Microwave High temperature vacuum sintering furnace basic information introduction

Introduction

This industrial microwave oven high temperature & high vacuum sintering furnace is a typical microwave test station with such advantages, such as rapid heating speed, high efficiency, and can make machined material in well consistency. It could provide a variety of work environment in the process of sintering, such as air, vacuum, protective gas, weak deoxidation atmosphere..etc. It mainly used in the process of sintering for below materials: magnetic materials, electronic ceramics, structural ceramics, metal compounds, nit-rides and other materials, especially for new materials' developing, equipment,and trial producing.

Performance

1,Rapid heating speed, temperature uniformity:direct microwave heating of molecular interaction with the material, it belongs to the overall heating without thermal conduction time. There is no temperature gradient inside and outside the material, which greatly improves the efficiency;
2,Use high accuracy IR thermometer to measure sample temperature directly; using stemless adjustable microwave to control temperature accurately; Real time temperature chart display can dynamic monitor the heating process.
3,Equipped with embedded computer control system, provide 3 operation model: manual, auto and constant temperature which can be free switched;
4,Multi original special crucible can be chosen,material placed in the crucible will not be polluted;
5,High temperature and high vacuum sintering;
6,Equipped in and out channels gas way, atmosphere in the furnace could be controlled accurately;
7,Multiple atmosphere processes in a single cycle are possible
8,Material with different coupling degree with microwave source can be processed-with high universality;

Requirements on working environment

1,Ventilated, clean, no dust, no explosive places
2,Ambient temperature : 0～40℃
3,Relative Humidity: 5～85%
4,Working place request: 2100mm×2200mm

Application

The industrial microwave sintering is mainly used in compounding and sintering of below material and trial production or microwave expansion
1,Carbide, Nitrite, Oxide: SiC、VC、Si3N4、AlN、VN、CrN、ZnO、MgO、MnO2、ZrO2 、V2O5、TiO2, etc;
2,Metal oxide carbon-thermal reduction, metal sulfides' desulfurization;
3,Lithium-ion battery material: Lithium cobalt oxide, lithium management oxide, NCM, LiFePO4;
4,Molecular sieve catalyst material coasting: TS-1、HTS-1，ZSM-5, etc
5,Daily-used ceramics, arts and crafts ceramic;
6,Fluorescent powder : LED, three primary colors, long after glowing phosphor powder,etc;
7,Catalyst material's subtraction for diamond and graphite, oxidation and decarbonization on diamond;
8,electronic ceramics, magnetic materials, powder metallurgy, carbide, ceramic structure sintering;
9,Ashing and incineration of chemical analysis sample;

Industrial high temperature microwave tube furnace technical data:

Voltage	380V±10V 50Hz three phase
Rating power	10KW
Microwave output power	0.3~4.2kW variable
Microwave output frequency	2.45GHz±25MHz
Max working temperature	1400℃ vacuum condition 1600℃ atmospheric condition
Rated working temperature	1350℃ vacuum condition 1550℃ atmospheric condition
Temperature control	IR pyrometer
Temperature range	300℃-1800℃
Temperature accuracy	±0.5%
Max Static vacuum degree	6.67×10-3Pa
Atmosphere system	Air,oxygen,nitrogen(N2),argon(Ar),weak deoxidation atmosphere
Max loading space	φ150mm×120mm
compressed air system	0.7MPa

Industrial high temperature microwave tube furnace technical data:

Consumption	0.07m3/h
Circulating cooling water flow	≥2.5 M3/hour
Circulating cooling water pressure	0.08Mpa～0.2Mpa
Circulating cooling water inlet temperature	5℃-40℃
Circulating cooling water total hardness	<60mg/L
Control system	40 segment parameters setting, 10 inch touch screen with storage function, Three optional model,manual/auto/constant temperature,display of real-time curve
Microwave leakage	≤0.5mW/cm2
System outside Dimension	2100mm×2200mm×2000mm（L×W×H）
Clean	pressure 0.4～

Device list:

Main furnace body	1 set,Machine assembly
Cabinet	1 set,Machine assembly
Cooling system	1 set,Water cooling
Electricity system	1 set,Connect with whole machine
Insulation system	1set,1700℃ preservation module
Microwave source	3set,1.5KW
IR pyrometer	1set,Shanxi Ruiguang
Sagger	4set,Spare 3 sets
Microwave leak detection instrument	1 set,HT-M2
Teflon window	2 pcs,49.2×92.4×4mm
Shielding chamber	1 set,Metal elastic shielding cycle
USB	1pcs,embedded
Vacuum system	1 set,Chengdu Nanguang 2XZ~4B,Vacuum pump：TK-300