REINHARDT

System- und Messelectronic GmbH

AAE-CNC 500 Fixture Production System for Automatic Creation of Bed-of-Nails-Fixtures for In-Circuit- and Function Test

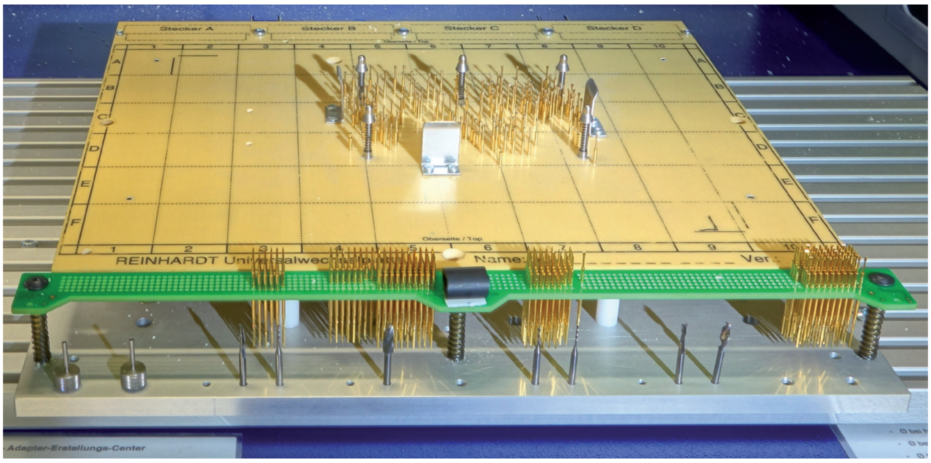
- **AAE-CNC 500**
  Placing area x: 530 mm, y: 420 mm for REINHARDT-test fixture Type 127, 147, 42, 52 and 82

- **Automatic creation of a fixture**
- **Typically 500–800 Euro for a fixturing**
- **You build your fixturing in half a day**
- **Bed-of-nails for In-Circuit- and Function test**
- **Contacting for Programming (e. g. Flashing)**

In testing and programming electronic PCBs you need an electric connection to the test equipment. In most cases this requires a fixturing. The most wide-spread way of contacting in In-circuit test and function test is a bed-of-nails fixture with spring-suspended contact pins. The In-circuit test grants a secure test of the electronic PCB and finds short circuits, interrupts, missing, misplaced and rotated components.

REINHARDT has worked out a concept consisting of a software for fixture construction, the AAE-CNC Fixture Production System and a sophisticated fixture system. These bed-of-nails fixtures are based on a very cost-effective drawer technique: Like a drawer, the bed-of-nails is plugged into the actual test fixture which works with retention pins to press the PCB onto the contact pins. The REINHARDT test system is also part of this concept whose elements are all well-matched and engage with each other. This package increases the customers' competitiveness by low fixturing cost, flexibility, fast response and, needless to say, the very fast times for programming. More than 170 delivered devices and more than 80,000 bed-of-nails stand for a secure and lasting concept.

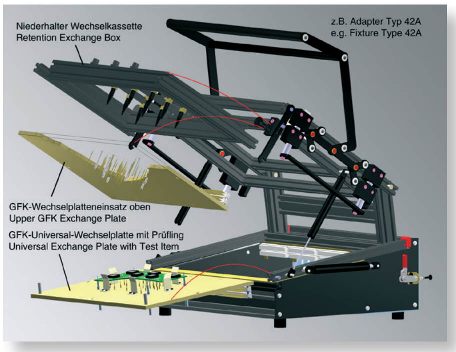
AAE-CNC 500 Fixture Production System with Test Fixture Type 82C



Detailds Bed-of-nails

The fixture plate is made with a CNC-drilling machine which provides the drillings for the contact pins and with a special insertion tool presses in the contact pins incl. receptacles (100 mil and 75 mil diameter) fully automatically and with high precision. Well-engineered

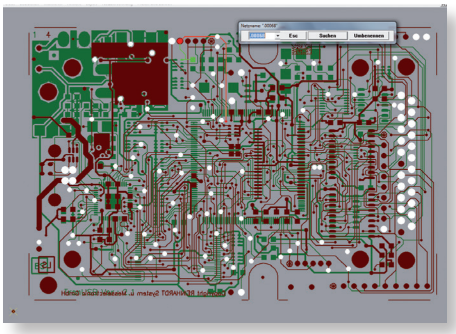
AAE-CNC Fixture Production System



fixture concepts also grant contacting from two sides, two stages or pneumatic, for testing electronic PCBs.

The software uses the Gerber files to calculate a layout with several layers out of the vectors and the exposure information.

The **AAE-CNC fixture production system** comes with a software for programming. Even non-mechanics with little knowledge of zero adjustment, rotational speed or use of drills can use this solution comfortably. As soon as the fixture plate is created



Display of tracks in ATSGERB

successfully, it is wired with the wire wrap-method: With pre-wired 96-way multiway connectors each of these wires is connected arbitrarily to a spring-suspended test pin. In free wiring 3–5 wire connections per minute are typical. The connections can also be soldered. Thus a test fixture can be made in typically 3–5 hours. Due to the ATSGERB-software which provides the drilling file you can create the fixture in a very short time and start programming after half a day. This saves 2 days of documentation for the service contractor. Apart from that the typical costs of 2,500 to 5,000 € net for creation are slashed, without long delivery times and maybe difficult communication. A bed-of-nails is produced in less than one day and costs a fraction.

Software for Fixture Calculation (Option)

All CAD-systems for layout extraction can export data in Gerber standard. Producers of bareboards or PCBs need these standardised Gerber files for production. The REINHARDT ATSGERB software for dealing with Gerber data reads in the Gerber files and recalculates complete conductor tracks with the component drillings and throughholes. When all layers are read in and are congruent, the software starts recalculating all tracks, even with double-Euroboards in multi-layer technique, in a very short time. Even the minimum distance between the test points is checked. Un-contacted conductor tracks are high-lighted. As soon as everything is corrected or accepted, the „Milling“ tool can provide cut-outs e.g. for components which are too high. The data created with the software for dealing with Gerber files are also used for the graphical display of fault location on the in-circuit- and function test system. In case of a short circuit between two tracks, the resp. tracks will flash in the in-circuit test. The whole procedure of editing, displaying the PCB, creating the tracks and the drilling data takes about 10–30 minutes. The bed-of-nails is drilled with the data calculated and selected from the Gerber files, one- or double-sided, for the contact pins, reference pins, insertion tools, maybe even for the IC-Open- and polarity probes.

ATSFRAES-Drill-Software (Standard)

A wizard of the **ATSFRAES-Drill-Software** helps in setting the fixture production system. The software tool provides a lot of known setting parameters which the customer does not have to work out himself. He does not have to bother with offset or other special inputs, as the dimensions of the basic plates are known and there are special holding devices for them. The customer selects a one-sided or a double-sided contacting of the PCB as well as the fixture he is going to use, e. g. Type 42. He defines which DCode is assigned to which of the three magazines as well as which drill diameter. By default, the software positions the bed-of-nails in the centre of the plate. The project can be saved, recalled at any time, maybe corrected or expanded.
After drilling and milling, the CNC-machine controlled insertion tool picks the receptacles with the spring-suspended contact pins from the magazines and presses them in with high precision.
The whole procedure takes less than two hours. Then the wiring (wire wrap) can start.

Technical Data

AAE-CNC 500

Dimensions:	ca. 198 cm high, 121 cm wide, 95 cm deep
Weight	about 170 kg
Travel	x: 530 mm, y: 500 mm

IE & OE Specifications subject to change without prior notice! 04/2026

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