WELCOME TO THE WORLD OF PRECISION

Product Portfolio

FEINMETALL
Contact Technologies

WE PUT TOGETHER WHAT BELONGS TOGETHER

FEINMETALL
Contact Technologies

At FEINMETALL, we are technology leaders in the field of contacting solutions with a worldwide reputation for high standards, outstanding precision, uncompromising quality and our ability to solve the technical challanges of our customers and future markets.

(Vision)

We present our Business Units:

- Electronic Test
- Wire Harness Test
- Battery & High Current Test
- Interface Solutions
- Fine Pitch Test
- Semiconductor Test

THE RIGHT SOLUTION
FOR EVERY CELL TYPE
AND EVERY APPLICATION

BATTERY CONTACTING & E-MOBILITY

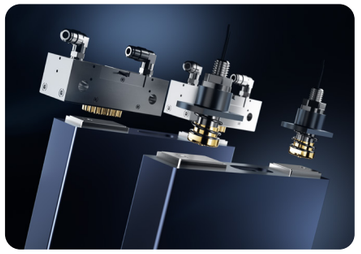
Battery cell test and formation in general

Reliable and high-quality battery cell production requires complex high performance contacting during several steps of the production. The quality of battery cells is reflected in a wide variety of parameters such as electrochemical stability, capacity, performance or service life.

End-of-line quality assessment of battery cells in the form of quality determination and evaluation in cell production helps to identify optimization potential at an early stage, minimize reject rates and thus reduce production costs. We help you with the best contact solutions for your battery production.

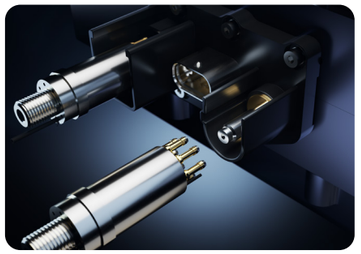
Testing

When testing batteries, in the so-called stress test, the newly developed battery cells are tested to the limits of the load. For even better monitoring, these tests are also often carried out in climate chambers. For this, high current solutions up to 1000A and more are needed.



Formation

In the formation process of battery cells, the cells are charged and discharged at lower currents (usually around 120A). Lithium ions are deposited in the crystal structure of the graphite on the anode side, forming a boundary layer between the electrolyte and the electrode. This controlled and stable process is often carried out in climatic chambers. This process is repeated several times to achieve the best possible results.



High Current Applications

FEINMETALL offers individual solutions for the most diverse applications for the transmission or measurement of currents between 10A and 1000 A. The focus is always on achieving the lowest possible contact resistance. For punctual temperature measurement directly at the test point, many of these solutions have an integrated temperature sender.

ADVANCED SOLUTIONS
FOR WIRE HARNESS AND
CONNECTOR TESTING

WIRE HARNESS TEST

Wire harness test in general

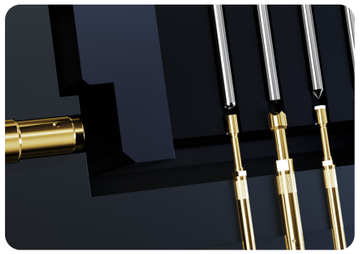
The wire harness is working as the nerve system in the car – every electric component receives the signal through it and ensures that all devices work effectively with each other. In general, the wire harness consists of individual cables and those wires are bundled in the cable harness and hold together by clamps, cable ties or tubes.

Due to the importance of the wire harness it is necessary to ensure that the wire harness works 100% without failure after mounting in the car. In addition, testing the functionality of the cable harness is therefore not that simple due to a high diversity of connectors. On the market, only a few standard connectors are available but commonly most of the connectors installed in a car have different designs. There are various car brands, models and electronic devices with different requirements, which increase the variety.

The wire harness and each connector have to go through a test. For this testing, counterparts of the connectors, which are installed in so-called testing tables, are being produced. Precisely for those counterparts FEINMETALL contact probes find their use in order to test different aspects like:

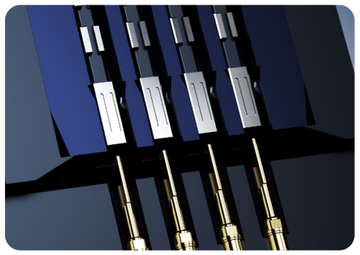
- Presence test
- Continuity test
- Position test
- Push back test
- Connector test

FEINMETALL offers the largest product portfolio worldwide, which gives the opportunity to choose the exact contact probe for your application. With our innovative and cost-effective solutions, we satisfy the demands of the market and build up a driving force for the wire harness testing technology.



Presence test

The presence test is necessary to check if all needed parts were mounted on the wire harness. For example, the clips to fix the harness on the chassis or secondary locks, which are locking the connector. For these test applications different switch probe types are used. FEINMETALL offers a wide range of ball switch probes, NO or NC switch probes, pneumatic switch probes or Off-On-Off switch probes, depending on the requirement.

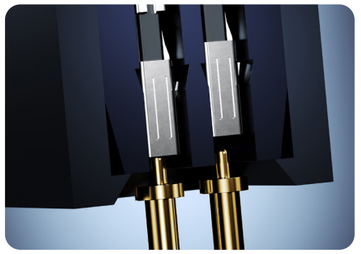


Continuity test

For a standard continuity test mainly threaded and twist proof probes are used to ensure a secure seat in the receptacle even if vibrations or unintentional side forces occur.
In addition, their function is to check three basic errors: open wires, shorts between wires or miswires.

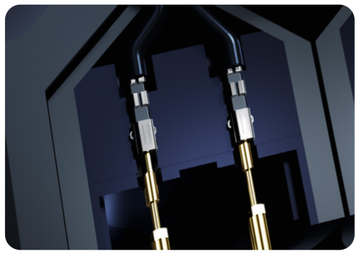
ADVANCED SOLUTIONS FOR WIRE HARNESS AND CONNECTOR TESTING

WIRE HARNESS TEST



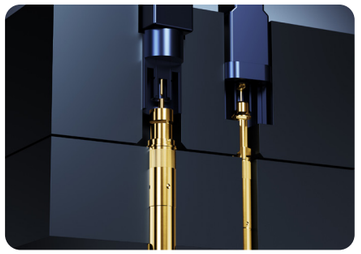
Position test

For the position test step probes are used. They allow the testing of the correct terminal position inside of the connector housing.
If a terminal is not mounted correctly, the plate of the step probe blocks at the housing. As a result, the probe does not create an electrical contact.



Push back test

Push back probes have a very high spring force to test if the connector terminals are mounted correctly. If so, they will withstand the pressure and compress the probe.
Through this, a switch function will get activated and the correct mounting is confirmed. Push back probes combine mechanical and electrical tests within one probe.



Connector test

The connector market is changing rapidly as it is adapting to the technology progress in new sectors such as autonomous driving or electric vehicles. Because of the wide range of possible applications there are a lot of different connectors available.
For standard and customized connectors FEINMETALL has various solutions available to cover the specific test requirements (for example high voltage, radio frequency, high current, kelvin test).

Tools and accessories

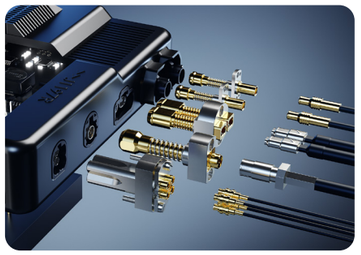
FEINMETALL offers a great variety of tools for the installation and maintenance of contact probes and receptacles. For the mounting of standard probes practical insertion- and screw-in tools are useful. For a simple and effective mounting of switch probes tools with additional functions are available.
A spring force gauge additionally enables the measurement of spring forces, in order to identify inserted contact probes in existing modules or fixtures.

WIDE RANGE OF SOLUTIONS FOR RADIO FREQUENCY APPLICATIONS

RADIO FREQUENCY TEST

Radio frequency test in general

RF solutions are used in the different markets such as automotive, communication and industry in general. For transmitting RF signals with coaxial probes the inner conductor carries the signal whereas the outer conductor serves as a shielding. Typical applications are contacting various standard RF connectors or sockets like e.g. FAKRA, HSD, SMA, SMB, SMC connectors or even very small SMD assembled switch connectors or direct test points on a PCB.

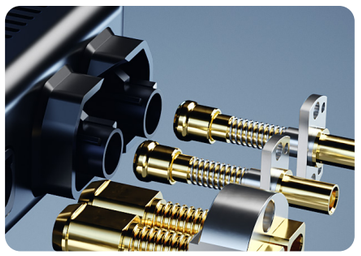


HF-automotive

Automotive connectors are used in a huge variety of electronic-hardware in the automotive industry to transmit data-signals. Examples are Control Units, infotainment- and assistant systems, antennas and cable-assemblys. To verify the function of these components Feinmetall offers unique and innovative RF-probes for contacting the connectors.

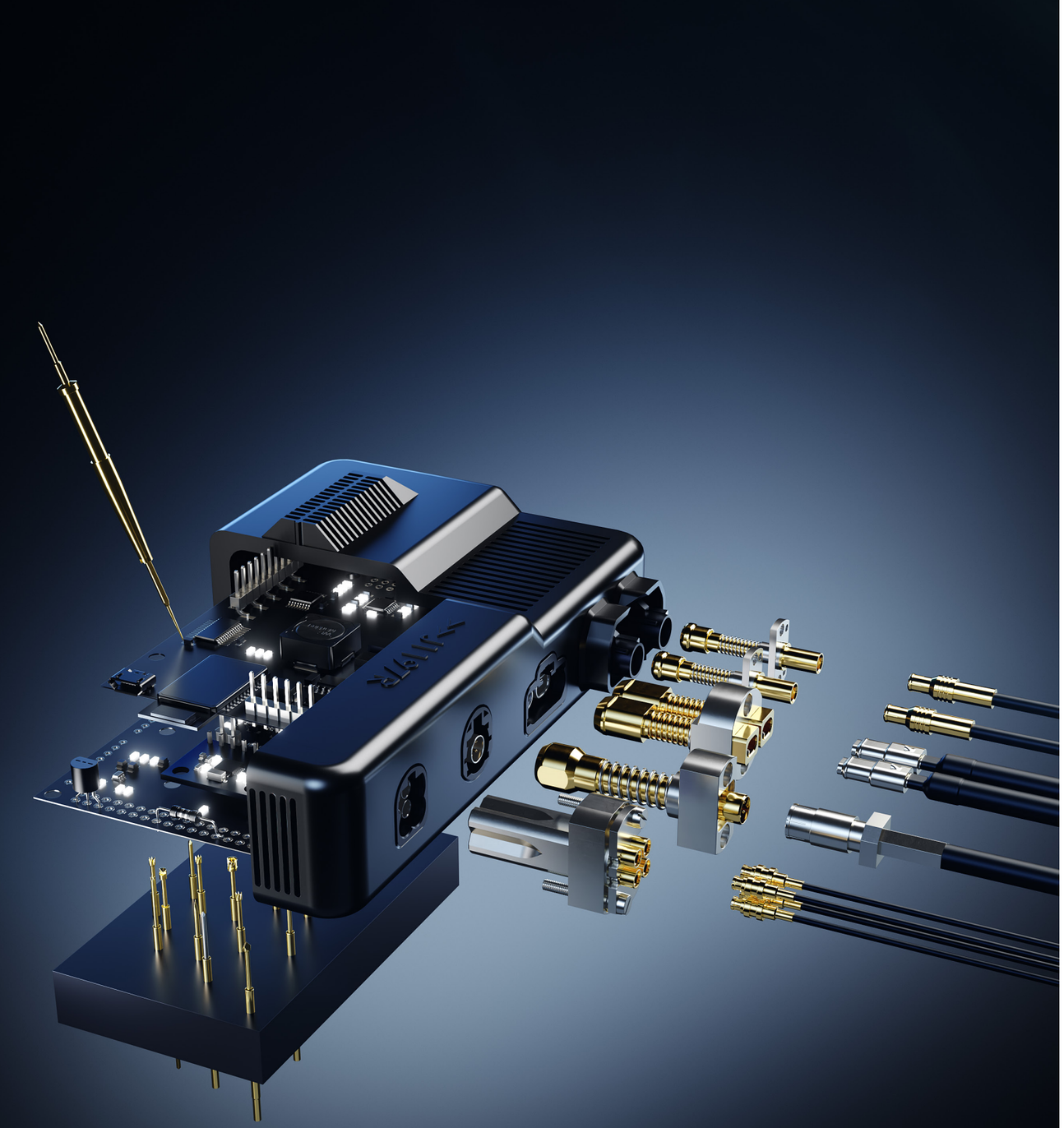
HF-consumer electronic

Our lives are getting smarter by the use of devices such as Smartphones, wearables, connected home appliances and many more. To ensure a high-quality and customer-satisfication we offer RF-probes for all miniature-connectors and PCB-Pads.



HF-industry

Our world is getting more connected and faster every day. New technologies like 5G are being implemented all around the globe. Our RF-probes are designed for the highest frequencys and the most challenging demands in the present and the future. With these test-solutions Feinmetall is your partner for the developing the technologies of tomorrow.



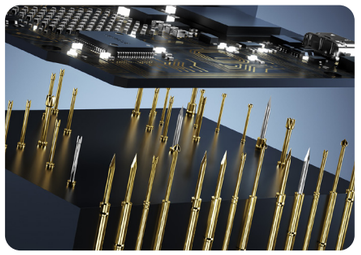
WIDE RANGE OF SOLUTIONS FOR CONTACTING AND TESTING ELECTRONIC COMPONENTS.

ELECTRONIC PCB TEST

Electronic test in general

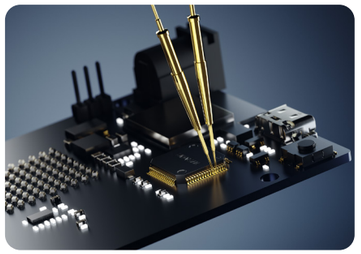
For the in-circuit and functional test of PCBs standard probes in the centers 50 mil, 75 mil and 100 mil are most commonly used. In these applications long lifetime, reliable contacts and great variety of tip styles and spring forces are essential.

Additionally, for many applications special solutions are required like e.g. for contacting lead-free soldered pads as well as contaminated, oxidized or OSP-coated boards.



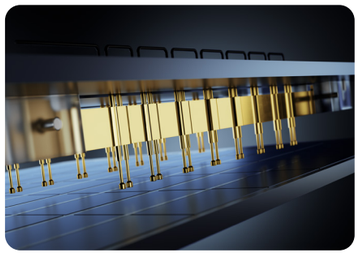
Probes for ICT/FCT electronic test

For the in-circuit and functional test of PCBs basic probes in the centers 50 mil, 75 mil and 100 mil are most commonly used. In these applications long lifetime, reliable contacts and great variety of tip styles and spring forces are essential. FEINMETALL offers the compatible receptacles for all its basic probes. All common connection types are supplied (e.g. WW, solder, crimp, wireless).



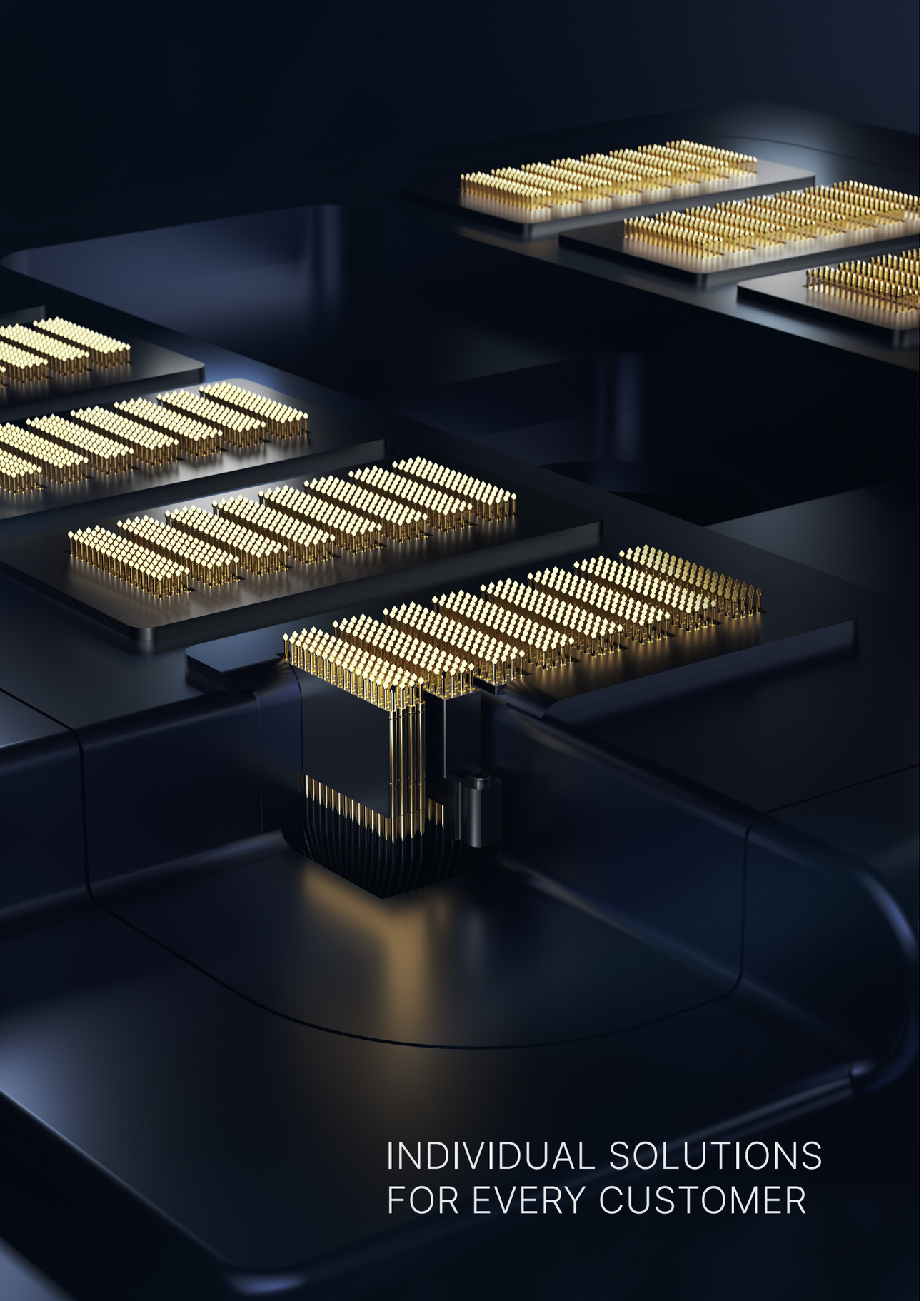
Flying probes

The innovative „flying probe concept“ enables ultra-precise measurements in just a few microseconds. Flying Probes contact on the smallest geometries such as pins of micro-SMD components or rest rings of vias. Flying Probe testers can be flexibly programmed to test different PCB layouts on one tester - without modification. The low and constant internal resistance during the whole lifecycle of the FM Flying Probes, is enabling a stable test-process with high first yield pass. Due to the anti-rotation protection, the probe can be well realigned and calibrated.



Solar probes

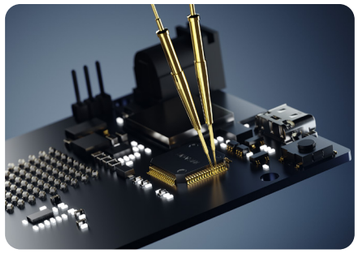
FEINMETALL is one of the leading suppliers of solar probes. With our innovative technologies and know-how, we have developed special test probes for testing solar wafer. For the contacting of busbars (conductor paths) on the solar wafer, optimized probes are used to contact the sensitive conductor path surfaces without damage.



INTERFACE SOLUTIONS

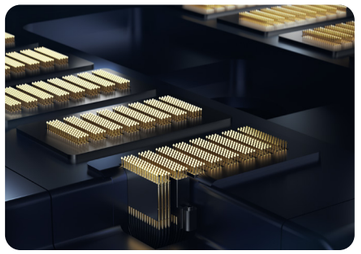
Interfaces in general

Spring contact probes as an interface offer many advantages in the field of signal transmission, power transfer and data exchange between different devices or circuits.
They provide a reliable electrical connection with a stable low resistance, even under vibration or mechanical stress. This stability contributes to the overall integrity of data transmission. In addition, these solutions are characterized by their durability, as they have a long lifetime that significantly reduces maintenance and replacement costs. In addition, interface solutions are available as pins or blocks as standardized items or customized for specific applications. The variety of solutions ranges from small contact probes to larger highperformance blocks or even pogo towers for the semiconductor industry.



Interface probes

Interface probes, used as connectors in a wide range of applications, serve as a central link for transmitting signals and data. Their purpose is to establish reliable electrical connections when interfacing with other components or PCB circuits. These versatile components find application in diverse industries such as electronics, telecommunications, automotive, and medical technology. Moreover, they play a crucial role in the semiconductor industry, providing standardized solutions for establishing signal connections between test fixtures and test systems.



Interface blocks

Interface blocks are used for the reliable transmission of signals between test instrument and test system / test fixture in internal, external and customer-specific interfaces. An electrical interface via spring-loaded interface blocks ensures consistently high contact quality and reliable signal transmission with consistently low contact resistance. Various designs of signal, high-current, high-frequency, pneumatic and special blocks are available for a wide range of applications.

Interface applications

Interface solutions are the proven choice in a variety of applications, from chargers for smartwatches and smartphones to electrical connections in household appliances, in medical technology or even in the semiconductor industry, in automated test systems and more. They also provide reliable contact stability, even in demanding environments or applications. Maintaining a low resistance ensures efficient power transmis¬sion and data transfer, improving overall performance and durability.

FINE PITCH TESTING

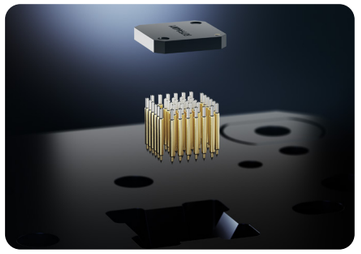
Fine pitch test in general

Whenever very small pitched test points need to be contacted fine pitch probes are the solution. Especially in the Semiconductor final testing, MEMS Sensor testing, WLCSP Solutions and the testing of miniature PCBs the pitches are very small and require reliable Fine Pitch Spring Probes.

FEINMETALL offers high quality contact probes aimed to advance our customers test yield. We are always chasing the edge of what is possible and offer fine pitch probes **down to 120µm Pitch**. Our probes feature high repeatability, quality as well as durability and are used in different applications.

MEMS sensors testing

MEMS sensors are tiny devices that combine electrical and mechanical components. They are widely used in various applications to detect and measure specific parameters. There is a wide variety from Accelerometer to Humidity Sensors. It is crucial to test each sensor to ensure the proper function of the MEMS Sensors. To contact these MEMS Sensors for the final testing, spring probe with small design such as fine pitch probes are necessary. FEINMETALL offers a range of high quality fine pitch probes for testing MEMS Sensors.

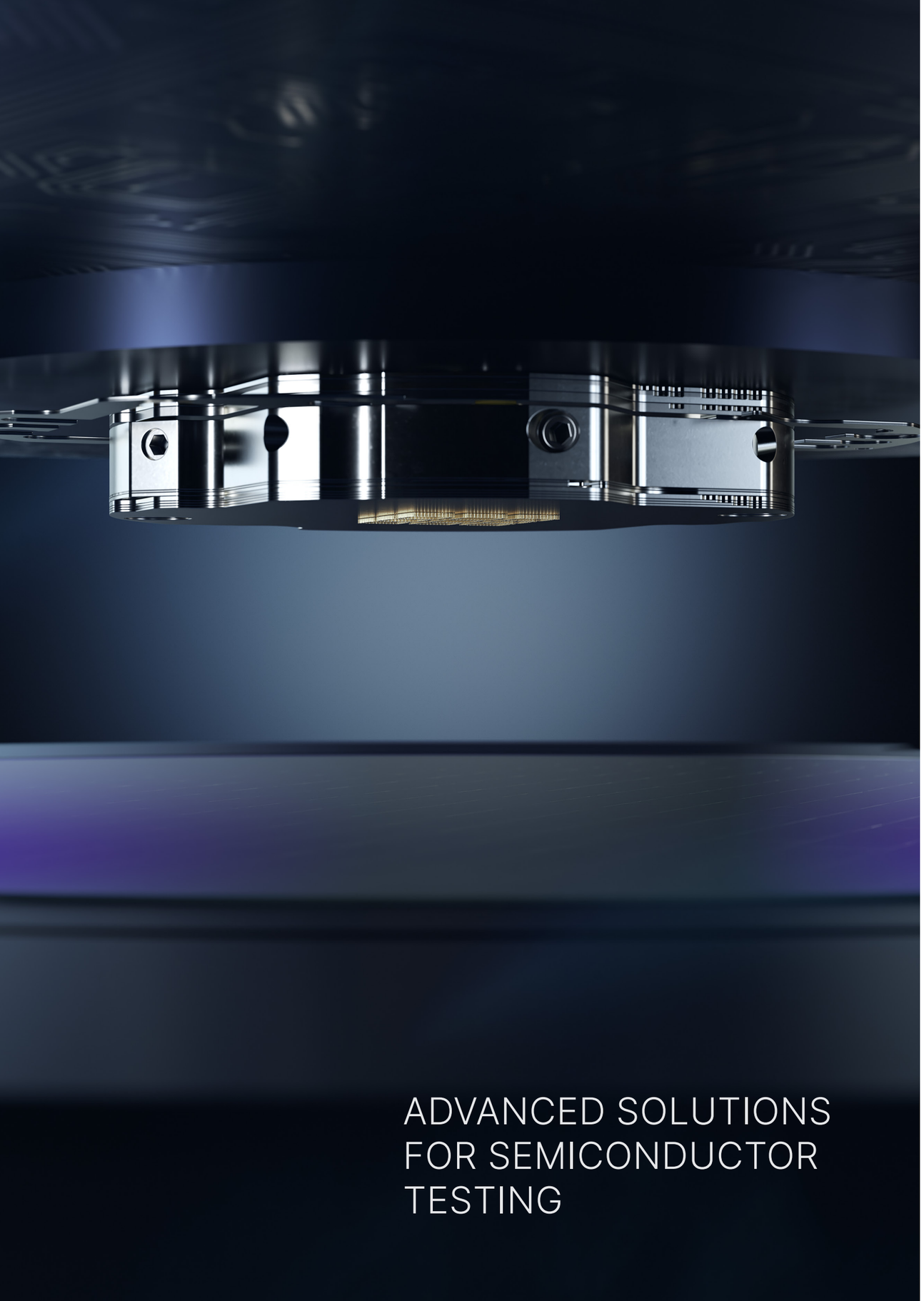


Semiconductor final test

The semiconductor final test is vital to confirm that integrated circuits meet the precise requirements of their designated applications, be it in telecommunications, automotive, medical devices, or other industries. The testing process guarantees ICs adhere to the necessary standards for diverse applications, ensuring their reliability and functionality. To test the ICs in the final test very small spring probes are used for contacting. FEINMETALL offers a wide range of high quality fine pitch probes which are used in the semiconductor industry to contact different package types such as BGA, QFN , LGA ,QFP etc.

PCB testing

Testing miniature PCBs is essential to validate their functionality and suitability for various compact electronic devices. Whether utilized in wearable technology, IoT devices, or miniaturized gadgets, rigorous testing assesses their electrical connections, signal integrity etc. The test points of such miniature PCBs have very small pitches. To reliably contact these contact points Feinmetalls highly reliable fine pitch probes are used widely in the electronic industry.



SEMICONDUCTOR TESTING

Wafer probe card excellence

As numerous as the applications for semiconductor components and modules are the requirements to set up a suitable test strategy. Key is always to ensure the desired function during and after wafer processing before the bare die is further packaged and assembled. A maximized yield and a low-wear contacting solution resulting in a low total cost of ownership are therefore central. FEINMETALL convinces with years of experience in comprehensive advice and project-specific contacting solutions as well as further service support worldwide.

ViProbe® probe cards

Adaptable to an enormous range of applications, the ViProbe® is a proven buckling beam technology for more than 25 years, valued above all for its uniquely easy reparability.

ViProbe® II probe cards

New version of vertical contact technology with focus on increased service life and other advantages.

LiProbe® probe cards

Probe card with lamella contact elements, especially suitable for RF applications with a high design variety.

FeinProbe® probe cards

Contacting WLCSP, SiP or flipchip wafers requires probe cards that can tolerate high currents while ensuring high signal integrity. The FeinProbe® addresses these applications perfectly.

FEINMETALL
Contact Technologies

CONTACT

E-MOBILITY & BATTERY CONTACTING
battery@feinmetall.com

ELECTRONIC TESTING
electronic@feinmetall.com

FINE PITCH TESTING
finepitch@feinmetall.com

INTERFACE SOLUTIONS
interface@feinmetall.com

SEMICONDUCTOR TESTING PRODUCTS
semiconductor@feinmetall.com

WIRE HARNESS TESTING
wireharness@feinmetall.com

PASSION
FOR FINEST
TECHNOLOGY.

> FEINMETALL.COM

1131136 - PRODUCT OVERVIEW / Version 1.0