This catalog is a general guide to the products. Buyers and users must decide themselves in regard to the suitability and safety of the products for their applications. No responsibility can be taken from the supplier’s side. We reserve right to carry out design and/or material specification changes without prior notice.

**Quality Assurance**

Our daily business process is done according to LEAN approach. All followed and organized in modern software environment committed to Industry 4.0 Operation. Everything we do complies with the latest quality assurance regulations of ISO9001 as well as with ISO 14001 – the so-called “GREEN” certificate. Our company is certified annually by the DEKRA Germany.

**Test Equipment**

Our Test Equipment department offers complete one-stop solution for most PCBA-based electrical test-related demands. We provide everything from all different types of spring-loaded Test Probes and Bare-board Probes through on ICT and Special Test Fixtures and also ICT Test Systems with customized Test Programs. Into our test equipment products we can implement ISP (In-system Programmers), Interface Solutions and also other related products such as LED measurement, Pneumatic side-contacting Units. Customized Cable Harnesses with Jigs are also available. Our strength lies in our ergonomically designed and functionally well thought-through products with high value-added engineering and our extensive after-sales technical support worldwide.

**In-Line Handler**

Our new Department is dedicated to innovate traditional In-Line Handler Solutions and to provide our future customers with something different, something more. Our Innovative Handler makes product change fully automated. Integrates existing fixtures and offer more for new ones. Handles 8000 Test Points both ICT and FCT. Uses Equip-Test controllers and communicates via SMEMA.

Please send your inquiry to:

*info@equip-test.com*

Our Technical Support Team will then get in touch with you the soonest possible.

**Your Equip-Test Support Team!**
## Table of Contents

- In-Line Handler DuoMAXX10  
  1
- In-Line Fixture Kits  
  8
Primary target of our development was, to create an In-line handler, which is able to implement and accept different in-line fixtures from different manufacturers worldwide.

- **Smallest DUT Size is:** 70.00 mm x 70.00 mm [2.755 x 2.755]
- **Biggest DUT Size:** 450.00 mm x 450.00 mm [17.716 x 17.716]
- **PCB Thickness:** 0.40 mm – 4.00 mm [0.016 x 0.157]
- **Weight (Max.):** 4 kg
- **Maximum component come down from PCB:** 35.00 mm
- **DUT can come from right and left direction.**
- **BAR Code or QR Code can be placed from the Top and Bottom as well, on any place on PCBA.**
- **Within the machine, at the same time 2x PBCs can be tested, if Test Fixture designed for dual-well operation.**

**Equip In-line Handler Fixture Kit compatibility:**

- TR5001 S1
- TR5001 S2
- TR5001 S2 Pogo Pin QDI
- IPTE / SPEA 3030
- 6tl In-Line Fixture Kit

Equip-Test In-Line Handler can accommodate any other In-Line Fixture Kit according to customer requirements. Any other In-Line System manufacturer’s kits can be integrated into Equip-Test Handler, this in a combination of our biggest sized kit on request.

- **Within our In-line Handler we can store 1 extra test fixture all the time and this second fixture can be replaced and change with the primary one inside of machine.**

**General Machine Structure**

- The Storage with Lift is optional.
- **Minimum 3000 Test Points.**
- **Maximum 8000 Test Points**

This machine is able to move and test PCBs on ICT, FCT, LED or other End-Of-Line Test Solutions, since it is able to receive any solution or machine from any integrator or manufacturer worldwide.

Between different DUT sizes and physical limitations, Equip-Test In-Line Handler can automatically change and adjust conveyors inside the machine. This operation reduces the changing time of a production line as well as eliminates or dramatically reduces the need of a technical stuff when product change is performed. To test different PCBA’s, logically 2 different Test Fixtures would be required and customized. Combination of these fixtures can be limited to one already existing type of test fixture on an existing production line, or can be used 2 different types of fixture kits.
DuoMAXX10 In-line Handler is able to work with and without the Automated Magazine Unit. This is normal for Equip-Test, because we fully understand different needs for different product types and that every company works different ways.

Equip-Test In-Line Handler has an identical outside cover for both Main set as well as Magazine Unit.

Basic frame structure of our machine is a welded steel structure, where all connection points are done by face milling technology, in order to ensure the maximum flatness and stability of our machine!

Design and colour of our basic machine mirrors main colours of Equip-Test. If any other RAL colour is preferred, we can paint it according to customer requirements.

Since End-User Friendly Support is among our primary policy, this machine has huge size plexi glass windows as well as support doors from all sides for easy access.

Machine has coverage and that covers all moving parts of our machine. Each door has a security sensors and lock, to prevent any potential operation with opened doors!

As already mentioned, our machine can accommodate several different manufacturers test fixture types, since we use a fixture specific converter unit in all cases. This converter unit converts any type of incoming interface setup into a standardized size and model we implemented. Most customer specifications can be reached with our machine concept, depending on size and functions.

Second Test Fixture Kit, which contains Bottom Placed – Probe Plate and a Top Placed – Moving Plate, is placed into the Automated Magazine Unit. In the Top Part of Magazine Unit, there is a Holder Frame with Passive Type handles on rails, while Bottom Part is placed on roller path type drawers. Vertical handling of the placed Test Fixtures is done with the help of powered spindles, with parallel driven synchronized shafts. Encoders ensure that position results are always parallel and synchronized. Machine control ensures all works fine and at the right time.
In - Line Handler DuoMAXX10

The Machine has an Internal Interface Solution, which is equipped with pneumatic cylinders. Doing this way, we can connect fixture kits easily to our interfacing solution.

While DUT is arriving into the testing unit (Main Unit), on upper side of PCBs, we place Barcode Readers (5) over the conveyor. This way they are able to read the barcode of DUT. They can be placed in different positions, in order to ensure readability of barcodes on Top of PCB in any angle from the TOP of the machine. From BOTTOM side we use the same structure of reading BarCodes, but barcode readers are placed on the basics of conveyor unit.

(6) Bottom Part of Test Fixture – Probe Plate is moved into Testing Area with the help of roller path type lifting and moving solution.

(7) Connecting of Bottom Probe Plate is done automatically with the help of pneumatic cylinders as well.

On picture Nr. 4 can be seen the main structure of Equip – Test In-Line Handler. Pressing down PCBAs are ensured with the help of integrated pneumatic cylinder (1). Force of this pneumatic cylinder is 12.000 Newton. This ensures huge pin count and powerful operation under any circumstances.

<table>
<thead>
<tr>
<th>Initial Maximal Pressing Force N [oz]</th>
<th>Used Spring Force by Test Probes N [oz]</th>
<th>Max. Number Of Test Points (TP) able to place into Test Fixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.000 (43 163.317)</td>
<td>1.5 (5.4)</td>
<td>8.000</td>
</tr>
<tr>
<td>12.000 (43 163.317)</td>
<td>2.0 (7.2)</td>
<td>6.000</td>
</tr>
<tr>
<td>12.000 (43 163.317)</td>
<td>3.0 (10.8)</td>
<td>4.000</td>
</tr>
<tr>
<td>12.000 (43 163.317)</td>
<td>4.0 (14.4)</td>
<td>3.000</td>
</tr>
</tbody>
</table>

The position of Press-Down Unit movements to up & down can be regulated and controlled with repeatable preciseness of 0.1 mm. Our Control Electronics uses travel measurement System, which ensures the safe and precise operation of our machine under any circumstances.

Upper Plate (4) of Test Fixture is pulled out into the Basic Measuring Unit, by the help of two parallelly operated telescopic handles (2). Movement of the telescopic handles is ensured with the help of parallel driven powered ball screw drive spindles (3). All equipped with step motors and encoders. By designing and building it this way, the position of telescopic handles became controllable by our software.

### Technical Information

- **PCB Conveyor Adjustable Side depending on PCB size**
- **Test System**
  - PCB moving direction
  - Fixtures Kit moving
  - Connectable Magazine
- **Roller Path Type Fixture Kit Puller-Pusher**
- **Measuring Area / Table Top**
- **Height Adjustable Pusher**
On Picture (6), we can see the conveyor system. We can call it DUT Conveyor as well. This can be opened maximally until 450 mm (17.717). Parallelity during change of opening is done by powered driven ball-screw drive solution with the help of encoders and step motors.

As the machine is able to receive and test 2x PCBAs, we created 2 separately controlled and operated stopper units. These units are flexible and can be setup in 2 different ways, depending on production line orientation. DUT can arrive from any direction on the conveyor, since we placed DUT arriving sensors on both entries of the machine testing area. Picture (7-1, 7-2)

Currently Usable Fixture Kits

1. TRI TR5001 S1 RCV Converter
   Fixture: EQ-10000000-0250-000 (Equip ILFS-TR5001 In-line Fixture Kit with VPC interface)

2. TRI TR5001 S1 ITA Converter
   Fixture: EQ-10000000-0485-000 (Equip ILFS-TR5001 In-line Fixture Kit with VPC ITA interface)

3. TRI TR5001 S2 VPC Converter
   Fixture: EQ-10000000-0512-000 Equip ILFS-TR5001 SII-QDI-ITA-22 Slot Multicore In-line Fixture with QDI Receiver Interface

7. Picture – Stopper Unit View
4. IPTE/SPEA Converter

Fixture: EQ-10000000-0325-000 (Equip ILFS-SPEA In-Line Fixture Kit SPEA 3030)

Basic Requirements for Integration:
All 4 pcs of Spring Loaded Pushers has to be removed! These have the function inside SPEA Machine to push down the conveyor lane. Not needed in our solution at all. We use pneumatic cylinders instead.

5. 6TL Converter

Fixture: EQ-10000000-0223-000 Customized 6TL In-Line Fixture Kit

6. TRI TR5001 SII Spring Pin Interface Converter

Fixture: EQ-10000000-0623-000 Equip ILFS-TR5001 SII-POGO-36 Slot In-Line Fixture POGO 12BPin Interface