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ATMAOE MF44

Automatic CCD Registering Screen Printer

Any change would not be notified in advance.
Protective enclosure is option.

產品形象銀質獎 | 台灣精品成就獎 | 創新研究獎 | 國家磐石獎 | 國家品質獎 | 通過ISO9001 ISO14001 | 小巨人獎 | 歐洲安全規格認證通過

ATMA
東遠精技工業股份有限公司
ATMA CHAMP ENT. CORP.

248台灣新北市五股區五權七路65號(新北產業園區)
No.65, Wuquan 7th Rd., Wugu Dist., New Taipei City 248,Taiwan
Tel ： 886-2-22991293 Web ： www.atma.com.tw
Fax： 886-2-22991291 E-mail ：atma@atma.com.tw

Application :

Suitable for high precision screen printing on flexible printed circuits (FPC), touch panel, etc

Characteristic :

Innovative Design : CCD camera registration system in coordinate with automatic visual registering and precise positioning.

Machine Structure

- Robust Structure : adopted high strength H-beam steel welded structure + tempering treatment, machine operating stable
- High Precision : assembly datum plane is machined precisely to secure guide rails parallel accuracy.
- Optimal Rustproof : metallic surface treatment with powder coating, durable against rust.

Up Down Structure

- Precise Registration : screen up down adopts servo motor + gear reducer to match precise high lead screw rod with encoder, digital analogy control screen up down smooth and quiet, precise positioning achieves ±0.05mm
- Distance Setting : zero off-contact height can be achieved thru touch-screen setting parameter in range 0~30mm.

Registration Platform Structure

- Upgraded Accuracy : registration platform adopts 3 sets of servo motor to control X-X-Y axis direction, by using visual system identifies to control table displacement volume. :Positioning of sliding table reciprocates right / leftward adopts hydraulic buffer + magnetic suction, registration accuracy achieves 5μm.
- High Precise Leveling : table top is made of thick Aluminum alloyed laminate with hardness treatment against scratching, table level accuracy achieves ±0.05mm
- Vacuum Table : equipped with strong vacuum motor to hold substrate on table top, adjustable suction power to secure completely holding various substrate thickness on table top.

Printing Transmission Structure

- Stable Speed Driving : servo motor is adopted with matching linear guide rail to drive printing stroke stable speed and precise positioning.

Printing Carriage Structure

- Convenient Screen Cleaning : printing carriage pneumatic up down device facilitates to exchange squeegee / flood coater / screen as well as ink cleaning.
- Easy Adjustment : squeegee / flood coater can be adjusted horizontal level and skew angle, and adjustable pneumatic up down pressing depth.

Frame Structure

- Sensitive Inspection : equipped printing stroke automatic inspection sensor, printing stroke distance is set improperly, collision stencil or frame holder is not happened.
- Quick Loading : equipped pneumatic frame holder with active frame positioning knob, speed up screen loading and positioning processing.
- Pneumatic Frame Locking : adopt air locking with manual knob for easy and fast adjustment screen, right left cantilever arm, frame holder. Enclosed with check-valve to maintain sustained locking long time.
- Peel-off Device : adopted linear step motor to drive screen peel-off, peel-off height 20 mm.

Control System

- Digitalized Control : equipped 7 inch colored touch-screen, detailed setting versatile function and parameter, quick save and retrieve memory to achieve digitalized printing quality control.
- Module Expansion : adopted the advanced controller, high compatible and facilitate module expansion, easily maintain programming.
- Standardized Management : 100 group of memory, whicbh can be individually named and numbered, quick save and retrieve to standardize management of different processing.
- Error Display : when control system is malfunction, error message is displayed on touch screen for quick trouble shooting.

All transmission system is considerable “Digitalized Control” to reduce set-up time, easy

operation to raise production and error proof, durable long running time to achieve top requirement for digitalized, standardized processing and safety, all transmission system as below :

- ❖ 6 sets of servo motor : sliding table right and left movement (1 set), printing head right / leftward (1 set), X/Y/θ axis movement for CCD detection (total 3 sets), printing head up down (1 set).
- ❖ 1 set of step motor (peel-off up down)
- ❖ Adopted the advanced PLC : chain locking all digital transmission / control system mentioned above, reserve several group of input / output connecting points, facilitates to connect with up / down stream work station for synchronous integration.
- ❖ Operation interface adopts color touch-screen panel : provided instant operation and various parameters setting and display control in details. Setting 100 group of operation module memory, just touch several switch to save or retrieve setting module.

Safety Protection

Equipped with other safety protection : error diagnosis chain locking loop, error indication, mono automatic safety restoration loop, protective light barrier, Emergency switch, etc. comprehensive safety protection.

Optional Item

(1). Anti-static Bar

(2). Cleaning Roller Device

(3). Half Shield Protective Enclosure (PVC)

(4). Standard 2 CCD camera increasing to 4 CCD cameras

(5). Adding precise manual pressure regulator to control squeegee pressure.

Visual System :

CCD visual registering system adopts Industrial Computer + advanced version WINDOW software to drive three-axis servo registering system for quick and precise registering. Operational interface is color LCD monitor.

1. Purpose : use CCD optical magnification to enlarge target image, analysis, comparison to achieve purpose for high resolution, image resolution capability obtains 0.4μm to match X/X/Y servo drive, automatic precise registering. Registration accuracy achieves 5μm, platform displacement fast and accuracy.

2.Characteristic：

(1) Provided proper visual light source (blue super bright LED)
(2) FOV 11.5 X 8.5 view depth 0～6mm.
(3) Un-restrict target shape and trackable
(4) Depended on demand adding up to 4 CCD to increase accuracy, increasing accuracy of average offset of registering.
(5)Enable to choose edge alignment without CCD registering.
(6)Regular target registration can be accomplished within one minute.
(7)Used professional screen with tempered glass, resistance of acid and alkali, temperature, weather, anti noise and durable long life time.

3.Function：

(1) Achieves purpose of accuracy and fast registering, low defective rate.
(2) Production management requires record, internet connection, long distance remote save and retrieve.

SPECIFICATION :

	ITEM	SPECIFICATION	ATMAOE MF44
Equipment Spec	1	Max Printing Area	400x400mm
	3	Substrate Thickness / Weight	0.05~1.0 mm/0.4 kg
	4	Machine Dimension	W2040*D1220*H1970 mm
	5	Machine Weight	800 kg
	6	Workflow Direction	Left-in Right-out
	7	Production Capacity (no-stop full sped full stroke)	600 P/H
	8	Compressed Air Source	5～7kg/cm^2
	9	Air Exhaustion	76 L/min
	10	Power Source	3 ϕ ,220/380V,50/60Hz
	11	Power Consumption	2.2 kw
Screen Frame Structure	12	Max Frame O/D size	750*850mm
	13	Min Frame O/D size	650*700mm
	14	Frame Height	25～45mm
	15	Frame Locking	Cylinder + screw bolt
	16	Peel-off Drive	Linear Step Motor
	17	Peel-off Height	0～20mm
Sliding table Transmission Structure	18	Table Movement Direction	Left to right reciprocating
	19	Driving Table Reciprocation	Servo Motor + Gear Reducer + Timing Belt
	20	Positioning Accuracy	±0.001mm
	21	Sliding Table Movement Distance	1000mm

	ITEM	SPECIFICATION	ATMAOE MF44
Automatic Registering Structure	23	Registering Platform Movement	5/5/1.5°
	24	Driving Registering Platform	Servo Motor + Ball Roller Screw Rod
	25	XYθ Registering Accuracy	0.004mm
	26	Registering Platform Size	430x430mm
	27	X-axis Accuracy	0.04mm
	28	Y-axis Accuracy	0.04mm
Printing Transmission	29	Printing Direction	From Right to Leftward
	30	Printing Head Transmission	Servo Motor + Timing Belt
	31	Max Printing Stroke	510mm
	32	Effective Printing Stroke	457mm
	33	Printing Speed	20～675mm/sec
Printing Carriage Structure	34	Squeegee Skew Angle	20±5°
	35	Flood Coater Skew Angle	45±5°
	36	Print Head Swivel Angle	±9°
	37	Adjustable Pressing Depth	0～12mm
	38	Squeegee Printing Force	31kg (non-regulation)
	39	Flood Coating Force	31kg (non-regulation)
Screen Up Down Structure	40	Screen Up Down	Servo Motor +Gear Reducer + High Lead Screw Rod
	41	Screen Stand-by level	20mm
	42	Screen Cleaning Level	360mm
	43	Screen Down Repeatability Accuracy	±0.03 mm
	44	Delay Time Off-contact	0~9.9sec

	ITEM	SPECIFICATION	ATMAOE MF44
CCD Transmission Structure	45	CCD Capture Range	X=±205～57.5mm /Y=±205mm
	46	Image Registration Accuracy	0.004mm
	47	Lens Distance	330mm
	48	Lens Field of View HxV	11.5x8.5mm
	49	Viewable Scope	120x120mm ~400x400mm
	50	CCD Camera Driving	Trapezoidal Rod
	51	Standard Light Source	External Coaxial Blue Light
	52	Number of CCD Camera	2 Cameras
Operational Control System	53	Touch-Screen Display	Colored Chinese / English Display
	54	Printing Parameter	100 Group of Memory
	55	Setting Number of Printing	1~5 times
	56	Safety Device	Standard
	57	Error Diagnosis	Standard

Three View Diagram：