

# Probe Applications

## Plunger Point Selection

There are three basic factors in selecting a plunger point. They are plunger style, plunger diameter and barrel diameter. We recommend that the user always try to use the largest diameter plunger and barrel possible, keeping in mind the space available on the particular application. Throughout the catalog we have specified the minimum centers for each spring test probe or switch probe.

Keeping within the plungers working travel will assure that the test probe will reach its designed cycle performance.

The plunger style to be selected must take into consideration whether the user is going to test leads, terminals, lands, pads, through holes or smooth surfaces. The user must also consider if contamination is an issue. Solder residue and greases used in water tight connectors pose a particular challenge. In some applications self cleaning plungers should be considered. Self cleaning plungers will shed any contaminants picked up from the components being tested.

## Application Example

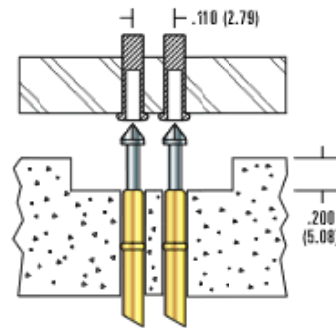
If our objective, for purposes of quality control certification, is to measure an electrical impulse between two round terminals with .045 (1.14) holes and a center to center distance of .110 (2.79), several factors must be considered. Let us suppose that these terminals were exposed to several contaminants such as soldering flux, finger prints and dust.

The first step is to determine the best suited test probe series. Be sure to take into consideration the center to center distance between the test points. Always try to use the largest spring test probe or switch probe with its respective receptacle that will fit into the application. The catalog specifies the minimum centers for each test probe. In this example we find that the best suited test probe for this application will be the LS054R or LS054RS series.

The next consideration should be the distance between the surfaces where the spring test probes and the terminals are mounted. In the example shown we see a minimum plunger length requirement of

.200 (5.08) which would lead us to select the LS054R series because it offers a longer plunger length.

Once a series has been selected the plunger style will be determined. Being concerned about possible outside contamination the user may want to contact the inside of the terminal where less deterrents to the flow of electric current may be found. We suggest using an LS054R-427 because the corners of the four sided pyramid will act as "knives" which will penetrate through any contaminants.



Style	Form	Recommended Application	SMALL FLAT		SPECIFIC CONTACT POINTS. DOES NOT LEAVE MARKS.
BULLET		CLEAN SURFACES. DOES NOT LEAVE MARKS.	CROWN		CONTAMINATED SURFACES. SELF CLEANING.
LARGE CONCAVE		THIN OR FLEXIBLE LEADS AND TERMINALS.	ROUND		CLEAN SURFACES. DOES NOT LEAVE MARKS.
LARGE FLAT		NON SPECIFIC CONTACT POINTS. DOES NOT LEAVE MARKS.	SERRATED		THIN OR FLEXIBLE NON SPECIFIC CONTACT POINTS. FLAT SURFACES.
CONVEX		THROUGH HOLES, PADS. CLEAN SURFACES.	POINT		SPECIFIC CONTACT POINTS. LIMITED SPACE. CONTAMINATED SURFACES.
PYRAMID		THROUGH HOLES, PADS. SELF CLEANING.	SMALL CONCAVE		SMALL LANDS, PADS. LIMITED SPACE. CLEAN SURFACES

Notice that the pointed probes (Point(Spear) and Crown) are ALL for contaminated surfaces so that they can cut through the contamination to get to the conductive layer underneath. The probe force is also a factor of what the expected surface is, but in the end all probes deliver their RATED performance at their RATED pressure... a 1 ounce probe rated for 1 amp will work just the same as a 10 ounce probe rated for 1 amp!