

Premium blade holder



Instructions for Use

Leica Premium blade holder

Version 1.3, English – 10/2012

Order number: 14 0491 82101, RevD

Always keep this manual with the instrument.

Read carefully before working with the instrument.

Only valid together with the Instructions for Use of the delivered cryostat.

All notes in the cryostat's Instructions for Use apply.

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BIOSYSTEMS

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1. Sectioning – Premium blade holder

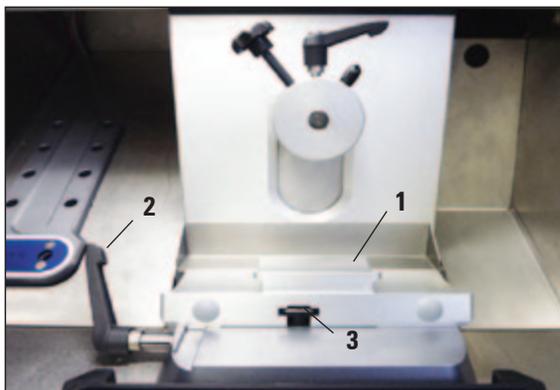


Fig. 1

Inserting the base

1. To insert the blade holder base (1), move the lever (2) to the back. Slide the base onto the T-piece (3) of the baseplate.



When inserting the blade holder base, you have to overcome the resistance of the spring (located in the base of the blade holder).

2. To clamp the blade holder base, turn the lever (2) to the front.

Inserting the premium blade holder

1. Push the segment arc onto the base.
2. Clamp the blade holder into place on the left side with a 4 mm Allen key (23). In doing so, take the desired clearance angle into account (left scale 0°–10°).

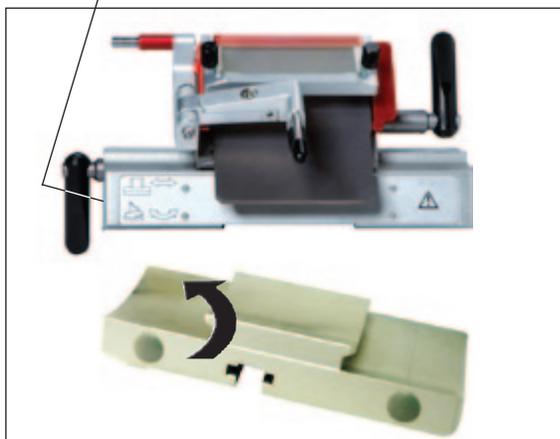


Fig. 2

Assembling the anti-roll system

Anti-roll systems for section thicknesses of 50 μm and 100 μm are included in the standard delivery. Anti-roll systems for section thicknesses of 150 μm are available as an option. For details on how to assemble the anti-roll system, see chapter “Assembling the anti-roll system for the Premium blade holder” on page 10.

1. Sectioning – Premium blade holder

Inserting blades into premium blade holder



Caution!
Microtome blades are extremely sharp!



The premium blade holder can be used for both low-profile and high-profile blades.

Inserting high-profile blades

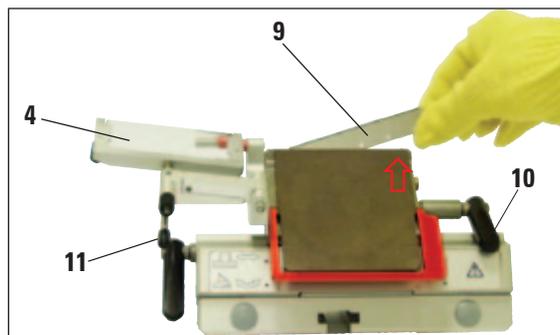


Fig. 3

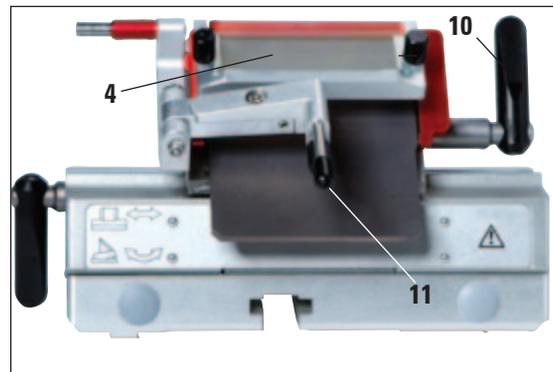


Fig. 4

Inserting low-profile blades



Fig. 5



The safety gloves included with standard delivery must be worn when inserting the blade!

1. Fold the anti-roll system (4) to the left – while doing so, hold the lever (11) (not the adjusting screw of the anti-roll system) so that the height of the anti-roll system remains unchanged (Fig. 3).
2. Open the clamping lever (10) by turning it counterclockwise (Fig. 3).
3. Carefully insert the blade (9) from above or from the side between the pressure plate and the insert for low-profile blades. Make sure that the blade is inserted so that it is centered and lies evenly on the edge (see red arrow in Fig. 3).
4. Clamp the clamping lever (10) by turning it clockwise (see Fig. 4).
5. Fold the anti-roll system (4) back to the right (toward the blade) using the lever (11).



The anti-roll system functions as a knife guard here!

- When using low-profile blades, the insert for low-profile blades must first be placed in the blade holder. Then insert the blade.

1. Cutting – premium blade holder

Inserting low-profile blades (continued)



Fig. 6

Two magnets are attached to the rear side of the insert. These point away from the operator after the insert has been inserted (towards the rear pressure plate).

Then insert the blade as described (for high-profile blade).

Removing the blades

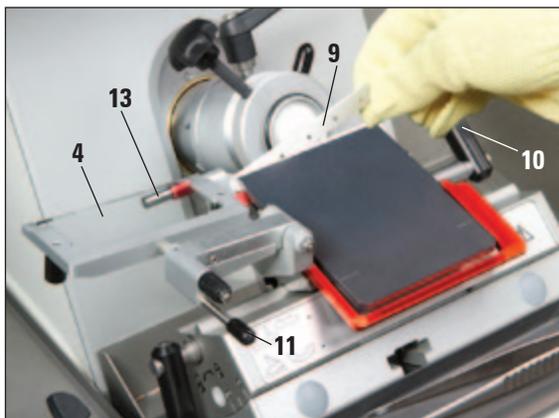


Fig. 7

1. Ensure that the handwheel is securely locked.
2. Fold the anti-roll system (4) to the left – while doing so, hold the lever (11) (not the adjusting screw of the anti-roll system) so that the height of the anti-roll system remains unchanged.
3. Open the clamping lever (10) by turning it counterclockwise (Fig. 7).
4. Push the blade ejector lever (13) so that it contacts the left side of the blade and pushes it to the right.
5. Use the magnet on the end of the Leica brush (12) to attach to the exposed right side of the blade.
6. Carefully lift out the blade (9).

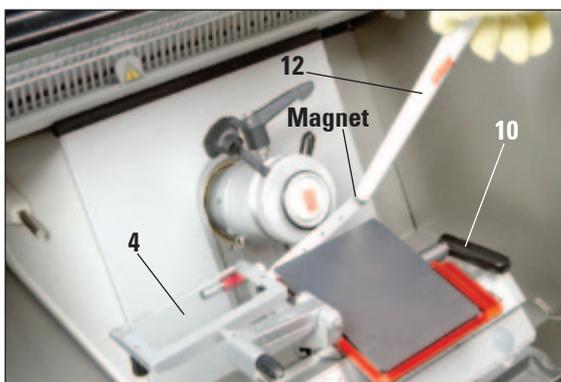


Fig. 8

1. Sectioning – Premium blade holder



Fig. 9



Guide the brush with the magnet to the blade and lift it upwards and out. The cut-resistant safety gloves included in standard delivery must be worn when disposing of the blade!

7. Once the blade has been removed from the blade holder, dispose of it in the dispenser container (storage compartment in bottom, Fig. 9) or by the method compliant with the institutional guidelines.

Lateral movement

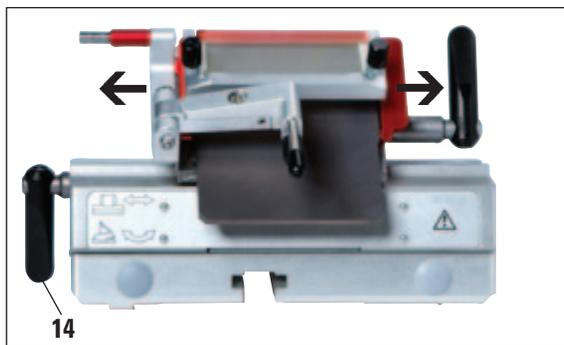


Fig. 10

If the sectioning results are not satisfactory, the blade holder (on the segment arc in figure 10) can be shifted sideways in order to use another part of the blade, and to benefit from the entire length of the blade.

1. Turn the clamping lever (14) clockwise to release, and then shift the blade holder sideways to the desired position.
2. To tighten, turn the clamping lever (14) counterclockwise.

Clearance angle adjustment



The position of the knife edge relative to the specimen will change when the clearance angle is adjusted. For this reason, always place the specimen above the knife when adjusting the clearance angle. Otherwise, the specimen could hit the knife while being raised. Carefully check the distance between the block face and the cutting surface before taking the first section.

- A clearance angle that is too steep or too shallow may lead to poor sectioning results and can possibly damage the specimen.

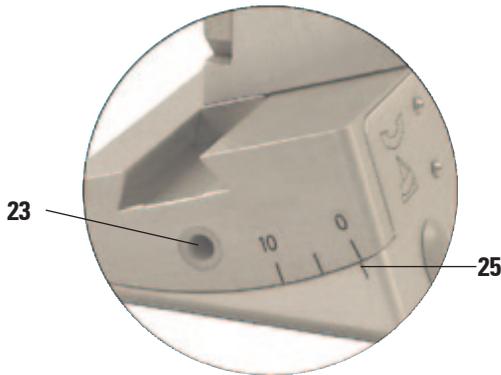


Fig. 11

1. The clearance angle scale is located on the left side of the blade holder.
2. Release the blade holder by turning the No. 4 Allen screw (23) counterclockwise. Select a clearance angle of 0°. To do so, align the number 0 to the index mark (25) and tighten the Allen screw (23). If the sectioning results are not satisfactory, increase the clearance angle in 1° increments until you achieve optimum results.



Settings of 2° - 5° (premium blade holder) are well suited for most applications.

2. Optional components

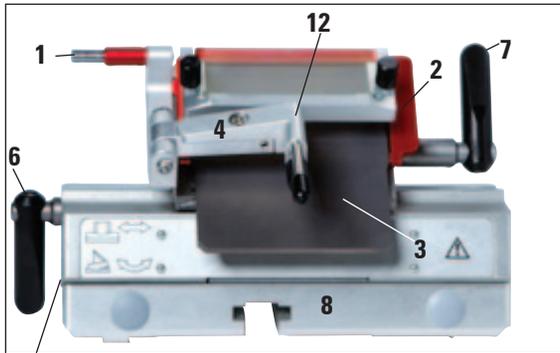


Fig. 12

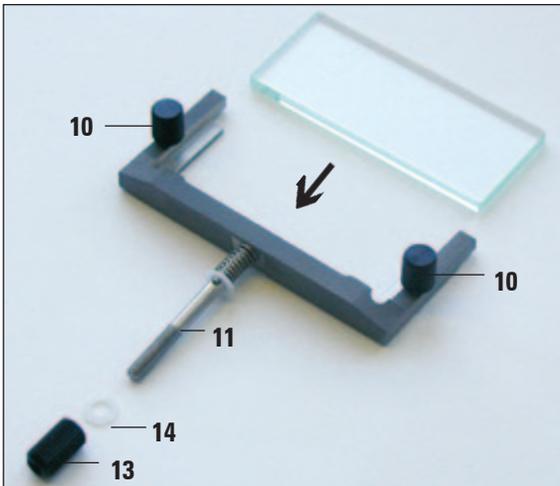


Fig. 13

Premium blade holder (for low-profile and high-profile blades) with anti-roll system

- Pressure plate with adjustable anti-roll system and glass inserts for various section thicknesses
- Blade ejector (1) and knife guard (2)
- Integrated lateral movement and stable base
- Clearance angle adjustment (5) with 4 mm Allen key (see detail image, to left at blade holder) - recommended angle from 2° to 5°.
- Lever (6) for the lateral movement
- Lever (7) for clamping the blade
- Insert for low-profile blades (7a, Fig. 14) for insertion into Premium blade holder.

Assembling the anti-roll system for the Premium blade holder

1. Insert the glare-minimizing glass insert into the interchangeable frame and tighten it evenly using the knurled screw (10).
2. Insert the shaft (11) of the metal frame for exchangeable glass inserts from above into the bore of the swinging arm (12) in such a way that the pin rests in the notch.
3. Push the white plastic plate (14) from below onto the shaft (11).
4. Screw the knurled nut (13) from below onto the shaft (11).



All four sides of the glass anti-roll plate can be used. Replacement glass can be reordered when necessary.



Red elements on the blade holders, such as the knife guard and ejector, are protective devices that must not be removed.

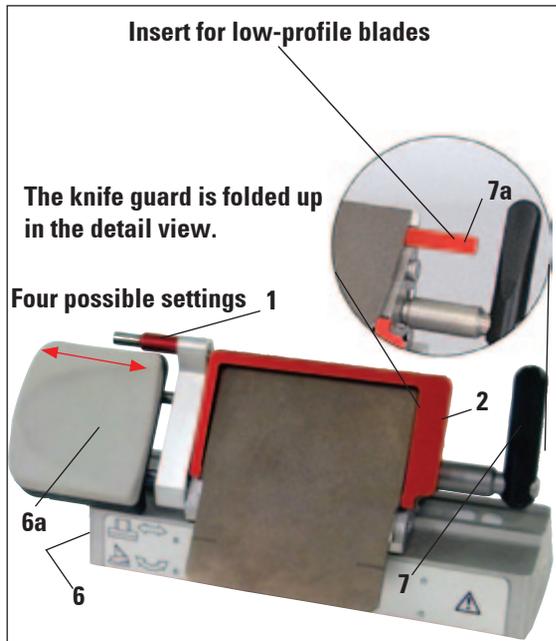


Fig. 14

Premium blade holder (for low-profile and high-profile blades) with finger rest

- Finger rest (6a) with a padded, warm surface for brush technique to guide and flatten sections as they are being cut
- Blade ejector (1) and knife guard (2)
- Integrated lateral shift and stable base
- Clearance angle adjustment with 4 mm Allen key (see 5, Fig. 12, to left at blade holder) - recommended angle from 2° to 5°.
- Lever (6) for the lateral movement (must point downward to permit unhindered shifting of finger rest)
- Lever (7) for clamping the blade
- Insert for low-profile blades (7a, Fig. 14) for insertion into Premium blade holder.
- When using low-profile blades, the insert (7a) must be placed in.

Conversion of blade holder with anti-roll system to blade holder with finger rest

1. Unscrew the anti-roll system using a 2.5 mm Allen key and remove it by gently pulling toward the left.
2. Attach the finger rest (6a) from the left, tighten the Allen screw using the 2.5 mm key. Be careful of the blade ejector!



If the anti-roll guide is removed, the knife guard must be folded upwards after work is completed.

2. Optional components

Adjusting blade holder with anti-roll system

You can adjust the height of the anti-roll system using the knurled nut (1):

- If you turn the nut counterclockwise, the anti-roll system moves toward the blade.
- If you turn the nut clockwise, the anti-roll system moves away from the blade.

If the anti-roll system is in the wrong position relative to the blade, the following problems will result:

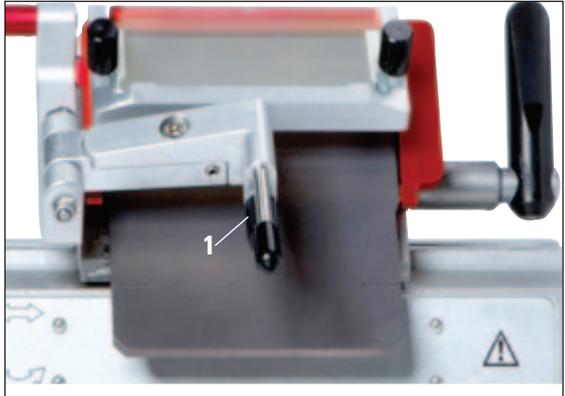


Fig. 15: Premium blade holder with anti-roll system



Fig. I: The section rolls over the glass insert of the anti-roll system.

Error: Glass insert not high enough.

Remedy: Turn the knurled nut counterclockwise until the section is pushed between the blade and anti-roll system as shown in Fig. III.

Fig. I:

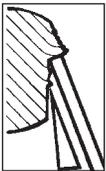


Fig. II: Section tears and block hits the glass insert after sectioning.

Error: Anti-roll system is set too high.

Remedy: Turn the knurled nut clockwise until the section is pushed between the blade and anti-roll system as shown in Fig. III.

Fig. II:

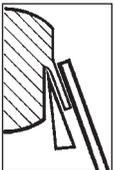


Fig. III: Correct position of the anti-roll system to the blade.

Fig. III



We recommend pre-adjusting the anti-roll system at a high section thickness (e.g. 10 µm). Start from there and work your way down to the desired section thickness in small increments, readjusting the anti-roll system at each increment using the knurled nut.

3. Daily cleaning of the premium blade holder



For daily cleaning, remove the section waste from the blade holder using a dry brush. Please use a cold brush, as otherwise the section waste will thaw and stick to the blade holder.



Mechanical damage to the pressure plate will strongly affect the sectioning quality. For this reason it is important to ensure that the clamping area is not damaged during cleaning or other work.



For disinfection, commercially available, mild cleaners and disinfectants can be used – we recommend Leica Cryofect (not available in the USA). Wear gloves during cleaning to prevent frostbite.

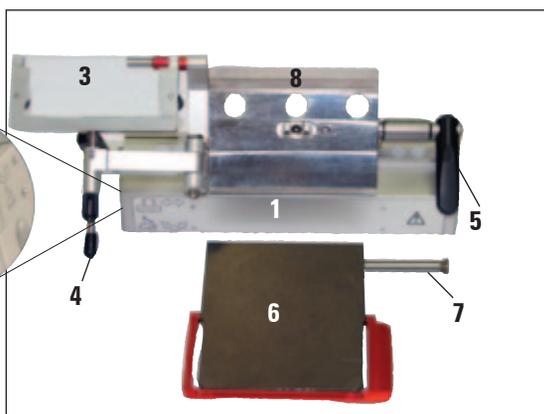


Fig. 16

1. To release the segment arc (1) from the base, use a 4 mm Allen key to loosen the screw over the clearance angle adjustment (2) and remove the segment arc (1) from the blade holder base.
2. Fold the anti-roll system (3) to the left using the lever (4).
3. Open the clamping lever (5) by turning it counterclockwise.
4. Hold pressure plate (6), and remove bolt (7).

5. Afterwards, the pressure plate (6) can be removed for cleaning (with alcohol).
6. To remove the upper part (8) from the segment arc (2), release the blade holder clamping lever (6, Fig. 12) by rotating it clockwise and pulling it out. The blade holder can now be moved sideways until it slides off the segment arc.



If several blade holders are cleaned at the same time, the parts must NOT be mixed up! Failure to adhere to this may result in sectioning problems!

7. To disinfect, bring the parts to room temperature and either soak them in disinfectant or place on an absorbent cloth and spray them liberally and uniformly with disinfectant. After the recommended exposure time, dry completely before placing in the cryochamber.

Notes
