



**Arcotec GmbH
Rotweg 24
71297 Mönshheim, Germany**

Information for use

English version V16, date: 26 September 2025

Important!

Read carefully before use.

Keep this information for use clearly visible with the device.

HF Corona Generator CG 061 P with manual roller electrode

Serial no.:

Project no.:

Company:



EC Declaration of Conformity

In accordance with Machinery Directive 2006/42/EC, Annex II Part 1, Section A

The manufacturer: **Arcotec GmbH**
Rotweg 24
71297 Mönsheim, Germany

hereby declares that the following product

Product designation: HF Corona Generator with manual roller electrode (200 mm)
Type: CG 061 P
Serial number:
Year of manufacture: CW xx/2025
Function: Surface pre-treatment to improve adhesion

complies with all the relevant provisions of EC Machinery Directive 2006/42/EC.

Additionally the product complies with the following EU directives:

2014/30/EU EMC Directive
2014/35/EU Low Voltage Directive

The following harmonised standards have been applied:

EN 12100:2011-03/
B1:2013-08 Safety of machinery – general principles for design – Risk assessment and risk reduction
EN 60204-1:2007-06/
A1:2009-10/B1:2010-05 Safety of machinery – Electrical equipment of machines – Part 1: General requirements
EN 60204-11:2001-05/
B1:2010-05 Safety of machinery – Electrical equipment of machines – Part 11: Requirements for HV equipment for voltages above 1000 V

Name and address of the person who is authorised to compile the technical documents:

Jens Peter Schmidt, Arcotec GmbH, Rotweg 24, 71297 Mönsheim, Germany

This declaration is made for and on behalf of the manufacturer by

Mönsheim, 26 September 2025

Sebastian Bloss
CEO of Arcotec GmbH





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1 General information

The following symbols are used in this information for use:

 WARNING	Indicates a risk that may result in death or serious injury if not avoided.
 CAUTION	Indicates a risk that may result in minor injury if not avoided.
	Warning of hazardous voltage
	Warning of hot surfaces
NOTICE	Indicates a warning of material damage that may occur if the information is not complied.
Important!	Indicates important information.
<ul style="list-style-type: none"> • Instruction steps that shall be followed in the order given. 	
<ul style="list-style-type: none"> → Result of an instruction 	
<ul style="list-style-type: none"> ■ List of instructions in safety and warning information 	

2 Safety instructions

2.1 Requirements for the operator and operating personnel

- Only allow qualified and instructed personnel to operate the system.
- Make sure that nobody works with the device without special instructions.
- Operate the system only in a safe and functional condition. This implies that all protection devices, e.g. limit switches and covers, are present and functional.
- Comply with all safety and hazard warnings on the device and in the information for use.
- Comply with the relevant national safety regulations.

2.2 Requirements for the installation site

- Put the generator with the hand roller electrode and counter electrode plate on a stable, sufficiently large table, so that the controls are easily accessible.

2.3 Electrical hazards

During operation, the roller electrode is supplied with high voltage. When touching the roller electrode, there is a risk of life-threatening electric shocks.

- Do not touch the silicone roller electrode.
- Before each use, check if the counter electrode plate is connected to earth.
- Do not touch the sample during operation.
- Capacitive coupling! Do not touch the sheathing of the high voltage cable. Due to dielectric effects, you can experience electrical shocks when touching the cable sheath.
- When working with the manual roller electrode, hold the hand switch in one hand and the manual roller electrode in the other hand.
- Only start the high-voltage discharge when the manual roller electrode is moved on the counter-electrode plate continuously.
- Do not lift the hand roller electrode from the surface until the high-voltage discharge is switched off again.

During operation, there are live high-voltage parts in the housing. There is a risk of a life-threatening electric shock if live high-voltage parts in the housing are touched.

- Do not open the housing during operation.
- Immediately switch off the device in case of a fault in the electrical power supply.

2.4 Capacitive coupling

The high-voltage cable and the electrode generate a high-frequency alternating field, through which capacitive coupling can lead to electric shocks.

- Do not touch the sheath of the high-voltage cable. Due to dielectric effects, people may receive electric shocks if they touch the cable sheath.
- Remove conductive or partially conductive ungrounded materials from the surrounding area (within radius of approx. 1.5 m).

Also plastic parts, especially foils, can be charged electrostatically by the corona treatment. The following discharge can occur against machine parts and also against persons.

- Use common ionising units to avoid an electrostatic charge of foils.

2.5 Harmful corrosive gases

The corona treatment produces ozone, which can lead to respiratory diseases.

- When applying the corona treatment for a longer time, either work under a suction hood or extract the ozone directly from the housing of the hand roller electrode via a suction hose.
- According to local regulations, ozone can be reduced to oxygen with the help of a catalyst.

The respective workplace limits apply.

2.6 Requirements for maintenance and repair

- Only allow qualified electricians to maintain and repair the device.
- Before carrying out repair or maintenance work on the device, switch off the main switch, ensure that there is no voltage and secure the device against being switched on again unintentionally.
- Do not remove any safety devices or put them out of service. If safety devices need to be dismantled for maintenance or repair work, reinstall the safety devices immediately after completing this work.
- After repair, check the operational safety of the device by means of a test run.
- Changes to the device are only permitted after written consultation with Arcotec.
- Only use original spare parts.

2.7 Explosion hazard in the presence of flammable gases

In the presence of flammable gases in the ambient air there is an explosion hazard due to the high voltage discharge. **The device must not be used in potentially explosive areas.**

- Keep the ambient air free of flammable gases or provide adequate ventilation.

2.8 Avoiding damages to the hand roller electrode

Dust and shavings can burn into the silicone.

- Always keep the silicone roller and the silicone layer of the counter electrode plate clean, if necessary, clean it with ethanol.
- Always keep the manual roller electrode in continuous motion during the high voltage discharge. Otherwise, the silicone coating can be damaged.

3 Usage and Technical Specifications

3.1 Intended use

The device is only intended for physical surface treatment of materials lying flat on the counter-electrode plate with treating the surface by means of the manual roller electrode to improve the adhesion of printing ink, varnish, glue, etc. The device is intended for use only by trained users or qualified personnel.

In order to achieve optimal treatment effects, the necessary power setting has to be determined depending on the material, its sensitivity and its thickness in the experiment.

The treatment effects can be checked with test ink. In individual cases, it has to be checked which ink values are binding for optimal adhesion.

3.2 Improper use

The device must not be used for inappropriate purposes.

Any modifications and changes to the system are not authorised without written permission from Arcotec.

The manufacturer assumes no liability for damage resulting from improper use.

3.3 Technical specifications

Power	230 V, 50/60 Hz, single phase		
Power input	max.1.0 kVA		
Current consumption	max. 4.5 A		
Effective power	X	manual roller electrode of 200 mm	500 W
		manual roller electrode of 300 mm	600 W
		manual roller electrode of 400 mm	700 W
Output voltage	3–20 kV in correctly adjusted operation (A spark gap in the high-voltage transformer prevents this voltage from being exceeded.)		
Working frequency	25–50 kHz		
Output power	continuously adjustable in the range of 20% – 100%		
Treatment width of the manual roller electrode	(X) 200 mm / () 300 mm / () 400 mm		
Length of the high voltage cable	1.5 m		
Counter electrode plate		460 × 460 mm	V2A steel, one-sided silicone coating
	X	560 × 560 mm	
		660 × 660 mm	
Dimensions (width × height × depth)	470 × 213 × 530 mm		
Weight of the generator	18 kg		
Hand switch	normally open contact to activate the corona discharge		
Ambient air	free from flammable gases		

Subject to change.

4 About the HF corona treatment

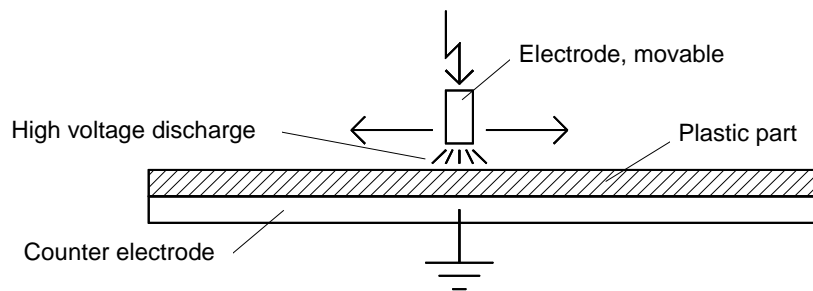
The HF corona treatment is applicable especially for the pre-treatment of plastic surfaces, to make possible printing, painting, coating, laminating, gluing, foaming, flocking, etc.

In these cases, a pre-treatment is necessary, because most of the used materials are non-polar, and the adhesion of inks, paints, glues etc. is very low. Here activation of the surface is required to achieve sufficient wettability and thus good adhesion.

The wettability of the surface is determined by the surface energy in mN/m. The higher the value of the surface tension, the better is the wettability.

The corona pretreatment requires an electrode (carrying high voltage) and a counter electrode (reference potential/earth). In the case of a hand roller electrode, the electrode is insulated with a silicone hose. If a material is placed between the two system components and the high voltage is activated, an electrical discharge occurs between them, which penetrates the material. The discharge is visually recognizable by a blue/violet glow. This light band generates ozone. It should be noted again at this point that the ozone must be extracted.

The effect of the high voltage discharge on the surface to be treated is that non-polar materials become polar in their upper molecular layers, thus providing bonding for the molecules of printing inks, paints, glues etc.

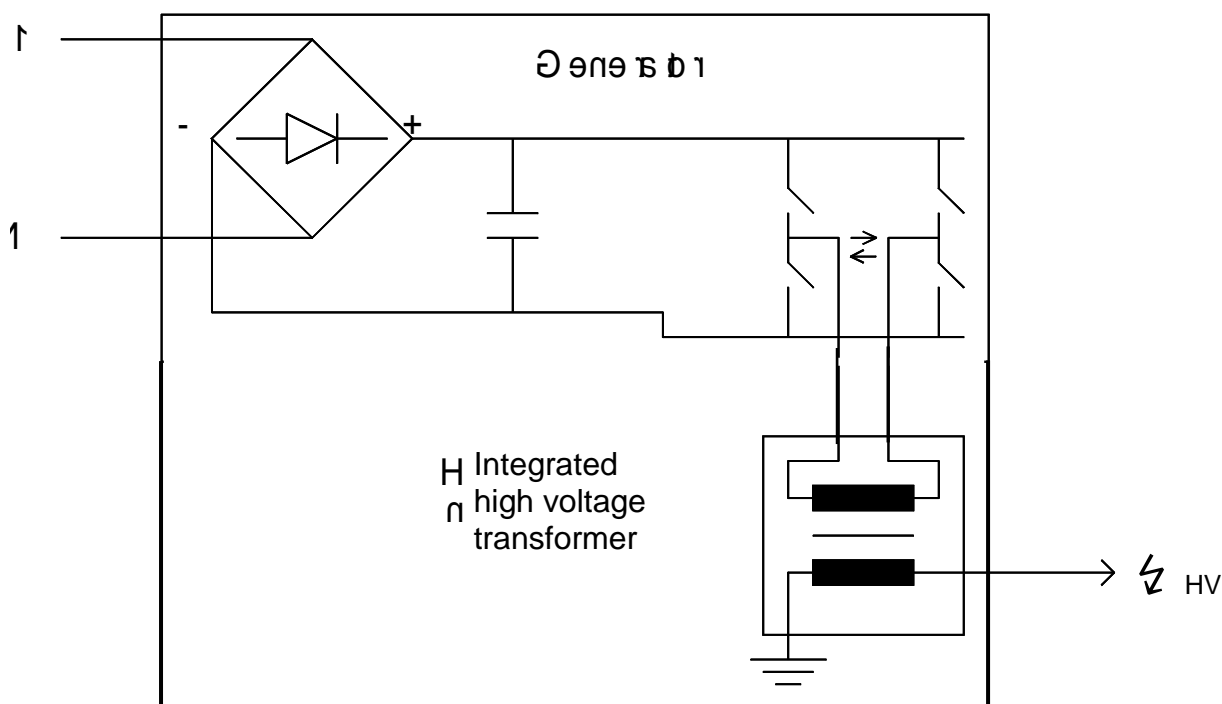


5 Short functional description of the generator

The complete system consists of four parts:

- Generator (CG) with the integrated high voltage transformer
- Hand switch
- Manual roller electrode
- Counter electrode plate

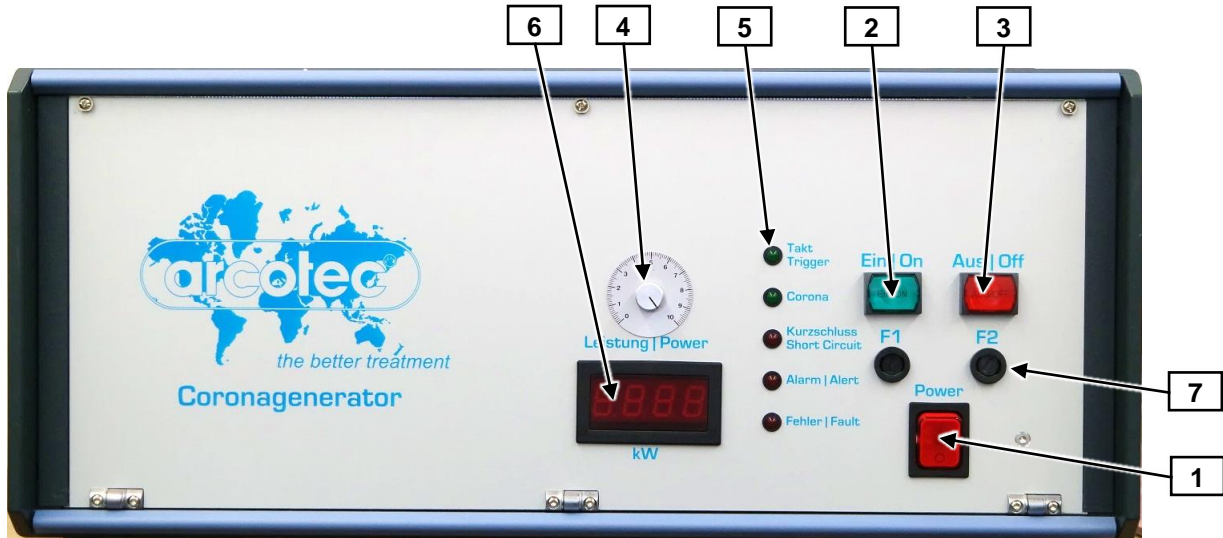
The mains voltage, which is supplied to the generator via plug St 4, is rectified to a direct voltage in the first step. This direct voltage is then applied at a higher frequency to the primary side (input side) of the high-voltage transformer, which then transforms it up and “emits” it to the electrode on the secondary side (output side).



The minimum and maximum adjustable power of the generator is dimensioned at the factory for the relevant application.

6 Description of the device

6.1 Corona generator

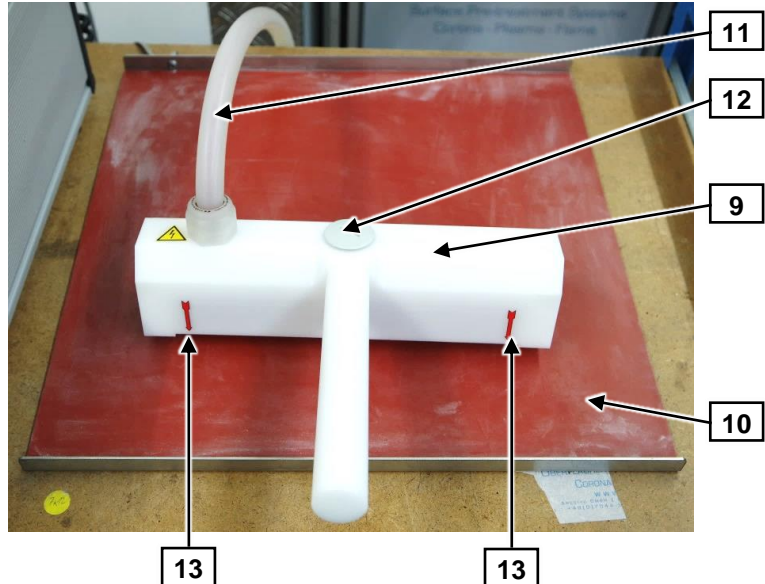


- | | |
|-----------------------------------|--------------------|
| 1 Main switch | 5 Indicator lights |
| 2 On button | 6 Power display |
| 3 Off button | 7 Fuses |
| 4 Potentiometer for power setting | |

6.2 Manual roller electrode with hand switch

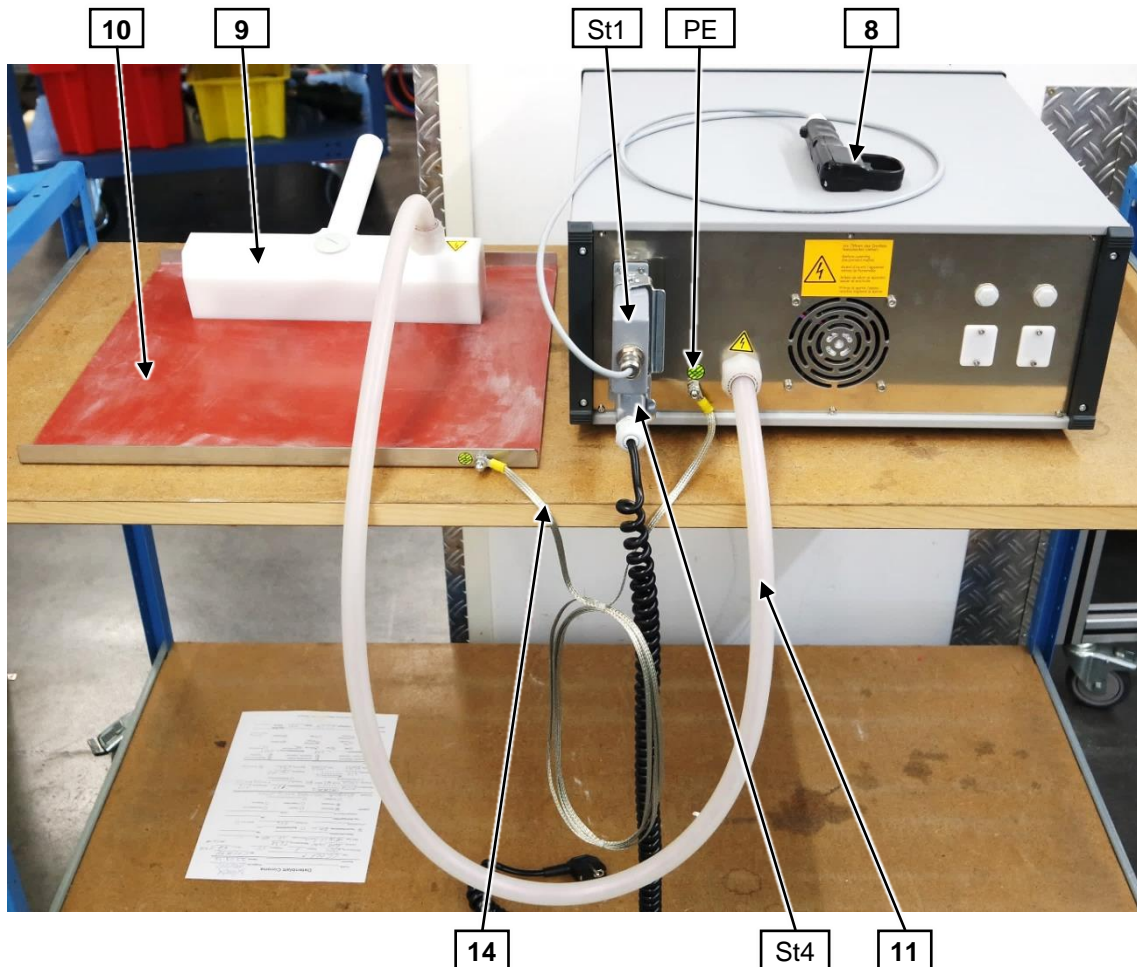


8



- | | |
|----------------------------|---|
| 8 Hand switch | 11 High voltage cable |
| 9 Manual roller electrode | 12 Optional connection for air extraction |
| 10 Counter electrode plate | 13 Treatment width |

6.3 Arrangement of the components





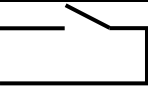
- | | |
|-----------------------------------|--------------------------------|
| 8 Hand switch | 14 Grounding strap |
| 9 Manual roller electrode | St1 Interface connector |
| 10 Counter electrode plate | St4 Power cable |
| 11 High voltage cable | |

6.4 Indicator lights

Takt / Trigger	This LED lights up green when a signal is applied to activate the high voltage discharge.
Corona	This LED lights up green when the high voltage discharge is active.
Kurzschluss / Short circuit	This LED lights up red, if there is a short circuit between the roller electrode and the counter electrode plate.
Alarm / Alert	This LED lights up red, when too many short circuits have occurred between the manual roller electrode and the counter electrode plate, i.e. without insulating layer. In this case, the high-voltage discharge is switched off and the operational readiness expires.
Fehler / Fault	This LED lights up red, when a fault has occurred inside the generator. In addition, the high-voltage discharge is switched off and the operational readiness expires.

6.5 Pin assignment

6.5.1 Connector St 1 (16 pin)

Pin		
2		Jumper
3		
5		Jumper
6		
12		High voltage discharge on / off
13		

Activating the high voltage discharge:

After the generator has been switched to operational readiness, the high voltage discharge is activated by a normally open contact (switch) between pin 12 and pin 13.

6.5.2 Connector St 4

The power supply is connected to connector St 4. The voltage is **230 V, 50/60 Hz**.

PE	PE
1	L
2	N

7 Packaging, Transport and Scope of Delivery

7.1 Packaging

- Dispose of the used packaging in accordance with the official local regulations.

7.2 Transport

- Only allow instructed personnel to transport the device.
- When transporting the system, be careful not to damage it.
- Comply with the accident prevention regulations.
- Report transport damages immediately.

7.3 Scope of delivery

Pos.	Quantity	Item	Designation
1	1	61733	HF Corona Generator CG 061 P, SN:
2	1	62246	Manual roller electrode with treating width of 200 mm, with high voltage cable (1.5 m)
3	1	61776	Manual switch for switching the high-voltage discharge
4	1	61777	Base plate as counter electrode, V2A steel, 460 x 460 mm, one-sided silicone coated
5	1	64841	Power supply, 4-pin connector with coiled cable
6	1	61781	Technical documentation in German
7	1	64827	Technical documentation in English
8	1	61610	Test ink pink 32–44 mN/m, 10 ml each, 32/34/36/38/40/42/44

8 Installation

NOTICE

- Do not kink, shorten or extend the hose including the high voltage cable to the manual roller electrode. Otherwise, it can cause malfunctions of the device.
- Do not cover the air inlet slots in the bottom panel of the generator.
- Leave enough space of approximately 100 mm for the connectors and the ventilation on the rear of the generator.

8.1 Setting up the generator

- Put the generator with the hand roller electrode and counter electrode plate on a stable, sufficiently large table so that the operating elements are easily accessible.

Since the high voltage discharge generates ozone, use an air extraction for longer treatment periods. For shorter treatment periods, the generated amount of ozone is so low, that an air extraction is not necessary.

- Use the system under an air extraction hood or extract the ozone directly from the housing of the manual roller electrode.

8.2 Electrical connections



WARNING of high voltage! Risk of life-threatening electric shocks.

- Before each use check if the counter electrode plate is connected to earth, otherwise high voltage will spread out to other objects.

The hose, including the high-voltage cable, is already firmly connected to the generator and the high-voltage connection of the hand roller electrode.

- Connect the power supply (230 V, 50 Hz) to plug St 4 (according to 6.5.2) with a mains plug.
- Connect the hand switch to the connector St 1.
- Connect the counter electrode plate to earth of the generator.

9 Operation



WARNING of high voltage! Risk of life-threatening electric shocks.

During operation, the manual roller electrode is supplied with high voltage.

- Do not touch the electrode roller (silicone roller).
- Before each use, check if the counter electrode plate is connected to earth.
- The high voltage can spread on the material. Do not touch the sample during the treatment.
- Do not touch the sheathing of the high voltage cable. Due to dielectric effects, you can experience electrical shocks when touching the cable sheath.
- When working with the manual roller electrode, hold the hand switch in one hand and the manual roller electrode in the other hand.
- Only activate the high-voltage discharge when the hand-rolling electrode on the counter electrode plate is moved continuously.
- Do not lift the manual roller electrode from the surface until the high-voltage discharge is switched off again.

9.1 Basic rules when working with the manual roller electrode

1. Before each use, check if the counter electrode plate is connected to earth and if the silicone roller and the silicone layer is clean. Use ethanol for cleaning.
2. Only activate the high-voltage discharge with the hand button when the hand roller electrode on the counter electrode plate is moved continuously.
3. Switch off the high voltage discharge (release the hand switch), before lifting off the manual roller electrode again.
4. During the active high voltage discharge, keep the manual roller electrode in continuous motion, otherwise the silicone and the material to be treated can burn through.
5. Do not touch the material during the corona treatment.
6. The high voltage of the corona generator increases with the distance between the silicone roller and the counter electrode plate. If this voltage exceeds a critical value, the internal short-circuit detection will interrupt the high voltage discharge.
7. Due to different material properties, it is not always possible to use the full range of power setting (potentiometer 0 ... 10) to achieve a continuous high voltage discharge. The optimum has to be determined in experiments.

9.2 Using the device

- Switch on the main switch.
 - The main switch and the off button light up red.
 - The housing fan is running.
- Press the green on button.
 - The green on button lights up.
 - The red off button goes out.
 - The generator is ready.
- Adjust the output power of the generator using the potentiometer on the front panel in the range of 20% to 100%.
 - Read the output power in kW from the display when the high voltage discharge is active.
- Lay the material to be treated flat on the counter electrode plate.
- In one hand, move the manual roller electrode continuously over the material to be treated, and with the other hand, press the hand switch to activate the high voltage discharge.
 - When the high voltage discharge is active, the indicator lights “Trigger” and “Corona” light up simultaneously.
 - If the high voltage discharge does not start due to a fault, only the indicator light “Trigger” lights up.
- Release the hand switch to stop the high voltage discharge.

NOTICE

- Do not lift the manual roller electrode before the high voltage discharge is switched off.

9.3 Switching off the device

- Release the hand switch to stop the high voltage discharge.
- Press the red off button.
 - The red off button lights up.
 - The green on button goes out.
- Switch off the main switch.

9.4 Error shutdown

In case of a fault (e.g. short circuit due to a defective silicone tube of the manual roller electrode or switching off because of a too thick material), the high voltage discharge will be stopped and the operational readiness of the generator expires.

- Press the green on button to switch the generator in operational readiness again.
 - The green on button lights up. The generator is ready.
 - Now the high voltage discharge can be started again.

9.5 Basic procedure for experiments with the manual roller electrode

This is a laboratory application. The necessary parameters must be determined in experiments.

The approach described below refers to simple materials such as plastic films or metal foils. The definition "simple" refers to the nature of the materials, with the films having the same thickness and the same material quality at all points. The following points therefore expressly do **not** apply to sandwich structures (several different layers of material) and foam materials or even sandwich structures with foam materials.

The procedure is as follows, always starting with minimum power.

1. Place the material to be treated on the non-insulated (blank) side of the counter electrode.
2. Carry out the first run with the lowest power setting.
3. Then check the material to see if there is any damage on the material, which depends on the material sensitivity and thickness.
4. Check whether the required surface energy values have been achieved.
5. If the required surface energy was not reached, increase the power slightly and perform another run.
6. Repeat steps 3 to 5 until the desired surface energy is reached or the power cannot be increased any further.
7. If the desired surface energy cannot be achieved despite maximum power, carry out several treatment cycles.
8. If there is damage to the material (burn marks or burn holes) on the non-insulated side of the counter electrode, place the material on the insulated (silicone) side of the counter electrode plate and perform steps 2 to 7.

The side of the counter electrode to be used depends not only on the type of material (conductive / non-conductive / sandwich construction), but primarily on the thickness and sensitivity of the material.

If sandwich structures (with or without foam materials) or foam materials are to be pre-treated, please only do this in consultation with Arcotec GmbH. Otherwise there is a risk of property damage or personal injury.

10 Maintenance



WARNING of high voltage. Risk of life-threatening electric shocks.

- Do not touch the roller electrode, when the high voltage discharge is active.

There are live high-voltage parts inside the housing during operation.

- Always switch off the device before maintenance and cleaning.

10.1 Cleaning the silicone roller and silicone layer

NOTICE

Risk of burning in of dirt or shavings in the silicone coating of the manual roller electrode and the counter electrode plate.

- Before each use, clean the silicone roller of the manual roller electrode with ethanol.
- Before each use, clean the silicone layer of the counter electrode plate with ethanol.

10.2 Cleaning or replacing the air filter

The generator housing is equipped with an air filter consisting of a fleece insert. The air sucked in by the case fan to cool the inside of the unit is filtered through this fleece insert.

Regularly check and clean the filter depending on the degree of contamination of the ambient air, but at least once a year.

The fleece insert is located in the front area of the device behind the bottom panel.

- Remove the filter grille by loosening the six screws (Torx T9) in the bottom panel.
- Take out the fleece insert.
- Clean the fleece insert with water and suitable cleaning agent.
- If the filter cannot be cleaned anymore, replace it for a new one.

10.3 Checking the cable connections

- Regularly check all outer cable connections for proper contact and good conditions.

11 Troubleshooting



WARNUNG of high voltage. Risk of electric shock.

The exact fault diagnosis and any intervention in the generator technology may only be carried out by qualified electricians after consultation with the manufacturer Arcotec.

- Switch off the main switch and disconnect the power supply (St 4) before opening the device.
- Be careful when the device is switched on again with open front panel for troubleshooting.
- Do not touch live high voltage parts inside the device.
- Switch off the main switch again before removing the plug-in cards.

NOTICE

Changes to the factory-set configuration may only be made by qualified electricians after consultation with the company Arcotec. The manufacturer assumes no responsibility for damage to the device caused by unauthorized, incorrect settings of the user.

NOTICE

The maximum output power is set at the factory depending on the high-voltage transformer and the electrode system used.

- Do not change the maximum output power.

- If any of the fault indicator lights on the front panel of the generator are on, first check all cable connections for proper condition and plugs for tight fit.
- Press the green on button to restore readiness for operation.
- Try to start the high voltage discharge again.
- Switch off the device completely and switch it on again.
- If you cannot clear the error message by a simple restart (restoring operational readiness and restarting the high voltage discharge) or by switching the device off and on again, consult an Arcotec technician for an exact fault diagnosis.
- In case of malfunction, check the following fuses of the generator:
Two fuses (F1, F2) on the front panel and one fuse on the NT24 power board.
The value of the fuse (Amps) can be read from the fuse.
- When replacing fuses, only use fuses of the same type with the same value.