 **YOUNGWON**
ST YOUNGWON CO.,LTD



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**STRETCHING WIDER,
FASTER AND BETTER**

Global Leader in Li-ion Battery Separator Production & Coating Equipment

[ST YOUNGWON's greetings]

'ST YOUNGWON' specializes in the design and manufacturing of production systems for Li-ion battery separators. While our primary focus is on supplying advanced production systems, we also offer comprehensive one-stop consulting services, encompassing everything from factory and production line design to equipment installation, initial production and training, to ensure optimal customer satisfaction.

'ST YOUNGWON' production systems deliver world-class equipment designed for wide and high-speed production, ensuring maximum efficiency and capacity. Additionally, our experienced R&D team develops cutting-edge innovations in design and engineering systems that surpass customer expectations. To reduce customer costs, we continuously research and develop eco-friendly equipment capable of producing high-performance Li-ion battery wet separators with increased length, width and speed.

'ST YOUNGWON' is committed to providing high-quality products and diverse solutions for the benefit of individuals, corporations and society.



STRETCHING WIDER,
FASTER AND BETTER

VISION

ST YOUNGWON always thinks from the customer's perspective. Creating value for customers is the most important value that a company should pursue.

The establishment of strategies based on the innovation of technology and thinking, as well as the creation of more creative and challenging values, is ST YOUNGWON's efforts to achieve the goals of our customers.

Additionally, through customer-centered integrated solutions, leading our customers' businesses to success is the direction in which ST YOUNGWON ultimately aims to advance.

History

- 2025**
 - 2025. 01 Received the Grand Prize (Startup Category) at the 2025 Daegu Industry Awards, hosted by the Daegu Chamber of Commerce and Industry
- 2024**
 - 2024. 01 Shipped 2 wet separator production lines
 - 2024. 05 Selected for the Ministry of SMEs and Startups "Global Small Giant 1000+ Project" [Gangso+]
 - 2024. 08 Certified as an Inno-biz
 - 2024. 12 Awarded Joint 4th Place in the Finals of the International SME Innovation Competition
- 2023**
 - 2023. 01 Contracted for 4 wet separator production lines
 - 2023. 04 Designated as Company specializing in materials, parts and machinery
 - 2023. 07 Established 2nd factory
 - 2023. 08 Commendation by the Mayor of Daegu
 - 2023. 09 Commendation of the Head of Small and Medium Enterprises and Startups
 - 2023. 12 Won the 'Export Tower Prize' for \$30M
- 2022**
 - 2022. 06 Established Research Center
Expanded and relocated headquarters and 1st factory
 - 2022. 08 Contracted to supply 2 wet separator production lines
 - 2022. 11 Commendation of the Head of Small and Medium Enterprises and Startups in Daegu-Gyeongbuk Region
 - 2022. 12 Shipped 2 wet separator production lines
- 2021**
 - 2021. 02 Incorporation of ST YOUNGWON
 - 2021. 03 Contracted to supply 2 wet separator production lines
 - 2021. 05 Certified as Venture Business

Award & Certifications



- (2022, 2023) Commendations from the Daegu-Gyeongbuk Regional Office of SMEs and Startups, Daegu Metropolitan City, and the Ministry of SMEs and Startups for notable achievements and contributions.
- (2023) 30 Million Dollar Export Tower for excellence in global export performance.
- (2024) ISO 27001 and ISO 45001 certifications, ensuring robust information security and occupational safety systems.
- (2024, 2025) INNOBIZ and Venture Business certifications, recognizing technological innovation and verified growth potential, among other distinctions.

Battery separator technology IP



- Registered patent for a longitudinal stretching device for manufacturing separators for secondary batteries
- Registered patent for a solvent extraction device used in the production of secondary battery separators
- Registered patent for a hot-air supply nozzle device and nozzle system for film stretching equipment
- Registered patent for an air circulation system for transverse stretching facilities, among others

Comprehensive Production Solutions

- Li-ion Battery Wet Separator Production Line
- Double-Sided Separator Coating Machine
- BOPP / BOPA Production Line
- Total solution

Stretch Wider and Accelerate Further

ST YOUNGWON is dedicated to creating customer value with the world's longest and most advanced intelligent production facilities, along with its differentiated equipment manufacturing technology.

Boasting world-class high-speed production systems and a variety of automated equipment for quality control, the company designs and supplies complete systems.

As a leading manufacturer of production equipment for Li-ion battery separator films, ST YOUNGWON is expanding its business scope to include the development of environmentally friendly production facilities and cutting-edge air pollution control systems, such as solvent recovery plants. This commitment reflects the company's efforts to strengthen ESG management practices.

"ST YOUNGWON, your trusted partner"

If you are interested in the production of Li-ion battery separator films, please don't hesitate to contact ST YOUNGWON.

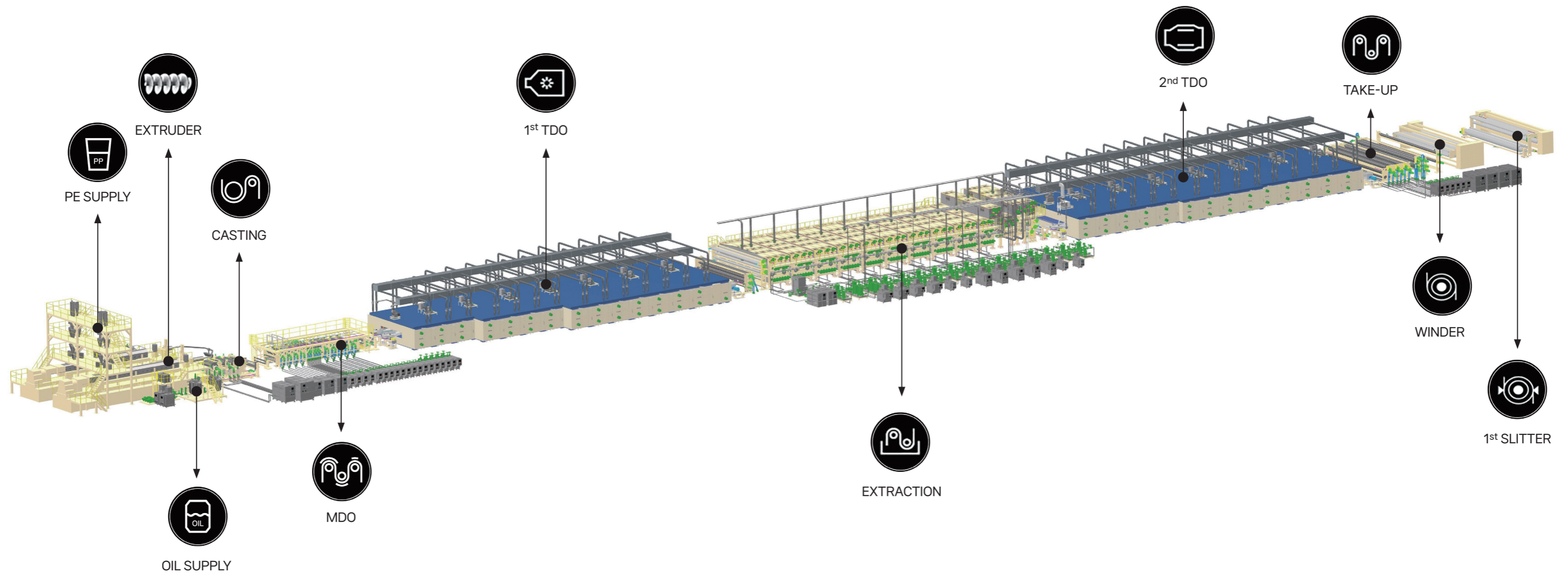
As a trusted partner, we provide comprehensive consulting for launching separator film businesses and quickly resolve the challenges you may face through customer-centered, integrated solutions designed to achieve your goals.



DURONIC 9300

Ultra-wide wet separator production line

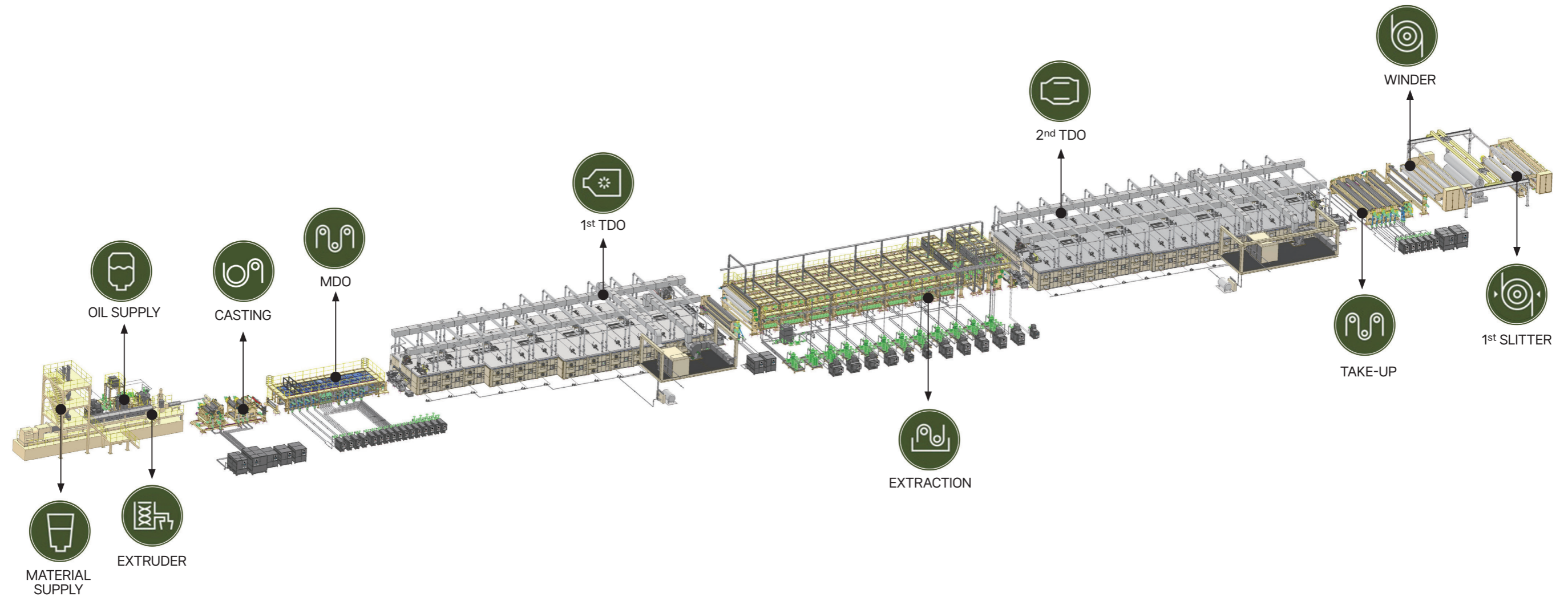
ST YOUNGWON's DURONIC 9300 model is an ultra-wide wet-process separator production equipment for Li-ion batteries, featuring an expanded width of 9300mm compared to the existing DURONIC 8300. It embodies ST YOUNGWON's cutting-edge, differentiated technology for large-area and high-efficiency mass production.



DURONIC 8300

World's first and largest! Ultra-wide 8m-class wet separator production line

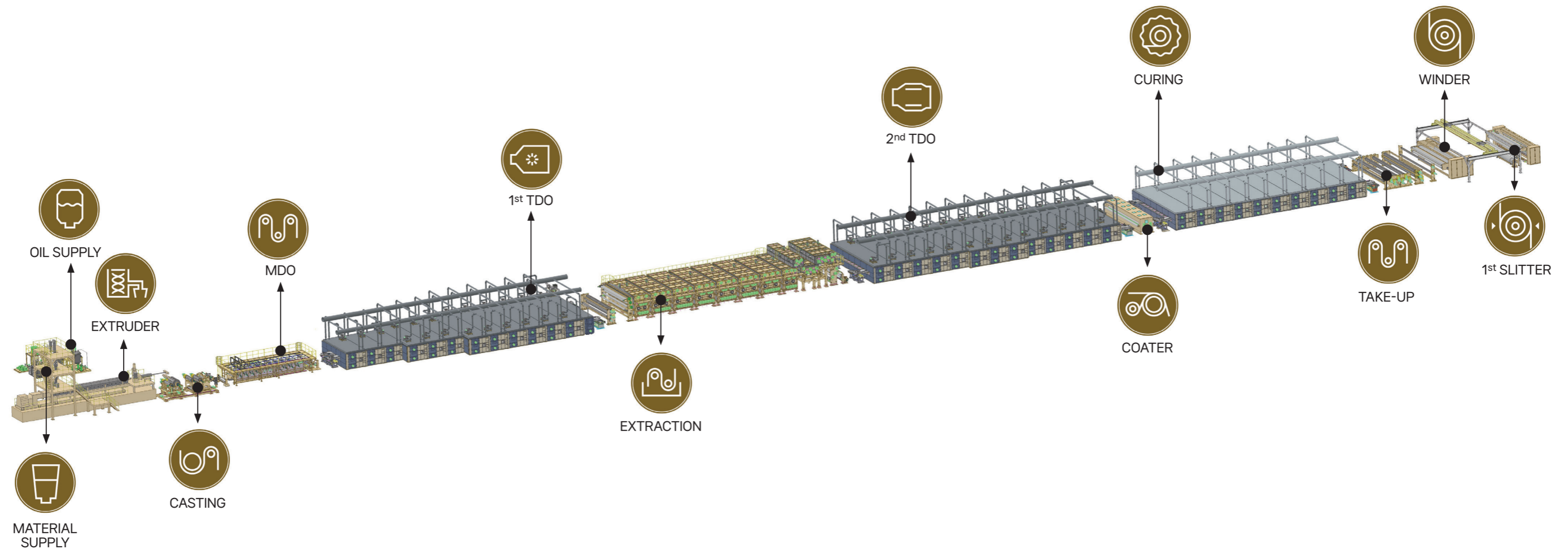
Ultra-wide width and higher speed production increases the separator area produced per hour by up to 60% while maintaining uniform thickness and micropore dispersion. Separators can be customized with thicknesses ranging from 5 μ m to 20 μ m.



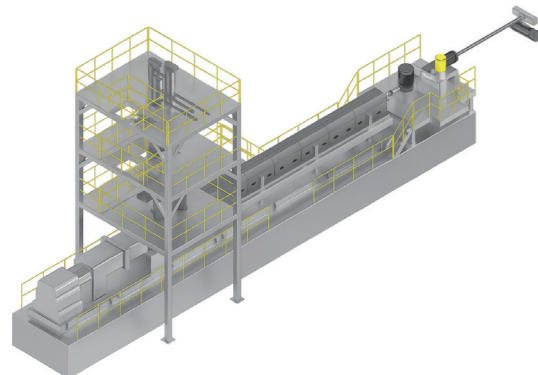
UFLOW 85

UFLOW 85 combines the excellent manufacturing performance of DURONIC 8300 with coating process in line, which ensures significantly enhancing production efficiency.

Significantly simplifies the process, saves space and time, reduces production costs, and minimizes quality variation compared to existing coating methods.



MATERIAL SUPPLY & EXTRUDING UNIT

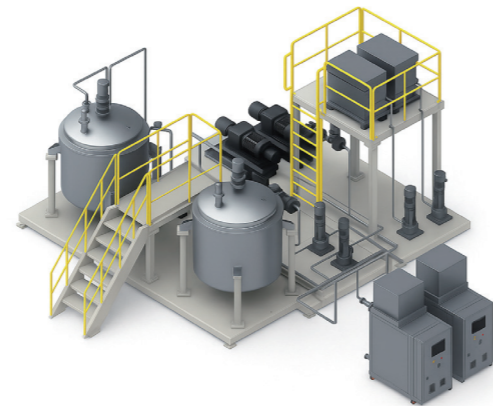


Material Supply Receiving materials and putting it in the correct amount set by the extruder

Extruder Mixing materials & oil and melting them by an internal screw

Dosing Capacity : Max 1,200 kg/h

OIL SUPPLY UNIT

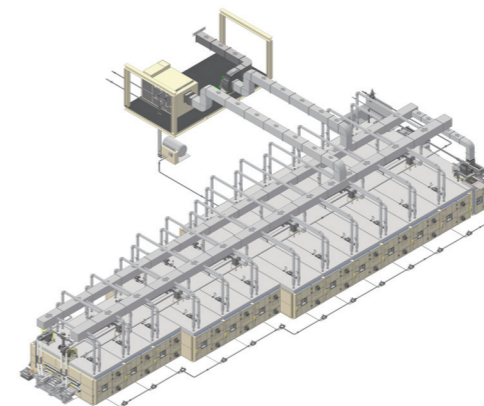


Putting oil into the extruder

Super Metering Pump :

Max 750kg/h
Max 330kg/h

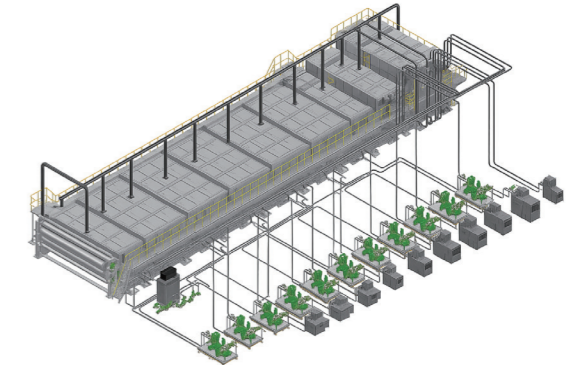
1st TDO UNIT



Elongation the sheet in the transverse direction

Speed : ~120m/min
Stretch Ratio : 1 : 4.5~15
Outlet Width : 4,500~9,000mm

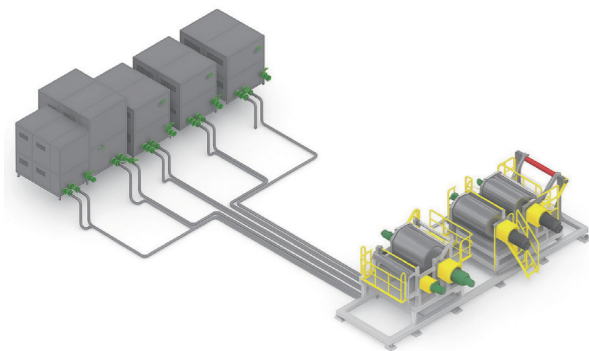
EXTRACTION UNIT



Creating micropores by dissolving and extracting paraffin oil within the film dipping through many MC tanks

Speed, Dipping Length : ~120m/min, About 150m
Roll Width, MC Tanks : 7,500mm, 8EA

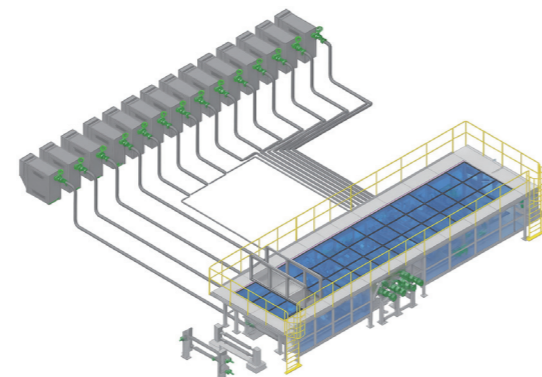
CASTING UNIT



Forming melted raw material into sheet form

Speed : ~25m/min
Roll Width : 1,500mm

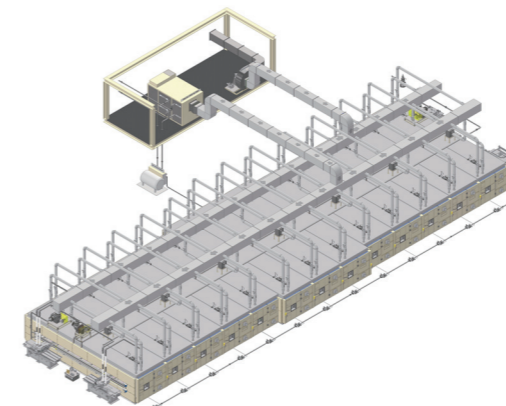
MDO UNIT



Stretching the sheet in the longitudinal direction

Speed : ~120m/min
Stretch Ratio : 1 : 1~15
Roll Width : 1,300mm

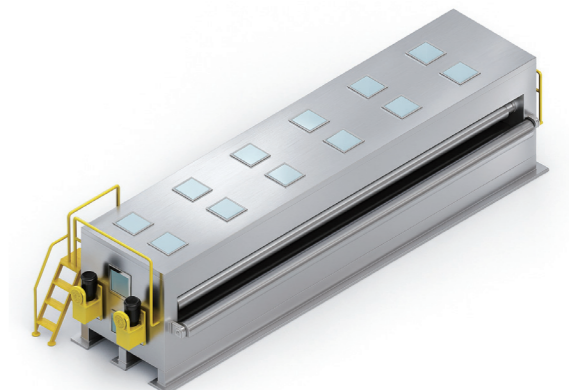
2nd TDO UNIT



Elongation the extracted film again in the transverse direction

Speed : ~120m/min
Stretch Ratio : 1 : 1.1~2.0
Outlet Width : 5,500~10,000mm

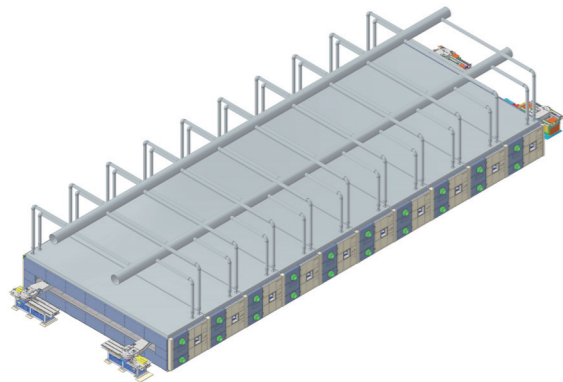
COATING UNIT



Double-sided coating process

※ Applicable only to UFLOW85

CURING UNIT

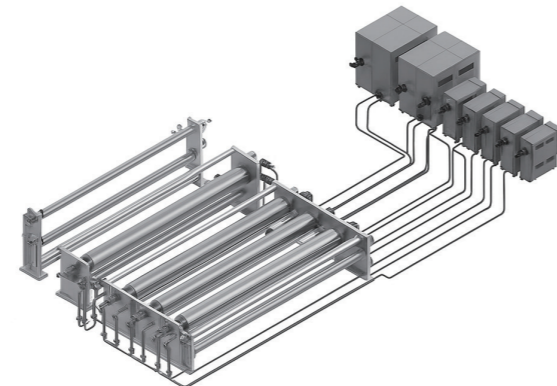


Drying process

Speed : ~120m/min(max)

※ Applicable only to UFLOW85

TAKE-UP UNIT



Heat treating the film to fix its shape

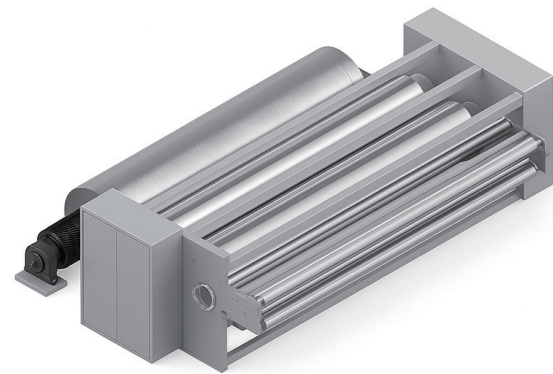
Double Jacket Type
Speed : ~120m/min(max)
Roll Width : 8,300mm

COATRIUM

Double-sided Coating Line for Separator

- Facility external size : About 33,000 x 5,850 x 6,600mm
- Roll width : 1,400mm
- Coating speed : Max. 100 ~ 200m/min
- Mechanical speed : Max. 250m/min
- Coating substrate thickness : 3 ~ 16 μ m
- Application method : Micro concave roll coating/ rotary injection available
- Film width : 1,000 ~ 1,500mm
- Function : Separator cross-sectional application completed
- Temperature : 10 ~ 35°C
- Relative humidity : RH25 ~ 65%
- Clean rating : 10,000
- Ground support : 3T/m²

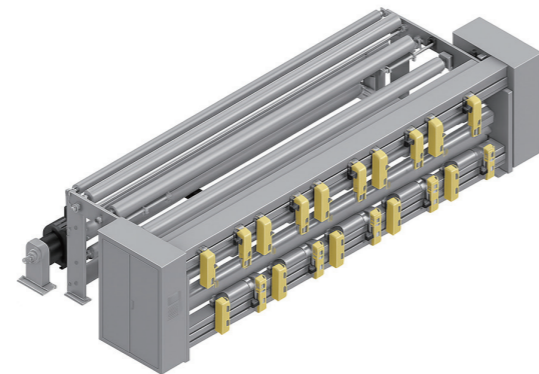
WINDING UNIT



Precisely winding separator film with constant tension

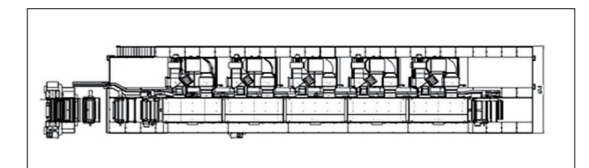
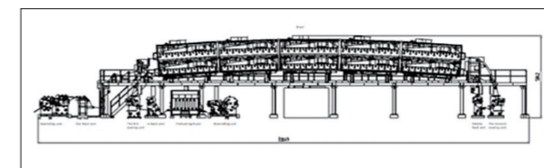
Speed : ~120m/min
Roll Width : 8,300mm

1st SLITTING UNIT



Cutting and processing separator film into the size and shape suitable for battery cell

Speed : 250m/min
Roll Width : 8,300mm



BIAXMASTER

SEPRALAB 100

BOPP LINE General Assembly

- Advanced high-speed production facilities with two-axis stretching and automatic quality measurement systems
- Environmentally safe technologies including alternative solvents to replace hazardous substances
- Self-quality verification system utilizing cutting-edge measurement equipment
- Offering low-cost, energy-efficient, high-capacity production with the shortest delivery times
- Customizable thickness and sizes tailored to customer requirements, optimizing conditions and providing sample production services
- Provision of a BOPP film key properties table featuring high-crystalline PP resin, ensuring excellent appearance, heat shrinkage stability and processing reliability

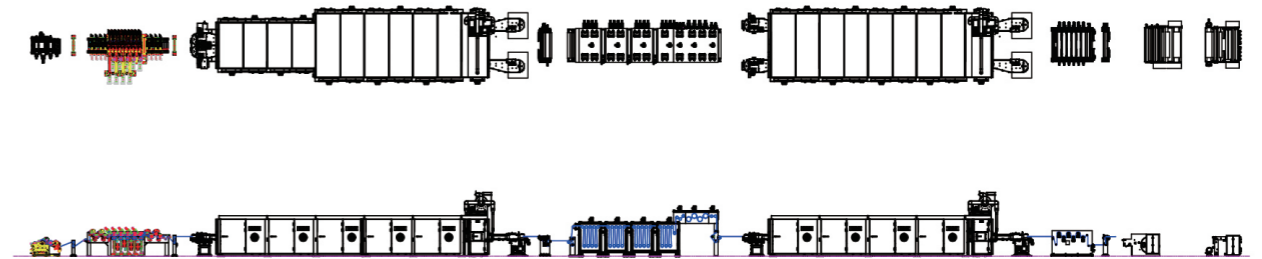
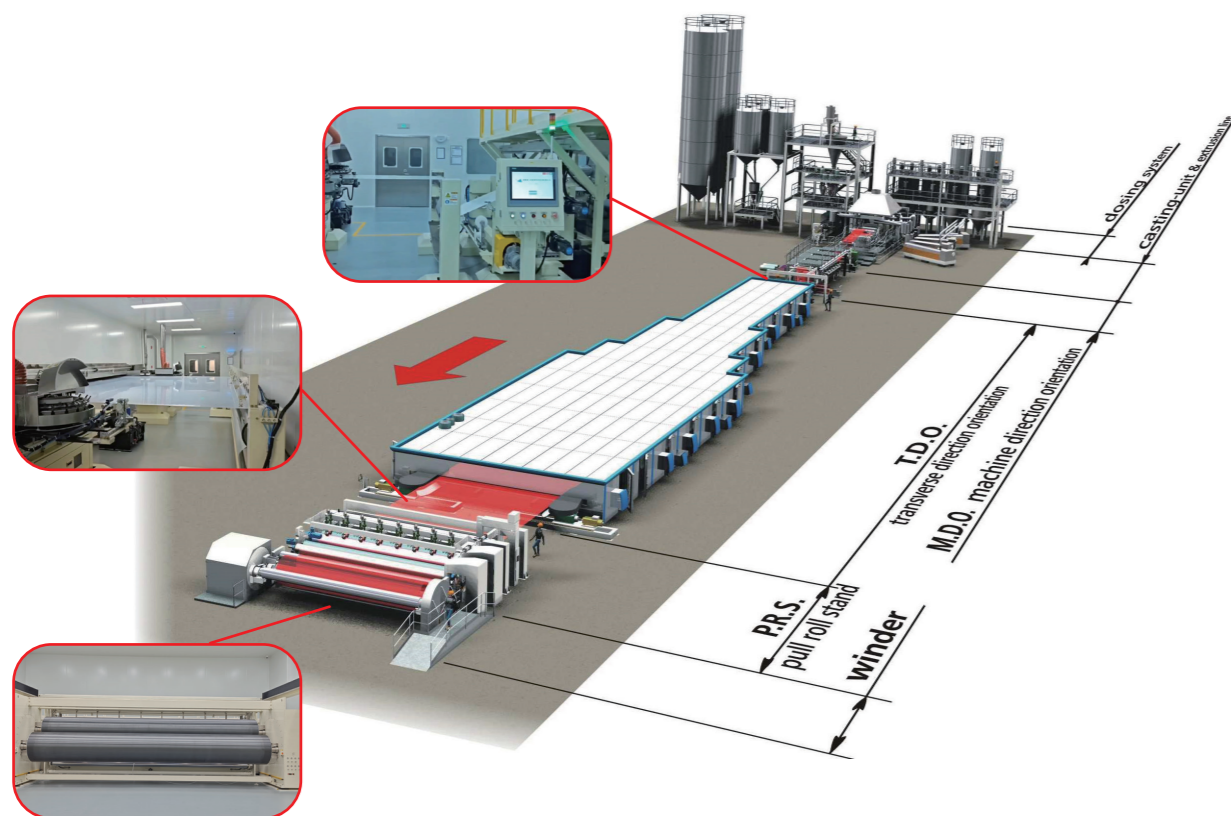
Pilot Separator Production Line with World's First 4.8m-Class

SEPRALAB 100 is developed as an ultra-precision pilot line for research and testing. With a compact 75m × 4.8m layout, it integrates Casting, MDO, TDO, Winder and Slitter into a single seamless process.

- Max speed : 30m/min | Film thickness : 5-20 μ m
- Real mass-production simulation for precise R&D results
- Global R&D platform for next-generation separator materials and process optimization
- Sets a new benchmark for laboratory and pilot-scale separator production equipment

General Specification / Performance Highlights

- Line speed : Max. 30 m/min (working speed 15m/min)
- Film thickness : 5 ~ 20 μ m
- CASTING Unit : ϕ 520 Casting Roll
- MDO Unit : 4 Preheating, 10 Stretching, 4 Cooling
- 1st TDO Unit : 11 Zone, Outlet 800 ~ 1,800mm
- COOLING Unit : ϕ 250 × 1,600mm
- EXTRACTOR Unit : 4 Tank Zone / Roll ϕ 150 × 1,600mm (Heating Roll ϕ 300)
- 2nd TDO Unit : 8 Zone, Outlet 1,000 ~ 1,800mm
- TAKE-UP Unit : 4 Heating, 2 Cooling (ϕ 250 × 1600mm)
- WINDER Unit : Max ϕ 300, 40 ~ 400N
- 1st SLITTER Unit : Max ϕ 300, 12 ~ 150N



CONSULTING

The 'Customized Solutions' provided by ST YOUNGWON support our accumulated practical know-how and expertise based on one-stop consulting, from factory concept to mass production stabilization.



One-stop Consulting

According to your specific needs, providing a comprehensive solution from 'Factory Planning → Design → Construction → Project Management → Production Line Operation Training → Initial Mass Production'.

SOLUTIONS



Process control technical support



Facility upgrade support



Operations management system development



Quality control technical support



Solutions to meet client needs

Built-to-suit Solutions

Comprehensive solutions provided by senior separator experts with over 15 years of experience in project management 'Process Management Optimization Support → Facility Upgrade Support → Operations Management System Setup → Quality Management Support → Solutions to Satisfy Client Needs'



High-performance equipment can never be the only answer

'The separator business does not succeed simply by having high-performance equipment.'

The path to business success opens when high-performance equipment, quality control, equipment operation know-how, continuous equipment upgrades, systematic process management and innovative efforts to reduce costs are combined all of which are assured by ST YOUNGWON.

Integrated solution assurance for 'Customer Satisfaction' and powerful benefits for strengthened partnerships

Benefits of One-Stop Consulting and Customized Solutions

By operating a formation system that oversees the entire plant process from the concept of the workplace to initial mass production, it is possible to solve unexpected problems in the business start process, progress, and mass production process at the same time. And technical staffs with production expertise and technology cooperate as a team to build stable production facilities.

Proven experience and equipment operation know-how of production specialist technology team

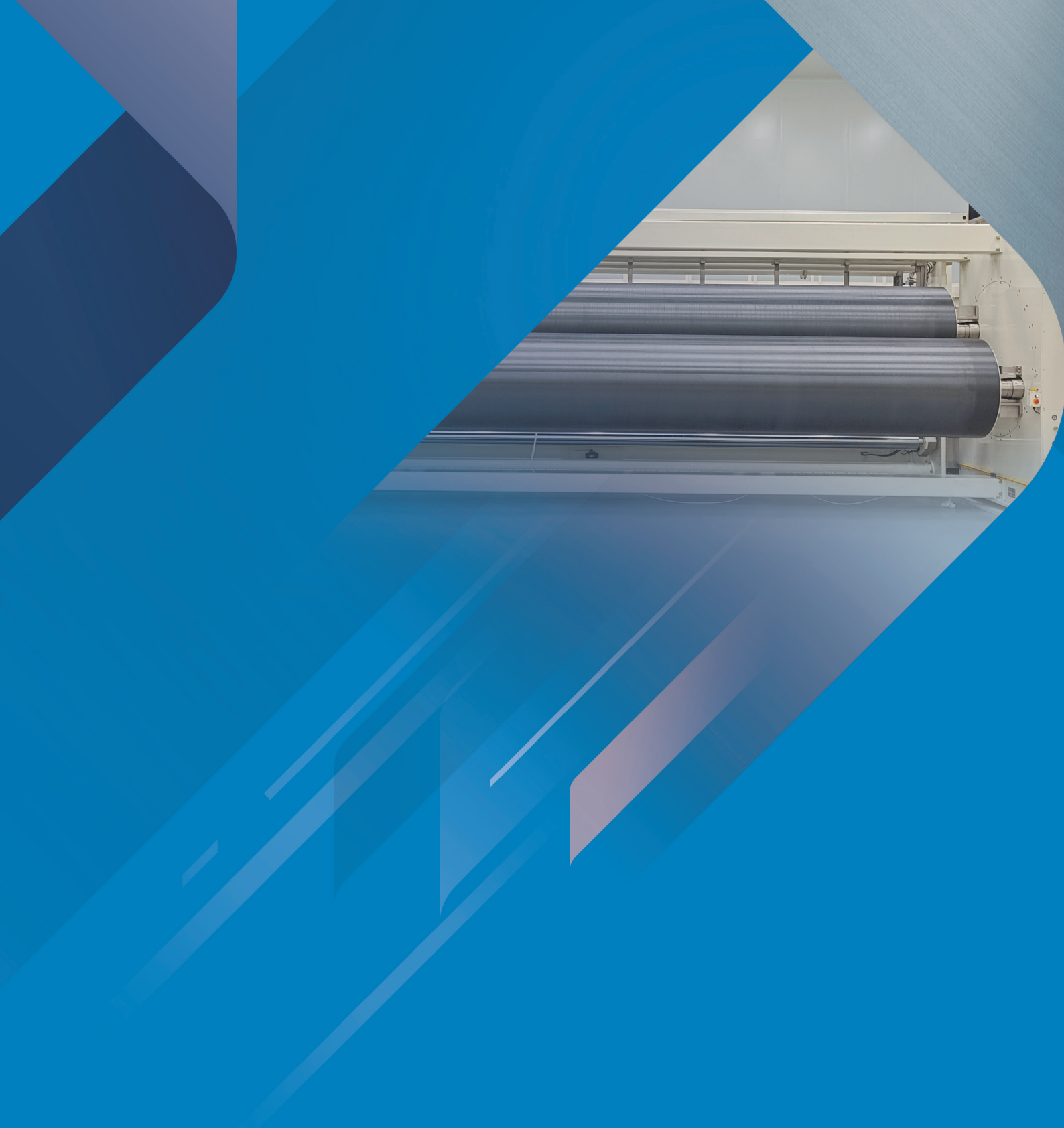
We have an overseas production technology team with more than 15 years of production experience and equipment operation know-how in separator production companies and a 10-year domestic design technology team specializing in facility production, with overwhelming technical ability to quickly solve all issues arising from each formation.

Promise with Customer - 'Custom Solution' Assurance

We provide equipment design and optimized solutions tailored to specific requirements that meet customer needs. In addition, even after the project ends, we ensure stable production management and operation by having expert technicians stay on site for six months. We promise to provide comprehensive technical support including process management, production management and quality management.

Long-term partnership

We work with our customers to provide rapid and continuous feedback and support even after the project is completed, so that they can operate and expand their business stably in the global market.



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