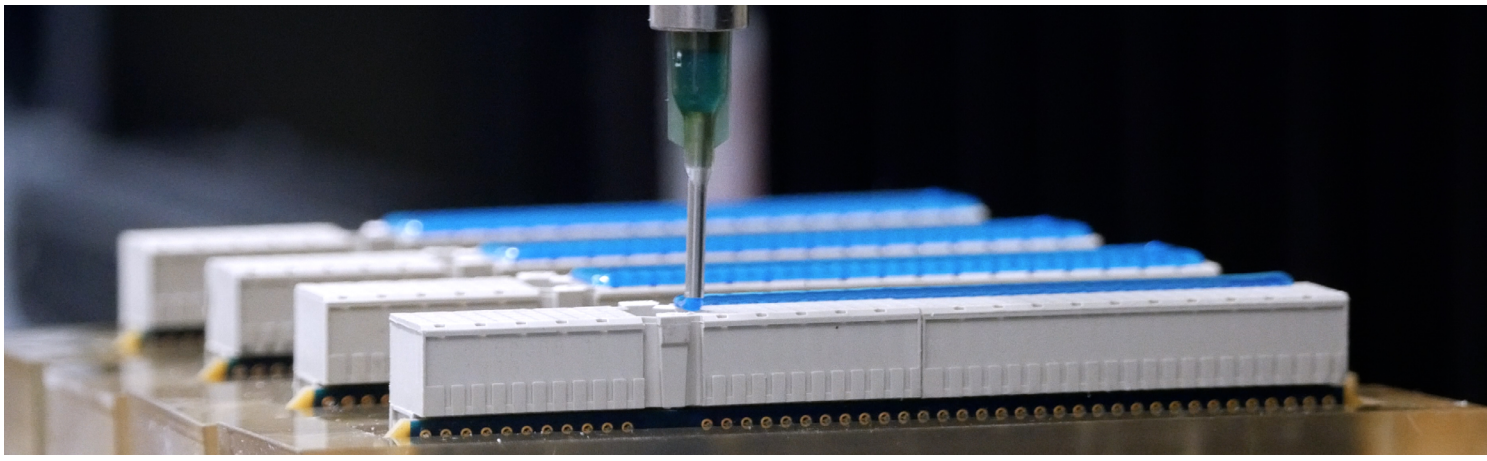
INNOVATION. PRECISION. EXCELLENCE.

# PRECISION PACKAGE: MASKING



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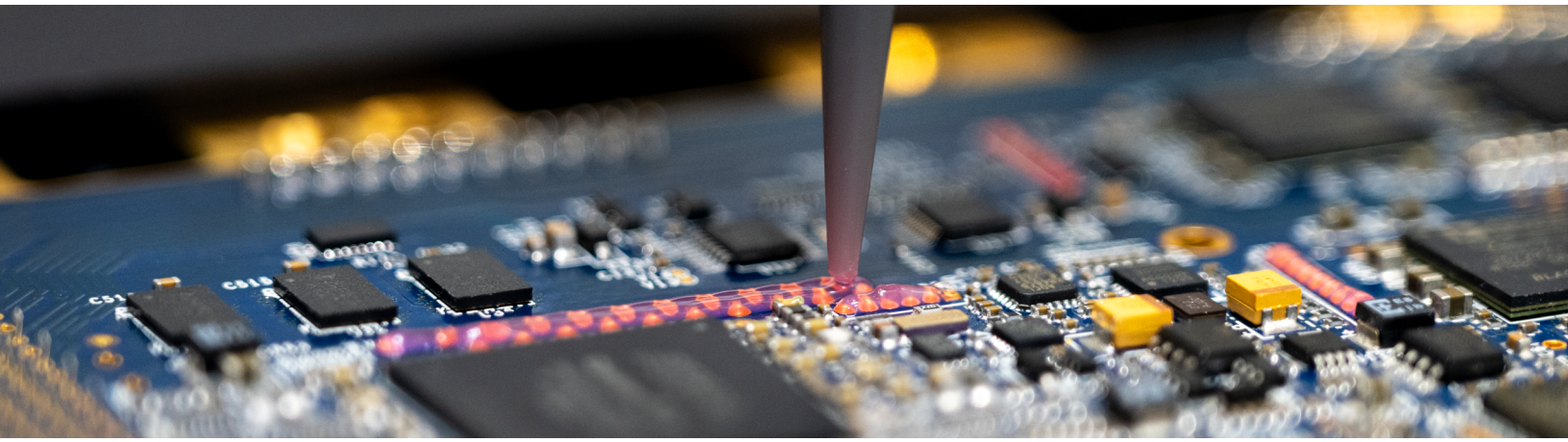
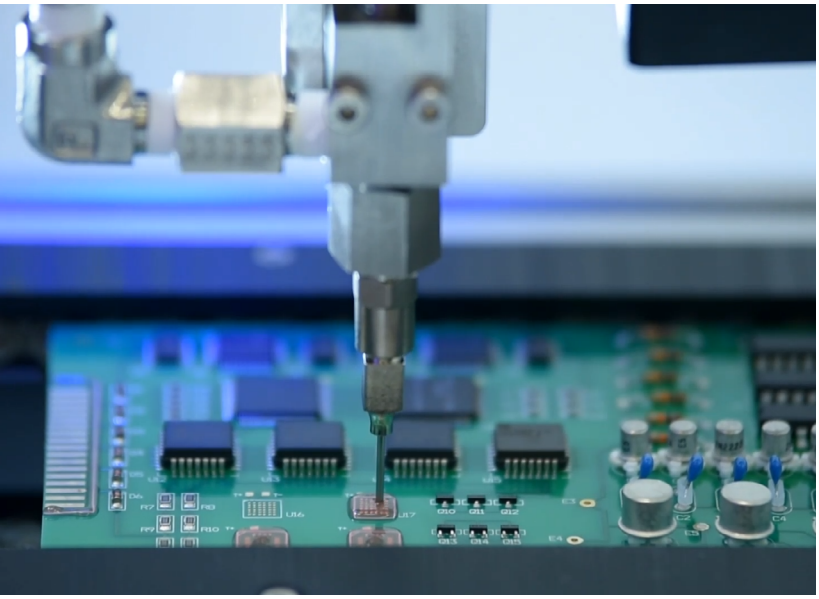


# MASKING APPLICATIONS



**Masking** is the application of a protective layer to an object to shield from a surface treatment step or finishing process. This can be used to maintain integrity of specific features of a substrate to ensure functional operation or cosmetic appearance.

Compared to traditional tapes or boots or custom fixtures, the use of liquid masking enables application to a wide range of surfaces due to its ability to flow and conform to irregular and complex shapes.

Many different industries utilize masking steps at different points in the manufacturing process. Electronics may require holes, test points, or connector protection during wave solder, reflow, or conformal coating. Metal components used in aerospace or medical devices may need specific locations protected from anodizing, plating, or other surface treatments.

**KEY INDUSTRIES**

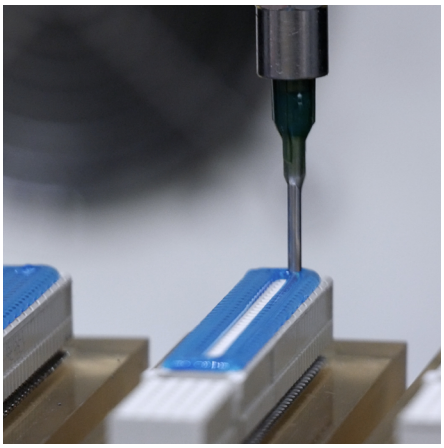
- Aerospace
- Automotive
- Electronics
- Energy
- Industrial
- Medical Devices
- Metal Fabrication
- Telecommunications

# METHOD OF APPLICATION

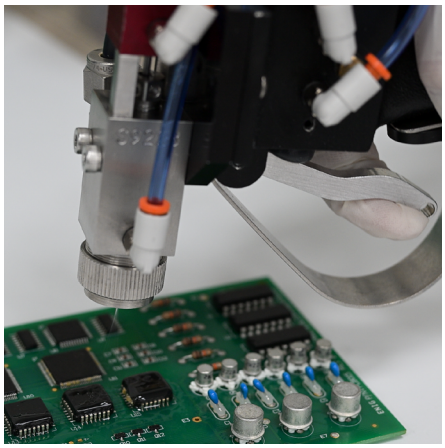
With a range of masking chemistries and equipment options available, your application may seem hard to define. Having answers to the key points listed below will help start the process of creating an application method tailored to your solution in a reasonable time frame.

## Automated or Manual

| Process Concern | Automated | Manual |
|---|---|---|
| Consistent coverage for both flat and irregular shapes | X | |
| High volume production | X | |
| Low volume production | | X |
| Large area surfaces to be masked | X | X |
| High accuracy and placement of maskant required | X | |
| Standalone or inline process | X | |
| Ability to dispense or spray maskant materials | X | X |
| Option to jet materials onto substrates that require fine detail | X | |



*Automated masking of an electrical connector with FC100-MC*



*Manual spray masking with FCS300-R on a pneumatic handle*

# CHOOSING YOUR APPLICATOR

Some of our recommended valves for masking are shown below with optional features and additions where applicable. To learn more about each valve, scan the corresponding QR code.

## FCS300-ES

Extended spray valve for atomized spray processes with excellent edge definition and coating transfer efficients in excess of 99%.

Pattern
Narrow cone, 3 - 6 mm

## 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.

Pattern
Dot or line, varies with needle

## FCS300-R

Atomized spray valve ideal for low pressure, low volume processes with a round cap.

Pattern
Conical, 3 mm - 25 mm

## JDX

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

Pattern
Dot or line

## SD100

Provides clean on/off control for dispensing directly from syringes.

Pattern
Dot or line, varies with needle

# AUTOMATED APPLICATIONS

For automated application methods, a benchtop or inline/batch solution can be selected to complete your process. Scan the corresponding QR code to learn more about each system.

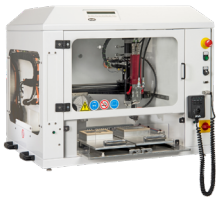
## *Benchtop Solutions*

### 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 a slimmer footprint, the Delta 6 features improved structural and gantry rigidity for robustness and easier access for both inline or batch operations.

Work Area (1 Valve/Tool)
521 mm x 485 mm x 100 mm

Footprint
847 mm x 1136.9 mm x 1606 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 $mm^2$ - 1200 $mm^2$

Footprint
Varies upon workcell

## Inline/Batch Configuration Options

**Number of Axes**

3, 4, or 5*

**Valves**

Spray
Needle
Jet

**Head Tooling**

3-Axis, 2 head
3-Axis Dual Tool, 4 Station - Servo or manual adjust
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
Cartridge/pail pump
Curing - Heat (oven) or UV (spot or oven)

**Applicable if a Valve Tool Changer is added*

# MANUAL APPLICATIONS

For solutions requiring manual application, some common configurations are listed below. To inquire about a custom solution, please contact PVA at info@pva.net or 518-371-2684.

## FC100-300ML-H

FC100 valve on a pneumatic trigger handle paired with a 300 ml cartridge pump for higher viscosity, non-self-leveling fluids.

Maximum Fluid Pressure
900 psi

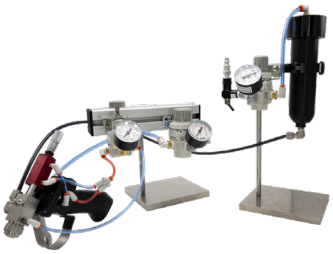
Fluid Viscosity Range
20,000 cps - paste

## FC100-5GPP-H

FC100 valve on a pneumatic trigger handle paired with a 5 gallon pail pump for higher viscosity, non-self-leveling fluids.

Ratio
23:1

Fluid Viscosity Range
20,000 cps - paste



## FCS300-R-060-H

FCS300-R valve on a pneumatic trigger handle with a 6 oz metal cartridge retainer and 0 - 15 psi atomizing air regulator.

Valve Spray Diameter
6.35 mm - 50.8 mm

Fluid Viscosity Range
1 cps - 20,000 cps
(self-leveling fluid)

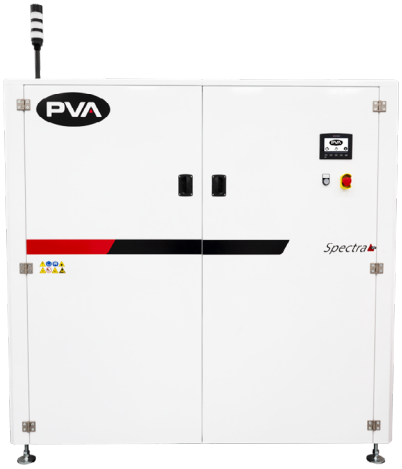
## CAM200-2LT-1

CAM200 all plastic lever activated valve with a 2-liter pressure tank which can hold most industry standard 1 or 2-liter bottles, eliminating the need to pour fluid into a container.

Fluid Viscosity Range
1 cps - 20,000 cps
(self-leveling fluid)

# CURING SOLUTIONS

## *UV Cure*

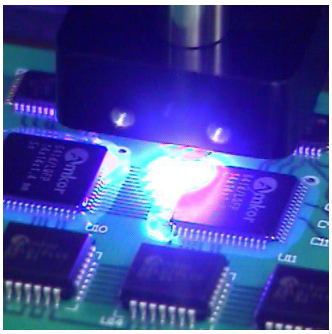



### Spectra

Using high-powered broad spectrum UV lamps, the Spectra can initiate fast ultraviolet light polymerization of adhesives and coatings in an efficient inline process. Various beam widths are available to accommodate a wide range of substrate dimensions. Options available in focused or flood LED panels.

Working Width
50 mm to 500 mm

Footprint
1651 mm x 1066.8 mm x 1661.2 mm



### Spot Curing

Options to apply UV energy to a specific location for tacking or curing. This can be integrated into a robot to cure in place immediately after dispensing.

Options available:

- Broad-spectrum or LED UV light
- Choose from spot, line, or area curing

## *Heat Cure*


### DeltaTherm

Utilizing infrared panels, the DeltaTherm can efficiently cure adhesives and coatings in a controlled, heated environment. With its double-sided configuration, the DeltaTherm offers custom top and bottom heat profiling in each two-foot section. Optional humidity control feature is available for further control of moisture cure applications.

Working Width
50 mm to 500 mm

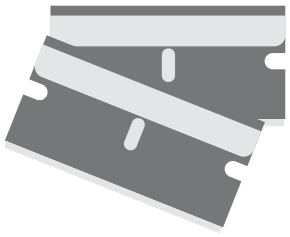
Footprint
Varies upon oven
4ft, 8ft, 12ft, and 16ft options available

# MASKING REMOVAL OPTIONS

## Manual Peel

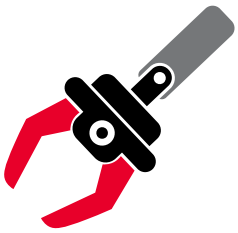
Manual removal methods can include the use of:

- **Hand or tool method** - plastic razors or dental picks to scrape the mask
- **Tab removal method** - a tab is created out of a maskant or another flexible plastic that is used to peel the maskant



## Robotic Peel

Using pneumatic clamps on an XYZ table, the masked area is grabbed by an automated gripper and pulled in a Z or X/Y direction to peel the maskant off.



## Water Jet

By using high pressure water, a water jet nozzle's diameter and shape (e.g., cone vs stream) can be changed to effectively remove the maskant. Pressure can also be adjusted to achieve desired results.

## Burn Off*

Projects that are utilizing 100% organic solutions have the option to incinerate the maskants as a form of removal. When performed at appropriate temperatures/cycle times, the maskants will combust and be reduced to ash. Any remaining ash can then be removed from the surfaces with shop air.

**Contact your supplier to determine if this method is applicable to your process.*

# 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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