

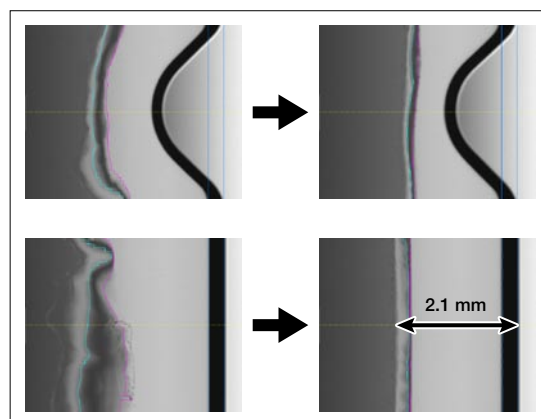
**Development of new wafer edge etching and cleaning technology
— Improved processing precision contributes to increases in semiconductor device
production efficiency and yields —**

The Semiconductor Equipment Company (President: Eiji Kakiuchi) of Dainippon Screen Mfg. Co., Ltd. (Headquarters: Kyoto, Japan) has recently developed a new type of technology called the Bevel Etching Chamber (BEC) that makes it possible to remove metallic film deposited on the bevel portion of wafers (the edge and the slanted [beveled] portion next to the edge of the wafer) with high precision.

In recent years, as the semiconductor industry has continued to use ever finer circuitry, 45 nm generation devices have become increasingly common. Unfortunately, while the use of manufacturing processes that employ new metallic materials in insulation films and electrodes is also advancing, there is increasing concern about drops in yield caused by the adherence and scattering of these materials on the wafer surface. What's more, the various device manufacturers make it a policy to cut as many chips as possible from each wafer in order to compensate for unanticipated problems such as sudden increases in the price of raw materials and sudden drops in the value of semiconductor chips. For this reason, manufacturers must strive to increase the precision of etching widths within the bevel portion of the wafer, a goal that is increasingly difficult to achieve using traditional processing methods.

Screen's new BEC is designed to satisfy this emerging need in the industry. It features a new wafer holding mechanism and processing methods that revolutionize traditional bevel etching. It increases the precision of wafer positioning, enabling control so fine that 0.1 mm unit etching widths can be used in the area one to three millimeters from the edge of the wafer. What's more, by making etching even more consistent, the BEC enhances the productivity potential of each individual wafer, while also increasing yields from the etching process. Since the BEC makes it easy to change the width of the area to which etching is applied, it's flexible enough to deal with wafer diameter variations within the allowable range.

The development of the BEC contributes to resolving many of the issues arising from the use of increasingly fine patterns in semiconductors. This new technology will help increase SCREEN's market share in the bevel etching market, a market that is expected to grow. It will also further enhance SCREEN's competitiveness in the wafer cleaning market, where SCREEN already has the top share in all the major cleaning equipment types, thereby ensuring that SCREEN's status in the semiconductor manufacturing equipment industry remains secure.



**Traditional process etching (left)
and BEC etching (right)**

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