



GLOBAL LEADER OF SPUTTERING COATING FILM

# SJ Nanotech

PRODUCT CATALOG  
SJ NANOTECH







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“With the best technology in the world, we have the best nano parts with our customers. Creating a great future for our global business.”

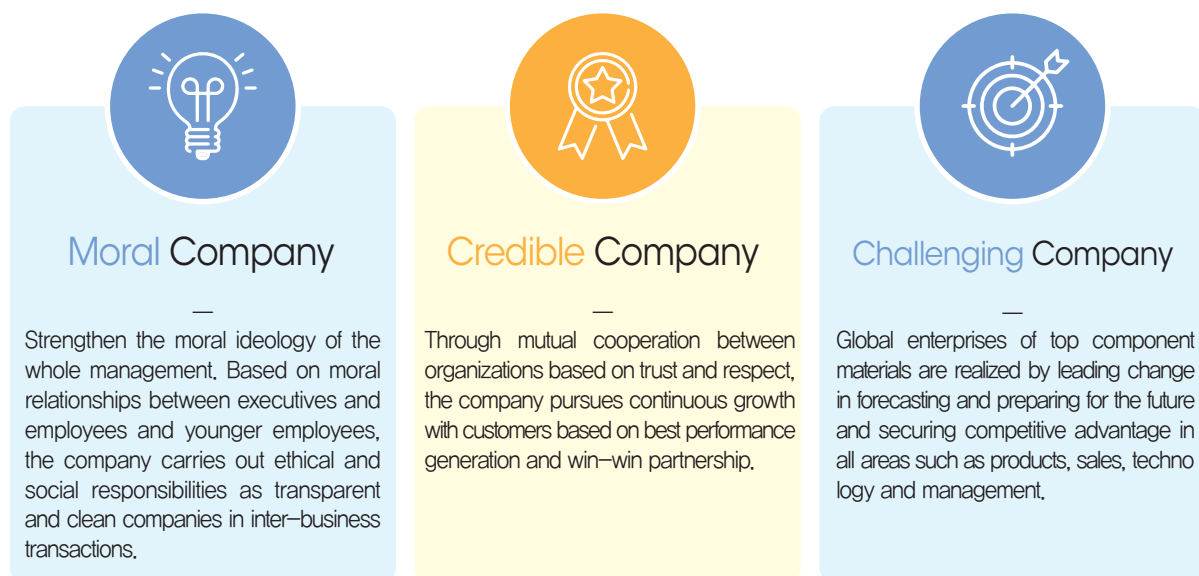
Based on state of the nanotechnology, SJ–Nanotech is a component material research and development company dedicated to passion, creativity, and other functional film markets ranging from film for display to conductive film for touch panels.



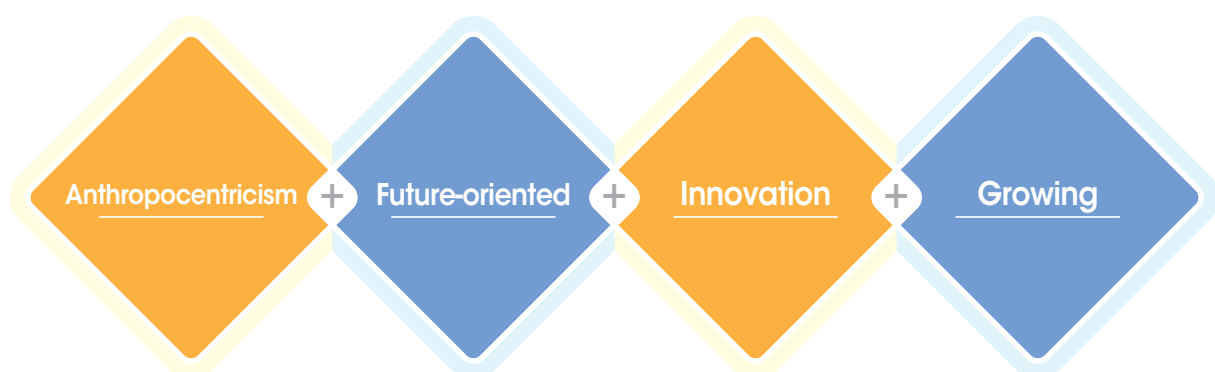
## 01 Management Ideology & Core Value

With innovative and creative technologies and products, SJ-Nanotech is preparing for the future with infinite enthusiasm to deliver more value and satisfaction to its customers. Based on the **Moral, Credible, Challenging management Ideology**, we will grow into a global company in the material field of Nano setting parts.

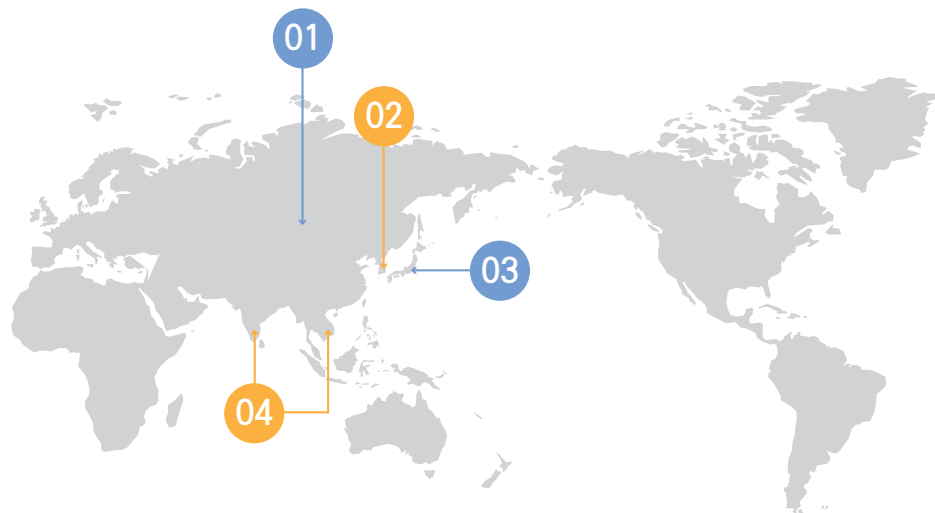
### Management Ideology



### Core Value



## 02 Key Customer Status (Global Market)



### China

– Barrier Film / ITO Film / Metal Film / Deco Film

### Korea

– Metal Film / Deco Film / Barrier Film

### Japan

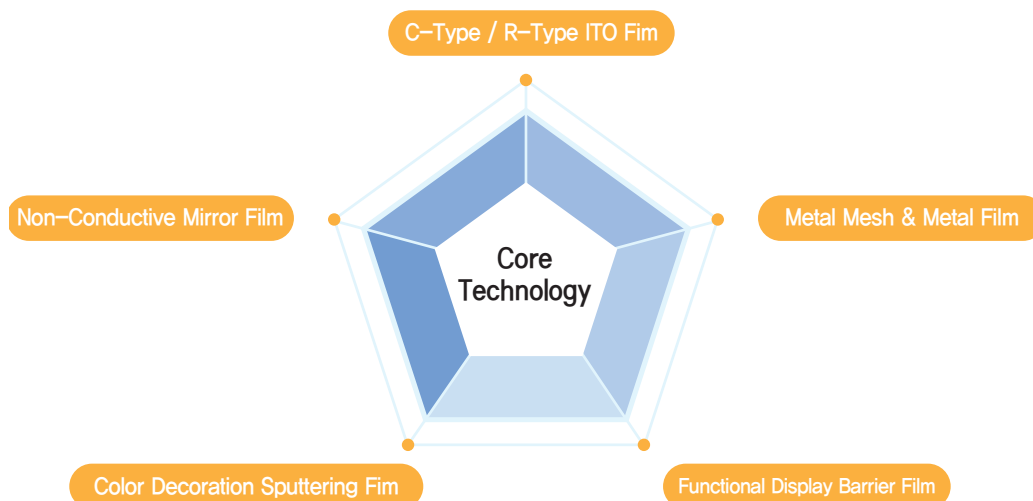
– Barrier Film / EMI Shield Film

### India & Vietnam

– Conductive Film / Deco Film

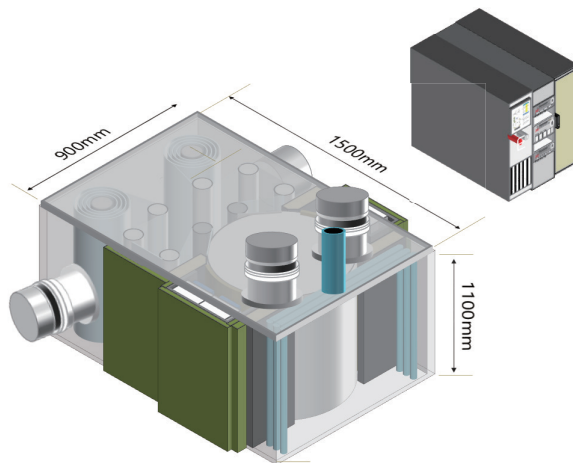
## 03 Business Area

In order to become a global component material company, the SJ-Nanotech Institute of Technology is pushing to secure core technologies and strengthen its R&D capabilities. Based on accumulated deposition technology, optical design technology, and various Nano coating technologies, we will apply core technologies such as OLED, which is the driving force for growth of the display industry, to become a global component material company.

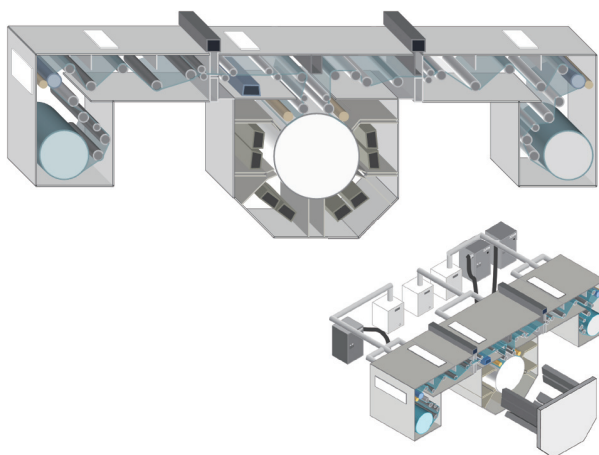


## 04

## Roll & Roll Sputter



**Effective width** 400mm less than  
**Film Thickness** 25 $\mu$ m or more  
**Roll Diameter** 500m  
**Pretreatment** Plasma Pretreatment  
**Cathode** 1(Single)ea + 1(Dual)ea  
**Sputter Power** DC 1ea + MF 1Set  
**Heating system** IR-Heater / Drum

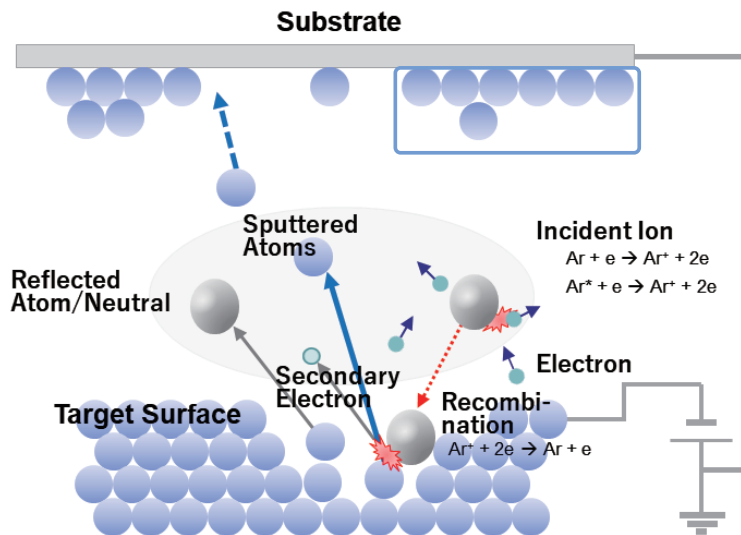


**Effective width** 1500mm less than  
**Film Thickness** 25 $\mu$ m or more  
**Roll Diameter** 3000m  
**Vacuum degree** < 5.0E-5Pa (Max)  
**Reaching pressure** < 5.0E-4Pa  
**Pretreatment** Plasma Pretreatment  
**Cathode** 6(Single)ea + 1(Dual)ea  
**Sputter Power** DC (6)ea + MF 1Set  
**Heating system** IR-Heater / Drum



## 05

## Sputtering Technology



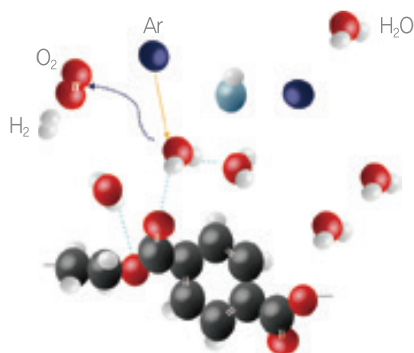
- High energy electron emission and collision/ionization with neutral gas
- Positive of near the target ionic acceleration by Bias/ Cathode sheath through Collision with Target/Movement with Target → **Total Bias(V<sub>p</sub>-V<sub>c</sub>) : 200 ~ 1000eV by I-V Characteristic**
- Target's out of grid, Move to substrate : 3~10eV
- In the event of a collision with a target of ions, Secondary electron emission / Self-discharge maintenance
- Collision with the surrounding gas of electrons, radical, negative ionic generation / along Anode sheath, accelerated entry impact
- Condensation/thin film formation on the surface of the target particles emitted

## 06

## Plasma Treatment

- Collision with substrates of high-energy ions and electrons
- Remove moisture and impurities adsorbed to the surface of the material
- Increase unsaturated bonds by cutting molecular bonds on the surface of materials
- Roughness changes due to surface etching: Anchor Effect

→ Increase of surface energy of materials  
 → To contribute to increased density of thin film



[PET(Polyethylene terephthalate)Surface Treatment]



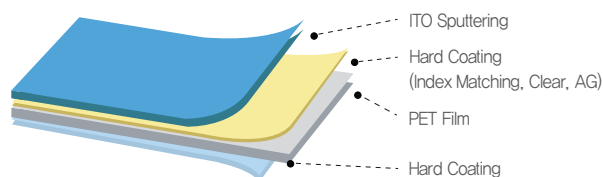
## 07

## Major Products Groups

## Conductive Film

## Transparency Electrode Film with capacitance, resistive overlay method

- Used for touch panel, application is differentiated according to physical and optical characteristics.

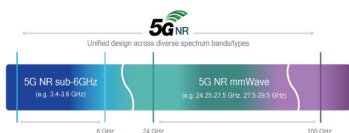
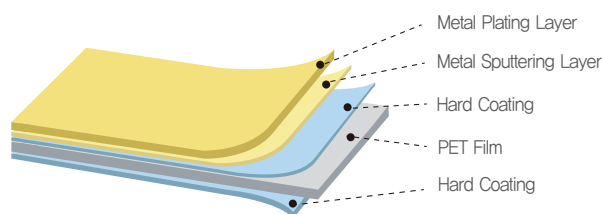


## ITO Film Product and Characteristics

Specification		CITO	RITO-C	RITO-AG
Optical Characteristics	Type	Capacitive Type (Capacitance)	Resistive Type	
	H/C Character	Index Matching	Clear/Clear	AG/AG
	Thickness(μm)	35, 50, 100, 125, 188μm		
	Haze	≤ 1.5%	≤ 1.5%	≒ 4~20%
	Penetration Ratio	≥ 88%	≥ 88%	≥ 86%
	b*	≤ 1.5	≤ 2.0	≤ 2.5
Physical Characteristics	Resistance (Rs) (After heat)	≤ 170Ω	≤ 400Ω	≤ 400Ω

## Metal Film

- Mobile Electrode wiring, Metal Mesh
- Excellent Etching Processing (Line/Space: below 15μm/15μm)
- Excellent adhesion (tightness)
- Quality stability/reliability (60°C × 90% RH × 120Hr)



Metal Film For 5G Antenna



For Chip on Film



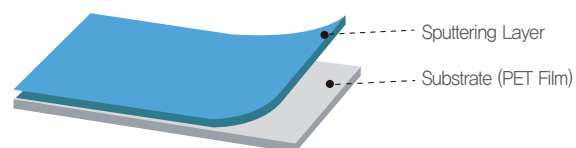
For Multi Layer FPCB



For Wide Touch Screen

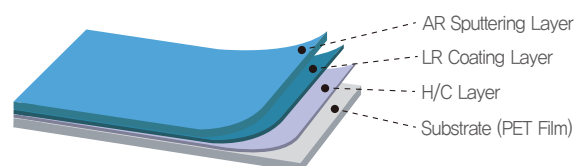
### Non-metal Low-reflective Mirror Film

- Exterior materials for touch-functioning products such as premium home appliances, smart windows, and touch kiosks
- Mixed functional applications for design, such as furniture, architecture, and vehicles



### High Anti-Reflective(AR) Film

- Used as a part for display, such as a portable phone, TV, etc.
- Window for vehicles and construction, for design of exterior materials



### Product specification for functional material film

Specification		Product Detail	Applied Field
Non-metal Mirror Film	Transmittance	$\geq 60\%$ more than	
	Reflectivity	$\leq 40\%$ less than	
	Haze	$\leq 2\%$ less than	
	Surface Resistance	$\geq 1\text{E}4\text{ohm}/\square \text{ mt}$	
High Anti-Reflective (AR) Film	Transmittance	$\geq 93\%$ more than	
	Reflectivity	$\leq 2\%$ less than	
	Haze	$\leq 1.5\%$ less than	
	Adhesion on Sputtering	$\geq \text{B}$	

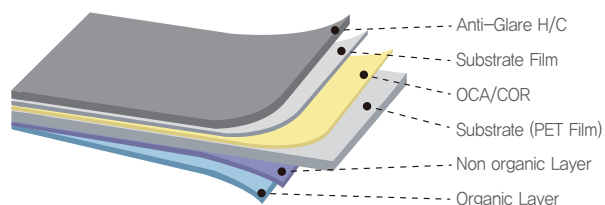
## 09

## Major Products Groups

## Barrier Film

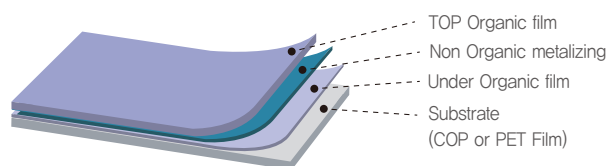
## Barrier film for Functional Display

- Barrier film for displays such as EPD and OLED, etc.
- Especially, ESL, EPD, and vehicle solvent display are utilized to facilitate application.



## Barrier film for the Display

- Barrier Film for moisture protection for displays such as QD, OLED, etc.
- Barrier film with standardized structure especially for QD-TV



## Product specification of barrier film

Specification		Product Specification	Applied Field
Barrier film for functional Display	WVTR	$\leq 9 \times 10^{-3} \text{ g/m}^2 \text{ day}$	
	Haze	$\leq 20\%$	
	Penetration Ratio	$\geq 88\%$	
	Adhesion	$\geq 5B$	
Barrier film for the Display	WVTR	$\leq 9 \times 10^{-2} \text{ g/m}^2 \text{ day}$	
	Haze	$\leq 2\%$	
	Penetration Ratio	$\geq 88\%$	
	Adhesion	$\geq 5B$	



GLOBAL LEADER OF SPUTTERING COATING FILM



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