

SLM Technology:

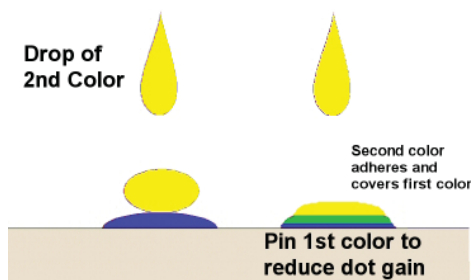


UV-LED Curing Technology for Inkjet “Pinning” Applications

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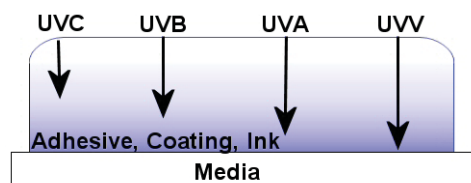
Pinning

UV-LED lamps can be very effective for a technique known as “pinning”. Pinning allows the ink to be partially cured immediately after being jetted to reduce dot gain and provide a sharper more vibrant image.



Pinning can result in a noticeable improvement in image print quality because the jetted ink is effectively frozen in place until final cure. This is particularly relevant when printing on media with low absorbance where the ink tends to spread.

In addition to dot gain, adhesion of the second droplet and color mixing is also a factor that affects image quality. As shown in figure below, the depth of cure is a function of wavelength and 380-400nm is particularly useful for achieving not only good depth cure, but allowing the surface to remain tacky for good adhesion of the next color.



For best results, each color requires pinning immediately after deposition. Therefore, the UV light source needs to be small enough to be mounted between the inkjet heads. Since pinning requires setting the surface of the ink not full-cure, it can be done effectively with a smaller amount of UV energy.

UV-LED based industrial light sources are attractive due to the longer UV wavelength emission at 395nm and their small size with easy integration. These air cooled UV light sources utilize simple analog voltages to enable the light source at full power in a few milliseconds. In a four color system, the light sources can be controlled individually setting the intensity and on/off time individually or the four pinning UV LED sources can be controlled as one turning on and off at the same intensity at the same time.

In addition to their small form factor, the RX FireEdge pinning systems also have the following advantages:

- Ideally suited to heat sensitive media
- Reduced power consumption and no maintenance leading to lower cost of ownership
- Clean Energy UV-LED Curing Solution
 - ✓ No Ozone Generation
 - ✓ No Mercury
 - ✓ Reduced power consumption

Coinciding with the availability of the UV-LED Curing solution has been the rapid technical developments of the inks and printheads enabling the full solution to customers interested in implementing this technology.

