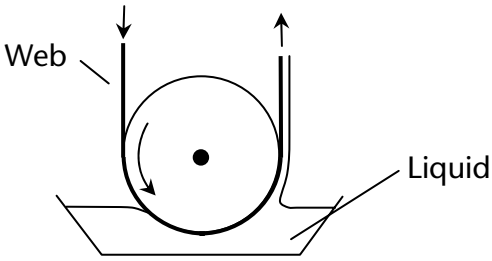
Self-Metered vs. Pre-Metered Coating Systems

Self-Metered Coating System

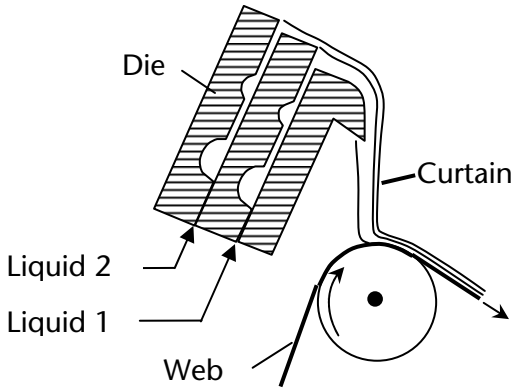
Example: Pan (Dip) Coating



- Simple methods
- Lay down depends on liquid properties and web speed
- Formulation changes affect lay- down
- On layer applied at the time

Pre-Metered Coating System

Example: Dual Layer Slide Curtain Coating



- More complex, requires a die distributor
- Lay down is specific within operating range of process
- Formulation changes do not affect lay down
- Multiple layers coated simultaneously
- Multi component liquids usable

Self-metered coating systems have been standard in the industry since the industrialization of coating while pre-metered methods where introduced mid of last century by the photographic industry. Since then it has also become state-of-the-art technology in the special paper or adhesive industry. The advantages of pre-metered coating systems such as very uniform cross profile, optimized and low liquid consumption, higher coating speed and the possibility to coat several layers simultaneously has further spread these methods into many new fields of the industry. While the liquid formulation and viscosities in self-metered systems do change from the beginning to the end of the batch, the formulations in the pre-metered systems remain the same over the entire batch. This results into uniform coating thickness in longitudinal direction. The achievable cross profile tolerances are much narrower in case of the pre-metered systems as compared to self metered systems. Therefore, with pre-metered coating the liquid savings are significant. Due to short residence time in optimized dies it is possible to coat reactive fluid systems, which gives more freedom in designing functional layers.