TIP 0306-09

ISSUED – 1992
REVISED – 1997
REVISED – 2002
REVISED – 2008
REVISED – 2021

Ink Metering Systems for Corrugated Flexo Presses

Scope

This TIP will discuss the three different methods used in the anilox metering process to control the ink film thickness to the printing plate.

1. Doctor blade metering. Single reverse and chambered systems.
2. Wiper roll metering
3. Combo metering systems. Doctor blade and wiper roll.

Safety Precautions

There are no safety concerns in this description of Ink Metering Systems for corrugated flexo presses. However, normal safety procedures should be followed for all activity in a packaging plant. This includes awareness of the sharp edges on Doctor blades and wearing gloves when handling Doctor blades.

Introduction

The flexographic printing process is unique. A metering system applies ink to an anilox roll. The anilox roll transfers a specific amount of ink to the printing plate which prints the image to the corrugated board. The amount of ink film thickness supplied to the printing plate is what controls color strength and print quality. Not enough ink and you don't obtain color density or cover the flutes consistently on the corrugated board. Too much ink and your print quality suffers, resulting in dot gain, dirty print, drying issues, etc. The type of metering system and how it is maintained and set, is a critical factor in the amount of ink transferred to the substrate.

The anilox roll holds a pre-determined volume of ink and is what controls the ink film thickness on the printing plate. The anilox roll is laser engraved with cells, generally the shape of a hexagonal pattern. The number of cells on the surface of the anilox roll is quantified by how many cells there are per linear inch. This is noted as LPI or lines per inch. The amount of ink the anilox roll holds (volume) is measured in how many billion cubic microns (BCM's) per square inch on the surface of the roll. When determining the engraving specifications and volume of the anilox roll, it is also important to consider what type of metering system is used.

Every anilox roll is associated with a metering system. The metering system does two things. First, it supplies ink to the cells on the anilox roll. Secondly, it wipes or doctors off the excess ink from the surface of the anilox roll, delivering a precise amount of ink to the printing plate. However, depending on the type of metering system and how it is used, you will always transfer a higher percentage of ink than the volume of the anilox roll. This is due to a residual ink film thickness left from the metering process. The various types of metering and how they are set, control this factor.