



# Introduction to Slitting Basics and Chemsultants Contract Slitting Services

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## **Roll slitters:**

Roll slitters, also called “log slitters” or “baloney slicers”, use a single, large circular blade to cut all the way through a roll of material, which is typically on a 3” (7.62cm) paper or plastic core. As the operator lowers the blade against the roll of material (which is rotating at 400-500rpm on the mandrel or shaft), the blade cuts through the material and core in just a few seconds. Roll slitters are useful for cutting double-sided adhesive tape, self-adhesive tape, application tape, vinyl, rubber, gasket, foam, PVC and many other materials. Roll slitters have the following advantages over rewind slitters:

- make single cuts
- very rapidly easy to set up
- quick to change logs
- can cut adhesive material (wet blade)

## **Multi-blade rewind slitters:**

Multi-blade rewind slitters slit material while rewinding it. The material is unwound from the master roll through one or more rollers before reaching the blades and then being rewound onto empty recovery cores. In addition to cutting material, rewind slitters can be used simply for transferring a certain amount of material from one roll to another. Rewind slitters have the following advantages over roll slitters:

- can make multiple cuts simultaneously
- can rewind onto variable core sizes
- can cut measured amount of material (rewind) from a master roll

## **There are several types of slitter rewinders:**

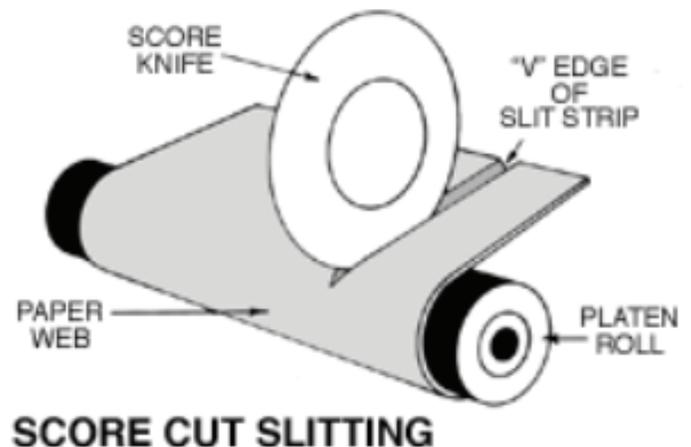
**1.Center winder:** Center winders are mainly used at the end of a production line. In plastic film production, the melt blown film is wound into finished rolls at the end of the line. Nonwoven lines also use center winders. The center winder is designed to run at slow speeds. The quality of the finished roll is not the greatest, but it serves its purpose. The finished roll is wound on a driven rewind shaft. Center winders can be single roll winders, duplex winders, triple winders, four rolls, or more - depending on the application. An issue with center winders is controlling the speed. As the roll gets larger, the line speed changes. If allowances are not made to regulate or maintain a constant line speed, the quality of the finished product may suffer.

**2.Center surface winder:** In this process the rewind shaft is driven by a bed roll. Line speed is easily maintained at the desired level. Essentially, a center surface winder can be used in place of a center winder. These units can be used for single winding or duplex winding.

**3. Turret winders:** A turret winder has a common “turret”. There can be two, three, four, or more rewind stations on a turret winder. Basically, these operate similarly to center winders. When one roll is finished, the turret automatically indexes over to the next rewind position. The operator takes off the finished roll while the next roll is being rewound.

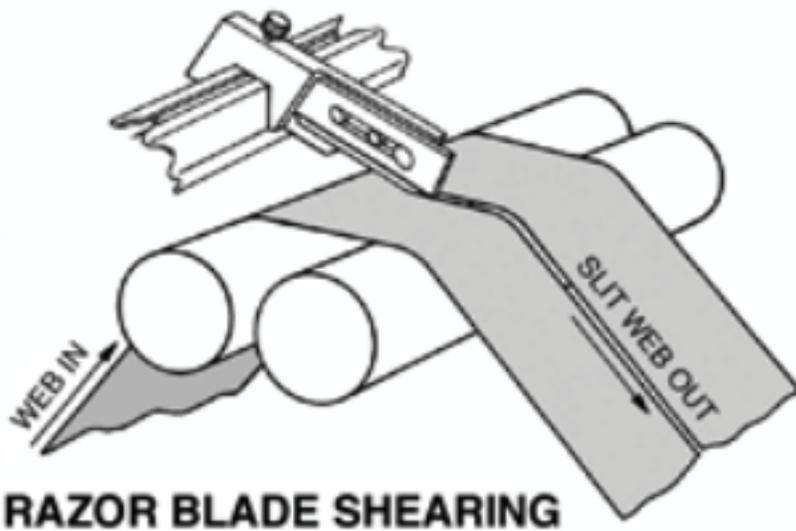
**4. Dual drum surface winder:** This machine is the work horse of the paper industry. The rewind shaft is placed on two bed rollers. The rider roller comes down and holds the core in a three point configuration. This allows for full “density” control. The finished roll quality can easily be controlled by applying pressure to the rider roller. This machine may run faster than any other kind of winder.

**There are three basic slitting methods that are utilized to cut the material being wound into smaller finished rolls:**



**1. Score cutting:** This is also called crush cutting. A rotary blade cuts against a hardened anvil roller. Material passes through while being cut. A great deal of dust can be generated using this method of slitting. Some slitter rewinders have vacuum dust removal systems to handle this issue. This is the simplest method of slitting and offers very fast set up times.

**2. Shear slitting:** This is essentially a scissor action with a male and female rotary blade system. Material passes between the male and female blades while being sliced. This method of slitting generates very little dust, but it is not totally dust free. From a cost standpoint, it is the most expensive method. Setting knives is labor intensive, expensive and time consuming. If an error is made, all of the knives will have to be reset again. There are fully computerized versions available that automatically set knives at the touch of a button, but this option is more costly.



**RAZOR BLADE SHEARING**

**3. Razor slitting:** As the name implies, material passes under a razor blade and is slit as it is being wound. This method is simple and very cost effective. However, razor slitting cannot be used on thick gauge materials.

### Capabilities

Chemsultants has completed a key addition to its contract manufacturing and finishing capabilities: a 60" duplex shear knife slitter. Chemsultants has installed the duplex center/surface wind slitter unit in order to offer expanded and improved slitting capabilities, and capacity. Offering the extensive capabilities of shear knife slitting down to 1" wide allows us to add slitting of narrow tape rolls to our overall scope of services.

### Capabilities of the Dusenbery Shear Slitter

Maximum supply roll: width - 45"; diameter - 27"; weight - 300 lb.

Minimum slit roll: width - 1/2"

Maximum run speed: 150 fpm

Materials: PSA label constructions, PSA tapes, paper 20# and up, glassine, non-wovens, foils, films from 0.5 to 10.0 mil specialty laminates and co-extrusions.



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