



LAB SPRAY 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



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

Lab Spray Dryer

A spray dryer is a laboratory instrument used to convert liquid solutions, suspensions, or slurries into dry powder form through rapid evaporation. The process works by atomizing the liquid feed into fine droplets using a nozzle or rotating disk, then introducing these droplets into a chamber with hot drying gas (typically air or nitrogen). As the droplets fall through the heated chamber, the solvent rapidly evaporates, leaving behind solid particles that are collected at the bottom via a cyclone separator. This technique is widely used in pharmaceuticals, food science, materials research, and chemical industries for producing powders with controlled particle size, morphology, and moisture content.

Laboratory-scale spray dryers are compact, bench-top units designed for research and development, small-batch production, and process optimization before industrial scaling. They typically process feed rates ranging from a few milliliters to several liters per hour and offer precise control over parameters like inlet/outlet temperatures, feed rate, atomization pressure, and airflow. Key advantages include the ability to process heat-sensitive materials due to short drying times (often just seconds), production of free-flowing powders, and preservation of biological activity in pharmaceuticals and proteins. Modern lab spray dryers often feature closed-loop systems for organic solvent recovery, touch-screen controls, and various atomizer options to accommodate different sample types and desired particle characteristics.

Key Features

- **Atomization System**
Multiple nozzle options (two-fluid, pressure, ultrasonic) or rotary disk atomizers to create fine droplets with controlled size distribution.
- **Temperature Control**
Precise inlet and outlet temperature regulation (typically 50–220°C) to optimize drying while protecting heat-sensitive materials.
- **Cyclone Separator**
High-efficiency collection system that separates dried powder from exhaust air with minimal product loss.
- **Process Monitoring**
Real-time temperature, pressure, and flow rate displays with data logging capabilities for process documentation.
- **Automated Controls**
Touch-screen interfaces or digital controllers for parameter programming, recipe storage, and consistent batch-to-batch operation.

Advantages

- **Rapid Drying**
Evaporation occurs in seconds, minimizing heat exposure and thermal degradation.
- **Heat-Sensitive Materials**
Short residence time preserves proteins, enzymes, probiotics, and pharmaceuticals.
- **Free-Flowing Powder**
Produces spherical particles with excellent flow properties and handling characteristics.
- **High Yield**
Efficient powder collection with minimal product loss (typically 50–90% recovery).
- **Single-Step Process**
Converts liquid to dry powder in one operation without intermediate handling.

Applications

Application	Description
Pharmaceuticals	Drying antibiotics, vaccines, drug formulations, and creating medicines with controlled release properties
Food & Beverage	Producing milk powder, coffee extract, flavors, vitamins, probiotics, and fruit juice concentrates
Biotechnology	Preserving enzymes, proteins, bacteria cultures, and biological samples while maintaining activity
Agriculture	Formulating pesticide powders, fertilizers, and animal feed supplements
Ceramics	Producing ceramic powders with uniform particle distribution for advanced materials
Environmental	Treating wastewater, recovering valuable compounds, and processing waste materials



Technical Specifications

Parameter	Specification Range	Description
Feed Type	1 - 10 mL/min	Liquid feed capacity controlled by peristaltic pump for consistent droplet formation
Inlet Temperature	50 - 220°C	Hot air temperature entering the drying chamber, adjustable based on material properties
Outlet Temperature	40 - 120°C	Exit air temperature indicating drying efficiency and moisture removal level
Nozzle Diameter	0.5 - 2.0 mm	Opening size for two-fluid or pressure nozzles affecting atomization
Drying Chamber Diameter	500 - 800 mm	Internal chamber size determining residence time and particle trajectory
Powder Recovery	50 - 90%	Percentage of dried product collected in cyclone separator
Power Consumption	3 - 8 kW	Electrical power requirement for heater, blower, and controls
Particle Size Range	1 - 500 µm	Typical dried powder particle diameter depending on atomization settings
Residual Moisture	< 5%	Final moisture content in dried powder, adjustable through process parameters



THANK YOU

UNIT 1 (KESL)

4 & 5, Marudhar Industrial Estate, Gas Godown Lane, Goddev Fatak Road, Bhayander (E), Dist. Thane - 401105. (India)

Contact Us
+91-22 48255071, 48255072

UNIT 2 (MIDC)

Plot No. B-47, Addl. MIDC Anand Nagar, Ambernath (E), Dist. Thane - 421506 (India)

Contact Us
+91(0251)2620542/43/44/45/46

UNIT 3 (KRDC)

Plot No K2, Industrial Gala F4A, D- Wing, MGN Properties, Opposite Godrej Co., Addl MIDC Anand Nagar, Ambernath (E)- 421506 (India)

Contact Us
+91-2512620543/44

UNIT 4 (EUROPE)

(EMitech) Viale della Palma, 7, 70033 Corato BA, Italy (Europe)

Contact Us
+91-2512620543/44

UNIT 5 (THAILAND)

Thailand Representative: 163 Rajapark Building, 18th floor, Sukhumvit 21 Road (Asoke), Wattana, Bangkok - 10110, Thailand

Contact Us
G.Vivekanand
+6689 500 9821

Uzbekistan / Kazakhstan (Office)

TIT Company LLC: 100060, 2, A. Kahhar, Tashkent, Uzbekistan

Contact Us
Mr. Slava
+998 903540963

Israel (Office)

Ornatus Industrial Tech Ltd: Dam Hamacbim 36, 7178602 Modiin, Israel

Contact Us
Omri Fabian
+972 584844887

Australia & New Zealand (Office)

Linetech Pty Ltd: Po Box 3046, Browns Plains, Qld 4118. Australia

Contact Us
Eric Quevauvilliers
+61 (0)418 871 005

Bangladesh (Office)

House-10, Road-5 Priyanka City, Sector-12, Uttara, Dhaka-1230, Bangladesh

Contact Us
Md. Emtiaz Morshed
+8801747762200

Chile & South America (LatAM)

La Concepcion 165 Oficina 303, Providencia, Santiago, CHILE

Contact Us
+56 232 243 921



SCAN HERE

✉ Our Mails

info@kerone.com
sales@kerone.com
marketing@kerone.com

🌐 Website

www.kerone.com
www.kerone.in
www.keronedryers.com
www.keronebiochar.com