Owens Design

Capital Equipment Design & Manufacturing

CUSTOMER CASE STUDY

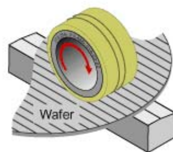
SEMICONDUCTOR INDUSTRY

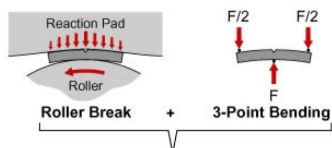
Wafer Scribe and Break Tool for Ultra Hard Wafer Substrates

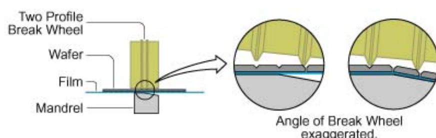
The Situation

A pioneer in process development of ultra hard wafer scribing needed to increase the size of wafers they could process from 4" to 8". Their unique process required that the wafer be "floated" such that the scribing action could be accomplished accurately and reliably with a very clean break. Our customer was also interested in updating the look of the tool while maintaining a very small footprint. Extensibility for future automated wafer loading was also a consideration.

*Scribe and Break Tool**







*Process Schematic**

The Challenge

Scribing is one of the oldest dicing methods, however today it is only used for very specific substrates. Diamond saws and lasers dominate the industry and factory standards have arisen around these processes. Creating automation that used the industry standard fixturing for scribing required an innovative approach to the wafer staging. The wafer staging also needed to support the wafer, align it perfectly to the scribe axes, yet balance nearly effortlessly during the scribing action.

The Solution

In close collaboration with our customer, Owens Design developed a concept that met the key parameters of performance, reliability, and industrial design. The machine was designed and built on a fast track schedule for early customer review and further process development.

**Images courtesy of Loomis Industries*

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