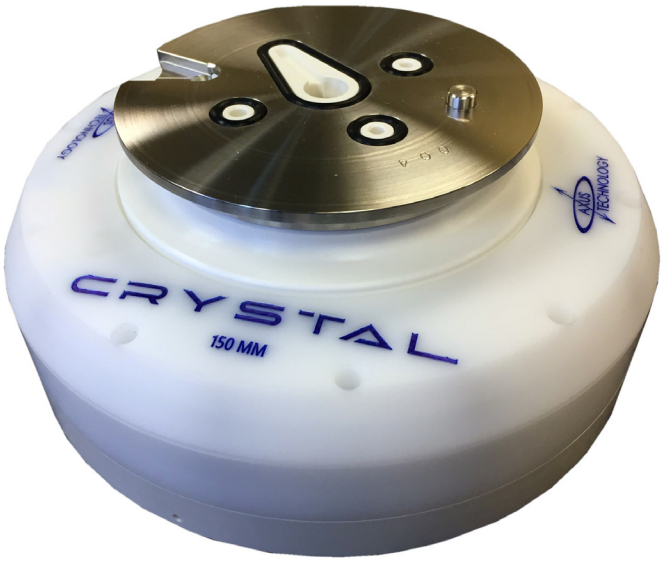
CRYSTAL

Membrane Carrier

AXUS TECHNOLOGY

Your source for leading-edge surface processing solutions



Membrane carriers are an industry proven, widely used technology offering low consumables cost and efficient maintainability. Axus designed carriers can be retrofitted onto existing CMP tools, significantly enhancing tool performance and reliability.

The Axus Crystal carrier is designed for ultra thin and fragile wafer handling with the 4 pressure zone benefits of the Avalon. With over 50% less wafer deflection during wafer handling than the legacy 4 zone carriers, the Crystal enables a greater range of wafer substrate thickness and materials while reducing the breakage risk. For heterogeneous integration, III/V materials and advanced TGV processing, the Crystal is the only carrier designed for success.

FEATURES

- The 4 pressure zone Crystal carrier has been designed for handling thin and fragile wafers (III-V materials) to reduce the wafer edge non-uniformity.
- The Crystal carrier offers significantly lower WIW uniformity than the legacy carriers using rigid plates.
- Membrane carriers have a large install-base in the CMP industry:
  - Used on over 1,000 CMP tools for 200mm and 300mm
  - Approximately 10,000 heads installed worldwide

AXUS TECHNOLOGY

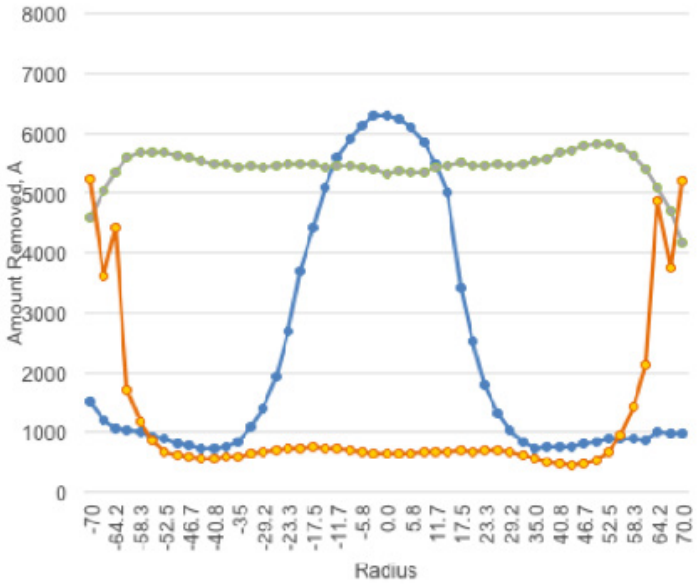
7474 WEST CHANDLER BLVD, CHANDLER, ARIZONA 85226

480.705.8000 | AXUSTECH.COM

CRYSTAL
Membrane Carrier

AXUS TECHNOLOGY
Your source for leading-edge surface processing solutions

Carrier Tunability - Zonal Control Test on Thermal Oxide



- Blue = Center Zone Pressure Only, 3.5psi
- Gray = Membrane Zone Pressure Only, 3.5psi
- Yellow = IT Zone Pressure Only only, 3.5psi
- Retaining Ring = Fixed for all tests at 7psi

AXUS Tech Crystal Membrane Carrier Pressure Zones	
	• Retaining Ring => RR • Main Membrane => MM • Center Zone => CZ • Inner Tube => IT
Retaining Ring (RR) and Membrane (MM) pressures can operate independently from each other.	
RR force influences the wafer from 70mm to the wafer edge.	
The Retaining Ring (RR) pressure keeps the wafers from slipping out of the pocket and controls the wafer edge exclusion by attenuating the effects of pad rebounding.	
MM provides pressure to the entire wafer, ranging from 0.5 to 10 psi.	
Inner tube (IT) applies pressure to the edge zone, 55mm to 70mm, ranging from 0 to 10 psi.	
Center Zone (CZ) applies pressure to the center zone, wafer center to ~35mm depending on wafer type, ranging from 0 to 10 psi.	
The combined pressures of the IT and CZ are in addition to the MM pressure.	

AXUS TECHNOLOGY
7474 WEST CHANDLER BLVD
CHANDLER, ARIZONA 85226
480.705.8000 | AXUSTECH.COM