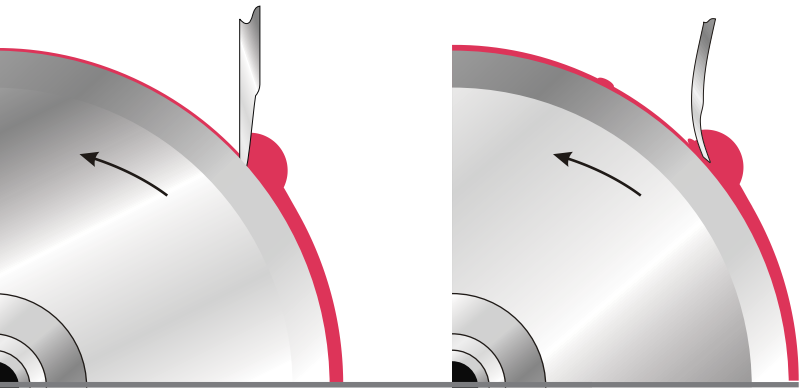
INNOVATIVE PROVIDER OF HIGH - QUALITY DOCTOR BLADES.

UV INK METERING

ELIMINATING SPITTING, BLOW-BY AND INCONSISTENCIES ON ANILOX PRESSES

Daetwyler



THE CHALLENGE OF TOO MUCH OUTPUT

With today's amazing innovations in plate design, ink technology, and faster press speeds, professional print shops have been able to provide more impressive end results than in years past.

UV inks continue to be a major contributor to these incredibly higher definition print results, however, whether you call it ink spitting, blow by, or any other term, ink that gets through our metering process and on to the image area can create a frustrating problem and outputs that customers reject. So, how can you avoid this challenge? It begins with understanding why it occurs in the first place.

CHALLENGE 1: HIGHER VISCOSITY

In the early years of UV ink technology, viscosity was typically regarded as the primary contributor to this spitting issue. Obviously, UV inks run "thicker" than water-based and solvent inks, and may, in fact, run as much as five to seven times differently within the transfer zone of the press. Thus, the thicker UV ink builds up behind the doctor blade and begins, what many term, "hydrodynamic," causing the blade to flex, or give, in some areas. Once this phenomenon occurs, the ink pushes through, transferring to the plate and releasing unplanned ink tails, or streaks, from the plate on to the substrate in what will most likely result in some form of print defect.

Ink companies have been addressing this kind of viscosity challenge by diligently adjusting set-ups. However, even with years of fine tuning by these ink companies, UV ink spitting still seems to persist, especially at higher speeds and in the narrow web presses.

CHALLENGE 2: THIXOTROPIC BEHAVIORS

"Thixotropic" refers to the process in which certain gels, or fluids, in this case ink, under agitated conditions will become thin and flow more readily, then after a certain amount of time return to a more viscous state. In the case of UV Inks, this means they can run thinner or thicker depending on how much they are in motion.

Because of this thixotropic property of UV inks, sometimes spitting is caused by the ink natural releasing itself from the anilox over time. Obviously, this variance in characteristics makes UV ink even more of a challenge to control on press as speeds change, presses stop, and especially in plants where the climate conditions are not regulated.

When trying to approach this issue, many printers simply need to get the job done and out the door. So, they will adjust inks, anilox rolls, doctor blades, or manipulate all three to finish the job. While each of the above can certainly contribute to the increased, or decreased, possibility of UV ink spitting, it is not an efficient or reliable solution.

THE SOLUTION - PROPER DOCTOR BLADES AND ANILOX CONFIGURATION

Our initial research at Daetwyler, showed marked improvements on UV spitting simply by using a thicker doctor blade. Approaching the set-up much like a gravure press and "stiffening" up the majority of the blade while still providing a fine tip proved to help reduce the potential of any flex, or give, as is common with the hydrodynamic issue.

Much like metering coatings and adhesives, thicker blades are used because of the need to be able to resist the force, or heavy volume, of these fluids while still providing strong metering at the point of contact to the anilox roll.

In many cases, using this thicker blade is an ideal solution. However, we must carefully watch for any potential unacceptable dot gain. This is because the thicker the contact point at the anilox, the more ink passes through, which is good for coatings and adhesives, but could cause problems for high-end process work.

This means that thicker blades are only part of a complete solution. Thicker blades will certainly resolve issues with UV coatings, but what can be done about high-screen process jobs? The answer may be simpler than you think - so start with the basics.

- Ask if you are using the same anilox from 15 years ago, say, when 800-900 lpi was considered process work?
- Are you using outdated plate technology, such as 80-100 line screen?
- When was the last time you re-calculated and/or recalibrated your ink mixtures?

In answering those questions, it should be clear that an outdated doctor blade would be just as inappropriate. If simply switching to a thicker blade solves your UV spitting issues, then you're set. But for most, it means looking for new technology to address the needs of modern print customers and modern inks.

New Blade Technology is Here

Concepts such as blade design and performance coatings are changing the way print set ups handle UV inks and coatings alike. In some cases, these blades have demonstrated proven results for high-end process work with UV and even LED inks. To demonstrate how this is achieved, we will discuss two of our own blades with such characteristics - The Multiflex and Pearlstar.

The concept of the Multiflex is much like a fine screen gravure type blade. Initially designed to help hazing in gravure printing, the Multiflex provides greater stability, lower bending at high pressure with a narrow blade contact zone thus providing an optimal meter of challenging UV inks. While the Multiflex provides an elongated blade using the thick base and narrow contact as its solution to UV ink spitting, the Pearlstar blade provides a completely different approach to help prevent ink build-up behind the blade. This new blade technology relies upon a revolutionary state-of-the-art coating that significantly reduces ink adherence to the doctor blade. This provides outstanding performance that reduces defects in the entire print run and increases performance.

Water, UV, solvent and most other fluids do not "stick" to the surface of the blade, thus there is no hydrodynamic force behind the blade and building up additional pressure at the tip. Because of this reduced adherence, the fluid simply flows back into the pan, or chamber, and constant flow is achieved.

The Daetwyler Advantage

As print shops are constantly pushed to provide customers with the most unique, eye-catching products on the market, printing boundaries will consistently be pushed. The UV market has advanced in great strides this last decade and continues to provide some stunning artwork in the industry.

Despite the challenges that come with using UV ink, such as spitting, using the right anilox, monitored quality inks, and the proper doctor blade will allow the results businesses and clients both want… which is what sells to the consumer.

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