915Mhz Mpcvd Diamond Machine

Item Number: MP-CVD-101

Introduction

915MHz MPCVD Diamond Machine and its multi-crystal effective growth, the maximum area can reach 8 inches, the maximum effective growth area of single crystal can reach 5 inches. This equipment is mainly used for the production of large-size polycrystalline diamond films, the growth of long single crystal diamonds, the low-temperature growth of high-quality graphene, and other materials that require energy provided by microwave plasma for growth.

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Microwave system (according to optional power supply)	• Operating frequency:915±15MHz • Output power:3-75kW continuously adjustable • Cooling water flow:120/min • System standing wave coefficient:VSWR≤1.5 • Microwave leakage:
Vacuum system and reaction chamber	• Leakage rate • The ultimate pressure is less than 0.7Pa (this machine comes with imported Pirani vacuum gauge) • The pressure rise in the cavity shall not exceed 50Pa after 12 hours of maintaining pressure. • Reaction chamber working mode: TM021 or TM023 mode • Cavity type: cooled cylindrical cavity, can carry power up to 75KW, high purity ,Stone ring seal. • Inlet method: Top sprinkler head inlet. • Observation temperature measurement window: 8 observation holes, evenly distributed horizontally. • Sampling port: bottom lifting sampling port
Sample holder system	• Sample stage diameter ≥200mm, single crystal effective use area ≥130mm,The effective use area of polycrystalline is ≥200mm. Substrate platform water-cooled sandwich structure, vertical straight up and down.
Gas system	• Full metal welded gas plate 5-7 gas lines • All internal air circuits of the equipment use welding or VCR connectors.
System cooling	• 3-way water cooling, real-time monitoring of temperature and flow. • System cooling water flow 120L/min, cooling water pressure
Temperature measurement method	• External infrared thermometer, temperature range 3001400 M

serial number	Module name	Remark

1	Microwave power supply	Standard domestic magnetron: Yingjie Electric / Distinguish power supply Domestic solid-state source: Watson (+30,000) Imported magnetron: MKS/ pastoral (+100, 000)
2	Waveguide, three pins, mode converter, upper resonator	Self made
3	Vacuum reaction chamber (upper chamber, lower chamber, connectors)	Self made
4	Infrared thermometers, optical displacement components, brackets	Infrared thermometers, optical displacement components, Fuji Gold Siemens + Schneider brackets
5	Water-cooling table motion components (cylinders, workpieces, etc.)	
6	Ceramic thin film vacuum gauge,Pirani vacuum gauge	Inficon
7	Vacuum valve components (ultra-high vacuum gate valve, precision pneumatic valve*2, electromagnetic vacuum charging differential valve)	Fujikin + Zhongke + Himat
8	Vacuum pump and connecting pipe fittings, tee, KF25 bellows*2, adapter	Pump: Flyover 16L
9	Metal microwave sealing ring*2; metal vacuum sealing ring*1; Quartz plate	Quartz: Shanghai FeilihuaSemiconductor Grade High Purity Quartz
10	Circulating water components (joints, diverter blocks, flow detectors)	Japanese SMC/CKD
11	Pneumatic part (CKD filter, airtac multi-way solenoid valve, pipe fittings and adapters)	
12	Gas connector, EP gas pipe, VCR connector, filter 0.0023μm *1, filter 10μm*2	Fujikin
13	Machine casing, stainless steel table, universal wheels, feet, bracket fastening screws, etc	custom processing
14	Gas flow meter*6 (including one pressure control)	Standard seven-star , optional Fuji Gold (+34,000) / Alicat (42,000)
15	Gas plate processing (5-way gas, filter*5, pneumatic valve*5, manual valve*6, pipeline welding)	Fuji Gold
16	PLC automatic control	Siemens + Schneider
17	Molybdenum table	