



AGITATED THIN FLIM DRYER

50⁺ 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.





Agitated Thin Film Dryer

An Agitated Thin Film Dryer (ATFD) is a highly efficient, continuous processing equipment widely used in the chemical, pharmaceutical, food, and polymer industries for drying heat-sensitive and viscous materials. The machine operates on a simple yet effective principle – the feed material is introduced at the top of a vertically mounted, steam-jacketed cylindrical vessel, where a high-speed rotor fitted with specially designed blades spreads the product into a thin, uniform film across the heated inner wall surface. This thin film formation dramatically increases the heat transfer area, enabling rapid and efficient evaporation of moisture or solvents even at relatively low temperatures, making it ideal for thermally sensitive products.

What sets the Agitated Thin Film Dryer apart from conventional drying equipment is its ability to handle a wide range of feed consistencies – from low-viscosity liquids to highly viscous pastes and slurries – and convert them into dry powder or granules in a single, continuous pass. The rotor blades maintain constant agitation, preventing the material from sticking to the wall and ensuring uniform drying with minimal thermal degradation. The dryer typically operates under vacuum conditions, which further lowers the boiling point of the solvent, reduces drying temperatures, and improves product quality. With its compact design, short residence time, self-cleaning action, and ease of operation, the ATFD is considered one of the most versatile and reliable drying solutions available in modern process industries.

Key Features

- **Continuous Operation**
Processes feed material continuously without interruption
- **Thin Film Formation**
Rotor blades spread material into a uniform thin film for efficient heat transfer
- **Short Residence Time**
Rapid drying minimizes thermal degradation
- **Self-Cleaning Action**
Rotating blades prevent material buildup on heated walls
- **Steam Jacketed Shell**
Provides uniform and controlled heating across the surface
- **Compact Design**
Occupies less floor space compared to conventional dryers

Advantages

- **High Thermal Efficiency**
Thin film formation ensures maximum heat transfer with minimum energy consumption
- **Gentle Drying**
Low temperature vacuum operation preserves the quality of heat-sensitive materials
- **No Product Degradation**
Short residence time and low drying temperature prevent thermal or chemical degradation
- **Consistent Product Quality**
Uniform thin film ensures even drying and homogeneous end product
- **Continuous & Automatic Process**
Reduces labor cost and increases production efficiency
- **Low Maintenance Cost**
Simple mechanical design with fewer moving parts reduces downtime

Applications

Industry	Description
Paint & Coatings	Processing of varnish, adhesives, and coating materials
Textile & Dye	Processing of textile dyes, finishing chemicals, and pigment
Pharmaceutical	Drying of APIs, vitamins, antibiotics, and heat-sensitive drug compounds
Chemical	Processing of dyes, pigments, resins, and specialty chemicals
Polymer	Drying of polymer solutions, latex, and synthetic rubber compounds
Petrochemical	Drying of lubricant additives, wax, and crude oil derivatives
Nutraceutical	Drying of herbal extracts, plant-based compounds, and health supplements



Technical Specifications

Parameter	Specification Range	Description
Evaporation Capacity	5 kg/hr to 5000 kg/hr	Amount of moisture/solvent evaporated per hour
Heat Transfer Area	0.1 m ² to 20 m ²	Effective heating surface area of the dryer shell
Feed Viscosity	Up to 50,000 cP	Handles low to highly viscous feed materials
Residence Time	5 seconds to 60 seconds	Short contact time to prevent product degradation
Drive Motor Power	1.5 kW to 75 kW	Power consumption based on dryer size and capacity
Feed Inlet Temperature	Ambient to 100°C	Temperature of material entering the dryer
Surface Finish (Inside)	Ra ≤ 0.8 μm (Mirror Finish)	Smooth internal finish for hygienic and easy cleaning
Blade Clearance	0.5 mm to 3 mm	Gap between rotor blade and shell wall for film control
Inclination	Vertical (Standard)	Vertical orientation for gravity-assisted product flow



THANK YOU

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