



INNOVATION. **PRECISION.** EXCELLENCE.

PRECISION PACKAGE: STAKING

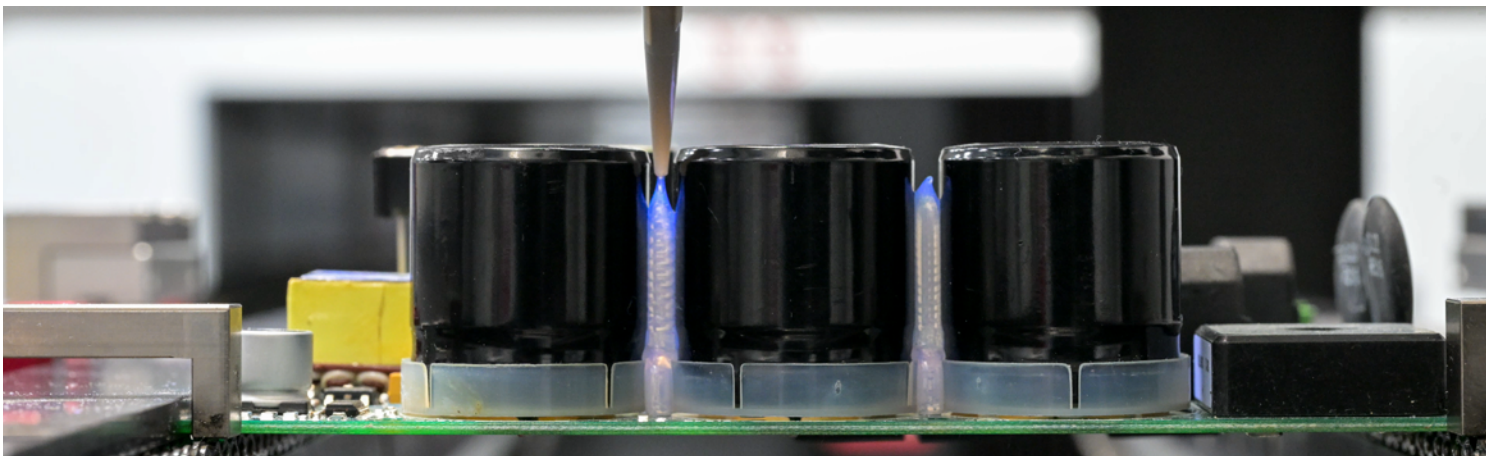
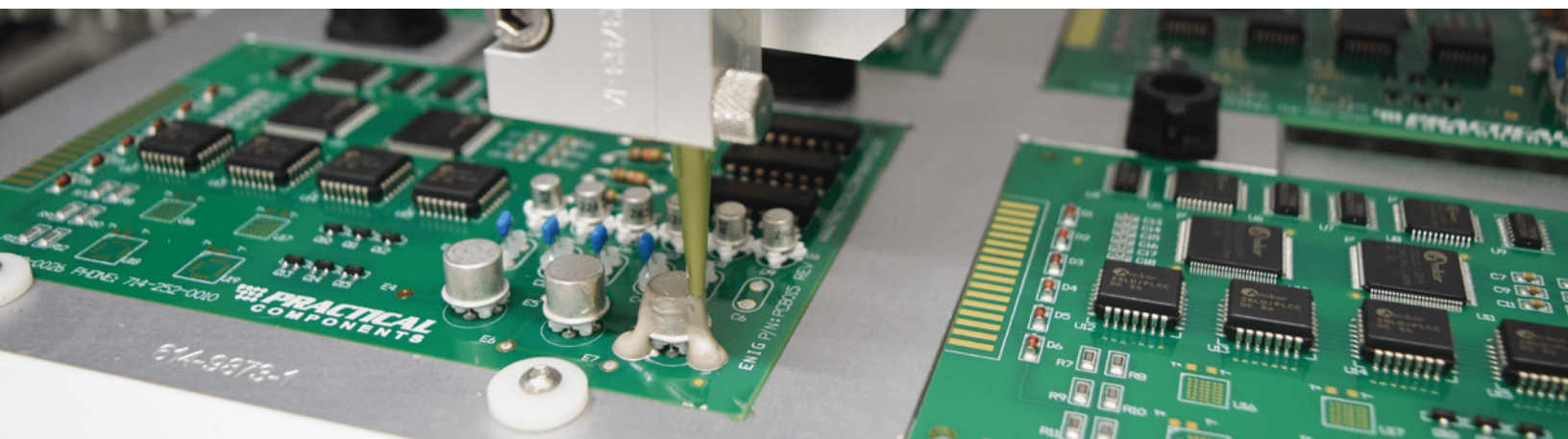
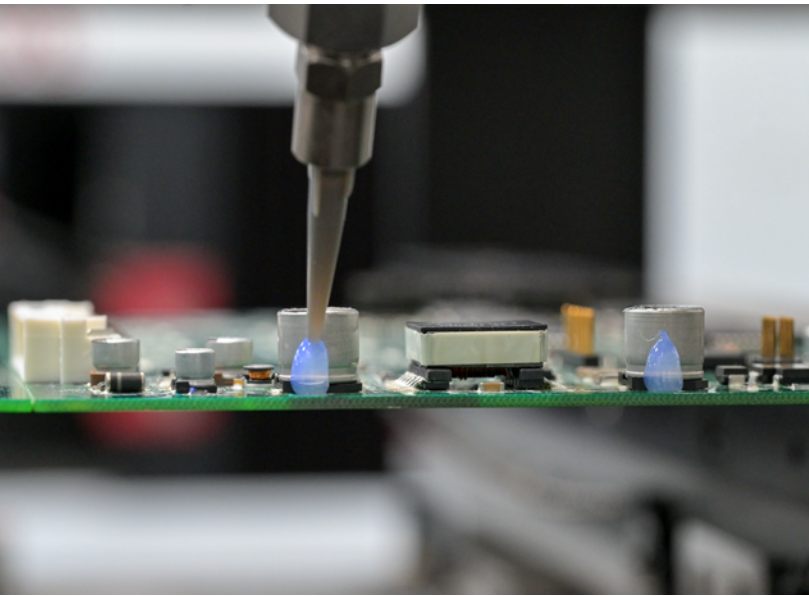


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STAKING APPLICATIONS



Staking components on circuit boards prevents fractures in solder joints due to excessive shock, vibration, or thermal stress. This is achieved by dispensing a dot or bead of adhesive that bridges between the component and the board surface to create an anchor.

Staking can be performed on small surface mount components up to large, heavy through hole

components. A range of adhesives can be used such as epoxy, silicone, and urethane.

Contact us for more information on equipment selection and options.

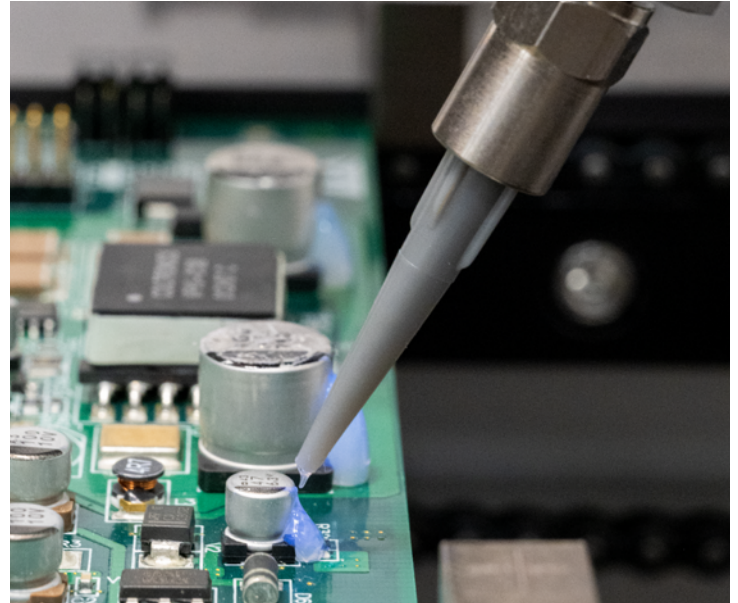
KEY INDUSTRIES

- Aerospace
- Automotive
- Energy
- Industrial Coating Systems
- Telecommunications
- White Goods

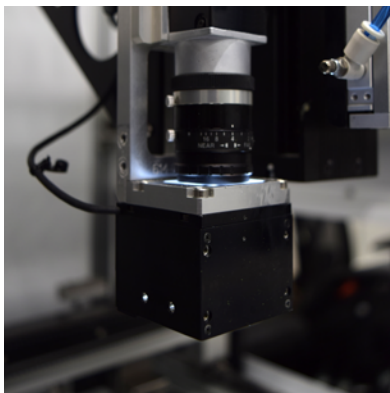
STAKING METHODS

While a 3-axis robot with a dispense valve can easily apply dots or lines in 2D and 3D patterns, additional features may be required for more complex staking applications.

By adding four and five axis motion, the ability to use functions, such as tilt and rotate, can provide users easier access to areas that were previously in difficult to reach locations within their processes.



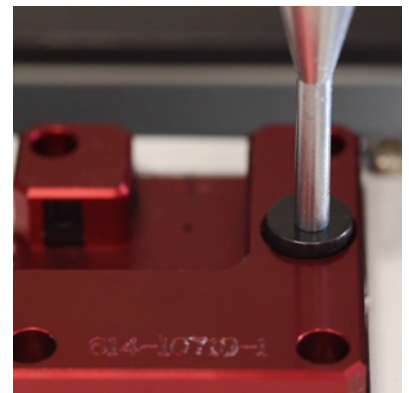
Adding process controls such as a fiducial camera, height sensor, flow monitoring, metered fluid delivery, and needle calibration can help further improve the reliability of your process.



*PVA-VISION
fiducial camera*



*PVA-SMT-LHS
laser height sensor*



*PVA-NC
needle calibration sensor*

DEFINING YOUR SOLUTION

With the wide range of staking chemistries and equipment options available, your application may seem hard to define. Having answers to the key points listed below will help start the process of creating a solution in a reasonable time frame.

STEP 1: Understand the Adhesive

If necessary, call the material manufacturer to obtain information and discuss properties such as:

- Base chemistry
- Compatibility with substrate
- Viscosity
- Pot life
- Curing requirements
- Shear strength
- How it will be supplied (syringe, cartridge, can, pail, etc.)



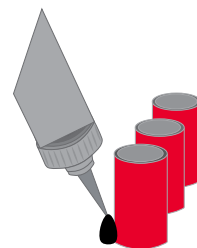
STEP 2: What are the Staking Requirements

- Locations to dispense
- Bead or dot dimensions
- Keep out zones
- Throughput requirements
- Dispense tolerance



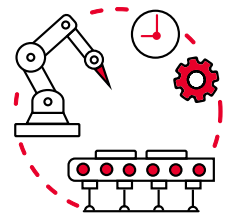
STEP 3: Choose the Application Method

- Low or high volume processing
- Dispense pattern: dot, bead, stacked line



STEP 4: Define the Automation Required

- Size of substrate
- Handling - manual or conveyORIZED
- Number of robot axes required to reach all areas
- Curing method



CHOOSING YOUR APPLICATION METHOD

Once your coating chemistry and requirements have been successfully defined, you will be able to choose your application method. Some of our most common valves and pumps for staking are shown below with optional features and additions where applicable.



SD100

Provides clean dispense on/off control for dispensing low to high viscosity materials directly from syringes.

Viscosity Range
1 cps - paste



BP50

Controlled dispensing for 50 ml bi-pack cartridges for low to high viscosity fluids.

Viscosity Range
1 cps - paste



FC100-MC

Needle dispense valve that uses standard Luer Lock needles. Use for detail or hard to reach areas. Capable to use with high pressure for dispensing gels, masking, staking, and encapsulants.

Viscosity Range
1 cps - paste



SB300

High flow rate dispense valve with snuff back operation is used with high viscosity adhesives for large dot or bead applications. Available with luer lock outlet or 1/4" NPT connection for custom nozzles.

Viscosity Range
50,000 cps - paste



PC200

Ideal for any two component bead or dot project and compatible with standard bell inlet disposable mixers.

Viscosity Range
1 - 500,000 cps



PCP

Featuring a machined rotor coupled with a rubberized seal to assure drip-free operation with a wide range of viscous chemistries.

Viscosity Range
1 - 500,000+ cps



SVX

Designed for processing micro volumes of material in precise, repeatable patterns.

Viscosity Range
25,000 cps - paste



JDX

High precision non-contact jet valve for fine dots and lines of coatings, adhesives, and encapsulants.

Viscosity Range
1 - 400,000 cps



Compatible Pump & Metering Options



CP Series Pump

Ideal for dispensing medium to high viscosity materials in pre-packaged cartridges.



Endurance

Bundles multiple dispensing and pumping technologies into one solution as a standalone or integrated option.

Ratio
1:1 to 15:1



5GPP Series

Five gallon pail pumps ideal for transferring high viscosity fluids under high pressures to a dispense applicator or metering system.



DEFINING YOUR AUTOMATION

With an application method chosen, a benchtop or inline/batch automation method can be selected to complete your process. Scan the corresponding QR code to learn more about each system.

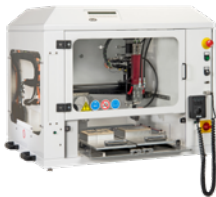
Benchtop Solutions



Sigma
Powerful benchtop robot with robust gantry. The Sigma allows for many of the same options available on our larger systems, but in a smaller footprint.



Work Area (1 Valve/Tool)
330 mm x 300 mm x 100 mm
Footprint
743 mm x 643 mm x 805 mm



PVA350
A compact 3 axis robot ideal for entry level automation of a variety of coating and dispensing applications.



Work Area (1 Valve/Tool)
365 mm x 378 mm x 101 mm
Footprint
944.3 mm x 831.8 mm x 793.7 mm

Inline/Batch Solutions



Delta 8
Conceptualized for maximum flexibility, the Delta 8 features a robust overhead three-axis motion platform suitable for inline or batch operations.



Work Area (1 Valve/Tool)
621 mm x 595 mm x 100 mm
Footprint
1270 mm x 973 mm x 2222.6 mm



Delta 6
Designed with improved structural and gantry rigidity for higher acceleration, robustness, and easier access.



Work Area (1 Valve/Tool)
521 mm x 485 mm x 100 mm
Footprint
854 mm x 1170 mm x 2105 mm



Flex Cell
Designed to meet your specific application requirements. Available in standard to very large work areas and can be highly customized.

Work Area
Various, from 500 mm² – 1200 mm²

Footprint
Varies upon workcell



Inline/Batch Configuration Options

Number of Axes

3, 4, or 5*

Valves

Needle
Jet

Head Tooling

3-Axis, 2 head
4-Axis – Up to 3 heads
5-Axis – Up to 4 heads*

Fluid Delivery

Syringe
Cartridge
Pail

Substrate Handling

Edge chain conveyor
Pin chain conveyor
Flex fixture
Tooling plate
Single drawer
Dual drawer

Vision

Fiducial camera
Programming camera

Software

Barcode
MES
Hermes
CFX

Additional Options

Black light
Needle calibration block
Flow monitor
Laser height sensor

*Applicable if a Valve Tool Changer is added

Leader in World Class Dispensing, Coating, and Custom Automation

PVA is a world class innovator of high quality, repeatable dispensing and conformal coating systems. We manufacture turnkey solutions that help our customers improve their competitiveness. We do that through engineering robust processes that introduce repeatable results that reduce waste, increase throughput, and lower manufacturing costs. Our flexibility is unmatched as each solution is customized to optimize your manufacturing goals.

Headquartered in Upstate New York, with regional sites stationed throughout North America, Europe, and Asia, all PVA Systems are backed by a 24-hour global service network.

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