KERONE
Kerone Engineering Solutions Limited

INFRARED ROTARY DRYER AND ROASTER FOR CEREALS AND SEEDS

In Association with SVCH-Technologii, Moscow (Russia)

ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018

ABOUT US

KERONE is now renowned for serving the specialized needs of customers with the best quality and economical process of Heating /cooling and drying products, manufactured in a high-quality environment by a trained and qualified workforce (special purpose machinery)

KERONE is a pioneer in application and implementation engineering with its vast experience and team of professionals.

KERONE is devoteded to serve the industry to optimize its operations both economically and environmentally with its specialized heating and drying solutions.

KERONE is having immense expertise in manufacturing and implementing various types of engineering solutions.

KERONE is possessing employee strength of more than 280+ experts continuously putting efforts for happy industrial engineering solutions.

WHY CHOOSE US

> Enhance the value of customer operation through our customer need centric engineering solution.

With decades of expertise, cutting-edge technology, and a customer-centric approach, Kerone Engineering offers tailor-made heating solutions that prioritize quality, flexibility, and cost-effectiveness. Benefit from our commitment to excellence, post-sales support, and innovative solutions for your unique heating needs. Choose Kerone Engineering for reliability, performance, and unmatched value.

MISSION

- To enhance the value of customer operation throughi our customer need centricengineefing solution
- We are cominitted to provide our customers, unique arid best in class products in Industrial heating drying and cooling segment with strategic tie-up for the technical know-how with renowned leader in the industry specific segment

VISION

- Turn into a world leader in providing specialized, top-notch quality and ecological industrial heating, cooling, and drying solutions across the globe.
- To attain global recognition as the best of quality and environment-friendly engineering solution company.

INFRARED ROTARY DRYER

An infrared rotary dryer is a type of industrial dryer that uses infrared radiation to heat and dry materials. The dryer consists of a long, rotating cylinder that is heated by infrared lamps. The material to be dried is fed into the cylinder at one end and is carried through the dryer by the rotation of the cylinder. As the material passes through the dryer, it is heated by the infrared radiation and dries.

What is Rotary Dryer?

A rotary dryer is a type of industrial drying system that is commonly used to remove moisture from a variety of materials. It consists of a rotating cylindrical drum or shell that is typically mounted horizontally and inclined slightly to facilitate the movement of the material being dried. The material is fed into one end of the drum, and as it moves through the dryer, it is exposed to hot air or other drying medium, which removes the moisture.

INFRARED RADIATION

Infrared radiation (IR) is a type of electromagnetic radiation that is invisible to the human eye. It has wavelengths that range from about 700 nanometers (nm) to 1 millimeter (mm). Infrared waves are longer than visible light waves but shorter than radio waves.

Infrared radiation is emitted by all objects that have a temperature above absolute zero. The hotter an object is, the shorter the wavelength of the infrared radiation it emits. For example, the Sun emits mostly infrared radiation with wavelengths in the range of 1 micrometer to 1 millimeter.

DRYING PROCESS

Drying is a process of removing water or another solvent from a solid, semi-solid or liquid. It is often used as a final production step before selling or packaging products. To be considered "dried", the final product must be solid, in the form of a continuous sheet (e.g., paper), long pieces (e.g., wood), particles (e.g., cereal grains or corn flakes) or powder (e.g., sand, salt, washing powder, milk powder).

Drying is an important process that is used in a wide variety of industries. It is used to preserve food, to produce materials for construction and manufacturing, and to create a variety of consumer products. The drying process can be complex and challenging, but it is an essential part of many manufacturing processes.

INFRARED ROTARY DRYER AND ROASTER

- An infrared rotary dryer and roaster is a specialized industrial equipment used to dry, heat, and roast materials with high efficiency. It combines infrared radiation with rotary motion, allowing for uniform heating and drying of the material as it rotates within the drum.
- Infrared radiation provides rapid, targeted heat transfer, which penetrates deeply and quickly into the material, reducing drying and roasting times compared to conventional methods.
- This technology is often applied in food processing, such as roasting nuts or coffee beans, as well as in the drying of chemicals and pharmaceuticals.
- By using infrared energy, the system achieves energy savings, improved product quality, and enhanced control over moisture and temperature levels, which are critical for processing delicate or heat-sensitive materials.

INFRARED ROTARY DRYER AND ROASTER FOR CEREALS

- An infrared rotary dryer and roaster is an efficient machine designed specifically for processing cereals, utilizing infrared technology to enhance drying and roasting efficiency. In this system, infrared radiation is used to generate heat directly within the cereal particles, leading to uniform heating that reduces processing times compared to conventional methods.

- The rotary motion of the dryer continuously agitates the cereals, ensuring even exposure to the infrared heat, preventing scorching, and achieving a consistent roast or dry quality. This method is particularly beneficial for cereal grains, as it allows for controlled moisture reduction without compromising the nutritional and sensory qualities of the final product.

- Additionally, infrared rotary dryers and roasters tend to be energy-efficient, as they require less time and lower temperatures to achieve the desired results, making them an attractive option for high-throughput cereal processing industries. This equipment not only improves productivity but also supports the production of higher-quality roasted cereals, with better texture, color, and flavor, ideal for ready-to-eat cereal products.

INFRARED ROTARY DRYER AND ROASTER FOR SEEDS

An infrared rotary dryer and roaster is an efficient, specialized machine designed for drying and roasting seeds. This equipment utilizes infrared radiation to transfer heat directly to the seeds, ensuring quick and uniform drying and roasting.

As the drum rotates, seeds are evenly exposed to heat, which helps preserve their nutritional quality and improves flavor and texture. The infrared technology reduces processing times and energy consumption compared to conventional methods, making it an eco-friendly option for seed processing.

Additionally, the precise temperature control allows for optimal roasting, reducing the risk of overcooking and enhancing product quality.

APPLICATIONS

- Moisture Reduction
- Roasting Process
- Pre-Treatment for Grinding
- Enhanced Nutritional Value
- Product Sanitization
- Production of Instant Cereals
- Flaking and Puffing
- Aroma Development
- Consistent Product Quality
- Reduced Processing Time

WORKING PRINCIPLE

The working principle of an infrared rotary dryer, as an assumed concept, would likely combine the principles of a traditional rotary dryer with the use of infrared heating technology.

Material Loading

The wet material is fed into the rotary drum dryer.

Rotary Drum

The rotary drum rotates slowly, allowing the material to move through the dryer.

Infrared Heaters

Infrared heaters are positioned around the drum. They emit infrared radiation, which directly heats the material.

Infrared Radiation

Infrared radiation has high energy and is absorbed by the wet material. The absorbed energy causes moisture evaporation from the material.

Drying Process

As the material moves through the dryer, the moisture content decreases gradually. The infrared radiation contributes to the heating process and accelerates the drying of the material.

CONSTRUCTION

A rotary dryer is a type of industrial dryer that uses a rotating cylinder to dry materials. The dryer consists of a long, cylindrical shell that is mounted on a support structure. The shell is inclined slightly so that the material flows through the dryer by gravity. The material is fed into the dryer at one end and is carried through the dryer by the rotation of the shell. As the material passes through the dryer, it is heated by a source of heat, such as a burner or an electric heater. The heated material then dries as it travels through the dryer.

Shell

The shell is the main body of the dryer. It is made of a strong material, such as steel or stainless steel. The shell is typically lined with a material that is resistant to corrosion and heat, such as refractory brick or ceramic.

Driving mechanism

The driving mechanism is used to rotate the shell. It is typically a motor that is connected to the shell by a belt or chain.

Heat source

The heat source is used to heat the material in the dryer. It can be a burner, an electric heater, or a combination of both.

Baffles

Baffles are used to distribute the material evenly throughout the dryer. They are typically made of metal or fiberglass.

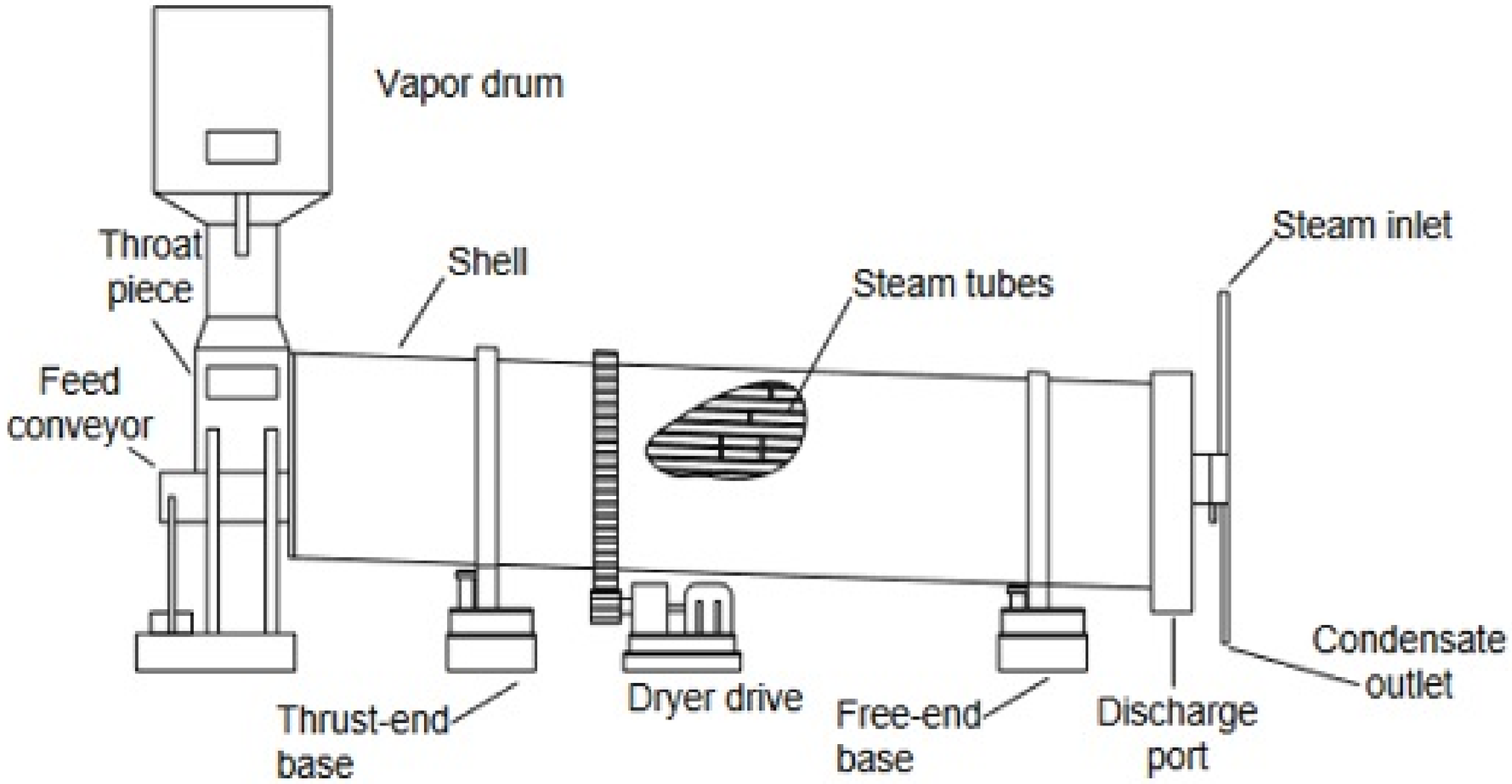

Image courtesy: Hand book of industrial drying by A.S. Maiumdar

ADVANTAGES

Faster Drying and Roasting

Infrared (IR) heating penetrates the material more efficiently, reducing processing time significantly compared to conventional methods.

Better Product Quality

Preserves nutritional value, texture, and flavor better due to shorter processing time and controlled heating.

Compact and Space-Saving Design

IR dryers are generally more compact than traditional dryers, making them ideal for facilities with limited space.

High capacity

Rotary dryers can have a high capacity, which means that they can dry large amounts of material quickly.

Reduced Processing Losses

Minimal over-roasting or scorching leads to higher yield and better quality output.

Versatility

Rotary dryers can be used to dry a wide variety of materials.

Eco-Friendly Operation

Lower emissions and energy usage make infrared drying a more environmentally friendly option.

TRUSTED PARTNERS

AFCONS

Technip

TÜV ISO 14001:2004

TOYO ENGINEERING

EIL

LLOYD'S

ZEPPELIN WE CREATE SOLUTIONS

Reliance Engineering Associates Pvt. Ltd.

TATA CONSULTING ENGINEERS LIMITED

SC Shroff Consultants

STERLING & WILSON

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