

## VISTEC APPLICATIONS NOTE #015

### \*Defect Classification Parameters\*

The WI series inspection systems vision engine can provide a large number of defect classification parameters to aid the user in grouping defects into types that best fit their defect classification detection needs.

A library of classification parameters is available by the vision engine supplier for integration into the system's software. The classification routines that are typically use in web inspection systems are listed below, note that others exist and can easily be integrated into the program.

WI series classification parameters for camera or laser systems include:

- + Threshold detection based on defect signal amplitude (positive and negative defect detection).
- + Minimum defect area to qualify (this eliminates small undesirable detections).
- + Width detection in scan direction (CD), multiple criteria can be set up. Ex. S, M,L, XL
- + Length detection in the down web machine travel direction (MD), multiple criteria.
- + Longest dimension measures along the major axis of the defect, any orientation.
- + Defect area detection (classifying defects based on the area of the flaw).
- + Defect orientation calculates the angle between the longest dimension and the MD.
- + Roundness is the ratio of the length divided by the width ( a value of 1 equals round.
- + Brightest pixel value within the defect. Helps further classify a flaw type.
- + Darkest pixel value within the defect. Helps further classify a flaw type such as a carbon spec in a gel.
- + Perimeter is the distance around the edge of a defect or neighboring collection.
- + Location is the CD and MD co-ordinates of the defect. Classifies by CD zones.
- + Dead zone is a MD band of product where defects are to be ignored
- + Density is the number of defects in a specified area qualifying as a defect.
- + Fill is the percentage of a defects area that exceeds the threshold value.
- + Repeat defect detection is defects is the approximate same CD location and repeating at a fixed interval, ex. A mark on a roller.
- + Streak detection is for continuous defects with signal strengths in or near the product noise level.
- + Nearest neighbor is the distance dimension setting between two or more defect fragments and to have the fragments considered part of, same defect.

Other Parameters are available to be added to the WI software as needed.