### 7 kW Exposure Unit

- **Model:** GPE – 7K
- **Dimensions:** L 2690 x W 1400 x H 1662 mm
- **Total Weight:** 1000 kg
- **Control System:** Standing Control Panel, Touch Screen Interface
- **Exposure Area:** 850 x 680 mm
- **Exposure Frame:** Upper: Mylar / Lower: Glass
- **Frame Cooling:** Air Cooling
- **Lamps:** GP 7000 E
- **Lamp Cooling:** Indirect Water Cooling
- **Exposure Uniformity:** > 80%
- **Exposure Method:** 360° Rotary Shutter
- **Reflector:** Aluminum Reflector
- **Lamp Lifetime:** 800 – 1000 hours at 30 mW/cm²
- **Vacuum:** Normal Operation > 680 mm Hg
- **Exposure Control:** By UV Energy Calculator
- **Power:** 3 phases, 380 V, 100 A, 50 Hz
- **Cooling Water:** 25 l/min at 10 to 15°C
- **Distilled Water:** 45 liter
- **Room Temp.:** 20 to 25°C
- **Room Humidity:** 50 to 60%
- **Water Port:** 1¼” PT Port

### 5 kW Exposure Unit

- **Model:** MODEL GPE-5K
- **Dimensions:** 2200 x 1400 x H 1730 mm
- **Total Weight:** approx. 800 kg
- **Control System:** Standing Control Panel, Touch Screen Interface
- **Exposure Area:** 850 x 680 mm
- **Exposure Frame:** Upper: Mylar / Lower: Glass
- **Frame Cooling:** Air Cooling
- **Lamps:** GP 5000 E
- **Lamp Cooling:** Indirect Water Cooling
- **Exposure Uniformity:** > 80%
- **Exposure Method:** 360° Rotary Shutter
- **Reflector:** Aluminum Reflector
- **Lamp Lifetime:** > 7000 on/off switching cycles
- **Vacuum:** Normal Operation > 680 mm Hg Exposure
- **Control:** By UV Energy Calculator
- **Power:** 3 phases, 380 V, 75 A, 50 Hz
- **Cooling Water:** 24°C 25 l/min
- **Distilled Water:** 45 liter
- **Room Temp.:** 20 to 25°C
- **Room Humidity:** 50 to 60%
- **Water Port:** 1¼” PT Port
Operator-friendly Exposure Machine Features

- Frame vacuum control, informs operator on perfectly drawn vacuum
- Vacuum level directly and easily adjustable
- Cooling water temperature directly and easily adjustable
- Lamp reflectors are adjustable to individually optimize uniformity
- Frame assembled by screws (not welded)
- UV rays protection around the frames
- 4 fans cool the frame uniformly and efficiently

- Frame position fixing by double magnet holder
- Operator friendly water tube quick release. No spill, no leakage
- Frame transport with belt not with chain
- User-friendly lamp replacement procedure done within 2 min
- Large frame
More Features than our Competition

- Our highly efficient exposure lamp systems can achieve 30 percent shorter exposure times for the same energy output.

- The working area of our frames is larger (ours 850 × 680 mm, others 810 × 640 mm)

- An electromagnetical buckle is closing the frame automatically and tightly. Other companies do not have this feature.

- Our lamp replacement procedure takes 2 min. With other machines it takes 15 min.

- The UV intensity can be measured with or without vacuum drawn (no Mylar damage). Others can only measure while the vacuum is drawn.

- Our water cycle is equipped with a pressure sensor detecting unusual high pressure which is off spec. Other manufacturer do not have this feature.

- Endposition control sensor for the frames to ensure exposure only starts when the frame is in its correct position. Other manufacturer do not have this feature.
Typical Applications for our Exposure Units

Inner- and outer layer
Solder mask

Ideal for
Prototype board manufacturer
Quick turn around and
Small series

Manual Contact Printing Method

The vacuum frames used are of various constructions. However, mainly we are using a combination of glass and polyester foil (e.g. mylar®). The Mylar® is usually 100-175 µm (4-7 mil) thick. Here one may chose between a textured and/or a smooth structure. Normally smooth sheets are preferred. One disadvantage of textured coversheets is the refraction of light by the textured pattern that is detrimental to resolution. In addition the texture also makes it harder to see and remove dirt from the cover.

To create the vacuum, air is evacuated through one or more vacuum ports. This ensures intimate contact between the photo tool, and the photosensitive layer on the PCB, a prerequisite for a good one to one transfer of the image of the photo tool.

Unlike Ag halide artwork the use of diazo photo tools are transparent to most of the visible spectrum, meaning the operator can visually align pads on the photo tool with features and holes on the board.

Pls. talk to your nearest all4-PCB team.

We help you select the right exposure unit and process for your imaging challenge.