R TP rapid annealing machine

1. Demand Overview

1.1 Equipment Name: RTP Rapid Annealing Furnace

1.2 Equipment use: Used for high temperature rapid annealing of 8 -inch wafer

1.3 Purchase quantity: 1 unit.

2. Equipment configuration

2.1 Equipment composition and function

This equipment consists of: one set of mainframe, two sets of loadlock , one set of transfer chamber , one set of process chamber , cooling One set of Chamber, one set of SYSTEM CONTROLLER

Serial number	System Configuration	quantity	brand	Remark
1	**Device platform (Mainframe)*1**			
1.1	Equipment body	1 set	AMAT	Refurbishment
1.2	Gas Panel	1 set	AMAT	Refurbishment
1.3	Gas Flow Meter (MFC)	2 sets	Horiba	brand new
1.4	Pneumatic Valve	4 sets	Parker	brand new
1.5	Manual Valve	2 sets	Parker	brand new
1.6	Gas Filter	2 sets	PALL	brand new
2	**Loadlock*2**			
2.1	Load cell body	2 sets	AMAT	Refurbishment
2.2	0-1000 Torr Capacitance Vacuum Gauge (Baratron Gauge)	2 sets	MKS Baratron	Refurbishment
2.3	Cass Indexer	2 sets	AMAT	Refurbishment
2.4	5-phase stepper motor	2 sets	VEXTA	brand new

2.5	Motor power-off brake (Braker)	2 sets	AMAT	Refurbishment
2.6	Rotation Cylinder	2 sets	Parker	brand new
2.7	Flower basket base (Cass Stage)	2 sets	AMAT	Refurbishment
2.8	Pneumatic Valve	4 sets	Parker	brand new
2.9	Manual metering valve (Needle Valve)	2 sets	Sweaglok	brand new
2.10	Pneumatic vacuum valve (fast valve + slow valve combination)	2 sets	MKS	Refurbishment
2.11	Cass displacement sensor (transmitter + receiver)	2 sets	Matsushita	brand new
2.13	Cass position sensor (transmitter + receiver)	2 sets	Matsushita	brand new
3	**Transfer Chamber * 1**			
3.1	Cavity	1 set	AMAT	Refurbishment
3.2	HP Robot	1 set	VEXTA	brand new
3.3	Wafer Sensor	4 sets	Eaton	brand new
3.4	Pneumatic Valve	3 sets	Parker	brand new
3.5	0-1000 Torr Capacitance Vacuum Gauge (Baratron Gauge)	1 set	MKS Baratron	Refurbishment
3.6	Pneumatic Vacuum Valve (ISO Rough Valve)	1 set	MKS	Refurbishment
3.7	Electric Control Butterfly Valve (Throttle Valve)	1 set	MKS	Refurbishment
3.8	Pneumatic Valve	2 sets	Parker	brand new
3.9	Release Valve	1 set	Sweaglok	brand new
3.1	Slit Valve	3 sets	SMC	brand

				new
4	**Process Chamber*1**			
4.1	Chamber Body	1 set	AMAT	Refurbishment
4.2	Stainless steel water-cooled lamp holder cavity (Lamp Hosing)	1 set	AMAT	Refurbishment
4.3	Halogen bulb (Lamp)	≥180 pieces	Halogen	brand new
4.6	Fiber Optic Probe Base	1 set	AMAT	brand new
4.7	Fiber Optic Probe	≥5 sets	AMAT	brand new
4.8	Temperature measurement optical fiber (Fiber)	≥5 sets	AMAT	brand new
4.9	Temperature Controller	2 sets	AEOR2000	Refurbishment
4.1	Wafer Lifter	3 sets	AMAT	brand new
4.11	Lifter Bellows	3 sets	AMAT	brand new
4.12	Cylinder	1 set	SMC	brand new
4.13	Wafer Rotation	1 set	AMAT	brand new
4.14	2P Stepper Motor	1 set	VEXTA	brand new
4.17	0-1000 Torr Capacitance Vacuum Gauge (Baratron Gauge)	1 set	MKS Baratron	brand new
4.18	Electric Control Butterfly Valve (Throttle Valve)	1 set	MKS	Refurbishment
4.19	Pneumatic Vacuum Valve (ISO Rough Valve)	1 set	MKS	Refurbishment
4.2	Release Valve	1 set	Sweaglok	brand new
4.21	Pneumatic Valve	2 sets	Parker	brand new
5	**Cooling chamber * 1**			
5.1	Cavity	1 set	AMAT	Refurb

				ishmen t
5.2	Cavity cover window	1 set	AMAT	Refurb ishmen t
5.3	Cooling plate base	1 set	AMAT	Refurb ishmen t
5.4	Wafer lifting device	1 set	AMAT	Refurb ishmen t
6	**Electrical control cabinet (SYSTEM CONTROLLER)**			
6.1	Main control board (SBC PCB)	1 set	AMAT	Refurb ishmen t
6.2	Display control board (VGA PCB)	1 set	AMAT	Refurb ishmen t
6.3	System connection control board (SEI PCB)	1 set	AMAT	Refurb ishmen t
6.4	Analog control board (AIO PCB)	3 sets	AMAT	Refurb ishmen t
6.5	Switch quantity control board (DIO PCB)	9 sets	AMAT	Refurb ishmen t
6.6	2-phase stepper control board (STEP CONT PCB)	1 set	AMAT	Refurb ishmen t
6.7	5-phase stepper control board (OMS PCB)	1 set	AMAT	Refurb ishmen t
6.8	Serial ISO PCB	1 set	AMAT	Refurb ishmen t
6.9	System Interlock PCB	1 set	AMAT	Refurb ishmen t
6.1	Process chamber interlock control board (CH Interlock PCB)	1 set	AMAT	Refurb ishmen t

6.11	MF Interlock PCB	1 set	AMAT	Refurbishment
6.12	Loading chamber interlock control board (LL Interlock PCB)	1 set	AMAT	Refurbishment
6.13	Multi-channel DC Power Supply	1 set	AMAT	brand new
6.14	5P Motor Driver	4 sets	VEXTA	brand new
6.15	2P Motor Driver	1 set	VEXTA	brand new
6.16	Lamp Driver	1 set	CCI	brand new
7	**Process Kits**			
7.1	Reflector	1 set	AMAT	brand new
7.2	Support Cylinder	1 set	AMAT	brand new
7.3	Edge Ring	1 set	AMAT	brand new
7.4	Quartz Window	1 set	AMAT	brand new

2.2 Configuration Information

No.	ITEM		SPECIFICATIONS
1	wafer type		200mm-Notch.
2	Wafer Pre-aligner /OTF		YES
3	Load Size		25 product wafer
4	wafer mapping		YES
5	S MIF (configuration interface)		O pen cassette
6	Cassette stage		25 position
7	SmartTag read		Yes
8	Process Gas Line		3 lines with MFC controlled
9	Gas Flow Rate	Accuracy Stability	(70% of max flow) ≦±1% (process flow rate) ≦±1% (process flow rate)
10	Lamp Lifetime		Each lamp should have a

			lifetime of ≧ 5,000 wafers processed
11	Lamp Power Control		Lamp zone independent Alterable step by step
12	Temperature Control	Type Measure Range (pyrometer) Accuracy (pyrometer) Ramp-up Rate Wafer Type : Notch Ramp-down Rate Temperature Overshoot Repeatability	SEKIDENKO OR2000 450 - 1200℃ 0.1℃ 1 - 100℃/sec, uniformity ≦±2℃, 1 б ≧20 - 35℃/sec ≦2℃, 1 б , (at 1100℃/60sec), during closed loop control ≦±0.5℃, 1 б , (at 1150℃) (3 wafers)
13	Components	MFC Tubing O-ring Fitting Filter Air operation valve Manual valve	STD : Horiba 1/4” 316L Viton VCR STD: PALL Nupro Nupro
14	AGV Compatible/Upgradeable		Yes
15	**SECS II/GEM Communication** t		Yes
16	Rear Controller		Yes
17	Software		Latest Available Version
18	Safety Procedure	Exhaust fail Purge fail	Interlock Interlock
19	Wafer Breakage		≦1/2000 wafers
20	Uptime		≧85%
21	Reliability Up Time	MTBF (hrs) MTTR (hrs) MTBA (hrs)	≧200 hrs ≦8 hrs ≧40 hrs
22	Power requirement		208V 3 ϕ 50HZ
23	Hard disk		2 Dual HDD

CHECK ITEM	Measurement Method	Specification
RTO thickness	Wafer: P- test wafer (0.5-100ohm-cm），Process_condition:1100℃ 60sec，3slm O2,40℃/sec Wafer counts: Lot mode 25 continuous run (5 lot per chamber) Slot 1 5,10,15,20,25KLA-Tencor UV1080,49 pts/wafer,3mm EE，	Thickness：100±2Å； WIW Range:2A; WTW Uniformity:≦1.5%; RTR Uniformity:≦1.5%
RTA RS	1，recipe condition：1000°C 10sec ,3slm N2,20℃/sec Wafer: P- test wafer 2.8-12ohm-cm， IMP process： P_80K_6E14_T07， AS_80K_8E15_T07， Wafer counts: Lot mode 25 continuous run (3 lot per chamber) Slot 1 5,10,15,20,25KLA-Tencor RS55,49 pts/wafer,3mm EE 2，recipe condition：1100°C 10sec ,3slm N2,20℃/sec Wafer: N- test wafer 5-10ohm-cm， IMP process： B_50K_2E15_T00， BF2_40K_1E15_T00， Wafer counts: Lot mode 25 continuous run (3 lot per chamber) Slot 1 5,10,15,20,25KLA-Tencor RS55,49 pts/wafer,3mm EE	1,P_80K_6E14_T07 RS:112±5Ω/sqWIW STD %:≦1% WTW Uniformity:≦1.5%; RTR Uniformity:≦1.5%; 2,AS_80K_8E15_T07RS: 45.5±3Ω/sqWIW STD %:≦1% WTW Uniformity:≦1.5%; RTR Uniformity:≦1.5% 3,B_50K_2E15_T00RS:4 8±1.4Ω/sqWIW STD %:≦1% WTW Uniformity:≦1.5%; RTR Uniformity:≦1.5% 4,BF2_40K_1E15_T00R S:140±7Ω/sqWIW STD %:≦1.2% WTW Uniformity:≦1.5%; RTR Uniformity:≦1.5%
Ti silicide	Wafer: P- test wafer 1-100ohm-cm ,400A Ti wafer, recipe condition:725℃, Wafer counts: Lot mode 25 continuous run (3 lot per chamber)KLA-Tencor RS55,49 pts/wafer,3mm EE	RS:6+/-1.5Ω/sq Range≦2Ω/sq WTW Uniformity:≦1.5%; RTR Uniformity:≦1.5%
Particle	Wafer: P- test wafer 1-100ohm-cm recipe condition:1100°C 60sec ,3slm N2,40℃/sec particle adder (> 0.16 um) > 10 data points	<=10

Metal Contamination	Na, Al, K, Ca, Ti, Cr, Mn, Fe, Co, Ni, Cu, Zn	=< 5E10(atom/cm2)