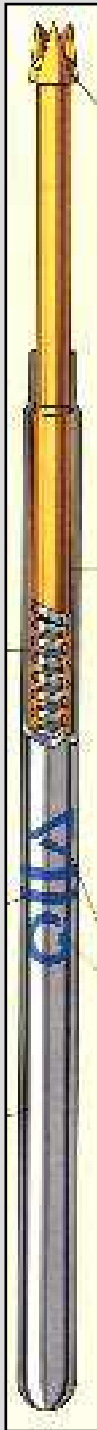


Probes, Sockets and Accessories

General Information



Probes are one of the most important parts of a fixture. A perfect probing depends aside from the pointing accuracy of the probes decisively on the quality of the probes. Therefore GPS uses only QA probes and distributes those exclusively in the German-speaking countries and also in the European area.

The three parts of probes are:

- the plunger with the contact tip,
- the spring which ensures the needed contact pressure,
- the tube which carries the spring and in which the plunger moves.

Decisive for the lifetime of the probe is a durable gold plating to guarantee a low probe resistance to the UUT and to the socket. The same goes for the sockets, which are wired to the interface. The probe springs are made of a long-lived spring steel to prevent an early fatigue.

Another criterion of quality are the production tolerances of the probes and the sockets. The lower these tolerances are in comparison with the diameters of the probes the lower the scatter pattern diameter is (i.e. the radial deviation of a probe tip from the true centerline of the probe mounting hole). The scatter pattern diameter can be limited easier at probes with a larger diameter than with a smaller one - even through highly precise production. Therefore we recommend to use 1/10" center probes wherever possible. This recommendation should always be taken into consideration by designing the board in order to reduce the fixturing costs.

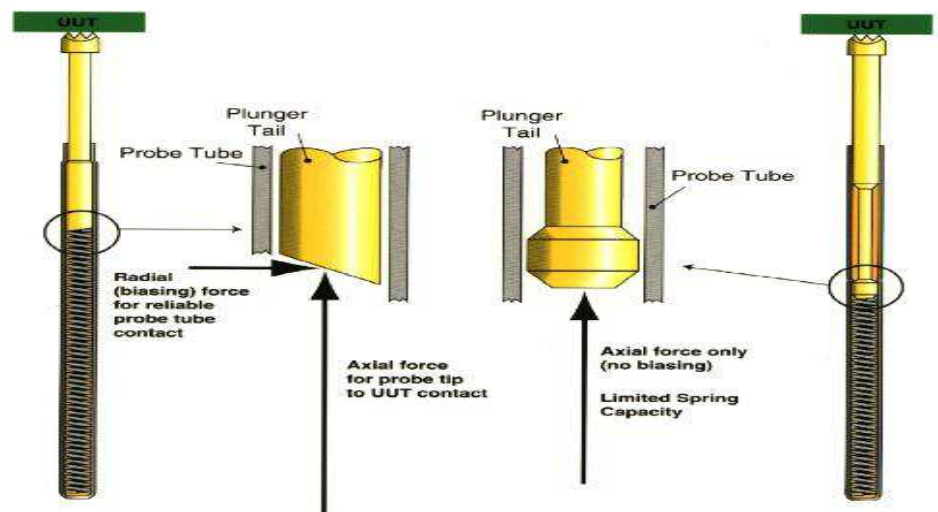
Probes, Sockets and Accessories

Design

Design of the patented probes

QA's PR Design stands out for the following essential qualities:

1. The first is a probe tube and plunger design that reduces radial plunger play at the probe tube opening. The clearance between the tube and the plunger has been reduced by forming the tube around the plunger itself. This feature reduces play from side to side and significantly improves pointing accuracy.
2. These probes also feature a patented biasing system for the tail end of the plunger. Biasing is the name given to the intentional loading of the plunger against the inside surface of the probe tube. An angled surface machined on the plunger tail mates with the spring and allows it to exert a small radial force on the tube. This biasing force causes a well-defined wiping action between the plunger and the inner surface of the probe tube to provide improved electrical contact.
3. Another unique design and performance advantage of this probe design is the increased spring space in the tube. Through this design, our probes offer higher spring forces than any competitive probe of the same overall size.



Probes, Sockets and Accessories

Product Information and Material

Product informations:

In the following there is a short summary of the QA-Products and the price list which goes with it.

The indication for each serie is made by the centers and the stroke. The 100-25 serie, for example, is for a 100 mil (2,54 mm) center to center and has a stroke of 0,25" (6,35 mm). The key for the specific items is shown on the next page.




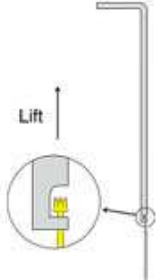
Materials:

Two popular materials are available in most of the series: gold plated (G) and special gold plated (P) pins. The difference lies in the time of the gold plating. Normal gold can be applied to the probe only after the drawing process, because it would exfoliate during the drawing process. Compared with that the special gold plating (P) can be applied before the drawing process because it is not as brittle. Therefore the electrical resistance of these probes is lower than of normal gold plated ones. The following table shows the electrical resistences of 500 and 1.000.000 probings.

	500 Probings	1.000.000 Probings
SERIE	max. mOhm / min. mOhm	max. mOhm / min. mOhm
PRG	21 / 15	39 / 15
PRP	17 / 10	36 / 12

Angaben von QA-Technology

Probes, Sockets and Accessories

<p>Specification:</p> <p>Adjustable tool with a built-in micrometer in inches and millimeter for 50, 75 and 100 mil pins</p> <p>Order no.: AT-xxxM KIT (e.g. AT100M Kit for 100 mil)</p>	
<p>Specification:</p> <p>Insertion tool, for 25, 39, 50, 75 and 100 mil probes with pre-set heights (from flat to 7,0 mm)</p> <p>Orderno.: Itxxx SETxxx (e.g. IT75 SET 3,20mm)</p>	
<p>Specification:</p> <p>Socket extraction tool for 39 - 125 mil sockets</p> <p>Orderno.: ETxxx (e.g. ET39)</p>	
<p>Specification:</p> <p>Probe extraction tool for 75 and 100 mil probes</p> <p>Orderno.: PExxx (e.g. PT75)</p>	
<p>Specification:</p> <p>Probe installation tool for probes from 39-100 mil</p> <p>Orderno.: PTxxx (e.g. PT100)</p>	