



system extend the time between oil changes and reduce the risk of entering of dust particles. Installation is fast and easy. No time consuming adjustments. Our **INTEGRAL DRIVE** is the most economic drive due to its high availability and a mechanical efficiency level of almost 99%.



Tube mill with compact girth gear drive. The girth gear is attached to the mill tube.

The main features at a glance:

- Extremely compact arrangement
- No foundation for the gear reducer
- No complicated drive adjustments
- The motor can be installed separately from the gears
- Does not need to be run in
- Low staffing level for operation monitoring
- Environment-friendly due to light sealing, No grease required
- High availability
- High efficiency level as no coupling required on the mill side

| Mill tube diameter (m) | Length A (m) | Length B (m) | Length C (m) | Length D (m) | Motor max. (kW) |
|------------------------|--------------|--------------|--------------|--------------|-----------------|
| 3.0 | 5.00 | 7.25 | 9.00 | 10.00 | 1,100 |
| 3.4 | 5.50 | 8.25 | 10.50 | 11.50 | 1,750 |
| 3.8 | 5.75 | 9.25 | 11.50 | 12.75 | 2,600 |
| 4.2 | 6.50 | 10.00 | 13.00 | 14.00 | 3,700 |
| 4.6 | 7.25 | 11.00 | 14.00 | 15.25 | 5,100 |
| 5.0 | 8.00 | 12.00 | 15.00 | 16.50 | 6,800 |
| 5.4 | 9.00 | 13.00 | 16.50 | 18.00 | 9,100 |
| 5.8 | 9.50 | 14.00 | 17.50 | 19.00 | 11,500 |

The choice is yours.

Girth gear and pinion drives are sufficient for up to 4,500kW. Our **INTEGRAL DRIVE** is suitable for up to 6,500kW. For mills with a drive power of between 5,000 and 10,000kW, we recommend a classic central drive with fixed planetary gears.

Ready for use anywhere, any time.

Our mills have a tube diameter of up to 6.0 meters and four different tube lengths for each diameter.

The type used depends on the application:

- **Type A and B:** for grinding and drying
- **Type C and D:** for clinker grinding

All mill lengths can be used for two-stage closed circuit grinding. In addition to the standard mills listed, we also manufacture smaller mills for grinding coal. These come with combined trunnion and slide shoe bearings. For extremely hard and abrasive materials and special applications, we supply center-discharge mills.

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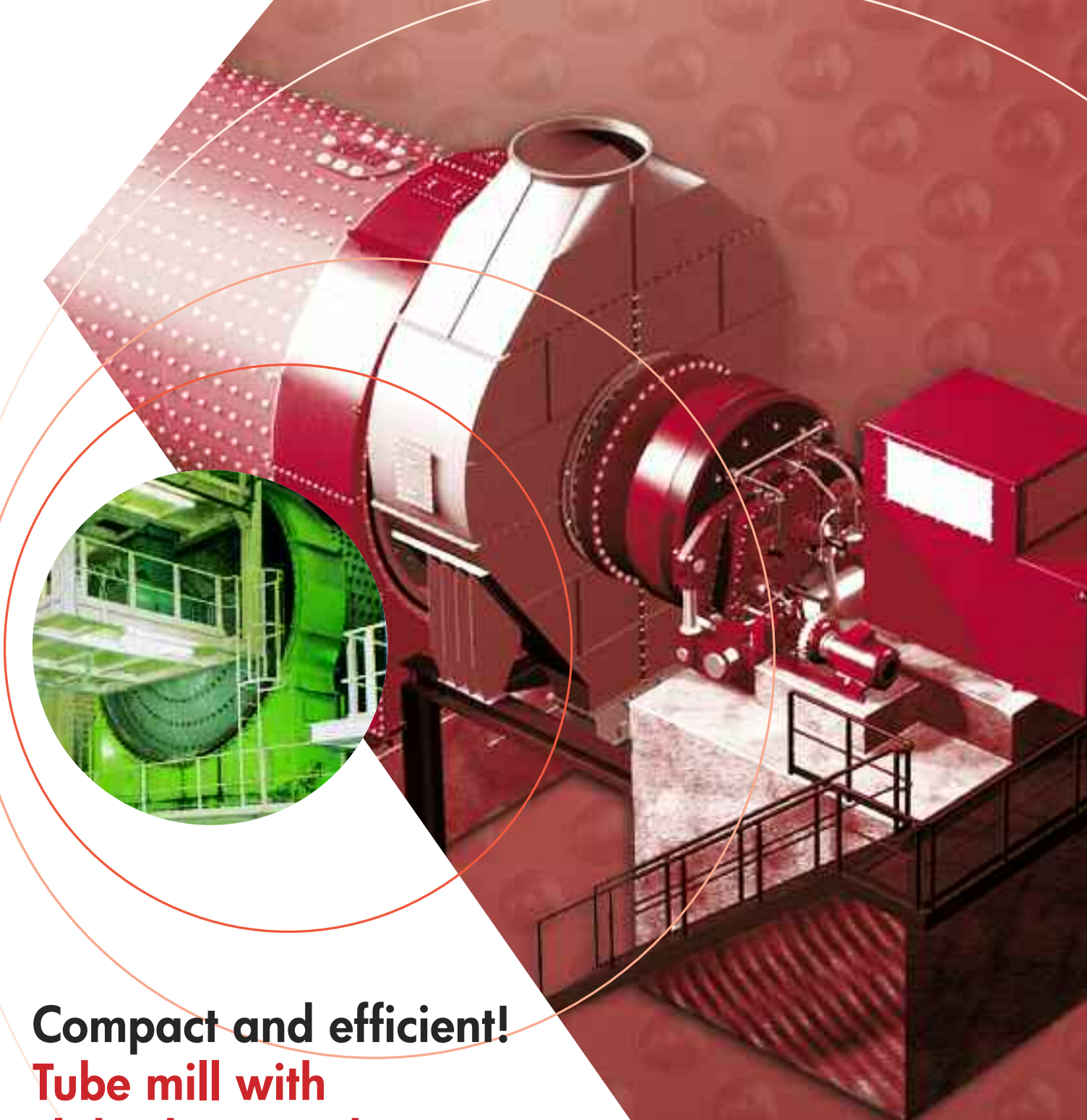
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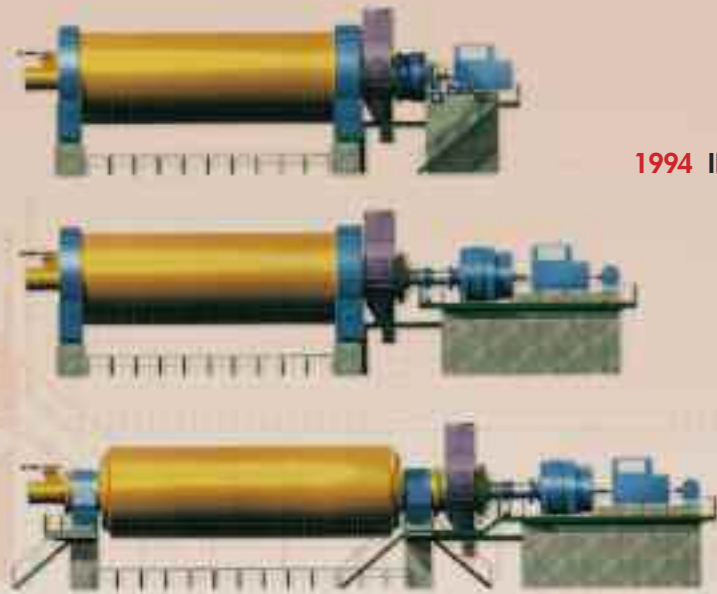
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Compact and efficient! Tube mill with slide shoes and INTEGRAL DRIVE

KHD HUMBOLDT
 WEDAG
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1994 INTEGRAL DRIVE

1989 Slide shoe bearings

1971 Trunnion bearings

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Fitting shoes.

KHD Humboldt Wedag mills are not only becoming increasingly space-saving and compact, they are also particularly high on performance and low on maintenance. This is primarily due to the support bearing design and the mill drive used. The mill is shell-supported, mounted on slide shoe bearings at both ends and made completely as a welded design. The mill with the compact drive version features an **INTEGRAL DRIVE**, whose planetary gear is mounted to the mill flange. KHD Humboldt Wedag mills are the result of the most advanced calculation and simulation methods, backed by years of experience. Worldwide we have designed and built more than 1,000 tube mills.

Easy assembly and maintenance.

The bearings of our mills work on the principles of hydrodynamics and are designed to be self-aligning. Depending on size, two or more slide shoes are provided per bearing. In the case of four-shoe bearings, two

shoes are supported on one rocker arm. These are arranged in a swivel bed for perfect load sharing. The result is a statically sound support. This design can absorb settling movements of the foundation and copes well with temporary mill shell deformation resulting from thermal stress. The opposite bearing blocks are connected



Large tube mill with four-shoe bearings: statically sound and self-aligning.

by adjustable tie rods and supported by a base frame. This construction enables easy adjustment during erection and allows for a simple and economic foundation design.

These shoes fit!

The slide shoes are coated with a special white metal with good temperature

Picture of two of the four-shoe support bearing system

stability and emergency running characteristics. A wedge of lubricant is automatically formed by slanting the bearing surface relative to the sliding surface. The deformation behavior of the slide shoes and slide ring is matched using highly



advanced calculation methods. The film of lubricant remains fully functional even at the lowest relative bearing play ($c=0$). This is particularly advantageous with large mills.

restarted after a stoppage and for bearing lubrication when the inching drive is used.



Mill with slide shoe bearings and inspection window

A hydrostatic high-pressure pump is used to reduce the initial break-away torque when the mill is

Fitting solutions from us ... Tube mills: the drive

Our driving force.

The standard KHD Humboldt Wedag mill is shell-supported on slide shoes and has a central drive. Torque transmission is effected via the conical discharge end. This cone is welded to the mill shell and has openings for the discharge of material and exhaust gases. The drive flange is connected to the end of the cone. In this way, the drive force is distributed directly and evenly to the mill shell.

All standard types of mill drives can be connected, such as:

- Central Drive,
- **INTEGRAL DRIVE,**
- Girth Gear and Pinion Drive.



High on performance, low on space requirements: INTEGRAL DRIVE.

Our mills for minimum space requirements are mounted on slide shoe bearings and have an **INTEGRAL DRIVE**. The core of this drive is a two-stage planetary gear reducer, which is directly mounted on the end cone. Only one short slide seal at the motor end and a closed oil lubrication

