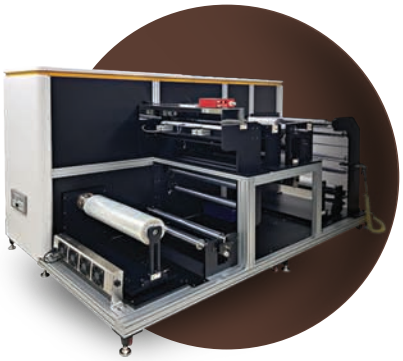
DCN™
Development
Creation
Nanotechnology



SLOT DIE COATING **SOLUTION**


LAB, Pilot & Mass Production / Sheet & R2R Type Equipment

www.dcnano.com

DCN Co., Ltd. has the best specialists in the slot die, coater design and manufacturing.

Since its foundation in 2007, DCN Co., Ltd. has challenged the global printing equipment market through ceaseless technical development and innovation. We always think of our customers' needs and strive to solve them for sustainable growth.

Based on the best slot die design and manufacturing technology, we have directly designed and manufactured sheet type and R2R continuous process equipment by applying various printing processes.

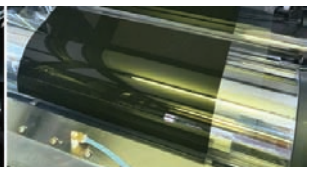
We have secured world-class technical capabilities in the coater field such as slot die coating and micro gravure coating, and our patented slot die design and manufacturing technology has been recognized for its performance and expertise.
Based on our passion, DCN Co., Ltd. will continue to set out the vision of connecting our knowledge, technology and solutions with our customers to be an optimal printer, and will move forward with to become the best coater company in Korea.
DCN Co., Ltd. will do its best to grow into a company that puts the value of its customers first, create happiness for employees and their families, and for the community.

Thank you.

HISTORY

2023	Relocation of head office : Daejeon industrial complex "International Science & Business Belt“
2021	Selected as a "Promising SME" in Daejeon
2020	Selected as a promising small and medium-sized enterprise for export by the Ministry of SMEs and Startups
	Delivery of R2R coater for “2-Battery, Fuel Cell & ESS”
	Export of smartphone back cover deco film mass production equipment (Vietnam-2nd)
2019	Delivery of R2R System for holographic coating for security
	Export of smartphone back cover deco film mass production equipment (Vietnam-1st)
	Selected as a company specializing in material parts by the Ministry of Industry, Trade and Resources
2018	Hyundai Mobis company registration
	Delivery of R2R System for Quantum Dot displays
	Design registration (R2R System, LAB coater)
2016	Delivery of PI coating R2R system for mass production
	Delivery of R2R Dip Coating System for manufacturing ion cured film
2015	LG Chem manufacturer partner registration
2014	Samsung Electronics partner registration
2013	Hyundai Motor partner registration
2012	Slot Die & Slot Coater patent registration
	Table Slot Die Coater development
2011	R2R Slot Coating System development
2010	Kolon Industry partner registration
	Samsung Electro-Mechanics partner registration
2008	Relocation of head office (Daedeok Techno-Valley)
2007	DCN Co., Ltd. incorporated
	R&D Center established
	Venture company registration
	Gold prize winning for RED DOT DESIGN AWARD





SHEET TYPE

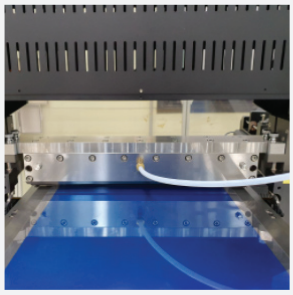
TABLE SLOT DIE COATER

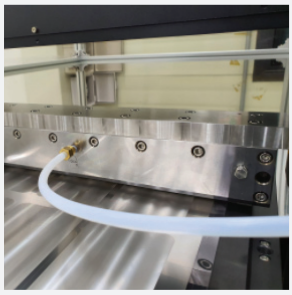
INFORMATION

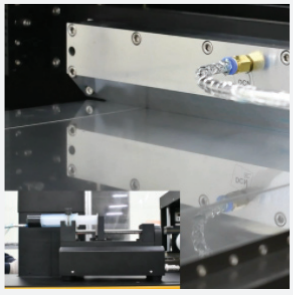
- Sheet type precision coater with accumulated core technology and patented technology for slot die coating
- Applicable to various industrial fields such as secondary battery, FCCL, optic, display, PSV, Perovskite, OPV and mobile Deco film
- A wide range of coatings including low-viscosity (10 cps) thin-film coatings and to high viscosity (100,000 cps or above) by manufacturing the slot die itself through CFD flow analysis.
- Realization of high-precision coating function with ultra-precision plate and motion drive and coating-dedicated control technology
- Able to provide metering pump solutions suitable for coating solutions

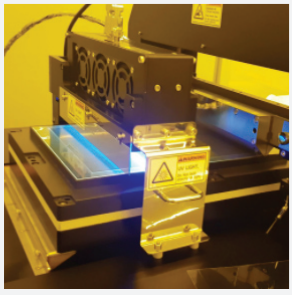
SPECIFICATION

MODEL	TSDC210	TSDC370
SUBSTRATE AREA	210 x 297	370 x 470
COATING WIDTH	200mm	360mm
SPEED	200mm/sec	200mm/sec
PUMP	Syringe Pump	Syringe Pump
SIZE	1250 x 800 x 1300(H)	1250 x 940 x 1470(H)
OPTION	Metering Pump, UV Cure, Hot Plate	









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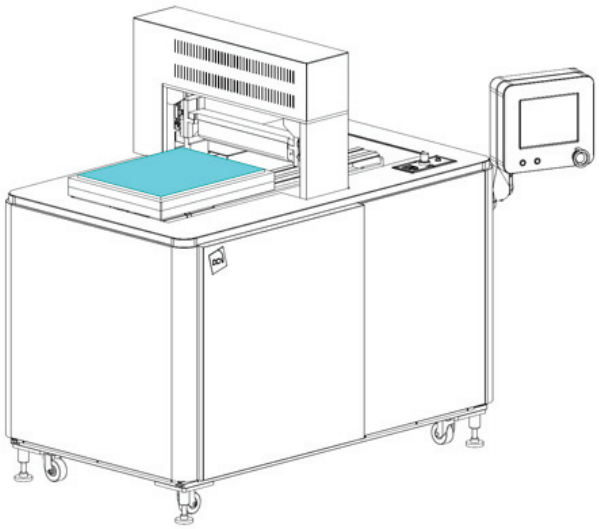


SHEET TYPE

LAB SLOT DIE COATER

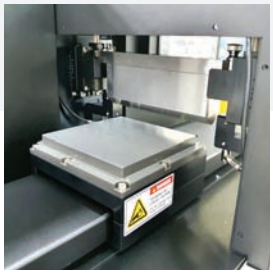
INFORMATION

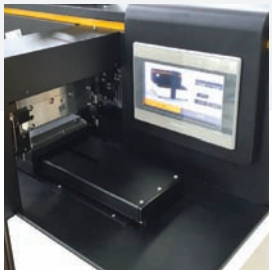
- Sheet type small coater that is easy to install, move, and operate and is optimized for Lab Scale
- Available for slot die coating at low (10cps) and medium viscosity (1000cps) coating solution, minimize material loss and secure economics
- Available for easy coating and acquiring process condition data with several touch operations
- Available for Glove Box integrated model to maintain experiment environment
- Reproducibility through precise stage position control by servo motor and automatic height adjustment of slot die
- Application of slot die design through CFD and built-in precision Syringe pump

SPECIFICATION

MODEL	LSDC100
SUBSTRATE AREA	100 x 100
COATING WIDTH	Max. 90
SPEED	Max 50mm/s
PUMP	Syringe Pump
SIZE	825 x 600 x 600(H)
OPTION	Bar. Blade

* Glove Box built-in model available





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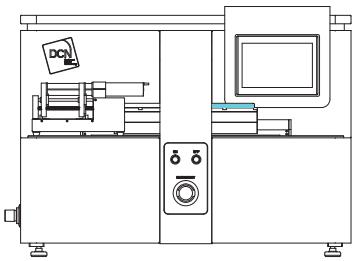
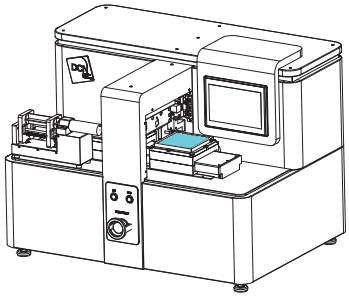




SHEET TYPE

PILOT SLOT DIE COATER

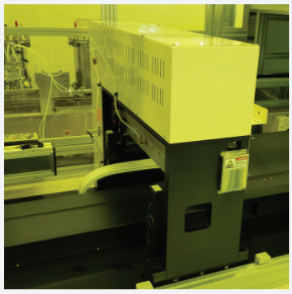
INFORMATION

- Sheet Type coater applicable in high-speed mass production lines
- Optimization of automatic process function for mass repetitive production process and application of automatic cleaning function of slot die discharge parts
- High-speed and precision coating for pilot & mass production process
- Providing an automated system for all processes such as loading - pre-treatment - coating - drying/curing - unloading
- Optimization for easy and stable precision pump system for intermittent and sheet coatings
- Optimization of high-speed coating process for Tact Time management

SPECIFICATION

MODEL	PSDC500
SUBSTRATE AREA	500 x 500
COATING WIDTH	490 x 480
SPEED	200mm/sec
PUMP	Metering Pump
SIZE	1760 x 1550 x 1500(H)
OPTION	Syringe Pump, Solution Tank, Lip Cleaner, Degassing System, Clean Booth

* Granite surface plate type available



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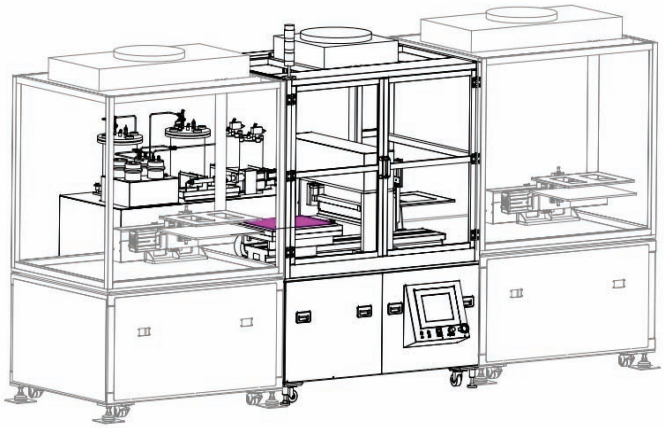
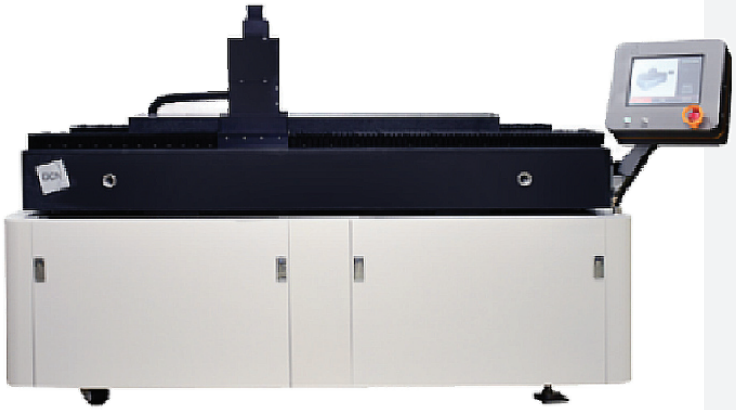


SHEET TYPE

GANTRY SLOT DIE COATER



INFORMATION

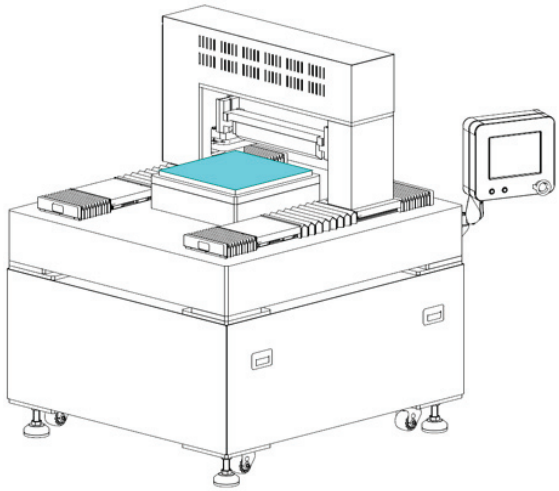
- Precision coater with 2-axis precision synchronous gantry column for large area, high-precision sheet type coating
- Optimization of automatic process function for mass repetitive production process and application of automatic cleaning function of slot die discharge parts
- High-speed and precision coating for pilot & mass production process
- Prevention of deformation and vibration as plate and gantry stage are manufactured with a granite surface plate
- Applicable in mass production lines

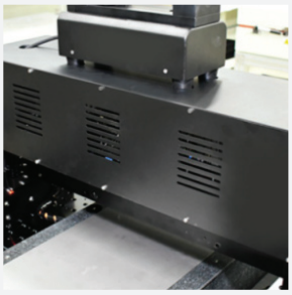
SPECIFICATION

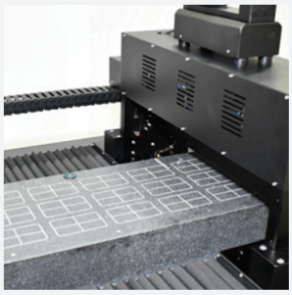
MODEL	GSDC1000
SUBSTRATE AREA	1,000 x 1,900
COATING WIDTH	Max. 990
SPEED	200mm/sec
STROKE	1,900mm
SIZE	2500 x 2000 x1500(H)
OPTION	Solution Tank, Lip Cleaner, Degassing System, Clean Booth

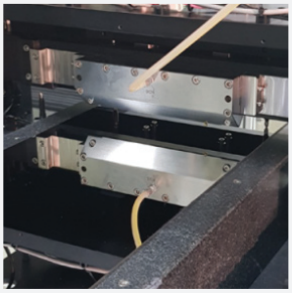
※ Pump Type : Metering Pump
* Optimization available according to customer request

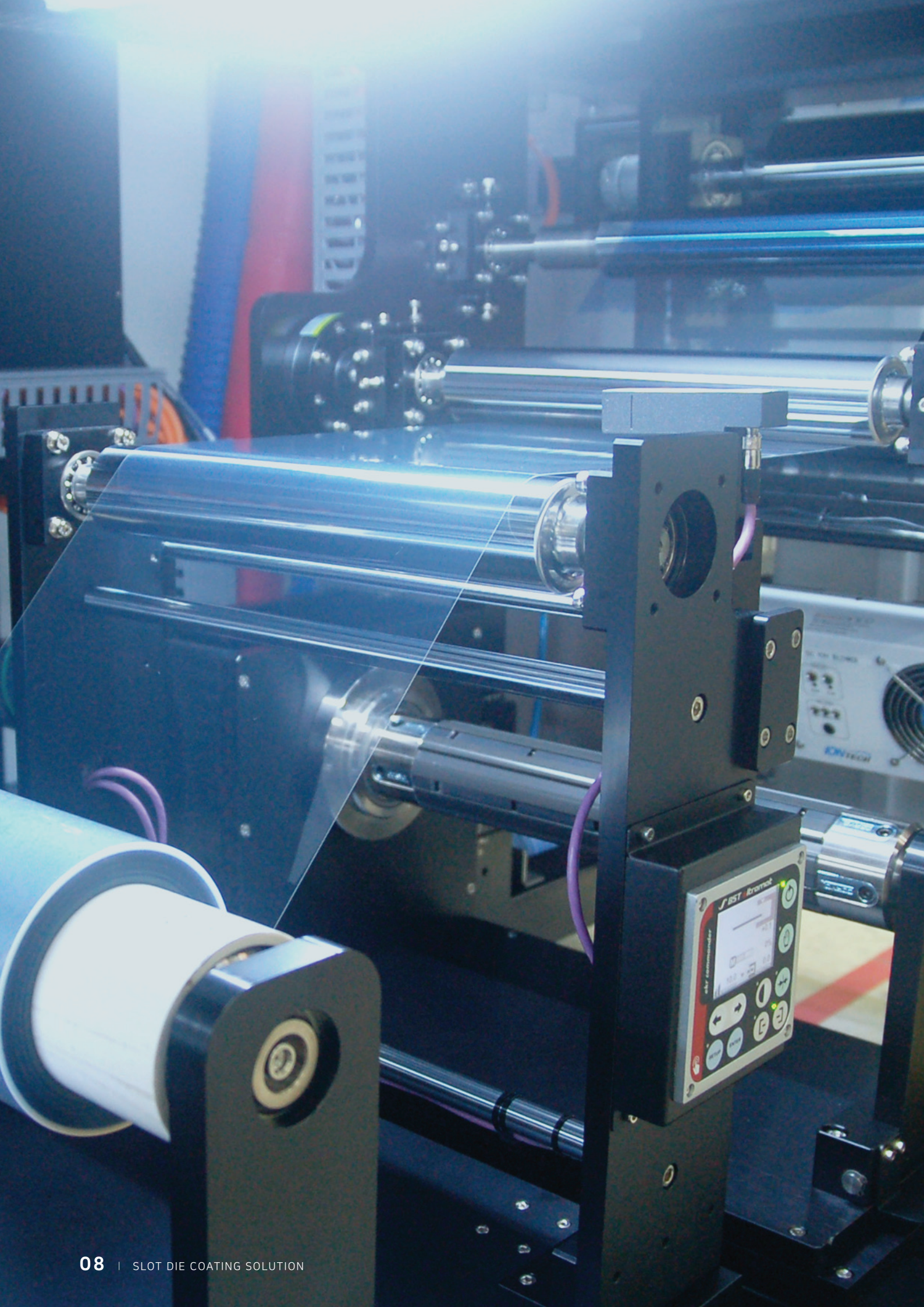
SCHEMATIC DRAWING











R2R TYPE

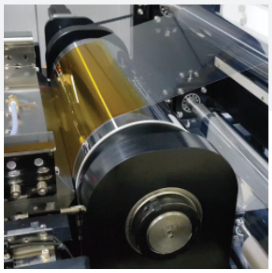
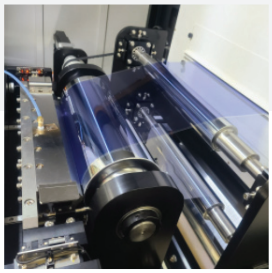
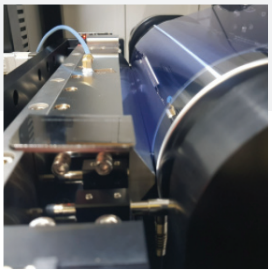
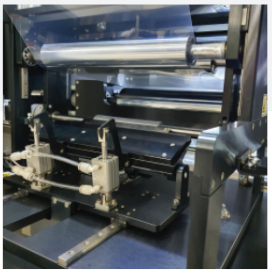
STANDARD R2R COATER

INFORMATION

- Maximum usability with materials and process development for R&D and pilot equipment in R2R process
- Available for various coating processes (Slot Die, Micro Gravure, Comma, Blade etc.), process optimum design according to customer needs with excellent economics and effectiveness
- A wide range of coatings including low-viscosity thin-film coatings to high-viscosity by manufacturing the slot die itself through CFD flow analysis
- Various coating thicknesses by providing standard micro gravure roll
- Realization of precise web transfer through speed synchronization and Ability to maintain uniform web tension and control tension by section through integrated speed & tension control
- Stable winding system application by applying accumulated winding control technology
- High temperature hot air dryer with patented technology applied and options such as UV curing, IR heater and laminator can be selected
- Various pump system options available according to the physical characteristics of the material and process conditions

SPECIFICATION

MODEL	SRSC150	SRSC300	SRMC150	SRMC300	SRDC150	SRDC300
COATING PROCESS	Slot Die		Micro Gravure		Slot Die & Micro Gravure	
WEB WIDTH	Max. 150	Max. 300	Max. 150	Max. 300	Max. 150	Max. 300
COATING WIDTH	Max. 140	Max. 290	Max. 150	Max. 300	Max. 140/150	Max. 290/300
WEB SPEED	0.1~10m/min					
WEB TENSION	Max. 30kgf					
DRY TYPE	Hot Air, IR, UV cure					

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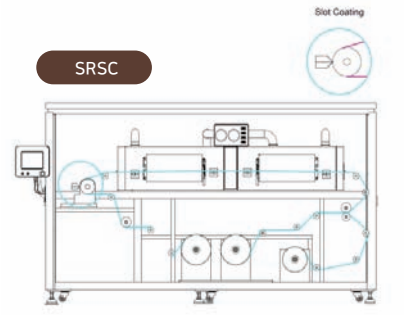
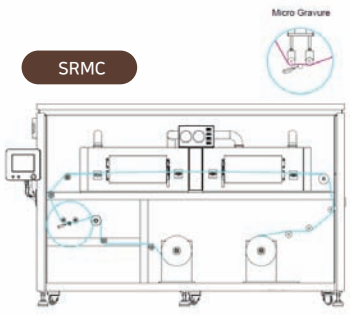
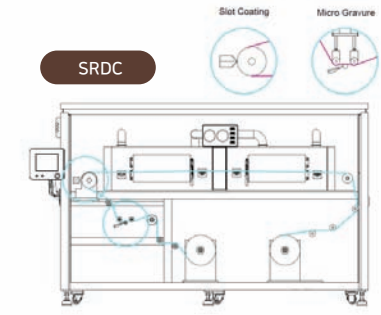
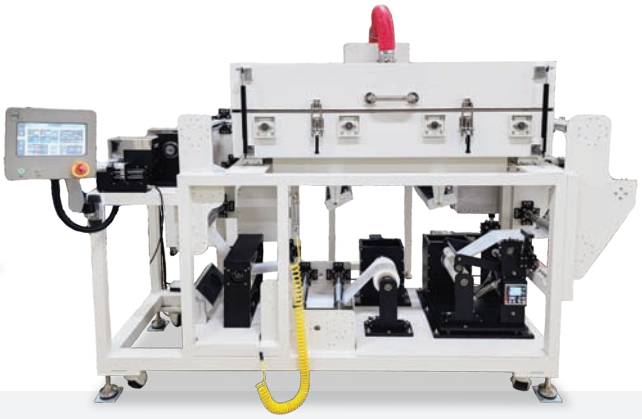






R2R TYPE

LAB R2R COATER



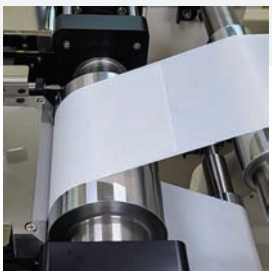
INFORMATION

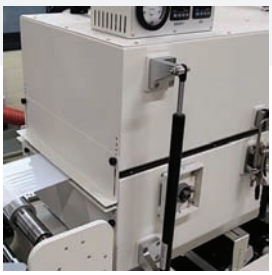
- Compact R2R coater optimized for LAB environment
- For LAB but with R2R core technology, coating precision and repeatability are achieved through an automatic process
- Application of various coating processes according to material and purpose such as Slot Die, Micro Gravure & Comma
- Optimal slot die design through flow analysis using CAE
- Application of various pump systems such as syringe pumps, mohno and gear pumps
- It is relatively low cost and can be applied in a variety of ways from LAB scale to Pilot.
- Application of patented small hot air dryer

SPECIFICATION

MODEL	LRSC150	LRMC150
COATING PROCESS	Slot Die	Micro Gravure
WEB WIDTH	150mm	150mm
COATING WIDTH	Max. 140mm	Max. 150mm
RE/UN WINDER	3 inch Air Shaft	
WEB SPEED	Max. 2m/min	
DRYER	Hot Air, 1.5m, 1 zone	
HEATING SOURCE	Electric Heater	
OTHER	Heat Source : UV or IR Selection	

* Optimization available according to customer request





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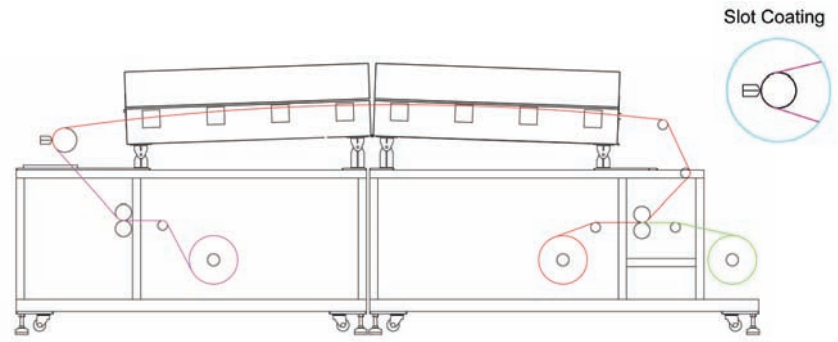


OPTIMIZED R2R SYSTEM

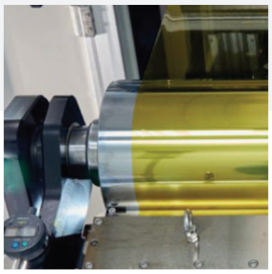
PILOT R2R COATING SYSTEM

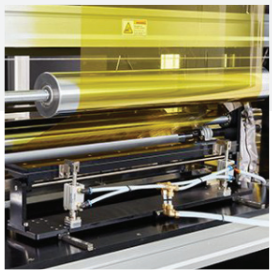
INFORMATION

- Large area coating and high-speed coating available for secure mass production
- Various coating processes available such as slot die, micro gravure, comma and gap coating
- Applicable to all applications such as secondary battery, optic, display, OPV and PSV etc.
- Applies all core technologies of R2R Coater such as speed synchronization, web transfer, winder system, feeder system and tension control
- Minimization of ancillary facilities by applying patented hot air-drying system
- Various types of dryers available according to coating material and process conditions (hot air, IR Ceramic and UV Cure)
- Splicer and Auto Turret options available for automatic web replacement

SPECIFICATION

COATING TYPE	Slot Die, Micro Gravure, Comma, Gab
SPEED	Max 20m/min
WEB TENSION	Max. 30kgf
DRY	UV Cure, Hot Air Dryer, IR Heater
PUMP	Metering Pump
OPTION	Plasma processor, Accumulator, Online thickness measuring instrument, Auto Turret, Corona processor, Laminator & De Laminator, Foreign matter inspection machine, Web Cleaner, Splicer and Slitter





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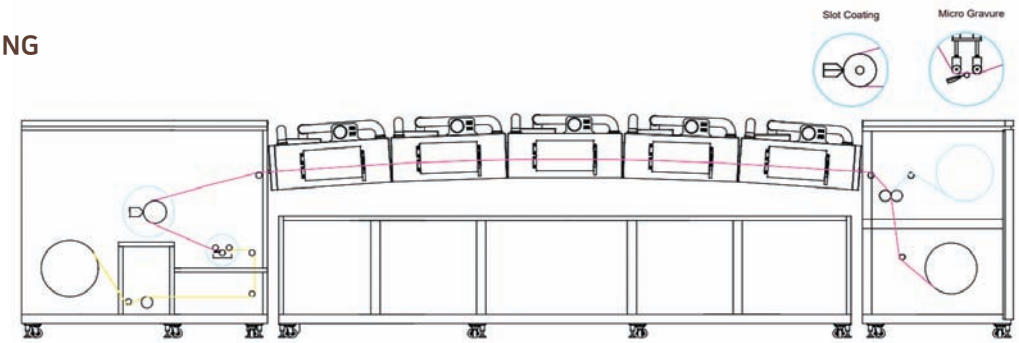


OPTIMIZED R2R SYSTEM

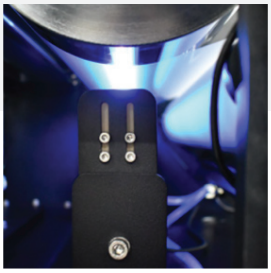
UV IMPRINTING SYSTEM

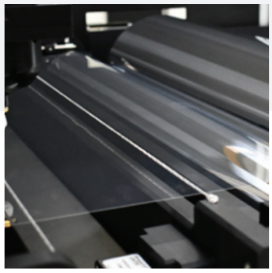
INFORMATION

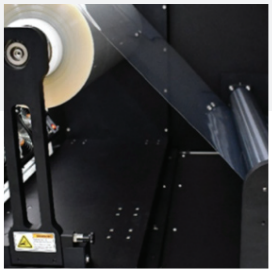
- By coating and curing UV curable resin, various types of micro patterns are formed on the transparent film
- Application of all core technologies of Standard R2R Coater such as speed synchronization, web transfer, winder system, feeder system and tension control
- Automated systems such as gap control and tension control for various pattern thicknesses
- Metering pump available according to the physical characteristics of the material and process conditions
- Various drying and curing methods available according to the materials used and process conditions (IR Heater, hot air drying and UV curing)

SPECIFICATION

COATING TYPE	IMPRINTING
SPEED	0.1~5m/min
WEB TENSION	Max. 30kgf
DRY	UV Cure, Hot Air Dryer, IR Heater
PUMP	Metering Pump
OPTION	Coating Process (Slot Die, Blade, Bar)







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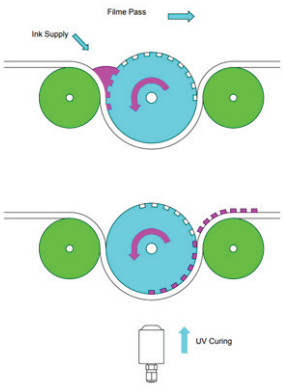
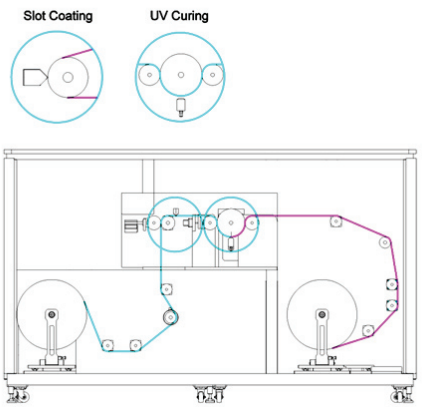
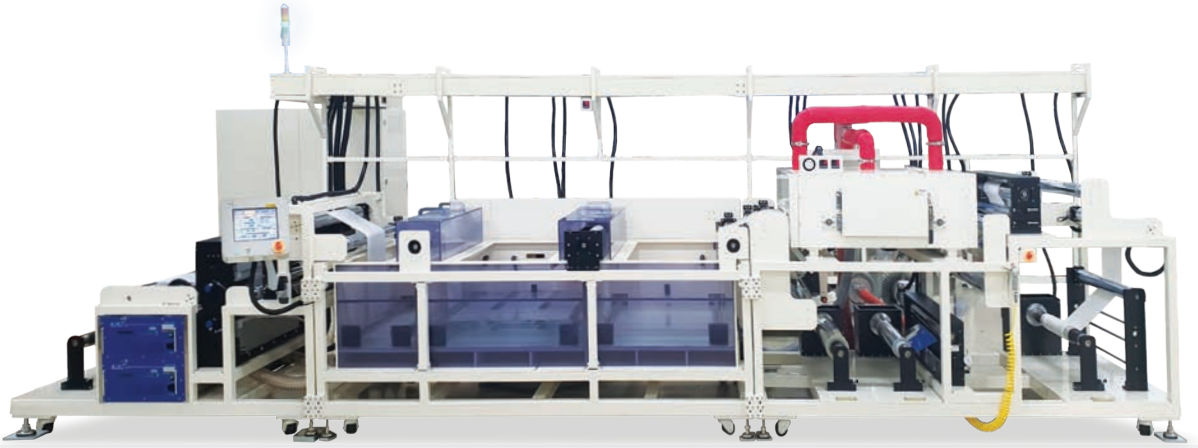




OPTIMIZED R2R SYSTEM

DIP COATING R2R SYSTEM



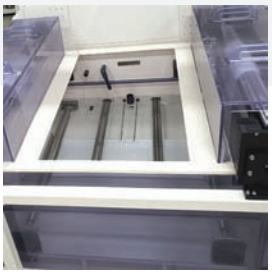
INFORMATION

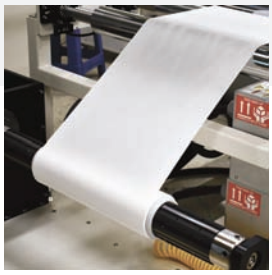
- **Porous membrane** (Non-solvent induce phase separation) : ultrafiltration, microfiltration, protein filtration, virus filtration, suspension filtration, support membrane for NF/RO thin film composite membranes
- **Ion exchange membrane** (pore filling membrane) : hydrocarbon ion exchange membrane, nafion ion exchange membrane
- Coating the coating solution or slurry and firing while passing through a water bath to form a coating film
- Application of all R2R core technologies such as speed synchronization, web transfer, winder system, feeder system and tension control
- Application of dip coating water tank and Roll Blade with adjustable coating thickness and laminating technology
- Structure that reduces costs by minimizing the volume of the water tank. Facilitates water tank replacement and cleaning
- Selection of hot air drying, IR ceramic drying and UV curing depending on coating material

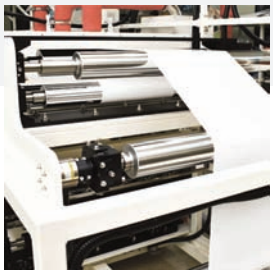
SPECIFICATION

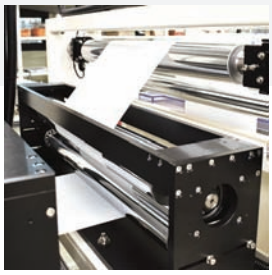
COATING TYPE	Dip Coating
SPEED	0.1~10m/min
WEB TENSION	Max. 25kgf
DRYER	Hot Air (Max. 150℃), UV, IR Ceramic (Max. 200℃)
Option	Plasma/Corona, Humidification chamber

* Optimization available according to customer request

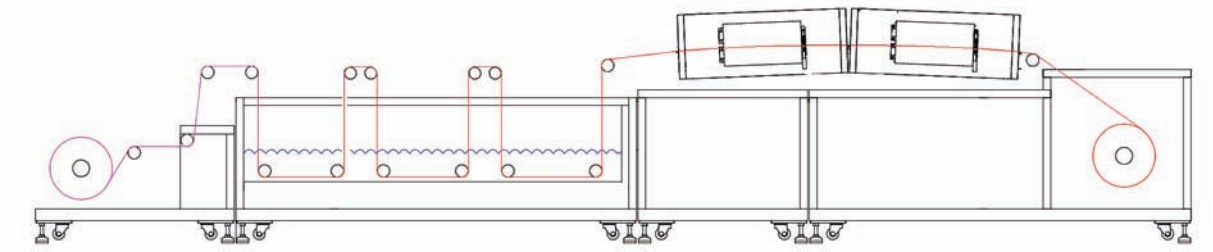








SCHEMATIC DRAWING



OPTIMIZED R2R SYSTEM

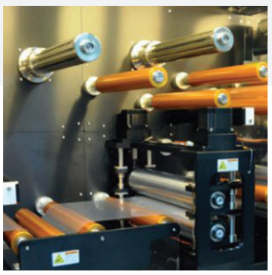
MULTI LAMINATION R2R SYSTEM

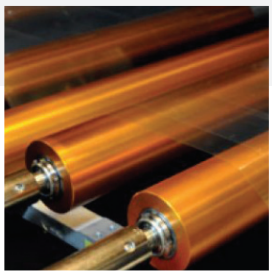
INFORMATION

- R2R system that carries out double-sided laminating and double-sided de-laminating at the same time
- Pilot equipment for manufacturing secondary battery MEA
- Application of MD direction and TD direction align system to match patterns during top and bottom laminating
- Automatic pressure control (max. 200kgf) through motorization of laminating roll
- Heating roller (max. 180℃)

SPECIFICATION

COATING TYPE	Double side Laminating, Double side de-laminating
SPEED	0.01~5m/min
WEB TENSION	Max. 25kgf
HEATING ROLL	Max. 180℃, Pressure : Max. 200kg.f





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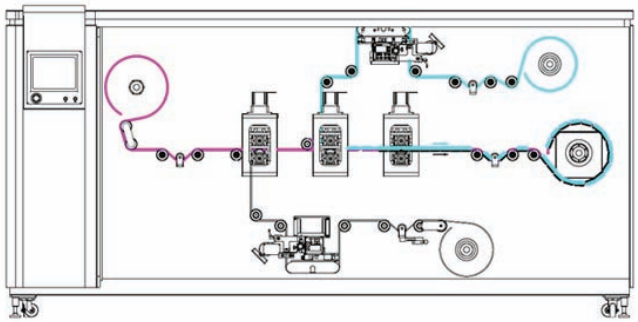


OPTIMIZED R2R SYSTEM

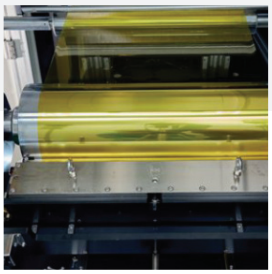
UV IMPRINTING SYSTEM

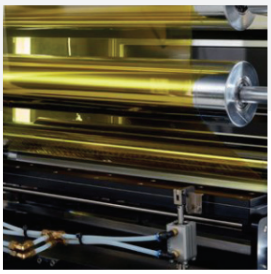
INFORMATION

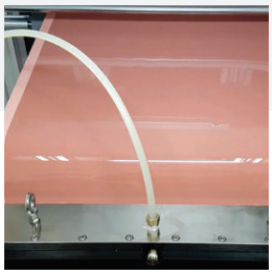
- Double-sided continuous coater utilizing slot die coating and micro gravure coating
- Application of all the core technologies of R2R coating such as speed synchronization, web transfer, winder system, feeder system and tension control
- High-speed coating process that minimizes wrinkles in the MD direction of the thin film
- Application of various types of films such as PET Film, PI Film and Copper Film with precision tension control
- Minimization of ancillary facilities by applying patented hot air drying
- Various types of dryers available according to the coating material and process conditions (hot air, IR Ceramic and UV Cure)
- Splicer and Auto Turret options available for automatic web replacement

SPECIFICATION

COATING TYPE	Slot Die, Micro Gravure
SPEED	Max 30m/min
WEB TENSION	Max. 30kgf
CURING	UV Cure, Hot Air Dryer, IR Heater
PUMP	Metering Pump







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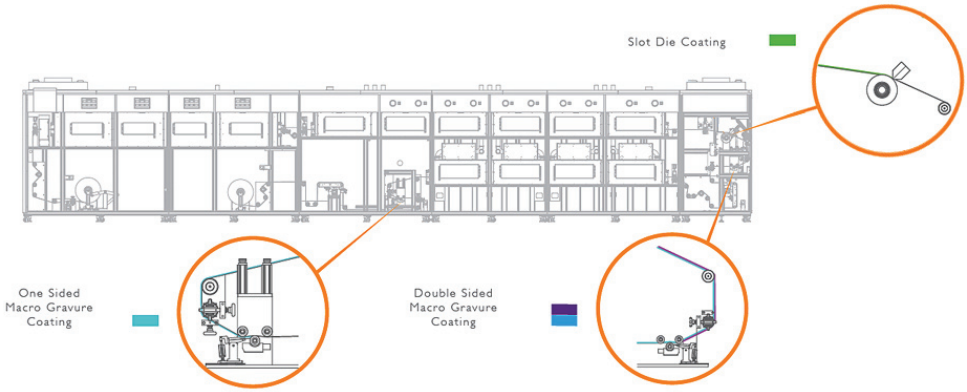
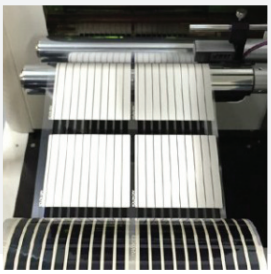


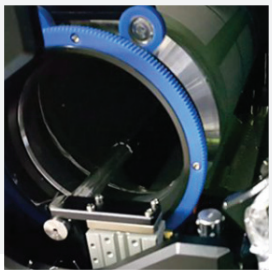
OPTIMIZED R2R SYSTEM

MULTI LAYER R2R SLOT DIE COATING SYSTEM

INFORMATION

- R2R coating equipment capable of overlapping slot die coating of 2 layer or more
- Application of all core technologies of R2R Coater such as speed synchronization, web transfer, winder system, feeder system and tension control
- Performance record of multi-layer continuous process R2R coater by combining slot die 3 layer overlap coating and rotary screen printing
- Applicable layer-by-layer coating alignment system for overlap coating
- Patented high temperature hot air dryer application and options such as UV curing, IR heater and laminator





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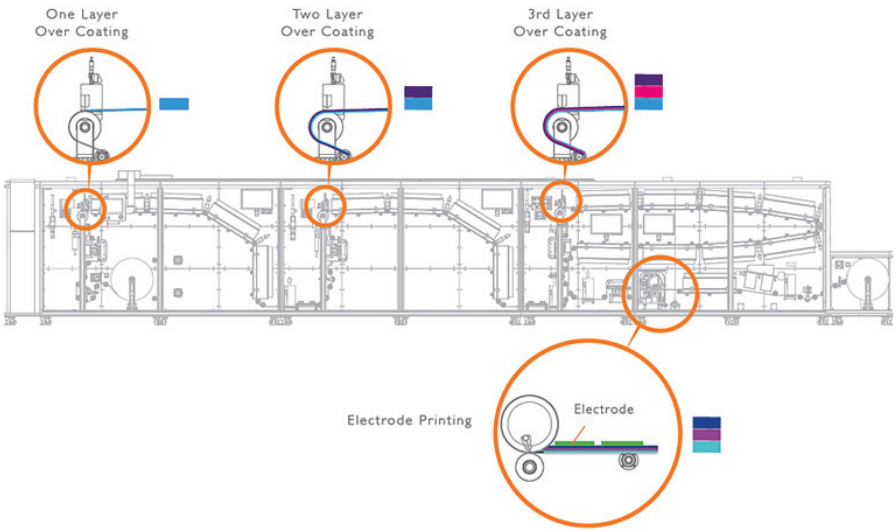


OPTIMIZED R2R SYSTEM

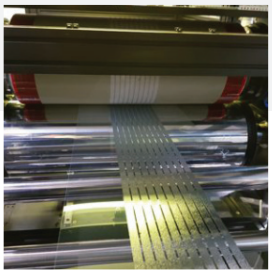
ROTARY SCREEN R2R PRINTING SYSTEM

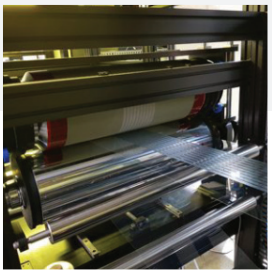
INFORMATION

- Specialized equipment implemented in R2R process by replacing screen printing with rotary type
- Electrode and pattern printing can be implemented continuously
- Realization of fine line width through various standard mesh
- Overlap printing available through alignment correction function
- Application of all core technologies accumulated in Compact R2R Coater such as speed synchronization, web transfer, winder system, feeder system and tension control
- Patented high temperature hot air dryer application and options such as UV curing, IR heater and laminator

SPECIFICATION

PRINTING TYPE	Rotary Screen
SPEED	Max 10m/min
WEB TENSION	Max. 30kgf
CURING	UV Cure, Hot Air Dryer, IR Heater
PUMP	Metering Pump





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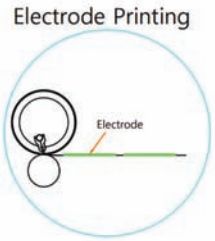
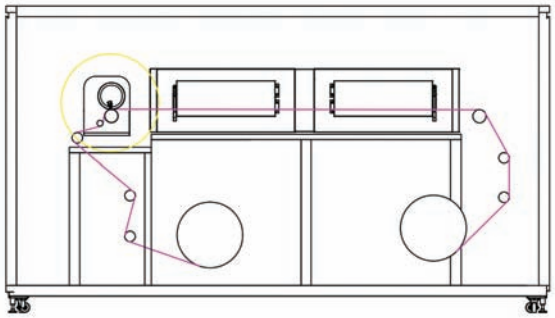
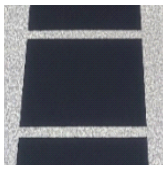




APPLICATION & PRODUCTS


SECONDARY BATTERY

Slurry, Carbon Black, Graphite, Vanadium Redox etc.
Metal(Al , Cu) Foil, Plastic Film, Ion Transfer Membrane

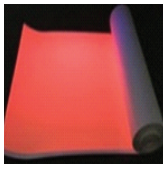



FUEL CELL

MEA Coating, MEA Transfer

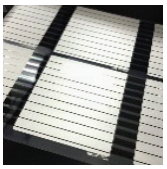

MOBILE / TOUCH SCREEN

Metal Mesh Film, Back Cover Deco Film

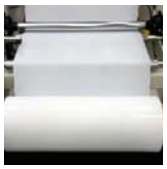
FLEXIBLE DISPLAY

Flexible Printed Circuit Board, Rigid Printed Circuit Board,
Casting Film, Film Condenser



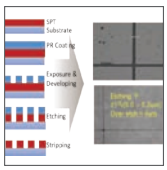

SOLAR CELL

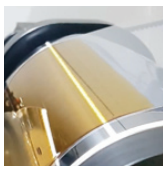
OPV, Perovskite

MEMBRANE

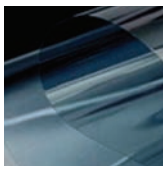
Filtration (Ultra, Micro, Protein, Virus etc.), Support membrane for NF/RO
Hydrocarbon ion exchange membrane, Nafion ion exchange membrane





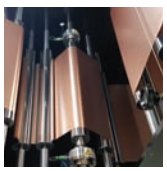
PR COATING

Photolithography

OPTIC

Optical Film, Color Filter, Protective Film, Photo mask,
Electromagnetic Prevention Film

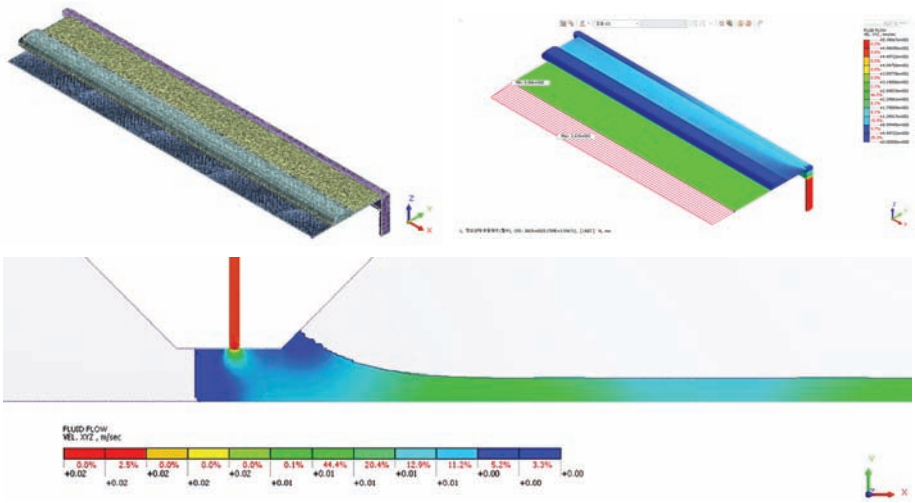



FCCL

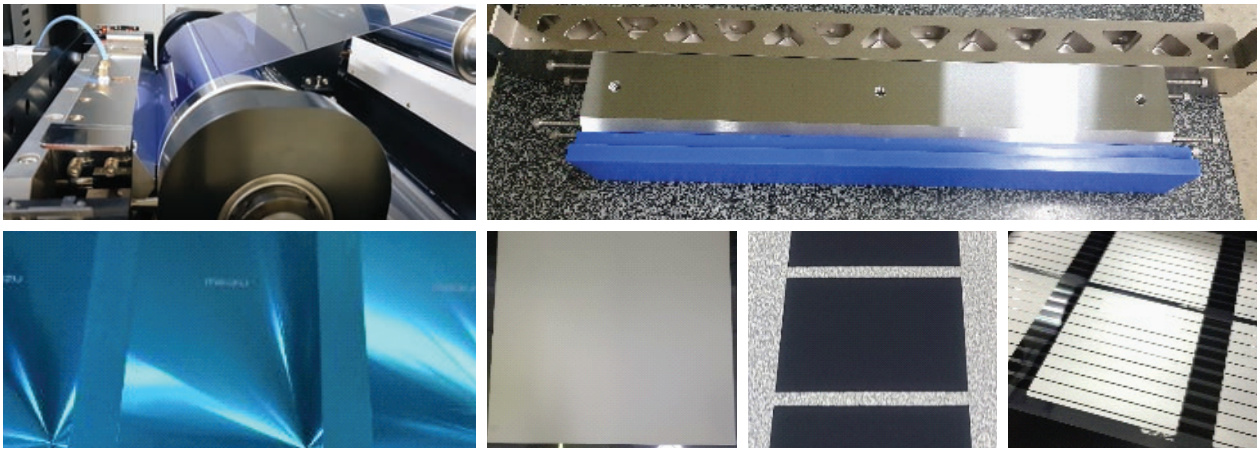
PI Coating

TECHNOLOGY

Flow analysis using midas NFX software



Optimized slot die structure design through CFD flow analysis
Uniformity with world-class technology
Patented original technology



Drying process required for thin film in solution process
Hot air, IR and UV and composite structures available

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