Web Guiding Fundamentals - Unwind Web Guide Structure

Blog Post

Within the group of terminal web guide systems, there are two basic types: Unwind web guide systems and rewind web guides systems.

Both systems have basically the same components, but they work differently. Let's look at the unwind web guide structure.

Unwind Web Guide Structure

The unwind web guide structure has a parent roll, or unwind roll that provides the web that will go into the converting process. It is mounted on a shifting stand and it is supported by bearings, in most cases, linear bearings. The motion of the shifting stand is provided by an actuator that is installed with one end on the moving stand and the other end to the fixed based of the unwind stand. Finally, there is a sensor for edge or line detection that is looking at the position of the web downstream of the unwind.

The main objective of the unwind web guiding system is to insure that the web is at the desired location.

In the case of an unwind system, the sensor has to be fixed to the machine frame. It does not move with the shifting stand. The motion of the shifting stand will be perpendicular to the direction of the web. As with all web guiding systems, the feedback from the sensor will be used by the controller to move the actuator in a way that will correct the position of the web.

Location of the sensor

The diagram of an unwind web guiding system shows a shifting idler and a fixed idler. The shifting idler is mounted on the shifting stand. The fixed idler is mounted on the fixed frame of the unwind or of the converting machine.

Sensor Placement Between Fixed and Shifting Idler

The sensor is positioned between these two idlers. The main reason for doing this is that the web plane will remain constant during the unwinding process, and the sensor will provide an accurate reading of the location of the web. Now, the sensor could be positioned between the unwind roll and the shifting idler. However, if the sensor is at this location, the distance from the sensor to the web, or the web plane, will change as the web roll changes in diameter. This will affect the guiding performance.

The Shifting Idler on an Unwind Web Guide

In an unwind web guiding system the shifting idler can have several configurations. Even though in the graphic the idler roller is represented as one roller, the shifting idler assembly can have a setup of two or more rollers. In some cases, there might be a set of several rollers on the shifting idler assembly. The important thing is that the sensor has to be positioned after the last shifting idler, as close as possible to the last shifting roller. This will provide the controller with the best feedback on the position of the web from the sensor.

A rewind web guiding system works different in the way the sensor is position with respect with the shifting stand. This will be discussed in the next post on Web Guiding Fundamentals. We have more information regarding web guiding and web sensors for width measurement and monitoring and it's all at your disposal. Sign up at our website for our articles and videos, and future technological developments.