



# PNEUMATIC FLASH DRYER

**50<sup>+</sup> Years**  
*Of experience*



# 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



**50+ Years Manufacturing Excellence**



**Great Sale Support**



**Highly Customized Product**



**Adherence to Standards**



**Sound Infrastructure**



**Team of experts Delivering Quality**



**Timely Delivery**



**Cost Effective Solutions**



# 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.





Powered by AI/ML & IoT

## Pneumatic Flash Dryer

A pneumatic flash dryer is an advanced industrial drying system that uses high-velocity hot air to rapidly remove moisture from wet or pasty materials. The process works by dispersing the wet material into a stream of heated air, where the small particle size and turbulent airflow create maximum contact between the material and drying medium. This results in extremely fast moisture evaporation, typically within seconds. The material is fed into the drying chamber through a screw feeder or rotary airlock, where it meets the hot air stream (usually between 200–800°C).

The pneumatic conveying action carries the particles upward through the drying duct while simultaneously drying them. As the material travels through the system, moisture evaporates quickly due to the large surface area exposure and intense heat transfer. At the top of the dryer, the dried product is separated from the air stream using cyclone separators or bag filters. The dried powder is then collected at the bottom of the cyclone, while exhaust air is either recycled or vented after filtration. Pneumatic flash dryers are particularly effective for heat-sensitive materials because despite high air temperatures, the actual product temperature remains relatively low due to the evaporative cooling effect and short residence time. These systems are widely used in chemical, pharmaceutical, food, mineral, and agricultural industries for drying materials like starch, chemicals, minerals, wood chips, plastic pellets, and various powders.

### Key Features

- **Instant Drying Technology**  
Completes drying in just 0.5 to 3 seconds using high-velocity hot air stream, making it one of the fastest drying methods available

- **High Thermal Efficiency**  
Achieves 80–90% energy efficiency through optimal heat transfer and minimal heat loss during operation
- **Wide Temperature Range**  
Operates with inlet air temperatures between 200–800°C while maintaining product temperature at safe 60–100°C levels
- **High Moisture Handling Capacity**  
Efficiently processes materials with initial moisture content ranging from 30% up to 90%
- **Advanced Process Control**  
PLC-based automation with precise temperature, feed rate, and air velocity control for optimal results
- **Minimal Product Degradation**  
Preserves product quality, color, and nutritional properties due to flash drying principle

### Advantages

- **Lightning-Fast Drying**  
Completes drying in 0.5–3 seconds, drastically increasing production speed
- **Maximum Energy Efficiency**  
Achieves 80–90% thermal efficiency, significantly reducing energy costs
- **Minimal Floor Space**  
Vertical design uses 60–70% less space than conventional dryers
- **Zero Contamination**  
No moving parts contact material, ensuring pharmaceutical-grade purity
- **High Product Recovery**  
98–99% material recovery with minimal waste
- **Versatile Applications**  
Handles chemicals, pharmaceuticals, foods, minerals, and plastics

## Applications

Industry	Description
Chemical Industry	Used for rapid drying of fine powders after filtration or centrifugation
Food Industry	Quick moisture removal while maintaining product quality
Pharmaceutical Industry	Suitable for heat-sensitive fine particles with short residence time
Fertilizer Industry	Removes surface moisture from granules or powders
Pulp & Paper Industry	Dries fibrous materials without agglomeration
Agriculture	Fast drying of powdered or semi-wet materials
Textile Industry	Drying of chemical powders used in dye manufacturing
Waste & By-product Recovery	Reduces moisture for easier handling and disposal
Building Materials	High-capacity drying of fine construction materials



## Technical Specifications

Parameter	Specification Range	Description
Dryer Type	Pneumatic / Flash Dryer	High-velocity air drying system for fine and wet materials
Feed Material Moisture	20 – 80 % (wet basis)	Initial moisture content of the material
Inlet Air Temperature	150 – 600 °C	High temperature for rapid moisture removal
Outlet Air Temperature	60 – 120 °C	Controlled to avoid product degradation
Evaporation Capacity	50 – 3000 kg/hr	Water evaporation rate
Air Flow Rate	1,000 – 50,000 m <sup>3</sup> /hr	Required for material conveyance and drying
Power Consumption	10 – 250 kW	Includes blower, feeder, and auxiliaries
Control System	Manual / PLC / SCADA	Process monitoring and automation
Installation Type	Vertical / Compact layout	Space-saving design



# THANK YOU

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