

## From Molder to Turn Key-Solutions provider – How you can stand out with Precision PSA Assembly

### The benefits of using a standardized platform for PSA Assembly

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The molding industry landscape has changed significantly over the last few years: spurred by a market transition of local to global, a broadening scope of services from molding products to offering subassemblies, and ever decreasing product life cycles. Hence, margins are under constant pressure.

Beneath the weight of these challenges, how can a molder stand out in the crowd? To differentiate themselves, molders began to offer subassembly services. However, what used to be a differentiator has now become common place. It requires new ways of thinking to answer the question above. Those who face up to this situation and come up with innovative solutions will find great opportunity as key suppliers of technology. One such innovation is the adoption of standardized manufacturing equipment instead of expensive custom solutions. Pressure Sensitive Adhesive (PSA) assembly is one of the most common elements in today's subassemblies. Yet, many organizations still lean on hand assembly or custom automation to accomplish this task. Read on to learn more about how standardized PSA assembly technology can help you and what to consider so that your investment in PSA assembly equipment answers your market challenges.

#### What are Pressure Sensitive Adhesives?

The simplest example is a self-adhesive label, but PSAs are much more than that.

A PSA can be defined as a sort of adhesive tape that in dry form is aggressive and tacky at room temperature. PSAs adhere when applied with pressure and do not require activation by water, temperature, or solvents. It always requires pressure to achieve sufficient wet-out onto the surface for providing adequate adhesion. The main varieties of PSAs are derived from rubber-based, acrylic, modified acrylic, and silicone formulations.

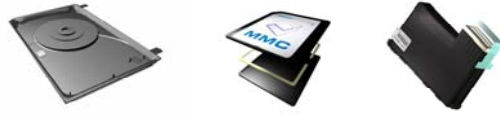
Frequently laminated with an additional polymeric material, such as a foam, paper, or polyimide; and then converted into a specific shape, PSAs are used for assembly, but also often embrace other functions such as venting, filtering, or sealing. With the vast variety of materials that can be used, PSAs are popular in many different markets & applications. Here are just a few examples:



**Automotive:** e.g. as foam pads to eliminate vibration or noise, as double sided adhesive to assemble decoration, or as moisture vents to ventilate engine control module connectors



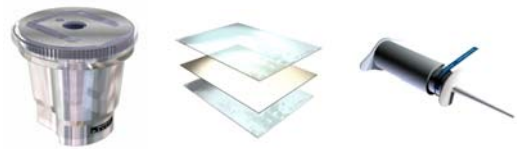
**Computer & Peripherals:** as filters to eliminate particulates in hard drives, as heat activated film to assemble MMC cards, and as flex circuit adhesives to assemble the FPCB on inkjet cartridges



**Mobile Communications:** e.g. as protective film on lenses, as dust seals, microphone meshes and gaskets in cell phone housings, and as adhesive to assemble a dome switch array onto a PCB



**Life Sciences:** e.g. as labels or temperature strips on diagnostics devices, as double sided adhesive to assemble medical devices, and as a label wrapped 360° around syringes



### **Challenging Requirements on Equipment**

Due to this infinite range of applications and materials, the requirements for applying those PSAs are in the same way infinite: absolutely bubble free, highly accurate, time- and pressure controlled, temperature controlled, 3-dimensional, wrapped 360° around the target part, handling sensitive materials such as double sided tape, handling of complex shapes of die-cuts, etc.

Molding companies cannot foresee today what requirements they will face tomorrow. Therefore when choosing the equipment for the PSA assembly, it is important that the platform:

- Is flexible enough to handle all these different requirements
- Is easy to support globally, also for operations in low tech countries
- Allows for quick and simple changeovers from one product type to another
- Allows for splitting of investment costs on to several projects

### **Why Standardized Platform is a Solution**

Compared to custom equipment, a standardized platform has significant advantages:

Standardized machines have established operational criteria, predictable quality, and perhaps of greatest benefit, quantified process costs. Standardized machinery is also refined and enhanced through years of development with a process that allows for continuous improvement. Thousands of applications solved with the same peeling technology prove the flexibility of such a platform in handling a great variety of application requirements. The tooling can be changed within few minutes, and another product type can be manufactured on the equipment in minutes.

### **Global use made easy**

Often times two or more facilities are running the same program. A standardized platform ensures the same outcome from each location. It also makes the transfer of projects from one location to another easier, as the same manufacturing equipment is available. Technical support and maintenance are simplified as well.

**Reusability allows splitting of capital spending**

Short or variable product life cycles are addressed with a standardized platform, as it has a high reusability rate of 95%, while the reusability of customized solutions cannot be forecasted. Due to its standardization, the equipment is quickly reconfigurable and decreases downtime significantly. Capital costs are not project specific but can be spread out over various projects, which in turn significantly reduce the overall assembly costs on one project. For every new project, only new tooling needs to be obtained.

The following additional items should be considered by end users in calculation of the benefits of standardizing adhesive component assembly:

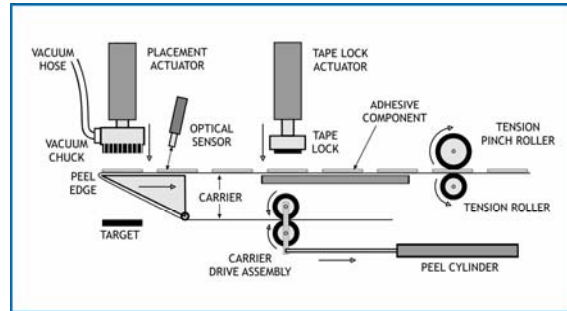
- Shorter lead times of standard equipment allow critical decisions to be made later in the planning process when more information is available.
- Equipment manufacturers can have the machinery “on the shelf” or manufacturing sites could have automation in place prior to design finalization.
- Time-proven, predictable production-rate data will provide for extremely accurate planning and forecasting.
- Prototyping runs and capability studies can be performed early in the process prior to production exposing any problems.

**Why the Right Choice of Technology is important**

In addition to the standardization, the machine capabilities vary from technology to technology. PSAs have often times different, more stringent requirements than simple label applications. These requirements can be placement accuracy, PSA location (e.g. in recess area), sensitive adhesive component (e.g. double sided adhesive, Kapton), or other. Therefore the choice of technology is crucial to making your PSA applications a success.

	Traditional Label Applicators		Custom Equipment	AccuPlace Patented Peeling Technology
	Wipe-On	Tamp-On		
Placement Accuracy	limited	limited	varies	yes
Quick Changeover from one product to another	yes	yes	varies	yes
Investment spread over various projects	limited	limited	varies	yes
Ability to handle vast range of materials	no	no	no	yes
Software parameters to adapt to process requirements	limited	limited	limited	yes

AccuPlace's patented peeling technology allows not only for the most accurate placement, but also permits the handling of the most sensitive and diverse materials, such as double sided adhesives, foams pads, complex shaped die-cuts, and complex placement such as three dimensional, in recess areas, and bubble free.



## Conclusion

Offering advantages such as multi-functionality and ease of use, die-cut pressure sensitive adhesives are becoming more the norm. Standardization of the placement technology offers various benefits to molders and EMS companies, providing answers to major market place challenges in today's world. Thus the decision on standardizing PSA assembly and making the right platform choice can be vital for the molder to differentiate himself.

Guni Bermudez is Marketing Manager at AccuPlace. AccuPlace, located in Plantation, Florida, provides standardized solutions for assembly of film adhesive and has provided thousands of adhesive placement applications in the mobile communications, computer and peripherals, automotive, industrial, and medical device market segments worldwide. For further information, visit [www.accuplace.com](http://www.accuplace.com).