



HORIZONTAL MATCHMAKER

Fine Pitch Placing Machine

Version 2.0

USER MANUAL



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Congratulations with the new Matchmaker of Technoprint, please check first if the Matchmaker is complete:

- 1x Matchmaker
- 1x Vacuum pump
- 1x PCB slide left/right
- 2x PCB stop
- 4x Pipettes with different dimensions
- PC-microscope incl. software, 1.3 Megapixel, adjustable magnification 10-70 and 300 x CE-approved, incl. USB-cable 1,8 mtr.

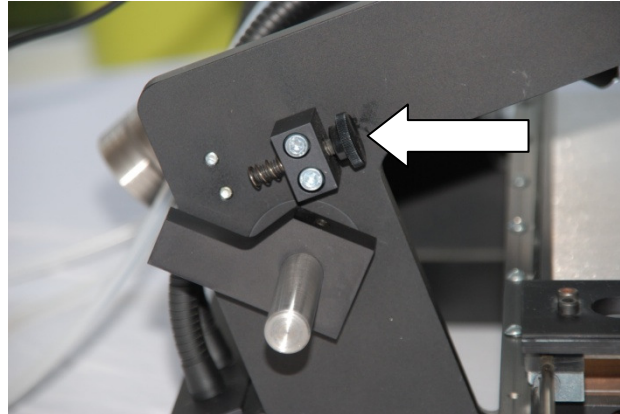
How to start:

- Mount the PCB slide with the 12 screws on the Matchmaker (please see drawing)
- Place the PCB into the PCB holder and slide the PCB holder to the table of the Matchmaker
- Place the right size vacuum pipette at the pipette holder.
- Make sure that the Matchmaker is adapted to the temperature of approximately 20 degrees Celsius for at least 4 hours
- Please check.....
- Place the right size vacuum pipette in the pipette matching the component.
- Place the component in the square of the print holder.
- Make sure that the turntable is in the right position, in which it is possible to pick up the component.
- Slide the print holder, so you can pick up the component (somewhere in the middle).

How to adjust different sizes of components.

- When the component is at the pickup place loosen the ring at the top of the pipette holder.
- Place the pipette in down position, now the vacuum pipette is adjusting to the thickness of the component.
- Now you can fasten the ring at the top of the pipette holder. Make sure the ring is resting on the pipette-holder.
- Switch on the vacuum pump.
- Pick up the component with handgrip, and place in up position.
- Then rotate the turntable in " mirror position" (the interlock will click in automatically)
- The lamps of the Matchmaker can be switched on by installing the adapter. (powersupply)
- The 2 middle lamps have to light the bottom side of the component
- The 2 outer lamps need to light the place where we want to place the component
- Make sure that the lamps are set in a position; the turntable is able to rotate!
- Now it is possible to see through the pocket lens the bottom side of the component, and the place on the P.C.B. where you want to place it.
- To outline the two images roughly, rotate the pipette, or by shifting, or sliding The P.C.B. or sliding the P.C.B.-holder.
- The fine adjustment can be done by handling the X- and Y-micrometers to make a 100 % match.
- Place the component gently on the P.C.B. and press the button on the Handgrip to release the vacuum.

- For protection of component and paste thickness, it is possible to install/adjust placement level at downposition of the component. Please see photo below.



Extra fine-tune procedure

There is a screw and nut at the left back of the Matchmaker. If you want to do a check up of the angels, you need to adjust this screw, **please see photo below**. If you have picked up a component and you find adjusted it, you check the perfect setting. If you look through de pocketlens and look left/right and back and forth, you can see a paralax. If the angels of the Matchmaker are not the same, the two images of component and placementspot are shifting. You can solve this imperfection by turning this bolt with your left hand back and forth until the two images are the most stable. Then fasten the nut to secure this setting.



All these fine adjustments are made by Technoprint before shipping. But if, for what reason the Matchmaker is out of line, this is the first place to check.

Size of the board that can be handled.

With the Horizontal Matchmaker, it is possible to slide the board to the left, for ± 560 mm, so it is possible to have access to the board for rework purposes.
The distance between table and board is then appr. 135 mm.

Components with a distance < 70 mm from the side of the board can be reached by rotating the board 90° , then you can reach distances < 120 mm.

CALIBRATING THE MATCHMAKER

The Matchmaker is calibrated and checked before it is packed and shipped.

When arriving at the customer location, the machine has to be checked, and at least adapt to the temperature app. 20 °C for 5 hours.

After this acclimatisation period, please check if the Matchmaker is “on line”

During transport or after a period of time, it is possible that the machine needs to be calibrated again. This calibrating is easy to do by following the next steps.

Take the calibration set (2 square boards with a cross on it)

You can also use a component with feet on the outside and a PCB on which the component has to match.

1.

Place the transparent cross and place it on the “nest” with the cross down.

Now adjust the height of the pickup nuzzle with knob 2, see Fig. 1

Pick up the transparent cross and lift to “up” position, and rotate the turntable until the mirror is in place.

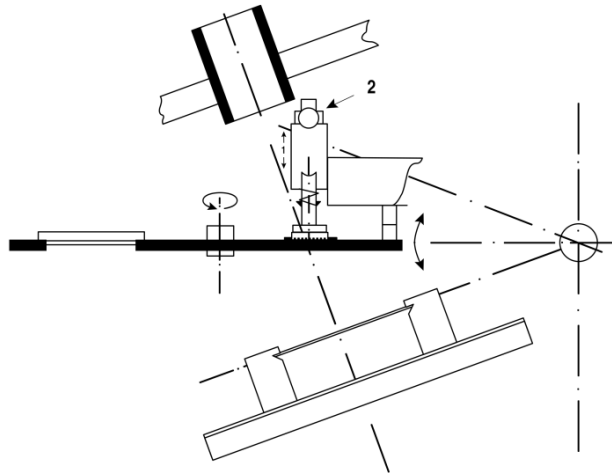


Fig. 1

2.

Place the calibration board with the cross in the board holder, and place it on the table.

Seek the rough position by hand, and fine adjust by rotating on the micrometers until the “match”.

(see fig. 2)

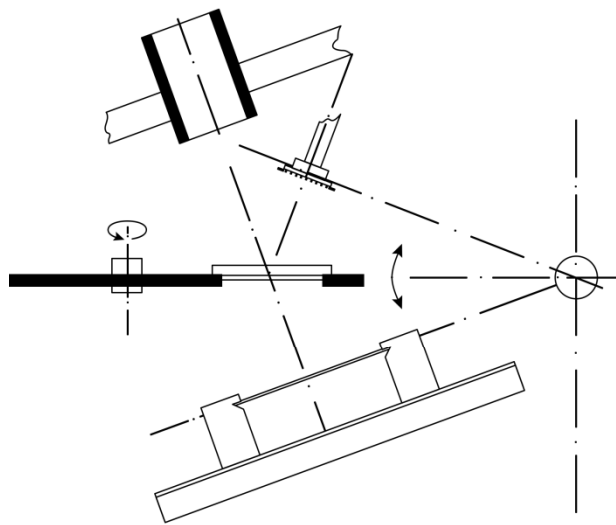


Fig. 2

3.

Now turn the table so it is possible to place the transparent cross on the calibration board.
If the 2 crosses don't match the Matchmaker is "off line" (Fig. 3)

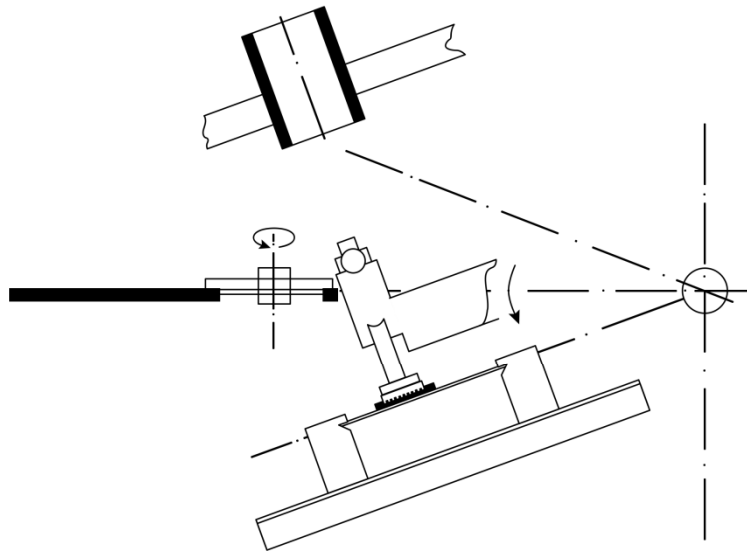


Fig. 3

4.

Now hold the transparent cross in this down position!

Adjust with micrometers until you see the “match”.

Now lift transparent cross in up position, and rotate turntable until mirror is in place.

Gently loosen the screws A (fig. 4), look through the lens, and move very gently the lens holder until you see a match, then gently fasten the screws (A)

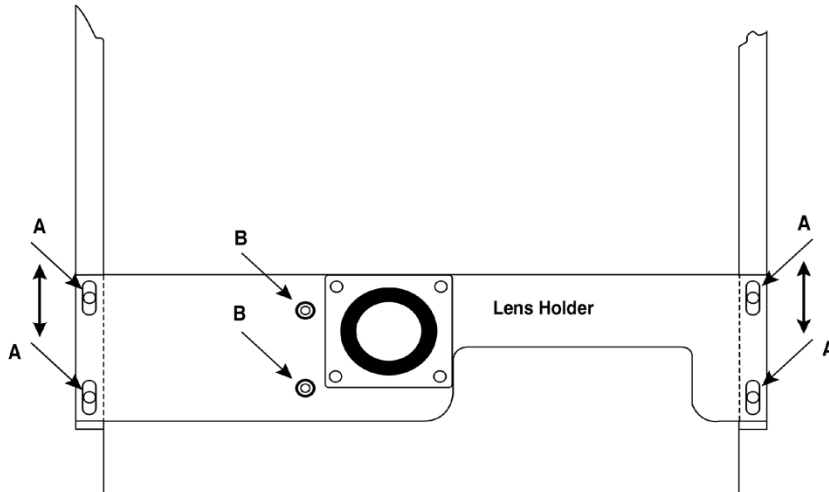


Fig. 4

5.

Now check if Matchmaker is on line by following steps 1, 2, 3 and 4.

6.

This calibrating is a delicate procedure, but in one or two attempts it will become easy to calibrate the Matchmaker or check if the matchmaker is still “on line”