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Made in Germany

Operating Manual
pfm Rotary 3005 E

Please read this operating manual carefully before using the instrument for the first time and make certain that you are familiar with the method of operation as well as the instrment's operating elements to ensure that it is used in the correct way.

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Note

Dear Customer,

Please read this operating manual carefully before using the instrument for the first time and make certain that you are familiar with the method of operation as well as the instrument's operating elements to ensure that it is used in the correct way.

All the information in this operating manual applies to the pfm Rotary 3005 E.

Serial number: _____

Please enter the serial number of your instrument here. It can be found on the nameplate.

Part 1 – Safety instructions

Please read this operating manual carefully before working with the pfm Rotary 3005 E. Make certain that you are familiar with the instrument‘s controls and method of operation. Always observe the following precautions during operation of the instrument. Failure to do so is contrary to the recognised technical regulations and the intended use of the instrument.

If the above rule is violated, pfm medical gmbh shall assume no liability.

1.1 Key to symbols

	Caution! This symbol indicates a possible danger to life and health. Failing to observe these instructions can result in severe health impacts, including life-threatening injuries.
NOTE	Indicates useful information
WARNING	Indicates a dangerous situation
	Manufacturer
	Date of manufacture
	Consult operating manual **NOTE** The up-to-date electronic operating manual can be found on our website: http://www.pfmmedical.com/downloads
	In vitro diagnostic (IVD) medical device
	Catalogue number

SN

Serial number

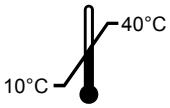
CE marking

Biohazard warning

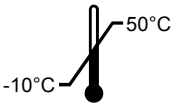
The instrument must not be disposed of in normal domestic waste.
It must be collected separately.

Keep dry

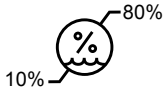
Fragile, handle with care



Permissible temperature range at the place of use
+10°C - +40°C



Permissible temperature range for storage and transportation
-10°C - +50°C



Permissible humidity range for storage and transportation, and at the place of use
10% - 80% (non-condensing)

1.2 Intended purpose

The pfm Rotary 3005 E is a modern, semi-electronic rotary microtome designed to generate thin sections of human and animal tissue samples of varying hardness, provided the tissue is suitable for manual sectioning. The instrument can be used for all applications in industry, research and medicine as a diagnostic aid in connection with in vitro examination as part of the histopathology process. It may only be operated by appropriately trained staff. The sections obtained using the device are intended to assist the pathologist in evaluating the physiological or pathological condition of the tissue samples.

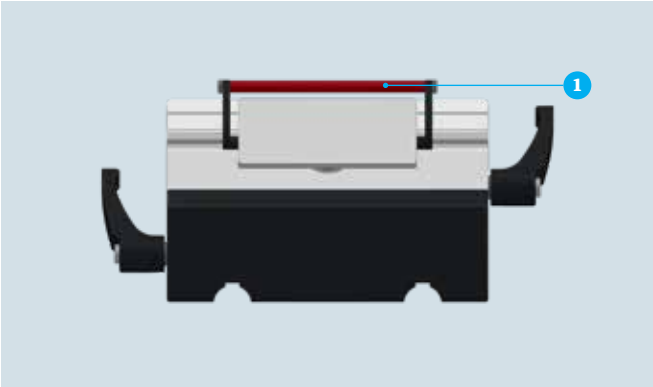
1.3 User group/user profile

- The pfm Rotary 3005 E may only be operated by appropriately trained staff who have been instructed in the method of operation of the instrument.
- Before using the instrument for the first time, the operating manual must be read so that the user is familiar with the method of operation and the operating controls. This is essential to ensure proper handling.

NOTE
The operating manual should be accessible to everyone.

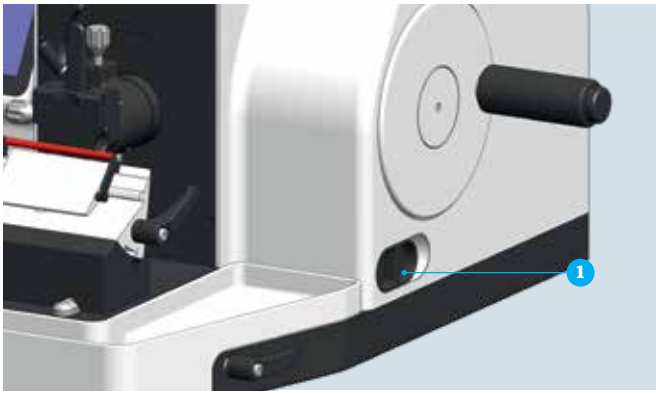
1.4 Microtome safety devices

The instrument is fitted with the following safety devices:



1 Finger guard

Finger guard on the knife holder
Before manipulating the knife, knife holder or object, or changing the object, always cover the blade edge with the finger guard.



1 Handwheel lock

Handwheel lock
When the object and knife are being mounted, the handwheel lock should be activated to prevent injury during the mounting process. The **M-STOP** field lights up when the handwheel is locked.

M-STOP

WARNING
Caution! Protective devices must not be removed from the instrument or modified. The proper functioning of the protective devices must be checked by the user before starting work.

1.5 Operating the instrument

- Take care when handling knives and microtome blades; the blade edge is very sharp and may cause severe injury.
- When setting up the sample and the knife/blade holder, the handwheel lock should be activated to prevent injuries. The blade edge should be covered with the finger guard.
- Select the correct blade holder for the microtome blade (low profile/high profile) or knife being used.
- When setting up the knife/microtome blade in the blade holder, make sure that the blade edge is in the correct position. The blade edge should always be pointing up.
- The microtome blade should always be completely covered by the pressure plate of the blade holder and not be protruding.
- If possible, set up the object first before clamping the knife/blade holder into the knife holder.
- During the sectioning, do not place your fingers between the sample and the knife/microtome blade.
- A knife/blade holder should always be securely fixed to the microtome so that it cannot fall off.
- Never try to catch a falling knife/blade holder.
- Take care during sectioning and when removing sections; the blade edge is very sharp and may cause severe injury.
- When sectioning, always wear the necessary personal protective equipment (PPE) (safety work shoes/protective gloves/cut-resistant gloves/face mask/protective goggles).
- After completing the work, always remove the knife/blade holder from the instrument. For the blade holder, ensure that the knife/microtome blade has been removed beforehand.
- A knife/blade holder that is not in use should always be kept in a safe place (e.g. a knife box) for safety reasons. For the blade holder, ensure that the knife/microtome blade is removed beforehand.
- Observe all warnings.
- Warnings on the instrument must not be removed or obscured.
- Only use suitable accessories and connecting cables recommended/supplied by pfmmedical.
- If the instrument fuse needs to be replaced, the parameters specified by the factory must be observed (T 2.0A).
- Before starting the reference run always move the blade holder to the front position. Otherwise the blade holder may be damaged, because, depending on the position of the object holder, the latter moves downward during the reference run.
- If unusual noises develop, please contact your responsible pfm service technician or contact pfm medical gmbh directly.
- The instrument may only be opened and repaired by service technicians trained and authorised by pfmmedical.
- No corrosive, acidic or alkaline solutions should be used in the vicinity of the instrument, as they could cause corrosion and damage the device and accessories.
- To prevent slip hazards, laboratory shoes should be worn and any paraffin residue should be removed from the microtome and surrounding area.

1.6 General precautions

Please take special note of the following warnings:

Beware of explosive gases
The instrument must not be used if dangerous gas concentrations could occur in the surrounding area.

Risk of infection
When working with infectious materials, appropriate safety measures must be implemented. The samples used may potentially be infectious. The general laboratory rules regarding protection against infections must therefore be observed.

Risk of radioactivity
When working with radioactive materials, the radiation protection regulations must be followed. Protective clothing must be worn in accordance with the rules and regulations that apply in your laboratory for handling radioactively contaminated materials. For the disposal of radioactive waste, the applicable regulations will apply in each instance.

Risk of chemical substances
Some of the alloys used in the components of this instrument contain small amounts of lead for improved machining. The lead is, however, firmly bound in the metal matrix. When used as intended, the lead in the alloys is not released and does not represent any risk to the user. As an additional precaution, we recommend that you wear gloves when changing the accessory parts. You can find additional information in the Declaration on the EU Regulation 1907/2006 (REACH) at:
http://www.pfmmedical.com/downloads

Avoiding malfunctions
To avoid malfunctions, the instrument must not be used close to radio transmitters, e.g. mobile phones. If the instrument malfunctions, please switch it off and contact your dealer.

Caution
Before switching the instrument on for the first time, please check that the supply voltage/frequency at the place of use match the specifications on the nameplate.

Protective earthing of the instrument
To avoid the risk of electrocution, the instrument must be properly connected to an earth conductor. The instrument is equipped with a mains power plug with earth conductor. It is very important to check that the mains power outlet used is equipped with an earth conductor, and that it complies with the regulations of the International Electrotechnical Commission (IEC).

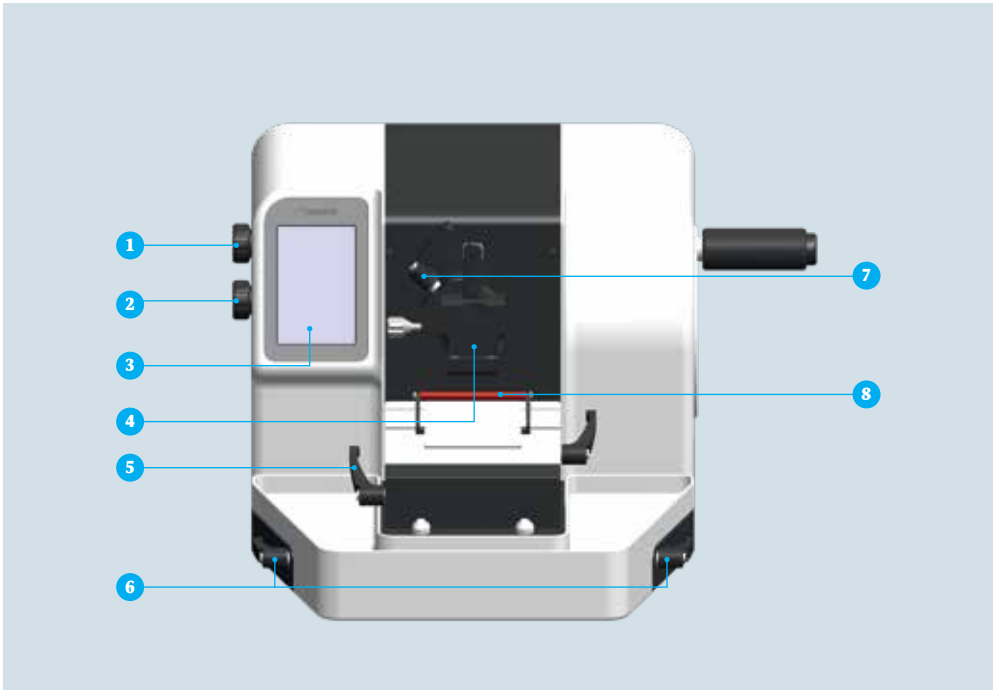
Mains voltage precautions
Never remove any part of the housing. The replacement of components and alignment must only be carried out by trained service technicians.

Electromagnetic interference
The electromagnetic environment should be assessed before the microtome is operated. Do not use this instrument near strong sources of electromagnetic radiation (for example, unshielded, intentionally operated high-frequency sources) because these can interfere with the proper operation of the instrument. The pfm Rotary 3005 E fulfils the requirements of the standard IEC 61326-2-6 on immunity and emissions.

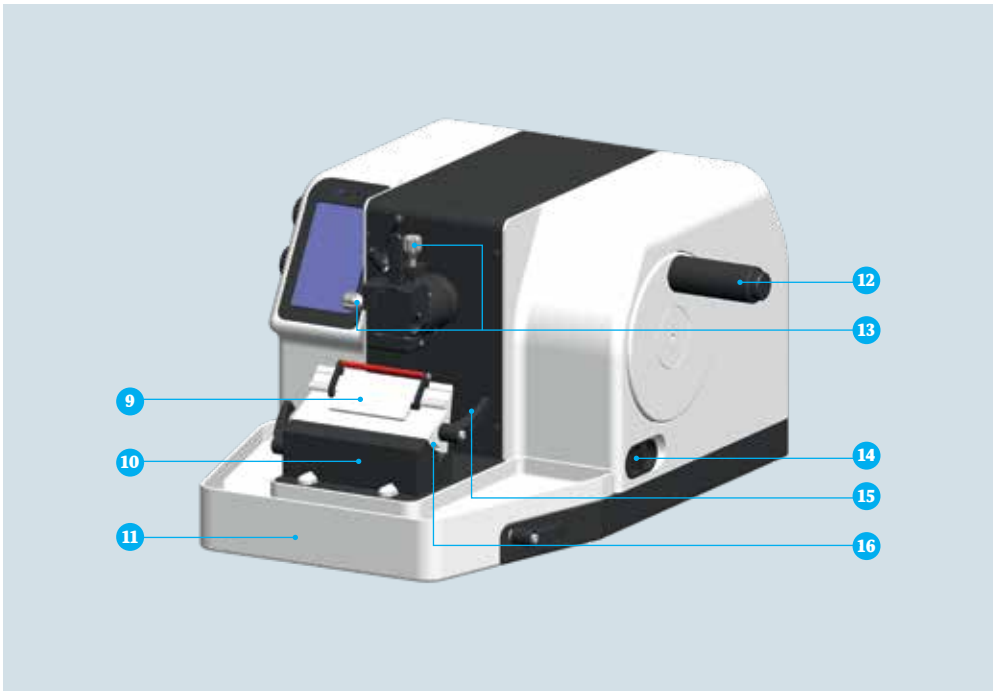
WARNING
Caution! Switch off the instrument and pull out the mains plug before removing any part of the housing.

Part 2 – Introduction

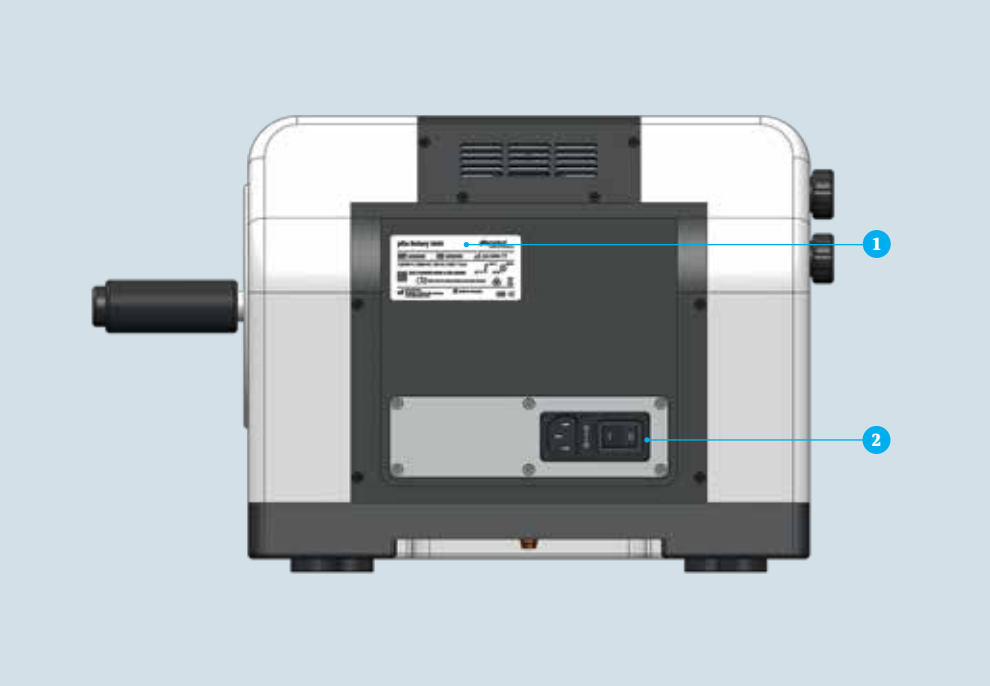
2.1 Views of the pfm Rotary 3005 E



1. Control wheel Settings
2. Control wheel Coarse Feed/Trimming
3. Display
4. Universal cassette clamp
5. Clamping lever for clearance angle adjustment
6. Clamping levers for knife holder
7. Clamping lever for object orientation
8. Finger guard



9. Pressure plate
10. Knife holder
11. Section waste tray
12. Handwheel
13. Adjustment screws for object orientation with tangible zero-point
14. Handwheel lock
15. Clamping lever for pressure plate
16. Knife angle scale



1. Nameplate
2. Mains connection/ instrument fuse

2.2 Technical data for the pfm Rotary 3005 E

- **Section thickness:** 0.5 - 100 µm
- **Setting range:** 0.5 - 10 µm in 0.5 µm steps / 10 - 20 µm in 1 µm steps / 20 - 50 µm in 5 µm steps / 50 - 100 µm in 10 µm steps
- **Trimming mode:** 1 - 500 µm
- **Retraction:** Retraction: 0 - 100 µm in 5 µm steps (in manual operation)
- **Coarse feed speed:** 1.0 mm/sec.
- **Remaining feed indication 1 mm horizontal:** visual and audible
- **Horizontal range:** 30 mm
- **Vertical range:** 70 mm
- **Object orientation:** x- and y-axes universal 12° z-axis up to 360°
- **Maximum sample size:**
  - Universal cassette clamp, standard embedding cassettes
  - Standard object clamp large, sample size 45 x 60 mm
  - Universal cassette clamp large, super mega embedding cassettes
- **Power supply:** 100/120/230/240 V AC, 50 - 60 Hz
- **Operating environment altitude:** up to 2,000 m above sea level
- **Pollution degree (according to IEC 61010-1):** II
- **Overvoltage category (according to IEC 61010-1):** II
- **Fluctuations in mains voltage:** ±10% of the mains voltage
- **IP protection class:** IP20
- **Dimensions (W/D/H):** 450 x 530 x 275 mm
- **Weight:** 38 kg

2.3 Technical data control panel

- **Dimensions (W/D/H):** 135 x 170 x 55 mm
- **Height opened:** 150 mm
- **Weight:** 1.9 kg

2.4 Scope of delivery

pfm Rotary 3005 E
REF: 0300510

Scope of delivery
Base device
1 Section waste tray
1 Mains power cable
1 Protective cover
Without blade holder base and disposable blade holder upper jaw
Without object clamp and adapter
Without control panel

NOTE
The up-to-date electronic operating manual can be found on our website: http://www.pfmmedical.com/downloads

Part 3 – Operating instructions

3.1 Transportation, unpacking and setting up the instrument

- Before unpacking the delivery, please check that it is complete and undamaged.
- Disassemble the packaging and remove the instrument and accessories from the packaging. The section waste tray is included in the instrument packaging, but the other accessories are packaged separately.
- Take care when unpacking the instrument. The instrument is very heavy and should be removed from the packaging and transported to the installation location by at least two people for safety reasons.
- When lifting the instrument out of the packaging and during transportation, the instrument should only be handled at the base plate. Do not carry of lift the instrument at the handwheel or object mounting device.
- Please read the operating manual carefully before using the instrument for the first time.
- When setting up or moving the instrument, make sure not to place your fingers between the instrument and the set-up area.
- The instrument should be placed on a stable, vibration-free table or desk.
- The instrument must be placed on a non-combustible, flat surface.
- Position the instrument so that the handwheel is freely and easily accessible.
- If other instruments in the vicinity of the microtome generates vibrations, these can interfere with the sectioning process.
- Position the instrument so that the power plug is always accessible.
- Room temperature between + 10°C and + 40°C.
- Relative humidity at the installation location of the instrument max. 80% (non-condensing).
- Ambient temperature during the transportation and storage of the instrument: between - 10° and + 50°C.
- Relative humidity during the transportation and storage of the instrument: max. 80% (non-condensing).

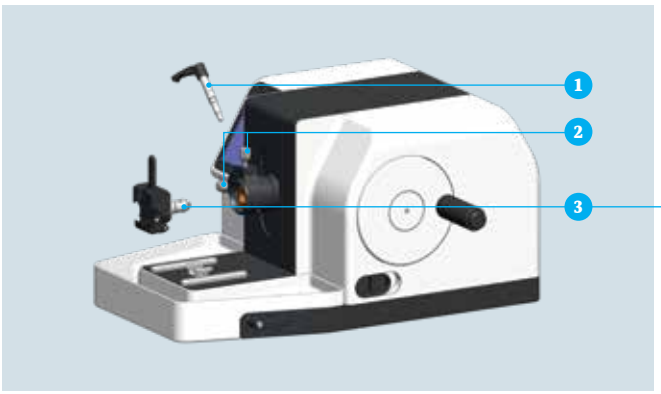
The operator is responsible for checking that the instrument is working properly and safely. The operator shall assume responsibility for any use of special equipment and/or materials for operating the instrument.

NOTE

If possible, retain the original packaging for the entire lifetime of the instrument so that you can repackage the instrument correctly if it needs to be sent for servicing.

3.2 Assembling the accessories

Assembling the object clamps with/without adapter



1 Object orientation clamping lever
2 Object orientation adjustment screws
3 Orientable adapter

Adapter orientable

Universal cassette clamp, orientable

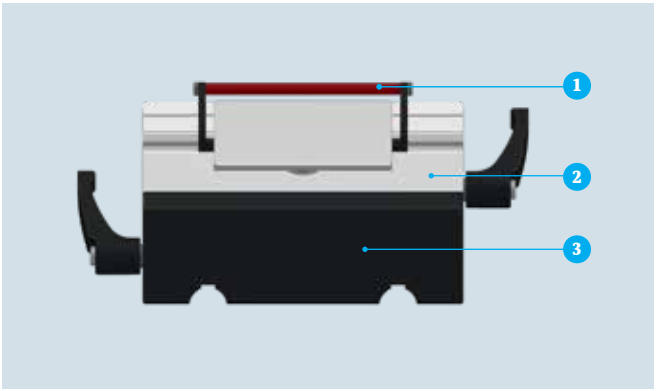
Universal cassette clamp, non-orientable (without adapter)

- Release and remove the object orientation clamping lever.
- Turn the two adjustment screws for object orientation to the tangible zero-point (marked in red).
- Insert the object clamp with the adapter, paying attention to the position of the hole so that the clamping lever can later be inserted without difficulty.
- Clamp the object clamp using the clamping lever.
- After each change, check that the clamping lever is sufficiently clamped.

NOTE

Some object clamps are optionally also available as a non-orientable version. For use on the instrument, the object clamp must be attached to the adapter fixed or adapter orientable. It is then fitted to the instrument as described.

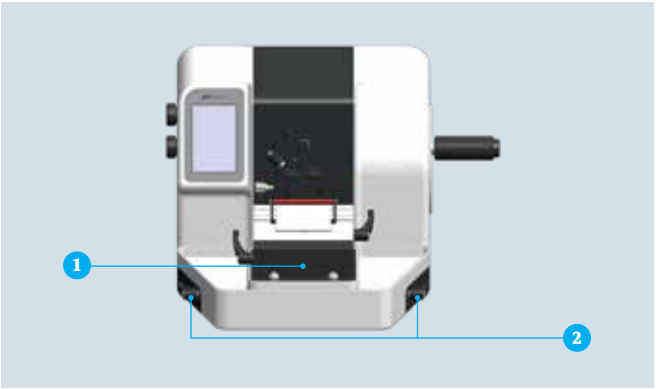
Knife holder



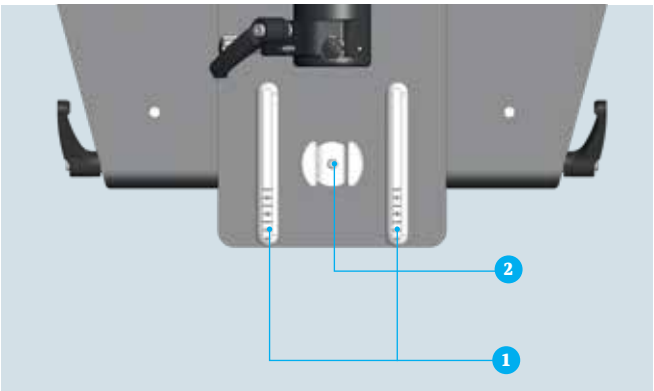
1 Finger guard
2 Disposable blade holder upper jaw
3 Knife holder base

The knife holder consists of the knife holder base and the disposable blade holder upper jaw. The finger guard it fitted to the disposable blade holder upper jaw.

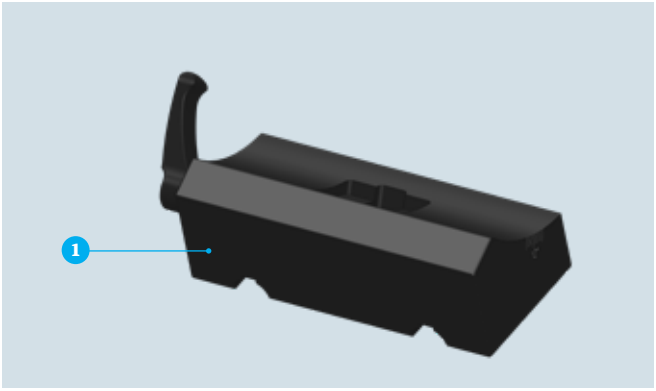
Assembling the knife holder base



1 Knife holder base
2 Knife holder clamping levers



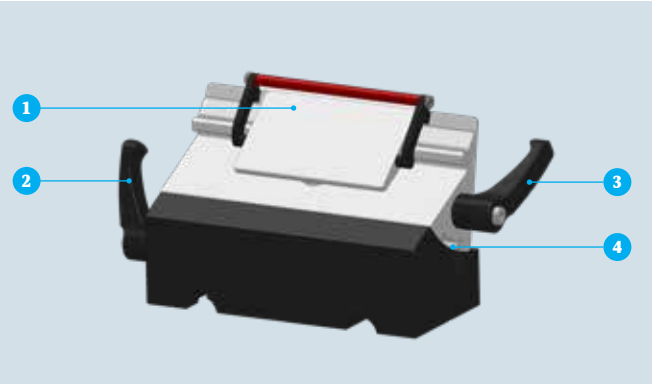
1 Guide rails
2 Knife holder mounting device

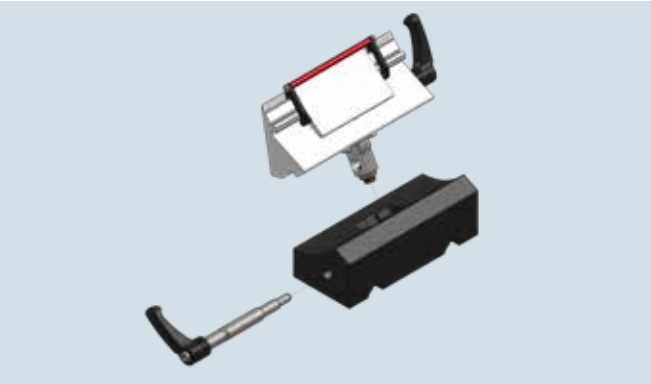


1 Knife holder base

- Release the knife holder clamping levers.
- Slide the knife holder base onto the base plate via the two guides and fix it above the knife holder mounting device.
- Clamp the knife holder mounting device using the knife holder clamping levers.
- After each change, check that the clamping levers are sufficiently clamped.

Assembling the disposable blade holder upper jaw





1 Pressure plate
2 Clearance angle adjustment clamping lever
3 Pressure plate clamping lever
4 Knife angle scale

- Release and completely remove the clearance angle adjustment clamping lever.
- Insert the adapter on the disposable blade holder upper jaw into the knife holder base. Take note of the position of the hole, so that the clamping lever can later be re-inserted without difficulty.
- Set the clearance angle to 10° using the knife angle scale.
- Clamp the clearance angle adjustment clamping lever
- After each change, check that the clamping lever is sufficiently clamped.

Control panel connection (optional)

1 Control panel connection

Control panel

- The colour-marked (green) connection for the control panel is located on the back of the instrument.
- Connect the control panel cable to the control panel socket.

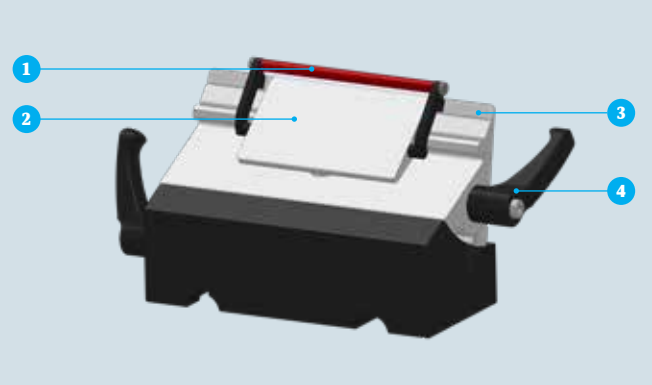
The control panel is an optional accessory and the connection for this is not included in the basic device. The connection in the base unit can be retrofitted by pfmmedical authorised service technicians.

WARNING
Caution! Please observe the guide on the control panel socket and do not turn the plug in the connection socket.

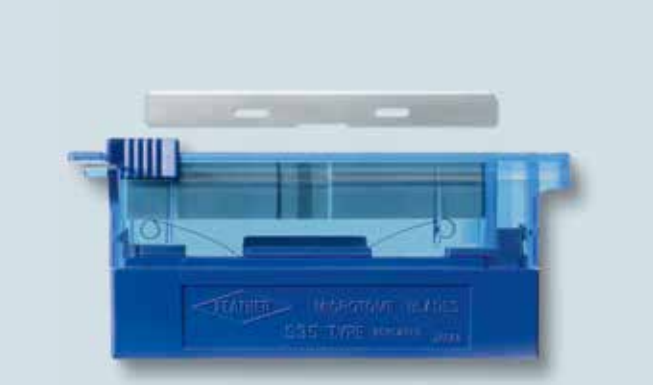
Section waste tray

The section waste tray is pushed onto the microtome via two guides on the inside and then positioned so that it is felt to latch.

Fitting the microtome blade



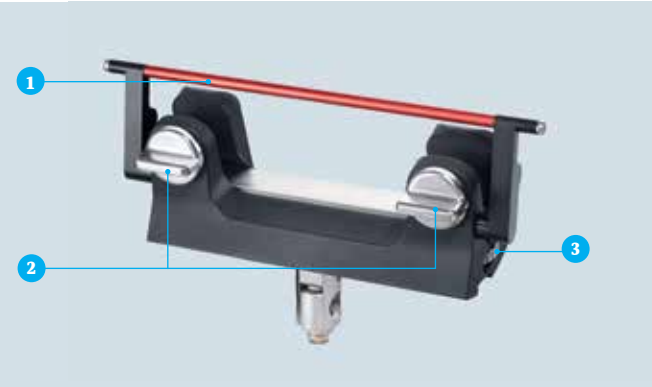
1 Finger guard
2 Pressure plate
3 Blade support
4 Pressure plate clamping lever



Feather® microtome blade S35

- Fold down the finger guard.
- Release the clamping lever for the pressure plate.
- Remove the microtome blade from the dispenser and carefully slide it under the pressure plate from the side.
- It is easier to introduce the microtome blade by gently pressing on the pressure plate. This forms a small gap between the blade support and the pressure plate, making it easier to introduce and position the microtome blade.
- Make sure that the microtome blade is positioned parallel to the pressure plate.
- Clamp the pressure plate using the clamping lever.
- After each change, check that the clamping lever is sufficiently clamped.

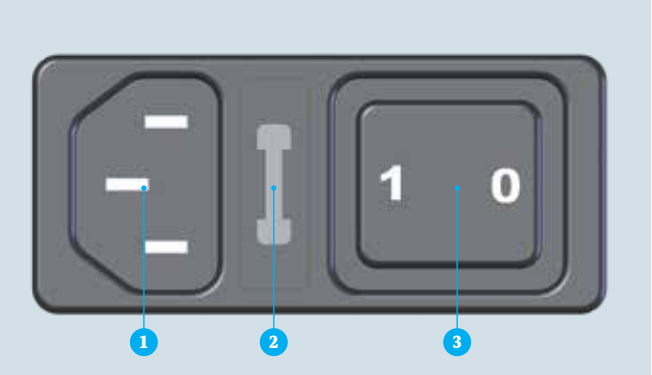
Fitting a standard knife



1 Finger guard
2 Screws
3 Knurled screw

- Fold down the finger guard.
- Loosen the two screws on the standard knife holder.
- Insert the knife into the knife holder from the side.
- The height of the knife can be adjusted and it can be aligned parallel to the finger guard using the two knurled screws at the side.
- Clamp the knife using the two screws.
- After each change, check that the knife is sufficiently clamped.

3.3 Initial operation



1 Connection socket
2 Instrument fuse
3 Power switch

- Before switching on the microtome for the first time, you must make sure that the supply voltage and frequency specified on the nameplate match the mains voltage specifications at the installation location.
- Always connect the instrument to an earthed wall socket.
- Plug the power cable into the socket on the back of the instrument.
- The insert for the instrument fuse (T2.0A) is situated next to the connection socket.
- Now switch on at the power switch on the instrument.
- 1=ON, 0=OFF

WARNING

Caution! Only use the mains power cable with ferrite core supplied with the instrument.

Caution! Do not operate the instrument if the mains power cable is damaged.

Caution! Do not use an extension cable.

Caution! If the instrument is not operated with the mains power cable supplied, the user must carry out a safety test with the new mains power cable before using the instrument for the first time.

3.4 Switching on the instrument

After switching on the instrument an audible signal can be heard, and "REFERENCING" is shown on the display The reference run is started by pressing START . After this, the display automatically goes back to the control panel display.

WARNING

Caution! Before starting the reference run always move the knife holder to the front position. Otherwise the knife holder may be damaged, because, depending on the position of the object holder, the latter moves downward during the reference run.

Caution! Do not operate the instrument if the display has no function, shows illogical or incorrect values or is damaged.

3.5 Operating controls

The pfm Rotary 3005 E is equipped with a modern touch screen system. The control panels and displays are clear and arranged by function. The user can operate the instrument either via the operating display on the instrument or via a separate control panel. This allows for simple and comfortable operation. When the control panel is connected, the instrument can only be controlled from the control panel. The control panel is not included in the general scope of delivery and must be ordered separately.

3.6 Operating display on the instrument/control panel

1. M-STOP
2. Section thickness
3. Trimming
4. Trimming automatically/manually
5. Retraction
6. Counter
7. Remaining feed
8. Menu
9. Memo
10. Delete
11. Control wheel Settings
12. Control wheel Coarse Feed/Trimming

3.7 Control panel

If the pfm Rotary 3005 E is to be operated via the separate control panel, it must be connected to the instrument before switching it on. The connection for the control panel is located on the back of the instrument.

The control panel is an optional accessory and the connection for this is not included in the basic device. The connection in the base unit can be retrofitted by pfmmedical authorised service technicians.

3.8 Menu settings

Press the MENU button to get to a submenu with the following subfunctions:

Buzzer
Press the BUZZER button to switch the buzzer on or off.

Language
Press the LANGUAGE button to select between different languages.

Brightness
Press the BRIGHTNESS button to adjust the brightness of the display. There are three levels in total.

Reset/factory default settings
Press the RESET button to reset the instrument to factory defaults.

3.9 Selecting Trimming and Coarse Feed modes

By pressing the Trimming/Coarse Feed control wheel you can switch between trimming and coarse feed.

3.10 Function and adjustment of the Trimming and Coarse Feed modes

By pressing the Trimming/Coarse Feed control wheel you can switch between trimming and coarse feed. Press the TRIMMING button to select the required value by turning the Settings control wheel. Press the TRIMMING button again or press the Settings control wheel to save the set value.

Trimming function
The trimming function can be used to select either manual or automatic sectioning of the sample. The required function is activated by pressing the MAN or AUT button. When the TRIMMING AUT function has been activated, the AUT button blinks.

Adjusting the trimming thickness during the trimming
It is also possible to change the preset trimming thickness during the trimming by turning the Settings control wheel.

Automatic trimming (Trimming AUT)
In automatic trimming the function is activated by briefly turning the Trimming/Coarse Feed control wheel forwards and deactivated again by briefly turning it forwards again. If the function is deactivated the infeed automatically reverts to the preselected section thickness.

WARNING
Caution! The advance via **Trimming AUT** is interrupted only when the function is deactivated again using the control wheel (turning it forwards).

Caution! Always adjust the trimming thickness setting to the size of the sample.

Manual trimming (Trimming MAN)
In manual trimming, infeed occurs only when the Trimming/Coarse Feed control wheel is turned forwards during sectioning. If the control wheel is released, the infeed automatically reverts to the preselected section thickness.

Coarse feed functions
The coarse feed function is intended to quickly change the distance from the sample to the knife or away from the knife. In the Coarse Feed mode the advance feed only works when the Trimming/Coarse Feed control wheel is turned forward.

3.11 Setting the section thickness

Press the THICKNESS button to select the required section thickness by turning the Settings control wheel. Press the THICKNESS button again or press the Settings control wheel to save the set value.

Adjusting the section thickness during sectioning
It is also possible to change the preset section thickness during the sectioning by turning the Settings control wheel.

3.12 Retraction of sample

The retraction function is activated by pressing the RETRACTION button. Turn the Settings control wheel to select the required value. Press the RETRACTION button on the display again or press the Settings control wheel to save the set value. When the value is 0, retraction is deactivated. Retraction is activated during the upwards motion in order to protect the knife/blade and object from damage.

3.13 Sectioning the sample

- Release the handwheel lock.
- To coarsely advance the object towards the knife, select the Coarse Feed mode using the Trimming/Coarse Feed control wheel.
- Move the object towards the knife using the Coarse Feed mode.
- Change to Trimming mode (AUT/MAN) by pressing the Trimming/Coarse Feed control wheel and trim the sample by turning the handwheel.
- If automatic trimming is deactivated (TRIMMING AUT) or if the Trimming/Coarse Feed control wheel is released (TRIMMING MAN) the infeed automatically reverts to the preselected section thickness.

3.14 Changing samples/interruption of work

Changing samples

- Use the Trimming/Coarse Feed control wheel to change to the Coarse Feed mode and establish enough distance between the object and the knife.
- Lock the handwheel.
- Cover the blade edge with the finger guard.
- Change the sample.

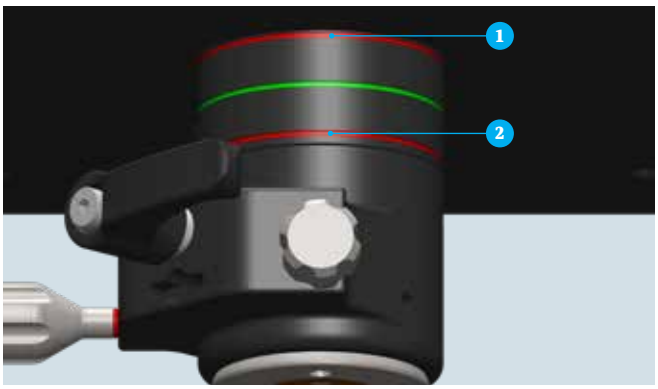
Interruption of work

- Use the Trimming/Coarse Feed control wheel to change to the Coarse Feed mode and establish enough distance between the object and the knife.
- Lock the handwheel.
- Cover the blade edge with the finger guard.

3.15 Memo

By pressing the MEMO button (acoustic signal), the sample's present horizontal position is saved.
By pressing the MEMO button again, the saved sample position is restored.

3.16 Remaining feed indication



1 Rear end position
2 Front end position

REMAINING FEED 00000

The remaining feed is indicated acoustically and optically. The potential remaining feed in µm is shown optically on the display. In the reference position "Rear" the value 30000 is shown on the display. In the end position "Front" the value 0 is shown.
An acoustic signal sounds between the positions 29000 and 30000 and between 1000 and 0 to indicate that only 1000 µm (1 mm) of feed remains.

WARNING

Caution! A red marker on the object mounting device also indicates that the front or rear end position of the horizontal stroke has been reached.

3.17 Section counter/addition

A section counter is used to add up the sections performed. After each turn of the handwheel, the counter increases by one or by the section thickness in µm.

By pressing the DEL button, the section counter/addition is set to zero.

3.18 Mounting the object

1 Adapter orientable

The object is mounted using different clamping systems. An orientable adapter allows easy alignment of the object to the sectioning level. The orientable adapter can be screwed to the appropriate clamp if needed.

WARNING
Caution! It is imperative that the handwheel be locked when working in the object orientation area.

3.19 Standard object clamp

The standard object clamp is used for paraffin or plastic blocks of square or rectangular shapes.

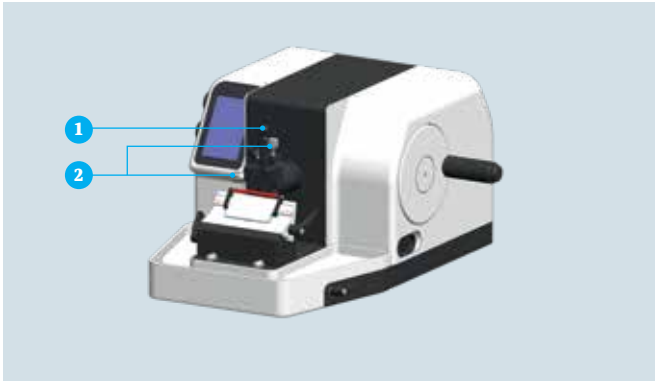
WARNING
Caution! The contact surfaces on the cheeks of the object clamps must be free of any residual paraffin. Otherwise proper clamping cannot be guaranteed.

3.20 Universal cassette clamp

The universal cassette clamp, which is operated via the clamping lever, is used for mounting standard embedding cassettes. The clamping lever must be pulled upward to insert or withdraw an embedding cassette.

WARNING
Caution! The contact surfaces on the cheeks of the object clamps must be free of any residual paraffin. Otherwise proper clamping cannot be guaranteed.

3.21 Object orientation

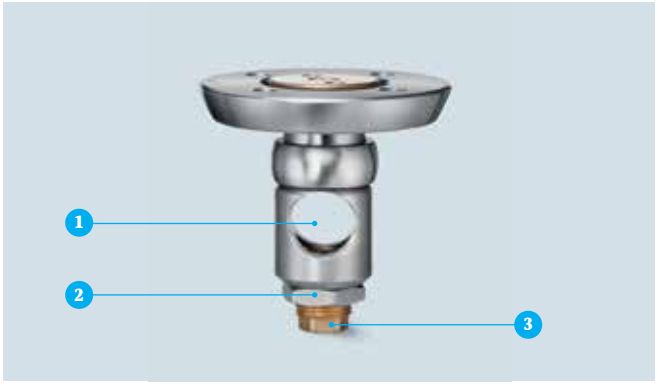


1 Clamping lever
2 Object orientation adjustment screws

In order to move the object to the required position, the clamping lever must first be released (red marker point up). Movement of the object along the x- and y-axes is possible using the coaxial adjusting screws. The clamping lever is set to the clamp position as soon as the required position is reached. The set position is thus fixed.

Zero-point setting
The two adjustment screws must be turned as far as the red markers. For ease of orientation, this position is tangible.

3.22 Adjusting the orientable adapter

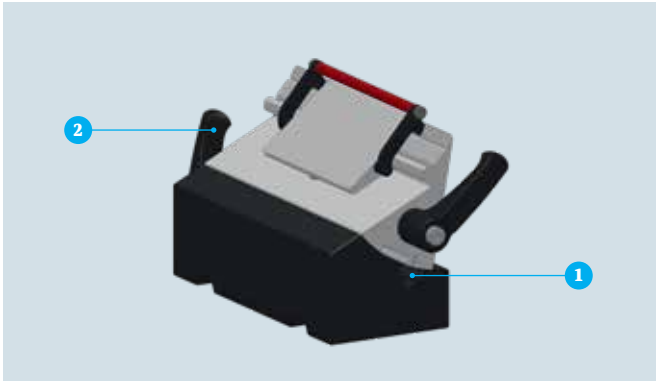


1 Adapter hole
2 Nut
3 Threaded brass bolt

To adjust the clamping of the orientable adapter, first insert a screwdriver in the hole in the adapter to fix it firmly. Unscrew the nut with a 13 mm open spanner. Then use an 8 mm open spanner to screw the threaded brass bolt inwards or outwards as required and tighten the nut again with the 13 mm spanner.

To test the clamping, insert the adapter in the guide bore and tighten it with the clamping lever. If the clamping is not adequate, the process must be repeated and the brass bolt adjusted in the required direction. It must be possible to fix the clamping lever at an angle of about 45° in both directions.

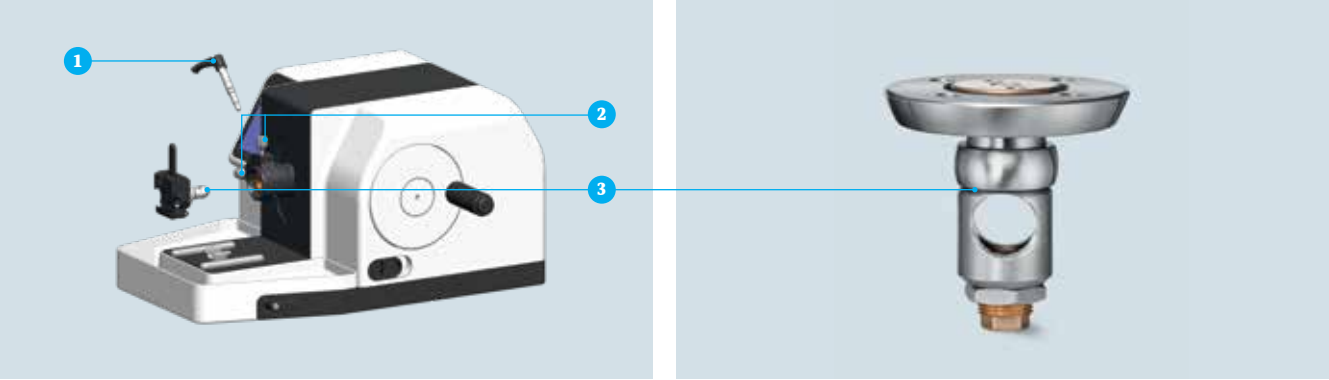
3.23 Setting the clearance angle



1 Knife angle scale
2 Clamping lever for clearance angle adjustment

On the right side of the knife holder there is a scale for adjusting the clearance angle. Release the clamping lever on the left side of the knife holder and set the desired clearance angle, then fix the knife holder in the selected position again using the clamping lever.

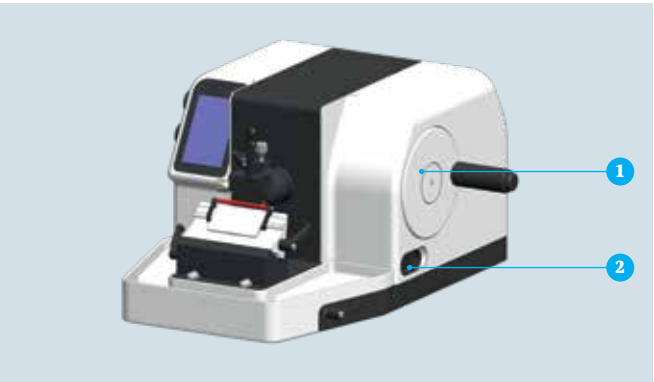
3.24 Removing/attaching the object mounting device



1 Object orientation clamping lever
2 Object orientation adjustment screws
3 Orientable adapter

To change the object mounting device, release the clamping lever and remove it from the guide bore. Both adjusting screws must be turned as far as the red markers. Then the entire object clamp together with the orientable adapter can be removed upwards. The new object mounting device is fitted in reverse order. Please observe the guide bore position in the adapter to allow reinsertion of the clamping lever. After each change, check that the clamping lever is sufficiently clamped. If it is not properly clamped, vibrations etc. can occur while sectioning.

3.25 Handwheel lock

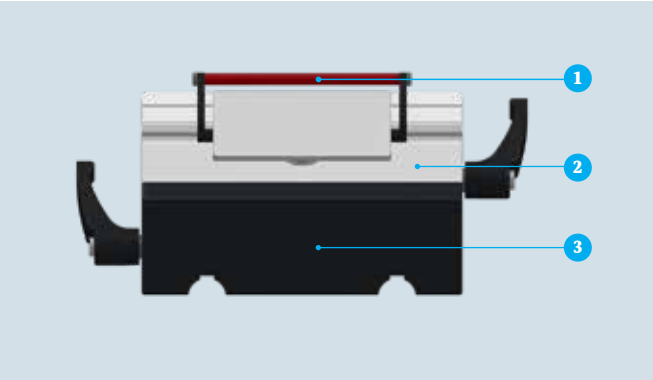


1 Handwheel
2 Handwheel lock

The handwheel can be locked within 360°. To lock it, the slide of the handwheel lock is pushed all the way back. To release the lock, the slide must again be pushed (in the opposite direction). The **M-STOP** field lights up when the handwheel is locked.

WARNING
Caution! After completing the sectioning, the handwheel should always be locked using the handwheel lock. Take care that the slide of the handwheel lock is in the correct position to ensure that it is locked correctly.

3.26 Knife holder



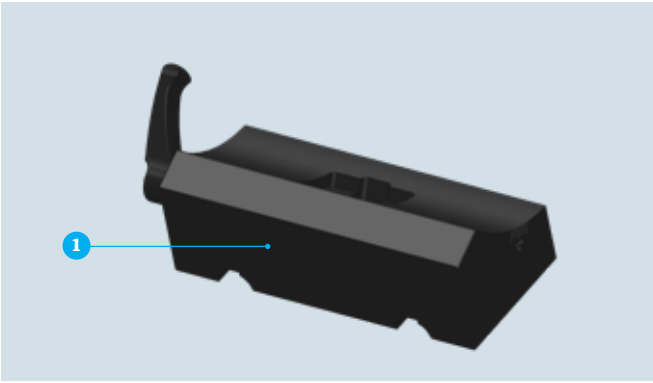
1 Finger guard
2 Disposable blade holder upper jaw
3 Knife holder base

The knife holder consists of the knife holder base and the disposable blade holder upper jaw. For better cleaning of the disposable blade holder upper jaw as well as the pressure plate and the contact surfaces, the finger guard on both sides is “only” clipped on and therefore removable.

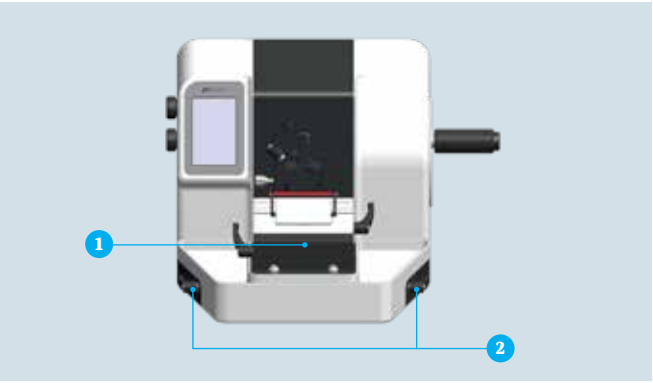
WARNING

Caution! The finger guard must be used and the handwheel locked during all work on the knife holder. The position of the clamping lever on the knife holder can be adjusted as required (360°).

3.27 Knife holder base



1 Knife holder base

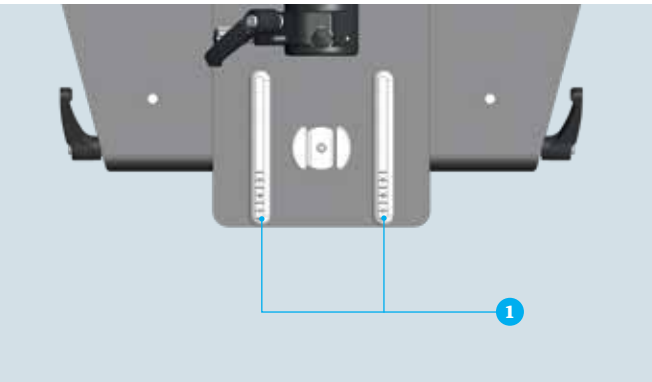


1 Knife holder base
2 Knife holder clamping levers

The knife holder base is used for mounting the disposable blade holder upper jaw and is fixed to the base plate of the microtome above the knife holder mounting device. The knife holder base can be released or clamped with the knife holder clamping levers (on the left and right).

3.28 Knife holder mounting device

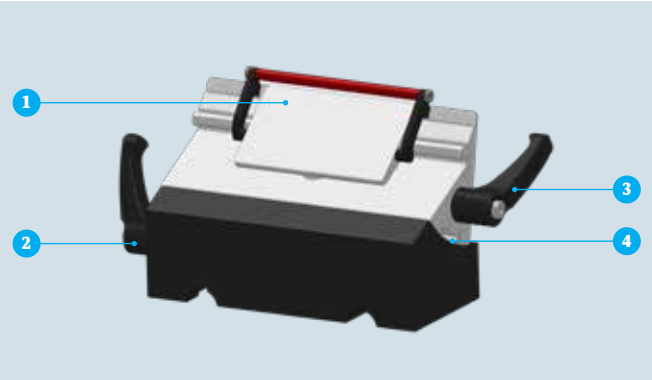
1 Knife holder mounting device
2 Knife holder clamping levers



1 Scale

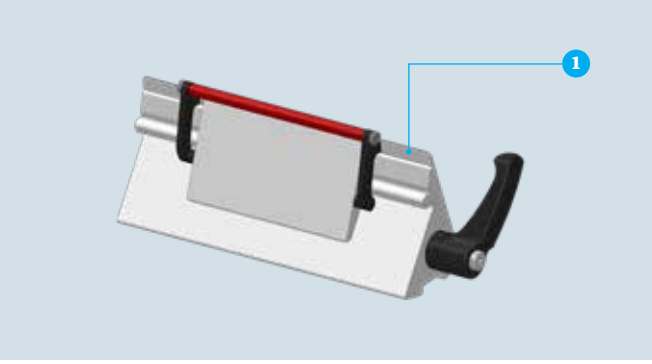
The knife holder base is fixed to the base plate of the microtome above the knife holder mounting device. The knife holder mounting device is operated with the knife holder clamping lever. The mounting device and the precision guide must be free of any residual paraffin and should be cleaned regularly. For optimal positioning of the knife holder to the sample, the two guides are provided with a scale. The knife holder base can be released or clamped using the clamping levers on the left and right.

3.29 Disposable blade holder upper jaw low profile (narrow blade)

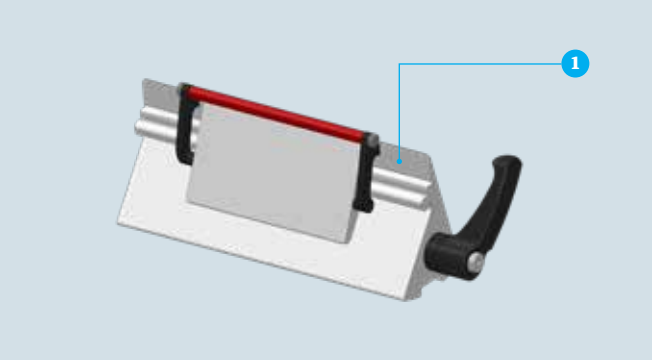


1 Pressure plate
2 Clearance angle adjustment clamping lever
3 Pressure plate clamping lever
4 Knife angle scale

In order to fix the microtome blade in the disposable blade holder upper jaw with the pressure plate problem-free, the gap between the pressure plate and the mounting rail must first be opened. To do this, move the clamping lever for the pressure plate as far as it will go and insert the microtome blade. The lower end of the pressure plate should be pressed during the insertion of the microtome blade, for optimal use of the gap opening. The microtome blade is also clamped using the clamping lever. The clearance angle is adjusted using the scale on the knife holder base and the index on the disposable blade holder upper jaw. The clearance angle adjustment is released or clamped using the clamping lever. Under normal circumstances, a clearance angle setting of 10° is recommended for the pfm Rotary 3005 E. The upper jaw of the disposable blade holder is optionally available either as a low profile blade holder for narrow blades or as a high profile blade holder for wide blades.



1 Disposable blade holder upper jaw
Low Profile (narrow blade)



1 Disposable blade holder upper jaw
High Profile (wide blade)

3.30 Section waste tray

The section waste tray is anodised and therefore easy to clean. It is pushed onto the microtome via two guides on the inside and then positioned so that it is felt to latch.

3.31 Malfunctions and their correction

Fault	Possible cause	Remedy
No display after switching on the instrument	Mains cable not correctly connected	Check the mains cable connection
	Mains cable defective	Check the mains fuse and replace if necessary
	Instrument fuse defective	Change the instrument fuse
Instrument does not activate	Handwheel lock is activated	Release the handwheel lock
No infeed during sectioning or trimming of the sample	The object has reached the front position	Move the object backwards using the coarse feed function
Handwheel is hard to turn	Ball bearing defective	Replace the entire drive claw
The clamping eccentric cannot be fully tightened	Clamping of the adapter is not correctly adjusted	Adjust clamping of adapter

3.32 Change history

State of revision	Change
Rev.2023-07-18	Design reworked
Rev.2024-01-01	Corporate identity guidelines
Rev.03/2024-09-19	Editorial adjustments

Part 4 – Working with the microtome

4.1 Preparing, embedding and sectioning the object

The objects must be properly prepared and embedded in suitable media before sectioning. Different forms and rectangular samples as well as the embedding cassette are used for embedding. Depending on the embedding form, the object is mounted in the standard object clamp or in the universal cassette clamp and then trimmed. Using the coarse feed (Trimming/Coarse Feed control wheel), the object can be coarsely approached to the blade so that there is a first contact between the object and the knife blade. Sectioning can be accelerated using the trimming function. When the required depth has been reached, turn the handwheel to home position in order to change from the trimming mode to the section thickness mode.

4.2 Information about how to avoid problems

Sample preparation

When preparing the sample, the correct fixation and embedding medium should be selected, and drainage and infiltration times should be observed.

Sample temperature

Heating of a paraffin sample through direct sunlight or other heat sources should be avoided, otherwise the paraffin will become soft and it will no longer be possible to section the sample.

Clamping screws

Tighten all clamping screws on the knife holder and object holder.

Clearance angle

The knife clearance angle must be selected depending on the sample.

Sectioning speed

The harder the material, the slower the sectioning speed.

Selection of the FEATHER® microtome blades

Information can be obtained directly from pfm medical gmbh.
service@pfmmedical.com
T +49 (0)2236 9641-220
F +49 (0)2236 9641-51
www.pfmmedical.com

4.3 Trouble-shooting

Fault	Possible cause	Remedy
Thick/thin sections	Microtome blade is insufficiently clamped in the knife holder	Check the clamping and clean
	Knife holder is insufficiently clamped	Check the clamping and clean
	Object holder is insufficiently clamped	Check the clamping and clean
	Incorrect knife holder clearance angle	Check, adjust the clearance angle (10°)
Handwheel is hard to turn	Handwheel lock	Check operation/latching
Vibrations while sectioning	Object holder is insufficiently clamped	Check the clamping and clean
	Knife holder/pressure plate is insufficiently clamped	Check the clamping and clean
	Microtome blade in knife holder	Check, adjust position, clean
Section compressed/ wrinkled	Incorrect knife holder clearance angle	Check, adjust the clearance angle (10°)
	Block too warm	Cool down the block
Ribbon sectioning is not possible	Incorrect knife holder clearance angle	Check, adjust the clearance angle (10°)
	Knife holder/pressure plate is insufficiently clamped	Check the clamping and clean
Crooked sections	Lateral edges of the block are not parallel	Move them into a parallel position
	Blade edge and block are not parallel	Align the block
	Pressure plate is insufficiently clamped	Check the clamping and clean
Section rolls up	Incorrect knife holder clearance angle	Check, adjust the clearance angle (10°)
	Microtome blade is still too sharp	Longer trimming time required
Section too thick	Object holder is insufficiently clamped	Check the clamping and clean
	Knife holder/pressure plate is insufficiently clamped	Check the clamping and clean
	Block too warm	Cool down the block

Part 5 – Maintenance, cleaning and care

5.1 Maintenance

In order to guarantee the sectioning quality and operation of the rotary microtome, annual routine maintenance should be carried out by a trained service technician authorised by pfmmedical. pfm medical gmbh provides maintenance to ensure that your instrument always remains in perfect condition. Details can be obtained from your sales representative or directly from pfm medical gmbh. We recommend an annual electrical safety inspection.

5.2 Cleaning and care

It is recommended that the instrument be cleaned by the user depending on the degree of dirt contamination and frequency of operation. Before cleaning, switch off the instrument and remove the mains power plug. Mild household detergents are suitable for cleaning the waterbath. Do not use any aggressive cleaning agents or solvents as these could damage any parts made of plastic. Do not allow liquids to penetrate the inside of the instrument. The cross roller guides are protected against dirt and do not need to be cleaned.

WARNING
Caution! When handling disinfectants and cleaning agents, always follow the manufacturer's instructions regarding safety, dilution and exposure time.

5.3 Cleaning and care touch screen/display

The display and touch screen are made of plastic and should not be touched with hard, sharp or pointy objects. Do not use any aggressive cleaning agent or solvents for the cleaning. No glass cleaners or detergent should be used as they contain aggressive soap solutions that attack and damage the surface. We recommend cleaning the touchscreen without wetting it, preferably with a standard microfibre cloth.

WARNING
Caution! The display should not be sprayed with a cleaning agent or disinfectant because there is a danger that liquid will get between the films or behind the display, and damage the display.

Caution! When handling disinfectants and cleaning agents, always follow the manufacturer's instructions regarding safety, dilution and exposure time.

5.4 Returning the microtome for repair or maintenance

Repairs and maintenance work are usually carried out on site. If this is not possible for any particular reason, the instrument can be sent to pfm medical gmbh. Before you send an instrument to pfmmedical for a service, it must be suitably cleaned and decontaminated. This also applies to instruments undergoing a service on site. Contaminated instruments pose a potential health hazard for anyone coming into contact with them due to infectious agents, pathogens or medicinal products. The legal requirements for the handling of contaminated instruments are specified in various regulations, including the Occupational Safety and Health Act (ArbSchG), the Biological Agents Ordinance (BioStoffV), the Occupational Safety Act (ASiG) and the Accident Prevention Regulations (UVV). To confirm that the instrument has been decontaminated, please complete the decontamination certificate carefully. You can find the current certificate on our website:
http://www.pfmmedical.com/downloads.

Servicing can only be carried out if a certificate is fully completed in advance and enclosed with the instrument. If it is found that the instrument poses a potential hazard, we reserve the right to return the instrument to the sender immediately at the sender's expense.

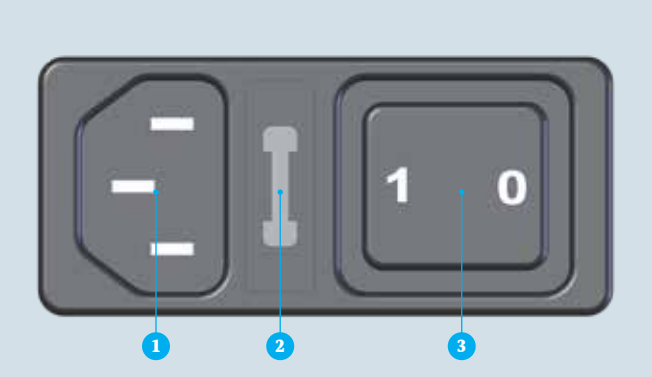
WARNING
Caution! Always send the instrument in the original packaging together with the mains cable. Please contact pfmmedical if you no longer have the original packaging.

Caution! Knives/blade holders should always be packed in the appropriate box. For the blade holder, ensure that the knife/microtome blade has been removed beforehand.

5.5 Decontamination

For the regular disinfection of the work surfaces and other surfaces of the microtome, we recommend using single-use disinfectant wipes, for example those recommended by the RKI (Robert Koch Institute) or the VAH (Association for Applied Hygiene) list: "Mikrozid AF" and "Bacillol AF".

5.6 Instrument fuse



1 Connection socket
2 Instrument fuse
3 Power switch

The instrument fuse is located on the back of the instrument, and it is integrated into the power switch. To replace the fuse, the instrument must be switched off at the power switch and the mains plug must be disconnected. Open the small protective cover with a small flat screwdriver and remove the fuse holder. The fuse can then be replaced by a new one.

WARNING
Caution! Switch off the instrument and disconnect it from the power supply before replacing the fuse.

5.7 Warranty

The instrument has been carefully checked and tested by us. However, in the event of any defect, apart from minor defects, occurring in an instrument or spare part distributed by us up to one year from delivery, we undertake to remedy the defect to the extent specified below, without prejudice to any statutory or other contractual claims, even where the defect was not present on delivery to the customer, provided that there has been no unauthorised interference with the instrument by third parties. This does not include any assurance of the instrument being free of wear and tear, or any guarantee of the condition or durability of the instrument.

The remedying of defects under this undertaking shall be carried out, at our discretion, by the replacement or repair of defective parts. Furthermore, spare parts can be supplied for 5 years after delivery of the instrument. Any warranty claims on the part of the customer beyond the preceding are hereby excluded, without prejudice to any statutory or other contractual claims. This applies in particular to any claims for compensation for damage, consequential damage or costs relating to the defect. The transport of the instrument to us and return transport during this period shall be at the customer‘s risk.

To assert a claim under this warranty, the instrument concerned must be sent to us, at the customer‘s expense and risk, with a detailed description of the defect, and specifying the purchase order number, delivery note number and invoice number. Our address is:
Wankelstrasse 60, 50996 Cologne, Germany.

Claims under this warranty expire 6 months from assertion of the claim, but not before the end of the warranty period. This warranty and any claims, rights and obligations arising therefrom are subject solely to the material law of the Federal Republic of Germany, to the exclusion of Private International Law and the UN Convention on Contracts for the International Sale of Goods. Our standard terms and conditions of supply and payment apply in addition.

All serious incidents that occur in connection with the device must be reported to the manufacturer and the competent authority of the Member State where the user and/or patient are located.

5.8 Declaration of Conformity

The current Declaration of Conformity form can be found on our website: http://www.pfmmedical.com/downloads

Part 6 – Disposal of the pfm Rotary 3005 E when put out of use

Return and disposal of waste electrical equipment
The WEEE directive 2002/96/EC (WEEE = Waste Electrical and Electronic Equipment) was issued in Europe with the aim of reducing the growing quantity of electronic scrap from discarded electrical and electronic devices and disposing of it in an environmentally friendly manner. In Germany, the directive was integrated in the 2005 Electrical and Electronic Equipment Act (ElektroG), which implemented both the WEEE directive and the RoHS (Restriction of Hazardous Substances in Electrical and Electronic Equipment).

Histotechnology-devices
As a registered manufacturer (WEEE Reg. No. DE85819911), we take back old histological electrical devices, manufactured by pfm medical gmbh, after they have been decommissioned and ensure that they are disposed of properly. For disposal, we work together with the certified specialist disposal company enretec GmbH, whose disposal facility is also registered with the ear foundation.

Arrange the return
To arrange for the return of your electrical device, please proceed as follows:
Contact us to arrange the return

- by phone: +49 2236 9641-0
- by e-mail: service[at]pfmmedical.com
- by mail: pfm medical gmbh, Abteilung Histotechnology, Wankelstraße 60, 50996 Köln, Germany

Prepare the device for transport
Please use only the original packaging and instruct a carrier of your choice to return the device to the following address:

pfm medical gmbh
Abteilung Histotechnology
Wankelstraße 60
50996 Köln
Germany

Costs
The costs of disposal are borne by us as the manufacturer. Unless otherwise agreed, the transport and packaging costs are to be covered by the owner/user of the device.

WARNING
Caution! If the device has come into contact with infectious material and cannot be disinfected or decontaminated, we cannot accept it for disposal.

Part 7 – Accessories

Universal cassette clamp

REF 010003

- Object clamp to be used with orientable adapter or fixed adapter
- Quick-release clamp system for all available cassettes
- Crossways and lengthways clamping possible

Universal cassette clamp, orientable

REF 013019

- Orientable version with adapter
- Quick-release clamp system for all available cassettes
- Crossways and lengthways clamping possible

Standard object clamp

REF 010004

- Object clamp to be used with orientable adapter or fixed adapter
- Maximum sample size: 40 x 45 mm

Standard object clamp, orientable

REF 010044

- Orientable version with adapter
- Maximum sample size: 40 x 45 mm

Universal cassette clamp large

REF 013022

- Quick-release clamp system for large embedding cassettes
- Crossways and lengthways clamping possible
- Object clamp to be used with orientable adapter or fixed adapter

Universal cassette clamp large, orientable

REF 013020

- Quick-release clamp system for large embedding cassettes
- Crossways and lengthways clamping possible
- Orientable version with adapter

Universal cassette clamp large slim

REF 013024

- Quick-release clamp system for super mega slim embedding cassettes
- Crossways and lengthways clamping possible
- Non-orientable version for direct adaptation

Universal cassette clamp large slim, orientable

REF 013023

- Quick-release clamp system for super mega slim embedding cassettes
- Crossways and lengthways clamping possible
- Orientable version with adapter

Standard object clamp large

REF 013010

- Non-orientable version for direct adaptation
- For larger samples
- Maximum sample size: 45 x 60 mm

Standard object clamp large, orientable

REF 013009

- Orientable version with adapter
- For larger samples
- Maximum sample size: 45 x 60 mm

Adapter orientable

REF 013016

- The orientable adapter is suitable for pfm Slide and Rotary microtomes
- For object orientation

Adapter fixed

REF 030055

- The fixed adapter is used for direct adaptation

Distance adapter object orientation 6 mm

REF 010046

- Suitable for all pfmmedical object clamps
- Distance 6 mm

Standard upper jaw knife holder

REF 030064

- For use with steel and tungsten carbide knives up to 16 cm length
- With finger guard

Disposable blade holder, upper jaw, low profile

REF 030052

- For use with low profile microtome blades
- Removable pressure plate
- Easy to clean

Disposable blade holder, upper jaw, low profile black

REF 030072

- For use with low profile microtome blades
- Removable black pressure plate
- Easy to clean

Disposable blade holder, upper jaw, high profile

REF 030053

- For use with high profile microtome blades
- Removable pressure plate
- Easy to clean

Disposable blade holder, upper jaw, low profile lateral

REF 030071

- The upper jaw of the disposable blade holder can slide sideways (laterally)
- Three defined stop positions (left, middle, right)
- For use with low profile microtome blades
- Removable pressure plate
- Easy to clean

Pressure plate black

REF 030069

- Material: Black anodised aluminium
- Suitable for disposable blade holder 030052 and 030071

Blade holder base

REF 030051

- Designed to hold the disposable blade holder upper jaw
- Fixed to the microtome base plate using the knife holder mounting device
- Removable
- Easy to clean

Section waste tray

REF 030050

- Material: Anodised aluminium
- Easy to clean

Control panel

REF 030070

- Control panel for the pfm Rotary 3005 E

Contact

Do you have any questions?
Our Customer Solutions Team will be happy to advise you.

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