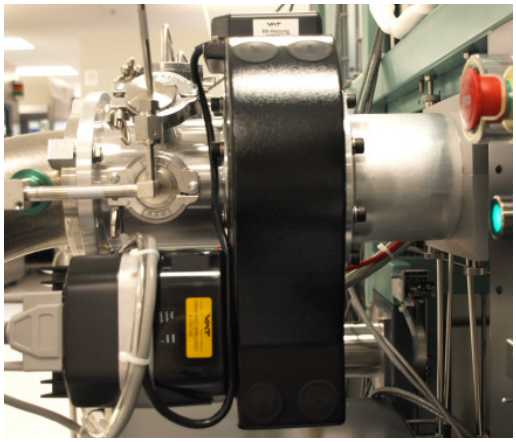
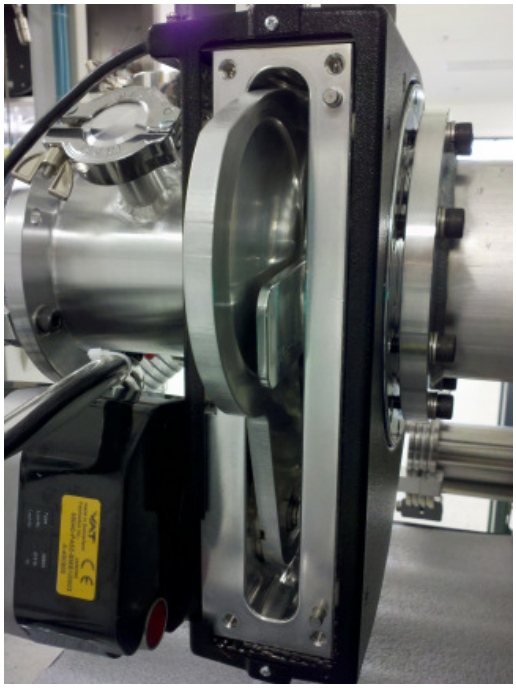
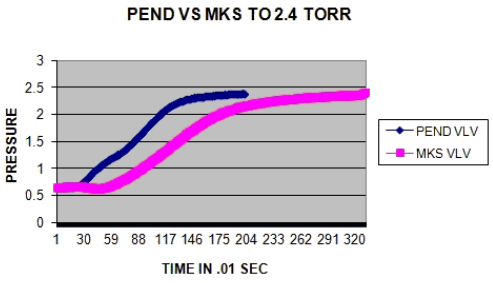
CONCEPT ONE PRODUCT UPGRADES

Heated Pendulum Valve







Concept Part Solutions is working to extend the lifetime of today's aging semiconductor manufacturing equipment. Component obsolescence and reliability are driving suppliers to provide innovative improvement upgrades to meet these demands. The C1 Heated Pendulum Valve is a system enhancement that will provide greater reliability and extendability for the Concept One System platform.

The C1 platform uses the combination of a TYLAN throttle valve and VAT gate valve for pressure control. The Throttle Valve controller in the current configuration is now obsolete driving the need for an option to extend system lifetime. The Heated Pendulum Valve is a dual purpose component that replaces the current two Valve configuration with one, easy to maintain unit. The Pendulum valve has a built in heater circuit to maintain the valve at 120 degrees C. The Pendulum Valve enhancement uses Kalrez o-rings to maximize the number of wafers that can be processed before the unit requires a PM resulting in improved MTBF. Process results show faster pressure control from wafer transfer to process steps. Process results are transparent; there is no change to process performance or particle data. The normal PM of the valve can be completed in less then 30 minutes since only the slider plate needs to be removed. The Heated Pendulum Valve is available for both the external and internal valving configurations.

Upgrade Benefits

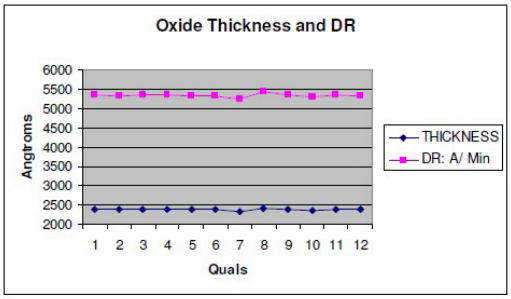
- Simplified design is more reliable then current configuration improving reliability - Up to 2X MTBF improvement over current throttle valve and gate valve combination
- Integrated heater reduces by product build up on systems that do not have Throttle and Gate Valve Heater
- Pendulum Valve Cost is 40% less then the 2 valves which reduces long term cost; eliminates need to stock multiple parts
- Decreased PM Frequency - Gate Valve & Throttle Valve are PM'ed every 120K wafers Vs 240K wafers for the Pendulum Valve
- Time to PM reduced from 2 hours to 30 minutes
- Fully tested, process transparent obsolescence replacement option for aging equipment components

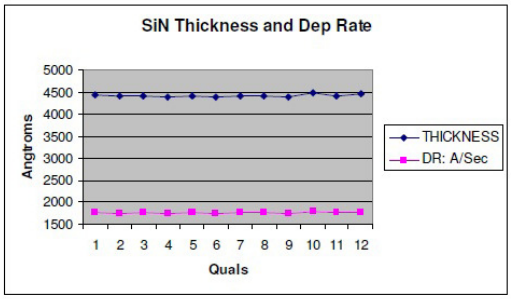
CONCEPT ONE PRODUCT UPGRADES

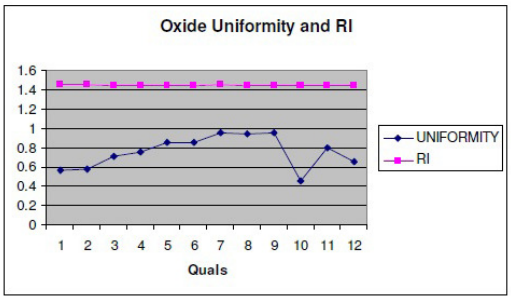
Heated Pendulum Valve

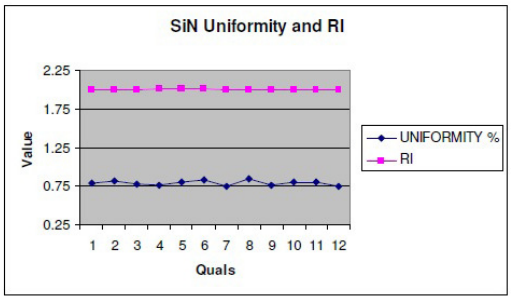
Process transparency data from Beta site showing wafer thickness, stress, uniformity, and RI

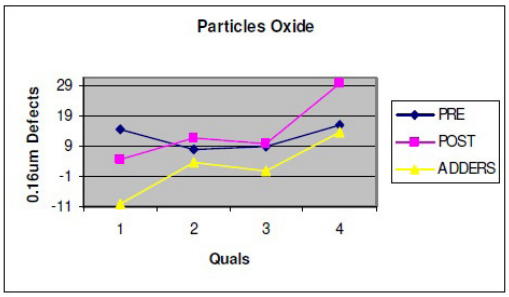
Oxide Recipe is Standard Novellus at 2.4 K thickness.
SiN Recipe is Standard Novellus at 4.5 K Thickness.
Defects measured using SP 1.

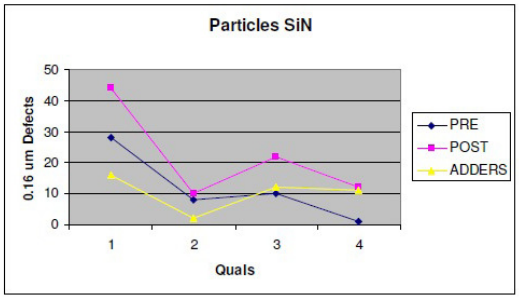


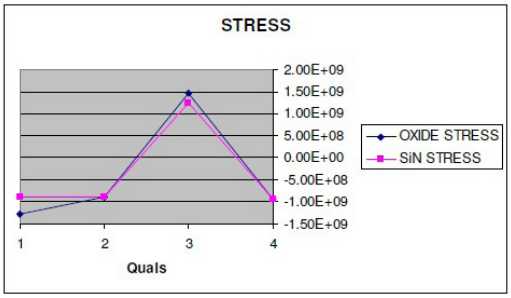












Beta Test Data provided by Novellus Field Process group using standard Novellus BKM Process Test Paramaters

Concept Parts Solutions (CPS) is fully authorized and approved by Lam Research Inc.; CPS is the only company licensed to provide original OEM parts, upgrades, and service for the Novellus Concept One and GaSonics Legacy Asher platforms.

For pricing, quotations and ordering guidance, or for additional information, please contact:

Concept Part Solutions
2047 Zanker Road San Jose, CA 95131
Phone: 408-855-8585, Fax: 408-855-8598
info@conceptpartsolutions.net