

Paperfox KPF-2 roll-to-roll perforating machine Instructions manual



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Application of the Paperfox KPF-2 roll-to-roll perforating machine

- You can use Paperfox KPF-2 roll-to-roll perforating machine for perforating roll materials up to 40cm diameter and 50 cm width.
- Other custom tailored solutions can be made on individual order.

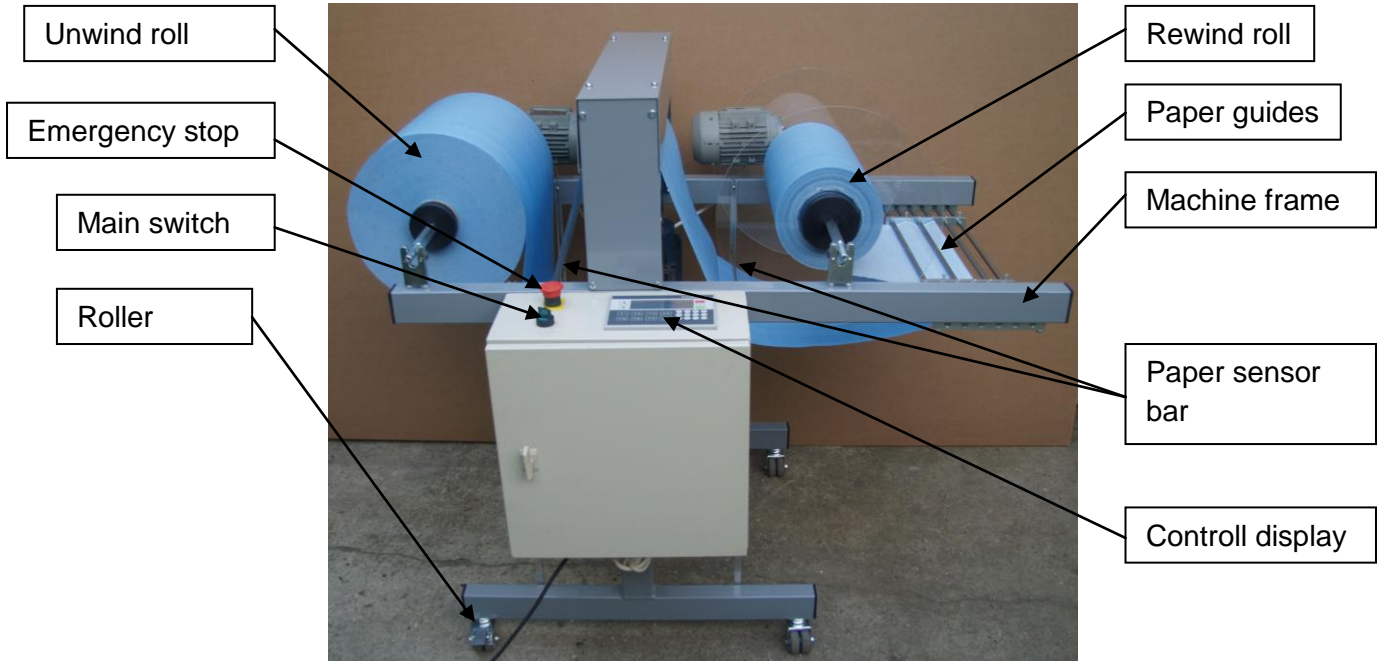
Warning

- The Paperfox KPF-2 roll-to-roll perforating machine is designed only for perforating paper or carton with the specified parameters.
- Prior to the Paperfox KPF-2 roll-to-roll perforating machine utilization, definitely read all instructions.
- To reduce the risk of injury, an inspection shall be essential, if the Paperfox KPF-2 roll-to-roll perforating machine utilized in the vicinity of children.
- If you don't use the machine then switch it off.

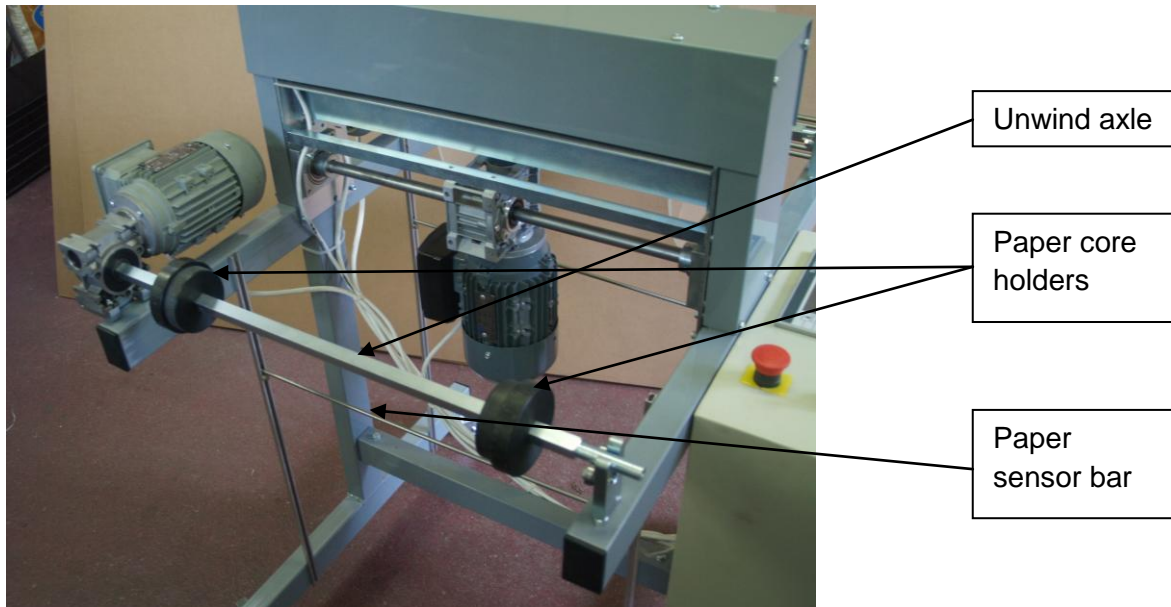
Parameters

Dimensions: (L x W x H)	1150 x 1000 x 1150 mm
Weight:	90 kg
Max. roll diameter::	400 mm
Max. roll width:	500 mm
Max. paper weight:	300 g/m ²
Power:	230V 50Hz, 1 phase 850W
Paper core diameter:	3"
Cutting tool:	24mm Steel rule die
Programmable functions:	Perforation distance, rewinding speed, acceleration, timeout, step/mm
Counters:	1 resetable counter, 1 total counter
Max. perforation distance:	1330 mm (can be modified)
Distance setting resolution:	1mm
Controller type:	Thinget XMP3-18PMT
Stepper motor type:	23LC51-025-8W-F8-1-0
Stepper motor driver:	MSDD-40-3.2

Parts of the Paperfox KPF-2 roll-to-roll perforating machine



Inserting the unwind roll into the Paperfox KPF-2 roll-to-roll perforating machine



Turn the Unwind axle into vertical position. Remove a paper core holder and insert the unwind roll on the unwind axle. (Take care of the turning direction)



Insert the paper core holder onto the unwind axle and fix it with a 5mm hexagon tool.

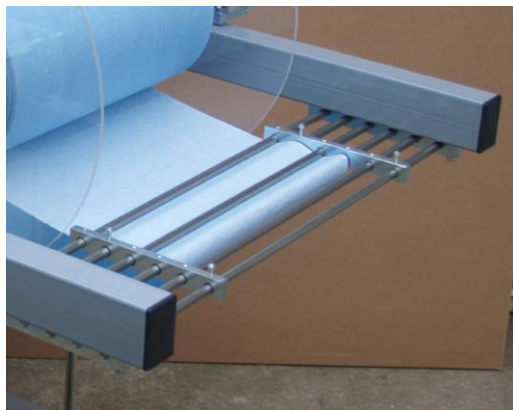
Turn back the unwind axle to horizontal position.

Inserting the paper under the perforating knife.



Guide the paper under the perforating tool. You can use for this purpose a sheet of card or corrugated paper as in the picture.

Inserting the paper into the paper guides



Guide the paper thru the paper guides as in the picture. You don't have to use all paper guide bar for this purpose. If you use more paper guide bar that increases the tension of the paper and you can get harder paper rolls. If you apply more tension that also increases the risk of tearing the paper.

Inserting the rewind roll

You can insert the rewind roll in the same way as the unwind roll was inserted. Stick the end of the paper with a piece of tape on the rewind core.

Setting the paper sensor bars

You should place the paper sensor bars (6mm diameter steel bar) in its guides.



With the help of this bars can sense the machine of the tense of the paper.

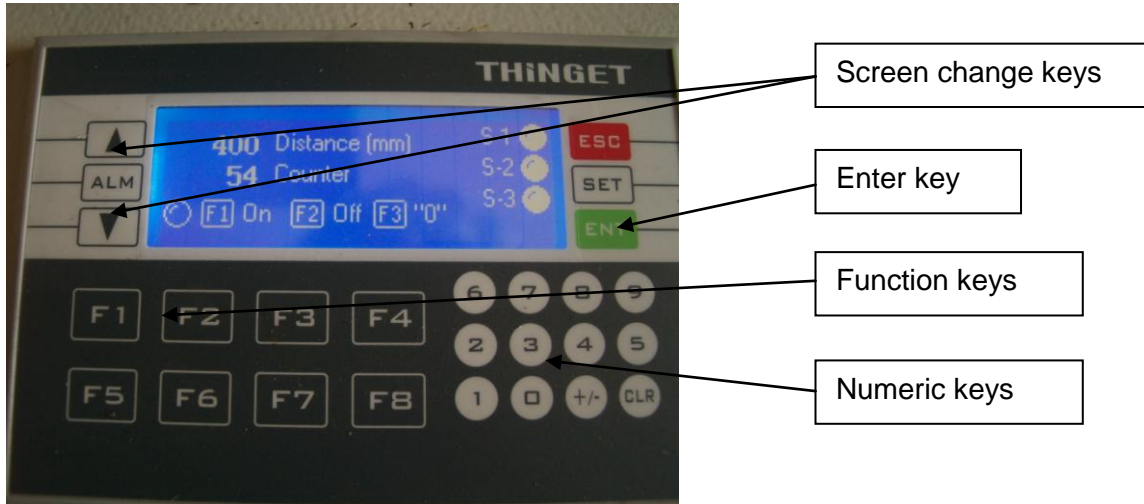
Switching the machine on



- Switch on the main switch. If the switch not lights on then check the emergency stop button. You can release the emergency stop button by turning its head.
- After few second the digital display lights and you can program the parameters or you can start the machine.

Setting the parameters

You can control the machine with a digital touch sensitive display.



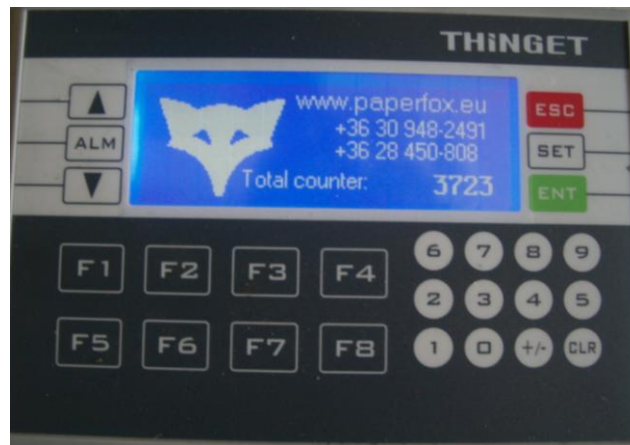
- After switching on you can see this display. You can start the machine with the F1 key and stop with the F2. You can reset the counter with the F3.
- The S-1, S-2, S-3 lights serving diagnostical purposes. You can check the status of the paper sensors and the perforating knife sensor with these lights.
- You can set the distance between perforations in the following way:
 - touch the "distance" number on the screen, the number will be highlighted
 - Write the desired distance with the numeric keys and press "Enter" The maximum distance can be set is 1300mm.
 - Alternatively you can use the set button to choose the parameter to set.



You can change the screen to the other parameters with pressing the screen change keys. At the next screen you can set the following parameters:

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- Frequency: It is the frequency of the steps of the step motor. Usually it is set to 10.000.- Hz. If you increase this frequency, the speed of the machine increasing, but the controller can lose the control on the motor. It can cause inaccuracy or maybe that the machine can't work at all.
- Accelerate time: Decreasing this number the speed of the machine increases, but the stability of the machine decreases. Usually we don't suggest changing this value.
- Pulse/mm: Here should be written the number of pulses you should send to the stepper motor to drive the paper 1mm. In factory setting it is 24 but in some cases can be something else.
- Timeout: If the paper sensor sings that the paper is loose the controller switch on the rewinding motor. If the paper stays loose after this time the machine will stop in order to prevent paper jam. The left number is the rewind roll timeout and the right one is the unwind timeout. If the machine stops during operation increase this value, but keep it as low as it is possible.



In the next screen you can find our contact dates and the total counter. This counter can't be reseted and sows the total number of perforation which the machine has made.

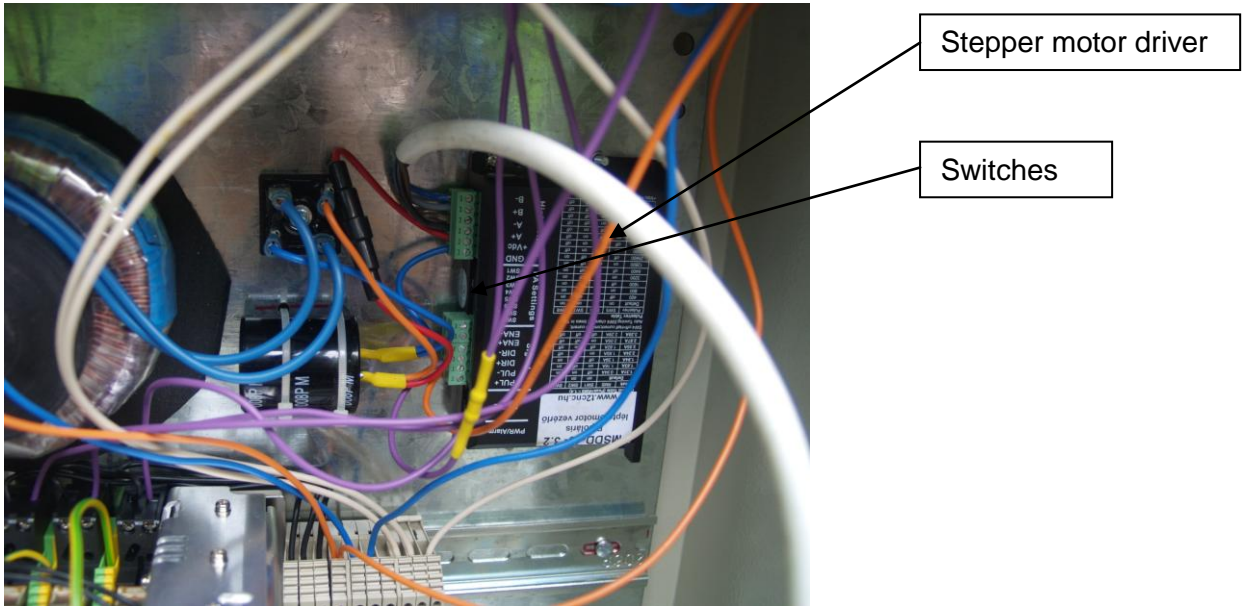
Increasing the accuracy

1. Check the real distance between perforations and change the "distance" parameter so that the real distance should be correct.
2. If the first solution doesn't help you can do this: The maximum number of steps which can be programmed is in factory setting 32768. That means that the maximum number of perforation distance multiplied with pulse/mm value is 32768. The pulse/mm in factory setting is 24. You can change it to 23 or 25, which mean that you can set it with 4% accuracy which maybe not enough in certain cases.

In this case we suggest setting the pulse/mm value to 1 and setting the distance value to the desired value multiplied with 24. Let's check the perforation distance, and now you can correct the "distance" value in smaller steps.

Very advanced settings

You can make more advanced settings, but we recommend the following steps only for qualified person.



The stepper motor driven by a driver MSDD-40-3.2. (You can find more description in Internet by asking Google)

With the switches SW5, 6, 7, 8 you can program the steps/rotation. You can change the resolution, max. length and speed with this switches. Don't worry, you can't make much harm with this switches you can set it back to factory setting if the machine doesn't work.

The switch SW4 in OFF position sets back the current of the stepper motor if it is not turning. We suggest keeping it in OFF position.

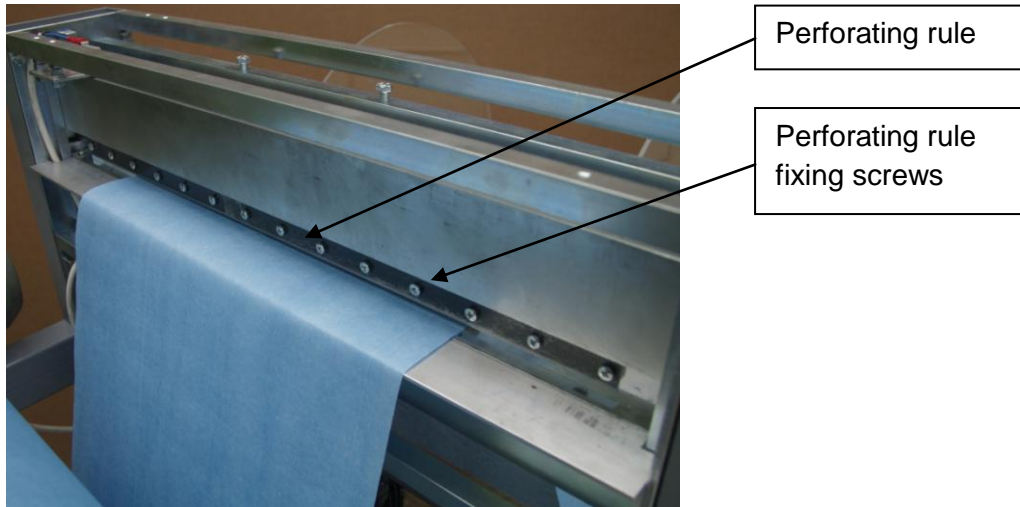
With the switches SW1, 2, 3 you can program the current of the stepper motor. We don't suggest changing it before understanding the documentation of the 23LC51-025-8W-F8-1-0 stepper motor and the MSDD-40-3.2 stepper motor driver.

The factory setting of SW1..SW8 switches:

SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
OFF	OFF	ON	OFF	ON	ON	OFF	ON

Changing the perforating tool

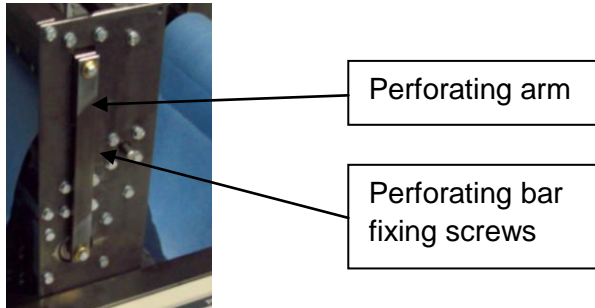
After long usage maybe that you have to change the perforating tool.



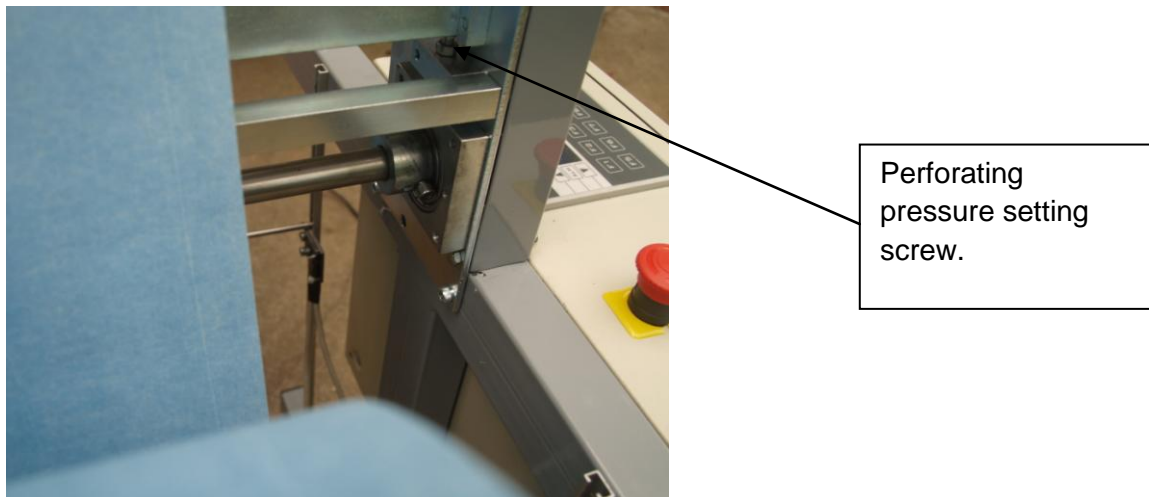
You can remove the perforating rule after removing the M4 perforating rule fixing screws. After changing the perforating rule you have to set the perforating pressure.

Setting the perforating pressure

After changing the perforating rule or after a long usage when the perforator doesn't perforates well, you have to set the perforating pressure.



- Remove the cover of the machine.
- Release the perforating bar fixing M6 screws with a 10mm wrench at both side of the machine. (These screws are behind the perforating arm so you can't see them on the photo.)



- Set the perforating pressure booth side with the perforating pressure setting screws. First you set the perforating bar in a lower position and you can increase the perforating pressure in small steps checking the perforation quality after each setting.
- Fix the perforating bar fixing screws and mount back the covers.

Problems and solutions

Problem:	Solution:
After switching on the switch don't lights.	Check the emergency stop button and release it if necessary. Check the fuse Check the connection to the electric network
The machine doesn't start after pressing the F1 button.	The F1 button is active only if the first screen activated. If you are not sure, turn off and on the machine and the first screen will be active.
The machine stops unexpectedly or after few seconds.	Increase booth timeout value. Check the paper sensor bars.
In case of paper jam the machine don't stop or stop too late.	Decrease the timeout values.
The machine tears the paper.	Do not wrap the paper on every paper guide bar. Change the perforating tool for another one which doesn't perforates so strong.
The rewind roll is too soft.	Use more paper guide bars to wrap the paper around them.
The machine not perforates well.	Increase the perforation pressure with the pressure setting screws. Change the perforating tool for a new one.

Declaration of conformity



Product:

Paperfox KPF-2 Roll-to-roll perforating machine

Manufacturer:

Fürcht Zoltán

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This product is in accordance to directive and standards:

- 2006/42/EC - Machine directive
- EN1010 - Safety requirements for the design and construction of printing and paper converting machines
- ISO 13850:2006 - Safety of machinery, Emergency stop

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