



# HM 430

## Sliding Microtome

### Operator Guide

387756-EP Issue 03 February 2022

**REF**

910010  
910010L  
910010H

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A warning is given in the documentation if there is a potential risk of injury, equipment failure or damage to the equipment or samples.

### Note

*Notes give additional information about a job or instruction, but do not form part of the instruction.*



These instruments conform to the general safety and performance of:

- In Vitro Diagnostics Regulation (IVDR) EU 2017/746

## Symbols

The following symbols and conventions may be used throughout this document and on the instrument:

This symbol is used on the equipment, or in a document, to indicate that instructions must be followed for safe and correct operation.



This symbol is also used on the instrument, or in a document, to indicate that irritants or potentially harmful chemicals are present. Refer to the Material Safety Data Sheets for the products, and always use Good Laboratory Practice.

If this symbol appears on the instrument always refer to the operator guide.

This symbol is utilised on the instrument, or in a document, to indicate that there are potential biological risks associated with the instrument and / or with instrument use. Always use Good Laboratory Practice.



Cutting hazard, sharp edges, watch your fingers.

Separate taking back of electrical and electronic instruments in the countries of the European Union:



This is to be applied in the countries of the European Union and other European countries with a separate collecting system within the waste management. This product, being an electro and/or electronic instrument, must be treated separately within the waste management process (WEEE).



Manufacturer



This symbol is used on the instrument, or in the document, to indicate that instructions for use must be consulted

Serial number

It is stated on the product label sticker.

It is built up as follows: SYMMXXXXEP



S=Production site, Y=year of production, M=Month of production, X= Counter, EP=EpreDia

So the serial number states the production date of the device.

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# Safety Information

Epredia instruments are designed for convenient and reliable service; however, improper use or handling by a user may damage the instrument or cause a hazard to health. The instrument must not be used in a manner not specified by Epredia. Correct maintenance procedures are essential for consistent performance. It is recommended that users secure a maintenance contract with our service department.

To remain compliant with regulatory requirements, and to ensure that mandatory safety upgrades are performed at the earliest opportunity, it is strongly recommended that all service activities are performed by Epredia-factory trained Engineers. Warranty may be voided if service is performed by non-factory trained Engineers.

Maintenance or repairs that are not performed by Epredia trained Engineers with proven training may affect the safety, performance and compliance of the equipment.

Please consult your local sales or support teams for more information about service contracts.



The following sections contain important information for the safe setup and use of the instrument and should be read and understood by the user before using the instrument.

## General Safety



This instrument, as supplied, conforms to IEC 61010-1 and IEC 61010-2-101; however, the addition of chemicals introduces potential hazards. Good Laboratory Practice must be employed, and consideration must be given to the potential for hazard when dealing with these chemicals.



Do not use the instrument in close proximity to strong electromagnetic radiation, as these may interfere with the proper operation. The electromagnetic environment should be evaluated prior to operation of the device.



Good Laboratory Practice must be used when handling tissue samples to prevent cross contamination and infection. The user should complete a risk assessment to determine any potential hazards related to tissue handling.



- Do not introduce any source of ignition into, or near, the instrument once it has been loaded with reagents.
- Do not remove any panels or access covers, unless specifically instructed to do so. The instrument does not have any user serviceable parts.
- Use only factory approved accessories or replacement parts within the instrument.
- Only use reagents recommended in the operator guide.

## Chemical Safety

The introduction of chemicals creates potential hazards. EpreDia has adopted the following position with regard to the subject of volatile chemicals used in laboratories:



- Customers using non-specified chemicals in the instrument, do so at their own risk.
- All chemicals recommended by EpreDia have auto-ignition temperatures considerably above any surface temperatures that can be reached during a single fault failure on the instrument.
- The instrument contains no source of ignition in any areas of the instrument where chemicals are stored, or likely to leak into, in a single fault condition.
- The operator is fully aware of the contents of the specification documents detailing the properties of the chemicals they are using.
- The operator has carried out any legally required assessment of chemicals used and is using Good Laboratory Practice.

## Environment

This instrument complies with the European Union's Waste Electrical and Electronic Equipment (WEEE) Directive 2012/19 EU. It is marked with the following symbol:



EpreDia has contracts with one or more recycling / disposal companies in each EU Member State, and this product and packaging should be disposed of or recycled through them. For further information contact your EpreDia service representative.

## Warranty Statement

EpreDia is proud of their quality, reliability and of our after-sales service. We continuously strive to improve our service to our customers.

Please ask your distributor or EpreDia representative about service contracts which can help maintain your instrument in an optimal operating condition.

Warranty provisions necessarily vary to comply with differences in national and regional legislation. Specific details can be found in the delivery documentation or from your dealer or representative.

Please note that your warranty may be invalidated if:

- This instrument is modified in any way, or not used as intended EpreDia.
- Accessories and reagents which have not been approved by EpreDia are used.
- The instrument is not operated or maintained in accordance with instructions.
- The installation of the instrument was not conducted by a certified EpreDia representative.



Any serious incident that has occurred in relation to the device shall be reported to the manufacturer and the competent authority of the Member State in which the user/or the patient is established.

# Chapter 1 - Introduction

## Intended Purpose:



The EpreDia sliding microtome HM 430 is an in vitro diagnostic device, designed to take precision sections of tissue specimens including the sectioning of paraffin embedded samples in medical, pharmaceutical laboratories as necessary preparation for their examination and subsequent diagnosis. Only qualified and trained laboratory personnel may operate the HM 430.

The instrument may only be operated within the scope of its intended use as described above and as per the instructions given in this manual.

Any other use of this instrument is considered as an improper action.

## Description of Sliding Microtome HM 430

The sliding microtome HM 430 from EpreDia is a highly efficient instrument for sectioning paraffin in routine and research. The main applications are in human and veterinary medicine. Large and hard specimens from pharmaceuticals industry or from quality assurance labs can also be sectioned.

The cross-roller bearings on sledge and block allow non-tiring working and a smooth sliding movement with optimal stability.

The HM 430 will cut sections from 1  $\mu\text{m}$  to 60  $\mu\text{m}$ . The specimen clamping can be moved up and downwards via the coarse feed wheel with crank handle on the left side of the instrument. This way, specimen and knife edge distance can be adjusted quickly.

The knife carrier is designed so the knives can be easily clamped in place and adjusted.

The coaxial specimen orientation allows orientation with one hand.

## Technical Data Sheet

Microtome	Section thickness range	0.5 - 60 $\mu\text{m}$
	Resolution	0.5 $\mu\text{m}$ for 0 ... 5 $\mu\text{m}$
		1 $\mu\text{m}$ for 5...10 $\mu\text{m}$
		2 $\mu\text{m}$ for 10...20 $\mu\text{m}$
		5 $\mu\text{m}$ for 20...60 $\mu\text{m}$
	Vertical feed range	max. 40 mm
	Horizontal knife stroke	max. 190 mm
Cutting drive		manual sliding movement
Coarse feed		manual via coarse feed wheel
Feed		automatic via sliding movement or manual via feed lever
Specimen size		up to max. 80 x 60 mm
Specimen orientation	x - and y - axes	universal 8°
Transportation- & storage conditions:		
Storage temperature range		-20°C up to +50°C
Operating conditions:		+5°C up to +35°C (at a max. rel. humidity of 60%)
		for indoor use only
		Floor loading requirements: 150 kg/m <sup>2</sup>
Dimensions		wide: 360 mm, deep: 490 mm, high: 320 mm
Weight		23 kg



# Chapter 2 – Operating Instructions

## Setting up the Microtome

### Note

*The kind of the used examination materials and all special conditions for their processing, pre-treatment and, if necessary, storage as well as instrument controls for correct and safe operation is in the responsibility of the operator. The operator is also responsible for special equipment and materials and/or reagents for the operation of the instrument.*

- Unpack the microtome and remove the wrapping.
- To carry the instrument, lift it on the front and rear side from the lower side.



Do not carry the instrument on the handle of the knife sledge!

- Place the instrument on an even surface in a way that the knife guidance is moved towards the user and away from him.
- The coarse feed wheel should show to the left side and the knife carrier handle to the right side.

### Note

*Sectioning can be influenced by nearby instruments which generate vibrations. For this reason, the microtome should be placed on a stable and vibration free table.*

*The standard equipment includes four rubber feet which are smaller than the ones that were installed in our factory. Should the working height be too high when setting up the microtome, unscrew the original feet and replace them with the lower ones.*

## Cutting Movement

- To start the cutting movement of the microtome, move the sledge horizontally.
- The knife (or blade) which is clamped into the knife carrier is drawn horizontally over the specimen towards the user. This way, sections are produced.
- In the front reversal point of the sliding movement, i.e. when the sledge is moved again backwards, the preselected section thickness is delivered either manually via a lever or automatically by moving over the advance position.
- This way, the specimen is moved in vertical direction towards the knife with the selected section thickness and a new section can be made.

## Locking the Sledge

For the protection against injury by unintended movements of the knife sledge, the microtome is equipped with a lock of the sledge in any position.

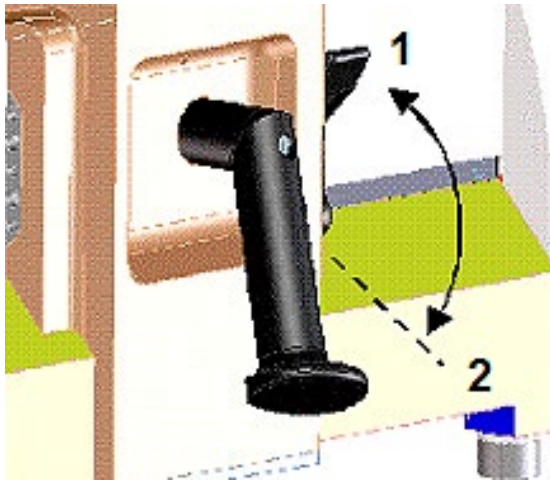


Figure 1



The sledge should be locked for the user's personal safety, e.g. when new specimens are clamped into position, knives are exchanged, the instrument is cleaned, or other adjustment processes are carried out.

- The lock is released via a lever on the rear side of the sledge and is easily accessible from the right side behind the handle.

## Locking the sledge

- Swivel the locking lever from the upper position (Figure 1.1) into the lower position (Figure 1.2).
- Then the red marked lever surface becomes visible to show the clamped state (Figure 2).

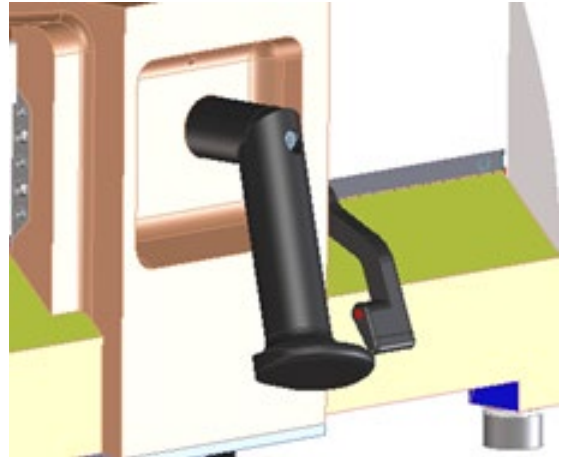


Figure 2

## Loosening the sledge

- Swivel the lever from the lower position (Figure 1.2) into the upper position (Figure 1.1) until the red mark cannot be seen anymore.
- The knife sledge can be moved again.

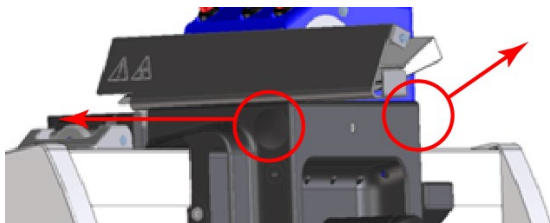
## Additional Ballast for Sledge

As required by users to vary the weight of the sledge, we have included additional ballast (Figure 3) into the standard equipment.



*Figure 3*

To assemble the additional ballast, please proceed as described below:

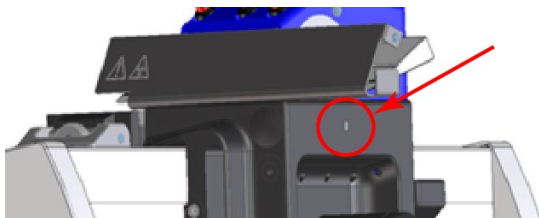


*Figure 4*

Remove the two cover caps, located sideways at the sledge (Figure 4).

Insert the ballast (Figure 3) into the opening and close it again by using the two cover caps (Figure 4).

Fix the ballast with the laterally set-screw (Figure 5)



*Figure 5*

To remove the ballast, please execute this procedure in reverse order.

# Specimen Feed

## Setting Section Thickness

The required section thickness is set by turning the scaled wheel on the front side of the instrument to left or right side. The setting is locking and the currently selected value can be read on the highest point of the scale opposite the index marking (Figure 6.1).



Figure 6

The graduation of the section thicknesses is divided into four ranges:

Range	Graduation
from 0.5 $\mu\text{m}$ to 5 $\mu\text{m}$	0.5 $\mu\text{m}$
from 5 $\mu\text{m}$ to 10 $\mu\text{m}$	1 $\mu\text{m}$
from 10 $\mu\text{m}$ to 20 $\mu\text{m}$	2 $\mu\text{m}$
from 20 $\mu\text{m}$ to 60 $\mu\text{m}$	5 $\mu\text{m}$

## Coarse Feed

For the fast up and downward travel between specimen and knife edge as well as for trimming, the microtome has a coarse feed with vertical direction.

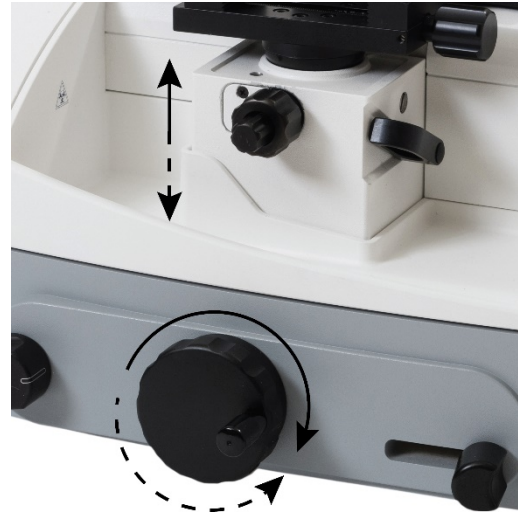


Figure 7

- The specimen clamping can be moved 40 mm vertically up or downwards via the coarse feed wheel (Figure 7).
- Turn the wheel in a clockwise direction, the specimen clamping moves upwards towards the knife.
- Turn the wheel in a counter-clockwise direction, the specimen moves downwards away from the knife.



If the specimen clamping is moved upwards until a red line (Figure 8) can be seen, the end of the feed range is nearly achieved. Approx. 3 mm of feed range is still available.



Figure 8



Do not cross over this upper end position by applying more force. Non-observance leads to damage on the instrument!!!

### Fine Feed, Manual

After having adjusted knife and specimen as well as having trimmed the specimen, sectioning can be started.

- The feed of the section thickness which was preselected on the scaled wheel (Figure 9.1) is carried out either automatically by moving the knife sledge over integrated, selectable feed point or by manually activating the feed device.
- The manual feed is carried out by press the feed lever (Figure 9.2).

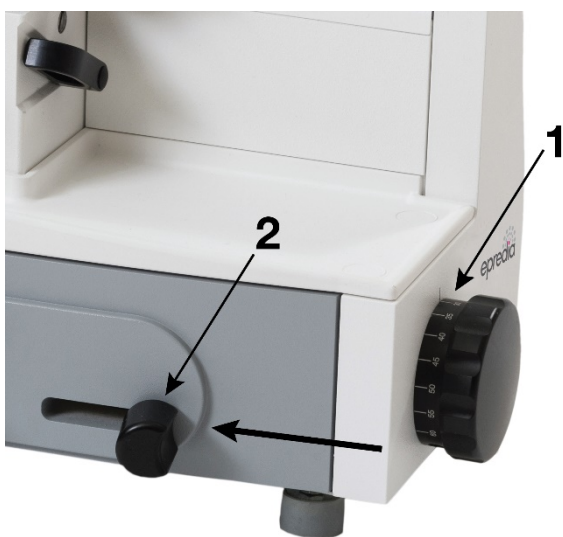


Figure 9

- For this, the knife sledge is moved behind the specimen and the feed lever is activated once in the direction of arrow.
- Afterwards pull the knife sledge towards the front to generate a section.
- Press the feed lever several times, the set section thickness can be multiplied accordingly.



If a red line (Figure 10) can be seen during sectioning, the end of the feed range is nearly achieved. Approx. 3 mm of feed range is still available. Afterwards, the end of the feed range can be noticed by a higher force application on the feed lever.

Do not carry out feed by applying more force. However, move the specimen clamping again into a deeper position via the coarse feed wheel as soon as possible.

Non-observance leads to damage on the instrument!!!



Figure 10

## Fine Feed, Automatic

- The feed of the section thickness which was preselected on the scaled wheel (Figure 9.1) is carried out either automatically by moving the knife sledge over integrated, selectable feed point or by manually activating the feed device.



Figure 11

- The automatic feed is carried out by moving the knife sledge into a selectable position behind the specimen. This feed process can be noticed by a slight resistance when moving the knife sledge.
- The automatic feed can easily be turned on and off.
- For this, turn the turning knob (Figure 11.1) behind the coarse feed wheel forwards or backwards to the respective stop.
- When the index mark on the turning knob shows towards the front and thus visible for the operator (position Automatic), the automatic feed is turned on.
- When the index mark shows on the knob shows towards the rear, the automatic feed is turned off (position Manual).

### Note

*For optimal sections, always move the sledge together with the knife to the rear side over the entire specimen and then move it forwards.*



Turning on and off the automatic position is not possible when the knife sledge is in the rear position.



If a red line (Figure 12) is seen during sectioning, the end of the feed range is nearly achieved. Approx. 3 mm of feed range is still available.

Do not apply more force for carrying out the feed. However, move the specimen clamping again into a deeper position via the coarse feed wheel as soon as possible.

Non-observance leads to damage on the instrument!!!

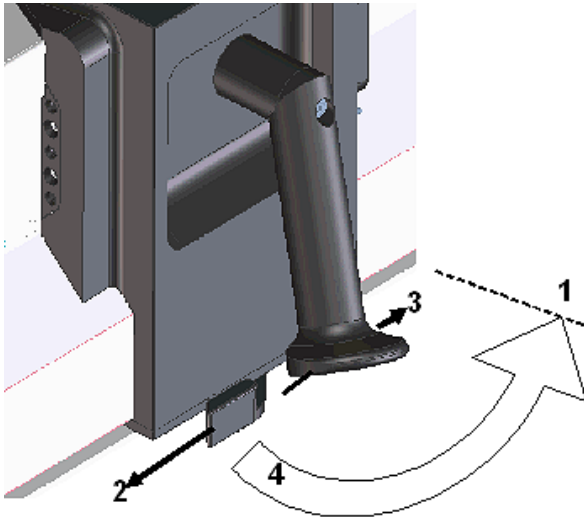


Figure 12

## Moving the Automatic Feed Position

The automatic feed is carried out by moving the knife sledge into a selectable position behind the specimen.

The knife sledge position, on which the feed of the preselected section thickness is carried out, can be chosen within a wide range to accommodate various specimen sizes. Therefore, it is possible to set the automatic advance position close behind the specimen to avoid useless sledge travel distances.



*Figure 13*

- For this move the knife sledge into the position where the automatic feed is to be carried out.
- Secure the knife sledge via the locking lever into position.
- Loosen the clamping lever on the lower side of the knife sledge and move the entire lever mechanism forwards and backwards until a slight resistance can be noticed.
- Tighten the clamping lever again.
- Loosen the sledge lock and move over the specimen.
- When returning again over the specimen, a feed is carried out in new selected position.



## Specimen Clamping

To clamp specimens, different specimen clamping systems are available. With the orienting adapter it is simple to align the specimen properly in relation to the knife.

Standard SPECIMEN CLAMP (Cat. no. 715480)

The standard specimen clamp is used for rectangular and square paraffin blocks.

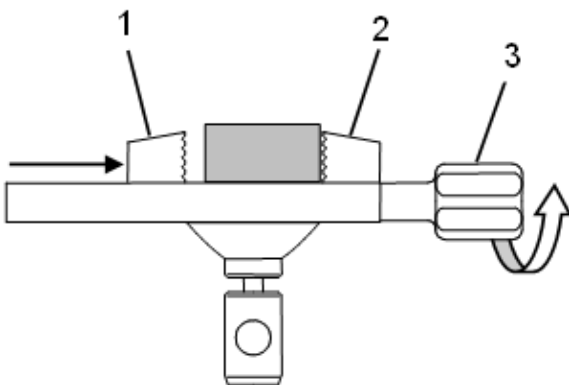


Figure 14

- Insert the specimen on the front fixed jaw (Figure 14.2) and tighten it via the clamping screw (Figure 14.3) with the movable jaw (Figure 14.1).



For the stability of the specimen, do not let it project over the clamping jaws too much!

### Standard Specimen Clamp

- This specimen clamp is used in the same way as the above-described standard specimen clamp (see cat. no. 715480).
- The clamping screw and thus the clamping direction of this clamp is arranged transversely in relation to the sectioning direction.
- Specimens with a size up to 45 x 60 mm can be inserted.



For the stability of the specimen, do not let it project over the clamping jaws too much!

Universal Cassette CLAMP (Cat. no. 715500)

The universal cassette clamp represents a quick-change system for standardized embedding cassettes.

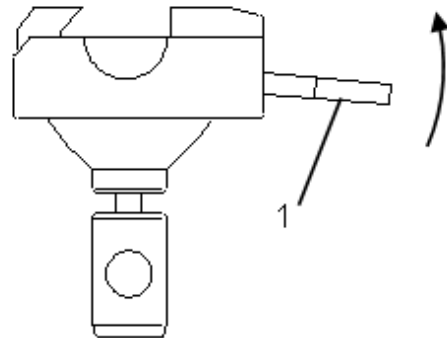


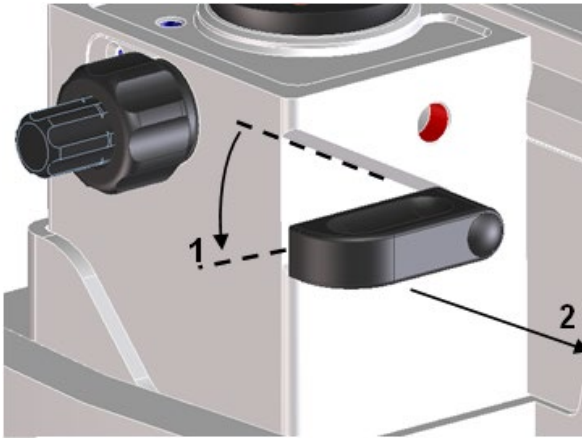
Figure 15

- To insert or remove cassettes, press the lever (Figure 15.1) upwards.



## Changing Specimen Clamps

Due to the quick-change system of the specimen clamping's, specimen clamps can be easily and rapidly changed without needing any tools.



*Figure 16*

- Loosen the clamping of the specimen clamp (Figure 16.1).
- Set the specimen clamp horizontally by means of the set screws of the orientation device.
- To replace the specimen clamp turn the eccentric lever downwards (Figure 16.1) to the stop and pull it off (Figure 16.2).
- Now the specimen clamp can be removed and replaced with another one.

### **Note**

*Before inserting another clamp, please note the position of the hole in the adapter! It must be aligned in longitudinal direction of the instrument so that the eccentric lever can be pushed in again.*

- Again, push the eccentric lever into the specimen block.
- Then press the eccentric lever upwards to fix the specimen clamp in position.

## Knife Carrier



Due to moving parts in connection also with the microtome knife, a danger area arises, which might lead to hand injuries in case of non-compliance with the safety features of the microtome and when disregarding the instruction manual.

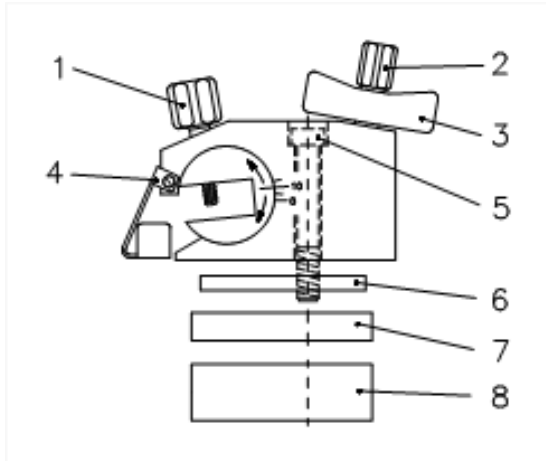


Figure 17

The knife carrier of the microtome is easy to use and equipped with a knife guard for user safety while adjusting knife and specimen.



While working on the knife carrier, it should be locked with the locking device of the sledge (see part 2-4).

### Inserting the knife

- To insert the knife, slightly unscrew the two clamping screws (Figure 17.1) until the knife can be pushed in from the side.
- Then tighten the two clamping screws to fix the knife in its position.

### Clearance angle adjustment

The clearance angle between cutting edge and specimen can be adjusted very easily to the respective requirements of the tissue to be sectioned without loosening the clamping of the knife.

- For this, use the two coaxial screws (Figure 17.2 and Figure 17.3) on the upper side of the knife carrier.
- Loosen the clamping screw (Figure 17.3) in a counter-clockwise direction and adjust the clearance angle by means of the set screw (Figure 17.2).
- The adjusted clearance angle can be read on the scale which is on the right side of the knife carrier.
- Then tighten the screw Figure 17.3) in a clockwise direction to fix the clearance angle.

### Note

*By experience, usable cuts are only achieved at a clearance angle of 10° or more.*

## Protection Against Injury

- The knife carrier is equipped with a knife guard (Figure 17.4) which should be used while knife or specimens are adjusted.



Please note that knives with a length of more than 16 cm (e.g. 22 cm) and/or if it is clamped too much on one side, projects over the knife guard resulting in possible hazards of being injury although the knife guard is used.

## Moving the knife sideways

- If the cutting edge of the knife is blunt, loosen the clamping screws (Figure 17.1) and move the knife to the left or right side.
- This process can also be used to protect the knife, as for trimming and fine sectioning different parts of the knife can be used.

## Diagonal position of the knife

After having loosened the central fastening screw of the knife carrier (Figure 17.5) via the attached hex head wrench (size 6), the knife can be adjusted diagonally according to the tissue to be sectioned. This is called "angle cut".

However, please note that due to the diagonal positioning the usable width of the specimen decreases!

## Height adjustment plates (optional)

- In case the height adjustment of the specimen block is not sufficient for cutting high specimens, a height adjustment plate can be mounted between knife carrier and sledge.
- Height adjustment plates are available with 5 mm, 10 mm and 20 mm.

## Knife profile

Knives with profile c and d are available. The opposite figure (Figure 18) shows schematically the angles on the cutting-edge profiles of c- and d-knives.

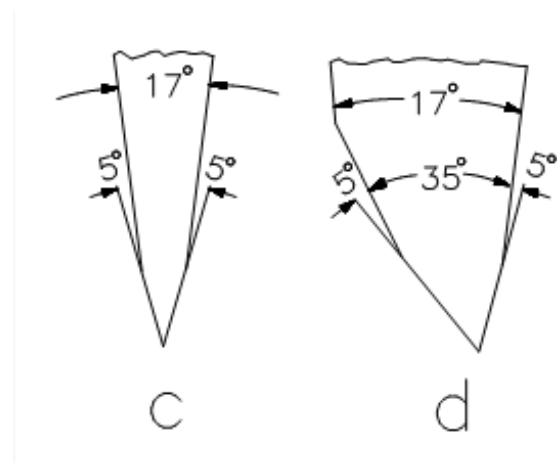


Figure 18

## Blade Holder for Disposable Blades

Two different types of disposable blades are available: low-profile blades (height: 8 mm) and high-profile blades (height: 14 mm). When using disposable blades, a blade holder together with a disposable blade is clamped into the knife carrier.

### Insert the Blade

- Insert the blade holder into the knife carrier from the left side and tighten the two clamping screws on the knife carrier.
- The clamping lever on the blade holder can be positioned in two ways: 0 = loosened, 1 = clamped.
- To insert the blade, turn the clamping lever to 0 (Figure 19).
- Please note that locating and clamping surfaces are clean!!
- To clamp the blade, turn the clamping lever to 1.

### Clearance angle adjustment

- The clearance angle between blade and specimen must be adjusted in the same way as the clearance angle between knife and specimen is adjusted.

### Protection against injury

- The knife carrier of the instrument is equipped with a knife guard which can be moved sideways.
- This knife guard should be used while knife and specimen are adjusted.
- This reduces the danger of injury considerably!

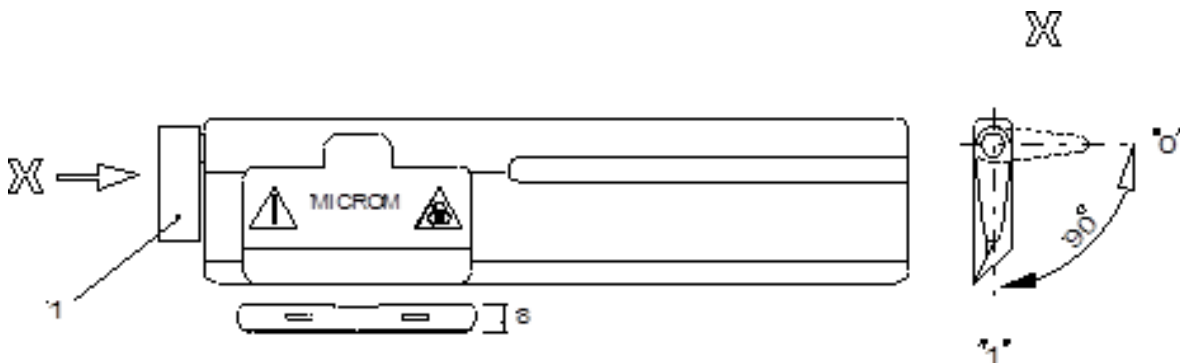


Figure 19

## Standard Equipment

The sliding microtome HM 430 is supplied with the following accessories:

1	hex head wrench
1	hex head wrench 6 mm
1	cover
4	rubber feet with lower height
1	instruction manual

## Additional Equipment (optional)

Equipment	Cat. No.
<b>Disposable Blade Holder</b>	
Blade holder with eccentric fast clamping	
<ul style="list-style-type: none"> <li>for low profile blades</li> </ul>	705200
<ul style="list-style-type: none"> <li>for high profile blades</li> </ul>	705340
Case for disposable blade holder: Cat. no. 705200 and 705340	152160
Blade holder with Allen key	
<ul style="list-style-type: none"> <li>for one low profile blade</li> </ul>	705430
<ul style="list-style-type: none"> <li>for two low profile blades</li> </ul>	705440
<b>Specimen clamps</b>	
Universal cassette clamp	715500
Standard specimen clamp, 45 x 80 mm	715480
<b>Height Adjustment Plates</b>	
<ul style="list-style-type: none"> <li>5 mm</li> </ul>	448070
<ul style="list-style-type: none"> <li>10 mm</li> </ul>	440400
<ul style="list-style-type: none"> <li>20 mm</li> </ul>	440410

Equipment	Cat. No.
<b>Microtome Knives</b>	
Steel knives, type c:	
• 16 cm	152020
• 18.5 cm	152270
• 22 cm	152030
• 25 cm	152040
• 30 cm	152050
Steel knives, type d:	
• 16 cm	152070
• 22 cm	152080
• 25 cm	152090
• 30 cm	152100
Tungsten carbide knife 16 cm, d:	
Knife case	
• 16 cm	152230
• 18.5 cm	152280
• 22 cm	152240
• 25 cm	152250
• 30 cm	152260
Disposable blades for paraffin:	
• SEC 35	152200
• SEC 35e	152215
• SEC 35p	152570
<b>Additional Accessories</b>	
Fast freezing unit KS 34 S (standard specimen clamp is necessary)	
Para Gard (paraffin repellent), 100 ml	350170

# Chapter 3 – Theory of Operation

The sliding microtome HM 430 has high-precision, zero-backlash linear roller bearings (cross roller bearings) for the bearing of the knife sledge and the block.

These cross-roller bearings allow a zero-backlash feed of the knife sledge.

The knife sledge cannot be removed from the user; however, it is restricted guided and always remains on the instrument.

The cutting movement of the microtome is generated by horizontally moving the sledge in the cross-roller bearings. Here the knife, which is clamped into the knife carrier, is horizontally drawn over the specimen towards the user and away from him. This way, sections are produced. After having moved the knife sledge backwards into the rear end position, a preselected section thickness is carried out either manually via a lever or automatically due to moving the sledge over an automatic advance position.

The specimen is delivered towards the knife with the preselected section thickness in vertical direction and a new section is produced.

## Specimen Coarse Feed

After changing the specimen or moving the knife or knife carrier, it is necessary to adjust the specimen to the knife edge again. This can easily be done by means of the specimen coarse feed wheel on the left side of the instrument.

## Specimen Clamping System and Specimen Orientation

According to the form and size of the specimens, different specimen clamping systems are available to carry the specimen. It is very easy to align the specimen to the knife, using the orienting adapter.

## Knife Carrier

The knife carrier is easy to use and allows the microtome knives to be clamped and adjusted as needed. Depending on application, knives or disposable blades can be used.

## Microtome with Fast Freezing Unit

The fast freezing unit KS 34 S allows frozen sectioning with the specimen temperature as low as  $-45^{\circ}\text{C}$ .

# Chapter 4 – Working with the Microtome

## Preparation and Orientation

Before sectioning, the specimens must be prepared appropriately and embedded in suitable media. Cassettes as well as different forms for round and rectangular specimens can be used for embedding.

With the orienting adapter, the specimen can easily be oriented to the knife.

## Coarse Feed

To adjust approximately the space between specimen and cutting edge, use the coarse feed or the trimming function. Continue this to start trimming the specimen, thus achieving the level of interest. Any waste should be wiped away in a forward direction with a brush.

## Sectioning Instructions



Due to moving parts in connection also with the microtome knife, a danger area arises, which might lead to hand injuries in case of non-compliance with the safety features of the microtome and when disregarding the instruction manual.

To cut usable sections, the following points are of utmost importance:

### Condition of the Knife Edge

Use a sharp knife only! If the knife edge is blunt, move the knife horizontally either to the right or left side to continue working with the sharp area of the cutting edge, or have the knife sharpened.

### Clean Knife Surfaces

For optimal sectioning, front and back of the knife must be clean. Especially, paraffin waste must be removed thoroughly!!

## How to Avoid Malfunctions

### Preparation of the specimen

When preparing specimens, be sure that a suitable embedding medium, fixation, dehydration and infiltration time are chosen.

### Specimen Temperature

Sectioning is carried out at ambient temperature (excluding frozen sections). If the temperature is too high, the paraffin softens. Therefore, avoid heating paraffin specimens by direct exposure to sunlight or other near sources of heat.

### Tightening the Clamping Screws

Tighten all clamping screws and clamping levers on the knife carrier, specimen holder and specimen orientation.

### Selection of the Knife

Carefully select the required knife material and profile.

### Adjustment of the Knife

Take care to adjust the proper clearance angle of the knife.

Select a clearance angle adjustment of 10° or more according to the facet angle.

### Cutting Speed

Take care to select proper cutting speed.

General Rule: The harder the material, the slower the cutting speed!!

### Trimming

Take care in bringing the knife and specimen together.



# Chapter 5 – Maintenance

## Annual Routine Maintenance

To secure section quality and functioning of the microtome, it is recommended that a routine maintenance be performed by a trained service technician once a year.

## Service Contract

Epredia offers a service contract which guarantees that your instrument is always in perfect condition. For more information, please contact the nearest Epredia sales office.

# Chapter 6 – Cleaning and Care

## Cleaning Intervals

Cleaning, care and decontamination of the microtome depends on how frequently the microtome is used. For optimal sectioning, the instrument must be free of section waste, especially the guides and clamping mechanism.

## Cleaning Agents

Mild household cleaners can be used to clean the microtome. Do not use aggressive cleaners or solvents, as the paint and plastic parts can be affected.

### **Note**

*Before starting cutting, instrument, knife carrier and section waste trays should be treated with commercially available paraffin repellent, e.g. Para Gard.*



Never dump the instrument in any liquid. For cleaning purposes, use a slightly moisture cleaning cloth only!

## Care

- Remove the knife from the knife carrier.
- Clean it with a dry cloth to avoid the formation of rust and keep it in a knife case



Never put the knife with the cutting edge upwards on the table!

- Clean the operating controls and the surfaces of the knife carrier, especially the space where the knife is installed.
- The maintenance-free cross roller bearings are covered and protected against dust and section waste and need not to be lubricated or cleaned by the customer.
- Clean the specimen clamping system, specimen orientation, housing and vertical carrier.

# Appendices

## Appendix A – Conditions for Transportation of the Instrument

### Taking back the Instrument for Repair or Routine Maintenance

Repair or maintenance work are normally carried out at the site of installation. If this is not possible for some special reasons, the instrument can be returned to EpreDia. The contact address can be found at the beginning of this instruction manual.

- To guarantee trouble-free function of the instrument after transportation, please note the below-mentioned measures for the transportation preparation.
- In addition, the conditions for storage and transportation as mentioned in part 1-2 must be observed during the entire transportation



Please also note the precautionary measures described in our safety precautions concerning biological hazards.

Measures for closing down:

- Remove knife or blade and store it in a safe way.
- Secure the sledge via the lock of the sledge.

#### **Note**

*The locking of the sledge functions as a brake. In case the instrument is kept in an inclined way, the braking power might not be sufficient enough to avoid that the sledge moves.*

- To lift the instrument, take it on each fore-parts. During transportation, do not carry the instrument on the handle. Danger of injury!



Any shipping of the instrument requires original packaging materials! Damages caused by shipping with non-conform packaging are not covered by the manufacturer warranty! Any damage repairs resulting in non-conforming package are fully charged to the sending party. We reserve the right depending on seriousness of damage

NOT to repair. To order original packaging materials, please contact EpreDia or your local, by EpreDia authorized, dealer.



The user must care for a clean and safe condition of the instrument when returning it to an appropriate service provider.

#### **Note**

*If the original packaging is no longer available, please contact your local EpreDia representation.*

For transportation outside closed buildings, please observe the following measures:

- Remove knife or blade and store it in a safe way.
- Secure the sledge via the lock of the sledge.

#### **Note**

*The locking of the sledge is functions as a brake. In case the instrument is kept in an inclined way, the braking power might not be sufficient enough to avoid that the sledge moves.*

- To lift the instrument, take it on each fore-parts. During transportation, do not carry the instrument on the handle. Danger of injury!
- Pack the instrument into the original packing as it offers best pre-conditions for transportation without damage.

#### **Note**

*If the original packing is no longer available, please contact your local EpreDia representation.*

## Disposal of the Instrument after Final Shutdown

After the final shutdown of the instrument, we recommend contacting a local recycling company for the disposal according to the national applicable regulations.



To be applied in the countries of the European Union and other European countries with a separate collecting system within the waste management.

The marking of the product and/or the respective literature indicates that, after its final shutdown, it must not be disposed of together with ordinary domestic waste.

- Please dispose of your instrument separately from other waste to not harm our environment and/or human health by uncontrolled waste disposal.
- Recycle your instrument to support the sustainable recycling of material resources.
- Industrial users should contact their suppliers and observe the conditions of the contract. This product must not be disposed of together with other commercial waste.
- Please contact your supplier.

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# Revision Control For This Document

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February 2022	03	IVDR compliance requirements added, including this revision record table.



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