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Partner for Future Technology

THE MOST FLEXIBLE APPROACH TO CIRCUIT BOARD TESTING

Manual test fixtures for serial testing

CRS Prüftechnik

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CRS PRÜFTECHNIK GMBH USES THE SAME TEST PROBE FIELD FOR AUTOMATIC AND MANUAL CONTACTING.

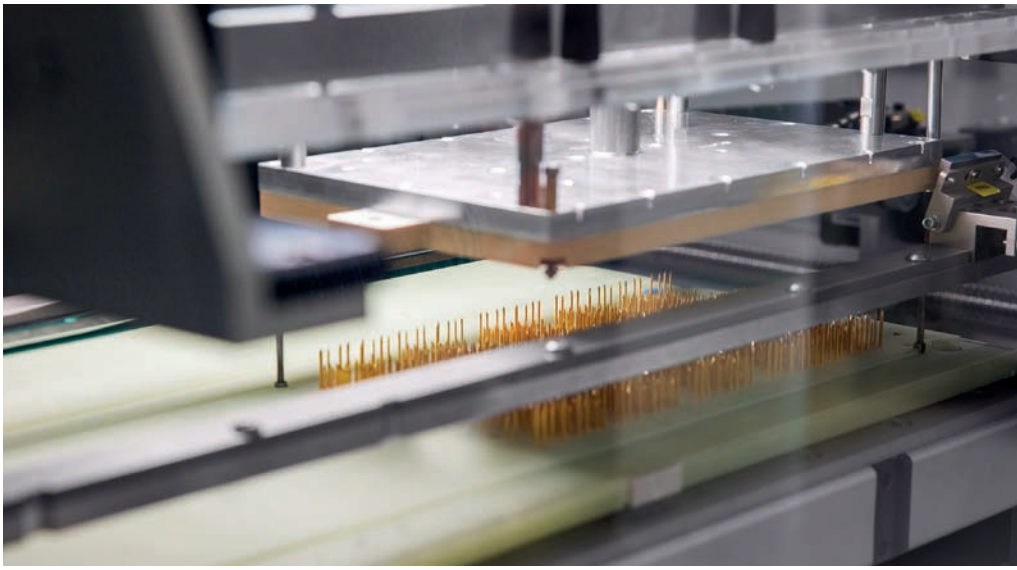
In response to hard-to-plan quantities in PCB production, CRS has developed an inline test station, in which the same exchangeable kits (ATS) can be used inline fully automatically, as well in a manual fixture from INGUN. The multiple use of the ATS (test probe field for PCB testing), based on INGUN standards, offers end customers significant efficiency and cost advantages.

The company CRS Prüftechnik GmbH from Meersburg on the banks of Lake Constance has made a name for itself worldwide with test systems for automatic electrical circuit board testing: Test stations, specialised machinery, and marking systems in the areas of circuit board and power semiconductor testing are in use in many countries and industries – ranging from automotive to medical and energy technology to consumer electronics. At present, 17 employees in Meersburg as well as at another location on the island of Reichenau ensure outstanding electronic testing technology Made in Germany. While the specialist machines are primarily shipped to Europe and the USA, inline testing stations such as IPS19 or Smart-Inline are in use worldwide - even as far away as New Zealand.

Sven Hennings is an authorised signatory at CRS and is responsible for the continuity of successful the company. Over 17 years ago he started his career in design at CRS with a diploma thesis; today he leads the Sales, Design and Assembly departments as well as customer projects: „We are constantly developing our test stations and can rely on our good cooperation with INGUN. In response to concrete feedback from customers, we have established a system in recent years, which enables a particularly efficient use of standard test fixtures and exchangeable kits".

SIMPLE WORK PROCESSES, FLEXIBILITY, AND SECURITY FOR THE FUTURE

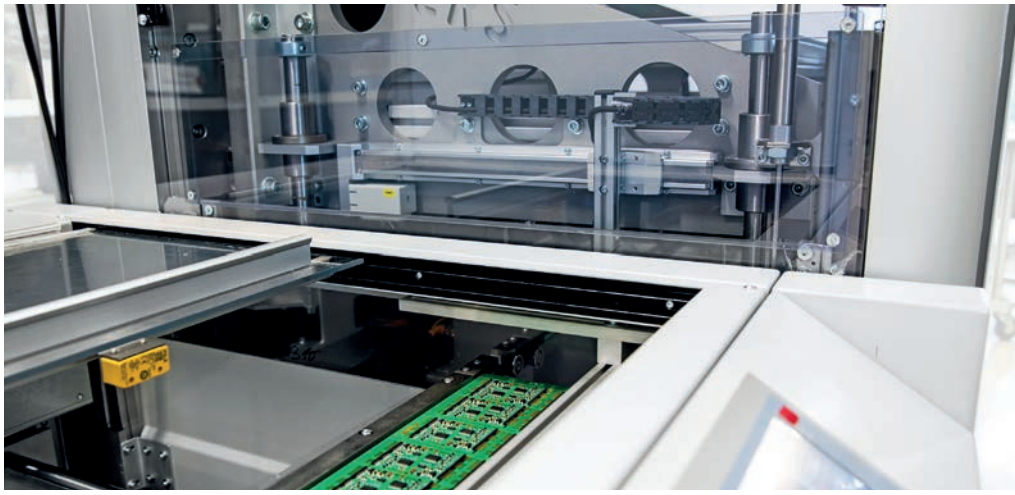
CRS uses manual test fixtures from INGUN's MA21xx series for the two test stations IPS19 and Smart-Inline . There is a choice of useable area size thanks to three versions 285 x 240 mm (ATS MA12), 440 x 310 mm (ATS MA13), and 540 x 310 mm (ATS MA14). Except for customisation according to the CRS inline guidelines, these exchangeable kits can be used for testing in the inline system as well as in the manual test fixture – the changeover is carried out with a few simple steps.



„ Together we have developed an interchangeable concept, which is now in use worldwide and which considerably simplifies the customer's processes. „

Sven Hennings
Authorized signatory at CRS and Head of Construction & Sales

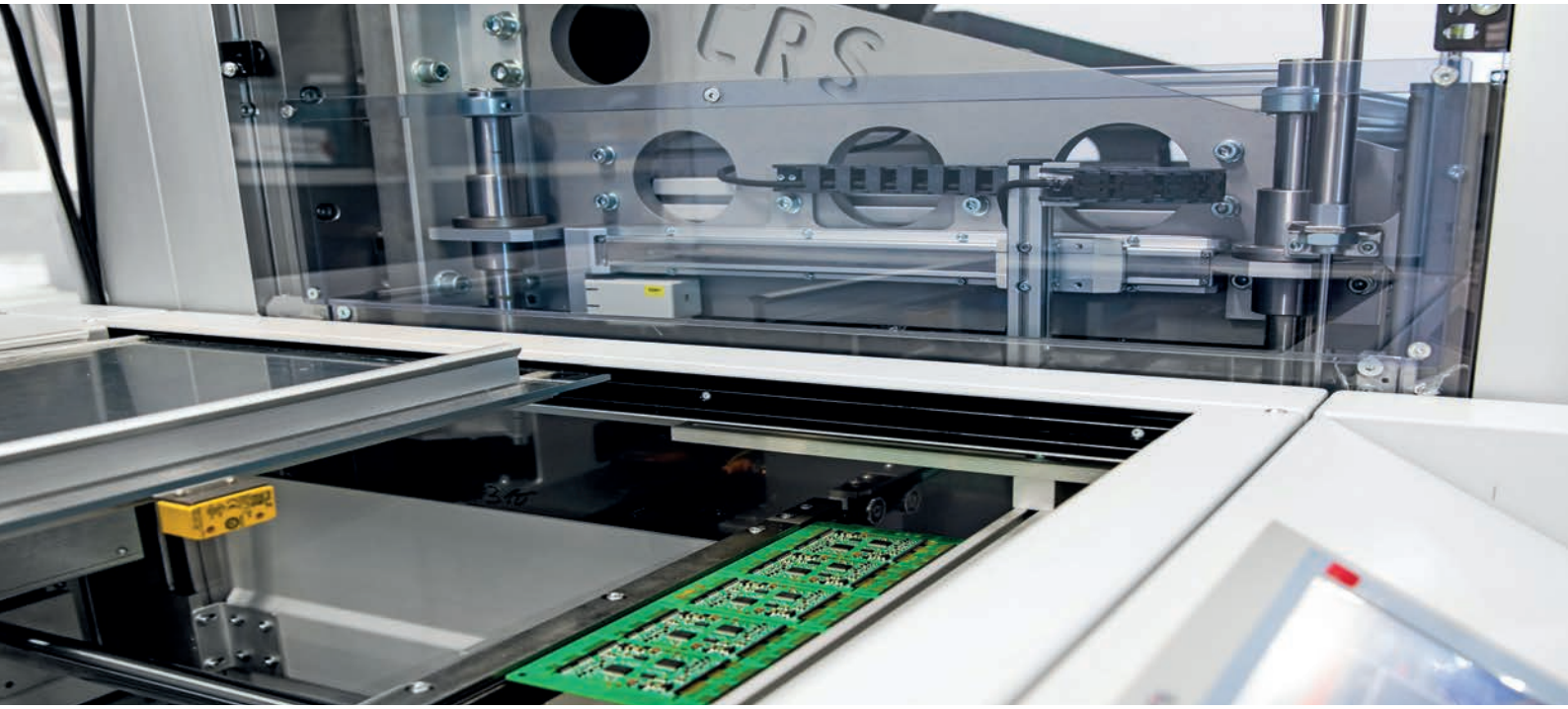
There have been similar solutions for CRSs in the past. With these, however, an intermediate frame had to be used, which was somewhat cumbersome and required an additional interface," continues Hennings. The integrated ATS was first presented at Productronica 2017 in Munich, then brought to market maturity and has enjoyed great popularity ever since: now customers can test pre-series products with the same fixture kit which is later used in mass production in the inline system. „This saves a lot of investment in different test fixtures and exchangeable kits, as well as interfaces and test programmes," reports Hennings. But that's not all: if after the saturation phase in the product life cycle the quantities decrease or only occasional revision tests are required, the ATS can be removed from the inline station and continue to be used in an INGUN manual test fixture. The inline station is then free for new products. „With our concept, we are thus able to cover the entire life cycle of a PCB with only one exchangeable kit," emphasises Hennings.



OFFLINE AND INLINE WITH A SINGLE SYSTEM - FLEXIBLE CONFIGURATION

The exchangeable kits are customised using spring-loaded test probes and corresponding accessories from INGUN. Thanks to detailed documentation and removal instructions, the customer can remove the exchangeable kits themselves. This provides additional flexibility; if desired, the customisation can also be carried out by INGUN or CRS. „Thanks to the cooperation of CRS and INGUN, the customer receives a complete package from two strong partners, who have been established in their respective fields for years and are represented worldwide", says Hennings. In addition to the high level of technical competence, the geographical proximity ensures fast reaction times, for example for short-term enquiries or test fixture customisations.

The new concept combines features of the classic manual test fixture with the advantages of fully automatic testing. This makes inline inspection technology interesting for customers who work with small batch sizes and many different versions. In addition, the CRS inspection station can either be integrated into an inline production line or loaded as a stand-alone solution via magazine systems. Hennings reports: „We are receiving an increasing number of enquiries from customers who have so far refrained from automating the test technology, either because the production batches are too small or because of a large number of PCB versions. The combined use of the exchangeable kits reduces costs, and the high degree of automation makes our systems attractive to a larger range of customers". The simple handling of the exchangeable kits in the station as well as in the manual test fixture allows a product change with a few simple steps.



ADVANTAGE FOR INDUSTRY 4.0: NO FAILURES ARE ANTICIPATED.

In addition, the modern testing systems from CRS offer advantages in terms of digitalisation and Industry 4.0: Thanks to a very wide vertical range of manufacture and documentation via the ERP system, the traceability of the tested products is comprehensively guaranteed. A predictive maintenance function is also integrated in every test system: The number of contact strokes of each fixture is stored on an RFID chip and can be individually defined before-hand – meaning test probes are changed regularly before failures and machine downtimes occur.

The good cooperation between CRS and INGUN was decisive for success: „The assistance in selecting the right components and the technical support offers our customers a clear added value, no matter whether it is about fast, competent feedback or new solution approaches, for example for specialised versions“, reports Hennings. „There are, of course, similar systems of fixture-interchangeable kits on the market. However, due to the good relationship with INGUN for many years and the geographical proximity, the choice of supplier was easy for us. Together we have developed an interchangeable concept, which is now in use worldwide and which considerably simplifies the customer's processes“.

CHALLENGING TIMES REQUIRE EFFICIENT TESTING TECHNOLOGY

What other trends are shaping e-testing technology and what can be expected in the coming years? Sven Hennings' concludes with his outlook: „Fortunately, demand in the field of electrical components is rising steadily. This trend is particularly evident in power electronics. The demand for more environmental compatibility and resource efficiency is increasing the need for electrification solutions even in industries where this

was barely an issue in the past. Naturally, we are pleased about every newly integrated system and want to contribute to the further development of electronics and industry with our innovative solutions.

MANUAL TEST FIXTURES FOR SERIAL TESTING (MA21XX SERIES)

Test fixtures in this series are suitable for contacting electronic units such as printed circuit boards (PCBs) with medium quantities (series testing) and a small number of versions. The test fixtures are designed as an interchangeable kit system and are operated with exchangeable kits that are specially designed for the electronic functional unit to be tested.

Features:

- High contact force of up to 2,000 N
- Energy-saving, shock-absorbing opening mechanism
- Available with or without test system interface (modularly configurable)
- Exchangeable kits can be set up quickly without tools and can be used without read-justment
- Pressure frame unit and probe plate can be screwed together using stacking screws, to form a unit with protected probe field (for storage/transport)

The service life determined in the laboratory with fully automatic, computer-controlled endurance test stands under full load is 500,000 load cycles.

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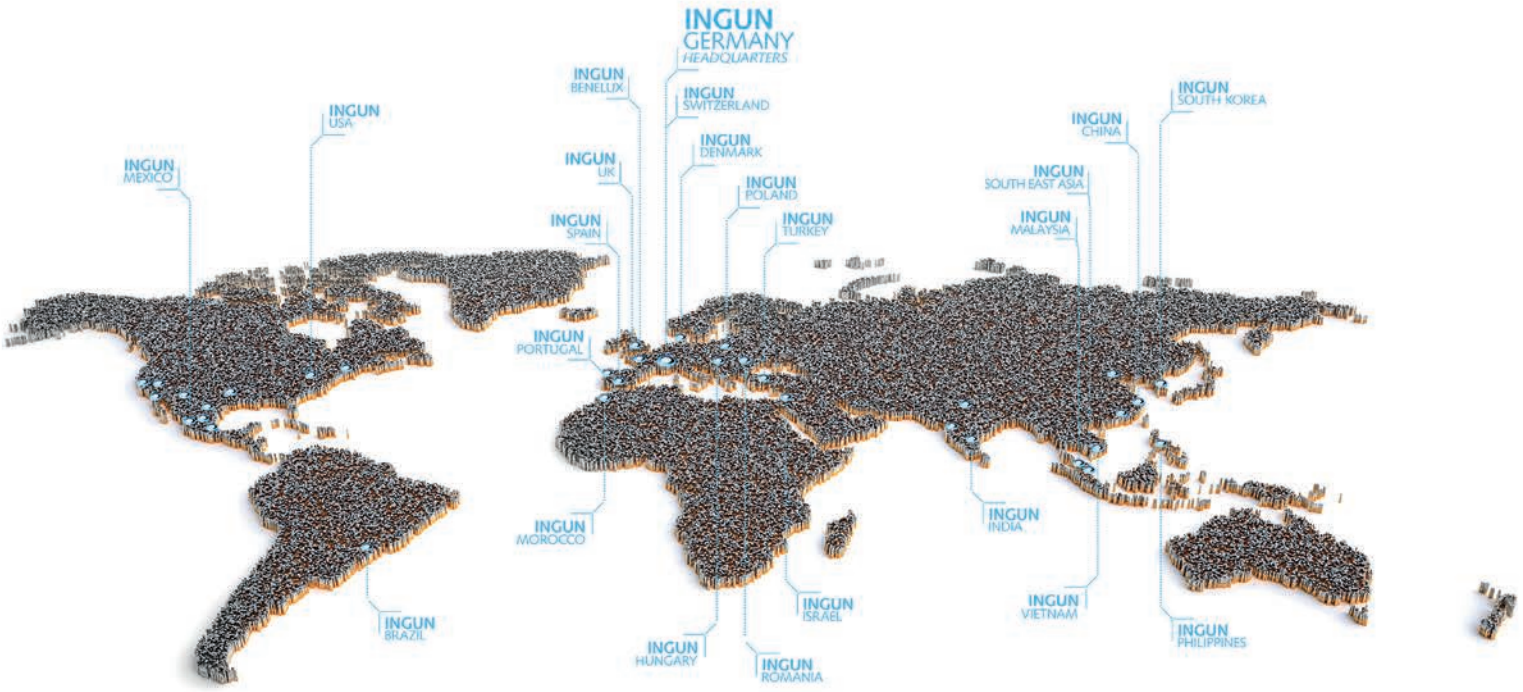
ABOUT INGUN

Since 1971 INGUN has been ensuring the optimum connection between test point and test system. With the world's largest portfolio of test fixture kits, customising accessories, and test probes, the company from Constance, Germany, is an important **Partner for Future Technology**.

More than 400 employees at over 40 locations worldwide ensure the rapid availability of INGUN's innovative, modular, and tailor-made solutions. As a development partner for its customers in industries such as automotive, telecommunications, and medical technology, INGUN ensures the quality of electrical and electronic products.



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