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# 2017

## Semi-Automatic Rotary Microtome MRS 3500 User Manual



Revision Date: 07/03/2017

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
# 1.Important Notes

## 1.1 Symbols used in the text and their meanings



**Warning and cautions appear in a light blue box and are marked by a warning triangle .**



**Notes, i.e. important information for the user, appear in a light blue box and are marked with the symbol .**



**Solvents and reagents that are inflammable are marked with this symbol.**



**This warning symbol indicates the surface on the instrument that are hot during operation. Avoid direct contact to prevent risk of burning.**

**(5)**

**Figures in brackets refer to item numbers in figures.**

**ENTER**

**Function keys that have to be pressed on the input screen, are displayed in square brackets bold type and capital letters..**

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## *1.2 Information and specified use*

The MRS 3500 is an ultra-thin Semi-automatic microtome with complete function of automatic slice counting, sectioning, quick trimming. Handwheel can lock at any position.

Both steel knife (optional) and disposable blades can be used. Stable in performance with automatic protection system, interchangeable specimen clamp system and LCD display.

The MRS 3500 is a rotary microtome for thin sections of specimens of varying hardness for use in routine and research biology laboratories, 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. All other use of the instrument is considered improper.

Any other use will be considered improper.

## *1.3 User group*

- The MRS 3500 may be operated only by trained laboratory personnel;
- The user must read the operating instructions supplied and be familiar with all the instrument's technical details before any work on the instrument can be carried out;

### *1.4 Instrument type*

All information in this instruction manual applies only to the instrument type indicated on the title page.

A name plate with the serial number is attached to the back of the instrument.

## 2.Safety



**Be sure to comply with the safety instructions provided in this chapter.  
Be sure to read these instructions, even if you are already familiar with the operation and use of other Histo-Line Laboratories products.**

### *2.1 Notes*

This instrument has been built and tested in accordance with machinery directive 98/37/EC and the safety regulations for laboratory devices as specified on the CE declaration of conformity. To maintain this condition and ensure safe operation, the user must observe all notes, warnings and hazards contained in this Operating Manual.



**If additional requirements on accident prevention and environmental protection exist in the country of operation, this instruction manual must be supplemented by appropriate instructions to ensure compliance with such requirements.**

## 2.2 Regulations on the instrument itself



**Safety regulations marked with a warning triangle on the instrument itself mean that when operating or exchanging respective parts of the instrument, the correct operating steps as described in the instruction manual supplied, must be adhered to. Non-observance can cause accidents, injuries and/or damage to the instrument/accessories**

## 2.3 Handwheel operation – Safety device



**ATTENTION:  
Lock the Handwheel before cleaning!**

## 2.4 Handwheel operation – Quick locking system



**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**



**(Fig 1)**

Turn the locking lever 1 on the right side of the base of the microtome to parallel position (**Fig 1**), to lock the handwheel at any position.



**(Fig 2)**

Turn the locking lever 1 to vertical position (**Fig 2**) that the handwheel is loosened.  
The handwheel will loosen if the locking lever didn't put on the right position



## 2.5 Blade-protecting fitting on the blade holder



### ATTENTION:

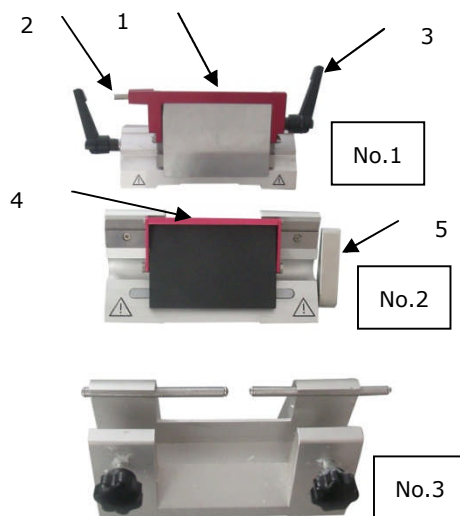
**Remember to lock the handwheel and cover the blade with the protection fitting before operating the blade or specimen or changing the specimen and during the break**

There is a mobile protecting fitting (1) on each blade holder, with which the blade edge can be wholly covered

## 2.6 Knife guard on the knife holder



**The clamping levers on the knife holder are not interchangeable. The two clamping levers must remain in the position shown on Figs at all times, as otherwise isolated mal functions of the knife holder can occur**



**(Fig.3)**

Each knife holder is equipped with a tightly mounted knife guard. This makes it possible to cover completely the cutting edge in every knife or blade position.

To cover the knife edge, push both cover strips of the knife guard to the center.

The knife guard on disposable knife holder **(No.1 – Fig.3)** consists of a red foldaway handle **(1)**. To cover the cutting edge, fold the knife guard handle **(1)** upwards as illustrated in **(Fig.3)**. When changing the disposable blade, loosen the locking lever **(3)**, push out the disposable blade.

The knife guard on disposable knife holder **(No.2 – Fig.3)** consists of a red adjustable handle **(4)**. To cover the cutting edge, fold the knife guard handle **(4)** upwards as illustrated in **(Fig.3)**

When changing the disposable blade, fold the knife guard handle upwards, loosen the locking lever **(5)**, push the strip inside and the blade will be push out

## *2.6 Transport, installation and site requirements*



- **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;**
- **Exposure to extreme temperature changes between storage and installation locations and high air humidity may cause condensation inside the instrument. If this is the case, wait at least two hours before switching on the instrument;**
- **The protective devices on both instrument and accessories must neither be removed or modified; Once removed from the box, the instrument may only be transported in an upright position**
- **Only service personnel qualified by Histo-Line Laboratories may repair the instrument and access the instrument's internal components.**
- **Do not operate in rooms with explosion hazard**
- **CAUTION! The voltage selector has been preset at the factory, please check that this setting complies with the local power requirements of your laboratory;**
- **Connect the instrument to a grounded power socket only using one of the power cables provided;**

## *2.7 Precaution for use and installation*



**After unpacking the instrument place the instrument on a laboratory to the designed floor and adjust it to a correct position.**

**Before working read very carefully the warnings listed in this manual and visually examine accessories used for working procedures and operating and control systems**

**Never lift the instrument by the hand wheels or the clamp. Always remove the section waste tray before transporting the instrument**

## 3. Warnings and hazards



**Be sure to comply with the warnings and hazards instructions provided in this chapter.  
Be sure to read these instructions, even if you are already familiar with the operation and use of other Histo-Line Laboratories products.**

The safety devices installed in this instrument by the manufacturer only constitute the basis for accident prevention. Primarily responsible for accident-free operation is above all the owner of the instrument and, in addition, the designated personnel who operates, services or cleans the instrument. To ensure trouble-free operation of the instrument, make sure to comply with the following instructions and warnings and hazards.

### 3.1 Operations



- **Be very careful when using the blades and disposable blades. The sharp edge may cause serious injury by miss 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**

### *3.2 Maintenance*

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

### *3.3 Servicing and cleaning*



**When using cleaners, please comply with the safety instructions of the manufacturer and the laboratory safety regulations and follow a specific chapter if any in this manual for the cleaning methods.  
During operation and cleaning, do not allow any liquid to penetrate inside the instrument and the transporting arm.  
Service should be done by authorized personnel only.**

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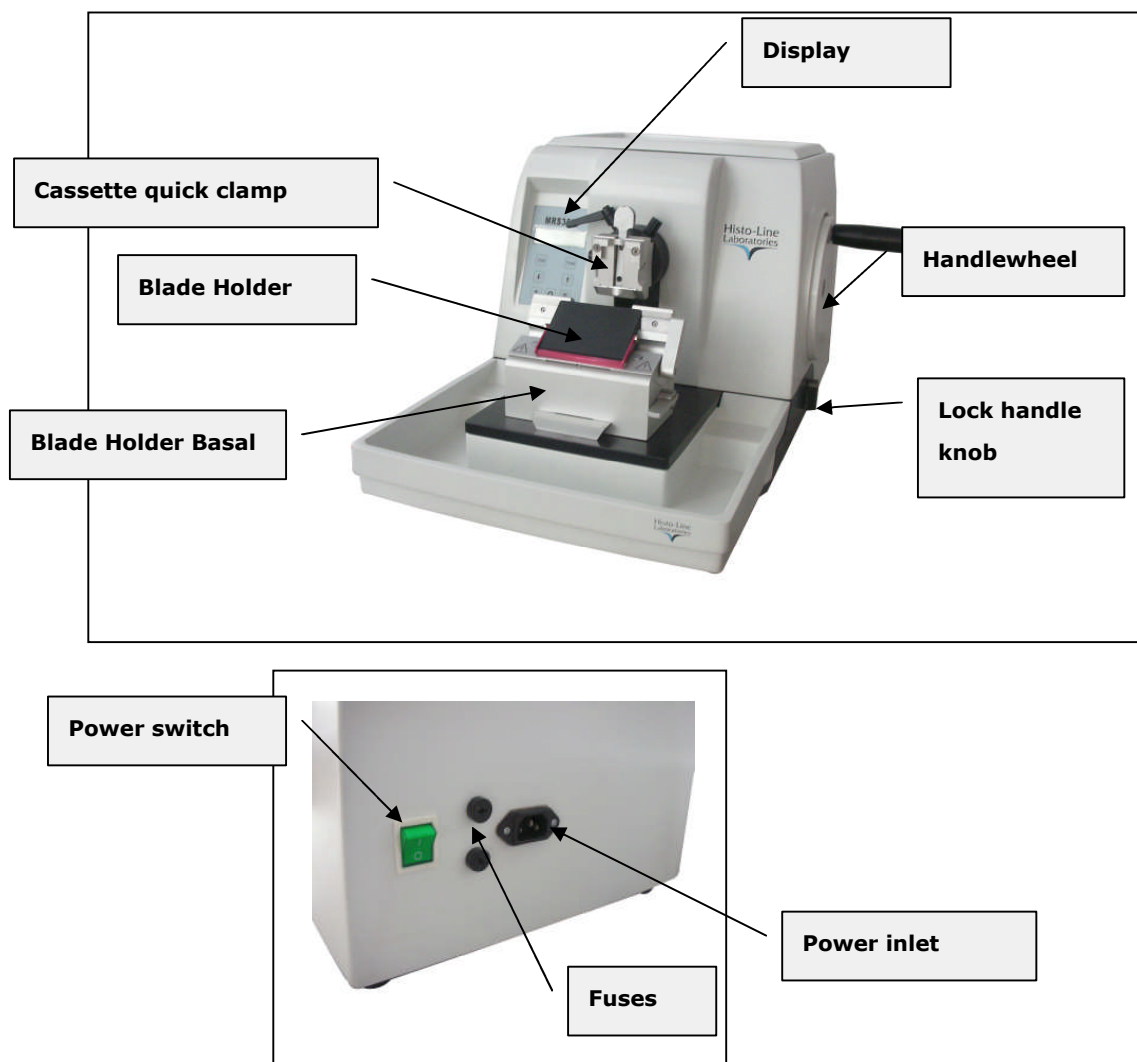
## 4. Technical parameters

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Refer to attached pages, download the electronic version of data sheet from [www.histoline.com](http://www.histoline.com) web site, or request to [customercare@histoline.com](mailto:customercare@histoline.com) for detailed information about technical data.

## 5. Brief descriptions

### 5.1 Outline of Microtome



## *5.2 Introduction and characteristics*

- MRS3500 is a microtome equipped with a smooth-running handwheel;
- Section Mode: Normal rotary cutting;
- All important control function is independent in accord with ergonomics Fast forward and fast backward function can operate simply with press button on control panel;
- During sectioning, visual/acoustic signals indicate the front and rear travel limits;
- The trimming and cutting thickness can adjust separately and save separately;
- The microtome base plate features an integrated ruler, to ensure that specific knife holder base positions can easily be found again;
- The notch on blade like a ruler can position the best angle simply;
- The important function control key of the instrument such as specimen retraction (Retract), handwheel / specimen head locking function (Lock), trimming thickness, section thickness as well as section and section thickness tantalizer are indicated directly on the instrument
- For increased user safety, the instrument is equipped with locking system



## *5.3 Accessories*

### *Standard*

The equipment is provided with:

- Waste tray;
- Rubber pad;
- Operating manual for instrument use;
- Certificate;

### *Optional*

The optional equipment are:

- Knife holder
- Steel knife;
- Oil for the instrument (50ml);

All the above mentioned items and other parts ordered will be properly packed.

Please check when unpacking. Contact immediately Histo Line or local distributor if any damaged or missing parts.

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## 6. Unpacking and installing the instrument

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### 6.1 Unpacking

- Remove the safety bolt from bottom side of the box
- Unpack the wooded box to take out all components and the Instructions;
- 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 Installation site requirements for the place to set

- Do not transport the instrument by holding from the handwheel shaft. Keep it safely from the unit basement
- 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 +15 ° C and +35 ° C.
- Never operate the instrument in rooms with explosion hazard.
- By holding the instrument at the front by the base plate, and at the rear by the recessed grip, lift it out of the molded cushion of the packaging and place it on a stable laboratory table.
- Leave enough room for the convenient operation of the handwheel and the wheel;

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## 7.Startup

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### *7.1 Electrical connections*



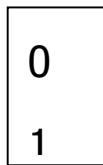
**ATTENTION:**

**The instrument MUST be connected to a grounded power socket. Use only the power cable provided that matches the power supply (outlets) of the country of use**

- New instruments are factory-set to 220 volts.  
This is documented by a silver label (220 VOLT) on the rear of the instrument, which covers the power switch and power socket;
- Before connecting the instrument to the power supply, be absolutely certain to check that the voltage is right voltage in use in your area!
- Severe damage can be caused to the instrument if the voltage is an incorrect voltage!;

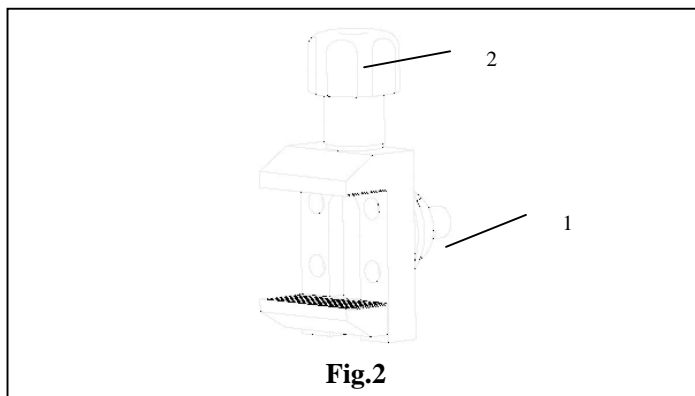
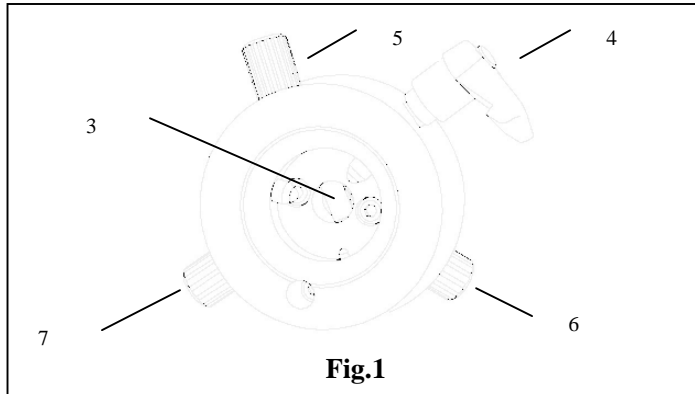
## 7.2 Switching on the instrument

- New instruments are factory-set to customer' s need voltage. This is documented by a silver label on the rear of the instrument, which covers the power switch and power socket.
- Before connecting the instrument to the power supply, be absolutely certain to check that the voltage is correct voltage in use in your area! Severe damage can be caused to the instrument if the voltage is an incorrect voltage
- Exposure to extreme temperature changes and high air humidity may cause condensation to form inside the instrument.
- After transporting, please wait at least 2 hours to allow the instrument to adopt the ambient temperature before turning it on!
- Failure to comply with this may cause damage to the instrument
- Connect the instrument with delivery power line. The instrument **MUST** be connected to a grounded power socket! Use standard power line, Do not use other power line without grounded power socket



- Turn the instrument on with the mains switch at the rear. The instrument initializes with HISTO-LINE LOGO
- Before connecting the power cable, make sure that the power switch on the rear of the instrument is switched to 'O' = OFF.
- Various country-specific power cables are provided with the instrument. Make sure that the power cable provided has the correct plug for the power socket.
- Insert the connector of the power cable into the connection socket and plug the power plug into the power socket.
- When switching on the instrument using the power switch, never press any of the buttons on the control panel at the same time
- Before connecting the power cable, make sure that the power switch on the rear of the instrument is switched to 'O' = OFF.
- Turn the instrument on with the mains switch at the rear. This is followed by a beep. The instrument is ready 0 = OFF 1 = ON

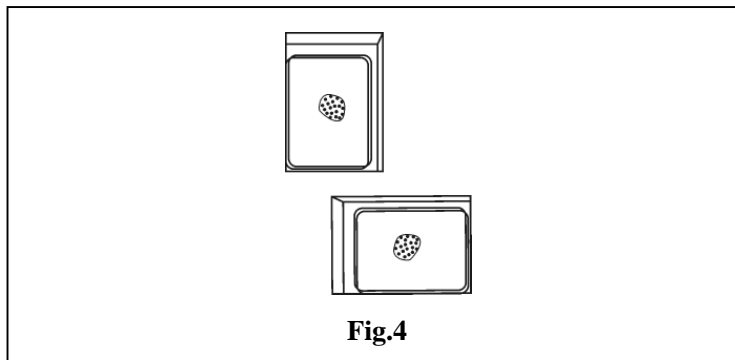
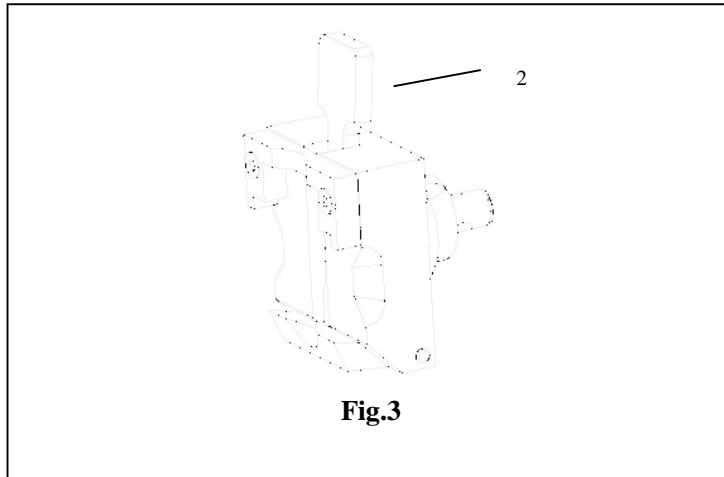
### 7.3 Standard clamp system



The clamp ,mounted on the main instrument or ship as the optional accessories , should adjust and install first **(3)(Fig.1)**

- The instrument should away from electromagnetism;
- Lock handwheel;
- Standard Specimen Clamp insert the dovetail guider **(1)(Fig.2)** of specimen clamp into the dovetail slot **(3)(Fig1)**, and then lock up the Locking lever;**(4)(Fig.1)**
- Loosen the locking lever **(4)(Fig.1)**, and the orientation of specimen clamp can be adjusted by the knob **(5)(Fig.1)** and **(6)(Fig.1)**.and the adjustment of knob **(5)(Fig.1)** and **(6)(Fig.1)** should be in their sphere of orientation;
- Adjustment orientation of knob **(5)(Fig.1)** for the up/down, and Adjustment orientation of knob **(6)(Fig.1)** for left/right.Please loosen the locking lever **(4)(Fig.1)** before adjusting the orientation of specimen clamp;
- Once the orientation of specimen clamp is adjusted, it has to lock the locking lever; **(4)(Fig.1)**
- In case of replacing the specimen clamp, first please loosen the locking lever **(4)(Fig.1)** and unscrew the knob **(5)(6)(Fig.1)**, take out the specimen clamp from the dovetail slot;

### 7.4 Universal cassette clamp

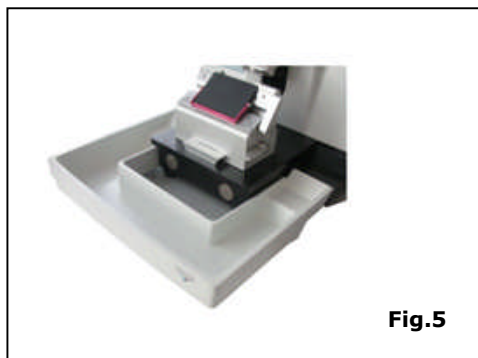


- First lock the hand wheel;
- The installation method and orientation adjustment method are same as above instruction of Standard specimen clamp;
- Universal cassette clamp can hold all the cassettes in horizontal or vertical, which are well known in the global market;
- Put the Pull forward **(2)(Fig.3)**
- Insert the cassette to the universal cassette clamp horizontally or vertically;
- Loose the Pull **(2)(Fig.3)**, the cassette will be clamped tightly

## 8.Operations

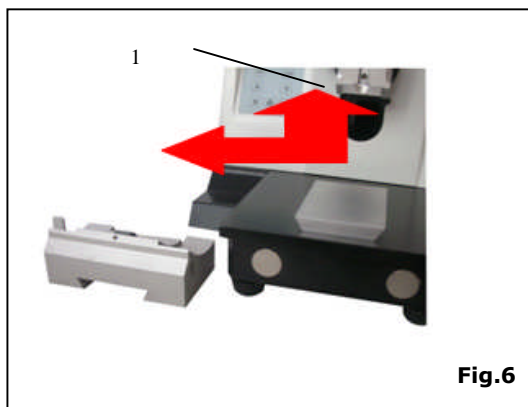
### *8.1 Waste tray*

Push the waste tray aside with the microtome base till magnet pull in to confirm it install well **(Fig.5)**



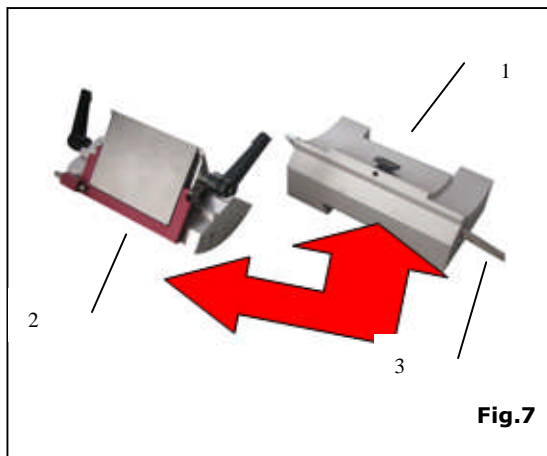
### *8.2 Installation of knife holder Base and its parts*

Release clamping lever **(1)** **(Fig.6)**, push the blade holder base onto V piece plate . Lock the locking lever



### 8.3 Installation of disposable blade holder

Loosen the screw with screw driver **(3)(Fig.7)**,  
put the disposable blade holder **(2)(Fig.7)** to disposable  
blade holder base **(1)(Fig.7)** and tighten the screw

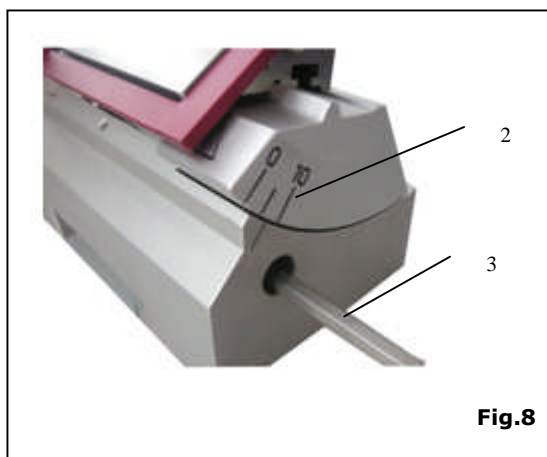


### 8.4 Adjusting the clearance angle

Release the screw **(3)(Fig.8)** with the size 4 Allen key so that the knife holder  
can be moved.

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

The recommended clearance angle setting  $8^{\circ} \sim 10^{\circ}$  **(2)(Fig.8)**





### *8.5 Clamping the specimen*



**ATTENTION:**

**Lock the handwheel and cover the knife edge with the knife guard prior to any manipulation of knife or specimen, prior to changing the specimen block and during all work breaks!**

- Always clamp the specimen block BEFORE clamping the knife;
- Rotate the handwheel until specimen clamp is in the uppermost position;

### *8.6 Clamping the knife / disposable blade*



**ATTENTION:**

**Be very careful when handling microtome knives or blades. The cutting edge is extremely sharp and can cause severe injury!**

- Carefully insert knife or disposable blade into the knife holder and clamp;
- If narrow-band blades are used, make sure that the blade is clamped parallel to the upper edge of the pressure plate

## 8.7 Operating elements and their functions

LCD: menu displayed in English (**Fig.9**)



### *Set slicing key*



Press this key for confirm the set of slicing unit values.

### *Set trimming thickness key*



Press this key for confirm the set of trimming thickness unit values.

### *Increase unit values key*



press this key to increase the slicing or Trimming thickness of the items selected.

*Decrease unit values key*



Press this key to reduce the slicing or Trimming thickness of the items selected

*Fast forward key*



The specimen clamp move forward fast after pressing

*Fast backward key*



The specimen clamp move backward fast after pressing this key.

*“wakeup” key*



Press this key to ON unit from stand-by

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## *8.8 Trimming operation*

“Trimming thickness 00 $\mu$ m” will be displayed after pressing the Trimming key, and then adjust the thickness by pressing the plus and minus key, until up to the satisfied thickness and the Trimming could be done by the rotary hand wheel after pressing the Trimming key again.

The surface of specimen shall be mirror-like and smooth after finishing the Trimming operation.

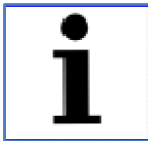
Turn the hand wheel clockwise, make the specimen clamp at the highest position and at this moment the specimen is at the slicing status.

## 8.9 Cutting operation

As "section thickness 03 $\mu$ m, section count 0000" is displayed on the LCD after pressing the Cut key, press "increase" or "decrease" key to adjust the thickness until up thickness requested, and the slicing could be done by the rotary hand wheel. the slicing times will be automatically counted at the same time.

Turn the hand wheel an entire round in each slicing. The optimal slicing method is to turn the hand wheel evenly and clockwise from the starting point position back to the starting point position again. The specimen will be compressed if the hand wheel is turned too fast and the peeling phenomena will occur.

Turn the hand wheel back to the starting point position after finishing slicing and lock the hand wheel. The slicing times (within the range of 0~9999) will be displayed on the LCD.



**The motor automatically stops running and alarms if it's running out of the journey range, and the return key shall be pressed at that moment to reset**



**ATTENTION:**  
**the hand wheel shall be turned evenly, and the turning speed must be complied with the hardness of the specimen, and the speed shall be slowed down while slicing hard specimen**

The confirm key must be pressed before starting a new slicing operation after the operations as fast forward, fast backward, or Trimming and slicing thickness adjustment etc being performed during the slicing process, otherwise, the revolving hand wheel will not feed.

The instrument will automatically access to sleeping alert pattern if the instrument is not operated several minutes after starting up. Then the LCD switches off, the confirm key shall be pressed to resume working.

Suggestion: the power shall be switched off after the operation of the instrument is finished, otherwise, the long time alert state of the instrument could quicken the aging of the instrument and influence the shelf-life of the instrument.

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### *8.10 Changing the specimen or interrupting sectioning*

Lock the handwheel and cover the knife edge with the knife guard prior to any manipulation of the knife or object head , as well as the prior to changing the specimen

Raise the specimen to the upper end position by turning the handwheel and engage the handwheel lock.

Before cutting into a new specimen, move the object head back to the rear end position.

### *8.11 Finishing daily routine*

Dismantle the slicing blade from the blade holder and put it into the blade box.

Clean up the slicing scraps on the instrument, dismantle the waste scraps collection groove and remove the waste slicing scraps.

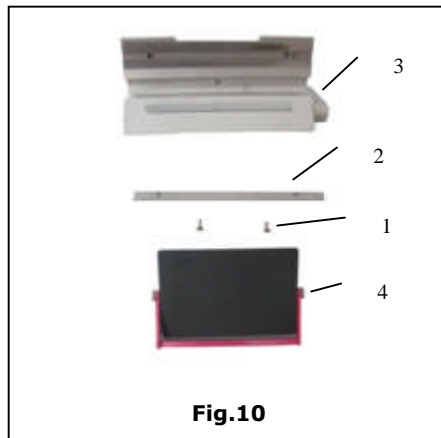
Take out the specimen from the specimen clamp.

Switch off the power switch, take out the power plug, turn the hand wheel specimen clamp to the highest position and lock the hand wheel.

Please refer to ("Cleaning section") for the cleaning of instrument.

## 9. Interchange of the accessories

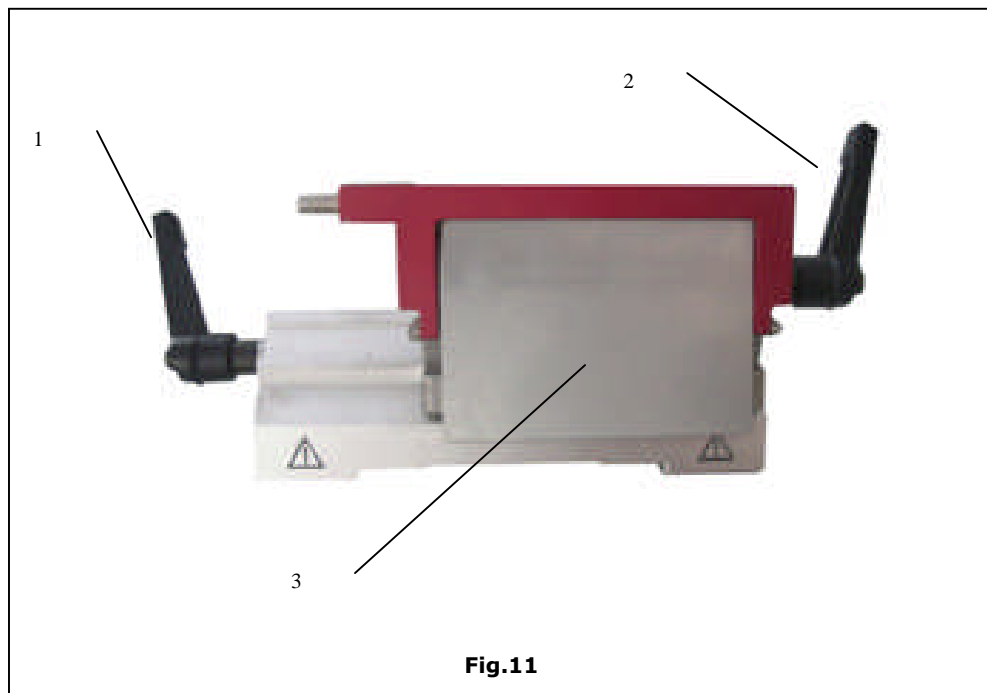
### 9.1 Blade holder movement



- The two levers **(1-2)(Fig.10)** should kept vertical when closed. This position allowed a better close of plate **(3)(Fig.10)** and lock of blade.
- Clamping lever **(1)(Fig.10)** for the lateral movement, Clamping lever **(2)(Fig.10)** for blade removal.
- Loosen the clamping lever **(1)(Fig.10)** for lateral move of the blade holder . Lock the clamping lever **(1)(Fig.10)**

The lateral movement of the blade holder can maximize the usage of the blade for its entire length.

## 9.2 Interchange between low/high profile disposable blade



The blade holder is set for the low profile disposable blade.

If you need change to high profile blade , turning the lever **(3)(Fig.11)**, take out the plate **(4)(Fig.11)**, unscrew the 2 screws **(1)(Fig.11)** and take out the strip **(2)(Fig.11)**.

In this way , it can insert the high profile blade.

Please note: Dual profile blade holder is available up on request



### *9.3 Use of the tray*



The tray positioned on top of unit is for storage of the utensils used during sectioning as well as the sectioned specimens. **(Fig.12)**

## 10. Cleaning

Each part of the equipment may be wiped using a tissue or soft cloth moistened with a little water to which a small quantity of mild detergent may be added. Take care to avoid water entering the equipment.



- **Lock the handwheel before cleaning the instrument;**
- **Clean up the slicing scraps with a clean brush**
- **Do not clean the instrument with the detergent containing acetone and benzene;**
- **Make sure to make no cleanser flow into the instrument.**

Maintain cleaning the various parts of the Microtome after using, such as removable blade holder and slide guide of base, refilling of clean lubricating oil, and a good maintenance of the Microtome could prolong its shelf life.

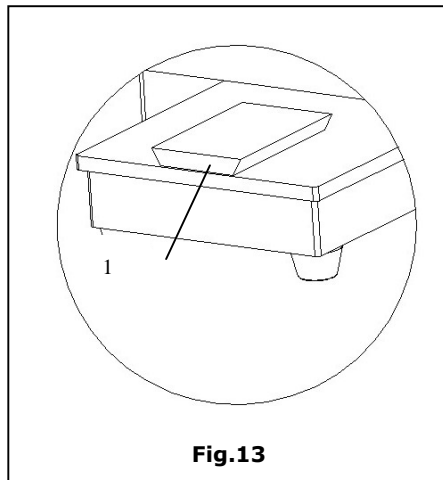
### *10.1 Service instruction*

This Microtome could work for a long time without maintenance. However, we suggest as follows for the smooth running of the instrument over a long period.

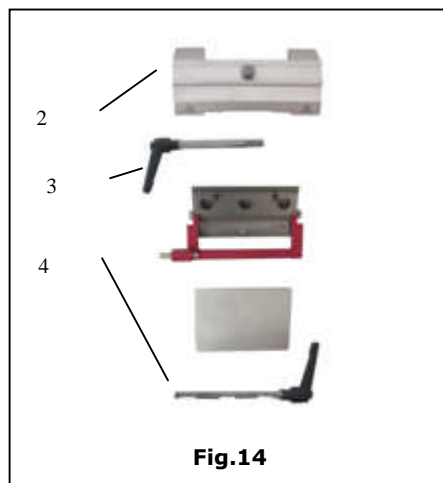
1. At least check the instrument every year by the user service technician authorized by our company.
2. Sign a maintenance contract upon expiration of the warranty period. You could contact HISTO-LINE customer service department for further details.
3. Clean the instrument every day.
4. Please don't repair the instrument by yourself, otherwise, you will lose your rights of warranty. The instrument could only be repaired by the technicians authorized by our company

## 10.2 Lubricating the instrument

Once a month, lubricate the following parts(1 - 2 drops are enough)



**Fig.13**



**Fig.14**

- Instrument and specimen holder;
- The clamping key **(2)(Fig.14)** of the quick clamping system;
- The T-piece **(1)(Fig.13)** on the microtome base plate;
- Clamping lever **(3)(4)(Fig.14)** for the lateral displacement;

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## 11. Warranty

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### *11.1 Valid period*

Histo-Line Laboratories S.R.L guarantees that all instruments manufactured by the company have been strictly and comprehensively checked on quality to guarantee the compliance with the technological standard.

The warranty conditions will be up to the HISTO-LINE sales agent responsible to you.

The warranty period is only valid for normal usage according to the specified conditions for the instrument and the circumstances of following the various regulations specified in the operational instruction manual.

Warranty terms are not applicable for the damages caused by misuse or improper operations of instrument and our company is not responsible for the above-mentioned damages either.

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## *11.2 Service Info and Product Alternation*

Histo-Line Laboratories S.R.L reserves the rights of altering the technological parameters of the product without notifying in advance, because the instruments required to face to the alteration and improvement for technological progress.

### *Discard and Disposal*

The discarded instrument or parts of instrument shall be disposed according to the existing relevant and effective laws and regulations.

We are pleased to offer you an environment-friendly disposal plan when you need to dispose the discarded MRS3500 Microtome.

### *User's Service Information*

Please contact the sales representative of HISTO-LINE or the sales agent once sold the instrument to you if you require any service or parts during the warranty period. Please inform the instrument model, serial number and supply time. Histo-Line Laboratories S.R.L doesn't accept any rejection of goods without any formal permission for rejection of goods.

Please pay attention to the following items if you will deliver the instrument back to HISTO-LINE:

1. The instrument or parts shall be disinfected or radioactive elimination treatment before sending back if viruses or radioactive substances have been connected with the instrument or the parts. Our user's service technician will be assigned to check this out clearly.
2. If you are sure that the instrument or parts are free from any radioactive or dangerous viruses, please get the suggestions on the possible methods for disinfection and radioactive elimination from your HISTO-LINE representative. The instrument or parts will be directly sent back to the customer under the customer's expenses if possible infection dangers are still existed on the instrument or parts upon the arrival of the HISTO-LINE representative.

Please tell us the following information if you require technical services:

- Model and serial number.
- The place where the instrument is located and the contact person.
- The reason for the service requirement

## 12. Troubleshooting

SYMPTOM	CAUSE	REMEDY
The slicing thickness is uneven. Slicing thickness variety, and sometimes the instrument doesn't slice	<ul style="list-style-type: none"> <li>• The tilting angle of the slicing blade is not appropriate, that is the rear angle is too small</li> <li>• The specimen clamp or the tightening screws of the blade holder are not securely locked</li> <li>• The slicing blade is too blunt</li> </ul>	<ol style="list-style-type: none"> <li>1. Correct it</li> <li>2. Change it</li> <li>3. Change the other side of the slicing edge or replace with the new one. Gradually reduce the rear angle to test the slicing until to an appropriate rear angle</li> </ol>
The slicing is compressed. The slicing is seriously compressed, the slicing is wrinkled or extruded with each other	<ol style="list-style-type: none"> <li>1. The blade is blunt</li> <li>2. The specimen is too hot</li> <li>3. The rear angle of the slicing blade is too big</li> <li>4. The slicing speed is too fast</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the other side of the slicing edge or replace with the new one</li> <li>2. Freeze the specimen for several minutes</li> <li>3. Test the slicing by gradually reducing the rear angle until up to an appropriate rear angle</li> <li>4. Turn the hand wheel more slowly</li> </ol>
The specimen doesn't feed and of course doesn't slice	<ol style="list-style-type: none"> <li>1. The specimen has reached the limit position in the front</li> </ol>	<ol style="list-style-type: none"> <li>1. Press the key to draw back the specimen and the alarming system will alarm</li> </ol>
The LCD doesn't switch on and doesn't display after opening the power switch	<ol style="list-style-type: none"> <li>1. The fuse is burnt</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the fuse</li> </ol>