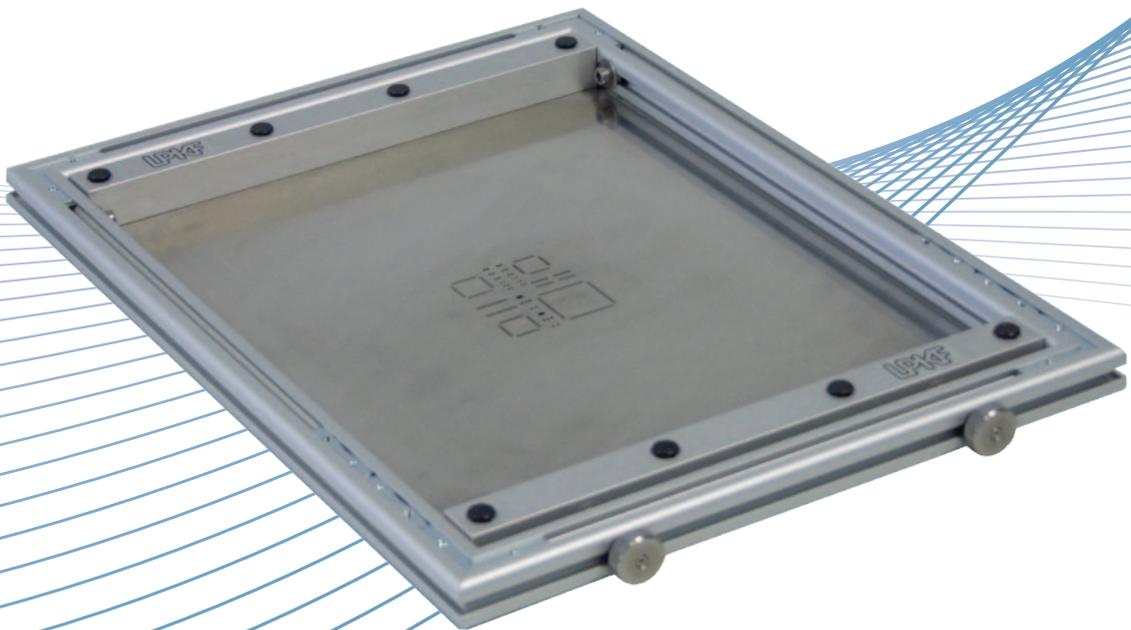


USER MANUAL

Double-sided quick release
mechanical stretching frame

LPKF Zelflex® QR



1 INTRODUCTION

Company name: LPKF Laser & Elektronika d.o.o.
Abbreviated name: LPKF d.o.o.
Address: Polica 33
SI-4202 Naklo
Slovenia

Telephone: + 386 (0) 592 08 800
Fax + 386 (0) 592 08 820

Internet: www.lpkf.si

E-mail: support@lpkf.si, sales@lpkf.si

Trade-mark:



1.1 LPKF ZeIFlex QR

The mechanical stretching frame, LPKF ZeIFlex QR, allows direct and quick clamping of milled polymer stencils, and metal SMT stencils. Optimum tension of the stencil over the entire printing template surface is achieved by ZeIFlex tension regulators. All necessary corrections of tension are possible later as well, when the frame is already set up in the printing machine. The adjustable rear bar provides a possibility to directly clamp smaller and slimmer templates. This double-sided mechanical frame is especially suitable for smaller printers, and it can be delivered in different sizes, up to 23".

1.2 Warnings

Copyright© 2010 LPKF d.o.o.

Copying and distributing these instructions in their entirety or in part is only permitted by LPKF approval in writing.

Note: Data can be altered without prior notice.

Original Instructions

LPKF is not liable for any damage occurring due to improper use of these instructions.

The owner of the LPKF device is obligated to:

- Ensure that the device is used only for its intended purpose.
- Ensure that the device is used only under the specified operating conditions.
- Regularly check safety, and control devices.
- Ensure that only authorised and qualified personnel operate the device.
- Ensure that all operators of the device have ready access to these instructions.
- Ensure that the device always has safety labels in place.

Before opening the packaging, check the »shock sensor« located on the outside of the box. If the indicator is colored bright red, DO NOT OPEN THE PACKAGING, but immediately inform your transport agent!

Remove the packaging and check the general state of the equipment, and check the contents against the enclosed packing list.

In the event of any damage immediately inform the transport agent!

Before starting-up the device, remove all packaging, which served as protection of the device during transport, otherwise severe damage could be caused to the device!

Please note: unauthorised repairs or modifications to the equipment will void the warranty!

In case of problems with the machine, please immediately contact us, giving the serial number of the machine!

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sales@lpkf.si

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2.1 Symbols, etc. used in this manual

Text in **bold letters** emphasises the importance of the information.

Symbols that you will notice in some chapters have the following meaning:



Danger!

The symbol is used to highlight danger to life or health.



Caution!

The symbol warns of circumstances that could threaten the safety and health of the device operator or cause a serious device defect.



Good advice and instruction

“Rapido” warns us of possible faults, and recommends simple and effective solutions.

2.1.1 Registered trademarks

The LPKF logo and all LPKF product brand names are registered trademarks of LPKF Laser & Electronics AG and LPKF Laser & Elektronika d.o.o.

All other trademarks are property of their respective owners.

3 BASIC DATA

3.1 Name and address of the manufacturer

Company name: LPKF Laser & Elektronika d.o.o.
 Abbreviated name: LPKF d.o.o.
 Address: Polica 33
 SI-4202 Naklo
 Slovenia

Telephone: + 386 (0) 592 08 800
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Internet: www.lpkf.si

E-mail: support@lpkf.si, sales@lpkf.si

Trade-mark: 

3.2 Relevant model

LPKF ZelFlex QR

3.3 Intended use

Professional quick-release SMT stencil frame.

3.4 Technical data

Size	Width & length are defined in the frame name LPKF ZelFlex QR 584×584 width 584 mm, length 584 mm
Thickness	32 mm
Weight	4,3 – 8 kg (9,5 – 17,6 lbs) (depends on model & size, without adapters)
Ambient conditions	Temperature: 5-30 °C (41-95 °F) Relative humidity: 30-95 %

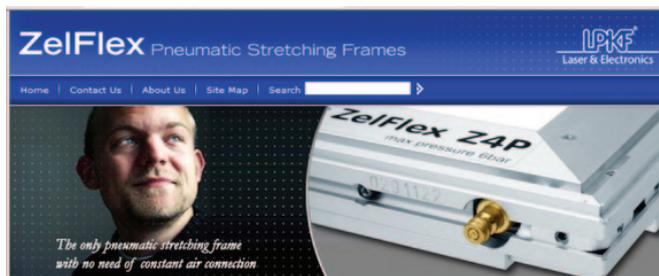
When the frame is equipped with an adapter, its outside dimensions become part of the name:

LPKF ZelFlex QR 266×380/362×480 (dimensions with an adapter).

ZelFlex QR, most common, product range:

- ZelFlex QR 266×380
- ZelFlex QR 362×480
- ZelFlex QR 406×508

Find out more at:
www.zelflex.com



3.5 Noise level/vibration/emission of hazardous chemicals

The device does not cause any noise or vibration.

Contact with chemicals (soldering pastes) is possible during the process of printing.



Soldering pastes can contain hazardous chemicals.



Verify data on the type of the substance and dangerous characteristics of the substance on the packaging or on the safety data sheet.



Soldering paste can contain lead!
Please ensure that the prescribed safety measures stated in the paste manufacturer's instructions are observed. Any advice concerning personal protective equipment should also be followed!

4 SAFETY NOTES



Before using the device carefully read this chapter on health and safety. Familiarise yourself with potential risks and prescribed safety precautions.

4.1 General

1. The device must be installed in accordance with the installation instructions.
2. The device should only be used for its designated purpose.
3. A suitable working environment must be ensured.
4. The device may only be operated by qualified personnel.
5. Servicing can only be performed by authorised and qualified personnel.
6. Ready access to the “User Manual” must be provided to all device operators.

4.2 Hazards

	CHEMICAL HAZARDS	Soldering pastes, cleaners and glues can contain dangerous substances that are hazardous to health
	MECHANICAL HAZARDS	A risk of cuts is present during the process of clamping the stencil (use protective gloves)
	MECHANICAL HAZARDS	Inflating the frame without holding bars mounted could cause serious injury (uncontrolled moving parts)

4.3 Safety measures

Before operating the device a full visual inspection should be carried out. In the event of any defects or malfunctions work may not begin before removing all faults !

It is of vital importance that the area around the device is maintained clean and tidy. A disorganised work-place can cause occupational injuries (e.g. a person can fall, slip or incur an injury).

Holding bars must always be mounted on the frame during printing.

Do not push sharp edges of the stencil through the notches on the profile.

Please ensure that the environment in which the equipment is going to be used conforms to that specified in this document.

While working with the device, complete attention of the operator is required. A person who is feeling unwell or is having difficulties concentrating should not operate the device!

Only equipment, which has been approved by LPKF, can be used in conjunction with the device. The use of unsuitable equipment could endanger the operator!

Repairs can only be carried out by authorised service personnel. The service personnel should ensure that the safety of the equipment is not compromised by the repair.

The storing or consuming of food and beverages in the work area is forbidden!

Smoking is forbidden!

When using hazardous substances, safety data sheet instructions and advice should be followed!

Recommended personal protective equipment: protective gloves!

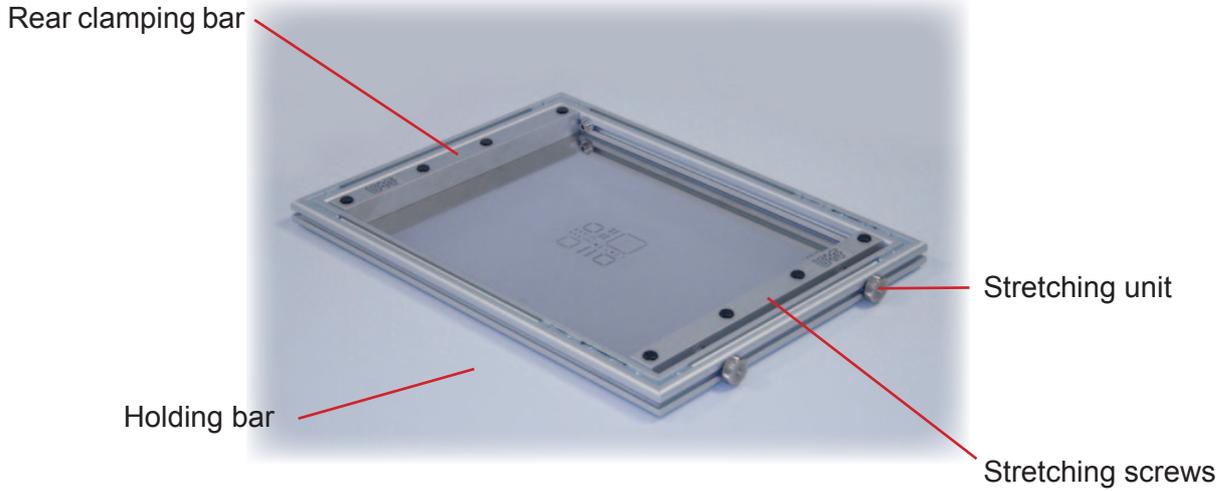


4.4 Procedures in the event of injury or other emergencies.

In the event of a work-related injury, stop the device immediately, and if necessary, seek professional medical assistance.

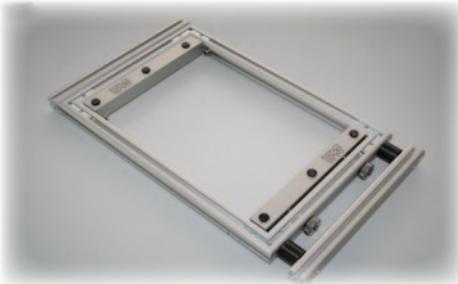
5 DEVICE DESCRIPTION

5.1 Basic parts



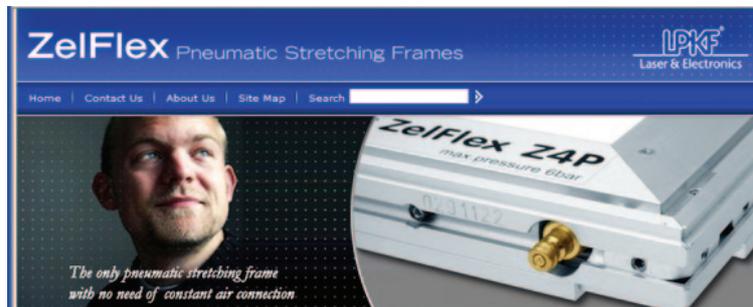
5.2 Optional equipment

5.2.1 Adapters



Different adapters for printers have been designed to fit most of the customer's demands for different printer requirements

Please find additional information on: www.zelfflex.com



6 INSTALLATION

6.1 Opening the packaging

Carefully open the packaging by cutting the belts.

6.2 Inspection of the frame

Inspect the ZelFlex frame for transport damage.



If any transport damage is discovered, immediately notify your transport agent!

- Please inspect the ZelFlex frame immediately after unpacking it:
 - check the enclosed packaging list
 - check the general state of the device



Immediately contact your ZelFlex representative, provide the S/N and type of the frame.
ZelFlex frames may be repaired by an authorized ZelFlex partner only.

7 INSTRUCTIONS FOR USE

7.1 Process of inserting the stencil

1. Frame without stencil.



2. Using the two hexagon-headed screws, attach the rear bar according to the stencil length. Tighten them (the rear bar must be parallel to the rear frame profile).



3. Unwind the stretching screws from the stretching units by about 10 mm.



4. Remove the holding bars from the front stretching and rear clamping bars.



4.1

Press the holding bar down.



4.2

Move the holding bar to the right.



4.3

Remove the holding bar.



5.

Remove holding bars and place them in front of and behind the frame.



6. Place the stencil onto the pins on the rear clamping bar.



7. Close the rear clamping bar with the rear holding bar

7.1

Place the holding bar to the rear clamping bar.



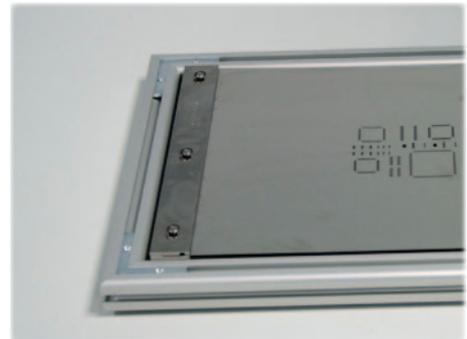
7.2

Press down the holding bar and move it to the left.



7.3

Release the holding bar.



8.

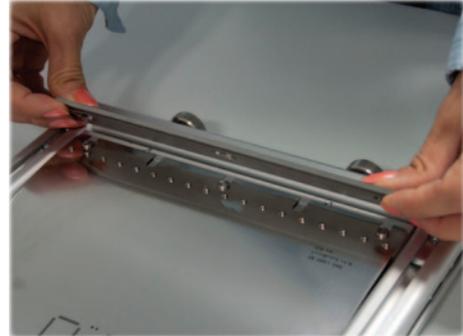
Place the stencil onto the pins on the front stretching bar.



9. Close the front stretching bar with the front holding bar

9.1

Place the holding bar to the front stretching bar.



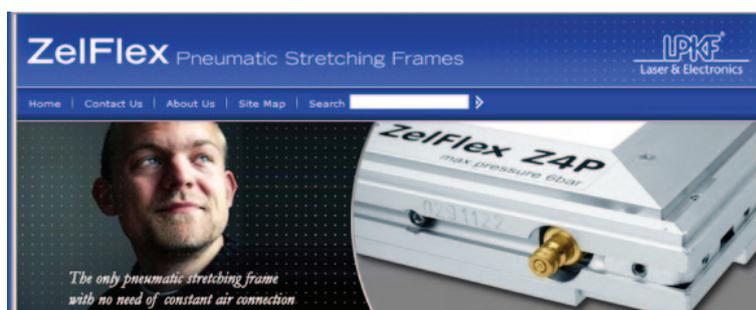
9.2

Press down the holding bar and move it to the left.



9.3

Release the holding bar.



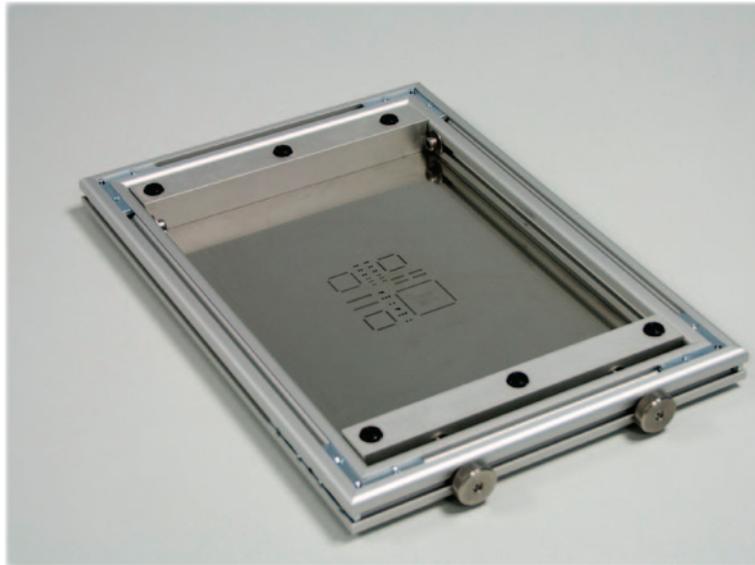
10. Tighten the stretching screws to obtain the correct tension of the stencil.



11. The gap between the locker on the stretching screw and the bar should be approx. 3 mm for the required working tension.



12. Frame with stretched stencil from the top.

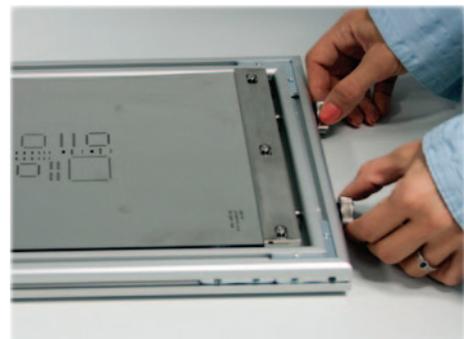


The ZelFlex size should be selected according to printer data, either for direct inserting or using adapters. When the printer supports various sizes of the frame, frame holders must be adjusted to the ZelFlex frame size.

7.2 Process of removing the stencil

1.

Release the stretching screws.



2.

Remove the holding bars from the stretching as well as from the rear clamping bars.

3.

Release the stencil from the stretching pins pressing it down.

4.

Release the stencil, first from the front stretching and then from the rear clamping bars.

8 MAINTENANCE

8.1 General

ZelFlex frames are designed to be operated maintenance free, except for cleaning. Always use clean and dry compressed air to avoid particles entering the ZelFlex frame.

8.2 Cleaning frame



Never clean ZelFlex frames using cleaning devices or dipping them into cleaning solvents!

To clean ZelFlex Protect, a soft cloth, mild agent, or isopropyl can be used.

No cleaning solvent should enter the ZelFlex frame!

Pastes, solders or adhesives must be cleaned in accordance with the manufacturer's instructions regarding each individual substance.



Most soldering pastes and glues can be cleaned using isopropyl alcohol.



Attention, follow the manufacturer's instructions for each individual substance!

8.3 Cleaning stencil - Washing Frame (optional)

Matching the respective to sizes of the ZelFlex frames/stencils, two special washing frames for stencils with ZelFlex perforation are available:

- LPKF ZelFlex Washing frame 584x584:
For stencils with ZR an QR perforation with frame width of up to 584mm (23") and frame length of 508-584mm (20"-23")
- LPKF ZelFlex Washing frame 736x736:
For stencils with ZR an QR perforation with frame width of up to 610mm (24") and frame length of 610 - 736 mm (24"-29")

The stencil is easily clamped onto the washing frame, which provides support and protection of the stencil during washing.

The washing frame is designed to be inserted into a cleaning agent solution or/and ultrasonic cleaning system.

8.4 Stencil care

Care should be taken when inserting the stencil into the frame and when inserting the frame into the printer (please observe printer manufacturer's instructions, if available).

Use a metal or plastic spatula to remove the majority of solder paste from the stencil.

Care should be taken when removing the stencil from the frame.

Final hand cleaning should be done with care using cleaning agents recommended by manufacturers of the solder pastes and adhesives.

If a screen washing machine is used, please observe the manufacturer's instructions.

Damage could occur if stencils are exposed to mechanical friction. Do not wash the ZelFlex QR frame in the cleaning machine.

If a brush is used to clean the stencil, damage can occur, especially in fine pitch areas.

9 APPENDICES

Shipped with all units:

- User Manual
- Gerber data

Options:

- Washing frame



Please find further information about LPKF ZelFlex stretching frames on our web site:

<http://www.zelflex.com/>

The screenshot shows the LPKF ZelFlex website. The header includes the LPKF logo and the text 'ZelFlex Pneumatic Stretching Frames'. Below the header is a navigation bar with links for Home, Contact Us, About Us, Site Map, and a search box. The main content area features a large image of a man and a ZelFlex Z4P stretching frame. Below this is a navigation bar with links for Product Range, Supported Printers, How to Buy, FAQ, and News. The main content is divided into four columns, each with a product title, a brief description, a small image of the product, and a 'See product details >>' link. The footer contains copyright information and links for Terms of Use, Privacy, and Authors.