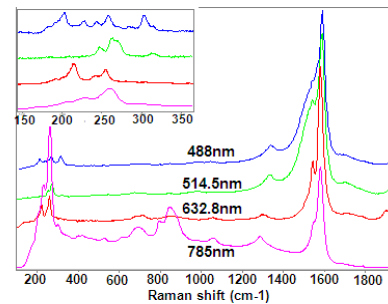


Thermal Chemical Vapour Deposition & High Vacuum Annealing System

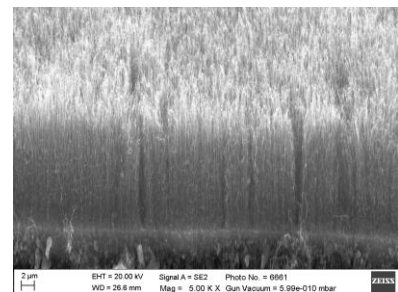


Features:

- Customized System Design
- Single and Multi Heating Zone Furnace
- Multiple Gas Channels
- Manual and/or Automated versions
- Customized Water cooling flanges for better cooling

Application:

- Synthesis of Carbon Nano-materials (e.g CNF, CNT, Graphene), Metal Oxides (e.g ZnO) etc.
- High Vacuum Annealing



We are both developer and suppliers of vacuum deposition process systems and believe in providing the best solutions to our clients through modular approach and customization. We meet up with every requirement of our clients with high quality at cost effectiveness.

We provide customized Thermal Chemical Vapour Deposition (CVD) systems for the synthesis of nano materials like Carbon Nano-tubes, Graphene, Metal Oxides, Sintering of nano-materials in Vacuum or specific ambient. The Thermal CVD system consists of:

1. Split Tube Furnace



Specifications:

Furnace type	High quality Research Grade Furnace
Furnace Material	Ceramic Alumina Fiber
Tube Material	RCA Tube , Quartz Tube, Alumina Tube
Tube Size	60mm, 80mm , 100 mm OD x 1200mm L
Max/Working Temperature	1200°C to 1700°C
Heating element type	Kanthal, SiC/MoSi2
Temperature controller	Programmable temperature controller.
Temperature accuracy	+/-1°C
Heating zone length	150 mm to 450mm (Customized)
Temperature Controller	+/-1°C with display of set and actual temperature
Vacuum sealing & flange kit	Customized Stainless Steel Water Cooling Flanges
Safety indication	EMO, Interlocks
Any noise and vibration	No
Over Temperature Protection controller with manual reset and temperature display with separate thermocouple	Yes

2. Vacuum System



Specifications:

A. Pumping System	
Vacuum pump type	Rotary Pump, Turbo Molecular Pump(TMP)
Ultimate Vacuum	5 X 10 ⁻³ Torr (10 ⁻⁶ Torr With TMP)
Vacuum leak integrity	~ 5 mTorr/min leak rise rate
Vacuum Gauges	Wide range gauges (Atm to 10 ⁻⁹ Torr) Pirani gauge (Atm to 10 ⁻³ Torr)
Vacuum seals	Viton , Kalrez
Valves	Solenoid, Pneumatic , Diaphragm, Angle, Gate Vales
B. Gas Supply System with MFC	
MFC 1 flow rate	5 -200 sccm*
MFC 2 flow rate	5 -200 sccm*
MFC 3 flow rate	5 -200 sccm*
*Gases: Ar, N2, H2, O2, CH4, C2H2	
Response rate <1 sec	
Controllers & Displays	
*Gas type, flow rate and nos of MFCs can be customized as per requirements	
C. Closed Loop Automatic Pressure Control	
Self contained closed-loop electronic system	
Accuracy: ±0.25% full scale	
Full Scales Pressure Range: 2 - 1000Torr	
Seals: Viton	
Fittings: Swagelok ¼" compression fittings	

3. Operation:

The Thermal CVD system can be operated in three modes:

- Manual Mode
- Semi-Auto Mode*
- Automated Mode*

*Using PLC based Control

4 Electrical & Control Panel:



Electrical power distribution box is embedded inside the TCVD system that supplies, distributes and controls power for the complete TCVD and High Vacuum Annealing system.



5. System Rack:

System comes with a base and control integrated rack.

6. Accessories:

	A. Chiller	
	Water Tank	8 - 20 Ltr
	Max. Water Flow Rate	5 - 20 Ltr/Min
	Protection	Protection from Over Flow
	Power Supply, Current	AC 1P 220V 50Hz, 0.45 A
	B. Chamber Tube & Water Cooled Flanges	
	60 mm, 80 mm, 100 mm Quartz, Alumina, RCA Tube	
	Water Cooled Flanges for the appropriate tube	
	Furnace handle hook	
	High temperature crucible	
	Protective gloves	

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Solutions through Technology

info@technos.in | www.technos.in

Contact Offices

India

Jaipur

J-422, Chatrala circle, RIICO Industrial Area
Sitapura, Jaipur-302022, Rajasthan
Tele/fax: +91-141-2771789

25B, RSEB Colony, Vaishali Nagar,
Jaipur-302021, Phone: +91-8003220052

Mumbai

B-1704, Oberio Woods, Mohan Gokhle Road,
Goregaon East, Mumbai-400063
Phone: +91-9001796002

Kolkata

89/250, Bangur Park, Shree Krishna Appt,
Rishra, Hooghly-712248
Phone: +91-9477480525

Overseas Offices

Japan

Product development support laboratory 310,
Tokyo Metro Politan Industrial
Technology Research Institute,
2-4-10, Aomi, Koto-ku, Tokyo 135-0064 Japan
Phone: +81-3-4513-1223,

Europe

TechnoS Europe
Ul Aleksandry 39/1, 30-387 Krakow, Poland
Phone: +48 604 530 636