



Sutter Instrument offers the **PrimeTech PMM-150FU** piezo impact drive for challenging microinjection applications such as mouse nuclear transfer, intracytoplasmic sperm injection (ICSI) and blastocyst injection. Oocyte plasma membranes, particularly those of the mouse, are particularly sensitive to microinjection, which tends to result in oocyte death. Initially designed for porcine oocyte injection, the **PrimeTech PMM** was adapted for use in mouse in 1995 (Kimura and Yanagimachi, 1995), and since then has become the gold standard for mouse nuclear transfer and ICSI.

The **PMM-150FU** harnesses the "piezoelectric effect": the tiny, but extremely rapid distortion of a piezoelectric crystal lattice when an electrical current is applied to it. This causes the micropipette holder, which is placed in direct contact with the piezo element to vibrate. Two modes of piezo "drilling" are available with the PMM-150FU: A continuous train of pulses of desired frequency and amplitude are used to vibrate the micropipette, gently penetrating the zona pellucida of an oocyte or embryo, then a single pulse, again of desired amplitude, is used to break the oolemma and inject the oocyte. This approach makes it possible to achieve up to 100% survival of injected oocytes.

FEATURES

- Smooth insertion of microcapillary into elastic cell membrane.
- Precise movement of micromanipulator within range of travel.
- Inertial force from piezo-electric control minimizes damage of elastic biomembranes.
- High resolution and precise positioning (minimum controllable dimensions).
- Compact design.

SPECIFICATIONS

Piezo Impact Drive Unit (MB-U)

Moving range: approx. [plus or minus sign] 5mm
Traveling speed: 0.04mm/s max
Traveling resolution: approx. 0.1µm

Operation Box

Two adjustment dials: 16 speed levels, 16 intensity levels

FootSwitch

Arrow pedal to move left
Pedal selection indicator

Dimensions

Controller: 9.5in x 13in x 5.5in
240 x 340 x 140 mm
Operation Box: 4in x 6.3in x 2.4in
100 x 160 x 60 mm
Foot Switch: 5.5in x 5.5 in x 1.5in
145 x 140 x 38 mm

Weight

Controller: 5 kg
Piezo Drive Unit: 125grams
Operation Box: 530 grams
Foot Switch: 820 grams

Electrical

AC supply of 100-240Volts
50/50Hz, 60mA.

Temperature

Operates at 5-40° C
Avoid high humidity

The PMM-150FU has been designed for multiple applications in micromanipulation including:

Enucleation
Nuclear Microinjection
ICSI
ES Cell Injection
Assisted Hatching

Included:

XenoWorks Micromanipulator-specific micropipette holder clamp
PrimeTech factory warranty
Full technical support for piezo