

Converting Glossary

- **Adhesive Free Zone (AFZ)** – Area on part or label that is free of adhesive either by die-cutting the adhesive away or covering it with another material such as polyester film.
- **Air-Eject Die** – Very similar in concept to a vacuum die except that, instead of vacuuming the slugs, air is blown through the die. Air-eject dies tend to be simpler in construction and less expensive than vacuum dies since the cavities do not need to be tapered.
- **Backing** – When referring to tape products, backing is the layer that the adhesive is coated to. This should not be confused with the liner.
- **Baloney Slice** – A slang term referring to a method of cutting rolled goods wherein a circular blade is used to cut through a roll of material on a rotating shaft. It is a fast and inexpensive way of slitting material, but less accurate than other methods.
- **Bolster Plate** – A custom metal plate used in some steel rule die applications to support the back of the die while allowing slugs to pass through.
- **Bulk Package** – A loose way of packaging wherein parts are packed in bags or cartons without regard to their orientation. This is sometimes referred to as “scatter” packing.
- **Butt Cut** – The method of die-cutting parts without any extra space from one cut to the next; the parts are butted together.
- **Cavity** – A feature of a die defined by a closed loop of rule; a single shape.
- **Clamshell Press** – Slang term referring to a type of press that opens at an angle, much like a clam. Material is fed into the press by an operator, one sheet at a time, on each cycle. After the material is cut, the parts are removed and the next sheet is fed into the machine. This type of press is designed to work with steel rule dies.
- **Cleanroom** – The ISO defines a cleanroom as a “room in which the concentration of airborne particles is controlled, and which is constructed and used in a manner to minimize the introduction, generation, and retention of particles inside the room, and in which other relevant parameters, e.g. temperature, humidity, and pressure, are controlled as necessary.”
- **Clicker Press** – Used for low-volume or prototype runs, the clicker press is the simplest of all the presses. A steel rule die is placed on top of the material to be cut and the press is cycled. After each cut, the die is repositioned. Typical running speed is about 3 hits per minute. The clicker press cannot be used for kiss-cut applications.
- **Crack-and-Peel Liner** – A feature created during the manufacturing process. This is commonly seen in individual labels. The liner is slit across the back so that it can be easily removed, or so that half the liner can be removed first to aid in part placement.

- **Crease Rule** – A dull die blade whose purpose is to crease the material rather than cut it, leaving an impression which can later be folded. This is often used in the construction of cardboard cartons.
- **Design for Manufacturability (DFM)** – Designing a product to be produced in the most efficient manner possible in terms of time, cost and resources, taking into consideration how the product will be processed, and using the existing skill base to achieve the highest yields possible.
- **Die** - A device used for cutting out, forming, or stamping material.
- **Double Release Liner** – A liner with a release coating on each side.
- **Double-sided Adhesive** – Double-sided adhesive is constructed by coating an adhesive to each side of a carrier such as polyester film, paper, or nonwoven material. The carrier adds stability as well as other advantages.
- **Emboss** – The creation of a raised image by pressing a shape into a material with a die.
- **First Article** – A sample part or assembly typically manufactured prior to the start of production for the purpose of ensuring that the manufacturer is capable of producing a product that will meet specified requirements.
- **First Article Inspection (FAI)** – The first article inspection procedure applies to organizations that are responsible for producing the design characteristics of a product. First article inspection procedure applies to assemblies, sub-assemblies and detail parts. The first article inspection procedure (FAI) must be performed on a new product that is representative of the first production run. *Prototype parts or parts manufactured using methods different from those intended for the normal production process must not be subject to first article inspection.* An assembly level first article inspection (FAI) must be performed on those characteristics specified on the assembly drawing.
- **Flat Steel Die** – Similar in concept to a steel rule die, this die is machined from a single piece of steel. It is used in applications requiring more precision than a standard steel rule die.
- **Flood Coat** – A printing term meaning to print a solid layer of ink or varnish across the entire surface of a material.
- **Geometric Dimensioning and Tolerancing (GD&T)** – A symbolic language used on engineering drawings and computer generated three-dimensional solid models for explicitly describing nominal geometry and its allowable variation.
- **Island Placement** – A process wherein one die-cut is placed (registered) onto another die-cut in-line.
- **Kiss Cut** – The best example of this would be a roll of peel-off labels. The die cuts through the top (label) layer, but stops short of cutting through the liner; the blade “kisses” the surface of the liner without going through.

- **Lineal Die** – A rotary die with one or more straight blades around the circumference used for slitting or scoring material. Some lineal dies are adjustable allowing the blades to be slid back and forth on the shaft.
- **Liner Confusion** – (See Liner Differential)
- **Liner differential** – The difference in release between liners on either side of an adhesive. If the difference in release between the liners is not great enough, liner confusion can occur wherein the adhesive does not “know” which liner to stay with.
- **Loading** – Any material – usually foam – added to a die cavity to help eject the part from the die after it is cut.
- **Matrix** – Also referred to as a web, this is the outer area of the die-cut that is usually stripped away during the die-cutting process. For a rectangular part, the matrix would resemble a ladder shape.
- **Mil** – A measurement of thickness. 1 mil = 0.001 inches
- **Minimum Order Quantity (MOQ)** – The minimum amount of material, parts, etc. that must be ordered at one time. For rolled goods vendors, this often means one master roll.
- **MSI** – A measurement of area equal to 1,000 square inches.
- **Nominal** – The ideal or middle value of a specific dimension based on a given tolerance. For example: If the dimension given is 1.00” with a tolerance of ± 0.10 ”, the nominal value would be 1.00”. However, if the tolerance were $+0/-0.10$ ” the nominal value would be 0.95”.
- **Optical Die Registration** – A process wherein optical sensors and control circuits are used to maintain registration between multiple die stations. (When registration begins to drift, the logic controls make slight adjustments in the speed of each station.)
- **PET** – Polyester
- **Pick-and-Place** – A term used in assembly applications wherein the parts are picked up by an automated armature and placed onto the assembly. (See www.accuplace.com for examples of automated assembly machines.)
- **Picker Pin Die** – A rotary tool with a keyed anvil. The anvil is fitted with sharp points that skewer the slugs and pull them away from the die. The slugs are then swept off the point with a metal comb.
- **PPAP** – PPAP is an acronym for Production Part Approval Process. The Production Part Approval Process is used in the automotive supply chain to establish confidence in component suppliers and their production processes, by demonstrating that “...all customer engineering design record and specification requirements are properly understood by the supplier and that the

process has the potential to produce product consistently meeting these requirements during an actual production run at the quoted production rate."

- **Pressure Sensitive Adhesive (PSA)** – A viscoelastic adhesive that is activated when applied to a surface using pressure. (Most tapes are constructed of pressure sensitive adhesive.)
- **Production Tooling** – A die intended for production-level use. Production tooling often contains multiple cavities, whereas sample or prototype tooling may only contain one cavity. Production tools are usually intended for high volume runs. In some instances, the prototype tool may become a production tool, if it is decided that a new tool is not needed.
- **Progression** – The linear distance from one cut to the next as the material advances through the press.
- **Prototype** – A sample part. Prototypes are not intended to be used as final parts and are not necessarily representative of a production part. Their purpose is to provide the customer or engineer with a physical sample that they can evaluate while finalizing their design. Prototypes should not be confused with First Articles (FA).
- **Random Print** – To print a repeating pattern without regard to how it will register to the part. A common example of this would be the printed logo on the back of a liner.
- **Razor Slit** – A method of slitting material by running it over a fixed razor blade. (When tolerances are not very critical, this can be an inexpensive way of slitting material.)
- **Rotary Die** – Custom machined cylindrical tool for cutting at high speeds. This type of tool is driven by a gear on one side that engages with a gear on the press. The depth of the cut is controlled by machined surfaces on each side of the die called barriers. The speed advantage is due to the fact that unlike other die-cutting methods, the material runs at a continuous rate through the press. Pricing for this type of tool ranges from around \$300 up to thousands depending upon the number of cavities and the complexity. Rotary dies are well suited for kiss-cut applications because the die manufacturer sharpens the tool to the specific material being used. Discounting other factors, a rotary tool can be accurate to about ± 0.003 ".
- **Rotary Press** – A die-cut press used for high-volume production. This type of press often has multiple die-cut stations that can be registered to each other for staged die-cuts. Unlike stamping presses that rely on intermittent motion, material on a rotary press moves at a constant speed with the rotary tool rolling over the material rather than stamping it. This allows for higher speeds; the average speed of material running through a rotary press is about 1,200' per hour depending on the complexity of the application. Depending on the particular model, very complex parts can be manufactured that would be impossible with other presses. In addition to die-cutting, many rotary presses have flexographic printing capabilities as well. Well-known rotary press manufacturers include Mark Andy, Pace, and Delta.
- **Self-wound** – A term used to refer to adhesive with a single liner or backing. Most tapes and transfer adhesives are supplied in this fashion. In the case of transfer adhesives, the liner has a

release (double-release) on each side. When a self-wound product is unwound, the adhesive is exposed.

- **Slug** – Any individual piece of waste from a die-cut part such as the center of a donut-shape.
- **Steel Rule** – A flat strip of steel sharpened along one edge. The rule is bent into a desired shape by the die-maker and fitted into a matching board for cutting. (See also Steel Rule Die)
- **Steel Rule Die** – A steel rule die is made up of a wooden die board and sharpened steel rule and/or punches. Slots are cut into the board in the shape of the desired cut. Then, the steel rule is bent to match that shape. It is fitted into the slots with the rule extending above the board. The result is a “cookie cutter” type tool that can be used to cut shapes. There are different rule heights that are commonly used such as 0.937”, 0.932”, 0.928”, and 0.118”. Different heights can be combined in the same die to create kiss-cut areas. Steel rule can be single or double bevel depending on the application. It comes in different thicknesses depending on the hardness of the material being cut. Standard thickness is 2 PT (2 point). Steel rule dies are usually less expensive than other types of dies, such as rotary or flat steel. They are also less accurate and – if kiss cuts are used – more time-consuming to set up. Because of their low cost, they are well-suited for prototype and low-volume applications. They also work well in applications where the thickness of the material would prohibit the use of a rotary die, such as a thick foam product.
- **Tabbed Part** – A part with an extended tab on the liner for easy removal. The tab is created in the die-cut process. (Many design engineers are unaware of features such as these, or fail to consider them during the design process. This is where the sales engineer’s input can be invaluable in saving time and cost for the customer.)
- **Telescoping** – The undesirable shifting of material on a roll.
- **Tolerance** – The range of acceptable deviation of a given dimension or feature, often expressed in terms of plus or minus.
- **Transfer Adhesive** – Also referred to as unsupported adhesive, this is an adhesive coated directly onto a liner without a carrier to support it.
- **Vacuum Die** – A hollow rotary die that vacuums the center slugs as the parts are cut. Because of their construction, these dies tend to be expensive, but in high-volume production, the money that they save in slug removal can more than justify the added tool cost. As with all tooling, vacuum dies have their own set of limitations (for example: the maximum slug diameter is around 1/2”).
- **Web** – (See Matrix)
- **Zone Coat** – A process used in adhesive coating wherein certain areas of the backing or liner are left uncoated. One example would be a transfer adhesive with uncoated (dry) edges on the liner to eliminate “picking” during lamination.