khs instruments

SMT-PCB-A4
Manual
Stencil Printer

Operation Manual

1.1

Table of Contents

1) Overview

Thank you for purchasing the SMT-PCB-A4 Manual Stencil Printer.

The field of application of the SMT-PCB-A4 is the (double-sided) SMD PCB assembly of prototypes and small series.

The SMT-PCB-A4 has been designed to coat PCB's with often free of charge frameless stencils with solder paste without major compromises on the print quality and reproducibility of professional stencil printers.

The SMT-PCB-A4 is characterized by the fact that the stencil is largely stress-free on the PCB and the two PCB holders rests. This eliminates the need to to clamp stencil, whereby the set-up time also compared to professional stencil printing is significantly reduced, especially for small quantities.

The SMT-PCB-A4 contains no moving parts and is therefore pronounced by design precise.

This guide describes Stencil printer, the commissioning and the use of of the SMT-PCB-A4

The operation of the SMT-PCB-A4 is very easy. Nevertheless we ask you, to the read the manual completely before using it for the first time and especially to read the notes.

If you have questions, criticism or suggestions, please do not hesitate to send an email to info@ khs-instruments.

Following some unavoidable legal advice:

The stencil printer may only be used for its intended purpose (see following Paragraph). All other applications are not allowed and lead to the void of all liability.

Please read this manual carefully and completely before using it for the first time to avoid damaging the stencil printer, the material, persons and the environment.

Failure to follow or obey the instructions in this manual will invalidate the instructions liability of the manufacturer.

Dr. Schmidt Messtechnik reserves the right to make changes without notice and make improvements to existing products.

Note: The SMT-PCB-A4 has no CE mark because it is not under the Machinery Directive falls. In the EU a CE marking without legal basis is inadmissible.SMT-PCB-A4 instruction manual

2) Intended use

The stencil printer TM-SP-A4 (called product below) is used for coating of printed circuit boards with solder paste. All other applications and applications are not allowed.

The product may only be used if the operating instructions and all relevant provisions have been fully read or taken note of.

Before use, the product must be inspected for possible damage, such as missing or loose parts. In this case, the product must not be used.

The product must be transported with care, because if it falls down body parts can be injured or the product can be damaged.

In particular, make sure that there are no loose parts on or on the product that could fall off.

The product may only be used and maintained by adequately trained and adequately qualified personnel.

The product may only be used on a level and non-slip surface.

The product may only be used with solder pastes which comply with the legal requirements.

When operating the product, all current accident prevention regulations must be observed.

The product must be kept away from children for health hazards and possible ingestion of small parts.

Particularly important:

- The stencil must be checked for sufficient elasticity before use in the product.

- The safety instructions of the solder paste manufacturer must be observed.

- Take care the stencil may have sharp edges: **Risk of injury**

3) Components of the Stencil Printer

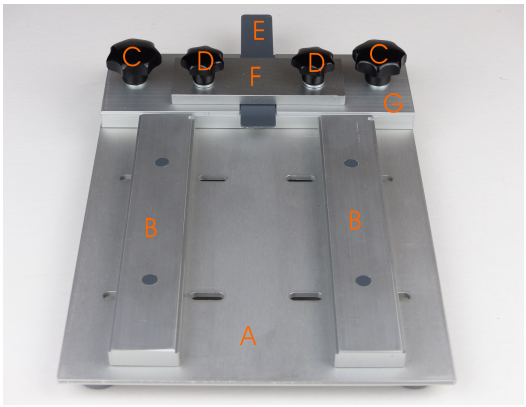

Fig. 1

The stencil printer consists of the following components:

1) A base plate.
2) B PCB holder.
3) C fixing screws for clamping base plate.
4) D fixing screws for clamping plate.
5) E slide to push out the coated circuit board.
6) F stencil Clamp.
7) G clamp base plate.

Fig. 2

9) Fixing nuts X of the two PCB holders B on the underside.

4) Coating the circuit board

4.1) Setting up the circuit board

1) Loosen the fastening nuts X of the PCB holder B on the underside.

2) Select the grooves of the PCB holder B to match the PCB thickness. Possible are 1.0 and 1.6 mm. The PCB holders B have a 1.0 mm deep groove on one side and a 1.6 mm groove on the other side.

Important:

The PCB holders B each have a stop on one side (Fig. 3).
A stop for the 1.0 mm deep groove and a stop for the 1.6 mm groove.

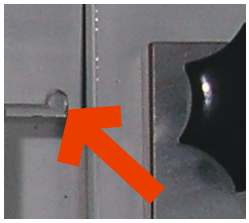

Fig. 3

Place the PCB holders B on the base plate A so that the grooves of the PCB holders B face the desired depth of the groove and the stops are on the side of the clamping base plate G (Fig. 3).

3) Move the PCB holder B in the oblong holes of the base plate A so far that the PCB rests on the two grooves of the two PCB holder B.

If necessary, remove the fixing nuts X on the bottom PCB holder B completely and put one or both PCB holder B in a different slot.

Note:
The ends of the oblong holes also serve as a rectangular stop for the PCB holder. This results in 12 options, one of the two to align PCB holder B quickly and easily at right angles.

4) Tighten the mounting nuts X of the PCB holder B slightly on the underside.

5) Check if the circuit board can be moved on the grooves. The circuit board should be just so tightly clamped that it can still slide out of the slide E (Fig. 4).

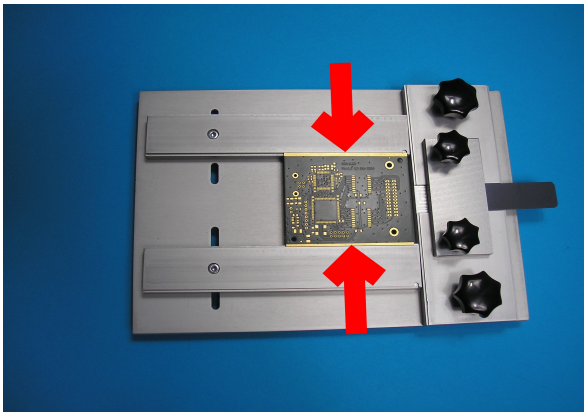

Fig. 4

6) Tighten the fixing nuts X of the PCB holder B on the underside.

7) Push the PCB up to the stop of the upper PCB holder B in Fig. 5 (Fig. 5a).

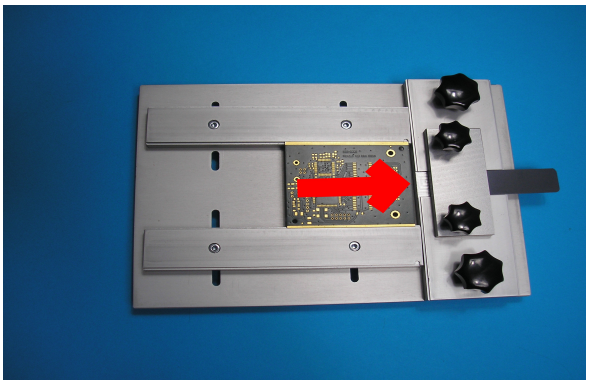

Fig. 5

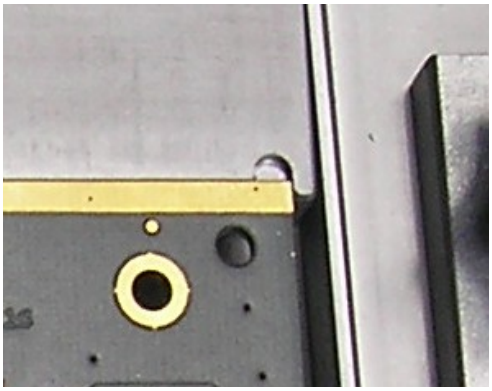

Fig. 5a

Note:

The printed circuit board is usually NOT inserted into the groove in the clamping base plate G. The groove in the clamp base G serves to clamp non-rectangular (e.g., round) circuit boards.

4.2) Adjusting the Stencil

8) Place the stencil on the circuit board and push one side of the stencil into the clamp F.

Important:

The minimum distance between the stencil clamping plate F and a solderpad is about 8 mm. The reason for this limitation is that the stencil must be lifted over the pads at least about 0.5 mm when pushed out so that the solder paste on the PCB is not touched by the stencil.

Note:

If possible, the circuit board should be clamped so that the distance between the stencil clamping plate F and the next solderpad is maximum.

9) Adjust the stencil by moving the stencil on the PCB. Make sure that all pads are correctly adjusted at the edges of the PCB (Fig. 6).

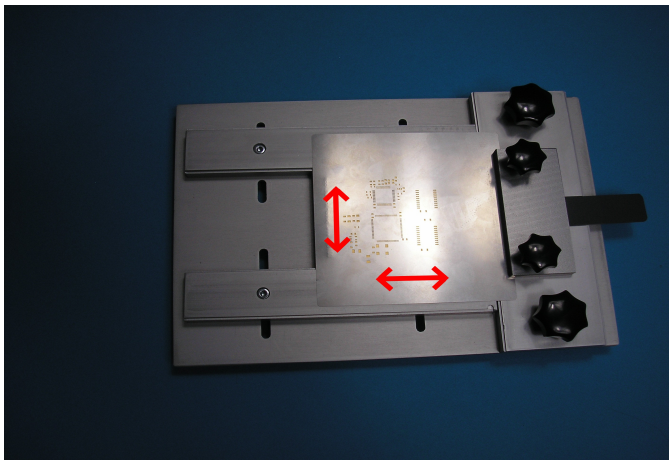

Abb. 6

10) Tighten the screws of clamp D and check that the stencil is firmly clamped.

11) Check the adjustment of the stencil.

4.3) Apply the solder paste

12) Coat the circuit board with solder paste by pulling the solder-coated squeegee on the stencil at an angle of about 45 ° from the clamping plate F evenly to almost the end of the stencil.

13) Check if all pads of the PCB are coated and repeat the procedure if necessary.

14) Raise the stencil on the opposite side of the clamp plate enough to lift the stencil pad closest to the clamp F (Figure 6).

Important:
Lift the stencil only far enough so that the solderpad closest to the clamping plate is lifted only as far as necessary so that the stencil is not permanently deformed.

15) Push the circuit board with the slider E away from the clamping plate F under the stencil (Fig. 7).

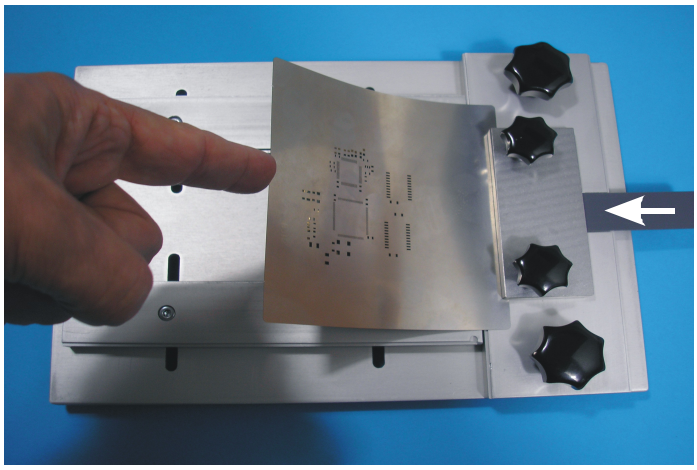

Fig. 7

Note:
The clamping plate F has a cutout on the underside. Therefore, make sure that the slider F is completely under the clamping plate F and does not catch on the cutout of the clamping plate.

16) Remove the circuit board while the stencil remains raised.

If only one circuit board is to be coated, the coating is complete.

4.4) Coating another circuit board

If you want to coat another circuit board, proceed as follows:

17) Lift the stencil and slide a new circuit board under the stencil.

4.5) Readjustment of the stencil

18) Place the stencil (again) on the circuit board and check the adjustment.

Note:
You can move the clamping plate G slightly after loosening the clamping plate nuts C in order to correct minor deviations without having to touch the stencil (Fig. 8).

4.6) 4.6) Cleaning the Stencil

19) If it is necessary to clean the underside of the stencil, after removing the clamping plate nuts C (Fig. 8), you can remove the clamping plate G with the clamped stencil and clean the stencil.

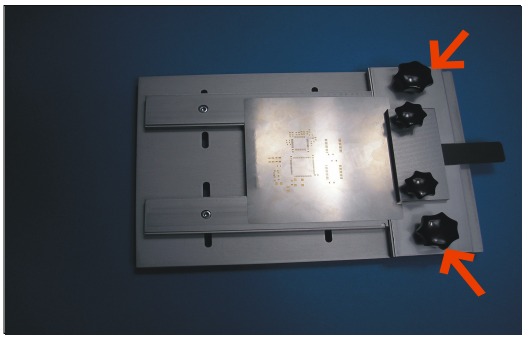

Abb. 8

If cleaning is not required, continue with 17 until all circuit boards are coated.

20) After cleaning, bring the clamping plate G back to its original position and adjust the stencil by moving the clamping plate G.

21) Tighten the clamp nuts C again.

22) Continue with 17) until all printed circuit boards are coated.

5) Liability

The terms and conditions valid at the time of conclusion of the contract apply of Dr. Schmidt Messtechnik. In particular, liability for lost profits is excluded.

There is no warranty / guarantee in the following cases:

- Improper use of the product.
- Incorrect building and / or operation of the product.
- Use of a damaged product.
- Unauthorized changes / repairs on the product.
- Use of non-original spare parts.
- Any influence of external forces or falling.

Changes:

JJ	MM	TT	Version	Change
23	07	06	1.1	Renamed to SMT-PCB-A4
18	04	30	1.0	English translation
17	11	02	1.0	First version