FAQs

Q Do probe extraction tools (PERX) remove all probes in all series?

A No. They are designed to remove headed probes only. These tools are ideal in cases where many headed probes must be removed quickly without damaging the probe. For headless probes and probes on closer centers, QA recommends miniature precision long nose pliers. Users must be careful when removing probes that are to be reused because pliers can damage the plating and/or bend the plunger.

Q Can the probe tube be soldered directly to the termination/fixture?

A Probe tubes are typically made from nickel silver and this material is easily soldered to. Take precautions to prevent the solder from flowing into the probe tube ID. Solder in the probe tube ID could cause the plunger to stick or prevent the plunger from fully compressing. This application is common when installing probes directly into PCBs.

Q What is the difference between the 050-R25 and 050-T25 Series?

A The main difference is that the 050-R25 Series has a longer probe tube compared to the 050-T25 Series. The increased length of the 050-R25 probe tube allows more space for higher force springs to be used.

Q What material is recommended for mounting the sockets and termination pins into?

A In general, any nonconductive material is suitable with the most popular socket mounting plate made from an epoxy fiberglass AT7000, G10, or FR4. This is the same material used in the manufacturing of printed circuit boards. Other suitable materials include but are not limited to Acrylic, polycarbonate, PVC, and Delrin. The socket retention forces will vary between materials and must be considered in fixture design. For our X Probe® termination pins, we recommend using epoxy fiberglass laminates (G10/FR4, etc.) for the back plate due to the retention requirements of the termination pins. Our published suggested mounting hole sizes are designed for epoxy fiberglass laminates.

Q What is the maximum voltage that test probes and sockets can carry?

A There is no maximum recommended voltage limits for test probes and sockets/termination pins. However, the spacing between the probes and the dielectric properties of the probe plate must be taken into consideration. Avoid probe plate materials that have hygroscopic tendencies. The test voltage to the fixture/DUT must be applied only after the fixture is activated and the probes are compressed and contacting the DUT. Voltage applied prior to the probe's tips making contact will cause electrical arcing which will damage or melt the tips.

Q When and where is the -B option (curved probe tube) used?

A The –B option is designed for use with the old-style Pylon brand sockets that do not incorporate a probe retention indent. The bend in the probe tube acts as the retention feature to hold the probe in the socket. As a rule, we do not recommend that the –B option be used with QA sockets as our sockets incorporate probe retention indents. For older sockets where the probe retention indent has been damaged, or if the probes are loose or are being pulled out during test, using the –B option is a suitable solution until a replacement of the socket can be made.

Q Can QA Probes be used for Hipot testing?

A Yes. Hipot testing is an abbreviation for High Potential Testing and is also called Dielectric Withstanding Voltage (DWV) test. This test applies an over voltage condition to the device and is used to verify that the electrical insulation in the device does not break down and is sufficient to protect the operator from electrical shock in PCBs, transformers, electric motors, finished appliances, cables, or other wired and wireless assemblies.

When test probes are used as the interface between the Hipot Tester and UUT, we recommend the following:

- The probes must contact the terminals on the UUT and must be compressed before you run the test.
- Do not retract probes from the UUT until the test is complete and the voltage has been cut off.
- Any contaminants between the tips of the probes and UUT will act as insulation that will cause high resistance at this junction. In turn, the higher resistance will cause localized heating and possible arcing at the tip.
- Maintain sufficient distance and/or insulation between the conductors to prevent the electricity from arcing between the bare plungers.
- Over time, the sliding plated surfaces will degrade faster compared to low voltage applications and may require increased maintenance.
- Use the largest probe you can with the highest spring forces.

Q How many times can the same X Probe be reinstalled on a termination pin?

A An X Probe can be reinstalled on the same termination pin a maximum of five times. After this, the probe retention is reduced to the point where the probe is loose on the termination pin. The probe retention indents are the mechanical features that hold the probe to the termination pin. Because of the tolerance variability of the mating parts, a probe that is installed onto a different termination pin on which it was originally installed may have lower or higher forces. In the case of low forces, the probe should be replaced with a new one. The probe is designed to be the “wear point” in the system. By replacing the probe, you will restore the retention force.

Q Will termination pins wear or degrade over time?

A The termination pin is designed to last the life of the fixture under normal operating conditions.

Q Can the QA X Probe be used on existing test platforms?

A Yes. The X Probe is compatible with Keysight, Genrad, Teradyne, and others. Fixture designs must be able to accommodate the additional plates. In general, the height of the fixture is increased and in the case of Keysight compatible fixtures, wider rails (up to one inch, depending on the set height) are required to maintain the depth of the wiring area to accommodate the personality pins and alignment plate. The X-16 series does not require an increase in the fixture height and can be used on existing test platforms with minimal fixture modifications.

Q Can the X Probe be used with pneumatic, mechanical, and vacuum fixtures?

A Yes. The X Probe design does not limit the type of fixtures that they can be used on.

Q Can standard test probes and sockets be mixed mounted with the X Probe Series?

A Yes. With design considerations standard test probes can be mixed mounted with the X Probe Series. A standard socket would mount in the probe plate and clearance holes would have to be drilled in the spacer and back plates. In a vacuum fixture, a method would have to be designed to maintain the integrity of the vacuum. The best approach is to cut out areas in the plates where the sockets will be mounted and design inserts with gaskets to accommodate them.

Q **Is a spacer plate necessary?**

A No. The spacer plate is an optional intermediate support plate that, when fixed to the back plate, provides additional strength, and helps with the alignment of the probe to the termination pin during probe installation. On small to medium sized fixtures this can be replaced with fixture standoffs or flanges.

Q **How are additional X Probes and termination pins added to a completed fixture?**

A Because the X Probe system relies on accurately drilled and aligned holes, the recommended approach is to remove all the probes and plates. The new hole locations must be accurately registered from the original reference points so that the X Probe and termination pin will align during assembly.

Q **How much weight will be added to a fixture designed around the X Probe?**

A 20lbs [9.1Kg] for an average sized fixture. An X Probe fixture requires a top (support) plate, a probe plate, a spacer plate, and a back plate while the conventional fixture has a top plate and a probe (socket mounting) plate.

Q **When comparing the prices of two identical test fixtures, one built with standard probes and the other with QA X Probes, how do their costs compare?**

A It depends. The purpose of a socketless probe is to put a larger probe on closer centers. Meaning, X Probe socketless technology was developed for fixtures requiring larger quantities of 75mm, 50mm, and 39mm center probes than 100mm center probes.

Please keep in mind that QA does not build fixtures. QA manufactures test probes in service and support of the in-circuit test industry. Only a fixture house can determine actual fixture costs and pricing. The following is a guideline to determine if X Probe technology should be considered for your fixture.

A best guesstimate comparing conventional probe costs to QA X Probe costs would be:

- If a fixture is predominately 100mm centers, the cost of using X Probe socketless technology would be greater than a conventional 100mm center probe fixture.
- If a fixture requires predominately 75mm centers, the cost of using X Probe socketless technology could be equal to or less than a 75mm center conventional probe fixture.
- If a fixture requires predominately 50mm centers, the cost of using X Probe socketless technology could be equal to or less than a conventional 50mm center probe and socket fixture.
- If a fixture requires predominately 39mm and smaller centers, the cost of using X Probe socketless technology should be less than a conventional 39mm center probe and socket fixture.