Waterbased Emulsion Coatings

Modern day printing presses are generally equipped with coating units and drying aids. The two drying aids found are:

- Hot Air Knifes – (Industrial sized hair driers).
- Infer Red Lamps (I.R. Lamps)

A common mistake made is to use the wrong drying aid to dry the waterbased emulsions. Waterbased emulsions dry by absorption and evaporation. For the emulsions to evaporate they have to be exposed to warm circulating air. This is generated by the hot air knifes.

If the emulsion coatings are over exposed to IR Lamps (too much heat) stack temperatures increase. If this occurs coatings struggle to dry as they begin to sweat. Set off or crazing can also occur.

The optimum press settings for emulsion coatings are:

- 1st Side: 10 – 30% IR lamps (dependent on ink coverage) and 60 -80% Hot air knifes. (Try to achieve a stack temperature of 32 - 34°C.
- 2nd Side: Reduce IR Lamps to between 5 and 20% (again this is dependent on ink film weights). Hot air lamps to be set at 70 – 90%. By reducing the IR lamps the stack temperature should drop to around 30°C.

Many new machines have both automatic and manual drying settings. With automatic settings you program / pre set the machine to achieve a stack temperature. This can prove to be suitable however commonly the machine uses more IR Lamp power and les hot air resulting in a slower setting film of coating.

If the machine is set to manual the user can take full control of these aids and will be able to process work at faster speed. If there is little or no ink coverage why use IR Lamps?

The overall purpose of a waterbased coating is to provide protection to the underlying wet ink. As long as the film weight of coating is suitable and the coating is dry the inks will be protected. Therefore hot air is the most important drying aid.

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