Proceq ZAA 2300
Heatable Automatic Film Applicator

(versions: Proceq ZAA 2300.H / Proceq ZAA 2300.FH / Proceq ZAA 2300.FFH)

Instruction Manual

Index

Exclusion of liability

The content of this document is intellectual property of Proceq SA.

Illustrations, descriptions as well as the technical specifications conform to the instruction manual on hand at the time of publishing or printing.

However, Proceq SA policy is one of continuous product development. All changes resulting from technical progress, modified construction or similar are reserved without obligation for Proceq SA to update.

Some of the images shown in this instruction manual may be of a pre-production model and/or are computer generated; therefore the design / features of the delivered product may differ in various aspects.

The instruction manual has been drafted with the utmost care. Nevertheless, errors cannot be entirely excluded. The manufacturer will not be liable for errors in this instruction manual or for damages resulting from any errors.

The manufacturer will be grateful at any time for suggestions, proposals for improvement and indications of errors.

1 Description of device

Automatic laboratory equipment for accurate and reproducible application of coating materials, adhesives and similar products with almost all film applicators.

Field of application:

- Laboratory apparatus for the paint, printing and adhesive industries, as well as for research and development and the chemical industry in general.
- For quality control and for research and development.
- For the preparation of uniform layers independent of the individual user.

In particular, this apparatus has the following features:

- Multifunctional use with reversible, double sided glass plate: on one side printing blanket for wire-bar applicators and profile applicators, on the other side glass surface for other applicators, to be turned simply and without tool.
- Adjustable application area with adjustable start and stop positions.
- Also suitable for use with different applicators up to the maximum outer width of 300 mm (11.81”), profile rods and wire-bar applicators with a minimum length of 340 mm (13.39”) and a maximum diameter of 13.5 mm (0.53”) in the support area.
- Also suitable for thick substrates up to 11 mm (0.43”).
- Optional precision-vacuumplate for fixing thin substrates of different sizes; the object to be held will be fixed absolutely plane by the suction power.
- Optional modification set equipped with isolation plate for use with heatable precision-vacuumplates or heating plates.
- Easy to handle.
- Reliable results.
- Special customer versions are available on request.

2 Safety information

2.1 Symbols used

This note comprises instructions needed to follow directions, specifications, proper working procedure and to avoid data loss, damage or destruction of the instrument.

This note signifies a warning about dangers to life and limb if the apparatus is handled improperly. Observe these notes and be particularly careful in these cases. Also inform other users on all safety notes. Besides the notes in this instruction manual the generally applicable safety instructions and regulations for prevention of accidents must be observed.

2.2 Safety notes and hints

It is strictly forbidden to open the housing of the Proceq ZAA 2300. If not observed, all the guarantee and liability claims to Proceq SA will be void.

Place the device on a solid, even surface before operation and ensure that the separator (power socket) is accessible and that the instrument can be separated from the power supply at any time.

Never touch any moving parts under power.

Only connect the ZAAA 2300 to alternating current of a voltage of 100 – 240 V at 50 to 60 Hz. The voltage must correspond to the information given on the identification plate of the apparatus. The device may only be connected to sockets with a protective earth conductor.

Never use a damaged power cable. Only use power cables with protective earth conductor. Removable power cables must not be replaced by an insufficiently rated power cable. In the application "heatable application" together with heating plates, only power cables with correspondingly increased temperature resistance (≥155 ° C) may be used as supply cable. Only use the power cable provided by the manufacturer.

Never touch the hot plate, always wait until the heating plate has cooled.

Only coating materials or products with a flash point >250 °C can be applied.

Materials with a combustion point <250 °C must not get in touch with the heating plate.

Depending on the coating material used, the test may only be carried out in a ventilated environment.

Heating of substances can lead to risk of explosion, implosion or the release of toxic or flammable gases. If heating of a product can lead to the release of hazardous substances, it is necessary to use an appropriate extraction system.

During operation the distance to walls and other objects must be at least 10 cm.

Always unplug the power cable before assembling and/or converting the unit.

The Automatic Film Applicator Proceq ZAA 2300 is constructed in accordance with the state of the art and is safe in use. However, there is always risk when the instrument is handled improperly or otherwise as intended by the manufacturer.

Das Proceq ZAA 2300 is exclusively intended for the preparation of coatings. Any other use is considered as being not in accordance with the intentions of the manufacturer and is conducted at the user's own risk. The manufacturer is not liable for any resulting damages.

Every person operating or maintaining the Proceq ZAA 2300 must have read and understood this instruction manual in its entirety, in particular the safety precautions and warnings.

Unauthorized modifications and changes of the Proceq ZAA 2300 are not permitted.

Before lifting or moving the apparatus, the glass plate / heating plate must be removed to reduce the total weight. Tilting the device can lead to falling out of the glass plate.

All maintenance and repair not explicitly allowed and described in this manual (see. Chapter 8.1 “Maintenance and cleaning work that can be carried out by the user” on page 24), shall only be carried out by Proceq SA or your authorised Proceq agent, failure to comply voids warranty.

Proceq SA refuses all warranty and liability claims for damages caused by usage of the Proceq ZAA 2300 in combination with **non-original accessories**, or accessories from 3rd party suppliers.

All local safety regulations apply for the operation of the Proceq ZAA 2300.

The following warning symbols can be seen on the device:

Danger of hand injury: Hands can be bruised, or otherwise injured.

Risk of burning on hot surfaces. Touching such marked surfaces is prohibited.

Danger of electric shock.

Risk of inflammation of substances through heat (heating plate).

3 Delivery of device

3.1 Damages during carriage

On receipt of the goods, check for any visible damages on the packaging. If it is undamaged you may sign the receipt of the goods. If you do suspect by visual inspection that damage has occurred, make a note of the visible damage on the delivery receipt and request the courier to countersign it. Moreover, the courier service must be held responsible for the damage in writing.

If a hidden damage is discovered while unpacking, you have to inform and hold the courier liable immediately in the following way: “When opening the parcel we had to notice that … etc.“ This superficial checking of the goods has to be done within the time limit set by the carrier, which is normally 7 days. However, the period could vary depending on the courier. Hence, it is recommended to check the exact time limit when receiving the goods.

If there are any damages also inform your authorised Proceq agent or **Proceq SA** immediately.

3.2 Shipment

Should the device be transported again, it must be packaged properly. Preferably use the original packaging for later shipments. Additionally use filling material in the package to protect the device from any shock during carriage.

To protect persons and the apparatus, proper care must be taken when lifting or carrying it. It is recommended to hold and carry the Proceq ZAA 2300 on both sides of the housing. Always remove the glass plate / heating plate before lifting or tilting the device.

3.3 Standard delivery

The following parts are included in the delivery:

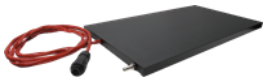
- Heatable Automatic film applicator with isolation plate for use with heated precision-vacuumplate or heating plate incl. power supply cable and material for mounting
- reversible, double sided glass plate: printing blanket and glass surface
- polyester mat
- weight lifter (set of 2)
- spirit level
- power cable
- Allen key (2.5 mm and 3 mm)
- certificate of manufacturer
- Instruction manual

3.4 Options for all Proceq ZAA 2300 versions

Precision-vacuumplates: with a series of holes of 1 mm (0.04”) with a series of holes of 0.5 mm (0.02”)	
Vacuum pumps with hose 230 V 115 V	
Profile rod Wire-bar film width: approx. 320 mm (12,6”), total length: 405 mm (15,94”), with 1 wet film thickness according to your choice	
Fixing unit for profile rods and wire-bar applicators	
Proceq film applicators up to a maximum film width of 300 mm (11.81”)	
Calibration and certification Proceq ZAA 2300 (incl. certificate of calibration)	

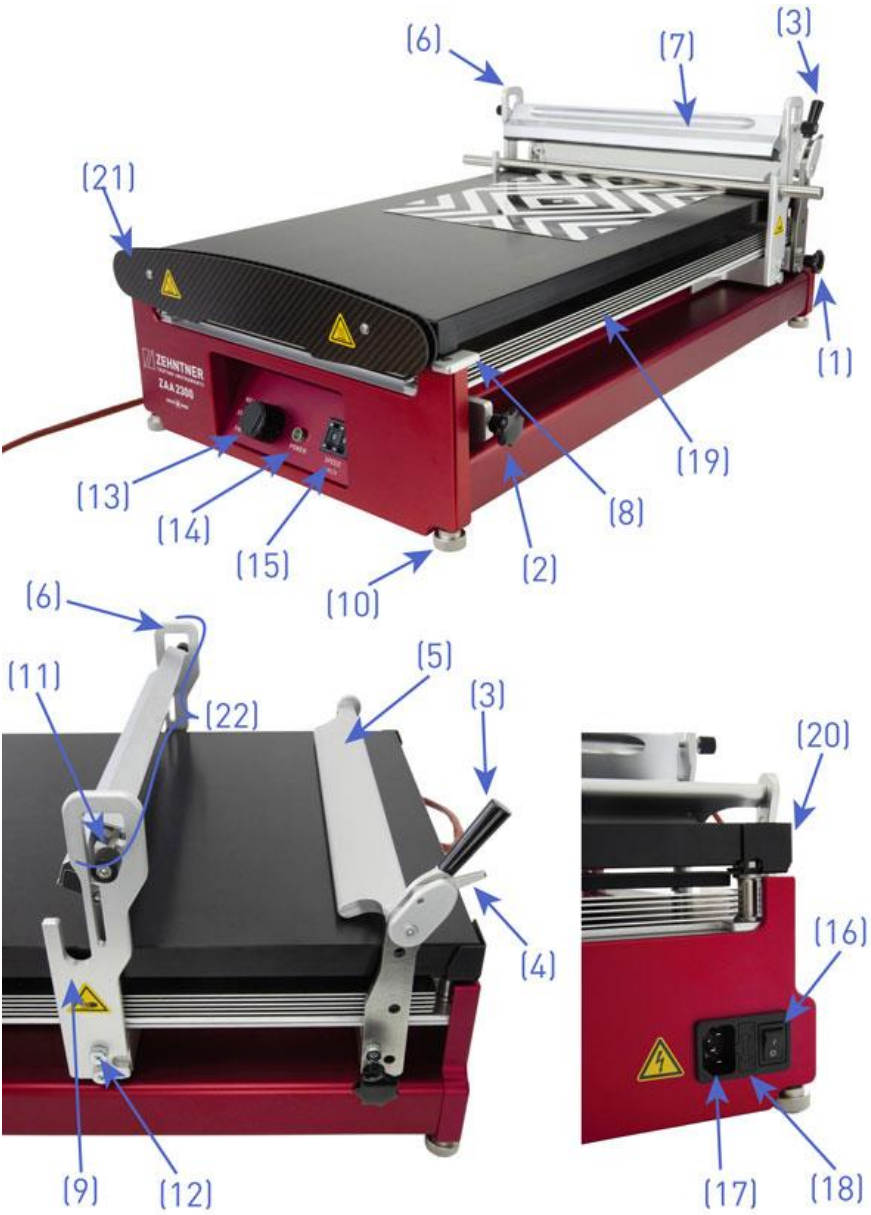
3.5 Modification set „Heatable Application“

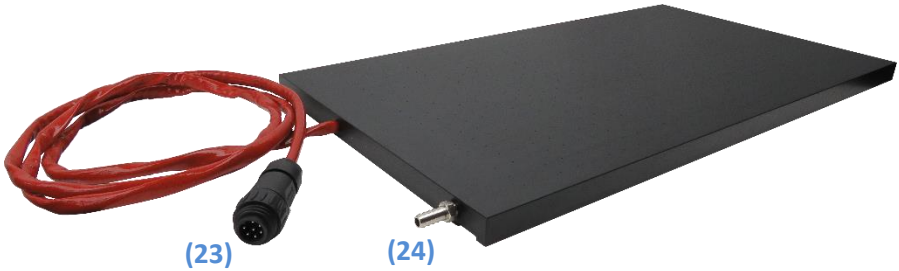
To modification set "Heatable Application" either a heatable precision-vacuum plate or a heating plate must be selected. Options available for selection are listed below

Precision-vacuumplates, heatable up to 150 °C With holes of 1 mm (0.04”), 230 V With holes of 1 mm (0.04”), 115 V With holes of 0.5 mm (0.02”), 230 V With holes of 0.5mm (0.02”),115 V Heating plates for temperature up to 150 °C 230 V 115 V	 

Proceq SA refuses all warranty and liability claims for damages caused by usage of the Proceq ZAA 2300 in combination with **non-original accessories**, or accessories from 3rd party suppliers.

4 Device overview



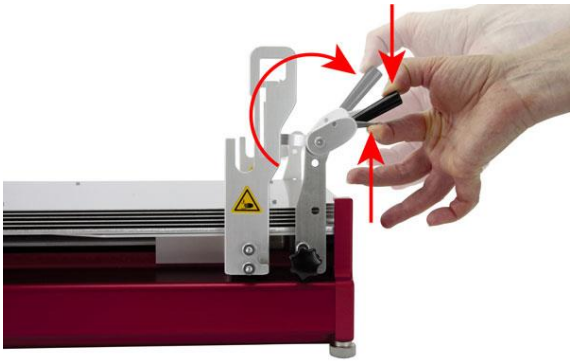


(1) Start stop
(2) End stop
(3) Clamping grip
(4) Release lever
(5) Clamping device for the substrate
(6) Lifting and lowering device for weight (7)
(7) Weight
(8) Swivelling holders for fixing the base plate
(9) Holding device for wire-bars and profile rods
(10) Levelling feet
(11) Knurled screw
(12) Fixing screw of the holding device
(13) FWD-STOP-REV button
(14) SPEED buttons
(15) Operation light POWER
(16) Main switch
(17) Power supply 100 V – 240 V / 50 Hz – 60 Hz
(18) Delay action fuse 0.8 A / 250 V
(19) Isolation plate
(20) Back heating plate holder
(21) Front heating plate holder
(22) Drawing unit
(23) Temperature controller connection
(24) Hose connection for vacuum

5 Assembly and starting up

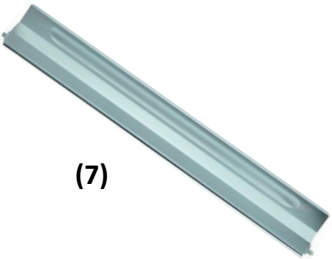
Before the first use the apparatus has to be assembled:

- Place the device on a solid, even surface at its intended location. Loosen the start stop (1).
- Open the clamping device (5), by pressing the release lever (4) and the clamping grip (3) together until you hear a click, then tilt the clamping grip (3) backwards. The clamping device (5) can be moved to the back at the same time.



- Insert the heatable precision-vacuumplate or the heating plate by first guiding the cable under the clamping device (5).

- Insert the weight (7) into the guides with the black rubber part forward-facing first one side of the weight then the other as shown below.



(7)

- Rotate the weight (7) so that the black rubber part faces down, then fix it with the two knurled screws (11).

(11)

- Connect the Temperature Controller as described in the separate instruction manual.
- Level the apparatus using the included spirit level. To do so, place the spirit level and adjust the levelling feet (10) until the Proceq ZAA 2300 levels perfectly. The plate must be firmly in place.

To protect persons and the apparatus, proper care must be taken when lifting or carrying it. It is recommended to hold and carry the Proceq ZAA 2300 on both sides of the housing. Always remove the glass plate / heating plate before lifting or tilting the device.

5.1 Disassembly

To prevent transport damage, the weight (7) and the glass plate / heating plate have to be removed:

- Loosen and remove the knurled screw (11) to remove the weight (7). First turn the weight upwards by 90 ° and – in reversed order as at the assembly --first take one side of the weight then the other out of the guides.
- Remove the glass plate / heating plate.
- Slide the clamping device (5), the drawing unit (19) and both stops (1 & 2) to the middle of the device.
- Only transport the device in its original packaging.

Disassembled device before and after transport:

5.2 Switching on and off

- Make sure that the apparatus is connected to a power socket with the supplied power cable (17).
- Turn the FWD-STOP-REV button (13) to the STOP position.
- Switch on the main switch (16) at the back of the apparatus. The operation light (15) glows green, the device is ready to use.

- Switch off the device after the last application at the main switch (16). The operation light (15) extinguishes, the device is off.

6 Application

6.1 Preparation

Before the apparatus is prepared for application, you should have decided:

- which type of applicator you will be using
- which substrate you will be using
- which base plate you will be using
  - precision-vacuumplate
  - heatable precision-vacuumplate (only versions with special isolation plate)
  - heating plate (only versions with special isolation plate) or
  - glass plate

The heatable precision-vacuumplate and the heating plate can be used with all rods. If the glass plate is used (i.e. no heatable application is performed), the following should be noted:
If using a wire-bar or profile rod, use the printing blanket side of the glass plate. For other applicators, use the glass plate with the glass surface up (see chapter 7 “Turning the glass plate” on page 23).


Depending on the coating material used, the test may only be carried out in a ventilated environment.


Heating of substances can lead to risk of explosion, implosion or the release of toxic or flammable gases. If heating of a product can lead to the release of hazardous substances, it is necessary to use an appropriate extraction system.


During operation, the distance to walls and to other objects must be at least 10 cm.

6.2 Application with wire-bar or profile rod

When using the glass plate (i.e. in case of non-heatable applications) note the followings:

- Make sure that the printing blanket side of the glass plate is facing up.
- Ensure that the printing blanket is covered with the polyester mat.
- Lift up the weight (7) and hinge it into the top position.

Set the start stop (1) as follows:

- Move the open clamping device (5) and the drawing unit (22) to the back of the apparatus.
- Place your substrate (e.g. test chart / film) at the desired place on the plate and fix it with the clamping device (5), by pulling on the clamping grip (3).
- Place the drawing unit (22) above the upper edge of the substrate – for the ideal positioning together with your rod – so, that the rod rests at the desired starting position of the application on the substrate.
- Move the start stop (1) directly behind the drawing unit (22) and fasten it with the screw.

Hint: If the substrate is too small to use the clamping device (5), use a piece of adhesive tape to fix it.

Adjust the end stop (2) as follows:

- Loosen the screw of the end stop (2).
- Position the end stop (2) behind the desired drawing area and lock it with the screw.
- Adjust the FWD-STOP-REV button (13) to REV (backward) position and let the drawing unit (22) move to the start stop (1).
- Place the wire-bar or profile rod into the holding device (9).
- Lower the weight (7) until it sits on the wire-bar / profile rod and holds it in place.

Hint: Place a piece of paper at the end of your substrate to absorb any excess coating material.

- Set the desired drawing speed in mm/s with the SPEED button. .

- Apply the desired quantity of coating material on the substrate in front of the applicator rod.

- Start the drawing procedure by turning the “FWD-STOP-REV button (13) to the FWD (forward) position.

The drawing unit (22) now moves forwards and draws a uniform film on the substrate. Let the drawing unit (22) move to the end stop position (2) where it will stop automatically.

- Lift the weight (7) and hinge it into the top position.
- Remove and clean the applicator rod.
- Move the drawing unit (22) back to the initial position by turning the FWD-STOP-REV button (13) to the REV (backwards) position.
- Remove your substrate. If the device is not needed anymore switch it off with the main switch (16).

Should the wire bar or profile rod rotate during application, then use the optional fixing unit for profile rods and wire-bar applicators (see-chapter 6.2.1 on page 20).

6.2.1 Fixing unit for profile rods and wire-bar applicators

- Put the wire-bar or profile rod into the holder (9).
- Fix the fixing unit for profile rods and wire-bar applicators as shown below.

6.3 Application with gap applicator

When using the glass plate (i.e. in case of non-heatable applications) note the followings:

- Make sure that the glass plate is mounted with its glass surface facing up. Alternatively a precision-vacuumplate can also be used.

Set the start stop (1) as follows:

- Place your substrate (e.g. test chart / film) at the desired place on the glass plate. Keep in mind that the gap applicator will be placed in front of the weight (7).
- Set your gap applicator to the desired gap height and place it on the substrate at the desired starting position of the application area.
- Lower the weight (7) to the bottom position.
- Move the drawing unit (22) to the gap applicator.
- Open the clamping device (5) and loosen the screw of the start stop (1).
- Move the start stop (1) directly behind the weight (7) and refasten it with the screw.
- Fix the substrate with the clamping device (5), by pulling on the clamping grip (3).

  Hint: If the substrate is too small to use the clamping device (5), use a piece of adhesive tape or the optional precision-vacuumplate to fix it.

Set the end stop (2) as follows:

- Loosen the screw of the end stop (2).
- Move the drawing unit (22) forward and stop it with the end stop (2) as soon as the desired drawing area has been reached.

- Lock the end stop (2) by refastening the screw.
- Move the drawing unit (22) back to the starting position and place the applicator in front of the weight (7) again.

Refer to the separate instruction manuals of the applicators you are using (e.g. ZUA 2000) for any applicator specific considerations.

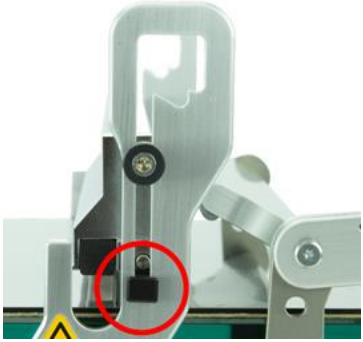
Hint: Place a piece of paper at the end of the substrate to absorb any excess coating material.

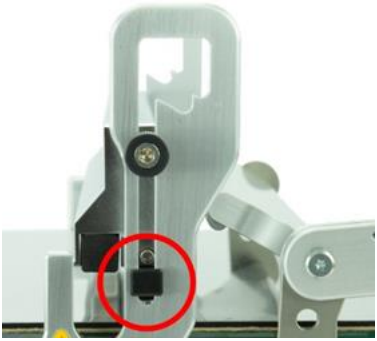
- Set the desired drawing speed in mm/s with the SPEED button (14).
- Apply the desired quantity of coating material on the substrate in front of the application blade.
- Start the application procedure by turning the FWD-STOP-REV button (13) to the FWD (forward) position.

- Move the drawing unit (22) back to the starting position by turning the FWD-STOP-REV button (13) to the REV (backward) position.
- Remove and clean the gap applicator.
- Remove your substrate. If the unit is not needed anymore, switch it off with the main switch (16).

For substrates between 4 mm and 11 mm thickness, use the included weight lifter. To install it, remove the weight (7) and place the weight lifter in the holding device (9) with the top marker facing up, then place the weight (7) back in the holding device (9).

If the weight (7) needs to be lifted even higher, place the weight lifter with the top marker facing down in the holding device (9). The resulting height difference can be seen below:





7 Turning the glass plate

- Make sure that the start stop (1) and the drawing unit (22) are positioned in the very back of the device and that the clamping device (5) is released.
- Lift the weight (7) and hinge it into the top position of the holding device (9).
- Carefully lift the heating plate at its front edge and pull it out of the apparatus.

- Insert the glass plate into the device with the required side facing up. If using a wire-bar or profile rod, use the printing blanket side of the glass plate. For applications with gap applicators use the glass plate with its glass side facing up.

8 Maintenance and cleaning

8.1 Maintenance and cleaning work that can be carried out by the user

Only the following maintenance and cleaning work shall be carried out by the user:

- Outer cleaning of the apparatus (see chapter 8.2 on page 24).
- Periodical lubrication of the guide rods (see chapter 8.3 on page 25).
- Replacing of the fuse (see chapter 8.4 on page 25.
- Inspection (see chapter 8.5 on page 26).

All other maintenance and repair work shall only be carried out by **Proceq SA** or your authorised Proceq agent otherwise all guarantee and liability claims are void.

8.2 Cleaning

In order to ensure a perfect function, the film applicator should be kept as clean as possible. Remove eventual stains of coating materials or adhesives immediately before they can dry. Later they can often only be removed with difficulty.

For cleaning of the **apparatus** use commercially available cleaning agents such as cleaning agent for glass, benzine, acetone. Do not use strong acids or alkaline liquids! For cleaning of the **printing blanket** use only cleaning agents which do not affect the printing blanket. Unsuitable for this purpose are solvents containing ketone such as acetone, or nitro-cellulose diluents.

The edge of the printing blanket of the glass plate must not get wet.

Before cleaning the Proceq ZAA 2300, always switch off the apparatus and unplug it. Never immerse the apparatus in water or other liquids: Danger of short circuit.

Never touch the hot plate, always wait until the heating plate has cooled.

While cleaning, take care that no cleaning liquid penetrates the interior of the apparatus. The function of electrical or mechanical components could be impaired.

If the device has to be disinfected, do not use disinfectants that contain sodium hydroxide.

8.3 Lubrication of the guide rods

From time to time it can be necessary to lubricate the guide rods with some sewing machine oil or something similar.

Before lubricating the guide rods of the Proceq ZAA 2300, always switch off the apparatus and unplug it.

No oil shall be sprayed into the apparatus. The function of electrical or mechanical components could be impaired.

For lubricating proceed as follows:

- Remove the inserted plate (see also chapter 7 “Turning the glass plate” on page 23).
- Turn the apparatus carefully on one side so that the side opening of the cover becomes accessible.
- Put some drops of sewing machine oil on your finger and spread it over the whole length of the guide rods.
- Repeat this for the other side of the apparatus.
- Adjust the start stop (1) at the very beginning and the end stop (2) at the very end and move the drawing unit (22) back and forth several times, so that the oil gets distributed evenly over the whole length of the rods.
- Insert the required plate.

8.4 Replacing the fuse

If the apparatus cannot be switched on (operation light POWER (15) is not glowing, this could be due to a defect fuse. You can replace the fuse by yourself by opening the fuse holder (18) on the back of the apparatus between the main switch (16) and the power supply socket (17) carefully using a screw driver or a similar tool.

Before replacing the fuse, always switch off the apparatus and unplug it.

Replace the fine fuse (18) only by an equivalent fuse of the same type with the same specification. Make sure that the inscription at the connection caps of the fuse corresponds to one of the following designations:

- T 0.8 A / 250 V
- T 800 mA / 250 V
- T 800 / 250 V.

- Clamp the new fuse into the fuse holder (18) and put it back in its place.

Should it still be impossible to switch on the apparatus, please contact **Proceq SA** or your authorised Proceq agent.

8.5 Inspection

The instrument should be checked for proper condition by a qualified electrician at an interval of 2 years. Alternatively, this test may also be performed by Proceq SA.

9 Technical specifications

Version	Drawing speed	Tolerance of drawing speed	Resolution
Proceq ZAA 2300	0-99 mm/s	0 - 90 mm/s: ±1 %	1 mm/s
Proceq ZAA 2300.H for heatable plates		> 90 mm/s: ±3 %	
Proceq ZAA 2300.F	0-247.5 mm/s	0 - 225 mm/s: ±1 %	2.5 mm/s
Proceq ZAA 2300.FH for heatable plates		> 225 mm/s: ±3 %	
Proceq ZAA 2300.FF	0-495 mm/s	0 - 450 mm/s: ±1 %	5 mm/s
Proceq ZAA 2300.FFH for heatable plates		> 450 mm/s: ±3 %	

Material:	Aluminium, red anodised Double-sided glass plate: glass Rubber coated cotton (printing blanket) Polyester (polyester mat)
Dimensions (LxWxH):	Apparatus: 565 mm x 382 mm x 190 mm (22.2” x 15” x 7.5”) Glass plate: 553 mm x 300 mm x 15 mm (21.8” x 11.8” x 0.6”)
Weight:	complete: 20 kg (44.1 lbs) (Glass plate 6.4 kg(14.1 lbs))
Application length:	1 - 400 mm (0.04” – 15.7”)
Application width:	up to 300 mm (11.8”) (depending on applicator)
Substrate thickness:	up to maximum 11 mm (0,43”)
Power supply:	100 V –240 V / 50 Hz – 60 Hz
Power:	25 VA
Fuse:	T 0.8 A / 250 V
Standards:	depending on used accessories: ASTM D823
0-Directives:	EN 61010-1:2001, EN 61326:1997/A1:1998

Ambient conditions for the operation:

Temperature range:	0°C bis +45°C (32 °F to 113 °F)
Relative humidity:	20% to 80%, no condensation
Sunlight:	Do not expose to strong sunlight for long period

Ambient conditions for transport and storage:

Temperature range:	-20°C bis +85°C (-68 °F to 185 °F)
Relative humidity:	20% to 80%, no condensation
Sunlight:	Do not expose to strong sunlight for long period

General:

Excess voltage category:	II
Degree of soiling:	2
Protection class:	1

For indoor use only.

Glossary

T

V

W