# Vision 320 Process Specifications

## Etching of Silicon Dioxide in a Vision 320 system

The measurements are carried out at nine points across silicon wafers with a 5mm exclusion edge and placed 10mm from the edge of the platen.

- **System**: Vision 320
- **Etch Rate (Er)**: >38nm/min
- **Uniformity of Er across wafer (1)**: <±3%
- **Uniformity of Er across platen (2)**: <±3%
- **Uniformity of Er run to run (3)**: <±3%
- **Selectivity to Photoresist (4)**: >2:1
- **Selectivity to Si substrate**: >2:1
- **Profile**: dependent on the initial mask profile

## Methane/Hydrogen etching of InP in a Vision 320 system

The measurements are carried out at nine points across InP wafers with a 5mm exclusion edge and placed 10mm from the edge of the platen.

- **System**: Vision 320
- **Etch Rate (Er)**: >40nm/min
- **Uniformity of Er across wafer (1)**: <±3%
- **Uniformity of Er across platen (2)**: <±5%
- **Uniformity of Er run to run (3)**: <±5%
- **Selectivity to mask**: high depending on process conditions
- **Profile**: Anisotropic

## Etching of Aluminium in a Vision 320 system

The measurements are carried out at nine points across silicon wafers with a 5mm exclusion edge and placed 10mm from the edge of the platen.

- **System**: Vision 320
- **Etch Rate (Er)**: >150nm/min
- **Uniformity of Er across wafer (1)**: <±3%
- **Uniformity of Er across platen (2)**: <±5%
- **Uniformity of Er run to run (3)**: <±5%
- **Selectivity to Photoresist (4)**: >2:1
- **Selectivity to SiO$_2$**: >15:1
- **Profile**: dependent on the initial mask profile

## Notes:

1) Uniformity across wafer is defined as: $\pm \frac{(\text{max-min})}{2 \times \text{mean} \times 100\%}$

2) Uniformity across platen is defined as: $X_c = \frac{\text{mean all points across platen}}{U_c = \frac{(\text{max(all points)}-\text{min(all points)})}{2X_c} \times 100\%}$

3) Uniformity run to run is defined as: $X_r \text{ to } r = \frac{\text{sum of all } X_c}{\text{number of runs}}$

4) Selectivity to the mask is dependent on the material used to define the pattern. Some Photoresists are more resistant to plasmas than others and hard masks can be used for some etches.