

REFURBISHED STEPPER

# Polyimide, Bump, Rowbar Applications

The 4700/Titan Wafer Stepper Family addresses the market for photosensitive polyimide applications, bump processing for flip chip devices, thin film head row bar, as well as the markets for scanner replacement and high volume/low cost semiconductor fabrication.

With its expanded 55 x 18 mm image area ( or 22 x 44 mm ), the Model 4700 can expose the entire two-inch field width of TFH devices.

Using advanced alignment technology, isolation structure, substrate handling and illumination systems, the Model 4700/Titan delivers high reliability, precise alignment control and greater productivity. Other features include a high speed linear motor stage with a thickness compensator that automatically adjusts for different product lots. In addition, the enhanced global alignment system increases throughput without loss of alignment accuracy.

This system can be configured for 55x18 mm field (4700), or 22x44mm (Titan).

A Rasco Environmental Chamber is included with this system.

Installation, parts warranty, and operator / technician training is available upon request.

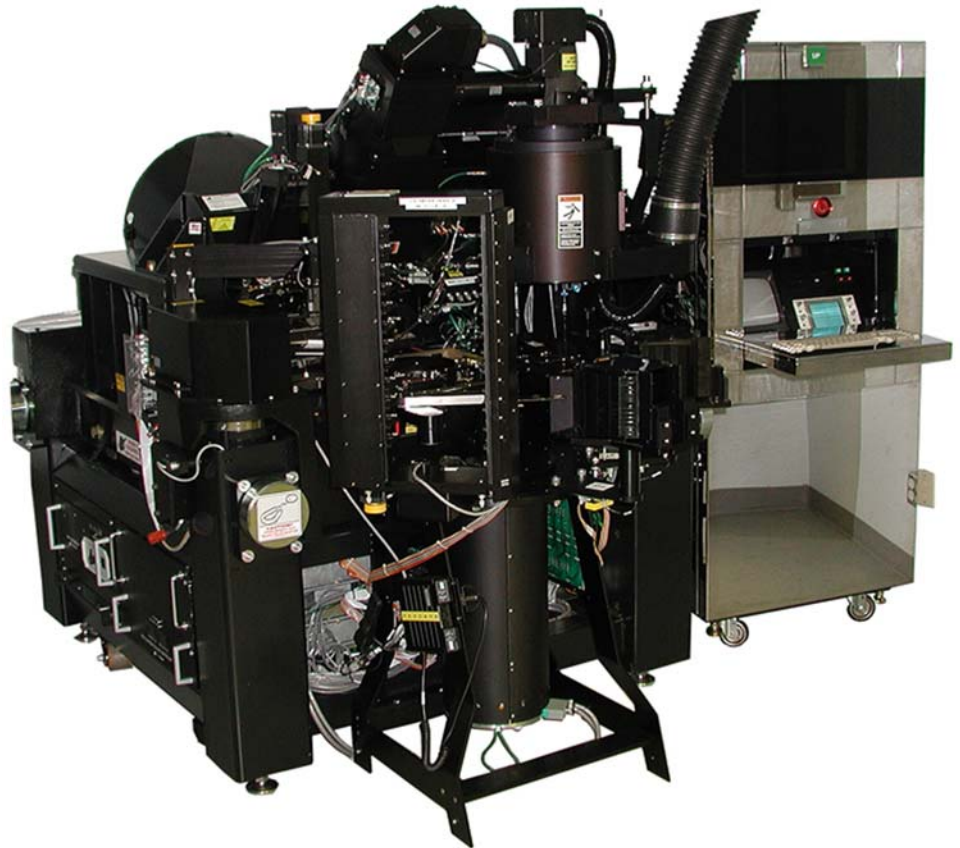
## HIGHLIGHTS:

Wafer Size: 4", 5", 6", 8"  
Loader Type: Genmark Robotic  
Computer: VME with floppy/hard disk  
Uniformity: 2.0 %  
Depth of Focus: 3.0 um @ 1.0um lines  
Maximum Square: 26.7 x 26.7 mm  
Maximum Aspect: 44mm x 22mm  
Reticle Size: 6" x 6" x 0.250"  
Alignment: Machine Vision/Dark field

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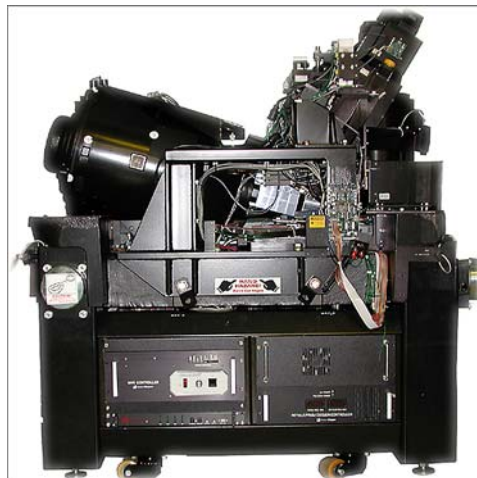
# Ultratech 4700/Titan

Serial number 1160  
Manufactured March, 1996  
Minimum resolution: 1.0 micron



*Left side of stepper*

*Right side of stepper*



# Model 4700 / Titan Specifications

## Automatic Functions

Alignment options  
Site by Site Alignment:  
Enhanced Global Alignment  
Auto Focus:  
Focus Gauge:  
Auto wafer level:  
Autoloader:  
Reticle loader

Machine Vision or Dark field alignment  
0.12um, 3 sigma  
0.12um, 3 sigma  
Continuous site by site, or global  
Automatic compensation for environmental fluctuations, image tilt  
Site by Site, electronic  
Robotic pick-and-place, no edge contact  
Robotic pick-and-place, interfaces directly

## Throughput Specifications

Reticle Load and Align:  
Titan 1.2 and Titan 1.0  
4700

\* Actual throughput depends on customer application  
Less than 5 minutes  
103 wph ( 6" ), 88 wph ( 8" )  
98 wph ( 6" ), 92 wph ( 8" )

## System specifications

Wafer Sizes:  
XY Stage:  
Computer:  
Printer:

3", 4", 5", 6", 8"  
Monolithic structure, linear motor drive, Active air isolation vibration control  
VME Bus controller; 68030 based CPU; color graphics monitor with 3.5" floppy and hard disk  
80 column printer, with clean room paper

## Lens Specifications

Projection Ratio:  
Exposure Spectrum:  
Alignment Spectrum:  
Resolution  
Depth of Focus:  
Field Size: Titan 1.2um  
Field Size: Titan 1.0um  
Field Size: 4700

1:1  
Broadband exposure, G and H lines  
500nm-650nm  
1.0um, 1.2um  
3.0 um @ 1.0 um lines and spaces, 4.0ums @ 1.2um lines and spaces  
Max Rectangle 50 x 25mm, Max Square 30.1 x 30.1mm  
Max Rectangle 44 x 22mm, Max Square 26.7 x 26.7mm  
Max Rectangle 55 x 18mm, Max Square 26.7 x 26.7

## Illumination Specifications

Automatic Exposure Control:  
Irradiance @ wafer plane  
Exposure Uniformity

Integrated dose monitored for exposure repeatability  
Greater than 1250 mW/cm<sup>2</sup>  
+/- 2.0% ( 1.0 um lens ) , +/- 2.5% ( 1.2 um lens)

## Reticle Specifications

Size:  
Pellicle Protection:  
KLA/NJS Inspectable:  
Substrate:  
Alignment Mark:  
Size:  
Design Flexibility:  
Generation Technique:  
Fields per reticle:

6" x 6" x 0.25" ( Titan , 4700 ) , 5" x 5" x .090" ( Titan only )  
Chrome Side  
Yes  
Quartz or low expansion  
Scribe Area  
200um square standard, optional cross mask size allows reduction of mark to 70um minimum  
Vertical or Horizontal alignment marks optional, Machine Vision  
E-Beam or optical step and repeat  
2 fields standard, up to 7 fields total ( requires optional hardware )

## Space Requirement

Footprint:  
Dimensions:  
Service Clearance:  
Weight:  
Environmental Chamber

28 feet square ( 2.5m<sup>2</sup> )  
56.2" width x 50.4" depth x 73" height ( 143cm x 127.5cm x 185cm )  
Allow 24" on all sides, and in back  
Less than 5000 lbs ( 1.814 kilos ) supported at four corners of base  
68" W x 100" D x 88.5" H ( 172cm x 254cm x 225cm )

## Stepper Environmental Req.

Ambient Temperature Control:  
Humidity  
Air quality:

70 degrees , +/- 2 degrees Fahrenheit  
20% to 50% noncondensing  
Class 100 per Federal Standard 209B

## Electrical Requirements

Electrical:  
Circuit breakers:

220 volts, 50/60 Hz, 15 Amps, Inrush current, 350 Amps for 5 milliseconds  
Separate 20 Amp circuit should be installed for each Model 2244i  
Each breaker should have separate ground wire returned to circuit breaker panel  
The circuit breaker panel should have it's ground bonded at the main transformer ground for building

## Pneumatic Requirements

Nitrogen or Compressed Air:  
Vacuum:  
Exhaust:

Minimum 100 psi, 2 CFM max, Dry to -40 degrees F dew point, filtered to 0.2 microns  
Two lines, each supplying 20 inches Hg at 1 SCFM average under full load, 2 SCFM max  
15-20 CFM at 0.3 inch water ( direct to house exhaust )