

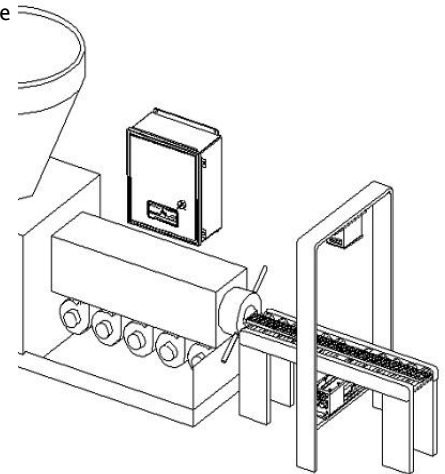
Tread Extrusion Width Measurement

Problem

Tire tread extrusion material that is not within specifications may result in scrap or defective tires. When tire tread extrusions become out-of-spec is it the result of:

- **Improper die or die adjustment?**
- **Problems in extruder feed?**
- **Foreign material in the die?**
- **Temperature control malfunction?**
- **Line tension malfunction or mis-adjustment?**
- **Compounding problems?**

In addition to the challenges that exist in the production of in-spec tread extrusion material, the personnel responsible for tread products also face the need to document traceability.



Tread Extrusion Width Measurement System

SCAN-A-LINE™ Solutions

The early detection of defects in tire tread extrusions permits rapid correction of problems. When a problem is detected the tread extrusion process can be adjusted to bring the product back into specification. The defective extrusion is removed from the tire building process prior to its use in the production of defective or blemished tires. If the profile die is properly set up, the foregoing extruder problems result in variations of tread extrusion width. As a predictive maintenance tool, SCAN-A-LINE™ Width Measurement Systems (WM Systems) can monitor the extrusions and alert for out-of-spec product. While performing this function, the WM System can also be used for feedback to control the extruded width. This feedback permits better control of basis weight (compared to the control obtained by the use of scales). Tread width can be measured hot and cold to quantify and document cooling shrink-down. Cooling shrink-down is variable with compound changes, variations in cooling rate, and problems with the transportation system. Monitoring of the extruded tread width can result in more efficient extruder start-up.

After the tread product leaves the extruder there are additional stresses that can be introduced in the product that can affect tread width and ultimately affect cut tread length. These stresses can result from factors such as improperly adjusted drive systems, bad bearings or bent rollers. These problems can be detected by the WM System.

Because the SCAN-A-LINE™ WM System readily interfaces with computers, PLCs and data recorders the system can supply measurement data necessary for documentation of tread extrusion characteristics. Such documentation can be used for statistical process control (SPC) purposes and to provide the product certification and traceability required by ISO 9000 and other quality assurance programs.



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