WHAT DOCTOR-BLADE CHALLENGES IMPACT WIDE-WEB CYLINDER METERING? PART 3

By Bill Warner, vice president, Allison Systems Corp.

For gravure printing and coating 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 because slight variations will be compounded over the length of the blade.

Part 1 of this series focused on challenges with setting the doctor blade at an appropriate position and angle, and Part 2 focused on applied force control. Part 3 will cover the barriers to efficient blade changes.

Quick, easy...and safe changeover

Quick and easy blade-change capability is essential when working with long doctor blades. Slow, difficult and potentially dangerous blade changes were the norm with a very-wide-web application that required a +200-in.-long doctor blade. The existing bladeholder was a prime example of everything you don't want in a very-wide-web bladeholder. It needed to be removed from the press and carried to a remote location to clean the holder and install new doctor blades. Carrying a +200-in.-long, heavy steel doctor bladeholder with a used, sharp doctor blade installed could be challenging for the three operators that were needed to accomplish the task.

To install the new blade, dozens of bolts needed to be loosened and then carefully re-tightened so that the blade did not have any wrinkles. The bladeholder was worn from all the years of being carried in and out of the press so that, even on a good day, it was difficult to install the doctor blade without producing wrinkles in the blade.

Then, assuming the blade was installed without wrinkles, often the blade would have wrinkles *after* the bladeholder was carried back and installed on the press due to deflection of the holder while being carried. Wrinkles in the doctor blade typically would lead to poor metering and printed waste. Upgrades included with this project provided new components with the ability to be able to perform blade-change operations on the press in less than 10 minutes and without having to use tools or deal with bladeholder bolts and their associated issues (see Figure 1).

Not just a gravure thing

This three-part series was intended to briefly reveal common issues seen particularly with wide-web gravure, doctor-blade systems.

FIGURE 1. *A doctor blade system featuring on-press blade change capability without the use of tools or clamping bolts*

However, the same issues could apply to any width blade system. If you have chronic poor metering issues, the first component to consider would be the doctor blade. Contact your doctor-blade supplier to help determine if you are using an appropriate blade for your application and that the blade is being set properly.

If it is determined that the blade is appropriate for your application and any of the points presented in these articles sound familiar, then it might be time to look at upgrades or replacement of your doctor-blade system. If you need help, the press manufacturer would be a good place to start, or consult with an aftermarket blade-system manufacturer. ■

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