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Checking the parallel of corrugating rolls with “NCR” paper

Scope

This TIP describes a procedure for checking the parallel of corrugating rolls in a single facer using NCR paper. The impressions made on the paper by the corrugating roll flute tips are then compared to evaluate parallelism.

Misaligned or out of parallel corrugator rolls can result in medium fracture, leaning flutes, and hi-lows. It can also reduce the “life” of corrugator rolls and the drive motor. The simplest method of checking the parallel of corrugator rolls is to use two copy “no carbon required” or NCR paper. Small narrow rolls are sold at most office supply stores for use in calculators or adding machines. Wider widths can usually be purchased from corrugating roll vendors. When fed through the corrugating rolls, the flute tips leave their impressions on the NCR paper where contact occurs.

Safety precautions

The safest method of checking the parallel of corrugating rolls is when the machine is cold. This procedure recommends taping the strips of NCR paper to a corrugating roll so that it passes between the nip while the machine is locked out and tagged out (LOTO) and then jogging the rolls until the taped end comes out of the nip. Then the machine should again be locked out and tagged out so that the strips can safely be removed. Keep hands away from the machine while the rolls are being jogged!

If anyone should have a question regarding this procedure or how it pertains to a particular machine; they should check the machine manual for instructions and/or contact the machine manufacturer. Make sure the procedure complies with your local safety program regulations.

Procedure

Ensure the machine is cold and locked out and tagged out (LOTO). The pressure roll should be “unloaded” and backed away from the lower corrugating or it will shred the NCR paper. Tear off two strips of the two ply NCR paper approximately equal in length and use a small piece of tape (such as masking tape) to hold the two copies of each strip together at one end as shown in Fig. 1.

The width and length of the NCR paper are not critical for checking parallel. Widths ranging from 2 to 10 inches (5 to 25.4 cm.) are commonly used. As a rule of thumb, the length should cover at least 3/4 of the circumference of the roll. For example, if you had 12” (30.5 cm.) diameter rolls, you might tear off two strips of NCR paper approximately 28 inches (74 cm.) long. Label the strips for operator and drive sides. **If the top roll has safety guards, leave them in place for this procedure.** While the machine is locked out, tape the strips of NCR paper to a corrugating roll equidistant from the ends so that they pass through the nip between the two corrugating rolls. One strip will be run through the nip point at each end of the rolls (operator and drive sides) simultaneously. Make sure everyone is clear of the machine. Remove the safety locks and restore power, air or hydraulics to the

machine. Set the corrugating roll loading pressure to where you normally would run. Jog the machine until the taped end comes out of the nip. Then the machine should again be locked out and tagged out so that the strips can safely be removed. **Keep hands away from the machine while the rolls are being jogged!** If the NCR paper fractures you can back off the corrugator loading pressure a bit and run another set through. For B and C flute rolls, this is normally not an issue. The narrow width NCR paper typically does not work well for microflutes because they tend to shred the lighter weight NCR paper used for adding machines. The wide heavier weight NCR paper that can be purchased from roll vendors should be used in this case. Running the paper over where a finger or vacuum slot is located will ensure that the paper feeds all the way through and comes out over the pressure roll. Otherwise, the paper may fall off and end up under the single facer or in the starch pan.

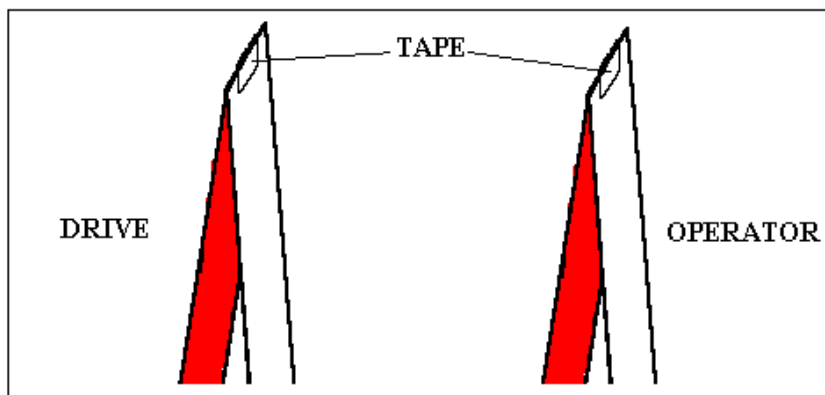


Fig. 1. Strips of NCR paper

Take the strips, which have been fed through the corrugator rolls and discard the top copy of each NCR paper strip so that you have the bottom copy, which will have the darkest flute tip impressions on it. Smooth the operator and drive side strips out on a flat surface (adjacent to each other) and align the flute tip impression marks. If the white spaces are even in width, the rolls are parallel as shown in Fig. 2.

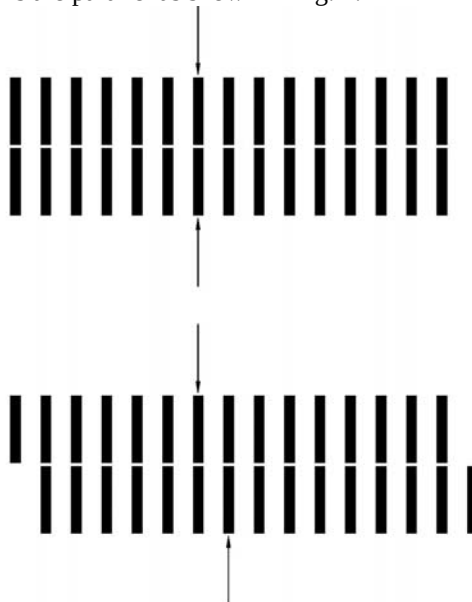


Fig. 2. Parallel roll impressions.