



Manual Microtome

MODEL NO. : JK-1369

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Instruction Manual

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1. Important Note

The scientific knowledge and the up-to-date technology we 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.

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

2. Regulation for secure operation of the handwheel

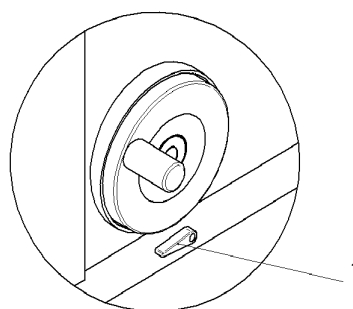
2.1 Safety Device

Attention: Lock the Handwheel before cleaning!

2.1.1 Quick locking lever for the Handwheel

Attention: Remember to lock the handwheel and cover the blade with the protection fitting before placing or replacing the blade and specimen block.

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.



Ways for examination:

- Pull the locking handle (1) to “Up” to mechanically lock the handwheel, the handwheel can not be turned.
- Pull the locking handle (1) to “Down” to loose the handwheel, and the handwheel can be smoothly rotated.

2.1.2 Blade-protecting fitting on the blade holder

Attention: Remember to lock the handwheel and cover the blade with the protection fitting before placing or replacing the blade and specimen block, and during the break of sectioning.

There is a movable protecting fitting on each blade holder, with which the blade's edge can be wholly covered over.

Transportation and Installation

- Pay attention to “Technical Parameters” in Chapter 3.
- The instrument must be erectly placed in the course of transportation.
- Avoid grasping the handles of the coarse feed wheel and the handwheel or the knob of adjusting the section thickness in the course of transporting the instrument.
- It is not allowed to remove or change the protecting devices equipped with the instrument and its appurtenance.

Operation

- Be careful when placing the knife and disposable blade. The sharp edge may cause serious injury by mis-operation.
- Neither blades not the blade-holder with blade is allowed to be randomly placed. The blades should always be kept in blades dispenser expect for sectioning use.
- The blade is not allowed to be placed upward.
- Do not catch a falling blade with your hand at any moment.
- Firmly clamp the specimen before placing the blade.
- Remember to lock the handwheel and cover the blade with the protection fitting before

replacing the blade or specimen block, or during the break of sectioning.

- No liquid is allowed to flow into the instrument.
- There is an alarm function when the specimen clamp is feed to the utmost scale.

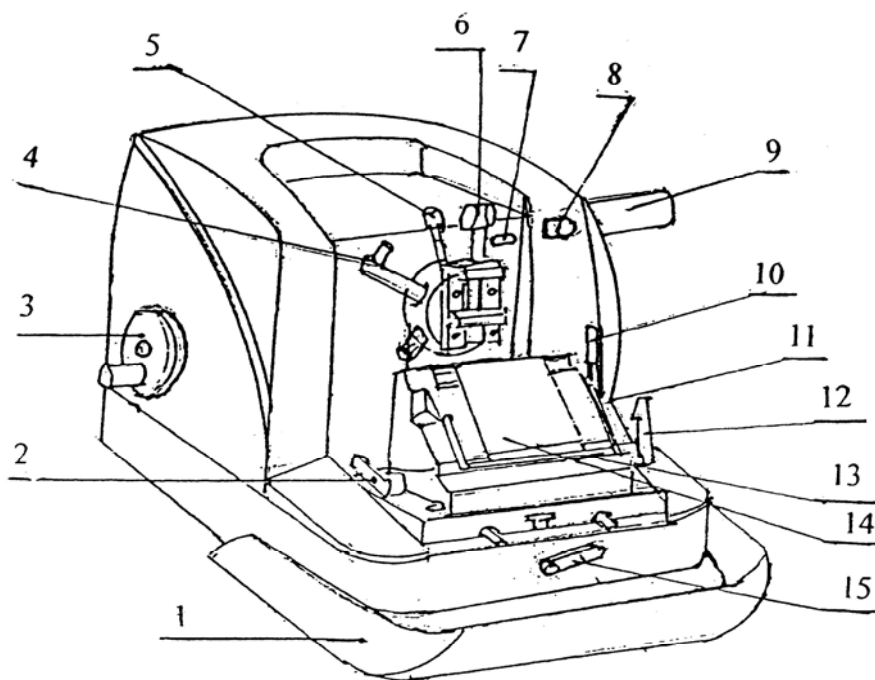
Cleaning

- Lock the handwheel before cleaning the instrument.
- Do not clean the instrument with the detergent containing acetone and benzene.
- Make sure no liquid would flow into the instrument.
- Please follow the general cleaning regulations and rules stipulated by the manufacturer and those applying to the laboratory.

Maintenance

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

Overview – Instrument Components:



- | | | |
|---|---|----------------------|
| 1. Collection waste tray | 2. Clamping lever for lateral displacement | 3. Coarse feed wheel |
| 4. Clamping lever for specimen holder | 5. Screw for oriented adjustment of specimen holder | |
| 6. Clamping screw for specimen block | 7. Section thickness indicator | |
| 8. Section thickness adjustor | 9. Smooth-turning Handwheel | |
| 10. Clamping lever for disposable blade | 11. Lever of the handwheel brake | |
| 12. Clamping lever for orientation of blade holder | 13. Blade guard on the blade holder | |
| 14. Pressing plate for disposable blade | | |
| 15. Clamping lever for horizontal movement of blade holder. | | |

3. Technical Parameters

Model: Manual Microtome JK-1369

- Range of the section thickness: 1—60 μ m
- Adjustable range of the section thickness:
 - 1—10 μ m increment 1 μ m
 - 10—20 μ m increment 2 μ m
 - 20—60 μ m increment 5 μ m.
- Clamp Horizontal Feeding: 20 mm
- Vertical specimen stroke: 58 mm
- Specimen clamp orientation adjustment (x/y): 8°

Repositioning of the blade holder basal:

- North-South: ± 25 mm
- Left-Right: ± 40 mm
- Object orientator adjusting angle: 1° - 15°
- Sectioning precision: $\pm 10\%$.
- Section obtainable size: 30 x 40 mm.

Size and weight of the instrument:

- Length x width x depth : 470 x 450 x 295 mm
- Working height (blade edge): 100 mm (measured from the base plate)
- Working height (blade edge): 165 mm (measured from the stage)
- Net weight: 28kg
- Gross weight: 38kg.

4. Instruction of Manual Microtome JK-1369

In order to meet the standard need of analysis and research of lab institute, JK-1369 is design to meet the request of senior scientist for achieving their demand of operating the instrument by infallibility manual and experience. It construct with precise mechanical axis structure internal, that with a high-degree of accuracy and stability. This microtome with manual operation for creating thin sections of specimens of varying hardness for use in routine and research laboratories in the fields of biology, medicine and industry.

It is designed for cutting soft paraffin as well as harder specimens, as long as they are suitable for being cut manually.

This manual microtome is widely used in the hospital nationwide, medical and life science division, agricultural and forestry institute, epidemic prevention center, veterinary center, public security and legal medical expert office, scientific research institute and bio-laboratory etc.

5. Instruments Specification

5.1. This microtome has been designed for effortless manual sectioning via a counter-balanced, exceptionally smooth-running handwheel.

Storage space on top of the instrument housing provides room for sectioning tools and accessories.

This microtome features a low-maintenance micrometer feed system with backlash-free and maintenance-free vertical cross-roller guides and horizontal specimen feed via precision cylinder guide system. As this microtome adopted with handwheel rotation driving, by turning the handwheel clockwise or counter clockwise, then the internal eccentricity shaft get to drive the horizontal movement of a sliding block and vertical movement of cylinder object feed system.

Handwheel lockable in any position via locking lever attached to the base plate of instrument.

Distortion-resistant base plate ensures optimum overall stability.

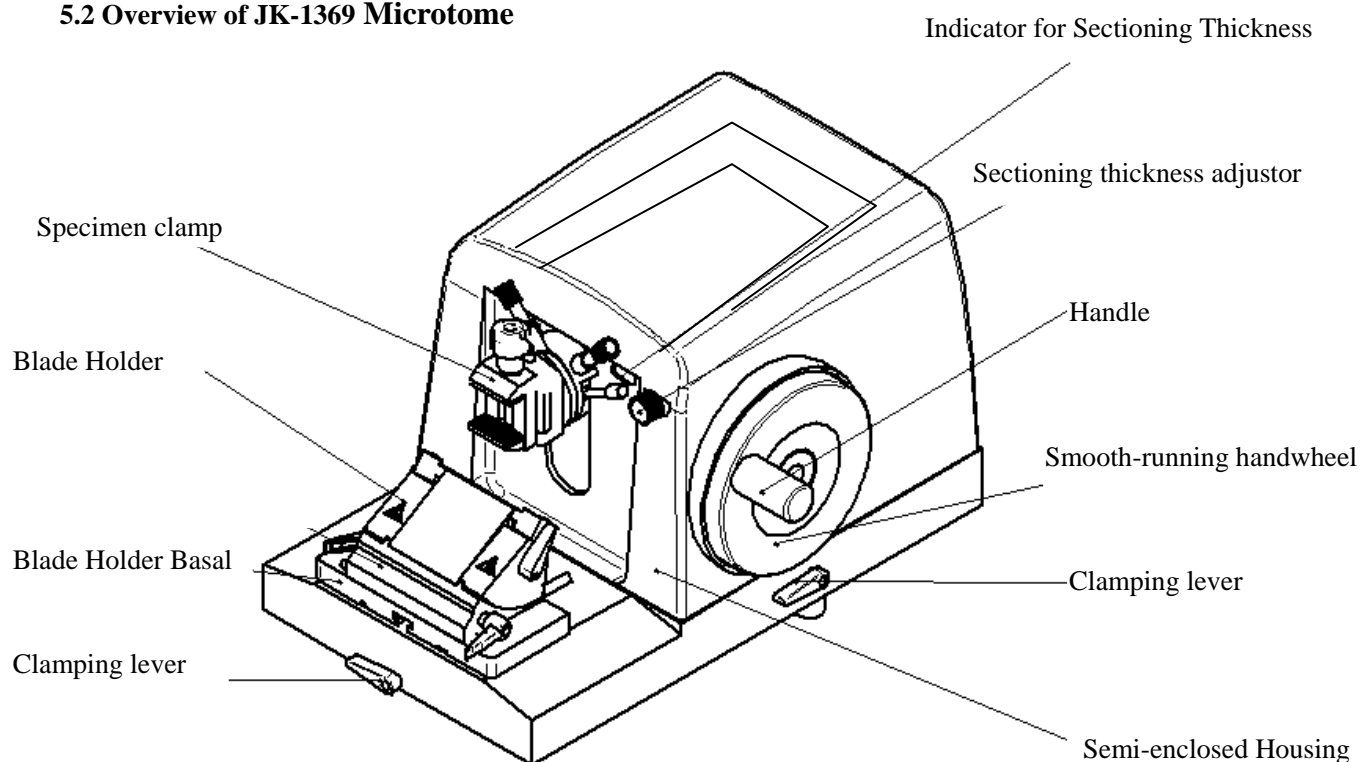
Sectioning thickness selectable between 1 and 60 μm .

Semi-enclosed housing (slot cover) largely prevents dust from entering the instrument.

Equipped with clockwise or counter-clockwise rotation of the coarse feed wheel on the left side of the instrument.

The blade pressure plate painting with nonstick coating that assure the section won't stick to the surface of the plate.

5.2 Overview of JK-1369 Microtome



5.3 Standard dispositions

The following appurtenances has been attached to the Model JK-1369 Manual Microtome:

| | | | |
|---------------------------|---|-------------------------------|---|
| Disposable blade 50pc/box | 1 | Oil for the instrument (50ml) | 1 |
| Dust cover | 1 | Instruction manual | 1 |
| Certificate of Origin | 1 | Allen key (kit) | 1 |

All the above-mentioned appurtenances and other parts ordered will be packed into the wooden crate for the instrument.

Please check up the instrument when unpacking the crate. Please contact us immediately (Moss Instrument Co., Ltd) or the authorized distributor if any error occur.

6. Unpacking and installing the instrument

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 section thickness in the course of transporting the instrument.*

Instrument setting

- The instrument should be placed on the stable platform in the room under normal circumstance.

6.2 Requirements for the placing the instrument:

- Stable and no vibration of experimental platform.
- No vibration on the floor.
- Leave enough space for the convenient rotation of the handwheel and the coarse feed wheel.

7. Installation

7.1 Installation of the specimen clamp

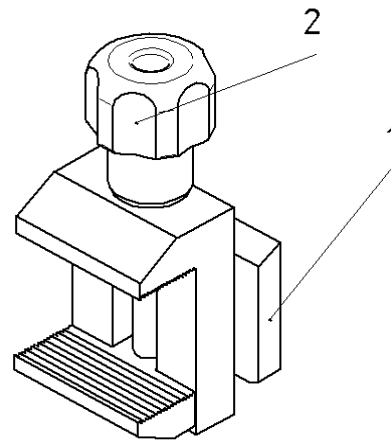
The mounting adapter for specimen clamp has been installed onto the instrument. But as the ordered component, the specimen clamp hasn't preinstalled and adjusted, it need proper installation and adjustment.

Standard specimen clamp

- Lock up the handwheel on the right side of instrument.

- There is a dovetail leader on the standard specimen clamp (1), loosen the clamp handle (4), insert the dovetail leader into the dovetail slot (3), when completing, lock up the handle (4) .

- Turn downward the locking handle to loosen it (7), the position of the specimen clamp can be adjusted via the screw (5) and (6) .

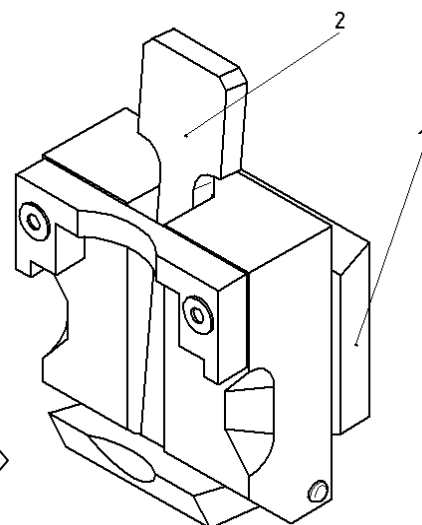


[**Attention:** The screw(5)and(6)should be adjusted simultaneously within their effective sphere.]

- The screw (5) for Up / Down, and screw (6) for Right / Left. In the course of adjustment, the locking handle (7) should be loosened.

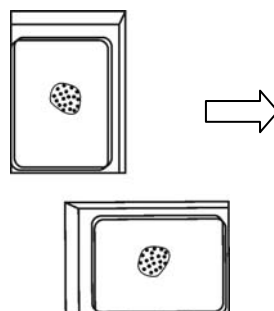
- Once the specimen clamp fixed in the position, turn upward the locking handle (7) to lock it down.

- **Replacing the specimen clamp:** Loosen the locking handle(4) to take out the specimen clamp from the dovetail groove for replacing a new one.



Universal cassette clamp

- Lock up the handwheel
- The way for installation and adjustment is the same as the specimen clamp as above.



- The universal cassette clamp can horizontally or vertically clamp for all kinds of the universal cassette available in the market.

- Pulling forward the handle (2) .
- Horizontally or vertically put in the cassette.
- Loosen the handle (2) to clamp the cassette.

7.2 Installation of the appurtenance

Attention: Do not insert the blade before completely fixed the blade-holder onto the microtome. For the safety purpose, take down the blade before replacing the blade-holder.

7.2.1 Installation of the blade-holder and its basal body

- Turn the locking lever (1) counter-clockwise.
- To fix the

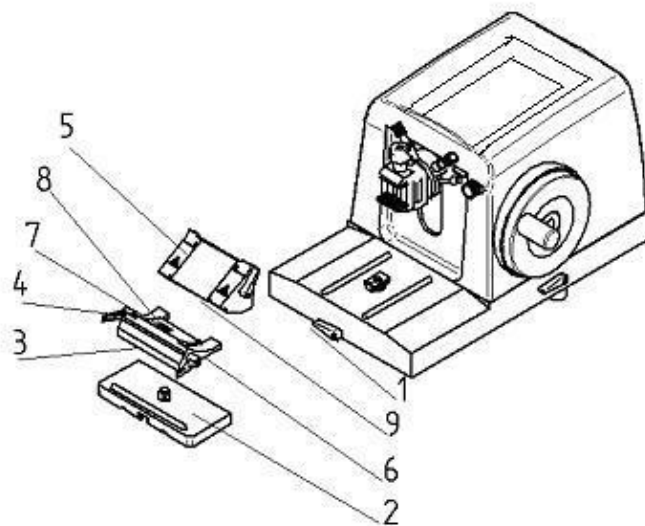
shuttling basal of the blade-holder (2) onto the T pressing block of the microtome base.

- Turn the locking handle (1) clockwise, lock the shuttling basal of the blade-holder (2).

- To install the moving basal of the blade-holder (3) onto the shuttle basal (2), insert the locking lever(4) from the left side, and lock the moving basal (3). Turn counter-clockwise to loosen it for left-right moving adjustment.

- To install the blade holder (5) onto the moving basal (3), insert the locking lever(6) from the right side, and lock up the blade holder. Turn counter-clockwise to loosen it for the orientation adjustment of cutting blade.

- The suitable locking position is about 5° .
- If the blade holder can't be regulated in the position of 5° , it can be done by adjusting the locking knob (8) via the screw (7) .



- When the locking lever (6) is firmly locked but the blade holder is not regulated in the position of 5° , in this case, the reposition can be done by taking out the locking lever(6) and check up the regulation and then lock up lever (6).

- The locking lever (6) must be loosened before the object orientation adjustment..

- The graduation (9) on the right of the blade holder (5) can help to regulate the ideal angle.

7.3 Installation of the standard steel knife

- Make sure the handwheel is locked in the top position and be careful of the sharp edge of the knife before placing it in the position.

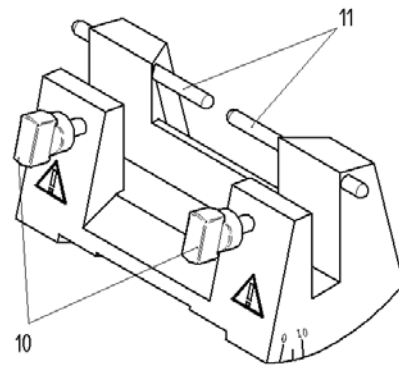
- For reposition of the knife holder, the locking lever(6) must be loosened, then the knife holder can be taken out from the movable basal(3).

The standard knife holder is designed for the 16cm-length steel knife.

- The two knobs (10) must be unscrewed for inserting the steel knife from the side.

- After finish inserting the knife, screw on the two knobs (10) to firmly fix the knife.

- The edge of the knife is covered with the movable protection fixture (11). Don't touch the edge of knife by your hand at any moment.



7.4 Installation of the blade holder for the disposable blades

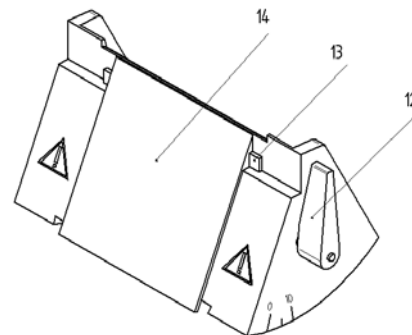
- Make sure the handwheel is locked in the top position and be careful of the sharp edge of the blade before placing it in the position.

- The blade holder can fit on both of high and low profile disposable blades.

- The isolating strip bar (13) should be placed in the blade holder slot when the low profile disposable blade is installed.

- Loosen the locking lever (12), and push the blade into the slot from the side, then lock up the lever (12) to make the pressure plate (14) to fix the blade in the position.

Don't touch the edge of blade by your hand.



● The isolating strip bar (13) should be taken out from the blade holder slot when the high profile disposable blade is installed. The way of blade installation is the same as the low profile disposable blade installation.

Attention: *The edge of blade is very sharp!! Remember to lock the handwheel in the top position and cover the edge of blade with the protection fitting before replacing the blade or specimen block, and during the break of sectioning.*

8. Sectioning

8.1 Pre-Sectioning

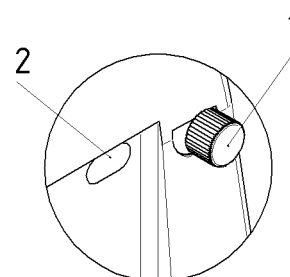
Slide the blade holder system toward the specimen clamp to get the cutting blade approaching the biopsy specimen. By rotating the coarse feed wheel to adjust the specimen in cutting position.

Attention: *the scale of the specimen horizontal feed is 20 mm. if the rotation of coarse feed wheel is skiddy, it means that the specimen already feed to the end of scale.*

8.2 Selection of the thickness of the section

The selection of the section thickness can be done by adjusting the knob located on the right upside in front of the microtome.

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



● Range of the section thickness: 1—60 μ m

● Range of the section thickness adjustment:

1—10 μ m increment 1 μ m

10—20 μ m increment 2 μ m

20—60 μ m increment 5 μ m.

● The selected section thickness will be shown on the indicator (2) .

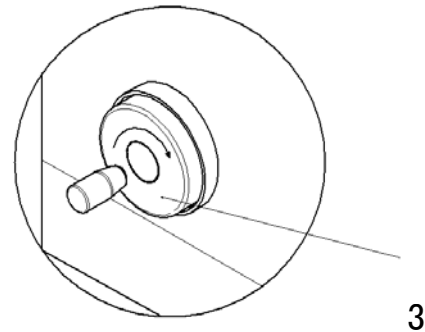
8.3 Coarse feed wheel

The coarse feed wheel is operated in clockwise direction - the type of coarse feed most widely used in Europe.

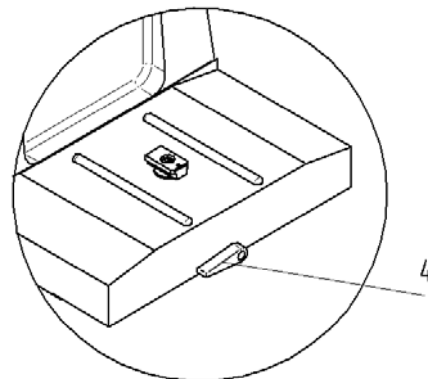
Attention: Make sure the specimen is fitted in the specimen clamp while adjust its position and the blade holder's. Avoid any occasion of the metal specimen clamp hitting the blade holder.

8.4 Specimen-trimming

- The coarse feed wheel (3) is located on the left side of the microtome. Rotate the wheel clockwise to drive the specimen for approaching the edge of blade, but not over-rotating and hitting the edge of blade.



- Or loosen the locking lever (4) and slide the blade holder for approaching the specimen, but not over-sliding and hitting the specimen, after get it in the good position then lock up the locking lever (4).



- Select the section thickness of 50 μm to start the specimen trimming. After the ideal section is obtained, the trimming is finished.

8.5 Specimen-cutting

Attention: Be sure to rotate the handwheel evenly and the speed of handwheel rotation should match the hardness of the specimen. The harder of specimen, the slower of rotating speed.

The section thickness is adjustable in the indicator located on the right upside of the instrument.

- Choose the appropriate cutting angle of knife. Normally practise the cutting angle from narrow to wide. The principle is the harder of the specimen, the wider of the cutting angle.

- The regulation on the right side of the blade holder is for the selection of the cutting angles.

- After the ideal section is obtained, then pick it up by a forceps. Or get it by a slide.

9. Normally specimen cutting

- Instruction for the procedure of paraffin specimen cutting

Attention: Be sure to lock up the handwheel and cover the edge of the blade with the blade protecting fitting in the course of placing the blade and specimen.

- Lock up the handwheel.

Attention: To be firmly fit in the specimen before placing the blade.

- Fit the paraffin specimen in the specimen clamp.

Attention: Be careful in the course of placing the knife or disposable blade, because their edge is very sharp!

- Rotating the coarse feed wheel counter-clockwise to drive the specimen clamp to the utmost position.

- Insert the blade into the blade holder and firmly fix it.
- Setting the ideal cutting angle (practise from 0° to 5°)
- Push the blade holder for approaching to the specimen.
- Make sure the specimen block is clamped proper.
- Loosen the handwheel.

Attention: Be sure to rotate the handwheel evenly for sectioning. The harder of specimen, the slower of rotating speed. Don't rotate the handwheel too fast, otherwise, it would cause the wrinkled section.

- Select a section thickness of 50 μm for specimen-trimming.
- After specimen trimming, select a section thickness of 1 – 10 μm for specimen cutting.
- With continuous cutting, the reproduced section is available.
- Lock up the handwheel.
- Cover the edge of blade with the blade protecting fitting.
- Take out the specimen block from the specimen-clamp for replacement.

9.1 Ending of Sectioning

- Lock up the handwheel.
- Take out the blade from the blade holder and place it back in the blade dispenser.
- Take out the specimen block from the specimen-clamp.
- Clean up the scrap and instrument.

10. Cleaning

Attention: Be sure to lock up the handwheel before cleaning

Brush off the scrap with a dry brush.

Dismantle the blade holder and the basal for cleaning.

Attention:

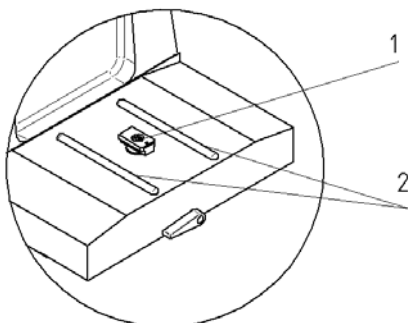
- ◆ Only the cleanser for home use or the soap-lye can be used for cleaning the instrument.
- ◆ Acetone and benzene will damage the painting of the instrument.
- ◆ Leakage of the cleaning liquid falling into the instrument is forbidden.
- ◆ A wet cloth is needed for the routine cleaning.

11. Preventive maintenance

Regular maintenance

Actually 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:

1. The technician authorized by our company check up the instrument at least once a year.
2. After the warranty period a successive maintenance contract should be drafted to ensure the service support. The details information can be consulted with MOSS INSTRUMENTS CO after-service agencies.
3. Clean the microtome daily.
4. Monthly lubricate the following joint parts with the lubricant we offered(one or two drop is enough):
 - ① The “T” block (1) on the base of the instrument.
 - ② The sliding rails (2) on the base of the instrument.



5. The maintenance service should be provided by the authorized technician. Any self-repair may cause the unexpected damage, and we will not be responsible for the effect of self-repair and further maintenance.