

# HOT MELT 101

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## Hot Melt 101

While the uninitiated may associate hot melt with light-duty craft or hardware adhesives, many are unaware that the hot melt industry is vast and covers applications from joining packaging materials or adhering various auto components. Whether your application requires manual application with hot melt handguns or you're looking for equipment with automated adhesive dispensing capabilities, it pays first to learn about the basics of hot melt and how it can be used.

If you're not sure where to begin, follow our quick guide to learn more about what hot melt is, your options and how you can apply the adhesives. Our professionals are here to support you and find a solution that matches your requirements.

## What Is Hot Melt Adhesive?

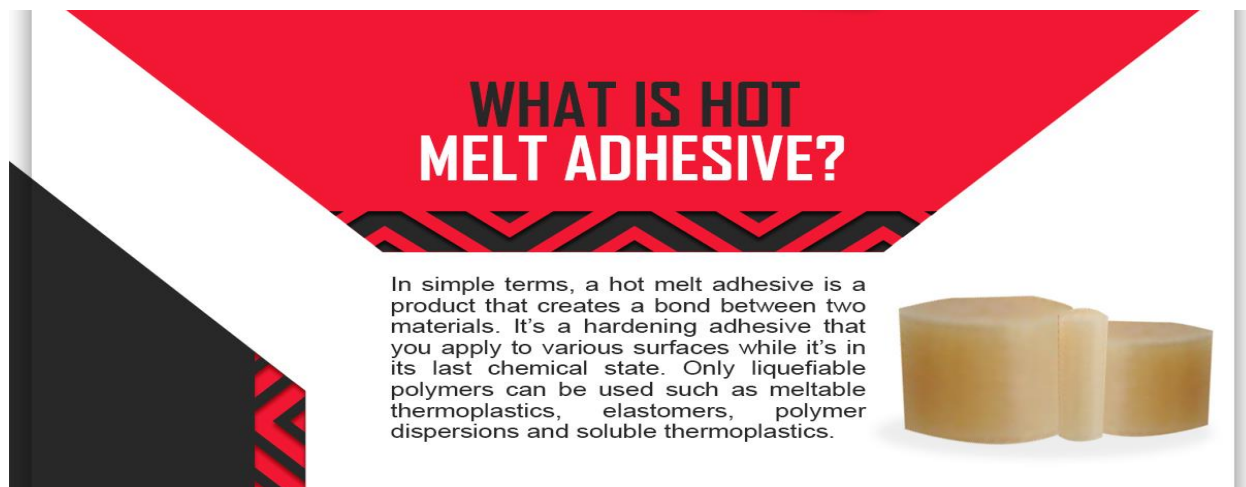
In simple terms, a hot melt adhesive is a product that creates a bond between two materials. It's a hardening adhesive that you apply to various surfaces while it's in its last chemical state. Only liquefiable polymers can be used such as meltable thermoplastics, elastomers, polymer dispersions and soluble thermoplastics.

Hot melt adhesives have excellent bond flexibility and have 100 percent solid formulations. While hot melt adhesives are solid at room temperature, the adhesive is activated when heated to a particular softening point. When it reaches the right temperature, the hot melt turns into a liquid state with a high viscosity which gives you the freedom to work with and process the glue.

After you apply the hot melt to any surface, it solidifies and returns to a state that has structural integrity — as solid. You can apply it to different items by rolling, extruding or spraying. The joining of two materials occurs right after application. However, hot melt adhesives are most suitable for permeable and porous substrates because of their high viscosity.


Several features of our hot melt include building material strength for fast assembly after the cooling process, and the ability to heat and cool the substance over and over if needed. No matter what industry you work, always use proper handling techniques and protective gear to avoid burns when working with hot melt adhesives. Because the adhesives are simple to use and apply, you can accelerate manufacturing production levels and remain efficient.

Overall, the term “hot melt” encompasses various adhesives that you can melt and apply using heat. You can work with hand-held applicators or automatic machines depending on the quantity and rate of production within your business.



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## What Types of Hot Melt Adhesives Are There?

As you're deciding the best solution for your business, one of the first things to consider is the type of hot melt adhesive you want to work with and which offers the most benefits. At Keystone Industries, we sell adhesive sticks — which are most people's go-to.

### 1. Hot Melt Adhesive Sticks

An adhesive stick is as you would imagine. You load the hot melt stick into an applicator which brings the material up to the right working temp. Typical hot melts are [applied at 350 to 425 degrees F](#). The rods are typically made from a synthetic material to give it strength while other components provide the adhesive its bonding properties. It's a polymer derived from carbon-based natural material mixed with wax, resin and antioxidants.

For industrial use, hot melt applicators have higher melt rates for improved durability as opposed to versions for home use. Once you place the stick in the back of the applicator chamber, the adhesive melts, and then you can apply it to almost any material. Hand-held applicators are best for small applications while larger applications are ideal for pneumatic systems that often employ the hot melt in beads. Hand-held options also hold heat longer to help give you time to assemble your components.

Either a hand-held applicator or automatic equipment will deliver incredible accuracy, but glue guns often need longer open times compared to mechanical systems because you will need more time to apply the adhesive and assemble parts. Several benefits of working with hot melt sticks include:

- Applicator delivers accurate, fast and safe melting
- A fast process that can save time
- Fumes are not harmful or hazardous
- Hot melt sticks set quickly to increase production and keep uptime to a max
- Little to no noise
- Not affected by moisture or humidity
- Provides more versatility
- Provides sealing strength better than taping methods
- Sticks are simple to insert and work with

## **2. Hot Melt Adhesive Chips**

Hot melt adhesive chips are similar to sticks, but with a different design. Instead of being extended, the chips are tiny parts that are melted in a tank, and are often used for bulk melting applications where a large quantity of adhesive will be dispensed. Keystone Industries does not sell this type of adhesive.

## **3. Hot Melt Adhesive Tape**

Hot melt adhesive tape is a film made of pressure-sensitive plastic, nylon reinforced filament or even acrylic, rubber or a water-activated formula. The tape is formed by using synthetic polymers and is available at different thicknesses. This can be done with a random web or continuous tape depending on your needs. A random web delivers softer bond lines and drapes well to conform to 3D shapes. It can also laminate or seam fabrics. The continuous option is ready in various widths that can fit different measurements of applications.

You often assemble two components with the tape as the bonding material in between. Once heated, the tape liquefies and becomes an adhesive, and then bonding occurs after the cooling process.

Whether using sticks, chips or tape, most adhesives can withstand 32 to 150 degrees F. If temperatures get too low or reach the freezing point, the resins can become brittle and lessen the bonding properties. If temperatures reach extreme heat levels, it can weaken the adhesive bond as well or even melt the glue. Therefore, hot melt applications are not ideal for outdoor use. They often can't withstand fluctuating seasons and harsh weather patterns.



## Why Choose Hot Melt Adhesive Products?

Many companies choose to work with hotmelts for reasons such as:

- Many adhesives are biodegradable and recyclable
- They omit no solvent solutions
- Hot melts don't emit airborne pollutants

- They can adhere to more surfaces at a quick production speed with increased precision

## **What Are the Main Ways You Can Apply Hot Melt Adhesive?**

No matter what type of hot melt you choose to work with, you have options when it comes to applying the adhesive. For smaller projects or if you work in a less industrialized shop, handguns are your best bet. If you operate a large business or factory that requires consistent adhering, an applicator is a viable choice.

### **1. Hot Melt Handguns**

Adhesive handguns are best when a manual application is needed or for small packaging or adhesive projects. Some models work by placing a stick in the back of the gun, where it melts the adhesive at a specific temperature so that becomes easy to use and apply. Other types of hot melt handguns connect to a hose through which the adhesive is dispensed.

You can then place the adhesive as needed in a dot formation or straight line. Handgun bonding agents have slower cooling rates to give you the opportunity to assemble what you need by hand. When you provide continuous feed to the handgun, you can create different sized hot melt applications that you create through constant pressure on the applicator — you have total control.

### **2. Hot Melt Applicators**

Applicators are automatic systems that connect to a hose which is connected to a reservoir of melted adhesives. The machine can apply a precise amount of adhesive based on your specifications. Whether you need a fine-tipped dot of hot melt or a more significant amount to cover a larger space, you can program what you need into the pattern controller or PLC of the machine.

Applicator machines are best when you have an adhesive operation that would not be profitable with a manual human application. More massive projects that require consistent hot melt applications are ideal for applicators or when you have exact and precise production needs that occur at high speeds which could not be executed by hand.

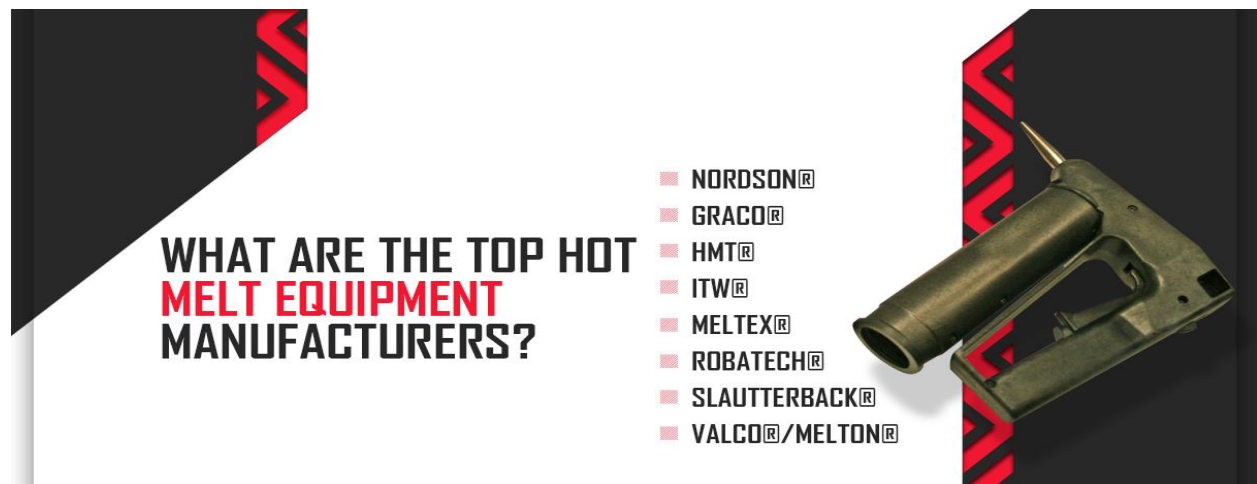
## Quick Application Guidelines

In both instances, whether you pick the hand-held option or the machine, a nozzle dispenses the hot melt adhesive. Hot melt glue nozzles are available in a variety of diameters, sizes and angles to help ensure precise dispensing and application. Not only does a nozzle help with accuracy but it also can adapt to your particular expectations.

Choosing the best tip can make for a more accurate and clean job, and when you tailor it to your industry, materials and the nature of surfaces, you will reap the benefits of well-executed solutions. Nozzles range from button, extended dome and handgun to pencil, single guard and spray.

Other aspects to consider include:

- Make sure each component is clean and dry without remnants of oil, grease and dust
- Apply the adhesives at appropriate temperatures
- Ensure the substrate material you're using is at room temperature and isn't at an extremely high or low degree
- Place the right amount of hot melt on a surface — if you apply too little, it can dry too quickly, and too much can prevent a solid bond



**WHAT ARE THE TOP HOT MELT EQUIPMENT MANUFACTURERS?**

- NORDSON®
- GRACO®
- HMT®
- ITW®
- MELTEX®
- ROBATECH®
- SLAUTTERBACK®
- VALCO®/MELTON®

## What Industries Use Hot Melt?

The better question is — what industries don't rely on hot melt? Virtually any industry can use and benefit from a hot melt adhesive, but some of the most popular sectors include:

- Automotive
- Electronics
- Industrial
- Medical Equipment
- Packaging
- Pharmaceutical
- Printing
- Shoemaking
- Textile
- Wood Processes

The automotive industry uses adhesives to form many applications like bonding, insulating and cushioning material while packaging businesses implement hot melts to manufacture packaging from cardboard, paper and corrugated board. Electronic companies use it for bonding processes for coil windings and coil ends. Other uses include binding book spines for printing, bonding appliques in the textile industry and edging and veneer surrounds in wood processes.

Adhesives from Keystone Industries are perfect for when you're working with fibrous or porous materials like cardboard, foam, paper, batting, fabric, nonwovens and untreated wood. Our solutions can even support the processes of adhering materials to finished products like credit cards, cabinetry, stamps, carpet, windows and hundreds of others. If you need to join two components together, our hot melts get the job done with accuracy and durable connections.

## **What Are the Top Hot Melt Equipment Manufacturers?**

Nordson® hot melt equipment has long been favored by many across the adhesive and packaging industry.

Other equipment manufacturers that are frequently used include:

- Graco®
- HMT®

- ITW®
- Meltex®
- Robatech®
- Slutterback®
- Valco®/Melton®

Keystone Industries does not sell OEM parts for any of these brands and is not affiliated with any of the companies listed above. However, Keystone does sell competitively priced OEM-equivalent parts for all of your hot melt equipment replacement needs.



## Learn More

Keystone Industries offers expert hot melt advice no matter what industry you're in. Once you've told us your exact requirements, our experts can help you find the best solution. Tell us about your surfaces, environments, production line and more, and we will provide excellent service in finding you an accurate hot melt product. We offer parts and supplies at reasonable prices and strive to be friendly, helpful and conscientious.

Find solutions to common hot melt issues and learn about money-saving tips by checking out our online resource section. We dedicate our time and expertise not only to helping you find what you need but also to educating you along the way. Keystone Industries also provides you with the opportunity to [receive a free nozzle sample](#). We understand it's difficult to determine what you need when you have dozens of nozzle options to choose from. With the free sample program, you can test different nozzles until you find one that delivers precise adhesive amounts.



If you have further questions about our hot melt products, [contact us online](#). You can also call a Keystone Industries representative at 800-235-8090 if you have questions or need support.