

## Laminator Features and Options

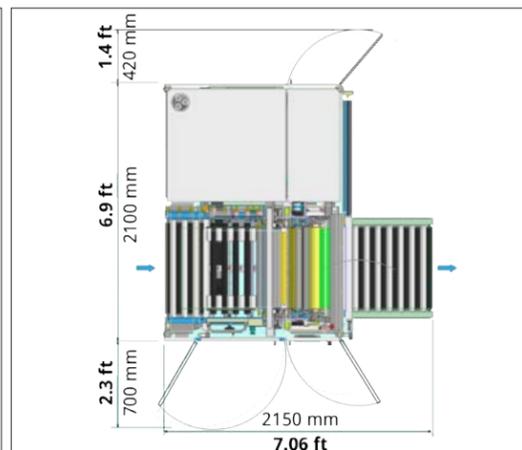
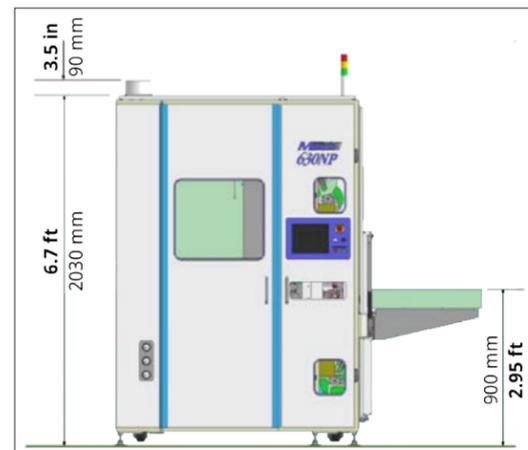
	Mach 630NP	Mach 6630NP
Easy Lamination Roll Exchange	●	●
Easy Maintenance	●	●
EVEN Pressure Uniformity Module	●	●
EVEN Temperature Uniformity Module	●	●
Full Enclosure for Clean Operation	●	●
Touch Screen PLC Control	●	●
ECO Take-up Roll for Easy Mylar Removal	●	●
Cassette Film Loading System	○	●
Exit Panel Temperature Monitoring	○	●
Dry Film Usage and End Warning Indicators	○	●
Ultra Thin Transport	○	○
Thick PCB Transport	○	○
HEPA Filter with Ionizer	○	○
Mach Prolog Software (Custom Request)	○	○

● Standard Feature ○ Optional Feature

## Specifications

<b>Lamination</b>	Laminating Roll	1.6" (50mm) Diameter Rubber - various coatings and durometers
	Roll Pressure	Max. 500 Kg/cm <sup>2</sup> (7112 psi)
<b>DF Cutter</b>	Non-Contaminating Disc	2.5" diameter (64mm)
<b>Anti Contamination</b>	DF Anti-Static Bar	Eliminates charge that attracts dust and contaminants
	Enclosure	Forced circulation with HEPA filter (Option)
<b>Panel Dimensions</b>	Size (Width)	Min. 9.8" (250mm) Max. 25.2" (640mm)
	Thickness (incl. copper foil)	<b>Standard:</b> 0.004" to 0.236" (0.10mm to 6.0mm) <b>Thin Core Option:</b> 0.0016" to 0.236" (0.04mm to 6.0mm)* * Sample test required before shipment
<b>Conveyor</b>	Width	27.2" (690mm)
	Speed	3.28 to 18.0 ft/min. (1.0 to 5.5 m/min.)
<b>Dry Film</b>	Width	9.85" to 24.8" (250mm to 630mm)
	DF Roll Diameter	6" Core Diameter: Max. Film Diameter 9.85" (250mm) 3" Core Diameter: Max. Film Diameter 11.0" (280mm)
	Bobbin Diameter	3" or 6"
<b>Film Placement</b>	Front and Back Accuracy	+/- 0.02" (0.5mm)
	Side to Side Accuracy	+/- 0.02" (0.5mm)

### Dimensions (L to R)



### Utilities

Power	3 Phase 220/200V 50/60Hz, 10kW
Air	0.5MPa, 100L/min ISO Rc 1/4 inch
Exhaust	9.5m <sup>3</sup> /min φ 150mm



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**Canada**  
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Phone (905) 670-8400 • Fax (905) 670-8420

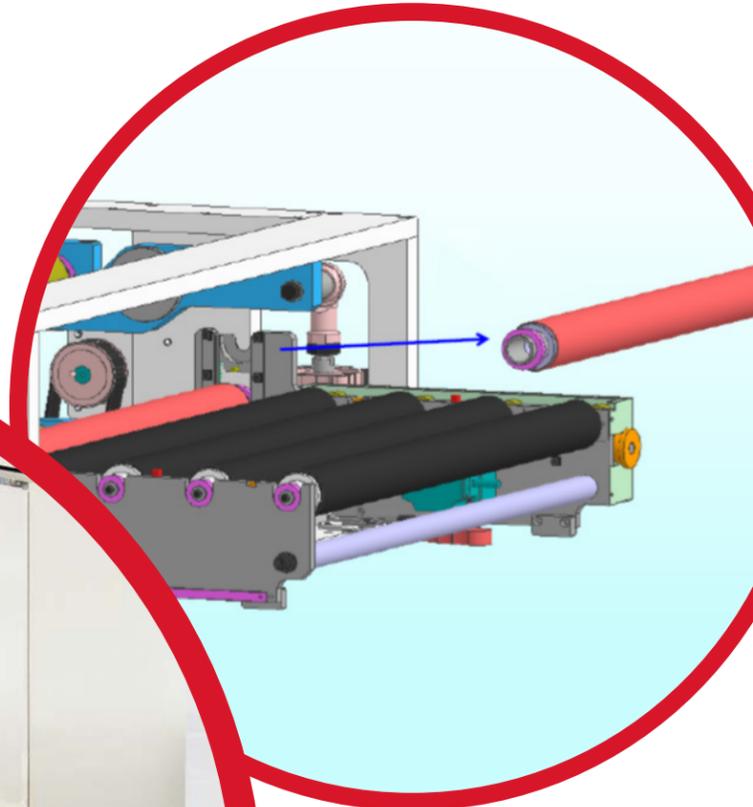
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# Mach 630NP/6630NP

NEXT GENERATION AUTO FILM LAMINATOR  
FOR THE PRINTED CIRCUIT BOARD INDUSTRY

- No Hot Rolls
- EVEN Heat and Pressure
- Easy Operation and Maintenance
- Enclosed Cabinet
- Roll Change in 5 minutes
- Stationary Film Loading Bay
- Offline Cassette Loading of Film



Distribution, Sales  
and Service by



# Standard Features

# Options

## Lamination Rolls (NO Hot Rolls)

The 630NP Laminator Series is supplied with 4 standard silicon rubber lamination rolls which can be removed and replaced in less than 5 minutes.

Engineers may now use many combinations of rubber styles, thicknesses, and durometers for various applications.

## EVEN Pressure and EVEN Heat

*(essential for the transfer of sub 0.005" features)*

Traditionally, PCB dry film laminator designs used the process of squeezing two roll shafts at their ends to apply pressure on the panel surface resulting in uneven effects across the entire panel surface.

This method has now been replaced by an innovative mechanical design which applies pressure from a primary heavy and large diameter steel roller in contact with a smaller diameter secondary rubber lamination roller.

In addition, infrared heat is generated inside the steel roller for transfer to the lamination roller during the pressure cycle.

The result is an EVEN distribution of both Pressure and Heat across the entire copper panel surface.

## Easy Operation and Maintenance

Beginning with film loading from either side of the film loading bay to the replacement of rubber rolls in less than 5 minutes, the new Mach630NP Series machines are simple to operate while performing all operations automatically from the latest Programmable Logic controller (PLC).

## Enclosed Cabinet Design

While in operation, the cabinet can be closed to minimize contaminants from settling on the copper panel surface prior to film attachment.

## Stationary Film Loading Bay

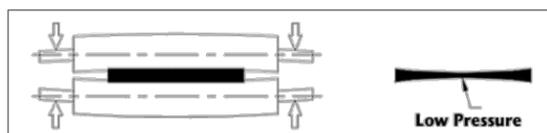
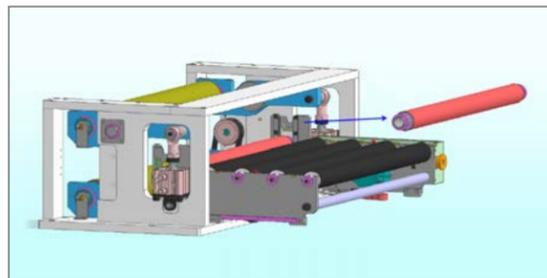
In many previous film laminator designs, the film loading bay moved away from the main cabinet on slides and floor wheels to provide loading access from the front and back. The Mach630NP design houses a fixed and stationary film loading bay which reduces mechanical wear and tear while also minimizing potential film wrinkling.

## ECO Collapsible Mylar Take-up Roll

Easy removal of dry film mylar protect coating.

## Programmable Logic controller (PLC)

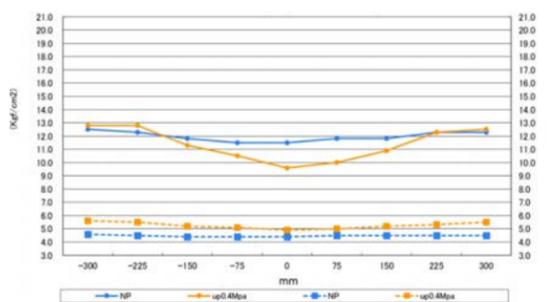
Recipe, Input and Display of up to 100 operating parameters.



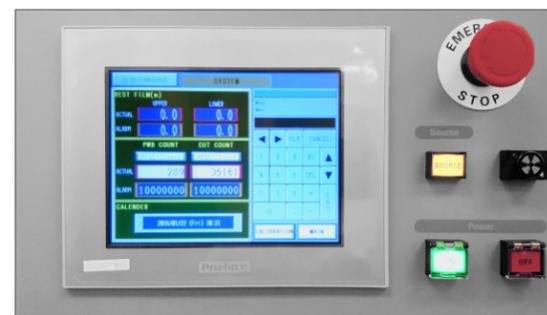
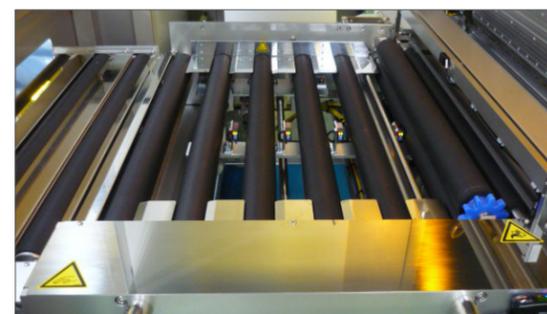
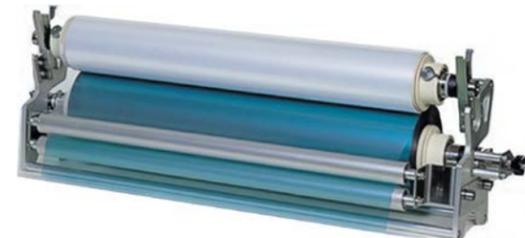
Traditional Roll Bending



New Design



Film Pressure Comparison (Hakuto's Catilevered "UP" System vs the new "NP" System)



## Cassette Loading of Dry Film

- Increased productivity with the ability to load film of different thicknesses and widths when required

## Ultra Thin Core Transport

- Standard Thin Core: minimum 0.10mm (0.004") including Copper
- Special Order: minimum 0.04mm (0.002") including Copper
- Thick Panel Option: up to 8.00mm (0.315")

## Exit Panel Temperature Indicator

- Monitor Device Only
- Comprised of thermometer sensors located on top and bottom of the exit tray to indicate the surface temperature (both sides) of the finished PCB with dry film attached.
- Also available to the PLC for monitoring

## Dry Film Usage and End Warning Indicators

- Beam sensors (light source and receiver)
- Mounted on both sides of the dry film roll facing each other and parallel with the DF. The beam sensor detects when the remaining rolled DF thickness becomes thin enough for the receiver to detect and then send a warning signal to the operator.

## Peripheral Device Support

- Options are available to monitor and control the operation of other supporting peripheral machines in-line with the film lamination process. (eg. Loaders, Panel Cleaners, Panel Heaters, Cooling, Unloaders)

## HEPA/Ionizer Air Cleaner