DIMA Dispensing

Dispense Master

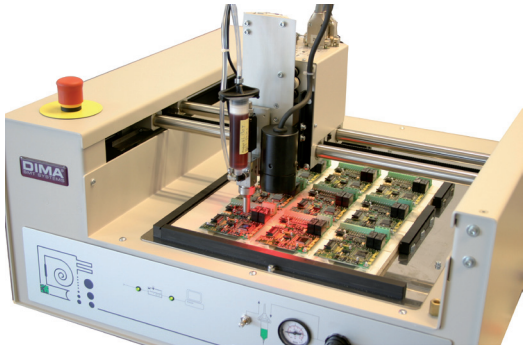
Dispense Master DD-500

The DIMA Dispense Master is a Desktop Dispensing platform enabling a wide variety of applications. The machine is one of the few desktop platforms moving the dispense valve in X,Y and Z direction instead of moving the product on a moveable table. This makes programming very easy. The Dispense Master is equipped with a standard camera for programming purposes, calibration and fiducial alignment. The software is based on the same platform as all other DIMA machines and provides a library structure to store all important parameters. The standard work area of the Dispense Master is 320 x 420mm. The Dispense Master can be equipped with a wide variety of dispense valves. Even 2 component mixer heads can be integrated. Depending on the application the correct dispense valve can be selected. The material that needs to be dispensed can be fed to the dispense valve from a standard cartridge but also by means of a larger tank or even from a transfer pump. Applications like dispensing a gasket or a liquid seal can easily be handled, but also dispensing a Glob-Top to protect electronic components or dispensing a glue to bond to parts can be done with the Dispense Master.

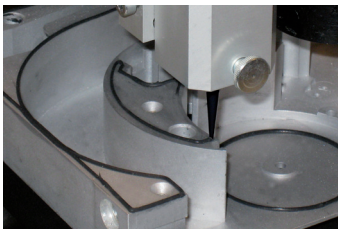
The DIMA Dispense Master has an build-in pulsed air dispenser including a vacuum control unit for dispensing all fluid viscosities directly from a syringe. For dispensing materials that require an electrical driven dispense valve, an electrical signal is available on the head of the Dispense Master. This enables applications like dispensing dots of solder paste and SMD adhesives. Combined with the fiducial alignment and CAD conversion software the Dispense Master is the ideal solution for high mix SMT requirements.

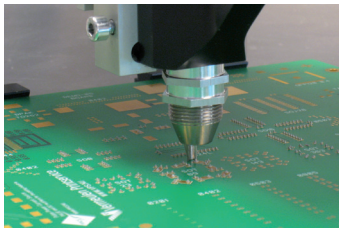
Main Features

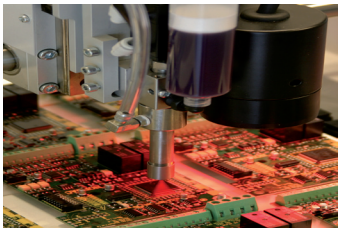
- Large working area
- Standard integrated camera for teaching and manual fiducial alignment
- Build-in pulsed air dispenser with vacuum control
- Can dispense up to 12.000 dots per hour
- Can be used with a wide range of dispense valves
- Windows® based user interface with graphical visualisation
- Optional automatic fiducial alignment
- Optional CAD download

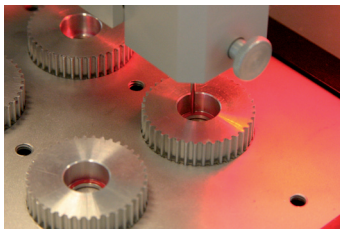


Applications









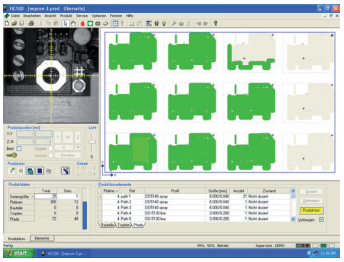
Technical Specifications

Dispense Master

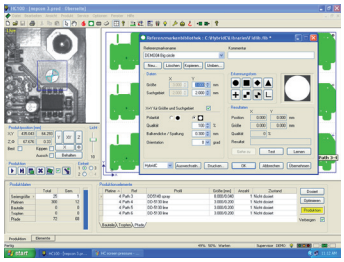
Multiple applications

User Interface

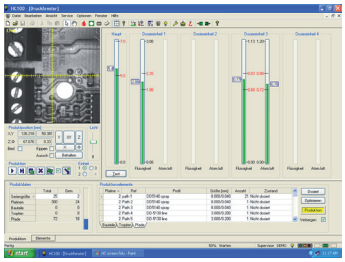
DIMA's software offers today's customer the ability to produce complex products, giving maximum flexibility, lower processing costs and higher yields. Its unique capabilities offer quick, responsive and informative one key operation, drastically reducing programming time. Programming is done using the Windows® based software using the standard build-in camera to determine dispense positions preventing the operator to physically having to look inside the machine while programming. A program can contain various sized dots, lines, arcs, circles, areas, spirals and fills. Utilizing the library structure dot sizes, and line widths can be stored for all kind of different materials in combination with all available dispense valves. For position accuracy the Dispense Master even uses fiducial alignment that can be used to first check product positioning before the dispense cycle is started.



Coating screen



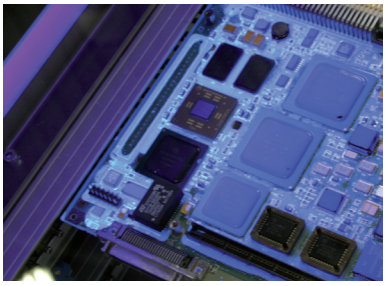
Fiducial screen



Pressure screen

Dispense library

Programs are made by defining dots and lines with a specific width on a certain location. Using these dots and lines all kind of predefined figures can be made. Simultaneously a dispense library can be established. In this dispense library parameters are defined for a specific dot and line size for any combination between dispense valve and material to be used. All combinations of valves and materials can be used for any existing program or any future program being made. This comes in very handy in case a different dispense material is being chosen for an existing product.



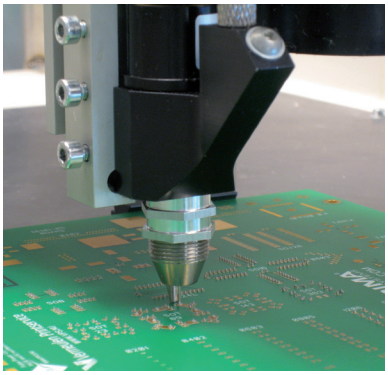
Selective coated board under UV light

Special features for Printed Circuit Boards

The Dispense Master makes it extremely simple to program your printed circuit boards. The machine comes with a library of component shapes that can easily be programmed on the board using the teach camera. All required information about reference points, test dots, and dispense coordinates is available in one window. Dispense coordinates are automatically optimized for a minimum of production time. The routing of the dispense head can be visualised with an on screen graphical plot function of the software. Also available is DIMA's CAD conversion software to create a dot dispensing program directly from the original CAD-file reducing programming time to minutes.

Distance holder

For precise dot dispensing the DIMA Archimedes screw valve can be equipped with a distance holder to ensure fixed distance between needle and PCB. The snap-on distance holder can easily be adjusted in height. To prevent that in case of PCB warpage the distance holder can cause damage to the PCB the Dispense Master is equipped with a standard spring loaded valve mount.



Distance Holder with valve

Valves

The multiple applications for which the Dispense Master can be used, require a need for a large range of dispense, spray, jet and mixer valves to meet these different applications and its specific materials. Dispense, spray and jet valves for various applications can be found in a separate DIMA valves brochure.

Technical Specifications

Dispense Master

Detailed information

General Dispensing

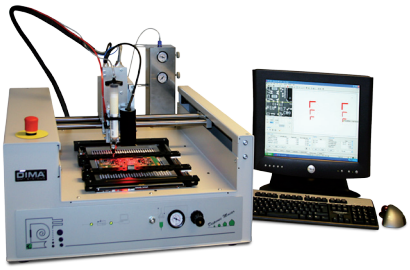
The Dispense Master can be equipped with different types of dispense valves. Depending on the application the correct dispense valve can be selected. The material that needs to be dispensed can be fed to the dispense valve from a standard cartridge but also by means of a larger tank or even a transfer pump. Applications like dispensing a gasket or a liquid seal can easily be handled, but also dispensing a Glob-Top to protect electronic components for dispensing a glue to bond to parts can be done with the Dispense Master.

Selective Conformal Coating

Compared to the DIMA HC-200 or Elite, the Dispense Master can have only one valve mounted in the machine. If the design of the PCB however requires multiple valves, the production can take place in batches in which the coating program needs to be divided into multiple programs (one program per valve needed). If the design of the board however allows the complete board to be coated with one valve than this of course is the ideal situation. The Dispense Master therefore is the ideal machine for small production batches and boards that can be coated with one valve only .

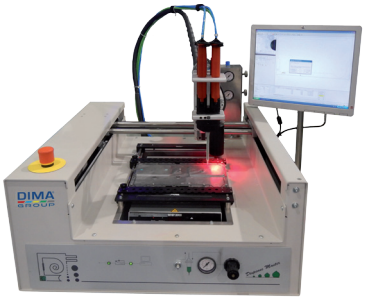
Underfill

The standard work area of the Dispense Master is 320 x 420 mm, but for Underfill applications an extra bottom heating unit is required. The bottom heating section has its own PCB support but this limits the maximum board size to be 190 x 245 mm. Bottom heating is needed to make sure that the Undefill material will have enough capillary flow to fully underfill the component. For BGA or Flip Chip applications a Piezo actuated Jet valve can be integrated on the Dispense Master. If however tall components need to be underfilled also a standard needle valve can be used. In case no separate pre-heat unit is being used, there is an possibility to program a wait function to make sure that the PCB is on the required temperature before the dispensing cycle automatically starts.



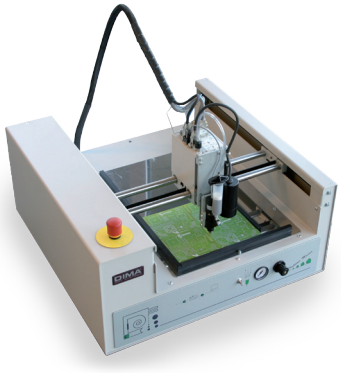
Potting

The 2-component meter & mix equipment can easily be integrated into the Dispense Master. In case of low weight static mixer heads, the mixer head can be directly mounted onto the dispense valve position of the machine. The correct mix ratio and dispense volumes will be determined by the settings in the 2-component equipment while the dispense positions and the dispense cycles are being determined by the Dispense Master. For potting applications, dispensing on different levels is possible enabling starting the fill cycle on the lowest possible level moving the dispense nozzle up step by step preventing air entrapment in the mixed material.



SMT (dispensing solder paste or SMD adhesive)

In case of dispensing solder paste or SMD adhesive on a Printed Circuit Board, the PCB's CAD-file can be converted into a product file automatically generating all dispense positions for both materials. Utilizing the package sizes from the package library (like being used in a Pick & Place machine) the dispense positions are automatically created for both materials limiting the programming time to minutes. Programming therefore can be done fully off-line (Cad conversion). Dispensing solder paste can be done either directly from a syringe, but for repeatability it is better to use the Archimedes screw valve DD-5100. An SMD adhesive can also be dispensed directly from a syringe. However also in this case the Archimedes screw valve DD-5100 is providing better repeatability. In case higher speed is required for applying the SMD adhesive you can even use a Piezo actuated Jet valve.



Technical Specifications

Dispense Master

Dispense Master DD-500	
Type	Universal Desktop Dispense robot
DIMA article number	DD-500
Dimension (L x W x H)	
Desktop	700 x 700 x 550 mm / 27.5 x 27.5 x 22”
Work area	
Basic machine	Max. 320 x 420 mm
Inclusing bottom heating unit	Max. 190 x 245 mm
Clearance	
Top side	87 mm
Bottom side	13 mm
Motion	
Type	Stepper motor controlled, belt driven
Control	
Controller	Integrated microprocessor controller, combined with MS-Windows™ PC software with DIMAsoft user interface
Dispense speed	
Dots	12.000 dots /h at 1 mm dot diameter, 30 ms dispense, 100 ms hold time. Safe height: 4 mm
Lines	up to 80 mm / sec
Interface	
Interface type	RS-232 serial interface
Facility requirements	
Power Requirement	220-240 VAC / 50 - 60 Hz / 125 Watt
Air Requirement	4 bar, 60 PSI, 100 L/min
Noise Level	Noise emission during operation <70 dB(A)
Weight	72 Kg without options

Standard features
Camera with frame grabber for programming and product alignment
A set of magnetic product clamps and magnetic product supports
10cc and 30/55cc syringe holder
10cc and 30/55cc air adapter
Quick change PCB holder
Software for manual fiducial alignment
Library structure with SMT component shapes and Dispense dots and lines
Automatic dot dispensing optimization

Optional features
Automatic vision alignment software
Bottom heating unit for Underfill applications
Application specific dispense valves and mixing equipment
Vacuum plate for foil applications
CAD conversion software

For more detailed information, please contact our Sales Representatives. We are very willing to explain you the product application opportunities, all the available system configurations as well as our customized turn-key automation facilities. We are pleased to serve you with the best process technologies and going for the best system fit into your manufacturing processes. Your success is ours too!

Your Local Representative

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