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Go/no go gauge devices for the boxplant

Scope

In the typical corrugated boxplant, there are a variety of quality checks made during the combining and converting process. Among the most critical are checks for warp, slot depth and centering, and manufacturer's joint gap and squareness.

While these tests are critical to the manufacture of quality-combined board and corrugated containers, they require time to perform. Measurements performed with conventional measuring devices are typically slow and accuracy is suspect.

This Technical Information Paper will provide the reader with several examples of go/no go gauges used to measure attributes mentioned above and discuss how they are used.

Safety precautions

There are no safety precautions.

Warp gauge

The warp gauge consists of a straight piece of 6.35 mm (1/4 in.) × 6.35 mm (1/4 in.) keystone x 30.48 cm. (12.0 in.). See Fig. 1.

WARP MEASUREMENT DEVICE

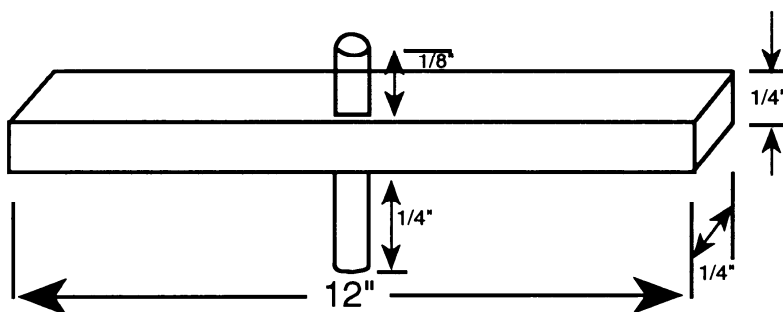


Figure 1

Procedure

1. Place the corrugated sample sheet on a flat surface such that the edges of the sample sheet are bowing upward from the surface.
2. Orient the warp measuring device such that the pin is pointing downward toward the sample sheet.
3. Place the warp-measuring device so that either one end and the pin or both ends are in contact with the sample sheet surface. Be careful not to deflect the bowing in the sample sheet.
4. Observe whether or not the pin is touching the sample. The sample sheet is in conformance if the pin and one or both ends of the keystock contact the sample simultaneously. The sample sheet is out of conformance if the pin does not contact the sample sheet when both ends of the keystock do.
5. Make several random measurements across the sample sheet.

Manufacturer's joint/slot positioning gauge

Here is a design for the gauge, which will allow measurement of manufacturer's joint gap/squareness and slot positioning. (See. Fig. 2.) The attached illustration can be copied with a copier at 100% magnification onto clear transparency film for use immediately on the production floor. The gauge in the illustration is designed based on a gap specification range of 6.35 mm-12.7 mm ($\frac{1}{4}$ – $\frac{1}{2}$ in.), a maximum joint skew of 3.175 mm ($\frac{1}{8}$ in.), a maximum slot offset of 1.59 mm ($\frac{1}{16}$ in.), and a maximum slot depth of 3.175 mm ($\frac{1}{8}$ in.). The design should be adjusted to meet your specifications.

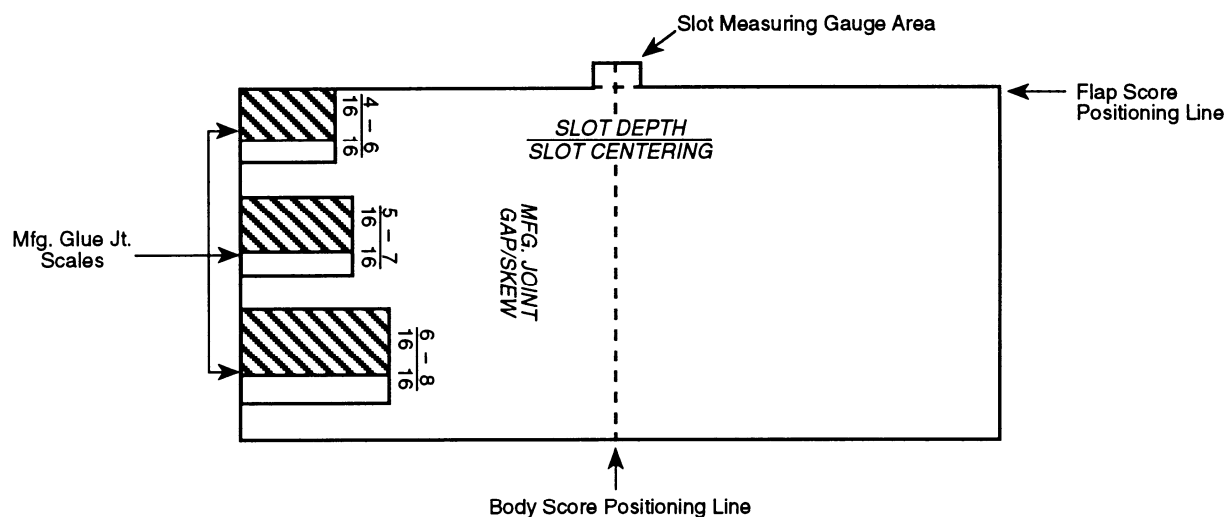


Figure 2

Procedure for manufacturer's joint/ slot positioning gauge

A. Manufacturer's Joint Gap/Squareness:

1. Position the box blank on a flat surface such that the manufacturer's joint is facing upward.
2. Position the gauge so that the left edge of one of the three (3) range scales with crosshatching is on the portion or the gap nearest the flap scores. Choose the scale, which allows the opposing side of the gap to fall within the uncrosshatched area.
3. The container meets the specifications if both top and bottom gaps fit within the same range scale.

B. Slot Positioning

1. Carefully separate the manufacturer's glue joint and place the blank on a flat surface with the inside of the container facing upward.
2. Locate the slot(s) which is/are furthest away from the flat score; it may be above or below the flap score.