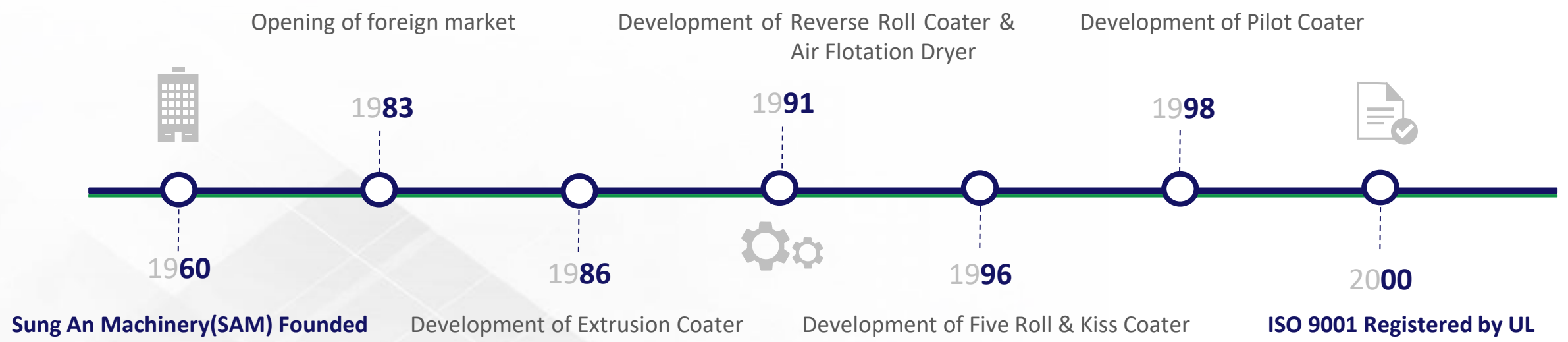


SAM – the manufacturer of converting and web fed printing machinery



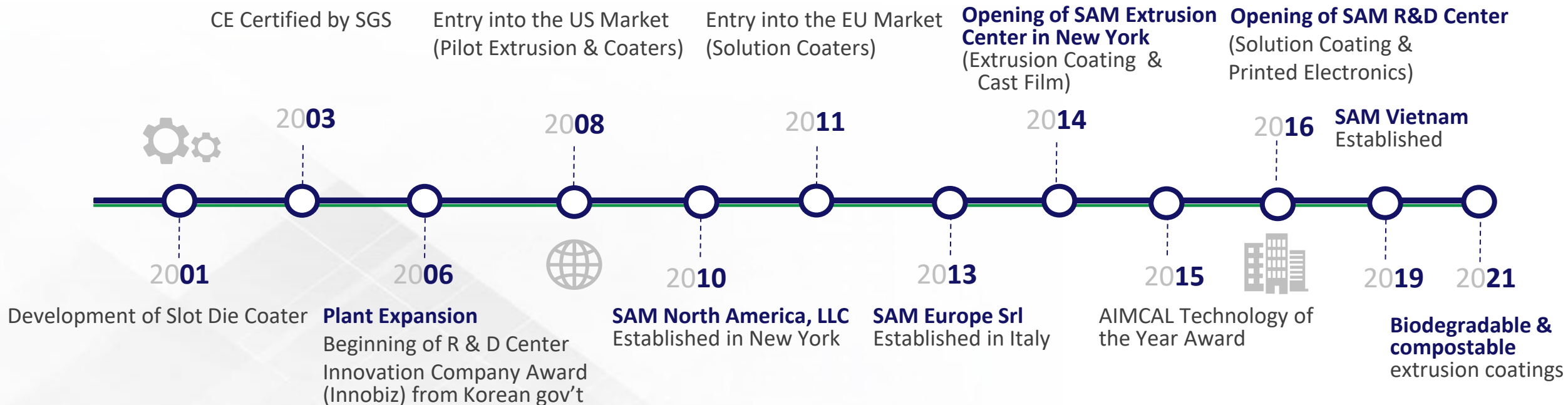
Milestones | 1

Since SAM founding in 1960,



Milestones | 2

... SAM has played an integral role in the development of converting machine production and technology.



SAM today is international and working for you 24/7



4 Facilities

- SAM Korea
- SAM Europe (Italy)
- SAM North America (N.Y.)
- SAM Vietnam

2 Regional Offices

- China (Shanghai)
- Malaysia (Kuala Lumpur)

3 SAM Technology Centers

- Solution Coating (Korea)
- Extrusion Coating (North America)
- Printed Electronics / Battery + Fuel Cells (Korea)



670 Sales References in 35 Countries

SAM today is benefiting from **South Korea's** development



Favorable tax and regulatory system



Industry leading companies / Samsung, Hyundai, Kia, and others/



Booming economy and exports growth



Fast development of electronics and heavy industries



Qualified and skilled personnel /due to strong governmental educational program/

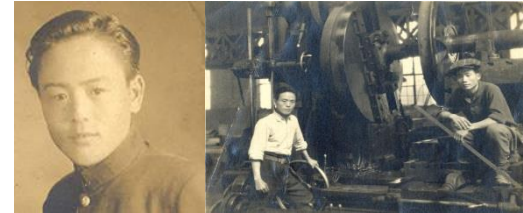


SAM - a family-owned company



Since 1960, the Shin family has continually improved SAM's manufacturing quality, encouraged innovation, maintained on time delivery and excellent after sales service.

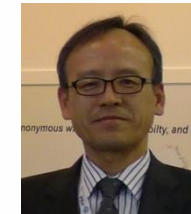
'We believe that our customers success is our success - that is why **we are personally involved in every project**'



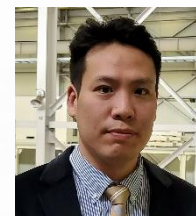
Myeong Chul Shin
The Founder



DH Shin
CHAIRMAN



DS Shin
PRESIDENT



Joon Shin
CEO

SAM. Our values & standards



Knowledge & Expertise

3 IN-HOUSE TECHNOLOGY CENTERS Solution Coating, SAM Korea

Extrusion Coating & Lamination, Casting, SAM North America

Printed Electronics, Battery and Fuel Cells, SAM Korea

MECHANICAL AND ELECTRICAL ENGINEERING SAM Europe and SAM Korea

PROJECT MANAGEMENT Senior Engineers & Project Managers, SAM Europe and SAM Korea

Weekly status reports in MS Project or MS Excel

Planning and controlling of complete projects and orders

Values & standards



Reliability

SAFETY FIRST SAM Leadership is committed to safety

REGULATIONS CE, UL, or local regulations

FULLY OPEN CONTROL SYSTEM ARCHITECTURE No “Black boxes”

ALL SUB SUPPLIED PARTS AND COMPONENTS ARE GLOBALLY AVAILABLE Motors, Drives, PLCs, Web Guides, Corona Treaters, Dies, Gauges, Register Controls, Bearings, Air Cylinders, Control Components, etc.
Spare part numbers are provided

TRIALS ON PILOT LINES FOR SOLUTION AND EXTRUSION COATING

Values & standards



Customer friendliness & convenience

CUSTOMIZED DESIGN One of the industries largest engineering groups to meet specific customer requirements

24/7 SERVICE KOREA, NORTH AMERICA, EUROPE, CHINA, MALAYSIA

ONE POINT CONNECTION AT BUYER'S SITE

- Electric power, gas, water, compressed air
- Shipped with interconnecting cables, conduits, wire ways

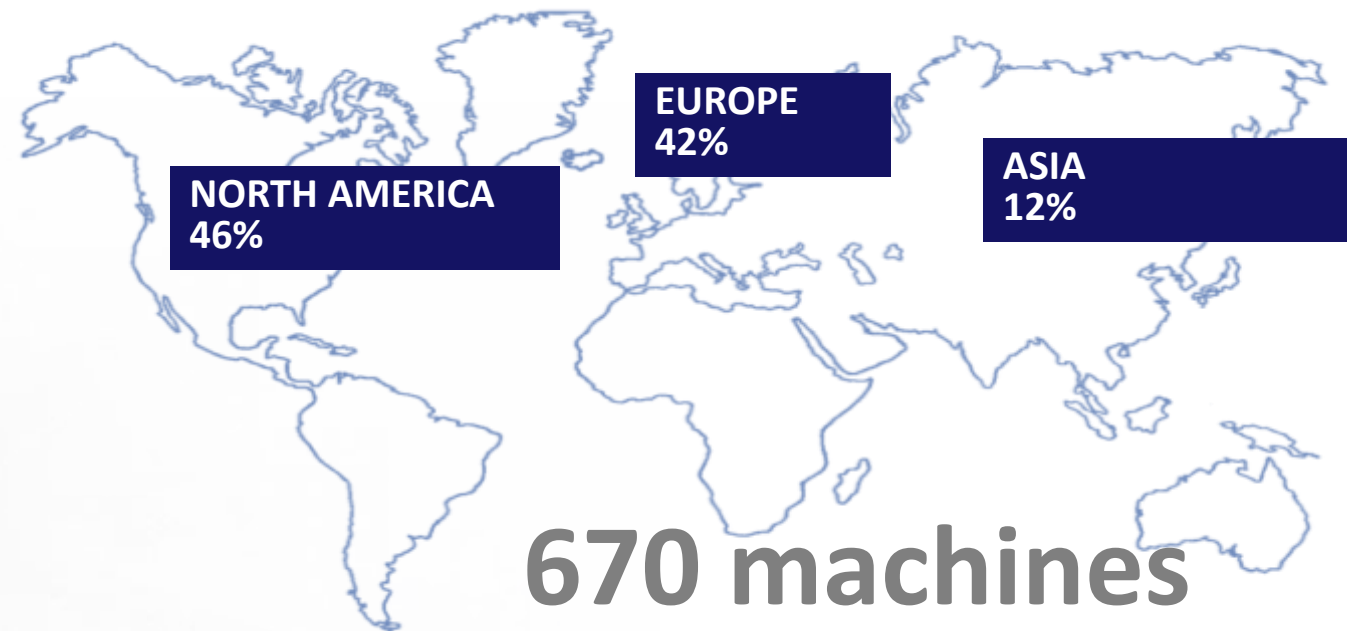
ALL DRAWINGS /PROGRAMS / MANUALS/ DOCUMENTS Manuals are in English and specific local languages

FACTORY ACCEPTANCE TEST (FAT) **Machines run prior to shipment**, mechanically & electrically

Our business

Since **1960** until today we have supplied a total of **670** machines in the following segments:

1. **Solution Coating & Lamination**
2. **Extrusion Coating & Lamination**
3. **Gravure Printing Press**



* references since 2017

SAM Korea



Location: 50 km (30 miles) from Seoul in Mado Industrial Park
Facility size: 13,500 m² (129,000 sq ft)
Property size: 20,000 m² (215,000 sq ft)



SAM Korea



- 2 CNC **vertical five face milling** machines
- 1 CNC **horizontal universal milling** machine
- 1 **vertical milling** machine
- 2 CNC **lathe** machines
- 4 **general lathe** machines
- 1 CNC **dynamic roll balancing** machine
- 1 **shearing** machine
- 1 **banding** machine



Assembly Floor: 100 m x 20m x 12m + 70m x 20m x 12m (LxWxH)



- Control System Integration
- Motor Drive Systems and H.M.I.
- Siemens, Allen Bradley and others
- Complete in-house cabling and assembly of switch cabinets and control panels
- In-house software programming



SAM Personnel



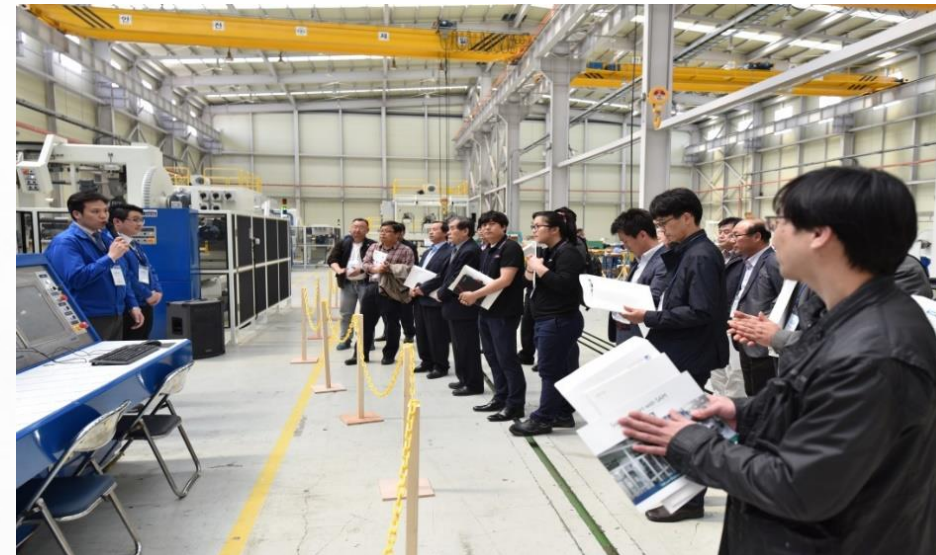
160 employees

| Korea, Europe, North America, Asia |



45 design engineers

| Mechanical, electrical |



SAM North America

Phoenix, New York, USA



MANAGING DIRECTOR
Andy Christie

40 years of machine design, process engineering, project management. Four patents



VP SALES EXTRUSION SYSTEMS
Ed Lincoln

34 years of application engineering, process, sales and management



VP SALES SOLUTION COATING
Don Teich

41 years of mechanical design, project management, and sales



CONTROLS & DRIVES SYSTEM INTEGRATOR
Tarek Adly

48 years of controls and drives engineering and management



LAB DIRECTOR
Mike Prue

24 years of experience in extrusion systems operation, maintenance and processing

SAM Europe

Casale Monferrato, Italy



MANAGING DIRECTOR Massimo Bernardelli

25 years of mechanical design, engineering management, project management, purchasing management, customer support and sales support



DIRECTOR SALES & MARKETING Frank Schäfer

23 years of global sales and marketing experience in various management functions of customized machines for the coating and converting industry



ENGINEERING DIRECTOR Davide Guarcello

24 years of mechanical design, engineering management, project management, and sales support



ENGINEERING SYSTEMS PROCUREMENT & GLOBAL MARKETING Erika Marson

15 years of engineering, purchasing, service support, management and marketing



PROJECT ENGINEER Fabrizio Campagnola

23 years of mechanical design and project management



COMISSIONING & SERVICE ENGINEER Fabio Franzoso

28 years of converting line commissioning and service management



DRIVE & CONTROL CHIEF ENGINEER Aurelio Massa

28 years of driving and control engineering for printing, coating and converting industry

SAM Asia

SAM Vietnam

Bac Ninh, Vietnam



MANAGING DIRECTOR

Jae Jun Shin

21 years of mechanical engineering and design,
18 years of management for converting
machinery business

SAM Malaysia

Selangor, Malaysia



SALES MANAGING DIRECTOR

Paul Strawford

41 years of English, German and American
machinery installation, commissioning, process,
QC, plant management, service support and
sales

SAM China

Shanghai, China



SALES MANAGER

Tommy Wang

11 years of sales, marketing, project
management, customer support for coating,
extrusion and converting industry

SAM. Converting Machinery

Our Portfolio

Converting Machinery

- Extrusion Coating & Laminator
- Solution Coating & Laminator
- Gravure Printing Press

Process & Solution Support

- Flexible Packaging Process
- Extrusion Coating & Casting Process
- Solution Coating Process

Performance

- Line speeds up to 1,000 m/min (3,280fpm)
- Max. web widths up to 3.5 meters (138")

Service & Retrofits

- Annual and preventive maintenance contracts
- Service contracts
- Qualified Machine Audits, e.g. to increase machine performance
- Machine retrofits, extensions and supply of single components
- Drive & Control upgrade and Software Programming

1/ Solution Coating Machines



Packaging/Technical Products/Paper Coatings

- Flexible Packaging
- Release Coaters (Silicone)
- Adhesive Coatings (Single/Double Side)
- Paper coatings (e.g. barrier)
- Tapes
- Functional Coatings
- Hot Melt Coatings
- Decorative sheets
- Holograms



Pharmaceutics

- Press through packages (PTP)
- High Barrier (PVDC) Films
- Water Purification Membranes
- Aluminum Fin Coaters (Air Conditioner)



Renewable Energies/Electronics

- Li-Ion Batteries and Supercapacitors (Electrodes, Membranes, Cell Pouches)
- Hydrogen Fuel Cells
- OPV (Solar Cells)
- RFID (Antenna Chips)
- Multi Layer Condensers
- Membranes



Optical Materials

- Display Film
- Window Film
- Prism / Diffusion Films
- Polarizing Films

Line Configurations

- Silicone Coating Line
- Paper and Aluminium Foil Coating Lines
- Lacquer & Extrusion Lamination Line
- Tandem Silicone and Adhesive Coating Line
- Multi Purpose Coating and Laminating Line
- Pilot Coaters



Multi Purpose Coating and Lamination Line

Aluminium Foil
Primer and Lacquer Coating and Lamination



WEB WIDTH: max 1,400 mm

SPEED: max 450 m/min

Tandem Silicone & Adhesive Line



WEB WIDTH: max 1,650 mm

SPEED: max 500 m/min

Silicone Coating Line



WEB WIDTH: max 1,600 mm

SPEED: max 400 m/min

Aluminium Foil Coating Line



WEB WIDTH: max 1,200 mm

SPEED: max 250 m/min

Lacquer & Extrusion Lamination Line

Aluminium Foil



WEB WIDTH: max 1,350 mm

SPEED: max 250 m/min

PVDC Coating Line



WEB WIDTH: max 1,650 mm

SPEED: max 250 m/min

Hot Melt Coating Line



WEB WIDTH: max 1,400 mm

SPEED: max 450 m/min

Multi-Purpose Pilot Coating Line



WEB WIDTH: max 350 mm

SPEED: max 50 m/min

2/ Extrusion Coating Machines

Product Ranges

- Bio Polymer Applications
- Flexible Packages: Plastic Films / Paper / Aluminium foil
- Board Papers: Aseptic packages
- Cup Stocks
- Milk Cartons
- Woven / Non-woven materials

Extrusion Systems:

Bio-Polymers

PE, PP, Acid Copolymers, PET, PLA, PVA,

- Mono / Co / Triple extrusion

Line Configurations

- Single Extrusion Coating & Lamination
- Tandem Extrusion Coating & Lamination
- Triple Extrusion Coating & Lamination
- Split Type Tandem Extrusion Coating & Lamination



PLA Coated paperboard
Photograph credit: NatureWorks



SAM Lab 2 for Resin Trials

The SAM Lab 2 line is used by globally respected resin manufactures such as Dow DuPont, ExxonMobil, Lotte Chemical etc.

Liquid primer manufactures such as Mica Corporation also use and support SAM lab trials

Currently Bio Degradable Eco friendly products are in demand

SAM has ran Bio Resin Development Trials with the following companies:

- PLA – NatureWorks, Danimer, BASF USA
- Bio PBS – PTT/ Mitsui
- PHA/PHB – Metabolix (now Cheil Jedang (CJ))
- Aonilex (Bio-based polyester) – Kaneka
- Starch based – Plantic
- Starch – Biome (coating cellulose film)
- Biobased LDPE – Braskem
- Biobased HDPE – Braskem
- PVOH – Aquapak (UK)



Single Co-Extrusion Coating Line



WEB WIDTH: from 800mm to 2,200mm

SPEED: up to 600m/min

Tandem Co-Extrusion Coating Line



WEB WIDTH: from 800mm to 2,200mm

SPEED: up to 600m/min

Split Tandem Co-Extrusion Coating Line



WEB WIDTH: from 800mm to 2,200mm

SPEED: up to 600mpm

Tandem Co-Extrusion Coating Line



WEB WIDTH: from 700mm to 1,650mm

SPEED: up to 600m/min

Triple Co-Extrusion Coating Line



WEB WIDTH: from 800mm to 2,200mm

SPEED: up to 600m/min

High Performance Extruders



Be Smart with SAM

- Increase output
- Superior melt quality
- Lower operational costs
- Reduced electrical consumption

100% In House Design

XYZ Motorized Carriage movement

Motorized Back Pressure Valve

Meets all Global Safety Standards



Tip

- Your end products come from the extruder
- No melt properties can be changed after the melt leaves the screw
- The die cannot change melt properties, it can only flatten the melt to the desired thickness
- The unwinder delivers the substrate as it is
- The rewinder winds without changing properties

The extruder generated melt temperature is critical to the quality of the product



3/ Printing Machines

Product Ranges

- Flexible Package Printing
- Decoration/Wood grain Printing
- Aluminium foil Printing
- Board Paper Printing

In-line Lacquer Coatings

- Over Lacquer
- Cold / Heat Seal lacquer
- Anti Fog / Catalytic lacquer

In-line Lacquer Lamination

- Solvent Base Adhesive Lamination
- Solventless Adhesive Lamination

Line Configurations

- Straight
- Double Side
- Split Configuration



Gravure Printing Line

12 Colors / Split Type



WEB WIDTH: max 1,300 mm

SPEED: max 450 m/min

Gravure Printing Line

9 Colors



WEB WIDTH: max 1,300 mm

SPEED: max 350 m/min

Gravure Printing Line

8 Colors



WEB WIDTH: max 1,300 mm

SPEED: max 350 m/min

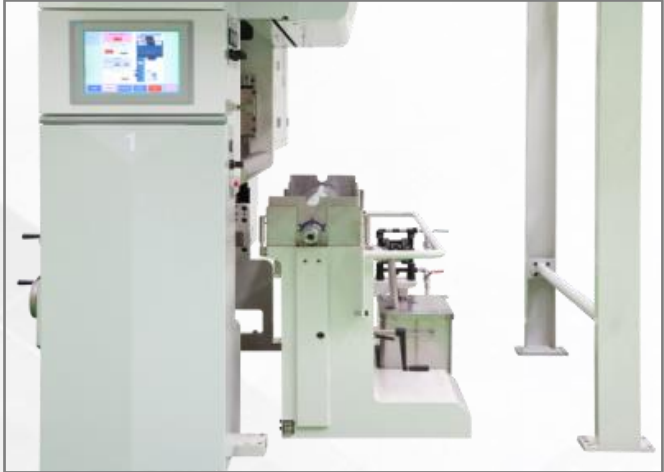
Printing Unit



Gravure Printing



Trolley Design

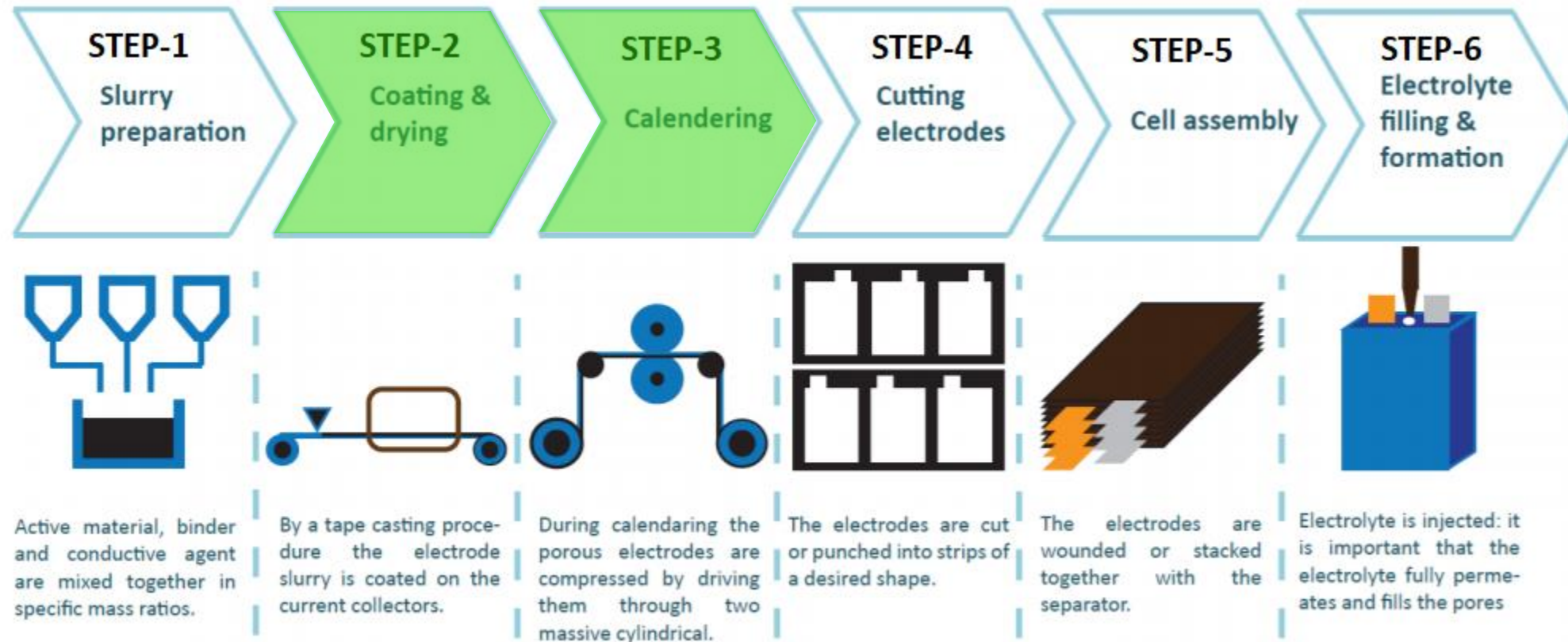


Flexo Printing

Li-Ion Battery Cell & Fuel Cell Line



Li-Ion Battery Cell: Electrode process



SAM. Technology Centers

Technology Centers

Purposes and benefits of the Technology Centers

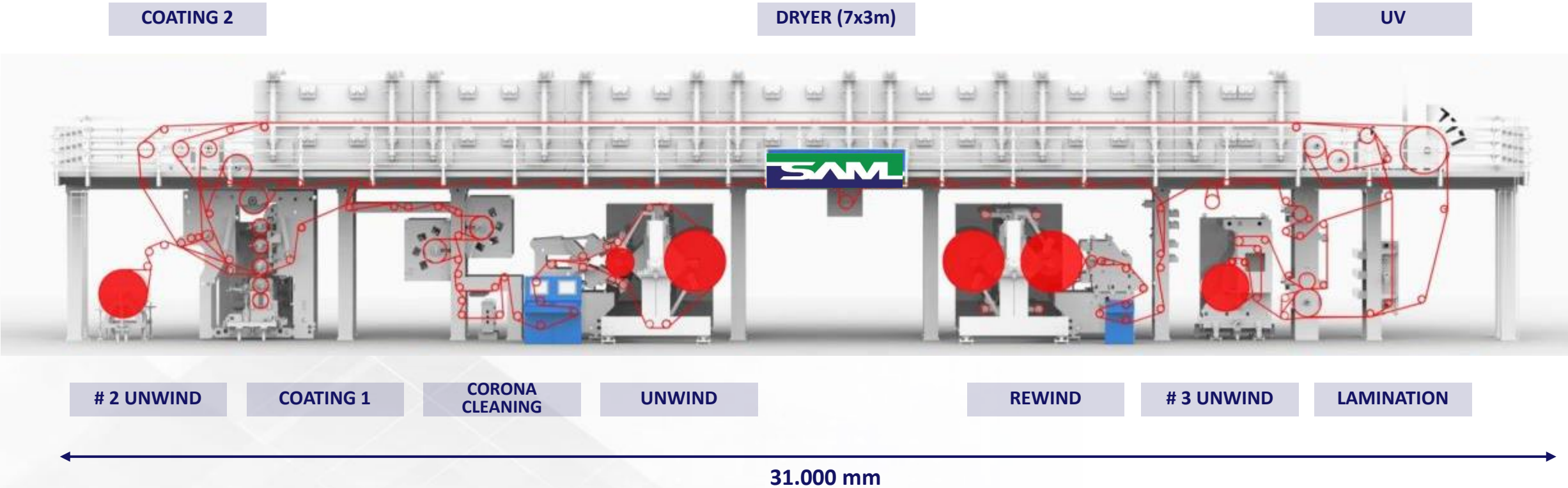
- Test runs in laboratory scale or under production conditions
- Optimization of processes
- Development of processes and new technologies
- Definition of guaranteed process parameters
- Conversion of practical experiences in theoretical calculation models



Solution Coating Center, Korea



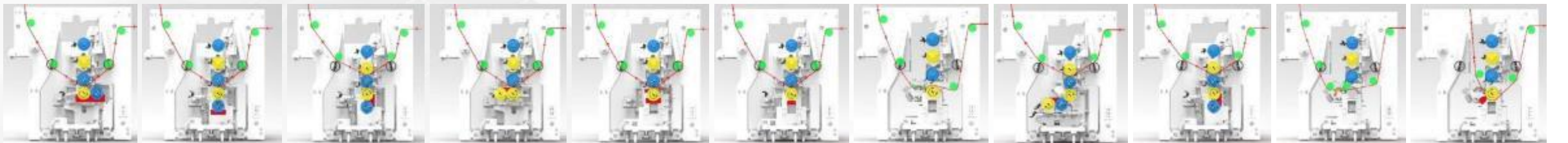
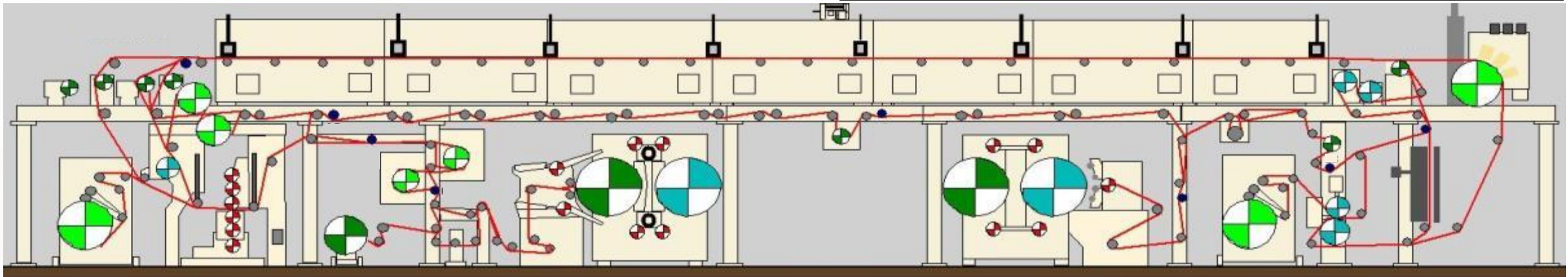
Pilot Coating Line



Pilot Coating Line



Substrates	Plastic Films, Paper, Metal Foils, Laminates	
Web Widths	Max.	1,060 mm
	Min.	500 mm
Nominal Roll Face Width	1,000 mm	
Production Speed max.	1,000 m/min	
Coating Heads	12 trolleys, 35 coating arrangements	



SAM R&D Center Open House



Extrusion Technology Center, NY, USA

Pilot Extrusion Coating

- Extrusion Coating
- Extrusion Laminating
- Flat Cast Film
- Technical Cast Film
- Embossed Cast Film
- Mono-extrusion & Co-extrusion

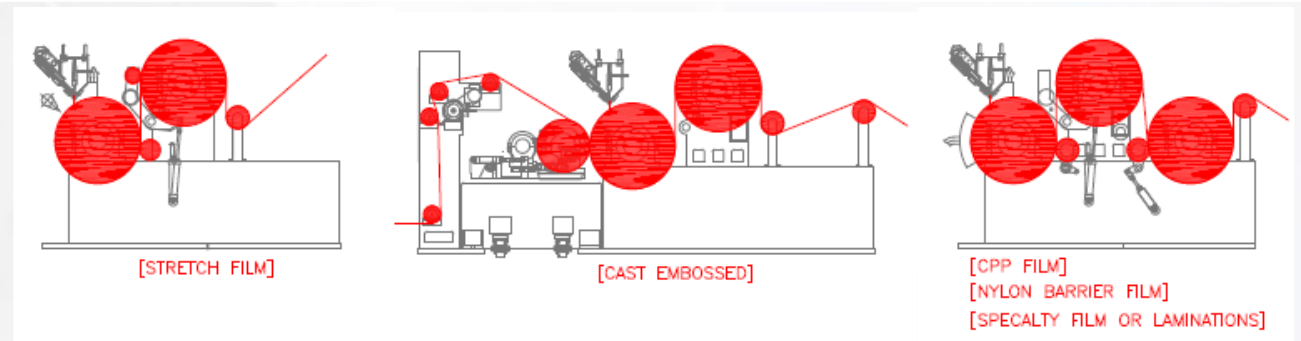
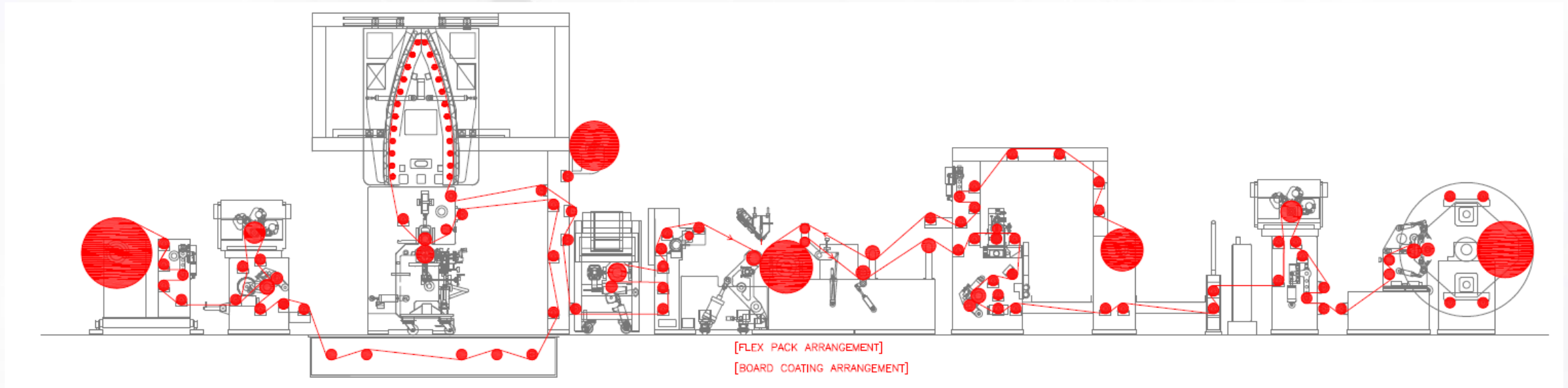
Design & Process Engineering

Customer Trials & Training



Substrate	Plastic Films, Paper (~180gsm)	
Web Width	Max.	900 mm
	Min.	450 mm
Nominal Roll Face	1,000 mm	
Production Speed	600 m/min	
Extruder	Triple (65mm, 50mm, 32mm & future 32mm)	
Process Tension Ranges	30 - 300N/m	
Feed Block & T-Die	EDI (Ultra Flow V & Autoflex VI EPC Die), MLT	
Auto Profile Control	ThermoFisher (21 Plus)	
Unwind/Rewind		
Primary Unwind	1,000 mm diameter	
Aux. Unwind	600 mm diameter	
Rewind	800 mm diameter	

Pilot Extrusion Line



Printed Electronics Center, Korea



Development of process and equipment for the printed electronics industry

- Li - Ion Batteries
- Fuel Cells
- OPV solar cells
- OLEDs
- Lighting
- Smart IDs

Coating, printing and laminating lines to support customers



**LINE FOR MATERIAL DEVELOPMENT
& FLEXIBLE DEVICE RESEARCH**



LINE FOR SMART ID



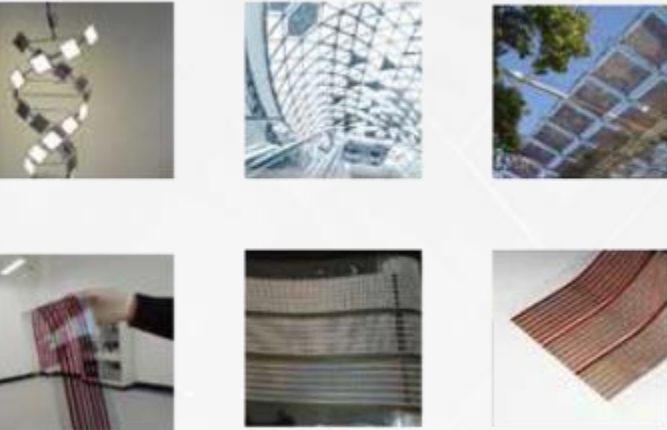
LINE FOR ENERGY SAVING DEVICES

Printed Electronics Center, Korea

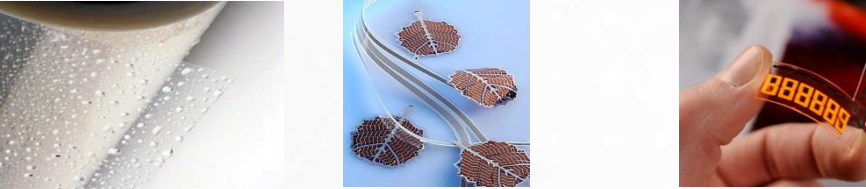
SMART ID



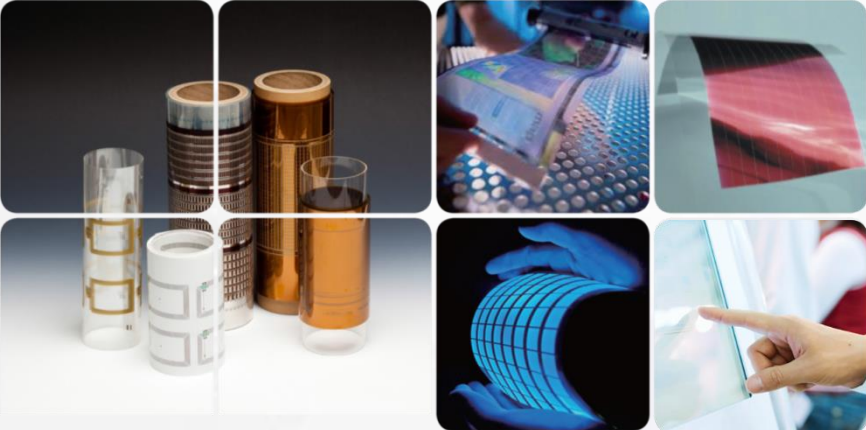
Energy Saving Devices



Barrier film



- Film
- OPV solar cell
- OLED



Shipment & Installation



TYPICAL SHIPMENT TIME

- Machine lines 12 - 14 months
- Components 8 -9 months
- Excellent On Time Delivery

SAM offers a **turnkey machine line**

- Line is assembled on SAM factory floor before ex works delivery as it will be assembled at customer's site
- Installation engineering will be provided by SAM
- Interconnecting wiring, cable trays, wire ways, and conduit are included in line (for Turnkey Installation - to be defined)
- One point interface of electric, gas, water supply as well as roof penetrations



SAM Installation



FACTORY ACCEPTANCE TEST (FAT)

- Per customer supplied document
- Process support
- Mechanical support
- Electrical support
- Optimal adjustment of the line to client's products



SUPERVISION

- Full time supervision
- Complete coordination of all sub-suppliers



SAM Installation

INSTALLATION ENGINEERING	Air, Gas, Water, Electric, Hydraulic, Equipment
MILLWRIGHT RIGGING	Heavy Equipment Labor / Grouting - Local Contractor
CONNECTIONS / OPTICAL ALIGNMENT	
PIPING	Gas, Water, Air Labor (or local contractor if required)
ELECTRICAL	Interconnecting wiring comes with the machine Connections (or local contractor if required)
SHEET METAL	Fabrication and installation by local contractor
INSULATION	Insulation by local contractor



Education and Network

EDUCATION

- training company for apprentices
- execute placements and master / doctor thesis

NETWORK

- members in AIMCAL, TAPPI, SPI, FTA, FPA



SAM's Expertise

Technology leader

- Three technology centers with process experts
- Your single source for design, manufacturing, assembly, installation, start up, commissioning and after sales service
- All machines run on shop floor before ex works delivery

Leadership commitment

- Safety
- Knowledge
- Ownership
- Support

Global supplier to 35 countries





Block - Mohr

Papier-, Folien- u. Kunststofftechnik



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Block & Mohr GmbH
Lindenstrasse 5
49479 Ibbenbueren / Germany

Tel: +49 5451 8979-0

Fax: +49 5451 8979-79

E-Mail: info@block-mohr.com

Internet: www.block-mohr.com

Wir sind gerne für Sie da!

Thank you
