

Application of Rotary Position Sensor in Dancer Control system

A dancer roller is also known as a floating roller. It is used in the infeed section of a web press to regulate the speed at which the web of substrate unwinds into the press and to maintain web tension. The dancer roller is free to move up or down, forward or backward, as the press runs.

Working Principle:

There are various methods of automatically controlling tension in a web of material being processed. These methods fall into two general categories, open loop and closed loop. The open loop systems can usually be reduced to some method of roll radius determination, and the programming of torque proportional to radius. These include follower arms, roll radius computers, ultrasonic roll measuring and manual operation. The other category is closed loop feedback system. Each type of system has its own advantages, and is selected by the designer on the basis of price, performance, and ease of design, installation and set-up.

A dancer's position is monitored by a **rotary position sensor** that detects and controls the drive's movement. When tension increases or decreases in a web, the dancer roll changes position that activate the rotary position sensor, known as a **dancer position sensor**. The sensor signals the system to either increase or decrease the torque, i.e., speed, for the dancer to return to its original position. In that sense, dancers act more as position controllers and less as tension controllers. By maintaining control of a web's speed, dancers keep tension constant.

