

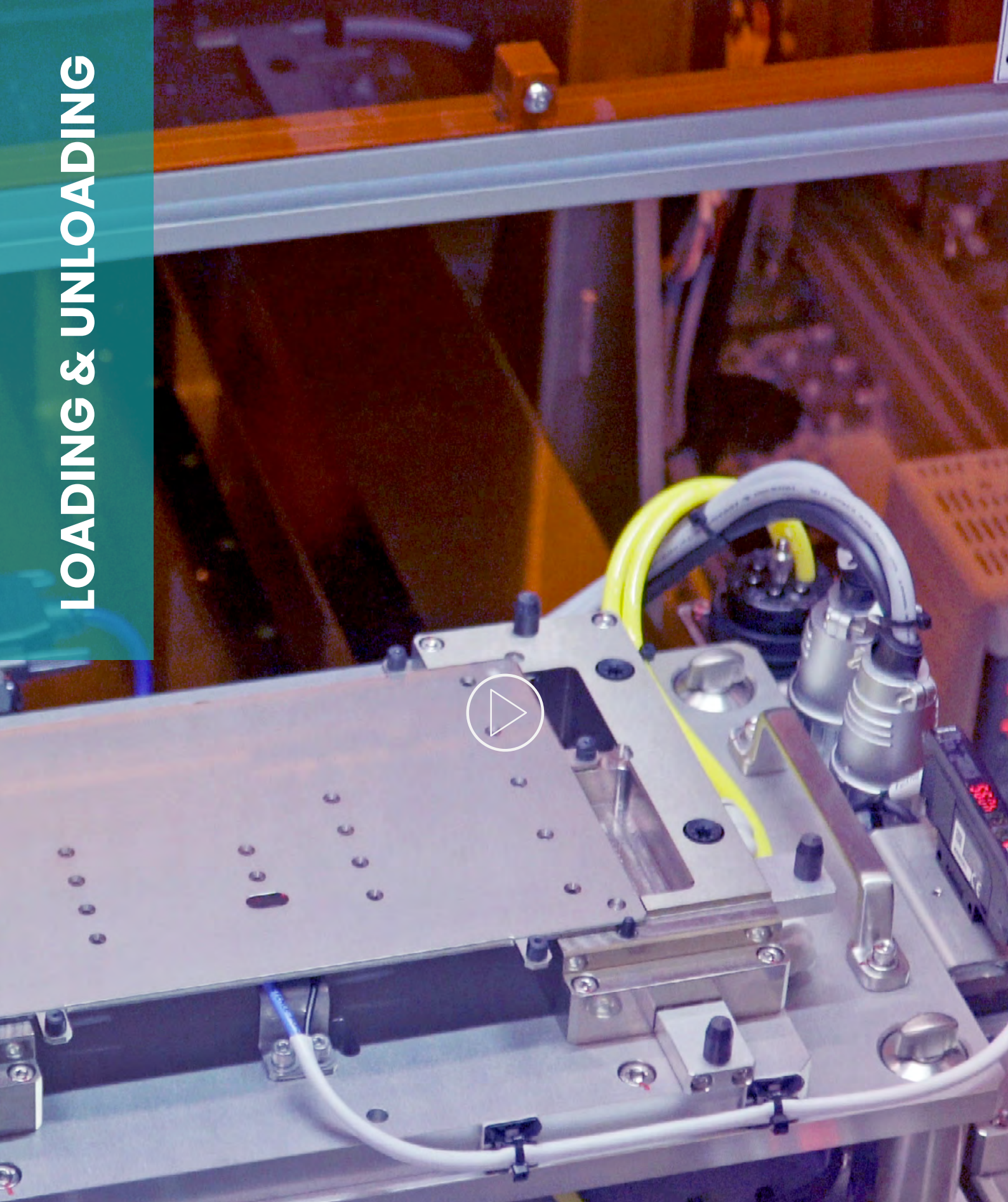


FULL BONDING SYSTEM INTEGRATED

LOADING & UNLOADING
CLEANING
PRINTING METHOD
LAMINATION
MATERIAL SUPPLY UNIT
VACUUM & PRESSURE
UV CURE



LOADING & UNLOADING



OPTICBONDING
OPTICAL BONDING EQUIPMENT

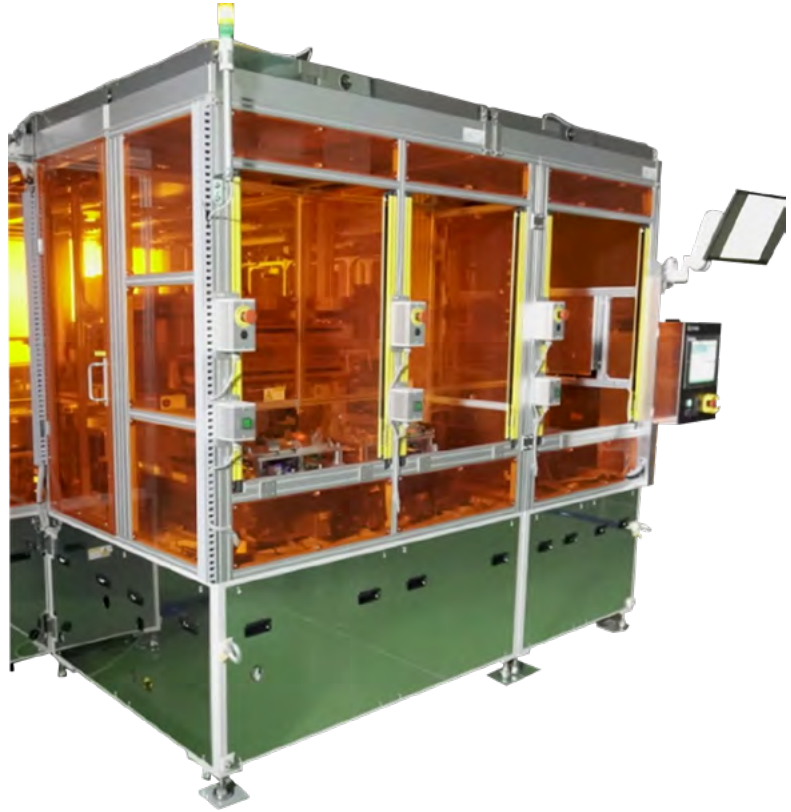


LOADER

A SERIES OF PROCESSES
FROM LOADING TO UNLOADING IS ENABLED

LOADER TR06-6

Small up to 2,940mm x
3,370mm large glass with
flatness 20μm and pin
stages effective for anti
static electricity



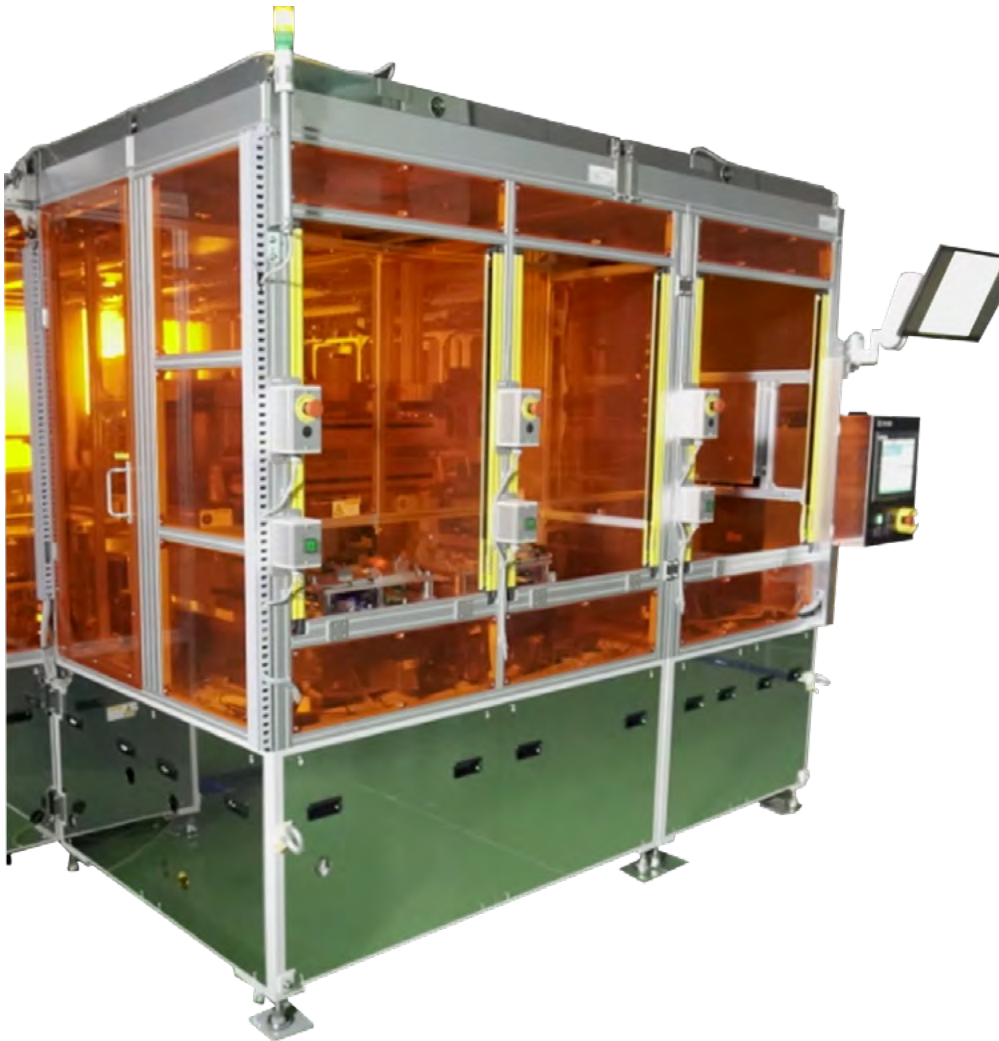
SPECIFICATIONS

Item	Specification
Transfer robot	SCARA with traverse axis
Jig	Exchangeable in accordance with size of workpiece
Workpiece fixation method	Vacuum suction
Existence detection of workpiece	Detected by sensor embedded in jig
Existence detection of film on LCD	Detected by sensor embedded in jig
Existence detection of film on TP	Detected by sensor embedded in jig
Existence detection of film under TP	Detected by sensor embedded in jig
Two-dimensional code reader	Embedded in jig for both LCD and TP
Height measurement of workpiece	Measurement on LCD 4 points, TP 1 point with laser sensor The following is calculated from the result of the measurement <ul style="list-style-type: none">• Inclination of workpiece• Bonding gap• Height of dispenser nozzle
Loading position	Area sensor is installed Unloading of workpiece is confirmed with push button
Signal tower	3 colors (red, yellow and green)

UNLOADER

A SERIES OF PROCESSES
FROM LOADING TO UNLOADING IS ENABLED

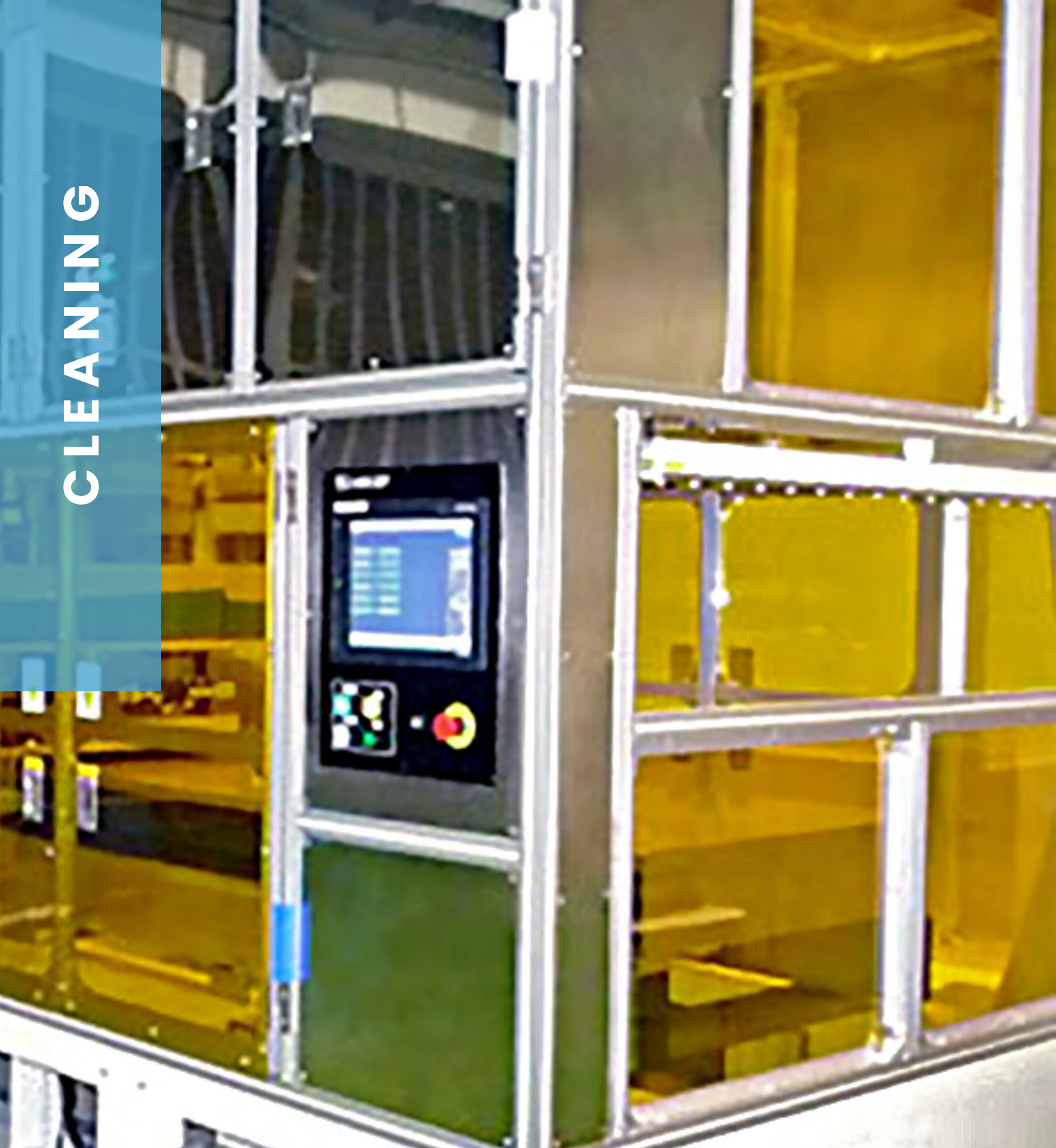
UNLOADER TR06-7



SPECIFICATIONS

Item	Specification
Transfer robot	SCARA with traverse axis
Jig	Exchanged in accordance with size of workpiece
Existence detection of workpiece	Detected by sensor embedded in jig
Unloading position	Area sensor is installed. Unloading of workpiece is confirmed with push button
Pressure detection inside booth	Measured with barograph

CLEANING



US-BLOW CLEANER
PLASMA CLEANER



OPTICBONDING
OPTICAL BONDING EQUIPMENT



US-BLOW CLEANER

ULTRASONIC DRY CLEANER

US CLEANER

- » This is a dry cleaner device that removes foreign matter efficiently by lifting up and removing the foreign matter with ultrasonic air.
- » This equipment removes foreign matters on FPD, etc. by using ultrasonic air without contact.
- » 1.6 μm particles can be removed 100% by dry cleaner. Since the dry cleaning method is introduced, any water, chemicals, etc. are not required. Cleaning on one side or both sides is possible.



SPECIFICATIONS

Item	Specification
Stage size	Correspond to up to 10th generation
Stage material	Correspond to various materials (ceramic)
Thrust up pin material	Correspond to various materials
Thrust up pin drive method	Pulse motor of cam mechanism
Thrust up stroke	From 50 mm to 105 mm (fixed)
Vacuum pad	Φ 15 mm made by VITON
Stage drive	Ball screw + AC servo motor
Stage speed	From 5 to 600 mm / sec
Setting method	Digital setting in operation panel
Cleaner head	Selectable
Head width	Effective length + α
Substrate thickness measurement	Installed
VCR	Option
Alignment mechanism	Option
Static electricity measure	Option

PLASMA CLEANER

PLASMA IS GENERATED IN VACUUM BY OUR ORIGINAL TECHNOLOGY

SURFACE REFORMING DEVICE DTS-01

- » NEPS/high frequency, microwave are not used.
- » Large-capacity batch type low-temperature dry machine.
- » Oxygen radical chemical reaction prevents the sample from being charged and allows it to be processed at room temperature.
- » Improves wettability and hydrophilicity before film formation and application.
- » It can be used widely as a test research and mass production equipment.



SPECIFICATIONS

Model	DTS-01
Control System	Sequencer Control
External Dimensions	W1000 x D1000 x H1540(mm) 400Kg
Chamber Material	Aluminum
Chamber Size	Internal Dimensions W600 x D620 x H250(mm)
React Gas	N ₂ O ₂ Ar Air
Vacuum Pump	Dry Pump 1000L/min 50/60Hz
Emergency Stop	Push Type
Power	3Φ AC 200V±5% 50/60Hz 20A

PRINTING METHOD



SLIT COATING METHOD
DISPENSING METHOD



OPTICBONDING
OPTICAL BONDING EQUIPMENT



SLIT COATING METHOD

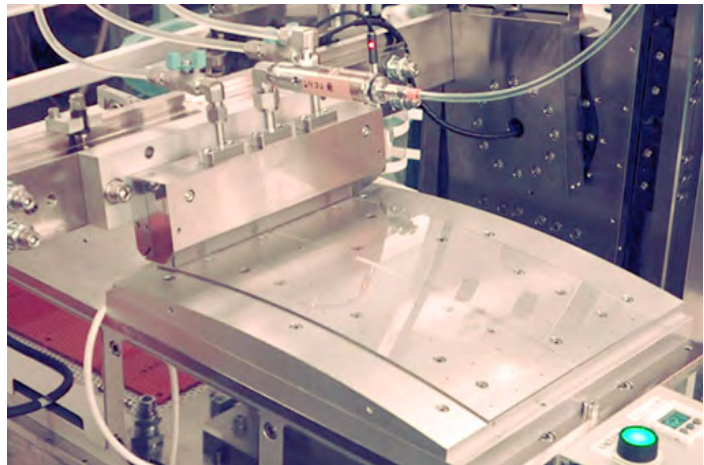
POSSIBILITY TO COAT THE WHOLE SURFACE PATTERN BY
CHANGING THE LENGTH OF THE SLIT DIE

CURVED SURFACE

- » Stage conveys a part and slit die rotates to angle according to part's shape

Optimized slit die

- » Design for maintenance
- » Optimal degasing design
- » Suitable for high viscosity resin
- » Resin leakage prevention structure
- » Optimal inner pressure design
- » Optimal lip design
- » Gap adjustment mechanism



SPECIFICATIONS

SC07 TYPE

Item	Specification	Remark
Table Size	(W)300mm x (D)600mm	
Target Size	Small size ~ 15inch	Flat and Curved (Assumption: R500 ~ R1000)
Coating Thickness	50μm-800μm	Value with Flat Surface
Coating Thickness Accuracy	50μm-100μm: ±10μm 100μm-800μm: ±10%	Value with Flat Surface Value with Flat Surface
Slit Nozzle Coating Width	Max: 200mm	
Slit Nozzle Mobility Width	Mobility range: ±30° (Equivalent to R500)	
Work Piece Suction Method	Vacuum	
Workable Viscosity	1000 ~ 150000mPa·s	

SLIT COATING METHOD

POSSIBILITY TO COAT THE WHOLE SURFACE PATTERN BY
CHANGING THE LENGTH OF THE SLIT DIE

CURVED FREE FORM

COATING WIDTH VARIABLE SLIT COATER

- » Automatically product type change over
- » Free-formed Coating

COATING WIDTH VARIABLE MECHANISM

- » Possible to continuously vary coating width in operation
- » Structure to prevent resin leakage
- » Gap switching is possible with shim

COATING A CURVED SURFACE IS POSSIBLE

- » Coating on Concave and/or Convex surface
- » Control to make the die perpendicular to the coated surface



**CURVED FREE FORM IS UNDER DEVELOPMENT*

SPECIFICATIONS

Item	Specification	Remark
Table Size	(W)300mm x (D)600mm	
Target Size	Small size ~ 15inch	Flat and Curved (Assumption: R500 ~ R1000)
Coating Thickness	50μm-800μm	Value with Flat Surface
Coating Thickness Accuracy	50μm-100μm: ±10μm 100μm-800μm: ±10%	Value with Flat Surface Value with Flat Surface
Slit Die Coating Width	Variable width: 100 ~ 200mm	Extensible
Slit Die Swing area	Swing range: ±30° (Equivalent to R500)	
Work Piece Suction Method	Vacuum	
Workable Viscosity	1000 ~ 150000mPa · s	

PRINTING METHOD - SLIT COATING - CURVED FREE FORM



SLIT COATING METHOD

POSSIBILITY TO COAT THE WHOLE SURFACE PATTERN BY
CHANGING THE LENGTH OF THE SLIT DIE

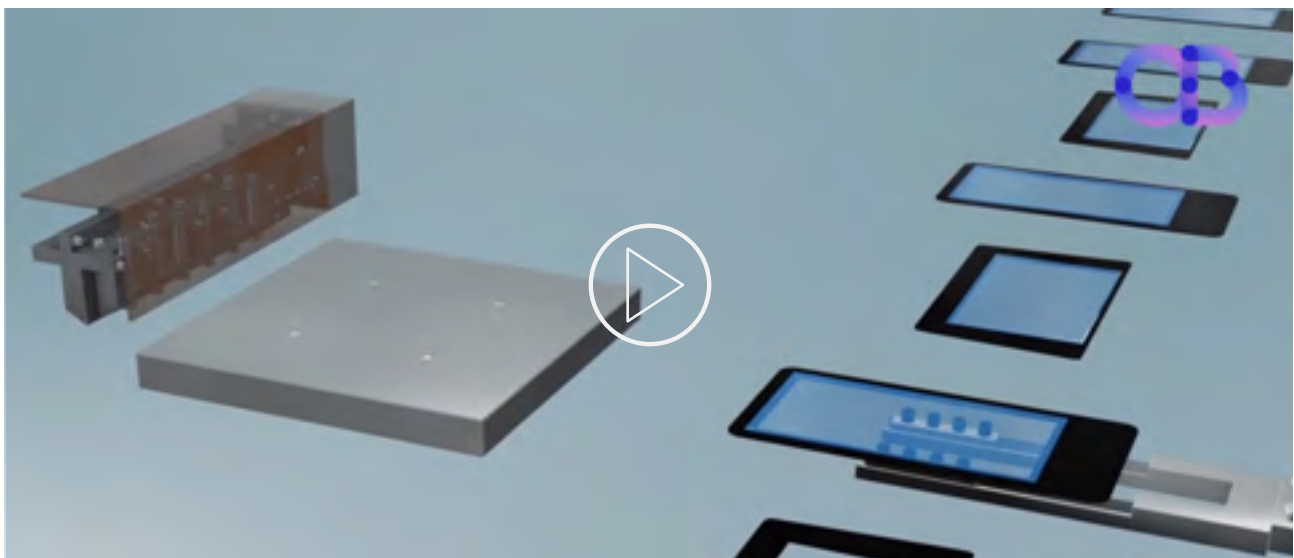
MULTI-DEVICE

IMPROVEMENT OF PRODUCTIVITY

- » Reducing the preparation time to change the coating width, high-mix low-volume production is enabled
- » The changeable nozzles can digitally set the coating width with its unique nozzle structure. This greatly contributes to improving the productivity and the use efficiency of material

IMPROVEMENT OF USE EFFICIENCY OF MATERIAL

- » When changing the coating width, disassembly and cleaning are not required; besides material loss is reduced



SPECIFICATIONS

Item	Specification	Remark
Coating width	100 ~ 200mm	Extension available
Resin thickness	50 μ m-800 μ m	
Resin thickness precision	50 μ m-100 μ m: \pm 10 μ m 100 μ m-800 μ m: \pm 10%	
Available viscosity	1,000 ~ 15,000mPa·s	

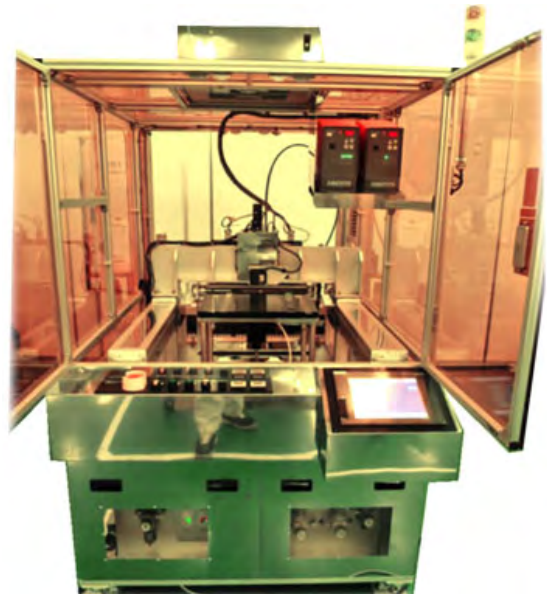


SLIT COATING METHOD

POSSIBILITY TO COAT THE WHOLE SURFACE PATTERN BY
CHANGING THE LENGTH OF THE SLIT DIE

SLIT COATER - SC02

- » Designed to coat the resin to the glass substrate by slit process
- » The loading and unloading of workpieces are done by operator



SPECIFICATIONS

Item		Specification	Remark
Machine size		W1200 x L1550 x H2000, 800kg	
Utility		AC200-220, 3Φ, 30A, CDA(Clean Dry Air), Vacuum	CDA (for resin feed) Vacuum (for Chucking)
Substrate		Max 420mm x 300mm x t0.5-20mm	
Unit	Slit die	Width: Max. 400mm	
	Stage drive	By servo motor, speed control: 3-400mm/sec	
	Resin pump	Gear Pump: Viscosity: max 6,000cp	(Option) Heishin pump (Viscosity max 1,000,000cp)
	Cleaning Unit	Roller Type	
	Gap Control	Gap Control by substrate thickness sensor	
Coating spec.	Thickness	50 ~ 300um (Value recorded by machine supplier)	
	Uniformity	+/-10% (Value recorded by machine supplier)	
	UV-Cure	LED Type, 405nm, L400mm (Loctite 97668, x5set)	
Resin supply		Tank x2	
Ctrl, Mam-Machine Interface		PLC, Touch panel	
Coating condition setting		*Start point: Gap, Speed, Resin feeding volume, timing *Middle point: Gap, Speed, Resin feeding volume *End point: Gap, Speed, Resin feeding volume	

DISPENSING METHOD

POSSIBILITY TO COAT ARBITRARY LINE PATTERN AND POINT
COATING BY PROGRAM CHANGE

DISPENSER UNIT (KTM SERIES)

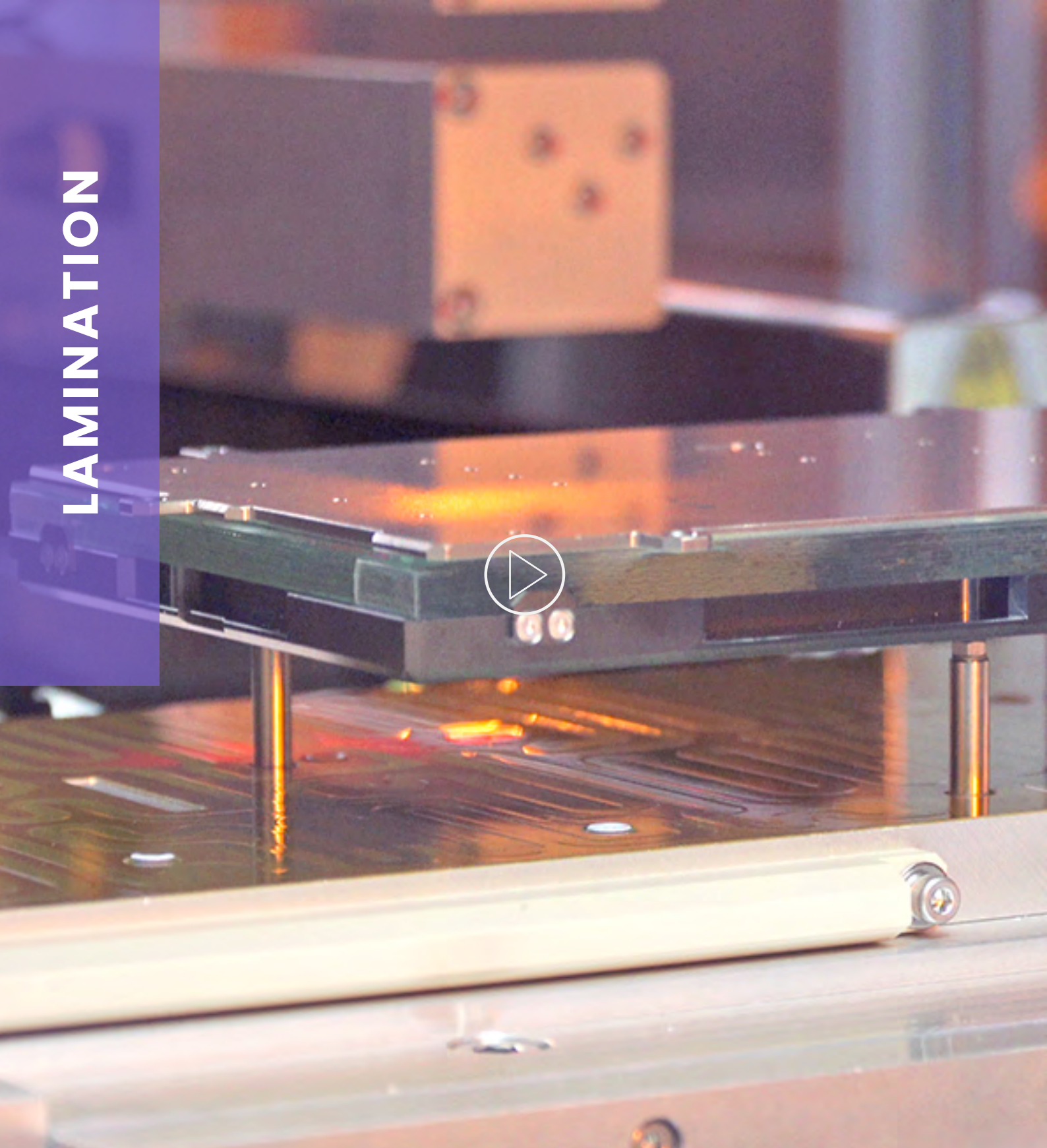
- » This equipment draws organic materials such as peripheral sealing material, silver paste, OCR and dam material on the substrate
- » Depending on usage and material viscosity, it's possible to choose air feeding system or mechanical feeding system
- » Coating Use: Lines & Dots
- » Printing Thickness: Liquid Crystal Seal Material



SPECIFICATIONS

Item	Specification
Control System	PLC
Dimension of compatible workpiece	4 ~ 15 inch
Fixation method of workpiece	Suction in vacuum
Compatible viscosity of resin	3000 ~ 100,000mPa · s
Resin feeding method	Mechanical pump
Precision of dispense pump	±0.015ml
Thickness of dispensed resin	75 ~ 800μm
Precision of positioning (X/Y axis)	±0.01mm
Precision of positioning (Z axis)	±0.01mm

LAMINATION



VACUUM LAMINATION
AMBIENT LAMINATION



OPTICBONDING
OPTICAL BONDING EQUIPMENT



VACUUM LAMINATION

NO MATTER HOW BIG OR SMALL THE PART IS, WE PROVIDE THE OPTIMAL "BONDING" TECHNOLOGY FOR THE PART

VACUUM LAMINATOR VFM07

- » This is for laminating 2 adherends together using optical clear resin, etc.
- » It can perform a series of movements from vacuum resin slit coating, UV irradiation to vacuum lamination in a single facility.
- » Slit coating and lamination under vacuum is possible
- » UV cure after slit coating is possible



We can accept orders and make laminators for work sizes other than mentioned

SPECIFICATIONS

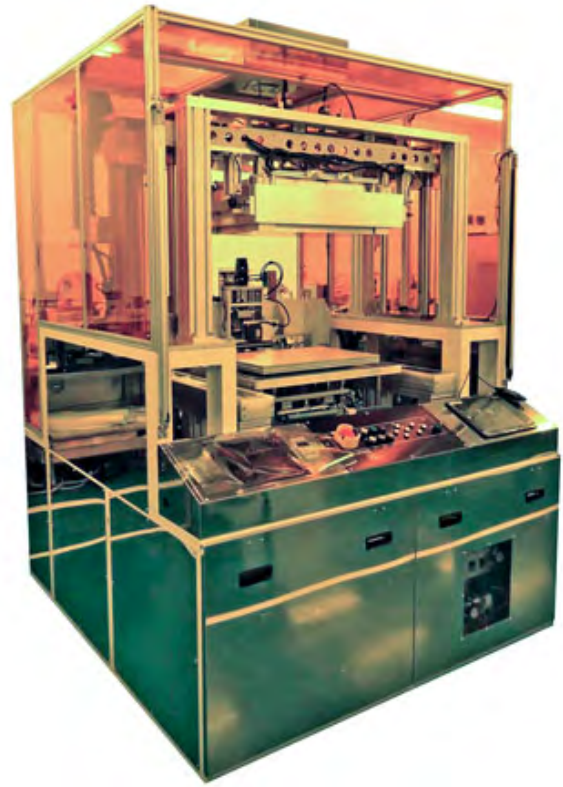
Specification	Description
Work Size	Min: 7inch (e.g. 150 x 100mm) Max: 15inch (e.g. 360 x 220mm) *Negotiable depending on work shape
Equipment Outer Dimensions	1,600mm(W) x 1,800mm(D) x 2,050mm(H)
Equipment Weight	Apx. 3,100kg
Utilities	Power: AC 230V 3Ph 50Hz 30A – Connection: Terminal stand Clear Dry Air: 0.6 to 0.7MPa, 500NL/min – Connection: $\phi 8$ Vacuum: -10Pa to 1000Pa (without work) – Connection: $\phi 8$ *Depending on use conditions, nitrogen, coolant water and/or exhaust will be necessary
Stage Specifications	Upper Stage: Aluminum (Electroless Nickel Plating) Lower Stage: Aluminum (Electroless Nickel Plating)
Adhesive Application Function	Slit Die (Pumping by Mechanical Pump)
Lamination Method	Lamination under Vacuum
UV Irradiation Function	Line UV, Spot UV, Side

VACUUM LAMINATION

NO MATTER HOW BIG OR SMALL THE PART IS, WE PROVIDE THE OPTIMAL "BONDING" TECHNOLOGY FOR THE PART

VACUUM LAMINATOR VFM02

- » Laminates 2 adherends together using adhesive, etc.
- » Can perform a sequence of movements from application of adhesive, automatic alignment, vacuum and lamination to UV spot cure.
- » Perfect for vacuum lamination with optical clear resin, adhesive.
- » Highly precise application by slit coater is possible.



We can accept orders and make laminators for work sizes other than mentioned

SPECIFICATIONS

Specification	Description
Work Size	Max: 280mm x 440mm
Equipment Outer Dimensions	1900mmW x 1550mmD x 2300mmH
Equipment Weight	Apx. 1200kg
Utilities	Power: AC200V, 30A – Connection: Terminal Stand Compressed Air: 0.5MPa, 50NL/min – Connection: $\phi 8$ Vacuum: -70kPa, 20NL/min – Connection: $\phi 8$ *Depending on use conditions, nitrogen, coolant water and/or exhaust will be necessary
Lamination Method	Lamination under Vacuum
Stage Specifications	Upper Stage: Aluminum (White Alumite Treatment) Lower Stage: Aluminum (White Alumite Treatment)
Adhesive Application Function	Slit Coater (Pumping by Gear Pump)
Spot UV Irradiation Function	4-head UV Spot

AMBIENT LAMINATION

NO MATTER HOW BIG OR SMALL THE PART IS, WE PROVIDE THE OPTIMAL “BONDING” TECHNOLOGY FOR THE PART

LAMINATION JIG2 TYPE

- » Used to simply laminate 2 adherends using adhesive, etc.
- » Since upper stage is clear, it's possible to check adhesive spread and height adjustment of lower stage can simply be done looking at dial gauge.
- » Perfect for simple lamination test using optical clear resin and adhesive, etc.
- » LCM lamination test is also possible by changing upper and lower stages.



We can accept orders and make laminators for work sizes other than mentioned

SPECIFICATIONS

Specification	Description
Parts Size	Max. 12inch
Equipment Outline	505mm(W)×740mm(D)×280mm(H) ※with stage open
Equipment Weight	Apx. 40kg
Utilities	Vacuum: -70kpa 5NL/min ※ Connection: φ6
Parts Thickness	Max. 10mm (total thickness)
Lamination Method	Manual lamination by upper stage turned over
Stage Specifications	Upper stage: Clear acrylic Lower stage: Aluminum (Black alumite treatment)
LCM	Can be handled with lower stage change ※ Option
Alignment Method	No alignment pin, etc. ※ Can be treated separately as an option according to user's product specs
UV Irradiation Function	N/A ※Upper stage with hole drilling for UV irradiation

AMBIENT LAMINATION

EITHER STAGE REVERSE SYSTEM OR ROLLER SYSTEM CAN
LAMINATE IN THE ATMOSPHERE WITHOUT BUBBLES

KAR02

- » Best for producing medium size displays
- » Coating with dispenser
- » Ambient lamination



SPECIFICATIONS

Item		Standard Specifications	Remark
Products size		~ 10 inch	
Table Pos.		1 Pos.	
OCR Coating	Fil coating	Dispenser	
	Coating pattern	OCR pattern making support system	
	Supply of fill material	Large sized syringe	Option: tank
	Dam coating	None	Option: Dam coating
	Dam cure	None	Option: LED
	Supply of dam material	None	Option: tank
Lamination	Method	Ambient lamination	
	Alignment	Aligned by referring to the outline	
Thickness measurement for workpiece		None	Option: Automatic
Supply of workpiece		By hand	

AMBIENT LAMINATION

EITHER STAGE REVERSE SYSTEM OR ROLLER SYSTEM CAN
LAMINATE IN THE ATMOSPHERE WITHOUT BUBBLES

KAR06

- » For small panel
- » DAM / FILL Dispense Coating
- » Mass production machine equipped with 2 lamination positions
- » Equipped with software for creating a dispensing pattern as standard
- » Full support form Installation to starting-up
- » Cost-effective
- » High accuracy by CCD auto alignment
- » Space-saving design



SPECIFICATIONS

Item	Standard
Target Size	Minimum 3.5 inch – Maximum 7 inch
Position Lamination Accuracy	±0.05mm
Resin Coating Thickness	50 ~ 200µm
GAP Accuracy	50 ~ 149µm: ±15µm 150 ~ 200µm: ±10%
Coating Volume Accuracy	F.S Under ±3%
Tact	3.5 ~ 5 inch: 30 sec 5 ~ 7 inch: 40 sec *Depend on resin, viscosity and work type
Power Source	Single phase AC200V 240V 50Hz 6kVA
Pressure Air	Clean Dry Air Over 0.5MPa Over 100L/min is required
Vacuum	Installed vacuum generator
Equipment Size	1,620mmW*1,270mmD*1,900mmH
Equipment Weight	Approximately 1,000kg
Equipment Composition	DAM/ FILL coating, CCD auto alignment Work thickness measurement Auto lamination, UV precuring

AMBIENT LAMINATION

EITHER STAGE REVERSE SYSTEM OR ROLLER SYSTEM CAN
LAMINATE IN THE ATMOSPHERE WITHOUT BUBBLES

KAR09

- » For medium panel
- » Slit Coating
- » UV Pre-Curing
- » Ambient lamination



SPECIFICATIONS

Item	Specification
Size	2550mm(W)x1450mm(D)x2200mm(H) Additional Blower (655mm(H))
Weight	1,300kg
Samples	Upper Glass: Max 240mm x 180mm Lower Glass: Max 226mm x 170mm Resin Viscosity: 3,000-100,000cps
Tact Time	130 sec (Lamination Mode). A-8.9"
Utility	Electric: AC200-220 Clean Dry Air: 5.0NL/min, >0.5MPa
Accessory	Resin Profile Measurement Device
Others	Blower Exhaust: 4m3/min, 60 ~ 100°C, O3 < 0.1ppm

MATERIAL SUPPLY UNIT



OPTICBONDING
OPTICAL BONDING EQUIPMENT

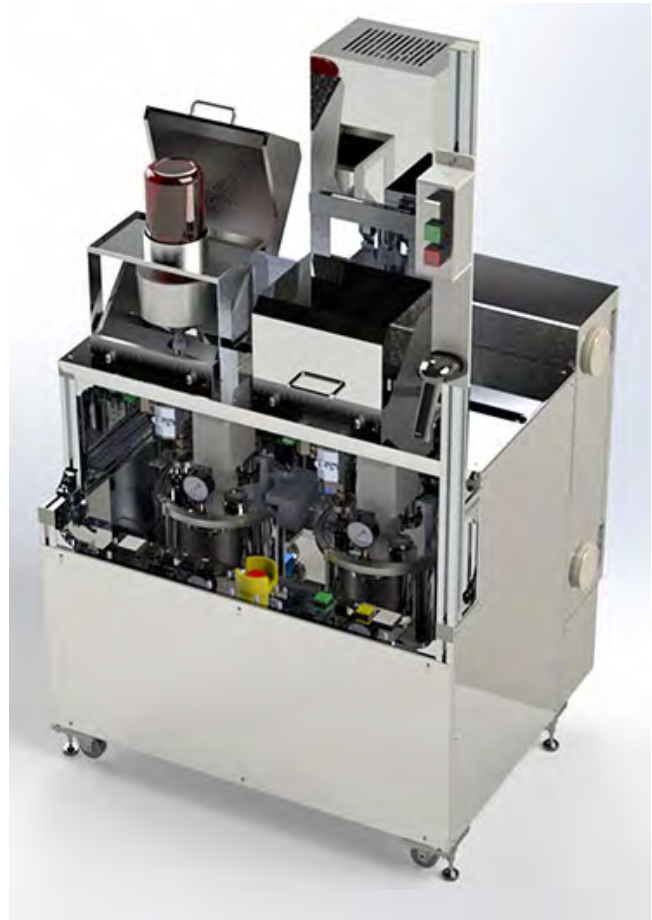


MATERIAL SUPPLY UNIT

UNIT TO SUPPLY MATERIAL AGITATED
AND DEGASSED INSIDE THE TANK

TN01

» Mass Production



UNIT SPECIFICATIONS

Item	Specification Item	Basic Specification
Basic Information	Model	TN01-1
	Number	1 machine
	Dimensions of tank unit	1,000mm×820mm×1,700mm
	Weight of tank unit	Approx. 350kg
Tanks	Number of tanks	2
	Material	Stainless 20L
	Material supply	Supply in vacuum through tube from pail (container)
	Degassing function	Degassing by agitating in vacuum
	Degassin vacuum preasure	-95kPa (converted value into standard atmosphere)
	Feeding method of material	By screw pump

VACUUM & PRESSURE



OPTICBONDING
OPTICAL BONDING EQUIPMENT



AUTOCLAVE

SMALL CAPACITY, THIN STRUCTURE

ACS01 TYPE

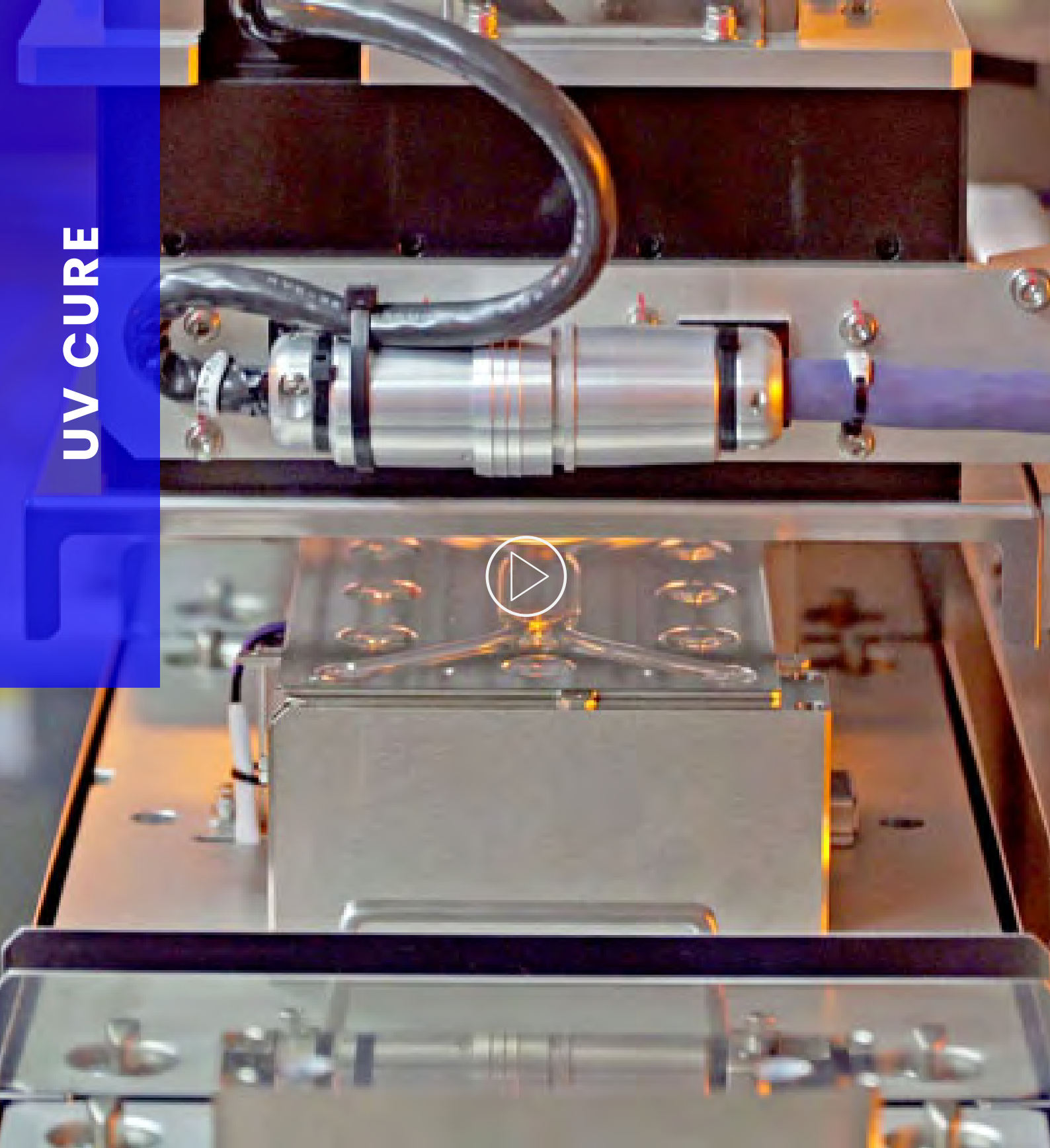
- » Possible to structure multi-stage furnaces according to process conditions
- » Optimal to fully automatic bonding line
- » Possible to shorten pressurization time
- » Possible to shorten heating time
- » Possible to export



SPECIFICATIONS

	Specification	Remark
Inside dimension of chamber	(W)400mm x (D)300mm X (H)35mm	Op)(H)70mm
Capacity of chamber	5L	Op) 10L
Heating	Cartridge heater Max 80°C	
Pressurization	Line air Max 0.5MPa	
Workpiece removal	With fork-shaped arm	

UV CURE



OPTICBONDING
OPTICAL BONDING EQUIPMENT

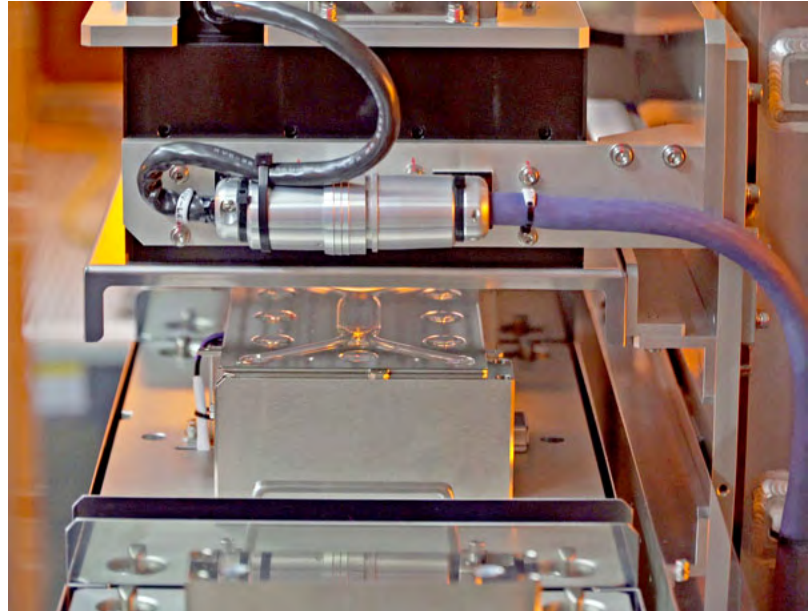


UV MODULE

COMPONENT OF TR06-6

UV MODULE

- » UV is irradiated to promote the cure of OCR (LOCA) on the workpiece (cover glass, touch sensor and display)



SPECIFICATIONS

Item	Specification
UV source	LED TYPE 1 set
UV illuminance	> 90mW/cm ²
UV wavelength	365nm
UV illuminance meter	Installed The illuminance is measured in a special measurement mode
UV irradiation area	300mm×140mm



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