The Future of Wafer Dicing Is Here Today

MDS-100™

MicroDieSingulator™

MDS enables parallel die singulation with minimum street widths. Plasma-Therm's MDS satisfies the necessity to singulate thin and ultra-thin wafers, accelerating the future requirements of the ITRS roadmap today.

Separating individual dies has never been easier, cleaner, or more reliable. This proprietary technology is easily maintained, highly repeatable, and scalable. Plasma-Therm MDS is backed by 16 years of award-winning, superior service and support (VLSIresearch).

IMPROVED

- ✔ Dies Per wafer
- ✔ Die strength
- ✔ Throughput
- ✔ Yields
- ✔ Profits

INCREASED

- ✔ Design freedom
- ✔ Cost savings
- ✔ Capability to dice thin wafers
- ✔ Available on-die functionality
- ✔ Non-traditional chip designs

REDUCED

- ✔ Wafer starts
- ✔ Cost of ownership
- ✔ Dicing losses
- ✔ Street/Scribe line widths
- ✔ Device damage during dicing

ADDITIONAL BENEFITS

- ✔ No lateral damage from dicing
- ✔ No problems with thinner wafers
- ✔ No chipping or cracking
- ✔ No multiple programs for dicing
- ✔ No issues with heat
- ✔ No post-dicing cleaning required

THROUGHPUT COMPARISION

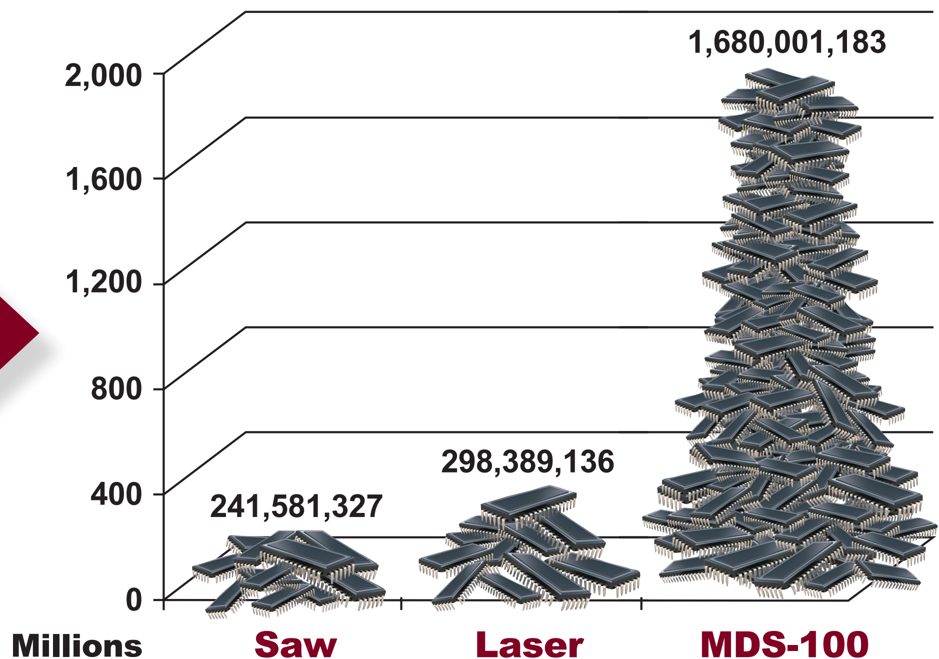
Parameters	Saw	Laser	MDS-100
Die Street	70 µm	50 µm	15 µm
Cut rate	18mm/sec	22mm/sec	~1000mm/sec equivalent
Wafer size	200mm		
Edge exclusion	3mm		
Die size	$1mm^2$		
Wafer thickness	100µm		

Increase Productivity

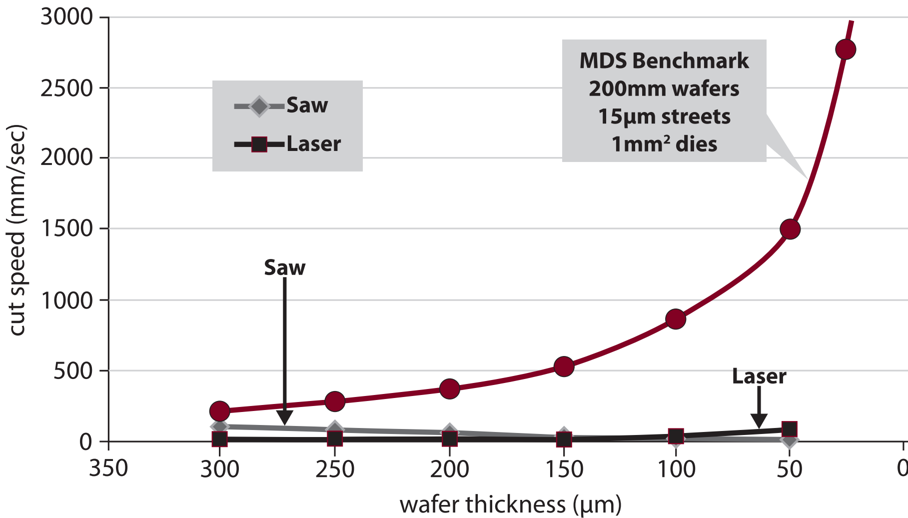
- Die count increase 11% per wafer
- One MDS-100 chambers output is greater than 6 saw or laser systems

MDS-100

FIVE TIMES more completed dies in 1 year compared to saws and lasers



MDS-100
Exercise your freedom of design to optimize die size, shape and thickness, to maximize wafer real estate and die performance (heat management, turn-on resistance, package size reduction)

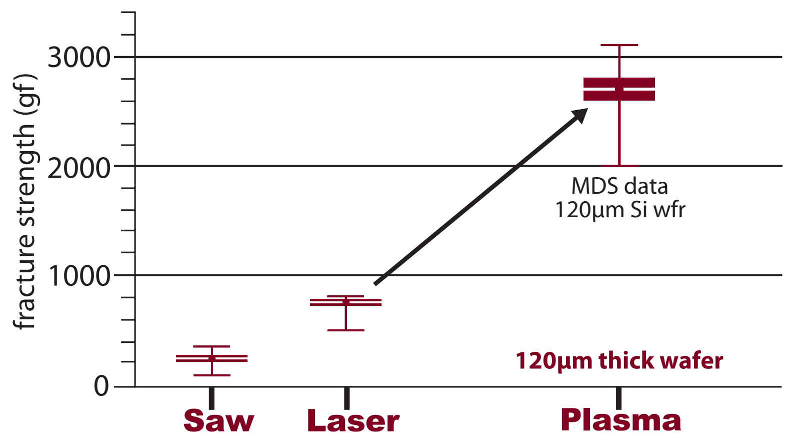


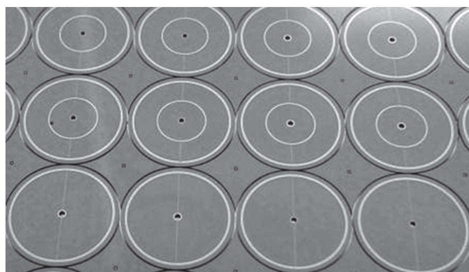
Unmatched Cut Speed for Thinner Wafers

- Full singulation of 25µm-thick wafer in less than 5 minutes
  - Die size independent
  - Single parallel process step

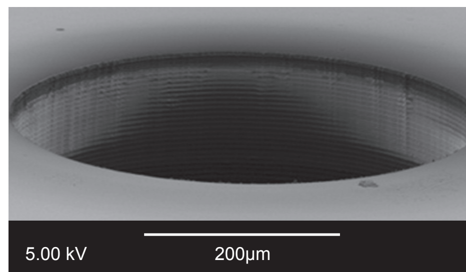
Improved Die Strength

- Superior die quality
  - No chipping, no lateral damage
  - Ability to round die corners
- Enables further wafer thinning
- Cleanest, safest and most robust of all singulation technologies

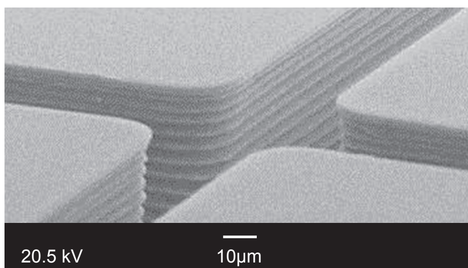


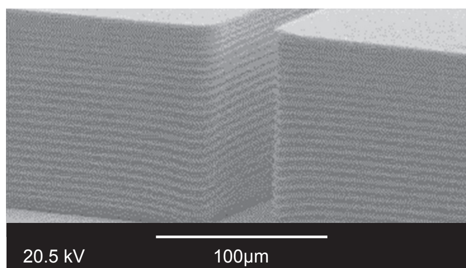


Round die with center holes



Etched feature at die center

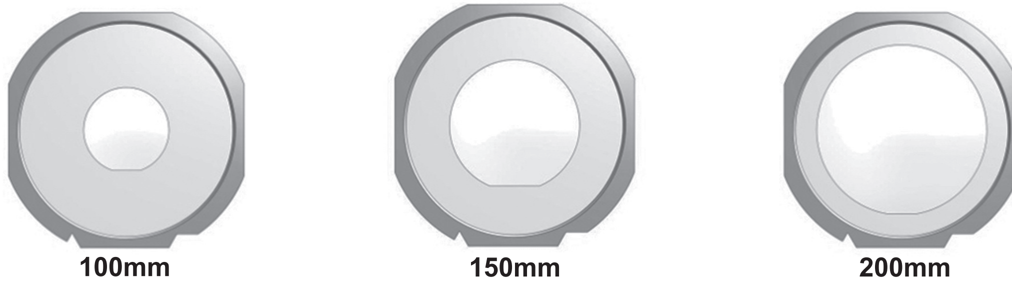




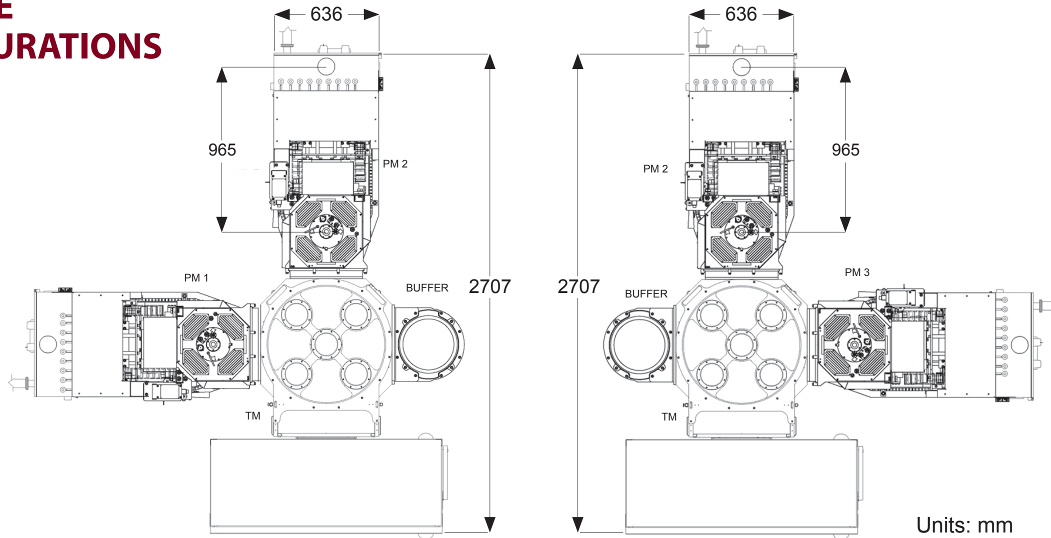
Round die corners provide higher yield, reduced stress

Fully singulated wafer on tape

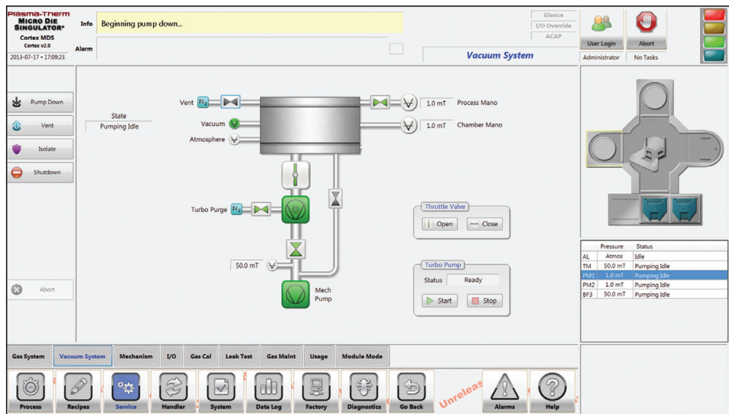
Substrate Placement on 200mm INDUSTRY STANDARD TAPE FRAME for Singulation

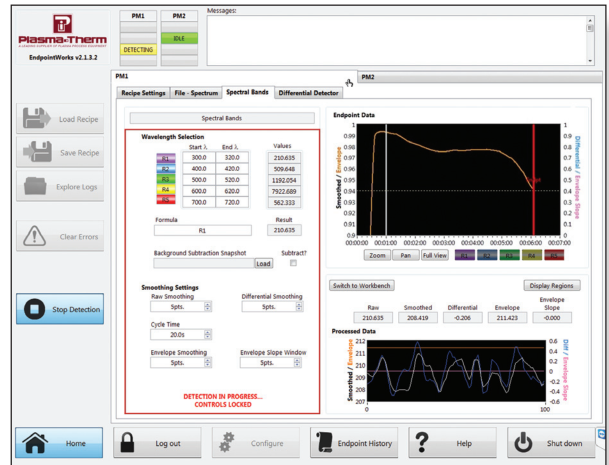


FLEXIBLE CONFIGURATIONS



CONTROL SYSTEM





Cortex®

- Windows-based system control software
- Comprehensive data logging and live parameter plotting
- Automated clean and maintenance scheduling

EndpointWorks®

- With optical emission spectroscopy (OES)
- Automated end of process at tape surface

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