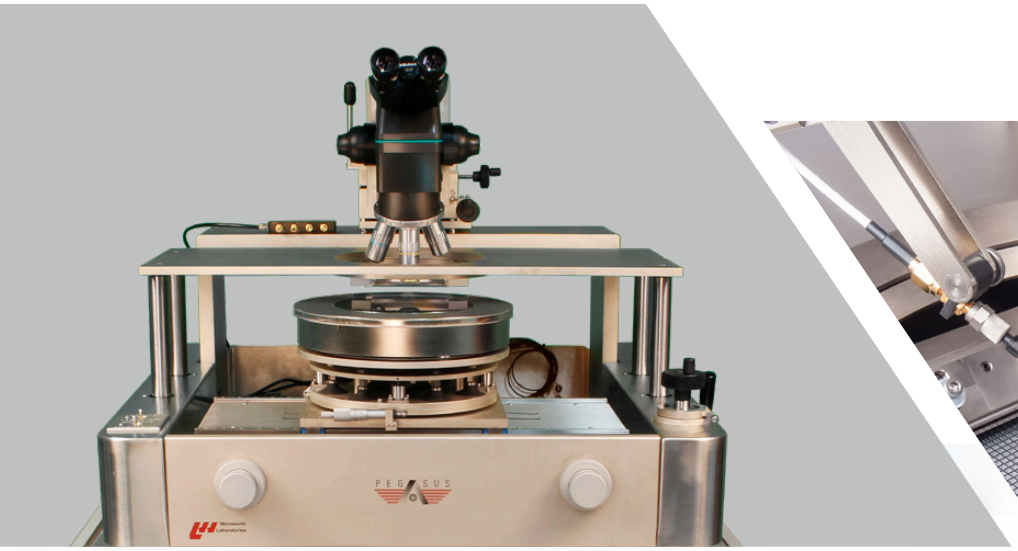
Wentworth Laboratories

MANUAL ANALYTICAL PROBERS:
PEGASUS™ M200FA, M300FA



KEY FEATURES

Microscope quick lift arm

Microscope with optional camera
Stable microscope bridge mount, choice of high power and stereo optics available.

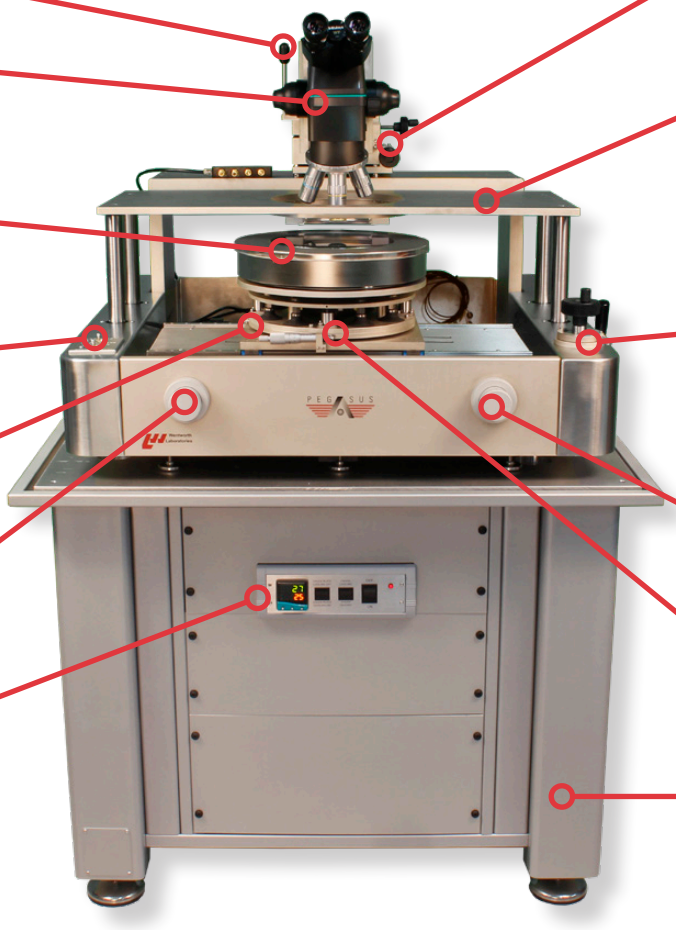
TC300 temperature chuck
Wide range of thermal and non-thermal chucks available.

Chuck lift switch vacuum on/off switch
For simple operation.

Theta adjustment

Y stage controls
Quick coarse and fine adjustment of Y stage.

TC300 controller
Enables fine setting of chuck temperature and displays current temperature.



Manual microscope mount
Easy adjustment of both x and y axes.

Large area platen
Suitable for mounting up to 8 manipulators.

Platform adjustment
Coarse and fine controls for platform height adjustment.

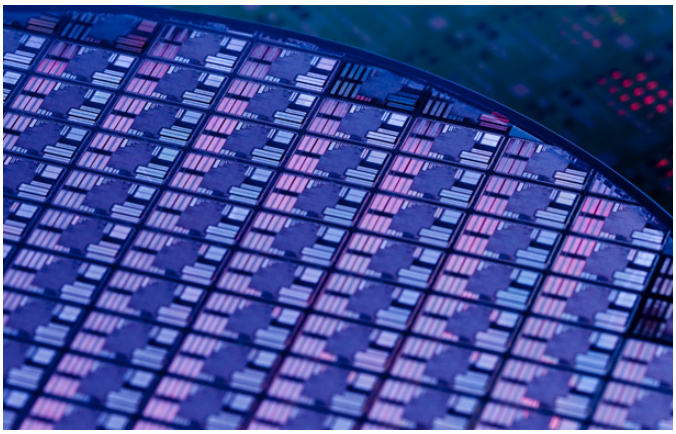
X stage controls
Quick coarse and fine adjustment of X stage.

Chuck load/unload access
Extended stage for easy wafer loading.

Anti-vibration table
For high performance vibration isolation.

DESIGNED FOR A WIDE RANGE OF APPLICATIONS

- Failure analysis
- Design verification and characterization
- Parametric testing (DC to low level)
- Ideal for high power and ultra fast IV and CV probing



THE DESIGN

SETTING THE STANDARD

Wentworth's Pegasus™ manual FA series probers enable you to quickly obtain accurate measurements. At their core is a highly stable, feature-laden platform to capture repeatable measurements.

Ultilzing either Wentworth replaceable probes or DC cantilever probe cards, the Pegasus™ M200FA and M300FA provide an ideal platform for a variety of test applications.

Pegasus™ M200FA can accommodate wafer sizes from 50 mm (2") to 200 mm (8"), whilst the M300FA is suitable for wafers up to 300 mm (12"). Both can be used to test full or partial wafers to reduce waste and increase yield.

CONFIGURABLE DESIGN

Ergonomic design and controls make the Pegasus™ manual FA Series platform extremely user friendly. The precision X/Y stage features lead screws with linear rails to deliver repeatable accuracy over a wide temperature range using our exclusive calibration process.

Features include:

- ✔ Large area platen height adjustment
- ✔ Fine lift chuck mechanism
- ✔ Robust microscope bridge used with stereo zoom and high powered microscopes
- ✔ Localized light-tight, EMC & HV safety enclosure (GuardMaster™) with dedicated cable feed through bulkheads

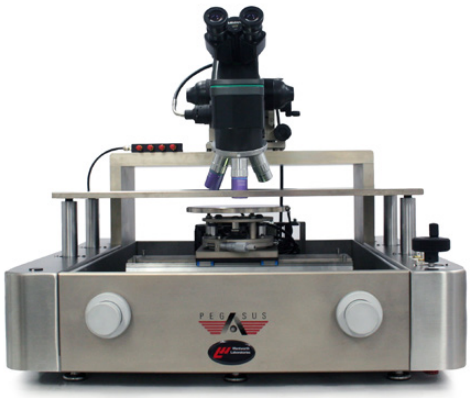
VERSATILITY

The Pegasus™ manual FA series probers can be configured for a variety of applications at affordable cost. Wentworth's many years of experience serving the electronics industry allows even the most challenging application to be managed within standard lead times and budgets.

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

FAILURE ANALYSIS

Failure analysis applications require mechanical versatility and ease to make multiple measurements. The Pegasus™ M200FA and M300FA have been designed with these aspects in mind. Offering multiple FA tools/options we offer easy upgrade options including a wide range of manipulator probe heads, probe needles and laser-ready optics.

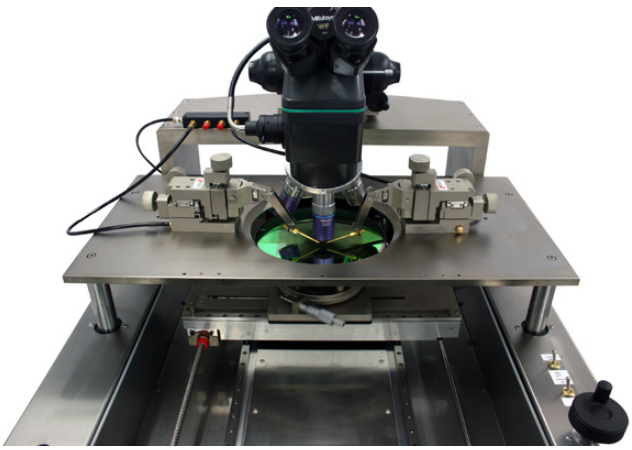


THERMAL CHARACTERIZATION

Wentworth offers performance thermal chuck solutions for device testing from -60°C to +400°C.

The propriety heating and cooling management system is an integral part of GuardMaster™, utilizing CDA or nitrogen to reduce thermal effects and keeping the probing environment controlled.

OPTIONS	
Temperature	Control
-60°C to +300°C	Air cooled high end system combining very low and high temperatures within one chuck system.
-60°C to +300°C	Liquid cooled for high power applications.
up to +400°C	Details available on request.



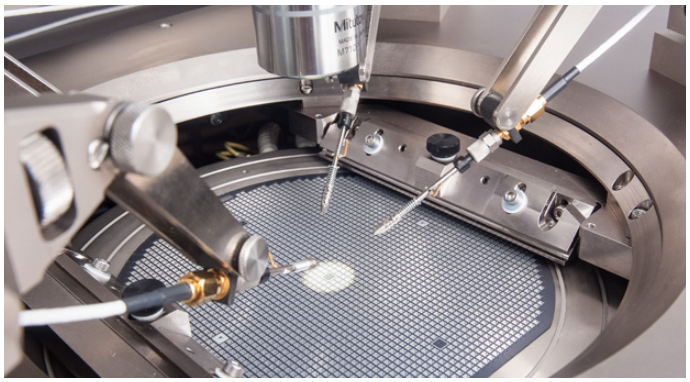
Pegasus™ M200FA with PVX500 manual manipulators

LEADING EDGE APPLICATIONS

DC PARAMETRIC

Utilizing Wentworth's PVX 400 or PVX 500 manipulators or cantilever probe cards, the Pegasus™ M200FA and M300FA probers offer an ideal platform for parametric testing. A choice of chuck solutions enables probing of full wafers, shards, single chips and packaged devices.

SPECIFICATION	
Frequency	DC > 100Mhz
Breakdown Voltage	500V
Leakage (depending on configuration)	down to +/-10fA -65°C > +200°C down to +/-20fA +200°C > +400°C



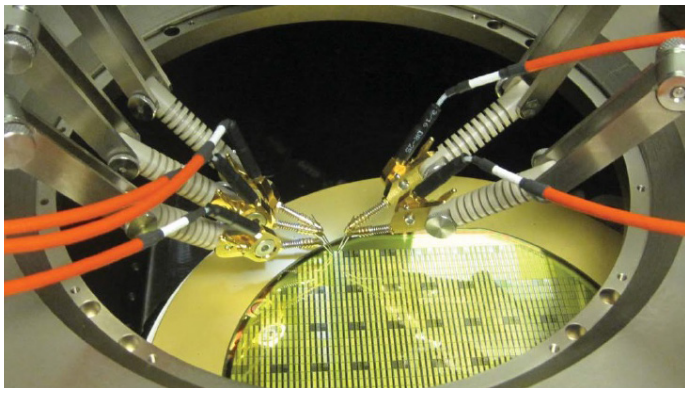
Analytical DC test

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 100A) 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.

SPECIFICATION	
Voltage	3KV (Triax), 10KV (Coax)
Current	200 Amps (Pulsed)
Leakage	<1pA (3KV)



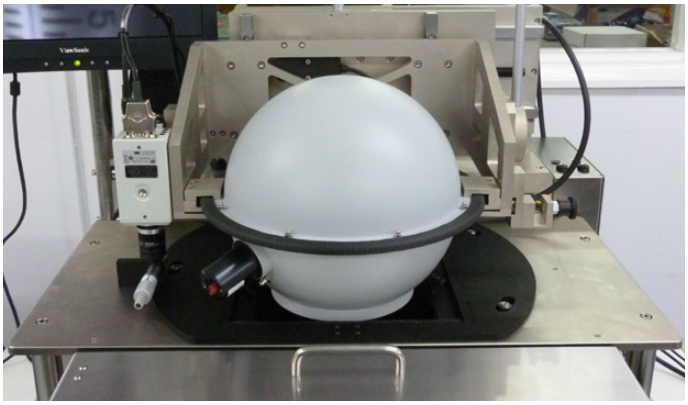
High power test

OPTO ELECTRONICS

Our manual FA Series 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.

SPECIFICATION	
Reverse emission	Glass chuck, reverse side



Opto electronics test

SPECIFICATION

PEGASUS™ M200FA/M300FA MANUAL PROBE STATION

	Pegasus™ M200FA	Pegasus™ M300FA
Chuck X-Y Stage		
X Travel	210 mm (8.25")	310 mm (12.2")
Y Travel	310 mm (12.2")	410 mm (16.14")
Planarity	8 µm	
Maximum speed	100 mm/sec	
Linear motion guides		
Coarse ratio 1:1	70 microns per degree	
Fine ratio 10:1	7 microns per degree	
Chuck		
Chuck flatness	Flat to within 10 µm (0.0004")	
Theta	Micrometer drive theta, 15°	
Fine lift movement	250 µm	
Weight		
Prober	131 kg	150 kg

	Pegasus™ M200FA	Pegasus™ M300FA
Platen		
Height adjustment	Via fine adjustment level	
Separation lift	10 mm (0.4")	
Utilities		
Power	100-240 VAC 50/60 Hz auto select 600 VA	
Vacuum	0.5 cfm @20" Hg (min)	
Compressed air	4 bar min	
Dimensions (W x D x H)		
Prober (excludes optics & scope mount)	770 x 800 x 415 mm 30.3 x 31.5 x 16.3"	923 x 878 x 415 mm 36.3 x 34.6 x 16.3"
Shielding		
Light	> 120 dB	
EMI	>20 dB 0.05 - 0.5 Ghz, >30 dB 0.5 - 30 Ghz	

MANIPULATORS

Type	TPI/Resolution/Travel
PVX400 (vacuum or magnetic)	50 TPI / 1.2 µm/° / X = 10 mm, Y = 10 mm, Z = 1ww0 mm
PVX500-100 (vacuum or magnetic)	100 TPI / 0.7 µm/° / X = 10 mm, Y = 10 mm, Z = 10 mm
PVX500-200 (vacuum or magnetic)	200 TPI / 0.35 µm/° / X = 10 mm, Y = 10 mm, Z = 10 mm

MICROSCOPES

Microscope type	Models Available
Stereozoom	Wentworth, Leica
High magnification	Mitutoyo FS-70 Series, A-Zoom Micro
Without eyepieces	A-Zoom Micro

ABOUT WENTWORTH LABORATORIES

With over 50 years' experience in wafer probing technology, our solutions are the number one choice for many leading-edge wafer test applications across the globe.

With the support of a world-wide network of representatives, we enable our customers to fulfil even the most challenging wafer probing goals, maximizing their productivity and reducing costs.

We look forward to discussing your wafer probing requirements.

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