

The BV6500-1 is an abrasive rectifier beveling system which will abrasively cut either or both the negative angle and the positive edge angle on a mounted or unmounted silicon wafer. For maximum productivity they are cut simultaneously. Wafer diameters may be from 12mm to 80-mm in diameter. A key feature of this new Improved system is the ability of accurately cutting angles as shallow as 2°. Micrometer controls give precise nozzle settings. Most important is repeatability at a surprisingly low cost.

FEATURES:

SHALLOW ANGLES--The technique used to cut the very shallow negative angle is different from that used in any previous abrasive beveling systems. The nozzle is on a traveling slide, passing back and forth over the edge of the device. By changing the number of passes, it is possible to cut very precise and repeatable angles of as small as 2° with a flatness of 0.002" (.005mm) for a length of .100" (2.5mm).

RETRACTING NOZZLE--The nozzles retract from the chuck after beveling, allowing the operator unrestricted access for loading and unloading. The precision micrometer (in metric) adjustments for nozzle positioning are located at the rear of the slides in a closed chamber, protected from abrasive.

SPEED--Beveling time is greatly reduced because both angles are being cut at the same time. Also the nozzles are pointed directly at the silicon so that more of the abrasive stream hits the surface, giving greater cutting. Beveling time depends on the wafer diameter and is approximately linear with circumference change. Beveling time for a 23mm device is less than 30 seconds for both angles.



BV6500-1

LONG LIFE CHUCK--The BV6500 uses a new style flat-top chuck and 2-point centering tool. This design eliminates the heavy abrasive wear that occurred on the traditional chucks having a lipped locating edge. Included with the system is a set of 4 flat-top chucks, capable of handling diameters from 12mm to 80mm.

DEPENDABLE--Micro Blasters are used to provide a strong steady stream of abrasive to each nozzle. These abrasive units have proven themselves in over 15 years use on production systems throughout the world. Each blaster has a 3 lb. capacity storage tank (6 lbs. with optional MB1090 tank extender).

OPERATOR'S PANEL--The setup panel is separate from the operator's panel. After the appropriate adjustments have been made, the setup panel is closed, allowing the operator access to only those controls necessary for normal operation. This decreases the possibility of constant "minor adjustments" by different operators.

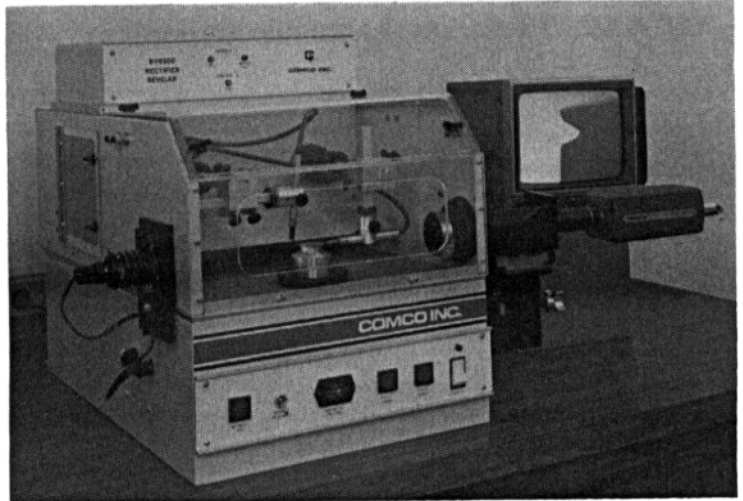


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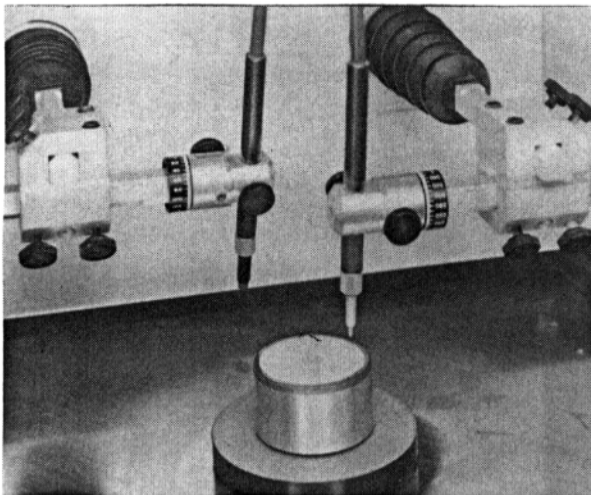
BV6500
PRECISION RECTIFIER BEVELER

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The Model BV6500-3 offers all of the features for top side positive/negative beveling, plus the optics for double positive or edge beveling. It includes a zoom lens (x15 to x100) camera and b/w monitor that allows the operator to see the edge or top side angles as they are cut. With the optics, it is possible to inspect the angle without removing the device for the machine. If an angle correction is needed, it can be quickly and easily made without the need for running an additional sample.



BV6500-3 (with optics)



BEVELING CHAMBER

SET-UP AND OPERATION:

Setting up for a new size device is quick and easy. The device is loaded on the chuck, aligned with the centering tool, and the vacuum is turned on. Using the "slide forward" switch, the operator will advance the nozzles to the blast position. Coarse adjustments on the slide arms locate the nozzles at the approximate angles. After a test blast, final precise vernier adjustments will be made on micrometers located in a sealed compartment behind the abrasive chamber.

The chuck rotational speed is set with a potentiometer. The abrasive "on time" blast is set with a thumb wheel switch for the positive angle nozzle. The negative angle servo driven "on time" nozzle is set with a thumb wheel switch for the number of cycles in and out and with a potentiometer for the cycle speed. This establishes the blast "on time" for the negative angle.

Once the setup is complete and the setup control panel is closed, the system becomes automatic. In production, the operator loads a rectifier and pushes a "start" button on the front panel. The nozzles move forward, blast for the preset time, shut off and retract.

Blasting is taking place in a closed chamber to provide good dust control. The operator is loading and unloading rectifiers through a hand opening on the front. The plexiglas window on the top is easily removable and is sloped at 45 degrees across the front to allow maximum visibility of the work area. One operator can handle several machines.



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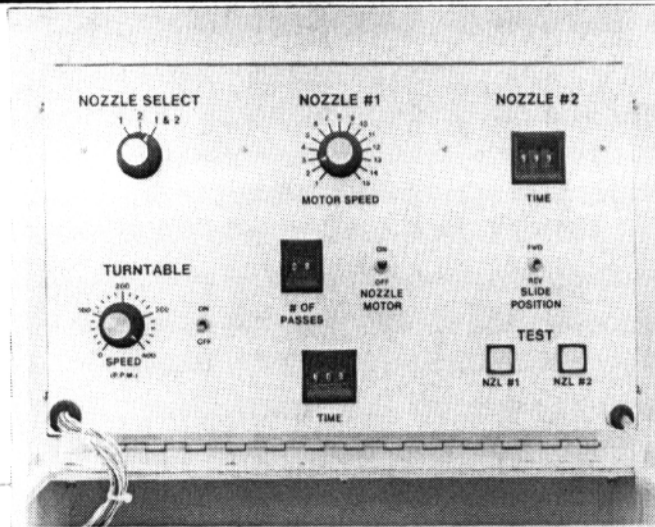
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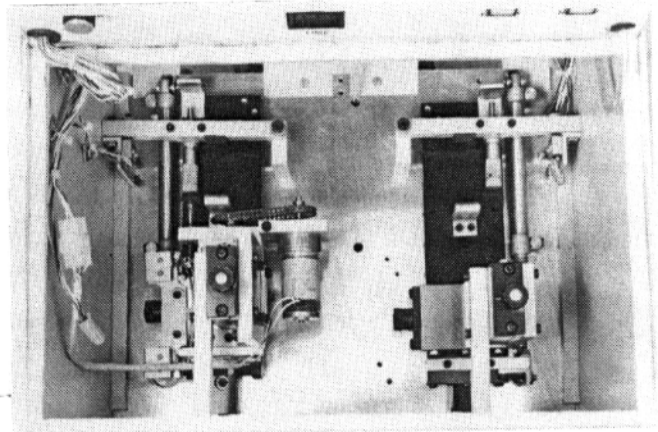
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SET-UP PANEL



PRECISION SLIDE ADJUSTMENTS

SPECIFICATIONS:

- Electrical: 115/230V, 50/60HZ, 20 watts / 270 watts with camera
- Air: 75 PSIG min. (6.1 ATM), volume 2 SCFM (.94 L/sec)
- Dry Air: For abrasive machines 80-125 PSIG (6.4-9.5 ATM) 2.0 SCFM (.94 L/sec), moisture 100 PPM maximum
- Vacuum: 10-15" Hg (254 mmHg) volume 1 SCFM (.47 L/sec)
- Spindle: Speed adjustable to 400 RPM
Face wobble TIR max. .0005" (0.01mm)
- Nozzle Position: Adjustable: X to 2" (51mm), Y to 2.5" (64mm), Z nozzle height to 2" (51mm), nozzle angle +90 degrees to -90 degrees
- Nozzle #1: Slide travel adjustable from 0 to 0.5" (12.7mm), slide speed adjustable from 0.25-2.5"/min. (64mm/min.)
- Size:

	<u>BV6500-1</u>	<u>-3 WITH CAMERA</u>
Width	16" (41cm)	37" (94 cm)
Depth	26" (66cm)	26" (66cm)
Height	20" (51cm)	20" (51cm)
- Dust Collection: Requires at least 400 CFM through 4" collar on back.
- Shipping Weight: Including 2 Micro Blasters, 215 lbs. (97.5k)
- Abrasive Supply: Two MB1001 Micro Blasters, one for each nozzle. Size 16 1/2" x 10" x 9" (42cm x 25cm x 23cm) ea.

MICRO ABRASIVE BLASTERS

A better, faster way to get a variety of jobs done.



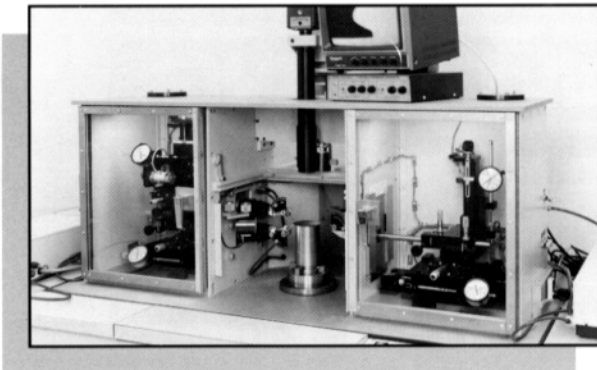
The Micro Blaster is a very small, precise abrasive blaster that can clean, cut, deburr, polish or roughen small areas. The abrasive is mixed with dry air and propelled through small .010" to .046" carbide nozzles in a pencil shaped handpiece. The key to this system is maximum control and a variety of different abrasive media for applications in the electronics, semiconductor, PC board and metalworking industries. The Micro Blaster is a versatile production tool. Single tank, dual tank and high-pressure models are available.

Solder Mask Removal From PC Boards
Precision Deburring Of Medical Parts
Making Porcelain Dental Crowns
Ornamental Glass Engraving
Deflashing Connectors
Cleaning Delicate Artifacts
Cleaning Ceramic Substrates
Removing Part Numbers From DIP's
Removing MgO From Thermocouples
Roughening Surfaces For Stronger Bonding



RECTIFIER BEVELERS

Cut both angles at once.



BV 6500 Rectifier Beveler abrasively cuts both the positive and negative angles simultaneously in less time than it takes to cut one angle conventionally. Repeatable and accurate on angles as shallow as 2 degrees. Available with 15-100 power zoom camera.

BV 8003 High Voltage Rectifier Beveler will precisely cut V groove or edge bevels on bare or mounted wafers. up to 5" (127mm). Full motor-driven slides and x100 magnification on the cameras allow for the greatest adjustability and accuracy on the largest devices

