

# EXPOMAT AEX-II-H

High precision semiauto exposure machine with automatic optical CCD-camera-registration

**Collimated UV-LED  
light system  
High-power and  
water cooled**



**Smallest footprint 2,45x1,25m**

- Double sided CCD-camera registration with 2 or 4 target alignment and/or Microvia/Hole function
- Double sided exposure of solder mask, outer layer and inner layer in one machine without having to retrofit the machine
- Alignment accuracy  $\pm 2\mu\text{m}$  after vacuum
- Registration accuracy  $\pm 5\mu\text{m}$
- Repeatability accuracy  $\pm 2\mu\text{m}$
- Fast film (cassette) changing time  $\leq 45$  second
- Statistical process control SPC (Option)
- Inside machine film-cleaner (Option)
- 1 x or 2 x 1.0 kw **collimated UV-LED**
- 1 x or 2 x 6.0 kw directed MHL UV-Lamp
- 1 x or 2 x 9.0 kw directed MHL UV-Lamp
- Up to 160\* inner layer/h at max.  $5\mu\text{m}$
- Up to 145\* outer layer/h at max.  $10\mu\text{m}$
- Up to 110\* solder mask/h at max.  $15\mu\text{m}$
- Panel size min. 305 x 200mm
- Panel size max. 650 x 560mm

\*depend on type of dry film, solder mask type and



*Swiss Quality*



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## Specification

Process	Printed Circuit all Processes, Photo Chemical Machining all Processes Sheet-to-Sheet	
Panel size	min. 305 x 200 mm (12" x 8") max. 650 x 560 mm (25,5" x 22") over size on request	
Panel thickness	standard 0,020 (0,001") up to 4,0 mm (0,15") / optional up to 10 mm (0,4")	
Panel warpage	≤ 1% diagonal, max. 6 mm (0,23")	
Film	diaz film, silver film, glass master tool	
Film size	min. 400 x 250 mm (15" x 10") up to max. 688 x 600 mm (27" x 23,6")	
Film fixation	optical mineral glass „Optiwhite-Glass“ or optical organic „PX-Glass“	
Light system	6.0kw or 9.0kw directed light MH lamp	
	1.0kw collimated UV-LED cold light	
Illumination uniformity	Homogeneous over the complete area	
Registration	Full automatic optical CCD-camera film alignment	
Registration method	2, 4 or multiple target, laser-via/hole	
Inner layer	Single side target detection with 1, 2 or 4 CCD-cameras	
	Target on film top to target on film bottom with transmitted light	
	Inner layer without holes fixated by vacuum	
Outer layer	Single side target detection with 1, 2 or 4 CCD-cameras	Double side target detection with 2, 4 or 8 CCD-cameras
	<ul style="list-style-type: none"> <li>• Target on film top and target on film bottom to the hole in the panel with transmitted light</li> <li>• Thickness of panel 0,02 (0,001") - 4,0 mm (0,15")</li> <li>• Thickness of panel 4,0 (0,15") - 10,0 mm (0,4") single side</li> <li>• Target on film top to laser via or via group with reflected light = 2 x single side exposure Thickness of panel 0,02 (0,001) - 10,0 mm (0,4")</li> </ul>	<ul style="list-style-type: none"> <li>• Target on film top to the hole in the panel top and target on film bottom to the hole in the panel bottom with intermittent transmitted light</li> <li>• Target on film top to laser via or via group top and target film bottom to laser via or via group bottom with reflected light</li> <li>• Thickness of panel 0,02 (0,001") - 10,0 mm (0,4")</li> </ul>
	Outer layer with holes fixed with pins or clamps	
Solder mask	Single side target detection with 1, 2 or 4 CCD-cameras	Double side target detection with 2,4 or 8 CCD-cameras
	<ul style="list-style-type: none"> <li>• Target on film top and target on film bottom to the hole in the panel with transmitted light</li> <li>• Thickness of panel 0,02 (0,001") - 4,0 mm (0,15")</li> <li>• Thickness of panel 4,0 (0,15") - 10,0 mm (0,4") single side</li> <li>• Target on film top to etched circle area with reflected light = 2 x single side exposure Thickness of panel 0,02 (0,001") - 10,0 mm (0,4")</li> </ul>	<ul style="list-style-type: none"> <li>• Target on film top to etched circle area top and target on film bottom to etched circle area bottom with intermittent transmitted light</li> <li>• Thickness of panel 0,02 (0,001") - 10,0 mm (0,4")</li> </ul>
	Solder mask panel with holes fixed by self cleaning pins or clamps	
Alignment accuracy	± 2 µm after vacuum before exposure	
Registration accuracy	± 5 µm after vacuum before exposure	
Repeatability accuracy	± 2 µm after vacuum before exposure	
Job changing time	≤ 30 seconds with prepared film cassette and double cassette trolley	
Resolution	< 25 µm depends on resist type and selected light system	
Air filtration	HEPA class 100 or 1000	
Cooling	Cassette and machine with over pressure	
	Lamps with forced air or water closed loop	
Water connection	~ 1,5m³/h at max. 8-10°C	
Compressed air	~ 0,6m³/min at min. 6 bar	
Electrical connection	400V, 50Hz, AEX-IIH-UV-LED ~8kw    AEX-IIH-SC6 ~16kw    AEX-IIH-SC9 ~20kw	
Dimensions	2450 x 1250 x 2000 mm (96,5" x 49,2" x 78,7")	
<b>AEX-II-H semi automatic</b>		
*Productivity per hour	Up to 160 inner layer	
	Up to 145 outer layer	
	Up to 130 solder mask	
Transport system	Double shuttle with auto panel shuttle	
Operating side Transport direction	From right side	
Weight	~ 2.000 kg	

\*Depend on resist and light system

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