

# HML Coater™

## WIDE APPLICATION IN THIN FILM



### 產業概況 THIN FILM INDUSTRY OVERVIEW



The flexible electronics market is demanding thin film materials with an ever increasing range of functionality for applications like: consumer electronics, semiconductors, optics, building materials and alternative energy.

The Darly Hybrid Multi-Layer (HML™) Vacuum Web Coater is leading the way for innovation of vacuum deposited organic and inorganic coatings on film substrates. The continuous roll-to-roll HML™ process is suitable for large scale production of high quality thin films with unmatched production efficiency and product development

薄膜具有輕薄柔韌之特性，近年來廣泛運用於半導體、民生、光電、材料及能源產業，尤其在軟性電子產業中更是扮演著關鍵性角色。Darly Custom Technology以創新、領先的科技，結合最新表面處理及真空鍍膜技術，研發出HML™(Hybrid Multi-Layer)有機/無機材料混合多層膜製程，並導入R2R卷對卷連續式軟性基材真空鍍膜設備，進而開發出HML Web Coater混合式多層膜真空鍍膜設備。HML™技術突破傳統濕式塗佈工藝，在軟性基材上實現連續的真空塗佈和無機鍍膜，形成有機及無機膜層交錯堆疊的多層薄膜；真空塗佈製程提高塗佈精度與材料純度的同時，亦能大幅降低原料成本、減少環境污染，衍生出更多獨特的應用。

HML™製程可應用於硬化膜(Hard Coat Film)、包裝材料(Packaging Materials)、阻隔膜(Barrier Film)、電容薄膜及更多的功能型複合薄膜產業；R2R連續式製程適合大量生產，兼具生產效率及品質穩定，預期將為薄膜產業帶來更多發展及效益。

capability. A multi-layer, organic - inorganic - organic, structure is deposited on films at high speeds in a single pass with zero pinholes. The HML™ process utilizes a method for coating 100% solids with superior precision that provides significant advantages over traditional solvent based deposition methods thus decreasing production costs and reducing environmental impact.

The HML™ Web Coater can be used for variety of applications such as: hard coat films, packaging materials, barrier films and many other functional coatings.

### 設備特色 KEY FEATURES

- + 無需溶劑，環保無污染
- + 真空環境塗佈有機高分子薄膜
- + 膜厚均勻可控制，實現超薄膜層
- + 在同一製程中完成有機與無機膜層
- + 膜層高純無殘雜，表面平滑無針孔
- + 製程超越傳統大氣塗佈無法實現之功效
- + 表面性能改質（防刮、高透光、親/疏水等）

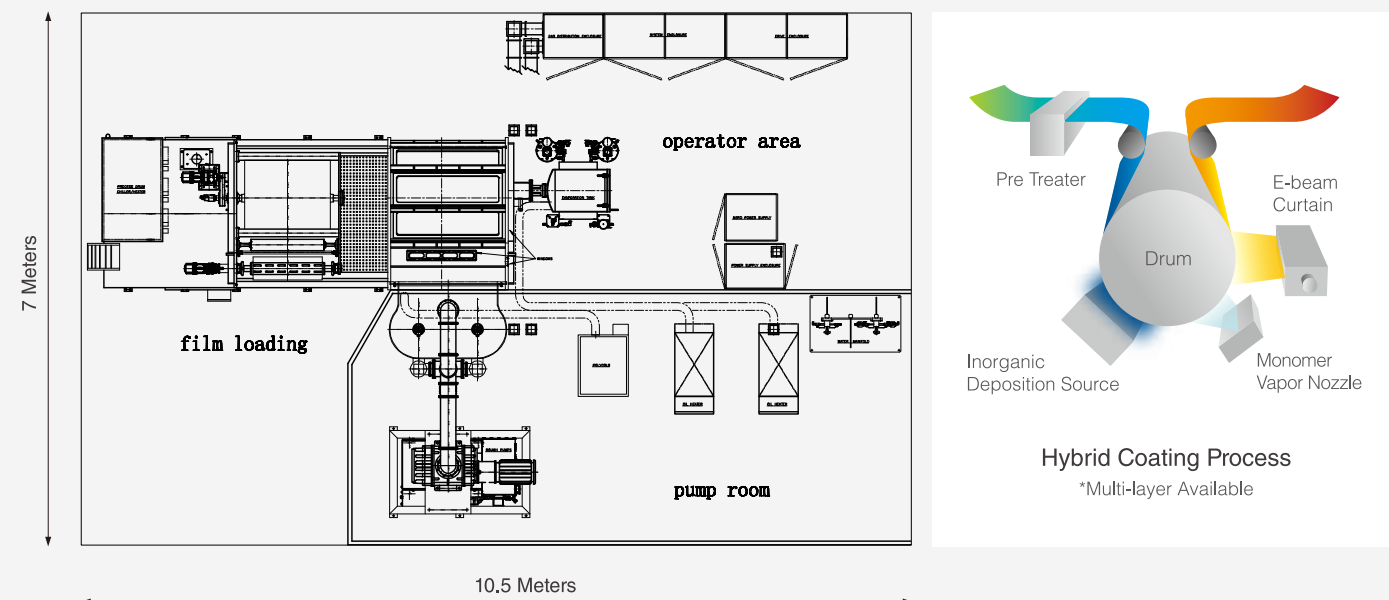
- + Organic coating in the vacuum environment
- + Clear, transparent and pinhole free films
- + Complete organic and inorganic process in one step
- + High uniform and coating thickness control for very thin layers
- + Contained, solvent free process with no environmental impact
- + A wide range of surface properties available from hydrophilic to super hydrophobic
- + Coating formulations can be utilized that are unavailable with traditional coating methods



### 關鍵組件 KEY COMPONENTS



### 配置圖 LAYOUT



### 主要規格 SPECIFICATION

Basic Unit		Selection component	
Coating Width	17" to 80" (450mm ~ 2,000mm)	Monomer Delivery	Vapor or Liquid Monomer
Roll Diameter	24" max.	Curing Tool	E-Beam or Plasma or UV Source
Process Drum	40" max.	Deposition Tool	Thermal or Sputtering or E-Beam Gun
Rough Pumping	Dry Pump Plus Blower	Measurement & Monitor System	In-line PEM Thickness Monitor
High Vacuum Pumping	Diffusion		
Moisture Pumping	Cryogenic		
Power Source	380V, 3 ph, 50 Hz		
Cooling Water	20 gpm @ 30 psi 25°C		
Compressed Air	70 psi Filtered		