

# WHAT DOCTOR-BLADE CHALLENGES IMPACT WIDE-WEB CYLINDER METERING? PART 1

By Bill Warner, vice president, Allison Systems Corp.

For gravure applications, doctor-blade control needs to be both fast and foolproof, with no guesswork, mechanical problems or startup waste that is attributable to doctor-blade performance. While this statement is true for any gravure press, it is particularly important for wide-web applications that can have doctor blades with lengths greater than 100 in. When doctor blades are that long, setting them correctly and consistently to achieve effective metering can be more difficult. In this first installment of a three-part series, we'll briefly comment on challenges relating to doctor-blade angle and position control.

The doctor-blade systems found in these very-wide applications often do not offer the doctor-blade position and angle control needed to provide consistent and uniform metering of the gravure cylinder. The blade system must be able to be adjusted so that the blade contacts the cylinder at a position on the cylinder relative to the web nip point that doesn't allow the ink or coating to dry on the cylinder before it is transferred to the web (see Figure 1). The blade angle also must be set to an appropriate angle for gravure doctoring. Again, many blade systems do not have the appropriate adjustments or, if adjustment mechanisms are available, they either are damaged or completely nonfunctioning.

Even if the adjustment mechanisms are in good working order, they still can be problematic because often there is no way of indicating the positions so that the setup can be repeated the next time the job is run. Assuming the blade system can achieve a nominally good blade position and angle, there is no guarantee that the same blade angle will be achieved along the entire doctor blade. A small amount of bladeholder deflection can have a big effect on blade angle from one side of the press to the other.

## Magnifying slight variations

Additionally, if the doctor blade is not installed precisely in the blade holder, slight blade-position variation also will

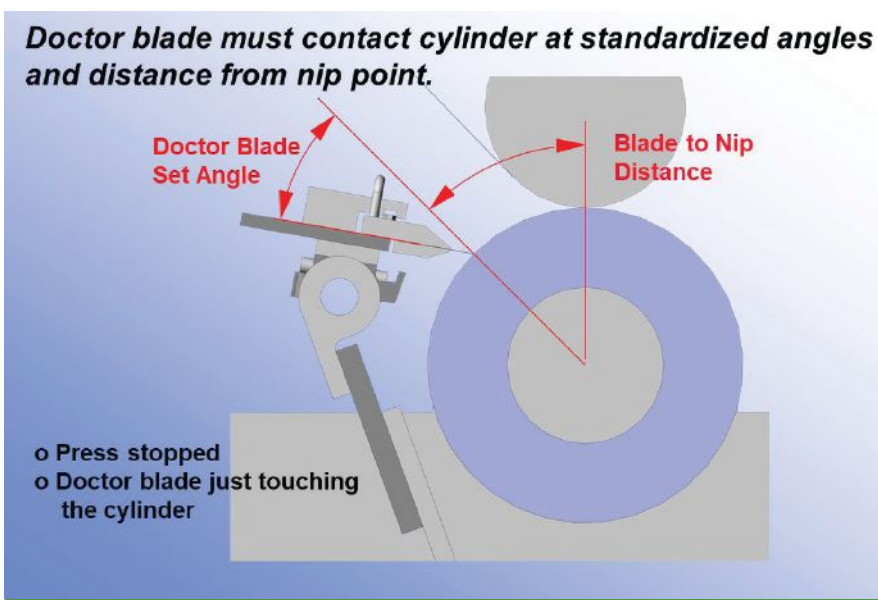


FIGURE 1. Intricacies of doctor-blade angle control

be magnified on wide-web presses. For these reasons, it is extremely important to have and use the capability to adjust the doctor blade so that it is running parallel to the cylinder every time a new setup is made. If not, cross-web print variations likely will be produced.

A good doctor-blade system will have multiple degrees of adjustment mechanisms that work smoothly, include position indicators and can apply the doctor blade at industry-acceptable blade angles and positions for all cylinder sizes that are used. If your blade system currently doesn't have all those capabilities, it likely is time to start investigating how to achieve those functions.

Part 2 of this series will detail the challenges of force control as it involves doctor-blade systems for gravure printing and coating applications. ■

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