Oxford PlasmalabSystem100

PECVD & ICP-RIE 380

- ✓ **Sales condition ---------- As-is, EXW**
- ✓ **Wafers or carrier plates ---------- up to 200mm**
- ✓ **Gas supply (PECVD)**
  - . MFC_MKS 1479A --- corrosive gas: 5%SiH4/N2, NH3
  - . MFC_MKS 1179A --- non-corrosive gas: CF4, N2, N2O

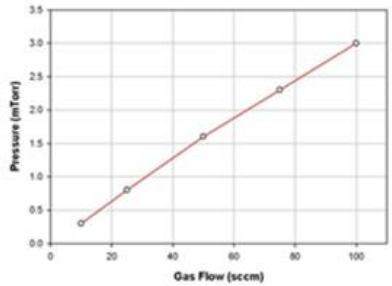
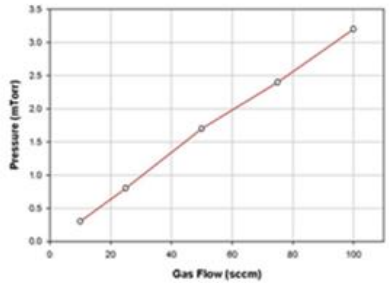
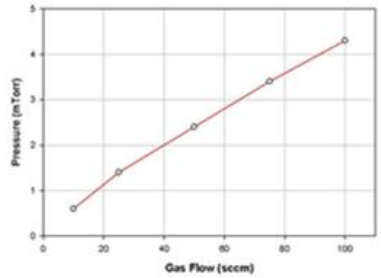
- ✓ **Gas supply (ICP-RIE)**
  - . MFC_MKS 1479A --- corrosive gas: Cl2, BCl3 , HBr (SiCl4)
  - . MFC_MKS 1179A --- non-corrosive gas: O2, Ar, SF6
  - . 415V Heated Gas Kit --- required as SiCl4, BCl3, C4F8

- ✓ **System Condition : working state**
  (dismantled and packed)

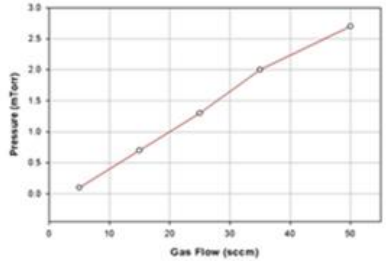
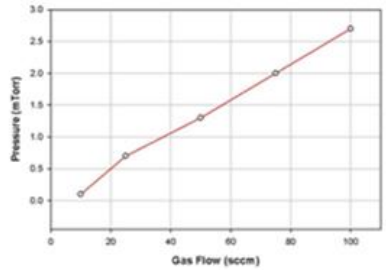
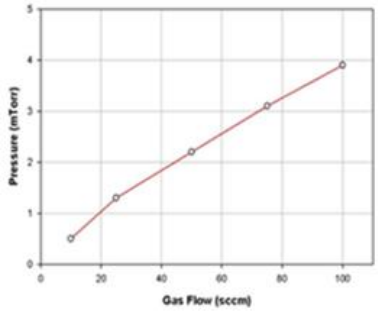
▪ ICP-RIE Hardware Check

Item	Specification	Method of Evaluation	Remarks
1.Vacuum 1) Base pressure - Loading chamber - Process chamber 2) Pumping speed - Loading chamber - Process chamber	≤ 5.0e-3Torr (Load Lock) ≤ 5.0e-6Torr (Process) ≤ 1min to Base Pressure ≤ 20min to Base Pressure	Measuring base pressure after Pumping for 1min Measuring base pressure after Pumping for 15min Measuring pressure Time at pumping Base pressure	OK √ N.G ☐
2.Pressure Buildup	<1m Torr / min	1.Chamber를 20min pumping down. 2.chamber gate valve(apc valve)를 close. 3.Software 內 에 있는 Leak up rate function	OK √ N.G ☐
3.MFC 1) Actual flow deviation 2) Response time 3) Repeatibility	≤ 5% at set value ≤ 2 sec ≤ 5% at set value	Read the actual flow from MFC	OK √ N.G ☐
4.RF power 1) Source - Power Max. - Power Variation - Frequency 2) Bias power - Power Max. - Power Variation - Frequency	3KW ≤ 5% at set value 2MHz 600W ≤ 5% at set value 13.56MHz	Read the actual RF Power from ICP M/C Measuring ICP Power at 1000,1500,2000,2500,3000W Measuring Bias Power at 30,60,150,300,600W	OK √ N.G ☐
5. Cooling 1) Low electrode Cool down 2) Wafer Cool down	-20℃ ~ +60℃ (range of chiller) ≤ 5% at Set value Pressure 1mTorr ~ 20mTorr	Chiller coolant & Low electrode return line. Read the actual flow from ICP M/C Read the He pressure controller & Flow meter From ICP M/C	OK √ N.G ☐

- **ICP-RIE Pressure Check with each gas flow**

System Vacuum Check list				Specification	OK	N.G
Record size / Gas of MFC1 100 sccm Gas : O2 Partial Pressure Check APC Fully Open	Gas volume	Pressure (mT)		≤ 5mtorr	√	
	10 sccm	0.3				
	25 sccm	0.8				
	50 sccm	1.6				
	75 sccm	2.3				
	100 sccm	3				
Record size / Gas of MFC2 100 sccm Gas : Ar Partial Pressure Check APC Fully Open	Gas volume	Pressure (mT)		≤ 5mtorr	√	
	10 sccm	0.3				
	25 sccm	0.8				
	50 sccm	1.7				
	75 sccm	2.4				
	100 sccm	3.2				
Record size / Gas of MFC3 100 sccm Gas : SF6 Partial Pressure Check APC Fully Open	Gas volume	Pressure (mT)		≤ 5mtorr	√	
	10 sccm	0.6				
	25 sccm	1.4				
	50 sccm	2.4				
	75 sccm	3.4				
	100 sccm	4.3				

- **ICP-RIE Pressure Check with each gas flow**

System Vacuum Check list				Specification	OK	N.G
Record size / Gas of MFC4 50 sccm Gas : Cl2 Partial Pressure Check APC Fully Open	Gas volume	Pressure (mT)		≤ 5mtorr	√	
	5 sccm	0.1				
	15 sccm	0.7				
	25 sccm	1.3				
	35 sccm	2				
	50 sccm	2.7				
Record size / Gas of MFC5 100 sccm Gas : BCl3 Partial Pressure Check APC Fully Open	Gas volume	Pressure (mT)		≤ 5mtorr	√	
	5 sccm	0.1				
	15 sccm	0.7				
	25 sccm	1.3				
	35 sccm	2				
	50 sccm	2.7				
Record size / Gas of MFC6 100 sccm Gas : HBr Partial Pressure Check APC Fully Open	Gas volume	Pressure (mT)		≤ 5mtorr	√	
	10 sccm	0.5				
	25 sccm	1.3				
	50 sccm	2.2				
	75 sccm	3.1				
	100 sccm	3.9				