KERONE
Kerone Engineering Solutions Limited

FLUIDISED BED DRYER

50+ Years Of experience

ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018

ABOUT US

Kerone Engineering Solutions Ltd is a global leader in advanced industrial heating, drying, cooling & end to end process engineering solutions. With over five decades of proven expertise, we specialize in designing, manufacturing, and delivering highly customized, cutting-edge systems tailored to the evolving needs of industries worldwide.

Our commitment to engineering excellence, sustainability, digitalization, and technological innovation has positioned us as a trusted partner for businesses across multiple sectors. By integrating Artificial Intelligence (AI), Machine Learning (ML), and Internet of Things (IoT) technologies into our systems, Kerone ensures smarter automation, real-time monitoring, predictive maintenance, and data-driven process optimization—empowering our clients to achieve greater productivity, efficiency, and reliability.

50+ Years of Experience

10,000+ Satisfied Clients

500+ Employee

100+ Experts

50+ Global Presence

INDUSTRIES WE SERVE

- Food Processing & Agro-Processing
- Chemicals & Petrochemicals
- Pharmaceuticals
- Textiles, Automotive & Aerospace
- Paper & Packaging
- Ceramics & Glass
- Rubber & Plastics
- Environmental & Waste Management
- Oil, Gas & Steel Industries

- Industry Expertise – Over 50 years of global engineering leadership.
- Custom Solutions – Tailored engineering that meets unique industrial requirements.
- Global Reach – Trusted by industries across continents with proven reliability.
- Digital & Smart Systems – AI/ML-powered automation, IoT-based monitoring, and predictive insights.
- Cutting-Edge Technology – Continuous innovation in heating, drying, and advanced processing.
- Energy Efficiency – AI-optimized designs for lower energy consumption and sustainability.

QUALITY & COMPLIANCE

At Kerone, quality and compliance are non-negotiable. All our solutions are engineered in adherence to international standards and industry best practices, ensuring maximum safety, durability, reliability, and efficiency. With integrated digital technologies, we enable smarter quality control and compliance tracking across all operations.

Fluidised Bed Dryer

A Fluidised Bed Dryer (FBD) is a widely used industrial equipment in pharmaceutical, chemical, food, and other manufacturing industries for drying granules, powders, and other solid materials. It works on the principle of fluidization, where a stream of hot air is passed upward through a perforated bed at a controlled velocity, causing the solid particles to become suspended and behave like a fluid. This creates excellent contact between the hot air and the particles, resulting in highly efficient and uniform drying. The equipment typically consists of a product container, an air handling unit, a filter bag assembly, and an exhaust system that together regulate the airflow and temperature throughout the process.

One of the key advantages of a Fluidised Bed Dryer is its ability to achieve fast and uniform drying due to the large surface area of contact between the particles and the drying medium. Since particles are constantly in motion during fluidization, there is minimal risk of localized overheating, making it suitable for heat-sensitive materials. It also offers easy scale-up from lab to production scale, low labor requirements, and can be adapted for granulation and coating processes as well. However, it requires careful control of airflow velocity — too low and the bed won't fluidize, too high and particles may be carried away. It is also not ideal for very sticky, cohesive, or very fine materials that may clump or escape the system. Overall, the FBD remains one of the most efficient and versatile drying solutions across multiple industries.

Key Features

- **Fluidization Principle**
  Hot air passes upward through a perforated plate, suspending particles and making them behave like a fluid for uniform drying.
- **Fast & Efficient Drying**
  Large surface area contact between particles and hot air ensures rapid moisture removal in a short time.
- **Uniform Heat Distribution**
  Constant particle movement prevents localized overheating, ensuring consistent and even drying throughout the batch.
- **Suitable for Heat-Sensitive Materials**
  Controlled low-temperature airflow makes it ideal for drying delicate pharmaceutical or food-grade materials.
- **Multi-Purpose Functionality**
  Beyond drying, it can also be used for granulation, coating, and mixing within the same equipment.

Advantages

- **Fast Drying**
  Rapid moisture removal due to high air-particle contact.
- **Multi-Purpose**
  Can dry, granulate, and coat in a single equipment.
- **Energy Efficient**
  Less drying time means lower energy consumption.
- **Reduced Contamination**
  Closed system design prevents external contamination.
- **Uniform Drying**
  Even heat distribution across all particles in the batch.
- **Consistent Quality**
  Uniform output batch after batch with minimal variation.

Types Of Fluidised Bed Dryer

- Vibratory Fluid Bed Dryer
- Continuous Fluid Bed Dryer
- FBD dryer
- Vibro Fluid Bed Dryer

Vibratory Fluid Bed Dryer

A Vibratory Fluid Bed Dryer is a high-efficiency drying system designed for uniform and continuous drying of granular and crystalline materials using a combination of controlled vibration and heated air fluidization. It ensures fast moisture removal, energy savings, and gentle product handling, making it ideal for pharmaceutical, chemical, food, and mineral processing applications.

Continuous Fluid Bed Dryer

A Continuous Fluid Bed Dryer is an industrial drying system in which solid particles are suspended and fluidized by a controlled stream of hot air, ensuring uniform heat transfer and efficient moisture removal in a continuous process. Commonly used in chemical, pharmaceutical, food, and fertilizer industries, it provides consistent drying performance, high thermal efficiency, and precise temperature control for large-scale production.

FBD dryer

A Fluid Bed Dryer (FBD Dryer) is a batch-type drying equipment in which wet powder or granules are fluidized by passing heated air upward through a perforated distributor plate, creating uniform mixing and efficient heat transfer. It is widely used in pharmaceutical, chemical, and food industries for fast, uniform, and controlled drying of powders and granulated materials.

Vibro Fluid Bed Dryer

A Vibro Fluid Bed Dryer is a continuous drying system that combines fluidization with controlled mechanical vibration to ensure smooth material flow, uniform drying, and prevention of agglomeration. It is widely used in chemical, food, fertilizer, and mineral processing industries for efficient, energy-saving, and consistent drying of powders and granules.

Applications

Application	Description
Pharmaceutical	Drying granules, powders, tablets coating & granulation
Food Processing	Drying sugar, salt, spices, coffee & food granules
Chemical	Drying fine chemicals, pigments & chemical powders
Agrochemical	Drying fertilizers, pesticides & crop protection powders
Plastic & Polymer	Drying plastic granules & polymer resins before moulding
Ceramic	Drying ceramic powders & materials before firing
Detergent	Drying soap powder, detergent granules & washing powder






Technical Specifications

Parameter	Specification Range	Description
Batch Capacity	5 kg to 600 kg	Depending on model size
Bowl Volume	15 L to 1500 L	Product container capacity
Inlet Air Temperature	40°C to 100°C	Controlled hot air entry temperature
Outlet Air Temperature	30°C to 60°C	Exhaust air exit temperature
Airflow Velocity	0.5 to 3.5 m/s	Adjustable as per material type
Blower Capacity	500 to 15000 CMH	Air volume handled per hour
Motor Power	1.5 kW to 37 kW	Depends on blower size & model
Drying Time	20 to 60 minutes	Varies with material & moisture content
Moisture Removal	Up to 98%	Efficient moisture extraction
Control System	PLC / HMI Based	Automated process control
Operating Pressure	-10 to +10 mbar	Slight negative or positive pressure
Noise Level	≤ 85 dB	Safe working environment

THANK YOU

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