



EXpressLO™ Nicola

Product Data Sheet

Solutions that make ¢ents

EXpressLO LLC
5483 Lee St Unit 12
Lehigh Acres, FL 33971 USA

+1-321-663-3806
www.EXpressLO.com
info@EXpressLO.com



The Nicola 640.

EXpressLO™ Nicola is an *ex situ* lift out (EXLO) and manipulation solution used to **Pick&Place™** 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.

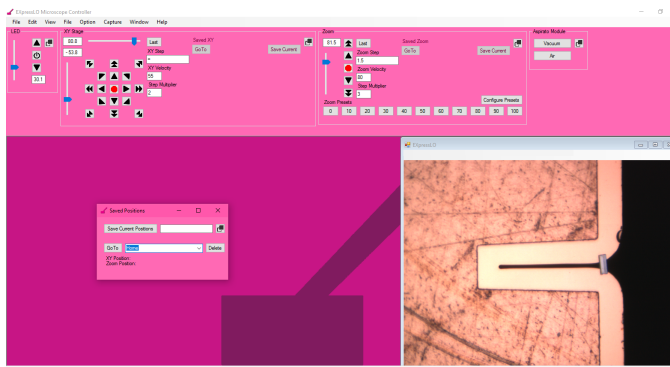
Advantages and Benefits of EXpressLO™

- ✓ **EXpressLO™** supports multiple FIB instruments.
- ✓ **Pick&Place™** holder kit facilitates 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.
- ✓ Full systems and consumables available.
- ✓ Integrated UI and software

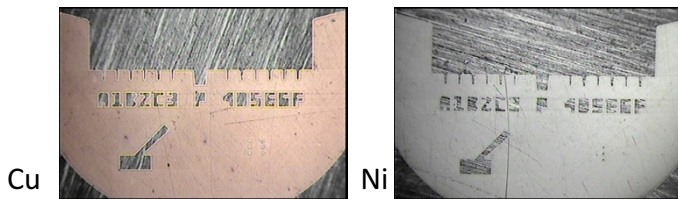
EXpressLO™ Nicola System

- ✓ **Light Optical Microscope:** 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:** 1 or 2 (right-handed and/or left-handed set-up) complete manipulators with tip maker and glass rods. 2 manipulators are recommended. Three-axis hanging joystick oil hydraulic micromanipulator with fine movement X = 10 mm, Y = 10 mm, Z = 10 mm. Full rotation of each knob provides X,Y,Z = 250 µm, minimum graduation = 2 µm. Joystick motion for maximum movement in XY plane = 0.2 mm. 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.
- ✓ **Model 640: 150 x 100 mm motorized 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.

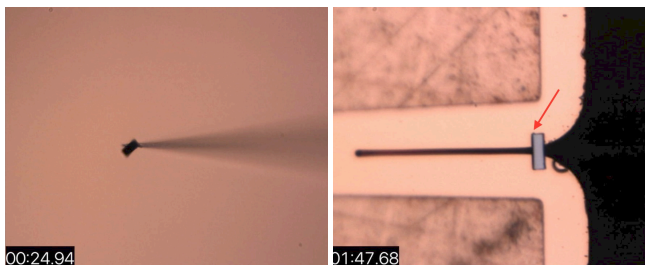


Integrated User Interface Software.

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



Patented **EXpressLO™** Cu or Ni half grid with 13 specimen positions: 1 large P slot, 6 small numbered, 6 intermediate lettered slot openings.



Pick of a specimen attached to a glass probe and **Placed** into a backside configuration.

Optional Items

- ✓ **Model 800: 200 x 200 mm motorized stage.** Replaces 6"x4" stage above.
- ✓ **Model 1200: 300 x 300 mm motorized stage.** Replaces 6"x4" stage above.
- ✓ **Vibration isolation table (for 6"x4" or 8"x8" stages):** 30" x 48" x 29" including (2) sliding shelves, front and rear support bars (48"), 2 arm rests, 4 casters.
- ✓ **Vibration isolation table (for 12"x12" stage):** 36" x 60" x 29" including (2) sliding shelves, front and rear support bars (60"), 2 arm rest pads, 4 casters.
- ✓ **System Requirements**
 - Power Requirements: 110 VAC
 - Desk/table (if air table not ordered)
 - 100 psi nitrogen or air (for optional vibration isolation table)
- ✓ **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.