



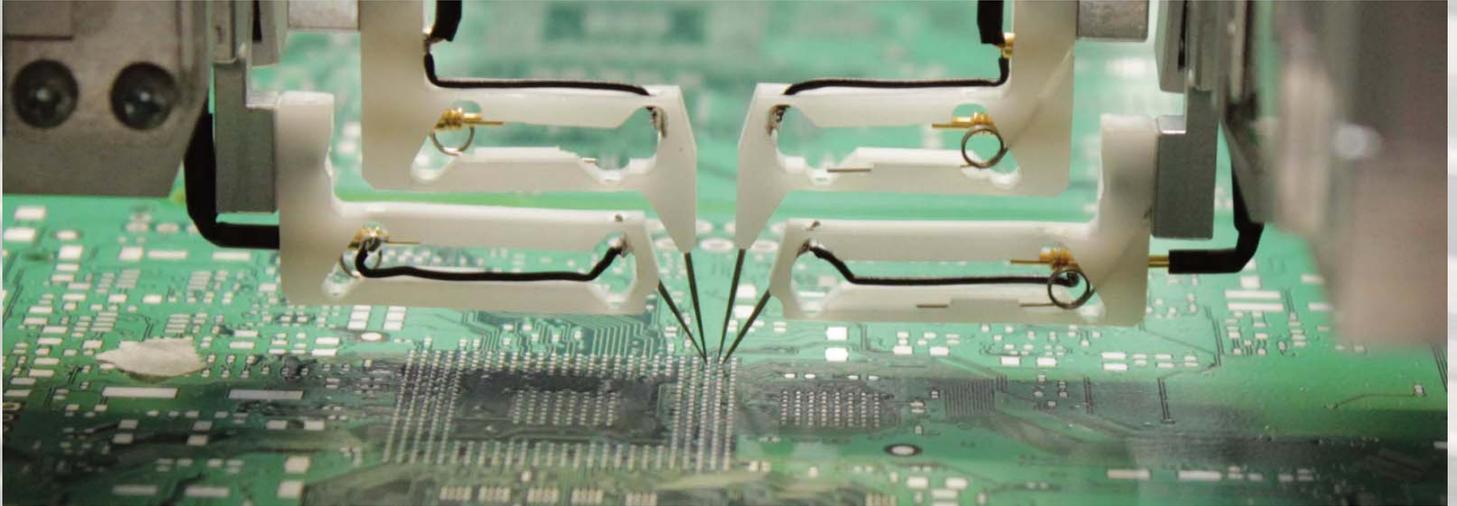
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RAPID LINE

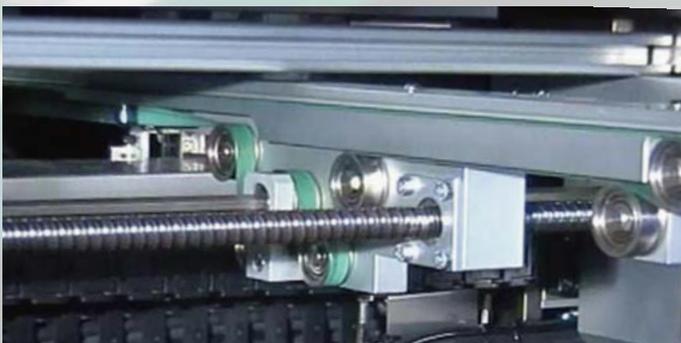
**Test Platform for PCBs,
Ceramics and Substrate
Technologies**

RAPID is SEICA's line of Flying Probe testers for printed circuit boards with the highest performance available on the market. It meets the requirements of industry segments through models with horizontal or vertical architecture,



VERSATILITY, ACCURACY AND INNOVATIVE

A Flying Prober offers unparalleled versatility. There is no need to manufacture a dedicated fixture for every type of board, which considerably reduces the time and costs needed for test setup. The Flying Prober is perfectly suited for the requirements of the prototypes and pre-series testing, along with production lots and repair stations characterized by continuous variability. Tests can be immediately adapted to accommodate design modifications or variations. Since there is no constraint for a specific PCB layout, the system can perform tests on any geometry of existing substrates and adapt to the future requirements of a sector in rapid evolution, guaranteeing the value of capital investment and time in producing test programs. The RAPID Line covers all the PCB test requirements performing continuity and isolation tests over a wide range of voltages, parametric tests, passive components test and functional test of active embedded components, including different ceramics.

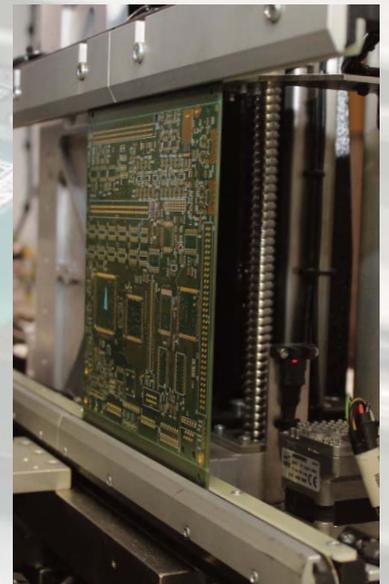


FLEXIBLE ARCHITECTURES FOR DIFFERENT MARKETS

To better meet the requirements of different operational and manufacturing process flow, Seica is the only ATE manufacturer that offers the RAPID Line with 2 complementary architectures.

The horizontal architecture presents systems oriented to the in-line configuration for the complete automation of test process, eliminating the need for operator presence. In today's market, in-line automation does not necessarily mean "High Volume", BUT the ability to test dozens of unique batches or "part numbers" of PCBs in small quantities OR large quantities.

The integrated, automated conveyor, compliant with the SMEMA standards, allows the deployment of the tester in-line or combined with the loading/unloading module (MTBH), for the automatic loading of boards of different sizes. The ergonomics and reduced footprint of the vertical systems make them suitable for multiple requirements, such as in environments where a reduced footprint is requested, and where the operator can work easily. The quick manual loading and unloading, combined with the quick test program turnaround, allows accurate testing of a single PCB, even with continuous test modifications.



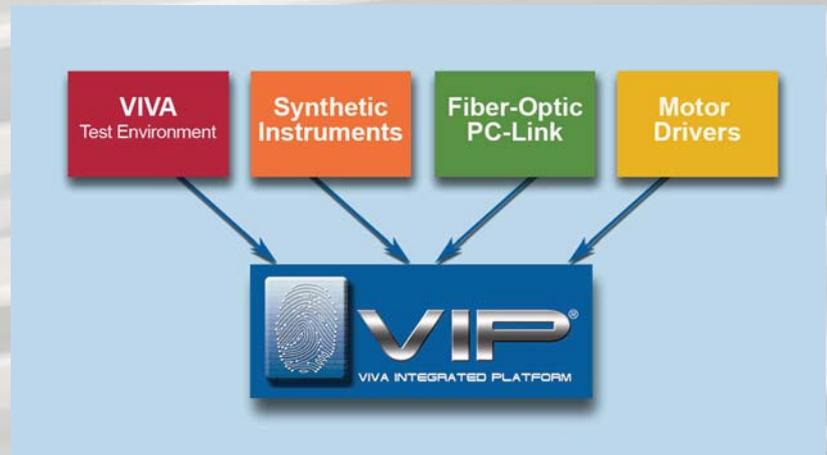
4 or 8 independent flying probes and a complete range of measurement techniques. Through Seica architecture flexibility all unique market segments can be easily addressed due to the advanced hardware and software integration.

COMMON VIP PLATFORM

All the flying probe testers are based on the Seica VIP platform, which are high performing and simple to use. The optical fiber digital communication enables the signal communication to be exempt from interference, ensuring the highest accuracy and repeatability of measurements.

The whole system is managed through the Seica VIVA software environment. The interface allows the development of the test program through a guided procedure in a graphic and intuitive environment. VIVA contains powerful routines for the automatic creation of the test program, test parameters. This way, the operator can focus exclusively on the test and product delivery, regardless of the system architecture.

A single environment allows the use and management of an ATE with features comparable to those of an in-circuit/functional tester of highest performance. It requires only minimum operational skills, allowing the creation of test programs through a reduced training phase, granting the more expert users the configuration of sophisticated tests typical of specific their specific markets.



ACL MODULE

The ACL measurement module is based on DSP technology and the high acquisition and signal processing capabilities of its micro processor, allows the execution of measurements in a completely automated way, while providing powerful tools for processing, imaging and analysis. In the VIVA Integrated Platform, the communication is performed digitally through an optical fiber connection between the ACL and the computer, making the measurements exempt from interference and ensuring the highest accuracy of measurement under any condition.

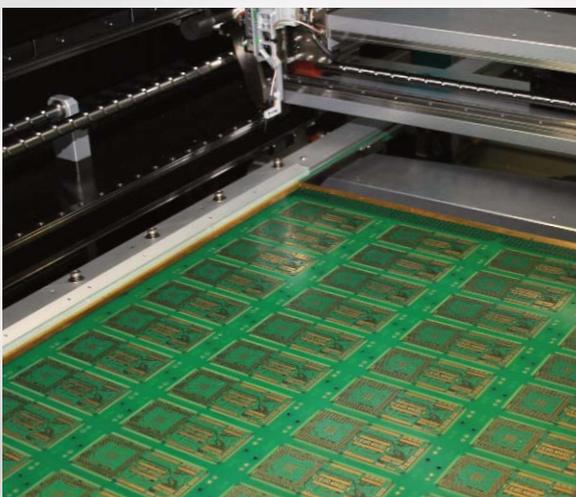
ULTRA FAST FEMTO

The new measurement unit, directly integrated on the mobile probes and based on DSP technology, enables the Rapid Line testers to perform high-accuracy capacitive measurements with considerable reduction of test time.

GUARANTEED MECHANICAL RELIABILITY

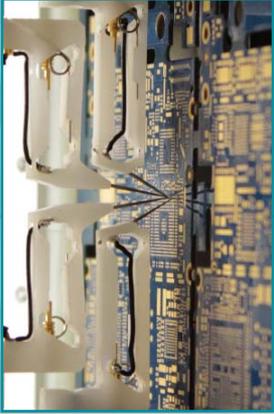
More than ten years of experience in the Flying Prober technology provides Seica with the capability to equip the RAPID line with a reliable, accurate and integrated mechanical system. The mechanics of the X-Y is achieved with linear guides and ball screws, controlled by brushless motors and arranged in a geometry minimizing the overall dimensions and optimizes the motion and high accuracy performance.

Linear motors have been employed for the Z axes, to improve accuracy and the dynamics of the probe motion. The motion control is achieved with new generation of Seica digital drivers which are integrated into the test system through an optical fiber digital channel, which makes the commands immune from interference



FLYING PROBE TEST

VERTICAL SYSTEMS



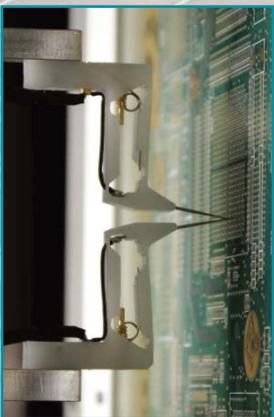
RAPID 270
(AUTOMATIC)



The Rapid 270 combines the versatility and reduced footprint of a vertical system with the automation featuring the testers with horizontal architecture.

Through the RAPID 270 vertical system, unique in the galaxy of Flying probers for PCBs, Seica answers the most demanding requirements in terms of versatility and ease of use, combined with high-performance standards. The system is provided with 8 completely independent measurement probes allowing high test speed.

Four (4) probes on each side allow the most accurate measurements on both sides of the PCB. All types of testing methods are available, such as standard electrical PCB tests, Kelvin test, as well as testing of active and passive embedded components.



RAPID 260/220
(MANUAL)



RAPID 260 (manual)

The Rapid 260 tester system is particularly suitable where a short test set up time is needed to achieve the quickest time to market of the customer's products. In addition, the system can address the most sophisticated prototypes, small and medium volumes (up to a single unit).

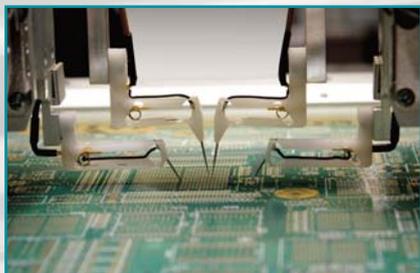
Compactness and rationality, combined with the simplicity of the management software, are the results of Seica research to develop a system for immediate operation.

RAPID 220 (manual)

Those who want a compromise between versatility and cost-effectiveness of the vertical Flying Probers may find their answer in the Rapid 220 system. Equipped with 4 fully independent probes (two on each side of the board) it is suitable to check the essential operational features of a PCB. Thanks to the VIP platform and the simplicity of VIVA software, the time needed for training is very low, and no specifically skilled personnel is required. The Rapid 220 system makes the Flying Probe test suited for everyone: small manufacturers, prototype labs, service and repair labs, certification and quality assurance entities.

PLATFORM FOR PCBs

HORIZONTAL SYSTEMS



RAPID 280/240



RAPID 280

The Rapid 280 system offers the highest performance in terms of throughput and electrical measurements. It is equipped with 8 completely independent measurement probes allowing speeds up to 9000 hits per minute. With 4 probes on each side, it can carry out accurate measurements on both sides of the PCB. This system allows the execution of every type of test, such as continuity, isolation, Kelvin test, resistive and capacitive measurements as well as active and passive embedded component tests.

The high throughput of this innovative test system facilitates its integration in production lines, using the automated integrated conveyor, an unparalleled tool which can be used to test many different batches of boards to full automation bringing speed, accuracy and versatility to the prototype and production environment.

RAPID 240

The Rapid 240 system has all the advantages of the horizontal RAPID Line in a cost-effective solution. The system offers the versatility of a Flying Probe solution, which does not require the manufacturing of a dedicated test fixture. The Rapid 240 maintains the necessary features which allows for the integration in the production and batch prototype lines being equipped with the complete automation conveyor and other tools to increase productivity.

With 4 fully independent probes, 2 on each side, it is the ideal solution for all those instances where the manufacturing requirements are featured by variable lots and focused on PCBs and where fast investment returns are required. The test programs can easily be transferred to Seica's other higher probe count testers, since the same VIVA software is used for test development. In this context, the Rapid 240 test systems represent a good entry level which protects the investments in training and development in time.

TESTERS FOR CERAMICS



RAPID 250/230

(4-PROBE, AUTOMATIC/ MANUAL)

To meet the specific requirements of a market, where most of ceramics have test points on one side, Seica has introduced two new testers with horizontal architecture.

The RAPID line 250/230 testers are

equipped with 4 probes, all placed on the TOP side, combine the speed and accuracy featuring all the line testers with the streamlined creation of a program suitable to test ceramics also with "embedded" components.

The Rapid 230 has a manual system to affix the PCB and is oriented to test prototypes and low-volume.

With the pass-through conveyor, the Rapid 250 is compliant with the SMEMA standard, may be included in a fully-automated production line, to support high-volume productions.



TEST TOOLS FOR SUBSTRATES

HIGH ACCURACY TESTS

The accuracy and independency of motion for the probes of a Seica Flying Prober allow the most sophisticated tests to check the features of the tracks.

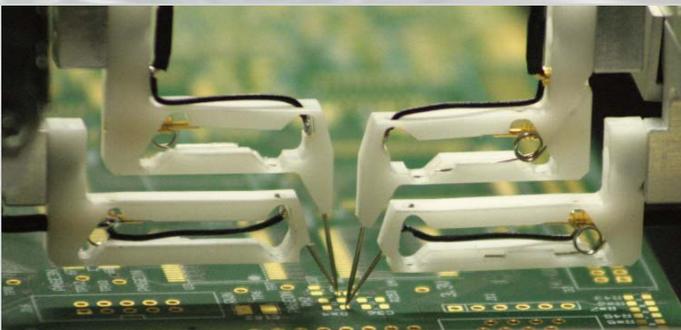
Trace Parameter Test: checks the continuity and isolation between the PCB tracks through a resistive test.

Micro Short Identifier: checks the presence of a short circuit between tracks due to manufacturing equipments.

100GOhm isolation: isolation test up to 100GigaOhm with 500 Volt (1000 Volt optional).

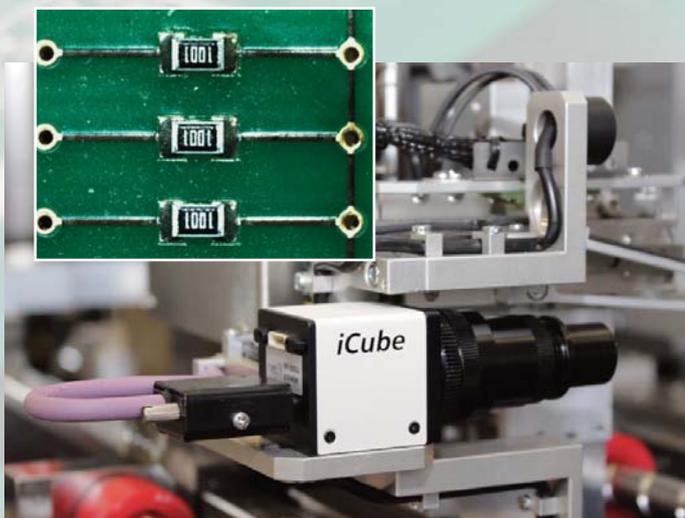
Trace Capacitance Test: autolearns and retests the capacitance between tracks and ground planes of the PCB.

Kelvin Test: detects 4-wire voltage and current measurements positioning even 2 probes on the same pad.



CAMERAS AND OPTICAL INSPECTION

All of the RAPID line systems are equipped with high-definition, color mobile cameras, one on each side, allowing the automated optical centering of the PCB and the visual inspection of the probes during the test. Apart from simplifying the execution and debug operations of test programs, VIVA software is provided with routines for the automatic acquisition of the barcodes through the cameras.



Barrel Test: performs continuity and parametric test for the vias of the PCB, which can be determined due to the capability of simultaneous positioning two probes on each side.

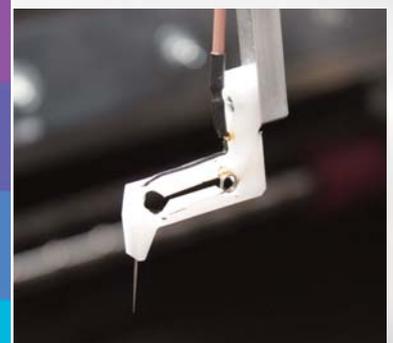
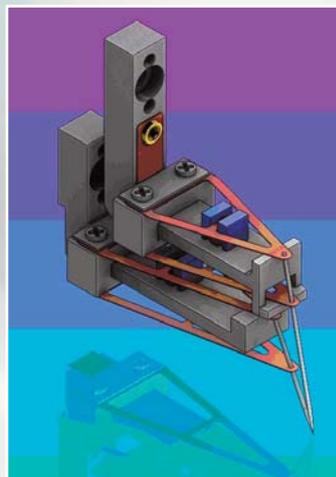
Component Test: Measures the values of passive embedded components and performs functional tests on the active components due to Seica long history in bed of nails testing in both the ICT and Functional test markets.

Link to Grid Test: allows retesting of boards previously tested on a bed of nails system.

The test of flexible PCBs has been simplified due to the vacuum table, which is inserted in the work area, in order to test even the thinnest board; the new mechanical locking system reduces the board warpage through a unique clamping device Seica has designed for flexible and inner layer testing.

PROBE

The inspection of the essential operational functions of the printed circuits may be tested on all types of board layouts. Even the most critical layouts and the small-sized pads can be targeted because of the mechanical geometry, accuracy and repeatability featured in the family of Seica Systems. The innovative design of new probe pins guarantees an extended life with no maintenance (over 8 million hits). Particular attention has been dedicated to minimize the probe electric interference on measurements, so that it is possible to verify even small values of the parameters on tracks in a constant and repeatable manner. The new generation of Soft Touch Probes allows the testing of the PCB with no witness mark on the pad surface.



Soft touch probe

AUTOMATIC LOADER

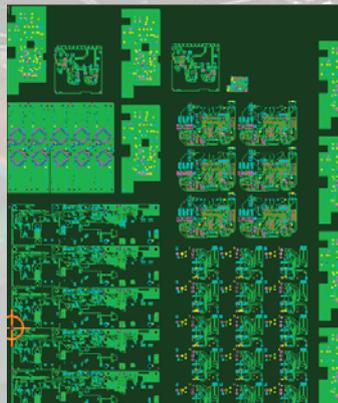
The RAPID Line features the automation of both the horizontal and vertical testers, an absolute innovation for the market of mobile probers for PCBs. The horizontal system may be combined with Seica's MTBH (Multi-Type Board Handler) capable of holding up to 150 boards at a time, even of different type and size. A simple menu is used to select the test sequence so that the system, upon loading the selected test program, automatically adjusts the clamping rails width. When completed, the board is downloaded and stored in the storage unit of the tested boards, on a different shelf according to the test result. The vertical system may be combined with a single or multi-rack loader capable of holding up to 50 boards at rack a time .



The loading/downloading is performed on the right side of the system and the boards will be automatically divided according to the test result: on the left those with "pass" result and on the right the boards with "fail" result. Both systems provide the opportunity to install a labeling module to apply a label with barcode on the failed boards.

MULTIPANEL AND PARALLEL TEST

The test program can easily address multi-panel PCBs and a higher throughput for parallel testing can be performed with few simple operations. The tests defined for a single printed circuit are multiplied through simple vision translations, with the possibility to check the outputs of every single test.



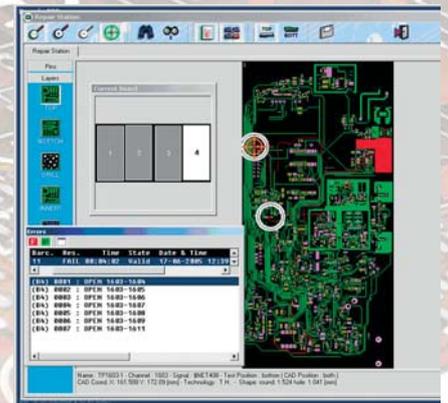
The 8 probes test system may perform the parallel test of two boards simultaneously, considerably reducing the test time with respect to a traditional tester with 4 mobile probes.

REPAIR AND PROGRAMMING

VIVA software operates in a graphic environment which allows viewing and locating the "failing" results output during testing; this makes it easier to perform the repair activity directly on the test system if required.

It is also possible to send the test information to a remote PC for the repair activity offline.

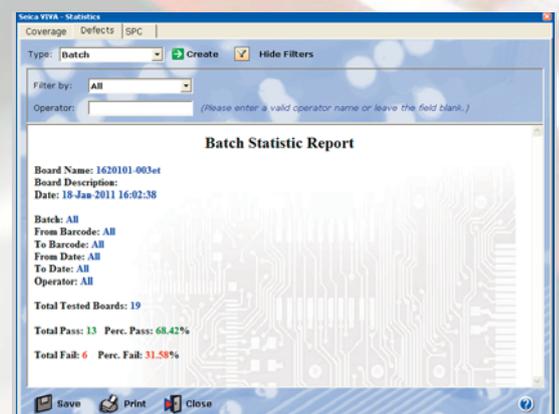
VIVA environment can be installed also on a remote PC as a Programming and/or Repair Station, away from the test system. This allows the test program development to be done in an emulation mode, reducing to a minimum time needed to operate on the RAPID systems and maintaining the throughput at the highest levels.



STATISTICAL MONITORING TOOLS

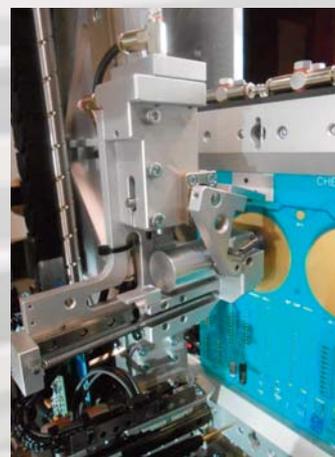
The statistical monitoring tools are essential for the quality analysis and defect reports.

The Rapid systems provide the user with the different functions needed to collect data on the lot defects through self created reports capable of providing statistical information both in graphic and text format.



BOARD MARKER

In the manufacturing environments there is an increasing request to “mark” the boards with a “pass” annotation after electric test. To meet this requirement, Seica has introduced in the horizontal prober architecture of our test systems, a module which automatically performs this operation. The marker will utilize either a seal or a motorized pin marker, which will make it possible to autolearn the point selected to mark the board through the VIVA software and a dedicated guided procedure.



SYSTEM COMPARISON TABLE

SYSTEMS	270	260	220	280	240	250	230
ARCHITECTURE	VERTICAL	VERTICAL	VERTICAL	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL
NUMBER OF FLYING PROBES	4+4	4+4	2+2	4+4	2+2	4 *	4*
LOADING	AUT/MAN	MANUAL	MANUAL	AUT/MAN	AUT/MAN	AUT/MAN	MANUAL
TRACE PARAMETER TEST	✓	✓	✓	✓	✓	✓	✓
TEST OF PASSIVE COMPONENTS	✓	✓	✓	✓	✓	✓	✓
TEST OF ACTIVE COMPONENTS	✓	✓	✓	✓	✓	✓	✓
KELVIN TEST	✓	✓	NO	✓	NO	✓	✓
BARREL TEST	✓	✓	✓	✓	✓	NO	NO
MULTIPANEL TEST	✓	✓	✓	✓	✓	✓	✓
BARCODE READING	✓	✓	✓	✓	✓	✓	✓
REPAIR STATION	✓	✓	✓	✓	✓	✓	✓
PROGRAMMING STATION	✓	✓	✓	✓	✓	✓	✓
VACUUM TABLE	NO	NO	NO	✓	✓	✓	✓
BEST FOR	High/Med. volumes	Med. volumes and prototypes	High/Med. volumes	High/Med. volumes	Med./low volumes & prototypes	Ceramics med. volumes & prototypes	Ceramics low volumes & prototypes

* probes on TOP side only

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