

Hosur, January 2003

## Tension ...a Myth or Math ?

### Hot news for Converters

Researchers in Dynaspede, have been working on an astounding, but little known fact, reported by Colin Masters... in his article... "Understanding and Controlling Web Tension". He stated that web tension is the single most important, but often-invisible factor, that affects the successful operation of converting machines...and that Young's Modulus of the substrate, which represents its stiffness, has a direct bearing on film tension.

Taking on from this lead, they soon realised what seemed a contradiction... that **Tension values, are not of fundamental importance**... in web processing machines.

### Exposing the invisible

If not Tension... what then, do we control, in web processing applications? A long, painstaking study on a range of substrates of vastly different tension values, have lead these researchers to expose that hidden factor...responsible for process quality, in converting operations. Their work revolved around measuring, classifying and quantifying **that ONE factor**, which would make all the difference, between good or bad quality processing, of flexible materials.

According to this new understanding, tension is re-defined as a means, to (indirectly) achieve a predictable value of "STRAIN"(in the substrate)... which **is a process-dependent constant**, independent of the substrate used.

"STRAIN" refers to the elongation of a substrate for every unit length of the material. There are definite and predictable values of strain, that are optimal for each process. The processes could vary from Printing, Laminating, Slitting, Unwinding or Rewinding.

The correct values of "operating strain", for various processes, have all been exhaustively studied and documented in these research findings.

### Research findings

A brilliant fallout of this work, is the "**Tension Tuner**" ...a unique apparatus, now offering an easy means, to foretell correct tension values... for each and every roll, even before it is loaded on to a machine!

### Introducing the Tension Tuner

"**Tension Tuner**" is a simple piece of equipment, which can quickly check, every roll, before being loaded on to a machine. The correct strain values are interpreted (by its internal computing system) in terms of tension values, which the operator may set (manually) or transfer directly into the machine's Auto Tension Controllers.

Operators would, no longer, need to know the name, or properties of a substrate, to determine correct tension settings, needed in

different zones of a processing machine. Tension settings, can be predicted, quite accurately (and even automatically loaded into machine's Tension Controllers) ... Without relying on Tension Tables or operator skills.

In short, these findings demolish a long-held belief... that correct tension values, in different processing zones of a converting machine, are for experts to specify and for operators to modify.



tension  
tuner GLOBAL RIGHTS PROTECTED

### Salient Features

- Checks each roll... for thickness and material properties.
- Provides instant read-out of tension settings... needed for each processing zone.
- Automatically loads these values into (compatible) auto-tension controllers.
- Assures consistency and quality of finished goods.
- Sets new acceptance standards for incoming stock materials.
- Segregates good & bad quality rolls at source... prior to processing.
- Stores data for statistical quality control of incoming materials... from same source or different sources.
- Cuts down on set up time and waste.