

# Dage 4000 Bondtester

**Engineered for Excellence**

The Nordson DAGE 4000 is firmly established as the Industry Standard benchmark platform for both traditional and emerging applications.

### Operator Friendly

The Nordson DAGE 4000 has been specifically designed to be ergonomically adjustable for operators, thus helping to overcome problems associated with Repetitive Strain Injury (RSI). Particular attention has been given to working heights, optics eyeline, arm rests and the position of controls.

### Advanced software features include an operator configuration with selection for

- Operator name
- Right-hand or left-hand joystick or both
- Joystick button preference
- Reference table of microscope position settings

All of which can be stored and transferred with the operator to another machine for quick setup.

# Leading The Way In Bondtesting

#### 4000 Entry Level Applications

The Nordson DAGE 4000 can also be configured for lower cost entry level applications where system configurations are limited or where a more dedicated rather than multipurpose function is required but where accuracy and repeatability are maintained with simply no compromise in performance.

#### 4000 Dedicated Wire Pull

Removal of the pneumatic chassis and XY stage from the mainframe combined with basic shuffle style fixturing provide a basic platform dedicated to pull testing up to a maximum force of 10kg in Z. Manipulation of the wire under the test head is quick and simple.

#### 4000 LED Applications

The flexibility of the 4000 modular design concept combined with specialist fixturing allow for specific configurations.



## Quick Release Intelligent Load Cartridge System

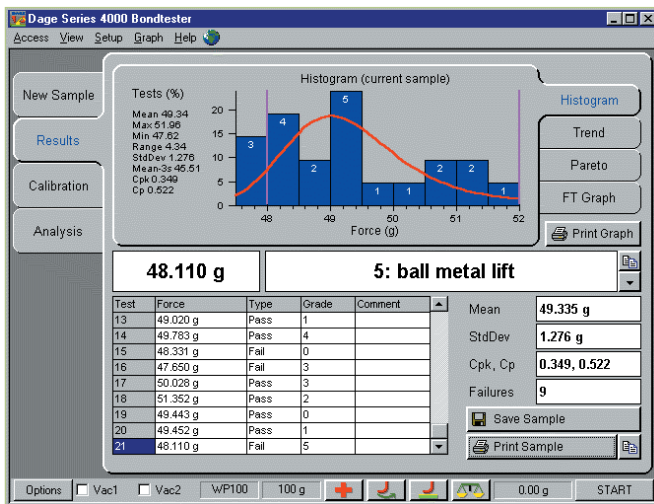
Featuring:

- Smart electronics to store and identify serial numbers and calibration details.
- Quick release load cartridge mechanism for fast change-over from one application to another (no tools required and changeover in less than 30 seconds).
- On-machine storage for two cartridges.
- Load tool protection guard that is activated as the load cartridge is removed from the machine, thus offering protection to the tool and transducer while not in use.
- High resolution low force capability to detect small loads during fine pitch bond testing.

- Up to ten software selectable load ranges per load cartridge (ten load cartridges in one), four ranges factory-set as standard with an additional optional six ranges programmable on request.
- Minimal range selectable down to 5% of FSD
- Quick release pull hook system for very fast load tool changes - no tools needed.
- Auto hook function for automatic repeatable hook to wire positioning.
- Wire loop height measurement.

All load cartridges incorporate the Nordson DAGE Frictionless System, providing a repeatable, sensitive, robust measurement gauge for low maintenance, high reliability bond testing.

**Aspects of the Nordson DAGE 4000 now have full Patent protection.**



## Results Repeatability Guaranteed

- Total system accuracy of +/-0.25% full-scale deflection of selected load range.
- Maximum load cartridge accuracy and repeatability to within 0.01% (100ppm), as tested and qualified by the United Kingdom Accreditation Service (UKAS).
- Total ballshear Z positioning accuracy of complete system +/- 1 micron (qualified with laser measurements).
- Automatic alarm notification for load cartridges that have drifted outside their calibration tolerance band.

## Cold Bump Pull

An application enabling the pull testing of solder balls from chip scale style packages.

## Cavity Shear Testing

Special shear tooling resulting in less ball deformation providing the ability to apply the maximum shear force possible.

## Vector Pull Testing

Allows force vectors to be applied to the tab leads on packages.

## Zone Shear

An application for testing of multiple rows on BGA and CSP packages.



## Calibration

The 4000 offers calibration features in the test plane with fully automated routines allowing consistent calibrations.

- Automatic load cartridge calibration and linearity checks using weights directly traceable to National Standards. Calibration information is stored in the cartridge and a printout is available.
- Automatic load cartridge calibration check without the use of weights.
- Calibration jigs can be used for machine GR&R qualification.

# Specifications

## General

Machine footprint	W (including joystick, excluding PC/monitor) 425mm D (including front arm rest) 730mm H 670mm
Weight	45kg
Power Supply	Switchable 100/110V, 220/240V AC 50/60Hz
Pneumatic	Supply (for machine) 4bar, 6mm OD/4mm ID plastic pipe clean dry air
Vacuum	Supply (for workholder) min. 500mm Hg plastic pipe
International Certification	Compliant with European CE Regulations – EMC Directive, Low voltage Directive, Mechanical Safety Directive
Manufactured	In accordance with ISO 9002
Monitor	VGA/SVGA (Optional 17" LCD Flat Panel Display)

## Axis

X, Y axis accuracy	±10 microns over 50mm	(50mm XY Table Option)
X, Y axis repeatability	±5 microns over 50mm	(50mm XY Table Option)
X, Y axis resolution	<1 micron	(50mm XY Table Option)
X, Y axis maximum speed	2mm/second	(50mm XY Table Option)
Y axis maximum force	100kg (standard) 200kg (optional)	(50mm XY Table Option)
X axis maximum force	5kg	(50mm XY Table Option)
Z axis travel	65mm	
Z axis accuracy over full travel	±10 micron	
Z axis accuracy over 2mm	±2 micron	
Total stepback accuracy of complete system for 250 gram shear cartridge over 25 micron of Z travel	±1 micron	
Z axis resolution	±0.125 micron	
Z axis maximum speed	7mm/second	
Z axis maximum test speed	5mm/second	
Z axis maximum force	10kg pull at 5mm/second	
Workholder working envelope	X 220mm Y 220mm Z 50mm	

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## Manufactured to International Standards

- Manufactured in accordance with ISO 9001:2008
- European Directives
- CE Declaration of Conformity
- Machinery Directive (2006/42/EC)
- Low Voltage Directive (2006/95/EC)
- Electromagnetic Compatibility (2004/108/EC)
- Restriction of the use of certain hazardous substances in Electrical and Electronic equipment (RoHS) (2002/95/EC)

## Standards

The Nordson DAGE 4000 conforms to, and in many cases exceeds, the following industry standards:

Cold bump pull	JEITA EIAJ ET-7407
BGA bump shear	JEDEC JESD22-B117A
Cold bump pull	JEDEC JESD22-B115
AU ball shear	JEDEC JESD22-B116
Ball bond shear	ASTM F1269
Wire pull	DT/NDT MIL STD 883
Die shear	MIL STD 883
Stud pull	MIL STD 883
Flip chip pull	JEDEC JESD22-B109

## A Partner You Can Trust

Nordson DAGE is the market leading provider of award winning test and inspection systems for destructive and non-destructive mechanical testing of electronic components, taking pride in delivering support to both local and international organizations alike. Founded in 1961, with global headquarters in Aylesbury, UK, Nordson DAGE is part of the Nordson Corporation which has direct operations and sales support offices in more than 30 countries.

Nordson DAGE continues to invest significantly in research and development to remain at the cutting edge of bond testing technology. Nordson DAGE has a truly global presence and is recognized as the industry standard.

For more information, please contact your Nordson DAGE regional office or speak with your Nordson DAGE representative, all of which are listed on [www.nordsondage.com](http://www.nordsondage.com).

