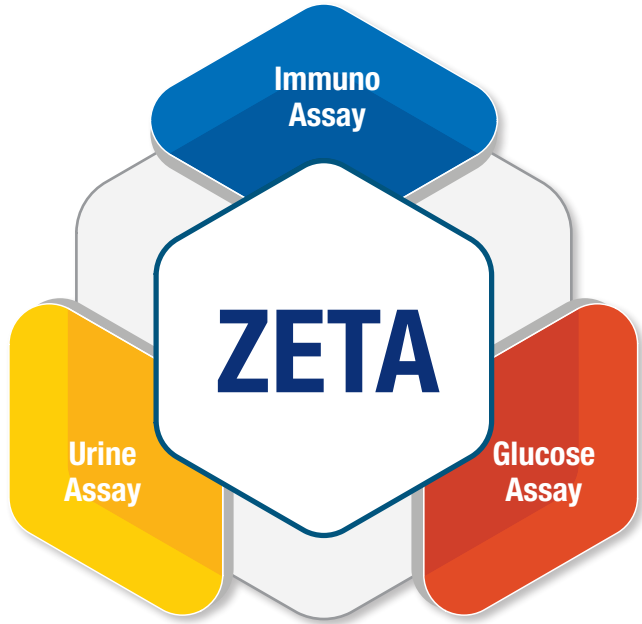




ZETA

A leading Manufacture of Equipment
for the production of diagnostic test strip and biosensor



We make production equipment that makes the following test products.

Immunoassay

- Infectious Disease (HIV, HBsAg, Malaria)
- Tumor Marker (AFP, PSA, CEA, FOB)
- Cardiac Marker (Troponin, Myoglobin)
- Fertility Hormone (hcG, LH)
- And Others Unlisted

Urine Assay

- Leukocytes
- Nitrite
- Protein
- pH
- Blood
- Glucose
- Urobilinogen
- And Others Unlisted

Glucose & Other Assay

- Glucose Biosensors
- Reflectance Glucose Test
- HbA1c (Hemoglobin A1c)
- Cholestrol (LDL, HDL)
- And Others Unlisted



Zeta Corporation is one of the leading manufacturer of equipment for the production of diagnostic test strips, biosensors, and biochips.

We offer a broad range of machines for various applications and requirements, from standardized and affordable units for R&D institutions to highly sophisticated and fully-customized automated systems for mass-production facilities and those in between.

Using our core technologies and through constant innovation, our machines have been engineered and developed to meet the highest demands of our international customers in delivering exceptional performance and reliability with special emphasis on making our systems as simple as possible for user-friendly operations and for ease of maintenance.

Our commitment to provide cost-effective and value-added machines with sound business practice, grounded in trust and integrity, have allowed us a reputable standing in the global market. Today, our line of laminators, dispensers, cutters, bottling systems, and automatic assemblers are being used by more than 230 satisfied customers in over 40 countries worldwide.

Under the slogan of “Maximizing customer’s growth”, Zeta will continually devote itself to develop effective and differentiated systems for the benefit of our customers to realize their production objectives.

Precision
Performance
Reliability

Into every machine since 2000

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Equipment for Immunoassay Strips

Precision Laminator: LCI-Series

[For Low - Mid Production Volume]

DESCRIPTION

LCI series is a line of semi-automatic systems designed for low to mid volume production facilities. The units are designed for laminating single to multiple materials (membrane, conjugate / sample / absorbent pads, and cover tape in roll form) onto manually fed plastic backing card.

As the backing with adhesion is loaded, each material is automatically and precisely laminated to its adjusted position one after another. When lamination is finished, an integrated cutter cuts the card and stacks the master (finished) card into a tray to complete the process.

The simple and easy-to-use units increase productivity while reducing material waste and contamination factors compared to manual lamination process. Variety of standard and customized systems are available that can process single to multiple materials simultaneously to suit varying production needs.

FEATURES

Cost-effective

- Semi-automatic system for increased production efficiency.
- Mechanical operation reduces labor and material loss in comparison to manual operation.

User-friendly

- Touch screen panel for easy setup and operation.
- Simple adjustment settings of cutting points between cards.
- Quick & easy removal of blades allows for easy cleaning and maintenance.
- Designed to handle various backing card size and material.

Performance

- Exceptional lamination accuracy (tolerance $\pm 0.2\text{mm}$) ensures quality.
- Built-in micrometers for precise fine-tuning of lamination position.
- Specially coated blades for improved lifespan.

OPTIONS

Tension Controller
Laminating Pressure Controller



GENERAL SPECIFICATIONS

- Card Feeding Method : Manual
- Capacity : 720 cards/hour (Based on 5 second feeding interval of 300mm card)
- Lamination Tolerance : Less than 0.2 mm (Material irregularity not included)
- Power : 110 or 220VAC, 1P, 50/60Hz
- Current : LCI-200~500: 0.2KVA, 3A (*LCI-705: 0.3KVA, 3A)
- PVC Backing Card Width : Adjustable (50 ~ 100 mm)
- Membrane Type : Backed or Unbacked Nitrocellulose (As per customer's requirement)
- OTHER SPECS INFO : See below chart for more details

MODEL	LAMINATING MATERIALS	HANDLING MATERIAL SPECS	*SIZE (LxWxH) cm	*WGT (kg)
LCI-200	1-material: Membrane	-Membrane Width: Adjustable (Up to +6mm range) -Membrane Roll OD: Max. 200 mm	115x45x55	70
LCI-300	2-material: Membrane & Absorbent Pad	-Membrane Width: Adjustable (Up to +6mm range) -Membrane Roll OD: Max. 200 mm -Abs. or Sample Pad Width: Adj. (Up to +6mm range) -Abs. or Sample Pad Roll OD : Max. 500 mm	115x45x96	80
LCI-400	1-material: Cover Tape	-Cover Tape Width: Adjustable (Up to +6mm range)	115x45x60	70
LCI-500	1-material: Absorbent or Sample Pad	-Abs. or Sample Pad Width: Adj. (Up to +6mm range) -Abs. or Sample Pad Roll OD : Max. 500 mm	115x45x96	70
LCI-705	5-Material: All materials	-All Materials & Size: As per customer's requirement	200x50x160	150

*Size & weight is approximate figure, exact figure may vary depending on options, modifications, and other factors

Reel to Card Laminator: LAI-Series

[For Mid - High Production Volume]

DESCRIPTION

The Reel to Card Laminator, LAI series is a line of fully-automated systems for automatically laminating single to multiple materials (membrane, conjugate / sample / absorbent pads, and cover tape in roll form) onto the automatically fed plastic backing in roll form.

The alignment fixtures accurately guide and position each material one by one for precise lamination. Then the plastic backing with all laminated materials is cut into preset card length to produce finished master card where they are stacked into a tray to finalize the process.

The entire process from start to finish is carried out in a non-stop continuous mode for the ultimate production efficiency. By requiring virtually no assembly workers and their mis-handling of materials, the system not only ensures optimal quality control, but also maximizes throughput while minimizing material waste saving time and money.

Variety of standard and customized systems are available that laminate from single to multiple materials to suit various and specific production needs.

FEATURES

Cost-effective

- Benefits of R2C automatic and hands-free process:
 - Ultimate in throughput
 - Minimal required labor
 - Minimal material loss
 - Contamination-free

User-friendly

- Touch screen panel allows for easy set-up and operation.
- Simple & easy adjustment settings of cutting points between each card.
- Quick & easy removal of blades allows for easy cleaning and maintenance.

Performance

- Exceptional lamination accuracy (tolerance $\pm 0.2\text{mm}$) ensures quality.
- Built-in micrometers for precise fine-tuning of lamination position.
- Specially coated blades for improved lifespan.

Flexible

- Engineered to handle various backing card size and materials.

OPTIONS

Tension controller
Laminating pressure controller



GENERAL SPECIFICATIONS

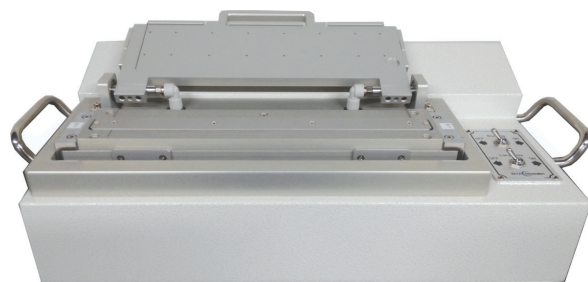
- Feeding Method : Automatic (Roll type)
- Capacity : 800 ~ 1200 cards/hour (Based on card cut length of 300mm)
- Lamination Tolerance : Less than 0.2 mm (Material irregularity not included)
- Power : 110 or 220VAC, 1P, 50/60Hz
- Current : LAI-600~700: 0.5KVA, 5A (*LAI-804: 0.6KVA, 6A)
- PVC Backing Card Width : Adjustable (50 ~ 100 mm)
- Membrane Type : Backed or Unbacked Nitrocellulose (As per customer's requirement)
- OTHER SPECS INFO : See below chart for more details

MODEL	LAMINATING MATERIALS	HANDLING MATERIAL SPECS	*SIZE (LxWxH) cm	*WGT (kg)
LAI-600	1-material: Membrane	-Membrane Width: Adjustable (Up to +6mm range) -Membrane Roll OD: Max. 200 mm -Backing Card Roll OD: Max. 360 mm	120x55x64	NA
LAI-700	2-material: Membrane & Absorbent Pad	-Membrane Width: Adjustable (Up to +6mm range) -Membrane Roll OD: Max. 200 mm -Abs. or Sample Pad Width: Adj. (Up to +6mm range) -Abs. or Sample Pad Roll OD : Max. 500 mm	170x55x109	NA
LAI-804	4-Material: All materials	-All Materials & Size: As per customer's requirement	240x70x160	320

*Size & weight is approximate figure, exact figure may vary depending on options, modifications, and other factors

Clamshell Laminator: LCC-100

[For Low Production Volume]



DESCRIPTION

LCC-100 is a simple manually-operated unit designed to laminate various types of test materials typically of pre-cut strip forms (membrane, sample / conjugate / absorbent pads and others) onto a plastic backing card or sheet.

The unit works by an operator manually placing the strips onto the bottom vacuum jig plate and backing card onto the top plate and then closing them together for easy yet accurate lamination.

FEATURES

- Low cost and hassle-free
- Precise alignment fixtures for accurate lamination
- Can be made to accommodate various material(s)
- Virtually no set-up or maintenance is required.
- All operation is run by air only. (No power required)
- Compact, lightweight, and low-noise makes it ideal for any work environment

SPECIFICATIONS

- Dimension	: 420(L)x350(W)x220(H) mm
- Weight	: 15 kg
- Air Requirement	: 5~6 kg/cm ² , clean air
- Backing Card Size	: Length-Max. 310mm, Width-Max. 80mm
- Membrane & Pads Size	: Length-Max. 310mm, Width-Max. 36mm

Strip Laminator: LCS-100

[For Low Production Volume]



DESCRIPTION

LCS-100 features a fully-programmable interface that allows for changing the lamination positions and the size of materials. This semi-automatic system works in a similar fashion as the clamshell laminator type where the operator manually places all materials to be laminated into its proper jigs. Then with a press of a button, the robotic module picks up each material and places them onto a plastic backing card one by one until all materials are laminated.

The system has been specifically developed for those who want a single machine to handle a multiple range of finished card specification.

SPECIFICATIONS

- Card Feeding	: Manual
- Capacity	: 3~4 seconds/1 strip lamination (Excluding strip loading/card unloading time)
- Lamination Tolerance	: Less than 0.2 mm (Material irregularity not included)
- Dimension	: (Approx.) 900(L) x 800(W) x 1110(H) mm
- Weight	: N/A (Available upon request)
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 0.5KVA, 5A
- Main Driver	: Servo Motor

Precision Dispenser: DCI-System

[For Various Production Volume]

DESCRIPTION

DCI system is a dispensing unit that utilizes XZ motion to dispense measured amount of reagent onto the membrane material or other lateral flow test substrates. The unit is comprised of high quality components which include reliable precision pumps with various dispensing tips (non-contact & contact) as well as an easy-to-use programmable touch screen panel.

2 dispensing lines (stripes) is most common, but the unit can be configured with up to 8 lines of simultaneous dispensing (as per customer's need) with dispensing options of lines, dots, or spray. This versatile tabletop unit is built to last all the while reproducing consistent quality dispensing work.

FEATURES

Cost-effective

- Minimal reagent loss by stroke adjustment and reclaiming functions.
- Re-claim function easily re-collects unused remaining reagent from tubing lines and syringe.
- Capable of dispensing even a trace amount of reagent for testing purposes.

User-friendly

- Programmable touch screen panel allows for easy setup and operation.
- Convenient access to purging, cleaning, and removing air bubble by reversible pump.

Performance

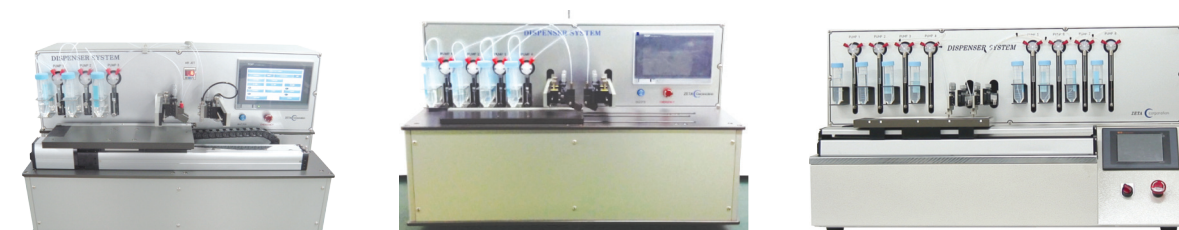
- Simple design for easy maintenance.
- Built-in micrometer for precise tip height adjustment.
- Precise adjustments of tip dispensing position.

Flexible

- Can be configured for simultaneous dispensing of 1~8 lines
- Designed to handle various backing card size and materials.
- Dispensing mode selection of line, dot, or spray.

OPTIONS of dispensing tips

- STANDARD:
 - Tubing tip (Contact)
- OPTIONAL TIPS:
 - Solenoid-valve (Non-contact)
 - Sapphire tip (Non-contact)
 - Air-jet spray (Non-contact) *Air-jet tip is typically used for spraying colloidal gold or others



GENERAL SPECIFICATIONS

- | | |
|------------------------|--|
| - Applicable Card Size | : Max 320 mm |
| - Dispensing Lines | : 1 ~ 8 lines (As per customer's requirement) |
| - Bed Speed | : 10~100 mm /sec |
| - Dispensing Volume | |
| *Tubing Tip | : 0.2~10 μ l/cm |
| *Sapphire Tip | : 0.6~10 μ l/cm |
| - Accuracy (pump) | : < 1.0% deviation from expected result at full stroke |
| - Precision (pump) | : \leq 0.05% CV at full stroke |
| - Dimension | : (Approx) 780 ~ 1000(L) x 380(W) x 516(H) mm |
| - Weight | : (Approx) 45 ~ 80 kg |
| - Power | : 110 or 220VAC, 1P, 50/60Hz |
| - Current | : 0.5KVA, 5A |
| - Compressed Air | : 5~6 kgf/cm ² |

CUSTOM SOLUTIONS:

As an equipment specialist, Zeta provides a range of custom solutions for special applications/needs.

Following is one example in which a dispenser (DSI-603) has been developed for "Flow Through Device" types.

Dispensers for special applications such as below or for others, please contact us for more details.





XYZ Dispenser: DMI-000

[For Various Production Volume]

DESCRIPTION

DMI System with its XYZ motion is a sophisticated dispensing instrument that offers the most flexibility in reagent application for the development and production of Immunoassay test products.

The unit is capable of dispensing a fixed volume of divided multiple shots (our proprietary technology) in different patterns onto various materials such as membrane, card, and pads.

PC control (Laptop included) allows for the ease of set-up and operation in which numerous programs can be stored and accessed. This sophisticated and versatile system is ideal for those who require specific to complex dispensing needs.

TIP: For general mass-production dispensing only, please refer to DCI system.



FEATURES

- High speed dispensing allows for increased productivity.
- Dispensing pattern can be freely adjusted by high-resolution XYZ positioning system.
- Easy programmable parameter for dispensing volume, speed, length, pattern, and modes.
- Able to handle various types of cards and/or pads.
- Numerous programs can be memorized as preset file in the PC.

SPECIFICATIONS

* **Dispensing**

- Dispensing Lines : 1~8 lines
- Dispensing Volume : * Tubing Tip: 0.2~10 μ l/cm
- Accuracy Ratio (pump) : < 1.0% deviation from expected result at full stroke
- Precision Ratio (pump) : \leq 0.05% CV at full stroke

* **Mechanical**

- Table Speed : * XY: 500 mm/sec, * Z: 250 mm/sec
- Work Range : * X axis: 400 mm, * Y axis: 400 mm, * Z axis: 100 mm
- Position Accuracy : * X axis: < 0.02 mm, * Y axis: < 0.02 mm, * Z axis: < 0.01 mm
- Max. Payload : * X-Y axis: 15 kg, * Z axis: 7 kg

- Dimensions : (Approx.) 780(L) x 750(W) x 820(H) mm
- Weight : (Approx.) 70 kg
- Power : 110 or 220VAC, 1P, 50/60Hz
- Current : 0.3KVA, 3A

Reel to Reel Dispenser: DAI-000

[For High Production Volume]

DESCRIPTION

DAI-000 is a fully automated system for roll to roll dispensing application engineered for high volume production facilities. The system works in ceaseless action to dispense reagent onto the automatically fed membrane in which the wetted membrane goes through an integrated dry chamber for efficient drying process and then gets re-wound to a roll as finished goods ready for the next process.

The complete hands-free operation, with the optional vision inspection that detects variety of sub-standard factors in dispensing quality makes this system the ultimate choice not only for production efficiency but for product quality as well.

KEY FEATURES

- Benefits of roll to roll automatic process:
 - Ultimate in throughput (about 40min. /roll 100m)
 - Quality control by vision inspection module (Option)
 - Minimal required labor for cost-reduction.
- Dry Oven
 - Digitally controlled temperature ensures QC.
 - Built-in sensors to prevent overheating.

BASIC FEATURES

- Tension controller for smart winding operation.
- Touch screen panel allows easy setup and operation.
- Quick & easy parameter programming for dispensing vol., speed, length, and spacing.
- Dispensing mode selection of line, dot, or spray.
- Reversible pump allows purging, cleaning, and removing air bubble.
- Re-claim function easily re-collects unused remaining reagent from tubing lines and syringe.
- Built-in micrometer for precise tip height adjustment.
- Precise adjustments of tip dispensing position.

OPTIONS

Vision Inspection Module and inkjet marker for complete Quality Control.



SPECIFICATIONS

- Membrane Roll Size : Width 25.5 mm, Length 100 m (As per customer's Requirement)
- Dispensing Lines : Up to 5 dispensing lines
- Feeding Speed : 10~120 mm /sec
- Dispensing Volume : *Tubing Tip : 0.2~10 μ l/cm
*Sapphire Tip : 0.6~10 μ l/cm
- Accuracy (pump) : < 1.0% deviation from expected result at full stroke
- Precision (pump) : \leq 0.05% CV at full stroke
- Dry Oven : Temp 30~60°C, (Membrane length in chamber : 7.5 m)
- Dimension : (Approx.) 2300~3500(L) \times 900(W) \times 1900(H) mm
- Weight : (Approx.) 400 ~ 600 kg
- Power : 110 or 220VAC, 1P, 50/60Hz
- Current : 0.3KVA, 3A
- Compressed Air : 4~5 kgf/cm²

CUSTOM SOLUTIONS:

As an equipment specialist, Zeta provides a range of custom solutions for special applications/needs. Following is an example in which a laminator and dispenser (LDAI-601) has been combined. Dispensers for special applications such as below or for others, please contact us for more details.



Programmable Guillotine Cutter: GCI-800

[For Various Production Volume]

DESCRIPTION

Programmable Guillotine Cutter is a heavy-duty programmable cutting instrument that cuts various types and sizes of finished cards/sheets into final strips. The unit works by manually loading the card or sheet onto the feeding guide where the guillotine blades cut the card into strip width one at a time.

As the cutting width can be easily changed for those with several cutting (strip size) requirements and with its low-cost, it is an ideal unit for R&D or any production scale facilities.

FEATURES

Cost-Effective

- One machine can handle multiple cutting requirements.
- Cutting loss is minimized to about 15 mm (leftover at the end part of card).
*Can be reduced to less than 5mm when continuously fed.

User Friendly

- Quick & Easy programmable key pad allows for:
 - Easy adjustment of cut width and speed.
 - Smart memory function saves up to 10 job settings.
- Automatic cutting process (Simply input desired data & start).
- Simple operation for minimal maintenance.

Performance

- High-speed cutting operation
- Accurate precision cuts (Cutting accuracy: ± 0.1 mm)
- Specially coated blades for improved lifespan.

Flexible

- Adjustable cut strip width
- Handles wide range of card size (Up to 100mm width).
- Compact & Lightweight for portability.

OPTIONS

- Anti-static Ionizer to reduce the issue of "strip clinging on blades" and etc.
- Air Blower to reduce the issue of "strip clinging on blades" due to excessive glue build-up.
- Spindle attachment to cut materials in roll form.



SPECIFICATIONS: GCI-800

- Card Feeding Method	: Manual
- Capacity	: Max. 240 strips/minute (Based on 3mm cutting width)
- Applicable Card Width	: Max. 100 mm
- Applicable Card Thickness	: Max. 2.5 mm (Depends on the characteristics of card)
- Cutting Range (Width)	: 2.0~99,000 mm
- Cutting Accuracy	: ± 0.1 mm
- Strip Count	: Auto stop control
- Blades	: Hardened steel with titanium-coating
- Dimension	: (Approx.) 400(L) \times 300(W) \times 260(H) mm
- Weight	: (Approx.) 20 kg
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 0.3 KVA, 3 A

SPECIFICATIONS: GCI-800 with Spindle Option

- Capacity	: Max. 270 strips/minute (Based on 3mm cutting width)
- Glass Fiber (plastic card) Feed	: Manual or by roll
- Glass Fiber (plastic card) Size	: Width: Max. 100 mm, Thickness: Max. 2.5 mm
- Dimension	: N/A (Available upon request)
- Weight	: (Approx.) 30Kg
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 0.3 KVA, 3 A

Rotary Slitter: RCI-300

[For Mid - High Production Volume]

DESCRIPTION

Rotary Slitter is a robust cutting instrument which is designed to slit a wide range of rapid diagnostic test materials, typically of finished cards into final strip forms. This powerful unit equipped with rotary blade type features an ultra-fast cutting operation that yields high throughput as well as production efficiency.

The simple yet highly efficient unit works by manually loading the card into the blades (card length and strip width determines blade count) for a swift slitting action. At less than a second, the cut strips are discharged onto a collection tray or down the chute (optional) for quick and convenient collection into a bottle. The blade head can be easily removed and swapped for cutting different width size.

FEATURES

Quality & Performance

- Increased productivity: Entire card is cut into strips instantly in one pass.
- Solid construction with top quality components for durability.
- Specially developed blade types for optimized cutting of different materials.
- Specially coated blades for improved lifespan.
- Built-in anti-static Ionizer reduces strip sticking issue due to static cling.

Ease of Use

- Simple operation and low maintenance provides for hassle-free usage.
- Easy removal of blade head for different cutting requirement.
- Convenient QC access: As the cut strips are uniformly spread out on the collection tray, defects in strips (improper dispense coating, gluing, length, etc.) can easily be identified for removal.

OPTIONS

- Collection chute for quick and convenient strip bottling.
- Additional blade head for cutting more than one strip size. (e.g. 3, 4, 5 mm, etc.)
- RCI-310 has been specially developed to handle specific type of cards that have pre-printed backing where each of the strip on card is marked. The Auto-alignment feature (motor-driven) automatically positions the loaded card as per the print markings and then feeds the card for precise cutting of each strip in between the printings.



RCI-300: Standard Model



RCI-310: Auto-align for printed cards

SPECIFICATIONS: RCI-300

- | | |
|-------------------------------|--|
| - Card Loading/Feeding Method | : Manual |
| - Capacity | : 720 cards/hour (Based on 5 second card feeding interval) |
| - Applicable Card Length | : Max. 320 mm |
| - Applicable Card Width | : Max. 100 mm |
| - Applicable Card Thickness | : Max. 2.5 mm (Depends on the characteristics of card) |
| - Strip Cut Width | : (Cut size is made to order) |
| - Cutting Accuracy Tolerance | : Less than 0.1 mm |
| - Dimension | : (Approx.) 682(L) × 410(W) × 365(H) mm |
| - Weight | : (Approx.) 86 kg |
| - Power | : 110 or 220VAC, 1P, 50/60Hz |
| - Current | : 0.4KVA, 3A |

SPECIFICATIONS: RCI-310

- | | |
|------------------------------|--|
| - Card Loading Method | : Manual |
| - Card Feeding Method | : Automatic (motor-driven) |
| - Capacity | : 420 card/hour (Based on 8 second card feeding interval) |
| - Required Card Marking Size | : More than 0.5mm |
| - Edge Sensor | : Photo sensor or color sensor(Depends on type of card markings) |
| - Applicable Card Length | : Max. 320 mm |
| - Applicable Card Width | : Max. 100 mm |
| - Applicable Card Thickness | : Max. 2.5 mm (Depends on the characteristics of card) |
| - Strip Cut Width | : (Cut size is made to order) |
| - Cutting Accuracy Tolerance | : Less than 0.1 mm |

Auto Feeding Rotary Slitter: RAI-500

[For High Production Volume]

DESCRIPTION

Auto Feeding Rotary Slitter is a high-speed automated slitting system that automatically loads, positions, and feeds each card for the rotary slitter to convert the card into final strips where the precisely cut strips get quickly and conveniently filled into a bottle.

The integration of the Auto-Feeding Mechanism and the Rotary Slitting module allows for a simple yet very cost-effective solution that increases production efficiency as well as product quality due to the minimal hand-contact process.

FEATURES

- **Benefits of automatic slitting system:**
 - Continuous non-stop operation for increased production output.
(Optional Bottling & Capping System can be integrated for the ultimate in output)
 - Consistent cut accuracy ensures reliable product quality.
 - The nearly hands-free design reduces safety hazard and contamination factors.

Basic Features

- Touch screen panel allows easy setup and operation.
- Auto-feed by electronic registration and motorized infeed.
- Operation mode available in time-controlled or foot switch for operator's convenience.
- Built-in static-free Ionizer to reduce strip clinging issue.
- Specially developed blade types for optimized cutting of different materials.
- Easy removal of blade head for multiple cut size needs.
- Specially coated blades for improved lifespan.

OPTIONS

- Additional blade head for cutting more than one strip size. (e.g. 3, 4, 5 mm, etc.)



SPECIFICATIONS

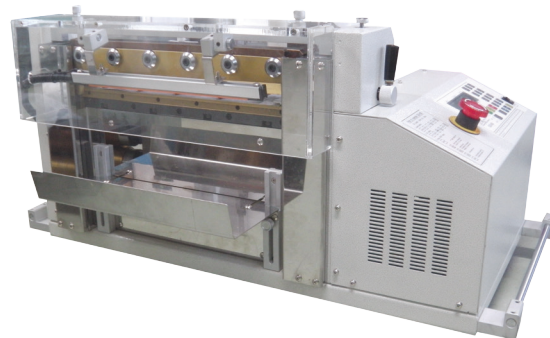
- Card Feeding Method	: Automatic (Card Magazine)
- Magazine Capacity	: Max. 300 cards
- Capacity	: 720 cards/hour (Based on 5 second card feeding and operator's job proficiency)
- Applicable Card Width	: Max. 110 mm
- Applicable Card Length	: Max. 320 mm
- Dimension	: (Approx.) 890(L) × 700(W) × 1100(H) mm
- Weight	: (Approx.) 150 kg
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 0.5KVA, 5A

Programmable Sheet Cutter: GSI-600

[For Various Production Volume]

DESCRIPTION

Programmable Sheet Cutter is a guillotine cutter designed for cutting various types of test materials (sample pad, absorbent pad, conjugate pad, and etc.) that are in sheet forms to convert them into pre-cut pad strips (narrower width) at desired width, for the purpose of using them for the next process of lamination to card.



The unit works by manually loading a sheet onto the feeding guide where the guillotine blades cut the sheet into a narrowed width one at a time. As the cutting width can be easily changed for those with several cutting (pad strip size) requirements and with its low-cost, it is an ideal unit for all production scale facilities.

FEATURES

User Friendly

- Quick & Easy programmable key pad allows for:
 - Easy adjustment of cut width and speed
 - Smart memory function saves up to 10 job settings
- Easy removal of blades for cleaning
- Simple operation for minimal maintenance

Performance

- Accurate precision cuts (Cutting accuracy: $\pm 0.1\text{mm}$)
- Specially coated blades for improved lifespan.
- Anti-static Ionizer to reduce the issue of "strip clinging on blades" and etc.

Flexible

- Handles wide range of sheet size (Up to 310mm)
- Adjustable cut strip width

SPECIFICATIONS

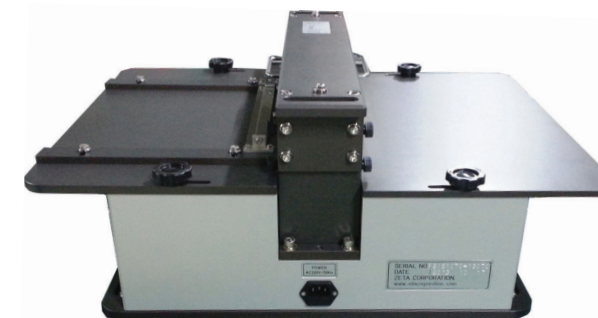
- Feeding Method	: Manual
- Capacity	: 120 pcs/minute (Based on 3mm cutting width)
- Applicable Sheet Size	: Width: Max. 310 mm, Thickness: Max. 2 mm
- Cutting Range (Width)	: 2.0 ~ 99,000 mm
- Cutting Accuracy	: ± 0.1 mm
- Cutting quantity input	: Can be pre-set
- Dimension	: (Approx.) 530(L) x 830(W) x 420(H) mm
- Weight	: (Approx.) 80 kg
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 0.5KVA. 3A

Sheet Slitter: RSI-400

[For Mid - High Production Volume]

DESCRIPTION

Sheet Slitter is a robust cutting instrument which is designed to slit a wide range of rapid test materials (sample pad, absorbent pad, conjugate pad, and other assays' materials.) that are in sheet forms to convert them into pre-cut pad strips to fixed width, for the purpose of using them for the next process of lamination to card.



This powerful unit equipped with rotary blade type features an ultra-fast cutting operation that yields high throughput as well as production efficiency. The unit works by manually loading a sheet into the blades for a swift one-time slitting action (entire sheet is converted into narrowed pad strip width in one pass).

The unit also offers an easy blade head removal to prevent cross-contamination of differing pads or for cutting different width size.

FEATURES

- Increased productivity: Entire sheet is cut into band strips instantly in one pass.
- Solid construction with top quality components for durability.
- Simple operation and low maintenance provides for hassle-free usage.
- Optimized blade shapes for cutting different sheet types.
- Specially coated blades for improved lifespan.
- Easy swapping of blade head for different cut size.

OPTIONS

- Additional blade head for cutting more than one strip size. (e.g. 5, 20, 30 mm, etc.)

SPECIFICATIONS

- Capacity	: 360 sheets/hr (Based on 10 sec. feeding interval)
- Sheet Width	: Max. 310 mm
- Sheet Length	: Max. 310 mm

- Dimension	: (Approx.) 490(L) x 514(W) x 258(H) mm
- Weight	: (Approx.) 51 kg
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 0.3KVA. 3A

[For High Production Volume]

SAIA-210 semi-automatic system is comprised of several modules that automatically assemble and process multiple base test components to produce the final product of rapid test kit device. The system cuts card into strips, places them inside bottom devices (manually fed), places top devices onto the bottom piece, presses them together, and then are discharged to collection bin to complete the assembly process.

The system is essentially the same as the AIB-300 (fully automated system) but without the Bowl Feeder option that automatically feeds devices (Cassettes). Therefore, for this model, 2 persons are required to manually feed the devices to the machine.
(For customers requiring fewer workers, Auto-Feeding magazine can be added as an option)

Key Benefits

- Continuous non-stop operation for the ultimate in throughput.
- Dual inspection stations for quality control (1 vision + 1 mark sensor).
- Minimal operator involvement (Except for manual feeding).
- Smaller size saves work space (Compare to other auto-assemblers).

- Touch screen panel for easy setup and operation.
- QC Inspection for automatic discarding of defective material.
- Quick & easy removal of blades allows for easy cleaning and maintenance.
- Servo-Driven infeed

- Automatic Device Feed (Magazine Type)
- 2nd Vision Camera (In replacement of the mark sensors)
- Safety Enclosures (Top-deck cabinets for safety and contamination factors)



- Required Manpower : 2 persons (Top & bottom device feeding)
- Device Feeding Method : Manual (Option: Auto-feeding magazine)
- Device Type : Rectangular shaped device for rapid test
- Capacity : Approximately 1,800 ~ 2,200 devices/hour
*Actual number depends on worker's performance and devices' length, shape, strip size, and etc.
- Control Panel : PLC (Touch Screen)
- Card Magazine : Max. 120 cards can be stacked into magazine.
- Device Presser : 2 Press Cylinders
- Blade Type : Guillotine type
Coated blades for improved "strip clinging" issue and lifespan.
- Inspection Stations :
 - 1st Inspection (Vision)
 - *Required criteria : Identifies & discards defective markings and orientation of card
 - : For defect marking
 - Thickness (more than 0.7 mm)
 - Length (more than 2 mm)
 - : For marking position
 - Mid-part of membrane, color - black
 - 2nd Inspection(Mark Sensor) : Identifies and discards bottom devices that are empty or with incorrect insertion of strip and other substandard criteria.
- Dimensions : About 248 (L) x 189 (W) x 190 (H) cm
- Weight : NA (Available upon request)
- Power : 220VAC, 1P, 50/60Hz
- Current : 2.0KVA, 10A
- Main driver : Servo Motor
- Air Requirement : 5~7kgf/cm² (Regulated air supply)

Auto Assembler: AIB-300

[For High Production Volume]

DESCRIPTION

AIB-300 is a fully automated solution for the most optimized production of rapid test kit device. Engineered for repeatability and product quality, the entire assembly process is self-run with two inspection stations that sort out any substandard qualities within the process to ensure absolute quality control.

The system consists of several sub-systems of robotic modules and work stations of which are; device feeder, cut & place and pick & place modules, transport system, and presser.

These integrated system of modules work continuously in unison together from the first work phase of feeding top and bottom devices (Cassettes) and feeding of finished cards where each of the test components go through a chain of assembly processes up to the final finished product.

This highly sophisticated system enables its users to become the leaders in rapid test industry.

FEATURES

Key Benefits

- Continuous non-stop operation for the ultimate in throughput.
- Dual inspection stations (Vision) for quality control.
- Minimal operator involvement to save time and money.

Standard Features

- Touch screen panel for easy setup and operation.
- QC Inspection for automatic discarding of defective material.
- Quick & easy removal of blades allows for easy cleaning and maintenance.
- Servo-Driven infeed



<Strip Cut & Place Module>



<Vision Inspection>



<Device Presser>

SPECIFICATIONS

- Required Manpower	: 1 person (1 person can handle 2 machines at the same time)
- Device Feeding	: Automatic feeding by Auto-Bowl Feeder
- *Feeding Capacity	: 50~60 pcs/minute
- Device Type	: Rectangular shaped device for rapid test
- Capacity	: About 1,800 ~ 2,400 devices/hour
	*Actual number depends on devices' length, shape, strip size, and etc.
- Control Panel	: PLC (Touch Screen)
- Blade Type	: Guillotine type
	- Coated blades for improved "strip clinging" issue and lifespan.
- Device Presser	: Dual press system: press cylinders & roller press
- Inspection Stations :	
- 1 st Inspection (Vision)	: Identifies & discards defective markings and orientation of card
- *Required criteria	: For defect marking - Thickness (more than 0.7 mm)
	- Length (more than 2 mm)
	: For marking position - Mid-part of membrane, color – black
- 2 nd Inspection (Vision)	: Identifies and discards bottom devices that are empty or with incorrect insertion of strip and other substandard criteria.
- Dimensions (including feeder)	: (Approx.) 320(L) x 162(W) x 150(H) cm
- Weight	: NA (Available upon request)
- Power	: 220VAC, 1P, 50/60Hz
- Current	: 3.5KVA, 15A
- Main driver	: Servo Motor
- Air Requirement	: 5~7kgf/cm ² (Regulated air supply)

Assembly Conveyor & Presser: ACC-100 & ACP-100

[For Low - Mid Production Volume]



DESCRIPTION

ACC-100 & ACP-100 is designed to upgrade the manual assembly process for more efficient process. The Assembly Conveyor is a long bench table with a conveyor belt in the middle to convey hand-assembled rapid test devices.

The Assembly Presser completes the process by pressing the test devices to ensure that top and bottom devices are fully closed together.

This simple unit easily pays for itself as it can increase production by more than double compared to manual assembly process. (Sold separately or as a set)

SPECIFICATIONS

Assembly Conveyor: ACC-100

- * Speed : 10 m/minute
- * Size : 2500(L) x 920(W) x 715(H) mm
- * Weight : 120 kg
- * Power : 110 or 220VAC, 1P, 50/60Hz
- * Current : 0.3KVA, 3A

Assembly Presser: ACP-100

- * Speed : 120 units/minute
- * Size : 890(L) x 440(W) x 610(H) mm
- * Weight : 70 kg
- * Power : 110 or 220VAC, 1P, 50/60Hz
- * Current : 0.2KVA, 2A

Dip & Dry System with Splitter: OASI-300

[For High Production Volume]

DESCRIPTION

OASI-300 is an automatic roll to roll dip & dry system developed for reagent treatment of conjugate pad / sample pad or other test materials. The system's integral Dip Tank, Dry Chambers, Splitter, and Winder works continuously in unison to fulfill the entire dip & dry process.

The system works by dipping the *wide roll material into a dip tank where the material gets immersed in reagent. The now wet material travels through a series of individually temperature regulated drying chambers for effective drying process. Continuously, the dried material of the wide roll is cut and split into multiple narrow strips in which then gets re-wound onto individual reels to complete the process.

The finished treated roll is now ready for the next mfg. phase of lamination process.

The entire process is done automatically and mechanically for maximum production efficiency and product quality.

**The standard OASI-300 is designed to process the full wide roll of 300mm width for maximum production output. For customers requiring less production output, the Dip & Dry system can be downsized (OASI-300M) to suit different production volume needs.*

FEATURES

DIP TANK

- 1) Automatic temperature control of reagent by built-in heater/cooler.
- 2) Automatic level control of reagent by pump and timer (or level sensor).
- 3) Automatic tension control for uniform payout tension of pad material.

DRY CHAMBER

- 1) Drying chamber(s) with individual temperature controls.
- 2) Adjustable temp. control with auto shut-off to prevent overheating.
- 3) Built-in dehumidifier (Desiccant Rotor) for humidity reduction.
- 4) Optimized air-flow control design for drying efficiency.
- 5) All contact point of rollers, hangers, and chamber interior is made of rust-resistant stainless steel.
- 6) Quick & Easy detaching roller housing via provided hand cart allows for convenient cleaning and maintenance.

SPLITTER

- 1) Motor: Servo Motor – Adjustable speed control
- 2) Exchangeable Blade Head for different cut width and material type.
- 3) EPC (Edge Position Controller) automatically prevents uneven edge cuts.
- 4) Powder Clutch for continual tension of split material.
- 5) Blade Type: Rotary Ring Knife (Tempered steel w. Special coating, Rockwell Hardness: HRC59~60)

WINDER

- 1) Slip type winder ensures even roll-ups for all individual reels.
- 2) Pitch-divide guide roller for correct alignment during wind-up.
- 3) Tension controller for uniform tension during wind-up.



SPECIFICATIONS

- NA (Please contact us for details)

CUSTOM SOLUTIONS:

As an equipment specialist, Zeta provides a range of custom solutions for special applications/needs.

Following is an example in which the dip & dry system can be downsized (OASI-300M).

Or modified for other applications such as "Membrane Blocking Treatment" (OAI-301).

Or other option of tunnel type dry oven is available (OATI-100).

Dip & dry system for special applications such as these or for others, please contact us for more details.



OASI-300M: Downsized for less production



OAI-301: For Membrane Blocking



OATI-100: Tunnel Dry Oven

Dip & Dry System: OAI-300

[For Mid - High Production Volume]



DESCRIPTION

OAI-300 is an automatic roll to roll dip & dry system developed for reagent treatment of conjugate pad / sample pad or other test materials. The system's integral Dip Tank, Dry Chamber, and Winder works continuously in unison to fulfill the entire dip & dry process.

The machine is very similar and works the same way as the OASI-300, but without the splitter as it is designed to process the narrowed strip rolls instead of the wide roll. As a custom solution, the number of production rolls can be designed as per customer's desired production volume.

SPECIFICATIONS

- Capacity	: About 2.5 hours/1 cycle
- Oven	: 2 zones (2-in-1 oven housing- inner oven type)
- Temperature	: 35~80 °C
- Material Size	: (As per customer's requirement)
- Dimension	: (Approx.) 940(L) x 900(W) x 1900~2000(H) mm
- Power	: 380VAC, 3P4W, 50/60Hz
- Current	: 15.0KVA, 25A
- Main Driver	: AC Motor

Filling & Sealing System: FSS-101

[For Various Production Volume]



DESCRIPTION

Filling & Sealing System is an automatic bottling equipment designed to fill multiple sets of various types of containers (tubes, vials or bottles) with liquid, typically of buffer solution, and then to close the containers by sealing the top (opened) with aluminum foil or by capping process with the various types of screw-on, flip-off, or many others.

The system is fully customized with a number of options that tailor-fit to your specific type of containers used, printing requirements as well as for final packaging process.

SPECIFICATIONS

- Required Manpower	: 1 person
- Containers Feeding Method	: By manual (option : bowl feeder)
- Capacity	: About 40,000 pcs/8hr (Based on "10 Vial/Jig" at 5ml", specification dependent)
- Filling Volume	: (As per customer's requirement)
- Filling Material	: (As per customer's requirement)
- Inspection	: Sensor inspects the fill-status of finished container
- Pump & Syringe	: (As per customer's requirement)
- Sealing Temperature	: Max. 170°C (Temperature will be set as per the requirement of material)
- Dimension	: (Depends on customer's requirement)
- Weight	: (Depends on customer's requirement)
- Power	: 220VAC, 1P, 50/60Hz
- Current	: 1.5KVA, 8A
- Air Requirement	: 5~7kgf/cm ² (Regulated air supply)



Equipment for Urine Assay Strips

Membrane Dip & Dry System: OAU-300

[For High Production Volume]

DESCRIPTION

OAU-300 is an automatic roll to roll dip & dry system developed for reagent treatment of membrane or other test materials. The system's integral Dip Tank, Dry Chambers, and Winder works continuously in unison to fulfill the entire dip & dry process.

The system works by dipping the wide roll material into a dip tank where the material gets immersed in reagent. The now wet material travels through a series of individually temperature regulated drying chambers for effective drying process. Finally, the treated and dried material is re-wound onto a winder to complete the process.

The finished treated roll is now ready for the next mfg. phase of Tape Lamination & Splitting process.
The entire process is done automatically and mechanically for maximum production efficiency and product quality.

**The OAU-300 is a custom-made solution in which each system is made specifically and in accordance to each of our customer's material and requirements. Thus the actual final design of the equipment may vary and is subject to change.*

FEATURES

DIP TANK

- 1) Automatic temperature control of reagent by built-in heater.
- 2) Automatic level control of reagent by pump and timer (or level sensor).
- 3) Automatic tension control for uniform payout tension of pad material.

DRY CHAMBER

- 1) 3 zones of drying chambers with individual temperature controls.
- 2) Adjustable temp. control with auto shut-off to prevent overheating.
- 3) Built-in dehumidifier (Desiccant Rotor) for humidity reduction.
- 4) Optimized air-flow control design for drying efficiency.
- 5) All contact point of rollers, hangers, and chamber interior is made of rust-resistant stainless steel.
- 6) Quick & Easy detaching roller housing via provided hand cart allows for convenient cleaning and maintenance.

WINDER

- 1) Air shaft makes it easy to attach/detach roll.
- 2) Tension controller for uniform tension during wind-up.



SPECIFICATIONS

- Applicable Membrane Roll Size	: Width: Max. 300 mm, Length: 100 m (As required)
- Membrane length in chamber	: Approximately 14 m
- Dip Tank Pump Type	: Tubing pump
- Dip Tank Roller and Tank	: Replacement type, Stainless steel tank & rollers
- Dip Tank	: Water bath at constant 100°C maximum
- Dry Oven Type	: Hot wind circulation type
- Dry Oven	: Separate temperature control for each of 3 zones (Chamber's temperature 40~80°C, controlled at max. 100°C), Humidity at 10% or less.
- Roller Frame (shelf)	: Stainless steel
- Feeding Speed	: 4 ~ 100 mm/sec
- Winding	: Edge Position Control
- Dimensions	: (Approx.) 8000(L) x 2000(W) x 1900(H) mm
- Weight	: (Approx.) 1200 kg
- Power	: 380VAC, 3P4W, 50/60Hz
- Compressed Air	: 4~5 kgf/㎠ (700 liter/minute)
- Current	: 51KW, 90A *90A is reached when all 3 zones in the chamber are turned on at the same time. The current can be reduced to 45A by turning on each of the 3 zones one at a time.

Tape Laminator & Multi Slitter: SMU-300

[For High Production Volume]

DESCRIPTION

SMU-300 is an automated laminating (tape) and slitting system developed for converting a wide membrane roll stock (pre-treated) into multiple splits of adhesive-ready membrane strip rolls.

The system works by first laminating double-sided tape onto the wide membrane roll, then splits the wide roll into a number of narrowed widths, and then are re-wound into individual reels to finalize the process.

The finished rolls are now ready for the next mfg. phase of Membrane Lamination onto Backing.

The entire process is done automatically and mechanically for maximum production efficiency, and product quality.



FEATURES

- Simultaneous taping & splitting process for production efficiency and low material-loss.
- Can handle up to 270 mm width and 100 m long membrane roll.
- Air shaft equipped to make reel loading/unloading quick & easy.
- Mechanical tape lamination reduces contamination factors.
- Adjustable cutting speed allows for convenient and flexible operation.

SPECIFICATIONS

- Feeding Speed	: Variable (10~100 mm/sec)
- Membrane Cutting Size	: 5 mm (As per customer's requirement)
- Number of Splitters	: As per customer's requirement
- Membrane Roll Size	: Width: Max. 300 mm, Length: Max. 100 m (As required)
- Double sided adhesive tape	: As per customer's requirement
- Dimension	: (Approx.) 3600(L) × 800(W) × 1315(H) mm
- Weight	: (Approx.) 500 kg
- Power	: 220VAC, 1P, 50/60Hz
- Current	: 2.5KVA, 12A

Membrane Laminator & Card Cutter: LAU-900

[For High Production Volume]

DESCRIPTION

LAU-900 is an automated laminating system developed to produce finished cards (uncut / master sheet) by attaching the pre-treated membrane strip rolls onto a backing roll (PVC film).

Guided by alignment fixtures, the machine precisely laminates 2 ~ 12 lines of strips simultaneously (as configured) onto the fed plastic backing which is then cut to 256 mm or at desired length.

The finished cards are now ready for the next mfg. phase of converting the card into individual test strips (dip sticks).

The entire process is done automatically and mechanically for maximum production efficiency, and product quality.



FEATURES

- High throughput and product quality.
- Variation of cutting speed allows for easy operation.
- High speed operation maximizes productivity.
- Precise mechanical lamination process prevents lamination irregularities, swelling in the middle, and other substandard conditions resulting in reduced material-loss and contamination factors.

SPECIFICATIONS

- Feeding Speed	: Variable (50~150 mm/sec)
- Cutting Speed	: Variable
- Number of Membrane Roll Loading	: Max. 24 rolls (12 rolls for spare) (As required)
- Number of Lamination Lines (Strips)	: 2~12 strips (As per customer's requirement)
- Membrane Roll Size	: 5 mm wide, maximum 100 m long (As required)
- Plastic Roll Size (PVC film)	: 60 ~ 120 mm wide, 100 m long (As required)
- Dimension	: (Approx.) 4000(L)×700(W)×1300(H) mm
- Weight	: (Approx.) 500 kg
- Power	: 220VAC, 1P, 50/60Hz
- Current	: 2.5KVA, 12A

Auto Feeding Rotary Slitter: RAU-600

[For High Production Volume]

DESCRIPTION

RAU-600 is a high-speed automated slitting system specifically designed for cutting Urine-assay based finished cards (uncut/master sheet). The system works by automatically feeding each card for the rotary slitter to convert the card into final test strips (dip sticks) where the precisely cut strips get quickly and conveniently filled into a bottle.

The integration of the Auto-Feeding Mechanism and the Rotary Slitting module allows for a simple yet very cost-effective solution that increases production efficiency as well as product quality due to the minimal hand-contact process.



FEATURES

- **Benefits of automatic slitting system:**
 - Consistent cut accuracy ensures reliable product quality.
 - The nearly hands-free design reduces safety hazard and contamination factors.

Basic Features

- Touch screen panel allows for easy setup and operation.
- Auto-feed by electronic registration and motorized infeed.
- Operation mode available in time-controlled or foot switch for operator's convenience.
- Built-in static-free Ionizer to reduce strip clinging issue.
- Precision blades deliver crisp-sharp cut edge.
- Specially coated blades for improved lifespan.

SPECIFICATIONS

- Card Feeding Method	: Automatic (Card Magazine)
- Capacity	: 720 cards/hour (Based on 5 second card feeding)
- Applicable Card Width	: 120, 80, 60 mm
- Applicable Card Length	: Max. 256 mm
- Dimension	: (Approx.) 1980(L) × 1330(W) × 1490(H) mm
- Weight	: (Approx.) 150 kg
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 0.5KVA, 5A

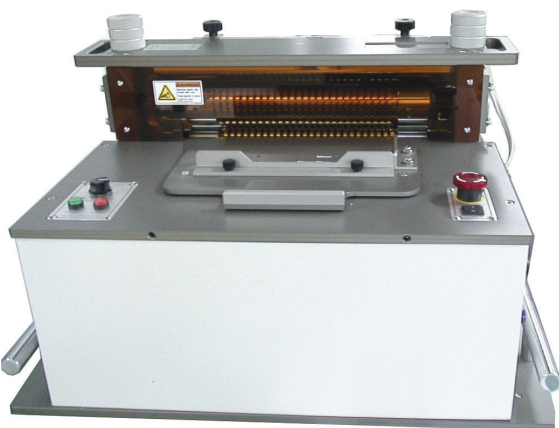
Rotary Slitter: RCU-200

[For Various Production Volume]

DESCRIPTION

RCU-200 is a high speed slitting instrument specifically designed for cutting Urine-assay based finished cards (uncut/master sheet) into final test strips (dip sticks).

This simple yet highly efficient unit works by manually loading the card into the blades for swift slitting process where the cut strips are discharged onto a collection tray or down the chute (optional) for quick and convenient collection into a bottle.



FEATURES

- Increased productivity: Entire card is cut into strips instantly in one pass.
- Solid construction with top quality components for durability.
- Specially coated blades for improved lifespan.
- Built-in static-free Ionizer to reduce strip clinging issue.
- Simple operation and low maintenance provides for hassle-free usage.
- Easy removal of blade head for different cutting requirement.

SPECIFICATIONS

- Card Loading/Feeding Method	: Manual
- Capacity	: 720 cards/hour (Based on 5 second card feeding interval)
- Applicable Card Length	: Max. 256 mm
- Applicable Card Width	: Max. 135 mm
- Applicable Card Thickness	: Max. 2.5 mm (Depends on the characteristics of card)
- Cutting Accuracy Tolerance	: Less than 0.1 mm
- Cut Width (strips)	: 5 mm (Or as per customer's requirement)
- Dimension	: (Approx.) 682(L) × 410(W) × 365(H) mm
- Weight	: (Approx.) 86 kg
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 0.8KVA, 7A

Equipment for Low to Mid Production Volume

Following instruments can be used for mfg. low to mid production volume of urine strips.

1. Dipping Instrument (For membrane treatment)

Manually-operated unit for treating membrane sheet.

2. Dry Oven (For drying membrane sheet)

For details, please refer to Dry Ovens in the Misc. Equipment section

3. Clamshell Laminator (For sheet lamination): LSU-100

Manual unit for laminating double-sided adhesive tape onto pre-treated membrane sheets.

MATERIAL SPECIFICATIONS

Applicable Sheet Size: About 300 x 250 mm

Applicable Tape Size: Sheet Type, protective paper adhered (2 sides)

Size: About 305mm x 230mm

4. Sheet Slitter (For slitting sheet into strip bands): RSU-100

RSU-100 is a high speed, precision slitting unit designed for cutting treated membrane sheets with pre-laminated double-sided adhesive tape to convert the sheet into pre-cut membrane strips to fixed width for the purpose of using them for the next process of lamination to backing.

*For more details, please refer to RSI-400 (Rotary slitter for Immunoassay)

5. Clamshell Laminator (For strip lamination): LCU-100

For manual lamination of pre-cut membrane strips onto backing card to produce Finished Card (Uncut Sheet).

MATERIAL SPECIFICATIONS

Applicable Backing Card Size: About 250 x 120 mm

Applicable Pad Strips: Length about 300mm (Pre-laminated with double-sided adhesive tape)

6. Rotary Slitter (For slitting finished card into strips) : RCU-200

RCU-200 is a high speed slitting instrument specifically designed for cutting Urine-assay based finished cards (uncut/master sheet) into final test strips (dip sticks).

This simple yet highly efficient unit works by manually loading the card into the blades for swift slitting process where the cut strips are discharged onto a collection tray or down the chute (optional) for quick and convenient collection into a bottle.

*For more details, please refer to RCU-200 (Previous page)

Equipment for Glucose Assay Strips

XYZ Dispenser: DMG-000

[For Low - Mid Production Volume]

DESCRIPTION

DMG System with its XYZ motion is a sophisticated dispensing instrument that offers the most flexibility in reagent application for the development and production of Glucose test products (Biosensors and Biochips).

The unit is capable of dispensing a fixed volume of divided multiple shots (our proprietary technology) in different patterns onto typically of glucose sheets.

PC control (Laptop included) allows for the ease of set-up and operation in which numerous programs can be stored and accessed. This sophisticated and versatile system is ideal for those who require specific to complex dispensing needs.



FEATURES

- High speed dispensing allows for increased productivity.
- Divided multiple dispensing enables for more firm positioning of reagent on material surface and more precise control of dispensing volume (Solenoid-valve type)
- Dispensing pattern can be freely adjusted by high-resolution XYZ positioning system.
- Easy programmable parameter for dispensing volume, speed, length, pattern, and modes.
- Numerous programs can be memorized in the PC.

SPECIFICATIONS

* **Dispensing**

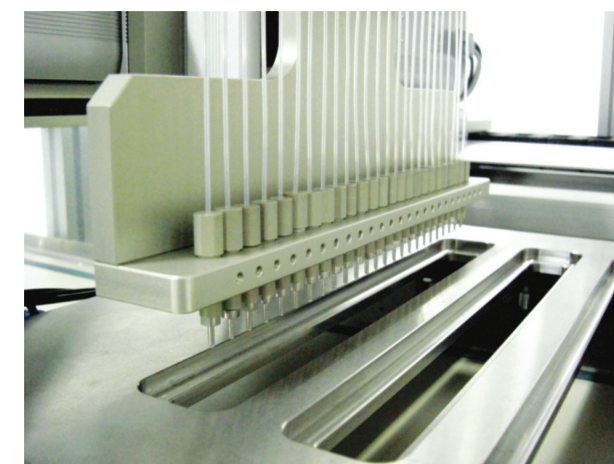
- Dispensing Lines : 1~8 lines
- Dispensing Volume : Micro-liter to nano-liter (As per customer's requirement)
- Accuracy Ratio (pump) : < 1.0% deviation from expected result at full stroke
- Precision Ratio (pump) : ≤ 0.05% CV at full stroke

* **Mechanical**

- Table Speed : * XY: 500 mm/sec, * Z: 250 mm/sec
- Work Range : * X axis: 400 mm, * Y axis: 400 mm, * Z axis: 100 mm
- Position Accuracy : * X axis: < 0.02 mm, * Y axis: < 0.02 mm, * Z axis: < 0.01 mm
- Max. Payload : * X-Y axis: 15 kg, * Z axis: 7 kg
- Dimensions : (Approx.) 78(L) x 75(W) x 82(H) cm
- Weight : (Approx.) 70 kg
- Power : 220VAC, 1P, 50/60Hz
- Current : 1.1KVA, 5A

Multi-channel Dispenser: DSG-025

[For Mid - High Production Volume]



DESCRIPTION

DSG-025 is a precision reagent dispensing system specifically developed for production efficiency and throughput. This custom solution can be made to fit from 1 to 25 or more (as per customer's requirement) dispensing channels for simultaneous dispensing onto printed glucose sheets.

FEATURES

- Multi-channel lines for the ultimate dispensing production efficiency and throughput.
- Programmable touch screen panel allows for easy setup and operation.
- Dispensing selection of line or dot.
- Reversible pump allows for easy functions for purging, cleaning, and reclaiming.
- Micrometer for fine-adjustment of space between dispensing lines and tip height.
- Adjustable dispensing volume (total and per cm) and bed feeding speed.
- Equipped with advanced precision robotic conveyance system.
- Separate pumps per channel ensure accurate dispensing vol., easier control and higher stability.
- Tip cleaning function to upkeep dispensing accuracy.

SPECIFICATIONS

- Applicable Sheet Size : Max. 320 x 320 mm
- Dispensing Volume : Micro-liter to nano-liter (As per customer's requirement)
- Pump : Hi-resolution pump
- Accuracy : < 1.0% deviation from expected result at full stroke
- Precision : ≤ 0.05% CV at full stroke
- Power : 110 or 220VAC, 1P, 50/60Hz
- Current : 0.6KVA, 6A

Automatic Dispensing System: DAG-120

[For High Production Volume]

DESCRIPTION

DAG-120 is an in-line system which is designed for automatic and continuous processing of reagent dispensing in line or dot. In addition to the dispensing module, the system is integrated with vision inspection (optional) and drying modules for the most optimized dispensing requirement in terms of production efficiency, accuracy, and repeatability. The entire operation is automatic and hands-free for the maximum production benefit.

FEATURES

- Non-stop continuous automatic process for the ultimate production benefits.
- Vision inspection and defect marking for absolute quality control (optional).
- Precision temperature controller for dry oven.
- Built-in pump cleaning device.
- Easy dispensing control by the use of multi-channel pump.
- Accurate dispensing volume by the use of precision-grade pump.
- Convenient dispensing volume calibration by the use of conical tube.

OPTIONS

- Inspection Module: Vision camera + Inkjet printing for defect markings

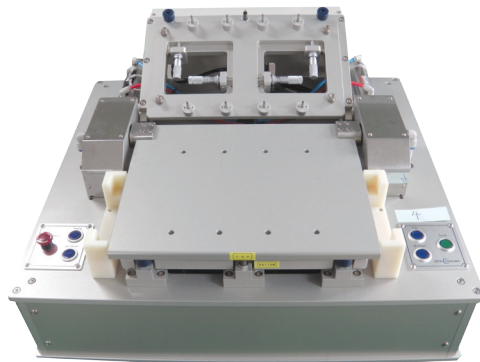
SPECIFICATIONS

- | | |
|-------------------------|---|
| - Applicable Sheet Size | : Max. 320 x 320 mm |
| - Material Loading | : Magazine type |
| - Conveyance Method | : Conveyor belt type |
| - Dispensing Volume | : Micro liter to nano liter (As per customer's requirement) |
| - Pump Type | : High resolution pump |
| - Accuracy | : < 1.0% deviation from expected result at full stroke |
| - Precision | : ≤ 0.05% CV at full stroke |
| - Dry Oven | : Temp. 30~60°C, 3 zones (20 minutes/zone), elevator type |
| - System Control | : PLC & Touch screen |
| - Dimension | : NA (Available upon request) |
| - Weight | : NA (Available upon request) |
| - Power | : 380VAC, 3P4W, 50/60Hz |
| - Current | : 20KVA, 35A |
| - Air Requirement | : 5-7 kgf/cm ² , clean air |



Clamshell Laminator: LSC-100

[For Low - Mid Production Volume]



DESCRIPTION

LSC-100 is a simple manually-operated unit designed to laminate single or multiple films typically of Spacer and/or Cover films onto a printed base sheet. As the laminates (base materials) often comes in different shapes and forms, the laminator is tailor-made in accordance.

The unit works by an operator manually placing a base sheet onto the upper platen and a laminating film on the lower platen and then closing them together for easy yet accurate lamination.

FEATURES

- Low cost and hassle-free.
- Precise alignment fixtures for accurate lamination.
- Virtually no set-up or maintenance is required.
- Compact, lightweight, and low-noise makes it ideal for any work environment

SPECIFICATIONS

- Required Manpower	: 1 person
- Base Sheet Size	: (As per customer's requirement)
- Laminates Film Size	: (As per customer's requirement)
- Capacity	: About 120 sheets/hr.
- Dimension	: About 600(L) * 550(W) * 460(H) mm
- Weight	: About 25Kg
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 0.4KVA, 3A
- Air Requirement	: 5-7 kgf/cm ² , clean air

Automatic Laminating System: LAG-100

[For Mid - High Production Volume]



DESCRIPTION

LAG-100 is an automatic laminating system which is designed to process multiple jobs that are required in cover film laminating process. Operation process includes manual sheet loading, film position alignment, protective film removing and lamination.

OPTIONS

- Heat Lamination (Rollers) is available for added quality assurance of lamination.

SPECIFICATIONS

- Required Manpower	: 1 person
- Applicable Material	: (As per customer's requirement)
- Cover Film Size	: (As per customer's requirement)
- Capacity	: About 13 sec/sheet
- Heating Temperature	: 50°C (max 100°C) *Temperature Inaccuracy of Heating Roller: ±2°C
- Main Components	: Spin motor, up down cylinder, heating roller
- Dimension	: NA (Available upon request)
- Weight	: NA (Available upon request)
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 3.5KVA, 15A
- Air Requirement	: 5-7 kgf/cm ² , clean air

Row Slitter: RSG-100

[For Low - Mid Production Volume]



DESCRIPTION

RSG-100 is a cutting machine which is designed to slit finished glucose test sheets into smaller widths of row sizes (row card). This slitting system with a cutting-edge design and components has a solid and compact construction and can be used for the production of biosensors including glucose test strips.

FEATURES

- Increased productivity: Entire sheet is cut into rows instantly in one pass.
- Solid construction with top quality components for durability.
- Simple operation and low maintenance provides for hassle-free usage.
- Easy loading helps to reduce cutting errors and defects.
- Specially coated blades for improved lifespan.

SPECIFICATIONS

- | | |
|-----------------|-----------------------------------|
| - Sheet loading | : Manual |
| - Capacity | : 720 sheets/hour |
| - Sheet size | : (As per customer's requirement) |
| - Cut row count | : (As per customer's requirement) |
| - Dimension | : NA (Available upon request) |
| - Weight | : NA (Available upon request) |
| - Power | : 220VAC, 1P, 50/60Hz |
| - Current | : 0.3KVA, 3A |

Auto Feeding Row Slitter: RSAG-110

[For High Production Volume]



DESCRIPTION

RSAG-110 is an automatic slitting system that slits finished glucose test sheets into smaller widths of row sizes (row card).

The system works by automatically feeding the stacked sheets into the slitter to cut them into rows, the cut rows then go through inspection process where the "Good and Bad" (non-marked and defects-marked) rows are sorted out to separate storing devices.

The entire operation is automatic and hands-free for the maximum production benefit. (For the next process; see PAG-440 for the good rows and PAG-501 for the bad rows)

SPECIFICATIONS

- Applicable Sheet

: Finished glucose test sheet
- Sheet Loading Capacity

: Max 300 sheets
- Capacity

: About 720 sheet/hour (Based on tact time max. 5 sec)
- Slitting Accuracy

: ±0.1 mm
- Power

: 220VAC, 1P, 50/60Hz
- Current

: 2.2KVA, 10A
- Air Requirement

: 5-7 kgf/cm² (constant pressure supply)
- *System Configuration**
- Stack Elevator

: 200 sheets loading
Finger Carrier tool (Robot and vacuum)
- Row Slitter :
- Sheet slit into 10 row

: (Or as per customer's requirement)
- Blade Heat Treatment

: High temperature tempering
- Blade Hardness

: Rockwell hardness – more than Hrc50
- Blade Coating

: Special coating
- Cutting Position is precisely adjustable by built in micrometer

(Machine stops automatically when the sensor detects 2 sheets at the same time)
- Row Receiver and Magazine
- Cut rows are stacked into each elevator type magazines.
- Conveyor System

: Motor and belt system
- System Control

: PLC Control - touch screen
- Motor

: Adjustable speed control

Rotary Slitter: RCG-100
[For Low - Mid Production Volume]

DESCRIPTION

RCG-100 is a high speed cutting instrument which is designed to slit a wide range of glucose test strip products, typically of row sized sheets (row card) into final individual test strips (cells).

This simple yet highly efficient unit works by manually loading the cut material into the blades for swift slitting process where the cut strips are discharged onto a collection tray or down the chute (optional) for quick and convenient collection into a bottle. The blade head can be easily removed and swapped for cutting different width size.



FEATURES

Quality & Performance

- Increased productivity: Entire card is cut into strips instantly in one pass.
- Solid construction with top quality components for durability.
- Specially coated blades for improved lifespan.
- Built-in anti-static lonizer reduces strip sticking issue due to static cling.

Ease of Use

- Simple operation and low maintenance provides for hassle-free usage.
- Convenient QC access: As the cut strips are uniformly spread out on the collection tray, defects in strips (improper dispense coating, gluing, length, etc.) can easily be identified for removal. FOR CUTTING GOOD ROWS ONLY, Chute can be optioned.

OPTIONS

- Collection chute for quick and convenient strip bottling.
- Additional blade head for cutting more than one strip size needs. (e.g. 3, 4, 5 mm, etc.)

SPECIFICATIONS

- Row Feeding Method

: Manual
- Capacity

: 720 rows/hour (Based on 5 second feeding interval)
- Row Length

: Max. 280 mm
- Row Width

: Min. 25 mm
- Dimension

: (Approx.) 682(L) × 410(W) × 365(H) mm
- Weight

: (Approx.) 86 kg
- Power

: 110 or 220VAC, 1P, 50/60Hz
- Current

: 0.5KVA, 5A

Auto Feeding Cell Slitter: RAG-710

[For Mid - High Production Volume]

DESCRIPTION

RAG-710 is a high-speed automated slitting system that automatically positions and feeds each row card to cut them into final individual strips (cells) where the precisely cut strips get quickly and conveniently filled into a bottle.

The integration of the Auto-Feeding and the Rotary Slitting module allows for a simple yet very cost-effective solution that increases production efficiency as well as product quality due to the minimal hand-contact process.



FEATURES

Benefits of automatic slitting system:

- Continuous non-stop operation for increased production output.
(Bottling & Capping System (Optional) can be integrated for the ultimate in output)
- Consistent cut accuracy ensures reliable product quality.
- The nearly hands-free design reduces safety hazard and contamination factors.

Basic Features

- Touch screen panel allows for easy setup and operation.
- Auto-feed by electronic registration and motorized infeed.
- Operation mode available in time-controlled or foot switch for operator's convenience.
- Built-in static-free Ionizer to reduce strip clinging issue.
- Precision blades deliver crisp-sharp cut edge.
- Specially coated blades for improved lifespan.

OPTIONS

- Vision auto-alignment support system:
 - To enable the alignment of problematic row cards (irregularity in printing and sizes)

SPECIFICATIONS

- | | |
|---------------------|--|
| - Feeding Method | : Automatic |
| - Capacity | : 720 cards/hr. (Based on 5 sec. card feeding & bottle replacing interval) |
| - Card Width | : Min. 25 mm |
| - Card Length | : Max. 320 mm |
| - Magazine Capacity | : Max. 300 cards |
| - Dimension | : (Approx.) 900(L) × 700(W) × 1400(H) mm |
| - Weight | : (Approx.) 150 kg |
| - Power | : 110 or 220VAC, 1P, 50/60Hz |
| - Current | : 0.5KVA, 5A |

Semi-automatic Bottling & Capping System

[For High Production Volume]



DESCRIPTION

Semi-automatic Bottling & Capping System is an integrated system of the RAG-710 slitter with an optional selection of semi-automatic or automatic capping system for the purpose of increasing production throughput and efficiency.

The system works as follows:

Rows are cut into strips and filled into bottles automatically.

Operator manually transfers the strip-filled bottles onto conveyor rail.

The placed bottles travel to the presser for the capping process to shut-close the container.

OPTIONS

1. Semi-auto Capping System
 - Consists of conveyor & presser.
 - 2 operators are required for the overall process
(1 operator to load/replace filled bottles onto conveyor and another to place caps on bottles).
2. Automatic Capping System
 - Consists of conveyor & presser and an automatic cap feeder.
 - One operator can handle the overall process
(Auto cap feeder does the job of placing the caps on the bottles).

Automatic Slitting & Bottling System

For processing “Good” (non-marked) type of row card: PAG-440

[For High Production Volume]

DESCRIPTION

[From row to final product]

PAG-440 is a fully automated system which is developed to carry out a multitude of job processes up to the final product of filled bottles by the use of “Good” row card.

The entire operation that starts with row slitting (to convert row into cell), cell bottling (filling-up bottle with cells), and the capping process (closing bottle with cap) are done in one continuous and automatic fashion.



FEATURES

- Non-stop continuous automatic action for the ultimate production benefits.
- Auto bottle-feeding by bowl feeder.
- Robotic modular system for material feeding and transporting.
- Adjustable quantity of cells per bottle (standard: 25cells, option: 10, 50cells)
- High precision slitter for maximum cut accuracy.
- Easy removal of blade head for easy cleaning and maintenance.

SPECIFICATIONS

- Required Manpower	: 1 person
- Capacity	: Max. 1,200 bottles/hour (Based on Tact time, 25cell bottling)
- Magazine Capacity	: Max. 400 sheets (Stackable loading quantity)
- Applicable Bottle Type	: Sanner or CSP
- Cutting Cell Size	: 5.5±0.1 mm (Based on electrode size)
- Dimensions	: (Approx.) 6.0(L) x1.7(W) x1.9(H) m
- Weight	: NA (Available upon request)
- Power	: 220VAC, 1P, 50/60Hz
- Current	: 1.5KVA, 8A
- Air Requirement	: 5-7 kgf/cm ² , clean air

Automatic Slitting & Bottling System

For processing “Bad” (defects-marked) type of row card: PAG-501

[For High Production Volume]

DESCRIPTION

[From row to final product]

PAG-501 is a fully-automated slitting & bottling system which is specifically developed to process the “Bad” type of rows that have any number of defective cells.

The system’s operation is similar to the PAG-440 but with an added function of vision inspection where the system automatically fills-up the bottle with only of the good and acceptable cells (strip) while discarding any types of bad-marked or defective cells. The automatic defect-scraping process makes this system very cost-effective as it reduces production cost while improving quality control.



FEATURES

- Automatic discarding of defective cells (defects of dispensing, lamination, etc.)
- Non-stop continuous automatic action for the ultimate production benefits.
- Auto bottle-feeding by bowl feeder.
- Robotic modular system for material feeding and transporting.
- Adjustable quantity of cells per bottle (standard: 25cells, option: 10, 50cells)
- High precision slitter for maximum cut accuracy.
- Easy removal of blade head for easy cleaning and maintenance.

SPECIFICATIONS

- Required Manpower	: 1 person
- Capacity	: 320 Bottles/hour (Based on 2 defective cells per 25 cells/row)
- Row Size	: (As per customer’s requirement)
- Cut Strip Size	: (As per customer’s requirement)
- Bottle Feeder	: Multiple use for CSP bottle & Sanner bottle (optional)
- Applicable Bottle Type	: CSP, Sanner, or others (As per customer’s requirement)
- Dimensions	: (Approx.) 3900(L) x 1200(W) x 1500(H) mm
- Weight	: NA (Available upon request)
- Power	: 110 or 220VAC, 1P, 50/60Hz
- Current	: 3.5KVA, 15A
- Air Requirement	: 5-7 kgf/cm ² , clean air



Equipment for Other Assays

EQUIPMENT FOR OTHER ASSAYS

As an equipment specialist for the diagnostic industry, Zeta is capable of providing a range of systems for applications beyond the conventional types. Number of modifications to our already existing standard design can be engineered (or fully-customized) to accommodate the special requirements.

Specializing in custom engineering since 2000, we have developed and supplied numerous types of bench-tops to in-line equipment for the following products to several major international companies. You can be sure that our extensive experience and competence in this area will deliver technology advanced solutions for your production needs.

For pricing and further details, please contact us with your specification requirement.

Production Systems for Reflectance Glucose Test Strips

Systems for the reflectance type of glucose test strip are as follows:

- (1) Membrane Dip & Dry Machine (OAG-400)
- (2) Membrane Splitter (SMG-200)
- (3) Auto Feeding Rotary Slitter (RAG-710)
- (4) Auto Slitting & Bottling & Capping Machine (PAG-440)

Production Systems for HbA1c (Hemoglobin A1c) Test Kit

HbA1c is a form of hemoglobin used primarily to identify the average plasma glucose concentration over prolonged periods of time. It is formed in a non-enzymatic pathway by hemoglobin's normal exposure to high plasma levels of glucose.

Glycosylation of hemoglobin has been implicated in nephropathy and retinopathy in diabetes mellitus. Monitoring the HbA1c in type-1 diabetic patients may improve treatment.

Various types of production equipment for HbA1c test kit can be developed as per customer's exact needs and required specification.

Production Systems for Cholesterol Test Kit

Cholesterol test measures the amount of cholesterol and triglycerides in blood. The two major lipoproteins, and the ones to be most concerned about, are high-density lipoprotein (HDL) and low-density lipoprotein (LDL).

HDL is often called "good cholesterol" because it's thought to actually remove excess cholesterol from atherosclerotic plaques. LDL is often referred to as "bad cholesterol" because it can slowly build up within the walls of the arteries. High cholesterol is the most publicized risk factor for heart disease. Its fame is well deserved since high cholesterol levels increase the risk of heart attack by 2.4 times.

Various types of production equipment for Cholesterol test kit including laminating, dip & drying, splitting, slitting & bottling systems and others can be developed as per customer's exact needs and required specification.

Miscellaneous Equipment

Desiccator Cabinet



DESCRIPTION

Cleanroom and static-charge safe cabinets for medical supply manufacturers and laboratories to store various types of environment sensitive components and materials.

- Transparent design, aluminum frame construction, with special MMA plates.
- 8 shelves for maximum storage capability.
- Adjustable shelves at 50 mm increments.
- Casters (lockable) for convenient mobility.
- Temperature and humidity display.

MODEL	ODC-009
Frame	Aluminum Frame, 40×40 mm
Panel	Static Free Transparent Acrylic Plate, 5.0ℓ
Shelf	Acrylic shelves; 480 (L) x 510 (D) x 10 (Thickness) mm
Door	Total 4 (upper, lower, left, right)
Door Latch	Total 8 (upper, lower 2 pcs each)
Door Seal	Silicon Rubber (Air-tight type)
Casters	3" Roller Stopper Type
Size	About 1155 (W) × 580 (D) × 1790 (H) mm
Weight	105 kg

Dry Ovens

- 1) Vacuum Dry Oven:
- For drying pad material, device, and etc.
 - Superior uniformity and stability
 - Easy and convenient operation
 - High quality door sealing
 - Highly safe viewing window
 - Overrun temperature & current protection and sensor error detection



MODEL	OVD-151	OVD-152
Chamber Size(W×D×H/mm)	300 × 350 × 300	400 × 450 × 400
Chamber Capacity	32ℓ	72ℓ
Heater	1000W	2000W
Power	110/230Volt, AC, 50/60Hz	
Controller	Digital display and PID-Auto turning control with alarm multi timer	
Temp. Range	Room temp. +10°C to 150°C	
Temp. Stability	±1.5°C	
Temp. Sensor	PT100Ω	
Vacuum Range	100~760 mmHg	
Chamber Material	SUS #304 3t& 4t	
External Material	Double painting & baked. SS #41	
Door Packing	Molded high temp silicone rubber	
Door Glass	Tempered clear glass 15t	
Insulation	Glass wool & Ceramic wool	
Safety	Overrun temp. limit and NFB	

2) Heating Dry Oven:



- Optimized air flow by forced convection mechanism
- Jog-shuttle control system
- Digital fuzzy control system for superior temperature accuracy
- High-quality LCD display with back-light
- Rs232c interface for remote monitoring and controlling by pc
- Maximum temp. uniformity by forced convection:
 - *Rear-side fan/heater mechanism ($\pm 1\%$ uniformity)
- Corrosion resistant 304 stainless steel chamber and shelves
- Optimal heat insulation by heat-resistant rubber packing and air flow layer (AFL).
- Overrun temperature & current protection and sensor error detector function

MODEL		OHD-105	OHD-155
Interior Dimensions (W x D x H) mm		480 × 485 × 535	475 × 550 × 600
Exterior Dimensions (W x D x H) mm		653 × 711 × 879	718 × 776 × 944
Weight		70 kg	80 kg
Capacity		105 Lit.	155 Lit.
Temperature	Heater	1.4 kW	1.6 kW
	Range	Ambient + 5°C to 250°C	
	Accuracy	$\pm 0.1^{\circ}\text{C}$ at 70°C, $\pm 0.2^{\circ}\text{C}$ at 150°C, $\pm 0.3^{\circ}\text{C}$ at 230°C	$\pm 0.3^{\circ}\text{C}$ at 70°C, $\pm 0.3^{\circ}\text{C}$ at 150°C, $\pm 0.5^{\circ}\text{C}$ at 230°C
	Uniformity	$\pm 1\%$ of the reached Temp.	
Circulation		Forced Convection-Blower FAN	

Band Sealer



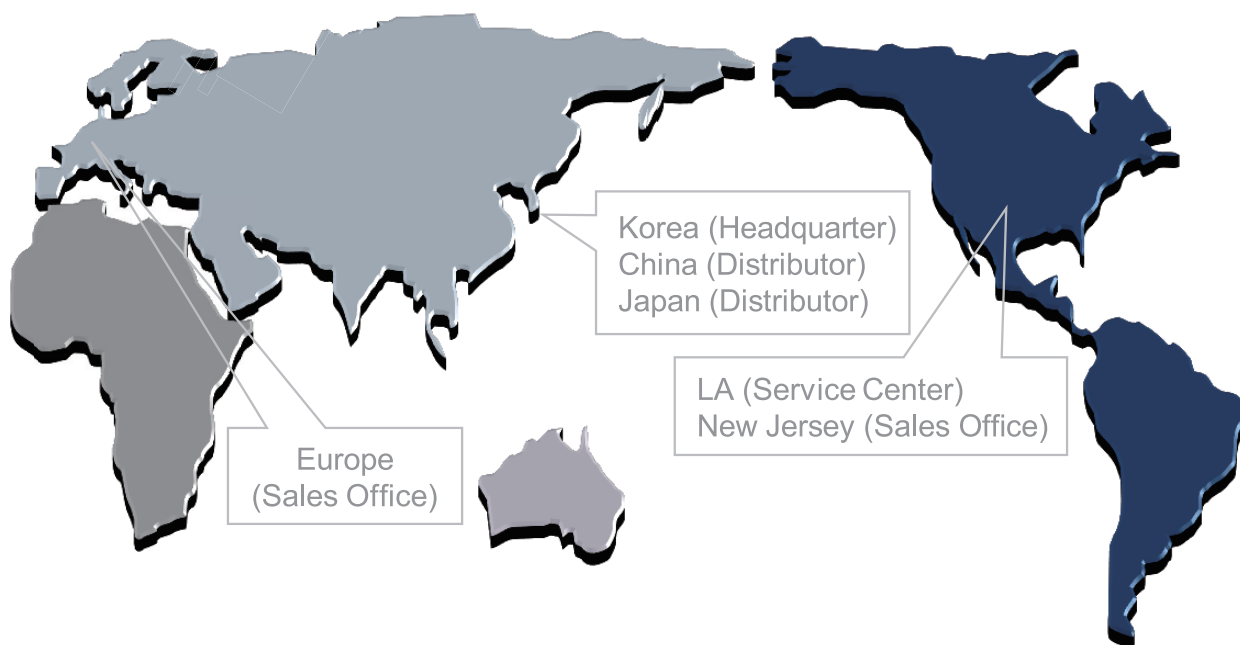
DESCRIPTION

Band sealer is used for one side sealing work of most thermo-plastic films by continual heating method. As the operator manually feeds each filled pouch from one end, the sealer and the conveyor carries the pouch until it is sealed and discharged.

The machine can be equipped with vacuum suction (option) to remove air and dust inside the pouch before sealing. Also, a printing gadget (option) can be installed for basic printing needs such as LOT, EXP numbers.

MODEL	OBS-115
Seal Speed	0~11m/minute
Seal Heater	400W × 2
Power	870W
Conveyor Belt	200(W) × 1200(L) mm
Printer Coder	o
Volt	110 or 220VAC, 1P, 50/60Hz
Current	2.2KVA, 10A
Size	1200(L) × 560(W) × 1100(H) mm
Weight	105 kg

MEMO

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