

Curtain Slot Dies

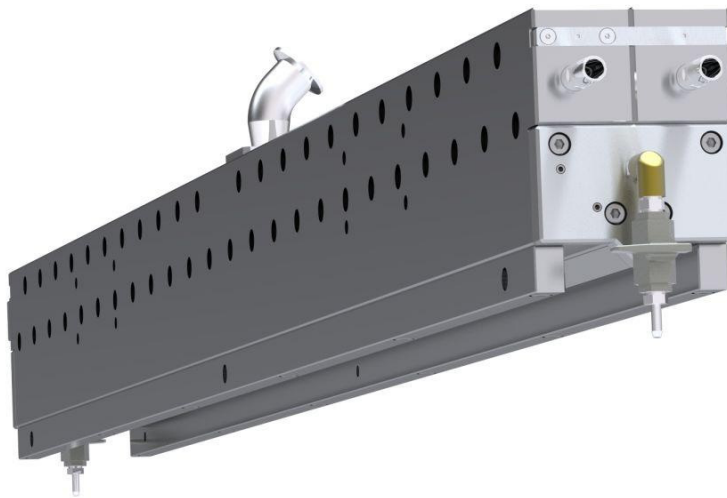
Slot Curtain coating is an attractive coating method because several major process advantages are achieved. These advantages include a potential for high speed coating, a significant coating robustness with respect to web disturbances, and a substantial tolerance for imprecision in the clearance between die and substrate.

The design and fabrication of the curtain slot die must be executed with high precision if excellent coating quality is to be achieved. For example, the slot die lip region must have an excellent surface finish. It should also be designed such that it resists irregular wetting along the lip. Furthermore, these lip features must be uniform across the die width. Finally, as with all premetered coaters, the production of a uniformly distributed flow via

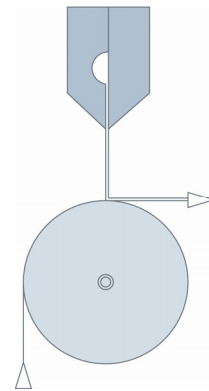
the internal flow manifold requires both optimal manifold design and excellent slot depth uniformity.

TSE has produced many successful curtain dies in both slot and slide die formats. TSE has also developed the essential supporting technologies and practical designs associated with capable curtain edge guides, baffles to remove the air boundary layer on the incoming web, coating initiation/termination functions and devices that protect the liquid curtain from the detrimental effects of air currents.

In view of this complete technology package, there is no question that TSE is the leading supplier of dies for successful curtain coating.



Single Layer Curtain Slot Die



Range of Application (order of magnitude only)

• Viscosity range:	[mPas]	10 – 5'000
• Surface tension:	[mN/m]	< 40
• Coating speed:	[m/s]	1 – 20
• Wet thickness H_{wet} :	[μ m]	> 5
• Dry thickness H_{dry} :	[μ m]	< 1
• Number of layers:		1 – \leq 2
• Minimum flow rate:	[cm^2/s]	> 1.0