ARDENT CONCEPTS
Signal Integrity is our Passion

APPLICATION NOTE

Quick Cleaning and Inspection Guide

Document # AE-AN-SK-002

High Performance BGA/LGA Quick Cleaning and Inspection Guide

RC Spring Probe™ Test Sockets

2 Piece Insulator System

Ardent Concepts, Inc.
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APPLICATION NOTE

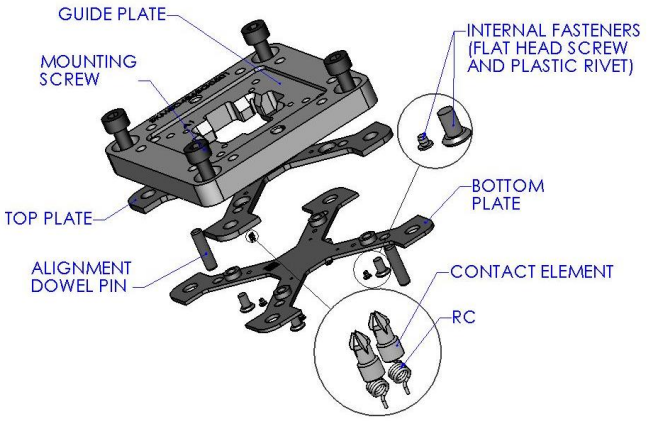
Introduction and Basics

There are a wide range of variables which can impact the optimal efficiency of test socket throughput. By carefully monitoring yield rates and adjustments to the setup, you will accumulate a knowledge base and increased operator experience. From that point it will be easy to isolate and detect alignment and maintenance problems. As a result, an experienced based maintenance schedule and procedure can be implemented.

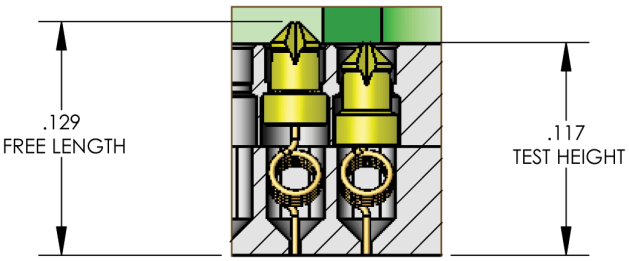
The Ardent Concepts Test Sockets (Contactors) have 2 standard parts of the socket assembly:

- The Test Socket Housing
- The Contacts

For Hand testing of single devices, the “Clam Shell” hinged or removable interface lid is used.



Exploded Socket Assembly View



DETAIL B
SCALE 10 : 1

Pin Field Exploded View

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Recommended Cleaning Procedure

Step 1: Air Blow and Dry brush

Use forced air to remove particulates from the pin field, between 100-120 psi. Use a dry coarse nylon **(not WIRE)** brush to loosen debris caught on pin tips.

Step 2: ISO Brush

Dip a coarse nylon paintbrush in ISO Alcohol and "paint" the crown tips back and forth to remove particulates. This should be effective about 90% of the time

Step 3: ISO Bath

Sockets can be cleaned in an Isopropyl Alcohol bath for 60 Minutes. The entire socket should be submersed in the bath and air dried. A coarse nylon brush can be used to remove remaining debris and the socket can be air dried.

Recommended Inspection and Maintenance schedule

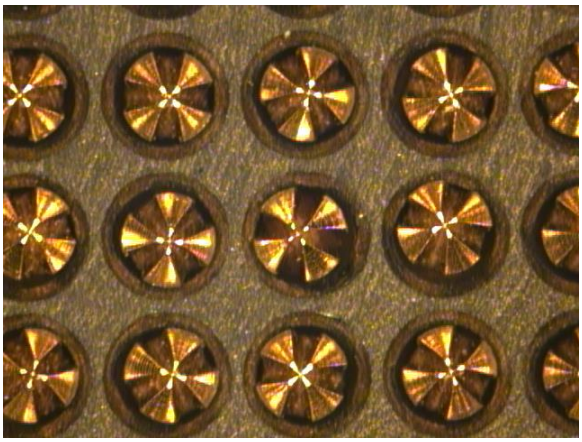
Clean & Remove Debris – Every 1K insertions. Using air and/or nylon brush, remove all loose solder particulate and any plastic mold debris at 100-120 psi.

Inspect Contacts – Every 1K insertions.

Inspect using at least a 10X scope. Contacts should not be deformed and should move freely in the cavity.

Contact should show no visible wear or flattening or bending in the cavities on either the device side or the board side. Uneven wear of the contacts may be caused by handler setup and non-planar insertion of the device.

Contact tips (DUT Side) should be free of solder or other contaminants. Contact tips should be clean of debris as shown here:



Inspect Contactor Alignment Guides – Every 5K insertions. There should be no measurable wear or gouges in the green aluminum guide plate. Use the socket design data sheet to insure dimensions are accurate. Wear is usually caused by the device rubbing the sidewalls of the device guide pocket. Look for cracks or chipping that will affect stability or planarity of contactor on the board.

Replace Contacts – Every 5-10K insertions. Operating conditions such as heat and amperage heavily affect when replacement needs to happen, and replacement may need to be done sooner. Monitoring voltage drop across power contacts should be used to determine when replacement is needed.

Please contact the factory for a refresh.

Check Alignment of Socket to DUT board – every 10k insertions or 90 days, whichever comes first. Handler mechanical stress, thermal stress and hygroscopic effects can cause slight changes in the dimensions of the components and occasionally the integrity of alignment holes in the PC Board. Check for these inconsistencies periodically

Board Side Socket Maintenance The most delicate (and easiest to damage) component of the test socket is the board side of the socket. It is critical that the pins on this side of the board are not brushed or cleaned with anything other than forced air (at 100-120 psi) as the pins can be easily damaged. Once the socket is mounted properly on the board, there should be no need for any cleaning of the backside of the socket.

Board Prep and Board Cleaning

Critical to socket performance is board side prep and cleaning. It is recommended that prior to mounting the socket, the board is cleaned with a nylon brush to remove any foreign object debris on the board pads. Once the board is cleaned, blow with air prior to socket mounting.

For additional assistance, please call USA:

1 603-474-1760.

Who Is Ardent Concepts?

Ardent Concepts, Inc. is a leading designer and manufacturer of high performance multicoax and coaxial assemblies, connectors, and sockets used in the development of next generation semiconductors and electronics systems. Our core technology is the smallest, fastest, most electrically efficient compression mount connector technology worldwide. As data rate requirements increase and devices and systems shrink, Ardent's products deliver superior signal integrity in a dense footprint that can be reusable across programs to maximize cost savings.