

Nano Cavitation

Adeeco introduces nano cavitation Technology for the process industries. The flow reactor design represents a unique innovation in the process engineering space, enabling low-cost, highly tunable, continuous-flow, physical and chemical, liquid mediated nano cavitation processes.

The concept evolves from a conventional single-channel flow reactor, such as emulsification processors or cavitation cell disruptors, providing high fluid volume throughput, with balanced exposure to the entire reaction medium, via multiple controlled nano cavitation zones.

Reaction mixture is pumped into a lower holding chamber where it gets evenly exposed to high energy nano - cavitation in the multitude of parallel channels. The processed reactants flow up to the upper holding chamber through the outlet nozzle, all this operation can be done in totally gas-tight sealed environment.

Advantages:

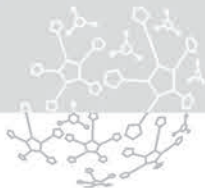
- Highly energy-efficient nano-cavitation in a continuous flow reactor
- Ability to scale outward to industrial processing rate with minimal design complexity
- Facility for multiple thermal zones, enabling unique new reaction processes

Application

- Multiphase reaction
- Precious metal catalyst
- Enhancement of liquid-liquid Extraction processes
- Biodegestate disintegration for increased biogas generation
- Foam reduction in fermenters
- Chemical / biocide reduction in cooling towers
- Degassing of viscous fluids
- Herbal and aroma extraction
- Biodiesel transesterification
- Waste water treatment, including sludge disintegration
- Catalyst manufacture via
- Nanoparticle generation
- Nano-milling of pigments in
- Paint manufacturing

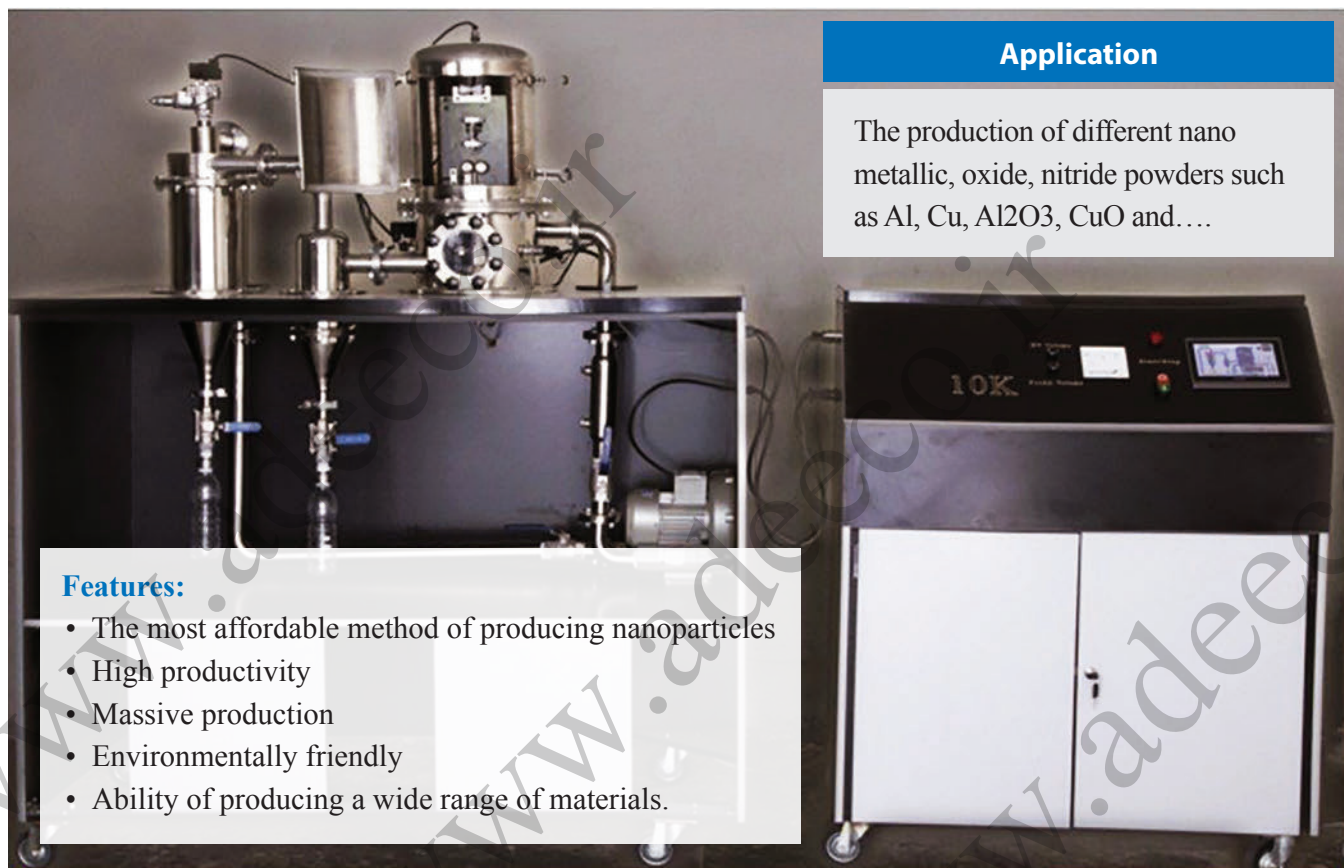
Specification

| Model | Bench Top | High capacity Bench Top | Laboratory Scale | Semi Industrial Scale |
|----------------|--------------|-------------------------|------------------|-----------------------|
| Capacity | 500 cc | 3 liter | 5 liter | 10 liter |
| Main pump flow | Up to 50 bar | Up to 50 bar | Up to 50 bar | Up to 50 bar |
| Structure | S.S 304 | S.S 304 | S.S 316 | S.S 304 |
| Power | 2 kW | 2.5 kW | 8 kW | 12 kW |
| Dimension | 85×60×65 cm | 70×50×50 cm | 120×70×100 cm | 150×70×170 cm |



Pulse Electrical Explosion Maker (PEE)

Pulse Electrical Explosion maker employs high electric voltage and current to produce metallic and metal oxide nanoparticle in a gas media. The primary bulk wire is converted into the nano powder via explosive process. In this technology, any type of thin conductive wire can be transformed into nano particles.



Application

The production of different nano metallic, oxide, nitride powders such as Al, Cu, Al₂O₃, CuO and....

Features:

- The most affordable method of producing nanoparticles
- High productivity
- Massive production
- Environmentally friendly
- Ability of producing a wide range of materials.

SPECIFICATION

| | | 10K | 50K |
|-----------------------|------------------|--------------------------|-------------|
| Model | | 10K | 50K |
| Input Power | | 1P220V AC | 3P 220V AC |
| Output Voltage | | 8-10 KV DC | 20-50 KV DC |
| Power Consumption | | 3 KW | 10 KW |
| Shot Period | | 1-5 sec | 1-5 sec |
| Wire | Max Diameter | 0.25 mm | 0.8 mm |
| | Exploding Length | 3-8 cm | 10-30 cm |
| Input Wire | | Most of conductive metal | |
| Production Rate | | 20 g/hr | 150 g/hr |
| Average Particle Size | | <100 nm | |
| System Weight | | 200 kg | 800 kg |