

Strasbaugh 7AA Fully Automatic Wafer Grinder



Your source for leading-edge
surface processing solutions



The model 7AA fully-automatic wafer grinder is an automated in-feed grinder capable of grinding wafers ranging from 75 to 150mm in diameter.

The 7AA combines proven vertical down-feed grinding technology with force adaptive grinding. The 7AA lowers the diamond wheels onto the wafer limiting the total downforce that can be applied to the wafer to a predetermined maximum. This protects the machine, the diamond wheels, and your valuable product from being overstressed, yet allows the machine to grind at its maximum possible rate.

The 7AA also uses closed loop thickness control to reduce thickness errors and eliminate regrinds. Through continuous monitoring the computer determines if the final thickness varies from the target thickness and adjusts the grind spindle position.

FEATURES

- Force-Sensitive infeed mechanics to allow the grinding wheel dynamics to determine the stock removal rate to reduce sub-surface damage. Especially important for materials such as silicon, GaAs, InP, etc.
- Ultra-stiff air bearings and submicron feed rates - increases wafer strength, improves total yield, improves surface finish to minimize follow-on polishing times, if required.
- Ex-situ Digital Measurement Probe - measures the wafer after grinding, rinsing, and drying. It sends final thickness measurements back to the grinder's control system and thus helps to reduce wafer-to-wafer thickness variations caused by normal diamond wheel wear.

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MACHINE SPECIFICATIONS	
Wafer Diameter	75mm (3") to 150mm (6")
Control Systems	Giddings & Lewis, 2-axis closed loop programmable controller
Operator Interface	Touchscreen GUI
Pre-Aligner Station	Centers the wafer and locates the flat or the notch
Wafer Transport	Dual send and dual receive cassettes, wafers are transferred by SEMI standard belt conveyors to centering station, where pick-and-place robot places the wafer on the vacuum chuck which automatically traverses under the grind wheel spindle.
Thickness Gauge	Ex-situ closed loop wafer thickness control with digital display
Grinding Coolant System	D.I. or municipal water compatible coolant system for single pass flow
Grinding Wheels	Two, concentrically mounted on the grind spindle. Includes a 4" coarse grind wheel and an 11" diameter (280mm) cup-style, diamond fine grind wheel
Work Holding Chucks	Vacuum chuck; 3" to 150mm diameter porous ceramic. Includes D.I. water and air backflush
Infeed System	Hardened, precision ground linear ways which carry the work spindle carriage horizontally in and out of the grind chamber.
Lubrication	Automatic lubricating system with low level alarm

TECHNICAL FEATURES	
Grind Spindle	One 5 HP (3.7 kW) servo controlled variable speed, 500-4500 rpm direct drive air bearings
Course Grind Feed Rate	1-80 $\mu\text{m}/\text{sec}$. Programmable dwell
Fine Grind Feed Rate	0.1-20 $\mu\text{m}/\text{sec}$. Programmable dwell
Force Controlled Grinding	Grinding wheel will grind at feed rate until grinding force exceeds programmed force. Then the grinding force establishes removal rate
Work Spindle	One brushless ¼ HP DC servo controlled with variable speed 20-400 rpm, direct drive air bearing spindles
Rinse/Spin Station	Vacuum chuck, 1/6HP, D.I. water rinse with brush, programmable 100 to 3000 rpm spin dry

FACILITIES	
Electrical	208/240VAC, 3 ph, 60 Hz, 30 FLA
Compressed Air	15 SCFM at 90 psi minimum
Exhaust	200 CFM at ½" water static pressure
Grind Motor Coolant	0.25 GPM (0.95 L/min.) chilled municipal water at 100 psi
Grinding Fluid	D.I. water, 3 gpm (11 liters) at 30 psi minimum, 50 psi maximum
Drain	1.50" (38.1mm) diameter
Vacuum	5 CFM at 25" Hg

DIMENSIONS		
Metric	1829W x 1067D x 1880H	
Inches	72W x 42D x 74H	
Weight	~1180 kg	~2600 lbs

