## ELECTRONIC TESTING

Sophisticated probes for every application

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## PCB TEST

#### Probes for in-circuit- and functional 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

supplied (e.g. WW, solder, crimp, wireless).

#### **Metric probes**

Metric test probes (metric standard) complement the classic ICT/FCT test probes which are manufactured according to the mil-standard. They are characterized by their stability and robustness and all have a pronounced collar.

Test probes with insulation cap are used for fault detection of component legs. Faults can be determined such as: missing components, component pins that are too short or bent.



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.

#### **Basic probes for ICT/FCT**

For the in-circuit and functional test of PCBs, basic probes with a pitch of 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

#### **Probe with insulation cap**

## **PROGRESSIVE SERIES**

## PROBES FOR DEFINED TEST SYSTEMS

### **Challenging conditions, smart solution**

With the PROGRESSIVE SERIES, FEINMETALL has solved the contacting problems during the in-circuit and functional test under the most challenging conditions.

This was achieved by the three unique factors of the PROGRESSIVE SERIES. By combining the optimal coating, tip style and spring force the PROGRESSIVE SERIES can be used for DUTs where other probes fail. Espcially contamination of the DUT can be countered. A detailed overview can be found in our PCB test catalogue or on our homepage.

### **1. Aggressiveness of** the probe tip Optimum penetration of contaminations and oxide layers In order to reliably penetrate heavy contaminations and viscous layers, a contact probe must have a highly aggressive tip. So, the choice of tip style is essential. FEINMETALL offers a variety of different aggressive tip styles for applications with difficult contacting conditions. 11111111111111 3. Higher preload **Optimized force characteristic** during contacting Due to an increased preload of the spring, a higher spring force is realized immediately when contacting the test item whereas the nominal spring force at nominal travel remains unchanged. So, the overall load on the test item does not change, but contaminations are penetrated more effectively.

### 2. Functional coating

Reduced contamination of the contact probes

The unique, special PROGRES-SIVE coating of the tips has a considerably lower contamination sensitivity compared to conventional gold plating. At the same time, the hardness is three times higher. This results in a significantly longer lifetime of the probes even with heavily contaminated contact surfaces. The interface between the test fixture and the test system is usually implemented realized by interface contacts, which are specially standardized for each test system. FEINMETALL offers probes for all common test systems like Spea, Agilent, Teradyne, ATG, Digitaltest, Luther & Mälzer, Factron etc... . In addition, we offer a wide range of standardized interface blocks, but also customized interfaces.



#### F10006B310G...(Mint-Pin)

For Agilent Test System (HP3070/i3070/i5000)

#### F10005B150G200

For Spea Test System (Easytest/Unitest)

#### F10006B150G200

For Spea Test System (Easytest/Unitest)

#### F10015B150G150

For Test System Factron 300/700 (Schlumberger)

#### F10015B150G200

For Teradyne Test System (Spectrum 885xx)

#### **Interface Blocks**

FEINMETALL interface blocks (Pylon blocks) are used as internal interface. The defined integrated contact probes guarantee a good signal transmission with low transfer resistances.

## FOR CUSTOMIZED OR DEFINED TEST SYSTEMS

## FLYING PROBES FOR PCB TEST

### Flying probes for defined test systems like Spea, Seica, Scorpion or customized

The innovative "flying probe concept" enables the whole lifecycle of the FEINMETALL flying probes, is enabling a stable test-process with ultra-precise measurements in just a few microseconds. Contacting can be made on one high first yield pass. or both sides from above and below. Flying Due to the anti-rotation protection, the probe probes contact on the smallest geometries can be well realigned and calibrated. This such as pins of micro-SMD components or rest enables a precise contacting of the DUT's. rings of vias. Flying probe testers can be FEINMETALL offers flying probes for all flexibly programmed to test different PCB standard testers. If required, FEINMETALL also layouts on one tester - without modification. develops customer-specific solutions for test The low and constant internal resistance during systems.

# Robust, precise and flexible to use

### **Benefits of flying probes**

- High lifetime up to > 2mio. contacts
- Anti-rotation device allows a high repeatability of the contacting
- Optimized tip styles for contacting in the smallest pitches
- Robust and low-wear contact heads and plungers
- Low and constant resistance





## SOLAR PROBES

### **FEINMETALL** as a reliable partner for contacting solar wafers

FEINMETALL is one of the leading suppliers of solar probes.

With our innovative technologies and knowhow, we have developed special test probes for testing solar wafer. For the contacting of busbars (conductor paths) on the solar wafer,



### **Benefits of solar probes**

- Very low & constant contact resistance over the whole lifetime (>4mio cycles)
- Special tip styles for contacting the busbar surface
- Optimized spring characteristics
- Automated 100% function control during production

A CLEAN ENVIRONMENT IS IMPORTANT TO US. BY SUPPORTING THE PRODUCTION OF EFFECTIVE SOLAR CELLS, WE ARE HELPING TO PROMOTE RENEWABLE ENERGIES.



optimized probes are used to contact the sensitive bus bars without damage. Due to the special design and the very long lifetime of more than 4 million cycles of the contact probes, high-volume solar cell testing is made possible in a cost-efficient way.

## AUTOMOTIVE **APPLICATIONS**

## RADIO FREQUENCY PROBES

#### **H-MTD®**

H-MTD® is a new, differential connector for the transmission of frequencies above 20Ghz. The main applications are functions of autonomous driving and assistance systems. FEINMETALL offers innovative test solutions that meet the requirements of the USB 3.2 standard and beyond.

#### **MateNET**



#### HFM + MateAX

The so-called "mini-FAKRA" connectors are the further development of the classic FAKRA connector and enable the transmission of higher frequencies with smaller installation space. FEINMETALL's test solutions are characterized in particular by the block solutions for the different housing types.

#### **HSD**

In addition to the established standard test solutions for HSD connectors, FEINMETALL offers independent designs that set new standards in terms of RF performance and mechanical function.

#### **FAKRA**

FAKRA connectors are among the most widespread connectors in the automotive market and an integral part of every vehicle. For the contacting of coaxial FAKRA connectors, FEINMETALL has a variety of different test solutions in its portfolio that are precisely adapted to individual customer requirements.











Differential connectors are becoming increasingly important in automotive applications. FEINMETALL offers established solutions for all common connectors.

For contacting differential MateNET connectors FEINMETALL offers contact pins which are suitable even for highest data rates according to the 1000 BASE-T1.

## CONSUMER ELECTRONIC

## RADIO FREQUENCY PROBES

#### Probes for mini-coax and switch-connectors



- connectors
- up to 18GHz

- Suitable cables available

#### **Probes for standard RF-pads**

- PCB pads
- Up to 6GHz
- Mounting via receptacle
- Connection via MCX
- •
- Suitable cables available

#### **Probes for miniaturised RF-pads**

- Up to 6GHz
- Design like HF66 series
- Mounting via flange
- Connection via mSMP
- Suitable cables available



• Type specially designed for contacting all common switch

Special design enables contacting in small grids

Optimized for long life
Easy and flexible mounting via flange
Connection via mSMP or SMA

• Special versions of the HF860 series for contacting standard

Solutions available for all standard PCB pads

• HF05 for contacting GSG pads with pitch up to 0.5mm (different pitches available)

## INDUSTRY APPLICATIONS

## RADIO FREQUENCY PROBES

#### **Standard probes for coaxial connectors**



- coaxial connectors
- Mounting via receptacle
- Up to 8GHz
- Connection via MCX
- Suitable cables available

#### Short standard probes for limited spaces

- Up to 8GHz

### **RF-optimised probes for high frequencies**

- Up to 16GHz

### Innovative probes with wobbling-function

- Suitable cables available



















• Series for contacting all common standard (different versions available)



• Easily adaptable and cost effective • Inner pin replaceable for better lifetime

• Series for contacting all common standard coaxial connectors with limited space • Short version of the HF860 series (same technical data)

• Mounting via receptacle (H830)

• RF optimized versions of the HF860 series

• Mounting via receptacle (like HF860) Connection via SMP connector

Easy mounting via flangeWobble function to compensate alignment errors Optimized for long lifetime Reduces stress and wear on the DUT



### CONTACT

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## PASSION FOR FINEST TECHNOLOGY.

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