MADES

Electronic Manufacturing Services
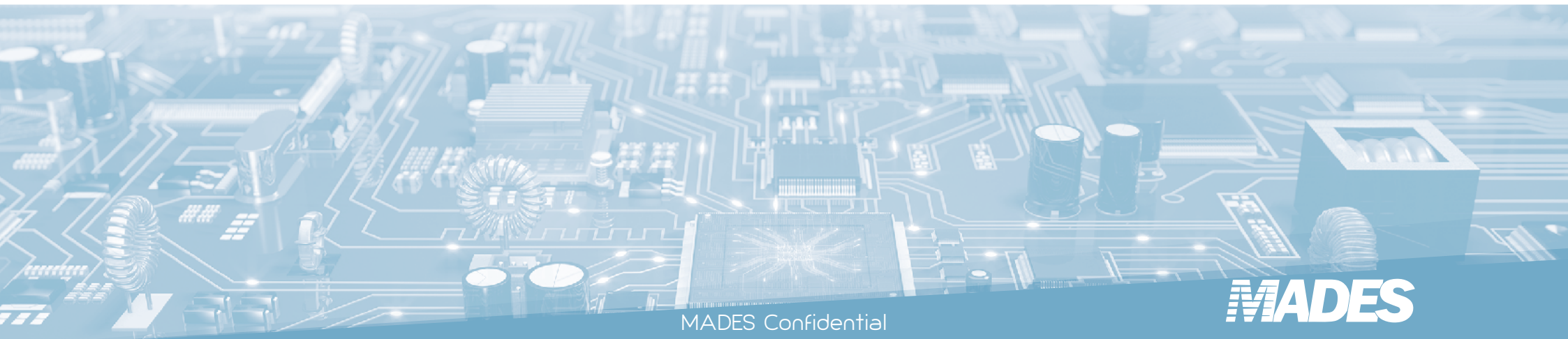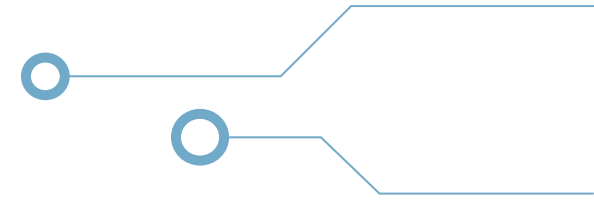
www.mades.es

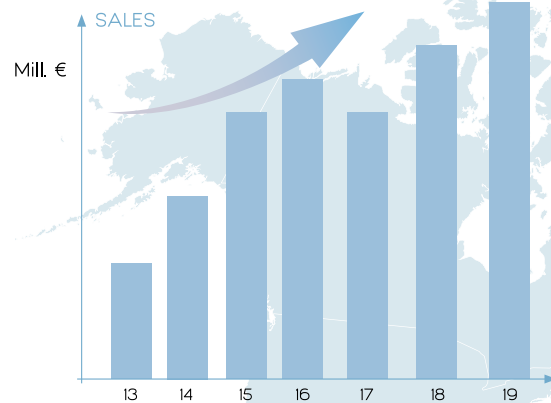# Introducing MADES

o Mades at a glance

o Applications

o Our Services

o Building Customer Trust & Operational Excellence

o Why Mades

MADES

MADES at a glance

> 13 percent Compound Annual Growth Rate (CAGR)

> MADES Six Sigma: a process and culture of continuous improvement

> Technology Park of Andalusia (PTA) in Malaga, Spain

SALES

Mill. €

13 14 15 16 17 18 19

How

Where

When

What

Who

> Major supplier of system level electronic assemblies
> Electronic Manufacturing Services
>   • Design From Specs
>   • Industrialization
>   • Manufacturing
>   • Testing & Integration
>   • Lifecycle Support

> More than 100 highly skilled professionals: engineers, technicians and operators
> Subsidiary of AIAC

> 25 years of experience delivering customer solutions

MADES

About AIAC

Over
8,500
employees

$1.6B
in aggregate revenues

Industrial porfolio of
75
companies

+20
years track record

PROCESSES

o Electronics

o Aerostructures

o Metal Work

o Cables

o Pharma

MARKETS

o Industrial

o Defense

o Aerospace

o Medical

o Automotive

MADES

Applications

Air & Heli-borne electronics

IFF ELECTRONICS

FLIGHT CONTROL

NIGHT VISION & TARGETING EQUIPMENT

COUNTER MEASURES

CRITICAL SENSORS

POWER & CONTROL ELECTRONICS

ELECTRONICS FOR TARGETING SYSTEM

* Actual platforms are examples for explanation purposes.

MADES

Applications

Missile & Tactical Surveillance Systems

TELEMETRY ELECTRONICS

STEERING CONTROL

THRUST VECTOR ACTUATION

SIMULATION ELECTRONICS

TARGETING SIGHT SYSTEMS

ACTUATION SUB-SYSTEMS

* Actual platforms are examples for explanation purposes.

MADES

Applications

Medical Systems

DIGITAL
HEARING AID

IMPLANTABLE
MICROTRANSPONDER

PORTABLE
ELECTROCARDIOGRAPH

3 SEC 73 PULSES/MIN

MADES

Applications

Industrial Systems

SUPERVISORY
CONTROL & DATA
ACQ. SYSTEMS

NAVIGATION
AIDS

UTILITY
METERS &
PRE-PAYMENT

MADES

Applications

Other sectors

EMBEDDED
ELECTRONIC ON
NANOSATELLITES

ON–BOARD
COMMUNICATION SYSTEMS

RAILWAY TRAFFIC
CONTROL

MADES

Our Services

Design From Specs

Industrialization

Manufacturing + Testing

Integration and other services

PRODUCT LIFECYCLE SUPPORT
Full Supply Chain Management. Extended Warranty, Obsolescence
& Counterfeit contingency, REACH, Repairs & Logistics Support

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Development from Specs

○ From Specs through detailed Design and prototyping to volume production and life-cycle support

○ Design partner integrated with Manufacturing to minimise time to market & cost

○ Internal resources & best selected collaborators to optimise manufacturing, testingand product performance

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Industrialization

FAST-TO-MARKET
From Design to Prototypes & Qualification

Specs	Design	Rapid Prototyping	Product Qualification	INDUSTRIALIZATION

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Manufacturing

PROCESS RELIABILITY

TEST & SYSTEM INTEGRATION

ISO 13485
Medical

Nadcap
7120
Electronics

AQAP 2110
NATO

AS9100
Aerospace
& Defense

QS9000 –
IATF 16949
Automotive

ISO 9001

E L E C T R O N I C   A S S Y S

3D X-Ray
IPC Certified IPC-A-600
Ionograph Equipment
MADES Six Sigma
3D AOI
ICT Enhancement
Enhanced Systems Integration: Harness and cabling tooling, fixtures, and test
Industry 4.0
20 GHz

Visual Management
Flying probe Enhancement
ESS: Thermal Chock Chamber

IPC Certified IPC 7711/7721
Mission Assurance Plan deployment
IPC-A-620
3D SPI
ESS: Climatic Thermal Chamber (15ºC/min)
RF Test Bench Development

CCA/Parts Dry Room Storage
IPC J-STD-001
Counterfeit Risk Mitigation Plan
Segregated Silicon coating room
Mobile Thermal Airstream Chamber
8.5 GHz
RF Electrical Design

FOD
Risk Analysis
Obsolescence Management
Harness and cabling integration and test
JTAG Boundary Scan

Tin-Whisker risk Mitigation Plan

IPC-A-610
Repair & Reballing
ESS: Climatic Thermal Chamber
Wiring & Flex Continuity and Insulation Test
High Accuracy uBGAs, QFNs, 01005 Chips
Vapor Phase Oven
SMT Line Enhancement

Fluorescence X-Ray
Ionic Contamination Tester

Component Traceability
5S
Functional Test Development
5 GHz
CCA Industrialization & optimization (DFM)

Raytheon Six Sigma®
ICTs with boundary scan + MDA
Parylene Vapor phase deposition
Enhanced BGA rework station

X-Ray Inspection
AOI
Flying probe
Device Bonding
PWB Design & Relayout

Lean Manufacturing
Machined controlled routing
Coating Immersion, Spraying, Selective, Brushing
BGA Underfilling
CCA Electrical Design

Poka-Yoke
Dedicated Work-Cell
Ball-Grid-Arrays
Mixed Leaded/RoHS Assemblies
Robot PtP Soldering
Encapsulation

Co-Solvent Cleaning system

SemiAut. Insertion
Lead Free Assy
Gold Ball Bonding
Customized Manufacturing Equipment for Special processes

In-Circuit-Test
Chip-On-Board
Press fit Connectors

SMT Lines
Wave Solder High Volume

1999 – 2000	2000 – 2005	2005 – 2010	2010 – 2015	2015 – 2020

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Testing & Integration

PRODUCT RELIABILITY
High frequency testing / High power system testing

PARAMETRIC ELECTRICAL TEST

- In-Circuit Test (Bed of Nails)
- Flying Probe Testing for rapid feedback

FUNCTIONAL TEST

- J-Tag Boundary Scan
- Functional testing of CCAs or complete systems
- Gral. Purpose or Product-Specific customized platform

ENVIRONMENTAL STRESS SCREANING (ESS)

Wide scope of ESS:
- Thermal Cycling and Shocks
- Vibrations test at system level
- Stability assurance under Humidity
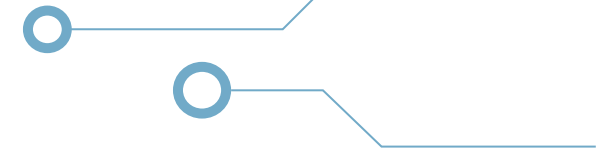
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Testing & Integration

- Customer's Virtual Factory at MADES' premises

- Electro-mechanical Assemblies

- Complete Box-Build – Cables & Harnesses

- Development of custom-made equipment & Special Processes Automatization

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Program Management

Project Planning

Scope Definition

Cost Effectiveness
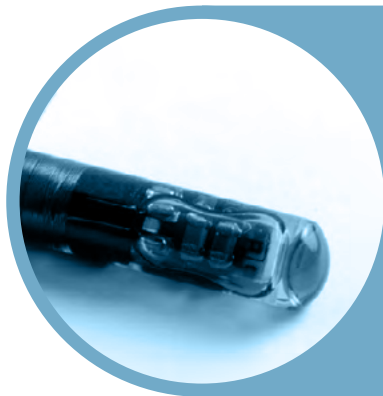
Balanced Resources

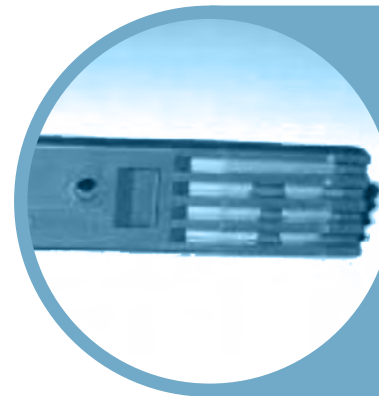Record Time

Risk Management

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Building Customer Trust

Examples of long-term customer relationships

+ 24 Years

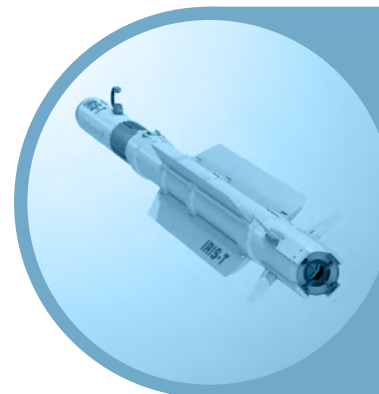+ 105 Million
Transponders

USA & EU

+ 23 Years

+ 23 Million
Electricity keymeters

UK

+ 20 Years

+ 600 Thousand

Automotive
Navigation Aids

EU & USA

+ 15 Years

+ 20 Thousand

Actuation Systems

EU & USA

MADES

Operational Excellence

o Center of Excellence for Electronic Manufacturing Services

o State-of-the-art technology and continuous investment in talent and R&D

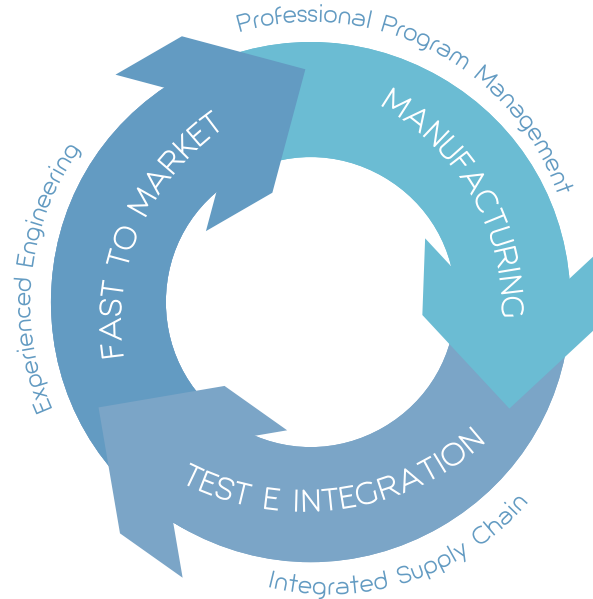o Member of associations focused on Operational Excellence

Quality Certifications

o ISO 9001

o Nadcap 7120 Electronics

o NATO AQAP 2110

o EN9100 – Aerospace and Defense

o Customer Special Process Facility Qualified

o IATF 16949 – Automotive

o ISO 13485* – Medical

AENOR
ER
Empresa
Registrada
ISO 9001

AENOR
ER
Calidad en
Automoción
IATF 16949

AENOR
ER
Calidad
Aeroespacial
UNE-EN 9100

ASEGURAMIENTO DE LA CALIDAD
PECAL/AQAP 2110

Accredited
Nadcap™
Electronics

★★★★★
5-Star
Excellence Award
— 2017 —
MADES
Malaga, Spain

Raytheon
Integrated Defense Systems

* MADES manufacturing processes and Quality System are aligned with requirements of ISO13485

MADES

WHY MADES?

Professional Program Management

MANUFACTURING

Experienced Engineering

FAST TO MARKET

TEST E INTEGRATION

Integrated Supply Chain

○ Mature and strong processes, compliant with industry policies and certifications

○ Proven experience in major multinational programs for more than 25 years

Quality

MADES	<50 ppm
Industry Target	500 ppm
Industry Standard	1.000 ppm

On Time Delivery

MADES	>99,5 %
Industry Target	98 %
Industry Standard	>96 %

MADES

MADES

Strategically located in the Technology Park of Andalucía (PTA), an innovation and development cluster in Malaga.

- Pablo Picasso international airport (AGP)
- High Speed train (AVE) hub
- Malaga port

📍 Avda. Juan López de Peñalver, 12
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29590 Málaga (Spain)

+34 952 249 200

25 years Right Team
Right Tools
Right the First Time

Inspiring, Discovering and Creating
Together for over 25 years