

# ZOT

## Electro-Mechanical Assembly Capabilities Sheet

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## Overview

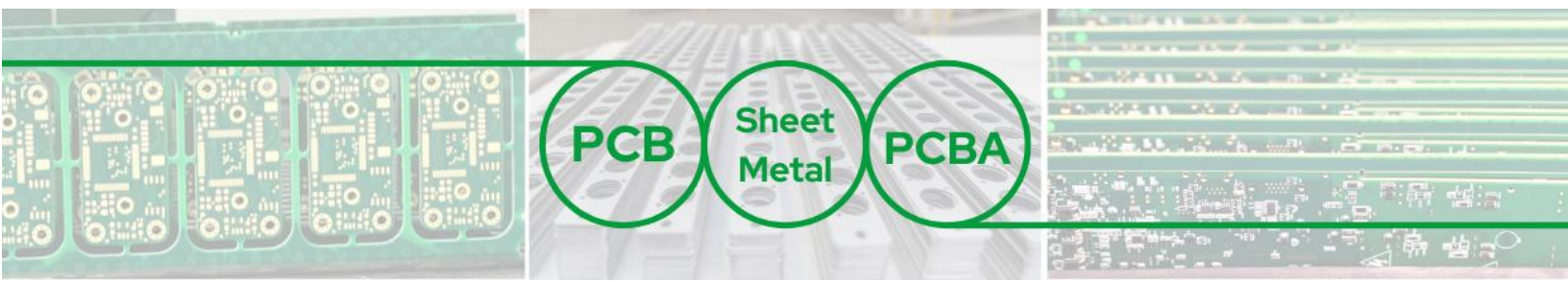
ZOT provides high-quality electronic manufacturing services within a secure, ESD-controlled, and climate-regulated environment. Our operations are underpinned by a commitment to continuous improvement, driven by experienced manufacturing and test engineers. All operators are certified to IPC-A-610 and IPC-A-620 standards, with our hand soldering team holding IPC-J-STD-001 certification. We maintain compliance through dedicated in-house IPC trainers.

Our standard process utilises RoHS-compliant SAC305 solder with a no-clean methodology. We also accommodate client-specific requirements, including leaded alloys and post-solder flux removal.

### 1. Material Procurement & Automated Storage

To ensure an efficient and error-free start to production, we utilise a state-of-the-art automated storage system that provides full material traceability and humidity control.

Capability	Details
System	Essegi Automation ISM UltraFlex 3600
Core Benefits	Enhanced efficiency, error elimination, and a scalable, integrated workflow.



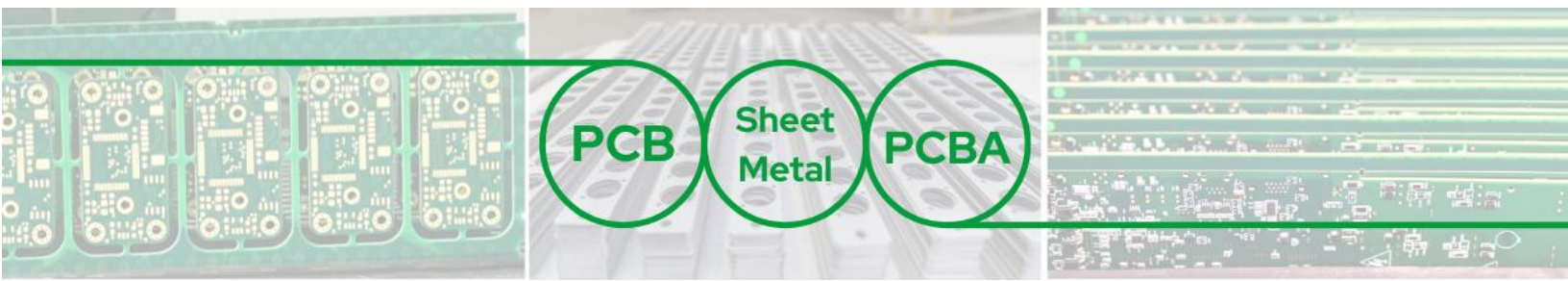
## 2. Surface Mount Technology (SMT)

Our high-speed, high-accuracy SMT lines are designed for complex builds, ensuring quality and scalability.

Specification	Details
Placement Rate	Up to 24,000 cph
Max PCB Panel Size	510 x 508 mm (including process carrier; 4 mm edge clearance required for single circuits)
PCB Thickness Range	0.4 mm to 6.0 mm
Component Package Range	01005 to 56 x 56 x 15 mm
Minimum Pitch	0.10 mm (leaded) / 0.15 mm (BGA)
Reflow Methods	Convection (Vapour phase available for demanding boards)
Standard Solder Process	RoHS-compliant SAC305 with a no-clean process
Alternate Processes	Customer-specified alloys (including Pb/Sn non-RoHS) and post-solder flux removal available on request.

### SMT Equipment

Pick & Place	Mycronic MY100 - Qty: 2
	Mycronic MY300 - Qty: 1
Stencil Printing	DEK Horizon 03ix - Qty: 2
	DEK Neo Horizon 03ix - Qty: 1
Convection Reflow	TRI I-F82S - Qty: 1
	VIP70A - Qty: 1
Vapour Phase Reflow	VP 1000-66 - Qty: 1



### 3. Through-Hole (PTH) Assembly

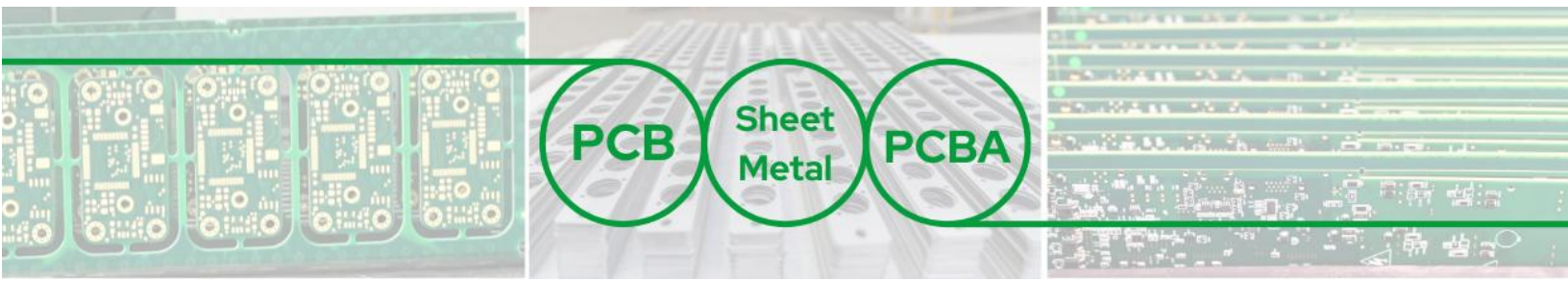
Our skilled operators, supported by digital work instructions and laser-guided systems, deliver consistent and reliable through-hole assembly.

Capability	Details
Soldering Stations	8 fully equipped benches
Operator Certification	IPC J-STD-001
Process Control	Digital Work Instructions (WI) at each station
Assisted Placement	Robotas laser-guided system

### 4. Selective Soldering

Our automated selective soldering capability ensures high-quality joints and consistency.

Specification	Details
System	Ersa Versaflow One F-Series
Max PCB Size	510 x 508 mm
Features	Multidrop flux heads, preheating zones, mini-wave solder nozzle, and ERSASOFT 5 interface.
Alloys	Both RoHS and non-RoHS options are available.



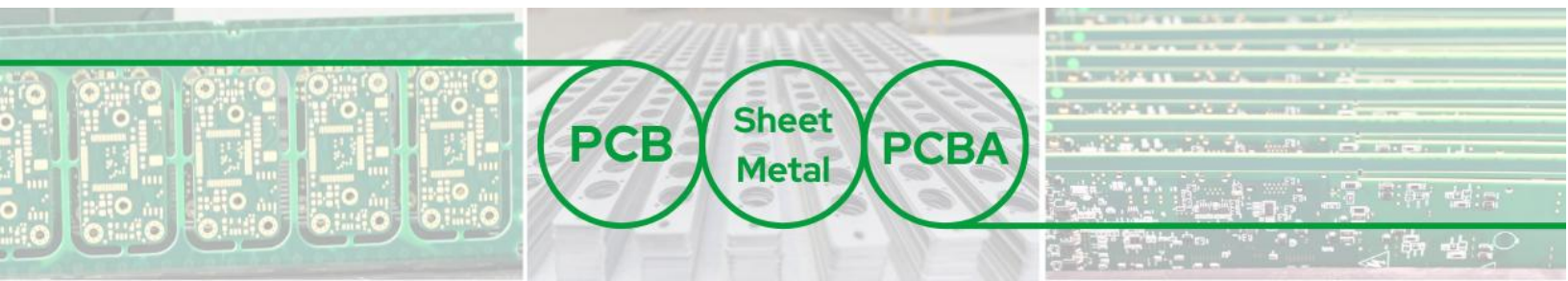
## 5. PCB Cleaning

To ensure long-term reliability, we offer comprehensive cleaning services.

Specification	Details
System	Automated NC25 PCB Cleaner
Max PCB Size	510 x 508 mm
Process Verification	In-house ionic contamination testing

## 6. Conformal Coating

Specification	Details
System	Gen3 Spray Booth System (Chamber: 850 x 750 x 580 mm)
Application	HVLP spray of HumiSeal protective conformal coating (IPC-CC-830 compliant).
Coating Details	UV-fluorescent for inspection; typical acrylic thickness of 25-75 $\mu\text{m}$ .
Inspection	UV light and non-destructive ultrasonic thickness measurement.
Curing	Dedicated curing ovens.



## 7. Box Build & Systems Integration

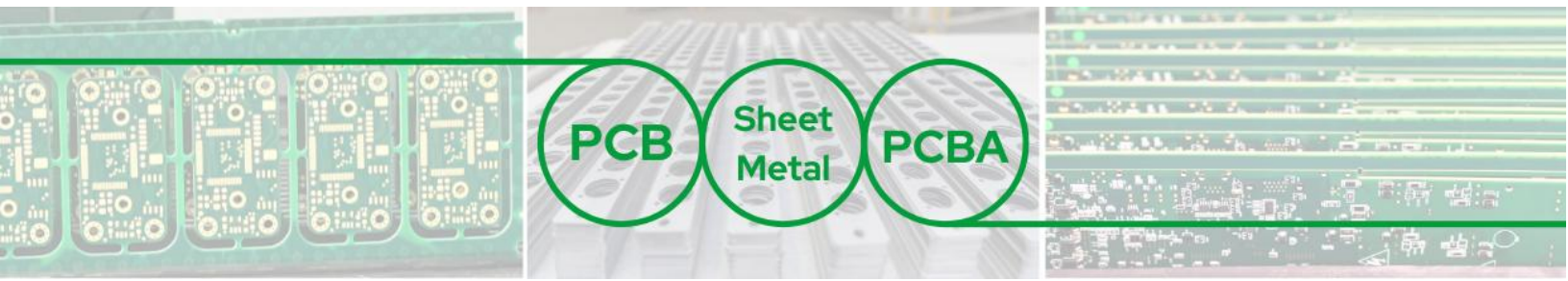
We deliver fully tested, market-ready products, offering full system builds, enclosure integration, and final verification.

Capability	Details
Cable Assemblies	Looms
	Harnesses
	Ribbon
	Multi-core
	Coax
Calibrated Crimp Tooling	JST, Molex, AMP and durable labelling. Manual crimps meet IPC Class 2 standards
Wire Processing	Schleuniger E300 for automated, precision cutting and stripping.
Verification	Dedicated test equipment for continuity, insulation, pull, and hi-pot verification.

## 8. Engineering Support

Our engineering team provides crucial support to reduce risk, lower costs, and improve manufacturability.

Discipline	Outcome
New Product Introduction (NPI)	Hands-on guidance to optimise efficiency and reduce time-to-market.
Design for Manufacture (DFM)	Expert feedback to simplify builds and increase yield.
Design for Test (DFT)	Guidance to optimise test, access and reduce diagnostic time.



## 9. Testing & Debugging

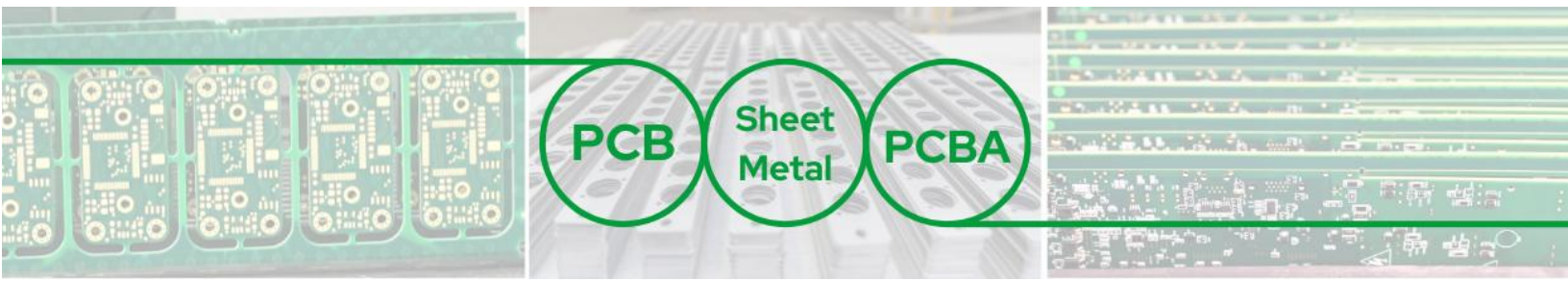
Our comprehensive in-house testing capabilities ensure product reliability and performance.

Capability	Details
In-Circuit Test (ICT)	GenRad 228X Bed-of-Nails with custom fixtures.
Automated Optical Inspection (AOI)	MYPro-151 3D-SMT Inspection.
X-ray Inspection	Unicomp AX8200 for BGA/LGA/QFN/CSP joint analysis.
Visual QC	Sciencescope CC SMART-A1-4K digital inspection.
Functional & EMC Testing	Performed to customer specifications in our in-house shielded chamber.
Radiation Safety Governance	In-house RPS and RPA on retainer, with IRR17-compliant rules and training.
Nitrogen Purge (Test Support)	On-station nitrogen supply for purge/blanket during specified tests.

## 10. Sector Experience

We have a proven track record of delivering for regulated, high-reliability sectors.

Application Area	What We Deliver
Mass Spectrometry	Long-term production of assemblies and sub-assemblies for MS instruments.
Medical RF Generators	Production and test of HF/UHF/SHF RF assemblies.
X-ray Imaging	Production and test support for X-ray devices.
Analytical Instruments	Pressure/flow sensor test.
High-Voltage Systems	Production and test of HV units up to 5KV.



## 11. Accreditations & Global Presence

ZOT is a trusted global partner with customers across the UK, Europe, USA, and Asia-Pacific.

Standard / Scheme	Status
ISO 1345:2016 (Medical)	Certified
BS EN 9100:2018 / AS9100D (Aerospace)	Certified
ISO 14001:2015 (Environmental)	Certified
IPC Standards	Compliant with J-STD-001, IPC-A-610, IPC-A-620
Cyber Essentials Plus	Achieved
JOSCAR Registered	Registered

