

Paper Dirt Count Measurements



To produce high quality, good looking paper, it's important to locate and eliminate disturbing factors such as dirt in pulp and dirty machine parts. An optical quality control system like the ULMA Web Inspection System is essential for creating optimally dirt-free conditions. The new Dirt Camera enhances your ULMA NT system, by examining your paper in even greater detail to view the relative dirt count of your paper - online.

The paper industry recognized the value of cleanliness and created test methods through bodies like TAPPI that quantify paper dirt count by visual assessment. However, electronic image analysis was not available when the test methods were created.

Today, papermakers have the equipment that can assure paper cleanliness. Dirt Cameras are installed on the ULMA NT web inspection systems to view the cleanliness of the paper and to decrease the need for visual analysis.

With Dirt Camera, you can monitor Dirt Count with a minimal investment. Only one additional camera is needed to give you on-line Dirt Count measurement through your ULMA NT system.

Set up, reports and parameter changes are made easy through Windows NT operator interface. Operators can input values for the minimum size and contrast level of the dirt to be measured. ULMA NT calculates the dirt count value by taking into account machine speed, dirt camera viewing width and the total dirt area exceeding the given limits.

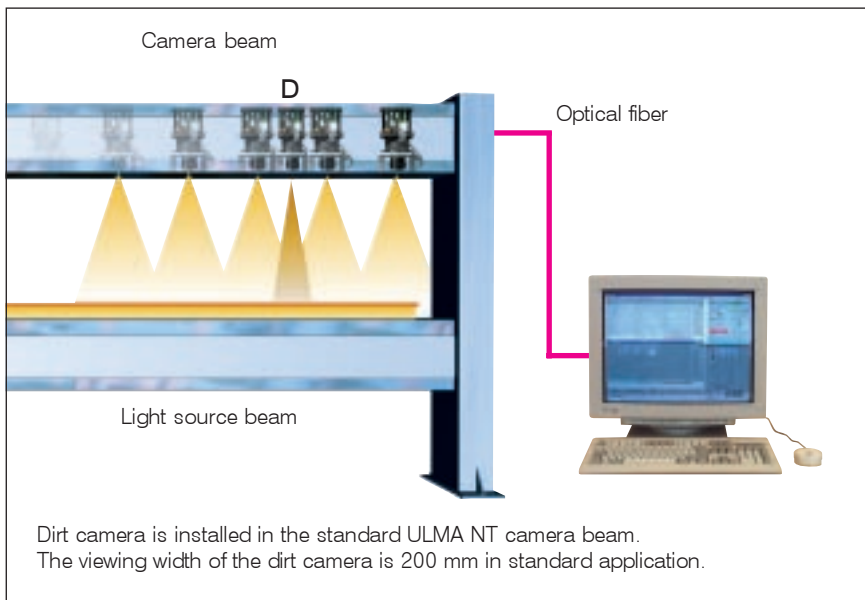


Figure 1. Installation of ULMA NT Dirt Camera

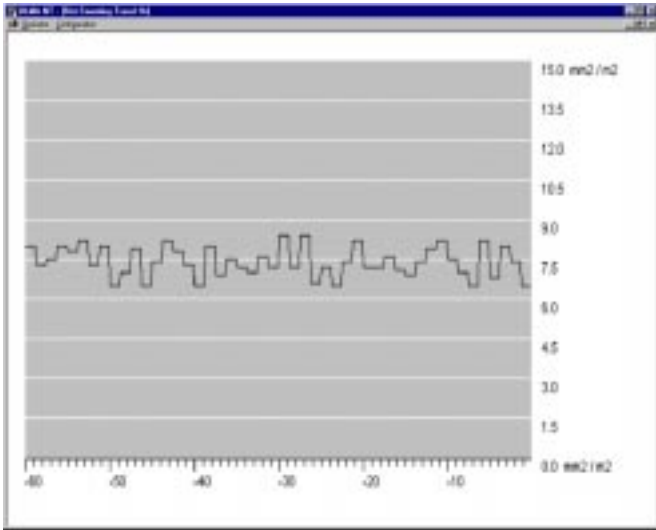


Figure 2. ULMA NT Dirt count trend page.

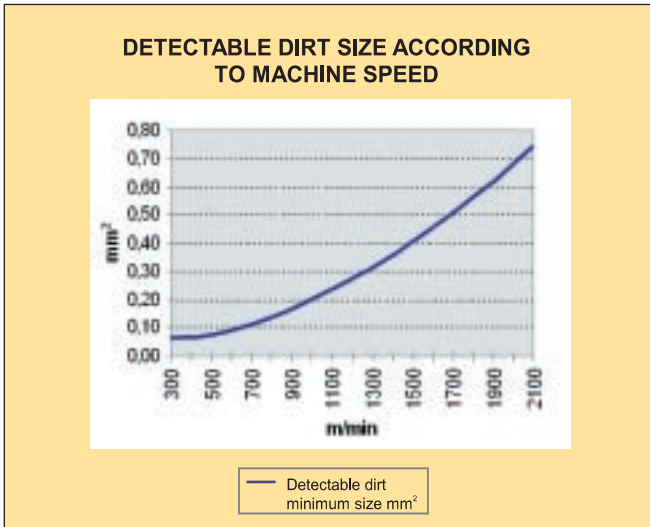


Figure 3. Detectable dirt size according to machine speed.

The ULMA NT Dirt Camera is a valuable tool for managers, operators and engineers who make real-time quality decisions. Decisions that positively impact a mill's bottom line.

The Dirt Camera is installed in the same camera beam as the defect cameras as shown in the figure 1. It is connected to the optimum board the same way than other cameras are. Viewing width is determined by the objective lens selection. The recommended viewing width is 200mm resulting to CD pixel size of 0,2 mm.

With the additional Dirt Camera, ULMA NT reports dirt counts, -trends and -alarms. Last 1, 8 and 24 hour trends are also available. Figure 2. shows an example of the Reel Trend page.

Detectable Dirt size depends on paper machine speed as well. Figure 3. illustrates this phenomena during a standard installation.



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