

GIGATOME

Instruction Manual

Gigatome – Polycut-Legacy
Heavy Duty Sliding Microtome

Note:

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Published by:

Gigatome
Begonienweg 30
D-89297 Roggenburg
Germany
Telephone +49 (0)7300 458 40 35
Fax: +49 (0)7300 458 40 36
Internet: www.gigatome.de
Email: info@gigatome.de

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1. Important information

1.1 Symbols used in the text and their meanings



Warnings are marked by a warning triangle.

Failure to comply with these warnings/cautions can lead to accidents, bodily injury and damage to instrument and/or accessories.



Notes, i.e. important information for the user, appear in a grey box and are marked by an information sign.

(8)

Figures in brackets refer to item numbers in illustrations or to the illustrations themselves.



Warning signs are underlined yellow. There's danger so be alerted.



Mandatory signs are underlined blue. You should save yourself.

1. Important information

1.2 Designated use

The Gigatome Polycut-Legacy is a microprocessor-controlled, electrically driven heavy-duty sliding microtome, designated to produce thin sections of industrial materials and paraffin-, celloidin- and plastic-embedded samples in medicine, biology and industry.

The Gigatome Polycut-Legacy may be used only in conjunction with accessories and supplementary instruments made by Gigatome.

If the instrument is used for any other than the designated application, this will be considered an improper use of the product!

1.3 Information on this instruction manual

Instrument type

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

Name plates indicating the instrument type and serial number are attached on the back side of the control unit and on the microtome itself behind on the front coverage.

Working with this instruction manual

This manual contains important instructions and information related to the operating safety and maintenance of the instrument.

It is an important part of the product, which must be read carefully prior to setting up and operating the instrument and it should be kept near the instrument at all times.

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. Safety

2.1 Safety regulations

This instrument has been built in accordance with the German version of the following directives and standards:

- **EN 61010-1:2020**
Safety requirements for electrical equipment for measurement, control and laboratory use, Part1: General requirements
- **EN61326-1:2013**
Electrical equipment for measurement, control and laboratory use- EMC requirements, Part1: General requirements
- **EN61000-3-2:2019**
Electromagnetic compatibility Part 3-2: Limits for harmonic current emissions
- **EN61000-3-3:2013**
Electromagnetic compatibility Part 3-3: Limits of voltage fluctuations and flicker in low voltage supply systems for equipment with rated current $\geq 16A$
- **EN13850:2016**
Emergency stop equipment, Principles of design
- **EN14118:2018**
Safety of machinery, Prevention of unexpected start-up

In order to maintain this condition and to ensure safe operation, the operator must observe the instructions and warnings contained in this instruction manual.

2.2 Built-in safety devices

The instrument is equipped with the following safety features and devices:

Emergency stop button located on the control panel:

- For a detailed functional description of the emergency stop switch please refer to chapter 5.4.2.

Emergency stop function of the foot switch:

- For a detailed functional description of the foot switch and the emergency stop function integrated into the foot switch, please refer to chapter 5.4.1.

Finger protection on the knife holders

- You find specific details on the finger protection assemblies in chapter of the associated knifeholders in chapter 5.5
- The safety devices provided by the manufacturer constitute only a basis for accident prevention.
- Major responsibility for accident prevention during the use of the instrument rests with the employer who has the operating authority for the instrument and, in addition, with the persons,

designated by him, who operate, service and repair the instrument.

To ensure safe and trouble-free operation of the instrument, be sure to comply with all instructions, warning and cautions in the following chapters!

2.3 Safety instructions

Verify the voltage prior to connecting the instrument!

The voltage comes factory-adjusted to a setting of 110 through 230 Volts.

Prior to connecting the instrument to mains, verify whether the voltage setting is correct for the mains electricity in your laboratory!



Incorrect voltage selector settings can lead to severe damage to the instrument!
Prior to adjusting the voltage selector, disconnect the instrument from mains!



The instrument may be connected to mains only with one of the power cords supplied and only to grounded sockets!

The instrument may not be operated in hazardous locations where risk of explosion exists!

Extreme temperature fluctuations and high air humidity (e.g. transport, storage) may cause condensation inside the instrument.



In this case, wait at least two hours before switching the instrument on. Failure to comply with this waiting period may cause severe damage to the instrument!

Be sure to read and comply with the safety instructions, warnings and cautions in this chapter, even if you are already familiar with the operation and use of other Gigatome products.

Safety instructions:

Be sure to follow the unpacking instructions (attached to the outside of the instrument shipping crate)!

The instrument may only be transported in an upright position!

Be sure to comply with the site requirements (chapter 4.2)!

For best sectioning results the instrument must be put on a table useful for heavy duty microtomes that tends not to move while sectioning.

Safety instructions:

Operating the instrumentt



Always store knives in the knife case when not in use!

Never place a knife on a bench with the edge facing upwards!



Never try to catch a falling knife or disposable blade!

Always clamp the specimen first and the knife second!

Always wear protective glasses when sectioning brittle specimens!
(Risk of splintering!)



No liquids may enter the interior of the instrument during operation!

Always cover the knife edge with the knife guard during work breaks!

Always remove the knife from the knife holder when finishing work!

The instrument may only be operated by skilled laboratory personnel. It may only be used for the designated application and operated in accordance with the instructions contained in this manual!



Before mounting the knife holder make sure the bearing blocks of the microtome supporting the knife holder are clean.

Carefully place the preassembled knife holder onto the microtome bearing blocks from above. Do not slide the knife holder onto the bearings to prevent the bearing surface from getting scratched..

Handle microtome knives and blades with utmost care. Knife and blade edges are extremely sharp and can cause severe injuries!



Wear cut-resistant safety gloves when inserting/removing the knife
Prior to inserting the knife, always tighten one of the knife clamping screws of the knife holder to secure the knife holder in position!
Never leave knives/disposable blades or knife holders with a knife/disposable blade inserted lying around!

Safety instructions:

Cleaning, disinfection and maintenance



Only authorized service technicians may access the internal components of the instrument for service and repair!



Prior to any cleaning, disinfection or maintenance work, the instrument must be switched off and disconnected from mains!

Exception:

Cleaning or disinfection procedures which require the sledge to be moved.

Remove both knife and specimen prior to any cleaning, disinfection or maintenance work!

Wear cut-resistant safety gloves to remove the knife.



No liquids may enter the interior of the instrument during cleaning, disinfection or maintenance!

Clean only with a slightly moistened cleaning cloth!

Disinfection only with disinfectants that allow application with a slightly moistened cloth!

Do not use any solvents (e.g. xylene, acetone), any cleaners containing solvents or scouring powders for cleaning!

Appropriate cleaners for the control unit / control panel and all painted surfaces: mild laboratory detergent (slightly moistened cloth)!



Clean the control panel only in standby mode or when the instrument is switched off.

Appropriate cleaners for non-varnished metal parts (knife holders, base plates, specimen clamps): xylene substitutes, alcohol – apply with an only slightly moistened cleaning cloth!

Use cleaners and disinfectants according to the safety instructions of the manufacturer and in compliance with the regulations applicable in your laboratory!

Regularly remove any sectioning waste from the microtome, but at least of any working cycle. A vacuum cleaner can be used for this, but it has to be checked by the lab supervisor if the one you use is good for your kind of waste.



Prior to exchanging any fuse, always switch the instrument off and unplug the mains plug. Replace defective fuses only with fuses of identical specification!

Users may carry out only the maintenance work described in chapter 7.2

3. Technical Data

Microtome

Section thickness range..... 0 μm to 1.000 μm , adjustable in 1 μm -steps
Total horizontal specimen stroke..... max. 275 mm
Total vertical knife feedmax. 70 mm
Knife retraction (during specimen return stroke)..... 0 - 1.000 μm
Clearance angle adjustment..... 0 ° bis 17°
Knife declination (with optional knifeholder).....45°
Maximum specimen size (L x W x H)250 x 200 x 70 mm
Specimen orientation (along X/Yaxis)..... 5°
Specimen orientation (rotability)(depends on clamp).....ca. +/3 and 360 °
Sectioning speed.....1 - 125 mm/s, adjustable in 0,1 mm-steps
Return speed1 - 125 mm/s, adjustable in 0,1 mm-steps
Manual knife movement in two levels (37 mm/s and 74 mm/s)
Manual specimen movement two levels (37 mm/s and 74 mm/s)
Sectioning speed is manually set

Electrical connections

Nominal voltage..... 100 -240 V
Nominal frequency..... 50 Hz
Ampacity..... 4A at 230-240V / 10A at 100-120 V
Maximum power draw..... max. 900 VA

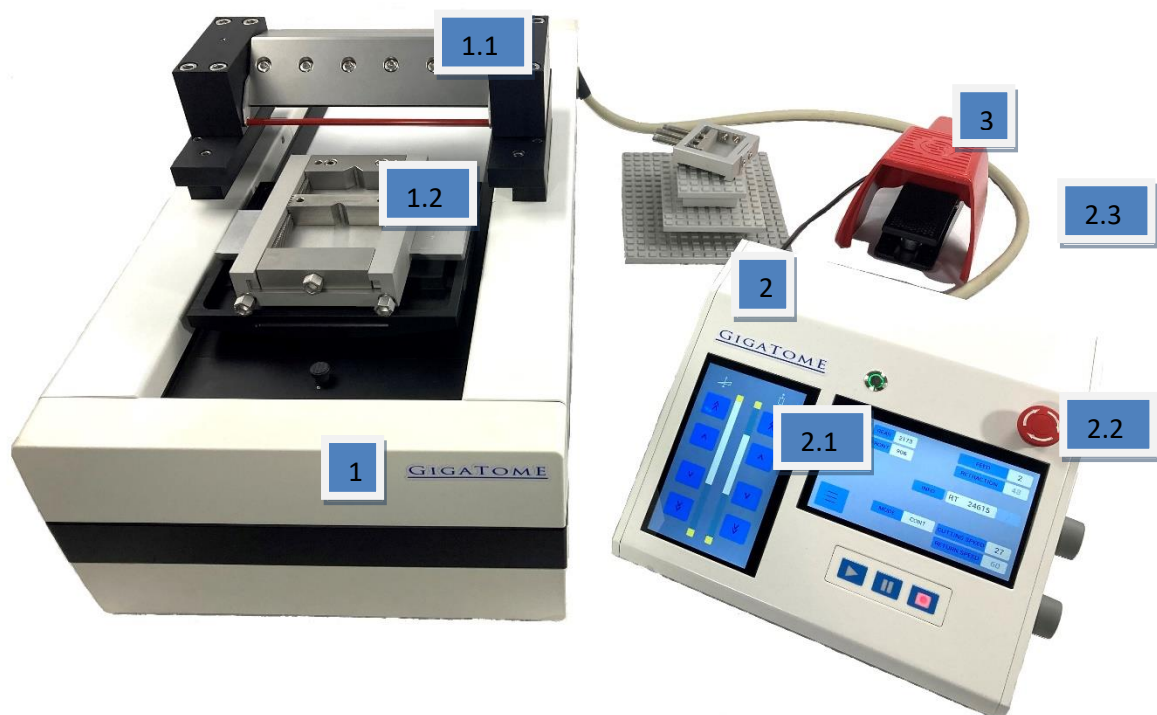
Dimensions and weights

Microtome (H x W x D)250 x 390 x 750 mm
Control unit (H x W x D)152 x 330 x 282 mm
Required space for operating the machine (W x D).....1.000 x 950 mm
Microtome & control unit.....ca. 100 kg

4. Installation

4.1 Overview – instrument parts / functions

1. Gigatome Polycut-Legacy - Microtome
 - 1.1 Knife holder systems (not part of standard delivery)
 - 1.2 Specimen holder system (not part of standard delivery)
2. Gigatome Polycut-Legacy – Control unit
 - 2.1 Touchscreen
 - 2.2 Emergency stop button
 - 2.3 Electronic handwheels / rotary knob for sectioning speed change
3. Foot switch



4.2 Site requirements

The following requirements are necessary for a proper operation:

- Surface of around 1.000 x 950 mm for microtome and control unit
- Vibration free lab table that can handle a weight of 100kg
- Stable ambient temperature between +18 °C and +35 °C.
- Relative air humidity of max. 60 %, non-condensing.
- Do not place near sources of vibration, avoid exposure to direct sunlight and marked temperature fluctuations

4.3 Standard delivery Gigatome Polycut-Legacy

1 Basic Instrument
1 Separate external control unit
1 Footswitch
1 Power cord
1 Connector cable
1 Manual
Tools



Specimen and knife holder systems are not included in the instrument standard delivery. They have to be ordered separately, in accordance with each user's specific application(s). Mounting instructions for all accessories can be found separately.

4.4 Unpacking, transport, installation

Be sure to follow the unpacking instructions (attached to the outside of the instrument shipping crate)! When transporting the instrument avoid any critical vibration and make sure the instrument was not tilt too much. Make sure to check the outside indicators!

The installation of the instrument and the training must be done by authorized trained people!

4.5 Electrical connection

4.5.1 Verifying and adjusting the voltage

The instrument is factory-adjusted for a use with 110 -230 Volts, therefore the available power has to be verified. Incorrect voltage can lead in severe damage to the instrument!

With a different available voltage changes may be necessary. These changes on the instrument must be done by an authorized person and not by the customer himself or third party people.

4.5.2 Installing connector cord and power cord / Remark on the footswitch

The connector cable from the control box must be mounted on the back side of the microtome. While positioning the microtome on the table make sure the connector cable holds distance to any walls in the back and is not touching them or is bended!

The power cord must be connected to a grounded and suitable source. The instrument works with 110 – 230 Volts.

It is not mandatory to connect the footswitch to operate the microtome, so there is no need for a dongle here.

4.5.3 Using the photo position with a trigger signal

It is possible to plug on a photo-set-up so the instrument that sends a trigger signal via 6,3mm jack plug to a camera to make a photo in a predefined position which you can set-up on the control panel. The set-up is explained in chapter 5.3.4.

5.1 Overview of chapter 5 'Operation' / Initial operation

Chapter 5 'Operation' is structured as follows:

Chapter 5.1 - Structural description of chapter 5.

Chapter 5.2 - Switching the instrument on.

Chapter 5.3 - Overview - control panel.

Chapter 5.4 - Detailed description of each individual control element

Chapter 5.5 - Mounting the accessories (specimen holders, knife holders, knives).

Chapter 5.6 - Working with the instrument:

short description of a typical applicationKapitel 5.7 - Ausschalten des Gerätes.

Initial operation:

The first time you operate the instrument we recommend you work through chapters 5.1, 5.2, 5.4 and 5.5, in that order.

Pay particular attention to the safety instructions.

Once you are familiar with the control panel functions and know how to install the accessories, proceed to chapters 5.6 / 5.7.

5.2 Switching the instrument on



Caution: Did you verify whether the voltage is set correctly?

Incorrect voltage settings can lead to severe damage to the instrument and you cannot operate it correctly!

The instrument may be connected to mains only with the delivered power cord!

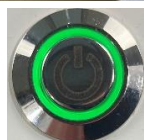
The instrument may not be operated in hazardous locations where risk of explosion exists! Extreme temperature fluctuations and high air humidity (transport, storage) may cause condensation inside the instrument.

In this case, wait at least two hours before switching the instrument on.

Failure to comply with this waiting period may cause severe damage to the instrument!



Switch on the mains switch on the backside of the control unit.



Press two seconds the start button the front of the control unit.

The touch panels are booting and the instrument will be shortly available for operation.

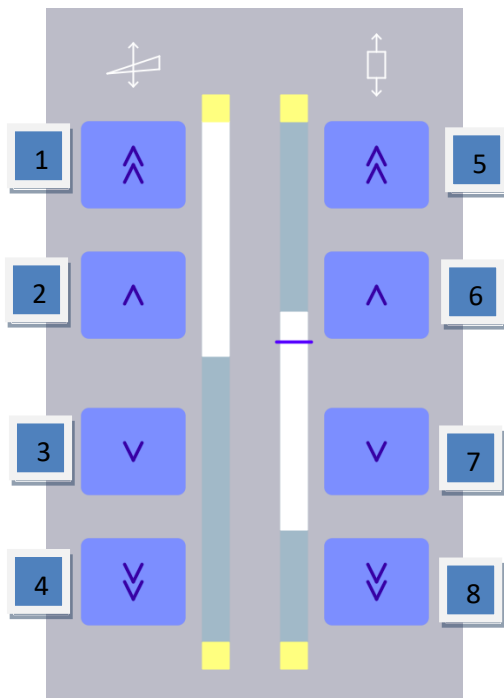
The green light on the control panel indicates that the instrument is ready for operation.

5.3 Overview control panel - by functional areas



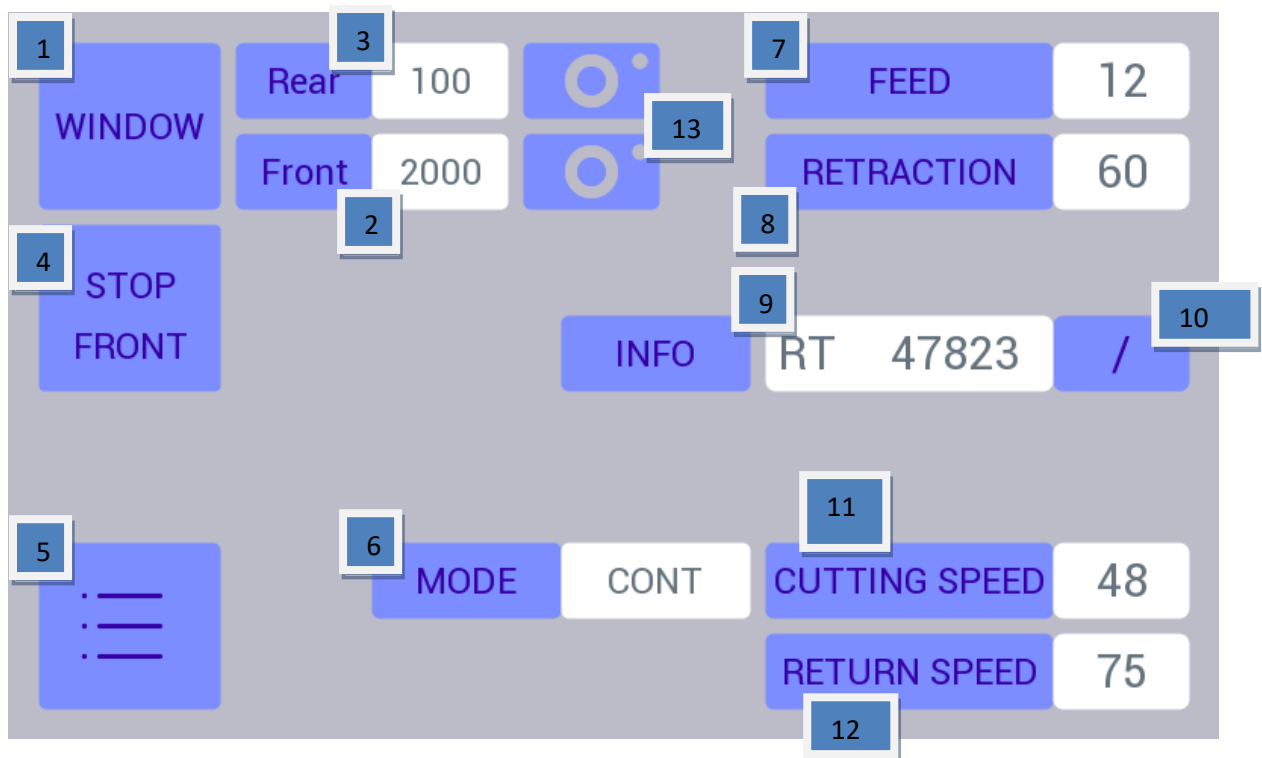
1. Start-Button. A two second pressdown initiates the booting and the instrument will be shortly in ist operating mode.
2. Emergency-Stop. Push it for an emergency stop. To unlock it turn the wheel to the right and confirm on the touch panel the unblocking.
3. Dedicated touch panel for the sledge and knife movements.
4. Touch panel for all further demands in the sectioning process.
5. Illuminated Start, Pause and Stop-Buttons that show their status according to the light
6. Turnbutton dedicated to the feed and the retraction thickness
7. Turnbutton dedicated to the cutting speed and the return speed

5.3.1 Touch panel for the knife – and sledgemovements



1. KNIFE-MOVEMENT: FAST TO THE REAR
2. KNIFE-MOVEMENT: SLOW TO THE REAR
3. KNIFE-MOVEMENT: SLOW TO THE FRONT
4. KNIFE-MOVEMENT: FAST TO THE FRONT
5. SLEDGE-MOVEMENT: FAST TO THE REAR
6. SLEDGE-MOVEMENT: SLOW TO THE REAR
7. SLEDGE-MOVEMENT: SLOW TO THE FRONT
8. SLEDGE-MOVEMENT: FAST TO THE FRONT

5.3.2 Touch panel for general operation



1. SECTIONING WINDOW: By pressing this button you activate the sectioning window and the sledge is only moving in a self-defined area which you set with the front (2) button which stands for the beginning point of the window and the rear (3) button which stands for the end of the window. Don't set the points too close to your specimen. You should calculate some speeding-up area and a cool-down area to generate best sections.

2/3.FRONT: This marks the starting point of your sectioning window. Move to the desired point with the panel for the sledge movement. Press the FRONT button when you want it to be set then go to the end point of your window and press REAR. The values are set in the white fields.

In addition you can see a white bar in the sledge panel that indicates the size of the window in order on the whole sledge movement.

NOTE: If don't want to operate in the window anymore just press window (1) and it will be deactivated. The former window values go grey and symbolize the inactivity.

4. STOP:FRONT/REAR : Here you can define where the sledge stops after the sectioning process. You decide between FRONT and REAR.

5. Down MENU: Press to go deeper in the software to under menus

6. SECTIONING MODES:

You can choose from different sectioning modes and by clicking MODE you can run through them.

SINGLE: If this mode is activated the microtome will execute exactly one section and starts afterwards at the defined end position. To start use the START icon button.

CONT: (CONTINUOUS) If this mode is activated the micromtome will do endless sections until you press the STOP icon. The microtome will of course not instantly stop but fullfill thesopeninng section order.

INTERV: Stands for INTERVAL mode and means only by a pressed START button the sledge will move. When you release the button it instantly stops and the same function is done with the footswitch.

MULTI: Stands for multimode. Here can set a specified number of sections to be done by the instrument before it stops. The settings for this are done in the first undermenue

7.FEED: Here you can choose the sectioning thickness feed from values of 1µm to 999µm in 1µm steps. Use the upper turnbutton to change the values. Values are taken automaically to the system.

8.RETRACTION: Here you can choose the micrometers that the sledge should do as retraction after each section before returning to the front position for the next section.

This is very important if you operate with hard materials or specimen that easily burst out as they could harm the knives when the strike them on the return movement. Give it a value of 50 and the overall operation is still quick and save. Give it a value of 100 when you operate with tungsten carbide knives and have critical specimen in addition.

RETRACTION mode will automatically return within two seconds to FEED. What you have put in there as value within these seconds will automatically set to the system.

9.INFO: Here you can see the rest way of your sectioning stroke as info

10. RESET VALUE

11. CUTTING SPEED: Here you can set by the corresponding down turnbutton the values for speed and you can change the speed even while sectioning.

12. RETURN SPEED: Here you can change the return speed of the sledge after each section with the turnbutton. Click the button and you have two seconds for a speed adustment. The values i staken automatically and the system will return to cutting speed.

13. Indicates if a photoposition is set either on the front or the rear position

5.3.3 Start, Pause, Stop - Buttons

START:

By pressing the start button all automatic modes can be started. The triangle icon is illuminated GREEN when it is active.



PAUSE:

When you press the pause button within an active sectioning process the process will stop immediately and the two bars in the icon go YELLOW and signal that a break is there. To restart the mode press either TWO TIMES the pause button again or ONE TIME the start button.



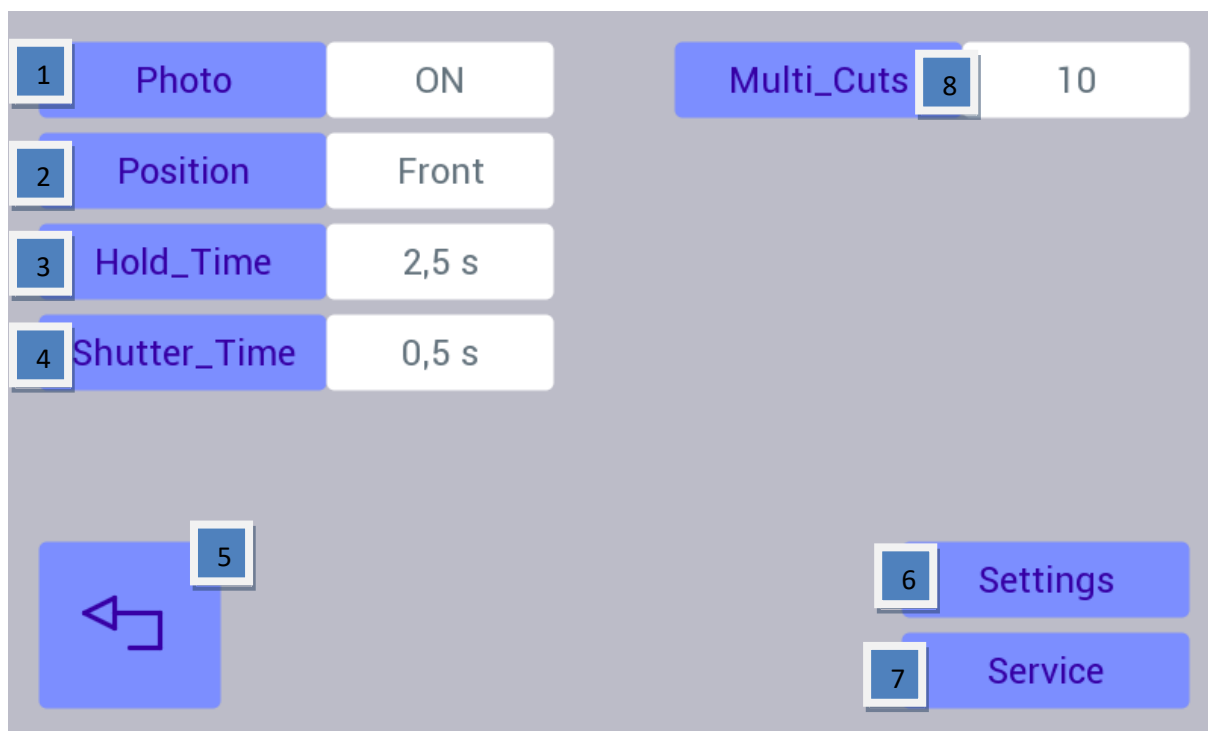
STOP:

When you press the stop button the RED LIGHT in the square icon will illuminate and signal that the active mode will be ended as soon as possible, means it will not interrupt immediately, but finish the stroke once begun. The light will stay active until you start another program.



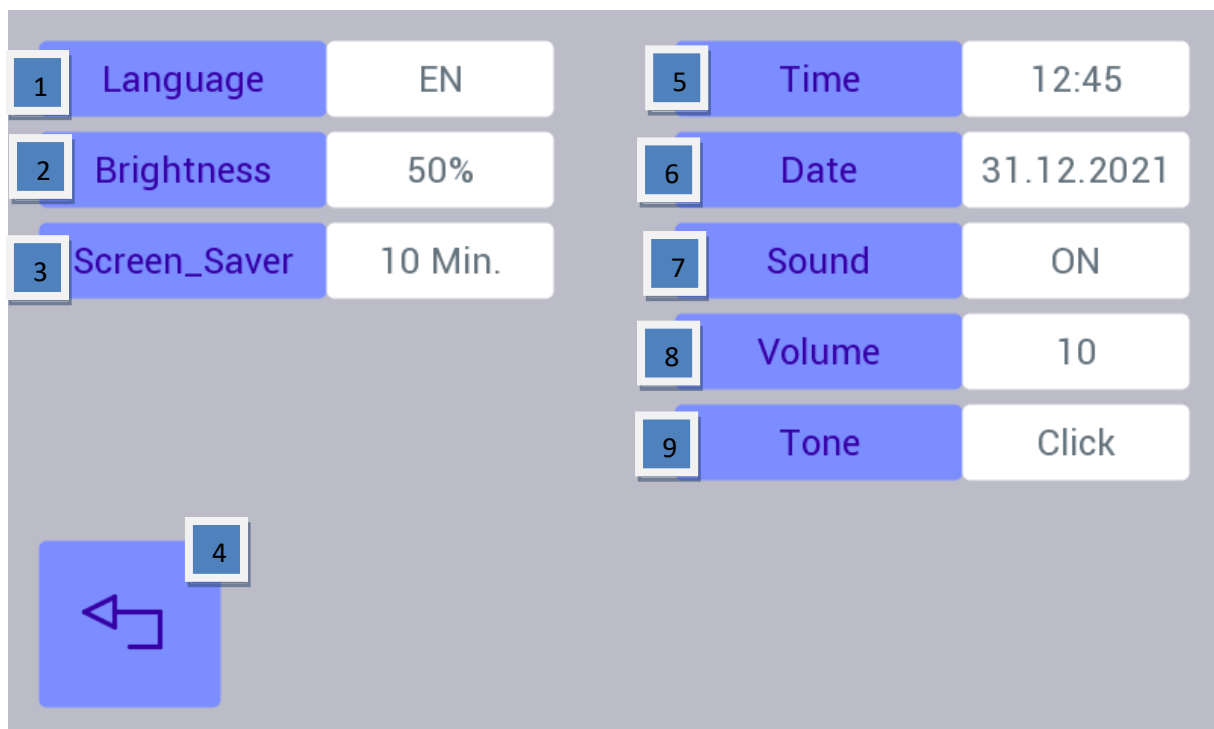
5.3.4 Using the photo-position

It is possible to set-up a photo-position on the instrument, so everytime the sledge reaches a defined position you can trigger a camera to make a photo. Just go to the submenu.



1. ON/OFF: press button to activate, deactivate the feature
2. POSITION. Choose the FRONT or the REAR position.
3. HOLD-TIME: Choose the hold-time in seconds at the position to take the picture
4. SHUTTER-TIME: Choose the length of the shutter time for the camera
5. Step back to the main menu
6. SETTINGS: Go down to the standard settings of the control box
7. SERVICE: Enter the service menu (DON'T MAKE CHANGES ON YOUR OWN HERE!)
8. MULT: Here you can enter the setting for the multi section mode.

5.3.5 Standard settings for the control unit



1. LANGUAGE: Maybe future release allow different languages, today only ENGLISH is available
2. BRIGHTNESS: Here you can choose the brightness of the touch screens
3. SCREEN-SAVER: Here you can choose the time after wich a screen saver darkens the screens
4. step back one menu
5. TIME: Setting the system time
6. DATE: Setting the date
7. SOUND: ON/OFF
8. VOLUME: Setting the volume of the instrument
9. TONE: Setting the tone

5.4 Description of each individual control element

5.4.1 Foot switch



The foot switch has two different functions:

1. Start / Stop sectioning.

The foot switch can be used as an alternative to the buttons on the touchscreen:

- To start, lightly press the foot switch.
- To stop, once again lightly press the foot switch.
- For the interval sectioning mode keep it lightly pressed as long as you want to section

2. Emergency-Stop.

Next to the emergency stop button on the control panel you can use the foot switch as well for an emergency stop.

- press the foot switch one time down with much power
- Emergency-stop is activated.
- To unlock the Emergency Stop again press in the pop-up window on the control unit unblock.

3. Connection of the footswitch with the instrument

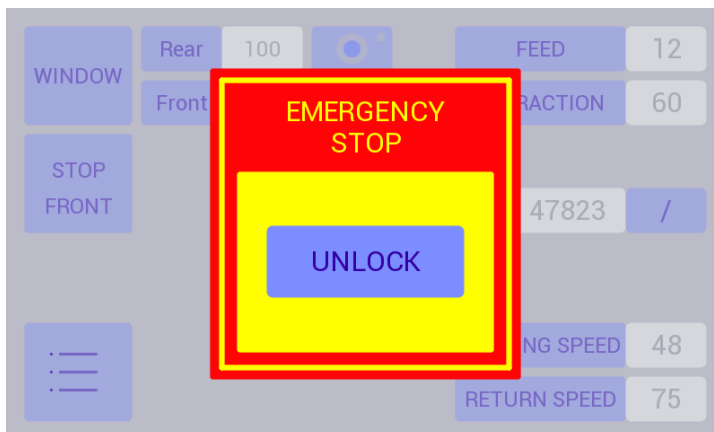
Make sure the cable is mounted with the nose on 12 o'clock correctly on the backward plus of the control unit. This instrument needs no dongle! It works with or without a connected footswitch!

5.4.2 Emergency Stop



By pressing the emergency stop button you freeze immediately all moving parts of the instrument. To prevent any dangerous situation. To activate emergency stop press the button through with power.

After the dangerous situation is averted turn the knob in the direction the arrows show on the red knob until it unlocks and comes up again.



On the touch screen lightens up as well the warning. First until you press UNLOCK the situation is solved and the instrument returns back to operation mode.

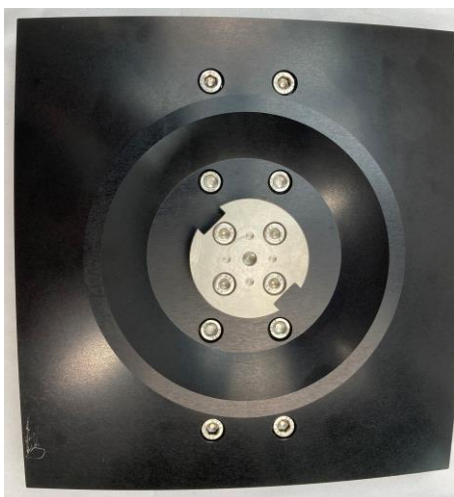
5.5 Mounting the accessories



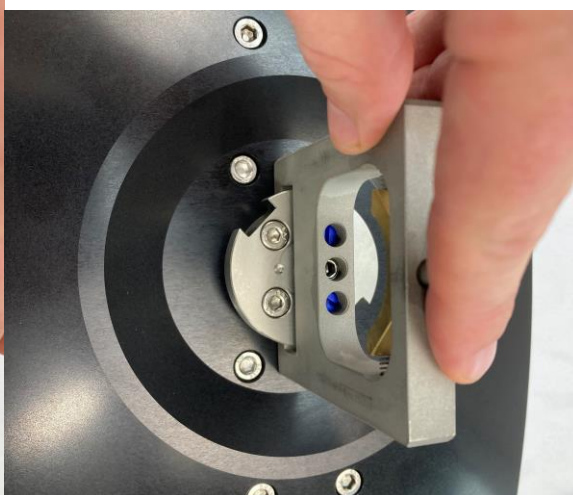
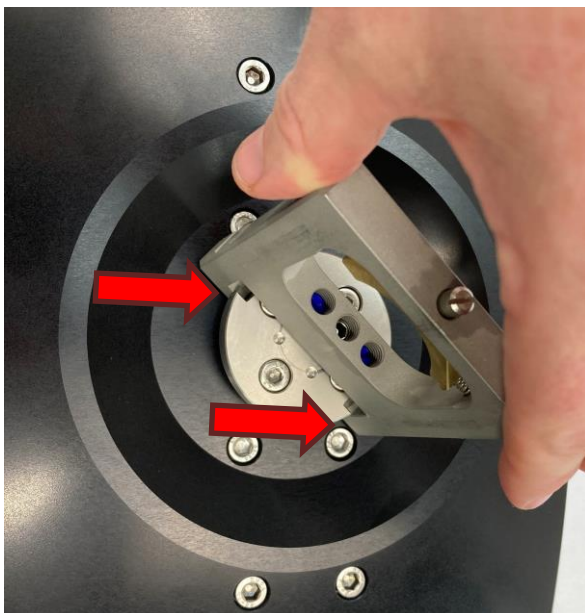
Always clamp your specimen first before you clamp the knife

5.5.1 Mounting the base plate

Put the base plate upside down so you can see locking system.

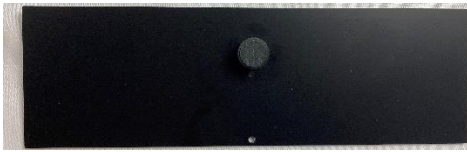


Put the tension bracket in the both spare segments and push it slightly down then turn it with slight pressure around 45° until it clicks and locks.

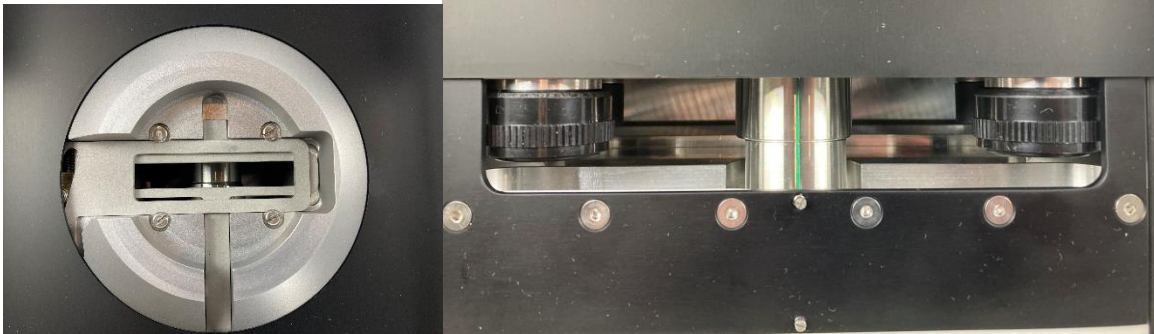


Mounting the base plate on the sledge.

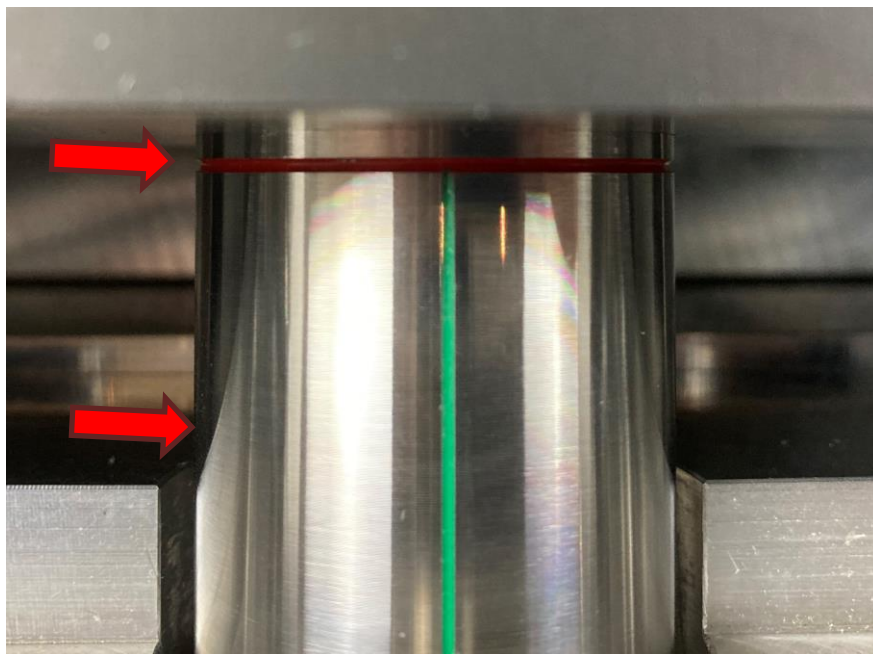
First remove the dust protection plate to access the interior

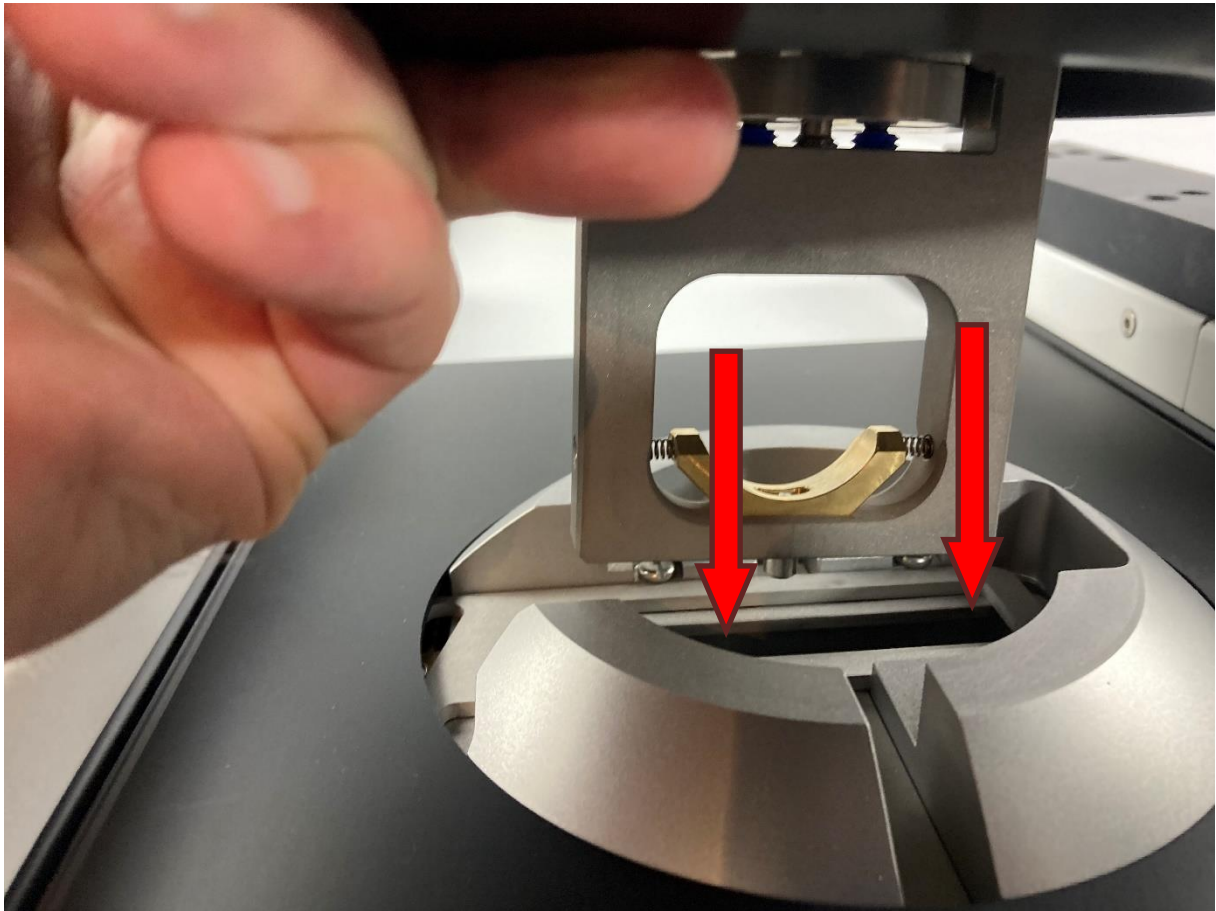


Now you can see through the hole to the interior. The spindle must not be seen at this point, so it is best to move around 3cm from the front end position, so all you see is the bolt.



Loose the bolt with the torque wrench so you can easily move it. Put it with your hands towards you until you see the RED line and then turn the bolt out of the hole until it meets about the second red line. The gap should be completely free now. Carefully put the table with the tension bracket into the hole until you feel it is tight. It should fit in stable.



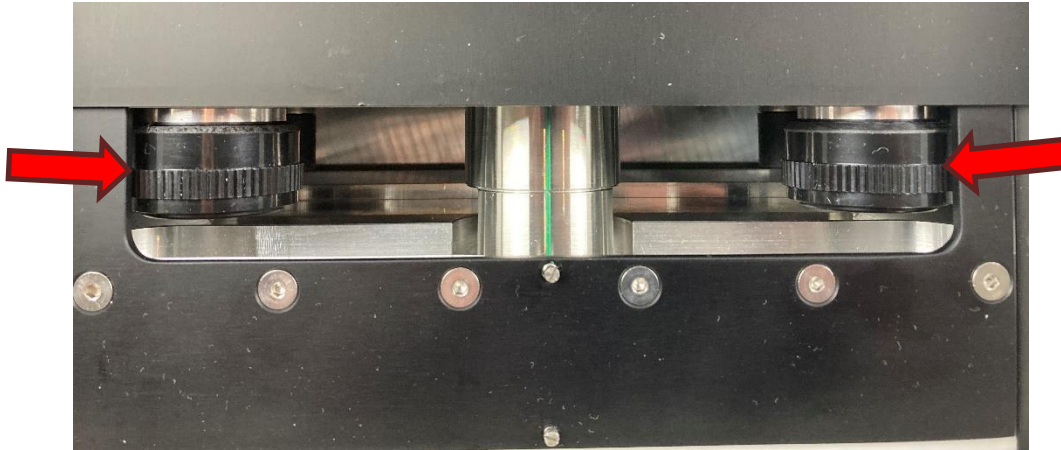


Move the excenter bolt now clockwise until you see the green line on top and put the bolt deep into the tension bracket. Then put on the torque wrench and pull it clockwise to tighten the system. Don't overturn it in order not to damage the excenter!



5.5.2 X/Y-Orientation on the base plate

Therefor the bolt must be loose again with the torque wrench. After that you can tend the table in all directions with the two black screws. For work and sectioning the bolt **MUST** be tighten again.

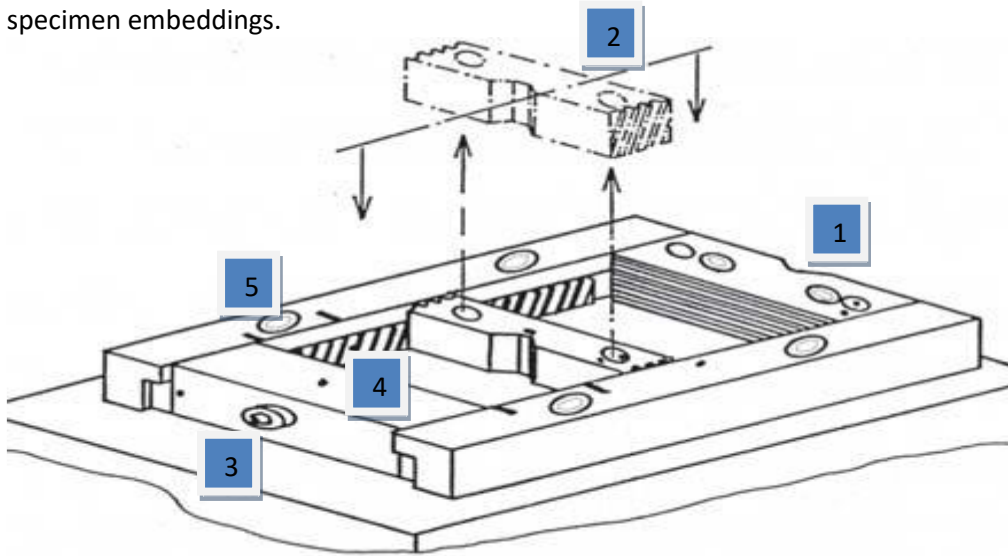


LEFT ----- RIGHT
for x-axis

H-----V
for y-axis

5.5.3 Clamping specimens or specimen stages in the base plate with vise clamp

In the base plate with vise you can either directly clamp specimen blocks or specimen stages holding specimen embeddings.



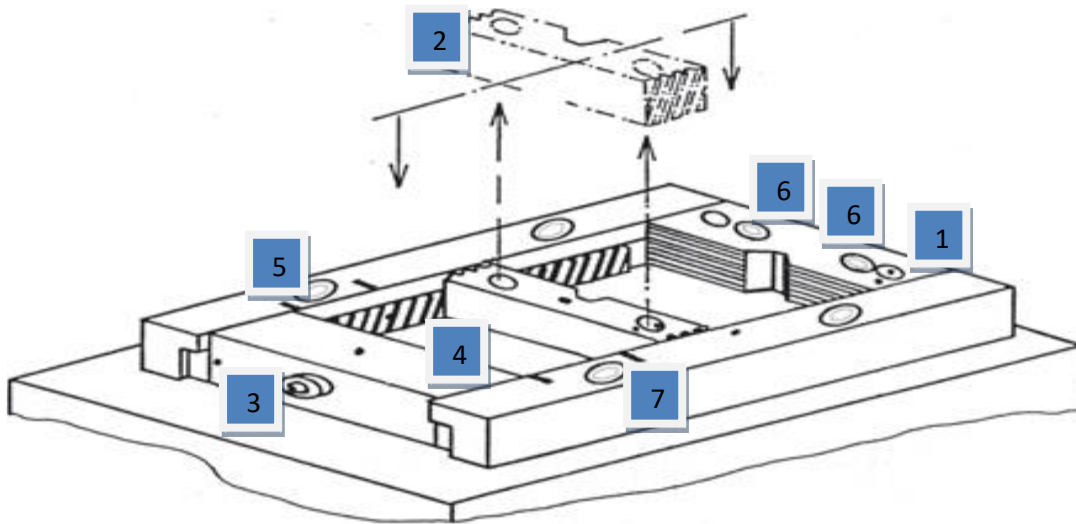
5.5.4 Clamping square specimen blocks:

The vise is equipped with two clamping jaws: a fixed jaw (1) and a movable jaw (2) the position of which can be changed. Both have a V-notch on one side.

- The fixed jaw (1) remains in its standard position (V-notch facing outwards, i.e. away from the specimen).
- Insert the movable jaw (2) in a position that is appropriate for the specimen size to be clamped, also with the V-notch facing outwards (away from the specimen).
- Insert the specimen block.
- Tighten the movable clamping jaw via clamping screw (3), using an Allen key.

Important - for square as well as for cylindrical specimen blocks:

When the specimen block is tightly clamped, the front edge of block (4) must not have moved beyond the two lateral markings (5).



5.5.5 Clamping cylinder-shaped specimen blocks:

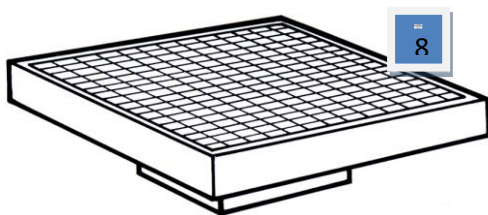
Remove screws (6) holding the fixed clamping jaw (1). Turn the jaw and re-insert with the V-notch facing inwards, towards the specimen. Re-insert and tighten screws (6) of clamping jaw (1). Insert the movable jaw (2) in a position that is appropriate for the specimen size to be clamped and with the V-notch facing inwards (towards the specimen). Tighten the movable jaw via clamping screw (3).

Important: For square as well as for cylindrical specimen blocks:

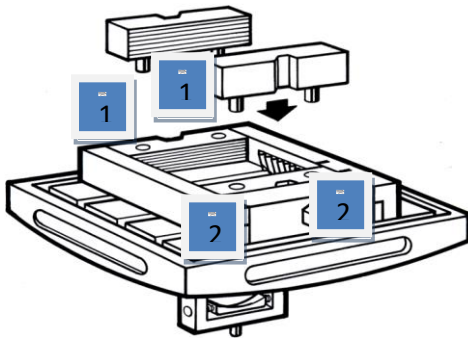
When the specimen block is tightly clamped, the front edge of block (4) must not have moved beyond the two lateral markings (5).

5.5.6 Clamping specimen stages:

The fixed clamping jaw (1) remains in standard position (V-notch facing outwards, i.e. away from the specimen stage). All specimen stages have clamping block identical size and are clamped as follows: Insert the moveable jaw (2) with its front edge (i.e. the edge facing the specimen) flush with marking (7). Insert the specimen stage (8). Tighten the movable jaw via clamping screw (3).

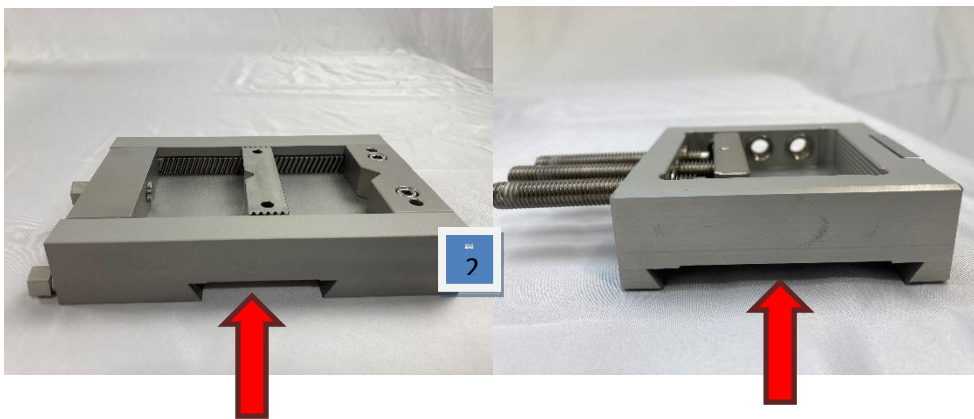


5.5.7 Mountable jaws for vise:

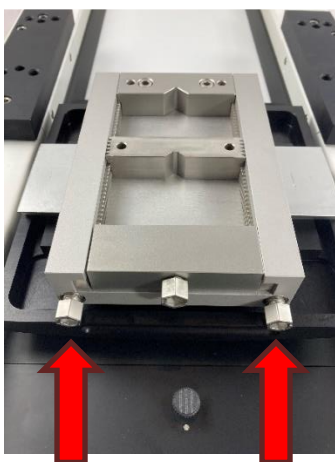


For sectioning very high specimen, there are two mountable jaws available, which can be inserted into bores (1) and (2).

5.5.8 Mounting specimen holders onto the base plate with dovetail guide

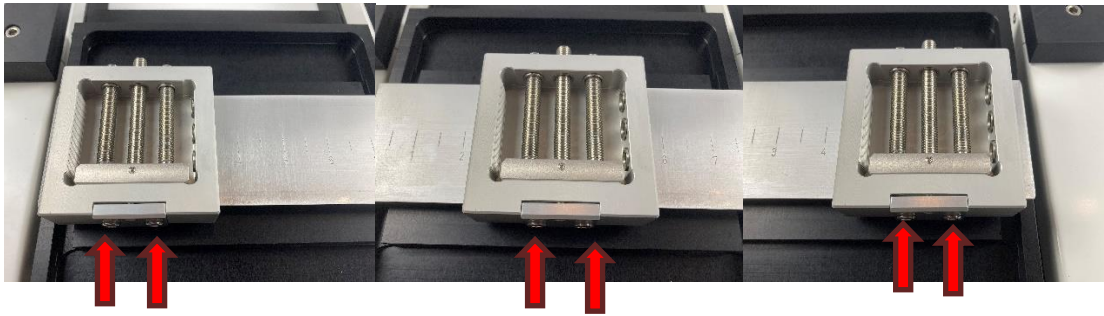


All our basic object holders have guidelines for dovetails so you can use the full width of your knives with all applications



To fix the object plate at any place on the lateral movement tighten both allen key screws.

To mount the 80x100 vise you need to loose the basic plate out of the instrument, as the vise would collide laterally with the bearing plates.



To fix the object plate at any place on the lateral movement tighten both allen key screws.

5.5.8 Mounting the knifeholders



Handle microtome knives and blades with utmost care. Knife and blade edges are extremely sharp and can cause severe injuries!

Wear cut-resistant safety gloves when inserting/Removing the knife!



Never leave knives /disposable blades or knifeholders with a knife/Disposable blade inserted lying around!

Always store knives in the knife case when not in use!



Never place a knife on a bench with the edge facing upwards!
Never try to catch a falling knife or disposable blade!

Always clamp the specimen first and the knife second!

5.5.9 Inserting knives into the holders

Knifeholder KH-P or A:

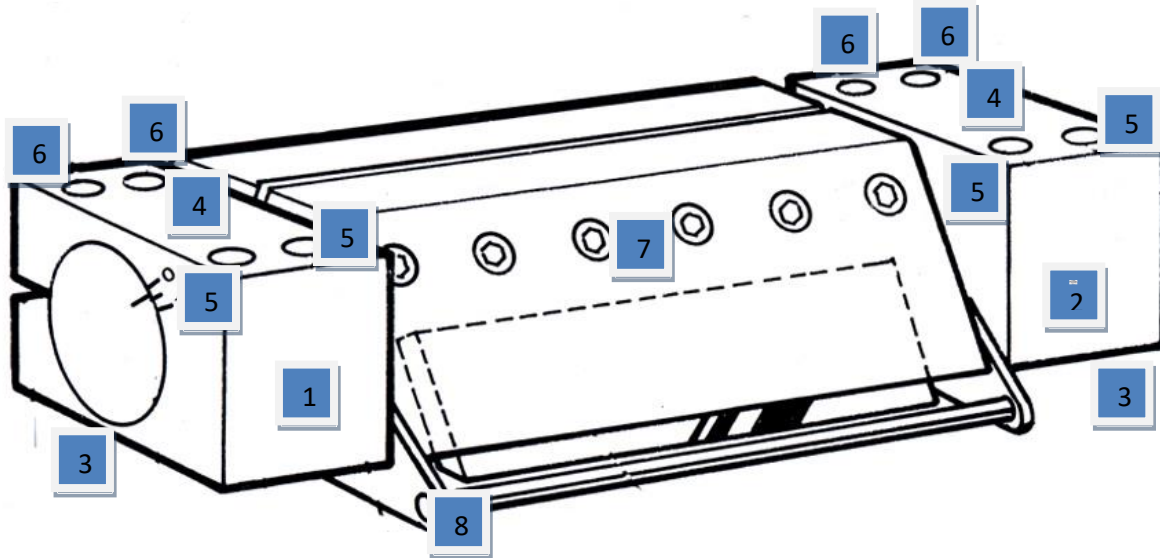
Clamp the knives with the writing (if there is one) facing upwards, i.e. with the wedge angle pointing downward, towards the specimen surface.

Knifeholder KH-S or B:

c-profile knives may be clamped with either surface facing upwards.

d-profile knives must be clamped with the facet pointing backwards inserting the knife, i.e. pointing away from the specimen once the knife has been turned into sectioning position.

Knifeholder KH-P/A consists of 3 components: Two clamping blocks that hold the knifeholder on the microtome bearing blocks and the knifeholder itself. Preassemble the three components prior to mounting them onto the microtome: Slide the clamping blocks (1,2) onto the pins (3) of the knife holder. Block 1 (bearing the clearance angle scale) must be left, block (2) on the right. The slot in each clamping block must point backwards. Secure the knife holder with slotted screw (4).

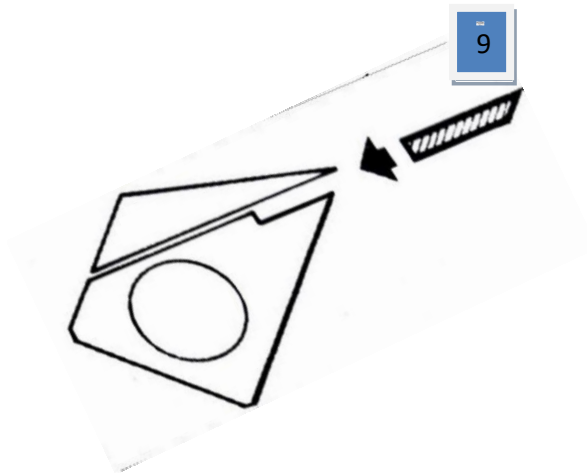


The bearing blocks of the microtome supporting the knifeholder must be clean. Clean them if necessary. Place the preassembled knifeholder onto the bearing blocks from above. Do not slide the knifeholder onto the bearing blocks to prevent the bearing surface from getting scratched.

Place the knifeholder onto the bearing blocks. The pin on the underside of each clamping block must be fit into the bore in each bearing block. The knifeholder is secured with a total of 8 clamping screws: each clamping block is held down by two front (5) and to rear screws (6). Lightly tighten all 8 clamping screws (tighten them to alternately to prevent misalignment). Next, the 4 rear screws (6) have to be loosened again.



Tightening first all 8 screws followed by releasing the 4 rear screws is important to prevent the knifeholder from being misaligned!



Turn the knifeholder upwards into the correct position for inserting the knife. If the knife holder cannot be turned it has been misaligned. In that case, loosen all 8 clamping screws and retighten as described (on previous page)

Retighten at least one of the 4 rear clamping screws (6) to secure the knifeholder in that position.



Prior to inserting the knife, always tighten one of the rear clamping screws to secure the knifeholder in position!



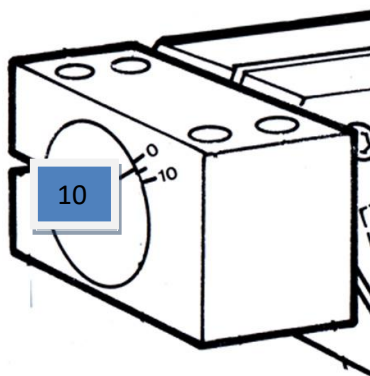
Put on cut-resistant gloves!

Insert the knife: The knife back (base of knife) must fit against the bearing surface inside the knifeholder. The wedge angle (9) must point downwards. Tighten the 6 knife clamping screws (7) starting with the center screws and working your way outwards and from side to side to prevent any misalignment on the knife. When clamping a short knife, only tighten as many screws as the knife is actually wide.



Make sure not to misalign the knife when tightening the knife clamping screws (7) as this will negatively affect sectioning results!

Place the knife guard over the knife edge.

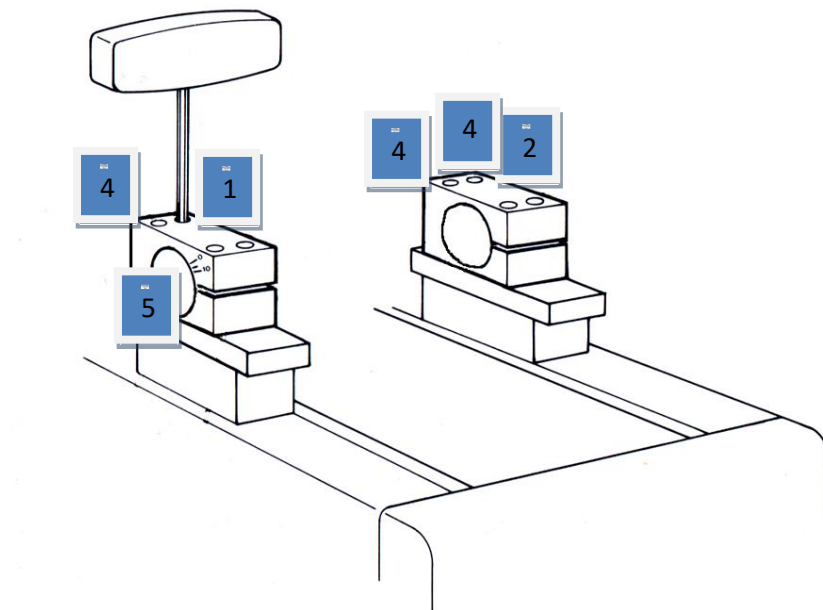


Loosen the rear clamping screws (6). Turn the knife holder into the desired clearance angle position. Hold the knifeholder in that position and retighten on the the 4 rear clamping screws (6) to secure the clearance angle setting. Let go of the knife holder and tighten all remaining clamping screws (&) alternately.



Setting „0“ on the clearance angle scale (10) corresponds to an actual clearance angle of 5°. Each scale graduation corresponds to an angle increment of 2°.

5.5.11 Mounting Knifeholder KH-S or B



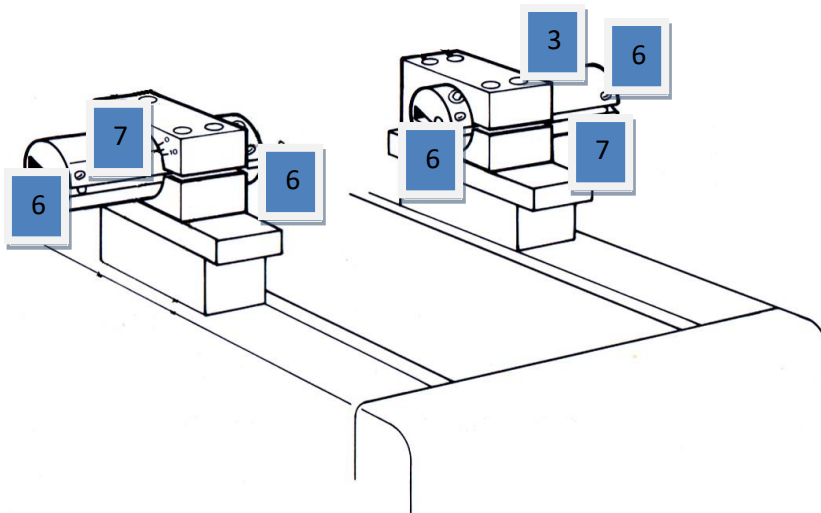
Knifeholder KS-S/B consists of four components: 2 cylindrical holders (3) with integrated knife guards and 2 clamping blocks (1,2) fixing the knifeholder to the microtome.



The bearing blocks of the microtome supporting the knifeholder must be clean. Clean them if necessary. Place the preassembled knifeholder onto the bearing blocks from above. Do not slide the knifeholder onto the bearing blocks to prevent the bearing surface from getting scratched.

Mount the two clamping blocks onto the bearing blocks of the microtome. The slot in each of the two clamping blocks must point forward. The left clamping block (1) bears the clearance angle scale (5). Tighten the rear clamping screws (4) of both clamping blocks.

Each cylindrical holder is equipped with two locking pins (6) to prevent the cylindrical holders from sliding out of the clamping blocks. Insert the left cylindrical holder (3) into the left clamping block (1) from inside outwards until the outer locking pin (6) is released.



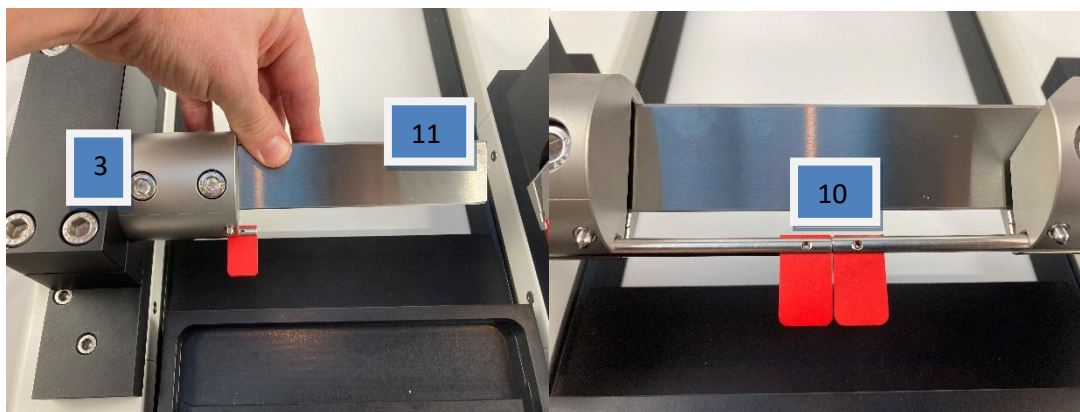
Inserting knives of up to 22cm length

Insert right cylindrical holder (3) into the right clamping block (2) from side outwards until locking pin (6) is released.

Pull both cylindrical holders (3) far enough outwards so that the knife can be inserted easily from the center. Turn the clamping slots (7) upwards to the top.



Put on cut-resistant gloves!



Insert the knife (11) from the center outwards into the left cylindrical holder (3).

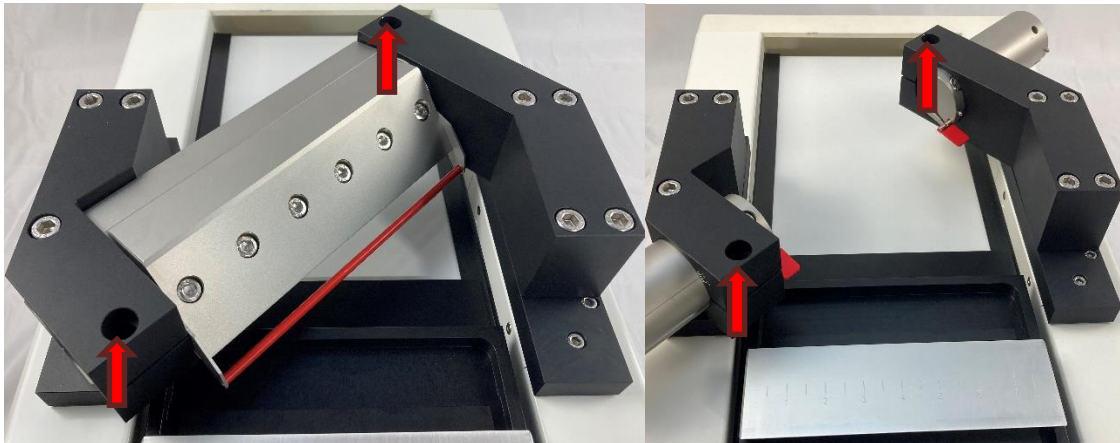
c-profile knives can be inserted either way

d-profile knives: facet must point backwards

Slide the right cylindrical holder (3) over the knife – support the back of the knife from below with one of your hands. Slide both knife guards (10) over the knife edge. Turn the knife forward far enough to be able to easily access knife clamping screws.

Tighten knife clamping screws (9) on both sides. Release clamping screw. Select the desired clearance angle (5). Sustain the knifeholder in the desired clearance angle position and tighten front clamping screws (8) alternately.

5.5.12 45° Declination Blocks



The mounting of the declination blocks is completely analog to the setting of the knifeholder KH-P/A oder KH-S/B. Make sure they are set-up like in the upper pictures.



In the holes marked with the the red arrows in the picture must be placed special screws that correspond to the inner threads, so only by these the knife can be tightend.

5.6 Working with the instrument

Switch the instrument on with the main switch on the back and press the start button on the front for about two seconds. After a short booting the instrument is ready for work.

Mount your specimen in a decicated clamp or fix it on any object stage.

Insert a suitable knife for your specimen. Use a suitable knife angle for the knife you are using.

Until you start sectioning make sure to always use the finger protection.

With the eight movement buttons in the left touch screen you can align your specimen close tot he edge of the knife. Slow and careful working has proven to be the Gold standard here.



In general it is recommened always to use an eye protection as there´s always the danger that small debris comes up and harms you!

Once the specimen is close enough to the knife you can start to oversection the specimen with a high micrometer feed and do that until you receive a plane surface.

Micrometer feed and speed depend on the hardness of your specimen, its size and kind of material!

Now you can start to section your specimen in the desired section thickness.



Taking off the sections should always be done with a proper tool. Plastic forceps, a pencil or wood sticks are preferred. Forceps made from metal can harm the knifeholder and can do visible scratches to. You should avoid taking those. The use of fingers should be totally avoided due to safety relevance!

5.7 Switching the instrument off

Wait for the sectioning procedure to be finished. Switch the instrument off on the main switch.



Wear cut-resistant safety gloves when inserting / removing the knife

Always remove the knife from the knife holder when finishing work!

Handle microtome knives and blades with utmost care.

Knife and blade edges are extremely sharp and can cause severe injuries!



Never leave knives / disposable blades or knife holder with a knife / disposable blade inserted lying around!

Never place a knife on a bench with the edge facing upwards!

Never try to catch a falling knife or disposable blade!

Always store knives in the knife case when not in use!

6. Trouble shooting

6.1 Error codes

6.2 Instrument/ accessories not working

Error

Instrument not working

Cause

Connecting cables / power cord not connected / not correctly connected.
Line fuses defective.

Corrective action

Verify if connecting cable 'microtome to control unit' and/or mains cable are properly connected.
Replace line fuses

6.3 Power failure

If there is a power failure while the microtome is in motion, the microtome will stop in the position where the power failure occurred.

Once power has been restored, the instrument will automatically go to its initial start position.

7.1 Cleaning / disinfection



Prior to any cleaning, disinfection or maintenance work, the instrument must be switched off and disconnected from mains!

Exception: Cleaning or disinfection procedures which require the sledge to be moved.

Remove both knife and specimen prior to any cleaning, disinfection or maintenance work!

Wear cut-resistant safety gloves to remove the knife



No liquids may enter the interior of the instrument during cleaning, disinfection or maintenance!

Cleaning only with a slightly moistened cleaning cloth!

Disinfection only with disinfectants that allow application with a slightly moistened cloth!



Do not use solvents (e.g. xylene, acetone), cleaners containing solvents or scouring powders for cleaning!

Appropriate cleaners for the control unit / control panel and all painted surfaces: mild laboratory detergent (slightly moistened cloth)!

Clean the control panel only when the instrument is switched off.



Appropriate cleaners for non-varnished metal parts (knife holders, base plates, specimen clamps): xylene substitutes, alcohol - apply with an only slightly moistened cleaning cloth!

Use cleaners and disinfectants according to the safety instructions of the manufacturer and in compliance with the applicable regulations in your laboratory!



Regularly check and empty the section waste. Wipe the raw debris off the instrument with a pencil. The waste trays on the front and on the back of the instrument can be pulled off to empty them. The cover ribbon can be cleaned at the deflection roller with a pencil or a soft moistened cloth. It can be helpful to move the ribbon with the manual

sledge movement via the control panel so you reach all relevant parts.

Put only light pressure on the ribbon as it could leave the guides otherwise. If that happens put it in place immediately as else debris could enter the inner of the instrument and damage it.

7.2 Maintenance



Only authorized service technicians may access the internal components of the instrument for service and repair!

Prior to any cleaning, disinfection or maintenance work, the instrument must be switched off and disconnected from mains!

Users may only carry out the maintenance work described in chapters 7.2.1 and 7.2. No liquids may enter the interior of the instrument during cleaning, disinfection or maintenance!

7.2.1 General maintenance steps

- At least once a year, have the instrument inspected by an authorized Gigatome technical service engineer.
- Enter into a service contract once the warranty period has expired.
- Clean the instrument daily (or every time after use).

7.2.2 Replacing the fuses



Prior to exchange any fuse switch the instrument off and unplug the mains plug.

Use only identical replacement fuses with identical technical specifications.

8. Warranty and service

Warranty

Gigatome guarantees that the contractual product delivered has been subjected to a comprehensive quality control procedure based on the Leica in-house testing standards, and that the product is faultless and complies with all technical specifications and/or agreed characteristics warranted.

The scope of the warranty is based on the content of the concluded agreement.

The warranty terms of your Leica sales organization or the organization from which you have purchased the contractual product shall apply exclusively.

Service information

If you are in need of technical customer service or spare parts, please contact your Gigatome representative or the Gigatome dealer where you purchased the instrument.

Please provide the following information:

- Model name and serial number of the instrument.
- Location of the instrument and name of the person to contact.
- Reason for the service

Decommissioning and disposal

The instrument or parts of the instrument must be disposed of according to existing local applicable regulations. Special attention should be paid to the lithium cell of the electronic circuit board!

10. Declaration of conformity



EC Declaration of Conformity

We herewith declare, in exclusive responsibility that the instrument

POLYCUT – LEGACY

was designed developed and manufactured to conform with

Council Directive 2014/35/EU (Low Voltage Directive) and

Council Directive 2014/30/EU, Appendix I (Electromagnetic Compatibility Directive)


The following harmonized standards were applied:

- **EN 61010-1:2020**
Safety requirements for electrical equipment for measurement, control and laboratory use, Part1: General requirements
- **EN61326-1:2013**
Electrical equipment for measurement, control and laboratory use- EMC requirements, Part1: General requirements
- **EN61000-3-2:2019**
Electromagnetic compatibility Part 3-2: Limits for harmonic current emissions
- **EN61000-3-3:2013**
Electromagnetic compatibility Part 3-3: Limits of voltage fluctuations and flicker in low voltage supply systems for equipment with rated current $\geq 16A$
- **EN13850:2016**
Emergency stop equipment, Principles of design
- **EN14118:2018**
Safety of machinery, Prevention of unexpected start-up

GIGATOME
Begonienweg 30
D-89297 Roggenburg

Date: 6.10.2021

Singature: _____


Sven Sostak
Managing Director