

FCCVD SWCNT Growth System Using Integrated Design

Featuring a stainless steel sealed structure as the furnace body, this system is equipped with a high-quality furnace chamber, heating elements, and a control system. It offers precise temperature control, excellent explosion-proof performance, and a high safety factor, making it the ideal dedicated equipment for single-walled carbon nanotube growth.

01 Stainless steel explosion-proof design and cooling water protection

Combination of cooling water layer and thicker insulation layer ensures the explosion-proof and low energy consumption.

02 Multi-stage atomization ultrasonic feed design

Feed uniform, e ective control of directional growth, improve batch consistency.

03 Equipped with vacuum system interface

Quickly purging inner gas of furnace by using argon (carrier gas), hydrogen (reducing gas) and methane (carbon source gas, selected according to process requirements).

04 Air intake con gured preheating system preheating system

Bringing the gas to the appropriate temperature before entering the furnace to ensure consistent reaction conditions.

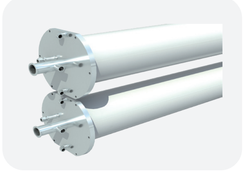
05 Large diameter furnace tube and shaft receiving mechanism

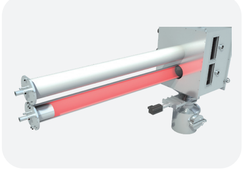
Ensure production capacity and continuous collection without stopping.

Four-Step Continuous Growth Process

Precise Feeding

Uniform injection of carbon sources and catalyst precursors into the high-temperature furnace tube.



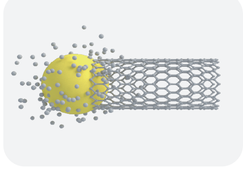


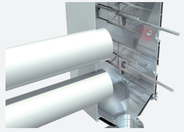
Catalyst Formation

In the high-temperature zone, precursors decompose into catalyst nanoparticles that are uniformly distributed throughout the gas stream.

Directed Growth

The carbon source decomposes on the catalyst surface, initiating the continuousgrowth of single-walled carbon nanotubes (SWCNTs) along the gas flow direction.

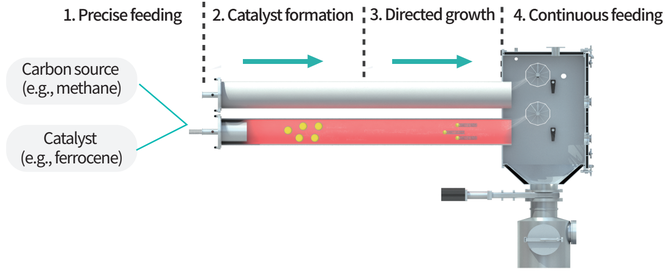


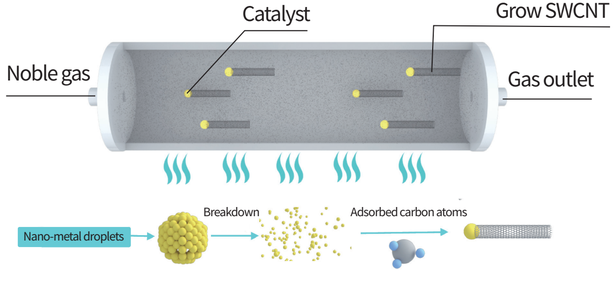


Continuous Feeding

The product is conveyed out with the airflow and efficiently collected by a large-diameter rotary discharge mechanism, enabling continuous production without shutdown.

Schematic Diagram of the Boyee Floating Catalyst





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The Complete Process for Preparing SWCNT Boyee Integrated Solution

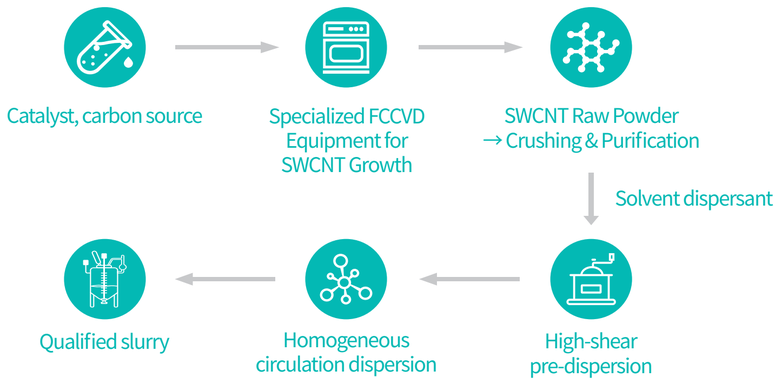
Technological Leadership

As one of the few specialized manufacturers in China, Boyee provides end-to-end production equipment and industry-leading solutions for single-walled carbon nanotube (SWCNT) manufacturing.

End-to-End Coverage

From initial powder growth to final slurry dispersion, Boyee provides all core equipment, offering a comprehensive one-stop solution for the entire manufacturing lifecycle.

SWCNT Manufacturing Process



Technical Specifications

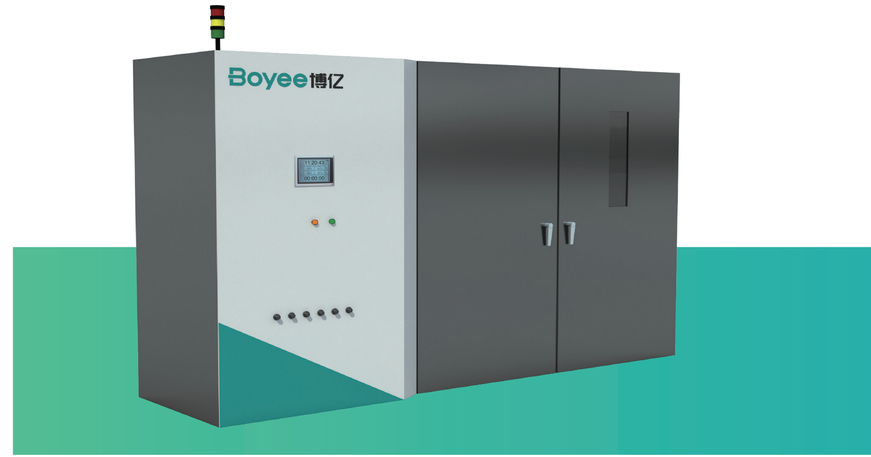
Category	Small diameter (single tube)	Large diameter (single tube)	Large diameter (double tube)	Large-bore (Twin-tube) extended-length production model
Tube material	Alundum tube	Carborundum tube	Carborundum tube	Carborundum tube
Furnace tube size(mm)	ф80*1800	ф220*2200	ф220*2200×2	Ф220x3500 ×2
Heating power(kw)	30	60	80	100
Temperature zone	5 section. Heating section is 1600mm	5 section. Heating section is 1800mm	5 section. Heating section is 1815mm	8 section. Heating section is 3000mm
Maximum temperature (°C)	1650	1350	1350	1350
Heating system	Resistance heating	Resistance heating	Resistance heating	Resistance heating
Temperature control mode	Type-B thermocouple	Type-S platinum rhodium thermocouple	Type-S platinum rhodium thermocouple	Type-S platinum rhodium thermocouple
Temperature control accuracy(°C)	±1	±1	±1	±1
Temperature uniformity(°C)	±5	±5	±5	±5
Growth efficiency (g/h)	~6-10	~30-40	~60-70	~100 -120
Overall dimension L*W*H(m)	2.3*0.8*1.5	3*1*1.8	3.5*1.2*2.1	4.5x1.6x2.3

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One-Stop Nanomaterial Solution Provider

FCCVD SWCNT Growth System

Continuous · High purity · High uniformity



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