Vacuum Sintering

Applications
- Vacuum sintering of hard metals, cermets, rare earth (RE) magnets
- Sintering of oxide and non-oxide ceramics
- Overpressure vacuum sintering of hard metals
- Sintering in Metal Injection Molding Technology (MIM)
- Dewaxing (PEG, Paraffin oil, etc.)

Furnace Features
- Temperature uniformity
- Wide temperature range
- Industrial computer/PLC control
- Compact design

Process Advantages
- Wide range of applications
- Short cycle time
- Low operating cost
- Environmentally friendly

Technology
- Sintering of hard alloys with densification pressures up to 60 bar
- Powder metallurgy of tool steels, such as HSS cutting tools and trimming dies
- Sintering of corrosion resistant steels for chemical and medical industry
- Sintering of AlNiCo materials for manufacturing of soft magnetic products
- Sintering of rear earth metals, such as Samarium/Cobalt alloys, Neodymium/Iron/Boron for production of permanent magnets
- Sintering of high alloyed materials for the aerospace industry
- Sintering of ceramics components
- Sintering at the temperatures up to 2200°C
- Control of carbon content in sintered components made from Tungsten carbide
- Outgassing of metal powder

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Furnace Advantages:

- Heating system, well proven in most advanced vacuum heat treatment an
  ∗ curved heating elements, surrounding the load from all sides for excellent temperature
  uniformity with deviation less than ± 3°C a critical parameter for positive sintering results,
  ∗ low surface load for longer life of the heating elements and lower maintenance costs.
- Four different types of binder removal systems, depending on the technological requirements
  of the end users.
- Segmented graphite muffle for easy service and lower maintenance costs.
- PLC/Industrial Computer with color touch screen for fully automatic furnace operation, process
  setup, data storage, exchange and transmission.
- Cooling blower powered through variable frequency drive for precise control of gas velocity,
  especially important during cooling of small components sintered in MIM technology.
- High reliability of pumping system with short evacuation times.
- Standard sizes (mm):
  ∗ from 300x300x600 to 900x800x1800 and others.

Dewaxing/Vacuum Sintering

Outgassing of Powder Metal

Sintering of SiC
2300°C

Dewaxing/Vacuum Sintering/Overpressure Sintering 60bar

Vacuum purged, retort dewaxing
Sintering for temperatures below 1000°C

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