



COAL ROTARY 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

Coal Rotary Dryer

The Coal Rotary Dryer is a heavy-duty, continuous-operation industrial machine designed specifically to reduce the moisture content in raw coal, lignite, and other carbon-based materials before downstream processing or combustion. It consists of a large rotating cylindrical drum – typically inclined at a slight angle – through which wet coal is fed at one end and discharged dry at the other. As the drum slowly rotates, internal lifting flights tumble the coal through a hot gas or air stream generated by an integrated burner system, enabling highly efficient direct-contact heat transfer at high throughput volumes. The machine is robust, engineered for continuous 24/7 operation, and built to handle abrasive, heavy feed material with minimal mechanical downtime.

The thermal process inside the rotary dryer is precisely controlled: incoming wet coal – with moisture levels sometimes exceeding 30–40% – is reduced to a target moisture range of 8–12% or lower, depending on end-use requirements. The temperature, drum rotation speed, and airflow volume are all adjustable parameters that allow operators to tune performance for varying coal grades and seasonal feed conditions. Exhaust gases pass through a dedicated dust collection and emission control system (cyclone separators, bag filters, or wet scrubbers) before atmospheric discharge, ensuring compliance with environmental regulations. The result is consistently dried coal that improves combustion efficiency, reduces transport weight, and enhances overall plant economics.

Key Features

- **Rotating Drum Assembly**
Heavy-gauge carbon steel or alloy steel drum supported on riding rings and trunnion rollers. Drum diameter ranges from 1.2 m to 4.0 m with lengths up to 30 m, offering massive throughput capacity.
- **Direct-Fire Burner System**
Integrated combustion chamber using coal, natural gas, diesel, or biomass as fuel. Capable of generating inlet temperatures of 400–850°C for rapid and efficient moisture evaporation.
- **Variable Speed Drive**
Motor-driven gear system with adjustable RPM (1–8 RPM typical) allows operators to control residence time and adapt to different coal moisture levels and particle sizes.
- **Integrated Dust & Emission Control**
Multi-stage dedusting system – cyclone separators + pulse-jet bag filter – captures fine coal dust from exhaust gases, meeting emission norms and recovering fine coal product.

Advantages

- **High Throughput**
Processes 1–50+ tons per hour continuously, matching large-scale coal plant and washing plant demands.
- **Improved Combustion Value**
Dried coal has higher calorific value per kg, directly improving boiler combustion efficiency and reducing fuel costs.
- **Superior Energy Efficiency**
Thermal efficiency of 60–75%; recovered heat from exhaust gases can be recirculated to pre-heat incoming air.
- **Multi-Fuel Flexibility**
Burner system accepts coal, gas, diesel, or biomass – allowing fuel switching based on cost or availability.

Applications

Industry	Description
Coal Power Plants	Drying raw or washed coal before feeding into pulverizers and boilers to increase calorific value and reduce slagging and fouling in furnaces.
Coal Washing Plants	Removing surface moisture from fine and coarse coal after wet beneficiation, producing market-ready, storable, and transportable coal product.
Briquette & Pellet Manufacturing	Reducing coal fines moisture to 8–12% before binder mixing and compaction, ensuring mechanical strength and bonding quality of final briquettes.
Cement Industry	Drying low-rank coal or lignite used as alternative fuel in cement kilns, improving grindability and combustion performance.
Mining & Export Terminals	Bulk drying of run-of-mine coal prior to long-distance rail or shipping transport, reducing cargo weight and preventing spontaneous oxidation.



Technical Specifications

Parameter	Specification Range	Description
Drum Diameter	Ø 1.2 m – 4.0 m	Defines volumetric capacity; larger diameter = greater throughput and residence time.
Drum Length	6 m – 30 m	Longer drum increases drying residence time for high-moisture or low-temperature operation.
Processing Capacity	1 – 55 t/h	Throughput of wet coal feed; varies with moisture content, drum size, and operating temperature.
Feed Moisture Content	15% – 45% (w.b.)	Incoming coal moisture range the machine can handle without process instability.
Drum Rotation Speed	1 – 8 RPM	Adjustable via VFD motor; controls residence time and particle tumbling intensity.
Thermal Efficiency	60% – 75%	Ratio of heat used for evaporation to total heat input; higher with heat recovery systems.
Operating Pressure	Slightly negative (-20 to -50 Pa)	Drum operates under mild negative pressure to prevent dust leakage into surroundings.



THANK YOU

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