



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

# PADDLE ROTARY DRYER



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.





## Paddle Rotary Dryer

The Paddle Rotary Dryer (also known as RVPD – Rotary Vacuum Paddle Dryer) is a horizontal, mechanically agitated vacuum dryer that simultaneously delivers low-temperature drying, mixing, and breaking effects. It consists of a jacketed cylindrical vessel and a hollow rotor fitted with straight paddles or double-walled discs to considerably increase the heating surface. A heating medium – such as steam, hot water, or thermal oil – is forced to circulate both inside the jacket and hollow rotor to form an efficient heating surface. Wet material is gravity-fed into the drying chamber via an infeed port, then vacuum and heat are applied to reach the evaporation point of water or solvents contained in the wet material.

The hollow shaft is attached with hollow paddles provided with specially designed scraper blades, which scrape the entire internal surface of the dryer and continuously move and rotate the material – preventing it from remaining in contact with a hot surface for extended periods. The jacket, limpet coil, and hollow shaft with paddles can be heated with hot water, steam, or any other thermal fluid, providing a large indirect heat transfer area. Cooling can also be achieved through the jacket and hollow shaft using water, brine, or other refrigerants. The design of the paddles is such that reversal of the electric motor direction is not necessary for discharging the product.

### Key Features

- **Lump Breaker / Chopper**  
Breaker bars are provided to break lumps and disintegrate particle size, ensuring uniform and consistent drying throughout the batch.

- **Hollow Paddle & Shaft Design**

Two parallel rotating shafts, each embedded with many hollow fan-shaped paddles arranged at intervals and staggered, conduct heat through the paddles directly into the material for high thermal efficiency.

- **Vacuum Operation**

The vacuum system can reach as high as 4,000 Pa, under which the water boiling point drops to only about 45–50°C, making low-temperature drying feasible and highly efficient – ideal for heat-sensitive and oxygen-sensitive materials.

- **Integrated Dust Catcher & Condenser**

Evaporated vapor passes through the bag filters of the dust catcher, goes into the condenser, and the condensate is collected in the receiver – achieving near-complete solvent recovery.

### Advantages

- **High Thermal Efficiency**

Higher thermal efficiency is achieved due to the stirring action of the product combined with a high vacuum application and greater heat transfer area.

- **Near-Zero Emissions**

The drying process is carried out in a completely airtight system and the evaporated moisture is trapped and recovered by the tubular condenser, making it almost zero-emission.

- **Gentle on Sensitive Products**

Operating under vacuum conditions lowers the boiling point of solvents, allowing drying at significantly lower temperatures – preventing thermal degradation and ensuring great output quality.

- **Low Operating Costs**

The operating costs are low compared to other types of dryers, and the drive with shaft-mounted gearbox optimizes power consumption and reduces maintenance.

## Applications

Industry	Description
Pharmaceuticals	Used for APIs, cosmetics, crystals, food additives, natural extracts, pharmacy synthesis, veterinary products, and vitamins.
Chemical Industry	Applied in processing stearates, effluent treatment, sealants, agrochemicals, solvent recycling, slurry treatment, resins, polymers, catalysts, pigments, and PVC additives.
Food Industry	Used for lyophilized products, animal extracts, ferments, additives, cocoa powder, natural extracts, colorants, and proteins.
Agrochemicals	Enables efficient, contamination-free batch drying for agrochemical units.
Wastewater / Sludge Treatment	Hollow paddles stir and heat sludge during conveyance, with adjustable retention time through the overflow weir – ideal for industrial sludge and effluent drying.
Specialty Chemicals	Used for graphite specialties, minerals, herbicides, cellulose, composites, fibers, and special waste treatment.



## Technical Specifications

Parameter	Specification Range	Description
Capacity	100 to 30,000 litres	Batch volume range; customized to process needs
Vacuum Level	Up to 4,000 Pa (~0.6 torr)	High vacuum lowers boiling point for low-temp drying
Heating Temperature	20°C to 300°C	Adjustable via steam, hot water, or thermal oil
Rotor Speed	5–20 RPM (VFD controlled)	Adjustable based on material type and drying condition
Heating Medium	Steam, hot water, or hot oil	Circulated through jacket and hollow rotor/paddles
Shell Material	120°C – 300°C	Rotary drum dryer operating range to reduce granule moisture
Compost Turner Width	Stainless steel, Hastelloy, or special alloys	Selected based on corrosiveness of material
Operating Pressure	Atmospheric to full vacuum; up to 620 kPa (89 psi)	Pressure-rated vessel for safety and efficiency
Heat Transfer Area	Up to 100+ m <sup>2</sup>	Increases with paddle count and vessel size



# THANK YOU

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