

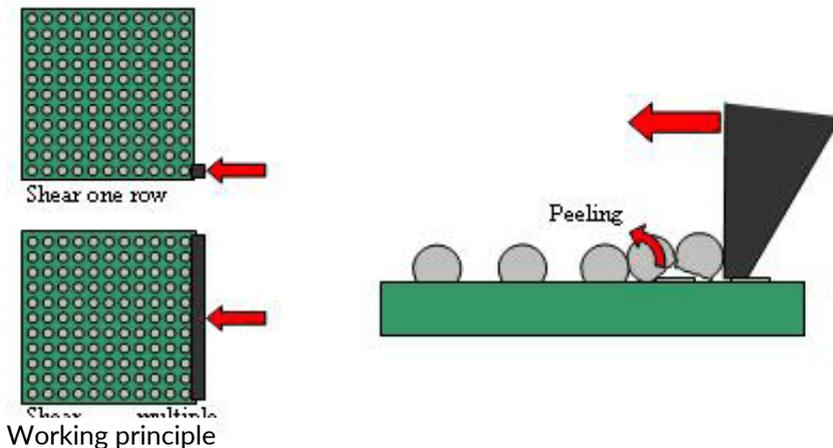
Total ball shear on BGA

## Total ball shear / zone shear test

- Fast, destructive, inline testing of lead-free BGA's
- Hundreds of solder balls tested simultaneously
- Brittle fracture outcome by visual inspection
- Test speed from 5 mm/s to 50 mm/s
- Stress testing of BGA modules
- Addition to JEDEC standard JESD22-B117

## Alternative to high speed testing

Total Ball Shear (TBS), also called zone shear, testing consists of a wide shear tool used to shear multiple rows of solder balls in a single stroke. The test is applied prior to second level attachment to the printed wiring board of the BGA. The shear speed used must be **constant throughout the complete shear stroke**. Typically the speed is set between 5 to 50 mm/s.



Compared to the more common low speed solder ball shear testing, which is performed on one single solder ball, TBS testing does not provide any relevant force measurement data, but it does provide a visually inspected outcome of the metallurgical joint between the solder ball and BGA pad metallization. As hundreds of solder balls are tested in one time, the very scarce brittle

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### Bond testers

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

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fractures on a single solder ball become visible for inspection.

Therefore TBS testing offers a fast, low cost and easy solution for obtaining substantial statistical information on the brittle versus ductile fracturing of lead-free solder balls. Although it replaces the more time consuming high speed shear testing for in-line BGA production process control, it cannot provide the relevant measurement metrics like **high speed shear testing** would in a research environment.

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## 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**
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- **Condor 150HF**
- **Revolving Measurement Unit**
- **Sensors**
- **Tweezers**
- **Vision**
- **Software**
- **Calibration**
- **Work holders**

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## Increase your bondtesting throughput

The **Condor Sigma** is not only the most accurate bondtester in the world, but also the fastest. [Click here to read the study that proves the Condor Sigma is up to 39% faster than the competition.](#)

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## Special applications

Please **contact us** if you have any questions or special bond testing requirements.

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## Condor Sigma brochure

[Click here](#) to download the **Condor Sigma brochure**, the **Condor Sigma W12 brochure** or the **Condor Sigma Lite brochure** or the **Condor Sigma Vision brochure (PDF)**.

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## Representatives

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