

Asia Magnetic Winding The EMS Solution

AWM-EMS Presentation

01

AMM AMMUTATION

The EMS solution

WHO ARE WE ?

AMW is an independent Company growing over the last 25 years in the electronic manufacturing services field, assembling under the same roof services from design to mass production, for magnetics components, PCBAs, sub-systems assembly and test, systems fulfillment.

Based in Thailand, AMW offers the merge of best-cost country advantages, local supply chain under taxes exemption and skilled associates to guarantee to Customers the best total cost scenario.

20 years of growth with our customers

>3 M | Products delivered worldwide

60 | Active customers Worldwide

810 | Employees

100 000 | Sqf

25 Km | From Sea Port

15 Km | From Airport

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OUR MARKETS



Energy Storage

Chargers, Converters,
Inverters
Battery Management
Advanced Battery System
Power Supply
Power Modules



Industrial

Control & Measurement
Management
HMI / Automation
Power Conversion
ATM, Vending machines
Lighting
Thermal comfort
Industrial Machine



Power Charger / E-mobility

Fast EV charger
Modular Power Charger
Cabinet
Power Charger Module
Converter / Inverter Battery
Battery Management
Systems (BMS)
Power Modules



Smart Building

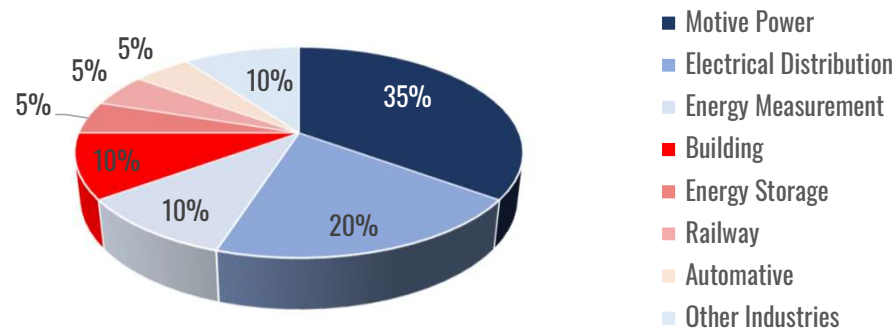
Utility Networks
Power Management
Smart Product
Lighting
Security & Safety
Energy Storage
Smart Appliance,
Smart Grid



Power Supply

Medical & Healthcare
Military & Aerospace
Telecommunications
Transportation
Lighting
Food & Beverages
Industrial

Another Market Overview



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AMW group is targeting to be a major player for the manufacturing of innovative products developed to meet the energy of tomorrow. Thanks to our various acquisitions, Radio-Energie and Acime technology, we are preparing the technologic pillars that will allow us to respond globally to our customer.

With 900 people and 3 sites in the world, AMW Group offers high technical skill and manufacturing capacity to imagine, develop and produce your future solutions.



THAÏLAND

Medium to High
Volume magnetic
manufacturing

Medium to High
Volume PCBA /
Integration
Manufacturing

Full Turn Key
Solutions from
prototype to Mass
Production

Engineering support
from Development to
Industrialization &
Ramp up phase.

ISO 9001 / ISO 14001



FRANCE

Low to Medium
Volume magnetic
manufacturing

Responsive & Flexible

> 30 years of
expertise

ISO 9001 / EN 9100



FRANCE

Low to medium
Volume DC Motor
and tachometer for
different markets

On the shelf product

ATEX Products

>70 years expertise
in Motor Design &
Manufacturing

ISO 9001 / ISO 14001



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OUR VISION

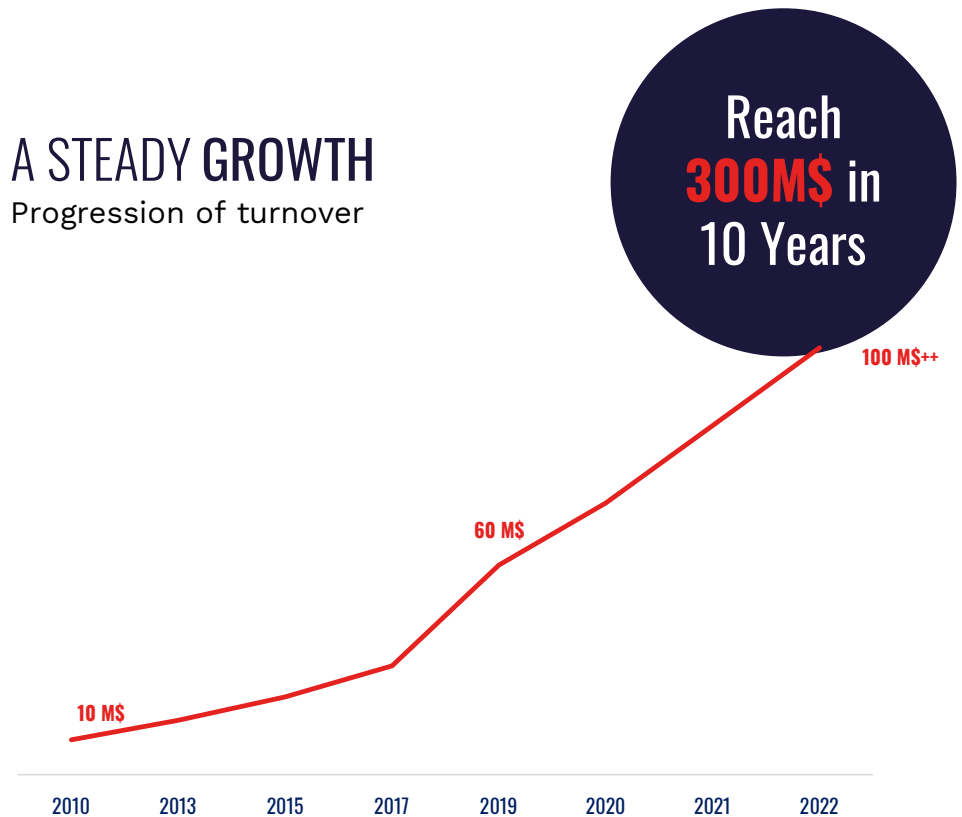


Mr Hervé Mouly
CEO & President

“Our high level of expertise for magnetics and electronic manufacturing services offers growth opportunities to our Customers. We are looking to participate in the development of tomorrow’s products whilst building long term partnerships.”

A STEADY GROWTH

Progression of turnover



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OUR FACTORY

Fully connected

High level access control

Fully ESD, temperature and humidity controlled

High-end biometric access to critical areas (face recognition) for control & traceability

Advanced visitor management system to protect integrity and confidentiality

10Gb Optical Network for a strong data network

24/7 capability



A Factory built, set up and ready to support and guarantee our journey to walk with you in your future.

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02

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Offerings

End to End solution for Power Electronic Manufacturing

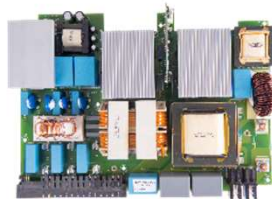
01 Magnetics

With 24 Years experience in design & manufacturing of magnetic winding components, AMW delivers innovative high quality products and supports you, from design to end of life



02 PCBA

AMW offers manufacturing services for PCB assembly and tests. Supported by state of the art equipment's (recurrent annual investments of several million dollars)



03 Integration

In order to support our customers in optimizing their end to end supply chain, we offer a box build and system integration service.



03 Cabinet

Through a network of preferred suppliers, we provide complete solutions up to Configure To Order (CTO) service for enclosure & Cabinet manufacturing



Expertises

Qualification

- Over 50 graduated engineers in electronics and mechanics.
- Internationally-graduated specialist engineering team leaders.

Experience

- Wide experience in various industries (Electronics, Plastic, Winding and Mechanics) with seniority for our personal (from Supervisor to senior management).
- Specialized electronics sourcing team.
- In-house ERP development team.

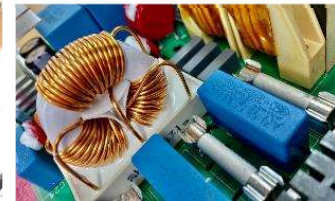
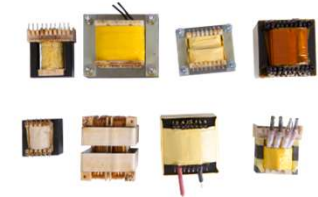
Diversity

- 4 Nationalities and 5 languages spoken

Magnetic Business Line

MAGNETICS

- Power transformer
- Linear transformer
- Current transformer
- Choke (toroidal or ferrite core)
- Planar transformer
- Coil
- Copper foil
- Parameter test 100%
- Hipot test 100%
- UL listed



With 24 Years experience in design & manufacturing of magnetic winding components, AMW delivers innovative high quality products and supports you, from design to end of life.

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A various range of Magnetic Products

FERRITE CORE

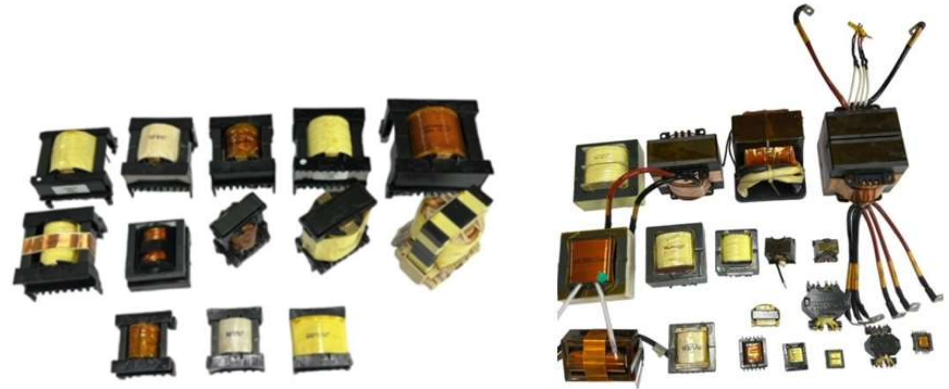
- E 5 – E70.
- ETD 29 – ETD 59.
- EFD 10 – EFD 30.
- EP 7 – EP 13.
- PQ 20 – PQ 65.
- RM 5 – RM 14.

TOPOLOGIES

- Flyback transformer;
- Current sense transformer;
- Push-Pull Transformer;
- Boost-Bulk Transformer;
- Inductor;
- Resonance Choke;
- Etc.

TEMPERATURE CLASSIFICATION

- Class B (130°C)
- Class F (155°C)
- Class H (180°C)



Safety standards:

- IEC 60950
- IEC 61558
- IEC 61869-2

Insulation system:

- OBJY2 (E325674)

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A various range of Magnetic Products

TOROIDAL CORE

- E 5 – E70.
- ETD 29 – ETD 59.
- EFD 10 – EFD 30.
- EP 7 – EP 13.
- PQ 20 – PQ 65.
- RM 5 – RM 14.

TOPOLOGIES

- Current transformer;
- Output choke;
- DC choke;
- PFC Choke;
- Common mode choke;
- Line filter;
- Etc.

TEMPERATURE CLASSIFICATION

- Class B (130°C)
- Class F (155°C)
- Class H (180°C)



Safety standards:

- IEC 60950
- IEC 61558
- IEC 61869-2

Insulation system:

- OBJY2 (E325674)

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A various range of Magnetic Products

SILICON STEEL CORE - EI 14 – EI 105

TOPOLOGIES

- Low frequency transformer;
- Step up-Down transformer;
- PFC choke;
- Inductor;
- Potting transformer.

TEMPERATURE CLASSIFICATION

- Class B (130°C)
- Class F (155°C)



Safety standards:

- IEC 60950
- IEC 61558
- IEC 61869-2

Insulation system:

- OBJY2 (E325674)

A various range of Magnetic Products

SILICON STEEL & TOROIDAL CORE T 90 - T 172

TOPOLOGIES

- Low frequency current transformer (CT);
- Class 0.5, Class 1, Class 3.

TEMPERATURE CLASSIFICATION

- Class B (130°C)
- Class F (155°C)



Safety standards:

- IEC 60950
- IEC 61558
- IEC 61869-2

Insulation system:

- OBJY2 (E325674)

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PCBA Business Line

PCBA

Automated Picking / Kitting,
Warehouse

3 x Surface Mount Technology
Lines, Large size, Full
configuration, SPI (3D), AOI
(2D/3D), 12 zones reflow,

3 Solder wave + 1 selective Wave

1 Cleaning machine, 1
contamination Test Equipment, 1
3D Xray

3 x Conformal Coating Lines



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Integration Business Line

Module & System Assembly

Local supplier for Metal, Plastic part,

Dedicated line for Wiring, cabling,

Mechanical integration, metal, plastic, wiring, harness,

FCT test, Burnin , System Test, Hi Pot test

Configure to Order, Shipment to Order,



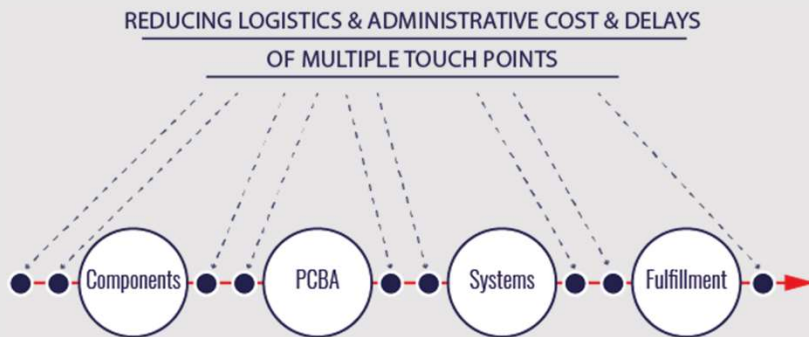
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SUPPLY CHAIN

A value chain organization focused on a local and flexible supply chain to optimize your end to end supply chain total cost and reach the end market faster.

- Total cost as a key driver
- Ensure continuity of supply
- Strategic & tactical sourcing
- Achieve constant cost saving from suppliers



No Import Taxes on Material

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European Services

We adapt our supply chain to your market.

You need Competitive price, flexibility, responsiveness, local content..., we support you with different capabilities

- Full Turn Key solution from Thailand
- PCBA Turn key solution to your site for integration
- PCBA shipped to our site in France for system integration and customization to order
 - Minimize Freight Cost
 - Kanban, Dispatch services
 - Integration & Configure To Order services
 - Made In France / Eu.
 - Reduce Cash Exposure
 - Improve response to demand variability



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OUR Values

AMW has developed an organization to support you from Magnetics to PCBA, All the managers speaks French, English and help you from Engineering to mass Production.



Exceed Customers Expectations



Listening to the customer



Support from Experts



Long Term Partnership



Best total Cost



Respect our commitments

OUR TALENTS



Songrit Thipratsoontorn

Supply chain Director
English, thai



Emile DUMAY

Production Director
French, english, thai



Romain Garnier

Program Director
French, english



Sakolsak LEELERDPHAN

Engineering Director
French, english, thai



Yannick Ugoletti

Quality Director
French, english, thai



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OUR REFERENCES

Most of our customers started with magnetics procurement and moved to a win/win integrated solution from AMW starting from Engineering support, Design For excellence NPI support, Magnetic manufacturing, PCBA manufacturing, Test System assembly.

With an integrated solution, we deliver the best total cost to our customer whatever the final destination



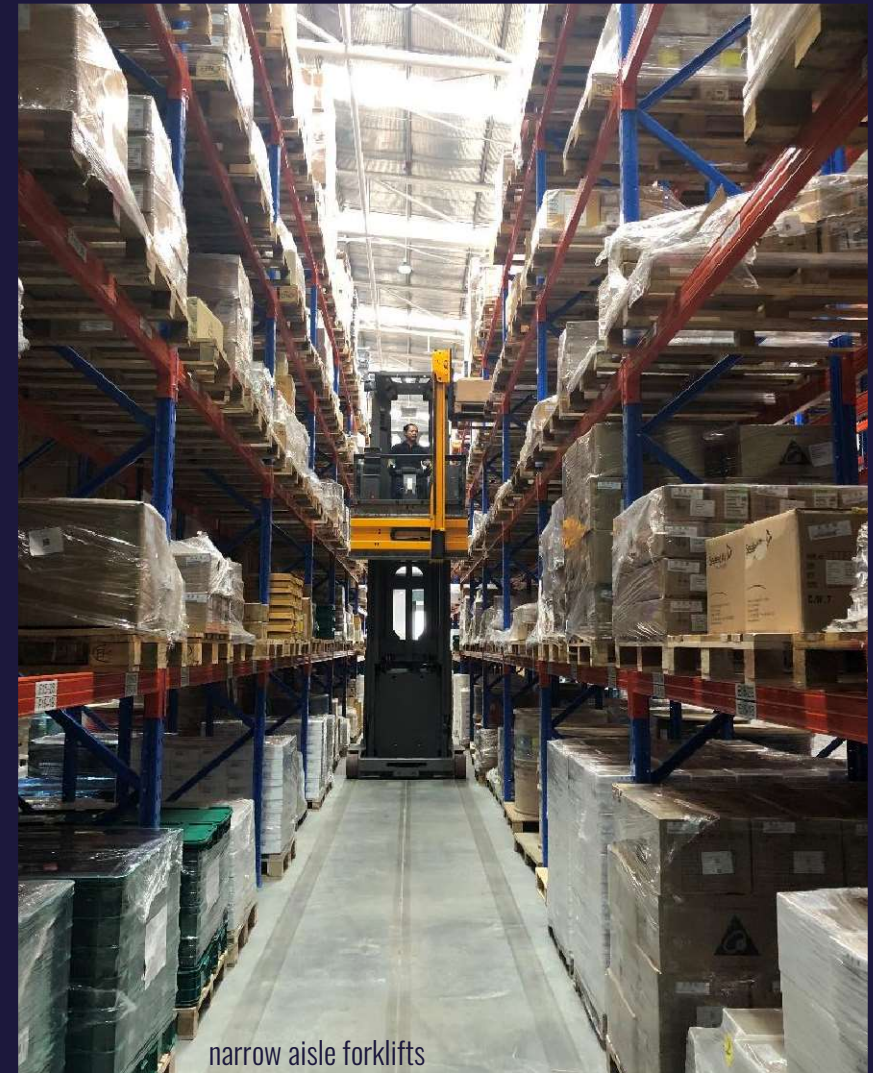
03

AMV AMERICAN MARINE VETERANS

STRENGTHS

CAPACITY

- 160 000 hours of labor available per month all year round.
- 50,000 Power Module production capacity (in 2 shifts per month)
- Power Cycling Equipment for burn test up to 50KW
- Large machine investments
- Structure adapted to UL productions and UL approved products



narrow aisle forklifts

EFFICIENCY

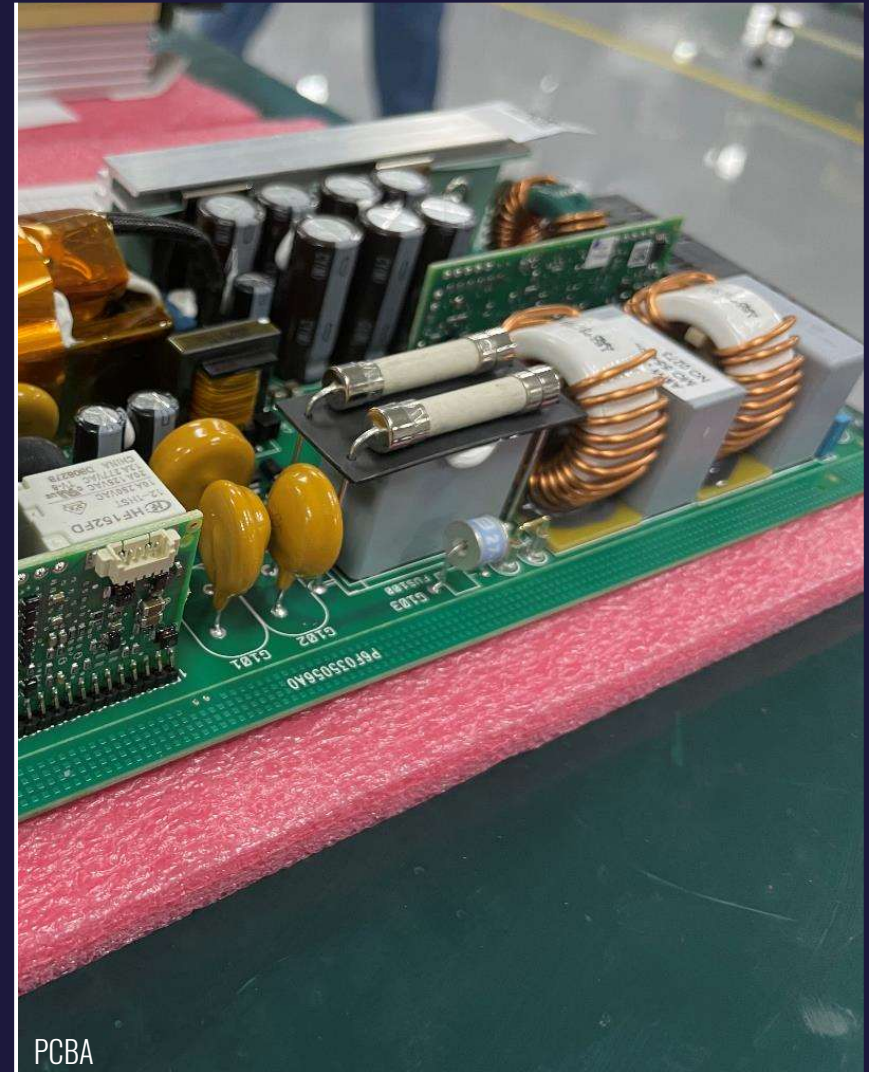
- Low cost skilled manpower
- Direct local sourcing in Asia with our office in Taiwan.
- Low turnover of management & team leaders
- Fully licensed exporter with governmental advantages
- Complete traceability of all products and components



Coils

FLEXIBILITY

- Capacity of 12h per shifts, 7 days a week
- 100% individual ownership of the capital
- Working Conditions :
 - Competitive labor cost
 - Internal supportive salary policies (above minimum)
 - Stability of Government policies & exchange rate vs USD
- Located in Thailand :
 - Government facilities to support exporter
 - Historic special economical relationships with the US.
 - Easy access for foreigners (No visa)
 - Regional Platform



INVESTMENTS

2022
Investments
3M\$



Automated Component Storage

04

AMM

EQUIPMENTS

SMT line #1, #2



AMW is equipped with 2 similar SMT lines, using the same configuration and capabilities, From **0402 up to BGA**, our line offers a high flexibility in PCBA assembly. All lines controls Solder Paste Volume, and has an Automatic Optical Inspection after Reflow. For Power Electronics, our Thermal reflow has 12 zones (9H, 3C) Our line are able to assemble **Large PCBA's**.



STENCIL CLEANING

GEN3
N29



510 x 508

510 x 580

610 x 560

510

510 x 460



Printer
ASM(Icon)
I6



SPI
PARMi
SIGMA XL



Dispenser
MICRONICS
MYD10X



Chip Shooter
JUKI
KE-3010XL



Pick & Place
JUKI
KE-3020VXL



Reflow Oven
VITRONICS
MR933+
12 Zones



AOI
MIRTEC
MV-6e

X 2

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SMT line #3



AMW invested in 2022 in a 3rd SMT line,
This new line offers a high speed capacity (190K Cpts/H)
All lines controls Solder Paste Volume, and has an Automatic Optical Inspection after Reflow.
For Power Electronics, our Thermal reflow has 12 zones (9H, 3C)
Our line are able to assemble **Large PCBA's**.
**Fully automatic change Over, Traceability, 3D SPI (20 Micron accuracy), High speed (190Cpts/h),
AOI 2D, 3D, 4D inspection, 12 Micron accuracy inspection.**



STENCIL CLEANING

GEN3
N29



810 x 490

YSP10



Printer

YSi-SP



3D SPI

YSM20R



Chip Shooter / Pick & Place

YSM20R



HELLER 1936



Reflow Oven

YSM20R



AOI

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Standard PTH line

AMW is equipped with 3 Solder Wave able to deliver ,
For Power Electronics, our Thermal reflow has 12 zones (9H, 3C)
Our line are able to assemble Large PCBA's.

Line 1

(up to 450mm width)



Solder Wave **JUKI**
JT-DUAL WAVE
WS450

Line 2

(up to 457mm width)



Solder Wave
ELECTROVERT
VECTRAES

Line 3

(up to 508 mm width)



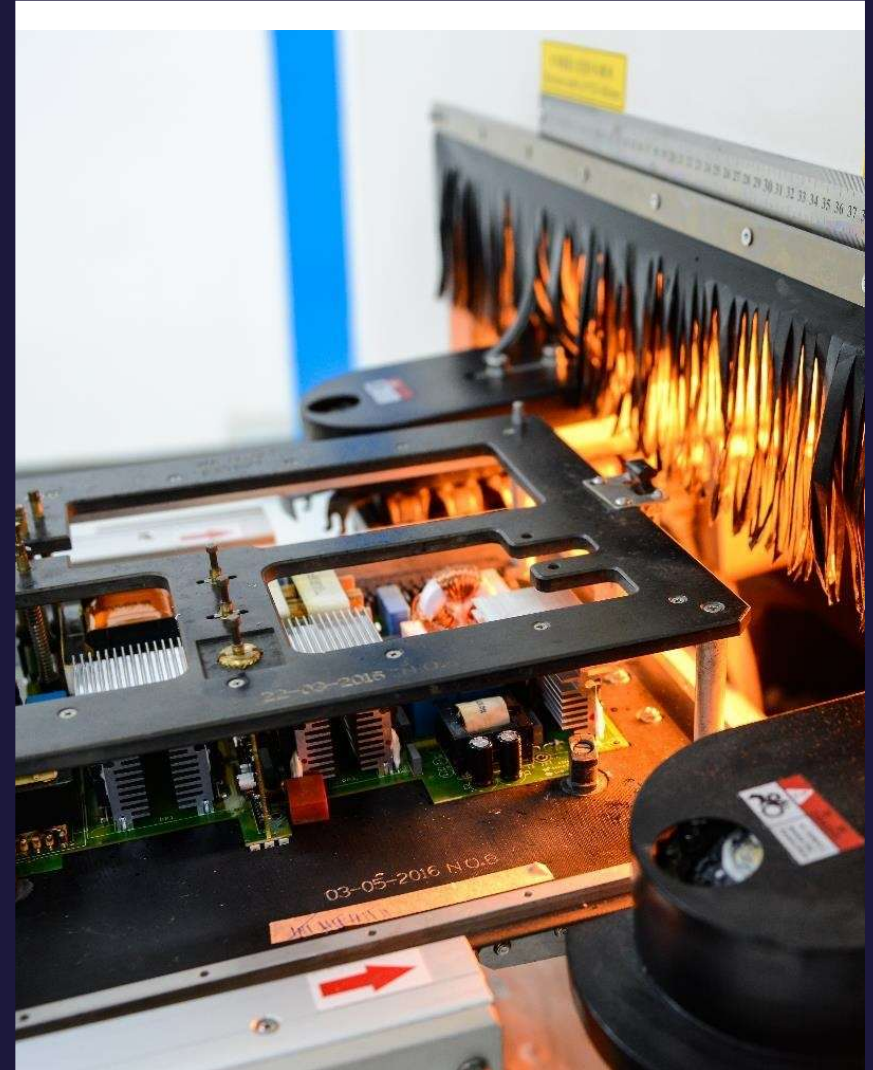
Solder Wave
ERSA
POWERFLOW

Selective wave

(up to 508x508 mm)



Selective Wave
ERSA
VERSAFLOW 3/35
ELITE PLUS



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First PCBA Acceptance

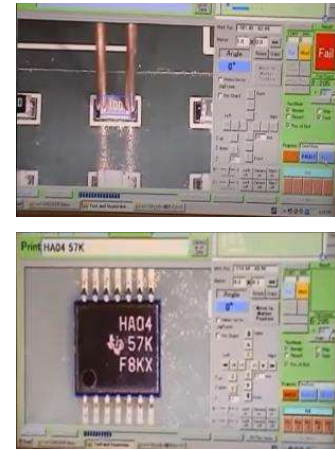
For any new PCBA production order, AMW is doing an automatic First Article Inspection at the SMD level (double side tape or after reflow) in order to minimize risk of quality before engaging the full lot of production

Key Features

- Precise LCR testing (inductance, capacitance, resistance) on the first PCBA.
- Optical inspection (Orientation, dimension, polarity, Pin#1 identification)
- Reduce Change over works
- Eliminate Human Errors
- Quick & reliable Test



Newly Tsuchiyama Automatic FAI Tester



Visual verification and electric measurement tests done automatically on SMD components for for PCBA's.

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Test & Control

AMW monitors Quality and control all along the process :

- Image Dimension Measurement
- Solder Paste Inspection (SPI)
- 3D Automatic Optical Inspection (AOI)
- In Circuit Test (ICT)
- Functional Test (FCT)
- XRAY inspection (XRAY)

Key Features

XRAY Inspection for :
PCB's, SMT and PTH assemblies
IGBT's

ICT Test for :
accurately detects shorts, open, wrong components, missing components and reverse mounted components for resistor, capacitor, diode, transistor, inductor, LED and FET.

AMW Supports in developing and manufacturing all necessary Fixtures for ICT, FCT...



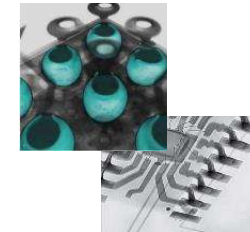
Image Dimension Measurement



SPI & AOI in line



In Circuit Test



Xray Control

All of our manufactured products are tested and controlled as early as possible in the process flow to ensure the highest quality for our customer

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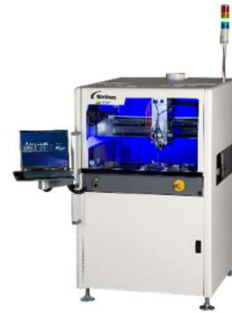
Special processes

Prepare your product for harsh environment
Protect your product with Conformal coating
or potting

Key Features

Automatic Cleaning (Mb-Tech NC25)
Ionic Contamination Test (Gen3 CM+)
Automatic Coating with Acrylic and
Polyurethane (robotic selective conformal
coating machines)
Infra Red and UV curing

Potting process with
Accurate two-component, fixed ratio
dispensing
X/Y Automatic positioning systems



Conformal Coating



Potting



Cleaning
MB-TECH
NC 25



Ionic
Contamination
Test
GEN3
CM+

Protection of PCBA against environmental attacks
is supported at AMW.

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05

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ENGINEERING & INDUSTRIALIZATION

ENGINEERING

Wherever the place of design is, AMW and your design groups, work together from the first design phases till the mass production to introduce a maximum of industrial recommendations to optimize your products (time, quality)

As a partner, we want excellence for our customers and it is through our design for manufacturing, design for procurement, design for test, design for assembly tools that we can assure quality manufacturing at the best cost

OUR TOOLS



- Total cost as a key driver
- New product development
- Prototype & mockup service
- Production support & NPI
- New product introduction
- Test development
- Protect customer's intellectual property

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Engineering Capabilities

Data Processing and Design analysis

- Component Engineering

We work with Silicon Expert tools for BOM sustainability analysis

We propose alternative PN for BOM cost, sustainability, inventory and lead-time optimization

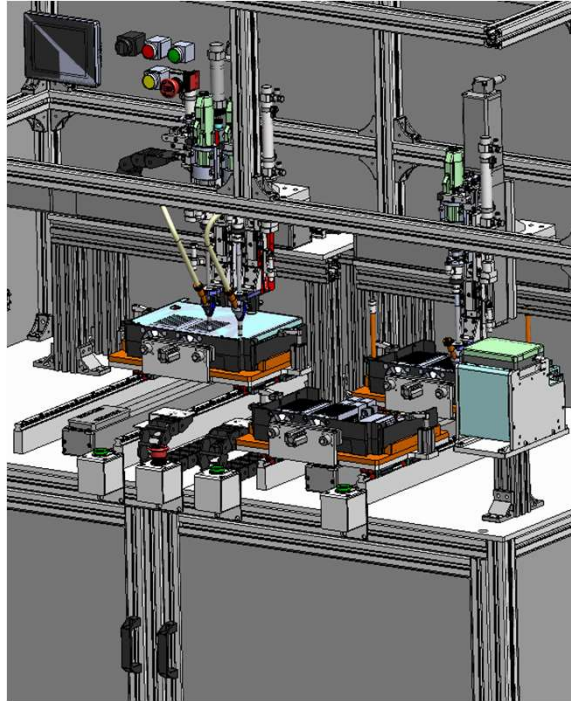
Then we support our partners about REACH, RoHS, conflict mineral and IMDS

- DFM : Design for Manufacturing

From the product design or concept, our process engineering team build a detailed report for design recommendation in order to optimize manufacturing process, product quality and transformation cost

- DFT : Design for Test

Our Test Engineering team propose testability analysis about in-situ testing and functional test coverage then propose design recommendation for testability improvement



Engineering Capabilities

- **Industrialization**
 - NPI management
 - Manufacturing Process Flow definition
 - Lean Manufacturing implementation
 - Product life cycle management
 - Robot and automatic machine setting
 - Tooling design and manufacturing
- **Automation and Tooling**
 - Jig, fixture design and manufacturing
 - Robot and automation implementation
 - Machining design and assembly
- **Test**
 - Functional test bench design
 - Automation testing system design through Labview, Labwindows/CVI, TestStand, Visual Studio



06

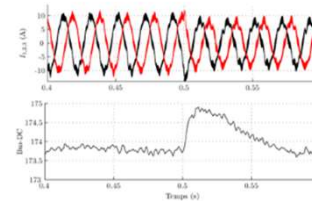
AMM AMM

R&D

R&D Capabilities

- **Power Electronics**

- AC/DC and DC/DC converter from 15W to 10kW
- HF switching mode topologies
- Magnetics Component Design
- Natural or forced air cooling
- Analog or digital control
- Rack, module, cabinet or open frame integration



- **HW Electronics**

- Spice simulation
- Altium Designer PCBA design
- Mathcad calculation
- Magnetics components design

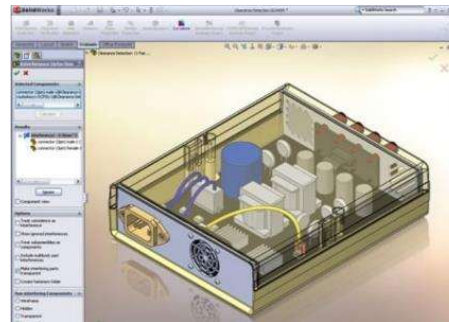
- **SW Electronics**

- Embedded software design
- Advanced digital control implementation
- Industrial communication CANbus, Modbus, Ethernet

- **Mechanical**

- Solidworks 3D model design
- Severe environment integration
- Casing IP20 up to IP65

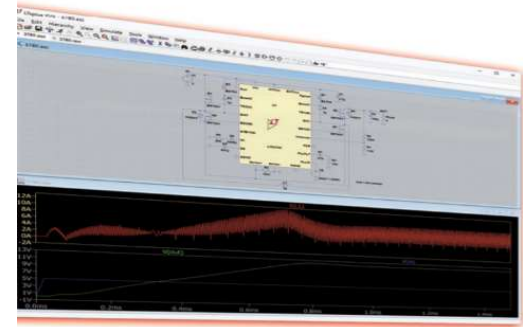
OUR TOOLS



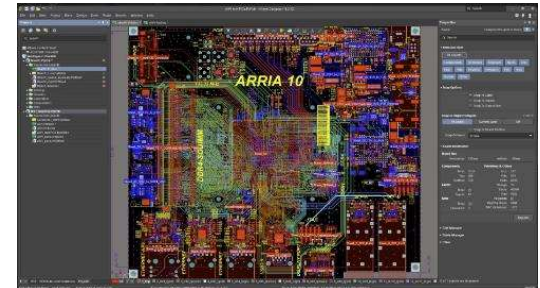
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R&D Scope

- **New Product Development**
 - R&D team dedicated to fulfil customer Product specification
 - Design of full Power Electronics product or sub-assemblies
 - Feasibility study
 - Product Design and Integration (Hardware, Software, Mechanical)
 - Prototype debug, verification, validation, qualification
 - Close product development with Engineering team for DFP, DFM, DFT and product industrialization
- **International Standard compliancy based on specification**
 - CE-marking, UL
 - EMC qualification (e.g. IEC 61000-6-x, IEC 55032)
 - Safety qualification (e.g. IEC 62368-1)
 - Specific Application standard compliancy (e.g. Railway)



LTSpice® : high performance SPICE simulator



Altium Designer® : Schematic + Layout

OUR PARTNERS



07

AMV AMERICAN MOTOR VEHICLES

QUALITY

HEALTH ENVIRONMENT AND SAFETY

MANAGE

ISO 9001 certified
UL (E325674) certified
IATF 16949 level anticipated

MANPOWER

IPC 610 trained operators
Internal trainers IPC certified

METHOD

Full traceability &
Paperless records

MATERIAL

100% ROHS compliant
REACH / Conflict Minerals

MACHINES

Quality Laboratory
(X-Ray, Micro-section,...)

ENVIRONMENT

ISO 14001 certified



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TRAINING ROOM

AMW's strength is its adaptability and production capacity to ensure your manufacturing processes on a case-by-case basis. Depending on the need, the teams concerned are trained in IPC standards (IPC-A-610 class 2 and 3), thus allowing a better level of control and respect for the adaptability criteria on the components

In order to minimize the impact of turnover, we take particular care to ensure that our new employees are trained as thoroughly as possible and on firm criteria, in order to always ensure the same quality in our productions. This training allows us to ensure the production of parts over the long term without impacting their quality or the feasibility of your project




Certified IPC-A-610
Application Specialist

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THANK YOU

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