

COMPLIANT PIN ASSEMBLY

A solderless method to connect a
PCB to a connector



SCHMIDT Technology has extensive experience with compliant pin assembly as well as inspection techniques that can be incorporated into press fit applications for PCB to connector installation

SCHMIDT® Compliant Pin Assembly

To successfully assemble circuit boards to connector pins, several considerations have to be given. Requirements have to be defined and satisfied in order to minimize defects.

Suitable Press Types

Typically a pneumatic Direct Acting (with/without monitoring) or a ServoPress is used for this application. The press selection depends on the inspection and monitoring criteria. Press force typically range from 35-200 N/ 7-45 lbf per each pin.

Process Monitoring

Process monitoring can only detect if one single pin is damaged or not pressed properly in assemblies with very few pins. The damage of a single pin cannot be detected while pressing many pins simultaneously. Monitoring can, however, detect if adequate interference is present, even with a high number of pins. The amount of interference is an indication that the through holes of the PCB are properly soldered. Proper seating and alignment can also be monitored.

Inspection, measurement capabilities

We can reliably inspect for the following:

- Presence of every single pin prior to press cycle (requires two servo press or multiple pneumatic presses)
- Presence of every single pin, post-press cycle
- 'Stick out' between top of compliant pins & PCB
- 'Levelness' of PCB
- Height of all pins relative to each other
- Board elevation relative to the housing
- Processing of multiple assembly models within one station

Methods of Inspection

- Physical / mechanical dimensional inspection via precision, low force probes in combination with laser sensor
- Measurement via variety of laser sensors
- Continuity check
- PCB levelness via three or four point inspection

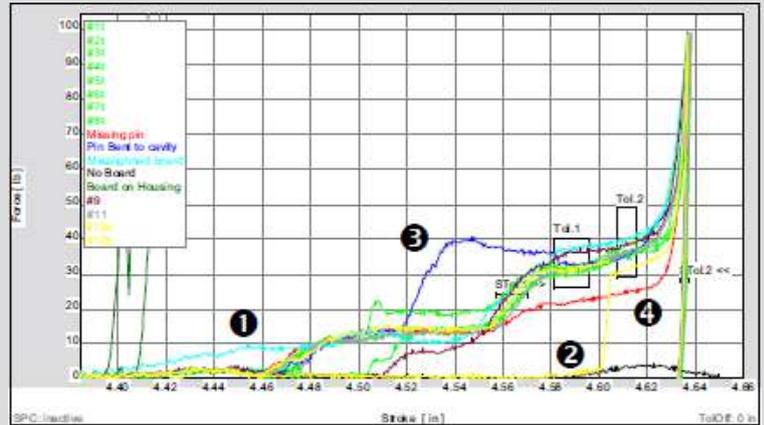


Figure 1

This graph of force/distance curves display a 3-pin application and the ability to detect:

- Misaligned board
- Bent pin
- Missing board
- Missing pin

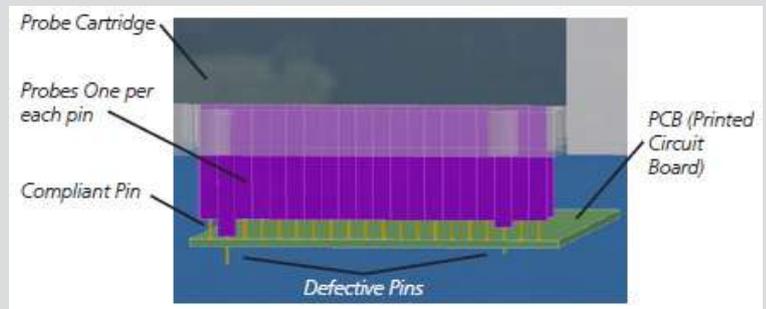


Figure 2

This illustration shows physical probes that contact each pin individually. Sensors are used to measure pin elevation.

Unless specifically requested by the customer, Schmidt Technology does not apply vision systems for pin inspection and measurement.

Schmidt Technology has designed and built assembly cells for a great variety of compliant pin applications and requirements. Please contact us so we may help you determine your specific needs.

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