TECHNICAL SPEC FOR Stepper 13

System Model:
Canon FPA 2000 i1 : SN 411367

Tool has been shut down by Litho tech.
Electricity, cooling water, Vacuum and CCA are closed.
Cables between Main unit and power box are still connected, locking kit and demounting for transport to be provided by buyer.

Wafer size: 6 inch

Wafer type: Jeida flat

Chuck type: pin chuck

Reticle changer type: I1 box 14 reticles, standard

Inline right or left: Left

Particle checker (PPC): NO

Touch panel type: Canon standard

Options: None

Reticle size: 5 inch

Reticle alignment: Reticle rotation repeatability <=0.03 um

Wafer alignment: <=0.15 um

Auto focus: <= 0.15 um

Auto feeder: Yes

Wafer tilt:

Wafer feeder: Yes

Track interface: Yes (stepper was used inline with track, track interface is track part)

Laser: HeNe

Lens data:

Stage and U-lens (current)
- **Intensity: 150 mW/cm2**
- **Distortion: <= 0.07 um**
- **Uniformity: 1.5 %**

Used for 0.35micron line and space? No

Chuck maintenance tool: No

Reticle bar code reader: Yes

Cassette bar code reader: No

SW Version:

OS:

Vintage:2010

Missing/defective parts: none

Original acceptance data :

VENTEX CORPORATION

CANON FPA-2500i1 STEPPER INSTALLATION CHECK RESULTS

Customer : On Semiconductor	Machine S/N : 411367	Date : October 2010

Classification	Item		Results	Standard	Judge
Exposure Performance	Open Frame Check		Particle Free	To be particle-free	
	Distortion (Including Magnification)		DX = 0.043 DY = 0.036	0 ± 0.08 µm	
Illuminator Performance	Image Surface Illumination Intensity (Mode 1)		860	≥ 600 mW / cm²	
	Image Surface Illumination Uniformity (Mode 1)		1.2	≤ 1.2 %	
	Light Integrator Control Accuracy		0.289	Overall ≤ 1.2 %	
	Masking Blade Accuracy (Excluding gray zone)		Max. = 20	0 ± 100 µm	
Alignment Performance	ROC Measurement Stability		Max. = 0.007	3 σ ≤ 0.015 µm	
	Reticle Rotation Accuracy		0.014	0 ± 0.02 µm	
	Reticle Rotation Repeatability		0.008	Range ≤ 0.03 µm	
	Defocus Characteristics	He-Ne TV (Mode 1)	Max. = 4	0 ± 20mrad	
		B-B TV (Mode 4)	Max. = -6	0 ± 20mrad	
	TOC Measurement Stability	He-Ne TV (Mode 1)	Max. = 0.02	3 σ ≤ 0.04 µm	
		He-Ne TV (Mode 2)	Max. = 0.03	3 σ ≤ 0.04 µm	
		B-B TV (Mode 4)	Max. = 0.03	3 σ ≤ 0.04 µm	
	Baseline	He-Ne TV (Mode 1)	Max (Avg.) = -0.01 Max (3σ) = 0.00	Avg. ≤ 0.05 µm 3σ ≤ 0.05 µm	
		B-B TV (Mode 4)	Max (Avg.) = -0.01 Max (3σ) = 0.02	Avg. ≤ 0.05 µm 3σ ≤ 0.05 µm	
	AGA Accuracy (Resist to Resist)	He-Ne TV (Mode 1)	X = 0.04 Y = 0.08	|mean| + 3σ ≤ 0.12 µm	
		B-B TV (Mode 4)	X = 0.03 Y = 0.11	|mean| + 3σ ≤ 0.12 µm	
Auto Focus And Tilt Performance	Measurement Stability (Open drive)	Focus	0.029	3 σ ≤ 0.12 µm	
		Tilt	X = 1.580 Y = 1.560	3 σ ≤ 10 ppm	
	Drive Repeatability (Open drive)	Focus	0.07	3 σ ≤ 0.15 µm	
		Tilt	X = 2.63 Y = 2.16	3 σ ≤ 15 ppm	
X-Y Stage Performance	Stepping Accuracy (Tilt Off)		X = 0.054 Y = 0.052	3 σ ≤ 0.07 µm	
	Stepping Repeatability (Tilt On)		X = 0.037 Y = 0.031	3 σ ≤ 0.07 µm	
	Orthogonality		0.39	0 ± 1.0 ppm	
	Scaling		X = 0.17 Y = -0.23	0 ± 1.0 ppm	

Classification	Item		Results	Standard	Judge
Pre-alignment Performance	Mechanical Pre-alignment Accuracy	Average	X = -39.4 Y = -5.1	0 ±40 μm	
		3σ	X = 12.25 Y = 5.69 θ = 100	X,Y ≤ 40 μm θ ≤ 400 ppm	
	TV Pre-alignment Accuracy		X = 1.34 Y = 1.05	|mean| + 3σ ≤ 2.0 μm	
Throughput	He-Ne TV AGA (Mode 1) (Exposure 0.15 sec.) (D/DTilt Off)	4" (21s)	63	≥80 wfs. /hr	
		5" (32s)		≥67 wfs. /hr	
		6" (45s)		≥57 wfs. /hr	
Reliability	Wafer Feeding System		Trouble free	To be trouble-free	
	Reticle Loading System		Trouble free	To be trouble-free	

Comments:

a. **Throughput is a little low. Numbers are showing a little low at the step time and at the pre align time. No issue is seen with these units on any other testing. The low throughput number may indicate that the ball screws on the x and y stage may be showing signs of wear. Also, the PA USM motor may also be showing signs of wear. Neither is in dire need of replacement but may become necessary in the future. PA loads consistently, NSTEP data is good, and stage signals didn't look too bad.**