



RD-315

Rotary Mictotome



Always keep this manual with the instrument.

Read carefully before working with the instrument.

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1. Introduction

1 Introduction

RD-315

The RD-315 is a manually operated rotation microtome for creating thin sections of specimens of varying hardness for use in routine and research laboratories in the fields of biology, medicine and industry.

With imported ball guide and high precision ball screw, it is designed for sectioning soft paraffin specimens as well as harder specimens, as long as they are suitable for being cut manually.

It is ideal selection for tissue sectioning on pathology for its rational design, compact structure, high degree of accuracy and stability.

2 Safety

2.1 Obligation to the operator

Be sure to comply with the safety instructions and warnings provided in this chapter.

The instructions for use is an important part of the product, which must be read carefully prior to startup and use and must always be kept near the instrument.

2.2 Safety notes

2.2.1 Transport

- Once removed from the crate, the instrument may only be transported in an upright position.
- The protective devices on both instrument and accessories must neither be removed nor modified.

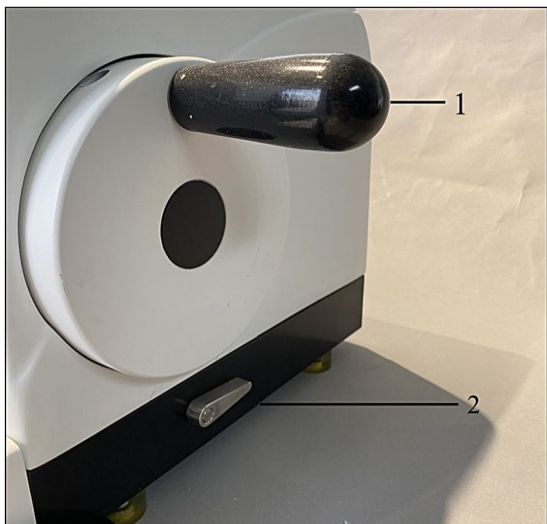
2.2.2 Working

- Take care when handling microtome knives and disposable blades. The cutting edge is extremely sharp and can cause severe injury!
- Always remove the knife / blade before detaching the knife holder from the instrument. Always put the knives back into the knife case when not in use!
- Never place a knife anywhere with the cutting edge facing upwards and never try to catch a falling knife!
- Always clamp the specimen block before clamping the knife.
- Always lock the hand wheel and cover the blade edge with its cover sheet when changing the specimen

2.2.3 Cleaning

- Always lock the handwheel before cleaning!
- Do not use solvents containing acetone or xylene liquid for cleaning!

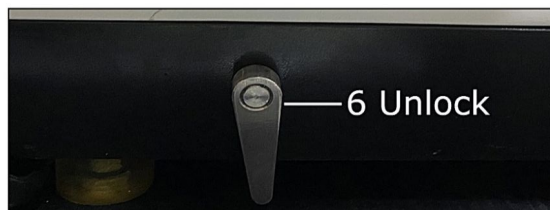
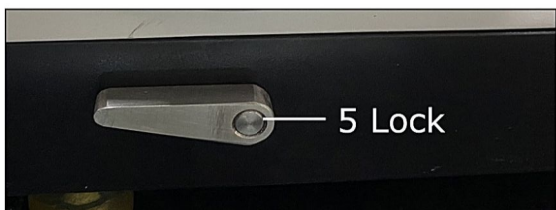
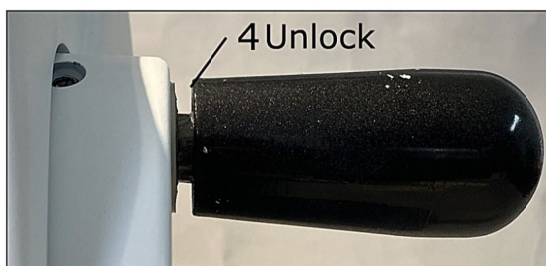
2.3 Integrated safety devices



2.3.1 Locking the handwheel

There are two ways of locking the handwheel

- To lock the handwheel brake turn the lever (6) back to its original position ever (5)
- To lock the handwheel, press the lever (4) to lever (3) outwards and continue to turn the handwheel slowly until it locks exactly in the 12 o'clock position.

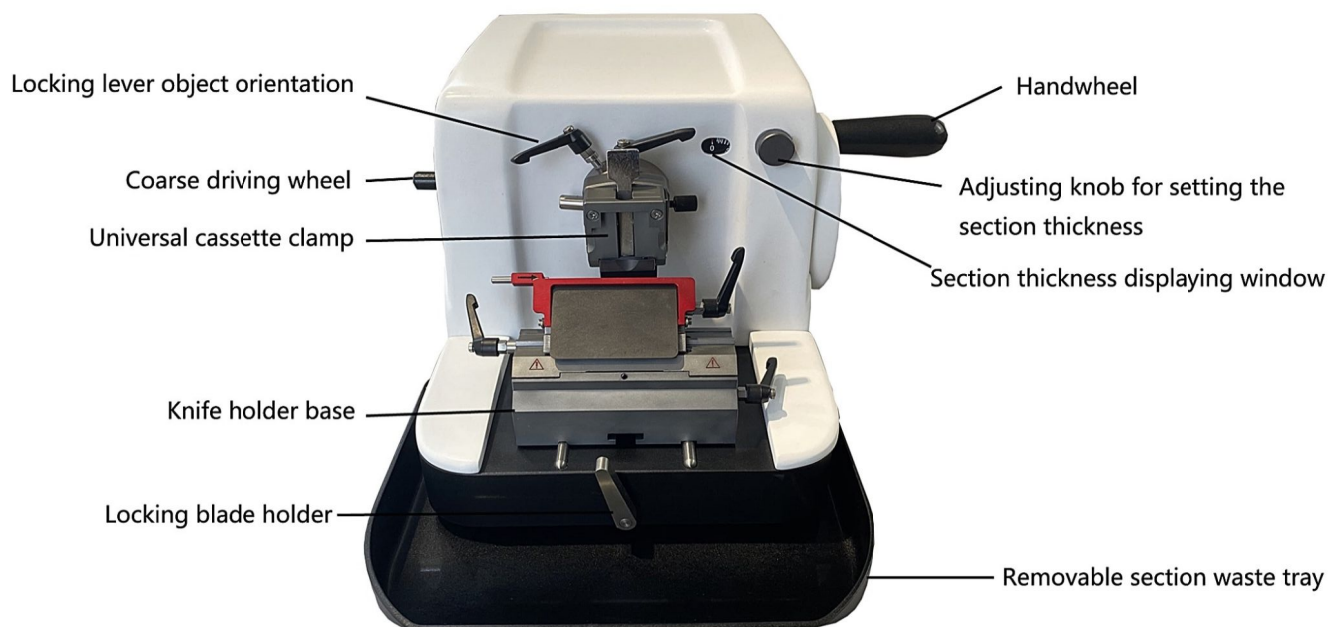


2.3.2 Knife guard on the knife holder

- The knife guard on knife holder consists of a red foldaway handle (7).
To cover the cutting edge, fold the knife guard handle (7) upwards.

3. Instrument components and specifications

3.1 Overview – instrument components



3.2 Technical data

Section thickness range:	0 - 60.0 μm
Section thickness settings:	from 0 - 2 μm in 0.5 μm increments from 2.0 - 10.0 μm in 1.0 μm increments from 10.0 - 20.0 μm in 2.0 μm increments from 20.0 - 60.0 μm in 5.0 μm increments
Trimming thickness	1 - 60.0 μm
Specimen retraction:	0-28 μm
Specimen vertical stroke:	52 μm
Specimen horizontally stroke:	24 μm
Maximum specimen size:	60mm*50mm
Operating temperature range:	+10 °C to +35°C
Net weight	28KG
Size:	565mm*440mm*285mm(W*D*H)

3.3 Temperature of the specimen

Sectioning is normally performed in rooms with room temperature (not with frozen specimen). When the temperature is too high the paraffin wax will become soft and no precise cuts can be made. Also avoid to let the paraffin wax specimen get exposed to direct sunlight or any other heating source. This could also damage the specimen.

4.1 Standard setting list

Item	Quantity
Main instrument	1 SET
Hand wheel	1 PIECE
Waste tray	1 PIECE
Blade holder unit	1 PIECE
Disposable blades	1 PIECE
Allen key	1 PIECE
Brush	1 PIECE
Embedding cassettes	More than 20 PCS
Stainless steel base molds	15-20 PCS
Tweezer	1 PIECE
Wooden Trimming Knife Handle	1 PIECE



4.2 Installation site requirements

- Stable, vibration-free laboratory bench with horizontal and even stage plate; practically vibration-free floor.
- No other instruments nearby which might cause vibrations.
- Room temperature permanently between +10 °C and +35 °C.



The device is heavy, never lift or carry it on the hand wheel.

The accessories ordered are included in a separate box.

Should there be any discrepancy, please contact the Roundfin selling unit handling your order.

4. Startup

4.3 Unpacking and installation



When the instrument is delivered, check the packaging. The microtome is supplied in a plywood case.



- Loosen and unscrew the 8 upper screws.
- Remove the cover.



5. Assembling and Parts adjustment

5.1 Handwheel

5.1.1 Assembling the handwheel

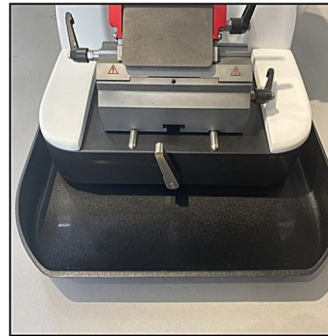


- When you get the goods, the handwheel is assembled.

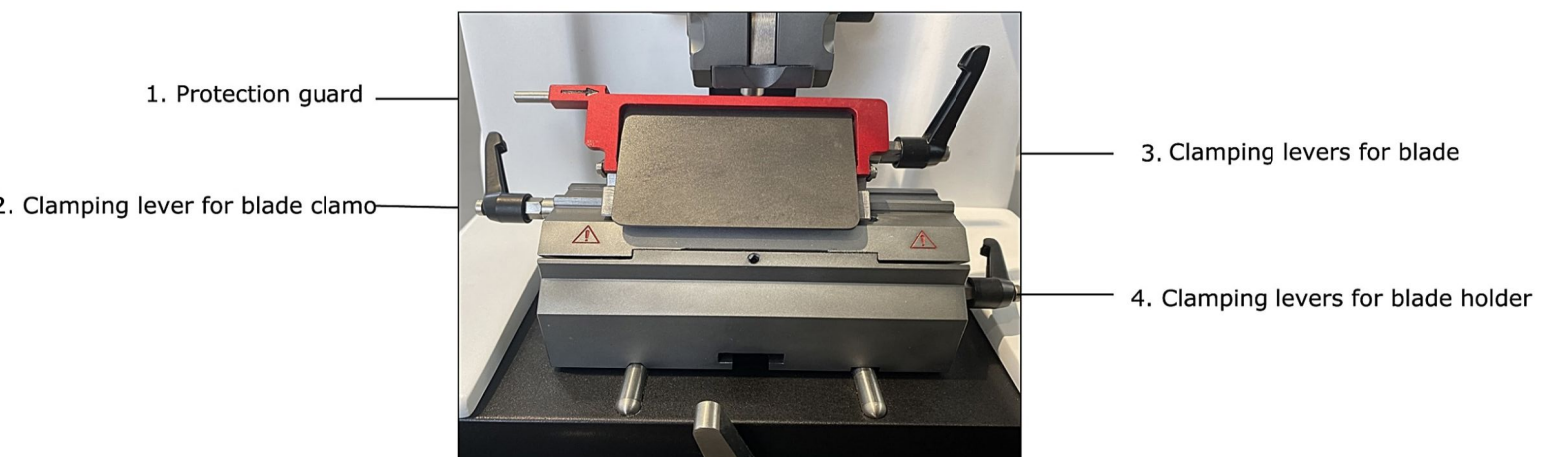


5.2 Waste tray

- Insert the waste tray onto the baseplate



5.3 Blade holder unit



1. The knife guard on knife holder consists of a red foldaway handle (1). To cover the cutting edge, fold the knife guard handle (1).

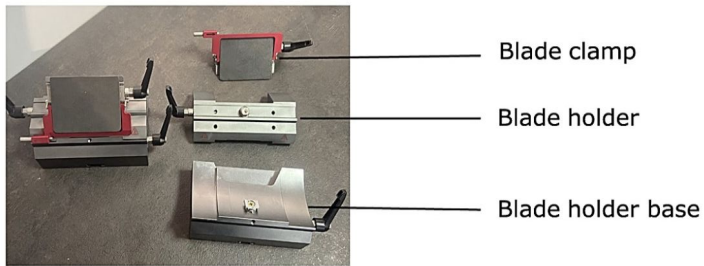
2. Clamping lever(2) , when the lever is released the position of the blade clamp can be adjusted by moving it to the left or tge right.

3. Clamping lever(2) , for locking and releasing blade.

4. Clamping lever(2) , with the adjustable lever the blade/knife holder can be locked or released.

5. Assembling and Parts adjustment

5.3.1 Parts of the blade holder unit



Blade clamp

The protection guard shall be on the installed position when the blade is assembled in the blade clamp. The lever on the right is for locking and releasing the blade.

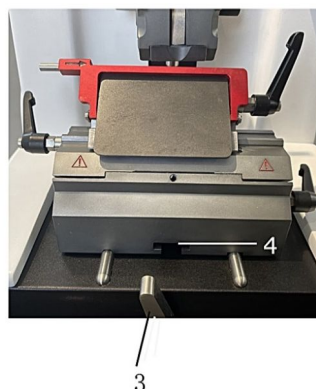
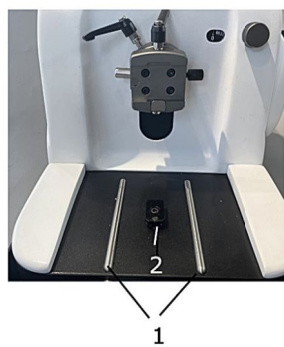


Blade holder and blade holder base

With the adjustable lever the blade holder can be locked or released. When it is released the blade holder can be moved back and forth in order to get the desired angle. The scale on the knife holder is for reference.



5.3.2 Assembling blade holder unit



- Release the clamping lever (3) by rotating it counterclockwise.

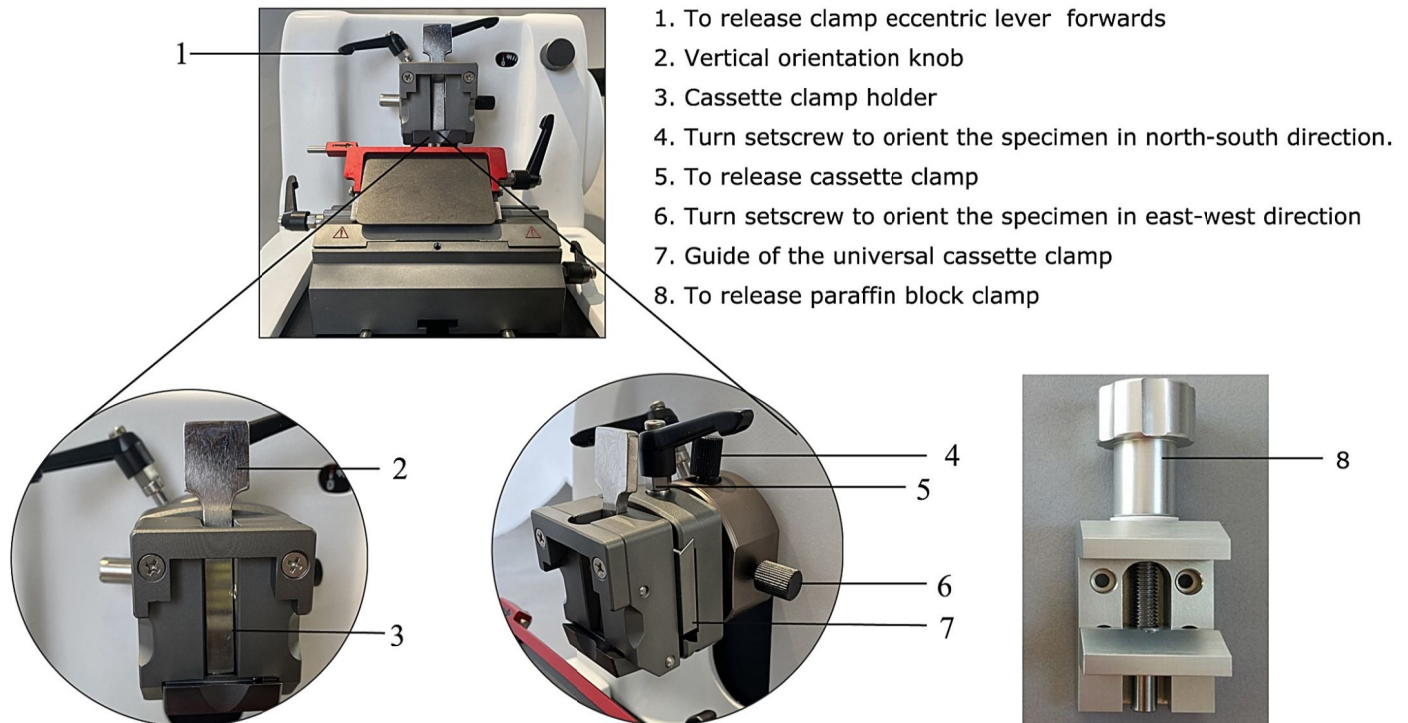
- Insert the knife holder base with the notch (4) on the bottom into the T-piece (2) of the microtome base plate (1).

- To secure the knife holder base, turn the clamping lever (3) clockwise.

The knife holder base can be moved back and forth on the microtome base plate. This allows bringing the knife holder to optimal sectioning position in relation to the specimen.

5. Assembling and Parts adjustment

5.4 Inserting the universal cassette clamp and paraffin block clamp



1. There are two versions of the specimen holder, one universal cassette clamp and one paraffin block clamp which are interchangeable.

The object orientation allows for simple position correction of the specimen surface when the specimen cassette is clamped into place.

You can use the quick clamping system (3) to hold all available accessory cassette clamps.

To do so, proceed as follows:

- Turning the (5) lever release cassette clamp
- Push the guide (7) of the universal cassette clamp from the left into the quick clamp-ing system (3) as far as it will go.
- To clamp the cassette clamp turn the screw (5) forwards as far as it will go.

6 Operation

6.1 Operating elements and their functions

6.1.1 Section thickness setting

The section thickness is set by turning the adjusting knob (3) at the front of the microtome on the right.

The adjusting knob has a notch for each value that can be set.

Setting range: 0 - 60 μm

from 0 - 2 μm in 0.5 μm increments

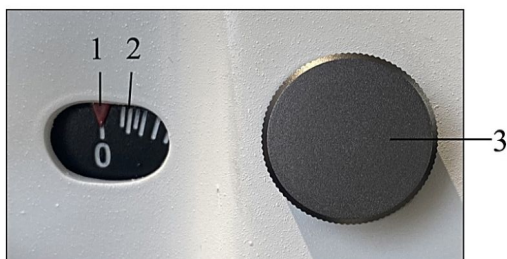
from 2 - 10 μm in 1 μm increments

from 10 - 20 μm in 2 μm increments

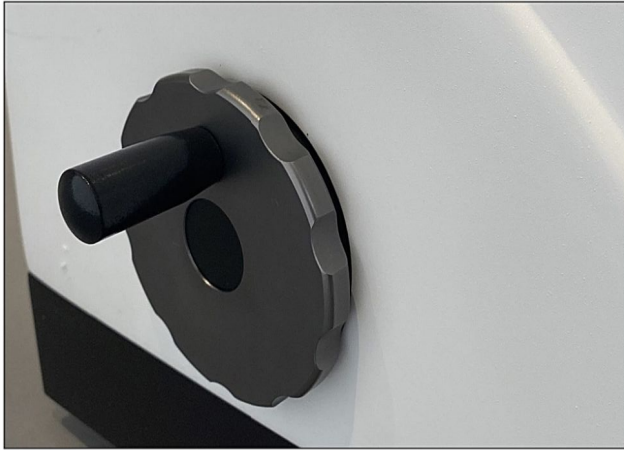
from 20 - 60 μm in 5 μm increments.

The section thickness set in each case is displayed in the window (2).

The selected section thickness (on the scale) must agree with the red pointer (1)



6. Operation



6.1.2 Coarse driving wheel

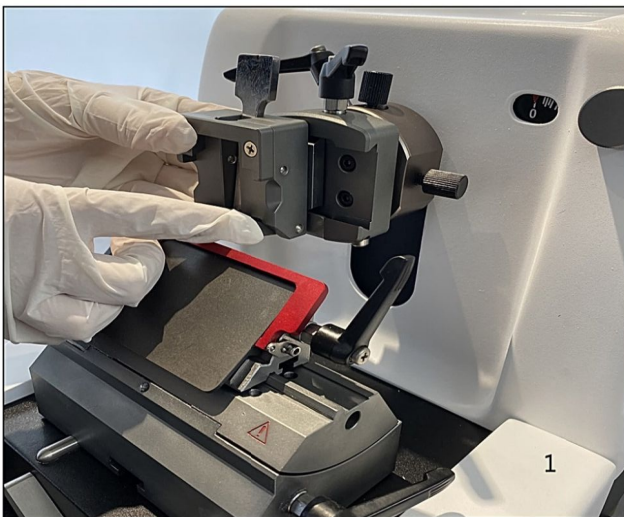
The instrument can be ordered with clockwise or counterclockwise rotation. The given direction of rotation means "forwards" and relates to the feed movement of the specimen towards the knife.

The coarse motion serves for a fast horizontal forwards movement of the object - towards the knife - and backwards - away from the knife. When reaching the rear/front end positions, the coarse driving wheel can only be turned with difficulty. In the front end position, no more feed motion takes place.



The coarse driving wheel also turns during sectioning. Therefore it must not block whilst the handwheel is being turned during sectioning; otherwise, no feed motion can take place and thus also no sectioning.

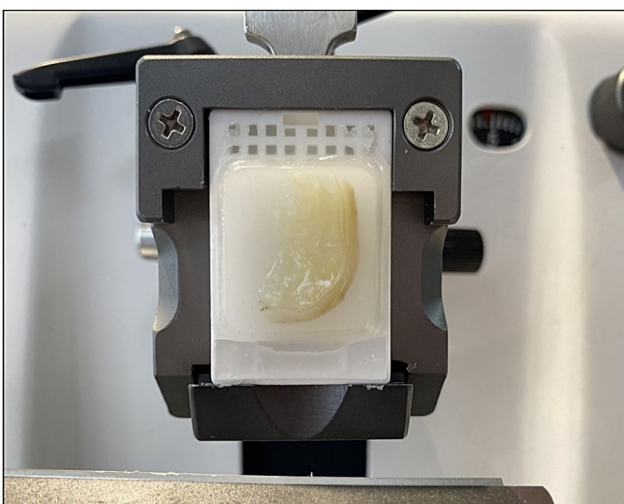
6.2 Adjusting clearance angle



(1) for adjustment of the clearance angle located on the right side of the knife holder.

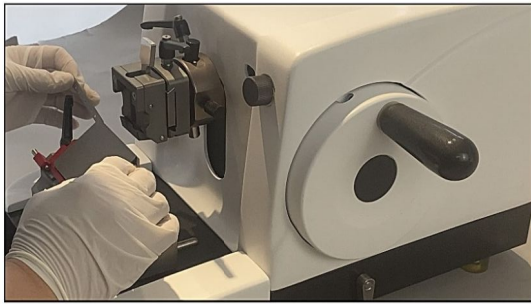
Move the knife holder until the index mark of the desired clearance angle coincides with the reference line on the knife holder base.

6.3 Inserting the tissue block



- Bring the specimen holder to its uppermost position.
- Lock the hand wheel
- Turning the spanner on the specimen clamp forth and insert the tissue block.
- Release the spanner.

6.4 Inserting the blade



The knife holder is designed for conventional disposable blades from all current manufacturers. It is available in two models: one for narrow-band blades and one for broad-band blades. The knife holder has a lateral movement, so that the entire width of the blade can be used.

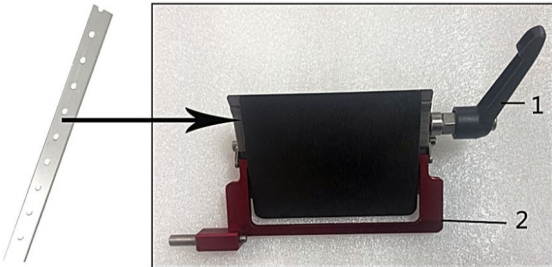
Fold knife guard (2) downward.

- To insert the blade, turn the forward clamping lever (1) forward and down.

- Carefully insert the blade from the side.

Make sure that the blade is clamped parallel to the upper edge of the pressure plate.

- To clamp the blade, rotate clamping lever (1) back upwards.

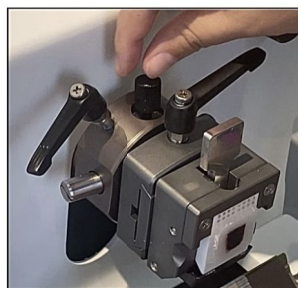


Prior to inserting the blade, the knife holder and knife holder base must have been installed on the instrument!

Always: insert the tissue block before inserting the blade.

6.5 Operating instructions for trimming and sectioning

- Insert the specimen box into the specimen holder.
- Insert the blade into the blade clamp of the blade unit.
- Move the specimen holder back to the rear end position by turning the coarse driving wheel.
- Move the blade holder unit until it is just right before the object.



- Orientate the specimen holder if required.
- Release the hand wheel.
- Adjust the trimming stage with the trimming lever.
- Rotate the hand wheel. One rotation creates one slice. If you continue to rotate every rotation creates one slice.
- Stop with the trimming when the desired specimen level has been reached.
- Adjust the section thickness as required.



7. Cleaning and maintenance



Always remove the knife / blade before detaching the knife holder from the instrument.
Always put the knives back into the knife case when not in use!
Never place a knife anywhere with the cutting edge facing upwards and never try to catch a falling knife!
When using cleaners, comply with the safety instructions of the manufacturer and the labor-safety regulations of your laboratory!
When cleaning the outer surfaces, do not use xylene, scouring powders or solvents containing acetone or xylene. Xylene or acetone will damage the finished surfaces!
Ensure that liquids do not enter the interior of the instrument during cleaning!

7.1 Before each cleaning carry out the following preparatory steps:

- Raise the specimen clamp to the upper end position and activate the handwheel lock.
- Switch the unit off and unplug it.
- Remove the blade from the knife holder and insert it in the receptacle at the bottom of the dispenser, or remove the knife from the knife holder and put it back in the knife case.
- Remove knife holder base and knife holder for cleaning.
- Remove the specimen from the specimen clamp.
- Remove section waste with a dry brush.
- Remove specimen clamp and clean separately.

7.2 Instrument and outside surfaces

If necessary, the varnished outside surfaces of the control panels can be cleaned with a mild commercial household cleaner or soap water and then be wiped with a moist cloth.

To remove paraffin residue, xylene substitutes, paraffin oil, or paraffin removers such as "Para Gard" (Polysciences) can be used.

The instrument must be completely dry before it can be used again.

Cleaning the knife

Always wipe the knife from the back of the knife to the cutting edge. NEVER wipe in the opposite direction – risk of injury!

7.3 Cleaning the blade

Clean using an alcohol-based solution or acetone.

7.4 Blade holder

Take the knife holder apart for cleaning.



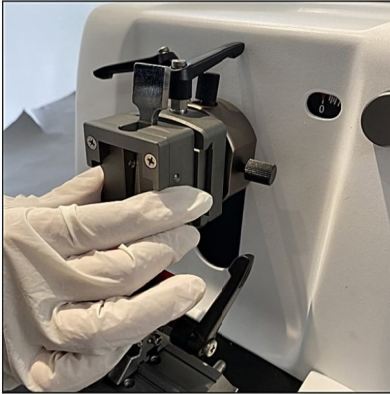
Always wipe the knife from the back of the knife to the cutting edge. NEVER wipe in the opposite direction – risk of injury!



7.5 Universal cassette clamp

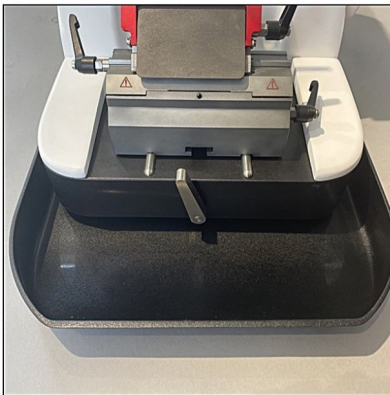
Detach cassette clamp for a thorough cleaning, removing all paraffin residues.

- For cleaning, do not use xylene. Use xylene substitutes or paraffin removers such as "Para Gard."
- The cassette clamp can also be placed in an oven heated to a maximum of 65°C, until the liquid wax escapes.
- Remove paraffin residues with a dry cloth.



7.6 Baseplate and waste tray

- First remove the section waste with a dry brush.
- Dismount the waste tray for cleaning separately.
- Clean the guideways for the blade holder unit very thoroughly.
- Also use a mild commercial housework cleaning up the rest of the paraffin from the baseplate and waste tray.



When using cleaners, comply with the safety instructions of the manufacturer and the laborsafety regulations of your laboratory!

The instruments has to be completely dry before using it again.