Wentworth Laboratories

PEGASUS

PRODUCTION PROBER

S200D

SEMI-AUTOMATIC DOUBLE-SIDED

KEY FEATURES

Microscope with optional camera
Variety of stereo zoom optics available to suit individual applications

Platen
Suitable for probe card holders and Pegasus™ probes

Caliper arm assembly
For balanced dual sided probing

Heavy duty workbench
Provides a solid and stable platform, includes rack mounting

LabMaster™ Pro software
Simple to integrate with LabVIEW™ software and other standard industry platforms

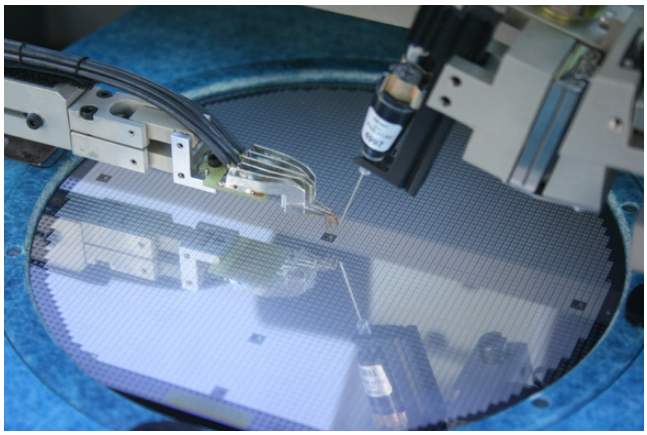
Joystick/keypad
For simple and intuitive system operation

Pegasus™ controller
Configurable for multi-axis applications

SIMULTANEOUS DOUBLE-SIDED PROBING

The Pegasus™ S200D semi-automatic production wafer prober is an ideal solution for applications requiring double-sided probing.

It is highly recommended for test correlation and engineering design, supporting wafers up to a size of 200 mm (8").



THE DESIGN

The Pegasus™ S200D offers simultaneous, double-sided probing of up to 200 mm (8") wafers. It delivers advanced automation for high volume probing of power devices.

The prober features highly developed upper and lower probe arm calipers which can be synchronized to contact the top and bottom side of the wafer at the same time using multiple needle probe cards. A proprietary mechanism ensures a constant pre-set needle load.

ROBUST DESIGN

Combining stainless steel and aluminium in its construction, the S200D provides an extremely stable platform for sub-micron probing and precision applications.

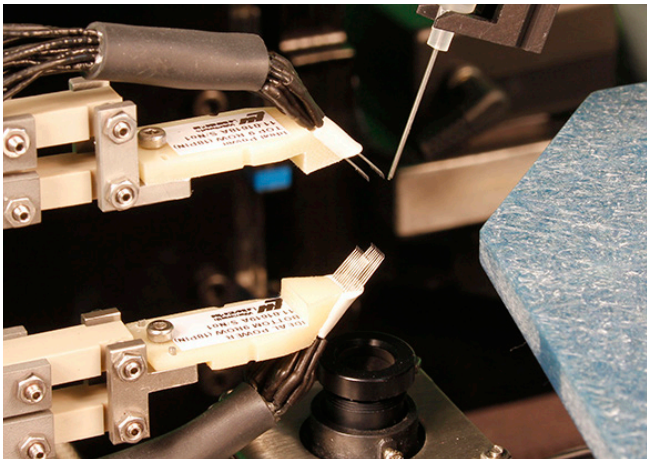
EASY CONTROL

Ergonomic design and intuitive controls makes the S200D one of the easiest prober platforms on the market to use. Quick start-up and simple menus allow users to be probing in minutes.

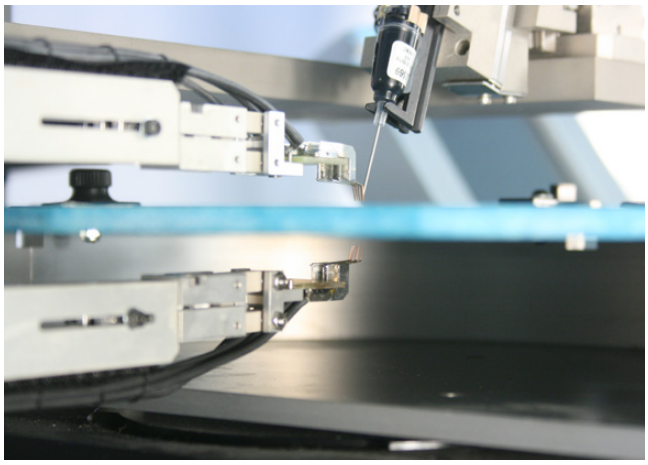
The probe station can be used in 'local' or 'remote' mode. This flexibility allows the prober to be easily integrated with industry standard testers and data acquisition software.

SPEED & FLEXIBILITY

The S200D can accommodate wafer sizes from 75 mm (3") to 200 mm (8"). It is used to test full or partial wafers and offer rapid probing, with tunable speeds for specific applications.



Probe cards for double sided probing



Upper and lower probe arm calipers

HIGHLY ADVANCED CALIPERS FOR SIMULTANEOUS WAFER CONTACT

Articulated parallelogram motion of the probe tips ensures that the probes accommodate any deviation in wafer flatness.

Kelvin contacts can be used for source and drain to accurately measure resistances and remove lead voltage drop.

Pegasus™ S200D with integrated keyppad/joystick

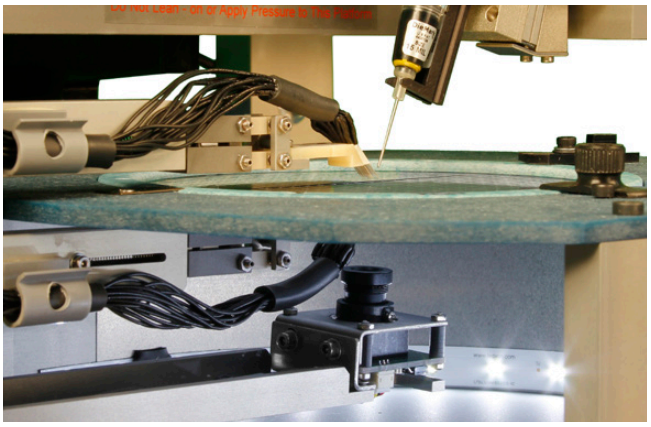
All stages are controlled by the Pegasus™ Controller consisting of the drive electronics, joystick, keypad and optional Windows user interface.

Interfacing is made easy with TTL, GPIB (IEEE488.2) and RS232 ports located on the back panel.

LEADING EDGE APPLICATIONS

The Pegasus™ S200D wafer prober delivers a robust solution for double-sided testing applications involving discrete power semiconductors, metal-oxide-semiconductor field-effect transistor (MOSFET) and insulated-gate bipolar transistor (IGBT) devices. It is equally suitable for testing silicon-based devices as well as newer wide-band gap (WBG) materials and compound semiconductors such as Gallium Nitride (GaN) and Silicon Carbide (SiC).

The S200D can eliminate chuck plate influence from test results. It is therefore highly recommended for test correlation or engineering design teams working on the power device types mentioned above.



Double-sided probing

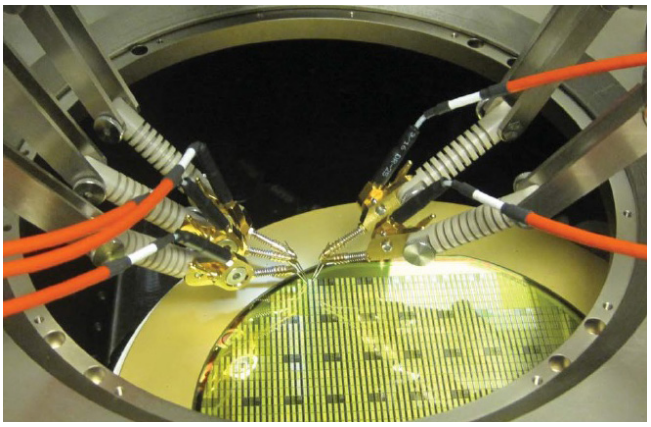
HIGH POWER

A high power configuration addresses today's power semi-conductor test challenges with low contact resistance measurements requiring accuracy at high voltages.

Kelvin chucks and reverse side probing solutions allow contact resistance measurements in the milliohm range.

High current probes and probe cards (up to 100 A) handle and distribute excessive current loads. Dedicated HV and HC probes reduce probe and device destruction at high voltages/currents by preventing arcing at the tip.

SPECIFICATIONS	
Voltage	10 kV (coax)
Current	200 amps (pulsed)



High power test

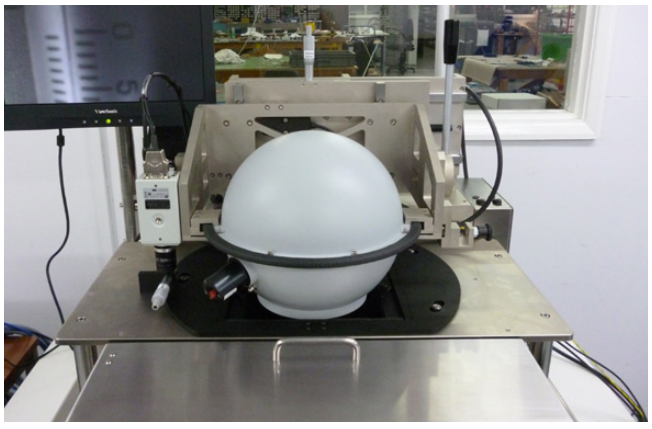
OPTO ELECTRONICS

Our probers can be specifically designed for production sampling and analytical probing of semiconductor light emitting diodes (LEDs), laser diodes and optical MEMS devices.

Chuck solutions allow handling of full wafers, shards, single chips and packaged parts.

The set-up can accommodate spectrometer probes, fibre optics, integrating spheres, glass chucks, thermal imaging cameras and more.

SPECIFICATIONS	
Reverse emission	Glass chuck, reverse side



Opto electronics test

OPTIONS & ACCESSORIES

MICROSCOPE MOUNTS

Type	Travel X/Y	Travel Z	Resolution	Drive	Recommended Microscope	Application
Manual stereozoom (MMM)	50x50 mm	50 mm*	0.9 µm	High precision lead screws	Binocular or trinocular stereozoom microscope	General probing, pad sizes down to 50 µm x 50 µm
Manual high powered (MMM)	50x50 mm	75 mm quicklift + 50 mm**	0.9 µm	High precision lead screws	Compound high mag objective microscope	Small geometry pad or line probing down to 1-2 µm
Programmable (PMM)	50x50 mm	100 mm + 50 mm**	0.1 µm	Stepper motors	Compound high mag objective microscope	Small geometry pad or line probing down to 1-2 µm

*achieved through standard stereozoom focus arm

** when using heavy duty focus block

MICROSCOPES

Microscope Type	Models Available	Application
Stereo zoom	Wentworth, Leica	Pad probing and internal features down to 5 µm
High magnification	Mitutoyo FS-70 Series	Offers the most flexibility and options for features down to 0.5 µm
Without eyepieces	A-Zoom micro	Use with CCD or video systems.

COMMUNICATION INTERFACES

Type	Vendors
TTL	(2) 15-way D plugs each providing (4) TTL signal outputs & (8) TTL inputs
RS232	Serial 9-pin D connector
GPIB (IEEE488.2)	8-bit parallel multi-master interface bus
Ethernet	48-bit MAC address

ACCESSORIES

Probes: Triaxial, coaxial, low impedance, Kelvin, high power	**Automatic 2-point align:** Provides system automation and fast device set-up routine
Probe tips: Tungsten, Tungsten-Carbide, Be Cu, gold plated	**Pattern recognition:** Automatic die detection and probe to pad alignment
Camera and monitors: Facilitates contacting bond pads or taking images	**Supplies:** Vacuum pumps and air compressors
Interface panels: Coax BNC, triax BNC, SHV, HV triax, D-SUB, SSMA, SMB, banana	**LabMaster™ Pro:** Control and monitoring graphical user interface
Probe cards: Blade, custom solutions	**Quiet Mode:** Removes power to all motors to reduce the noise floor

SPECIFICATIONS

PEGASUS™ S200D DOUBLE-SIDED PROBE STATION

Chuck XY Stage	
Type	High precision recirculating ball screws
Stage travel	210 x 210 mm (8.3 x 8.3")
Resolution	1.25 µm
Repeatability	± 4.0 µm
Accuracy	± 7.0 µm over 200 mm
Planarity	8.0 µm
Maximum speed	100 mm/sec
Automatic alignment repeatability	± 5.0 µm
Caliper Arm Assembly	
Type	Stepper motor drive, linear bearings
Total travel	11.4 mm
Repeatability	<6.0 µm
Resolution	2.0 µm
Theta Stage	
Precision ball-screws & stepper motors	
Travel	± 8.0°
Resolution	0.2 µm, 0.0001° measured at edge of 200 mm (8") chuck

Graphical User Interface	
	Windows 7, 8.1 and 10
Communication Interfaces	
PC	TTL, RS232, GPIB (IEEE488.2), ETHERNET
Utilities	
Power	100-240 VAC; 50/60 Hz auto select; 600 VA
Vacuum	0.5 cfm @ 208 mm (20") Hg (min)
Dimensions (w x d x h)	
Excludes monitor, lights & optics	1,420 x 850 x 1,080 mm (55.9 x 33.5 x 42.5")
Weight	
	400 kg (882 lbs)
Wafer Carrier	
Sizes available	75 mm (3.0") 100 mm (4.0") 150 mm (6.0") 200 mm (8.0")
Planarity	Over 200 mm, 12 µm

ABOUT US

AWARD-WINNING INNOVATOR OF WAFER PROBER & ADVANCED CANTILEVER PROBE CARDS

Wentworth Laboratories was founded in 1967. We are experts in wafer probing, renowned for high performance wafer probers and cantilever probe cards. Our ability to create customized and integrated wafer test solutions is second to none. Meticulous project communication and post-project monitoring ensure that our products fulfil even the most challenging requirements.

Our wafer prober products have been selected for many leading-edge wafer test applications across the semiconductor industry, leading to products such as hand-held devices, video game stations, PCs and medical diagnostic equipment. As an award-winning wafer test industry innovator, we are highly skilled in delivering wafer probers and cantilever probe card solutions. Our expertise in wafer probing, enable our customers to maximize their productivity and reduce cost.

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