

Web Inspection Systems



Web inspection systems apply to paper, film, coating, non-woven, textile, extrusion, metals and other continuous web applications. Web inspection systems have historically used laser, cameras or hybrid combinations of both sensors as their core measurement technologies.

Today, cameras are rapidly emerging as the default inspection solution in all but the most specialized inspection applications. Camera success for inspection is due to their continuously improving price performance ratio relative to other technologies – especially when total cost of ownership is considered. Costs of

inspection systems vary dramatically based upon customer defect criteria. For example, there are simple camera based inspection products that use 5000 pixel Linear CCD arrays and update at 1000 scans per second. The signal from each pixel is compared to a programmed threshold. This information is analyzed, scaled and sent to a local or remote operator display. Analog, serial, digital, and limit-alarm relay outputs are available to interface to an alarm, a PLC or a SCADA system for data archival/display. This type of inspection product can start with lighting for lower than \$10,000.

Conversely, inspection systems that use high-speed parallel camera topologies to stream data to a workstation that classifies and displays defect images can cost several hundred thousand dollars. Engineered systems are available that can obtain cross web data arrays faster than 1.2 gigapixels/second with resolutions of 0.01 mm (0.4 mil), at speeds of 1000 mpm (3281 fpm) and web widths ranging from 50 mm (2 inches) to more than 3,200 mm (~10.5 feet). Defect information is displayed in a convenient, ergonomic manner. Defect classifiers are employed that discern and segregate holes, streaks, scratches, wrinkles, edge tears, inclusions, gels, particulates, bugs, dirt, oil, watermarks, inconsistent formations and other defects. Defect data may be networked for production and quality analysis to provide product certification. Control charting options to support Six Sigma programs are also readily available. Defects are traced by their repeat length correlating to specific roll circumferences within the production line to assist operators in rectifying problem areas. Web marking systems are available to mark the web for future product disposition. Defects may be accumulated by cross web position relative to slit lanes.

Because of the wide range of customer defect types, web inspection system capabilities and subsequent system costs, we normally recommend to develop organized defect sample sets for preliminary discussion and subsequent analysis. Try to sort defect types in order of importance to you – separate defects into “must haves” and “would like” categories. Be aware that system costs are driven by a combination of web width, defect size, defect contrast, line speed, operating environment, single or dual side web inspection, number of different types of defects, marking systems and data links. Also, try to ascertain what budget makes sense for your defect “must haves”.

Contact us, we are here to assist you.

