# DESIGN TO MASS PRODUCTION











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"The three great essentials to achieve any thing are, first the hard work, second the perseverance, and third the common sense."

THOMAS ALVA EDISON

• • • • One Country, All Solutions



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**CORPORATE GROUP** Turnkey Solutions

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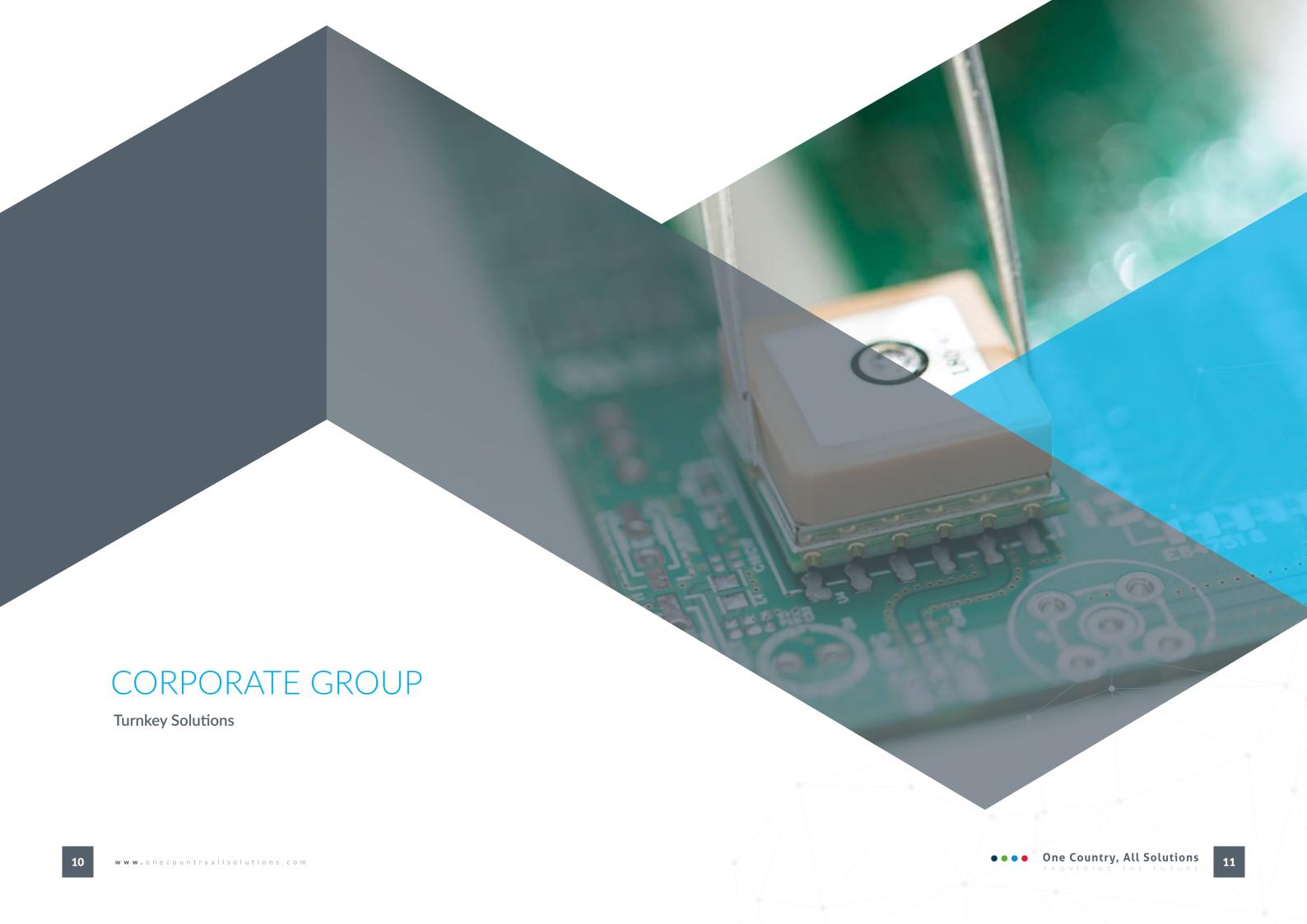


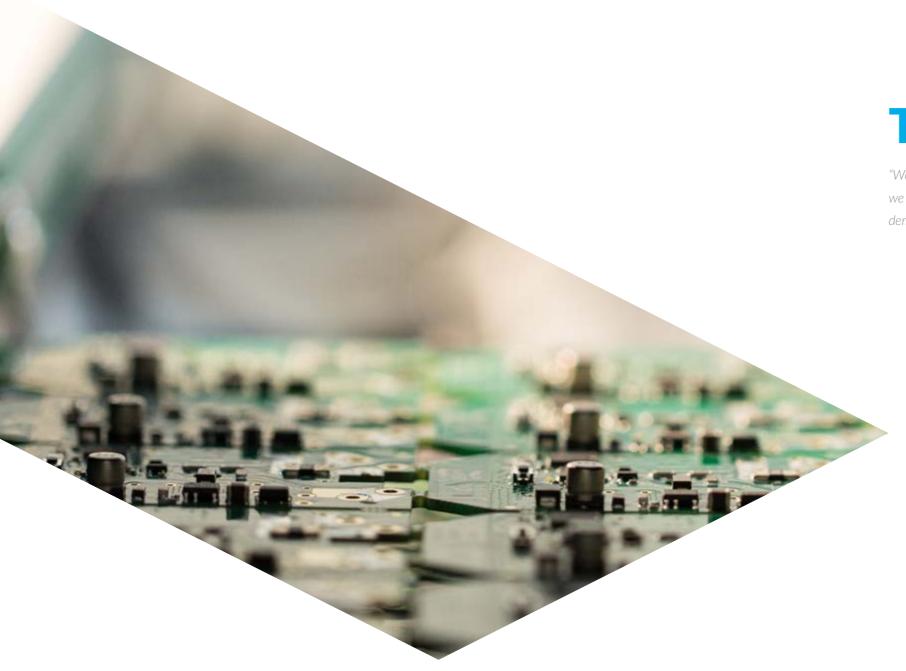
### **Brand Concept and Slogan**

"Our Symbol is a stylized tree to give focus on a continuous and global growth without forgetting that the import thing are the persons and that we are all connected. It's people that make everything happened."

One Country, All Solutions® is a new
Portuguese Brand aimed at the unification of
companies, with the main objective of being
able to provide its customers and partners,
greater comfort and quality in delivering
customized, innovative solutions in electronics
sub-contracting. Since the development
to manufacturing, we will find innovative
solutions according to your requirements.

Providing the Future, the brand **One Country, All Solutions®**, is able to idealize, develop, build prototypes, industrialize, test and manufacture with high quality all the electronics solutions requested by its customers. Our goal is to build a long term business relationship based on trust and satisfaction.





### **Turnkey Solutions**

"Working on the EMS sector for more than 20 years allow us to have a full range expertise and confidence that we are the right partner for becoming your electronic subcontracting partner. Our main clients are found in demanding sectors like telecommunications and automotive."

"From design to mass production, we provide customers with various kinds of services to meet their requirements."

### **OUTSTANDING FEATURES**

We are group of 4 companies, dedicated to Our main costumers are from demanding electronics and with a strong competence markets like Germany, Switzerland and France, on the electronic market according costumer but you can find our electronics spread all over requirements. We provide a full service the world. More than 80% of the assembled custom engineering able to hard and software boards are for export. development.

In global we represent 35 million euros on sales (only services) and more than 600 employers.





#### **DESIGN, ENGINEERING**

- > Hardware
- > Firmware
- > Software
- > Test Scenario



#### **PROTOTYPING**

- > Small production for product validation
- > Anticipation of potential problems
- > Analysis for industrialization





### **TOOL & MOLD DESIGN**

- > Plastics injection
- > Machining enclosures



### **INDUSTRIALIZATION**

- > Project optimization
- > SMT and THT assembly
- > Cable assembly
- > Test
- > Coating and potting
- > Enclosures

#### **TESTING**

- > Burn-in
- > Needle Bed Tests ICT, Current, Freq. & Tens.
- > Functional (according to Client Specifications)
- > Ethernet / RF Test
- > Boundary Scan
- > Gang-Programming
- > GPS/GSM
- > JTAG
- > Electrical and Optical Transmission



#### **PURCHASING**

- > Materials cost optimization
- > Proposal of alternative suplly sources
- > Purchase only defined part number
- > Purchases only in certified distributers
- > Obsolescence management and analysis



#### **ORDER FULFILLMENT**

- > All production according costumer requirements
- > Flexibility towards costumer request
- > Technical support



#### **TRANSPORT AND LOGISTICS**

- > Packaging
- > Shipment
- > Documentation support
- > Insurance
- > Storage



#### **REPAIR AND REFURBISHMENT**

- > Sort & triage
- > Advanced repair techniques
- > Live test
- > Repair reports (date, serial number, type of repair)
- > BGA replace / reflow /



#### **QUALITY COMMITMENT**

- > Challenge to ZERO defect in production line
- > Special inspections in the mass production lines
- > SPI and AOI in-line
- > X-ray approval
- > Traceability system for parts/components
- > JIT (Just in time delivery)
- > Continuous improvement
- > Regulatory compliance







### Company

**HFA** - Henrique, Fernando & Alves, S.A. was **founded in 1995**.

"It's a Portuguese EMS with more than 20 years of experience, helping our Costumers since design, manufacture, test, distribute, and provide return/repair services. Our goal is to serve other companies with a specialized, flexible and personalized service. HFA invest every year more or less 1 million euros in new technology in order to accomplish Costumers requirements and technological growth."

### VISION

To become a worldwide reference in the assembly and test of electronic circuits.

### MISSION

Our mission consists in accomplishing, in a sustained way and with high quality standards, the electronic and telecommunication projects requested, using high-precision and advanced technology.

### **VALUES**

Quality
Know-how
Flexibility
Innovation
Commitment
Confidence/Confidentiality.

Electronics is everywhere and

### We Assemble it.

### **BUSINESS AREA**

Telecommunication
Transport Industry
Electronics in general
Repair and Refurbishment



1995

HFA Foundation

2002

Certification ISO 9001:2000

**"Excellence and Innovation"** certificate, attributed by the Minister of Economy and Innovation

**New building** | Total Area = 7.500 m2 | Production Area = 4.200 m2



**Construction** of HFA's Facilities Standard **9002:1995** Certification





Certification ISO TS 16949:2002 ISO 9001:2000





### THE RIGHT CHOICE - ADVANTAGES

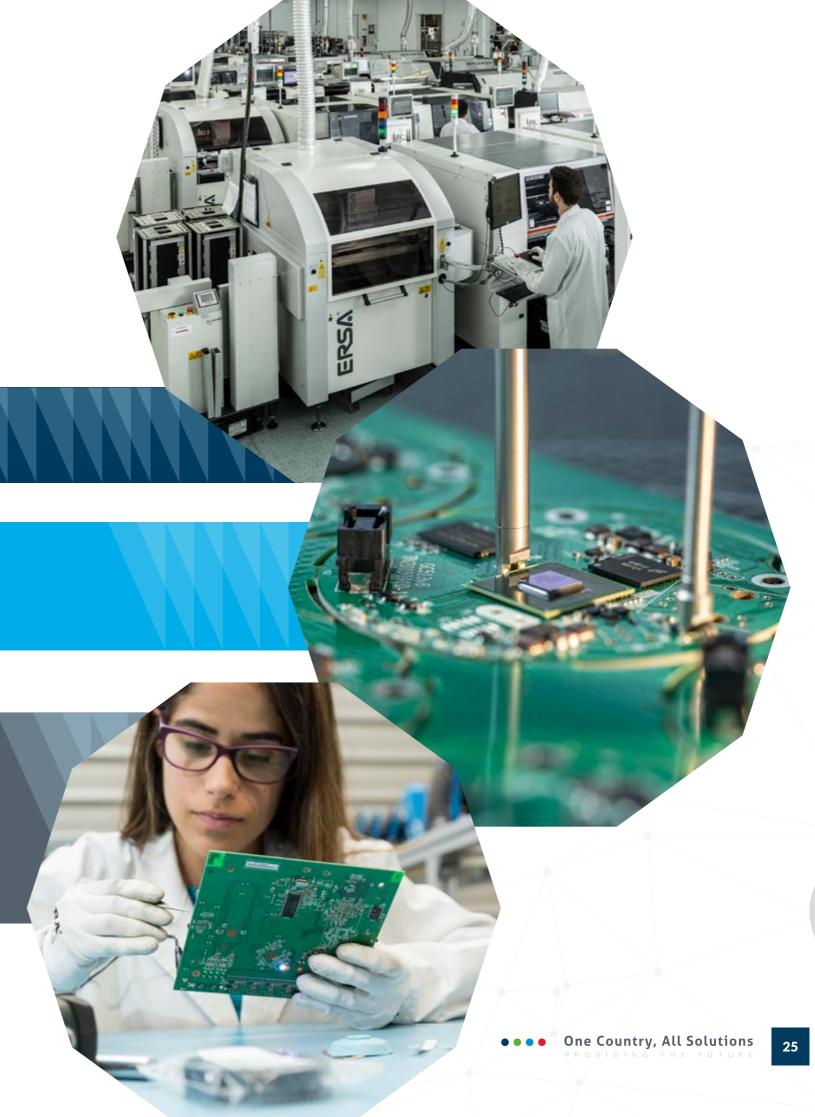
Every day, we work to be better and accomplish our Costumers requirements, this is how:

igh Technology / Capacity to Innovate
State of the art equipment & skilled team.

lexibility/ Adjustment / Cooperation

Adjustment of the product to customer requirements, delivering a fully customized product.

Complishment Technical and Commercial Support
Qualified and personal support, both commercially and
technically, by close and permanent day to day contact.
Optimize the costs and (new)projects, preliminary study of
the projects, analysis of alternatives and equivalents, reports
and suggestions for improvement.







### **HFA - SERVICES**

### SMT

- > 7 SMT Lines
- > 7 Automatic Printers
- > 7 Reflow Ovens
- > 4 AOI Systems 2D & 3D
- > 01005, BGA, LGA, QFN...
- > Assembly
- > Productive Capacity: 500.000 Comp./Hour
- > 4 SPI (3D solder paste inspection machine)
- > X-Ray Machine
- > Laser marking
- > Humidity cabinet

### **TESTS**

- > Burn-in
- > Software Testing
- > 4 Needle Bed Tests ICT, Current, frequency and tension
- > Functional and non-functional (according to > Customer Specifications)
- > ETHERNET / RF Test
- > Boundary Scan
- > Gang-Programming
- > GPS/GSM
- > JTAG
- > Electrical and optical Transmission
- > Thermal chamber

### THT

- > Manual Assembly
- > 4 Selective Soldering Machines
- > 3 Wave Soldering Machines
- > Milling
- > Vcut machine
- > Automatic varnishing

### PACKAGING

- > Customized Product Labeling (bar code, QR code,)
- > Electronic Enclosures (plastics and metallic housing)
- > Supply and printing Plastic enclosures
- > Customized stickers and membrane Switches
- > Customized carton box and user manual
- > Logistics

### PROTOTYPING

- > Product Development Support
- > Product Optimization, together with the Client
- > 1 SMT Line for prototyping

### REPAIR AND REFURBISHMENT

- > Problem Diagnostics
- > Repairs of units
- > Back up of the repairs held
- > Replacement and rework of enclosures

### INDUSTRIALIZATION SUPPORT

- > Component Acquisition (procurement)
- > Project optimization
- > Project development support and search for solutions to reduce production costs and improve product quality.
- > 1st production occurrence reports and suggestions for improvement.



### **QUALITY**

- > Component and Product traceability
- > IPC 610 Standard Compliance
- > Quality Management System: ISO TS 16949:2009 and ISO 9001:2008
- > IECEX / ATEX Compliance
- > RoHS Compliance Directive 2002/95 and 2011/65



### HFA - TEST LAB

### **SOFTWARE TESTING**

- > Functional tests (Black-box)
- > Structural tests (White box)
- > Regression tests
- > Integration tests
- > Acceptance tests (UAT)
- > System tests
- > GUI tests
- > Performance tests:
- Load tests
- Stress tests
- Capacity tests
- > Maintainability tests
- > Usability tests
- > Security tests
- > Automated tests:
- Development of tests frameworks

### PRODUCTION JIG DEVELOPMENT

- > Elaboration of a scenario for the development tests of the entire device
- > Test JIG design and development assistance, which can be either stand-alone or PC-based solutions.



- > Molds Drawing
- > Product Engineering
- > Tooling
- > Injection Molds
- > Part Printing
- > Part Decoration
- > Injection Plan

### PACKAGING

- > Labels
- > Carton boxes, user manual
- > Housings
- > Membrane switches
- > Cables













### Technology & Equipments

- > SPI
- > SMT (Surface Mount Technology) | Automatic Printers with | Optical Inspection
- > AOI (Automatic Inspection System)
- > X-ray
- > Selective Soldering
- > Wave Soldering
- > Functional and ICT Tests
- > Automatic Coating (with oven)
- > Milling

### **CERTIFICATIONS**

- > Quality management system (QMS) certified in conformity with ISO9001 and ISOTS16949.
- > Certified IPC Specialist and Certified Application Specialists in IPC-7711/7721 and IPC-A-610
- > **ATEX** when applicable.













**SPI** 





### X-RAY

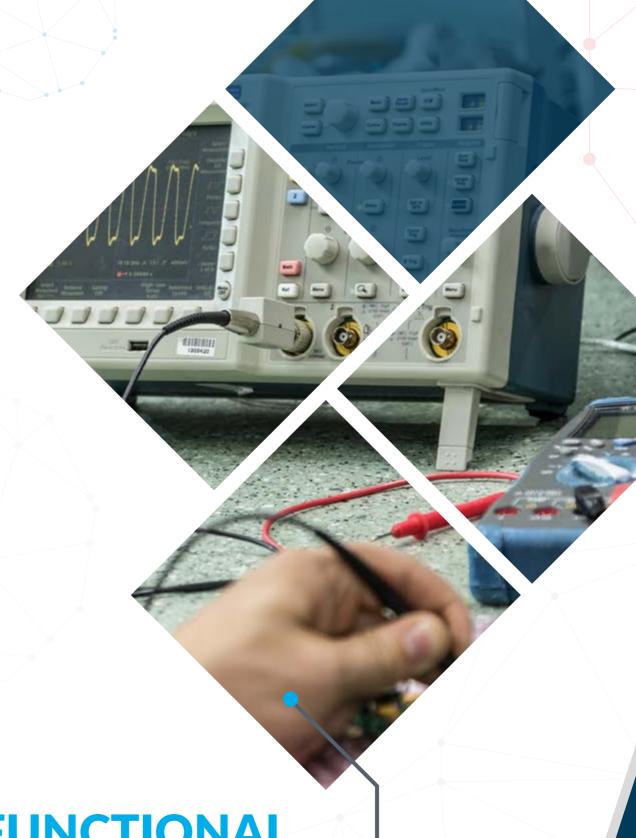




**AOI** 







FUNCTIONAL AND ICT TESTS

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Marine Marine







- > Electronic Traffic Information Systems;
- > Components for Operation Control Systems:
- Automatic ticket vending;
- Ticket vending machines;
- Passenger Counting System;
- Information is sent to the station;
- Stoplight Control System (priorities are given to the vehicles);
- GPS System.
- > Fleet Control System.











REFURBISHMENT INDUSTRY

- > Appropriate methods and testing techniques for the detection of product or component defects;
- > Advanced repairing techniques;
- > Diagnostic of the problem;
- > Live test
- > Visual inspection and verification of the connections;
- > BGA's reflow;
- > Back up of all repairs; (date, serial number, type of repair).







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## We can... ASSEMBLING THE FUTURE

### Company

We are a Portuguese company dedicated to service delivery in the field of electronic production (EMS). From the beginning in 1996, we have been concentrating an unique know-how aquired through our intense experience in the production of new technologies which characterizes the sector of telecomunications. This inovation is the genesis of today's work.

### VISION

Consolidate ourselves as a reference company in the field of production of electronics with high quality standards and supported by the certification of our skills. Contribue to add value and support sustained growth of our customers.

### MISSION

Our mission is to provide specialized services in the field of electronics and telecomunications and assembly of components over Print Circuit Boards, ensuring quality for both products and services through our professionalism and experience, and promoting adequate working conditions to our employees as well as full respect for the environment.

### **VALUES**

Accuracy Dynamics Quality Respect Ethics Commitment Integrity Innovation





### **FACILITIES**

Our facilities have more than 5,000 m<sup>2</sup> of industrial area prepared for our activity in compliance with the highest industry standards.

We believe that this production capacity and facility will overcome the needs and expectations of our customers for new projects. We aim to deliver the best quality service.

### **CERTIFICATIONS**

- > Quality management system (QMS) certified in conformity with **ISO9001** and ISOTS16949.
- > Certified **IPC Trainer** and Certified Application Specialists in IPC-7711/7721 and IPC-A-610
- > Certified in **ISO14001**, **OHSAS18001** and ISO27001 (Improvement of facilities and increase of production capacity)



















### INDUSTRIALIZATION

### INDUSTRIALIZATION OF PRODUCTS AND SOLUTIONS

- Support to development of products and solutions looking towards its industrialization
- Validation of both HW/SW, insuring production of prototypes and small series as well as developmental and manufactoring of production tools and testing structures.

### PRODUCTION

ALL THE WAY FROM MOUNTING AND TESTING THROUGH THE FINAL ASSEMBLY OF PRODUCTS

Assembly of PCBA in small, medium and large series. Programming and testing

### PLANNING AND LOGISTICS

MATERIAL PROCUREMENT, PRODUCTION PLANING AND LOGISTIC MANAGEMENT

- Material quotation, acquisition, reception, control and storage
- Production planning just-in-time.





### **PROCESSES**

Industrialization of electronic systems and the production of prototypes, pre-series and large series.

In the production of prototypes is included technical monitoring and support to development areas, from the embryonic stage of the project until the final phase and consequently move to production / industrialization.

In the area of manufacturing and assembly of printed circuit boards is included purchasing, storage, management and logistics of materials and assembly of electronic components on printed circuit boards (SMT, THT, Tests, cabling, labeling and final assemblies in box).

With a young and flexible team of more than 100 employees, the company distinguish itself by its fast response and short delivery deadlines with a production capacity exceeding 1 million components per hour with MSL automatic management.

### In the provision of specialized services in the field of electronics and telecommunications is included:

- Outsourcing of operational systems
   of Hardware production systems (SMT /
   THT / Infrastructure), testing, planning
   and logistics (including order management,
   production planning, purchasing and supply of
   components
   and their alternatives and his dispatch);
- Testing and validation of hardware and software, validation of components and support after sale (functional tests and integration tests). The company develops and produces all test structures. It offers

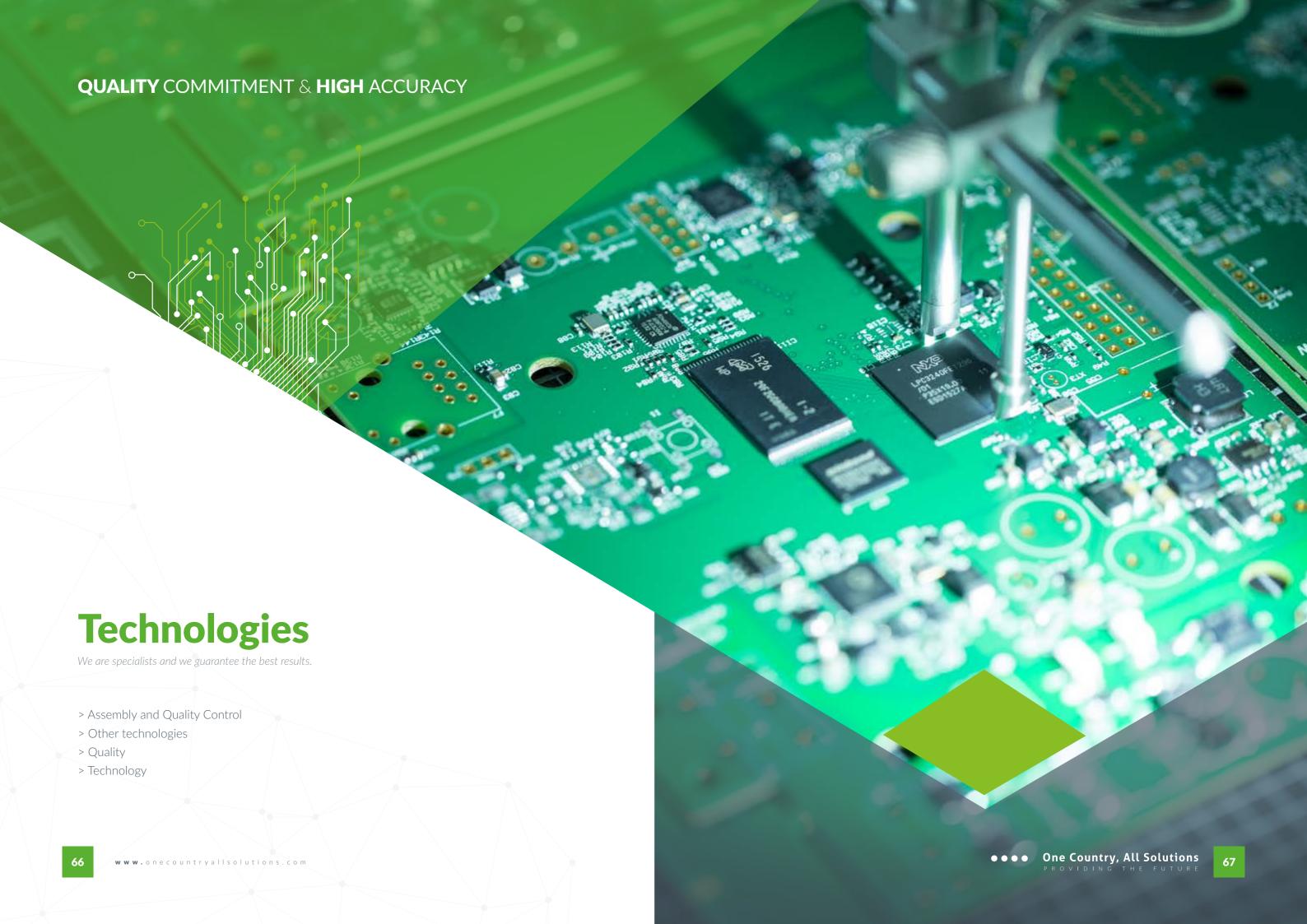
equipment for ICT, FCT and LED measuring;

- Re-Work, Uartrónica uses specify technics and necessary equipment for substitution/ repair of units/components;
- Purchase of components and/or alternatives:
   LEDs, BGAs, FPGAs, EPROMs, FLASHs.

Uartrónica follows the directive 2002/95 / CE on the restriction of use of certain hazardous substances (ROHS) in equipment electrical and electronic.

This directive restricts the use of hazardous materials in the manufacturing of various types of electrical and electronic equipment. In this regard, Uartrónica reinforces its concern with environmental protection.







ASSEMBLY AND QUALITY CONTROL

**ACCURATE TECHNOLOGY** 

### **SMT**

Surface Mount Technology

• Automatic screen print & SPI 3D

• Automatic insertion down to 01005 & AOI 3D

### MSL

• Automatic Management

### THT

### Through-Hole Technology

- Selective soldering
- Wave soldering
- Internal development and production of soldering masks

### **Verification** and **Assembly**

- Press-fit insertion
- X-ray inspection
- Ersascope Inspection
- Dimensional control







### OTHER TECHNOLOGIES

**COMPLETE SOLUTIONS** 

### **Depaneling**

- Milling
- VCUT machine

### **Conformal Coating**

- Dipping
- Selective

#### **ICT** and **FCT** test

- Bed of nails
- Internal production of test structures

### QUALITY

COMPLIANCE WITH INTERNATIONAL STANDARDS

### **Standards**

- **ROHS** COMPLIANCE
- **ENVIRONMENTAL** CONFORMITY Temperature and Humidity control
- **ESD** AND **MSD** CONTROL
- TRAINER & SPECIALISTS IPC-A-610 and IPC-7711/7721
- CUTTING DIMENSIONAL CONTROL







All raw materials supplied by UARTRÓNICA or the customers themselves, are stored in automated rotating vertical cabinets, ensuring the right conditions to their isolation before production.

Uartrónica provides services in SMT and THT. The company has four automatic SMT technology production lines equipped with cutting edge technologies, such as SCREEN PRINTERS and last generation Pick & Place machines. The reflow ovens for SMT soldering work with nitrogen and have more than 26 heating zones. We also provide a clean-room with 2000m2 according ISO8.

All Uartronica's equipment follow ROHS directive, which restricts the use of hazardous substances including lead-free. The SMT has an atmosphere welding analyzer with a regulator for particles levels of oxygen with nitrogen injection required for the technology used in inert atmosphere, namely the space industry and military, well as for the automotive industry to active safety. THT assembly with selective soldering and wave soldering processes.

Uartrónica is equipped with a machine for Selective Coating - Conformal Coating.

All Uartrónica SMT production is inspected using automated optical inspection equipment (AOI). Inspection Quality Control SMT (SPI5D, AOI, RX), automated visual inspection.

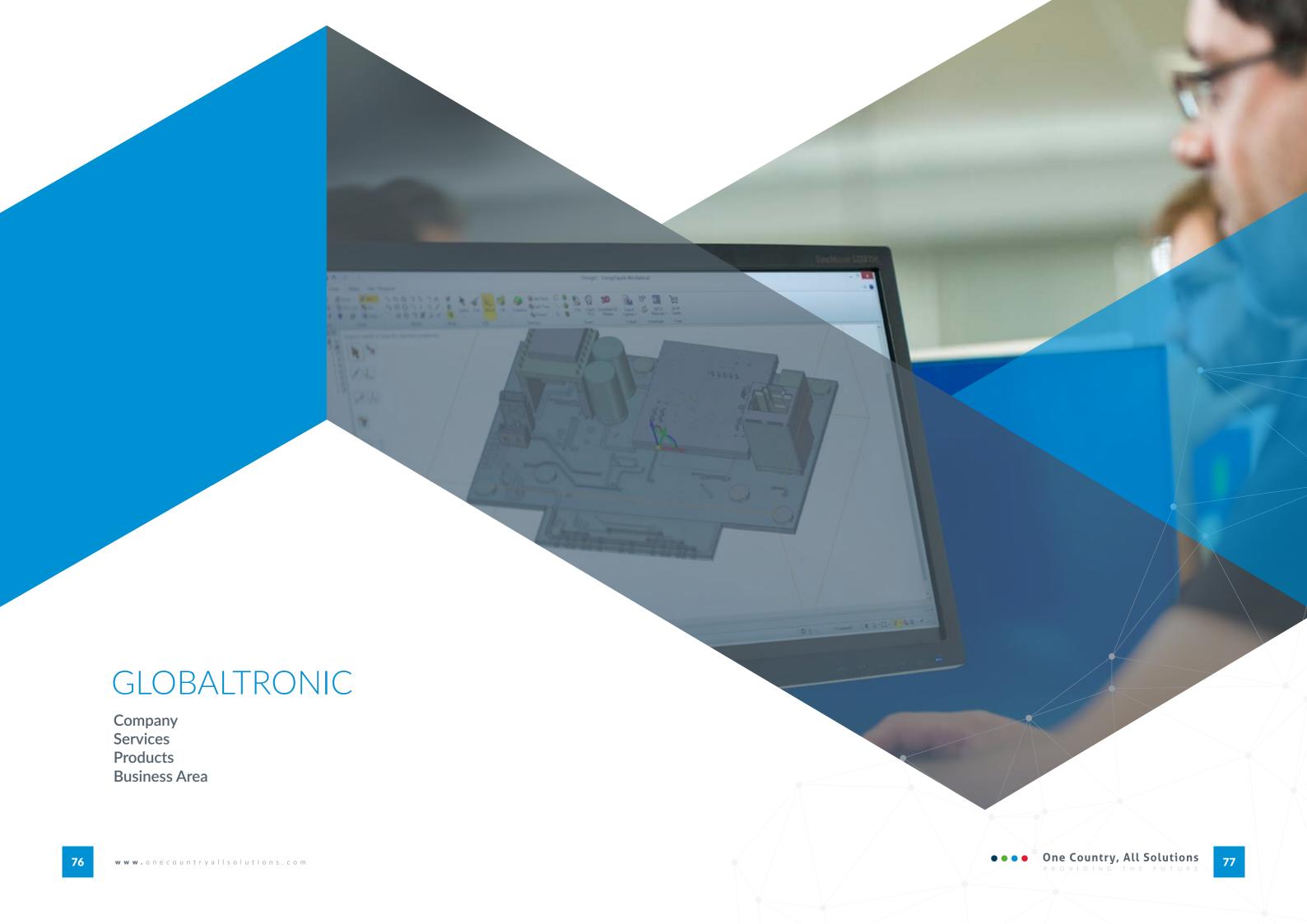
#### ELECTROSTATIC DISCHARGE

**Uartronica's production areas are provided with ESD protection**. The whole area is
secured with dissipative floor in order to keep
the working area without static electricity.

**EPA** (Electrostatic Protected Area) includes the use of packing material and appropriate tools (ESD-safe) and the use of appropriate lab coats and shoes for operators and technicians, as well as the use of bracelets to prevent high voltages.









Innovation and Development

# SPREADING TECHNOLOGY

# Company

To respond to challenges, Globaltronic has a united and motivated team with know-how and experience allied to a high level of training. Aiming to guarantee optimal service, the product cycle is controlled by the company from conception to industrialization.

Globaltronic is an electronics company based in Águeda, set up in 2002 and operating in the following areas of business:

#### **ENERGY EFFICIENCY**

- > Energy monitoring
- > Intelligent lighting systems (drivers; communication equipment, WEB platforms)

#### **GENERAL ELECTRONICS**

- > Automation and Control Systems
- > Signage
- > Interactive Systems
- > Safety

#### **TELECOMMUNICATIONS**

- > FTTx
- > Digital Television

#### **KEY COMPETENCIES**

- > Embedded System Solutions and Development.
- > Electronics Design (project, CAD).
- > Programming (firmware e software).
- > Prototyping.
- > Production rump-up.
- > Production transfers.
- > Urban Mobility Parking System.
- > Ambient Sensing System Environmental Monitoring.
- > Repair Service Refurbishment.
- > Training for Certification

#### MISSION

Its mission being to respond to the needs of partners and clients with maximum professionalism and promptness, the values governing Globaltronic are ethical and social responsibility, respect for the environment and natural resources, and continuous quality improvement.

#### **VALUES**

Accuracy
Quality
Professionalism
Innovation





## GLOBALTRONIC SERVICES

- > Embedded System Solutions and Development.
- > Automation systems
- > Development of drivers for lighting
- > Design of analog electronic circuits
- > Parking System
- > Development in embedded systems
- > Hardware and Firmware Design
- > Interfaces
- > Electronic prototypes
- > Industrial instrumentation
- > Development of domotic systems
- > Repair of telecommunication equipment
- > Consultancy
- > Training for Certification









## AMBIENT SENSING SYSTEM

> SENSING STATION



With sustained growth, Globaltronic is increasingly established as a relevant, dependable company nationally, aiming above all to be a company of reference that can be relied on to progress and overcome the challenges put to it.

# **Business Area**

Focusing on the development of electronic products and solutions tailor-made to clients, Globaltronic is proud to be a firm of development and commercialization that works with professionalism, rigour and innovation.





- > Embedded System Solutions and Development.
- > Energy Efficiency.
- > Interactivity Solutions.
- > Remote measurement and management systems.
- > Telecommunications.
- > Set top boxes (digital terrestrial television, pay per view, cable).
- > Industrial Automation Systems.
- > Home Automation Systems
- > Repair Service Refurbishment
- > Custom development for the customer







# Development & Innovative Design THINK OUTSIDE THE BOX!

# Company

"PICadvanced is specialized in solving complex problems through optics, namely through optical chip design, development and packaging."

- + Aims at **bridging** between Photonic Integration and Telecommunication applications.
  - Starting field NGPON2.



Starting by advanced BOSA's and PIC's.



Design



• Based on 2 years of **developments in the field** by research.



#### MAIN BUSINESS IS FOCUSED IN OPTICS Operates through

- Development of NGPON2 Components.
- + Innovation
  - Specially Photonic Integration Design and Packaging.
- + Branding and costumization.

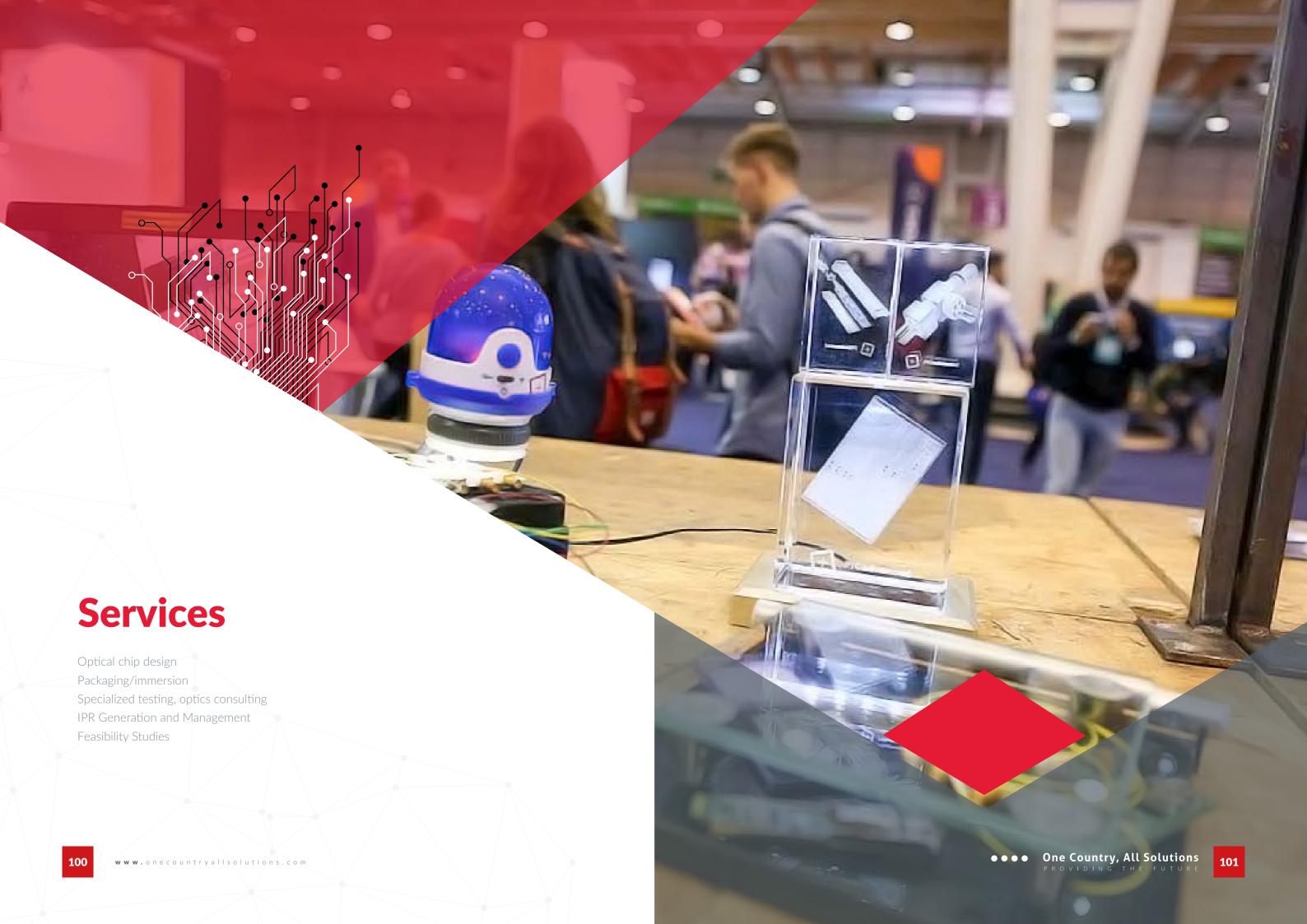


## **KEY COMPETENCIES**

We develop and consult processes and solutions on optics using integrated photonics, since conception, packaging and integration on electrotechnology, telecommunications and biomedicine products.

#### **VALUES**

Accuracy Quality Innovation





#### **FULL PROCESS CONTROL**

#### OPTICAL CHIP DESIGN

+2y experience on research and development of InP based PIC through MPW of JePPIX. Continuous research of new architectures for telecom and biomedicine applications.

#### PACKAGING/IMMERSION

Defying the trends, we are challenging the common approach to optics integration which may lower greatly the packaging effort with our immersion technology.

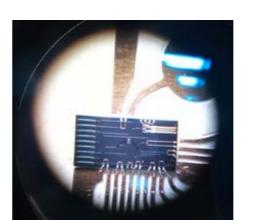
## SPECIALIZED TESTING, OPTICS CONSULTING

With our long experience in telecom business, we are defining specialized test benches for our PICs.

#### PICadvanced - **SERVICES**

## IPR GENERATION AND MANAGEMENT

**PICadvanced** is keen on innovation and IPR generation and management. We deal mostly with architectural and solution innovation.



#### FEASIBILITY STUDIES

Bring us your problem and we will find a way forward that will surely surprise you in positive way. From integrated optics to optical stem cell manipulation, we have the key!

• • • One Country, All Solutions



# **Products**

Telecommunications Biomedicine

### **TELECOMMUNICATIONS**

### **NG-PON2**

- > OLT
- > ONU
  - CLASSE 3
  - CLASSE 2



### **GPON**

- > SFP
- > BOSA
- > TRIPLEXER





## HIGH-THROUGHPUT INCUBATOR BASED ON LASER **RADIATION**





#### **3D-AXIS MOVEMENT**

< 1mm precision



#### **CONTROLLED ENVIRONMENT**

Standard: Temperature and CO2 levels; others upon request



**STABLE HIGH-EFFICIENT LASERS** 



AUTOMATED AND MANUAL MODES



**REMOTE CONTROL** and configuration



STAINLESS STEEL







# WHAT WE CAN PROVIDE TO YOU

There are a lot of reasons to visit and make business in Portugal, besides the sun and good food; Portugal is a top country on the supply of technological products and software development services, we have a large work force, capable, flexible, with know-how and business oriented. World technological leaders are already implanted with success in Portugal. The group One Country all Solutions invite you to visit us and check by yourself all the advantages of working with us.



## OUTSTANDING FEATURES

- > European manufacturing
- > Competitive price
- > State of the art technology
- > Committed and competent employees
- > Global solution
- > Knowlage of the automotive market
- > Confidentiality
- > Good comunication
- > Adaptation/ flexibility
- > Cooperation
- > Capacity to Innovate
- > Technical & Commercial Support (Optimization of the costs and (new)projects, preliminary study of the projects, analysis of alternatives and equivalents, reports and suggestions for improvement.).



