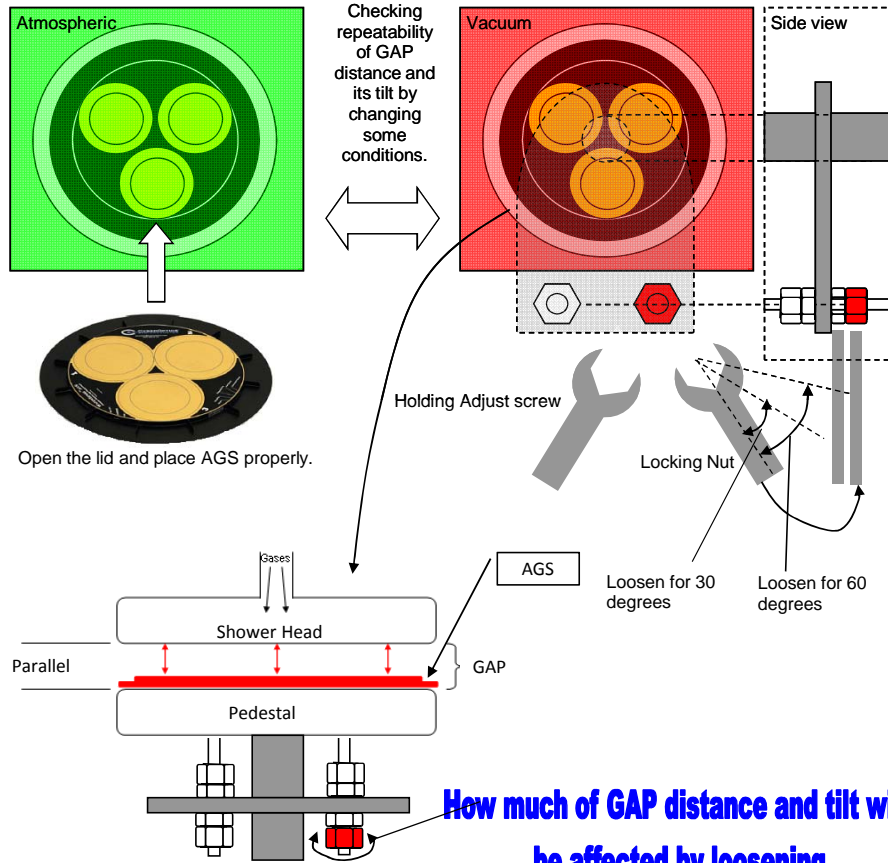


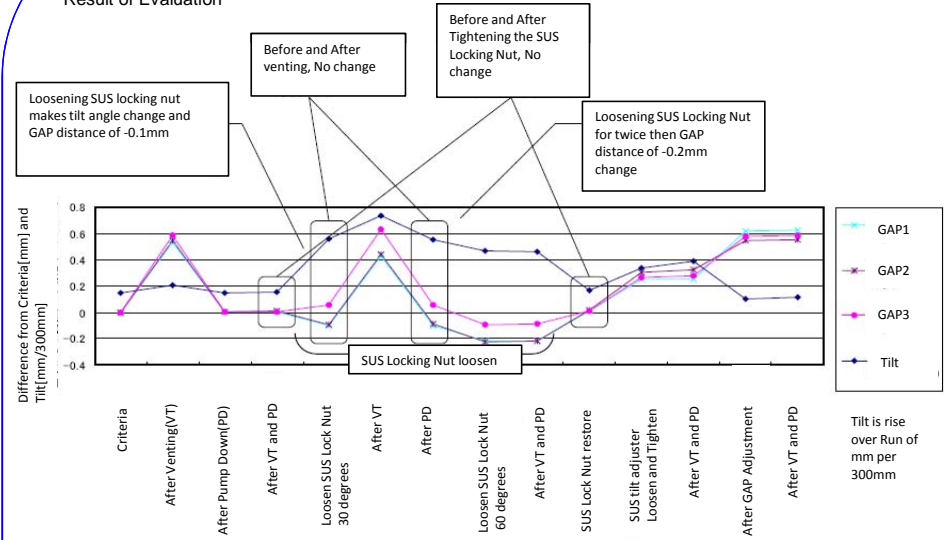
GAP Measurement With Repeat Test

Pedestal leveling of a single wafer PECVD chamber uses Double Nuts for locking screws during adjustments. The data below shows the change of distance between the showerhead to pedestal and its Tilt, per diameter of the wafer, by rotating the Susceptor Locking Nut with WaferSense AGS. This is a real report from a device manufacturer that is a user of AGS.



Caution: The diagram above is expressing the mechanical structure of the Locking nut, Measurement method and Test conditions and not exactly the same as the real structure.

Result of Evaluation



Summary

1. Maximum 10 microns difference in distance between Before and After of Lid Open/Close and Pump Down/Venting.
2. Loosening Susceptor Locking Nut makes change in Tilt angle and GAP Distance. But Loosen status still has less difference before and after Pump Down/Venting. And the status of GAP distance returned after tightening screw.
3. Tilt Adjuster of Susceptor influences GAP distance by its tightening Angle. Before and After Loosening, there is 0.2 mm difference in GAP distance.
4. Adjustment with WaferSense AGS, which is vacuum compatible, and non-contact capacitance measurement method was possible to adjust the GAP within 30 microns.
5. WaferSense AGS reduced GAP adjust and measurement time to 1 hour from 2 to 3 hours (50-67% reduction), and the dangerous work became safer with AGS measurement and application of GAP Check.



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