

The Sendzimir Tensiometer

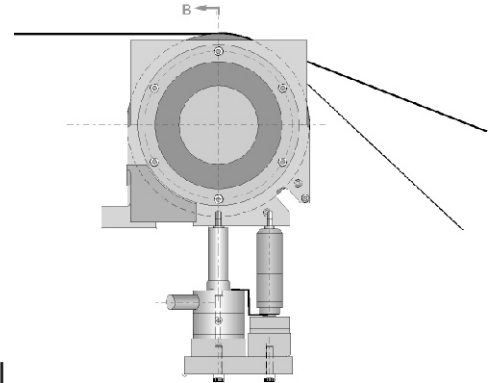
INNOVATION BY DESIGN

Design, Fabrication, Installation, Maintenance

Pivoting Arm Tensiometer

Pivoting arm tensiometers have been used for many years on Sendzimir mills. The design is very clever as it establishes a pivot center for the deflector roll assembly, whereby the unit gives output signal approximately independent of wrap angle (the calibrations at empty mandrel and maximum coil were identical; the small error through coil build up was negligible, at least for small coil sizes). In some cases, wrap angle compensation is applied to the output of the load cells.

It should be noted that the design is based upon a single Billy roll -- a second (inboard) roll is not necessary in order for the tensiometer to work.

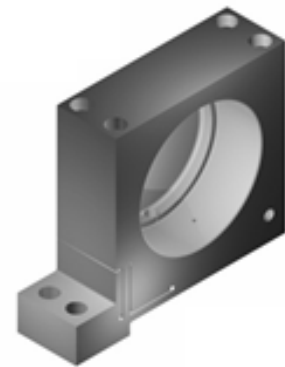


Flexpivot Tensiometer

In 1990, Sendzimir patented the "Flexpivot" tensiometer, in which the pivoting arm was replaced by a new design incorporating a flexure-pivot bearing block. Tension measurement is achieved by sensing the force on each deflector roll bearing that is generated by the strip's being wrapped around this roll under tension. The deflector roll bearing blocks are pivot mounted and supported by load cells that measure the force and give a 0 to 5 volt output signal proportional to this force

The Flexpivot tensiometer appears quite like a standard bearing block but has, as an integral part of its manufacture, the ability to compensate for wrap angle error. In addition, this new design has the following characteristics:

- Elimination of the pivoting arm and thus of all hysteresis induced by pivot friction
- High linearity
- Minimal necessity to compensate for wrap angle error
- Allowance of a single deflector (Billy) roll position (i.e., it does not require an inboard roll with constant wrap)
- Fewer parts
- Low cost
- Very compact construction, enabling it to fit in tight spaces
- Ease of retrofit to existing mills



Our customers have advised that the new design is a great improvement over the old in that one may operate with much wider tension ranges than with the pivoting arm design. Moreover, frequent zero adjustments are no longer needed.