

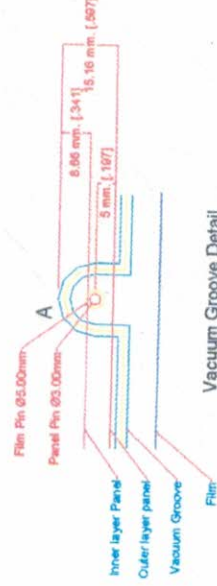
*Alwaysprint*

REVISIONS		INCOMP	APPROVED
P1	DESCRIPTION	DATE	H.A.L.
	Released Per ECO message	02-05-00	H.A.L.
A		06-28-00	R.W.W.

For the adjustable camera, the alignment targets must be placed inside hatched area.

Outer layer and Solder mask :  
Target positions at a minimum of 6.35mm [ 25° ] inside the panel edge.  
A 4.00mm [ 157° ] hole must be drilled in the panel at the target position.

Inner layer: Target positions at a minimum of 6.35mm [ 25° ] outside the panel edge.



**Vacuum Groove Detail**

For the fixed camera, the alignment target must be placed inside the hatch area and on the same X-coordinate as the adjustable camera target.



**Film Punch Target For OLEC Network Punch.**

A = Panel

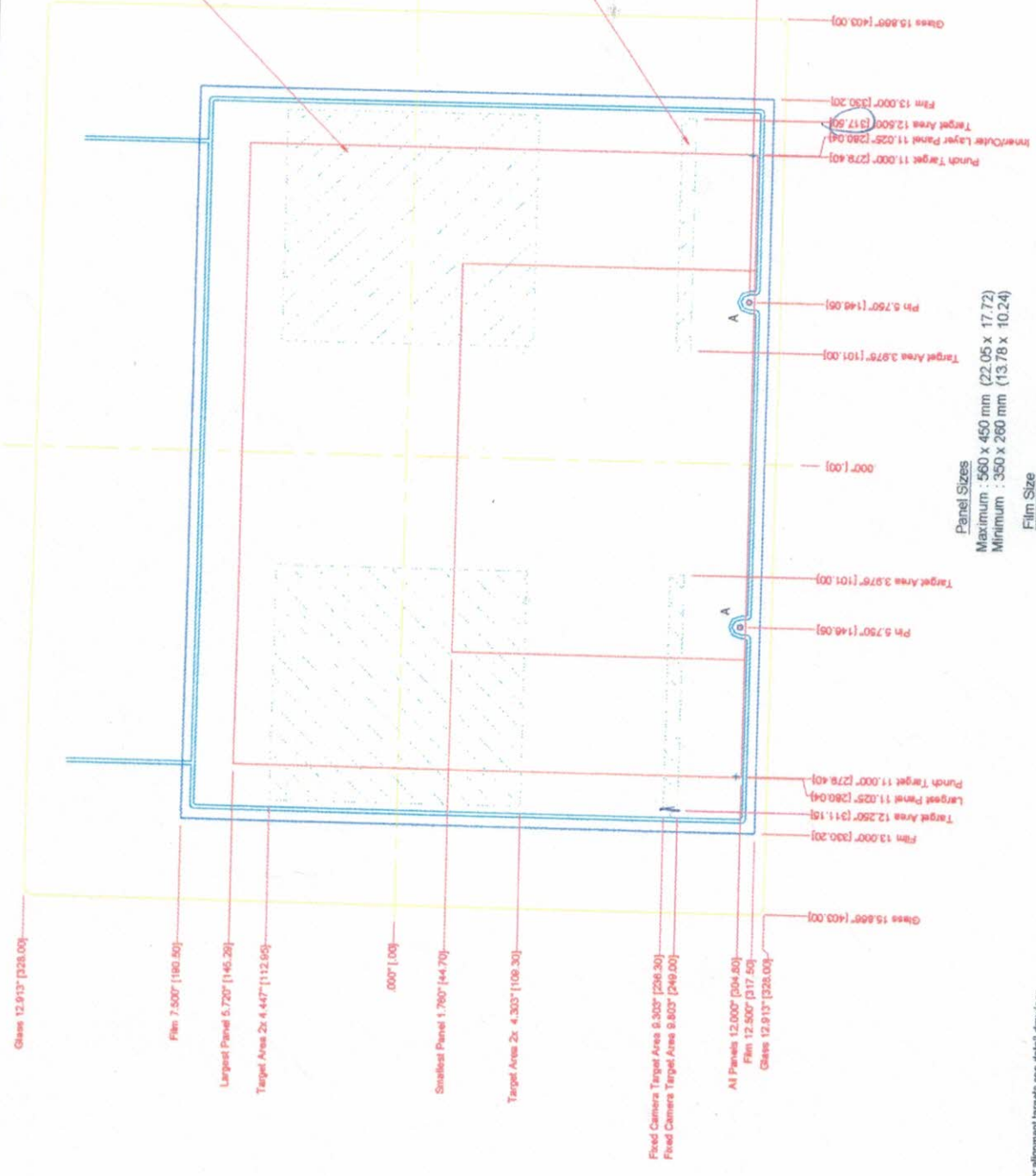
A = Film

Additional design changes after customer approval may result in non-recurring engineering charges.

Customer Approval Signature \_\_\_\_\_ Date \_\_\_\_\_

THE RESPONSIBILITY OF THE APPROVED DRAWING IS ASSIGNED TO THE DESIGNER AND NOT TO OLEC. OLEC WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS DRAWING. OLEC WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS DRAWING. OLEC WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS DRAWING.

OLEC CORPORATION IRVINE, CA		Date	
H.H.	4.13.00		
Accessory Glass Tool Film Size 20" x 28" 4C system			
H.H.	4.13.00		
D 91ATT019 / 91ATT019			
		1/2	Alwaysprint 2 1 1



**Panel Sizes**  
Maximum : 560 x 450 mm (22.05 x 17.72)  
Minimum : 350 x 260 mm (13.78 x 10.24)

**Film Size**  
660 x 508 mm (26.00 x 20.00)

2. For alignment targets see detail drawings.  
1. For manufacturing see OLEC drawing number: 160-0000XXXX  
**NOTES: UNLESS OTHERWISE SPECIFIED**

## Alignment targets for AT30 systems

### **6033A Align. Double side target.**

Double Sided alignment through hole in panel

Bottom film: Target is a plus with .254 mm [.010] line thickness in an 8.00 mm [.315] round clear pad. The target is in a 12.00 x 15.00 mm [.472 x .590] black box

Panel: 4.00 mm [.157] diameter drilled hole. Minimum distance from panel edge is 6.35 mm [.250]

Upper film: Target is a cross with .254 mm [.010] line thickness in an 8.00 mm [.315] round clear pad. The target is in a 12.00 x 15.00 mm [.472 x .590] black box.

### **6034A Align. Inner layer target.**

Front-to-Back alignment

Bottom film: Target is a plus with .254 mm [.010] line thickness in an 4.00 mm [.315] round clear pad. The target is in a 12.00 x 15.00 mm [.472 x .590] black box

Upper film: Target is a cross with .254 mm [.010] line thickness in an 8.00 mm [.315] round clear pad. The target is in a 12.00 x 15.00 mm [.472 x .590] black box.

### **6017A Align. Statistical target.**

Double Sided alignment. Aligning using 10 targets.

Bottom film: Target is a plus with .254 mm [.010] line thickness surrounded by four 1.00 mm [.039] round dark pads. The target is in an 8.00 x 12.00 mm [.315 x .472] clear box

Panel: 4.00 mm [.157] diameter drilled hole surrounded by four 2.00 mm [.078] diameter holes. Minimum distance from panel edge is 6.35 mm [.250]

Upper film: Target is a cross with .254 mm [.010] thick line. The target is in an 8.00 x 12.00 mm [.315 x .472] black box.

### **6035A Align. Mask, Single side target.**

Single sided alignment using copper pad on panel

Bottom film: Target is a plus with .254 mm [.010] line thickness in an 8.00 mm [.315] round clear pad. The target is in a 12.00 x 15.00 mm [.472 x .590] black box

Panel: 4.00 mm [.157] diameter copper pad. Minimum distance from panel edge is 6.35 mm [.250]

**6663A Align. Mask, Double side target.**

Double Sided solder mask alignment. Aligning bottom film to copper pad on panel, and bottom film to upper film through the hole in the panel.

Bottom film: Target is a plus with .254 mm [.010] line thickness in an 8.00 mm [.315] round clear pad. The target is in a 12.00 x 15.00 mm [.472 x .590] black box

Panel: A 6.00 mm [.236] diameter copper pad with a 3.00 mm [.118] drilled hole. Minimum distance from panel edge is 6.35 mm [.250].

Upper film: Target is a cross with .254 mm [.010] line thickness in an 8.00 mm [.315] round clear pad. The target is in a 12.00 x 15.00 mm [.472 x .590] black box.

**6745A Align. Laser edged single sided target.**

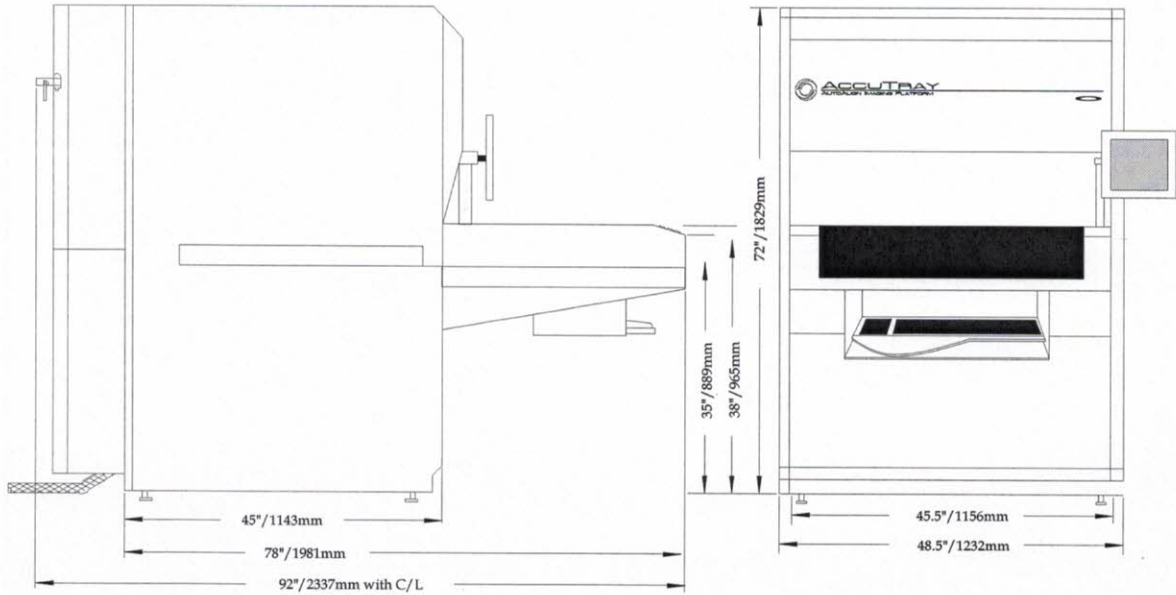
Single sided alignment using laser edged target on the panel.

Bottom film: Target is a plus with .254 mm [.010] line thickness in an 8.00 mm [.315] round clear pad. The target is in a 12.00 x 15.00 mm [.472 x .590] black box

Panel: Laser edged cross. 2x 7.00 mm [.276] long by .254 mm [.010] thick lines.

### 3. Specifications

#### AT30



#### Crated Dimensions

Length	Width	Height
102"	60"	80"
2590 mm	1524 mm	2032 mm

#### Shipping Weight

Crated	2400 lbs.	1089 kg.
Uncrated	1500 lbs.	681 kg.

#### Actual Dimensions

Cabinet welded heavy gauge steel construction with access doors on both sides.

Length	Width	Height
92"	48.5"	72"
2337 mm	1232 mm	1829mm

**Note:** The AT30 cannot be disassembled to pass through any doorways or hallways. Please make sure there is adequate room for its passage.

## Effective Exposure Frame Area

Width	30"	762 mm
Depth:	24"	610 mm

## Applications

	Inners(Post or Pre etch).
	Lead Frame.
	Outers
Resist Type	Dry film or liquid etch resist - Inners & Lead-frame
	Dry film - Outers

## Exposure Light Source

Type employed	OLEC Point Source Optics.
	Double-sided exposure.
Vacuum	Soft contact, typically 8 - 12 inches Hg, monitored and alarmed.
Lamp unit	Two 5 or 8 kW lamp units. Selectable low, medium and high power.
	Lamp change time typically 5 minutes per lamp.
Uniformity	+/- 10%.
Intensity	For example approximately 25 mW/cm <sup>2</sup> for 8 kW unit. See note 1 below.
Integrator range	0 to 999 units, selectable. Normally calibrate 1 unit = 1 mJ/cm <sup>2</sup> .
Exposure time	0 to 999 seconds, selectable.
Spectra	3 OLEC Spectramatch Halide Lamp options available. See OLEC Spectramatch information
Lamp cooling	Forced air cooling. Minimum blower voltage control.
Exposure window	24" x 30" (610mm x 762mm).
Resolution	<= 2 mil line and space. See note 2 below.

---

**Note 1:** Intensity depends on factors such as lamp height, lamp type, reflector type and type of light meter used.

---



---

**Note 2:** Resolution capability depends on resist type, exposure energy and other process conditions e.g pre-clean, lamination or coating and developing.

---

## Capability

<b>Panel size</b>	Minimum 9" x 16" (229mm x 406mm) [2 PIN SYSTEM]
	Maximum 24" x 30" (610mm x 762mm), Outers and 24" x 29" (610mm x 737mm) Inners.
<b>Panel thickness</b>	Inners. Min. .004", Max. .059". (Min. 0.1mm, Max. 1.5mm).
	Outers. Min. .030", Max. .118". (Min. .762mm, Max. 3mm)
	Note depending on panel size may need to employ shims.
<b>Capacity</b>	Dependant upon exposure time, vacuum delay time etc.
	Mechanical cycle 3 second alignment and 4 second tray transport.

**Note:** Maximum capacity depends upon panel quality, machine parameters selected, vacuum delay time, exposure time and reflector/lamp age.

## Registration System

<b>Panels</b>	Two hole leading edge tooling system. Tooling hole diameter .118" (3 mm). Pitch between tooling
	holes 15" (381 mm). Outers require two 3mm diameter holes on the panel within camera capture range.
<b>General</b>	Two point CCD camera system. Post main vacuum confirm mode.
	X, Y and theta control via pulsed stepper motor assemblies.
	Bottom artwork is employed as a reference. Inner mode frame top (including glass) articulates.
<b>Target definition</b>	Outer mode frame top articulates along with panel pin bar.
	Inner - using special pair of over-lapping film alignment targets.
	Outer - using special pair of over-lapping film alignment targets along with a pair of 3 mm diameter drilled holes in the panel.
<b>Repeatability</b>	Inner Film +/- .0004" (+/- 10 microns) best fit.
	Outer Panel +/- .001" (+/- 25.4 microns) best fit.
	"Best fit" = must also consider all other tolerances which may affect registration e.g. drill, artwork etc.

## Glass Tooling

<b>General</b>	Standard tooling is available. Two pin leading edge configuration. 3 film sizes: 20" x 26", 23" x 26", 26" x 30".
	6mm thick "Optiwhite" A grade standard. Other grades available.
<b>Setup time</b>	Artwork setup time < 1.5 minutes

## Temperature Control

<b>System</b>	Closed loop feedback system.
<b>Accuracy</b>	Setpoint +/- 2 C. Note Setpoint is typically 16 C - 25 C depending on customer.

## General Points

<b>Cleanliness</b>	N/A
<b>Control</b>	PC based Windows environment. Touch screen user interface. AP unit is controlled via OLEC proprietary system.
<b>Heat Loading</b>	No heat loading to exposure room as closed loop cooling is employed.
<b>Safety</b>	Safety interlocks on all doors and operator E-stop fitted. Meets UL, CE and Ontario Hydro approval.
<b>Footprint</b>	Closed Loop Unit 92.5" x 48.5" x 72" (2350mm x 1232mm x 1829mm)

## Utilities

<b>Compressed Air</b>	90 psi @ 12 cfm.
<b>Chilled water</b>	20 gpm @ 50 F (75.7 lpm @ 10 C) or 10 gpm @ 45 F (37.9 lpm @ 7.2 C)
<b>Power</b>	200/208, 240, 480 VAC 3 phase @ 60 Hz, 380/415 VAC 3 phase at 50 Hz.
<b>Weight</b>	2400 lbs (1089 kg) crated.
<b>Exhaust</b>	None

## Typical Room Requirements

