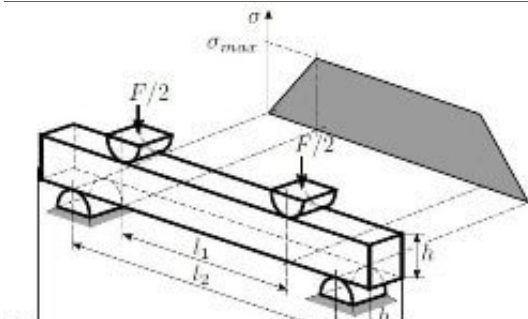


Bending test with resistance measuring

Bending test

- Bend strength
- Measurement up to 500kg force
- Thermo cycling
- Sensor accuracy $\pm 0.075\%$
- More than 200.000 test cycles supported
- **Three point bending test**
- **Four point bending test**
- Ball and ring bend test
- Ring and ring bend test
- **Uni-axial bending test**
- **Vision enhanced analysis of deformation**



4 point bending; the graph shows a section of pure bending clear of local stresses at load and support points

Fracture strength of thin wafers and die

There are many types of wafer and die and many different reasons to test them. Your concerns might be stress crack propagation, delamination or the effects of the crystalline structure on strength.

[Click here to read our article](#) that elaborates on the subtle differences between several types of bend tests: **3 point bend test, 4 point bend test, ball and ring test, ring and ring test.**

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- USA: Massachusetts
- **Distributors**

Bond testers

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

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Three point bending test

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



4 point bending

As the name implies, bending tests are carried out to ensure that a substrate (e.g. ceramic, FR4 board or silicon) has sufficient resilience to withstand a specified bend strain. The sample is bent between three or four points to a specified displacement or arc.

For composite materials the bend strength of different reinforcing web patterns and their direction can be investigated.

Data is collected in the form of force versus bend deflection. From this bend curvature, stress and strain can be calculated. In certain FR4 bending applications, parallel to the bending test, the board resistance is measured.

XYZTEC is one of the world's leading manufacturers for testing systems that can be used for dynamic material testing. With a few simple modifications our standard Condor series becomes a customized solution for this test.

Four point bending test

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



Uni-axial bending test performed on Condor Sigma

Uni-axial bending test

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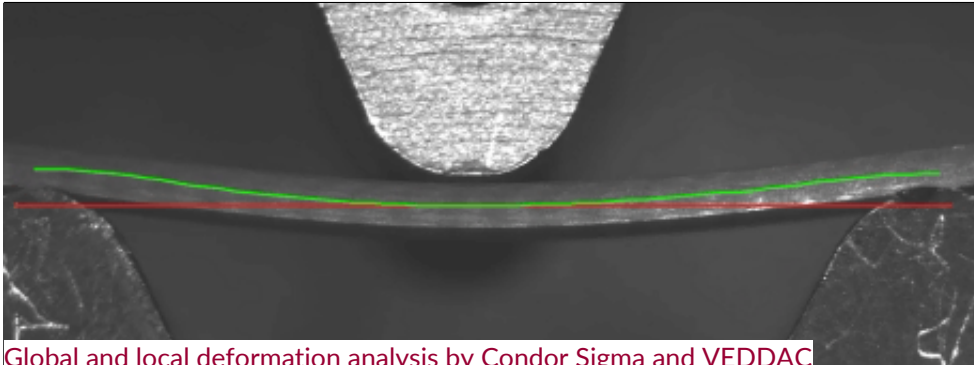
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Ultra-thin die with reduced layer thickness enable the high mechanical flexibility required for many new applications. This however increases the demand for manufacturing and testing. The standard shear test can not be used for ultra-thin die, because of their thickness. Analysis of the mechanical resistance to bending before the chip breaks becomes more important.

This analysis can be performed with the **XYZTEC Condor Sigma** and the corresponding uni-axial bending test. With this test geometric tolerances and deflection of a chip are taken into account and further customization is possible with the software developed by XYZTEC. Our company presented this uni-axial bending test for the first time at the Semicon West 2012 in San Francisco.



Global and local deformation analysis by Condor Sigma and VEDDAC

Vision enhanced analysis

With a special camera mounted on the bondtester, one can visualize deformations during bend tests. [Click here to read more](#) about this functionality.

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 Sigma Lite](#)
- [Condor Sigma W12](#)
- [Condor 150HF](#)
- [Revolving Measurement Unit](#)
- [Sensors](#)
- [Tweezers](#)
- [Vision](#)
- [Software](#)
- [Calibration](#)
- [Work holders](#)

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Bond testers

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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.](#)

Special applications

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

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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