**SPECIFICATIONS, MODEL 206**

**MASK ALIGNMENT TOOLING SYSTEM**

The MASK ALIGNMENT TOOLING SYSTEM incorporates interchangeable mask and

substrate chuck capability, and precise micrometer backlash-free motions for the X, Y, and

Theta axes. Theta adjustments are built into both the mask and substrate chuck assemblies.

This tooling system incorporates an optional user-settable electronic clutch for substrate-tomask

pressure control. It can accommodate both the fixed planarization and the wedge

compensating (planarizing) substrate chuck systems. The mask assembly pneumatically

operates to load/unload position.

MASK:

Mask Size (Model 206) ......................3” x 3”

Mask `Clamp' .....................................Vacuum (and Physical Clamp)

Mask Assembly Lift ...........................Pneumatic

Mask Rotation ...................................+/- 90o

SUBSTRATE CHUCK:

Chuck Motions ...................................X, Y, THETA and Z

Standard ......................................Differential Micrometers

X - Y Range .......................................+/- 6.5mm

Incremental Motion ....................0.5 micron

Theta Rotation/Precision ............+/- 5 o / 0.001o

Chuck Z Range ..................................+/- 1,500 micron

X - Y Lateral Error .....................< 0.1 micron lateral (over 100 micron along Z motion)

Chuck Leveling ..................................Wedge Error Compensation System

Substrate .............................................Substrate holder for small piece substrates or substitute provided

Mask/Substrate Separation.................User-Settable to 5 micron resolution

Mask/Substrate Pressure ....................User-Settable Electronically

EXPOSURE:

Exposure Mode ..................................Soft, Hard, Vacuum Contact and Manual Proximity

Near UV Exposure Resolution.…… sub- micron under Vacuum Contact *(1)*

…………………………… ……… . 1.0-2.0 micron under Soft Contact *(1)*

………………………………………3-6 micron at 15 micron Exposure Gap *(1)*

WAFER-MASK ALIGNMENT:

Pre-alignment Capability ...................Dependent on substrate's form and kind

NOTE:

1. *Using quality masks and flat, polished substrates, and proper processing techniques.*

**ALIGNMENT OPTICS:**

**Vertical Stereo Zoom Microscope**

Eyepieces ....................................30X

Objective ....................................1.5X

Magnification .............................31.5 to 202.5X

Motions ......................................X - Y via Microscope Mounting System

Illumination ................................FO Ring Illumination and Yellow Filter

**THE EXPOSURE SYSTEM:**

**UV Lightsource System**

UV LIGHTSOURCE SYSTEMS provide highly collimated, uniform NUV

beams up to 6.0" diameter with divergence half-angles of less than 2.3o. An intensity

monitoring system is built-in to the lightsource system for feedback to an intensity controlling power supply system.

Uniform Beam Size (Model 206). .....6.0" diameter uniform beam

Beam Divergence ...............................Less than 2.3o (half-angle)

Beam Spectrum ..................................320nm - 450nm

Beam Uniformity ..............................Better than +/- 4% within 6" Area at 365 nm. (i-line)

Beam Intensity (350W) ......................about 7-10 mW/cm2 (UV365nm spectrum)

*Note: Above readings were measured Near UV Exposure Analyzer and corresponding wavelength probe.*

**Constant Intensity Power Supply System**

INTENSITY CONTROLLING POWER SUPPLY SYSTEMS provide a wide

range intensities with better than +/- 2% precision and long term repeatability.

Sensors within the lightsource system provide real-time optical feedback to the

Intensity-controlling Power supply Systems.

Output Power (350W Lamp House).........................325W idle (Exposure: 300W - 375W)

Intensity Control ............................Dual Channel Optical feedback loop, +/- 2%

intensity precision with long term repeatability

NUV Control Sensors ........................A=UV365nm, B=UV400nm

System Alarms ...................................Audible Maximum Power Operation warning

**SYSTEM CONTROL MODULE (SCM):**

The SYSTEM CONTROL MODULE (SCM) provides the system's pneumatic,

electrical and mechanical controls. A digital timer, vacuum gauge, a N2 flow gauge,

test functions and other necessary controls are included. The Contact vacuum and N2

Purge are operator adjustable.

Control Functions……………...........Manual Operation, Power On/Off, Expose, Substrate Vacuum, Mask Vacuum, Load/Unload, Contact. (Vacuum Contact and N2 are user-settable)

Timer ..................................................1 to 999.9 sec, in 0.1 sec increments

Gauges................................................Contact Vacuum

**DIMENSIONS and FACILITIES:**

Width..................................................31"

Depth ..................................................25"

Height .................................................37" (Including Lightsource)

Weight ................................................Typically 150 lbs

Electrical Requirement in USA .........100-130V/60Hz, Single Phase, 20A Max.

CDA or N2..........................................60 PSI

Process N2 ..............................................................20 PSI

Vacuum ..............................................25" Hg