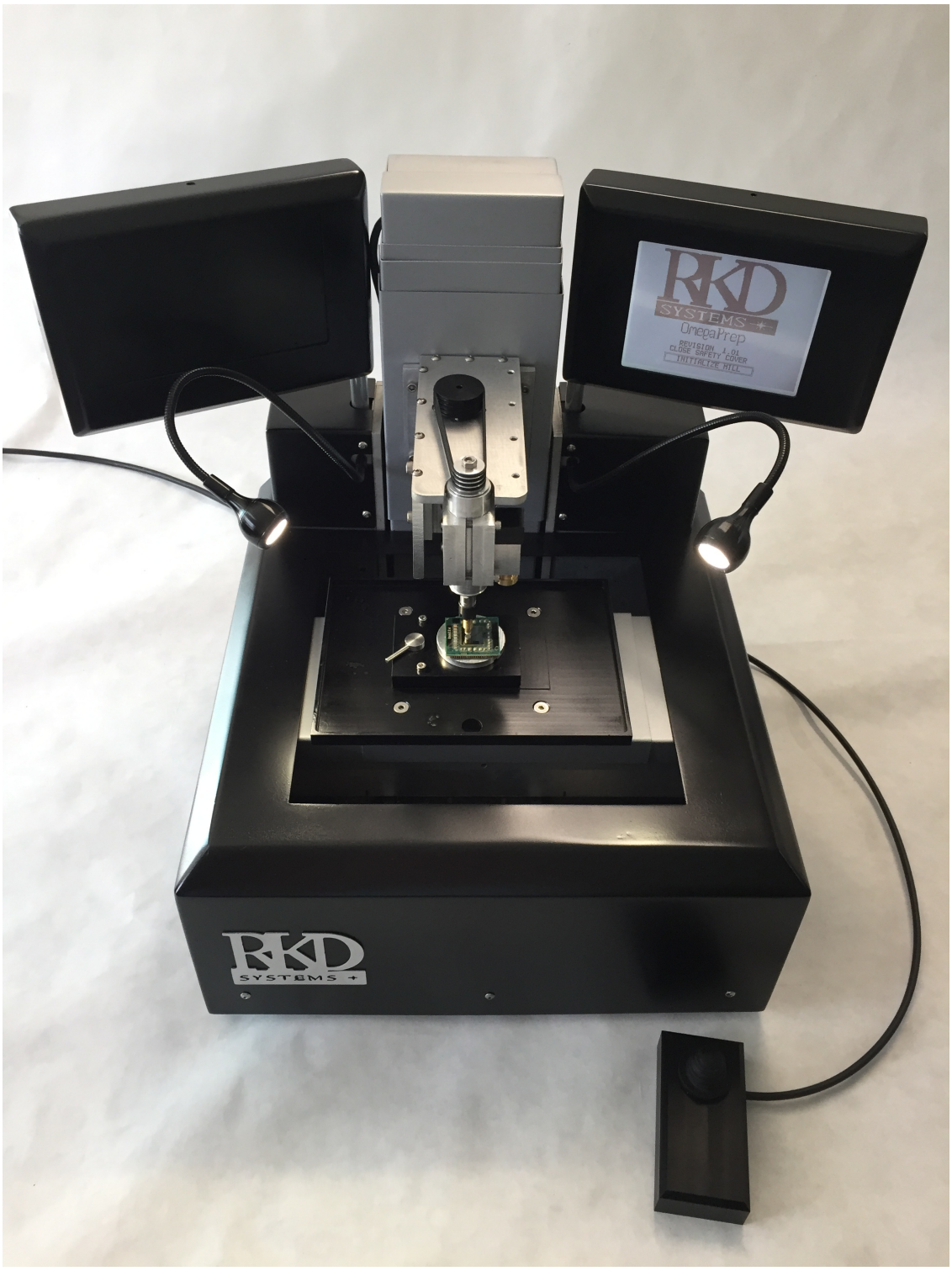
OmegaPrep

the final word in sample preparation



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RKD SYSTEMS

OmegaPrep

The OmegaPrep from *RKD Systems* is an ultra-high resolution mill specifically designed for use in the evolving semiconductor market.

It is designed to thin die to 1 micron of remaining silicon thickness. The system is robust and rigid with an intuitive user interface that is easy enough for a beginner and flexible enough for an experienced user.

It is fast and easy to set up using video alignment that eliminates rotational error and uses removable sample holders to eliminate sample re-mounting or realignment.

All axis drive assemblies are independently shielded from contamination allowing for easy cleaning of the system for repeatable performance for all sample types.

The OmegaPrep is equipped with an integral dual thickness measurement system for automated thickness measurements on all of the positions used to measure the surface profile of a sample. This allows the software to directly correct the cutting/polishing tool path, eliminating remaining silicon thickness variations.

The OmegaPrep is the easiest, most flexible sample preparation system available. It is accurate, reproducible and, you don't break die.

Specifications:

Machine size

- Height 425 mm
- Width 370 mm without displays
- Width 550 mm (with displays extended)
- Depth 395 mm deep
- Weight 40 Kg

Power requirements - 90 to 250 VAC 49 to 61 Hertz at 4 amps maximum

- X axis travel 135 mm (110 mm usable)
- Y axis travel 135 mm (125 mm usable)
- Z axis travel 80 mm

Travel Speed - 5 to 600 mm/minute

Spindle Speed - 2000 to 10,000 RPM

Axis Resolution and Repeatability

- X and Y axes Resolution 0.001 mm
- Z axis resolution 0.0001 mm
- X and Y axis repeatability +/- 0.002 mm
- Z axis repeatability +/- 0.0002 mm
- Scale resolution and accuracy
- Resolution 0.000488 mm
- Accuracy +/- 0.040 mm/meter

Repeatability +/- 0.000488 mm

Hysteresis < 0.002 mm

Geometry

- Spindle axis to X-Y plane +/- 0.50 mill radians
- X to Y axis +/- 0.25 mill radians
- Z to X-Y plane +/- 0.25 mill radians

Positional Accuracy

- +/- .00025 mm + 0.000027 mm per degree change in ambient ,per millimeter of travel - from reference

Spindle runout - 0.003 mm

Tool holder - ER-8 Collets

Touchdown Repeatability +/- 0.2 microns

Touchdown Force 50 grams (max)

Usable Die Size 0.5 mm to 36 mm per side

Usable Machining Area 0.25 mm to 45 mm per side

Maximum Package Size - 110 mm X 125 mm (special fixturing required)

User Interface

- Screen size 145 mm (diagonal)
- Input type - stylus touch screen

Video monitor

- Screen size 178 mm (diagonal)
- Video magnification X 10 - typical for alignment
- X 20 - typical for process observation

Video resolution

- NTSC standard

Thickness Measurement Specifications

Available on the OmegaPrep only

Thickness Range 0.2 to 200 microns in two ranges

Measurement Accuracy

- High range 15 to 200 microns: +/- 1% +/- 1 micron
- Low range 0.2 to 15 microns: +/- 5% +/- 0.1 micron

Spot Size

- High range 100 microns, typical
- Low range 500 microns, typical

Sample Tilt Range +/- 2 degrees from the X-Y movement plane

Measurement Time 3 to 4 seconds per location

Profiling Time 5 minutes typical for a 14mm X 18mm die (63 points)

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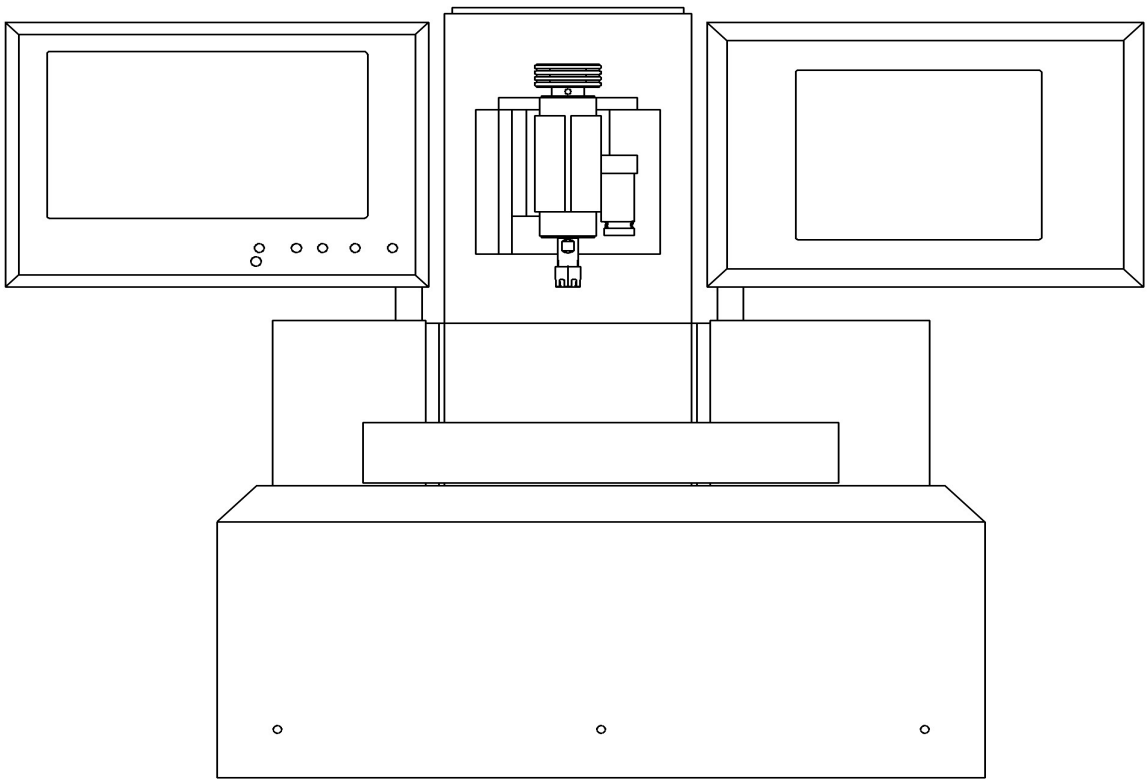

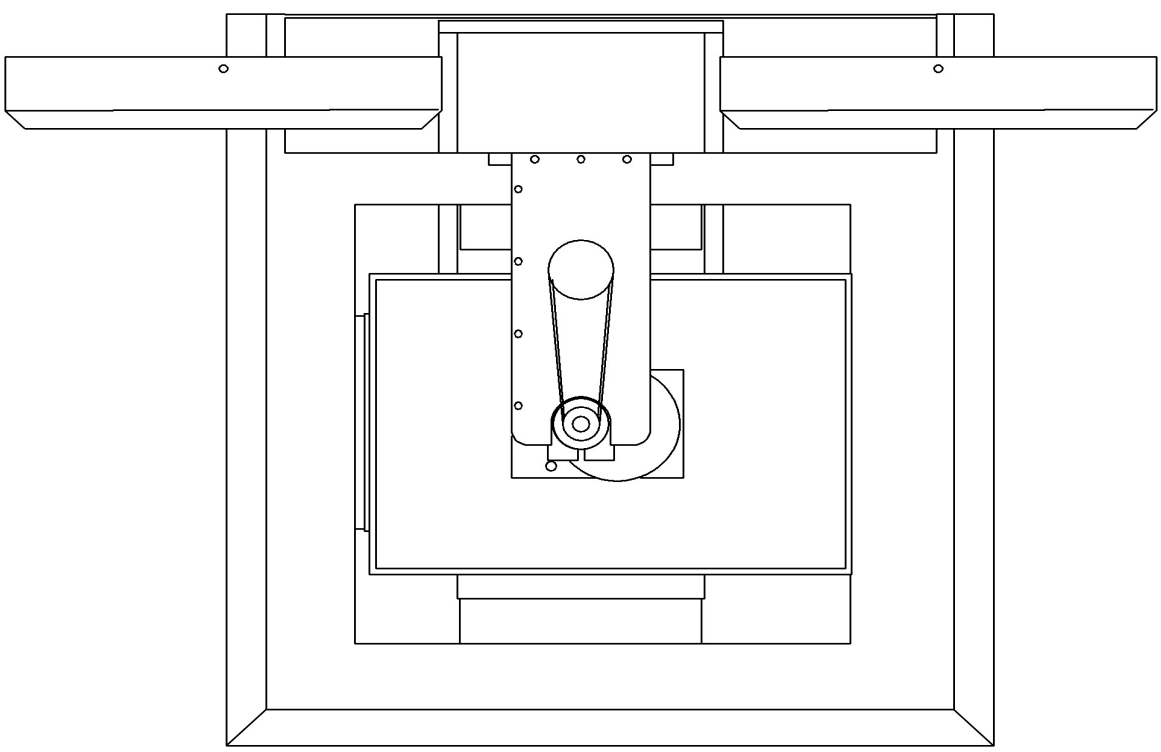

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