

PRINTING MACHINES OVERVIEW



Printing data

| | | | | | |
|--|-----------------------|--|--|-----------------------------|--|
| Frame size (WxLxH) mm (orientation: W-left/right, L-front/rear, H-at clamping) | Max | 584 x 680 x 40 | 650 x 610 x 33 | 762 x 780 x 40 | 1500 x 600 x 40 |
| | Min | 584 x 584 x 18 | 300 x 300 x 18 | 300 x 300 x 25 | 300 x 300 x 25 |
| Stencil frame weight | Max | No limit | 8 kg | 8 kg | 10 kg |
| Board size (WxL) mm | Max | 460 x 410 | 510 x 420 | 620 x 550 | 1400 x 420 |
| | Min | 50 x 60 | 50 x 60 | 50 x 60 | 50 x 60 |
| Board thickness (adjusted) mm | Max | 4 | 4 | 4 | 4 |
| | Min | 0.5 | 0.5 | 0.5 | 0.5 (thinner board on request) |
| Print area (mm) | Max | 410 x 390 (standard) 440 x 390 (option) | 440 x 400 (standard) 480 x 400 (option) | 600 x 540 | 1200 x 350 (standard) 1200 x 410 (option) |
| | Component height (mm) | Max | 63.5 | 23.5 | 23.5 |
| Printing accuracy | | ±20 µm in 3σ (FA23) | | | |
| Print capability | | 01005 (0402 metric) chip | 01005 (0402 metric) chip | 01005 (0402 metric) chip | 0402 (1005 metric) chip |
| Typical cycle time (without printing) | | 10 - 20 s | 10 - 20 s | 10 - 20 s | 10 - 20 s |

Programmable parameters

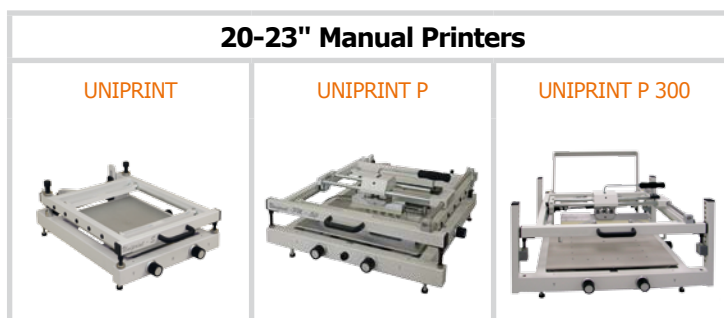
| | | | | |
|-------------------------------------|----------------------|--------------------|--------------------|--------------------|
| Print pressure (manual control) | 1-5 bar (10 – 140 N) | 2-5 bar (40-120 N) | 2-5 bar (40-120 N) | 2-5 bar (40-100 N) |
| Print pressure (electronic control) | 1-3 N/cm | | | |
| Separation speed control | 0.1 - 3.5 mm/s | 0.5-6 mm/s | 0.5-6 mm/s | 0.5-6 mm/s |
| Print speed range | 10 – 99 mm/s | 20-150 mm/s | 20-150 mm/s | 30-200 mm/s |

Alignment conditions

| | | | | |
|----------------------------|---|------------------------|------------------------|-----------------------------------|
| Alignment solder pad shape | square or rectangle with max. rate 2:1 | | | |
| Table X/Y alignment | X, Y, (theta): +/- 5 mm (+/- 2.5°) | X, Y ±10 mm, Theta ±3° | X, Y ±10 mm, Theta ±3° | X, Y, (theta): ±10 mm (± 1.5°) |

Installation data

| | | | | |
|-------------------------------|---|---------------------|---------------------|---------------------|
| Machine dimension (mm) | 860 (+448 control console) x 846 x 1416 | 745 x 985 x 695 | 895 x 1135 x 695 | 1730 x 930 x 720 |
| Weight | 220 kg | 100 kg | 128 kg | 160 kg |
| Power supply | 230 V/50 Hz, 150 VA | 230 V/50 Hz, 150 VA | 230 V/50 Hz, 150 VA | 230 V/50 Hz, 150 VA |
| Compressed air (oil free air) | 0.6 – 0.80 Mpa | 0.6 – 0.80 Mpa | 0.6 – 0.80 Mpa | 0.6 – 0.80 Mpa |
| Control system | PC with Windows®7 OS | PLC Touchscreen | PLC Touchscreen | PLC Touchscreen |



Printing data

| | | | | |
|--|-----|--|--|--|
| Frame size (WxLxH) mm (orientation: W-left/right, L-front/rear, H-at clamping) | Max | 415 x 500 x 33 or 438 x 476 x 33 | 608 x 608 x 33 | 608 x 608 x 33 |
| | Min | 220 x 310 x 18 | 370 x 280 x 18 | 370 x 280 x 18 |
| Stencil frame weight | Max | 5 kg | 8 kg | 8 kg |
| Board size (WxL) mm | Max | 320 x 300 | 410 x 405 (standard) 450 x 450 (option-only for V, G, S table) | 410 x 405 (standard) 500 x 500 (option-only for V, G, S table) |
| | Min | | | |
| Board thickness (adjusted) mm | Max | 1.5 | 1.5 | 300 |
| | Min | 1 (thinner board on request) | 1 (thinner board on request) | 1 |
| Print area (mm) | Max | 290 x 265 (standard) 290 x 280 (option) | 390 x 355 (standard) 420 x 370 (option) | 390 x 355 (standard) 420 x 370 (option) |
| Component height (mm) | Max | 23.5 (only M table) | 23.5 (only M table) | |
| Printing accuracy | | | | |
| Print capability | | 01005 (0402 metric) chip | 01005 (0402 metric) chip | 0402 (1005 metric) chip |
| Typical cycle time (without printing) | | | | |

Programmable parameters

| | | | |
|-------------------------------------|----------------------|----------------------|----------------------|
| Print pressure (manual control) | 10–50 N | 10–50 N | 10–50 N |
| Print pressure (electronic control) | | | |
| Separation speed control | 1-6 mm/s (with lift) | 1-6 mm/s (with lift) | 1-6 mm/s (with lift) |
| Print speed range | | | |

Alignment conditions

| | | | |
|----------------------------|----------------------|----------------------|----------------------|
| Alignment solder pad shape | | | |
| Table X/Y alignment | X,Y +/-6 mm, +/-2.5° | X,Y +/-6 mm, +/-2.5° | X,Y +/-6 mm, +/-2.5° |

Installation data

| | | | |
|-------------------------------|---|---|---|
| Machine dimension (mm) | 464 x 702 x 235 (360 with guided squeegee) | 700 x 806 x 235 (350 with guided squeegee) | 767 x 806 x 555 (630 with guided squeegee) |
| Weight | 23 kg (28 kg with guided squeegee) | 32 kg (38 kg with guided squeegee) | 39 kg (45 kg with guided squeegee) |
| Power supply | | | |
| Compressed air (oil free air) | 0.6 – 0.80 Mpa | 0.6 – 0.80 Mpa | 0.6 – 0.80 Mpa |
| Control system | | | |

FA23

PRINTER WITH CONTROLLED ALIGNMENT SYSTEM



APPLICATION

- Maximal printing area for 23" stencil
- High flexible mid-size production
- Prototyping
- Research

UNIQUE FEATURES

- Very fast setup for new and repeated products
- Unique double squeegee with minimized blades distance
- Smooth pneumo-hydraulic separation with very low speed, important for printing HI-density structures
- Integrated underside cleaning system
- Programmable print gap
- Programmable print modus

CONTROL SYSTEM

- PC with WINDOWS®7 OS
- All print parameters programmable
- Operator influence eliminated
- Dual speed of table separation
- Three password levels
- Logging of all process parameters
- Process data transfer to LAN possible

ALIGNMENT SYSTEM

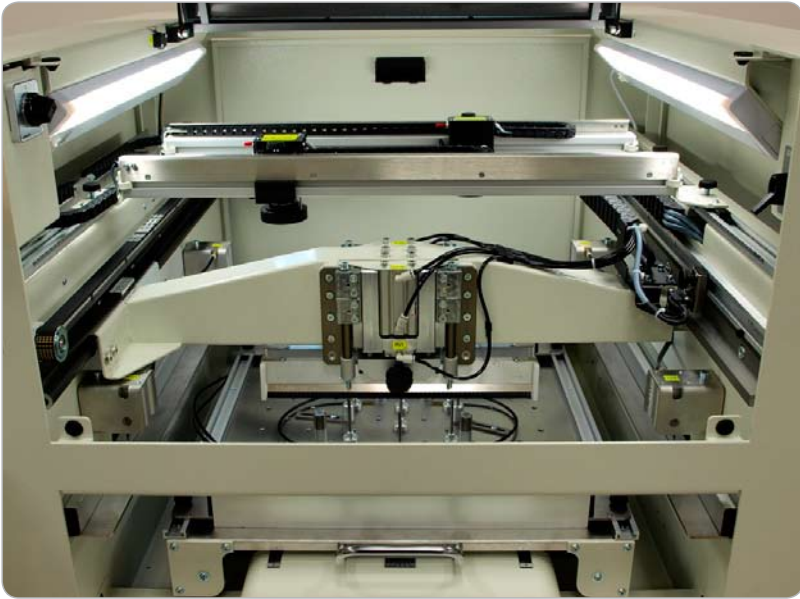
- Stencil-to-board automatic alignment system with unique through-stencil view technology
- System can use square solder pads or printable fiducials
- Alignment system also accepts reduced apertures
- No table movement after alignment
- Keeping the accurate position independent on physical and climatic influence

FULLY AUTOMATIC ALIGNMENT

ALIGNMENT SUPPORTED BY SW

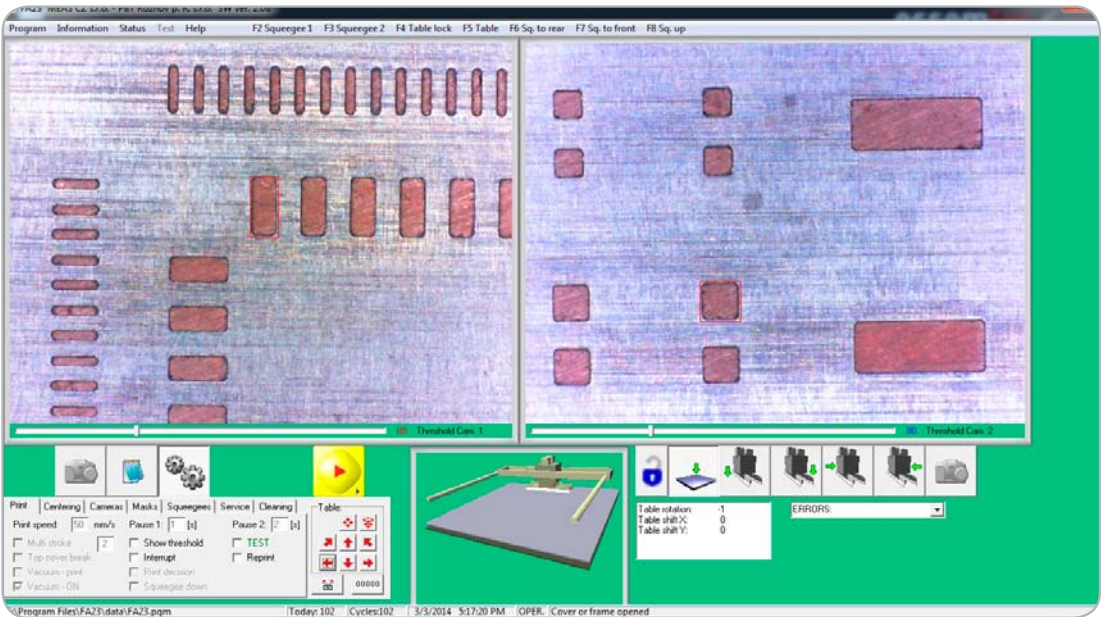
- Software guides operator to align stencil-to-board
- Instruction guides operator to quick align





ALIGNMENT SYSTEM

- ❑ Vision process uses image analysis of pad edges
- ❑ Filter for surface irregularity integrated



SEMI AUTOMATIC SMD STENCIL PRINTER WITH VISION SYSTEM



APPLICATION

- Maximal printing area for 23" stencil
- Printing of very small chips, BGA, LGA structures
- Easy and repeatable print process with low investment costs

UNIQUE FEATURES

- Minimal pitch of squeegee edges
- Fine control of snap-off process (speed, uniformity)
- Special stand for the machine available to save shopfloor space

PLC CONTROLLER WITH TOUCH SCREEN AND PROGRAMMING CAPABILITY

| SETUP / MANUAL | | | | MENU |
|------------------------|-----------|----------------------|-----|---------------------------|
| SQ. REAR POSITION: | 400 | THICKNESS BOARD: | 4.0 | ▲ |
| SQ. FRONT POSITION: | 0 | OVERLAP STENCIL POS. | 1.5 | |
| PRINT SPEED: | 150 | SNAP-OFF SPEED: | 6 | ▼ |
| PRINT STROKE Nr.: | 10 | SNAP-OFF DISTANCE: | 2.0 | |
| SQUEEGEE HOME POSITION | | TABLE HOME POSITION | | FRAME POSITION: — OPEN |
| SQ. REAR | SQ. UP | TABLE UP | | |
| SQ. FRONT | SQ.1 SQ.1 | TABLE DOWN | | |

- Adjustable magnetic board support to compensate board thickness



- Easy opening with pneumatic servo-system
- Stops at any angle
- Fully weight ballance



- Pneumatic lock of print frame



- Quick squeegee clamping
- Springloaded paste deflector

SEMI AUTOMATIC SMD STENCIL PRINTER WITH VISION SYSTEM

APPLICATION

- ❑ Maximal printing area for 29" stencil
- ❑ Printing of very small chips, BGA, LGA structures
- ❑ Easy and repeatable print process with low investment costs

UNIQUE FEATURES

- ❑ Minimal pitch of squeegee edges
- ❑ Fine control of snap-off process (speed, uniformity)
- ❑ Special stand for the machine available to save shopfloor space



- ❑ Easy opening with pneumatic servo- system
Stops at any angle

- ❑ Extra wide opening angle for easy stencil cleaning and tooling adjustment

- ❑ Frame clamping with adjustable width

- ❑ Easy access to printing area for solder paste application

- ❑ Pneumatic lock of print frame

- ❑ Fast squeegee exchange - no tool needed

- ❑ Automatic squeegee lift for frame exchange and paste refill

- ❑ Laser-guided and movable vision system for quick setup

- ❑ Fast board changeover
Only partial opening needed for handling

- ❑ Adjustable magnetic board support tooling



SEMI AUTOMATIC AUTO DRIVE STENCIL PRINTER



APPLICATION

- ❑ LED and other large-format printing tasks
- ❑ For frame with size up to 1500x600x40mm
- ❑ Max printed board size 1400x420x4mm

UNIQUE FEATURES

- ❑ Based on printers Go23 and Go29
- ❑ Pneumatic lifting of upper part with stencil frame
- ❑ Synchronous separation of table
- ❑ Fast changeover and very easy operation
- ❑ Robust solution for harsh conditions in 24/7 production

CONTROL SYSTEM

- ❑ PLC touchscreen
- ❑ Programmable range or squeegee
- ❑ Controlled separation speed of table
- ❑ Password protection in three levels



UNIPRINT

MANUAL AND SEMI-MANUAL STENCIL/SCREEN PRINTERS

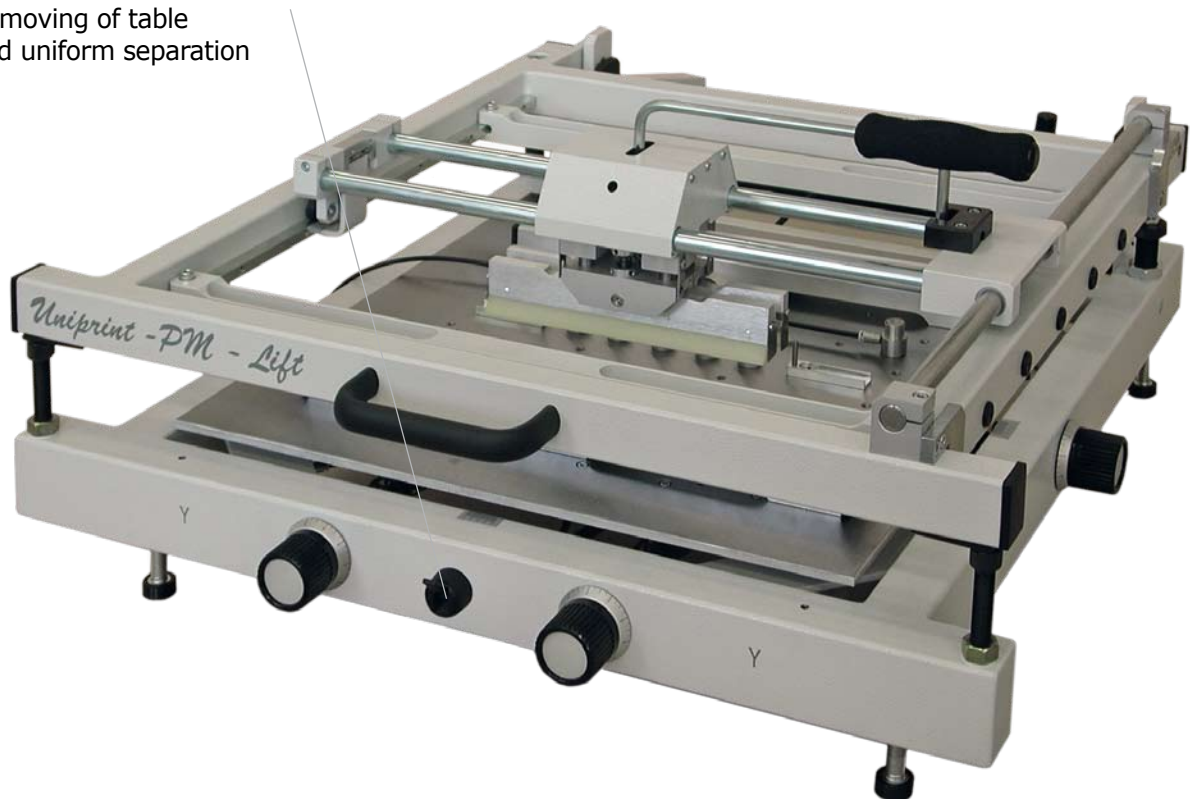
TWO SIZES: SMALLER UNIPRINT AND LARGER UNIPRINT P



- ❑ Full lifetime reliability
- ❑ Smart modular design
- ❑ Suitable for heavy duty
- ❑ Printing of solder paste, glue and ink in electronic production
- ❑ High dimensional stability and rigid framework
- ❑ Advanced pre-loaded mechanism for precise alignment

LIFT - PNEUMATIC SEPARATION OF BOARD FROM STENCIL

- ❑ Pneumatic moving of table
- ❑ Smooth and uniform separation



GUIDED SQUEEGEE SYSTEM

- Better printing result
- Uniform and balanced squeegee pressure
- Easy moving

- Simple models upgradable by guided squeegee



- Pressure spring for easy opening of upper frame



UNIPRINT P 300

- Height of printed subject up to 300 mm



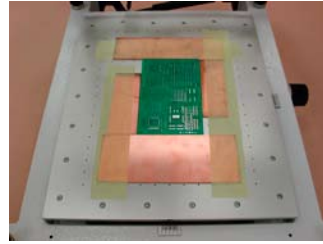
UNIPRINT TABLE AND CLAMPING

FOUR DIFFERENT PRINT TABLE TYPES FOR PCB FIXING

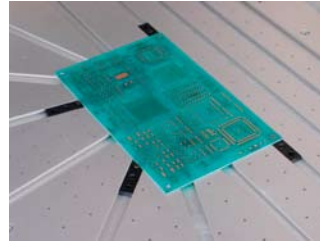


Magnetic table (M)

- ❑ Solution for both side boards
- ❑ Support bars, pins, vacuum cups
- ❑ Hole and edge fixation pins

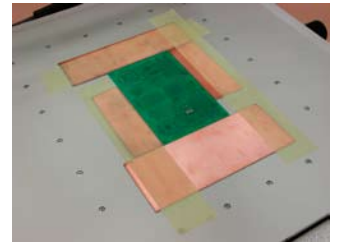


Vacuum table (V)



Grooved table (G)

- ❑ Fixing pins

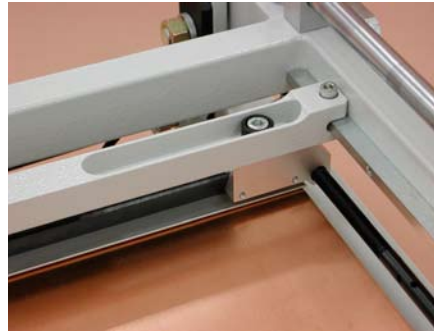


Simple table (S)

DIFFERENT CLAMPING SYSTEMS FOR STENCIL FRAMES



Fast slide-in with fixed width

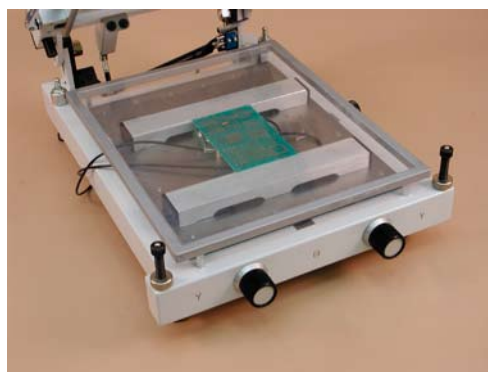


Adjustable screw bars



Slide-in adapters for screw bars

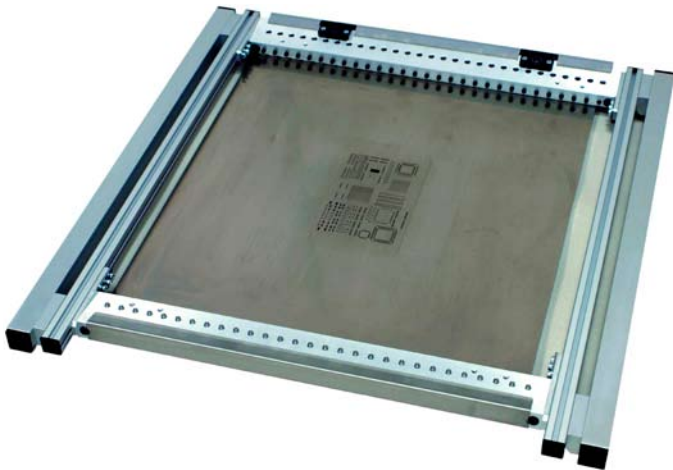
REGISTRATION FRAMES



- ❑ Registration frame increases the accuracy for print alignment
- ❑ Tested printing to check alignment

TENSIONING FRAMES

TENSIONING SPRING LOADED (SPRUNG) STENCIL FRAME 20"/23"



- Suitable for all PBT printer 23"
- Available for other printers on market
- Springy pins on one side
- Defined by springs sitting under of each pin
- Stencil is fixed by stainless comb
- Stability and low weight of frame
- Easy readjustment

TENSIONING SCREW STENCIL FRAME

- Specified in two dimension for PBT printers UNIPRINT and UNIPRINT P
- Stencil is fixed by the stainless combs
- Frame si fixed in printer on screw bars



STENCIL FRAME DATA

| | Tensioning spring loaded stencil frame 20"/23" | | Tensioning screw stencil frame | |
|--------------------------|---|--------------------|--------------------------------|--|
| | PBT printer 23" A29 with adapter | UNIPRINT (smaller) | UNIPRINT P (larger) | |
| Available for Printers | PBT printer 23" A29 with adapter | UNIPRINT (smaller) | UNIPRINT P (larger) | |
| Max. stencil format (mm) | 434 x 564 | 320 x 490 | 320 x 580 | |
| Min. stencil format (mm) | 150 x 250 | 150 x 250 | 150 x 475 | |
| Max. tensioning force | 2500 N | | | |
| Thickness of stencils | 100-300 um | | | |
| Weight | 4 kg | 2 kg | 2.6 kg | |
| Max outer dimension (mm) | 584 x 605 x 25 | 350 x 490 x 37 | 350 x 585 x 37 | |