

TOOLING AND FIXTURING

TOOLING AND FIXTURES
FOR ALL TYPES OF
APPLICATIONS



Controlar
innovating industry



A quality solution for your specific fixture requirements - adjusted to your budget!

Controlar develops and supplies tooling and test fixtures for a vast application field - ICT, functional test, flash programming, EOL testers, etc.

- ▶ Inline or offline, mechanical, pneumatic or vacuum operation - fixtures for all currently used handling systems in the market.
- ▶ From simple mechanical fixtures, with a few hundred probes and low production volumes, up to highly complex fixtures with thousands of probes, double side probing, double actuation, etc.

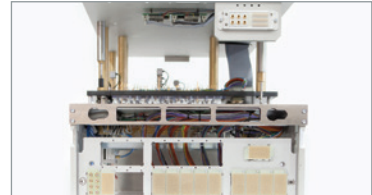
Your requirement is the directive for our design!



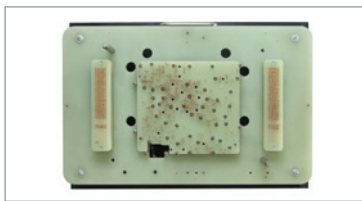
ICT fixture for EIIT ILS-1200 handler (pneumatic, inline)



ICT fixture RF-20 handler (pneumatic, offline)



ICT fixture for IPTE MFT handler (pneumatic, inline)



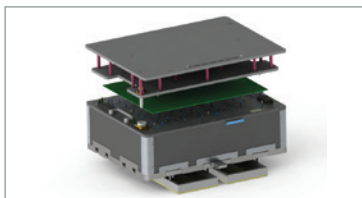
Fixture probe plate for Digital Test MTS-180 handler (pneumatic, offline)



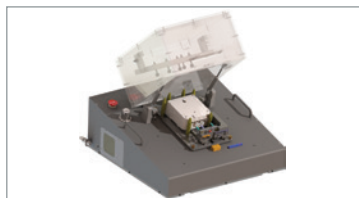
ICT fixture for Digital Test MTS-100 handler (vacuum, offline)



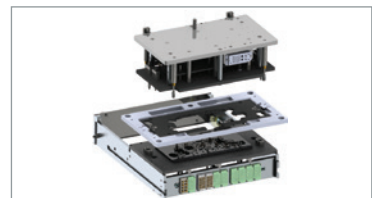
Manual Flash Station – adapter and customized jig



3D project development for EIIT XILS800-TSi handler (vacuum, inline)



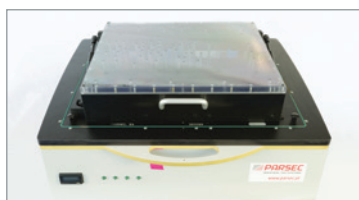
3D project development – Tooling for Hipot Test Station



3D project development for IPTE PAK handler (pneumatic, inline)



Fixture for SPEA 3030 ICT (vacuum, offline)



Fixture for functional test (vacuum, offline)



Fixture for Keysight 3070 ICT systems



Fixture for Aeroflex ICT systems

Executing customer specifications and project requirements

Your product is unique

- A bed of nails is always a fixture that needs customizations because it is designed specifically to test your unique product.
- With our experience we have been able to standardize the process of customization, development and manufacturing, making it possible to decrease the lead times of simple and complex fixtures while maintaining the high levels of quality required.
- Our fixture specialists are always ready to discuss specific customer requirements, trying to find the best solution aligned with our vast experience and technical concept that will cover your needs.

Examples of project adaptation in order to meet customer requirements:

Lateral actuation with pneumatic cylinders or stepper motors.
Detection of mechanical interlocking.
Connector pin contacting (different levels of probe actuation).
Testjet/Opencheck/FrameScan sensors or other “made on demand”.
Design of customized parts to connect to specific product/costumer components. Signal conditioning with instrumentation amplifiers, frequency dividers, etc. Generation of stimuli and noise filtering. Development of specific PCBs for watchdog, interfacing, switching, etc. Discharge and protection circuits. Specific loads.

Turn-key Projects

Whether you require fixtures, or the complete turn-key project (fixture + application), Controlar has the capability to:

- Develop ICT applications in several platforms, including MDA, Testjet, Digital/Hybrid tests, Boundary Scan, Functional tests, LED tests.
- Integrate customized circuits for signal conditioning, noise filtering, discharge, watchdog, loads, etc.
- Integrate additional test equipment such as LED analysers, Flash programmers, communication devices, etc.
- Tune and support production start and ramp up at customer’s facilities.

With the integration of different technologies:

Checksum
Digital Test
TRI
Aeroflex
Goëpel
Teradyne
Keysight

Testing ICT fixtures



Integration of different technologies

Boundary Scan (Digital/Hybrid Tests)

Controlar has extensive know-how in Boundary Scan Test and is an official partner of Goepel (www.goepel.com). More than 30 turn-key test systems with combined Checksum + Goepel platforms have been delivered over the past years.

LED Testing

An ICT system has the capacity of executing electrical tests (diode) – LED, but often optical analysis is required, which is out of the scope of ICT systems.

To overcome this, Controlar became an official partner of FEASA (www.feasa.com) and uses FEASA equipment to perform LED and displays analysis, fully integrated in ICT systems.

ISP (In-System Programming)

The programming of In-Circuit or In-System (ISP) devices eliminates limitations associated with traditional programming devices (on-socket or pre-programmed). ISP delivers benefits to in-board and system level design, manufacturing and programming processes.

Programming of flash memories integrated in ICT Test, Functional Test or Boundary Scan.

Dedicated Flash Stations

- Inline or offline
- Gang programming

Dedicated Programmers vs. Universal Programmers

Controlar is an official partner of SMH – FlashRunner (www.smh-tech.com) integrating its universal programmers in numerous projects.

Available tools and state-of-the-art technical capabilities of our Tooling and Fixturing manufacturing plants

We are in a continuous search for innovative technology and the most advanced resources to offer the best prices, quality and technical capabilities.

Mechanical stress due to PCB deflection during fixture closing operation may have serious consequences. In order to address this issue, Controlar uses a complete set of tools for stress analysis.

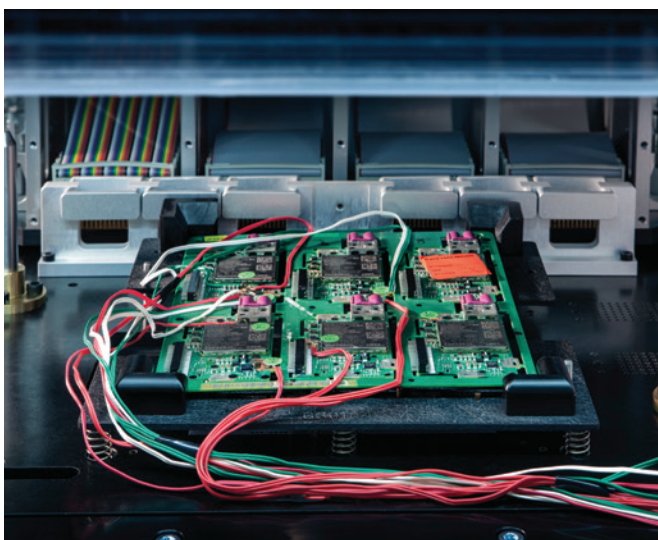
Software simulation by FEA (Finite Element Analysis) technique.

Prior to fixture build we execute FEA analysis and if necessary re-equilibrate probes/pushers on the more critical zones until the FEA simulation passes.

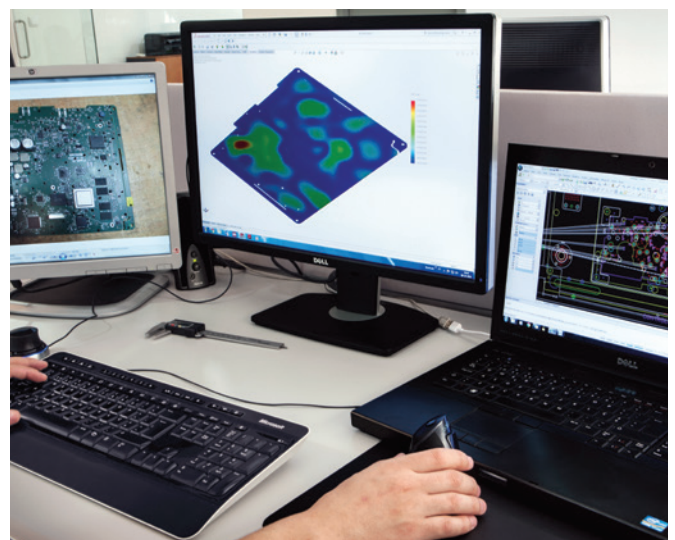
Strain gauge test using extensometer sensors and dedicated equipment from HBM.

Whenever requested by the customer, we validate fixtures using HBM measurement equipment and a “Golden Sample” product, which can be used for re-validation of the fixture (it is considered good practice to perform this test regularly).

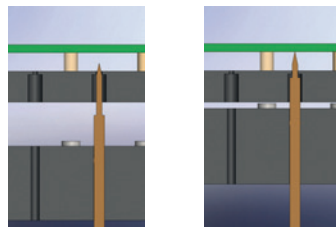
DUT prepared for Strain Test



FEA Analysis



Testing with packed PCBA's layouts



Probe not
actuated

Probe
actuated

Precision Mobile Plate

Sometimes, there is simply no space!

The test pad diameters or the distance between centers become really small for "standard" fixture manufacturing!

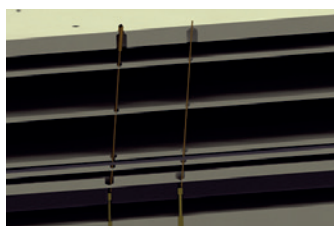
We dominate all current state-of-the-art technologies that may be required for each particular case.

Precision Mobile Plates (Floating plate guiding)

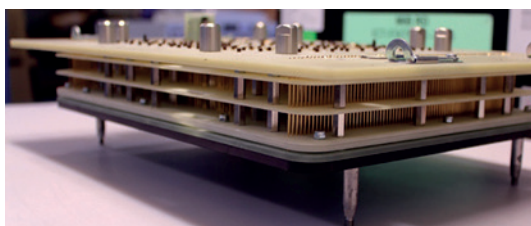
Zoom technology

Fine pitch probing

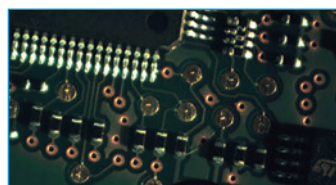
Detail of a fixture project using
zoom technology



Precision Mobile Plate



Fixture Validation – Probe Impact Analysis



Microscope PCB photo detail after
probe actuation)

As standard in our fixture production validations, we use microscopes to execute Probe Impact Analysis on the PCB.

After fixture assembly but before wiring is initiated a preliminar study is executed to validate probe plate drilling.

When the fixture is completely ready, a new verification is performed and the results are recorded and included in the fixture documentation.

Innovation, Quality and **Passion for Engineering.**



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