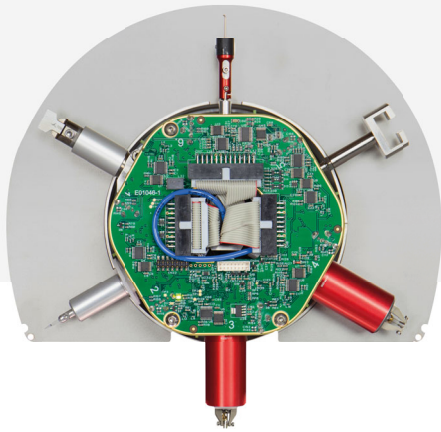


Sigma

Rock solid bond testers with game-changing automation capabilities





No more cartridge exchanges

The Revolving Measurement Unit (RMU) houses up to 6 flexible sensors that are configurable with various pull, peel, push, or shear tools. This enables continuous testing up to 200 kgf.



Flexible onboard analysis

- Statistical Process Control (SPC)
- Control chart (cpk, graph, et cetera)
- Unique form features for SPC management
- Real-time force graphs
- Define control rules

A pleasure to set up

- Revolving Measurement Unit (RMU)
- Easy to learn software
- Deep access capability
- Quick release work holders
- Software has Easy and Expert modes



Sigma

Most accurate bond tester

- Unparalleled 0.075% accuracy
- 200 nm shear height precision
- Digital temperature correction
- Programmable landing force down to 5 gf
- 24 bit ADC resolution



Modular by design



- Various loading options
- Fits your sample too
- Powerful camera options
- Compatible with your existing work holders
- Flexible export and SECS/GEM

Worldwide service



- Market leader
- Offices all around the world
- Extensive network of distributors and representatives
- Spare parts locally available
- Consumables webshop

Best in class ergonomics



- Designed with the operator in mind
- Adjustable microscope without losing focus
- Clean working environment
- Debris management
- 2x6 button joysticks

Full automation

Loading



Robotic handlers



Easy programming



Smart vision cameras



Tool alignment



Fluidics recognition



Wire detection



Grading run



Auto grading



Image measurement (AOI)



Data communication

Testing

Analyzing



Sigma

Most advanced bond tester



Sigma Lite



Lowest cost of ownership



Sigma W12

Waferlevel 2" - 12"



Sigma MAG



Handler for magazines



Sigma HF

High force or large area



Sigma EFEM



Handler for wafers and panels

Sigma

Advanced bond tester



Proven Sigma performance

Sigma is the most advanced bond tester. It comes with game-changing automation capabilities and high specifications in:

- Sensor accuracy and resolution
- Large X stage
- Superior axis speed
- Cameras and illumination
- Future proof and modular design



Sigma Lite

The Sigma Lite is a low cost of ownership bond tester that grows with your company. It offers a low-cost entry point by giving up some of the above Sigma features. It is possible to upgrade to a full Sigma later.

Automation

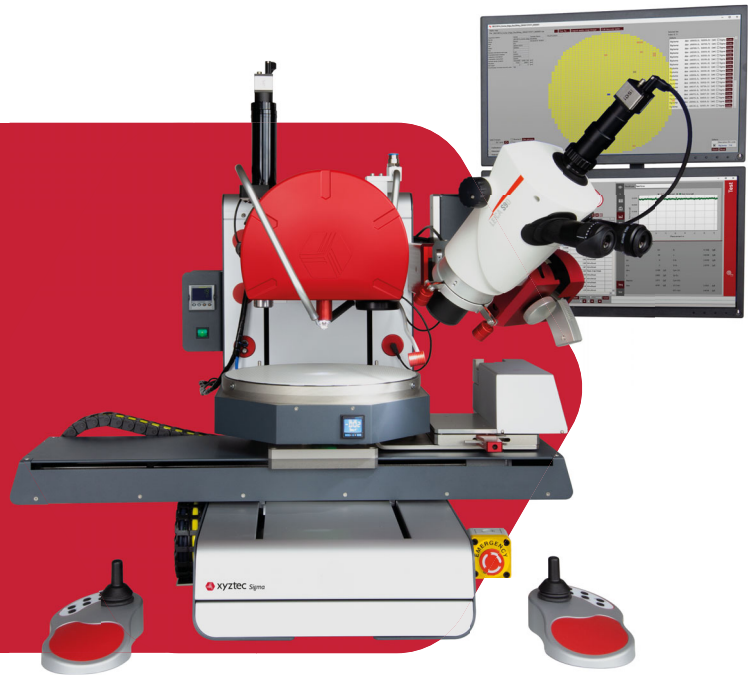
A Sigma is modular by design and comes with full automation capabilities. The Revolving Measurement Unit (RMU) houses up to 6 sensors that enables continuous testing. The software includes vision and deep learning technology to eliminate human errors.

Single test heads

You can also equip the Sigma with single heads for shear (SMU) or for Push and Pull (PMU). All test heads come with the same specifications as the RMU in terms of maximum forces and accuracy. There is no need to readjust the microscope when you do switch cartridges. They all share the same test point.

Sigma W12

Wafer bond tester



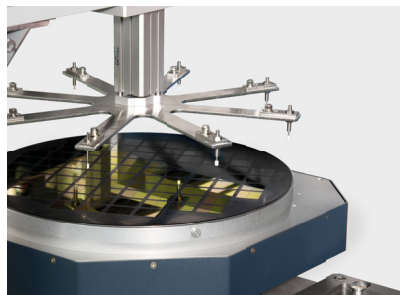
Bond tester for wafers 2 - 12 inch

- Wafers or at wafer level 2" - 12" (up to 300 mm)
- Precise testing and Cold Bump Pull (CBP) testing
- Large X/Y stages X: 600mm, Y: 370 mm
- Force range from 1 gf - 10 kgf
- Bump pitch down to 20 μ m



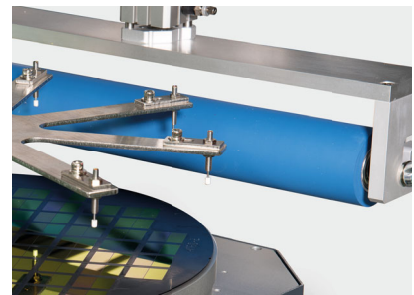
Panel chuck work holder

Vacuum work holder for panels or wafers up to 300 mm. Easily reach 100% of a 300 mm panel without repositioning your sample on the chuck.



Wafer pusher

In cases of extreme warpage, an optional wafer pusher ensures precise clamping.



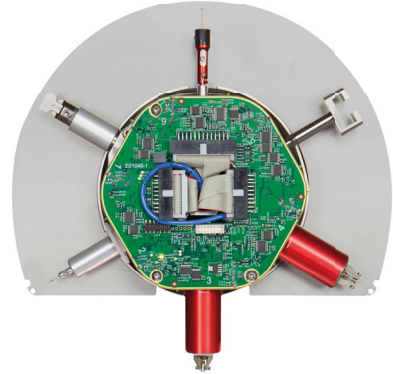
Wafer cleaning unit

Keep test debris away from the wafer or the wafer chuck with a blower and vacuum cleaner or a roller with sticky foil, for pre- and post-cleaning.

Revolving Measurement Unit (RMU)

House up to 6 sensors

Forget about exchanging your tools or load cell cartridges. The RMU rotates to the correct sensor in seconds. Up to 6 sensors are available at one time to test continuously to a maximum load up to 200 kgf.



6-in-1 test head

No more exchanging cartridges. Flexible sensor configuration for pull/push and shear



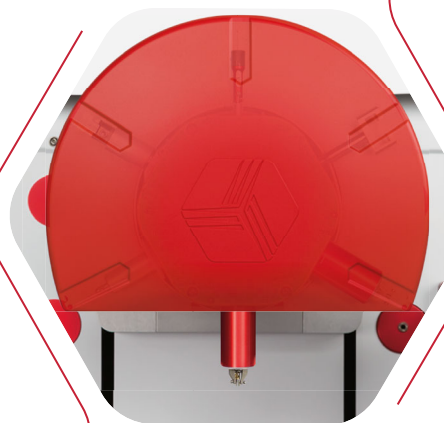
Tweezer

House up to 6 tweezers of any type, USB, pneumatical and/or mechanical



10 gf - 200 kgf

Force range for push, pull and shear sensors



Easy to use

No warm up time and no risk of sensor damage



Ports

USB connectivity, as well as vacuum and air



Accurate sensors

Exceptional 0.075% accuracy and world's highest resolution of 24 bits

Your operators will love it



We design with the operator in mind

We believe happy operators are essential for efficient and consistent results during bond testing. The Sigma was designed with the operator in mind from day one.

Easy to use

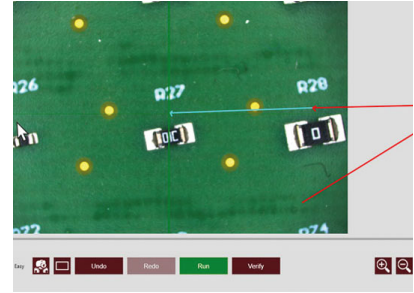
Manual users benefit from small automation features:

- Automatic hook rotation between wires
- Integration of barcode readers
- Extensive built-in SPC functionality
- Quick-release work holders



Best in class ergonomics

The Sigma joysticks offer easy control for XYZ manipulation, tool rotation, and to move the stages. The 12 buttons allow control of all vital software functions without the need for the operator to look away from the microscope. The microscope mount is designed to easily adapt to different height operators, and it easily swings out of the way for complete access to your work.



Easy programming

Our completely open multilingual software comes with 2 levels of programming, for operators and engineers. The Easy Mode is simple to learn and very intuitive. Advanced users choose the Expert Mode, which opens up all flexibility, including customization of test sequences, scriptable test methods, and extensive data extraction.

Applications



PULL

Cold bump pull (CBP)
Copper pillar pull
Lid pull
Ribbon pull
SMD component pull
SMD gull wing pull
Stud (die) pull
Tweezer pull
Vector pull
Wire pull



PUSH

Ball on ring
Bending
Connector
Keypad



PEEL

Adhesives
Film
Ribbon peel



SHEAR

Cavity shear
Copper pillar shear
Copper tab/conductor shear
Die shear
Gold/copper ball shear
Overhanging die shear
Passivation layer shear
Ribbon shear
Solder ball shear
SMD component shear
Total ball shear/zone shear
Wedge shear



MEASUREMENT

Auto grading
Loop height
Optical
Probe



OTHER

Cantilever beam
Cantilever bend
Creep
Deep access
Fatigue
Lead integrity/micro torsion
Lid torque
Scratch/coating
Spring rigidity

Specifications

	SIGMA LITE	SIGMA	SIGMA W12	SIGMA MAG	SIGMA HF
FORCE SENSORS					
Revolving Measurement Unit (RMU) max. 6 sensors up to (kgf)	100	200	10	200	●
Single Measurement Unit (SMU) 1 sensor up to (kgf)	100	200	10	200	1000
STAGES					
X-stage (mm)	168	370	500	600	500
Y-stage (mm)	168	168	370	168	500
Z-stage (mm)	168	168	90	168	200
Axis speed (mm/s)	5	50	50	50	500
Resolution linear encoders (backlash free drives) (nm)	30	30	30	30	10
Digital temperature correction	●	●	●	●	●
ACCURACY					
Accuracy (%)	0.2	0.075	0.075	0.075	1
ADC resolution (bit)	16	24	24	24	24
Sampling frequency (kHz)	2	10	10	10	10
Shear height (step back) accuracy ±1 µm	●	●	●	●	●
Nano control shear height sensor precision down to 200 nm	●	●	●	●	●
Programmable landing force down to 5 gf	●	●	●	●	●
1° sensor rotation resolution	●	●	●	●	●
Tool rotation accuracy ±10 µm (including software down to ±5 µm)	●	●	●	●	●
ACCESSORIES					
High resolution cameras	3	3	3	3	●
Head mounted cameras (no tool-camera-offset)	●	●	●	●	5
Ergonomic SEMI S2 safety cabinet	●	●	●	●	●
Blower and vacuum tool cleaning unit	●	●	●	●	●
CBP Jaw Cleaner (contactless)	●	●	●	●	●
SOFTWARE					
Supports Microsoft Windows	●	●	●	●	●
Easy to learn intuitive graphical user interface	●	●	●	●	●
Minimum number of mouse clicks	●	●	●	●	●
Customizable screens	●	●	●	●	●
Integrated report editor and data export	●	●	●	●	●
Easy data sorting, grouping and filtering	●	●	●	●	●
Integrated SPC and system GR&R analysis	●	●	●	●	●
Multiple languages, multiple user network environment	●	●	●	●	●
Export to XLS, DOC, PPT, PDF, XPS, CSV, XML, DBF, KLARF, INF, et cetera	●	●	●	●	●
SECS/GEM*	●	●	●	●	●
SERVICES					
Correlation with other bond testers	●	●	●	●	●
Ergonomic layout to SEMI S8	●	●	●	●	●
CE + EMC compliant	●	●	●	●	●
ISO9001, ISO13485 and ISO14001 certified production	●	●	●	●	●
Calibration jigs and weights (OIML class M1 or NIST class 1)	●	●	●	●	●
1 Phase 100-240VAC 1+N+PE 45-64Hz 5A	●	●	●	●	●
3 Phase 207-528VAC 3+N+PE 50-60Hz 8A	●	●	●	●	●
Compressed air required	●	●	●	●	●
MECHANICAL					
Footprint X (mm)	620	620	1300	1800	1200
Footprint Y (mm)	558	558	935	900	1200
Height (mm)	608	608	608	1100	2500
Weight (± kg)	80	80	100	160	1350

Please contact us for more information and options for your factory. Specifications are subject to change without prior notice.

- Standard
- Optional
- Not available



xyztec

With over 20 years of experience, we have established our name as the technology leader in bond testing throughout the world. With 100% of our focus on bond testing, xyztec teams with customers to offer innovative solutions that address their specific bond test needs. Our mission is to take on the challenges of many different industries by offering customers products that improve their quality and increase their bottom line.

We believe that our Sigma systems embody the competencies, accuracy, and knowledge of each of our staff members. Each Sigma is modular by design and equipped with the latest technology available. The manufacturing takes place in close cooperation with our ISO9001 certified Dutch suppliers. At xyztec bv, we have the experience and teamology to create solutions for any bond testing requirement. Our skilled engineers, based all around the world, work together with global partners to provide local support worldwide.

Sigma

Our system product's name, Sigma, comes from the Greek letter "σ" which is used in statistics as a representation of standard deviation. In business applications, Sigma relates to processes that operate efficiently and produce items of the highest quality by minimizing process variability.

A Sigma bond tester is the best the market has to offer. It is rock solid and comes with game-changing automation capabilities to test the mechanical strength of bonds with unparalleled precision. With a Sigma, you can improve your process and, therefore, the quality of your final product.

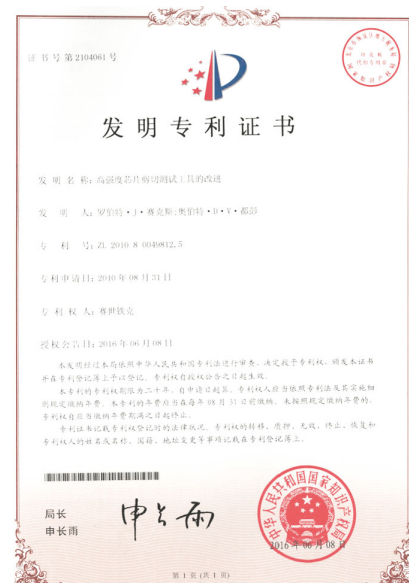
Patents

Challenging traditional approaches, xyztec's dedicated R&D team has developed many innovative technologies that provide a variety of ways to improve bond testing. We own granted patents in several territories. Among these are:

- Digital creep and drift correction
- Improvements to high force die shear tooling
- Solder cleaning system
- A method for determining a strength of a bond and/or a material as well as a bond tester apparatus
- Improvement to step back height
- None contact shear testing



Xyztec is a member of the Simac family. Simac, founded in 1971, is a technology company that employs around 1250 people across Europe, realising over 300 million euro turnover per year."





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