

ANTARES 700X-A3 AUTO LOADER/UNLOADER (WORKED/SCRAPS) X-Ray Reference Drilling Machine for Multilayer Panels



Automatic pick up from input cart where panel must be stacked (at left) – Automatic lay down of worked panels to the output cart (at right) – Turbine spindle 30 Krpm – Pneumatic Z-axis – Rear cart for auto unload of scrap panels.

PURPOSE:

Antares 700 X is designed to drill reference holes (pinning) on multi-layer panels.

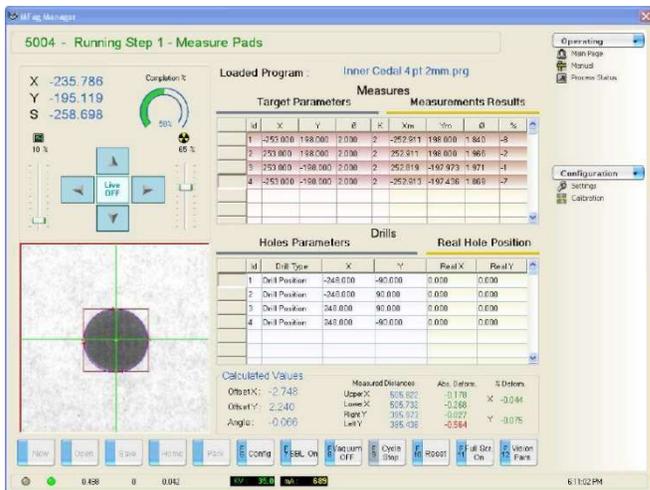
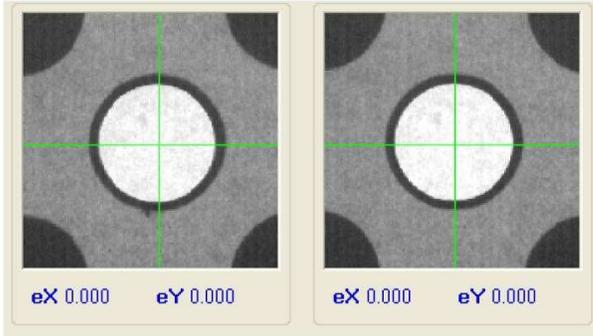
- Free programmable targets and holes (poist., diam., shape)
- Optimized drilling (best fit)
- On target drilling
- The XA version includes automatic panel load/unload

HARDWARE:

- High performance CNC integrating motion controller, vision system and I/O management.
- Position transducers with 1µ resolution
- Linear motors
- High reliability X-Ray source
- High sensitivity X-Ray camera
- Compact solution (see overall dimensions)

SOFTWARE:

- Friendly user interface
- Part-program based process
- All data of measure panel stored into a *.mdb file (network access)
- Measuring functions available





PROCESS:

- Panel pick-up from input trolley (at left)
- Process cycle: X-Ray measurement of target and drilling
- Worked panel is laid down into output trolley (at right)
- Panels out of tolerance are rejected into rear trolley
- Operations involving panel manipulation are in masked time respect to machine process.

SAFETY:

- No special anti-X-Ray protection required for operators.
- Radiation leakage < 1 µSv / hour
- Radioprotection certificate according to Euratom directives.

MACHINE SPECIFICS:

Machine Specific	Value	Notes
Electrical supply voltage	400 V – 50/60 Hz	3 Ph + Ground
Electrical power consumption	4 KVA (Max)	
Air pressure supply	6 ÷ 10 bar	
Air consumption	500 L/min (Avg)	1400 L/min (Peak)
N. of position-controlled axes	X, Y, S, LU	Etel
Max axes speed	60 m/min	120 m/min (max) for LU axis
Position accuracy	± 0.003 mm	X,Y,S
Position transducer resolution	± 0.001 mm	Heidenhain
X/Y strokes	800 / 900mm	
Z-axis motion system	Pneumatic	
Z-axis stroke	40mm	
Z drilling feed	0.2 ÷ 2m/min	Adjustable
Spindle speed	30,000 RPM	Fixed
Tool change	Manual	Easy and quick spindle removal
Tool diameters	1 ÷ 6mm	
Chips evacuation system	Built-in Venturi	Opt: connection to factory vacuum system.
Panel clamp system	Vacuum – Venturi	Table center
Panel load mode	Automated/Manual	
Panel unload mode	Automated/Manual	Bad panels rejected into rear trolley
Input/Output trolleys capacity	200mm	Max. height of stack
Rear trolley capacity	100mm	Max. height of stack
Panel reference system	Laser cross lines	For manual mode
X-ray source	50 Kv – 1mA	Focal spot = 50µ
X-Ray sensor type	CCD + Scintillator	
Sensor field view	2.5 x 9.6mm	
Vision system accuracy	±5 µ	
Max. Scanned area for target search	24 x 30mm	Software function

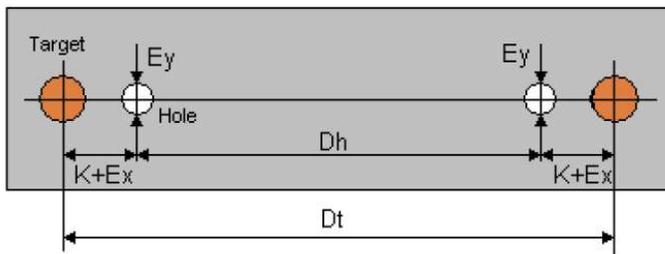
PANEL SPECIFICATIONS:

Panel specifications in Manual Load Mode	Value	Notes
Max dimensions	740 (X) x 650 (Y) mm	
Minimum dimensions	300 (X) x 200 (Y) mm	
Max thickness	6mm	Indicative
Minimum thickness	0.100mm	With special vacuum table

Panel specifications using automated load/unload system	Value	Notes
Max dimensions	700 (X) x 600 (Y) mm	
Minimum dimensions	320 (X) x 320 (Y) mm	
Max weight	2 Kg	
Minimum thickness	0.3mm	

PROCESS SPECIFICATIONS:

Process Specifications	Value	Notes
Drill-on-target accuracy	$\pm 20 \mu$ Max	Single round target
Optimized drilling accuracy (Ex, Ey)	$\pm 25 \mu$ Max (See definition)	Single round targets @ Dt = 600 mm and Dh=Dt - 5 mm
Cycle time	15 s	2 targets + 3 holes
Productivity	3 panels/minute	



Definition of optimised drilling accuracy :

- Dt = Measured distance between targets
- Dh =Distance between holes
- 2K = Eventual difference between theor. distances
- Ex = Errors along X axis (scale error)
- Ey = Errors along Y axis

DIMENSIONS:

