



Krumdieck Tissue Slicer

The Krumdieck Tissue Slicer is designed to rapidly prepare aseptic, thin slices of live tissues for biochemical, pharmacological, toxicological, neurological, and other *in vitro* studies. The instrument minimizes damage to cut surfaces of slices and provides samples of uniform and reproducible thickness, eliminating the main sources of error in tissue slice work. Slices from approximately 100 to 1,000 microns in thickness can be prepared at a maximum rate of one slice every 3 to 4 seconds.

The slicer operates submerged in a buffer selected by the operator as most appropriate in terms of composition, tonicity, pH, temperature, oxygenation, and lubricating properties to maintain the viability of the tissues being sectioned.

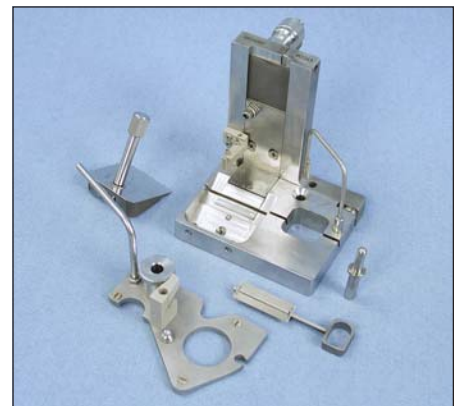


The slicer consists of three main parts: the **microtome assembly**, the **reservoir assembly**, and the **electrical housing**.

The microtome and the reservoir with the glass trap are sterilizable to allow the preparation of aseptic slices suitable for prolonged organ culture. When operating under aseptic conditions, the instrument is controlled by means of a footswitch. The operator can thus maintain the sterility of his/her gloved hands.

The actual slicing is done by a rapidly reciprocating disposable blade driven by a motor that also powers the impeller. The impeller establishes a circulating stream of buffer that is used to gently carry the cut slices from the microtome to the glass trap.

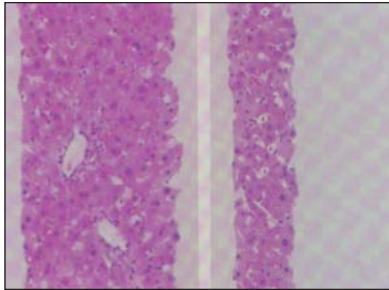
A speed-controlled second motor moves the tissue core past the oscillating blade to produce either one slice at a time or one slice after the other without interruption. The instrument can be operated in two modes. In the first mode, the blade oscillates continuously. In the second mode, the blade's movement is interrupted for half of each operating cycle to further reduce damage to the cut surfaces.



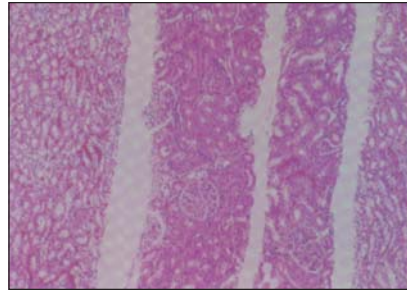
The tissue slicer contains a cooling block which allows the temperature of the buffer solution in the slicer's reservoir to be maintained when a chilled fluid is pumped in by a recirculating refrigeration unit. The aseptic conditions of the buffer can also be maintained since the coolant circulated through the cooling block is in a closed loop and does not come in contact with the buffer.

To maintain ideal operating conditions, the instrument should be chilled by connecting it to a recirculating refrigeration bath, by using it in a cold room, or by chilling the microtome/reservoir prior to use by placing it in a refrigerator along with the buffer.

Shown below in the left photograph are cross sections of rat liver slices (60 and 135 microns). Shown in the right photograph are cross sections of rat kidney slices (130 and 200 microns). Note the parallelism of, and minimal damage at, cut surfaces.



Rat Liver (magnification x430)



Rat Kidney (magnification x100)

New Features of Model MD4000

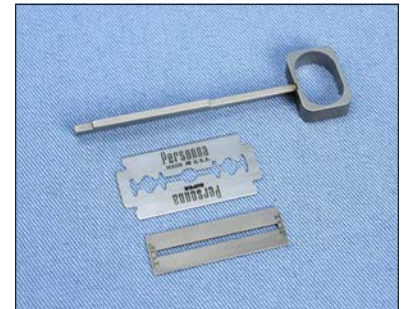
- **Improved thickness control** - the graduated thickness control knob has been relocated for easier adjustments and view of the slice thickness setting.
- **Core rotation device** - with the new spring assist and geared tissue insert tube, the core is rotated approximately 100° on each cut. This prevents the core from being cut on the same side each time and helps to alleviate tailings.
- **New style blades** - a completely redesigned blade holder uses stainless steel, double-edged blades, allowing easier blade access and longer blade life.



Improved thickness control



Core rotation device



New blades & redesigned holder

The new model MD4000 can be retrofitted with electrical housings of previous models to minimize upgrade costs.

Contact AR&D for pricing and availability.

Alabama Research & Development

P.O. Box 739, Munford, AL 36268 USA

Phone: (256) 358-0460 Fax: (256) 358-4515 E-mail: ard@alspi.com Web: www.alspi.com