



MICROTOMES

Microtomy is the means by which tissues can be sectioned and attached to the surface so that examination by microscopy can take place.

The basic instrument used in microtomy is a microtome into which cutting tool is clamped.

Microtome is the instrument which is used to cut thin section of tissue.

Microtome are machines that will advance an object for a predetermined distance then slide the object to the cutting tool.

TYPES OF MICROTOME

There are several types of microtome each designed for a specific purpose although many have a functional role. Excluding ultra microtome, there are 5 basic types. named according to the mechanism.

- Rotary microtome
- Rocking microtome
- Rotary rocking microtome
- Base sledge microtome
- Sliding microtome
- Freezing microtome



ROTARY MICROTOME

Parts:

Block holder

Knife clamps screws

Knife clamps

Block adjustment

Thickness gauge

Angle of total adjustment

Operating handle

Internal and external lock





- The rotary microtome is so called because of the rotary action of the hand wheel actuates.
- These machines sometimes called minor microtome after their inventor prof. Minot.
- This is the most commonly used microtome for routines and research purpose.
- Here the knife is fixed & the tissue blocks moves up & down vertically in front of the knife.
- Thickness is adjusted by micrometer screws.
- The block moves forward to the knife at presented thickness during the rotation of fly –wheel handle.
- It has adjusting screws to make the tissue block parallel to the knife.

ADVANTAGES

- It is heavier than rocking microtome.
- No vibration while cutting.
- It can be used for cutting hard tissues.
- The cutting angle of the knife is adjustable.
- The knife holder is movable.
- The ability to cope with very hard tissues , together with cutting good accurate section at 3mm gives the flexibility that is now required.
- Electrically driven microtome can be used when the necessary to produce ribbons for serial reactions required.



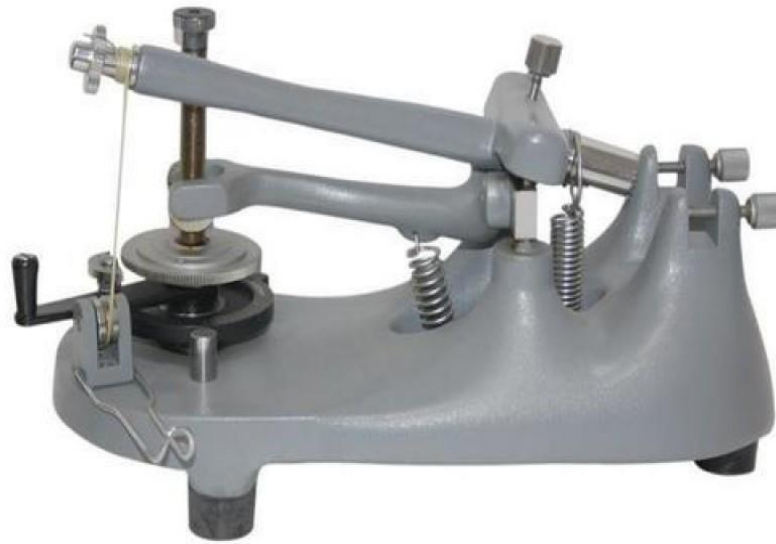
- This microtome are employed to their best advantage with resin embedded tissues.
- Manual or electrically driven rotary microtome are successfully used in cryostats.

ROCKING MICROTOME

- It is the oldest type of microtome.
- The name comes under the rocking action of the handle.
- The Cambridge rocking microtome was the most popular microtome.
- In this microtome knife is fixed &the block of the tissue moves through an arc to strike knife.

DISADVANTAGES

- The size of the block that can be cut is limited.
- It is a lighter microtome , so it vibrates white cutting.
- The cutting angle of the knife cannot be adjusted.
- The sections cut curved when the block moves through an arc.
- No serial section is possible.



ROCKING MICROTOME