OPERATING INSTRUCTIONS

NELA PL-T

FULLY AUTOMATIC PLATE LOADER FOR CREO TRENDSETTER

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FOR CREO TRENDSETTER

Important instructions for safety:

The pneumatic device is configured for a maximum permissible pressure level of 10 bar. The operating power supply of compressed air must therefore be protected against an excess pressure of > 10 bar.
Operating pressure must not exceed 6-7 bar.

The NELA PL-T may be operated with a CREO Trendsetter only with a locked connection.

The side plates and the side doors as well as the control cabinet doors of the unit must be locked when operating the unit and may be opened or removed only in order to clear faults.

Switch off the unit's master switch and lock it in this position before removing the side panels and before opening the side doors as well as the control cabinet doors of the unit. Also disconnect the NELA PL-T from the compressed air network.

Never replace any units or components when power supply and compressed air are switched on.

When working on the machine with power and compressed air switched on, the general rules of technology have to be applied.

Do not remove protective grounding and make sure that any disconnected groundings are connected again.

When fitting any externally produced components which do not correspond to Brüder Neumeister GmbH's set conditions, these additional components must be controlled or fixed by the customer in to ensure that no hazards may result from operating the equipment.

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1 Details of Machine

1.1 Address of manufacturer

Brüder Neumeister GmbH
Gottlieb-Daimler-Straße 15
D-77933 Lahr
Germany

1.2 Type designation

NELA PL-T
Fully automatic plate loader for CREO Trendsetter
On the display the NELA PL-T is named “Preloader”.

1.3 Area of application (determined use)

Unpunched printing plates with or without slip-sheets are placed in the plate trolley with a paper basket. Once the plate trolley is positioned into the NELA PL-T, turn the selector switch to lock the plate trolley and the loader is switched to automatic operation mode. A request for plates from the CREO Trendsetter initiates the loading cycle:

- Printing plates are off-loaded from the plate trolley to the loader
- Slip-sheets are removed and deposited into a movable slip sheet disposal basket
- Printing plates are transported and positioned on the Trendsetter plate table

It can be used for the following plate sizes:

Single-width printing plates:	min.: 279 mm x 381 mm
	max.: 422 mm x 660 mm
Double-width printing plates:	min.: 451 mm x 381 mm
	max.: 1118 mm x 813 mm

The NELA PL_T is set to the formats required by the customer on delivery. Subsequent conversion or extension to other formats can only be carried out by NELA or authorised staff of partners of NELA.

1.4 Installing the appliance / main parts

A general drawing is enclosed as Enclosure 8.1.

The basic machine features the following main assemblies:

(1) Plate trolley
(2) Plate gripper
(3) Paper gripper
(4) Paper removal
(5) Keyboard with diagnostic display

(1) Plate trolley

The plate trolley is used to make the plates available to be processed. It accommodates 600 single plates or 300 double plates.
When changing the format, the stack guides must be adapted and the control must be informed of the new format via the display (see 4.4.2).

(2) Plate gripper

The plate gripper picks up one double plate or two single plates from the pile with vacuum suckers. Shaking prevents that several plates are gripped. The gripper then transports the plates(s) to the transfer position for the CREO Trendsetter (see 4.5)

(3) Paper gripper

The paper gripper removes the slip sheet and disposes it into the paper basket (see 4.5.4).

(4) Paper removal

The paper removal takes the slip sheet from the paper gripper and transports it into the paper basket (see 4.5.4).

(5) Keyboard with diagnostic display

Using the Siemens Simatic OP7 four-line diagnostic display, the operator can make settings, request of counter and obtain information on fault-elimination (see. 4.3.3).

1.5 Designation of work stations

During production, the machine functions automatically.
The operator works in the area in front of the front door in order to load printing plates in the NELA PL-T and in order to empty the paper trolley. In this position, the operator can switch on the unit and operate it.

1.6 Noise emission

The noise level measured in accordance with DIN 45635, Part 27 does not exceed a value of

L_{AI} = 75.0 dB (A)

1.7 Radiation, gas, vapour

No disturbing or noxious radiation, steams or gas are emitted by the machine.

1.8 Information on electrical equipment

Electrical work may be performed only by trained specialists.

	Europe	North America
Voltage:	230 V	208 V
Current consumption:	approx. 3,5 A	approx. 4,0 A
Frequency:	50 Hz	60 Hz
Control voltage, DC:	24 V	24 V

‣ Note:	Check that the mains voltage corresponds to your local supply voltage

The fuse elements, the power pack for the control voltage and the terminal strips for the power supply are located in the control cabinet on the right-side of the unit.
The machine features a stored program control (PLC) which is placed in the control cabinet at the right-hand side of the unit.

In conjunction with the PLC, the NELA PL-T has two pneumatic valve terminals. One is attached to the baseframe and the other is attached to the plate gripper.

Electrical equipment with a current consumption of maximum 2 A may be operated using the socket outlets in the control cabinet (for the servicing technician's laptop and measuring instruments etc. ...).

The program of the control is stored on EEPROM.

The program for operating the unit has been entered and tested at NELA. It can be modified only by specialists from NELA using a PC and the corresponding software.

The power pack for the discharge electrode (for discharging static charges, see 4.4.3) is placed on the baseframe, next to the valve terminal.

The electrical and pneumatic circuit diagrams are enclosed with the unit and another set will be sent to you separately.

1.9 Information specific to materials

There are no special details.

2 Information on Transport and Handling

The unit is supplied bolted to a special pallet. It can be transported on the pallet using a fork-lift truck or stacker truck to the intended location.

‣ Note:	Please use the support surfaces provided for the forks. The unit may tip over if it is picked up at other points.

3 Information on Setting-up the Equipment

3.1 Mounting and anchoring the machine

The machine is equipped with rollers, it **does not** have to be screwed or anchored to the floor.

3.2 Conditions for installation and assembly

The CREO Trendsetter must have already been installed in order to install the NELA PL-T.
The unit requires a sturdy and flat base surface.
The customer must supply an electrical power supply (see 1.8, 16 A fusing, by customers) and a compressed air supply (max. 10 bar).

Optionally, the NELA PL-T may be equipped with a modem. If the modem is used, there should be an analogue telephone connection near to the unit's place of installation.

‣ Note:	After transporting the unit to the intended location, remove the red transport safety strut beneath the baseframe. Remove the transport safety locks on the blow strip and on the paper gripper.

3.3 Space required for operation, servicing and maintenance

Please note that plates must be loaded in the unit using the trolley and that the removed slip sheets are disposed of.
The control cabinet and the sideboard with tools and setting gauges are located at the side. It must be possible to access both control cabinets for carrying out maintenance work.

3.4 Permissible environmental conditions

The loader must only be operated in dry, dust free rooms.
Operating temperature range: + 10° C to + 35° C
Air humidity: at least 55 % relative humidity
The lighting conditions depend on the processing instructions of the printing plates used.

3.5 Power and air supply

Power supply: 230V Alternating current in Europe resp. 208 V in North America
16 A Fuses by customers
Compressed air: max. 10 bar (dry, clean, oil-free)

‣ Note:	The installed connecting lines have to be protected against damage. They also must be protected in such a way that nobody can stumble over them.

3.6 Safety measures

Check the following points before commissioning:

- The compressed air operating circuit must be protected against an excess pressure of > 10 bar.
- The supply voltage must correspond to the mains voltage specified on the type plate.
- The transport safety locks must be removed.
- The protective ground (PE) connections must be firmly connected.
- The front door and the control cabinet doors as well as the side doors have to be closed.
- The side panels must be fitted.
- The panels to the exposer must be fitted and secured.
- It must be ensured that the installed connections are protected against damage and that nobody can stumble over them.

4 Details on application of equipment

4.1 Requirements for the printing plates and the slip sheet

The unit is designed to handle printing plates with a thickness between 0.2 mm and 0.4 mm. The plates must not be punched or bend. The plate formats are defined according to the information on the installation plan.

The slip sheet must weigh 35 g/m^2 to max. 50 g/m^2 and should be as pervious to air as possible. The size, at maximum, may be identical to that of the plate or maximum 5 mm smaller.
The brightness of the slip sheet must not be above the densitometric value of 0.55, measured with a reflection densitometer which has been placed onto slip sheet on a plate.
It must not be coated on any sides.

‣ Note:	The paper must not stand out from the side of the plate pile. This will otherwise result in operational errors.

4.2 Set-up operation

Checking the compressed air/pressure setting

Connect the unit to the compressed air supply by using the plug-in coupling mounted to a compressed air tube on the service unit.

Check the pressure reading on the pressure gauge on the combined service unit. the operating pressure is 6 bar and is already set at the works.

4.3 Function of the operator's controls

4.3.1 "On/Off" main switch

The main switch switches the power supply on and off. It is located on the operating panel fitted to the front side.
Each time after switching on the unit, the control has to be switched on by pressing "quit" (see 4.3.5).

The green pilot LED of the key  then light.
The display shows:

Preloader
Data transfer
starting time on
PLEASE WAIT

The NELA PL-T is referred to as the "Preloader" on the display.
After completion of the commissioning time (data transfer time) of approx. 10 seconds, you will see the following:

(actual format)	paper
Format selection	F1
Operations	F2
Settings	F3

The NELA PL-T is ready for operation.

The word „paper" next to the currently set format indicates that printing plates with slip sheets are processed (setting see 4.4.2 format selection).
No indication next to the current format means that printing plates without slip sheets are processed.

With „Format selection" menu (key ) the plate size can be chosen.

The “Operations” menu (key ) allows the operator to make settings and to request information.

The “Setting” menu (key ) is locked with a code and is used by an authorised servicing technician to change fundamental settings.

4.3.2 Safety facilities

The main switch can also be used as EMERGENCY-STOP button.

By opening the front door the machine is carried into a safe status by a safety switch.
No dangerous movements can occur.
The following error message is shown in the display:

```
error 4.35
front door
  open
```

To eliminate malfunctions see 4.8 Error detection and elimination

If the NELA PL-T in operating status is disconnected from the Trendsetter, the NELA PL-T is carried into a safe status by a safety switch.
No dangerous movements can occur.
The following error message is shown in the display:

```
error 4.36
  Preloader
is not positioned
at the exposer unit
```

To eliminate malfunctions see 4.8 Error detection and elimination

4.3.3 Keyboard with Diagnostic display

By using the Siemens Simatic OP7 four-line diagnostic display, the operator can select formats (see 4.4.2) and set the discharge time or waiting time, see 4.4.3 and 4.4.4).

The operator can have displayed the number of plates fed and the total number of plate loading operations using the “Counter function” (see 4.4.5).

In case of error messages, the operator is provided with information on fault elimination (see 4.8).

4.3.4 Selector switch „Load“ / „Standby“ / „Auto“

(1) Selector switch position: “Load”
Choose switch position “Load” to enter or run out the trolley
for plate loading (see 4.4.1) from or into the NELA PL-T.
This position can be selected from position “Standby” or position “Auto”.

(2) Selector switch position: “Standby”
The unit moves to its initial position when this switch position is selected.

(3) Selector switch position: “Auto”
Choose switch position “Auto” in order to signal that the NELA PL-T is ready for the automatic production sequence (see 4.5).
This position can be selected from position “Standby” or from position “Load”.

4.3.5 „quit“ button

By pressing this key the control and the variations can be acknowledged.

4.3.6 Handle „locked" / „unlocked"

‣ **Caution:**	**The NELA PL-T can only be operated with a CREO Trendsetter with the connection locked.**

Set the handle to position "locked" in order to lock the NELA PL-T to the CREO Trendsetter.
Set the handle to position "unlocked" if you wish to separate the NELA PL-T from the CREO Trendsetter.

4.3.7 Maintenance switch

This key switch is placed in the control cabinet and only authorized and trained staff is allowed to access.
The key switch allows to operate the NELA PL-T without being locked to the CREO Trendsetter.

‣ **Caution:**	**Risk of contusion with moving parts.** **Only authorized and trained staff is allowed to operate the maintenance switch.**

4.4 Preparations for operating the NELA PL-T

4.4.1 Load NELA PL-T with printing plates

4.4.1.1 Unlock trolley

Select switch position “Load” to run out the plate trolley for plate loading from the NELA PL-T and to re-enter it.

‣ **Caution:**	**Risk of contusion when lowering the trolley** **Do not place your feet or other parts of the body between the trolley rollers and floor during lowering.** **Risk of injuries.** **Please note the warning sign:**



‣ Note:	It may take up to 15 seconds to lower the plate trolley depending on the height of the stack.

‣ Note:	The electric motor for lifting and lowering the stacker plates is not designed for constant operation. Avoid moving the plate pile to basic setting level and then back to loading position several times in quick succession.

There is a rotary lever on the front side of the plate trolley. This lever can be used to unlock and relock the handle used for adjustment.

4.4.1.2 Moving trolley out of machine

Run out the paper trolley and then the plate trolley.

4.4.1.3 Place plates in trolley

Remove all packings from the plates in order to place them into the trolley.

‣ Note:	Ensure that no other materials, e.g. packing materials or cardboard layers, enter the unit since this could lead to operating malfunctions.

A maximum of 600 single plates, (300 per pile, see (1) Placing single plates) or 300 double plates (see (2) Placing double plates) can be placed with the coated side upwards.

‣ Note:	After loading, the pile must be shaken up manually (fan-like). Appropriate protective gloves should be used in order to avoid cutting the hands.

‣ Note:	The paper must not stand out at the side of the plate pile since, this could lead to malfunctions. It is advisable to also remove the top slip sheet since it could cause a disturbance.

(1) Placing single plates

The single plates are distributed on two piles.
The individual piles must not exceed 300 printing plates.

‣ Note:	The difference between the pile height can be max. one printing plate. Otherwise, this could cause disturbances.

(2) Placing double plates

The double plates must lie on one pile.
The pile must not exceed 300 printing plates.

4.4.1.4 Enter trolley into machine

Enter the plate trolley fully into the basic machine.
Also enter the paper trolley fully into the space beneath the plate trolley.

4.4.1.5 Protect plates in trolley from light with plate cover

If you run out a loaded trolley from the NELA PL-T and place it somewhere else, it is advisable to cover the trolley with the supplied covers. It protects the printing plates against the effects of light.
The covers must be removed again before entering the trolley back into the NELA PL-T.

4.4.1.6 Emptying paper trolley

Ensure that the paper trolley is emptied regularly.
The paper trolley can be emptied during operation.

Move out the paper trolley, remove the collected slip sheets and re-enter the paper trolley fully into the space beneath the plate trolley.
The removed slip sheets drop onto the floor while the paper trolley is being emptied.

Paper can also be removed with the paper trolley pushed in.

4.4.2 Select plate format

The NELA PL-T is set for processing the formats requested by the customer.
If the format is changed, the stack guides of the plate trolley must be adapted and the new format must be slected via display.

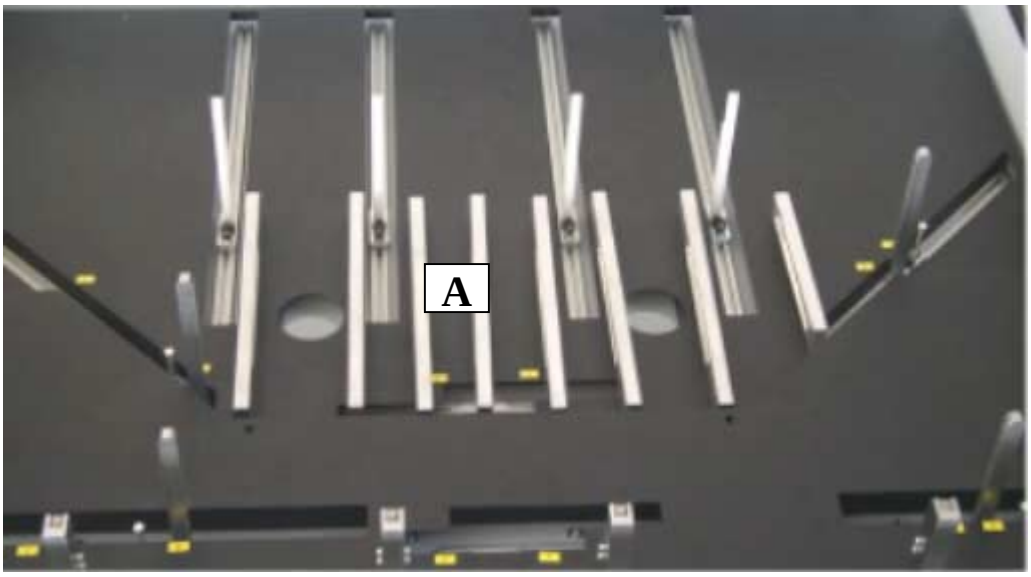
(1) Adapting the stack guides of the plate trolley to the new format

‣ Note:	After chosing a new format the positioning of the new plates has to be checked. **The maximum tolerance for plates and stacking guides is 2mm.** **If there is any kind of deviation to this 2 mm tolerance, disturbances will occur.**

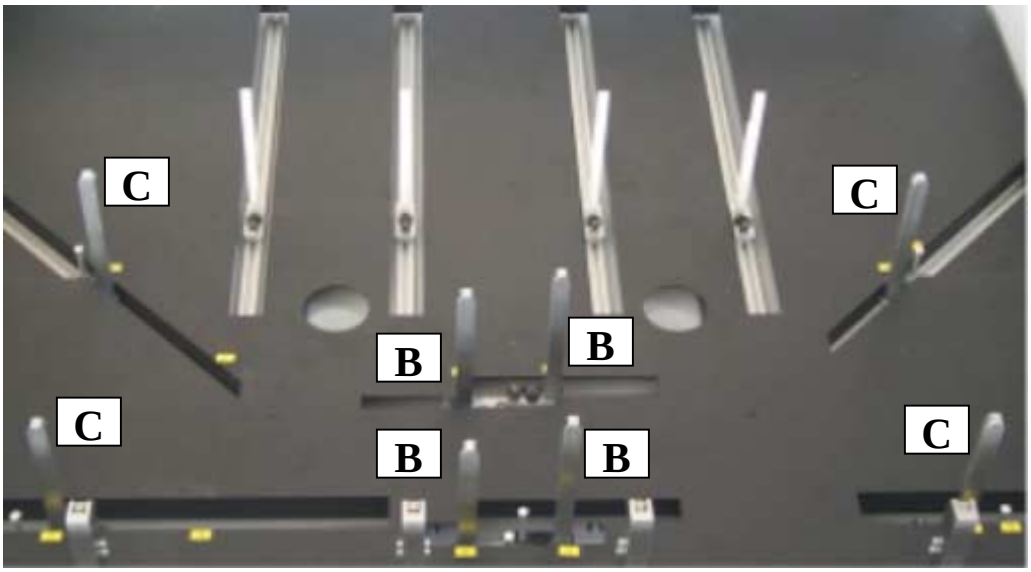
Example: Retrofit of double to single plates:

- Remove all plates from the plate trolley

Plate trolley without the double plates removed:



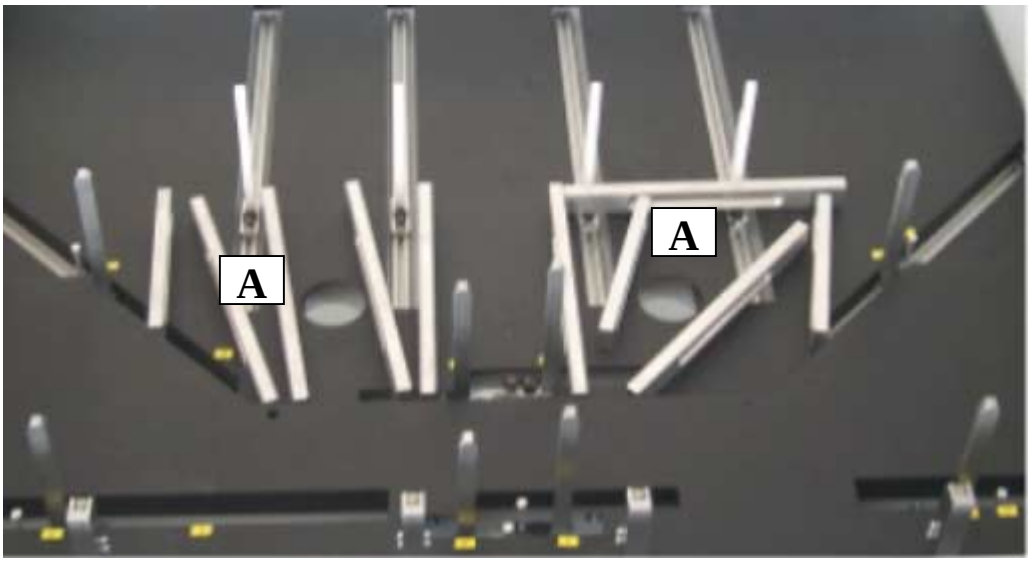
- Remove all plate supports (**A**) (seven long plate supports and one short plate support in the picture)



- Place the four stack guides between the two piles of plates (**B**) into the rails and slide them until the pins engage. Then tighten the clamping screws using the supplied spanner

- Loosen the clamping screws of the lateral stack guides, raise the bolts and slide the guides (**C**) until the bolts engage. Then retighten the clamping screws

- Put back the plate supports (**A**)



‣ Note:	The plate supports must not stand out over the two holes in the bottom of the plate trolley and must not stand out at the side beyond the size of the plate. Otherwise, there is risk of disturbance.

- Placing two piles with single plates

‣ Note:	The two piles of plates must have the same height level (maximum possible deviation, one plate). Otherwise, this could result in disturbance.

(2) Select format through display of control

When switching to “Format Selection”, the display shows:

Format selection (act. format) paper yes Scroll with SHIFT and arrows up & down

By pressing the key 

and afterwards  or  a memorized format can be chosen.

By pressing 

the selected format can be acknowledged.

After that with key  you can switch to selection with or without slip sheet.
When using printing plates with slip sheets „paper yes“ must be set on the display.
When using printing plates without slip sheets „paper no“ must be set on the display.

Switching between „paper yes“ and „paper no“ is done with keys 

and  respectively .

Quit the display page with the key 

.

‣ Note:	Up to 12 different formats can be stored in the NELA PL-T. Please contact NELA if you wish to process other formats on the exposure line.

‣ Note:	**Disturbances will occur** if the the plate format is not memorized or if the chosen format does not fit with the plates inserted.

4.4.3 Setting of discharge time

Only trained persons can set the discharge time.

(1) Explanation of the discharge time

During the automatic production sequence (see 4.5), a nozzle lip and a discharge electrode are used to blow ionised air between the raised plate and plate pile.
This reduces possible static charging of the slip sheet and thus prevents the printing plate and paper of sticking together.
The time during which ionised air is blown is referred to as the discharge time.

Depending on the static charge of the slip sheets in use which can cause malfunctions, the discharge time can be increased to stabilize the plate loading process.

‣ Note:	Increasing the discharge time will increase the cycle time accordingly. You should thus reset the discharge time when processing plates with static charge.

(2) Setting the discharge time

Switching to “Operator Values” shows the following:

User settings	
Input discharging time	3 sec
pl. ready time	30 min

You can enter a time between 1 and 10 seconds on the keyboard and confirm with 

.

Then quit the display page with 

.

4.4.4 Set waiting time

This (waiting) time indicates how long the plate gripper is to hold a plate ready at the support table of the CREO Trendsetter.

Switching to “Operator Values”, shows the following:

User settings	
Input dis-	
charging time	3 sec
pl. ready time	30 min

You can enter a time between 1 and 30 minutes on the keyboard and confirm this with 

.

You can then quit the display page with 

.

4.4.5 Counter

Switching to “Counter”, shows the following:

Plates counter	
Handled:	15
Requested:	15
Total:	15

Plates fed:
Number of work cycles (in the case of single plates, 2 plates are fed per work cycle!) since last loading.

Plates requested:
Number of requests from the CREO Trendsetter since last loading.

Total:
Number of plate loading operations since the unit was delivered.

4.5 Automatic production sequence

The NELA PL-T is loaded with plates and the selector switch is set to "Auto".
The format to be processed and a counter indicating the quantity of plates fed are shown on the display:

Actual Format aaa x bbb Number 0

The quantity is reset to 0 each time this state is quit.

The following is then shown directly after setting the selector switch to position “Auto”:

4.5.1 Pick-up plate from the pile

The plate gripper moves to the plate (two plates if processing single plates. In the further course it will always be referred to as one plate) and sucks it with suction cups.
The plate is raised continuously through approx. 5 mm.
In order to detach the plate from the stack, it is shaken several times while sucked on. When processing plates without sleep sheet paper, additional air is blown in between the plates for better detachement.

Ionised air is blown between the raised plate and the plate pile in order to reduce the paper’s static charge. (Setting the discharge time, see 4.4.3).
The plate gripper moves up with the plate. After travelling approx. 25 mm, it stops for 1 second in order to prevent the slip sheet also being pulled up. It then moves to the highest possible position.

4.5.2 Checking of multiple plates

In this position, it is checked if more than one plate was detached from the pile.
This check is performed with the aid of special device (so-called multiple plate detector).

If more than one plate is removed from the pile, the plate gripper puts it back and tries once again to pick up the plate and detach it..
If this second attempt fails two additional pressing down devices hold the top plate down in the corners.
If the third attempt fails the automatic production sequence is stopped and a fault message is shown on the display (see 4.8 Fault detection and fault elimination).

If the check indicates that only one plate is attached to the plate gripper, the sequence runs normally.

4.5.3 Checking if slip sheet is still stuck underneath the picked-up plate

During transport, the plate moves over a sensor which checks whether there is still a slip sheet underneath the plate.

If there is still a slip sheet on the plate, the automatic production sequence is stopped and a fault message is shown on the display (see 4.8 Fault detection and fault elimnation).

If the check indicates that there is no slip sheet underneath the plate, the sequence runs normally.

4.5.4 Slip sheet removal

When the plate has been removed from the pile, a sensor checks whether there is a slip sheet left on the top plate.

If a slip sheet must be removed, the paper gripper moves to working position. Using suction cups, it sucks on the slip sheet in the front area. The shaft then turns, the paper gripper moves back and transfers the picked up slip sheet to the paper transport device which conveys it into the paper trolley.

If no paper needs to be removed, the paper gripper stops in its initial position.

4.5.5 Plate ready for the CREO Trendsetter

If the checks in 4.5.2 and 4.5.3 indicate no deviations, the plate gripper reaches the waiting position in front of the support table in the CREO Trendsetter and waits there for a plate request.

4.5.6 Waiting for a plate request from the CREO Trendsetter

If the NELA PL-T receives a signal from the CREO Trendsetter indicating that it requires a plate, it deposits the plate on the support table of the CREO Trendsetter (see 4.5.6.1).

If this signal does not arrive during a certain time which can be set by the customer (set the waiting, see 4.4.4), the plate gripper moves back and deposits the plate back on the pile (see 4.5.6.2).

4.5.6.1 Depositing the printing plate on the plate table in the CREO Trendsetter

The plate gripper deposits the printing plate on the plate table in the CREO Trendsetter.
The plate gripper then moves back in order to fetch the next plate from the stack (see 4.5.1).

4.5.6.2 Depositing the printing plate back on the plate pile

The plate gripper deposits the plate back on the plate pile and waits in its initial position for the next plate request from the CREO Trendsetter.
When this request arrives, the sequence starts again by picking-up a plate from the pile (see 4.5.1).

4.6 Information on remaining hazards

The operator is protected against all dangerous movements if the unit is used as intended (see Page 1, **Important instructions for safety**).

Caution: **Risk of contusion when lowering the trolley**

Do not place your feet or other parts of the body between the trolley's rollers and the floor during lowering.
This could result in injuries.
Please note the warning sign:



4.7 Information on unauthorised use

Caution: **Do not allow the unit to be used inappropriately**
The unit will be damaged or malfunctions will occur if printing plates whose thickness does not lie between 0.2 mm and 0.4 and/or printing plates other than the printing plates specified in 1.3 are used.
The same applies if using slip sheets with characteristics other than those described in 4.1.

4.8 Error detection and elimination

The corresponding error messages are stored in the control of the NELA PL-T for the possible errors.
There is a help text for each error message, to assist the operator in error elimination.

4.8.1 Error detection

If a malfunction has occurred, the lamps at the top left and right at the corners of the housing start to blink.
A message (which also blinks) indicating the error number and a brief description of error is shown in the display.

The following LEDs on the keyboard indicate a malfunction or a Help text:

The Fault LED  at the right-hand edge of the keyboard starts to blink.

The Information LED  starts to blink thus indicating that there is a Help text for this error.

Call the Help text with 

.

4.8.2 Error elimination

There are two types of errors:

(1) Errors necessitating removal of the plate trolley (“Load”) and checking of the plate pile.
(2) Errors which can be eliminated by moving to initial position (“Standby”) with no intervention on the part of the operator.

The fault elimination sequence is always the same:

(1) Call the Help text with 

.

(2) Follow the instructions in the Help text.

(3) Quit the Help text display with 

.

(4) Acknowledge the error message on the display with 

.

‣ Note:	If various errors have occurred, this elimination mode has to be carried out as long as the malfunction LED is illuminated.

‣ Note:	If the error message is reset by pressing **ACK**, before help index is called, press **ESC** several times to get back to the error message.

4.9 Details on personal protection equipment

The operator need take no further personal protection measures if the unit is used as intended.

5. Information on maintenance

5.1 Type and frequency of services

> **Caution:** **Switch off the main switch and lock it before unlocking the NELA PL-T and the CREO Trendsetter and before removing the side panels or opening the control cabinet doors. Also disconnect the unit from the compressed air supply.**

5.1.1 Maintenance work, weekly

- Check the operating pressure (6 bar) (check that the pressure value is correct and that the pressure is constant)

5.1.2 Maintenance work, monthly resp. if needed

- Clean the discharge electrode with compressed air and a plastic brush.
- Empty the water separator's glass tank.
- Check the silencers on the pneumatic components and, if necessary, blow them through with compressed air or renew them.
- Inspect the suction cups for damage.
- Clean the cam track.
- Lubricate the lubrication nipples on the carriages of the linear guides (grease type: "multi-purpose grease" / lubrication nipple: "Type H").
- Check all tooth belts for wear and damages.

5.2 Addresses of importer and service workshops

In Germany, servicing work is performed by the manufacturer (see 1.1) or the manufacturer's sales partners. Abroad, customers should contact the manufacturer's sales partner. Please contact your supplier if necessary.

Most of the pneumatic components in this unit are manufactured by Messrs. FESTO. The addresses of the FESTO branch offices worldwide are listed in Enclosure 8.3.

6 Safety information relevant to putting out of operation and disassembling of equipment

Switch off and lock the master switch.
Unlock the NELA PL-T from the CREO Trendsetter and disconnect it from the electrical power supply and compressed air supply.
Disconnect the signal connection between the units.

Fit transport clamps for transport (see 3.2).

‣ Note:	Please read the notes provided in chapter 2 when transporting the machine.

7 Information relating to emergencies

7.1 Rescuing people from dangerous situations

By improper using of NELA PL-T ,safety facilities (see 4.3.2),covering sheets and covers this might be a source of danger for the staff.

In an emergency, the unit can be shut down by switching off the main switch.

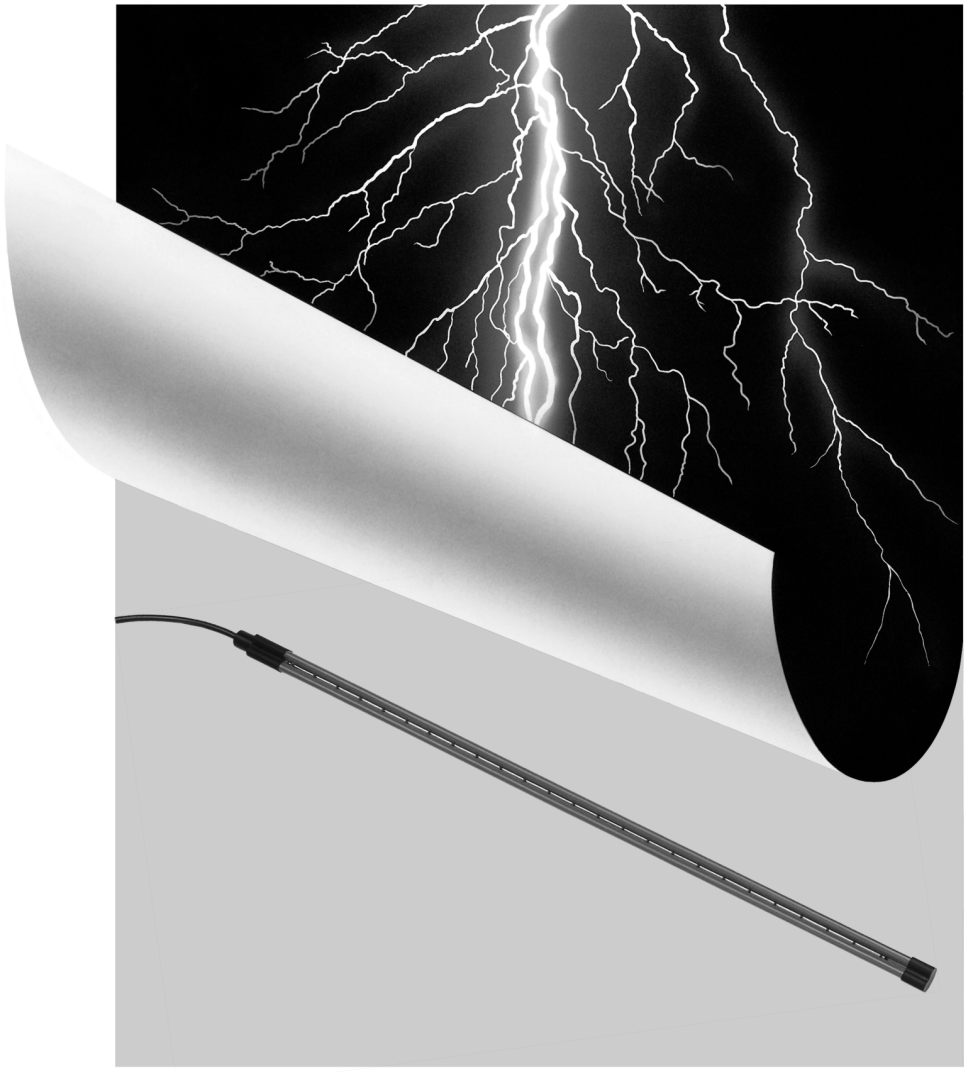
ANNEXES

8.1 Overview drawing of machine

ANNEXES

8.2 Operating and maintenance instructions of the discharge electrode and its power supply

Operating Instructions



Serie R45 Discharge Bar

for AC Operation

BA-e-2045-00/08

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- 4.1 Startup
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5 Maintenance

6 Troubleshooting

7 Warranty

8 Technical specifications R45

9 Spare parts and accessories

1 Outline of appliance

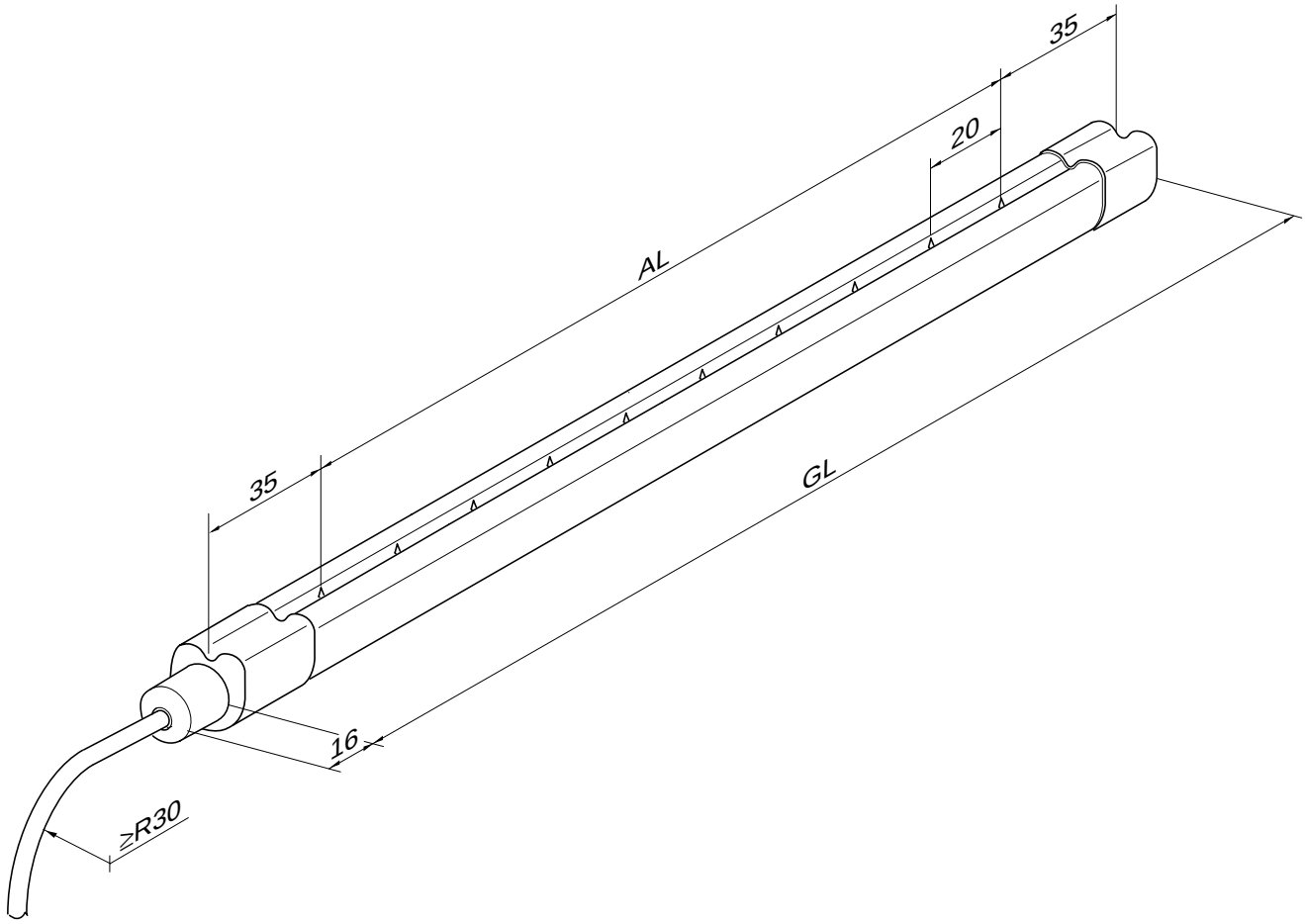


Fig. 1: Overview and dimensions of the R45 discharge bar
AL = active length
GL = total length

max. active length = 1600 mm
Grid width emission tips 20 mm
non-detachable connection of the high voltage cable
axial design

Dear customer,

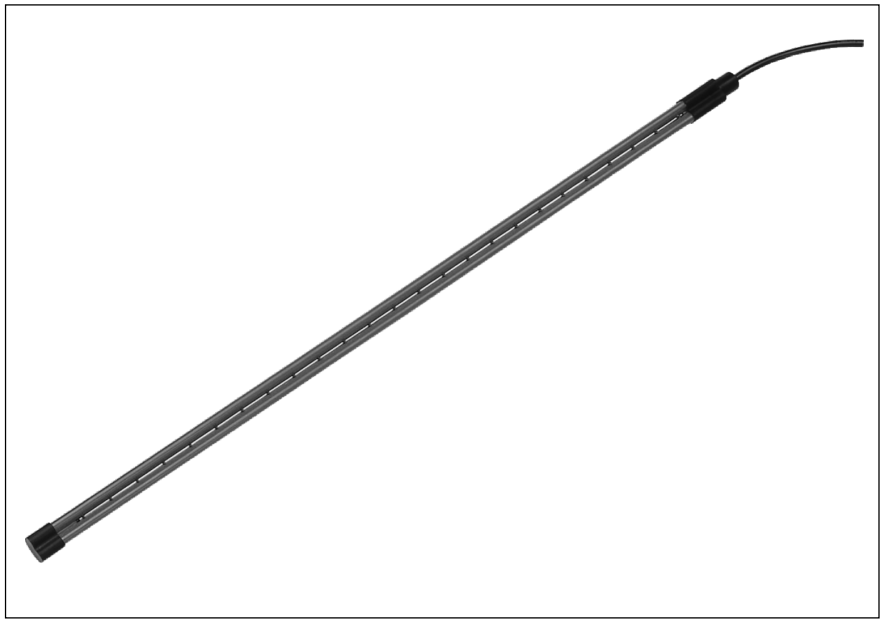
The new Serie R45 discharge bar is designed for the active discharging of disruptive static charges which develop in production processes. The bar is operated with an alternating voltage of 5 kV at 50…60 Hz and is designed for discharging moving surfaces.

Due to differences in the surface charge profiles on different materials, charges with both polarities are provided by the discharge bars. The corona section with its optimized geometrical configuration ensures ultimate discharging efficiency.

The advantages of the R45 discharge bar:

- ultimate discharge range and hence enhanced depth effect
- high active discharge power through isolated ground conductors
- high safety standards through passive discharging power with deactivated power supplies
- safety through function and error monitoring in connection with the appropriate power supply
- continuous assembly slotting guarantees flexible installation
- no health hazards in case of electric shocks when making contact with the tips.

The optimum discharge effect is guaranteed in conjunction with the Eltex high voltage power supplies.



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

Please 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.

2 Safety

The Serie R45 discharge bars 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 bars may nevertheless be hazardous to personnel and may cause injury or damage. Read the operating instructions carefully and observe the safety notices.



Warning!

Do not touch the emission tips of the discharge bars when the supply voltage from the power supply is switched on. Always disconnect the supply voltage to the power supply before carrying out any cleaning or maintenance work.

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

2.1 Proper use

The Serie R45 discharge bars must be used only for discharging static charges from material surfaces. Other uses are not permitted.

The discharge bars must be operated only together with the dedicated Eltex power supplies. These power supplies guarantee the optimum adaptation to the required operational data for the different active bar lengths. Safe operation of the bars is ensured only by using the Eltex power supplies.

Modifications or changes to the discharge bars are not permitted.

Use only original Eltex spare parts and equipment.

2.2 Identification of risks and hazards

Possible risks and hazards resulting from the use of the ion blower heads and the ion blower pistol are referred to in these operating instructions with the following symbols:



Warning!

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



Caution!

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

2.3 Work and operational safety



Warning!

- Check the discharge bars and the high voltage cables at regular intervals for any damage. Damaged components must be repaired or replaced before continuing to operate the unit, or the bar or cable must be disabled.
- Keep the electrode bars clean at all times.
- Before carrying out repairs, cleaning or maintenance work and before resetting the unit after malfunctions, switch off the power supply and disconnect the supply voltage.
- Do not touch the emission tips if the high voltage supply is connected. Reflex responses to electrical irritation may increase the risk of secondery accidents, especially in the vicinity of unguarded rotating assemblies. Persons with cardiac pacemakers are always at risk from high voltage and should take extreme care.
- Mechanical or electrical modifications of the discharge bars are not permitted. Shortening the shielded high voltage cable on the connecting side of the power supply is permitted. Extending the cable is permitted only when using the Eltex distributor as well as original high voltage cables and glands.
- Any work involving the units and the discharge bars must be carried out by qualified personnel.
- The operation of the electrodes can generate ozone. The ozone concentration levels developing near the electrodes depend on many different factors such as site of installation, electrode stream and voltage, air circulation, etc., and can therefore not be specified in general terms.
  If the maximum allowable concentration (MAC) of ozone must be observed at the site of installation of the electrode, the concentration must be measured on site.



2.4 Contact protection

As the site of installation and/or use of the units is outside the control of Eltex, contact protection against inadvertent contact by personnel as specified by the employers' liability insurance association may have to be provided.

2.5 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 Assembling the discharge bar

The series R45 discharge bar is attached to the machine using the assembly clamps enclosed. Fig. 2 shows the bar with the assembly clamps and the required installation distances.

Depending on use, other attachments and fittings (e.g. threaded holes in the machine wall) are also allowed.

Caution!

Observe adequate creepage paths!

The minimum distance between the emission tip brackets and the conductive machine environment must be 20 mm.

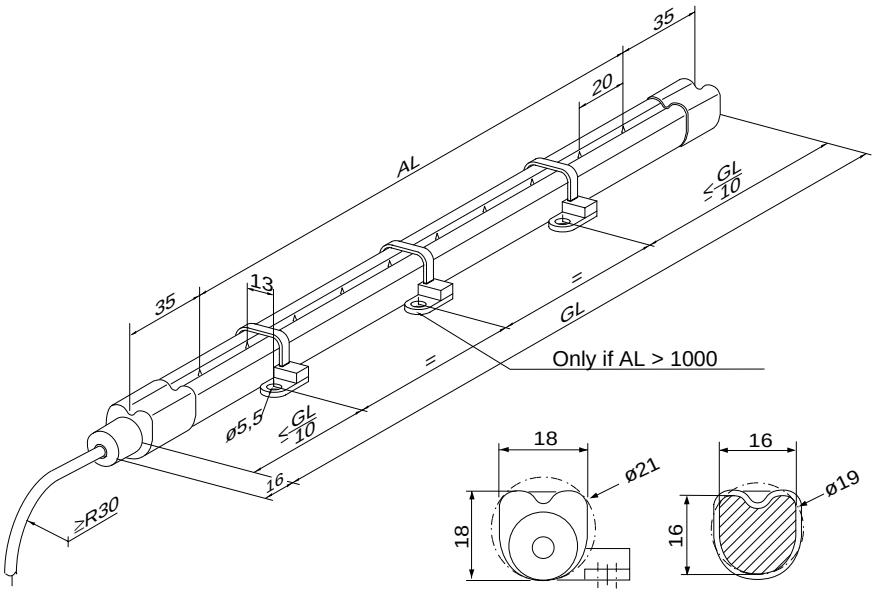


Fig. 2: Assembly R45 *discharge bar*

Locating the discharge bar

The best possible discharge results are achieved if the bar is located in areas with minimum web capacities. In practical terms this means placing the bar with maximum distances from the machine environment, i.e. no installation of the discharge bar at idler rollers.

A rough guideline:
A cylindrical space with the radius R of the bar distance from the web ought to be kept free of any metal.

Depending on application, the distance between discharge bar and substrate ought to be 15...100 mm.

Warning!

Depending on site of use, suitable measures must be taken to safeguard against inadvertent personnel contact with the discharge bar (contact guard/protection as defined in the pertinent employer´s liability insurance regulations).

Contact protection made of insulating material such as GRP or similar is recommended. Contact protection devices made of conductive material must be grounded.

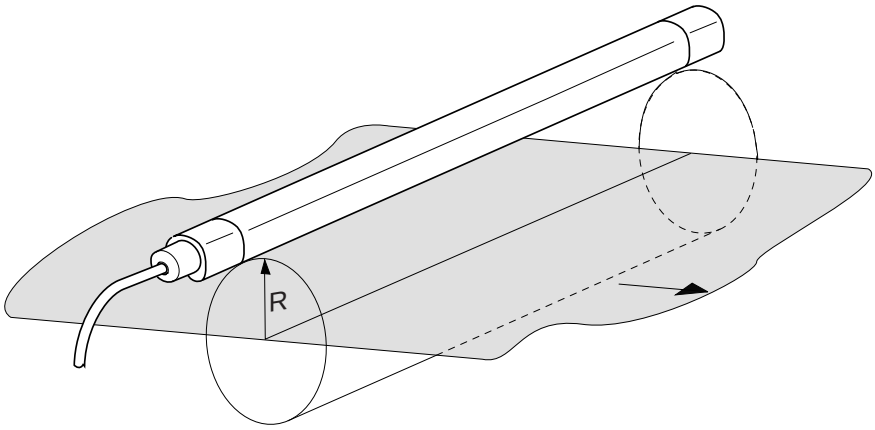


Fig. 3: Metal-free cylindrical zone at a distance R

3.2 Length of the high voltage cable

The total length of discharge bar and high voltage cable is limited due to the loading capacity of the transformer in the power supply. The maximum loading capacity is a function of the active bar length and the length of the high voltage cables. Fig. 4 demonstrates this principle for the ES51 power supply.

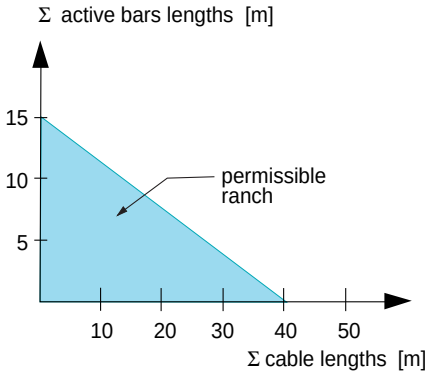


Fig. 4: Loading capacity of the ES51 power supply as factor of active bar length and total length of the high voltage cable

3.3 Connecting the high voltage cable to the power supply

Warning!

Connect or disconnect the high voltage cable only with the power supply switched off.

For the connection to power supplies ES51, refer to the separate operating instructions for the power supply.

4 Operation

The discharge bars must be operated only in connection with the Eltex power supplies ES51 with 5 kV AC output.
These power supplies guarantee the optimum adaptation to the specified operating conditions.

4.1 Startup

Once all the connections have been correctly made, the system is operational and the supply voltage can be switched on at the power supply.

4.2 Function control

Briefly touch the emission tips with a grounded metallic object (e.g. screw driver with plastic handle) with non-detachable connection to ground potential. A small spark must be visible at each emission tip.



Warning!
Electrical irritation!

The object which is used to touch the bar must have a firm connection with ground potential.

5 Maintenance



Warning!

Switch off the power supply unit and disconnect the supply voltage before carrying out any maintenance or repair work. The machine in which the discharge bars are installed must not be running.
Repairs and maintenance work must be carried out by qualified personnel.

To ensure the trouble-free function of the discharge bars, clean the bars at least once a week with compressed air free of oil and water (6 bar and standard compressed air pistol) and a non-metallic brush.

Clean grease, ink, glue, paper dust, etc. off the discharge bar using a suitable solvent (e.g. spirit). Do not soak the bars and the high voltage cable in solvent!



Caution!

Do not damage the emission tips when cleaning. Brush only in longitudinal direction.

6 Troubleshooting



Warning!
Electric shock hazard!

Switch off the supply voltage to the power supply before carrying out any repair or maintenance work. No voltage must apply at the discharge bars. Repairs must be carried out by qualified personnel.
For further malfunctions, refer to the operating instructions for the power supplies.

Malfunction:
Effectiveness of the application declining.

Cause:
Dirty discharge bars.

Measure:
Clean bar with compressed air and a brush. Clean grease, ink, oil, etc. off the bar with a suitable solvent (e.g. spirit)



Caution!

Do not leave the discharge bar to soak in the solvent!
Allow the solvent to evaporate before restarting the unit.

7 Warranty

The discharge bars are warranted for a period of 6 months provided that the operating conditions have been maintained, that the units have not been tampered with and that the units show no mechanical damage.

The warranty applies only if the operating and assembly instructions specified by Eltex have been observed. The warranty period begins on the date the bars are put into operation, at the latest 4 weeks after the date of delivery. In the event of defects occurring during the warranty period, the bars will be repaired at Eltex. Defective components will be replaced and installed free of charge. Defective components will be replaced free of charge with labour charged to the customer for another 6 months thereafter.

If repairs are required at the customer´s premises, the costs for sending a technician (travel, travel time, expenses) will be charged to the customer.

8 Technical specifications R45

Electrode (bar) element	glass-fibre-reinforced plastic GRP
Emission tips	special alloy steel
Installation material	plastic assembly clamps
Ambient operating temperature	0...+70 °C (+32...+158 °F)
Ambient humidity	max. 70% RH, no dewing permissible
Dimensions	profile: 16 x 16 mm, end caps: 18 x 18 mm; max. active length 1600 mm, see figure 1
Weight	approx. 0,4 kg/m
Operating voltage	max. 5 kV AC, 50/60 Hz
High voltage supply	via Eltex ES51 power supplies
High voltage connection	axial lead-out
Short-circuit current	0,5 mA
Contact protection	EN 60355 part 1
EMC	EN 55011 group 1, classe B

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9 Spare parts and accessories

Article	Article No.
H.v. distributor, discharge, 5 terminals (1 input, 4 outputs)	ESV
Plug variant S	101366
Plastic assembly clamps	102599
Oval-head screw M5 x 10	MSR00035

Operating Instructions



F00005y

Series ES50 Power Supplies

for AC operation

BA-e-2050-0011

eltex

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1. Outline of appliance

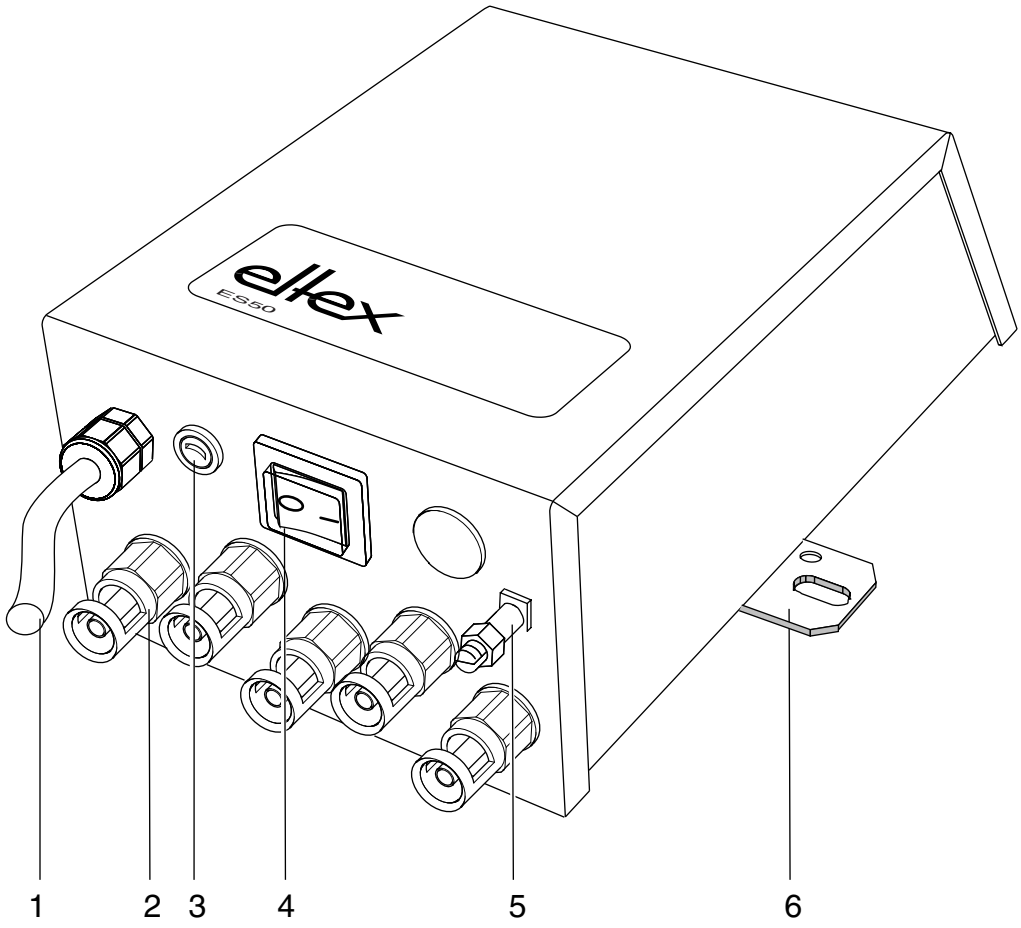


Fig. 1:
ES50 high voltage power supply for AC operation

1 Power supply lead
2 High voltage terminals (5 pcs)
3 Fuse (type: see name plate)
4 ON/OFF switch (ON = illuminated)
5 Grounding terminal
6 Mounting bracket

Dear Customer,

The ES50 high voltage power supplies are power supply units for the series R45 and R5x AC discharge bars.

The discharge bars and the ES50 power supply are used mainly in cases where disruptive static charges on fast-moving material webs impair production processes and need to be eliminated.

The ES50 power supply features the following characteristics:

- 5 plug-type high voltage outputs
- stable 5 kV AC output voltage
- small dimensions
- easy installation
- protection class IP 54 design

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

Please 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.

2. Safety

The ES50 Power Supplies 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.

Always observe the rules and regulations applying in your country with reference to opening and repairing electrical appliances.

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

2.1 Proper use

The ES50 Power Supplies may be operated only in connection with the appropriate Eltex discharge bars for AC operation.

Modifications or changes made to the power supplies are not permitted.

Use only original Eltex spare parts and equipment.

2.2 Identification of risks and hazards

Possible risks and hazards resulting from the use of the power supplies 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.

2.3 Work and operational safety



Warning!
Carefully observe the following notes!

- Before starting the unit make sure that the appliance is permanently grounded via the grounding terminal (5, Fig. 1). The ground cable should have a minimum cross section of 1.5 mm^2.
- Check the power supplies and the discharge bars at regular intervals for any damage to the electrical wiring and the high voltage cables. Any damaged components must be repaired or replaced before continuing to operate the units.

- Before carrying out repairs, cleaning or maintenance work involving the power supplies and the discharge bars, switch off the power supply and disconnect the mains power supply.
- Any repair, maintenance or cleaning work must be carried out by qualified personnel.
- If the housing cover is removed and the supply voltage is switched on at the same time, contact protection is no longer effective. Always disconnect the power before opening the power supply units.
- The protection class IP 54 only applies if the housing cover is closed and the cable connections are shrouded.
- Connect/disconnect the discharge bars only if the power supply unit is switched off.
- Please note the maximum total lengths of the electrode bars and the high voltage cables in chapter 3.5.
- Make sure that the electrode bars are clean at all times.
- The operation of the electrodes can generate ozone. The ozone concentration levels developing near the electrodes depend on many different factors such as site of installation, electrode stream and voltage, air circulation, etc., and can therefore not be specified in general terms. If the maximum allowable concentration (MAC) of ozone must be observed at the site of installation of the electrode, the concentration must be measured on site.

2.4 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 Assembling the power supply

The power supply is designed for wall mounting. Attach using the brackets provided (installation dimensions, see Fig. 2). The operating elements of the power supply and the terminals must be freely accessible at all times and the display LEDs must be visible.

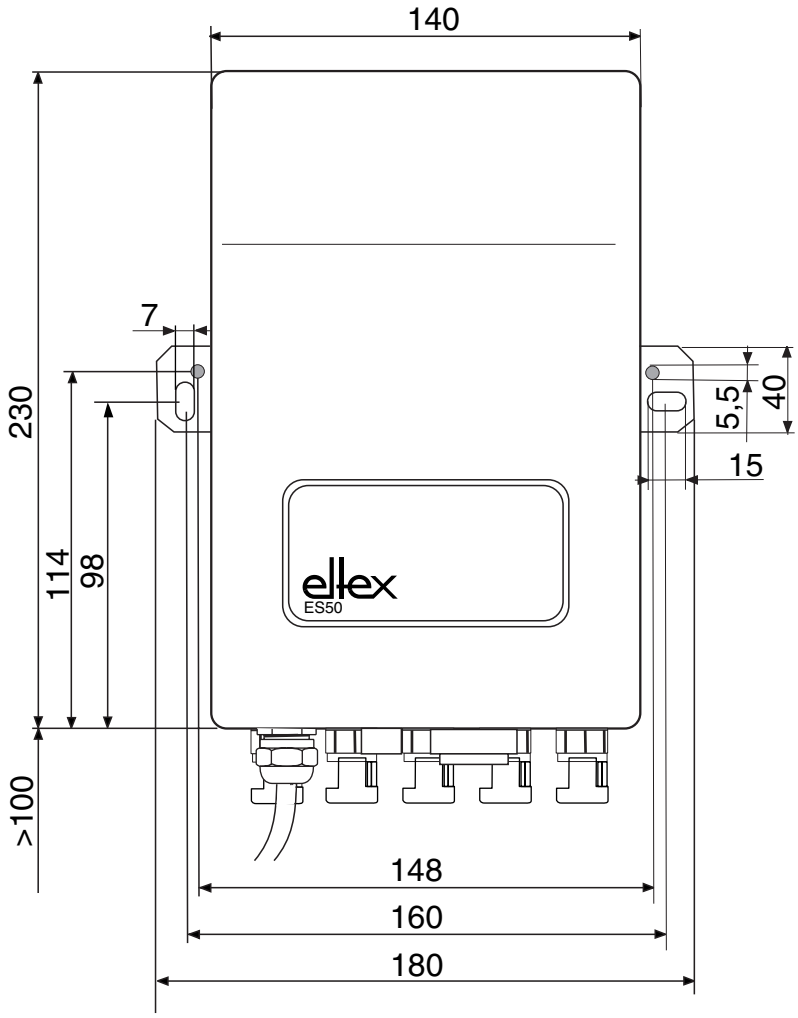


Fig. 2: Installation dimensions, ES50 Power Supply

3.2 Ground connection

A permanent ground connection must be made via the grounding terminal (5, Fig. 1). A grounding cable with a conductor cross section of 1.5 mm^2 is adequate for this purpose.

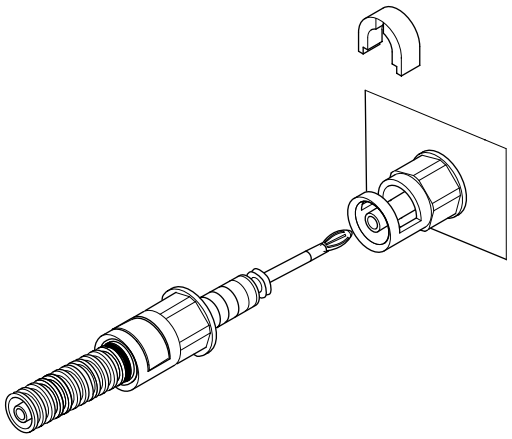
3.3 Selecting the discharge bars

Eltex discharge bars and ion blowers for AC operation can be connected to the ES50 power supplies.

3.4 Connecting the high voltage cable

Warning!
Connect or disconnect the high voltage cables only with the power supply switched off!

Connect the discharge bars to the power supply using the prefabricated high voltage cable. Connect and disconnect the high voltage cables only with the power supply switched off. Push the high voltage cables into the sockets up to the stop. Then secure the adapter in the socket with the clip provided (see Fig. 3). Cables without adapter carry a coloured marking on the flexible tubing. This marking must lie flush with the outside edge of the coupling. Cables without flexible tube and cables with plug-type adapters are plugged in flush and secured with the clip.



Z00004y

Fig. 3: Connecting the high voltage cable

If the high voltage cable has not been prepared for connection, a cable with the following specifications can be made:

High voltage cable with flexible tube:

Method:

- Strip the high voltage cable as shown in Fig. 4.

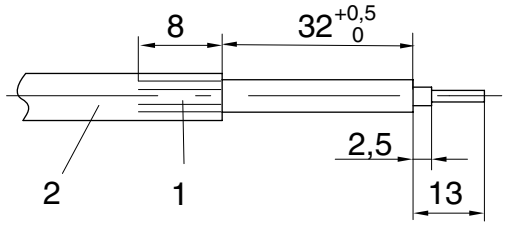


Fig. 4: Stripping the high voltage cable

1 Shielded braid turned back; 2 High voltage cable

- Push the multidisc plug (4) over the stripped core (3) as shown in Fig. 5 and solder the plug at the tip (8). The projecting length of wire must be cut off.

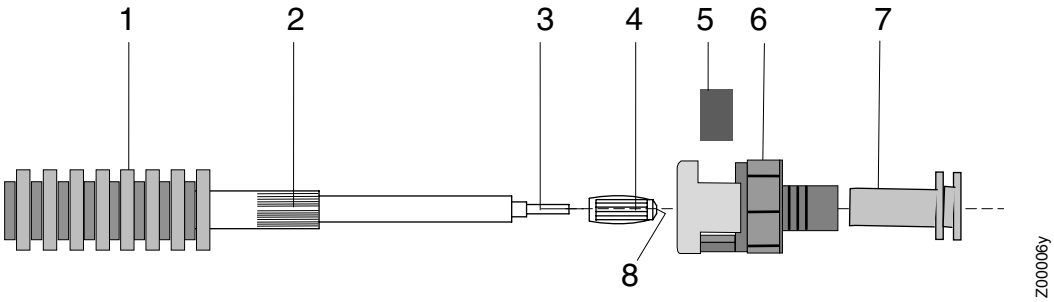


Fig. 5: Fabricating the high voltage cable

- Push the adapter (6) over the cable and the flexible tubing (1) and fix it in place with the clip (5).
- The flexible tubing must be pulled back for the next steps.
- Push the contact sleeve (7) over the folded back braiding (2) and crimp the sleeve using a hexagonal crimper (5.41 mm).
- The collar of the contact sleeve (7) must lie flush with the adapter (6).
- Now connect the cable as described in the above instructions.

High voltage cable without flexible tube:

Method:

- Strip the high voltage cable as shown in Fig. 4.
- Push the parts (4, 5, 6) and the contact sleeve (7) comprising contact plug and laminated contact over the cable as (1) shown in Fig. 6.
- Push the contact sleeve (7) over the turned back braid (2) and crimp in place using a hexagonal crimper (5.41 mm).
- Push the split plug (3) over the bared wire core (2) and solder it at its tip (9). Cut off the protruding bit of wire.
- Now connect the cable as described in the above instructions.

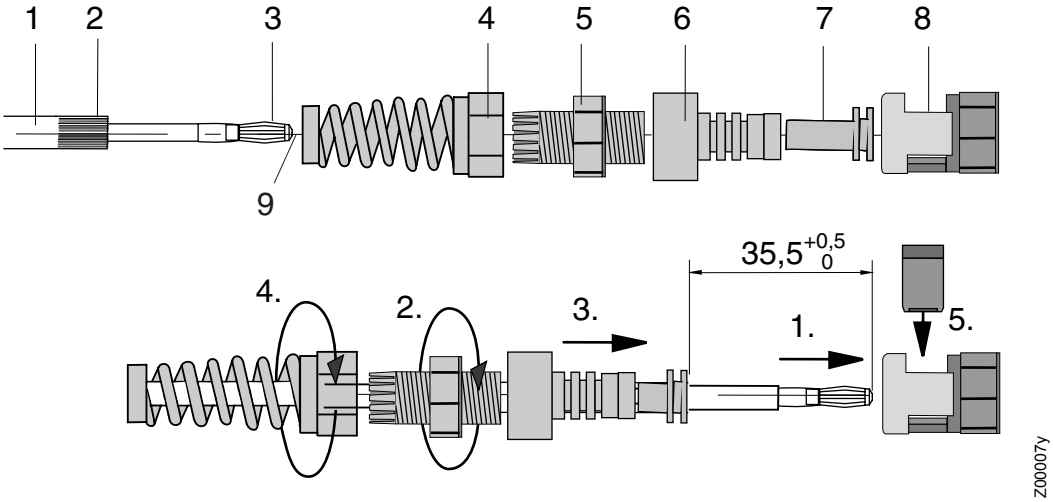


Fig. 6: Fabricating the high voltage cable without flexible tube

3.5 Maximum active bar length and length of the high voltage cable

Both the lengths of the high voltage cable and of the active bars are limited. The shielded high voltage cables cause a capacitive load on the transformer inside the power supply. The maximum loading capacity is a result of the function of the total active bar length and the total length of all high voltage cables. Fig. 7 demonstrates this principle for R5X bars.

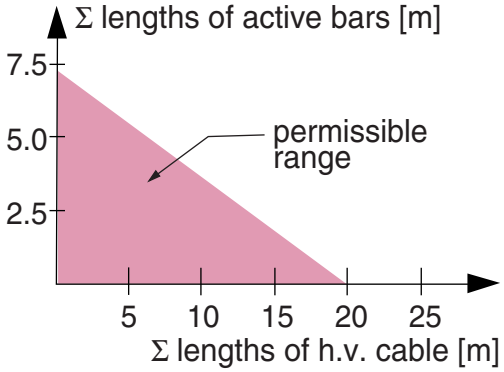


Fig. 7: Loading capacity of the Power Supply as factor of bar length and length of high voltage cable.

Example: The maximum permissible total cable length with a 3 meter active bar length is 12 meters.

3.6 Connecting the supply voltage

Connect the supply voltage via the power supply lead (1, Fig. 1) using an earthing pin plug (depending on country). To ensure that no voltage is supplied to the bars when the material web is at rest, enabling the supply voltage to the power supply via machine contact is recommended. If the material web is at rest, or if the machine is not in operation, no high voltage is supplied to the bars in this case.

4. Operation

4.1 Startup

Before starting up the power supply the user must make sure that the power supply and the bars have been installed and assembled correctly. The supply voltage can then be switched on.

Use the toggle switch (4, Fig. 1) to switch on the power supply. In the ON position the switch lights up green. High voltage is now supplied to the discharge bars.

The output voltage is now a constant 5 kV AC.

If the fuse is defective, the switch will not light up.

5. Maintenance

Warning!
Electric shock hazard!

Switch the power supply off and disconnect the supply voltage before carrying out any maintenance or repair work. The machine in which the discharge bars are installed must not be in operation. Maintenance work must be carried out by trained or qualified personnel.

Power supply

The power supply itself does not require any special maintenance. Simply check the unit from time to time for correct and proper function. Check for correct ground connection!

Discharge bars

To ensure the proper function of the discharge bars, clean the bars at least once a week using compressed air and a brush. Refer to the operating instructions for the electrode bar used.

Dirt deposits settling on the bars (e.g. grease) must be cleaned off using a suitable solvent (e.g. spirit). Do not soak the bars and the high voltage cable in solvent!

Caution!
Risk of deflagration!

Allow the solvent to evaporate completely before restarting the unit.

Do not damage the emission tips of the bars.

6. Trouble-shooting



Warning!
Electric shock hazard!

Switch the power supply off and disconnect the supply voltage before carrying out any maintenance or repair work. Maintenance work must be carried out by trained or qualified personnel.

Fault	Cause	Measure
No high voltage	• Lamp in mains power switch lit: transformer defective.	Inform Eltex Service.
	• Lamp in mains power switch fails to light: supply voltage not enabled or not connected.	Check supply voltage and connections. Check connected cables and electrode bars.
	• Defective fuse.	Replace fuse.

7. Warranty

The unit is warranted for a period of 6 months provided that the operating conditions have been maintained, that the unit has not been tampered with and that the unit shows no mechanical damage.

The warranty applies only if the operating and handling instructions specified by Eltex have been observed. The warranty period begins on the date the unit is put into operation, at the latest 4 weeks after the date of delivery. In the event of defects occurring during the warranty period, the unit will be repaired at Eltex. Defective components will be replaced and installed free of charge. Defective components will be replaced free of charge with labour charged to the customer for another 6 months thereafter. If repairs are required at the customer´s premises, the costs for sending a technician (travel, travel time, expenses) will be charged to the customer.

8. Technical specifications ES50

Supply voltage	230 V AC 50 Hz; 115 V AC 60 Hz;
Power input	max. 80 VA
Output voltage	5 kV AC
Loading capacity	depending on length of bar and length of high voltage cable (see 3.5)
Output current	max. 3.1 mA at 5 kV
Operating ambient temperature	0... +60 °C (+32... +140 °F)
Storage temperature	-20... +80 °C (-4... +176 °F)
Ambient humidity	max. 80% r.h., non-dewing
Mains power cable	approx. 2.5 meters with earthing-pin plug, national version
Fuse (primary circuit)	see name plate
Ground link	grounding terminal on housing
High voltage connection	plug-type, 5x
Housing	sheet metal steel with wall bracket
Protection class	IP 54, EN 60529
EMC	complying with EN 55011, Group 1, Class B/ EN 61000-3-2/-3-3 / DIN EN 50082-2
Dimensions	230 x 140 x 82 mm (H x W x D) (see Fig. 8)
Weight	approx. 4 kg

9. Dimensions

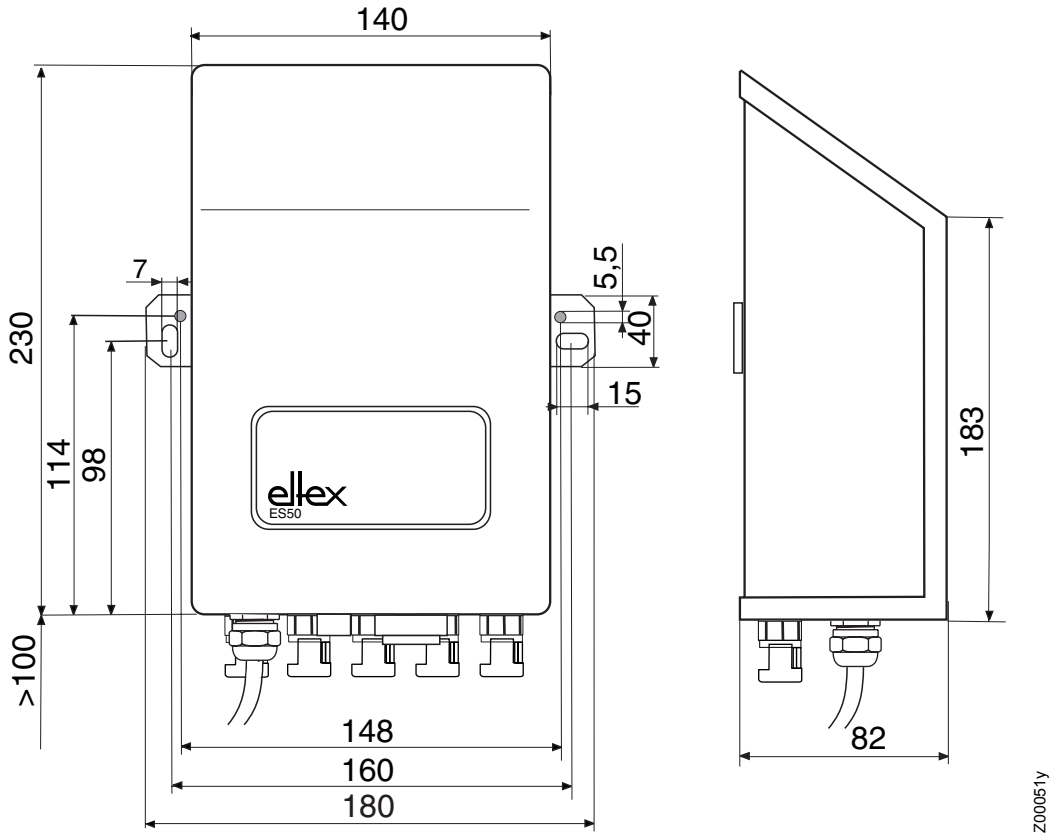


Fig. 8:
Dimensions, ES50 Power Supply

10. Spare parts list

Article	Article No.
High voltage distributor discharging 5 terminals (1 input, 4 outputs)	ESV
High voltage cable between ES50 and distributor ESV and bar R51	KE/LI___(specify length)
Fuse 5 x 20 mm 400 mA T / 250 V	ELM00199
Fuse 5 x 20 mm 200 mA T / 250 V	ELM00416
Kit for cutting high voltage cable to size with flexible tube	103289
Kit for cutting high voltage cable to size without flexible tube	101366
Flexible tube for high voltage cable	MCH02438 (specify length)
Blanking plug for high voltage connection	100597
Mains cable gland	MCH00341
Grounding terminal	ELM00202

ANNEXES

8.3 Overview of the FESTO service centres

Branch Office Izmir
Manavkuyu Mustafa Kemal
Sakarya Cad. Nó. 32/1
35040 Bornova – Izmir
Tel. ++90 (0)232 / 462 68 05
Fax ++90 (0)232 / 462 68 07

Ukraine

Festo Ukraina
ul. Borissoglebskaja 11
254070 Kiev
Tel. ++380 (0)44 / 239 24 34
Fax ++380 (0)44 / 463 70 96
E-mail: festo@gu.kiev.ua

Branch Office Simferopol
ul. Balaklavskaja
95048 Simferopol
Tel. ++380 (0)652 / 44 10 31
Fax ++380 (0)652 / 24 80 33

United States of America

Festo Corporation (New York)
395 Moreland Road
Hauppauge, N.Y. 11788
Tel. ++1 (0)631 / 435 08 00
Fax ++1 (0)631 / 435 80 26
E-mail:
customer_relations@festo.com

Boston Regional Center
Two Constitution Way
Woburn, Massachusetts 01801
Tel. ++1 (0)781 / 935 51 80
Fax ++1 (0)781 / 935 53 90

Charlotte Regional Center
4301-S Stuart Andrew Blvd.
Charlotte, North Carolina 28217
Tel. ++1 (0)704 / 527 14 27
Fax ++1 (0)704 / 527 79 35

Chicago Regional Center
2100 Western Court
Lisle, Illinois 60532
Tel. ++1 (0)630 / 810 01 35
Fax ++1 (0)630 / 810 01 84

Cleveland Regional Center
7730 First Place
Oakwood Village, Ohio 44146
Tel. ++1 (0)440 / 735 30 01
Fax ++1 (0)440 / 735 30 07

Dallas Regional Center
3414 Midcourt, No. 100
Carrollton, Texas 75006
Tel. ++1 (0)972 / 392 33 44
Fax ++1 (0)972 / 392 34 55

Detroit Regional Center
1228 Kirts Boulevard,
Troy, MI 48084
Tel. ++1 (0)248 / 244 39 90
Fax ++1 (0)248 / 244 39 95

Los Angeles Regional Center
1692 Deere Avenue
Irvine, California 92606
Tel. ++1 (0)949 / 757 07 77
Fax ++1 (0)949 / 757 06 60

New York Regional Center
395 Moreland Road
Hauppauge, New York 11788
Tel. ++1 (0)631 / 951 48 60
Fax ++1 (0)631 / 435 05 81

Seattle Office
19017 120th Avenue N.E.
Bothell, WA 98011
Tel. ++1 (0)425 / 806 88 16
Fax ++1 (0)425 / 806 07 45

Silicon Valley Regional Center
6644 Owens Drive
Pleasanton, CA. 94588
Tel. ++1 (0)925 / 730 09 99
Fax ++1 (0)925 / 730 09 85

St. Louis Regional Center
13519 Lakefront Drive
Earth City, Missouri 63045
Tel. ++1 (0)314 / 770 01 12
Fax ++1 (0)314 / 770 16 84

Venezuela

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Fax ++58 (0)61 / 59 04 55
E-mail: festoven@telcel.net.ve

Branch Office Barquisimeto
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y 30, C.I. Libertador
Barquisimeto, Edo. Lara
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Fax ++58 (0)51 / 37 34 60
E-mail: festobqt@telcel.net.ve

Branch Office Caracas
Qu. AV. Santa Teresa de Jesús
con AV. Los Chaguaramos
Edif. CERPE, P.B. Local 1
Urbanización La Castellana
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Fax ++58 (0)2 / 265 88 65
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Av. Aragua.
C.C. Maracay Plaza
Maracay, Edo. Aragua
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Fax ++58 (0)43 / 35 82 18
E-mail: festomcy@telcel.net.ve

Branch Office Puerto Ordaz
1ra. Transversal Av.
Principal UD 321 Calle
Zona Industrial Matanzas Sur
C.C. Luannca
Puerto Ordaz, Edo. Bolivar
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Fax ++58 (0)86 / 94 39 41
E-mail: festopod@telcel.net.ve

Branch Office Valencia
Prolongación Av. Arturo
Michelena
Zona Industrial Municipal
Norte C.C. Lofebar
Valencia, Edo. Carabobo
Tel. ++58 (0)41 / 32 44 78
Fax ++58 (0)41 / 32 44 62
E-mail: festoval@telcel.net.ve

How to set the tension of the plate gripper tooth belts on the Preloader

- mark the center of the belts,
- check distance between upper and lower belt
- check distance between belts loaded with the key of the PL-T like the picture shows you (take the magnet bars of the trolley to keep the key upright)
- difference between unloaded and loaded belts?
- difference setpoint:must be 5 to 6 mm
- if essential, change the tension by moving the belt pulleys until you get the required difference of 5 to 6 mm
- make sure that the belt pulleys are countered
- if possible lubricate the belts with a silicon spray for smoothly motion

