One Source

Minerals Rotary Kilns

FLSmidth

The FT Series Rotary Kilns

Kiln shells are designed to resist harsh operating conditions

Shells are rolled to exacting tolerances and are sufficiently strong to accept reason able misalignment, overloads, and thermal stresses. All shop joints are automatically welded. All necessary clamps and bolts are provided for aligning before field welding. Extreme care is exercised in fabrication and inspection. The shell is built to exceptionally close tolerances for roundness and straightness.

Special full-floating riding rings assure smooth, continuous operation

Riding rings are of full-floating design and are machined on all surfaces. The ID of the riding ring and the machined OD of the riding ring pads are designed to have sufficient cold clearance so that the kiln, when hot, will expand into the riding ring for a snug fit. Riding rings are normally steel castings of solid rectangular cross sections, but may also be forgings.

Roller supports with bronze-bushed sleeve bearings

The roller supports on today's Fuller-Traylor Rotary Kilns are the two-roller type, made of either cast or forged steel rollers shrunk onto shafts of medium-carbon forged steel. The two water-cooled sleeve bearings for each roller are bronze-bushed and well-lubricated by oil elevators in the housing. On most kilns, a plate holder is attached to the bearing housing to lubricate the roll surface with graphite. Antifriction bearings are also available on all sizes of support rollers. Thrust mechanism to counteract end thrust- At least one support mechanism in each kiln is normally equipped with a thrust roller with bearings to prevent the kiln from moving uphill or downhill. The thrust mechanism consists of a conical section roller on a vertical axis on each side of the firing ring. Standard practice is to counteract end thrust by a slight adjustment or skewing of the support rollers. However, full-acting thrust rollers are supplied to absorb the full downhill thrust of the kiln. In this design, the thrust bearings are equipped with anti-friction bearings. On large kilns, FLSmidth offers hydraulic thrust mechanisms designed to distribute the thrust over one or more supports.

Weatherproof gear guards

Gear guards, fabricated of steel plate, enclose the main gear and pinion. Guards may be fitted with oil reservoirs and idlers, or automatic spray devices for positive lubrication of the gear and pinion. Weatherproof guards are supplied as standard equipment.

Easy-access firehoods, fire shields, feed end housings, and feed plugs

Standard housings for Fuller-Traylor Rotary Kilns are made of heavy, welded-steel plate. They are fitted with large access doors. A variety of feed end housings and firehood arrangements are available to meet the requirements of individual installations.

Seals isolate kiln atmosphere from air infiltration

Various types of air seals have been devised for both the feed and discharge ends of FLSmidth Rotary Kilns. These seals effectively isolate the atmosphere inside the kiln from air infiltration. The elimination or reduction of air leakage into the exhaust system reduces fan power requirements. Elimination of leakage at the discharge end of the kiln allows more preheated air to be drawn from the cooler to reduce fuel consumption.

Our carbon block seal maintains close contact with shell

Our carbon block seal consists of multiple graphite blocks riding on a prepared surface of the kiln. The blocks are machined to the shell radius, and ride freely between guide rings which maintain radial alignment with respect to the shell. Individual springs ensure contact between replacement of worn blocks without interruption of operation of the kiln. The seal is easy to maintain, is very efficient, and is a favorite of the industry.

FLSmidth rubbing contact seals

FLSmidth's rubbing contact-type seals consist of two rubbing seal rings of dissimilar metal, lubricated with grease or graphite. Rubbing contact is maintained by pneumatic cylinders or counterweights to hold the stationery ring against the rotating ring.

Some of the materials calcined, roasted, nodulized or otherwise processed in rotary kilns are:

- **Alumina**
- **Iron Ores and blast Furnace dust**
- **Bauxite**
- **Sludge as generated in:**
  - **Carbide plants**
  - **Caustic plants**
  - **Sugar refineries**
  - **Water purification plants**
- **Calcium carbonate waste**
- **Catalysts**
- **Clays**
- **Dolomite**
- **Diatomaceous earth**
- **Gold Ores**
- **Ilmenite**
- **Lightweight Aggregate**
- **Lead Minerals**
- **Limestone**
- **Lithium**
- **Magnesia**
- **Magnesite**
- **Manganese ores and compounds**
- **Paint pigments**
- **Petroleum coke**
- **Phosphates**
- **Pyrites**
- **Refractory materials**
- **Zinc minerals**

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Pilot Testing

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When unproven processes are required or calcinations of unusual materials are desired, FLSmidth can help with an excellent Research and Development Group and with well-equipped pilot plant facilities, including a 0.5m x 5m test kiln and a 1m x 10m test kiln. Also available are crushing and grinding machines, muffle furnaces, a complete wet and dry chemical lab, and other facilities to support this activity.

For more information, call or email the FLSmidth office nearest you.

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