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Vaksis Vacuum Systems Bulletin
Year: 7, No: 19, April 2017

PVD AND CVD COATING SYSTEMS FOR VARIOUS APPLICATIONS

www.vaksis.com

- vacuum brazing
- new product

VAKSiS/VF-H 1300
Vacuum Furnace

- activities

- PVD: Physical Vapor Deposition
- CVD: Chemical Vapor Deposition

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Vacuum Brazing

Brazing under vacuum is simply known as “vacuum brazing”. The most important feature that differentiates the "brazing" process from the “soldering” process is that the filler material used during the process goes through a phase transition and becomes liquid at higher temperatures than the materials used in “soldering” processes. Since the vacuum brazing process takes place at high and homogenous temperatures, it allows the materials in complex designs (shaped/formed various metals, ceramics, etc.) to be joined together without causing geometrical distortion even when they have significantly different wall thicknesses and heat capacities.

The filler material used in the vacuum brazing process and the ambient temperature at which the application is made are the two important factors to obtain qualified results. The melting temperature of the filler must always be below the melting temperature of each of the main materials to be joined and the filler in liquid phase should be able to flow easily through the joining intervals of these two materials.

Compared to other material joining techniques; vacuum brazing is quite advantageous in that it can be used for components with significantly different thermal expansion coefficients. Even the assembly of complex parts, with multiple components in a single batch, is only possible with this technique. Additionally, vacuum brazing creates maximum joint strength between the components due to the nature of the process, which allows atomically clean interfaces.

Parts that need to remain very clean after the joining operation can easily be produced with this method. There are no need for subsequent cleaning of oxides (scales) or other unwanted residues remaining on the part surfaces since vacuum does not allow the formation of such things during and after the process.
These advantages mentioned above make this technique being particularly used in industries of aerospace, electronics, automotive and also precision engineering.

Dr. Baybars ORAL
COMPANY MANAGER

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Vaksis has recently delivered the "VF-H 1300 Vacuum Furnace", which was designed and manufactured for the vacuum brazing process. The base pressure of the furnace is <1x10-6 Torr and the continuous working temperature is 1250ºC. For easy loading/unloading of parts, there are two doors that can be opened with 120º angle on the both ends of the horizontally positioned cylindrical vacuum furnace. In the system, the heating and cooling zones are separated by a moving insulation wall mechanism. In addition, gas agitation can be performed during cooling. Due to these features, the cooling rate is much higher than with similar systems. All operations can be controlled fully automatically via the computer. More information about the system is available on page 4.

You are welcome to contact us for all your inquiries, requests and suggestions.

Best regards,
Assoc. Prof. Dr. Baybars ORAL

Dr. Baybars ORAL
COMPANY MANAGER

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new product

Vaksis/VF-H 1300
Vacuum Furnace

Technical Details

Base Pressure ≤ $1x10^{-6}$ Torr
Leak Rate ≤ 10^{-8} Torr.l/s
Vacuum Chamber: 90 cm dia. 150 cm lenght
Furnace
Max. Temperature: 1300°C
Continious Working Temperature: 1250°C
Temperature Uniformity:
1000°C or upper: max. ±3
between 1000°C-2000°C: max. ±5
Heating rate:
from 25°C to 1000°C: max. 50°C/min
from 1000°C to 1300°C: max. 35°C/min
Cooling rate:
from 1000°C to 200°C min.15°C/min
from 1000°C to 200°C 150°C/min
Diffusion Pump 10.000 l/s
Mechanical Backing Pump: 500 m^3/h
Pressure Reading: Cold Cathode and Convectron
Loading: From the door which opens 120°
Control: Fully automatic on PC
Gases: 4 pcs off MFCs and gas prufication system

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activities

Which we attended...

APS March Meeting 2017
New Orleans, USA (13-17 March 2017)

https://www.aps.org/meetings/march/index.cfm

APS 2017 March Meeting was held in New Orleans, Louisiana, USA between 13 - 17 March, 2017.

Vaksis was at booth #704.

BioEl2017 International Bioelectric Winterschool
Kirchberg, Tirol, Austria (11 - 18 March 2017)

http://www.jku.at/conferences/content/e216103

BioEl 2017 International Winterschool on Bioelectronics was held at Kirchberg in Tirol, Austria on March 11th - March 18th, 2017.

Vaksis was the sponsor of the winterschool.

BioEl 2017

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activities

Which we will attend...

E-MRS 2017 Spring Meeting
Strasbourg, France (23 - 25 May 2017)

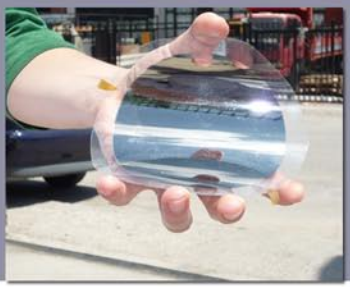
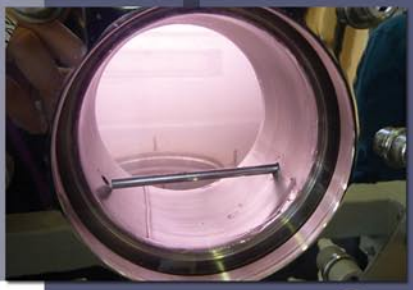
http://www.european-mrs.com/meetings/2017-spring-meeting

The 2017 E-MRS Spring Meeting and Exhibit will be held in the Convention Centre of Strasbourg (France), from May 22 to 26, 2017.

Vaksis will be at booth #73.





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