



MAGNET 610i

DRY FILM AUTO CUTTING LAMINATOR
An integral part of the Hakuto Photo Processing Line

US Patent No. 4743325



New Design and Functions Offer Superior Performance, Greater Economy

Hakuto dry film auto cutting laminators have won an excellent reputation for their outstanding features: uniformly high quality, low operating costs, and labor-saving operation. The MACH 610i is our newest version, offering even greater performance and convenience due to improved circuitry and a more compact design with simplified operation. The MACH 610i will significantly increase the efficiency of your PC board processing.



Operation panel



Dry Film Auto Cutting Laminator for larger boards

- Accepts boards with maximum width of 760 mm and maximum length of 720 mm.

Main Features

Thermal Process

Employs a thermal process that automatically bonds the photosensitive dry film at prespecified positions to both sides of a copper-clad laminate.

Fully Automatic Operation

By eliminating manual tasks, precision is increased for higher product quality, while saving labor costs.

Low Film Consumption

Film consumption is lower than with conventional units, because the film is laminated at prespecified positions on a frame form.

Consistently High Quality

High quality is maintained by removing static electricity before and after lamination, and by collecting and removing chips as the film is cut.

accomplished by revising the control circuit—specifically by adding more specialized sequencers and conveyor speed detection sensors. The result is more precise control over the width of the front and rear spaces.

Simple, Convenient Operation

The machine is much easier to operate than previous types. Whereas the indicators, setting devices, and operating switches used to be all located on a panel above the front conveyor, the MACH 610i separates the operating switches, placing them on the front conveyor frame cover. This improves both operating convenience and visibility.

Improved Laminating Roll

The laminating roll has been significantly improved, resulting in more perfect dry film and board lamination.

Machine Cover

Several parts of the machine, previously exposed, are now protected by a cover for greater safety and prevention of foreign matter adhesion.

High Efficiency DFR Cartridge

An optional dry film cartridge allows rolls to be replaced quickly and easily, reducing downtime.

Special Features of the MACH 610i

Ultra-High Positioning Precision

The dry film is positioned for adhesion with extreme accuracy. This has been ac-



Upper DFR cartridge



Lower DFR cartridge



PH-SGK-02 PH-SGK-03

Triple Hot Roll Preheaters

- Preheat boards by using two sets of triple hot rolls (upper and lower) prior to lamination.
- The PH-SGK-03 has an auto-centering function, so the board is precisely centered no matter how it is inserted.

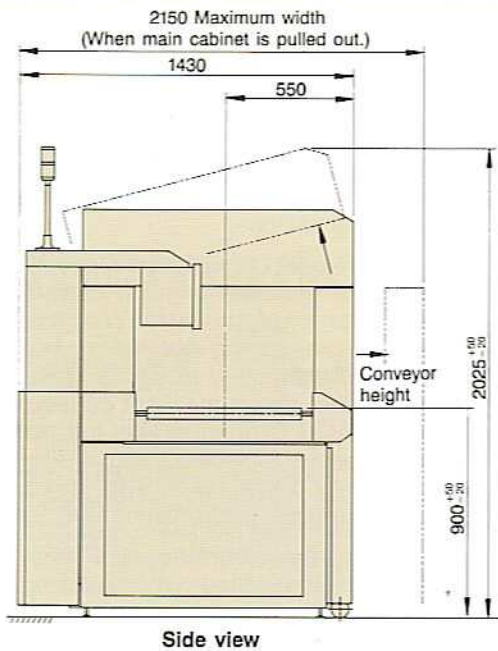


PH-SGK-02

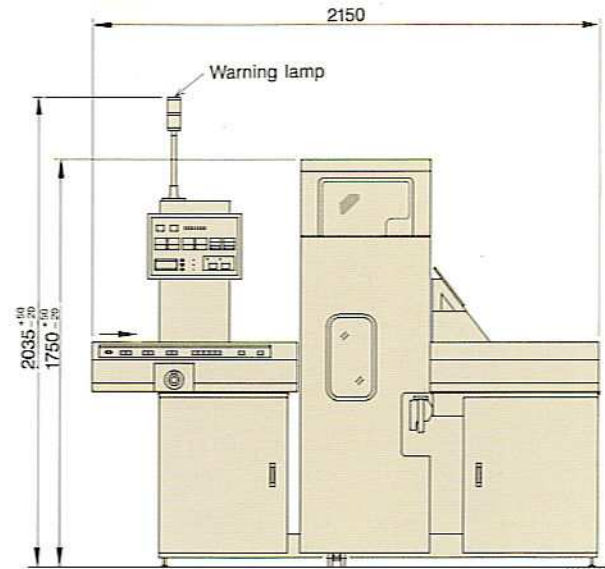


PH-SGK-03

MACH 610i DIMENSIONS



Side view



Front view

(unit: mm)

SPECIFICATIONS

MACH 610i	
Film	Each roll reelable between two ends (upper & lower) (Option—DFR Cartridge unit)
Hot Roll	2 Hot rolls × ϕ 78mm × L680mm 1.0kW (200V) Cartridge Heater × 2 pcs
Film Cutter	2 Self-revolving and self-running cutters
Conveyor	Conductive urethane & resin rolls
Conveyor Speed	1.0—3.5mm/min Variable (digital Indicator)
Board Alignment	Left-right by auto-centering mechanism Forward-backward by photo sensor with an adjusting mechanism of the distance between two boards.
Film Hold	By porous sucking plate with vacuum pump
Control Indicator	Digital Indication by Sequencer
Safeguards	Various Interlocks for preventing cutting, laminating and other accidents Emergency shutoff device, Warning buzzer and lamp.
Others	Board Counter, Anti-static Bar for the film × 2 pcs, Film-tension device, Heavy Duty Roll

CAPACITY

Board Size	Min. W330 × L250mm Max. W640 × L610mm (Min. W250mm acceptable by a request)
Board Thickness	0.2—6.5mm (Special device for a thinner board 0.1—2.0mm available—Option)
Productivity	222 boards/H, (L450mm board, Tacking time 2 sec. Conveyor speed 2.3m/min.)
Dry Film	Width: 330—610mm (Option—250mm Width) Roll Diameter: 150mm (400 ft roll) 250mm (1000ft roll)—Option Bobbin Diameter: 76.2mm (3"), 152mm (6")—Option

ELECTRICITY, AIR & EXHAUST

Power Supply	3-phase, 200V, 50/60Hz, 9kW
Air Requirements	5kgs/cm ² 15 ℓ /min.
Exhaust Outlet	ϕ 150mm (duct), Ventilation 5m ² /min.
Conveyance Height	880—950mm
Outer Dimensions	L2,150 × W1,430 × H1,750mm
Weight	1,150kg

Specifications are subject to change without prior notice.



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