



Beyond Atomic Layer Deposition,
Toward a New Advanced Technology Paradigm

NexusBe



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CHAPTER

I

COMPANY OVERVIEW



- ① Overview
- ② Company History
- ③ Vision & Mission
- ④ Organizational Chart

NexusBe Co., Ltd.

Hagyoung Choi

21st.Dec.2015

8.2 Bill KRW (24')

16.1 Bill KRW (25'(E))

HQ : 42, Tapsil-ro, Giheung-gu,
Yongin-si, Gyeonggi-do<https://www.nexusbe.com>

2023-2024

- 2023 • Co-developed with Samsung
- Raised 3 billion KRW
- 2024 • Raised 10 billion KRW in Series B
- Registered as a partner with STI

2025

- 2025 • Establishment of China Subsidiary
- Certified Excellent Employment Company by Gyeonggi Province
- Co-developed with Samsung SDI
- Successfully Raised KRW 4 Billion from KDB/KDBC

2027

- 2027 • Listed on KOSDAQ

2021-2022

- 2021 • Raised 1 billion KRW from SEMA Investment
- Designated as a Global IP Star Co.
- 2022 • Partnered with Samsung Advanced Institute of Technology
- Developed 12" Semiconductor ALD System for ULVAC Korea

2015-2017

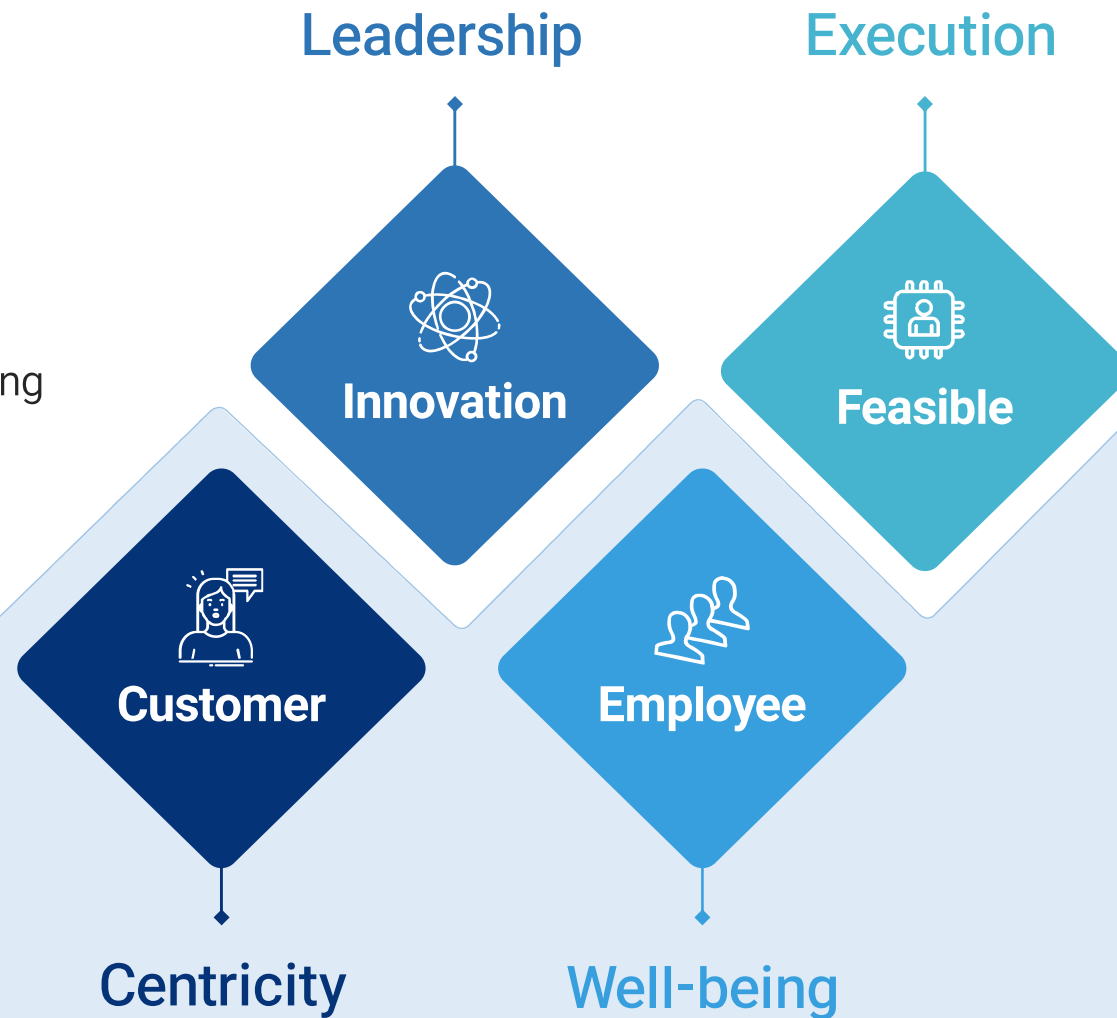
- 2015 • Established Nexus B Co., Ltd.
- 2017 • Raised 500 million KRW from Inno Polis Partners Fund
- Registered as a new supplier for ASM Korea

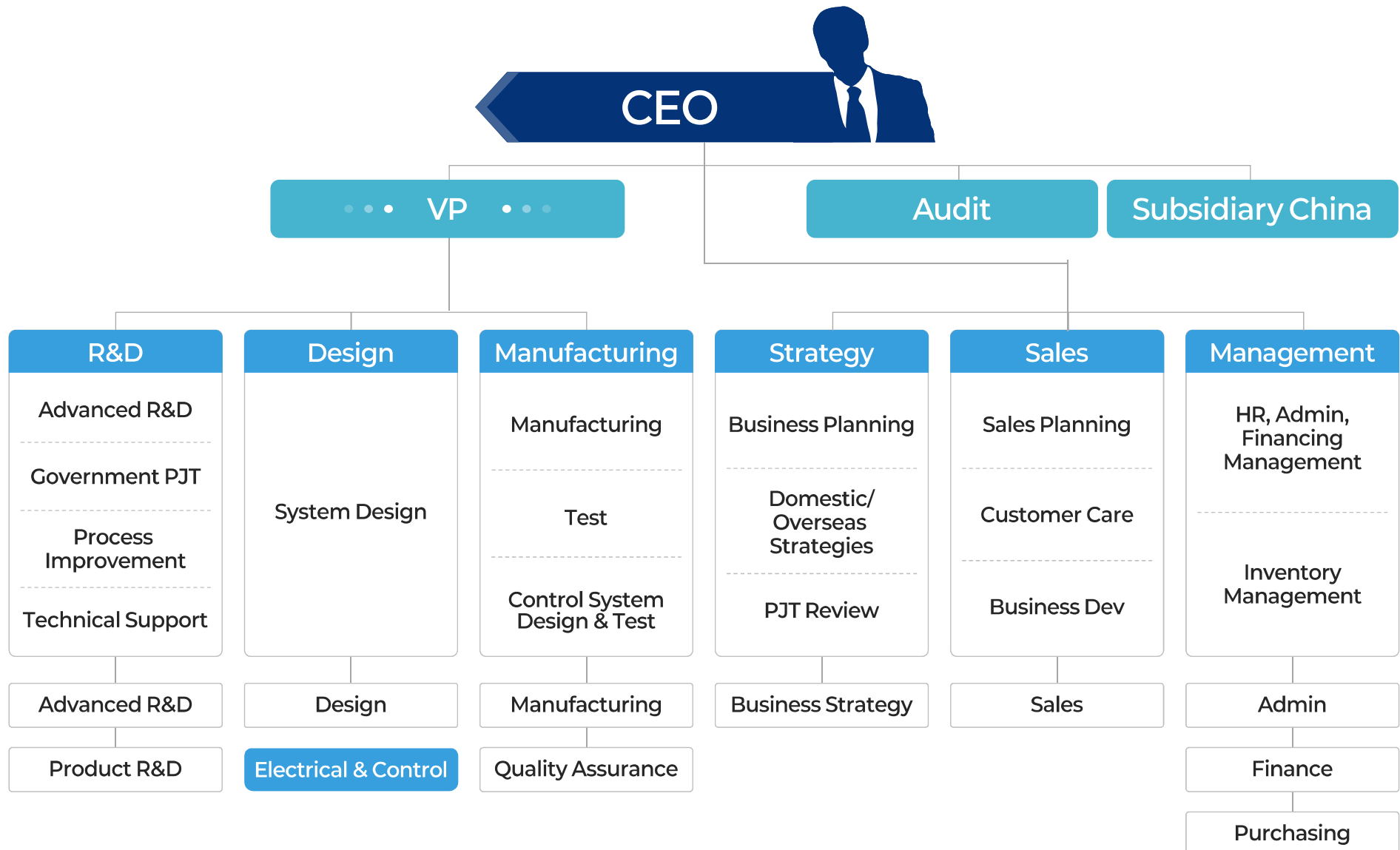
2019

- 2019 • Established a corporate R&D center
- Exported Plasma Enhanced ALD System to China
- Registered as a new partner with LG Electronic

Identity of NexusBe

A Technology Leader Co-Creating
Innovation with Customers





CHAPTER

II

PRODUCTS

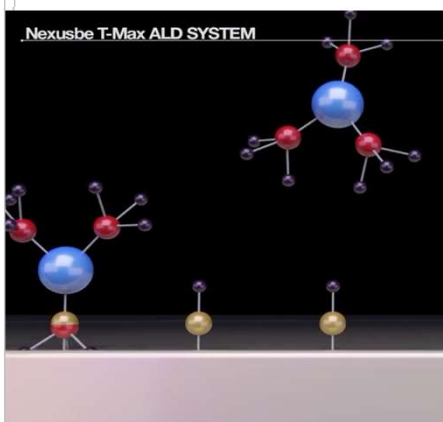


- ① Core Technology
- ② Products

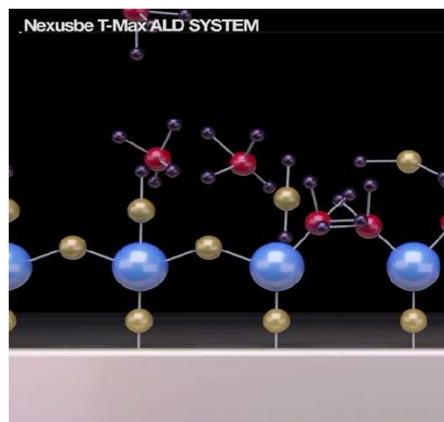
Dense and uniform thin films through ALD deposition

Deposition Cycle

- ▶ Source Precursor Injection
→ Adsorption on Core Metal Surface
- ▶ Inert gas injection → Removal of unreacted by-products
- ▶ Reactant Gas (O_2 , N_2 , H_2 , NH_3 , etc.) Injection
→ Atomic Layer film formation
- ▶ Inert gas injection → Removal of unreacted by-products



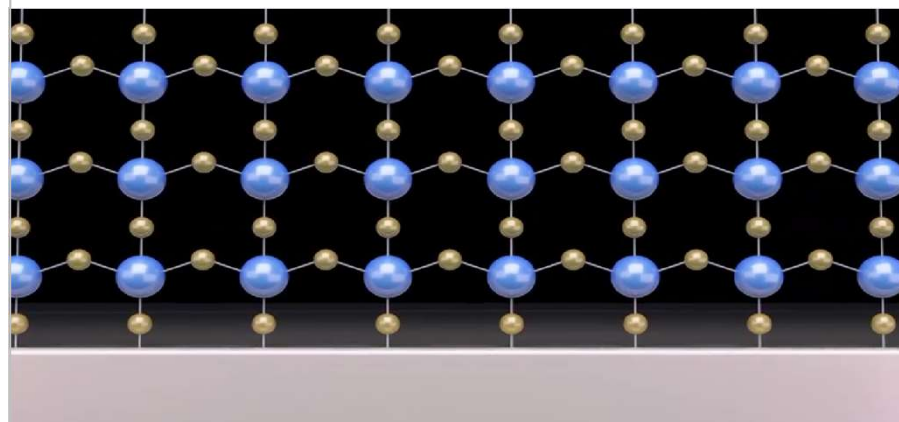
Source Precursor Adsorption



Reactant Gas Adsorption

Precise Thickness Control / Uniform Deposition

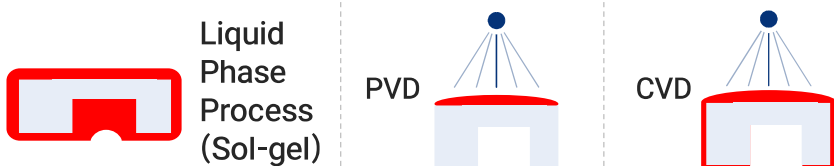
- ▶ Accurate atomic-level thickness control
through deposition cycle adjustment
- ▶ Available of oxide, nitride, and metal thin films
- ▶ Excellent film uniformity and high-density thin films
- ▶ Conformal deposition enabling high-quality films
even on nano-scale fine patterns & complex 3D structures



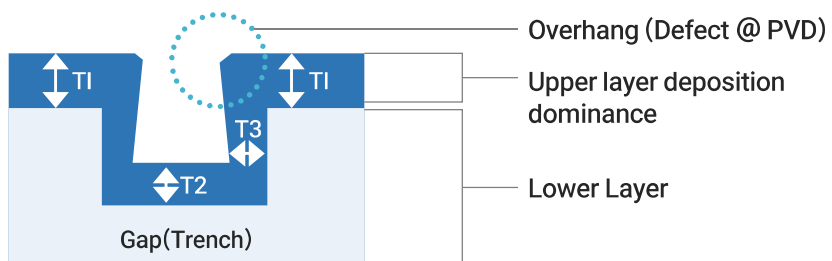
Target thickness achieved through precise multi-cycle deposition

Superior Film Uniformity through Sequential Reactant Gas Injection

Limitations on existing thin film technology

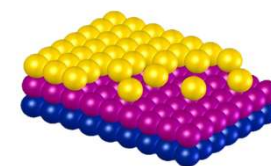


Non-Uniformity Issues in current PVD, CVD Processes

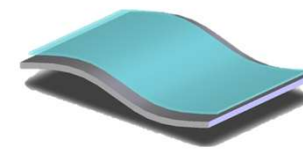


Overhang effects create thin regions, causing electrical leakage
→ Uniform film thickness required
Increased leakage current leads to higher power consumption

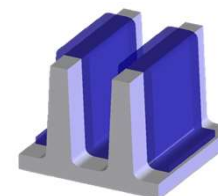
Superior Film Uniformity of ALD



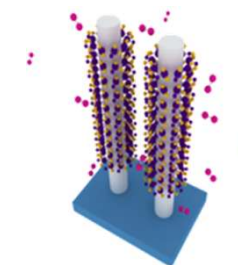
Atomic Level Control



Low temperature



Excellent Step Coverage

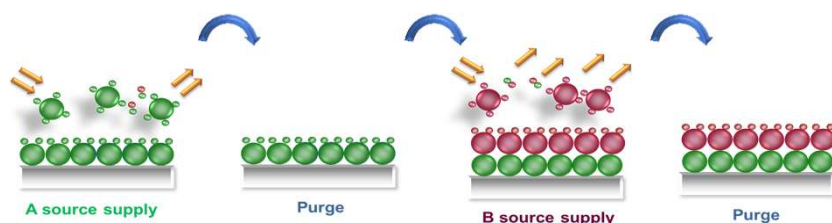


3D Structure

Uniform atomic-level thin films on complex 3D structures at low temperatures

High productivity and high-quality thin films through time/spatial-division

Time Divided ALD (TD-ALD)



Ref: <https://www.atomiclimits.com>

Method

Sequential injection of reactant gas

Mechanism

Time-sequential reactant supply within one chamber
Repeated cycles of A gas → purge → B gas → purge

System Configuration

Single-wafer systems & batch ALD systems

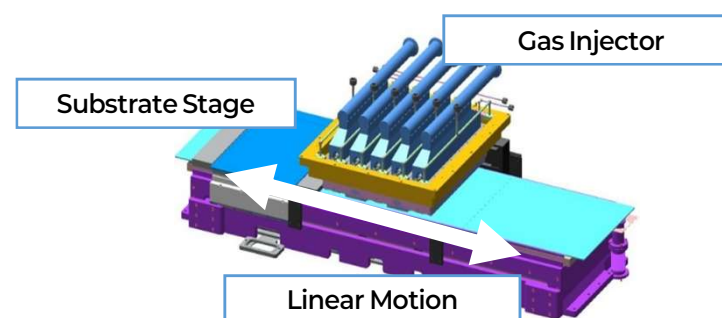
Pros

Highly precise thickness control
Excellent film uniformity

Suitable Applications

Semiconductor processes requiring precise control
High-quality thin films & multilayer deposition

Spatial Divided ALD (SD-ALD)



Method

Simultaneous precursor supply by zone

Mechanism

Continuous substrate motion through A/B zones

System Configuration

Multi-zone flow, Spatial Reactor

Pros

High Throughput / High process speed

Suitable Applications

Mass production
Large-area substrates (Display, Perovskite)

1

Core Technology 4 ALD Market Overview

High-precision semiconductor demand driving market growth to **USD 58.2 Bill**

ALD Market Overview

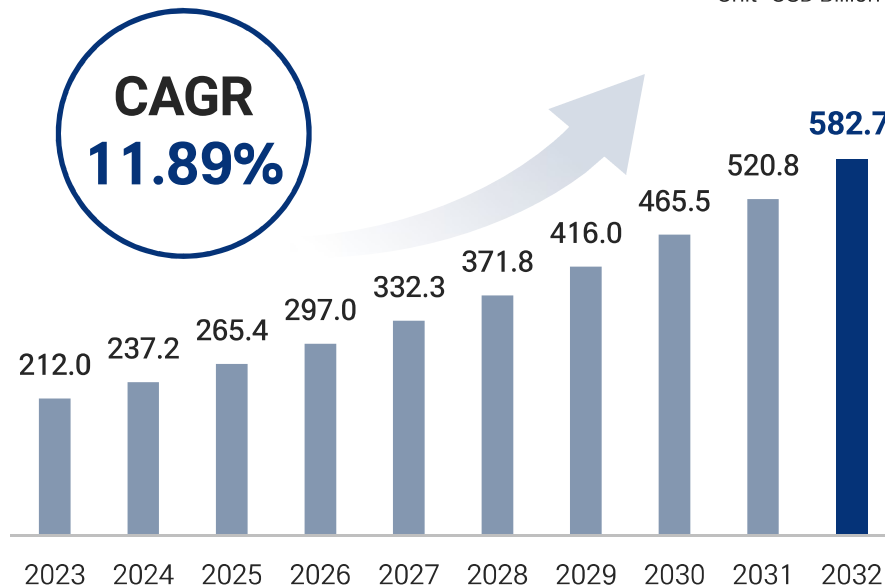
Market Size
58.2 Bill

Growth Rate
CAGR 11.89%

Localization Rate
Under 20%

ALD Market Size

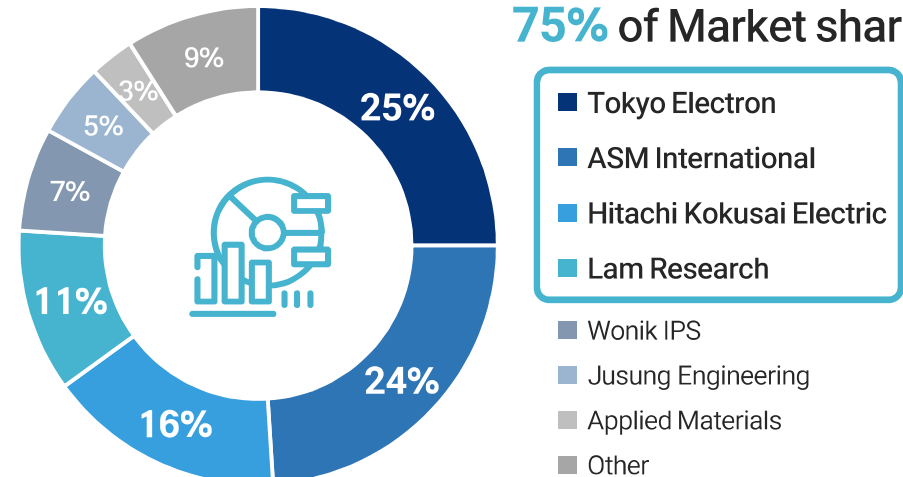
Unit: USD Billion



Ref : businessresearchinsights, (ALD) Market Size, 2024

ALD Equipment Market Share

75% of Market share



75% market monopolized by 4 global leaders

Full-process solutions across diverse product lines, from R&D to mass production

Nexus Plaminar



Compact, cost-effective,
easy operation
Time-divided system

R&D

Nexus T-Max



High performance, precise control
Time-divided system

High-quality,
versatile thin films
Semiconductor, Display

Nexus S-Max



High productivity,
large-area substrates
Spatial-divided system

Large-area display
Large-area perovskite solar cells

NexusBe PLAMINAR Series

S- Series



L- Series



Compact, cost-effective R&D ALD system (Thermal / Plasma)



Time-Divided ALD for Semiconductors

Multi-Layer Deposition, Contamination-Free

• • • Advanced memory / logic processes • • •



Multi-showerhead mixing prevention



Hybrid system integration



Precise thickness control (oxide / nitride / metal)

“ High-quality single and multi-layer films via **multi-showerhead design** ”



Spatial-Divided ALD for Display

High-Throughput Vacuum / Atmospheric Multi-Layer

... For next-generation OLED display processes ...



Large-area 8.6G display processing



Reduced OLED power consumption

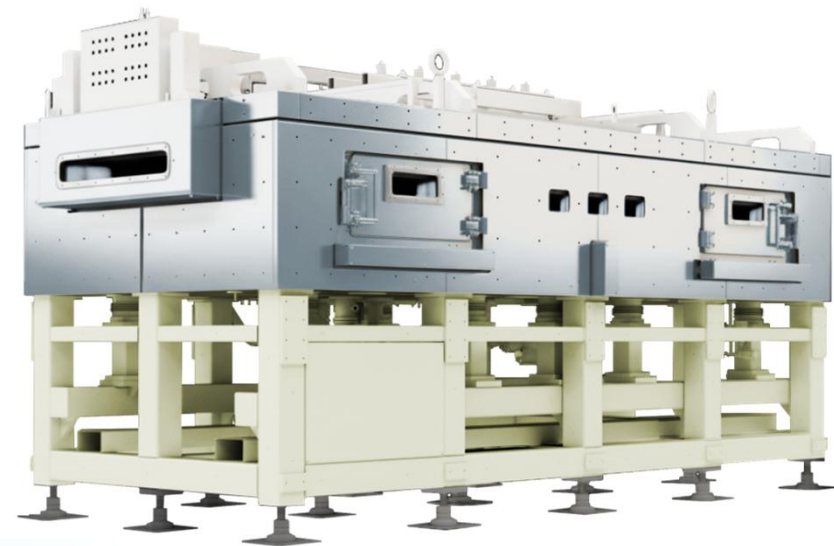
Large-area oxide application



Scale-up from 4.5G to 8.6G ALD



High-uniformity IGZO deposition
on ultra-large OLED substrates



Mass production of high-quality,
uniform, low-power oxide TFTs
via multi-layer oxide technology



Time-Divided ALD for Displays (2-in-1)

High Productivity via Dual-Process Operation (2-in-1)

• • • For next-generation OLED display processes • • •



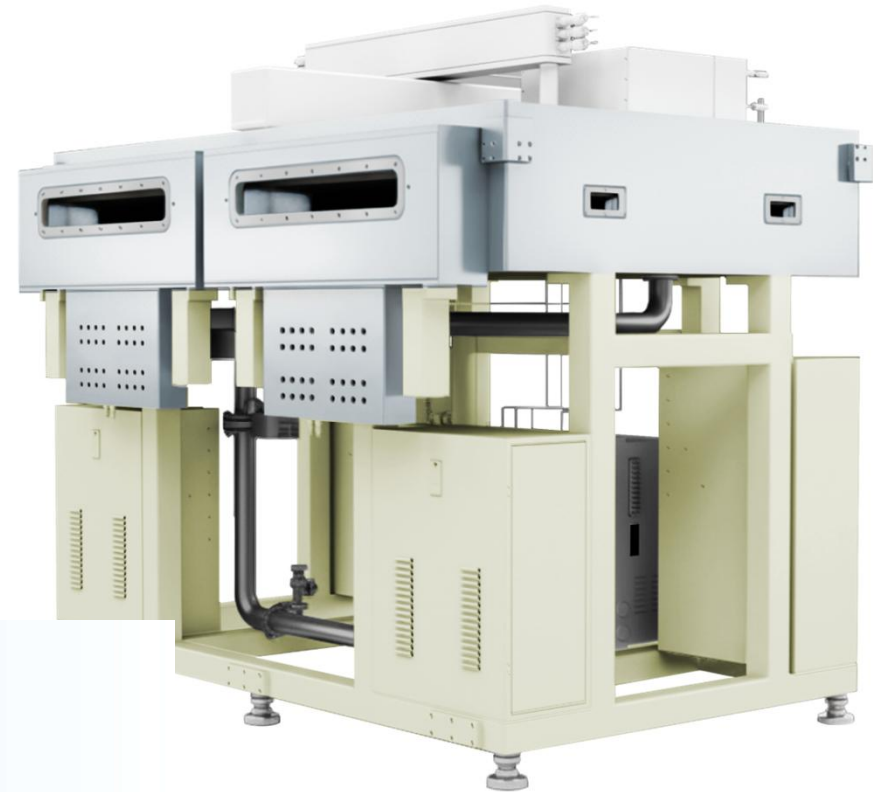
Simultaneous dual processing
in a single chamber



Increased throughput and time efficiency



High productivity with
precise thin film deposition



“ Next-generation, high-throughput
display processing via spatial division ”

Spatial-Divided ALD for Perovskite Solar Cells (2-in-1)

High Productivity via Dual-Process Operation (2-in-1)

- • • ETL & passivation processes for perovskite solar cells • • •



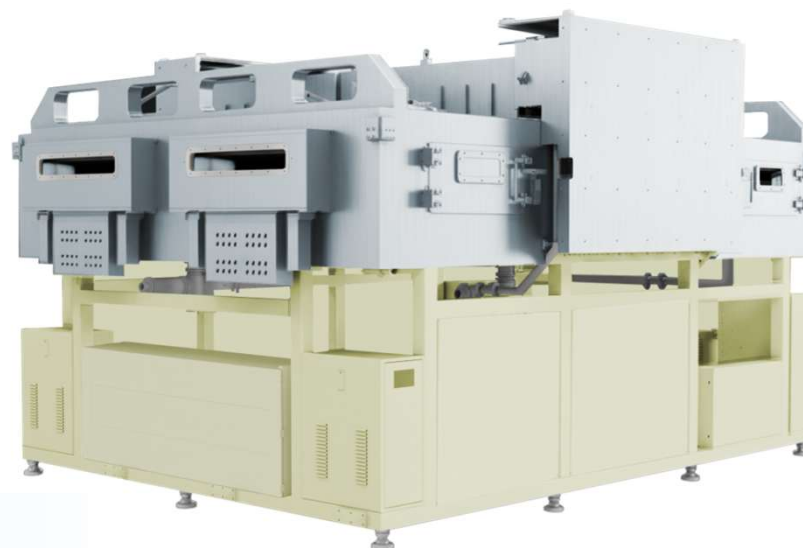
Simultaneous dual processing
in a single chamber



Excellent film uniformity



High-speed processing
for large-area mass production



“ Next-generation perovskite solar cell
processing via spatial division ”

Batch Type ALD



Roll to Roll ALD



Batch Atomic Layer Deposition

- ▶ Simultaneous multi-wafer deposition
- ▶ Higher throughput → Improved efficiency

Roll type Atomic Layer Deposition

- ▶ Continuous roll coating → high-speed, high-volume prod.
- ▶ Flexible substrates (PI, PET, PEN) - High WVTR
- ▶ Targeting high-value flexible display films
- ▶ Secondary battery applications

CHAPTER

III

CORE COMPETENCIES & ACHIEVEMENTS



- ① R&D
- ② Core Patents
- ③ Key Certifications
- ④ Manufacturing&Supply Chain
- ⑤ Results
- ⑥ Clients

1 R&D

III. Core competencies

I II III

16 Gov. R&D projects completed, Advanced R&D driving next-generation semiconductor equipment



Co. R&D Center

Process development
and film / device evaluation
via time- and spatial-divided ALD

R&D engineers: 15

10+ years experienced

Development momentum secured
through multiple national R&D projects



Government funding:
USD 125M (Cash-basis)



Development across
semiconductor / display /
battery / solar cell fields



Material & component
technology development
and scale-up tasks (Gov.)



6 spatial-divided ALD
gov. projects completed
(all completed)

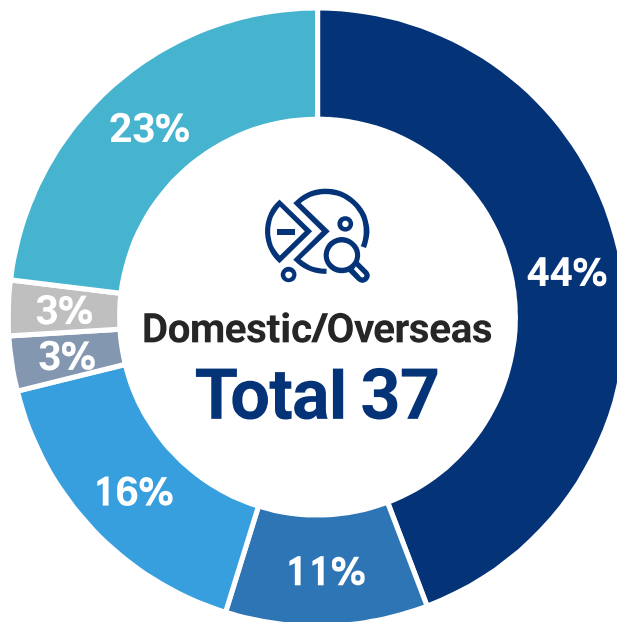
Major Gov. R&D Projects (NexusBe)

	Org.	Note
1 2024 Materials & Components Technology Development – Packaging(Ceramics)	 산업통상자원부	Ongoing
2 2023 Scale-up Tips Program (SME R&D, Phase 2)	 중소벤처기업부	Ongoing
3 2021 Materials & Components Technology Development Program	 산업통상자원부	Completed
4 2020 Technology Holding Subsidiary R&D Program	 중소벤처기업부	Completed
5 2017 Private Investment-Led Technology Startup Support Program	 중소벤처기업부	Completed

2

Core Patents

ALD deposition leadership through IP portfolio and core technology development



- Spatial ALD
- R2R ALD
- Gallium Oxide
- Mini ALD
- Batch ALD
- Others

No. 10-2761054

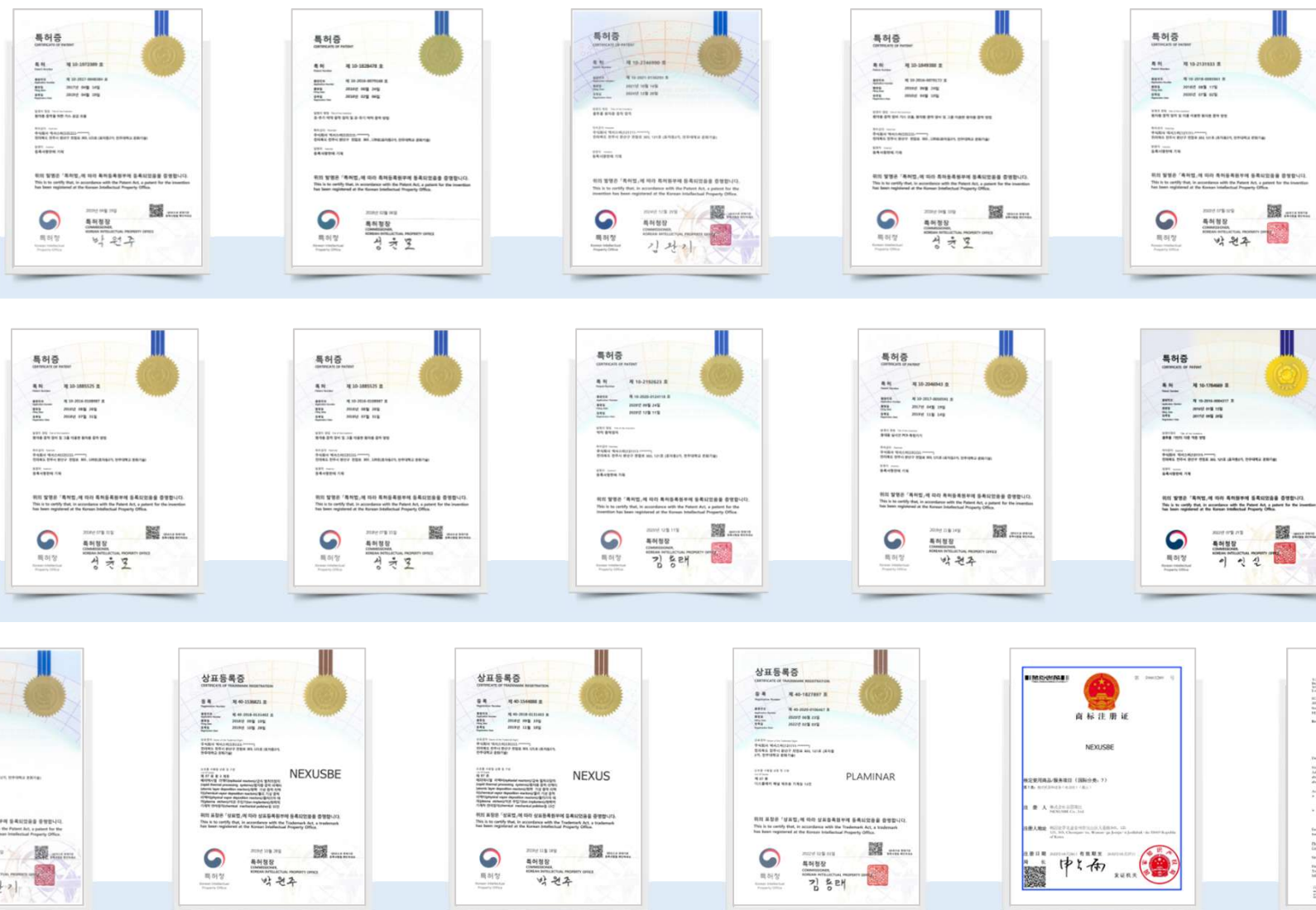


No. 10-1834200



Granted patents 14 (Domestic 12 / Overseas 2)
Published applications 23 (Domestic 15 / Overseas 8)
Trademarks 5 (Domestic 3 / Overseas 2)

2 Core Patents

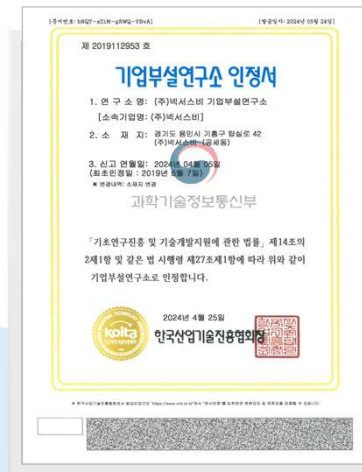
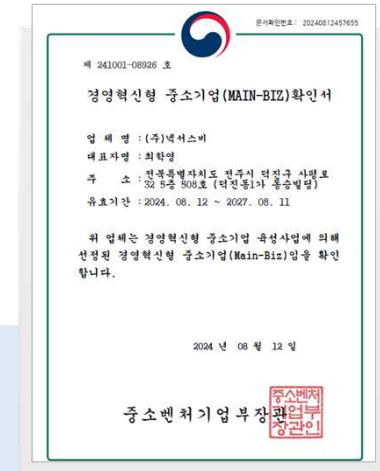
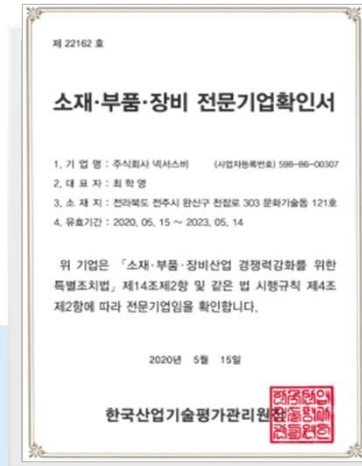


3

Key Certifications

III. Core competencies

I II III



HQ: R&D Center & Plant 1



**4-story facility with clean rooms
on the 2nd and 4th floors (3.5K sqft each)**

42, Tapsil-ro, Giheung-gu, Yongin-si,
Gyeonggi-do, 17084, Republic of Korea

Plant 2



**Total area: 28K sqft / Clean room: 21K sqft
3 production buildings**

112 Jeongnamsandan-ro, Jeongnam-myeon,
Hwaseong-si, Gyeonggi-do, 18514, Republic of Korea

Establishment of Subsidiary in Wuxi, China to Strengthen Sales, Setup, and Customer Support

Completion of Machining / Post-Processing / Assembly / SE / CS Organization and Collaboration Network

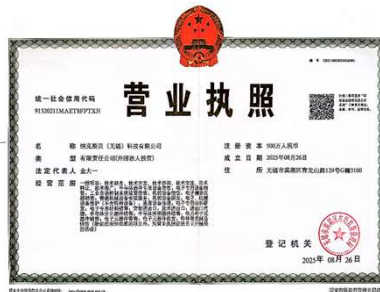
Subsidiary of Nexusbe(Wuxi, China)

1 NexusBe Subsidiary (Wuxi, China)

Head : Dae Il Kim, Managing Director
(Former VP of Sales)

2 Operational since September 2025

3 Office established, local staff hired



Set Up / CS Infra

4 Phase 1: Support from Korea HQ

5 Phase 2: Local partner support in Wuxi

6 Phase 3: On-site partner support in Suzhou

无锡双益精密机械有限公司
WUXI SUNYE PRECISION MACHINERY CO., LTD



China Manufacturing Infra

7 Primary precision machining partner (small-scale)

47 min far from site

8 Secondary precision machining & EP processing partner (mid-scale)

37 min far from site

光科真空科技(泰兴)有限公司:

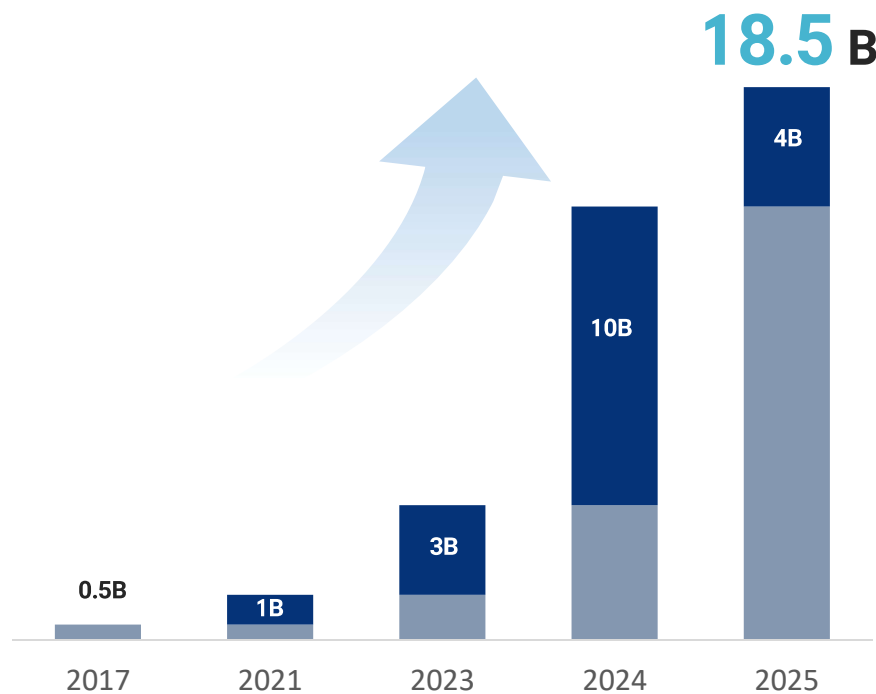


5 Results

I II III

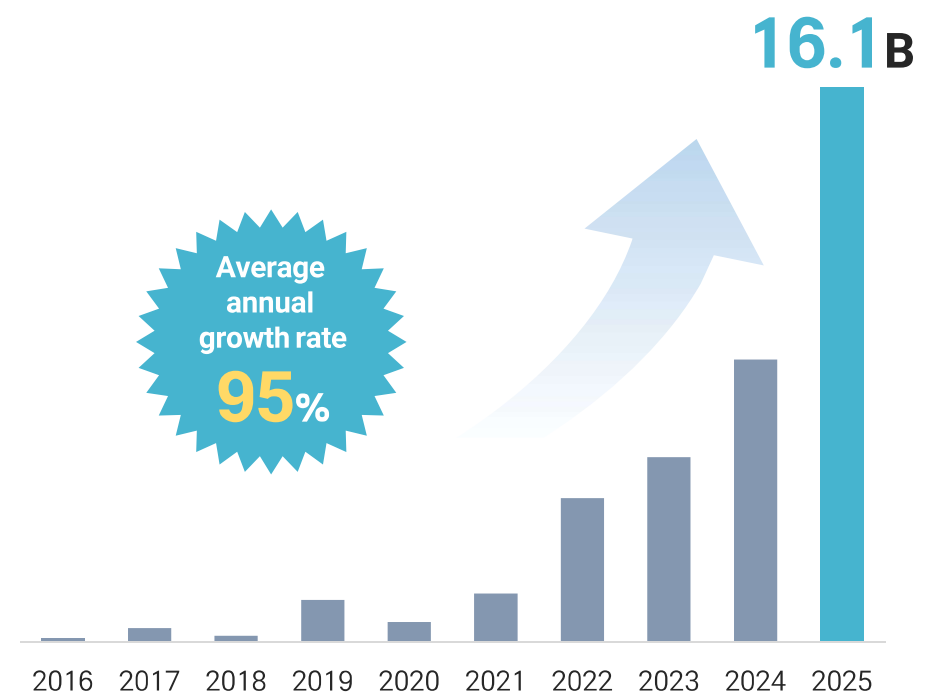
Business growth through continuous technology development and market expansion

Investment



KRW 18.5B cumulative funding driven by sustained growth and technology advancement

Revenue



95% average annual revenue growth since 2020

With
NexusBe

Corporations

ULVAC

ULVAC Korea

ASM

ASM Korea R&D

SEMES

SEMES

STi

STi

MECARO
메카로

Mecaro Co., Ltd.

AP Systems
Advanced Process Systems Corporation

AP system

Universities



KAIST



POSTECH



HongKong City Uni.



Korea Uni.



Yonsei Uni.



Hanyang Uni.

R&D Centers



Korea Institute of
Ceramic Engineering
and Technology



Korea Research
Institute of
Chemical Technology



Korea Institute
of Industrial
Technology

NexusBe

BEYOND ALD, DEFINING THE NEXT GENERATION OF
SEMICONDUCTOR DEPOSITION