

Detailed Specifications

| Subsystem | Item | jetlab II |
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| Motion | Substrate Size (max) | 200 × 200 mm 300 x 300 mm (xl-300 version) Option: custom |
| | X-Y Stage Travel | 300 mm (400 mm xl-300 version) |
| | Z Stage Travel | 40 mm |
| | X, Y Encoder Resolution | 0.1 um |
| | Positioning Accuracy | ±15 um Option: ±3 um with mapping |
| | Positioning Repeatability | ±5 um Option: ±1 um with mapping |
| | Compensation for Thermal Effects | Option: with mapping |
| | X & Y Stage Travel Speed | 100 mm/s |
| | X & Y Stage Acceleration | 400 mm/s ² |
| | X & Y Stage Payload, maximum | 20 kg |
| | Z Stage Travel Speed | 10 mm/s |
| | Z Stage Payload, maximum | 5 kg at 75 mm from carriage |
| | Material Load/Unload | manual |
| Vision | Downward-looking Camera (CCD) | For alignment to fiducials and inspection of printed features; includes coaxial illumination and zoom lens |
| | Alignment Method | Program-assisted manual Option: teach/semiautomatic |
| | Post-printing Visual Inspection | Option: manual survey |
| | Jet Observation Camera (CCD) | Includes zoom lens & synchronized LED strobe |
| | Jet Set-up Method | Manual Option: semiautomatic measurement / monitoring |
| | Field of View - vertical | Min 0.7 mm x 0.5 mm Max 8.3 mm x 6.2 mm |
| | Field of View - horizontal | 2.7 mm x 2.0 mm |
| Thermal & Pneumatic | Pneumatics Control Circuit | Three state pneumatic control |
| | Operating Pressure Control | Manual vacuum / pressure fine adjust to 2 mbar Option: electronic control |
| | Pressure Gages | digital |
| | Number of Pressure Outputs (includes control and display for each) | 1 Option: up to 4 |
| | Pneumatic State Control Method | Manual Option: electronic |
| | Pressure Input | 60 psig [420 kPa] 20 scfm [0.6 scmm] |
| | Vacuum Input | below -20 in Hg |
| | Temperature Controllers | Option: 1-4 |

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| Mechanical, Electrical & Environ. | Work Surface | Honeycomb with threaded holes |
| | Workpiece holder (not included in base price) | Options: vacuum platen; heated vacuum platen; fixtures for microscope slides, MALDI plates, microtitre plates, etc.; custom |
| | Vibration Isolated Work Surface | Newport ND-01A vibration isolators |
| | Enclosed Work Area | Standard |
| | HEPA Filters Overhead | Option |
| | HEPA Blower Unit | Option |
| | Solvent Ventilation | Optional duct connection |
| | Footprint | Tabletop, 44"x28" [112 cm x 71 cm] XL-300: floor, 48"x32" [120 cm x 75 cm] |
| | Safety | CE approved |
| | Power | 220-240V, 6A, 50-60Hz Option: 120V, 6A, 50-60Hz |
| | Clean Room Compatibility | no |
| Printing Control & Drive Electronics | Stationary Printhead | Standard (xl-300, moving) |
| | Motorized Z-Axis Control of Print Head | Standard |
| | Point-to-Point Operation | Standard |
| | Print-on-the-Fly Operation | Standard, printing at any angle, all stages moving; curvilinear motion |
| | Jet Drive Electronics | JetDrive V: bipolar and arb mode Option: multi-channel JetDrive III-(n) |
| | Drive Electronics Multiplexer | Option: integrated |
| | TTL control signals | Option: 8 outputs minus number of multiplexed jets; on/off and timed |
| | Jet On-Line / Off-Line Selection | Through user interface, scripts |
| | Operating Frequency | Up to 30 kHz |
| Print Pattern | Built in Patterns | Line, rectangular border, array, array-of-arrays (arbitrary angle) |
| | Rotation Correction | Standard |
| | Multiple Fluid Control | Standard |
| | Print Pattern Import | GDS II & Gerber converter; monochrome BMP |
| | Complex Print Jobs | Script file: nesting, repetition with offsets, wait states, maintenance, & TTL controls, arbitrary printing resolution and direction |
| Printheads | Select one or more (not included in base price) | Mounts all MicroFab standard printheads; Interchangeable |
| Jetting Devices | Select one or more (not included in base price) | Standard orifice diameters, 20-80 um in 5 um increments; 10, 15, & 90-120 um specials. |
| Control system | Computing hardware | Panel PC, 1GHz Atom, 1 GB RAM 160+ GB HD, DVDRW, Ethernet port, USB 2.0 port; RS-232 ports, keyboard, monitor, mouse. |
| | Operating system | Microsoft Windows 7 |
| | Machine control program | Integrated control program for (multiple) jet setup and selection, positioning calibrations, pattern printing and surveying, TTL-controllable auxiliary equipment, depending on and supporting <i>all</i> hardware and software options on <i>all</i> jetlab models. |