



Perspective
Is Everything™

PROSPECTOR™

Micro Materials Tester

www.nordsondage.com


Nordson
ELECTRONICS SOLUTIONS

The Electronics People

Technology Credibility

For over 50 years DAGE has been designing and manufacturing Bond Test systems from the dedicated factory in Aylesbury, UK.

Our ISO accreditation and commitment to quality ensure our worldwide team can deliver the quality you need.

Guaranteed support from Nordson's worldwide network



Nordson Corporation is a worldwide industrial technology company with over \$2 billion in annual revenues and a presence in 30+ different countries. We have test and inspection experience in **mechanical, optical, X-ray** and **acoustic** systems.

<p>DAGE</p> <p>Automated Bond Testing</p>	<p>YESTECH</p> <p>Optical Inspection</p>	<p>DAGE</p> <p>X-ray Inspection</p>	<p>SONOSCAN</p> <p>Acoustic Imaging</p>
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Exceed your Testing Demands

Finding failure modes fast is critical

Quality issues cost money and impact new product ROI. In modern products you need to know with certainty how they perform in a range of thermal, mechanical and environmental situations.

As quality expectations grow in industries such as medical, automotive, composites and electronics, new product development researchers must be equipped with the most advanced test technology.

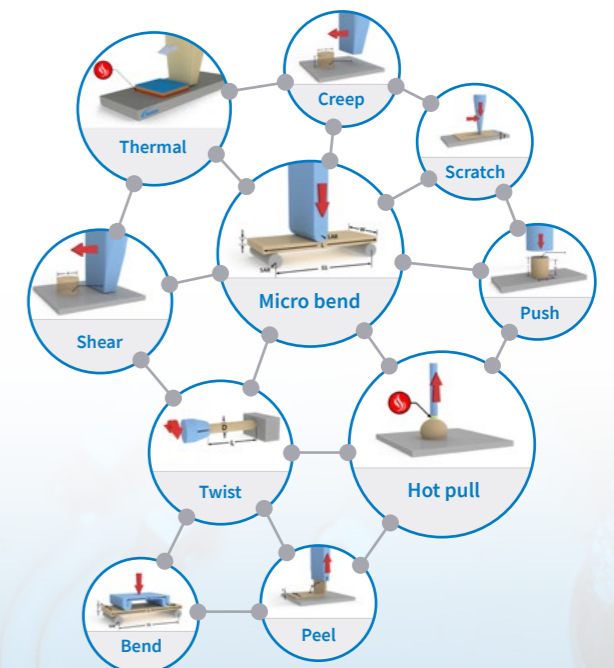
Prospector™ is the most advanced micro tester on the market and covers the widest range of test scenario's. You no longer need multiple test machines to find every failure.



Do it all on one machine!

Prospector meets all your mechanical test requirements with one machine. Multiple interchangeable test modules mean you can easily test any new unknown sample, immediately.

Find out more than just the failure load, record videos simultaneously to understand why it failed.



Get the Complete Picture

Uncover failures you couldn't see before

Prospector™ has five unique test modes which allow you to fully characterize any sample.

Electrical: Read in test instruments and analogue signals.

Thermal: Dynamically heat samples from -50 °C to +155 °C.

Mechanical: Perform cyclical and dynamic multi-axis tests. Force or displacement controlled X, Y and Z tests.

Acoustic: Measure sounds emitted from your sample under test.

Optical: Integrated optics for high magnification video and image capture.

Get the information you need to make more informed decisions. Don't miss failures, even when they are unique and hard to detect.



Electrical



Thermal



Mechanical



Acoustic



Optical



With Multiple Perspectives

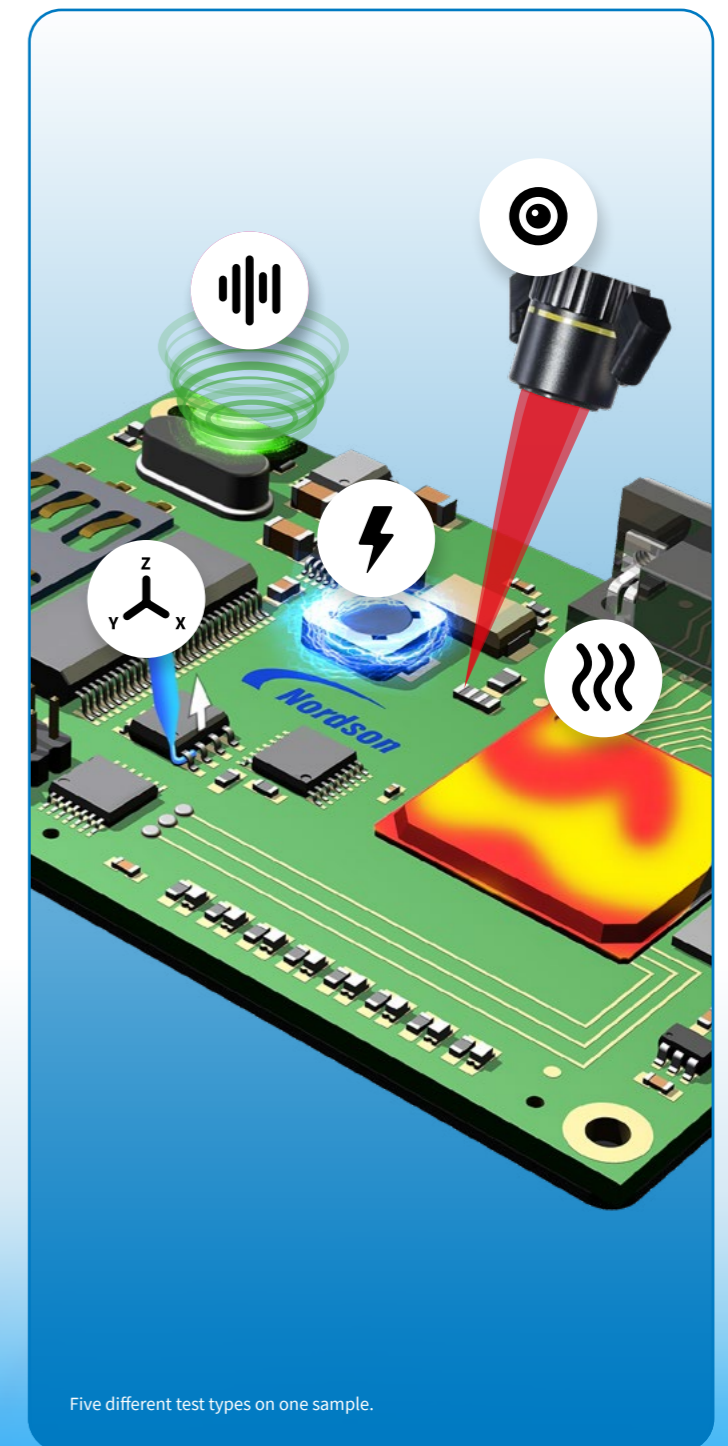
Your experiment hub

Prospector uses new Paragon™ Materials analytical software which controls every aspect of your test.

Integrated direct thermal control (heating and cooling) during mechanical tests.

Incorporate other lab equipment to trigger failure mode capture points (e.g. resistance meter).

Automatically calculate stress and strain while performing custom test modes such as cyclical routines, displacement or force control.

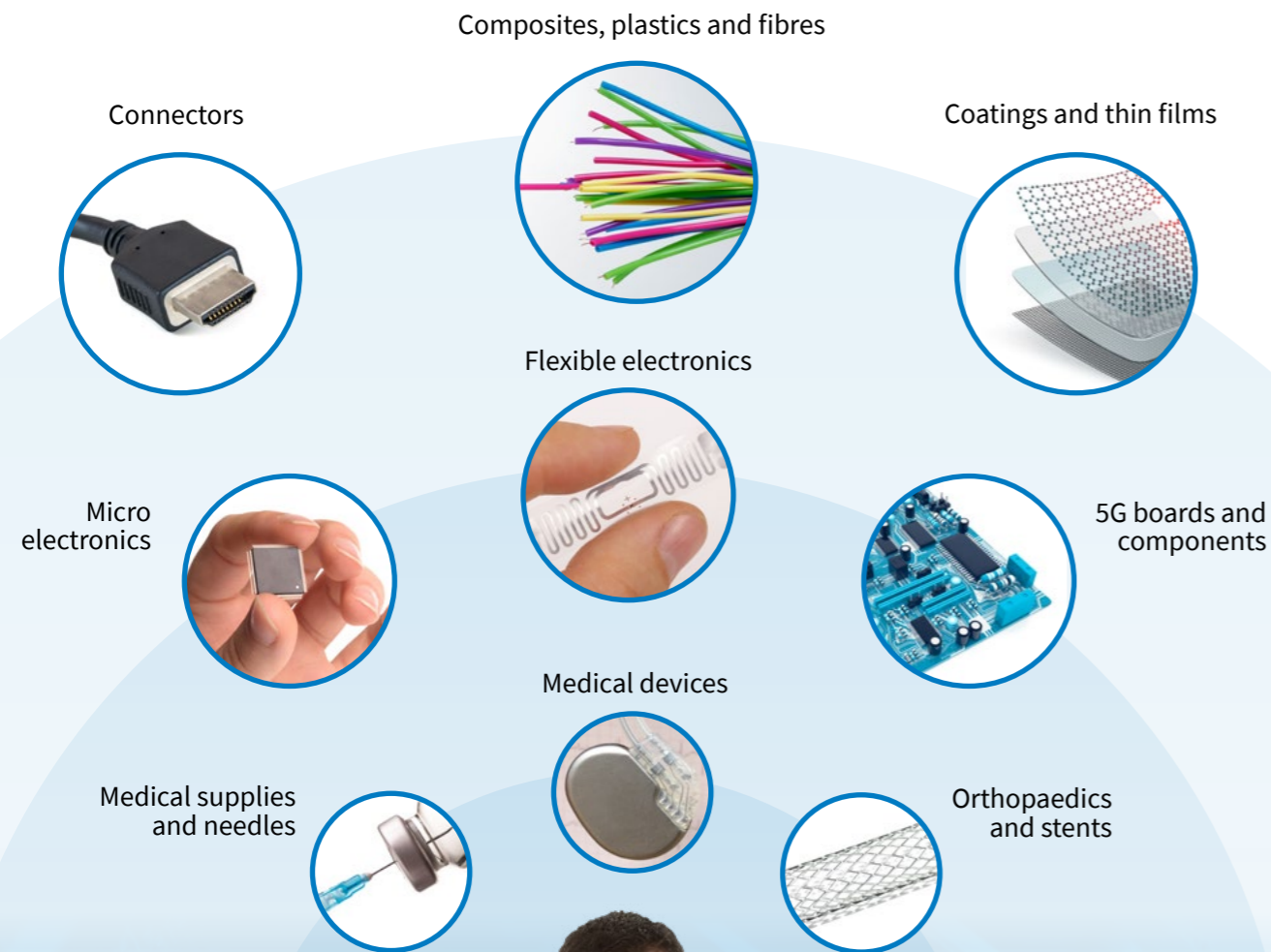


Five different test types on one sample.

Your Applications Covered

Test the most demanding applications

In today's world the materials, components and medical devices being developed are becoming more complex and micro-sized (<math><100\ \mu\text{m}</math>). Understanding their failure modes and quality requirements is a challenge. Prospector™ is ready to support your test evaluations across a range of micro applications, down to **0.01 N** forces.



Unique Insights

Add different test types together to gain unique perspectives using combinations of: thermal, mechanical, optical, electrical and acoustic modes.

Thermal

Micro electronics thermal shock

Prospector gives the capability to thermally cycle while applying a mechanical load – this is an excellent method of accelerating thermal shock experiments.

Electrical

Flexible and wearable electronics

For these materials it is essential to be able to perform mechanical testing while measuring electrical resistance. Perform long term wear and fatigue testing.

Optical

Medical micro stents

Stents and balloons are micro objects that need sensitive measurements to measure their internal strength. High powered optics are essential.

Acoustic

5G boards and components

With 5G there is a need to test the boards themselves but also each individual component and soldered device. Acoustic testing gives another level of sensitivity for bend and scratch testing.

Accelerate your Workflow

Life with Prospector™

Prospector is designed for test flexibility and ease of use. Operators can perform a wide range of test types with minimal training.

In the example below six different tests were required to isolate the correct failure mode. Prospector and Paragon™ Materials software make easy work of even the most complex test plans.

Switch tests fast: Prospector's auto test setup quickly configures hardware and software so you're ready for the next test.

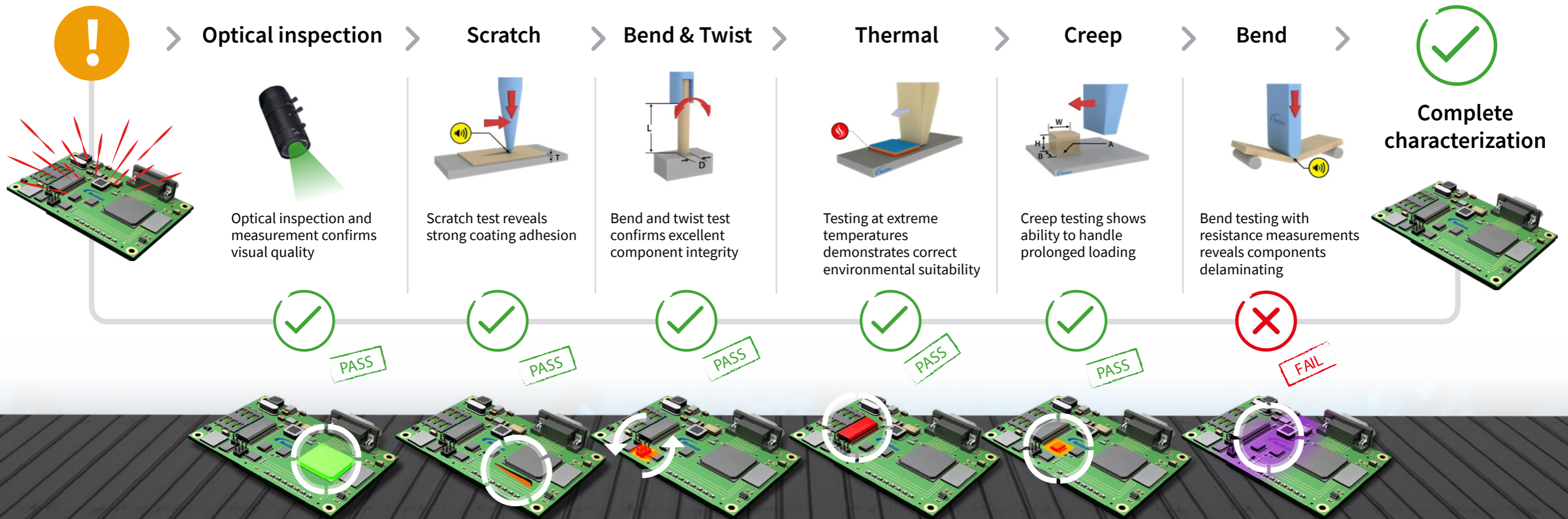
Everything at your fingertips

With Prospector's flexible test capabilities, you are not limited to which challenges you can take on!

Multiple tests can be performed by simply changing to a new test module. You can complete multiple tests in minutes, without needing to move or reposition your device.



Switch test modules in under 10 seconds.



Custom Tooling Experts

DAGE have been creating custom micro tooling for 50 years. Our experience in material fabrication and work holder design is extensive with over 5,000 unique concept designs.

Our tools are manufactured and tested from our UK site. Each tool is individually designed to meet your exact requirements.



No need to build your own test rigs!

Whether your component is on the micro scale, or a unique shape, we have a work holder capable of performing your test. If you have a difficult sample to test we can tailor a custom work holder.



Made for *Micro*TM

Tackle your micro challenge

ProspectorTM supports researchers to take on the most demanding failure analysis applications. With Prospector, you now have a repeatable method for testing truly micro-components and devices, down to <math><0.1N!</math>

Everything you need for the micro world.

1

Align and locate with micro precision.

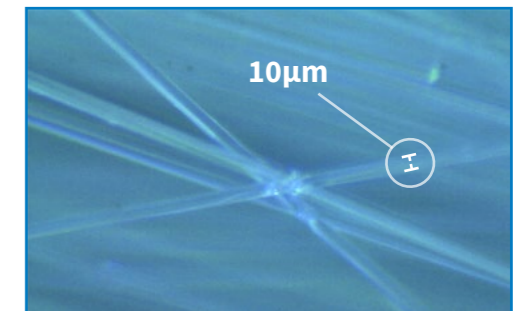
Easily controlled axes using joystick operation for independent (or combined) movement with 100 nm resolution.



2

Powerful on board optics allow you to measure features and take videos during tests.

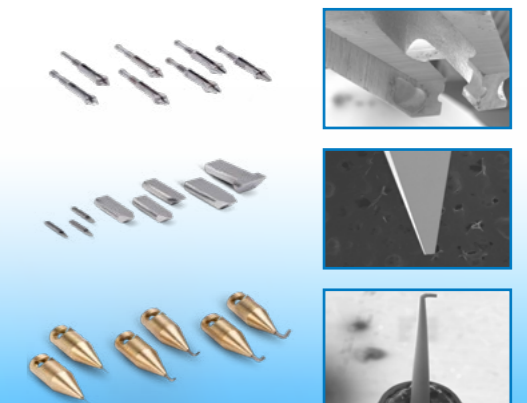
Drive to test locations using mouse point and click on the camera image.



3

Grip delicate micro devices and components with ease.

Micro tools and jaws can be pneumatically controlled with variable force.



Specifications at a Glance

PROSPECTOR™	
Mechanical specification	
Z axis resolution and speed	100 nm encoder resolution, 20 mm/s
Z axis force and travel	100 kg, 200 mm (max sample size 285 mm)
X, Y axes speed and travel	6 mm/s, 160x160 mm (50 mm/s option)
Y axis force	200 kg
Test specification	
Test modules	Pull, push/pull, shear, scratch, torsion, bend
Test modes	Cyclic, tensile, compression, force or displacement control
Lowest measurable forces	Shear (0.5 g, 0.005 N), Pull (1 g, 0.01 N)
Load cell accuracy	Shear (0.1% FSL) Push/Pull (0.1% FSL)
Smallest pneumatic tweezers, shear tools	~50 µm jaw, ~30 µm shear
Optics	
Standard configuration	Trinocular + high mag. Fracture Camera
Imaging modes	Live video, stacked focus and panoramic images
Fracture camera field of view	10X - 0.68 x 0.51 mm (20X option available)
Fracture camera resolution	2048 x 1536 pixels
Fracture camera measurements	User drawn dimensions: width, length, circle etc
Thermal	
FlexTc thermal range and sweep rate	-55 °C to +155 °C
FlexTc modes	Dynamic and isothermal via software control
FlexTc cooling power and rate	21 W @-40 °C, 50 °C/min
FlexTc maximum sample size	36x36 mm (larger sizes on request)
Hot plate thermal range	RT - 400 °C, vacuum or bolt down
Hot plate maximum sample size	50 mm x 50 mm
System dimension	
Footprint and weight	L693 x W592 x H978 mm, 150 kg
Power supply	100 - 240V AC, 50 - 60 Hz, single phase 240W
Pneumatic supply	Minimum 0.4MPa (4 Bar), 6mm OD / 4mm ID plastic pipe
Interface	USB, gigabit ethernet



Dedicated thermal control



Integrated connectivity



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