

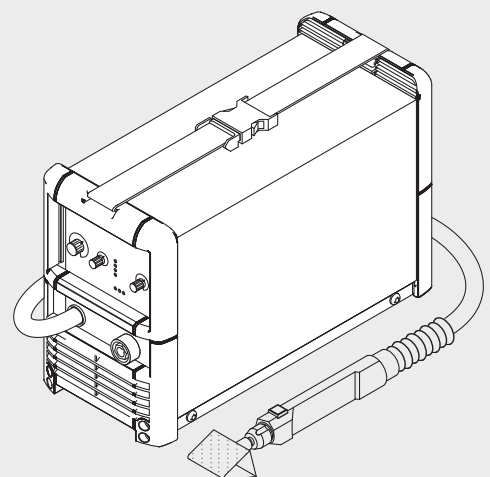


**MagicCleaner "Stand Alone"**  
**MagicCleaner "Stand Alone" 110V**

EN

Operating instructions

Weld seam cleaning



42,0426,0024,EN 002-21052021



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# Safety rules

## Explanation of safety notices



### **DANGER!**

**Indicates immediate danger.**

- ▶ If not avoided, death or serious injury will result.



### **WARNING!**

**Indicates a potentially hazardous situation.**

- ▶ If not avoided, death or serious injury may result.



### **CAUTION!**

**Indicates a situation where damage or injury could occur.**

- ▶ If not avoided, minor injury and/or damage to property may result.

### **NOTE!**

**Indicates a risk of flawed results and possible damage to the equipment.**

### **IMPORTANT!**

**Indicates tips for correct operation and other particularly useful information.**  
This does not indicate a potentially hazardous situation.

If you see any of the symbols depicted in the "Safety rules" chapter, special care is required.

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## General



The device is manufactured using state-of-the-art technology and according to recognised safety standards. If used incorrectly or misused, however, it can cause:

- injury or death to the operator or a third party,
- damage to the device and other material assets belonging to the operating company,
- inefficient operation of the device.

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All persons involved in commissioning, operating, maintaining and servicing the device must:

- be suitably qualified,
- read and follow these operating instructions carefully.

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The operating instructions must always be at hand wherever the device is being used. In addition to the operating instructions, attention must also be paid to any generally applicable and local regulations regarding accident prevention and environmental protection.

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All safety and danger notices on the device

- must be in a legible state,
- must not be damaged,
- must not be removed,
- must not be covered, pasted or painted over.

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Before switching on the device, rectify any faults that could compromise safety.

**This is for your personal safety!**

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## Utilisation for intended purpose only



The machine may only be used for jobs as defined by the "Intended purpose".

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Utilisation for any other purpose, or in any other manner, shall be deemed to be "not in accordance with the intended purpose". The manufacturer shall not be liable for any damage resulting from such improper use.

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Utilisation in accordance with the "intended purpose" also comprises

- complete reading and following of all the instructions given in this manual
- complete reading and following of all the safety instructions and danger warnings
- performing all stipulated inspection and servicing work.

The machine is designed to be used in industrial and workshop environments. The manufacturer shall not be liable for any damage resulting from use of the machine in residential premises.

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Likewise Fronius will accept no liability for defective or faulty work results.

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## Environmental conditions



Operation or storage of the device outside the stipulated area will be deemed as not in accordance with the intended purpose. The manufacturer shall not be held liable for any damage arising from such usage.

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Ambient temperature range:

- during operation: -10 °C to + 40 °C (14 °F to 104 °F)
  - during transport and storage: -20 °C to +55 °C (-4 °F to 131 °F)
-

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Relative humidity:

- up to 50% at 40 °C (104 °F)
  - up to 90% at 20 °C (68 °F)
- 

The surrounding air must be free from dust, acids, corrosive gases or substances, etc.

Can be used at altitudes of up to 2000 m (6561 ft. 8.16 in.)

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### Obligations of the operating company



The operating company undertakes to allow only such people to work with the device who:

- are familiar with the fundamental instructions regarding safety and accident prevention, and have been instructed how to use the device
- have read and understood the "Safety rules" section and warning notices in these operating instructions, and then signed them to confirm this
- are trained to produce the required results.

Checks must be carried out at regular intervals to ensure that operators are working in a safety-conscious manner.

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### Obligations of personnel



Before using the device, all persons instructed to do so undertake:

- to observe the basic instructions regarding safety at work and accident prevention
- to read the "Safety rules" section and warning notices in these operating instructions, and sign them to confirm that they have understood them and will follow them.

Before leaving the work area, ensure that people or property cannot come to any harm in your absence.

---

### Protection for yourself and other persons



When working with this machine, you are exposed to many different hazards such as:

- irritation and/or cauterization of skin in case of contact with cleaning agent (cleaning electrolyte, brightening electrolyte, electrolyte powder and printing electrolyte)
  - danger of serious eye injury in case of contact with cleaning agent
  - general hazards when handling chemicals
- 



- electrical hazards from mains and cleaning current
- 



- harmful vapours
-



Anybody working on the workpiece during cleaning must wear suitable protective clothing with the following characteristics:

- resistant against acids and chemicals
- isolating and dry
- must cover whole body, be undamaged and in good condition

Protective clothing" also includes:



- wearing a pair of appropriate regulation goggles (with sideguards)



- wearing stout footwear that will also insulate even in wet conditions



- wearing protective gloves (hand protection), impermeable, resistant against acids and chemicals



- wearing protective apron (e.g. when refilling chemicals)

Immediately remove any working garment contaminated with cleaning agent!



- Don't eat and drink during working
- Keep cleaning agent away from food, drink and fodder



- Wash your hands before breaks and at the end of a working day



Keep other people - especially children, pregnant women and sick persons - well away from the equipment and the working operation while this is in progress. If there are still any other persons nearby during working, you must

- draw their attention to all the dangers
- provide them with suitable protective equipment and/or
- erect suitable protective partitions or curtains.

### Instructions for the correct handling of cleaning agents

The following aspects must be observed when handling cleaning agents (cleaning electrolyte, brightening electrolyte, electrolyte powder and printing electrolyte). For more detailed data please refer to the relevant safety data sheets. You will find the current safety data sheets on the Fronius-Homepage under <http://www.fronius.com>.



#### First-aid measures

- After inhaling of vapours provide for supply of fresh air. In case of complaint see a doctor.
- After contact with skin wash with water and soap and rinse carefully. In case of continued irritation of skin see a doctor.
- After swallowing do not cause vomiting. Rinse mouth and drink a lot of water, see a doctor immediately.





- After contact with eyes rinse eyes several minutes under running water with eyelid open (eye shower) and see a doctor.

#### Storage / safekeeping

- Use only containers especially approved for cleaning agents
- Keep container closed tightly
- Don't store together with alkali (lyes) and metals
- Store in a cool and dry place
- Provide for acid-proof floor



- Keep under lock and key and without the reach of children

#### Other instructions

- Don't heat to avoid thermal decomposition (development of toxic gases)
- Provide for emergency cooling in case of fire close by
- Avoid contact with eyes, skin and mucous membranes
- Use only in well ventilated areas. In case of insufficient ventilation use respiratory protection
- For diluting always put acid into water - not the other way round!
- Dispose of cleaning agents and/or uncleaned packagings as provided by national regulations. Don't dispose together with domestic waste!
- Don't let agent get into drain system, into waters or the ground water (e.g. via the ground).



#### Hazards from mains and cleaning current



An electric shock can be fatal. Every electric shock is hazardous to life.

Do not touch any live parts, either inside or outside the machine.

Ensure sufficient protection for yourself and for other people by means of a dry base or cover that provides adequate insulation against the ground/frame potential. The base or cover must completely cover the entire area between your body and the ground/frame potential.

All cables and other leads must be firmly attached, undamaged, properly insulated and adequately dimensioned. Immediately replace any loose connections, scorched, damaged or underdimensioned cables or other leads.

Do not loop any cables or other leads around your body or any part of your body.

Have the mains and the machine supply leads checked regularly by a qualified electrician to ensure that the PE (protective earth) conductor is functioning correctly.

Only run the machine on a mains network with a PE conductor, and plugged into a power outlet socket with a protective-conductor contact.

If the machine is run on a mains network without a PE conductor and plugged into a power outlet socket without a protective-conductor contact, this counts as gross negligence and the manufacturer shall not be liable for any resulting damage.

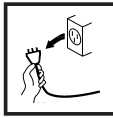
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Wherever necessary, use suitable measures to ensure that the workpiece is sufficiently grounded (earthed).

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Switch off any appliances that are not in use.

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Before doing any work on the machine, switch it off and unplug it from the mains.

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Put up a clearly legible and easy-to-understand warning sign to stop anybody inadvertently plugging the machine back into the mains and switching it back on again.

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After opening up the machine:

- discharge any components that may be storing an electrical charge
  - ensure that all machine components are electrically dead.
- 

If work needs to be performed on any live parts, there must be a second person on hand to immediately switch off the machine at the main switch in an emergency.

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## EMC precautions



It is the responsibility of the owner/operator to ensure that no electromagnetic interference is caused to electrical and electronic equipment.

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If electromagnetic interference is found to be occurring, the owner/operator is obliged to take all necessary measures to prevent this interference.

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Examine and evaluate any possible electromagnetic problems that may occur on equipment in the vicinity, and the degree of immunity of this equipment, in accordance with national and international regulations:

- safety features
  - mains, signal and data-transmission leads
  - IT and telecoms equipment
  - measurement and calibration devices
  - the health of persons in the vicinity, e.g. users of heart pacemakers and hearing aids
  - users of heart pacemakers must take medical advice before going anywhere near welding equipment or welding workplaces
- 

Electromagnetic fields may cause as yet unknown damage to health.

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Ancillary measures for preventing EMC problems:

1. Mains supply
  - If electromagnetic interference still occurs, despite the fact that the mains connection is in accordance with the regulations, take additional measures (e.g. use a suitable mains filter).
2. Power supply lines
  - Keep these as short as possible
  - Arrange them so that they run close together
  - Lay them well away from other leads.
3. Equipotential bonding
4. Workpiece grounding (earthing)
  - where necessary, run the connection to ground (earth) via suitable capacitors.
5. Shielding, where necessary
  - Shield other equipment in the vicinity
  - Shield the entire welding installation.

## Particular danger spots

Covers and sideguards may only be opened or removed for as long as is absolutely necessary to carry out maintenance and repair work.

While the machine is in use:

- ensure that all the covers are closed and that all the sideguards are properly mounted
- and that all covers and sideguards are kept closed.



Special regulations apply to rooms at risk from fire and/or explosion. Observe all relevant national and international regulations.



Power sources for use in spaces with increased electrical danger (e.g. boilers) must be identified by the [S] (for "safety") mark.

If a machine is fitted with a carrying strap or carrying handle, remember that this strap is ONLY to be used for lifting and carrying the machine by hand. The carrying strap is NOT suitable for transporting the machine by crane, fork-lift truck or by any other mechanical hoisting device.

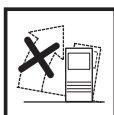


Measurement of pollutant emissions while working with the device revealed values below the admissible mean toxic limit.

Nevertheless:

- Provide for sufficient supply of fresh air.
- Keep head away from generated vapours.
- Don't inhale generated vapours and/or exhaust them from working area by appropriate means.

## Safety precautions at the installation site and when being transported



A machine that topples over can easily kill someone! For this reason, always place the machine on an even, firm floor in such a way that it stands firmly.

- An angle of inclination of up to 10° is permissible.



Special regulations apply to rooms at risk from fire and/or explosion.

- Observe all relevant national and international regulations.

By means of internal instructions and checks, ensure that the workplace and the area around it are always kept clean and tidy.

The appliance must only be installed and operated in accordance with the protection type stated on the specifications plate.

When installing the appliance, please ensure a clearance radius of 0.5 m (1.6 ft.) , so that cool air can circulate freely.

When transporting the appliance, please ensure that the valid national and regional guidelines and accident protection regulations are followed. This applies in particular to guidelines in respect of dangers during transportation and carriage.s and sideguards are kept closed.

Before transportation, completely drain any cleaning agent.

Before commissioning and after transportation, a visual check for damage must be carried out. Any damage must be repaired by Fronius-trained service personnel before commissioning.

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## Safety precautions in normal operation



Only operate the machine if all of its protective features are fully functional. If any of the protective features are not fully functional, this endangers:

- the life and well-being of the operator or other persons
- the equipment and other tangible assets belonging to the owner/operator
- efficient working with the equipment.

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Any safety features that are not fully functional must be put right before you switch on the machine.

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Never evade safety features and never put safety features out of order..

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Before switching on the machine, ensure that nobody can be endangered by your doing so.

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At least once a week, check the machine for any damage that may be visible from the outside, and check that the safety features all function correctly.

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Only Fronius cleaning agent is suitable for use in our machines.

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Do not mix Fronius cleaning agent with other cleaning agents.

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If any damage occurs in cases where other cleaning agents have been used, the manufacturer shall not be liable for any such damage, and all warranty claims shall be null and void.

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Only transport the cleaning agent in closed original containers.

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## Commissioning, maintenance and repair



It is impossible to guarantee that bought-in parts are designed and manufactured to meet the demands made of them, or that they satisfy safety requirements.

- Use only original spare and wearing parts (also applies to standard parts).
- Do not carry out any modifications, alterations, etc. to the device without the manufacturer's consent.
- Components that are not in perfect condition must be replaced immediately.
- When ordering, please give the exact designation and part number as shown in the spare parts list, as well as the serial number of your device.

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The housing screws provide the ground conductor connection for earthing the housing parts.

Only use original housing screws in the correct number and tightened to the specified torque.

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## Safety inspection



The manufacturer recommends that a safety inspection of the device is performed at least once every 12 months.

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The manufacturer recommends that the power source be calibrated during the same 12-month period.

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A safety inspection should be carried out by a qualified electrician

- after any changes are made
  - after any additional parts are installed, or after any conversions
  - after repair, care and maintenance has been carried out
  - at least every twelve months.
- 

For safety inspections, follow the appropriate national and international standards and directives.

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Further details on safety inspection and calibration can be obtained from your service centre. They will provide you on request with any documents you may require.

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## Safety symbols



Devices with the CE mark satisfy the essential requirements of the low-voltage and electromagnetic compatibility directive (e.g. relevant product norms from the EN 60 974 series).

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Devices with the CSA test mark satisfy the requirements of the relevant standards in Canada and the USA.

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## Copyright



Copyright of these operating instructions remains with the manufacturer.

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The text and illustrations are all technically correct at the time of printing. We reserve the right to make changes. The contents of the operating instructions shall not provide the basis for any claims whatsoever on the part of the purchaser. If you have any suggestions for improvement, or can point out any mistakes that you have found in the instructions, we will be most grateful for your comments.

# General information

## General Remarks



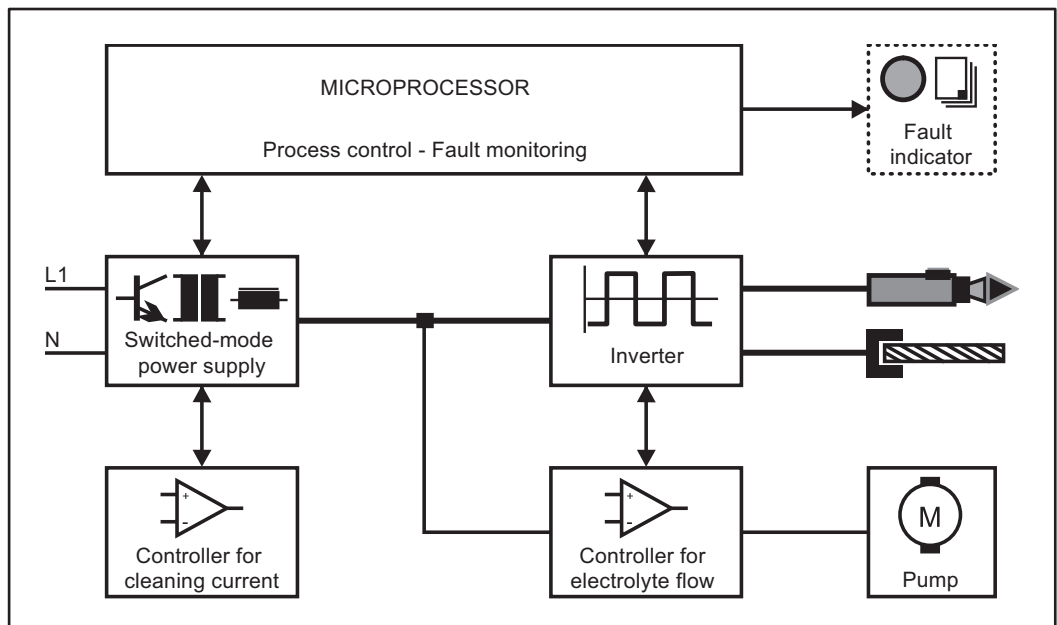
The MagicCleaner CrNi cleaning unit opens up brand-new dimensions in weld finishing. With the aid of processor-controlled current curves and a specially formulated electrolyte, the unit achieves cleaning results of unparalleled quality. The unit's automatic, exactly controllable electrolyte-dispensing system guarantees a high level of safety and ease of handling. Thanks to its unique cleaning qualities, its area of use ranges from craft and trade workshops all the way up to the food-processing and chemical industries.

*MagicCleaner „Stand alone“*

## Design concept

The unit's powder-coated sheet-steel housing, shielded controls (in a recess protected by a plastic surround) and its bayonet-latching earth socket are all features designed to prolong its service life. Its shoulder strap makes it easy to carry around, both indoors in the workshop and outdoors on site-erection jobs.

## Functional sequence



*Block diagram of "Stand alone" MagicCleaner*

The mains voltage is regulated to operating voltage via an isolated switched-mode power supply and the adjusted operating current. via a A series-connected inverter transforms the DC voltage into a 50 Hz square-wave voltage and supplies this to the output. Electronic controllers adjust the cleaning current and electrolyte dispensing rate to suit the intended utilisation. The cleaning process as a whole is controlled and monitored by a microprocessor.

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**Utilization for intended purpose only**

The MagicCleaner is exclusively designed for the electro-chemical cleaning of highalloy steels. Utilisation for any other purpose, or in any other manner, shall be deemed to be "not in accordance with the intended purpose". The manufacturer shall not be liable for any damage resulting from such improper use.

Utilisation in accordance with the "intended purpose" also comprises

- the instructions given in this manual
  - performing all stipulated inspection and servicing work.
- 

**Setting-up instructions****Open-air operation**

In view of the unit's IP 23 protection rating, it is suitable for outdoor placement and operation. However, the built-in electrical components must be protected from direct wetting such as that caused by external wet-cleaning.

**Ambient temperature**

**IMPORTANT!** The temperatures for employment and storage must not fall below the following values:

- without electrolyte -25°C
- with electrolyte -10°C

The cleaning unit must be positioned well away from such sources of heat as radiators, heating or annealing furnaces, direct hot sunshine etc., which would raise its temperature still further.

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**Transport requirements**

**IMPORTANT!** Before being transported the reservoir must be emptied completely! Otherwise the MagicCleaner would have to be packed and marked as hazardous material.

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**Options****MagicCleaner suction device**

Fully automatic, portable unit for exhausting the fumes generated by the electro-chemical cleaning process.

**Carbon electrode**

The high-strength graphite composite cleaning electrode allows to speed up the cleaning process by 20 - 30 %, depending on the type of metal used.

# Mains connection

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## **MagicCleaner**

The “Stand alone” MagicCleaner may be operated as standard on a mains voltage of 230V. Yellow-green lead = protective earth conductor (PE). The other conductors L1 and N are connected to the phase and neutral conductors of the mains plug.

**IMPORTANT!** Electrical work, fitting or changing the power plug, may only be carried out by a qualified electrician!

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## **MagicCleaner 110V**

The “Stand alone” MagicCleaner 110 V may be operated as standard on a mains voltage of 100 - 110 V. Yellow-green lead = protective earth conductor (PE). The other conductors L1 and N are connected to the phase and neutral conductors of the mains plug.



# Technical data

## MagicCleaner

Unit suitable for use in confined spaces	[S]
Mains voltage -15%/+10%	~230 V / 50-60 Hz
Mains fuse	10 A slow
Apparent power	490 VA
Output current	5 - 20 A
Output voltage	2 - 12 V
Output power	200 W
Open-circuit voltage	17 V
Dispensing rate	0,55 - 2,2 l/h
Cleaning agent capacity	1,5 l
Degree of protection	IP 23
Dimension l / b / h	430 / 180 / 280 mm
Weight	5 kg
Pollutant emission during operation (measured acc. to VDI 2462, part 8)	phosphoric acid (H <sub>3</sub> PO <sub>4</sub> ) < 0,2 mg/m <sup>3</sup> sulphuric acid (H <sub>2</sub> SO <sub>4</sub> ) < 0,6 mg/m <sup>3</sup>

## MagicCleaner 110V

Unit suitable for use in confined spaces	[S]
Mains voltage -6% / +6%	~100 -110 V / 50-60 Hz
Mains fuse	10 A slow
Apparent power	490 VA
Output current	5 - 20 A
Output voltage	2 - 12 V
Output power	200 W
Open-circuit voltage	17 V
Dispensing rate	0,55 - 2,2 l/h
Cleaning agent capacity	1,5 l
Degree of protection	IP 23
Dimension l / b / h	430 / 180 / 280 mm
Weight	8,4 kg
Pollutant emission during operation (measured acc. to VDI 2462, part 8)	phosphoric acid (H <sub>3</sub> PO <sub>4</sub> ) < 0,2 mg/m <sup>3</sup> sulphuric acid (H <sub>2</sub> SO <sub>4</sub> ) < 0,6 mg/m <sup>3</sup>

# Controls, connections and mechanical components

## Safety

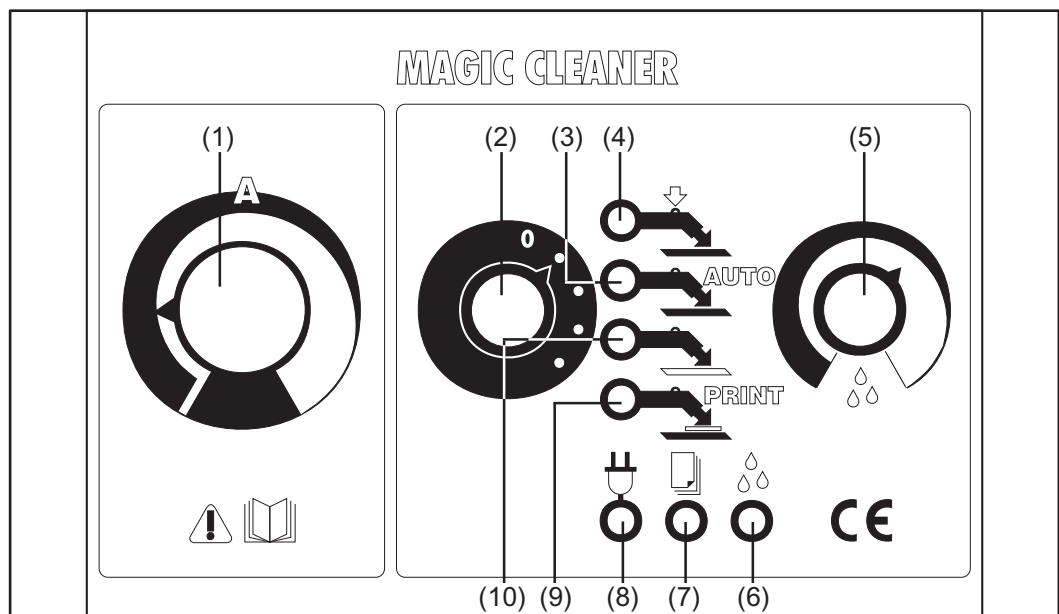
### **WARNING!**

#### **Danger from incorrect operation.**

Possible serious injury and damage to property.

- ▶ Do not use the functions described here until you have read and completely understood these Operating Instructions.
- ▶ Do not use the functions described here until you have fully read and understood all of the Operating Instructions for the system components, in particular the safety rules!

## Controls



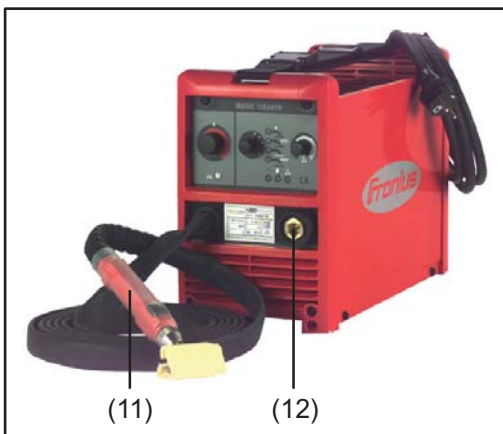
Controls

- (1) **Cleaning-current dial**  
continuous adjustment of cleaning current from 5-20 A
- (2) **Program switch**  
for switching the MagicCleaner from stand-by to the desired operating mode.
- (3) **LED indicator "Auto-Cleaning" mode**  
lights up when the "Auto-Cleaning" mode is selected
- (4) **LED indicator "Manual-Cleaning" mode**  
lights up when the "Manual-Cleaning" mode is selected
- (5) **Dial for electrolyte dispensing rate**  
continuous adjustment of electrolyte dispensing rate from 0.55 - 2.2 l/h
- (6) **"Elektrolyte dispensing" LED**  
lights up when the pump is in operation
- (7) **LED "Fault" indicator**
  - lights up if the unit is overloaded (if the temperature of the power section reaches 65°C).

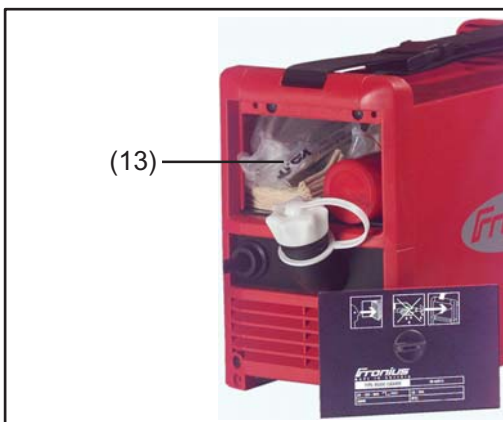
- flashes if short-circuiting occurs between the stylus and earth (e.g. cleaning cloth is defective)

- 
- (8) **“Stand-by” LED**  
lights up when the MagicCleaner is connected to the mains
- 
- (9) **LED indicator “Printing“ mode**  
lights up when the “Printing“ mode is selected
- 
- (10) **LED indicator “Polishing / Burnishing“ mode**  
lights up when the “Polishing / Burnishing“ mode is selected
- 

### Connections and mechanical components



View from front, with cleaning handle



Rear view, showing accessories

- 
- (11) **Handle with cleaning electrode and cleaning cloth**  
for creating the electrical and electrolytic connection between the Magic-Cleaner and the workpiece
- 
- (12) **Bayonet-latching earth socket**  
for connecting the earth cable
- 

- 
- (13) **Storage compartment**  
for storing the accessories supplied with the unit.

These include:

- 1 pc. safety goggles
  - 1 pair of protection gloves
  - 10 pcs. spare cleaning cloths
  - 1 case of Fronius electrolyte powder
  - 1 pc. mixing container 1 l
- 

### CAUTION!

#### **Danger of injury because of acid and/or acid residues.**

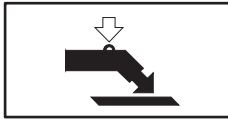
This may result in serious injury.

- Don't keep cleaning liquids, contaminated gloves and used cleaning rags in the storage compartment. Store mixing container in the storage compartment only when cleaned!
-

# Operating modes

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## Manual cleaning



“Manual Cleaning” mode serves for removing tarnish discoloration. The Electrolyte is dispensed when the button is pushed on the cleaning handle (polishing not possible)

Current curve: AC

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## Auto cleaning

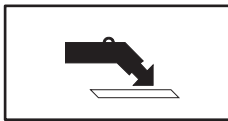


“Auto-Cleaning” mode serves for removing tarnish discoloration. The electrolyte is automatically dispensed during cleaning. Adjustment of the desired dispensing rate with dial for electrolyte dispensing rate (5). No need to push the button! (Polishing not possible)

Current curve: AC

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## Polishing / burnishing

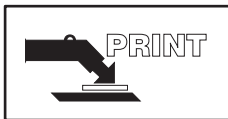


“Polishing / Burnishing” mode serves for polishing (burnishing) the workpiece after cleaning. The electrolyte is dispensed when the button is pushed on the cleaning handle

Current curve: DC

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## Printing



“Printing” mode serves for electrochemical printing of CrNi parts (e.g. graphics or company logos).

Current curve: AC

# Cleaning , Polishing / burnishing

## Safety

### **WARNING!**

#### **Danger from incorrect operation.**

Operating the equipment incorrectly can cause serious injury and damage.

- ▶ Do not use the functions described here until you have read and completely understood all of the following documents:
- ▶ these Operating Instructions
- ▶ all “Operating Instructions” for the system components, especially the “Safety rules”
- ▶ the safety data sheet for the cleaning and brightening electrolyte as well as for Fronius electrolyte powder

## Preparation

- 1 Take safety precautions: Put on safety goggles, gloves and protective clothing
- 2 Switch off the MagicCleaner and disconnect it from the mains supply
- 3 Undo the screw-cap of the reservoir
- 4 Only for use of Fronius electrolyte powder: prepare electrolyte powder as cleaning electrolyte
  - a) Fill 1/2 l of clear water into the mixing container included in the scope of supply
  - b) Add complete contents of the case containing Fronius electrolyte powder slowly to water
  - c) Close mixing container tightly
  - d) Shake mixing container with water and Fronius electrolyte powder for approx. 1 min.
  - e) Open mixing container and pour in the remaining 1/2 l of water
  - f) Again close mixing container tightly
  - g) Shake mixing container for another 1 min (until Fronius electrolyte powder is completely dissolved).
- 5 Fill the reservoir with cleaning or polishing electrolyte up to just under the filler neck. Clean mixing container for preparation of Fronius electrolyte powder, if necessary.
  - **IMPORTANT!** Use only original Fronius cleaning or polishing electrolyte!
- 6 Replace the screw-cap of the reservoir tightly
- 7 Make an earth connection between the MagicCleaner and the workpiece

## Fitting a new cleaning cloth on the cleaning electrode

- 1 Using your index finger and thumb, pull the clamping plate towards the cleaning handle and turn it 90°
- 2 Using your thumb, lift the clamping plate on each side at a time and clamp the cleaning cloth in place
- 3 Turn the clamping plate back 90°

## Start-up

### **CAUTION!**

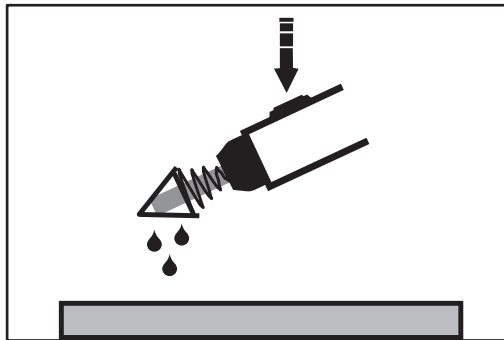
#### **Danger from current flow.**

Danger of damage to workpiece and cleaning electrode because of current flow.

- ▶ As soon as the mains cable of the MagicCleaner is connected to the mains, cleaning current may be flowing, if the program switch is positioned accordingly.
- ▶ Deposit handle on insulated surface!

- 1 Connect up the MagicCleaner to the mains
- 2 Select the desired operating mode with the program switch (2)
- 3 Select the cleaning current on dial (1) and the electrolyte dispensing rate on dial (5).

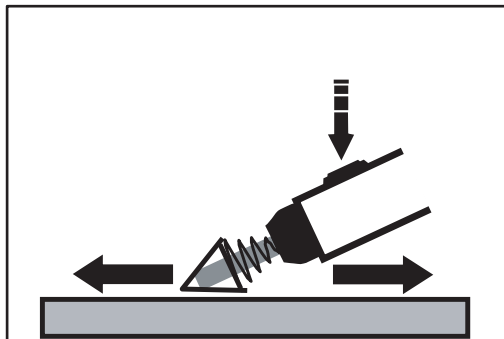
### Cleaning procedure



*Wet the cleaning cloth with electrolyte*

- 1 Push the button on the handle to wet sufficiently the stretched cleaning cloth with electrolyte

The first time after the reservoir has been (re)filled, it takes the electrolyte approx. 30 sec to be pumped from the reservoir to the handle



*Cleaning procedure*

Manual cleaning / Auto-cleaning

- 2 Applying gentle pressure, move the cleaning electrode back and forward along the tarnished weld and continuously moisten the cleaning cloth with electrolyte

**IMPORTANT!** During the cleaning procedure do not dwell on the same spot for too long, as due to the increasing thermal load wear of the cleaning cloth increases significantly! Also ensure that the cleaning cloth is always moistened with sufficient electrolyte!

### Removal of electrolyte and heavy metal residues

Electrochemical cleaning with the MagicCleaner leaves electrolyte and heavy metal residues on the workpiece surface. Such residues may cause deposits on the workpiece and affect corrosion resistance!

- 1 Soak a clean sponge in clean water
- 2 Wipe the electrochemically treated surfaces with the wet sponge
- 3 Rinse the sponge
- 4 Repeat several times.

**IMPORTANT!** During electrochemical cleaning ensure that no cleaning electrolyte enters into the workpiece cavities. In most cases complete removal of electrolyte residue from cavities can only be achieved with great difficulty.

# Printing, if MagicCleaner is exclusively used for printing

## General remarks



### WARNING!

#### Danger from incorrect operation.

Operating the equipment incorrectly can cause serious injury and damage.

- ▶ Do not use the functions described here until you have read and completely understood all of the following documents:
- ▶ these Operating Instructions
- ▶ all "Operating Instructions" for the system components, especially the "Safety rules"
- ▶ the safety data sheet for the printing electrolyte.

For this application, we recommend using the "Printing set (4,100,212 - not included in MagicCleaner scope of supply). This set consists of:

- Printing electrolyte 0.5l
- 1 x printing film for doing your own printing
- 10 x printing felts
- 1 x plastic canister
- 1 x plastic case

## Imprinting film for short-term use

Use a dot matrix printer or a mechanical typewriter for imprinting the film for short-term use.

- 1 Fix the film to a paper sheet size A4 with adhesive tape
- 2 Insert paper into printer in a way that the colored film is printed
- 3 Print text or graphics on the film
- 4 Remove colored printing film

The printing film can be used for abt 10 printings.

## Preparation

- 1 Switch off the MagicCleaner disconnect it from the mains
- 2 Undo the screw-cap of the reservoir

**IMPORTANT!** Before pouring the printing electrolyte into the reservoir, this must first be emptied completely! Also, the hosepack and reservoir must be rinsed with clean water!

- 3 Fill the reservoir with printing electrolyte, up to just under the filler neck
- 4 Replace the screw-cap of the reservoir tightly
- 5 Make an earth connection between the MagicCleaner and the workpiece

## Mount the printing felt on the cleaning electrode

- 1 Using your index finger and thumb, pull the clamping plate towards the cleaning handle and turn it 90°
- 2 Using your thumb, lift the clamping plate on each side at a time and clamp the printing-felt in place
- 3 Turn the clamping plate back 90°

---

## Start-up

 **CAUTION!**

**Danger from current flow.**

Danger of damage to workpiece and cleaning electrode because of current flow.

- ▶ As soon as the mains cable of the MagicCleaner is connected to the mains, cleaning current may be flowing, if the program switch is positioned accordingly.
  - ▶ Deposit handle on insulated surface!
- 

- 1 Connect up the MagicCleaner to the mains
  - 2 Select the Printing mode with the program switch (2)
  - 3 Select the cleaning current on dial (1) and set the electrolyte dispensing rate to maximum on dial (5)
  - 4 Fix the printing film to the workpiece with adhesive tape
- 

## Printing procedure

- 1 Push the button on the handle to ensure that the printing felt is sufficiently wetted with electrolyte.
  - The first time after the reservoir has been (re)filled, it takes the electrolyte approx. 30 sec to be pumped from the reservoir to the handle.
- 2 Applying gentle pressure, slowly move the cleaning electrode across the film, 1 - 3 times
  - If the cleaning electrode touches the workpiece off the edge of the film, this causes black marks on the workpiece!

**IMPORTANT!** When you have finished printing, rinse the printing film thoroughly in water (if the printing electrolyte dries onto the film, this may lead to poor-quality printing results)!



# Printing, if MagicCleaner is used for cleaning, polishing/burnishing and for printing

## General remarks



### WARNING!

#### Danger from incorrect operation.

Operating the equipment incorrectly can cause serious injury and damage.

- ▶ Do not use the functions described here until you have read and completely understood all of the following documents:
- ▶ these Operating Instructions
- ▶ all "Operating Instructions" for the system components, especially the "Safety rules"
- ▶ the safety data sheet for the cleaning and brightening electrolyte, Fronius electrolyte powder and the printing electrolyte

For this application, we recommend using the "Printing set (4,100,212 - not included in MagicCleaner scope of supply). This set consists of:

- Printing electrolyte 0.5l
- 1 x printing film for doing your own printing
- 10 x printing felts
- 1 x plastic canister
- 1 x plastic case

## Imprinting film for short-term use

Use a dot matrix printer or a mechanical typewriter for imprinting the film for short-term use.

- 1 Fix the film to a paper sheet size A4 with adhesive tape
- 2 Insert paper into printer in a way that the colored film is printed
- 3 Print text or graphics on the film
- 4 Remove colored printing film

The printing film can be used for abt 10 printings.

## Preparation

- 1 Switch off the MagicCleaner and disconnect it from the mains
- 2 Pour the printing electrolyte into a plastic canister
- 3 Remove the cleaning cloth from the cleaning electrode and rinse the electrode well with water
- 4 Make an earth connection between the MagicCleaner and the workpiece

## Mount the printing felt on the cleaning electrode

- 1 Using your index finger and thumb, pull the clamping plate towards the cleaning handle and turn it 90°
- 2 Using your thumb, lift the clamping plate on each side at a time and clamp the printing-felt in place
- 3 Turn the clamping plate back 90°

---

## Start-up

 **CAUTION!**

**Danger from current flow.**

Danger of damage to workpiece and cleaning electrode because of current flow.

- ▶ As soon as the mains cable of the MagicCleaner is connected to the mains, cleaning current may be flowing, if the program switch is positioned accordingly.
  - ▶ Deposit handle on insulated surface!
- 

- 1 Connect up the MagicCleaner to the mains
  - 2 Select the "Printing" mode with the program switch (2)
  - 3 Set the cleaning current to maximum on dial (1) and the electrolyte dispensing rate to minimum on dial (5)
  - 4 Fix the printing film to the workpiece with adhesive plastic tape
- 

## Printing procedure

- 1 Dip the cleaning electrode, with the mounted printing felt, into the printing electrolyte until the felt is well wetted.
- 2 Applying gentle pressure, slowly move the cleaning electrode across the film, 1 - 3 times
  - If the cleaning electrode touches the workpiece off the edge of the film, this causes black marks on the workpiece!

**IMPORTANT!** When you have finished printing, rinse the printing film thoroughly in water (if the printing electrolyte dries onto the film, this may lead to poor-quality printing results)!

# Care, maintenance and disposal

**General remarks** Under normal operating conditions the MagicCleaner requires only a minimum of care and maintenance. However, it is indispensable to follow some important points to ensure the operability of the machine for many years.

## **WARNING!**

### **Danger from electric current.**

An electric shock can be fatal. Before opening up the machine:

- ▶ shift the mains switch into the "O" position
- ▶ unplug the machine from the mains
- ▶ put up an easy-to-understand warning sign to stop anybody inadvertently switching it back on again
- ▶ using a suitable measuring instrument, check to make sure that electrically charged components (e.g. capacitors) have been discharged

**Every start-up**

- Check mains cable and interconnecting cable for damage
- Check container and pump for leakage
- Check whether the allround distance of 0.5 m (1ft. 8in.) is kept to ensure that the cooling air can easily flow and escape.

## **NOTE!**

**Furthermore, air inlets and outlets must in no case be covered, not even covered partly.**

**Weekly** Clean device by means of solvent-free products.

**Every 6 months**

## **CAUTION!**

### **Danger from pressed air.**

Risk of damage to electronic components.

- ▶ Clean electronic components from a certain distance only.

- 1** Dismantle machine side panels and clean machine inside with dry reduced compressed air
- 2** If a lot of dust has accumulated, clean the cooling-air ducts.

**Disposal** Dispose of in accordance with the applicable national and local regulations.

# Replacing the cleaning electrode

## Safety

### CAUTION!

#### **Danger due to work that has been carried out improperly.**

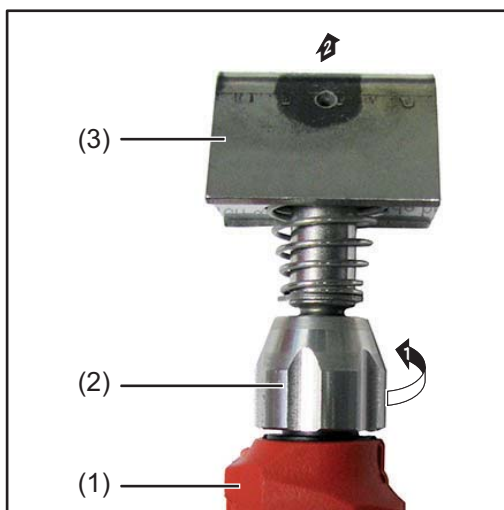
Risk of damage to the handle and cleaning electrode due to improper replacement of the cleaning electrode.

- ▶ No tools are required when replacing the cleaning electrode.
- ▶ Tighten the cleaning electrode by hand only when screwing it onto the handle!

## Preparations

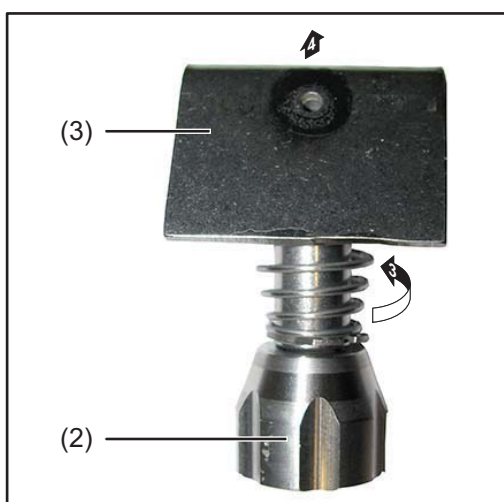
- 1 Switch off MagicCleaner and disconnect it from the mains
- 2 Remove cleaning cloth from the cleaning electrode

## Removing the cleaning electrode



*Undoing the fixing nut*

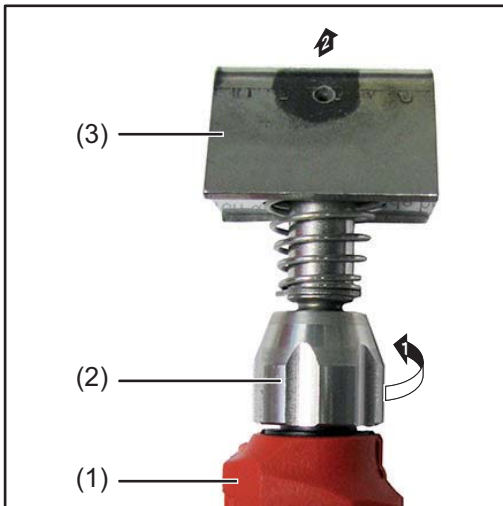
- 1 Undo the fixing nut (2)
- 2 Unscrew the fixing nut (2) and cleaning electrode (3) from the handle (1)



*Unscrewing the cleaning electrode*

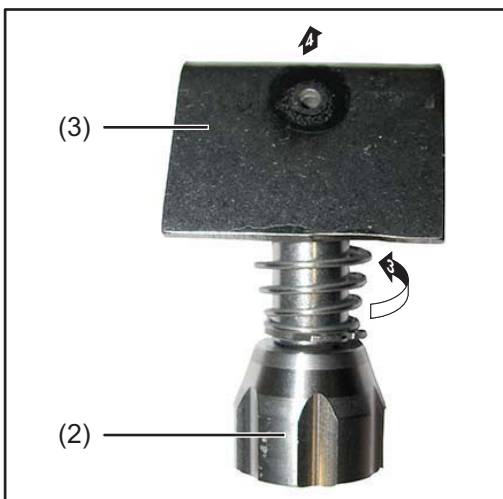
- 3 Unscrew the cleaning electrode (3) from the fixing nut (2)

**Fitting the cleaning electrode**



*Screwing the cleaning electrode into the fixing nut*

- 1 Screw the new cleaning electrode (1) as far as it will go into the fixing nut (2)
- 2 Now unscrew the cleaning electrode (1) by about 1 turn



*Tightening the fixing nut (finger-tight)*

**IMPORTANT!** Do not tighten the fixing nut yet when screwing it onto the handle, as the cleaning electrode still needs to be adjusted!

- 3 Screw the fixing nut (2) and cleaning electrode (1) onto the handle (3)
- 4 Adjust the cleaning electrode (1) according to the application
- 5 Tighten the fixing nut (2) on the handle (3) (finger-tight only, do not use a tool)





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