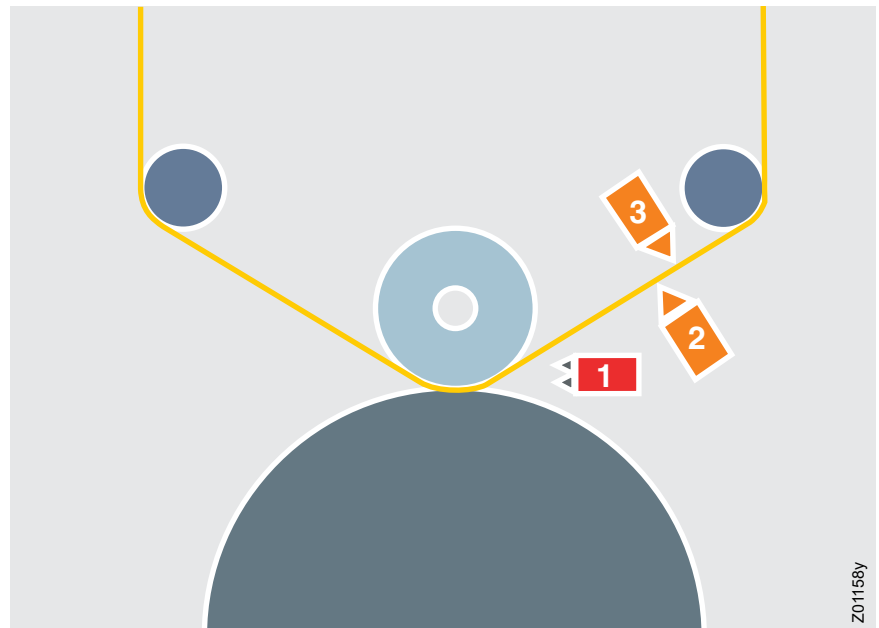


# Operating Instructions



## MISTING TACKER SYSTEM MTS20

System for the reduction of ink mist in printing  
and coating units

BA-en-9055-2304





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## Dear customer

What is known as ink mist or particle mist from the respective coating material, i.e. the printing ink, forms in the outlet of double roller systems during printing and coating processes as well as in the roller inking units of printing machines.

The MISTING TACKER MTS20 system is designed to reduce ink mist in the printing / application nip of printing and coating units.

Please read these instructions carefully before starting the unit. This will help you prevent personal injuries and damage to property.

Simply give us a call if you have any suggestions, proposals or ideas for improvements. We greatly appreciate the feedback from the users of our appliances.

# 1. System description

## 1.1 Function

What is known as ink mist or particle mist from the respective coating material, i.e. the printing ink, forms in the outlet of double roller systems during printing and coating processes as well as in the roller inking units of printing machines.

In the application units of coating systems and in the inking units of printing presses, the ink or coating is split, distributed and transported by a series of roller pairs. The printing/coating substrate is transported in the nip between the application roller and the impression roller. At high processing speeds, the ink/coating is split into more than two parts, leading to free particles.

The resulting particle mist is especially heavy and disruptive in coating or printing processes involving metal foils, metallized substrates or foils with a non-absorbent surface.

The particle streams formed in the outlet have a wide particle size range; their diameter ranges from a few nanometers to a few micrometers depending on the rheology of the ink or the coating material, the viscosity, the surface structure of the rollers or the substrate and the production speed.

Essentially, two particle streams are generated. These streams are fluidically carried along with the air boundary layer that originates in the roller outlet. Depending on the speed, size or dimensions, the particles leave these air boundary layers tangentially at different places in the roller circumference. The smallest particles initially remain in the air boundary layers the longest, being predominantly affected by the kinetic viscosity of the air. Often they remain until the next gap in the rollers or the next time the substrate is redirected onto a roller with a smaller radius that these particles are ejected into the surroundings as a secondary particle stream.

The particle mist formed in inking / coating units means an increased maintenance effort for the entire production machine; additionally, the particles are deposited onto the product causing a reduction in quality.

When printing or coating substrates, e.g. for food packaging, the particles reach the side of the substrate that will later come into contact with the food. The result is the migration of the particles into the food, which is unacceptable. Therefore, it is very often the case that production facilities must work at reduced speeds; this is the greatest economical disadvantage. Not least, the machine operators are confronted with the proportional aerosol fog in the air, which means an immediate conflict with occupational safety.

Eltex developed a special dual DC plasma bar for eliminating this ink mist. This bar is capable of separately imparting such a strong charge to both particle streams in the smallest possible stretch that 100% of the particles have been separated out through deposition onto the roller surface or substrate in the processes examined to date.

Processes involving a lower proportion of large particles in the particle range, i.e.  $> 3\mu\text{m}$ , can be supported by airflow as necessary, which can be applied by the bars using a series of bores between the tips. Such heavy particles are also referred to as color splashes, an effect that can occur when combined with the ink mist, especially in relatively high-viscous inks or coating materials.

## 1.2 System structure

These operating instructions describe the configuration of the system.  
The individual components are described on the next pages.

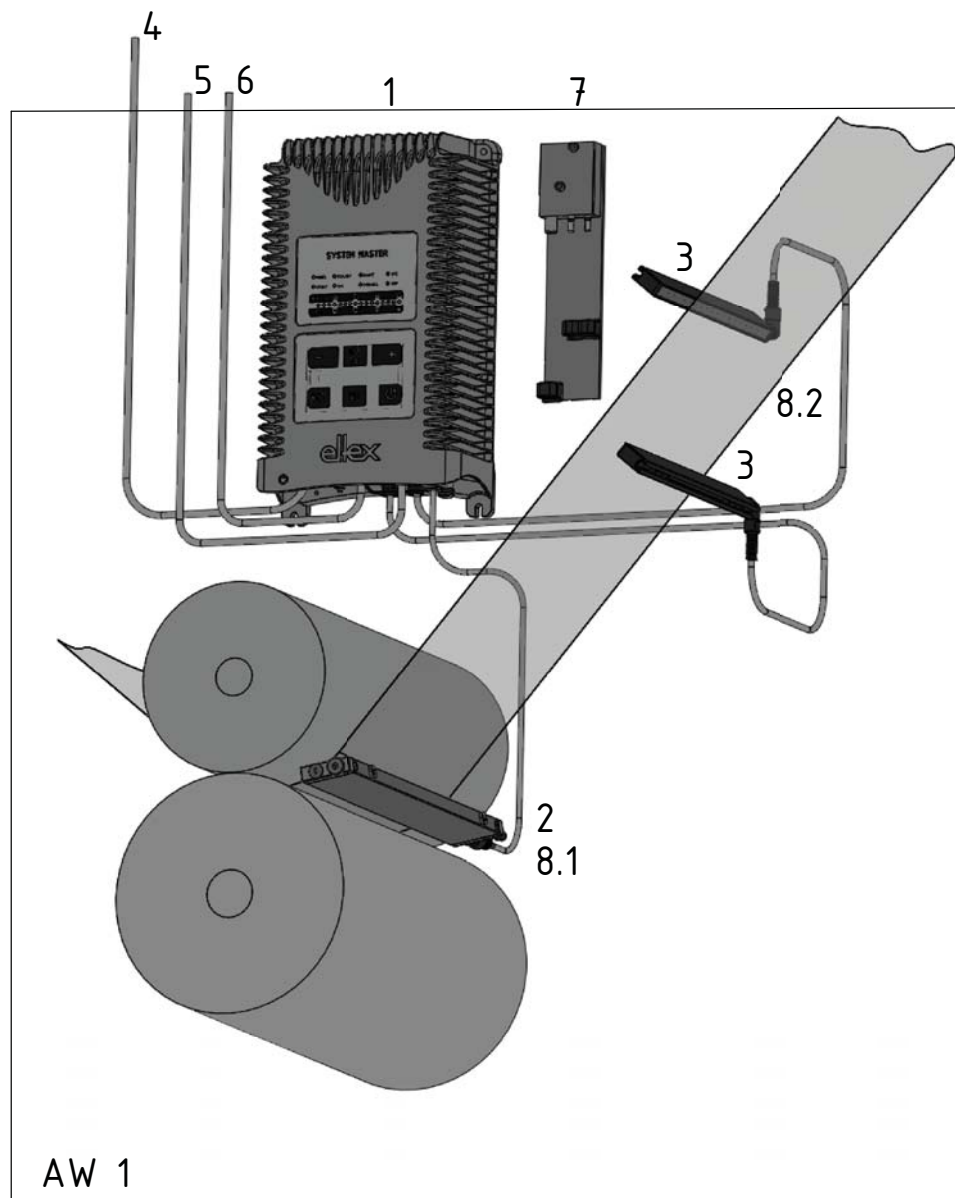


Fig 1:  
Structure:  
MISTING  
TACKER MTS20

AW =  
Coating unit

Z-117007ay

### 1.3 System components

Item	Designation	Function	Type	Number
1	Generator (supplier: Eltex)	Supplies the charging and discharging bar with power and monitors the enable functions.	PCMT	1 / charging bar
2	Charging bar (supplier: Eltex)	Used to charge the particles.	R170A3	1 / nip
3	Discharging bars (supplier: Eltex)	The undesired charge of the substrate web – an inevitable result of the charging of the particles – is reduced or even eliminated by the two discharging bars.	R50	2 / CU (Coating unit)

#### Cable connections

Item	Designation	Connections on site (customer)	Type	Number
4	Mains cable generator	Wire end ferrules	KN/GD_ _ _ _	1 / generator
5	Enable cable charging from the protective circuit to the generator	Wire end ferrules	CS/AMO_ _ _ _	1 / generator
6	Enable cable discharging from the protective circuit to the generator	Wire end ferrules	CS/EMO_ _ _ _	1 / generator
7	Bar grounding PC (supplier: Eltex)	see details page 11	117174	1 / generator
8.1	Bar brackets for pos. 2 supplier: partly Eltex, partly by customer		machine-specific	1 / charging bar
8.2	Bar brackets for pos. 3 supplier: partly Eltex, partly by customer		machine-specific	1 / CU (coating unit)



## 2. Safety

The units have been designed, built and tested using state-of-the-art engineering, and have left the factory in a technically and operationally safe condition. If used improperly, the units may nevertheless be hazardous to personnel and may cause injury or damage. Read the operating instructions carefully and observe the safety instructions.

For warranty conditions, please refer to the General Terms and Conditions (GTC), see [www.eltex.de](http://www.eltex.de).

### 2.1 Identification of risks and hazards

Possible risks and hazards resulting from the use of the units are referred to in these operating instructions by the following symbols:



#### **Warning!**

This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in serious personal injuries.

#### **Caution!**

This symbol appearing in the operating instructions refers to operations which, if carried out improperly, may result in damage to property.

### 2.2 Proper Use

The MISTING TACKER MTS20 system may only be used for the purpose of reducing particle mist in printing and coating units. Charging and discharging bar are approved solely for use and operation with PCMT resp. HSG61 generator.

This ensures that:

- the maximum permissible charging voltage  $\pm 19$  kV is not exceeded,
- the maximum permissible discharging voltage of 5 kV AC is not exceeded,
- charging/discharging is not enabled until the release conditions are fulfilled (Chap. 3.1).

The manufacturers will not assume any liability and warranty if the system is used improperly or used outside the intended purpose.

Modifications or changes made to the system are not permitted.

Use only original Eltex spare parts and accessories.

## 2.3 Work and operational safety



### Warning!

Carefully observe the following notes and the complete [Chapter 2 "Safety", page 9!](#)

Please observe all safety notes of the separate operating instructions of the generator and the bars and always observe the rules and regulations applying in your country with reference to electrical appliances.

- Before installation, carrying out repairs, cleaning or maintenance work and before resetting the unit after malfunctions, switch off the high voltage generator and disconnect the mains power supply on all units and associated components (see [Chapter 3 "Installation and assembly", page 14](#), [Chapter 5 "Maintenance", page 26](#), [Chapter 6 "Troubleshooting", page 28](#)).
- The generator must be mounted in a safe zone and outside the explosion hazard area and must be operated only by trained and qualified electrical personnel.
- If electrically conductive substrates or substrates coated with conductive material (e.g. metal foil or metal composites) are used, the discharging voltage of the generator must be switched.
- Before carrying out any work involving the units, the machine which has the units fitted must not be in operation (see [Chapter 3 "Installation and assembly", page 14](#), [Chapter 5 "Maintenance", page 26](#), [Chapter 6 "Troubleshooting", page 28](#)).
- Any work involving the units must be carried out by qualified electricians (see [Chapter 3 "Installation and assembly", page 14](#), [Chapter 5 "Maintenance", page 26](#), [Chapter 6 "Troubleshooting", page 28](#)).
- A permanent grounding connection must be made and checked via the ground terminal before the startup of the generator. The ground cable should have a minimum cross section of 1.5 mm<sup>2</sup> and should be routed with the shortest possible distance to the machine frame. If the length of the cable is > 0.5 m, the cross section must be at least 2.5 mm<sup>2</sup>. The ground connection must be permanently ensured for the entire operating time of the generator (see operating instructions high voltage generator POWER CHARGER Chapter 3.2 "Ground connection", page 18).
- If the web infeed is activated, the discharging function must be disabled (see [Chapter 3 "Installation and assembly", page 14](#)).
- Do not enable the high voltage before a safe electrical contact is made between impression roller and transfer roller (see [Chapter 3 "Installation and assembly", page 14](#)).
- For the lift-off of the impression roller the protective circuit must be designed such that the enabling mechanism of the high voltage is switched off before the impression roller lifts off, i.e. before there is no

longer any contact with the substrate and the transfer roller (see [Chapter 3 "Installation and assembly", page 14](#)).

- The protective circuit devices must be installed separately for each coating unit. The proper function of the protective circuit of each coating unit must be checked before the start-up of the system (see [Chapter 3 "Installation and assembly", page 14](#)).
- A redundant release signal is required if the generator must comply with the safety requirements of DIN EN 13849. To this end, the two signals "Release +" and "Release -" must be transmitted via separate switching paths; hardwiring of the two release signals +/- is prohibited (see [Chapter 3 "Installation and assembly", page 14](#)).
- The maximum permissible distance of the charging bar to the transfer roller and the impression roller resp. the web is 15 mm, the distance recommended by Eltex is approx. 10 mm (see [Chapter 3.2 "Impression roller environment", page 17](#)).
- All conductive objects at a distance of less than 1 meter to the charging bar must be grounded, observe the maintenance notices (see [Chapter 3.2 "Impression roller environment", page 17](#)).
- Before activating the system the user must make sure that the installation and the connections are correct and functioning properly. The supply voltage can then be activated via the master switch of the machine (see [Chapter 4 "Operation", page 21](#)).
- Check the high voltage generator, all connected units, the electrical wiring and the high voltage cables at regular intervals for any damage. Any damaged components must be repaired or replaced before continuing to operate the unit, or the appropriate units must be disabled.
- In particular, make sure that the bars are clean at all times. Dirt on the bars may cause malfunctions and premature wear of the devices.
- Always connect or disconnect the high voltage connectors with the generator switched off and with the machine at standstill. In addition, the supply voltage to the high voltage generator must be interrupted.



• **Warning!**

If the MISTING TACKER system is switched off while the machine is running, any disconnected high voltage connectors must be grounded by qualified personnel! We recommend the use of our bar grounding PC, see Fig. 1, pos. 7. The bars passively absorb power from the running substrate web. This can lead to spark discharges at the high voltage connector and endanger personnel.

- Do not touch the emission tips of the bar if the high voltage supply is connected!

Reflex responses to electrical irritation may increase the risk of secondary accidents; the charging bar as such is safe to touch. If contact is made, the energy transferred is so low that there is no risk of injury.

- Potential risk for wearers of cardiac pacemakers:  
Moving the chest closer than 3.5 cm to the emission tips of the discharging bar or making surface contact with several emission tips (touching a single tip is not critical) can result in a temporary switchover of the cardiac pacemaker into the fault mode. Permanent proximity or contact can therefore cause severe problems. If it is likely that the chest of such a person comes closer than 3.5 cm to the emission tips of the discharging bar, or if several emission tips are touched at the same time, the appropriate warning notices must be displayed.
- The operation of the bars can generate ozone. The ozone concentration levels developing near the bars depend on many different factors such as site of installation, bar current and voltage, air circulation, etc., and can therefore not be specified in general terms.  
If the maximum allowable concentration of ozone must be observed at the site of installation of the bar, the concentration must be measured on site.  
The AGW value (maximum admissible concentration) serves to assess the ozone concentration at the workplace. The user must make sure that the appropriate national AGW value is at no times exceeded, e.g. in Germany the ozone concentration occurring during the operation of the system must not exceed the recommended value based on international limits of 0.06 ml/m<sup>3</sup> (0.12 mg/m<sup>3</sup>).
- **Charges developing on personnel**  
When working near the bars (<1 m), always wear conductive footwear. Please note all national regulations regarding electrostatic charge. (e.g. TRGS 727 in Germany, "Vermeidung von Zündgefahren infolge elektrostatischer Aufladung").

## 2.4 Contact protection

The site of installation and/or use of the units is outside the control of Eltex, contact protection against inadvertent contact of the bars and of live components by personnel as specified by the employer's liability insurance association may have to be provided (e.g. DGUV V3 in Germany). Contact protection devices made of conductive material must be grounded.

## 2.5 Inspection of the protective resistors - contact protection

The function and the appearance of the protective resistors must be inspected at regular intervals. The inspection intervals are specified in the accident prevention regulations, as amended (e.g. in Germany DGUV V3).

Please observe the notes of the separate operating instructions of the bars R170A3 resp. R50.

## 2.6 Technical advance

The manufacturer reserves the right to make changes to the technical specifications without prior notice in order to adapt the units to state-of-the-art engineering. Eltex will provide the latest information on any changes or modifications in the operating instructions on request.

### 3. Installation and assembly

#### 3.1 Protective circuit, enable signals

The protective circuit has the following functions:

Protective circuit installed by customer	Generator
Master switch of machine ON	Supply voltage ON
Machine speed >0 and coating unit engaged and web infeed not active	Enable discharging
Machine speed >0.4 m/s and no web break and no emergency stop and impression roller in working position	Enable charging

To guarantee the safe operation of the system in the coating unit, the following enabling conditions must be observed.

#### Web infeed active



#### Warning!

If the web infeed is activated, the discharging function must be disabled.

#### Impression roller contact



#### Warning!

Do not enable the high voltage before a safe electrical contact is made between impression roller and transfer roller.

For the lift-off of the impression roller the protective circuit must be designed such that the enabling mechanism of the high voltage is switched off before the impression roller lifts off, i.e. before there is no longer any contact with the substrate and the transfer roller.

This can be implemented by one of the following methods:

- use of hydraulic or pneumatic pressure switches which respond to the increase in pressure (back pressure) after setting down the impression roller, provided that this pressure is high enough.
- limit switches or initiators may be used if the impression roller is lowered mechanically, provided that an appropriate overtravel corresponding to the line pressure is available after setting down, e.g. via an eccentric shaft.

- The best possible option with respect to safety is a switch signal supplied by the machine manufacturer which indicates that the impression roller makes contact with an adequate line pressure.
- If the impression roller is allowed to lift off before the applied voltage is switched off, sparking may occur. This must be avoided at all cost.

### **Web break**

The charge enable function must be switched off by the protective circuit of all connected generators immediately after a web break occurs. Some machines allow the operator to continue in spite of the web break sensor responding (web break override). Blocking the enable function must be safeguarded in this case.

### **Minimum speed**

Since the speed in a machine with several coating units is the same in all coating units, it is sufficient to fit a speed-dependent switch (ramp function generator) which acts on the protective circuits of the individual generators.

The minimum printing speed for enabling the charging function is:  $>0.4$  m/s. Basically, the enabling function should set in just below the minimum production speed. After charging has been enabled, maintenance and cleaning work is no longer permitted! If necessary, charging should be enabled at higher speeds.

The speed for enabling the discharging function must be  $> 0$ .



### Caution!

The machine operator is responsible for the proper function of the protective circuits.

The protective circuit devices must be installed separately for each coating unit.

The proper function of the protective circuit of each coating unit must be checked before the start-up of the system.

### Protective circuit

A protective circuit of the following type must be implemented for each coating unit:

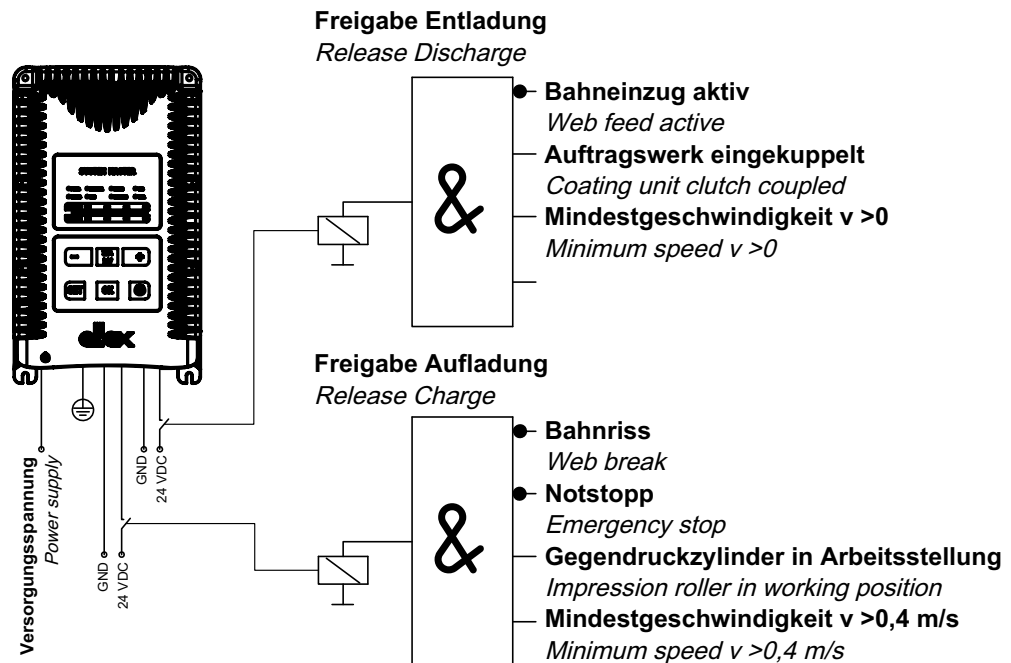


Fig 2:  
Protective circuit  
for each coating  
unit / nip with  
MTS20

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### Note!

Using AC power supply we recommend the following power protection for the external protection fusing of the generators: 6A; tripping characteristic D complying with DIN EN 60898-1 (VDE 0641-11).



A redundant release signal is required if the generator must comply with the safety requirements of DIN EN 13849. To this end, the two signals "Release +" and "Release -" must be transmitted via separate switching paths; hardwiring of the two release signals +/- is prohibited.



### 3.2 Impression roller environment

The impression roller is to be assembled by the machine operator.

The minimum distances are specified in the following table:

Element	Measure
Limit switch	Minimum distance from impression roller: min. 10 mm
Splash proofing	Minimum distance from impression roller: min. 10 mm Use plastic material if the distance is smaller. When operating the unit in explosive atmospheres, note the regulations concerning plastics (e.g. TRGS 727 in Germany).
Automatic cleaning device for impression roller and transfer roller	Guide shield and screws with a distance to the impression roller $\leq 5$ mm have to be replaced with plastic elements. <b>Caution!</b> Do not switch on the cleaning device as long as the MTS20 system is in operation.
Cowling over impression roller	The space required for the charging bar resp. the impression roller must be maintained to ensure proper cleaning.



The maximum permissible distance of the charging bar to the transfer roller and the impression roller resp. the web is 15 mm, the distance recommended by Eltex is approx. 10 mm.

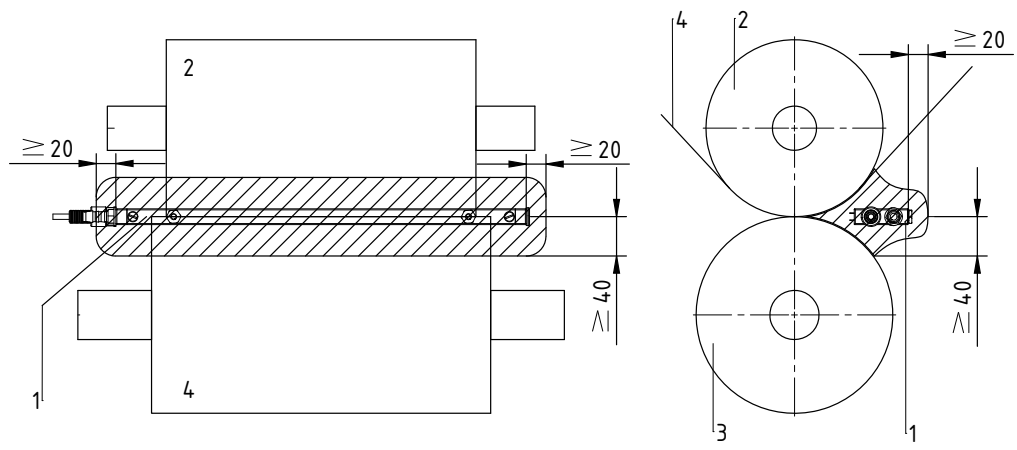
The immediate surrounding of the impression roller, of the transfer roller and of the charging bar must be free of conductive materials in order to avoid sparking and damage to equipment.



All conductive objects at a distance of less than 1 meter to the charging bar must be grounded, observe the maintenance notices.

The following figure shows the areas around the impression roller in which conductive materials can lead to malfunctions.

Fig. 3:  
 Keep the operating area of the impression roller, of the transfer roller and of the charging bar free of conductive material, shaded area = zone free of conductive material



- 1 Charging bar
- 2 Impression roller
- 3 Substrat web
- 4 Transfer roller

If isolated metal with a breakdown strength of the insulation of >30 kV is used, these objects can be mounted 10 mm closer to the impression roller and/or the bar than shown in the figure.

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### 3.3 Assembling the charging bar R170A3

Please observe the corresponding notes of the separate operating instructions of the charging bar R170A3.

### 3.4 Installation site and spacings for the charging bar

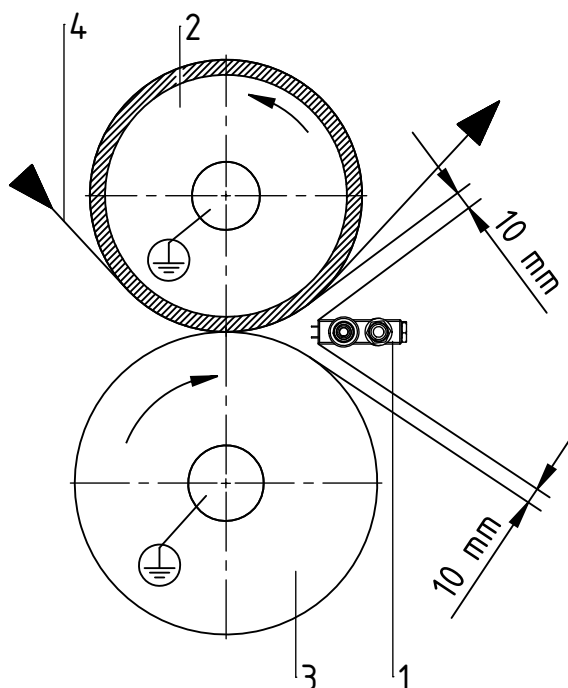


Fig. 4:  
Positioning the  
charging bar

- 1 charging bar
- 2 impression roller
- 3 transfer roller
- 4 substrate web

To avoid sparking between charging bar and grounded machine parts, minimum distances must be maintained (see Chap. 3.2 and Chap. 3.3).

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### 3.5 Assembling the discharging bar R50

Please observe the corresponding notes of the separate operating instructions of the discharging bar R50.

### 3.6 Installation site and spacings for the discharging bar

The discharging bar must be installed as shown in the figure.

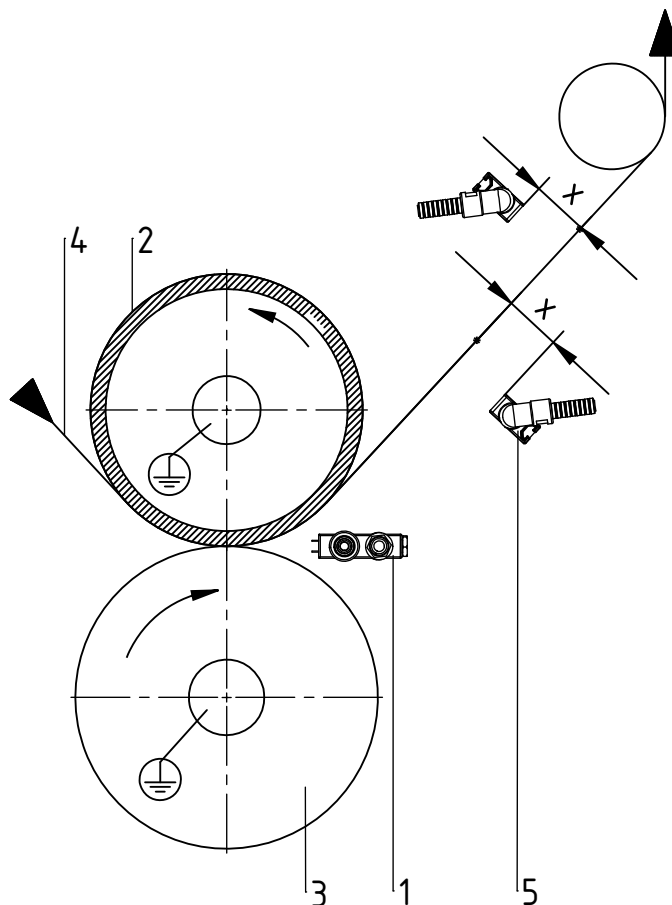


Abb. 5:  
Positioning the  
discharging bar

- 1 Charging bar
- 2 Impression roller
- 3 Transfer roller
- 4 Substrate web
- 5 Discharging bar

X The distance to the paper web surface should be in the range between 40...100 mm. The ideal distance is 70 mm.

### 3.7 High voltage generator

Please observe the corresponding notes of the separate operating instructions of the high voltage generator POWER CHARGER PCMT.

## 4. Operation

### 4.1 Startup



Before activating the system the user must make sure that the installation and the connections are correct and functioning properly. The supply voltage can then be activated via the master switch of the machine.

The operation of the generators is shown on each unit via the display message.

The master switches of the generator must be switched on at all times and are activated/deactivated via the master switch of the machine.

After activating the system, check the proper function of the protective circuit.

### 4.2 Operating voltage

The charging bar is operated at a high voltage of 5...±19 kV. Note that the correct distances between the emission tips and the roller/material surface must be observed; the distance must be at least 8 mm. The working range is shown in Fig. 6.

### 4.3 Operating mode

The bars are operated with a constant current, i.e. the required high voltage builds up automatically.

The current must not exceed 2 mA per meter of active bar length. For most applications < 1.5 mA/m are sufficient.

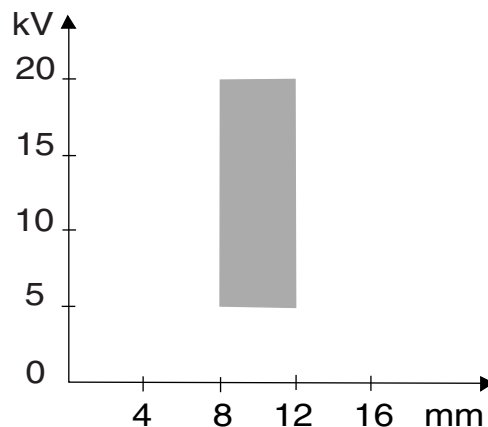


Fig. 6:  
Working range of  
the charging bar  
as factor of voltage  
and distance

*Example:*  
active charging bar  
length: 500 mm,  
max. rated current:  
 $1.5 \text{ mA/m} \times 0.500 \text{ m} =$   
0.75 mA

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## 4.4 Operating the system via the generator POWER CHARGER PCMT

Details can be found in the separate operating instructions of the generator POWER CHARGER.

### 4.4.1 Function and factory settings: Charge parameters

Function	Description	Setting options	Factory setting
Setpointt Voltage Charge	Setpoint of the high voltage Charge	1,500 V - 18,000 V in 0.1 kV-steps	18,000 V
Setpointt Current Charge	Setpoint of the current Charge	<ul style="list-style-type: none"> <li>• 50 <math>\mu</math>A - 3,750 <math>\mu</math>A PCMT/___L or PCMT/___S</li> <li>• 50 <math>\mu</math>A - 7,500 <math>\mu</math>A PCMT/___H</li> </ul>	50 $\mu$ A
Operating mode Charge	Selecting the operating state Charge	<ul style="list-style-type: none"> <li>• Voltage constant</li> <li>• MISTING TACKER</li> </ul>	MISTING TACKER
Current per Meter	Setting of the factor to calculate the current depending to the web width	0 $\mu$ A/m - 5,000 $\mu$ A/m	1,500 $\mu$ A/m
Web width	Setting of the actual web width	0 mm - 5,000 mm	0 mm
Ramp time	Start-up time of the high voltage Charge	100 ms - 10,000 ms	500 ms
Setpoint Charge	Optional setting of the setpoint Charge in percent for conversion into the absolute value	0 % - 100 %	1 %
Hard flashes Factor	Setting of the sensitivity for the detection of hard flashes	25 % - 40 %	25 %
Soft flashes Factor	Setting of the sensitivity for the detection of soft flashes	10 % - 25 %	10 %
Limit Flash counter	Limit for the dectection of errors or warnings of the respective flash counter	0 - 1,000 (0: detection switched off)	10
Nominal resistance value Charge	Optained, regulated resistance value of the charge for the detection of pollutions	0 k $\Omega$ - 1,000,000 k $\Omega$	0 k $\Omega$

#### 4.4.2 Function and factory settings: Discharge parameters (only for device variants with discharging)

Function	Description	Setting options	Factory setting
Setpoint Discharge	Setting of the setpoint of the discharging inpercent	0 % - 100 %	100 %
Operating mode Discharge	Setting of the mode discharge	<ul style="list-style-type: none"> <li>• Passive discharge</li> <li>• Active discharge</li> </ul>	Passive discharge
Parameter adjustment Discharge	Setting of the parameter adjustment to optimize the discharge	0 % - 100 %	0 %

#### Only for device variants with active discharge (PCMT/A and PCMT/C)

Setpoint Discharge	Adjustment of the voltage Discharge	3,500 V - 5,000 V	5,000 V
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#### Only for device variants with monitored discharge (PCMT/C and PCMT/P)

Active length discharging bar 1	Adjustment of the active length of the discharging bar 1	0 mm - 5,000 mm	0 mm
Active length discharging bar 2	Adjustment of the active length of the discharging bar 2	0 mm - 5,000 mm	0 mm

#### 4.4.3 Function and factory settings: General parameters

Function	Description	Setting options	Factory setting
High voltage Release Mode	Release mode of the high voltage	<ul style="list-style-type: none"> <li>Autostart</li> <li>Analog setpoint</li> <li>HMI</li> <li>Fieldbus</li> </ul>	Fieldbus
Pollution detection	Pollution detection of the charging and discharging bars	<ul style="list-style-type: none"> <li>OFF</li> <li>Charge ON</li> <li>Charge Calibration</li> <li>Discharge ON</li> <li>Discharge ON and discharge ON</li> <li>Discharge ON and charge calibration</li> </ul>	OFF
LED Bar Modus	Switching the view of the LED bar of the generator	<ul style="list-style-type: none"> <li>Voltage</li> <li>Current</li> </ul>	Voltage
Keyboard lock	Deactivating / activating of the keyboard lock for an adjustment directly at the generator	<ul style="list-style-type: none"> <li>Inactive</li> <li>Aktive</li> </ul>	Inactive (Stand-alone mode) Active (operation with ECC)

#### 4.4.4 Function and factory settings: Interface parameters

Function	Description	Setting options	Factory setting
Analog setpoint	Selection of the setpoint adjustment via analog interface	<ul style="list-style-type: none"> <li>OFF</li> <li>Current 0 - 20 mA</li> <li>Voltage 0 - 10 V</li> <li>OFF + limiter signal</li> <li>Current 0 - 20 mA and limiter signal</li> <li>Voltage 0 - 10 V and limiter signal</li> </ul>	OFF

#### Only for device variants with CANopen® - interface

<b>CANopen® node address</b>	Adjustment of the node address for the CANopen® network	1 - 127	99
<b>CANopen® baud rate</b>	Adjustment of the baud rate for the CANopen® network	10 kBit/s, 25 kBit/s, 50 kBit/s, 125 kBit/s, 250 kBit/s, 500 kBit/s, 800 kBit/s, 1000 kBit/s	125 kBit/s



#### 4.5 Operating the system via remote control Eltex Connected Control ECC (optional)

Please observe the separate operating instructions of the remote control Eltex Connected Control ECC, if you use the optional ECC remote control.

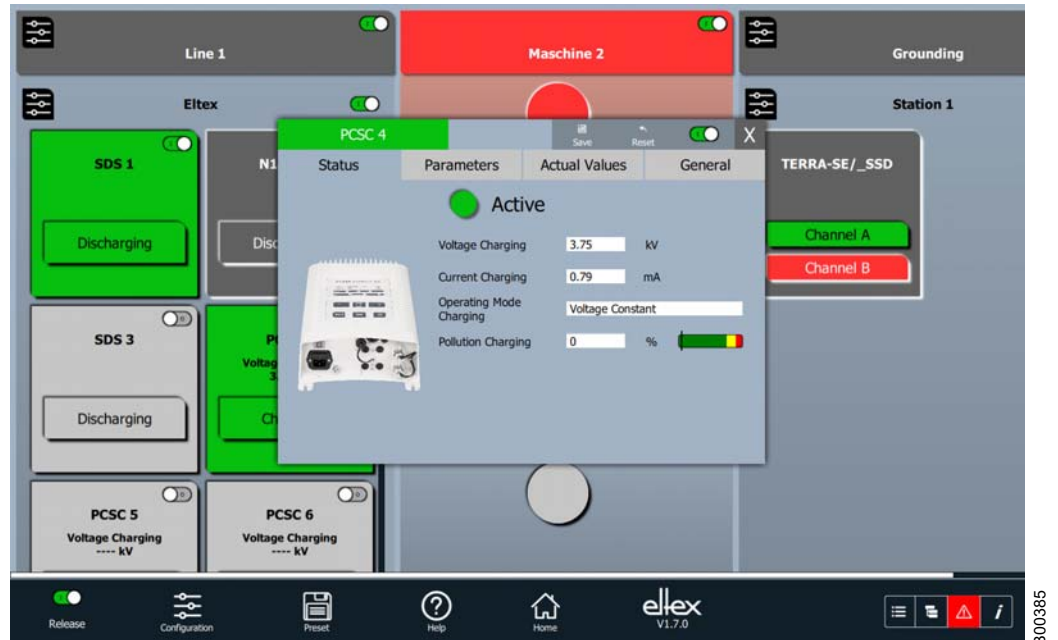


Fig. 7:  
Startup

All relevant settings can be carried out via the ECC remote control. All current process data, status and corresponding error or warning messages are displayed and the enabling or blocking of the high voltage as well as the acknowledgment of corresponding messages are possible. An individual view and optimal presentation are freely configurable and allow great operating comfort for any application.

#### 4.6 Operating the system via control desk

By supporting standardized fieldbus protocols, the system can be integrated directly into a machine network. Details for the integration into the control station or the machine control can be found in the separate device and protocol descriptions. Please also note the chapter "Installation" of the operating instructions of the POWER CHARGER generator.

## 5. Maintenance



### Warning!

Electric shock hazard!

- Do not carry out any maintenance or repair work without first switching off the high voltage and disconnecting the supply voltage.
- The machine which has the units fitted must not be in operation.
- The bars passively absorb energy from the moving substrate web. The high voltage cable must be plugged in or grounded to the generator. If the high voltage cable is disconnected, the plug is live (high voltage) and applies with full power on the plug; this may cause a spark discharge and may lead to a risk of injury. Disconnected high voltage plugs are not permitted or have to be grounded.
- Repairs and maintenance work must be carried out by qualified electricians.

### 5.1 Generator

The generator must be checked regularly to ensure its proper functioning. The cooling ribs must be kept clean and the connections of the high voltage cables must be free of dirt and other foreign matter. The intervals for the check depend on the application and must hence be defined by the user according to the operating conditions. The generator itself does not require any maintenance.

Please observe further notes in the separate operating instructions of the generator POWER CHARGER PC.

### 5.2 Bars



### Warning!

Risk of injury!

Do not touch the emission tips of the bars.

To ensure the proper and trouble-free function of the bars, clean the bars at least once a week using compressed air free of oil and water (max.  $6 \times 10^5$  Pa) and a brush with soft plastic bristles (see [Chapter 7 "Spare parts and accessories"](#), page 29).

Deposits of grease, glue, ink etc. on the bars must be cleaned off with the solvent normally used. Even a partial pollution of the bars means that ink mist can no longer be reliably prevented in the polluted areas. Do not immerse bars and high voltage cables in solvent!

If polluted heavily, clean the bars at shorter intervals. Remove any dust deposits and fluff from the bars or close to the bars.

Clean the bars with a suitable agent every time the machine is at standstill, even if the pollution monitoring function shows no error.

Clean bars will discharge much better, if bars are cleaned regularly, dirt can be removed much easier.

Please observe further notes in the separate operating instructions of the charging bar R170A3 resp. the discharging bar R50.

### **5.3 Inspection of the protective resistors - contact protection**

The function and the appearance of the protective resistors must be inspected at regular intervals. The inspection intervals are specified in the accident prevention regulations, as amended (e.g. in Germany DGUV V3).

Please observe the notes of the separate operating instructions of the bars R170A3 resp. R50.

## 6. Troubleshooting



### Warning!

Electric shock hazard!

- Do not carry out any maintenance or repair work without first deactivating the generator and disconnecting the supply voltage.
- The machine which has the units fitted must not be in operation.
- Repairs and maintenance work must be carried out by qualified electricians.

### Malfunction : decrease in efficiency

Cause	Remedy
Polluted charging bar / mounting	Clean the bars / mountings using compressed air free of oil and water and a brush with soft plastic bristles. Use a suitable solvent to remove dirt or grease. (see chap. 5 "Maintenance"). (No continuous sparking (electric arc) must be visible on the bar tips). <b>Caution!</b> Do not immerse the charging bar in solvent.
Defective charging bar	Check the charging element for any defects which may be caused by creepage currents. Replace the charging bar and install it to make sure that creepage currents can not develop. See chap. 3 "Installation and assembly".
Worn charging bar	Depending on application, the emission tips are subject to more or less wear and tear. If the tips have burnt down to a distance of 1 mm from the encapsulating compound, replace the charging bar.

## 7. Spare parts and accessories

Article	Reference code
Generator (design after consultations with ELTEX)	PCMT/___
Charging bar (specify active length of bar and cable, cable connection and plug type)	R170A3/___
Discharging bar (specify active length of bar and cable, cable connection and plug type)	R50/___
Mounting material for bars: slide nut with screws and washers	105826
Sliding nut with plastic	100876
Plastic screw M5x25	KSR00015
Bar mounting with bow	101075
Bar mounting with bow, with inserted nuts	108763
Bar grounding PC	117174
Plug Y Kit for prefabricating high voltage cable with flexible tube to connect the R170A3 charging bar to the PCMT generator (cable external diameter min. 6.55 mm) resp. modification set for charging plug Y	117985
High voltage cable with flexible tube from the generator PC_/_/ to the charging bar (max. 30 kV), specify cable length	KA/YY ___
Plug L Kit for prefabricating high voltage cable with flexible tube to connect the R50 discharging bar to the PCMT generator	103289
High voltage distributor, discharging, 4 terminals 1 high voltage cable, 2 outputs (specify plug and socket type and cable length)	ESVY61/___
Hexagonal crimper, 5.41 mm	102952
Interface cable analog interface generator, Charge, open cable ends on installation site (specify cable length)	CS/AMO ___

<b>Article</b>	<b>Reference code</b>
Interface cable analog interface generator, Discharge, open cable ends on installation site (specify cable length)	CS/EMO_ _ _ _ _
Mains cable generator open cable ends on installation site (specify cable length)	KN/GD_ _ _ _
Corrugated protective polyamide hose for the charging bar	MCH2184
Segmented plug	EML08600
Protective cover for R170A3 bars, L = 60 mm	115024
Cleaning brush with handle	RBR22
Operating instructions (specify language)	BA-xx-9055

Please specify the article number when ordering.



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