PTR HARTMANN

A Phoenix Mecano Company

TESTING TECHNOLOGY

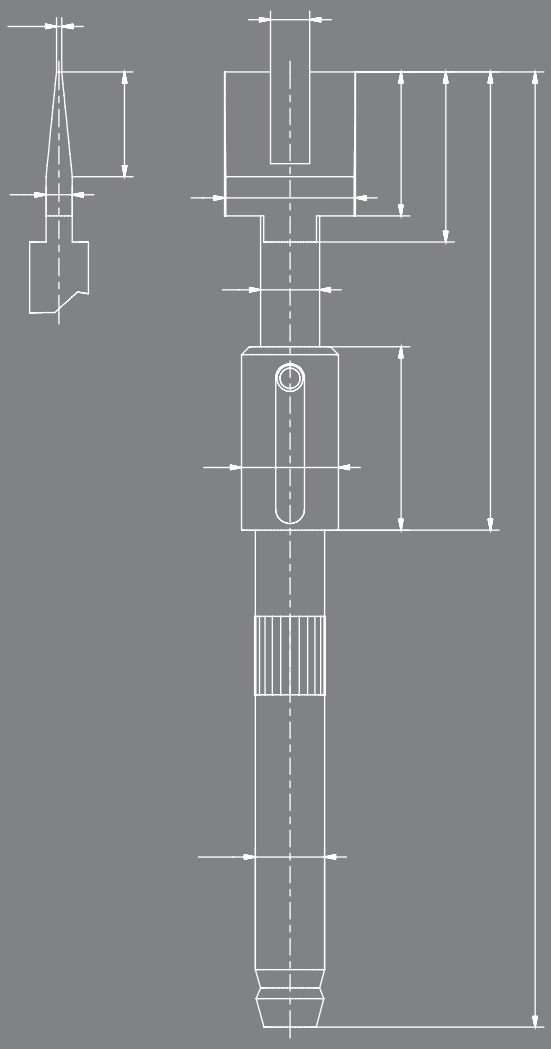
Quality Down to the Tiniest Detail

WE COMBINE PRECISION, INNOVATION AND RELIABILITY FOR YOUR BENEFIT.

PTR HARTMANN is responding to the globalisation of markets with an expanded distribution network. In over 60 locations worldwide, qualified personnel ensure that our products and services are always available to customers.

Areas of Operation

- Testing Technology
- Connection Technology
- Inductivities
- Switches
- DIN Rail Terminal Blocks



INTRODUCTION

Good functionality, a high level of efficiency, excellent precision and absolute reliability in our delivery performance:
these factors are why customers worldwide are putting their faith in PTR HARTMANN products. We combine quality and reliability with the claim to provide optimal solutions for customer-specific requirements. For us, these features have a long tradition. Since 1979, alongside a constantly expanding range of products, they have played a major role in our becoming a modern global player in the electromechanical components sector. Today, the name of PTR stands for excellence and innovation in the field of terminal and testing technology. Our merger with the Swiss firm of
Phoenix Mecano in 1989 strengthened our worldwide presence. As a result, PTR HARTMANN terminal blocks, multi-connectors, test probes and DIN rail terminal blocks are now available in more than 50 countries.

In addition, we set standards by using German engineering, high-quality materials, flexible production processes and intelligent logistics.
Also, the areas of application for our test probes are extremely wide-ranging. In the sectors of telecommunications, medical technology, aeronautics and aerospace, the automotive industry and many others, PTR test probes are used as secure and reliable contact elements for testing PCBs (ICT+FT) and cable harnesses. One additional and steadily growing field of applications is the use of test probes as a charging contact for industrial applications or PCB connectors as a single contact or multi-pole contact block.

PTR responds to the constantly increasing demands of the market by presenting flexible and targeted solutions. The development and construction of connection technology for customer-oriented applications lead to permanent on-going development of our range of products. In these cases, professional concepts are developed jointly and implemented precisely in cooperation with our customers.

As a result of its work in the components sector, PTR has also acquired a great deal of competence and excellent know-how about plastic parts. All this experience has been used to develop a new range of products, and for some time interface blocks have added to and expanded this. They are used wherever rechargeable batteries in mobile devices such as scanners, card readers, communication devices and others need to be recharged. One example is e-bikes, in which the battery connections are used in the operating unit and the display. In addition they are found in LED lights in the shopfitting sector and for "smart home" solutions. Also, they are often used to connect two PCBs, and for both purposes they can be supplied, ready for use, in blister belts and trays.

For us, on-going development of our products, in line with market requirements, is both a task and an obligation.
The result is new applications for different test technology applications. Without doubt, one highlight is the wide range of high-frequency test probes used in the growing market for communication and in-car entertainment technology. Our HPL test probes were developed to deal with the special demands which the PCB test requires. The high level of spring pre-tension and the resulting high initial pressure lead to a reduction in pseudo errors in the ICT sector.

A company which offers first-class products and services cannot leave anything to chance, so the use of modern quality management systems is very important. In order to implement and achieve the above-mentioned goals, it is especially important for us to continue to expand these concepts of quality and to anchor them in a quality management system. To this end, the group and company management have decided to introduce a QM system according to EN IS0 9001 so that we can continue to satisfy both the high levels of market requirements and those of our customers.

Success also means responsibility.
PTR sees the relationship to the environment and the preservation of our habitat for future generations as an obligation. We document this with certification according to EN ISO 14001. Of course, we also comply with EU directives such as ROHS2 (2011/65/EU) and REACH (1907/2006/EC) in their current versions.

All the information in this catalogue has been compiled to the best of our knowledge and belief and is correct at the time of going to print. Up-to-date information is always available on our PTR HARTMANN website at www.ptr-hartmann.com.

Content

Content

PHOENIX MECANO AG

The Group Phoenix Mecano is a global player in the enclosures and industrial components segments, has a streamlined operating structure and is a leader in many markets. Geared towards the professional and cost-effective manufacture of niche products, it helps to ensure the smooth operation of processes and connections in the machine industry and industrial electronics. Its products are used in the mechanical engineering, measurement and control technology, alternative energy, medical technology, aerospace technology and home and hospital care sectors, amongst others.

Enclosures

Phoenix Mecano enclosures protect all types of electronic and electrical equipment, offering exactly the kind of protection the customer requires.

Areas of application include plant engineering, railway, automotive and medical technology and offshore oil platforms. In addition to enclosures, Phoenix Mecano also supplies input units such as membrane keyboards and keypads, short-stroke keys, capacitive buttons and touchscreens.

Mechanical Components

This division's wide range of linear actuators, electric cylinders and lifting columns are deployed in industry, workstation installation and the home and hospital care sector.

Its profile assembly systems can be used to assemble peripheral production systems right through to entire production lines.

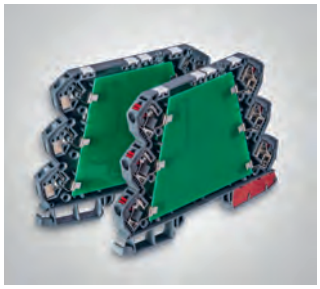
ELCOM/EMS

The ELCOM/EMS division's products are used wherever electrical energy flows, whether it be high, medium or low voltage, alternating or direct current.

They can be found in all industrial sectors, from medical technology, astrophysics and aerospace, to power distribution networks, switchgear and renewable energy.

STRONG TOGETHER – PRODUCTS OF OUR GROUP OF COMPANIES

PTR



HARTMANN

HARTU

ATON

BOPLA

DEWERT OKIN

HARTMANN ELECTRONIC

ISMET

KUNDISCH

PHOENIX MECANO
DIGITAL ELEKTRONIK

REDUR

RK ROSE+KRIEGER

ROSE

WIENER

Phoenix Mecano-Group

Gross Sales

approx. 650.8 million EUR*

Employees

approx. 7.316 Employees*

PHOENIX MECANO GROUP LOCATIONS AROUND THE WORLD

*The numbers relate to 2018.

You can find current figures on our Website: www.phoenix-mecano.com

North | South America

USA:
Orlando, Florida
Springfield, Ohio
Shannon, Mississippi
Frederick, Maryland
Chino, Kalifornien
Brasilien: Barueri
Uruguay: Montevideo

Europe | Africa

Great Britain: Aylesbury
Spain: Zaragoza
France: Fontenay-sous-Bois
Benelux:
Deinze, Belgien
Doetinchem, Netherlands
Enschede, Netherlands
Scandinavia:
Odense, Denmark
Ingelstad, Sweden

Germany:
Alsdorf, Baiersdorf, Breitenguess-bach, Bünde, Burscheid, Grävenwiesbach, Kirchlengern, Minden, Niederzier , Porta Westfalica, Salem-Neufrach, Stuttgart, Villingen-Schwenningen, Werne, St. Wendel, Wessling, Wutha-Farnroda
Switzerland: Stein am Rhein
Czechia: Běhařovice
Tunesia:
Ben Arous, Borj-Cedria, Bouhejba-Zaghouan
Marocco: Tétouan
Italy: Inzago
Austria: Wien
Hungary: Kecskemét
Romania: Sibiu

Asien

Turkey: Ankara
Russia: Moskau
United Arab Emirates: Sharjah
Saudi-Arabia: Dammam
India: Pune
Singapore: Singapore
People's Republic of China:
Dongguan, Kwun Tong (Hong Kong), Jiaxing, Shenzhen, Schanghai, Taicang
Taiwan: Taipei
Korea (South Korea): Busan

Australia

Australia: Victoria

Design and Structure

Application Areas

Test Probes are used in the manufacture of electronic products to test PCBs. When fitted in test adapters, they carry out in-circuit tests and function tests. The aim is to optimize production by raising quality and reducing costs, factors which are caused by faulty components.

The test probe also plays an important part in the automotive industry, where it is used in test modules for testing connectors in cable harnesses. This means that the test probe is an important link in meeting the high quality standards found in automobile manufacture.

Interface Pin Blocks create an electrical contact between two components. As battery probes, they are used, for example, wherever it is necessary to charge the rechargeable batteries in mobile devices such as scanners, card readers, communication devices, etc.

The special design of the test probes which are used here adapts perfectly to an extremely wide range of contact situations. The probes guarantee a clean connection on almost all surfaces, including with ambient conditions in which oscillations and vibrations could affect the contacting. Irrespective of the specified installation height of the interface pin blocks, the test probes compensate for unevenness and differing heights on the contact surfaces. These features ensure a perfect and safe electrical contact. When positioned in the right place and used correctly, the interface pins can achieve up to 1 million contact cycles.

One typical application for interface pins is their use in interface pin blocks. They can be used for the secure connection of two PCBs which, by means of flexible contacting technology, can be connected and disconnected as often as required. This especially flexible connection of the interface pin blocks requires only a contact surface which is larger than the diameter of the probe head, so it offers considerable advantages when compared with connectors, which always require a precise connection. Additional arguments in favour of the use of interface pin blocks include the absence of insertion and withdrawal forces, and minimal wear and tear.

Design

In its basic construction, a test probe consists of three parts (see fig. 1). The electrical contact to the test piece is created by the plunger, which, together with a spring, is inside the barrel. The individual parts are connected moveably with each other by means of mechanical re-shaping of the barrel..

Barrel

The barrel protects the moving parts. At the same time, small tolerances ensure precise plunger guidance. The barrels are manufactured using deep drawing or machining processes. In some cases, ventilation drill holes are needed to ensure optimal coating.

Plunger

The plunger must conform to very high standards. It is a moving part which must be low-wear but at the same time highly conductive. Close tolerances must be included in the above criteria when plungers are used for small centers. The plungers are manufactured with maximum precision on long-turning lathes and then refined. In most cases, the plunger is coated with gold.

Plungers are manufactured of hardened fine-grained steel for use in heavy-duty operating time situations. The emphasis is on tips with extra penetration, for example pointed tips. Aged copper-beryllium (CuBe is used for plungers, especially when high demands are made of electrical conductivity for longterm constancy. With regard to environmental aspects, these are taken care of by the 100% wet-processing of the beryllium and by the coating on the plungers.

Test probes with CuBe plungers are suitable for measurement tasks in the case of potential difference and for high-voltage applications. The brass plunger design with equally good conductivity is suitable for low-wear applications, e.g. charging contacts with very short travel and non-aggressive tip styles.

Alternatively, the plungers are fitted with different improvement coatings which, in addition to the electrical conducting and contact characteristics, are intended to satisfy specific requirements in respect of abrasion resistance and corrosion protection.

Spring

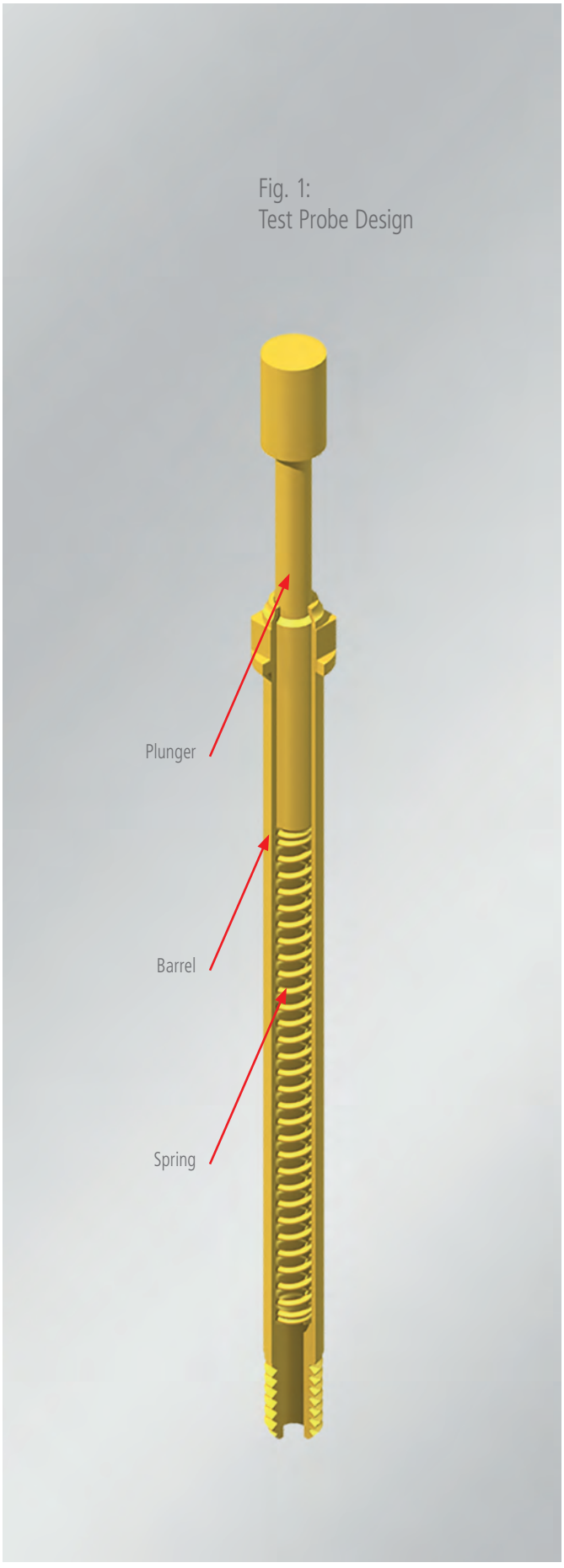
For the most part, springs are manufactured of spring steel wire of the maximum strength category with a special surface finish. The working temperature range for these springs between -30°C and +120°C also determines the operating temperature range for the complete spring contact probes. High-strength stainless steel wire is used with higher temperatures up to +250°C and increased demands on corrosion protection.

However, with this wire, it is not possible to achieve such high strength or spring force values as with spring steel wire.

Normally, gold is used as a surface plating because it reduces wear and improves the contact characteristics. The coating is applied in such a way that the structural characteristics of the high-strength spring material are affected as little as possible. In special cases, the springs are silver-coated (improved conductivity). In most cases, stainless steel springs are not given an additional coating, and they are used when temperatures are very high or for maximum heating.

The rated spring force of the spring contact probes refers to the working travel, which, as a rule, is 4/5ths of the maximum permitted plunger stroke travel.

Fig. 1:
Test Probe Design



Materials and Coatings

MATERIALS

Steel

PTR uses steel as the standard material for the plungers. The stability of this material is good in comparison with others, and is extremely suitable for aggressive probe tips such as the "pointed tip" or the "chisel". The electrical properties are improved by the preferred gold coating.

Copper Beryllium

Copper beryllium is superior to steel in respect of the long-term stability of the electrical properties. Adding beryllium allows the materials to be easily processed, without completely losing the excellent properties of the copper.

Brass

Brass is a relatively soft material which is good for manufacturing purposes. Because of the high copper content, the electrical properties are also good, and for this reason, the material is mainly used for receptacles and barrels. However, brass is also a very popular plunger material for battery charging contacts, which normally do not have to withstand a very high number of load cycles.

Bronze
Bronze is used as a base material for receptacles and barrels; it offers good electrical properties and can be both turned and deep drawn.

Nickel Silver
Nickel silver is a very interesting material for receptacles because it is especially corrosion-proof and can be manufactured using the deep drawing process. Its copper content also makes it an acceptable conductor.

Spring Steel
High-strength spring steel is what is normally used to manufacture springs. It provides excellent properties which permit the manufacture of test probes with long operating times and balanced forces. The temperature range is from -30°C to 120°C. The springs are coated with gold or silver.

Stainless Steel
Stainless steel is used for springs in situations which require greater temperature stability than those which require standard springs. Temperatures from -40°C to 250°C (max. period of one hour) are possible. Good corrosion resistance is an additional advantage of stainless steel.

Plastic
High-quality plastics which can resist high temperatures are used to isolate the probe tip of switching test probes or as an isolator in the test probe itself. This material is also used as a carrier material for interface pin blocks. This is where PTR can benefit from its extensive experience of the terminal block sector.

COATINGS
In all cases an intermediate nickel coating is used for protection in order to prevent diffusion of the material.

Hard Gold
Hard gold has a passive surface, so it is an ideal electrical contact partner with very good chemical resistance. The special gold alloy, with a micro hardness of up to 400 HV, is much harder than pure gold, but there are limits with regard to wear behaviour. The abrasion behaviour can be influenced positively if the conditions of use are optimised, for example by the avoidance of radial movements.

Rhodium
Rhodium is one of the platinum metals. A very high level of wear resistance is achieved because of the very high degree of hardness of up to 1000 HV. However, because of the stored oxygen, a higher level of layer brittleness must be expected. This problem can be reduced by means of a special layer build-up and reduced layer thicknesses. However, rhodium plating is unsuitable when heavy impact loads are involved. If the brittle and very thin rhodium layer is damaged, this may have a negative effect on the initially good electrical contact characteristics.

Nickel (chemical)
Nickel is distinguished by even layer deposition with excellent contour accuracy, which is especially advantageous for the function of pointed tips and sharp-edged tip styles. This nickel-plating has a micro hardness of approx. 600 HV, which can, as an option, be increased to 1000 HV and more by means of subsequent heat treatment. This is accompanied by very good wear resistance. Maximum corrosion resistance is achieved by the intercalation of phosphorus. However, the resulting inactive surface does not result in such good contacts as those of gold or rhodium.

Silver
Silver provides the best electrical conductivity among metals, which is why it is used, for example, for high-current applications. In this case, the spring of the test probe used is silver-coated in order to increase conductivity. In addition, some of the probe tips in the high-current range are fitted with caps made of a silver alloy, because this prevents restrictions to the conductivity caused by contact pitting.

Receptacles and Assembly

RECEPTACLES

Receptacles are fitted firmly in the relevant probe location oards in order to permit the replacement of the spring contacts without wiring work when the limit to the operating life (see page 20) is reached.

Base materials for the receptacles are

» Bronze
» Nickel Silver or
» Brass

Gold plating ensures good electrical properties, with nickel underneath for corrosion protection.

Types of Receptacles

PTR HARTMANN offers receptacles with a range of connection types. In addition to standard products such as crimp, solder and wire wrap connections (see fig. 1), solutions for special fields of application
are available.

Threaded Receptacles for screwable Test Probes (see fig. 2)

This type of receptacle is used in so-called test benches which test the functionality of cable harnesses. The screwing of the test probes into the receptacle prevents unintended twisting of the test probes out of the receptacle caused by the abrupt stroke movements of the test modules.

Threaded Receptacles with a drill hole in the solder cup (see fig. 2)

This receptacle is sealed vacuum-tight when the wire is soldered on.

Easy Replacement Receptacles for Switching Test Probes (see fig. 2)

In this case, wiring takes place twice on the receptacle and no longer on the switching test probe itself. During maintenance work, the switching test probe can be replaced without the need for any other wiring work.

Receptacles with a non-rotating feature (see fig. 2)

This type of receptacle makes it possible to position the test probes precisely in respect of the test piece. This solution is used especially with the so-called spade-shaped head style.

Insulation Receptacles (see fig. 2)

This type of receptacle is deployed when test probes are used in a conductive carrier material. In this case, the insulation receptacle holds the actual receptacle of the test probe.

Pre-wired Receptacles n (see fig. 1)

These receptacles are already fitted with a component lead which the customer can adapt to the required individual length.

Receptacles for different extension heights (see fig. 3)

As standard, the receptacle is pressed into the carrier material as far as the stop. The receptacle type fitted with a press ring permits different extension heights – it is inserted to a specified distance by means of a special insertion tool. So-called distance rings are an alternative to this and are placed over the receptacle before it is pressed into the carrier material. Distance rings are available for different series and extension heights.

ASSEMBLY HOLES

In order to achieve an optimal fit of the receptacles in the probe location board, the assembly holes must be drilled very carefully. The drill diameters listed in the data sheets for the individual series are the values based on our experience.

These guideline values are dependent on the following conditions:

» Use of hard metal drills
» RPM of the drill tool 26.000 … 35.000 rpm
» Advance 0.6 … 0.8 m/min
» Material as described in the data sheet
» Probe location board thickness 10.0 mm
» Drilling under vacuum swarf removal device

Deviations from these influencing variables may result in other drill diameters.

Trial drillings are recommended in every case.

Fig 1: Standard Types of Receptacles

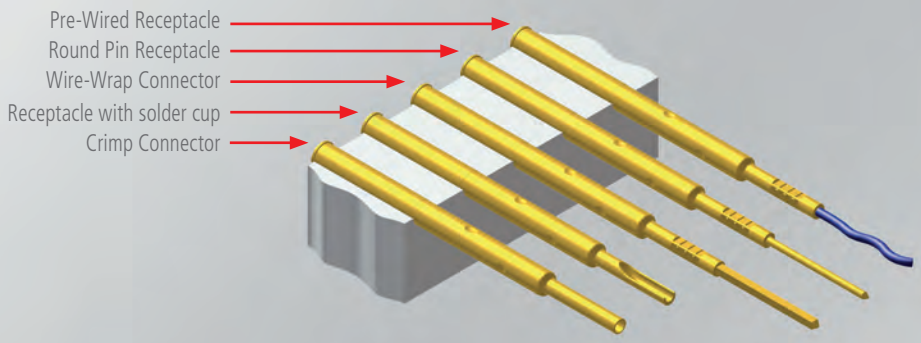


Fig. 2: Individual Types of Receptacles

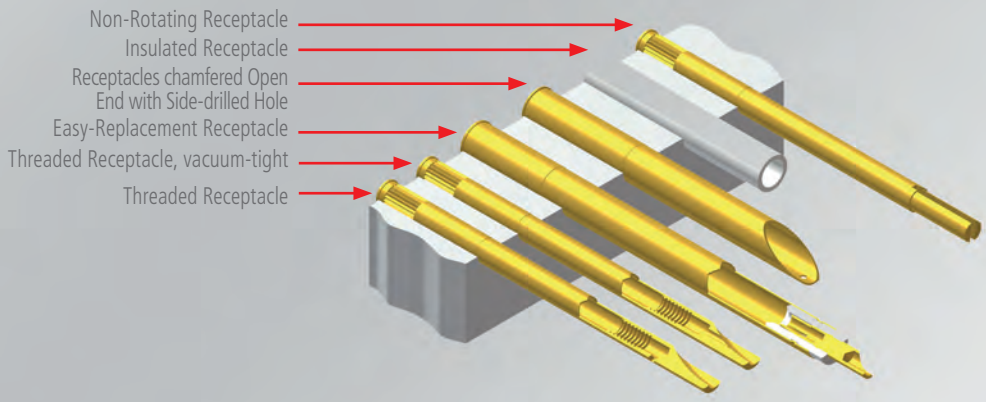
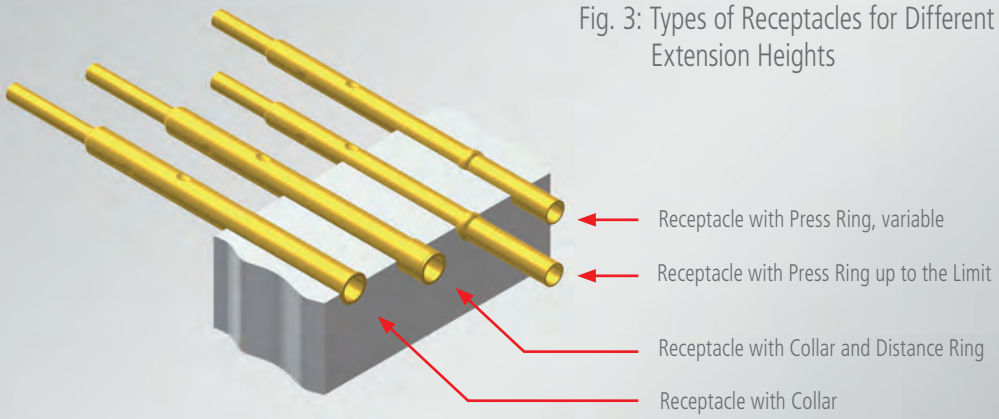


Fig. 3: Types of Receptacles for Different Extension Heights



Lateral Play | Quality and Operating Lifer

LATERAL PLAY

Test Point Accuracy

The test point accuracy which can be achieved is determined by the tolerances in the adapter (play, displacement of the receptacle drill holes), the deviations of the test points and the lateral
play of a fitted spring contact probe (see fig. 1). This occurs as a result of the play between the plunger and receptacle required for the plunger movement and also of manufacturing tolerances (see fig. 2). The amount of lateral play at the plunger tip is also dependent on the length of the plunger in relation to the effective plunger guide length.

Shear forces which deflect the spring contact probe during use also affect the amount of lateral play.

Optimal pinpointing is achieved by a combination of spring contact probes with the shortest possible travel, double plunger guides and minimal adapter tolerance, or even the use of plate guides. Depending on the test probe series which is being used, the test point accuracy – which is dependent on the amount of lateral play – can be reduced to less than 0.8 mm and down to 0.1 mm.

QUALITY AND OPERATING LIFE

When in use, Test Probes are subjected to high demands in respect of function and operating life. From development to dispatch, the manufacture of PTR test probes takes place in accordance with optimised procedures. A quality assurance system according to EN 29001/ISO 9001 guarantees process security.

Tests are carried out by means of load change tests in order to optimise materials and the constructional design of test probes. Functional capability and operating life are subjected to continuous monitoring in our reliability testing facilities (see fig. 3).

As a rule, the maximum operating life of a test probe depends on the following factors:

- As low a spring force as possible in relation to the spring diameter and stroke travel
- Correct axial load, avoidance of shear forces
- Maintenance of the recommended working travel
- Precise and gentle insertion of the test probe into the receptacle
- Avoidance of harmful external influences e.g. soiling, high moisture content of aggressive media, high temperature load
- Contacting only in current-free or zero-potential state
- As low a current load as possible

Of course, the level of actual durability also depends on the requirements of each user, e.g. limit values for continuity resistances, degree of soiling, or operating characteristics.

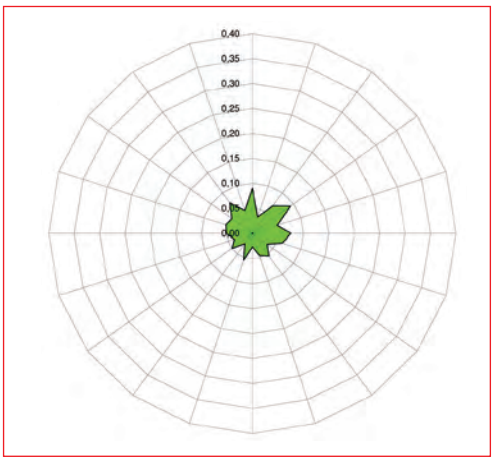


Fig. 1:
Test Point Accuracy (mm)

Fig. 2:
Lateral Play

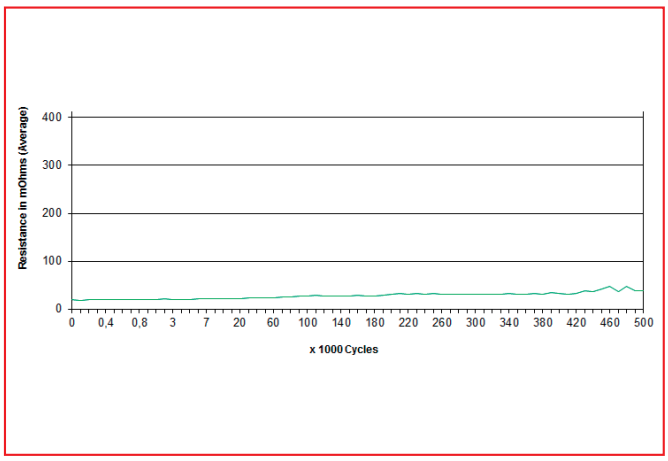


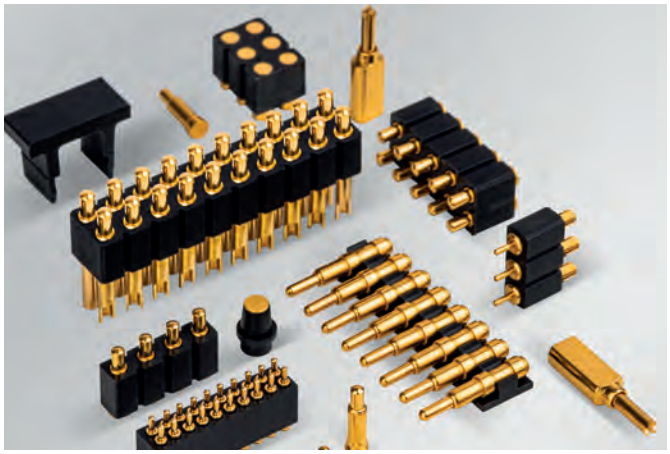
Fig. 3:
Life Circle for Series 1025/E (Example)

Highlights

TEST PROBES AS PCB COMPONENTS

We are expanding our product range of interface connectors and adding to our tried-and-test FKB5322 series with a horizontal variant which permits an orthogonal arrangement of the PCBs. Versions with soldering pins for THT applications, and test probes with a solder connection for individual applications, complete the programme.
The requirement for increasingly smaller centres is met by our new contact block with 1.27 mm / 50 mil spacing in an SMD version.

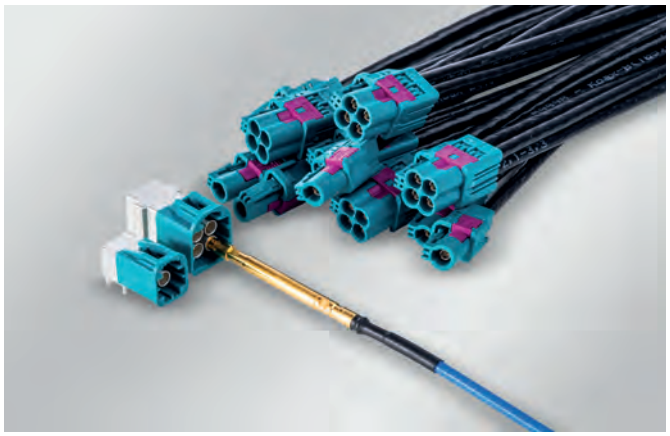
» Interface Pin Blocks see page 194



HIGH-FREQUENCY TEST PROBES

A new addition to the tried-and-tested 7860 series with exchangeable inner conductor is our 7890 series for the contacting of Fakra-Mini automotive multi-connector systems. Variants for the Fakra plug and jack are available.

» Product data Mini FAKRA Plug see page 208
» Product data Mini FAKRA Socket see page 209



TESTING HIGH CURRENTS

You can always rely on our comprehensive range of high-current test probes. Our offer covers almost every application requirement from very compact designs for centres of 2.54 mm / 100 mil up to sturdy versions with a rated current of 100 A. Almost all high-current test probes are available in a threaded version which ensures an optimal contact between the test probe and the receptacle. A wide range of different tip styles completes the product range.

» High-Current Test Probes see page 162

Tip Styles

FORM A

90° Concave
For connector pins, wire-wrap pins and straight / curved terminals. To be used under clean conditions because contamination can cause failures.

FORM A6

90° Concave, self-cleaning
For connector pins, wire-wrap pins and straight / curved terminals. The head has special grooves that protect the contact area from contamination.

FORM B

30° pointed tip
For strip conductors, throughplating, soldering points and test pads.

FORM BST

Steel Needle
A sharp steel needle with a long implement life for reliable penetration of flux and dirt on uncleaned printed boards or component groups and for SMD contacts.

FORM BST3

Tri-Needle
Three-needle form of very aggressive character for reliable penetration of flux and dirt on uncleaned printed circuit boards.

FORM C

Serrated
A universal head for straight or curved component leads, wire-wrap posts and connector pins.

FORM CS

Serrated with overlapping plastic insulation
Presence test of component legs. The overlapping plastic insulation avoids electrical contact when connector pins are missing.

FORM D

Round Head
Used to test circuits or gold pads. Do not leave marks on the test area. Also used for testing sockets in connectors.

FORM E

90° Convex
Plated-through holes, pads and lands or sockets in connectors.

FORM EB

Press Fitted Steel Needle
Very aggressive and robust steel needle. Especially designed for testing contaminated areas.

FORM F

Flat head
Especially for gold pads and convex areas, cleaned contact points. Avoids marks on the contact area.

Tip Styles

FORM G

Four-point crown
For component leads, soldering points and test pads, when there is no strong contamination.

FORM H

Pyramid
Plated-through holes and pads. The sharp edges cut through oxides and contaminants.

FORM K

Star
See tip style "H", but with higher contact penetration. Used also for rotating test probes. It cuts through oxides and contaminants.

FORM M

Tulip with overlapping middle edge
The combination of crown and central tip ensures contact reliability at almost all test points. Overlapping middle edge is fixing the head.

FORM M1

Tulip
The combination of crown and central tip ensures contact reliability at almost all test points.

FORM N

Three-point crown - self-cleaning
Designed to test contaminated printed circuit boards. The special cut of the tip allows contaminates to fall out easily.

FORM Q

Four-point crown - self-cleaning
Designed to test contaminated printed circuit boards. The special cut of the tip allows contaminates to fall out easily.

FORM Q8

Eight-point crown - self-cleaning
Designed to test strong contaminated component legs. High centering efficiency.

FORM V

Chisel
Tip with extra penetration of open and closed throughplating, and for level contact surfaces. Penetrates flux and dirt.

FORM D1xxx

Round head
Designed for position test of sockets in connectors.

FORM Y

Spade
application with test probes in connector systems.

Article Designations

ARTICLE DESIGNATION – TEST PROBES

3010	/2GW5	–	F1	–	1.3NE	–	Au	–	2.3	C	/SH4.0
1	2		3		4	5	6		7	8	9

1 Test Probe – Series Designation

2 Special Design of the Barrel

/D	Rotating Test Probe
/F	Type Opener
/G	Thread Design
/R	Knurl
/S	Plug-in Connector
/V	Non-Rotating Design
/W	Interchangeable without Soldering
/Number	Collar Height (mm)
/Number	(second Part) Adjustment Area of the Extension Height

3 Tip Style

Different Letters (see page 22)

4 Spring Force (N)

Value	In General $^{4}/_{5}$ of max. Travel

5 Spring Material

E	Stainless Steel

6 Tip Plating

Ag	Silver
Au	Gold
CB	Copper-Beryllium
HTK	Plastic
Ni	Nickel
Rh	Rhodium

7 Tip Diameter (mm)

Selected Tip Style

8 Tip Material

C	Copper-Beryllium (CuBe)
M	Brass (CuZn)

9 Additional Information

L	For Connector von L 4000
/MHx.x	Full Travel (mm)
/SHx.x	Switch (mm)
/X x Y	Connector Pin Diameter x Connector Pin Length (mm)

Article Designations

ARTICLE DESIGNATION – RECEPTACLES

H 1025 /12 C
1 2 3

1 Receptacles – Series Designation

2 Special Design of Receptacle

/G	Thread
/R	Knurl
/S	Chamfered Design
/SEV	Switching Element
/.V	Non-Rotating Design
/...V	Vacuum-Tight Design
/W	Interchangeable without Soldering
/Number	Collar Height (mm)

3 Connection Type

C	Crimp Connection
L	Soldering Connection
SEV	Vacuum-Tight Switching Element
ST	Additionally Roller-Burnishing
V xx	Pre-Wired Receptacles with Length
W	Wire Wrap Connection
WR	Round Posts
- Number	Receptacles Length (mm)

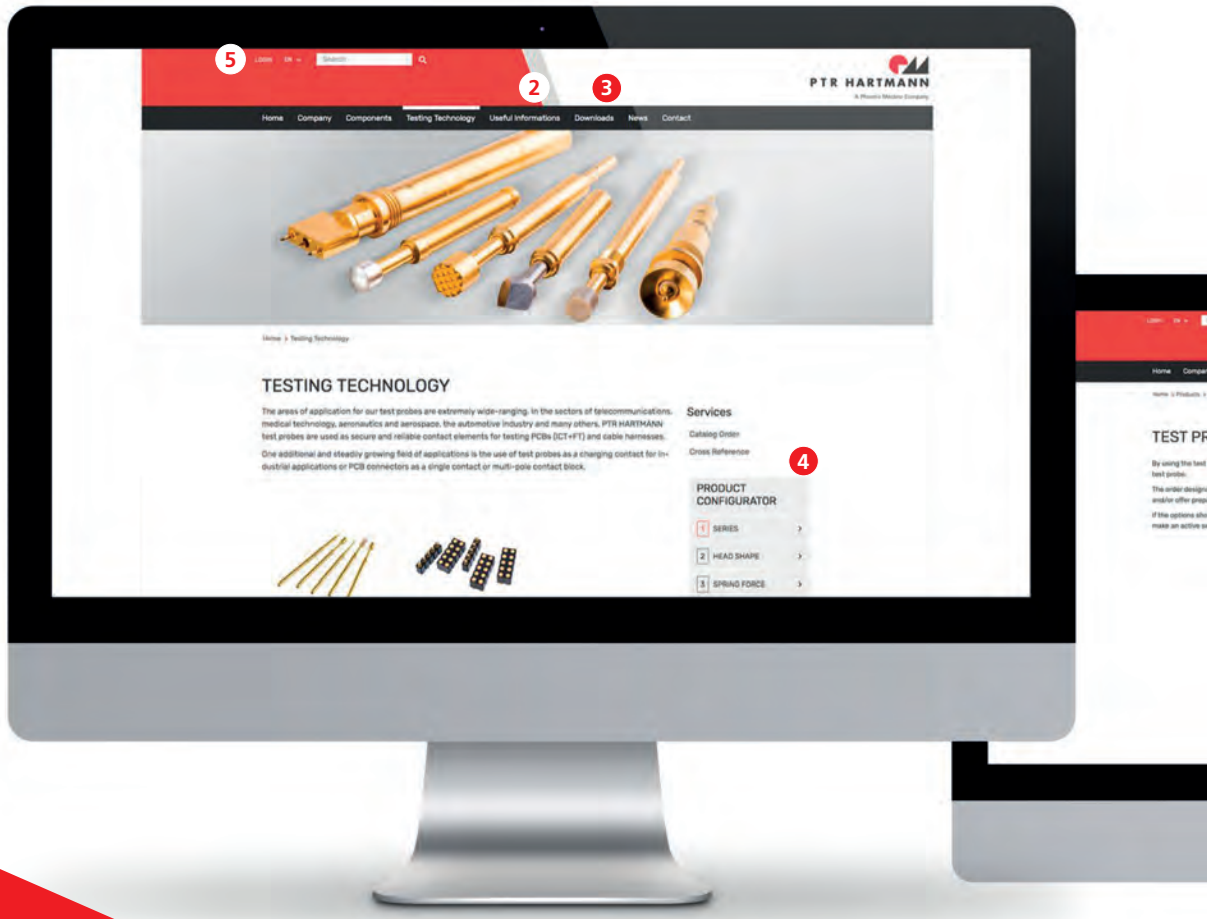
ARTICLE DESIGNATION – DISTANCE RINGS

ZRG 1021 /2
1 2

1 Distance Rings – Series Designation

2 Length

/Number	Distance Rings Length (mm)



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1 **Products**
- Product range - Testing Technology
- Product range - Connection Technology
- Product search with individual search criteria
- Product data sheets with technical drawings
- PDF generation
- Test Probes - product configurator
- Sample order
- Quotation order

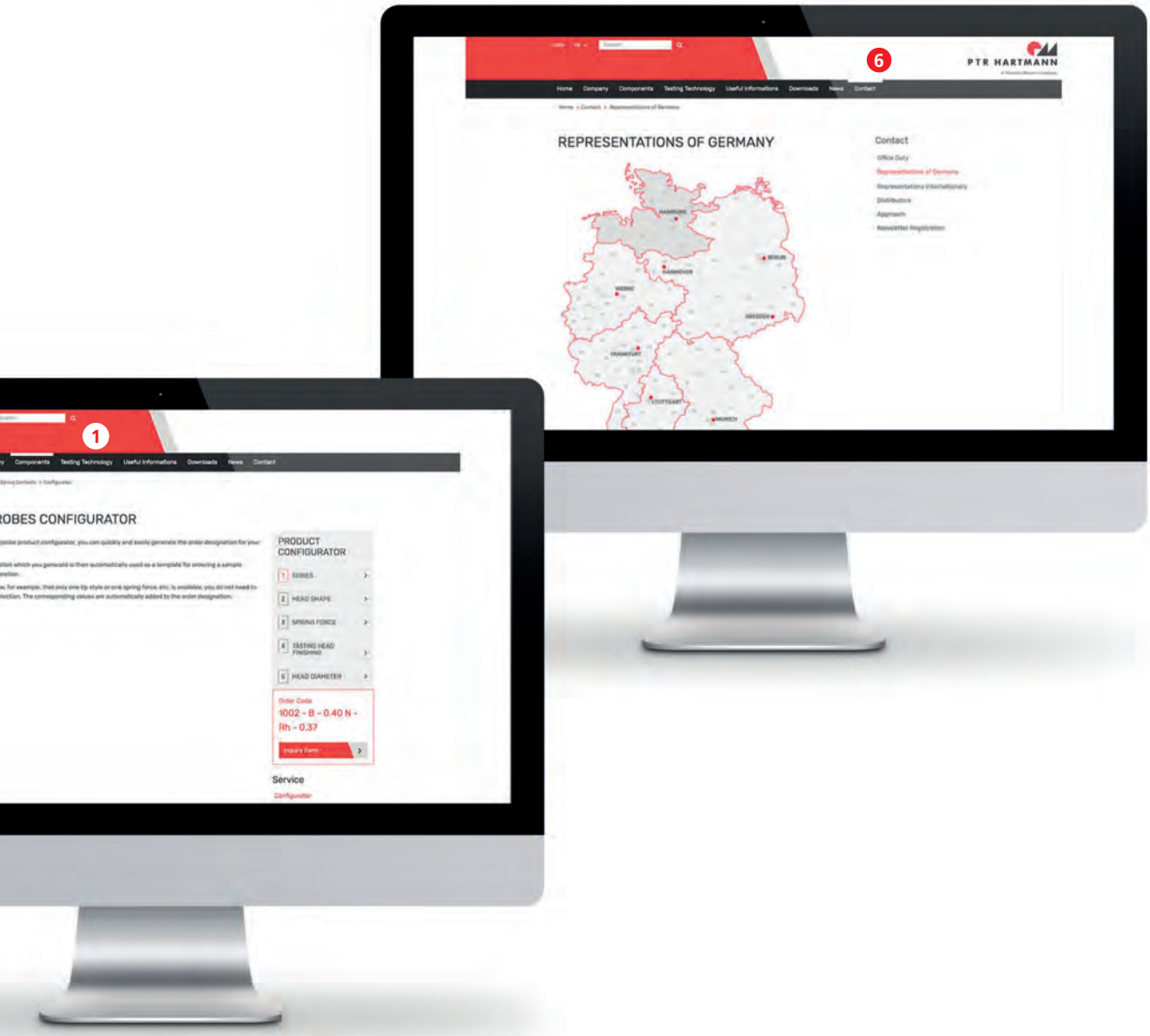
2 **Know How**
- Background knowledge and more detailed information on our products

3 **Downloads**
- Catalogues
- Certificates
- Statements of conformity
- Brochures

4 **Cross-Reference**
- Recoding of competitor article designations to PTR designations

5 **Login Area**
- Premium service for registered customers
- Download 3D-files

6 **Contact**
- Your contacts worldwide


6
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1
ROBES CONFIGURATOR
PRODUCT CONFIGURATOR
SERIES
HEAD SHAPE
SPRING FORCE
TASTING HEAD FINISHING
HEAD DIAMETER
Order Code
1002 - B - 0.40 N - Rh - 0.37
Service

TEST PROBES FOR SMALL CENTERS

Test Probes with Centers of 30 mil (0.76 mm) and greater have been designed for applications with very small centers.

In some cases, the diameters are extremely small, and the receptacles for these Test Probes are supplied with pre-assembled wires (AWG 30/AWG 32). The length and colour of the connection wires can be selected as required.

When these Test Probes are used in the test adapters, a guide plate is normally inserted in order to prevent misalignment and damage to the test probe plunger and to optimise the point of contact accuracy.

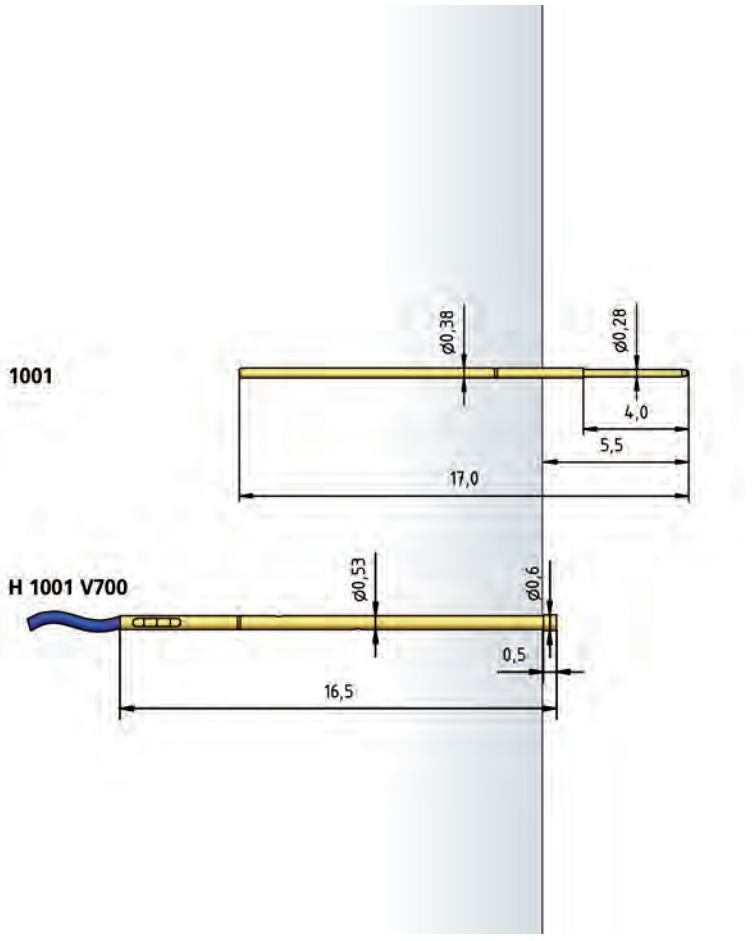
Series 1001

Test Probe for small Centers 30 mil / 0.76 mm

BENEFIT	
Test probe for 30 mil centers	
Short travel	
Low contact force	
Receptacle pre-wired	
MECHANICAL DATA	
Center	0.76 mm / 30 mil
Temperature Range	-40 °C - +250 °C
Full Travel	2.00 mm
Working Travel	1.35 mm
Pre-Loaded Spring Force	0.13 N
Spring Force at Working Travel	0.30 N
ELECTRICAL DATA	
Max. Current Rating	0.5 A
Typical Continuity Resistance	≤ 150 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	Steel, gold-plated
Receptacle	Bronze, gold-plated
Wire AWG 32 (Blue)	Copper, silver-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.53 mm

TIP STYLE · DIAMETER · PLATING

G3
0.28 Au



HOW TO ORDER

1001	-	G3	-	0.3 N	-	Au	-	0.28
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

Test Probe for small Centers 40 mil / 1.02 mm

Series 1002

01

TIP STYLE · DIAMETER · PLATING

B
0.37 Rh

BENEFIT

Test probe for 40 mil centers
Short travel
Low contact force
Receptacle pre-wired

MECHANICAL DATA

Center	1.02 mm / 40 mil
Temperature Range	-30 °C - +120 °C
Full Travel	2.00 mm
Working Travel	1.35 mm
Pre-Loaded Spring Force	0.25 N
Spring Force at Working Travel	0.40 N

ELECTRICAL DATA

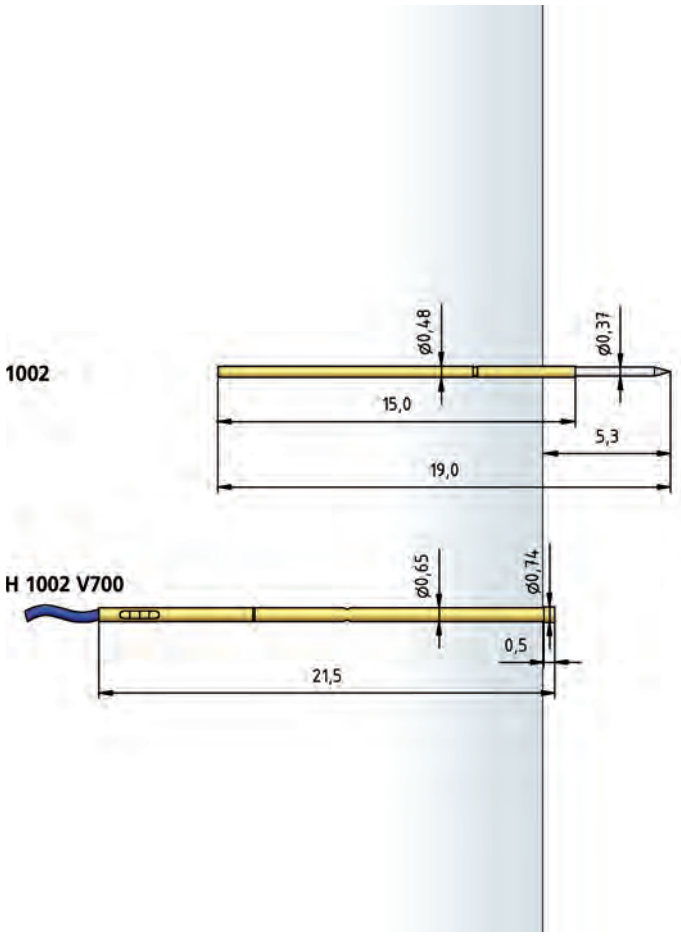
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 100 mOhm

MATERIALS

Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, rhodium plated
Receptacle	Bronze, gold-plated
Wire AWG 30 (Blue)	Copper, silver-plated, insulated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	0.63 mm



HOW TO ORDER

1002	-	B	-	0.4 N	-	Rh	-	0.37
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

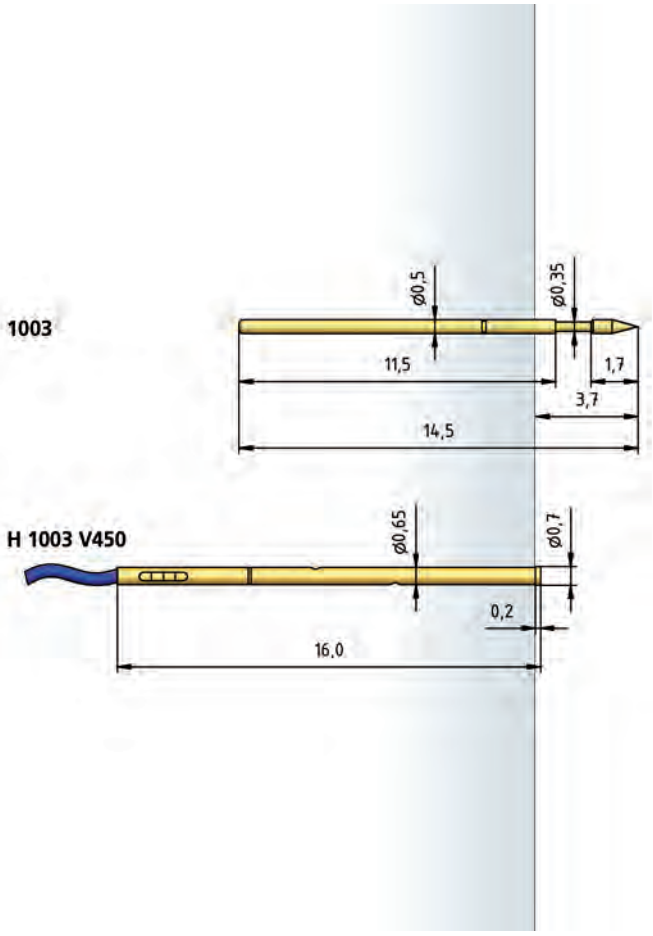
Series 1003

Test Probe for small Centers 40 mil / 1.02 mm

BENEFIT	
Test probe for 40 mil centers	
Short travel	
Low contact force	
Receptacle pre-wired	
MECHANICAL DATA	
Center	1.02 mm / 40 mil
Temperature Range	-30 °C - +120 °C
Full Travel	1.30 mm
Working Travel	1.00 mm
Pre-Loaded Spring Force	0.40 N
Spring Force at Working Travel	0.75 N
ELECTRICAL DATA	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 100 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, gold-plated
Receptacle	Bronze, gold-plated
Wire AWG 30 (Blue)	Copper, silver-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.63 mm

TIP STYLE · DIAMETER · PLATING

B
0.50 Au



HOW TO ORDER

1003	-	B	-	0.75 N	-	Au	-	0.5
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

Test Probe for small Centers 40 mil / 1.02 mm

Series 1005

01

TIP STYLE · DIAMETER · PLATING

B
0.35C Au

BENEFIT

Test probe for 40 mil centers
Short travel
Low contact force
Receptacle pre-wired

MECHANICAL DATA

Center	1.02 mm / 40 mil
Temperature Range	-30 °C - +120 °C
Full Travel	3.80 mm
Working Travel	3.00 mm
Pre-Loaded Spring Force	0.20 N
Spring Force at Working Travel	0.80 N

ELECTRICAL DATA

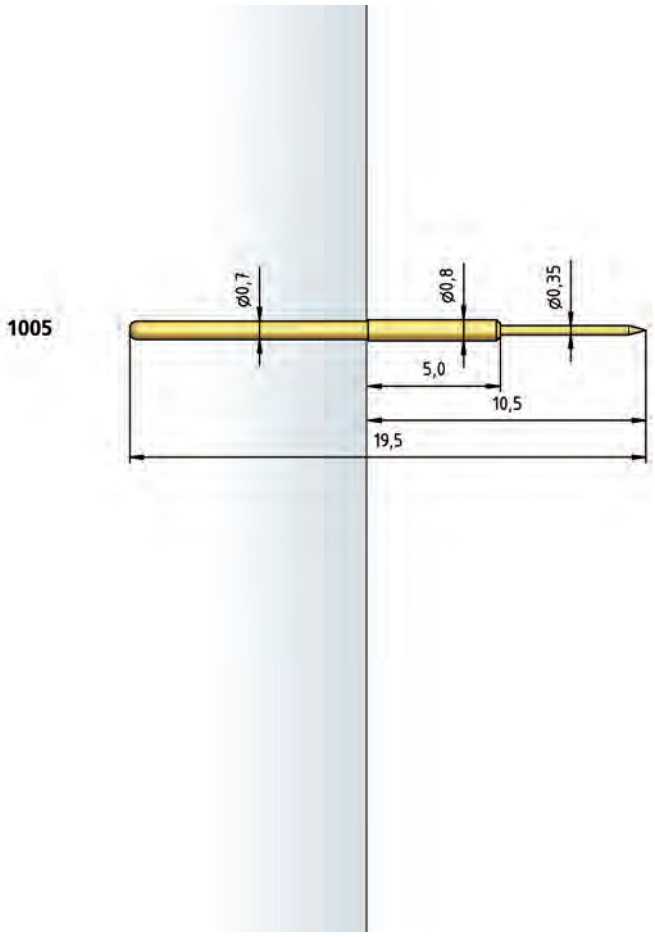
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm

MATERIALS

Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	0.70 mm



HOW TO ORDER

1005	-	B	-	0.8 N	-	Au	-	0.35	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

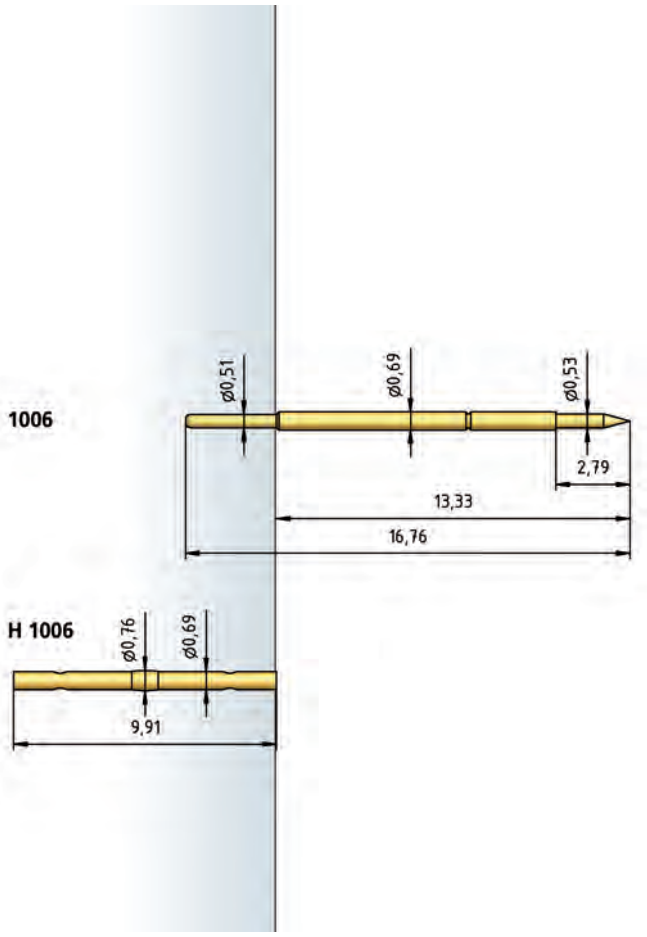
Series 1006

Test Probe for small Centers 40 mil / 1.02 mm

BENEFIT	
Test probe for 40 mil centers	
Short travel	
Low contact force	
MECHANICAL DATA	
Center	1.02 mm / 40 mil
Temperature Range	-30 °C - +120 °C
Full Travel	2.29 mm
Working Travel	1.27 mm
Pre-Loaded Spring Force	0.17/ 0.15 N
Spring Force at Working Travel	0.37/ 0.45 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 55 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Bronze, Stainless Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.71 mm
HGW 2372 (Glass filled Material)	0.75 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.15 N
Spring Force at Working Travel (Order Index E)	1.45 N

TIP STYLE · DIAMETER · PLATING

B	D	G
0.53C Au	0.53C Au	0.53C Au



HOW TO ORDER

1006	-	B	-	0.45 N	E	-	Au	-	0.53	C
1		2		3	4		5		6	7

1 Series 2 Tip Style 3 Spring Force 4 High-Temperature 5 Tip Plating
6 Tip Diameter 7 Tip Material (only for CuBe)

STANDARD TEST PROBES

CENTER ≤ 100 mil / 2.54 mm

The Test Probe series up to 100 mil consist of models with different sizes, travel and extension heights.

This wide range of products allows multi-purpose use such as the testing of assembled components (in-circuit test or function test) or in other applications – wherever a flexible electrical connection is required.

Series 1007

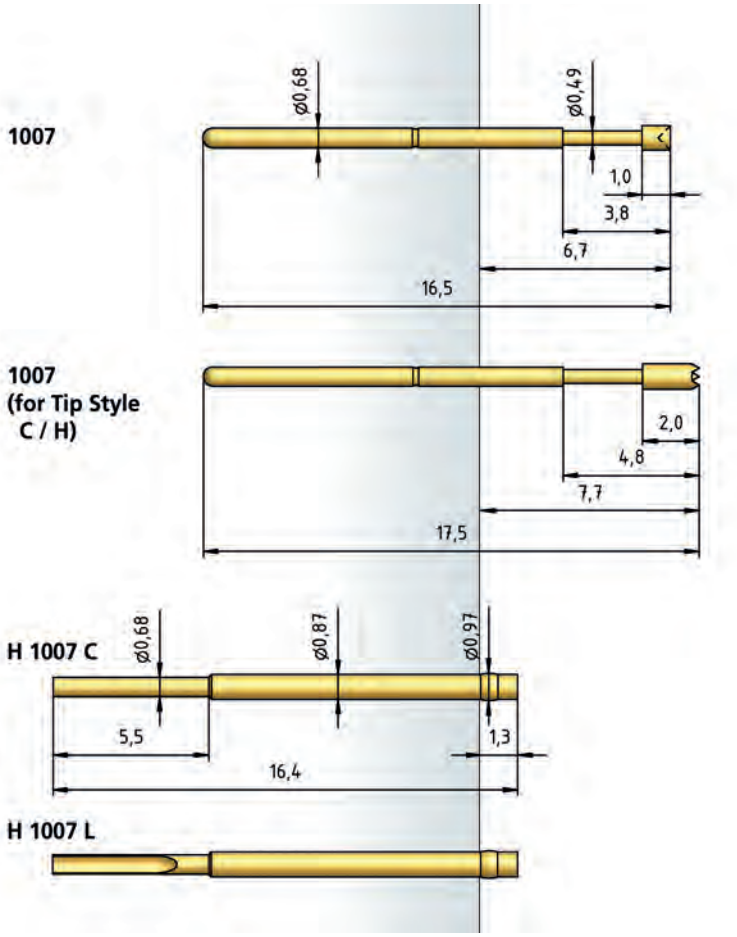
Standard-Test Probe 50 mil / 1.27 mm

BENEFIT	
Universal field of application	
Compact design	
Short travel	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	1.27 mm / 50 mil
Temperature Range	-30 °C - +120 °C
Full Travel	2.80 mm
Working Travel	2.40 mm
Pre-Loaded Spring Force	0.25/ 0.25/ 0.40 N
Spring Force at Working Travel	0.70/ 1.00/ 1.70 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.86 mm
with pressed-in Ring	0.93 mm
HGW 2372 (Glass filled material)	0.88 mm
with pressed-in Ring	0.94 mm

TIP STYLE · DIAMETER · PLATING

A	B	C	D	D
0.90 Au	0.49C Au	0.90C Au	0.49 Au	0.85C Au

H
0.90 Au 1.50 Au



HOW TO ORDER

1007	-	A	-	0.7 N	-	Au	-	0.9	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

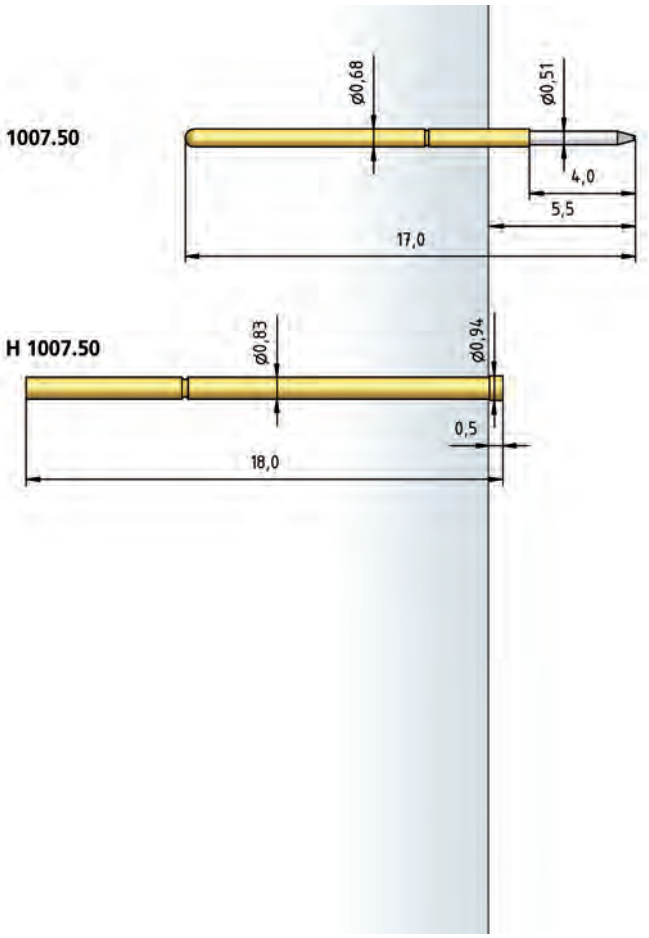
Standard-Test Probe 50 mil / 1.27 mm

Series 1007.50

TIP STYLE · DIAMETER · PLATING

G3
0.51 Rh

BENEFIT	
Universal field of application	
Compact design	
Short travel	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	1.27 mm / 50 mil
Temperature Range	-30 °C - +120 °C
Full Travel	2.00 mm
Working Travel	1.35 mm
Pre-Loaded Spring Force	0.35 N
Spring Force at Working Travel	0.75 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 75 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, rhodium plated
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.84 mm
HGW 2372	0.86 mm



HOW TO ORDER

1007	.50	-	G3	-	0.75 N	-	Rh	-	0.51
1	2		3		4		5		6

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

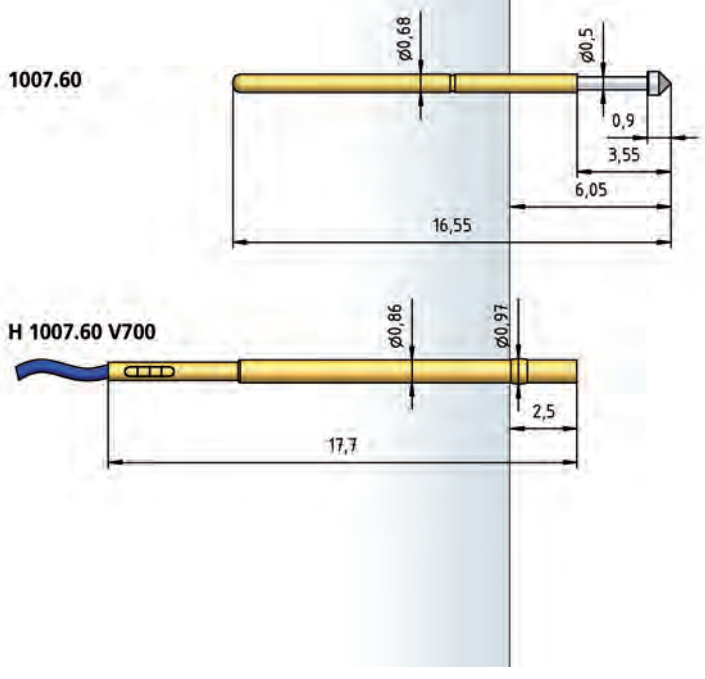
Series 1007.60

Standard-Test Probe 50 mil / 1.27 mm

BENEFIT	
Universal field of application	
Compact design	
Short travel	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	1.27 mm / 50 mil
Temperature Range	-30 °C - +120 °C
Full Travel	2.54 mm
Pre-Loaded Spring Force	0.20/ 0.30 N
Spring Force at Full Travel	0.80/ 1.50 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 50 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, rhodium plated
Receptacle	Bronze, gold-plated
Wire AWG 30 (Blue)	Copper, silver-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.87 mm
with pressed-in Ring	0.95 mm
HGW 2372 (Glass filled material)	0.87 mm
with pressed-in Ring	0.95 mm

TIP STYLE · DIAMETER · PLATING

B	E	G3	K
0.50C Rh	0.80C Rh	0.50C Rh	0.90C Rh



HOW TO ORDER

1007	.60	-	K	-	0.8 N	-	Rh	-	0.9	C
1	2		3		4		5		6	7

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter
7 Tip Material (only for CuBe)

Standard-Test Probe 50 mil / 1.27 mm

Series 1007.70

TIP STYLE · DIAMETER · PLATING

B	C	D
0.53C Au	0.89C Au	0.89C Au

BENEFIT

Universal field of application
Compact design
Short travel
Contacting of assembled PCBs

MECHANICAL DATA

Center	1.27 mm / 50 mil
Temperature Range	-30 °C - +120 °C
Full Travel	1.27 mm
Pre-Loaded Spring Force	0.17/ 0.40/ 0.50 N
Spring Force at Full Travel	0.35/ 0.90/ 1.40 N

ELECTRICAL DATA

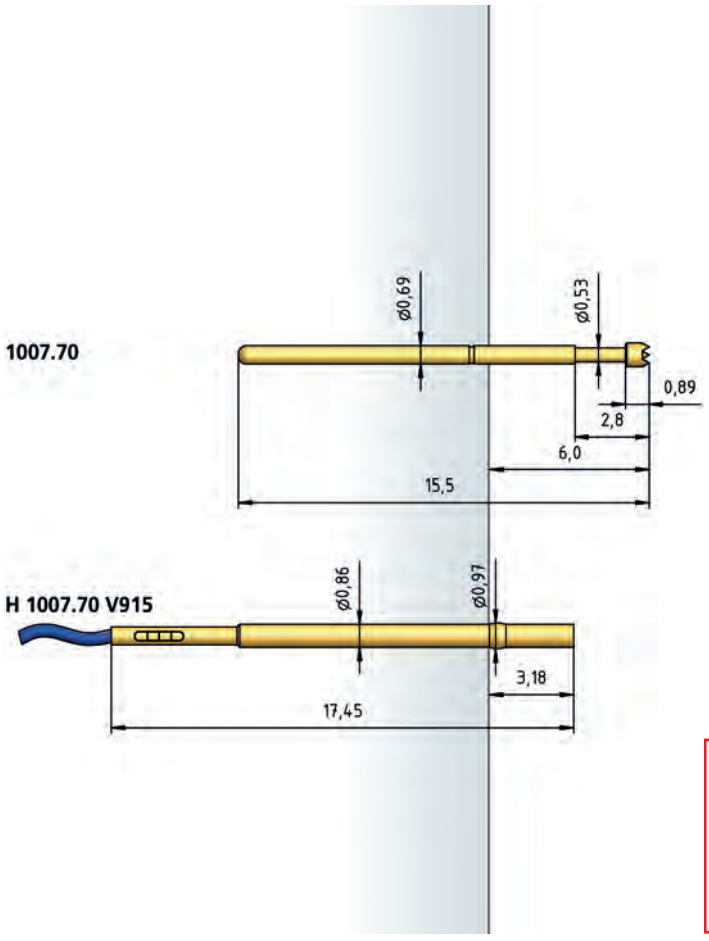
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 25 mOhm

MATERIALS

Barrel	Bronze, gold-plated
Spring	Stainless Steel, Spring Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Bronze, gold-plated
Wire AWG 30 (Blue)	Copper, silver-plated, insulated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	0.87 mm
with pressed-in Ring	0.95 mm
HGW 2372 (Glass filled material)	0.87 mm
with pressed-in Ring	0.95 mm



HOW TO ORDER

1007	.70	-	C	-	0.35 N	-	Au	-	0.89	C
1	2		3		4		5		6	7

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter 7 Tip Material (only for CuBe)

Series 1010

Standard-Test Probe 75 mil / 1.91 mm

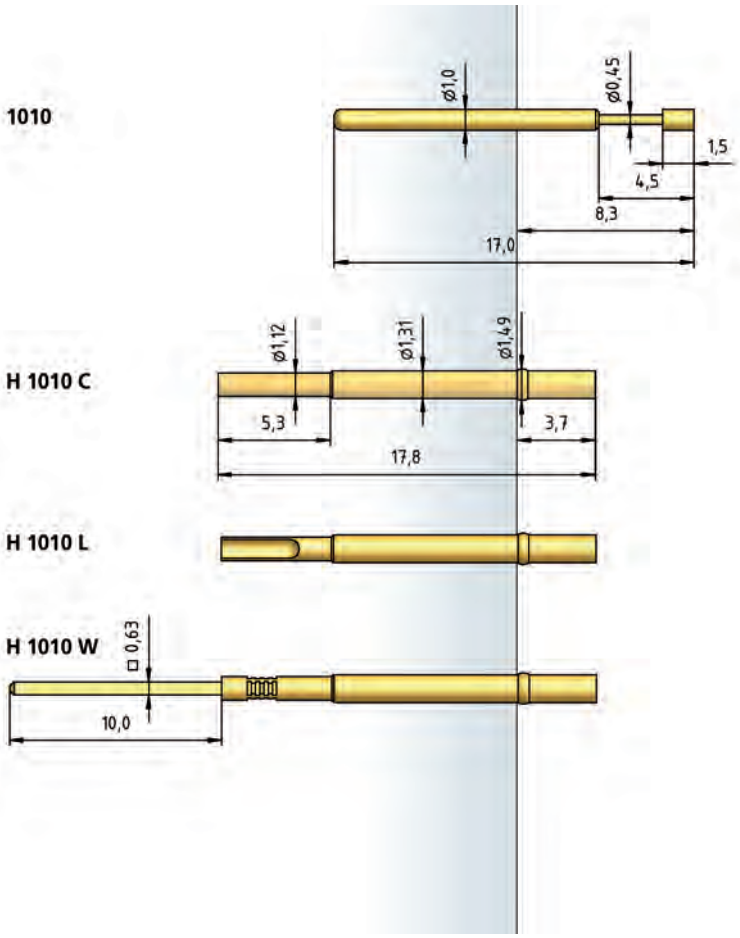
BENEFIT	
Universal field of application	
Compact design	
Short travel	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-30 °C - +120 °C
Full Travel	3.00 mm
Working Travel	2.40 mm
Pre-Loaded Spring Force	0.30/ 0.50 N
Spring Force at Working Travel	1.50/ 2.25 N
ELECTRICAL DATA	
Max. Current Rating	2.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.30 mm
with pressed-in Ring	1.46 mm
HGW 2372 (Glass filled material)	1.32 mm
with pressed-in Ring	1.47 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.20 N
Spring Force at Working Travel (Order Index E)	0.80 N

TIP STYLE · DIAMETER · PLATING

A	B	B1	C	D
1.50 Au	0.45 Au/Ni	0.70 Au	1.50C Au	0.50 Au

D	D2	D2	DF	F
0.65 Au 1.00 Au	0.40 Au	0.60 Au	1.00 Au	1.00 Au 1.50 Ni

G	H
1.50 Rh	1.50 Ni



HOW TO ORDER

1010	-	A	-	0.8 N	E	-	Au	-	1.5
1		2		3	4		5		6

1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating 6 Tip Diameter

Standard-Test Probe 75 mil / 1.91 mm

Series 1010.50

TIP STYLE · DIAMETER · PLATING

A	B	G3	K
0.72C Rh	0.72C Rh	0.72C Rh	1.30C Rh 1.50C Rh

BENEFIT
Universal field of application
Compact design
Short travel
Contacting of assembled PCBs

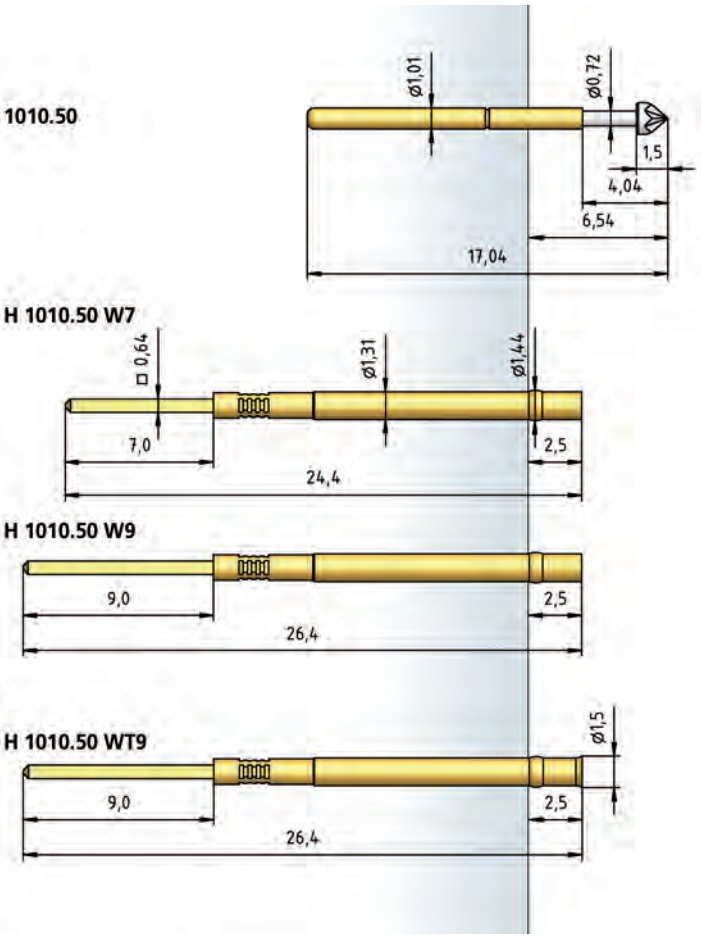
MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-40 °C - +250 °C
Full Travel	2.54 mm
Spring Force at Full Travel	see High-Temperature Applications

ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 50 mOhm

MATERIALS	
Barrel	Bronze, gold-plated
Spring	Stainless Steel, unplated
Plunger	CuBe, rhodium plated
Receptacle	Bronze, gold-plated

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.30 mm
with pressed-in Ring	1.40 mm
HGW 2372 (Glass filled material)	1.31 mm
with pressed-in Ring	1.41 mm

HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.18/ 0.32 N
Spring Force at Full Travel (Order Index E)	0.80/ 1.25 N



HOW TO ORDER

1010	.50	-	K	-	1.25 N	E	-	Rh	-	1.5	C
1	2		3		4	5		6		7	8

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 High Temperature
6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

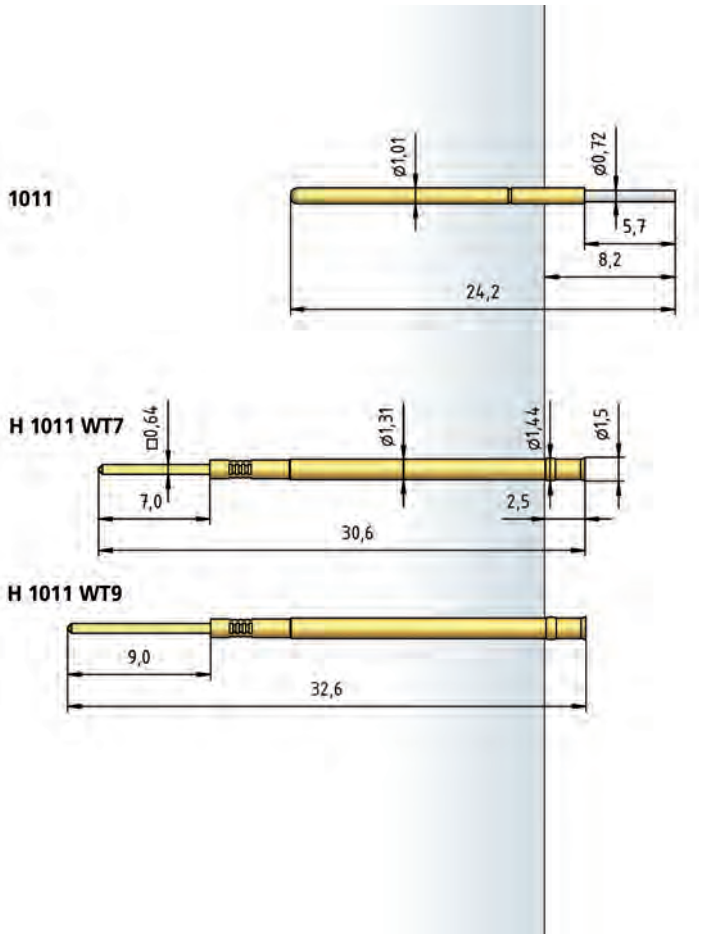
Series 1011

Standard-Test Probe 75 mil / 1.91 mm

BENEFIT	
Universal field of application	
Compact design	
Short travel	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-40 °C - +250 °C
Full Travel	4.20 mm
Spring Force at Full Travel	see High-Temperature Applications
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 50 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Stainless Steel, unplated
Plunger	CuBe, rhodium plated
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.30 mm
with pressed-in Ring	1.40 mm
HGW 2372 (Glass filled material)	1.31 mm
with pressed-in Ring	1.41 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.30/ 0.30 N
Spring Force at Full Travel (Order Index E)	1.10/ 1.50 N

TIP STYLE · DIAMETER · PLATING

A
0.72C Rh



HOW TO ORDER

1011	-	A	-	1.1 N	E	-	Rh	-	0.72	C
1		2		3	4		5		6	7

1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating
6 Tip Diameter 7 Tip Material (only for CuBe)

Standard-Test Probe 100 mil / 2.54 mm

Series 1015

TIP STYLE · DIAMETER · PLATING

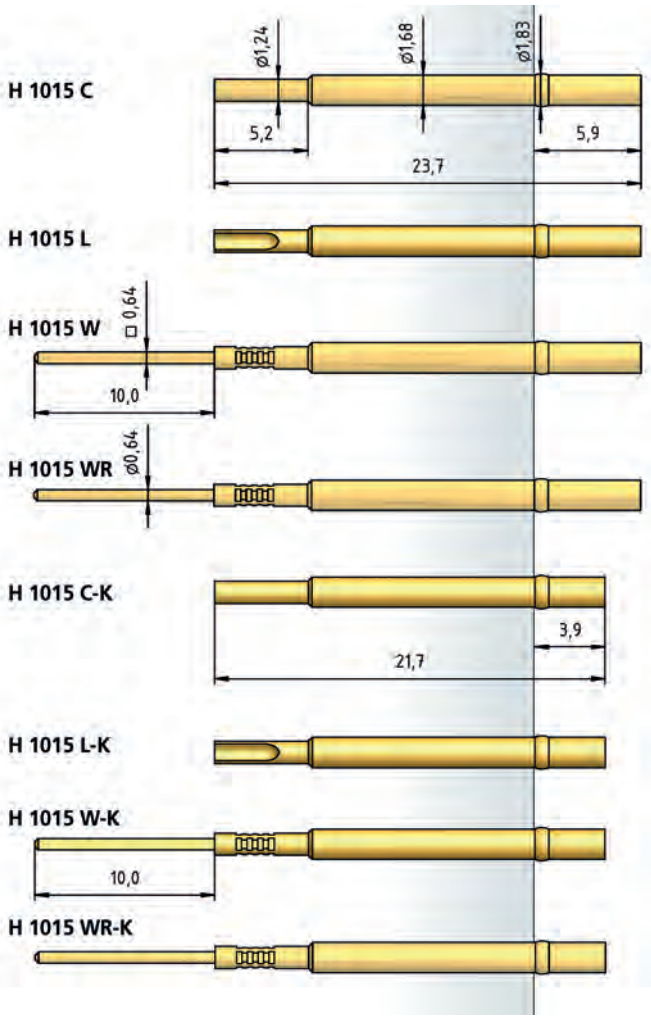
A	A6	B	BS	C
1.80 Au/Ni	1.80C Au	0.75 Au/ Ni/Rh	0.38 Au	1.00 Au 1.30C Au 1.80C Au/Ni

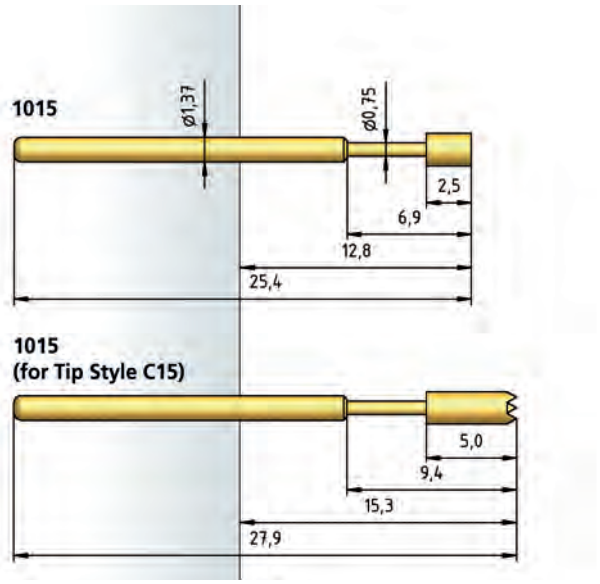
C15	C1S	C2S	D	D
1.80 Au	0.90/1.37 Au/ HTK	1.20/1.80 Au/ HTK	0.50 Ni	0.65C Au/Ni 0.75 Au/Rh

D	E	F	F	G
1.25 Au/Ni	1.80 Au/Ni	0.75 Rh	1.50C Au 1.80 Rh	1.30 Rh 1.80 Au/Ni

H	K	Q
1.30 Rh 1.80 Au 3.00 Rh	1.80 Au/Ni	0.75C Au

BENEFIT	
Universal field of application	
Contacting of assembled PCBs	
Wide variety of types	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Full Travel	4.40 mm
Working Travel	3.50 mm
Pre-Loaded Spring Force	0.25/ 0.40/ 0.40/ 0.30/ 0.70/ 0.60 N
Spring Force at Working Travel	0.70/ 1.00/ 1.50/ 1.70/ 2.50/ 3.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.67 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled material)	1.69 mm
with pressed-in Ring	1.76 mm





HOW TO ORDER

1015	-	C	-	1.5 N	-	Au	-	1.8	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Ring Contact Material (only for CuBe)

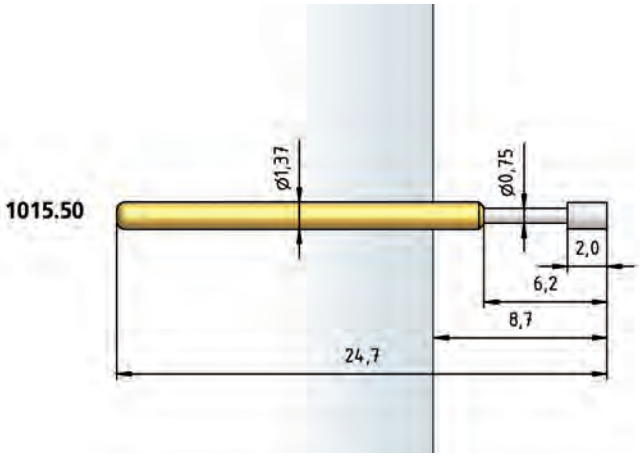
Series 1015.50

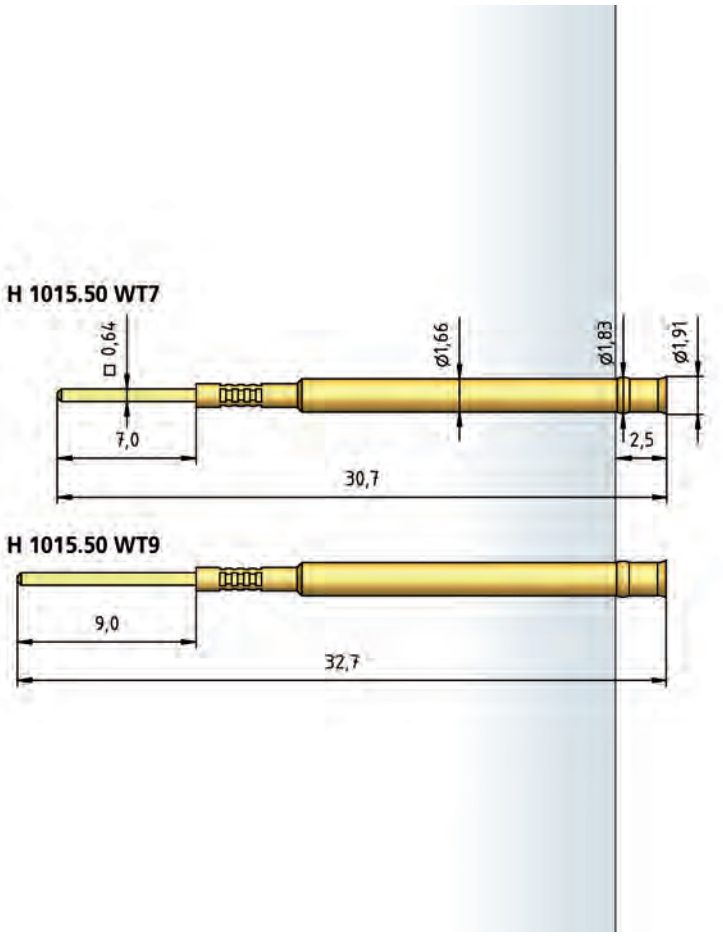
Standard-Test Probe 100 mil / 2.54 mm

BENEFIT	
Universal field of application	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-40 °C - +250 °C
Full Travel	4.20 mm
Spring Force at Full Travel	see High-Temperature Applications
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 50 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Stainless Steel, unplated
Plunger	CuBe, rhodium plated
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.66 mm
with pressed-in Ring	1.81 mm
HGW 2372 (Glass filled material)	1.67 mm
with pressed-in Ring	1.82 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.35/ 0.50/ 0.70 N
Spring Force at Full Travel (Order Index E)	1.00/ 1.50/ 2.50 N

TIP STYLE · DIAMETER · PLATING

A
1.35C Rh





HOW TO ORDER

1015	.50	-	A	-	1.5 N	E	-	Rh	-	1.35	C
1	2		3		4	5		6		7	8

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

Standard-Test Probe 100 mil / 2.54 mm

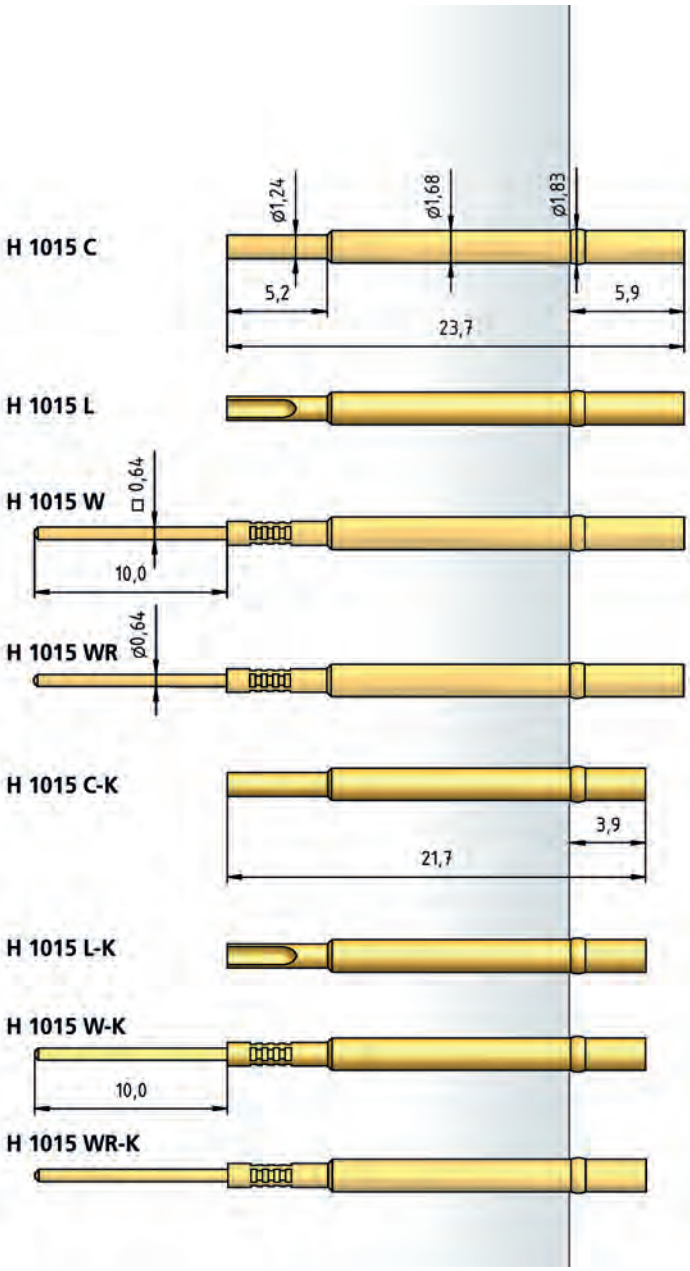
Series 1016

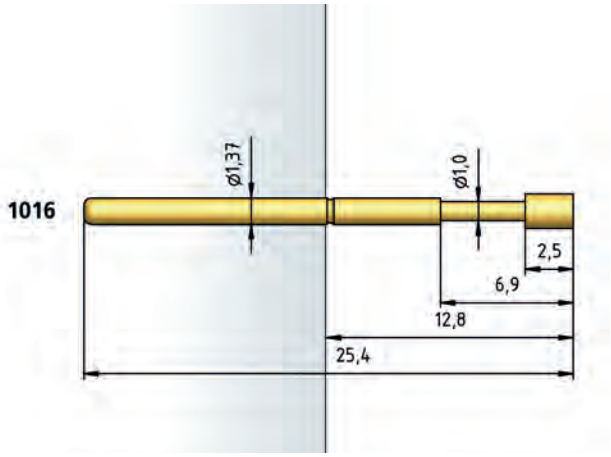
TIP STYLE · DIAMETER · PLATING

A	B	C	D	F
1.80 Au	1.00 Au	1.80 Ni	1.00 Au	1.80 Au

H	K	Q
1.80 Rh	1.80 Rh	1.80 Ni/Rh

BENEFIT	
Universal field of application	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.40 mm
Working Travel	3.50 mm
Pre-Loaded Spring Force	0.40/ 0.70/ 0.90 N
Spring Force at Working Travel	1.50/ 2.25/ 3.00 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.67 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled material)	1.69 mm
with pressed-in Ring	1.76 mm





HOW TO ORDER

1016	-	C	-	1.5 N	-	Au	-	1.8
1		2		3		4		5

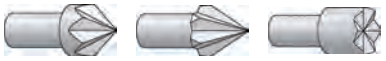
1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

Series 1018

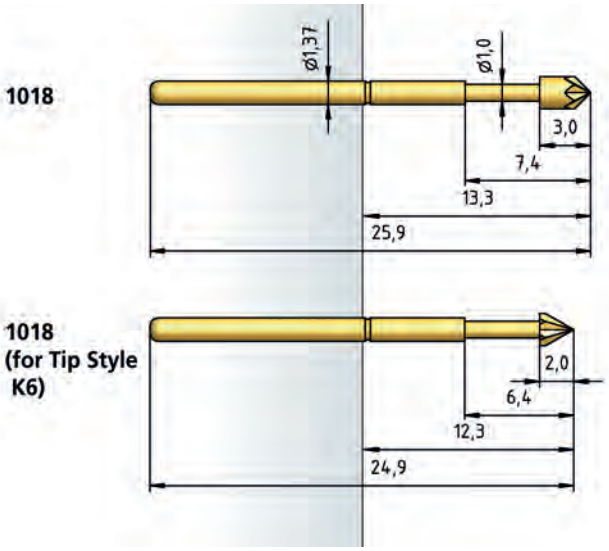
Standard-Test Probe 100 mil / 2.54 mm

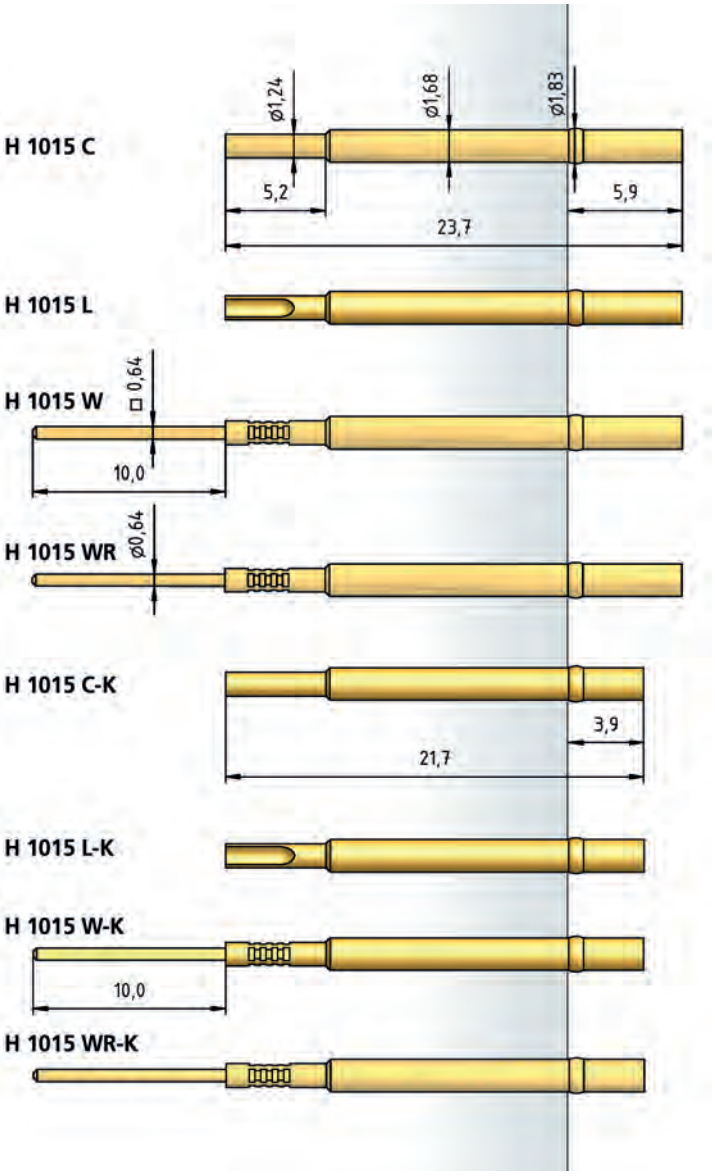
BENEFIT	
Universal field of application	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.40 mm
Working Travel	3.50 mm
Pre-Loaded Spring Force	0.40/ 0.70/ 0.90 N
Spring Force at Working Travel	1.50/ 2.25/ 3.00 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.67 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled material)	1.69 mm
with pressed-in Ring	1.76 mm

TIP STYLE · DIAMETER · PLATING



K	K6	TA
1.90 Ni	1.90 Ni	1.20 Rh
2.50 Rh		1.90 Rh
3.50 Ni		





HOW TO ORDER

1018	-	K	-	1.5 N	-	Ni	-	1.9
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

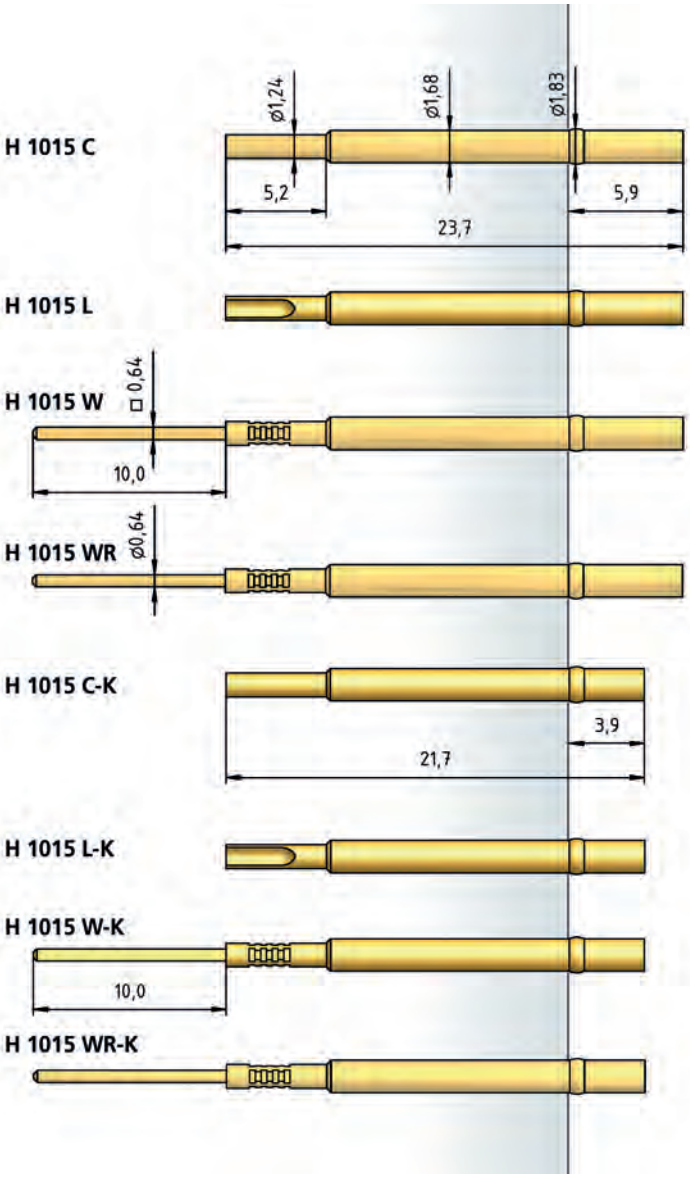
Standard-Test Probe 100 mil / 2.54 mm

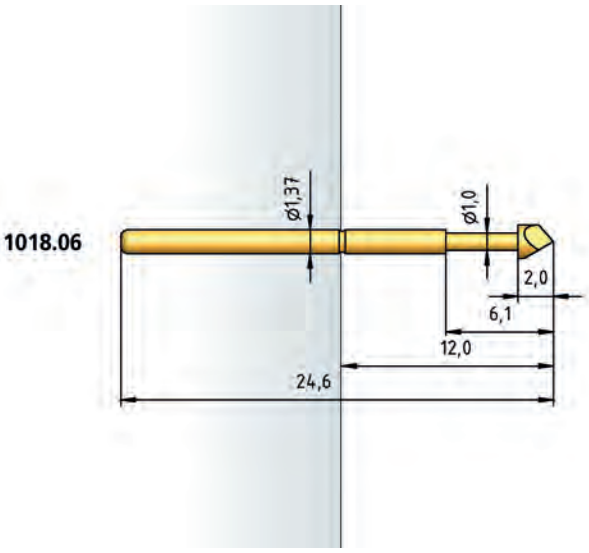
Series 1018.06

TIP STYLE · DIAMETER · PLATING

G6	H6
1.54 Au	1.90C Au

BENEFIT	
Universal field of application	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.10 mm
Working Travel	2.70 mm
Pre-Loaded Spring Force	0.60 N
Spring Force at Working Travel	1.80 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.67 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled material)	1.69 mm
with pressed-in Ring	1.76 mm





HOW TO ORDER

1018	.06	-	H6	-	1.0 N	-	Au	-	1.9	C
1	2		3		4		5		6	7

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter 7 Tip Material (only for CuBe)

STANDARD-TEST PROBES

CENTER > 100 mil / 2.54 mm

The range of universal Test Probes for Centers > 100 mil comprises types for centers up to 177 mil / 4.75 mm.

They can be used for ICT/FTs (in-circuit test or function test) of components, burn-in / run-in tests, and for applications up to the testing of connectors on cable harnesses for the automotive industry. The use of suitable probes allows temperature ranges from -30°C up to 250°C to be achieved (see page 14).

Series 1030

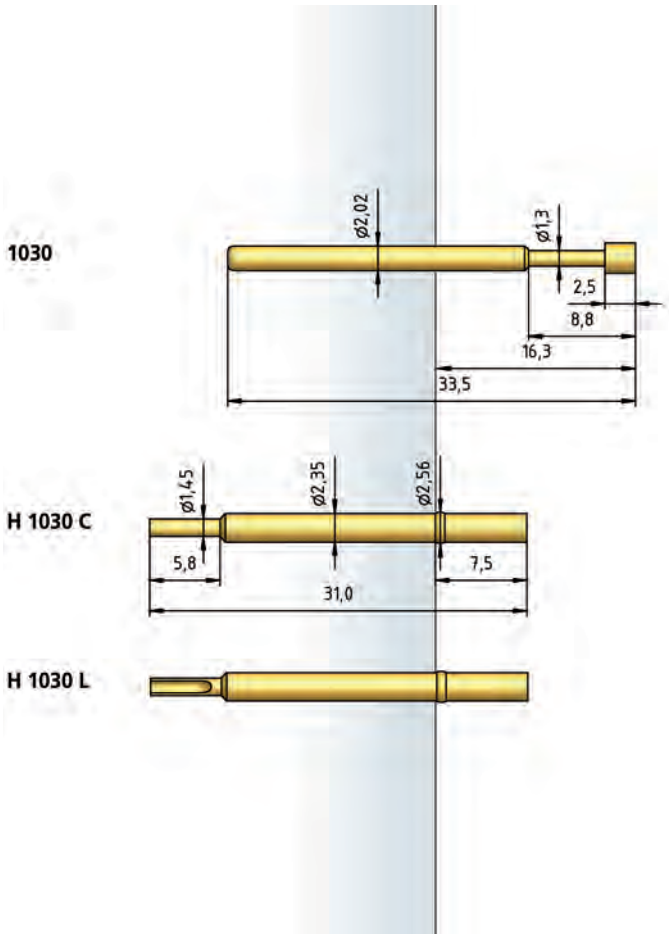
Standard-Test Probe 125 mil / 3.18 mm

BENEFIT	
Stable design	
Height-adjustable installation by using receptacle with press ring	
Contacting of assembled PCBs	
Universal applications	
MECHANICAL DATA	
Center	3.18 mm / 125 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.30 mm
Working Travel	5.00 mm
Pre-Loaded Spring Force	0.40/ 0.60/ 0.70 N
Spring Force at Working Travel	1.50/ 2.25/ 3.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.32 mm
with pressed-in Ring	2.54 mm
HGW 2372 (Glass filled material)	2.34 mm
with pressed-in Ring	2.56 mm

TIP STYLE · DIAMETER · PLATING

A	B	C	D	E
1.30 Rh 2.50 Au	1.30 Au	2.50 Au/Ni	1.30 Au 1.60 Au/Ni 2.50 Au	2.50 Au

F	G	H
2.50 Au/Ni 4.00 Au	2.50 Rh	2.50 Au



HOW TO ORDER

1030	-	A	-	1.5 N	-	Au	-	2.5
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

Standard-Test Probe 138 mil / 3.50 mm

Series 1054

TIP STYLE · DIAMETER · PLATING

A	B	C	D	D
3.96 Au	1.52 Rh	3.96 Au	1.45 Au	2.36 Au 3.96 Au

E	F	G
2.36 Au/Rh 3.96 Au	1.45 Au	1.45 Ni

BENEFIT

Stable design
Height-adjustable installation by using receptacle with press ring
Contacting of assembled PCBs
Universal applications

MECHANICAL DATA

Center	3.50 mm / 138 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	5.10 mm
Pre-Loaded Spring Force	0.40/ 0.40/ 0.50/ 1.00 N
Spring Force at Working Travel	1.00/ 1.50/ 2.50/ 3.00 N

ELECTRICAL DATA

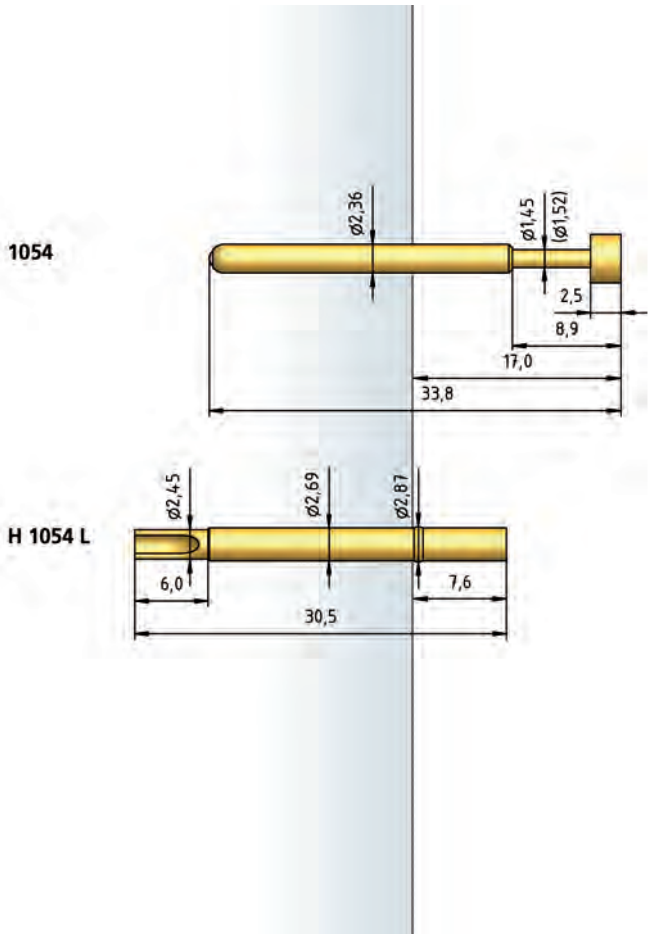
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 20 mOhm

MATERIALS

Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Nickel Silver, gold-plated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	2.71 mm
with pressed-in Ring	2.89 mm
HGW 2372 (Glass filled material)	2.67 mm
with pressed-in Ring	2.85 mm



HOW TO ORDER

1054	-	C	-	2.5 N	-	Au	-	3.96	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

Series 1040

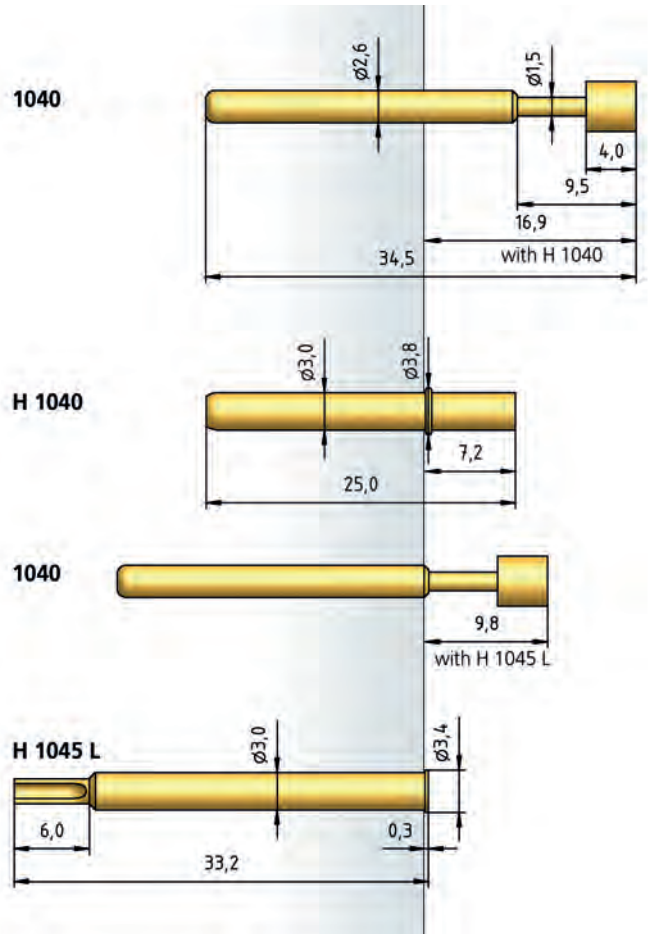
Standard-Test Probe 160 mil / 4.00 mm

BENEFIT	
Stable design	
Height-adjustable installation by using receptacle with press ring	
Contacting of assembled PCBs	
Universal applications	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.50 mm
Working Travel	4.40 mm
Pre-Loaded Spring Force	0.50/ 0.70/ 0.80/ 1.50 N
Spring Force at Working Travel	1.50/ 2.25/ 3.00/ 5.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.99 mm
HGW 2372	3.00 mm

TIP STYLE · DIAMETER · PLATING

A	B	C	D	E
4.00 Au/Ni	1.50 Au/Ni	4.00 Au/Ni	2.40 Au/Ni	4.00 Au/Ni

F	G	H
4.00 Au/Ni	4.00 Ni	4.00 Ni



HOW TO ORDER

1040	-	F	-	1.5 N	-	Au	-	4.0
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

Standard-Test Probe 160 mil / 4.00 mm

Series 1050

TIP STYLE · DIAMETER · PLATING

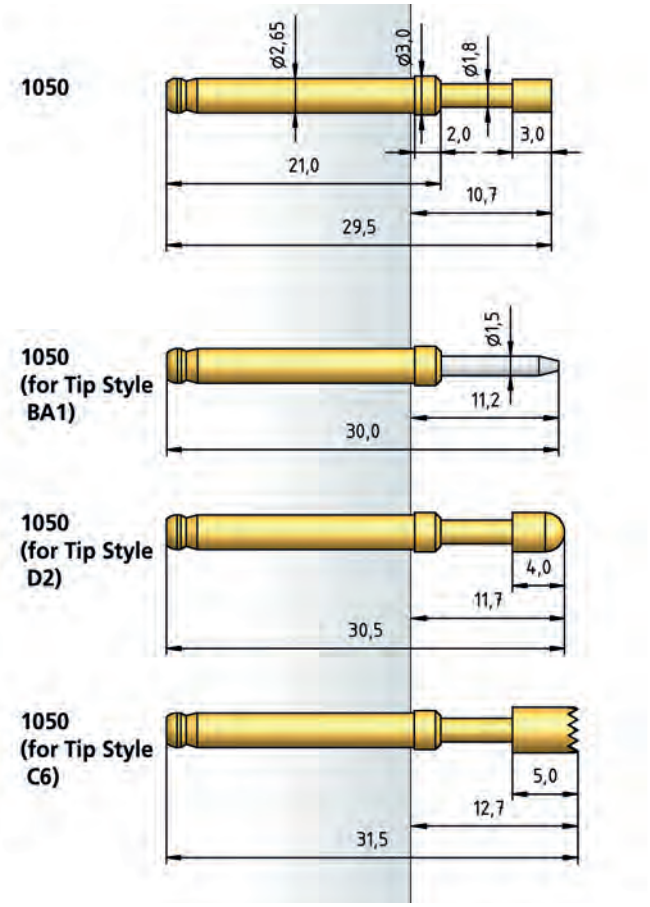
A	A6	B	BA1	C
2.30 Au 2.50 Ni 3.00 Au 4.00 Au	2.50C Au 4.00C Au	1.80 Ni/Rh	1.50 Ni	2.30 Au/Ni/Rh 2.50 Au/Ni/Rh 3.00 Au/Ni/Rh 4.00 Au/Ni/Rh

C6	D	D	D	D2
3.50 Au/Ni	1.00 Rh	1.80 Au	2.30 Au/Ni 2.50 Au/Ni	3.00 Au/Ni

D3	F	F	F3	G
0.80 Rh 1.40 Au	1.80 Au/Ni	2.30 Au/Rh 2.50 Rh 3.00 Au 4.00 Rh	1.00 Rh 1.40 Au	2.30 Rh 2.50 Ni/Rh 4.00 Au/Ni/Rh

H	K	KF
2.50 Ni 2.60 Ni 3.00 Ni/Rh 4.20 Rh	1.80 Rh 3.00 Ni	2.60 Ni 4.00 Ni

BENEFIT	
Stable design	
Contacting of assembled PCBs	
Universal applications	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.50 mm
Working Travel	4.40 mm
Pre-Loaded Spring Force	0.20/ 0.20/ 0.40/ 1.00/ 1.00 N
Spring Force at Working Travel	0.40/ 0.80/ 1.50/ 3.00/ 5.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe, gold-plated
Receptacle	Nickel Silver, unplated; Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372	3.01 mm



Receptacles see page 57

Distance rings see page 57

HOW TO ORDER

1050	-	A6	-	1.5 N	-	Au	-	4.0	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

Series 1060

Standard-Test Probe 160 mil / 4.00 mm

BENEFIT	
Stable design	
Contacting of assembled PCBs	
Universal applications	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.50 mm
Working Travel	4.40 mm
Pre-Loaded Spring Force	0.20/ 0.40/ 0.50/ 0.80/ 0.70 N
Spring Force at Working Travel	0.60/ 1.50/ 2.25/ 3.00/ 5.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel , CuBe, gold-plated
Receptacle	Nickel Silver, unplated; Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372	3.01 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.40/ 0.50/ 0.80 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.25/ 3.00 N

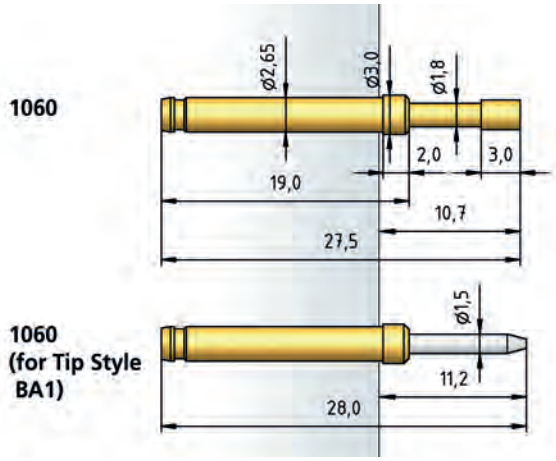
TIP STYLE · DIAMETER · PLATING

A	A6	B	BA1	C
2.30 Au 2.50 Ni 3.00 Au 4.00 Au	2.50C Au 4.00C Au	1.80 Ni/Rh	1.50 Ni	2.30 Au/Ni/Rh 2.50 Au/Ni/Rh 3.00 Au/Ni/Rh 4.00 Au/Ni/Rh

C6	D	D	D	D2
3.50 Au/Ni	1.00 Rh	1.80 Au	2.30 Au/Ni 2.50 Au/Ni	3.00 Au/Ni

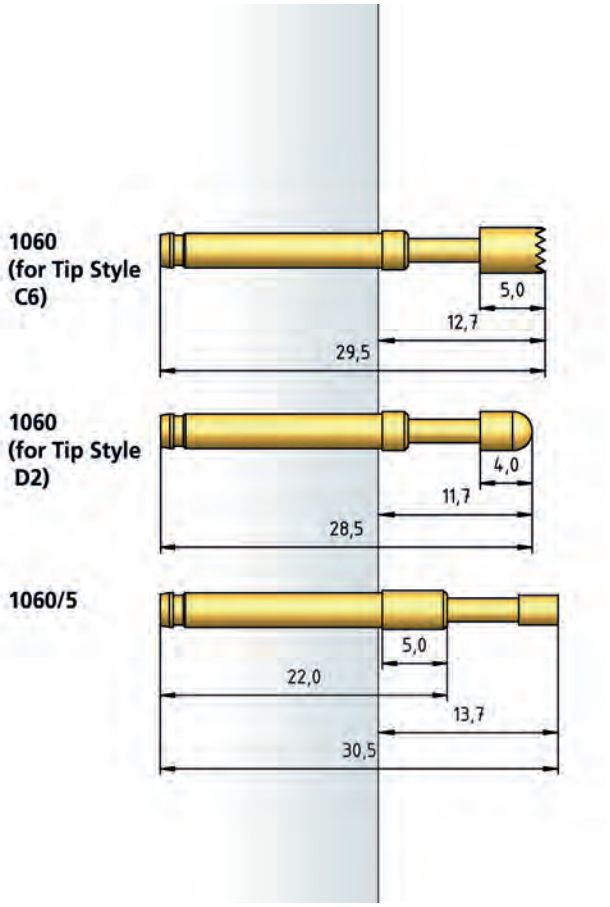
D3	F	F	F3	G
0.80 Rh 1.40 Au	1.80 Au/Ni	2.30 Au/Rh 2.50 Rh 3.00 Au 4.00 Rh	1.00 Rh 1.40 Au	2.30 Rh 2.50 Ni/Rh 4.00 Au/Ni/Rh

H	K	KF
2.50 Ni 2.60 Ni 3.00 Ni/Rh 4.20 Rh	1.80 Rh 3.00 Ni	2.60 Ni 4.00 Ni



Receptacles see page 57

Distance rings see page 57



HOW TO ORDER

1060	-	A6	-	1.5 N	E	-	Au	-	4.0	C
1		2		3	4		5		6	7

1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating
6 Tip Diameter 7 Tip Material (only for CuBe)

Standard-Test Probe 160 mil / 4.00 mm

Series 1051 • 1061

TIP STYLE · DIAMETER · PLATING

B	BA
1.80 Ni	1.80 Ni

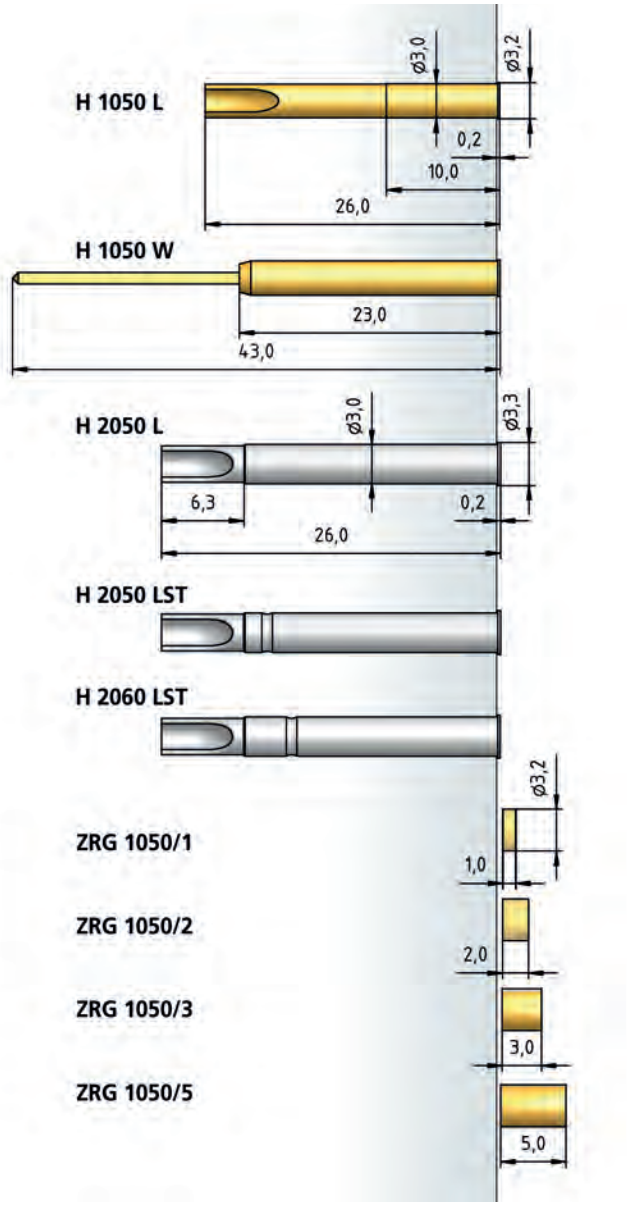
BENEFIT
Stable design
Increased installation height
Contacting of assembled PCBs
Universal applications

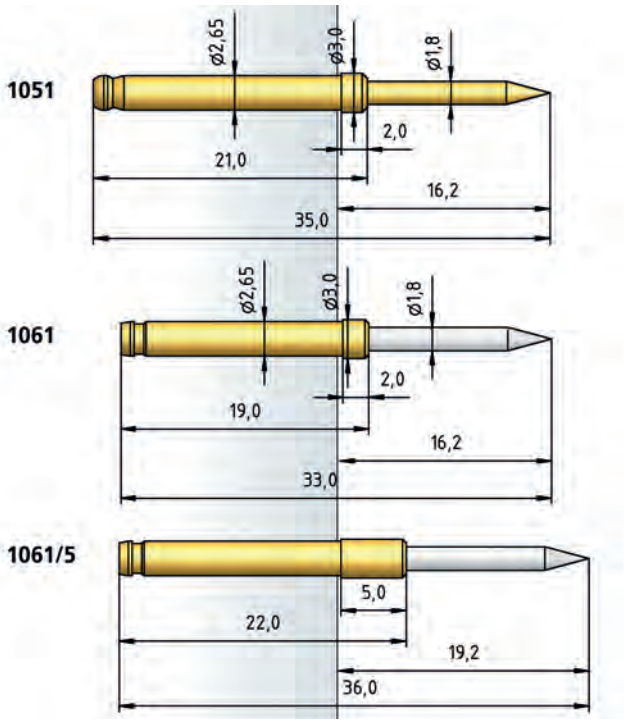
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	7.00 mm
Working Travel	5.60 mm
Pre-Loaded Spring Force	0.15/ 0.25/ 0.40/ 0.60 N
Spring Force at Working Travel	0.70/ 0.80/ 1.50/ 3.00 N

ELECTRICAL DATA	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 35 mOhm

MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Nickel Silver, unplated; Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372	3.01 mm





HOW TO ORDER

1051	-	B	-	1.5 N	-	Ni	-	1.8
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

Series 1041 • 1041/W

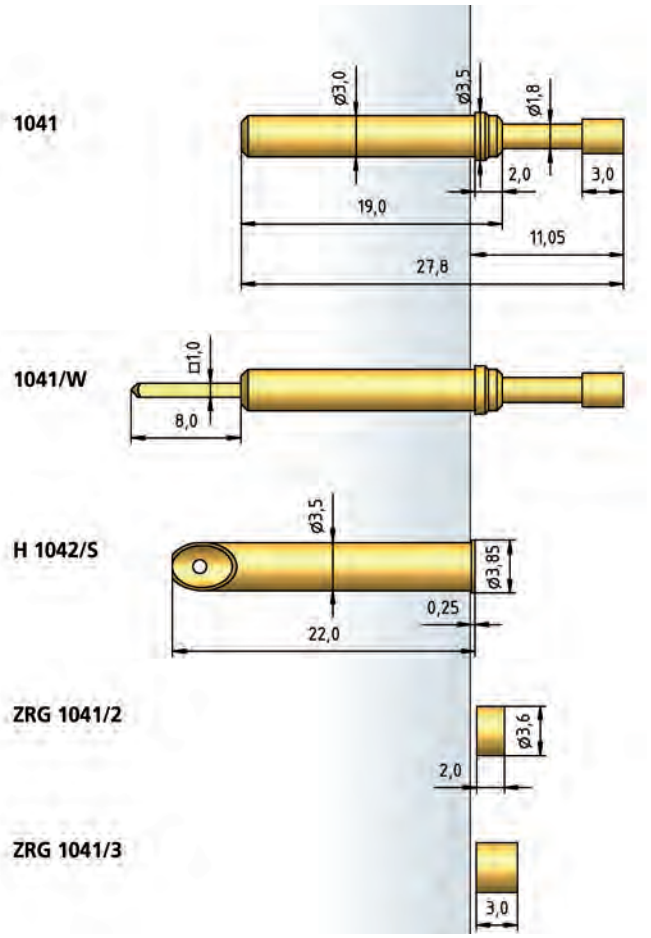
Standard-Test Probe 177 mil / 4.50 mm

BENEFIT	
Stable design	
Contacting of assembled PCBs	
Universal applications	
MECHANICAL DATA	
Center	4.50 mm / 177 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.50 mm
Working Travel	4.80 mm
Pre-Loaded Spring Force	0.25/ 0.75/ 0.60 N
Spring Force at Working Travel	1.50/ 3.00/ 5.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.50 mm
HGW 2372	3.52 mm

TIP STYLE · DIAMETER · PLATING

A	B	BA	C	D
2.50 Ni/Rh 4.00 Au	1.80 Ni/Rh	1.80 Au/Ni	2.30 Au/Ni/Rh 3.00 Au/Ni 4.00 Au/Ni/Rh	2.30 Au

F	F3	G
2.30 Au 4.00 Au	1.00 Rh	2.30 Rh 4.00 Au



HOW TO ORDER

1041/	W	-	C	-	1.5 N	-	Au	-	4.0/	MH5.5
1	2		3		4		5		6	7

1 Series 2 Wire-Wrap Connector 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter 7 Full Travel

Standard-Test Probe 177 mil / 4.50 mm

Series 1042

TIP STYLE · DIAMETER · PLATING

C	C	F	G	H
1.85 Ni	4.00 Au/Ni	4.00 Ni	1.85 Ni	4.00 Rh

BENEFIT

Stable design
Test probe with continuous plunger
Contacting of assembled PCBs
Universal applications
Also for use with higher currents

MECHANICAL DATA

Center	4.50 mm / 177 mil
Temperature Range	-30 °C - +120 °C
Full Travel	7.00 mm
Working Travel	5.60 mm
Pre-Loaded Spring Force	0.40/ 0.50/ 0.60/ 1.00/ 3.50/ 3.00 N
Spring Force at Working Travel	1.50/ 2.25/ 3.00/ 4.50/ 6.00/ 12.50 N

ELECTRICAL DATA

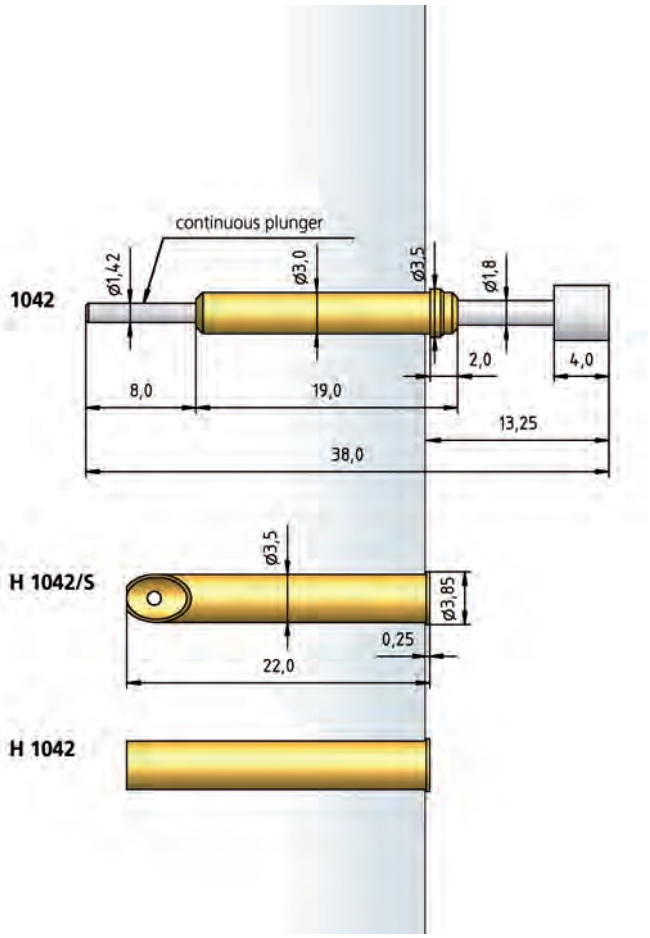
Connector Receptacle	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 30 mOhm
Connector Plunger	
Max. Current Rating	12.0 A
Typical Continuity Resistance	≤ 15 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe, gold-plated
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	3.50 mm
HGW 2372	3.52 mm



HOW TO ORDER

1042	-	C	-	1.5 N	-	Au	-	4.0
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

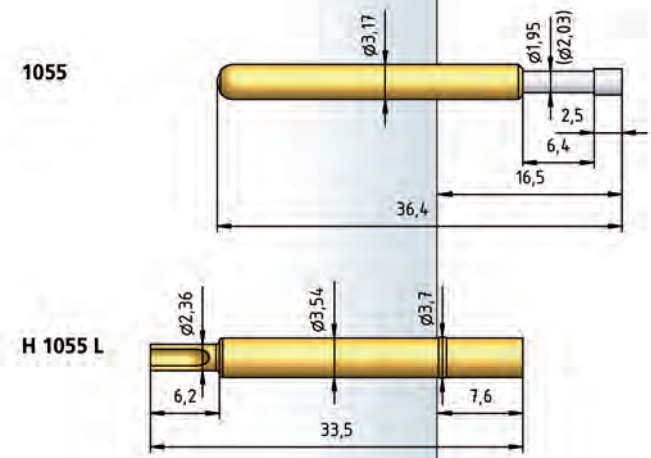
Series 1055

Standard-Test Probe 177 mil / 4.50 mm

BENEFIT	
Stable design	
Height-adjustable installation by using receptacle with press ring	
Contacting of assembled PCBs	
Universal applications	
MECHANICAL DATA	
Center	4.50 mm / 177 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	5.10 mm
Pre-Loaded Spring Force	0.60/ 1.00 N
Spring Force at Working Travel	2.25/ 4.75 N
ELECTRICAL DATA	
Max. Current Rating	8.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe, gold or rhodium plated
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.54 mm
HGW 2372	3.60 mm

TIP STYLE · DIAMETER · PLATING

A	B	C	D2	G2
2.36 Rh	2.03 Rh	3.96 Rh	2.03C Au	1.30 Rh



HOW TO ORDER

1055	-	D2	-	2.25 N	-	Au	-	2.03	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

ICT-TEST PROBES (E-SERIES)

The range of ICT Test Probes comprises all standard series of products which have established themselves on the market as international standards.

These are test probes for centers from 50 mil to 100 mil with a large selection of different tip styles and contact pressures for almost all test requirements. In addition, test probe units with a longer test probe travel are available for 2-level adaptations. Receptacles with a press ring can be supplied for this series. This press ring can be used as a stop to achieve a constant extension height in the adapter, but it also allows variable heights if the press ring is pressed into a defined setting in the take-up drill hole.

The ICT receptacles are available for various types of connections. In addition to these standards, PTR HARTMANN also offers metric types for the ICT/FT. In this case, the receptacles are normally pressed into the take-up drill hole as far as the stop. Here, too, test probe barrels with different collar heights allow variable extension heights in the adapter.

Component Check in the In-Circuit Test

In-circuit tests are used to recognize faulty installed components as soon as possible. Using defined test points, and on installed PCBs, the electrical data, the correct position and the direction of installation of the individual components are tested. In this way, and in conjunction with a function test, faulty components can be quickly recognized and additional costs avoided on the customer's premises.

Series 1004/E

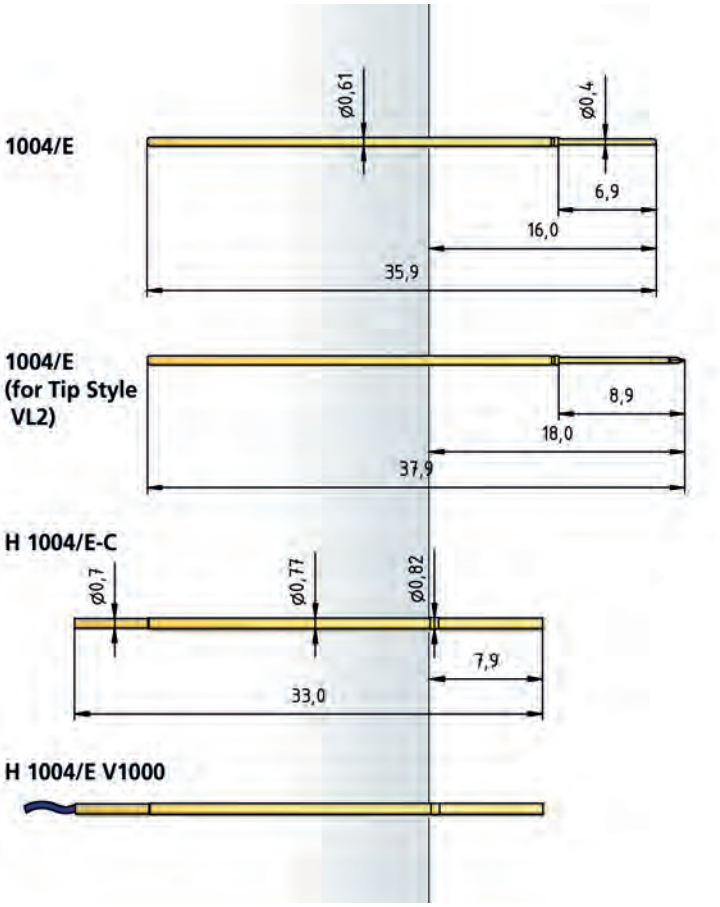
ICT-Test Probe 40 mil / 1.00 mm

BENEFIT	
International standard for 40 mil applications	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	1.00 mm / 40 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	0.20 N
Spring Force at Working Travel	0.80 N
ELECTRICAL DATA	
Max. Current Rating	2.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Steel, gold-plated
Plunger	Steel, CuBe, gold-plated
Receptacle	Bronze, gold-plated
Wire AWG 30 (Blue)	Copper, silver-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.75 mm
HGW 2372	0.76 mm

TIP STYLE · DIAMETER · PLATING

D	G	LG	V	V4
0.40C Au	0.40C Au	0.32 Au	0.40 Au	0.40 Au

VL2
0.40 Au



HOW TO ORDER

1004/E	-	G	-	0.8 N	-	Au	-	0.4	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

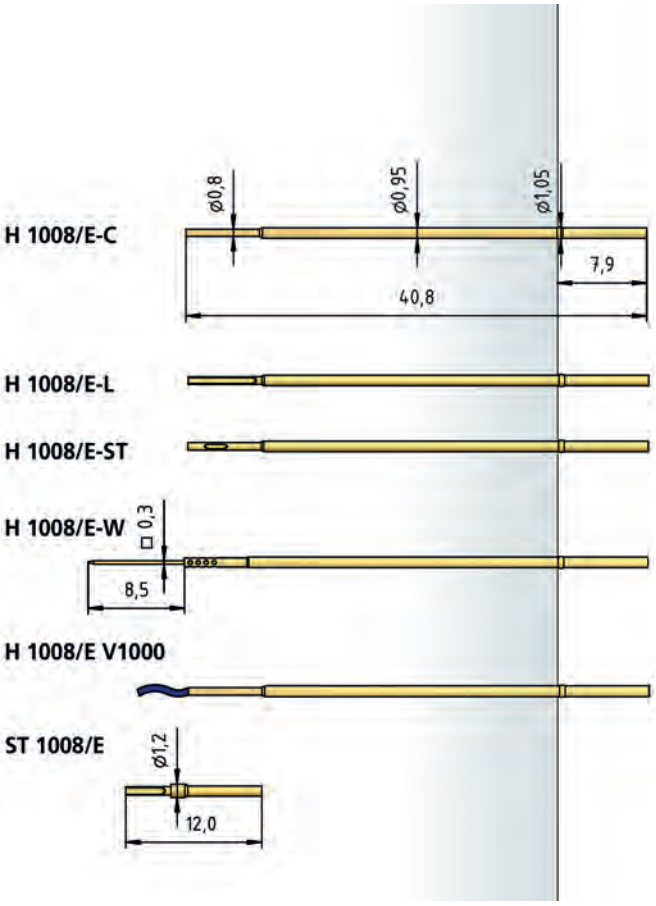
ICT-Test Probe 50 mil / 1.27 mm

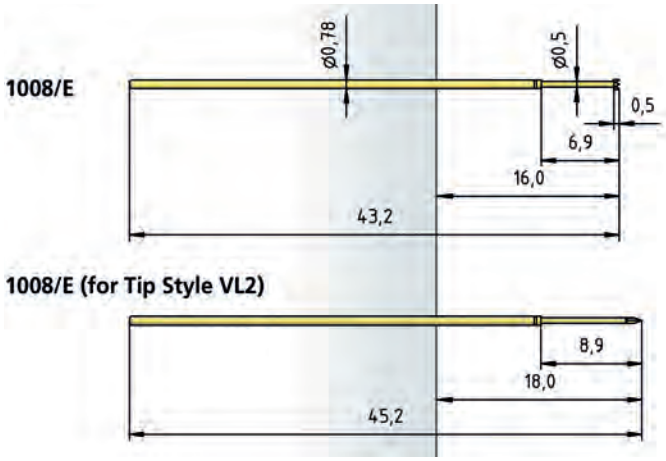
Series 1008/E

TIP STYLE · DIAMETER · PLATING

				
A	**A**	**B**	**BST2**	**C**
0.50C Au	0.90 Au	0.50 Au	0.50 Au	0.90C Au
				
D	**F**	**H**	**H1**	**LG**
0.50C Au	0.60C Au	0.50 Au 0.90C Au	0.50 Au	0.40 Au
				
Q	**V**	**V1**	**V4**	**VL2**
0.50 Au	0.50 Au	0.50 Au	0.50 Au	0.50 Au

BENEFIT	
International standard for 50 mil applications	
Contacting of assembled PCBs	
MECHANICAL DATA	
Center	1.27 mm / 50 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	0.30/ 0.40/ 0.50/ 0.60 N
Spring Force at Working Travel	1.00/ 1.50/ 2.00/ 2.80 N
ELECTRICAL DATA	
Max. Current Rating	2.0...3.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Bronze, gold-plated
Wire AWG 30 (Blue)	Copper, silver-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.96...0.98 mm
with pressed-in Ring	1.02 mm
HGW 2372 (Glass filled Material)	0.97...0.99 mm
with pressed-in Ring	1.03 mm





HOW TO ORDER

1008/E	-	C	-	1.5 N	-	Au	-	0.9	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

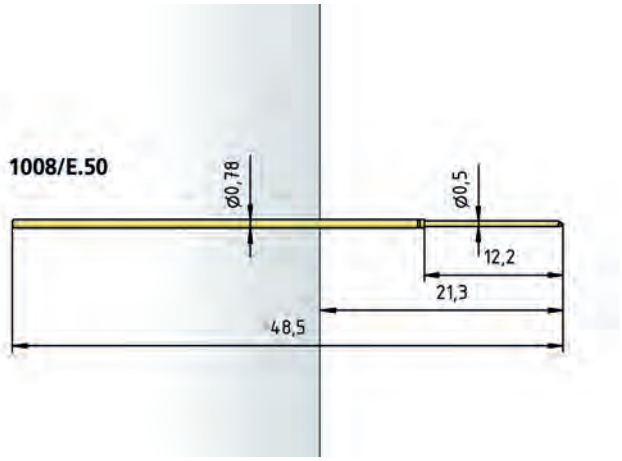
Series 1008/E.50

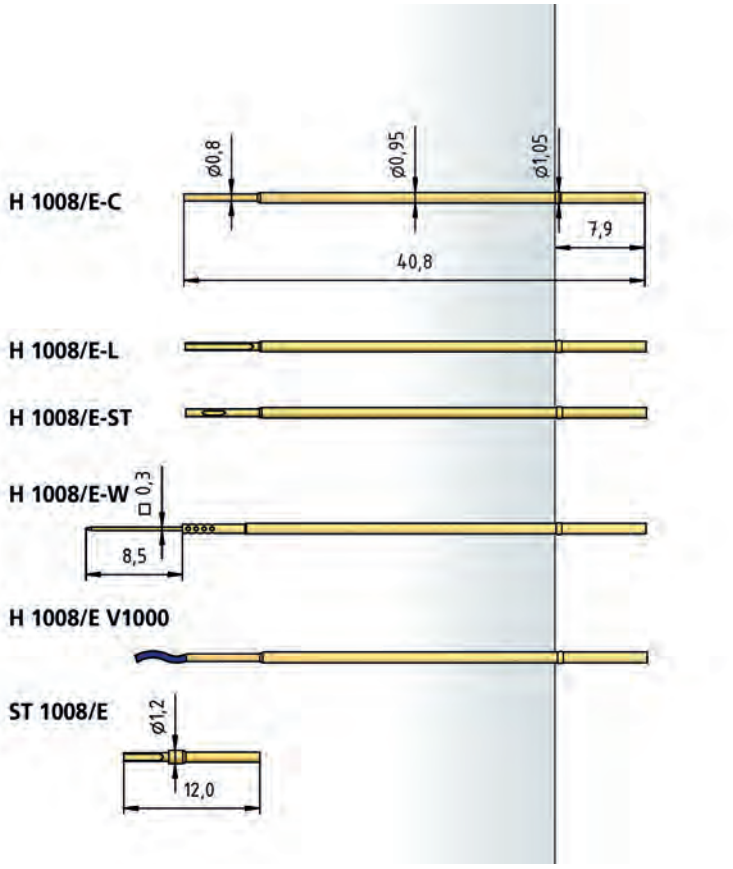
ICT-Test Probe 50 mil / 1.27 mm - Long Travel

BENEFIT	
International standard for 50 mil applications	
Contacting of assembled PCBs	
Spring travel 10 mm	
MECHANICAL DATA	
Center	1.27 mm / 50 mil
Temperature Range	-30 °C - +120 °C
Full Travel	10.00 mm
Working Travel	8.00 mm
Pre-Loaded Spring Force	0.25/ 0.30 N
Spring Force at Working Travel	1.00/ 1.50 N
ELECTRICAL DATA	
Max. Current Rating	2.0...3.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, gold-plated
Receptacle	Bronze, gold-plated
Wire AWG 30 (Blue)	Copper, silver-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.96...0.98 mm
with pressed-in Ring	1.02 mm
HGW 2372 (Glass filled Material)	0.97...0.99 mm
with pressed-in Ring	1.03 mm

TIP STYLE · DIAMETER · PLATING

H	Q	V
0.50 Au	0.50 Au	0.50 Au





HOW TO ORDER

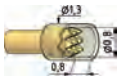
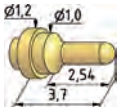
1008/E	.50	-	H	-	1.5 N	-	Au	-	0.5
1	2		3		4		5		6

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

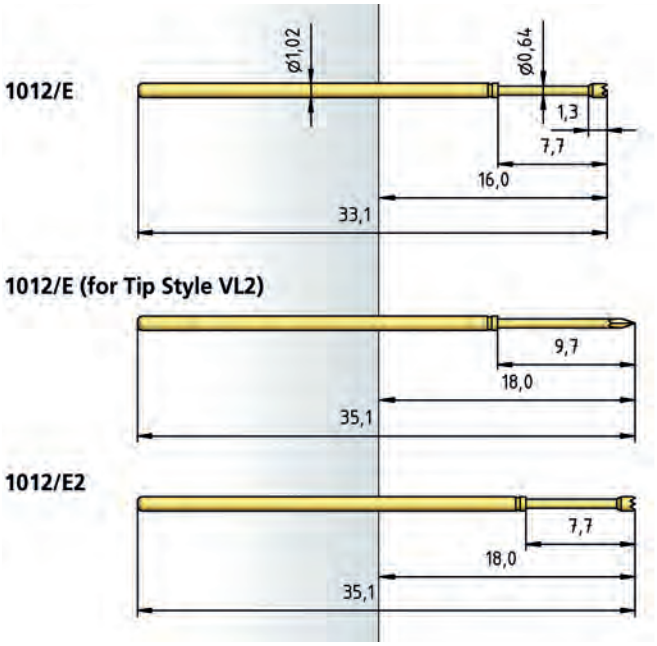
ICT-Test Probe 75 mil / 1.91 mm

Series 1012/E

TIP STYLE · DIAMETER · PLATING

				
A	**A6**	**B**	**BD**	**BST1**
1.20C Au	1.20 Au	0.64 Au	0.61C Au	0.64 Au
				
BST2	**C**	**CS1**	**D**	**D**
0.64 Au	1.00 Au 1.20 Au	0.80/1.30C Au/POM	0.50C Au	0.64C Au
				
D3	**F**	**G**	**H**	**H**
0.50C Au	0.90C Au	1.15 Au	0.64 Au	1.00 Au 1.20 Au
				
H1	**K**	**M1**	**M6**	**N**
0.64 Au	1.20 Au	1.20 Au	1.30 Au	0.50 Au
				
Q	**Q**	**Q**	**Q6F**	**Q8**
0.50 Au	0.64 Au	0.80 Au 1.00 Au 1.15 Au	0.64C Au	1.20 Au
				
V	**V1**	**V1**	**V5**	**VL2**
0.64 Au	0.64 Au	0.80 Au	0.64 Au	0.64 Au

BENEFIT	
International standard for 75 mil applications	
Contacting of assembled PCBs	
Large selection of head styles	
MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	0.30/ 0.40/ 0.50/ 0.70 N
Spring Force at Working Travel	1.00/ 1.50/ 2.00/ 2.80 N
ELECTRICAL DATA	
Max. Current Rating	3.0...4.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.30 mm
with pressed-in Ring	1.36 mm
HGW 2372(	1.32 mm
with pressed-in Ring	1.37 mm



Receptacles see page 76

HOW TO ORDER

1012/E	-	C	-	1.5 N	-	Au	-	1.0	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

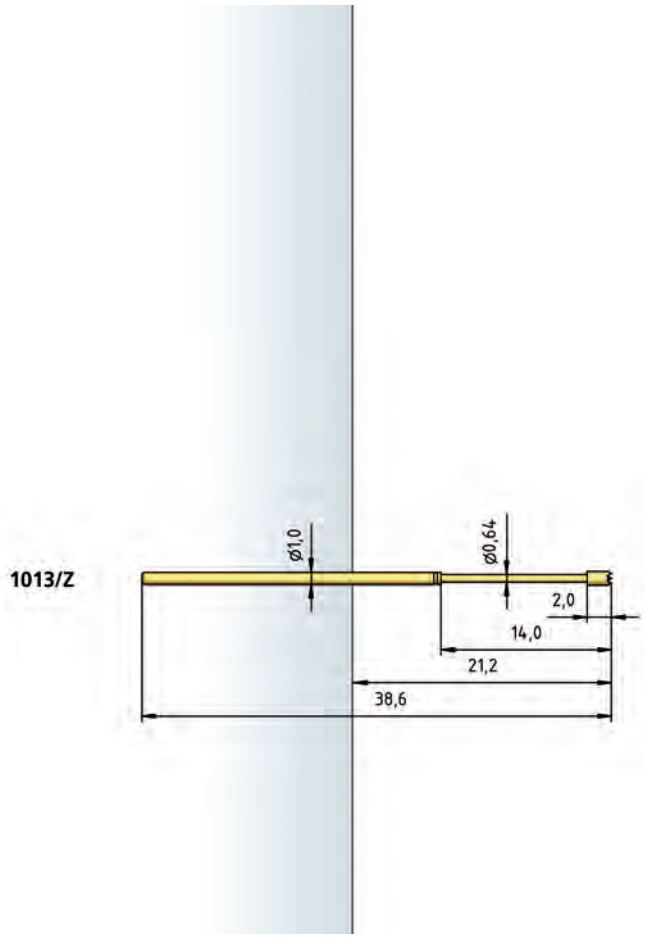
Series 1013/Z

ICT-Test Probe 75 mil / 1.91 mm - Long Travel

BENEFIT	
International standard for 75 mil applications	
Contacting of assembled PCBs	
Spring travel 12.0 mm	
MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-30 °C - +120 °C
Full Travel	12.00 mm
Working Travel	9.60 mm
Pre-Loaded Spring Force	0.40/ 0.35 N
Spring Force at Working Travel	1.20/ 1.60 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.30 mm
with pressed-in Ring	1.36 mm
HGW 2372 (Glass filled Material)	1.32 mm
with pressed-in Ring	1.37 mm

TIP STYLE · DIAMETER · PLATING

C	H	Q	Q	V
1.15 Au	1.15 Au	0.64 Au	1.15 Au	0.64 Au



Receptacles see page 76

HOW TO ORDER

1013/Z	-	C	-	1.6 N	-	Au	-	1.15
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

ICT-Test Probe 100 mil / 2.54 mm

Series 1025/E

TIP STYLE · DIAMETER · PLATING

A	A6	B	BD	BST1
1.50C Au 2.00C Au	1.50 Au 1.80C Au	0.90 Au	0.90 Au	0.62 Au/Ni

BST2	BST3	C	C1	CS1
0.90 Au	1.60C Au	1.30 Au 1.50C Au 2.00C Au 2.50C Au 3.00C Au	2.30/3.10C Au	1.80/2.25C Au/HTK

CS3	CS8	D1	D	D
1.75/2.40C Au/HTK	1.80/2.80C Au/HTK	0.50 Au 0.64C Au	0.90C Au	1.30 Au 1.50 Au

E	F	F	G	H
1.50 Au	0.90 Au	1.50C Au	1.06 Au 1.30 Au 1.50 Au	0.90 Au

H	H1	HL2	K	M
1.50 Au 1.70 Au 2.50 Au	0.90 Au	0.90C Au	1.70 Au	1.30 Au

M1	M6	N	Q	Q
1.30 Au 1.40 Au 1.50 Au	1.30 Au 1.50 Au	0.50 Au	0.50 Au 0.80 Au	1.06 Au 1.30 Au 1.50 Au

Q5	Q6F	Q8	Q8F	QL2
1.06 Au	0.64C Au	1.50 Au	0.90C Au	1.50 Au

V	V	V1	VL2	V3
0.90 Au/Ni	1.30 Au	0.90 Au	0.90 Au	0.90 Au

V5
0.90 Au

BENEFIT

International standard for 100 mil applications
Contacting of assembled PCBs
Large selection of head styles

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	0.20/ 0.25/ 0.40/ 0.60/ 0.50/ 0.80/ 1.40 N
Spring Force at Working Travel	0.60/ 1.00/ 1.50/ 2.00/ 2.25/ 3.00/ 4.00 N

ELECTRICAL DATA

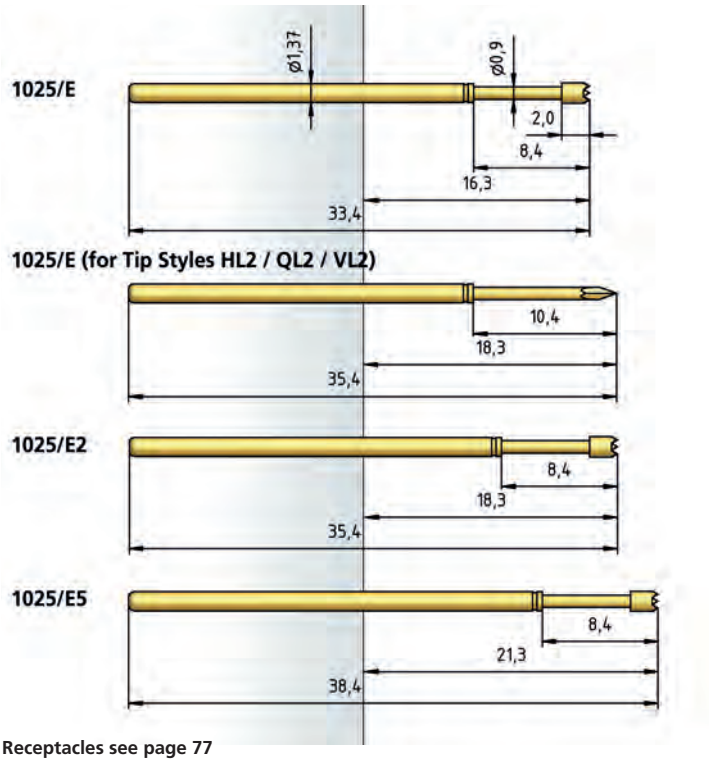
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 20 mOhm

MATERIALS

Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Bronze, gold-plated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	1.65 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled Material)	1.67 mm
with pressed-in Ring	1.76 mm



Receptacles see page 77

HOW TO ORDER

1025/E	-	C	-	1.5 N	-	Au	-	1.5	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

Series 1034/E

ICT-Test Probe 100 mil / 2.54 mm - Long Travel

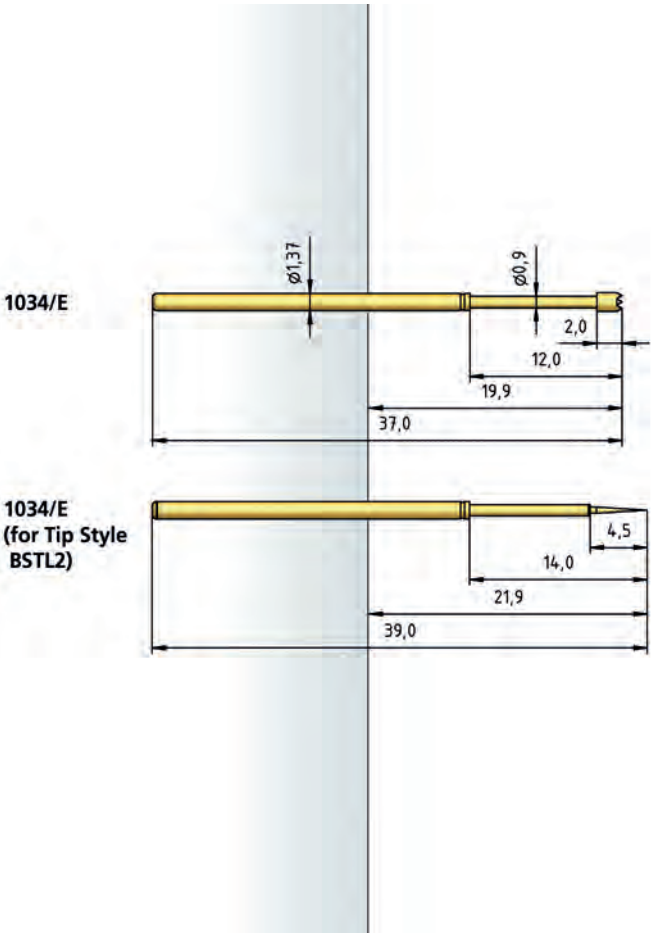
BENEFIT	
International standard for 100 mil applications	
Contacting of assembled PCBs	
Large selection of head styles	
Spring travel 10 mm	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	10.00 mm
Working Travel	8.00 mm
Pre-Loaded Spring Force	0.40/ 0.40/ 0.50 N
Spring Force at Working Travel	1.50/ 2.25/ 3.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe, gold-plated
Receptacle	Bronze, gold-plated

TIP STYLE · DIAMETER · PLATING

A	B	BSTL2	C	G
1.30 Au	0.90 Au	0.50 Au	1.30 Au 1.50 Au	1.30 Au 1.50 Au

H	K	M1	Q	Q
1.50 Au 2.50 Au	1.70 Au	1.30 Au	0.50 Au 1.00 Au	1.30 Au 1.50 Au

V	V1
0.90 Au	0.90 Au



Receptacles see page 77

HOW TO ORDER

1034/E	-	C	-	1.5 N	-	Au	-	1.5
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

ICT-Test Probe 100 mil / 2.54 mm - Long Travel

Series 1036/E

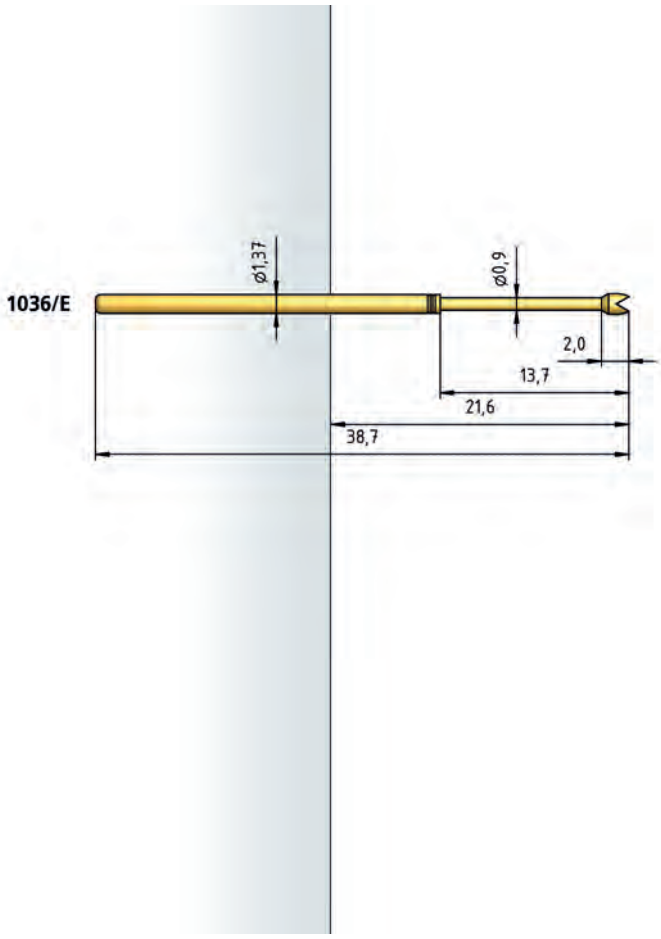
TIP STYLE · DIAMETER · PLATING

A	B	C	D	F
				
1.30 Au	0.90 Au	1.30 Au 1.50 Au	0.90 Au	0.90 Au

G	H	K	M1	Q
				
1.50 Au	1.50 Au	1.50 Au	1.30 Au	0.50 Au

Q	V	V1
		
1.30 Au 1.50 Au	0.90 Au	0.90 Au

BENEFIT	
International standard for 100 mil applications	
Contacting of assembled PCBs	
Large selection of head styles	
Spring travel 11.70 mm	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	11.70 mm
Working Travel	9.30 mm
Pre-Loaded Spring Force	0.30/ 0.40/ 0.50 N
Spring Force at Working Travel	1.50/ 2.00/ 3.00 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 25 mOhm
MATERIALS	
Barrel	Nickel Silver, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.65 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled Material)	1.67 mm
with pressed-in Ring	1.76 mm



Receptacles see page 77

HOW TO ORDER

1036/E	-	B	-	2.0 N	-	Au	-	0.9
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

Series 2021 • 1021

ICT-Test Probe 100 mil / 2.54 mm

BENEFIT	
Metric design	
Contacting of assembled PCBs	
Large selection of head styles	
Variable installation heights from various collar dimensions	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.30/ 0.40/ 0.50/ 0.70/ 1.00/ 1.00 N
Spring Force at Working Travel	0.70/ 1.00/ 1.50/ 2.25/ 3.00/ 5.00 N
	2021/5 - 1.00 N not available
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 25 mOhm
MATERIALS	
Barrel	Bronze/Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel, Plastic
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.99 mm
HGW 2372	2.00 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.50/ 0.70/ 1.00/ 1.00 N
Spring Force at Working Travel	
(Order Index E)	1.50/ 2.25/ 3.00/ 5.00 N
2021/5 - High-Temperature Applications not available	

TABLE COLLAR HEIGHT FOR TEST PROBE 1021/X

Series	X (mm)	Y (mm)	Z (mm)
1021	4.0	12.5	34.3
1021	6.0	14.5	36.3
1021	7.0	15.5	37.3
1021	8.0	16.5	38.3
1021	9.0	17.5	39.3
1021	10.0	18.5	40.3

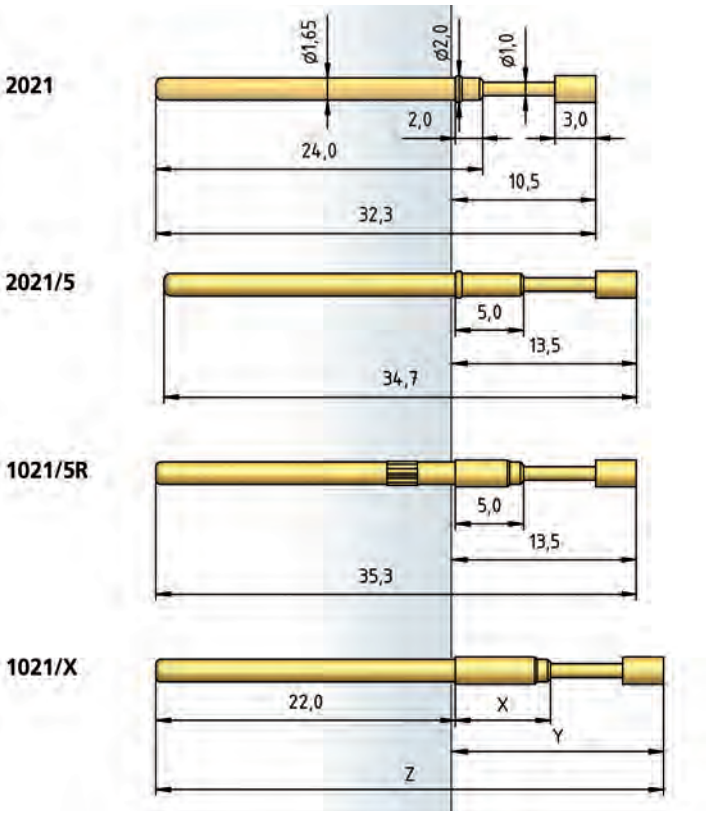
TIP STYLE · DIAMETER · PLATING

A	A6	B	BST	C
2.00 Au/Ni/Rh	1.80C Au 2.00C Au	0.65 Ni 0.80 Au/ Ni/Rh 1.00 Au/Ni	0.80 Au/Ni	1.30 Au/Ni/Rh 1.50 Au 1.80 Au/Ni/Rh 2.00 Au/Ni 2.30 Rh 2.50 Ni 3.00 Rh

C1S	C5S	D	D	D1
1.20/2.00 Au/ HTK	1.40/2.50 Au/ HTK	0.65 Au/Ni 0.80 Au 1.00 Au	1.30 Au/Ni 1.40 Au 1.80 Ni 2.00 Au	0.65 Au/Ni

F	F	F1	F4	G
0.80 Au 1.00 Au/Ni	1.50 Au 1.80 Au 2.00 Au/Ni	0.65 Ni	0.80 Au	1.30 Ni 1.80 Au/Rh 2.00 Au

H	K	M	Q
1.80 Rh 2.00 Rh	1.15 Ni 1.75 Ni 2.00 Rh	1.80 Rh	1.00 Ni 1.30 Au/Ni



Receptacles see page 73

Distance rings see page 73

HOW TO ORDER

2021/	5	-	F	-	1.5 N	E	-	Au	-	2.0
1	2		3		4	5		6		7

1 Series 2 Collar Height 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter

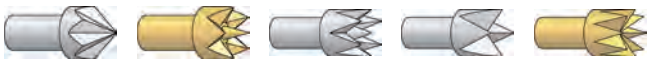
ICT-Test Probe 100 mil / 2.54 mm

Series 2024 • 1024

TIP STYLE · DIAMETER · PLATING

A	B	BST	C	D
1.80 Au 2.00 Au	1.00 Ni	0.80 Au	1.30 Rh 2.00 Ni	1.00 Ni

D	F	G	G	H
1.30 Ni	2.00 Au	1.00 Ni	1.30 Ni 2.00 Ni	1.30 Rh



K	M	M1	Q	Q8
2.00 Ni	1.50 Au	2.00 Rh	1.30 Ni	1.80 Au

V	V
1.00 Ni	1.00 Ni

BENEFIT

Metric design
Contacting of assembled PCBs
Large selection of head styles
Variable installation heights from various collar dimensions

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	10.00 mm
Working Travel	8.00 mm
Pre-Loaded Spring Force	0.40/ 0.50/ 0.40 N
Spring Force at Working Travel	1.50/ 2.50/ 3.00 N

ELECTRICAL DATA

Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm

MATERIALS

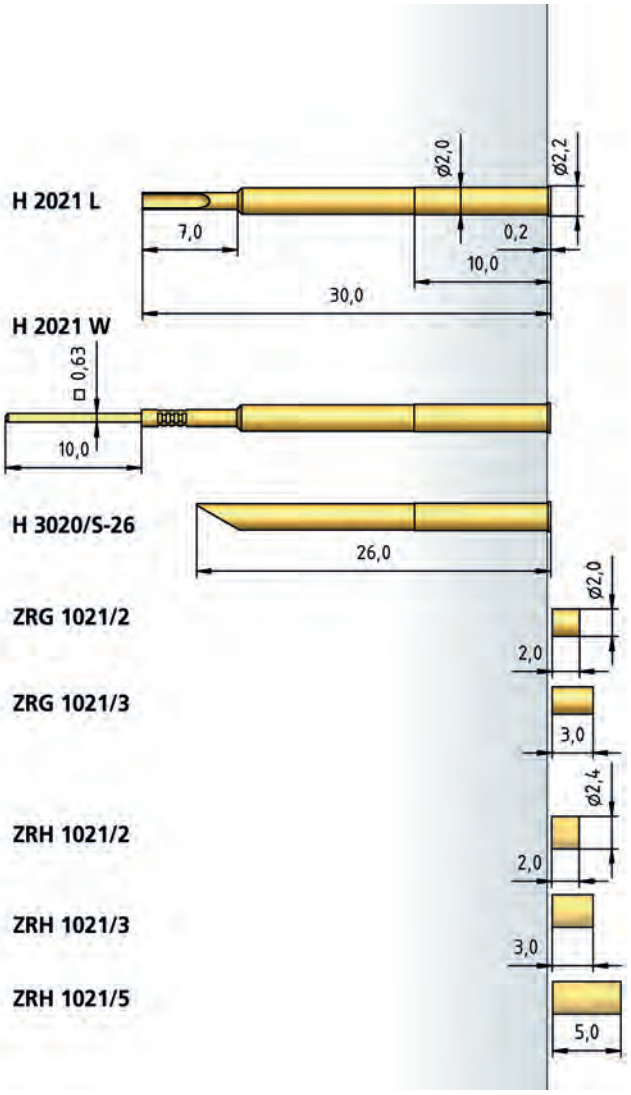
Barrel	Bronze/Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Bronze, gold-plated

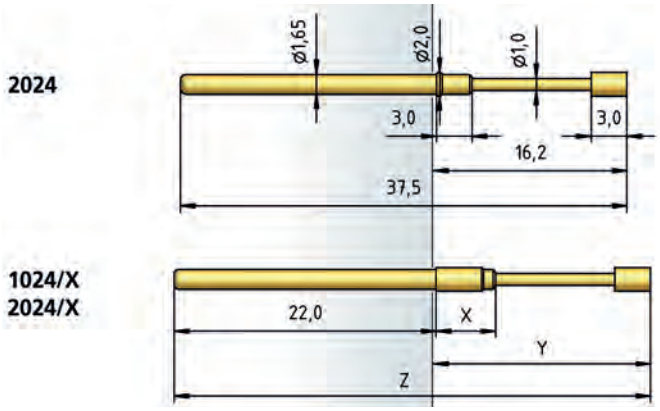
RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	1.99 mm
HGW 2372	2.00 mm

TABLE COLLAR HEIGHT FOR TEST PROBES 1024/X AND 2024/X

Series	X (mm)	Y (mm)	Z (mm)
2024	5.0	18.2	39.5
1024	7.0	20.2	42.0
2024	8.0	21.2	42.5
1024	10.0	23.2	45.0





HOW TO ORDER

2024/	5	-	G	-	1.5 N	-	Ni	-	1.3
1	2		3		4		5		6

1 Series 2 Collar Height 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

Series 2028 • 1028

ICT-Test Probe 100 mil / 2.54 mm

BENEFIT	
Metric design	
Contacting of assembled PCBs	
Large selection of head styles	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.30/ 0.40/ 0.50/ 0.70/ 1.00/ 1.00 N
Spring Force at Working Travel	0.70/ 1.00/ 1.50/ 2.25/ 3.00/ 5.00 N *2028/5 - 1.00 N not available*
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 25 mOhm
MATERIALS	
Barrel	Bronze/Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel, Plastic
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.99 mm
HGW 2372	2.00 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.50/ 0.50/ 0.80 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.25/ 3.00 N

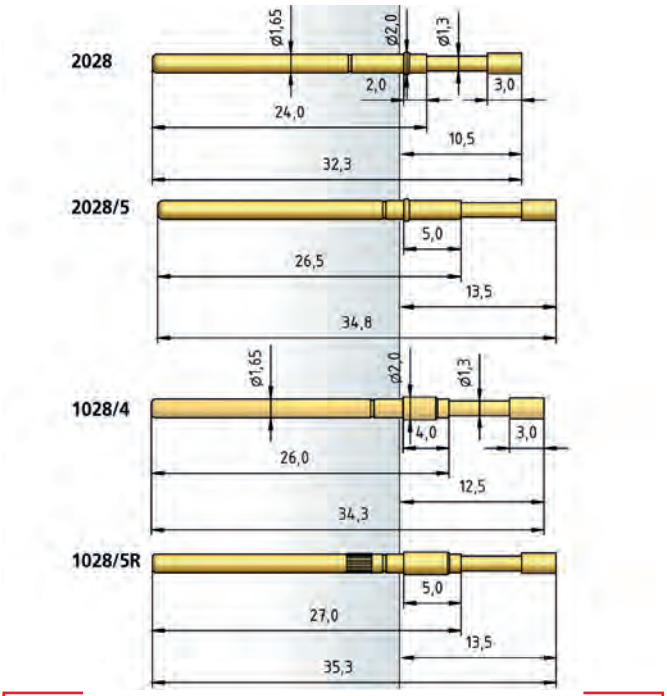
TIP STYLE · DIAMETER · PLATING

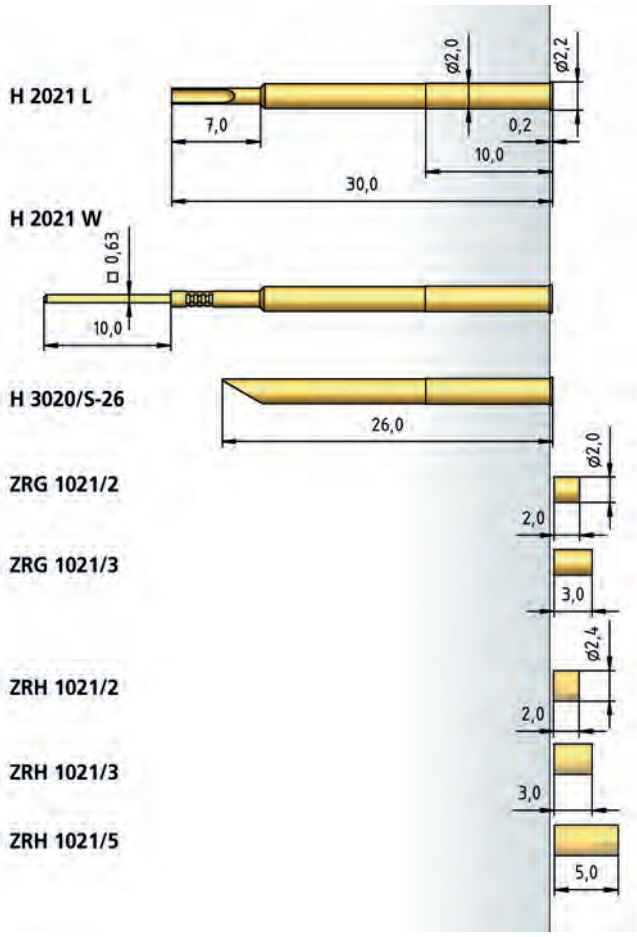
A	B	BST	C	CSM
1.50 Au 1.80 Ni	1.30 Rh	0.80 Au/Ni	1.40 Au 1.80 Rh 2.50 Rh 3.50 Rh	1.00/2.00 Au/ HTK

D	D1	EB	F	G
1.40 Au 2.00 Au	0.65 Ni 0.80 Ni	1.80 Au	1.30 Ni	1.30 Ni 1.50 Rh

H	H	K	M6	Q
1.30 Au	1.40 Au 1.80 Au	1.30 Au 1.75 Ni	2.00 Rh	1.30 Au

Q	Q5	Q8	V
1.80 Au 2.00 Au	1.30 Ni	2.30 Ni	1.30 Ni





HOW TO ORDER

2028	-	A	-	1.5	N	E	-	Au	-	1.5
1		2		3		4		5		6

1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating 6 Tip Diameter

ICT-Test Probe 100 mil / 2.54 mm

Series 2029

TIP STYLE · DIAMETER · PLATING

A	B	BST	C	C
1.50 Ni	1.30 Rh	0.80 Au	1.30 Ni 1.50 Au/Rh 2.00 Au	1.30/1.60 Ni/Rh

D	EB	G	G	H
1.50 Au	1.80 Au	1.30 Au/Ni/Rh 1.50 Ni	1.30/1.60 Ni/Rh	1.30 Au 1.50 Ni 1.80 Au

K	M1	Q	Q5	V
1.80 Au	1.50 Au	1.50 Ni 2.00 Au	1.30 Au/Ni	1.30 Ni

BENEFIT

- Metric design
- Contacting of assembled PCBs
- Large selection of head styles

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	8.00 mm
Working Travel	6.40 mm
Pre-Loaded Spring Force	0.35/ 0.70/ 0.80/ 0.80 N
Spring Force at Working Travel	1.50/ 2.25/ 3.00/ 5.00 N

ELECTRICAL DATA

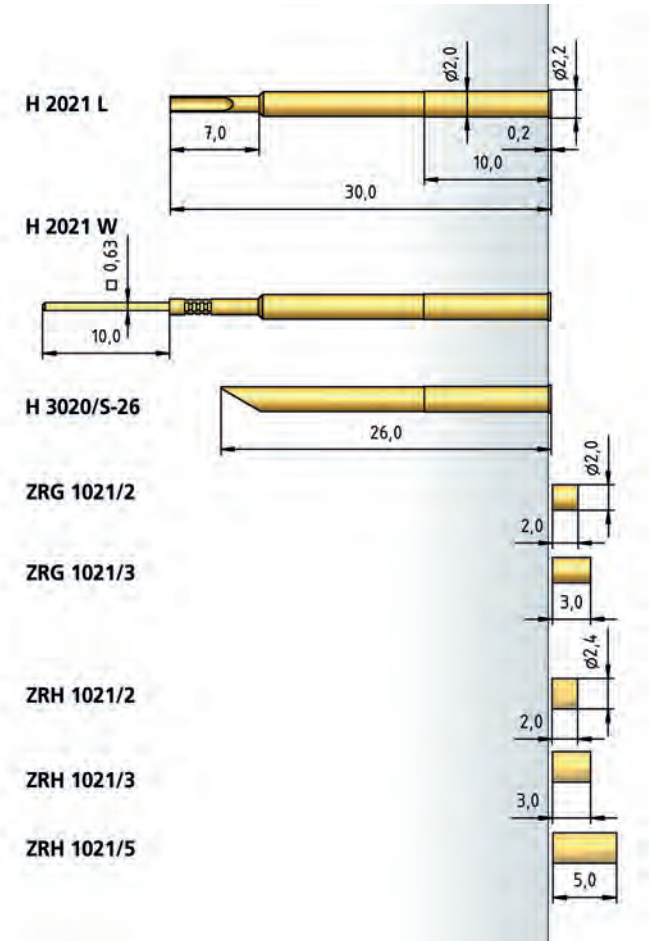
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm

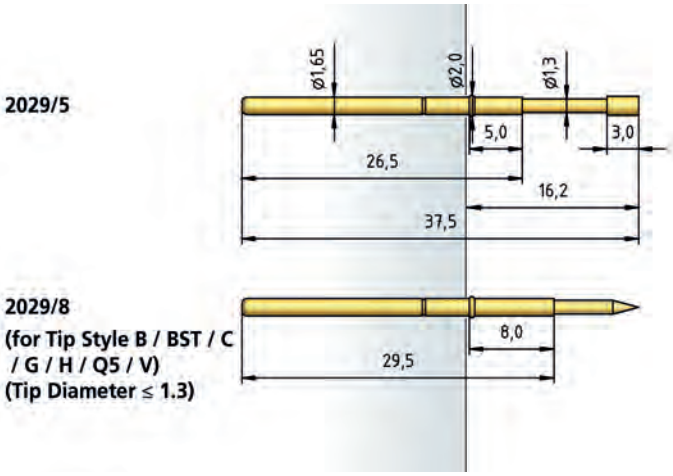
MATERIALS

Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Bronze, gold-plated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	1.99 mm
HGW 2372	2.00 mm





HOW TO ORDER

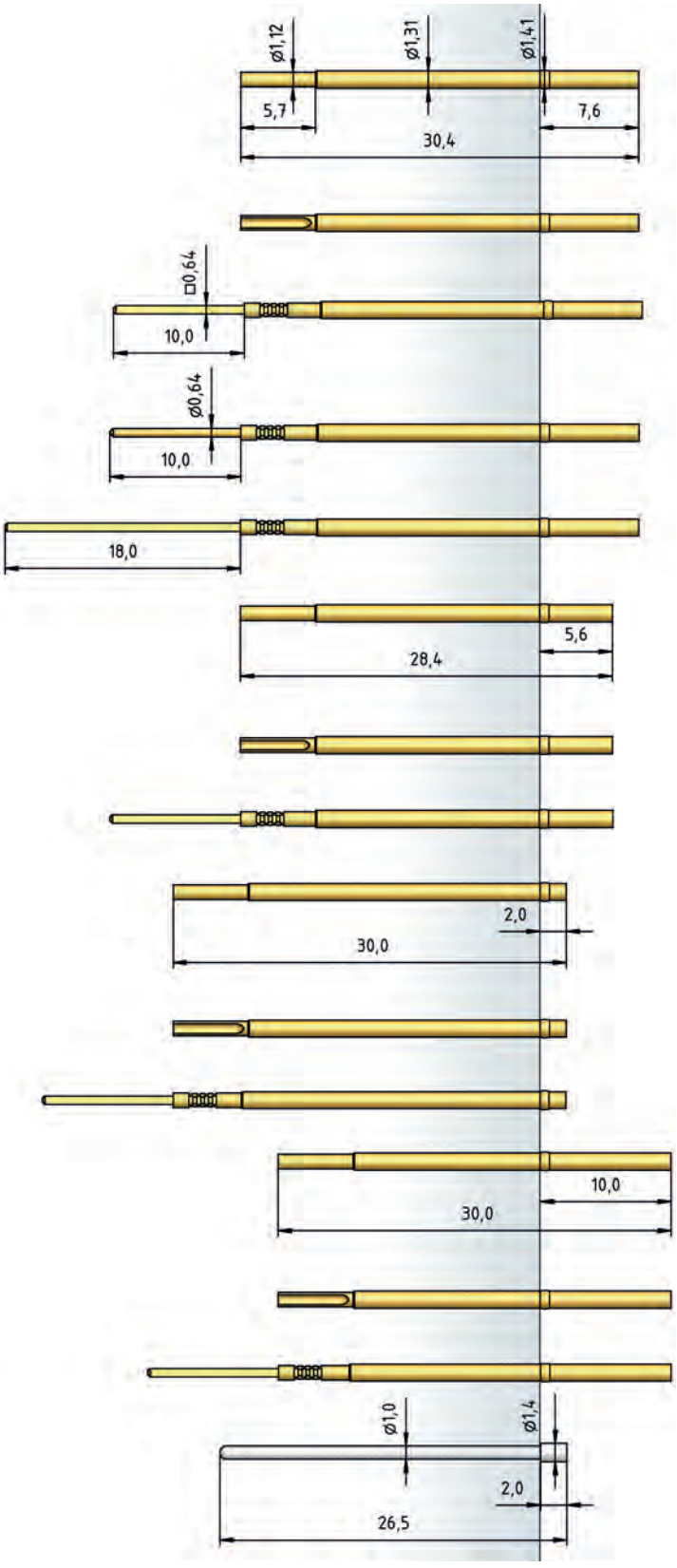
2029/	5	-	C	-	1.5 N	-	Rh	-	1.5
1	2		3		4		5		6

1 Series 2 Collar Height 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

Receptacles 1012

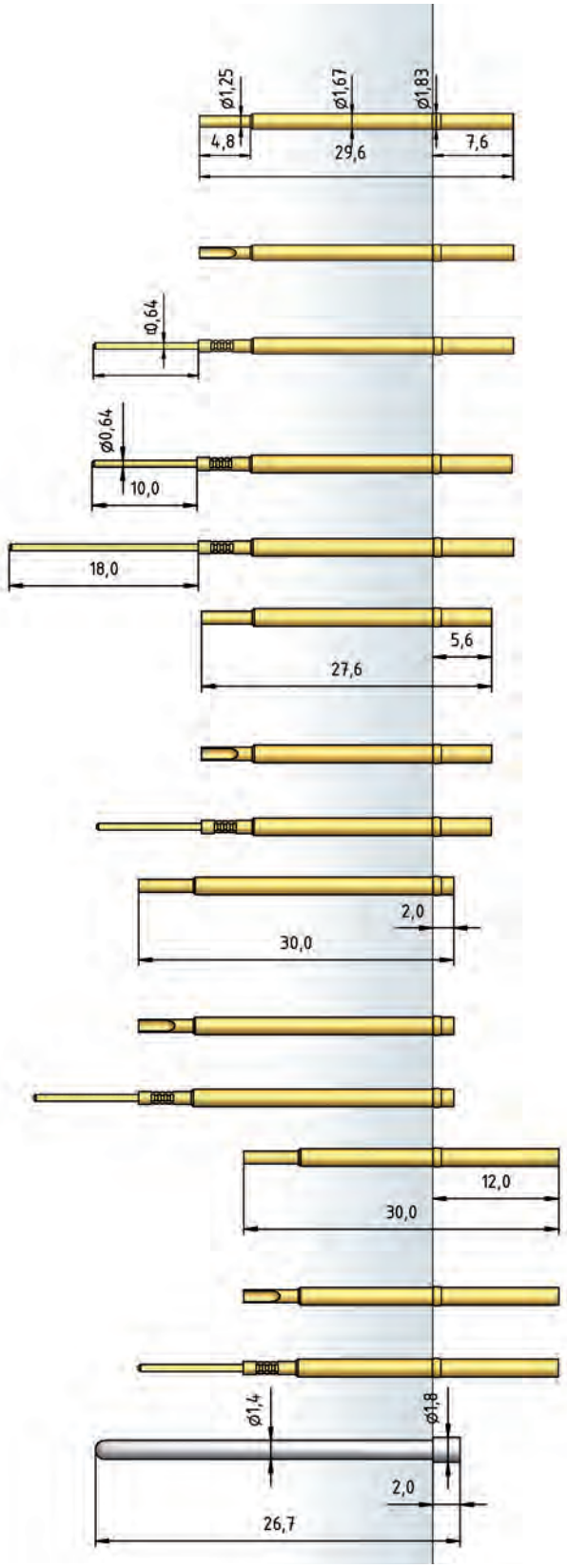
Receptacles for Series
1012/E · 1012/D · 1013/Z

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.30 mm
with pressed-in Ring	1.36 mm
HGW 2372 (Glass filled Material)	1.32 mm
with pressed-in Ring	1.37 mm
MATERIALS	
Receptacle	Bronze, gold-plated



Receptacles for Series
1025/E · 1025/D · 1034/E · 1036/E

Receptacles 1025



RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.65 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled Material)	1.67 mm
with pressed-in Ring	1.76 mm
MATERIALS	
Receptacle	Bronze, gold-plated

H 1025 C

H 1025 L

H 1025 W

H 1025 WR

H 1025 W18

H 1025 C-K

H 1025 L-K

H 1025 W-K

H 1025/2 C

H 1025/2 L

H 1025/2 W

H 1025/12 C

H 1025/12 L

H 1025/12 W

BGK 1025

HPL TEST PROBES

To ensure reliable contacting of PCBs which are contaminated with residues and or oxidised from the soldering process, a wide range of ICT Test Probes is available from PTR HARTMANN (see page 62).

We are amending our product range with our new HPL (High Pre-Loaded Test Probes), which offer better penetration of contaminants and enable better signal transfer even in Lead-Free applications. A comparison of the spring forces (standard and HPL) is shown in fig. 1.

This HPL-Series will not increase stresses on the UUT/Test Fixture and the same probe travel is maintained as with the standard series.

PTR HARTMANN's HPL Test Probes offer special advantages when used as test contacts for lead-free PCBs. Despite the lack of solder on the test points, the new test probes provide secure contacting and satisfy all the test requirements in this sector.

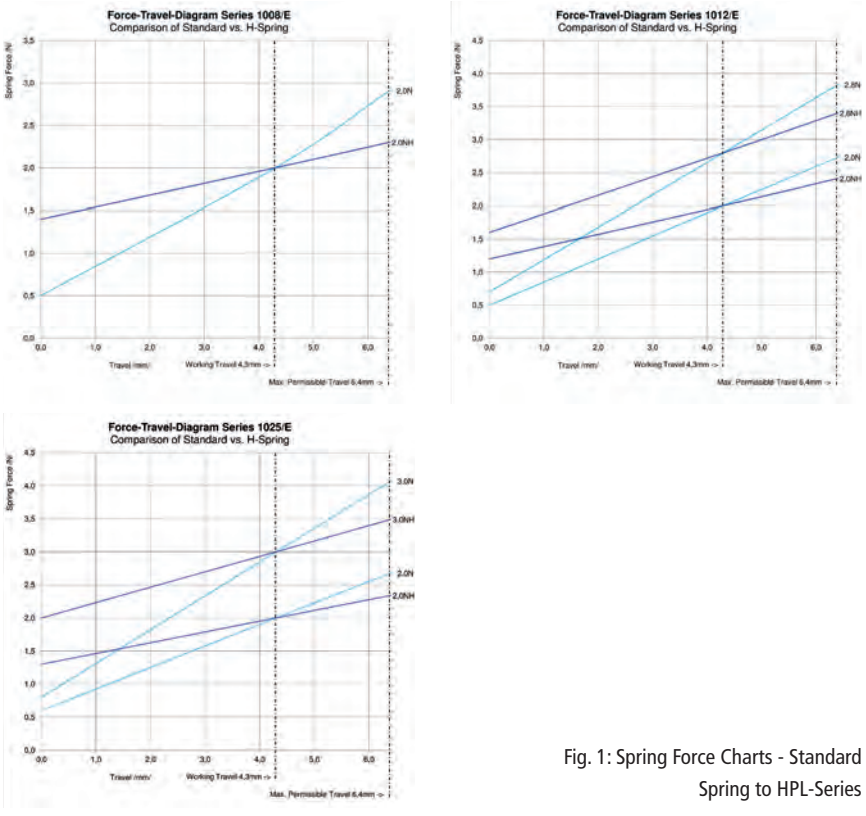


Fig. 1: Spring Force Charts - Standard Spring to HPL-Series

SERIES	CENTER	PAGE
1008/E (HPL)	50 mil / 1.27 mm	80
1012/E (HPL)	75 mil / 1.91 mm	81
1025/E (HPL)	100 mil / 2.54 mm	82

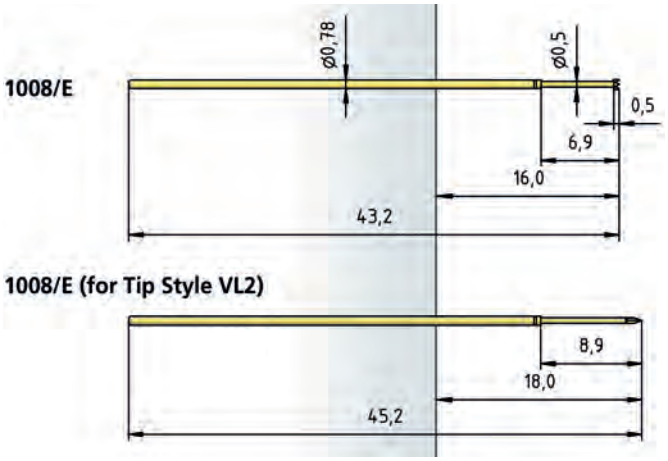
Series 1008/E

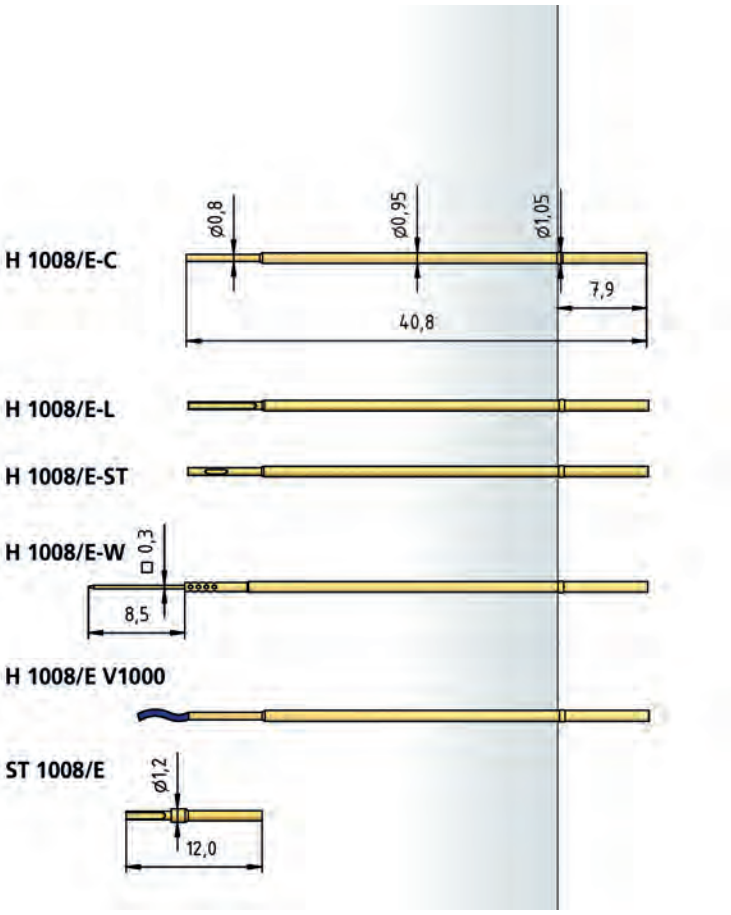
HPL-Test Probe with High Pre-Loaded Spring Force 50 mil / 1.27mm

BENEFIT	
Contacting of assembled, unleaded PCBs	
High initial pressure	
Large penetration depth	
MECHANICAL DATA	
Center	1.27 mm / 50 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	1.40 N
Spring Force at Working Travel	2.00 N
ELECTRICAL DATA	
Max. Current Rating	2.0...3.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Bronze, gold-plated
Wire AWG 30 (Blue)	Copper, silver-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.96...0.98 mm
with pressed-in Ring	1.02 mm
HGW 2372 (Glass filled Material)	0.97...0.99 mm
with pressed-in Ring	1.03 mm

TIP STYLE · DIAMETER · PLATING

				
A	**A**	**B**	**BST2**	**D**
0.50C Au	0.90 Au	0.50 Au	0.50 Au	0.50C Au
				
C	**F**	**H**	**H1**	**LG**
0.90C Au	0.60C Au	0.50 Au 0.90C Au	0.50 Au	0.40 Au
				
Q	**V**	**V1**	**V4**	**VL2**
0.50 Au	0.50 Au	0.50 Au	0.50 Au	0.50 Au





HOW TO ORDER

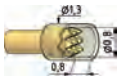
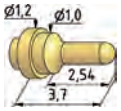
1008/E	-	F	-	2.0 N	-	H	-	Au	-	0.6	C
1		2		3		4		5		6	7

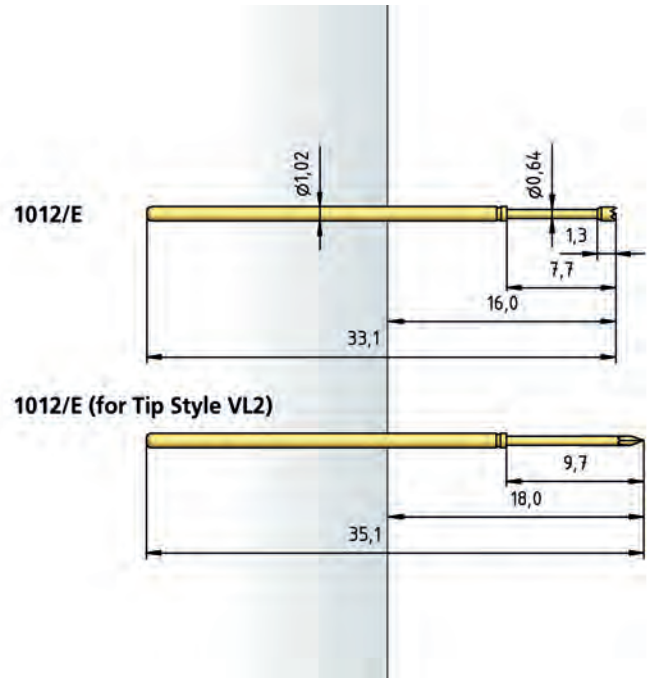
1 Series 2 Tip Style 3 Spring Force 4 High pre-loaded Spring Force
5 Tip Plating 6 Tip Diameter 7 Tip Material (only for CuBe)

HPL-Test Probe with High Pre-Loaded Spring Force 75 mil / 1.91mm

Series 1012/E

TIP STYLE · DIAMETER · PLATING

				
A	**A6**	**B**	**BD**	**BST1**
1.20C Au	1.20 Au	0.64 Au	0.61C Au	0.64 Au
				
BST2	**C**	**CS1**	**D**	**D**
0.64 Au	1.00 Au 1.20 Au	0.80/1.30C Au/POM	0.50C Au	0.64C Au
				
D3	**F**	**G**	**H**	**H**
0.50C Au	0.90C Au	1.15 Au	0.64 Au	1.00 Au 1.20 Au
				
H1	**K**	**M1**	**M6**	**N**
0.64 Au	1.20 Au	1.20 Au	1.30 Au	0.50 Au
				
Q	**Q**	**Q**	**Q6F**	**Q8**
0.50 Au	0.64 Au	0.80 Au 1.00 Au 1.15 Au	0.64C Au	1.20 Au
				
V	**V1**	**V1**	**V5**	**VL2**
0.64 Au	0.64 Au	0.80 Au	0.64 Au	0.64 Au



BENEFIT	
Contacting of assembled, unleaded PCBs	
High initial pressure	
Large penetration depth	
MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	1.20/ 1.60 N
Spring Force at Working Travel	2.00/ 2.80 N
ELECTRICAL DATA	
Max. Current Rating	3.0...4.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.30 mm
with pressed-in Ring	1.36 mm
HGW 2372 (Glass filled Material)	1.32 mm
with pressed-in Ring	1.37 mm

Receptacles see page 76

HOW TO ORDER

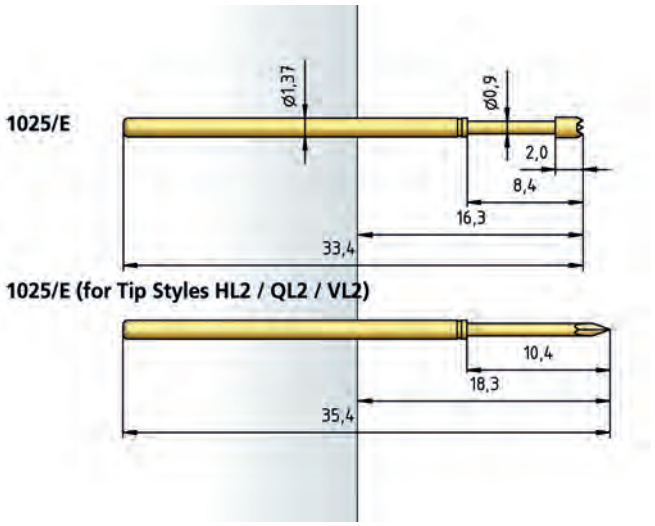
1012/E	-	F	-	2.8 N	-	H	-	Au	-	0.9	C
1		2		3		4		5		6	7

1 Series 2 Tip Style 3 Spring Force 4 High pre-loaded Spring Force
5 Tip Plating 6 Tip Diameter 7 Tip Material (only for CuBe)

Series 1025/E

HPL-Test Probe with High Pre-Loaded Spring Force 100 mil / 2.54mm

BENEFIT	
Contacting of assembled, unleaded PCBs	
High initial pressure	
Large penetration depth	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	1.30/ 2.00 N
Spring Force at Working Travel	2.00/ 3.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.65 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled Material)	1.67 mm
with pressed-in Ring	1.76 mm



Receptacles see page 77

HOW TO ORDER

1025/E	-	HL2	-	3.0 N	-	H	-	Au	-	0.9	C
1		2		3		4		5		6	7

1 Series 2 Tip Style 3 Spring Force 4 High pre-loaded Spring Force
5 Tip Plating 6 Tip Diameter 7 Tip Material (only for CuBe)

TIP STYLE · DIAMETER · PLATING

A	A6	B	BD	BST1
1.50C Au 2.00C Au	1.50 Au 1.80C Au	0.90 Au	0.90 Au	0.62 Au/Ni

BST2	BST3	C	C1	CS1
0.90 Au	1.60C Au	1.30 Au 1.50C Au 2.00C Au 2.50C Au 3.00C Au	2.30/3.10C Au	1.80/2.25C Au/HTK

CS3	CS8	D1	D	D
1.75/2.40C Au/HTK	1.80/2.80C Au/HTK	0.50 Au 0.64C Au	0.90C Au	1.30 Au 1.50 Au

E	F	F	G	H
1.50 Au	0.90 Au	1.50C Au	1.06 Au 1.30 Au 1.50 Au	0.90 Au

H	H1	HL2	K	M
1.50 Au 1.70 Au 2.50 Au	0.90 Au	0.90C Au	1.70 Au	1.30 Au

M1	M6	N	Q	Q
1.30 Au1.40 Au1.50 Au	1.30 Au1.50 Au	0.50 Au	0.50 Au0.80 Au	1.06 Au1.30 Au1.50 Au

Q5	Q6F	Q8	Q8F	QL2
1.06 Au	0.64C Au	1.50 Au	0.90C Au	1.50 Au

V	V	V1	VL2	V3
0.90 Au/Ni	1.30 Au	0.90 Au	0.90 Au	0.90 Au

V5
0.90 Au

ROTATING TEST PROBES

Rotating Test Probes offer an alternative for the testing of assembled components under unclean conditions.

When the plunger is pressed downwards, its special spiral design causes a rotation, limited to approx. 90°.

This principle allows perfect contacting even when the contact surfaces are dirty or oxidised. In combination with the rotating motion, the tip styles – which are normally aggressive – also allow the use of probes with lower contact pressures.

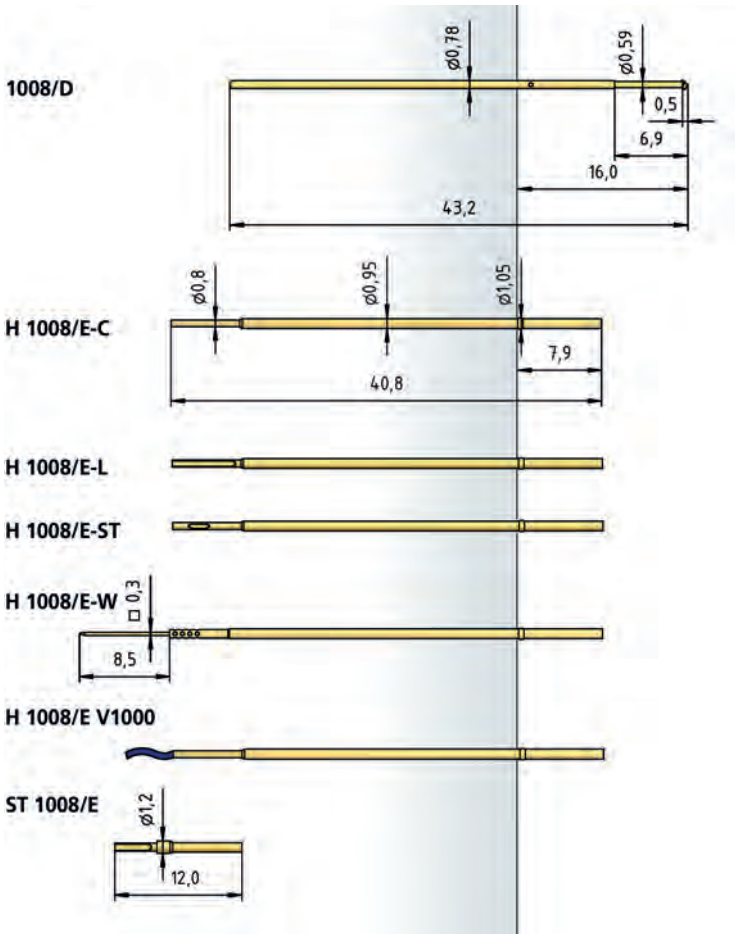
Series 1008/D

ICT Rotating Test Probe 50 mil / 1.27 mm

BENEFIT	
Use in cases of bad soiling, oxydation or flux residues	
Penetration of these platings by rotating movement	
MECHANICAL DATA	
Center	1.27 mm / 50 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	1.00 N
Spring Force at Working Travel	1.50 N
ELECTRICAL DATA	
Max. Current Rating	2.0...3.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, gold-plated
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.96...0.98 mm
with pressed-in Ring	1.02 mm
HGW 2372 (Glass filled Material)	0.97...0.99 mm
with pressed-in Ring	1.03 mm

TIP STYLE · DIAMETER · PLATING

HD
0.90 Au



HOW TO ORDER

1008/D	-	HD	-	1.5 N	-	Au	-	0.9
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

ICT Rotating Test Probe 75 mil / 1.91 mm

Series 1012/D

TIP STYLE · DIAMETER · PLATING

KD
1.20 Au

BENEFIT

Use in cases of bad soiling, oxydation or flux residues

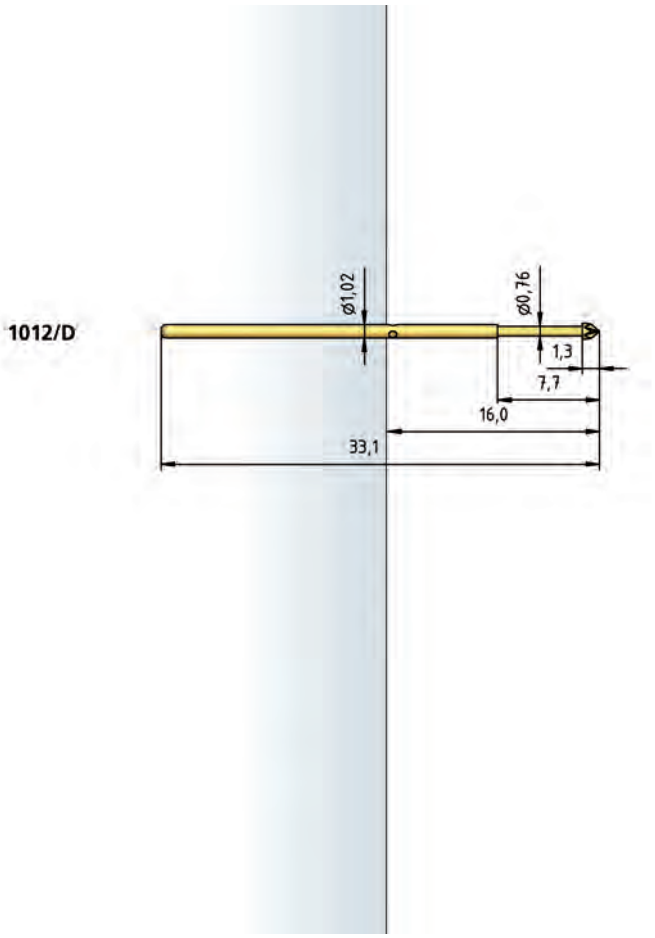
Penetration of these platings by rotating movement

MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	0.50 N
Spring Force at Working Travel	2.00 N

ELECTRICAL DATA	
Max. Current Rating	3.0...4.0 A
Typical Continuity Resistance	≤ 20 mOhm

MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, gold-plated
Receptacle	Bronze, gold-plated

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.30 mm
with pressed-in Ring	1.36 mm
HGW 2372 (Glass filled Material)	1.32 mm
with pressed-in Ring	1.37 mm



Receptacles see page 76

HOW TO ORDER

1012/D	-	KD	-	2.0 N	-	Au	-	1.2
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

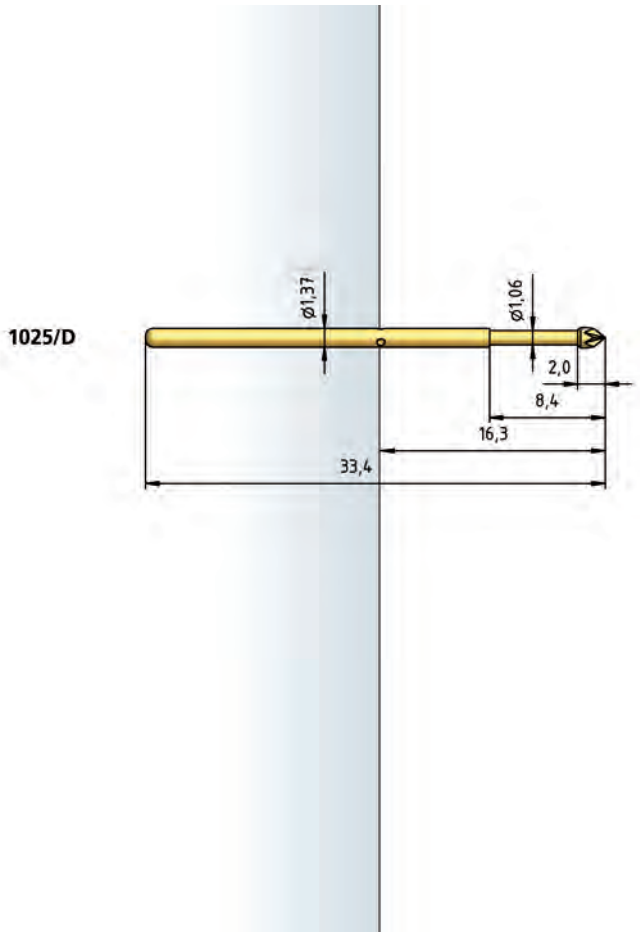
Series 1025/D

ICT Rotating Test Probe 100 mil / 2.54 mm

BENEFIT	
Use in cases of bad soiling, oxydation or flux residues	
Penetration of these platings by rotating movement	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	0.60 N
Spring Force at Working Travel	2.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, gold-plated
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.65 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled Material)	1.67 mm
with pressed-in Ring	1.76 mm

TIP STYLE · DIAMETER · PLATING

KD
1.50 Au



Receptacles see page 77

HOW TO ORDER

1025/D	-	KD	-	2.0 N	-	Au	-	1.5
1		2		3		4		5

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter

FLYING PROBES

**The Flying Probe testers are designed as a thread variant and are suitable for use in Acculogic (Scorpion) and Digitaltest test systems.
A special locking system and extremely high precision of the single components ensure very high test point accuracy.**

SERIES	CENTER	PAGE
5248/G	100 mil / 2.54 mm	92
5257/G	100 mil / 2.54 mm	93

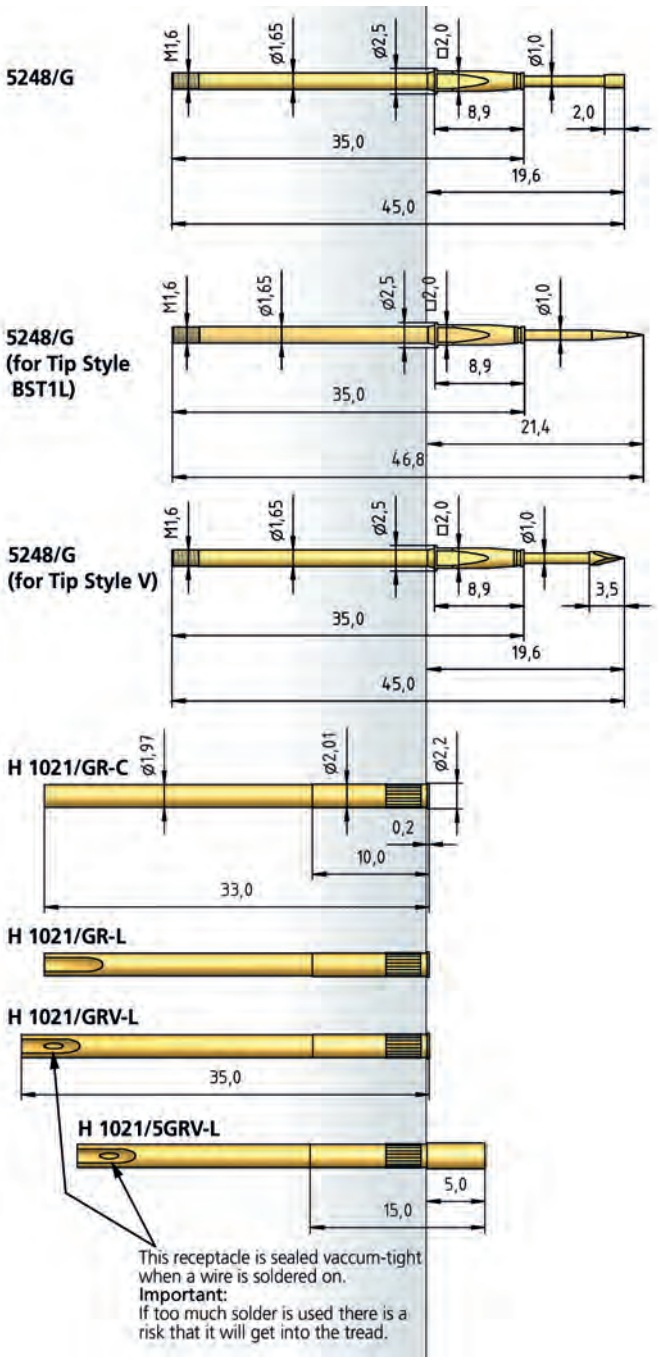
Series 5248/G

Flying Probe 100 mil / 2.54 mm

BENEFIT	
Use in Acculogic flying probe testers (Scorpion) and digital test	
High test point accuracy	
With thread	
MECHANICAL DATA • 5248/G	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	8.00 mm
Working Travel	6.40 mm
Pre-Loaded Spring Force	0.50 N
Spring Force at Working Travel	1.75 N
MECHANICAL DATA • 5248/G-V	
Center	2.54 mm / 100 mil
Full Travel	6.50 mm
Working Travel	5.00 mm
Pre-Loaded Spring Force	0.50 N
Spring Force at Working Travel	1.50 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372	2.03 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 5248/G-2.54-2.0	2.0

TIP STYLE · DIAMETER · PLATING

A	BST1	BST1L	V	VX
1.30 Au	1.00 Au	1.00 Au	1.30 Au	1.30 Au



HOW TO ORDER

5248/	G	-	A	-	1.75 N	-	Au	-	1.3
1	2		3		4		5		6

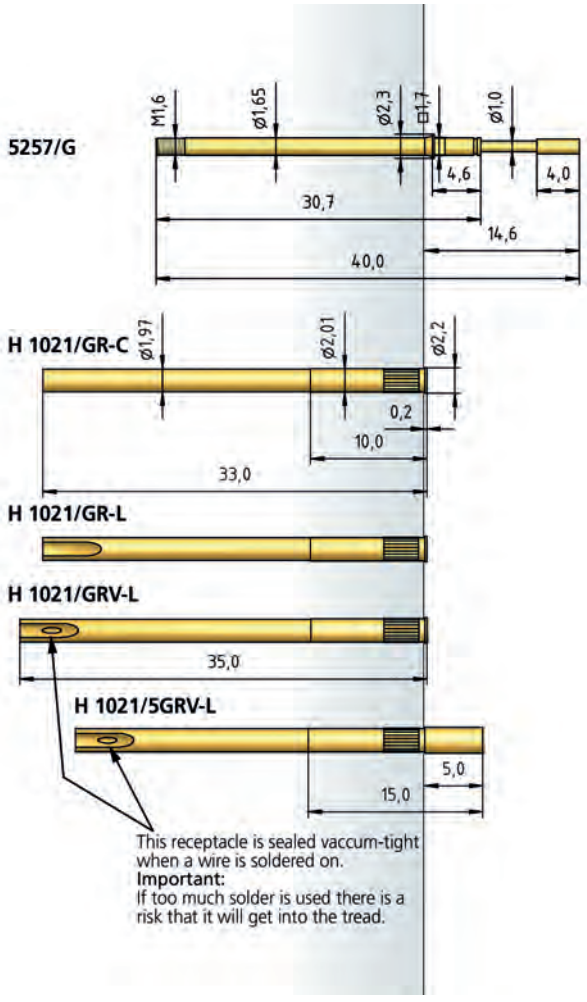
1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

Flying Probe 100 mil / 2.54 mm

Series 5257/G

TIP STYLE · DIAMETER · PLATING

A	BST1	V	VX
1.40 Au	1.00 Au	1.30 Au	1.30 Au



BENEFIT	
Use in Acculogic flying probe testers (Scorpion) and digital test	
High test point accuracy	
With thread	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.60 N
Spring Force at Working Travel	1.75 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372	2.03 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0
WFSB 1021/G-3.5-3.0-Z	3.0
WFSB 1021/G-C2S-3.0-2.5-Z	2.5

HOW TO ORDER

5257/	G	-	A	-	1.75 N	-	Au	-	1.4
1	2		3		4		5		6

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

TEST PROBES WITH THREAD

Test Probes with Thread are mainly used in the automotive supply industry to test cable harnesses.

The thread on the test probe and receptacle prevents the test probe from gradually twisting out of the receptacle, something which is aided by the spontaneous opening of the test module. Different sizes with centers from 1.27 to 4.0 mm with different tip styles and contact pressures provide a basis for almost all connectors which need testing. A constantly increasing range of Test Probes for position tests completes this range of products.

A large selection of screwing tools and torque screwdrivers makes it easy to use these Test Probes with Thread (see page 228). Test conditions and connectors change very quickly in this sector, so both the market and our customers demand new types of test probes with increasing frequency. Thanks to the use of the most up-to-date control technology in our in-house lathe center, we are able to satisfy these demands. We can manufacture test probes and create special solutions to meet our customers' individual needs promptly and with a high level of precision.

Position Test / Push-back Check

Test Probes for the position test check the correct position of contacting elements in connectors (passive push-back test). In contrast to this, during the active push-back test a high defined force is applied to the contacting elements by means of a push-back test probe. This provides a mechanical check on the locking of the contacting elements in the connector and, in the case of an error, evaluates an electrical interruption. The tips are matched to the relevant connector geometry. PTR HARTMANN offers a wide range of different shapes and dimensions.

Checking for Bent Pins

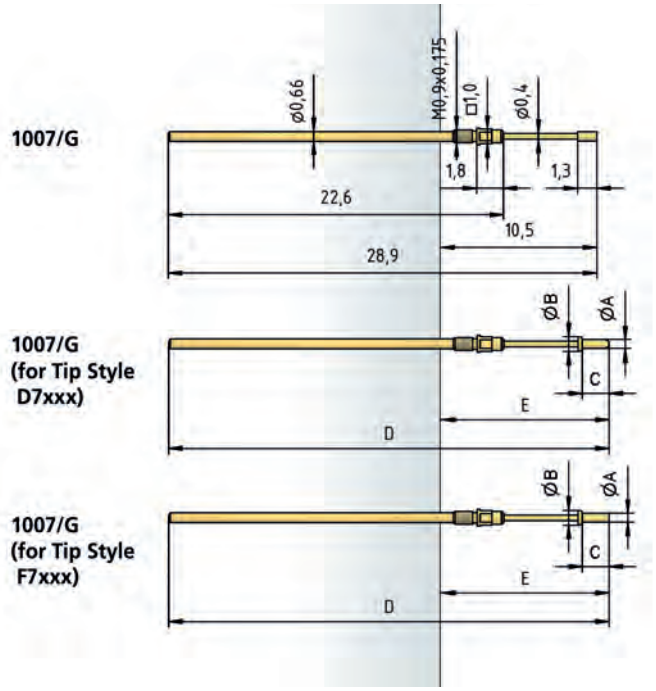
In order to recognise bent plug pins, special tips are fitted with insulating caps which prevent electrical contact with the tip and generate an error message. The dimensions and shape of the insulation cap and tip plunger are designed to match the geometry of the relevant connector.

Series 1007/G

Test Probe with Thread 50 mil / 1.27 mm

BENEFIT	
Test probe for cable harness testing	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
Short center	
MECHANICAL DATA	
Center	1.27 mm / 50 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.20 N
Spring Force at Working Travel	1.10 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 50 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Bronze, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	0.99 mm
HGW 2372 (Glass filled material)	1.00 mm

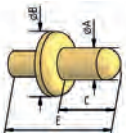
AVAILABLE SCREW TOOLS		
Article Designation	**max. Tip-∅**	**max. Plate-∅**
WFSB 1007/G-1.27-1.0 (A)	1.0	1.0



TIP STYLE · DIAMETER · PLATING

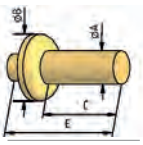
B	C	D	D	F
0.40C Au	0.90C Au	0.40C Au	0.64C Au	0.40C Au

F
0.64C Au



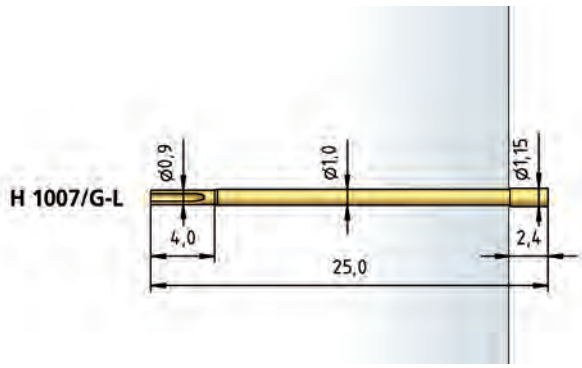
D7xxx
Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
D7001	0.60	1.00	1.80	29.70	11.30	A
D7002	0.60	1.00	2.60	30.50	12.10	A
D7003	0.50	0.90	1.40	29.30	10.90	A
D7008	0.50	0.90	1.00	28.90	10.50	A
D7010	0.50	1.00	3.60	31.50	13.10	A
D7011	0.50	1.00	4.00	31.90	13.50	A
D7012	0.50	0.90	0.80	28.70	10.30	A
D7013	0.50	0.90	2.00	29.90	11.50	A
D7014	0.50	0.90	3.50	31.40	13.00	A
D7015	0.80	1.30	2.60	30.50	12.10	/



F7xxx
0.50C Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
F7016	0.50	1.00	0.60	28.50	10.10	A



HOW TO ORDER

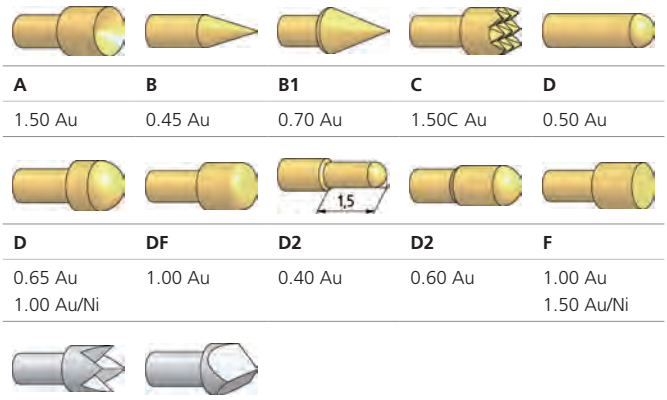
1007/	G	-	B	-	1.1 N	-	Au	-	0.4	C
1	2		3		4		5		6	7

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating
6 Tip Diameter 7 Tip Material (only for CuBe)

Test Probe with Thread 75 mil / 1.91 mm

Series 1010/G

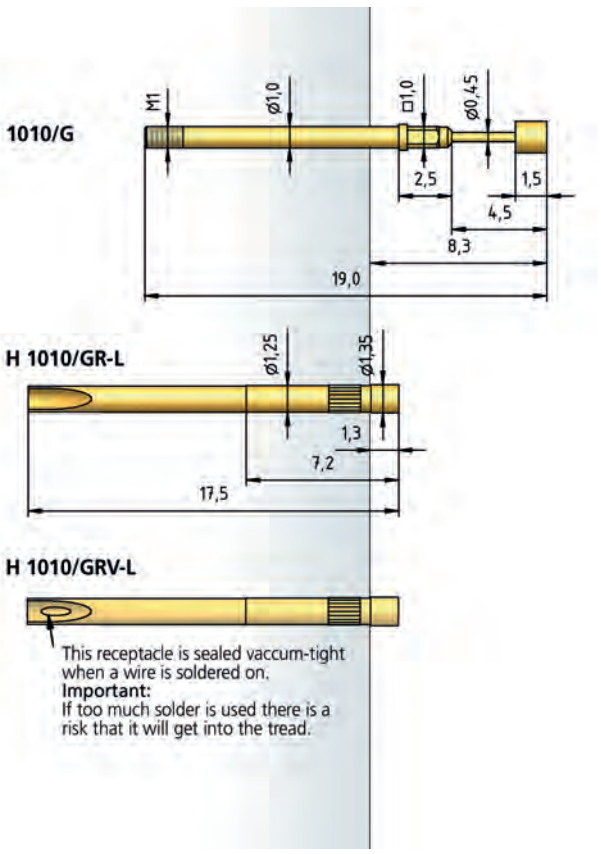
TIP STYLE · DIAMETER · PLATING



A	B	B1	C	D
1.50 Au	0.45 Au	0.70 Au	1.50C Au	0.50 Au

D	DF	D2	D2	F
0.65 Au 1.00 Au/Ni	1.00 Au	0.40 Au	0.60 Au	1.00 Au 1.50 Au/Ni

G	H
1.50 Rh	1.50C Ni



BENEFIT	
Test probe for cable harness testing	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
Short design	
MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-30 °C - +120 °C
Full Travel	3.00 mm
Working Travel	2.40 mm
Pre-Loaded Spring Force	0.30/ 0.50 N
Spring Force at Working Travel	1.50/ 2.25 N
ELECTRICAL DATA	
Max. Current Rating	3.0...4.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel, CuBe, gold-plated
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.25 mm
HGW 2372 (Glass filled material)	1.26 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.20 N
Spring Force at Working Travel (Order Index E)	0.80 N
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1010/G-1.5-1.0	1.0
WFSB 1010/G-2.3-1.5-Z	1.5

08

HOW TO ORDER

1010/	G	-	C	-	0.8 N	E	-	Au	-	1.5	C
1	2		3		4	5		6		7	8

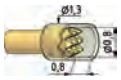
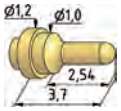
1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

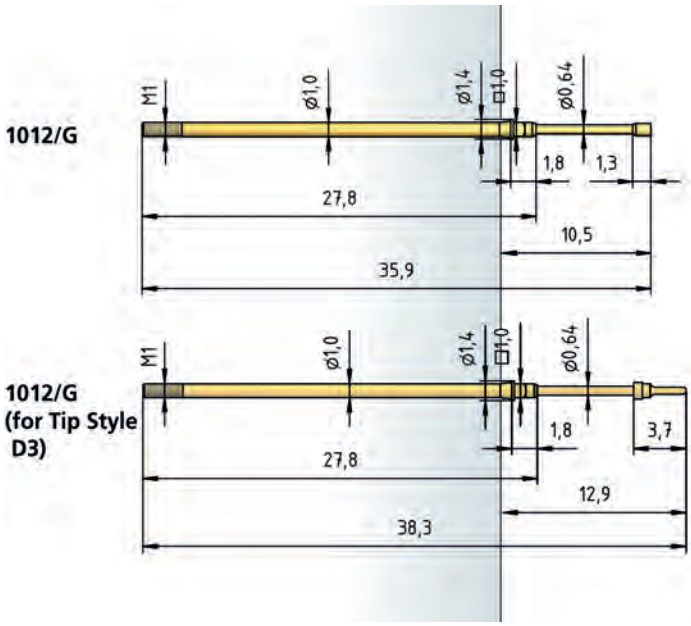
Series 1012/G

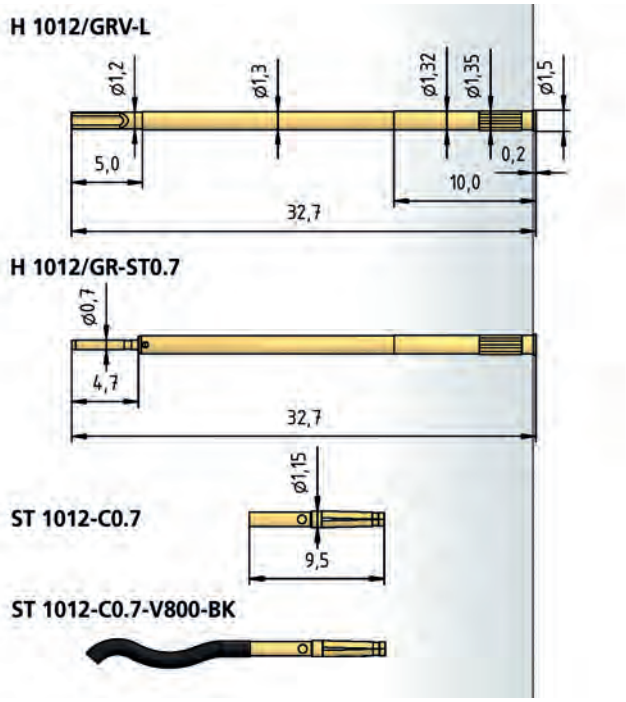
Test Probe with Thread 75 mil / 1.91 mm

BENEFIT	
Test probe for cable harness testing	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	0.20/ 0.30/ 0.40/ 0.50/ 0.70 N
Spring Force at Working Travel	0.60/ 1.00/ 1.50/ 2.00/ 2.80 N
ELECTRICAL DATA	
Max. Current Rating	3.0...4.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe, gold-plated
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.31 mm
HGW 2372 (Glass filled material)	1.33 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1012/G-1.5-1.0	1.0
WFSB 1012/G-1.9-1.5-Z	1.5

TIP STYLE · DIAMETER · PLATING

				
A	**A6**	**B**	**BD**	**BST1**
1.20C Au	1.20 Au	0.64 Au	0.61C Au	0.64 Au
				
BST2	**C**	**CS1**	**D**	**D**
0.64 Au	1.00 Au 1.20 Au	0.80/1.30C Au/POM	0.50C Au	0.64C Au
				
D3	**F**	**G**	**H**	**H**
0.50C Au	0.90C Au	1.15 Au	0.64 Au	1.00 Au 1.20 Au
				
H1	**K**	**M1**	**M6**	**N**
0.64 Au	1.20 Au	1.20 Au	1.30 Au	0.50 Au
				
Q	**Q**	**Q**	**Q8**	**V**
0.50 Au	0.64 Au	0.80 Au 1.00 Au 1.15 Au	1.20 Au	0.64 Au
				
V1	**V1**	**V5**		
0.64 Au	0.80 Au	0.64 Au		





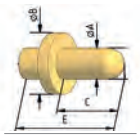
HOW TO ORDER

1012/	G	-	A	-	1.5 N	-	Au	-	1.2	C
1	2		3		4		5		6	7

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating
6 Tip Diameter 7 Tip Material (only for CuBe)

Test Probe with Thread 75 mil / 1.91 mm for Position Test

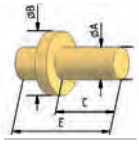
Series 1012/G NEW



Dxxxx

Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
D0620	0.60	1.50	2.00	37.10	11.70	B
D0625	0.60	1.50	2.50	37.60	12.20	B
D0630	0.60	1.50	3.00	38.10	12.70	B
D0636	0.60	1.50	3.60	38.70	13.30	B
D0641	0.60	1.50	4.10	39.20	13.80	B
D0646	0.60	1.50	4.60	39.70	14.30	B
D0651	0.60	1.50	5.10	40.20	14.80	B
D1004	0.50	1.00	1.50	36.60	11.20	A
D1005	0.60	1.20	2.00	37.10	11.70	B
D1008	0.43	1.50	2.50	37.60	12.20	B



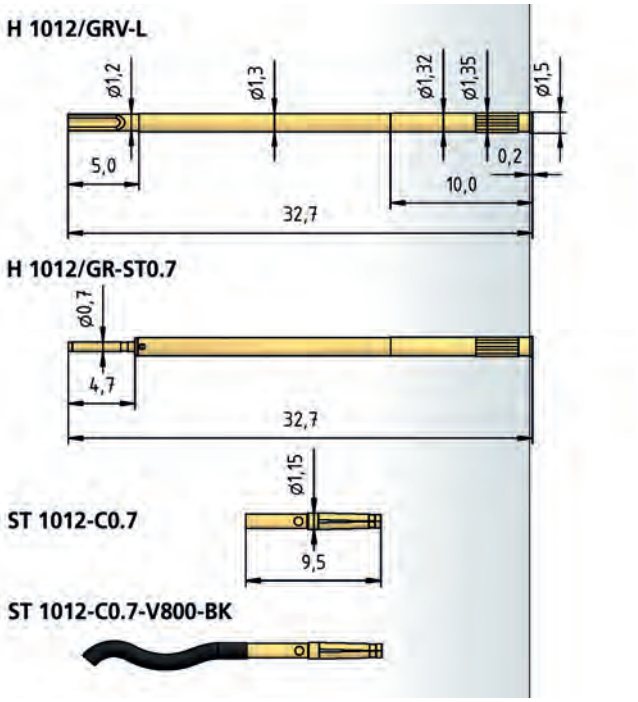
Fxxxx

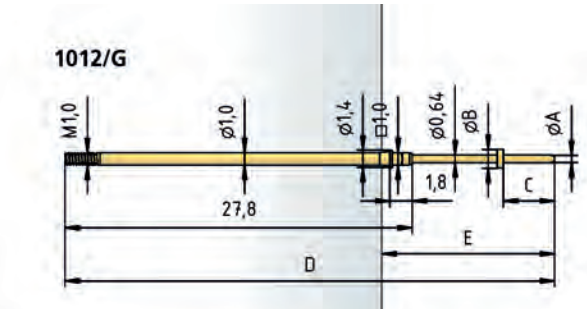
Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
F1409	0.60	1.40	0.60	35.30	9.90	B
F1410	1.10	1.60	1.40	36.10	10.70	B
F1411	0.80	1.50	1.00	35.70	10.30	B

BENEFIT	
Test probe for cable harness testing	
Test probe geometry for position test	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
Fast wiring system	
MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.40 mm
Working Travel	4.30 mm
Pre-Loaded Spring Force	0.20/ 0.30/ 0.40/ 0.50/ 0.70 N
Spring Force at Working Travel	0.60/ 1.00/ 1.50/ 2.00/ 2.80 N
ELECTRICAL DATA	
Max. Current Rating	3.0...4.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe, gold-plated
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.31 mm
HGW 2372 (Glass filled material)	3.33 mm

AVAILABLE SCREW TOOLS		
Article Designation	**max. Tip-∅**	**max. Plate-∅**
WFSB 1012/G-1.5-1.0 (A)	1.0	1.0
WFSB 1012/G-1.9-1.5-Z (B)	1.5	1.5





HOW TO ORDER

1012/	G	-	D1005	-	1.5 N	-	Au	-	0.60
1	2		3		4		5		6

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

Series 1015/G

Test Probe with Thread 100 mil / 2.54 mm

BENEFIT	
Test probe for cable harness testing	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
Fast wiring system	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.40 mm
Working Travel	3.50 mm
Pre-Loaded Spring Force	0.25/ 0.40/ 0.40/ 0.30/ 0.70/ 0.60 N
Spring Force at Working Travel	0.70/ 1.00/ 1.50/ 1.70/ 2.50/ 3.00 N
ELECTRICAL DATA	
Max. Current Rating	3.0...5.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe, Plastic
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.68...1.70 mm
HGW 2372 (Glass filled material)	1.68...1.70 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1015/G-2.54-1.5	1.5
WFSB 1015/G-2.54-1.8	1.8

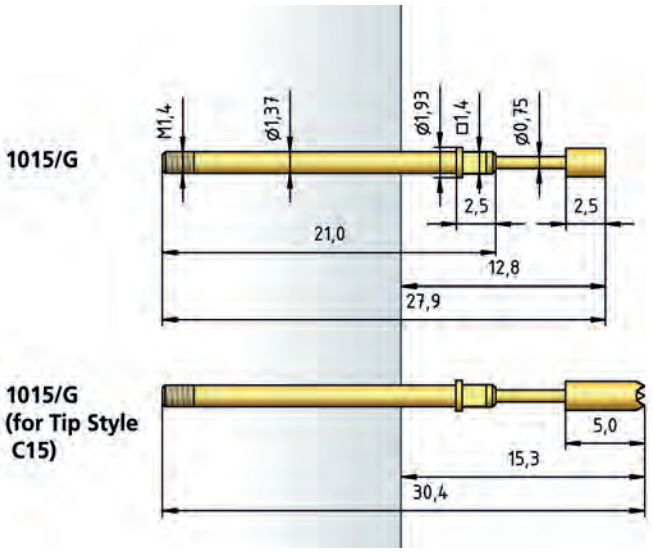
TIP STYLE · DIAMETER · PLATING

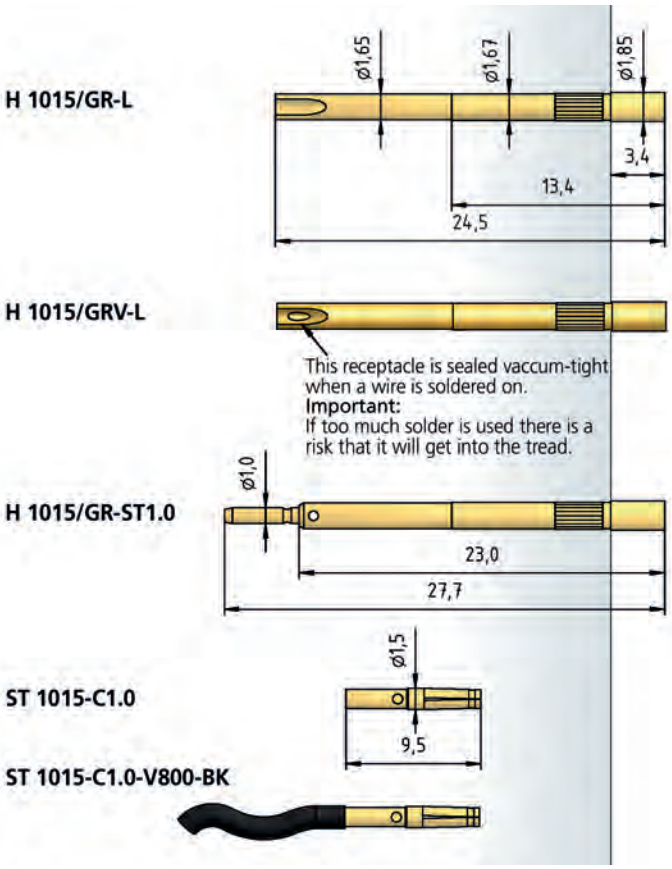
A	A6	B	BS	C
1.00 Au 1.80 Au/Ni	1.80C Au	0.75 Au/ Ni/Rh	0.38 Au	1.00 Au 1.30C Au 1.80C Au/Ni 2.30 Rh

C1S	C2S	C15	D	D
0.90/1.37 Au/ HTK	1.20/1.80 Au/ HTK	1.80 Au	0.50 Ni	0.60C Au 0.65C Au/Ni 0.75 Au/Rh

D	E	F	F	G
1.25 Au/Ni	1.80 Au/Ni	0.75 Rh	1.50C Au 1.80 Rh	1.30 Rh 1.80 Au/Ni

H	K	Q
1.30 Rh 1.80 Au	1.80 Au/Ni	0.75C Au





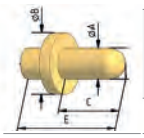
HOW TO ORDER

1015/	G	-	C	-	1.5 N	-	Au	-	1.3	C
1	2		3		4		5		6	7

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating
6 Tip Diameter 7 Tip Material (only for CuBe)

Test Probe with Thread 100 mil / 2.54 mm for Position Test

Series 1015/G

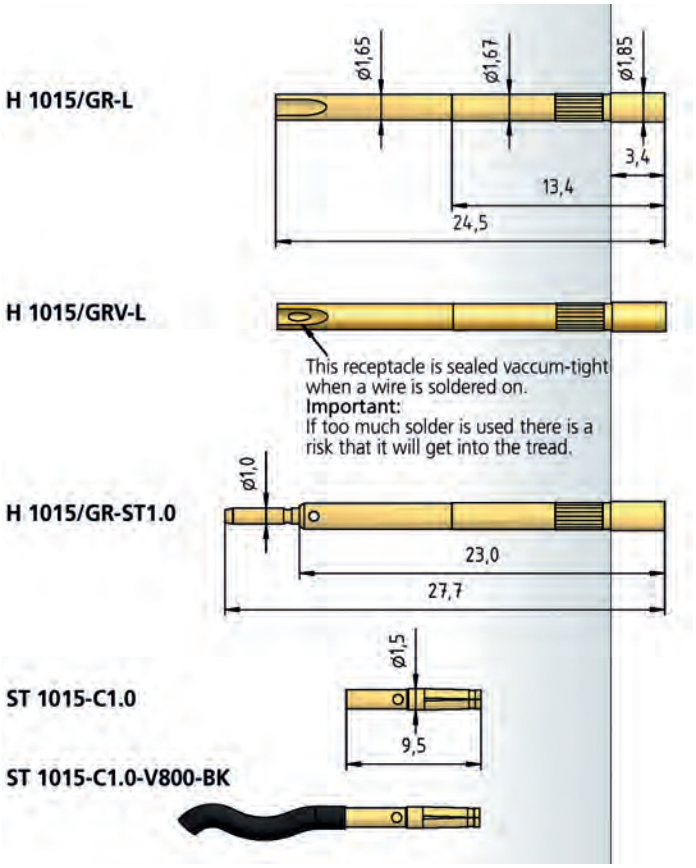


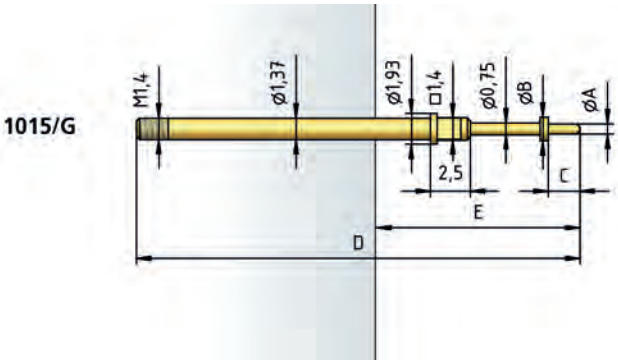
Dxxxx

Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
D1001	0.65	1.50	4.00	29.90	14.80	A
D1002	0.65	1.50	2.80	28.70	13.60	A
D1003	0.65	1.50	3.30	29.20	14.10	A
D1004	0.65	1.50	3.40	29.30	14.20	A
D1005	0.70	1.50	4.00	29.90	14.80	A
D1006	0.65	1.40	5.50	31.40	16.30	A
D0615	0.65	1.50	1.50	27.40	12.30	A
D0620	0.65	1.50	2.00	27.90	12.80	A
D0625	0.65	1.50	2.50	28.40	13.30	A
D0630	0.65	1.50	3.00	28.90	13.80	A
D0635	0.65	1.50	3.50	29.40	14.30	A
D0645	0.65	1.50	4.50	30.40	15.30	A
D0650	0.65	1.50	5.00	30.90	15.80	A

BENEFIT	
Test probe for cable harness testing	
Test probe geometry for position test	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
Fast wiring system	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.40 mm
Working Travel	3.50 mm
Pre-Loaded Spring Force	0.25/ 0.40/ 0.40/ 0.30/ 0.70/ 0.60 N
Spring Force at Working Travel	0.70/ 1.00/ 1.50/ 1.70/ 2.50/ 3.00 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, gold-plated
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.68...1.70 mm
HGW 2372 (Glass filled material)	1.68...1.70 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Plate-∅**
WFSB 1015/G-2.54-1.5 (A)	1.5





HOW TO ORDER

1015/	G	-	D1001	-	1.5 N	-	Au	-	0.65
1	2		3		4		5		6

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

Series 1021/G

Test Probe with Thread 100 mil / 2.54 mm

BENEFIT	
Test probe for cable harness testing	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.30/ 0.40/ 0.50/ 0.70/ 1.00/ 1.00 N
Spring Force at Working Travel	0.70/ 1.00/ 1.50/ 2.25/ 3.00/ 5.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 25 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel, Plastic
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372 (Glass filled material)	2.03 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.50/ 0.50/ 0.80 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.25/ 3.00 N
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0
WFSB 1021/G-3.5-3.0-Z	3.0
WFSB 1021/G-C2S-3.0-2.5-Z	2.5

Receptacles see page 113

HOW TO ORDER

1021/	5	G	-	F	-	1.5 N	E	-	Au	-	2.0
1	2	3		4		5	6		7		8

1 Series 2 Collar Height 3 Threaded Design 4 Tip Style 5 Spring Force 6 High Temperature 7 Tip Plating 8 Tip Diameter

TIP STYLE · DIAMETER · PLATING

A

2.00 Au/Ni/Rh

A6

1.80C Au
2.00C Au

B

0.65 Ni

B

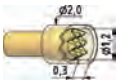
0.80 Au/Ni/Rh
1.00 Au/Ni

BST

0.80 Au/Ni

C

1.30 Au/Ni/Rh
1.40C Au
1.50 Au
1.80 Au/Ni/Rh
2.00 Au/Ni
2.30 Rh
2.50 Au/Ni
3.00 Rh



C1S

1.20/2.00 Au/ HTK

C5S

1.40/2.50 Au/ HTK

D

0.65 Au/Ni

D

0.80 Au
1.00 Au

D

1.30 Au/Ni
1.40 Au
1.80 Ni
2.00 Au

D1

0.65 Au/Ni

F

0.80 Au
1.00 Au/Ni

F

1.40 Au
1.50 Au
1.80 Au
2.00 Au/Ni

F1

0.65 Ni

F4

0.80 Au

G

1.30 Au/Ni
1.80 Au/Rh
2.00 Au

H

1.80 Rh
2.00 Rh

K

1.15 Ni
1.75 Ni
2.00 Rh

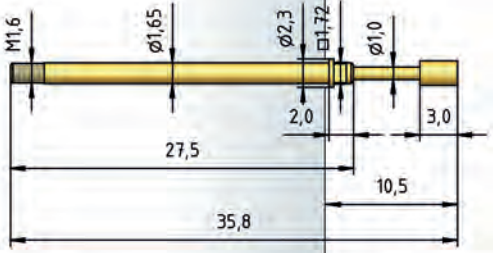
M

1.80 Rh

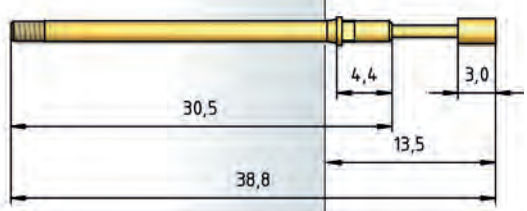
Q

1.00 Ni
1.30 Au/Ni

1021/G

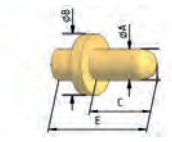


1021/5G



Test Probe with Thread 100 mil / 2.54 mm for Position Test

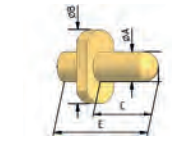
Series 1021/G



Dxxxx

Au

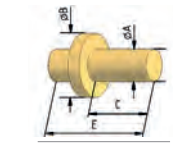
Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
D0615	0.65	1.80	1.50	34.80	9.50	A
D0620	0.65	1.80	2.00	35.30	10.00	A
D0630	0.65	1.80	3.00	36.30	11.00	A
D0635	0.65	1.80	3.50	36.80	11.50	A
D0640	0.65	1.80	4.00	37.30	12.00	A
D0645	0.65	1.80	4.50	37.80	12.50	A
D0650	0.65	1.80	5.00	38.30	13.00	A
D0815	0.80	1.80	1.50	34.80	9.50	A
D0820	0.80	1.80	2.00	35.30	10.00	A
D0825	0.80	1.80	2.50	35.80	10.50	A
D0830	0.80	1.80	3.00	36.30	11.00	A
D0835	0.80	1.80	3.50	36.80	11.50	A
D0840	0.80	1.80	4.00	37.30	12.00	A
D0845	0.80	1.80	4.50	37.80	12.50	A
D0850	0.80	1.80	5.00	38.30	13.00	A
D1005	0.80	2.50	2.80	36.10	10.80	C
D1007	1.00	2.50	2.60	35.90	10.60	C
D1010	0.80	2.50	4.60	37.90	12.60	C
D1011	0.80	1.95	2.80	36.10	10.80	B
D1012	0.65	3.00	3.40	36.70	11.40	D
D1013	0.65	1.80	2.50	35.80	10.50	A
D1014	0.80	2.50	4.00	37.30	12.00	C
D1015	0.80	2.30	3.20	36.50	11.20	C
D1018	0.65	1.50	5.00	38.30	13.00	A
D1019	1.00	1.80	2.00	35.30	10.00	A
D1020	0.65	1.80	3.60	36.90	11.60	A
D1024	0.65	1.50	4.30	37.60	12.30	A
D7017	0.65	1.50	2.70	36.00	10.70	A



Dx9xx

Au

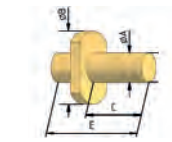
Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
D1906	0.80	3.50	3.20	36.50	11.20	F
D1907	1.00	2.50	2.60	35.90	10.60	F
D1910	0.80	2.50	4.60	37.90	12.60	F
D1914	0.80	2.50	4.00	37.30	12.00	F
D1915	0.80	2.30	3.20	36.50	11.20	E



Fxxxx

Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
F0015	1.00	1.80	1.50	34.80	9.50	A
F0020	1.00	1.80	2.00	35.30	10.00	A
F0025	1.00	1.80	2.50	35.80	10.50	A
F0030	1.00	1.80	3.00	36.30	11.00	A
F0035	1.00	1.80	3.50	36.80	11.50	A
F0040	1.00	1.80	4.00	37.30	12.00	A
F0045	1.00	1.80	4.50	37.80	12.50	A
F0050	1.00	1.80	5.00	38.30	13.00	A
F1001	1.30	2.50	3.00	36.30	11.00	C
F1008	1.00	2.30	3.30	36.60	11.30	C
F1009	1.00	2.50	3.50	36.80	11.50	C
F1016	1.50	3.00	2.50	35.80	10.50	D
F1021	0.70	1.80	2.00	35.30	10.00	A
F1033	0.70	1.80	1.50	34.80	9.50	A



Fx9xx / Au

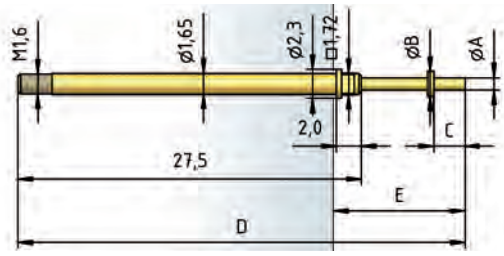
Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
F1901	1.30	2.50	3.00	36.30	11.00	F
F1908	1.00	2.30	3.30	36.60	11.30	E
F1916	1.50	3.00	2.50	35.80	10.50	F

BENEFIT	
Test probe for cable harness testing	
Test probe geometry for position test	
All designs available with collar height 5.0 mm	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.30/ 0.40/ 0.50/ 0.70/ 0.70/ 1.00/ 1.00 N
Spring Force at Working Travel	0.70/ 1.00/ 1.50/ 2.25/ 2.50/ 3.00/ 5.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 25 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel, gold-plated
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372 (Glass filled material)	2.03 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.50/ 0.70/ 1.00 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.25/ 3.00 N

AVAILABLE SCREW TOOLS

Article Designation	max. Plate-∅
WFSB 1021/G-2.54-1.8 (A)	1.8
WFSB 1021/G-2.54-2.0 (B)	2.0
WFSB 1021/G-C2S-3.0-2.5-Z (C)	2.5
WFSB 1021/G-3.5-3.0-Z (D)	3.0
WFSB 1021/G-2.54-1.5-SW (E)	2.3
WFSB 1021/G-3.0-1.5-SW (F)	3.5

1021/G



Receptacles see page 113

HOW TO ORDER

1021/	G	-	D1013	-	1.5 N	E	-	Au	-	0.65
1	2		3		4	5		6		7

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter

Series 1021/GT

Test Probe with Thread 100 mil / 2.54 mm for Position Test

BENEFIT
Test probe for cable harness testing
Test probe geometry for position test
Simplify screwing
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle

MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.30/ 0.40/ 0.50/ 0.70/ 0.70/ 1.00/ 1.00 N
Spring Force at Working Travel	0.70/ 1.00/ 1.50/ 2.25/ 2.50/ 3.00/ 5.00 N

ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 25 mOhm

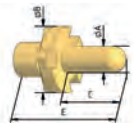
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel, gold-plated
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372 (Glass filled material)	2.03 mm

HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.50/ 0.70/ 1.00 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.25/ 3.00 N

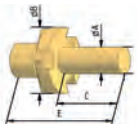
AVAILABLE SCREW TOOLS		
Article Designation	**max. Tip-∅**	**max. Plate-∅**
WFSB 1021/GT-1 (A)	0.0...1.5	2.1...2.7
WFSB 1021/GT-2 (B)	1.6...2.2	2.8...3.9

Receptacles see page 113



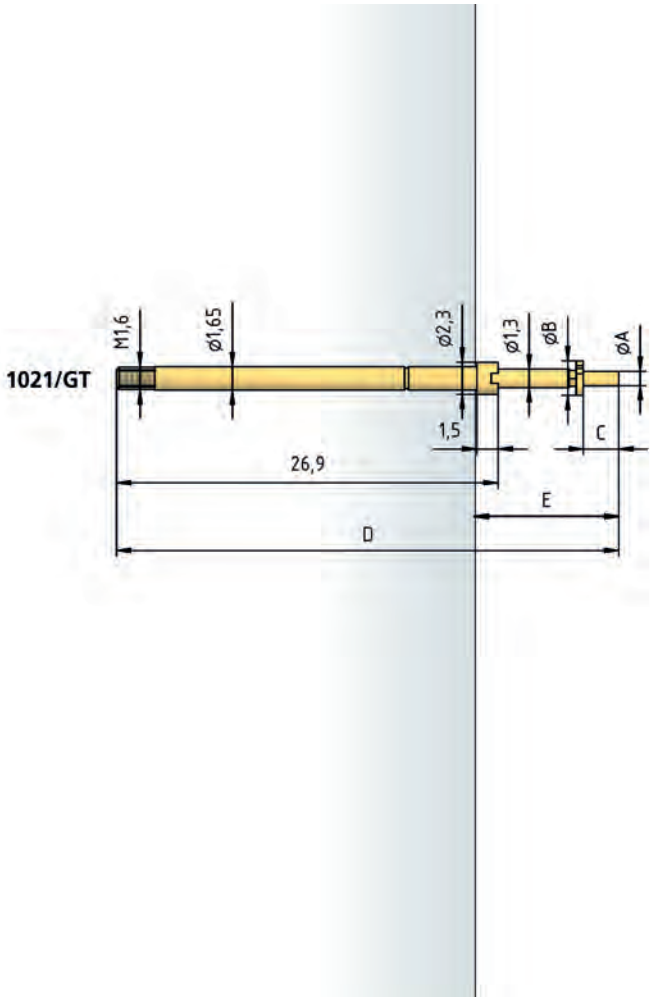
D17xx
Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
D1707	1.00	2.50	2.60	35.50	10.30	A
D1710	0.80	2.50	4.60	37.50	12.30	A
D1714	0.80	2.50	4.00	36.90	11.70	A
D1715	0.80	2.30	3.20	36.10	10.90	A
D1722	0.65	2.10	3.00	35.90	10.70	A
D1725	0.65	2.10	3.60	36.50	11.30	A
D1770	0.65	2.10	2.50	35.40	10.20	A



F17xx
Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
F1708	1.00	2.30	3.30	36.20	11.00	A
F1709	1.00	2.50	3.50	36.40	11.20	A
F1716	1.50	3.00	2.50	35.40	10.20	B
F1723	1.50	2.30	3.30	36.20	11.00	B



HOW TO ORDER

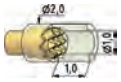
1021/	GT	-	D1707	-	3.0 N	E	-	Au	-	2.5
1	2		3		4	5		6		7

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter

Test Probe with Thread 100 mil / 2.54 mm

Series 1028/G

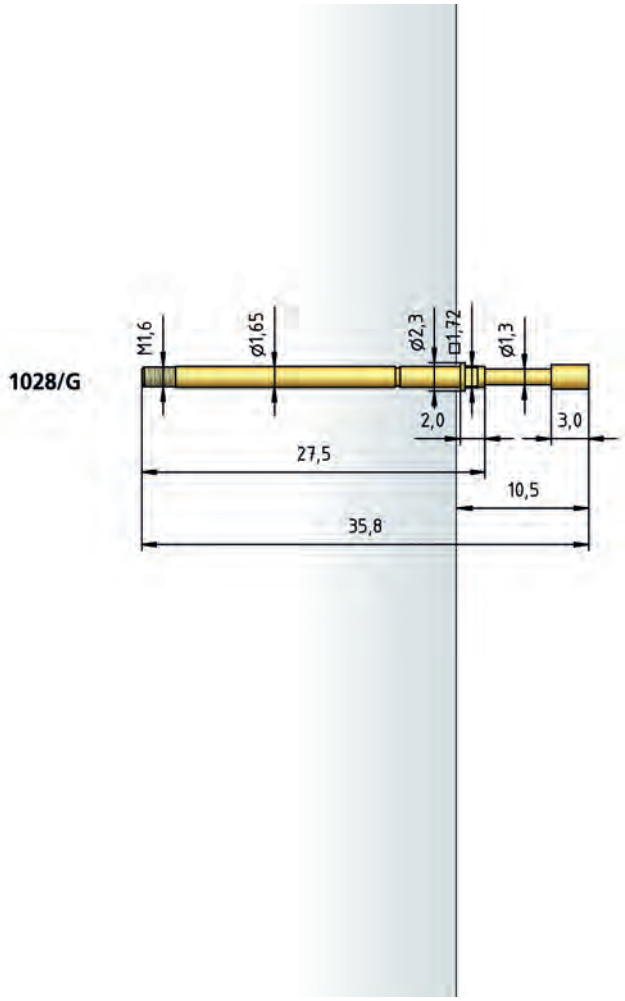
TIP STYLE · DIAMETER · PLATING

A	B	BST	C	CSM
				
1.50 Au 1.80 Ni	1.30 Rh	0.80 Au	1.40 Au 1.80 Rh 2.50 Rh 3.50 Rh	1.00/2.00 Au/ HTK

D	D1	EB	F	G
				
1.40 Au 2.00 Au	0.65 Ni 0.80 Ni	1.80 Au	1.30 Ni	1.30 Ni

G	H	H	K	M6
				
1.50 Rh	1.30 Au	1.40 Au 1.80 Au	1.30 Au 1.75 Ni	2.00 Rh

Q	Q	Q5	Q8	V
				
1.30 Au	1.80 Au 2.00 Au	1.30 Ni	2.30 Ni	1.30 Ni



BENEFIT	
Test probe for cable harness testing	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
High test accuracy	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.30/ 0.40/ 0.60/ 0.80/ 0.90/ 1.10/ 1.30 N
Spring Force at Working Travel	0.70/ 1.00/ 1.50/ 2.25/ 2.50/ 3.00/ 5.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 25 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372 (Glass filled material)	2.03 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.60/ 0.80/ 1.10 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.25/ 3.00 N

AVAILABLE SCREW TOOLS	
Article Designation	**max. Plate-∅**
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0
WFSB 1021/G-C2S-3.0-2.5-Z	2.5
WFSB 1021/G-3.5-3.0-Z	3.0

Receptacles see page 113

08

HOW TO ORDER

1028/	G	-	A	-	1.5 N	E	-	Ni	-	1.8
1	2		3		4	5		6		7

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter

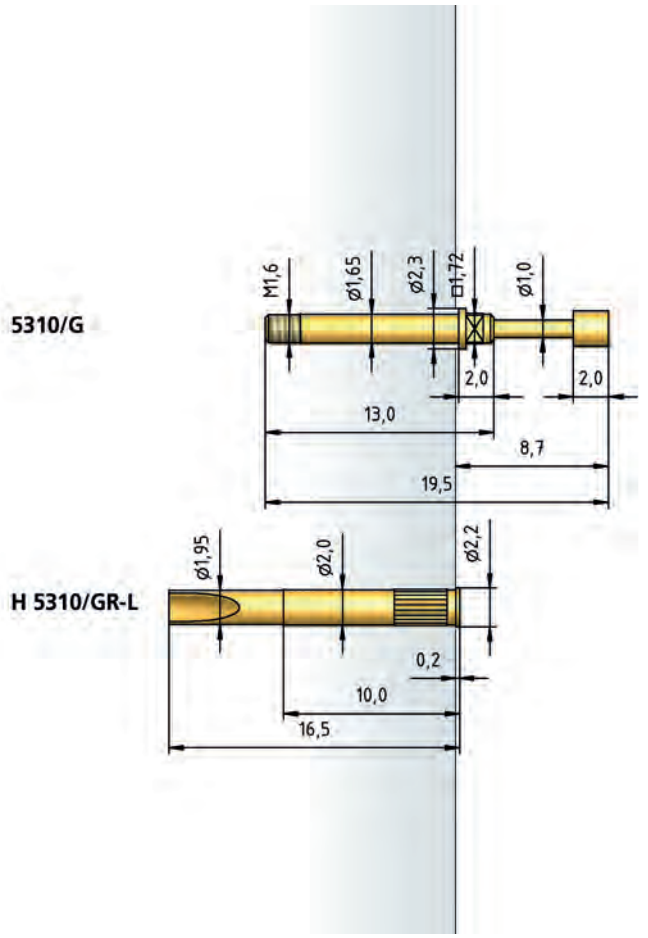
Series 5310/G

Test Probe with Thread 100 mil / 2.54 mm

BENEFIT	
Test probe for cable harness testing	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
Compact Design	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.50 mm
Working Travel	3.50 mm
Pre-Loaded Spring Force	0.30 N
Spring Force at Working Travel	1.50 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372 (Glass filled material)	2.03 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Plate-∅**
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0

TIP STYLE · DIAMETER · PLATING

A	B	C	D1	H
2.00C Au	1.00 Au	2.00C Au	0.80 Au	1.00 Au



HOW TO ORDER

5310/	G	-	A	-	1.5 N	-	Au	-	2.0	C
1	2		3		4		5		6	7

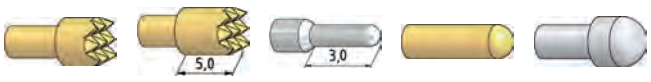
1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter 7 Tip Material (only for CuBe)

Test Probe with Thread 160 mil / 4.0 mm

Series 1060/G

TIP STYLE · DIAMETER · PLATING

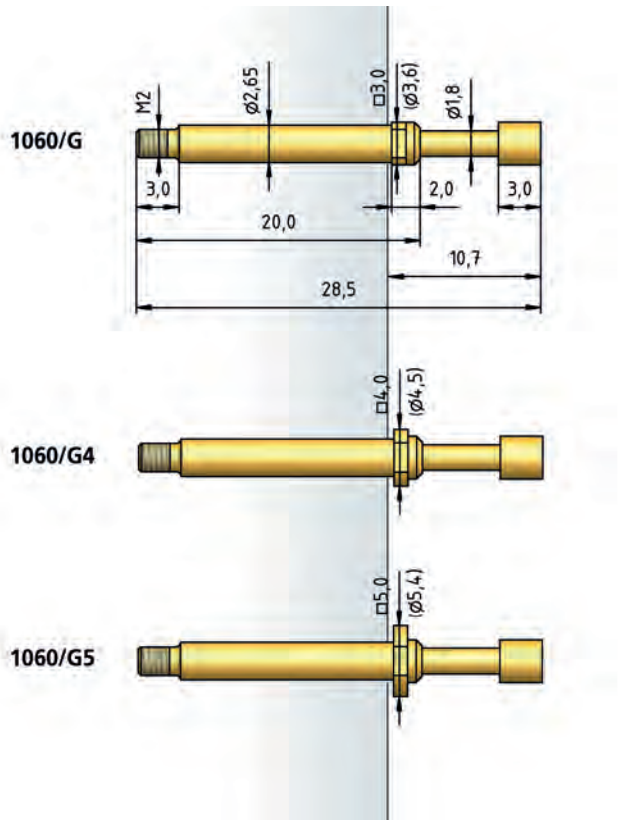
A	A6	B	BA	BA1
2.30 Au 2.50 Ni 3.00 Au 4.00 Au	2.50C Au 4.00C Au	1.80 Ni/Rh	1.80 Au/Ni	1.50 Ni



C	C6	D	D	D
2.30 Au/Ni/Rh 2.50 Au/Ni/Rh 3.00 Au/Ni/Rh 4.00 Au/Ni/Rh	3.50 Au/Ni	1.00 Rh	1.80 Au	2.30 Au/Ni 2.50 Au/Ni

D2	D3	F	F	F3
3.00 Au/Ni	0.80 Rh 1.40 Au	1.80 Au/Ni	2.30 Au/Rh 2.50 Rh 3.00 Au 4.00 Rh	1.00 Rh 1.40 Au

G	H	K	KF
2.30 Rh 2.50 Ni/Rh 4.00 Au/Ni/Rh	2.50 Ni 2.60 Ni 3.00 Ni/Rh 4.20 Rh	1.80 Rh 3.00 Ni	2.60 Ni 4.00 Ni



BENEFIT

Test probe for cable harness testing	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
Very robust	

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.50 mm
Working Travel	4.40 mm
Pre-Loaded Spring Force	0.20/ 0.20/ 0.40/ 0.50/ 0.80/ 0.70 N
Spring Force at Working Travel	0.40/ 0.60/ 1.50/ 2.25/ 3.00/ 5.00 N

ELECTRICAL DATA

Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 30 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	3.00 mm
HGW 2372 (Glass filled material)	3.01 mm

HIGH-TEMPERATURE APPLICATIONS

Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.40/ 0.40/ 0.80 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.25/ 3.00 N

AVAILABLE SCREW TOOLS

Article Designation	max. Tip-∅
WFSB 1060/G-4.0-3.0	3.0
WFSB 1060/G-5.0-4.0-Z	4.0
WFSB 1060/G-6.0-5.0-Z	5.0
WFSB 1060/G4-5.0-4.0	4.0
WFSB 1060/G5-6.0-5.0	5.0

Receptacles see page 114

HOW TO ORDER

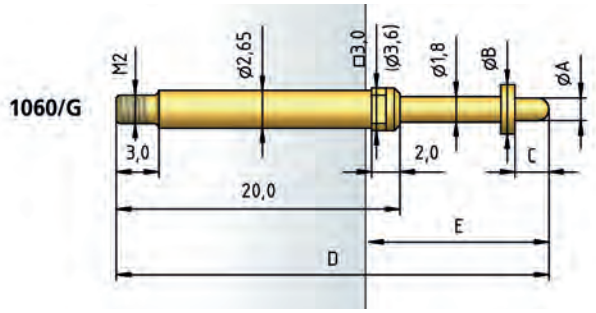
1060/	G	-	A	-	1.5 N	E	-	Au	-	4.0
1	2		3		4	5		6		7

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter

Series 1060/G

Test Probe with Thread 160 mil / 4.0 mm for Position Test

BENEFIT	
Test probe for cable harness testing	
Test probe geometry for position test	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
Very robust	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.50 mm
Working Travel	4.40 mm
Pre-Loaded Spring Force	0.20/ 0.20/ 0.40/ 0.50/ 0.80/ 0.70 N
Spring Force at Working Travel	0.40/ 0.60/ 1.50/ 2.25/ 3.00/ 5.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372 (Glass filled material)	3.01 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.40/ 0.40/ 0.80 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.25/ 3.00 N
AVAILABLE SCREW TOOLS	
Article Designation	**max. Plate-∅**
WFSB 1060/G-4.0-3.0 (A)	3.5
WFSB 1060/G-5.0-4.0-Z (B)	4.0
WFSB 1060/G-6.0-5.0-Z (C)	5.0
WFSB 1060/G-4.0-2.3-SW (D)	5.0

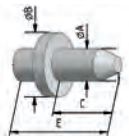


Receptacles see page 114

HOW TO ORDER

1060/	G	-	D1013	-	1.5 N	E	-	Au	-	1.00
1	2		3		4	5		6		7

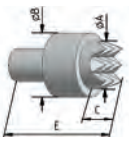
1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter



BAx

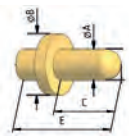
Ni

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
BA2	1.80	4.00	3.00	29.00	11.20	B
BA3	1.80	4.00	2.50	29.00	11.20	B
BA5	1.80	4.00	2.50	28.50	10.70	B
BA7	1.80	4.00	2.10	29.00	11.20	B
BA71	1.80	4.00	2.10	29.00	11.20	B



C42 / Ni

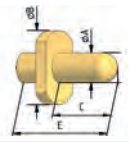
Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
C42	4.00	5.00 mm	1.00	28.50	10.70	C



D1xxx

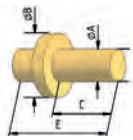
Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
D1001	1.40	3.50	2.40	28.90	11.10	A
D1002	1.40	3.50	4.00	30.50	12.70	A
D1003	1.40	3.50	3.30	29.80	12.00	A
D1004	1.00	3.50	4.00	30.50	12.70	A
D1013	1.00	3.50	2.80	29.30	11.50	A



Dx9xx / Au

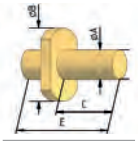
Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
D1904	1.00	3.50	4.00	30.50	12.70	D



F1xxx

Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
F11	1.30	4.70	7.00	33.50	15.70	C
F12	1.30	4.70	5.00	33.50	15.70	C
F13	1.30	4.70	2.00	30.50	12.70	C
F14	2.60	4.00	1.80	29.00	11.20	B
F33	2.00	4.00	2.50	36.00	18.70	B
F40	1.50	4.00	2.65	28.50	10.70	B
F41	4.00	4.70	2.00	28.50	10.70	C
F1007	1.30	4.70	5.30	31.80	14.00	C
F1008	1.40	3.50	2.00	28.50	10.70	B
F1009	4.00	5.00	2.00	28.50	10.70	C
F1010	1.40	3.50	1.70	28.20	10.40	B
F1011	2.30	3.50	2.00	28.50	10.70	B
F1012	1.40	3.50	3.00	29.50	11.70	B
F1015	2.30	3.50	1.80	28.30	10.50	B
F1016	1.30	4.70	3.60	30.10	12.30	C
F1017	1.30	4.70	2.70	29.20	11.40	C
F1018	1.80	4.50	1.50	28.00	10.20	C



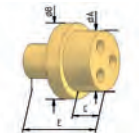
Fx9xx

Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
F1907	1.30	4.70	5.30	31.80	14.00	D
F1909	4.00	5.00	2.00	28.50	10.70	D
F1916	1.30	4.70	3.60	30.10	12.30	D
F1917	1.30	4.70	2.70	29.20	11.40	D
F1918	1.80	4.50	1.50	28.00	10.20	D

Test Probe with Thread 160 mil / 4.0 mm for Position Test

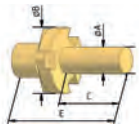
Series 1060/GT



F16xx

Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
F1609	4.00	5.00	2.00	28.30	10.50	A
F1633	5.45	8.50	1.50	28.50	10.70	A

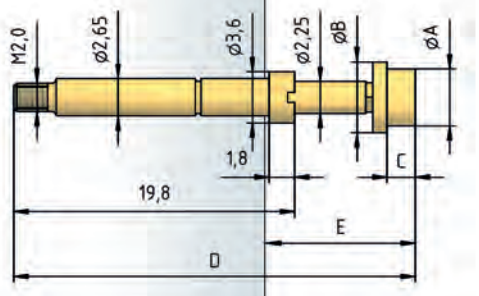


F17xx

Au

Tip Style	Tip-∅ mm A	Plate-∅ mm B	Tip Length mm C	Overall length mm D	Extension Height mm E	Available Screw Tools
F1717	1.30	4.70	2.70	29.00	11.20	B
F1734	1.50	6.00	5.50	31.80	14.00	B

1060/GT



BENEFIT
Test probe for cable harness testing
Test probe geometry for position test
Simplify screwing
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle

MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.20/ 0.20/ 0.40/ 0.50/ 0.80/ 0.70 N
Spring Force at Working Travel	0.40/ 0.60/ 1.50/ 2.25/ 3.00/ 5.00 N

ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 30 mOhm

MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372 (Glass filled material)	3.01 mm

HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.40/ 0.40/ 0.80 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.25/ 3.00 N

AVAILABLE SCREW TOOLS		
Article Designation	**max. Tip-∅**	**max. Plate-∅**
WFSB 1021/GT-1 (A)	from 3.3	from 3.5
WFSB 1060/GT-1 (B)	0.0...3.3	from 4.0

Receptacles see page 114

HOW TO ORDER

1060/	GT	-	F1717	-	1.5 N	E	-	Au	-	1.3
1	2		3		4	5		6		7

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter

Series 1061/G

Test Probe with Thread 160 mil / 4.0 mm

BENEFIT
Test probe for cable harness testing
Increased installation height
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle
Long full travel

MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	7.00 mm
Working Travel	5.60 mm
Pre-Loaded Spring Force	0.50/ 1.00 N
Spring Force at Working Travel	1.50/ 3.00 N

ELECTRICAL DATA	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 35 mOhm

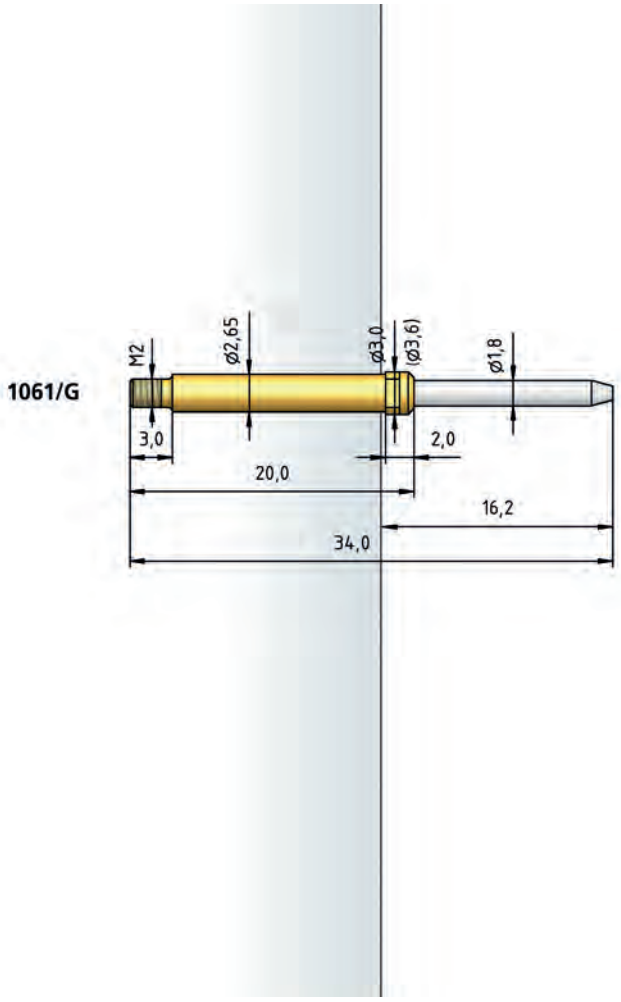
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372 (Glass filled material)	3.01 mm

AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1060/G-4.0-3.0	3.0

TIP STYLE · DIAMETER · PLATING

B	BA
1.80 Ni	1.80 Rh



Receptacles see page 114

HOW TO ORDER

1061/	G	-	B	-	1.5 N	-	Ni	-	1.8
1	2		3		4		5		6

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

Test Probe with Thread 160 mil / 4.0 mm

Series 5110/G

TIP STYLE · DIAMETER · PLATING

C	D	D1	E	F
2.30C Au 3.50C Au	2.30C Au	2.30C Au	2.30C Au	2.30C Au

K2
2.30C Au

BENEFIT

Test probe for cable harness testing
Compact design
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	3.50 mm
Working Travel	2.80 mm
Spring Force at Working Travel	see High-Temperature Applications

ELECTRICAL DATA

Max. Current Rating	10.0 A
Typical Continuity Resistance	≤ 10 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

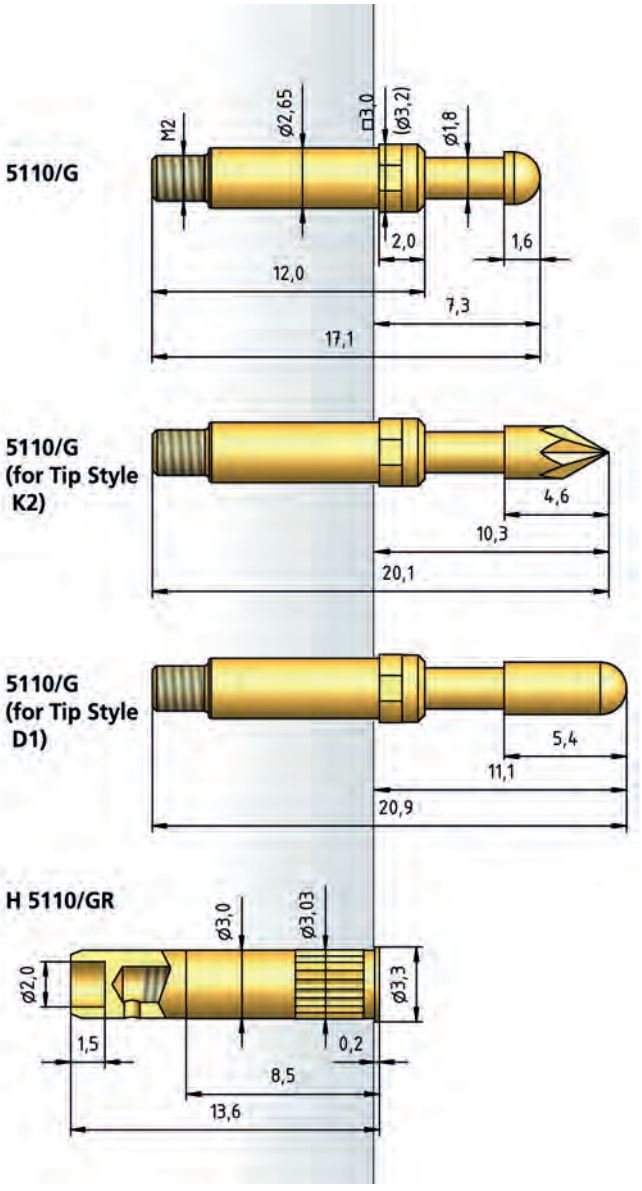
HP 2361.1 (Trolitax)	3.10 mm
HGW 2372 (Glass filled material)	3.12 mm

HIGH-TEMPERATURE APPLICATIONS

Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.25/ 0.30/ 0.45/ 0.50/ 1.00 N
Spring Force at Working Travel (Order Index E)	0.80/ 1.20/ 1.50/ 2.50/ 3.50 N

AVAILABLE SCREW TOOLS

Article Designation	max. Tip-∅
WFSB 1060/G-4.0-3.0	3.0
WFSB 1060/G-5.0-4.0-Z	4.0
WFSB 1060/G-6.0-5.0-Z	5.0



HOW TO ORDER

5110/	G	-	D	-	1.5 N	E	-	Au	-	2.3	C
1	2		3		4	5		6		7	8

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

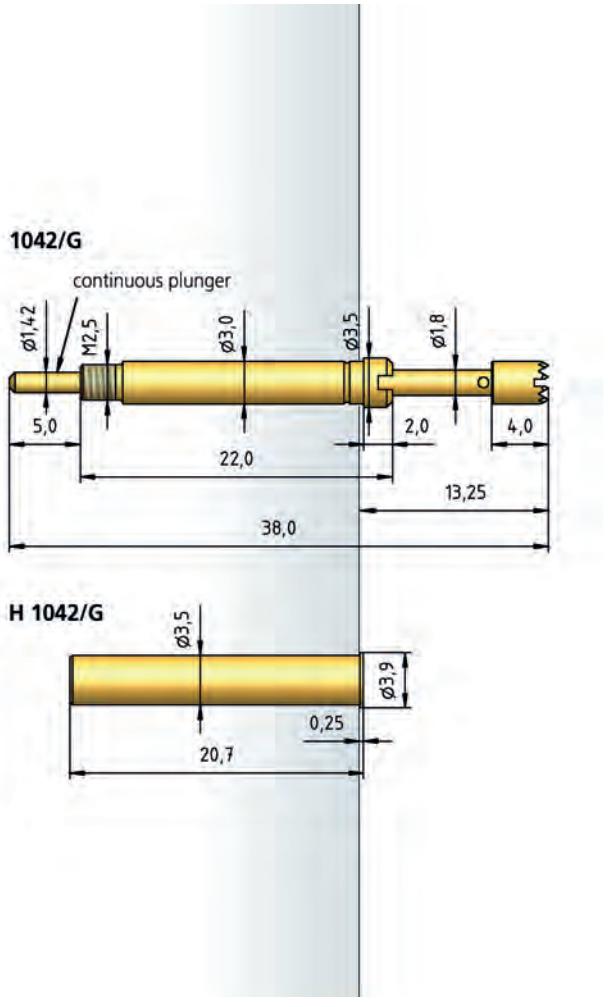
Series 1042/G

Test Probe with Thread 177 mil / 4.50 mm

BENEFIT	
Test probe for cable harness testing	
Screwable - threaded design - against the creeping out of the Test Probe out of the receptacle	
Long full travel	
MECHANICAL DATA	
Center	4.50 mm / 177 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.00 mm
Working Travel	5.60 mm
Pre-Loaded Spring Force	0.40/ 0.80/ 0.80 N
Spring Force at Working Travel	1.50/ 3.00/ 5.00 N
ELECTRICAL DATA	
Connector Receptacle	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 30 mOhm
Connector Plunger	
Max. Current Rating	12.0...15.0 A
Typical Continuity Resistance	≤ 10 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.50 mm
HGW 2372 (Glass filled material)	3.52 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 3012/G-S1.8	all

TIP STYLE · DIAMETER · PLATING

C
3.00C Au
4.00C Au



HOW TO ORDER

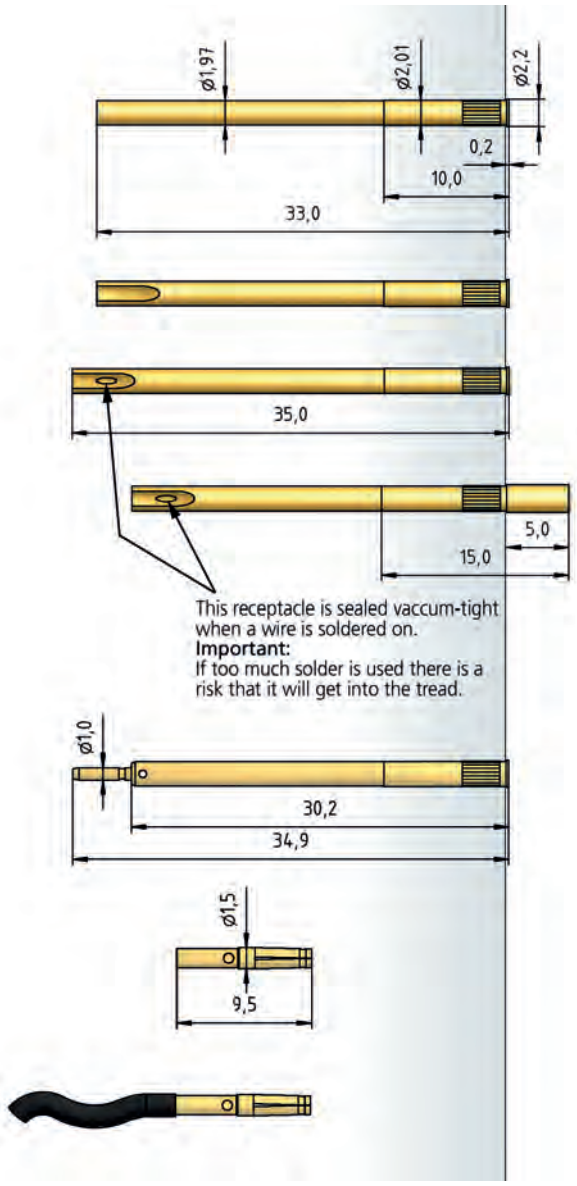
1042/	G	-	C	-	1.5 N	-	Au	-	4.0	C
1	2		3		4		5		6	7

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter 7 Tip Material (only for CuBe)

Receptacles for Series
1021/G · 1021/G for Position Test · 1021/GT for Position Test · 1028/G

Receptacles 1021/G

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372 (Glass filled material)	2.03 mm
MATERIALS	
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated



H 1021/GR-C

H 1021/GR-L

H 1021/GRV-L

H 1021/5GRV-L

H 1021/GR-ST1.0

ST 1015-C1.0

ST 1015-C1.0-V800-BK

Receptacles 1060/G

Receptacles for Series
1060/G · 1060/G for Position Test · 1060/GT for Position Test · 1061/G

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372 (Glass filled material)	3.01 mm
MATERIALS	
Receptacle	Brass, gold-plated
Stranded Wire AWG 20 (Black)	Copper, tin-plated, insulated

H 1060/G-L

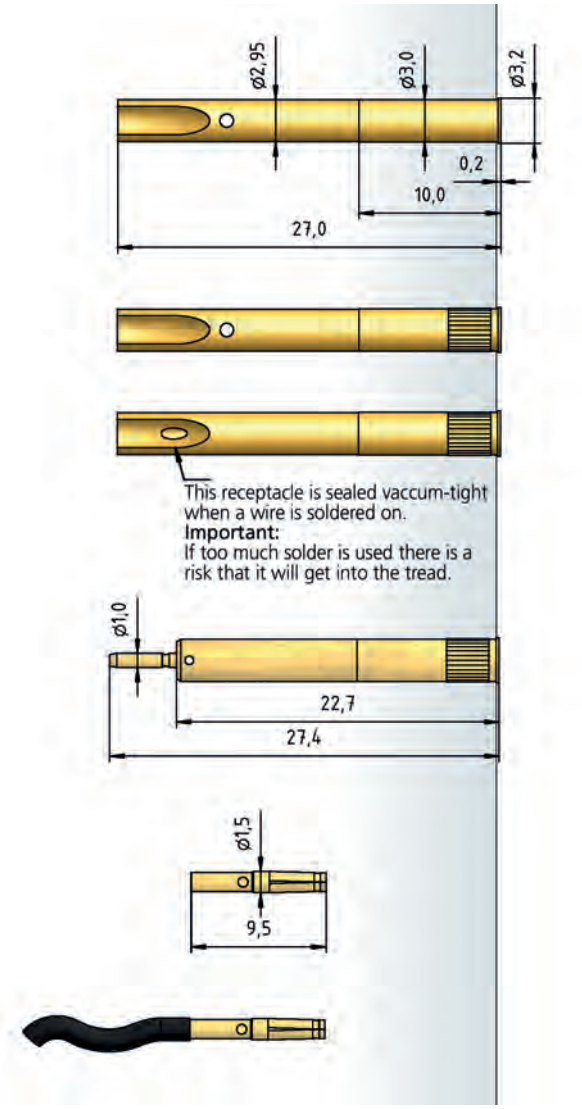
H 1060/GR-L

H 1060/GRV-L

H 1060/GR-ST1.0

ST 1015-C1.0

ST 1015-C1.0-V800-BK



NON-ROTATING TEST PROBES

Non-Rotating Test Probes are always used for the precisely-positioned contact-creation of a connector barrel.

This is normally the case in the testing of flat connectors, as used for example in fuse holders. Contacting then takes place with rectangular so-called spade-shaped tip styles.

Two construction principles are mainly used in order to fix the test probe in position. The purpose of these principles is to create a compulsory guide for the plunger in the test probe barrel. In the simple design, the plunger is guided in the barrel by means of a bolt-groove system. The test probe must be inserted into the receptacle in exactly the right position. If maintenance is needed, the newly-placed test probe must be repositioned.

It is easier to carry out the procedure with a plunger whose end is flattened and has a guide slot at the end of the receptacle. With this principle, the receptacle is placed in position only once. For every new assembly, the test probe is then always returned to the same position via the guide slot of the receptacle.

SERIES	CENTER	PAGE
2053	100 mil / 2.54 mm	118
1053	197 mil / 5.00 mm	119
1021/GV	100 mil / 2.54 mm	120
1053/G	160 mil / 4.00 mm	121

Series 2053

Non-Rotating Test Probe 100 mil / 2.54 mm

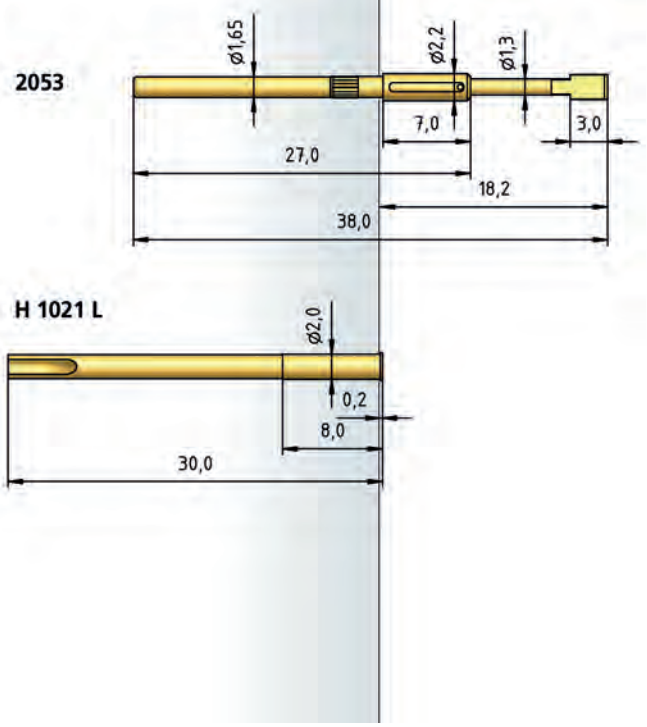
BENEFIT	
Anti-turn feature ensures forced guidance between plunger and barrel	
Knurled section on the barrel guarantees secure fit of the test probe	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.45/ 0.60/ 1.00 N
Spring Force at Working Travel	1.50/ 3.00/ 5.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.98...2.00 mm
HGW 2372	1.98...2.00 mm

TIP STYLE · DIAMETER · PLATING

Y1	Y21	Y1F	Y1F	Y1F
2.00 x 0.58 Au	2.00 x 0.50 Au	1.50 x 0.50 x 2.00 Au	1.50 x 0.58 x 2.00 Au	1.50 x 0.58 x 2.80 Au

Y1F1	Y2F	Y3F	Y6	Y11
1.50 x 0.58 x 2.80 x 2.00 Au	1.50 x 0.50 x 2.00 Rh	1.50 x 0.50 x 2.50 Au	3.00 x 1.55 Au	2.00 x 0.58 Au

Y12	Y21R
1.80 x 0.80 Au	2.00 x 0.50 Au



HOW TO ORDER

2053	-	Y1	-	1.5 N	-	Au	-	2.0x	0.58
1		2		3		4		5	6

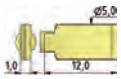
1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Thickness

Non-Rotating Test Probe 160 mil / 4.0 mm

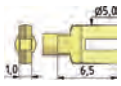
Series 1053

TIP STYLE · DIAMETER · PLATING

CY	Y	Y4	Y3	Y5
6.00x3.00C Au	5.00x1.00C Au 5.00x1.00C Ni	4.00x1.00C Ni	5.00x0.50C Ni	4.00x0.65C Ni



Y8	Y10	Y11	Y14	Y15
5.00x1.00C Au	3.00x0.80C Ni	2.25x0.65C Ni	3.80x0.40C Ni	4.50x1.00C Au



Y16
5.00x1.00C Au

BENEFIT

Anti-turn feature ensures forced guidance between plunger and barrel

Knurled section on the barrel guarantees secure fit of the test probe

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.50/ 0.80/ 1.25 N
Spring Force at Working Travel	1.50/ 3.00/ 5.00 N

ELECTRICAL DATA

Max. Current Rating	8.0 A
Typical Continuity Resistance	≤ 30 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	CuBe
Receptacle	Brass, gold-plated

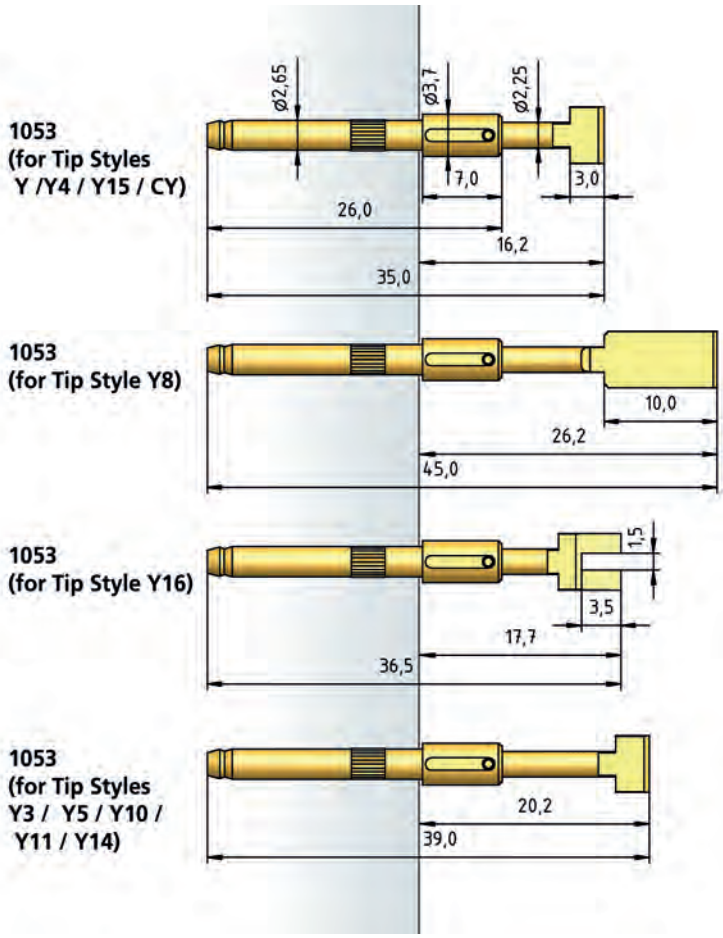
RECOMMENDED DIAMETER OF DRILL

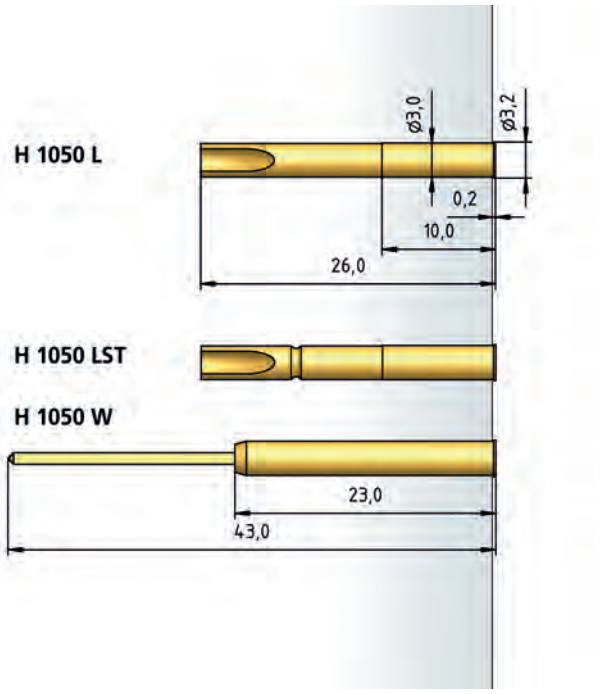
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372	3.00 mm

HIGH-TEMPERATURE APPLICATIONS

Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.50 N
Spring Force at Working Travel (Order Index E)	1.50 N

09





HOW TO ORDER

1053	-	Y	-	1.5 N	E	-	Ni	-	5.0x	1.0	C
1		2		3	4		5		6	7	8

1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating
6 Tip Diameter 7 Tip Thickness 8 Tip Material (only for CuBe)

Series 1021/GV

Non-Rotating Test Probe 100 mil / 2.54 mm

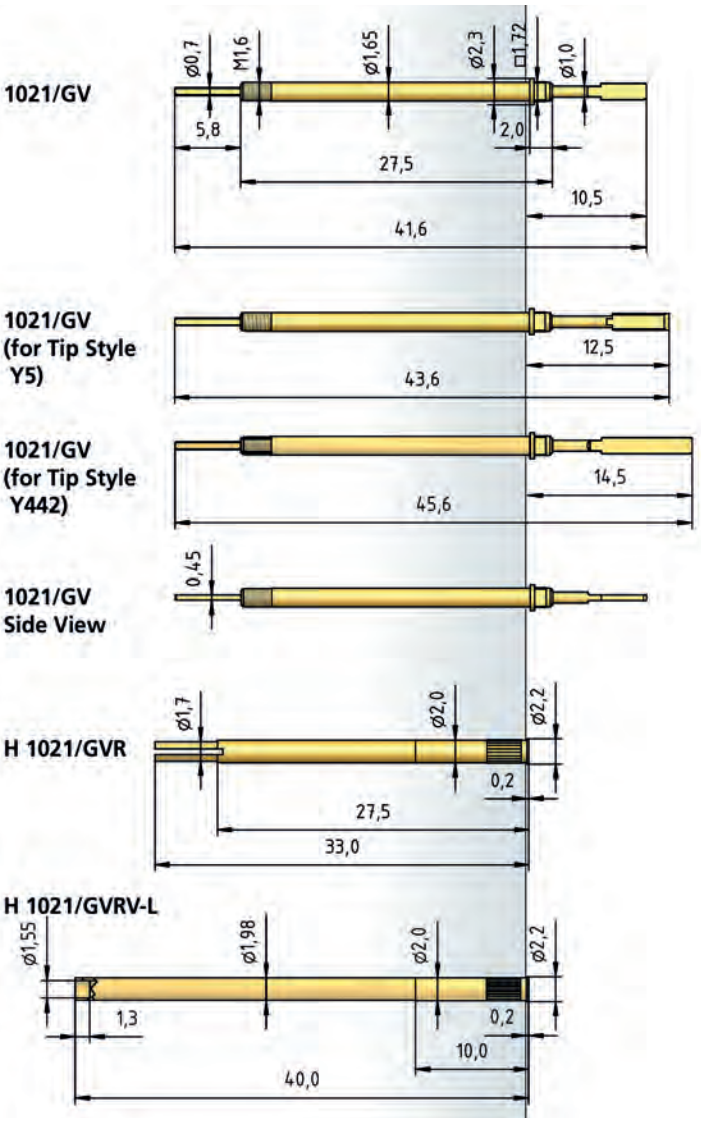
BENEFIT	
Anti-turn feature ensured by the square section on the plunger and the slot in the receptacle	
Forced guidance of the test probe ensures that the receptacle must only be aligned once	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm (Y4-4.30 mm / Y14-4.15 mm)
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.30/ 1.00 N
Spring Force at Working Travel	1.50/ 3.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 25 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, gold-plated
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372	2.03 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0
WFSB 1021/G-3.5-3.0-Z	3.0
WFSB 1021/G-C2S-3.0-2.5-Z	2.5

TIP STYLE · DIAMETER · PLATING

Y4	Y442	Y	Y	Y1
1.50x0.50 Au	1.5x0.50 Au	0.75x0.50 Au	0.97/1.00 x 0.63 Au	0.97/1.00 x 0.63 Au

Y1F	Y5	Y14	Y14	Y14
1.50 x 0.50 x 2.00 Au	1.50 x 0.80 Au	1.10 x 0.45 Au	2.00 x 0.60 Au	2.00 x 0.80 Au

Y14
1.50 x 1.00 Au



HOW TO ORDER

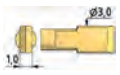
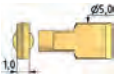
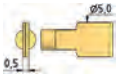
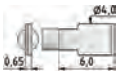
1021/	G	V	-	Y4	-	1.5 N	-	Au	-	1.5	x0.5	C
1	2	3		4		5		6		7	8	9

1 Series 2 Threaded Design 3 Non-roating Design 4 Tip Style 5 Spring Force 6 Tip Plating 7 Tip Diameter 8 Tip Thickness 9 Tip Material (only for CuBe)

Non-Rotating Test Probe 160 mil / 4.0 mm

Series 1053/G

TIP STYLE · DIAMETER · PLATING

				
Y	**Y**	**Y3**	**Y4**	**Y5**
3.00x1.00C Au	5.00x1.00C Au	5.00x0.50C Au	4.00x1.00C Au	4.00x0.65C Ni

		
Y8	**Y11**	**Y15**
5.00x0.70C Au	2.15x0.65C Au	3.00x0.70C Au

BENEFIT

Anti-turn feature ensured by the square section on the plunger and the slot in the receptacle

Forced guidance of the test probe ensures that the receptacle must only be aligned once

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel (with Switching Element)	2.50 mm
Pre-Loaded Spring Force	0.30/ 0.40/ 0.50/ 0.80/ 0.80/ 1.00 N
Spring Force at Working Travel	0.50/ 1.50/ 2.00/ 3.00/ 4.00/ 5.00 N
Spring Force at Working Travel (with Switching Element)	+1.00 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm

MATERIALS

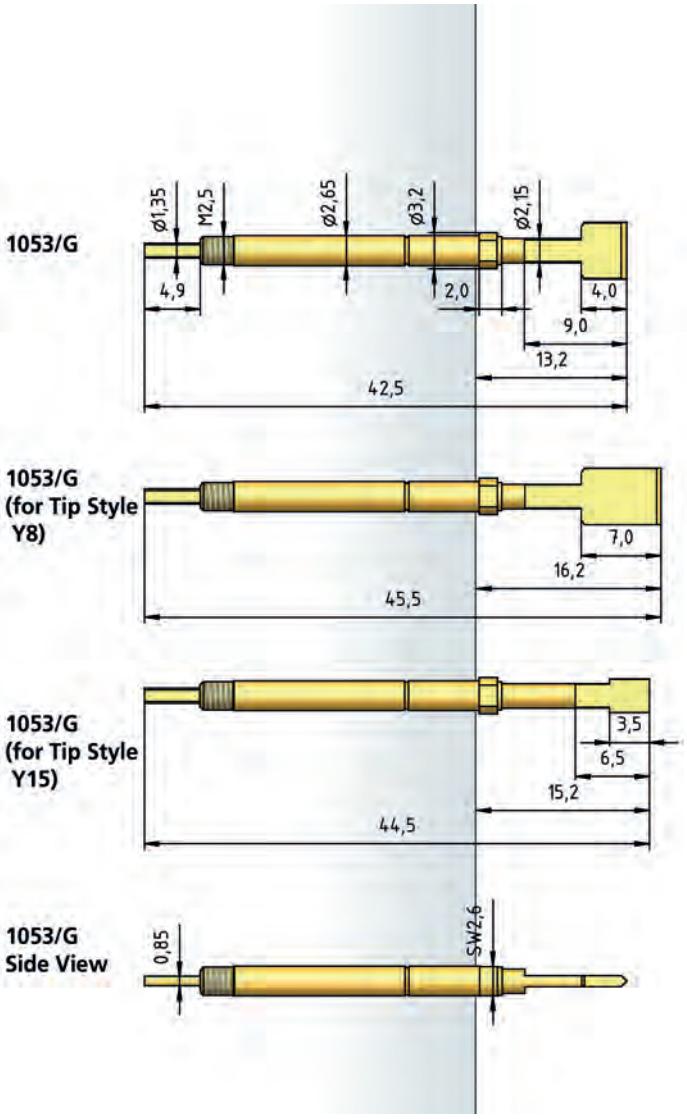
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe
Receptacle	Brass, gold-plated

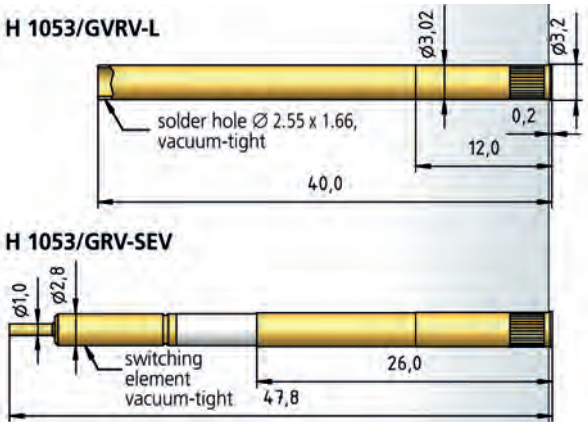
RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	3.01 mm
HGW 2372	3.03 mm

AVAILABLE SCREW TOOLS

Article Designation	**max. Tip-∅**
WFSB 1053/G-5.0-4.0-Z	4.0
WFSB 1053/G-6.0-5.0-Z	5.0





HOW TO ORDER

1053/	G	-	Y4	-	1.5 N	-	Au	-	4.0x	0.65	C
1	2		3		4		5		6	7	8

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating
6 Tip Diameter 7 Tip Thickness 8 Tip Material (only for CuBe)

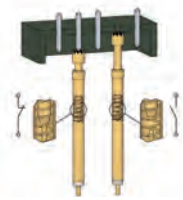
SWITCHING TEST PROBES
WITHOUT THREAD

Switching Test Probes are primarily used for component checks. To do this, the electric circuit used for signal transfer opens or closes according to a defined switching travel.

For operation, a connection on the receptacle and on the connector pin is normally required. For maintenance work, the use of easy replacement receptacles can save a lot of time because there is no need for rewiring of the connector pin (see page 134). Thanks to our high-precision manufacturing processes, centers of from 4.00 mm to 1.91 mm can be achieved.

Component Check with Switching Test Probes

As a rule, PTR HARTMANN Switching Test Probes operate on the "closer principle". Switching Test Probes can be seen as "axial micro-switches" which, according to a defined switching travel, create an electrically conducting connection between the inner conductor and the outer probe of the Switching Test Probe. "Opener" contacts (NC) are also available for the 3010/2F (see page 130) and 3011/2FGS (see page 145) series.



In addition to a large number of metal tips, PTR HARTMANN also offers versions with insulated tips. These can be supplied as a full-plastic tip and, for improved wear resistance, as a metal tip insulated against the plunger. PTR HARTMANN also offers a so-called "neutral Switching Test Probe" in the version with a plastic tip and hard-wearing protective metal ring.

Applications / Features

- Check on presence of components or connectors, principally for the cable test, e.g. to check secondary locking
- Potential-free contacting by means of the above-mentioned insulating tip versions

Series 3035

Switching Test Probe „Closer“ (NO) 75 mil / 1.91 mm

BENEFIT
Switching test probe for the cable harness test and presence verification
Available with thread (see page 136)
Switching test probe „Closer“ (NO) type
Switching test probe for small center
High soldering temperature up to 300°C

MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	2.60 mm
Pre-Loaded Spring Force	0.30 N
Spring Force at Working Travel	2.00 N
Spring Force at Switching Travel	1.10 N

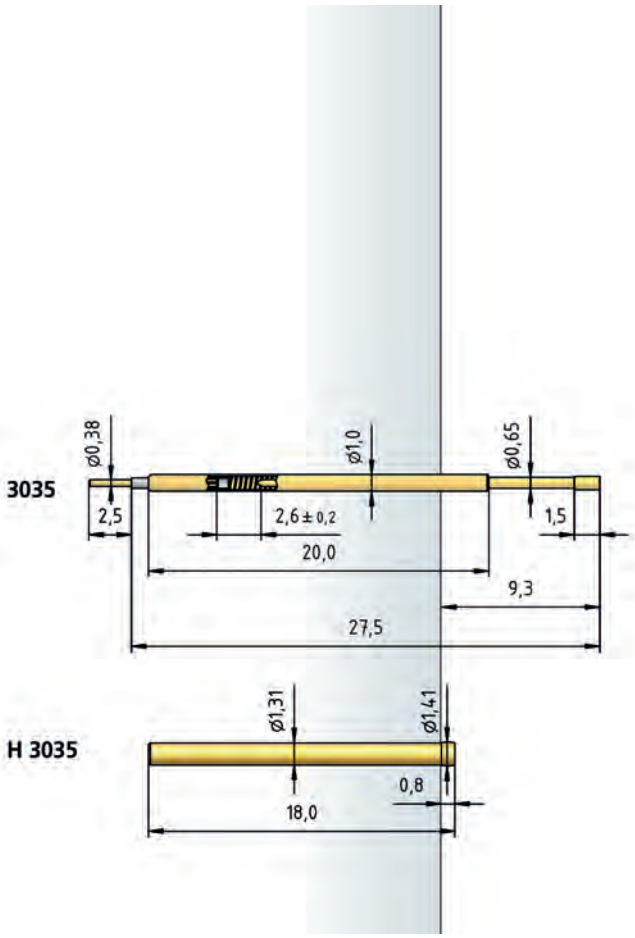
ELECTRICAL DATA	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 20 mOhm
Typical Insulating Voltage	1000 V

MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Bronze, gold-plated

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.30 mm
with pressed-in Ring	1.36 mm
HGW 2372 (Glass filled material)	1.32 mm
with pressed-in Ring	1.37 mm

TIP STYLE · DIAMETER · PLATING

C	D	F	F
0.80C Au	0.65C Au	0.65C Au	0.80C Au



HOW TO ORDER

3035	-	F	-	2.0 N	-	Au	-	0.8	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

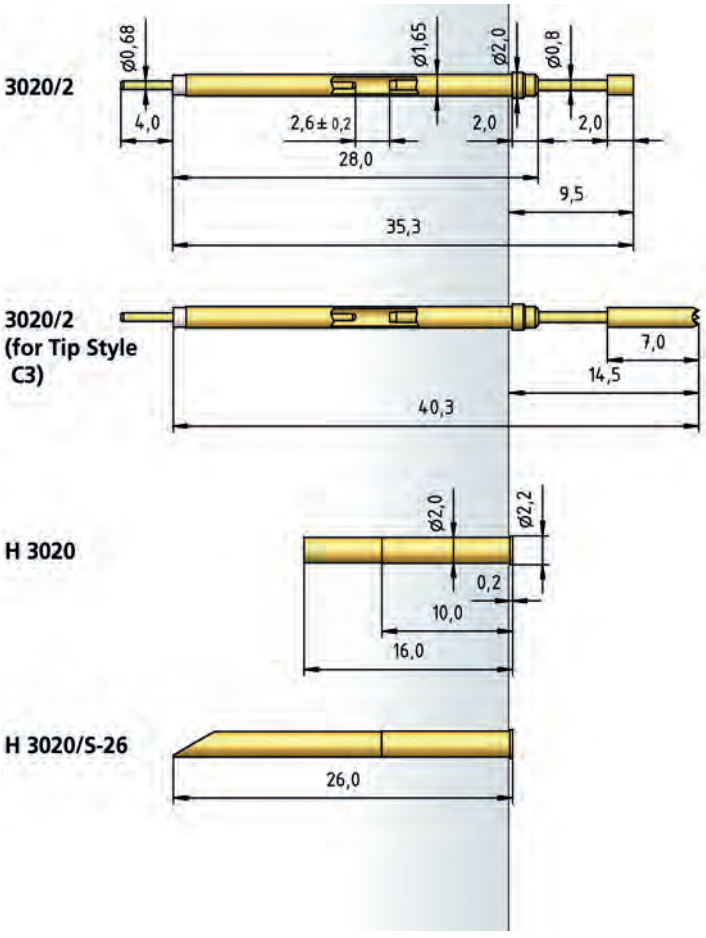
Switching Test Probe „Closer“ (NO) 100 mil / 2.54 mm

Series 3020/2

TIP STYLE · DIAMETER · PLATING

A	C	C3	F	F
1.50 Au	1.30 Au 1.50 Au 3.00 Au	1.50 Au	0.80 Au	1.00 Au 1.30 Au 1.50 Au

F1
1.50 HTK



BENEFIT

Switching test probe for the cable harness test and presence verification
Available with thread (see page 137)
Switching test probe „Closer“ (NO) type
Switching travel 4.0 mm on request
High soldering temperature up to 300°C

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm
Working Travel	4.00 mm
Switching Travel	2.60 mm
Pre-Loaded Spring Force	0.15/ 0.40/ 0.50/ 1.70 N
Spring Force at Working Travel	0.80/ 1.50/ 3.00/ 6.50 N
Spring Force at Switching Travel	0.25/ 0.80/ 1.80/ 4.50 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	2.00 mm
HGW 2372 (Glass filled material)	2.01 mm

10

HOW TO ORDER

3020/	2	-	F	-	1.5 N	-	Au	-	1.5
1	2		3		4		5		6

1 Series 2 Collar Height 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

Series 3026/2W

Switching Test Probe „Closer“ (NO) with Easy-Replacement System
100 mil / 2.54 mm

BENEFIT
Switching test probe for the cable harness test and presence verification
Easy-replacement system (replacement without soldering)
Switching test probe „Closer“ (NO) type
High soldering temperature up to 300°C

MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.50 mm
Pre-Loaded Spring Force	0.15/ 0.40/ 0.50/ 1.70 N
Spring Force at Working Travel	0.80/ 1.50/ 3.00/ 6.50 N
Spring Force at Switching Travel	0.20/ 0.60/ 1.25/ 3.30 N

ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Brass, gold-plated

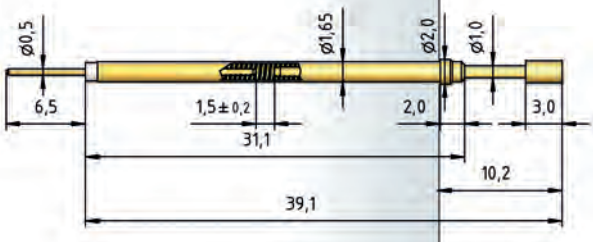
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372 (Glass filled material)	2.01 mm

TIP STYLE · DIAMETER · PLATING

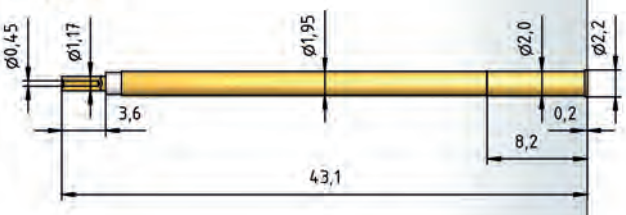
A	A6	C	D	D1
1.80C Au	1.80C Au	1.80C Au	1.00C Au	0.64C Au 0.80C Au

F	F1
1.00C Au 1.80C Au	1.80C HTK

3026/2W



H 3026/W



HOW TO ORDER

3026/	2	W	-	F	-	1.5 N	-	Au	-	1.8
1	2	3		4		5		6		7

1 Series 2 Collar Height 3 Interchangeable without Soldering 4 Tip Style
5 Spring Force 6 Tip Plating 7 Tip Diameter

Switching Test Probe „Closer“ (NO) 100 mil / 2.54 mm

Series 3030

TIP STYLE · DIAMETER · PLATING

C	D	D1	DL	F
1.00 Au 1.30 Au	0.65 Au	0.61 Au	0.65 Au	1.00 Au

FL
0.70 Au

BENEFIT

- Switching test probe for the cable harness test and presence verification
- Available with thread (see page 141)
- Switching test probe „Closer“ (NO) type
- High soldering temperature up to 300°C
- Thin switching test probe

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.30 mm (5.80 mm bei 3030-L)
Working Travel	5.00 mm
Switching Travel	4.00 mm
Pre-Loaded Spring Force	0.25/ 0.25/ 0.30 N
Spring Force at Working Travel	1.00/ 1.50/ 2.00 N
Spring Force at Switching Travel	0.60/ 0.60/ 1.00 N

ELECTRICAL DATA

Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

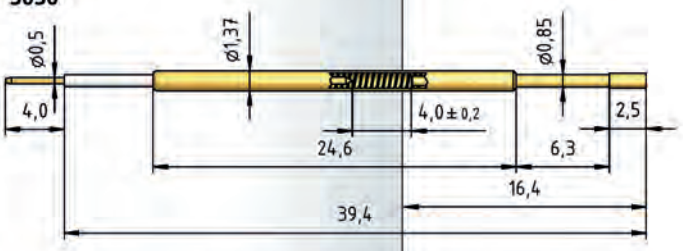
MATERIALS

Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Bronze, gold-plated

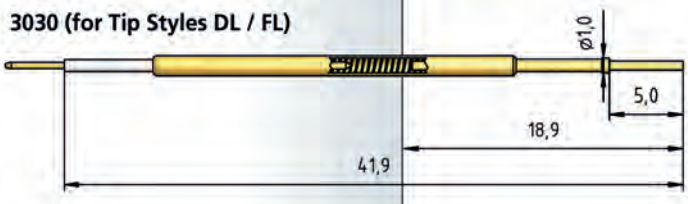
RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	1.65 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled material)	1.67 mm
with pressed-in Ring	1.76 mm

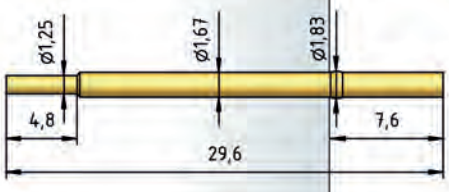
3030



3030 (for Tip Styles DL / FL)



H 1025 C



HOW TO ORDER

3030	-	C	-	2.0 N	-	Au	-	1.0/	0.5x	4.0
1		2		3		4		5	6	7

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Connector Pin Diameter 7 Connector Pin Length

Series 3003

Switching Test Probe „Closer“ (NO) 125 mil / 3.18 mm

BENEFIT
Use without receptacle
Defined stop due to a press-in Ring at the barrel
Switching test probe „Closer“ (NO) type
High soldering temperature up to 300°C

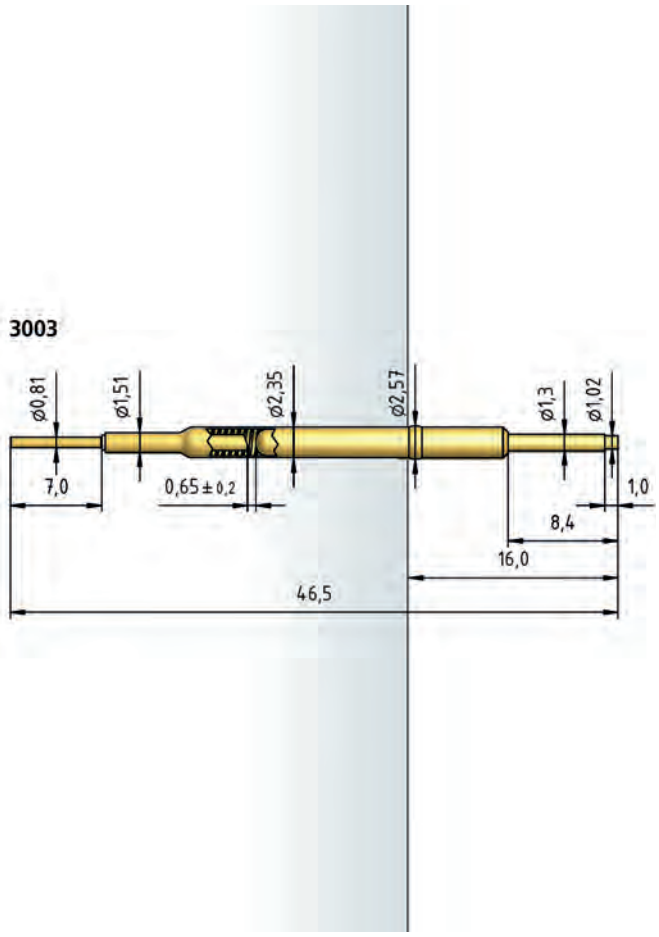
MECHANICAL DATA	
Center	3.18 mm / 125 mil
Temperature Range	-30 °C - +120 °C
Full Travel	7.5 mm
Working Travel	5.00 mm
Switching Travel	0.65 mm
Pre-Loaded Spring Force	0.40 N
Spring Force at Working Travel	1.15 N
Spring Force at Switching Travel	0.55 N

ELECTRICAL DATA	
Max. Current Rating	4.5 A
Typical Continuity Resistance	≤ 15 mOhm
Typical Insulating Voltage	1000 V

MATERIALS	
Barrel	Bronze, gold-plated
Spring	Steel Wire, gold-plated
Plunger	CuBe, gold-plated
Connect Pin	CuBe, gold-plated

TIP STYLE · DIAMETER · PLATING

F
1.02C Au



HOW TO ORDER

3003	-	F	-	1.15 N	-	Au	-	1.02	C
1		2		3		4		5	6

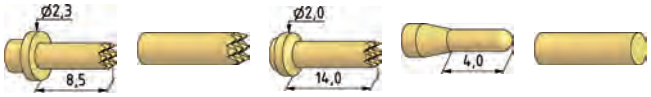
1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

Switching Test Probe „Closer“ (NO) 160 mil / 4.0 mm

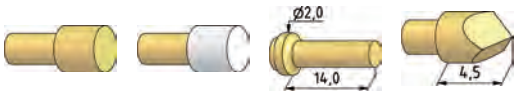
Series 3010/2 • 3010/10

TIP STYLE · DIAMETER · PLATING

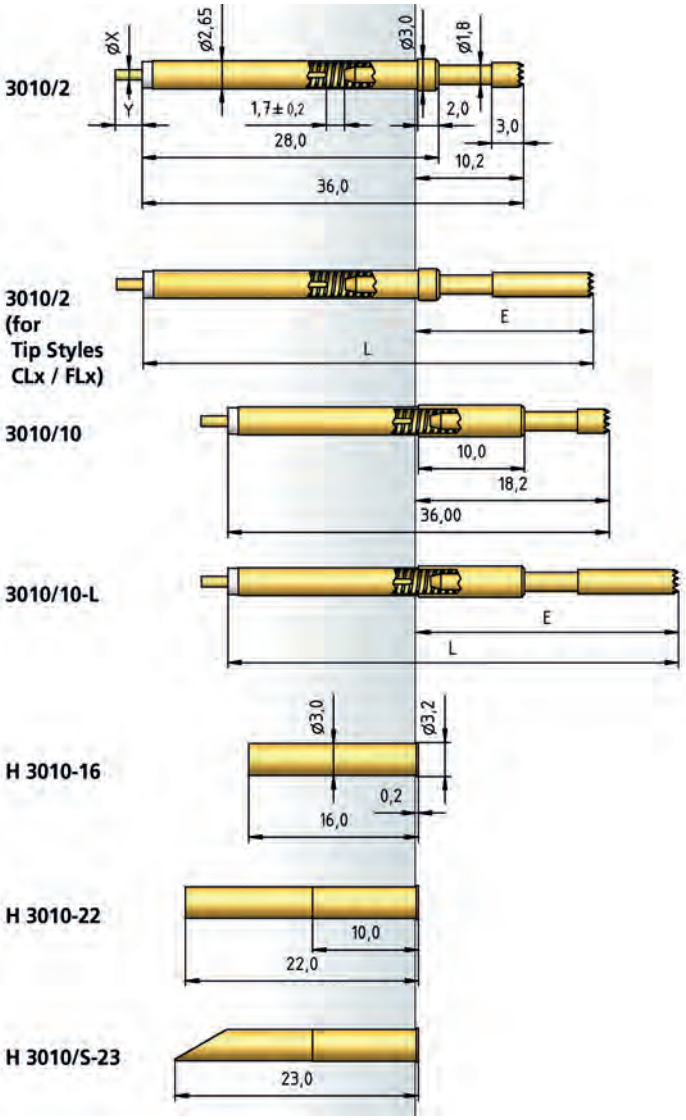
A	C	C	CL	C1
2.30 Au	1.80 Au	2.30 Au 3.00 Au 4.00 Au	2.30 Au	1.00 Au



CL1	CL2	CL3	D6	F
1.00 Au	1.80 Au	1.00 Au	1.00 Au	1.80 Au



F	F1	FL3	H2
2.00 Au 2.30 Au	2.30 HTK 3.00 HTK 4.00 HTK 5.00 HTK	1.00 Au	2.60 Au



BENEFIT

Switching test probe for the cable harness test and presence verification
Available with thread (see page 142)
Switching test probe „Closer“ (NO) type
Switching travel 4.0 mm on request
High soldering temperature up to 300°C

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.12/ 0.30/ 1.80/ 1.70/ 2.70/ 5.00 N
Spring Force at Working Travel	1.25/ 2.30/ 7.00/ 9.00/ 10.00/ 13.00 N
Spring Force at Switching Travel	0.18/ 0.70/ 3.60/ 4.40/ 5.40/ 8.00 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	3.00 mm
HGW 2372 (Glass filled material)	3.01 mm

TABLE CONNECTOR PIN

Connector Pin ∅ X (mm)	Connector Pin Length Y (mm)
0.5	6.0
1.0	2.5
1.0	4.0

LENGTHS FOR TEST PROBE 3010/2 FOR TIP STYLES CLx / FLx

Tip Style	E (mm)	L (mm)
CL, CL1	16.7	42.5
CL2	22.2	48.0
CL3, FL3	22.9	48.7

LENGTHS FOR TEST PROBE 3010/10 FOR TIP STYLES CLx / FLx

Tip Style	E (mm)	L (mm)
CL, CL1	24.7	42.5
CL2	30.2	48.0
CL3, FL3	30.9	48.7

HOW TO ORDER

3010/	2	-	A	-	2.3 N	-	Au	-	2.3	/1.0x	4.0
1	2		3		4		5		6	7	8

1 Series 2 Collar Height 3 Tip Style 4 Spring Force 5 Tip Plating
6 Tip Diameter 7 Connector Pin Diameter 8 Connector Pin Length

Series 3010/2F

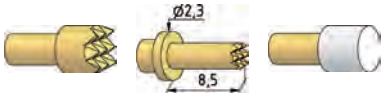
Switching Test Probe „Opener“ (NC) 160 mil / 4.0 mm

BENEFIT	
Switching test probe for the cable harness test and presence verification	
Switching test probe "Opener" (NC) type	
High soldering temperature up to 300°C	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.40 N
Spring Force at Working Travel	2.30 N
Spring Force at Switching Travel	1.00 N
ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372 (Glass filled material)	3.01 mm

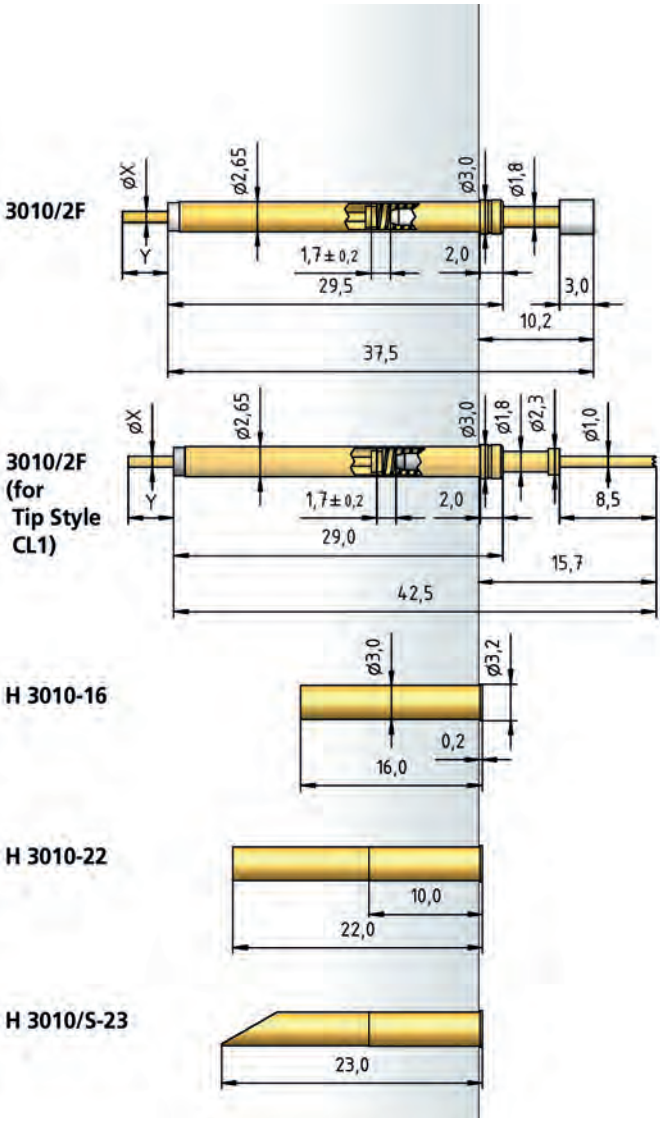
TABLE CONNECTOR PIN

Connector Pin ∅ X (mm)	Connector Pin Length Y (mm)
0.5	6.0
1.0	2.5
1.0	4.0

TIP STYLE · DIAMETER · PLATING



C	CL1	F1
2.30 Au	1.00 Au	3.00 HTK 4.00 HTK 5.00 HTK



HOW TO ORDER

3010/	2	F	-	C	-	2.3 N	-	Au	-	2.3/	1.0x	4.0
1	2	3		4		5		6		7	8	9

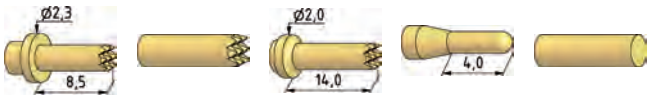
1 Series 2 Collar Height 3 Type Opener 4 Tip Style 5 Spring Force 6 Tip Plating
7 Tip Diameter 8 Connector Pin Diameter 9 Connector Pin Length

Switching Test Probe „Closer“ (NO) with Easy-Replacement System 160 mil / 4.0 mm

Series 3010/2W

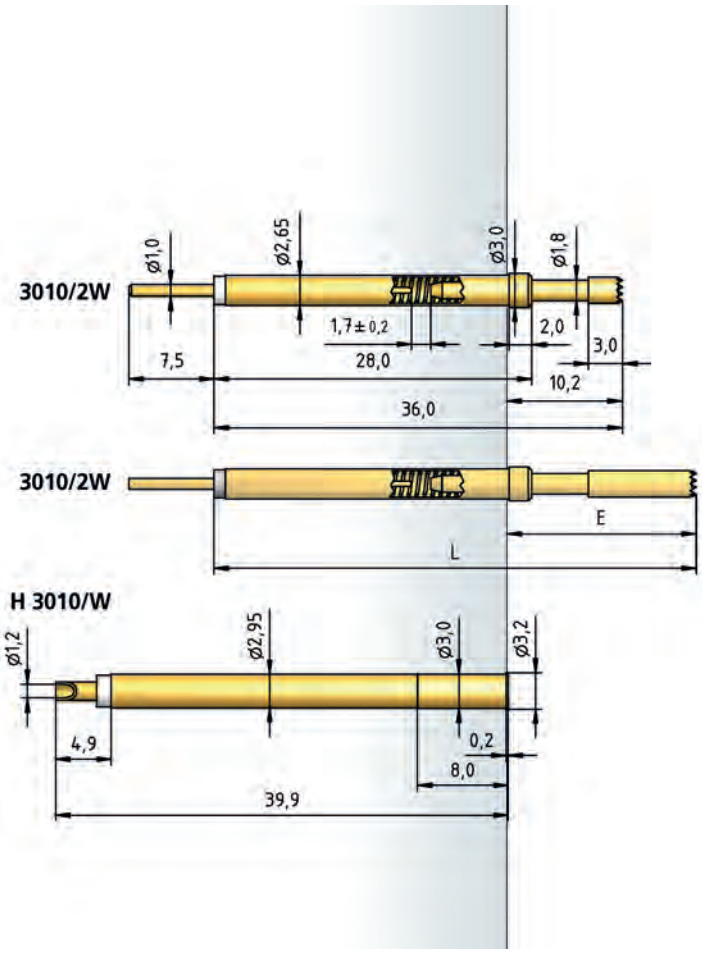
TIP STYLE · DIAMETER · PLATING

A	C	C	CL	C1
2.30 Au	1.80 Au	2.30 Au 3.00 Au 4.00 Au	2.30 Au	1.00 Au



CL1	CL2	CL3	D6	F
1.00 Au	1.80 Au	1.00 Au	1.00 Au	1.80 Au

F	F1	FL3	H2
2.00 Au 2.30 Au	2.30 HTK 3.00 HTK 4.00 HTK 5.00 HTK	1.00 Au	2.60 Au



BENEFIT

- Switching test probe for the cable harness test and presence verification
- Easy-replacement system (replacement without soldering)
- Available with thread (see page 143)
- Switching test probe „Closer“ (NO) type
- Switching travel 4.0 mm on request
- High soldering temperature up to 300°C

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.12/ 0.25/ 0.30/ 0.40/ 0.60/ 1.80/ 1.40/ 1.70/ 2.00/ 2.00/ 5.00/ 4.00 N
Spring Force at Working Travel	1.25/ 1.75/ 2.30/ 2.80/ 4.00/ 7.00/ 7.50/ 9.00/ 9.50/ 10.50/ 13.00/ 13.50 N
Spring Force at Switching Travel	0.20/ 0.45/ 0.75/ 1.00/ 1.60/ 3.60/ 3.60/ 4.40/ 4.80/ 5.20/ 8.00/ 7.60 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	3.00 mm
HGW 2372 (Glass filled material)	3.01 mm

LENGTHS FOR TEST PROBE 3010/2W FOR TIP STYLES CLx / FLx

Tip Style	E (mm)	L (mm)
CL, CL1	16.7	42.5
CL2	22.2	48.0
CL3, FL3	22.9	48.7

HOW TO ORDER

3010/	2	W	-	A	-	2.3 N	-	Au	-	2.3/	1.0x	7.5
1	2	3		4		5		6		7	8	9

1 Series 2 Collar Height 3 Interchangeable without Soldering 4 Tip Style
5 Spring Force 6 Tip Plating 7 Tip Diameter 8 Connector Pin Diameter
9 Connector Pin Length

Series 3010/2V

Switching Test Probe „Closer“ (NO) - Non-Rotating“ 160 mil / 4.0 mm

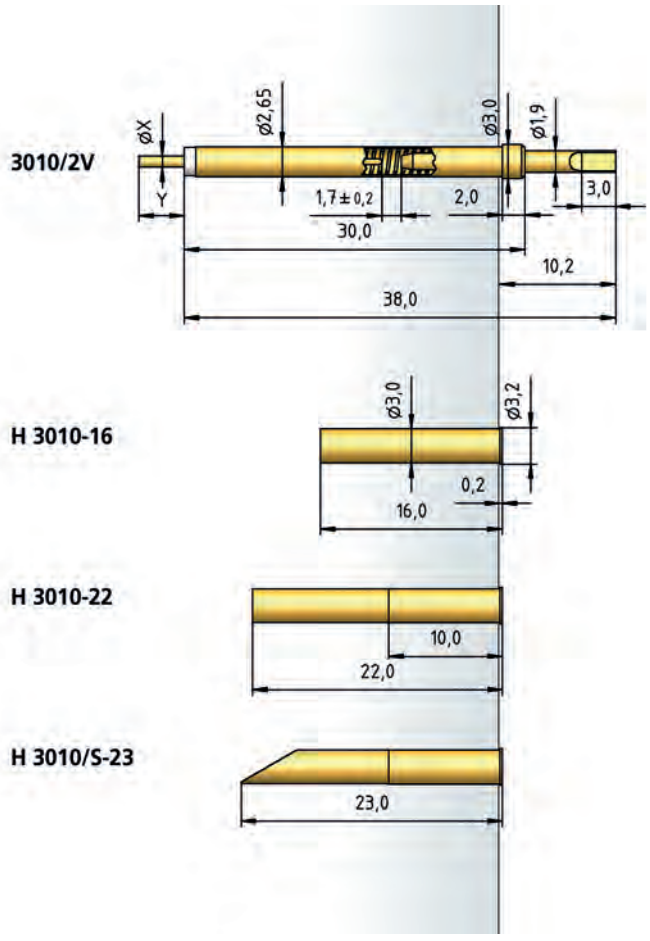
BENEFIT	
Switching test probe for the cable harness test and presence verification	
Switching test probe „Closer“ (NO) type	
Non-rotating variant	
High soldering temperature up to 300°C	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.12/ 0.30/ 1.80/ 1.70/ 2.70/ 5.00 N
Spring Force at Working Travel	1.25/ 2.30/ 7.00/ 9.00/ 10.00/13.00 N
Spring Force at Switching Travel	0.18/ 0.70/ 3.60/ 4.40/ 5.40/ 8.00 N
ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372 (Glass filled material)	3.01 mm

TABLE CONNECTOR PIN

Connector Pin ∅ X (mm)	Connector Pin Length Y (mm)
0.5	6.0
1.0	2.5
1.0	4.0

TIP STYLE · DIAMETER · PLATING

Y	Y5
1.90 x 1.00 Au	4.00 x 0.65 Au



HOW TO ORDER

3010/	2	V	-	Y	-	2.3 N	-	Au	-	1.9x	1.0	/1.0x	4.0
1	2	3		4		5		6		7	8	9	10

1 Series 2 Collar Height 3 Non-roating Design 4 Tip Style 5 Spring Force
6 Tip Plating 7 Tip Diameter 8 Tip Thickness 9 Connector Pin Diameter
10 Connector Pin Length

Ball-Head Switching Test Probe „Closer“ (NO) 256 mil / 6.5 mm

Series 3015.06

TIP STYLE · DIAMETER · PLATING

D
5.00 Ni

BENEFIT

- Ball-head switching test probe for presence detection with side activation
- Precision ball plunger guide
- Switching test probe „Closer“ (NO) type
- Outer housing neutral (insulated of the electrical circuit)

MECHANICAL DATA

Center	6.50 mm / 256 mil
Temperature Range	-30 °C - +120 °C
Full Travel	1.40 mm
Working Travel	1.20 mm
Switching Travel	0.80 mm
Pre-Loaded Spring Force	0.50 N
Spring Force at Working Travel	0.80 N
Spring Force at Switching Travel	0.70 N

ELECTRICAL DATA

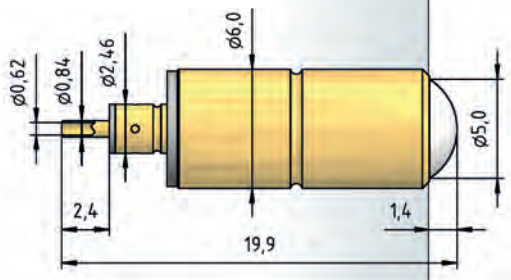
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 25 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel

10

3015.06



HOW TO ORDER

3015	.06	-	D	-	0.8 N	-	Ni	-	5.0
1	2		3		4		5		6

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

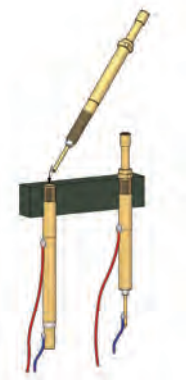
SWITCHING TEST PROBES
WITH THREAD

Switching Test Probes are available in various designs, from simple plug-in types (see page 122) to threaded types to easy-replacement systems.

Threaded Switching Test Probes are used primarily for cable testing and when a later change to the installation height is necessary (up to 5.0 mm). In these cases, the thread prevents the successive twisting of the Test Probe out of the receptacle. In each case, the electrical connection takes place via a connection to the connector pin of the Switching Test Probe and a connection to the receptacle.

Series 3014/2G and 3024/2G, which have an overall length of only 24.5 mm, are especially compact. As an alternative, both series are available with the easy-replacement system.

Series 3015/G, with its ball-shaped design and a working travel of only 0.8 mm, is especially suitable for applications in which horizontal contacting is necessary.



Switching Test Probes with Easy-Replacement System

The PTR HARTMANN easy-replacement system for switching test probes makes it possible to replace the test probe without releasing the wiring. In this case, the wiring takes place directly on the insulated connection piece of the easy-replacement threaded receptacle which remains in the test module during replacement of the test probe.

The test probe and receptacle are fitted with a matching sprung plug-in system which creates secure, electrical contacting. At the same time, this makes possible faster replacement of the test probe, which contributes to a reduction in servicing times.

NEW

Series 3035/GW

Switching Test Probe „Closer“ (NO) 75 mil / 1.91 mm

BENEFIT
Smalest switching test probe - center 75 mil
Available without thread (see page 124)
Switching test probe „Closer“ (NO) type
Test Probe with switching function for cable harness test and presence verification
High soldering temperature up to 300°C

MECHANICAL DATA	
Center	1.91 mm / 75 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	3.50 mm
Pre-Loaded Spring Force	0.15/ 0.60 N
Spring Force at Working Travel	0.80/ 1.50 N
Spring Force at Switching Travel	0.30/ 0.95 N

ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	4.0 A
Typical Continuity Resistance	≤ 30 mOhm
Pin-Plunger	
Max. Current Rating	2.0 A
Typical Continuity Resistance	≤ 65 mOhm
Typical Insulating Voltage	1000 V

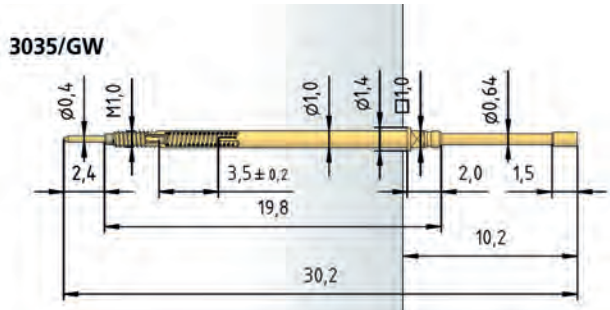
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Brass, gold-plated

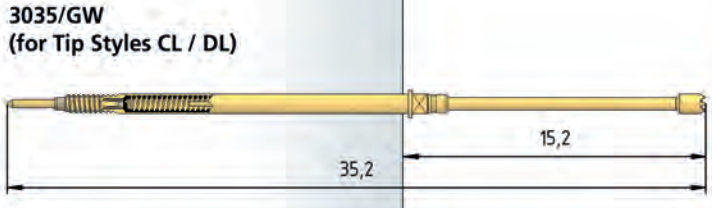
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.32 mm
HGW 2372 (Glass filled material)	1.34 mm

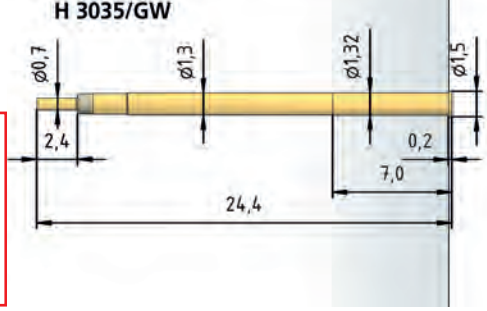
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1012/G-1.5-1.0	1.0
WFSB 1012/G-1.9-1.5-Z	1.5

TIP STYLE · DIAMETER · PLATING

CL	D	DL	DL	F
1.00C Au	0.50C Au	0.64C Au	0.75C Au	0.80C Au







HOW TO ORDER

3035/	G	W	-	F	-	1.5 N	-	Au	-	0.8	C
1	2	3		4		5		6		7	8

1 Series 2 Threaded Design 3 Interchangeable without Soldering 4 Tip Style
5 Spring Force 6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

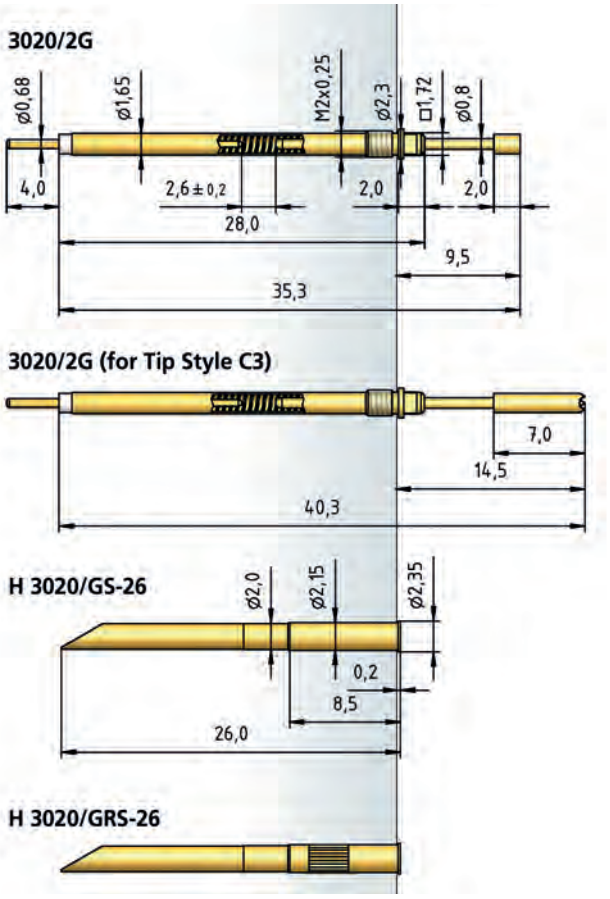
Switching Test Probe „Closer“ (NO) 100 mil / 2.54 mm

Series 3020/2G

TIP STYLE · DIAMETER · PLATING

A	C	C3	F	F
1.50 Au	1.30 Au 1.50 Au 3.00 Au	1.50 Au	0.80 Au	1.00 Au 1.30 Au 1.50 Au

F1
1.50 HTK



BENEFIT

Switching test probe for the cable harness test and presence verification
Available without thread (see page 125)
Switching test probe „Closer“ (NO) type
Switching travel 4.0 mm on request
High soldering temperature up to 300°C

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm
Working Travel	4.00 mm
Switching Travel	2.60 mm
Pre-Loaded Spring Force	0.15/ 0.40/ 0.50/ 1.70 N
Spring Force at Working Travel	0.80/ 1.50/ 3.00/ 6.50 N
Spring Force at Switching Travel	0.25/ 0.80/ 1.80/ 4.50 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	2.15 mm
HGW 2372 (Glass filled material)	2.16 mm

AVAILABLE SCREW TOOLS

Article Designation	**max. Tip-∅**
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0
WFSB 1021/G-3.5-3.0-Z	3.0
WFSB 1021/G-C2S-3.0-2.5-Z	2.5

11

HOW TO ORDER

3020/	2	G	-	F	-	1.5 N	-	Au	-	1.5
1	2	3		4		5		6		7

1 Series 2 Collar Height 3 Threaded Design 4 Tip Style 5 Spring Force 6 Tip Plating 7 Tip Diameter

Series 3020/2GW5

Switching Test Probe „Closer“ (NO) with Easy-Replacement System
100 mil / 2.54 mm

BENEFIT
Switching test probe for the cable harness test and presence verification
Easy-replacement system (replacement without soldering)
Switching test probe „Closer“ (NO) type
Variable extention height
Switching travel 4.0 mm on request
High soldering temperature up to 300°C

MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm
Working Travel	4.00 mm
Switching Travel	2.60 mm
Pre-Loaded Spring Force	0.15/ 0.40/ 0.50/ 1.70 N
Spring Force at Working Travel	0.80/ 1.50/ 3.00/ 6.50 N
Spring Force at Switching Travel	0.25/ 0.80/ 1.80/ 4.50 N

ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

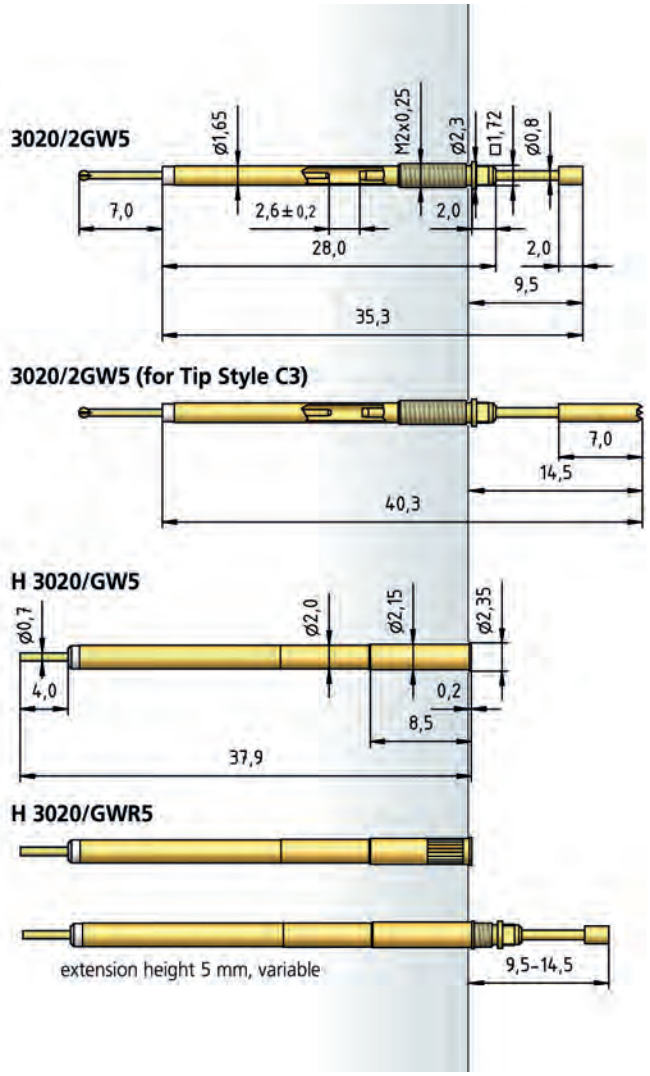
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.15 mm
HGW 2372 (Glass filled material)	2.16 mm

AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0
WFSB 1021/G-3.5-3.0-Z	3.0
WFSB 1021/G-C2S-3.0-2.5-Z	2.5

TIP STYLE · DIAMETER · PLATING

A	C	C3	F	F
1.50 Au	1.30 Au 1.50 Au 3.00 Au	1.50 Au	0.80 Au	1.00 Au 1.30 Au 1.50 Au

F1
1.50 HTK



HOW TO ORDER

3020/	2	G	W	5	-	F	-	1.5 N	-	Au	-	1.5
1	2	3	4	5		6		7		8		9

1 Series 2 Collar Height 3 Threaded Design 4 Interchangeable without Soldering 5 Adjustment Area of the Extension Height 6 Tip Style 7 Spring Force 8 Tip Plating 9 Tip Diameter

Switching Test Probe „Closer“ (NO) with Easy-Replacement System 100 mil / 2.54 mm

Series 3023/2GS

TIP STYLE · DIAMETER · PLATING

A	C	CL	D	DL
1.80 Au	1.00 Au 1.30 Au 1.50 Au 1.80 Au 2.00 Au 2.30 Au	1.00 Au 1.40 Au 1.80 Au	1.00 Au	1.00 Au

D1	F	F	F	F1
0.64 Au	0.64 Au	0.70 Au 0.80 Au 1.00 Au	1.80 Au	1.80 Au/HTK 2.30 Au/HTK

FL
1.00 Au

BENEFIT

Switching test probe for the cable harness test and presence verification
Easy-replacement system (replacement without soldering)
Switching test probe „Closer“ (NO) type
Variable extention height
High soldering temperature up to 300°C

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.50 mm
Pre-Loaded Spring Force	0.12/ 0.30/ 0.40/ 0.80/ 0.80/ 1.40 N
Spring Force at Working Travel	0.85/ 1.35/ 2.00/ 3.00/ 3.50/ 6.50 N
Spring Force at Switching Travel	0.20/ 0.50/ 0.80/ 1.45/ 1.60/ 3.10 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

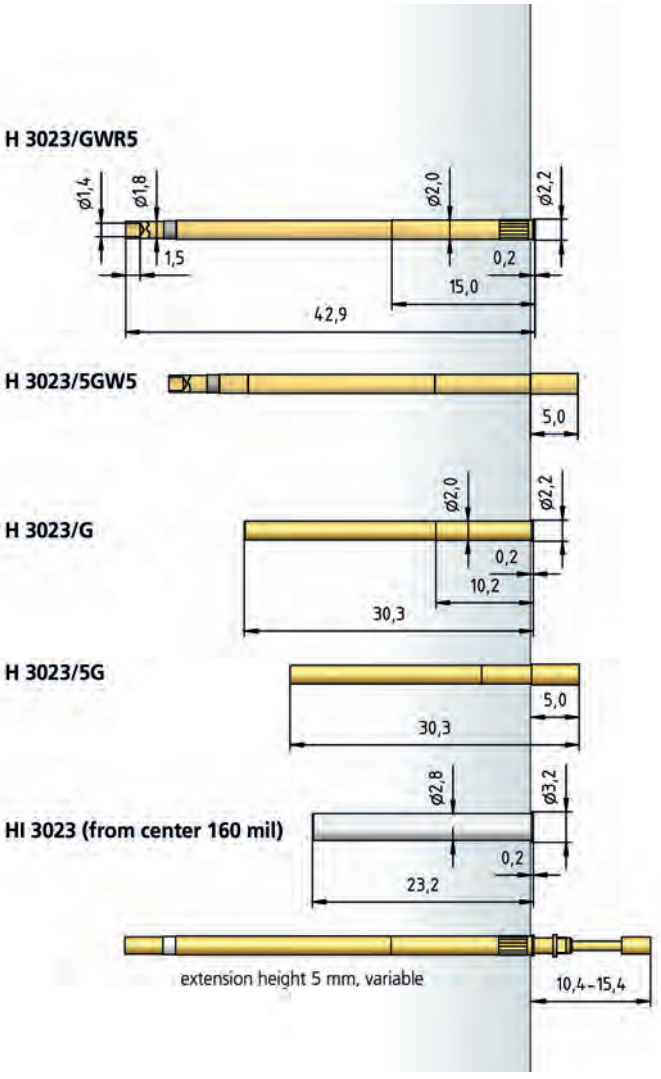
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

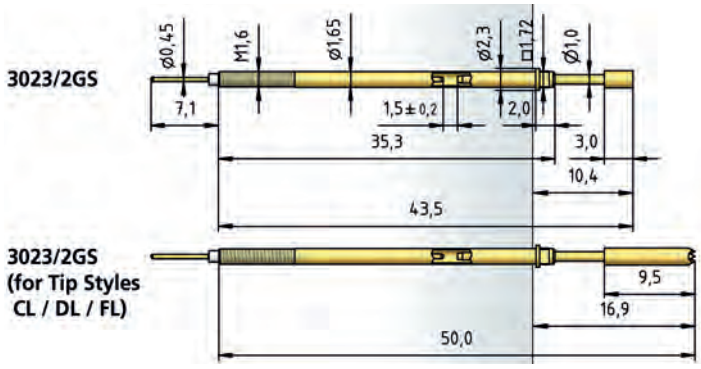
RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	2.00 mm
HGW 2372 (Glass filled material)	2.01 mm

AVAILABLE SCREW TOOLS

Article Designation	max. Tip-∅
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0
WFSB 1021/G-3.5-3.0-Z	3.0
WFSB 1021/G-C2S-3.0-2.5-Z	2.5





HOW TO ORDER

3023/	2	G	S	-	F	-	3.5 N	-	Au	-	1.8
1	2	3	4		5		6		7		8

1 Series 2 Collar Height 3 Threaded Design 4 Plug-in Connector 5 Tip Style 6 Spring Force 7 Tip Plating 8 Tip Diameter

11

Series 3024/2G

Switching Test Probe „Closer“ (NO) with Easy-Replacement System
100 mil / 2.54 mm

BENEFIT
Switching test probe for the cable harness test and presence verification
Easy-replacement system (replacement without soldering)
Switching test probe „Closer“ (NO) type
Short design
High soldering temperature up to 300°C

MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	2.60 mm
Pre-Loaded Spring Force	0.30/ 0.50/ 0.50 N
Spring Force at Working Travel	1.35/ 2.00/ 2.50 N
Spring Force at Switching Travel	1.00/ 1.50/ 1.80 N

ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm
Typical Insulating Voltage	1000 V
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm

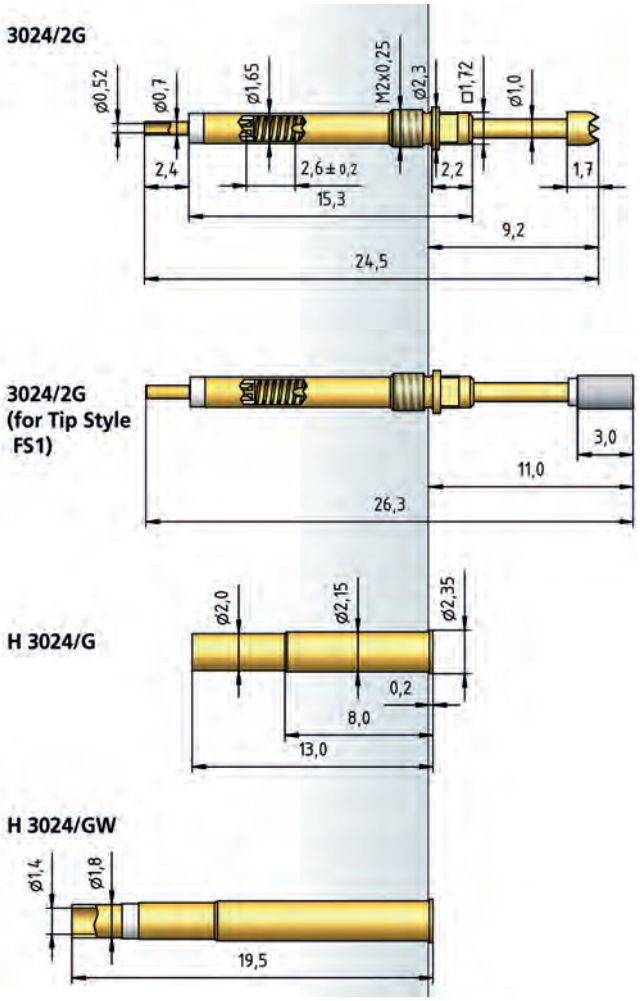
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated with Insulator
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.15 mm
HGW 2372 (Glass filled material)	2.16 mm

AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0
WFSB 1021/G-3.5-3.0-Z	3.0
WFSB 1021/G-C2S-3.0-2.5-Z	2.5

TIP STYLE · DIAMETER · PLATING

C	D	F	F1	FS1
1.80C Au	1.00C Au	1.00C Au	1.80 HTK	2.00C Ni/S



HOW TO ORDER

3024/	2	G	-	C	-	2.0 N	-	Au	-	1.8	C
1	2	3		4		5		6		7	8

1 Series 2 Collar Height 3 Threaded Design 4 Tip Style 5 Spring Force
6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

Switching Test Probe „Closer“ (NO) with Easy-Replacement System 100 mil / 2.54 mm

Series 3030/GW3

TIP STYLE · DIAMETER · PLATING

C	D	D1	DL	F
1.00 Au 1.30 Au	0.65 Au	0.61 Au	0.65 Au	1.00 Au

FL
0.70 Au

BENEFIT

- Switching test probe for the cable harness test and presence verification
- Available without thread (see page 127)
- Easy-replacement system (replacement without soldering)
- Switching test probe „Closer“ (NO) type
- High soldering temperature up to 300°C

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	6.30 mm
Working Travel	5.00 mm
Switching Travel	4.00 mm
Pre-Loaded Spring Force	0.30 N
Spring Force at Working Travel	2.00 N
Spring Force at Switching Travel	1.00 N

ELECTRICAL DATA

Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

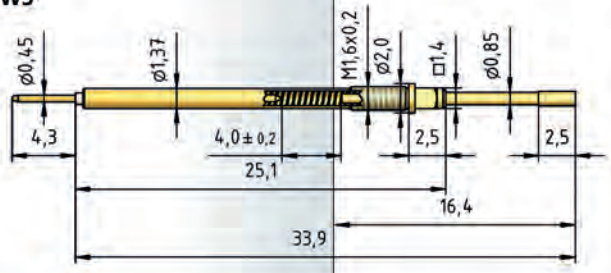
RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	1.65 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled material)	1.67 mm
with pressed-in Ring	1.67 mm

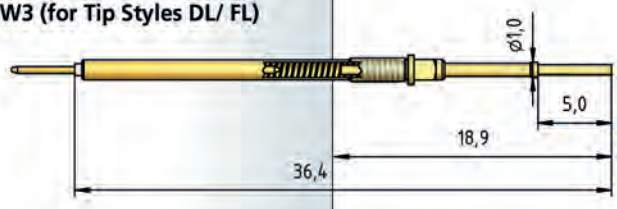
AVAILABLE SCREW TOOLS

Article Designation	max. Tip-∅
WFSB 1015/G-2.54-1.5	1.5
WFSB 1015/G-2.54-1.8	1.8

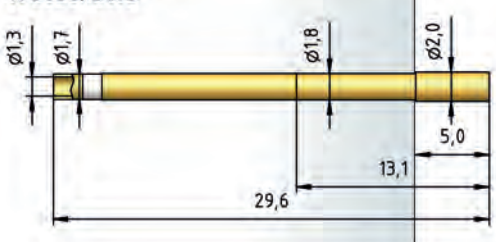
3030/GW3



3030/GW3 (for Tip Styles DL/ FL)



H 3030/GW3



HOW TO ORDER

3030/	G	W	3	-	F	-	2.0 N	-	Au	-	1.0
1	2	3	4		5		6		7		8

1 Series 2 Threaded Design 3 Interchangeable without Soldering 4 Adjustment Area of the Extension Height 5 Tip Style 6 Spring Force 7 Tip Plating 8 Tip Diameter

11

Series 3010/2G • 3010/10G

Switching Test Probe „Closer“ (NO) 160 mil / 4.0 mm

BENEFIT	
Switching test probe for the cable harness test and presence verification	
Available without thread (see page 129)	
Switching travel 4.0 mm on request	
High soldering temperature up to 300°C	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.12/ 0.30/ 1.80/ 1.70/ 2.70/ 5.00 N
Spring Force at Working Travel	1.25/ 2.30/ 7.00/ 9.00/ 10.00/ 13.00 N
Spring Force at Switching Travel	0.18/ 0.70/ 3.60/ 4.40/ 5.40/ 8.00 N
ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.28 mm
HGW 2372 (Glass filled material)	3.29 mm
AVAILABLE SCREW TOOLS	
See page 143	

TABLE CONNECTOR PIN

Connector Pin ∅ X (mm)	Connector Pin Length Y (mm)
0.5	6.0
1.0	2.5
1.0	4.0

LENGTHS FOR TEST PROBE 3010/2G FOR TIP STYLES CLx / FLx

Tip Style	E (mm)	L (mm)
CL, CL1	16.7	42.5
CL2	22.2	48.0
CL3, FL3	22.9	48.7

LENGTHS FOR TEST PROBE 3010/10G FOR TIP STYLES CLx / FLx

Tip Style	E (mm)	L (mm)
CL, CL1	24.7	42.5
CL2	30.2	48.0
CL3, FL3	30.9	48.7

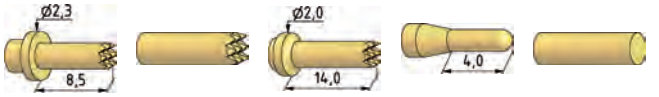
HOW TO ORDER

3010/	2	G	-	A	-	2.3 N	-	Au	-	2.3	/1.0x	4.0
1	2	3		4		5		6		7	8	9

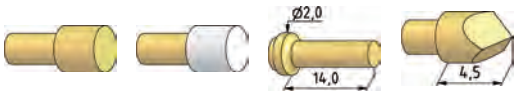
1 Series 2 Collar Height 3 Threaded Design 4 Tip Style 5 Spring Force
6 Tip Plating 7 Tip Diameter 8 Connector Pin Diameter
9 Connector Pin Length

TIP STYLE · DIAMETER · PLATING

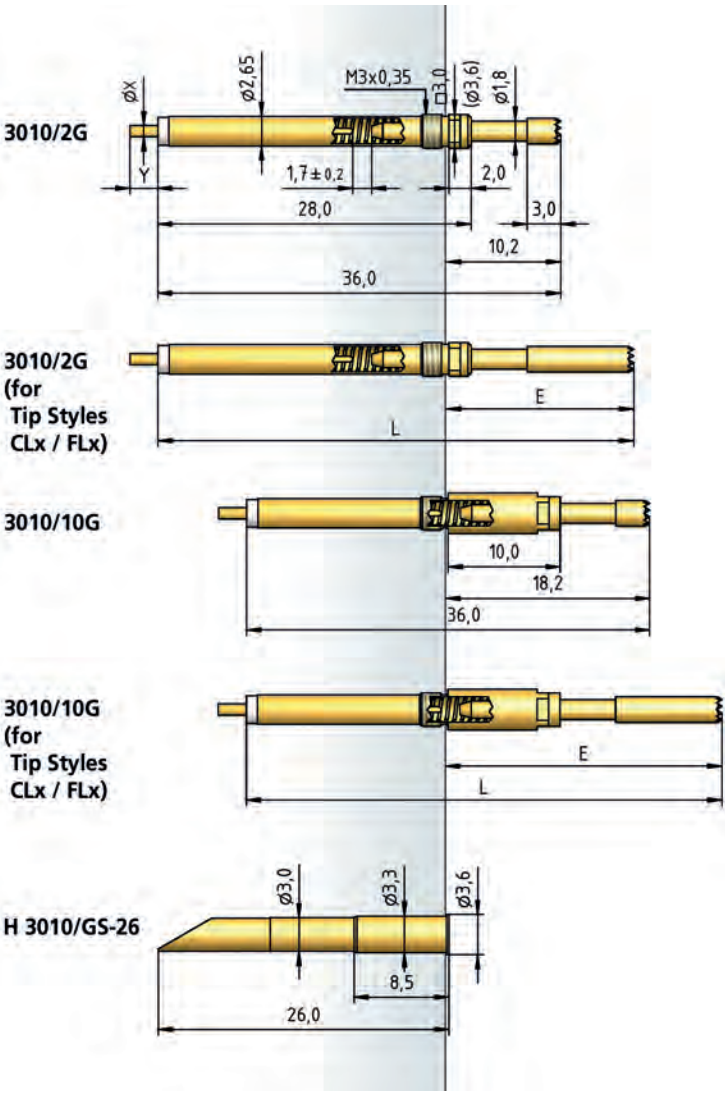
A	C	C	CL	C1
2.30 Au	1.80 Au	2.30 Au 3.00 Au 4.00 Au	2.30 Au	1.00 Au



CL1	CL2	CL3	D6	F
1.00 Au	1.80 Au	1.00 Au	1.00 Au	1.80 Au



F	F1	FL3	H2
2.00 Au 2.30 Au	2.30 HTK 3.00 HTK 4.00 HTK 5.00 HTK	1.00 Au	2.60 Au

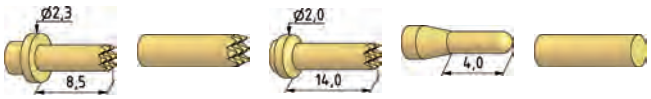


Switching Test Probe „Closer" (NO) with Easy-Replacement System
160 mil / 4.0 mm

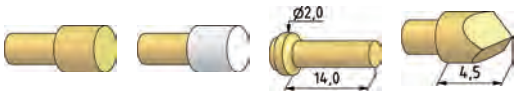
Series 3010/2GW(5)

TIP STYLE · DIAMETER · PLATING

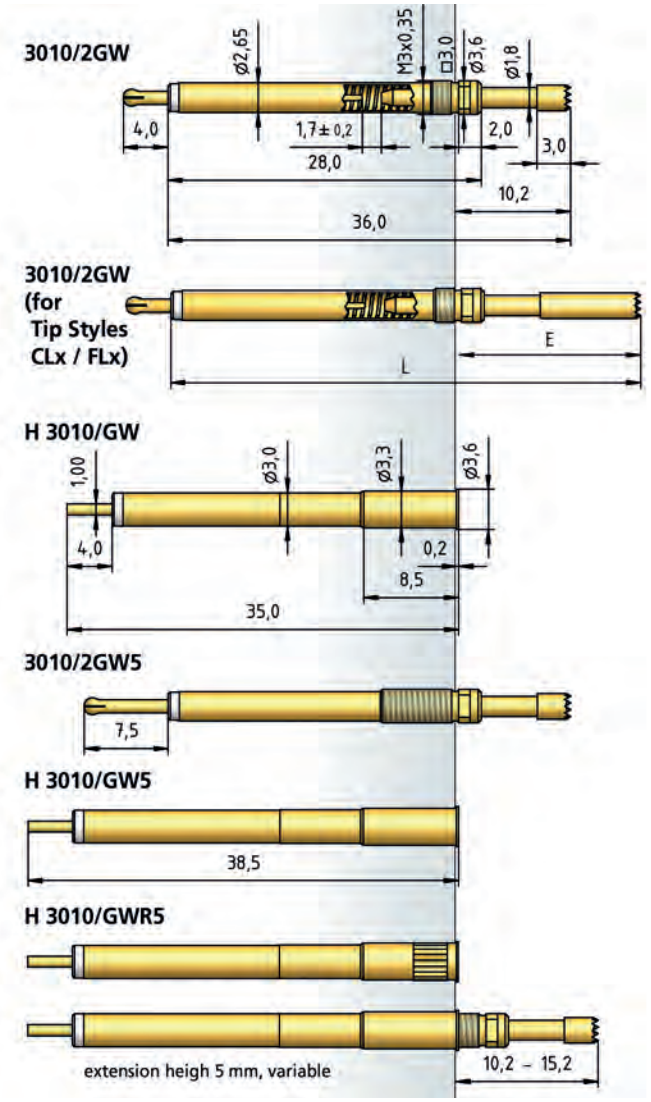
A	C	C	CL	C1
2.30 Au	1.80 Au	2.30 Au 3.00 Au 4.00 Au	2.30 Au	1.00 Au



CL1	CL2	CL3	D6	F
1.00 Au	1.80 Au	1.00 Au	1.00 Au	1.80 Au



F	F1	FL3	H2
2.00 Au 2.30 Au	2.30 HTK 3.00 HTK 4.00 HTK 5.00 HTK	1.00 Au	2.60 Au



BENEFIT

Switching test probe for the cable harness test and presence verification
Available without thread (see page 131)
Easy-replacement system (replacement without soldering)
Switching test probe „Closer" (NO) type
Variable extention height
Switching travel 4.0 mm on request
High soldering temperature up to 300°C

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.12/ 0.25/ 0.30/ 0.40/ 0.60/ 1.80/ 1.40/ 1.70/ 2.00/ 2.70/ 2.00/ 5.00/ 4.00 N
Spring Force at Working Travel	1.25/ 1.75/ 2.30/ 2.80/ 4.00/ 7.00/ 7.50/ 9.00/ 9.50/ 10.00/ 10.50/ 13.00/ 13.50 N
Spring Force at Switching Travel	0.20/ 0.45/ 0.75/ 1.00/ 1.60/ 3.60/ 3.60/ 4.40/ 4.80/ 5.40/ 5.20/ 8.00/ 7.60 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

H 3010/GW(5)	
HP 2361.1 (Trolitax)	3.28 mm
HGW 2372 (Glass filled material)	3.29 mm
H 3010/GWR5	
HP 2361.1 (Trolitax)	3.31 mm
HGW 2372 (Glass filled material)	3.32 mm

AVAILABLE SCREW TOOLS

Article Designation	max. Tip-∅
WFSB 1060/G-4.0-3.0	3.0
WFSB 1060/G-5.0-4.0-Z	4.0
WFSB 1060/G-6.0-5.0-Z	5.0

LENGTHS FOR TEST PROBE 3010/2GW(5) FOR TIP STYLES CLx / FLx

See page 142 - Lengths for Test Probe 3010/2G

HOW TO ORDER

3010/	2	G	W	5	-	C	-	1.3 N	-	Au	-	2.3
1	2	3	4	5		6		7		8		9

1 Series 2 Collar Height 3 Threaded Design 4 Interchangeable without Soldering 5 Adjustment Area of the Extension Height 6 Tip Style 7 Spring Force 8 Tip Plating 9 Tip Diameter

Series 3011/2GS

Switching Test Probe „Closer“ (NO) with Easy-Replacement System
160 mil / 4.0 mm

BENEFIT

- Switching test probe for the cable harness test and presence verification
- Easy-replacement system (replacement without soldering)
- Switching test probe „Closer“ (NO) type
- Variable extention height
- Switching travel 4.0 mm on request
- High soldering temperature up to 300°C

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.12/ 0.25/ 0.30/ 0.40/ 0.60/ 1.80/ 1.40/ 1.70/ 2.00/ 2.70/ 2.00/ 5.00/ 4.00 N
Spring Force at Working Travel	0.75/ 1.25/ 1.80/ 2.30/ 3.50/ 6.50/ 7.00/ 8.50/ 9.00/ 9.50/ 10.00/ 12.50/ 13.00 N
Spring Force at Switching Travel	0.20/ 0.45/ 0.75/ 1.00/ 1.60/ 3.60/ 3.60/ 4.40/ 4.80/ 5.40/ 5.20/ 8.00/ 7.60 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, gold-plated with Insulator
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

H 3011/GWR5 (/R /RK)	
HP 2361.1 (Trolitax)	3.02 mm
HGW 2372 (Glass filled material)	3.04 mm
H 3011/K (/5K)	
HP 2361.1 (Trolitax)	3.01 mm
HGW 2372 (Glass filled material)	3.02 mm

AVAILABLE SCREW TOOLS

Article Designation	**max. Tip-∅**
WFSB 1060/G-4.0-3.0	3.0
WFSB 1060/G-5.0-4.0-Z	4.0
WFSB 1060/G-6.0-5.0-Z	5.0

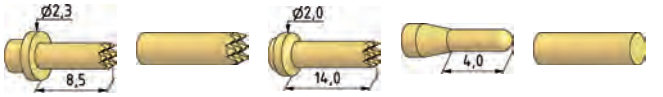
LENGTHS FOR TEST PROBE 3011/2GS FOR TIP STYLES CLx / FLx

See page 142 - Lengths for Test Probe 3010/2G

Receptacles see page 145

TIP STYLE · DIAMETER · PLATING

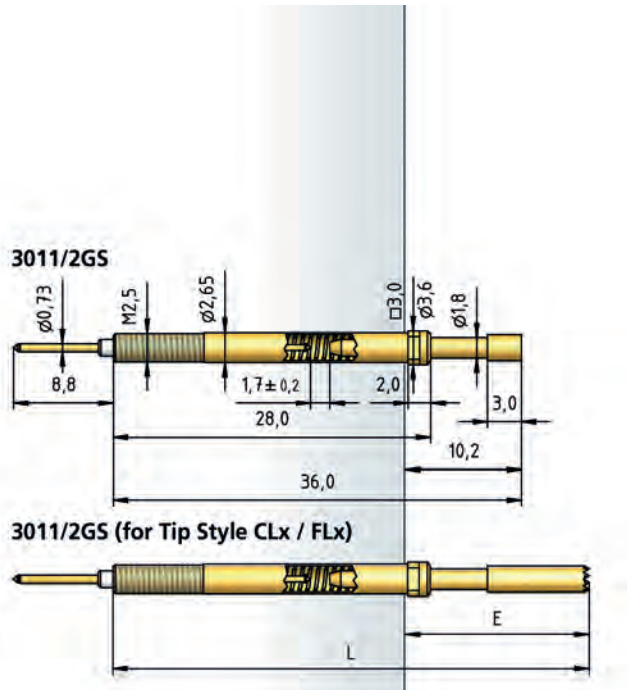
A	C	C	CL	C1
2.30 Au	1.80 Au	2.30 Au 3.00 Au 4.00 Au	2.30 Au	1.00 Au



CL1	CL2	CL3	D6	F
1.00 Au	1.80 Au	1.00 Au	1.00 Au	1.80 Au

F	F1	F1L	FL3	F7
2.00 Au 2.30 Au	2.30 HTK 3.00 HTK 4.00 HTK 5.00 HTK	2.30 HTK 3.00 HTK	1.00 Au	1.00 Au

H2
2.60 Au



HOW TO ORDER

3011/	2	G	S	-	C	-	1.8 N	-	Au	-	2.3
1	2	3	4		5		6		7		8

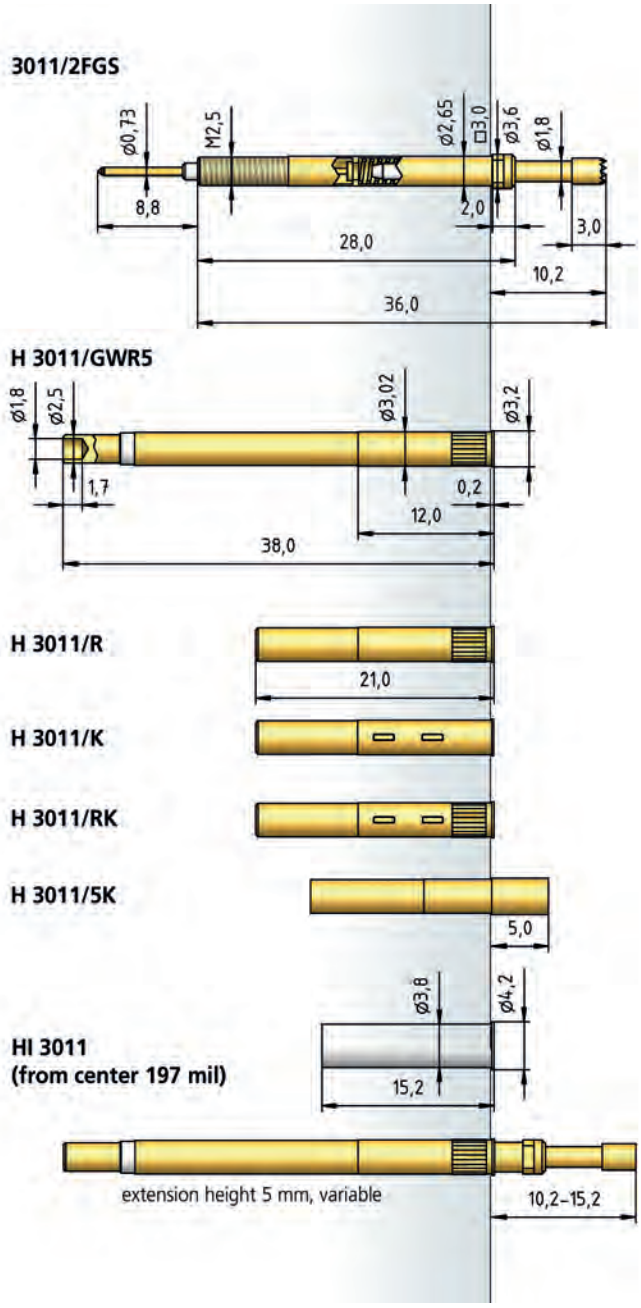
1 Series 2 Collar Height 3 Threaded Design 4 Plug-in Connector 5 Tip Style 6 Spring Force 7 Tip Plating 8 Tip Diameter

Switching Test Probe "Opener" (NC) with Easy-Replacement System 160 mil / 4.0 mm

Series 3011/2FGS

TIP STYLE · DIAMETER · PLATING

C
2.30 Au



BENEFIT

Switching test probe for the cable harness test and presence verification
Easy-replacement system (replacement without soldering)
Switching test probe "Opener" (NC) type
Variable extention height
High soldering temperature up to 300°C

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.12/ 0.25/ 0.30/ 0.40/ 0.60/ 1.80/ 1.40/ 1.70/ 2.00/ 2.70/ 2.00/ 5.00/ 4.00 N
Spring Force at Working Travel	0.75/ 1.25/ 1.80/ 2.30/ 3.50/ 6.50/ 7.00/ 8.50/ 9.00/ 9.50/ 10.00/ 12.50/ 13.00 N
Spring Force at Switching Travel	0.20/ 0.45/ 0.75/ 1.00/ 1.60/ 3.60/ 4.40/ 4.80/ 5.40/ 5.20/ 8.00/ 7.60 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

H 3011/GWR5 (/R /RK)	
HP 2361.1 (Trolitax)	3.02 mm
HGW 2372 (Glass filled material)	3.04 mm
H 3011/K (/5K)	
HP 2361.1 (Trolitax)	3.01 mm
HGW 2372 (Glass filled material)	3.02 mm

AVAILABLE SCREW TOOLS

Article Designation	**max. Tip-∅**
WFSB 1060/G-4.0-3.0	3.0

HOW TO ORDER

3011/	2	F	G	S	-	C	-	1.8 N	-	Au	-	2.3
1	2	3	4	5		6		7		8		9

1 Series 2 Collar Height 3 Type Opener 4 Threaded Design
5 Plug-in Connector 6 Tip Style 7 Spring Force 8 Tip Plating 9 Tip Diameter

Series 3012/2GS

Switching Test Probe „Closer“ (NO) with Easy-Replacement System
138 mil / 3.5 mm

BENEFIT
Switching test probe for the cable harness test and presence verification
Easy-replacement system (replacement without soldering)
Switching test probe „Closer“ (NO) type
Variable extention height
Version for large tip diameters
Switching travel 4.0 mm on request
High soldering temperature up to 300°C

MECHANICAL DATA	
Center	3.50 mm / 138 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.20 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.12/ 0.25/ 0.30/ 0.40/ 0.60/ 1.80/ 1.40/ 1.70/ 2.00/ 2.70/ 2.00/ 5.00/ 4.00 N
Spring Force at Working Travel	0.75/ 1.25/ 1.80/ 2.30/ 3.50/ 6.50/ 7.00/ 8.50/ 9.00/ 9.50/ 10.00/ 12.50/ 13.00 N
Spring Force at Switching Travel	0.20/ 0.45/ 0.75/ 1.00/ 1.60/ 3.60/ 3.60/ 4.40/ 4.80/ 5.40/ 5.20/ 8.00/ 7.60 N

ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel, CuBe
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL	
H 3011/GWR5 (/R /RK)	
HP 2361.1 (Trolitax)	3.02 mm
HGW 2372 (Glass filled material)	3.04 mm
H 3011/K (/5K)	
HP 2361.1 (Trolitax)	3.01 mm
HGW 2372 (Glass filled material)	3.02 mm

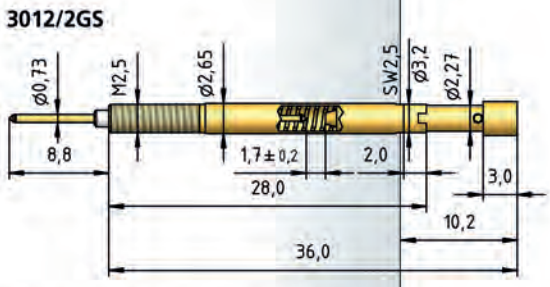
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 3012/G-S1.8	all
WFSB 3012-4.0-2.6	2.6

Receptacles see page 147

TIP STYLE · DIAMETER · PLATING

C	CK	CL	C5	F
3.00C Au 4.00C Au	2.27C Au	2.30C Au 3.00C Au	1.00 Au	3.00C Au 3.50C Au 4.00C Au 4.50C Au 5.00C Au 5.50C Au 5.90C Au

FL	F1	F1L
3.00C Au 3.50C Au 4.00C Au 4.50C Au	2.30 HTK 3.00 HTK 3.50 HTK 4.00 HTK 4.50 HTK 5.00 HTK 5.50 HTK 5.90 HTK	3.00 HTK 3.50 HTK 4.00 HTK 4.50 HTK 5.00 HTK 5.50 HTK 5.90 HTK



HOW TO ORDER

3012/	2	G	S	-	F	-	1.8 N	-	Au	-	3.0	C
1	2	3	4		5		6		7		8	9

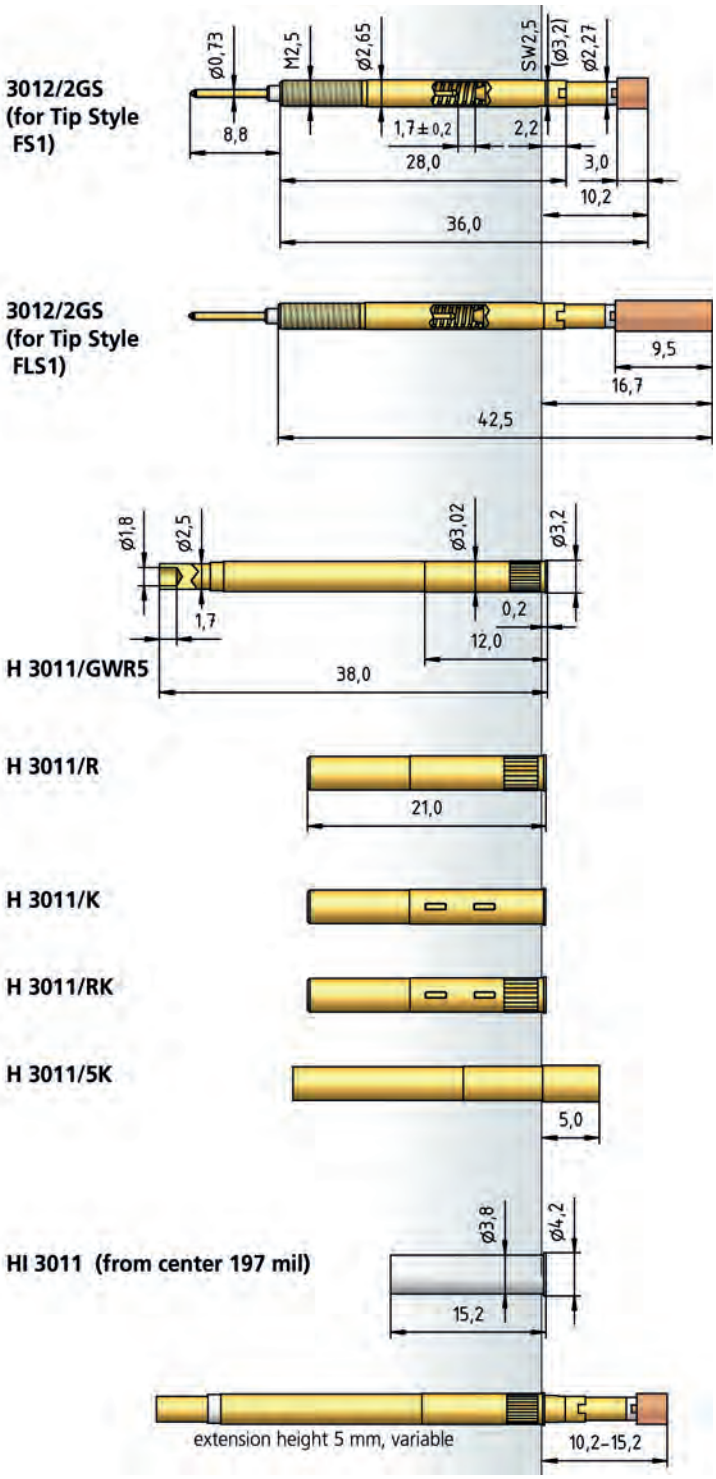
1 Series 2 Collar Height 3 Threaded Design 4 Plug-in Connector 5 Tip Style
6 Spring Force 7 Tip Plating 8 Tip Diameter 9 Tip Material (only for CuBe)

Switching Test Probe „Closer" (NO) with Easy-Replacement System
138 mil / 3.5 mm

Series 3012/2GS • FS1/FLS1

TIP STYLE · DIAMETER · PLATING

FS1	FLS1
3.00C Au/CB	3.00C Au/CB
3.50C Au/CB	3.50C Au/CB
4.00C Au/CB	4.50C Au/CB
4.50C Au/CB	5.00C Au/CB
5.00C Au/CB	
5.50C Au/CB	
5.90C Au/CB	



BENEFIT

- Switching test probe for the cable harness test and presence verification
- Easy-replacement system (replacement without soldering)
- Switching test probe „Closer" (NO) type
- Variable extention height
- Version for large tip diameters
- Tips insulated
- Switching travel 4.0 mm on request
- High soldering temperature up to 300°C

MECHANICAL DATA

Center	3.50 mm / 138 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.50 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.12/ 0.25/ 0.30/ 0.40/ 0.60/ 1.80/ 1.40/ 1.70/ 2.00/ 2.70/ 2.00/ 5.00/ 4.00 N
Spring Force at Working Travel	0.75/ 1.25/ 1.80/ 2.30/ 3.50/ 6.50/ 7.00/ 8.50/ 9.00/ 9.50/ 10.00/ 12.50/ 13.00 N
Spring Force at Switching Travel	0.20/ 0.45/ 0.75/ 1.00/ 1.60/ 3.60/ 3.60/ 4.40/ 4.80/ 5.40/ 5.20/ 8.00/ 7.60 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated
Tip	CuBe, passiviert
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

H 3011/GWR5 (/R /RK)	
HP 2361.1 (Trolitax)	3.02 mm
HGW 2372 (Glass filled material)	3.04 mm
H 3011/K (/5K)	
HP 2361.1 (Trolitax)	3.01 mm
HGW 2372 (Glass filled material)	3.02 mm

AVAILABLE SCREW TOOLS

Article Designation	**max. Tip-∅**
WFSB 3012/G-S1.8	all

HOW TO ORDER

3012/	2	G	S	-	FS1	-	3.0 N	-	Au/CB	-	3.0	C
1	2	3	4		5		6		7		8	9

1 Series 2 Collar Height 3 Threaded Design 4 Plug-in Connector 5 Tip Style
6 Spring Force 7 Tip Plating 8 Tip Diameter 9 Tip Material (only for CuBe)

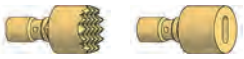
NEW

Series 3012/2GSL

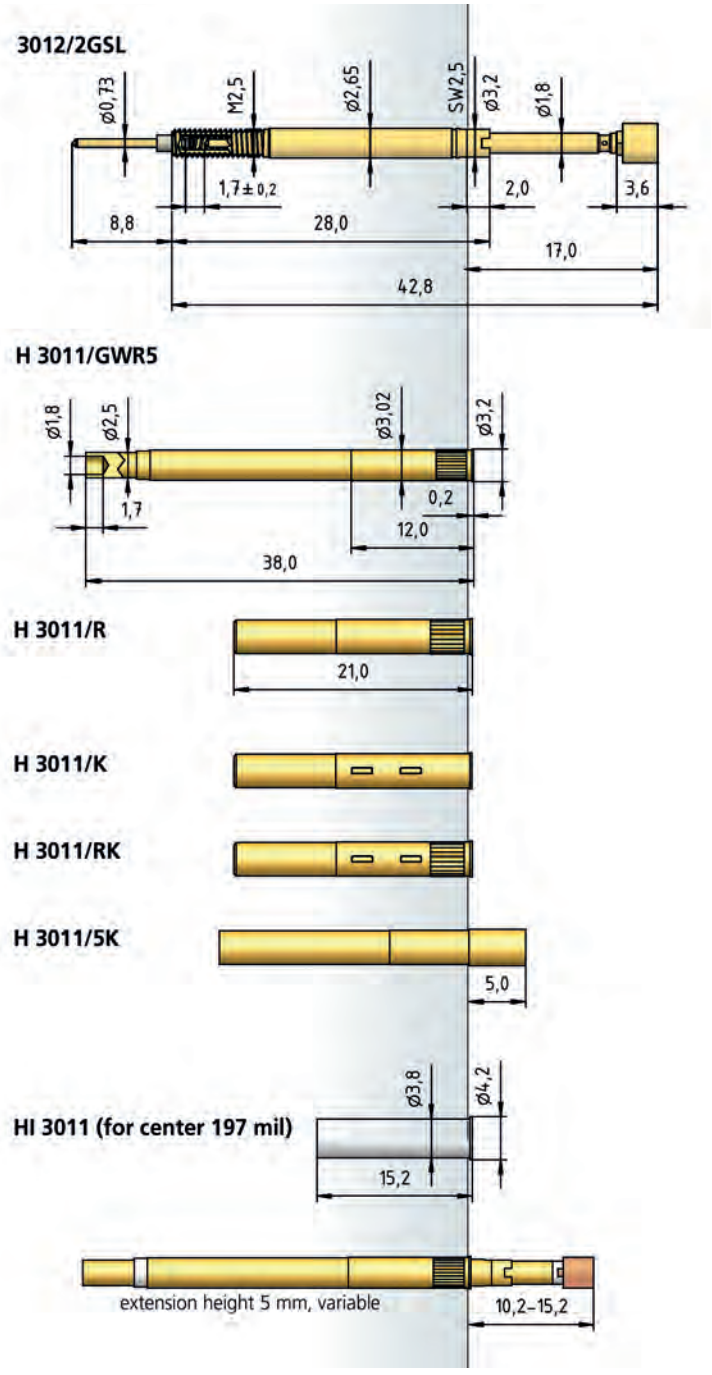
Switching Test Probe „Closer“ (NO) with Easy-Replacement System
138 mil / 3.5 mm

BENEFIT	
Test Probe with switching function for cable harness test and presence verification	
Easy-replacement system (replacement without soldering)	
Switching test probe „Closer“ (NO) type	
Variable extention height	
Version for large tip diameters	
Long full travel	
High soldering temperature up to 300°C	
MECHANICAL DATA	
Center	3.50 mm / 138 mil
Temperature Range	-30 °C - +120 °C
Full Travel	11.00 mm
Working Travel	9.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.40 N
Spring Force at Working Travel	2.00 N
Spring Force at Switching Travel	0.60 N
ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	10.0 A
Typical Continuity Resistance	≤ 15 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
H 3011/GWR5 (/R /RK)	
HP 2361.1 (Trolitax)	3.02 mm
HGW 2372 (Glass filled material)	3.04 mm
H 3011/K (/5K)	
HP 2361.1 (Trolitax)	3.01 mm
HGW 2372 (Glass filled material)	3.02 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 3012/G-S1.8	all

TIP STYLE · DIAMETER · PLATING



C	F
3.50C Au	3.50C Au



HOW TO ORDER

3012/	2	G	S	L	-	F	-	1.8 N	-	Au	-	3.0	C
1	2	3	4	5		6		7		8		9	10

1 Series 2 Collar Height 3 Threaded Design 4 Plug-in Connector
5 Long Travel 6 Tip Style 7 Spring Force 8 Tip Plating 9 Tip Diameter
10 Tip Material (only for CuBe)

Switching Test Probe „Closer“ (NO) with Easy-Replacement System
160 mil / 4.0 mm

Series 3014/2G

TIP STYLE · DIAMETER · PLATING

A	C	C	F	F
3.00C Au	1.00C Au	2.00C Au 3.00C Au	1.00C Au	2.00C Au 3.00C Au

F1
2.00 HTK 3.00 HTK

BENEFIT
Switching test probe for the cable harness test and presence verification
Easy-replacement system (replacement without soldering)
Switching test probe „Closer“ (NO) type
Short design
High soldering temperature up to 300°C

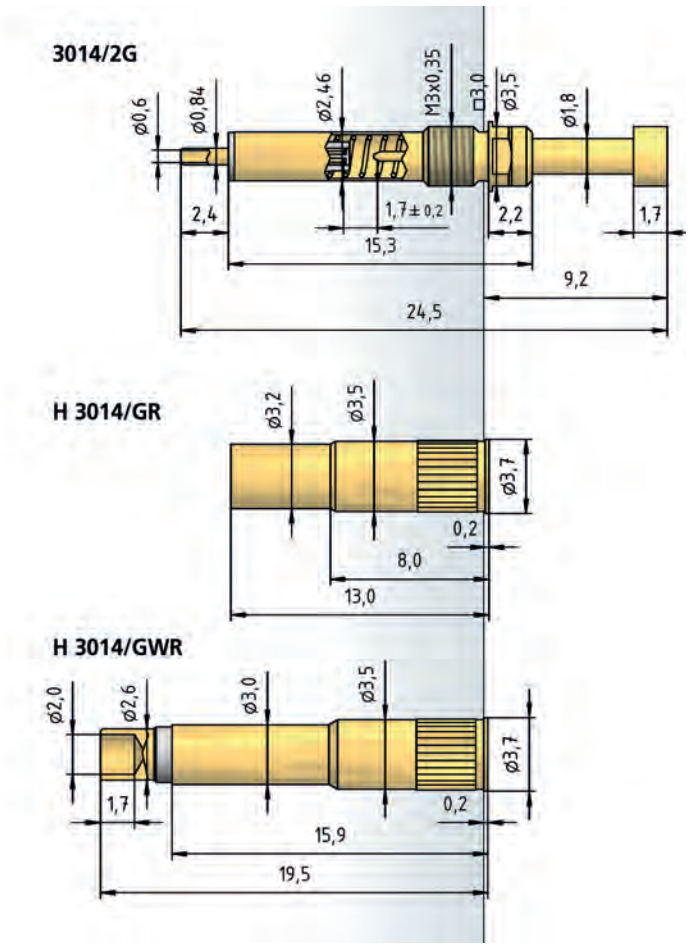
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	1.70 mm
Pre-Loaded Spring Force	0.50 N
Spring Force at Working Travel	1.50 N
Spring Force at Switching Travel	0.90 N

ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 40 mOhm
Typical Insulating Voltage	1000 V

MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.50 mm
HGW 2372 (Glass filled material)	3.51 mm

AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1060/G-4.0-3.0	3.0
WFSB 1060/G-5.0-4.0-Z	4.0
WFSB 1060/G-6.0-5.0-Z	5.0



HOW TO ORDER

3014/	2	G	-	A	-	1.5 N	-	Au	-	3.0	C
1	2	3		4		5		6		7	8

1 Series 2 Collar Height 3 Threaded Design 4 Tip Style 5 Spring Force
6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

NEW

Series 3212/2GS

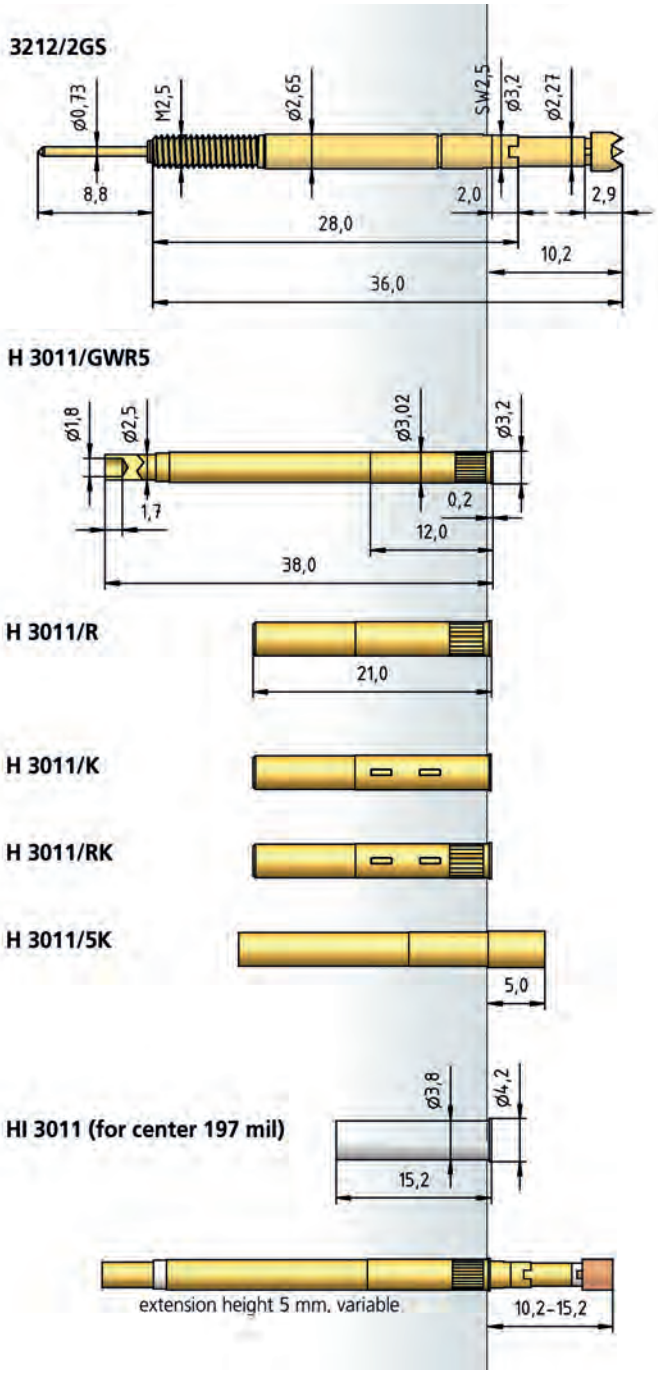
Switching Test Probe „OFF-ON-OFF“ with Easy-Replacement System
138 mil / 3.5 mm

BENEFIT	
Switching test probe for the cable harness test and presence verification	
Easy-replacement system (replacement without soldering)	
Switching test probe „OFF-ON-OFF“ type	
High soldering temperature up to 300°C	
MECHANICAL DATA	
Center	3.50 mm / 138 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Rated Travel	3.00 mm
Switching Travel ON	2.50 mm
Switching Travel OFF	3.50 mm
Pre-Loaded Spring Force	0.60 N
Spring Force at Working Travel	3.00 N
Spring Force at Rated Travel	2.40 N
Spring Force at Switching Travel ON	2.10 N
Spring Force at Switching Travel OFF	2.75 N
ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 40 mOhm
Typical Insulating Voltage	1000 V
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
H 3011/GWR5 (/R /RK)	
HP 2361.1 (Trolitax)	3.02 mm
HGW 2372 (Glass filled material)	3.04 mm
H 3011/K (/5K)	
HP 2361.1 (Trolitax)	3.01 mm
HGW 2372 (Glass filled material)	3.02 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 3012/G-S1.8	all
WFSB 3012/G-4.0-2.6	2.6
WFSB 3012/G-4.0-3.0-Z	3.0

TIP STYLE · DIAMETER · PLATING

C

2.00C Au
3.00C Au



HOW TO ORDER

3212/	2	G	S	-	C	-	3.0 N	-	Au	-	2.0	C
1	2	3	4		5		6		7		8	9

1 Series 2 Collar Height 3 Threaded Design 4 Plug-in Connector 5 Tip Style
6 Spring Force 7 Tip Plating 8 Tip Diameter 9 Tip Material (only for CuBe)

Switching Test Probe „OFF-ON-OFF“ with Easy-Replacement System 160 mil / 4.0 mm

Series 3214/2GW

TIP STYLE · DIAMETER · PLATING

C	F
2.00C Au	3.00C Au

BENEFIT

Switching test probe for the cable harness test and presence verification
Easy-replacement system (replacement without soldering)
Switching test probe "OFF-ON-OFF" type
Short design
High soldering temperature up to 300°C

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Rated Travel	3.00 mm
Switching Travel ON	2.50 mm
Switching Travel OFF	3.50 mm
Pre-Loaded Spring Force	1.00 N
Spring Force at Working Travel	3.00 N
Spring Force at Rated Travel	2.50 N
Spring Force at Switching Travel ON	2.25 N
Spring Force at Switching Travel OFF	2.75 N

ELECTRICAL DATA

Receptacle-Plunger	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 40 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe
Receptacle	Brass, gold-plated

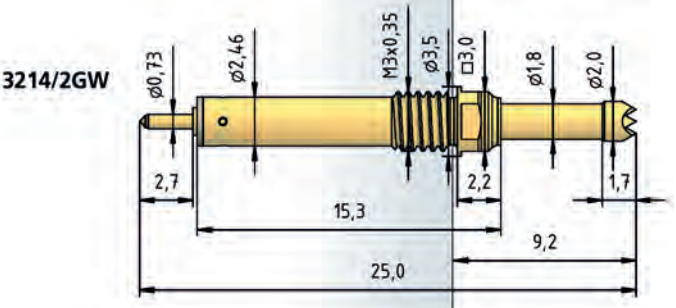
RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	3.50 mm
HGW 2372 (Glass filled material)	3.51 mm

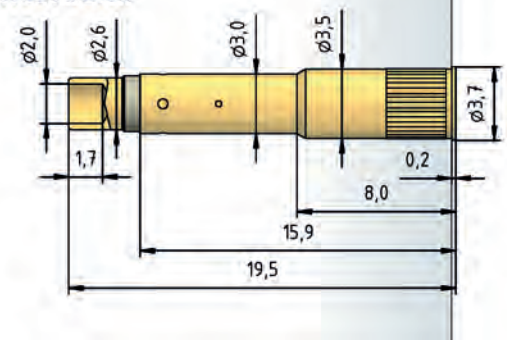
AVAILABLE SCREW TOOLS

Article Designation	**max. Tip-∅**
WFSB 1060/G-4.0-3.0	3.0

3214/2GW



H 3214/GWR



HOW TO ORDER

3214/	2	G	W	-	C	-	3.0 N	-	Au	-	2.0	C
1	2	3	4		5		6		7		8	9

1 Series 2 Collar Height 3 Threaded Design 4 Interchangeable without Soldering 5 Tip Style 6 Spring Force 7 Tip Plating 8 Tip Diameter 9 Tip Material (only for CuBe)

Series 3015/G

Ball-Head Switching Test Probe „Closer“ (NO) 300 mil / 7.5 mm

BENEFIT
Ball-head switching test probe for presence detection with side activation
Threaded type
Precision ball plunger guide
Outer housing neutral (insulated of the electrical circuit)

MECHANICAL DATA	
Center	7.50 mm / 300 mil
Temperature Range	-30 °C - +120 °C
Full Travel	1.00 mm
Working Travel	0.80 mm
Switching Travel	0.50 mm
Pre-Loaded Spring Force	0.50 N
Spring Force at Working Travel	0.70 N
Spring Force at Switching Travel	0.60 N

ELECTRICAL DATA	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 25 mOhm
Typical Insulating Voltage	1000 V

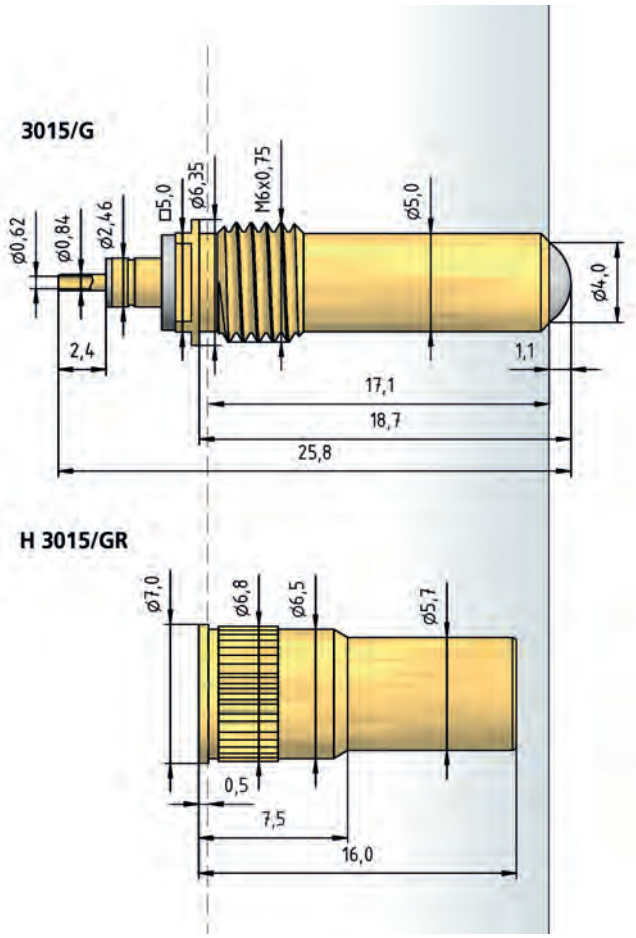
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	6.75...6.80 mm

AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 3015/G-7.0	5.0

TIP STYLE · DIAMETER · PLATING

D
4.00 Ni



HOW TO ORDER

3015/	G	-	D	-	0.7 N	-	Ni	-	4.0
1	2		3		4		5		6

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

PUSH-BACK TEST PROBES

Push-Back Test Probes are used for the contacting of connectors when a "catch test" is necessary.

In this case, a defined high force is applied to the stop parts in order to check correct seating inside the connector or to check that the connector is locked in position. All types are designed as switching test probes. Stop parts which are not locked in position are pushed out by the pressure from the connector, and the push-back test probe does not switch or give a signal.

Push-Back Test Probes are available for centers of 4.0 mm and 2.54 mm and with contact pressures of up to 25 N. Series 5104, 5265 and 3028 are especially effective for these uses. Their modular design gives them a wide range of applications. Of course, solder-free replacement of the test probes is an integral part of the easy-replacement system.

SERIES	CENTER	PAGE
3028.01	100 mil / 2.54 mm	156
5203	100 mil / 2.54 mm	157
5265	118 mil / 3.00 mm	158
5087	160 mil / 4.00 mm	159
5104	160 mil / 4.00 mm	160

Series 3028.01

Push-Back Test Probe, non-rotating 100 mil / 2.54 mm

BENEFIT
Push-back test probe for the cable harness test
Especially suitable for spade-shaped tip style
Non-rotating variant
Receptacle can be extended with switching element optional
Soldering temperature max 300°C

MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Switching Travel	2.60 mm
Pre-Loaded Spring Force	1.00/ 2.20/ 4.00 N
Spring Force at Switching Travel	3.10/ 6.80/ 10.70 N
Spring Force at Working Travel (without Switching Element)	4.30/ 9.30/ 14.30 N
Spring Force at Working Travel (with Switching Element)	+0.70 N

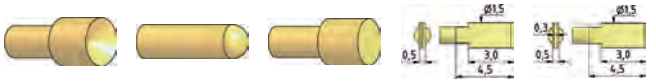
ELECTRICAL DATA	
Receptacle-Plunger	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 20 mOhm
Pin-Plunger	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated

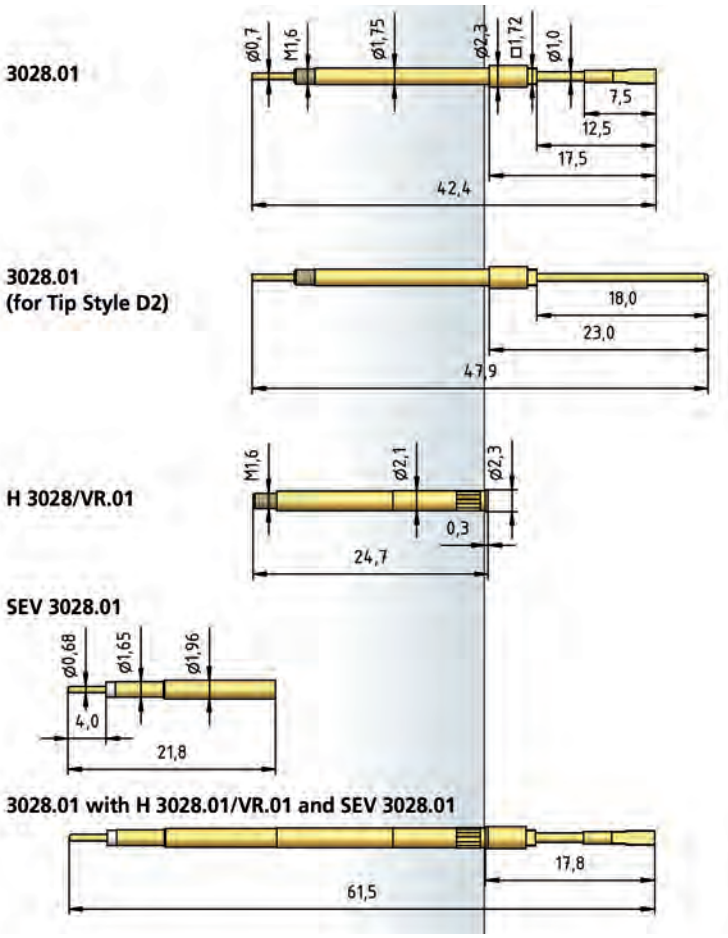
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.10 mm
HGW 2372	2.11 mm

AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0
WFSB 1021/G-3.5-3.0-Z	3.0
WFSB 1021/G-C2S-3.0-2.5-Z	2.5

TIP STYLE · DIAMETER · PLATING



A	D2	F	Y	Y3
1.50 Au 2.00 Au	0.80 Au	1.30 Au	1.50x0.50 Au	1.50x0.50 Au



HOW TO ORDER

3028	.01	-	Y	-	15.0 N	-	Au	-	1.5x	0.5
1	2		3		4		5		6	7

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter 7 Tip Thickness

Push-Back Test Probe, non-rotating 100 mil / 2.54 mm

Series 5203

TIP STYLE · DIAMETER · PLATING

A	D	F	Y	Y
1.90C Au 2.20C Au	1.20C Au 2.50C Au	1.50C Au 1.80C Au	1.90x0.30C Au	1.90x0.36C Au

Y	Y	Y
1.90x0.50C Au	1.90x0.80C Au	2.50x0.80C Au

BENEFIT

Push-back test probe for the cable harness test
Especially suitable for spade-shaped tip style
Non-rotating variant
Receptacle with switch function

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.50 mm
Working Travel	5.00 mm
Switching Travel	2.50 mm
Pre-Loaded Spring Force	1.20 N
Spring Force at Switching Travel	5.60/ 8.10 N
Spring Force at Working Travel (without Switching Element)	10.00/ 15.00 N
Spring Force at Working Travel (with Switching Element)	+0.60 N

ELECTRICAL DATA

Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 30 mOhm

MATERIALS

Spring	Spring Steel, gold-plated
Plunger	CuBe
Receptacle	Brass, gold-plated

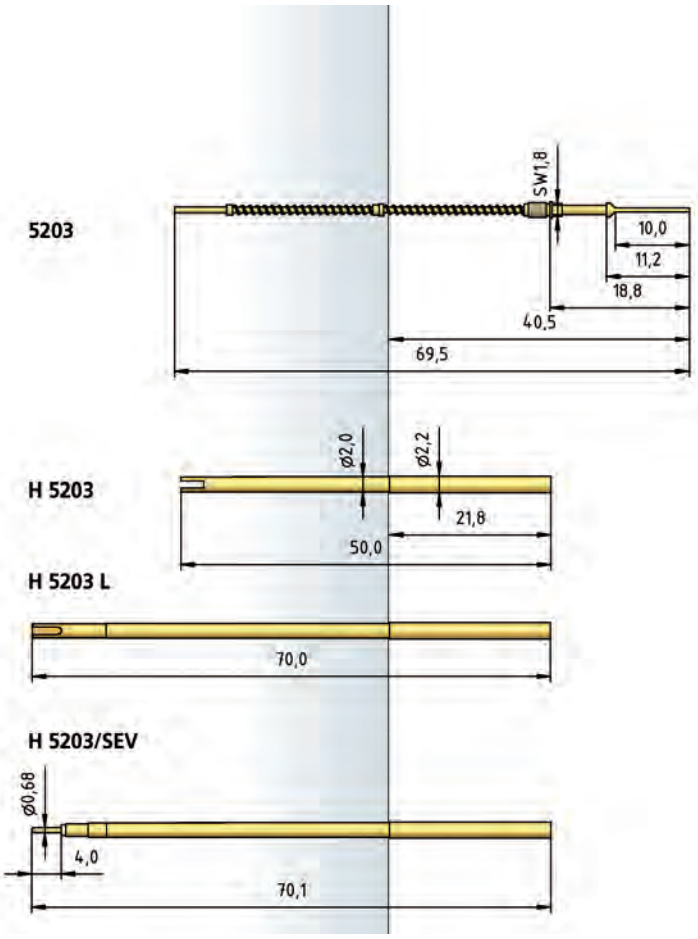
RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	2.20 mm

(Tolerances dependent on carrier material, test drilling is recommended)

AVAILABLE SCREW TOOLS

Article Designation	max. Tip-∅
WFSB 5203-2.54-2.0	2.0
WFSB 5203-3.5-2.7-Z	2.7



HOW TO ORDER

5203	-	Y	-	10.0 N	-	Au	-	1.9x	0.3	C
1		2		3		4		5	6	7

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Thickness 7 Tip Material (only for CuBe)

Series 5265

Push-Back Test Probe, non-rotating 118 mil / 3.0 mm

BENEFIT	
Push-back test probe for the cable harness test	
Especially suitable for spade-shaped tip style	
Non-rotating variant	
Receptacle with switch function	

MECHANICAL DATA	
Center	3.00 mm / 118 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.50 mm
Working Travel	5.00 mm
Switching Travel	2.60 mm
Pre-Loaded Spring Force	1.00/ 2.00/ 3.00/ 3.80 N
Spring Force at Switching Travel	3.10/ 6.20/ 9.20/ 12.20 N
Spring Force at Working Travel (without Switching Element)	5.00/ 10.00/ 15.00/ 20.00 N
Spring Force at Working Travel (with Switching Element)	+1.00 N

ELECTRICAL DATA	
Barrel-Probe Tip	
Max. Current Rating	8.0 A
Typical Continuity Resistance	≤ 30 mOhm
Connector Probe Tip	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
Typical Insulating Voltage	1000 V

MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe
Receptacle	Brass, gold-plated

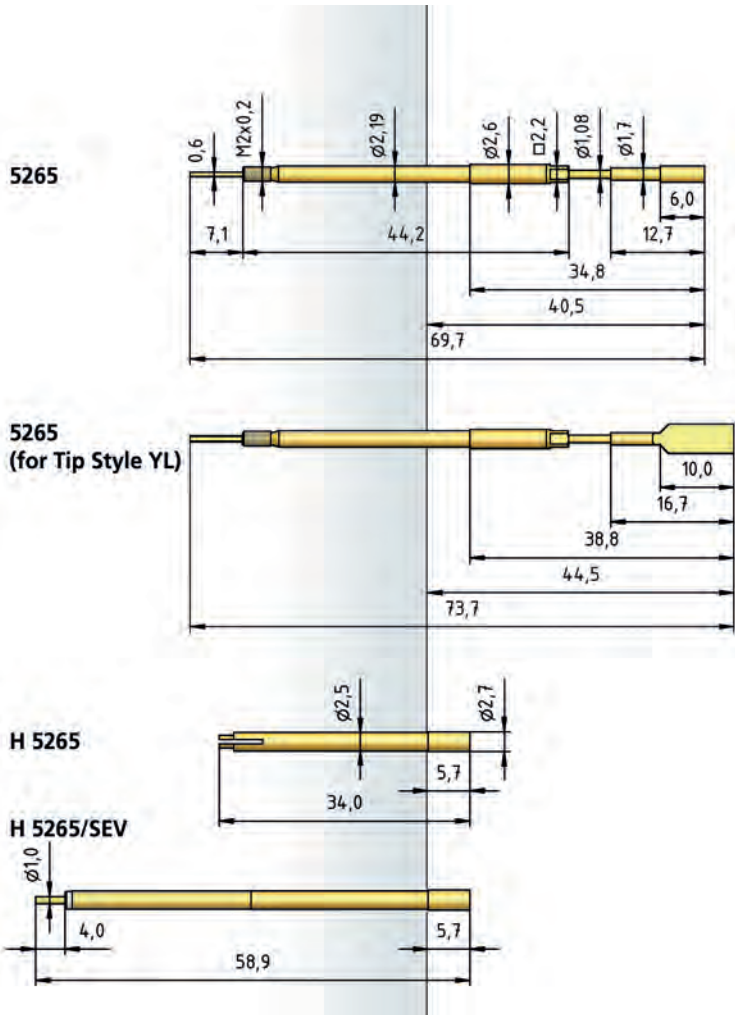
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.49...2.51 mm
(Tolerances dependent on carrier material, test drilling is recommended)	

AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 5265-3.0-2.3	2.3
WFSB 5265-3.0-2.5-Z	2.5
WFSB 5265-3.5-3.0-Z	3.0

TIP STYLE · DIAMETER · PLATING

C	F	Y	Y	Y
2.00C Au 2.70C Au 3.00C Au	1.50C Au 1.80C Au 2.30C Au 3.00C Au	1.90x0.50C Au	1.90x0.80C Au	2.20x1.20C Au

Y	Y	Y	Y	YL
2.50x0.50C Au	2.50x0.80C Au	2.50x1.50C Au	2.70x0.80C Au	4.00x0.60C Au



HOW TO ORDER

5265	-	Y	-	15.0 N	-	Au	-	1.9x	0.8	C
1		2		3		4		5	6	7

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Thickness 7 Tip Material (only for CuBe)

Push-Back Test Probe 160 mil / 4.0 mm

Series 5087

TIP STYLE · DIAMETER · PLATING

C	D	D5	F	F5
2.30C Au 2.80C Au 3.00C Au 4.00C Au	1.45C Au	2.30C Au 3.00C Au	1.00C Au 1.10C Au 1.40C Au	1.80C Au 2.30C Au

F	FL
1.80C Au	1.30C Au 1.80C Au

BENEFIT

Push-back test probe for the cable harness test

Suitable when standard head styles are used

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	10.00 mm
Working Travel	9.50 mm
Switching Travel	7.50 mm
Pre-Loaded Spring Force	1.50/ 2.00/ 4.00 N
Spring Force at Working Travel	6.00/ 9.00/ 15.00 N
Spring Force at Switching Travel	4.30/ 6.80/ 12.00 N

ELECTRICAL DATA

Barrel-Probe Tip	
Max. Current Rating	20.0 A
Typical Continuity Resistance	≤ 3 mOhm
Connector Probe Tip	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 25 mOhm
Typical Insulating Voltage	1000 V

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe

RECOMMENDED DIAMETER OF DRILL

HP 2361.1 (Trolitax)	3.00 mm

(Tolerances dependent on carrier material, test drilling is recommended)

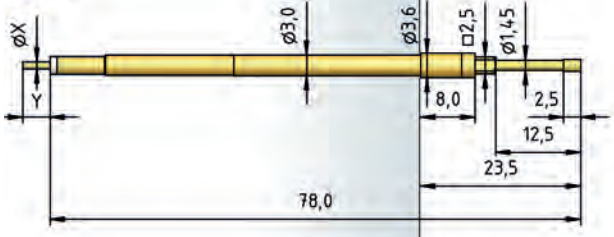
AVAILABLE SCREW TOOLS

Article Designation	max. Tip-∅
WFS 5087-4.0-2.5	2.5
WFSB 5087-5.0-4.0-Z	4.0

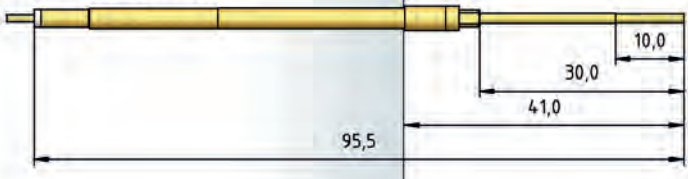
TABLE CONNECTOR PIN

Connector Pin ∅ X (mm)	Connector Pin Length Y (mm)
0.5	6.0
1.0	2.5
1.0	4.0

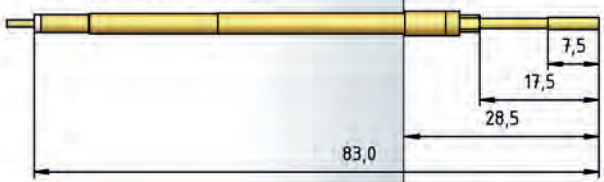
5087



5087 (for Tip Style FL)



5087 (for Tip Styles D5 / F5)



HOW TO ORDER

5087	-	F	-	15.0 N	-	Au	-	1.8	C	/1.0x	4.0
1		2		3		4		5	6	7	8

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe) 7 Connector Pin Diameter
8 Connector Pin Length

Series 5104

Push-Back Test Probe, non-rotating 160 mil / 4.0 mm

BENEFIT	
Push-back test probe for the cable harness test	
Especially suitable for spade-shaped tip style	
Non-rotating variant	
Receptacle with switch function	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	7.00 mm
Working Travel	5.00 mm
Switching Travel	3.50 mm
Pre-Loaded Spring Force	0.50/ 1.00/ 1.50/ 3.00/ 4.00/ 3.00/ 4.50/ 5.00/ 4.00/ 9.00 N
Spring Force at Switching Travel	0.70/ 3.80/ 4.65/ 7.90/ 9.10/ 11.40/ 13.95/ 15.50/ 18.70/ 23.70 N
Spring Force at Working Travel (without Switching Element)	0.75/ 5.00/ 6.00/ 10.00/ 11.25/ 15.00/ 18.00/ 20.00/ 25.00/ 30.00 N
Spring Force at Working Travel (with Switching Element)	+0.75 N
ELECTRICAL DATA	
Barrel-Probe Tip	
Max. Current Rating	20.0 A
Typical Continuity Resistance	≤ 3 mOhm
Connector Probe Tip	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 30 mOhm
Typical Insulating Voltage	1000 V
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.50 mm
(Tolerances dependent on carrier material, test drilling is recommended)	

AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1060/G-4.0-3.0	3.0
WFSB 1060/G-5.0-4.0-Z	4.0
WFSB 1060/G-6.0-5.0-Z	5.0

TABLE CONNECTOR PIN	
Connector Pin ∅ X (mm)	**Connector Pin Length Y (mm)**
0.5	6.0
0.7	7.0
1.0	2.5
1.0	4.0

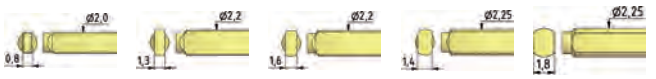
HOW TO ORDER

5104	-	Y	-	15.75 N	-	Au	-	2.2x	1.6	/1.0x4.0
1		2		3		4		5	6	7

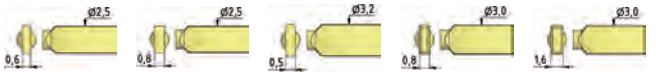
1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Thickness 7 Complete with Switching Element

TIP STYLE · DIAMETER · PLATING

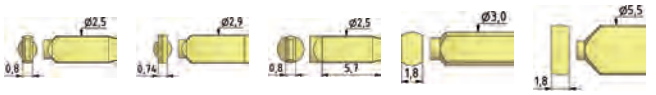
A	C	D	F	F
2.50 Au 3.00 Au 4.00 Au	2.40 Au 3.00 Au 4.00 Au 4.80 Au	1.75 Au 1.80 Au 2.00 Au 2.30 Au 3.00 Au 3.70 Au	1.80 Au 2.00 Au 3.00 Au 4.00 Au	1.40 Au



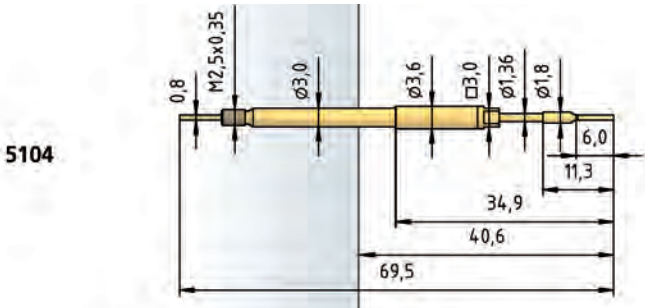
Y	Y	Y	Y	Y
2.00 x 0.80 Au	2.20 x 1.30 Au	2.20 x 1.60 Au	2.25 x 1.40 Au	2.25 x 1.80 Au

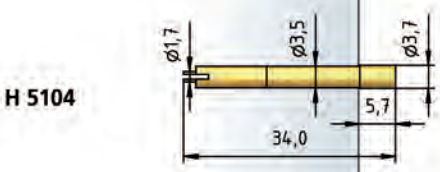


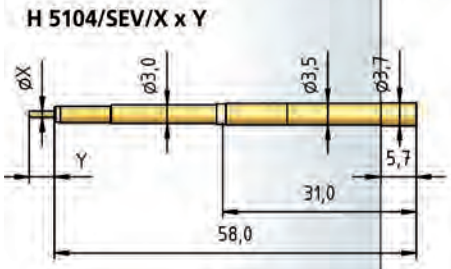
Y	Y	Y	Y1	Y1
2.50 x 0.60 Au	2.50 x 0.80 Au	3.20 x 0.50 Au	3.00 x 0.80 Au	3.00 x 1.60 Au

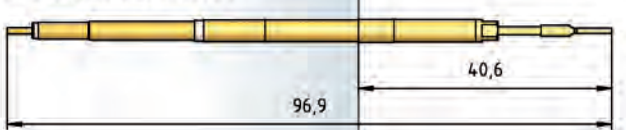


Y2	Y4	Y21	Y95	Y95
2.50 x 0.80 Au	2.90 x 0.74 Au	2.50 x 0.80 Au	3.00 x 1.80 Au	5.50 x 1.80 Au









HIGH-CURRENT TEST PROBES

High-Current Test Probes are used when higher currents are involved.

Thanks to their compact design, these series are available for centers of 100 mil (2.54 mm) to 300 mil (7.60 mm) with a large number of different tip styles. Alternatively, all series are available in a threaded type which ensures an excellent fit in the receptacle.

Based on PTR HARTMANN's standard sizes, the high-current types are fitted with a split plunger. During contacting, both parts of the plunger are pressed against each other and, as a result, against the barrel wall. The resulting increased contact with the barrel wall and the overall greater contact surface mean that the test probe can be subjected to higher currents, depending on the series, of 16 A up to 100 A. High-Current Test Probes can be used even when very low and constant resistance values are required.

Series 1021 • 1021/G

High-Current Test Probe 100 mil / 2.54 mm

BENEFIT	
For use in burn-in and run-in test	
Transmission of high currents	
Low contact resistance	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.30 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	0.70 N
Spring Force at Working Travel	3.00 N
ELECTRICAL DATA	
Max. Current Rating	16.0 A
Typical Continuity Resistance	≤ 10 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	CuBe, gold-plated/Silver Cap
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
H 1021 L	
HP 2361.1 (Trolitax)	1.98...2.00 mm
HGW 2372	1.98...2.01 mm
H 1021/(5)GR(V)-C(L)	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372	2.03 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-30 °C - +250 °C
Pre-Loaded Spring Force	0.70 N
Spring Force at Working Travel (Order Index E)	3.00 N

AVAILABLE SCREW TOOLS

Article Designation	max. Tip-∅
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0
WFSB 1021/G-C2S-3.0-2.5-Z	2.5
WFSB 1021/G-3.5-3.0-Z	3.0

HOW TO ORDER

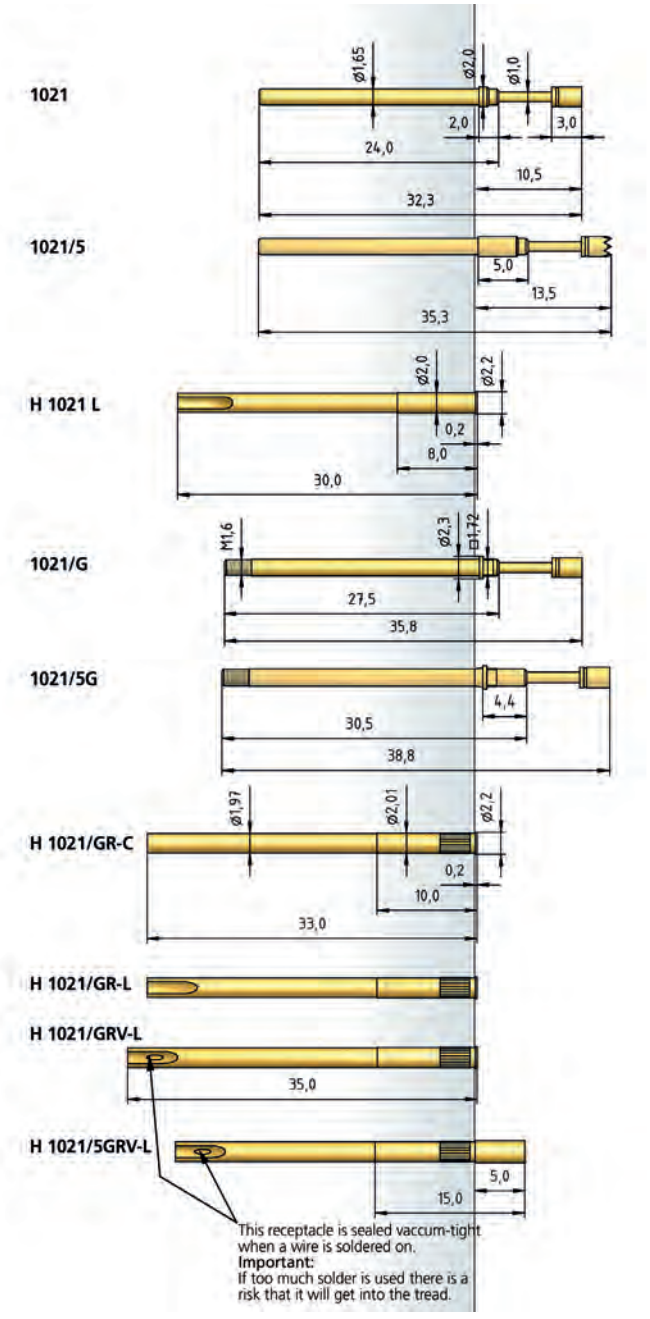
1021/	5	G	-	CX	-	3.0 N	E	-	Au	-	2.0	C
1	2	3		4		5	6		7		8	9

1 Series 4 Collar Height 3 Threaded Design 4 Tip Style 5 Spring Force
6 High Temperature 7 Tip Plating 8 Tip Diameter
9 Tip Material (only for CuBe)

TIP STYLE · DIAMETER · PLATING

AX	A6X	BX	CX	DX
2.00C Au	2.00C Au	1.00C Au	1.30C Au 1.80C Au 2.00C Au 2.50C Au 3.00C Au 3.50C Au	0.80C Au 1.00C Au

D3X	EX	FX	HX	KX
2.00C Ag	1.80C Au	1.00C Au	1.10C Au 1.40C Au 1.70C Au	1.25C Au 1.75C Au



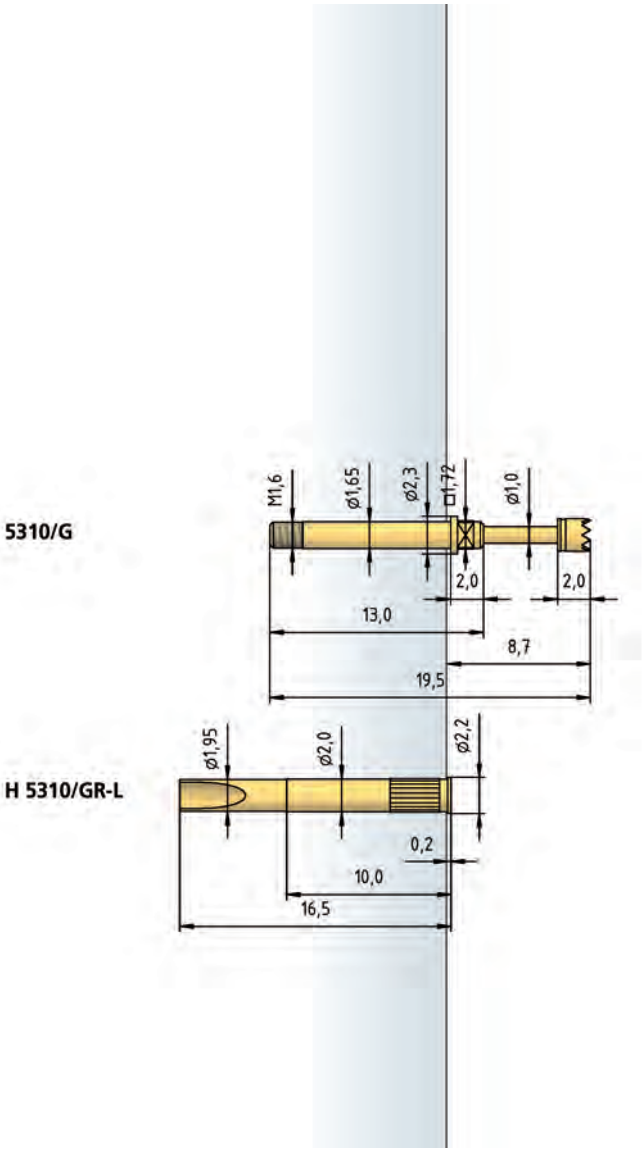
High-Current Test Probe 100 mil / 2.54 mm

Series 5310/G

TIP STYLE · DIAMETER · PLATING


CX	F3X
2.00C Au	2.00C Ag

BENEFIT	
Compact design	
For use in function test or IN-LINE-TEST	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.50 mm
Working Travel	3.50 mm
Pre-Loaded Spring Force	0.35/ 0.40 N
Spring Force at Working Travel	1.50/ 2.50 N
Spring Force at Working Travel	see High-Temperature Applications
ELECTRICAL DATA	
Max. Current Rating	16.0 A
Typical Continuity Resistance	≤ 10 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	CuBe, gold-plated/Silver Cap
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.00 mm
HGW 2372	2.03 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-30 °C - +250 °C
Pre-Loaded Spring Force	0.35/ 0.40 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.50 N
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1021/G-2.54-1.8	1.8
WFSB 1021/G-2.54-2.0	2.0



HOW TO ORDER

5310	G	-	CX	-	1.5 N	E	-	Au	-	2.0	C
1	2		3		4	5		6		7	8

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

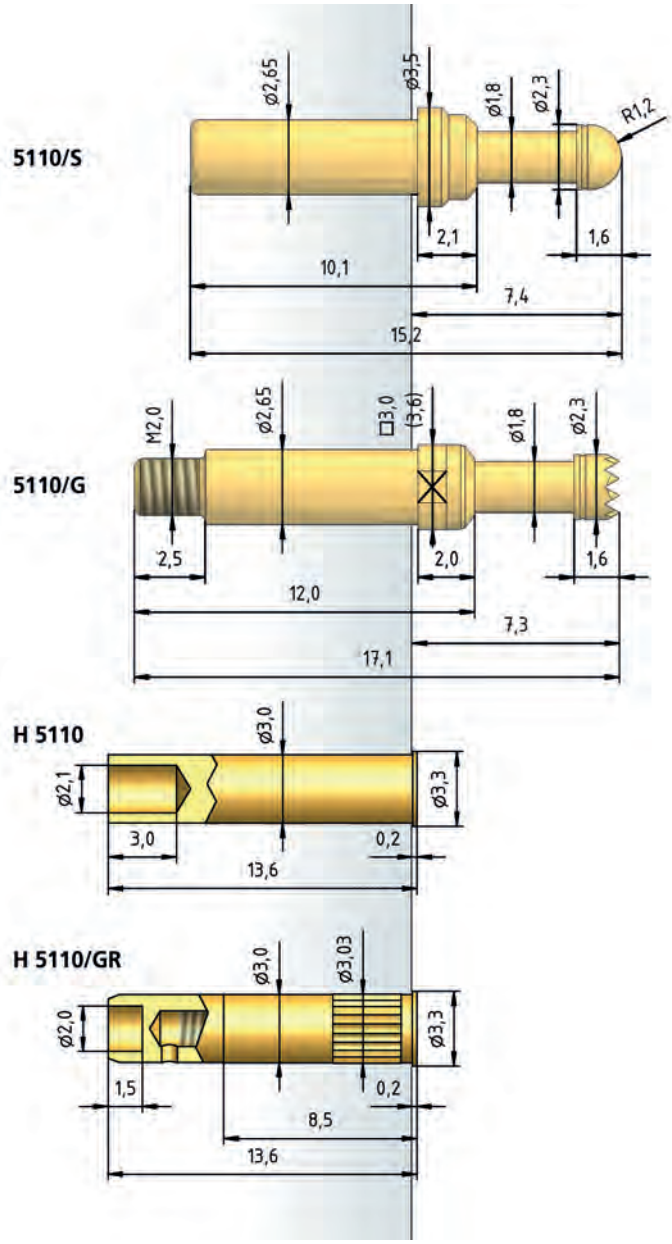
Series 5110/S • 5110/G

High-Current Test Probe 160 mil / 4.0 mm

BENEFIT	
Compact design	
Very robust	
Low contact resistance	
Test of high currents	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +250 °C
Full Travel	3.50 mm
Working Travel	2.80 mm
Spring Force at Working Travel	see High-Temperature Applications
ELECTRICAL DATA	
Max. Current Rating	24.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.64 mm
HGW 2372	2.65 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-30 °C - +250 °C
Pre-Loaded Spring Force	0.45/ 0.50/ 1.00 N
Spring Force at Working Travel (Order Index E)	1.50/ 2.50/ 3.50 N
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1060/G-4.0-3.0	3.0

TIP STYLE · DIAMETER · PLATING

CX	DX
2.30C Au	2.30C Au



HOW TO ORDER

5110/	G	-	CX	-	1.5 N	E	-	Au	-	2.3	C
1	2		3		4	5		6		7	8

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

High-Current Test Probe 160 mil / 4.0 mm

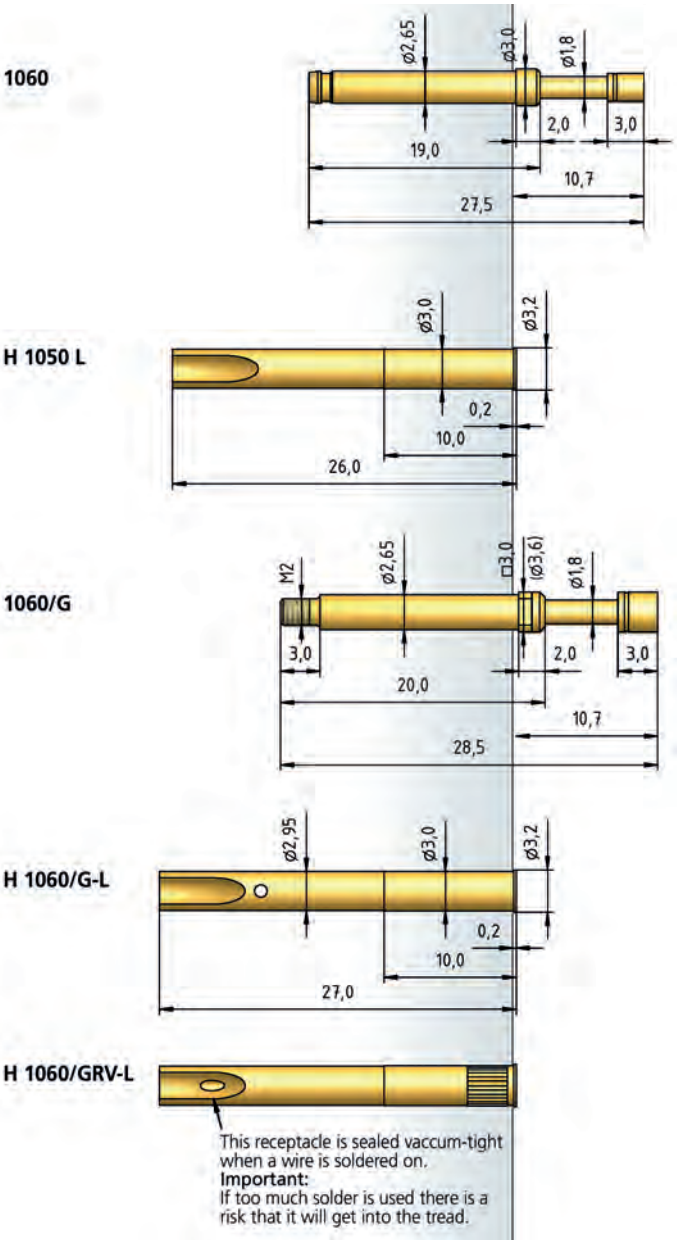
Series 1060 • 1060/G

TIP STYLE · DIAMETER · PLATING

AX	A6X	BAX	CX	DX
3.00C Au	3.00C Au	1.80C Au	2.30C Au 3.00C Au 4.00C Au	2.30C Au 3.00C Au

DX	DX1	D3X	FX	GX
1.00C Au 1.40C Au	3.00C Au	3.00C Ag	2.30C Au 4.00C Au 6.00C Au	2.50C Au

HX	H1X	KX
1.80C Au	1.30C Au	3.00C Au



BENEFIT

For use in burn-in and run-in test	
Transmission of high currents	
Low contact resistance	

MECHANICAL DATA

Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	5.50 mm
Working Travel	4.40 mm
Pre-Loaded Spring Force	0.80 N
Spring Force at Working Travel	3.00 N

ELECTRICAL DATA

Max. Current Rating	24.0 A
Typical Continuity Resistance	≤ 10 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, Stainless Steel, gold-plated
Plunger	CuBe, gold-plated/Silver Cap
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

H 1050 L, H 1060/G-L	
HP 2361.1 (Trolitax)	2.99...3.00 mm
HGW 2372	3.00 mm
H 1060/GRV-L	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372	3.01 mm

HIGH-TEMPERATURE APPLICATIONS

Temperature Range	-30 °C - +250 °C
Pre-Loaded Spring Force	0.80 N
Spring Force at Working Travel (Order Index E)	3.00 N

AVAILABLE SCREW TOOLS

Article Designation	max. Tip-∅
WFSB 1060/G-4.0-3.0	3.0
WFSB 1060/G-5.0-4.0-Z	4.0
WFSB 1060/G-6.0-5.0-Z	5.0
WFSB 1060/G4-5.0-4.0	4.0
WFSB 1060/G5-6.0-5.0	5.0

HOW TO ORDER

1060/	G	-	FX	-	3.0 N	E	-	Au	-	4.0	C
1	2		3		4	5		6		7	8

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature
6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

Series 1075 • 1075/G

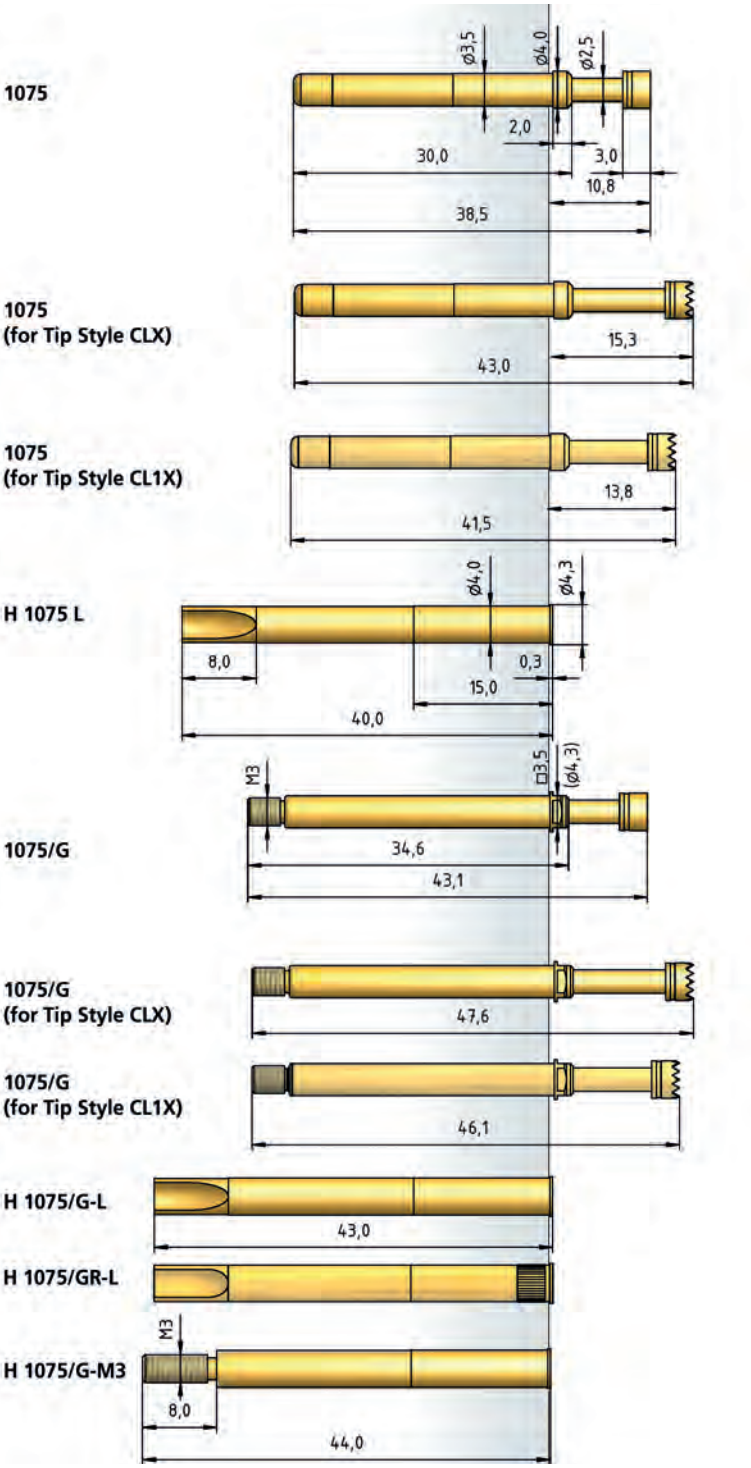
High-Current Test Probe 197 mil / 5.0 mm

BENEFIT	
For use in burn-in and run-in test	
Transmission of high currents	
Low contact resistance	
MECHANICAL DATA	
Center	5.00 mm / 197 mil
Temperature Range	-30 °C - +250 °C
Full Travel	5.50 (CLX 10.00 / CL1X 8.5) mm
Working Travel	4.40 (CLX 8.00 / CL1X 7.4) mm
Spring Force at Working Travel	see High-Temperature Applications
ELECTRICAL DATA	
Max. Current Rating	50.0 A
Typical Continuity Resistance	≤ 5 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Stainless Steel, silver-plated
Plunger	CuBe, gold-plated/Silver Cap
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.98...3.99 mm
HGW 2372	3.99...4.00 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-30 °C - +250 °C
Pre-Loaded Spring Force	1.50/ 1.50/ 2.50 N
Spring Force at Working Travel	
(Order Index E)	3.00/ 5.00/ 10.00 N
(Probe Tip CL1X - 10.00 N not available)	
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1070/G-5.0-4.0	4.0

TIP STYLE · DIAMETER · PLATING

AX	A6X	CLX	CL1X	CX
4.00C Au	3.00C Au	4.00C Au	3.00C Au 4.00C Au 5.00C Au	3.00C Au 4.00C Au

DNX	FX	KX
4.00C Ag	4.00C Au	3.00C Au



HOW TO ORDER

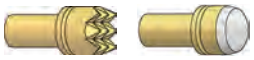
1075/	G	-	FX	-	3.0 N	E	-	Au	-	4.0	C
1	2		3		4	5		6		7	8

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature
6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

High-Current Test Probe 250 mil / 6.35 mm

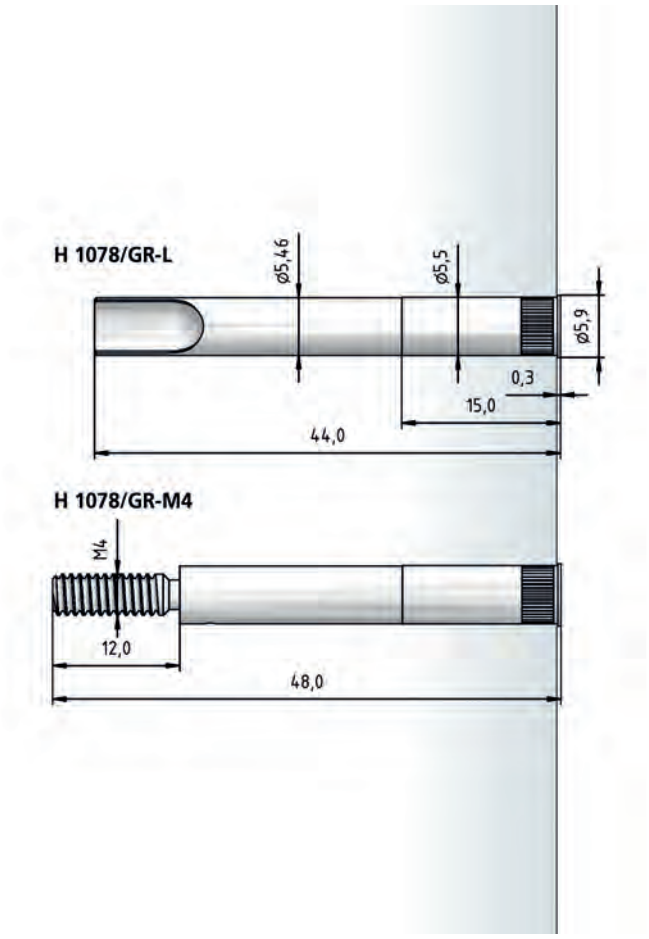
Series 1078/G NEW

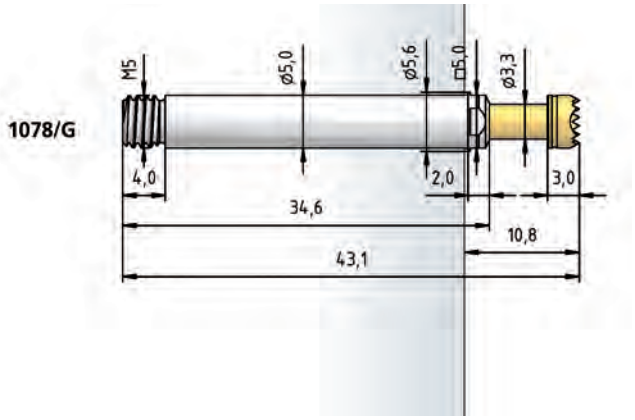
TIP STYLE · DIAMETER · PLATING



CX	DNX
5.00C Au	4.00C Ag

BENEFIT	
Compact design	
Use in extreme production environments	
For use in function test or IN-LINE-TEST	
Test of high currents	
MECHANICAL DATA	
Center	6.35 mm / 250 mil
Temperature Range	-30 °C - +250 °C
Full Travel	5.50 mm
Working Travel	4.40 mm
Spring Force at Working Travel	see High-Temperature Applications
ELECTRICAL DATA	
Max. Current Rating	75.0 A
Typical Continuity Resistance	≤ 5 mOhm
MATERIALS	
Barrel	Brass, silver-plated
Spring	Stainless Steel, gold-plated
Plunger	CuBe, gold-plated/Silver Cap
Receptacle	Brass, silver-plated
RECOMMENDED DIAMETER OF DRILL	
	5.47...5.50 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-30 °C - +250 °C
Pre-Loaded Spring Force	2.20/ 4.50 N
Spring Force at Working Travel (Order Index E)	5.00/ 10.00 N
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 3015/G-7.0	5.0





13

HOW TO ORDER

1078/	G	-	CX	-	5.0 N	E	-	Au	-	5.0	C
1	2		3		4	5		6		7	8

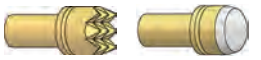
1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

Series 1080/G

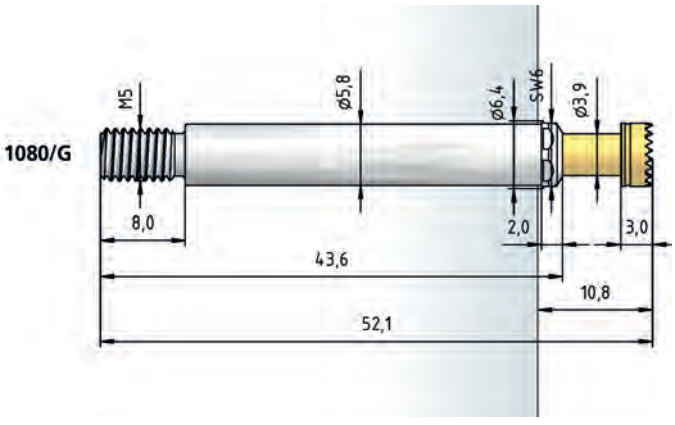
High-Current Test Probe 300 mil / 7.6 mm

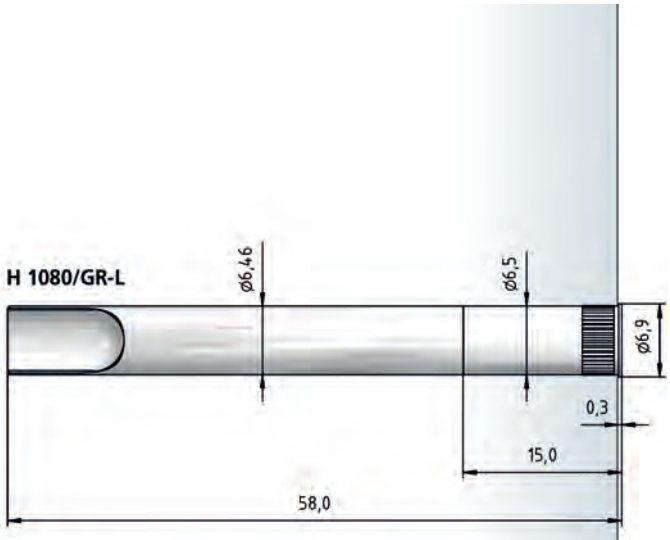
BENEFIT	
Compact design	
Use in extreme production environments	
For use in function test or IN-LINE-TEST	
Test of high currents	
MECHANICAL DATA	
Center	7.60 mm / 300 mil
Temperature Range	-30 °C - +250 °C
Full Travel	5.50 mm
Working Travel	4.40 mm
Spring Force at Working Travel	see High-Temperature Applications
ELECTRICAL DATA	
Max. Current Rating	100.0 A
Typical Continuity Resistance	≤ 5 mOhm
MATERIALS	
Barrel	Brass, silver-plated
Spring	Stainless Steel, gold-plated
Plunger	CuBe, gold-plated/Silver Cap
Receptacle	Brass, silver-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	6.40...6.50 mm
HGW 2372	6.50 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-30 °C - +250 °C
Pre-Loaded Spring Force	3.00/ 5.00 N
Spring Force at Working Travel (Order Index E)	7.00/ 15.00 N
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
Standard Socket - Wrench 6.0 mm	6.0

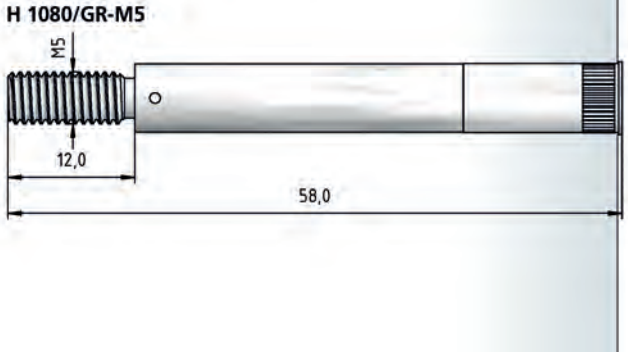
TIP STYLE · DIAMETER · PLATING



CX	DNX
6.00C Au	6.00C Ag







HOW TO ORDER

1080/	G	-	CX	-	7.0 N	E	-	Au	-	6.0	C
1	2		3		4	5		6		7	8

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 High Temperature 6 Tip Plating 7 Tip Diameter 8 Tip Material (only for CuBe)

PNEUMATIC TEST PROBES

Pneumatic Test Probes are operated with compressed air. The plunger presses against the test piece at an operating pressure of 6 bar applied to the test probe via a pneumatic hose. Depending on the size, the maximum contact pressure is up to 1.5 N.

Normally Pneumatic Test Probes are used for function test tasks, and always when measuring points must be triggered individually. A wide range of accessories with distributors, reducers, connection cable glands etc. is available for setting up an extremely large number of contacting processes. As the Pneumatic Test Probes are driven individually/independently, use without complicated test adapters is also possible.

In addition to standard types, there are models with an easy-replacement system and models which function as an opener. With the easy-to-use easy-replacement system, it is only necessary to replace the pneumatic cylinder together with the contacting unit – there is no need to release either the wiring or the pneumatic hose. This system, patented by PTR HARTMANN, considerably reduces set-up and maintenance times.

The opener (4034 series - see page 177) is a technically sophisticated variant, and is also patented. Because of the special design in the barrel, at first it is closed. It is only when a component to be contacted is not present and the switch travel is exceeded that the test probe opens and does not pass on a signal.

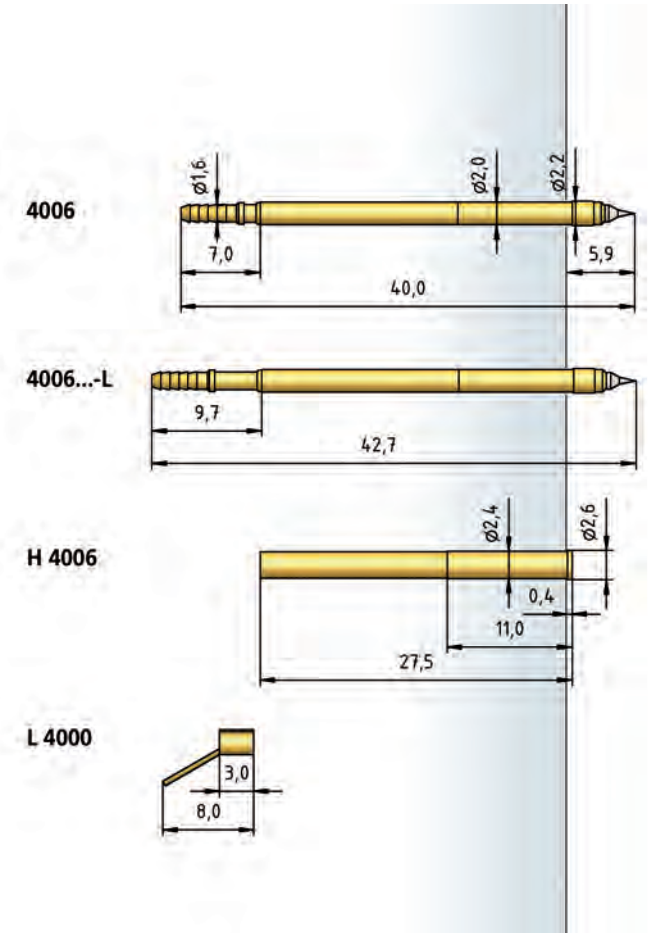
Series 4006

Pneumatic Test Probe 118 mil / 3.0 mm

BENEFIT	
Contacting of individual test points	
Contacting without adapter possible	
For use in function test	
MECHANICAL DATA	
Center	3.00 mm / 118 mil
Temperature Range	-30 °C - +120 °C
Full Travel	10.00 mm
Working Travel	6.00 mm
Spring Force at Working Travel	0.60 N
Operating Pressure	6 bar
Operating Medium	Compressed Air (filtered, oil-free)
ELECTRICAL DATA	
Max. Current Rating	2.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.40 mm
HGW 2372 (Glass filled material)	2.41 mm

TIP STYLE · DIAMETER · PLATING

BST1	C	G	V
1.50 Rh	2.50 Rh	1.30 Rh	1.00 Rh



Accessories see page 179

HOW TO ORDER

4006	-	BST1	-	0.6 N	-	Rh	-	1.5	-	L
1		2		3		4		5		6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 For Connection of L 4000

Pneumatic Test Probe 138 mil / 3.5 mm

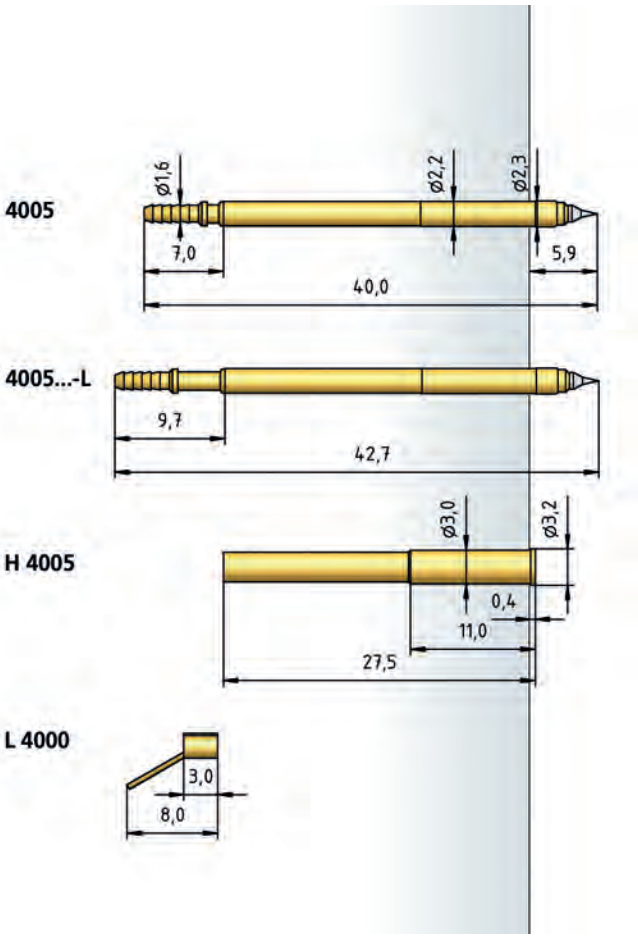
Series 4005

TIP STYLE · DIAMETER · PLATING




BST1	C	G	H
1.50 Rh	2.50 Rh	1.30 Rh	2.00 Rh

BENEFIT	
Contacting of individual test points	
Contacting without adapter possible	
For use in function test	
MECHANICAL DATA	
Center	3.50 mm / 138 mil
Temperature Range	-30 °C - +120 °C
Full Travel	10.00 mm
Working Travel	6.00 mm
Spring Force at Working Travel	0.80 N
Operating Pressure	6 bar
Operating Medium	Compressed Air (filtered, oil-free)
ELECTRICAL DATA	
Max. Current Rating	2.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.00 mm
HGW 2372 (Glass filled material)	3.01 mm



Accessories see page 179

HOW TO ORDER

4005	-	BST1	-	0.8 N	-	Rh	-	2.0	-	L
1		2		3		4		5		6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 For Connection of L 4000

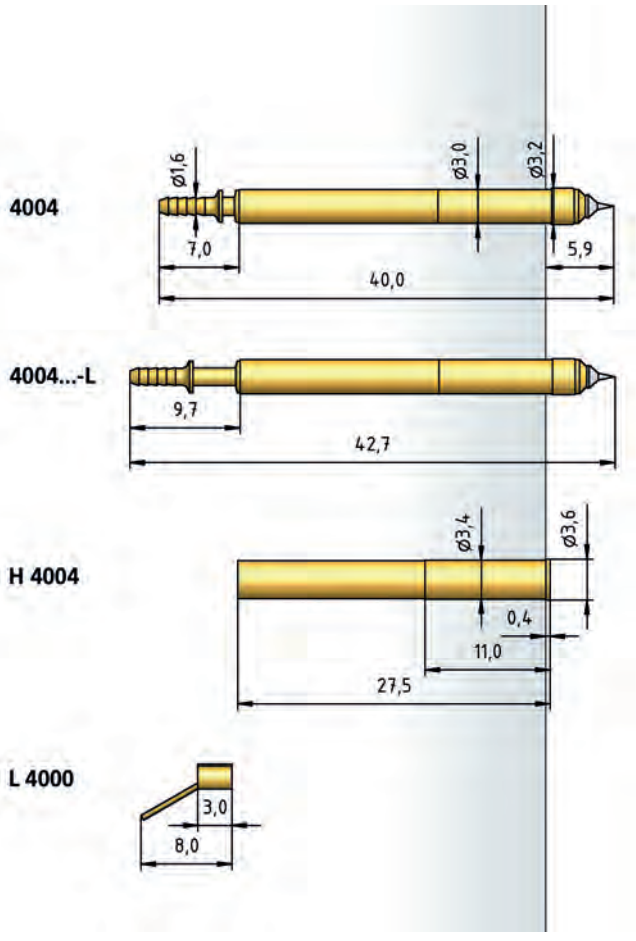
Series 4004

Pneumatic Test Probe 160 mil / 4.0 mm

BENEFIT	
Contacting of individual test points	
Contacting without adapter possible	
For use in function test	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	10.00 mm
Working Travel	6.00 mm
Spring Force at Working Travel	1.50 N
Operating Pressure	6 bar
Operating Medium	Compressed Air (filtered, oil-free)
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.40 mm
HGW 2372 (Glass filled material)	3.41 mm

TIP STYLE · DIAMETER · PLATING

A	BST1	G
3.00 Rh	2.00 Rh	1.30 Rh



Accessories see page 179

HOW TO ORDER

4004	-	BST1	-	1.5 N	-	Rh	-	2.0	-	L
1		2		3		4		5		6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 For Connection of L 4000

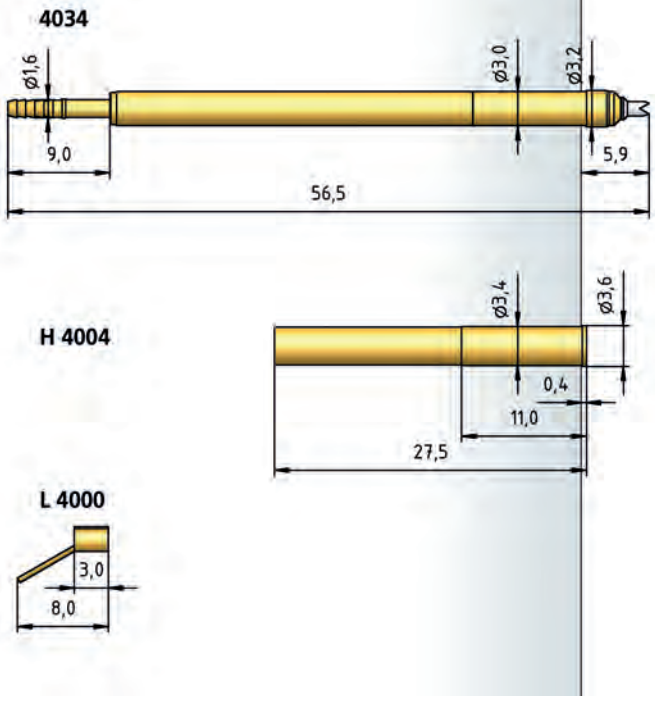
Pneumatic Test Probe "Opener" Type (NC) 160 mil / 4.0 mm

Series 4034

TIP STYLE · DIAMETER · PLATING

A	BST1	G
3.00 Rh	2.00 Rh	1.30 Rh

BENEFIT	
Switching test probe "Opener" (NC) type	
Contacting of individual test points	
Contacting without adapter possible	
For use in function test	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	10.00 mm
Working Travel	5.00 mm
Switching Travel	6.00 mm
Spring Force at Working Travel	1.60 N
Spring Force at Switching Travel	1.50 N
Operating Pressure	6 bar
Operating Medium	Compressed Air (filtered bar, oil-free)
ELECTRICAL DATA	
Receptacle-Probe Tip	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm
TUBE CONNECTION-PROBE TIP	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 50 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.40 mm
HGW 2372 (Glass filled material)	3.41 mm



Accessories see page 179

HOW TO ORDER

4034	-	G	-	1.6 N	-	Rh	-	1.3	-	L
1		2		3		4		5		6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 For Connection of L 4000

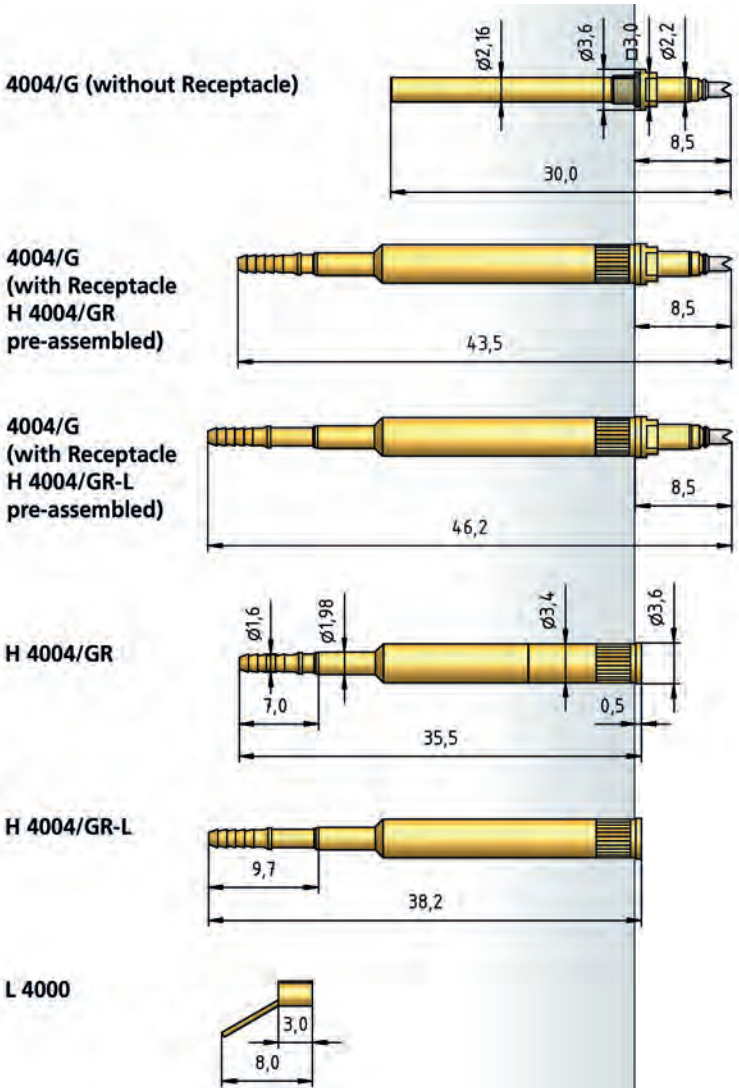
Series 4004/G

Pneumatic Test Probe with Easy-Replacement System 160 mil / 4.0 mm

BENEFIT	
Contacting of individual test points	
Contacting without adapter possible	
For use in function test	
Replacement without soldering	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-30 °C - +120 °C
Full Travel	10.00 mm
Working Travel	6.00 mm
Spring Force at Working Travel	0.60 N
Operating Pressure	6 bar
Operating Medium	Compressed Air (filtered, oil-free)
ELECTRICAL DATA	
Max. Current Rating	2.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Steel
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	3.40 mm
HGW 2372 (Glass filled material)	3.41 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 1060/G-4.0-3.0	3.0
WFSB 1060/G-5.0-4.0-Z	4.0
WFSB 1060/G-6.0-5.0-Z	5.0

TIP STYLE · DIAMETER · PLATING

BST1	C	G	V
1.50 Rh	2.50 Rh	1.30 Rh	1.00 Rh



Accessories see page 179

HOW TO ORDER: Test Probe with Receptacle

4004/	G	-	BST1	-	0.6 N	-	Rh	-	1.5	-	GR	-	L
1	2		3		4		5		6		7		8

1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter 7 Receptacle 8 For Connection of L 4000

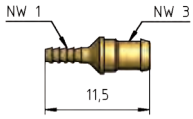
HOW TO ORDER: Single Test Probe

4004/	G	-	BST1	-	0.6 N	-	Rh	-	1.5
1	2		3		4		5		6

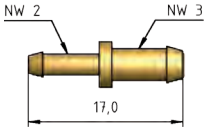
1 Series 2 Threaded Design 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter

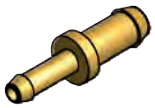
Accessories Pneumatic Test Probes

Reducer **RS 3/1**

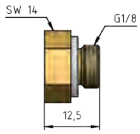


Reducer **RS 3/2**

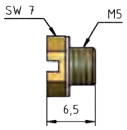




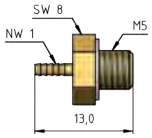
Dummy Plug for Distributor (incl. 1 seal) **BSV 1/8**



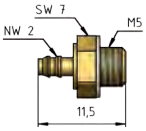
Dummy Plug for Distributor (incl. 1 seal) **BSV M5**



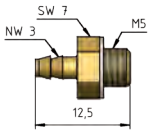
Threated Sleeve (incl. 1 seal) **AV M5/1**



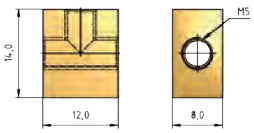
Threated Sleeve (incl. 1 seal) **AV M5/2**



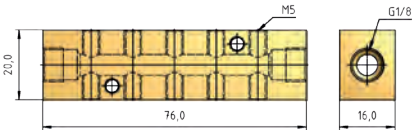
Threated Sleeve (incl. 1 seal) **AV M5/3**



T-Piece **TS 3xM5**



Tenfolder Distributor **V 10xM5**



Compressed Air Hose for NW 1 **DS 1 -** $\varnothing_{inside}$ - 1.2 mm / $\varnothing_{outside}$ - 2.0 mm

Compressed Air Hose for NW 3 **DS 3 -** $\varnothing_{inside}$ - 2.0 mm / $\varnothing_{outside}$ - 3.9 mm

BATTERY TEST PROBES

As Battery Test Probes, they are used, for example, wherever it is necessary to charge the rechargeable batteries in mobile devices such as scanners, card readers, communication devices, etc.

In many cases, they are also used to connect two PCBs. In addition to many standard products, PTR HARTMANN specializes in customer-specific solutions.

As a result of our wealth of experience in the connection technology sector, we know exactly what is important in the mounting of PCBs. In addition to complete interface pin blocks (see page 194), of course our products are also available belted and with "pick & place" pads. We develop professional solutions together with our customers, and then implement them precisely.

Selected Applications

- Mobile process data acquisition devices
- Medical devices
- Military devices
- PCB technology
- Mobile communication
- Audio-video applications
- Data acquisition devices
- Automotive equipment
- Heating control units

Series 1064

Battery Probe 100 mil / 2.54 mm

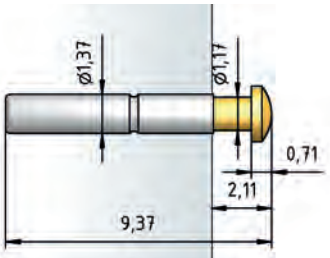
BENEFIT	
Short, compact size	
Board-to-board contacting	
For use in charging units	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	1.27 mm
Working Travel	up to 1.27 mm
Pre-Loaded Spring Force	0.35 N
Spring Force at Working Travel	1.25 N
ELECTRICAL DATA	
Max. Current Rating	5.0 A
Typical Continuity Resistance	≤ 185 mOhm
MATERIALS	
Barrel	Nickel Silver, non plated
Spring	Spring Steel, Stainless Steel, silver-plated
Plunger	CuBe, gold-plated
Receptacle	Nickel Silver, non plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.75 mm
HGW 2372 (Glass filled material)	1.75 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.20/ 0.75 N
Spring Force at Working Travel (Order Index E)	0.60/ 1.85 N

TIP STYLE · DIAMETER · PLATING

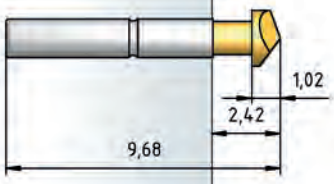
A	D	D	H	H
1.96C Au	1.17C Au	1.96C Au	1.96C Au	3.30C Au

H	H1	H1	H2
3.96C Au	1.57C Au	2.49C Au	1.96C Au

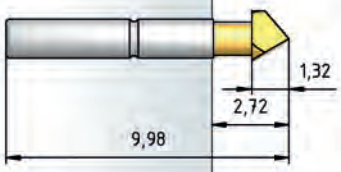
1064 (for Tip Styles A / D)



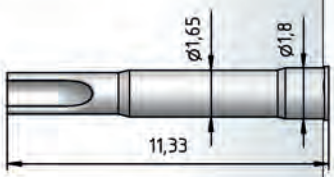
1064 (for Tip Styles H / H1)



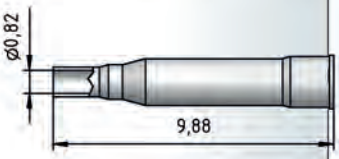
1064 (for Tip Style H2)



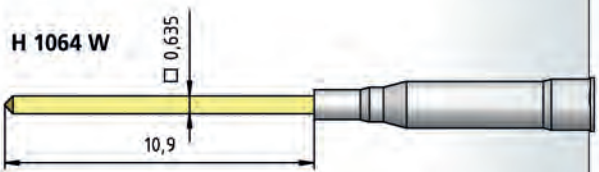
H 1064 L



H 1064 C



H 1064 W



HOW TO ORDER

1064	-	D	-	0.6 N	E	-	Au	-	1.96	C
1		2		3	4		5		6	7

1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating 6 Tip Diameter 7 Tip Material (only for CuBe)

Battery Probe 100 mil / 2.54 mm

Series 5303

TIP STYLE · DIAMETER · PLATING

D
1.07M Au

BENEFIT

- Short, compact size
- Board-to-board contacting
- SMD - Automated Assembly
- Tape on Reel

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	1.40 mm
Working Travel	0.70 mm
Pre-Loaded Spring Force	0.25 N
Spring Force at Working Travel	0.85 N

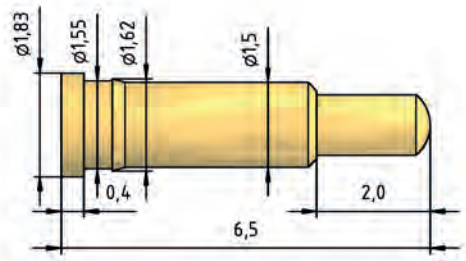
ELECTRICAL DATA

Max. Current Rating	3.5 A
Typical Continuity Resistance	≤ 20 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Brass, gold-plated

5303



HOW TO ORDER

5303	-	D	-	0.85 N	-	Au	-	1.07	M
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for Brass)

NEW

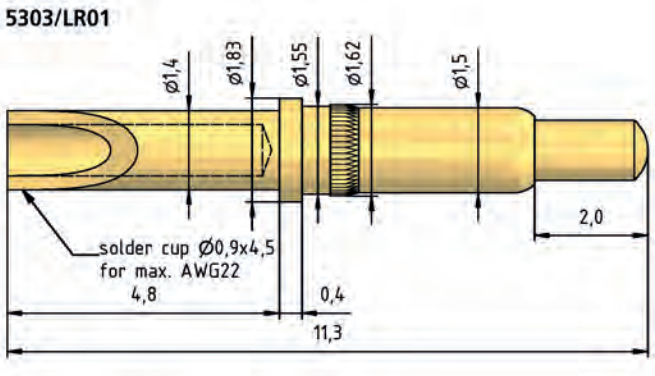
Series 5303/LR01

Battery Probe 100 mil / 2.54 mm

BENEFIT	
Short, compact size	
Connection with wire and strange wire possible	
Individual bonding possible	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	1.40 mm
Working Travel	0.70 mm
Pre-Loaded Spring Force	0.25 N
Spring Force at Working Travel	0.85 N
ELECTRICAL DATA	
Max. Current Rating	3.5 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Brass, gold-plated

TIP STYLE · DIAMETER · PLATING

D
1.07M Au



HOW TO ORDER

5303/	LR01	-	D	-	0.85 N	-	Au	-	1.07	M
1	2		3		4		5		6	7

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter
7 Tip Material (only for Brass)

Battery Probe 100 mil / 2.54 mm

Series 5303/T01

NEW

TIP STYLE · DIAMETER · PLATING

D
1.07M Au

BENEFIT

THT Variant
Short, compact size
Board-to-board contacting
Tape on Reel

MECHANICAL DATA

Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	1.40 mm
Working Travel	0.70 mm
Pre-Loaded Spring Force	0.25 N
Spring Force at Working Travel	0.85 N

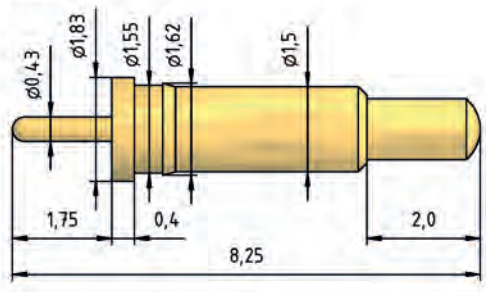
ELECTRICAL DATA

Max. Current Rating	3.5 A
Typical Continuity Resistance	≤ 20 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Brass, gold-plated

5303/T01



HOW TO ORDER

5303/	T01	-	D	-	0.85 N	-	Au	-	1.07	M
1	2		3		4		5		6	7

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating 6 Tip Diameter 7 Tip Material (only for Brass)

Series 5305

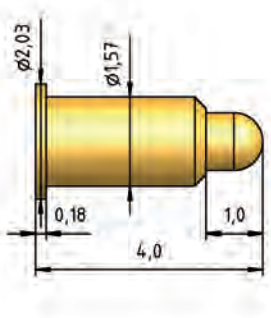
Battery Probe 100 mil / 2.54 mm

BENEFIT	
Short, compact size	
Board-to-board contacting	
SMD - Automated Assembly	
Tape on Reel	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	1.00 mm
Spring Force at Full Travel	see High-Temperature Applications
ELECTRICAL DATA	
Max. Current Rating	1.5 A
Typical Continuity Resistance	≤ 10 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	Brass, gold-plated
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.40 N
Spring Force at Working Travel (Order Index E)	1.00 N

TIP STYLE · DIAMETER · PLATING

D
1.02M Au

5305



HOW TO ORDER

5305	-	D	-	1.0 N	E	-	Au	-	1.02	M
1		2		3	4		5		6	7

1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating
6 Tip Diameter 7 Tip Material (only for Brass)

Battery Probe 118 mil / 3.0 mm

Series 5099

TIP STYLE · DIAMETER · PLATING

D	D	G	V
1.00C Au	1.30C Au	1.30C Au	1.30C Au

BENEFIT

Short, compact size
Board-to-board contacting
For use in charging units

MECHANICAL DATA

Center	3.00 mm / 118 mil
Temperature Range	-30 °C - +120 °C
Full Travel	1.20 mm
Working Travel	1.00 mm
Pre-Loaded Spring Force	0.30/ 0.30/ 0.50 N
Spring Force at Working Travel	0.60/ 1.00/ 2.00 N

ELECTRICAL DATA

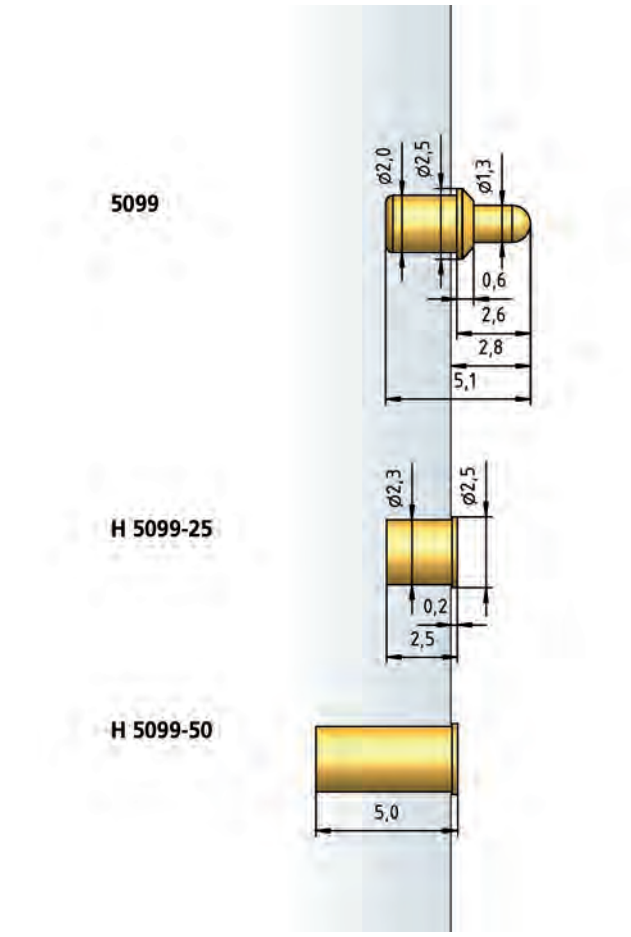
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 10 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Brass, gold-plated

RECOMMENDED DIAMETER OF DRILL

with Receptacle	
HP 2361.1 (Trolitax)	2.29 mm
HGW 2372 (Glass filled material)	2.30 mm
without Receptacle	
HP 2361.1 (Trolitax)	1.99 mm
HGW 2372 (Glass filled material)	2.00 mm



HOW TO ORDER

5099	-	D	-	2.0 N	-	Au	-	1.3	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

Series 5099.04

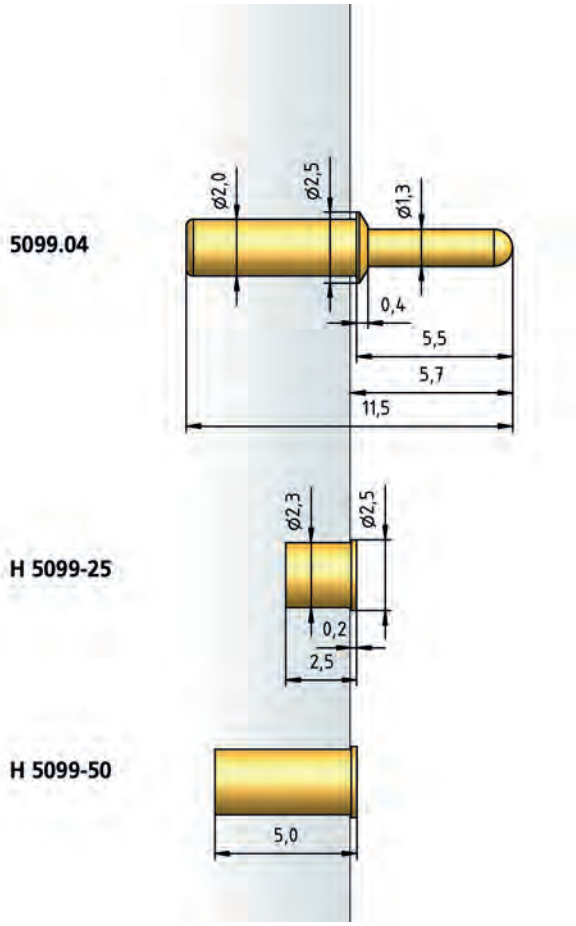
Battery Probe 118 mil / 3.0 mm

BENEFIT	
Long full travel	
Board-to-board contacting	
For use in charging units	
MECHANICAL DATA	
Center	3.00 mm / 118 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.00 mm
Working Travel	3.30 mm
Pre-Loaded Spring Force	0.15/ 0.25 N
Spring Force at Working Travel	0.50/ 2.00 N
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
with Receptacle	
HP 2361.1 (Trolitax)	2.29 mm
HGW 2372 (Glass filled material)	2.30 mm
without Receptacle	
HP 2361.1 (Trolitax)	1.99 mm
HGW 2372 (Glass filled material)	2.00 mm

TIP STYLE · DIAMETER · PLATING

D4

1.30C Au



HOW TO ORDER

5099	.04	-	D4	-	2.0 N	-	Au	-	1.3	C
1	2		3		4		5		6	7

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating
6 Tip Diameter 7 Tip Material (only for CuBe)

Battery Probe 138 mil / 3.5 mm

Series 5099.43

TIP STYLE · DIAMETER · PLATING

D
1.30C Au

BENEFIT

Position horizontal
Board-to-board contacting
Tape on Reel
SMD - Automated Assembly
Individual placement by housing design

MECHANICAL DATA

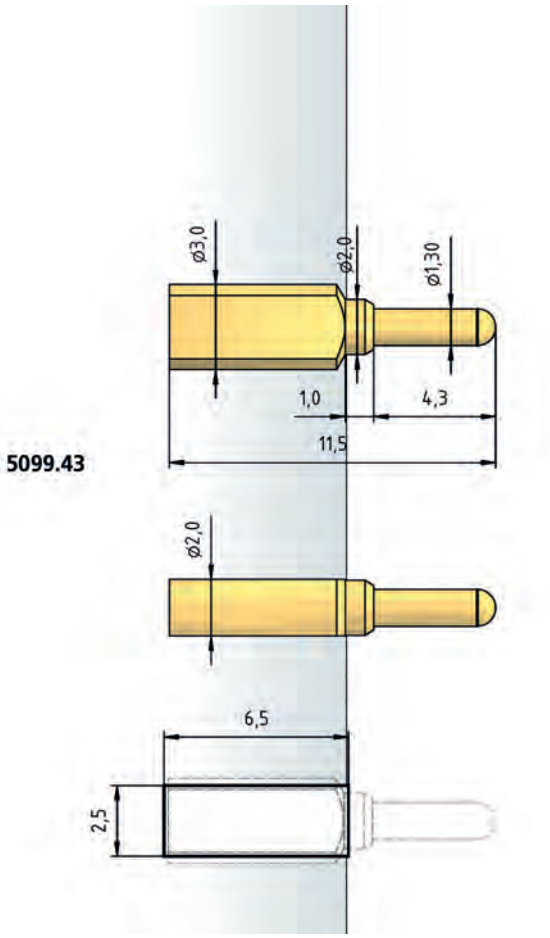
Center	3.50 mm / 138 mil
Temperature Range	-30 °C - +120 °C
Full Travel	4.00 mm
Working Travel	3.30 mm
Pre-Loaded Spring Force	0.15/ 0.25 N
Spring Force at Working Travel	0.50/ 2.00 N

ELECTRICAL DATA

Max. Current Rating	8.0 A
Typical Continuity Resistance	≤ 20 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated



HOW TO ORDER

5099	.43	-	D	-	2.0 N	-	Au	-	1.3	C
1	2		3		4		5		6	7

1 Series 2 Variant 3 Tip Style 4 Spring Force 5 Tip Plating
6 Tip Diameter 7 Tip Material (only for CuBe)

Series 5110/S

Battery Probe 160 mil / 4.0 mm

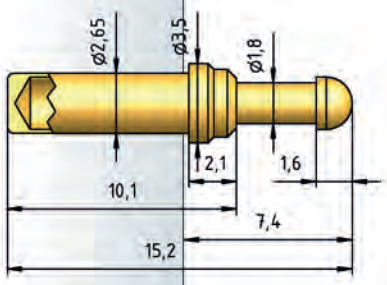
BENEFIT	
Short, compact size	
Board-to-board contacting	
For use in charging units	
MECHANICAL DATA	
Center	4.00 mm / 160 mil
Temperature Range	-40 °C - +250 °C
Full Travel	3.50 mm
Working Travel	2.80 mm
Spring Force at Working Travel	see High-Temperature Applications
ELECTRICAL DATA	
Max. Current Rating	10.0 A
Typical Continuity Resistance	≤ 10 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	CuBe, gold-plated
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	2.64 mm
HGW 2372 (Glass filled material)	2.65 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.25/ 0.30/ 0.45/ 0.50/ 1.00 N
Spring Force at Working Travel (Order Index E)	0.80/ 1.20/ 1.50/ 2.50/ 3.50 N

TIP STYLE · DIAMETER · PLATING

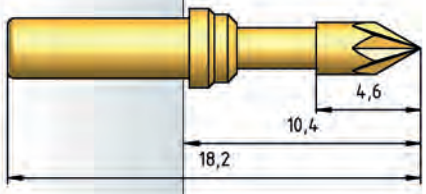
C	D1	D	E	F
2.30C Au 3.50C Au	2.30C Au	2.30C Au	2.30C Au	2.30C Au

K2
2.30C Au

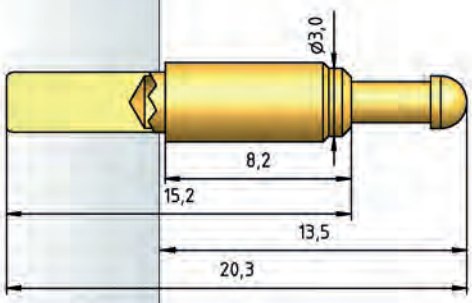
5110/S



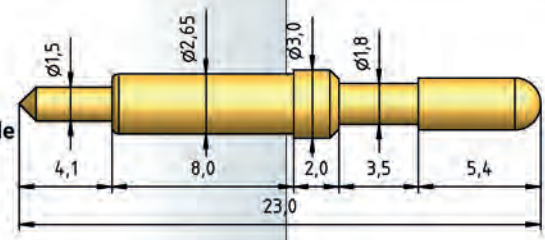
5110/S (for Tip Style K2)



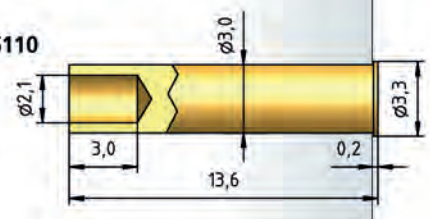
5110/S.02



5110/1 (for Tip Style D1)



H 5110



HOW TO ORDER

5110/S	-	D	-	1.5 N	E	-	Au	-	2.3	C
1		2		3	4		5		6	7

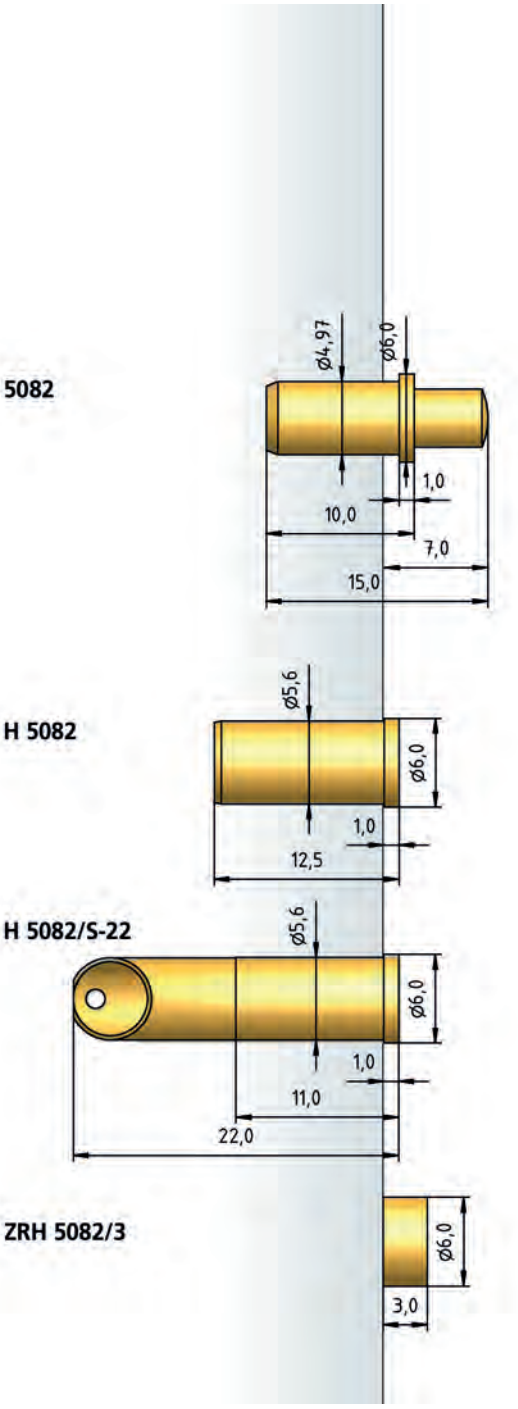
1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating 6 Tip Diameter 7 Tip Material (only for CuBe)

Battery Probe 256 mil / 6.5 mm

Series 5082

TIP STYLE · DIAMETER · PLATING

B1D	C	D	E1D	G
4.00M Au	4.00 Au	4.00M Au	4.00M Au	4.00 Au



BENEFIT	
Sturdy design	
For use in tough conditions	
Long Lifetime	
Spring forces up to 8.0 N	
MECHANICAL DATA	
Center	6.50 mm / 256 mil
Temperature Range	-40 °C - +250 °C
Full Travel	4.00 mm
Working Travel	3.20 mm
Spring Force at Working Travel	see High-Temperature Applications
ELECTRICAL DATA	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	Steel, Brass
Receptacle	Brass, gold-plated
RECOMMENDED DIAMETER OF DRILL	
without Receptacles	
HP 2361.1 (Trolitax)	4.97 mm
with Receptacles	
HP 2361.1 (Trolitax)	5.59...5.60 mm
HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.20/ 0.40/ 1.00/ 0.80/ 1.60 N
Spring Force at Working Travel	
Order Index E)	0.60/ 1.50/ 3.00/ 4.00/ 8.00 N

HOW TO ORDER

5082	-	D	-	3.0 N	E	-	Au	-	4.0	M
1		2		3	4		5		6	7

1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating
6 Tip Diameter 7 Tip Material (only for Brass)

Series 5082.01

Battery Probe 256 mil / 6.5 mm

BENEFIT
Sturdy design
For use in tough conditions
Long lifetime
Low contact resistances
Spring forces up to 8.0 N

MECHANICAL DATA	
Center	6.50 mm / 256 mil
Temperature Range	-40 °C - +250 °C
Full Travel	5.00 mm
Working Travel	4.00 mm
Spring Force at Working Travel	see High-Temperature Applications

ELECTRICAL DATA	
Connector Receptacle	
Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 100 mOhm
Connector Plunger	
Max. Current Rating	15.0...20.0 A
Typical Continuity Resistance	≤ 10 mOhm

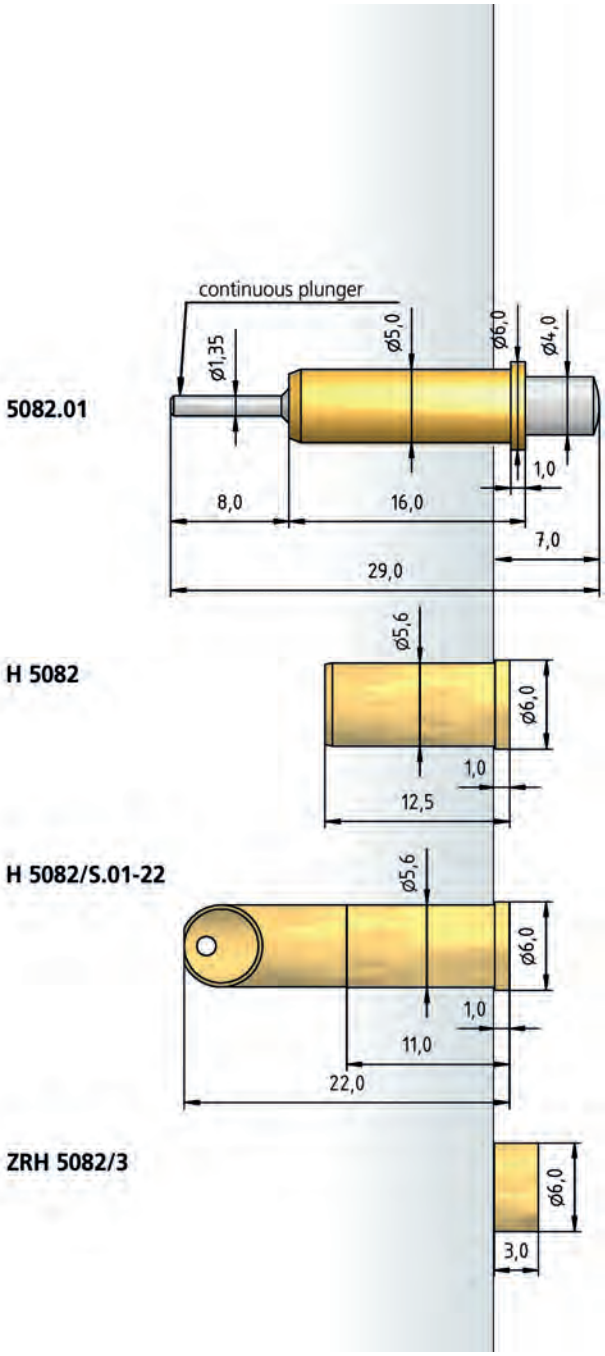
MATERIALS	
Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	Steel

RECOMMENDED DIAMETER OF DRILL	
without Receptacles	
HP 2361.1 (Trolitax)	4.97 mm
with Receptacles	
HP 2361.1 (Trolitax)	5.59...5.60 mm

HIGH-TEMPERATURE APPLICATIONS	
Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.20/ 0.40/ 1.00/ 1.60 N
Spring Force at Working Travel (Order Index E)	0.60/ 1.50/ 3.00/ 8.00 N

TIP STYLE · DIAMETER · PLATING

B1	C	D	G
4.00 Ni	4.00 Ni	4.00 Ni	4.00 Ni



HOW TO ORDER

5082.01	-	D	-	3.0 N	E	-	Ni	-	4.0
1		2		3	4		5		6

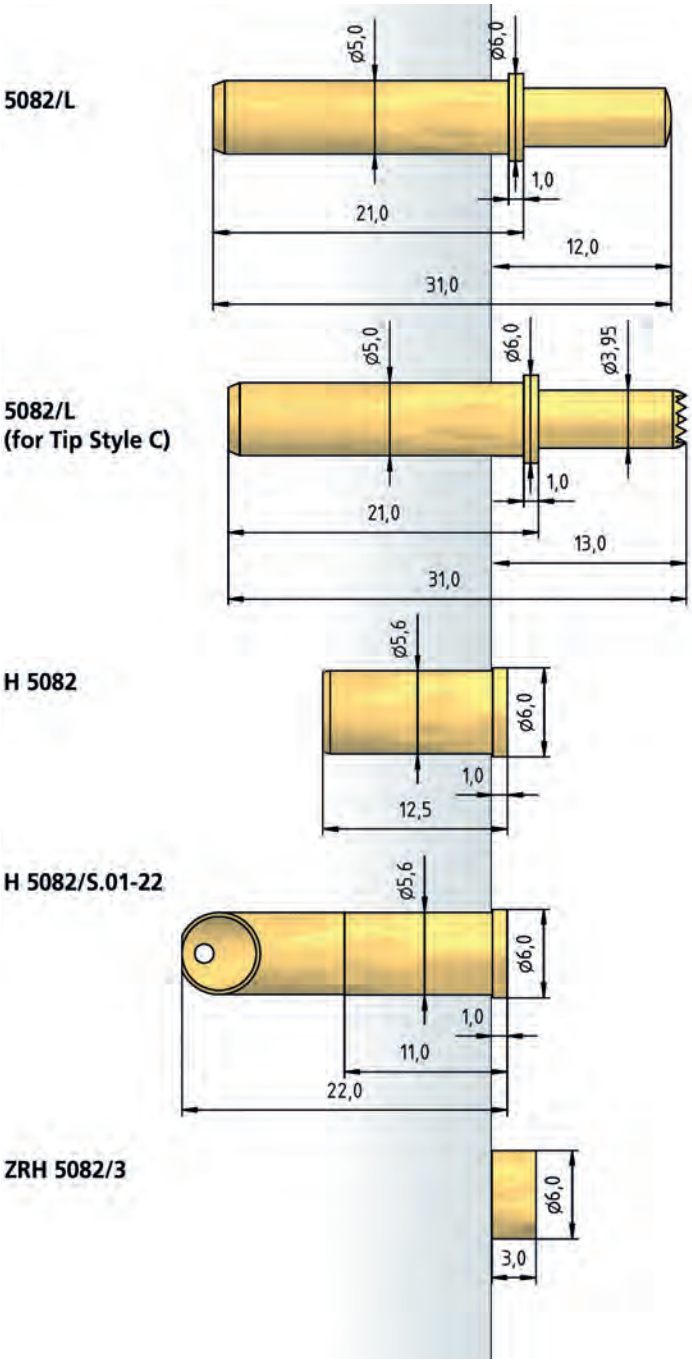
1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating 6 Tip Diameter

Battery Probe 256 mil / 6.5 mm

Series 5082/L

TIP STYLE · DIAMETER · PLATING


C	D
4.00C Au	4.00C Au



BENEFIT

Sturdy design
For use in tough conditions
Long lifetime
Long full travel
Spring forces up to 8.0 N

MECHANICAL DATA

Center	6.50 mm / 256 mil
Temperature Range	-40 °C - +250 °C
Full Travel	10.00 mm
Working Travel	8.00 mm
Spring Force at Working Travel	see High-Temperature Applications

ELECTRICAL DATA

Max. Current Rating	5.0...8.0 A
Typical Continuity Resistance	≤ 100 mOhm

MATERIALS

Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	CuBe

RECOMMENDED DIAMETER OF DRILL

without Receptacles	
HP 2361.1 (Trolitax)	4.97 mm
with Receptacles	
HP 2361.1 (Trolitax)	5.59...5.60 mm

HIGH-TEMPERATURE APPLICATIONS

Temperature Range	-40 °C - +250 °C
Pre-Loaded Spring Force	0.40/ 1.00/ 3.00 N
Spring Force at Working Travel (Order Index E)	1.50/ 3.00/ 8.00 N

HOW TO ORDER

5082/L	-	D	-	8.0 N	E	-	Au	-	4.0
1		2		3	4		5		6

1 Series 2 Tip Style 3 Spring Force 4 High Temperature 5 Tip Plating 6 Tip Diameter

INTERFACE PIN BLOCKS

Interface Pin Blocks serve the same function as battery probes (see page 180). They can be used as a charging contact in almost all mobile devices, but also for connecting PCBs and as signal conductors, etc.

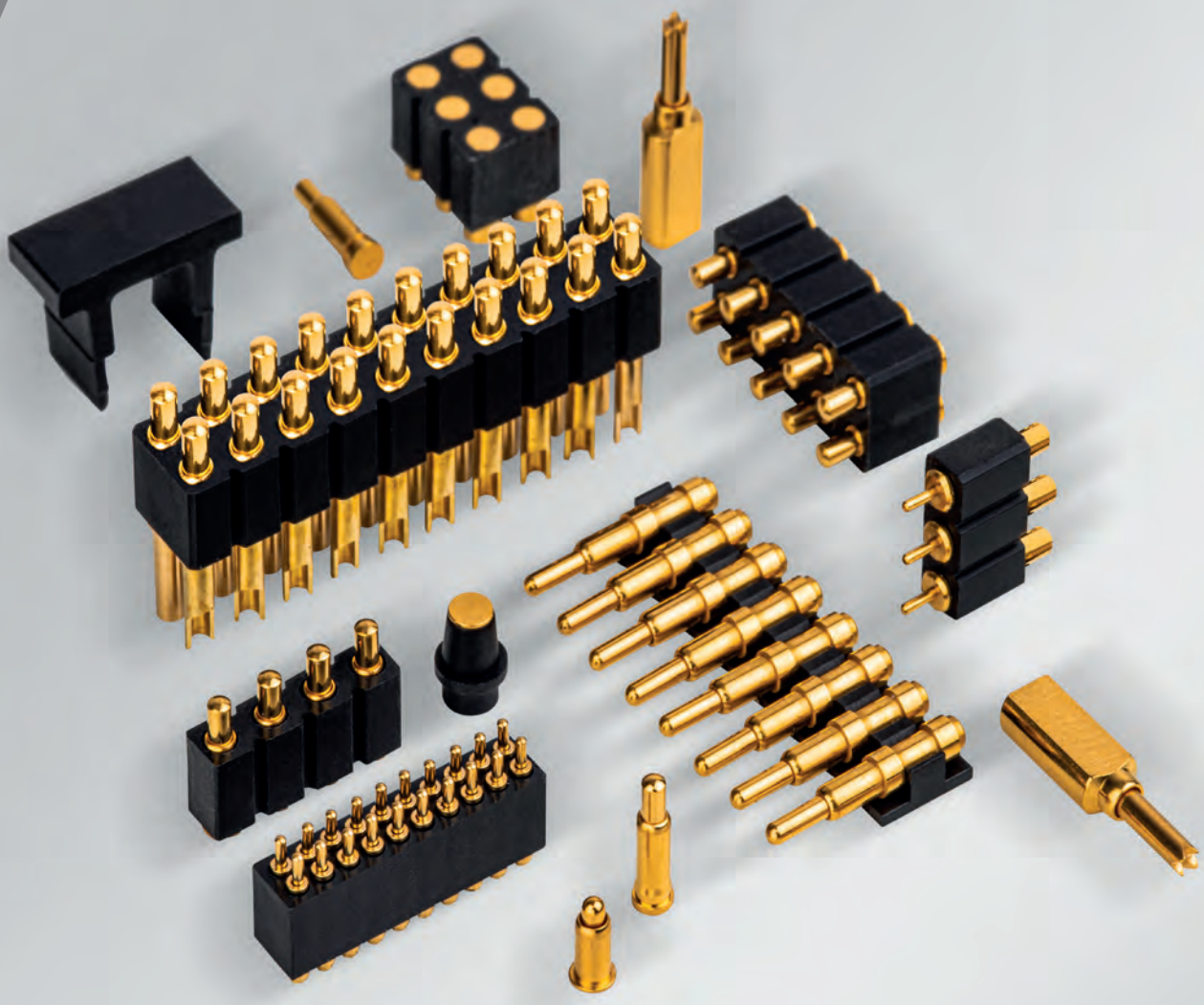
In such cases, the important advantage is that our standard allows the simultaneous positioning of up to 20 contacts which can be soldered onto the PCB using reflow processes.

As a result of our considerable experience in the manufacturing of injection moulding tools for the connection technology sector, PTR HARTMANN offers complete solutions including plastic carriers, tape-and-reel, and "pick & place" pads, including for individually adapted products. Other types of packing, for example trays, are also available for small quantities and less-automated manufacturing processes. We develop professional solutions together with our customers, and then implement them as scheduled.

The quality of our contacts complies with internationally recognized test scenarios. Our interface pin blocks are approved with UL certification in both the USA and Canada regions.

Series 5322 has passed vibration and shock tests without any measurable contact loss according to the following standards:

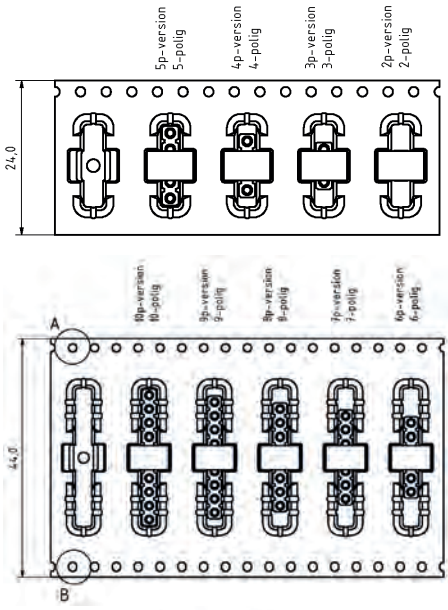
» IEC 60068-2-6, Test Fc: Vibration (sinusoidal)
» IEC 60068-2-27, Test Ea and guidance: Shock
» IEC 60512-2-5, Test 2e: Contact disturbance



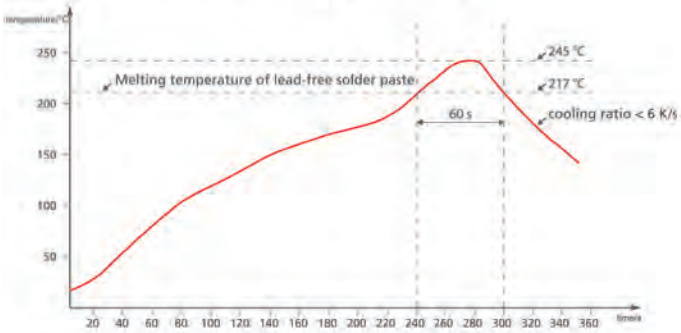
Series FKB5322 - SMD

Interface Pin Blocks 100 mil / 2.54 mm

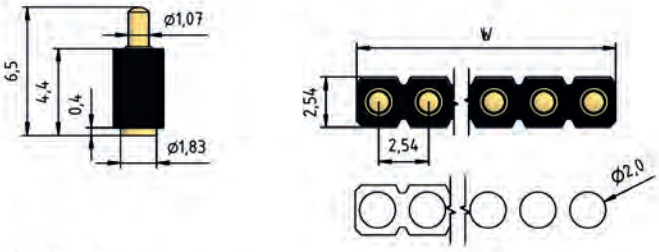
BENEFIT		
Short, compact size		
Board-to-board contacting		
Tape on Reel - SMD / Automated Assembly		
2 to 20 poles / 1 and 2 rows available		
MECHANICAL DATA		
Center	2.54 mm / 100 mil	
Full Travel	1.40 mm	
Working Travel	0.70 mm	
Pre-Loaded Spring Force	0.25 N	
Spring Force at Working Travel	0.85 N	
ELECTRICAL DATA		
Max. Current Rating	3.5 A	
Typical Continuity Resistance	≤ 20 mOhm	
MATERIALS		
Barrel	Brass, gold-plated	
Spring	Spring Steel, gold-plated	
Plunger	Brass, gold-plated	
Test Probe Block	PA	
TAPE ON REEL (EN 60286-3)		
Tape on reel width	24 mm / 44 mm	
Spooling diameter	15“	
Number of components	800	
Pitch	12 mm	
OPERATING LIFE		
Cycle	50.000	
RATINGS		
Rated Current	3.5 A	2.0 A
Rated Voltage - DC	150 V	150 V
Rated Voltage - AC	100 V	100 V
Flammability Class	UL 94 V-0	UL 94 V-0



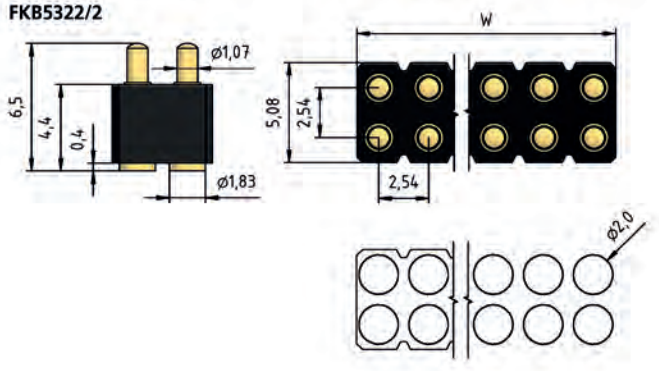
Soldering profile reflow



FKB5322/1



FKB5322/2



ORDER DATA

Poles	Width (mm)	Article Designation	Article Number	PU
FKB 5322/1				
2	5.08	FKB 5322/1-02-65-R24	65322F30265	PCS800
3	7.62	FKB 5322/1-03-65-R24	65322F30365	PCS800
4	10.16	FKB 5322/1-04-65-R24	65322F30465	PCS800
5	12.70	FKB 5322/1-05-65-R24	65322F30565	PCS800
6	15.24	FKB 5322/1-06-65-R44	65322F30665	PCS800
7	17.78	FKB 5322/1-07-65-R44	65322F30765	PCS800
8	20.32	FKB 5322/1-08-65-R44	65322F30865	PCS800
9	22.86	FKB 5322/1-09-65-R44	65322F30965	PCS800
10	25.40	FKB 5322/1-10-65-R44	65322F31065	PCS800
FKB 5322/2				
4	5.08	FKB 5322/2-04-65-R24	65322F40465	PCS800
6	7.62	FKB 5322/2-06-65-R24	65322F40665	PCS800
8	10.16	FKB 5322/2-08-65-R24	65322F40865	PCS800
10	12.70	FKB 5322/2-10-65-R24	65322F41065	PCS800
12	15.24	FKB 5322/2-12-65-R44	65322F41265	PCS800
14	17.78	FKB 5322/2-14-65-R44	65322F41465	PCS800
16	20.32	FKB 5322/2-16-65-R44	65322F41665	PCS800
18	22.86	FKB 5322/2-18-65-R44	65322F41865	PCS800
20	25.40	FKB 5322/2-20-65-R44	65322F42065	PCS800

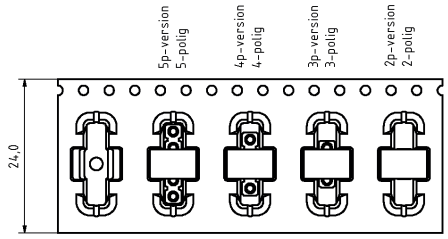
HOW TO ORDER

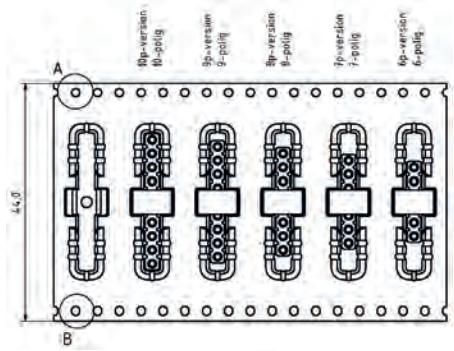
FKB5322	/1	-	2	-	65	-	R24
1	2		3		4		5

1 Series 2 Number of Rows 3 Poles 4 Installation Height 5 Tape on Reel

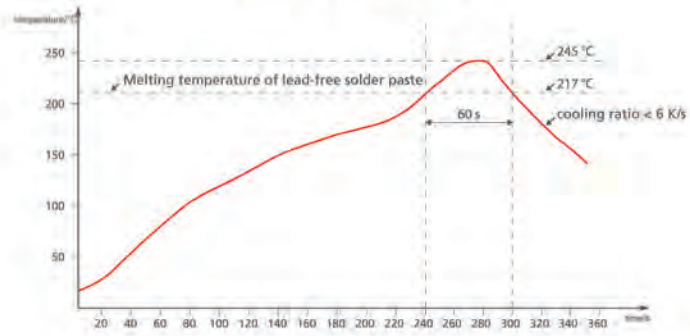
Interface Pin Blocks 100 mil / 2.54 mm

Series PKB5322 - SMD

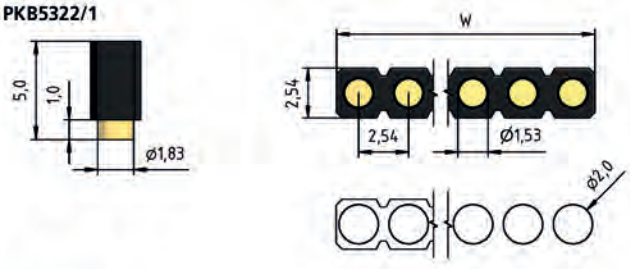




Soldering profile reflow



PKB5322/1



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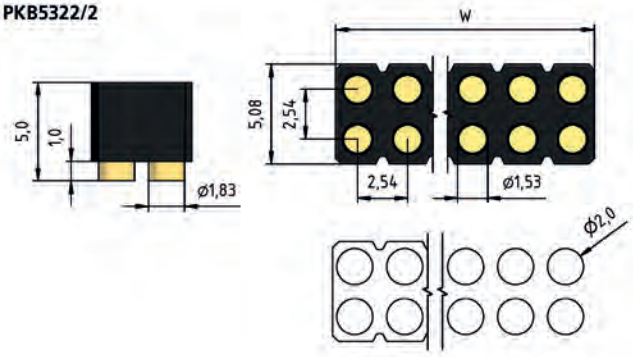


BENEFIT		
Short, compact size		
Board-to-board contacting		
Tape on Reel - SMD / Automated Assembly		
2 to 20 poles / 1 and 2 rows available		
MECHANICAL DATA		
Center	2.54 mm / 100 mil	
ELECTRICAL DATA		
Max. Current Rating	3.5 A	
Typical Continuity Resistance	≤ 20 mOhm	
MATERIALS		
PAD-Contact	Brass, gold-plated	
Test Probe Block	PA	
TAPE ON REEL (EN 60286-3)		
Tape on reel width	24 mm / 44 mm	
Spooling diameter	15“	
Number of components	800	
Pitch	12 mm	
RATINGS		
Rated Current	3.5 A	2.0 A
Rated Voltage - DC	150 V	150 V
Rated Voltage - AC	100 V	100 V
Flammability Class	UL 94 V-0	UL 94 V-0

ORDER DATA

Poles	Width (mm)	Article Designation	Article Number	PU
PKB 5322/1				
2	5.08	PKB 5322/1-02-50-R24	65322P30250	PCS800
3	7.62	PKB 5322/1-03-50-R24	65322P30350	PCS800
4	10.16	PKB 5322/1-04-50-R24	65322P30450	PCS800
5	12.70	PKB 5322/1-05-50-R24	65322P30550	PCS800
6	15.24	PKB 5322/1-06-50-R44	65322P30650	PCS800
7	17.78	PKB 5322/1-07-50-R44	65322P30750	PCS800
8	20.32	PKB 5322/1-08-50-R44	65322P30850	PCS800
9	22.86	PKB 5322/1-09-50-R44	65322P30950	PCS800
10	25.40	PKB 5322/1-10-50-R44	65322P31050	PCS800
PKB 5322/2				
4	5.08	PKB5322/2-04-50-R24	65322P40450	PCS800
6	7.62	PKB5322/2-06-50-R24	65322P40650	PCS800
8	10.16	PKB5322/2-08-50-R24	65322P40850	PCS800
10	12.70	PKB5322/2-10-50-R24	65322P41050	PCS800
12	15.24	PKB5322/2-12-50-R44	65322P41250	PCS800
14	17.78	PKB5322/2-14-50-R44	65322P41450	PCS800
16	20.32	PKB5322/2-16-50-R44	65322P41650	PCS800
18	22.86	PKB5322/2-18-50-R44	65322P41850	PCS800
20	25.40	PKB5322/2-20-50-R44	65322P42050	PCS800

HOW TO ORDER

PKB5322	/1	-	2	-	50	-	R24
1	2		3		4		5

1 Series 2 Number of Rows 3 Poles 4 Installation Height 5 Tape on Reel

NEW

Series FKB5322 - L01

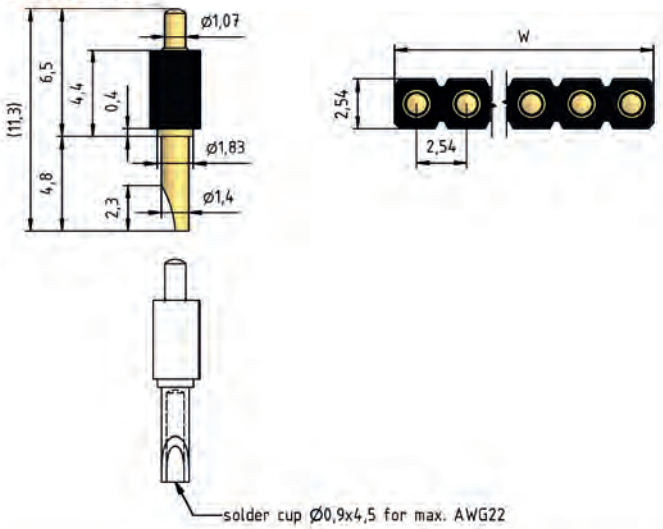
Interface Pin Blocks 100 mil / 2.54 mm

BENEFIT	
Short, compact size	
Connection with wire and strange wire possible	
2 to 20 poles / 1 and 2 rows available	
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Full Travel	1.40 mm
Working Travel	0.70 mm
Pre-Loaded Spring Force	0.25 N
Spring Force at Working Travel	0.85 N
ELECTRICAL DATA	
Max. Current Rating	3.5 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Brass, gold-plated
Test Probe Block	PA
OPERATING LIFE	
Cycle	50.000

ORDER DATA

Poles	Width (mm)	Article Designation	Article Number	PU
FKB 5322/1 - L01				
2	5.08	FKB 5322/1-02-65-L01	65322F30265L	PCS100
3	7.62	FKB 5322/1-03-65-L01	65322F30365L	PCS100
4	10.16	FKB 5322/1-04-65-L01	65322F30465L	PCS100
5	12.70	FKB 5322/1-05-65-L01	65322F30565L	PCS100
6	15.24	FKB 5322/1-06-65-L01	65322F30665L	PCS100
7	17.78	FKB 5322/1-07-65-L01	65322F30765L	PCS100
8	20.32	FKB 5322/1-08-65-L01	65322F30865L	PCS100
9	22.86	FKB 5322/1-09-65-L01	65322F30965L	PCS100
10	25.40	FKB 5322/1-10-65-L01	65322F31065L	PCS100
FKB 5322/2 - L01				
4	5.08	FKB 5322/2-04-65-L01	65322F40465L	PCS100
6	7.62	FKB 5322/2-06-65-L01	65322F40665L	PCS100
8	10.16	FKB 5322/2-08-65-L01	65322F40865L	PCS100
10	12.70	FKB 5322/2-10-65-L01	65322F41065L	PCS100
12	15.24	FKB 5322/2-12-65-L01	65322F41265L	PCS100
14	17.78	FKB 5322/2-14-65-L01	65322F41465L	PCS100
16	20.32	FKB 5322/2-16-65-L01	65322F41665L	PCS100
18	22.86	FKB 5322/2-18-65-L01	65322F41865L	PCS100
20	25.40	FKB 5322/2-20-65-L01	65322F42065L	PCS100

FKB5322/1-L01



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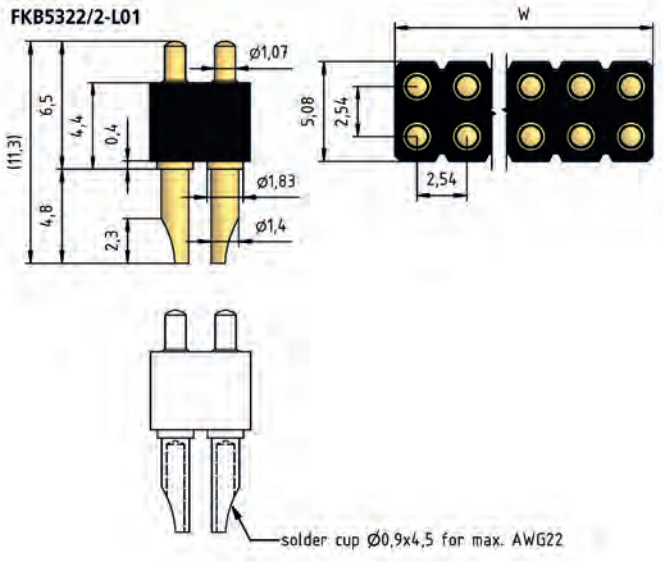


HOW TO ORDER

FKB5322	/1	-	2	-	65	-	L01
1	2		3		4		5

1 Series 2 Number of Rows 3 Poles 4 Installation Height 5 Variant

Interface Pin Blocks 100 mil / 2.54 mm

Series FKB5322 - T01

NEW

BENEFIT
Short, compact size
Board-to-board contacting
Tape on Reel
2 to 20 poles / 1 and 2 rows available

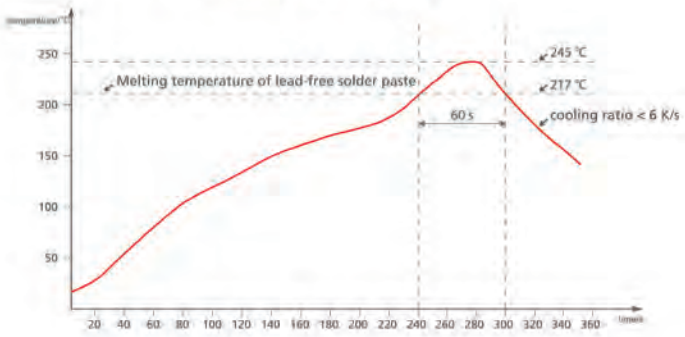
MECHANICAL DATA	
Center	2.54 mm / 100 mil
Full Travel	1.40 mm
Working Travel	0.70 mm
Pre-Loaded Spring Force	0.25 N
Spring Force at Working Travel	0.85 N

ELECTRICAL DATA	
Max. Current Rating	3.5 A
Typical Continuity Resistance	≤ 20 mOhm

MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Brass, gold-plated
Test Probe Block	PA

OPERATING LIFE	
Cycle	50.000

Soldering profile reflow



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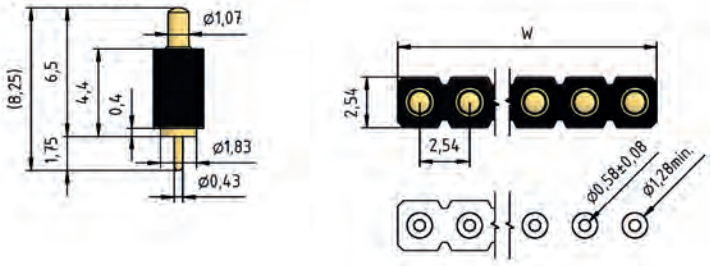

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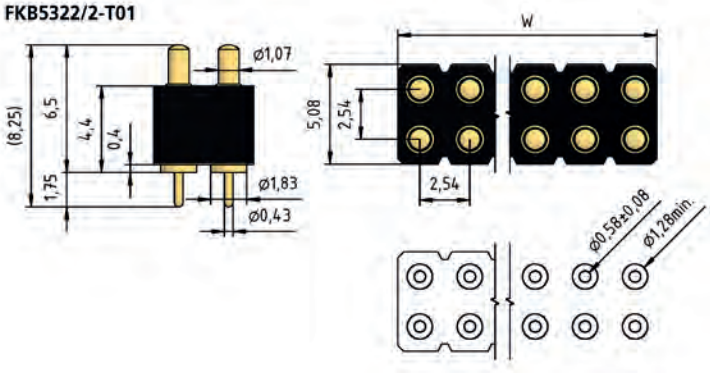


ORDER DATA

Poles	Width (mm)	Article Designation	Article Number	PU
FKB 5322/1 - T01				
2	5.08	FKB 5322/1-02-65-T01	65322F30265T	PCS100
3	7.62	FKB 5322/1-03-65-T01	65322F30365T	PCS100
4	10.16	FKB 5322/1-04-65-T01	65322F30465T	PCS100
5	12.70	FKB 5322/1-05-65-T01	65322F30565T	PCS100
6	15.24	FKB 5322/1-06-65-T01	65322F30665T	PCS100
7	17.78	FKB 5322/1-07-65-T01	65322F30765T	PCS100
8	20.32	FKB 5322/1-08-65-T01	65322F30865T	PCS100
9	22.86	FKB 5322/1-09-65-T01	65322F30965T	PCS100
10	25.40	FKB 5322/1-10-65-T01	65322F31065T	PCS100
FKB 5322/2 - T01				
4	5.08	FKB 5322/2-04-65-T01	65322F40465T	PCS100
6	7.62	FKB 5322/2-06-65-T01	65322F40665T	PCS100
8	10.16	FKB 5322/2-08-65-T01	65322F40865T	PCS100
10	12.70	FKB 5322/2-10-65-T01	65322F41065T	PCS100
12	15.24	FKB 5322/2-12-65-T01	65322F41265T	PCS100
14	17.78	FKB 5322/2-14-65-T01	65322F41465T	PCS100
16	20.32	FKB 5322/2-16-65-T01	65322F41665T	PCS100
18	22.86	FKB 5322/2-18-65-T01	65322F41865T	PCS100
20	25.40	FKB 5322/2-20-65-T01	65322F42065T	PCS100

HOW TO ORDER

FKB5322	/1	-	2	-	65	-	T01
1	2		3		4		5

1 Series 2 Number of Rows 3 Poles 4 Installation Height 5 Variant

NEW

Series FKB5458 - SMD

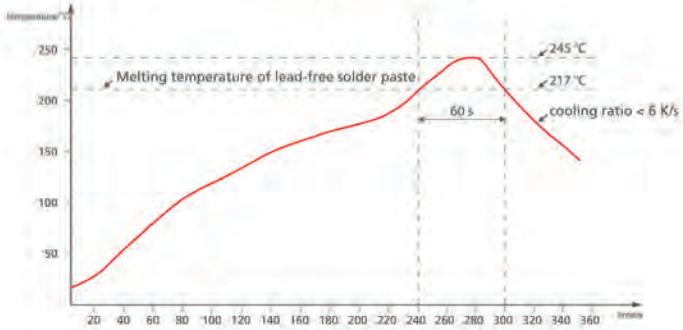
Interface Pin Blocks 50 mil / 1.27 mm

BENEFIT	
Interface Pin Block for Center 50 mil	
Short, compact size	
Board-to-board contacting	
Tape on Reel - SMD	
2 to 20 poles / 1 and 2 rows available	
MECHANICAL DATA	
Center	1.27 mm / 50 mil
Full Travel	1.40 mm
Working Travel	0.70 mm
Pre-Loaded Spring Force	0.25 N
Spring Force at Working Travel	0.60 N
ELECTRICAL DATA	
Max. Current Rating	2.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Brass, gold-plated
Spring	Stainless Steel, gold-plated
Plunger	Brass, gold-plated
Test Probe Block	PA
OPERATING LIFE	
Cycle	50.000

ORDER DATA

Poles	Width (mm)	Article Designation	Article Number	PU
FKB 5458/1				
2	2.97	FKB 5458/1-02-64	65458F10264T	PCS100
3	4.24	FKB 5458/1-03-64	65458F10364T	PCS100
4	5.51	FKB 5458/1-04-64	65458F10464T	PCS100
5	6.78	FKB 5458/1-05-64	65458F10564T	PCS100
6	8.05	FKB 5458/1-06-64	65458F10664T	PCS100
7	9.32	FKB 5458/1-07-64	65458F10764T	PCS100
8	10.59	FKB 5458/1-08-64	65458F10864T	PCS100
9	11.86	FKB 5458/1-09-64	65458F10964T	PCS100
10	13.13	FKB 5458/1-10-64	65458F11064T	PCS100
FKB 5458/2				
4	2.97	FKB 5458/2-04-64	65458F20464T	PCS100
6	4.24	FKB 5458/2-06-64	65458F20664T	PCS100
8	5.51	FKB 5458/2-08-64	65458F20864T	PCS100
10	6.78	FKB 5458/2-10-64	65458F21064T	PCS100
12	8.05	FKB 5458/2-12-64	65458F21264T	PCS100
14	9.32	FKB 5458/2-14-64	65458F21464T	PCS100
16	10.59	FKB 5458/2-16-64	65458F21664T	PCS100
18	11.86	FKB 5458/2-18-64	65458F21864T	PCS100
20	13.13	FKB 5458/2-20-64	65458F22064T	PCS100

Soldering profile reflow



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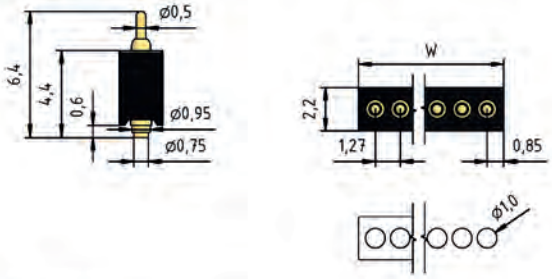

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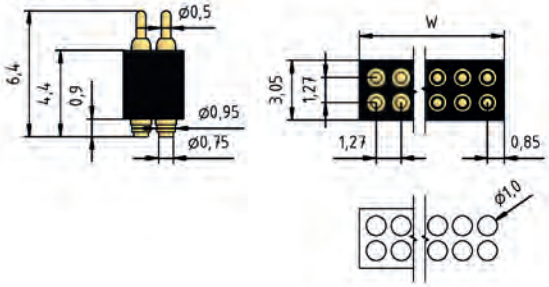


HOW TO ORDER

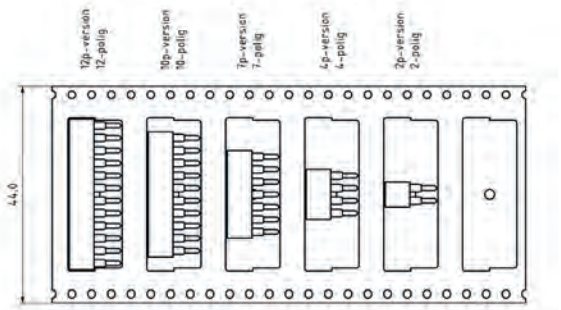
FKB5458	/1	-	2	-	64
1	2		3		4

1 Series 2 Number of Rows 3 Poles 4 Installation Height

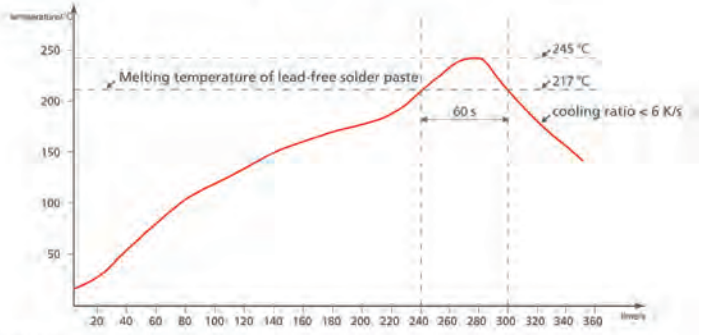
Interface Pin Blocks 100 mil / 2.54 mm

Series FKB5457 - SMD

NEW



Soldering profile reflow



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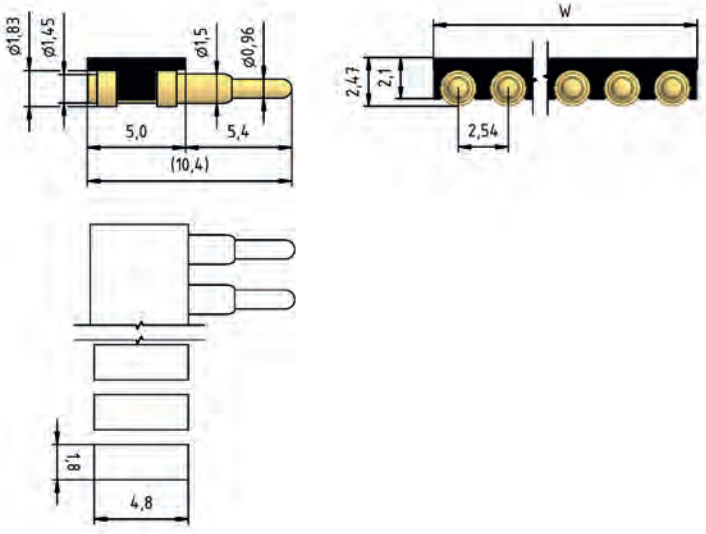


BENEFIT
Position horizontal
Short, compact size
Tape on Reel - SMD
2 to 12 poles available

MECHANICAL DATA	
Center	2.54 mm / 100 mil
Full Travel	2.00 mm
Working Travel	1.50 mm
Pre-Loaded Spring Force	0.30 N
Spring Force at Working Travel	1.00 N

ELECTRICAL DATA	
Max. Current Rating	3.5 A
Typical Continuity Resistance	≤ 20 mOhm

MATERIALS	
Barrel	Brass, gold-plated
Spring	Spring Steel, gold-plated
Plunger	Brass, gold-plated
Test Probe Block	PA

TAPE ON REEL (EN 60286-3)	
Tape on reel width	44 mm
Spooling diameter	15“
Number of components	1600
Pitch	16 mm

OPERATING LIFE	
Cycle	50.000

ORDER DATA

Poles	Width (mm)	Article Designation	Article Number	PU
FKB 5457/1				
2	5.08	FKB 5457/1-02-104-R44	65457F202104	PCS800
3	7.62	FKB 5457/1-03-104-R44	65457F203104	PCS800
4	10.16	FKB 5457/1-04-104-R44	65457F204104	PCS800
5	12.70	FKB 5457/1-05-104-R44	65457F205104	PCS800
6	15.24	FKB 5457/1-06-104-R44	65457F206104	PCS800
7	17.78	FKB 5457/1-07-104-R44	65457F207104	PCS800
8	20.32	FKB 5457/1-08-104-R44	65457F208104	PCS800
9	22.86	FKB 5457/1-09-104-R44	65457F209104	PCS800
10	25.40	FKB 5457/1-10-104-R44	65457F210104	PCS800
11	27.94	FKB 5457/1-11-104-R44	65457F211104	PCS800
12	30.48	FKB 5457/1-12-104-R44	65457F212104	PCS800

HOW TO ORDER

FKB5457	/1	-	2	-	104	-	R44
1	2		3		4		5

1 Series 2 Number of Rows 3 Poles 4 Installation Height 5 Tape on Reel

COAXIAL TEST PROBES

Coaxial Test Probes – also known as Kelvin Test Probes – consist of two independent test probes which are insulated from each other.

The inner conductor and outer probe operate and "give" independently of each other. Normally, the current flows via the outer probe, and the voltage drops are measured via the inner conductor.

In addition to a standard type which can be plugged in, we also offer a threaded type which can be screwed 2.0 mm in using a conventional tool (socket head wrench).

SERIES	CENTER	PAGE
5207	256 mil / 6.50 mm	204
5207/G	256 mil / 6.50 mm	205

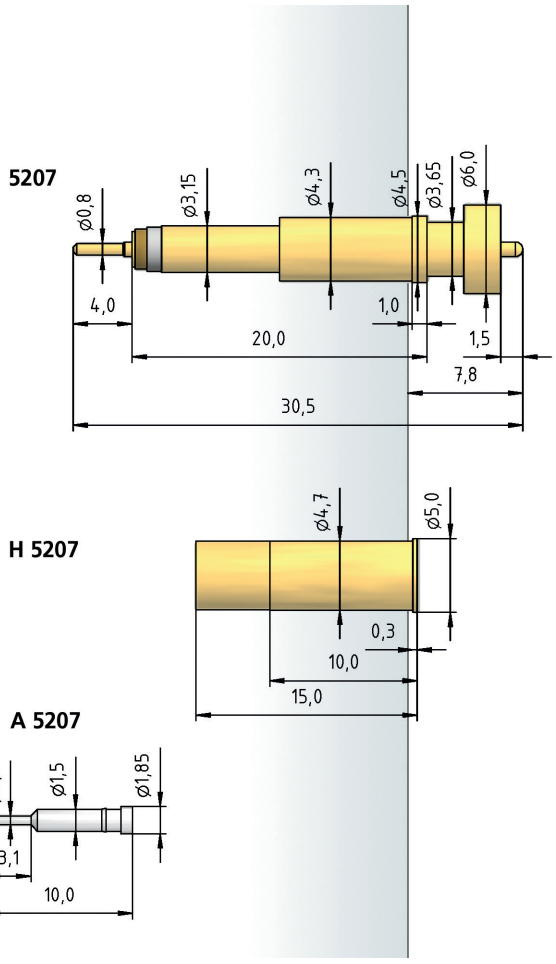
Series 5207

Coaxial Test Probe 256 mil / 6.5 mm

BENEFIT	
Four-pole measurement	
Compact design	
Inner and outer conductor are spring-loaded independently of each other	
MECHANICAL DATA • INNER CONTACT	
Center	6.50 mm / 256 mil
Temperature Range	-30 °C - +120 °C
Full Travel	3.50 mm
Working Travel	3.00 mm
Pre-Loaded Spring Force	0.80 N
Spring Force at Working Travel	1.50 N
MECHANICAL DATA • RING CONTACT	
Center	6.50 mm / 256 mil
Full Travel	2.50 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	3.00 N
Spring Force at Working Travel	5.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	6.50 N
ELECTRICAL DATA • INNER CONTACT	
Max. Current Rating	1.0 A
Typical Continuity Resistance	≤ 10 mOhm
Typical Insulating Voltage	800 V
ELECTRICAL DATA • RING CONTACT	
Max. Current Rating	6.0 A
Typical Continuity Resistance	≤ 10 mOhm
Typical Insulating Voltage	800 V
MATERIALS	
Barrel	CuBe, gold-plated
Spring	Spring Steel, silver-plated
Plunger Inner Contact	Steel, gold-plated
Plunger Ring Contact	CuBe, gold-plated
Receptacle	Brass, gold-plated
Connection Element	Brass, tin-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	4.69 mm
HGW 2372 (Glass filled material)	4.70 mm

TIP STYLE · DIAMETER · PLATING

D	T
1.00x1.50C Au	1.00x0.50C Au



HOW TO ORDER

5207	-	D	-	6.5 N	-	Au	1.0x	1.5/	6.0	C
1		2		3		4	5	6	7	8

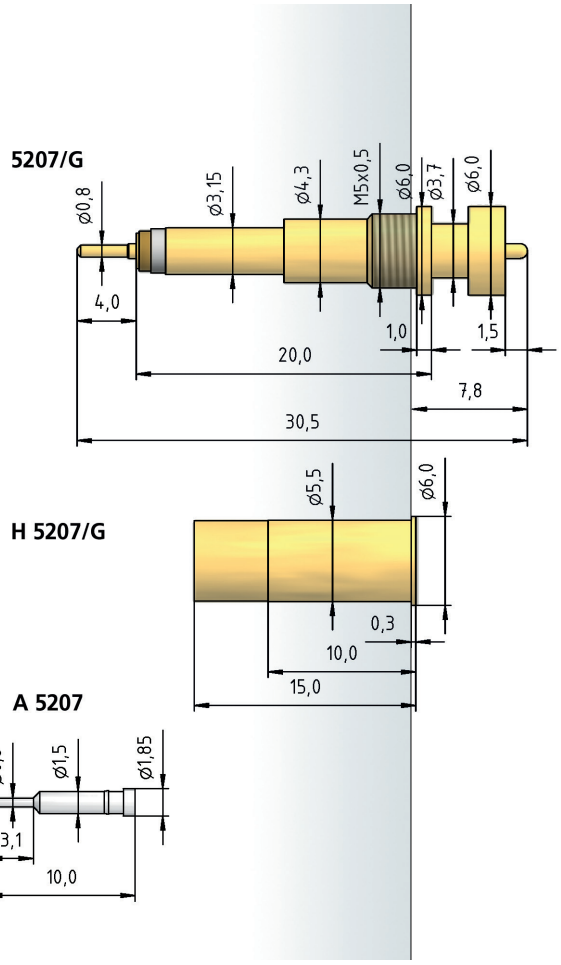
1 Series 2 Tip Style 3 Total Spring Force (Spring Force Ring Contact + Inner Contact) 4 Tip Plating 5 Inner Tip Diameter 6 Tip Height 7 Ring Contact Diameter 8 Ring Contact Material (only for CuBe)

Coaxial Test Probe 256 mil / 6.5 mm

Series 5207/G

TIP STYLE · DIAMETER · PLATING

D	T
1.00x1.50C Au	1.00x0.50C Au



BENEFIT	
Four-pole measurement	
Compact design	
Screwable type	
Inner and outer conductor are spring-loaded independently of each other	
MECHANICAL DATA • INNER CONTACT	
Center	6.50 mm / 256 mil
Temperature Range	-30 °C - +120 °C
Full Travel	3.50 mm
Working Travel	3.00 mm
Pre-Loaded Spring Force	0.80 N
Spring Force at Working Travel	1.50 N
MECHANICAL DATA • RING CONTACT	
Center	6.50 mm / 256 mil
Full Travel	2.50 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	3.00 N
Spring Force at Working Travel	5.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	6.50 N
ELECTRICAL DATA • INNER CONTACT	
Max. Current Rating	6.0 A
Typical Continuity Resistance	≤ 10 mOhm
Typical Insulating Voltage	800 V
ELECTRICAL DATA • RING CONTACT	
Max. Current Rating	6.0 A
Typical Continuity Resistance	≤ 10 mOhm
Typical Insulating Voltage	800 V
MATERIALS	
Barrel	CuBe, gold-plated
Spring	Spring Steel, silver-plated
Plunger Inner Contact	Steel, gold-plated
Plunger Ring Contact	CuBe, gold-plated
Receptacle	Brass, gold-plated
Connection Element	Brass, tin-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	5.49 mm
HGW 2372 (Glass filled material)	5.50 mm
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
Hexagon Socket Key 2 mm	all

HOW TO ORDER

5207/	G	-	D	-	6.5 N	-	Au	1.0x	1.5/	6.0	C
1	2		3		4		5	6	7	8	9

1 Series 2 Threaded Design 3 Tip Style 4 Total Spring Force (Spring Force Ring Contact + Inner Contact) 5 Tip Plating 6 Inner Tip Diameter 7 Tip Height 8 Ring Contact Diameter 9 Ring Contact Material (only for CuBe)

HIGH-FREQUENCY TEST PROBES

High-Frequency Test Probes (HF-TP) consist of sprung inner and outer conductors that are arranged coaxially to one another.

This arrangement is optimal for the transmission of high-frequency signals because the electromagnetic field that is required to transport the energy is restricted to the area between the inner and outer conductors. The advantage is that electro-magnetic emissions and parasitic induction are effectively suppressed. Specially matched geometric relationships and high precision in manufacture allow the transmission of high-frequency signals with low emissions and losses. For that reason the High-Frequency Test Probes of the 7840 / 7860 series are matched to suit high-frequency systems with an impedance of 50 Ohms. In the same way the geometry and dimensions of the probe heads of the inner and outer conductors are also designed to suit the relevant test piece.

High-Frequency Test Probes are compact, space-saving and solid. As a result they are ideally suited for economically carrying out sensitive measuring tasks involving high-frequencies. Furthermore, their modular construction allows the inner and outer conductors to be changed.

High-Frequency Test Probes are available both in plug-in and screw-type form for use when subjected to disturbing forces that act axially (vibration, impacts and the like). For both types there are matching receptacles that allow fast and secure installation and can be changed easily.

High-Frequency Test Probes have a practical connecting bush for connection to a test system, permitting quick contact creation through standardised MCX miniature plugs, and without soldering or other complicated procedures. These MCX plugs are available ready assembled with a flexible high-frequency cable of the Multiflex type, at the end of which an SMA cable plug, for example, is connected.

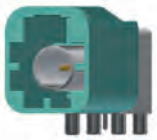
NEW

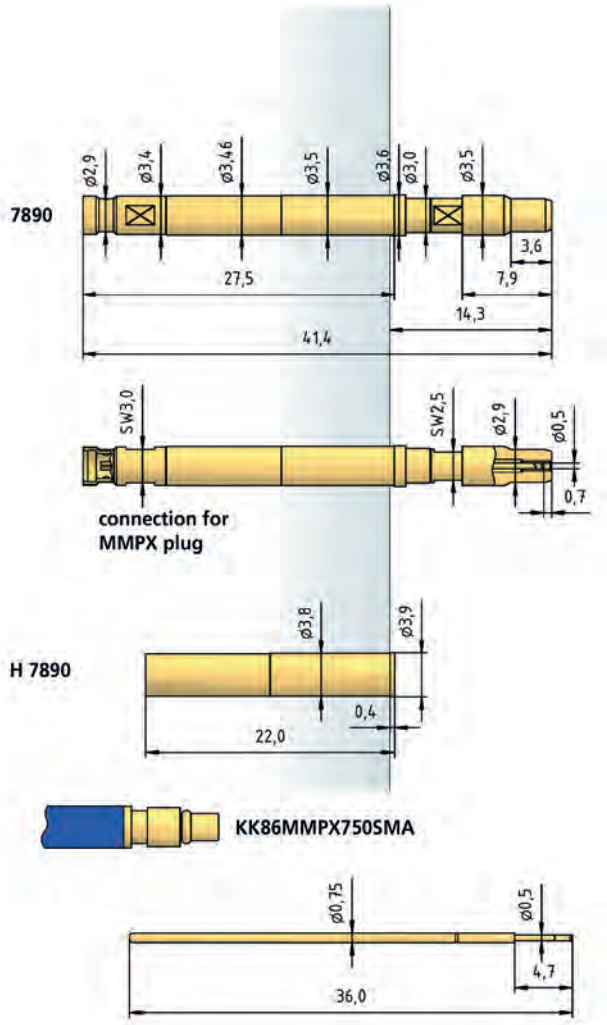
Series 7890

High Frequency Test Probe - Impedance 50 Ohm - up to 9 GHz

BENEFIT	
For high frequency measurements	
Compact design	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50 N
Spring Force at Working Travel	4.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 9 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MMPX
Connector Testing Technology	SMA

MINI FAKRA PLUG





HOW TO ORDER • COMPLETE TEST PROBE

7890	-	Z1	A	-	5.3 N	-	Au	-	2.9/	0.5	C
1		2	3		4		5		6	7	8

1 Series 2 Outer Conductor Tip 3 Inner Conductor Tip 4 Total Spring Force
5 Tip Plating 6 Outer Tip Diameter 7 Inner Tip Diameter
8 Tip Material (only for CuBe)

HOW TO ORDER • INNER CONDUCTOR

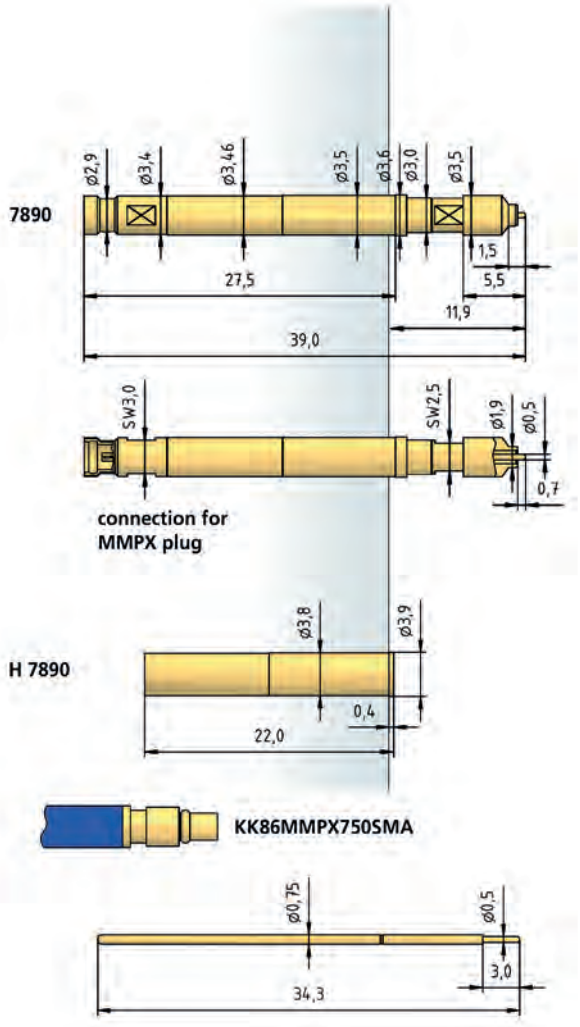
7860	-	A	-	1.3 N	-	Au	-	0.5	C
1		2		3		4		5	6

1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

High Frequency Test Probe - Impedance 50 Ohm - up to 9 GHz

Series 7890 NEW

MINI FAKRA SOCKET



BENEFIT	
For high frequency measurements	
Compact design	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	2.00 mm
Working Travel	0.30 mm
Pre-Loaded Spring Force	1.20/ 1.80 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50 N
Spring Force at Working Travel	4.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 9 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MMPX
Connector Testing Technology	SMA

HOW TO ORDER • INNER CONDUCTOR

7860	-	D	-	1.3 N	-	Au	-	0.5	C
1		2		3		4		5	6

1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

HOW TO ORDER • COMPLETE TEST PROBE

7890	-	Z2	D	-	5.3 N	-	Au	-	1.9/	0.5	C
1		2	3		4		5		6	7	8

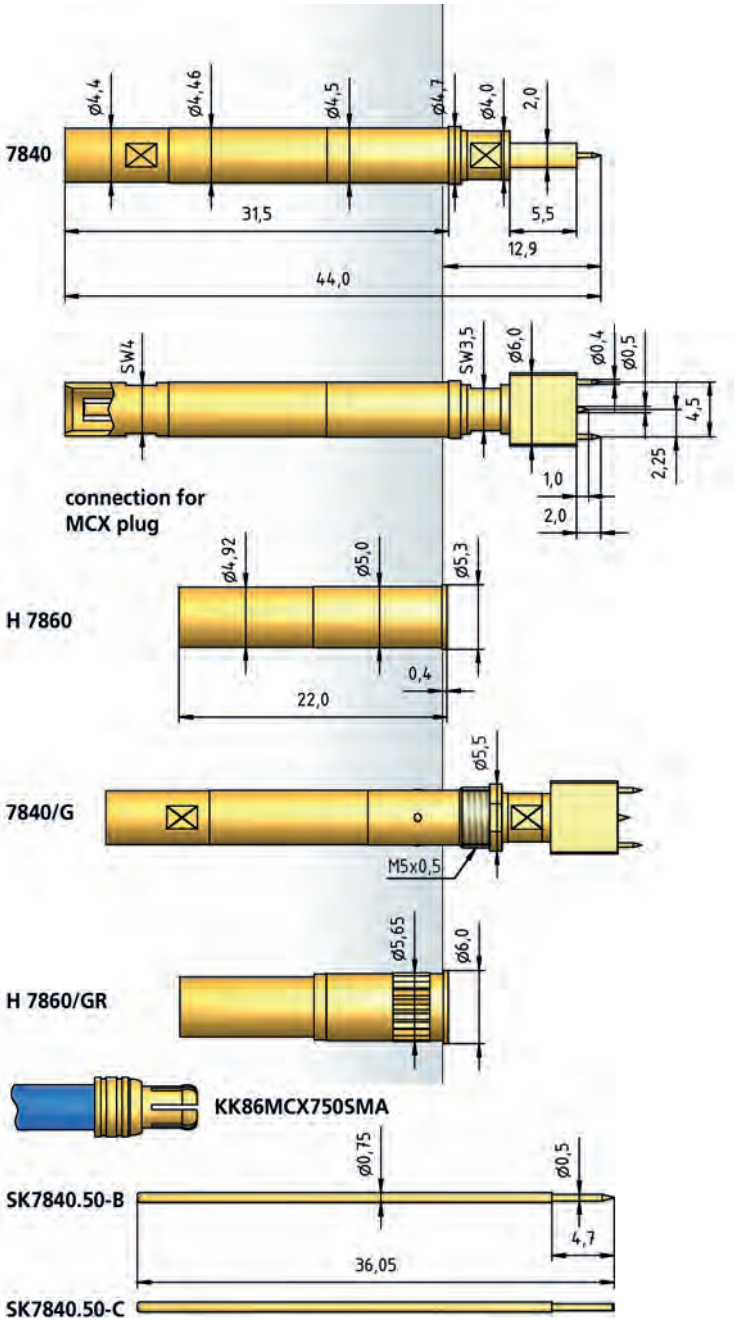
1 Series 2 Outer Conductor Tip 3Inner Conductor Tip 4 Total Spring Force
5 Tip Plating 6 Outer Tip Diameter 7 Inner Tip Diameter
8 Tip Material (only for CuBe)

Series 7840 • 7840/G

High Frequency Test Probe - Impedance 50 Ohm - up to 4 GHz

BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner and outer conductor are interchangeable of each other	
Inner conductor rigid / outer conductor independent	
MECHANICAL DATA • SPRING-LOADED PROBE TIP	
Full Travel	1.50 mm
Working Travel	1.00 mm
Pre-Loaded Spring Force	2x0.40 N
Spring Force at Working Travel	2x0.80 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.60/ 7.60/ 9.60 N
ELECTRICAL DATA	
Impedance	50 Ohm
Frequency Range	up to 4 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
Probe Tips	Steel, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7840/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

PCB-CONTACT



HOW TO ORDER • COMPLETE TEST PROBE

7840/	G	-	Z51	B	-	5.6 N	-	Au	-	6.0	C	/0.5
1	2		3	4		5		6		7	8	9

1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Tip Material (only for CuBe) 9 Inner Tip Diameter

HOW TO ORDER • INNER CONDUCTOR

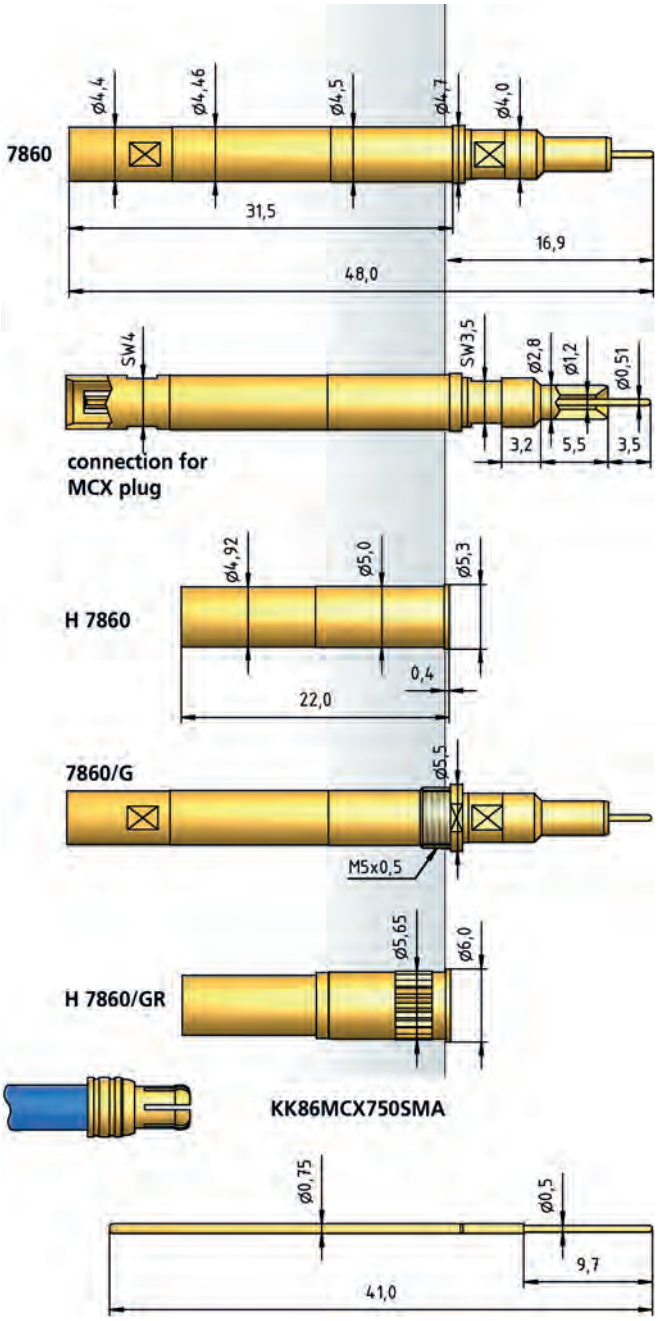
SK 7840.50	-	B	-	Au	-	0.5
1		2		3		4

1 Series 2 Inner Conductor Tip 3 Tip Plating 4 Tip Diameter

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

Series 7860 • 7860/G

MM8130 • MM8430 • MS156



BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

HOW TO ORDER • INNER CONDUCTOR

7860	-	DL	-	1.3 N	-	Au	-	0.5	C
1		2		3		4		5	6

1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z1	DL	-	5.3 N	-	Au	-	2.8/	0.5	C
1	2		3	4		5		6		7	8	9

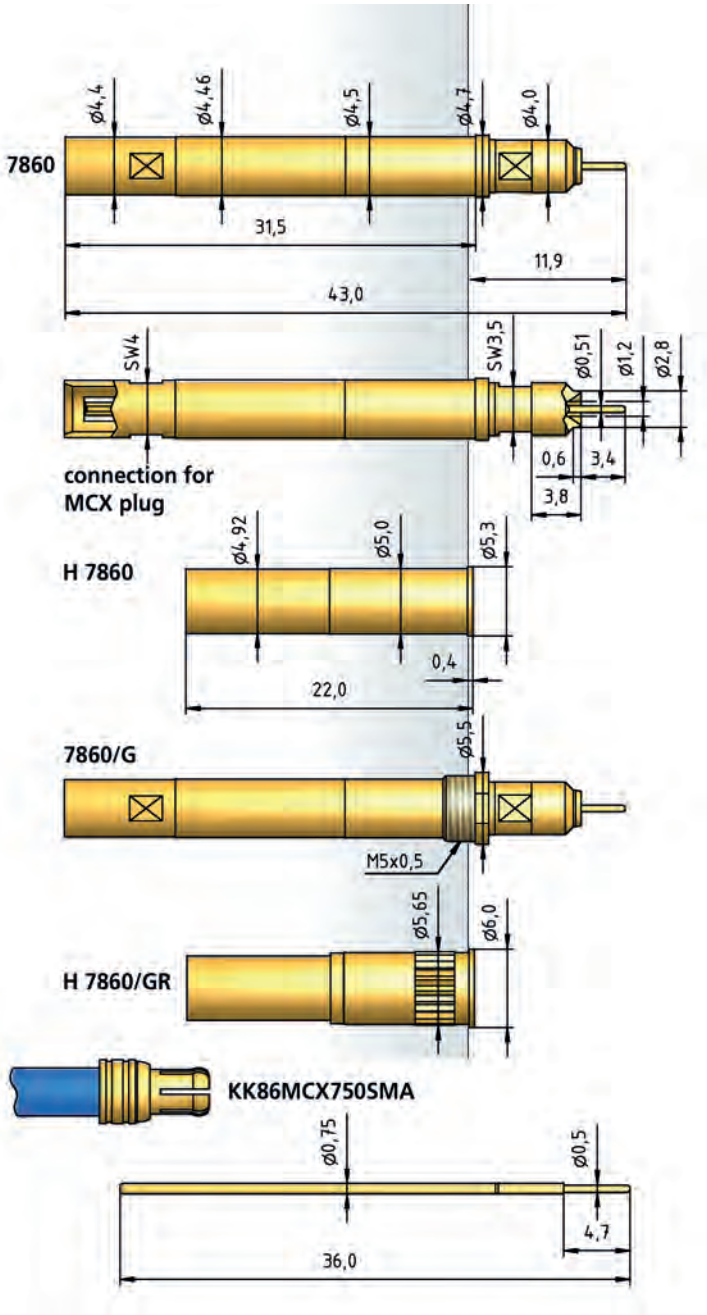
1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

Series 7860 • 7860/G

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

MM8130 • MM8430 • MS156



HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z2	D	-	5.3 N	-	Au	-	2.8/	0.5	C
1	2		3	4		5		6		7	8	9

1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

HOW TO ORDER • INNER CONDUCTOR

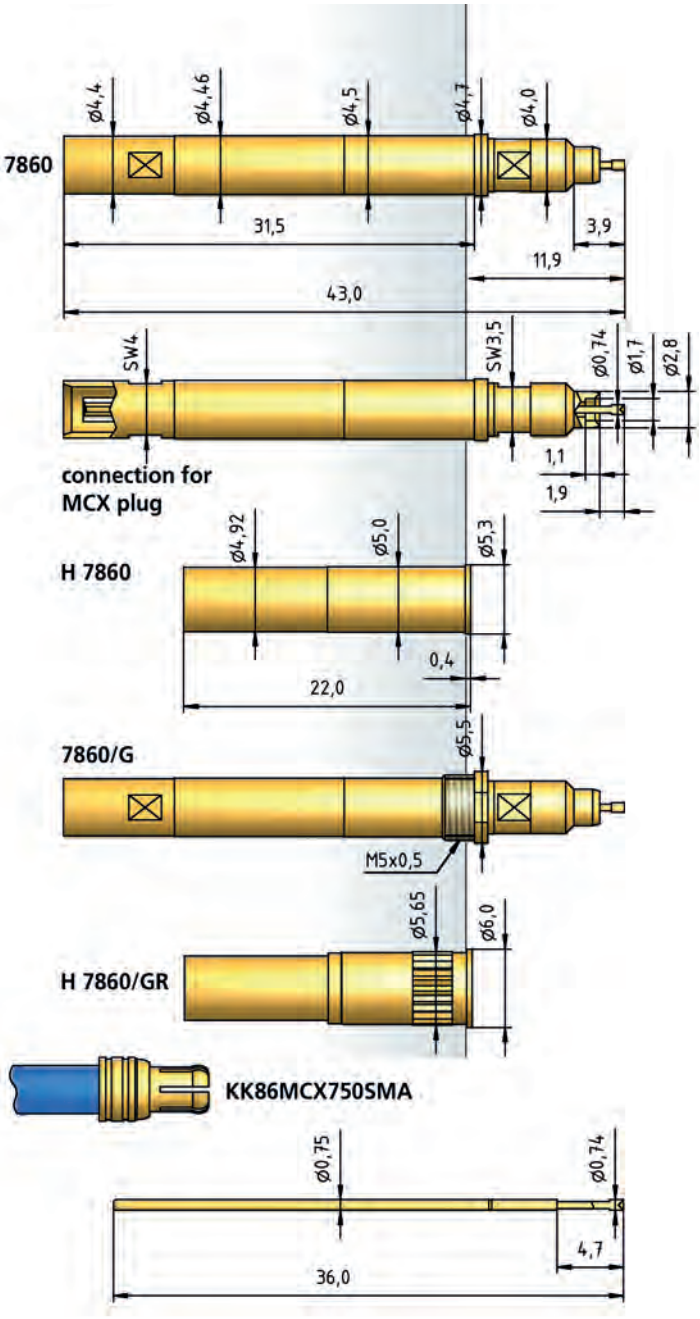
7860	-	D	-	1.3 N	-	Au	-	0.5	C
1		2		3		4		5	6

1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

Series 7860 • 7860/G

U.FL-M



BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

HOW TO ORDER • INNER CONDUCTOR

7860	-	A	-	1.3 N	-	Au	-	0.74	C
1		2		3		4		5	6

1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z3	A	-	5.3 N	-	Au	-	2.8/	0.74	C
1	2		3	4		5		6		7	8	9

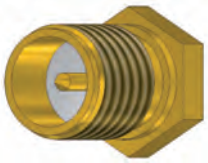
1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

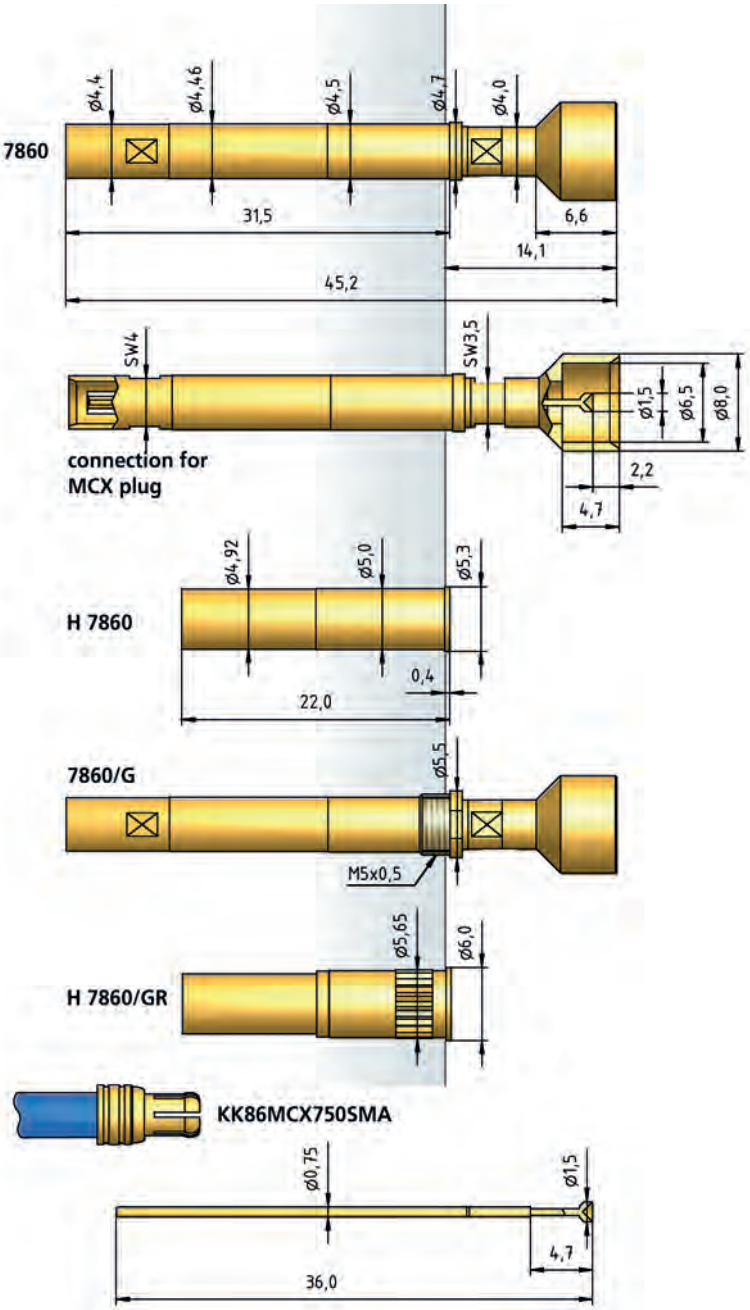
Series 7860 • 7860/G

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

R-SMA-M





HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z4	A	-	5.3 N	-	Au	-	8.0/	1.5	C
1	2		3	4		5		6		7	8	9

1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

HOW TO ORDER • INNER CONDUCTOR

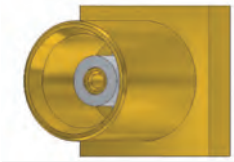
7860	-	A	-	1.3 N	-	Au	-	1.5	C
1		2		3		4		5	6

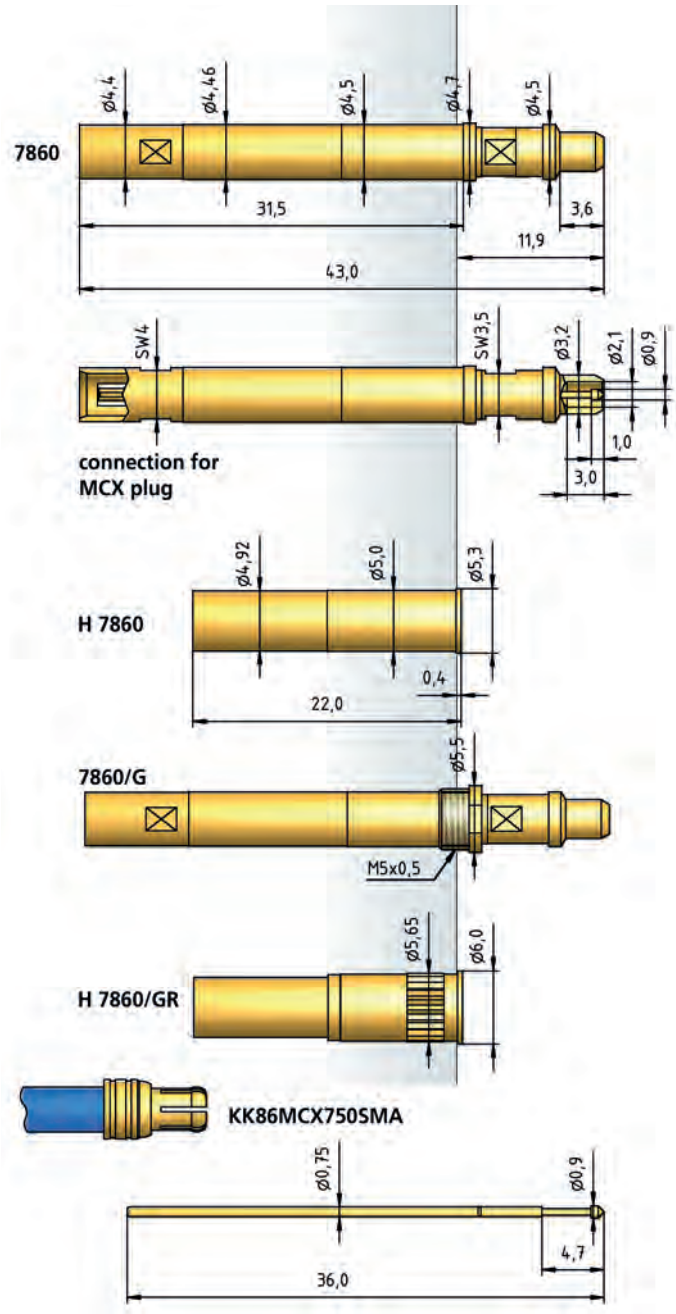
1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

Series 7860 • 7860/G

MCX-F





BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

HOW TO ORDER • INNER CONDUCTOR

7860	-	E	-	1.3 N	-	Au	-	0.9	C
1		2		3		4		5	6

1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z5	E	-	5.3 N	-	Au	-	3.2/	0.9	C
1	2		3	4		5		6		7	8	9

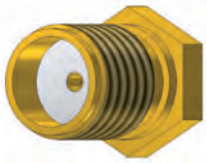
1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

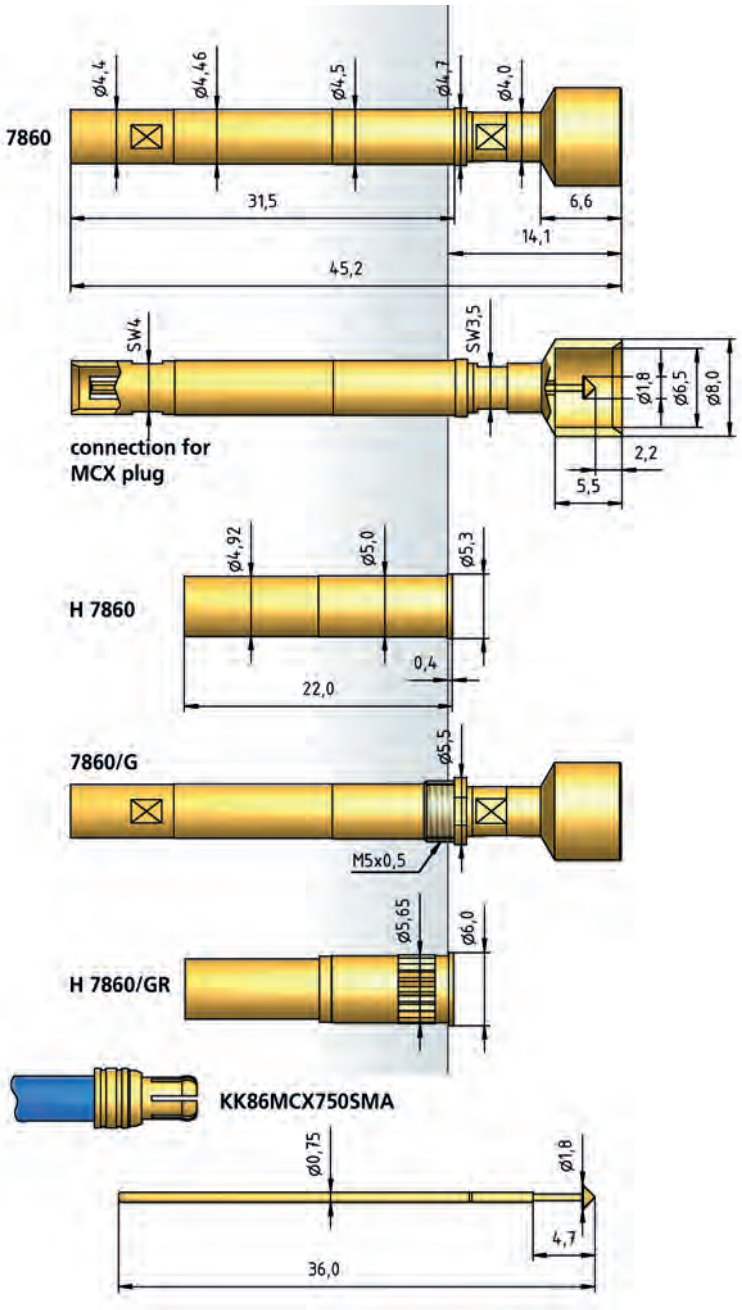
Series 7860 • 7860/G

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

SMA-F





HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z6	E	-	5.3 N	-	Au	-	8.0/	1.8	C
1	2		3	4		5		6		7	8	9

1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

HOW TO ORDER • INNER CONDUCTOR

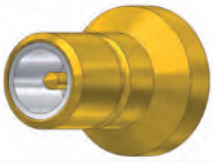
7860	-	E	-	1.3 N	-	Au	-	1.8	C
1		2		3		4		5	6

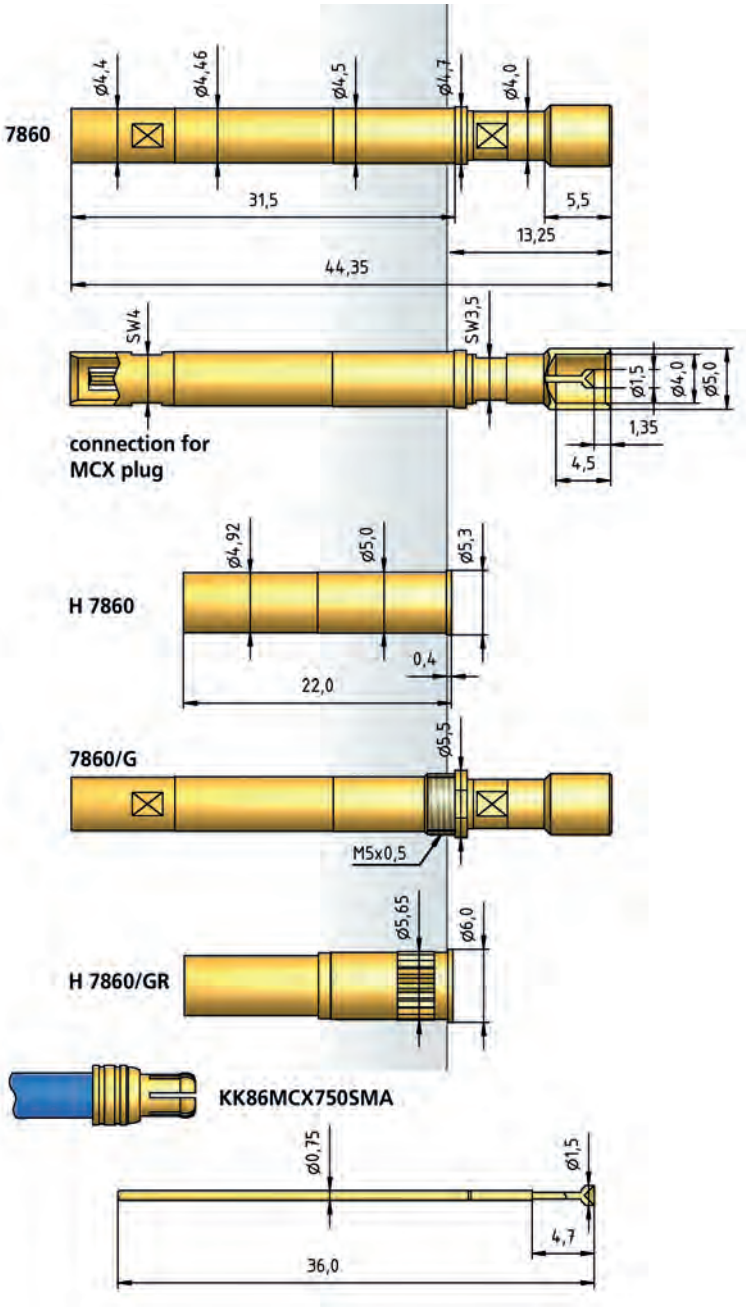
1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

Series 7860 • 7860/G

SMB-M





BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

HOW TO ORDER • INNER CONDUCTOR

7860	-	A	-	1.3 N	-	Au	-	1.5	C
1		2		3		4		5	6

1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z7	A	-	5.3 N	-	Au	-	5.0/	1.5	C
1	2		3	4		5		6		7	8	9

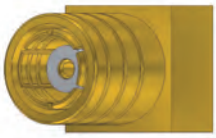
1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

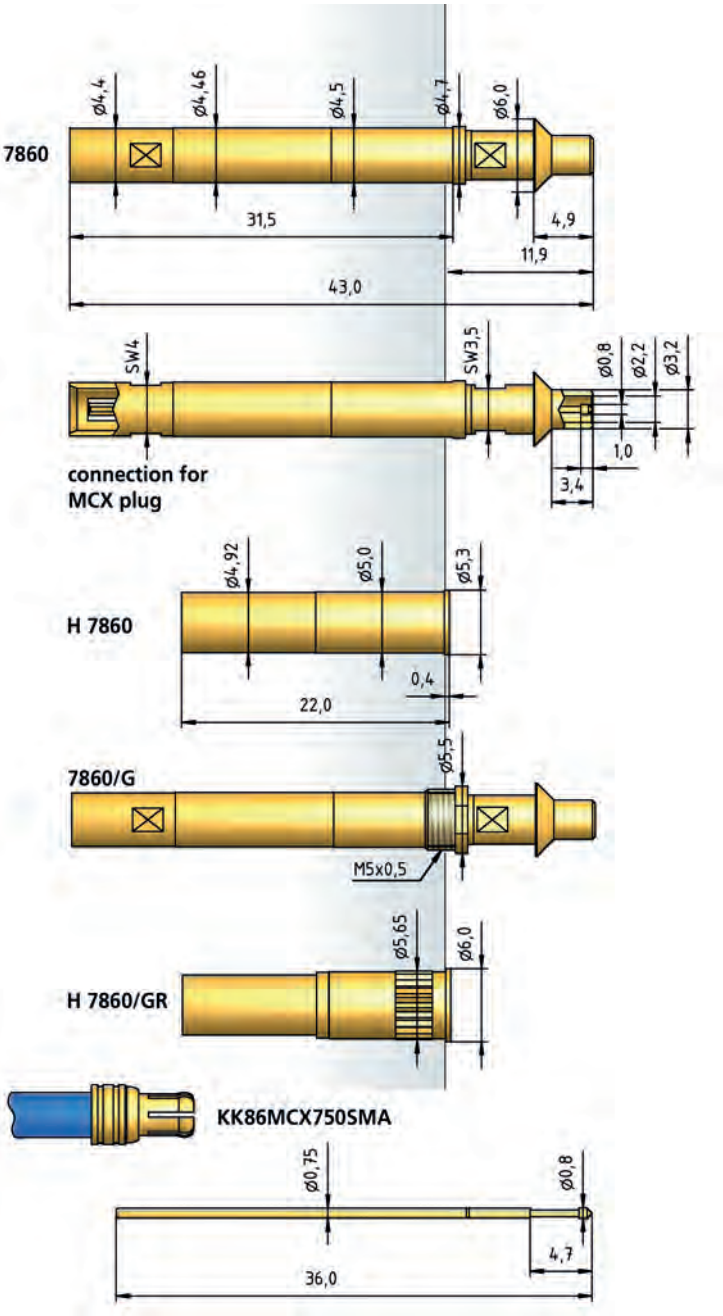
Series 7860 • 7860/G

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

SMB-F





HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z8	E	-	5.3 N	-	Au	-	3.20/	0.8	C
1	2		3	4		5		6		7	8	9

1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

HOW TO ORDER • INNER CONDUCTOR

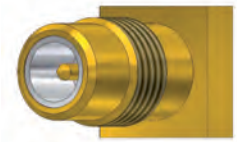
7860	-	E	-	1.3 N	-	Au	-	0.8	C
1		2		3		4		5	6

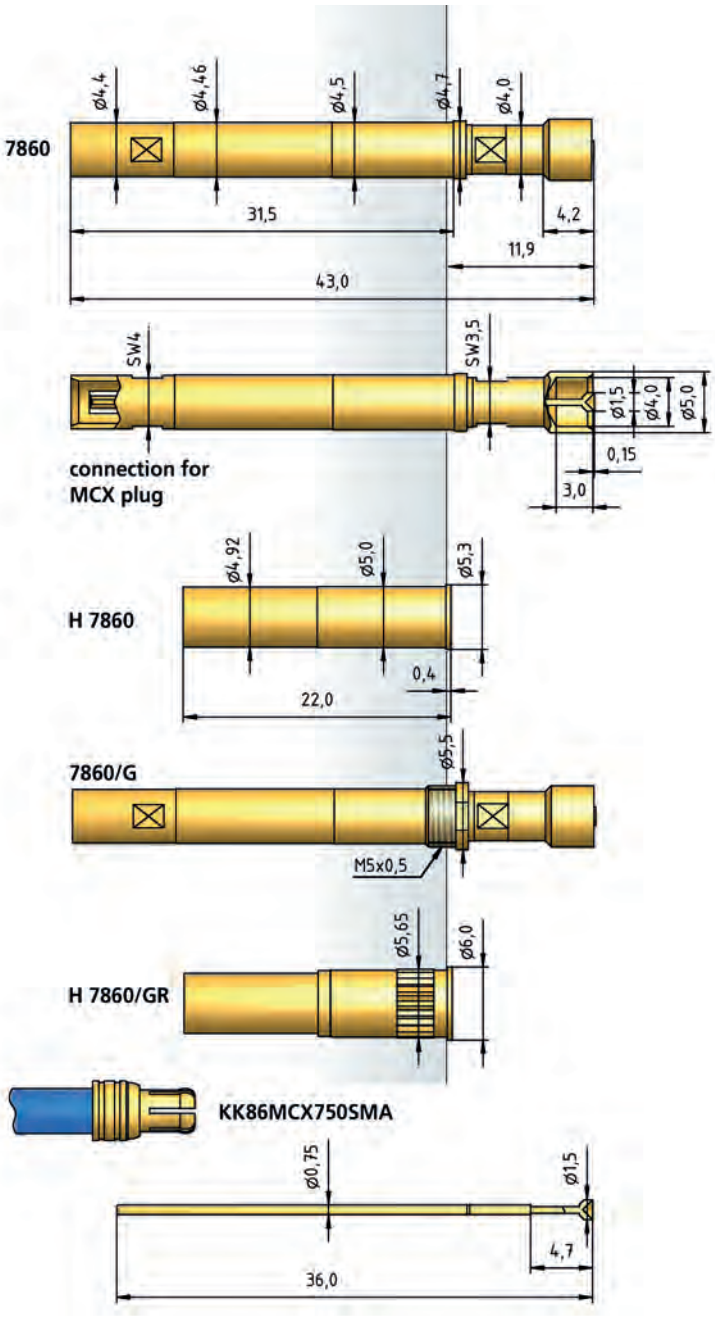
1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

Series 7860 • 7860/G

SMC-M





BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

HOW TO ORDER • INNER CONDUCTOR

7860	-	A	-	1.3 N	-	Au	-	1.5	C
1		2		3		4		5	6

1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z9	A	-	5.3 N	-	Au	-	5.0/	1.5	C
1	2		3	4		5		6		7	8	9

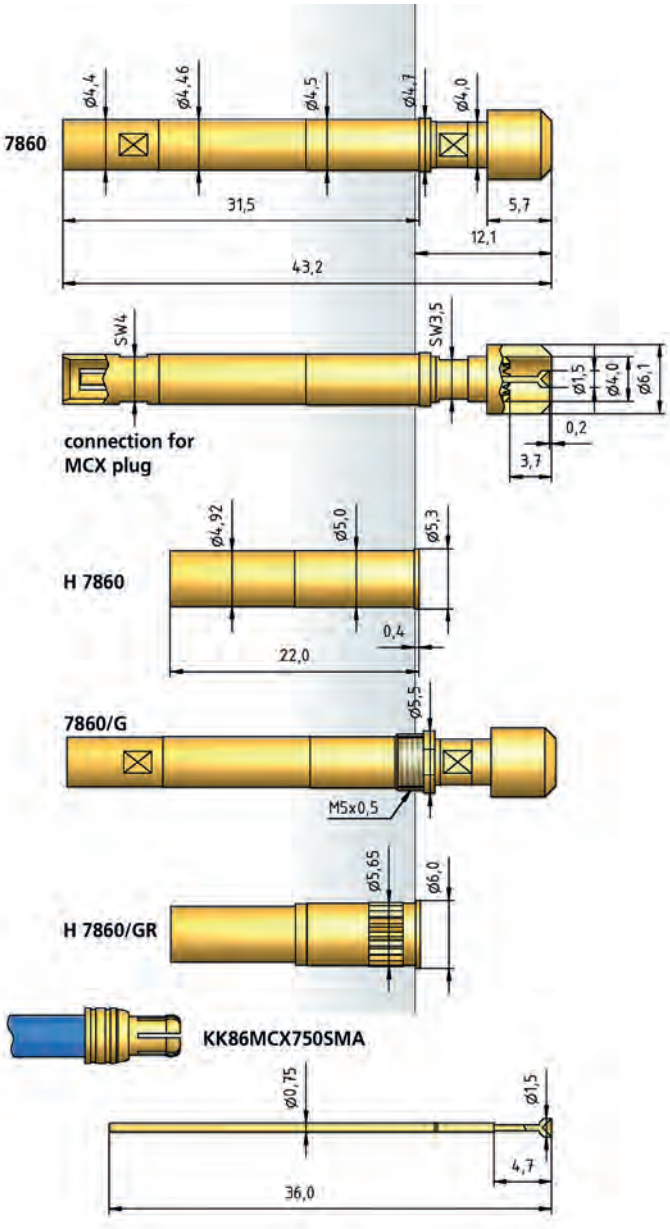
1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

Series 7860 • 7860/G

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

FAKRA PLUG



HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z25	A	-	5.3 N	-	Au	-	6.1/	1.5	C
1	2		3	4		5		6		7	8	9

1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

HOW TO ORDER • INNER CONDUCTOR

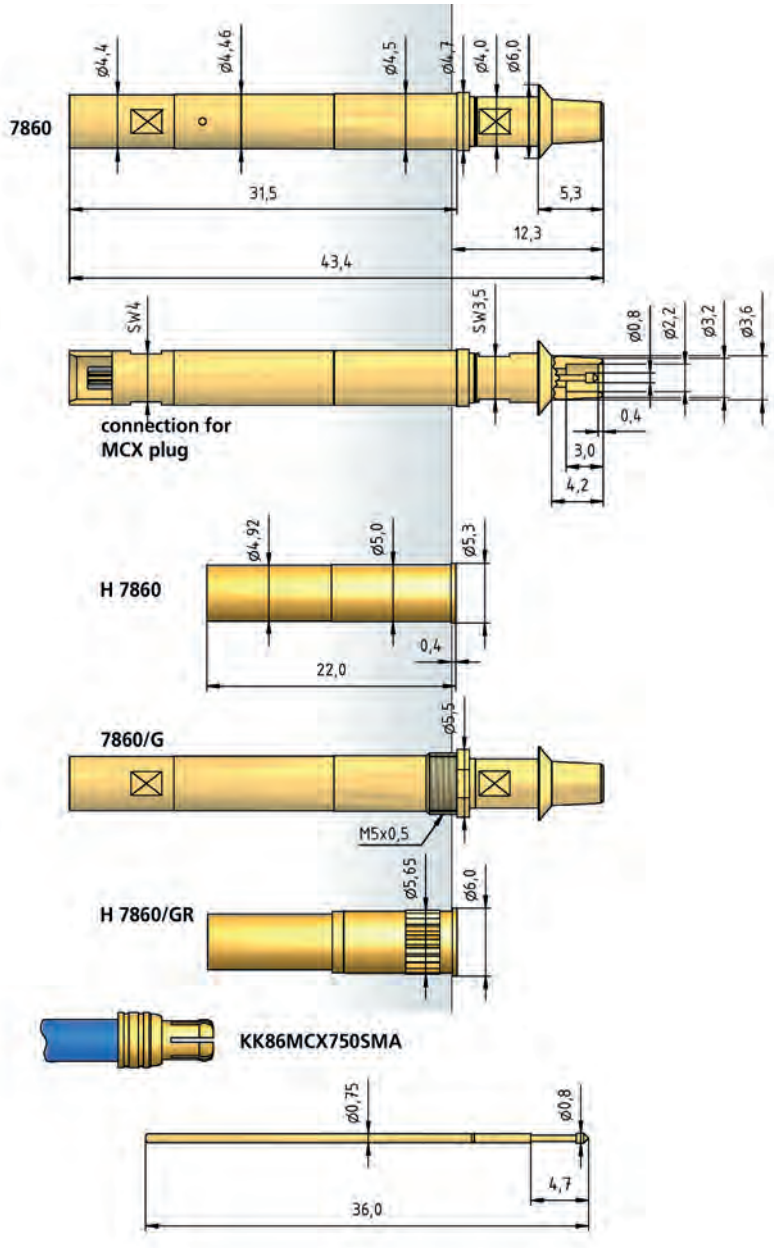
7860	-	A	-	1.3 N	-	Au	-	1.5	C
1		2		3		4		5	6

1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

High Frequency Test Probe - Impedance 50 Ohm - up to 6 GHz

Series 7860 • 7860/G

FAKRA SOCKET



BENEFIT	
For high frequency measurements	
Compact design	
Also screwable type	
Inner conductor and outer tip are independently of each other and interchangeable	
MECHANICAL DATA • INNER CONDUCTOR	
Full Travel	3.70 mm
Working Travel	2.00 mm
Pre-Loaded Spring Force	0.65/ 0.95 N
Spring Force at Working Travel	1.30/ 2.00 N
MECHANICAL DATA • OUTER CONDUCTOR	
Full Travel	5.00 mm
Working Travel	4.00 mm
Pre-Loaded Spring Force	1.50/ 3.00/ 4.00 N
Spring Force at Working Travel	4.00/ 6.00/ 8.00 N
TOTAL SPRING FORCE	
Full Spring Force at Working Travel	5.30/ 6.00/ 7.30/ 8.00/ 9.30/ 10.00 N
ELECTRICAL DATA • INNER CONDUCTOR	
Impedance	50 Ohm
Frequency Range	up to 6 GHz
MATERIALS	
Barrel	Brass, gold-plated
Spring	Steel, gold-plated
Plunger	CuBe, gold-plated
AVAILABLE SCREW TOOLS	
Article Designation	**max. Tip-∅**
WFSB 7860/G-8.0	8.0
CABLE DATA	
Type	Multiflex 86
Length	750 mm
Connector Test Probe	MCX
Connector Testing Technology	SMA

HOW TO ORDER • INNER CONDUCTOR

7860	-	E	-	1.3 N	-	Au	-	0.8	C
1		2		3		4		5	6

1 Series 2 Inner Conductor Tip 3 Spring Force 4 Tip Plating 5 Tip Diameter 6 Tip Material (only for CuBe)

HOW TO ORDER • COMPLETE TEST PROBE

7860/	G	-	Z20	E	-	5.3 N	-	Au	-	3.2/	0.8	C
1	2		3	4		5		6		7	8	9

1 Series 2 Variant treaded Design 3 Outer Conductor Tip 4 Inner Conductor Tip 5 Total Spring Force 6 Tip Plating 7 Outer Tip Diameter 8 Inner Tip Diameter 9 Tip Material (only for CuBe)

FIXTURE CUSTOMIZING

Interface Pins and Interface Test Probes for various adapter interfaces are available for adapter development.

As a specialist in turned parts, PTR HARTMANN also offers special types for the manufacture of individual interfaces or also counter-contacts for battery applications.

A Marker Probe is available for marking PCBs or similar as correct or defective. This Probe can automatically and extremely quickly mark the required PCBs with a small circle, which ensures that defective parts can be quickly recognized and sorted out.

The Testjet pin is a special pin which is used in adapter development specifically to test HP Testjets or Teradyne Frame Scan applications. The main function of this Test Probe is to keep the pressure on the Testjet sensor plates as low as possible. The springs of the pin adapt the position of the sensor plate to the test piece, which prevents any possible twisting of the plate.

SERIES	CENTER	PAGE
1016	100 mil / 2.54 mm	224
1025.21		225
IF Contacts		226
SK 790		227

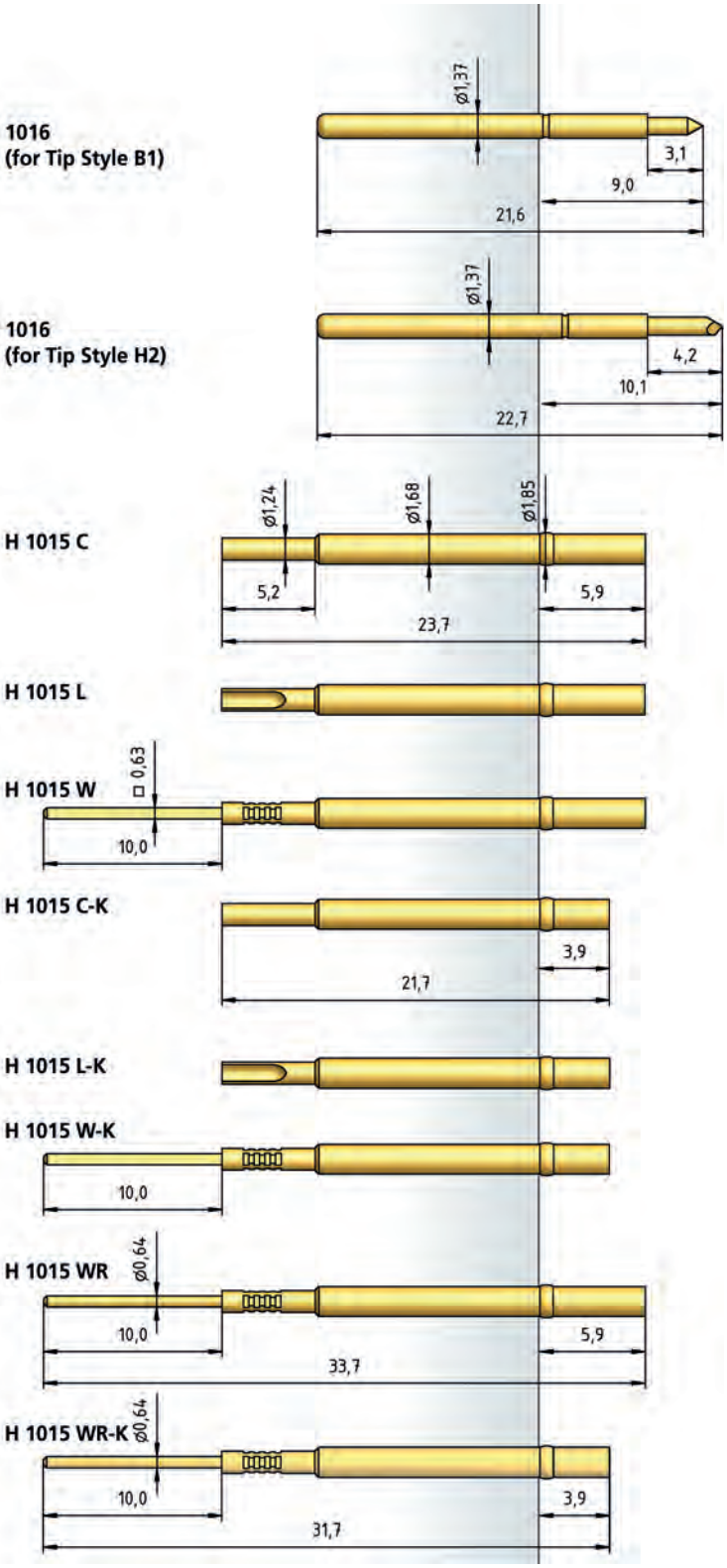
Series 1016

Test Probe 100 mil / 2.54 mm

BENEFIT	
Universal field of application	
Contacting of assembled PCBs	
Interface pin	
MECHANICAL DATA • 1016 B1	
Center	2.54 mm / 100 mil
Temperature Range	-30 °C - +120 °C
Full Travel	3.10 mm
Pre-Loaded Spring Force	0.55 N
Spring Force at Working Travel	1.25 N
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.67 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled material)	1.69 mm
with pressed-in Ring	1.76 mm

TIP STYLE · DIAMETER · PLATING

B1	H2
1.00C Au	1.00C Au



HOW TO ORDER

1016	-	B1	-	1.25 N	-	Au	-	1.0	C
1		2		3		4		5	6

1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Tip Diameter
6 Tip Material (only for CuBe)

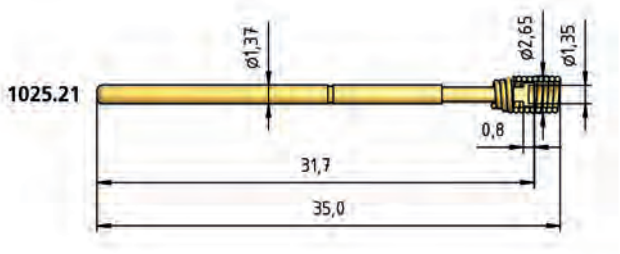
Testjet Test Probe

Series 1025.21

TIP STYLE · DIAMETER · PLATING

TJ
1.35/2.65C Au

BENEFIT	
For testing HP Testjet or Teradyne Frame Scan Applications	
Tip with spring	
Compensation of possible tilt of the Sensor Plate on the device	
MECHANICAL DATA	
Temperature Range	-30 °C - +120 °C
Full Travel	4.80 mm
Working Travel	4.40 mm
Pre-Loaded Spring Force	0.50 N
Spring Force at Working Travel	1.40 N
ELECTRICAL DATA	
Max. Current Rating	3.0...5.0 A
Typical Continuity Resistance	≤ 20 mOhm
MATERIALS	
Barrel	Bronze, gold-plated
Spring	Spring Steel, gold-plated
Plunger	CuBe, gold-plated
RECOMMENDED DIAMETER OF DRILL	
HP 2361.1 (Trolitax)	1.65 mm
with pressed-in Ring	1.75 mm
HGW 2372 (Glass filled material)	1.67 mm
with pressed-in Ring	1.76 mm



HOW TO ORDER

1025.21	-	TJ	-	1.40 N	-	Au	-	1.35	/2.65	C
1		2		3		4		5	6	7

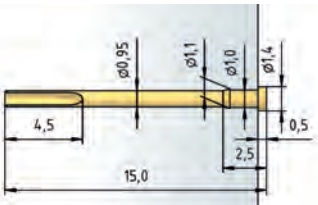
1 Series 2 Tip Style 3 Spring Force 4 Tip Plating 5 Inner Tip Diameter
6 Outer Tip Diameter 7 Tip Material (only for CuBe)

IF Contacts

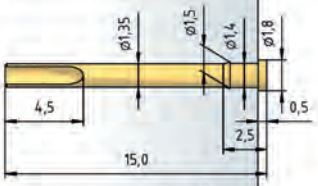
Interface Contact

BENEFIT	
Universal field of application	
Contacting of assembled PCBs	
Interface pin	
MECHANICAL DATA	
Temperature Range	-30 °C - +120 °C
ELECTRICAL DATA	
Max. Current Rating	3.0 A
Typical Continuity Resistance	≤ 30 mOhm
MATERIALS	
IK / GK	Brass, gold-plated

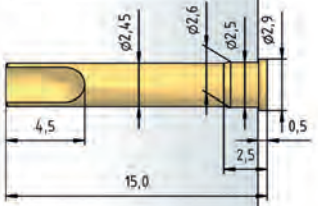
GK 75



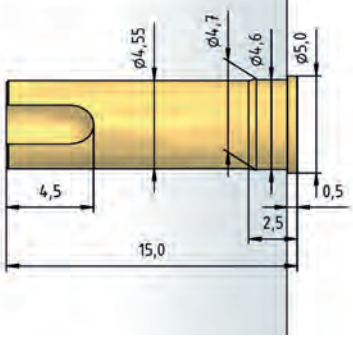
GK 100



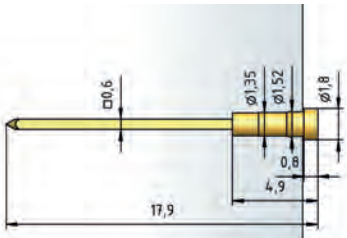
GK 140



GK 230



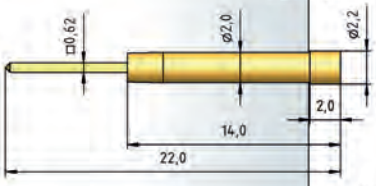
IK 6010.00



IK 6010.01

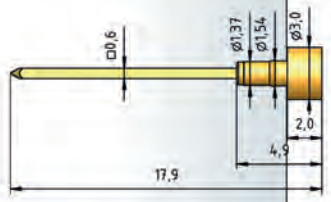
IK 6010.02

IK 6020.00

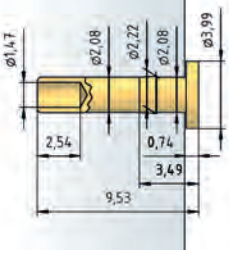


IK 6020.02

IK 6030.00



IK 6040.01



HOW TO ORDER

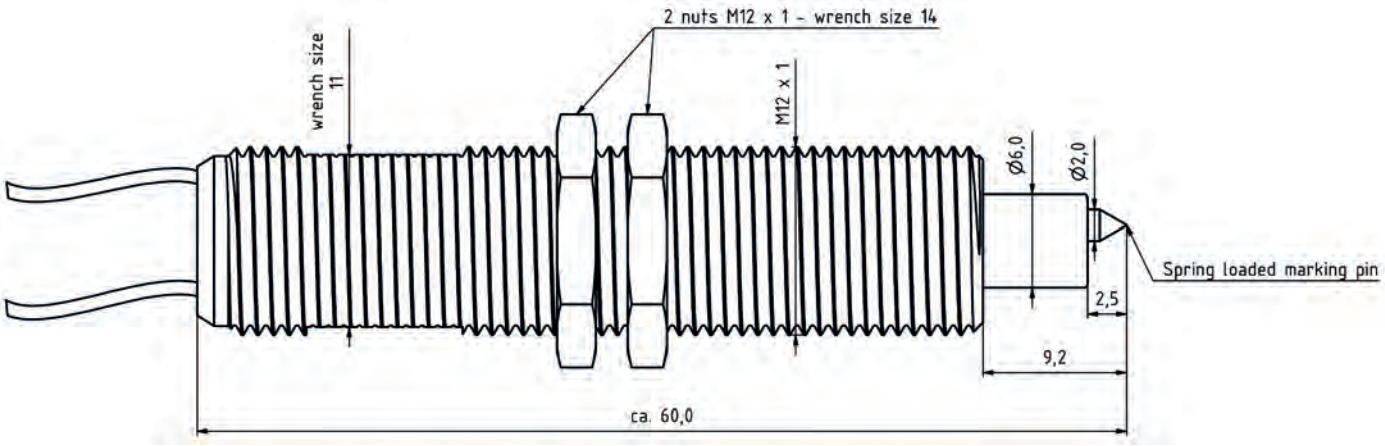
IK	6010.01
1	2

1 Series 2 Variant

PCB Marker Probe

SK 790

BENEFIT	
Compact design	
Height adjustable	
Marker unit changeable	
Easy integration into existing systems	
MECHANICAL DATA	
Full Travel	2.00 mm
Working Travel	1.50 mm
Pre-Loaded Spring Force	0.55 N
Spring Force at Working Travel	3.10 N
Marked Area	2.0 bar
Recommended Marking Impulse	approximately 1 bar
ELECTRICAL DATA	
Rated Voltage	12 V
Output	0.75 W
No-Load Current	3.7 mA
Starting Current	106 mA
Max. Permanent Load Current	81 mA
Terminal Resistance	114 Ohm
Pin no-load Speed	180 min -1
Max. Pin Torque	54 mNm
MATERIALS	
Needle Material	Solid carbide
External Thread	M12x1 with wrench size SW11
Nuts	SW14
AVAILABLE ACCESSORIES	
Article Designation	
SK 790-AWE	Replacement Unit
WHE 1200/790	Insertion Tool
SK 790-VoWi24V	Series Resistor for 24V



HOW TO ORDER

SK 790
1

1 Series

TOOLS AND ACCESSORIES

A wide range of accessories is available for the professional use of PTR HARTMANN test probes.

These include receptacle insertion tools for the ICT test probe range and test probes for use in test modules for cable tests. In addition, we offer screwing tools for our series of test probes with thread, also available as torque screwdrivers. A spring force measuring device, especially suitable for use with the push-back probes needed for the cable test, completes this range. This device makes it possible to carry out the necessary monitoring of contact pressures and their constancy.


KSTOOLS
516.3910
KSTOOLS
516.3910

Insertion and Extraction Tools

for Test Probes

TEST PROBE TYPE	SMALLEST SPACING mm / mil	TIP STYLE DIAMETER (mm)	INSERTION TOOL	EXTRACTION TOOL
1008/E	1.27 / 50	< 0.5	WFE 1200/1008E	-
1010	1.91 / 75	0.9 ... 1.5*	WFEA 1015	WFEA 1015
1012/E	1.91 / 75	< 0.9	WFEA 1015	Flat-Nose-Pliers
1012/E	1.91 / 75	0.9 ... 2.0*	WFEA 1015	WFEA 1015
1015	2.54 / 100	< 0.9	WFEA 1015	Flat-Nose-Pliers
1015	2.54 / 100	0.9 ... 2.0*	WFEA 1015	WFEA 1015
1021, 2021	2.54 / 100	< 1.2	WFEA 1021	Flat-Nose-Pliers
1021, 2021	2.54 / 100	1.2 ... 2.0*	WFEA 1021	WFEA 1021
1025/E	2.54 / 100	< 1.1	WFEA 1025/E	Flat-Nose-Pliers
1025/E	2.54 / 100	1.1 ... 2.3*	WFEA 1025/E	WFEA 1025/E
1028, 2028	2.54 / 100	< 1.5	WFEA 1028	Flat-Nose-Pliers
1028, 2028	2.54 / 100	1.5 ... 2.0*	WFEA 1028	WFEA 1028
1029, 2029	2.54 / 100	< 1.5	WFEA 1028	Flat-Nose-Pliers
1029, 2029	2.54 / 100	1.5 ... 2.0*	WFEA 1028	WFEA 1028
1030	2.54 / 100	< 1.5	WFEA 1028	Flat-Nose-Pliers
1030	2.54 / 100	1.5 ... 2.0*	WFEA 1028	WFEA 1028
1041	4.00 / 160	< 2.0	WFEA 1050	Flat-Nose-Pliers
1041	4.00 / 160	2.0 ... 3.0*	WFEA 1050	WFEA 1050
1042	4.00 / 160	< 2.0	WFEA 1050	Flat-Nose-Pliers
1042	4.00 / 160	2.0 ... 3.0*	WFEA 1050	WFEA 1050
1050	4.00 / 160	< 2.0	WFEA 1050	Flat-Nose-Pliers
1050	4.00 / 160	2.0 ... 3.0*	WFEA 1050	WFEA 1050
1060	4.00 / 160	< 2.0	WFEA 1050	Flat-Nose-Pliers
1060	4.00 / 160	2.0 ... 3.0*	WFEA 1050	WFEA 1050
2053	2.54 / 100	< 1.5	WFEA 1028	Flat-Nose-Pliers
2053	2.54 / 100	1.5 ... 2.0*	WFEA 1028	WFEA 1028
3010/..	4.00 / 160	< 2.0	WFEA 1050	Flat-Nose-Pliers
3010/..	4.00 / 160	2.0 ... 3.0*	WFEA 1050	WFEA 1050
3020/2	2.54 / 100	< 1.2	WFEA 1021	Flat-Nose-Pliers
3020/2	2.54 / 100	1.2 ... 2.0*	WFEA 1021	WFEA 1021
3026/2W	2.54 / 100	< 1.2	WFEA 1021	Flat-Nose-Pliers
3026/2W	2.54 / 100	1.2 ... 2.0*	WFEA 1021	WFEA 1021
3030	2.54 / 100	< 1.0	WFEA 3030	Flat-Nose-Pliers
3030	2.54 / 100	1.0 ... 2.3*	WFEA 3030	WFEA 3030

* When to use bigger headdiameters please order for special tools!
When ordering please mention the test probe type!

Receptacle Insertion Tools

Metal Handle Design

RECEPTACLE	SLEEVE INSERTION TOOL	
	COMPLETE	INSERTION
H 1007	WHE 1200/07	WHE 1200/007
H 1008, H1008/E	WHE 1200/08	WHE 1200/008
H 1010	WHE 1200/12	WHE 1200/012
H 1012	WHE 1200/12	WHE 1200/012
H 1015, H 1015/G..	WHE 1200/15	WHE 1200/015
H 1021	WHE 1200/21	WHE 1200/021
H 1021/GV..	WHE 1200/21-V	WHE 1200/021-V
H 1025	WHE 1200/15	WHE 1200/015
H 1030	WHE 1200/30	WHE 1200/030
H 1050	WHE 1200/50	WHE 1200/050
H 1053/GRV, H1053/GVRV	WHE 1200/53-V	WHE 1200/053-V
H 1070	WHE 1200/75	WHE 1200/075
H 1075, H 1075/G-L	WHE 1200/75	WHE 1200/075
H 1080/GR-L, H 1080/GR-M5	WHE 1200/80	WHE 1200/80
H 2021	WHE 1200/21	WHE 1200/021
H 2050	WHE 1200/50	WHE 1200/050
H 3014	WHE 1200/3014	WHE 1200/03014
H 3023	WHE 1200/3023	WHE 1200/03023
H 3024	WHE 1200/3024	WHE 1200/03024
H 3026/W	WHE 1200/21	WHE 1200/21
H 3028/VR.01	WHE 1200/3028-1	WHE 1200/03028-1
H 5104..	WHE 1200/5104	WHE 1200/05104
SK790	WHE 1200/790	WHE 1200/790

Receptacle Extraction Tools

Metal Handle Design

RECEPTACLE	SLEEVE EXTRACTION TOOL	
	COMPLETE	INSERTION
H 1008	WHA 1200/08	WHA 1200/008
H 1012	WHA 1200/12	WHA 1200/012
H 1025	WHA 1200/25	WHA 1200/025

Receptacle Insertion Tools

Plastic Handle Design

RECEPTACLE	SLEEVE INSERTION TOOL COMPLETE	MARKING ON TOOL SHANK
H 1015	WHE 137	1 Ring
H 1015/G	WHE 137	1 Ring
H 1021	WHE 165	2 Rings
H 1021/G	WHE 165	2 Rings
H 1042	WHE 300	4 Rings
H 1050	WHE 265	3 Rings
H 1060/G	WHE 265	3 Rings
H 2021	WHE 165	2 Rings
H 2050	WHE 265	3 Rings
H 3010, H 3010-22, H 3010/S-23, H 3010/S-28	WHE 265	3 Rings
H 3010/GS, H 3010/GW, H 3010/GW5, H 3010/GWR5	WHE 265	3 Rings
H 3011	WHE 265	3 Rings
H 3020, H 3020/S-26	WHE 165	2 Rings
H 3020/GS-26, H 3020/ GRS-26, H 3020/GW5, H 3020/GWR5	WHE 165	2 Rings
H 3023/G, H 3023/5G, H 3023/GWR5	WHE 165	2 Rings

Screwing Tools / Screw-In Torques Test Probes with Thread

IMPORTANT: If excessive torque is applied, this may destroy the threaded test probe (broken thread, buckling of barrel and/or receptacle, damage to the barrel square-end or screw slot), or it may destroy the screwing tool (cracking/splitting of the square end, damage to the square-end surfaces etc. –> loss of grip)

SERIES	SMALLEST CENTER	MAX. HEAD DIAMETER	TOOL TYPE	SCREWING TOOLS (¼" INCH CONNECTION)	RECOMMENDED SCREWING-IN TORQUE	MAXIMUM SCREWING-IN TORQUE
1007/G	1.27	1.0	A	WFSB 1007/G-1.27-1.0	0.5 ... 1.0 Ncm	max. 1.0 Ncm
1010/G	1.50	1.0	A	WFSB 1010/G-1.5-1.0	1.0 Ncm	max. 1.5 Ncm
	2.30	1.5	B	WFSB 1010/G-2.3-1.5-Z	1.0 Ncm	max. 1.5 Ncm
1012/G	1.50	1.0	A	WFSB 1012/G-1.5-1.0	0.5 ... 1.0 Ncm	max. 1.0 Ncm
	1.90	1.5	B	WFSB 1012/G-1.9-1.5-Z	0.5 ... 1.0 Ncm	max. 1.0 Ncm
1015/G	2.54	1.5	A	WFSB 1015/G-2.54-1.5	2.0 Ncm	max. 3.0 Ncm
	2.54	1.8	A	WFSB 1015/G-2.54-1.8	2.0 Ncm	max. 3.0 Ncm
1021/G, 1021/GV	2.54	1.8	A	WFSB 1021/G-2.54-1.8	3.0 Ncm	max. 5.0 Ncm
	2.54	2.0	A	WFSB 1021/G-2.54-2.0	3.0 Ncm	max. 5.0 Ncm
	3.00	2.5	B	WFSB 1021/G-C2S-3.0-2.5-Z	3.0 Ncm	max. 5.0 Ncm
	3.50	3.0	B	WFSB 1021/G-3.5-3.0-Z	2.0 Ncm	max. 3.0 Ncm
1021/G-D19xx, F19xx	2.54	1.5	C	WFSB 1021/G-2.54-1.5-SW	2.0 Ncm	max. 3.0 Ncm
	3.00	1.5	C	WFSB 1021/G-3.0-1.5-SW	3.0 Ncm	max. 5.0 Ncm
1021/GT-D17xx, F17xx	Plate-∅ ≥ 2.1	1.5	F	WFSB 1021/GT-1	3.0 Ncm	max. 5.0 Ncm
	Plate-∅ ≥ 2.8	1.6 - 2.2	F	WFSB 1021/GT-2	3.0 Ncm	max. 5.0 Ncm
1024/G, 1028/G	2.54	1.8	A	WFSB 1021/G-2.54-1.8	3.0 Ncm	max. 5.0 Ncm
	2.54	2.0	A	WFSB 1021/G-2.54-2.0	3.0 Ncm	max. 5.0 Ncm
	3.00	2.5	B	WFSB 1021/G-C2S-3.0-2.5-Z	3.0 Ncm	max. 5.0 Ncm
	3.50	3.0	B	WFSB 1021/G-3.5-3.0-Z	2.0 Ncm	max. 3.0 Ncm
1042/G	all	all	D	WFSB 3012/G-S1.8	4.0 Ncm	max. 15.0 Ncm
1053/G	5.00	4.0	B	WFSB 1053/G-5.0-4.0-Z	4.0 Ncm	max. 7.0 Ncm
	6.00	5.0	B	WFSB 1053/G-6.0-5.0-Z	4.0 Ncm	max. 7.0 Ncm
1060/G	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm
1060/G-D19xx, F19xx	4.00	2.3	C	WFSB 1060/G-4.0-2.3-SW	3.0 Ncm	max. 5.0 Ncm
1060/GT-F16xx	Plate-∅ ≥ 3.5	from 3.3	F	WFSB 1021/GT-1	3.0 Ncm	max. 5.0 Ncm
1060/GT-D17xx, F17xx	Plate-∅ ≥ 2.1	1.5	F	WFSB 1021/GT-1	3.0 Ncm	max. 5.0 Ncm
	Plate-∅ ≥ 2.8	2.2	F	WFSB 1021/GT-1	3.0 Ncm	max. 5.0 Ncm
	Plate-∅ ≥ 4.0	**3.3**	**F**	WFSB 1060/GT	3.0 Ncm	max. 5.0 Ncm
1061/G	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
1075/G	5.00	4.0	A	WFSB 1070/G-5.0-4.0	5.0 Ncm	max. 15.0 Ncm
1078/G	7.00	5.0	A	WFSB 3015/G-7.0	5.0 Ncm	max. 15.0 Ncm
1080/G	7.60	6.0		Standard Socket - Wrench 6.0 mm		
3010/2G	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm
3010/2G5	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm
3010/2GW	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm
3010/2GW5	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm
3010/10G	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm

Screwing Tools / Screw-In Torques Test Probes with Thread

SERIES	SMALLEST CENTER	MAX. HEAD DIAMETER	TOOL TYPE	SCREWING TOOLS (¼" INCH CONNECTION)	RECOMMENDED SCREWING-IN TORQUE	MAXIMUM SCREWING-IN TORQUE
3011/2GS, 3011/2FGS	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm
3012/2GS	all	all	D	WFSB 3012/G-S1.8	4.0 Ncm	max. 7.0 Ncm
3012/2GSL (Plungers with Pins)	all	all	D	WFSB 3012/G-S1.8	4.0 Ncm	max. 7.0 Ncm
3012/2GSL (Plungers without Pins)	4.00	2.6	A	WFSB 3012-4.0-2.6	4.0 Ncm	max. 7.0 Ncm
3014/2G	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm
3015/G	7.00	5.0	A	WFSB 3015/G-7.0	5.0 Ncm	max. 15.0 Ncm
3020/2G, 3020/2GW5	2.54	1.8	A	WFSB 1021/G-2.54-1.8	3.0 Ncm	max. 5.0 Ncm
	2.54	2.0	A	WFSB 1021/G-2.54-2.0	3.0 Ncm	max. 5.0 Ncm
	3.00	2.5	B	WFSB 1021/G-C2S-3.0-2.5-Z	3.0 Ncm	max. 5.0 Ncm
	3.50	3.0	B	WFSB 1021/G-3.5-3.0-Z	2.0 Ncm	max. 3.0 Ncm
3023/2GS	2.54	1.8	A	WFSB 1021/G-2.54-1.8	3.0 Ncm	max. 5.0 Ncm
	2.54	2.0	A	WFSB 1021/G-2.54-2.0	3.0 Ncm	max. 5.0 Ncm
	3.00	2.5	B	WFSB 1021/G-C2S-3.0-2.5-Z	3.0 Ncm	max. 5.0 Ncm
	3.50	3.0	B	WFSB 1021/G-3.5-3.0-Z	2.0 Ncm	max. 3.0 Ncm
3024/2G	2.54	1.8	A	WFSB 1021/G-2.54-1.8	3.0 Ncm	max. 5.0 Ncm
	2.54	2.0	A	WFSB 1021/G-2.54-2.0	3.0 Ncm	max. 5.0 Ncm
	3.00	2.5	B	WFSB 1021/G-C2S-3.0-2.5-Z	3.0 Ncm	max. 5.0 Ncm
	3.50	3.0	B	WFSB 1021/G-3.5-3.0-Z	2.0 Ncm	max. 3.0 Ncm
3028.01	2.54	1.8	A	WFSB 1021/G-2.54-1.8	3.0 Ncm	max. 5.0 Ncm
	2.54	2.0	A	WFSB 1021/G-2.54-2.0	3.0 Ncm	max. 5.0 Ncm
	3.00	2.5	B	WFSB 1021/G-C2S-3.0-2.5-Z	3.0 Ncm	max. 5.0 Ncm
	3.50	3.0	B	WFSB 1021/G-3.5-3.0-Z	2.0 Ncm	max. 3.0 Ncm
3030/GW3	2.54	1.5	A	WFSB 1015/G-2.54-1.5	2.0 Ncm	max. 3.0 Ncm
	2.54	1.8	A	WFSB 1015/G-2.54-1.8	2.0 Ncm	max. 3.0 Ncm
3035/GW	1.50	1.0	A	WFSB 1012/G-1.5-1.0	0.5 ... 1.0 Ncm	max. 1.0 Ncm
	1.90	1.5	B	WFSB 1012/G-1.9-1.5-Z	0.5 ... 1.0 Ncm	max. 1.0 Ncm
3212/2GS (Plungers with Pins)	all	all	D	WFSB 3012/G-S1.8	4.0 Ncm	max. 7.0 Ncm
3212/2GS (Plungers without Pins)	4.00	2.6	A	WFSB 3012-4.0-2.6	4.0 Ncm	max. 7.0 Ncm
3212/2GS	4.00	3.0	B	WFSB 3012/G-4.0-3.0-Z	4.0 Ncm	max. 7.0 Ncm
4004/G	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm
5087	4.00	2.5	A	WFS 5087-4.0-2.5	5.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 5087-5.0-4.0-Z	5.0 Ncm	max. 15.0 Ncm
5104	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm
5110/G	4.00	3.0	A	WFSB 1060/G-4.0-3.0	4.0 Ncm	max. 15.0 Ncm
	5.00	4.0	B	WFSB 1060/G-5.0-4.0-Z	4.0 Ncm	max. 15.0 Ncm
	6.00	5.0	B	WFSB 1060/G-6.0-5.0-Z	4.0 Ncm	max. 15.0 Ncm

A – closed square-head **| B** – claw (only for two-line assembly) **| D** – screwdriver for slotted screws **| E** – hexagon socket key **| F** – three point wrench
Other tools on request! When ordering tools, please specify the test probe to be assembled!

Screwing Tools / Screw-In Torques Test Probes with Thread

IMPORTANT: If excessive torque is applied, this may destroy the threaded test probe (broken thread, buckling of barrel and/or receptacle, damage to the barrel square-end or screw slot), or it may destroy the screwing tool (cracking/splitting of the square end, damage to the square-end surfaces etc. –> loss of grip)

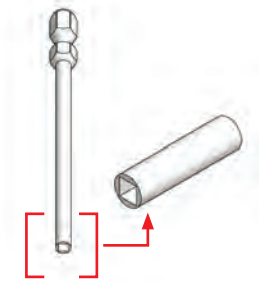
SERIES	SMALLEST CENTER	MAX. HEAD DIAMETER	TOOL TYPE	SCREWING TOOLS (¼" INCH CONNECTION)	RECOMMENDED SCREWING-IN TORQUE	MAXIMUM SCREWING-IN TORQUE
5203	2.54	2.0	A	WFSB 5203-2.54-2.0	3.0 Ncm	max. 5.0 Ncm
	3.50	2.7	B	WFSB 5203-3.5-2.7-Z	3.0 Ncm	max. 5.0 Ncm
5207/G	all	all	E	Hexagon Socket Key 2 mm	4.0 Ncm	max. 15.0 Ncm
5248/G	2.5	2.0	A	WFSB 5248/G-2,54-2,0	3.0 Ncm	max. 5.0 Ncm
5257/G	2.54	1.8	A	WFSB 1021/G-2.54-1.8	3.0 Ncm	max. 5.0 Ncm
	2.54	2.0	A	WFSB 1021/G-2.54-2.0	3.0 Ncm	max. 5.0 Ncm
	3.00	2.5	B	WFSB 1021/G-C2S-3.0-2.5-Z	3.0 Ncm	max. 5.0 Ncm
	3.50	3.0	B	WFSB 1021/G-3.5-3.0-Z	2.0 Ncm	max. 3.0 Ncm
5265	3.00	2.3	A	WFSB 5265-3.0-2.3	3.0 Ncm	max. 5.0 Ncm
	3.00	2.5	B	WFSB 5265-3.0-2.5-Z	3.0 Ncm	max. 5.0 Ncm
	3.50	3.0	B	WFSB 5265-3.5-3.0-Z	3.0 Ncm	max. 5.0 Ncm
5310/G	2.54	1.8	A	WFSB 1021/G-2.54-1.8	3.0 Ncm	max. 5.0 Ncm
	2.54	2.0	A	WFSB 1021/G-2.54-2.0	3.0 Ncm	max. 5.0 Ncm
7840/G	/	8.0	B	WFSB 7840/G-8.0	5.0 Ncm	max. 8.0 Ncm
7860/G	/	8.0	B	WFSB 7860/G-8.0	5.0 Ncm	max. 8.0 Ncm

A – closed square-head **| B** – claw (only for two-line assembly) **| D** – screwdriver for slotted screws **| E** – hexagon socket key **| F** – three point wrench
Other tools on request! When ordering tools, please specify the test probe to be assembled!

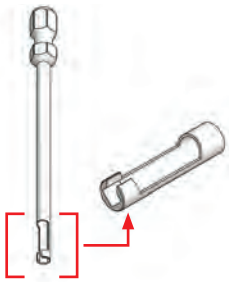
Screwing Tools for Test Probes with Thread

Screwing Tools for Test Probes with Thread

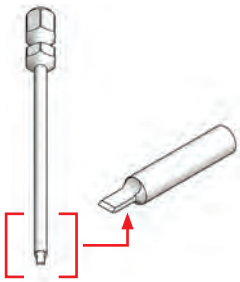
Tool Type with ¼" Inch Connection



A Closed Square Head

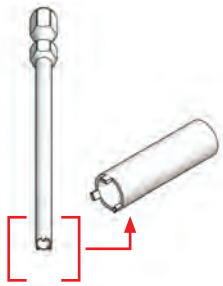


B Claw (only for two-line assembly)



D Screwdriver for Slotted Screws

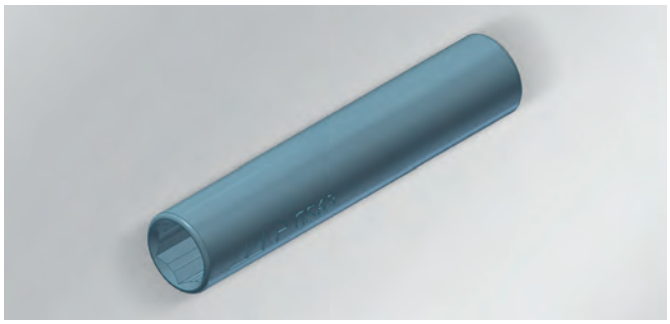
E Hexagon Socket Key



F Three Point Wrench

Screwing Tool without Torque Limit GS 63

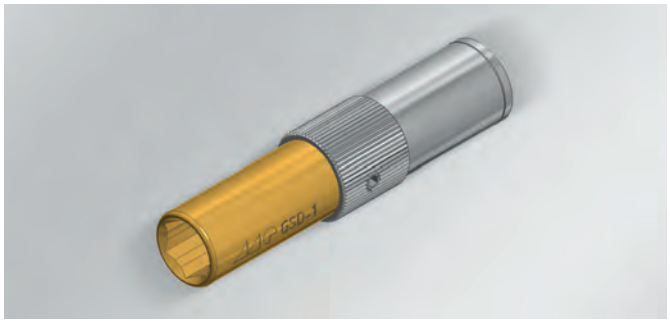
Tool Reception ¼" Inch



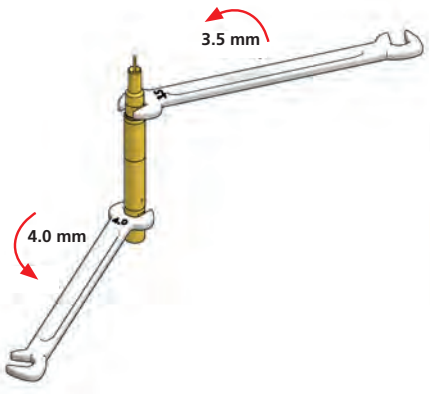
Screwing Tool with Torque Limit (Ratchet) GSD-x

Tool Reception ¼" Inch

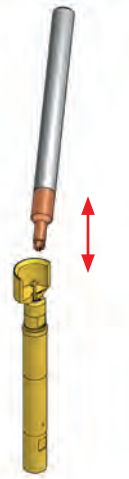
TYPE	COLOUR CODE	SECTOR
GSD-1	gold	1 Ncm
GSD-2	green	2 Ncm
GSD-3	blue	3 Ncm
GSD-4	red	4 Ncm



Assembly Tools for High Frequency Test Probe



Spanners

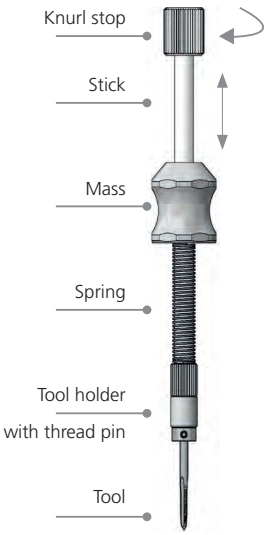


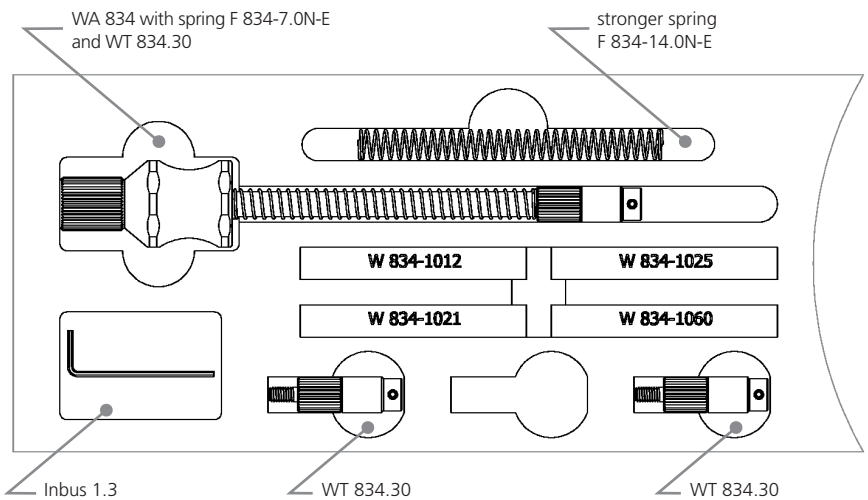
Assembly / Dismantling of the Inner Conductor using the Special Tool

SERIES	MAX. HEAD DIAMETER	TOOL TYPE
7840(/G) / 7860(/G)	0.5	WFK 7860-i-05
7840(/G) / 7860(/G)	1.8	WFK 7860-i-18
7840(/G) / 7860(/G)		SW 3.5
7840(/G) / 7860(/G)		SW 4.0
7890		SW 2.5
7890		SW 3.0

Tool Changing WA 834 for Mounting Receptacles

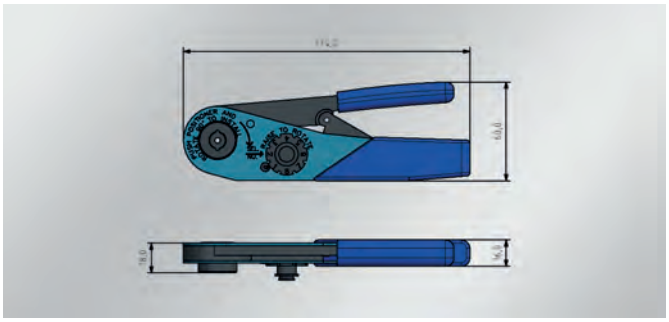
CONTENT
Basic tool WA 834 with standard spring F 834-7.0N-E
Standard spring can be replaced with the stronger spring F 834-14.0N-E





Crimp Tool AFM8

HIGHLIGHTS	
4 point crimping	
For receptacles	
Crimping capacities adjustable	
SPECIFICATIONS	
Wire Size	0.09 - 0.82 mm²
AWG	32 - 20
Weight	332,75 g



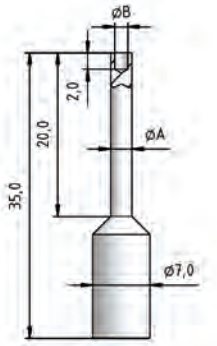
Torque Screwdriver

TYPE	PRESET TORQUE
DMS 1	1 Ncm
DMS 2	2 Ncm
DMS 3	3 Ncm
DMS 4	4 Ncm

Digital Force Gauge FKT50

SPECIFICATIONS	
Measuring range	0 ... 50 N
Resolution	0,01 N
Pressure calibration	0,1 Mpa
Load cell	Integrated load cell with M6 connection
Measuring range	1 ... 100 % of the full scale
Measurement accuracy	± 0,5 %
Units	N, kg, lb
Display	LCD
Display Orientation	0° /180°
Power supply	Internal battery, 12V / 1 A power adapter
Operating temperature	+10 ... +30 °C / 50 ... 86°F
Relative humidity	15 ... 80 % relative humidity
Weight	1 kg / 2.2 lbs
Interface	USB

DIMENSION		
Ø A (mm)	Ø B (mm)	CENTER (mm)
2.1	1.6	2.54
2.6	2.1	2.54
3.6	3.1	4.0
4.6	4.1	5.0
5.6	5.1	6.0



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Photos:
Tim Luhmann Fotografie & Film
iStockphoto.com

Print:
Bösmann Medien und Druck GmbH & Co.KG

This catalogue replaces all earlier editions.

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