Kalstein

Model YR417

Manual Microtome

Instruction Manual

Thank you very much for purchasing our Manual Microtome YR417.

Please read the “Operating Instructions” and “Warranty” before operating this unit to assure proper operation. After reading these documents, be sure to store them securely together with the “Warranty” at a hand place for future reference.

 Warning: Before operating the unit, be sure to read carefully and fully understand important warnings in the operating instructions.

OUR SERVICES

Benefits and Support

In Kalstein France, we take care of the full satisfaction of our customers, that is why we provide value-added services of the highest level based on our experience.

Online Inductions and Trainings

In any part of the world, receive your induction or training from our specialized team of engineers

Quick Response

Our work team is always available to response all your consults or questions, in order to support you in any situation.

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Thanks to your purchase, a donation will be made to a non-profit foundation that fights against breast cancer and helps most vulnerable communities.

Technical Support

Enjoy of personalized advice for the correct preventive and corrective maintenance of your equipment, thanks to Kalstein's manuals and articles, special catalogues and video tutorials.

Delivery Logistics

We take care of all the necessary logistics for the dispatch of your goods, whether is by sea, land or.air.

Kalstein Worldwide

With more than 25 years growing with our customers, Kalstein's multiformat and modern content, is now present in more than 10 countries and increasing.

1. Important Notes

The scientific knowledge and the up-to-date technology we mater have been displayed by the information, data, precautions and the parameters of adjustment provided in this manual through our investigation in the field.

With the rapid development of technology, we are not responsible for providing the renewed manuals or any copy of them to the customers.

We will not shoulder the responsibilities for the results caused by the instructions, drawings and technological requirements in this manual in case they conflict with the laws in the country of the customers, especially we are not responsible for any damage and other bad results caused by abusing instructions of this manual.

The instructions, drawings and technological requirements and other information in the manual should not be taken as the guarantee for the performance of the product. Only those items stipulated in the contract have the legal effect.

We own the right to alter the technological parameters and the processing crafts, and we have no obligation to notify the users about them.

The serial number and date of production are attached on the nameplate at the back of the instrument.

2. Contents

3. Handwheel operation

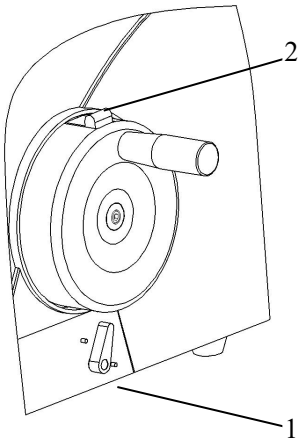
Safety Device

Attention: *Lock the Handwheel before cleaning!*

Quick locking lever for Handwheel

Attention: *Remember to lock the handwheel and cover the blade with the protection fitting before operating the blade or specimen and changing the blade and specimen.*

The handwheel can be locked at any position with the locking handle (1) at right side of the pedestal of the microtome. The two positions (Up=lock; Down=loosen) of the locking handle are marked at the pedestal of the microtome. The locking block (2) can lock the handwheel at the highest position.



Ways of operations:

- Pull the locking lever (1) to "Up" to mechanically lock the handwheel, the handwheel cannot be turned.
- Pull the locking lever (1) to "Down" to lose the handwheel, and the handwheel can be turned around.
- The locking block (2) can be pushed inward to loosen the handwheel, and pushed outward to lock the handwheel

Blade-protecting lever on the blade holder

Attention: *Remember to lock the handwheel and cover the blade with the protection lever before operating the blade or specimen or changing the specimen and during the break.*

There is protecting lever on each blade holder, with which the blade edge can be wholly covered.

Transport and Install

- Pay attention to "Technical Parameters" in Chapter 4.
- The instrument can only be erectly placed in the course of transportation.
- Avoid grasping the handles of the wheel and the handwheel or the knob for adjusting the slice thickness in the course of moving the instrument.
- It is not allowed to remove or change the protecting devices equipped on the instrument and its appurtenance.

Operation

- Be very careful when using the blades and disposable blades. The sharp edge may cause serious injury by mis operation.
- No blade or the blade-holder with blade is allowed to be randomly placed. The blades should always be kept in blade cases except for use.
- The blade is not allowed to be placed with its edge upward.
- No catching a falling blade with hands at any time.
- Firmly clamp the specimen before installing the blade.
- Remember to lock the handwheel and cover the blade with the protection fitting before operating the blade or specimen or changing the specimen and during the break.
- No liquid is allowed to flow into the instrument.
- There is an alarm function when the handwheel is rotated to the top. but remember to keep the handwheel

backward!

Cleaning

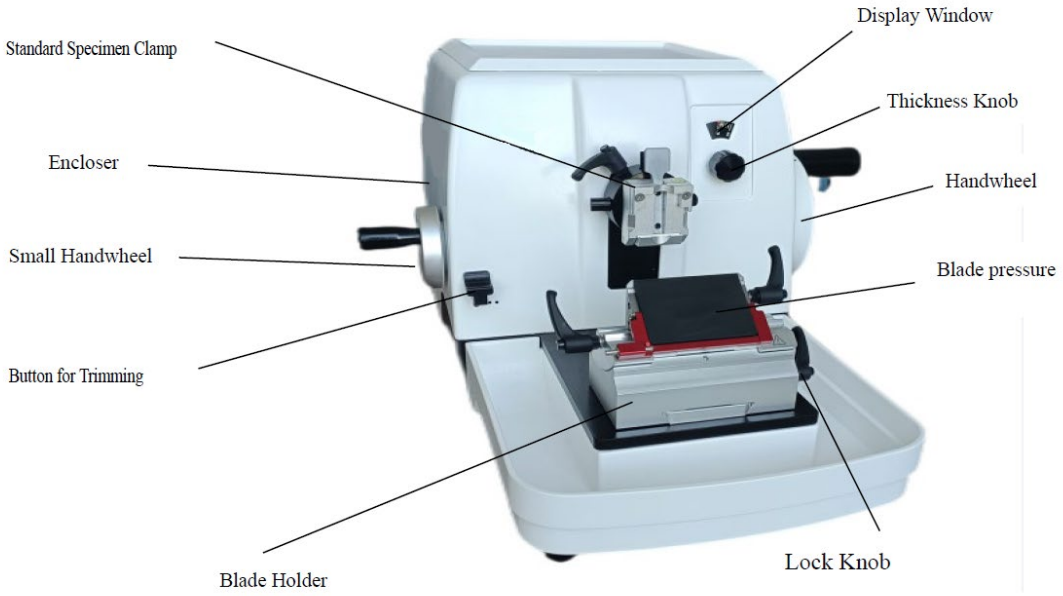
- Lock the handwheel before cleaning the instrument.
- Do not clean the instrument with the detergent containing acetone and benzene.
- Make sure to make no cleanser flow into the instrument.
- Please follow the cleaning regulations and rules stipulated by the manufacturer and those in the laboratory for safety.

Maintenance

- Unclosing the instrument is not allowed except the authorized technicians of our Company think it necessary in the course of maintenance.

4. Technical Specifications

- Section thickness setting range: 0-60μm
- Setting values: 0μm-2μm in 0.5μm increments
  2μm-20μm in 1μm increments
  20μm-60μm in 5μm increments
- Precision Error: ±5%
- Trimming Setting Mode: 15μm or 35μm
- Specimen Retraction Range: 60μm, this function can be shut off
- Object Feed: 30mm
- Vertical Stoke: 70mm
- Specimen Orientation System: 8°X/Y
- Moving Range of Holder Base:
- Front / Back: 65mm
- Left / Right: 40mm
- Dimension : 500 x 570 x 300(L x W x H)
- Height of Blade edge: 105mm
- Net Weight: 33kgs



5. Brief introduction

5.1 Sketch of YR417 Microtome

5.2 Description

Model YR417 is a manually operated microtome by wheel-turning. The guiding-lines for the vertical and horizontal movement of the specimens are seamless and free from maintenance. Specimen is fed by the turning the handwheel. And all the parts of the instrument are covered into the encloser. The handwheel can be smoothly turned for slice cutting. Selection of the slice thickness can be adjusted by a knob.

6. Unpacking and installation

6.1 Unpacking

- Unpack the wooded crate to take out all Appurtenances and the Instruction.
- Hold the base of instrument and take it out.

Attention: *Avoid grasping the handle of the handwheel and the wheel, or the knob for adjusting the slice thickness in the course of moving of the instrument.*

Instrument setting

- The instrument should be set on the stable platform in the lab.

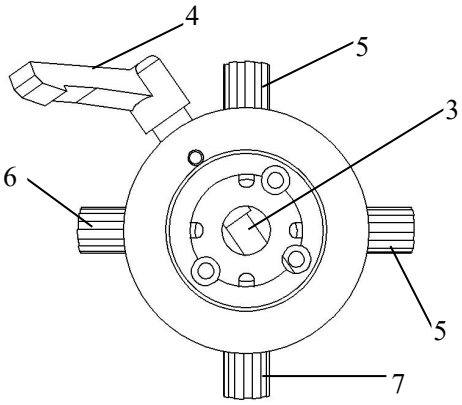
6.2 Requirements for Handle

- Stable and no vibration for experimental platform
- No vibration on the floor.
- Leave enough room for the convenient operation of the handwheel and the wheel.

7. Installation

7.1 Installation of Specimen clamp

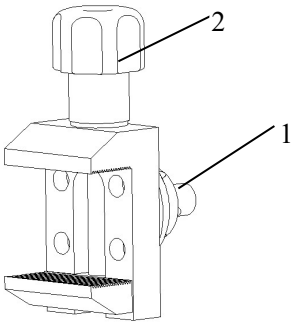
The adjusted setting of specimen clamp has been installed onto the mainframe. But as the ordered component, the setting hasn't preinstalled and adjusted, it needs installation and adjustment.



Standard specimen clamp

- Lock the handwheel

●Standard specimen clamp: insert (1) specimen universal clamp shaft hole into (3), and lock handle (4) after it is in place..



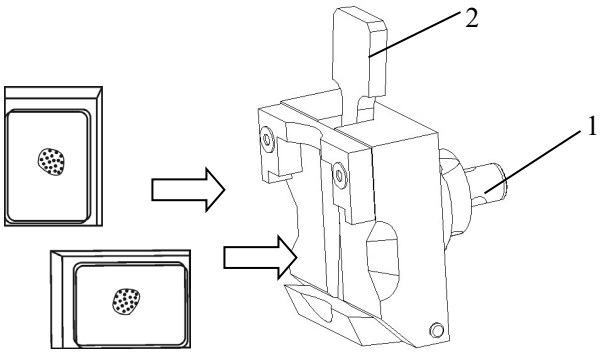
●Loosen the locking handle (4), and the position of the specimen holder can be adjusted through the screws (5) and (6). Note: during adjustment, the screws (5) and (6) should be adjusted within the rotation range at the same time.

●The screws (5) and (6) adjust the up / down and left / right directions. When adjusting the direction, the locking handle (4) must be loosened

●Once the position of the specimen holder is adjusted, re lock the handle (4).

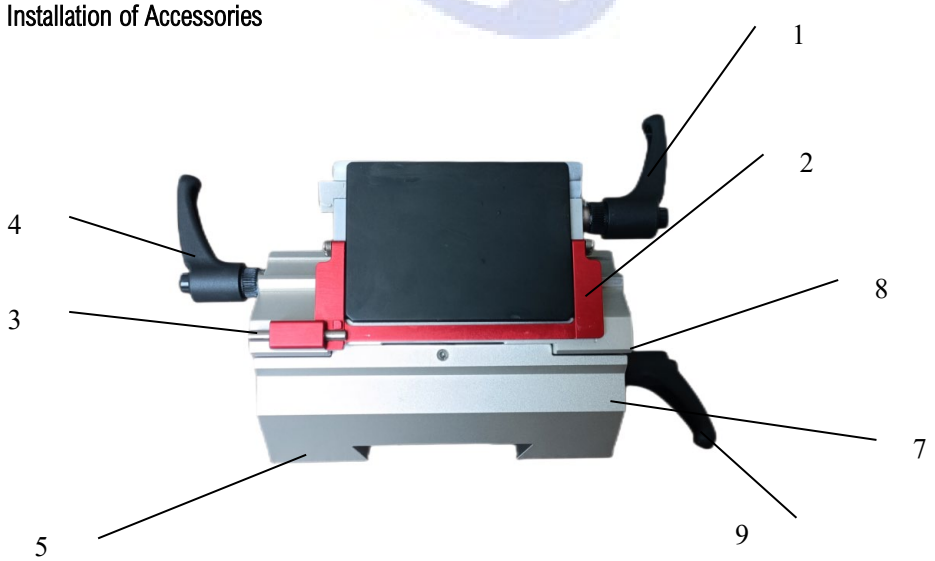
●To replace the specimen holder, loosen the locking handle (4) and take it out. Unscrew the screws (5) and (6) and take out the replaced specimen holder from the cardan shaft hole (1).

Universal Cassette Clamp



- Lock up the handwheel
- The way for installation and adjustment is the same of the above.
- The general specimen case clamp can horizontally or vertically clamp for all kinds of the general specimen cases commercially acquired.
- Pulling forward the Board Pole（2）.
- Horizontally or vertically put in the specimen case.
- Loosen the Board Pole（2）to clamp the specimen case.

7.2 Installation of Accessories



Attention: please don't insert the disposable blade before the Blade holder is securely and properly installed on the Microtome! The disposable blade shall be taken out before dismantling the blade holder for safety concern.

7.3 Installation of Blade Holder and its Base

Note: do not insert disposable blades when the knife holder has not been fixed and installed on the slicer! For safety reasons, remove the disposable blade knife before replacing the knife holder

Install the tool holder base and tool holder

● loosen the locking lever (9), move the knife holder (5) back and forth and install it on the V-shaped block on the base of the slicer. And lock the locking lever (9) on the tool holder.

● loosen the hexagon screw (7) with a hexagon wrench, insert the disposable tool holder (8) as shown in the figure, and turn the tool holder to the desired scale and angle positioning line to re lock and lock. The cutting angle can be adjusted. The recommended angle is about 8.

●Before adjusting the cutting angle, loosen the Allen screw (7).

●Loosen the locking handle (4) to move the disposable blade holder (6) left and right, so that the disposable blade can be cut at any position

Installing disposable blade holder

●Loosen the eccentric rod (1), push the blade into the groove from the side, lock the eccentric rod (1) after it is in place, and fix the blade in position.

●The disposable blade holder (as shown in the figure) is composed of an adjustable (2 and 3) part. Turn up the red blade holder (2) to cover all the blades. When changing the blade, turn over the blade guard bar (2), loosen the eccentric bar (1), and push the bar (3) inward to push out the blade.

Note: if a wide edge blade is required, the disposable blade holder needs to be customized

7.4 Installation of Waste Tray

Push waste tray paralleled to bottom of base of machine until the end.

8. Ways of Operation

8.1 Section Thickness

Section thickness range can be done by adjusting the knob located on the right upside of the front part of the microtome.

Each grade of the selection of the slice thickness can be efficiently positioned（1）

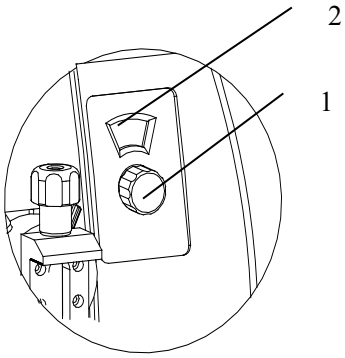
●Section Thickness Range：0—60μm

●Setting value：

0—2μm increment 0.5μm

2—20μm increment 1μm

20—60μm Increment 5μm



●Display Window (2) shows Section Thickness range

8.2 Small Handwheel

The provision can be quickly done by the handwheel

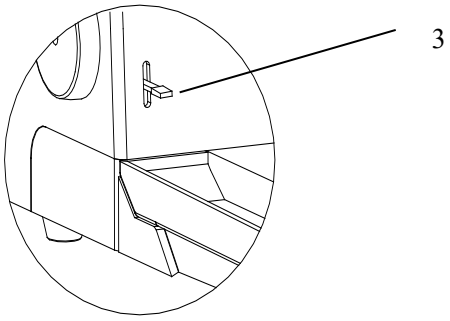
Turn the handwheel clockwise to make the specimen move to direction for making section

Handwheel is designed to make the specimen horizontally quick move to or departure from the slice cutting. When the handwheel move to the forward and backward utmost position, it will become heavier, but when the handwheel move to the forward utmost position, no specimen will be provided.

Attention：Be careful enough to ensure the specimen is on the specimen clamp. Damage will be done to the blade if the blade meets the metal specimen clamp.

8.3 Trimming

●Trimming Knob (3) located at left side of the machine. Press it to middle position, trimming thickness is 15μm. Press it to bottom, trimming thickness is 30μm



●Firstly, move the blade holder base close to Specimen, but don't touch it, Then, fasten the blade holder to make trimming and sectioning.

●Or Press knob (1) to choose big

value range, for example(50μm) to make trimming

●When the specimen at upper position, press Trimming Knob to make trimming, likewise, until surface of specimen suitable to make sectioning

8.4 Sectioning

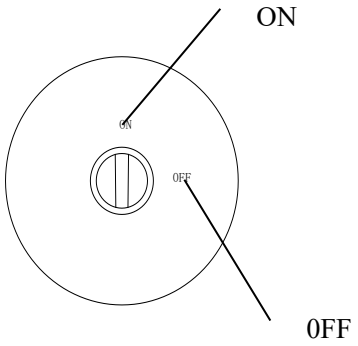
Attention：Be sure to turn the handwheel evenly and the speed of handwheel turning should match the rigidity of the specimen. The harder, the slower.

Section thickness value achieved by adjusting section knob at right upright of the machine.

- Choose best cutting angle, from small to big scale. Once the specimen is too hard to cut, Cutting angle should be big

- Scale Value at right side of the blade holder is Used to adjust cutting angle

- Rotate Section Handwheel smoothly and Evenly to get ideal, good sample



8.5 Retraction

● Button of retraction function located back of the Machine, Button “ON “and Button “OFF”

- Use “Single” Screwdriver to turn the button to “ON”, it means retraction function is used, if turn to “OFF”, it means retraction function is shut off

9. Regular Operation

Instruction to the procedure of paraffin Sectioning

Attention：Be sure to lock the handwheel and cover the edge of the blade with the blade protecting fitting in the course of operating of the blade and specimen or before changing the specimen.

● Lock the handwheel

Attention：Firmly clamp the specimen before installing the blade.

- Put the pre-frozen paraffin onto the specimen clamp.

Attention：Be sure to be careful enough to avoid mis operation which will cause serious hurt in the course of using the blade and disposable blade, because the edge of the blade is very sharp.

- Turn the handwheel to move the specimen to the backward utmost position.
- Insert the blade into the blade holder and firmly clamp it.
- Adjust the cutting angle (try once from 0°to 3°)
- Try to move the blade holder approaching the specimen.
- Adjust the surface position of the specimen to make it parallel to the edge of the blade.
- Loosen the handwheel.

Attention： *Be sure to turn the handwheel evenly in the course of the slice cutting. The harder, the slower.*

- Turn the handwheel to start the slice-trimming for the ideal surface of the specimen.
- Select the ideal thickness of the slice or take the former ones as reference.
- Evenly turn the handwheel clockwise to cut slice.
- Change the specimen or stop the operation.

Attention： *Be sure to lock the handwheel and cover the edge of the blade with the blade protecting fitting in the course of operating of the blade and specimen or before changing the specimen or during the break.*

- Lock the handwheel.
- Cover the edge of the blade with the blade protecting fitting.
- Take out the specimen from the specimen-clamp for another operation.

End the operation

- Lock the handwheel.
- Take out the blade from the holder and put it into the blade-case.
- Take out the specimen from the specimen-clamp.
- Scrub away the wastes and clean up the instrument.

10. Error Checking and Solution

Faults	Causes	Eliminations
Uneven slices produced and sometimes no slice can be cut	1. Inappropriate angle of the blade, the angle of cutting is too small 2. Not firmly locked the specimen clamp or/and the blade holder. 3.Blunt of the blade	1.Adjust the angle of cutting until the appropriate angle acquired. 2. Check and firmly locked the screw of the specimen locking and the blade holder. 3. Use the other section of the blade or change for a new one.
Slices are compressed or corrugated or extruded	1. Blunt of the blade. 2. The specimen is too hot. 3. The angle of cutting is too big. 4. The cutting is too fast.	1. Use the other section of the blade or change for a new one. 2. Freeze the specimen on the freezing platform. 3. Adjust the cutting angle. 4. Turn the handwheel slowly.
When cutting hard specimen, the blade holders; nicks or vibrant marks are left on the slice	1. The cutting is too fast. 2. The angle of cutting is too big. 3. Not firmly locked the specimen clamp or/and the blade holder.	1. Turn the handwheel slowly. 2 Adjust the cutting angle. 3. Check and firmly locked the screw of the specimen locking and the blade holder or the locking handle.

11. Cleaning

Attention: Be sure to lock the handwheel before cleaning

Brush off the slice crumbs with a dry brush.

Take down the blade basal and the blade holder for cleaning.

Attention: ◆Only the cleanser for domestic use or the soap lye can be used for cleaning the instrument.

◆Acetone and benzene will damage the paint on the surface of the instrument.

◆No leakage of the cleaning liquid allowed into the instrument.

◆A moist cloth is needed for the cleaning.

12. Maintenance

Generally, the microtome can work normally for a long time without any maintenance. But the preventive maintenance is also needed to ensure that the instrument can work normally in a longer period. The regular maintenance should follow the advice listed below:

- Have the technician authorized by our company check the instrument at least once a year.
- After the free service period a successive maintenance contract should be made to ensure the service. The detail can be consulted with the Kalstein service agencies.
- Clean the microtome daily.
- Monthly lubricate the following parts with the oil we offered (one or two drop is enough):

  ①The "V" block (1) on the base of the instrument.

  ② the guiding rod (2) of the basal of the blade holder on the base of the instrument.

- The maintenance should be done by the authorized technicians. And no self-repair is allowed, or we will not

be responsible for the result of self-repair and further maintenance.

13. Appendix

Improvement of the instrument

Our company has the right to change the technical parameters of any Model for improving the function of the instruments. Excuse us for not informing the customers in advance.

Quality guarantee

It is for sure that every instrument we sell has been strictly examined to ensure that every instrument is qualified and matches its technical standard.

The free service terms which are favorable to the customers are made for the sales agencies.

Free service terms are only provided for those who regularly use of the instrument and operate the instrument according to the Instructions.

We will not be responsible for the damage and other results caused by abuse and mis operation of the instrument.

Discards and disposition

The discarded microtome and its fittings should be disposed according to the current laws or regulations.

For the sake of environmental protection, we are willing to give you some advice on discarding YR417 microtome.

Service information for customers

If you need any service or fittings of the instrument in the guaranteed usable period, please consult the agencies of our company or the sellers. But you should provide them the specification, model, the serial number and the time of the buying.

Attention:

If you mail the instrument or its fittings back to Kalstein company, please make sure the following:

- If the instrument or its fittings has handled the substance with virus and bacteria or contacted with radiation resources, please disinfect them or eliminate the radioactivity before mailing back. Our technicians will examine and verify for sure.
- If you are sure that the instrument or its fittings you want to send back to our company is safe from infection of virus, bacterium or radiation, please tell our technician the possible ways you will use to disinfect them or eliminate the radioactivity. Any possible infection of dangerous bacterium and virus or radiation will lead to sending back the instrument or its fittings without any maintenance.

For technical service, please inform us:

- The type and the serial number of the instrument
- Address and the person for contacting
- The causes for the service.