



## High speed impact test

- Brittle failure analysis
- Impact testing up to 4 meters/second
- Constant energy input
- AccuraPeak forcercus displacement data and analysis giving:
  - Energy before and after peak load
  - Total energy
  - Test velocity
- In accordance with JEDEC JESD22-B117A

## Ideal for testing solder ball resilience to mechanical shock

|  |                                |
|--|--------------------------------|
|  | Pad lift                       |
|  | Substrate crater               |
|  | Fail at copper interface       |
|  | Spheres detach before assembly |
|  | Fail in IMC                    |

Failure modes

High speed testing is used for manufacturing and end use failure mode analysis and quality assurance. Traditional low speed testing (less than 10mm/s) will almost always result in a shear through the solder (ductile failure), which is usually not the failure mode of interest. Testing at higher speeds can produce other modes and more useful data. Such data is more relevant to the bonds resistance to mechanical shock. It can supplement and even replace Board Level Drop Testing.

As the test speed is increased there is often a transition from ductile failure to brittle fracture in the IMC.

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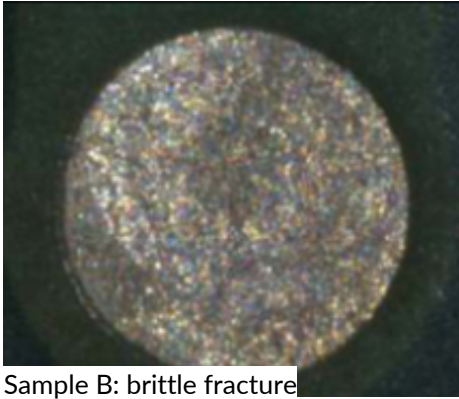
### Other offices

- Germany
- Taiwan
- Thailand
- United Kingdom
- USA: California
- USA: Massachusetts
- [Distributors](#)

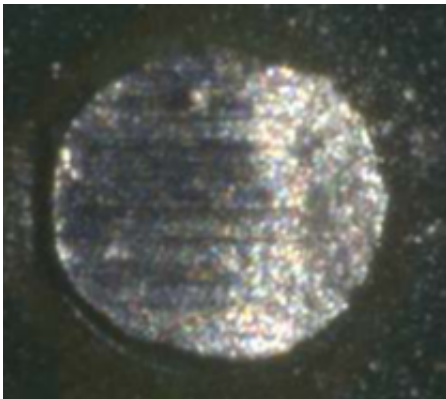
### Bond testers

- Condor *Sigma*
- Condor *Sigma Lite*
- Condor *Sigma W12*
- Condor *150HF*

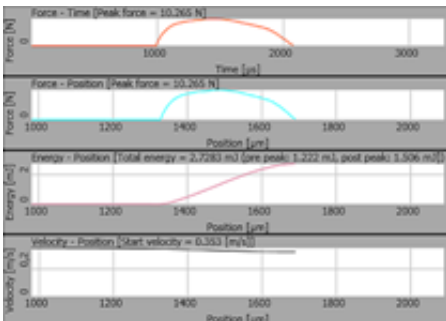
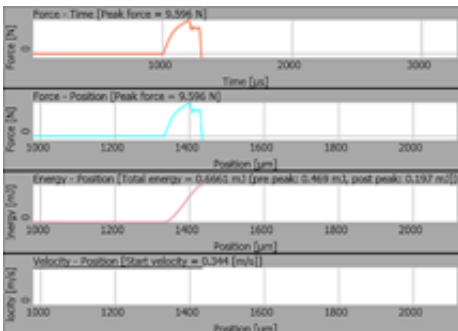
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Sample B: brittle fracture



Sample A: ductile failure



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**Technology leader in bond testing worldwide**



## High speed video of Solder ball shear at 2.7m/s

[Video not included in PDF: [click here to view online](#)]

## Contact us

Did we catch your attention? Please [contact us](#) for more information or to request a demonstration or a quotation.

## Relevant products

- Condor Sigma
- Condor Classic
- Impact Measurement Unit
- Work holders



Condor EZ

## Special applications

Please [contact us](#) if you have any questions or special ball shear requirements.

## Relevant test types

A wide variety of [test types](#) are relevant for this industry, among which are:

### Pull tests

- Ribbon pull
- Thick wire
- Thin wire



Thick aluminium wire pull test

### Bending test

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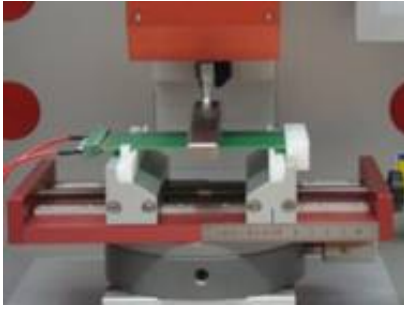
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Bending test on FR4

- 3 point
- 4 point
- Uni-axial

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