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## **Interchangeable slitting assemblies**

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In the world of converting a slitter/rewinder is as common and necessary as a knife and fork in a restaurant. There are hundreds and probably thousands of companies throughout the world that build this common machine for every conceivable material and application imaginable. A typical machinery builder has a repertoire of machine designs that enable the customer to zero in on their requirement. Of all the machinery available to the converting industry the slitter/rewinder is the most widely used and the most diverse. There are cantilevered and double supported designs and even cantilever supported and zero backbend layouts. There are razor, dual arbor shear, wrap and tangential, pneumatic and mechanical score, hot knife and die cutting slitting assemblies. There are simplex, duplex, triplex, center, surface, locked core, differential, min gap rewind configurations and many more. What this all means is that there is no simple design that meets all the requirements of the hundreds of applications the converting process requires. No machine can do everything but most slitter/rewinders have a capability beyond a single application to adapt to requirements different from the original design with varying degrees of success and difficulty.

Beyond the usual constraints of horsepower, size, tension and speed the single most dramatic change necessary for different application requirements is the method of slitting. A typical slitting machine is designed for a specific slitting requirement. A slitting method is chosen and the machine design encompasses that application usually limiting any future machine modifications to the original slitting method. With the development of the **interchangeable slitting assembly** it isn't necessary to limit the slitting operation to a single method. Each method can be provided for a single slitting machine that has been designed with this interchangeability in mind. As future slitting requirements evolve the **interchangeable assembly** provides access to these requirements. Slitting "cassettes" for each slitting method are the simplest means of providing diverse slitting methods in a single slitting process. Individual cassettes accommodate a particular slitting method and is easily interchanged with other cassettes that each fit into a specially designed area of the machine [see fig. 1]. While razor slitting is static and requires no drive most methods are driven, some at web speed and some at a differential speed to the web. Whether these speed adjustments are made with a mechanical interface or a separate follower drive the required drive option must be taken into consideration.

Inline slitting is a process that requires no unwind or rewind because the material is slit in line with either a portion or the entire manufacturing process of the base material. Off line slitting/rewinding is a process that handles a full width supply roll to be processed into smaller diameter and narrower width rolls

referred to as “pancakes”. In either case ***interchangeable slitting assemblies*** provide the necessary flexibility for easily adapting to the changing requirements of the converting process. As materials change the best slitting method must be adopted to keep pace and avoid costly slitting errors and off spec results. Each material has a suitable slitting method that may be completely different from other methods in the overall product mix. In the past several slitting methods were often designed into a single machine but this proved to be cumbersome and often compromised machine efficiency. The ***interchangeable slitting assembly*** provides access to most slitting methods without machine modifications or time consuming changeover. Each assembly is a self contained unit that can be set up offline for slit width changes or complete slitting method changes. The offline set up will not interrupt the actual slitting operation and then can be loaded with a cart or with overhead ancillary equipment each requiring minimum changeover effort. [see figs. 2 & 3]. This latest converting innovation enables the use of virtually any slitting method without major modifications to the overall slitting equipment.

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Bruce. Butler has over 30 years experience supervising the design and construction of custom converting machinery and has been the team leader in the development of interchangeable slitting assemblies that is now a standard for converting applications.