



# LOW PRESSURE MOLDING SOLUTIONS

FROM DESIGN  
TO PRODUCTION

Protecting your  
electronics with  
safe and reliable  
encapsulation

# Expanding Low Pressure Molding Solutions, Services and Successes

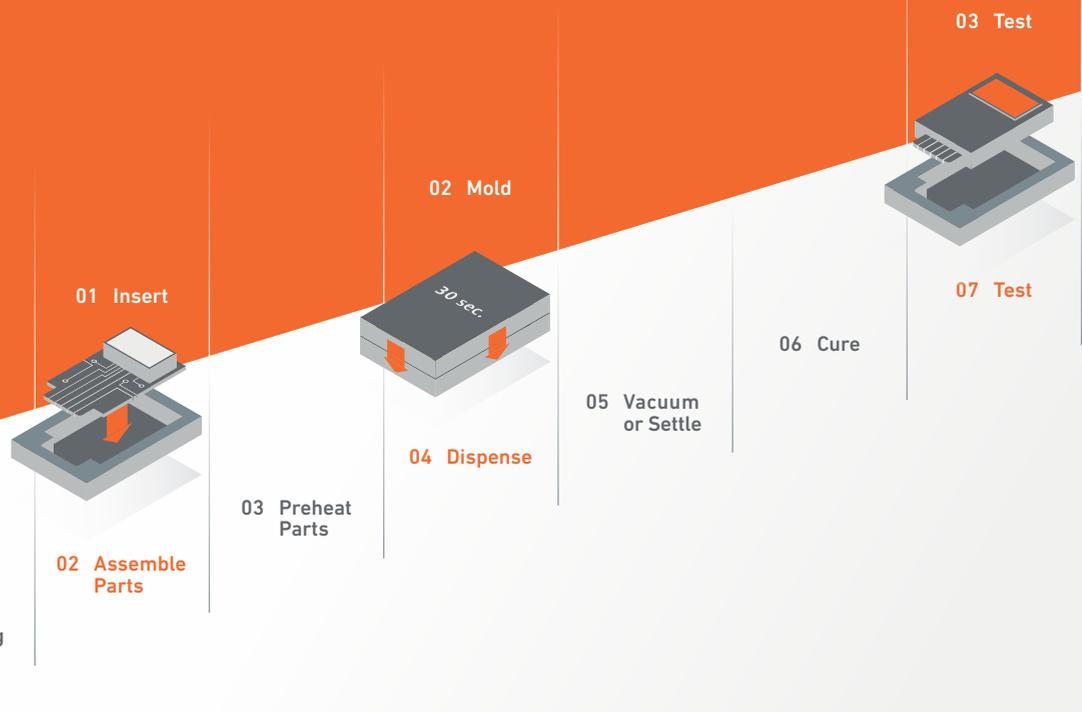
Originally developed in the 1970s to overmold wires and cables for the automotive industry, low pressure molding has now solidified itself into all markets, including submerged marine electronics to sensitive medical and automotive sensors. Specialized equipment, engineered tools and specifically formulated materials are required to protect these parts; this is where LPMS provides the greatest value into your production.

LPMS is the largest, global low pressure molding equipment provider. To meet the growing demand, LPMS USA was established in Chicago in 2014 and leads the industry with more than 10 standard platforms – from low-volume R&D to high-volume production. Each platform can also be customized to meet customer and production requirements. LPMS USA is the largest stocking-equipment provider in North America.

In addition to equipment, we offer a complete turnkey solution, including collaborative engineering to design, develop and manufacture prototype and production tools, full-service contract manufacturing, and material selection and distribution.

LPMS USA is a veteran-owned company and ITAR compliant.

## Low Pressure Molding Process:



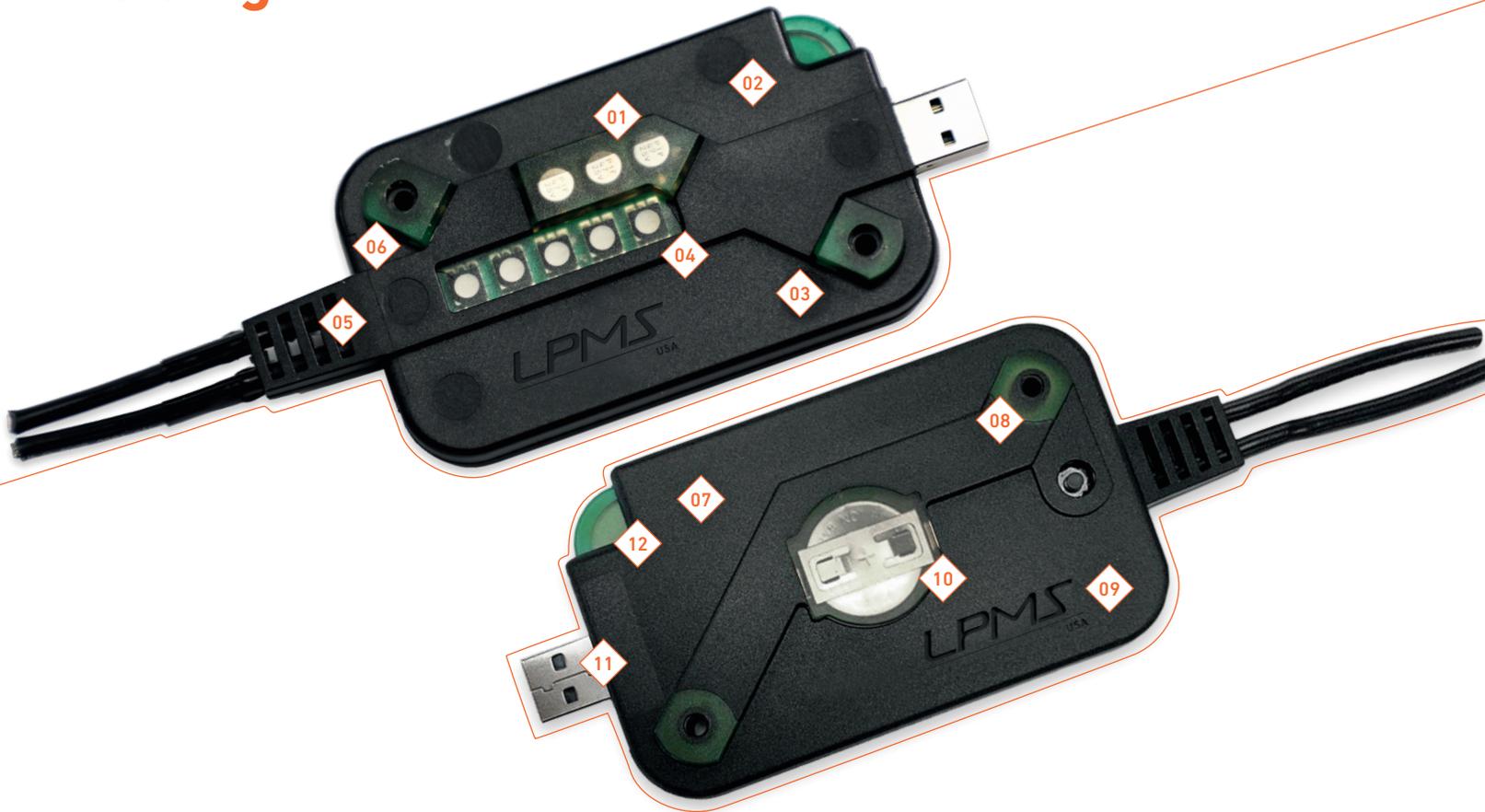
## Potting Process:

### Protection in Three Simple Steps

Using an environmentally friendly hot melt adhesive, the low pressure molding process encapsulates parts safely in seconds, providing waterproofing and protection against temperature extremes, harsh chemicals, shock and vibration. Low pressure molding is uniquely positioned between potting and high-pressure injection molding. Unlike potting – which can take up to seven process steps – the entire low pressure molding process can be completed in three simple steps. Based on the process-step reduction, fast-processing speed, substantially increased throughput, reduced material, shipping and labor costs, the cost for an overmolded part can be reduced to half the price of a potted part.

## Benefits over Potting

# Advantages of Low Pressure Molding



## 01 Skylining

Material wraps the contours of components – with a minimum thickness of 1mm – encapsulating the PCB and reducing material usage through skylining.

## 02 Single-part, No-cure Materials

Hot melt thermoplastic that does not require mixing or curing.

## 03 Sustainable Materials

Low pressure molding materials are thermoplastics derived from plant-based fatty acids, are VOC free and REACH/RoHS compliant. The materials can be reworked and waste is recyclable.

## 04 Custom-material Options

LPMS USA's custom Spectra-Melt line incorporates additives and low-density fillers to enhance material properties, such as color, optical clarity, UV resistance and thermal stability.

## 05 Strain Relief

Mechanically bonds to protect wires and cables to provide a waterproof seal. LPMS USA offers wire and cable processing and attachment prior to overmolding.

## 06 Overmolds Multiple Materials

LPMS USA's dual-nozzle equipment platforms inject multiple materials at the same time, providing multiple PCB protection options.

## 07 Eliminates Housing

Low pressure molding materials become the housing, reducing cost, part numbers and inventory.

## 08 Bushings for Mounting

Compression-limiting bushings can be molded in place for parts mounting.

## 09 Embossing/Debossing

LPMS USA's mechanical design engineers can integrate logos, part numbers and time stamps into the material.

## 10 Overmolds Batteries

Encapsulates and protects batteries without damage.

## 11 Waterproof

Low pressure molding materials provide waterproofing and meet sealing requirements up to IP 69.

## 12 Shut Offs

Low pressure molding materials can shut off or mold around sensitive components, while still protecting electronics from moisture.

# Horizontal-injection Equipment

LPMS USA offers the widest variety of equipment platforms on the market; in addition, each machine can be customized to meet your specifications and production requirements. We offer a line of horizontal-injection machines that are designed with a large molding area to accommodate larger parts, an attached melt tank to process higher-viscosity materials or an external melt tank to swap-out materials easily. The standard clamping force for these machines is 1.2 to 5 Tons.



Specifications	BETA 300	BETA 600	KAPPA 1000H	KAPPA 1100H	KAPPA 2000H
<b>Machine Size</b>	700 × 950 × 1020 mm 27.36 × 37.40 × 40.16 in 595 lbs	850 × 830 × 1651 mm 33.46 × 32.68 × 65.0 in 705 lbs	970 × 970 × 2050 mm 38.18 × 38.18 × 80.70 in 882 lbs	975 × 1150 × 1880 mm 38.39 × 45.28 × 74.02 in 882 lbs	1300 × 950 × 1900 mm 51.18 × 37.40 × 74.80 in 1345 lbs
<b>Electricity</b>	200–240 VAC 1 Phase · 60 Hz	200–240 VAC 1 Phase · 50 or 60 Hz	200–240 VAC 1 Phase · 50 or 60 Hz	200–240 VAC 1 Phase · 50 Hz	200–240 VAC 1 Phase · 50 or 60 Hz
<b>Air Pressure</b>	0.5–6.0 MPa · 73–87 psi	0.5–6.0 MPa · 73 psi	0.5–6.0 MPa · 73 psi	0.5 MPa · 73 psi	0.5–6.0 MPa · 73 psi
<b>Air Volume</b>	3.5 ft <sup>3</sup> /min	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min
<b>Autofeed</b>	Optional	–	–	Optional	–
<b>Clamping Method</b>	Pneumatic	Pneumatic	Pneumatic over hydraulic	Air Over Oil cylinder	Pneumatic over hydraulic
<b>Clamping Force</b>	1.2 Tons	1.2 Tons	5 Tons	5 Tons (10-Ton option)	5 Tons
<b>Clamping Stroke</b>	125 mm (optional 150 mm · 4.92 in optional 5.90 in)	150 mm · 5.90 in	150 mm · 5.90 in	Max. 4.92 in (optional 5.91 in)	150 mm · 5.90 in
<b>Max. Mold Size</b>	250 × 120 × 150 mm 9.84 × 4.72 × 5.90 in	250 × 120 × 150 mm 9.84 × 4.72 × 5.91 in	229 × 120 × 150 mm 9.00 × 4.72 × 5.91 in	300 × 200 × 150 mm 11.81 × 7.87 × 5.90 in	300 × 200 × 150 mm 11.81 × 7.87 × 5.90 in
<b>Nozzle</b>	LPMS-G02	LPMS-G02	LPMS-G10	LPMS-G02	LPMS-G10
<b>Standard Safety</b>	Light curtain E-stop button Safety doors	Two-hand actuation E-stop button Light curtain Safety doors	Two-hand actuation E-stop button Light curtain Side safety doors	Light Curtain	Two-hand actuation E-stop button Light curtains Side safety boards
<b>Melt Tank Quantity / Volume</b>	One built-in · 3L	One built-in · 3L	One external · 7L	–	Two external · 7L
<b>Temperature Control Zones</b>	2	2	3	2	5



## KAPPA 1000H

Horizontal-injection, Single-station System  
with External Melt Tank

- ◆ Horizontal-injection, single-workstation system with external high-volume melt tank
- ◆ Seven-inch touchscreen, multi-language operator PLC
- ◆ Three thermal control zones for precise melt control
- ◆ Ejection system for easy part removal
- ◆ Equipped with work-area light curtains, door sensors and rear-safety window

# Vertical-injection Equipment

LPMS USA also offers multiple vertical-injection machines that provide better wet out, improved adhesion, faster cycle times and lower material waste due to the shorter runner. Vertical-injection machines also include an attached or external melt tank with a standard clamping force of 1.2 to 5 Tons.

Your part size and throughput determines which machine best suits your application. LPMS USA's team of technical engineers will help guide you in the right direction to ensure optimal results.



Specifications	BETA 800	BETA 800H	BETA 800HMG
<b>Machine Size</b>	1010 × 935 × 1660 mm 39.76 × 36.81 × 65.35 in · 771 lbs	940 × 840 × 1865 mm 37.00 × 33.07 × 73.42 in · 926 lbs	1245 × 945 × 1982 mm 49.01 × 37.20 × 78.03 in · 1454 lbs
<b>Electricity</b>	200–240 VAC · 1 Phase · 50 or 60 Hz	200–240 VAC · 1 Phase · 50 or 60 Hz	200–240 VAC · 1 Phase · 50 or 60 Hz
<b>Air Pressure</b>	0.5–6.0 MPa · 73 psi	0.5–6.0 MPa · 73 psi	0.5–6.0 MPa · 73 psi
<b>Air Volume</b>	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min
<b>Clamping Method</b>	Pneumatic	–	Pneumatic over hydraulic
<b>Clamping Force</b>	1.2 Tons	5 Tons	5 Tons
<b>Clamping Stroke</b>	150 mm · 5.90 in	150 mm · 5.90 in	150 mm · 5.90 in
<b>Max. Mold Size</b>	300 × 200 × 150 mm 11.81 × 7.87 × 5.90 in	300 × 200 × 150 mm 11.81 × 7.87 × 5.90 in	300 × 200 × 150 mm 11.81 × 7.87 × 5.90 in
<b>Nozzle</b>	LPMS-G08	LPMS-G08	LPMS-G02
<b>Standard Safety</b>	Two-hand actuation · E-stop button Light curtain · Side safety doors	Light curtain	Two-hand actuation · E-stop button Light curtain · Side safety doors
<b>Melt Tank Quantity / Volume</b>	One built-in · 5L	One external · 7L	Two external · 7L
<b>Temperature Control Zones</b>	3	3	6



## BETA 800H

Vertical-injection, Single-station System  
with External Melt Tank

- ◆ Vertical-injection system with a single injection gun
- ◆ Seven-inch touchscreen PLC with multi-language capabilities
- ◆ Three thermal control zones for precise melt control
- ◆ Mechanically controlled pneumatic-ejection system
- ◆ Equipped with work-area light curtains, door sensors and rear-safety window

# Semi-automated and Handheld Equipment

For high-volume production, LPMS USA offers a variety of semi-automated machines from a tabletop shuttle to a rotary machine. Conversely, we also offer handheld equipment for low-volume production and prototype testing. These machines are ideal for high-mix, high-variability production.



Specifications	BETA 370	KAPPA 700	LPMS 900MD
<b>Machine Size</b>	990 × 874 × 965 mm 38.98 × 34.41 × 37.99 in · 881 lbs	1180 × 780 × 1460 mm 46.45 × 30.70 × 57.48 in · 881 lbs	1135 × 1443 × 1803 mm 44.68 × 56.77 × 70.98 in · 992 lbs
<b>Electricity</b>	200–240 VAC · 1 Phase · 50 Hz	200–240 VAC · 1 Phase · 50 or 60 Hz	200–240 VAC · 1 Phase · 50 or 60 Hz
<b>Air Pressure</b>	0.5 MPa · 73 psi	0.5–6.0 MPa · 7.3–87.0 psi	0.5–6.0 MPa · 73 psi
<b>Air Volume</b>	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min
<b>Clamping Method</b>	Air cylinder	Air cylinder	Pneumatic
<b>Clamping Force</b>	1.25 Tons	2 Tons	1.2 Tons
<b>Clamping Stroke</b>	75 mm	150 mm · 5.90 in	75 mm · 2.95 in
<b>Max. Mold Size</b>	250 × 120 × 150 mm 9.84 × 4.72 × 5.91 in	305 × 153 × 153 mm 12.00 × 6.02 × 6.02 in	300 × 200 × 308 mm 11.81 × 7.87 × 12.13 in
<b>Nozzle</b>	LPMS-G08	LPMS-G10	–



Specifications	ALPHA 100	ALPHA 120J
<b>Machine Size</b>	540 × 400 × 510 mm · 21.25 × 15.74 × 20.07 in · 35.0 lbs	610 × 320 × 405 mm · 23.95 × 12.60 × 15.90 in · 95 lbs
<b>Electricity</b>	110–120 VAC · 1 Phase · 50 or 60 Hz	200–240 VAC · 1 Phase · 50 Hz
<b>Air Pressure</b>	0.0–0.7 MPa · 14–100 psi	0.5–6.0 MPa · 7.3–87.0 psi
<b>Air Volume</b>	0.7 ft <sup>3</sup> /min · 0.02 m <sup>3</sup> /min	3.5 ft <sup>3</sup> /min · 0.1 m <sup>3</sup> /min
<b>Max. Mold Size</b>	120 × 100 × 82 mm · 4.72 × 3.93 × 3.22 in	Depends on part design
<b>Nozzle</b>	LPMS-G01	LPMS-G10

# Technical Customer Services

LPMS USA works closely with you to support and streamline your production, yield high-quality parts and ensure that you receive consistent, repeatable results from your low pressure molding operation.

## LPMS USA's Turnkey Solutions



# Production Services

LPMS USA is the only low pressure molding equipment provider that produces its own mold sets and provides contract manufacturing services on-site.

## Tooling Services

Quick-turn prototype tooling, production inserts and modifications are made in LPMS USA's on-site tool shop.



Prototype Tooling



Tooling Trial



Establish Process Parameters



Production Tooling



Tooling Warranties

[www.lpms-usa.com/tooling-engineering](http://www.lpms-usa.com/tooling-engineering)



## Contract Manufacturing

LPMS USA is the only low pressure molding equipment provider with its own ISO 9001-certified and ITAR-compliant production facility.



ISO Certified 9001:2015



Short or long-term overmolding services

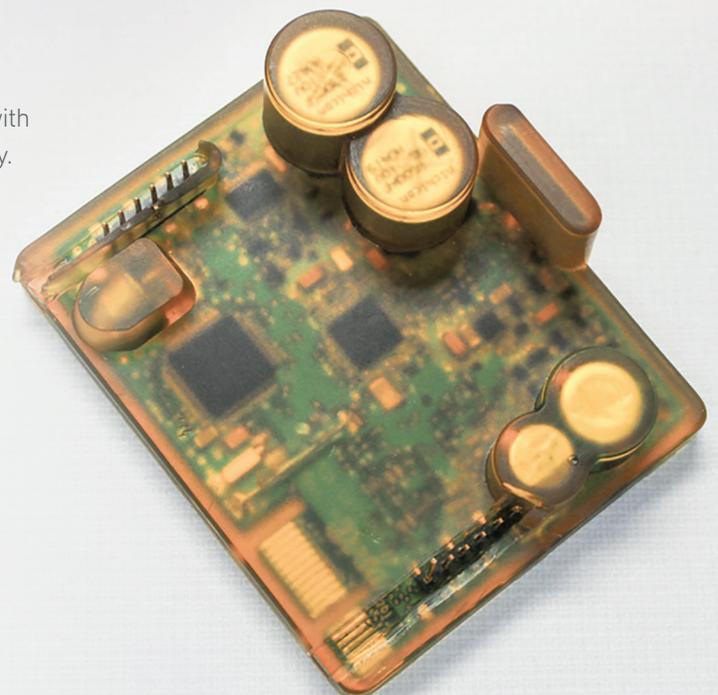


Customer-specific quality control testing



Value-added services, such as hand soldering, labeling and adhesive sealing

[www.lpms-usa.com/contract-manufacturing](http://www.lpms-usa.com/contract-manufacturing)



## Material Distribution

LPMS USA is an authorized distributor for the top overmolding material suppliers – Henkel, Bostik and Toyobo – providing an expansive, complementary material portfolio. LPMS USA's on-site material scientists specialize in material selection, confirming the right material is selected for your application.



LPMS USA's on-site chemists and material science engineers are developing new solutions to meet market demands. LPMS USA's Spectra-Melt line of molding products incorporates cutting-edge additives and low-density fillers to enhance materials' properties, such as UV and thermal stability, hardness, magnetism, optical clarity and light diffusion for LEDs, along with color compounding and laser-marking capabilities.



### TECHNOMELT®



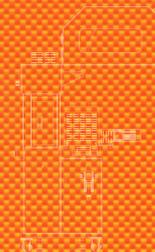
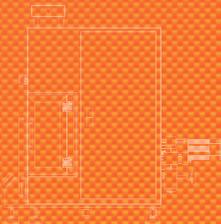
Henkel is the largest hot melt provider in the world, and it's expansive TECHNOMELT line of overmolding hot melt materials delivers exceptional electrical insulation and excellent temperature, vibration and solvent resistance for a wide range of applications.



Bostik's low pressure molding solution includes Ther-melt, a comprehensive range of hot melt polyamide adhesives designed to meet customers' unique needs. Multipurpose with high resistance to temperature and oil, these adhesives offer easy processability at low pressure and low temperatures.



Toyobo's Vyloshot thermoplastic copolyesters for low pressure molding protect parts from water and shock, offers high reliability, easy processability, low-temperature flexibility and are compressible.



## Low Pressure Molding Solutions from Design to Production

