SUPPLYING THE CORRECT TECHNOLOGY

OKAMOTO MACHINE TOOL WORKS, LTD SEMICONDUCTOR EQUIPMENT DIVISION
“OKAMOTO 300MM FINAL POLISHER VS. STANDARD CMP TOOLS”, BY TAKERU INOUE

300MM FINAL POLISHER PNX332C

11TH APRIL, 2019
OKAMOTO MACHINE TOOL WORKS, LTD.
ABOUT OKAMOTO MACHINE TOOL WORKS
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OUTLINE

1. Purpose of the 300mm Wafer CMP (PNX332C)

2. Machine Features of the 300mm Wafer CMP (PNX332C)

3. Target Accuracy of the 300mm Wafer CMP (PNX332C)

4. Features for Higher Accuracy

5. 300mm Wafer CMP (PNX332C) vs Device CMP (Pros/Cons)

Possibility to Use 300mm Wafer CMP for Device CMP
1. PURPOSE OF THE 300MM WAFER CMP (PNX332C)

1. Crystal Growth
   - Poly Silicon
   - Crucible
   - Seed Crystal
   - Heater

2. Single Crystal Ingot

3. Crystal Trimming and Diameter Grind

4. Flat/Notch Grinding

5. Wafer Slicing

6. Edge Rounding

7. Lapping

8. Wafer Etching

9. Polishing (DSP+CMP)
   - Slurry
   - Polishing Head

10. Wafer Inspection

Device Fabrication
2. MACHINE FEATURES OF THE 300MM WAFER CMP (PNX332C)
4. FEATURES FOR HIGHER ACCURACY

Polishing Head Spindle Rigidity

SPINDLE RIGIDITY : NO.2 L AXIS

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<tr>
<th></th>
<th>PNX332B</th>
<th>PNX332C</th>
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<tr>
<td>5kg</td>
<td></td>
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<tr>
<td>10kg</td>
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<td>20kg</td>
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5. 300MM WAFER CMP VS DEVICE CMP (PROS/CONS)

- **Wafer CMP (Cons)**
  - **No EPD**: Experienced for R&D purpose but not for mass production.
  - **No Zone Control Head**: Experienced for R&D purpose but not for mass production.
  - **Step Resolution**: Depending on process and pad condition

- **Wafer CMP (Pros)**
  - **Non-Uniformity**: Excellent
  - **Inexpensive**: 8 heads x 3 tables (w/o cleaning unit)
  - **Productivity**: 2 heads for 1 table = High productivity
    - Double the production
Thank you very much

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