

UnitX: AI Powered

Lithium Ion Battery Inspection

UnitX AI vision inspection has deployed 250+ units in world's top EV plants

- Designed by engineers from **Stanford, MIT**
- Deployed in world's **top 2** EV, **top 3** Li battery, **top 5** automotive component plants

OptiX

Software-defined Imaging System

CorteX

Sample-Efficient Deep Learning



Captures 3D and 2D features
Fly captures at up to 1 meter/sec



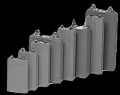
Detects high variance defects
Integrates w/ PLC, MES, FTP



UNITX

UnitX solves complex defect inspection challenges w/ 6 months ROI

- **3% Better OEE** w/ earlier warning on process drifts
- **100X Lower Escape** w/ precise traceability
- **Months ROI** w/ integration-ready PLC, MES, FTP support



Prismatic



Pouch



Cylindrical

Core components

Prismatic cosmetic
Lid cosmetic
Valve
QR code

Upstream

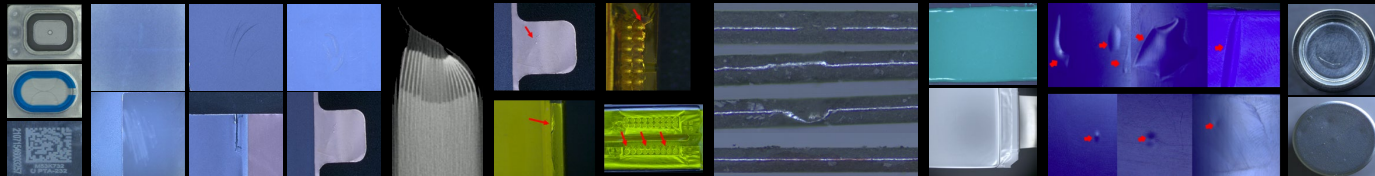
Slitting
Tab
X-Ray/CT

Midstream

Tab weld
Pack weld
Electrode weld

Downstream

Adhesive
Prismatic cosmetic
Mylar



UnitX Works with All 3 Cell Types



Prismatic

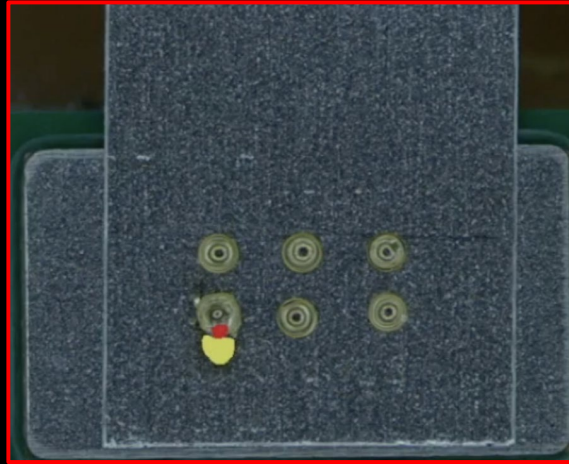
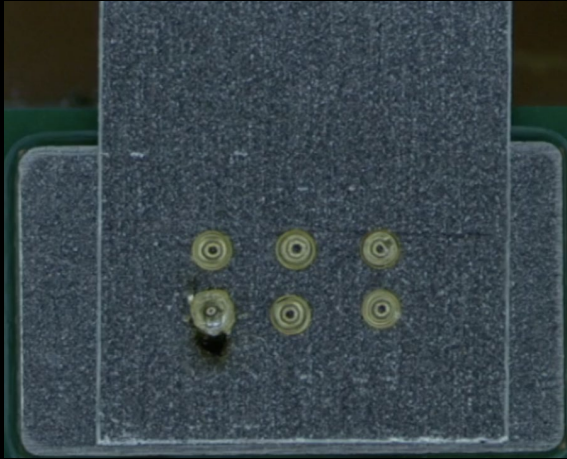


Pouch



Cylindrical

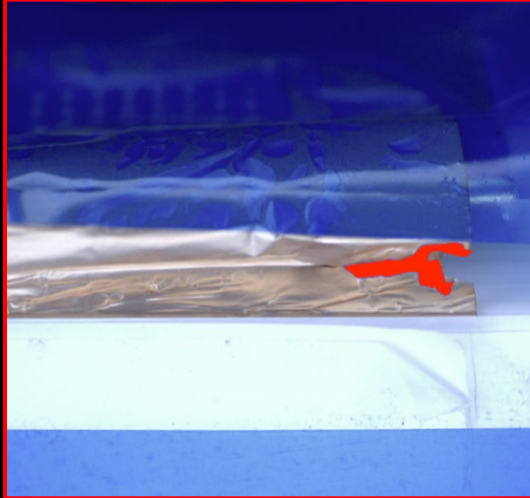
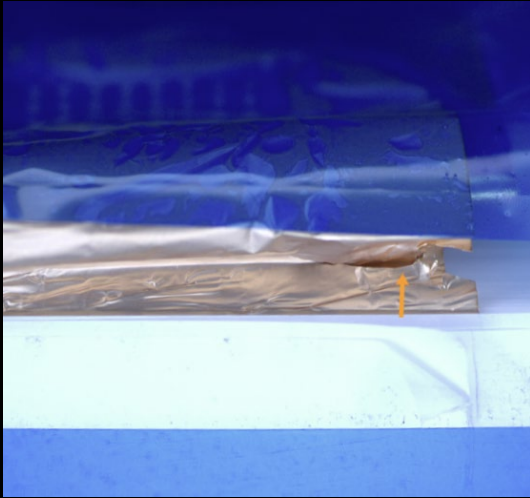
Tab Laser-Weld Inspection



Inspected Defects:

Blow holes, burn marks, white
spot, missing welds, offset
welds

Tab Ultrasonic-Weld Inspection



Inspected Defects:

Torn tabs, folded tabs,
offset welds, missing welds

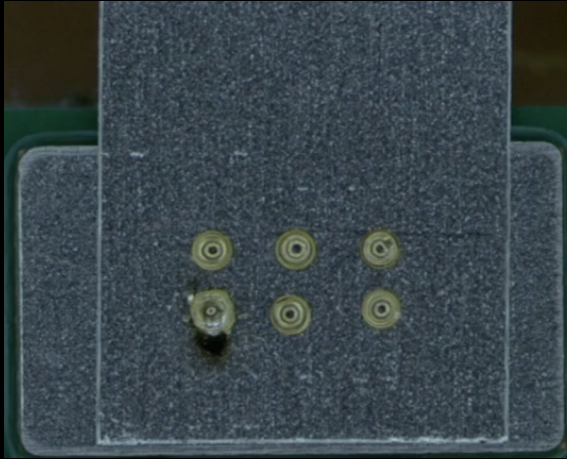
Pouch Cell Surface Inspection



Inspected Defects:

Scratches, dents, dings,
porosity, contamination,
deformation, damages

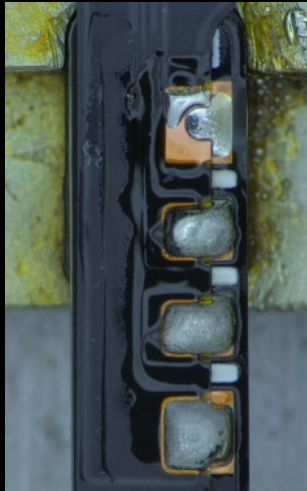
Tab Laser-Weld Inspection



Inspected Defects:

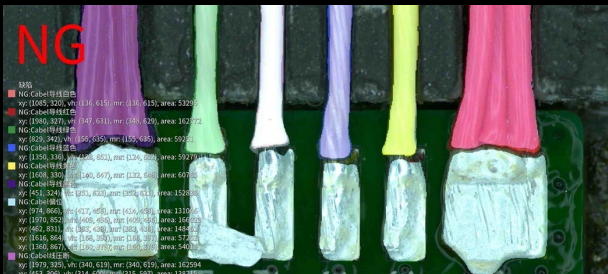
Blow holes, burn marks, white
spot, missing welds, offset
welds

PCB Solder Joints Inspection



Inspected Defects:

Bulbous joints, cracked joints,
poor hole fill, contamination



Offset, missing solder,
damaged wires, bulbous
joints, poor solder

UnitX automates inspection across entire Libattery manufacturing process

Electrode



Calendaring



Slitting



Cutting



Stacking



Tabbing

Cell



Mylar



Casing



Filling

Cell



Capping



Sealing



Film



CT

Module



Wire-bonding

Pack



Connectors



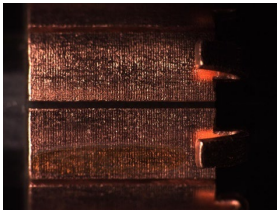
Bar code



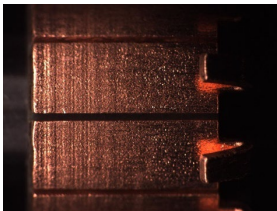
Tab welding

Last 24 Hours	1/15 AMShift	1/15 PMShift	7Day Avg	Variation
85% Yield	83%	86%	91%	-6%
9.2k Volume	4.8k	4.4k	9.4k	+2%
83% Up Time	96%	70%	92%	-9%

5.2%	NG210 Tab
scratches	
3.6%	NG311 Tab fold
1.4%	NG516 Tab
contamination	
1.1%	NG:152 Weld
porosities	
0.9%	NG:152 Weld
pin holes	



Tab contamination
1/24 3:23 pm



Tab scratches
1/24 1:19 am

Free Proof-of-Concept

Improve Quality & Yield

Contact today:

info@unitxlabs.com