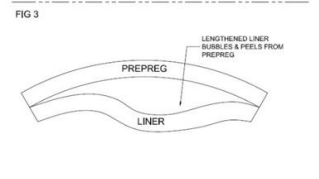
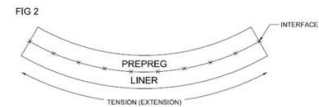
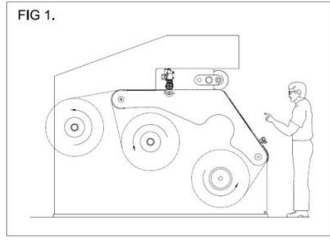


Zero Back Bend Slitter Rewinder for Thermoset Prepreg by Bruce Butler

All slitter/rewinders are not the same. This generic name for the most common of converting equipment is usually designed to meet specific application requirements and may limit its usefulness for the myriad of converting applications that may eventually be required of it. The standard elements of a typical slitter/rewinder: unwind, pull roll(s), slitting assembly & rewind are then tasked to meet specific requirements. Converting professionals are familiar with standard processes that require simplex or duplex winding with center, surface, center/surface, minimum gap and differential rewinding; razor, score, dual arbor shear, die cut, hot knife, etc. slitting methods; "S" wrap or nip pull rolls; manual positioned or auto edge guided, shafted or shaftless unwinds, etc. The drives, PLC, tension controls, brakes, clutches, and other standard components are chosen for the original task requirements and are usually influenced by function, cost and delivery.

Prepreg thermoset material is laminated with a paper or film liner to protect the resin from adhering to itself. *Perfect tension control of both webs during the laminating process will minimize or possibly eliminate the need for zero back bend through the slitting process but the very nature of different material rolls and processing changes makes this most unlikely.* The resin impregnated composite and liner is combined and wound in the process before slitting and tends to take a "set" or curvature [Fig.2] in the wound roll which is destined to become the supply roll of the slitting operation. As the supply roll unwinds this curvature is distorted by running through a standard slitter/rewind process as it is bent backwards in a plane negative to zero. This backward bend of the laminate [Fig.3] may tend to separate one layer from the other causing a bubble, wrinkle or complete delamination. In actuality the bottom layer of a laminate wound into roll form is usually longer than the top layer relative to material thickness and when the laminate is forced opposite from the normal set and is now in a minus point from flat the tension discrepancy of the original laminating process is exposed forcing de lamination at that point.

With the exception of roll "set", tension mismatch is easily verified by laying a section of the lamination [2ft. - 3ft.] on a flat surface and watching whether the laminate will remain flat. The direction of curvature indicates the material with increased tension at the point of lamination. If the laminate bends toward the liner this indicates increased liner tension and a bend toward the prepreg indicates the opposite tension excursion.



ZERO BACKBEND SLITTER/REWINDERS
 FOR THERMOSET & THERMOPLASTIC
 ADVANCED COMPOSITE MATERIAL



72" Wide Slitter Duplex/Rewind with the exclusive IMC
 "Zero Backbend"
 Includes inspection/splice and liner unwinds and rewinds

24" Wide Slitter/Duplex
 Rewind with inspection
 capability and
 "Zero Backbend".
 Specifically designed for single
 or multi-ply unidirectional
 prepreg with liner, this unique
 design prevents delamination

