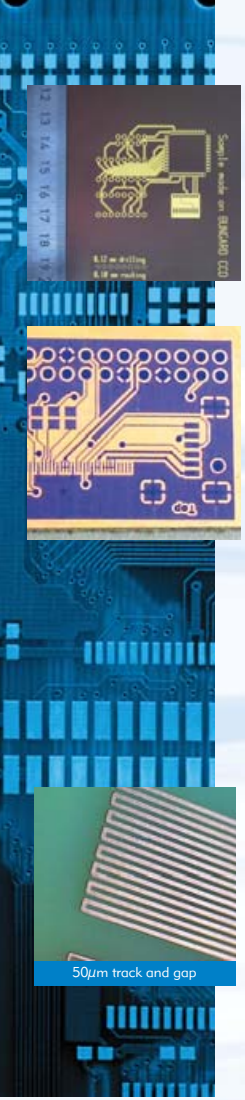


50µm track and gap

BUNGARD LASER DIRECT IMAGING (LDI)

Bungard LDI, UV laser direct imaging system for all common types of photoresists.

Target Customers are electronic developers with frequent layout changes, who want to process their PCB prototypes (e.g. antenna structures), in wet processing technology according to industrial standards. Most samples shown here were typically made in about 3 minutes.

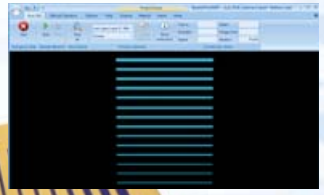
The laser head has a resolution better than 50 microns and will be available either as an add on item for existing CCD machines as well as a complete CNC system that can not only expose but also drill and route.

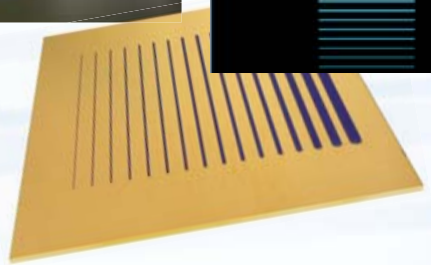
The Bungard Laser Direct will be able to expose a Eurocard pcb in about 15 minutes, depending on the packing density and aspect ratio. To control

the laser unit the software LaserPro is required. In LaserPro travel speed, travel height, light energy and start delay (Prelight) can be set for currently 1 - 15 tools.

LaserPro processes HPGL data (HPGL 7475A) in the same manner as the other operating software for the Bungard CCD RoutePro and DispPro. If necessary, the CAD-CAM software IsocamPro is required to convert Gerber Data into HPGL travel paths.

After exposure, the boards can be developed and etched like our normal presensitized base material. The Bungard LDI does not remove copper from the substrate. When lasering copper dangerous gases are produced, that need special collecting neutralizing and disposal measures. In our opinion, etching is the far more user friendly option.





LASER DIRECT IMAGING

Laser class: class 3B
Power: 120mW
Dimension (LxWxH): 47 x 47 x 110 mm
Safety:
Magnetic safety switch, laser turns on only when laser is mounted facing down into the CCD holder PVC housing
Power connection: Via Bungard CCD
Control: Via Bungard CCD/RoutePro3000
Requirements: Bungard CCD
Software RoutePro3000
Laser-License for RoutePro3000
Application:
Exposure by UV-laser diode; wave length approx. 420 nm; suitable for positive- and negative photoresist, solder mask and Alucorex

With the Bungard Laser Direct Imaging prototypes can be realized more quickly and accurately than with previous technology. For small series production, we still recommend to make a layout film with the Bungard Filmstar and expose with the Hellas or - for finer resolution - with the EXP 8000

The Bungard Laser head and the software LaserPro are offered at an unbeatable price. They can be retrofitted to all Bungard CCD machines younger than in 2006. Ask us for a quote!

HELLAS

VACUUM EXPOSURE UNIT

High precision vacuum exposure unit especially designed for double sided contact exposure of presensitized base materials such as tampon printing clichés, PCBs, front-panels, daylight films and other UV sensitive coatings.

Features

- 2 x 6 superactinic UV-tubes, each 20 W
- Special reflectors for minimum undercut
- Analogue light emission display
- Lower exposure surface from 8 mm special glass
- Upper exposure area from structured mylar foil in a sturdy frame
- Working area 570 x 300 mm
- Suitable for fine-line PCBs
- Maintenance free vacuum (80%) with gauge display, 1380 l/hour continuous rating
- Digital timer 1 second - 9 min 59 sec. with count-down, auto-reset and beeper
- Built in cooling fan allows long time exposure or baking processes
- Separate choice of upper/low exposure possible
- Sturdy steel housing

HELLAS

Dimensions (L x H x W): 62 x 24 x 65 cm
Weight: 40 kg
Power supply: 220V ~, 50 Hz, ca. 800 W

EXP 8000

PARALLEL BEAM EXPOSURE UNIT

The EXP 8000 is a high speed double sided exposure machine mainly designed for industrial production and equipped with two 4000 W mercury halide lamps. These lamps in about 90 cm distance from the PCB ensure almost parallel light.

Construction

Sturdy, welded tube frame with coated sheetplates. The chassis consists of a sliding drawer system and a yellow light table in the machine's front.

Operation

EXP 8000 guarantees a perfect exposure within a minimum of time and energy consumption by two UV sensors. The required exposure energy is preset on a keyboard and shown on a digital readout. The two intelligent UV-light emission controllers (one per side) automatically measure the energy supplied per side and stop the exposure at preset energy amount.
A vacuum pump provides a close and uniform contact between artwork and board. The exposure cycle starts when the drawer is pushed in. At that moment the lamp shutters are opened and the lamp's powersupply is increased from stand-by to full power. In stand-by mode, the energy is reduced to 25% in order to save energy and avoid heat problems. The machines have powerful cooling fans. When the exposure is finished the vacuum is stopped.

Features EXP 8000:

- max. Working area 600 mm x 600 mm (recommended: 400 mm x 500 mm)
- Microprocessor controlled UV-light emission
- vacuum assisted drawer
- suitable for fine line PCBs
- Suitable for exposure and curing of solder mask.
- built-in yellow light table

EXP 8000

Power suppy: 380 V, 50 Hz triple phase
L1/L2/L3: 5 A / 10 A / 5 A
Unit Size (W x H x L): 820 x 1950 x 1800 mm
Weight: 270 kg