

## Sintering HIP Furnace



### Introduction

Base on years' experience and professional in manufacturing tungsten carbide materials, Toonney sintering furnace plant improves current machines in the market, which helps Toonney to get the best quality products. Expect selling tungsten carbide products, Toonney also sells sintering furnace to some customers who needs them.

This sintering HIP furnace is a horizontal resistant heating furnace, with three separate control circuit to ensure the uniformity of high temperature. This kind of sintering furnace can finish functional processes of de-waxing, sintering, vacuum adjustment, pressure densifying, fast-cooling in one operation period. And it can be applied for sintering hard metal material and metallic ceramic. What' s more, this sintering furnace can degrease the material of wax, rubber, Ethocel under Argon/Nitrogen negative pressure(0-0.1Mpa) and de-PEG(Burner assembly included) under hydrogen pressure (0-6Mpa).

The whole operation process is controlled by SIEMENS PLC + IPC+15inches display which can realize the functions of automatic control, monitoring, tracing and recording, self diagnoses, troubleshooting of temperature, temperature increasing rate, soaking time and the gas flow, pressure through the whole process.

Main components of sintering furnace (Control components, sensors, graphite components, thermal couple, valves etc.) are imported from USA, Japan and German. These countries stand for the world' s most advantage technology level in sintering furnace. They can meet the production requirement of long time stable and

reliable.

Toonney has three series of sintering furnace can be classified by pressure. They are 1Mpa sintering HIP furnace, 6Mpa sintering HIP furnace and 10Mpa sintering HIP furnace. For the most common use of sintering furnace is sintering hard metal. Toonney has three most popular models which named according to the effective space volume, they are Model TESTSIP200\*200\*600, Model SIP300\*300\*900-6Mpa, Model SIP500\*500\*1800-6Mpa

Take the smallest Model TESTSIP200\*200\*600 for example, standard technology specifications are as listed below tables. Of course, this complicated machine (sintering furnace) is always designed and produced according to the detail requirement of customer' s special use. Customer can specially require to change any data we have professional technical team to change the design of this sintering furnace to reach the special requirement.

## Specification

### 1. Basic data

Effective space for material loading	Height 200/Width200/Length600
Designed operation life time	6000times
Round Graphite muffle dimentation(Inner dia, outer dia. Length)	Φ330 φ380 800L
Effective volume	24L
Max gross weight of material loading(Depend on material structure)	50kg
Power of heating transformer	150KVA
Heating circuit number/transformer	3
Space requirement(Length*Width*Height)	3.5*4*3.5*M
Color	White and Blue/Yellow and black
Electric control cabinet display	English
Total weight	12T

## 2. Main basic technical data

Best vacuum Pa for common vacuum pump group in cold dry condition (In condition of 120min vacuum pump group, can get lower vacuum)	0.5Pa (Lowest can be 0.1Pa)
Maximum vacuum leakage rate in cold clean dry furnace	10Pa/H
Maximum temperature	1600°C
Working temperature	1580°C
Temperature tolerance in vacuum and material loaded and temperature below 1000°C	±5°C
Temperature tolerance when sintering under 6Mpa Algon pressure and temperature above 1000°C.	±7°C
Maximum pressure(Safety valve setting)	6.0Mpa
Binder collection rate	≥97.5%
Cooling time in full loading	≤4 hours

## 3. Peripheral parameters

Argon pressure(Purity ≥99.99%)	Min.8Mpa Max.15Mpa
Power	160KW
Stable power in 50bar and1400°C	105KW
Max voltage	AC400V 50Hz
Control center voltage	AC220V / DC24V
Voltage tolerance	±5%
Electric control cabinet disconnecter power	Max.300A

Toonney will dispatch technicians to help the assemble and finish the commissioning test to ensure the normal running of each functions. And there is one year warranty period within which if any problem happens on the sintering furnace, Toonney will repair it with no charge. After one year warranty, charge maintenance will lasts to the whole life time of sintering furnace.



Toonney sintering furnace has the China government certificate and the AMSE certificate for the pressure furnace body to be make sure the qualify and safe use of this sintering furnace in the domestic and international market. And if there are some special certificates for this kind of sintering furnace need in your country, wToonney can also try to apply and get by extra fee, so you can feel relieved purchasing our sintering furnace, it is good and safe!

## Feature

Product name: Sintering furnace

Place of Origin: Fujian, China (Mainland)

Brand Name: Toonney

Model Number: 10MP sinter HIP furnace

Type: Sintering HIP furnace

Material: Temperature controller, contact device, the heating element and so on

Application: Iron and steel industry, metallurgy industry, new material industry

Size: 8\*9\*4M

Port: Xiamen

Payment terms: FOB Xiamen

## Application

1. Sintering furnace can be used to sinter ceramic powder, ceramic ferrule and other zirconia ceramics.
2. Sintering furnace can be used to sinter diamond saw blade, [carbide rods](#), [carbide cutting tools](#) and so on.
3. Sintering furnace can be used as heat treating of copper and steel belt.
4. Sintering furnace can be used to sinter or heat thick film circuit, thick film resistors and electronic components steel electrode, LTCC, steel heater, solar panels and other similar products.

In a word, sintering furnace is mainly used in iron and steel industry, metallurgy industry, new material industry and so on.

## Advantage

1. Heat isolation material is cylinder shaped hard felt with excellent heat isolation performance, cross section is a multi-layer carbon felt composite structure.
2. Three zone separate temperature control, specially designed heating rod size and the irregular distribution ensure the uniformity of temperature.

Telephone: +86 592 7797922

Fax:+86 592 6771943

Email: [sales@tncarbide.com](mailto:sales@tncarbide.com),

Website: <http://www.tncarbide.com>

Add: No.61,Lianshang Road,Guannan Industrial District, Jimei District, Xiamen, China



3. Full round shape constant temperature box / heating units are imported from Japan, structure is reasonable and firm, heating element is advanced in design, installation or disassemble are convenient and easy.
4. The unique design of degreasing system and the advanced relative equipments, ensure the rate of wax collection over 97.5%.
5. The molybdenum alloy tube protected thermal couple is imported from USA which presents the most advanced technology
6. Fast cooling device of door cylinder improve the cooling cooling (4-5 hours to decrease the temperature to starting), improve the use efficiency of the furnace.
7. 15" Touch Screen + SIEMENS PLC control system can ensure the safety and reliability of the furnace and the data record can reach 1 years, the history curve can record 32 datas, the interface is intuitive.
8. Equiped with recooling exchange system for cooling water in and out, inside water circulated in closed circulation can add deoxidizing agent and antirust according to formula of THRONE to prolong the lifetime of the furnace body.
9. Vacuum pipeline using 304 stainless steel.
10. Emergency water automatic switching system, in case power/water outage system automatically switch to backup water source; Users can equipe with micro power generation unit to ensure the supply of circulation water.
11. The design of double roller guide rail inside the furnace make the material charging simple, safe and fast.
12. The sound and light alarm when over temperature or pressure ensure the safe use.
13. The program will automatically judge and tart the sintering when power resume after outage.
14. The resistance to ground automatic monitoring to prevent the leakage.