



TECH TALK

A Guide to Tension Control
on the ENR-1000

ELSNER™

— PURPOSE BUILT PRECISION —

Good Tension is Essential if...

**YOU WANT CONSISTENT AND
EFFICIENT OPERATION OF YOUR
ENR SERIES REWINDER.**

**IN THIS GUIDE, WE WILL LOOK AT
THE ENR-1000 AND WALK
THROUGH THE DIFFERENT
'TENSION ZONES' OF THE
MACHINE**



Tension Zone 1: Unwind Dancer Position

THE ENR USES THE POSITION OF THE UNWIND DANCER ASSEMBLY TO CONTROL OR TRIM THE SPEED OF THE BELT DRIVE ON THE UNWIND STAND.

.The position of the counter-balance weight on the dancer arm assembly controls the amount of tension in the web. With the pull roll 'up' we are allowing the other tension controls mechanisms to take charge.

If you want to increase web tension, you move the weight towards the pivot point of dancer. To reduce tension, you move the weight towards the unwind (making the dancer easier to lift).



Tension Zone 2: Perforator Pull Roll

THE PULL ROLL ON YOUR ELSNER PERFORATOR HAS THREE OPERATING POSITIONS.

The first is fully 'up' and locked away from contact with the driven steel roller. With the pull roll 'up', we are allowing the other tension control mechanisms in charge.

The second position we refer to as the 'float' position. which leaves the pull roll to lay on the lower driven roller just by its own weight. This provides some isolation of tension between the unwind and rewind sections but allows for some slip during the run.



The final position is 'locked down'. This means that the locking pin on the handle is fully engaged with the provided hole in the perforator frame. This provides fully isolated tension zones and is used for more tension critical materials. A product that has a lot of machine direction elasticity might need this to keep from stretching the web when pulling from the rewind back to the unwind. Having tension controlled over a shorted distance gives better control in this situation.

Tension Zone 3: Rider Roll

THE RIDER ROLL ON YOUR ENR-1000 CAN BE USED TO AID IN TENSION CONTROL AND TO IMPART PRESSURE ON THE FORMING ROLL.

The speed of the rider roll is adjustable. Most machines are equipped with an 'opposing cone' assembly, driven by a Habasit belt. Manual adjustment of the belt makes a slight change to the speed of the rider roll versus web speed. Rider roll speed is typically set to run fractionally above web speed. Controlling the positioning of the rider roll is another tool for good tension control. Newer ENRs and those with Ultrasonic Tail Tie installed have independent motor control of rider roll speed. Your ENR-1000 is also equipped with an option to lift the rider roll off of the forming roll. Lifting the rider roll away from the forming roll passes complete winding tension control to the rewind spindles (we'll talk about those next).



Choosing to leave the rider roll against the forming roll is done to create a tighter/denser wind. The rider roll settings are all within the ENR-1000 recipe, so that unique settings for each product code can be saved and loaded repeatably. The recipe settings are 'Rider Roll Life Enable' (1=ON and lifts the rider roll away after the roll gets started), 'Rider Roll Up Pressure' (controls how much air pressure is applied when lifting the rider roll), 'Rider Roll Down Pressure' (controls the air pressure applied to the forming roll while the rider roll is engaged), 'Rider Roll Up position' (determines the amount of material wound on the spindle before the rider roll lifts away), 'Rider Roll Down Position' (controls the timing of when the rider roll re-engages the spindle for the start of the next roll) and, 'Rider Roll Gain %' (controls the surface speed of the rider roll versus web speed...for those with the independent motor control).

Tension Zone 4: Spindle Torque

THE FINAL TOOL TO CONTROL WEB AND ROLL TENSION IS THE TORQUE IMPARTED BY THE WINDING SPINDLES.

ENR-1000s are equipped with an electromagnetic clutch that allows for precise and repeatable adjustments. This torque setting is adjustable for each spindle and determines how easily the spindle drive is allowed to 'slip' during the winding process. A higher torque setting results in less slip and a tighter finished roll. Low torque settings allow more slip and usually results in a loosely wound roll.



FOR MORE ON THE ENR-1000 CHECK OUT THESE VIDEOS:

- [ENR-1000 Walkthrough](#)
- [ENR-1000 Setting the Perf Knife](#)
- [ENR-1000 Changing the Blade](#)

Have a Purpose-built Solution to Discuss?
Contact us: eew@elsnereng.com or 717-637-5991