



# How to Select MPD Test Probe Pins

## A practical guide for PCB test fixtures and repeated electrical contact

Choose a probe by the surface it must touch, the spacing and travel available in the fixture, the required current and contact force, and the number of test cycles. MPD offers gold plated, spring loaded contact probes for in circuit and functional PCB testing. Its long life construction can reduce probe changes in high volume fixtures when the part is matched to the application.

## 1 Define the contact point

**Identify the target.** Record the test pad or via diameter, spacing, surface finish, solder residue, and allowable witness mark. Choose a tip geometry that makes repeatable contact without damaging the target. Verify it on actual boards, including worst case alignment and contamination.

**Start with MPD tip options.** For example, PTP-2M2L-3GA is listed as a four point crown, PTP-2W2BL-3GA as a waffle tip, and PTP-2P1L-3GA as a triangular pyramid. The exact choice depends on your pad and fixture; test samples before committing to a tip.

## 2 Match the fixture geometry and electrical load

**Pitch and mounting.** The published PTP 2, PTP 2L and PTP 2LL family pages specify 2.54 mm (100 mil) pitch. Check the actual probe and receptacle drawing, hole size, installed height and adjacent clearance before laying out the fixture.

**Travel.** These family pages give 6.4 mm full stroke and 4.2 mm recommended working stroke. Design the fixture to achieve consistent contact at the recommended travel, with tolerance for board thickness and fixture variation. Avoid routinely bottoming out the plunger.

**Electrical rating.** The same pages state 5 A. Confirm the selected part datasheet and application duty, including contact resistance and heat, before using that rating in the test plan.

## 3 Choose force and service life

**Force.** Use enough force to maintain contact with the target finish, while limiting board deflection and damage. Multiply force per probe by the number of probes to estimate total fixture closing force; confirm each candidate's spring option in its datasheet.

**Life.** MPD states its high durability probes have been tested beyond 1,000,000 strokes. Compare cycle data at matching travel, load and cleaning conditions, then plan maintenance based on the actual fixture. A nominally cheaper probe may require more frequent replacement.

*MPD probe examples • Actual product images from MPD websites*



**PTP-2P1L-3GA**  
Triangular pyramid



**PTP-2M2L-3GA**  
Four point crown



**PTP-2W2BL-3GA**  
Waffle tip

## 4 Compare construction and replacement frequency

A pogo pin generally contains a moving plunger, spring and barrel. The useful comparison is a documented combination of materials, plating, electrical performance and endurance under comparable test conditions.

| What to compare | Typical probe                                             | MPD long life probe                                                                                       |
|-----------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Cycle evidence  | Ask the supplier for a tested cycle count and conditions. | MPD states more than 1,000,000 tested strokes; it compares this with a 100,000 stroke industry benchmark. |
| Plunger         | Check tip shape, base metal, plating and wear.            | MPD specifies hardened tool steel with gold plating.                                                      |
| Spring          | Check spring force stability over repeated strokes.       | MPD specifies gold plated piano wire.                                                                     |
| Barrel          | Check plating and dimensional fit in the fixture.         | MPD specifies gold plated phosphor bronze.                                                                |
| Operating cost  | Include replacement labor, downtime and retesting.        | Longer documented life can lower intervention frequency in a matched fixture.                             |

The 100,000 versus 1,000,000 comparison is MPD's published benchmark, not a universal lifetime guarantee for every standard probe. Service life varies with travel, load, alignment, target finish and maintenance.

### Selection walk through

- 1 Map the board.** List test point diameter, pitch, finish, current, board support and expected cycles per year.
- 2 Select candidate tips.** Use MPD product images and datasheets to shortlist a tip for the contact surface. Order samples if the best tip is uncertain.
- 3 Check the fixture stack.** Confirm probe pitch, receptacle and drill dimensions, installed height, 4.2 mm recommended working stroke where applicable, and total closing force.
- 4 Run a trial.** Measure contact reliability and marking on representative boards; cycle the fixture and inspect for wear or intermittent readings.
- 5 Lock the part number.** Record the approved MPD part number, drawing revision, spring option and replacement interval in the fixture bill of materials.

### When you do not see the exact pin

Send MPD your target drawing or existing part number, tip requirements, pitch, stroke, force, current, mounting details and annual volume. We can review an MPD substitute or develop a custom test probe for your application. Ask for samples to validate the fit in your fixture.

**Contact MPD** [sales@memoryprotectiondevices.com](mailto:sales@memoryprotectiondevices.com) • [www.mpdtestprobe.com](http://www.mpdtestprobe.com) • +1 631 249 0001

### MPD source pages

About MPD Test Probes: <https://www.mpdtestprobe.com/page/10769/AboutMPDTestProbes>

Family specifications: <https://www.mpdtestprobe.com/page/10728/PTP-2>

Product examples and images: <https://www.mpdtestprobe.com/search.php?cat=PP>