KuperTek

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GALAXY 700 XB

X-RAY PINS HOLES DRILLING, EDGE CUTTING-BEVELING AND CORNERS ROUNDING

Galaxy 700XB is a line able to process Multilayers boards after the Press cycle and before the Drilling process. Galaxy 700XB includes the following stations

1. X-RAY Drilling module (Left)
2. Flash Cutting and Beveling module (Middle-Right)
3. Board Unloading station on trolley (Middle)
4. OPTIONS:

a) Automatic loading system.
b) Bar code reader.
c) Board thickness measurement system.
d) Code Marking device (Serialization)
e) Deburring system for Slot cleaning.
f) Automatic Tool change

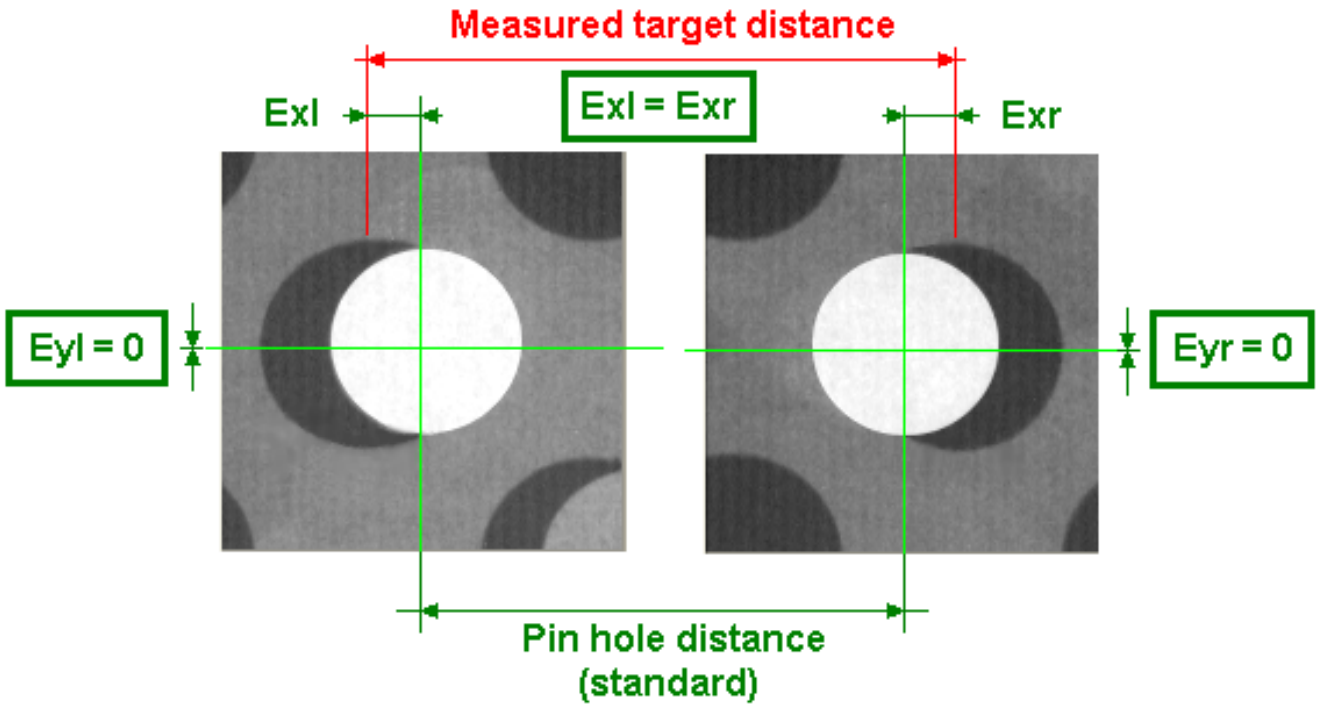
Process description:

- The boards are manually piles up on the trolley of loading station.
- A vacuum system pick up the board and after scrolling, place down it on the table of X-RAY station. If case of option, before place down the board on the x-ray table, can read the bar code, print a reference code on the copper and check the thickness.
- The X-RAY machine detects the 2 or 4 inner layer targets and after calculation drills 2 or more reference holes.
- The board is picked up again from the vacuum pad and translated on the Cutting/Beveling station.
- Two vertical opposed diamond cutters (blades), a couple on right and a couple on left side cuts the flash and bevels on the same time the two board sides. A third horizontal diamond blade bevels the "shoulder" of the edge.
- The board, outside the Beveling station, is 90° rotated and processed again for cuts and bevels the other two sides.
- The board is translated on the "Round Corner" station in order to round up the all the corners by axes circular interpolation. The panel is rotated at 90° for fourth steps.
- Before downloading the board on unloading trolley a special router clean the burr on the fourth slots

➢ X-RAY DRILLING STATION PROCESS

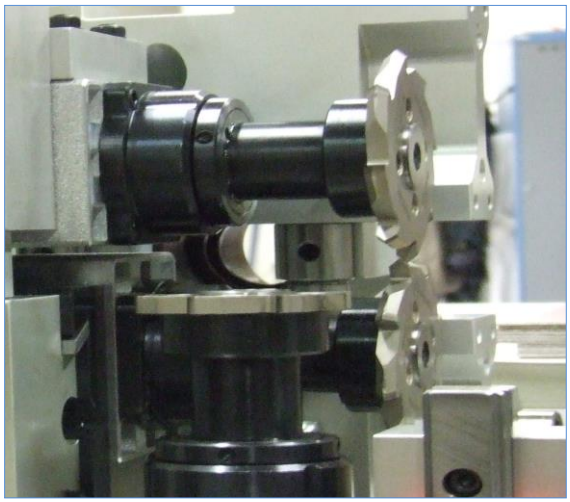
In the following picture there is a simple example about the optimized position of two pinning holes respect to the position of two targets.

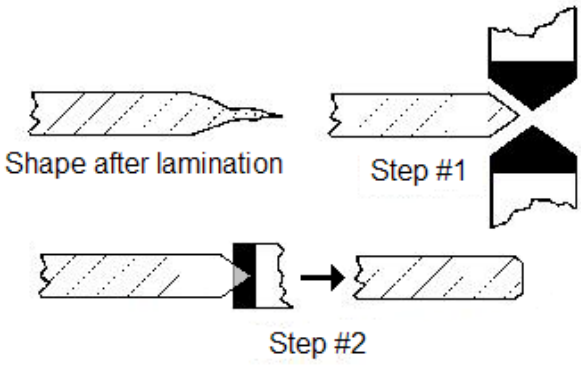
In the following example, the left and right targets are measured at a higher distance than the nominal, which had to be the same of the pinning holes. Typically the axis of targets and holes is the main panel axis, which in the Antares machine is the X axis.
The optimization process is so that the two pinning holes are drilled at the nominal distance, thus no longer at the target centers, but in a position, which allows the errors (annular rings) to be minimized on all the panel surface.



➢ EDGE FLASH CUTTING AND BEVELING STATION

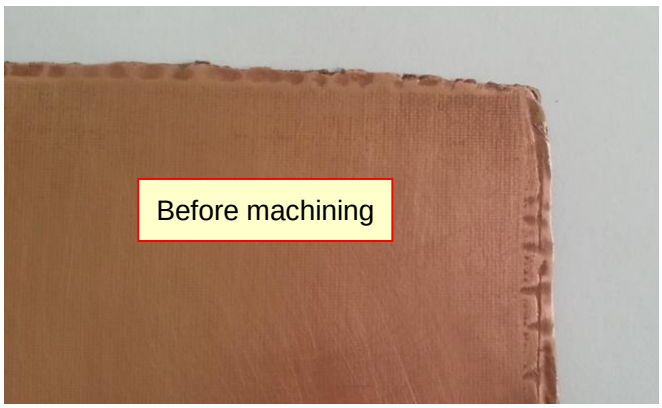
On this station two vertical cutters thanks to the shape of diamond teeth, cuts the board and in the meantime bevel the edges. A third horizontal cutter cuts the arris forming in this way the “edge shoulder” as showed on the picture

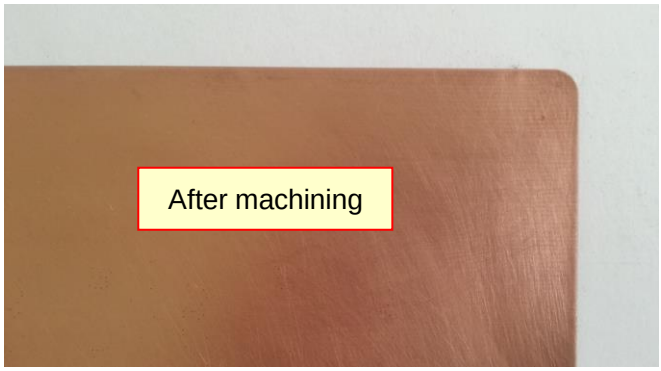


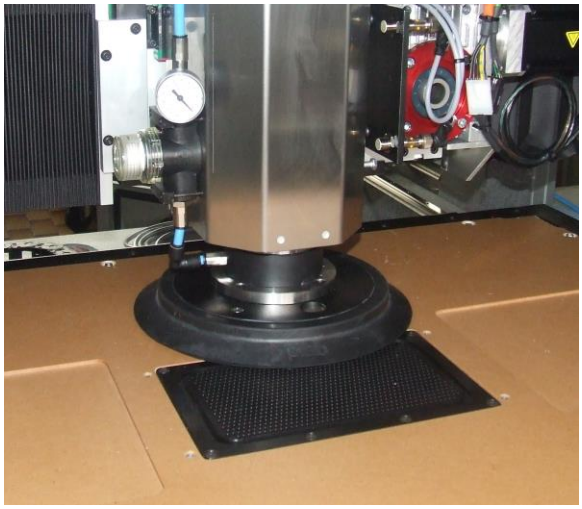


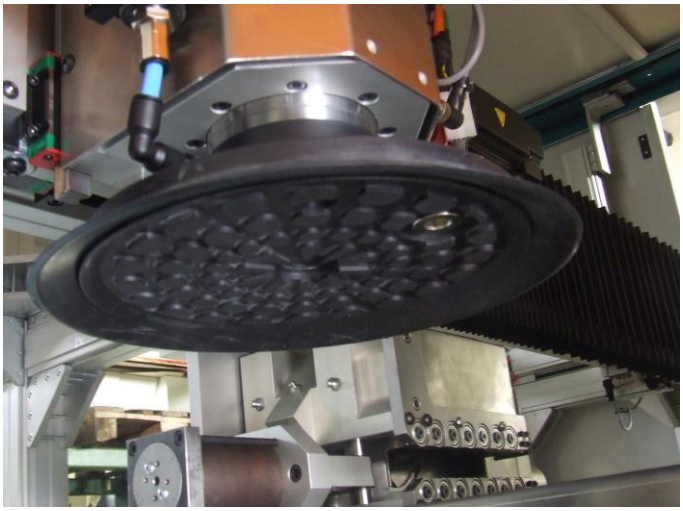
➢ CORNERS ROUNDING

The board is positioned between the two opposing pressure feet to keep stable the board that thanks to the vacuum pad and axes circular interpolation can round up the corners in 4 steps.









The pick-up and panel transfer device

The cutting and corner rounding tools

The machine controller

The output trolley

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TECHNICAL SPECIFICATIONS:

X-RAY station		
Panel clamp	Venturi	Vacuum Area: 208 x 118 mm
Max target detection area	720 x 580 mm	
Max drilling area	740 x 580 mm	
Forbidden area	240 x 150 mm	Central vacuum plate
Max. Panel dimension	760 x 600 mm	
Min. Panel dimensions	300 x 200 mm	
Panel thickness	0,3 – 5 mm	
Max. panel weight	N.A.	
Max. flash width	25 mm	
Recommended target diam.	0,5 – 2,5 mm	
Drilling tool diameter	2 – 5 mm	
Process time	30 sec	4 targets + 3 holes – Including the panel load by operator
Electrical power	2 KVA	Voltages: 400 and 480 V – 3 Ph – No neutral
Air consumtion	500 NL/min (Avg)	Peak con. 1500 NL/min – Min. Pressure: 6-10 Bar
Cutting and Beveling stations		
Tools specifications		
Cutters for edges	Diam. 80 mm	V profile disks - Refer to drawings
Cutters life time	8 – 10 Km	
Router for edges	Diam. 60 mm	Refer to drawings
Router for chamfering	Diam. 25 mm	V profile router - Refer to drawings
Dust evacuation	Vacuum cleaner	
Process Scraps deposit	Dedicated cart	
Working capabilities		
Max panel size	700 x 700 mm	After beveling
Min Panel size	305 x 305 mm	After beveling
Chamfering diameter	5 – 10 mm	
Panel thickness	0,5 – 4,8 mm	
Max flash width	25 mm	Over the beveling limits
Max flash thickness	≤ panel thickness	
Beveling tolerance	± 0,5 mm	
Max stack on output trolley	200 mm	Height of stack
Process time	60 sec.	Beveling + Chamfering + Automatic panel lay down
Electrical power	10 KVA (Max)	400 and 480 V – 3 Ph – No neutral – Included vacuum unit
Air consumption	100 NL/min	Average – Min. Pressure: 6-10 Bar

Drawings and specifications are subjected to change without notice

GALAXY 700 XB – FULL AUTOMATION
LAY-OUT