EXpressLO™ edu.101
Product Data Sheet
Solutions that make ¢ents

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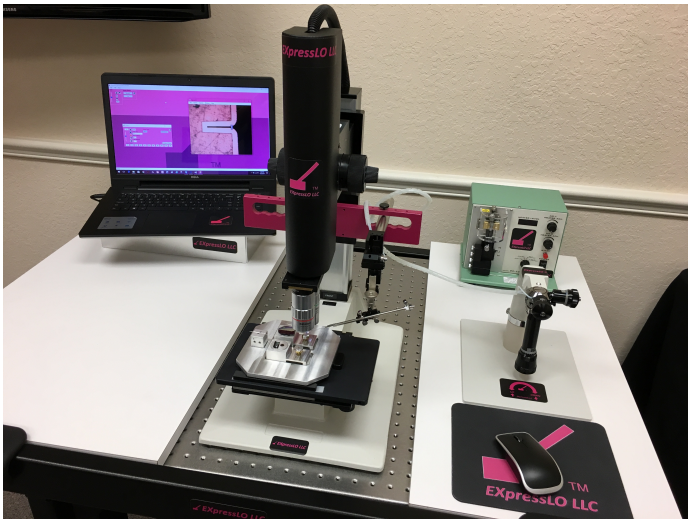

The edu.101 (table not included).

Model EXpressLO™ edu.101

The ***EXpressLO™ edu.101*** is an entry level turnkey *ex situ* lift out (EXLO) and micromanipulation station specifically designed and priced for academic institutions. It allows the ***Pick&Place™*** of site-specific FIB prepared or other specimens for S/TEM or other analyses. The patented ***EXpressLO™*** grid and method allows specimens to be manipulated to a slotted grid design that avoids a carbon or formvar film such that the specimens can be further FIB milled, broad beam ion milled, or plasma cleaned. ***EXpressLO™*** supports multiple FIB instruments, increases throughput, reduces FIB instrument time, allows for routine backside milling, and may be used for conventional and advanced TEM techniques such as EFTEM, electron holography, and high resolution S/TEM to be performed without adverse influences from a carbon/formvar or other film.

Advantages and Benefits of EXpressLO™

- ***EXpressLO™*** supports multiple FIB instruments.
- ***Pick&Place™*** holder kit facilities process.
- No expensive FIB time needed for lift out.
- Fast, easy to master, versatile, reproducible.
- Patented grid design and method.
- No carbon film needed.
- Re-thin EXLO specimens.
- Routine backside milling.
- Multi-user facility friendly.
- Supports multiple FIB instruments.
- Full systems and consumables available.
- Manipulate powders, particulates, fibers, thin films CNTs.

- **Light Optical Microscope with Camera and Laptop**: Parfocal microscope with motorized zoom magnification providing horizontal field of view from ~ 2.8 mm – 65 µm, minimum of 18 mm working distance, USB3 digital camera with laptop computer included for color imaging display, digital and video image capture.

- **Hydraulic Micromanipulator and tip puller:** Includes 1 manipulator set up for either for right-handed or left-handed usage. Comes complete with tip maker and 100 glass rods. Each three-axis hanging joystick oil hydraulic micromanipulator includes fine full movement X = 10 mm, Y = 10 mm, Z = 10 mm. Full rotation of knob provides Z = 250 µm, minimum graduation = 2 µm. Joystick motion for maximum movement in X-Y plane = 0.2 mm. The tip maker includes a 1V heater with force puller for producing glass needles. Glass rods are 1 mm in diameter and 90 mm long. Hardware for incorporating manipulators onto microscope stand included.

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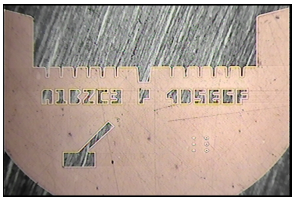
- **4”x4” (100 mm x 100 mm) manual stage:** Joystick driven and computer programmable software control and scripting for automation. X-Y travel = 75 mm/s at 0.5 μm resolution. Repeatability within +/- 2 μm. Uses same computer as microscope above.

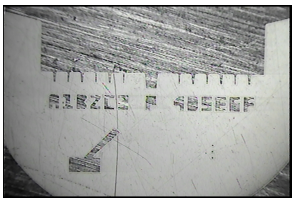
- ***Patented EXpressLO™* grids**: (100) 3mm Cu half grids.

- ***EXpressLO™ Pick&Place™ Holder Kit***

- **System Requirements**
  -Power Requirements: 110 VAC
  -Support desk or table not included.

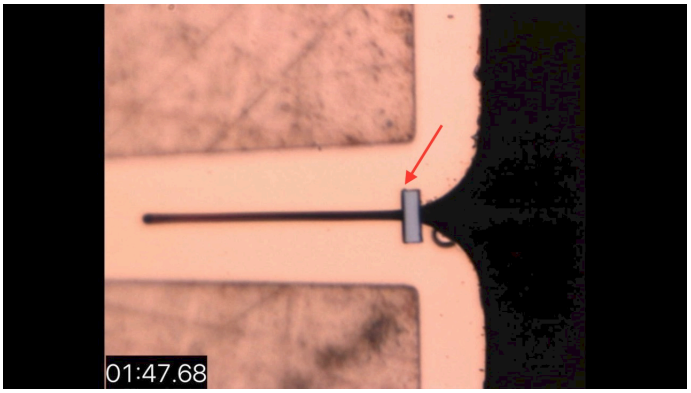
- **References:**
[1] Introduction to FIB, eds. Giannuzzi & Stevie Springer (2005).
[2] Giannuzzi et al., Microsc. Microanal. 21, 2015, 1034.
[3] U.S. Patents 8,740,209 and 8,789,826.
[4] www.YouTube.com/LAGiannuzzi/videos.





Patented EXpressLO™ *Cu or Ni half grid with 13 specimen positions: 6 small numbered openings, 6 large lettered openings and 1 extra-large opening.*

Pick *of a specimen attached to a glass probe.*



FIB milled specimen after ***EXpressLO™*** *lift out* ***Placed*** *into a backside configuration.*