

Dr. Martin Gotterbarm

Jagenberg Converting Solutions; DE-Erlangen



UNLOCK THE FULL POTENTIAL OF YOUR PRESSURE SENSITIVE ADHESIVE PRODUCTS: THE RISE OF SLOT DIE COATING

ABSTRACT

As technical requirements for pressure-sensitive adhesives (PSAs) become increasingly stringent, manufacturers face growing challenges regarding layer homogeneity, cross-web profile accuracy, and overall process capability. Slot die coating has established itself as the premier technology to meet these demands, offering superior process stability, minimal scrap and tightest tolerances compared to conventional wet coating methods. This presentation provides practical guidelines on evaluating when and how to transition demanding PSA applications to slot die technology.

Optimal slot die coating performance begins from the inside out. By applying fundamental fluid dynamics and rheological design methodology, each slot die is custom engineered to match the specific flow behavior of the customer's adhesive formulation and operating window.

To address rising demands for flexibility and tighter cross-web tolerances, modern adjustable die systems - such as Flexlip and T-Bar configurations - offer precise control over the coating profile. When integrated with automated closed-loop feedback systems, these dynamic adjustments significantly enhance yield levels and process capability (C_{pk}).

Finally, achieving peak product quality requires recognizing that the slot die operates as part of an interconnected machine ecosystem. With the unique approach among line builders of manufacturing customized slot dies in-house, Jagenberg Converting Solutions harmonizes die fluidics with upstream fluid delivery, web handling, and drying systems and coating stations. This provides manufacturers with end-to-end, high-yield coating lines tailored to the most demanding PSA specifications.