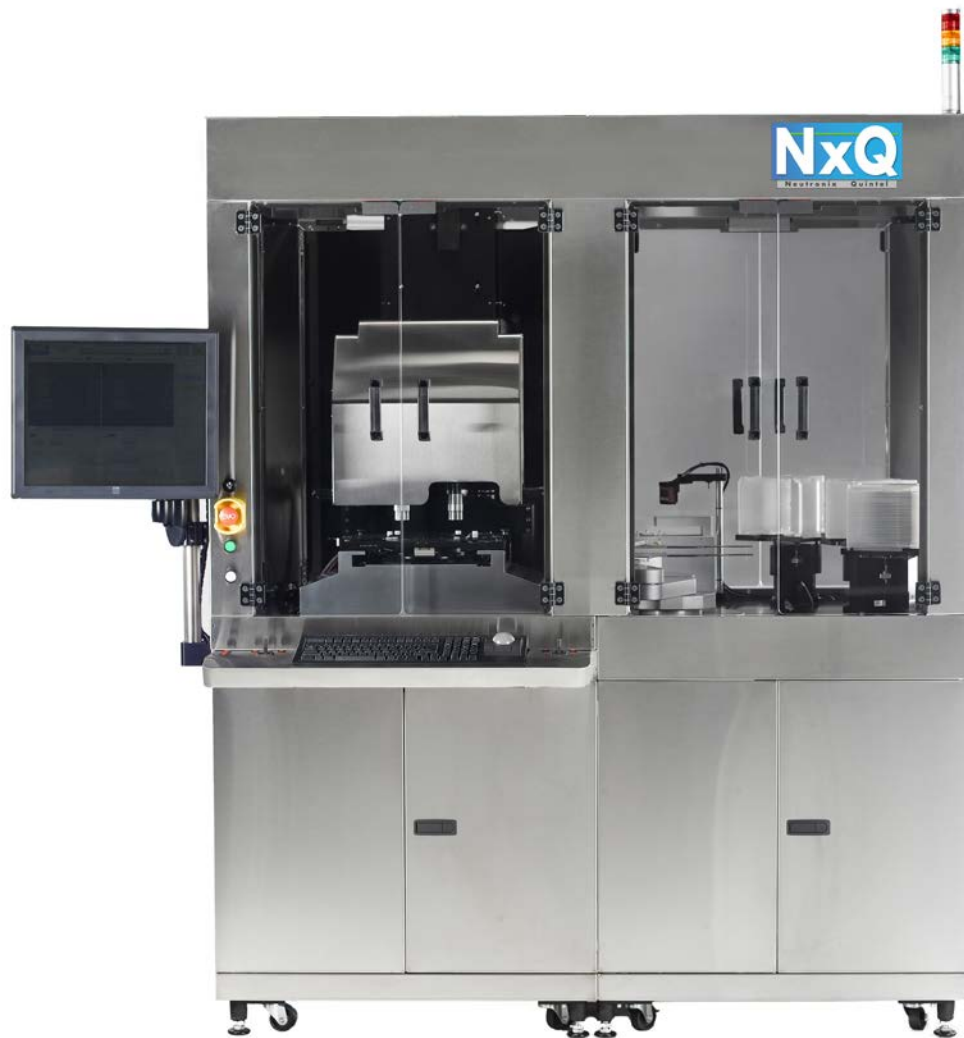


# NXQ8000 Series Mask Aligner



**BioTech**  
**MicroFluidics**  
**Microelectronics**  
**LED / HB LED**  
**3DIC**  
**SIP**  
**WLP**  
**2.5D Interposer**  
**MEMS**  
**Compound Semi**  
**Solar (HCPV)**  
**Optoelectronics**

- The NXQ8000 Production Mask Aligner *and* Front to Back Overlay Inspection System integrates the latest in Robotic Automation with state of the art next generation alignment stage design. The NXQ8000 Alignment Stage utilizes the latest in linear motion technology. With encoder feedback loops measuring actual stage position (not motor position), the vision system is not limited by the hardware, allowing for alignment accuracies of less than 0.5um 3 sigma. This accuracy is achieved using our Quadcam Microscope with 5x objectives, delivering an ideal combination of Magnification, Field of View and Depth of Focus!



**NXQ8000 High Volume Production Mask Aligner and Overlay Inspection System**

# NXQ8000 SERIES MASK ALIGNER

The **Dual Arm Robot** from Milara Corp. delivers lightning fast wafer transfer at twice the accuracy of competitors and incorporates a Pre aligner from Logosol which can detect transparent substrates making it ideal for not only silicon, but a wide range of compound semiconductor materials. It is a WTS combination that is by far the best in the industry!

The NXQ8000 Series Mask Aligner combines 'open architecture' modular design with precision alignment and exposure features. Scalable from R&D to HVM by adding Robot Upgrade; same process recipes from R&D to HVM and handles partial and whole substrates up to 200mm (8") diameter.

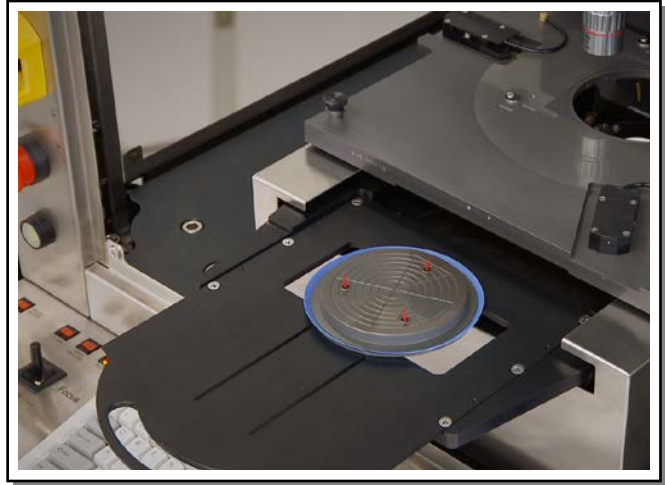
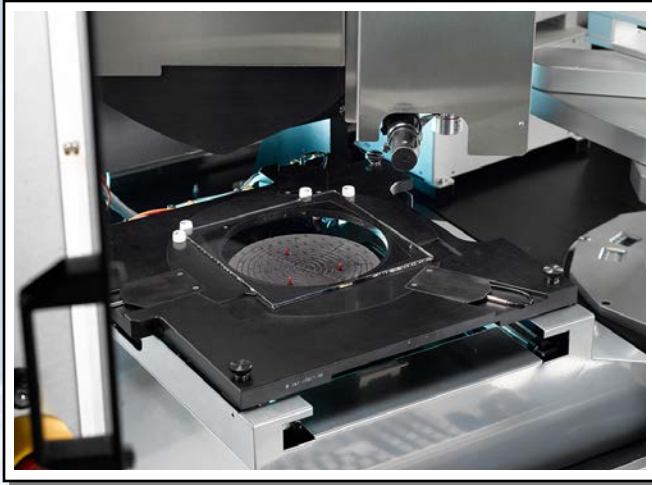
The versatility of the NXQ8000 has made it the choice of manufacturing facilities, R&D Centers and University programs around the world, for a wide range of technologies.

## Standard Features

- Wafer sizes from Pieces up to 8" diameter Manual Load, 2" up to 8" Robot Load
- Q-Vision Automatic Alignment Vision Recognition Software
- **Smart Align Technology** – Recipe configurable to Align for Speed or Accuracy. Final alignment verification confirmed at print gap.
- Windows based menu driven Graphical User Interface (**GUI**)
- Fully Motorized X-Y- $\theta$  Alignment. Controlled with Joystick or Keypad
- Motorized top and bottom microscopes with recipe stored positions
- **LED thru objective illumination** with recipe stored intensity settings
- Easy manual tray-load for loading wafers or pieces
- Multiple contact and proximity exposure modes
- Precise control of contact force during WEC – **Ideal for fragile substrates**
- Chamber Purge – Recipe driven control for purge gas in mask / wafer chamber.
- Pulsed Exposure Timer Sequencing Software
- Simple topside mask loading
- 350/500 Watt UltraSense constant power or constant intensity UV power supply with dual channel feedback loop
- Diffraction Reducing Optics utilizing Dual Integration and collimation for excellent printing resolution and CD in Proximity Mode
- Filter Cartridge for up to 3 filters
- Active Vibration Isolation table
- Standard on Auto Load Systems
  - State of the art dual arm robot from Milara Corporation –
  - Logosol Pre-Aligner – detects opaque, semitransparent and transparent wafers
  - Up to Four software configurable cassette I/O stations
  - Quadcam Microscope – Two high resolution CCD cameras per objective, switch between Wide View and High Magnification without refocusing!
- Z Axis air bearing guide set and air bearing frictionless ball seat for WEC
  - Maintenance Free!

## Optional Features

- Automatic Filter Insertion – Recipe Set
- Synthetic Pattern Input
- Integrated bar code reader
- SECS / GEM Software
- Optical Backside Alignment and Backside Infrared (IR)
- Ring Illumination for oblique and dark field illumination
- NUV (280-350nm) / MUV (280-450) / DUV (220-280nm) exposure optics
- UV Power (500W/1KW) or (1KW/2KW)
- Heated Wafer Chuck and Mask Holder
- Automated mask changing



## Technical Data

### Exposure Modes

- Soft, Pressure, Vacuum Contact and Proximity Printing Modes

### Print Resolution

- Proximity 3um at 20um gap
- Soft Contact 2um
- Hard Contact 1um
- Vacuum Contact 0.6um
  - Note: Achievable resolution depends on many process conditions including wafer flatness, resist type and therefore might vary according to actual process.

### Cycle Time and Alignment Accuracy (3 sigma)

- First Mask Mode 120+ wph
- TSA Auto Align Mode (Contact) +/-0.5um 90+ wph
- TSA Auto Align Mode (Proximity) +/-0.5um 90+wph
- BSA Auto Align Mode (Contact) +/-0.75um 90+wph
- BSA Auto Align Mode (Proximity) +/-0.75um 90+wph

### Substrate Size

- Up to 8", Up to 10mm thick

### Mask Size

- 3" X 3" up to 9" X 9" - Mask Adaptors are available for smaller Masks

### Alignment Stage

- Alignment Travel X-Y and Theta Motorized with automatic re-centering
- X-Y Movement +/- 4mm, 100nm resolution
- Theta Rotation Range +/- 7.5 degrees, 4x10e-5 resolution
- Mask/ Wafer separation 0 – 1000um with 1um resolution

### Microscope Travel Range

- Left Travel in X with Standard Objectives - 22mm to Wafer Edge
  - With Offset Objectives - 5.5mm to wafer Edge
- Right Travel in X with Standard Objectives +22mm to Wafer Edge
  - With Offset Objectives + 5.5mm to Wafer Edge
- R/L Microscope Tavel in Y +/- 12.7mm
- Extended Y Travel Microscope +12.7mm to -88mm
  - (Allows for Splitfield Flat Alignment of up to 150mm wafer)

### Top Side Microscopes

- Quadcam Microscope
- 5x infinity Corrected Objectives Standard, 2x, 7.5x, 10x and 20x optional

Specifications depend on individual process conditions and can vary. Not all specification may be valid simultaneously.

# NXQ8000 SERIES MASK ALIGNER

## Electronics

- Programming & Control PC based.
- Device Net Control System for pneumatics and sensors
- Ethernet Motor Control

## UV Lamphouse/ UV Exposure Optics

- UV Lamphouse (350W/500W) or (500W/1KW) or (1KW/2KW)
- Standard Exposure Optics Broadband (350-450 nm)
- Optional NUV 280-350nm
- Optional MID UV 280-450nm
- Optional DUV 220-280nm
- UV Uniformity +/- 3% - 150mm, +/-4% - 200mm

## System Requirements

- Voltage 110VAC/60Hz or 240VAC/50Hz
- Compressed Air 6.2 - 7.6 bar (90-110 PSI)
- Vacuum -0.7 bar (21" Hg)
- Nitrogen (or CDA) 4.2 bar (60 PSI)

## System/ Module Data

- W x D x H (Auto Load) ~ 64.5" x 47.75" x 78"
- W x D x H (Manual Load) ~ 32" x 47.75" x 69.7"
- Weight Auto Load ~ 2100 lbs, Manual Load ~ 1500lbs

