport, e.g. weekends, vacations etc., we recommend the following measures:

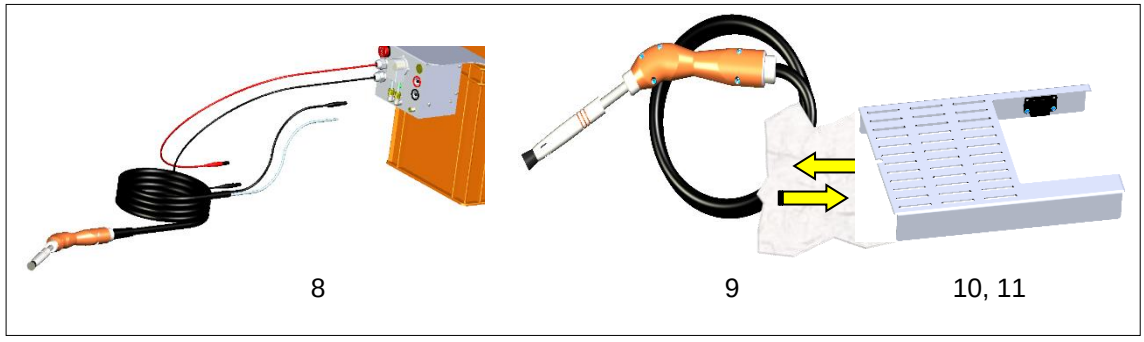
1. Unscrew the lid from the electrolyte canister.
2. Remove the connecting hose with sieve and weight from the electrolyte canister.
3. Close the electrolyte canister with the lid (without a hole).
4. Lift the electrolyte canister out of the MagicBox.



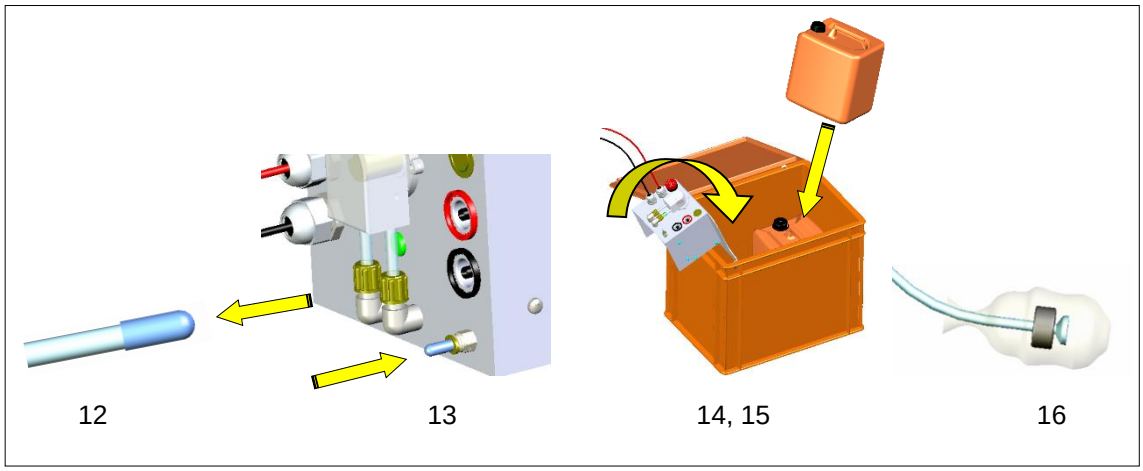
5. Place a suitable container with water in the MagicBox.
6. Place the hose with the weight and sieve in the water.
7. Press the button on the control unit until at least 200 ml of water flushed through the hose package and brush.



8. Remove the supply hose of the AutoFeed hose package from the pump housing.
9. Clean the hose package and the handle with a wet cloth.
10. Empty the MagicBox if necessary.
11. 11. Clean electrolyte residues under the base plate with water.

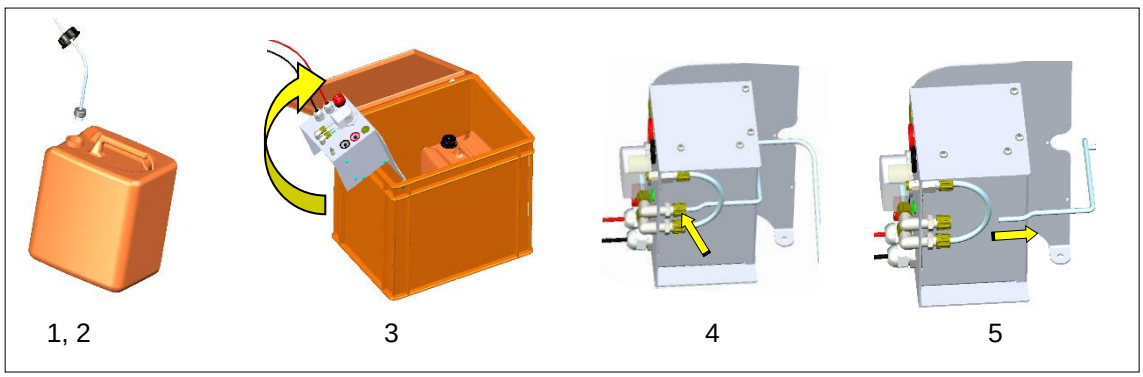


12. Place the blind plug on the end of the supply hose.
13. Insert the blind plug into the hose connector on the front of the pump housing.
14. Place the sealed electrolyte canister in the plastic box.
15. Fold in the pump housing.
16. If necessary, tie a plastic bag around the end of the hose with the weight and strainer.



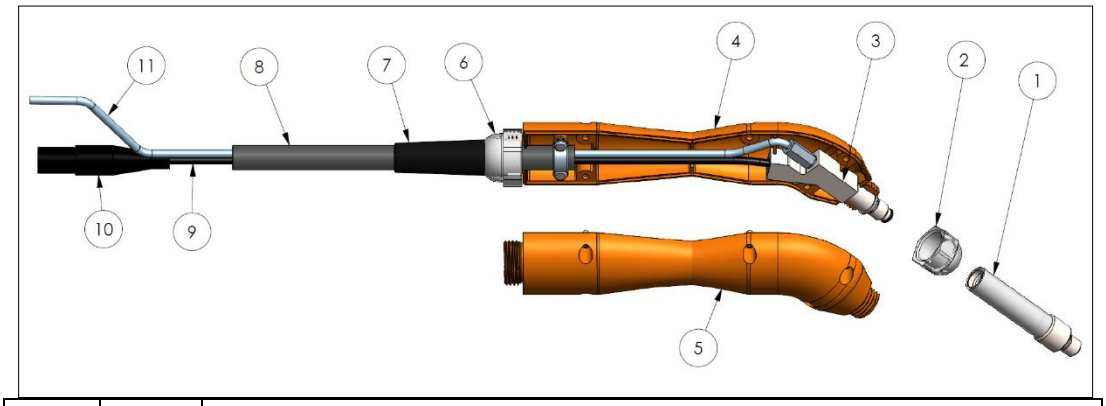
7.4 Change the connection hose with sieve and weight

1. Unscrew the lid from the electrolyte canister.
2. Remove the connecting hose with sieve and weight from the electrolyte canister.
3. Lift the pump housing up slightly.
4. Loosen the cap of the feed-through.
5. Disconnect the electrolyte supply hose.



8 Spar Parts

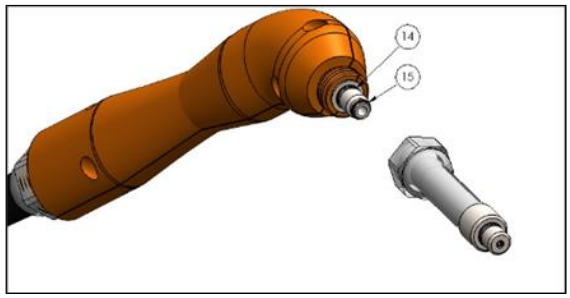
8.1 AutoFeed-Hose

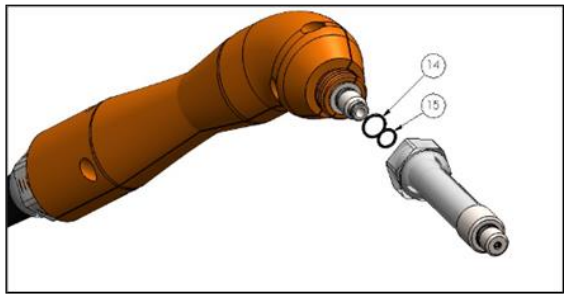


Pos.	Qty.	Name
1	1	EP-02-953 AutoFeed Adapter + PTFE-Sleeve + O-Ring
2	1	EP-B-02-956 PG Nut M20x2
3	1	EP-02-951 AutoFeed Inner Part + PTFE-Sleeve + O-Ring
4	1	EP-B-02-954 AutoFeed Handle Part A
5	1	EP-B-02-954 AutoFeed Handle Part B
6	1	EP-B-02-957 PG Nut M28x2
7	1	EP-B-1091 anti-kink sleeve AutoFeed Handle
8	1	EP-B-1117 Protection Sleeve 17mm or EP-B-1118 Protection Sleeve 19mm
9	1	EP-07-144-Cable Black 10mm²
10	1	EP-07-106 High Current Plug Black
11	1	EP-B-2010 PTFE-Sleeve Di12mm

Note:
The O-Rings are available as Set EP-B-0049

8.1.1 Change/Renew the O-Rings



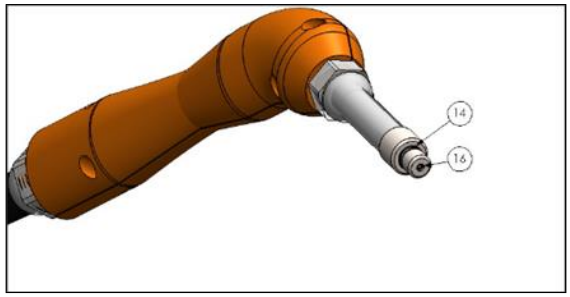


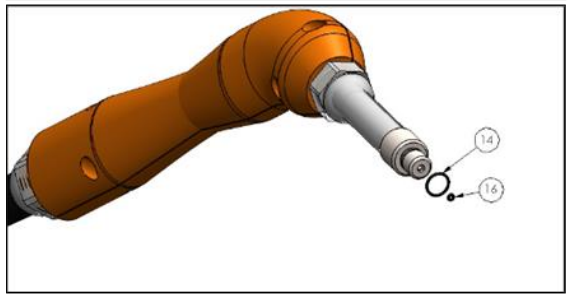
O-Rings at AutoFeed Inner Part:

Remove and replace the old O-Rings with the new.

(14) EP-B-0046-O-Ring 8,5x1

(15) EP-B-0044-O-Ring 6x1





O-Rings at AutoFeed Adapter:

Remove and replace the old O-Rings with the new.

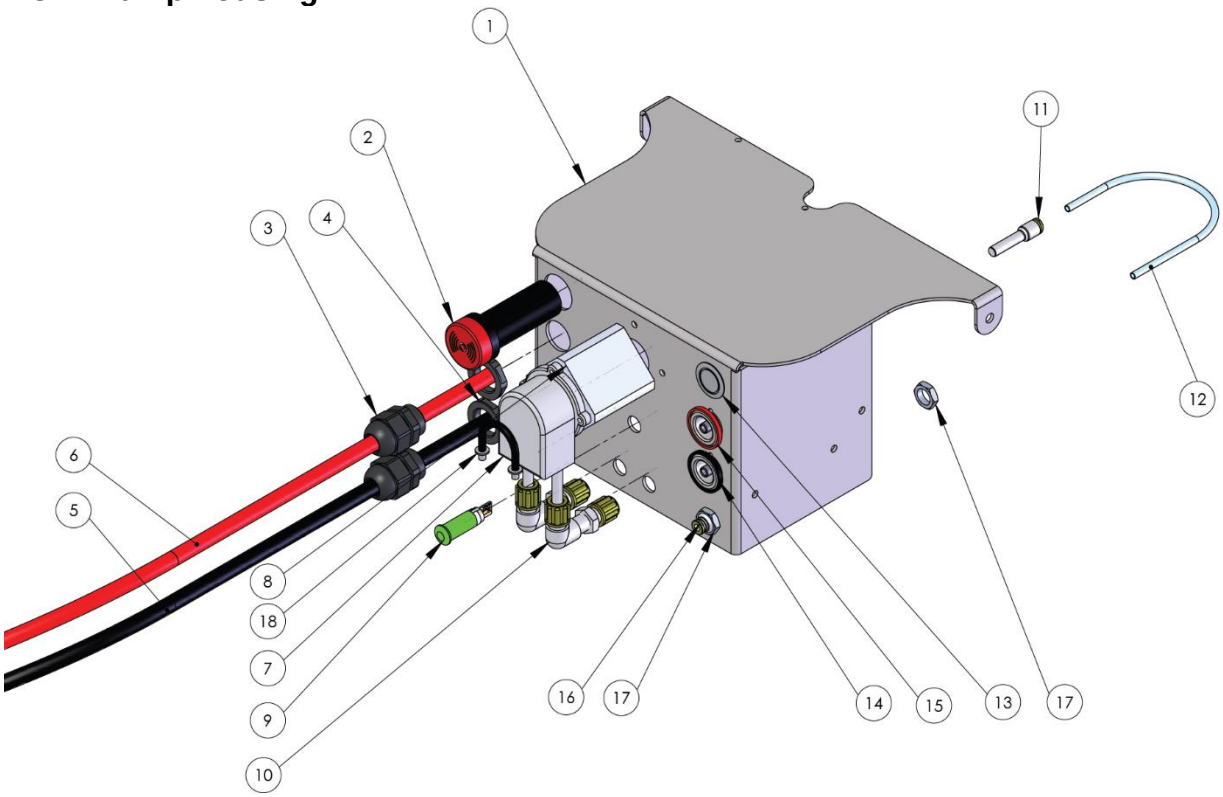
(14) EP-B-0046-O-Ring 8,5x1

(16) EP-B-0045-O-Ring 2x1

Be careful not to cut into the O-rings during assembly!

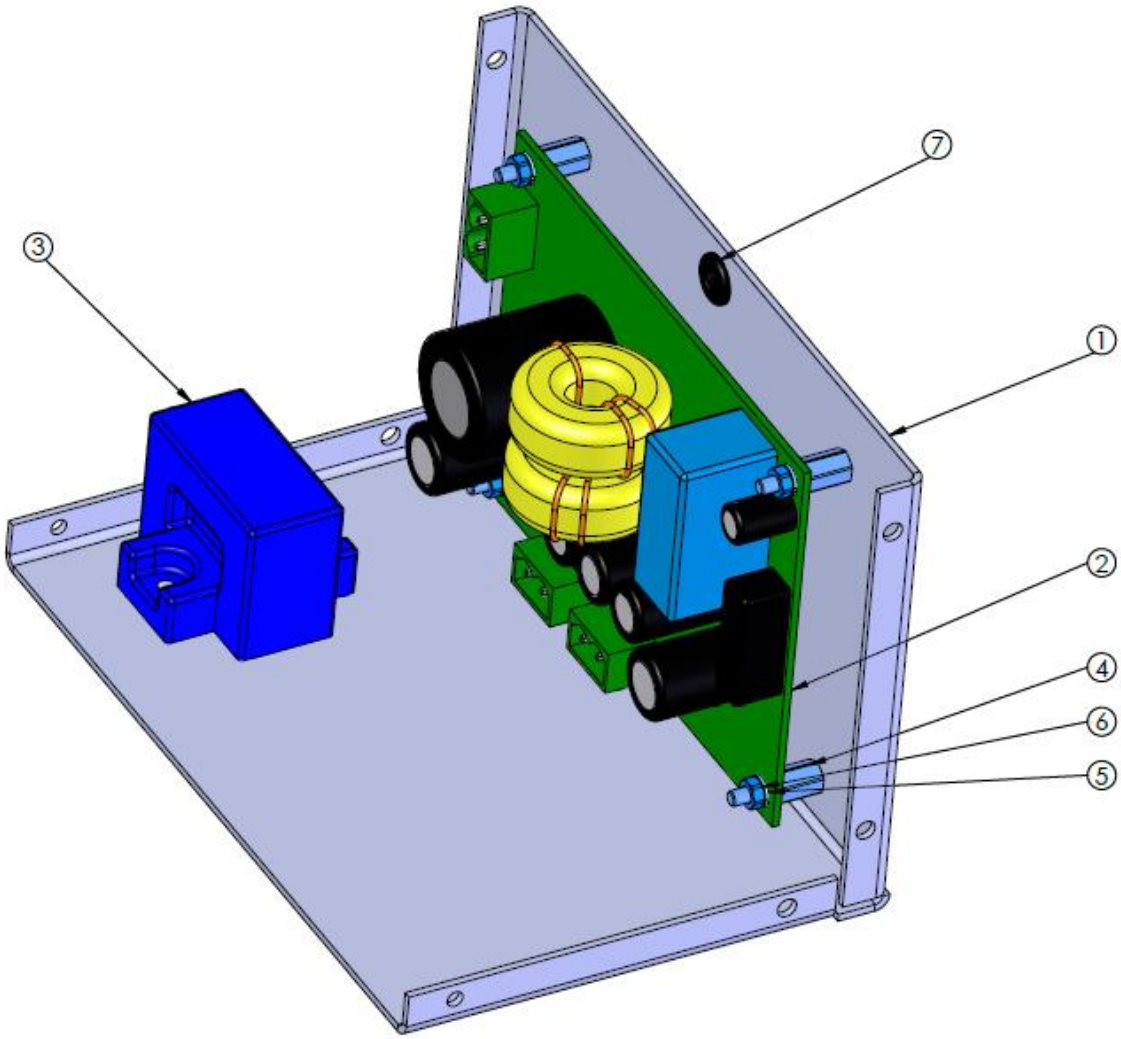
When assembling, make sure that you tighten the AutoFeed adapter again with a SW10 open-end wrench!

8.2 Pump housing



Pos.	Qty.	Name
1	1	EP-B-4100 MagicBox - Pump housing upper part
2	1	EP-B-0047 warning light AutoFeed
3	2	EP-B-8024 cable gland PG11
4	2	EP-B-1008 Lock nut for cable entry PG11
5	1	EP-07-106-16 high current plug+EP-07-244 cabel black 16mm2
6	1	EP-07-107-16 high current plug+EP-07-255-cabel red 16mm2
7	1	EP-06-050 Elektrolyte pump AutoFeed housing
8	1	EP-06-050 Elektrolyte pump AutoFeed engine
9	1	EP-B-1021 LED Green
10	2	EP-B-0043 Angle bulkhead fitting 6x4mm PP
11	1	EP-B-0042 Reduction 6mm barb x 4mm hose IQS-PP
12	1	EP-B-2011 PTFE Pipe 4mm-180mm
13	1	EP-B-0048 push button AutoFeed
14	1	EP-07-216 Stainless steel high current socket black
15	1	EP-07-217 Stainless steel high current socket red
16	1	EP-B-0040 Bulkhead connector body 4mm IQS PP
17	2	EP-B-0040 Bulkhead connector nut M12
18	1	EP-B-06-004 Electrolyte pump hose

8.3 Pump housing lower part



Pos.	Qty.	Name
1	1	EP-B-4100 Pump housing bottom part+SW bolt
2	1	EP-B-1086 AutoFeed PCB
3	1	EP-B-1086 AutoFeed Sensor
4	4	Standoff M3x10 F-M
5	4	DIN 127 M3 spring washer
6	4	DIN 934 8 M3 nut
7	1	EP-B-1090 Cable bushing ring-shaped ø6mm

9 EC – Declaration of Conformity

Original Declaration of Conformity

Manufacturer	Reuter GmbH & Co. KG Schimmelbuschstr. 9e D-40699 Erkrath Germany
authorized representative for the compilation the technical documentation	Olaf Reuter

The manufacturer bears general responsibility for issuing this declaration of conformity.

Products

Description	Accessory for a weld seam cleaning device
Name	MagicBox
Funktion	Accessories for cleaning, polishing and Passivation of welds.

Due to its design and construction, the object of the declaration described above meets the relevant basic health and safety requirements of the EC directives listed below in the version we put on the market. If the products are changed without our agreement, this declaration loses its validity.

Relevant EU harmonized regulations	2014/35/EU Niederspannungsrichtlinie 2014/30/EU EMV-Richtlinie 2011/65/EU RoHS-Richtlinie	
Applied harmonized standards	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	
Relevant EU harmonisation regulations	2014/30/EU EMC Directive	
	2011/65/EU RoHS Directive	
Applied harmonised standarts	DIN EN IEC 60974-5:2019-12	Arc welding equipment: Wire feeders
	DIN EN IEC 60974-10:2022-11	Arc welding equipment: Electromagnetic compatibility (EMC) requirements
	DIN EN IEC 63000:2019-05	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Erkrath, 06.02.2025

Dipl.-Ing. Olaf Reuter, Geschäftsführer