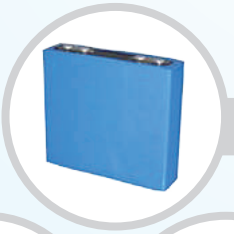
High-speed Inline X-ray
Electric Vehicle Battery CT Inspection System

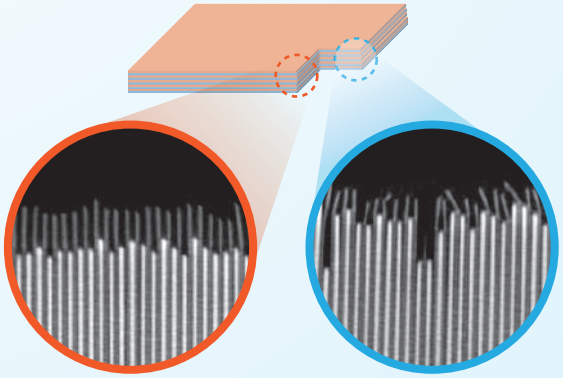
X-eye EVB-CT

- 99.9% High Reliability
- 10~30ppm High Speed Inspection
- AI Deep Learning Inspection
- Cost Effective Maintenance

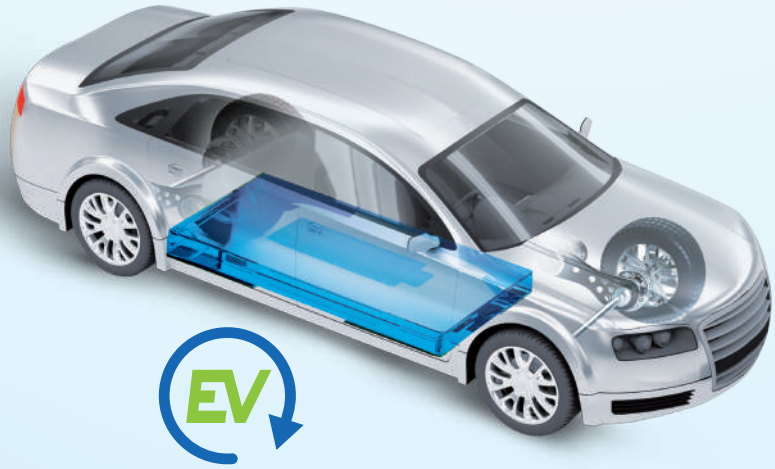


Prismatic type

Pouch type



X-axis cross section | Y-axis cross section



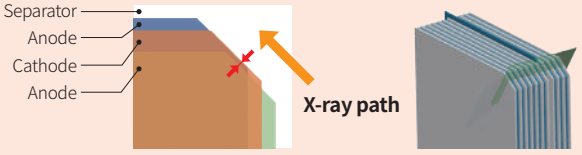
EV
SAFE BATTERY

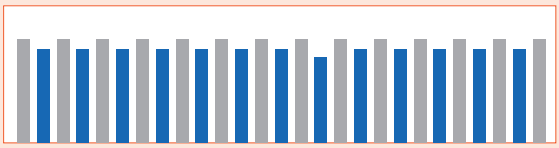
sec
e-beam pioneer

2D vs 3D CT Inspection Comparison

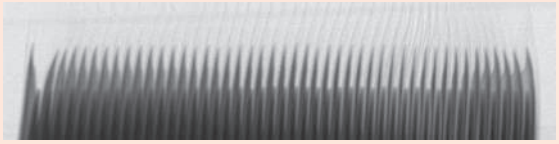
Conventional 2D Inspection

Electrode alignment inspection with projected corner X-ray image



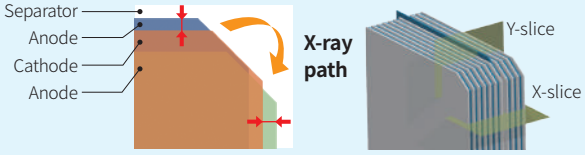


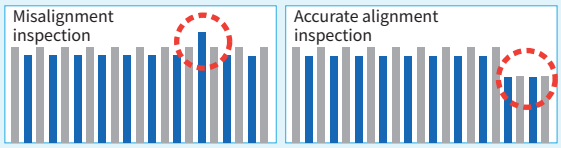
- Unable to detect the defect due to the limitations of 2D X-ray image
  → Defect leakage risk



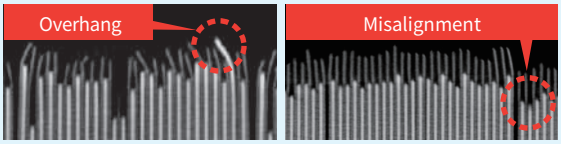
SEC High-speed 3D CT Inspection

Electrode inspection with accurate 3D CT X and Y slice images

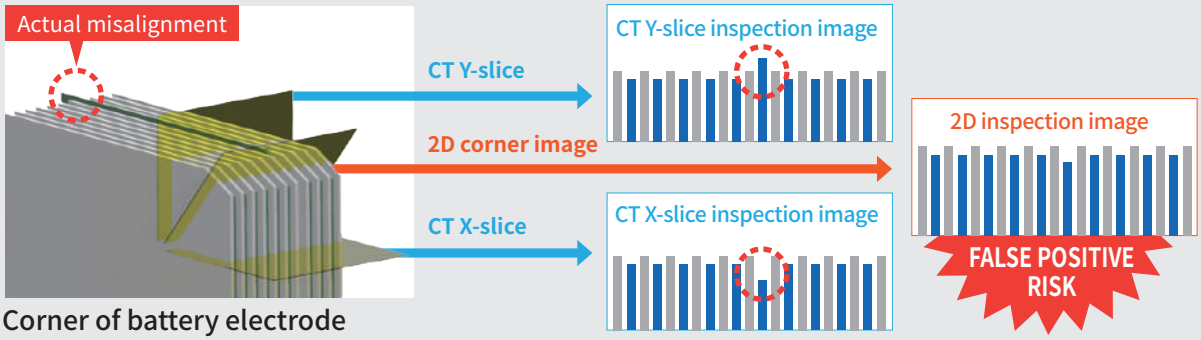




- 3D volume data generation
- Extract cross-sectional images

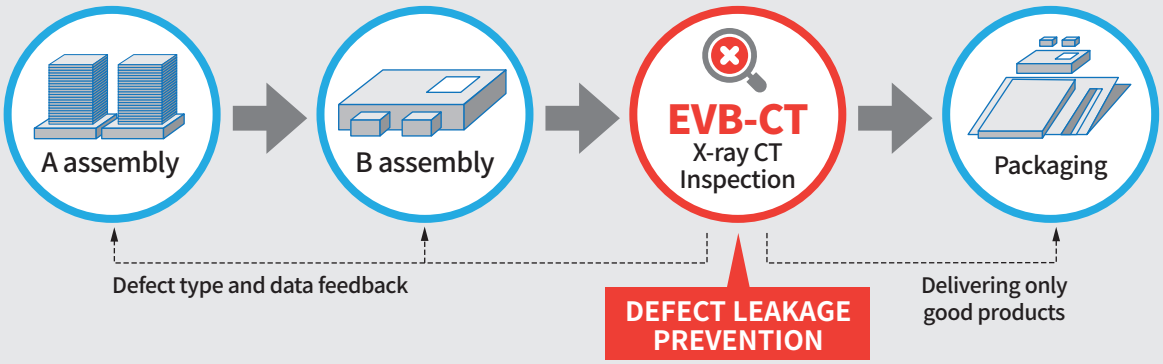


Quality Comparison between 2D and 3D



Production Process Feedback

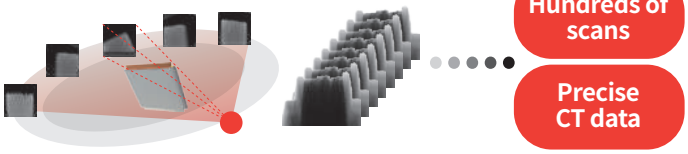
- Preventing defect leakage through accurate 3D CT inspection
- Reducing the defect rate by sharing the defect data to assembly process



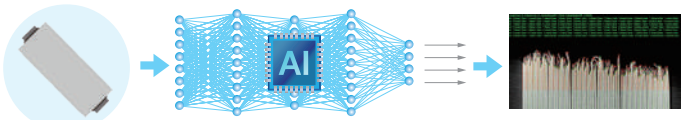
X-eye EVB-CT Features and Key Points

High Reliability Inspection

High precision CT H/W

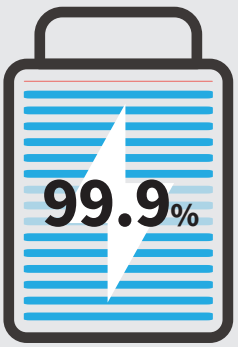


High performance AXI S/W



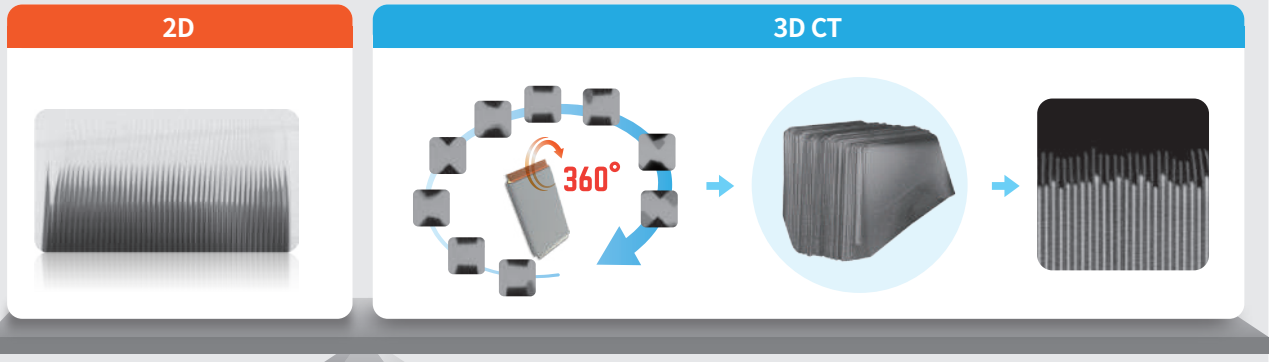
Deep learning-based AI algorithm

[Inspection Reliability]



Actual data from Inline production and Gauge R&R

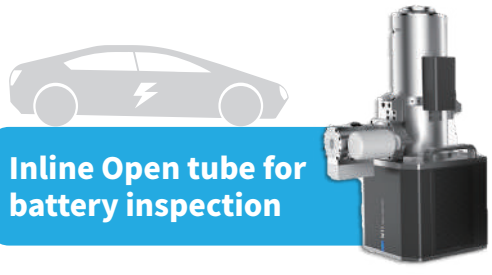
High Speed 3D CT Inspection



- Only single slice image

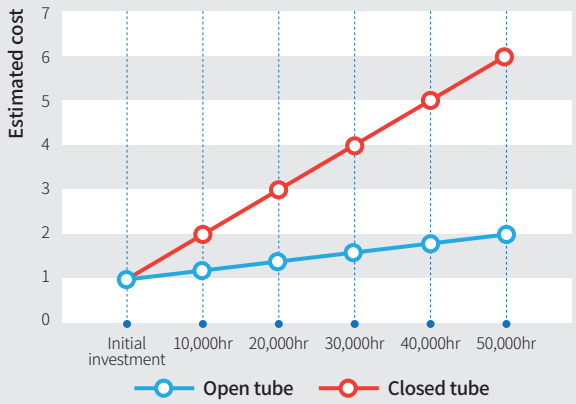
- **10~30ppm with hundreds of scan**
- **High-speed as equal to or higher than 2D inspection**

Cost Effective Maintenance

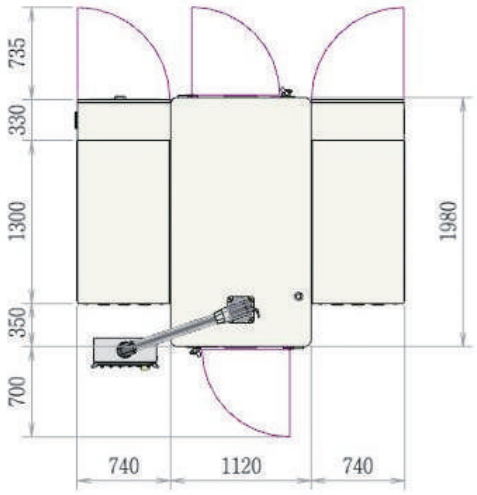


Inline Open tube for battery inspection

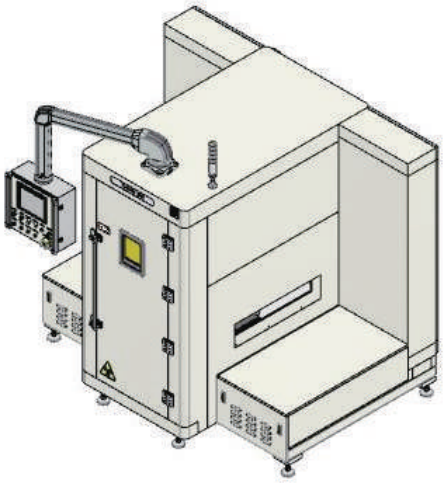
- Semi-permanent tube by replacing consumables
- Cost-effective than Closed tube 2head structure

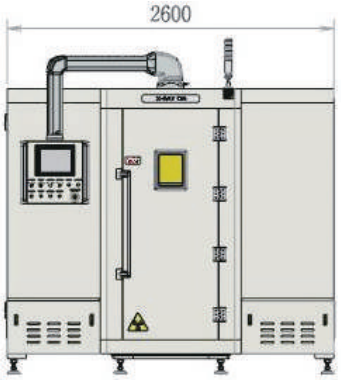


X-eye EVB-CT Specifications and Layout

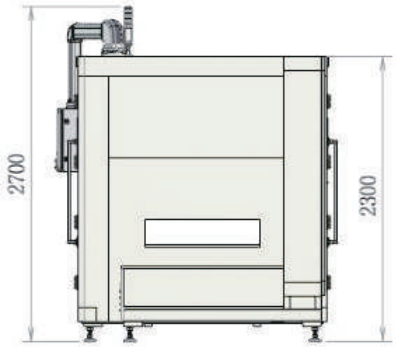


Top View





Front View



Side View

Model		X-eye EVB-CT	X-eye EVB-CTL
X-ray Tube	Tube Voltage	240kV(160kV Option)	
	Tube Type	Battery inspection Open tube	
Detector	Type	FPD (Flat Panel Detector)	
Battery	Size	Min. W110, H95, T3	Max. W340, H160, T12
		Min. W510, H75, T7	Max. W600, H110, T12
Cycle time		2 to 6 cells(10ppm ~ 30ppm), Depends on thickness and inspection point	
Hardware	Machine	W2,600 x D2,000 x H2,250 mm	W3,300 x D2,650 x H2,250 mm
	Weight	About 5,000kg	About 8,000kg
	Power	220 V / single phase	
	External Leakage Dose	<1uSv/h	
	Loader, Unloader	Option	
AXI	Scope	Electrode alignment, distance, count	
	Inspection Tool	3D CT inspection + AI deep learning inspection S/W	

sec e-beam pioneer

111, Saneop-ro, 155beon-gil, Gwonseon-gu, Suwon, South Korea 16648
Tel +82-31-215-7341 Fax +82-31-215-7343

E-mail secmaster@seceng.co.kr
Web www.seceng.co.kr